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Form Approved
OMB No. 0704-0188

(2)

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	1 FEB 1988	final

4. TITLE AND SUBTITLE
Archaeological Survey of Selected Areas and Testing of Site 3PO504 along the St. Francis Levee of the Oak Donnick Floodway near the city of Marked Tree, Poinsett Co., AR

5. FUNDING NUMBERS
c DACW66-87-Q-0099

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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
196

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)
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14. SUBJECT TERMS	15. NUMBER OF PAGES 29
	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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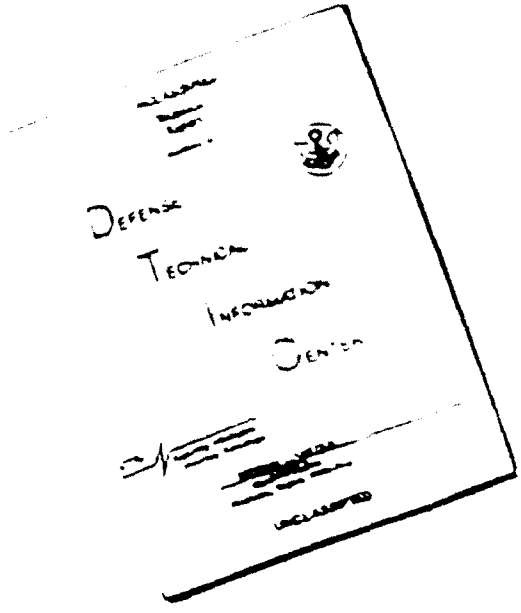

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ABSTRACT

On September 2, 1987, Mid-Continental Research Associates conducted a survey of selected areas along the St. Francis Levee of the Oak Donnick Floodway near the city of Marked Tree in Poinsett County, Arkansas. During survey of eight potential borrow pits, one prehistoric archeological site was discovered. Site 3PO504 was intensively tested and was determined to be eligible for nomination to the National Register of Historic Places. Mid-Continental Research Associates recommends avoidance of this site. If avoidance is not possible, we recommend mitigation by data recovery.

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INTRODUCTION

On September 2, 1987, the Memphis District Corps of Engineers sent Mid-Continental Research Associates (MCRA) a request for quotation for archeological survey and testing of selected areas along the St. Francis Levee of the Oak Donnick Floodway near the city of Marked Tree, Poinsett County, Arkansas. The contract was awarded on October 12, 1987. Fieldwork was conducted from October 22, 1987 to October 30, 1987 by Kathryn A. King, Robert F. Cande, Jody O. Holmes, Scott Ackridge, and Danny Moore. One prehistoric archeological site (3PO504) was discovered, tested, and determined to be eligible for nomination to the National Register of Historic Places.

HISTORIC AND LITERATURE SEARCH

On October 20, 1987, a records search was conducted at the State Registrar's Office at the Arkansas Archeological Survey. State site maps were checked and no sites were found in the immediate project area. A mound group, 3PO46, was noted approximately one mile from the northern end of the project area. GLO maps were examined for the project area and no historic features were noted in the project area.

ENVIRONMENT

The Marked Tree project area is located in the Oak Donnick Floodway which drains the area surrounding the St. Francis Sunk Lands. The St. Francis Sunk Lands are in the Eastern Lowland physiographic region which is part of the Central Mississippi River Valley (Figure 1; Morse and Morse 1983). This portion of the Mississippi River Valley is a deeply incised canyon, known as the Mississippian Embayment, which has alluviated since the beginning of the Holocene. The valley is 80 miles wide at the project area and is divided roughly in half by Crowley's Ridge (Medford 1972:69). The St. Francis River Basin is in the Eastern lowlands which is the also the location of the current course of the Mississippi River.

The Mississippi River has formed the structure of the environment first by carving this great valley and more recently, by depositing nearly a mile of silt within its confining rock walls. The alluvium deposited is largely rock and stone free with the largest common sediment size being sands deposited in the alluvial levees. This has resulted in the formation of some of the best and most extensive agricultural lands in the world, which have virtually no hard rocks or minerals. Prehistorically, and even today, rocks and minerals had to be imported from the surrounding regions.

The Mississippi River has also structured, and continues to structure, the transportational environment. The dominant direction of its movement from north to south has resulted in making resources upstream more accessible than those to the east or especially to the west. For example, to reach the Ozarks one must traverse three major rivers; the St. Francis, the Cache and the Black, all former channels of the Mississippi River in post Pleistocene times. In pre-automobile times, this was a tedious overland journey of 80 miles which involved crossing many bodies of water. This contrasts with 100 miles of floating downhill on the surface of the river. The river is still a major transportation artery for the central part of the continent and in earlier

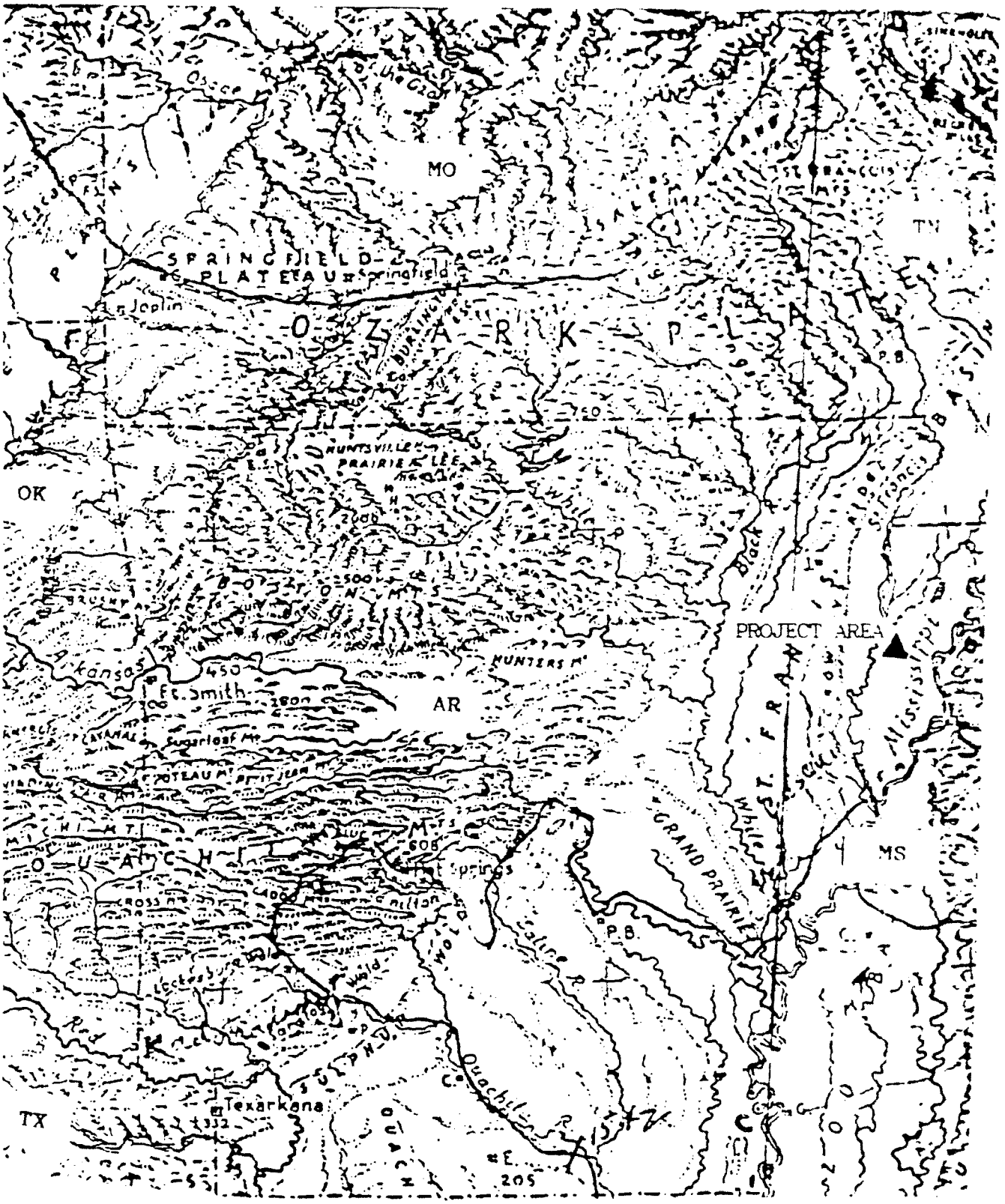

Figure 1. Project area physiography.

times was the only way to easily traverse this lowland region. In the 1840-43 period when the General Land Office (GLO) maps were made, all of the mapped settlements in the project area were positioned along the river.

The central Mississippi River valley is incised into the Ozark and Cumberland Plateaus. These coordinate proveniences were uplifted from the south by a tectonic plate movement from the southeast which pushed up the Ouachita Mountains and split the lower part of the Ozark- Cumberland plateau. At the time of this tectonic event, ca. 200 million years ago, these plateaus were inland seas with beach lines along the present course of the Boston Mountains in Central Arkansas and Sand Mountain/Walden Ridge in Alabama and Tennessee. Today, these ancient sea beds are limestones filled with many different kinds of cherts. While these cherts come from several different formations there is a great deal of variation within formations which is made more confusing by the tendency for these formations to have different names in different states. For example, the Boone, Burlington, and Ft. Payne "formations" are different names applied to the same formation in Arkansas, Missouri and Tennessee (respectively). There is a great deal of variation present within this structure and more formations than the above contain usable cherts. Some of these have well known source areas, such as Dover, Mill Creek, Crescent and Illinois Hornstone. Other lithic resources occur over large areas; and/or do not have known quarries, though they may exist (Butler and May 1984).

Making the identification of these lithic resources more complex is the presence of Tertiary gravel beds around the edges of the Mississippian Embayment and on Crowley's Ridge. Crowley's Ridge is perhaps the most important of these because it occurs in the center of this stoneless plain. Lain down in Pliocene times, when the river gradient was steeper than it is today, this deposit has virtually every heavy hard kind of mineral which occurs in the Mississippi River Basin. Prehistoric sites on the edge of the western lowlands, even those situated directly on the Grand Glaise Terrace, show a marked preference for the lithics found in the Ozarks over those of the terrace (e.g. 3IN17, Lafferty et al. 1981). Much of the gravel deposits adjacent to the Mississippi Valley to the east are covered with Loess deposits up to 200 feet thick. Investigations have shown that as one approaches Crowley's Ridge from both the east and the west there is a marked increase in the occurrence of cobbles on prehistoric sites (Shaw 1981). This is generally true, even though through time there are documented changes in the prehistoric utilization of different lithic resources, because something is better than nothing, and because almost any kind of stone could be found there. Crowley's Ridge is the main source of gravel for both the eastern and western lowlands. The rather intensive modern day use of gravel sometimes makes the identification of aboriginal tools from "gravel crusher produced artifacts" difficult.

