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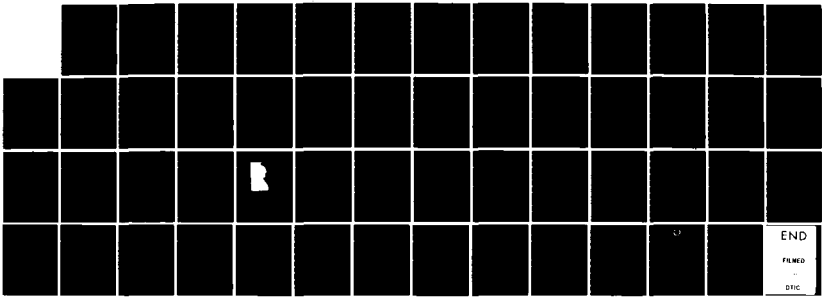

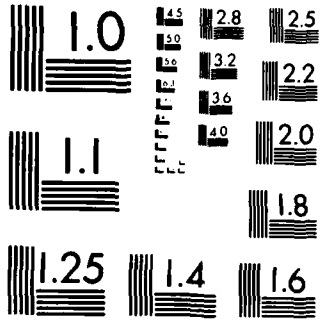

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Report No. 11

June 4, 1984

An Archeological Overview and Management Plan for the H.F. Denton Radio Station Property, Denton County, Texas

Under Contract CX-5000-3-0771
with the

National Park Service
U.S. Department of the Interior
Atlanta, Georgia 30303

for the
U.S. Army Materiel Development and
Readiness Command

by

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15. Supplementary Notes This report was prepared as part of the DARCOM Historical/Archeological Survey (DHAS), an inter-agency technical services program to develop facility-specific archeological overviews and management plans for the U. S. Army Materiel Development and Readiness Command (DARCOM).

16. Abstract (Limit: 200 words)

The H. F. Denton Radio Station Property, located in east-central Denton County about four miles east of Denton, Texas, comprises approximately 50 acres overlooking the floodplain of Elm Fork Trinity River, which flows in a southerly direction about 1000 feet east of the facility. The property is currently leased from the Red River Army Ammunition Plant by the U. S. Army Communications Command Detachment (USACCD), which uses the two structures on the property for storage. The high frequency radio equipment is no longer in use. The property is within the Lewisville Lake and Dam easement and is under the jurisdiction of the U. S. Army Corps of Engineers, Fort Worth District. There have been no previous cultural resource studies conducted on the facility. No previously recorded sites are present; no sites on or eligible for the National Register of Historic Places are present. Environmental and regional archeological data, however, suggest that prehistoric resources may be found there. Land surfaces at the facility are of sufficient age to contain cultural remains from as early as the Paleo-Indian era, and are considered to have a high potential for retaining prehistoric cultural remains. Preliminary archival research indicates a low probability for the occurrence of historic archeological remains on the facility. It is recommended that more intensive archival and archeological field inventory be completed for the facility, for the development of any needed historic preservation plan, or any ground-disturbing project-specific compliance with NHPA.

17. Document Analysis a. Descriptors

Archeological Management
Army Installation Management
Environmental Assessment

reference: Thesaurus of Engineering and Scientific Terms

b. Identifiers/Open-Ended Terms

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Texas Prehistory
Texas History

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MANAGEMENT SUMMARY

The H. F. Denton Radio Station Property, located in east central Denton County about four miles east of Denton, Texas, comprises approximately 50 acres overlooking the floodplain of Elm Fork Trinity River, which flows in a southerly direction about 1000 feet east of the facility. The property is currently leased from the Red River AAP by the U. S. Army Communications Command Detachment (USACCD), which uses the two structures on the property for general storage. The high frequency radio equipment is no longer in use. The property is within the Lewisville Lake and Dam easement and is under the jurisdiction of the U. S. Army Corps of Engineers, Fort Worth District. As a unit of the public lands, its management is required to be conducted in compliance with the federal historic preservation program.

There have been no previous cultural resource studies conducted on the facility. No previously recorded sites are present; no sites on or eligible for the National Register of Historic Places are present. However, environmental and regional archeological data suggest that prehistoric resources may be found there.

Land surfaces at the facility are of sufficient age to contain cultural remains dating from the Paleo-Indian era and are considered to have a high potential for retaining prehistoric cultural remains. Preliminary archival research indicates that there is a very low probability that historic archeological materials occur on the facility. Historic settlement of the area did not begin until after the 1867 Treaty of Medicine Lodge, which removed the Kiowa, Kiowa Apache, and Comanche to reservations west of the facility.

Twentieth-century land disturbance on the property includes tree removal, plowing and erosion, especially of the upper terrace edges above 550 feet AMSL, in addition to construction of the radio towers.

It is recommended that more intensive archival and archeological field inventory of the H. F. Denton facility be completed, for the development of any needed historic preservation plan or any ground-disturbing-project-specific compliance with the National Historic Preservation Act. Such additional work is estimated to require between 168 and 192 professional work-hours, and further estimated to cost between $3960 and $5400 in FY84 dollars. This goal may be attained over a longer period of time by consultation with the Texas SHPO on a case-by-case approach.

PREPARERS AND QUALIFICATIONS

Mr. Tony Dieste is the principal author of this report. He has a BA with Highest Honors in Anthropology from the University of Texas and approximately seven years of field experience in Louisiana, Arkansas, Texas and Mexico. Mr. Dieste has been with Heartfield, Price and Greene, Inc. for approximately five years and has functioned successfully as project management and in report preparation.

Mr. Dieste visited the facility and gathered all information necessary for report preparation. He prepared the report with the guidance and editorial assistance of Dr. Heartfield.

Dr. Lorraine Heartfield is the Principal Investigator for this report, and a contributing author. She has been President of Heartfield, Price and Green, Inc. since its inception in 1975. Dr. Heartfield, an archeologist, has a BS in Biology from Lamar State College of Technology, and an MA (University of Texas at Austin) and Ph.D (Washington State University) in Anthropology. She has managed and conducted cultural resources projects for federal and state agencies and private firms. She is well versed in federal and state cultural resources and environmental regulations and is extremely qualified to provide management expertise for cultural resources permitting. Dr. Heartfield has completed work in Louisiana, Texas, Arkansas, Mississippi, Washington and Alaska.

Dr. Heartfield provided guidance and editorial comments in all phases of data assessment and report preparation.

ACKNOWLEDGEMENTS

Mr. Bill Shope, Facility Engineering Division at the Red River Army Ammunition Plant, was most helpful in the preparation of this report for the H. F. Denton Radio Station Property. He provided all available information regarding the past use and history of the property. Ms. Monna Schubert, Fort Worth Corps of Engineers, Real Estate Branch, was very helpful and devoted much time by checking the COE real estate records and building inventories for the property. Ms. Carolyn Spock of the Texas Archeological Research Laboratory in Austin, Texas, provided information concerning previously recorded archeological sites in the vicinity of the project area, and previous archeological surveys. Ms. Mable Pretzer, National Cartographic Information Center, Rolla, Missouri, checked the agency holdings for early USGS map coverage of the project area.

Additional thanks go to Dr. Mark R. Barnes, NPS, SERO: Mr. Jack Rudy and staff, NPS, RMRO; Mr. Curtis Tunnell, Texas SHPO, his staff, and Ms. Mary Lee Jefferson, NPS, WASO, who reviewed the draft Denton report; and Ms. Susan Cleveland, Contracting Officer, NPS, SERO.

Final report production, including graphics, has been completed by Woodward-Clyde Consultants, with editorial review (particularly of management recommentaions) and text preparation completed by Dr. Ruthann Knudson, Ms. Betty Schmucker, and Mr. Charles McNutt.

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FOREWORD

As a federal agency with large public land holdings, the U. S. Army is responsible for the stewardship of a variety of natural and cultural resources that are part of the installation landscape. The Army's Materiel Development and Readiness Command (DARCOM) presently manages a nationwide network of 65 installations and 101 subinstallations and separate units, which range in size from one acre to over one million acres. As part of its programs of environmental and property management, DARCOM has requested that the U. S. Department of the Interior's National Park Service provide technical guidance to develop programs for managing installation cultural resources.

NPS is thus conducting the DARCOM Historical/Archeological Survey (DHAS), which has two major disciplinary elements. The architectural review and planning function is being directed by the Service's Historic American Buildings Survey (HABS), while the prehistoric and historic archeological resource assessment and planning function is the responsibility of the Service's Interagency Resource Division (IRD). IRD has contracted with Woodward-Clyde Consultants (WCC) for the development of guidelines for the DARCOM archeological management planning effort, and for the completion of over 40 overviews and plans throughout the central United States. WCC has in turn subcontracted the technical studies to several regional subcontractors, with final editorial review of reports and preparation of text and illustrations handled by WCC.

This overview and recommended management plan for the archeological resources of the H. F. Denton Radio Station Property was prepared by Heartfield, Price and Greene, Inc., Monroe, Louisiana, under subcontract to WCC. It follows the guidance of "A Work Plan for the Development of Archeological Overviews and Management Plans for Selected U. S. Department of the Army DARCOM Facilities," prepared by Ruthann Knudson, David J. Fee, and Steven E. James as Report No. 1 under the WCC DARCOM contract. A complete list of DHAS project reports is available from the National Park Service, Washington, DC.

The DHAS program marks a significant threshhold in American cultural resource management. It provides guidance that is nationally applicable, is appropriately directed to meeting DARCOM resource management needs within the context of the Army's military mission, and is developed in

complement to state and regional preservation protection planning (the RP3 process, through State Historic Preservation Offices). All of us participating in this effort, particularly in the development of this report, are pleased to have had this opportunity. Woodward-Clyde Consultants appreciates the technical and contractual guidance provided by the National Park Service in this effort, from the Atlanta and Washington DC offices and also from other specialists in NPS regional offices in Philadelphia, Denver, and San Francisco.

