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Cultural Resources Intensive Survey for the Proposed Cypress Creek Hike and Bike Trail for Timber Lane Utility District, Harris County, Texas

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FINAL REPORT

By:

Paul M. Matchen and Trisha-Ann P. Gonzales

Technical Report No. 164944

Prepared for:

Prepared by:

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EXECUTIVE SUMMARY

The Timber Lane Utility District plans to construct a hike and bike trail adjacent to and across Cypress Creek in the unincorporated town of Spring, Harris County, Texas. The project would begin north of Cypress Creek with connection to the existing Timber Lane Park paved trail system and would terminate south of Cypress Creek near Werrington subdivision.

The area of potential effect (APE) includes the construction limits and all areas subject to temporary disturbance during construction. The width of the proposed paved trail varies from 10 feet to 20 feet, with a 14 to 24-foot wide cleared trail corridor, and an assumed depth of 3 ft including signage, landscaping, lighting, and drainage features. Total project length is approximately 13,935 linear feet, located between Timber Lane Park and Werrington subdivision (7.76 acres). Approximately 9,500 feet of existing trail and maintained right of way (ROW) will be improved as part of the project (5.25 acres). Approximately 4,435 feet of trail would be constructed within undeveloped property (2.51 acres). Nine trail heads, five of which are at existing locations, are proposed for the project. The five existing trail heads are located at Timber Lane Park and along Rambling Brook Drive. The four new trail heads would be located at Rambling Brook Drive, Millhouse Road, the Mercer Arboretum, and at Sago Island Drive. Proposed trail head features will include benches, a drinking fountain, and a kiosk presenting a trail map and information. The trail will span across Cypress Creek via three 14-foot wide weathered steel truss bridges, including abutments. The assumed depth of impact will be 12 ft below the surface. The trail will also span a tributary of Cypress Creek, located north of Briarcreek Boulevard, via a similar truss bridge. A retaining wall is also proposed for a portion of the trail located near an unnamed intermittent stream. However, the trail will avoid impacts to stream features and other waterbodies and wetlands located along the project area.

The total project cost has been approved by the Metropolitan Planning Organization of which the federal share is 80 percent. Timber Lane Utility District would be responsible for the remaining 20 percent and for all non-federal or non-state participation costs associated with the proposed project.

A cultural resources survey The APE was assessed in accordance to guidelines set forth in the Antiquities Code of Texas (Section 191.0525) and those in Section 106 of the National Historic Preservation Act (36 CFR Part 800).

From March 5 through March 8, 2013, Paul M. Matchen (Principal Investigator) and Trisha Gonzales (Archeological Field Technician) from the Cultural Resources Department of TRC's Austin office conducted an intensive archeological survey within the project APE. This work involved a 100 percent pedestrian survey and selective shovel testing (N = 28) across the 3.3-mile long tract.

Twenty-eight shovel tests and two deep backhoe trenches were excavated. These subsurface investigations found no significant cultural deposits. In addition, no standing historic structures or cemeteries were observed within the APE during this survey. For these reasons, no eligibility considerations were made for nomination to the National Register of Historic Places (36 CFR 800)

or for nomination as a State Archeological Landmark (Chapter 191). Archeological clearance is recommended for this proposed undertaking by the Timber Lane Utility District within the proposed APE. No further cultural resources investigations are recommended. However, in the event that any human remains are encountered during the undertaking all work should cease immediately and Timber Lane Utility District should notify local law enforcement, who in turn will notify the local medical examiner's office. If these remains are not recent, the Texas Historical Commission should be notified.

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1 INTRODUCTION

1.1 INTRODUCTION

This report details a cultural resources intensive survey located in Spring, Harris County, Texas performed by TRC archeologists on behalf of the Timber Lane Utility covering the APE, 13,780 linear feet (ft) tract, located between Timber Lane Park and Werrington subdivision (see Figure 1-1). Approximately 9,500 feet of existing trail and maintained rights of way (ROWs) will be improved as part of the project. Approximately 4,280 ft of trail would be constructed within undeveloped property.

Specifically, the APE is situated north of Cypress Creek with connection to the existing Timber Lane Park paved trail system and terminates south of Cypress Creek near Werrington subdivision. The APE includes the construction limits and all areas subject to temporary disturbance during construction. The width of the proposed paved trail varies from 10 to 20 ft, with a 14 to 24-foot wide cleared trail corridor, including signage, landscaping, lighting, and drainage features. Total project length is approximately 13,780 linear ft, located between Timber Lane Park and Werrington subdivision. Approximately 9,500 ft of existing trail and maintained rights of way (ROWs) will be improved as part of the project. Approximately 4,280 ft of trail would be constructed within undeveloped property. Nine trail heads, five of which are at existing locations, are proposed for the project. The five existing trail heads are located at Timber Lane Park and along Rambling Brook Drive. The four new trail heads would be located at Rambling Brook Drive, Millhouse Road, within the Mercer Arboretum, and at Sago Island Drive. Proposed trail head features will include benches, a drinking fountain, and a kiosk presenting a trail map and information. The trail will span across Cypress Creek via three 14-foot wide, weathered steel truss bridges, including approaches and abutments. The trail will also span a tributary of Cypress Creek, located north of Briarcreek Boulevard, via a similar truss bridge. A retaining wall is also proposed for a portion of the trail located near an unnamed intermittent stream. However, the trail will avoid impacts to stream features and other water bodies and wetlands located along the project area.

In effect, the APE is being assessed in accordance to guidelines set forth in the Antiquities Code of Texas (Section 191.0525) and those in Section 106 of the National Historic Preservation Act (36 CFR Part 800).

The cultural resource investigation to assess potential impacts to archeological sites by the proposed undertaking was addressed through systematic 100 percent pedestrian survey that included shovel testing and mechanical backhoe trenching as a means to assess subsurface soils. This pedestrian survey was performed along the entire extent of the APE to look for surficial cultural materials. Field methods were in compliance with the THC's *Archeological Survey*

Standards for Texas which provides guidance for survey coverage. With involvement of oversight agencies at the state and federal levels, any cultural resources sites located during this investigation would be assessed for eligibility for nomination both as a State Archeological Landmark (SAL) and National Register of Historic Places (NRHP) site. The results of this intensive archeological survey are presented in the following chapters.

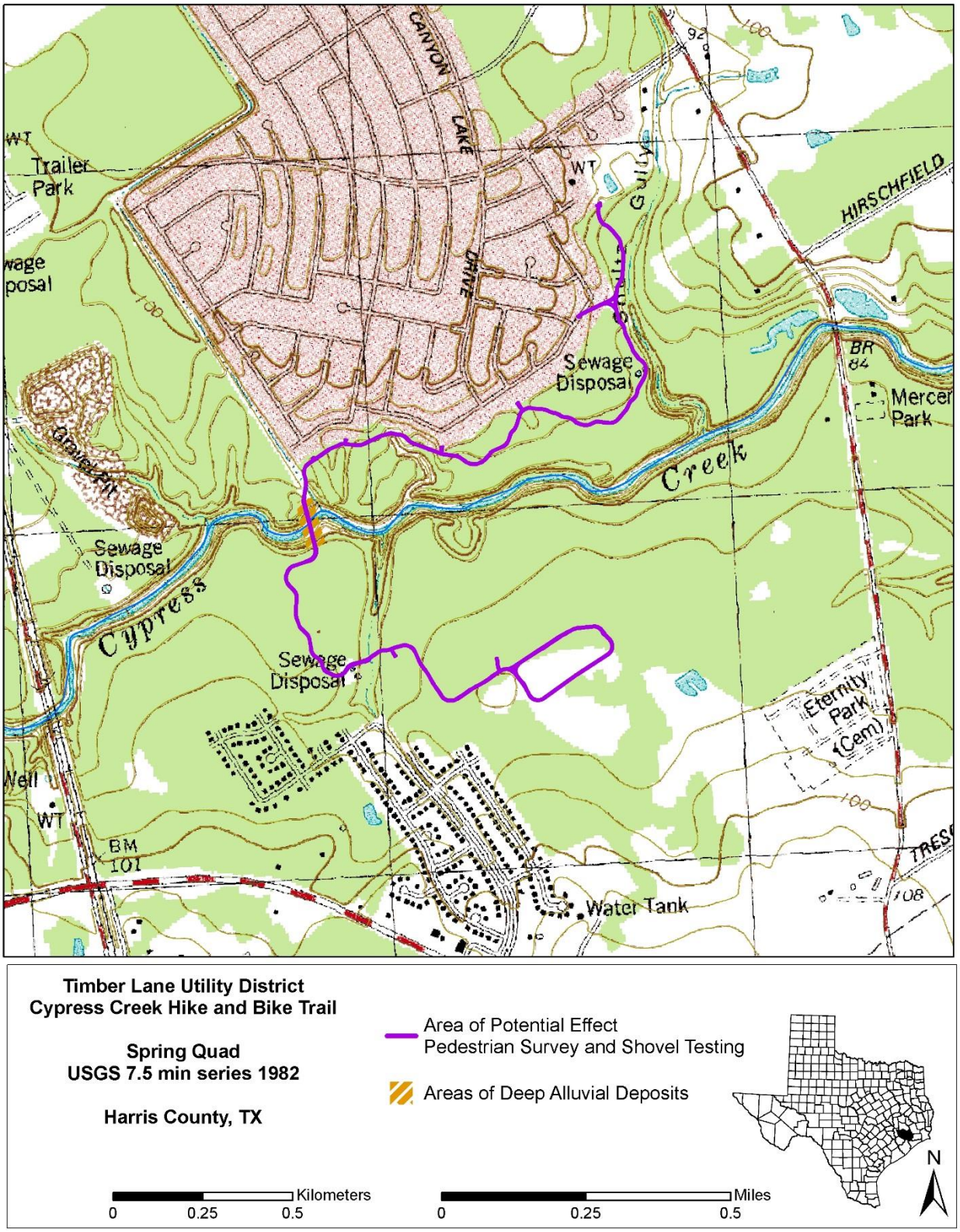

Figure 1-1. Project Location in Spring, Texas.

