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Archaeological Monitoring of the Olmos Basin Golf Course Tree Planting Project, San Antonio, Bexar County, Texas

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Archaeological Monitoring of the Olmos Basin Golf Course Tree Planting Project, San Antonio, Bexar County, Texas

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**Archaeological Monitoring of the Olmos Basin Golf
Course Tree Planting Project,
San Antonio, Bexar County, Texas**

TAC #8648

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January 2020

Abstract

At the request of the City of San Antonio (COSA), Pape-Dawson Engineers, Inc. (Pape-Dawson) monitored for cultural resources during the planting of new trees within portions of the existing Olmos Basin Golf Course, located west of the intersection of Basse Road and US 281, in San Antonio, Bexar County, Texas. The trees were placed randomly throughout the golf course along with new, connecting irrigation lines. Excavations for the trees averaged 3.6 feet (ft) (1.1 meters² [m²]) in diameter and 1.6 ft (0.5 m) deep. Irrigation lines were installed approximately 1 ft (0.3 m) below the ground surface and were on average 0.75 ft (0.23 m) in width.

As the Olmos Basin Golf Course is a municipal golf course operated by the COSA, compliance with the Antiquities Code of Texas (ACT) will be necessary. No federal funding or permitting is anticipated and compliance with Section 106 of the National Historic Preservation Act (NHPA) will not be required.

Prior to fieldwork, Pape-Dawson archaeologists coordinated with the COSA archaeologist and the Texas Historical Commission (THC) to determine areas of concern for field investigations. Based on this coordination, archaeologists focused on monitoring during tree planting and irrigation line installations located only within the boundaries of previously recorded sites 41BX1799 and 41BX1800. Within these sites, archaeologists monitored between 50 and 75 percent of the total tree installations. Archaeological monitoring was conducted within the approximately 185-acre project area intermittently between January 22 and April 9, 2019. Pape-Dawson archaeologists monitored the excavation of 208 tree pits, 20 of which were positive for cultural materials. Of these 20 positive pits, nine were located within previously disturbed soil contexts. A total of 2.35 km of irrigation lines were also monitored for cultural resources. Isolated cultural materials from prehistoric, historic, and modern time periods were observed throughout the irrigation line trenches.

Sites 41BX1799 and 41BX1800, were revisited during archaeological monitoring. Site 41BX1799 is a multicomponent site, consisting of a prehistoric lithic scatter, a lithic material procurement site, and a historic artifact scatter of indeterminate temporal affiliation. Site 41BX1800 is a low-density prehistoric lithic scatter, dating to the Late to Transitional Archaic time period. Most materials observed were situated within disturbed contexts, however, archaeologists did identify intact deposits of prehistoric and historic materials in 11 of the excavated tree pits. As a result of this monitoring, 41BX1799's site boundary was extended out an additional 1.11-acres. No cultural materials were observed outside of the current 41BX1800 boundary; thus, it remains unaltered. Due to the lack of intact cultural features, the paucity of

diagnostic artifacts, and the extensive disturbances noted throughout both previously recorded sites, 41BX1799 and 41BX1800 are recommended *Not Eligible* for National Register of Historic Places (NRHP) and State Antiquities Landmarks (SAL) designations. If future work within sites 41BX1799 or 41BX1800 reveal additional archaeological deposits, work should temporarily cease, and the City Archaeologist and THC should be immediately notified before recommencing work.

All records associated with this project are curated at the University of Texas at San Antonio Center for Archaeological Research (UTSA-CAR).

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Management Summary

This report presents the results of archaeological monitoring associated with tree and irrigation line installations at the Olmos Basin Golf Course in San Antonio, Texas. The archaeological work was undertaken in compliance with the ACT under permit #8648. For the project, trees and new irrigation lines associated with the tree planting were placed throughout the golf course. Excavations of tree pits averaged 3.6 feet (ft) (1.1 meters² [m²]) in diameter and 1.6 ft (0.5 m) in depth. Irrigation line trenches were installed, on average, 1 ft (0.3 m) below the ground surface and were approximately 0.75 ft (0.23 m) in width.

As the Olmos Basin Golf Course is a municipal golf course operated by the City of San Antonio, compliance with the ACT will be necessary. No federal funding or permitting is anticipated, so compliance with Section 106 of the NHPA will not be required.

Pape-Dawson performed archaeological monitoring within the project area intermittently between January 22 and April 9, 2019. Nesta Anderson acted as Principal Investigator for Pape-Dawson, and was assisted in the field by archaeologists Jacob Sullivan, Sheldon Smith, and Lily Camara. Prior to fieldwork, Pape-Dawson archaeologists coordinated with the COSA archaeologist and the THC to determine target areas for field investigations. Based on this coordination, archaeologists focused on monitoring excavations only within previously recorded sites 41BX1799 and 41BX1800. Within these sites, archaeologists monitored between 50 and 75 percent of the total tree installations and irrigation line trenches.

Site 41BX1799 consists of a prehistoric lithic scatter, lithic material procurement site, and a historic artifact scatter of indeterminate temporal affiliation. Site 41BX1800 is a low-density prehistoric lithic scatter, dating to the Late to Transitional Archaic time period. Most cultural materials observed during monitoring were recovered from disturbed contexts, however, archaeologists did identify intact deposits of prehistoric and historic materials in 11 of the excavated tree pits. As a result of this monitoring, 41BX1799's site boundary was extended out an additional 1.11-acres. No cultural materials were observed outside of the current 41BX1800 boundary and its boundary remains unaltered. Due to the lack of intact cultural features, the paucity of diagnostic artifacts, and the extensive disturbances noted throughout both sites, 41BX1799 and 41BX1800 are recommended *Not Eligible* for NRHP and SAL designation.

Introduction

At the request of the COSA, Pape-Dawson monitored the installation of trees and irrigation lines within portions of the existing Olmos Basin Golf Course, located west of the intersection of Basse Road and US 281 in San Antonio, Texas (Figures 1 and 2). For the purposes of this project, the archaeological project area is defined as the Olmos Basin Golf Course. Prior to fieldwork, Pape-Dawson archaeologists coordinated with the COSA archaeologist and the THC to determine areas of concern for field investigations. Based on this coordination, archaeologists focused on monitoring within previously recorded sites 41BX1799 and 41BX1800 rather than across the entirety of the golf course.

As the Olmos Basin Golf Course is a municipal golf course operated by the City of San Antonio, compliance with the ACT will be necessary. No federal funding or permitting is anticipated, so compliance with Section 106 of the NHPA is not required.

Pape-Dawson archaeologists monitored between 50 and 75 percent of the tree and irrigation line installation excavations within the 41BX1799 and 41BX1800 site boundaries. Pape-Dawson Principal Investigator Nesta Anderson and archaeologists Jacob Sullivan, Sheldon Smith, and Lily Camara, conducted the monitoring intermittently between January 22 and April 9, 2019. The goals of the investigation were to: (1) locate all prehistoric and historic cultural resources, if present, within the areas of concern; (2) establish vertical and horizontal site boundaries, as appropriate with respect to the project area; (3) evaluate the significance of recorded cultural resources with regard to NRHP and SAL eligibility, in compliance with the ACT.

