AN ARCHAEOLOGICAL SURVEY FOR THE CENTRAL TEXAS WATER SUPPLY CORPORATION WATER LINE IMPROVEMENTS 2009 IN BELL COUNTY, TEXAS

Antiquities Permit 5327

By

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ABSTRACT

An archaeological survey along a proposed water transmission line (nine miles) and a proposed pump station site (1.5 acres) in south-central Bell County, Texas was performed by Brazos Valley Research Associates (BVRA) for the Central Texas Water Supply Corporation (WSC) in July of 2009 under Antiquities Permit 5327. The Principal Investigator for this project was William E. Moore, and Edward P. Baxter was the Project Archaeologist. The project area was investigated using the pedestrian survey method supported by shovel tests, shovel probes, and machine-aided subsurface tests. In all, the project area consisted of 12.4 acres. No archaeological sites were recorded, and no artifacts were collected. The Bell Plains Cemetery (BL-099) is within 100 feet of the route of the pipeline as currently proposed. Trenching for graves outside the known boundaries of the cemetery was not necessary because limestone bedrock is present within three feet of the surface. Copies of the final report are housed at the Texas Historical Commission (THC), Archeology Division, the Texas Archeological Research Laboratory (TARL), the Central Texas WSC, and BVRA.

ACKNOWLEDGMENTS

The authors are grateful to those who helped ensure the success of this project. At the Central Texas WSC, Lee Kelley (General Manager) provided support and visited the project area with the Project Archaeologist to ensure he was in the right area. Added assistance in the field was provided by Marc Mahoney and Micah Craig (Distribution Technicians for Central Texas WSC). S. D. Kallman of Roundrock, Texas was the engineering firm for this project. Steve D. Kelley of Kelley Environmental Consulting in Georgetown provided additional assistance. Jean Hughes, Records Conservator at TARL, checked the site files for previously recorded sites in the project area. The figures in this report were prepared by Lili G. Lyddon of LL Technical Services, and she edited the report.

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INTRODUCTION

The Central Texas WSC proposes to install nine miles of 24-inch water transmission line in south-central rural Bell County (Figure 1) and a pump station and storage tank on a 1.5 acre tract. The water transmission line will be placed in a trench 36 inches wide and beneath between 36 inches and 48 inches of cover. The construction easement throughout most of the project area will be restricted to the highway right-of-way. Part of the project area is on private property. In this area, there will be a permanent construction easement of twenty feet. In addition, there will be a temporary construction easement that will parallel the permanent construction easement and will also be twenty feet. In all, there will be a 40 foot area to be used during construction. The official title for this project is the Central Texas WSC Water Line Improvements 2009. Funding will be provided by the Texas Water Development Board, and the agency representative is T. Clay Schultz. The proposed water transmission line crosses two drainages – Salado Creek and Holland Branch. These streams are part of the Little River drainage basin.

The proposed water distribution line begins at the site of the new water treatment plant on West Amity Road. It runs east along the southern right-of-way for a distance of approximately one mile. Then it changes to the north side of West Amity Road at its intersection with Smith Dairy Road and continues for approximately 0.85 mile along the north right-of-way to the point where West Amity Road turns to the north and crosses Interstate Highway 35. Then the route is in the east and south rights-of-way of West Amity Road for approximately 0.3 mile to the feeder road of Interstate Highway 35 where it is in the west right-of-way for approximately 0.14 mile to a location where it will pass beneath Interstate Highway 35 through directional boring. Then it continues along the eastern right-of-way of the feeder road along Interstate Highway 35 for approximately 0.2 mile where it intersects with East Amity Road. It follows the southern right-of-way of East Amity Road for approximately 1.28 miles to the intersection of Blackberry Road where it follows the western right-of-way for approximately two miles where it turns to the east-southeast and runs along a fence line on private land for approximately 0.5 mile to the proposed pump station and storage tank site. It then turns to the south-southwest for approximately 0.5 mile and runs under a private gravel road to its intersection with the north right-of-way of Royal Road where it turns to the east-southeast for a distance of approximately 1.35 miles to the intersection of Royal Road and Armstrong Road. The proposed line then runs northeast along the southeastern right-of-way of Armstrong Road for about 0.68 mile to the point where it connects with an existing water line.

An archaeological assessment of the Area of Potential Effect (APE) was required by the THC, Archeology Division. Since the water supply corporation is a public entity, a permit from the THC was required, and Antiquities Permit 5327 was issued to BVRA by this agency. The project area is depicted on two 7.5' United States Geological Survey topographic quadrangles. They are Holland (3097-433) and Salado (3097-344).

