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AD-A265 944



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ARCHEOLOGICAL SURVEY
OF THE
MADRID BEND LEVEE EXTENSION PROJECT
FULTON COUNTY, KENTUCKY
A NEGATIVE FINDING

By
Betty J. McGraw
SOPA Certified
July, 1988

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Report prepared for the Department of the Army, Memphis District
Corps of Engineers, B202 Clifford Davis Federal Bldg., Memphis
Tennessee 38103-1894, (901) 521-3857, Purchase Order DACW66-88-M-
0763.

93 5 25 0763

93-11114



REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE July 1988	3. REPORT TYPE AND DATES COVERED Final	
4. TITLE AND SUBTITLE Archaeological Survey of the Madrid Bend Levee Extension Project Fulton County, Kentucky, A Negative Finding			5. FUNDING NUMBERS DACW66-88-M-0763	
6. AUTHOR(S) Betty J. McGraw				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Betty J. McGraw Consulting Archaeologist 2009 S-. Michael Dr. #1 Lexington, KY 40502			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Dept. of the Army Memphis District Corps of Engineers B-202 Clifford Davis Federal Bldg. Memphis, TN 38103			10. SPONSORING / MONITORING AGENCY REPORT NUMBER 218	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) An intensive archaeological survey was conducted. No standing structures, historic sites, or prehistoric sites were identified in the project area and no further investigation of this project area is recommended.				
14. SUBJECT TERMS			15. NUMBER OF PAGES 42	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	



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(218)

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Availability Codes	
Dist	Avail and/or Special
A-1	

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NAME

July 17, 1988
DATE

Report prepared for the Department of the Army, Memphis District Corps of Engineers, B202 Clifford Davis Federal Bldg., Memphis Tennessee 38103-1894, (901) 521-3857. Purchase Order DACW66-88-M-0763.

ABSTRACT

On May 15-17, 1988, at the request of the Department of the Army, Memphis District Corps of Engineers, an intensive archeological survey was conducted for the Madrid Bend Levee Extension project (Purchase Order DACW66-88-M-0763) in Fulton County, Kentucky. No standing structures, historic archeological sites or prehistoric archeological sites were identified in the project area and no further investigation of this project is recommended.

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MANAGEMENT STATEMENT

The following archeological survey was conducted in order to be in compliance with existing federal and state legislation: the National Historic Preservation Act of 1966 (Public Law 89-665; 80 Stat. 915, 16 USC 470), Procedures of the Advisory Council on Historic Preservation (36 CFR 800), the National Environmental Policy Act of 1969 (Public Law 91-190; 42 USC 4231-4327), Executive Order 11593 of May 13, 1971 (16 USC 470, Supp. 1), the Archeological and Historic Preservation Act of 1974 (Public Law 92-291), Army Corps of Engineers Permit Program Regulations (CFR 33, Part 325, Appendix C), and the Specifications for Archeological Reports of 1979 issued jointly by the Office of State Archeology (OSA) and the State Historic Preservation Officer (SHPO).

On May 15-17, 1988, an on-foot, on-site archeological survey including shovel testing was conducted for the Madrid Bend Levee Extension project in Fulton County, Kentucky. Contact person for the project was Jim McNeil. No standing structures, prehistoric archeological sites or historic archeological sites were located in the project area and no further investigation of this project is recommended.

Archeological Survey
of the
Madrid Bend Levee Extension Project
Fulton County, Kentucky
A Negative Finding

INTRODUCTION

On May 15-17, 1988, at the request of the Department of the Army, Memphis District Corps of Engineers, an intensive archeological survey was conducted for the proposed Madrid Bend Levee Extension project in Fulton County, Kentucky (Figure 1).

This project is to be located at the Kentucky Point in the extreme western part of the county and is an extension of the present levee system. Approximately 53 acres are contained within the project area. The project begins near levee mile post 9 and extends approximately 2700 feet. Right-of-way width varies (See Figure 2).

The investigations were designed to identify cultural resources in the project area and to assess the significance of these resources. This study reports those findings and includes the following: environmental background, previous investigations, field methods and results of the survey and a brief summary and recommendations.

Figure 1. Location of Madrid Bend Levee Extension Project, Fulton County, Kentucky.

8/40+

Bench Mark

8/53+06
= 9/0+00

Degrade existing spur levee
to H.G. and utilize for
Borrow Material

200

143°58'

8-G-87

650

52.00

BEGIN LEVEE
EXTENSION

14.50

3.00

10+00

600

R/W limits
7-G-87

AVAILABLE

200

Levee Extension

300

R/W limits

Silt Fence Lo

14.52

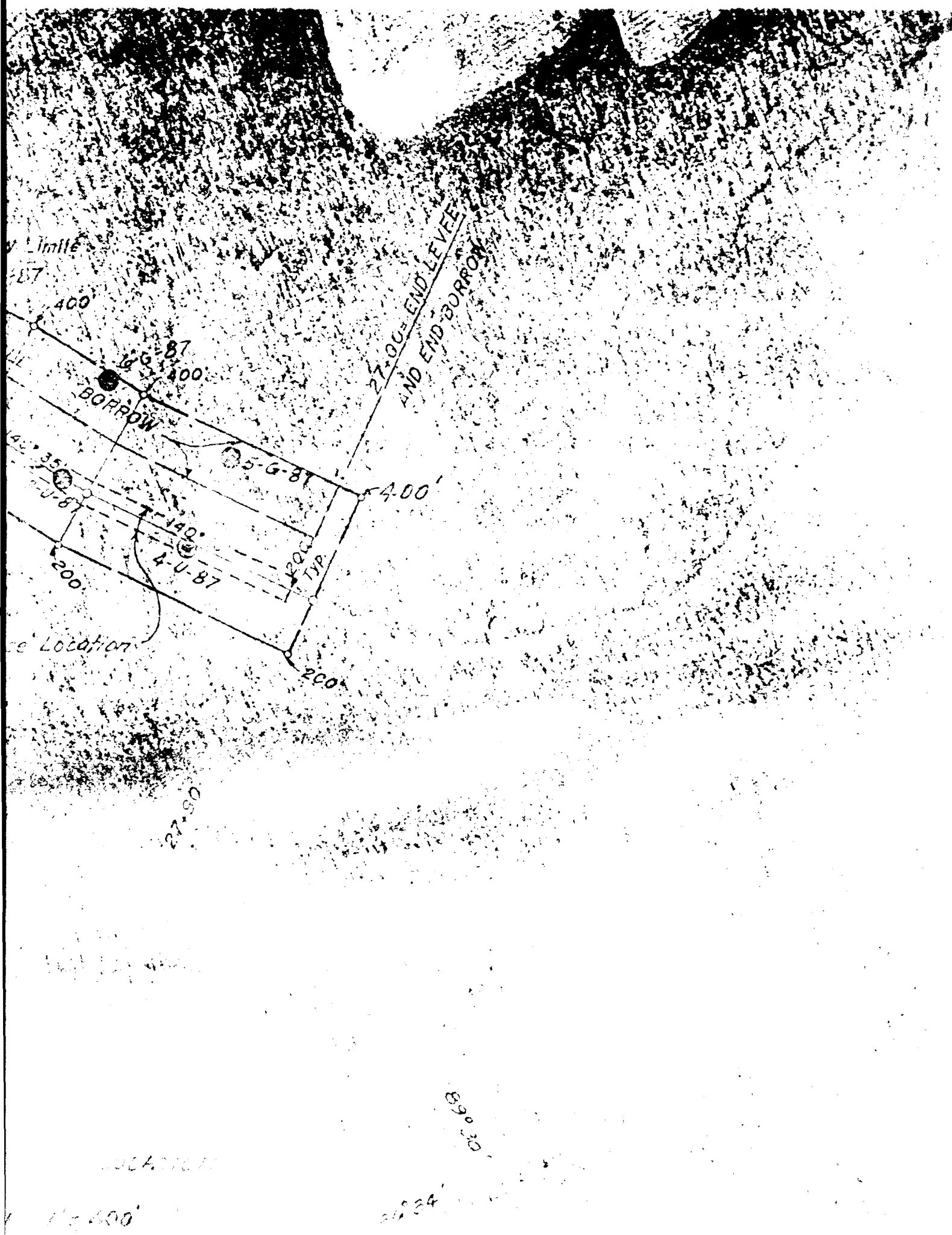
9.10

6'30"