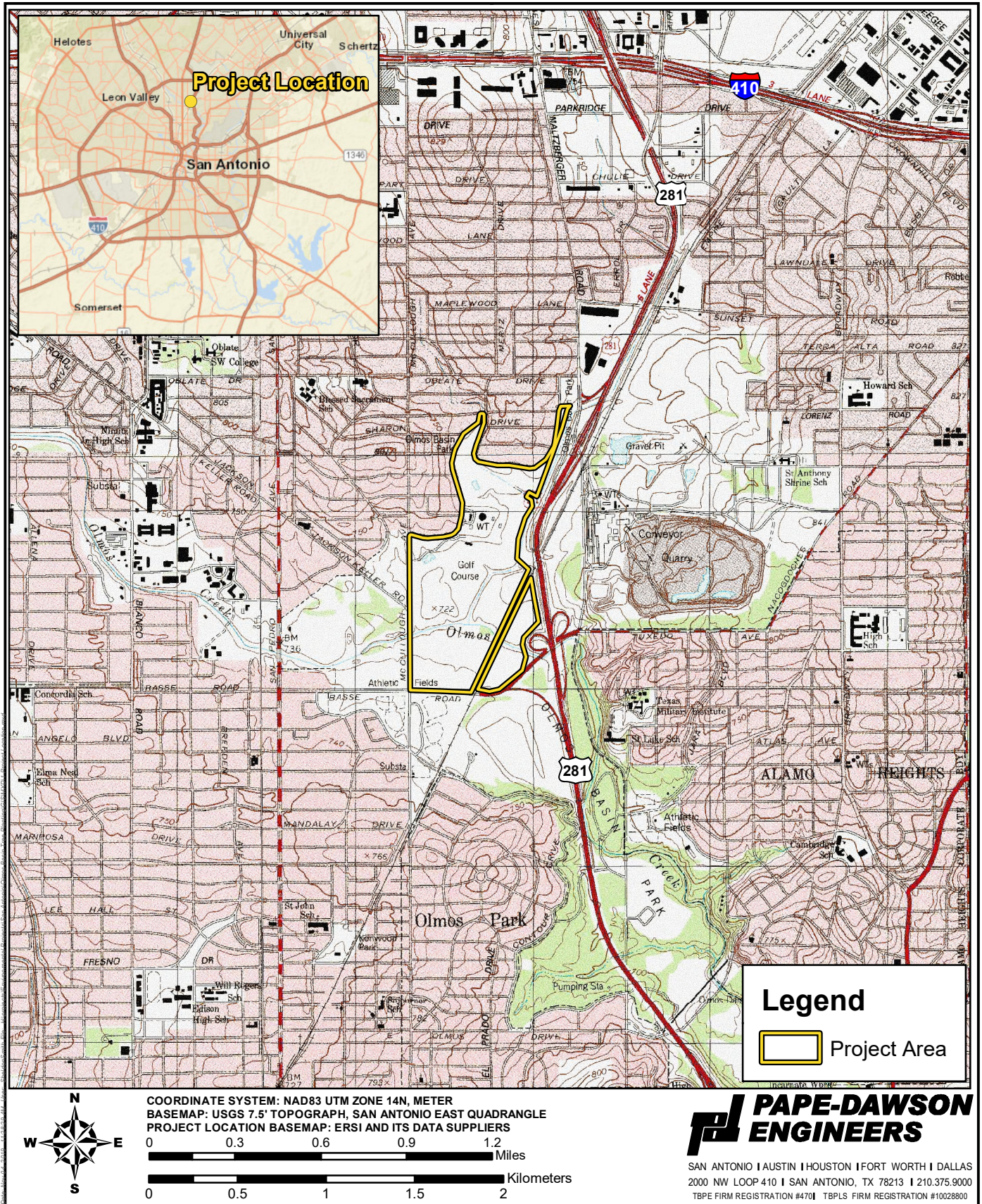


Figure 1. Project Location Map

Olmos Basin Tree Planting PN: 8917-00
 Bexar County, Texas
 Cultural Resources Report
 November 2018



Figure 2. Project Area Map

Project Setting

The project is located in north-central San Antonio near the intersection of Basse Road and McCullough Avenue. Surrounded by residential neighborhoods, the project area is situated within the Olmos Basin Golf Course, which opened in 1963 (MGA-San Antonio 2012). Prior to that time, in the mid-1950s, the land was undeveloped and unimproved with the exception of a few two-track roads and a branch of the Missouri Pacific Railroad, which traversed the eastern half of the property (NETR Online 2011). Although the two tracks were removed with the construction of the golf course, the railroad line still exists within the property today. Two perennial streams run through the golf course. Olmos Creek flows west to east dividing the course into two relatively equal halves, while an unnamed tributary flows north to south within the northern half of the golf course, before intersecting Olmos Creek near the center of the property.

Located on the margins of the Blackland Prairies and the Interior Coastal Plains regions of central Texas (Wermund 1996), the project landscape is characterized by narrow floodplains and low stream terraces associated with Olmos Creek and one of its tributaries, as well as uplands. The project area is geologically mapped as Pleistocene-age Fluvial terrace deposits (USGS 2005). Five soil units are mapped within the boundaries of the project area, including Branyon Clay, Houston Black, Heiden-Ferris, Lewisville, and Tinn and Frio (Figure 3). Branyon soils are very deep, moderately well-drained, Pleistocene-age soils, found on stream terraces. They consist of an A horizon of dark gray clay that transitions into dark gray clay, about 10 centimeters (cm) below the ground surface. Houston Black soils are similar to Branyon, in that they are very deep and moderately well-drained, but are Cretaceous in age. These soils typically have an A horizon of 20 cm of very dark gray or black clay over a B horizon of very dark gray-black clay and are found on uplands. Heiden soils are deep, well-drained, soils formed in clayey residuum of mudstone. These very dark grayish brown clay soils have an A-horizon that extends approximately 46 cmbs before transitioning into the B-horizon. Ferris soils are deep, well-drained soils formed in clayey residuum of calcareous mudstone. They are found on backslopes along the sideslopes of ridges and consist of an A horizon of 20 cm of olive colored clay over a B horizon of pale olive colored clay. Lewisville soils are very deep, well-drained, upland soils that consist of 41 cm of dark grayish brown silty clay over grayish brown silty clay. Tinn and Frio soils are formed in calcareous clayey alluvium. These soils are found on floodplains of streams that drain the Blackland Prairies. Tinn soils are characterized by 46 cm of black clay (A-horizon) overlying another black clay (B-horizon). Frio soils consist of dark grayish brown silty clay (A-horizon)

yielding to grayish brown silty clay (B-horizon) at depths of approximately 102 cm below ground surface (Soil Survey Staff, NRCS, USDA 2015).

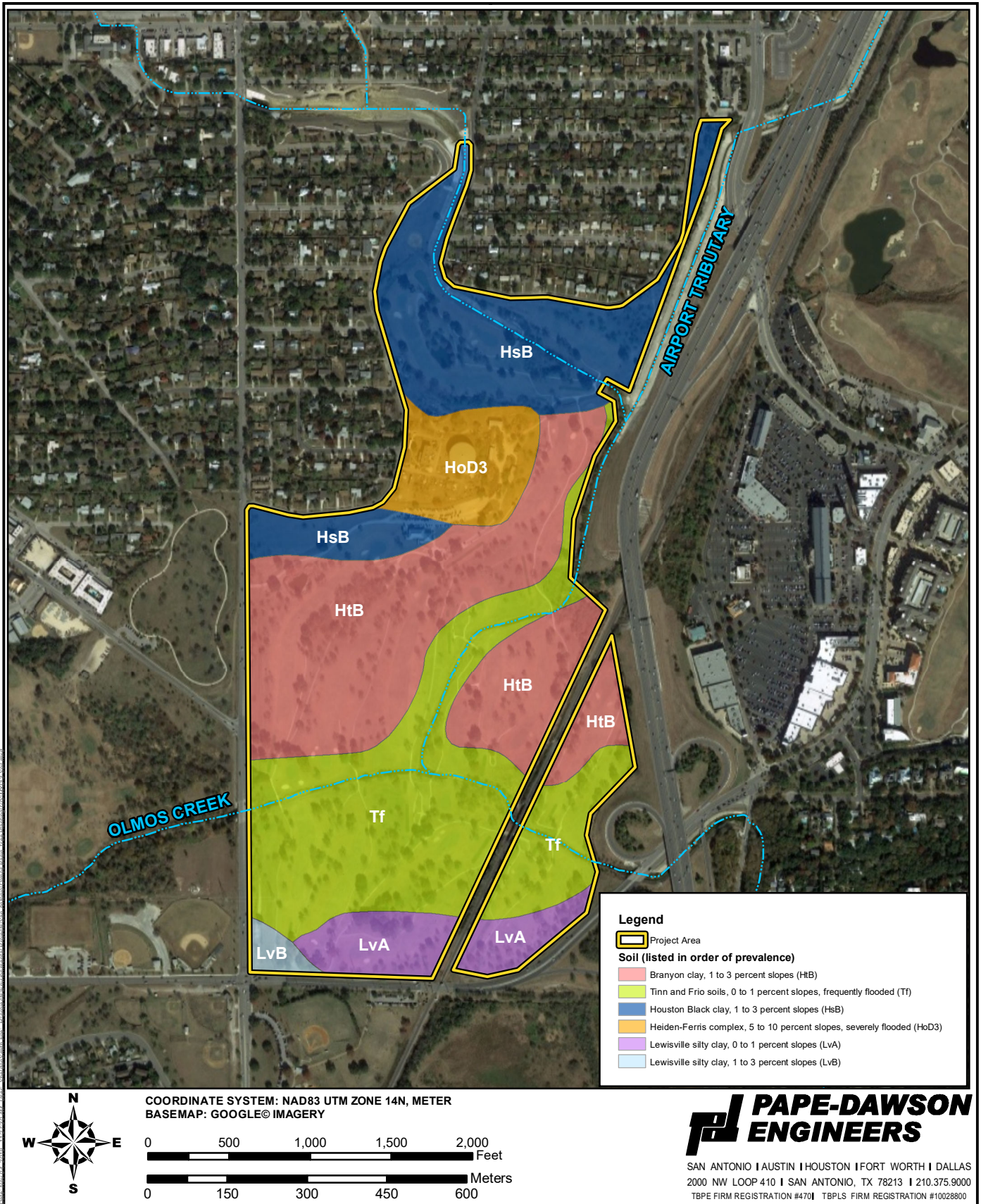


Figure 3. Soil Map

Cultural Chronology

Bexar County falls within the Central Texas archaeological region of the Central and Southern Planning Region as delineated by the Texas Historical Commission (THC) (Mercado-Allinger et al. 1996). Cultural developments in this region are typically classified by archaeologists according to four primary chronological time periods: Paleoindian, Archaic, Late Prehistoric, and Historic. These classifications have been defined primarily by changes in material culture and subsistence strategies over time as evidenced through information and artifacts recovered from archaeological sites. This cultural chronology provides a brief summary of each major prehistoric cultural period with reference to significant archaeological work that has occurred within the region.

PALEOINDIAN (11,500 B.P. – 8,800 B.P.)