The Mississippi River has been totally responsible for structuring its valley. As stated, this has greatly influenced the development of the transportation routes. When DeSoto and his men reached the Great River in 1541, they looked on a great transportation artery which stretched from the Gulf of Mexico (and beyond) into the heart of the continent. However, it was navigated and controlled by fleets of dugout canoes that were both to harass and assist the Spanish over the next several years. As they looked from the bluffs over the virgin forest covered swamps, they never suspected that they were gazing upon both the graveyard and salvation of their expedition. Most of

the next two months the Spaniards spent slogging through one of the most difficult swamps encountered in the entire expedition, the St. Francis Sunk Lands (Morse 1981; Hudson 1984). The expedition was continually drawn back to the Great River and the high chiefdom cultures, which they dominated using the techniques learned against the Aztecs and the Inca. The swampy lowlands impeded the expedition, especially when traversing from east to west. As they reached the Grand Glaise terraces on the Ozark Escarpment, they encountered the great Toltec-Cahokia road (that would later be known as the Natchitoches Trace, then the southwest Military road and currently US 67). This important road was on tractable ground with the swampy lowlands to the east and the more dissected plateau to the west. The expedition's speed doubled once they were on it. In the end, after many more side trips and high adventures, the hard pressed expedition made its escape down the Great River in boats constructed with nails forged from their weapons. They were harassed by the Indians in large fleets of canoes all the way to the Gulf of Mexico.

In summary, the physiography of the Central Mississippi River has greatly circumscribed life in this environment. By water, transportation was much easier though sometimes longer on the rivers, particularly the Mississippi. Overland travel was easiest by going around the lowlands or down Crowley's Ridge. That is, people did not penetrate or live in this environment unless they were equipped with boats, lines and other tools with which to deal with an aquatic environment. This lowland forest was rich in plants and animals with some of the most productive soils on the continent. Also, there was a great profusion of mineral resources to be had in the nearby uplands. These are known to have been widely traded from prehistoric times to the present.

Physiography

The local environment has always been important to human survival, because this is where areal bound resources necessary for survival were obtained in the preindustrial world. The effect the local environment had on past cultures is often underestimated from our modern perspective - inside structures with controlled climates looking out on a largely artificial landscape.

The Marked Tree project area is perhaps one of the most highly modified rural landscapes in North America. The major modifications to the landscape include: (1) timbering has totally changed the biota. (2) Drainage of the swamps has made agriculture possible in many parts of the watershed, and (3) landleveling which is changing the topography making agriculture more efficient and productive. These changes make it difficult to to perceive, let alone measure, certain facets of the environment and often obscure the locations of cultural resources. Therefore, the methods of measuring certain past environmental variation must be indirect because natural topography, flora, and fauna are no longer present in the landscape (Beadles 1976).

This low lying area is part of the larger St. Francis Sunk Lands that, apparently, was formed as a result of the New Madrid Earthquake of 1807-9. This and possibly other, earlier earthquakes caused the many sand blows or patches of sand scattered over the clayey soils (especially the Sharkey clay) of the region. Sandblows are an earthquake phenomenon (Zoeback et al. 1980; Muller, Lafferty, Santeford and Everett-Dickenson 1975; Lafferty et al. 1984a), and may be datable and therefore useful in establishing an earthquake chronology.

Soils

Soils in the project area consisted entirely of Alligator Clays and Sharkey soils, frequently flooded. Alligator soils consist of poorly drained, level soils found in old slack-water areas on Mississippi River bottom land. The soils formed in thick beds of clayey sediments and have a natural vegetation of water-tolerant hardwoods (Gray and Ferguson 1977:8). Sharkey soils consist of level, poorly-drained soils in slack-water areas, formed in thick beds of clayey sediments, and have a natural vegetation of water-tolerant hardwoods (Gray and Ferguson 1977:25). Included with Alligator clays are areas of undulating soils and spots of Amagon, Earle, Sharkey, and Tunica soils. Included in the mapping of Sharkey frequently flooded soils are soils similar to Sharkey soils except for an overwash of various thickness of sand and silts. The Sharkey unit is in the St. Francis River Floodway where it is flooded for a few days to several months, mainly between January and June every year (Gray and Ferguson 1977:26).

PREVIOUS ARCHEOLOGICAL RESEARCH

Archeological research has been conducted in northeast Arkansas for a century. As early as 1877, Frank James, a medical doctor, collected artifacts for the Smithsonian Institution and some museums in Europe (Baird 1979: Morse 1985). However, he did not keep records of the artifacts' proveniences other than the counties in which they were found.

In the 1880s, Thomas (1894) conducted the first systematic archeological work in the area for the Smithsonian Institution's Bureau of Ethnology, division of Mound Exploration. The project mapped and excavated typical mound sites throughout the eastern United States. Careful records were kept on all work, and all archeological specimens were returned to the Smithsonian. Three Mississippi period mound groups were excavated in Mississippi and Poinsett Counties, Arkansas. These were Taylor's Shanty, Tyronza Station, and the Jackson Mounds. This work identified the American Indians as the architects of the great mound groups in the United States.

In the early 1900s, C.B. Moore (1908, 1910, 1911, 1916) traveled up the St. Francis, Little, and Mississippi Rivers in his steamboat, the *Gopher of Philadelphia*, with an experienced field crew. They traveled to many of the major Southeastern sites and spent a few days excavating at each. The information gathered by Moore was published by the Academy of Natural Sciences of Philadelphia.

From 1925 to 1960, Samuel C. Dellinger, curator of the University of Arkansas Museum, excavated numerous bluff shelters and mound sites in northeast Arkansas with a grant from Carnegie Foundation (Hoffman 1981). Sites in northeast Arkansas excavated by Dellinger were Nodena, Hazel, Neeley's Ferry, Golightly, Bradley, Barton Ranch, and Vernon Paul. Collections from the sites excavated by Dellinger are stored at the University of Arkansas Museum and are available for study though nothing extensive has been written about these excavations.

The Upper Nodena site in Mississippi County, owned by Dr. James K. Hampson, was excavated by the University of Arkansas Museum in 1932. Dr. Hampson continued excavating the site, keeping careful notes and records,

until 1941 (Morse 1973).

From 1939-1941 and from 1946-1947, Phillips, Ford, and Griffin (1951) conducted a survey of the Lower Mississippi Alluvial Valley. They mapped 385 sites, taking extensive surface collections from each, and conducting excavations at selected sites. Their work developed the pottery typology still widely in use today (Morse 1985).

An increase in the tempo and scope of archeological work began in the 1960s with increased legislation protecting archeological sites. The projects carried out during this era are generally referred to as Cultural Resources Management studies (Lafferty and Watkins 1987). These projects have greatly increased the knowledge of archeology from all time periods in the region. Table 1 presents archeological projects carried out in Poinsett County (Arkansas Archeological Survey Registrar's Office).

Table 1. Recent Archeological Work Done in Poinsett County.

Author	Date	Project
Cyrus Thomas	1881	Arkansas Mounds Survey
John E. Keller	1983	Belle Fountain Ditch 1
Albert C. Goodyear	1970	Brand Site (3PO139) Excavation
John H. House	1973	Cache River Survey
Robert A. Taylor	1986	Cross Ditch #2
Charles H. LeeDecker	1978	Ditch 61 Channel Clearing
Samuel C. Dellinger	1932	Eastern Arkansas Survey
Dan F. Morse	1969	Floodway Mounds Site (3PO48) Excavation
Samuel D. Smith	1974	Fourche Creek Project Survey
Dan F. Morse	1969	Hazel Site (3PO6) Project IV, Excavation
Charles R. McGimsey III	1964	Hazel Site (3PO6) Project I, Excavation
Albert C. Goodyear	1969	Hazel Site (3PO6) Project II, Excavation
Albert C. Goodyear	1969	Hazel Site (3PO6) Project III, Excavation
Dan F. Morse and Samuel C. Smith	1973	Hazel Site: Highway 308 Excavations
Burney B. McClurken	1985	Jonesboro-Payneway Hwy 63 Relocation

Table 1. Recent Archeological Work Done in Poinsett County.

Robert H. Lafferty, III	1981	Keo to Dell Final Survey
Lawrence G. Santeford	1982	Lace Place Site (3PO17) Excavation
Dan F. Morse	1982	McCarty Site (3P0467) Survey
Charles R. McGimsey	1963	Miller Mounds Site (3PO24) Excavation
John H. House	1975	Poinsett Watershed Survey
David R. Hoxie	1980	Poinsett County Watershed (3PO358) Data Recovery
Samuel D. Smith	1974	Poinsett County Watershed Project
John H. House	1975	Poinsett County Watershed Site #1 Excavation
John W. Mueller and James E. Fitting	1978	Poinsett County Watershed Survey
W.J. Bennett, Jr.	1978	Poinsett Watershed-Museum of the Red River
John H. House	1978	Poinsett Watershed Sites #1 and #101 Survey
Thomas J. Padgett	1976	Poinsett Watershed: Floodwater Retarding Structures/ Channel Work
Gerald P. Smith	1977	Rivervale (3PO395) Mitigation
Dan F. Morse	1972	Site 3PO207 Test Excavation
Patty Merkowsky	1976	St. Francis 1 (Item 1, L15, and L22)
Timothy C. Klinger and Mark A. Mathis	1977	St. Francis II: Marked Tree, Riverdale, Cockle Burr Slough Areas
Doug Prescott	1980	St. Francis Lake Dam #10 Survey
David B. Waddell	1984	Trumann Industrial Park
Michael G. Million	1975	Tyronza River-4 Mile Survey
James T. Toney	1975	Tyronza River-8 Mile Survey
Robert H. Lafferty III et al.	1984	Tyronza Watershed II
Doug Prescott	1982	W.R. Roberts Permit Area
John H. House	1968	Wimpy Site (3PO85) Test Excavation

Table 1. Recent Archeological Work Done in Poinsett County.

Robert Taylor and Carol S. Spears	1986	Archeological Survey of Cross Ditch No. 2 and Central Ditch Cleanout
Carol S. Spears and Robert Taylor	1987	Ditch 1 Survey
Carol S. Spears et al.	1987	Ditches 7 and 13 and Buffalo Creek Ditch

CULTURE HISTORY

The above and other work in adjacent regions have resulted in the definition of the broad pattern of cultural history and prehistory in the region, however, knowledge of the region is still sketchy, with few Archaic and Woodland sites having been excavated. This status has seriously constrained our understanding of settlement systems. Therefore, while this region may be fairly well known with respect to the Mississippi period, much more work needs to be done before the basic contents and definitions of many archeological units in space and time are adequate (cf. Morse 1982a). Presently we have a few key diagnostic types associated with some cultural units; however, the range of artifact assemblage variation across chronological and spatial boundaries is not yet defined, nor are the ranges of site types known for any of the defined units. The adequate definition and resolution of these fundamental questions and problems are necessary before we can begin to reconstruct and use the data for understanding more abstract cultural processes, as is possible in better known archeological areas such as the American Southwest.

The Paleo-Indian Period (10,000-8,500 B.C.)