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2 ENVIRONMENTAL SETTING

2.1 PHYSIOGRAPHY

The APE is in Harris County, in the unincorporated town of Spring, Texas, 25 miles north of Houston, east of Hwy 548 Spur/Hardy Toll Road along Cypress Creek (Figure 2-1). It was converted into a hike and bike trail within a dense tree area that shares the area with Mercer Arboretum, Timber Lane and Memorial Hills waste water treatment plants and houses. Griffith and Omernik (2009) describe the APE as the North Humid Gulf Coastal Prairies. The North Humid Gulf Coastal Prairies consisted of grasslands with oak mottes or maritime woodland areas prior to settlement. Historically, the "Old Town Spring" land was largely used to cultivate crops. Presently, it is also used for ranges, pastures or urban structures.

Figure 2-1. View of Cypress Creek, looking west.

2.2 GEOLOGY

According to the Geologic Atlas of Texas, Beaumont Sheet describes the majority of the APE as Lissie formation (Ql, 95 percent) with fluviatile terrace deposits undivided (Qt). Lissie consists of a Pleistocene aged formation (Barnes 1974). The upper portion of the formation is mostly silty, sandy clay, with small pebbles and increased gravels to the north. Calcareous clays concretionary masses are common with iron oxide common near top. The Lissie formation has some shallow depressions but mainly flat surface. The lower 200 feet of the formation is composed of courser gravels with the same clay, silt and sand as the upper portion. (Barnes 1974).

2.3 CLIMATE

The climate of Harris County is humid, subtropical with hot summers of July temperatures around 93 degrees Fahrenheit (° F) and mild winters with January's low of 44° F (Wheeler et al. 1976). Precipitation averages between 3.2 and 5.93 centimeters (cm) a month with an average yearly total about 49.7 cm. Peaks of moisture are usually in the spring and early fall with August being the hottest month. The average daily high temperatures range from 63° F in January to 95° F in August. The average low temperatures range from 43° F in January to 75° F in July and August.

2.4 SOILS

The APE is predominately covered with Pleistocene-aged deposits with a corridor of Holocene alluvium surrounding the channel of Cypress Creek (Figure 2-2). According to the United States Department of Agriculture (USDA), National Resources Conservation Service (Web soil survey) accessed on December 19, 2012, the northern portion of the APE is Atasco series (AtB) fine loam 25 percent and 35 percent Gessner (Ge) loam. The southern portion of the APE is 30 percent Clodine loam (Cd) and 5 percent Wockley (Wo) and 5 percent Voss (Vo).

Atasco (AtB)

AtB are Atasco fine sandy loam soils that are moderately well drained, and very slowly permeable. The parent material is loamy fluviomarine deposits of late Pleistocene age. These soils are usually found on the oblong or oval terraces of river valleys or natural drainages with a slope of 1 to 4 percent, averaging (ave.) 2.5 percent. These soils are best used for pasture or timber production.

The AtB surface layer is about 5 inches thick of crumbly, dark grayish brown, strongly acidic soils. The next layer of soil, at 5-11 inches, is crumbly, less acidic, fine sandy loam with a light yellowish brown color. At 11-14 inches the matrix is crumbly, brownish yellow sandy clay loam interspersed with small streaks of very strongly acidic, fine sandy loam. At 14-60 inches the soil is firm, yellowish brown, strongly acidic clay with the lower portion mottled with red clay.

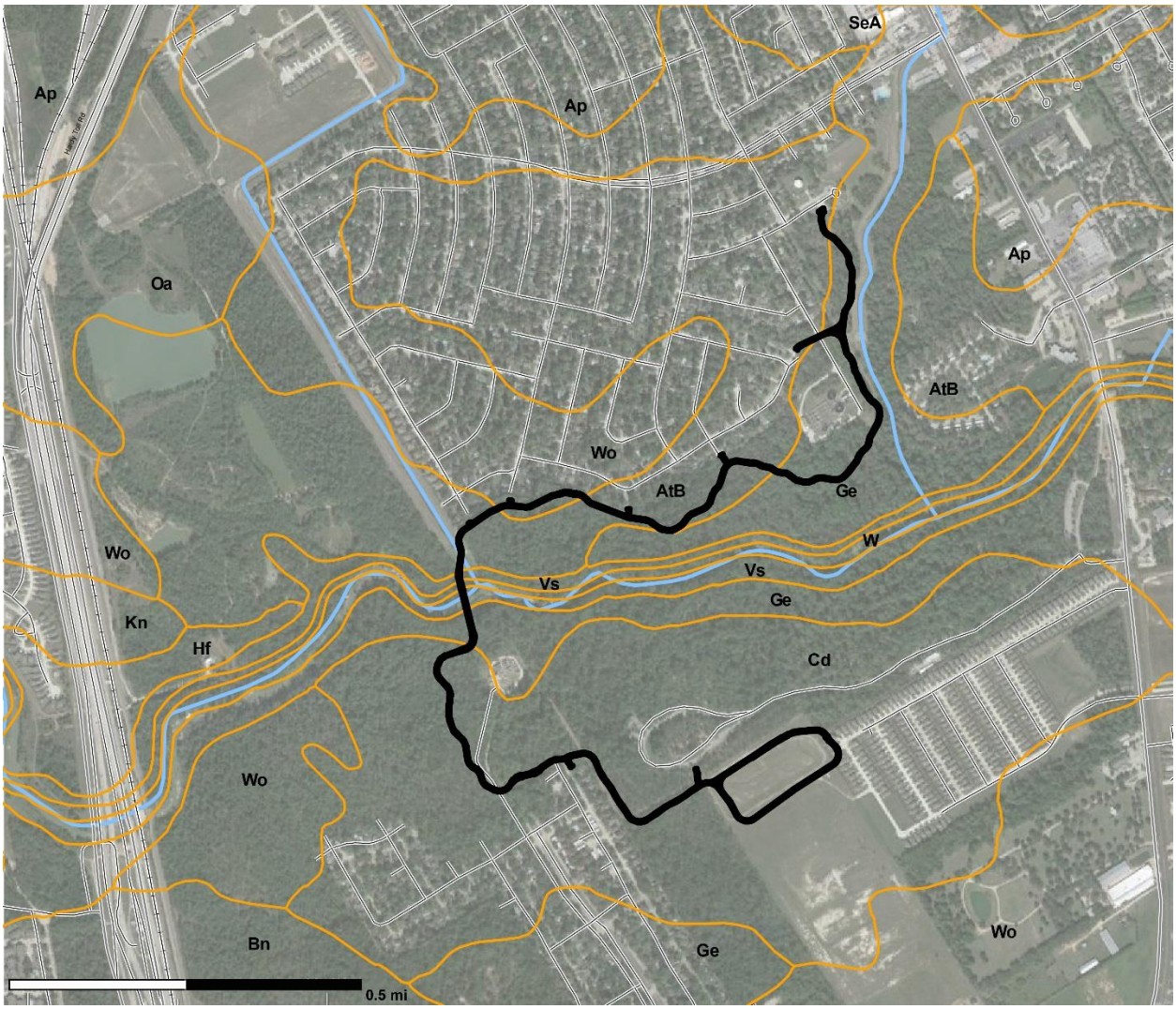

Figure 2-2. Soils map of project area.

Gessner (Ge)

Ge series is nearly level with 0 to 1 percent slope, (average of 0.5 percent) on small, round depressions found within coastal plains. They are deep loamy fluviomarine deposits of early Pleistocene age. They are acid to alkaline soils, moderate in permeability but drain poorly. Because of its lower level on the landscape, the runoff water pools from surrounding areas, only dissipating from the slow process of evaporation and absorption. The high water content causes difficulty for these soils to be used as farmland so they are usually used for pastures or rice.

From the surface to 7 inches depth, the soil described as crumbly, slightly acidic, dark grayish brown loam. Between 7 and 9 inches depth, the soil is slightly acidic, friable grayish brown that mottles with the layer below. At 9 to 18 inches, the soil is neutral, crumbly dark gray loam with subtly increased clay. From 18-37 inches, the matrix is moderately alkaline, friable light brownish

gray loam. Finally, from 37-84 inches is moderately alkaline soil, that is crumbly light gray sandy clay loam with yellowish brown and brownish yellow mottling.

Clodine (Cd)

Clodine soils are deep loamy fluviomarine deposits of Late Pleistocene age. They are poorly drained, moderately permeable soils on flat coastal plains with 0 to 1 percent (ave. 0.5) slopes. Clodine loam is prime farmland when drained but are mainly used for pasture or rice because of its high saturation level from 3 to 6 months of the year. Forests of oak and pine can be found in some areas.

