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CULTURAL RESOURCES SURVEY OF THE EAST ATCHAFALAYA BASIN 1/2

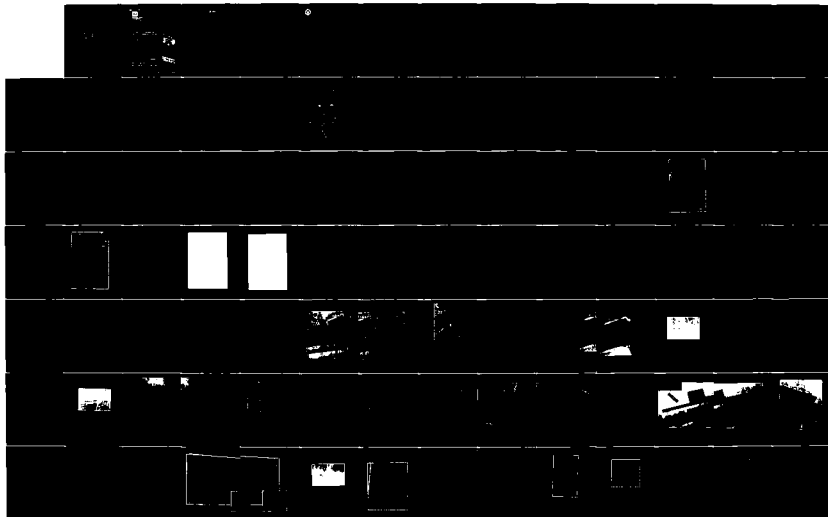
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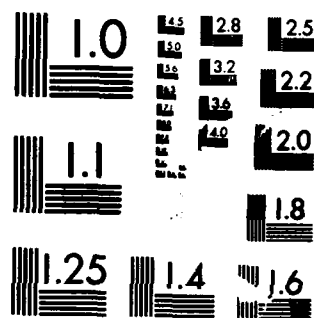
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**US Army Corps
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New Orleans District

CULTURAL RESOURCES SERIES

Report No. **COELMN/PD-87/03**

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AD-A184 136

**CULTURAL RESOURCES SURVEY OF THE EAST
ATCHAFALAYA BASIN PROTECTION LEVEE
ITEM E-44, IBERVILLE PARISH, LOUISIANA.**

FINAL REPORT

May 18, 1987

**R. Christopher Goodwin and Associates, Inc.
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New Orleans, Louisiana 70123**

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**Prepared for
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Bayou Chene																	
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Upper Grand River	archeological survey
Bayogoula Indians	high-probability area
Chitimacha Indians	French Colonial Period
Acadians	Spanish Colonial Period
Swampers	Civil War
	Lumber Industry

No. 20. Abstract

This document reports the results of a cultural resources survey of the East Atchafalaya Basin Protection Levee Item E-44. The project area consisted of 13 proposed borrow tracts. Background investigations of area prehistory, history, and geomorphology were ^{used} utilized to identify geomorphic features within the project tracts which possessed a high probability for containing archeological resources. Field methodology^s incorporated various levels of survey intensity to accomodate both these high-probability areas and other zones where the likelihood of cultural resources was much smaller. Twelve of the 13 borrow areas were at least partially covered with standing water, preventing the implementation of archeological survey over the entire project area. No cultural resources were identified within the project area as a result of these investigations. No further archeological investigations are recommended.

Supplementary³ investigations outside the project area attempted study of ~~three~~ previously recorded archeological sites and ~~two~~ reported locales with the potential to contain cultural resources. Brief study of 16IV4 (Bayou Sorrel Mounds) resulted in a sketch map presenting the cemetery mound in relation to the protection levee. Survey at 16IV13, recorded as a single-mound site, located a possible second mound. 16IV15 could not be relocated, due either to the depth of local alluvium or to the need to direct survey efforts in a broader area. Survey attempts at the two reported site locales were unsuccessful, although map study has resulted in a more accurate location for one of these sites.



DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS

P.O. BOX 80267

NEW ORLEANS, LOUISIANA 70160-0267

May 6, 1987

REPLY TO
ATTENTION OF

Planning Division
Environmental Analysis Branch

To The Reader:

This cultural resources effort was designed, funded, and guided by the U.S. Army Corps of Engineers, New Orleans District as a part of our Cultural Resources Management Program. The effort documented in this report was a cultural resources survey of the East Atchafalaya Basin Protection Levee Item E-44, a feature of the Atchafalaya Basin, Louisiana Project.

We concur with the contractor's conclusion that no significant cultural resources will be affected by the proposed project.

Michael E. Stout
Authorized Representative of
the Contracting Officer

Cletis R. Waganoff
Chief, Planning Division

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ACKNOWLEDGEMENTS

The assistance of several individuals during the course of this study is gratefully acknowledged. Michael E. Stout, Technical Representative, and Caroline Albright, Contracting Officer's Representative, provided valuable support, including assistance with aerial photographs and cartographic resources. Mr. Stout also provided access to the determination of Eligibility Forms prepared by the New Orleans District for 16 IV 4. Mr. Philip C. Rivet, Louisiana Division of Archeology, was generous with his knowledge of existing and reported archeological sites in the project vicinity. We also would like to thank Dr. Malcom Shuman for his helpful discussions concerning 16 IV 4. Dr. Shuman's recent examinations of the Bayou Sorrel Mounds proved invaluable to our assessment of near-by cultural resources. Mr. Walter Allen, of Bayou Sorrel, Louisiana, proved to be a most knowledgeable informant with regard to local history. Critical to the success of the project was the skill of Ernie Epps, borrow channel flatboat pilot.

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CHAPTER I

INTRODUCTION

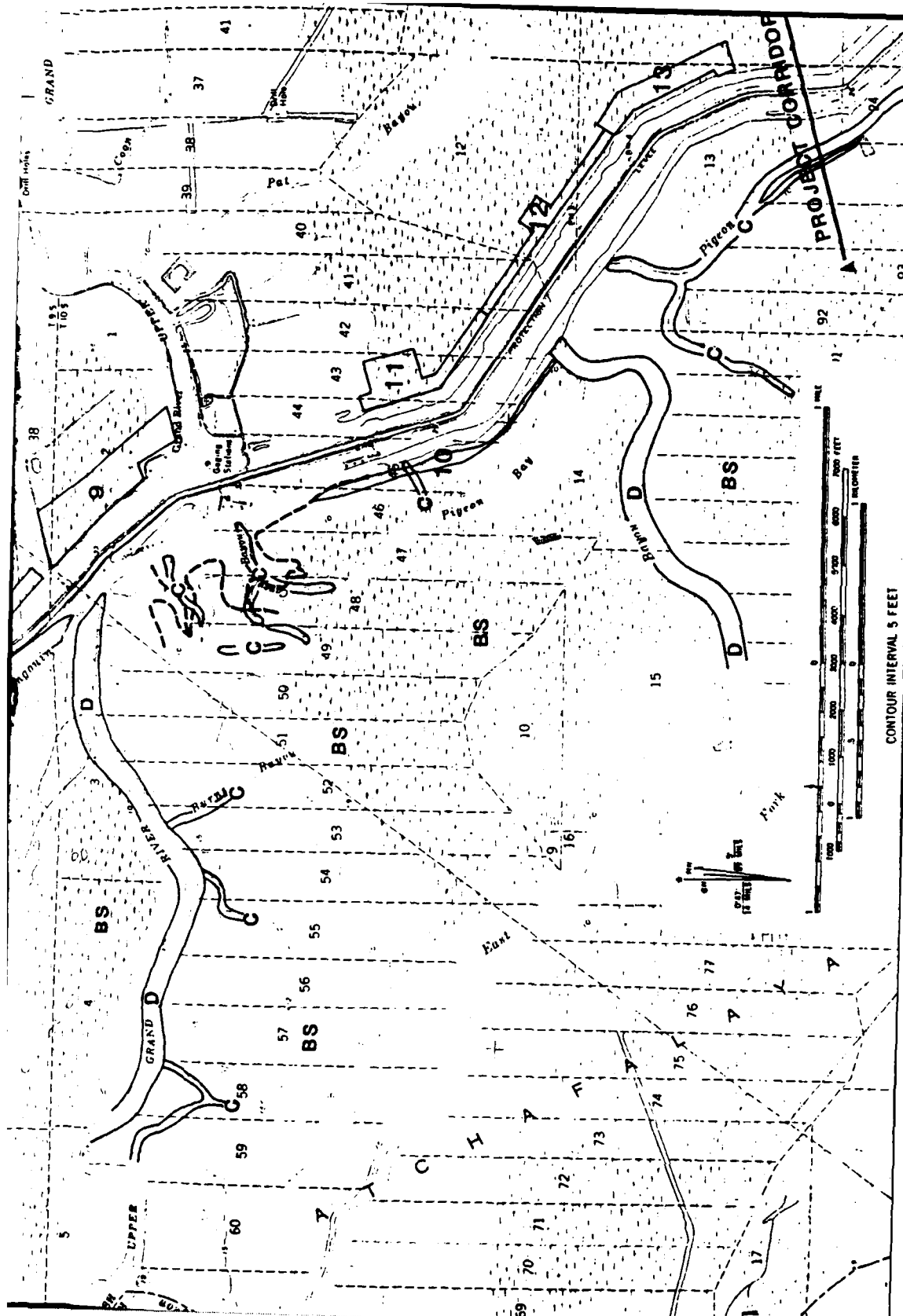
This report, undertaken pursuant to Delivery Order 0002 of Contract DACW29-86-D-0093, presents the results of a cultural resources survey of portions of Item E-44 of the East Atchafalaya Basin Protection Levee (EABPL) Project in Iberville Parish, Louisiana (Figure 1). This study documents efforts to locate and to assess cultural resources within portions of the proposed construction areas associated with the enlargement of Item E-44.

The EABPL Project is designed to prevent flooding outside the Atchafalaya Basin Floodway. The floodway follows the Atchafalaya River, a major distributary of the Mississippi River, from its head near Point Breeze, Louisiana, to its mouth in Atchafalaya Bay. The floodway also receives overflow from the Morganza Floodway, located between Morganza, Louisiana, on the Mississippi River and Maringouin, near the eastern edge of the Atchafalaya Basin. Use of these floodways permits the discharge of flood waters from the Mississippi River during periods of dangerously high water levels.

The proposed enlargement of EABPL Item E-44 will upgrade an existing portion of the protection levee in Iberville Parish to the 1973 MR&T Project Flood Flowline. Construction activities associated with Item E-44 will occur along Bayou Maringouin, between Levee Stations 2200+00 and 2590+00. Materials to build the levees will be borrowed from thirteen tracts adjacent to the existing levee. These thirteen borrow areas contain approximately 550 acres. Previous cultural resources investigations (Gibson 1982) examined the proposed project right-of-way within 750 feet of the levee centerline. Since the proposed borrow areas extend beyond this previously examined right-of-way, additional cultural resources investigations within the proposed borrow areas were required. This report presents the results of archeological survey of the thirteen additional borrow areas (Figure 1).

Cultural Resources Survey of EABPL Item E-44

Efforts to locate cultural resources within the thirteen proposed borrow areas were conducted in two phases. Initially, a research design for the prosecution of an archeological survey of the project area was developed by the Contractor, and with the active involvement of New Orleans District archeologists. This research design was based on review of the geomorphology, prehistory, and historic ownership and land use of the study area. Based on this research effort, areas that possessed a high



probability for containing cultural resources were defined. Survey methodologies then were developed to reflect predictions concerning potential site locations. Salient aspects of the research design have been incorporated into this report.

The second phase of this study consisted of the implementation of the research design. Pedestrian survey of the borrow areas was conducted at two levels of intensity. Areas defined as possessing a high probability for the presence of cultural resources were subjected to more intensive examination than low probability areas. However, all exposed surfaces of the borrow areas were examined during the course of this study.

The Format of this Report

Following this a brief introduction, the region containing the EABPL Item E-44 project area is described. This discussion has four components: the environmental setting of the region is reviewed in Chapter II; previous archeological research in the region is summarized in Chapter III; the prehistory of the region is discussed in Chapter IV; and, historic cultural development and utilization of the project area is reviewed in Chapter V.

Chapter II describes the project area, its geomorphological setting, and recent conditions observed by the survey crew. Chapter III presents a brief summary of previous archeological and cultural resource management investigations conducted in or near the project area. Chapter IV summarizes the prehistoric culture history of the region. Local prehistoric resources and expectations derived from the previous investigations concerning potential prehistoric resources also are presented. Chapter V presents a summary of the historic occupation and utilization of the region. Expectations concerning the nature and location of potential historic resources also are presented.

The field methodologies presented in the research design developed during the initial phase of this study are discussed in Chapter VI. In addition, the criteria employed to define areas with a high probability for containing cultural resources are discussed. Chapter VII presents the results of the field investigations conducted within each of the thirteen borrow areas. Recommendations concerning the borrow areas, and hypotheses concerning the absence of cultural resources within the project area, are presented in Chapter VIII. In addition, three previously recorded archeological sites near but outside of the project area under consideration here were examined; the purposes of this effort were verification of the nature and condition of cultural resources in the region, and development of a comparative data base for the assessment of site significance in the project

area. Those three sites are described in Chapter VII. Two other possible sites outside of the project area that did not have previously assigned state site numbers also were visited; they are described in Chapter VII, as well.

Appendices to this report include the Scope of Services (Appendix I); and a summary of inscriptions on gravestones at the historic cemetery site 16IV4 that was visited during field investigations (Appendix II).

CHAPTER II

ENVIRONMENTAL SETTING

The EABPL Item E-44 Project Area

The EABPL Item E-44 project area is located in the east-central portion of Iberville Parish, Louisiana. It lies within the Atchafalaya Basin. This basin represents a major feature of the deltaic plain of the Mississippi River in Louisiana. The Atchafalaya Basin is a series of swamps and shallow lakes bounded by the natural levees of the modern and former Mississippi River courses. The basin, and modern floodway, trends northwest to southeast from its head near Simmesport, Louisiana, to its southern end near Morgan City, Louisiana. The most prominent physiographic features within the basin are the natural levees of former Mississippi River courses and the modern Atchafalaya River. The Atchafalaya River, which crosses the basin from north to south, presently acts as the major distributary of the Mississippi River, receiving approximately thirty per cent of all flow from the Mississippi (Smith et al. 1986:41).

The project area is a linear corridor extending along approximately eight miles (13 km) of Bayou Maringouin between East Atchafalaya Basin Protection Levee Stations 2200+00 and 2590+00. Bayou Maringouin flows north to south through the project area. The confluence of Bayou Maringouin and Upper Grand River, which flows west to east, lies near the midpoint of the project area (Figure 1). The community of Bayou Sorrel is approximately three miles (5 km) southeast (downstream) of the southern end of the project area.

The study area consists of thirteen proposed borrow tracts along the East Atchafalaya Basin Protection Levee. The proposed borrow areas are located along Bayou Maringouin, or they are adjacent to the existing borrow channel parallel to the protection levee (Figure 1). The East Atchafalaya Basin Protection Levee separates Bayou Maringouin from the borrow channel (Figure 1). The proposed borrow areas have been numbered from north to south (upstream to downstream) through the project area. That is, Borrow 1 lies at the extreme northern or upstream end of the project area, and Borrow 13 lies at the extreme southern or downstream end. Borrow Areas 3 and 10 are located on the west (right descending) bank of Bayou Maringouin. The remaining study tracts are distributed along the east side of the borrow channel located at the eastern edge of the protection levee (Figure 1).

The study area in general is a swampy lowland with minimal relief. The eastern portion of the project area is all backswamp

except for the natural levee of Upper Grand River, near Borrows 9 and 11 (Figure 1). The majority of the study tracts on that side of the levee were covered with standing water at the time of survey, in January and February, 1987. Vegetation was also quite consistent, usually including a mix of cypress and hardwood trees such as oak, hickory, hackberry, and tulip poplar. The soil was also homogeneous, consisting of a brown or dark grayish brown clay (Sharkey-Fausse or Convent-Fausse associations, Spicer et al. 1977). However, silt loam and silty clay loam soils (Convent series, Spicer et al. 1977) were situated on the levee of Upper Grand River.

A slightly different environmental setting prevailed across the levee on the west bank of Bayou Maringouin, where relatively high and dry areas in both Borrows 3 and 10 occurred along the channel of Bayou Maringouin. Backswamp occupied the interior of Borrow 3. This borrow also contained at least two different floral communities. Along Bayou Maringouin were cypress, oak, bitter pecan, and shagbark hickory, a slightly different association than observed across the protection levee. A spoil area on the opposite side of Borrow 3 supported a stand consisting primarily of hardwoods such as oak, locust, water willow, hickory, and black willow. Borrow 3 contained heavy clay soils similar to those observed on the east side of the protection levee. Soils in Borrow 10 were unlike those in any other tract. They were deep, alluvially deposited brown silty clay loams and sands (Convent series, Spicer et al. 1977).

Geomorphology of the Project Area

The Atchafalaya Basin lies within the Mississippi River deltaic plain. This plain is a zone of intensive interaction between fluvial and marine processes. The deltaic plain is composed of at least five discernible delta complexes, each of which has a number of delta lobes or distributary networks. Each delta complex represents a predictable cycle of sedimentation and landscape development. Deposition, subsidence, and erosion cause shorelines alternately to advance and retreat in response to the development of new delta lobes or the abandonment of old lobes, respectively. The major channels associated with the delta lobes have meandered across the width of the modern Mississippi Valley. These channel migrations are primarily responsible for the formation and evolution of the Atchafalaya Basin.

The Mississippi River has experienced at least seven acknowledged episodes of delta lobe building (Figure 2). The earliest of these was the Lafayette/Sale-Cypremort lobe, which began building approximately 12,000 B.P. (Gagliano et al. 1975:36). Around 8500 B.P., a fluctuation in sea level caused a

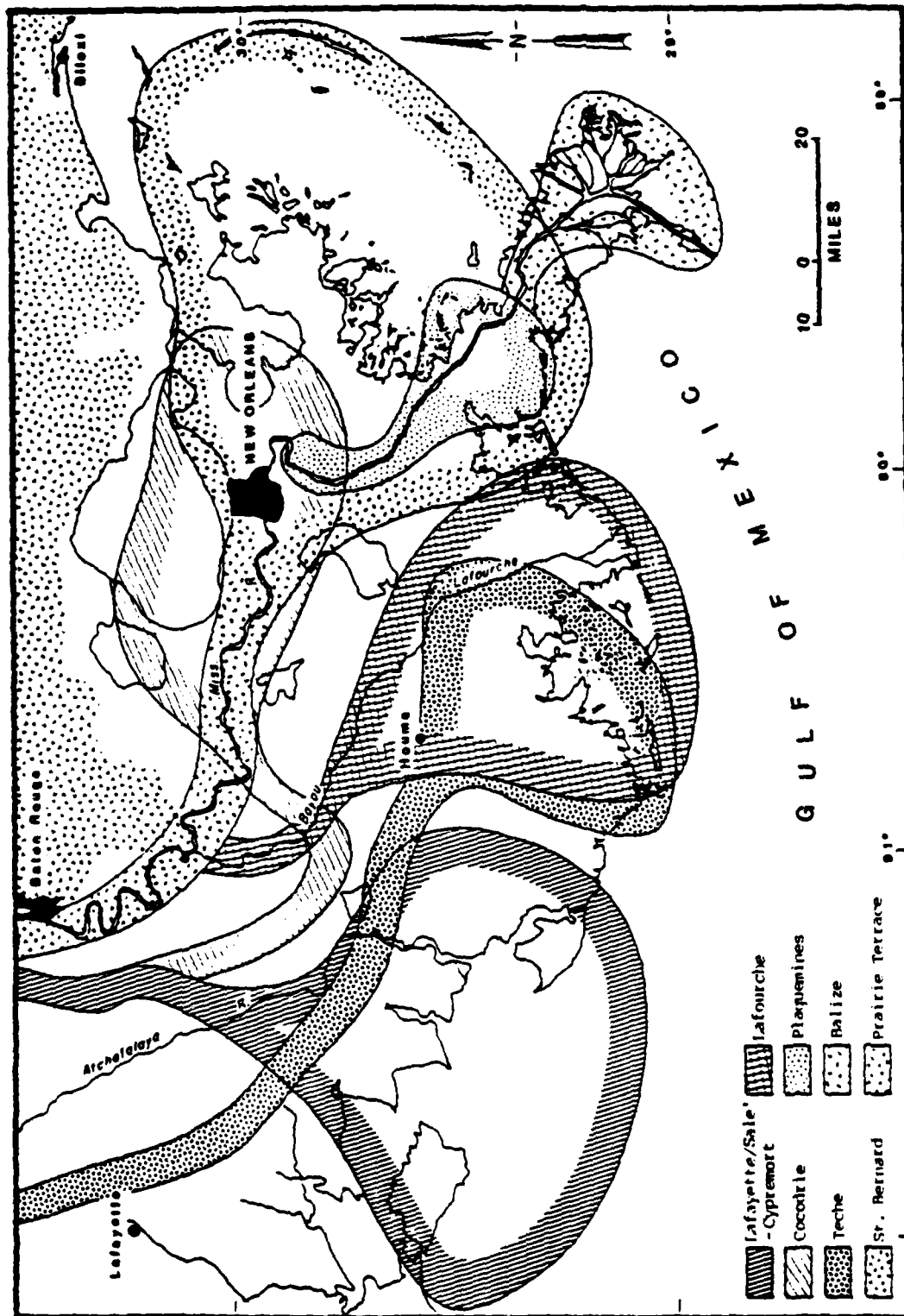


Figure 2. Deltaic lobes of the Mississippi River (after Kolb and Van Lopik 1966).

slight shift in the upstream course of the Mississippi which created the Sale-Cypremort pulse of this lobe. The next lobe to form, the Cocodrie, was active between approximately 5000 and 3500 B.P. (Gagliano et al. 1975:41). The sequence continued with the formation of the Teche lobe. According to Gagliano et al. (1975:41-42), the old meander belt of the Sale-Cypremort system was reoccupied by the Teche approximately 4500 years ago. At approximately 2700 B.P., the St. Bernard lobe began its development. Apparently, the Mississippi River utilized two major deltas, the Teche and the St. Bernard, during this period (Gagliano et al. 1975:42). The Lafourche lobe began its major development ca. 1700 B.P. Around 1000 B.P., the Plaquemine lobe became active. The most recent and still actively prograding delta lobe is the Balize, which began its formation ca. 550 B.P.

The earliest deposits identified within the Atchafalaya Basin represent braided stream deposits from the late Wisconsinan Mississippi River. These deposits are buried approximately 25-35 m below the modern surface of the basin. The sands and gravels within these late Wisconsinan deposits are commonly called the substratum of the basin (Smith et al. 1986:41).

Overlying these materials are finer sediments that represent the more recent courses of the Mississippi and Red Rivers associated with the delta episodes discussed above. This top stratum contains silts, clays, and fine sands derived from a number of depositional environments including backswamps, lake bottoms, and lacustrine deltas (Smith et al. 1986:42).

The earliest deltaic phase represented in the basin is the Sale-Cypremort, or Maringouin. Fisk (1944) felt that modern stream channels in the eastern portion of the basin, such as the Bayou Fardoche-Bayou Maringouin-Bayou Grosse Tete complex, represented the trunk channel of this meander belt of the Mississippi River. Later investigators hypothesized more westerly flows for this channel, either under the present Atchafalaya River (Frazier 1967) or under the later Teche-Mississippi courses along the western margin of the basin (Saucier 1974). Recent borings across the basin have failed to confirm any of these hypothesized locations (Smith et al. 1986:44). Therefore, no known surfaces associated with the earliest delta phase exist within the Atchafalaya Basin.

During the Teche-Mississippi phase, the major course of the river moved to the western edge of the modern alluvial valley. Surfaces associated with this course of the Mississippi are present along the western edge of the basin. Crevasse and minor distributary channels may have crossed the Atchafalaya Basin; however, none are known in the eastern basin at present (Lenzer 1982:59).

During the following St. Bernard phase, the main channel of the Mississippi River migrated to the eastern side of the alluvial valley. The Bayou Fardoche-Bayou Maringouin-Bayou Grosse Tete complex probably served as a distributary of this eastern course of the river. Lenzer (1982) also suggested that the Red River may have migrated across the basin during this phase and contributed to the flow through the abovementioned distributary network. No surfaces, features, or deposits along these bayous, however, have been associated with either the Mississippi or Red River courses of this period (Smith et al. 1986).