This period is known in the region from scattered projectile point finds over most of the area. These include nine Clovis and Clovis-like points from the Missouri Bootheel (Chapman 1975:93). No intact sites have yet been identified from this period, and the basal deposits of the major bluff shelters thus far excavated in the nearby Ozark Mountains have contained Dalton period assemblages. Lanceolate points are known from bluff shelters and high terraces (Sabo et al. 1982:54), which may represent different kinds of activities or extractive sites, as shown in other parts of the country. For the present any Paleo-Indian site in the region is probably significant.

The Dalton Period (8,500-7,500 B.C.)

This period is fairly well known in the Lower Mississippi Valley which has produced some of the better known Dalton components and sites in the central continent. These include the Sloan site (Morse 1973) and the Brand site (Goodyear 1974). These and other more limited or specialized excavations and analyses have resulted in the identification of a number of important Dalton tools (i.e., Dalton points with a number of resharpening stages, a distinctive adze, spokeshaves, and several varieties of unifacial scrapers, stone abraders, bone awls and needles, mortars, grinding stones and pestles.

At least three different site types have been excavated: the bluff shelters, which were seasonal habitation sites, a butchering station (the Brand site) and a cemetery (Sloan site). Presently we do not have the other part(s) of the seasonal pattern which should be present in the region, nor have any other specialized activity sites been excavated. Dalton sites are known in a number of locations, especially on the edge of the Relict Braided Surface, on Crowley's Ridge, and the edge of the Ozark Escarpment. Given the present resource base, a number of important questions have been posed concerning the early widespread adaptation to this environment (Price and Krakker 1975; Morse 1982a, 1976). Adjacent areas of the Ozarks have had modern controlled excavations from Rogers, Albertson, Tom's Brook, and Breckenridge shelters (McMillan 1971; Kay 1980; Dickson 1982; Logan 1952; Bartlett 1963, 1964; Wood 1963; Thomas 1969).

The Early to Middle Archaic Periods (7,500 - 3,000 B.C.)

These periods are best known from bluff shelter excavations in the Ozarks (Rogers, Jakie's, Calf Creek, Albertson, Breckenridge and Tom's Brook shelters). During this long period a large number of different projectile point types were produced (i.e., Rice Lobed, Big Sandy, White River Archaic, Hidden Valley Stemmed, Hardin Barbed, Searcy, Rice Lanceolate, Jakie Stemmed, and Johnson). No controlled excavations have been done at any Early or Middle Archaic sites in southeast Missouri or northeast Arkansas (Chapman 1975:152). There are no radiocarbon dates for any of the Archaic period from southeast Missouri (Dekin et al. 1978:78-79; Chapman 1980:234-238). The Middle Archaic archeological components are rare to absent in the Central Mississippi Valley leading the Morses to propose that the region was abandoned during this dry period (Morse and Morse 1983). Therefore, much of what we know of the archeological manifestations of this period is based on work in other regions, which has been extrapolated to the Mississippi Valley based on surface finds of similar artifacts. At present, phases have not been defined.

The Late Archaic (3,000 B.C. - ~500 B.C.)

This period appears to be a continuing adaptation to the wetter conditions following the dry Hypsithermal. This corresponds to the Sub-Boreal Climatic episode (Sabo et al. 1982). The lithic technologies appear to run without interruption through these periods, with ceramics added about the beginning of the present era. Major excavations of these components have taken place at Poverty Point and Jaketown in Louisiana and Mississippi (Ford, Phillips and Haag 1955, Webb 1968). A fairly large number of Late Archaic sites is known in eastern Arkansas and Missouri (Chapman 1975:177-179,224; Morse and Morse 1983:114-135). Major point types include Big Creek, Delhi, Pandale, Gary and Uvalde points. Other tools include triangular bifaces, manos, grinding basins, grooved axes, atlatl parts, and a variety of tools carried over from the earlier periods such as scrapers, perforators, drills, knives, and spokeshaves. Excavations at the Phillips Spring site have documented the presence of tropical cultigens (squash and gourd) by ~2,200 B.C. (Kay et al. 1980). The assemblages recovered in the bluff shelters from this time period indicate that there was a change in the use from general occupation to specialized hunting/butchering stations (Sabo et al. 1982:63). There are some indications of increasing sedentism in this period, however, the range of site types has not been defined. Late Archaic artifacts are well known from the region, with artifacts usually present on any large multicomponent site. Our understanding of this period is limited to excavations from a

few sites (Morse and Morse 1983; Lafferty 1981). At present we do not know the spatial limits of any phases (which have not been defined), nor do we have any control over variation in site types and assemblages.

Early Woodland (500 B.C.(?) - 150 B.C.).

During this period there appears to have been a continuation of the lithic traditions from the previous period with an addition of pottery. As with the previous period this is a very poorly known archeological period with no radiocarbon dates for the early or beginning portions of the sequence. The beginning of the period is not firmly established and the termination is based on the appearance of Middle Woodland ceramics dated at the Burkett site (Williams 1974:21). The original definition of the Tchula period was made by Phillips, Ford and Griffin (1951:431-436). In the intervening time a fair amount of work has been done on Woodland sites. Chapman concludes that we are not yet able to separate the Early Woodland assemblages from the components preceding and following. At present there is considerable question if there is an Early Woodland period in Southeast Missouri (Chapman 1980:16-18). Recent work in northeast Arkansas, however, has identified ceramics which appear to be stylistically from this time period (Morse and Morse 1983; Lafferty et al. 1985); and J. Price (personal communication) has identified a similar series of artifacts in the Bootheel region. Artifacts include biconical "Poverty Point objects," cordmarked pottery with noded rims similar to Crab Orchard pottery in Southern Illinois, the Alexander series pottery in the Lower Tennessee Valley, and Hickory Ridge points.

Middle - Late Woodland Periods (150 B.C.- A.D. 850)

The time between the Middle and Late Woodland was a period of change. There is evidence of participation in the "Hopewell Interaction Sphere" (dentate and zone-stamped pottery, exotic shell; Ford 1963) and horticulture is increasing (corn, hoe chips, and farmsteads). There is some mound construction, notably the Helena Mounds at the south end of Crowley's Ridge (Ford 1963), indicating greater social complexity. Typical artifacts include Snyder, Steuben, Dickson and Waubesa projectile points, and an increasing number of pottery types (cf. Rolingson 1984; Phillips 1970; Morse and Morse 1983). In the Late Woodland there is an apparent population explosion as evidenced by a great number of sites with plain grog-tempered pottery in the east and Barnes sand-tempered pottery in the west of the Central Valley (cf. Figure 18; Morse and Morse 1983; Chapman 1980). There is some evidence of architecture (cf. Morse and Morse 1983; Spears 1978) in this period as well as mound center construction (Rolingson 1984). A number of large open sites have not been excavated. There appears, therefore, to be a rather large bias toward the spectacular mound centers in what we know about this important period. There is still a great deal which is not understood about the cultural sequence and changes which came about during this important period. The Late Woodland in this area has been suggested as the underlying precursor to the Mississippian, which came crashing into the area with the introduction (invention ?; cf. Price and Price 1981) of shell-tempered pottery and the introduction of the bow and arrow around A. D. 850.

The Mississippi Period (A.D. 850-1673)

The Mississippi period is known from the earliest investigations in the region (Thomas 1894; Holmes 1903; Moore 1916), and has been the most

intensively investigated portion of the prehistoric record in northeast Arkansas and southeast Missouri (Chapman 1980; Morse and Morse 1983; Morse 1982; Morse 1981; House 1982). Enough work has been done to define the spatial limits of phases (cf. Chapman 1980; Morse and Morse 1983; Morse 1981). During this period the native societies reached their height of development with fortified towns, organized warfare, more highly developed social organization, corn, bean and squash agriculture, and extensive trade networks. The bow and arrow is common and there is a highly developed ceramic technology (cf. Lafferty 1977; Morse and Morse 1980; Smith 1978). This was abruptly terminated by the DeSoto entrada in the mid-16th century (Hudson 1984, 1985; Morse and Morse 1983) which probably passed through the project area.

The archeological phases and some times of change and temporal spatial boundaries have been blocked out for the Mississippian and Woodland periods. During the Woodland, the project area was on the boundary between the grog-tempered Baytown cultures to the south and sand-tempered Barnes cultures to the North. During the Early and Late Mississippi period, it was also on the border of different archeological phases.

Protohistoric Period.

In the 1500s, Hernando DeSoto entered the Central Mississippi Valley in search of gold (Varner and Varner 1951). Many people are continually working on the reconstruction of DeSoto's route through the southeastern United States (Swanton 1939; Phillips, Ford and Griffin 1951; Brain, Toth and Rodriguez-Buckingham 1974; and Morse and Morse 1983). Recognized as the discoverer of almost every county in northeast Arkansas (Morse 1985), DeSoto encountered many large chiefdoms during his travels through Arkansas. These chiefdoms governed the large population of the area. The Spanish brought to the natives of the region many European diseases to which the Indians had no immunity. It is estimated that as much as 90% of the native population died as a result of these diseases (Dobyns 1983). This decimation of the population probably resulted in the failure of the chiefdom societies and would account for the lack of people encountered by the first French explorers to the region (Thwaites 1900).

Historic Period (1673-present)

After the DeSoto expedition the area was not visited until the French opened the Mississippi valley in the last quarter of the 17th century. The Indian societies were a mere skeleton of their former glory and the population a fraction of that described by the DeSoto chronicles. Marquette, in his rediscovery of the Mississippi for the French, did not encounter any Indians between the Ohio and the Arkansas rivers. He described this section of his journey south of the Ohio River as follows:

> Here we Began to see Canes, or large reeds, which grow on the banks of the river; their color is a very pleasing green; all the nodes are marked by a Crown of Long, narrow, pointed leaves. They are very high, and grow so thickly that The wild cattle have some difficulty in forcing their way through them.
>
> Hitherto, we had not suffered any inconvenience from the mosquitoes; but we were entering their home, as it

were. . .

> We thus push forward, and no longer see so many prairies, because both shores of The river are bordered with lofty trees. The cottonwood, elm, and basswood trees there are admirable for Their height and thickness. The great numbers of wild cattle, which we heard bellowing, lead us to believe that The Prairies are near. We also saw Quail on the water's edge. We killed a little parroquet, one half of whose head was red, The other half and The Neck was yellow, and The whole body green (Marquette 1954:360-361; strange capitalization in the French original).

During the French occupation most of the settlements were restricted to the major river courses with trappers and hunters living isolated lives in the headwaters of the many smaller creeks and rivers. The St. Francis River was one of the earliest explored tributaries of the Mississippi River in the Lower Mississippi Valley and appears on some of the earliest French maps.

Early American Settlement

In 1803 the French sold the Louisiana Territory to the United States. This included what would someday be Arkansas. The territory was administered from the territorial capital in St. Louis. In 1819 Arkansas Territory was established with its capital at Arkansas Post, the most ancient French settlement in the state (Ross 1969:8). The seat of government was moved to Little Rock in 1821, and in 1836 Arkansas was admitted to the union as a slave state.