Woodward-Clyde Consultants

Ruthann Knudson

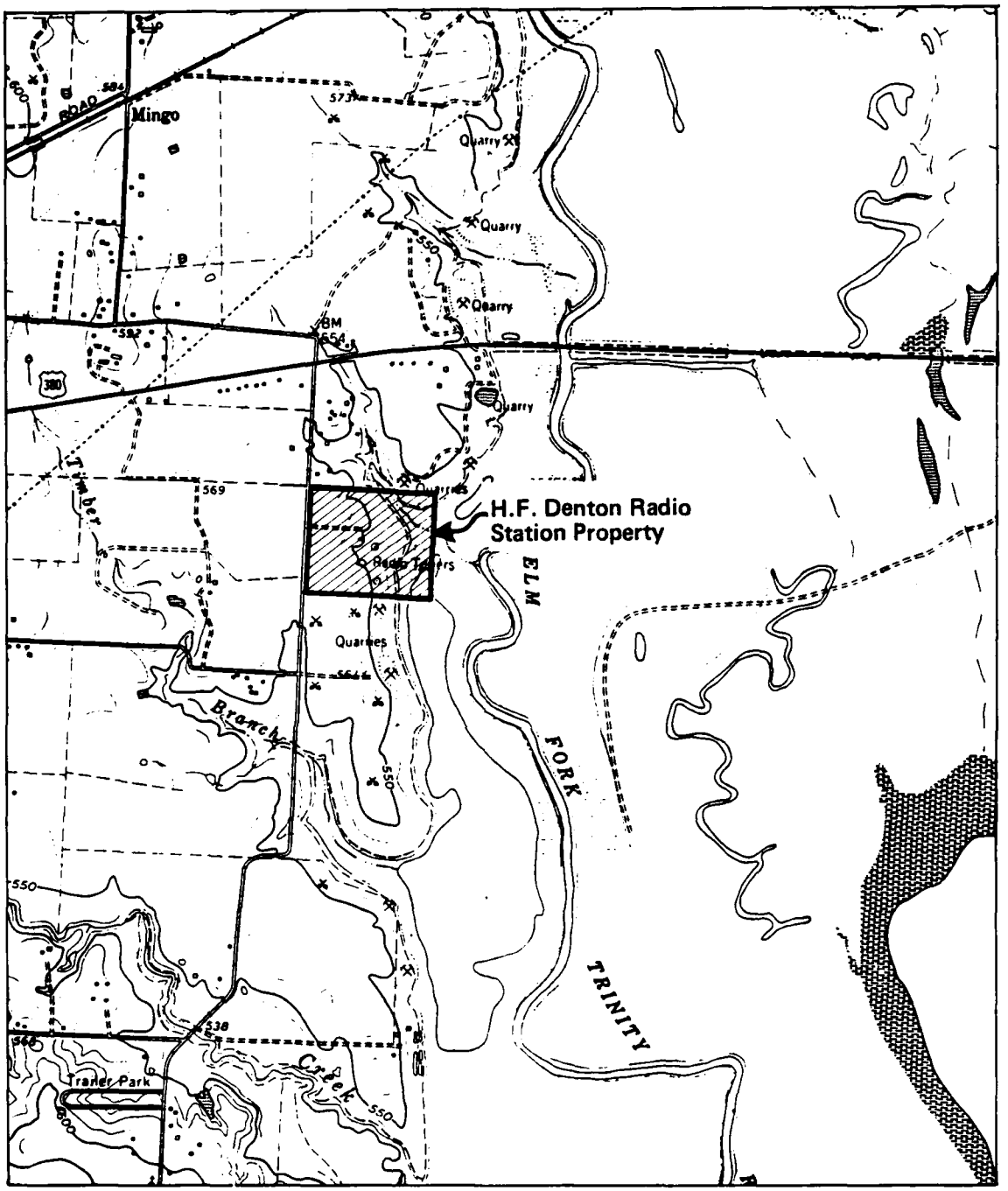
1.0 INTRODUCTION

The following report is an overview of and recommended management plan for the prehistoric and historic archeological resources that are presently known or likely to occur on the H. F. Denton Radio Station Property in Denton County, Texas (Figure 1-1). This facility is an installation of the U. S. Department of the Army DARCOM (Materiel Development and Readiness Command), which as a reservation of public land has responsibilities for the stewardship of the cultural resources that are located on it. The assessments and recommendations reported here are part of a larger command-wide cultural resource management program (the DARCOM Historical/Archeological Survey, or DHAS), which is being conducted for DARCOM by the U. S. Department of the Interior's National Park Service. The following is that portion of the facility-specific survey that is focused on the prehistoric and historic resource base of the H. F. Denton Radio Station Property, and was developed in accordance with the Level A requirements as set forth in the archeological project Work Plan (Knudson, Fee, and James 1983). A companion architectural study by NPS's Historic American Building Survey (HABS) is not scheduled to be conducted for this facility (William Brenner, personal communication 1984).

1.1 PURPOSE AND NEED

A corpus of Federal laws and regulations mandate cultural resources management on DARCOM facilities. Briefly these are:

- The National Historic Preservation Act of 1966 as amended (80 Stat. 915, 94 Stat. 2987; 16 USC 740), with requirements to,
  - inventory, evaluate, and where appropriate nominate to the National Register of Historic Places all archeological properties under agency ownership or control (Sec. 110(a)(2))
  - prior to the approval of any ground-disturbing undertaking, take into account the project's effect on any National Register-listed on eligible property; afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed project (Sec. 106)
  - complete an appropriate data recovery program on an eligible or listed National Register archeological site prior to its being heavily damaged or destroyed (Sec. 110(b), as reported by the House Committee on Interior and Insular Affairs [96th Congress, 2d Session, House Report No. 96-1457, p. 36-37])



Note: Base map is the U.S.G.S. Denton East, Texas 7.5 min. (1969) sheet, photorevised 1968 and 1973.

Figure 1-1. MAP OF THE GENERAL VICINITY OF THE H.F. DENTON RADIO STATION PROPERTY

- Executive Order 11593 (36 FR 8921), whose requirements for inventory, evaluation, and nomination, and for the recovery of property information before site demolition, are codified in the 1980 amended National Historic Preservation Act

- The Archeological and Historic Preservation Act of 1974 (88 Stat. 174, 16 USC 469), which requires that notice of an agency project that will destroy a significant archeological site be provided to the Secretary of the Interior; either the Secretary or the notifying agency may support survey or data recovery programs to preserve the resource's information values

- The Archeological Resources Protection Act of 1979 (93 Stat. 721, 16 USC 470aa; this supersedes the Antiquities Act of 1906 [93 Stat. 255, 16 USC 432-43]), with provisions that effectively mean that

  - The Secretary of the Army may issue excavation permits for archeological resources on DARCOM lands (Sec. 4)

  - No one can damage an archeological resource on DARCOM lands without a permit, or suffer criminal (Sec. 6) or civil penalties (Sec. 7)

- 36 CFR 800, "Protection of Historic and Cultural Properties" (44 FR 5058, as amended in May 1982); these regulations from the Advisory Council on Historic Preservation set forth procedures for compliance with Section 106 of the National Historic Preservation Act

- Regulations from the Department of the Interior setting forth procedures for determining site eligibility for the National Register of Historic Places (36 CFR 60, 36 CFR 63), and standards for data recovery (proposed 36 CFR 66)

- Guidance from the U. S. Department of the Army as to procedures and standards for the preservation of historic properties (32 CFR 650.181-650.193; Technical Manual 5-801-1; Technical Note 78-17; Army Regulation 420), and procedures implementing the Archeological Resources Protection Act (32 CFR 229)

The above statues and regulations should be integrated with planning and management to insure continuous compliance during operations and management of the HF Denton facility. This can best be achieved by an understanding of the procedures implied by the regulations and an awareness of the potential cultural resources there.

1.2 THE H. F. DENTON RADIO STATION PROPERTY

The facility is located in east central Denton County about four miles east of Denton, Texas, and one-quarter mile south of U. S. 380. It lies along the east edge of Grissom Road and comprises approximately 50 acres overlooking the floodplain of Elm Fork Trinity River, which flows in a southerly direction about 1000 feet east of the facility (Figure 1-1).

The facility property was initially adminstered by the Fort Worth General Depot which was deactivated in 1965. In 1965, the facility was assigned to the Red River Army Ammunition Plant, Texarkana, Texas, which currently only has accountability for the two storage structures present on the property (Bill Shope, personal communication 1983). These are prefabricated tin buildings, enclosed by a fence, in the approximate center of the property.

The property is currently leased from the Red River AAP by the U. S. Army Communications Command Detachment (USACCD), which utilizes the two tin buildings in the property for general storage purposes. The high frequency radio equipment is no longer in use at the facility.

Photorevisions (1968 and 1973) of the 1960 Denton East, Texas, 7.5' topographic quad depict three radio towers on the property. These were not observed during the June 29, 1983, visit to the property.

The property is within the Lewisville Lake and Dam easement and is under the jurisdiction of the U. S. Army Corps of Engineers, Fort Worth District.

1.3 SUMMARY OF PREVIOUS ARCHEOLOGICAL WORK CONDUCTED ON THE H. F. DENTON RADIO STATION PROPERTY

No work has been conducted within the H. F. Denton property by Southern Methodist (SMU), Dallas, and no sites are recorded for the property on maps maintained by the Archeological Research Program at SMU (Jim Bruseth, personal communication 1984; Bill Westbury, personal communication 1984). There are no sites recorded for the H. F. Denton property on maps maintained at the Texas Archeological Research Laboratory (TARL) (Carolyn Spock, personal communication 1984). Work has been conducted along the Garza-Little Elm Reservoir by R. King Harris and Parker Nunley, and sites have been recorded on Cooper Creek (1-1/4 miles south of the facility) and along both reservoir banks (see Section 3.3).

1.4 THE SOCIOCULTURAL CONTEXT OF THE ARCHEOLOGICAL RESOURCES ON THE H. F. DENTON RADIO STATION PROPERTY

A major value of any prehistoric archeological resources that may be retained on the H. F. Denton facility is their ability to yield scientific information--the community concerned about their preservation is thus

more focused on scientific researchers. There are no presently known ties between any modern Native American descendants and the prehistoric inhabitants of the facility.

The Euroamerican and Afroamerican community surrounding the H. F. Denton property has no known culturally defined interest in the prehistoric or historic resources that may be retained there.

2.0 AN OVERVIEW OF THE CULTURAL AND RELEVANT NATURAL HISTORY OF THE H F DENTON RADIO STATION PROPERTY

2.1 THE PHYSICAL ENVIRONMENT

2.1.1 Earth Resources

The facility is underlain by a sequence of Cretaceous (circa 100 million years ago) and older rocks which gently dip toward the Gulf of Mexico. These are primarily limestones and shales of the Upper Cretaceous Woodbine Group, which belong to the Gulf series of the Cretaceous (Sellards, Adkins, and Plummer 1958:400-401). The Woodbine outcrop forms the sandy Eastern (Lower) Cross Timbers member in northeast Texas, and underground the Woodbine sands form important reservoirs for artesian water, oil and gas.

Pleistocene terrace deposits are the major exposed sediments, with Holocene or recent alluvial deposits lying adjacent to Elm Fork Trinity River. The Pleistocene terraces were formed during the period between about 20,000 BC (area between about 560 to 550 feet AMSL) and 10,000 BC (550 to 530 feet AMSL) (Saucier 1974:Figure 3). The Pleistocene terrace deposits consist of basal sands and gravels grading upward into sandy silts, silts, and clays. The Holocene (Recent) alluvium consists of eroded material derived from surrounding Tertiary and Pleistocene deposits and is typically composed of sands and gravels overlain by silts and clays.

The geologic deposits represent possible resources for human use. The Pleistocene terrace deposits provide ample supplies of chert gravels for prehistoric lithic tool manufacture as well as sand for ceramic tempering during Post-Archaic times. Clays of the Holocene deposits above the present day floodplain (about 530 feet AMSL) may also have been used during this time. Historic and modern use of the Pleistocene terrace deposits for sand and gravel extraction is evidenced by several on-going quarry operations in the immediate surroundings.

The topography of the facility is characterized as nearly level to steeply sloping. The approximate western half of the acreage (between 560 to 550 feet AMSL) is nearly level to gently sloping, while the central portion (between 550 and 530 feet AMSL) slopes steeply and drops 20 feet in elevation over a distance of about 375 feet in places. The eastern portion is nearly level and within the Elm Fork Trinity River floodplain (USGS 1960 Denton East, Texas, 7.5' topographic quad, photorevised 1968 and 1973).

Four soil associations have been identified (USDASCS 1980) within the facility. These are: Burleson Clay (one to three percent slope), Lewisville clay loam (three to five percent slope), Frio silty clay (frequently flooded) and Ovan clay (frequently flooded). Burleson clays lie between 550 and 560 feet AMSL and consist of deep, gently sloping soils on valley fills and upland terrace edges. This clay has a high shrink-swell capacity and cracks 30 to 60 inches in depth when dry. It is highly prone to erosion if unvegetated. Lewisville clay loams lie between 550 and 530 feet AMSL and consist of deep, gently sloping soils on convex high terraces of major streams. Their potential for erosion is high. Frio silty clays and Ovan clays are deep and nearly level floodplains soils and are subject to flooding one to three times each year.