Clodine surface to 12 inches thick is friable, dark gray loam with a neutral upper portion and moderate alkaline lower portion. At 12-17 inches, it consists of friable or crumbly gray loam with moderate alkalinity. Light brownish gray loam, moderate alkaline soils with calcium carbonate nodules describes the next layer from 17-72 inches.

Wockley (Wo)

The Wockley soils are deep, fine sandy loam, fluviomarine deposits from the Late Pliocene to Early Pleistocene age. Wo is found on low hills on coastal plains with 0-1 percent slopes, averaging 0.3 percent Wockley soils are somewhat poorly drained due to slow surface runoff and moderately slow permeability. This causes extra water on the surface that only certain crops can withstand such as rice, corn or peanuts but is often used for grazing.

From the surface to 7 inches is a layer of strongly acidic, crumbly dark grayish brown sandy loam. From approximately 7 to 22 inches is medium acidic, crumbly fine sandy loam that is brown in color. At 22 to33 inches, the clay content increases and is described as friable, brown sandy clay loam with medium acidity, mottled with light gray, red and yellowish brown.

Voss soils (Vs)

Voss (Vs) are found mainly on river valley floodplains or sandbars with a slope of 0 to 3 percent but average 1.0 percent. These soils are rapidly permeable and moderately well to somewhat poorly drained. They are formed in oblong or crescent shapes with smooth boundaries from water erosion. Although they are nearly level, the low areas tend to flood particularly during heavy rains or when the water increases in the adjacent creeks. Voss soils have a parent material from the Holocene age consisting of sandy alluvium, making it prime for grazing. The wooded areas along streams and creeks are optimal for a wild life habitat. The soils can be used golf course sand or construction materials.

Surface to 4 inches are loose sand with medium acidity of dark grayish brown color. From 4-22 inches, the soil is neutral, loose, and light gray sand. From approximately 22 to 60 inches, Voss soils are very pale brown sand.

2.5 FLORA AND FAUNA

The North Humid Gulf Coastal Prairies, historically, had mostly native grasslands with areas of oak (Figure 2-3) groups known as oak mottes or maritime woodlands (Griffith et al, 2009). Common species identified for the upland forested land included shortleaf pine (Pinus echinata), loblolly pine (Pinus taeda), water oak (Quercus nigra), post oak (Quercus stellata), blackjack oak (Quercus marilandica), American elm, winged elm (Ulmus alata), sugarberry, sweetgum, Chinese tallow, mockernut hickory (Carya alba), eastern cottonwood (Populus deltoides), American sycamore, American holly (Ilex opaca), red mulberry (Morus rubra), boxelder, Japanese privet (Ligustrum japonicum), Chinese privet (Ligustrum sinense), yaupon (Ilex vomitoria), American beautyberry (Callicarpa americana), trifoliate orange (Poncirus trifoliata), muscadine (Vitis rotundifolia), poison ivy (Toxicodendron radicans), Virginia creeper (Parthenocissus quinquefolia), Alabama supplejack (Berchemia scandens), saw greenbrier (Smilax bona-nox), cat greenbrier (Smilax glauca), southern dewberry (Rubus trivialis), Japanese climbing fern (Lygodium japonicum), dwarf palmetto (Sabal minor), white crownbeard (Verbesina virginica), smooth elephantsfoot (Elephantopus nudatus), straggler daisy
(Calyptocarpus vialis), vetch (Vicia sp.), woodsorrel (Oxalis sp.), Cherokee sedge (Carex cherokeeinsis), Indian woodoats (Chasmanthium latifolium), and longleaf woodoats (Chasmanthium sessiliflorum). Dominant grasses included little bluestem (*Schizachyrium scoparium*), brownseed paspalum (*Paspalum plicatulum*), gulf muhly (*Muhlenbergia sp.)*, yellow Indiangrass (*Sorghastrum nutans*), and switchgrass (*Panicum virgatum*). The majority of these grasslands along the coastal prairie region have been altered for crops, ranges, pastures or urban settings. Typical game species today include mourning dove (*Zenaida macroura*), northern river otter (Lontra canadensis), marsh rice rat (*Oryzomys sp.)* diamond back *(Crotalus sp.)* and coyote (Canis latrans).

Figure 2-3. View of typical vegetation in wooded areas between Trail Head #1 and Trail Head #3.

3 CULTURAL BACKGROUND

3.1 INTRODUCTION

Archeologists in Texas have assigned cultural regions to portions of Texas (Perttula 2004) that generally correspond to various physiographic characteristics of the areas. Few in-depth excavations have been conducted in south Texas since the 1960s (Hester 2004:128). As Hester (2004) has observed, the evidence of human occupation is abundant, but has proved challenging to establishing a chronological sequence of events and interpreting past human lifeways. Open surface occupation sites are the most frequent archeological site found across this region. These are usually found to be heavily eroded with large expanses of archeological material on the disturbed surface. Other site types identified include lithic caches, cooking hearths, pit features, bone clusters, human burials, worked shells, and activity areas (Hester 1969, 1976, 1978a, 1978b, 1980, 1983, 1994, 1995, 2004; Collins et al. 1969; Prewitt 1974). The typical streamside open campsite in extreme south Texas occurs commonly in long and narrow occupation zones. These strips frequently represent single, thin occupational deposits that rarely overlap.

The archeological manifestations of south Texas are divided into four broad time periods: the Paleoindian, Archaic, Late Prehistoric, and Historic periods (Black 1989; Hester et al. 1969; Hester 1995, 2004). A brief synthesis of the key characteristics of these four periods is presented below.

3.2 PALEOINDIAN PERIOD

The general time period of the Paleoindian is from about 11,500 to around 8,000 Before Present (B.P.). The defining artifactual characteristic of the Paleoindian period is considered the large lanceolate projectiles that include common types such as Clovis, Folsom, Midland, Plainview, and Agate Basin. These points were used to tip the shafts of spears. Generally, the economic reliance was thought to have focused primarily on big game hunting, although recently a more diverse subsistence base has come to light (Hester 1983; Johnson 1987). The earliest groups in the Clovis period are thought to have had subsisted upon diverse and extinct big game, but the groups after about 11,000 years ago focused on extinct bison as the principal animal resource. Given a mobile food resource such as bison, it is believed that most Paleoindian populations were constantly on the move following the game animals and therefore very nomadic hunters. Although many Paleoindian projectile points have been recovered in the region, very few well excavated and reported Paleoindian site investigations have been completed in south Texas.

Areas in south Texas where Clovis points have been found include sites in Wilson and Dimmit counties (Kelly 1988), Atascosa County (Hester et al. 1993, and just south of Falcon Reservoir in Mexico. In the same token, several Folsom-aged points have also been located throughout south Texas (Bettis 1997).

Site types from the early Paleoindian period in South Texas are mainly limited to tool manufacturing localities. Later Paleoindian cultural manifestations, including those that exhibit Plainview, Scottsbluff, and Angostura artifacts, do not fare much better. St. Mary's Hall site, a discrete camp site and reduction locality in Bexar County, Texas, is one exception (Hester 1990). Faunal kill and butchering sites are not known in south Texas. Any large fauna found from this period is usually in secondary deposits along stream beds (Hester 2004:133). Sites dating to this Paleoindian period lack the large concentrations of burned rocks and burned rock features that are common in the subsequent Archaic period.

3.3 ARCHAIC PERIOD

Following the Paleoindian period, the Archaic extended from about 8,500 to about 1,500 B.P. This period is generally divided into shorter time units that are labeled as Early, Middle, and Late Archaic. In the south Texas region, few sites of the Archaic period have been intensively excavated and reported upon. The Archaic population appears to have diversified their subsistence utilizing an array of plant and animal resources. With this diverse economy came intensive use of many diverse burned rock cooking features. The projectile point forms also changed to smaller, stemmed and notched forms that were used to tip dart shafts used with the atlatl (spear thrower). Large herds of bison were apparently not as frequent as during Paleoindian times and the plant foods more localized, therefore the groups were thought to have been more regional. Together with more regional economics came an apparent increase in population size and density.

The Early Archaic is considered to have occurred from about 8,500 to 5,000 B.P. This is a period generally associated with the mid-Holocene Altithermal or Atlantic interval, a dry and warm period (Hofman 1989:45). The Early Archaic is characterized by several new tool forms including grinding tools and gouges, but the latter possibly appeared even earlier. Hester (1989) recognizes two primary cultural horizons in the Early Archaic, early corner-notched projectile users and early basal-notched users. Both horizons have comparable projectile point affinities (Martindale-Uvalde-Baker-Bandy) in adjacent cultural regions of Texas. In South Texas, the early corner-notched using peoples are poorly understood. Hester suggests that these peoples may have operated as small bands that were highly mobile and wide ranging due to the arid climatic conditions modeled for this timeframe (Hester 2004:137; Story 1985). Early basal notched point users include Bell, Andice, and Calf Creek peoples (Wyckoff 1995). This horizon seems to extend from the Texas coast up through the United States Central Plains (i.e., Kansas). Whether these points were used primarily for hunting or cutting has been pondered for some time. Bement et al. (2005) documented a *Bison occidentalis* skull that, through Magnetic Resonance Imaging, was shown to have a basally notched point embedded in it. This corroborated the use of the form at least partly as a hunting implement.