Although there is some debate about whether pre-Clovis Paleoindian peoples lived in Texas, there is evidence of Paleoindian occupation within Texas by 11,500 B.P. Collins (1995:376, 381) has proposed dividing this period into early and late phases, with Dalton, San Patrice, and Plainview possibly providing the transition between them. Research has shown Paleoindians were gathering wild plants and hunting large mammals (mammoth, bison, etc.) as well as smaller terrestrial and aquatic animals (Collins 1995:381; Bousman et al. 2004:75). Projectile points characteristic of the Paleoindian period in Central Texas are lanceolate-shaped and include Clovis, Plainview, and Folsom (Turner and Hester 1999). In Texas, most Paleoindian sites are classified as procurement or consumption sites (Bousman et al. 2004:76-78), but a few, such as the Wilson-Leonard site in Williamson County (Collins 1995) and the Pavo Real site in Bexar County (Henderson 1980; Collins et al. 2003; Figueroa and Frederick 2008), have produced burials in context (Collins 1995:383). Other Paleoindian sites discovered within Bexar County include site 41BX47 on Leon Creek (Tennis 1996), the Richard Beene site (41BX831) (Thoms et al. 2005; Thoms and Mandel 2007), and the St. Mary's Hall site (41BX229), which has provided insight into a more diverse diet for Paleoindian groups (Hester 1978).

As the climate warmed, the Paleoindian people began to shift away from hunting large animals. The changing environment, which led to extinction of the megafauna, likely influenced their decision to focus more on hunting small game animals, including deer and rabbit, as well as gathering edible roots, nuts, and fruits (Black 1989). This change in food supply, as well as a different set of stone tools, marks the transition into the Archaic Period.

ARCHAIC (8,800 B.P. – 1,200 B.P.)

Usually divided into early, middle, late, and sometimes transitional sub-periods, the Archaic marks a gradual shift from hunting Megafauna and some smaller animals supplemented with wild plants to a focus on hunting and gathering medium and small animals and wild plants, and an eventual transition to agriculture. Beginning with Clear Fork gouges and Guadalupe bifaces in the Early Archaic (8500 B.P. – 6000 B.P.) (Turner and Hester 1999; Collins 1995), Early Archaic people produced a variety of point types. The variety of points and their scattered distribution over a large area in the Early Archaic may indicate smaller groups of people moving over larger territories (Prewitt 1981). Point types transition to Bell-Andice-Calf Creek, Taylor, and Nolan-Travis points in the Middle Archaic (6000 B.P. – 4000 B.P.) (Turner and Hester 1999; Collins 1995), and burned rock middens become an important characteristic. The Middle Archaic focus on constructing burned rock ovens to cook a diverse array of plant food (Black 1989) suggests a slightly more sedentary focus. The Bulverde, Pedernales, Ensor, Frio, and Marcos points in the Late Archaic (4000 B.P. – 1300 B.P.) (Turner and Hester 1999; Collins 1995) mirror the diversity of point types found in the Early Archaic. During the Late Archaic, cemeteries, especially associated with rock shelters, become common in central Texas (Dockall et al. 2006). In Bexar County, sites with Early Archaic components include the Housman Road site (41BX47), the Richard Beene site (41BX831) (Thoms et al. 2005; Thoms and Mandel 2007), the Higgins site (41BX184) (Black et al. 1998), and the Panther Springs site (41BX228) (Black and McGraw 1985). While the Elm Waterhole site (41BX300) is representative of a Middle Archaic site within Bexar County (McNatt et al. 2000), the Granberg site (41BX17\41BX271) in San Antonio is a multi-component site with occupations from both the Middle and Late Archaic sub-periods.

LATE PREHISTORIC (1,200 B.P. – 250 B.P.)

As the Archaic transitioned into the Late Prehistoric period, several technological changes become apparent. The most notable change is the use of the bow and arrow rather than the spear and atlatl, evidenced by smaller dart points. Another significant innovation is the creation and use of ceramic vessels. Some groups began to practice consistent agriculture during this time as well; there is some evidence that peoples in Central Texas may have incorporated agriculture into their lives, but primarily remained hunter gatherers (Collins 1995). Also during this period, there are possible indications of major population movements, changes in settlement patterns and perhaps lower population densities (Black 1989). Archaeologists divide the Late Prehistoric into two phases: the Austin phase, followed by the Toyah phase.

HISTORIC (1600s – 1950)

While there is an overlap between the prehistoric and historic periods (sometimes called the protohistoric), Europeans did not begin exploration in the area until the seventeenth century. Alonso de Leon's 1689 and 1690 expeditions and de los Rios' 1691 expedition were likely the some of the first interactions between Europeans and Native groups (de la Teja 1995: 6). According to historical accounts of the expeditions, these early Spanish explorers encountered numerous indigenous groups residing in and near Central Texas (Mercado-Allinger et al, 1996). These indigenous groups likely included the Payaya and the Pamaya who resided in the southern plains of Texas as well as the Tonkawa, Karankawa, Lipan Apache, and Comanche, who entered the area from the northern plains in pursuit of food and stopped at the area's springs (Long 2017). In 1691, Spanish explorers traveling through Bexar County began creating what would become the El Camino Real de los Tejas (The King's Highway, also known as the Old San Antonio Road in portions) (United States Department of the Interior {DOI}, 2011). This network of roadways at least in part likely followed existing trails already well established by the numerous highly mobile indigenous groups within the area.

These explorations helped the Spanish choose locations to establish five missions in and around what would later become San Antonio. Don Martín de Alarcón established the first mission, San Antonio de Valero, in 1718, on the west bank of the San Pedro Creek, followed by the Presidio San Antonio de B́exar and the Villa B́exar (de la Teja 1995). However, by 1722 the Marqúes de San Miguel de Aguayo had moved the presidio and villa to the west side of the San Antonio River (Clark et al. 1975). Other missions, including Mission San Jośe y San Miguel de Aguayo, Nuestra Se~nora de la Puŕsima Concepci3n, San Juan Capistrano, and San Francisco de la Espada were established in the area from 1718 to 1731 (Wright 2016). Most of the Native American groups recruited to live at these missions comprised many different groups (Campbell 1977), but it is difficult to know all the groups that were present due to the variations in spelling and phonetic complexity. The missions used this Native labor force to construct acequias, or irrigation ditches, which helped them to develop self-sustaining communities bordered by farmland (Long 2017).

In 1731, Spain sent 16 families from the Canary Islands to the villa de Bexar to establish the secular village. With the arrival of these families, surveyors set out the city's main plaza, or Plaza de las Islas, next to the church, designated a spot for the Casas Reales, and began to establish residential lots (Spell 1962). This began San Antonio's gradual secularization. In 1773, San Antonio de Bexar Presidio was named the capital of Spanish Texas, and the settlement including mission Indians had a population of about 2,000 by 1778 (Fehrenbach 2017).

During the 1820s and early 1830s, American settlers began moving to San Antonio in increasing numbers, though the population remained predominately Mexican. In 1824, Texas and Coahuila were united into a single state with the capital at Saltillo. San Antonio fought for Mexican Independence in 1813, then for its own sovereignty during the Texas Revolution. The Siege of Bexar and the Battle of the Alamo, in 1835 and 1836, were both located within San Antonio, showing its importance in the region. After Texas gained its independence from Mexico in 1836, Bexar County was created, and San Antonio was chartered as its seat (Long 2017). However, this was not the end of conflict in the city; a dispute with Comanche Indians resulted in the Council House Fight in 1840, and Woll's invasion in 1842 precipitated Texas' entrance into the United States as the 28th state. By 1846, San Antonio's population had decreased to approximately 800 people (Fehrenbach 2017).

After the Civil War, Bexar County continued to grow larger, spurred on by the arrival of the railroad in 1877 (Fehrenbach 2017). Industries such as cattle, distribution, ranching, mercantile, gas, oil, and military centers in San Antonio prospered. The city served as the distribution point for the Mexico-United States border as well as the rest of the southwest. At the turn of the twentieth century, San Antonio was the largest city in Texas with a population of more than 53,000. Much of the city's growth after the Civil War was a result of an influx of southerners fleeing the decimated, reconstruction-era south. An additional population increase came after 1910, when large numbers of Mexicans began moving into Texas to escape the Mexican Revolution (Fehrenbach 2017).

Modernization in San Antonio increased dramatically between the 1880s and the 1890s, compared to the rest of the United States. Civic government, utilities, electric lights and street railways, street paving and maintenance, water supply, telephones, hospitals, and a city power plant were all built or planned around this time (Fehrenbach 2017). The First United States Volunteer Cavalry was organized in San Antonio during the Spanish-American War, and San Antonio was an important military center for the army and air forces during both world wars. Its five military bases provided an important economic base and contributed to the evolution of the city's medical research industry.

Methods

RECORDS REVIEW

Prior to fieldwork, Pape-Dawson archaeologists conducted a background literature review and records search of the proposed project area. This research included examining the THC Texas Archeological Sites Atlas (ATLAS) (THC 2018) online database. This was done in order to locate previously recorded cultural resources, including archaeological sites, properties and districts listed in the NRHP, SALs, Official Texas Historical Markers (OTHMs), Recorded Texas Historic Landmarks (RTHLs), local historic landmarks and districts located within 1 km (0.6 mile) of the proposed project area. In addition to these, archaeologists also examined the U.S. Department of Agriculture Soil Survey of Bexar County (Taylor et al. 1991), Natural Resources Conservation Service (NRCS) Web Soil Survey, the Geologic Atlas of Texas-San Antonio Sheet (BEG 1983), and historic maps and aerials that depict the project area.