2.1.2 Water Resources

Natural drainage of the property is to the east and southeast by means of several ephemeral drainageways. As unnamed, intermittent tributary to Elm Fork Trinity River flows southeasterly through the northeast corner of the property and provides drainage for the north half of the facility.

The major hydrologic resource is Elm Fork Trinity River, which flows in a southerly direction about 1000 feet east of the facility. The river exhibits a wide floodplain (about 1.5 miles in the facility area) characterized by narrow natural levees and numerous sloughs, channel cutoffs and oxbow lakes. The river has been dammed about 0.75 miles northeast and downstream of the property to form the Garza-Little Elm Reservoir.

East Fork Trinity River is a well developed, deeply entrenched stream and would have provided a reliable water supply and associated bottomland habitat for prehistoric as well as historic natural resource exploitation.

2.1.3 Modern Climate

Climate of the area is classified as humid subtropical (USDASCS 1980) and is greatly influenced by maritime tropical air masses from the Gulf of Mexico and modified polar air masses. Summers are fair and hot with westerly winds and low humidities. Winters are mild and the average annual temperature is 65.2° F based on means and extremes recorded at Denton between 1931 and 1969. Precipitation averages 31.99 inches annually and is evenly distributed throughout the season. The warm season (freeze-free period) at Denton averages 226 days. The average date of the last occurrence of 32° F or below in spring is March 27 and the first occurrence of 32° F or below in fall is November 8. The prevailing winds are southerly throughout the year.

2.1.4 Plant Resources

The facility is within the Cross Timbers and Prairies Vegetational Area (Gould 1975), a zone in which the climate is more favorable to the growth of grasses and shrubs than it is to trees (Lynott and Peter 1977) due to the generally better adaptation to the low winter rainfall and occasional severe summer drought. The vegetation is rather uniform and

predominant grasses are little and big bluestem, Indiangrass, switchgrass, Canada wildrye (Elymus canadensis), sideoats and hairy grama, tall dropseed, and Texas wintergrass (Gould 1975). The Cross Timbers range from open savannah to dense brush, largely of post and blackjack oak. Brush species also have invaded the prairie proper, along with the weedy annual and perennial grasses, including hairy tridens (Erioneuron pilosum), Texas grama, red grama (Bouteloua trifida), tumble windmillgrass (Chloris vergicillata), tumblegrass, red lovegrass and some perennial weeds (Gould 1975). Perennial weeds and short mowed grasses vegetate the area above 530 feet AMSL. Areas below this elevation are wooded with various bottomland species.

2.1.5 Animal Resources

The native fauna of the prairie/Cross Timbers has never been studied adequately (Lynott and Peter 1977). Predominant native annuals include bison, wolf, coyote, kit fox, badger, ground squirrel, prairie dog, pocket gopher, pocket mouse, kangaroo rat, moles, shrews, prairie chicken, burrowing owl, sage grouse, horned lark, lark sparrow, lark bunting, vesper sparrow, bull snake, gopher snake, and grasshoppers (Shelford 1963). None of these animals is likely to have been critical to the subsistence of the prehistoric occupants of the area.

Bottomland species include deer, raccoon, squirrel, armadillo, and occasionally turkey, with deer being the most important in terms of faunal exploitation. Opossum and rabbit are also present.

In addition to these animals, certain shellfish probably served as an important food source during prehistoric times and would probably have been available in Elm Fork Trinity River.

2.1.6 Paleoenvironment

Although minor climatic fluctuations have occurred on the Plains, environmental characteristics in the region have changed little since the hypothesized arrival of humans in North America about 12,000 BC (Gleason 1923; Harshberger 1958).

After the initial retreat of the Wisconsin ice front (circa 48,000 years ago), the Plains experienced a floral change from tundra to boreal conifers, implying that there was still a cold climate (Wells 1970). As glaciers continued to retreat north, the climate became warmer, allowing invasion by pine. This may indicate a warmer, drier climate (Wells 1970). After complete glacial retreat (circa 14,000 to 12,000 years ago), the climate became warmer and more humid. This was followed by a period of warmer but considerably drier climate which favored the advance of the grasslands.

During the late Pleistocene and early Holocene (about 18,000 to 8,000 years ago), the predominant large herbivores included proboscids, edentates, artiodactylids (even-hoofed herbivores) and perissodactylids (odd-hoofed herbivores). The dominant proboscid was the mammoth (Mammuthus

sp.) (Domning 1969; Frison 1978; Haynes 1966; Osborn 1909; Stephens 1960). Mossiman and Martin (1975) stated that there are indications that four genera of edentates were present in the prairie. The most common genera was Nothrotheriop while the largest was the Megatherium. Osborn (1909) and Domning also recorded several edentates from the plains. These include mule deer, antelope, mountain sheeps and goats, bison, musk-ox, moose and wapiti. Perissodactylids recorded by Osborn (1909), Domning (1969), Simpson (1945), Brown (1938) and Lewis (1970) include tapirs, camels and horses.

After the extinction of the megafauna following the beginning of the Holocene, bison, mule deer, antelope, wapiti, and moose became the dominant herbivores. The extinction of the megafauna resulted in the demise and eventual extinction of several predator species, including Machaerodontidae (sabertooth cats), dire wolf (Canis dirus) and the giant jaguar (Felis atrox) (Domning 1969; Simpson 1941). Individuals of Ursidae (bears), Felidae (cats) and Canidae (dogs, wolves and coyotes) were able to compete effectively. These include the present species Ursus americanus (black bear), Ursus horribilis (grizzly bear), Lynx rufus (bobcat), Felis concolor (puma), Canis lupus (gray wolf), Canis latrans (coyote) and the foxes (Urocyon cinereoargenteus [gray fox] and Vulpes fulva [red fox]).

The smaller forms, such as Lagomorpha (hares and rabbits), Cricetidae (mice, rats, lemmings and voles), (bony fishes), amphibians and reptiles have remained fairly stable since the Pleistocene. Avian species, although not well-documented, are also assumed to have maintained stability (Domning 1969). Families that may have been used by prehistoric inhabitants include the families Columbidae (doves), Anatidae (ducks, geese and swans), Icteridae (meadowlarks, blackbirds and orioles) and Meleagriidae (turkeys).

2.2 THE CULTURAL ENVIRONMENT

The facility lies within the Southern Plains culture area. The cultural chronology of the area is summarized in Table 2-1.

2.2.1 Prehistory

Paleo-Indian Era (10,000 - 6000 BC). The era is postulated as the time people first entered North America. The association of projectile points (Clovis, Folsom, Plano, Agate Basin, Hell Gap, Alberta, Cody) with now-extinct Pleistocene megafauna, at least in the west, suggests a settlement and subsistence pattern consisting of small family groups following and hunting the herds during their seasonal migrations. Recent investigations in the eastern United States, however, suggest a greater exploitation of regional small game and less dependence on megafauna (Hester 1976).

The majority of Paleo-Indian sites located on the Plains are kill/butchery sites generally associated with waterholes, springs, or streamside situations. A need for water or the presence of better grazing

Table 2-1. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF H. F. DENTON RADIO STATION PROPERTY

Cultural Unit					
Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
American	Settlement	AD 1836 to Present	Expansion of population and areas settled after Texas independence; land claims for farms and settlements	Farming; animal husbandry; agriculture	Log and later frame houses; round and square nails; colored and clear glass; brick and rock foundations; stoneware, whiteware, china, black glass
Frontier	Mexican Colonial	AD 1821 to 1836	Mexican independence from Spain; settlement of southeast Texas coastal areas; mission and empresario activity	Animal husbandry; small-scale farming/agriculture; hunting and trapping	Spanish or Mexican majolica wares; tin or enameled earthenwares; black glass; wrought nails
	Spanish Colonial	AD 1519 to 1836	Sporadic attempts at colonization; Texas coastal activity/settlements; missions established	Hunting and trapping; small farms for subsistence agriculture; animal husbandry	Spanish or Mexican majolica wares; tin or enameled earthenwares; black glass; wrought nails
Equestrian Bison Hunter	Historic Indian	AD 1500 to 1867	Introduction of horse by Spaniards; increased hunting efficiency; nomadic equestrial groups; camps along running streams; tipis	Primarily large scale communal bison hunting; trade with Spanish and Mexicans in Texas; supplementary hunting and gathering of small animal/plant foods	Tipi ring sites; goods of European manufacture (guns, metal objects, beads, cloth)
Post-Archaic Agriculture	Plains Village	AD 900 to 1400	Large permanent or semi-permanent villages along major streams	Cultivation of crops in floodplains; hunting herd animals on the plains; supplementary gathering and fishing	Shift from cord marked to smoothed pottery; appearance of bison scapula hoe; bone digging sticks; bison horn core hoe
	Plains Woodland	250 BC to AD 950	Population increases; settlement of major river floodplain margins on camps and semi-permanent villages	General hunting, gathering and fishing; crop cultivation begins	Appearance of pottery (usually plain); arrow point types Fresno, Washito, Scallorn, and Gary
Hunting and Gathering	Archaic	6000 BC to AD 500	Seasonally occupied camps in variety of ecological/topographic zones	Hunting, gathering and fishing; little or no emphasis on bison	Side-notched stemmed dart points; pecked and ground stone tools
Big Game Hunters	Paleo-Indian	10,000 to 6000 BC	Seasonal migrations and camps during following of herds; camps by springs and waterholes	Hunting of Pleistocene megafauna (mammoth especially) and later post-Pleistocene species (bison especially)	Dart point types: Clovis, Folsom, Plano, Agate Basin, Hell Gap, Alberta, Cody

probably drew the animals, usually mammoth, camel, horse or giant bison to those areas. Paleo-Indian campsites or habitation areas are less frequently identified in this are (Wedel 1983), though the Lewisville site (Dennis Stanford, personal communication 1984) within a few miles of the H. F. Denton property may be such a campsite. The lack of recorded early habitation sites is probably due to a lack of archeological understanding of the Paleo-Indian cultural system, rather than to any absolute absence of such locales.

The proximity of permanent water (Elm Fork Trinity River) to the H. F. Denton property during the Paleo-Indian era would have provided a suitable habitat for the exploitation of floral and faunal species. Sites of this time may therefore be present, especially along the bases of the two terraces within the facility.

Plains Archaic Era (6000 BC-AD 500). Cultural material of this era in the Central and Southern Plains are not well known (Wedel 1983) and sites are generally regarded as representing small groups or bands living by hunting and gathering, Bison bone may be present, but only as a relatively minor element in the faunal debris (Dibble and Lorrain 1968). Peoples were dependent on smaller and more varied fauna than were earlier Paleo-Indian groups. Settlements were temporary and seasonally occupied. Availability of floral and faunal resources and access to a permanent water supply directly influenced site location.

The Archaic has been divided in three periods. The Early Archaic (circa 8000-6000 BC) was a time of environmental/climatic change at the end of the Pleistocene that led to an altered lifestyle with less emphasis on megafauna hunting. The Middle Archaic (6000-4000 BC) was a time of increasing regional adaptation, with people following an annual or seasonal round of resource exploitation. Increasing geographically-localized adaptation is indicated by a large number of dart point types and other lithic tools, including ground stone. The Late Archaic (circa 4000-1000 BC) was the culmination of regional adaptation, and increased efficiency of hunting and gathering led to more stable, permanent settlements. Although the close of the Archaic is often considered to be marked by the first appearance of horticulture, pottery, and the shift from dart points to arrow points (replacement of atlatl or spear thrower by bow and arrow), the transition is not a clear one and the appearances of pottery and arrow points were not simultaneous.