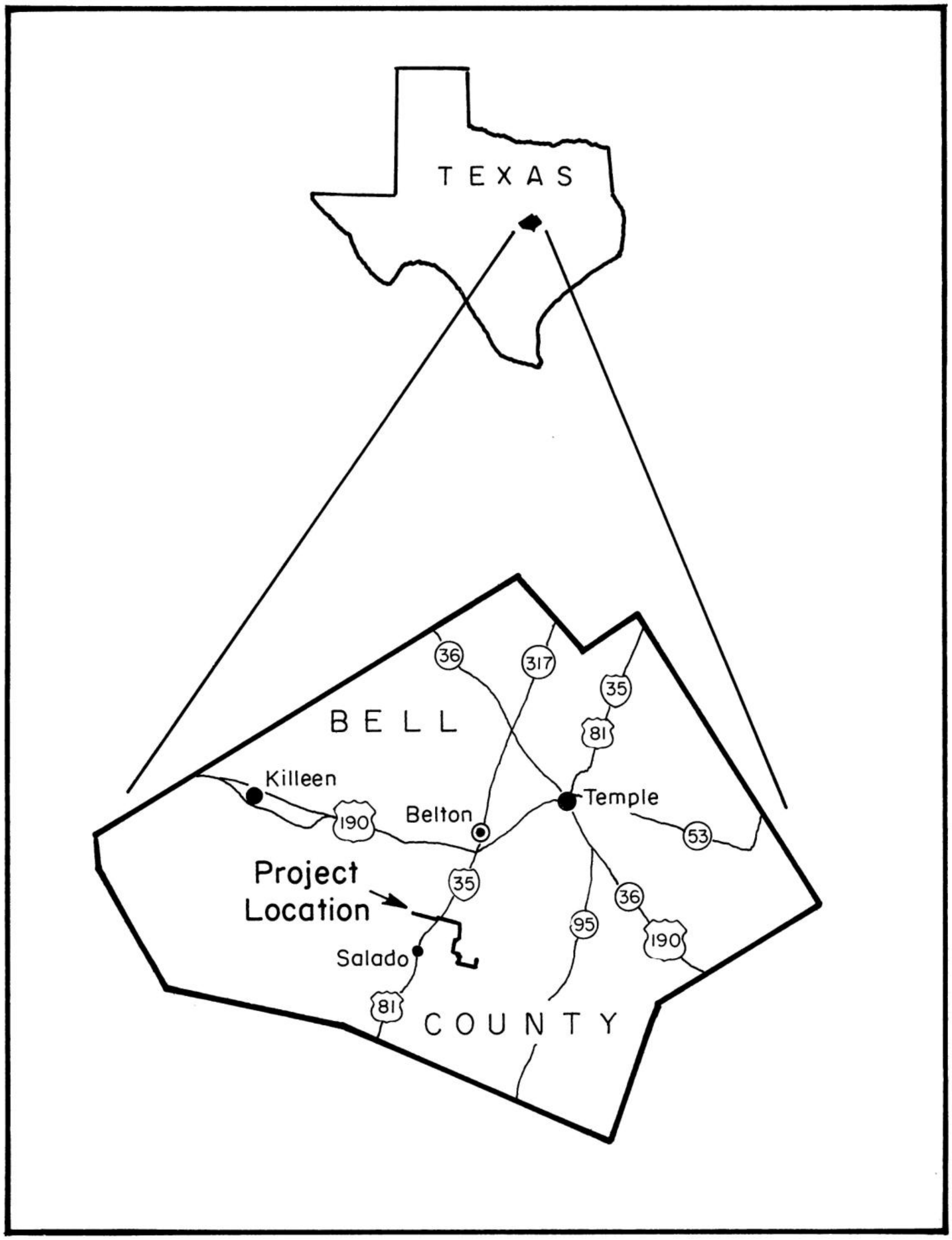

Figure 1. General Location

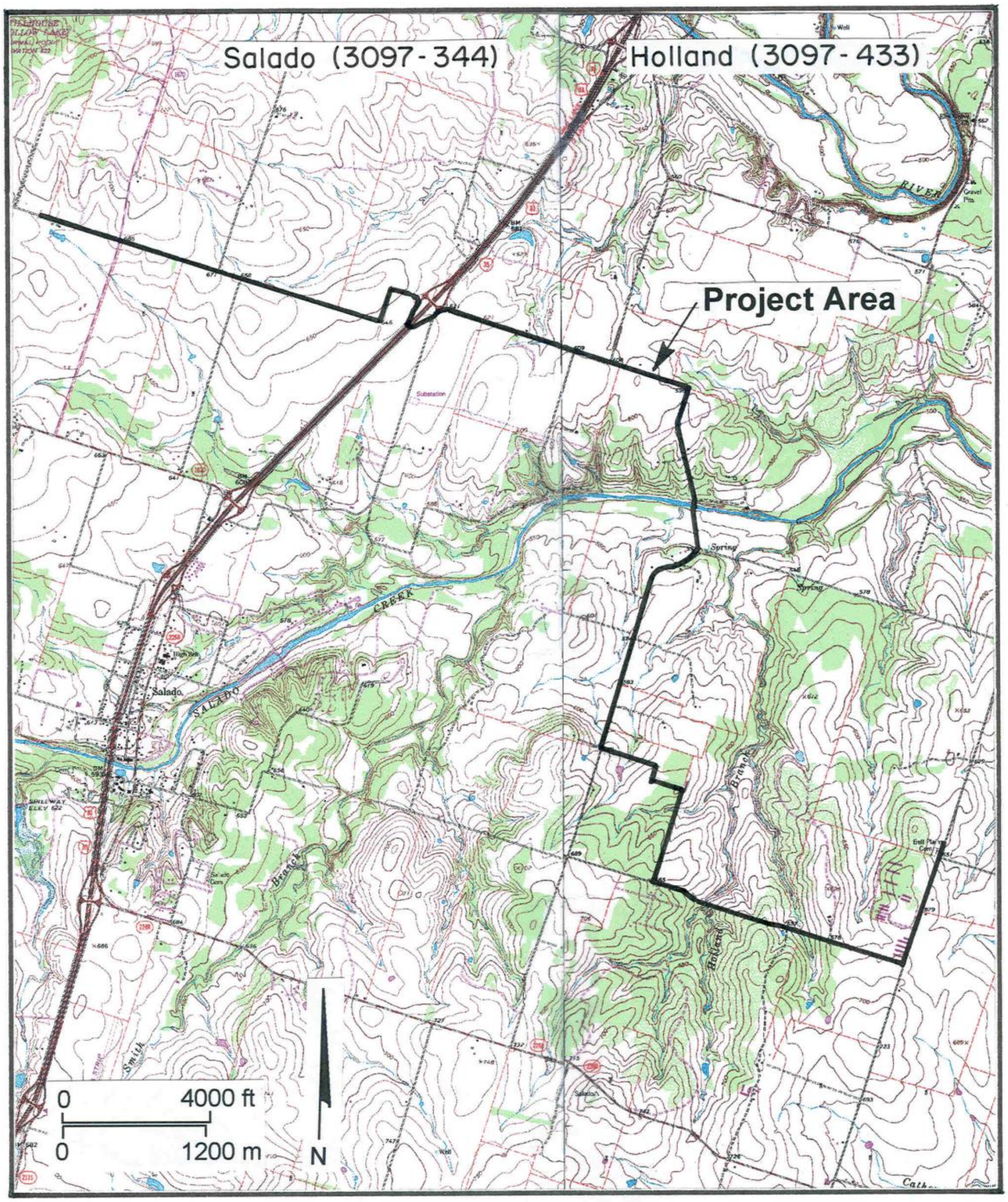

Figure 2. Project Area on Topographic Quadrangles

ENVIRONMENTAL SETTING

Bell County is located within the Balconian biotic province as defined by Blair (1950:112-116) and includes the Gulf coastal plain from the Atlantic Ocean to eastern Texas. The size and location of this province is described below by Blair (1950:112):

> The Balconian province, as here defined, takes in most of the Edwards Plateau as limited by Sellards, Adkins and Plummer (1933): (figures 3 and 4), the Lampasas Cut Plain and Comanche Plateau of Raisz (1939 [cited as 1946 in Blair]), and the Central Mineral or Llano Uplift region. That part of the Edwards Plateau lying west of the Pecos, and often referred to as the Stockton Plateau, is not included, but is referred instead to as the Chihuahuan province.

The Balconian climate is characterized by a decrease in rainfall from east to west. Bell County is located in the eastern half of the province that has been classified by Thornwaite (1948) as dry subhumid, mesothermal with average annual potential evapotranspiration of between 39.27 and 44.88 inches. The annual rainfall for Bell County is 34 inches, the January minimum temperature is 37 degrees Fahrenheit, the July maximum temperature is 96 degrees Fahrenheit, and the growing season is 258 days (Kingston and Harris 1983).

According to Blair (1950:113), the most characteristic plant association of this province is a scrub forest of Mexican cedar (*Juniperus mexicana*), Texas oak (*Quercus texana),* stunted live oak (*Quercus virginiana*), and various less numerous species. The project area is also located well within the Prairies Vegetation Region and the Edwards Plateau Vegetation Region (Gould 1962). Species of vegetation characteristic of the region include Plateau live oak (*Quercus fusiformus*), Texas oak (*Quercus texana*), ashe juniper (*Juniperus ashei*), honey mesquite (*Prosopis glandulosa*), cedar elm (*Ulmus crassifolia*), cottonwood (*Populus deltoides*), pecan (*Carya illinoinensis*), elm (*Ulmus* spp.), sumacs (*Rhus* spp.), Texas persimmon (*Diospyros texana*), agarita (*Berberis trifoliolata*), Texas stillingia (*Stillingia texana*), yucca (*Yucca* spp.), Texas prickly pear (*Opuntia Lindheimeri*), yaupon (*Ilex vomitoria*), and American beautyberry (*Callicarpa americana*). Grasslands include seep mulhy (*Muhlenbergia reverchnoii*), Canadian wildrye (*Elymus canadensis*), dichanthelium (*Dichanthelium* spp.), Texas grama (*Bouteloua rigidiseta*), and red grama (*Bouteloua hirsuta*).

The Balconian Biotic Province is characteristically represented by a general mixture of fauna from nearby surrounding provinces (Blair 1950). Typical species found within the project area include white-tailed deer (*Odocoileus virginianus*), cotton-tailed rabbit (*Sylvilagus floridanus*), nine-banded armadillo (*Dasypus novemcinctus*), black-tailed jack rabbit (*Lepus californicus*), racoon (*Prycon lotor*), hispid cotton rat (*Sigmodon hispidus*), wild turkey (*Melagris gallopavo*), mourning dove (*Zenaida macroura*), scissor-tailed flycatcher (*Tyrannus forficatus*), northern bobwhite (*Colinus virginianus*), western coachwhip (*Masticophis flagellum testaceus*), and the bullsnake (*Pituophis melanoleucus sayi*).

The water pipeline passes through twenty soil types. They are Austin silty clay, 1 to 3 percent slopes (AsB), Austin silty clay, 3 to 5 percent slopes (AsC), Crawford silty clay, 0 to 1 percent slopes (CrA), Crawford silty clay, 1 to 3 percent slopes (CrB), Denton silty clay, 1 to 3 percent slopes (DeB), Eddy-Stephen complex, 0 to 3 percent slopes (EsB), Eddy-Stephen complex, 3 to 8 percent slopes (EsD), Frio silty clay, 0 to 1 percent slopes (Fs), Heiden-Ferris complex, 3 to 8 percent slopes (HgD2), Houston Black clay, 0 to 1 percent slopes (HoA), Houston Black clay, 1 to 3 percent slopes (HoB), Krum silty clay, 0 to 1 percent slopes (KrA), Louisville silty clay, 3 to 5 percent slopes (LeC), Lewisville-Altoga complex, 2 to 5 percent slopes (LgC), McLennan clay loam, 8 to 15 percent slopes (AIE2), Purves association, 1 to 8 percent slopes (PVD), Purves silty clay, 1 to 4 percent slopes (PrB), San Saba clay, 0 to 1 percent slopes (SaA), San Saba clay, 1 to 3 percent slopes (SaB), and Stephen silty clay 1 to 3 percent slopes (StB).

Austin silty clay, 1 to 3 percent slopes (AsB)

AsB soils are found on ridges along foot slopes and base slopes, and the parent material is residuum weathered from chalk. The depth to restrictive feature is 20 to 40 inches to paralithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is moderate (about 6.3 inches). A typical profile is described as silty clay from 0 to 35 inches and bedrock at 35 to 80 inches.

Austin silty clay, 3 to 5 percent slopes (AsC)

AsC soils are found on ridges along back slopes and side slopes, and the parent material is residuum weathered from chalk. The depth to restrictive feature is 20 to 40 inches to paralithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is low (about 5.2 inches). A typical profile is described as silty clay from 0 to 29 inches and bedrock at 29 to 80 inches.

