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Archaeological Survey of the Proposed DWU 84-Inch Wastewater Main 16-357/358e, CID 5910 Dallas County, Texas

Philip Fisher

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Archaeological Survey of the Proposed DWU 84-Inch Wastewater Main 16-357/
358e, CID 5910 Dallas County, Texas

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ARCHAEOLOGICAL SURVEY OF THE PROPOSED

DWU 84-INCH WASTEWATER MAIN
16-357/358E, CID 5910

DALLAS COUNTY, TEXAS

Texas Antiquities Permit Number 8680

Philip Fisher, PhD
Principal Investigator

Submitted to:

STREAM WATER GROUP, INC.
9401 LBJ Freeway, Suite 104
Dallas, Texas 75243

Submitted by:

AR CONSULTANTS, INC.
805 Business Parkway
Richardson, Texas 75081

Cultural Resources Report 2019-07
March 27, 2019

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ABSTRACT

The City of Dallas is proposing to construct an 84-inch diameter wastewater main across the old Trinity River channel in Dallas County, Texas. The project area is located in the floodplain of the old Trinity River channel, northeast of the Market Center Boulevard and Turtle Creek Boulevard intersection in Dallas, Texas. AR Consultants, Inc. (ARC) conducted trench monitoring in an area approximately 40-meters long by 4.25-meters wide (0.04-acres) on March 7, 2019 under the authority of Texas Antiquities Permit number 8680. Two trenches one meter in width were excavated to the depth of proposed disturbance, approximately 8 ft (2.45 m), in the floodplain of the old Trinity River channel. The archaeological potential for prehistoric and historic cultural resources was considered low. During survey, no cultural resources were identified in the trenches or in the cut banks of the old Trinity River channel. Given the results of this survey, AR Consultants, Inc. recommends that further cultural resource investigations are unnecessary for this project, and requests that the Texas Historical Commission and the Fort Worth District of the U.S. Army Corps of Engineers concur with this recommendation. The field notes, photographs, and photo logs will be curated with the Center for Archaeological Studies at Texas State University in San Marcos, Texas.

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INTRODUCTION

The City of Dallas is planning the construction of a wastewater main across the old Trinity River channel in Dallas County, Texas (Figure 1). The project area is located northeast of the Market Center Boulevard and Turtle Creek Boulevard intersection in Dallas, Texas. The proposed project will involve the placement of an 84-inch diameter wastewater main between boreholes on either bank of the old Trinity River channel. The length of the wastewater main in the floodplain is approximately 40 m. Trenching occurred on both sides of the old Trinity River channel in the floodplain along the proposed wastewater line route.

Gresham Smith, designer of the Lower East Bank interceptor project, retained Stream Water Group, Inc. to handle the environmental permitting for the project and contracted with ARC to conduct an intensive archaeological survey of the DWU 84-Inch Wastewater Main project. The survey involved visually inspecting the cut banks of the old Trinity River channel where the wastewater main will cross, as well as trenching in the floodplain to the depth of proposed disturbance (approximately 8 ft). Fieldwork was conducted on March 7, 2019.

This report was prepared to be reviewed by the Fort Worth District of the U.S. Army Corps of Engineers (USACE) and the Texas Historical Commission (THC). The cultural resource investigation was required because The City of Dallas is a State entity and the Texas Antiquities Permit Number 8680 was issued for the archaeological survey. Relevant legislation includes the Antiquities Code of Texas (Texas Natural Resource Code, Title 9, Chapter 191). Since the drainage contains Waters of the United States (WOUS), relevant federal legislation includes the National Historic Preservation Act of 1966, as amended (PL-96-515), the National Environmental Policy Act of 1969 (PL-90-190), the Clean Water Act, as amended (PL-92-500), the Rivers and Harbors Act of 1899, the Archeological and Historical Preservation Act of 1974, as amended (PL-93-291), Executive Order No. 11593 “Protection and Enhancement of the Cultural Environment,” and Protection of Historic Properties (36 CFR 800). The Archeology Division of the Texas Historical Commission will review this report on behalf of the State.

This report is written in accordance with report guidelines used by the Archeology Division of the THC (Council of Texas Archeologists 2018). The following report presents a brief description of the natural setting of the project area, followed by a discussion of the culture history and previous investigations within the project area. A chapter on the research design and methodology employed in the investigation is then followed by the results of the field investigation. The report concludes with recommendations and a list of references.