FIELDWORK

In coordination with the COSA archaeologist and the THC, Pape-Dawson archaeologists focused on monitoring within previously recorded archaeological sites 41BX1799 and 41BX1800, with an emphasis on the tree planting locations. Within these sites, archaeologists monitored between 50 and 75 percent of the total tree installations. The goal of the monitoring was to determine whether any archaeological deposits would be impacted by the proposed development. Archaeologists monitored tree planting and irrigation installation, closely inspecting the soil profiles visible during excavation and removed soils, for any buried artifacts or features. When archaeological deposits were revealed during the construction process, the archaeologist temporarily halted construction to examine cultural materials and made an assessment of potential significance. Pape-Dawson archaeologists recorded tree planting locations and any cultural resources with a sub-meter accurate, handheld Trimble Global Positioning System (GPS) unit. Artifacts observed while monitoring were photographed and documented in the field, but not collected.

Results

RECORDS REVIEW

The cultural resources records review identified one NRHP-listed property (a fountain located at the Alamo Cement Company), two local historic landmarks (both commercial buildings), and one local historic district (Olmos Park Terrace) within 1-km of the project area (Figure 4). No SALs, OTHMs, RTHLs, or cemeteries were found within a 1-km radius of the golf course. Six previously recorded archaeological sites (41BX193, 41BX1426, 41BX1799, 41BX1800, 41BX2008, and 41BX2009) are located within 1-km of the project area. Two of these sites (41BX1799 and 41BX1800) are located within the proposed project area of potential effects (APE) (Table 1, Figure 4).

Table 1. Previously Recorded Historic Resources within 0.5 km of the Project Area

Trinomial	Site Name/Type	Landform	Depth of Deposits	Within the Project Area	Additional Information
41BX193	Prehistoric lithic scatter	Floodplain and lower terrace of Olmos Creek	Not provided	No	Recording archaeologist recommended the site for testing
41BX1426	Prehistoric lithic scatter with scattered burned rock	Olmos Creek floodplain and first terrace	20-120 cmbs	No	SHPO determination: Undetermined
41BX1799	Prehistoric lithic scatter and quarry site	On a shallow rise west of an unnamed tributary to Olmos Creek	0-5 cmbs, but likely disturbed	Yes	SHPO determination: <i>Not Eligible</i>
41BX1800	Prehistoric lithic scatter with scattered burned rock	On a shallow rise north of Olmos Creek	0-10 cmbs, but likely disturbed	Yes	SHPO determination: <i>Not Eligible</i>
41BX2008	Prehistoric lithic scatter; historic scatter	Olmos Creek floodplain	10-60 cmbs	No	SHPO determination: Undetermined
41BX2009	Prehistoric lithic scatter with scattered burned rock	Olmos Creek floodplain	0-60 cmbs	No	SHPO determination: Undetermined

Site 41BX1799 was originally recorded by SWCA in 2008 during archaeological monitoring of irrigation improvements within the Olmos Basin Golf Course. The site was described as a prehistoric lithic scatter and quarry site of unknown temporal affiliation. The site extends across the eastern portion of a small rise situated on the west side of an unnamed tributary of Olmos Creek. Tested chert cobbles, lithic debitage, and two biface preforms were found within a trench, under a thin layer of maintained grass. The soil covering the site was assumed to have been brought in for grass cultivation. The integrity of the site was reported to have been largely destroyed by golf course construction and maintenance (Culotta et al 2010). According to the THC's online atlas, the site was determined *Not Eligible* for the NRHP. Pape-Dawson revisited this site in 2016 during a bridge replacement project. Mechanical trenching at the bridge replacement locations did not encounter any evidence of the site during the project. Pape-Dawson recommended no further work in the bridge replacement areas.

Site 41BX1800 was recorded by SWCA during a 2008 survey of the entire Olmos Basin Golf Course. It was described as a shallow lithic scatter and burned rock deposit. The site was exposed during archaeological monitoring. A projectile point, resembling a Darl point, was recovered, leading the site to be identified as being from the transitional Archaic period. SWCA noted the site had been disturbed and recommended it *Not Eligible* for the NRHP.

Both sites 41BX1799 and 41BX1800 were documented as a result of SWCA's 2008 survey of the approximately 220-acre Olmos Basin Golf Course. SWCA's investigation of the golf course included a surface survey, 17 backhoe trenches placed in high probability areas, and monitoring of the installation of a new irrigation system. Both sites were found to have been heavily disturbed by the construction of maintenance of the golf course and were both not recommended for listing as SALs (Culotta et al 2010).

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HISTORIC MAP REVIEW

As part of the records review, Pape-Dawson reviewed historic topographic maps and aerial photographs to identify any potential historic age structures and/or previous impacts that may have occurred in the past at the project location. Sanborn fire insurance maps, specifically San Antonio 1911-March 1951 vol. 5 and 1924 – June 1950, show that the existing Olmos Basin Golf Course falls within an area that was previously the site of the Olmos Retention Reservoir. The Olmos Retention Reservoir, along with the Olmos Dam, was constructed in 1926 following the flood of 1921 that damaged much of the San Antonio downtown and business district (Breeding 2010). The Olmos Basin Golf Course opened in 1963 (Municipal Golf Association-San Antonio 2012). A 1963 aerial photograph of the area shows the newly constructed golf course, along with ten bridges replaced during a previous project (NETR Online 2011). Although the golf course underwent renovations in 1994 (Dase 2011), historic and modern aerial photographs show that the ten bridges appear to have remained intact, and in their original locations, since their construction in the early 1960s (NETR Online 2011).

FIELDWORK

Pape-Dawson performed archaeological monitoring intermittently between January 22 and April 9, 2019. Archaeological monitoring occurred within, and directly adjacent to, two previously recorded archaeological sites, 41BX1799 and 41BX1800. Nesta Anderson served as the Pape-Dawson Principal Investigator and was assisted in the field by archaeologists Jacob Sullivan, Sheldon Smith, and Lily Camara. These archaeologists monitored the excavation of 208 tree pits, (Figure 5) 20 of which were positive for cultural materials. Of these 20 positive tree pits, nine were excavated into heavily disturbed soil contexts. Additionally, the excavation of a total of 2.35 km of irrigation lines were also monitored. Isolated cultural materials from prehistoric, historic, and modern eras were observed throughout the soil from these irrigation lines.

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Figure 6. Project Area Overview from Tree Pit 21, camera facing south



Figure 7. Tree Pit 32, camera facing northeast



Figure 8. Overview of Irrigation Lines within 41BX1799, camera facing southwest

Previously Recorded Site 41BX1799

Setting and Description

Site 41BX1799 is a multicomponent site consisting of a prehistoric, low-density lithic scatter and lithic material procurement site of indeterminate temporal affiliation, as well as a sparse historic artifact scatter dating potentially to the early to mid-twentieth century. Located on gently sloping footslopes of an upland rise that extends along an unnamed tributary to Olmos Creek, the site sprawls across much of the north half of the project area, covering an area of approximately 42 acres. The site was originally recorded in 2008 by SWCA while surveying and monitoring the installation of a new irrigation system within the Olmos Basin Golf Course. SWCA reported observing lithic cores, tested cobbles, secondary debitage, tertiary debitage, and two biface preforms, found between 0 to 5 centimeters below the ground surface (cubs). However, it was concluded that the integrity of the site had been heavily disturbed by the construction and maintenance of the golf course (Culotta et al 2010). In 2015, Pape-Dawson archaeologists revisited the site during a survey of proposed bridge replacement locations within the golf course. At the time of the 2015 survey, Pape-Dawson found no evidence of the buried cultural materials at the bridge replacement project locations and recommended no further work at the locations. Vegetation across the

site consists of manicured grass with a scatter of live oak, mesquite, and pine trees. Dense grass at the site limited ground surface visibility to less than 10 percent during the current project. Soils within the site have been mapped as Houston Black clay, 1 to 3 percent slopes; Heiden-Ferris complex, 5 to 10 percent slopes, severely eroded; and Branyon clay, 1 to 3 percent slopes.

Work Performed

Site 41BX1799 was revisited by Pape-Dawson archaeologists during the course of the current project. Archaeologists monitored the excavation and planting of 191 trees and the installation of approximately 2.2 km of irrigation line within the 41BX1799 site boundary, and its immediate surrounding area (Figure 11). The dimensions of the tree pits varied based on the size of each tree's root system. On average, holes measured 110 cm² in diameter, with depths that ranged from between 27 and 70 cmbs. Soils encountered while monitoring typically consisted of a silty clay or clay, black to dark grayish brown color, with interspersed pockets of disturbed soil that varied greatly in both color and texture. (Figure 9). Irrigation line trenches measured approximately 20 cm in width and were excavated to depths of between 25 and 35 cmbs. Soils encountered while monitoring irrigation trench excavation were typically dark grayish brown to very dark grayish brown silty clay, with pockets of disturbed soil that varied greatly in color and texture. The subtle indicators of disturbance, which were more apparent during monitoring of tree pits, were difficult to identify due to the comparative constricted view of buried deposits within the irrigation trenches. Disturbed soils were largely noted near cart paths or areas of the golf course that had been terraformed (Figure 10).



