Volume 2018 Article 149

2018

Archaeological Investigations for FEMA Phase I Master Plan Drainage Improvements, City of Buda, Hays County, Texas

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Texas Antiquities Permit No. 8407
Technical Report No. 77

CENTER FOR ARCHAEOLOGICAL STUDIES
Texas State University-San Marcos

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The following information is provided in accordance with the General Rules of Practice and Procedures, Title 13, Chapter 26, Texas Administrative Code:

1. Type of investigation: Archaeological survey

2. Project name: Archaeological Investigations for FEMA Phase I Master Plan Drainage Improvements, City of Buda, Hays County, Texas

3. County: Hays County

4. Principal Investigator: Jacob Hooge

5. Name and location of sponsoring agency: City of Buda; FEMA

6. Texas Antiquities Permit: No. 8276

7. Published by the Center for Archaeological Studies, Texas State University, 601 University Drive, San Marcos, Texas, 78666-4616 (2018)

Texas State University is a member of the Texas State University System

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San Marcos, TX 78666-4616
www.txstate.edu/anthropology/cas/

Technical Editor: Pamela Cobb

Printed in the United States of America
by
McCarthy Printing, Austin

ABSTRACT

Archaeologists from the Center for Archaeological Studies (CAS) at Texas State University conducted an intensive pedestrian survey including the excavation of 1 mechanical trench and 13 shovel tests along a proposed drainage easement northwest and west-southwest of FM 2770 (also known as Jack C. Hays Trail) in Buda, Texas, from May 14–15, 2018. The survey was executed in order to assess the project area for potential impacts to cultural resources in advance of the installation of a proposed new outfall channel and culvert under FM 2770 in order to divert excess flow from the unnamed tributary of Onion Creek in the City of Buda. Work was carried out by CAS archaeologists Jodi Jacobson and Victoria Pagano under Texas Antiquities Permit Number 8407, assigned to Principal Investigator Jacob Hooge.

The area of potential effects (APE) includes a narrow drainage easement no more than 1,600 linear feet, a construction easement width not to exceed 180 feet, with depths not likely to exceed 14.5 feet for a total project acreage of 6.7 acres The project area extends approximately 400 linear feet northwest of FM 2770 and approximetely1,100 linear feet east-southeast. While planned for city acquisition, the property was privately owned and undeveloped at the time of survey. During survey a total of four positive shovel tests with non-diagnostic lithic flakes were encountered, two of which also contained clear bottle glass. Flakes were limited to the upper 70 centimeters (cm) of one of the positive shovel tests and limited to the upper 50 cm of the remaining three. The bottle glass was identified mixed within and even at levels below the flakes in two of the tests with presence depths of historic context not exceeding 50 cm, with an additional surficial scattering of some 20th century mixed with modern mostly surficial trash debris. Given the disturbance, all prehistoric deposits within the project area would be lacking in integrity. CAS recommends that site 41HY548 within the project boundaries would be ineligible for inclusion in the National Register of Historic Places due to lack of integrity of association, setting, or material based on the mixed nature of the deposits, as well as a lack to provide new or additional information. CAS recommends full regulatory clearance for the proposed project.

MANAGEMENT SUMMARY

Project Title: Archaeological Investigations for FEMA Phase I Master Plan Drainage Improvements, City of Buda, Hays County, Texas

Project Type: Intensive Pedestrian and Mechanical Trenching Survey

Local Sponsor: City of Buda

Institution: Center for Archaeological Studies, Texas State University

Principal Investigator: Jacob Hooge

Project Archaeologist: Jodi Jacobson

Texas Antiquities Permit No.: 8407

Dates of Work: 14 May to 15 May 2018

Total Acreage Evaluated: approximately 6.7 acres

Number of Shovel Tests: 13

Number of Trenches: 1

Purpose of Work: To identify, record, and evaluate the extent and integrity of cultural resources that would be impacted within the project area.

Number of Sites: 1

Curation: Center for Archaeological Studies, Texas State University

Comments: Pedestrian survey, mechanical trenching, and shovel testing revealed one archaeological site consisting of prehistoric and historic material within a mixed context fluviatile terrace and a mid-20^{h} century trash dump.

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INTRODUCTION

From May 14 to May 15, 2018, archaeologists from the Center for Archaeological Studies (CAS) at Texas State University (University) conducted subsurface archaeological investigations along a linear route for the installation of a partially Federal Emergency Management Agency (FEMA)-funded drainage-control feature on behalf of the City of Buda, Hays County, Texas. The proposed drainage feature would consist of an outfall at Onion Creek, channel, and culvert under Jack C. Hays Trail (also known as FM 2770) in the City of Buda located approximately 400 feet southeast of the Hays County Justice of the Peace offices. The project would divert excess flow from the unnamed tributary of Onion Creek and alleviate flooding hazards. The proposed project is approximately 1,600 linear feet in length, 400 linear feet northwest of FM 2770 and 1,100 linear feet east-southeast of the FM 2770 right-of-way (ROW), with a proposed drainage channel width of 100 feet and overall construction impacts not expected to exceed 180 feet in width for a total area of potential effect (APE) of 6.7 acres. Depths of excavation for the channel would not exceed 14 feet.

The City's standing as a political entity within the State causes this proposed development to be subject to provisions of the Antiquities Code of Texas (TAC). The TAC requires that such an undertaking consider the potential impact on any cultural resources that might be present and that might contribute information that is meaningful or significant to understanding the history and/or prehistory of the State of Texas. All archaeological work was performed under auspices of Texas Antiquities Permit Number 8276, granted to Principal Investigator Jacob Hooge.

Cultural resources located on land owned or controlled by the State of Texas, or its political subdivisions, are protected by the TAC (Texas Natural Resources Code, Title 9, Chapter 191), which identifies significant sites as State Antiquities Landmarks (SALs) (formerly known as State Archeological Landmarks). TAC Rules of Practice and Procedure, as defined by the Texas Historical Commission (THC), are explicit about perception and protection of cultural resources located on State-owned or controlled land:

> . . . archeological sites and historic structures on lands belonging to state agencies or political subdivisions of the State of Texas are State Archeological Landmarks or may be eligible to be designated as landmarks . . . The State of Texas considers that all publicly owned archeological sites and historic structures have some intrinsic historic value, and the Antiquities Code provides some level of protection for those sites . . . regardless of their size, character, or ability to currently yield data that will contribute important information on the history or prehistory of Texas . . . (26.2).

As all cultural resources located in, on, or under State-owned or controlled land are considered eligible for SAL status, and not all cultural resources are appropriately designated as such or directly threatened by development, the THC has criteria for practically assessing the significance and/or need for further investigations under the permit process (Rules and Practice, Chapter 26.8):

1. The site has the potential to contribute to a better understanding of the prehistory and/or history of Texas by the addition of new and important information;

2. The site's archeological deposits and the artifacts within the site are preserved and intact, thereby supporting the research potential or preservation interests of the site;

3. The site possesses unique or rare attributes concerning Texas prehistory and/or history;

4. The study of the site offers the opportunity to test theories and methods of preservation, thereby contributing to new scientific knowledge;

5. The high likelihood that vandalism and relic collecting has occurred or could occur, and official landmark designation is needed to insure maximum legal protection, or alternatively further investigation are needed to mitigate the effects of vandalism and relic collecting when the site cannot be protected.

Furthermore, given FEMA involvement, federal guidelines that support cultural resources legislation in Texas would apply including Sections 106 and 110 of the National Historic Preservation Act (NHPA) of 1966 (PL89-665; 80 Stat.915; 16 USC §et seq.); Executive Order Number 11593 of 1971; the Archaeological and Historic Preservation Act (AHPA) of 1974 (P.L. 93-291; 88 Stat. 174; 16 USC §469 et seq.); the American Indian Religious Freedom Act (AIRFA) of 1978 (P.L. 95-341; 92 Stat.469; 42 USC §12996); and Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (P.L. 101-601; 104 Stat. 3048; 25 USC §3001 et seq.).