8000

SCALE 1"



ENVIRONMENTAL BACKGROUND

Fulton County is located within the Jackson Purchase physiographic region of Kentucky. This region lies within the Gulf (or Mississippi) Embayment, a coastal plain region (McFarlan 1961:204). The area is characterized by very gently rolling or flat lying topography dissected by very wide and flat flood bottoms associated with the Mississippi River.

Geographically, The Purchase area is the youngest in the state. Fulton County contains unconsolidated to semi-consolidated deposits of Tertiary and Quaternary age, including in ascending stratigraphic order the Jackson Formation, Continental deposits, Roxana Silt, Peoria Loess, and alluvium (Baker 1963; Finch 1971a, 1971b; Lee 1974; and Olive 1972).

The Jackson Formation primarily contains intermixed light gray to yellow clay and silt that is semi-consolidated and contains minor amounts of sand. These deposits are found in the lower elevations along the Mississippi River and other streambanks.

The continental deposits contain various amounts of gravel, sand, clay and silt with gravel the most dominant. The Continental deposits form a thin discontinuous bed overlying the Jackson Formation.

The Roxana Silt and Peoria Loess primarily contain medium brown (Roxana) to light yellow (Peoria) clayey silt. These deposits form a thick blanket (18 meters) over the underlying

material except in areas where erosion has removed the silt.

The alluvium contains silt, sand, gravel and clay ranging in color from light yellow to red and brown. The percentage of silt and clay, ect. depends upon the immediate vicinity of the underlying deposits. In upper elevations, silt is dominant, in lower elevations the gravel, clay or sand dominates.

Regional dip is probably to the south, however, due to the thickness of the unconsolidated deposits the exact direction and degree is unknown. Surface evidence for faulting is limited due to the nature of the surficial deposits. A series of northeast trending faults are indicated with one such fault going through the city of Hickman, Kentucky and one approximately two miles east. There is a high probability that other subsurface faults are within the area. This area is classified as Seismic Risk Zone 3 -an area of major damage due to earthquake activity.

Landslide deposits are known in the area where the natural slopes have been oversteepened by stream erosion or man-made construction. These landslides are often found in areas where constant seepage from springs in the Continental deposits have saturated either the underlying Jackson Formation or the clayey loess deposits. Once saturated the clays swell and weaken causing failure and landslides.

Local reliefs are moderate (generally about 15 meters), and maximum relief at any locality rarely exceeds 30 meters. The maximum reliefs are found only along steep streams. For example, the bluffs along the Mississippi River exhibit the greatest local

relief (McGrain and Currens 1978:40). The average elevation for Fulton County is less than 300 feet (McGrain and Currens 1978:18,29).

The floodplains are generally poorly drained and the soils, having formed from Mississippi River alluvium, are high in fertility (Bailey and Winsor 1964:27). The principal soil series are Sharkey, Dundee, and Commerce. The chief crop is soybeans, with corn and alfalfa present to a lesser degree. Historically, cotton was the primary floodplain crop.

The upland area is characterized as a loess belt. "Soils have developed in thick (generally more than 3 1/2 feet) Loess lying on Coastal Plain Formations" (Bailey and Winsor 1964:18). Memphis soils are commonly present on the steeper slopes. These are well-drained and are generally forested or utilized as pasture. The soil series on the gentler slopes are Grenada, Loring, and Calloway. These are less well-drained and have fragipans. The chief crops are corn, soybeans, tobacco, grain, sorghum, and hay (Bailey and Winsor 1964:18).

The major drainage systems from north to south include Obion Creek, Bayou de Chien, Owens Slough, and Running Slough. All of these streams flow west except Running Slough which flows south.

The county includes portions of two of the eight major geological-topographical divisions recognized for the Purchase Region by McFarlan (modified from Davis, 1923) - Big Bottoms and Cane Hills (McFarlan 1961).

Big Bottoms - Fertile alluvial bottoms interrupted by sandy ridges (former natural levees) and sloughs more or less

parallel to the river. It is subject to flood but is protected by levees south of Hickman.

Cane Hills - This includes the highly dissected loess-capped bluffs facing the bottoms and the more or less dissected rolling loess area to the east. With the disappearance of the loess cover, it merges with the central uplands. It is highly productive even where hilly.

Climatological conditions for Kentucky are continental in nature and both temperature and precipitation show rather wide extremes over the state (U. S. Department of Agriculture 1941:892). Nevertheless, the climate is considered to be well adapted to a variety of plant and animal life. It is described as generally temperate and healthful.

The State lies within the path of the moisturebearing low-pressure formations that move from the western Gulf region northeastward over the Mississippi and Ohio Valleys to the Great Lakes and the northern Atlantic coast. The greater part of the precipitation is obtained through the agency of these pressure formations, which vary greatly in frequency, character, and force. There is consequently considerable variation in the amount of moisture received as well as in the other climatic elements in individual months, seasons, and years...Comparatively little influence on temperature can be traced to the topography, but because of its geographic location with reference to the center of the continent, the midwinter cold waves from the Canadian Northwest usually reach Kentucky with their intensity considerably modified (USDA 1941:892).

Climatological data for the area of the Jackson Purchase region where the project is located is collected at the Mayfield station. The growing season without a killing frost is approximately 198 days and the average annual precipitation is 47.76 inches (USDA 1941).

The biotic communities presented in the following are taken from a preterit model constructed for southeast Missouri by Lewis

(1974). This model includes eight communities: Beech-Tulip Loess Hills; Oak-Hickory Upland Forest; Cottonwood-Sycamore Natural Levee Forest; Sweetgum-Elm-Cypress Seasonal Swamp; Willow and/or Cottonwood Water Edge Brush; Cypress Deep Swamp; Water Millet-Lily Marsh; Rivers, Bayous, and Open Lakes; and Fields and Second Growth Areas.

Beech-Tulip Loess Hills

Beech is the dominant plant in this community. Tulip tree, red oak, hickory, magnolia, black gum, white ash, black oak, black walnut, sugar maple, sweetgum, and sassafras are also represented, but in much smaller percentages. Tulip tree, or yellow poplar, red oak and various hickories are listed as common associates (Lewis 1974:18,19).

Undergrowth, according to Braun, includes pawpaw, ironwood, dogwood, redbud, hop hornbeam, and cane. Cane is considered one of the more distinctive components of the under growth (Braun 1950:160).