Figure 9. Tree Pit 173 Profile, camera facing east



Figure 10. Tree Pit 76 profile, disturbed, camera facing west

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Artifacts Observed

Of the 191 tree planting locations monitored within and adjacent to the site 41BX1799, 11 contained intact, undisturbed soils that were positive for cultural materials. Prehistoric and historic artifacts were observed in the 11 intact soil tree pits. Observed prehistoric artifacts from these deposits included 1 lithic core fragment and 8 pieces of lithic chert FCR. Historic artifacts consisted of 2 aluminum can pull tabs, 1 rebar segment, 1 cement fragment, and 3 plastic fragments. A total of 57 of the 191 tree pits contained some level of disturbance, resulting from the construction and maintenance of the golf course. Of the 57 disturbed tree pits, 9 were positive for cultural material. Observed prehistoric from the disturbed context included 1 piece of chert secondary debitage and 2 pieces of chert FCR. Historic artifacts consisted of 1 historic ceramic vessel body sherd (unglazed earthenware), 1 aluminum can pull tab, 1 rebar segment, 2 asphalt fragments, 2 concrete fragments, 1 cement fragment, and 3 plastic fragments. No diagnostic prehistoric artifacts were observed during tree pit excavation of site 41BX1799. Non-diagnostic artifacts were noted during tree pit excavation at depths ranging from between 0 to 50 cmbs (Figure 12).



Figure 12. Two pieces of chert FCR recovered 30-40 cmbs from Tree Pit 179

Artifacts were also documented within irrigation trenches throughout the site. Prehistoric artifacts observed included 2 tested chert cobbles, 2 chert multidirectional core fragments, 1 piece of chert primary debitage, 1 piece of chert secondary debitage, 5 pieces of chert angular shatter debitage, and 13 pieces of chert FCR. Historic artifacts included 2 historic red brick fragments, 1 yellow brick fragment, 1 ceramic tile sherd, 3 colorless glass shards, 5 amber glass shards, 1 Coke bottle green glass shard, 1 aluminum can pull tab, 1 aluminum beer can fragment, 1 wire reinforced concrete fragment, 2 concrete fragments, 1 asphalt fragment, and approximately 10 plastic fragments. One red brick fragment was stamped “ACME FERRIS” and research indicated it was manufactured sometime between 1935 and 1969 (Beck 2016) (Figure 14). The precise depths at which the artifacts were recovered were unable to be determined as they were unearthed by a trenching machine, used for irrigation trench excavation, which excavates and jumbles large amounts of soil at a high rate of speed.



Figure 13. Chert shatter observed within irrigation line



Figure 14. Stamped Brick observed within Irrigation Line

Summary

Site 41BX1799 is a multicomponent site consisting of a prehistoric, low-density lithic scatter and lithic material procurement site of indeterminate temporal affiliation, as well as a sparse, historic artifact scatter, dating potentially to the early to mid-twentieth century. As a result of the current investigations, the 41BX1799 site boundary was extended out to encompass an additional 1.11 acres. Due to the heavily disturbed state of the site, the lack of intact cultural features associated with the prehistoric and historic components of the site, and the paucity of diagnostic artifacts, site 41BX1799 is recommended *Not Eligible* for inclusion in the NRHP. It is also recommended *Not Eligible* as a SAL.

Previously Recorded Site 41BX1800

Setting and Description

Site 41BX1800 is a prehistoric, low density lithic and burned rock scatter dating to the Late to Transitional Archaic time period. Located on gently sloping hill approximately 69 m north of Olmos Creek, the site covers a half acre area. The site was originally recorded in 2008 by SWCA while surveying and monitoring the installation of a new irrigation system within the Olmos Basin Golf Course. SWCA recorded observing one lithic core, three pieces of debitage, and a projectile point from between 0 to 10 cmbs. SWCA noted that the projectile point shares characteristics similar to those of a Darl type dart point, as well as other Late to Transitional Archaic dart points. SWCA concluded that much of the site had been disturbed, due to the high level of modification to the landscape caused by the construction and maintenance of the golf course (Culotta et al 2010). Pape-Dawson archaeologists revisited the site during their 2015 survey of proposed bridge replacement locations within the golf course. At the time of the 2015 survey, Pape-Dawson found no evidence of the site within the project area and recommended no further work in bridge replacement areas. Vegetation at the site is characterized by manicured grass with a scattering of live oak and mesquite trees (Figure 15). Dense grass at the site limited ground surface visibility to less than 10 percent at the time of the current survey. Soils within the site are mapped entirely as Branyon clay, 1 to 3 percent slopes.



Figure 15. Overview of 41BX1800, camera facing north

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Work Performed

Site 41BX1800 was revisited by Pape-Dawson archaeologists during the course of the current project. Archaeologists monitored the excavation and planting of 16 trees and the installation of approximately 146 m of irrigation line within and adjacent to the 41BX1800 site boundary (Figure 16). The dimensions of the tree pits varied based on the size of each trees root system. On average, holes measured 110 cm² in diameter and had depths that ranged from between 41-53 cmbs. Irrigation trenches were approximately 25 cm wide and were excavated to a depth of between 27-28 cmbs (Figure 17). Soils encountered while monitoring tree planting and irrigation trench excavation were typically either a loamy clay or sandy clay loam that was a very dark brown to dark yellowish-brown color. No indications of soil disturbance were noted during the monitoring of excavations within the site.



Figure 17. Irrigation Line within 41BX1800, camera facing southwest

Artifacts Observed

No artifacts were observed while performing monitoring of tree pit excavations at the site. However, 1 chert multidirectional core and 2 pieces of limestone FCR were observed within a segment of irrigation trench, located near the center of the site (Figure 18). The precise depth of artifacts was unable to be determined as they were unearthed by a trenching machine.



Figure 18. Artifacts observed within irrigation line

Summary

Site 41BX1800 is a prehistoric, low density lithic and burned rock scatter dating to the Late to Transitional Archaic time period. Due to the lack of intact cultural features, the paucity of diagnostic artifacts, and the extensive disturbance to the site noted by the original site recorder, site 41BX1800 is recommended *Not Eligible* for inclusion in the NRHP. It is also recommended *Not Eligible* as a SAL.

Summary and Recommendations

At the request of the City of San Antonio, Pape-Dawson Engineers, Inc. (Pape-Dawson) monitored the planting of new trees and the installation of irrigation lines within portions of the existing Olmos Basin Golf Course, located west of the intersection of Basse Road and US 281 in San Antonio, Bexar County, Texas. The trees were placed randomly throughout the golf course, and new irrigation lines were installed in association with each of the tree plantings. Excavations for the tree pits averaged 3.6 feet (ft) (1.1 meters² [m²]) in diameter and were 1.6 ft (0.5 m) deep. Irrigation lines were installed on average 1 ft (0.3 m) below the ground surface and were approximately 0.75 ft (0.23 m) in width.

As the Olmos Basin Golf Course is a municipal golf course operated by the City of San Antonio, compliance with the Antiquities Code of Texas (ACT) will be necessary. No federal funding or permitting is anticipated, so compliance with Section 106 of the National Historic Preservation Act (NHPA) will not be required.

Prior to fieldwork, Pape-Dawson archaeologists coordinated with the City of San Antonio (COSA) archaeologist and the Texas Historical Commission (THC) to determine areas of concern for field investigations. Based on this coordination, archaeologists focused on monitoring the tree planting and irrigation lines only located within the boundaries of previously recorded sites 41BX1799 and 41BX1800, rather than across the entire golf course. Within these sites, archaeologists monitored between 50 and 75 percent of the tree installations. Archaeological monitoring was conducted within the project area intermittently between January 22 and April 9, 2019. Pape-Dawson archaeologists monitored the planting of 208 trees, 20 of which were positive for cultural materials. Of the 20 positive pits, nine were excavated in disturbed soil contexts. A total of 2.35 km of irrigation lines were also monitored. Isolated cultural materials from prehistoric, historic, and modern eras were observed throughout these irrigation lines.

Two previously recorded archaeological sites, 41BX1799 and 41BX1800, were revisited during archaeological monitoring. Site 41BX1799 is a multicomponent site consisting of a prehistoric lithic scatter, lithic material procurement site, and a historic artifact scatter of indeterminate temporal affiliation. Site 41BX1800 is a low-density lithic scatter dating to the Late to Transitional Archaic time period. Most materials observed were within disturbed contexts, however, archaeologists did identify intact deposits of prehistoric and historic materials in 11 of the 20 positive tree pits. As a result of this monitoring, the 41BX1799 site boundary was extended out to encompass an additional 1.11-acres of land. While prehistoric lithic artifacts were observed within 41BX1800, the boundary remains unaltered, as no cultural deposits were observed adjacent to the site boundary. Due to the lack of intact cultural features,

the paucity of diagnostic artifacts, and the extensive disturbances noted throughout both 41BX1799 and 41BX1800 are recommended *Not Eligible* for NRHP and SAL designation. If future work within sites 41BX1799 or 41BX1800 reveal additional archaeological deposits, work should temporarily cease, and the City Archaeologist and THC should be immediately notified before recommencing work.