Under formatting standards set forth by the Council of Texas Archeologists (CTA) and adopted by the THC, this report provides a brief overview of the regulatory requirements for this project (above), defines the project area setting, outlines regional and local trends in archaeology, describes the methods used in gathering data, and presents the results of the survey. The fieldwork for this project was performed by CAS Associate Director Jodi Jacobson and CAS Archaeologist Victoria Pagano.

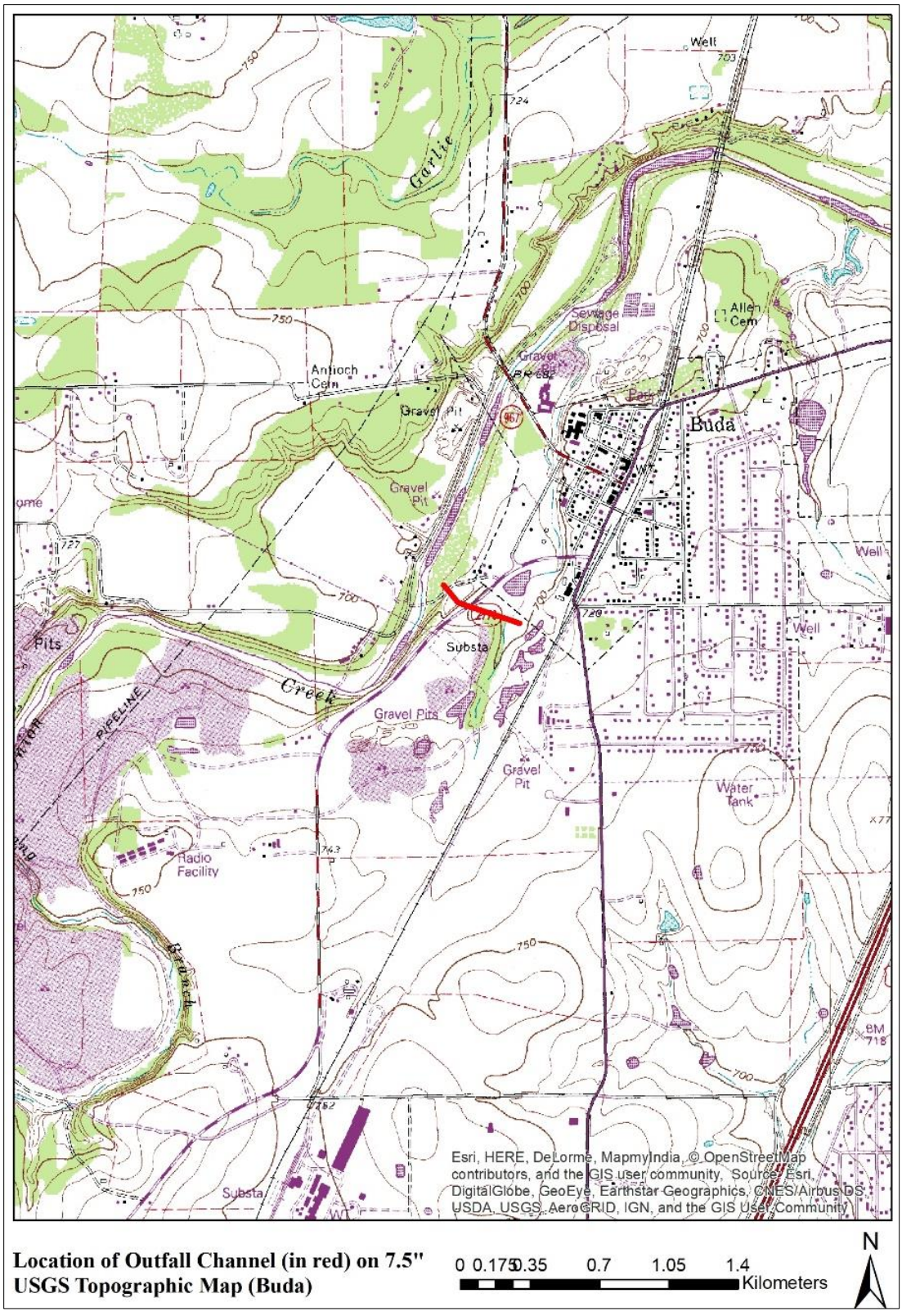

Figure 1. Project area in terms of its location within the San Marcos Quad USGS Topographic Map, Hays County, Texas.

PROJECT AREA SETTING

The project area is located on the western edge of Buda just east of Onion Creek in northern Hays County, Texas. Onion Creek, a tributary of the Colorado River, flows northeast along the boundary of the project area and the location of the proposed outfall. The project is located along the boundary of the Blackland Prairie (immediately to the east), Cross Timbers and Prairie (immediately to the north), and Edwards Plateau, within which the project is mapped. These environmental transition ecotones are typically high-energy settings capable of supporting richly diverse plants and animals (Crumley 1994). Because of the nearby access to water in addition to a wealth of plants and animals, this particular region was and is an attractive locale for human occupation.

Most of the project location west of the roadway has been cleared of trees, with the exception of the sloped terraced area adjacent to the Onion Creek floodplain. The project area is bisected by Texas Department of Transportation (TxDOT) ROW approximately 100 feet in width associated with Jack C Hays Trail (FM 2770) which is raised on fill and flanked by deep drainages on either side. Approximately 40 feet northwest of the edge of TxDOT ROW the project corridor crosses an approximately 30-foot-wide utility line easement. The majority of the proposed drainage easement west of the roadway has been previously impacted by land clearing activities. East of the roadway are wooded bottomlands with some small heavily graveled micro-relief mound formations. The area directly adjacent to the project area to the south is an open mixed scrub and prickly pear tall grass area over rocky and gravelly terrain. Soils east of the roadway, while shallow and with high gravel content, appeared less disturbed than soils west of the roadway. At the Eastern most extent of the project was a small open lowland hydric grassland bounded by the unnamed tributary of Onion Creek to the west and the gravel pits to the east. Soils in this area were extremely plastic with a highwater table and minimal to no gravel. Deposits west of the road would be anticipated to be disturbed. Deposits east of the road would be anticipated to be intact, but potentially shallow.

Geology and Soils

The project location is mapped within Quaternary fluviatile surface geological deposits (Qt) with Cretaceous Austin chalk and Fredericksburg groups mapped adjacent by the Bureau of Economic Geology (Barnes 1992). The Natural Resources Conservation Service (NRCS) Web Soil Survey maps (https://websoilsurvey.sc.egov.usda.gov/), four soil types in the project area: Gruene Clay, 1-5 percent slopes; Lewisville silty clay, 0 to 1 percent slopes, Orif, 0 to 3 percent slopes, frequently flooded, and Pits soils. Approximately half of the APE consists of Gruene series soils which formed in clayey alluvium of Pleistocene age overlaying gravelly Pleistocene alluvium. Gruene soils are shallow with only 13 inches of A horizon very hard very firm clay before reaching a restrictive densely cemented caliche C horizon level. Lewisville series soils are mapped over approximately one-third of the project location and were formed in Pleistocene loamy and clayey calcareous sediments. The soils consist of hard firm clay over calcic deposits at approximately 54 inches. There is an overlying Ap horizon from 0 to 6 inches [0 to 15 centimeters (cm)] suggestive of past agricultural disturbance. The northwest edge of

the project area along Onion Creek is mapped as Orif. series soils which formed in Holocene alluvium, but which a typical profiles has only 12 inches (30 cm) of A horizon before encountering a restrictive C horizon consisting of 85 percent limestone pebbles. The southeast edge of the project is mapped as Pits which are excavations from which rock or caliche have been removed, typically from a quarry. Based on the age and shallow nature of most of the soils, the majority of the deposits within the project area would be anticipated to be shallow. There is some potential for deposits up to 5 feet in depth within the Lewisville soils.