Larger mammals would have included white tailed deer, mountain lion, black bear, and elk. Striped skunk, opossum, raccoon, eastern cottontail rabbit, gray fox, and gray squirrel would have been representative of smaller mammals. Such gallinaceous species of bird as wild turkey, prairie chicken, and ruffed grouse would have been present as well as the passenger pigeon (Lewis 1974:19).

Geographically, this community would have been restricted to loess-capped bluffs bordering the Mississippi River Valley in extreme western Kentucky

...and would have merged gradually with the oak-hickory upland forest to the east (Lewis 1974:19).

Oak-Hickory Upland Forest

A variety of different species of oak and hickory characterize this community (Lew's 1974:19).

The oak of the oak-hickory forest communities of the rolling and moderately dissected uplands vary in composition in relation to topography and soils. White oak is generally an abundant species, becoming dominant in ravines and between the knolls of rolling areas. Southern red oak (*Q. falcata*) is often the dominant species on the low hills. A number of other oaks--post oak, blackjack oak, black oak, and locally chiquapin oak--are found in the oak woods; the first of these is sometimes a dominant species on flat areas ...Hickories, in greater or less abundance, are almost always present. Tuliptree is a frequent constituent of the white oak communities. Only rarely do beech or sugar maple occur... (Braun 1950:159)

The undergrowth is noted as including young oaks and hickories, "dogwood, wild black cherry, winged elm, sour gum, persimmon, mulberry, white ash, sassafras, and sometimes holly..." (Braun 1950:158).

Animal populations would be much the same as those species described for the beech-tulip community, but would probably be more abundant (Lewis 1974:19).

Geographically,

In extreme southwestern Kentucky this community would have extended as far west as the Mississippi River at Hickman...but, in most other areas, would have been in the rolling hills east of the Loess hills" (Lewis 1974:19).

Cottonwood-Sycamore Natural Levee Forest

This community appears to follow the present natural levee of the Mississippi River. The description is based primarily on GLO

(Government Land Office) survey data from along the edge of the Mississippi River in southeast Missouri. The most abundant flora species noted was sycamore, followed by cottonwood and elm. Lewis, using Putnam and Bell (1932), explains that in terms of plant succession, "the cottonwood-sycamore community is but one early stage in the floodplain sere" (Lewis 1974:19).

Lewis states that GLO surveyors reported such undergrowth as cane, specebush, pawpaw, trumpet, creeper, redbud and blackhaw. Cane is emphasized as an important component of the undergrowth (Lewis 1974:19).

Animals included,

...white tail deer, black bear, mountain lion, bobcat, opossum, raccoon, striped skunk, eastern cottontail rabbit, red and gray fox, eastern fox and gray squirrels, and birds such as ruffed grouse, wild turkeys and prairie chickens. One bird, now believed to be extinct, which probably would have been common in this community, was the Carolina paroquet... (Lewis 1974:21).

Sweetgum-Elm "Cane Ridge" Forest

GLO survey data, as well as historic accounts and data from the Reelfoot Lake region in northwestern Tennessee, were utilized in reconstructing this community. Elm and sweetgum form the dominant species in the community with hackberry and ash important subspecies (Lewis 1974:21).

The most common undergrowth noted is cane. Other species include pawpaw, spicebush, black haw, redbud, greenbriar, grape vines, trumpet vine, poison ivy, virginia creeper, peppervine, catbrier and a number of minor herbs (Lewis 1974:22,23).

This plant community apparently supported a large number of

animal species important to human subsistence. White-tailed deer, fox and gray squirrels, raccoons, opossums, eastern cottontail rabbits and striped skunks would have flourished in this community. Wild turkey, ruffed grouse, prairie chickens and passenger pigeon are examples of the avian fauna (Lewis 1974:23).

This biotic community would be one of the last areas in the floodplain to be inundated in the spring and summer floods and probably then only shallowly and for a short duration (Lewis 1974:24).

Sweetgum-Elm-Cypress Seasonal Swamp

The species composition for this community is similar to that of the sweetgum-elm forest with the exception of a slightly higher frequency of maple and the addition of cypress.

The difference between these communities lies partially in the presence of cypress, but the distinction between them is dictated by several different ecological variables, primarily relative elevation, undergrowth, and the annual presence, for several weeks or months, of standing water or water-saturated ground (Lewis 1974:24).

Due to the "frequent over-abundance of water and poorly developed patterns," forest undergrowth would be sparse in most portions of the community. Willow, spicebush, briars and cane are noted in GLO survey reports for southeastern Missouri, but large expanses of cane are absent (Lewis 1974:24).

The number of animal species and population densities would be limited by the seasonal inundation, generally high water table and sparse undergrowth, Shelford notes that,

...skunks and opossums cannot live in flooded areas and move in and out only to minor degrees. However, deer and bear

move in and out rather freely with changes in water level (Shelford in Lewis 1974:24).

Swamp rabbits would probably have been common since they prefer a wet habitat, while eastern cottontails would have been present only during dry periods. The fringes of this community in the vicinity of swamps, lakes and bayous would provide a habitat for beaver, muskrat and woodrat. For at least a portion of the year the avian fauna would have been much the same as that listed previously for the sweetgum-elm community (Lewis 1974:24).

Lewis states,

The biotic community in general would be uninhabitable by human and many mammalian populations during the spring and summer freshets. During floods aquatic mammals of the cypress deep swamp, such as minks, beavers, muskrats, and river otters, would be prevalent (Lewis 1974:24,25).

Willow and/or Cottonwood Water Edge Brush

This community is generally subject to short term inundation and would be found along the Mississippi River above mean low water on the river edge, sand bars and batture land (Lewis 1974:25). "This community is a composite of several slightly different but more or less interrelated plant communities - pure willow communities, willow-cottonwood, and pure cottonwood" (Lewis 1974:25).

Undergrowth in this biotic community is short lived. On well drained "ridges," it has been noted that young cottonwood stands may have "an understory of small sycamore, ash, elm, maple, and other species, which upon examination will generally show the same age as the cottonwoods" (Williamson in Lewis 1974:25). The underbrush for mature cottonwood-willow associates is listed as

trumpet vine poison ivy, grape, and peppervine (Lewis 1974:25).

In general, animal populations would be transitory due to the seasonal inundation. White tailed deer, mountain lion, and black bear probably wandered through most of the region. There have been indications of swamp rabbit, opossum, raccoon and gray squirrels in mature cottonwood-willow communities. Aquatic mammals would have been locally abundant in the interior and along streams. "With the inundation of much of the lowlying riverine interior in the winter and early spring, large portions of this community would be unexploitable by many animal populations, man among them" (Lewis 1974:25).

Cypress Deep Swamp

Bald cypress is the primary species in this biotic community. Willow, honey locust and red haw are listed as the chief associates. Swamp tupelo may also have been present (Lewis 1974:25,26).

Undergrowth is noted as very sparse. Cattails were present along with grape vines. The most common shrub was probably buttonbush and the most conspicuous mid-summer herbs hibiscus (Lewis 1974:26).

Standing water would limit the range of mammalian species to those adapted to either aquatic or semi-aquatic swamp habitats. This condition would have less effect on the avian fauna with the exception of turkey, ruffed grouse and prairie chicken.

Large mammals, such as deer, bear, mountain lion and elk would have been limited to the fringes of the cypress community.

Little of the more aquatic habitats are utilized by skunks and opossums, while raccoons appear to favor this environment. The eastern cottontail would not be as abundant as the swamp rabbit, and while both eastern fox and gray fox would be present the quantity is undeterminable. Aquatic mammals, such as muskrat, beaver, mink and river otter would be locally abundant. Avian fauna would probably seasonally include various species of duck and other waterfowl (Lewis 1974:26).