The Middle Archaic period is considered to be from about 5,000 to 2,500 B.P. Triangular dart points, such as the Tortugas and Abasolo are most common throughout this period. Studies of

impact trauma to triangular point tips confirm that at least in some part these were used as projectiles (Bettis 1997). Other tools found in association with triangular points of this period include beveled varieties that may have been used for wood-working tasks (Hester et al. 1973). The production of formally modified flakes (dorsally-flaked/beveled), like the Nueces tool (Hester et al. 1969), show evidence of extensive resharpening (i.e., curated) of tool forms. Middle Archaic open camp sites have been found along stream channels, but are also known to have existed on floodplains and natural levees (Hester 2004:139).

The Late Archaic period has been defined in south Texas to range from 2,500 to 1,500 B.P. The precise timing of this division is not well established since so few threshold sites have been excavated and radiocarbon dates from good context are infrequent. Excavated components in the Late Archaic, however, are much more numerous than their earlier predecessors. Point types are generally of the stemmed variety (e.g., Marcos, Shumla, Ensor, and Montell points). The Choke Canyon investigations yielded 44 sites that exhibited artifacts of Late Archaic association. Many of these sites had fire cracked rock features (earth ovens and hearths). Interestingly, grinding implements were recovered in this area, which give some insight into intensification of plant resources such as mesquite beans and various types of grain (Brown et al. 1982). Preservation of faunal remains also indicates an intensification of small and large mammal. It is not uncommon for Late Archaic period camp sites to be situated along stream channels.

At the end of the Late Archaic, stemmed point varieties also are observed at sites that represent a different artifact sequence, termed Late Prehistoric. In many cases, this late portion of the Late Archaic is termed the Terminal Archaic. Among other things, this timeframe reflects a change or innovation in technological prowess from spear-based dart use (which is hand or atlatl propelled) to bow and arrow powered projectiles.

3.4 LATE PREHISTORIC (1500 TO 500 B.P.)

This covers a period from about 1,500 B.P. to about 500 B.P. when the European exploration and settlement began to occur in the region. The Late Prehistoric period is marked by the introduction of the bow and arrow as the principal weaponry system and the beginning of pottery making. Agriculture is also considered a major innovation during this period. It is assumed that these technological innovations had profound effects on the regional populations.

Most researchers divide the Late Prehistoric period into early (1,500 to 1,000 B.P.) and Late (1,000 to 500 B.P.). For the early Late Prehistoric sub period in the southern region of Texas, there seems to be an overlap of dart-using (e.g., Ensor, Catan, Zavala point using peoples). The exact circumstances under which they are present at later sites are unknown but possibilities include recycling and/or co-mingling of technologies (Creel et al. 1979). Some of the earliest evidence of bow and arrow technology may be the occurrence of Edwards and Scallorn points across multiple regions of Texas. Perdiz points also occur in this period. Exactly how these groups manifested or interacted is uncertain. Several broad cultural complexes have been identified including the

Kawakawa (coastal bands) and Coahuiltecan (inland groups) (Ricklis 1996). These cultural groups were lumped together in what was referred to as the Western Gulf culture area (Newcomb 1961). A third group, the Toyah culture (typically thought to be primarily bison hunters), also seems ever-present across central, coastal and south Texas (Ricklis 2004).

One of the primary indicators of Late Prehistoric period peoples is the introduction and use of pottery. Bone (Leon Plain) and shell tempered specimens are prevalent in occupations throughout south Texas in this period. The increased use of pottery suggest a more sedentary existence that involves less frequent travel and focus on more intensive subsistence activities, such as horticulture. Prominent archeological sites of this period include Loma Sandia, Tortuga Flat (41ZV155), and Falcon Reservoir Project (Hester 2004).

3.5 PROTOHISTORIC PERIOD (500 TO 200 B.P.) AND HISTORIC PERIOD (200 B.P. TO 50 B.P.)

Excavated archeological data is also scarce for these two periods, beginning with the arrival of the first Europeans exploring the broad unknown territories. This generally reflects a period from about 500 B.P. to the present. Identified cultural resource sites in the region have not been assigned to any specific native groups and the cultural material left behind may not be characteristic enough to actually assign a cultural assemblage to a named group. Again, the lack of major excavations has limited the data necessary to address which groups were using this region at the time of European settlement. Various authors have researched and discussed the various groups that might have occupied the land across south Texas (Ruecking 1955; Campbell and Campbell 1981; Campbell 1983, 1991; Salinas 1990).

3.5.1 Historic Period (1500 A.D. to Present)

The discussion below is based upon and/or paraphrased from the county history discussion regarding Harris County posted on *Handbook of Texas Online* (Severance 2010, accessed 12/20/2012). When possible, additional information has been added to highlight various important historical aspects relevant to this project.

Harris County, previously named Harrisburg District, was claimed by the Spanish along with the present day Texas Gulf Coast. Between 1528 and 1821 few Europeans visited except for those looking to trade with the Natives living in the area such as French traders from Louisiana visited the Natives in the Spring Creek area sometime between 1730 and 1745. To limit the illegal trading, the Spanish built an outpost called El Orcoquisac in 1756 in Wallisville, Chambers County. As the contact with the Natives increased, so did the devastating diseases that caused a drastic decrease in Native population.

Between 1815 and 1820 the first Anglo-Americans traveled from New Orleans in support of the Mexican rebellion against Spain. The Mexican independence treaty was signed in 1821. Southerners with black slaves began settling in Harrisburg County in July 1824 mainly by water bodies. They used this rich land for cultivating crops and raising cattle. The port of Galveston was established in 1825 which gave way to the immigrant populations in the surrounding areas. The

Republic of Texas was then formed in 1835 and by 1839 the county was renamed Harris County after John R. Harris.

Artisans, merchants and farmers of German and French decent began to settle in Harris County in 1840. At this time successful dairy farms were on the rise in the north and west Houston areas, which helped spark an influx of interested farmers.

The Brazos and Colorado railroads as well as expanded water ways gave way to increased shipments of goods such as sugar and cotton. After the Civil War, the plots of land surrounding the railways were settled creating new towns and settlements. Small towns of Spring and Tomball are prime examples of this, with the main income from farming and lumbering.

In the early 20th century, oil gave way to increased populations in towns like Humble while agriculture remained specifically rice farming in towns east of San Jacinto. These towns had various exported goods like oil, iron ore, automobiles, coffee and molasses.

The surrounding area saw some tough times in the early to mid-1900s with overproduction causing prices to plummet, followed by natural disasters like floods, hurricanes and droughts. These disasters forced farmers into foreclosure, tenant farming or sharecropping.
Harris County became the largest populated county in Texas by 1930s.

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4 RESEARCH OBJECTIVES AND METHODS

4.1 INTRODUCTION

The principal goals of the archeological survey were to locate cultural resources sites via trenching, pedestrian survey and shovel testing in the APE. This strategy was approved by the THC and was conducted in partial fulfillment of Texas Antiquities Permit # 6481. Fieldwork, laboratory analyses, documentation, reporting were conducted in compliance with the standards of the THC.

This cultural resource survey was undertaken in part to apply the Secretary of Interior's Standards for identification of potential historic properties (48 FR 44720-44721), generally referred to as Phase I of the Section 106 Process (36 CFR 800.3-800.13). Specifically, the intentions of this cultural resource survey under these guidelines were to:

- Determine if there were previously recorded sites in the immediate area or cultural material present within the APE.
- If cultural materials were present within the APE, determine if these materials were contained in archeological deposits that can be identified as one or more sites.
- If archeological deposits were present within the APE, determine the spatial extent of these materials.
- If archeological deposits were present within the APE, attempt to determine the general cultural affiliation of these deposits.
- If sites were present within the APE, assess the integrity and potential significance of archeological deposits regarding their nomination to the National Register of Historic Places (NRHP).

The criteria for determining the eligibility of a prehistoric or historic cultural property for designation as an SAL are presented in Chapter 191, Subchapter D, Section 191.092 of the Texas Antiquities Code. These criteria are similar to the criteria used in assessing the eligibility of a property for inclusion in the NRHP:

> Sites, objects, buildings, artifacts, implements, and locations of historical, archeological, scientific, or educational interest including those pertaining to prehistoric and historical American Indians or aboriginal campsites, dwellings, and habitation sites, their artifacts and implements of culture, as well as archeological sites of every character that are located in, on, or under the surface of any land belonging to the State of Texas or to any county, city, or political subdivision of

the state are state archeological landmarks and are eligible for designation (Section 191.092(a)).

For the purposes of assessing the eligibility of a historic property for designation as an SAL, a historic site, structure, or building has historical interest if the site, structure, or building:

- [W]as the site of an event that has significance in the history of the United States or the State of Texas;
- [W]as significantly associated with the life of a famous person;
- [W]as significantly associated with an event that symbolizes an important principle or ideal;
- [R]epresents a distinctive architectural type and has value as an example of a period, style, or construction technique; or,
- [I]s important as part of the heritage of a religious organization, ethic group, or local society (Section 191.092(b)).