Climate and Weather

The following weather statistics are based on a 70-year record (1948–present). Average high temperatures of summers come to 95° Farenheit (F) and average lows of winter fall to around 41° F for Buda in Hays County (Intellicast 2018). The record high for Buda, Texas was 112° F in September 2000 and a record low was -5° F in January 1949. Growing seasons in Hays County average 254 days per year with a mean annual rainfall of 33.75 inches (Cecil and Greene 2018). Drought can also be an expected feature of Central Texas weather; there is not a decade in the twentieth century that did not include drought (Bomar 1983:153). At a greater temporal scale, the region's climate can be described as moist with mild winters, wet all seasons to dry summers (east to west), and with long hot summers (Köppen Climatic Classification: Cfa-Csa, east to west), but evidence indicates that climates are variable as well (Maulden et al. 2010).

Flora and Fauna

Floral and faunal characteristics of both adjoining environmental regions (Edwards Plateau and Blackland Prairie), mingle along the Balcones Escarpment (Blair 1950). Typical modern fauna found in the region includes, armadillo, badger, beaver, black rat, coyote, crayfish, eastern cottontail, eastern gray squirrel, eastern wood rat, muskrat, common opossum, raccoon, red fox, turkey, western diamondback rattlesnake, white-tailed deer, and white-tailed jackrabbit, in addition to bountiful other mammals, birds, reptiles, amphibians, and fish. In prehistory, many of the same animals were present, as well as were bison and antelope. Historically introduced animal species include horse, pig, sheep, cattle, chicken, domestic dog and domestic cat amongst other invasive species.

The region's natural vegetation is generally a grassland-woodland-shrubland mosaic, where grasslands separate patches of woody vegetation (Ellis et al. 1995). Along the escarpment, Mesquite, post oak, and blackjack oaks interrupt patches of bluestems, gramas, and many other types of grass in the Blackland Prairie. These species are also found with the Edwards Plateau's live oak, shinnery oak, junipers, and mesquite (Gould 1962).

CENTRAL TEXAS CULTURAL CHRONOLOGY

The project APE is located within the southernmost portions of the Central Texas Archaeological Region according to Prewitt 1981 but within the South Texas-Northeastern Mexico Archaeological Region according to others (Turner and Hester 1993). For the purposes of this survey, the cultural chronology will focus on Central Texas as the site is located on Onion Creek, a tributary of the Colorado River, along the edge of the ecotone formed by the Balcones Escarpment.

The cultural chronologies for Central and South Texas are not well understood or agreed upon. However, archaeological deposits indicate rich cultural development spanning several millennia. Black (1995), Hester (1995, 2004), and Collins (1995, 2004) have recently synthesized available archaeological evidence from the region. All dates are in the radiocarbon time scale and given as years before present (B.P., i.e. before 1950). Human presence is divided into three periods: Prehistoric, Protohistoric, and Historic.

Prehistoric

The Prehistoric period is divided into three major temporal stages, the Paleoindian, Archaic and Late Prehistoric. The Paleoindian stage begins with the earliest known human occupation of North America and extends to approximately 8800 B.P. The Archaic stage follows, extending from ca. 8800 B.P. to 1250 B.P. The Late Prehistoric stage begins ca. 1250 B.P. and is characterized by the development of bow and arrow and ceramic technologies.

Paleoindian

Collins (1995:381–385, 2004) dated the Paleoindian period in Central Texas to 11,500–8800 B.P.; the Paleoindian period is further divided into Early (ca. 11,500–10,200 B.P.) and Late (ca. 10,200–8800 B.P.) phases. Early Paleoindian artifacts are associated with the Clovis and Folsom cultures and diagnostic items include fluted, lanceolate projectile points. The Clovis culture is also characterized by well-made prismatic blades (Collins 1995; Green 1964). The Early Paleoindian stage is generally characterized by nomadic cultures that relied heavily on hunting large game animals (Black 1989). However, recent research has suggested that early Paleoindian subsistence patterns were considerably more diverse than previously thought and included reliance on local fauna, including turtles (Black 1989; Bousman et al. 2004; Collins and Brown 2000; Hester 1983; Lemke and Timperley 2008). Folsom cultures are considered to be specialized bison hunters, as inferred from the geographic location and artifactual composition of sites (Collins 1995).

The Late Paleoindian substage occurred from ca.10,200–8800 B.P. Reliable evidence for these dates was recovered from the Wilson-Leonard site, north of Austin (Bousman et al. 2004; Collins 1998). At Wilson-Leonard, archaeologists excavated an occupation known as Wilson, named for the unique corner-notched projectile point. The dense occupation also included a human burial (Bousman et al. 2004; Collins 1998). In addition to the Wilson occupation, Golondrina-Barber and St. Mary's Hall components, dating between 9500 and 8800 B.P., were excavated. Collins (1995) suggested the Wilson, Golondrina-Barber, and St.

Mary's Hall components represent a transitional period between the Paleoindian and Archaic Periods due to the subtle presence of notched projectile points and burned-rock cooking features.

Archaic

Collins (1995, 2004) has contended that the Archaic stage in Central Texas lasted approximately 7500 years, from 8800–1200/1300 B.P., and has divided the stage into Early, Middle, and Late Archaic based on Weir's (1976) chronology. The Archaic stage marks several transitions: a shift in hunting focus from Pleistocene megafauna to smaller animals, the increased use of plant food resources and use of ground stones in food processing, increased implementation of stone cooking technology, increased use of organic materials for tool manufacturing and an increase in the number and variety of lithic tools for woodworking, the predominance of corner- and side-notched projectile points, greater population stability and less residential mobility, and systematic burial of the dead. What appears as a new emphasis on organic materials in tool technologies and diet is more likely a reflection of preservation bias.

Early Archaic

Although Collins (1995:383, 2004) argued that the Early Archaic spanned the period from 8800 B.P. to 6000 B.P. based on three divisions of projectile point types, the current project considers the Early Archaic to have extended from 8800 B.P. to 5800 B.P., based on Prewitt (1981) and modified by Collins (1995). This cultural period is distinguished from previous periods by significant changes in lithic technology, such as notched projectile points, specialized tools (e.g. Clear Fork and Guadalupe bifaces), and dietary adjustment evidenced by the increased number of ground stone artifacts and burned rock midden cooking features (Collins 1995; Turner and Hester 1993:246–256). Shifts in subsistence were the result of a variable climate and concomitant variation in game resources (i.e. bison, Dillehay 1974). Collins (1995) suggested that Early Archaic peoples occupied the wetter portions of the Edwards Plateau. Early Archaic sites are thinly dispersed and are seen across a wide area of Texas and northern Mexico (Weir 1976). However, Collins (1995:383) noted a concentration of Early Archaic components along the southeastern margins of the Edwards Plateau, close to major spring localities such as in San Marcos.