Water Millet-Lily Marsh

These species are found on the lakeward sides of floodplain lakes, ponds and sloughs. Although they represent two distinct communities, for archeological purposes they are discussed as one unit (Lewis 1974:26).

The water millet community would have been located along the sunny edges of swamps, sloughs and ponds which were too deep for cypress growth. This community forms a dense border of grasses up to 16 feet high. The lily community would be located in the shallows on the lakeward side of the millet community (Lewis 1974:26).

The water millet-lily marsh would have provided an abundant food supply for migratory waterfowl and the smaller population of winter and summer waterfowl residents of the region, as well as local aquatic mammal species (Lewis 1974:27).

Rivers, Bayous and Open Lakes

This biotic community covers a considerable expanse of the region and these waterways undoubtedly served as major communication routes during both prehistoric and historic times.

The Mississippi River must be considered a dominant feature of the community (it forms the western boundary for Fulton County).

Bayou data is taken from GLO survey notes. They describe this habitat as having low banks and a gentle current, and indicate the presence of thickets of willows, honey locust and white thorn.

The floodplain lakes in the riverine interior fluctuate in depth from season to season. They are fringed by water millet-lily communities, with willow and cypress present closer to shore (Lewis 1974:27).

Mammals in this community would be limited to aquatic species, such as beaver, mink, muskrat, and river otter. Avian fauna included a great number of migratory waterfowl in the fall and spring of the year, only a few of which remain throughout the year. Turtles and smaller amphibians would have been locally abundant, especially in and around the fringes of the community (Lewis 1974:27).

Fish would have been plentiful in the rivers and bayous. Historic accounts note the presence of such species as buffalo, catfish, sunfish, hickory shad, grinnel and gars (Lewis 1974:27).

PREVIOUS INVESTIGATIONS

Archeologically, this area of the Jackson Purchase Region is considered one of the most interesting of the Commonwealth. While the number of recorded archeological sites have been few until the last decade, the sites that were known are quite imposing.

In the 1932 Funkhouser and Webb survey of Kentucky archeological sites, 13 sites are listed for Fulton County. Currently, 128 archeological sites are listed in the OSA Fulton County site files. One additional site is listed in the site files at Western Kentucky University and no further sites are recorded at Murray State University.

The Kentucky Heritage Council lists four of the 128 sites on the National Register of Historic Places - 15 Fu 3 (Sassafras Ridge Mound), 15 Fu 4 (Adams Site). 15 Fu 15 (Amburg Mounds) and 15 Fu 67 (Running Slough Site). None of the 128 sites will be affected by this project.

Beginning in 1960 there have been at least 23 professionally conducted archeological surveys in Fulton County. None of these surveys are in the project area.

Swartz and Sloan (1960) conducted a study of 22 small Federal projects in Kentucky. Three archeological sites (15 Fu 16, 15 Fu 17 and 15 Fu 18) were found in Fulton County. Both 15 Fu 16 and 15 Fu 17 are described as Woodland "mounds," while 15 Fu 18 is said to be a complex including three mounds and a village area. A Woodland cultural affiliation is also suggested for 15 Fu 18.

Testing was recommended for all three sites, with extensive testing recommended for 15 Fu 17 and 15 Fu 18.

During investigation of Reelfoot Lake - Lake No. 9 project impact area, four archeological sites were examined, 15 Fu 3 and 15 Fu 21-23 (Smith 1974). Two of the sites (15 Fu 3 and 15 Fu 21) are described as Mississippian period sites. A third, 15 Fu 22, is thought to be associated with 15 Fu 21. The remaining site (15 Fu 23) is described as an Early Mississippian or Late Woodland campsite. A fifth site (15 Fu 20) is shown on Smith's map - this site was later renumbered 15 Fu 25.

From 1976 to the present, 13 cultural resource surveys were conducted for Fulton County with negative results (Fitting, et al. 1976; McHugh 1975, 1976 and 1977; Berwick 1978; Schock and Weis 1978; McNerney 1979; McNerney and White 1980; White 1980; Moffat 1983 and Janzen 1984a and 1984b.

McNerney (1976, 1977) conducted surveys for archeological resources for Item 1 and 2 of the Corps of Engineers Obion Creek project. One prehistoric manifestation is discussed for Fulton County, the possible "Ancient Canal." Reference is also made to an archeological site, the Glidwell site (15 Fu 20).

In 1978, Western Kentucky University conducted archeological survey and testing for a Corps of Engineers channelization project in southwestern Fulton County (Schock and Langford 1978). Eleven archeological sites (15 Fu 300-305 and 15 Fu 307-311) were located during the investigation. In addition to the 11 sites found, three known archeological sites were reexamined (15 Fu 21-23).

Six of the total 14 sites are described as within or partially within the Corps project. The report states that these sites have predominantly thin Woodland components (Schock and Langford 1978:iv). Three sites (15 Fu 304, 15 Fu 308 and 15 Fu 309) were tested during this study. The recommendations are as follows: no further work warranted at 15 Fu 303A, 15 Fu 303B, 15 Fu 304A, 15 Fu 308 and 15 Fu 309; a portion of 15 Fu 304B should be avoided by the project; and sites 15 Fu21 and 15 Fu 302 should be tested prior to implementation of the project. The remaining sites are out of the project.

McNerney and Nixon (1980) recorded nine prehistoric archeological sites during reconnaissance of 21 Mississippi River Levee Berm Items in Kentucky and Tennessee. One site was located in Fulton County (15 Fu 27). No further examination of this site is recommended.

In 1981 and 1984, archeological reconnaissance surveys were conducted for the Great River Road highway project. Fourteen archeological sites were examined in Fulton County (15 Fu 1, 15 Fu 3, 15 Fu 4, 15 Fu 11, 15 Fu 14-20, 15 Fu 24 and 15 Fu 312). One of the 14 sites was tested, 15 Fu 51 (McGraw 1981, 1984).

An archeological reconnaissance of two areas near Hickman, Kentucky resulted in the location of 14 cultural sites (Woodland and/or Mississippian). Ten of these have non-significant late 19th - early 20th century components. Two of the sites and their associated complexes (e.g., mounds) are considered by the investigator to be quite significant to the region's cultural

history (Carstens 1982).

In 1983 a cultural resource reconnaissance for the Corps of Engineers, utilizing a 15% sample, identified four sites in Fulton County (15 Fu 55, 15 Fu 64, 15 Fu 65 and 15 Fu 66). Two of these are prehistoric sites with historic components (15 Fu 55 and 15 Fu 65) and one site, 15 Fu 66, is a historic site with no prehistoric component. The remaining site, 15 Fu 64, is prehistoric. Further work is recommended for 15 Fu 55 and 15 Fu 64.

An archeological reconnaissance for two borrow pit sites identified one prehistoric archeological site, 15 Fu 116. This site is described as a lithic scatter and further investigation is recommended (Schenian 1987).

Beginning in 1983, a number of excavations have been conducted at 15 Fu 4, the Adams Site. This work has been funded through grants from the Kentucky Heritage Council. A number of articles have been produced concerning different aspects of the site (i.e., Lewis and Macklin 1984; Allen 1984).