The Euro-American occupation of the Central Mississippi Valley proceeded overland down Crowley's Ridge and slowly spread out from the rivers. Ports were established at Piggott on the high ground of Crowley's Ridge in the St. Francis Gap in 1835. It was located on the Helena-Wittsburg road which ran down Crowley's Ridge (Dekin et al. 1978:358). All of the settlements in the 1830s between Piggott and Helena in the St. Francis Basin were either along the rivers or on Crowley's Ridge. Towns continued to be founded in these environments into the early 1900s. Settlements away from the rivers along overland roads began in the 1850s and greatly accelerated with the construction of the railroads, levees, and drainage ditches in the late 19th century.

Settlement and enterprise were still concentrated in areas near and along the Mississippi River and accessible tributaries. Swamplands (Big Lake, Tyronza, and the St. Francis Sunk Lands) and flooding from the rivers presented a formidable obstacle to further settlement of much of this land. The Mississippi River flood plain was almost wilderness and practically uninhabited. Streams and bayous were the only arteries for travel through this swampscape more than half the size of New Jersey. Settlement in the interior of the county took place on drier areas near streams (Dekin et al. 1978:358). Low lying areas in the interior were often flooded and were unsuitable for agriculture. These areas were dominated by vast virgin Southern Floodplain forests (Goodspeed 1889: 446).

Swamp Drainage and Its Effects

Efforts begun in 1902 to establish drainage districts failed again and again, hampered by actions of big lumber interests. Lumbermen were not concerned with it and farmers did not want to pay the tax, although small, that would be levied for such an undertaking. Otherwise sane and upstanding citizens engaged in fist fights and brandished knives. Ultimately, over a period of years, the violent objections led to an attempted lynching of Judge Logan D. Rozelle and R.E. Lee Wilson. In spite of the violence and the obstacles, drainage districts were finally established (Sartain n.d.: 6, 7).

In 1918 the J. L. C. & E. advertised that the final work in draining was being done, and by 1919 there was a land boom. Land sales were of no more than 80 acres each (Dew 1968: 15, 31), however; the land was cheap and fertile and it brought people who were anxious to farm it. Insisting that "...the plow should follow the saw" (Lee Wilson and Company n.d.), Lee Wilson acted on this belief and planted cotton on the deep alluvial soil. Other planters followed suit and by December of 1916, after World War I in Europe began to cause agricultural prices in the United States to rise, the railroad shipped 38 carloads of cotton valued at $238,000 on a single train--a record for a shipment from the Sunk Lands. Still later, in 1919, the all-time record for a single J. L. C. & E. freight lading was set when R. E. L. Wilson shipped 6500 bales of cotton valued at one million dollars on a special train. It took 600 pickers two months to pick the crop (Dew 1968:31). A framed photograph of this train with its load of cotton is proudly displayed in the offices of the Delta Valley & Southern, affiliate of the Lee Wilson Company in Wilson, Arkansas. The caption reads:" J. L. C. & E. 1919 MILLION DOLLAR TRAIN" (Hope Gillespie, personal observation). By the end of World War I logging was outdistanced by agriculture. Part of the reason was that timbering was a finite process, and railroads hastened the cutting and the disappearance of the great hardwood forest (Dew 1968: 31).

When cotton prices dropped in 1920, Lee Wilson led the farmers in experimenting with other crops. Wheat, soybeans, corn, cantaloupes, sweet potatoes, hay, and alfalfa became only some of the valuable alternatives to cotton. Planters used tenant farmers to plant and harvest. James Craighead's opinions on tenants and land ownership were quoted widely by authors at the turn of the century. He believed that large land holdings were a "drawback to prosperity" and that when owners divided their land and financed it on a long term basis to permanent settlers, everyone profited. People became responsible when they owned the land (Goodspeed 1889:485; Fox 1902:47-50).

Historic Period

According to local legend, a tribe of Indians, whose chief's name was Moonshine, had their main village on the Little River near the Poinsett-Mississippi County line before the area was inhabited by Europeans. The Indians used to hunt along the St. Francis River. When returning to their village, they found that they could cut off about 10 miles of upstream paddling by carrying their canoes a short distance from the St. Francis river to the Little River. A tree was marked to designate the spot where this distance was shortest, thus the name "Marked Tree". The first Europeans to enter the area were hunters and trappers, and found the crossover convenient. In 1881 and 1882 a railroad was built through the area and a camp was made "near the old marked tree" by the workers. When the railroad was finished in

1883, the railroad officials decided to establish a station at the camp and named it Marked Tree. One of the first people to come to the settlement was Ernest Ritter who was very instrumental in making Marked Tree prosper. He established a store and was influential in getting one of the first concrete highways built from Memphis to Marked Tree (Best Western Brochure).

The project area has for a long time been on major transportation routes. The St. Francis River itself was important from early prehistoric times until the coming of the railroad. Marked Tree was on important portage points in navigating the swamps and bayous. The coming of the railroad and later landscape modification put Marked Tree on the overland route from Memphis to Jonesboro.

ARCHEOLOGICAL SURVEY

The area to be surveyed was divided into eight separate sections designated as potential borrow areas. In areas that had been plowed and had good visibility (>10%) the surface was walked over in transects at 30 m intervals and visually inspected for the presence of cultural material. Areas with less than 10% visibility were shovel tested at 30 m intervals. Shovel tests measured 30 cm x 30 cm and extended to a minimum depth of 30 cm rather than 50 cm due to the hardness of the clays in the area.

Area 1

Area 1 measured 619 m in length paralleling the levee and was 63.5 m wide (Figure 2). This area was walked over by two people in four transects at 30 m intervals. Most of the area (A) appeared not to have been recently cultivated and was inhabited by small sparsely scattered plants. Visibility in these sections ranged from 75-100%. Another section (B) had been plowed and rained upon. Visibility was 95%. A third section (C) had been recently plowed and visibility was 100%. No sites were found in Area 1.

Area 2

Area 2 measured 318 m in length, 95.3 m at its maximum width and was triangular in shape. This area had been plowed recently and was covered in the same sort of plants as section A in Area 1. Visibility ranged from 75-100% (Figure 2). The area was walked over by two people in four transects at 25 m intervals. No cultural resources were found.

Area 3

Area 3 measured 1810 m in length paralleling the St. Francis Levee and was 55.6 m wide. The northernmost section (A) held harvested soybeans. Visibility was 75-90%. The section was walked by two people in four transects at 20 m intervals. No cultural resources were found. The next section (B) was covered with harvested rice. The area was dissected by plowed transects measuring approximately 6 m in width. These transects occurred at intervals not more than 30 m apart and had 75-100% visibility (Figure 2). The transects were walked by 2 people. One isolated basal dart point fragment was found in one of the transects. The transect was walked north and south 30 m from the location of the artifact. No other artifacts were found. Three shovel tests were excavated at 2 m intervals east of the plowed transect and three were dug at 2 m intervals west of the transect. The shovel tests measured 30 cm x 30

cm x 30 cm. No further artifacts were found. The southernmost section of Area 3 (C) contained harvested soybeans. Visibility was 75-100%. The section was walked by two people in four transects at 20 m intervals. No cultural resources were found.

Area 4

Area 4 measured 2826 m in length paralleling the St. Francis Levee. There were two distinct physical sections to be surveyed in this area. The area west of the ditches was cultivated. This area measured 48 m in width. The area between the ditches was heavily wooded, measuring 27 m in width. The southernmost section (A) of Area 4 contained harvested soybeans, and visibility was 60%-80%. The next section (B) of Area 4 west of the ditches held cultivated rice. Plowed transects throughout the section were walked by three people and examined for evidence of cultural material. The transects measured approximately 6 m in width, had 75-100% visibility, and occurred at intervals no greater than 30 m. No sites were found. The next section in this area (C) contained cultivated soybeans. Visibility was 75-100%. The area was walked by two people in two transects at 30 m intervals. A third section (D) had contained soybeans that had been harvested and plowed. Visibility was 100%. A fourth section (E) had harvested soybeans. Visibility was 75-100%. Section C was walked over in two transects at 30 m intervals by two people by three people (Figure 2). A prehistoric site was found in sections this area. The site measured approximately 130 m x 160 m and was designated 3PO504.

The area between the ditches (F) was walked by two people. This area was heavily wooded and shovel testing was required. Due to the hardness of the clays, the shovel tests were only dug to 30 cm in depth and measured 30 cm x 30 cm in width. It was not possible to screen the clays, so the dirt was carefully cut through with shovels and trowels and examined for artifacts. Shovel tests were dug at approximately 30 m intervals in a zig-zag pattern. A total of 98 shovel tests were dug in the 2477 m area. No cultural materials were found.

Area 5

Area 5 was also divided into two areas (Figure 3). West of the ditches 48 m of the area was cultivated. Between the ditches 27 m of the area were heavily wooded. The northernmost section (A) of the cultivated area was a recently disced soybean field. Visibility was 90-100% and the area was walked in six transects at 30 m intervals by three people. The next section (B) was a harvested soybean field with visibility from 60-80%. The section was walked by three people in six transects at 30 m intervals. Toward the southern end of Area 5 was a sand hill that showed up on the United States Geological Survey (USGS) quadrangle map. This sand hill was shovel tested in order to determine its nature. Shovel test profiles showed 53-90 cm of sand over the surrounding clay. It was determined that this was one of the sand blows generated by earthquake activity that dot the area. No artifacts were found in this area. Area 5 produced no cultural resources.