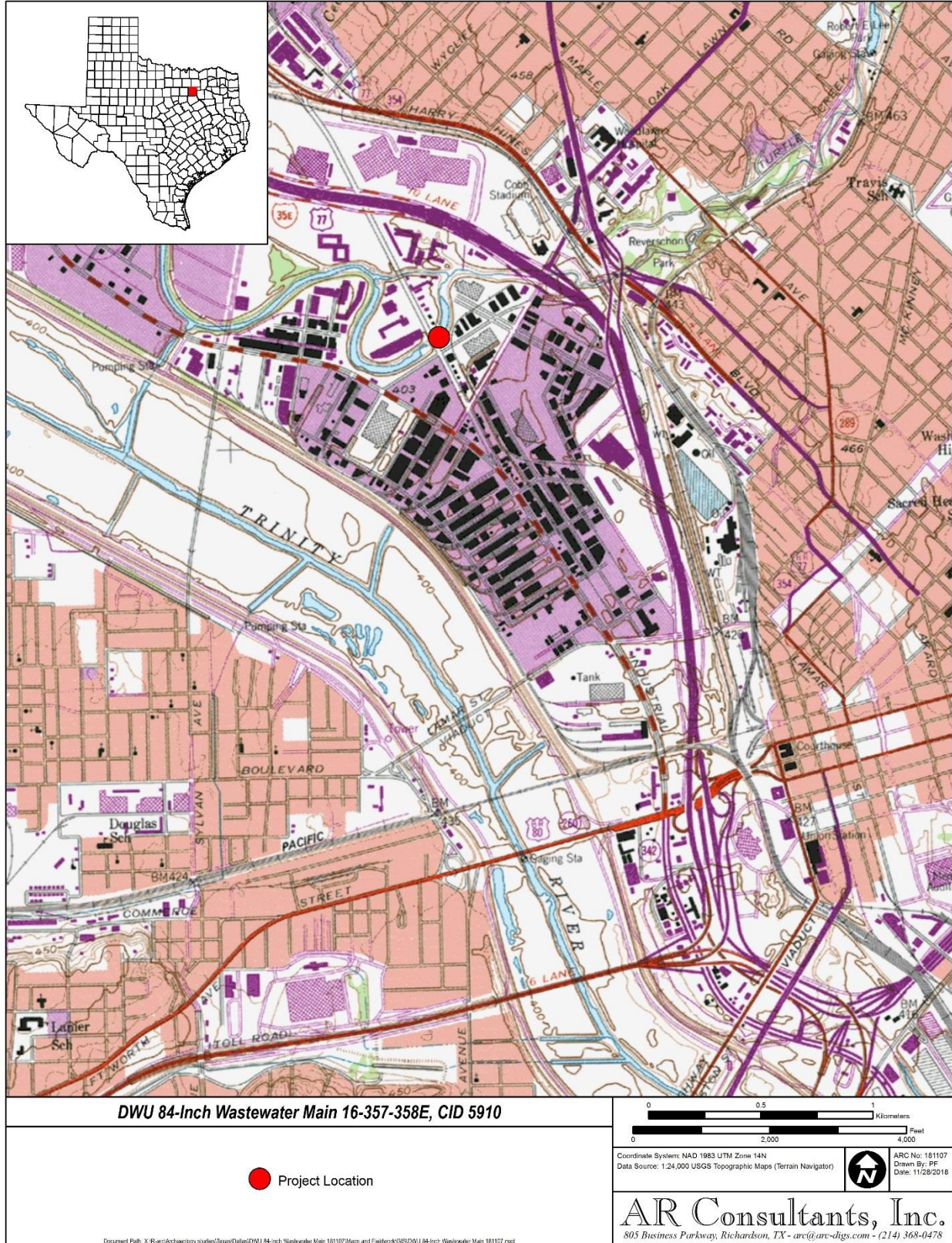


Figure 1. DWU 84-Inch Wastewater Main project area shown on the Dallas, TX 1:24k USGS topographic map.