4.2 SITE FILE SEARCH

Prior to performing the fieldwork, archival documents pertaining to the property's recent history (e.g., Anglo-American settlements) were consulted. The Texas Historic Commission (THC) Archeological Sites Atlas (Atlas) was consulted on February 28, 2012 and updated on December 13, 2012 using the Texas Archeological Sites Atlas (Atlas) maintained by the Texas Historical Commission (THC). No previously recorded cultural resources (archeological sites, cemeteries, historical landmarks, NRHP structures, historic districts) were found to have been documented within the APE. A one-mile radius from the APE boundary was also assessed to determine the location of previous cultural resource projects and presence of documented cultural resources.

According to the THC atlas, a portion of the APE has been subjected to a cultural resources survey. Two archeological surveys have been performed within the one-mile search radius. The United States Corps of Engineers, Vicksburg District (COE-VD) funded a cultural resources survey in 1978 with no additional information available regarding the survey. A portion of the 1978 project corridor is situated within northwestern portion of the APE. A second cultural resources linear survey was performed in 1990 for the United States Corps of Engineers, Vicksburg District (COE-VD) along the Cypress Creek. Five archeological sites (41HR362, 41HR363, 41HR364 and 41HR377) were recorded during this survey within a one-mile radius of this APE. Site 41HR570 was found independently but also within the one-mile radius.

1) **41HR362**. This site is located approximately 459 feet (139.9 m) east of the APE. It is a prehistoric campsite determined by the test pits that yielded lithic debitage. The site was recorded by C. Magan and F. Brezik in 1978 during the Cypress Creek Survey. Further testing was recommended.

2) **41HR363**.This site is located approximately 90 feet (28.9 m) south of the APE between Trailheads 3 and 4. It is a prehistoric campsite recorded by Tommy Nukols and Tom Hole in 1978 as part of the Cypress Creek Survey. Three shovel tests yielded lithic debitage and a tooth, possibly deer. The recommendation was to do further testing.

3) **41HR364**. The site is located approximately 4,301.50 feet (1311.09 m) east of the proposed project location. It is prehistoric campsite found by varied surface collection of a ceramic sherd and projectile points described as dart and Perdiz-like. The site was recorded with the Cypress Creek survey in 1978 by Tom Hale, recommending testing on high ground above cutbanks.

4) **41HR377**. The site is located approximately 3,395.9 feet (1035.07 m) east of the proposed project location. It is prehistoric campsite found in a cutbank surface collection of a ceramic sherds and projectile points described as dart points. The site was recorded in 1978 by Tom Hale, recommending further testing.

5) **41HR570**. The site is located approximately 1,148.5 feet (350.06m) southeast of the proposed project location (approximate site area of 25 square meters or larger). It is prehistoric site possibly a lithic scatter deposited between 30-55 centimeters below surface (cmbs) recovered in three shovel tests. The site was recorded in 1985 by Roger G. Moore, M.A, an independent consultant from Rice University, department of Anthropology sponsored by Mercer Arboretum, Harris County parks planning department. It is estimated to be 100% intact with a potential for SAL.Moore recommended to preserve this site.

The THC Atlas also documents Calvary Hill Cemetery approximately 3,189.42 feet (972.13 m) south of the proposed APE. The earliest burial listed as 1955.

The atlas search found no National Register properties or historic landmarks documented within one-mile of the APE. In addition to the Atlas search, historic maps depicting the APE were consulted to determine if historic structures or features were present within the APE However, none were present.

4.3 CONDITIONS, EXISTING DISTURBANCES AND EXPECTATIONS FOR ARCHEOLOGICAL INTEGRITY

Geological and soils maps identified only a small portion of the APE as an alluvial setting and the other half as Pleistocene-aged fluviomarine deposits. The background review identified cultural resources (41HR363) within 90 ft the APE. The area associated with the site, although near an existing subdivision (Between Trailheads #2 and #3), had the likelihood of possessing intact deposits. Based on these characteristics, only a small portion of the APE bordering Cypress Creek has the potential for intact deeply buried cultural deposits. Both sides of the Creek were investigated using a backhoe. The remainder of the APE has the potential of intact deposits up to 3 ft below the ground surface

and was examined through pedestrian survey and shovel testing. Any potential cultural materials within the APE could have had the requisite integrity of location design, materials and association for NRHP eligibility consideration.

4.4 METHODOLOGY

Field investigations involved subsurface mechanical trenching via backhoe, where deep Holocene-aged alluvial deposits are present within the APE along the north and south banks at Cypress Creek. Two deep trenches were excavated to a depth of approximately 12 feet (ft), an approximate width of 8 ft, and an approximate length of 10 to 14 ft. Each trench profile has been examined for buried archeological deposits and recorded. Pursuant to the THC Archeological Survey Standards for Texas, shovel tests (STs) were performed in multiple locations along the proposed trail at an average of 16 STs per linear mile; where there is reason to believe Holocene deposits terminate within 1 meter (approximately 3 feet) depth from the ground surface. If archeological sites were encountered, an additional six STs were performed per archeological site to delineate horizontal extent. Specifically, STs consisted of 30-cm-diameter shovel test pits excavated to various depths depending on subsurface conditions and the depth of pre-Holocene deposits. No shovel tests were placed in disturbed areas. All sediments excavated via shovel testing were "dry screened" through one quarter inch mesh.

This survey performed under this permit abided by a "no collection" policy regarding cultural materials on public and private lands. Diagnostic artifacts were photographed and documented during the survey before being returned to the ground surface, the backfill of the shovel test, or backhoe trench where they were found. Although none were found, any cultural features encountered in the field were to be examined, photographed and sketched in the field.

Given that there are no known cemeteries within or near this project area (APE), TRC did not expect to encounter human burials. If human remains had been encountered encountered during the field investigation, however, TRC would have notified THC and other appropriate parties of the discovery of a burial. Once given approval, TRC would have 1) employed appropriate, minimally-destructive methods to identify additional burials in adjacent areas; 2) taken appropriate action to protect all identified burials from disturbance; and 3) complied with all applicable statutes, regulations, and rules regarding burial treatment and disinterment.

In the event that a historic or prehistoric site had been discovered based on surface inspection, shovel testing, and/or backhoe trenching, the site would have been recorded up to the edges of the project APE.

A State of Texas Archeological Data Site Form via Texsite 3.0 was to be completed for any new or revisited cultural resource site encountered during the survey.

Universal Transverse Mercator (UTM) coordinates were used to document each shovel test location using a hand-held Global Positioning System (GPS) unit capable of 3 m accuracy. Once shovel test investigations were completed, the pits were backfilled. The surface was returned (as much as possible) to its original condition.

Photos were taken of the general setting and conditions throughout the APE. A photo log was maintained for digital images. The photo log documented the subject, date, photographer, and camera orientation.

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5 INTENSIVE SURVEY RESULTS

5.1 INTRODUCTION

As stated in the previous chapter, this cultural resources survey involved a 100 percent pedestrian survey, shovel testing, and mechanical trenching across the APE for the proposed pedestrian bridges and hike and bike trail. This property was observed to be heavily vegetated pine and mixed hardwood tree stands and small brush, (see Figure 4-1). With a rate of one shovel test every 100 linear meters, TRC expected to excavate an average of 48 shovel tests during the course of this cultural resources survey.

5.2 PEDESTRIAN SURVEY OBSERVATIONS AND SHOVEL TEST RESULTS

The pedestrian survey began at the easternmost trailhead (#1) and proceeded west and south along the existing hike and bike trail (Figure 5-1). Two archeologists walked transects approximately 30m apart.

5.2.1 Recent Disturbances within the APE

Several disturbed areas were encountered during this investigation shown as brackets in Figure 5-1. The disturbances marked in the northeast portion of the APE between Trail Heads #1 and 2 seemed to have resulted from a combination of impacts made during the prior construction of the Timber Lane WWTP and flood control measures along Schultz Gully, which appear to have involved channelization and (Figures 5-2, 5-3, and 5-4). Small surface disturbances were evident in this area partially likely made by earth moving machinery (e.g., bobcat, bulldozer). It was also apparent that these disturbances were made some time ago given the subsequent surface growth. It was determined that this span between the WWTP and the channelized tributary was not a good candidate for further shovel testing given its disturbed nature.

The survey crew also encountered extensively modified landscape within the Mercer Arboretum grounds that accommodated an existing sewer line and to the south surrounding an existing retaining pond (see bracket in Figure 5 1; Figures 5-5 and 5-6).