The adjacent Elm Fork Trinity River would have provided excellent habitats for the seasonally scheduled resource exploitation characteristic of the Archaic era.

Plains Woodland Era (250 BC-AD 950). The era is recognized archeologically by the appearance of pottery, agricultural practices, and more complex, stable settlements (Griffin 1967; Willey 1966). The improved subsistence mode, based on agriculture, led to population increases and a ranked society with status positions. Major river floodplain margins,

where a woodland environment extended into the plains proper, were generally chosen for settlement.

Plains Village Era (AD 900-1400). During this era, large village sites were located near major streams and creeks and were composed of permanent structures. Subsistence focused on the cultivation of crops in the floodplains, hunting herd animals on the plains, and living in a particular locale all year round (Stephenson 1965; Wedel 1964). Two regional foci have been identified. (The evidence for these two foci may possibly be more ethnographic than material/archeological in nature [Jim Bruseth, personal communication 1984]).

During the Custer Focus (AD 900-1000), populations were semisedentary agriculturalists, also relying on hunting and gathering. Three types of settlements have been suggested (Lintz 1974): (1) semipermanent with less than six houses located on first terraces of major streams; (2) temporary specialized activity sites which were seasonally re-occupied; and (3) single occupation activity areas. Towards the end of the focus, populations increased and expanded to the east, with the eastern populations recognized archeologically as the Washita River Focus.

The Washita River Focus (AD 1100-1400) was characterized by a subsistence base of agriculture, hunting, and gathering (Bell 1973). Corn, beans, gourd, as well as uncultivated plant and wild animal remains have been recovered from sites of the focus. Settlements (villages) were less than five acres in size.

Sites of the Plains Village era are concentrated on major river floodplain margins and are highly likely to be present in the facility.

2.2.2 Ethnohistory

Historic Indian Era (AD 1500-1867). The introduction of the horse by the Spaniards in the seventeenth century brought about significant cultural change in the Southern Plains as it enabled Plains tribes to hunt bison more effectively. Many tribes fought their way into the Plains to partake of the new life. In Texas, these included the Comanche, Kiowa, and Kiowa Apache (Newcomb 1958). These were nomadic, equestrian tribes subsisting primary by large-scale communal bison hunting. Typical settlements were camps, usually located along running water (Newcomb 1958).

Around AD 1700, Spanish Texas was invaded from the north by Indian groups known as the Wichitas (Newcomb 1961). These were sedentary tribes whose settlements extended at times as far south as Waco and Central Texas. Their main headquarters was at Spanish Fort on the Red River.

The Comanche were able to obtain guns from the French while the Spanish denied them to the Apache, the result of previous frequent raiding of Spanish settlements by the Apache. The end result was the defeat of the Plains Apache groups by the Comanche. Until the last quarter of the nineteenth century, the Comanche raided throughout Texas and into Mexico. The 1867 Treaty of Medicine Lodge officially confederated the

Comanche, Kiowa, and Kiowa Apache and they agreed to move to their reservation in the Leased District (Gibson 1965), located west of the facility.

Ethnographic and archeological investigations in the Southern Plains culture area have documented a preference for settlement along larger, running streams. Given H. F. Denton's proximity to the Elm Fork Trinity River, sites of the Historic Indian era may be present there. Due to the nomadic nature of these people, such sites will probably consist of temporary camps and permanent to semi-permanent villages.

2.2.3 History

Colonial Era (AD 1519-1836).

Spanish. Spain claimed Texas since 1519 when Alvarez de Pineda, under orders of Governor Garay of Jamaica, sailed from Florida to Veracruz, Mexico, making a map of the coast and landing at several points.

During the next 300 years in which Spain held Texas (AD 1519-1821), only sporadic attempts were made at colonization (Miller 1972). The results of these efforts were only visible in three towns which they left: Nacogdoches, La Bahia (Goliad), and San Antonio. No settlement or exploration in the vicinity of the facility was undertaken However, material evidence as a result of trade during the Spanish Colonial Era may be expected to be found at the H. F. Denton facility vicinity.

Mexican. Vicente Guerrero and Agustin de Iturbide agreed on the Plan of Iquala and proclaimed Mexico free on February 24, 1821. The Spanish Viceroy recognized Mexican independence in August, leaving Mexico free and in possession of Texas (Miller 1972).

Lands granted by the Mexican government for settlement were located in southeast coastal areas of Texas. By 1829, Texas was being settled so rapidly by Americans that further American settlement was prohibited by a law of April 6, 1830. On March 2, 1836, at Washington-on-the-Brazos, Texas independence from Mexico was declared and later won on the field of San Jacinto on April 21, 1836 (Miller 1972).

The constitution of March 1836 invalidated all Mexican land grants made after November 3, 1835, marking the close of Mexican grants in Texas. As no grants or settlements were made in the vicinity of the H. F. Denton facility during the Mexican Colonial era, no material evidence of this period is expected to be found in the study area.

Settlement Era (AD 1836-Present). Section 10 (general provisions) of the Texas Constitution of 1836 provided that on March 2, 1836, everyone in Texas except Indians, persons of African descent, those who refused military service, or those who had not already received land from Mexico were entitled to a first-class headright of land.

While this system caused an expansion of population and settlement areas,the Indian problem was not solved. Since the opening of the Comanche and Kiowa lands for general settlement after the 1867 Treaty of

Medicine Lodge, the economy of the general vicinity of the H. F. Denton facility has focused primarily on animal husbandry and farming. The first settlers in Denton County were primarily cattlemen, but farming soon became important. Early farmers settled in the timbered portions of the country due to the availability of materials for house construction and water. Principal crops included cotton, corn, and small grains. Although cotton continues to be an important cash crop, many acres have been replaced by grain, sorghum, soybean, and peanuts (Soil Conservation Service 1980). Many acres of formerly cultivated land are now in permanent pasture.

Photorevisions (1968 and 1973) of the 1960 USGS Denton East, 7.5 minute topographic quadrangle indicate that several homes and residential areas have been constructed in the vicinity of the facility since 1960. Farming and ranching continue as important economic activities. Quarrying for sand and gravel along the upper banks of Elm Fork Trinity River is also indicated.

2.3 ARCHEOLOGICAL RESEARCH DIRECTIONS

Future applied research directions in prehistoric and historic Texas archeology are being more formally structured through the Texas Heritage Conservation Plan (THCP; Brown et al. 1982), though that plan is still in its early stages of formulation. The H. F. Denton property falls within the North "Central Plains" prehistoric THCP study unit, within the "Northeast Culture" Early Contact Period Historic Indian study unit, and within the "Caddoan Language Group" Late Contact Period Historic Indian study unit. It does not come within the "Mexican-Texan" or "Upper-South Anglo (Period One)" study unit. However, it is within the "Upper-South Anglo (Period Two)" and "Afro-American Texan" units, and is in the vicinity of the "German-Texan" study unit (Brown 1981:Fig. A-11). Thus, any of these associated study units may relate to archeological materials remnant on the H. F. Denton property.

Broad interpretive problems are generally considered the most fruitful directions for future research, but the resolution of these are limited by the amount and accuracy of basic field and archival data. Modern researchers often develop elaborate research problems with interpretive potential and this certainly appears to be the direction of future research. But the compilation of basic information in the form of site inventories, excavation data and archival searches cannot be ignored as the underpinning for all future research in the Southern Plains culture area. These data can be used to refine and modify existing temporal and cultural models (Heartfield, Price and Greene, Inc. 1980).

This is not to say that interpretive problems should be ignored. There is ample evidence to address many of these, and it is only by posing problems and generating hypotheses that one can identify shortcomings in the data, limitations to research, and begin to understand the cultural processes and people being studied. H. F. Denton personnal should

also consult with the Texas SHPO on pertinent study units that would be applicable to the facility under the state RP3 plan.

The following sections (extracted from Heartfield, Price and Greene [1980]) consider two levels of current and proposed future research for the Plains cultural area. These are: (1) problems pertaining to chronological frameworks and definitions of valid cultural units through time and space, and (2) problems in interpreting cultural processes that occurred through time and space.

- Analyses of the relationships between topography and types of prehistoric sites should be addressed. An association has been demonstrated between bison kill sites and riverine areas, canyons, draws, and dry gulches. Are there any systematic relations between landforms and other types of sites, e.g., campsites?

- More detailed analysis is needed of the internal spatial aspects of excavated prehistoric campsites in order to gather data on what occurred at these sites during their occupation. Such information could be obtained from dimensional analysis of features (e.g., firepits and their contents, artifactual concentrations, postholes), and the spatial relationship between such features within the campsite.

- Interpretations of the type suggested above may be strengthened by research into the regional ethnohistorical literature for analogous geographical areas. Conversely, these ethnohistoric data may provide avenues whereby archeological phenomena may be explained.

- Preliminary reports and short notes regarding some of the very earliest Paleo-Indian sites have provided data whereby predictive models may be formulated to assist in searching for other sites of comparable age.

- It seems that on the Plains, very little information has been gathered from the archeological standpoint about sites during the early historic period after the acquisition of the horse. Most of the data pertain to burials and/or pictographs. From the campsites, does it appear that demographic changes took place? Did cultural units become larger (band, clans, tribes)? Can differentiated social units be recognized from archeological distributions?

- A recent synthesis of ethnobiological data (Neuman 1984) has indicated that bison were not an important prehistoric subsistence staple in eastern Oklahoma and northeastern Texas. Other applications of zooarcheological analysis could include a diachronic analysis of recovered horse material to provide data

independent of the documentary evidence on the spread of the horse complex.

- It would be worthwhile to develop our understanding of the transition from using indigenously produced goods to a dependence upon European-made trade items in protohistoric sites. Both existing archeological and documentary evidence could be employed to examine the advent of markets and changes in the relations of production among historic groups.

- Lorrain (1974) has suggested that relationships between the western Caddo Indian groups (east of H. F. Denton) and Southern Plains groups from AD 1500 to AD 1700 could be tested by excavating western Caddo protohistoric sites in an attempt to locate sites identifiable with the Southern Plains groups, including the Washita River focus.

At least three major cultural resource investigations in the facility area have reflected an interest in early farm patterns. These are: 1) surveys in the Lakeview Lake area (now Lake Joe Pool), located approximately 45 miles south of the H. F. Denton property (Skinner and Connors 1979; Raab 1982); 2) preliminary investigation by Bousman and Verrett (1973) of the proposed Aubrey Reservoir (now Lake Ray Roberts), which lies about ten miles north of the H. F. Denton property, and later work at Lake Ray Roberts, formerly Aubrey Reservoir (ECI 1982a; 1982b); and 3) recent investigations within the proposed Richland/Chambers Lake by Southern Methodist University (1983). This proposed reservoir lies about 90 miles southeast of the H. F. Denton property. Further, there is a growing national interest in vernacular architecture and rural or folk lifeways. This research and general sociocultural interest may not be addressed by investigation of the historic archeological materials left on the H. F. Denton property, and hence this topic has not been addressed in this overview under the topic of research goals and directions. However, eventual historic preservation planning on the facility, which should integrate archeological, architectural, and more "intangible" culture historical values, needs to give this topic more attention from other than a focused archeological perspective.

3.0
AN ASSESSMENT OF ARCHEOLOGICAL RESOURCE PRESERVATION AND SURVEY ADEQUACY

3.1 ENVIRONMENTAL CONSTRAINTS TO SITE PRESERVATION

Approximately 40 percent (20 acres) of the facility acreage lies at or above 550 feet AMSL and consists of nearly level to strongly sloping topography. These Pleistocene terrace deposits, while having the highest potential for Paleo-Indian, Archaic, Post-Archaic and Historic remains due to elevation above seasonal flooding, have little potential for site preservation. Factors limiting preservation are continual downslope erosion of the terrace deposits and modern land use practices, especially tree removal. It is probable that few, if any, prehistoric sites remain intact, and that historic materials will probably be limited to surface manifestations.