The wooded area between the ditches (C) was shovel tested at ca. 30 m intervals in a zig-zag pattern. Shovel tests measured 30 cm x 30 cm. Due to the hard and compact nature of the clay, shovel tests were only dug to 30 cm in depth. The clays in the area will not go through a screen, therefore, the

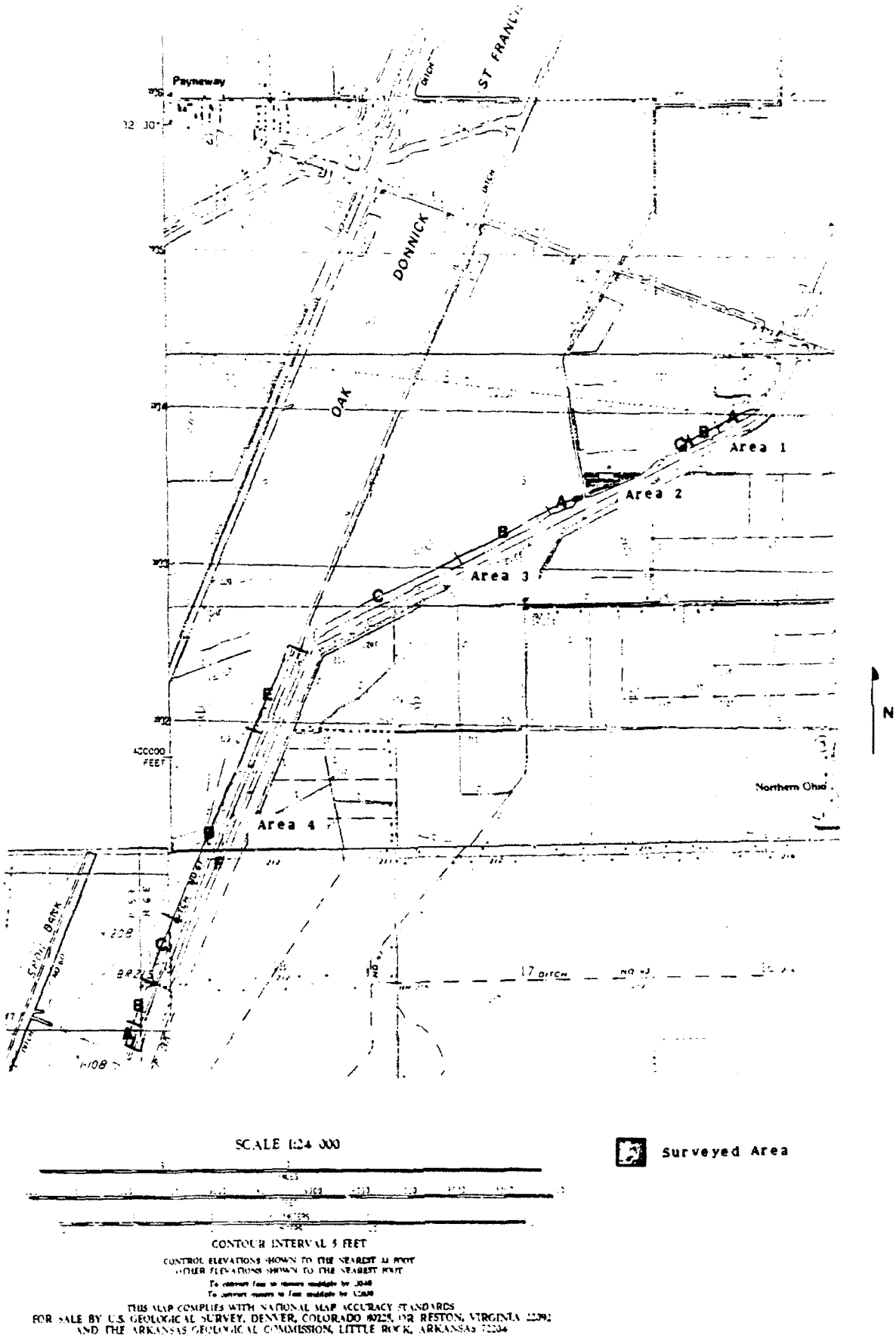

Figure 2. Survey conditions in Areas 1-4.

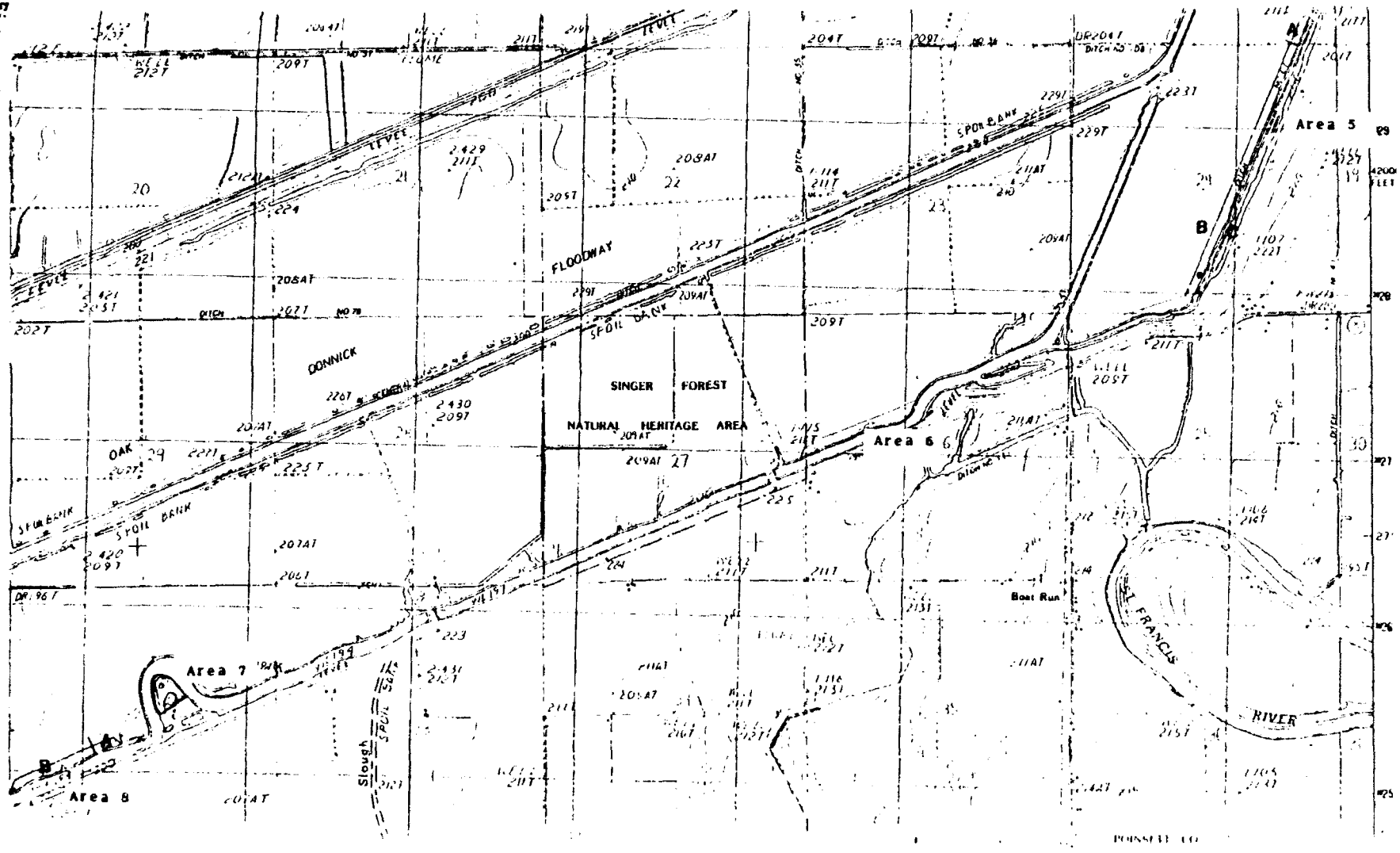

Figure 3. Survey conditions in Areas 5-8.

soil from the shovel tests was carefully cut through in search of artifacts. Fifty-five shovel tests were dug in this 1826 m area. No cultural materials were found.

Area 6

Area 6 measured 794 m in length and 71.5 m in width. The area contained harvested soybeans and surface visibility was 70-90% (Figure 3). The area was walked over by three people in six transects at 30 m intervals. No cultural resources were found.

Area 7

Area 7 appeared to be an old point bar of a once natural stream. Parabolic in shape, the area measured 206 m at its base and extended 222 m toward the ditch (Figure 3). The area was covered in trees at its base and grasses and seeds further out on the bar. A sandy beach surrounded the area. The entire point bar consisted of sand. Low lying swampy areas were beginning to develop clays on top of the sand. Twenty-seven shovel tests were dug at 30 m intervals across the area. Shovel tests measured 30 cm x 30 cm, were 50 cm deep, and were all screened. Two shovel tests were excavated down to 70 cm and 80 cm. The deeper shovel tests showed that the sand continued below those depths. The banks of the beach were examined for artifacts. No cultural materials other than modern broken beverage bottles were recovered from Area 7.

Area 8

Area 8 measured 762 m in length and 71.5 m in width (Figure 3). Section A was covered in standing soybeans. Visibility was 50-60%. Near the ditch was a farm road with 90-100% visibility. The area was walked by three people in six transects at 30 m intervals. Section B contained harvested soybeans. Visibility was 95-100%. The section was walked in six transects by three people at 30 m intervals. No cultural resources were found in Area 8.

3PO504

Site Description

3PO504 is a multi-component site that occupies a slight rise in an agricultural field just west of Ditch No. 61. The site was located during pedestrian survey of proposed borrow areas along the ditch. Surface examination of the site area indicated that cultural material was scattered over an area approximately 160 m x 130 m.

Two artifact concentrations were apparent. The first area of concentration is in the northern portion of the site and contains a high percentage of fire-cracked rock, with smaller amounts of flakes and ceramics. The second area of concentration is in the southern portion of the site. Midden staining is apparent in this area and high densities of ceramics, fire-cracked rock, and lithic artifacts are present. The site is bordered on the east by an access road which runs parallel to the ditch (Figure 4). At the time of the survey the site was planted in beans that had recently been harvested. Surface visibility was very good, however, ranging from 60% to

80%.

Although topography in the area is generally quite flat, a very slight rise is apparent at the site location. Modern alluviation as deep as 1 foot (Dan Morse personal communication 1987) has undoubtedly obscured subtle topographic variations once present in this area. The soil present on the site is Sharkey clay, frequently flooded (Gray and Ferguson 1977). Sharkey soils consist of very dark grayish brown or dark grayish brown silty clay or silty clay loam over dark gray clay mottled with dark brown and dark yellowish brown. These poorly drained soils developed in thick beds of clayey sediments deposited by slack water. They are distributed on broad flats.

Surface Examinations

After the site was located, initial surface examinations were directed toward determining the horizontal extent of the artifact scatter. Generally speaking, cultural material was found to extend for approximately 160 m north-south by 130 m east-west.

In accordance with the Scope of Work (RFQ:C-8) a probability sample of the surface artifacts was then made. Due to the relatively large size of the site (2.08 hectares) it was not considered practical to attempt to collect a random sample of the entire area (a 1% sample in 6 m x 6 m units would entail collecting 58 units). Instead, it was decided to sample the area of greatest artifact density. This decision also took into consideration the probability that plowing has transported artifacts over a much greater area than the site originally occupied. Artifact densities on the periphery are so low that it was considered likely that no useful data would be obtained by sampling these areas.

In order to provide an even distribution of collection units across the main site area a stratified, systematic, unaligned random sample was used to locate two 6 m x 6 m collection units within each 6 m x 60 m row of a 60 m x 60 m collection block. The collection block was initially designed on graph paper. It was divided into ten rows each containing ten 6 m x 6 m collection units. Squares within the grid were numbered consecutively. A random numbers table was then used to select two squares from each of the ten rows, providing a 20% sample of the grid area. The collection units were located in the field by setting down an north-south base line and triangulating in the centers of the selected units. The actual collection units were circles 6 m in diameter collected by the dogleash method. Since each collected circle contained an area of 28.3 sq. m the actual sampling percentage of the collection grid was 15.7%.

Following the completion of the probability sample a general sample of the site area was made. This collection was made to recover functionally and/or temporally diagnostic artifacts. Artifacts collected included tools of any kind, decorated ceramics, rim and basal sherds, and any lithic material that was considered unusual or poorly represented. The collection was made systematically. Crew members were spaced at approximate 5 m intervals. Beginning at the northernmost edge of the artifact distribution, east-west transects were walked along the bean rows. While making this collection a second area of artifact concentration was located approximately 100 m southeast of the first collection grid.