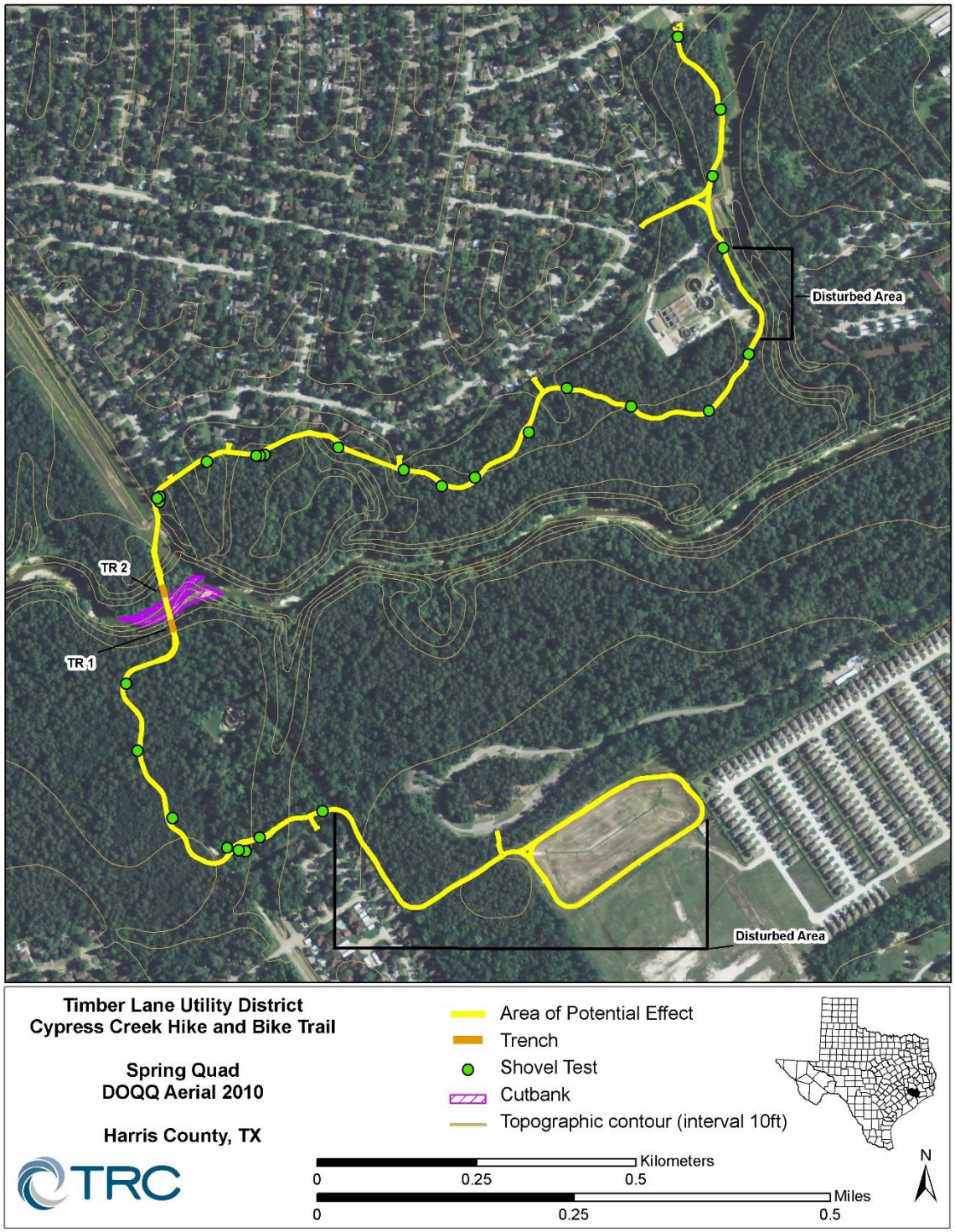

Figure 5-1. Planview map of Shovel Test Locations along Cypress Creek Hike and Bike Trail.

Figure 5-2. View of the Timber Lane Wastewater Treatment Plant, looking west.

Figure 5-3. View of flood control measures along Schultz Gully, looking northeast.

Figure 5-4. View down the proposed trail just east Timber Lane WWTP, looking south.

Figure 5-5. View of corridor through Mercer Arboretum containing existing sewer line easement, looking south.

Figure 5-6. Sewer manhole at right angle turn of proposed hike and bike trail corridor on Mercer Arboretum property.

5.2.2 Results of Shovel Testing

Twenty-eight shovel tests were excavated across the APE in areas that were considered relatively undisturbed by natural occurrences or modern clearing efforts (see Figure 5-1). The soils alternated between grayish brown to dark grayish brown sandy clay loam (Figure 5-7; Table 5-1). Small pieces of calcium carbonate (1 to 10 mm) were observed throughout the project area indicating that a majority of soils were Pleistocene age or older. Given the amount of trees within the survey corridor a considerable number of roots were encountered during excavation, sometimes making digging problematic. Two of the shovel tests (#6 and #11) were positive for cultural material. Each of these tests yielded a single small chert flake. Additional shovel tests (2-3) were placed in close proximity (within 10 meters) to each positive test, but no other materials were observed. In addition, both areas exhibited some surfaces resulting from modern trash dumping and surface modification by clearing activity through vehicular or mechanical means (Figures 5-8 through 5-10). Hence, these materials were deemed isolated finds #1 and #2 (see Table 5-1).

Figure 5-7. A Typical Shovel Test profile.

Table 5-1. Shovel Test Data

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
1	1	0-20	Fine Silt	10 YR 3/2 very dark grayish brown	Y	None	grass roots
1	2	20-33	Sandy Clay Loam	10 YR 4/2 dark grayish brown	Y	None	tree roots
1	2	33-40	Sandy Clay	10 YR 5/3 brown	Y	None	wet, top of subsoil

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
1	4	40-60	Sandy Clay	10 YR 5/4 yellowish brown mottled with 10 YR 6/8 brownish yellow	Y	None	subsoil, early Pleistocene
1	4	60-64	Sandy Clay	10 YR 5/4 yellowish brown mottled with 10 YR 6/8 brownish yellow	Y	None	subsoil, early Pleistocene
2	1	0-20	Fine Silt	10 YR 3/2 very dark grayish brown	Y	None	tree roots
2	2	20-38	Silty Loam	10 YR 5/2 grayish brown	Y	None	roots 1-2 cm diameter
2	2	38-40	Silt	10 YR 5/2 grayish brown	Y	None	calcium carbonate nodules 1 cm diameter, late Pleistocene, fluviomarine deposits
2	3	40-60	Silt	10 YR 5/2 grayish brown	Y	None	calcium carbonate nodules 1 cm diameter, late Pleistocene, fluviomarine deposits
3	1	0-20	Fine Silt	10 YR 3/2 very dark grayish brown	Y	None	lots of tree roots
3	2	20-35	Silty Clay Loam	10 YR 3/2 very dark grayish brown	Y	None	lots of tree roots

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
3	2	35-40	Silty Clay Loam	10 YR 3/3 dark brown	Y	None	calcium carbonate nodules 1-5 mm diameter
3	3	40-48	Silty Clay Loam	10 YR 3/3 dark brown	Y	None	calcium carbonate nodules 1-5 mm diameter
4	1	0-5	Fine Silt	10 YR 3/3 dark brown	Y	None	fill with limestone cobbles 1-4 cm some angular, broken, fossilized oyster shell
4	1	5-12	Sandy Silt to Sandy Loam	10 YR 7/6 yellow	Y	None	disturbed, fill with limestone cobbles 1-4 cm some angular, broken, concrete fragments; fossilized oyster shell
5	1	0-2	Fine Silt	10 YR 3/3 dark brown	Y	None	top soil
5	1	2-20	Fine Sand	10 YR 6/2 light brownish gray	Y	None	wet, tree roots
5	3	20-40	Fine Sand	10 YR 6/2 light brownish gray	Y	None	wet soil
5	4	40-46	Fine sand hard	10 YR 7/2 light gray	Y	None	drier, less roots
6	1	0-20	Fine Silt	10 YR 4/2 dark grayish brown	Y	Flake (isolated find #1), mussel shell frag	flake was a small tertiary gray chert; tree roots, few limestone and chert cobbles 0-5 cm
6	2	20-40	Silty Loam	10 YR 3/2 very dark grayish brown	Y	None	mussel shells

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
6	3	40-60	Silty Loam	10 YR 3/2 very dark grayish brown	Y	None	mussel shells
6	4	60-80	Silty Loam	10 YR 3/2 very dark grayish brown	Y	None	mussel shells
6	5	80-95	Clay Loam	10 YR 3/2 very dark grayish brown	Y	None	fluviomarine deposits, early Pleistocene
7	1	0-2	Fine Silt	10 YR 3/2 very dark grayish brown	Y	None	tree roots 1-5 cm
7	1	2-20	Fine Silt	10 YR 5/2 grayish brown mottled with 10 YR 6/3 pale brown	Y	None	-
7	2	20-40	Fine Silt	10 YR 6/3 pale brown	Y	None	small tree roots, 1-10 mm
7	3	40-45	Fine Silt	10 YR 6/3 pale brown mottled with 10 YR 6/8 brownish yellow	Y	None	-
8	1	0-20	Fine Silt	10 YR 4/2 dark grayish brown	Y	None	tree roots 1-2 cm
8	2	20-40	Fine Silt	10 YR 4/2 dark grayish brown	Y	None	small tree roots, 1-2 mm
8	3	40-52	Silty Clay	10 YR 5/2 grayish brown	Y	None	calcium carbonate nodules 1-20 mm
9	1	0-20	Fine Silt	10 YR 4/2 dark grayish brown	Y	None	charcoal at 15-18 cmbs in SE wall