Approximately 40 percent (20 acres) of the acreage lies between 530 and 550 feet AMSL and consists of gently sloping to nearly level terrace deposits. These low-lying and seasonally inundated areas, situated adjacent to and overlooking the floodplain of Elm Fork Trinity River, have the highest potential for preservation of cultural remains due to continual sedimentary deposition both from downslope erosion and flood-related deposition from the river.

Although sedimentation in this area provides an excellent setting for site preservation, there is only a low probability that prehistoric and/or historic cultural material associated with long-term habitation are located there, due to seasonal flooding from Elm Fork Trinity River. Temporary camps, dating from Paleo-Indian through Post-Archaic times, are anticipated to have occured in this area and evidence of repeated reoccupation of these terrace slope bases may be expected, with some possible occupation level separation provided by layers of post-abandonment alluvial flood deposits. Such separation would provide significant information regarding seasonality of occupation and cultural stability and change through time. Historic archeological material is not anticipated to remain in this area.

Approximately 20 percent (10 acres) of the facility acreage lies at or below 530 feet ASML and consists of recent alluvial, clayey deposits. Because these are recent deposits, it is highly unlikely that in situ archeological remains will be present there.

3.2 HISTORIC AND RECENT LAND USE PATTERNS

Recent ground disturbance on the H. F. Denton property is summarized in Table 3-1, and mapped in Figure 3-1. Inspection of the USGS 1960 Denton East, Texas, 7.5 minute topographic quadrangle indicates that most of the facility acreage had been cleared of trees and vegetation prior to 1960. The area below 530 feet AMSL remains wooded and is probably wet and marshy during most of any given year. Although not verified, it has been assumed that the acreage, at least in the area between 540 to 560 feet AMSL and extending to the west boundary fence, has been plowed (GDA 1; Table 3-1, Figure 3-1). Tree clearing and plowing would have disturbed at least the upper 12-24 inches of soil deposits in this area.

Additional disturbance includes very limited landscaping for the foundations and slabs of two prefabricated metal buildings (GDA 4), and the erection and anchoring of three radio towers (GDA 2). The east-west trending road (GDA 3) connecting the facility structures with Grossom Road has caused minimal impact to the ground surface.

3.3 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS: COVERAGE AND INTENSITY

Parker Nunley (1973) conducted an archeological survey of a proposed pool elevation increase of the Garza-Little Elm Reservoir. The survey covered the reservoir basin up to 532 feet AMSL. This may have included a small area along the east edge of the facility, although the survey map does not indicate the location of the surveyed area. The report indicates that prehistoric sites were located along both reservoir banks and on Cooper Creek (located 1.25 miles south of the facility), but does not contain site locational information. Site forms have not been submitted to the Texas Archeological Research Laboratory (TARL), Austin, and all artifacts and project notes are presumably housed at Richland College (Richardson, Texas), with which Nunley was affiliated at the time of the survey.

Other studies have been undertaken within the proposed reservoir (Stephenson 1949, 1950). As this preliminary work was concentrated within the area of the initially defined reservoir pool level (below 530 feet AMSL), most likely no portion of the facility was surveyed, although no maps depicting surveyed areas are available.

By far, most archeologial work on the proposed reservoir has been conducted by local amateurs, most notable among these being R. King Harris, who surveyed portions of the proposed reservoir area in the 1940s. No site locational information or maps depicting surveyed areas are available for these amateur investigations (Carolyn Spock, personal communication 1984).

No work has been conducted within the H. F. Denton property by Southern Methodist (SMU), Dallas, and no sites are recorded for the property on maps maintained by the Archeological Research Program at SMU (Jim

Table 3-1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE H. F. DENTON RADIO STATION PROPERTY

GDA No.[a]	Type of Disturbance	Date Conducted (yr)	Reference[b]	Area Disturbed (acres)	Estimated Depth Below Surface (ft)	Ratio of Disturbed to Total Area	Location of Disturbed Area						
							UTM[c]		Legal Reference				
							Easting	Northing	Township	Range	Section	USGS Quad Map[b]	Coincidental Sites
1	Timber clearing and agriculture	ND	D773r	ND	2	9:10	ND	ND	ND	ND	ND	D773r	None
2	Radio tower construction with footings	ND	D773r	ND	3	1:10	ND	ND	ND	ND	ND	D773r	None
3	Road	ND	D773r	ND	0.5	9:10	ND	ND	ND	ND	ND	D773r	None
4	Tin storage buildings on slabs	ND	D773r	ND	0.5	9:10	ND	ND	ND	ND	ND	D773r	None

[a] Ground Disturbance Areas (GDAs) as mapped in Figure 3-1.

[b] Denton East 7.5 min. USGS topographic sheet (1969, photorevised 1973).

[c] UTM = Universal Transverse Mercator coordinates, Zone 15.

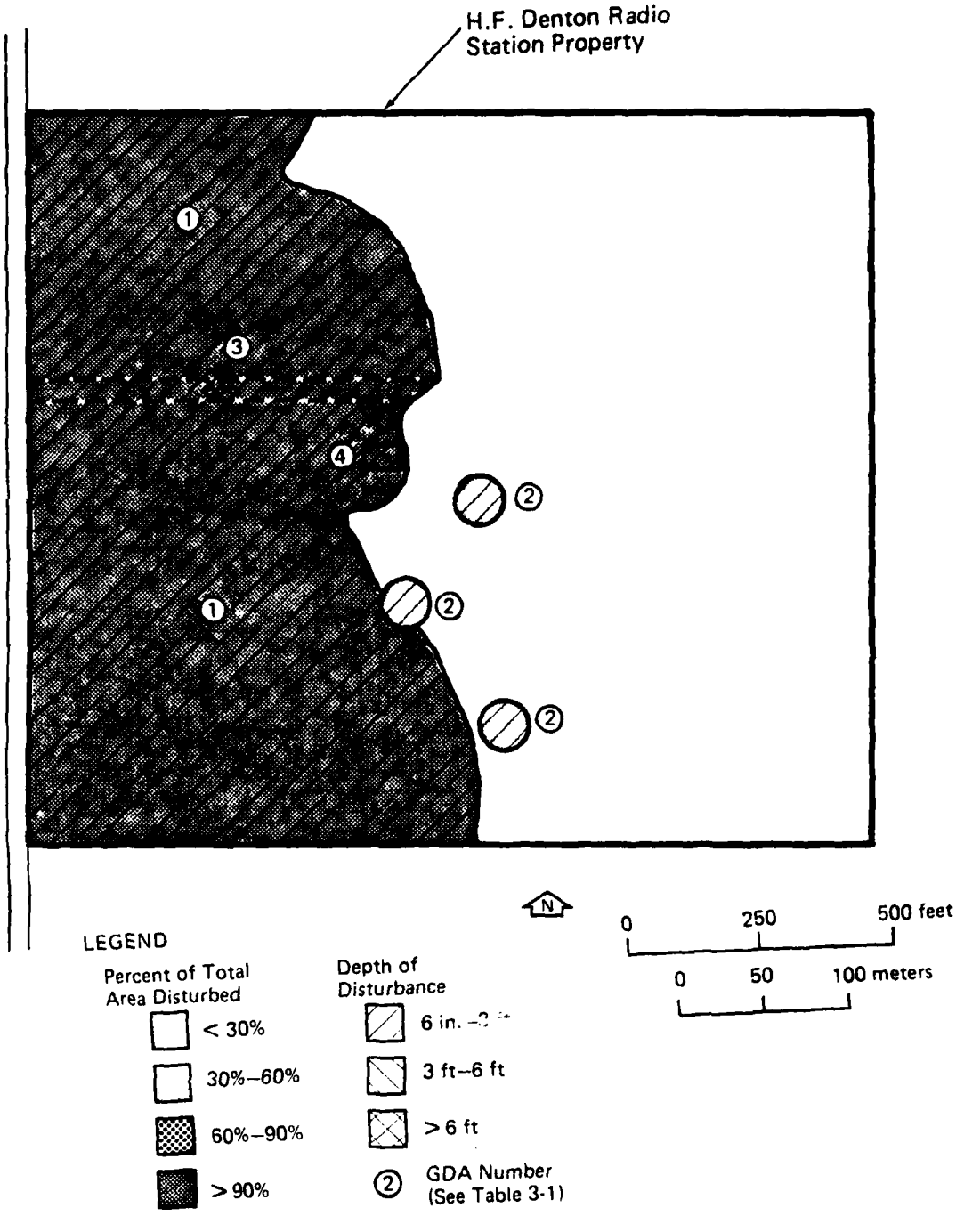


Figure 3-1. MAP OF HISTORIC AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE H.F. DENTON RADIO STATION PROPERTY

Bruseth, personal communication 1984; Bill Westbury, personal communication 1984). There are no sites recorded for the H. F. Denton property on maps maintained at TARL (Carolyn Spock, personal communication 1984).

3.4 SUMMARY ASSESSMENT OF DATA ADEQUACY, GAPS

The facility topography can be described within three contour intervals: (1) areas at or above 550 feet AMSL; (2) areas between 530 to 550 feet AMSL; and (3) areas at or below 530 feet AMSL.

The areas at or above 550 feet AMSL have the highest potential for the former location of Paleo-Indian, Archaic, Post-Archaic and historic remains due to elevation above seasonal flooding. Due to erosion and modern land use practices, including vegetation clearing and assumed plowing, however, this portion of the acreage is considered to have a low potential for the preservation of archeological resources.

The area between 530 to 550 feet AMSL has the highest potential for site preservation due to sedimentation. As this area is prone to seasonal flooding, sites associated with permanent occupation are unlikely. Prehistoric seasonal camps exhibiting evidence of repeated seasonal reoccupation during Paleo-Indian through Post-Archaic times, however, are likely to be present. This portion of the facility is located on the interface between upland areas and stream margins and provides access to varied habitats for natural resource exploitation. Historic occupation of this frequently flooded area is considered remote.

Alluvial deposits below 530 feet AMSL and within the present-day floodplain are too recent to contain evidence of prehistoric use of the area. Historic remains, including recent refuse, may be present.

4.0

KNOWN ARCHEOLOGICAL RESOURCES ON THE H. F. DENTON RADIO STATION PROPERTY

There have been no prehistoric or historic cultural resources recorded on the H. F. Denton property. However, land surfaces at the facility are of sufficient age to contain cultural remains dating from the Paleo-Indian era, and are considered to have high potential for containing prehistoric archeological remains (see Section 2.0). Further, based on archival research, including ethnographic accounts of the area, the potential for locating unrecorded prehistoric remains is considered high.

5.0

AN ASSESSMENT OF THE SIGNIFICANCE OF THE POTENTIAL ARCHEOLOGICAL RESOURCE BASE ON THE H. F. DENTON RADIO STATION PROPERTY

5.1 THE SIGNIFICANT RESOURCE BASE

There have been no prehistoric or historic cultural resources recorded on the facility. However, based on archival research, including ethnographic accounts of the area, the potential for locating unrecorded prehistoric remains is considered high. No information regarding early historic settlement or structures on the facility has been located and it is unlikely that evidence of such will be present. Classifications of these potential resources and geomorphological/topograhic association are shown in Table 5-1. Each is discussed in the following section.

Although Paleo-Indian peoples may have left their remains across the upland terraces of the facility landscape, only one area retains the potential for their in situ recovery. This is the topographic unit that lies between 530 and 550 feet AMSL where colluvial wash from the Pleistocene terrace margins may have buried sites of this early era. Paleo-Indian materials have been recovered with contextual integrity in the Southern Plains culture area and are generally associated with Pleistocene megafauna hunting-butchering. Few camps, habitation areas, or burials for this time period are known for the Plains. At this time, any Paleo-Indian finds are considered useful additions to the data base and therefore to be of scientific significance. Further, any intact site within the Paleo-Indian time frame will be important. The likelihood of finding such remains within the facility is considered remote.

Archaic peoples are believed to have utilized the same topographic areas as Paleo-Indian peoples. However, the only portions of the facility likely to retain potentially significant in situ remains of this period are the sediments between 530 and 550 feet AMSL in which deposition, not erosion, is the dominant geomorphic process. Camp or habitation remains may be expected. Remains associated with lithic (chert gravel) procurement may occur between 550 to 560 feet AMSL but will probably be located in an eroded, deflated context and lack internal integrity

Although the Archaic life style is somewhat better-documented than that of the preceeding Paleo-Indian peoples, it is difficult to formulate and/or evaluate research goals and potential. Generally, Archaic sites

Table 5-1. SUMMARY OF SIGNIFICANT ARCHEOLOGICAL RESOURCES ON THE H. F. DENTON RADIO STATION PROPERTY

Temporal Unit	Thematic Unit	Resource Type	Type Occurrence[a] Known Occurrences (no.)	Potential Occurrences (no.)	Other Likely Occurrences	Sociocultural Association	Landform Association	Physical Integrity	Research Value[b]	RV CR[c]	Sociocultural Value[d]	SCV CR[c]
Paleo-Indian	Possibly relating to large game procurement	Not defined - possible kill-butcher sites	0	0	+	Native American	Terrace margins 530-550' AMSL	Fair to Good	4	2	0	3
Archaic	Seasonal subsistence patterns and lithic procurement	Camp areas; chert gravel quarry activity	0	0	+	Native American	Terrace margins 530-550' AMSL (in situ) 560-550' AMSL (surface)	Good to Poor	4	2	0	3
Post-Archaic	Permanent to semi-permanent sites; agricul-	Village/hamlet	0	0	+	Native American	Terrace top, slope and base 530-560' AMSL	Good to Poor	3	3	0	3
Historic Indian	Equestrian bison hunters	Camps and villages	0	0	+	Native American	550-560' AMSL	Poor	3	3	0	3
Spanish Colonial	Colonization	Town/mission	0	0	-	Euroamerican	Surface	Poor	2	3	0	3
Mexican Colonial	Colonization	Town/mission	0	0	-	Euroamerican	Surface	Poor	2	3	0	3
Settlement	Ranching/farming	Towns, house sites	0	0	-	Euroamerican, Black	Surface	Poor	0	3	0-1	3

[a] The number of presently known or potential archeological resources of this type is specified here. In addition a judgement has been made as to the likelihood that other members of this resource occur within the facility, based on an analysis of the ethnohistoric or historic land use patterns and/or a review of the landform patterning of prehistoric materials. The probability of these additional occurrences has been noted as negative (-), positive (+), or highly positive (++).

[b] This is a subjective summary assessment of the overall research value (RV) of the resource class. It is an evaluation of the class' quality of preservation, representation of activity diversity or uniqueness, and temporal distinctiveness or reflection of diachronic relationships. It incorporates the need to avoid triviality, but to acquire what may be redundant data so as to discern patterns among those data. Based on these research values, the resource classes under discussion are ranked from 0 (no value) to 5 (highest value), including "NA" if such an evaluation is believed to be impossible given the available information.

[c] The Confidence Rating (CR) is a further evaluation of the perceived reliability of the research (RV) or sociocultural (SCV) values of the resource class. 1 = the judgement is more guess than science, and likely not to be reliable; 2 = the judgement is moderately reliable; 3 = the judgement is most likely reliable.

[d] This is a subjective summary assessment of the overall sociocultural value (SCV) of the resource class. It is an evaluation of the social, religious, or political importance of the resource to a contemporary community, from 0 (no value) to 5 (highest value).

might be expected to include the remains of habitation or camp areas. They might reflect both seasonal resource utilization and specialized activities. Evidence of these might include recovery of specific tool kits and the delineation of camp areas with hearths.

The research value of potential Archaic sites is difficult to assess because the contents and contexts of Archaic sites are unknown. However, if Archaic habitation or specialized use areas can be identified and confidently dated, the usefulness of these remains becomes immeasurable. The probability of finding significant Archaic remains within the facility is believed to be high.

Post-Archaic remains are believed very likely to occur on the facility. However, many of these remains may be with lithic processing areas and/or camp sites and lack diagnostic materials among the artifact assemblage. Post-Archaic sites often lack pottery and/or dart points, and the sites may not be confidently disassociated from Archaic contexts.

Post-Archaic remains might be found in all areas of the facility between 560 and 530 feet AMSL. Remains located above 550 feet AMSL will probably be associated with permanent to semi-permanent village/hamlet habitation areas which, due to the terrace slope, have probably been subjected to erosion and would, therefore, lack integrity. These remains would be limited in the quantity and quality of information that could be yielded due to erosion. Remains between 550 and 530 feet AMSL may also be expected. These remains would be derived from the surfaces of the terrace deposits and be redeposited slope wash or be the remains of sites placed directly upon areas affected by slopewash.

Although much of the Post-Archaic assemblage might remain unidentifiable within specific temporal and/or cultural contexts, sites with ceramics should provide excellent opportunities for research and provide an important resource base. That many pottery types overlap in text book typologies is well known throughout Texas, but little effort has been made to examine Post-Archaic archeological components that might be the remains of single campsite or discrete farmstead/hamlet settlements.

The confidence level for definition and identification of Post-Archaic remains is much greater than for earlier components. Confidence is increased because of the greater data base and attention that has been shown Post-Archaic remains in Texas. The potential for locating significant sites of the Post-Archaic Era on the facility is considered high.

Sites associated with the Historic Indian Era may be present on the facility in areas above 550 feet AMSL, but their occurrence is considered only of medium to low probability. This is based on the documented nomadic nature of the groups relying on large-scale bison hunting, an activity most effectively pursued on the open, level Plains and not on sloping river bank situations. Sites, most likely located on the nearly level western portion of the facility, would consist of temporary camps

or villages or habitation areas and would probably exist in an eroded context lacking internal stratification.

There are no known historic sites in the facility area. Based on the results of archival studies and the surface disturbances on the project acreage; no significant historic cultural resources are expected to be identified.

5.2 IDEAL GOALS AND OBJECTIVES

The ideal goals and objectives for the management of the H. F. Denton Radio Station Property cultural resources include the following:

- Intensive archival review to identify or eliminate the possibility of identifying any historic archeological resources. A preliminary archival search at the Washington National Federal Records Center in Suitland, MD, has failed to bring to light any records relating to the H F Denton facility. A more intensive search should be made of the following record groups: RG 77, Records of the Office of the Chief of Engineers; RG 92, Records of the Office of the Quartermaster General; RG 156, Records of the Office of the Chief of Ordnance; RG 338, Records of U.S. Army Commands; and RG 394, Records of U.S. Army Continental Commands

- Intensive field survey of the entire area, with shovel testing, to identify and evaluate any known prehistoric or historic sites

- If sites are found, evaluation of their scientific and sociocultural value

- If sites deemed important, they should be managed to conserve, use, or enhance those values

However, based on the information received from the Texas SHPO (see Appendix A), it would appear that the H. F. Denton property has little potential, according to the Texas RP3 state plan, to produce significant cultural resources. For this reason, H. F. Denton facility personnel may find it more appropriate to work with the Texas SHPO on a project-by-project basis.

6.0
A RECOMMENDED ARCHEOLOGICAL MANAGEMENT PLAN FOR THE H. F. DENTON RADIO STATION PROPERTY

6.1 FACILITY MASTER PLANS AND PROPOSED IMPACTS

There is no specific long-range planning document for the H. F. Denton facility (Bill Shope, personal communication 1983). The status of any agricultural leasing program is unknown at the time of submittal of this report for this facility.

6.2 APPROPRIATE ARCHEOLOGICAL GOALS WITHIN THE OVERALL PROPERTY MANAGEMENT PROGRAM

6.2.1 General Facility Planning

Under Army Regulations 420, each DARCOM installation and sub-installation should have a Historic Preservation Plan or have documentation on file indicating that there are no installation resources appropriate to such management planning. This is also a requirement of the Corps of Engineers for any lands under Corps jurisdiction. Since the H. F. Denton facility is under some administrative jurisdiction of both the U. S. Army Communications Command Detachment (USACCD) and the Corps of Engineers, Fort Worth District, any future management of archeological resources on the facility may need to be reviewed and authorized by both of these agencies.

Because there has not been an inventory complete enough to justify a negative archeological documentation for the H. F. Denton property, and because there is a likelihood that archeological materials remain within the 50 acres of the H. F. Denton Radio Station Property, some more specific archival and/or field inventory needs to be completed by professional archeologists to demonstrated the presence or absence of potential cultural materials there. The archeological evaluation of the need for further facility historic preservation planning needs to be reviewed by historical architects, to ensure that the preservation planning addresses all potential issues of historical values.

The following archival and field inventory program is recommended as a further stage in the documentation of the overall character of the H. F. Denton archeological resource base, fundamental to the development of an adequate preservation plan. This recommended work may be postponed

until there is a specific ground-disturbing project that requires compliance with the National Historic Preservation Act (see Sections 1.1, 5.2.2), if development of a historic preservation plan more specific that this archeological overview and management plan is also to be postponed.

As outlined in the previous discussion of ideal archeological management goals (Section 5.2), a recommended next stage in the assessment of the facility's historic archeological resources is a more intensive search of archival material. This would focus on information that should be stored in the National Archives and Records Service, as well as a more intensive review of Denton County land records, wills, and other pertinent documents. The goal of this research would be to define the historic land use and ground-disturbance of this property, and more specifically identify any historic archeological resources that might be located there as well as evaluate their potential significance.

Following the completion of the archival review, a field inventory of the property to identify the surface evidence of any potential prehistoric or historic archeological sites is recommended. Given the small acreage of the H. F. Denton property, we recommend that a standard pedestrian professional archeological survey of the entire facility above 530 AMSL is the most cost-effective option (rather than one or more sample surveys). Because of the low probability that significant archeological materials are located within the modern floodplain, we suggest that that area does not require intensive field review. In areas now covered by timber or brush, shovel tests should supplement the surface reconnaissance.

If the archival and field surveys result in the identification of archeological resources, the significance of these should be evaluated following criteria set forth in 36 CFR 60.6 and in accordance with guidelines from the Texas Historical Commission (Brown et al. 1982). If sites are judged to be significant, a plan for their long-term management should be developed in the context of overall property management (including the management of any identified ethnohistoric or historic architectural/engineering resources). If significant sites are identified, it is recommended that the USACCD and/or Corps offices responsible for the H. F. Denton operations provide the Texas State Historic Preservation Officer (SHPO) with the opportunity to review and comment on the proposed management plan. This will enhance the opportunities for the facility preservation plan and the Texas Heritage Conservation Plan (Brown et al. 1982) to complement each other. If no significant sites are identified, filing of a report to that effect with the SHPO would complete the compliance requirements for preservation planning.