Crawford silty clay, 0 to 1 percent slopes (CrA)

CrA soils are found on ridges and summits, and the parent material is clayey alluvium over limestone. The depth to restrictive feature is 20 to 40 inches to paralithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is low (about 5.0 inches). A typical profile is described as clay from 0 to 36 inches and bedrock at 36 to 70 inches.

Crawford silty clay, 1 to 3 percent slopes (CrB)

CrB soils are found on ridges on summits, and the parent material is clayey alluvium over limestone. The depth to restrictive feature is 20 to 40 inches to lithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is low (about 4.4 inches). A typical profile is described as clay from 0 to 31 inches and bedrock at 31 to 60 inches.

Denton silty clay, 1 to 3 percent slopes (DeB)

DeB soils are found on ridges, summits, and shoulders, and the parent material is clayey residuum weathered from limestone. The depth to restrictive feature is 40 to 60 inches to lithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is moderate (about 6.0 inches). A typical profile is described as silty clay from 0 to 40 inches and bedrock at 40 to 80 inches.

Eddy-Stephen complex, 0 to 3 percent slopes (EsB)

Eddy complex soils are found on ridges on shoulders, summits, and interfluves, and the parent material is residuum weathered from chalk. The depth to restrictive feature is 3 to 15 inches to paralithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is very low (about 0.8 inches). A typical profile is described as gravelly clay loam from 0 to 5 inches, gravelly clay loam from 5 to 8 inches, and bedrock at 8 to 60 inches.

Stephen complex soils are found on ridges on shoulders, summits, and interfluves, and the parent material is residuum weathered from austin chalk formation. The depth to restrictive feature is 7 to 20 inches to paralithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is very low (about 1.8 inches). A typical profile is described as silty clay from 0 to 14 inches and bedrock from 14 to 80 inches.

Eddy-Stephen complex, 3 to 8 percent slopes (EsD)

Eddy complex soils are found on ridges on summits, back slopes, sholders, side slopes, and interfluves, and the parent material is residuum weathered from austin chalk. The depth to restrictive feature is 3 to 15 inches to paralithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is very low (about 0.8 inches). A typical profile is described as very gravelly clay loam from 0 to 5 inches, gravelly clay loam from 5 to 8 inches, and bedrock at 8 to 40 inches.

Stephen complex soils are found on ridges on summits, shoulders, back slopes, side slopes, and interfluves, and the parent material is residuum weathered from austin chalk formation. The depth to restrictive feature is 7 to 20 inches to paralithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is very low (about 1.8 inches). A typical profile is described as silty clay from 0 to 14 inches and bedrock from 14 to 80 inches.

Frio silty clay, 0 to 1 percent slopes frequently flooded (Fs)

Fs soils are found on flood plains, and the parent material is loamy alluvium derived from limestone and shale. The depth to restrictive feature is more than 80 inches. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is high (about 10.2 inches). A typical profile is described as silty clay from 0 to 80 inches.

Heiden-Ferris complex, 3 to 8 percent slopes (HgD2)

Heiden complex soils are found on ridges on back slopes and side slopes, and the parent material is clayey residuum weathered from clayey shale of eagleford shale or taylor marl. The depth to restrictive feature is more than 80 inches. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is moderate (about 9.0 inches). A typical profile is described as clay from 0 to 80 inches.

Ferris complex soils are found on ridges on back slopes and side slopes, and the parent material is clayey residuum weathered from calcareous shale in Eagleford shale or Taylor marl formations of Cretaceous age. The depth to restrictive feature is 40 to 60 inches to densic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is moderate (about 8.5 inches). A typical profile is described as clay from 0 to 80 inches.

Houston Black clay, 0 to 1 percent slopes (HoA)

HoA soils are found on plains, and the parent material is residuum weathered from calcareous shale of taylor marl and eagleford shale. The depth to restrictive feature is more than 80 inches. This soil type is moderately well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is high (about 9.7 inches). A typical profile is described as clay from 0 to 99 inches.

Houston Black clay, 1 to 3 percent slopes (HoB)

HoB soils are found on ridges, summits, shoulders, and interfluves, and the parent material is clayey residuum weathered from calcareous shale of taylor marl and eagleford shale. The depth to restrictive feature is more than 80 inches. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is high (about 10.4 inches). A typical profile is described as clay from 0 to 99 inches.

Krum silty clay, 0 to 1 percent slopes (KrA)

KrA soils are found on stream terraces, and the parent material is clayey alluvium of Pleistocene age derived from mixed sources. The depth to restrictive feature is more than 80 inches. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is high (about 10.1 inches). A typical profile is described as silty clay from 0 to 82 inches.

Louisville silty clay, 3 to 5 percent slopes (LeC)

LeC soils are found on stream terraces, and the parent material is alluvium of quaternary age derived from mixed sources. The depth to restrictive feature is more than 80 inches. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is high (about 9.9 inches). A typical profile is described as silty clay from 0 to 60 inches.

Lewisville Altoga complex, 2 to 5 percent slopes (LgC)

Lewisville complex soils are found on stream terraces, and the parent material is alluvium of quaternary age derived from mixed sources. The depth to restrictive feature is more than 80 inches. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is high (about 9.9 inches). A typical profile is described as silty clay from 0 to 60 inches.

Altoga complex soils are found on stream terraces, and the parent material is clayey alluvium derived from mixed sources. The depth to restrictive feature is more than 80 inches. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is high (about 10.2 inches). A typical profile is described as silty clay from 0 to 80 inches.

McLennan clay loam, 8 to 15 pecent slopes (AIE2)

AIE2 soils are found on ridges, back slopes, and side slopes, and the parent material is clayey residuum weathered from shale and siltstone. The depth to restrictive feature is more than 80 inches. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is high (about 9.1 inches). A typical profile is described as clay loam from 0 to 32 inches and silty clay loam from 32 to 80 inches.

Purves association, 1 to 8 percent slopes (PVD)

PVD soils are found on ridges, summits, and shoulders, and the parent material is clayey residuum weathered from limestone. The depth to restrictive feature is 8 to 20 inches to lithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is very low (about 1.9 inches). A typical profile is described as silty clay from 0 to 12 inches, very gravelly silty clay from 12 to 16 inches, and bedrock from 16 to 24 inches.

Purves silty clay, 1 to 4 percent slopes (PrB)

PrB soils are found on ridges, summits, and shoulders, and the parent material is clayey residuum weathered from limestone. The depth to restrictive feature is 8 to 20 inches to lithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is very low (about 2.0 inches). A typical profile is described as silty clay from 0 to 8 inches, very gravelly silty clay from 8 to 14 inches, and bedrock from 14 to 24 inches.

San Saba clay, 0 to 1 percent slopes (SaA)

SaA soils are found on ridges and foot slopes, and the parent material is clayey residuum weathered from shale over limestone. The depth to restrictive feature is 24 to 40 inches to lithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is low (about 4.9 inches). A typical profile is described as clay from 0 to 35 inches and bedrock from 35 to 40 inches.

San Saba clay, 1 to 3 percent slopes (SaB)

SaB soils are found on ridges and foot slopes, and the parent material is clayey residuum weathered from shale over limestone. The depth to restrictive feature is 24 to 40 inches to lithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is low (about 5.0 inches). A typical profile is described as clay from 0 to 36 inches and bedrock from 36 to 40 inches.

Stephen silty clay, 1 to 3 percent slopes (StB)

StB soils are found on ridges, summits, shoulders, and interfluves, and the parent material is residuum weathered from Austin chalk formation. The depth to restrictive feature is 7 to 20 inches to paralithic bedrock. This soil type is well drained, and the distance to the water table is more than 80 inches. Frequency of flooding and ponding is described as none. The available water capacity is very low (about 1.3 inches). A typical profile is described as silty clay from 0 to 10 inches and bedrock from 10 to 36 inches.

CULTURE SEQUENCE

Bell County is located in the North Central Texas cultural-geographical region as defined by Biesaart et al. (1985:76) (Figure 3). This area is referred to as Central Texas by most archaeologists, and it is rich in archaeological sites. Summaries relevant to the prehistory of Bell County and vicinity have been prepared by various archaeologists, primarily as a result of work at Fort Hood in Bell and Coryell counties (Guderjan et al. 1980; Skinner et al. 1981, 1984; Thomas 1978; Roemer et al. 1985; Carlson et al. 1986), Belton Reservoir (Shafer et al. 1964), the Youngsport site (Shafer 1963), and Stillhouse Hollow Reservoir (Shafer et al. 1964; Sorrow et al. 1967). Summaries of the region have been published by Suhm (1960), Weir (1976), and Prewitt (1981, 1985). Most recently, two thorough articles concerning Central Texas were published in Volume 66 of the *Bulletin of the Texas Archeological Society*. These works, entitled "Forty Years of Archeology in Central Texas," by Michael B. Collins (1995) and "Implications of Environmental Diversity in the Central Texas Archeological Region" by Linda Wootan Ellis, G. Lain Ellis, and Charles D. Frederick (1995), represent a major synthesis of the vast amount of collected data for the region. The following discussion is taken primarily from the works cited above.