During the subsequent Lafourche phase, the modern Atchafalaya River and Basin began to form. The Atchafalaya River developed as a crevasse from the main Mississippi River channel. It would become the major western distributary of the Mississippi. The formation of the Lafourche delta complex effectively closed the lower portions of the basin by preventing the earlier Teche-Mississippi course from emptying into the Gulf of Mexico. Thus, the Atchafalaya Basin began to develop at this time, particularly the extensive lake system evident in its southern portion. During this period, both the Mississippi River and the Atchafalaya River employed the Bayou Plaquemine-Lower Grand River and the Bayou Fardoche-Bayou Maringouin-Bayou Grosse Tete distributary complexes as intermittent crevasse channels (Lenzer 1982:61). As with other portions of the basin, however, limited study of the existing surfaces and deposits prevents the association of any known features or deposits in the eastern portion of the basin with this depositional episode (Gibson 1982:63).

Approximately 500 years B.P., the Mississippi River captured the Red River near the present location of Old River-Turnbull Island. The increased flow within the Mississippi River soon created a larger crevasse in the northern portion of the basin, thereby giving rise to the modern Atchafalaya River. This river would remain the major distributary of the Mississippi and the course of the Red River until the present time (Smith et al. 1986:45).

Modern conditions that exist within the Atchafalaya Basin are linked to historic developments within the last 200 years. These developments included the completion of the Shreve cut-off in 1831, the clearing of the log rafts at the head of the Atchafalaya between 1839 and 1861, dredging of the Old River between 1855 and 1940, deforestation of the northern basin and intensive agricultural activity in the adjacent regions, and the impoundments of the northern drainages in the basin to improve the agricultural potential of that area. The use of the basin as a floodway since 1928 also has assisted in the formation of the modern physiographic nature of the basin. Various control

structures have served to manage the flow of water through the Atchafalaya Basin. This has resulted in increased sedimentation throughout the basin. In some places, this sedimentation has raised the ground surface by 1-2 m higher than observed in 1935 (Smith et al. 1986:49-53). Obviously, this amount of sedimentation may have effectively buried surfaces or deposits associated with more ancient river courses, thereby preventing their discovery or observation without deep coring equipment.

Given the above conditions, Smith et al. (1986) suggest that the sediments within 4.5 m of the present ground surface are less than 3,500 years old. All of the distributary and crevasse channels that trend toward the southeast appear to be recent developments (i.e., forming during the late prehistoric, historic, or recent time periods). Distributaries and crevasses that trend to the west or southwest also are related to events that have occurred within the last 3,500 years. Thus, the most ancient surfaces expected to exist will date from approximately 3,000 years B.P. Most will be less than 1,500 years old. As suggested above, many of the surfaces may be obscured by the recent heavy sedimentation that has occurred within the basin.

Geomorphic features that have been defined for the western portion of the study area include natural levees, distributary channels, crevasse channels, and backswamps (Smith et al. 1986: Plates 13 and 16). Natural levees are low ridges paralleling the river channel. They are formed as rivers overflow their banks and deposit sediment immediately adjacent to the channel. The natural levees mapped by Smith et al. (1986) for the western part of the study area have an underlying backswamp depositional environment. Levees are preferred locations for human habitation because their slope characteristics and the coarse size of their constituent particles promote rapid drainage. They are also in close proximity to transportation routes and to faunal and floral resources. Finally, they provide protection from floods (Smith et al. 1986). Within the project area, natural levees are located in Borrows 9, 10, and 11.

Associated with the development of broad natural levees are crevasse channels. These small, ephemeral channels usually extend away from the main channel at right angles, and terminate in low areas along the active main channel or in the backswamps. They originate during periods of high flow as breaks develop in the levees of active rivers. They usually receive water flow only during periods of high discharge, and they carry overflow and sediment into the backswamps and low areas at their termination points. Typically they are shallow, less than 3.2 km long, and have broad natural levees (Smith et al. 1986). The only crevasse channel in the present study area is in Borrow 10.

Developing initially as crevasse channels, distributary channels diverge from the main river channel, carrying flow away from it. They are created when the flow through the crevasse channel is of sufficient duration to establish a permanent channel. Unlike crevasse channels, however, distributary channels usually extend from the main channel at angles of less than 60 degrees, they are perennial, carry a greater proportion of the main channel flow, and end at a large body of open water. Active and former distributary channels are joined in interconnecting patterns (Smith et al. 1986). Distributary channels are present in Borrows 3 and 10 of the project area.

Backswamp is the chief depositional environment in the Atchafalaya Basin. Backswamps are low, poorly drained areas surrounded on all sides by upland surfaces or natural levee ridges. During periods of high flow, floodwaters drop fine-grained sediments at some distance from the levee into low areas such as these. Consequently, backswamp deposits consist of massive clays ranging in color from light yellow or dark brown to dark grey and black. Concretions are also a frequent component of these deposits. Backswamps are usually covered in trees (Smith et al. 1986). Backswamp areas are present in the EABPL project area in every study tract except Borrow 10.

Recent Changes to the Local Environment

Other than man-made alterations, such as the dredging of borrow areas and the deposition of spoil banks, the most obvious recent changes in the local environment involve the rapid deposition of alluvial sediments in the western portion of the EABPL project area. The most striking deposits were observed in Borrow 10, where auger testing found as much as 150 cm of silty clay loam above 30 cm of sand. Borrow 10 is located near the confluence of Bayou Maringouin and the East Fork of Bayou Pigeon, which has dumped an extremely heavy load of river silt along its banks. A large bar is present at the point where the channel meets Bayou Maringouin, and deep, quicksand-like deposits extend up Bayou Pigeon for some distance. However, on the opposite side of the protection levee, much shallower deposits of silty clay loam were observed adjacent to Upper Grand River. This distinction is at least partially the result of the action of the protection levee in containing the flow through the Atchafalaya Floodway. Diversion of the Mississippi River and its sediment load into the Atchafalaya during the last 150 years has resulted in increased sedimentation throughout the Atchafalaya Basin (Smith et al. 1986). One example of the rate of siltation was provided by Kniffen (1938), who observed that the Pigeon-Grand River Indian Mound (16IV15) had become covered by 3 feet of silt in less than 20 years.

Succession of floral communities on Mississippi River point bar habitats may provide clues to recent changes in the environment of the EABPL project area. Initial colonization of a landform is by willows. They are later replaced by a transitional cottonwood-willow forest, which is followed by a sweetgum-sugarberry-elm community. If the landform is not flooded frequently, a climax community of oaks, elms, cottonwoods, and vines may develop (Shelford 1963). Most of the forests in the project area consist of sweetgum, oak, hickory, and other species. Thus, they appear to be in a transition between the third stage of the succession and the climax community. These forests have probably been established for some time but continue to flood with enough frequency to prevent the establishment of a climax community. Only one portion of the study area, a spoil bank located along a borrow channel, is occupied by the initial succession community. Most of the study tracts apparently have not recently experienced major disturbances such as clearing or construction.

CHAPTER III

PREVIOUS RESEARCH IN OR NEAR THE PROJECT AREA

The earliest archeological research within or near the project area was conducted by C. B. Moore (1913). As part of his extensive research throughout the Southeast, Moore surveyed the Atchafalaya River and adjacent drainages from the Atchafalaya's source on the Mississippi River to Morgan City. He located fourteen sites along this stretch of the river. Excavations were conducted at nine of these locales. It should be noted that Moore's investigations were directed towards the recovery of artifactual materials, rather than the interpretation of their context. Although this bias reflects contemporary thought, recovery techniques were exacting. His notes and drawings have been employed by later analysts with some success to provide the interpretations of Moore's data.

Three of the sites Moore recorded, the Bayou Sorrel Mounds (16IV4), the Schwing Place Mound (16IV13), and Pigeon Bayou Mound (16IV15), lie near the project area. 16IV4 is located approximately 2.8 miles (4.6 km) southeast (125°) of the project area; 16IV13 is 6.4 miles (10.4 km) southeast (105°) of the project area; and, 16IV15 is 2.7 miles (4.4 km) west (270°) of the project area. The former site, 16IV4, contained materials associated with all of the Woodland and Mississippian cultural periods of the region. Baked clay objects were recovered by Moore (1913); however, their association with a component at this site is problematic (Gibson 1982:363-365). The most intensive of occupation occurred during the Coles Creek and Plaquemine periods. Other investigators at 16IV4 have included Kniffen (1938), McIntire (1958), Phillips (1970), Weinstein and Rivet (1978), and Gibson (1982).

The site 16IV13 contained burials and baked clay objects possibly associated with the Rabbit Island phase of the Poverty Point period. After Moore, the site also was visited by Kniffen (1938), McIntire (1958), and by Phillips (1970). The cultural affiliation of 16IV15 is unknown. Later visits included those of McIntire (1958), and Neuman and Servello (1976). The site could not be relocated during the most recent visit due to the great depth of recent alluvial deposits.

Kniffen's (1938) survey of portions of Iberville and Ascension parishes represented the next archeological investigations near the project area. Kniffen revisited a number of sites located by Moore. In addition, he identified a number of previously unrecorded sites. Kniffen's (1938) survey was based on informant data and on the examination of stream banks along

routes between these sites. One of these sites, Bayou Blue mound (16IV17), is located 3.3 miles (5.3 km) northeast (55°) of the project area. A recent visit to the site by M.K. Shuman on May 8, 1985, suggested that 16IV17 has been completely destroyed (Louisiana Division of Archeology, State Site Files).

With the exception of McIntire's (1958) survey of the Louisiana coastal zone, little archeological work was conducted within the Atchafalaya Basin until the 1970s. During the last decade, a number of overviews and surveys were conducted in selected portions of the region, and for the region as a whole. These included studies by Gagliano and Van Beek (1975), Gibson (1978, 1982), Neuman and Servello (1976), and Smith et al. (1986). In addition, McIntire (1980a, 1980b) conducted two surveys along the Atchafalaya in Iberville Parish. None of these studies identified cultural resources within the current project area. Neuman and Servello (1976) did attempt to relocate 16IV15; however, their efforts met with little success. Most recently, Malcolm Shuman has been revisiting and mapping known mound sites in Iberville Parish. He visited and mapped the site 16IV4 during December, 1986 (Malcolm Shuman, personal communication 1987).

Other studies that pertain to the region near the present project area include Gagliano et al.'s (1975) survey of the Gulf Intracoastal Waterway. All other recent archeological studies within Iberville Parish were conducted along the Mississippi River, rather than in the Atchafalaya Basin.

Three of the reports mentioned above warrant further discussion, since they either represent constructive attempts to examine site distributions within the region or they present expectations that may be employed to guide archeological research within the region. These are: McIntire's (1958) survey of the Louisiana coastal zone; Gibson's (1982) survey of the Atchafalaya Basin Protection Levee rights-of-way; and, the geomorphological investigations conducted by Smith et al. (1986). Although Neuman and Servello's (1976) survey of the Atchafalaya Basin pertains to this project area, their survey areas were limited to the natural levees of unidentified stream channels. In addition, poor description of discovery or recovery techniques employed during this study limit the use of its results for interpreting human occupation of the Atchafalaya Basin.

McIntire's (1958) survey of sites within the coastal zone of Louisiana represented an attempt to date landforms within this zone by their association with known cultural assemblages within archeological sites. The major underlying premise of this study represents a research orientation which has been emphasized, and that continues to be emphasized, in archeological investigations in Louisiana. This study is of interest due to its scope and as a

relatively early attempt to reconstruct the sequence of Holocene events within the coastal zone from man-land relationships. McIntire (1954, 1958) documented over 500 archeological sites within the coastal zone. His survey, however, like those of earlier investigators (e.g., Kniffen 1938), was based largely on informant data rather than intensive survey (Gibson 1982:319). This limits the applicability of McIntire's interpretations due to the lack of a representative sample of archeological sites.

Gibson's (1982) survey of the Atchafalaya Basin Protection Levees is of special interest to this study. Earlier surveys, such as those of Kniffen (1938) and of Neuman and Servello (1976), either were based on informant data or on limited examinations of stream banklines and natural levees. Gibson's survey (1982) represented the first attempt to acquire a representative sample of archeological sites within the region. He provided extensive background research, including prehistoric, historic, and ethnographic information on human utilization of the Atchafalaya Basin. This background was designed to enable the generation of testable hypotheses concerning the human utilization of the study area. Hypothesis-testing would be achieved through the analyses of site locations and site catchments. Unfortunately, logistical constraints (e.g., the presence of permanent standing water over extensive portions of the study area, the discontinuous nature of the survey corridor in certain sections, the presence of existing levee structures, etc.), and landscape alteration (e.g., natural movement of stream channels, historic disruptions of hydrologic patterns, subsidence and siltation, etc.), prevented the acquisition of an appropriate data base for the kinds of analyses originally planned for his study (Gibson 1982). Thus, the results of the study were resource-specific (i.e., archeological sites), rather than representing a general statement of human utilization of the region. Unfortunately, it is difficult to extract locational and temporal information from Gibson's presentation of the archeological data recovered during his investigations. A tabular presentation or short summary of the nature of the cultural resources located during the survey would have been helpful. The background information and cultural overviews generated through this study, however, do provide very useful information from which hypotheses concerning site location and function can be generated. These hypotheses may be testable in subsequent studies such as the present one.

The most recent investigations conducted within the region and of interest to the present study involve the geomorphological investigations of the Atchafalaya Basin conducted by Smith et al. (1986). This study was designed to develop a geomorphological framework for cultural resources management studies in the region. As such, it does not address archeological sites per se; rather, it defines the landforms and features upon which human activities

have occurred. It provides information concerning the nature and development of these landforms or features from which probative site locations can be extrapolated. This information is presented in a clear and concise manner. Sufficient background information is provided to assure that even practitioners unfamiliar with the geomorphic processes responsible for the past and on-going development of the Atchafalaya Basin will be able to use the data. The distribution of important geomorphic features within the basin are presented on 7.5 minute USGS quadrangles in a map portfolio that accompanies the text. This permits the association of features that were important to the prehistoric occupants of the region with modern drainages and features within the basin. This greatly facilitates the application of Smith et al.'s (1986) hypotheses concerning the locations of prehistoric sites. As such, this study provides an important resource for the development of expectations concerning the location and nature of archeological resources within the present study area.

The latter two studies, by Gibson (1982) and by Smith et al. (1986), provide the best sources of information concerning the probable location or nature of archeological sites within the Atchafalaya Basin, including the portions of the East Atchafalaya Basin Protection Levee under scrutiny here. As described below, Smith et al.'s (1986) definitions of specific geomorphological features have been employed to identify areas of high probability for the location of prehistoric archeological sites. Gibson's (1982) study provides a framework for the interpretation of human utilization, either prehistoric, historic, or modern, of the present project area.

CHAPTER IV

PREHISTORIC BACKGROUND

Prehistoric Culture History of the Project Area

Poverty Point Period

The earliest prehistoric cultural period identified in Iberville Parish is Poverty Point. Poverty Point is marked by the appearance of earthwork and burial mound construction during the late Archaic period, circa 1500 B.C. Considered to be either an Archaic-Formative transition or an Archaic climax phenomenon, the Poverty Point site (16WC5), located in West Carroll Parish, is unique in North American prehistory. Although small quantities of fiber-tempered pottery are present at the Poverty Point site, some scholars argue that the culture was aceramic. Nevertheless, crude pottery figurines and irregular-shaped fired clay objects, possibly used in "stone boiling" cooking techniques occur in Poverty Point contexts (Bryant et al. 1982:23). Poverty Point material culture also is represented by fine stone lapidary work, steatite or soapstone vessels, and a microlithic tool industry. Subsistence appears to have been based on intensive hunting and gathering, although prior emphasis on protein capture may reflect bias in archeological study of the Poverty Point period. Projectile point types originating in the Late Archaic and continuing into the Poverty Point period are Gary, Ellis, Pontchartrain, Kent, Carrollton, and Marshall, as well as larger forms such as Hale.

Poverty Point components have been identified at a minimum of two sites in Iberville Parish (Smith et al. 1983:96). The Schwing Place Mounds (16IV13), near the project area, contained 32 baked clay objects associated with the Rabbit Island Phase of the Poverty Point period. In addition, three baked clay objects were recovered by Moore (1913) within the fill of one of the Bayou Sorrel Mounds (16IV4). Whether these objects represent a Poverty Point component, the inclusion of materials from another site, or clay objects associated with a later component (i.e., Tchefuncte) is unknown (Gibson 1982:363-365).

Tchefuncte Period

The next prehistoric period documented in Iberville Parish is the Tchefuncte period (Smith et al. 1983), which dates approximately from ca. 500 B.C. to A.D. 200 (Neuman 1984:113-136; cf., Shenkel 1984:44). During the Tchefuncte period, pottery became important in prehistoric Louisiana, and increasing amounts of pottery with rocker stamped decoration and with tetrapodal

supports were made. The soft Tchefuncte pottery had poorly compacted paste, and common vessel forms included bowls and cylindrical and shouldered jars. Decoration included fingernail and tool punctation, incision, simple stamping, drag and jab, parallel and zoned banding, and stippled triangles.

The Tchefuncte artifact assemblage includes boatstones, grooved plummets, mortars, sandstone saws, barweights, scrapers, and chipped celts. Socketed antler points, bone awls and fish hooks, and bone ornaments also have been found. Projectile point types found in Tchefuncte contexts are Gary, Ellis, Delhi, Motley, Pontchartrain, Macon, and Epps.

The population of the Tchefuncte period appears to have been a melange of long-headed Archaic peoples with a new subpopulation of broad-headed people who practiced cranial deformation, and who are thought to have entered the Southeast from Mexico. The presence of rocker stamped pottery, zone and panel decorations, and of some other individual traits (*viz.* Shenkel 1984:64-65), also shows similarities to the Hopewellian development (500 B.C. to A.D. 300).

Tchefuncte subsistence strategies appear to have had two orientations (Shenkel 1984:44-45). First, inland groups focused on the river terrace and floodplain habitats of the lower Mississippi alluvial valley. The second strategy involved the utilization of the Louisiana coastal plain and Mississippi River delta. Shenkel (1984:65) suggests that this shift to coastal resources represents a new adaptation by prehistoric peoples. However, the paucity of earlier sites in these coastal zones may be a result of site loss (through coastal subsidence, reworking of coastal deposits, and/or fluctuating sea levels), rather than an orientation toward a previously unexploited resource.

Tchefuncte sites or assemblages are poorly represented in Iberville Parish. Smith et al. (1983) reported only one Tchefuncte component within the parish in 1983. This component is represented at 16IV4, the Bayou Sorrel Mounds, by the presence of two sherds identified by Weinstein and Rivet (1978:122-123) as Tchefuncte. More recently, Goodwin et al. (1986) reported the presence of a Tchefuncte component at 16IV147 within the White Castle Revetment Item on the the Mississippi River.

Marksville Period

The subsequent Marksville period (100 B.C. - 300 A.D.) to a large degree was a localized hybrid manifestation of the Hopewellian culture climax that preceded it in the Midwest. The type site (16AV1) is located at Marksville, in Avoyelles Parish, Louisiana. Elsewhere in the state, smaller sites occur which

display both Marksville pottery types and a modified form of the Marksville mortuary complex. Marksville houses appear to have been circular, fairly permanent, and possibly earth-covered. A fairly high level of social organization is indicated by the construction of geometric earthworks and of burial mounds for the elite, as well as by a unique mortuary ritual system. Although large quantities of burial furniture are not recovered from Marksville sites, some items, such as elaborately decorated ceramics, were manufactured especially for inclusion in burials.

Marksville ceramics were well-made, with decorations that included u-stamped incised lines, zoned dentate stamping, zoned rocker stamping (both plain and dentate), the raptorial bird motif, and flower-like designs (Toth 1977; Phillips 1970; Ford and Willey 1940). The cross-hatched rim is particularly characteristic of Marksville pottery, and may relate this complex to other early cultural climaxes in the Circum-Caribbean area. Plain utilitarian wares also were produced. Perforated pearl beads, bracelets, and celts have been recovered from Marksville contexts.

Two Marksville period sites have been recorded in Iberville Parish (Smith et al. 1983:96). One of these occupations is present at 16IV4, the Bayou Sorrel Mounds. In other areas, Marksville period sites are associated with the natural levees of active distributaries within the earlier Teche and St. Bernard deltas (Gagliano et al. 1975:41-42). Based on Smith et al.'s (1986) interpretation of geomorphological features at the location of 16IV4, this would appear to be the case for the Bayou Sorrel Mounds, as well.

Troyville-Baytown Period

The next cultural period identified for South Louisiana is Troyville or Baytown (A.D. 300 - 700). This transitional period followed the decline of the Hopewellian Marksville culture, and it is poorly understood. In his recent book on Louisiana archeology, Neuman (1984) combines the Troyville period and culture with the better understood Coles Creek period; similarly, Davis (1984) contains chapters on early Woodland period prehistory and on late Woodland (Coles Creek period) prehistory, while failing to address substantively the transitional Troyville-Baytown period. Knowledge of the Troyville culture is based on the type site (16CT7) at Jonesville, Louisiana, and on the discovery of Troyville ceramics in other sites. Among the pottery types clustering in the Troyville period are: Mulberry Creek Cord Marked, Marksville Incised (Yokena), Churupa Punctated, Troyville Stamped, Larto Red Filmed, Landon Red-on-Buff, and Woodville Red Filmed. However, these pottery types and most other traits are not confined solely to this period. Troyville is thought to

represent the period when maize agriculture and the bow and arrow were adopted. Evidence for agriculture includes shell hoes and grinding stones.

Near the project area, a Troyville component has been identified at the Bayou Sorrel Mounds (16IV4) by the presence of ceramic types associated with this period.

Coles Creek Period

The subsequent Coles Creek period (A.D. 700 - 1200) developed out of Troyville. Coles Creek was a dynamic and widespread manifestation throughout the Lower Mississippi Valley. Coles Creek may be viewed as the local early or pre-classic variant of the Mississippian tradition, and its emphasis on temple mound and plaza construction suggests Mesoamerican influences. Population growth and areal expansion were made possible by increasing reliance on productive maize agriculture. The seasonal exploitation of coastal areas supplemented the maize economy of large inland sites, and small non-mound farmsteads were present. A stratified social organization with a dominant priestly social class continued.

The construction of platform mounds became important during this period. These were intended primarily as bases for temples or other buildings, but they also contained burials. Smaller circular mounds were still present. A common motif of Coles Creek ceramics is a series of incised lines parallel to the rim. Pottery types include: Coles Creek Incised, Pontchartrain Check Stamped, and Mazique Incised.

A Coles Creek component has been identified at the Bayou Sorrel Mounds (16IV4) near the project area. Gibson (1982:364) suggests that this represents the major occupation of the site because of the high percentage of Coles Creek ceramic types identified from the site by McIntire (1958).

Plaquemine Period

In the southern part of the Lower Mississippi Valley, the Plaquemine culture developed out of a Coles Creek background. Ceremonial sites of this period consisted of several mounds arranged about a plaza area. Associated small sites were dispersed about such centers. Social organization and maize agriculture were highly developed. The most widespread decorated ceramic type of the Plaquemine period was Plaquemine Brushed. Other types include Harrison Bayou Incised, Hardy Incised, L'Eau Noir Incised, Manchac Incised, Mazique Incised, Leland Incised, and Evansville Punctate. Both decorated types and plainwares, such as Anna Burnished Plain and Addis Plain, were well made.

Diagnostic Plaquemine projectile points are small and stemmed with incurved sides. One site near the project area, the Bayou Sorrel Mounds (16IV4), contains a Plaquemine component.

Mississippian Period

Late in the prehistoric period, the indigenous Plaquemine culture came under the influence of Mississippian cultures from the Middle Mississippi River Valley. Mississippian culture was characterized by large mound groups, a widespread distribution of sites, and by shell tempered pottery. A distinctive mortuary cult or complex, referred to as the "Southern Cult," that made use of copper, stone, shell, and mica was introduced, and elaborate ceremonialism reflected in animal motifs and deities pervaded Mississippian culture. Trade networks were well established during this period, and raw materials and specialty objects were traded across large areas of the central and southern United States.

While Mississippian components have been identified at a number of sites within Iberville Parish and in the greater Atchafalaya Basin, none of the sites near the present project area contains Mississippian components.

Protohistoric Indian Occupations

After European contacts within southern Louisiana, a number of indigenous native groups, including the Bayougoula and the Chitimacha, were identified along the peripheries of the Atchafalaya Basin. With continuing pressure from the European colonists, native Indian groups were forced to occupy greater portions of the swamps that constitute the majority of the basin. As with non-indigenous populations, however, occupations were limited to the peripheries of the basin (Gibson 1982:95-97, 105-106). Figure 3 displays a 1702 map of the Mississippi River showing the location of the known Native groups at that date.