Middle Archaic

The Middle Archaic, defined by Collins (1995, 2004) as 6000 B.P. to 4000 B.P. (5800 B.P. to 4000 B.P. for the current project), is approximately marked by the onset of the Altithermal. The climate fluctuated from arid to mesic, then back to arid in Central Texas during the Altithermal. Vegetation and wildlife regimes all fluctuated in response to these environmental oscillations, with human groups responding accordingly. Collins (1995) divided the Middle Archaic period by projectile point style intervals: Bell-Andice-Calf Creek, Taylor, and Nolan and Travis. The Bell-Andice-Calf Creek interval occurred during a mesic period when grasslands, attractive to bison herds, expanded southward into Central and South Texas. Bell-Andice-Calf Creek peoples, as evidenced by hunting-based lithic technology, were specialized bison hunters who followed the herds southward (Johnson and Goode 1994). As the period shifted from mesic to arid, both bison and bison hunters retreated northward. During this transitional period, Taylor bifaces were manufactured. Later in the Middle Archaic, Taylor bifaces were replaced by Nolan and Travis points (Collins 1995, 2004). The Nolan-Travis interval was a period when temperature and aridity were at their highest levels. Prehistoric inhabitants acclimated

themselves to peak aridity as seen through increased utilization of xerophytes such as sotol (Johnson and Goode 1994). These plants, typically baked in earthen ovens, also reflect the development of burned rock middens. During more arid episodes, the aquifer-fed streams and resource-rich environments of Central Texas were extensively utilized (Story 1985:40; Weir 1976:125, 128).

Late Archaic

The Central Texas Late Archaic spanned the period of ca. 4000–1250 B.P. (Collins 1995:384, 2004). For finer resolution, the current project divides the Late Archaic period by Johnson and Goode's (1994) sub-periods: Late Archaic I, 4000–2200 B.P., and Late Archaic II, 2200–1250 B.P. Sites with ideal stratigraphic separation may reveal three discernable sub-periods for the Late Archaic (e.g., Prewitt 1981). Late Archaic I, according to Johnson and Goode (1994), is marked by two significant cultural traits: 1) the billet thinning of bifacial knives and projectile points leapt forward in artistry and technology, and 2) the human population appeared to have increased. Although these patterns vary considerably through time and from one sub region to another, they strongly shape the archaeological record of the Late Archaic. Overall, evidence suggests an increasingly mesic climate through the Late Archaic (Collins 1995; Johnson and Goode 1994; Mauldin et al. 2012). Mauldin et al. (2012) suggested that climatic variation resulted in a general decrease in grassland bison range. Some archaeologists have noted the presence of cemeteries at sites such as Ernest Witte (Hall 1981) and Olmos Dam (Lukowski 1988) as evidence that populations indeed increased in size and that groups were becoming territorial (Story 1985:44–45). However, other archaeologists have challenged the interpretation of a growing population by citing a decrease in burned rock middens (Prewitt 1981:80–81).

Late Prehistoric

Collins (1995, 2004) dated the Late Prehistoric in Central Texas at 1,300/1,200 B.P.–260 B.P. and followed Kelley (1947) in dividing it into Austin and Toyah phases. The current project delimits the Austin phase to 1250–750 B.P. and the Toyah phase to 750–300 B.P. The most distinctive changes in relation to previous eras include a technological shift away from the dart and atlatl to the bow and arrow, and the more or less concurrent appearance of pottery (Black 1989:32; Story 1985:45–47).

Austin Phase

The Austin phase is characterized primarily by the appearance of arrow points, including Scallorn and Edwards types. Evidence for increased social strife, and perhaps overall population density, has been seen in numerous Central Texas burials dated to this period, which have revealed incidents of arrow-wound deaths, suggesting that population growth may have resulted in disputes over limited resource availability (Black 1989; Meissner 1991; Prewitt 1974). Burned rock middens are occasionally found with these types of points (Houk and Lohse 1993), and ground and pecked stone tools, used for plant food processing, become increasingly common in the Austin phase.

Toyah Phase

The beginning of the Toyah phase (750 B.P.) in Central Texas is characterized by contracting stem points with flaring, barbed shoulders (a style known as Perdiz); by the common occurrence of blade technology that is considered to be part of a specialized Toyah bison hunting and processing toolkit (Black and McGraw 1985; Huebner 1991; Ricklis 1994); and by the appearance of bone-

tempered pottery in Central Texas (Johnson 1994:241–281). The wide variety of ceramic styles and influences seen throughout Toyah phase ceramic assemblages provide information about the social composition of these cultural groups (Arnn 2005). Toyah phase ceramic assemblages display Caddo, Texas Gulf Coast, and Jornada Mogollon influences (Arnn 2005). In addition to shifts in material technology, Mauldin et al. (2012) suggested that bison herds foraged across increasingly widespread ranges, at least partly in response to the climatic patterns described above. Mauldin et al. (2012) concluded that this change in bison herd behavior is partly responsible for a change in Toyah hunting strategy, involving increasingly logistically-organized hunting forays in pursuit of spatially dispersed herds. Based on the ratio of zooarchaeological to archaeobotanical data associated with types of sites (e.g. bulk plant processing, bulk meat processing, residential), Dering (2008) provided further evidence of Toyah phase logistically-oriented subsistence strategies and broad diet breadths. Included with logistical subsistence strategies was what appears to be either trade for horticultural products not produced in Central Texas or of limited localized horticultural practices. Both scenarios involve maize, which is exceedingly uncommon in Toyah-period archaeological contexts in Central Texas, but which has been reported from at least three locales, the Kyle Rockshelter (41HI1) in Hill County (Jelks 1961), Bear Branch (41CA13) in Callahan County (Adams 2002), and the Timmeron Rockshleter (41HY95) in Hays County (Harris 1985).

Protohistoric (Spanish Entrada Period)

In Texas, the Protohistoric period, also known as the Spanish Entrada period, was marked by Spanish *entradas*, the formal expeditions from established forts and missions in Northern Mexico into Central, Coastal, and East Texas in the late seventeenth and early eighteenth centuries. These encounters began with the venture into Texas by the Spanish explorer Cabeza de Vaca and the Narvaez expedition in 1528. The period is generally dated between 1500 and 1700 (or 1528, the date of the Cabeza de Vaca/Narvaez expedition, to the establishment of Mission San Antonio de Valero in 1718).

With Alonso de León's expedition of 1680, El Camino Real (the King's Road) was established from Villa Santiago de la Monclova in Mexico to East Texas. This roadway followed established Native American trade routes and trails and became a vital link between Mission San Juan Bautista in Northern Mexico and the Spanish settlement of Los Adaes in East Texas (McGraw et al. 1991). Spanish priests accompanying *entradas* provided the most complete information of indigenous cultures of early Texas. Those documented during the early entradas include the Cantona, Muruam, Payaya, Sana, and Yojuane, who were settled around the springs at San Marcos and described as semi-nomadic bands. Other tribes encountered at San Marcos included mobile hunting parties from villages in South and West Texas, including Catequeza, Cayanaaya, Chalome, Cibolo, and Jumano, who were heading toward bison hunting grounds in the Blackland Prairies (Foster 1995:265–289; Johnson and Campbell 1992; Newcomb 1993). Later groups who migrated into the region and displaced the earlier groups or tribes included the Tonkawa from Oklahoma and Lipan and Comanche from the Plains (Campbell and Campbell 1985; Dunn 1911; Newcomb 1961, 1993).

Archaeological sites dated to this period often contain a mix of both European imported goods, such as metal objects and glass beads, and traditional Native American artifacts, such as manufactured stone tools.

Historic

Spanish settlement in Central Texas first occurred in San Antonio with the establishment of Mission San Antonio de Valero (the Alamo) in 1718, and the later founding of San Antonio de Béxar (Bolton 1970; Habig 1977; de la Teja 1995). Some researchers have demarcated the transition in Texas between the Entrada (Protohistoric) and Historic periods by the construction of the first Spanish missions in Texas. Most knowledge of this period has been gained through the written records of the early Spanish missionaries. During this time, massive depopulation occurred among the Native Americans, mostly due to European diseases to which the indigenous people had little resistance. Those few indigenous people remaining were nearly all displaced to reservations by the mid-1850s (Fisher 1998).