FIELD METHODS AND RESULTS OF THE SURVEY

A plan sheet was available for the project and the project area had been flagged. Investigation consisted of an on-foot, on-site field inspection, followed by shovel testing. Consultation was held at the project site with Mr. Jim McNeil of the Memphis District Corps of Engineers. A photographic log was maintained during this investigation.

The project area consists of dense woods with thick undergrowth. Ground surface visibility was inadequate over much of the project area and a total of 39 shovel tests were excavated. For convenience, the project is divided into two parts using the slough which cuts across the proposed expansion as the dividing line.

In the area east of the slough, three shovel tests were placed along the approximate centerline for the levee expansion. An additional nine tests were placed to the south in the borrow area. A dirt road, with excellent surface visibility, extends along the length of the borrow area on the north and no shovel test were placed in this area. No cultural material was found in the area east of the slough.

On the west side of the slough, a dirt road extends the length of the project on the south in the borrow area, therefore, no tests were placed in this area. A transect was placed on the approximate centerline for the levee extension north of the dirt road. Twenty-seven shovel tests were excavated along this

transect. No cultural material was recovered from any of the shovel tests.

Transects were paced off using a Brunton compass for direction. Shovel tests were placed at approximately 20 meter intervals along the transects. Tests were dug with a spade and the soil from each hole screened through 1/4 inch mesh hardware cloth. After the soil profile had been examined and all pertinent data recorded, shovel holes were refilled.

The shovel holes had a diameter of approximately 32 cm. and a depth of approximately 30 cm. Two soil types were present in the project area, light brown sand and light brown silt.

No evidence of prehistoric or historic archeological sites were found in the project area during this examination.

SUMMARY AND RECOMMENDATIONS

On May 15-17, 1988, at the request of the Memphis District Corps of Engineers, an intensive archeological survey was conducted for the proposed Madrid Bend Levee Extension project in Fulton County, Kentucky. This on-foot, on-site examination, including shovel testing did not locate any archeological resources in the project area. No standing structures were found in the project area. No further investigation of this project is recommended.

If, during construction of this project, archeological resources are encountered, the Environmental Analysis Branch of the Memphis District Corps of Engineers should be notified immediately so that the finds can be evaluated and as much information as possible salvaged.

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APPENDIX

SCOPE OF WORK

SECTION C

SCOPE OF WORK

Archaeological Intensive Survey, with testing, of The Madrid Bend Levee Extension Fulton County, Kentucky.

1. General.

1.01. The Contractor shall conduct a background and literature search and intensive survey level investigation of The Madrid Bend Levee Extension, Fulton Kentucky. These tasks are in partial fulfillment of the Memphis District's obligations under the National Historic Preservation Act of 1966 (P.L. 89665); the National Environment Policy Act of 1969 (P.L. 91-190); Executive Order 11593, "Protection and Enhancement of Cultural Environment," 13 May 1971 (36CFR3921); Preservation of Historic and Archeological Data, 1974 (P.L. 93-291); and the Advisory Council on Historic Preservation, "Procedures for the Protection of Historic and Cultural Properties" (36 CFR, Part 800).

1.02. Personnel Standards.

a. The Contractor shall utilize a systematic, interdisciplinary approach to conducting the study. Specialized knowledge and skills will be used during the course of the study to include expertise in archaeology, history, architecture, geology and other disciplines as required. Techniques and methodologies used for the study shall be representative of the state of current professional knowledge and development.

b. The following minimal experiential and academic standards shall apply to personnel involved in cultural resources investigations described in this Scope of Work:

1. Archaeological Project Directors or Principal Investigators (PI). Individuals in charge of an archaeological project or research investigation contract, in addition to meeting the appropriate standards for archaeologist, must have a publication record that demonstrates extensive experience in successful field project formulation, execution and technical monograph reporting. The Contracting Officer may also require suitable professional references to obtain estimates regarding the adequacy of prior work.

2. Archaeologist. The minimum formal qualifications for individuals practicing archaeology as a profession are a B.A. or B.S. degree from an accredited college or university, followed by a minimum of two years of successful graduate study with concentration in anthropology and specialization in archaeology and at least two summer field schools or their equivalent under the supervision of archaeologists or recognized competence. A Master's thesis or its equivalent in research and publication is highly recommended, as is the M.A. degree.

3. Other Professional Personnel. All non-archaeological personnel utilized for their special knowledge and expertise must have a B.A. or B.S. degree from an accredited college or university, followed by a minimum of one year of successful graduate study with concentration in appropriate study.

4. Other Supervisory Personnel. Persons in any archeological supervisory position must hold a B.A., B.S. or M.A. degree with a concentration in archaeology and a minimum of 2 years of field and laboratory experience.

5. Crew Members and Lab Workers. All crew members and lab workers must have prior experience compatible with the tasks to be performed under this contract. An academic background in archaeology/anthropology is highly recommended.

c. All operations shall be conducted under the supervision of qualified professionals in the discipline appropriate to the data that is to be discovered, described or analyzed. Vitae of personnel involved in project activities may be required by the Contracting Officer at anytime during the period of service of this contract.

1.03. The Contractor shall designate in writing the name of the Principal Investigator. Participation time of the Principal Investigator shall average a minimum of 50 hours per month during the period of service of this contract. In the event of controversy or court challenge, the Principal Investigator shall be available to testify with respect to report findings. The additional services and expenses would be at Government expense, per paragraph 1.08 below.

1.04. The Contractor shall keep standard field records which will include, but are not limited to, field notebooks, state approved site forms, (prehistoric, historic, architectural), field data forms and graphics and photographs. Publishable quality site maps with precise boundaries and proposed impact boundaries will be submitted for each site.

1.05. To conduct the field investigation, the Contractor will obtain all necessary permits, licenses, and approvals from all local, state and Federal authorities. Should it become necessary in the performance of the work and services of the Contractor to secure the right of ingress and egress to perform any of the work required herein on properties not owned or controlled by the Government, the Contractor shall secure the consent of the owner, his representative, or agent, prior to effecting entry on such property.

1.06. Innovative approaches to data location, collection, description and analysis, consistent with other provisions of this purchase order and the Cultural Resources requirements of the Memphis District, are encouraged. Such approaches will require prior consultation with the Contracting Officer and/or his authorized representative.

1.07. No mechanical power equipment shall be utilized in any cultural resource activity without specific written permission of the Contracting Officer.

1.08. Techniques and methodologies used during the mitigation shall be representative of the current state of knowledge for their respective disciplines.

1.09. The Contractor shall furnish expert personnel to attend conferences and furnish testimony in any judicial proceedings involving the archaeological and historical study, evaluation, analysis and report. When required, arrangements for these services and payment therefor will be made by representatives of either the Corps of Engineers or the Department of Justice.

1.10. The Contractor shall supply such graphic aids (ex: profile and plan drawings) or tables as are necessary to provide a ready and clear understanding of spatial relationships or other data discussed in the text of the report. Such tables or figures shall appear as appropriate in the body of the report.

1.11. The Contractor, prior to the acceptance of the final report, shall not release any sketch, photograph, report or other material of any nature obtained or prepared under this contract without specific written approval of the Contracting Officer.

1.12. The extent and character of the work to be accomplished by the Contractor shall be subject to the general supervision, direction, control and approval of the Contracting Officer. The Contracting Officer may have a representative of the Government present during any or all phases of the described cultural resource project.