The Bayougoula Indians occupied the swamps and bayous along the west bank of the Mississippi River. Both Pierre LeMoyne, Sieur d'Iberville and his brother Jean Baptiste, Sieur de Bienville made contact with the Bayougoulas during their 1699 exploration of the Mississippi River. Iberville was interested in the indigenous inhabitants who settled along the great river because they could substantiate that this was the river that LaSalle wrote about in his 1682 expedition of the Lower Mississippi Valley. On March 14th, 1699, Iberville and Bienville landed near the Bayougoula village on the Mississippi River. During this visit, they worked out a treaty with the chiefs of the Bayougoula and the Mougoulasha, who were sharing the Bayougoula settlement (McWilliams 1981). Iberville described the village as having 107

huts and two temples surrounded by a cane palisade. Most of the residents were male because many of the women had died of smallpox. Iberville described them as being the most destitute Native Americans he had encountered (Riffel et al. 1985). Iberville returned to France with a Bayougoula youth and learned that during his absence that the Ouma tribe (who Iberville also visited) had massacred most of the Bayougoulas. Jesuit priests, Father Paul du Ru and Father Jacques Gravier also visited the Bayougoulas in 1700. When Father Gravier visited the village in December of that year, he noted that a cross that had been erected by Du Ru was no longer standing. In sum, the Bayougoulas, like most of the aboriginal inhabitants during the historic contact period, were entangled in a disastrous pattern of war, tribal consolidation, and village abandonment. Most of their settlements were located to the east of the project area along the Mississippi River.

The Chitimachas were the most prominent Native American tribe in the study area, but because of their hostility towards their neighbors and the French colonists they were not well documented by early European visitors to the region. The Chitimacha moved from the southern portion of the Atchafalaya Basin north to Bayou Plaquemine prior to 1700. They were reported to have established villages at Plaquemine, Indian Village, Belle River, and a large settlement at Donaldsonville. Despite continual war with the arriving French settlers and the other tribes in the area, the Chitimachas remained at Bayou Goula in Iberville Parish, above the M. Paris dit Duverney concession, through 1727. A census of Native American villages taken in 1766, however, recorded 22 people living below Bayou Plaquemine (Swanton 1946).

Known Chitimacha villages have been identified along Bayou Plaquemine and Grand River, southeast of the project area. Gibson (1982:374) interprets burial patterns at the Bayou Sorrel Mounds, as revealed by Moore's (1913) excavations, as similar to Chitimacha burial practices and notes the proximity of the Bayou Plaquemine village to 16IV4. This suggests that the Plaquemine period occupation at the site may represent a late prehistoric occupation of the site by an indigenous native population associated with a known tribal group. However, no known archeological sites associated with particular native groups have been identified positively within or near the project area.

Expectations Concerning Prehistoric Resources

Expectations concerning the nature and locations of potential prehistoric sites within the project area can be derived from the previous investigations and known prehistoric resources near the project area. These expectations will assist in the definition of portions of the project area that possess a high

probability for containing prehistoric resources.

All of the four previously recorded sites near the project area (16IV4, 16IV13, 16IV15, and 16IV17) are, or were, mound sites. These sites probably represent fairly permanent habitation sites. The presence of only mound sites near the project area suggests that any prehistoric sites discovered in the project area may contain such features. However, prehistoric sites that contain these features are likely to be more visible than sites that are represented by scatters of artifacts. This is especially true given the rapid sedimentation noted for the region in recent times. Given that mounds are more visible, and the number of prior archeological surveys in and near the project area, it is difficult to believe that previously unrecorded mound sites may exist in the project area. Nevertheless, the restriction of Gibson's (1982) survey to a narrow corridor and the relative isolation of much of the project area preclude the a priori assumption of the absence of mound sites in Item E-44.

It is more likely that sites that exist in most of the borrow areas will represent smaller sites related to the extraction of resources. Recent studies by Hemmings (1981) and Poplin et al. (1987) suggest that resource extraction sites, containing low densities of artifacts, are expected to represent the majority of sites within backswamp areas. Since most of the borrow areas lie inside backswamps along Bayou Maringouin, most of the prehistoric resources expected to exist within the project area should represent resource extraction sites. The discovery of these sites may be difficult due to the recent sedimentation in the basin. Portions of the borrow areas that contain natural levee deposits, along distributary or crevasse channels, may contain larger habitation sites as well as resource extraction sites. The habitation sites, however, may be restricted to the larger streams, where the natural levees are more extensive, in order to accomodate population aggregates and longer periods of occupation assumed to be represented at such sites.

Most of the sites identified in the Atchafalaya Basin contain Woodland period components. With the exception of the Poverty Point component at 16IV13, all components identified at the four sites closest to the project area are Woodland. The unaffiliated sites (16IV15, 16IV17) both contained mounds. While these features may date to any prehistoric period, they are more common in sites related to Woodland occupations. In addition, most of the sites discovered by Gibson (1982) contained Woodland, and primarily Coles Creek or Plaquemine, components. This suggests that most prehistoric resources likely to exist within the project area contain late Woodland period components.

Site locations also can be predicted from previous

investigations and using the locations of known sites. Three of the four sites identified near the project area are located on the natural levees of streams. Two are located near the confluence of larger bayous. Most of the prehistoric sites discovered by Gibson (1982) in other portions of the project area lie on natural levee deposits, as well. This suggests that natural levee deposits have a higher probability for containing prehistoric resources than other geomorphic features or deposits within the study area. This may be the result of where previous investigators have looked for resources, and it also may result from rapid sedimentation throughout the basin. The higher natural levees would be expected to receive smaller amounts of sediments than backswamp areas. Thus, the depth of overlying materials can be expected to be less along these levees than in the backswamp areas. Sites along the natural levees, therefore, may be more visible than those in the backswamps.

Additional support for the expectations concerning site locations and temporal associations has been presented by Smith et al. (1986). They suggest that the upper 4.5 m of sediment in the Atchafalaya Basin is usually less than 3500 years old. Sediments between 9 m and 35 to 40 m below surface usually date from 5500 B.P. to 10,000 B.P. In addition, the distributary channels which trend toward the southeast are probably primarily associated with the development during prehistoric, historic, and recent times of the Atchafalaya as the chief distributary of the Mississippi. Southwesterly- and westerly-oriented distributary channels probably date later than 3,500 B.P. Thus, sites predating the Coles Creek Phase should occur only on larger distributary levees and be absent elsewhere in the Atchafalaya Basin. Archeological sites on natural levees of abandoned distributaries are usually less than 1500 years old and probably never date before 3000 B.P. Sites located on lake shores and on the levees of abandoned distributaries probably date later than 1500 B.P. Lacustrine deposits, however, are not characteristic of the upper portion of the Basin, where the present study area is located (Smith et al. 1986).

Therefore, prehistoric resources that may exist within the EABPL Item E-44 project area are likely to occur along natural levee deposits associated with the larger bayous or crevasse channels that once crossed the area. These sites are more likely to contain components representing occupations during the later prehistoric periods (i.e., Coles Creek or Plaquemine cultures).

CHAPTER V

HISTORIC BACKGROUND OF THE PROJECT AREA

Introduction

The history of the EABPL Item E-44 study area in Iberville Parish is directly related to the unique and changing environment of the Eastern Atchafalaya Basin. Cultural activities in the basin during the historical period primarily involved exploitation of natural resources. The study area was originally an impenetrable primary forest swamp. Through the clearing of log rafts, deforesting, the dredging of canals and bayous, and the building of protection levees, it eventually was transformed into a secondary growth floodway. The Eastern Atchafalaya Basin's changing physical setting dictated settlement patterns, subsistence activities and economies, and even political events. The following historic overview reviews the cultural processes that contributed to historic development of the Eastern Atchafalaya Basin area, including Bayou Maringouin, Bayou Sorrel, Bayou Plaquemine, and Upper Grand River. Comparisons of the French, Spanish, and American patterns of colonization, and discussions of the important ethnic groups who migrated to the area, also are provided to clarify historic land use patterns in the region.

The French Colonial Period

Like the local indigenous inhabitants, the first Europeans to enter the Eastern Atchafalaya Basin, the French, depended entirely upon water transportation (Stoddard 1812). The first historical account of the Iberville Parish region which includes the EABPL Item E-44 project area was recorded in 1699 by the French explorer Pierre le Moyne, Sieur d'Iberville. Beginning from its mouth, Iberville ascended the Mississippi River in an attempt to counter British expansionism in the Gulf of Mexico and to justify French hegemony in the Mississippi River valley. Iberville explored the Mississippi for six weeks; on March 14th, 1699, he recorded in his journal that there was a creek used by the Outyamascha (Chitimachas) Indians three leagues upstream from the Bayogoula Indian Village on the left side of the Mississippi River (McWilliams 1981). This creek was Bayou Plaquemine, named because of the persimmon trees that lined its banks (Postell 1942).

Iberville was sent to the Mississippi Valley to establish a colony where land concessions could be sold. The French government planned to sell land grants through private monopolies. The Company of Louisiana, established by Antoine Crozat in 1712,

was the first private monopoly, followed by John Law's Mississippi Company and Bienville's Company of the West in 1718. Initial colonization was scattered up the valley as far as the Arkansas Post and the Illinois territory; however, settlements were sparse north of the delta region. In fact, it was only after the collapse of Law's Mississippi Company in 1720 that would-be settlers, mostly German farmers, were relocated above New Orleans (Seigel 1975).

The colonial French established land use patterns in Louisiana that can still be recognized today. Division of land followed a system used in northwestern France along streams and in reclaimed marshland (Kniffen 1974). The arpent (French unit of measure approximately 192 feet) system was well-suited for the narrow natural levees along the Mississippi River. Because of the scarcity of riverfront property, small arpent portions, usually six to eight arpents front, were granted parallel to the river along the high ground of the natural levee; the backacreage usually extended forty arpents deep. The grantee was given three years to clear his property two arpents deep, to build and maintain a levee with an adjacent forty foot wide road, and to dig parallel drainage ditches from levee to backswamp (Kniffen 1974).

Because the first French colonization efforts in the Lower Mississippi Valley were concentrated on agricultural lands along the Mississippi River above and below New Orleans, inundated, lowlying backswamp areas, like the Atchafalaya Basin, remained unsettled. In addition, the study area during the historic contact period contained warring Indian tribes, such as the Chitimacha, the Bayougoula, the Mougoulachas, and the Ouma (Figure 3), further discouraging settlement. As a result of these factors, there is no documented evidence of European settlement in the study area during the French colonial period.

The earliest and nearest French concession to the Item E-44 project area was that of M. Paris dit Duverney, granted in 1718 at the "old village of the Bayougoulas" on the west bank of the Mississippi River (McWilliams 1953). The Paris concession, approximately twelve miles (19 km) from the survey area under consideration here, was managed by M. Dubuisson; through the use of African slaves, it became a successful agricultural enterprise. Disputes with the neighboring Chitimachas were common, but they did not successfully disrupt plantation activities (Goodwin, Gendel, and Yakubik 1986). Despite the early success of the Paris concession, the Eastern Atchafalaya Basin region had no real permanent settlement until the arrival of the Acadians at St. Gabriel in 1776 (Riffel et al. 1985).



Figure 3. Detail of Guillaume Delisle's 1702 Carte de la Riviere de Mississippi showing the Native American tribes in the study area vicinity (L.S.U. Library, map collection).

The Spanish Colonial Period

St. Gabriel was established by Spanish colonists dispatched to the Mississippi River area above New Orleans after France ceded Louisiana to Spain in 1762. Spain encouraged Acadian refugees exiled from Nova Scotia to settle outposts in Louisiana because their adversaries, the British, had started settlements at Fort Bute, Manchac, and at Fort New Richmond (Baton Rouge). Under the command of Joseph de Onieta, Fort St. Gabriel was constructed south of Bayou Manchac. According to Onieta's reports to the Spanish Governor Ulloa, the St. Gabriel outpost constantly was threatened by Indians and disease (Riffel et al. 1985). The first Acadian immigrants arrived via Maryland on August 7th, 1767; the completion of the fort was inaugurated with a Mass attended by the Governor on January 13th, 1768. The Spanish initiated colonization in the Mississippi River region near Bayou Manchac for military reasons. Nevertheless, they stimulated the creation of frontier settlements by welcoming incoming Acadians to Louisiana by the hundreds, even though the English abandoned their East Florida territories outpost in 1768.

It became apparent during the later decades of the French occupation that the economic future of the colony lay in the development of commercial agriculture on the productive floodplains (Kniffen 1974). When the Spanish took over the administration of Louisiana, they continued the practice of granting lands to new settlers. The Acadians originally settled along the Mississippi River in present day St. James, Ascension, and Iberville parishes, known as the "Acadian Coast." Unlike the wealthier French European planters who bought large concessions and used large contingencies of slaves to work their plantation fields, most of the immigrating Acadians were "petite habitants," or small farmers. Like the German Rhinelanders who settled "Des Allemands," the German Coast (in the present day parishes of St. Charles and St. John), the Acadians worked their own fields.

Conrad suggests that the Acadians farms remained independent: "The [Spanish] land grants firmly established an enduring pattern of small, independent farms which effectively retarded the wholesale development of the large plantations" (Conrad 1979:96). This does not mean that Acadians opposed the institution of slavery, but that they could not afford them. Over seventy per cent of Louisiana families owned no slaves, and in the South as a whole, membership in the "planter class" (requiring the ownership of twenty or more slaves) was rare (Conrad 1979). The resourceful Acadians found Louisiana the perfect locale for their autonomous communities; successful Acadian settlements spread from the confines of the Mississippi to the outlying bayous. The French-speaking Catholic Acadians were quite different from the wealthier European French; because of their tenacious family and community ties, they soon became Southern Louisiana's dominant

ethnic group (Rushton 1979).

As the Acadians arrived in larger numbers, Spain granted patents, or concessions, at increasing distances from New Orleans along the Mississippi River. Eventually, only the less desirable bayou lands were left. Immigrants who were too poor to afford property became either tenant farmers or squatters. Although tenant farmers and squatters were not historically accountable, they were crucial to the development of the back country, and they were the first to establish permanent outlying settlements in the Atchafalaya Basin interior. Many of the descendents of these poor settlers later acquired property through "Squatters Rights," and played an important role in the development of the bayou country culture (Comeaux 1972). Already accustomed to living in the the New World at colonial establishments in Nova Scotia, the French Acadians who settled the outlying bayou frontier learned from the indigenous inhabitants and quickly adapted to their environment. For example, the new settlers learned to build log canoes called "perroques" (pirogues). This adaptation was crucial because the first boats used regularly by the French in the lower valley were chaloupes and canots. These deep drafted and wind powered vessels sat low in the water, making movement upstream arduous (Walker 1965). The largest pirogues, on the other hand, could hold 30 passengers or 40 or 50 tons of cargo, and because they were hewn from cypress, they were remarkably bouyant (Walker 1965).

The Spaniards were mostly military functionaries, and despite their attempts to develop politically sympathetic pioneers, they did not establish strong Spanish communities. Unlike the Spanish colonies in Peru and Mexico, where gold was plentiful, the Louisiana territory was strategic albeit not necessarily profitable. Considering these facts, the Spanish lacked the motivation to transport their culture to Louisiana. This contributed to early assimilation and to a concomitant lack of persistent Spanish traditions, language, and customs. The early Spanish speaking settlers in the region were "Islenos," so named because they came from the Canary Islands. They were not as successful as the Acadians in adapting to pioneer life in Louisiana. The Islenos lived under a paternalistic government and were unaccustomed to self reliance. The commandant of Galveztown, one of the first settlements in Iberville Parish (founded by Governor Galvez in 1778), reported that he had to tell the settlers what to do all the time: "besides farming [and cattle raising], they had no talents or trades" (Riffel et al. 1985:7).

Because the Spanish were traditionally ranchers instead of farmers, they were not responsible for major agricultural changes in Louisiana. Cattle raising was more important than field agriculture in the grassy prairies of the mostly Acadian Attakapas and Opelousas regions of the great Atchafalaya swamp (Conrad

1979). While the French arpent system was convenient for planting crops, it was not well-suited for the pasture land requirements of the cattle industry (Kniffen 1974). For that reason, the Spanish repartitioned the arpent divisions into larger squares and rectangles of as many as 4,500 acres for the vacheries, or ranches (Figure 4).

It is likely that the first European settlers in the study area arrived during the Spanish period. However, colonial European settlement did not figure prominently along the bayous of the study area including Plaquemine, Maringouin, Sorrel, and the Upper Grande River, because of the limited length and width of the natural levees (Swanson 1983). The first recorded settler in the study area vicinity, William Blake, was Irish. In 1794, Blake was granted 400 arpents on the southeast bank of Bayou Plaquemine, and a small settlement grew around Blake's holdings (Pritchard et al. 1945). However, during colonial times, Bayou Plaquemine and its adjacent backswamp bayous were more significant as communication arteries than as prime settlement areas.

Water Transportation

The study area during the late eighteenth century was preeminently part of a water transportation network that traversed the Atchafalaya Basin to the Attakapas and Opelousas regions. A northern route that proceeded west from the Mississippi River followed Bayou Plaquemine to Bayou Grosse Tete and then along Grand River, Atchafalaya River, and Bayou Courtableau to Bayou Teche at Port Barre. The southern route followed Bayou Plaquemine, Grand River, and Bayou Sorrel into Grand Lake. Minor routes led from Grand River through Bayou Pigeon to Grand Lake (Comeaux 1972). Trappers and traders traversed the bayous and cypress swamps in this region during the late eighteenth century.

As the settlements in the Attakapas and Opelousas regions grew in importance, attention began to shift from the eastern half of Iberville Parish to the west bank of the Mississippi. Local navigation was becoming less exploratory and more commercial. Travelers in Louisiana began to notice in the late 1700s and early 1800s that Bayou Plaquemine afforded a route to the fertile districts in lower Louisiana. Around 1770, the Acadian residents of Opelousas and St. Martinville organized an expedition to clear the head of Bayou Plaquemine. They constructed a wooden palisade jutting into the river in an attempt to prevent further jams by diverting river debris. Rather than diverting debris, the structure collected it. After this failed first attempt, however, log jams were removed whenever traffic was impeded (Faye 1942).

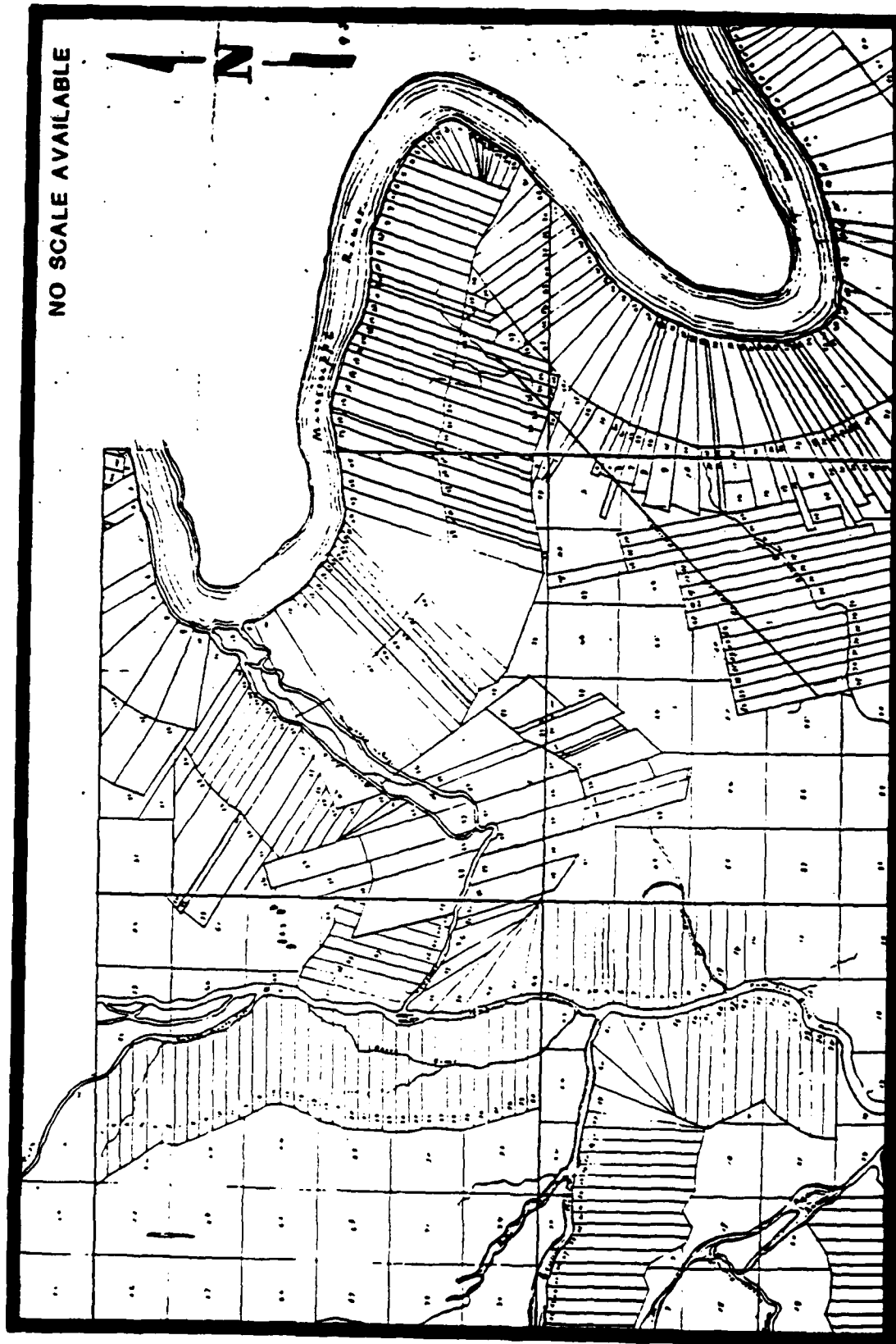


Figure 4. The original French arpent system along the Mississippi River and the modified Spanish and American arpent system in the study area (unknown survey ca. 1860, after Swanson 1983).

American Period

The Eastern Atchafalaya Basin region still was developing slowly at the time the United States Government acquired Louisiana in 1803. Henry Marie Brackenridge, who traveled down the Mississippi in 1811, wrote that, "the greater part of the tract of the Atchafalaya, Bayou Plaquemine, and the Mississippi, is low and uninhabitable land of which no use can be made in its present state" (Riffel et al. 1985). Conversely, William Darby noted in 1810 that

the Gros Tete, a larger bayou, has its source south of Fausse Riviere (Grand River), and running nearly a south course thirty miles, falls into Bayou Plaquemine. This bayou has much excellent land upon its margin, covered with larger cane; but subject to casual inundation. Bayou Maringouin rises N.W. of Fausse Riviere, and winding around its western extremity, assumes a course nearly parallel to the Gros Tete, falls into Atchafalaya, below Cow island (Darby 1817:49).

The United States required Louisiana settlers to present claims to their land for confirmation. Most of the grants in Iberville Parish were located along the Mississippi River. Darby (1817) stated that Galveztown on Bayou Manchac was the only village in the parish. As Figures 5 and 6 show, no claims were filed for the EABPL Item E-44 study area.

The Naval surveyor Cathcart noted in 1819 that in the immediate vicinity of Bayou Plaquemine, the Chitimacha had a village, known as Indian Village, six miles below Blake. Thus, as of 1832 there were no permanent American settlements in the project area. Cathcart called Blake's "the last settlement in the Atchafalaya Basin until you reach the other side" (Prichard et al. 1945).

By the 1830s, small villages such as Grosse Tete, Grand River, and later Bayou Sorrel began to develop along the natural levees of the various bayous of the region. The town of Plaquemine was incorporated in 1838; it became the Parish seat in 1842 (Postell 1942). It is obvious the town of Plaquemine grew rapidly between Cathcart's visit in 1819 and 1842. By the time Civil War was declared, Plaquemine was an important trading and transportation center accomodating merchants from all over the South.