Paleo-Indian Period

Although problems exist with the term "Paleo-Indian," it is so widely accepted that it is used in this discussion. Paleo-Indian typically refers to those cultures that were oriented toward big game hunting with food collecting not a major pursuit (Willey and Phillips 1958:80). Eileen Johnson (1977:65-77) states that it has been erroneously stereotyped as a migratory systematic big game procurement adaptation. Collins (1995:381) argues that subsistence in Clovis times, for example, Paleo-Indian exploited a diverse fauna base that not only included large herbivores such as mammoth, bison, and horse but also included smaller animals such as water turtles, land tortoises, alligator, mice, badger, and raccoon. At Kincaid Rock Shelter, a paved floor suggests that the inhabitants of this site returned to the same site as part of a regular hunting and gathering strategy in contrast with nomadic hunters who only pursued big game. It is, therefore, assumed that an array of plants presumably also constituted part of Clovis subsistence (Collins 1990; Collins et al. 1989).

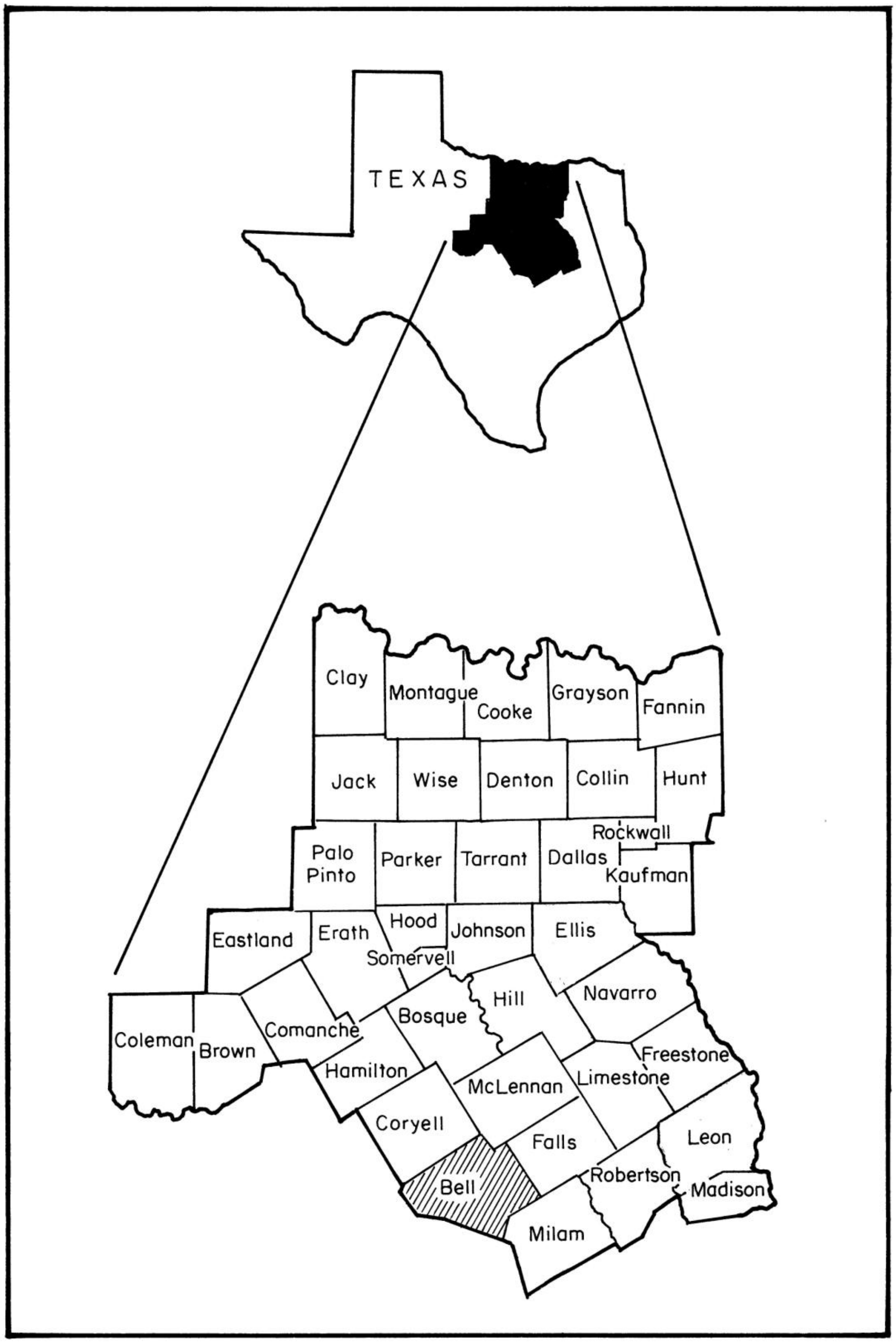

Figure 3. North Central Cultural-Geographical Region of Texas

According to Skinner et al. (1981:13), the Paleo-Indian period is one of the least understood time periods in Central Texas prehistory, primarily because few sites have been excavated. Evidence of this period often occurs in the form of surface collected materials found over much of Central Texas. At Fort Hood, this period is represented by distinctive projectile points found in multi-component surface sites and as isolated finds on the surface (Carlson et al. 1986:15). Generally, it is believed that this period lasted from about 10,000 B.C. until 6000 B.C. Diagnostic artifacts of the period include dart point types *Angostura*, *Clovis*, *Folsom*, *Golondrina*, and *Plainview* as defined by Suhm and Jelks (1962) and Turner and Hester (1985).

These early sites are often found on old terraces of major river drainages and may be more distant from major streams than some more recent occupations (Bryan 1931). Some rock shelters, such as Levi (41TV49) in Travis County, were intensively occupied even though they are located a considerable distance from major rivers. The only example of a rock shelter in Central Texas immediately adjacent to a major drainage known to contain Paleo-Indian occupation is the Horn Shelter (41BQ46) in Bosque County (Redder 1985). Two major sites dating to Paleo-Indian times in Bell County are Buttermilk Creek (41BL1239) and Gault (41BL323). These sites contain evidence of Clovis peoples, and a possible pre-Clovis occupation was found at the Gault site (Collins and Bradley 2008). Collins (2002), Collins and Brown (2000), and Dickens (2005) have reported on work at Gault. Work at Buttermilk Creek is ongoing by archaeologists from Texas A&M University.

Archaic Period

The Archaic represents a broad cultural time period that lasted from approximately 8500 B.P. to 1250 B.P. in Central Texas. According to Prewitt (1981:71), "The Archaic Stage dominates all other remains in Central Texas." Prewitt (1981) has subdivided the Archaic into eleven phases. LeRoy Johnson (1987) has questioned the validity of the phase concept as used by Prewitt, especially the phases occurring before the Middle Archaic. These have been grouped into Early, Middle, Late, and Terminal periods by Carlson et al. (1986:15). According to Prewitt (1981:77-78), during the Early Archaic there was a "strong orientation toward the gathering aspect rather than the hunting, and a mobile population was of low density." This occurred during the Circleville, San Geronimo, and Jarrell phases (8500 B.P. - 5000 B.P.). In the Middle Archaic, food gathering had become very specialized as evidenced by the presence of numerous burned rock middens/mounds (Prewitt 1981:78-80). The Middle Archaic is seen by Prewitt to have taken place during the Oakalla, Clear Fork, Marshall Ford, and Round Rock phases (5000 B.P. - 2600 B.P.). An overall decrease in burned rock middens took place during the Late Archaic. Bison were important as a food resource, but did not dominate subsistence activities (Prewitt 1981:80-81). The Late Archaic occurred during the San Marcos and Uvalde phases (2600 B.P. - 1750 B.P.).

The Terminal Archaic, according to the classification by Carlson et al. (1986), includes the Twin Sisters and Driftwood phases (1750 B.P. - 1250 B.P.). An increase in the importance of gathering and an apparent peak in site density seem to have occurred during Prewitt's (1981:82) Driftwood phase.