Administrative Information:

ARC Project Number: 181107
Sponsor: Stream Water Group, Inc.
Review Agency: Archeology Division of the Texas Historical Commission and the Fort Worth District of the U.S. Army Corps of Engineers.
Principal Investigator: Philip Fisher, PhD
Field Dates: March 7, 2019
Field Crew: Philip Fisher
Field Person Days: 1
Acres Surveyed: Approximately 0.04 acres
Curation: Center for Archaeological Studies, Texas State University, San Marcos, Texas

NATURAL ENVIRONMENT

The project area is located in the Northern Blackland Prairie subdivision of the Texas Blackland Prairies ecoregion (Griffith et al. 2007:61-65). Historically, this region has been comprised of large expanses of grassland, with wooded areas in stream bottoms. Kuchler (1964) classified the prairie as being dominated by *Andropogon-Sipa* grasses, while stream bottoms were wooded with big trees such as oak, ash, cottonwood, and pecan. However, a transition from ranching to farming in the late 19th century saw an end to most of these tallgrass prairie communities as they were converted to croplands and non-native pastures. Due to expanding urban and suburban uses, the prairie environment continues to be one of low biotic diversity and covers less and less acreage. The Blackland Prairies that once supported bison, pronghorns, wolves, and greater prairie chickens, now have little habitat to support a lower diversity of wildlife (Griffith et al. 2007).

The project area is located along the old Trinity River channel in southwest Dallas. The geology that underlies the project area is Holocene alluvium (Bureau of Economic Geology 1988). This formation consists mostly of gravel, sand, silt, silty clay, and organic material.

The project area is entirely mapped on Trinity-Urban land complex occasionally flooded soils (Coffee et al. 1980: Sheet 31). Trinity-Urban land complex series soils consist of a 15-cm-thick very dark gray clay A horizon underlain by a 26-cm-thick very dark gray buried A horizon clay, on top of a very dark gray to dark olive gray clay B horizon.

CULTURAL HISTORY

A prehistoric chronology, based on Prikryl (1990), with an added historic period, for North Central Texas is presented in Table 1 to provide the reader with a temporal framework for the culture history of the region.

Table 1. Cultural Chronology.

Time Period	Dates
Historic European	AD 1800-present
Protohistoric	AD 1600-1800
Late Prehistoric	AD 700-1600
<i>Late</i>	AD 1400-AD 1600
<i>Middle</i>	AD 1000-AD 1400
<i>Early</i>	AD 700-AD 1000
Archaic	6000 BC-AD 700
Paleoindian	ca. 10000 BC-6000 BC

Prehistoric Native American settlement in Dallas County began at least 10,000 years ago as attested to by the presence of distinctively shaped dart points (Crook and Harris 1957). The Paleoindian period is characterized as having small, nomadic bands of hunter-gatherers whose primary emphasis was the exploitation of now-extinct megafauna, such as mammoth and bison. Smaller game and plant gathering likely supplemented the Paleoindian diet (Bever and Meltzer 2007). As such, the archaeological record for the region consists of several distinctive styles of projectile points, such as the Clovis, Plainview, and Folsom. Currently, six Clovis points have been reported from Dallas County, and numerous have been found in surrounding counties (Bever and Meltzer 2007:67-70). Subsistence patterns began to change as a general drying climatic trend swept the region, leading to extinction of many of the area’s large mammals toward the end of the Paleoindian period.

The subsequent period, the Archaic, lasted from 6000 BC to possibly as late as AD 700. The Archaic period is characterized by increased alluviation of water channels and a generally wetter environment than the previous period. This, in turn, resulted in clusters of seasonal settlements along large drainages, including the Trinity River and its various forks and tributaries, and a marked increase in population density. This climate change resulted in modification of Native American subsistence patterns, with broad exploitation of bottomland food resources. Dart points, grinding stones, fire-cracked rock, and scrapers are common artifacts found on Archaic sites. The earliest Archaic peoples continued making and using exotic cherts for dart points, but as time passed, there was a shift toward the use of local lithics for chipped stone tools. These local materials are described as Uvalde Gravels (Byrd 1971; Menzer and Slaughter 1971). With the advent of repeated, seasonal occupation of sites along drainages came a perceived increase in territorial constrictions among different groups in the region, with several authors citing the limited use of regional lithic resources as evidence of this trend (Prewitt 1983; Skinner 1981).

The Late Prehistoric period begins about A.D. 700-800, a major change is found in the artifacts and settlement patterning of the prehistoric sites. Sites tend to congregate along the main stem of the Elm Fork and other forks of the Trinity River. This is attributed to the drying up of the smaller

tributaries (Prikryl 1990). The appearance of pottery and the bow and arrow help date artifact assemblages to this period (Shafer 1977). During this period Caddoan pottery from East Texas appears as trade material along with the indigenous Nocona Plain pottery. It has been suggested that farming may have been practiced. Arrowheads appear about this same time and apparently, the bow and arrow had been added to the hunting tools. The Protohistoric period is characterized by Native American abandonment of North Central Texas in the period around 1500/1600, with almost no archaeological evidence found in the region dating to this time (Skinner 1988).