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
9	2	20-23	Fine Silt	10 YR 4/2 dark grayish brown mottled 10 YR 6/3 pale brown	Y	None	-
9	2	23-33	Fine Silt	10 YR 5/3 brown	Y	None	-
9	2	33-36	Silty Clay	10 YR 6/6 brownish yellow	Y	None	-
10	1	0-10	Fine Silt	10 YR 4/2 dark grayish brown	Y	None	small patch of trees, tree roots 1-3 cm, brown small bottle with metal cap frags
10	1	10-20	Fine Silt	10 YR 5/4 yellowish brown	Y	None	small tree roots 0-10 mm
10	2	20-38	Fine Silt	10 YR 5/4 yellowish brown	Y	None	-
10	2	38-40	Fine Silt	10 YR 5/6 yellowish brown	Y	None	-
10	3	40-45	Fine Silt	10 YR 5/6 yellowish brown	Y	None	subsoil, SW is disturbed open area, NW is disturbed, and E is upland area so I moved 10 m NE
11	1	0-10	Fine Silt	10 YR 4/2 dark grayish brown	Y	Flake (isolated find #2)	small tertiary gray flake –no cortex
11	1	10-20	Fine Silt	10 YR 5/4 yellowish brown	Y	None	-
11	2	20-40	Fine Silt	10 YR 5/4 yellowish brown	Y	None	-
11	3	40-41	Fine Silt	10 YR 5/4 yellowish brown	Y	None	-

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
12	1	0-20	Fine Silt	10 YR 3/2 very dark grayish brown mottled with 10 YR 7/4 very pale brown	Y	None	tree roots 1-30mm
12	2	20-30	Fine Silt	10 YR 5/4 yellowish brown	Y	None	tree roots
12	2	30-40	Silty Clay	10 YR 6/4 light yellowish brown mottled with 10 YR 6/8 brownish yellow	Y	None	-
13	1	0-10	Fine Silt	10 YR 4/2 dark grayish brown	Y	None	tree roots 0-40 mm
13	1	10-18	Fine Silt	10 YR 4/3 brown to dark brown mottled with 10 YR 5/3 brown	Y	None	-
13	1	18-20	Fine Silt	10 YR 5/3 brown	Y	None	-
13	2	20-35	Fine Silt	10 YR 5/3 brown mottled with 10 YR 4/6 dark yellowish brown	Y	None	subsoil

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
14	1	0-20	Sandy Loam	10 YR 3/2 very dark grayish brown mottled with 10 YR 4/3 brown to dark brown	Y	None	edge of wooded area, 15 ft south of existing trail
14	2	20-28	Sand	10 YR 5/4 yellowish brown	Y	None	-
14	2	28-40	Sand	10 YR 7/2 light gray	Y	None	-
15	1	0-10	Fine Silt	10 YR 3/2 very dark grayish brown	Y	None	roots 0-3 cm diameter
15	1	10-20	Fine Silt	10 YR 7/3 very pale brown	Y	None	-
15	2	20-37	Silty Clay	10 YR 5/3 brown mottled with 10 YR 5/6 yellowish brown	Y	None	wet soil
16	1	0-8	Loam	10 YR 4/2 dark grayish brown	Y	None	12 ft south of existing path, edge of mixed woodlands
16	1	8-20	Loam	10 YR 4/2 dark grayish brown	Y	None	12 ft south of existing path, edge of mixed woodlands
16	2	20-35	Loam	10YR 6/6 brownish yellow mottled with 5 YR 5/3 reddish brown	Y	None	-

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
16	2	35-40	Loam	10 YR 5/3 brown	Y	None	-
16	3	40-43	Loam	10 YR 5/3 brown	Y	None	-
17	1	0-11	Fine Silt	10 YR 3/2 very dark grayish brown	Y	None	tree roots 1-4 cm
17	1	11-17	Fine Silt	10 YR 4/3 brown to dark brown	Y	None	tree roots 1-4 cm
17	1	17-20	Fine Silt	10 YR 5/3 brown	Y	None	roots 1-5 mm
17	2	20-37	Silty Clay	10 YR 5/6 yellowish brown	Y	None	-
18	1	0-6	Fine Silt	10YR 2/1 black	Y	None	-
18	1	6-20	Fine Silt	10 YR 3/3 dark brown	Y	None	charcoal flecks
18	2	20-23	Fine Silt	10 YR 3/3 dark brown	Y	None	charcoal flecks
18	2	23-31	Fine Silt	10 YR 4/3 brown to dark brown	Y	None	charcoal flecks
18	2	31-40	Fine Silt	10 YR 4/3 brown to dark brown, wet	Y	None	charcoal flecks
18	3	40-45	Fine Silt	10 YR 4/3 brown to dark brown, wet	Y	None	Rotted root
18	4	45-60	Fine Silt	10 YR 5/3 brown	Y	None	-
19	1	0-18	Sandy Loam	10 YR 3/2 very dark grayish brown	Y	None	1-18 mm roots, found chunks of charcoal, 7 m south of existing trail, 10 m east of ST 14

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
19	1	18-20	Sandy Loam	10 YR 5/2 grayish brown	Y	None	found chunks of charcoal, 7 m south of existing trail, 10 m east of ST 14
19	2	20-32	Sandy Loam	10 YR 5/2 grayish brown	Y	None	roots
19	2	32-40	Sandy Clay Loam	10 YR 6/4 light yellowish brown	Y	None	roots
19	3	40-50	Sandy Clay Loam	10 YR 6/4 light yellowish brown	Y	None	-
19	3	50-55	Sandy Clay	10 YR 7/6 Yellow	Y	None	roots
20	1	0-14	Sandy Clay Loam	10 YR 4/2 dark grayish brown	Y	None	7 m south of existing trail
20	1	14-20	Sandy Clay Loam	10 YR 5/2 grayish brown	Y	None	7 m south of existing trail
20	2	20-22	Sandy Clay Loam	10 YR 5/2 grayish brown	Y	None	-
20	2	22-33	Clay Loam	10 YR 7/6 Yellow	Y	None	
21	1	0-9	Fine Silt	10 YR 3/3 dark brown	Y	None	roots 1 cm diameter
21	1	9-17	Fine Silt	10 YR 5/3 brown	Y	None	roots 1-4 cm diameter

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
21	1	17-20	Fine Silt	10 YR 6/4 light yellowish brown mottled with 10 YR 7/3 very pale brown, 10 YR 5/6 yellowish brown	Y	None	-
21	2	20-37	Fine Silt	10 YR 6/4 light yellowish brown mottled with 10 YR 7/3 very pale brown, 10 YR 5/6 yellowish brown	Y	None	-
22	1	0-20	Silty Clay Loam	10 YR 4/2 dark grayish brown	Y	None	5 m south of existing trail
22	2	20-35	Clay Loam	10 YR 7/6 yellow	Y	None	-
23	1	0-5	Fine Silt	10 YR 3/1 very dark gray	Y	None	tree roots
23	1	5-12	Fine Silt	10 YR 3/2 very dark grayish brown	Y	None	-
23	1	12-20	Fine Silt	10 YR 4/1 dark gray	Y	None	-
23	2	20-40	Silty Clay	10 YR 4/1 dark gray	Y	None	-
24	1	0-20	Sand	10 YR 6/3 pale brown	Y	None	subsoil
24	2	20-25	Sand	10 YR 6/3 pale brown	Y	None	5 m north of existing trail

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
24	2	25-40	Sand	10 YR 8/3 very pale brown	Y	None	-
24	3	40-60	Sand	10 YR 8/3 very pale brown	Y	None	-
25	1	0-10	Silty Loam	10 YR 4/2 dark grayish brown	Y	None	roots 1-4 cm diameter
25	1	10-20	Silty Loam	10 YR 5/2 grayish brown	Y	None	roots 1-3 cm diameter
25	2	20-30	Silty Loam	10 YR 5/2 grayish brown	Y	None	-
25	2	30-40	Loam	10 YR 3/3 dark brown	Y	None	-
25	3	40-54	Loam	10 YR 3/3 dark brown	Y	None	roots 1-7 mm diameter
26	1	0-12	Silty Loam	10 YR 3/1 very dark gray	Y	None	-
26	1	12-20	Loam	10 YR 6/1 gray	Y	None	-
26	2	20-40	Loam	10 YR 6/1 gray	Y	None	-
26	3	40-53	Loam	10 YR 6/1 gray	Y	None	-
27	1	0-13	Loam	10 YR 3/3 dark brown	Y	None	disturbed
27	1	13-20	Sand	10 YR 7/4 very pale brown	Y	None	concrete and glass
27	2	20-38	Sand	10 YR 7/4 very pale brown	Y	None	concrete and glass
28	1	0-12	Silty Loam	10 YR 4/3 brown to dark brown	Y	None	roots 1-7 cm diameter
28	1	12-20	Sand	10 YR 7/2 light gray	Y	None	pea gravels, and pebbles
28	2	20-28	Sand	10 YR 7/2 light gray	Y	None	pea gravels, and pebbles

ST	Level	Depth (cm)	Soil texture	Soil description	Screen 1/4in	Cultural Material	Environmental info and comments
28	2	28-40	Sandy Loam	10 YR 5/3 brown mottled 10 YR 6/6 brownish yellow	Y	None	pebbles
28	3	40-42	Sandy Loam	10 YR 5/3 brown mottled 10 YR 6/6 brownish yellow	Y	None	-

Figure 5-8. Location of Isolated Find #1 in ST #6, looking south. Note downed trees.

Figure 5-9. Location of Isolated Find #2 in ST #11, looking southeast.

Figure 5-10. View of clearing adjacent to Isolated Find #2, looking east.

5.2.3 Backhoe Trenching

Two backhoe trenches were excavated to investigate deep alluvial sand deposits along Cypress Creek. Given the assumed depths of these recent soils, the probability of buried cultural deposits was high. Trenches 1 and 2 were placed within the trail easement where pedestrian bridge supports are proposed (see Figure 5-1).