European presence in the region increased as settlers received land grants from the Mexican government until 1835. Settlement was difficult, however, due to continuation of hostilities with and raids by Native American tribes. The Texas Rangers provided protection from these conflicts after Texas secured independence from Mexico in 1836. Settlement in the region increased until 1845, when Texas gained admission to the United States, resulting in the formation of Hays County from territory formerly part of Travis County three years later (Bousman and Nickels 2003).

African-Americans, primarily slaves, were a third of the Hays County population by the end of the Civil War. By 1885, however, fewer than 20 percent were African-American decreasing until 1950 when the number of African-American occupants of Hays County dropped to less than 10 percent (Cecil and Greene 2018). Directly across Onion Creek, however, from the current project location a former slave colony, Antioch Colony, was founded by Joseph F. Rowley. Rowley purchased 490 acres in Hays County in 1858 which he sold in small blocks to former slaves establishing the colony in 1870-1871. A school was founded in 1874 and the colony remained an active farming community through the 1930s and 1940s, but most of its occupants had moved away by 1950. Some families started to move back to the area in the 1990s and in 1997 the Antioch Community Church was established (Jasinski 2018).

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

The THC Archaeological Sites Atlas (Atlas) was reviewed and all previous archaeological sites, cemeteries, historic markers, National Register properties and previous archaeological investigations and historic surveys within 1 kilometer (km) (0.621 mile) documented. Four previously recorded sites occur within or just over one kilometer of the project location. In addition, two historic markers and one National Register of Historic Places (NRHP) historic district has also been previously recorded within the same radius, and one historic cemetery has been documented just outside the search radius. Some of these resources were recorded during the four previous cultural resources investigations within, adjacent to, and within 1 km of the current project location. Figure 2 exhibits the locations of these resources and previous investigations relative to the APE.

Site 41HY491 is a large site depicted just 0.17 km northwest of the project location directly across Onion Creek. The site is associated with the Antioch Colony described in the historic background section of the report. It was investigated by the University of Texas at Austin field school in 2013 at which time 1x1-meter units were excavated. The project uncovered structural remains, a cistern, and trash midden with refuse from the late 19th century through present material. It was noted as having potential to provide information about African-American history and at least 50 percent of the site was described as intact and undisturbed. The site was also later investigated by Hicks and Company during a 2016 survey of the area for the Hays Caldwell Public Utility Agency for a project to construct a water line and pump station. Hicks identified 19th century artifacts including metal, glass, and ceramics but no structures. It was determined that the portion of the site they surveyed was ineligible for inclusion in the NRHP within the proposed project ROW.

Site 41HY35 is depicted 0.47 km southwest of the project location on a high bluff at a curve in Onion Creek. The site is described as a midden or mound that had been previously impacted by a bulldozer. Artifacts noted at the site included burned rock, lithic debris, dart points, grinding stones, and bones. Site 41HT35 is located just upriver from the current project location.

Sites 41HY501 and 41HY502 are depicted 1.09 km and 0.91 km, respectively. Both sites have a early to mid-20th century farmstead debris scatter, yet 41HY501 also consist of a Late Archaic through transitional Late Prehistoric lithic scatter. Both sites were identified during a survey by AmaTerra in 2015 as part of a pre-construction assessment for TxDOT for the Robert S. Light Boulevard Extension project. Both sites were recommended as not eligible.

Additional resources identified within or at approximately one kilometer from the project location include historic markers for the First United Methodist church of Buda (0.85 km) and the Buda Christian Church (1.01 km); an NRHP-listed Downtown Buda Historic District (0.64 km) and the Antioch Cemetery (1.07 km). Given that the project would include disturbances primarily to the surface and subsurface, it is anticipated that any potential visual APE would be limited to within an area adjacent to or no more than 300 meters of the proposed project area.

Given that the nearest historic resource is at least twice that distance and is currently not visible from the project location, there are no anticipated impacts to those resources.

In addition to the previous University of Texas Austin, Hicks and Company, and Amaterra investigations, a survey of Jack C. Hays Trail overlapping the proposed APE was undertaken in 1993 by TxDOT/Federal Highway Administration (FHWA). No sites or settings were identified during that survey.

A series of available historic topographic maps were reviewed at https://historicalmaps.arcgis.com/usgs including U.S. Geological Survey (USGS) Austin 1:125,000 topographic quadrangles dated 1896, 1897, 1910, and 1954 and USGS Buda 1:62,500 and 1:24,000 quadrangles dated 1958 and 1968, respectively. No previous structures were noted within the APE on any maps prior to 1958, though gravel mining disturbances were noted. The 1958 topo depicts an abandoned building which may overly part of the eastern segment of the project, but as it was not present in 1954 and is abandoned in 1958 it may have been a temporary structure associated with construction or maintenance of the nearby substation. No evidence of the structure was noted in the field. Additional archival maps reviewed included the U.S. Department of Agriculture (USDA) Soils Map San Marcos Sheet dated 1906 and the Texas State Highway Department 1936 map for Hays County, Texas, neither of which depicted any structures within the APE, though a gravel pit was depicted south of Jack C. Hays Trail within the APE on the 1936 Highway map. Gravel pits were also noted on the 1958 and 1968 USGS Buda Sheet topographic quadrangles.

Figure 2. Archaeological sites adjacent to the APE.

Figure 3. Previously recorded cultural resources and surveys within 1 kilometer of the APE (Atlas 2018).

METHODS

The current archaeological investigations were a 100-percent systematic, intensive pedestrian survey that included subsurface testing within the APE. In total 13 shovel tests and 1 trench were excavated throughout the 1,600-foot-long by 180-foot-wide, or 6.7-acre area. Additionally, CAS mechanically excavated one trench to investigate the potential for deeply buried deposits. While the majority of deposits were of Pleistocene age and/or shallow depsition, regionally, more recent Pleistocene soils have contained cultural material. One backhoe trench was excavated in an area of deeper Pleistocene deposits to investigate the potential for deeply buried deposits. The locations of all trenches and shovel tests were recorded using a Trimble GeoXT 6000 Series GPS unit.

All shovel tests, approximately 30 cm in diameter, were excavated primarily by stratigraphic zones and secondarily by arbitrary 20 cm levels to a maximum depth of 80 cm. All of the excavated sediment was passed through a ¼-inch hardware screen. Observations and comments pertaining to each probe were recorded by the excavator. Once all excavations were complete, the shovel tests were backfilled.

Of the 6.7 acre APE, the existing Jack C. Hays Trail roadway had been previously surveyed (0.5 acres) and both it, the overhead transmission line corridor (0.3 acre) and the eastern edge gravel pit area (0.2 acre), or 1 acre of the project area, had been previously disturbed by past construction projects. In addition, the open field northwest of Jack C. Hays Trail had approximately 30 percent ground surface visibility for 280 linear feet, or 1.1 acre of the proposed project (Figures 15 and 16), and the remaining 120 linear feet of the project north of the FM 2770 ROW (or 0.5 acres) consisted of primarily slope greater than 20 percent (see Figure 9). Therefore, only 7 shovel tests would have been called for based on actual site conditions. However, one 15-percent sloped area within a greater sloped section at the start of the APE was chosen for a shovel test resulting in a positive find and additional shovel tests to delineate the site boundaries, though slope conditions minimized potential areas for the location of those radials. Soils in this area were deeper than 12 inches before encountering a restrictive gravel level between 50 to 90 cm. Sloped terrain and dense vegetation limited the ability to mechanically trench in this area, but given the shallow and mixed deposition of the soils, mechanical trenching in this area would be unnecessary. The site was confined primarily to the sloped terrace above the floodplain. In addition to digging shovel tests where possible on the slope, a couple of negative radials were excavated on the higher elevation flat area above the sloped terrace to delineate the site. The entire exposed field was walked including the eroded and greater than 40 percent surface visibility area along the northern boundary of the APE where past grading for the Senior Center parking lot resulted in an exposed cut surface. The FM 2770 corridor had been raised on fill with offsets of drainage channels cut north and south of the roadway. Southeast of FM 2770, the southern boundary of the corridor was primarily mixed open grassland, prickly pear, and scrub brush habitat with 50 percent or greater ground visibility. The southern boundary was visually inspected for artifacts, with shovel tests conducted in denser vegetation areas. Based on soil profiles and field conditions, only one location was both accessible to heavy machinery

and had soils exceeding the depths of shovel test reach.