The history of man's presence in north-central Texas continues with the first written accounts by the French and Spanish explorers. There is tantalizing evidence to the south in Dallas County of possible visits by Spanish explorers (Crook 1988:109; Bruseth 1992:81-82). Current research, however, seems to indicate that Anglo settlers were the first non-Indians to visit the survey area. The Historic European period saw widespread Anglo settlement of north-central Texas beginning in the 1830s. This expansion often resulted in brutal conflicts between settlers and nomadic bands of Native Americans (Garrett 1972:24). These early conflicts gave way to various Anglo strategies aimed at cohabitation, including peace treaties signed as early as 1843. Eventually, the entirety of North Central Texas was settled, with numerous Anglo military installations established in the region. After Texas became part of the United States in 1845, peace was short lived. The Civil War took its toll on the North Central Texas population, as most of the able-bodied men left to fight for the Confederacy.

Dallas County continued to grow and prosper after the war. The primary industries throughout Dallas County were agricultural until the twentieth century, which was replaced by manufacturing soon after the Great Depression. Defense factories built near Grand Prairie for the development of goods for World War II attracted those seeking work from rural areas. From the 1940s onward, many factories in Dallas and Tarrant Counties continued to turn out a wide variety of products, including airplanes, helicopters, mobile homes, electronics, and plastics. Along with the increase of manufacturing was a rapid rise in the population of Dallas, Fort Worth, and the surrounding communities. Between 1950 and 1990, Dallas County has tripled in population to almost two million residents (Maxwell 2010). Today the Dallas area continues to grow along with the rest of North Central Texas.

Previous Investigations

A search of TASA (2018) revealed no National Register of Historic Places (NRHP) properties, State Antiquities Landmarks (SALs), cemeteries, historical markers, previously recorded archaeological sites, or cultural resources surveys within the proposed project area. However, one recorded archaeological site (41DL52), two cultural resource surveys, six historical markers, three national register properties, and two national register districts were found within 1-mi of the project area.

Site 41DL52 was recorded in 1941 by F. Kirkland northwest of the project area. The site is possibly Caddoan in age and is located on a hill above the floodplain of the old Trinity River channel near a small spring. Flakes and mussel shell were recovered at the site and arrowheads were reported by the people living on the property.

Within 1-mi of the project area two archaeological surveys were conducted. In 2001 Geo-Marine Inc. surveyed the DART line to the east and north of the project area for DART. In 2010 Geo-Marine Inc. surveyed Sylvan Avenue over the Trinity River for TxDOT to the southwest of the project area (Shanabrook et al. 2010).

The six Historical Markers include the Parkland Hospital, Dallas Baby Camp, Pediatric Orthopedic Care in Texas, Turtle Creek Pump Station, Pike Park, and a marker for Thomas L. Bradford. Three National Register Properties are located within 1-mi of the project area; this includes the Stoneleigh Court Hotel, the Parkland Hospital, and the Turtle Creek Pump Station. The two National Register Districts include the Lamar-McKinney Bridge and the Magnolia Petroleum Company City Sales and Warehouse.

Historic Map and Aerial Photograph Review

In addition to the TASA survey, a number of historic maps and aerial photographs were reviewed prior to field work. No structures are shown in the proposed project area on the Sam Street 1900 Dallas County Map, 1920 Dallas County Soils Map, 1936 and 1961 Dallas and Rockwall County General Highway Maps, as well as the 1958, 1968, and 1973 Dallas, TX 1:24,000-scale USGS topographic maps. Additionally, no structures are shown within the project area on aerial photographs dating from 1952 and 1968 as well as from Google Earth imagery from 1995 through 2018.

RESEARCH DESIGN AND METHODOLOGY

Research Design

Two predictions were developed prior to survey regarding the potential for finding prehistoric and historic sites in the DWU-84 Inch Wastewater Main project area. The first hypothesis concerns the prehistoric occupation. It was predicted that there was low potential for encountering evidence of prehistoric occupation in this location. This is based primarily on the fact that the project area lies completely within the floodplain of the old Trinity River channel and prehistoric sites recorded in close proximity are primarily located on the first terrace or on hills that are higher in elevation above the flood level.

The second prediction addresses historic site potential which is also considered to be low based on a review of historic maps and aerial photographs of the surrounding area which show no development or structures in the project area.

Methodology

Survey was conducted in accordance with the standards set forth by the THC (2014). Field personnel walked the undisturbed area where the proposed wastewater main will cross the old channel of the Trinity River. Trenches were excavated in the floodplain on both sides of the old Trinity River channel by a Caterpillar model 305.5E Excavator and operator provided by Metroplex Excavating Inc. to the depth of proposed disturbance, approximately 8 ft (2.45 m). Soil matrices were collected every 20 cm from the excavator and placed in a 5-gallon bucket for screening at each trench. All loamy soils were screened through ¼" wire mesh screens. The clay fill was inspected visually and broken into smaller chunks in order to determine if cultural materials were present. Trench soil matrices were described on the basis of composition, texture, and color. The Munsell Soil Color Chart (2009) was used to identify soil colors. Field personnel made notes about the ground exposure, drainages, soil types, and disturbed areas where subsoil was exposed. Photographs were taken during the survey using a 16-megapixel, GPS-equipped, digital camera. Trench and project boundary locations were marked with a handheld GPS receiver using the NAD83 datum.

RESULTS

This chapter is divided into two sections. The first describes the project area's natural setting along with results of the trenching along the old Trinity River channel. Trench profiles are described generally throughout the text but are detailed in Table 2 at the end of the Survey Results section. Conclusions round out the chapter.

Survey Results

The archaeological survey area of potential effect (APE) for the DWU 84-Inch Wastewater Main project was limited to the floodplain of the old Trinity River channel below the existing banks where mechanical excavation for the construction of the wastewater main will occur (Figure 2). The impacts along this segment in the floodplain will be limited to a space approximately 40 m in length by 4.25 m (14 ft) wide. The proposed maximum depth of disturbance will be approximately 8 ft (2.45 m). Two trenches were excavated on either side of the old Trinity River channel in this area (Figure 3). The trenches were at least 1 m wide, 6 m long, 2.45 m deep, and were set back approximately 2 m from the edge of the channel. Each trench will be discussed in turn. The west channel bank, where Trench 1 was located, was approximately 30 cm lower than the channel bank on the east side. Ground visibility was zero percent due to grasses and modern trash from flooding events. Along the floodplains on both sides of the old Trinity River channel numerous tire ruts are visible likely resulting from use of these areas as access routes for the City of Dallas Water Utilities and Flood Control vehicles (Figure 4).



Figure 2. DWU 84-Inch Wastewater Main project overview. The east (right in the photo) channel bank is approximately 30 cm higher than the west (left in the photo) channel bank.



Figure 3. Trench locations shown on an aerial photograph from 2018.



Figure 4. Modern tire rut disturbance from vehicle access between the bank and the channel in the floodplain of the old Trinity River channel.

Trench 1

Trench 1 was located in the floodplain on the west side of the old Trinity River channel. The trench ran roughly northwest to southeast perpendicular to the channel. The height of the bank on the west side of the channel was approximately 30 cm lower than that of the east channel bank. The dimensions of the trench were 1.2 m wide, 6.1 m long, and 2.45 m deep. Modern trash, including plastic, rubber, rubber wiring, broken glass, aluminum, and metal, was visible on the surface and extended to approximately 180 centimeters below the surface (cmbs) (Figure 5). While a small number of natural wood samples and a single mussel shell were identified during screening at a depth of about 170 cmbs, they came from a context that included rebar, rubber wire, and glass. The proposed maximum depth of disturbance is approximately 8 ft (2.45 m) and dictated the bottom of the trenching. However, at this depth the bottom of the trench began to fill with groundwater. The profile of Trench 1 consisted of seven layers all comprised of silty clay and clay (Table 2) (Figure 6). The top layer was a dark grayish brown silty clay to a depth of 14 cmbs above a dark yellowish brown fine silty clay that extended to 50 cmbs. Below this was a very dark gray silty clay with some reddish brown fine silty clay to a depth of 86 cmbs that was blocky and angular. To a depth of 130 cmbs was a grayish brown clay that rested on top of a dark gray blocky and angular clay with black bands to a depth of 160 cmbs. From 160 to 190 cmbs was a black clay above a dark gray clay to the bottom of the trench at 245 cmbs. The bottom, approximately 65 cm, of the trench that did not contain any modern trash and was negative for any prehistoric or historic cultural material or features.



Figure 5. Modern trash from a depth of about 180 cmbs in Trench 1.



Figure 6. Trench 1 wall profile.

Trench 2

Trench 2 was located in the floodplain on the east side of the old Trinity River channel between the channel and the cement Trinity Strand Trail. The trench ran roughly northwest to southeast perpendicular to the channel. The height of the east bank of the channel was approximately 30 cm higher than that of the west channel bank. The dimensions of the trench were 1 m wide, 6 m long, and 2.45 m deep. Modern trash, including plastic, broken glass, aluminum, and metal, was visible on the surface and extended to approximately 150 centimeters below the surface (cmbs). No natural or cultural organic samples were identified in screening or in the wall profile. As with Trench 1, Trench 2 was excavated to the proposed maximum depth of disturbance (8 ft or 2.45 m). As with Trench 1, once the basal depth of the trench was reached it began to fill with groundwater. The profile of Trench 2 matched that of Trench 1 although the starting and ending depths of each layer differed, likely as a result of Trench 2 being located at a higher elevation than Trench 1 (Table 2) (Figure 7). The bottom, approximately 95 cm, of the trench that did not contain any modern trash and was negative for any prehistoric or historic cultural material or features.



Figure 7. Trench 2 wall profile.

Table 2. Trench Profile Descriptions.

Trench	Depth (cm)	Description	Comments/Artifacts
1	0-14	Dark grayish brown (10YR4/2) silty clay.	In the bottom ~30 cm of the trench the clay was wet. No cultural resources, artifacts, or features were identified while screening or in the profiles. Modern trash (plastic, glass, rubber, wire, aluminum, and metal) was present to ~180 cmbs.
	14-50	Dark yellowish brown (10YR4/4) fine silty clay.	
	50-86	Very dark gray (10YR3/1) with reddish brown (5YR4/4) fine silty clay. Angular and blocky structure.	
	86-130	Grayish brown (10YR5/2) clay.	
	130-160	Dark gray (2.5Y4/1) clay with angular and blocky structure and black (10YR2/1) bands.	
	160-190 190-245	Black (10YR2/1) clay. Dark gray (10YR4/1) clay	
2	0-23	Dark grayish brown (10YR4/2) silty clay.	In the bottom ~20 cm of the trench the clay was wet. No cultural resources, artifacts, or features were identified while screening or in the profiles. Modern trash (plastic, glass, aluminum, and metal) was present from the surface to ~150 cmbs.
	23-65	Brown (10YR4/3) sandy silty clay.	
	65-90	Very dark gray (10YR3/1) with brown (7.5YR4/4) fine silty clay. Angular and blocky structure.	
	90-120	Dark grayish brown (10YR4/2) clay. Angular and blocky structure.	
	120-140	Dark gray (2.5Y4/1) clay with angular and blocky structure and black (10YR2/1) bands.	
	140-180 180-245	Black (10YR2/1) clay. Dark gray (10YR4/1) clay.	

Conclusions

No prehistoric or historic archaeological sites, features, or diagnostic artifacts were identified during trenching. Modern trash consisting of plastic, rubber, rubber wiring, metal, rebar, and glass were encountered in Trenches 1 and 2 to depths of approximately 180 cmbs and 150 cmbs, respectively. The depths of fill/modern disturbance are similar to those encountered by Shanabrook et al. (2010) during trenching of the Sylvan Avenue Bridge project across the Trinity River, approximately 1-mi to the southwest. During trenching Shanabrook et al. (2010) encountered fill/modern disturbances in the uppermost layers that included trenches with modern trash to depths of over 1 m as well as trenches with disturbed fill from 1 m to over 3 m below the surface. These upper layers of fill/modern disturbance are of the same color and texture as those identified in Trenches 1 and 2.

The project area is located in close proximity to a reliable water source and falls within an area mapped with medium to high probability for prehistoric materials (Abbot and Pletka 2014; Skinner et al. 1978). However, the location of the project area within the floodplain of the old Trinity River channel does not provide protection from flooding and thus was not expected to contain prehistoric or historic sites. The negative results from trenching are in line with the hypotheses set forth in the Research Design and are similar to other trenching results along the Trinity River in close proximity to the project area (Shanabrook et al. 2010). Previous investigation shows that prehistoric sites are primarily found on the first terrace and occasionally in the uplands, but rarely in the floodplain (TASA 2018).

RECOMMENDATIONS

The purpose of this investigation was to determine if significant cultural resources are present within the DWU 84-Inch Wastewater Main project area in Dallas County, Texas. No diagnostic prehistoric or historic cultural resources or features were identified on or below the surface during trenching. Based on the results of the survey, ARC concludes that further cultural resource investigations for this project are unwarranted and recommends that the USACE and the THC concur with this assessment. However, if buried cultural materials are discovered during construction, the Archeology Division of the Texas Historical Commission and the Fort Worth office of the USACE should be notified.

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