According to the statistical overview (Biesaart et al. 1985) published by the Office of the State Archeologist in 1985, the prehistoric site inventory for Bell County was heavily skewed towards the Archaic. Of the 197 recorded sites, 2 were classified as Paleo-Indian, 10 Early Archaic, 37 Middle Archaic, 32 Late Archaic, 52 General Archaic, and 29 Late Prehistoric. These statistics suggest that Bell County was occupied mainly during the Archaic period which, according to Prewitt (1981:Figure 3), lasted from 8500 years B.P. to 1250 B.P. This is supported by the statement by Collins (1995:383) that "two-thirds of the prehistory of Central Texas is “Archaic' in character."

Late Prehistoric Period

This period has been referred to by some as the Neo-American Stage (Suhm et al. 1954), Neo-archaic (Prewitt 1981), and Post-Archaic (Johnson and Goode 1994). Technological changes are the primary distinguishing characteristics of this stage. The Austin (1250 B.P. - 650 B.P.) and Toyah (650 B.P. - 200 B.P.) phases belong to this stage of prehistory. During this time arrow points first appeared as well as ceramics and possibly horticulture.

According to Collins (1995:385), there is now evidence that only the bow and arrow appeared initially in Central Texas; pottery was added later, and agriculture developed last and was of minor importance. Because Late Prehistoric groups continued to practice hunting and gathering, a division or two sub-periods seem to have taken place. These are referred to as early and late by Collins (1995:385) with the break between the long-standing Archaic period and the Late Prehistoric period occurring at circa 800 B.P. when Toyah replaced Austin as the prevailing archeological manifestation.

The most obvious change that emerged at the beginning of the Late Prehistoric period is the introduction of the bow and arrow and decreased use of the *atlatl* or spear thrower. Otherwise, subsistence lifeways in the Late Prehistoric were probably little different from those in the earlier Archaic period (Prewitt 1981:74; Weir 1976). A chronological model by Dillehay (1974) of bison presence and absence periods on the southern plains suggests that bison were present during the Toyah phase but not during the preceding Austin phase.

Historic Period

Collins (1995:386) divides the Historic period of Central Texas into three sub-periods: early, middle, and late. During the first two, vestiges of both indigenous and European peoples and cultures were present; however, in the third the indigenous peoples had virtually disappeared. The early Historic sub-period in Central Texas began in the late 17th century with the first documented arrival of Europeans. Bell County is situated within the historic range of the Tonkawa Indians who inhabited the area in the 16th Century (Newcomb 1986). By the 19th Century, they had broken ties with the Comanche and Wichita and were associated with the Lipan Apache (Aten 1983:32). They have been described as typical southern Plains Indians who were hunters and gatherers and who lived along the streams and rivers of Central Texas. Remains of this group have not been found in an historic context in Bell County.

During this period, Texas was occupied by numerous aboriginal groups including the Caddo, Jumano, Tonkawa, Comanche, and Lipan Apache (Newcomb 1986). Trade is known to have existed between the Jumanos and the Caddos. The Lipan Apaches and subsequently the Comanches entered the region from the Plains while following key animal resources as they migrated into Texas. Contact period occupations are often identified by the occurrence of glass beads, gun parts, gunflints, metal projectile points, and European manufactured ceramics. The archival search did not locate any Historic Indian sites in Bell County; however, Texas Archeological Society (TAS) member Bob Burleson (1995:6) reports finding a metal arrow point cut from a barrel strap in fresh gravels placed on the road to his farm. In adjacent Coryell County, a blue glass bead was found with one of the burials at 41CV1, a group burial along the Leon River (Jackson 1931), and a steel arrow point has been reported as an isolated find on Horse Creek in the extreme eastern corner of Coryell County (Campbell 1952).

Historically, Bell County was first settled in 1834 and 1835 by colonists who settled along Little River. The area was abandoned during the "Runaway Scrape" of 1836, reoccupied, and deserted again after the fall of Fort Parker in June 1836. The early settlements were constantly harassed by hostile Indians and, although several forts were established, by 1838 all settlers had left the county. On May 26, 1839, the Indians suffered a decisive defeat at what is referred to as the "Famous Bird Creek Fight" about one and a half miles northwest of the present site of Temple, Texas. However, settlement did not return to the Bell County area until after 1843.

Bell County was created on January 22, 1850 and was named for Peter H. Bell. Nolan Springs was chosen as the county seat and named Nolanville, but on December 16, 1851 the name was changed to Belton. Early settlement was along the creeks and rivers. One of the early communities was Salado, a town established on Salado Creek. Archibald Willingham was the first permanent Anglo-American settler having arrived in 1850. In 1852, the first post office was established when a stage line with terminals at Waco and Austin began a weekly run more than a dozen years before the town was laid out. The town of Salado was founded directly as a result of the establishment of Salado College. This town prospered as an educational, industrial, and agricultural center. A series of eight flour and grist mills were built on Salado Creek during the early days. In 1990, the population of the town was 1216. This is the closest community to the current project area. The above information was taken from the *Handbook of Texas Online.* Early histories of Bell County refer frequently to the Shallowford Crossing on the Leon River as an important transportation route for wagon traffic. The exact location of this crossing has not been identified, but it substantiates the importance of this part of Bell County during its early settlement. By 1860, most of the land had been taken. The last serious Indian raid occurred in 1859. With the Indian problem apparently resolved, settlement increased and the county grew from 4799 in 1860, to 9771 in 1870, and to 20,518 in 1880. The number of farms in the county increased from 640 in 1869, to 2231 in 1871, and to 4249 in 1889. Bell County is chiefly an agricultural region with cotton and corn the leading crops. The construction of Fort Hood led to a population increase in the county from 44,863 in 1940 to 74,145 in 1950.

PREVIOUS INVESTIGATIONS

According to *Prehistoric Archeological Sites in Texas: A Statistical Overview* (Biesaart et al. 1985:111), there were 197 sites recorded at TARL in 1985 when this study was published by the Office of the State Archeologist. At this time, Bell County was third in the North Central Texas region, and the 197 sites represented 7.35% of the region and .97% of the state. The archaeological significance of this area is further indicated by the fact that 61 of the 197 sites recorded in 1985 were registered as State Archeological Landmarks. This figure represents 30.96% of all sites in Bell County.

Since 1985, however, the number of recorded sites has greatly increased, and 1259 sites were on file at TARL as of July 10, 2009 (TARL site files). Although sites have been recorded by private contract archaeology firms, local archaeological societies, and interested individuals, this increase in the number of sites in the county is mainly due to large-scale federal projects such as Lake Belton, Stillhouse Hollow Reservoir, and Fort Hood. At the time of this survey, no previously recorded sites were known to exist within the current project area. According to the Texas Archeological Sites Atlas, there have been 76 area surveys and 69 linear surveys conducted in Bell County at the time of this project (Figure 4).

There are two previous surveys that are contiguous to the current project area. This project was initially awarded to Paul Price Associates, Inc., and this firm conducted a cultural resources survey of a proposed water treatment plant site (78 acres) in 2001 under antiquities permit 2543 (Schroeder 2005). One historic site (41BL1107) was recorded as a historic building complex consisting of a small house and associated well and feed trough. A review of aerial photos, materials recovered in shovel tests, and architectural features suggested to the recorders that the house was constructed sometime between World War I and World War II. Because the house did not appear on the aerial photo dated 1953, they hypothesized that it had been moved to its present location sometime between 1953 and 1970. This site was not viewed as significant, and no further work was recommended. At the time of their investigation, access to portions of the water distribution line had not been obtained, so their survey was limited to the site of the proposed water treatment plant.

The other nearby survey was conducted by Paul Price & Associates in 1997 along Farm-to-Market Road 1670 at the western end of the current project area (Schroeder and Jones 1998). One site (41BL1092) was recorded on Salado Creek as an unknown prehistoric campsite containing various lithic tools, debitage, and thermally altered limestone. The site form states that this site has research potential for absolute dating, and it is described as having potential for listing in the National Register of Historic Places. The Texas Archeological Sites Atlas incorrectly cites this survey as having been conducted by BVRA.

The largest area survey in the vicinity of the project area was the Texas Archeological Society Annual Field School at the Tenroch Ranch conducted in 2002 along Salado Creek. Eleven sites (41BL1159 – 41BL1169) were recorded. The prehistoric sites are described on the site forms as an open camp, a burned rock midden, a buried terrace site, an open terrace site, a rock shelter, lithic scatters, and lithic procurement sites. Since this survey was limited to a surface survey with no shovel testing, the information collected was limited. The majority of the prehistoric sites contained no diagnostic artifacts and are described as simply "unknown prehistoric." One site may date to the Archaic and the buried terrace site is described as Early Archaic. The single historic site is a home site with outbuildings that probably dates to the 20th century. No statements regarding the eligibility of these sites for listing in the National Register of Historic Places is present on the site forms. This survey is documented in a report by Kibler and Schroeder (2004).