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Appendix A

RESULTS MAPS

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Appendix B

TREE PIT & IRRIGATION TRENCH PROFILE DESCRIPTIONS

Tree Table Profile Descriptions

Tree Pit #	Dimensions (cm)	Zone	Depth (cmbs)	Soil Color & Texture	Artifacts	Comments
1	60 x 60	I	0-5	10YR6/4 Light Yellowish Brown Sand	none	Disturbed
		II	5-40	10YR3/1 Very Dark Gray Silty Clay		
2	60 x 60	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed
3	60 x 60	I	0-5	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed
		II	5-15	7.5YR4/4 Brown Sand		
		III	15-40	10YR3/1 Very Dark Gray Silty Clay		
4	60 x 60	I	0-5	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed
		II	5-35	7.5YR5/6 Strong Brown Sand		
5	60 x 60	I	0-5	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed
		II	5-30	7.5YR5/6 Strong Brown Sand		
6	60 x 60	I	0-10	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed
		II	10-40	7.5YR5/6 Strong Brown Sand		
7	60 x 60	I	0-5	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed
		II	5-40	7.5YR5/6 Strong Brown Sand		
8	60 x 60	I	0-10	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed
		II	10-20	7.5YR5/6 Strong Brown Sand		
		III	20-35	10YR3/1 Very Dark Gray Silty Clay		
		IV	35-40	7.5YR5/6 Strong Brown Gravelly Sand		
		V	40-50	10YR3/1 Very Dark Gray Silty Clay		
9	60 x 60	I	0-5	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed
		II	5-40	7.5YR5/6 Strong Brown Gravelly Sand		
10	60 x 60	I	0-10	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed; Existing irrigation line ~30 cmbs
		II	10-40	7.5YR5/6 Strong Brown Sand		
11	60 x 60	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
12	60 x 60	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
13	60 x 60	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
14	60 x 60	I	0-30	10YR3/1 Very Dark Gray Silty Clay	none	-
		II	30-40	10YR7/6 Yellow Gravelly Silty Clay		
15	60 x 60	I	0-10	7.5YR5/6 Strong Brown Sand	none	Disturbed
		II	10-40	10YR3/1 Very Dark Gray Silty Clay		
16	110 x 100	I	0-50	7.5YR3/1 Very Dark Gray Gravelly Silty Clay	none	-
17	105 x 105	I	0-20	7.5YR3/1 Very Dark Gray Gravelly Silty Clay	none	Disturbed
		II	20-50	10YR6/4 Light Yellowish Brown Gravelly Silty Clay	none	-
18	100 x 100	I	0-50	10YR2/1 Black Silty Clay	none	-
19	110 x 120	I	0-43	10YR2/1 Black Silty Clay	none	-
20	100 x 120	I	0-45	10YR3/1 Very Dark Gray Silty Clay	none	-
21	110 x 120	I	0-53	10YR3/1 Very Dark Gray Silty Clay	none	-
22	100 x 110	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
23	110 x 110	I	0-53	10YR3/1 Very Dark Gray Silty Clay	none	-
24	105 x 110	I	0-48	10YR3/1 Very Dark Gray Silty Clay	none	-
25	100 x 110	I	0-45	10YR3/1 Very Dark Gray Silty Clay	none	-

Tree Pit #	Dimensions (cm)	Zone	Depth (cmbs)	Soil Color & Texture	Artifacts	Comments
26	100 x 100	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
27	110 x 120	I	0-50	10YR3/1 Very Dark Gray Silty Clay	none	-
28	130 x 110	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
29	110 x 110	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
30	100 x 120	I	0-45	10YR3/1 Very Dark Gray Silty Clay	none	-
31	105 x 120	I	0-55	10YR3/1 Very Dark Gray Silty Clay	none	-
32	110 x 120	I	0-48	10YR3/1 Very Dark Gray Silty Clay	none	-
33	110 x 120	I	0-46	10YR3/1 Very Dark Gray Silty Clay	none	-
34	100 x 110	I	0-55	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed
		II	20-55	10YR7/6 Yellow Sand		
35	110 x 110	I	0-30	10YR3/1 Very Dark Gray Silty Clay	Asphalt	Disturbed
		II	30-50	10YR6/6 Brownish Yellow Gravelly Silty Clay		Base for old cart path?
36	110 x 125	I	0-48	10YR3/1 Very Dark Gray Silty Clay	none	-
37	110 x 110	I	0-45	10YR3/1 Very Dark Gray Silty Clay	none	-
38	110 x 110	I	0-55	10YR3/1 Very Dark Gray Silty Clay	none	-
39	110 x 110	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
40	110 x 120	I	0-48	10YR3/1 Very Dark Gray Silty Clay	none	-
41	115 x 120	I	0-55	10YR3/1 Very Dark Gray Silty Clay	none	-
42	115 x 120	I	0-48	10YR3/1 Very Dark Gray Silty Clay	none	-
43	110 x 110	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
44	90 x 100	I	0-40	10YR2/1 Black Silty Clay	none	-
45	110 x 115	I	0-45	7.5YR3/1 Very Dark Gray Silty Clay	none	-
46	100 x 115	I	0-45	10YR2/1 Black Silty Clay	none	-
47	100 x 110	I	0-48	10YR2/1 Black Silty Clay	none	-
48	110 x 110	I	0-50	10YR2/1 Black Silty Clay	none	-
49	115 x 120	I	0-50	10YR3/1 Very Dark Gray Silty Clay	none	-
50	100 x 110	I	0-53	10YR3/1 Very Dark Gray Silty Clay	none	-
51	95 x 115	I	0-43	10YR3/1 Very Dark Gray Silty Clay	none	-
52	110 x 120	I	0-50	10YR2/1 Black Silty Clay	none	-
53	115 x 120	I	0-50	10YR3/1 Very Dark Gray Silty Clay	none	-
54	110 x 115	I	0-45	10YR3/1 Very Dark Gray Silty Clay	none	-
55	110 x 110	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
56	110 x 110	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
57	100 x 115	I	0-40	7.5YR3/2 Dark Brown Gravelly Silty Clay	none	Disturbed
58	100 x 110	I	0-40	7.5YR3/2 Dark Brown Gravelly Silty Clay	none	Disturbed
59	90 x 110	I	0-50	7.5YR3/2 Dark Brown Gravelly Silty Clay	none	Disturbed
60	100 x 130	I	0-50	7.5YR3/2 Dark Brown Gravelly Silty Clay	none	Disturbed
61	100 x 120	I	0-40	7.5YR3/2 Dark Brown Gravelly Silty Clay	none	Disturbed
62	110 x 110	I	0-45	10YR3/1 Very Dark Gray Silty Clay	none	-
63	80 x 100	I	0-44	10YR3/1 Very Dark Gray Silty Clay	none	-
64	80 x 95	I	0-40	7.5YR3/2 Dark Brown Gravelly Silty Clay	none	Disturbed
65	80 x 90	I	0-40	7.5YR3/2 Dark Brown Gravelly Silty Clay	none	Disturbed
66	90 x 90	I	0-40	10YR3/1 Very Dark Gray Silty Clay	none	-
67	80 x 90	I	0-40	7.5YR3/1 Very Dark Gray Silty Clay	Asphalt	Disturbed

Tree Pit #	Dimensions (cm)	Zone	Depth (cmbs)	Soil Color & Texture	Artifacts	Comments
68	100 x 120	I	0-48	7.5YR3/1 Very Dark Gray Silty Clay	none	Disturbed
69	110 x 120	I	0-50	7.5YR3/1 Very Dark Gray Silty Clay	Concrete	Disturbed
70	114 x 120	I	0-50	10YR3/1 Very Dark Gray Silty Clay	1 possible chert FCR	-
71	115 x 110	I	0-55	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
72	110 x 122	I	0-55	10YR4/2 Brown Silty Clay	none	-
73	110 x 120	I	0-30	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
		II	30-50	10YR2/1 Black Silty Clay	none	-
74	110 x 110	I	0-57	10YR2/1 Black Silty Clay with 10YR5/4 Brown Sand mottles	none	Disturbed
75	110 x 115	I	0-56	10YR3/1 Very Dark Gray Silty Clay	none	Disturbed by utility pipe
76	108 x 120	I	0-20	10YR3/2 Very Dark Grayish Brown Silty Clay	none	Disturbed
		II	20-50	7.5YR3/2 Dark Brown Gravelly Silty Clay	none	
77	85 x 96	I	0-40	10YR3/2 Very Dark Grayish Brown Silty Clay with 10YR6/6 Brownish Yellow mottles	1 possible chert FCR (30-40 cmbs)	Disturbed
78	102 x 126	I	0-46	10YR2/1 Black Loamy Clay	none	-
79	115 x 115	I	0-50	10YR2/1 Black Loamy Clay	none	-
80	125 x 106	I	0-50	10YR2/1 Black Loamy Clay	none	-
81	105 x 120	I	0-45	10YR2/1 Black Silty Clay	none	-
82	110 x 110	I	0-45	10YR2/1 Black Loamy Clay	2 chert FCR (30-40 cmbs)	-
83	105 x 120	I	0-45	10YR2/1 Black Silty Clay	none	-
84	170 x 140	I	0-70	10YR3/2 Very Dark Grayish Brown Silty Clay	none	Disturbed by utility pipe
85	80 x 90	I	0-40	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
86	85 x 90	I	0-20	10YR3/3 Dark Brown Loamy Clay	none	-
		II	20-40	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
87	82 x 75	I	0-20	10YR3/3 Dark Brown Loamy Clay	none	-
		II	20-30	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
88	90 X 80	I	0-35	10YR3/1 Very Dark Gray Silty Clay with Orange Sand mottles	none	Disturbed
89	88 x 75	I	0-35	10YR3/1 Very Dark Gray Silty Clay with 10YR3/2 Very Dark Grayish Brown Sand mottles	none	Disturbed
90	110 x 130	I	0-50	10YR3/1 Very Dark Gray Clay	none	-
91	133 x 94	I	0-50	10YR3/1 Very Dark Gray Clay	none	-
92	92 x 130	I	0-50	10YR3/1 Very Dark Gray Clay	none	-
93	95 x 130	I	0-25	10YR3/1 Very Dark Gray Clay	none	-
		II	25-54	Between 10YR4/1 Dark Gray and 10YR4/2 Dark Grayish Brown Clay	none	-
94	128 x 90	I	0-50	10YR3/1 Very Dark Gray Clay	none	-
		II	22-50	Between 10YR4/1 Dark Gray and 10YR4/2 Dark Grayish Brown Clay	none	-