2. Study Area.

2.01. The Madrid Bend Levee Extension project is below Kentucky Point in Fulton County Kentucky. The project begins near levee mile post 9 and extends approximately 2700 feet. Right-of-way width varies. The area to be surveyed is shown on the enclosed blue lines (Enclosure 1). The project area is approximately 53 acres. The project is located on the Hubbard lake, Kentucky, and The New Madrid, MO. 7.5 minute quadrangle maps. See Enclosure 2 for project location.

3. Definitions.

3.01. "Cultural resources" are defined to include any buildings, site, district, structure, object, data, or other material relating to the history, architecture, archaeology, or culture of an area.

3.02. "Background and Literature Search" is defined as a comprehensive examination of existing literature and records for the purpose of inferring the potential presence and character of cultural resources in the study area. The examination may also serve as collateral information to field data in evaluating the eligibility of cultural resources for inclusion in the National Register of Historic Places or in ameliorating losses of significant data in such resources.

3.03. "Intensive Survey" is defined as a comprehensive, systematic, and detailed on-the-ground survey of an area, of sufficient intensity to determine the number, types, extent and distribution of cultural resources present and their relationship to project features.

3.04. "Mitigation" is defined as the amelioration of losses of significant prehistoric, historic, or architectural resources which will be accomplished through preplanned actions to avoid, preserve, protect, or minimize adverse effect upon such resources or to recover a representative sample of the data they contain by implementation of scientific research and other professional techniques and procedures. Mitigation of losses of cultural resources includes, but is not limited to, such measures as: (1) recovery and preservation of an adequate sample of archaeological data to allow for analysis and published interpretation of the cultural and environmental conditions prevailing at the time(s) the area was utilized by man; (2) recording, through architectural quality photographs and/or measured drawings of buildings, structures, districts, sites and objects and deposition of such documentation in the Library of Congress as a part of the National Architectural and Engineering Record; (3) relocation of buildings, structures and objects; (4) modification of plans or authorized projects to provide for preservation of resources in place; (5) reduction or elimination of impacts by engineering solutions to avoid mechanical effects of wave wash, scour, sedimentation and related processes and the effects of saturation.

3.05. "Reconnaissance" is defined as an on-the-ground examination of selected portions of the study area, and related analysis adequate to assess the general nature of resources in the overall study area and the probable impact on resources of alternate plans under consideration. Normally reconnaissance will involve the intensive examination of not more than 15 percent of the total proposed impact area.

3.06. "Significance" is attributable to those cultural resources of historical, architectural, or archaeological value when such properties are included in or have been determined by the Secretary of the Interior to be eligible for inclusion in the National Register of Historic Places after evaluation against the criteria contained in How to Complete National Register Forms.

3.07. "Testing" is defined as the systematic removal of the scientific, prehistoric, historic, and/or archaeological data that provide an archaeological or architectural property with its research data value. Testing may include controlled surface survey, shovel testing, profiling, and

limited subsurface test excavations & the properties to be affected for purposes of research planning, the development of specific plans for research activities, excavation, the development of specific plans for research activities, preparation of notes and records, and other forms of physical removal of data and the material analysis of such data and material, preparation of reports on such data and material and dissemination of reports and other products of the research. Subsurface testing shall not proceed to the level of mitigation.

3.08. "Analysis" is the systematic examination of material data, environmental data, ethnographic data, written records, or other data which may be prerequisite to adequately evaluating those qualities of cultural loci which contribute to their significance.

4. General Performance Specifications.

4.01. The Contractor shall prepare a management summary letter, draft and final report detailing the results of the study and their recommendations.

4.02. Background and Literature Search.

a. This task shall include an examination of the historic and prehistoric environmental setting and cultural background of the study area and shall be of sufficient magnitude to achieve a detailed understanding of the overall cultural and environmental context of the study area. It is axiomatic that the background and literature search shall normally precede the initiation of all fieldwork.

b. Information and data for the literature search shall be obtained, as appropriate, from the following sources: (1) Scholarly reports - books, journals, theses, dissertations and unpublished papers; (2) Official Records Federal, state, county and local levels, property deeds, public works and other regulatory department records and maps; (3) Libraries and Museums both regional and local libraries, historical societies, universities, and museums; (4) other repositories - such as private collections, papers, photographs, etc.; (5) archeological site files at local universities, the State Historic Preservation Office, the State Archeologist; (6) Consultation with qualified professionals familiar with the cultural resources in the area, as well as consultation with professionals in associated areas such as history, sedimentology, geomorphology, agronomy, and ethnology.

c. The Contractor shall include as an appendix to the draft and final reports written evidence of all consultation and any subsequent response(s), including the dates of such consultation and communications.

d. The background and literature search shall be performed in such a manner as to facilitate predictive statements (to be included in the study report) concerning the probable quantity, character, and distribution of cultural resources within the project area. In addition, information obtained in the background and literature search should be of such scope and

detail as to serve as an adequate data base for subsequent field work and analysis in the study area undertaken for the purpose of discerning the character, distribution and significance of identified cultural resources.

e. In order to accomplish the objectives described in paragraph 4.02.d., it will be necessary to attempt to establish a relationship between landforms and the patterns of their utilization by successive groups of human inhabitants. This task should involve defining and describing various zones of the study area with specific reference to such variables as past topography, potential food resources, soils, geology, and river channel history.

4.03. Intensive Survey.

a. Intensive Survey shall include the on-the-ground examination of the project areas described in paragraph 2.01 sufficiently to insure the location and preliminary evaluation of all cultural resources in the study area and to fulfill report requirements described for intensive survey in paragraph 5.03j.

b. Unless excellent ground visibility and other conditions conducive to the observation of cultural evidence occurs, shovel test pits, or comparable subsurface excavation units, shall be installed at intervals no greater than 30 meters throughout the study area. Shovel test pits shall be minimally 30 X 30 centimeters in size and extend to a minimum depth of 50 centimeters. All such units shall be screened using 1/4" mesh hardware cloth. Additional shovel test pits shall be excavated in areas judged by the Principal Investigator to display a high potential for the presence of cultural resources. If, during the course of intensive survey activities, areas are encountered in which disturbance or other factors clearly and decisively preclude the possible presence of significant cultural resources, the Contractor shall carefully examine and document the nature and extent of the factors and then proceed with survey activities in the remainder of the study area. Documentation and justification of such action shall appear in the survey report. The location of all shovel test units and surface observations shall be recorded and appear in the draft and final reports.

c. When cultural remains are encountered, horizontal site boundaries shall be derived by appropriate archaeological methods in such a manner as to allow precise location of site boundaries on Government project drawings and 7.5 minute U.S.G.S. quad maps when available. Methods used to establish site boundaries shall be discussed in the survey report together with the probable accuracy of the boundaries. The Contractor shall establish a datum at the discovered cultural loci which shall be precisely related to the site boundaries as well as to a permanent reference point (in terms of azimuth and distance). If possible, the permanent reference point used shall appear on Government blue-line (project) drawings and/or 7.5 minute U.S.G.S. quad maps. If no permanent landmark is available, a permanent datum shall be established in a secure location for use as a reference point. The permanent datum shall

be precisely plotted and shown on U.S.G.S. quad maps and project drawings. All descriptions of site location shall refer to the location of the primary site datum.

d. The Contractor shall examine all cultural resources encountered in the intensive survey sufficiently well to determine the approximate size, general nature and quantity of architectural or site surface data. Data collection shall be of sufficient scope to provide information requested on state site forms.

e. During the course of the intensive survey, the Contractor should observe and record local environmental, physiographic, geological or other variables (including estimates of ground visibility and descriptions of soil characteristics) which may be variables useful in evaluating the effectiveness of procedures and providing comparative data for use in predictive statements which may be utilized in future Government cultural resource investigations.

f. When sites are not wholly contained within the right-of-way limits, the Contractor shall survey an area outside the right-of-way limits large enough to include the entire site within the survey area. This shall be done in an effort to delineate site boundaries and to determine the degree to which the site will be impacted.

g. Site Specific Investigations.