The efforts of members of the Central Texas Archaeological Society and Bell County Archeological Society have made notable contributions. These include articles in the form of bulletins, newsletters, special reports, and unpublished manuscripts on file at TARL or with society members. Bell County has been the subject of intensive investigations by members of the Central Texas Archeological Society. As a result of the above-mentioned investigations, "Bell County is one of the better known Central Texas counties and has provided significant information toward the understanding of prehistoric chronologies in this part of Texas" (Young 1987:9).

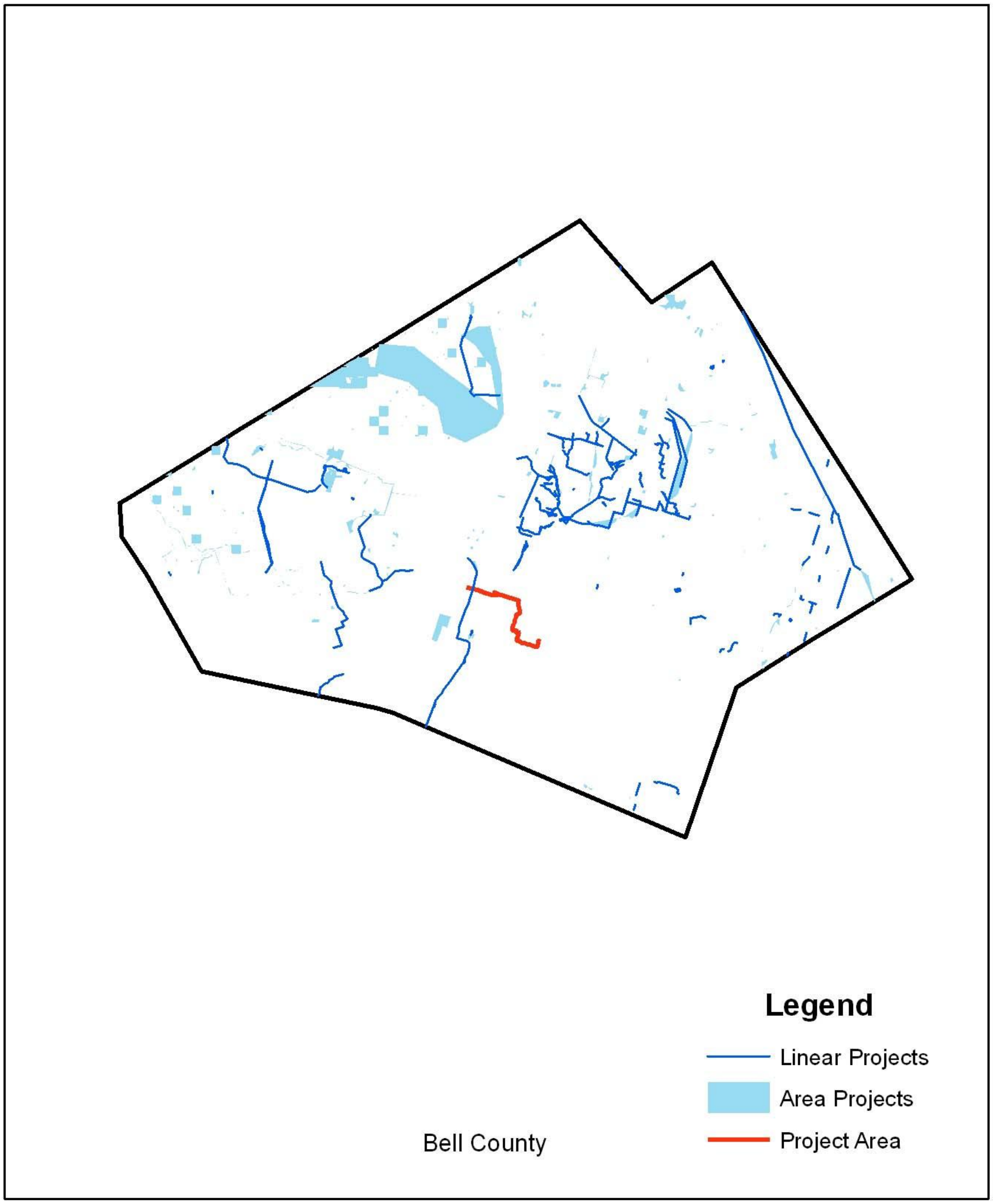

Figure 4. Previous Archaeological Surveys in Bell County

METHODS

Prior to entering the field, the Texas Archeological Site Atlas and the files at TARL were checked for previously recorded sites and past surveys in the area. Several documents were reviewed during the planning stages of this project. These are a planning document by the Texas Historical Commission (Biesaart et al. 1985), an archeological bibliography for the Central Region of Texas (Simons and Moore 1997), and all volumes of the *Abstracts in Texas Contract Archeology* published by the THC. The interested reader is referred to these sources for additional information regarding the prehistory of this area. The USDA online soil survey for Bell County was reviewed in order to identify the soils present in the APE.

The field survey was conducted on July 2nd and 3rd, 2009. The entire project area was visually inspected during a “windshield survey” designed to look for historic buildings and cemeteries that might be affected by the proposed water line. Portions of the pipeline segment of the project area near creeks and near the Bell Plains Cemetery (BL-C099) were chosen prior to the survey to be subjected to an intensive survey if needed. Nine areas (A-I) (Figure 5) and the area of the proposed pump station were given this more intensive investigation. These investigations consisted of shovel probes, shovel tests, and a visual inspection of the ground surface and cut banks. In areas of deeper dense clay, silt, and rock, a Ditch Witch FX30 “Pot Hole” machine was utilized. This machine used a water jet that surgically excavated a 30-centimeter diameter round hole. Next, the fill (now a slurry of clay and rocks) was vacuumed into a holding tank. This tank was then emptied into ¼ inch hardware cloth and water screened. This method was utilized along the flood plain area of Salado Creek where the soil depth was beyond the reach of traditional shovel testing and the cemetery area to test for depth of bedrock. Shovel tests were screened through ¼ inch mesh. Information regarding the shovel tests and subsurface testing using the Ditch Witch FX20 is presented in Appendix I.

Area A

This area is 630 meters in length and is on the north side of West Amity Road. It is located in the ditch within the highway right-of-way. The area was selected for survey because of its proximity to a tributary of the Lampasas River. At the time of this survey, the creek that parallels the proposed water line was in a pasture north of the right-of-way and was only present as a low grass covered swale. Soils consist of Austin silty clay. The ditch had been cut down a foot below the original ground surface. Given the disturbed nature of the shallow soils and the low probability of a site due to a lack of permanent water, the investigation consisted of a pedestrian survey.

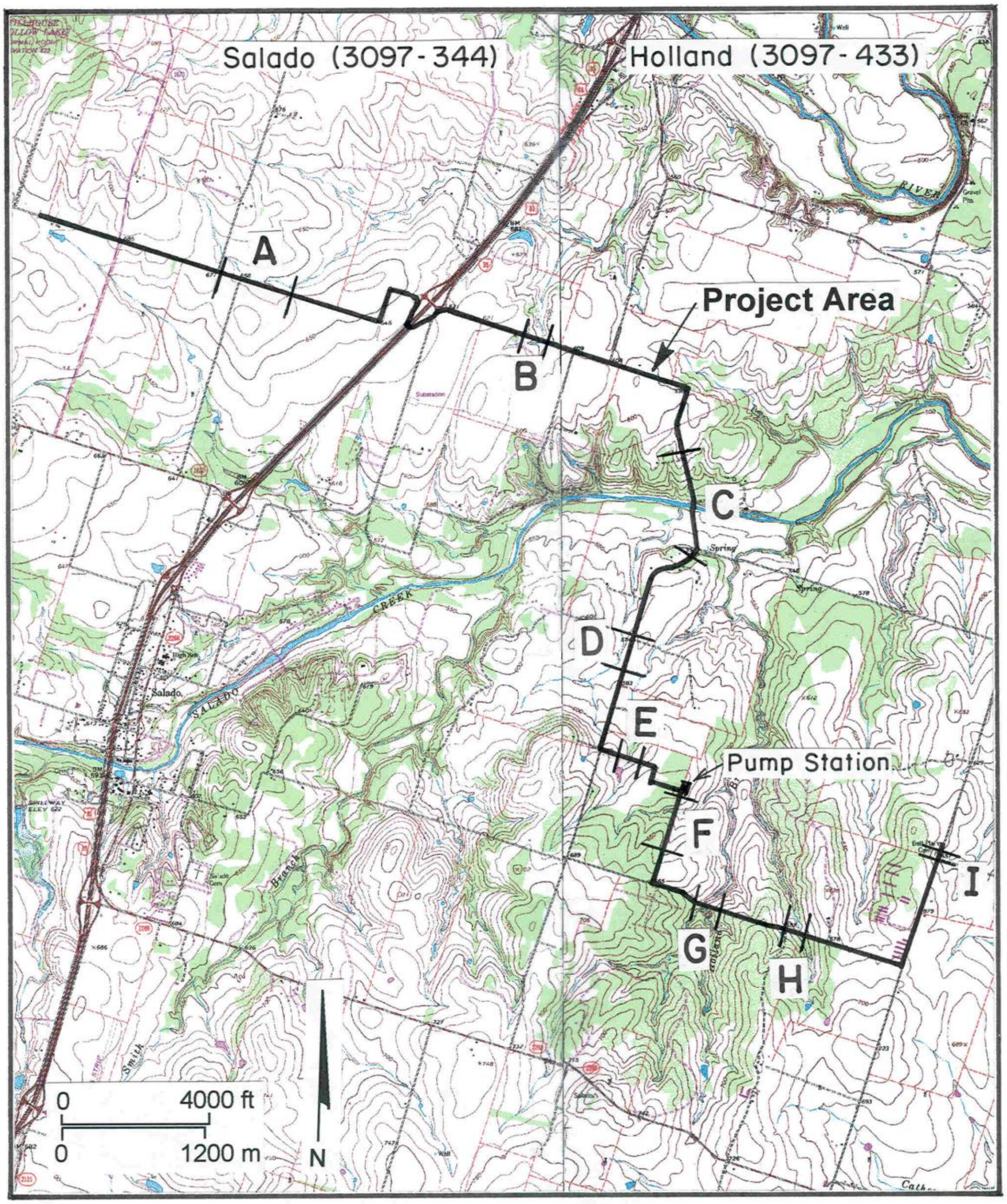

Figure 5. Areas Investigated

Area B

This area is 200 meters in length area and is on the south side of East Amity Road. It is located in within the cut ditch within the highway right-of-way, and a portion of the area passed through a residential area with manicured lawns. The proposed line crosses a small dry tributary of the Lampasas River. Soils consist of Denton silty clay. Given the amount of surface visibility and the disturbed nature of the shallow gravelly soils, the investigation consisted of a pedestrian survey of the entrenched creek banks and the cut ditch.

Area C

This area is 900 meters in length and is on the west side of Blackberry Road where it crosses Salado Creek. It begins at a high hill north of Salado creek and runs down slope to the creek. Then, it crosses the floodplain on the south side of the creek and continues up a terrace to the base of the hill to the south. Soils consist of Lewisville silty clay on the high hill, Purvis silty clay and Lewisville-Altoga complex on the side slope, and Frio silty clay on both sides of Salado Creek. The terrace is composed of Lewisville silty clay and Krum silty clay, and the hill to the south contains soils of the Purves association. The topographic quadrangle shows a spring 75 meters east of the right-of-way at the toe slope of the hill to the south. At this area, on the base of the hill, the right-of-way has cut into the hill. This cut (and the ditch) is several feet below the original ground surface, and limestone bedrock is exposed. The entire area is in a highly disturbed right-of-way ditch. The investigation consisted of a pedestrian survey, four shovel tests, shovel probes, and three subsurface tests utilizing the Ditch Witch FX30 (pot hole) machine. The area where boring beneath the creek will be conducted was examined using the Ditch Witch FX30 (Figure 6). The location of shovel tests and machine-aided subsurface tests are depicted in Figure 7.

Area D

This area is 300 meters in length and is within the highway right-of-way on the west side of Blackberry Road along a small dry tributary of Salado creek. Soils consist of Austin silty clay, Denton silty clay, and Heiden-Ferris complex. The area here is a well-developed ditch with good exposure of both banks of the ditch. Given the amount of surface visibility and the disturbed nature of the shallow soils, the investigation consisted of a pedestrian survey.

Figure 6. Subsurface Testing at Area C (facing south)

Area E

This area is 200 meters in length and is located in pasture. It crosses a small intermittent tributary of Salado creek. In this area, the creek was only a low swale in woods and had been highly impacted by cattle finding a shady place to escape the sun. The disturbance caused by the cattle resulted in surface visibility of approximately 90 percent. Soils consist of Heiden-Ferris complex. Given the amount of surface visibility and the disturbed nature of the shallow soils, the investigation consisted of a pedestrian survey. This area was viewed as a very low probability area for an archaeological site.

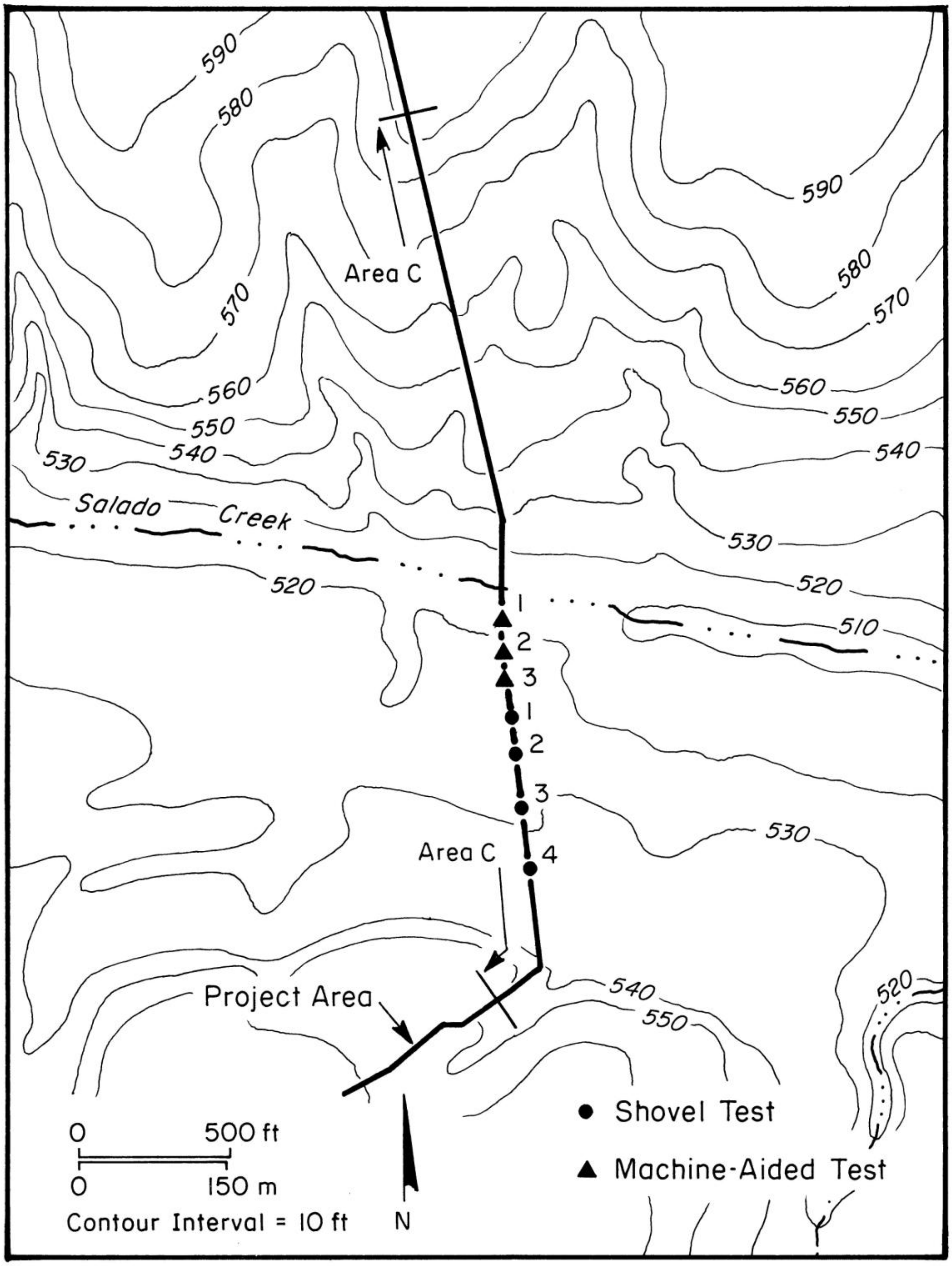

Figure 7. Subsurface Tests at Area C

Area F

This area is 470 meters in length and is located on private land where it crosses a small intermittent tributary of Holland Branch. The north end of this area terminates at the proposed pump station. That portion of the water transmission line crossing the creek was found to have been recently bulldozed by the landowner as a result of construction of a large tank and a road (Figure 8). In the remainder of the area, a gravel road covers the proposed water transmission line. Soils consist of Austin silty clay, Eddy-Stephen complex, and Stephen silty clay. Given the amount of surface visibility and the disturbed nature of the shallow soils, the investigation consisted of a pedestrian survey of the disturbed areas and the area next to the road.

Area G

This area is 160 meters in length and is located in the ditch within the highway right-of-way on the north side of Royal road. It crosses Holland Branch, which is deeply entrenched with no flood plain present. Soils consist of Eddy-Stephen complex and Frio silty clay. At the time of this survey, exposed limestone bedrock was observed on the east side of the creek in the bottom of the ditch. Given the amount of surface visibility and the disturbed nature of the shallow soils, the investigation consisted of a pedestrian survey.

Area H

This area is 200 meters in length and is located in the ditch within the highway right-of-way on the north side of Royal Road. It crosses an intermittent tributary of Holland Branch. Soils consist of Austin silty clay. At the time of this survey, shallow clay with a heavy concentration of limestone fragments over bedrock was observed in the ditch (Figure 9). Given the amount of surface visibility and the disturbed nature of the shallow soils, the investigation consisted of a pedestrian survey.

Figure 8. Area F (facing south)

Figure 9. Area H (facing east)

Area I

This section is 90 meters in length and runs along the east side of Armstrong Road and is located in the ditch within the highway right-of-way. Soils consist of Austin silty clay. It was chosen for investigation because of its close proximity to the Bell Plains Cemetery (Figure 10), which is located on the west side of the road at a distance of 60 feet. The cemetery is located on east slope of an elevated landform, and there is a fifteen-foot elevation difference from the west side of the cemetery to the proposed waterline. An eroded culvert was examined, and limestone bedrock was found to be present at a depth of three feet. The ditch was visually examined and the Ditch Witch FX30 was utilized to excavate four subsurface tests along the length of the area (Figure 11). These tests revealed the presence of limestone bedrock three feet below the original ground surface. The only test greater then three feet had two feet of fill from road construction.

Pump Station

The pump station site is 1.5 acres in size and is located on private land. Soils consist of Eddy-Stephen complex. The area has been disturbed by past clearing activities, and (at the time of the survey) had a ground surface visibility estimated to be 80 percent (Figure 12). Much of the surface was exposed limestone rock. Given the amount of surface visibility and the shallow soils, the investigation consisted of a pedestrian survey.

The survey was documented through the utilization of Microsoft Word and Excel documents. Location data was collected and documented with a Garmin GPS-aided computer topographic program, National Geographic Topo and ESRI ArcMap. A Kodak digital camera was used to document the project, and all photographs were enhanced using Adobe Photoshop software.

Figure 10. Bell Plains Cemetery (facing west)

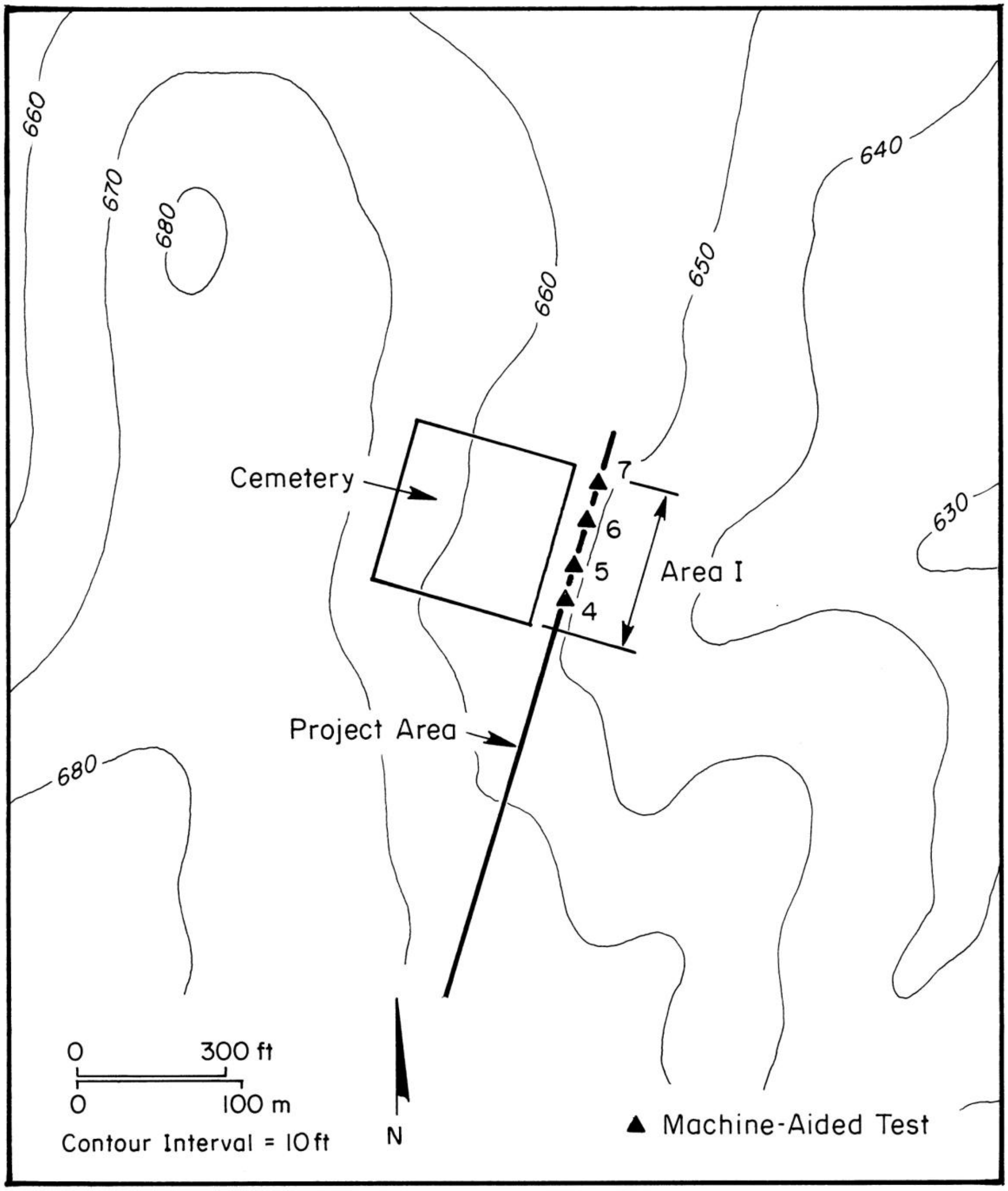

Figure 11. Machine-Aided Tests at Area I

Figure 12. Pump Station Site (facing south)

RESULTS AND CONCLUSIONS

The records check revealed that no previously recorded sites are within the project area, and no portions of the project area had been previously surveyed by a professional archaeologist. The project area crosses two major streams, Salado Creek and Holland Branch. No sites were found as a result of this survey. The absence of sites is attributed to two factors. Most of the project area is within existing highway rights-of-way in disturbed ditches, and the soils overlying limestone bedrock are shallow, often less than three feet from the original surface. In many cases, the disturbed ditch was from one to two feet below the original ground surface. The Bell Plains Cemetery is approximately sixty feet from the route of the proposed water transmission line, but subsurface testing revealed the presence of limestone bedrock three feet from the surface. Due to the shallow nature of the soils in this area, William A. Martin (THC archaeologist) determined that the presence of unmarked graves in the path of the proposed water transmission line is highly unlikely. This survey was conducted according to the Minimum Survey Standards as outlined by the THC.

RECOMMENDATIONS

No archaeological sites were observed within the current project area. It is recommended that construction be allowed to proceed as planned. Should evidence of an archaeological site be encountered during construction, all work in the area of the find must cease until the situation can be evaluated by the THC. Also, if the route of the water transmission line is changed, the THC must be notified as additional survey by a professional archaeologist may be warranted.

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APPENDIX I: SHOVEL TEST LOG

TEST	DEPTH IN CM	SOIL TYPE	AREA INVESTIGATED
Shovel Tests			
1	80	Silty clay and gravel/ rock	Area C (flood plain)
2	50	Silty clay and gravel/ rock	Area C (terrace)
3	40	Silty clay and gravel/ rock	Area C (terrace)
4	40	Silty clay and gravel/ rock	Area C (terrace)
Sub-Surface Machine Tests			
1	160	Silty clay and gravel/ rock	Area C (bore hole location)
2	140	Silty clay and gravel/ rock	Area C (flood plain)
3	130	Silty clay and gravel/ rock	Area C (flood plain)
4	160	Silty clay and gravel/ rock	Area I (near cemetery)
5	100	Silty clay and gravel/ rock	Area I (near cemetery)
6	100	Silty clay and gravel/ rock	Area I (near cemetery)
7	100	Silty clay and gravel/ rock	Area I (near cemetery)
8	100	Silty clay and gravel/ rock	Area I (near cemetery)