The trench, approximately 1 meter wide by 4 meters long, was excavated by arbitrary 20 to 30 cm levels to a maximum depth of 130 cm below surface at which time a gravel layer and water table was encountered and the trench began to backfill with water. One shovel load of each backhoe-bucket of sediment was screened through ¼-inch hardware mesh. Trenches were immediately backfilled following photo documentation, profile sketch maps with soil identification documentation, and observation.

A second trench within Pleistocene deposits was planned, but again vegetation and an active drainage prevent mechanical access. Shovel tests in the planned area however indicated very sticky and plastic clay and a high water table given the low nature of the terrain, presence of wetland vegetation, and nearby drainage at a similar elevation.

Given the nature of the onsite conditions, the excavation of 13 shovel tests and 1 mechanical backhoe trench exceeded CTA/THC standards.

RESULTS

The APE consists of a mix of previously cleared and 20-to 30-year-old hardwood bottomland, with disturbance from past gravel quarrying activity at the eastern end of the project. Given the presence of an Ap horizon within the Lewisville series soils, approximately ⅓ of the project area had prior agricultural disturbance including that of the current hardwood bottomland. The APE is relatively flat but slopes toward the floodplain along its western edge with a 2-to 3-meter steep drop occurring at the western project boundary.

Existing previous ground disturbances include a graded open field along most of the APE west of the roadway, a maintained utility line corridor which transects the APE just west of the roadway, Jack C. Hays Trail roadway and deep drainage ditches either side of the roadway, and gravel pits at the eastern edge of the APE. (Figure 4). The majority of existing disturbances would have reached similar levels of past disturbances from agricultural land practices, with the exception of the gravel pit excavations which have resulted in a ponded area visible from aerials.

Original methodology proposed excavation of three trenches within the project area, but due to a combination of results from shovel testing suggesting shallower soils in one case and higher water table than anticipated, along with and access limitations due to dense vegetation in some areas, only one mechanical trench was excavated. The one mechanical trench was excavated to a maximum depth of 130 cm below surface, at which time a solid gravel layer was encountered, and the trench began to fill with water due to encountering water table. Thirteen shovel tests (ST) were excavated within the APE. Shovel test depths varied due to variations of soil morphology, gravel components, and depths to sterile zones. One shovel test was terminated at 25 cm after encountering an unmarked underground cable. All remaining shovel tests were excavated to a minimum of 30 cm and to a maximum depth of 100 cm throughout the APE. The first shovel test (ST 01) encountered non-diagnostic lithic flake debris which resulted in radials to the north, south, and east of the positive shovel test. The project area to the west sloped at approximately 40-50 degrees towards the edge of the Onion Creek floodplain with no level areas for shovel testing. The radial to the South (ST 02), once mapped, was determined to be at the boundary of the proposed project area. Two lithic flakes were recovered from ST 02 which was also on a steeper slope than ST 01 of about 20 to 30 percent. Modern refuse and a mid-20th century to modern dump was encountered north of the initial positive shovel test with its boundary at the location of the north shovel test radial (ST 03). Lithic flakes were encountered in the upper 20 cm of ST03, but multiple 20th century clear ridged glass fragments were encountered between 24-45 cm, beneath the level at which the flake was discovered. Sloped terrain prevented more than one northern radial within 10 meters of ST 03. Approximately 20 meters North of ST 03 was an erosional which was visually inspected for artifacts. No artifacts were identified within that cut. East of ST 01, radial ST 04 was excavated. There were multiple chert flakes and one non-diagnostic bifacially worked flake encountered inter-mixed with 9 pieces of clear glass and 3 pieces of brown glass. Radial ST 05 was excavated east of ST 02 and radial ST 06 was excavated east of ST 04. Both shovel tests were devoid of cultural material and were located above all flood plain deposits with shallow soils

and high gravel content. The outline for Site 41HY548 follows topographic features. Site 41HY548 is lacking in integrity for the portion within the current project boundaries. There is potential that additional areas with integrity exist to the South of the current project corridor. The overlying historic dump boundaries were delineated based on surficial exposure. All clear glass bottles were clear, no amethyst glass was present, and all diagnostic bottles based on labels, threaded finishes for closures, standard amber or clear glass colors, bubble free nature of glass, and bottle types and styles were consistent with a post 1930s manufacturing date. One Ball jar logo was dated (Lockhart et al. 2013) to between 1933-1960 for production and a stubby amber beer bottle to a post 1935 manufacturing time frame. No diagnostic artifacts were present which would suggest a pre-1930 date. While the surface scatter of the dump had a smaller boundary, there were other glass fragments identified in every shovel test, therefore the dump's boundaries are incorporated within the prehistoric site's boundaries. It is probable that the modern dump disturbed an earlier prehistoric site. An employee of the nearby senior center who came out to talk with the field crew mentioned that there had been an earlier dump in the location of the current senior center parking lot. It is possible that either that debris was redistributed at the current demarcated location during construction of that lot, or that the dump had at one time extended into part of the current parking lot area.

Figure 4 depicts the location of Backhoe Trench (B) 01 while Figures 5 and 6 depict the overall setting and profile of Trench BT 01, respectively. Table 1 in Appendix A contains the details for the backhoe trench, and Table 1 in Appendix B contains the details for each shovel test.

The soil profile changes throughout the APE. In the far west along Onion Creek at the sloped terrace where Site 41HY548 was encountered, soils are silt loam and silt clay loam intermixed with gravel. In the open cleared field between Onion Creek and Jack C. Hays Trail soils are shallow and have a gravel content of 80 percent or greater, including large rocks 5 to 20 cm in diameter. South of FM 2770 the soils are dark brown or very dark brown dense clay poorly drained with increasing gravel and caliche content with an 80 percent caliche or gravel content by 40 cm for most shovel tests. ST 09 had a slightly less dense concentration of pebbles yet was still compact hard clay at 50 cm. Backhoe Trench 01 overlapped ST 09 and profiles are included in Appendix A. The one exception south of FM 2770 was ST 12. Soils within ST 12 were very plastic and very sticky clay. Material could not be screened and were troweled through as possible. Removal of soils from shovel and trowel were incredibly difficult. The soil was completely sterile without any rocks, concretions, or other material. The shovel test was in a bottomland adjacent to the unnamed drainage and was increasingly wet and sticky as excavations continued. Given the low terrain and sterile nature of the soils combined with the location of the shovel test, ST 12 likely represents a sub-gravel level remnant from post gravel pit removal operations.

Based on background information and corresponding soil profiles observed in the field, the majority of the soils within the APE are of Pleistocene-age, with the exception of the recent alluvial deposition at the small segment adjacent to Onion Creek. The recent alluvial deposition, however, appears shallow with more evidence along the sloped terrace for scouring and redeposition with an underlying Pleistocene gravel subsoil.