Trench 1 was placed on the south bank of Cypress Creek approximately under a canopy of pine and mixed hardwood trees (Table 5-2; Figures 5-11 through 5-113). The trench was oriented north to south and measured approximately 4.3 m (14 ft) long, 1.83 m (6 ft) wide and 3.76 m (12.3 ft) deep. The western profile wall was characterized exhibited to soil zones, dark gray sand within the first 1.4 ft (42 cm) below surface and a thick very pale brown sand. The upper meter of the profile was riddled with tree roots making documentation of the zones in that portion somewhat problematic. No cultural materials were observed during either excavation (via back-dirt pile inspection) or trench profile documentation.

Table 5-2. Trench 1 Profile Description

Excavation Unit	Soil description	Depth (cmbs)	Cultural material
Trench 1	Dark grayish brown (10 YR 4/2) sand; contained heavy tree root activity (5-80 mm diameter)	0-42	None
--	Very pale brown sand (10 YR 8/2) sand, mottled with yellow (10 YR 7/6) sparse occurrence of roots (2-10 mm diameter) roots or gravels	42-376	None

Figure 5-11. View of Trench 1 prior to last stage of trenching, west wall.

Figure 5-12. Last phase of excavation in progress at Trench 1, removing soil to reach 12 ft.

Figure 5-13. A view of the bottom of Trench 1 at 376 cm (12.3 ft).

Trench 2 was placed on the north bank of Cypress Creek approximately 30 ft south of an existing All-Terrain Vehicle (ATV) trail amongst a small stand of mixed hardwood trees. The trench was oriented north to south and measured approximately 3.96 m (13 ft) long, 1.83 m (6 ft) wide and 3.65 m deep (Table 5-3; Figures 5-14 through 5-16). The western profile wall was characterized by frequent soil zone changes, all composed of sand. This suggests a high frequency of flooding events on the south side of the creek in recent times. The upper meter of the profile was riddled with tree roots making documentation of the zones in that portion somewhat problematic. No cultural materials were observed during the course of Trench 2 profile documentation.

Table 5-3. Trench 2 Profile Description.

Excavation Unit	Soil description	Depth (cmbs)	Cultural material
Trench 2	Pale brown (10YR 6/3) sand, root disturbances (5-40 mm diameter)	0-20	None
--	Light yellowish brown (10YR 6/4) sand, 10 percent root activity with sparse (5-30 mm diameter); root disturbances	20-49	None
--	Brown (10YR 5/3) sand, sparse root activity	49-60	None
--	Very pale brown (10YR 7/4) sand	60-70	None
--	Brown (10YR 5/3) sand	70-78	None
--	Pale brown (10YR 6/3) sand; sparse root activity (2-10 mm diameter)	78-120	None
--	Very pale brown (10YR 7/3) sand	120-149	None
--	Pale brown (10YR 6/3) sand	149-161	None
--	Very pale brown (10YR 8/2) sand	161-164	None
--	Light gray (10YR 7/2) sand	164-178	None
--	Light brownish gray (10 YR 6/2) sand with 10 percent calcium carbonate filaments	178-183	None
--	Very pale brown (10 YR 7/3) (dry) sand	183-197	None
--	Light gray (10YR 7/2) sand	197-208	None
--	Very pale brown (10YR 8/3)	208-215	None
--	Very pale brown (10YR 7/3) sand	215-231	None
--	Light brownish gray (10 YR 6/2) sand	231-236	None
--	Light gray (10 YR 7/2) sand	236-365	None

Figure 5-14. A view of the first meter of depth below the surface of Trench 2 west wall profile.

Figure 5-15. View of Trench 2 Excavation in progress, looking north.

Figure 5-16. West wall profile of Trench 2 at 246 cm.

5.2.4 Summary of Shovel Test Data

A total of 28 shovel tests were excavated during this cultural resources intensive survey. Two shovel tests (#'s 6 and 11) were found to contain cultural material (1 flake/ST). After additional shovel test were performed yielding negative results these artifacts were deemed as isolated finds based on the absence of associated cultural material, archeological features, and/or structures. The presence (10 to 20 percent) of calcium carbonate nodules in the upper two feet strata of the shovel tests represents older (pre-Holocene) soils. This is corroborated by the mapping of Pleistocene-aged geologic formations in the vicinity of the project area (Barnes 1974) Therefore, TRC is confident that an acceptable level of effort was reached to identify buried cultural deposits in these deposits within the APE.

5.2.5 Summary of Pedestrian Survey Data

The APE was covered entirely during the pedestrian survey. Ground visibility ranged from 20 to 40 percent in most of the wooded areas (which aided in the search for ground surface cultural materials) and 0 to 10 percent in grassy open areas. No surface cultural artifacts were observed during the course of the pedestrian survey. No other cultural materials were encountered during the pedestrian survey of the APE.

5.2.6 Summary of Backhoe Trenching Data

Trench 1 and 2 were excavated to determine whether buried cultural material was present in the the deep alluvial deposits located on the banks of Cypress Creek. Both trench trenches were excavated to depths of 365 cm (12 ft) or greater. After careful examination of the backdirt and the trench wall profiles, it was determined that no cultural material was present in either trench.

5.2.7 Recommendations for APE

The cultural materials observed within the APE, namely isolated finds #1 and #2 in STs 6# and #11, respectively, did not possess the requisite integrity of location, design, materials and association for NRHP eligibility consideration. They were found near the surface in fine silts of Pleistocene age. Both locations exhibited disturbances (modern dumping and clearing) that likely affected the integrity of the APE in these areas. Efforts to locate other cultural materials by performing additional shovel test failed. Furthermore, no evidence of site 41HR353 was observed in the vicinity of Trailheads #2 and 3 during either the pedestrian survey or intensive shovel testing. No cultural materials were observed in Trenches 1 and 2, which were placed in deep alluvial deposits surrounding Cypress Creek. As a result, TRC asserts that there is an absence of any significant cultural deposits within the APE and any cultural materials observed during this investigation do not represent NRHP eligible properties. Due to these factors, no further investigation of the APE is recommended.

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6 SUMMARY AND CONCLUSIONS

This cultural resources investigation was being conducted in fulfillment of requirements under existing state guidelines (Antiquities Code of Texas of 1977 [revised 1987], Title 9, Chapter 191, VACS, Art. 6145-9) for Antiquities Code permit #6481. Archeologists were tasked to determine if cultural resources were present inside the APE and secondly to determine if these cultural resources constitute historic properties as defined by the National Historic Preservation Act of 1966, and the Antiquities Code of Texas.

If resources are found and constitute historic properties, the investigator must attempt to assess their eligibility for nomination to the National Register of Historic Places (NRHP). According to the National Historic Preservation Act of 1966 (Section 106), a Federal agency must assess any potentially harmful action upon resources that are or could be listed on the NRHP. Federal Regulations (36 CFR 60.4) lists four criteria to be used when evaluating properties for nomination to the NRHP. Those eligible should include properties:

- That are associated with events that have made a significant contribution to the broad patterns of our history; or
- That are associated with the lives of persons significant in our past; or
- That embody the distinctive characteristics of a type, period or method of construction, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- That has yielded, or may be likely to yield, information important in prehistory or history.

The criteria for determining the eligibility of a prehistoric or historic cultural property for designation as an SAL are presented in Chapter 191, Subchapter D, Section 191.092 of the Texas Antiquities Code. These criteria are similar to the criteria used in assessing the eligibility of a property for inclusion in the NRHP:

> Sites, objects, buildings, artifacts, implements, and locations of historical, archeological, scientific, or educational interest including those pertaining to prehistoric and historical American Indians or aboriginal campsites, dwellings, and habitation sites, their artifacts and implements of culture, as well as archeological sites of every character that are located in, on, or under the surface of any land belonging to the State of Texas or to any county, city, or political subdivision of the state are state archeological landmarks and are eligible for designation (Section 191.092(a)).

For the purposes of assessing the eligibility of a historic property for designation as an SAL, a historic site, structure, or building has historical interest if the site, structure, or building:

- [W]as the site of an event that has significance in the history of the United States or the State of Texas;
- [W]as significantly associated with the life of a famous person;
- [W]as significantly associated with an event that symbolizes an important principle or ideal;
- [R]epresents a distinctive architectural type and has value as an example of a period, style, or construction technique; or,
- [I]s important as part of the heritage of a religious organization, ethic group, or local society (Section 191.092(b)).

Based upon the absence of significant findings in an effort to locate cultural remains on the ground surface and subsurface testing, it was surmised that no historic properties were present within the APE. Thus, an eligibility appraisal using the criteria (a through d) described in the Federal Code concerning the National Historic Preservation Act of 1966 (36 CFR 60.4) was not conducted for this survey. In addition, the absence of historic properties within the area of potential effect removes any consideration of the Antiquities Code of Texas (Chapter 191) in reference to State Archeological Landmarks. TRC does not recommend any further archeological investigation within proposed APE. However, in the event that any human remains are encountered during the undertaking all work should cease immediately and the Timber Lane Utility Board should notify local law enforcement, who in turn will notify the local medical examiner's office. If these remains are not recent, the Texas Historical Commission should be notified.

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