Tree Pit #	Dimensions (cm)	Zone	Depth (cmbs)	Soil Color & Texture	Artifacts	Comments
95	135 x 150	I	0-50	10YR3/1 Very Dark Gray Clay	none	-
96	95 x 147	I	0-50	10YR3/1 Very Dark Gray Clay	none	-
97	147 x 93	I	0-30	10YR3/1 Very Dark Gray Clay	none	-
		II	30-50	10YR2/1 Black Clay	none	-
98	95 x 135	I	0-50	Between 10YR2/1 Black and 10YR3/1 Very Dark Gray Silty Clay Loam with 2.5Y Light Olive Brown Silty Clay mottles	none	Disturbed
99	148 x 100	I	0-50	Between 10YR2/1 Black and 10YR3/1 Very Dark Gray Silty Clay Loam with 2.5Y Light Olive Brown Silty Clay mottles	none	Disturbed
100	170 x 83	I	0-50	10YR3/1 Very Dark Gray Silty Clay Loam with 10YR8/2 Pale Brown Gravelly Sand mottles	none	Disturbed
101	74 x 95	I	0-40	10YR3/1 Very Dark Gray Clay	none	-
102	95 x 110	I	0-35	10YR2/1 Black Clay	none	-
103	95 x 152	I	0-54	10YR4/1 Dark Gray Clay with 10YR6/6 Brownish Yellow Silty Clay mottles	Possible core (25-30 cmbs)	-
104	100 x 145	I	0-50	10YR4/1 Dark Gray Silty Clay		none
105	93 x 115	I	0-15	10YR3/1 Very Dark Gray Clay	none	-
		II	15-40	10YR2/1 Black Clay	none	-
106	140 x 88	I	0-40	10YR4/1 Dark Gray Clay with 2.5YR5/8 Red Silty Clay mottles and 10YR7/4 Very Pale Brown Clay mottles	none	Disturbed
107	100 x 108	I	0-40	10YR3/1 Very Dark Gray Clay	none	-
108	107 x 87	I	0-50	10YR3/1 Very Dark Gray Clay with 10YR6/2 Light Brownish Yellow and 10YR6/6 Brownish Yellow mottles	none	Disturbed
109	98 x 152	I	0-55	10YR4/1 Dark Gray Clay with 10YR6/6 Brownish Yellow Silty Clay mottles	none	Disturbed
110	87 x 145	I	0-50	10YR4/1 Dark Gray Silty Clay	none	-
111	90 x 136	I	0-25	10YR4/1 Dark Gray Silty Clay	none	-
		II	25-40	10YR5/2 Grayish Brown Clay	none	-
112	110 X 140	I	0-50	10YR3/1 Very Dark Gray Clay	none	-
113	100 X 130	I	0-53	10YR2/1 Black Clay	none	-
114	95 X 110	I	0-20	10YR3/1 Very Dark Gray Clay	none	-
		II	20-60	2.5Y4/2 Dark Grayish Brown Clay	none	-
115	100 x 130	I	0-40	10YR3/1 Very Dark Gray Clay	none	-
		II	40-50	2.5Y4/2 Dark Grayish Brown Clay	none	-
116	95 x 110	I	0-20	10YR3/2 Very Dark Grayish Brown Gravelly Silty Clay	none	Disturbed
		II	20-50	10YR4/2 Dark Grayish Brown Clay		
117	110 x 120	I	0-30	10YR3/1 Very Dark Gray Clay	none	Disturbed
		II	30-65	10YR6/2 Light Brownish Yellow Gravelly Silty Clay		
118	95 x 120	I	0-20	10YR3/1 Very Dark Gray Clay	none	Disturbed
		II	20-52	10YR6/2 Light Brownish Yellow Gravelly Silty Clay		
119	105 x 135	I	0-20	10YR3/1 Very Dark Gray Clay	none	Disturbed

Tree Pit #	Dimensions (cm)	Zone	Depth (cmbs)	Soil Color & Texture	Artifacts	Comments
		II	20-50	10YR6/2 Light Brownish Yellow Gravelly Silty Clay		
120	70 x 95	I	0-40	10YR2/1 Black Clay	none	-
121	85 x 110	I	0-42	10YR2/1 Black Clay	none	-
122	82 x 110	I	0-45	10YR2/1 Black Clay	none	-
123	70 x 110	I	0-40	10YR2/1 Black Clay	none	-
124	80 x 110	I	0-38	10YR3/1 Very Dark Gray Clay	none	-
125	80 x 100	I	0-38	10YR3/1 Very Dark Gray Clay	none	-
126	85 x 115	I	0-40	10YR3/1 Very Dark Gray Clay	none	-
127	80 x 100	I	0-38	10YR3/1 Very Dark Gray Clay	none	-
128	92 x 116	I	0-38	10YR3/1 Very Dark Gray Clay	none	-
129	90 x 100	I	0-35	10YR3/1 Very Dark Gray Clay with 2.5Y5/3 Light Olive Brown Silty Clay mottles	none	Disturbed
130	90 x 100	I	0-45	10YR3/1 Very Dark Gray Clay	none	-
131	87 x 101	I	0-40	10YR3/1 Very Dark Gray Clay	none	-
132	100 x 106	I	0-35	10YR3/1 Very Dark Gray Clay	none	-
133	90 x 97	I	0-35	10YR3/1 Very Dark Gray Clay	none	-
134	90 x 116	I	0-30	2.5Y3/1 Very Dark Gray Clay	none	-
135	83 x 102	I	0-27	2.5Y3/1 Very Dark Gray Silty Clay	none	-
136	90 x 105	I	0-32	2.5Y3/1 Very Dark Gray Silty Clay	none	-
137	87 x 127	I	0-35	2.5Y3/1 Very Dark Gray Silty Clay	none	-
138	86 x 92	I	0-29	2.5Y3/1 Very Dark Gray Gravelly Silty Clay	Large concrete frag, 1	Disturbed
139	83 x 104	I	0-29	2.5Y3/1 Very Dark Gray Gravelly Silty Clay	1 secondary flake	Disturbed
140	90 x 114	I	0-40	2.5Y3/1 Very Dark Gray Gravelly Silty Clay	1 chert FCR	Disturbed
141	90 x 103	I	0-27	2.5Y3/1 Very Dark Gray Gravelly Silty Clay	none	Disturbed
142	123 x 143	I	0-44	2.5Y3/1 Very Dark Gray Gravelly Silty Clay	none	Disturbed
143	98 x 110	I	0-50	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
144	95 x 120	I	0-40	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
		II	40-60	10YR5/3 Brown Gravelly Silt	none	-
145	98 x 120	I	0-48	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
146	90 x 140	I	0-60	10YR3/2 Very Dark Grayish Brown Silty Clay	Unidentified rubber, rebar (0-30 cmbs)	-
					Cement feature (40-60 cmbs)	-
147	117 x 138	I	0-64	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
148	95 x 128	I	0-50	10YR3/2 Very Dark Grayish Brown Silty Clay	none	Disturbed
		II	50-60	10YR5/3 Brown Gravelly Silt	none	-
149	105 x 120	I	0-55	10YR3/1 Very Dark Gray Silty Clay	none	-

Tree Pit #	Dimensions (cm)	Zone	Depth (cmbs)	Soil Color & Texture	Artifacts	Comments
150	120 x 142	I	0-55	10YR3/2 Very Dark Grayish Brown Silty Clay with 10YR7/6 Yellow Clay mottles	rebar, cement block (40-50 cmbs)	Disturbed
151	100 x 130	I	0-57	10YR3/2 Very Dark Grayish Brown Silty Clay with 10YR2/1 Black Clay modules	Aluminum pull tab (0-10 cmbs)	-
152	100 x 138	I	0-55	10YR3/2 Very Dark Grayish Brown Silty Clay	none	Disturbed
153	94 x 130	I	0-56	10YR3/2 Very Dark Grayish Brown Silty Clay	none	Disturbed
154	110 x 138	I	0-48	10YR3/2 Very Dark Grayish Brown Silty Clay with 10YR2/1 Black Clay modules	none	-
155	110 x 134	I	0-50	10YR4/2 Dark Grayish Brown Sandy Clay	none	Disturbed
156	106 x 130	I	0-20	10YR4/2 Dark Grayish Brown Sandy Clay	Few modern plastics	Disturbed
		II	20-46	10YR4/2 Dark Grayish Brown Cobbly Clay	1 ceramic sherd (30-40 cmbs)	
157	99 x 127	I	0-44	10YR3/1 Very Dark Gray Silty Clay	none	-
158	95 x 120	I	0-40	10YR6/3 Pale Brown Silty Clay	none	Disturbed
		II	40-60	10YR2/1 Black Clay		
159	100 x 140	I	0-50	10YR3/2 Very Dark Grayish Brown Silty Clay with 10YR3/1 Very Dark Gray Clay mottles	none	-
160	120 x 135	I	0-45	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
161	110 x 145	I	0-50	10YR3/2 Very Dark Grayish Brown Silty Clay	1 chert FCR (40-50 cmbs)	-
162	115 x 145	I	0-50	10YR3/2 Very Dark Grayish Brown Silty Clay Loam	none	-
163	120 x 130	I	0-5	10YR3/2 Very Dark Grayish Brown Silty Clay Loam	none	-
164	110 x 124	I	0-54	10YR3/1 Very Dark Gray Silty Clay	none	-
165	125 x 115	I	0-50	10YR3/2 Very Dark Grayish Brown Silty Clay	Aluminum pull tab (0-10 cmbs)	-
166	102 x 125	I	0-54	10YR3/2 Very Dark Grayish Brown Silty Clay	none	-
167	100 x 120	I	0-45	10YR3/2 Very Dark Grayish Brown Silty Clay with 10YR3/1 Very Dark Gray Clay mottles	none	-
168	110 x 138	I	0-55	10YR6/3 Pale Brown Silty Clay with 10YR2/1 Black Clay mottles	none	-
169	90 x 140	I	0-30	10YR6/3 Pale Brown Silty Clay	none	Disturbed
		II	30-54	10YR2/1 Black Clay		
170	140 x 105	I	0-50	10YR3/1 Very Dark Gray Clay Loam	none	-
171	130 x 106	I	0-52	10YR3/1 Very Dark Gray Clay Loam	Modern plastic (0-10 cmbs)	-
172	130 x 105	I	0-50	10YR3/1 Very Dark Gray Clay Loam	Modern Plastic and golf ball (0-20 cmbs)	-
173	120 x 106	I	0-55	10YR3/1 Very Dark Gray Clay Loam	Modern Plastic and golf ball (0-15 cmbs)	-
174	120 x 103	I	0-52	10YR3/1 Very Dark Gray Clay Loam	Modern Plastic and golf ball (0-10 cmbs)	-