The second area of artifact concentration contained a high density of both lithic and ceramic artifacts. Although the Sharkey clay soils in this area are quite dark some midden staining was apparent. At this point the general surface collection was abandoned and a second collection grid was designed. The same procedure described above for Controlled Collection Area #1 was used to design and collect Controlled Collection Area #2. Since the eastern half of Controlled Collection Area #2 had been collected during the general surface collection it is possible that diagnostic artifacts in collection units 52, 53, 66, 68, 75, 73, 83, 86, 97, and 99 are somewhat under represented, although since such a small number of diagnostics were collected from this area the effects are considered minimal. Following completion of the second controlled collection diagnostic artifacts were collected from the remainder of the site.

Subsurface Investigations

Subsurface investigations at 3PO504 included the excavation of a .5 x 2 m test unit and the excavation of 17 control columns.

Test Unit 1. The Scope of Work required the excavation of a minimum of one 1 m x 1 m test unit on each site recorded during the survey (RFQ:C-8). In order to maximize the the potential for revealing stratigraphy and locating subsurface features a .5 m x 2 m was substituted for the 1 m x 1 m unit. The unit was placed in a suspected midden area in Controlled Collection Area #2 (Figure 4).

Level 1, 0 - 10 cm. The test unit was excavated in arbitrary 10 cm levels. The northwest corner of the unit was used as the datum for vertical control. Excavation of the first level was very difficult due the very wet clayey soils. Heavy rains (@ 1.5 inches) the day before excavation began had turned the plowzone (8 - 10 cm) soils into a soupy muck that would not pass through the 1/4 inch wire mesh screen. Instead, the excavated matrix was placed in the screen and was carefully troweled through.

The wet soil was a very dark grayish brown (10YR3/2) silty clay loam. Toward the bottom of the level the soil became drier and the color changed to a dark brown (10YR3/3) with dark yellowish brown (10YR4/4) mottling. Artifacts including ceramics, flakes, and fire-cracked rock were abundant throughout the level.

Level 2, 10 - 20 cm. Soils in level 2 became progressively drier, more compacted and difficult to excavate. A large pick mattock was used to excavate this level in addition to a square nose shovel. Soils were identical to those encountered at the bottom of Level 1. Artifacts were present throughout the level at a somewhat reduced density. One whole dart point and a basal fragment of another point were recovered from the level. A large potsherd was found at 19 cm BD., approximately 55 cm from the north end. Careful excavation of the matrix surrounding the potsherd indicated that it extended into the next level.

Level 3, 20 - 30 cm. Continued excavation of the area surrounding the sherd suggested that it was a complete vessel, extending outside of the unit to the east. It was designated Feature 1 and a feature form was prepared. In order to remove the vessel it was necessary to excavate a 25 cm x 25 cm extension along the east side of the test unit. Soils immediately surrounding

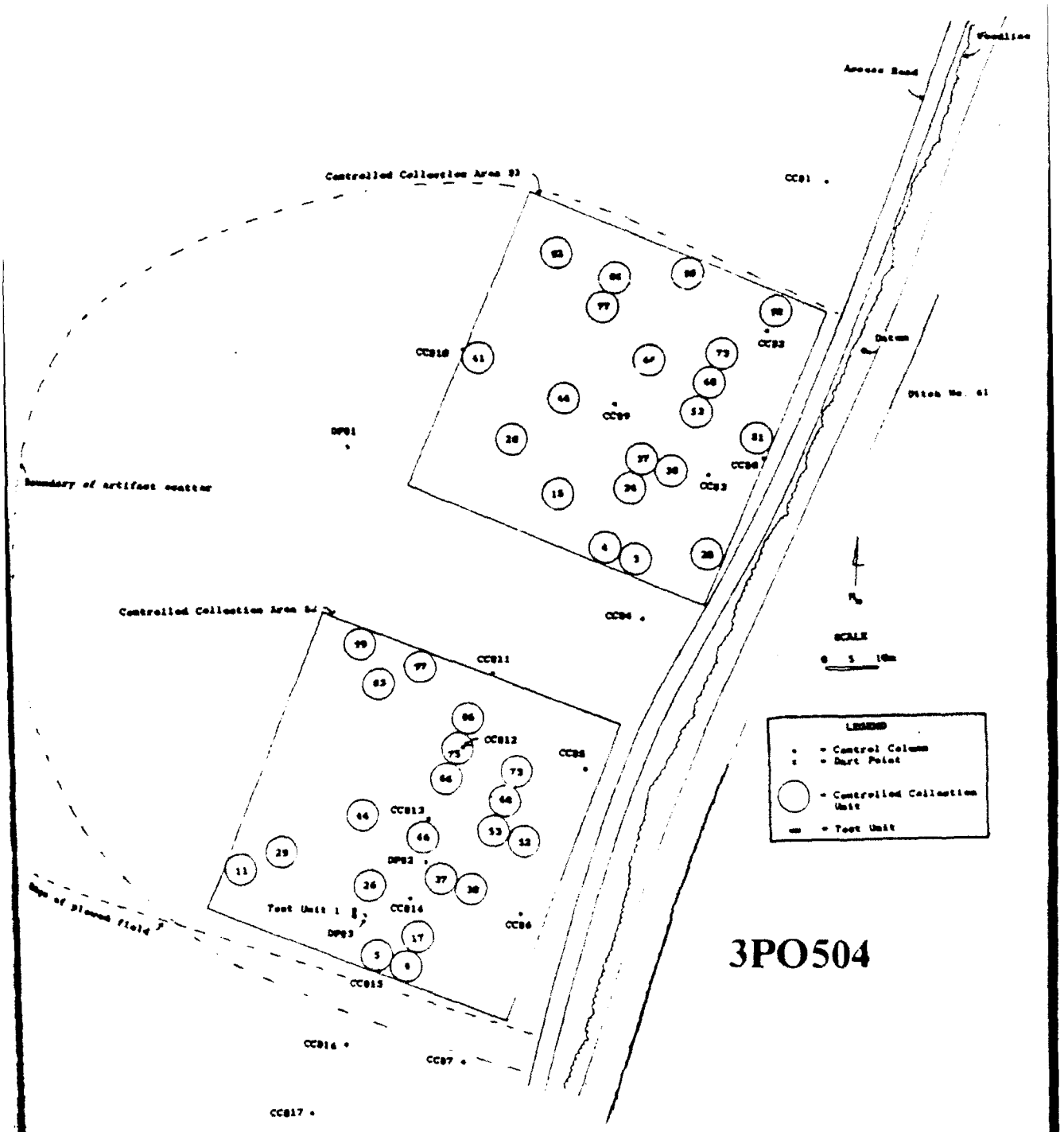

Figure 4. Map of Site 3PO504.

and below the vessel were collected for flotation processing. Dark midden soils extended below the vessel on the east to a depth of 48 cm, indicating that the vessel was situated at the end of a pit extending an unknown distance to the east. The function of the pit is unknown although small fragments of charcoal and bone were present in the fill, perhaps indicating that it was a cooking or refuse pit. The presence of a whole vessel may also suggest a burial pit. Earth fill from the vessel was removed at the MCRA lab and was also saved for flotation processing. Soil in the remainder of the level was a dark gray (10YR4/1) hard compacted silty clay with dark yellowish brown (10YR4/4) mottling. Artifacts were relatively sparse and included only lithics. The profile of the east wall of Test Unit 1 is presented in Figure 5.

After the excavation of level 3 was completed a posthole test was dug in the southern end of the unit to a depth of 66 cm bd. The soil encountered was a yellowish gray mottled silty clay. No artifacts were recovered from this test.

Control Columns. Seventeen control columns were excavated at 3PO504. The distribution of the control columns is shown in Figure 5. The first seven control columns were placed at 30 m intervals, north to south down the long axis of the artifact scatter. Control Columns 8 - 10 were placed at 30 m intervals east to west across the center of Controlled Collection Area #1. Control Columns 11 - 17 were placed at 15 m intervals north to south across Controlled Collection area #2. The profiles recorded are presented in Table 2.

For the most part the profiles indicate the presence of a dark brown silty clay loam topsoil underlain by silty clays and clays that vary slightly in color and texture. Soils and colors encountered are typical of Sharkey clays. Control Column 14 was placed in the portion of the site where the artifact density was the highest and midden deposits were suspected. The very dark grayish brown soil encountered in stratum 1 of this unit is suggestive of midden staining.

Cultural Material Recovered

Control Columns. Eight of the 17 Control Columns excavated (47%) yielded cultural material. Table 3 presents a summary of the artifacts recovered from all proveniences at 3PO504. The majority of the material consisted of fire-cracked rock. Ceramics recovered include specimens with sand, grog, shell, and mixed shell and sand-temper.

Controlled Collection 1. Sixteen of the 20 Controlled Collection Units (80%) contained artifacts. As expected, the collections indicate an area of high artifact clustering in the southeast and east-central portions of the collection unit. Material is concentrated over an area approximately 50 m x 25 m.

Clustering is evident in both lithic and ceramic artifacts as well as fire-cracked rock, suggesting a rather homogeneous distribution of occupation debris. Cultural material recovered is listed in Table 3. Ceramic artifacts include sand, grog, shell, shell and sand, and grog and sand-temper specimens. The majority of the sherds were plain. The only decorated sherds collected were two cord-marked sherds. One is sand-tempered and one is grog-tempered.

Lithics consist primarily of flakes, chipping debris, and especially fire-cracked rock. Tools recovered include a biface/knife, a pitted stone, and a perforator/graver.

Controlled Collection Unit 2. Seventeen of the 20 collection units (85%) contained artifacts. In contrast to Unit 1, less spatial clustering of artifacts is evident. A hot spot or very high density area is located in the west-central portion of the Unit with slightly lower densities in adjacent areas. A very low artifact density is indicated in the northeast corner of the Unit. The hot spot coincides with the location of the suspected midden area.

Cultural material collected is presented in Table 3. The collection is quite similar to the one from Unit 1 in the type of artifacts collected, although the artifact density is higher. Ceramic temper types recovered include sand, grog, shell, shell and sand, and grog and sand. Decorated types include sand and grog temper cord-marked varieties as well as a red filmed shell tempered variety. A wider range of lithic artifacts are represented in Unit 2. The increased assemblage includes 4 dart points, 3 biface/knives, a scraper, a hammerstone, a metate, and an abrader. These artifacts suggest a wider range of domestic activities than is indicated in Unit 1. Two of the 4 dart points collected are too fragmentary for identification. The two remaining specimens fall within the auspices of the many varieties of Gary points (Perry and Krieger 1949, Perino 1985:144).

Table 2. Control Column profiles from 3PO504.