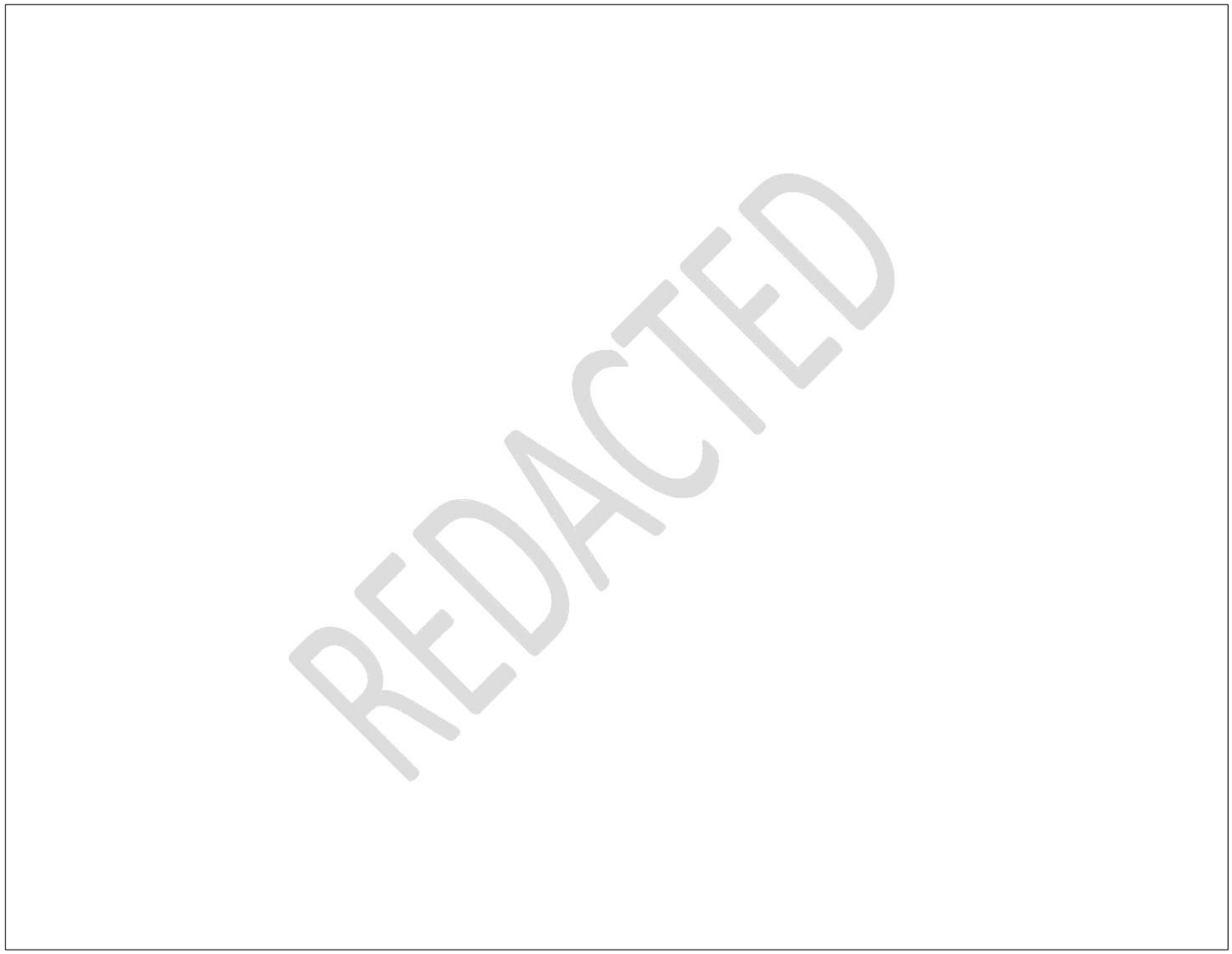

Figure 4. Archaeological site delineation, backhoe trench, and shovel test locations within area of potential effects.

Figure 5. Backhoe and operator beginning excavation of trench BT1.

Figure 6. Profile of trench BT1 depicting soil horizons and initial encounter of water table at base of southern half of trench. Detailed soil profile in Appendix A, Table 1.

Figure 7. Base of northern half of BT1, last mechanical scrape before groundwater rushed in.

Figure 8. BT 1 after encountering water table.

Figure 9. ST 02 depicting soil conditions on sloped terrace.

Figure 10. View from edge of terrace upslope (view east) to location of ST 01.

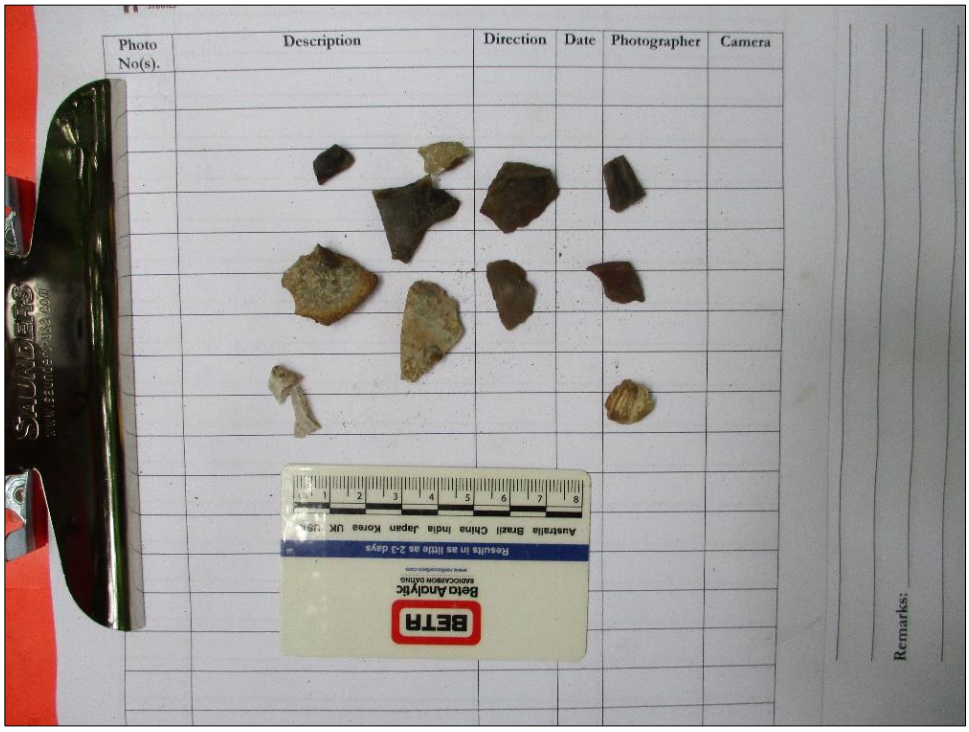

Figure 11. Lithic flakes recovered from ST 01.

Figure 12. Lithic flakes recovered from ST 02.