Tree Pit #	Dimensions (cm)	Zone	Depth (cmbs)	Soil Color & Texture	Artifacts	Comments
175	120 x 82	I	0-52	10YR3/1 Very Dark Gray Clay Loam	1 piece of possible FCR (0-10 cmbs)	-
176	106 x 120	I	0-60	10YR3/1 Very Dark Gray Clay Loam	none	-
177	110 x 120	I	0-40	10YR3/1 Very Dark Gray Clay Loam	none	-
178	98 x 120	I	0-60	10YR2/1 Black Silty Clay	none	-
179	90 x 110	I	0-60	10YR3/1 Very Dark Gray Silty Clay	2 chert FCR (30-40 cmbs)	-
180	110 x 130	I	0-30	10YR3/1 Very Dark Gray Clay Loam	none	-
		II	30-50	10YR5/4 Yellowish Brown Silty Clay		-
181	130 x 105	I	0-55	10Between 10YR3/1 Very Dark Gray and YR2/1 Black Silty Clay	1 chert FCR (20-30 cmbs)	-
182	125 x 98	I	0-55	10YR2/1 Black Silty Clay	none	-
183	120 x 120	I	0-63	10YR2/1 Black Silty Clay	none	-
184	129 x 95	I	0-20	10YR4/2 Dark Grayish Brown Sandy Loam	none	Disturbed
		II	20-55	10YR2/1 Black Silty Clay	none	
185	128 x 110	I	0-60	10YR3/1 Very Dark Gray Clay Loam	none	-
186	124 x 110	I	0-55	10YR3/1 Very Dark Gray Silty Clay Loam	none	-
187	120 x 130	I	0-50	10YR2/1 Black Silty Clay Loam	1 chert FCR (30-40 cmbs)	-
188	130 x 10	I	0-60	10YR2/1 Black Silty Clay Loam	none	-
189	120 x 106	I	0-50	10YR2/1 Black Silty Clay Loam	1 chert FCR (30-40 cmbs)	-
190	120 x 110	I	0-60	10YR2/1 Black Clay Loam	none	-
191	135 x 95	I	0-53	10YR2/1 Black Silty Clay Loam	none	-
192	140 x 115	I	0-65	10YR2/1 Black Silty Clay	none	-
193	109 x 92	I	0-46	10YR2/2 Very Dark Brown Loamy Clay	none	-
194	99 x 112	I	0-44	10YR2/2 Very Dark Brown Loamy Clay	none	-
195	121 x 105	I	0-46	10YR2/2 Very Dark Brown Loamy Clay	none	-
196	118 x 108	I	0-48	10YR2/2 Very Dark Brown Loamy Clay	none	-
197	101 x 119	I	0-20	10YR3/3 Dark Brown Loamy Clay	none	-
		I	20-48	10YR4/4 Dark Yellowish Brown Sandy Clay Loam	none	-
198	120 x 110	I	0-53	10YR4/4 Dark Yellowish Brown Sandy Clay Loam	none	-
199	110 x 108	I	0-35	10YR4/4 Dark Yellowish Brown Sandy Clay Loam	none	-
200	127 x 121	I	0-51	10YR4/4 Dark Yellowish Brown Sandy Clay Loam	none	-
201	120 x 100	I	0-50	10YR5/4 Yellowish Brown Sandy Clay Loam	none	-
202	110 x 113	I	0-44	10YR2/2 Very Dark Brown Loamy Clay	none	-
203	107 x 110	I	0-45	10YR5/4 Yellowish Brown Sandy Clay Loam	none	-
204	125 x 120	I	0-15	10YR2/2 Very Dark Brown Loamy Clay	none	-
		II	15-41	10YR5/4 Yellowish Brown Sandy Clay Loam	none	-

Tree Pit #	Dimensions (cm)	Zone	Depth (cmbs)	Soil Color & Texture	Artifacts	Comments
205	120 x 106	I	0-54	10YR5/4 Yellowish Brown Sandy Clay Loam	none	-
206	100 x 114	I	0-51	10YR5/4 Yellowish Brown Sandy Clay Loam	none	-
207	118 x 97	I	0-51	10YR4/4 Dark Yellowish Brown Sandy Clay Loam	none	-
208	116 x 110	I	0-54	10YR2/2 Very Dark Brown Loamy Clay	none	-

Irrigation Line Profile Descriptions

Irrigation Line #	Dimensions (L x W) (cm)	Profile #	Zone	Depth (cmbs)	Soil Color & Texture	Artifacts	Comments
1	146 x 25	1	I	28	Unknown	1 chert multidirectional core, 2 chert FCR	-
2	276 x 15	1	I	25	10YR3/2 Very Dark Grayish Brown Silty Clay with pockets of 10YR8/2 Very Pale Brown gravelly loam and 10YR4/2 Very Dark Grayish Brown Silty Clay	1 primary chert flake, 1 secondary chert flake, 2 chert tested cobbles, 2 chert shatter, 1 chert FCR, 1 colorless bottle glass shard, 1 yellow brick frag., few plastic frags.	The 10YR8/2 and 10YR4/2 soils represent disturbances associated with the golf course construction and maintenance.
3	262 x 19	1	I	0-30	10YR3/1 Very Dark Gray to 10YR2/1 Black Silty Clay	1 chert core frag., 5 chert FCR	Few-Common subangular LMST and chert gravel and cobbles
		2	I	0-30	10YR3/2 Very Dark Grayish Brown Cobbly Silt	none	-
		3	I	0-15	10YR3/2 Very Dark Grayish Brown Silty Clay	none	Disturbed
			II	15-19	10YR2/1 Black Asphalt		
			III	19-28	7.5YR6/6 Reddish Yellow Road Base		
4	185 x 19	1	I	0-30	10YR3/3 Dark Brown Sandy Loam	1 core frag.	Pockets of disturbed Caliche road base
		2	I	0-30	10YR3/2 Very Dark Grayish Brown Silty Clay Loam	none	Few LMST and chert gravel and cobbles, common roots and rootlets
5	364 x 19	1	I	0-30	10YR3/2 Very Dark Grayish Brown Silty Clay	2 chert FCR	Few rootlets and LMST gravel, Very few LMST cobbles
		2	I	0-30	10YR3/1 Very Dark Gray Silty Clay with patches of 10YR3/2 Very Dark Grayish Brown Silt	1 chert FCR, 1 coke bottle green glass shard, 1 aluminum pull tab, 1 miller beer can frag.	Common LMST pebbles, gravel, and cobbles
		3	I	0-30	10YR4/1 Dark Gray Cobbly Clay	none	Many LMST pebbles, gravel, and cobbles
		4	I	0-30	10YR3/1 Very Dark Gray to 10YR3/2 Very Dark Grayish Brown Silty Clay	Concrete feature (40 cm across, 25 cmbs), 1 wire nail, 1 red brick, 1 ceramic tile	Few LMST gravel and cobbles
6	335 x 19	1	I	0-35	10YR3/1 Very Dark Gray Silty Clay	2 chert FCR, 3 Amber bottle glass shards, 1 Amber bottle base frag., few modern plastics	Few LMST gravel and pebbles, and few rootlets
		2	I	0-35	10YR3/2 Very Dark Grayish Silty Clay	none	-
7	835 x 19	1	I	0-30	10YR3/1 Very Dark Gray to 10YR3/2 Very Dark Grayish Silty Clay	2 chert FCR, 2 colorless bottle glass shards, 1 Amber bottle glass shard	Common subangular LMST pebbles and gravel, very few subround LMST cobbles, few roots and rootlets
		2	I	0-30	10YR3/1 Very Dark Gray to 10YR3/2 Very Dark Grayish Silty Clay	2 chert shatter	Common subangular LMST pebbles and gravel, very few subround LMST cobbles, few roots and rootlets
		3	I	0-30	10YR2/1 Black Silty Clay	none	Very LMST gravel and rootlets
		4	I	0-30	10YR3/1 Very Dark Gray Silty Clay	2 concrete frags., 1 red cement frag.	-