#	Depth/cm	Soil Type	Color	Artifacts +/-
CC#1	0 - 14	silty clay loam	10YR3/3	-
	14 - 30	sandy clay loam w/ iron concretions	10YR4/1	
CC#2	0 - 13	silty clay loam	10YR3/3	+
	13 - 30	clay	10YR5/1 w/ 10YR4/6 mottles	
CC3#	0 - 5	silty clay loam	10YR3/3	+
	5 - 30	clay	10YR5/1 w/ 10YR4/6	
CC#4	0 - 10	silty clay loam	10YR3/3	-
	10 - 30	sandy clay loam w/ iron concretions	10YR3/1	
CC#5	0 - 9	silty clay loam	10YR3/3	+
	9 - 30	sandy clay loam w/ iron concretions	10YR3/1	
CC#6	0 - 12	silty clay loam	10YR3/3	-
	12 - 30	clay	10YR4/1	

Table 2. Control Column profiles from 3PO504.

#	Depth/cm	Soil Type	Color	Artifacts +/-
CC#7	0 - 12	silty clay loam	10YR3/3	-
	12 - 30	clay	10YR3/1	
CC#8	0 - 5	silty clay loam	10YR3/3	+
	5 - 30	clay	10YR5/2 w/ 10YR5/6 mottles	
CC#9	0 - 9	silty clay loam	10YR3/3	-
	9 - 30	clay	10YR4/2 w/ 10YR5/6 mottles	
CC#10	0 - 5	silty clay loam	10YR4/2	-
	5 - 30	clay	10YR4/1 w/ 10YR4/6 mottles	
CC#11	0 - 14	silty clay loam	10YR3/3	-
	14 - 36	clay	10YR4/4 w/ 10YR5/4 mottles	
CC#12	0 - 3	silty clay loam	10YR4/3	-
	3 - 20	silty clay	10YR5/3 w/ 10YR4/6 mottles	
CC#13	0 - 9	sandy silty clay	10YR3/2	-
	9 - 24	sandy clay	10YR5/3 w/ 10YR4/6 mottles	
CC#14	0 - 7	silty clay	10YR2/2	-
	7 - 30	clay	10YR3/1	
CC#15	0 - 5	sandy silty clay	10YR2/2	
	5 - 14	sandy silty clay	10YR3/1 w/ 10YR4/2 mottles	+
	14 - 25	sandy clay	10YR4/3 w/ 10YR5/3 mottles	
	25 - 40	sandy clay	10YR5/3 w/ 10YR4/3 mottles	
CC#16	0 - 14	sandy silty clay	10YR4/2	+
	14 - 30	clay	10YR4/1	
CC#17	0 - 11	sandy silty clay	10YR4/2	-
	11 - 37	silty clay	10YR4/2	
	37 - 39	sandy clay	10YR4/2 w/ 10YR4/6 mottles	

Table 3. Artifacts recovered from 3PO504.

Provenience	Artifact Class / Depth/cm / Weight/gms															
	Flakes		Ceramics		Fire-Cracked Rock		Biface/ Knife		Dart Point		Shatter		Ground Stone		Other		TOTAL	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
CC #2 0 - 30 cm					0	0.6											0	[illegible]
CC #3 0 - 30 cm					0	10.7											0	[illegible]
CC #5 0 - 30 cm			1	0.3													1	[illegible]
CC #8 0 - 30 cm					0	12.8											0	[illegible]
CC #14 0 - 30 cm					0	4.7											0	[illegible]
CC #15 0 - 30 cm			5	12.5	0	8.7											5	[illegible]
CC #16 0 - 30 cm	1	2.2															1	[illegible]
CC #17 0 - 30 cm			1	4.3											2	0.4 a	3	[illegible]
Total	1	2.2	7	17.1	0	37.5	0	0.0	0	0.0	0	0.0	0	0.0	2	0.4	10	[illegible]
CC1 Unit 3	1	1.6	9	36.6	0	65.3											10	[illegible]
CC1 Unit 4	1	0.5	23	101.9	0	78.7					1	1.4					25	[illegible]
CC1 Unit 15	4	7.5	3	12.1	0	253.7											7	[illegible]
CC1 Unit 20	1	13.9			0	7.2											1	[illegible]
CC1 Unit 24			1	8.0	0	803.5					2	32.5			1	4.7 b	4	[illegible]
CC1 Unit 28			1	1.1	0	4.2											1	[illegible]
CC1 Unit 37	6	39.5	1	1.5	0	400.0									1	3.3 c	8	[illegible]
CC1 Unit 38	1	1.3	1	2.4	0	109.5											2	[illegible]
CC1 Unit 41			1	3.4													1	[illegible]
CC1 Unit 44					0	6.6											0	[illegible]
CC1 Unit 51			1	2.1	0	2.4											1	[illegible]
CC1 Unit 53	2	0.6	1	0.8	0	357.3							1	684.5			4	[illegible]
CC1 Unit 66					0	9.2											0	[illegible]
CC1 Unit 68	5	4.4			0	254.0					4	13.0					9	[illegible]
CC1 Unit 73	5	11.9			0	364.0	1	8.4									6	[illegible]
CC1 Unit 77																	0	[illegible]
CC1 Unit 82																	0	[illegible]
CC1 Unit 84																	0	[illegible]
CC1 Unit 92			2	9.7													2	[illegible]
CC1 Unit 95																	0	[illegible]
Total	26	81.2	44	179.6	0	2715.6	1	8.4	0	0.0	7	46.9	1	684.5	2	14.6	81	[illegible]
CC2 Unit 4			5	9.2		18.8											5	[illegible]
CC2 Unit 5			16	97.1		49.0											16	[illegible]
CC2 Unit 11	1	3.4	7	25.1		18.5			1	0.5							9	[illegible]
CC2 Unit 17	2	1.4	23	82.7		48.1					1	4.9					26	[illegible]
CC2 Unit 26	29	38.8	52	255.6		850.0	2	10.5	2	8.4	5	51.3	1	181.1	1	4.7 d	92	[illegible]
CC2 Unit 29	7	9.1	6	25.9		97.4			1	29.8							14	[illegible]
CC2 Unit 37			15	62.4		96.9							2	215.5			17	[illegible]
CC2 Unit 38			5	12.0													5	[illegible]

Provenience	Artifact Class / Depth/cm / Weight/gms															
	Flakes		Ceramics		Fire-Cracked Rock		Biface/ Knife		Dart Point		Shatter		Ground Stone		Other		TOTAL	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
CC2 Unit 44	6	4.6	18	45.2		135.4					1	7.1					[illegible]	[illegible]
CC2 Unit 46	16	23.6	37	102.8		330.0	1	8.1									[illegible]	[illegible]
CC2 Unit 52	1	0.4															[illegible]	[illegible]
CC2 Unit 53			7	20.6		5.8											[illegible]	[illegible]
CC2 Unit 66			8	30.7		9.3											[illegible]	[illegible]
CC2 Unit 68																	[illegible]	[illegible]
CC2 Unit 73			3	5.9													[illegible]	[illegible]
CC2 Unit 75	1	0.7	2	4.1		21.0											[illegible]	[illegible]
CC2 Unit 83																	[illegible]	[illegible]
CC2 Unit 86						4.1											[illegible]	[illegible]
CC2 Unit 87			1	2.6													[illegible]	[illegible]
CC2 Unit 99																	[illegible]	[illegible]
Total	63	81.0	205	781.9	0	1684.3	3	18.6	4	38.7	7	63.3	3	396.6	1	14.6	[illegible]	[illegible]
Test Unit 1 0 - 10 cm	9	16.9	20	134.9		198.2											[illegible]	[illegible]
Test Unit 1 10 - 20 cm	12	30.1	3	14.3		327.8			2	21.9	2	6.6			1	[illegible]	[illegible]	[illegible]
Test Unit 1 20 - 30 cm	2	3.9				71.0			1	12.5	1	30.0					[illegible]	[illegible]
Total	23	50.9	23	149.2	0	597.0	0	0.0	3	34.4	3	36.6	0	0.0	1	[illegible]	[illegible]	[illegible]
General Surface	7	61.6	106	614.3			1	25.1	1	4.2			1	459.2	1	[illegible]	[illegible]	[illegible]
Point Plot #1									1	7.3							[illegible]	[illegible]
Point Plot #2									1	23.6							[illegible]	[illegible]
Point Plot #3									1	12.1							[illegible]	[illegible]
Total	7	61.6	106	614.3	0	0.0	1	25.1	4	47.2	0	0.0	1	459.2	1	25.4	[illegible]	[illegible]

The overall artifact density in Unit 2 is 3.5 times greater than in Unit 1, although there is a 40% reduction in the amount of fire-cracked rock. This disparity is interesting and may indicate either separate periods of occupation or the presence of specialized activity areas. The similarity of the two collections in terms of the type and nature of the artifacts recovered would argue against the first suggestion.

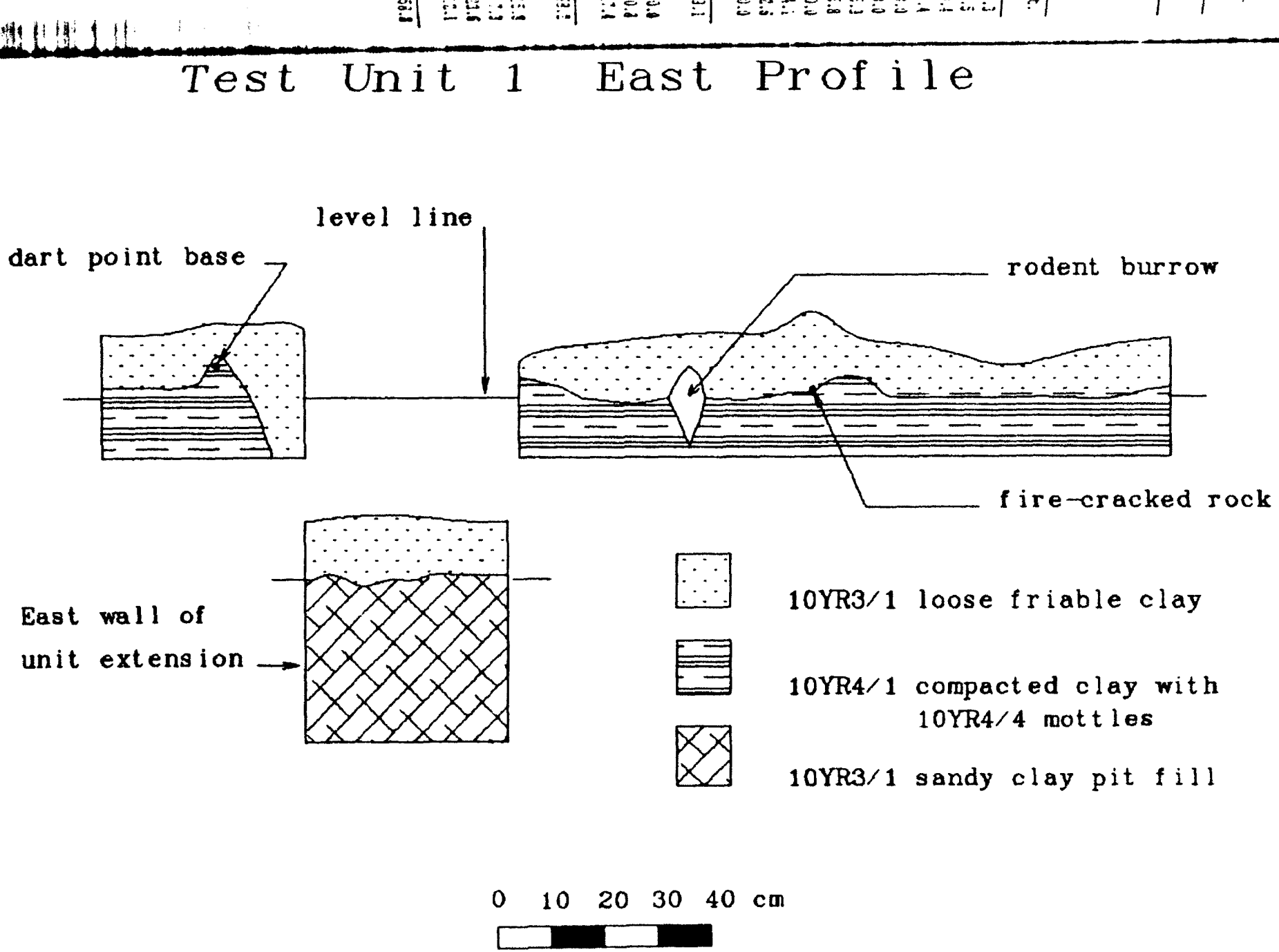

Figure 5. Profile of East wall of Test Unit 1.

Test Unit 1. Table 2 lists the artifacts recovered from Test Unit 1. While the artifact bearing stratum from 3PO504 is relatively shallow there are some indications that intact stratified deposits are present. The increase in the number of lithic artifacts and the decrease in the number of sherds from level 1 to level 2 is interesting. Since within the plowzone a more or less homogeneous distribution of artifacts would be expected, this tends to suggest the possibility of some stratification of deposits. This possibility is further corroborated by the presence of 3 Archaic period projectile points in level 2. Specimens include types similar to the expanding stem types such as Big Creek and Edwards (Morse 1970, Williams and Brain 1983, Perino 1985:35,122).

The most exciting artifact recovered from 3PO504 was a complete shell tempered bowl that was found in the north end of Test Unit 1 in levels 2 and three (Feature 1, 19 - 34 cm bs). This vessel is approximately 19 cm in diameter and 10 cm high. Excavation of the vessel indicated that it was located at the end of a pit that extended to the east of the test unit. The pit was not excavated.

General Surface Collection. Artifacts collected during the general surface collection are listed in Table 3. Important additions to the artifact assemblage include an incised shell and sand-tempered sherd and two dart points (1 Gary, 1 Big Creek, 1 unidentified expanding stem).

Summary of Cultural Material

The artifact assemblage recovered from 3PO504 indicates that the site was periodically occupied throughout the Late Archaic, Woodland, and Mississippi Periods. Diagnostic Late Archaic artifacts include Big Creek and Gary projectile points. Woodland period artifacts include Edwards points, Baytown and Barnes Plain, Mulberry Creek Cordmarked, and Barnes Cordmarked ceramics. Neeleys Ferry Plain and Varney Red Filmed are indicative of Mississippi period occupation.

The nature of the assemblage indicates a domestic occupation, probably a farmstead dating to a Late Woodland and Early Mississippi period occupation. Clustering of artifacts suggests the presence of activity areas or discrete periods of occupation. Test excavations have revealed that intact, possibly stratified, deposits are present.

SITE SIGNIFICANCE

Federal Regulation 36CFR60.4 outlines the qualities that make cultural properties significant and eligible for nomination to the National Register of Historic Places (NRHP). These regulations state:

> National Register criteria for evaluation.
>
> The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

(a) That are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) That are associated with the lives of persons significant in our past; or

(c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) That have yielded, or may be likely to yield, information important in prehistory or history. (Federal Register 1976:1595)

In order for sites to be significant and eligible for NRHP nomination they should have intact deposits and a high degree of integrity of location, setting, feeling, and association. While these are not criteria for significance, they comprise a general precondition defined in the regulations (Federal Register 1976:1595). In some instances it can be waived if intact deposits of a particular study unit (cf. Davis 1982 and Morse 1982 for the specific ones currently recognized in this part of Arkansas) are not known or are known to be almost nonexistent. Other highly disturbed sites which are known to be representative of classes of sites with known undisturbed deposits are likely to be non-significant; however, specific arguments might also waive this.

The temporal cut off for significance is legally set at more than 50 years old. Again this requirement can be waived if the resource is associated with someone of note or importance, and is otherwise eligible under Criteria a, b or c.

Site 3PO504 contains a very high density of artifacts and intact deposits including features. The presence of two kinds of Woodland ceramics and Mississippian ceramics makes these deposits important for understanding the relations of these manifestations. The presence of charcoal and bone suggest that datable contexts are present and that data on subsistence, chronology, and site structure are derivable from this site. At the present time research in these periods indicate that though corn was known, it may not have been the major food source until ca. A.D. 1200. This site is likely to have important data which can contribute to our knowledge of prehistory (cf. Morse 1982). Therefore, site 3PO504 is significant in terms of NRHP criterion D and is eligible for nomination to the National Register of Historic Places.

RECOMMENDATIONS

Site 3PO504 should not be used for a borrow area. If avoidance is impossible, then the adverse impacts should be mitigated by a program of data recovery.

No further archeological work is recommended for the remainder of the project area. MCRA recommends that the rest of the project area be given archeological clearance.

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APPENDIX A

Scope of Work

SECTION C

SCOPE OF WORK

chaeological Intensive Survey, with testing, of portions of the East Levee the Oak Donnick Floodway below Marked Tree, Cross and Poinsett Counties, kansas.

. General.

.01. The Contractor shall conduct a background and literature search and tensive survey level investigation of portions of the East Levee of the Oak nnick Floodway below Marked Tree, Cross and Poinsett Counties, Arkansas. ese tasks are in partial fulfillment of the Memphis District's obligations der the National Historic Preservation Act of 1966 (P.L. 89665); the tional Environment Policy Act of 1969 (P.L. 91-190); Executive Order 593, "Protection and Enhancement of Cultural Environment," 13 May 1971 36CFR3921); Preservation of Historic and Archeological Data, 1974 (P.L. 3-291); and the Advisory Council on Historic Preservation, "Procedures for e Protection of Historic and Cultural Properties" (36 CFR, Part 800).

.02. Personnel Standards.

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

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

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

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

.08. Techniques and methodologies used during the mitigation shall be epresentative of the current state of knowledge for their respective isciplines.

.09. The Contractor shall furnish expert personnel to attend conferences nd furnish testimony in any judicial proceedings involving the rchaeological and historical study, evaluation, analysis and report. When equired, arrangements for these services and payment therefor will be made y representatives of either the Corps of Engineers or the Department of ustice.

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

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

.12. The extent and character of the work to be accomplished by the ontractor shall be subject to the general supervision, direction, control nd approval of the Contracting Officer. The Contracting Officer may have a epresentative of the Government present during any or all phases of the escribed cultural resource project.

. Study Area.

.01. The Oak Donnic Floodway, east levee, is below Marked Tree in Cross and oinsett Counties, Arkansas. The project begins at Township 11N, Range 6E, ection 33 S1/2 of the SE 1/4 where Highway 63 crosses the levee (mile No. 4/44+23) and ends at Township 10N, Range 5E, Section 31 S1/2 at the ross/Poinsett county line (levee mile No 61/39+54).

The areas to be surveyed are shown on the enclosed blue lines Enclosure 1). They encompass approximately 213 acres. Right-of-way width aries. Areas to be surveyed are marked in red on the bluelines. The roject is located on the Dickeville, Ark., Marked Tree, Ark., and rincedale, Ark. quadrangle maps.

. Definitions.

.01. "Cultural resources" are defined to include any buildings, site, istrict, structure, object, data, or other material relating to the history, rchitecture, 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

mited subsurface test excavations of the properties to be affected for rposes of research planning, the development of specific plans for research tivities, excavation, the development of specific plans for research tivities, preparation of notes and records, and other forms of physical moval of data and the material analysis of such data and material, eparation of reports on such data and material and dissemination of reports d other products of the research. Subsurface testing shall not proceed to e level of mitigation.

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

. General Performance Specifications.

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

02. Background and Literature Search.

a. This task shall include an examination of the historic and ehistoric environmental setting and cultural background of the study area d shall be of sufficient magnitude to achieve a detailed understanding of e overall cultural and environmental context of the study area. It iomatic that the background and literature search shall normally preceed e initiation of all fieldwork.

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

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

d. The background and literature search shall be performed in such a nner as to facilitate predictive statements (to be included in the study port) concerning the probable quantity, character, and distribution of ltural resources within the project area. In addition, information tained 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 blueline (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

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

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

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

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

g. Site Specific Investigations.

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

(1) Site Boundaries.

Horizontal site boundaries shall be derived by the use of surface bservation procedures (where surface conditions are highly conducive to the bservation of cultural evidence) or by screened shovel cut units or by a ombination of these methods. The delineations of horizontal sites oundaries may be accomplished concurrently with the collection of other data onsistent with paragraph 4.03g.(2). Site boundaries shall be related to a ite 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 btain data representative of total site surface content. Both historic and rehistoric items shall be collected. The Contractor shall carefully note nd record descriptions of surface conditions of the site including ground over and the suitability of soil surfaces for detecting cultural items (ex: ecent rainfall, standing water or mud). If ground surfaces are not highly onducive to surface collection, screened shovel test units shall be used to ugment 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 rational 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.

.04. Analysis and Curation. Unless otherwise indicated, artifactural and non-artifactural 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.

. General Report Requirements.

.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.

.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.

.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.

4.04. 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.

4.05. 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).

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

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

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

4.09. 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 30 calendar days following receipt of notice to proceed.

b. Four (4) copies of the draft report will be submitted within 45 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 mitted within 20 calendar days following the Contractor's receipt of the vernment's comments on the draft report.

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

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

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

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

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

07. The Contractor shall prepare and submit with the final report, a site rd for each identified resource or aggregate resource. These site cards o not replace state approved prehistoric, historic, or architectural forms Contractor designed forms. This site card shall contain the following formation, 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 termining UTM coordinates refer to How to Complete National Register Forms, tional 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.

Activity	Due Date (Beginning with acknowledged date of receipt of notice to proceed)
Intensive Survey of the Oak Donnick Floodway Levee.	5 calendar days
Submittal of Management Summary Letter	30 calendar days
Submittal of Draft Report	45 calendar days
Government Review of Draft Report	65 calendar days
Contractor's Submittal of Final Report	90 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.

Method of Payment.

.01. Upon satisfactory completion of work by the Contractor, in accordance ith the provisions of this purchase order, and its acceptance by the ontracting Officer, the Contractor will be paid the amount of money dicated in Block 25 of the purchase order.

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

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