All cultural resources discovered within survey area shall be examined by methods consistent with the following requirements:

(1) Site Boundaries.

Horizontal site boundaries shall be derived by the use of surface observation procedures (where surface conditions are highly conducive to the observation of cultural evidence) or by screened shovel cut units or by a combination of these methods. The delineations of horizontal sites boundaries may be accomplished concurrently with the collection of other data consistent with paragraph 4.03g.(2). Site boundaries shall be related to a site datum and permanent reference point as described in paragraph 4.03c.

(2) Surface Data Retrieval.

Surface collection of the site area shall be accomplished in order to obtain data representative of total site surface content. Both historic and prehistoric items shall be collected. The Contractor shall carefully note and record descriptions of surface conditions of the site including ground cover and the suitability of soil surfaces for detecting cultural items (ex: recent rainfall, standing water or mud). If ground surfaces are not highly conducive to surface collection, screened shovel test units shall be used to augment surface collection procedures.

Care should be taken to avoid bias in collecting certain classes of data or artifact types to the exclusion of others (ex: debitage or faunal remains) so as to insure that collections accurately reflect both the full range and the relative proportions of data classes present (ex: the proportion of debitage to implements or types of implements to each other). Such a collecting strategy shall require the total collection of quadrat or other sample units in sufficient quantities to reasonably assure that sample data are representative of such discrete site subareas as may exist. Since the number and placement of such sample units will depend, in part, on the subjective evaluation of intrasite variability, and the amount of ground cover, the Contractor shall describe, in the reconnaissance report, the rationale for the number and distribution of collection units. In the event that the Contractor utilizes systematic sampling procedures in obtaining representative surface samples, care should be taken to avoid periodicity in recovered data. No individual sample unit type used in surface data collection shall exceed 36 square meters in area.

The Contractor shall undertake (in addition and subsequent to sample surface collecting) a general site collection in order to increase the sample size of certain classes of data which the Principal Investigator may deem prerequisite to an adequate site-specific and intersite evaluation of data.

(3) Subsurface Data Retrieval.

Unless it can be conclusively and definitely demonstrated that no significant subsurface cultural resources occur at a site, the Contractor shall install a minimum of one 1 X 1 meter subsurface test unit to determine the presence and general nature of subsurface deposits.

h. Subsurface test units (other than shovel cut units) shall be excavated in levels no greater than 10 centimeters. Where cultural zonation or plow disturbance is present, however, excavated materials shall be removed by zones (and 10 cm. levels within zones where possible). Subsurface test units shall extend to a depth of at least 20 centimeters below artifact bearing soils. A portion of each test unit, measured from one corner (of a minimum 30 X 30 centimeters), shall be excavated to a depth of 40 centimeters below artifact bearing soils. All excavated material (including plow zone material) shall be screened using a minimum of 1/4" hardware cloth. Representative profile drawings shall be made of excavated unit.

i. Stringent horizontal spatial control of site specific investigations will be maintained by relating the location of all collection and test units to the primary site datum.

j. Other types of subsurface units may, at the Contractor's option, be utilized in addition to those units required by this Scope of Work.

k. Subsurface investigations will be limited to testing and shall not proceed to the level of mitigation.

1. All test units excavated shall be backfilled by the Contractor.

4.04. Analysis and Curation. Unless otherwise indicated, artifactual and non-artifactual analysis shall be of an adequate level and nature to fulfill the requirements of this Scope of Work. All recovered cultural items shall be cataloged in a manner consistent with state requirements or standards of curation in the state in which the study occurs. The Contractor shall consult with appropriate state officials as soon as possible following the conclusion of fieldwork in order to obtain information (ex: accession numbers) prerequisite to such cataloging procedures. The Contractor shall have access to a depository for notes, photographs and artifacts (preferably in the state in which the study occurs) where they can be permanently available for study by qualified scholars. If such materials are not in Federal ownership, applicable state laws, if any, should be followed concerning the disposition of the materials after the completion of the final report. Efforts to insure the permanent curation of properly cataloged cultural resources materials in an appropriate institution shall be considered an integral part of the requirements of this Scope of Work. The Contractor shall pay all cost of the preparation and permanent curation of records and artifacts. An arrangement for curation shall be confirmed by the Contractor, subject to the approval of the Contracting Officer, prior to the acceptance of the final report.

5. General Report Requirements.

5.01. The primary purpose of the cultural resources report is to serve as a planning tool which aids the Government in meeting its obligations to preserve and protect our cultural heritage. The report will be in the form of a comprehensive, scholarly document that not only fulfills mandated legal requirements but also serves as a scientific reference for future cultural resources studies. As such, the report's content must be not only descriptive but also analytic in nature.

5.02. Upon completion of all field investigation and research, the Contractor shall prepare reports detailing the work accomplished, the results, the recommendations, for each project area. Copies of the draft and final reports of investigation shall be submitted in a form suitable for publication and be prepared in a format reflecting contemporar organizational and illustrative standards for current professional archeological journals. The final report shall be typed on standard size 8-1/2" x 11" bond paper with pageds numbered and with page margins one inch at top, bottom, and sides. Photographs, plans, maps, drawings and text shall be clean and clear. The final report shall be bound in a high quality professional type binding. The project title shall appear on the front cover.

5.03. The report shall include, but not necessarily be limited to, the following sections and items:

a. Title Page. The title page should provide the following information; the type of task undertaken, the study areas and cultural resources which were assessed; the location (county and state), the date of the report; the contract number; the name of the author(s) and/or the Principal Investigator; and the agency for which the report is being prepared. If a report has been authored by someone other than the Principal Investigator, the Principal Investigator must at least prepare a foreword describing the overall research context of the report, the significance of the work, and any other related background circumstances relating to the manner in which the work was undertaken.

b. Abstract. An abstract suitable for publication in an abstract journal shall be prepared and shall consist of a brief, quotable summary useful for informing the technically-oriented professional public of what the author considers to be the contributions of the investigation to knowledge.

c. Table of Contents.

d. Introduction. This section shall include the purpose of the report; a description of the proposed project; a map of the general area; a project map; and the dates during which the task was conducted. The introduction shall also contain the name of the institution where recovered materials will be curated.

e. Environmental Context. This section shall contain, but not be limited to, a discussion of probable past floral and faunal characteristics of the project area. Since data in this section may be used in the future evaluation of specific cultural resource significance, it is imperative that the quantity and quality of environmental data be sufficient to allow subsequent detailed analysis of the relationship between past cultural activities and environmental variables.

f. Previous Research. This section shall describe previous research which may be useful in deriving or interpreting relevant background research data, problem domains, or research questions and in providing a context in which to examine the probability of occurrence and significance of cultural resources in the study area.

g. Literature Search and Personal Interviews. This section shall discuss the results of the literature search, including specific data sources, and personal interviews which were conducted during the course of investigations.

h. Survey, Testing and Analytical Methods. This section shall contain an explicit discussion of research and/or survey strategy, and should demonstrate how environmental data, previous research data, the literature search and personal interviews have been utilized in constructing such a strategy.

i. Survey, Testing and Analytical Results. This section shall discuss archeological, architectural, and historical resources surveyed, tested and analyzed; the nature and results of analysis, and the scientific importance or significance of the work. Quantified listings and descriptions of artifacts and their proveniences may be included in this section or added to the report as an appendix. Inventoried sites shall include a site number.

j. Conclusions and Recommendations. This section shall contain the recommendations of the Principal Investigator regarding all contract activities. Recommendations should be at a level sufficient to accomplish the objectives described in paragraph 4.03. Conclusions derived from survey activities concerning the nature, quantity and distribution of cultural loci, should be used in describing the probable impact of project work on cultural resources.

k. References (American Antiquity Style).

l. Appendices (Maps, correspondence, etc.). A copy of this Scope of Work shall be included as an appendix in all reports.