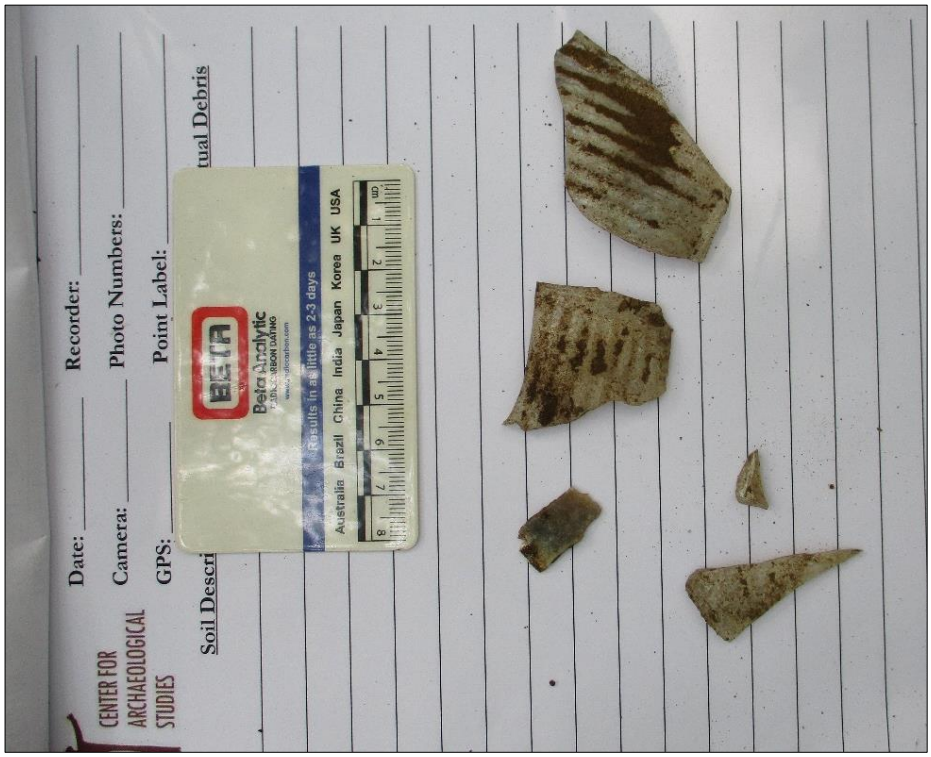

Figure 13. Clear glass and one lithic flake recovered from ST 03.

Figure 14. Flakes and glass recovered from ST 04.

Figure 15. Historic and Modern trash dump deposit.

Figure 16. ST 06, note large cobble to left and smaller gravel upper left that came from shovel test.

Figure 17. View from ST 06 towards ST 07. Note open field, power lines, and roadway disturbances.

Figure 18: View southeast from ST 07 towards Jack C. Hays Trail. Note transmission line, deep drainage cut and roadway.

Figure 19: View south-southeast of ST 09. Note open mixed grassland scrub field.

Figure 20: View northwest from southern edge of APE of location of ST 09 and BT1.

Figure 21: View southeast from ST 10 of general vegetation overview.

Figure 22: View northwest from ST 12 towards unnamed drainage near eastern end of APE.

CONCLUSIONS AND RECOMMENDATIONS

The City of Buda, with FEMA funding, plans to install a new drainage and associated improvements (outfall, culvert and channel) from Onion Creek to 1,200 feet east southeast of Jack C. Hays Trail (FM 2770) in the City of Buda, Hays County, Texas. The project will require significant ground disturbance along its approximate 1,600 linear foot length with depths of excavation for the channel not exceeding 14 feet. As a political subdivision of the State of Texas, work performed by the City, using State funds and/or involving State-owned property, requires compliance with the Texas Antiquities Code. In addition, the involvement of FEMA monies requires compliance with Section 106 of the NHPA and there is a potential for a USACE Section 404 clean water permit associated with the outfall at Onion Creek.

Overall, the soils of the APE exhibit a moderate potential for buried cultural resources, and the nearness to Onion Creek would have been attractive to both prehistoric and historic peoples. Despite that, the majority of the APE consisted of shallow deposits and no artifacts of any kind were noted southeast of FM 2770. The only archaeological material noted was associated with site 41HY548. Site material was located surficially to 70 cm of depth, but was in a mixed context with historic aged artifacts deposited beneath prehistoric aged deposits. While the historic dump material associated with the Site is located across Onion Creek from 41HY491, the Antioch Colony, all historic aged material was consistent with a post-1930 timeframe. Cultural material associated with 41HY491 was previously recorded as predominantly late 19th century, and the history of the Antioch Colony suggests it was mostly abandoned by the 1930s. It is unlikely that the historic trash dump located during the current survey is associated with that colony. There are no immediate structures noted on any archival maps within the area, therefore a specific association with an individual or event is not possible.

CAS recommends that the site within the project boundaries would be ineligible for inclusion in the National Register of Historic Places due to lack of integrity of association, setting, or material based on the mixed nature of the deposits, as well as a lack to provide new or additional information. There were no archaeological sites or settings identified throughout the rest of the proposed project area during survey. CAS recommends full regulatory clearance for the proposed project. Should the City uncover cultural remains not identified by this survey during grading or other ground disturbance, CAS recommends that the THC be notified immediately.

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APPENDIX A

Table A-1. All backhoe trenches showing texture, color, and comments by stratigraphic level.

BT	Depth (cmbs)	Sediment Texture	Sediment Color	Artifacts Recovered	Comments
1	0-26	Silty clay	10YR 3/2	Sterile	20% smaller gravel (0-3 inches)
	26-46	Clay	10YR 4/1	Sterile	Hard clay; 20-40% gravel inclusion
	46-84	Clay	10YR 4/4	Sterile	Hard firm clay, about 40% gravel 3-8 inches in size mixed with smaller gravel
	84-103	Clay	10YR 5/4	Sterile	Hard firm clay with some 10yr5/6 soil inclusions and 40-60% larger gravel 3-8 inches increasing towards base of horizon.
	103	Gravel		Sterile	>90% gravel content and water table boundary

APPENDIX B

Table B-1. All shovel tests showing texture, color, and comments by stratigraphic level.

ST	Depth cmbs	Sediment Texture	Sediment Color	Artifacts Recovered	Comments
1	0-20	Silt loam	7.5yr2.5/2	None	Snail shell, roots, and organic debris
	20-70	Silt loam	10yr4/3	Multiple flakes and 2 glass fragments	
	70-100	Silt loam clay	10yr4/4	None	Increasing gravel, some silica inclusion in soils
2	0-23	Silt loam	7.5yr2.5/2	None	Snail shell, roots, and organic debris
	23-63	Silt loam	10yr4/3	2 flakes	A few gravels
	63-85	Silt loam clay	10yr4/4	None	Increasing to 60% gravel
3	0-24	Silt loam	7.5yr2.5/2	1 bifacially worked flake, 1 curved clear glassware, 7 clear glass fragments	Some roots
	24-45	Silt loam	10yr4/4	2 pieces clear ridged glassware	Dense root concentration, some gravel
	45-70	Silt loam clay	10yr5/6	None	Dense root concentrations, increasing gravel to 60%
4	0-44	Gravelly loam	7.5yr2.5/2	5 chert flakes, 1 bifacially worked flake with patinaed surface, 9 pieces of clear glass, 3 pieces of brown glass	Large limestone cobbles 10-25cm diameter and 30% roots throughout
5	0-25	Gravelly loam	10yr4/3	None	>75% gravels and cobbles. Terminated due to encountering underground utility cable
6	0-30	Gravelly loam	10yr4/3	None	>80% large gravels and cobbles. Terminated due to restrictive nature of rocks.
7	0-24	Gravel loam clay	10yr3/2	None	Heavy gravels and asphalt fragment
	24-38	Gravel clay	10yr3/2	None	Decomposing limestone in southeast wall, >75% gravel
	38-42	Gravel clay	10yr2/1	None	Heavy caliche (>85%) and clay mottles

Table B-1. All shovel tests showing texture, color, and comments by stratigraphic level.

ST	Depth cmbs	Sediment Texture	Sediment Color	Artifacts Recovered	Comments
8	0-10	Silt loam clay	10yr3/3	None	Hydric soils
	10-30	Silty clay	10yr5/6	None	Hydric soils
9	0-50	Clay	10yr3/2	None	Numerous very small (,1cm) pebbles and occasional limestone cobble >5cm); very hard, very firm clay
10	0-20	Gravel clay loam	10yr2/2	None	40% gravel at start, increasing gravel content through level
	20-40	Gravel loam clay	10yr2/2	None	80% gravel content
11	0-20	Gravelly clay	10yr2/1	None	90% gravel. Terminated due to restrictive nature.
12	0-40	Clay	10YR3/1	None	Dense extremely plastic extremely sticky clay, hydric soils, completely sterile with no rocks, concretions, etc…
13	0-30	Clay	10yr3/1	None	