6.2.2 Project-specific Resource Protection or Treatment Options

No ground-disturbing activities are presently scheduled to occur on the H. F. Denton facility. However, should such be scheduled a complete program of project-area archival and surface reconnaissance, identified resource evaluation, and impact mitigation planning must be completed

prior to the initiation of such ground disturbance. In addition, again prior to the start of construction activities, the National Historic Preservation Act requires that the H. F. Denton administrators consult with the Texas SHPO and with the Advisory Council on Historic Preservation about the proposed mitigation plan. Such consultation must be complemented by consultation with the SHPO and with the Keeper of the Register about the recommendations of the significance of sites that are to be impacted. Such an evaluation and consultation process, as outlined in Section 1.1 and in AR 420, can usually be expedited if the appropriate preservation planning has been completed and reviewed by the Texas SHPO.

6.3 ESTIMATED SCOPE OF WORK AND COST LEVELS FOR PRESENTLY IDENTIFIABLE MANAGEMENT NEEDS

6.3.1 Scope of Work

The estimated scope of work recommended here is to provide the archival and field reconnaissance of the H. F. Denton facility basic to the development of a facility-specific historic preservation plan. This will consist of these work tasks:

- Additional archival review and report to document more adequately the historic land use of the facility, and any archeological remnants of that use; this is estimated to require a minimum of 120 work-hours and travel to both Washington DC and to Denton County

- Intensive pedestrian archeological survey and limited shovel-testing of 40 acres of the faility (those lands above 530 AMSL), evaluation of any identified archeological resources, and completion of a report of those activities; this survey is assumed to follow a minimal collection policy such that there are no or only a few artifacts requiring analysis and curation. Survey time is estimated to take one work-day (8 work-hours), supplemented by 32 work-hours to complete all laboratory and report effort; it will require travel to Denton County

- Based on the archival and field survey information, development of either (1) a recommended plan for the management of significant identified resources, or (2) development of a negative case report for review by the SHPO, documenting the lack of archeological materials on the facility; this will require from 8 to 32 work hours, depending upon the type of report appropriate to the survey results.

6.3.2 Implementation and Cost Estimates

Personnel needed for completion of the above-outlined tasks need professional expertise in historic archival review and both prehistoric and historic archeology; that expertise may reside in one person but is more likely to require work effort by at least two people. The archeological professional qualifications should meet the standards of the Society for

Professional Archaeologists (SOPA), and the individual making the archeological resource evaluations of significance should be skilled in management and compliance procedures, have a thorough understanding of regional archeological needs and goals, and have field experience in the area.

The archivist/archeologist should be supported by adequate secretarial/drafting personnel. The physical plant administering implementation of the project should have adequate field equipment, laboratory facilities, and word processing and duplication capability to quickly and professionally prepare needed documents and correspondence.

Costs of professional archival expertise, including all necessary travel (using expertise local to each of the Washington DC and Denton County archival research areas), reference, telecommunications, data management, search fee, and report preparation costs generally average between $25 and $30/work-hour across the country. This rate does not include business, general and administrative costs, or inflation costs, and is expressed in 1984 dollars. Using this rate, the 120 hours of professional time estimated above for archival activities would have a baseline cost range of $3000 to $3600.

Costs of archeological inventory expertise, including assumptions as stated above, generally average between $20 and $25 for such small survey areas. A similar cost range in 1984 dollars can be applied to the development of management recommendations. Thus the 48 to 72 hours estimated above to be required to complete a field inventory, evaluation, and management recommendation report appropriate for SHPO review could range between $960-$1200 and $1440-$1800.

Thus, the total work effort outlined above is estimated to require between 168 and 192 work-hours and range in cost between $3960 and $5400. Again, however, H. F. Denton facility personnel may find it more expeditious to approach their cultural resource inventory on a project-by-project basis, in light of the Texas SHPO comments (see Appendix A).

7.0
SUMMARY

The H. F. Denton Radio Station Property is situated in a nearly level to sloping topographic position along the west edge of Elm Fork Trinity River. The area is underlain by limestones and shales of the Upper Cretaceous Woodbine Group. All exposed sediments are Pleistocene or Holocene in age and consist of terrace and recent alluvial deposits. Soils consist of clay loams, silty clays, and frequently flooded clays which have a high potential for erosion.

The facility is adjacent to Elm Fork Trinity River, a permanent water source. Climate is humid subtropical. Floral assemblages are typical of the Cross Timbers and Prairies Vegetational Area and include various species of grasses. Faunal resources are abundant.

Prehistoric occupation of the general facility area, which lies within the Southern Plains culture area, may have begun during Paleo-Indian times. However, evidence of these and the succeeding Archaic population of the area are not well documented. Elements of PostArchaic cultures (Plains Woodland and Village eras; Comanche, Kiowa, Kiowa Apache, and Washita) follow.

Euroamerican settlement did not begin in the area until after 1867 when the Treaty of Medicine Lodge removed the Comanche, Kiowa, and Kiowa Apache populations to reservations west of the facility area. The historic settlement pattern was one of small farms devoted primarily to animal husbandry, but farming soon became important. Both ranching and farming continue to be important economic pursuits today. Gravel and sand quarrying is also an important activity along the Pleistocene terraces flanking Elm Fork Trinity River.

Preliminary archival research indicates that there are now no known cultural resources on the facility; however, no previous archeological field reconnaissance has been conducted on the property. Historical, ethnographic, regional archeological, and geomorphological information indicate that it is likely that presently unrecorded prehistoric archeological resources occur on the facility acreage. Based on these data, it is recommended that more intensive archival and archeological field inventory of the H. F. Denton facility be completed, for the development of any needed historic preservation plan or any ground-disturbing-project-specific compliance with the National Historic Preservation Act. Such additional work is estimated to require between 168 and 192 professional

work-hours, and further estimated to cost between $3960 and $5400 in FY84 dollars. This goal may be attained over a longer period of time by consultation with the Texas SHPO on a case-by-case approach.

8.0
BIBLIOGRAPHY

8.1 PRIMARY SOURCES AND REFERENCES CITED

Bell, Robert E. 1973. The Washita River Focus of the Southern Plains. In Variation in Anthropology, edited by Donald W. Lathrap and Jody Douglas, pp. 171-187. Urbana: Illinois Archeological Survey.

Bousman, Britt and Linda Verrett. 1973. Archeological Reconnaissance of Aubrey Reservoir. Prepared for the U. S. Army Corps of Engineers, Fort Worth District. Archeological Research Program, Southern Methodist University, Dallas.

Brenner, William B. 1984. Personal communication. Principal Investigator, DARCOM HABS Survey, Building Conservation Technology, Inc., Silver Spring, MD.

Brown, C. A. 1983. The Flora of Pleistocene Deposits in the Western Florida Parishes, West Feliciana Parish and East Baton Rouge Parish. The Louisiana Geological Survey Bulletin No. 12.

Brown, Theodore M. 1981. German-Texas Study Unit. In Resource Protection Planning Process for Texas, by Theodore M. Brown, Kay L. Killen, Helen Simons, and Virginia Wulfkuhle, pp. 95-194. Austin: Texas Historical Commission.

Brown, Theodore M., Kay L. Killen, Helen Simons, and Virginia Wulfkuhle. 1982. Resource Protection Planning Process for Texas. Austin: Texas Historical Commission.

Bruseth, Jim. 1984. Personal communication. Director, Archeological Research Program, Southern Methodist University, Dallas.

Crook, W. W., and R. K. Harris. 1958. A Pleistocene Campsite Near Lewisville, Texas. American Antiquity 23:233-246.

Dibble, D. S., and D. Lorrain. 1968. Bonfire Shelter: A Stratified Bison Kill Site, Val Verde County, Texas. Miscellaneous Papers of the Texas Memorial Museum 1.

Domning, D. P. 1969. A List, Bibliography and Index of the Fossil Vertebrates of Louisiana and Mississippi. Transactions, Gulf Coast Association of Geological Societies 19:385-422.

ECI. 1982a. Archeology and History of Lake Ray Roberts: Cultural Resource Survey, Vol. I. Prepared by Environmental Consultants, Inc. (S. A. Skinner, Principal Investigator) for the U. S. Army Corps of Engineers, Fort Worth District.

_____. 1982b. Archeology and History of Lake Ray Roberts: Construction Area Testing, Vol. II. Prepared by Environmental Consultants, Inc. (S. A. Skinner, Principal Investigator) for the U. S. Army Corps of Engineers, Fort Worth District.

Frison, George C. 1978. Prehistoric Hunters of the High Plains. New York: Academic Press.

Gibson, Arrell M. 1965. Oklahoma: A History of Five Centures. Norman: Harlow Publishing Company.

Gleason, H. A. 1923. The Vegetation History of the Midwest. Annals of the Association of American Geographers 12:39-85.

Gould, Frank. 1975. Texas Plants - A Checklist and Ecological Summary. College Station: The Texas A & M University System, The Texas Agriculture Experiment Station.

Griffin, James B. 1967. Eastern North American Archeology: A Summary. Science 156:175-191.

Haines, Francis. 1966. The Northward Spread of Horses Among the Plains Indians. In Readings in Anthropology, edited by E. A. Hoebel and J. D. Jennings, pp. 184-188. New York: McGraw-Hill.

Harshberger, J. W. 1958. Photographic Survey of North America. New York: Hafner Publishing Company.

Haynes, C. V. 1966. Elephant Hunting in North America. Scientific American 214:104-122.

Heartfield, Price and Greene, Inc. 1980. Cultural Resources Technical Report. Report submitted by Woodward-Clyde Consultants in support of the U.S. Bureau of Land Management's Environmental Impact Statement, Energy Transportation System, Inc.; on file, U. S. Bureau of Land Management, Special Projects Staff, Denver, CO.

Hester, Thomas R. 1976. The Texas Archaic: A Symposium. University of Texas at San Antonio Center for Archeological Research Special Report No. 2.

_____. 1976. Late Pleistocene Aboriginal Adaptations in Texas. In Papers on Paleo-Indian Archeology in Texas: I. University of Texas at San Antonio Center for Archeological Research Special Report No. 3.

Knudson, Ruthann, David J. Fee, and Steven E. James. 1983. A Work Plan for the Development of Archeological Overviews and Management Plans for Selected U. S. Department of the Army DARCOM Facilities. Walnut Creek, CA: Woodward-Clyde Consultants [available through the U. S. Department of the Interior, National Park Service, Atlanta].

Lewis, G. E. 1970. New Discoveries of Pleistocene Bisons and Peccaries in Colorado. U. S. Geological Survey Professional Papers, 700-B:B137-B140.

Lorrain, Dessamae. 1974. The Glass Site. In Wichita Indians: Wichita Indian Archeology and Ethnology; A Pilot Study of Wichita Indian Archaeology and Ethnology, edited by Robert E. Bell, E. B. Jelks, and W. W. Newcomb, pp. 24-44. New York: Garland Publishing Company.

Lynott, Mark J., and Duane E. Peter. 1977. 1975 Archeological Investigations at Aquilla Lake, Texas. Report submitted to the National Park Service by the Archeology Research Program, Department of Anthropology, Southern Methodist University, Dallas.

Lynott, Mark J. 1981. A Model of Prehistoric Adaptation in Northern Texas. Plains Anthropologist 26(92):97-110.

Miller, Thomas Lloyd. 1972. The Public Lands of Texas, 1519-1870. Norman: University of Oklahoma Press.

Mossiman, J. E., and P. S. Martin. 1975. Simulating Overkill by Paleo-Indians. American Scientist 63:304-313.

Neuman, Robert W. 1984. The Buffalo in Southeastern United States Post-Pleistocene Pre-history. Norman: Oklahoma Archaeological Survey.