5.04. The above items do not necessarily have to be discrete sections; however, they should be readily discernible to the reader. The detail of the above items may vary somewhat with the purpose and nature of the study.

5.05. In order to prevent potential damage to cultural resources, no information shall appear in the body of the report which would reveal precise resource location. All maps which indicate or imply precise site locations shall be included in reports as a readily removable appendix (ex: envelope).

5.06. No logo or other such organizational designation shall appear in any part of the report (including tables or figures) other than the title page.

5.07. Unless specifically authorized by the Contracting Officer, all reports shall utilize permanent site numbers assigned by the state in which the study

5.08. All appropriate information (including typologies and other classificatory units) not generated in these contract activities shall be suitably referenced.

5.09. Reports detailing testing activities shall contain site specific maps. Site maps shall indicate site datum(s), location of data collection units (including shovel cuts, subsurface test units and surface collection units); site boundaries in relation to proposed project activities, site grid systems (where appropriate) and such other items as the Contractor may deem appropriate to the purposes of this contract.

5.10. Information shall be presented in textual, tabular, and graphic forms, whichever are most appropriate, effective and advantageous to communicate necessary information. All tables, figures and maps appearing in the report shall be of publishable quality.

5.11. Any abbreviated phrases used in the text shall be spelled out when the phrase first occurs in the text. For example use "State Historic Preservation Officer (SHPO)" in the initial reference and thereafter "SHPO" may be used.

5.12. The first time the common name of a biological species is used it should be followed by the scientific name.

5.13. In addition to street addresses or property names, sites shall be located on the Universal Transverse Mercator (UTM) grid.

5.14. All measurements should be metric. If the Contractor's equipment is in the English system, then the metric equivalents should follow in parentheses.

5.15. As appropriate, diagnostic and/or unique artifacts, cultural resources or their contexts shall be shown by drawings or photographs.

5.16. Black and white photographs are preferred except when color changes are important for understanding the data being presented. No instant type photographs may be used.

5.17. Negatives of all black and white photographs and/or color slides of all plates included in the final report shall be submitted so that copies for distribution can be made.

6. Submittals.

6.01. The Contractor shall, unless delayed due to causes beyond his fault or negligence, complete all work and services under the purchase order within the following time limitations after receipt of notice to proceed.

a. A management summary letter, of work conducted, and the findings of that work shall be submitted within 15 calendar days following receipt of notice to proceed.

b. Four (4) copies of the draft report will be submitted within 35 calendar days following receipt of notice to proceed.

c. The Government shall review the draft report and provide comments to the Contractor within 20 calendar days after receipt of the draft report.

d. An original and 20 bound copies of the final report shall be submitted within 20 calendar days following the Contractor's receipt of the Government's comments on the draft report.

6.02. If the Government review exceeds 20 calendar days, the period of service of the purchase order shall be extended on a day-by-day basis equal to any additional time required by the Government for review.

6.03. The Contractor shall submit under separate cover 4 copies of appropriate 15' quadrangle maps (7.5' when available) and other site drawings which show exact boundaries of all cultural resources within the project area and their relationship to project features, and single copies of all forms, records and photographs described in paragraph 1.04.

6.04. The Contractor shall submit to the Contracting Officer completed National Register forms including photographs, maps, and drawings in accordance with the National Register Program if any sites inventoried during the survey are found to meet the criteria of eligibility for nomination and for determination of significance. The completed National Register forms are to be submitted with the final report.

6.05. At any time during the period of service of this contract, upon the written request of the Contracting Officer, the Contractor shall submit, within 30 calendar days, any portion or all field records described in paragraph 1.04 without additional cost to the Government.

6.06. When cultural resources are located during intensive survey activities, the Contractor shall supply the appropriate State Historic Preservation Office with completed site forms, survey report summary sheets, maps or other forms as appropriate. Blank forms may be obtained from the State Historic Preservation Office. Copies of such completed forms and maps shall be submitted to the Contracting Officer within 30 calendar days of the end of fieldwork.

6.07. The Contractor shall prepare and submit with the final report, a site card for each identified resource or aggregate resource. These site cards do not replace state approved prehistoric, historic, or architectural forms or Contractor designed forms. This site card shall contain the following information, to the degrees permitted by the type of study authorized:

a. site number

b. site name

c. location: section, township, and UTM coordinates (for procedures in determining UTM coordinates refer to How to Complete National Register Forms, National Register Program, Volume 2.

d. county and state

- e. quad maps
- f. date of record
- g. description of site
- h. condition of site
- i. test excavation results
- j. typical artifacts
- k. chronological position (if known)
- l. relation to project
- m. previous studies and present contract number
- n. additional remarks

7. Schedule.

7.01. The Contractor shall, unless delayed due to causes beyond his control and without his fault or negligence, complete all work and services under this contract within the following time limitations.

<u>Activity</u>	<u>Due Date</u> (Beginning with acknowledged date of receipt of notice to proceed)
Intensive Survey of the Madrid Bend Levee Extension	5 calendar days
Submittal of Management Summary Letter	15 calendar days
Submittal of Draft Report	35 calendar days
Government Review of Draft Report	55 calendar days
Contractor's Submittal of Final Report	75 calendar days

7.02. The Contractor shall make any required corrections after review by the Contracting Officer of the reports. In the event that any of the Government review periods are exceeded and upon request of the Contractor, the contract period will be extended on a calendar day for day basis. Such extension shall be granted at no additional cost to the Government.

8. Method of Payment.

8.01. Upon satisfactory completion of work by the Contractor, in accordance with the provisions of this purchase order, and its acceptance by the Contracting Officer, the Contractor will be paid the amount of money indicated in Block 25 of the purchase order.

8.02. If the Contractor's work is found to be unsatisfactory and if it is determined that fault or negligence on the part of the Contractor or his employees has caused the unsatisfactory condition, the Contractor will be liable for all costs in connection with correcting the unsatisfactory work. The work may be performed by Government forces or Contractor forces at the direction of the Contracting Officer. In any event, the Contractor will be held responsible for all costs required for correction of the unsatisfactory work, including payments for services, automotive expenses, equipment rental, supervision, and any other costs in connection therewith, where such unsatisfactory work as deemed by the Contracting Officer to be the result of carelessness, incompetent performance or negligence by the Contractor's employees. The Contractor will not be held liable for any work or type of work not covered by this purchase order.

8.03. Prior to settlement upon termination of the purchase order, and as a condition precedent thereto, the Contractor shall execute and deliver to the Contracting Officer a release of all claims against the Government arising under or by virtue of the purchase order, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein.