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A CULTURAL RESOURCES SURVEY OF THE PROPOSED

EAST FORK WATER REUSE

PIPELINE ROUTE,

KAUFMAN, ROCKWALL AND COLLIN

COUNTIES, TEXAS

Texas Antiquities Permit Number 3646

Jesse E. Todd, MS, MA
and
S. Alan Skinner, PhD

Backhoe Trench Descriptions by
Lance K. Trask, BS

Prepared for:

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7524 Mosier View Court
Suite 200
Fort Worth, Texas 76118

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Cultural Resources Report 2005-12
June 6, 2005

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ABSTRACT

A cultural resources survey of approximately 75 miles of the East Fork Water Recycle Pipeline route was conducted to determine if prehistoric and historic archaeological sites were within or near the pipeline route. A pedestrian survey with shovel testing and backhoe trenching along the proposed pipeline right-of-way was conducted with the emphasis being placed on locations expected to contain archaeological sites within the floodplain of the East Fork of the Trinity River and the Blackland Prairie in Kaufman, Rockwall and Collin counties, Texas. The survey was done for Alan Plummer Associates, Inc. which is acting as an agent for the North Texas Municipal Water District.

Survey located four previously unrecorded historic archaeological sites (41KF130, 131, 132 and 133): two cisterns, a well and a standing residential structure in poor condition. None of the historic sites are deemed suitable for nomination to the National Register of Historic Places. There are no remaining associated structures associated with sites 41KF130, 131 and 132; therefore, they do not provide any significant information to the history of Kaufman County. The Neal House site (41KF133) was built in 1941 and has been modified over time and is in a poor state of preservation. One prehistoric shell lens site, 41KF134, was discovered in the floodplain of the East Fork. This site may be suitable for nomination to the NHRP, but since it is to be avoided, further testing is not recommended. The site dated to A.D. 1190 to 1400 (Beta-204792).

Shovel testing failed to locate any archaeological sites. Thirteen backhoe trenches were excavated on the banks and across the East Fork's floodplain, three of which were excavated to define site 41KF134. As a result of the testing, the proposed pipeline route was moved west to avoid the site.

Based upon the survey, AR Consultants, Inc. recommends that further cultural resources investigations are unwarranted. However, if cultural materials are encountered during the construction of the pipeline, work in that area should stop immediately and the Archeology Division of the Texas Historical Commission should be notified. Construction should not continue until proper investigations have been carried out.

ACKNOWLEDGEMENTS

AR Consultants wishes to thank those involved with this project for their help and guidance. While we accept responsibility for the content of the report, we were assisted by a number of people who demonstrated their interest in the history and prehistory in the Kaufman, Rockwall and Collin county area.

We would like to thank Mr. Chuck Tracy, PE, and Jason Voight of Alan Plummer Associates, Inc. for their help and providing aerial maps which were invaluable during the survey and to Freese and Nichols, Inc. for the same reason.

Also, we thank Mr. Braddock, manager of the Hunt Property, Mr. Downey and Mr. Ballard for graciously allowing us access to their property.

Finally, we would like to thank Mr. Delta Mathis for his backhoe work and his wide spread knowledge of Kaufman County which he shared with us.

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INTRODUCTION

During January through March, 2005, AR Consultants, Inc. conducted an intensive pedestrian archaeological survey along with deep testing of a proposed pipeline route that begins in the floodplain of the East Fork of the Trinity River in northwest Kaufman County, Texas and terminates east of Lake Lavon and south of Farmersville in Collin County, Texas in the Blackland Prairie (Figure 1). The proposed pipeline route is forty-four miles long. Water is to be moved north from a proposed wetland area located in the East Fork floodplain and is to empty into Lake Lavon. This will allow the East Fork water to be recycled.

The purpose of the survey is to determine if archaeological sites are present within the proposed pipeline route, their significance and how they might be impacted by the pipeline construction.

The survey was conducted for the engineering firm of Alan Plummer Associates, Inc. of Dallas which is acting as an agent for the North Texas Municipal Water District in response to an application for a Section 404 for the Clean Water Act permit. The report will be reviewed by the Corps of Engineers, Regulatory Branch. 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, and the Archeological and Historical Preservation Act of 1974, as amended (PL-93-291). In addition, since a political entity of the State of Texas is involved, an Antiquities Permit is required.

The scope of the project included a records review, a field survey, the recording of sites, if present, and the preparation of a summary report. This report was written in accordance with report guidelines adopted by the Archeology Division of the Texas Historical Commission and developed by the Council of Texas Archeologists (ND). The following report presents a brief description of the natural setting of the project area. This is followed by a short discussion about North Central Texas archaeology and history. The research design and methodology follow. The results of the field survey are presented in the major section of the report. Recommendations conclude the text. A list of references cited is at the end of the report.

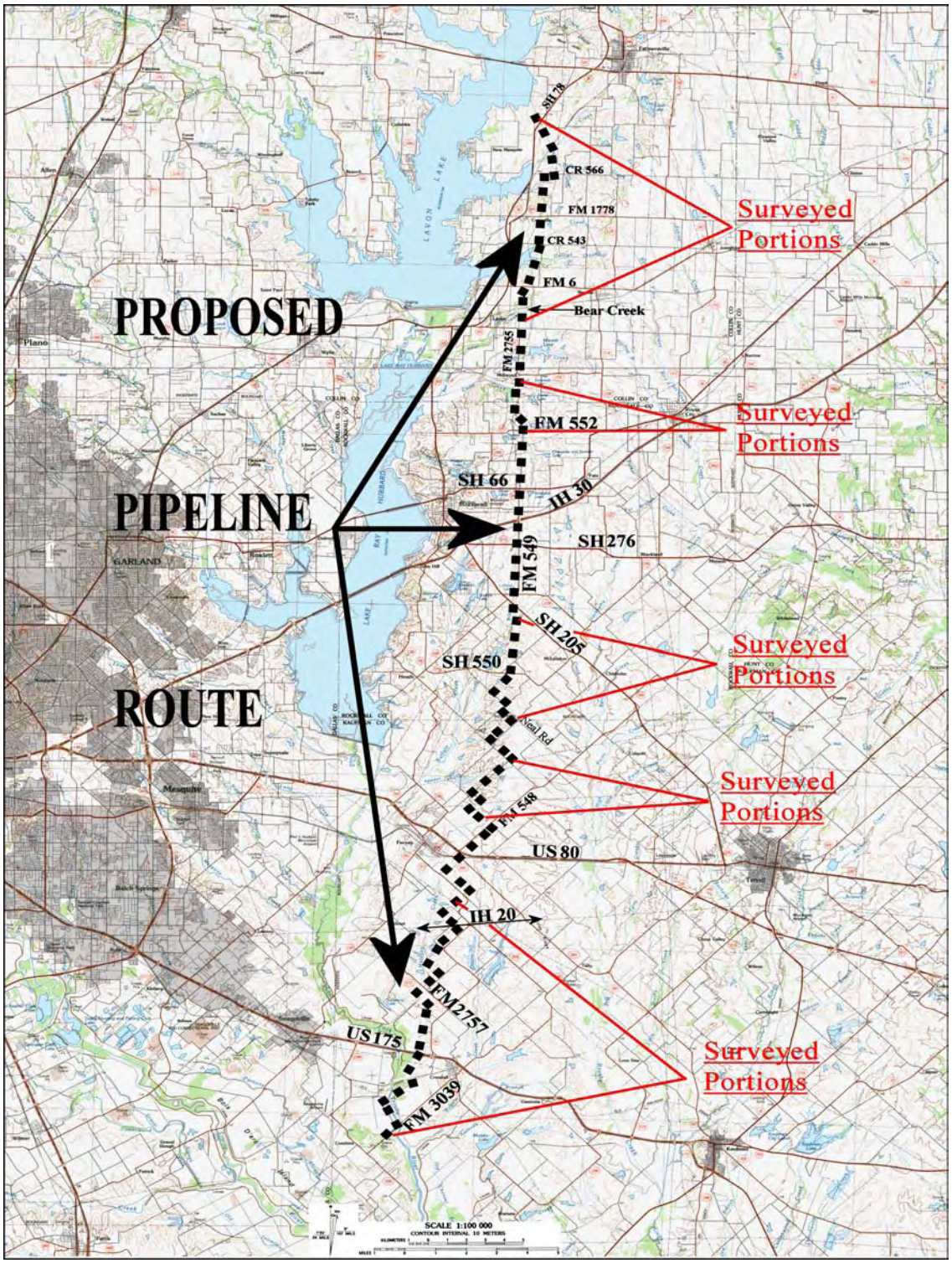

Figure 1. Proposed East Fork Reuse Project pipeline route with site locations shown on portions of the Dallas and McKinney, Texas 1:100,000 scale maps.

Administrative Information:

Sponsor:	North Texas Municipal Water District with Alan Plummer Associates, Inc. acting as its agent
Review Agencies:	Fort Worth District, Corps of Engineers and the Archeology Division of the Texas Historical Commission
Principal Investigator:	S. Alan Skinner, Ph.D.
Field Crew:	Lance K. Trask, Jeff Craver, Sonny Wheeler, III, Jesse Todd and Skinner
Acres Surveyed:	approximately 455
Sites Recorded and revisited:	
Historic:	41KF130, 131, 132 and 133
Prehistoric:	41KF134, 41KF5

NATURAL ENVIRONMENT

The Upper Trinity River Basin, of which the East Fork is a part, includes all of the counties of Tarrant, Dallas, Rockwall and Denton, almost all of Collin county, the southern half of Cooke county and the southernmost third of Grayson county and lies within North Central Texas. The basin lies within the northern portion of the Gulf Coastal Plain and the Texan biotic province. Sandy soils support oak-hickory forests while clay soils support a tall grass prairie.

The proposed pipeline route is underlain by the Upper Cretaceous age undivided Neylandville formation and the Marlbrook Marl, the Wolfe City Formation and the Pecan Gap Chalk (Bureau of Economic Geology 1967, 1972). Quaternary alluvium fills the East Fork valley, and an older Quaternary terrace comprises the surface deposits along almost all of the east side of the valley. According to Thurmond (1967), the proposed pipeline route crosses not only the modern floodplain of the East Fork, but its T-1 and T-2 terraces as well, especially in stream valleys. The T-2 terrace is approximately 15,000+ years old.

The Soil Conservation Service recognizes various soil associations that the pipeline route is to cross (Pringle 1977: General Soils Map; Hanson and Wheeler 1969:General Soils Map). The soils within the floodplain of the East Fork of the Trinity River are part of the Trinity-Kaufman association. The prairie upland areas belong to the Ferris-Altoga, Houston Black-Heiden, Houston Black-Burleson and Ferris-Houston associations. The soils in these associations, along with the Trinity-Kaufman, are comprised of clays and silty clays.

North Central Texas is divided into two floral biotic zones, the Blackland Prairie and the Eastern Cross Timbers (Lu 1973:34). The Blackland Prairie, in which the pipeline route is to be placed, got its name from the black, clay soils derived from the Cretaceous limestone in the area. The area drains quickly, due to the clay soils promoting runoff, which causes frequent flooding and deposition of sediment on the floodplain (Mahler 1972:68-69). Kuchler (1966) classified the prairie as being dominated by Andropogon-Sipa grasses. There are some small stands of timber (elm, oak, pecan, etc.) in the prairie also. However, the prairie environment is one of low biotic diversity.

Forty-nine species of mammals occur in the Texan province, including deer, raccoon, rabbits and opossum. Both species of terrapene (*Terrapene ornata* and *Terrapene carolina*) occur, as well as nine species of lizards. In addition, thirty-nine types of snakes can be found, along with thirteen species of anuran fauna (Blair 1950:101-102).

Determining the paleoenvironment for North Central Texas is problematic. Thurmond (1967:70) believes that prior to 15,000 years ago, the winters along the East Fork probably were less severe and the summers cooler than today. He (1967:67) adds, based upon the presence of the fauna *Alligator* sp. indet., *Microtus pennsylanicus*, *Sigmodon hispidus* along with *Bassariscus* sp. indet. and *Onchomys* sp. indet., that the climate prior to 15,000 years ago along the East Fork is not comparable to any climate today in the

United States. Major recent work on the paleoenvironment of North Central Texas was done by Reid Ferring (1994) who examined terraces of the Upper Trinity River. Ferring believes the Early Holocene (11,000 to 7,500 years ago) was moister than today. During the Middle Holocene (7,500 to 4,500 years ago), there was a period of decreased rain, but moist conditions returned to North Central Texas during the Late Holocene (4,500 years ago to the present). Brown (1998) studied the oxygen isotopes from mussel shells at Site 41DL270. His conclusions were that warmer, drier conditions existed during the Middle Holocene also, and that it was wetter after the Middle Holocene. The conditions became dryer approximately 3,450 years ago and after that, the climate has been similar to that of today.

CULTURE HISTORY

A definitive chronological framework for the Upper Trinity River Basin and North Central Texas has been difficult to establish for several reasons. Many sites are not vertically stratified, bioturbation has impacted stratified deposits and plowing has mixed artifacts in shallowly buried deposits. However, deep Holocene alluviation preserves buried occupation surfaces, both in the Holocene as at the Rough Green site and in the Pleistocene such as at the Aubrey site. Without alluviation, these once surface deposits would still be on the surface and mixed with bottles, nails and other historic trash as well as the occupations in between. Another problem is plowing. Plowing usually mixes together artifacts that exist within 15 centimeters of the surface (Lorrain and Hoffrichter 1968:6).

Prehistoric Native American settlement in North Central Texas began at least 10,000 years ago as attested to by the presence of distinctively shaped dart points at the Lewisville site (Crook and Harris 1957) and the Aubrey Clovis site (Ferring 2001). Moreover, artifact collectors report the presence of Clovis, Folsom, Scottsbluff and other Paleo-Indian points from the surface of sites in the region (Meltzer and Bever 1995). The presence of exotic, i.e., non-local, lithic resources indicates that these early people traveled a territory where higher quality lithics were available or were involved in a system of raw material trading. These early people hunted now-extinct large game, but probably also foraged off the land.

The subsequent period, the Archaic, lasted from as early as 7,000 or 6,000 B.C. to possibly as late as A.D. 700 to 800. The Archaic peoples lived throughout the counties but particularly along the major and minor stream valleys where they were able to hunt and gather native foods. 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 (Menzer and Slaughter 1971). Large Archaic sites are generally located on terraces or ridges that overlook the Elm Fork of the Trinity. Smaller lithic scatters have been recorded in upland areas throughout the counties. These sites appear to be Archaic in age, but none have been thoroughly studied (Prikryl 1990).

The definition of the Late Prehistoric which ranges from approximately A.D. 700 to 1750 has been problematical. Krieger (1946:137-141) attempted a chronological framework for North Central Texas when he defined the Henrietta Focus. The type site was the Harrell Site along the Brazos River in Young County, Texas. Among the traits for the Henrietta Focus, Krieger listed small, triangular points, Alba-barbed points, Harrell and Washita points, contracting Perdiz points, Nocona Plain pottery, antler tines with blunt tips, bone awls, and trade pottery from the Southwest and Southeast. Prikryl (1990:12) states that the artifacts and features from the Henrietta Focus bear strong similarities to those at

Plains Village sites in the Southern Plains area. However, Peter and McGregor (1988:367) believe that further research should be done on defining the Henrietta Focus.

Stephenson (1952:305-312) tried to create a chronological sequence for the Upper Trinity River Basin when he defined the Wylie Focus, which was dated to A.D. 1300 to 1600, based on shell and clay-grit tempered pottery which, he believed, was Caddoan in origin. The Wylie Focus was characterized by large circular pits, no indigenous pottery, flexed burials (both single and multiple and in poorly defined burial pits), maize agriculture and villages. The Wylie Focus was discarded when Bruseth and Martin (1987:280) dated pits at the Bird Point Island and the Adams Ranch sites to the Late Archaic period.

Lynott (1977:99-100) renamed the Late Prehistoric of North Central Texas the Neo-American Stage and divided it into two phases, the Early (A.D. 800 to 1200) and Late (A.D. 1200 to 1600). Lynott's (1977:99) Early Neo-American phase was equivalent to the Gibson Aspect of East Texas and the Austin Focus of Central Texas. However, the chronology for the Late Prehistoric today is Prikryl (1990) who surveyed the Lower Elm Fork Branch of the Trinity River and created a chronology based on the projectile points from mostly surface collections. Influenced by Lynott's earlier work, Prikryl (1990:62) divided the Late Prehistoric into two phases, the Late Prehistoric I, dating from 1250 to 750 B.P. and Late Prehistoric II, dating from 750 B.P to 250 B.P. Late Prehistoric I diagnostic traits consisted of maize horticulture, house remains, grog-tempered and sand-tempered pottery and Scallorn, Alba, Steiner and Catahoula arrow points. Prikryl implied a subdivision of the Late Prehistoric I phase because the Steiner, Alba-Bonham, Scallorn and Catahoula arrow points are more common in the earlier portion of the Late Prehistoric I than the later. Late Prehistoric II seems to occur about the time that the climate of northern Texas became drier. Diagnostic traits include an emphasis on bison hunting, Washita, Fresno and Harrel arrow points, bison scapula hoes, "Plains-like" lithic artifacts, and settlements on sandy terraces above the floodplains (Late Prehistoric I people had lived on floodplains). It is important to note that Prikryl suggested that site placement is suitable for agriculture, even though there appears to be no evidence of agriculture except for the bison scapula hoes. Todd (1999) believes that some form of agriculture existed in the Upper Trinity River basin drainage based upon the presence of shell hoes. Experiments proved the shell hoes would have worked to till sandy and loamy soils.

At the end of the Late Prehistoric period, there appears to have been a general abandonment of the North Central Texas area based on an absence of sites with trade goods that might have been obtained from French, Spanish or English traders (Skinner 1988). This simplistic interpretation is tied to a general drying trend and attempts to factor in negative information generated by professional and avocational archaeologists who have conducted numerous site surveys throughout the region. There is very little evidence of historic era Native American occupation anywhere in the counties although historic accounts indicate that groups were present in the early 1800s.

There is tantalizing evidence found on the Trinity River in Dallas County of a possible visit by Spanish explorer Hernando de Soto (Bruseth 1992). Artifacts found consist of a chain-mail gauntlet, a halberd and a spur. Current research, however, seems to indicate that Anglo settlers were the first non-Indians to settle in North Central Texas.

Beginning in the 1830s and continuing into the 1840s, the aboriginal inhabitants continued to play a role in the history of the region. Garrett (1972:24) states "Indian hostilities almost depopulated North Texas (of Anglo dwellers) after 1839. It dwindled to less than half." Hostilities continued until the Treaty of 1843 was signed by the State of Texas and ten Native American tribes. This treaty provided the impetus for settlement of several North Central Texas counties.

Today North Central Texas is a growing area. The expansion of Dallas and Fort Worth due to the ever increasing amount of industries coming into the area has extended the suburbs and it appears that retirement communities are also on the rise.

Previous Investigations

Archaeological surveys and excavations were conducted at Lake Lavon and Lake Ray Hubbard [formerly Forney Reservoir]. The surveys were not systematic or comprehensive as would be required by the Corps of Engineers and the Texas Historical Commission today, as they focused on prehistoric sites and on areas which had high probability for containing preserved site deposits. Nevertheless, 25 sites were recorded at Lake Lavon (Stephenson 1949b and c) and subsequent excavation defined the Wylie Focus (Stephenson 1949a and 1952). This work built on earlier investigations by members of the Dallas Archeological Society (Harris 1948 and 1960; Wilson 1946). In the 1960s and 1970s, further survey and excavation was done which added to our understanding of the local archaeology (Lorrain 1965; Lynott 1975, 1977). In 1963, the Dallas Archeological Society (DAS) surveyed the area of Lake Ray Hubbard and recorded 33 archaeological sites (Harris and Suhm 1963). This survey described 20 sites already known to the DAS membership (Hannah 1941; Hannah and Harris 1948), and located 13 previously unrecorded sites. Only limited excavations were subsequently conducted (Ross 1966), but along with the previous DAS excavations, they did provide evidence of the way of life practiced by the prehistoric peoples who occupied this part of the East Fork valley.

Since the 1970s, numerous small-scale cultural resources surveys were conducted of transmission corridors, pipelines, and Soil Conservation Service floodwater retarding structures throughout Kaufman County (Ferring 1975; Lynott and Banks 1977). The overall impression from these studies is that historic and prehistoric cultural resources are present, but are widely scattered and sites are small in size and frequently are surface deposits in the upland. Of note is the fact that lithic procurement sites are found in upland areas where metaquartzite gravels occur. Habitation sites are reported to be near available water sources.

Very limited work has been done in the East Fork of the Trinity River downstream from the Lake Ray Hubbard dam. R.K. Harris surveyed the area in 1936 and recorded a number of sites. A survey of the river channel was done as part of planning for channelization (Richner 1976). This survey was limited in scope due to reliance on surface exposure of sites in areas where flooding, plowing, and erosion had removed vegetation or sediment. No shovel tests were excavated and it is likely that sites along the banks of the East Fork and within its floodplain were overlooked. Several surveys have been done in conjunction with electric transmission and distribution lines for Kaufman County Electric Cooperative, Inc. One of these surveys recorded a shell lens site in the channel of the East Fork, and a historic house site on a low ridge at the eastern edge of the East Fork valley (Skinner 1992).

In 1998, a reconnaissance of a section of the Clements property north of US 80 and west of FM 460 was conducted and one previously unrecorded prehistoric site was recorded (Skinner 1998). The recent survey of the Cobisa-Forney Electric Power Plant Site recorded no historic or prehistoric sites in the floodplain of Buffalo Creek just west of the study area (Price 2001). Southwest of the study area and US 80, AR Consultants, Inc. (ARC) conducted a survey of a pipeline right-of-way and discovered a prehistoric site (41KF128) consisting of lithics, fire-cracked rock and mussel shells and a historic site (41KF129) consisting of a barn and a well. ARC also reinvestigated a prehistoric site (41KF45) recorded by R. Harris in the 1930s. Harris discovered human bone, mussel shell, animal bone, pottery sherds, projectile points, drills and scrapers at the site. The site had subsequently been destroyed and only a few lithics and projectile points were found and no buried deposit was located (Trask and Skinner 2001a). A pipeline route and associated bore holes in the East Fork was monitored by AR Consultants, Inc. (Skinner et al 2002) that would provide natural gas to the Forney Electric Power Plant. An interesting result of this monitoring was that a bois d'arc tree trunk located approximately a meter below the floodplain surface was radiocarbon dated to 120 $\pm$ 50 B.P. (Beta-170374). This indicates that a meter of alluvium has been laid down since the late 1800s.

AR Consultants, Inc. (Todd 2003) conducted an archaeological survey of approximately 16.5 acres consisting of a proposed wastewater treatment plant and buffer zone and a 1600 foot long flow line for Travis Ranch Development, LP and located approximately 1.5 miles north of Forney. The study area is located at the edge of the East Fork of the Trinity River Valley just downstream from Lake Ray Hubbard. No cultural materials were found during the survey or in 13 shovel tests which were supplemented by augering to approximately 150 cm. below the surface.

Along the pipeline route, several surveys have been conducted. AR Consultants (Skinner 1999a) conducted an archaeological survey of three tracts, totaling 30 acres, for parks for the City of Heath which is located west of the proposed pipeline route. No archaeological sites were discovered. Two areas were studied adjacent to Collin County Road 543 where it crosses Jacob Branch and east floodplain of Price Creek (Skinner 1999b). No cultural materials were found. A survey of an unnamed drainage of an approximate 600-acre development site was conducted east of FM 741 and north of Crandall which is east of the proposed pipeline route in the uplands (Todd 2004a). No archaeological sites were

found. An intensive pedestrian survey of a proposed 10-acre wastewater treatment plant which is to be placed east of Ranch Road and northeast of Forney and adjacent to the proposed pipeline route found no cultural materials (Todd 2004b).

According to the Texas Archeological Sites Atlas (2005), one site, 41KF5, is located approximately one-forth mile east of the East Fork and the proposed pipeline route and north of FM 3039. The site is located on a knoll and was recorded by C. K. Chandler. He reported that dart points, a gouge, a sinker stone and mussel shells were present. A revisit on January 25, 2005 discovered several pieces of mussel shell and a few flakes.

RESEARCH DESIGN AND METHODOLOGY

The first step in preparing for fieldwork was a comprehensive records check and then the development of specific research problems. Early maps of Collin, Rockwall and Kaufman Counties were reviewed to determine if historic structures were mapped within the survey area. Numerous sites have been recorded in the immediate area (Richner 1976; Harris and Suhm 1963; Price 2001; Skinner 1998; Trask and Skinner 2001). Information gathered by those surveys guided this research design.

The survey area was initially evaluated with regard to the potential of archaeological sites being present in relation to the soils, terrain, and water availability. With the exception of the East Fork, all of the drainages are mapped as intermittent, so the proximity of available water was not a particularly useful criterion. Based on previous surveys in the Blackland Prairie, it was anticipated that prehistoric sites would be found buried in the floodplain immediately adjacent to the East Fork of the Trinity River's channel, on elevations in the floodplain, and on terrace projections into the floodplain. Historic sites were expected to be along new and old roadways and to be recognizable by above-ground features (well/cistern casings and drill pipes), as well as by exotic and/or old plants which serve to signal residences, and are referred to as vegetative signatures.

An even more basic, research problem guided the survey, "How did past people use the land, and what record of this use did they leave behind?" Most frequently, linear surveys of this type gather information in response to this wide-reaching research question, which guides almost all archaeological surveys.

Methodology

Before the survey was conducted, maps of the proposed pipeline route were submitted to the Archeology Division of the Texas Historical Commission. After the maps were examined by the state archeologists, the Texas Historical Commission excluded certain areas for survey such as portions of the pipeline route adjacent to existing roads. Although the areas are mentioned in passing in the report, no pedestrian survey was conducted.

The pipeline is to be buried approximately 20 feet beneath the ground, and deeper under drainages and roads, and has a right-of-way approximately 50 feet wide. The proposed route was surveyed in three manners. The floodplain of the East Fork of the Trinity River was not shovel tested. According to Gibson and others (1999:8), the upper 2 m of the East Fork's floodplain is less than 200 years old; therefore testing would not discover archaeological sites. As previously mentioned, AR Consultants, Inc. (Skinner et al. 2002:9) had a bois d'arc trunk radiocarbon dated which lay under approximately a meter of soil within the East Fork's floodplain. The trunk's radiocarbon date was 120 $\pm$ 50 BP (Beta-170374), placing it in the late 1800s. To explore for the deeply buried sites,

backhoe trenches were excavated at the ratio of 1 backhoe trench per 3 acres within the floodplain as recommended by the Council of Texas Archeologists (2002). The trench walls and the backdirt were examined for evidence of buried surfaces, features or soil horizons. Surface exposure varied from less than 20 to 100 percent and eye-height visibility was very good. Portions of the floodplain had been disturbed by channelization, levee construction and past farming practices such as the construction of agricultural terraces and land leveling.

Shovel testing in the upland away from existing roads was done on a judgmental basis as suggested by the Council of Texas Archeologists. However, most drainage crossings were tested unless ground visibility was greater than 75 percent. Shovel tests were excavated to approximately 35 centimeters below the surface in the upland portion of the survey because this portion of the survey area is in a degrading environment and cultural materials would be expected to have deflated onto the existing ground surface. However, shovel tests were supplemented by augering in floodplain situations. The pit walls were visually examined and the clay matrices were broken and examined visually. Eye-height visibility was good throughout most of the study area and ground visibility ranged from 0 to 100 percent.

The guidelines set by the Texas Historical Commission (Denton 1999) for archival research of historic sites was followed if possible.

RESULTS

This section is divided into various parts. An overview of the vegetation and terrain along the proposed pipeline route is presented which is followed by a description of the survey. Conclusions derived from the survey end the chapter. Shovel tests and backhoe trenches are described generally in the text but specific information is listed in Tables 1 and 2, respectively. Shovel test locations are not shown but their locations are described in the text. Backhoe trench locations are shown on Figures 8 and 9.

The Survey Area

The survey begins in the generally level floodplain of the East Fork of the Trinity River. The land rises out of the floodplain and becomes moderately steep rolling hills. The floodplain contains some trees but is mostly planted pasture. The upland consists mainly of grassland which is usually improved pasture as shown in Figure 2. Trees are found along drainages and fence lines. Trees along the route include blackthorn, American elm, winged elm, bois d'arc, hackberry and eastern red cedar. Understory vegetation consists of saw greenbriar, bunch grass, hog bush and various native grasses and bushes. Ground visibility ranged from 0 to 100 percent. Eye height visibility was generally very good throughout the survey area. The drainages crossed, except for the East Fork, are mapped as intermittent even though water was present, both flowing and ponded, from recent rains at the time of the visit. The ground was moist and sometimes quite wet. Squirrels, cottontails, hawks and various native birds were seen during the survey. Only two snail species, *Rabdotus mooreanus* and *Helicina orbiculata*, were found. *Rabdotus mooreanus* is fond of the prairie and savannah, but can be found in deciduous environments, and *H. orbiculata* requires permanent vegetation.

Figure 2. Typical terrain the proposed pipeline route crosses. View is to the north.

The Survey

From CR 3039 to US 175

Survey began north of and parallel to CR 3039. This area was not shovel or deep tested due to disturbance in the area. The proposed pipeline route is to be placed in a ditch that is between CR 3039 that has been elevated approximately a meter and a levee that is approximately 2 m high and 2.5 m wide.

Unimproved pasture is present from CR 3039 to the East Fork. The pipeline route parallels CR 3039 and then turns upriver and parallels the river on the west side for approximately 1.25 miles. Ground visibility was about 30 percent. The proposed pipeline route was not shovel or deep tested because the fill from channelizing the East Fork had been placed on both banks of the East Fork for approximately a mile north of CR 3039. Banks of intermittent tributaries to the East Fork were examined. During the survey, a remnant of the old East Fork channel was encountered. This was earmarked for deep testing; however, no cultural materials were found during the deep testing.

Approximately a mile from CR 3039, freshwater mussel shells were found eroding from the banks of one of the tributaries at approximately 2 m below the present ground surface. The banks of the tributary were examined and a deer bone and tooth also were found. The shells consisted of *Amblema plicata*, *Lampsilis hydiana*, *Tritogonia verrucosa* and *Obliqueria reflexa*. The deer bone was disintegrating, but the tooth belonged to a nine month old deer which was either killed or died in the fall (Art Tawater 2005). The banks were then cleared of eroding sediment and a deer rib bone was found and charcoal 10 cm beneath it at approximately 245 cm below the present surface. The charcoal deposit consisted of scattered flakes. No charcoal concentration was present. This shell lens was designated as site 41KF134 and is approximately 100 m north of the old river channel remnant. It was decided that deep testing was necessary to determine the limits of the site.

The land east of the river channel is also unimproved pasture, but contains trees and shrubs. Ground visibility however was better in places than the river's western floodplain. This portion of the route was examined but was not shovel tested because of the distance from the river and the discovery of the shell lens site was deeper than shovel testing supplemented by augering could go. The backfill from several armadillo holes was examined but no cultural materials were found and none were found between the east bank of the river to the old US 175. Also no cultural materials were found in a backhoe trench placed on the east bank of the river or the one placed east of the old river channel shown in Figure 9.

Unimproved pasture is present from old US 175 to US 175. Ground visibility averaged 30 percent. Although the pipeline route did not parallel the levees until just south of US 175, shovel testing was not done because of the disturbance from the soil removal for the construction of levees as well as construction of tanks and fish tanks. The intermittent

tributary to the river shown on the USGS map does not exist today or else has been modified so much that it is not recognizable because of the levee construction east of the proposed route.

From US 175 to IH 20

Unimproved pasture is present from US 175 to FM 2757. The proposed pipeline generally runs north but then turns northwest and crosses a tributary to Mustang Creek. The land is higher than the proposed route south of US 175. The route was walked, but mostly was under water due to recent rains. Several fire ant mounds and some cleared areas were present and no cultural materials were found. Where the route turns northwest, the land is on the southern end of a gentle slope until it reaches a tributary of Mustang Creek. The tributary is approximately 3 m wide and deep. Clear water was flowing and less than 0.25 meters deep. The substrate was clay. No shovel tests were placed on the banks because a 2+ m high levee that is a meter wide at the top is on the east bank (Figure 3) and the 45 degree angle west bank has been severely eroded, allowing for 100 percent ground visibility. No artifacts were present on the surface or seen in the tributary's bank walls. The pipeline route then follows a gentle rise from the tributary northeast to FM 2757. No shovel tests were placed along this portion of the route because of the excellent ground visibility (40+ %). No cultural materials were found in the tributary's banks or during the pedestrian survey. The pipeline route is to be bored beneath FM 2757.

Figure 3. Levee on east side of tributary to Mustang Creek. View is to the northwest.

From FM 2757, the pipeline route parallels the northwest side of CR 205. The upland terrain slopes at approximately a 15 degree angle. Ground visibility is 30 percent. Shovel tests (hereafter ST) 1 was placed a meter from the south bank of an intermittent, unnamed drainage and encountered 38+ cm of sterile clay. The drainage is approximately 10+ m wide and 3+ m deep. The substrate consists of clay and limestone bedrock. Large amounts of modern trash such as beer bottles and an old oven have been dumped in the drainage. Shovel test 2 placed a meter north of the drainage also uncovered 38+ cm of sterile clay. Midway between FM 2757 and FM 741, the proposed route departs from CR 205 and turns northwest and then northeast. From CR 205, the proposed route is to be placed in plowed pasture where the ground visibility was 100 percent. An intermittent, unnamed drainage was encountered in the pasture and ST 3 was placed 2 m south of the drainage and encountered 35+ cm of sterile clay. The drainage is approximately 3 m wide and deep. The substrate is clay and no water was present at the time of the visit. Shovel test 4 was placed a meter from the north banks of the drainage despite the excellent ground visibility and uncovered 33 cm of sterile clay. At the northwest end of the plowed pasture, another unimproved pasture was encountered. Ground visibility averaged 50 percent and the pipeline continues northwest and then turns northeast to FM 741. An unnamed, intermittent drainage similar to the previous one was encountered in this pasture and ST 5 was placed a meter from the south bank and ST 6 was placed a meter from the north bank. Both STs encountered 38+ and 34+ cm, respectively, of sterile clay. After the proposed pipeline route turns northeast and toward FM 741, a fourth drainage was encountered. It is approximately 10+m wide and 3+ m deep. The substrate is clay and it was dry. Shovel test 7 was placed a meter from the south bank and ST 8 was placed 2 m from the north bank. The STs encountered 39+ and 36+ cm, respectively, of sterile clay. The pipeline will be bored beneath High Country Lane which it encounters shortly before CR 741. Past High Country Lane, the ground surface is covered in limestone gravel. No cultural materials were found on the surface or in the shovel tests between FM 2757 and FM 741.

The proposed pipeline will be bored beneath FM 741 and then will parallel the east side of Dozier Circle. At the time of the visit, the land had been recently plowed and ground visibility was 100 percent. This portion of the route was visually surveyed and no standing historic structures or an environment where prehistoric sites were likely to be found were seen.

The pipeline is to be bored in a northwesterly direction beneath Dozier Circle. It then will be placed parallel to the east side of a road whose name was undetermined. Ground visibility was 100 percent and no historical structures were seen. The pipeline then is to be bored beneath IH 20 in a northerly direction.

From IH 20 to SH 80

The route continues north from IH 20 to High Country Lane. Approximately fifty feet north of IH 20, a corrugated metal shed that is approximately 39 feet east-west and 12 feet north-south with a wooden roof was encountered. South of the shed is a gridded metal fence attached to railroad ties. A cistern is about 58 feet south of the shed. A

discussion of the cistern which was designated 41KF130 is provided later in the text. From the shed to High Country Lane, the land drops gently. A road had been bulldozed in the unimproved pasture that the pipeline will cross which allowed for 100 percent ground visibility. No cultural materials were found from the shed to the road.

The pipeline route parallels High Country Lane to the southeast and then is to be bored beneath the road in a northwesterly direction. Approximately 120 feet from the road, a well was found and was designated site 41KF131 which is discussed later. From the well, the proposed route continues northwest and parallels a fence. The land is unimproved pasture from the well to FM 741. A drainage that is 3+ m wide and 2+ m deep flows into Buffalo Creek present where the pipeline route turns northeast. The substrate is clay and water was flowing at the time of the visit. Modern trash, including baling wire, plastic pipe and beer bottles, is on both banks and in the drainage. Despite the 80 percent ground visibility, ST 9 was placed a meter from the east bank and encountered 35+ cm of sterile clay. Shovel Test 10 was placed a meter from the west bank and uncovered 33+ cm of sterile clay. No significant cultural materials were found.

As mentioned, the proposed route turns northeast and site 41KF132 was found on top of a ridge. The site is discussed below. From the cistern, the survey continued northeast across the upland terrain. A swale was encountered between the cistern and FM 741. The swale is approximately 2 m deep over a 30 m width. Nonetheless, ST 11 was placed a meter from the east bank and uncovered 35+ cm of sterile clay. ST 12 was placed a meter from the west bank and also encountered sterile clay to 36 cm below the surface. The area northeast of the drainage had been terraced. At FM 741, the proposed route turns northwest and parallels FM 741 to avoid the USDA building across the road. No cultural materials were discovered in this portion of the survey.

The proposed pipeline route is to be bored beneath FM 741 and will parallel the northeastern side of the road. This area was examined but no standing historic structures or areas that might contain prehistoric sites were noted.

The pipeline is to be bored beneath FM 548 and then will run parallel to FM 548 on the northwest side of the road. At an unnamed road, the pipeline turns northwest and parallels the road on its southwestern side. The pipeline route then turns northeast, crossing the road, and will be bored beneath the Missouri Pacific Railroad and FM 688 and continues northeast to where it will be bored beneath FM 548 again and will parallel it on the southeastern side. The pipeline route was not surveyed adjacent to the roads, but was walked from where it turns northeast to where it parallels FM 548 again. North of FM 548, the pipeline route will be bored beneath US 80. Ground visibility was approximately 60 percent because most of the area had been cleared for construction. No cultural materials were found.

From FM 548 to FM 550

The pipeline route will parallel the southeastern side of FM 548 for approximately a mile before turning northwest. It will be bored beneath the road. However, access was not

granted to the surveyors on the land northwest of FM 548. To investigate the pipeline route, the surveyors drove to Ridgecrest Road and surveyed from the end of Ridgecrest Road to the border of the landowner's property who denied the access. The terrain dipped and rose gradually to FM 548. Ground visibility was approximately 50+ percent. A drainage was crossed which is approximately 50 m wide and 2 m deep. A trickle of water was flowing in the clay substrate. No shovel tests were placed on the banks of the drainage due to the 100 percent ground visibility and disturbance due to the construction of a concrete bridge across the drainage. No cultural materials were found on the surface from the end of Ridgecrest Road to northeast of FM 548.

The surveyors then returned to the west end of Ridgecrest Road and followed the proposed pipeline route northeast of the road and from where the route turns northwest and then turns northeast paralleling Ranch Road. The ground had been heavily disturbed due to the construction of the housing complex that the proposed pipeline route is avoiding. Ground visibility was 70 percent and no cultural materials were found.

The proposed route turns northeast on the southeast side of Ranch Road and parallels the road until it intersects with University. At University, the proposed pipeline route will be bored beneath the road and will parallel the road in a northwesterly direction until it intersects Valley View Road (CR 222). The pipeline route turns northeast and parallels the county road on its southeastern side. Prior to encountering at least five residences southwest of Neal Road, the pipeline route will be bored beneath Valley View Road and will parallel the road on its northwest side to Neal Road. The pipeline route adjacent to the roads was investigated visually and no standing historic structures or areas likely to contain prehistoric sites were seen.

However, on the northwest side of the intersection of Valley View and Neal Roads, stands the Neal House with associated features which is discussed later.

From the Neal House, the pipeline route follows the southwestern side of Neal Road to its intersecting with Stevens Road. The pipeline will be bored beneath Neal Road and parallel Stevens Road to the northeast for a short distance. The route then will be bored beneath Stevens Road and will parallel McDonald Road to the northeast. Since the proposed pipeline route is to parallel existing roads, this portion of the pipeline route was driven. No standing historic structures or areas likely to contain prehistoric sites were seen. The pipeline route is to be placed generally north from McDonald Road to SH 550. The route crosses moderately steep, rolling terrain. Ground visibility was less than 20 percent throughout most of the route. A drainage was encountered that flowed into a large pond south of SH 550. The drainage is less than a meter deep but is approximately 20 m wide. Water was flowing and less than 0.1 meters deep. The substrate is clay. Despite the low potential for archaeological sites being in the area, ST 13 was placed on a knoll overlooking the drainage from the south. The ST uncovered 37 cm of sterile clay. Survey continued upslope from the drainage and crossed a ridge, then downslope to a similar drainage adjacent to SH 550. No shovel tests were placed along this drainage due to the excellent ground visibility on the south bank of the drainage and the disturbance

due to road construction on the north bank. No cultural materials were found during the pedestrian survey between McDonald Road and SH 550.

From SH 550 to IH 30

The pipeline is to be bored beneath McDonald Road and will continue in a generally northern direction. The land rises at an approximately 45 degree angle. Ground visibility was approximately 20 percent. No shovel tests were placed along the route due to its slope.

The proposed pipeline route is to be bored beneath Pullen Road and continues in a northerly direction to Wylie Road for approximately 1.8 miles. At the end of where the pipeline route turns northeast and then back north no access was granted to the surveyors so the description of the route stops at that point.

The terrain is moderately steep throughout the survey area except where the pipeline route parallels an unnamed drainage. Ground visibility ranged from less than 20 to greater than 50 percent throughout this portion of the pipeline route. Two tributaries to the unnamed drainage were encountered. The first is approximately 6 m wide and 2 m deep. Water was flowing in a clay substrate and was less than 0.1 meters deep. Despite being in an upland situation, shovel test 14 was placed a meter from the east bank and uncovered 35+ cm of sterile clay. Shovel test 15 was placed approximately 3 m from the drainage's west bank and encountered 33 cm of sterile clay. The other tributary was encountered at the end of the surveyed portion of this route. The drainage is approximately 75 m wide and 2+ m deep. Two flowing clear streams of water were in the clay substrate. Shovel test 16 was placed 2 m from the east and while ST 17 was placed 2 m from the west bank. The STs encountered 32 and 37 cm of sterile clay. As previously mentioned, access was not granted from this point to Wylie Road. No cultural materials were found during the pedestrian survey or in the shovel tests from Pullen Road to this point of the proposed pipeline route.

The proposed pipeline route rises from a level area and follows the edge of a ridge that is sloping at approximately 30 degrees. Ground visibility was less than 20 percent along the ridge and 40 percent in the level area. No shovel tests were excavated due to the ground visibility and ridge slope. No cultural materials were found.

The pipeline route will be bored beneath SH 205 and will parallel it to the northeast to just past an unnamed drainage. The pipeline route then turns north to FM 549. The route was walked from where the pipeline exits the bore northwest to the drainage. Shovel test 18 was placed on the east bank of the drainage and encountered 35 cm of sterile clay. The drainage is approximately 8 m wide and 3 m deep. Water was flowing in a clay substrate and was less than 0.25 meters deep. No shovel test was placed on the west bank because of a concrete spillway. Past the spillway, the route turns north and crosses a ridge. Ground visibility was less than 20 percent except for eroded areas on the south side of the ridge. Gravel consisting mainly of limestone but also containing petrified wood and quartzite was found on the surface of the washouts. The gravel ranged from 5 to 8 cm

long. Despite an intensive investigation, no cultural materials were found in the washouts or along the pipeline route from SH 205 to FM 549.

The proposed pipeline route parallels FM 549 to the south past Lawhorn Cemetery. It is to be bored beneath FM 549 and will bypass the cemetery. Past the cemetery, the pipeline will parallel FM 549 to the east to IH 30. Lawhorn Cemetery is a small cemetery and there was concern that the proposed pipeline route might encounter burials outside the marked graveyard. However, the cemetery is surrounded to the south and east by deep drainages, at least 4 m, which are 4+m wide. Water was standing in the drainages. Ground visibility ranged from 10 to 100 percent. East of the cemetery, the drainage is filled with baling wire, a stove, an ice box and other recent trash. The pipeline route continues east and is approximately 50 m north of the cemetery so that graves should not be encountered.

From where the pipeline is to exit from beneath FM 549 to just south of IH 30, the proposed pipeline route parallels the road and this area was visually inspected. No standing historic structures or areas likely to contain prehistoric sites were seen. Prior to encountering IH 30, the pipeline route turns northeast and then back north. This area was plowed field at the time of visit. Ground visibility was 100 percent and no cultural materials were found. From where the proposed pipeline route will exit from under IH 30 back to FM 549 is also plowed field. No cultural materials were found.

From IH 30 to FM 552

The proposed pipeline route will then parallel FM 539 to the east all the way to FM 552. This area was examined visually. No standing historic structures or areas likely to contain prehistoric sites were seen.

From FM 552 to FM 6

The pipeline route is to be bored beneath FM 552 and will continue in a northwesterly direction until it parallels Millwood Road. Access was not granted from FM 552 to where the road parallels Millwood Road to the east. The route along Millwood Road was examined visually and no standing historic structures or areas likely to contain prehistoric sites were seen.

Approximately one-half of the distance of the proposed pipeline route from the end of Millwood Road to FM 2755 is to be placed between a caliche two-track road in front of residences. From the end of the road is unimproved pasture and from the unimproved pasture the route will parallel a county road for a short distance. The proposed pipeline route will parallel an existing Lone Star gas pipeline. The terrain is rolling and ground visibility ranged from 20 to 100 percent. No cultural materials were found along this portion of the route.

The pipeline route is to be bored beneath FM 2275 at the intersection of the county road and FM 2275 and will parallel FM 2275 to where it turns west. The route was examined visually and no standing historic structures or areas likely to contain prehistoric sites were seen.

From the bend east in FM 2255, the proposed pipeline route runs north to FM 6 still in the uplands. It crosses Bear Creek and the berm of a once used railroad track. Part of the proposed pipeline route is east of a residential housing area. The terrain is rolling and ground visibility ranged from less than 10 percent in unimproved pasture to 100 percent in plowed fields. Quartzite and chert gravel is exposed in eroded areas south of Bear Creek. The lightly scattered gravel covers about 5 acres. The gravel is about 10 cm long. None of the gravel had been tested. The gravel was not in Bear Creek's narrow floodplain or north of the creek. Bear Creek, shown in Figure 4, is approximately 25 m wide and 3+ m deep. Clay almost a meter thick overlies shale with veins of gypsum that is exposed in the north bank. Shovel test 19 was placed a meter from the east bank and ST 20 was placed a meter from the west bank of Bear Creek. The STs encountered sterile clay to depths of 30 and 40 cm below the surface, respectively. No cultural materials were seen in the bank walls of the creek. The proposed route continues north of the railroad berm and the land gently rises. However, from approximately 400 m north of the railroad berm to FM 6, access was denied. It is doubtful that cultural materials are present based upon the results of the survey south of the non-surveyed area and that north of FM 6.

Figure 4. Bear Creek. View is to the west.

From FM 6 to FM 1778

From FM 6 to approximately one-half mile south of George Creek, access was denied to the surveyors. The surveyors, therefore, continued to survey from south of CR 543 to the northern boundary of the denied access property. The proposed route crosses the flank of a west oriented ridge until just prior to George Creek. The land then drops steeply to the floodplain of George Creek and then rises just as steeply out of the floodplain to a ridge. Ground visibility ranged from 50 to 100 percent along the route. On the top of the flank north of the creek, before the land drops, is a water main. The proposed pipeline route parallels the water pipeline down the slope, across the floodplain and the creek to the top of the ridge south of the creek. Shovel test 21 was placed a meter from the south bank and ST 22 was placed a meter from the north bank. Both STs were supplemented by augering since they were in a floodplain and encountered 153+ and 138+ cm of sterile, very sticky clay. No cultural materials were found during the pedestrian survey of the proposed pipeline route south of FM 6.

From CR 543 to FM 1778 is gently rolling terrain. Adjacent to CR 543 the crops were recently harvested and ground visibility was 80 percent or better. Various crops that have not been harvested are planted from north of the harvested pasture to FM 1778. Ground visibility averaged 40 percent. No shovel tests were excavated due to the ground visibility and no cultural materials were found.

FM 1778 to the end of the route east of Lake Lavon

North of FM 1778, the proposed pipeline route parallels an electrical power line corridor. After the corridor turns south, the proposed route parallels fences north to just prior to encountering CR 566. South of CR 566, there are two residences and the pipeline route turns west and north to avoid the residences. It then turns east and parallels the county road. At the beginning of the route, the land is generally level but approximately a third of the distance from the two roads, the land drops into the valley of an unnamed drainage. North of the valley, the land rises gently in elevation but then becomes moderately steep rolling terrain. Ground visibility ranged from 30 to 50 percent throughout this portion of the pipeline route. Shovel test 23 was placed on the south bank of the drainage and encountered 35 cm of clay. Shovel tests 24, 25 and 26, supplemented by augering, were placed in the narrow floodplain of the unnamed drainage and encountered clay. Water was encountered at 57 cm in ST 24 and at 61 cm below the surface in ST 25. Shovel test 26 was terminated at 77 cm below the surface because the surveyors could barely get the auger out of the hole. Shovel test 27 was placed on the north bank of the drainage and uncovered 33+ cm of clay. No cultural materials were found between FM 1778 and CR 566.

The pipeline route may be open cut across CR 566 because the road terminates shortly west of the proposed route. The pipeline route continues north from CR 566 until it reaches the Atchinson, Topeka and Santa Fe railroad track where it turns northeast at a 45 degree angle and parallels the track for a short distance before being bored beneath the railroad track. The land drops moderately steeply from CR 566 but is generally level

from south of Tom Bean Creek to the railroad track. Ground visibility averaged 40 percent. Tom Bean Creek appeared to have been channelized because it is straight. Although it is mapped as intermittent, the creek was flowing at the time of the visit. The creek is approximately 12 m wide and 3 m deep. The water was clear and the substrate is clay. Shovel test 28, supplemented by augering, was excavated a meter from the south bank and encountered silty clay to 29 cm that overlaid fine sandy clay that extended to 111+ cm below the surface. Shovel test 29, also supplemented by augering and a meter from the north bank, uncovered the same soils, but the contact was at 27 cm below the surface and was terminated at 99 cm below the surface. Elm Creek, also mapped as intermittent, was encountered just south of the railroad track and it had been channelized. Levees are present on both sides of the creek and the proposed pipeline route parallels them. The creek is approximately 20 m wide and 2 m deep. Water was flowing and the substrate is clay. Despite levees being on both sides of the creek, STs 30 and 31 were placed far enough from the levees to hopefully encounter undisturbed soil. Both STs encountered fine sandy loams to 82 and 99 cm below the surface, respectively. No cultural materials were found between CR 566 and the railroad track.

The terrain is rolling upland prairie from the railroad track to SH 78. The land consists of plowed and unimproved pasture and the pipeline route is to be placed parallel to an existing electrical power line corridor. Ground visibility averaged 40 percent. Rounded limestone gravel is scattered on the ground surface. No shovel tests were excavated due to the good ground visibility. No cultural materials were seen on the ground surface.

The pipeline is to be bored beneath SH 78 and then continues northwest crossing CR 555 to where it terminates east of Lake Lavon. The proposed route parallels a power line corridor for some distance. From SH 78 to almost two-thirds of the way to CR 555, access was denied; however, based upon the results of surveys prior to and beyond the tract, it is doubtful that significant cultural materials are present. The land that was surveyed consists of moderately steep rolling terrain. Ground visibility averaged 50 percent or better. The survey began where the proposed route departs from the power line corridor. Northwest of where the route departs, the proposed route is to be placed through a stock tank just prior to reaching CR 555. The banks of the tank were closely examined for cultural materials, but none were found. Northwest of the CR 555 is an unnamed, intermittent drainage. The drainage is 3.5 m deep and 10+ m wide. Clear, ponded water was present and less than 0.25 m deep. The substrate is clay with limestone and hematite gravel. No shovel test was placed on the south bank due to the excellent ground visibility, but ST 32 was placed on the north bank and encountered 35+ cm of sterile clay. The shovel tests was not supplemented by augering due to its upland location and lack of a floodplain. The pipeline route then crosses a ridge northeast of the drainage. The land northwest of the top of the ridge has been terraced in the past. Gravel is lightly scattered on the top of the ridge and heavier below the ridge due to downslope movement. The gravel consists of limestone, some hematite and very little quartzite. Despite an intense investigation of the very visible ground surface, no lithic debris, tools or rock concentrations were found. The gravel is only about 5 cm long. No cultural materials were found during the survey of this portion of the pipeline route or in the shovel test.

After the pedestrian survey had been completed, the deep testing began. The locations of the backhoe trenches are shown on Figures 5 and 6. The old East Fork channel is shown on Figure 8 and the channelized portion of the river has been plotted over it. Figure 9 is a mid-1990s aerial photograph and the disturbance from building levees, farming and other activities can be seen. In addition, the aerial photograph provides some indication of the amount of time that has passed since the channeling of the East Fork. As previously noted, a remnant of the old East Fork channel was deep tested which can be best seen in Figure 9. The channel remnant is similar to a north-south oriented "C". Five backhoe trenches were placed along the channel remnant. Backhoe trenches (hereafter BHT) 1 and 2 were placed two meters south and north of the channel banks at the bottom of the C. Backhoe Trench 1 uncovered silty clay overlying clay at 79 cm which overlaid clay containing calcium carbonate filaments that ranged from 146 to 202 cm below the surface. From 202 to 255 cm, very dark gray clay with calcium carbonate filaments and nodules overlay darker gray clay that extended to 286 cm below the surface at which point the backhoe trench was terminated when water started flowing into the trench. The same horizons were encountered in BHT 2 but the trench was terminated at 249 cm below the surface when water started flowing into the trench. Backhoe trench 3 was placed on a knoll between the old channel remnant and the new channel of the river and approximately 35 m north of BHT 2. It uncovered three soil layers similar to the soils in BHTs 1 and 2 but the contacts were at 79 and 112 cm below the surface, respectively and the trench was terminated at 190 cm below the surface. Backhoe trench 4 was placed 2 m from the south bank of the top of the C. Three similar soils to the previous BHTs were encountered with the contacts being at 79, 112 and 146, respectively. The BHT was terminated at 208 cm below the surface when water came poring in after being encountered at 150 cm below the surface. Backhoe trench 5 was placed at the top of the C 2 m from the north bank of the channel remnant. It was different than the previous BHTs. The same colored clay was present in Zones I and II but more clay films were present in Zone II. The contact between the zones was at 34 and 120 cm below the surface. From 120 to 174 cm, five layers of laminae of the above soils were present. From 174 to 290 cm below the surface, the soil zone consisted of the same soil found in Zone II of the previous trenches. The BHT was terminated at 290 cm below the surface when water started trickling in. Disappointingly, no cultural materials were found in the fill or in the walls of the five BHTs excavated on the banks and adjacent to the old East Fork channel remnant.

The shell lens site, 41KF134, which is discussed later was revisited and BHTs 6 and 7 were placed on the banks to determine the site boundaries and depth. The shell lens is at the easternmost boundary of the proposed pipeline right-of-way. Backhoe trench 6 was placed 10 m south of the intermittent tributary to the river. Three soil zones were encountered during the trenching. The trench uncovered similar soils to BHTs 1 through 4, but the contacts were at 73 and 134 cm below the surface. The BHT was terminated at 310 cm below the surface when the amount of calcium carbonate increased with depth. Backhoe trench 7 was placed 12 m north of the tributary and encountered the same soil zones as in BHT 6 but the contacts were at 75 and 160 cm below the surface. The BHT was terminated at 290 cm below the surface for the same reason as BHT 6. The shell lens, however, ranged from 220 to 260 cm below the surface.

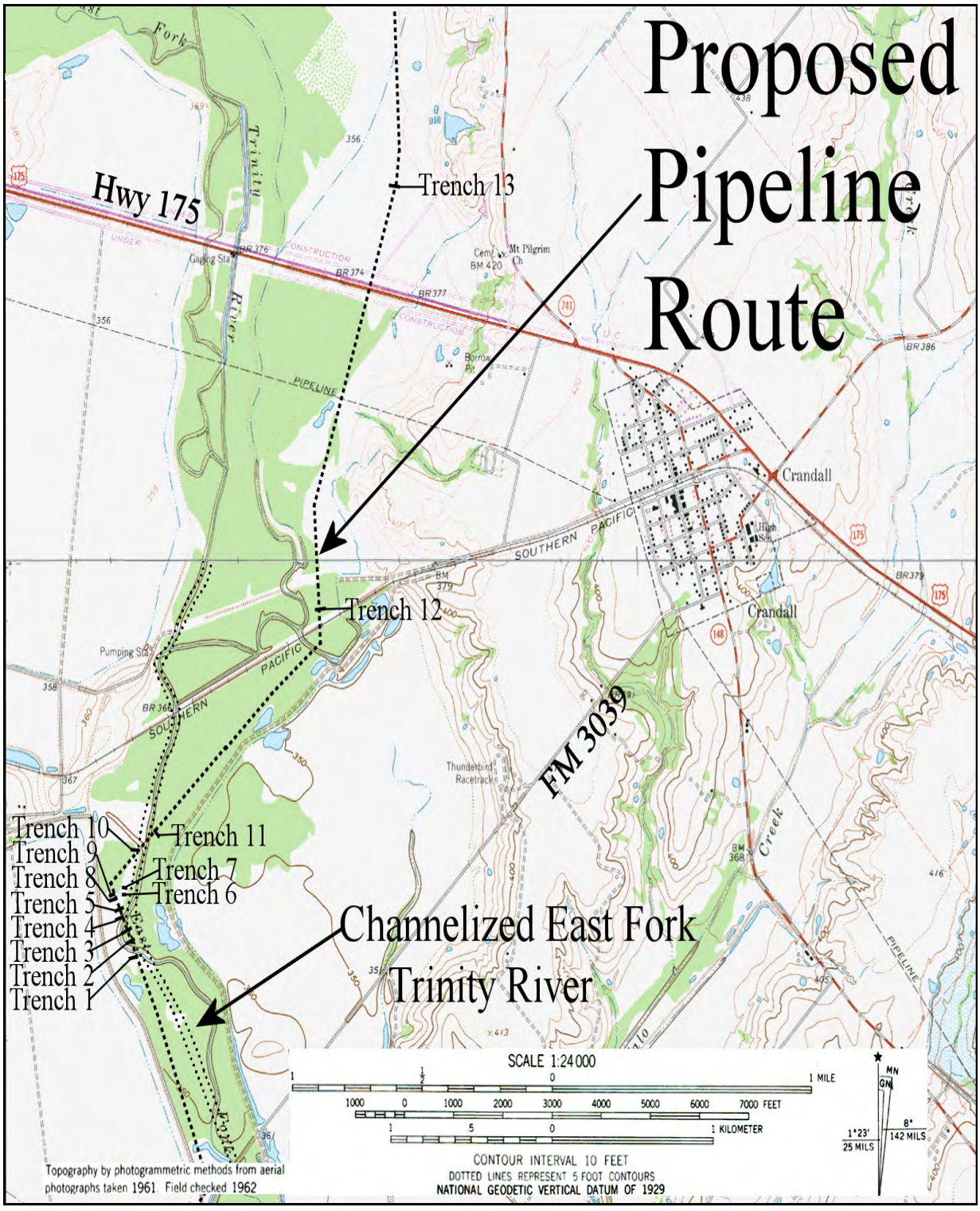

Figure 5. Backhoe trench locations plotted on reduced portions of the Scurry and Forney South, Texas 7.5' USGS maps.

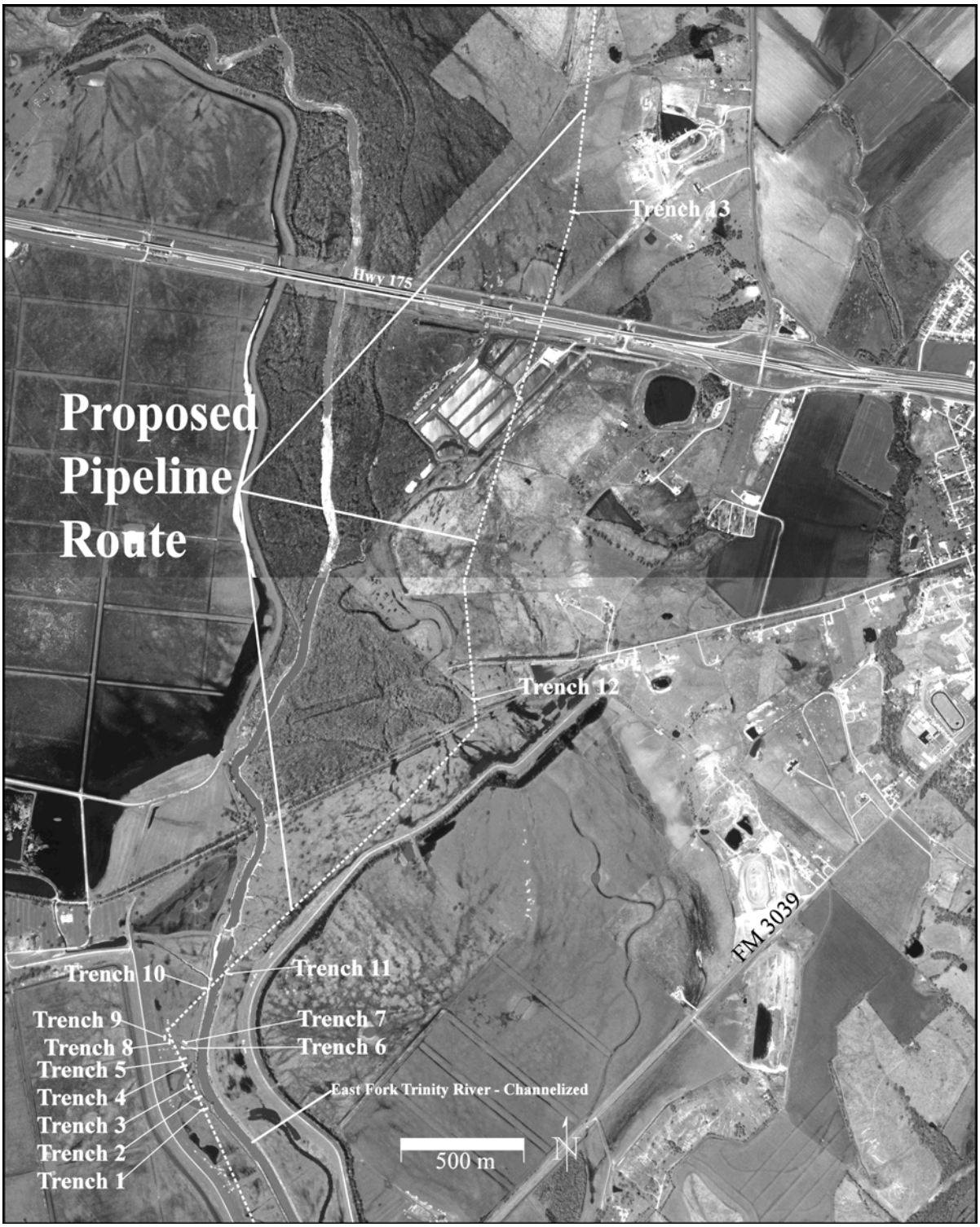

Figure 6. Backhoe trench locations plotted on a March, 1995 USGS aerial photograph.

Backhoe trench 8 was placed in the center of the then existing pipeline right-of way. It uncovered a different colored clay in the upper layer that extended to 75 cm below the surface. The second soil zone was similar to the previous BHTs as was the third soil zone which extended from 160 to 290+ cm below the surface. The BHT trench was terminated at 290 cm because it was deeper than the shells lens. Mr. Chuck Tracy, PE, of Alan Plummer Associates, Inc. was present during the BHT excavations and determined that the proposed pipeline route needed to be moved further west; therefore, the right-of-way was moved approximately 20 m west of the existing pipeline route. No cultural materials were found.

Backhoe trench 9 was excavated in the center of the new pipeline route to determine if cultural materials were present. The BHT uncovered the same soil zones as BHT 8 at the same contact depths and was terminated also at 290 cm below the surface. No cultural materials were discovered.

Backhoe trench 10 was placed 15 m west of the east bank of the river. Five soil zones were encountered. The upper layer extended from the surface to 67 cm and consists of black clay and overlays Zone II which ranges from 67 to 125 cm. This soil is very dark grayish-brown clay that contains calcium carbonate nodules near the bottom of the zone. Soil zone III extends from 125 to 185 cm and contains a darker colored clay and calcium carbonate nodules. Zone IV ranges from 185 to 226 cm and contains the same colored clay as in Zone III but it also contains sand and clay mottles. The BHT was terminated at 290 cm below the surface in Zone V which began at 229 cm below the surface. No cultural materials were found in the fill of the BHT or in its walls and no cultural materials were found in the west bank of the East Fork.

Backhoe trench 11 was placed approximately 12 m east of the east bank of the East Fork. Three soil zones were encountered. Very dark grayish-brown clay overlay dark grayish-brown clay that extended from 71 to 311 cm below the surface. From 311 to 359 cm, the soil was yellowish-brown clay with mottles. The BHT was terminated in what appeared to be terrace exposed in the banks of the East Fork. No cultural materials were found in the fill of the BHT or in its walls and no cultural materials were found in the east bank of the East Fork.

An old channel remnant is located just south of old US 175 and BHT 12 was placed within the pipeline route to test for cultural materials. This trench was unusual in that it contained 7 soil zones. Zone I consists of very dark gray clay that overlies black clay that extends from 41 to 120 cm below the surface. Zone III extends to 149 cm and consists of very dark gray clay and overlies Zone IV which ranges from 149 to 225 cm and contains black clay with calcium carbonate nodules. Zone V extends from 225 to 287 cm. The soil is the same as in Zone IV, but the calcium carbonate nodules are much more concentrated. Zone VI ranges from 287 to 370 cm and consists of very dark gray clay that contains calcium carbonate nodules. The BHT was terminated in Zone VII which ranges from 370 to 455+ cm and consists of very dark grayish-brown clay that contains calcium carbonate nodules and filaments.

The last BHT, 13, was placed approximately one-half mile north of US 175 near an old tributary to the East Fork and encountered 6 soil horizons. The BHT uncovered black clay that overlay very dark gray clay that ranged from 70 to 90 cm below the surface. Zone III contains very dark gray clay that has calcium carbonate nodules and some filaments present and extends from 90 to 120 cm. The soil colors of the clay in Zone IV, which ranges from 120 to 190 cm, vary from dark gray to very dark gray, but there is a marked increase in the amount of calcium carbonate nodules. Zone V contains very dark gray clay with mottles and large (1 cm) calcium carbonate nodules. The zone extends from 190 to 290 cm below the surface. The BHT was terminated in Zone VI which extends from 290 to 410 cm below the surface when the trench walls began to collapse. The soil consists of brown clay with mottles. No cultural materials were discovered.

Except for BHTs 6 and 7, no cultural materials were found in the fill of the trenches or in their walls. It appears that the further from the river, the less likely sites are to occur. Site 41KF134 may be unique in that it is close to a ponded area and the river.

Site Discussion

Four historic sites and one prehistoric site were found during the survey. Three sites (41KF130-132) were found in the same general vicinity which is shown below (Figure 7).

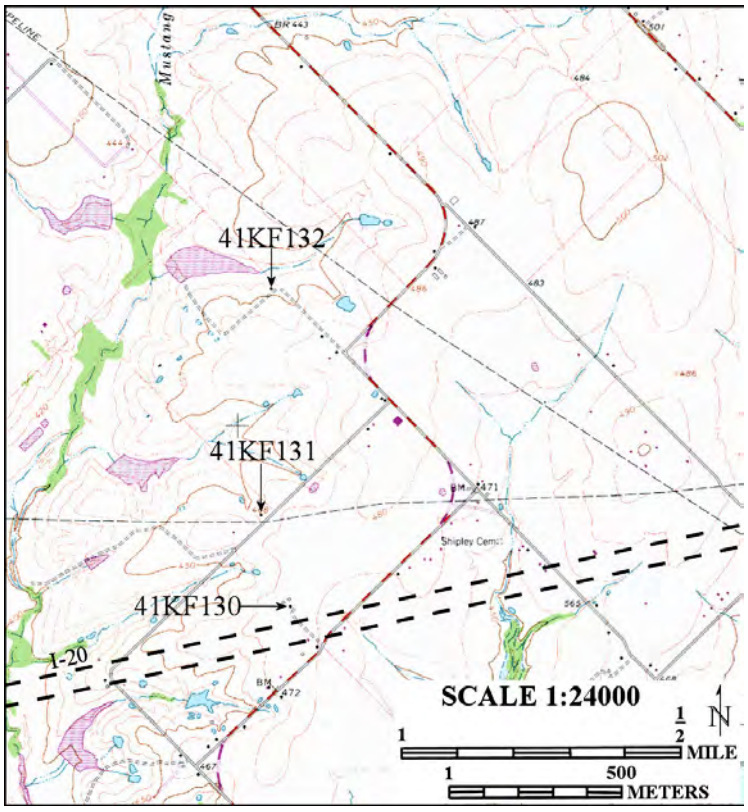

Figure 7. Portion of the Forney South, Texas 7.5' USGS map with sites 41KF130-132 plotted on it.

Site 41KF130

Site 41KF130, the Shed site, consists of a metal and wood shed, a metal fence and a cistern approximately 100 m north of I20 (Figure 8). The cistern is lined with unfaced, commercial bricks which became widely used in the early 1900s (Gurcke 1987:44). The upper 5 or 6 brick layers have been cemented together, but below that, the bricks appear uncemented. The bricks are laid so that there appears to be little space between them. As can be seen in Figure 9, the bricks appear to be uncemented. The mouth of the cistern is 34 inches across and is collapsing. Water could be seen in the cistern approximately 15 feet below the ground surface. Cisterns were used when ground water was not available close to the house. Two types were built, one above surface and one underground. Site 41KF130 is an underground cistern. Underground cisterns were constructed similar to hand-dug wells, but were either bell or cone shaped and were wider at the bottom than at the top. The cistern was floored with either concrete or rock and the walls were set, mainly by using bricks sometime covered with concrete or cemented by concrete. After the walls were set, dirt was filled in around them and curbing was added (Speck 1979:230). Water was obtained either from rain falling from the roof or in dry times, by filling it by hand. South of the cistern were two gas tanks that had hand pumps attached to them. Ground visibility was 60+ percent; therefore, no shovel tests were excavated. The only significant artifacts were close to the cistern. Even though a house is indicated on the Forney South, Texas 7.5' USGS map and the older maps, no remains of a house were found nor were there any signature plants present.

According to records found at the Kaufman County Appraisal District, the property is currently owned by Kaufman Partners, LP. The property was bought from the West Foundation in 2003. Prior to that, the property was owned by Gordon T. and Ellen B. West who owned the property from. 1968 to 1976. Both West family members died in 1978. Prior to 1968, the land was deeded to Paul Denton from C. E. McFarland. The Kaufman County Courthouse records contained no information on either person. Dr. Costello, DVM of Kaufman, in a personal communication (2005) with Lance K. Trask of AR Consultants, Inc. stated that the residence associated with the cistern was a "typical country house" with a single story with multiple rooms that was built during the 1920s or 1930s.

Figure 8. Photograph of the inside of the cistern at site 41KF130.

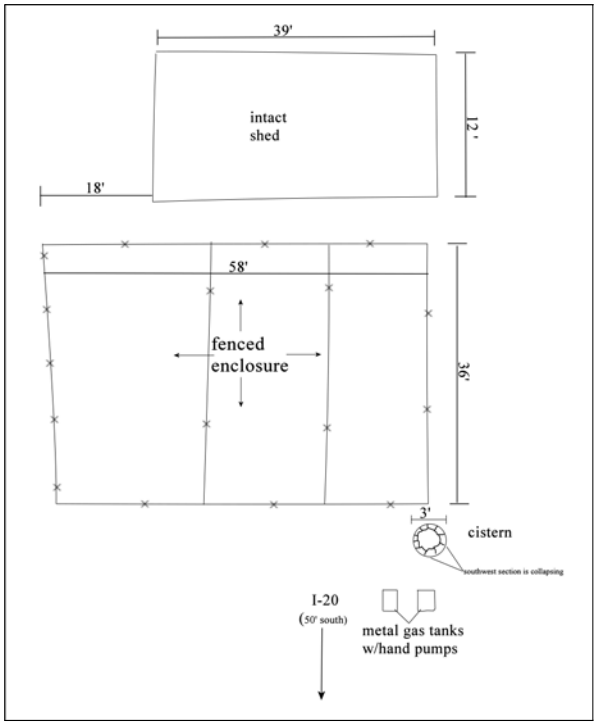

Figure 9. Site map for 41KF130

Site 41KF131

The site consists of a well (Figure 10). The well collar stands 15 inches above the ground surface and is 9 inches thick. The surface diameter of the well is 55 inches and the interior is 37 inches. The well is approximately 40 feet deep and the bricks are concreted from top to bottom (Figure 11). What could be seen of the bricks indicated that they were commercial. It could not be determined if they were faced or unfaced. The bricks probably dated to the early 1900s based upon the presence of site 41KF130 although this can not be stated with certainty A one and one-half inch pipe rises from the well floor to the top and exits out the west side. The depth of the feature indicates that this is a well instead of a cistern. No house was shown on the USGS map and no evidence of a residential structure or signature plants were found. A residential structure was present on the 1936 Soil Map for Kaufman County, Texas. The property on which the well is located is currently owned by Maxine Costello who bought the property in 1954 from Guyton and Kate McKellar. No information was available on the McKellars. A personal communication with Mr. David T. Costello, DVM of Kaufman, related that the property had been owned by the Costello property since 1878. Mr. Costello's great-grandparents bought 200 acres and built a two-story, six bedroom house on the property. They had six children and the youngest was Mr. William Owen Costello who is David's grandfather. The house at that time had a spring/well as well as a storage for water off the roof of the house. The family moved off the farm and eventually the house decayed past the point of preservation and was bulldozed in the early 1980s.

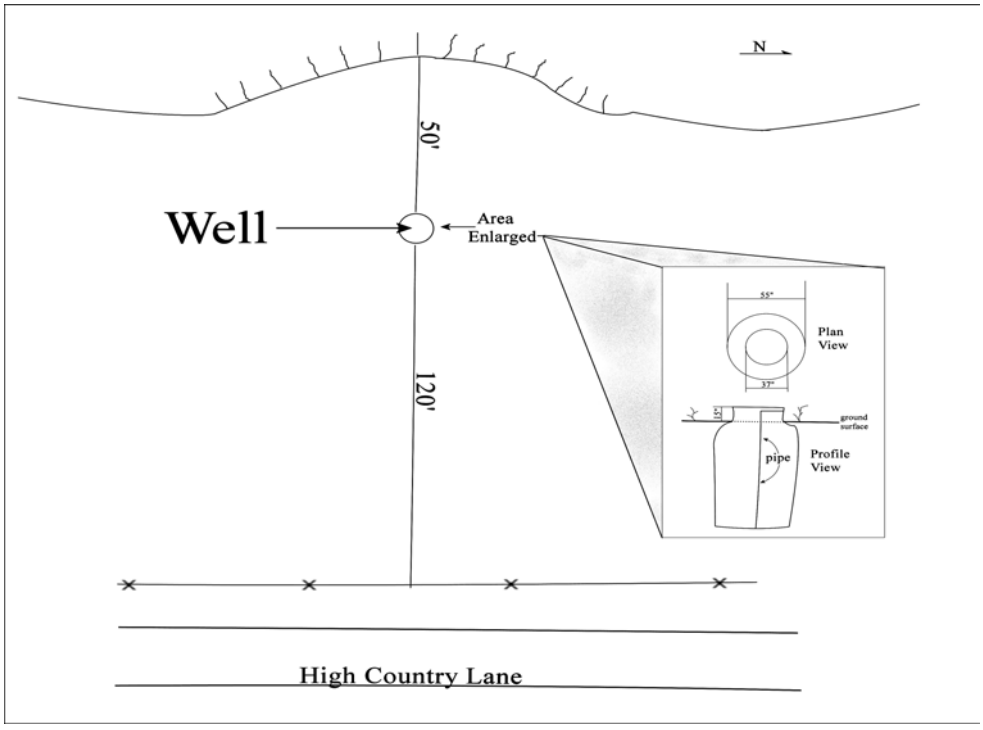

Figure 10. Site map for 41KF131.

Figure 11. View of inside of the well (site 41KF131)

Site 41KF132

Site 41KF132 consists of a cistern which is located approximately 851 m west of the intersection of High Country Lane and FM 741 and is at the end of a dirt two-track road (Figures 12 and 132). The mouth of the cistern is 59 inches across and the interior has been filled with dirt to 34 inches below the surface. The collar of the cistern had been removed and the remaining top of the cistern is level with the ground surface. The cistern is similar to site 41KF130 and may date to the same time, but this could not be verified.

The 1973 Forney South, Texas 7.5' USGS map indicates that a residential structure was present where the cistern is located. However, no evidence of a structure, associated features or signature plants was found. The only artifacts seen consisted of a shard of amber bottle glass and a clear shard of glass.

The property is currently owned by Whitney Heritabe III, LLC according to the records of the Kaufman County Appraisal District. Prior to 2001, the land was owned by Carl L. and Adelle D. McDowell. No information was available at the Kaufman County Courthouse on the McDowells.

Figure 12. The cistern at site 41KF132. View is to the southwest.

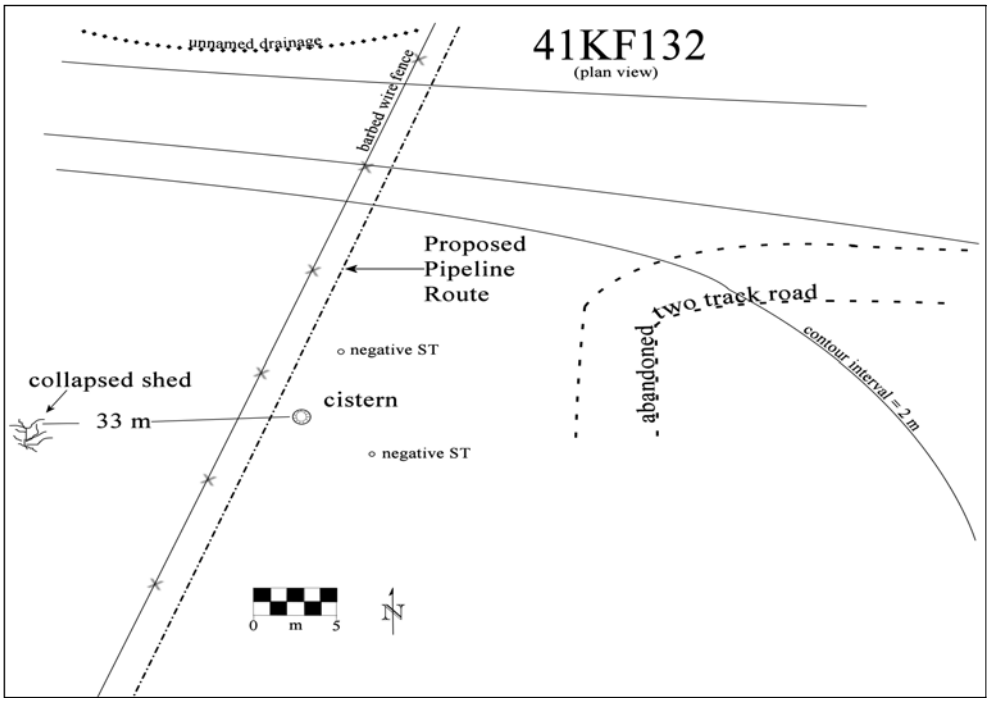

Figure 13. Site map of 41KF132.

Site 41KF133, the Neal House

This historic house, shown in Figures 14 and 15, was designated site 41KF133. The site sits on approximately two acres. The house has eight rooms, which include two bedrooms, a front room and a kitchen, and two brick fireplaces. One of the fireplaces had been modified by having a wall built around it and a fire screen built into the wall. The front room contained a piano. Clothes, mattreses, furniture and silverware and cups and glasses were still in the house. Associated features consist of a well, a garage, two round grain silos, a collapsed shed, a barn and a water tank stand. The house and associated features are shown in detail in Figure 16. Two Farmall tractors, built sometime between World War II and the Korean War, were adjacent to the house. The field around the house had been plowed recently.

Figure 14. The front of the Neal House (site 41KF133). View is to the northwest

On May 26, 2005 ARC contacted Mr. James R. Neal of Forney, Texas regarding the house at the intersection of Neal Road and Valley View. Mr. Neal, who is in his 80s, stated that he was the owner of the house and that the property has been in the family since 1881 when his grandfather bought the land. It was paid in full by 1882. In 1905, his

Figure 15. The rear of the Neal house. View is to the north.

grandfather built a two story house that had 1 by 12 shiplap siding. At that time therewere no roads in the area and the Neal Family set the fences back 15 feet to allow for roads to be built.

The ceilings were 12 to 14 feet in height. Mr. Neal and his mother were born in the house. When power lines were being installed, an accident occurred and the house burned down. The house was built in 1941. In 1942, Mr. Neal joined the Army Air Corps, now the US Air Force, and spent part of his tour in England. Currently the property is being leased for farming. Mr. Neal left the house in 1968 when he got married. His mother and father lived there then, so no other children were raised there. The Neal Family grew cotton, corn, wheat, milo, vetch, and clover. Right now, he owns 168 acres. The Impala in the garage was his mothers and it has but 40,000 miles on it. His father is buried at the Valley View Cemetery and his mother is buried in Forney. The conversation was terminated when Mr. Neal became upset discussing the proposed pipeline route crossing his property.

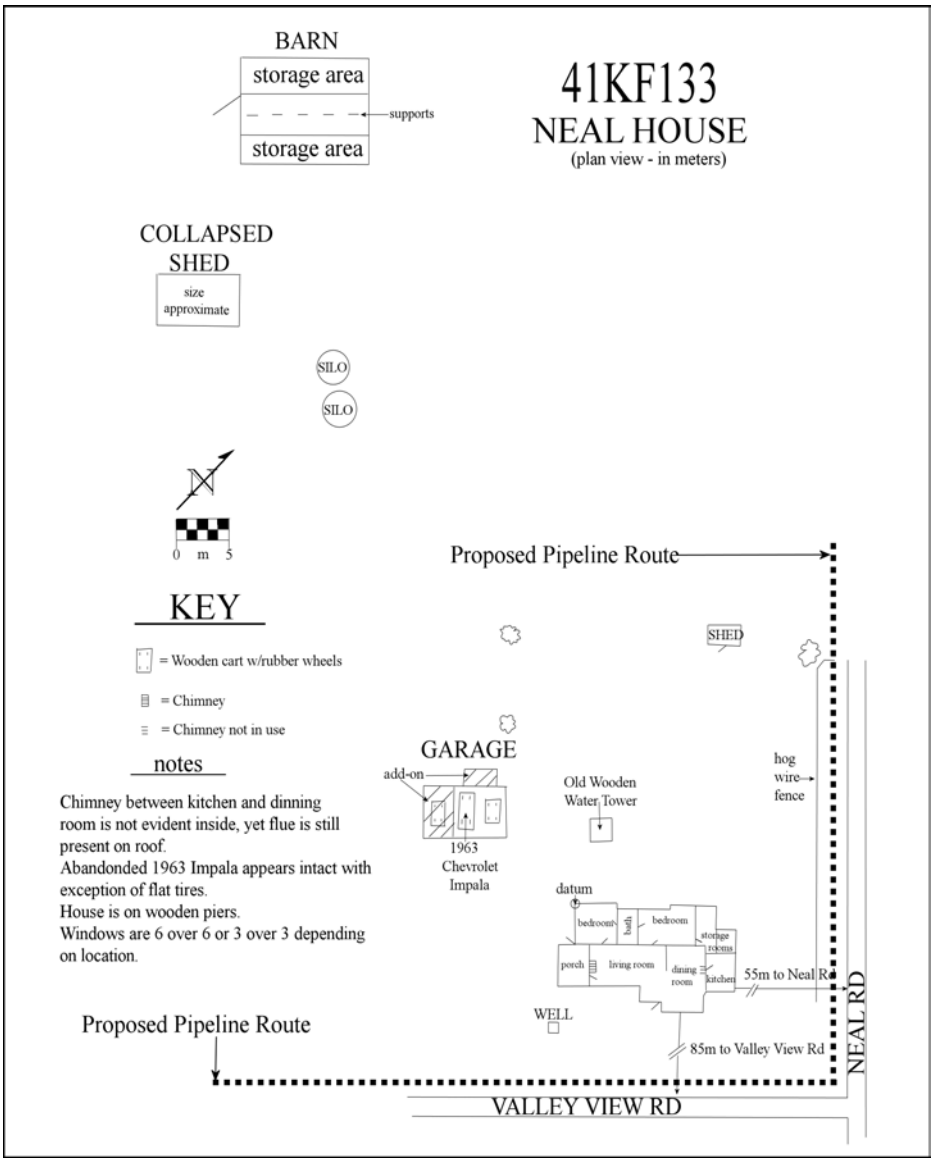

Figure 16. Field map of the Neal House (site 41KF133).

41KF134

The shell lens was encountered from 220 to 230 cm below the surface. Scattered charcoal flecks, deer bone and mussel shell was uncovered during the trenching. The shell species are similar to those eroding from the tributary except they are extremely large. Most subfossil shells tend to be slightly larger than those found today. However, most subfossil *Amblema plicata* range from 110 to 145 cm in length. The large adult specimens were longer in length, approximately 170 cm. The shell lens, however, ranged from 220 to 260 cm below the surface. Large amounts of mussel shell and deer bone were found as were scattered charcoal flecks. Unfortunately no concentration of charcoal was found, but an

ash layer was uncovered. No pit features could be discerned in the walls of the trench. The site map showing the BHTs is presented in Figure 17.

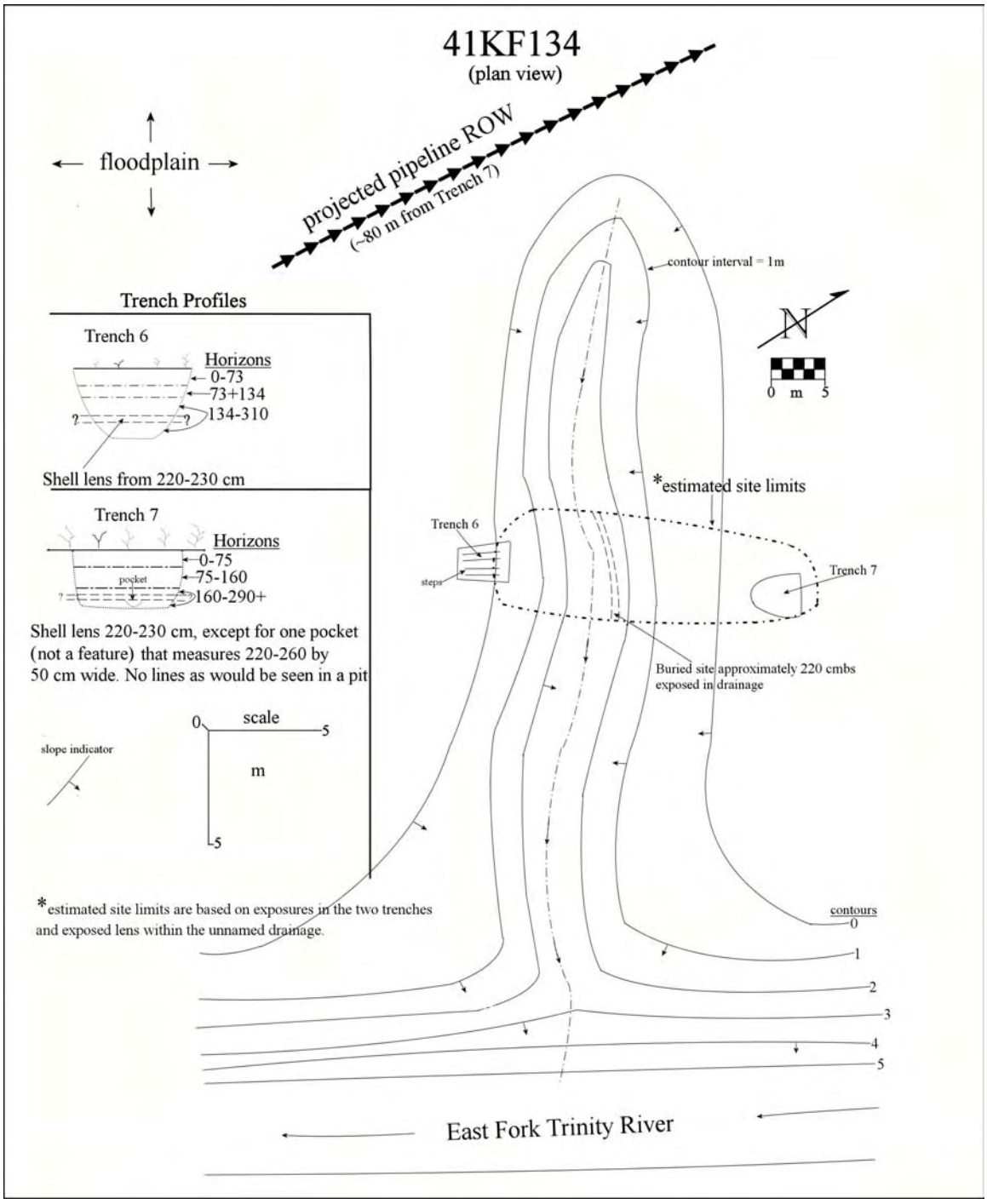

Figure 17. Site map for 41KF134 showing locations of backhoe trenches 6 and 7.

Shells of *Planorbella trivolvis* were found indicating a ponded environment were found in BHT 9. In addition, small shells of *Lampsilis* sp. indet. and *Tritogonia verrucosa* were

found in BHT 8 indicating a stressed environment. Examination of the banks of the tributary west of where the shell and deer bone was eroding yielded the finger nail clam, *Musculium partemium*, which prefers a ponded environment. Based upon this evidence, the prehistoric inhabitants along the East Fork were camping next to a pond and collecting mussels from the river and hunting deer in the floodplain forests. The Aubrey Clovis site (41DN479) was discovered in a similar situation, adjacent to a pond and near the Elm Fork of the Trinity River (Ferring 2001). Despite the breakage of a great number of clay clods, no lithic debris or diagnostic artifacts were found. Richner (1976) discovered several sites containing quartzite Gary points and lithic debris, but none of the sites contained bone, only shell. The inhabitants of site 41KF134 may have only prepared food at the site and lithic reduction was either done at another area or in another portion of the site which was not uncovered. Interestingly, none of the mussels appeared to have been burnt. Some discoloration was present indicating possibly steaming was the way the mussels were prepared for consumption. Also, the shells ranged from subadult to adult and the number of species indicates that selective harvesting was not done. A sample of charcoal, bone, shell and ash was submitted to Beta Analytic Radiocarbon Dating Laboratory and they were requested to choose which of the samples could best be dated. Beta Analytic selected the shell and radiocarbon dated it. The date was 720±70 B.P (Beta-204792), or the 2 sigma calibrated date of A.D. 1190 to 1400.

Conclusions

As expected no prehistoric sites were encountered in the uplands of the Blackland Prairie. This absence is attributed to the lack of perennial water and low biotic diversity. Uvalde gravel was present, but the cobbles were too small to have been utilized. Both Byrd (1971) and Menzer and Slaughter (1971) indicate that gravels, what Byrd refers to as the Uvalde Gravel and Menzer and Slaughter the upland gravel, extend possibly from the Southern Rocky Mountains in New Mexico or, at least, from the Llano Estacado to Dallas County, Texas. AR Consultants, Inc. (2001) discovered lag gravels on upland slopes and ridge tops at two localities (sites 41DL407 and 408) in southeastern Dallas County, Texas. These locations are similar to the ones in the study area. The gravel in the study area and at the sites was small. The discovery of the lag gravel deposits extends the known distribution of the gravels further eastward.

Although some of Richner's sites were found on the surface, most were buried at least 2+ m deep in the banks of the East Fork. As previously mentioned, Prewitt and Associates, Inc. believes that the upper 2 m of the East Fork floodplain was laid down in the last 200 years and supported by a date of the 1880s from a bois d'arc stump buried a meter below the East Fork floodplain surface. The mussel shell from site 41KF134 dates from A.D. 1190 to 1400. Although the date is older, it appears to be consistent with the idea that the upper 2 m is rather young which may be a result of deforestation for farming and ranching purposes.

Historic sites were recorded along roadways. The 1936 General Highway Maps of Collin, Kaufman and Rockwall County (Texas Highway Department 1936a. b and c) indicate

that several residences were present along roadways crossed or paralleled by the proposed pipeline route. These residences have been abandoned by people moving into cities, destroyed while creating farmland, moved to use as barns or destroyed during road construction.

Table 1. Shovel test descriptions.

ST No	Depth (cm)	Descriptions *
1	0-38+	Dark grayish-brown (10YR4/2) loamy clay
2	0-38+	Dark grayish-brown loamy clay
3	0-35+	Very dark gray (10YR3/1) clay
4	0-33+	Very dark gray clay
5	0-38+	Dark gray (10YR4/1) clay
6	0-34+	Very dark gray clay
7	0-39+	Very dark gray clay
8	0-36+	Very dark gray clay
9	0-35+	Dark gray clay
10	0-33+	Dark gray clay
11	0-33+	Black (10YR2/1) clay
12	0-36+	Black clay
13	0-37+	Very dark gray clay
14	0-35+	Grayish-brown (10YR5/2) wet clay
15	0-33+	Very dark gray wet clay
16	0-32+	Grayish-brown wet clay
17	0-37+	Grayish-brown wet clay
18	0-35+	Very dark gray clay
19	0-30+	Very dark gray clay
20	0-40+	Very dark gray loamy clay
21	0-153+	Grayish-brown very sticky clay
22	0-138+	Grayish-brown very sticky clay
23	0-35+	Black clay
24	0-57 57+	Grayish-brown (10YR5/1-2) wet clay Water
25	0-61 61+	Grayish-brown (10YR5/1-2) wet clay Water
26	0-77+	Very dark gray clay
27	0-33+	Very dark grayish-brown (10YR3/2) clay
28	0-29 29-111+	Very dark grayish-brown silty clay Dark grayish-brown fine sandy clay with 20% light yellowish-brown (10YR6/4) clay mottling
29	0-27 27-99+	Very dark grayish-brown silty clay Dark grayish-brown fine sandy clay with 20% light yellowish-brown clay mottling
30	0-3 3-82+	Forest duff Dark grayish-brown fine sandy clay with 20% light yellowish-brown clay mottling
31	0-5 5-99+	Forest duff Dark grayish-brown fine sandy clay with 20% light yellowish-brown clay mottling
32	0-35+	Very dark grayish-brown clay

* Munsell color chart numbers are listed only the first time used.

Table 2. Backhoe trench descriptions.

Trench no.	depths (cm)	descriptions	comments
1	0-79 A1	Very dark gray (10YR3/1) slightly silty clay. Moderate, slightly hard, very fine columnar structure. Many fine rootlets. Clear smooth boundary.	
	79-112 A2	Dark grayish brown (10YR4/1) clay. Moderate, slightly hard, very fine columnar structure. No clay films noted, few fine rootlets. Clear smooth boundary	
	112-146 C11	Very dark gray (10YR3/1) clay w/$CaCO_3$ filaments. Moderate, slightly hard, very fine columnar structure. No clay films, very few fine rootlets. Clear smooth boundary.	
	146-202 C12	Very dark grayish brown (10YR4/2) clay w/$CaCO_3$ filaments & nodules. Moderate, slightly hard, very fine columnar structure. No clay films or roots. Clear smooth boundary.	
	202-255 C13	Very dark gray (10YR3/1) clay w/filaments and nodules of $CaCO_3$. Strong, hard, very fine angular blocky structure. Clay films are common, thin on ped faces and as slickensides. No roots noted. Clear smooth boundary.	
	255-286+ IIC12	Very dark grayish brown (10YR3/2) clay w/$CaCO_3$ filaments and nodules. Strong, hard very fine subangular blocky structure. Clay films are common, moderately thick on ped faces and as slickensides.	
2	Same depths as Trench 1 with max depth 249.	Same descriptions as Trench 1	
3	0-79 A1	Very dark gray (10YR3/1) slightly silty clay. Moderate, slightly hard, very fine columnar structure. Many fine rootlets. Clear smooth boundary.	
	79-112 A2	Dark grayish brown (10YR4/1) clay. Moderate, slightly hard, very fine columnar structure. No clay films noted, few fine rootlets. Clear smooth boundary	
	112-190+ C11	Very dark gray (10YR3/1) clay w/$CaCO_3$ filaments. Moderate, slightly hard, very fine columnar structure. No clay films, very few fine rootlets. Clear smooth boundary.	

East Fork Pipeline Trench Descriptions (continued)

Trench no.	depths (cm)	descriptions	comments
4	0-79 A1	Very dark gray (10YR3/1) slightly silty clay. Moderate, slightly hard, very fine columnar structure. Many fine rootlets. Clear smooth boundary.	
	79-112 A2	Dark grayish brown (10YR4/1) clay. Moderate, slightly hard, very fine columnar structure. No clay films noted, few fine rootlets. Clear smooth boundary	
	112-146 C1	Very dark gray (10YR3/1) clay w/$CaCO_3$ filaments. Water encountered at 150. Moderate, slightly hard, very fine columnar structure. No clay films, very few fine rootlets. Clear smooth boundary.	Water encountered at 150.
	146-208 C12	Very dark grayish brown (10YR4/2) clay w/$CaCO_3$ filaments & nodules. Moderate, slightly hard, very fine columnar structure. No clay films or roots. Clear smooth boundary.	
5	0-34 A1	Very dark gray (10YR3/1) clay. Weak, slightly hard, very fine subangular blocky structure. Very few clay films on some ped faces, many fine rootlets. Clear smooth boundary.	
	34-120 A2	Very dark gray (10YR3/1) clay. Weak, slightly hard, very fine subangular blocky structure. Clay films are thin on ped faces w/some slickensides. Very few rootlets. Clear smooth boundary.	
	120-174 IIA1	Laminae ~ five layers with above soil and Very dark grayish brown clay. Same description as above with only difference being fine subangular blocky structure.	
	174-290+ A3	Dark grayish brown (10YR4/2) clay. Moderate, hard, very fine subangular blocky structure. No clay films, no roots.	
6	0-73 A1	Very dark grayish brown (10YR3/2) clay. Moderate, slightly hard, fine subangular blocky structure. Very few thin clay films noted on ped faces. Many fine rootlets. Clear smooth boundary.	
	73-134 A2	Very dark grayish brown (10yr3/2) clay. Same description as above but with $CaCO_3$ nodules. Very few fine rootlets. Clear smooth boundary.	

	134-310+ IIA2	Very dark gray (10YR3/1) clay w/$CaCO_3$ that increases w/depth. Moderate to strong, hard, very fine subangular blocky structure. Clay films are thin to moderately thick on ped faces. No roots.	Shell lens at depths 220-230 that runs length of north trench wall. 1-3 pieces of deer bone, some charcoal, no lithics. No noticeable soil change in profile where shell lens occurs.

East Fork Pipeline Trench Descriptions (continued)

Trench no.	depths (cm)	descriptions	comments
7	0-75 A1	Very dark grayish brown (10YR3/2) clay. Moderate, slightly hard, fine subangular blocky structure. Very few thin clay films noted on ped faces. Many fine rootlets. Clear smooth boundary.	
	75-160 A2	Very dark grayish brown (10yr3/2) clay. Same description as above but with $CaCO_3$ nodules. Very few fine rootlets. Clear smooth boundary.	
	160-290+ IIA2	Very dark gray (10YR3/1) clay. Moderately strong, hard, very fine subangular blocky structure. Clay films are moderately thick on all faces w/slickensides. Many fine rootlets.	Shells lens with ash from 220-260 by 50 wide. The lens does not look like a pit feature as there are no distinct lines. There does appear to be a darker material mixed with the ash. If there were discreet deposits they have been destroyed by the mixing. This is the same lens noted in Trench 6.
8	0-75 A1	Very dark grayish brown (10YR3/2) clay. Moderate, slightly hard, fine subangular blocky structure. Very few thin clay films noted on ped faces. Many fine rootlets. Clear smooth boundary.	
	75-160 A2	Very dark grayish brown (10yr3/2) clay. Same description as above but with $CaCO_3$ nodules. Very few fine rootlets. Clear smooth boundary.	
	160-290+ C	Very dark gray (10YR3/1) clay. Moderately strong, hard, very fine subangular blocky structure. Clay films are moderately thick on all faces w/slickensides. Many fine rootlets.	
9	0-75 A1	Very dark grayish brown (10YR3/2) clay. Moderate, slightly hard, fine subangular blocky structure. Very few thin clay films noted on ped faces. Many fine rootlets. Clear smooth boundary.	
	75-160 A2	Very dark grayish brown (10yr3/2) clay. Same description as above but with $CaCO_3$ nodules. Very few fine rootlets. Clear smooth boundary.	

	160-290+ C	Very dark gray (10YR3/1) clay. Moderately strong, hard, very fine subangular blocky structure. Clay films are moderately thick on all faces w/slickensides. Many fine rootlets. Clear smooth boundary.	

East Fork Pipeline Trench Descriptions (continued)

Trench no.	depths (cm)	descriptions	comments
10	0-67 A1	Black (10YR2/1) clay. Moderate, slightly hard, very fine subangular blocky structure. Clay films are few, thin, on ped tops, bottoms, and some faces. Many fine rootlets. Clear smooth boundary.	
	67-125 A2	Very dark grayish brown (10YR3/2) clay w/$CaCO_3$ nodules at bottom of horizon. Moderate, slightly hard, very fine subangular blocky structure. Clay films are few to common on ped tops, bottoms, and on faces. Few fine rootlets. Clear smooth boundary.	
	125-185 C	Dark grayish brown (10YR4/2) clay w/$CaCO_3$ nodules. Moderate, slightly hard, very fine subangular blocky structure. Clay films are very few on ped faces. Very few fine rootlets. Clear smooth boundary.	
	185-226 IIC2	Dark grayish brown (10YR4/2) fine sandy clay w/mottles [40%] of dark yellowish brown (10YR4/4). Strong, very hard, very thin platy structure. No clay films, no roots. Clear smooth boundary.	
	229-290 IIIC2	Dark gray/very dark gray (10YR4/1,3/1) clay. Strong, very hard, coarse subangular blocky structure. Continuous thick clay films w/slickensides.	
11	0-71 A1	Very dark grayish brown (10YR3/2) clay. Moderate, slightly hard, fine subangular blocky structure. Very few thin clay films on ped faces. Many fine rootlets.	
	71-311 A2	Dark grayish brown (10YR4/2) clay. Moderate, slightly hard, fine columnar structure. Clay films are thin, very few on ped faces. Few to many fine rootlets. Clear smooth boundary.	
	311-359 C	Yellowish brown (10YR5/8) clay with mottles [10%] of very dark grayish brown (10YR3/2). Strong, hard, fine subangular blocky structure. Very few clay films on ped faces. No roots noted.	

East Fork Pipeline Trench Descriptions (continued)

Trench no.	depths (cm)	descriptions	comments
12	0-41 A1	Very dark gray (10YR3/1) clay. Moderate, slightly hard, very fine subangular blocky structure. Clay films are very few, thin, on ped faces. Many fine rootlets. Clear smooth boundary.	
	41-120 IIA2	Black (10YR2/1) clay. Moderate, slightly hard, find subangular blocky structure. Clay films are thin to moderately thick on most ped faces. Few fine rootlets. Clear smooth boundary.	
	120-149 A3	Very dark gray (10YR3/1) clay. Moderately strong, hard, find subangular blocky structure. Clay films are thick, common, on ped faces and beginnings of slickensides. Clear smooth boundary.	
	149-225 C1	Black (10YR2/1) clay w/$CaCO_3$ nodules throughout. Strong, very hard, fine columnar structure. Clay films are thick, continuous w/slickensides. No roots noted. Clear smooth boundary.	
	225-287 C2	Black (10YR2/1) clay. Same description as above but with $CaCO_3$ more concentrated.	
	287-370 IIC2	Very dark gray (10YR3/1) clay w/$CaCO_3$ nodules. Moderate, slightly hard, fine subangular blocky structure. Clay films are many, moderately thick, and on ped faces. Clear smooth boundary.	
	370-455+ IIIC2	Very dark grayish brown (10YR3/2) clay w/$CaCO_3$ filaments and nodules. Moderate, slightly hard, very fine subangular blocky structure. Clay films are continuous on all faces as well as slickensides.	

East Fork Pipeline Trench Descriptions (continued)

Trench no.	depths (cm)	descriptions	comments
13	0-70 A1	Black (10YR2/1) clay. Weak, slightly hard, very fine subangular blocky structure. No clay films noted. Many fine rootlets. Clear smooth boundary.	
	70-90 A2	Very dark gray (10YR3/1) clay. Moderate, slightly hard, very fine subangular blocky structure. Clay films are thin, very few, and on some ped faces. Few fine rootlets. Clear smooth boundary.	
	90-120 C1	Very dark gray (10YR3/1) clay w/$CaCO_3$ nodules and a few filaments. Clay films are few to common on ped faces and pore linings. Very few fine rootlets. Abrupt smooth boundary.	
	120-190 C2	Dark gray/very dark gray (10YR4/1,3/1) clay. Same description as above but with marked increase in $CaCO_3$. Abrupt smooth boundary.	
	190-290 IIC2	Very dark gray (10YR3/1) clay w/mottles [20%] of dark grayish brown (10YR4/2). Moderate, slightly hard, very fine subangular blocky structure. Clay films are few to common, thin on ped faces. Large (1cm) modules of $CaCO_3$. Abrupt smooth boundary.	
	290-410 IIC3	Brown (10YR4/3) clay w/mottles [30%] of dark grayish brown. Moderate, slightly hard, very fine subangular blocky structure. Clay films are many, moderately thick on pore linings and bridges. No roots noted.	

RECOMMENDATIONS

The purpose of this archaeological investigation was to determine if significant cultural resources were present within the proposed pipeline right-of-way. Four twentieth century residential sites were found, two cisterns (41KF130 and 132), a well (41KF131) and a house site (41KF133). Some artifacts were sketched but left in place at the historic sites. The residences represented by the cisterns and the well are no longer present and it is impossible to reconstruct the footprint of the respective houses and their associated work areas and outbuildings. Consequently, these three sites have lost their historic integrity and are not eligible for nomination to the National Register of Historic Places. The house, in contrast, is in a poor state of repair since it was abandoned in 1968, but it represents a good example of post-Depression/pre-World War II rural residence. In addition, it also contains historic artifacts which were apparently left in place when the house was abandoned. This presents a snapshot of rural Kaufman County that may make the house eligible for consideration for inclusion on the National Register of Historic Places.

Although the shell lens sites (41KF134) will be avoided by this pipeline route, it represents an example of a buried and partially sealed off prehistoric occupation site that is known to be present throughout the Upper Trinity River Basin. The site deposit presents a well-preserved and dated context that contributes a better understanding of Late Prehistoric exploitation of aquatic and floodplain food resources in the valley of the East Fork of the Trinity River. This site is likely to eligible for National Register consideration but additional testing will be necessary.

Based upon the results of the survey, AR Consultants, Inc. recommends that the East Fork Water Recycle Pipeline route has low archaeological potential and that further cultural investigations are unwarranted. We further recommend that construction supervisors be advised that buried archaeological materials could be uncovered during construction. If this situation should arise, work should immediately cease in that area and the Archeology Division of the Texas Historical Commission should be advised of the discovery. If the cultural resources are located within 100 m of a drainage or in the floodplain of the East Fork of the Trinity River, the Fort Worth District of the US Army Corps of Engineers also should be advised. Work should not continue in such areas until the necessary investigations have been conducted.

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Appendix A

NORTH TEXAS MUNICIPAL
WATER DISTRICT

Regional Service Through Unity

October 20, 2005

Mr. Bill Martin, Archeologist
Texas Historical Commission
P. O. Box 12276
Austin, Texas 78711-2276

Re: North Texas Municipal Water District
East Fork Reuse Project

Dear Mr. Martin:

The North Texas Municipal Water District (District) is designing a water supply project that entails constructing an 84 inch pipeline from Kaufman County to the east side of Lavon Lake in Collin County. The pipeline route is planned to run generally along the east side of the East Fork of the Trinity River from a southern beginning point south of Seagoville and Crandall. This route takes it along the floodway of a levee system on the river that was constructed by the Corps of Engineers (Kaufman County Levee District # 4).

AR Consultants performed an archeological survey for the entire route. One site, 41KF134, was discovered during backhoe excavations within the floodway cited above. Backhoe trenching was conducted to determine the limits of the site, and, as a result, backhoe excavations were made about 20 meters west of that site to determine an area where the pipeline could be constructed without impacting or disturbing the site. No cultural materials were found and the pipeline alignment was redesigned to pass at least 20 meters west of the prehistoric site where there would be no impact.

During construction District field inspectors will ascertain that the construction follows the revised design alignment. If you have any questions, please contact Kara Byrnes at (972) 442-5405.

Sincerely,

James M. Parks, P.E.
Executive Director

JMP/KJB

505 E. Brown St., P.O. Box 2408, Wylie, Texas 75098-2408 Telephone: 972/442-5405 Fax: 972/442-5405