Newcomb, W. W., Jr. 1958. Indian Tribes of Texas. In A Review of Texas Archeology-Part 1, edited by T. N. Campbell, E. B. Jelks, E. Mott Davis, and H. B. Sturgis, pp. 1-34. Bulletin of the Texas Archeological Society 29.

_____. 1961. The Indians of Texas from Prehistoric to Modern Times. Austin: University of Texas Press.

Nunley, Parker. 1973. An Assessment of the Archaeological Resources in the Vicinity of the Garza-Little Elm Reservoir. Prepared for the U. S. Army Corps of Engineers, Fort Worth District. Richland Archaeological Society Miscellaneous Papers No. 1:1-72.

Osborn, H. F. 1909. Cenozoic Mammal Horizons of Western North America. U.S. Geological Survey Bulletin, 361.

Raab, L. Mark. 1982. Archeological Investigation at Lakeview Lake: 1979 and 1980. Prepared for the U. S. Army Corps of Engineers, Fort Worth District. Archeological Monograph No. 2, Archaeological Research Program, Southern Methodist University, Dallas.

Raisz, E. 1957. Physiographic Map of Texas (reproduced from Landforms of Texas). In Geological Highway Map of Texas, by the Dallas Geological Society.

Saucier, Roger T. 1974. Quarternary Geology of the Lower Mississippi Valley. Arkansas Archeological Survey, Research Series No. 6.

Sellards, E. H., W. S. Adkins, and F. B. Plummer. 1958. The Geology of Texas, Volume I: Stratigraphy. Bureau of Economic Geology, the University of Texas Bulletin 3232.

Shelford, V. E. 1963. The Ecology of North America. Urbana: University of Illinois Press.

Shope, Bill. 1983. Personal communication. Facility Engineering Division, Red River Army Ammunition Plant.

Simpson, G.G. 1941. Large Pleistocene Felines of North America. American Museum Noviatiates, No. 1136:19-27.

_____. 1945. Notes on Pleistocene and Recent Tapirs. American Museum of Natural History Bulletin 86121:52-81.

Skinner, S. A. and D. T. Connors. 1979. Archeological Investigation at Lakeview Lake. Archeological Research Report No. 118, Archaeological Research Program, Southern Methodist University, Dallas.

SMU. 1983. Settlement of the Prairie Margins. Archeological Research Program, Southern Methodist University, Dallas.

Spock, Carolyn. 1983. Personal communication. Keeper of Site Records at Texas Archeological Research Laboratory, Austin.

Stephens, J. J. 1960. Stratigraphy and Paleontology of the Late Pleistocene Basin, Harper County, Oklahoma. Geological Society of America Bulletin 1675-1702.

Stephenson, Robert. 1949. archaeological Survey of the Lavon and Garza-Little Elm Reservoirs: A Preliminary Report. Bulletin of the Texas Archaeological and Paleontological Society, Vol 20:21-62.

_____. 1950. Archaeological Survey of the Garza-Little Elm Reservoir. Prepared for River Basin Surveys. Report on file at the Texas Archeological Research Laboratory, Austin.

USDASCS. 1980. Soil Survey of Denton County, Texas. U. S. Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural Experiment Station.

Wedel, Waldo R. 1961. Prehistoric Man on the Great Plains. Norman: University of Oklahoma Press.

_____. 1983. The Prehistoric Plains. In Ancient Native Americans, edited by Jesse D. Jennings, pp. 203-241. San Francisco: W. H. Freeman and Company.

Wells, P. V. 1970. Post-glacial Vegetational History of the Great Plains. Science 167:3925.

Westbury, Bill. 1984. Personal communication. Research Associate, Archeological Research Program, Southern Methodist University, Dallas.

Willey, Gordon R. 1966. An Introduction to American Archeology. Vol. 1, North and Middle America. Englewood Cliffs: Prentice-Hall, Inc.

8.2 OTHER PERTINENT LITERATURE

Ewers, John C. 1962. The Horse Complex in Plains Indian History. In The North American Indians: A Sourcebook, edited by R. C. Owen, J. Deetz, and A. Fisher, pp. 96-118. New York: Macmillan Co.

Fox, Daniel E. 1980. The Material Evidence of Texas History. Bulletin of the Texas Archeological Society 51:271-287.

Fries, Howard B. 1971. The Koelliker Site (14DP25). Plains Anthropologist 16(53): 190-194.

Frison, George, C. 1973. The Plains. In The Development of North American Archeology, edited by James E. Fitting, pp. 151-184. New York: Anchor Books.

_____. 1978. Prehistoric Hunters of the High Plains. New York: Academic Press.

Gorman, Frank. 1972. The Clovis Hunters: An Alternative View of Their Environment and Ecology. In Contemporary Archeology, edited by Mark P. Leone, pp. 206-291. Carbondale, Edwardsville: Southern Illinois University Press..

Gunnerson, J. H. 1956. Plains-Promontory Relationships. American Antiquity 22(1): 69-72.

_____. 1960. An Introduction to Plains Apache Archeology - The Dismal River Aspect. Bureau of American Ethnology, Anthropological Papers No. 58.

_____. 1968. Plains Apache Archeology: A Review. Plains Anthropologist 41(13):167-189.

Haines, Francis. 1966a. Where Did the Plains Indians Get Their Horses? In Readings in Anthropology, E.A. Hoebel and J.D. Jennings, pp. 180-183. New York: McGraw-Hill.

_____. 1966b. The Northward Spread of Horses Among the Plains Indians. In Readings in Anthropology, edited by E.A. Hoebel and J.D. Jennings, pp. 184-188. New York: McGraw-Hill.

Jameson, J. Franklin, editor. 1907. Original Narratives of Early American History. Spanish Explorers in the Southern United States 1528-1543. New York: Charles Scribner's Sons.

Jennings, Jesse D. 1974. Prehistory of North America. San Francisco: W. H. Freeman.

Krieger, Alex D. 1946. Culture Complexes and Chronology in Northern Texas. University of Texas Publication No. 4640.

Kroeber, A. L. 1953. Cultural and Natural Areas of Native America. Berkeley: University of California Press.

Lipe, William D. 1977. A Conservation Model for American Archeology. In Conservation Archeology: A Guide for Cultural Resource Management Studies, edited by Michael B. Schiffer and George J. Gumerman, pp. 19-42. New York: Academic Press.

Lowie, Robert H. 1954. Indians of the Plains. New York: American Museum of Natural History.

Neuman, Robert W. 1968. Additional Annotated References: An Archeological Bibliography of the Central and Northern Great Plains Prior to 1930. Plains Anthropologist 13(40):100-102.

Newcomb, W. W. 1961. The Indians of Texas. Austin: University of Texas Press.

Newcomb, W. W., and W. J. Field. 1974. An Ethnographic Investigation of the Wichita Indians in the Southern Plains. In Wichita Indians: Wichita Indian Archeology and Ethnology; A Pilot Study in Wichita Indian Archaeology and Ethnology, by Robert E. Bell, E. B. Jelks, and W. W. Newcomb, pp. 240-309. New York: Garland Publishing Company.

Secoy, F. R. 1953. Changing Military Patterns of the Great Plains. Monograph of American Ethnological Society, No. 21.

Society of Professional Archeologists. 1983. The Directory of Professional Archeologists. Tampa: Society of Professional Archeologists.

Swanton, John R. 1946. The Indians of the Southeastern United States. Bureau of American Ethnology Bulletin 137.

Thomas, Alfred Barnaby. 1928. Spanish Exploration of Oklahoma. Chronicles of Oklahoma, 6(2): 16-25.

Ubelaker, Douglas H. 1976. The Sources and Methodology for Mooney's Estimates of North American Indian Population. In The Native Population of the Americas in 1942, edited by William M. Denevas, pp. 243-288. Madison: University of Wisconsin Press.

U. S. Department of the Interior. 1982. Guidelines for the Disposition of Archeological and Historic Human Remains. Ms., Departmental Consulting Archeologist, National Park Service, U. S. Department of the Interior, Washington, DC.

_____. 1983. Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation: Professional Qualifications Standards. Federal Register 48(190):44716-44740.

Weaver, J. E. 1954. North American Prairie. Lincoln: Johnson Publishing Company.

Weaver, J. E., and F. W. Albertson. 1956. Grasslands of the Great Plains. Lincoln: Johnson Publishing Company.

Wedel, Waldo R. 1940. Culture Sequence in the Central Great Plains. In Essays in the Historical Anthropology of North America, pp. 291-352.

_____. 1947. Culture Chronology in the Central Great Plains. American Antiquity 12(3): 148-156.

_____. 1961. Prehistoric Man on the Great Plains. Norman: University of Oklahoma Press.

_____. 1964. The Great Plains. In Prehistoric Man in the New World, edited by J. D. Jennings and E. Norbeck, pp. 193-220. Chicago: University of Chicago Press.

Wissler, Clark. 1955. The Influence of the Horse in the Development of Plains Culture. In Readings in Anthropology, edited by E. A. Hoebel, J. D. Jennings and E. R. Smith, pp. 155-172. New York: McGraw-Hill.

Wormington, H. M. 1957. Ancient Man in North America. Denver Museum of Natural History, Popular Series, No. 4.

APPENDIX

TEXAS DEPUTY SHPO COMMENTS

THE STATE OF TEXAS

CURTIS TUNNELL
EXECUTIVE DIRECTOR

TEXAS HISTORICAL COMMISSION
P.O. BOX 12276 AUSTIN, TEXAS 78711 (512) 475-3092

March 1, 1984

Mark R. Barnes, Ph.D.
DARCOM Regional COAR
U.S. Department of the Interior
National Park Service
Southeast Regional Office
75 Spring Street, S.W.
Atlanta, Georgia 30303

Re: Comments on DARCOM draft report
for HF Denton Radio Station Property
(NPS, A-6)

Dear Dr. Barnes:

Thank you for your letter and attached report of February 10, which we received on February 13, 1984.

Our comments are made in light of pertinent federal regulations and the Council of Texas Archeologists Reports Standards Guidelines.

Page 2-3. The Garza-Little Elm is down stream from the property, not up.

Page 2-5, Line 12. Please site primary sources for Plains flora and fauna (page 2-6, line 1-14).

Page 2-8, Line 5. The Lewisville site is no longer controversial.

Page 2-8. The background dates and information for the area should correlate with those of the North and East Texas areas.

Page 2-9. How does the information presented on Plains Woodland and Village eras correlate with known information in North and East Texas? Some examples are Lake Joe Pool, Ray Roberts and Richland/Chambers.

Page 2-9. Please cite evidence found in North Texas regarding the Custer and Washita River Foci.

Page 2-11, Paragraph 4. Please revise this statement; the Spanish had a much greater influence. The last two sentences would be sufficient.

Page 2-16. We suggest the contractor revise this first statement and be aware of at least three major projects which do reflect an interest in early farm patterns. Joe Pool, Ray Roberts and Richland/Chambers.

Page 5-4. Total time for survey and report should be 40 hours at maximum.

As stated with the review of the previous DARCOM report, we believe that survey of this area was not warranted and that consultation with the SHPO's office would provide efficiency within the framework of the Section 106 process.

The three areas for DARCOM reports are within the same region. In light of the last two reports which contained the same background data, we suggest our comments be considered.

Thank you for the opportunity to comment. If there are any questions please contact Patience Patterson of my staff at 512-475-3057.

Sincerely,

LaVerne Herrington

LaVerne Herrington, Ph.D.
Deputy
State Historic Preservation
Officer

PEP/LH/lft

cc: Dr. Ruthann Knudson
Heartfield, Price & Green, Inc.

END

FILMED

10-84

DTIC