Agriculture began along Bayous Pigeon and Sorrel and Grand River by 1845 (Planter's Banner 1847). This area was developed

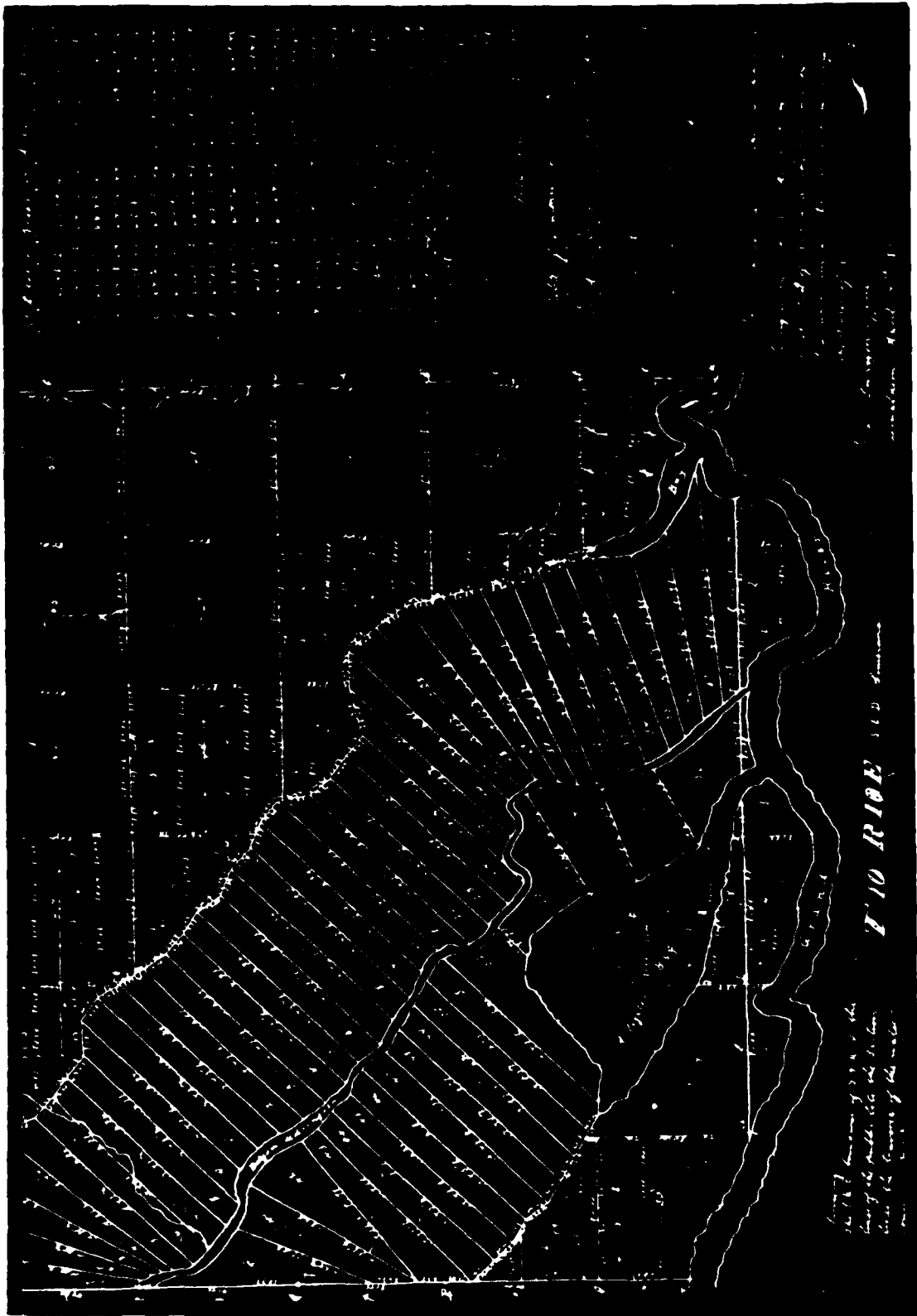


Figure 6. 1829 official township plats in T9S-R10E showing unclaimed lands in study area (Department of Natural Resources, Baton Rouge).

primarily by absentee landlords, and it was heavily dependent on slave labor (Comeaux 1972). However, between 1850 and 1860, floods ruined crop after crop in the interior basin.

Civil War and Aftermath

Most hostilities during the Civil War in the Atchafalaya Basin were centered at the Confederate strongholds along Bayou Teche and in the Opelousas Prairie. Under the command of General Benjamin Butler, and later of General N. P. Banks, the Union army's objective after the fall of New Orleans was to break the Confederate positions in the basin. The recent completion of the New Orleans, Opelousas, and Great Western Railroad between Algiers and Brashear City (Morgan City) enabled the Union army to access the strategic Teche region to carry out their invasion plans. Confederate forces in the Teche area were under the command of General Richard Taylor, a Louisiana native familiar with the bayou terrain. Taylor successfully thwarted Union efforts to capture the Teche region and Fort Bisland near Calumet. Eventually, Taylor's forces were surrounded by General Weitzel's troops stationed at Brashear City, along with the forces of Generals Groves at Bayou Boeuf and General Emory positioned at Bayou Ramos. Lieutenant John Watson, naval commander of Emory's expedition, found that driftwood rafts blocked Bayou Sorrel and Lake Chicot, making it impossible to transport troops through Upper Grand River via this route (Raphael 1975). Taylor's Confederate army, after numerous battles and strategic troop movements, was forced to retreat out of the basin to Alexandria and Shreveport.

Meanwhile, on the eastern side of the basin, the principal obstacle for the Union forces was Port Hudson on the Mississippi River north of Baton Rouge. General Banks prepared to bring Union forces through Bayou Plaquemine, then north through the recently cleared Atchafalaya River to the Red River, and finally east to the Mississippi River above Port Hudson. By advancing through the Red River, Port Hudson's main supply route would be severed. However, the costly siege of Port Hudson allowed for the retreating Taylor to muster a counterattack of the Teche country by advancing two Confederate armies on Brashear City: one through Bayou Plaquemine and Thibodeaux, attacking Brashear City from the rear, and one via the Atchafalaya River and Bayou Teche, simultaneously attacking on both fronts (Gibson 1982). Most of Bank's forces were positioned at Port Hudson, with the remaining detachments posted at Plaquemine, Donaldsonville, New Orleans, Thibodeaux and along the western Railroad. Taylor, with the help of the Texas cavalry, successfully routed the Union forces at Brashear City and recaptured their strategic advantage in the basin. The Atchafalaya Basin remained an unconquerable battleground until the end of the war in 1865.

Agriculture in the Atchafalaya Basin virtually ceased during the Civil War (Comeaux 1972). The swamps of lower Louisiana became a refuge for southerners avoiding the rigid Confederate conscription policy (Shugg 1939). Many of these English-speaking draft dodgers and A.W.O.L. Yankee soldiers settled in Bayou Chene, which developed a reputation for being a rough place (Comeaux 1972; Gibson 1982).

Bayou Chene, located southwest of the study area in the Atchafalaya Basin, became an important interior basin community during the nineteenth century. Bayou Chene is a distributary of the Atchafalaya River. The settlement at Bayou Chene first was established as a trading post. Chene means oak in French, and the area was so named because of the large oaks that lined the bayou. According to Walter Allen of Bayou Sorrel, most of the people who settled the bayous in the vicinity of the study area came from Bayou Chene after it became uninhabitable because of high water (Walter Allen, personal communication 1987). The abandonment of Bayou Chene and the subsequent resettlement of its inhabitants are discussed below.

Environment and Economy During the Reconstruction Period

Cash crop agriculture in the Atchafalaya Basin was destroyed by the Civil War, and then by flooding (Swanson 1983). At the head of the Atchafalaya River, the channel was two feet deep during low water in 1845. In 1831, Captain Henry Shreve shortened the Mississippi River by cutting through a sharp bend in the river above Pointe Coupee Parish. Shreve's cut-off and the removal of the Atchafalaya rafts prior to the Civil War, contributed to increased water levels in the Atchafalaya Basin. Thus, by the time of the flood of 1874, most of the remaining agricultural holdings in the basin were abandoned; only small farmers who owned higher ground remained (Comeaux 1972). By 1883, the Atchafalaya River channel at its head was 122 feet deep (Davidson 1883).

The first claims to property in the study area were made during the late nineteenth century. An 1883 survey by C. Naylor shows that land in Township 9 South, Range 10 East, and in Township 10 South, Range 10 East, were claimed by the people listed in Table 1. Although these tracts were used for agriculture during the latter half of the nineteenth century, it is likely that these small farms experienced the same fate as most of the farms in the basin: loss of crops due to flooding.

Hunting, trapping, and fishing gradually increased in the basin at the expense of agriculture (Comeaux 1972). Settlers within the Atchafalaya Basin learned to exploit this unique

**Table 1. Property owners of the study area in 1883
(Iberville Parish Courthouse).**

Township 9 South, Range 10 East:

Section 17	T. Hart
Sections 19, 23	J. A. Martine
Section 20	C. Charles
Sections 21, 24	J. King
Section 25	Jos. Keller
Sections 30, 31	A. J. Miller
Sections 36, 37	Stephen Bibb

Township 10 South, Range 10 East:

Sections 1, 2	John Slidell
Section 49	W. S. Pike

environment and developed a life-style suitable to the aquatic basin (Gibson 1978). These hardy trappers and fishermen relied on a nomadic settlement pattern with either isolated dwellings or floating camps consisting of several families (Knipmeyer 1956). Entire families could be located near the source of the economic activities without the attendant problems caused by flooding (Gibson 1982)

Lumbering became the most important industry in the Atchafalaya Basin in the latter half of the nineteenth century. The Timber Act of 1879 opened the cypress swamps of the Atchafalaya Basin for sale (Norgress 1947). The Timber Act allowed for the sale of the remaining unclaimed cypress stands for as little as 12.5 cents per acre (Norgress 1947). Innovations in the cypress lumber industry during in the late 1800s, such as the "overhead skidder," the "pull boat," the rotary saw, and then the band saw, increased lumbering exploitation in the basin. The clearing of cypress stands in the Atchafalaya Basin between 1880 and 1920 progressed at an phenomenal rate (Gibson 1982). Lumber settlements, or milltowns, grew up near saw mill processing centers. "Portables" were communities established near harvest sites; they also were referred to as "skidder towns" (Roberts 1974). "Swampers" were seasonal laborers who worked the temporary lumber camps of south Louisiana. The Plaquemine Lumber Company paid swampers 95 cents a day during the 1880s. The cypress timber industry declined as rapidly as it developed. By the middle of the 1920s, the great cypress stands in the Atchafalaya Basin were being exhausted, and the mills had to close down (Roberts 1974). The cultural and ecological changes caused by the deforesting of the basin are still being felt. According to Comeaux (1978), the innovative swamper culture degenerated with the passage of the great lumbering era.

The Twentieth Century

The great flood of 1927 dramatically changed the agricultural activities and settlement patterns of the Atchafalaya Basin. More than 800,000 acres of farm land were inundated in Southern Louisiana (Conrad 1979). "Overnight, the people of the bayous saw their lands covered with gray, swirling water, creeping up, at an alarming rate, from the broken levees along the Mississippi River" (Case 1973). After the Henderson levee broke twenty miles east of Bayou Chene, this previously mentioned interior basin community was abandoned. Most of the people who left Bayou Chene resettled in the western Teche region or in the eastern bayous of the study area (Case 1973). Many of the twentieth century settlers in Bayou Sorrel bear the surnames of the families who lived in Bayou Chene: Allen, Theriot, Verret, Landry, Seneca, Freyous, Diamond, Delord, and Texada. According to Mr. Allen, who arrived in Bayou Sorrel in

the 1940s, "they had [only] five families living here. When we moved here it was [the families] Esther, and Douglas, and Dudaux, Dupre, and Mr. Coupellia" (Walter Allen, personal communication, 1987).

Bayou Maringouin and Upper Grande River did not figure as prominently as a relocation area for the people who left Bayou Chene. Mr. Nelson McQuiston of Bayou Sorrel, who was 82 years old in 1979 when his oral history was recorded, stated that along the Upper Grand in the early decades of the twentieth century, he picked corn for feed on the Henry Jones property and cotton on the Monroe land (Iberville Parish Library). McQuiston said that it became more difficult each year to farm in the eastern basin: "most of the time we couldn't raise a garden in the Spring of the year, and from about the years 1912 to 1916 we had trouble raising gardens." Lottie McQuiston, Nelson's wife, said that after 1927, "most farms [in the eastern basin] were given up" (Iberville Parish Library).

Because agriculture in the study area during the first decades of the twentieth century became virtually impossible because of high water, most of the people who remained in the study area along Bayou Maringouin and Upper Grande River were probably squatters involved in subsistence pursuits. Mr. Allen noted: "they just tote their flat around where fishin' was good. They just tie up to a place, you know, they weren't claiming any land" (Walter Allen, personal communication 1987). The local inhabitants of the study area, like most of the people of the basin who did not own property on the higher ground, survived through the extractive subsistence activities that began during the postbellum decades of the nineteenth century. Nelson McQuiston stated,

every month of the year we fished. When prices dropped we cut and floated timber or picked moss. We make a day fishin', selling Buffalo (fish) for three to five cents each and Catfish for two to four cents each. When we catch turtles, they had to be sixteen inches wide to get fifty cents for 'em (Iberville Parish Library).

The study area in question, like most of the inundated backswamps of the Atchafalaya Basin, remained practically uninhabited and economically marginal until oil and gas was discovered there in the late 1930s. By 1940, widespread seismographic and drilling activities were being conducted throughout the basin (Morgan City Historical Society 1960). Like the previous lumber industry, the shift to petroleum-related activities brought considerable change to the basin. Population increase, the altering of the natural landscape, and shifting patterns in land use, especially along waterfront properties, were

prominent results of the petroleum industry. Since most of the basin was inundated, the easiest access to the wells was by barge through a dredged bayou or canal. Today the basin is honeycombed with access canals and dotted with rigs and pipelines. The digging of industrial waterways has opened more routes for recreational fishing, crabbing, and trapping (Gibson 1982). The petroleum industry remains dominant in the landscape of the study area, along with levee protection efforts along the eastern Atchafalaya Spillway and Bayou Maringouin.

Expectations Concerning Historic Resources

Since the advent of the historical period in Louisiana, the eastern Atchafalaya Basin has witnessed dramatic changes. The people who settled in the study area, from the eighteenth century Acadians to the oil rig roustabouts and barge operators of the twentieth century, developed their communities in accordance with the changing environment. This unique environment provided a setting for the development of distinct cultural trends and local extractive economies.

Expectations concerning the nature of historic resources can be derived from the preceding overview. Historic maps indicate the absence of settlements during the colonial period. Most sites likely to exist within the project area should represent late nineteenth or early twentieth century occupations. The majority of these sites will represent activity loci related to the extraction of resources from the basin's swamps and bayous (i.e., logging camps, fishing camps, etc.). Few sites are likely to represent agricultural activities. Most cultural activities, including the first attempts at farming within the study area, have occurred along the highest ground, i.e., near the confluence of Upper Grand River and Bayou Maringouin. Therefore, most historic sites are expected to occur only on the highest portions of the project area. Flooding reduced the availability of workable farmland, while extractive subsistence activities required a larger geographic base. Therefore, given the transient nature of most of the historic occupations of the project area and vicinity, and the fact that many of these sites were ephemeral use areas, rather than permanent settlements, these types of historic sites may be archeologically invisible.

Results from intensive archival map research revealed that historic settlements within the eastern Atchafalaya Basin were relatively recent and limited. However, the historic map research conducted at the Iberville Parish Courthouse and Library, the Department of Natural Resources, Division of State Lands in Baton Rouge, Louisiana State University, Tulane and Loyola Universities, and the New Orleans Public Library, did not

contribute definitive archeological evidence concerning the probability of historic sites in the study area. Most surveys and plans were contracted to show property lines and owners, with roads, waterways, railways, bridges, and commercial zones as prominent features. Transient swamper camps or squatter settlements were not included on most of the original surveys and plans. The lack of industrial locations on historic maps of the eastern Atchafalaya Basin region suggests that the historic land use patterns of the region resulted in ephemeral archeological manifestations. As suggested above, these kinds of archeological resources are expected to exist below the threshold of visibility necessary to discover them.

CHAPTER VI

RESEARCH DESIGN AND FIELD METHODOLOGY

As noted above, a research design to guide the conduct of field investigations was developed during the background research phase of this project (RCG&A 1987). The design applied recent geomorphological studies of the Atchafalaya Basin (Smith et al. 1986), and data on the distribution of known archeological sites in the region, in the definition of areas of high probability for archeological site occurrence. Next, similar geomorphic features were identified within the EABPL Item E-44 project area using maps, air photographs, soils charts, and the geomorphic data base compiled by Smith et al. (1986). Techniques designed to increase the likelihood of site discovery in these high-probability areas then were incorporated into the field methodology for the EABPL Item E-44 study.

The Definition of High Probability Areas

In their summary of geomorphic features in the Atchafalaya Basin, Smith et al. (1986) also addressed the association of those features with known archeological sites. From these associations, statements concerning the potential of the observed geomorphic settings to contain cultural resources were developed. Natural levees of distributary channels were the most common location of prehistoric sites. The edges of broad, shallow lakes also were utilized prehistorically. Lacustrine deposits, however, were not characteristic of the upper portion of the Basin that contains the study area under consideration here (Smith et al. 1986). Similar settings for prehistoric sites in nearby areas were hypothesized by Gibson (1982), and by Poplin et al. (1987).

Geomorphic maps (Smith et al. 1986), the Iberville Parish soil survey (Spicer et al. 1977), topographic maps, and aerial photographs from 1978 and 1985 were examined for indications of such high-probability geomorphic features within the EABPL project area. Each of these four sources provided information that suggested which portions of the project area were likely to contain cultural resources.

Examination of the plates (i.e., plottings of geomorphic features on USGS 7.5 minute topographic maps) prepared by Smith et al. (1986) revealed the presence of distributary channels in Borrows 3 and 10 (Figure 1). Also, a crevasse channel was mapped by Smith et al. (1986) in Borrow 10 (Figure 1). The portions of Borrows 3 and 10 containing these features were considered to represent high probability areas for the location of cultural resources.

Infrared aerial photographs taken in 1978 and in 1985 were examined to determine the presence of any relict landforms in the portion of the project area not mapped by Smith et al. (1986) that would have been likely areas of human occupation. Several such areas were noted, including apparent former distributaries in the northeastern part of the project corridor (Figure 1). One of these features extends through Borrow 2 (Figure 1). Across the protection levee, a linear feature enters Borrow 3 and also parallels a portion of the distributary mapped by Smith et al. (1986). A third feature noticed in the aerial photographs contacts Borrow 10 (Figure 1). This feature is an extension of a curvilinear zone that resembles crevasse channels mapped by Smith et al. (1986). All of these areas were considered to represent high probability areas for the location of cultural resources.

Examination of the Soil Conservation Service (SCS) survey of Iberville Parish (Spicer et al. 1977) revealed only one soil type in the project area, Convent silt loam, that appeared to provide a suitable venue for human habitation. This soil occurs in only one portion of the study area, paralleling the eastern extension of the Upper Grand River in a narrow band (Spicer et al. 1977). The southern portion of Borrow 9 extends across this area (Figure 1). This area was considered to possess a high probability for containing cultural resources.

These observations from soil maps and aerial photographs were confirmed during inspection of the 7.5 minute USGS topographic maps of the study area. The greatest concentration of elevated land occurs in the levee areas at the junction of Upper Grand River and Bayou Maringouin, near Borrows 9, 10, and 11 (Figure 1). Another relatively elevated area occurs in the northeastern portion of the project area, where ancient distributaries were detected on the infrared aerial photographs, near Borrow 2 (Figure 1). These elevated areas near the junction of Upper Grand River and Bayou Maringouin were thought to have the highest probability for the occurrence of historic period sites in the project area (RCG&A 1987).

Therefore, Borrows 2, 3, 9, 10, and 11 were considered to possess areas with a high probability for containing cultural resources. All of these high probability areas were subjected to more intensive field investigations, in order to increase the probability of recovering cultural resources.

Field Methodology

Examination of the Proposed Borrow Areas

The field methodology employed during cultural resources survey of the EABPL Item E-44 project area incorporated the procedures outlined in the Scope of Services, while tailoring them to meet the requirements of survey in specific high-probability zones. Systematic, intensive pedestrian survey was proposed for study tracts outside of the high-probability areas defined in Borrows 2, 3, 9, 10, 11. In these lower probability areas, transects were spaced at 20 m intervals and oriented parallel to the long axis of the borrow area. Shovel tests, each measuring 25-50 cm deep and 30 cm on a side, were placed every 50 m along each transect, in an offset pattern. These activities were conducted in all portions of the borrows areas that were not inundated at the time of visitation of the survey crew.

Judgmental survey was substituted for systematic survey in high probability areas. Survey transects were spaced 20 m apart and oriented parallel to the long axis of the geomorphic feature being investigated. The shovel test interval along each transect was decreased to 25 m. In addition, field identification of levee flanks was followed by auger testing, because of the possibility of site burial due to heavy sedimentation in such locations. All high probability areas were examined, except where prevented by standing water (see Chapter VII).

Bank line survey constituted the third field technique specified in the research design. The bank lines of borrow areas exposed at the water's edge were inspected from a small boat. This technique was designed to discover artifacts or cultural strata exposed in bank profiles.

The intensity of survey coverage within each of the proposed borrow areas can be summarized as follows:

Borrow 1 (Figure 1) was examined by systematic transects oriented parallel to the long axis of the borrow area. No high probability areas were defined in Borrow 1.

Borrow 2 (Figure 1) was examined by a combination of systematic and judgemental transects. The western portion of the borrow area, along the presumed course of a former distributary, was examined through the implementation of judgemental techniques.

Borrow 3 (Figure 1) also was investigated by a

combination of systematic and judgmental survey. Two high probability areas were defined in Borrow 3. These areas were examined using three transects for judgmental testing that followed the contours of the former distributary located along the south and west edges of the borrow area. The linear feature noted along the eastern edge of Borrow 3, i.e., the natural levee of Bayou Maringouin, also was surveyed judgementally through the examination of five transects.

Borrows 4, 5, and 6 (Figure 1) were examined systematically by the traverse of transects oriented at approximately 302 degrees. This azimuth paralleled the long axis of the borrow areas and roughly followed the former course of Bayou Maringouin. No high probability areas were defined within Borrows 4, 5, or 6.

Systematic survey of Borrow 7 (Figure 1) was accomplished by the examination of transects oriented parallel to the long axis of the borrow area. No high probability areas have been defined within Borrow 7.

Borrow 8 (Figure 1) was subjected to systematic coverage only. No high probability areas were defined within Borrow 8.

Borrow 9 was examined systematically by the traverse of transects oriented parallel to the long axis of the borrow area. A high probability area on the natural levee of Bayou Maringouin and Upper Grand River in the southern portion of the borrow area, plus areas containing Convent silt loam immediately adjacent to Upper Grand River, were examined through the implementation of the judgmental survey techniques (Figure 1).

Both systematic and judgmental survey were employed in Borrow 10. The shovel test interval along the systematic transects was reduced to 25 meters in three areas within the borrow that represented areas of high probability for the location of archeological resources. These three areas included a linear feature at the north end of the borrow, a crevasse channel in the central portion, and a distributary at the

extreme southern end of Borrow 10 (Figure 1).

Borrow 11 (Figure 1) was subjected to both systematic and intensive survey coverage. The northern portion of the borrow contained a high probability area defined by the extent of the natural levee of Upper Grand River (Figure 1). The remaining portion of the borrow was investigated through systematic survey.

Borrow 12 (Figure 1) was examined through the systematic techniques described above. No high probability areas were defined in Borrow 12.

Borrow 13 (Figure 1) was examined along systematically aligned transects oriented parallel to the long axis of the borrow area. No high probability areas were defined in Borrow 13.

All portions of the proposed borrow areas were examined in the manner described above except where standing water prevented the excavation of shovel tests or the pedestrian traverse of the borrow area. The limits of each borrow survey area examined during this project are described in Chapter VII.

Examinations of Nearby Sites

Three of the previously recorded sites near the project area (16IV4, 16IV13, and 16IV15), plus two areas identified by Kniffen (1938) as "reported sites," were revisited during the course of this project. As noted above, all of these sites are located outside of the EABPL Item E-44 project area. They were examined to provide comparative information on the nature of cultural resources in the region, to assist in assessment and evaluation of the significance of any sites located in the project area, and in order to update New Orleans District and Louisiana Division of Archeology records on sites in the Eastern Atchafalaya Basin. All of these sites were subjected to limited field investigations; these investigations were designed primarily to ascertain the sites' present condition.

Initial field work concentrated on the surface inspection of the area encompassing each site. This was accomplished by the traverse of regularly spaced transects over the site areas. Surface inspection was designed to locate additional features present near the site, to determine whether surface-occurring artifacts were present, and to familiarize the survey personnel with the sites and their settings.

A sketch map of each site visited was prepared following the surface examinations. These maps identified any visible features of the site (e.g., mounds), as well as the relationships of the site and its features to surrounding landmarks or modern cultural features (e.g., houses, roads, and canals). In addition, the map locations for the sites given on the state site forms was verified or corrected, as necessary.

CHAPTER VII

RESULTS OF FIELD INVESTIGATIONS

Investigations of the Thirteen Proposed Borrow Areas

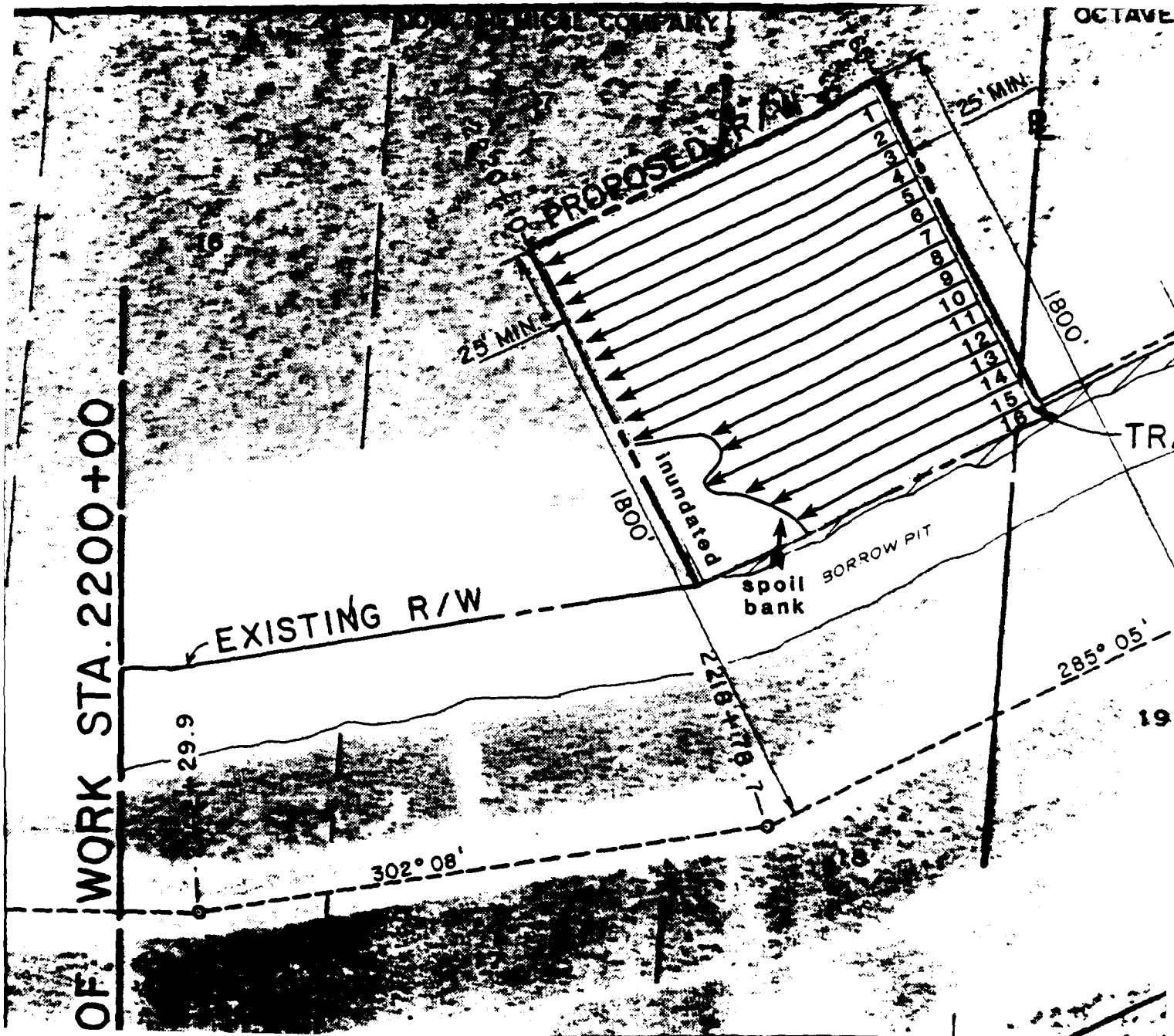
Conditions encountered in the field required substantial alteration of the proposed field methodology. The primary constraint to implementation of the methodology specified in the research design was the presence of standing water in portions of twelve of the thirteen borrow areas. Systematic survey of inundated areas was not possible. The remaining portions of the study area were investigated at a level of effort equal to or greater than that proposed in the research design. No cultural resources were located by the archeological survey in any of the proposed borrow areas. The following discussion reviews the survey of each of the thirteen designated borrow areas.

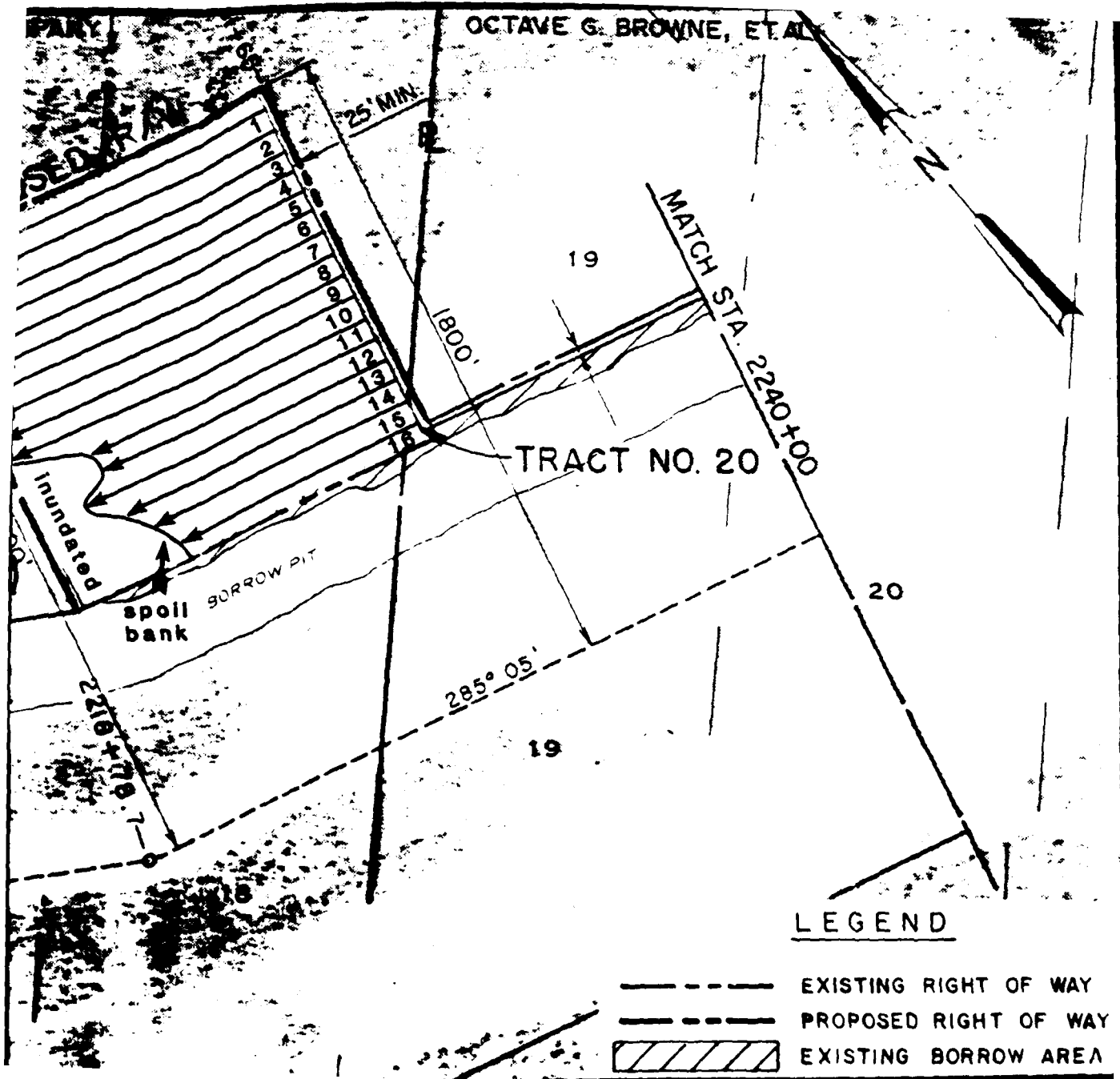
Borrow Area 1

Borrow 1 was surveyed by pedestrian survey and using systematic shovel tests at 50 m intervals along 16 transects. All transects were oriented at 285 degrees (Figure 7). Shovel tests along even-numbered transects were offset; that is, they were placed 25 m ahead of the tests on adjacent transects. Standing water was present in an existing borrow bounded by a spoil bank in the southwest corner of the tract. Otherwise, Borrow 1 was completely surveyed, although small inundated areas were scattered throughout. The soil, an extremely heavy dark grayish brown (10YR 4/2) clay, was virtually homogeneous across the tract. One isolated area along transect 12 had a very dark grayish brown (10YR 3/2) silty clay. Borrow 1 was a wooded tract containing mixed hardwoods and cypress. Species observed in the field included cypress (Taxodium distichum), tulip poplar (Liriodendron tulipifera), hackberry (Celtis laevigata), sweetgum (Liquidambar styraciflua), blackgum (Nyssa sylvatica), hickory (Carya ovata), and oak (Quercus sp.). Borrow 1 had no bankline exposed at the edge of the borrow channel. No cultural resources were encountered during survey of Borrow 1.

Borrow Area 2

Borrow 2 (Figure 8) also was partially inundated. The western half of the borrow contained a former distributary identified probatively using aerial photographs examined during development of the research design (RCG&A 1987). However, this portion of Borrow 2 was almost completely inundated. Thus, an abbreviated series of six transects was shovel tested at 25 m intervals to investigate this high-probability locale. This





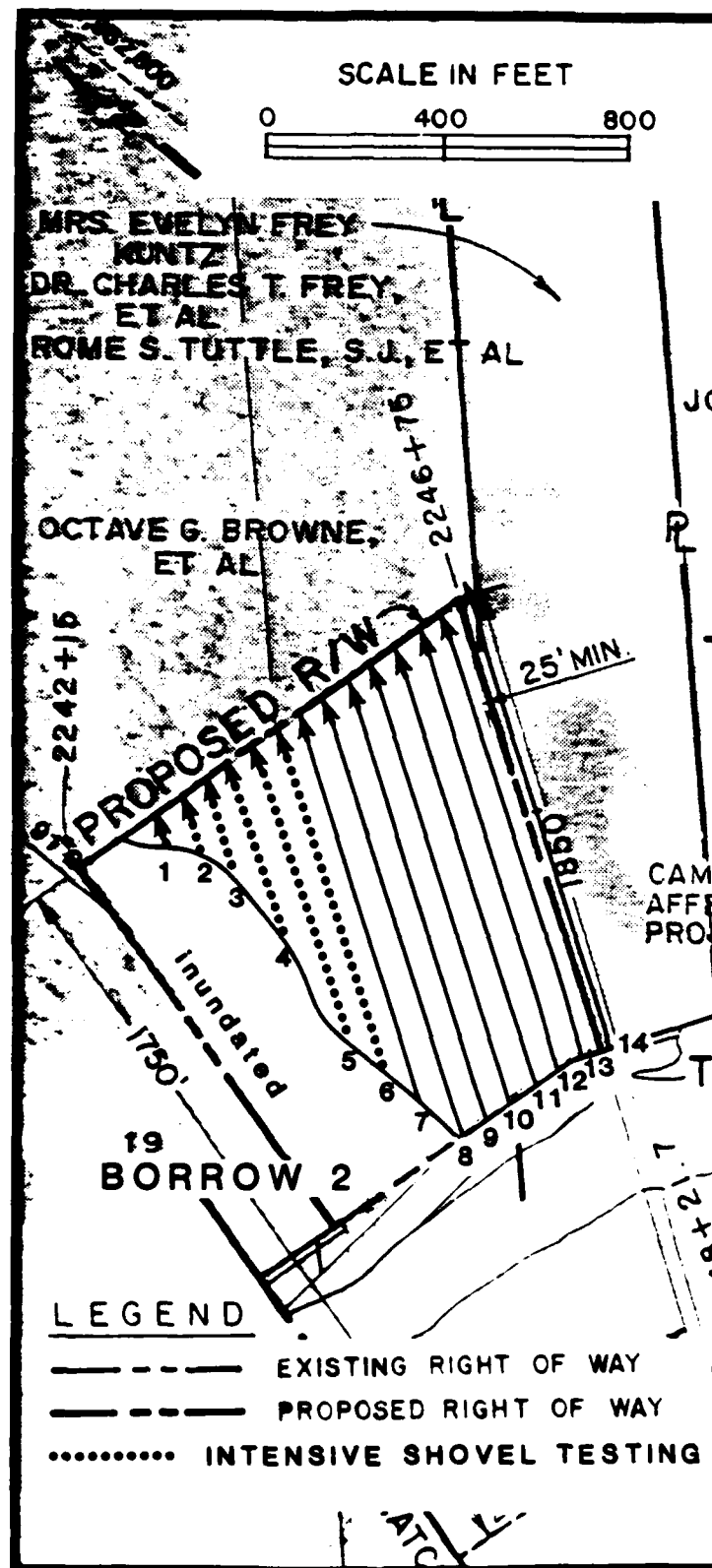


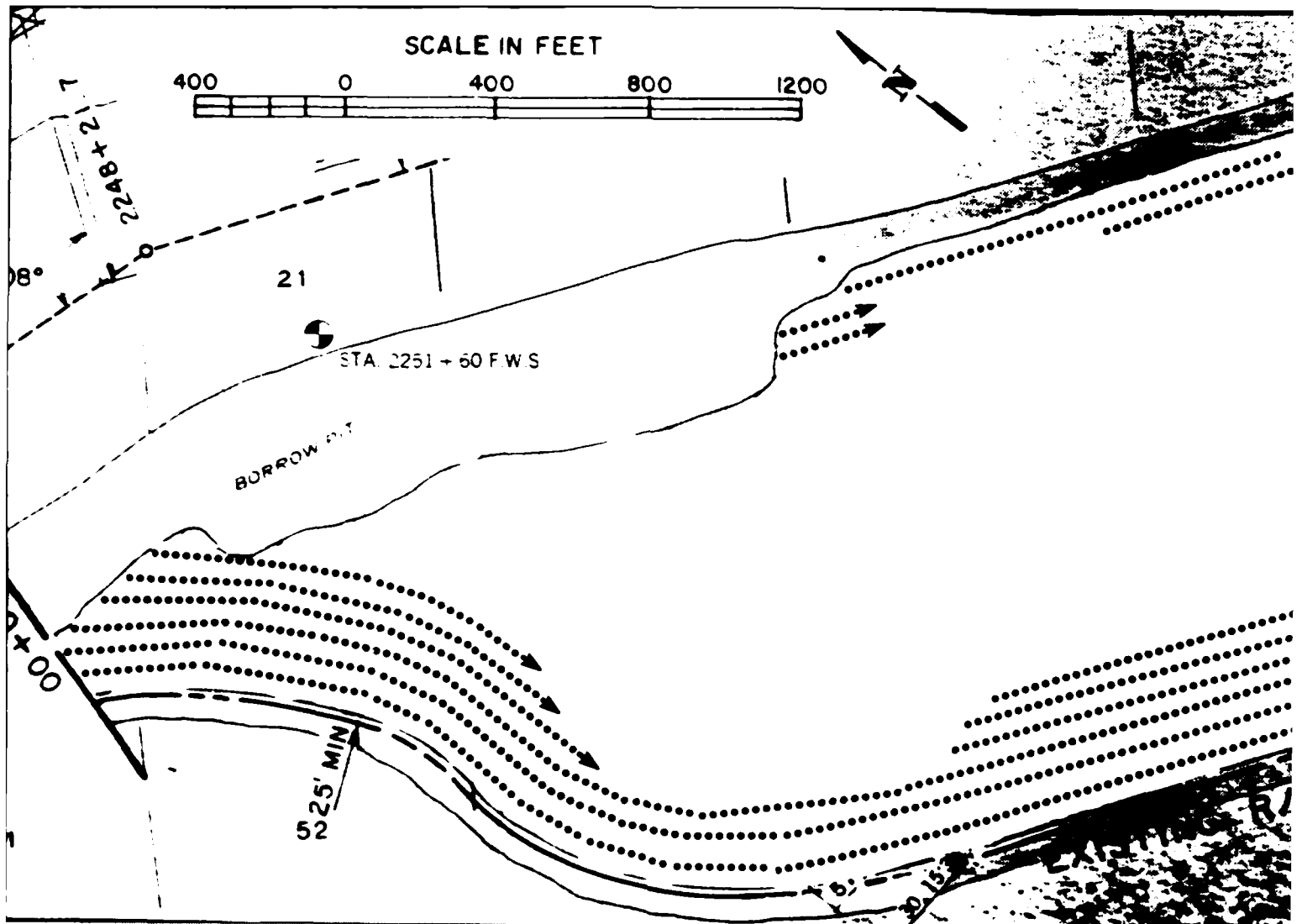
Figure 8. Borrow 2 transect locations.

approach represented a more intensive level of survey in the central portion of the borrow than had been proposed in the research design. Field inspection, however, revealed no indication of a relict distributary levee. The remainder of the borrow was systematically shovel tested at 50 m intervals on transects oriented at 33 degrees. Shovel tests were offset along transects 7, 9, 11, and 13. The soil and vegetation were similar to that observed at Borrow 1. Borrow 2 did not extend to the edge of the borrow channel. No cultural resources were located during survey of Borrow 2.

Borrow Area 3

The southern and western edges of Borrow 3 (Figure 9) paralleled a former distributary identified in the research design (RCG&A 1987) as a high-probability area for cultural resources. The research design had proposed to examine this area using 25 m shovel test intervals along three transects following the contours of the landform. Although no distinctive levee elevation was observed in the field, this portion of the borrow did consist of a relatively dry, broad strip of land between the natural channel of Bayou Maringouin (Figure 10) and the backswamp. Intensive shovel testing on the 25 m interval was conducted on the three proposed transects, and on all other unsaturated areas up to the edge of the backswamp (Figure 9). Ground water was encountered just below the surface. Numerous high water marks were observed in the trees 2-3 m above the ground surface. The soil was a gray (10YR 5/1) clay. The vegetation was somewhat different from that of Borrows 1 and 2. Tree species included oaks (Quercus sp.), cypress (Taxodium distichum), bitter pecan (Carya aquatica), and shagbark hickory (Carya ovata).

The other surveyable portion of Borrow 3 was a small, irregular ridge located between the backswamp and the borrow channel. Its forest composition was slightly different. The trees were primarily hardwoods, including oak (Quercus sp.), hickory (Carya sp.), locust, black willow (Salix nigra), and water willow. All were a maximum of 15 years old. This portion of Borrow 3 contained the linear feature slated for intensive judgmental survey using five transects. However, backswamp inundation effectively limited the survey to one transect width. A combination of shovel and auger testing on 25 m intervals revealed soils of dark grayish brown (10YR 4/2) clay, sometimes overlying very dark grayish brown (10YR 3/2) silty clay loam and light brownish gray (10YR 6/2) clay. The soils were variable across the tract. Some exhibited the lumpy structure characteristic of spoil dirt; others consisted of a heavy, fine gray clay that resembled channel bottom material. Auger tests also revealed pieces of wood at approximately 60 cm below surface. This evidence, together with the age of the vegetation, the uneven



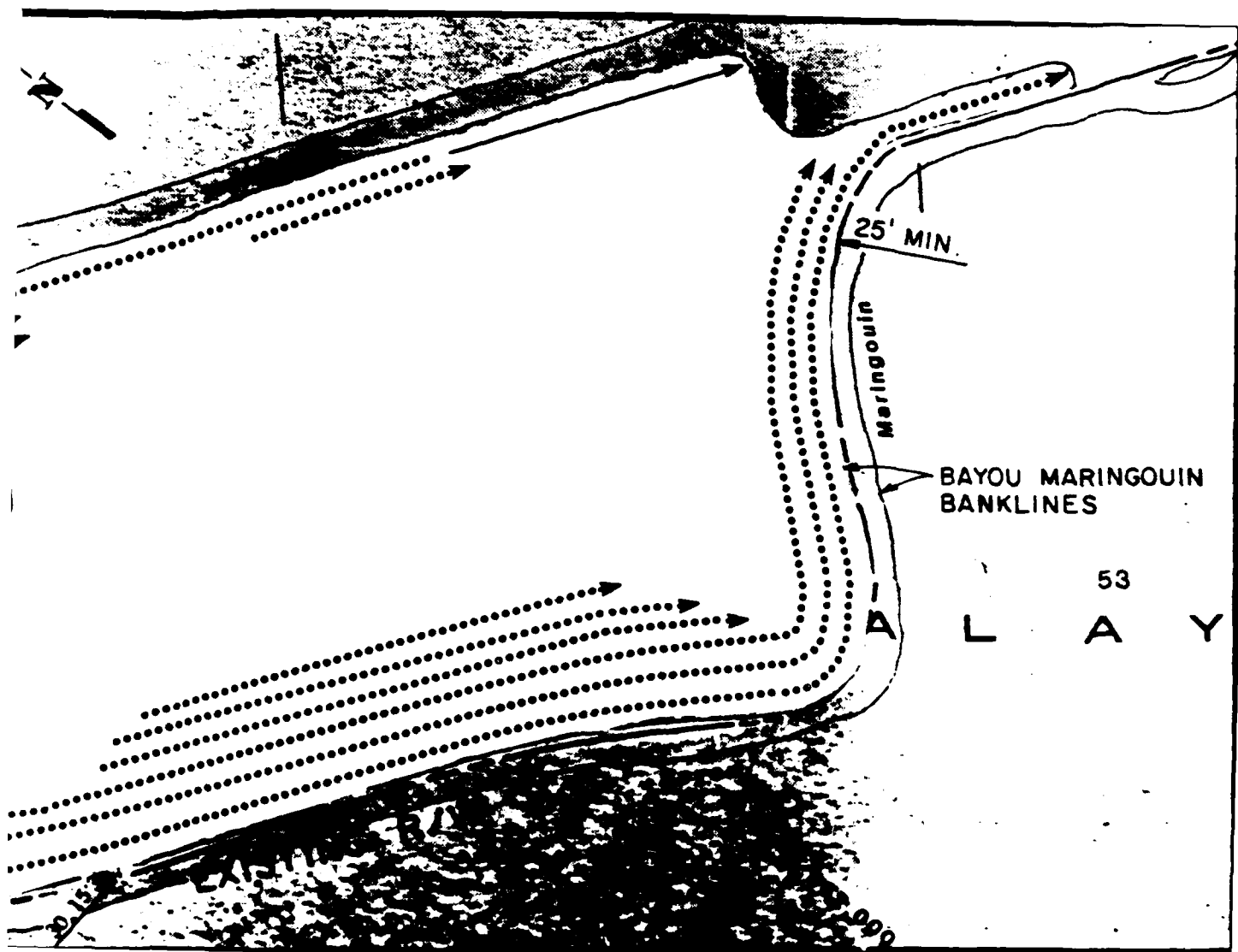




Figure 10. Borrow 3 near Bayou Marindouin.

contours of the ground surface, the proximity of the ridge to the borrow channel, and the presence of a drag line cable, suggested that the landform was a spoil bank rather than a relict distributary levee.

The central portion of Borrow 3 was occupied by an inundated backswamp, preventing survey of that area. Borrow 3 was circumnavigated to inspect the bank lines, but no cultural material was observed. No cultural resources were encountered during survey of Borrow 3.

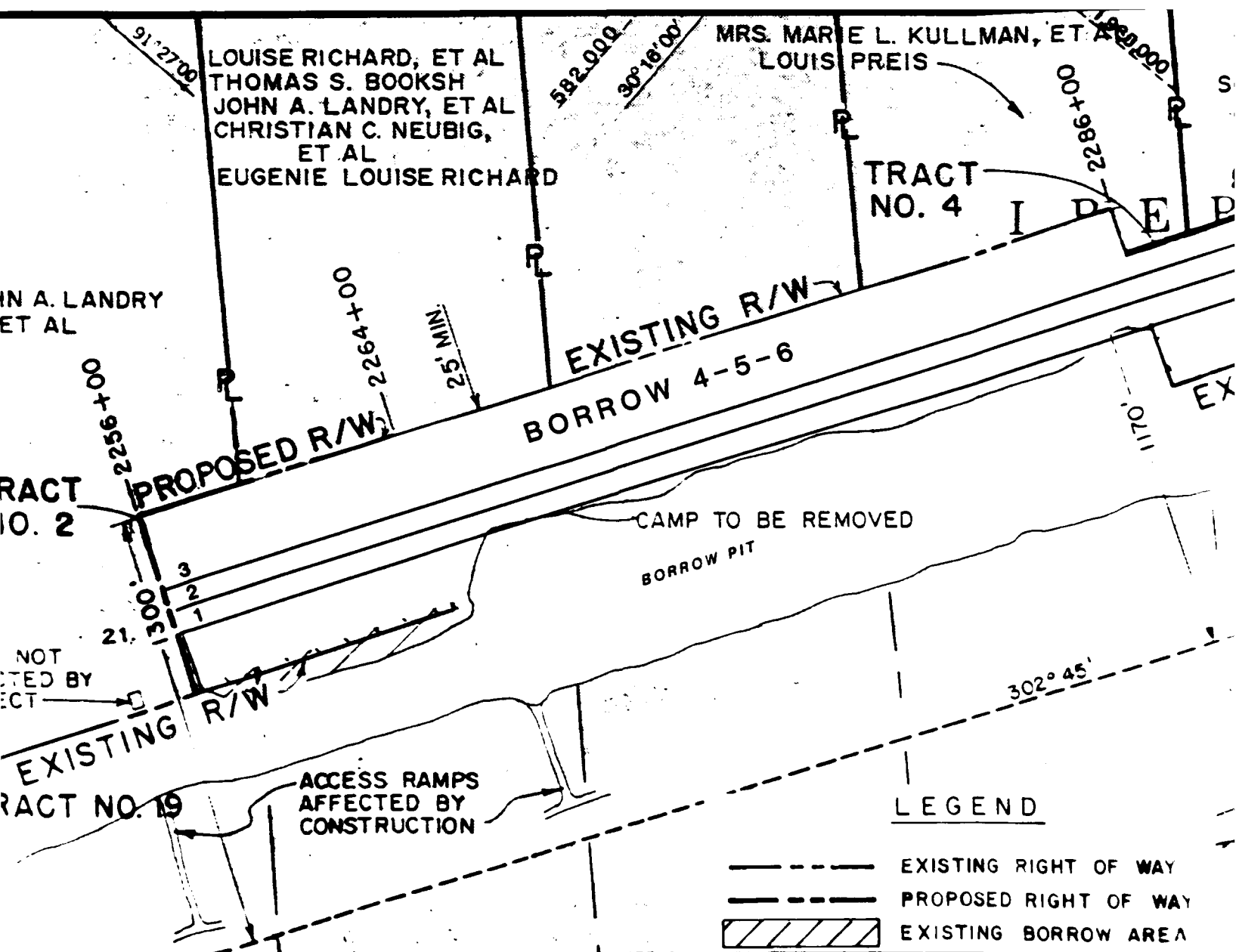
Borrow Areas 4, 5, and 6

Archeological survey of contiguous Borrows 4, 5, and 6 (Figure 11) was attempted, but proved to be impractical due to high water levels. Three transects using the proposed 50 m shovel test spacing were surveyed on a 122 degree orientation in the central portion of the borrow areas (Figure 11). However, inundation was so severe that a maximum of two shovel tests could be dug on each transect. Survey continued to the end of the tract so that conditions on either side of the transects in all three borrow areas could be assessed. Standing water to depths of 60 cm covered the remaining portions of the borrows; survey was discontinued in these areas. Soil visible above water and in shovel tests comprised a dark grayish brown (10YR 4/2) clay, similar to that observed in Borrow 1. Vegetation also was comparable to that described for Borrow 1. Cultural resources were absent, with the exception of a recent fishing camp which contained no pre-World War II structures.

Boat survey of the bank line detected no archeological resources. A second visit to this study area five weeks after survey first was attempted found higher water levels than during the initial examination. No additional survey of Borrows 4, 5, and 6 could be accomplished during the second visit.

Borrow Areas 7 and 8

These borrows were visited on three occasions in order to attempt the planned survey effort. However, water levels in Borrows 7 (Figure 12) and 8 remained too high to permit pedestrian passage. Boat survey was employed to check bank exposures and also to view the water level within the tracts. The boat was stopped at intervals in order to inspect the interior of the borrows on foot. Areas covered through systematic survey are shown by the transect location arrows on Figures 13 and 14. These borrow areas were almost completely inundated; shovel testing was possible over only a limited distance to either side of the pipeline corridor in Borrow 8. Shovel testing was conducted using a 50 m spacing, because no high-probability areas had been



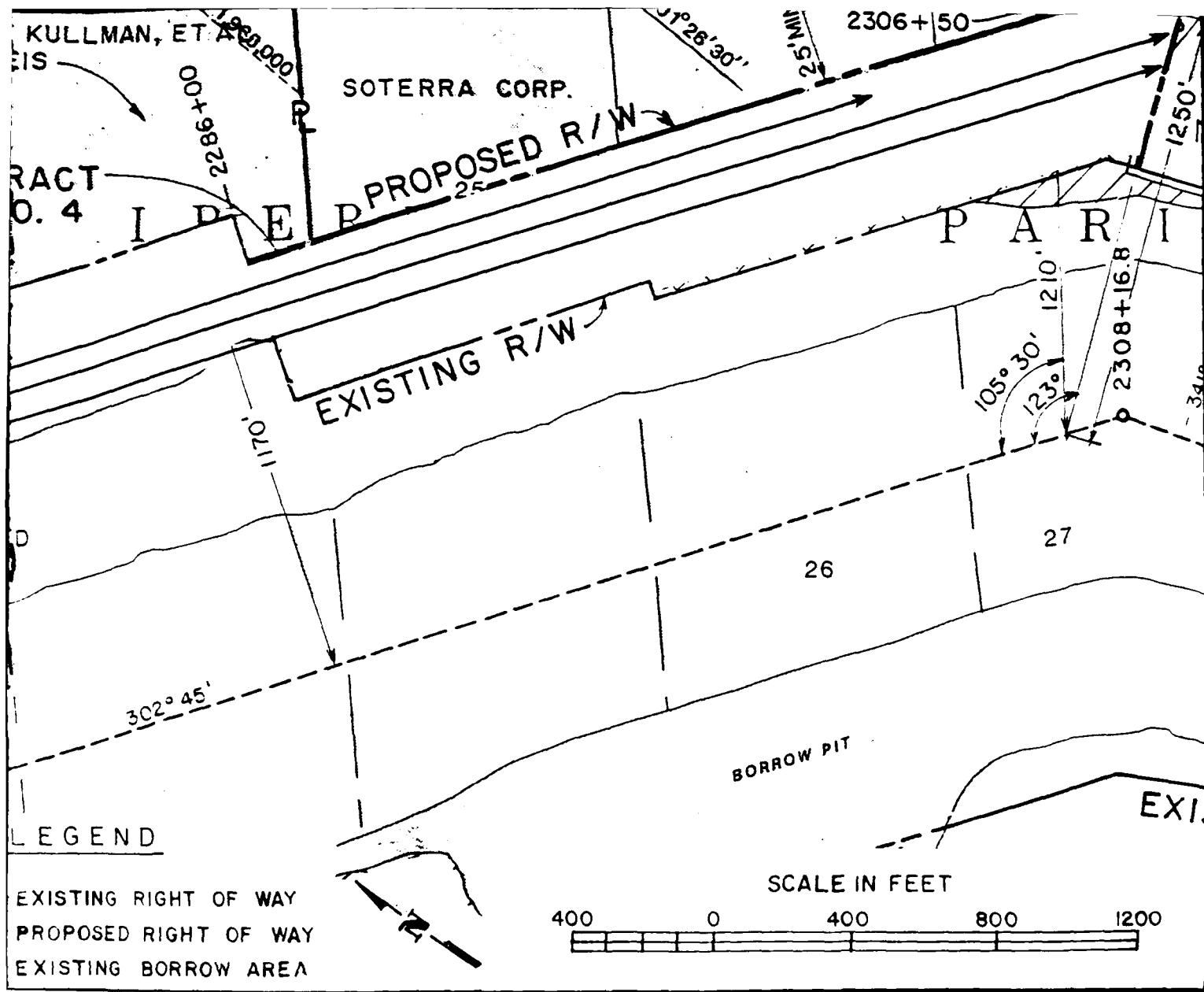
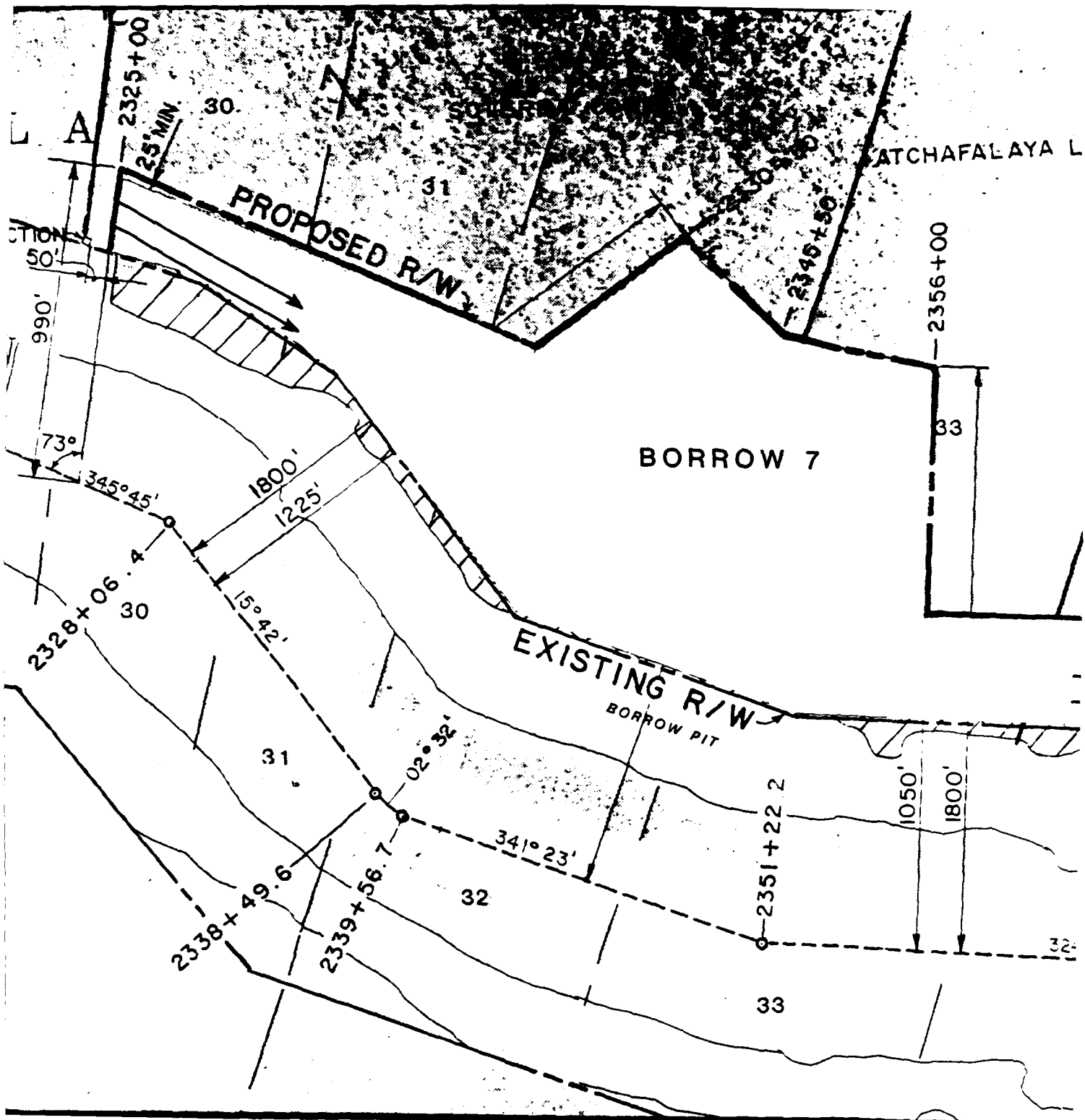
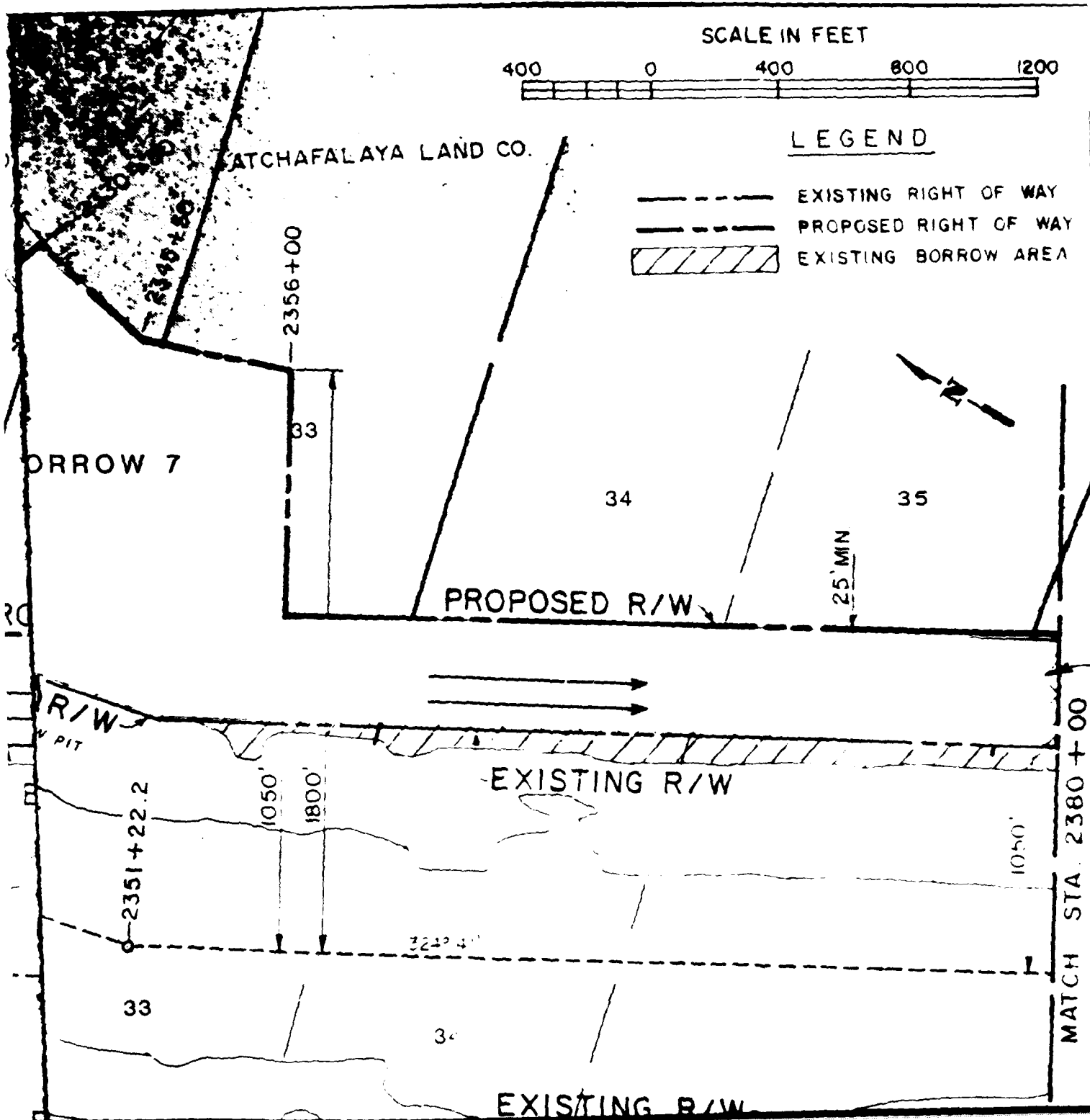




Figure 12. Borrow 7.





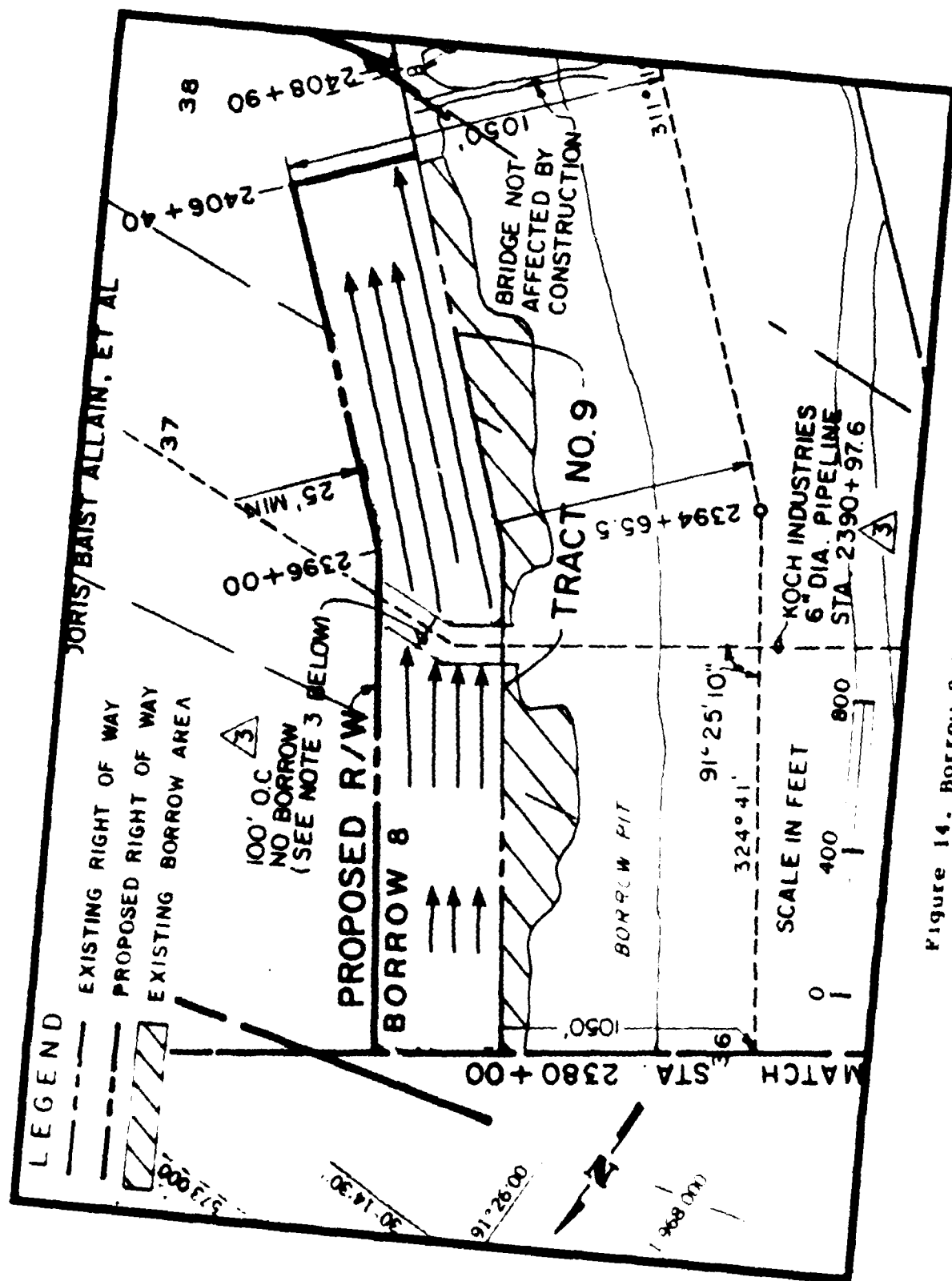


Figure 14. Borrow 8 transect locations.

identified in these tracts. Soils encountered in Borrow 8 were brown (10YR 4/3) clays. The vegetation was similar to that encountered in Borrow 1. No cultural resources were encountered during survey of borrows 7 and 8.

Borrow Area 9

Inundation of Borrow 9 restricted survey to small areas (Figure 15). Systematic shovel testing on 50 m centers had been proposed in the research design (RCG&A 1987) for the northern half of the tract. However, standing water during the initial visit to Borrow 9 prevented the excavation of shovel tests. Pedestrian survey along three transects (Figure 15) revealed that flooded conditions prevailed throughout the northern half of the borrow. Two later attempts to complete the examination of Borrow 9 were unsuccessful due to higher water levels. The only part of Borrow 9 that could be surveyed was the relatively dry ground along the levee of Upper Grand River. The research design (RCG&A 1987) called for an intensified level of effort in this locale due to the presence of the levee and to a small zone of Convent silt loam (Spicer et al. 1977). Although inundation of the backswamp limited this investigation to approximately one-third of the proposed borrow area, shovel testing on 25 m intervals was conducted along Transects 1 through 9 (Figure 15). Auger testing suggested the possibility of recent light alluvial deposition above clay, rather than the burial of levee flanks through backswamp deposition.

Soils were variable over the southern portion of Borrow 9. Along the extreme southern edge of the tract, they consisted of dark brown (10YR 3/3) and very dark grayish brown (10YR 3/2) silt loam and silty clay loam. Clay content increased with proximity to the backswamp, so that soils near the inundated areas were brown (10YR 4/3) clays. Vegetation was basically similar to that in Borrow 1. Borrow 9 had no exposed bank line areas. No cultural resources were located in Borrow 9.

Borrow Area 10

Field investigations of Borrow 10 (Figure 16) were conducted at a more intensive level than had been proposed in the research design. The research design (RCG&A 1987) originally called for judgmental survey on a shortened shovel test interval at only three relatively small, discontinuous geomorphic features that represented high-probability areas. Survey began at the southern end of the borrow, where a large spoil pile occupied the north bank of the East Fork of Bayou Pigeon at its confluence with Bayou Maringouin. Shovel testing at 25 m intervals was conducted at the location of a relict distributary levee identified by Smith et al. (1986). However, this feature could not be recognized in the

STATE OF LOUISIANA

PROPOSED R/W

BORROW 9

TRACT NO. 13

TRAILERS &
CAMP NOT
AFFECTED BY
CONSTRUCTION

84°42'12"

DOW CHEMICALS
8" AND 16" PIPE LINES
STA 2409+39.6

BERVILLE PARISH

ALL CAMPS
BE REMOVED

2415+70

25' MIN

570.00

30' 14.00

12
11
10

2408+30

1725'

2416+70

STATE OF LOUISIANA

PROPOSED R/W

BORROW 9

TRACT NO 13

LE PARISH

GRAND RIVER
DRAINAGE

ALL LOTS
BE REMOVED

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- [.....] EXISTING BORROW AREA
- INTENSIVE SHOVEL TESTING

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
-  EXISTING BORROW AREA
- INTENSIVE SHOVEL TESTING

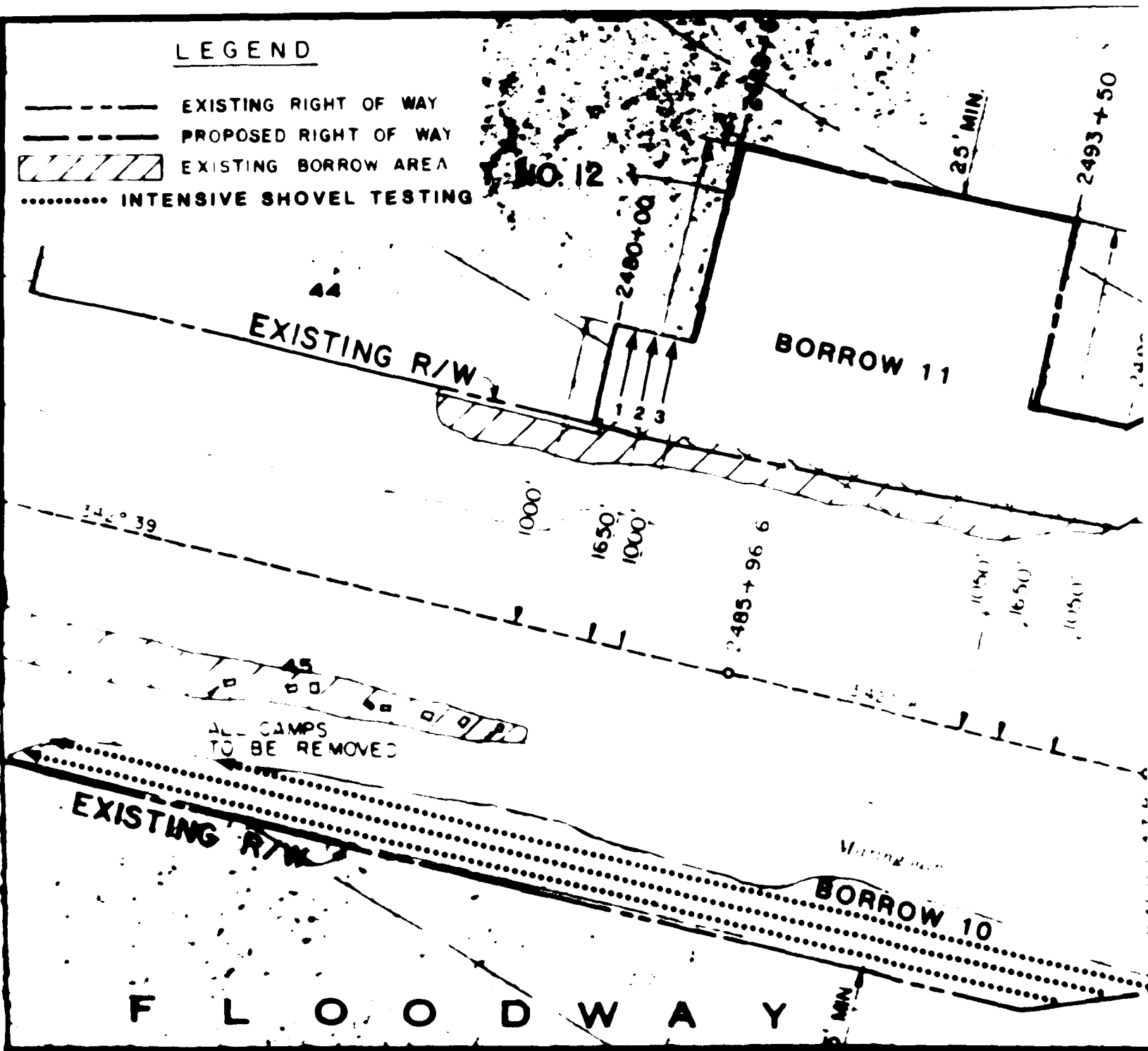
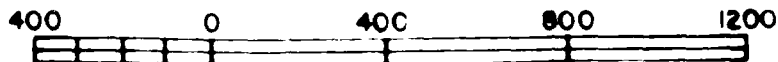


Figure 16. Transect locations at Borrows 10 and 11.

SCALE IN FEET



25' MIN

2493+50

PROPOSED R/W

2496+50

BORROW 11

TRACT NO. 12

MATCH STA 2520+00

1650'
1050'

2508+70.9

2502+00

2499+47.8

BORROW 10

EXISTING R/W

WATER

Y

field due to variations in soil colors or textures. Further examination of Borrow 10 revealed that this area was located on a landform that was much higher and drier than any of the tracts yet surveyed. Therefore, the entire borrow area was subjected to a more intensive survey, effort with shovel tests spaced at 25-m intervals (Figure 16). Auger tests were alternated with shovel tests over the southern portion of the borrow. The northern portion of the borrow was shovel tested at 25 m intervals along three transects. Although the two other high-probability features identified in the research design were not identified in the field, numerous dry ditches intersected the transects, and an unusual teardrop-shaped ridge was encountered near the north end of the tract.

Although the vegetation in Borrow 10 was similar to that observed in the other borrow areas, the soils were unlike any encountered elsewhere in the project area. In general, they were deep, well-drained loams, apparently the result of heavy alluvial deposition. They consisted of brown (10YR 4/3 and 7.5YR 4/2) silty clay loam. The silty clay loam extended to depths of 120 cm where it lay atop approximately 30 cm of sand. A brown (10YR 5/3) sand also was encountered in some shovel tests. However, no cultural resources were found during survey of Borrow 10.

Borrow Areas 11, 12, and 13

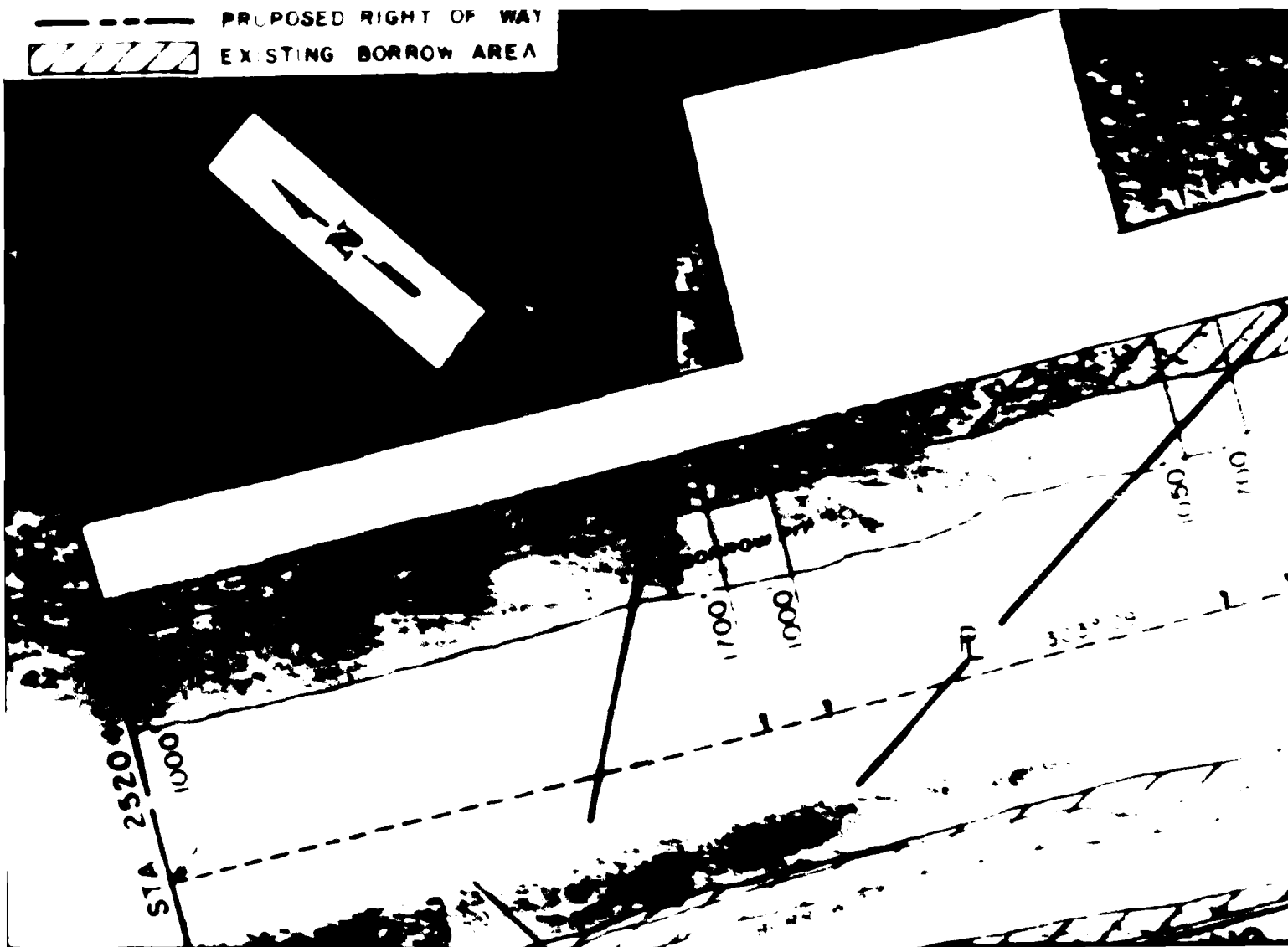
Standing water halted two attempts to conduct pedestrian survey in Borrows 11, 12, and 13 (Figure 16 and 17). These tracts were entirely inundated with the exception of a small area of dry ground in the northern portion of Borrow 11. This dry portion of the borrow had been designated in the research design as a high-probability area due to its association with the levee of Upper Grand River (RCGA 1987). Intensive shovel testing, with tests spaced at 25 m intervals, was scheduled for this portion of Borrow 11. However, only three transects could be walked due to the presence of standing water (Figure 17). Only one shovel test could be excavated along these transects. Vegetation consisted of mixed hardwoods and cypress, as in Borrow 1. The soil encountered in Borrow 11 consisted of a brown (10YR 4/3) clay. No cultural resources were observed.

Revisits to Reported Sites in the Project Vicinity

Bayou Sorrel Mounds (16IV4)

As discussed above, an update visit to Bayou Sorrel mounds (Figure 18) was conducted; an ancillary reason for this visit was to prepare a plan map showing the relationship of the cemetery mound to the protection levee and floodwall. As stated in the

----- PROPOSED RIGHT OF WAY
EXISTING BORROW AREA



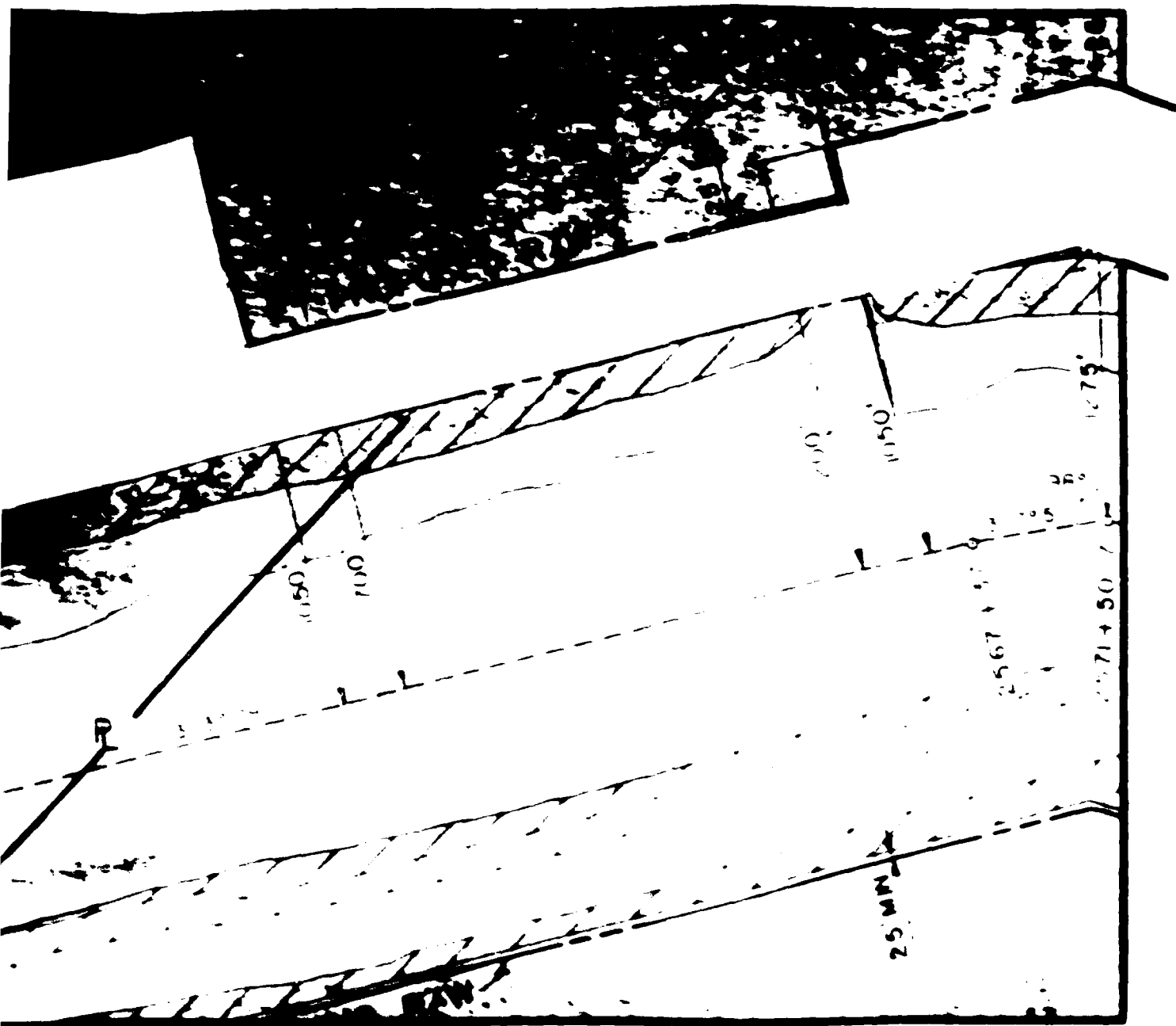


Figure 11. Borrow Areas 1. and 11.

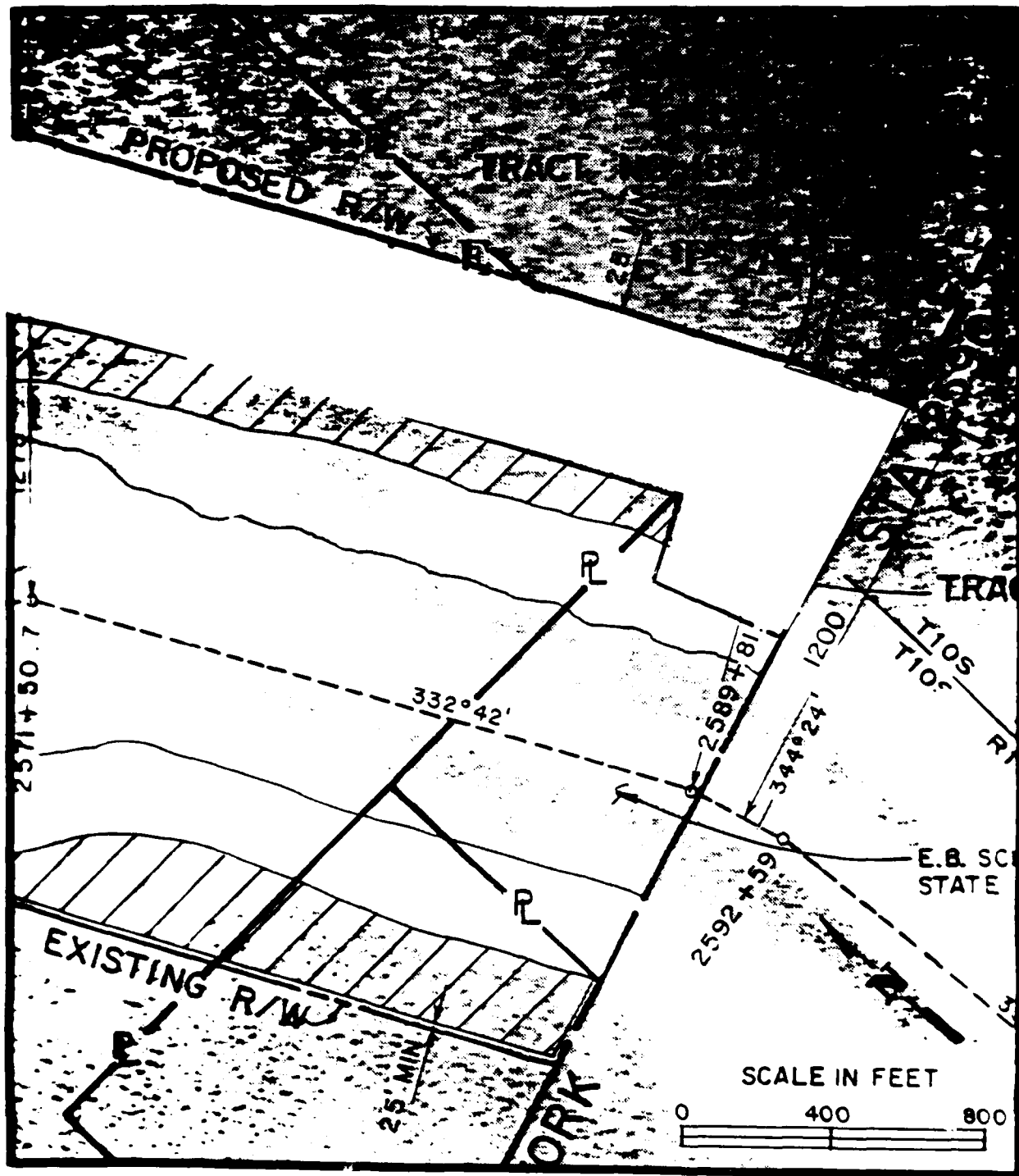
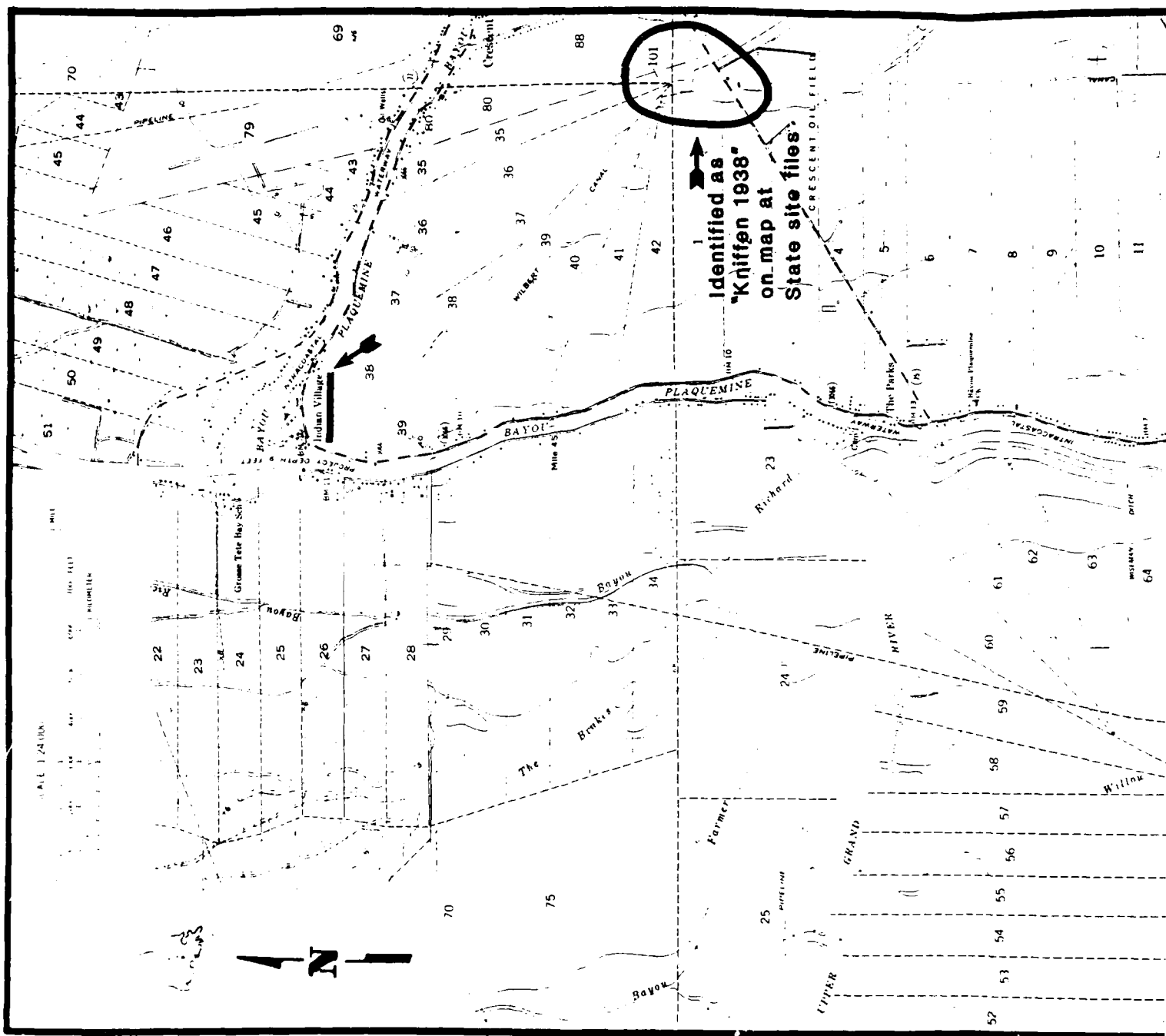


Figure 17 continued.



The map is a detailed topographic and geological representation of the Sullivan Lake Oil and Gas Field area. It features several key elements:

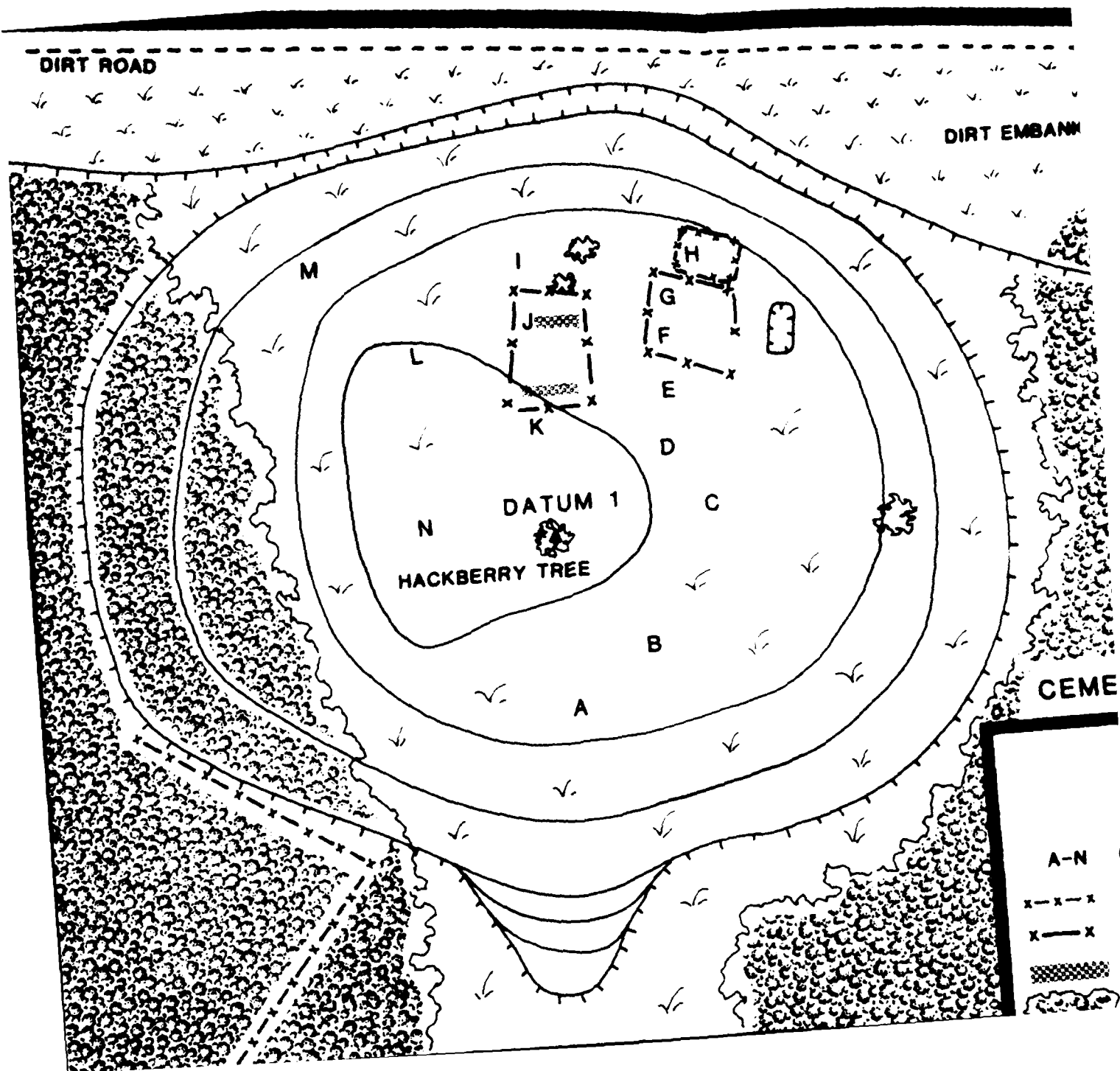
- Water Bodies:** Sullivan Lake, Grand River, Lower Grand River, and the Grand River.
- Infrastructure:** Various pipelines (e.g., "PIPELINE", "WILBERT PIPELINE", "SULLIVAN PIPELINE", "INDIAN MOUND PIPELINE"), ditches (e.g., "DITCH", "DITCH 1", "DITCH 2", "DITCH 3", "DITCH 4", "DITCH 5", "DITCH 6", "DITCH 7", "DITCH 8", "DITCH 9", "DITCH 10", "DITCH 11", "DITCH 12", "DITCH 13", "DITCH 14", "DITCH 15", "DITCH 16", "DITCH 17", "DITCH 18", "DITCH 19", "DITCH 20", "DITCH 21", "DITCH 22", "DITCH 23", "DITCH 24", "DITCH 25", "DITCH 26", "DITCH 27", "DITCH 28", "DITCH 29", "DITCH 30", "DITCH 31", "DITCH 32", "DITCH 33", "DITCH 34", "DITCH 35", "DITCH 36", "DITCH 37", "DITCH 38", "DITCH 39", "DITCH 40", "DITCH 41", "DITCH 42", "DITCH 43", "DITCH 44", "DITCH 45", "DITCH 46", "DITCH 47", "DITCH 48", "DITCH 49", "DITCH 50", "DITCH 51", "DITCH 52", "DITCH 53", "DITCH 54", "DITCH 55", "DITCH 56", "DITCH 57", "DITCH 58", "DITCH 59", "DITCH 60", "DITCH 61", "DITCH 62", "DITCH 63", "DITCH 64", "DITCH 65", "DITCH 66", "DITCH 67", "DITCH 68", "DITCH 69", "DITCH 70", "DITCH 71", "DITCH 72", "DITCH 73", "DITCH 74", "DITCH 75", "DITCH 76", "DITCH 77", "DITCH 78", "DITCH 79", "DITCH 80", "DITCH 81", "DITCH 82", "DITCH 83", "DITCH 84", "DITCH 85", "DITCH 86", "DITCH 87", "DITCH 88", "DITCH 89", "DITCH 90", "DITCH 91", "DITCH 92", "DITCH 93", "DITCH 94", "DITCH 95", "DITCH 96", "DITCH 97", "DITCH 98", "DITCH 99", "DITCH 100"), and roads (e.g., "ROAD", "ROAD 1", "ROAD 2", "ROAD 3", "ROAD 4", "ROAD 5", "ROAD 6", "ROAD 7", "ROAD 8", "ROAD 9", "ROAD 10", "ROAD 11", "ROAD 12", "ROAD 13", "ROAD 14", "ROAD 15", "ROAD 16", "ROAD 17", "ROAD 18", "ROAD 19", "ROAD 20", "ROAD 21", "ROAD 22", "ROAD 23", "ROAD 24", "ROAD 25", "ROAD 26", "ROAD 27", "ROAD 28", "ROAD 29", "ROAD 30", "ROAD 31", "ROAD 32", "ROAD 33", "ROAD 34", "ROAD 35", "ROAD 36", "ROAD 37", "ROAD 38", "ROAD 39", "ROAD 40", "ROAD 41", "ROAD 42", "ROAD 43", "ROAD 44", "ROAD 45", "ROAD 46", "ROAD 47", "ROAD 48", "ROAD 49", "ROAD 50", "ROAD 51", "ROAD 52", "ROAD 53", "ROAD 54", "ROAD 55", "ROAD 56", "ROAD 57", "ROAD 58", "ROAD 59", "ROAD 60", "ROAD 61", "ROAD 62", "ROAD 63", "ROAD 64", "ROAD 65", "ROAD 66", "ROAD 67", "ROAD 68", "ROAD 69", "ROAD 70", "ROAD 71", "ROAD 72", "ROAD 73", "ROAD 74", "ROAD 75", "ROAD 76", "ROAD 77", "ROAD 78", "ROAD 79", "ROAD 80", "ROAD 81", "ROAD 82", "ROAD 83", "ROAD 84", "ROAD 85", "ROAD 86", "ROAD 87", "ROAD 88", "ROAD 89", "ROAD 90", "ROAD 91", "ROAD 92", "ROAD 93", "ROAD 94", "ROAD 95", "ROAD 96", "ROAD 97", "ROAD 98", "ROAD 99", "ROAD 100").
- Key Locations:**
 - 12 Location of reported site 8 (Kniffen 1938):** Located near the top center of the map, near the Sullivan Lake.
 - 16IV13 mound 1:** Located near the top right of the map, near the Sullivan Lake.
 - 16IV13 mound 2:** Located near the top right of the map, near the Sullivan Lake.
 - 16IV4 Indian Mound Core:** Located near the bottom right of the map, near the Sullivan Lake.
- Other Features:** The map includes numerous numbered sites (e.g., 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100) and various geographical features like "SULLIVAN LAKE OIL AND GAS FIELD", "SULLIVAN LAKE", "GRAND RIVER", "LOWER GRAND RIVER", "INDIAN MOUND CORE", "INDIAN MOUND", "INDIAN MOUND 1", "INDIAN MOUND 2", "INDIAN MOUND 3", "INDIAN MOUND 4", "INDIAN MOUND 5", "INDIAN MOUND 6", "INDIAN MOUND 7", "INDIAN MOUND 8", "INDIAN MOUND 9", "INDIAN MOUND 10", "INDIAN MOUND 11", "INDIAN MOUND 12", "INDIAN MOUND 13", "INDIAN MOUND 14", "INDIAN MOUND 15", "INDIAN MOUND 16", "INDIAN MOUND 17", "INDIAN MOUND 18", "INDIAN MOUND 19", "INDIAN MOUND 20", "INDIAN MOUND 21", "INDIAN MOUND 22", "INDIAN MOUND 23", "INDIAN MOUND 24", "INDIAN MOUND 25", "INDIAN MOUND 26", "INDIAN MOUND 27", "INDIAN MOUND 28", "INDIAN MOUND 29", "INDIAN MOUND 30", "INDIAN MOUND 31", "INDIAN MOUND 32", "INDIAN MOUND 33", "INDIAN MOUND 34", "INDIAN MOUND 35", "INDIAN MOUND 36", "INDIAN MOUND 37", "INDIAN MOUND 38", "INDIAN MOUND 39", "INDIAN MOUND 40", "INDIAN MOUND 41", "INDIAN MOUND 42", "INDIAN MOUND 43", "INDIAN MOUND 44", "INDIAN MOUND 45", "INDIAN MOUND 46", "INDIAN MOUND 47", "INDIAN MOUND 48", "INDIAN MOUND 49", "INDIAN MOUND 50", "INDIAN MOUND 51", "INDIAN MOUND 52", "INDIAN MOUND 53", "INDIAN MOUND 54", "INDIAN MOUND 55", "INDIAN MOUND 56", "INDIAN MOUND 57", "INDIAN MOUND 58", "INDIAN MOUND 59", "INDIAN MOUND 60", "INDIAN MOUND 61", "INDIAN MOUND 62", "INDIAN MOUND 63", "INDIAN MOUND 64", "INDIAN MOUND 65", "INDIAN MOUND 66", "INDIAN MOUND 67", "INDIAN MOUND 68", "INDIAN MOUND 69", "INDIAN MOUND 70", "INDIAN MOUND 71", "INDIAN MOUND 72", "INDIAN MOUND 73", "INDIAN MOUND 74", "INDIAN MOUND 75", "INDIAN MOUND 76", "INDIAN MOUND 77", "INDIAN MOUND 78", "INDIAN MOUND 79", "INDIAN MOUND 80", "INDIAN MOUND 81", "INDIAN MOUND 82", "INDIAN MOUND 83", "INDIAN MOUND 84", "INDIAN MOUND 85", "INDIAN MOUND 86", "INDIAN MOUND 87", "INDIAN MOUND 88", "INDIAN MOUND 89", "INDIAN MOUND 90", "INDIAN MOUND 91", "INDIAN MOUND 92", "INDIAN MOUND 93", "INDIAN MOUND 94", "INDIAN MOUND 95", "INDIAN MOUND 96", "INDIAN MOUND 97", "INDIAN MOUND 98", "INDIAN MOUND 99", "INDIAN MOUND 100").

review of previous research in Chapter III, this site has been the subject of numerous investigations (e.g., Moore 1913; Gibson 1982). Most recently, the site was included in an on-going topographic mapping study conducted by Malcolm Shuman. The present study was conducted after discussions with Dr. Shuman determined that our objectives in updating the site did not overlap with the goals of his investigations.

The update visit to the Bayou Sorrel mounds provided a sketch map of the cemetery mound (Figure 19). Detailed notes also were made of the historic cemetery on the mound; inscriptions observed on gravestones were recorded (see Appendix II). There are numerous depressions and irregularities in the mound surface; some of these may be unmarked graves. There appears to be a small flat area on the mound summit. Below that point, a gradual slope obtains along the sides of the mound. The slope becomes steeper as it drops to the surrounding level ground surface. This slope is steepest on the southern and eastern portions of the mound, where high water may be creating this bank effect. These contours are masked to a certain extent along the north and east sides of the mound, because fill for the protection levee has partially covered the mound flank (Figure 20). On the south side of the mound, there is a tapering, nearly level layer of fill which is elevated slightly above the surrounding floodplain. The mound is covered primarily in low grass, although a few live oak and hackberry trees are present. The surrounding level floodplain is filled with an undergrowth of vines. A cleared pipeline corridor runs near the west side of the mound.

Another map was prepared showing the presently inhabited truncated pyramidal mound in relation to surrounding landmarks (Figure 21). This mound is very irregular, and gullies are cut into it. It is bounded on the southeast by a road and on the southwest by the present channel of Bayou Maringouin. Several twentieth-century structures stand on the summit.

The relationship between these two mounds and the issue of the cultural nature of the inhabited pyramidal mound are currently unresolved questions. These considerations are summarized within the documentation supporting the site's determination of eligibility for the National Register of Historic Places, prepared by Mr. Michael E. Stout, U.S. Army Corps of Engineers, New Orleans District. Originally, the two mounds were located on opposite banks of Bayou Sorrel. Until construction of the East Atchafalaya Basin Protection Levee in 1933-1934 altered existing drainage patterns, Bayou Sorrel flowed between the two mounds. Furthermore, C. B. Moore did not allude to the existence of the pyramidal mound in 1913. This suggests that either it was located across the bayou and was not reported, or that it was not present at that time. Given Moore's systematic approach to the location of



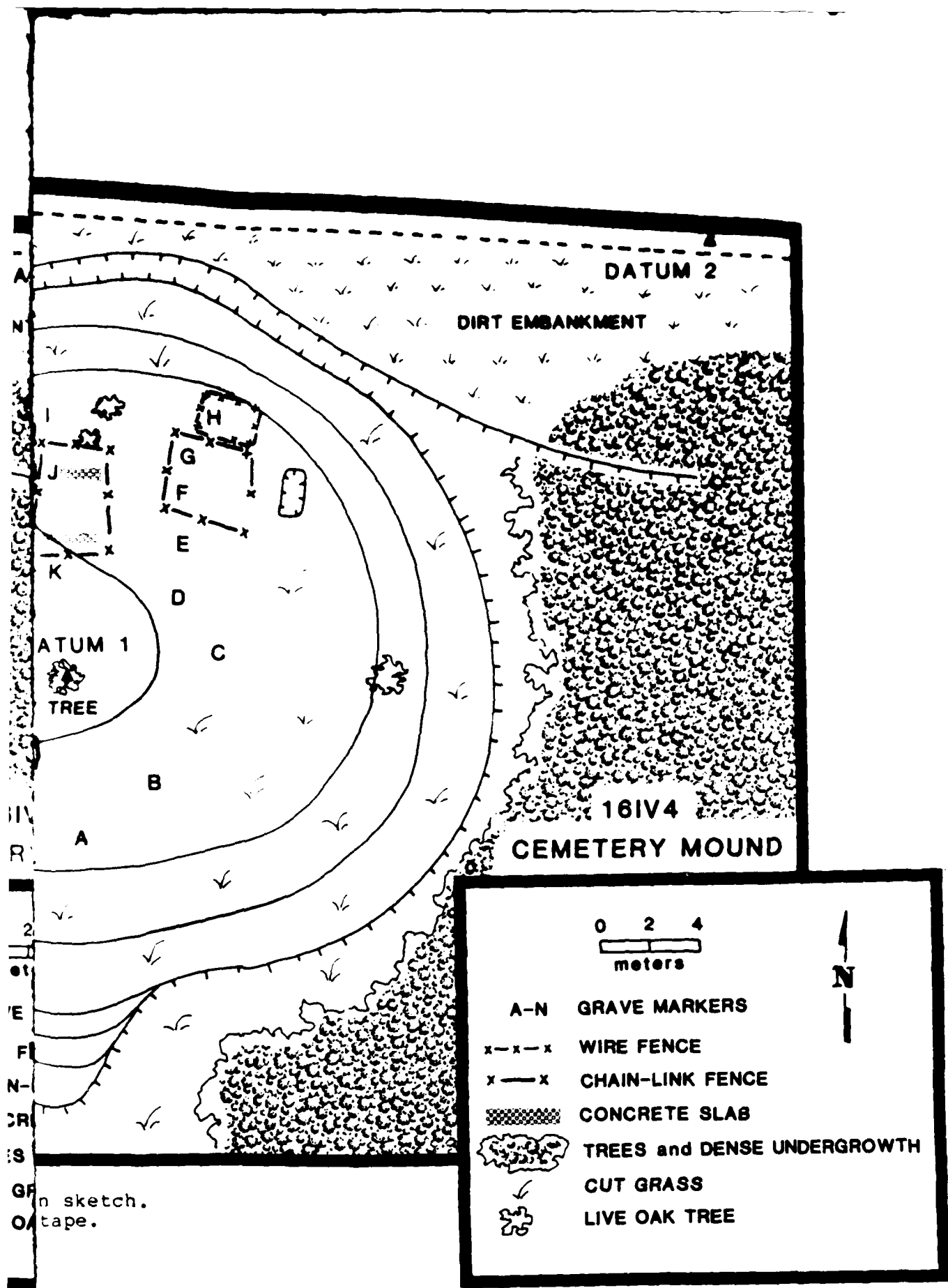




Figure 20. 16IV4, showing protection levee overlapping the flank of cemetery mound. View to northwest.

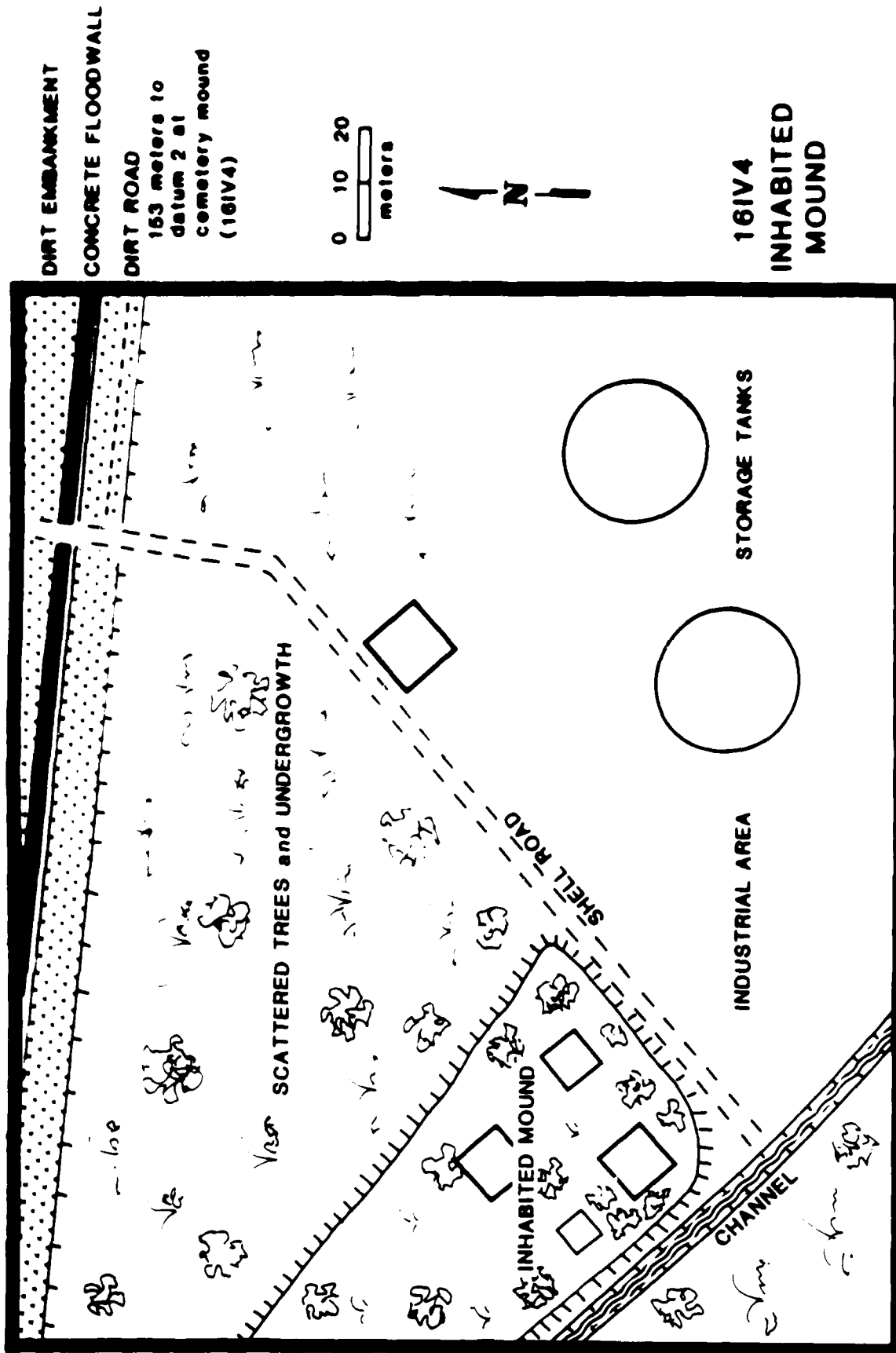


Figure 21. 16IV4. Plan of inhabited mound and vicinity. Mapped by pacing and compass.

mounds, it is highly unlikely that he failed to discover a feature in such close proximity to a known site.

If the pyramidal mound were not present in 1913, then this feature may be a spoil pile rather than a prehistoric mound. It is located between two borrow features excavated around the time of the original levee construction. A 1935 quadrangle map shows the pyramidal mound located on the west bank of a borrow canal. This canal has since filled in. The mound also is located immediately east of the borrow channel that was dredged at approximately the time of levee construction. Early map references to 16 IV 4 use "mound" in the singular rather than the plural form. On the other hand, a stratigraphic profile drawn by Gibson (1982) suggests that the mound may be prehistoric.

The following comments summarize the observations of Dennis Jones and Malcolm Shuman (personal communication 1987) regarding these issues. Without testing, it is not possible to state definitely whether the pyramidal mound is or is not an Indian mound. The feature is amorphous and could easily be spoil. One side of the mound blends almost imperceptibly into the surrounding landscape in a manner similar to that observed for natural ridge features. Jones and Shuman discussed the mound with a local informant, Mary Alberta Henson, who has lived on top of the mound for 40 years. She could not recall ever finding prehistoric or historic artifacts in association with the mound. She also noted that the bayou has been gradually eroding the side of the mound. Dr. Shuman walked along that bank to examine the exposed surface. He did not observe any cultural material along this exposure. The mound studies of Jones and Shuman within Louisiana also are relevant to the observation that Bayou Sorrel formerly flowed between the two mounds. Mound clusters typically occur on only one side of a body of water. However, the Gorum Place site (16 LA 107) consists of two mounds on opposite sides of a creek.

The implications of these observations have been detailed in the determination of eligibility for the National Register of Historic Places. First, the Bayou Sorrel site actually may be two sites located on opposite banks of a former bayou channel. Any analysis of cultural material from these sites must take this possibility into consideration. Furthermore, the distribution of cultural deposits in the site area will be restricted to areas not formerly occupied by the bayou channel, i.e., not in the area between the two mounds. Archaeological investigations of the site should be guided by that consideration. In addition, archeological studies of the site will have to address the possibility that the pyramidal mound is is not a prehistoric feature at all, but represents a deposit of modern dredged materials.

Schwing Place Mound (16IV13)

16IV13 (Figure 18) was revisited, examined, mapped, and photographed. Initial examinations revealed that the site may consist of two mounds rather than one. A mound, designated as "Mound 1," was located in the vicinity of the mound depicted in the state site files. Systematic surface inspection of the area surrounding the mound was accomplished by the traverse of transects spaced at 30 m intervals. An area extending 200 m from the mound in all directions was examined. Backswamp was encountered in all directions except towards the south. This survey located a second mound, "Mound 2," approximately 150 m east of Mound 1.

Mound 1 (Figure 22) consists of a distinct rise, approximately 18.5 m long (north-south). It rises approximately 1 m above the surrounding floodplain. The mound possesses an irregular outline. The north end of the feature is higher than the remainder of the mound, with an increased slope to the adjacent level floodplain. More gradual slopes to the west and south lead to relatively low extensions of the mound. Trees occur at the margins of the mound only; the summit is vegetated with low ground cover. The surrounding land is very level, dry ground, with water puddles in scattered low spots.

Vegetation observed at Mound 1 included hickory (Carya sp.), palmetto (Sabal minor), oak (Quercus sp.), hackberry (Celtis laevigata), and cypress (Taxodium distichum). One shovel test (Figure 23) was excavated in Mound 1, revealing 12 cm of very dark gray (10YR 3/1) silty clay loam over dark grayish brown (10YR 4/2) clay to a depth of 37 cm below surface. No prehistoric material was observed at the mound. It is not possible to assign an aboriginal cultural affiliation to this mound.

Mound 2 (Figure 23) is a much more regular, fairly circular feature than Mound 1. It is approximately 10 m in diameter. Four trees are scattered across the surface of the mound. Shovel Test 1 contained 27 cm of dark grayish brown (10YR 4/2) clay. The profile of Shovel Test 2 included very dark gray (10YR 3/1) silty clay loam at 0-4 cm below surface; very dark grayish brown (10YR 3/2) clay at 4-28 cm below surface; saturated soil at 28-34 cm below surface; and, the water table at 34 cm below surface. Again, the lack of observed artifactual material makes the cultural affiliation of this mound problematic.

The state site form for 16IV13 was checked by pacing from both mounds south to the pipe line corridor. Both mounds then were plotted on the Bayou Sorrel, LA., USGS 7.5 minute quadrangle (photorevised 1980), with reference to the intersection of the

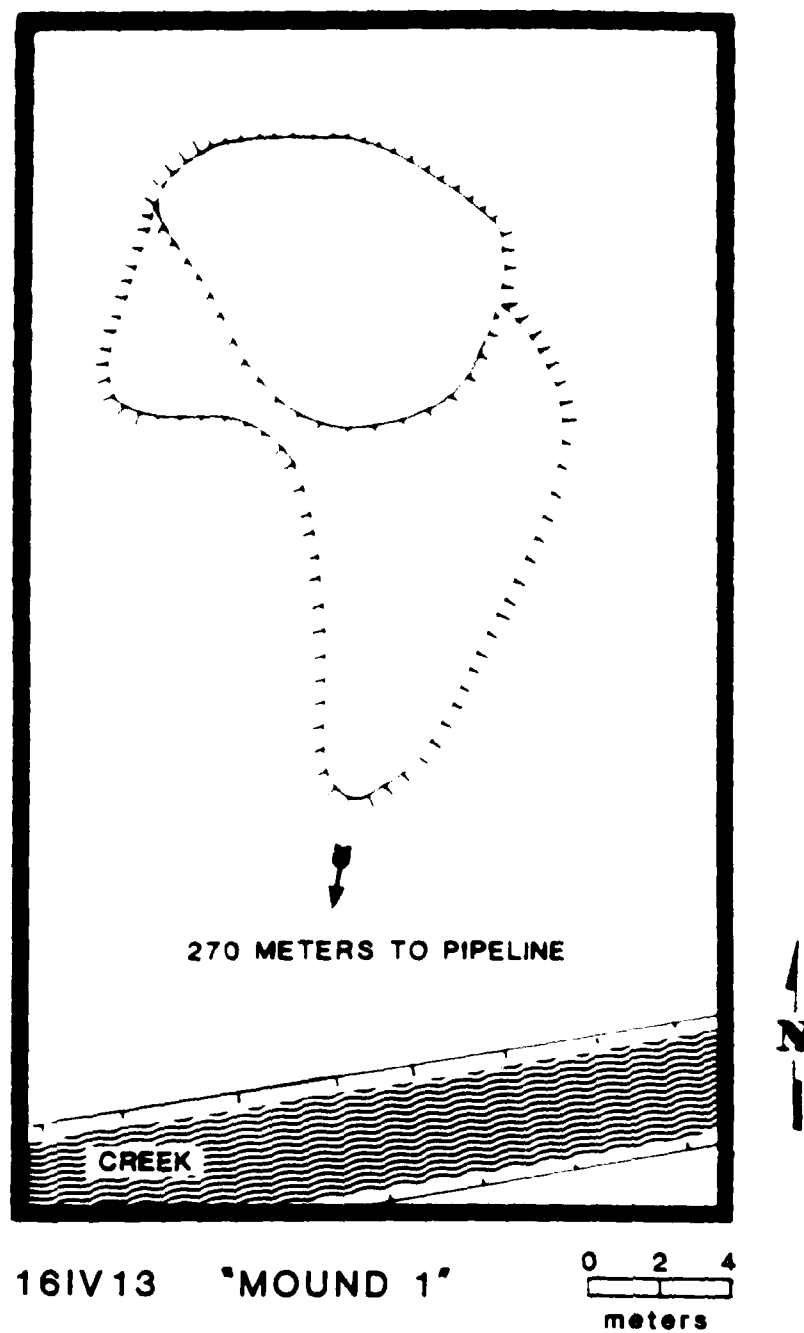


Figure 22. 16IV13 Mound 1 plan view.
Mapped with compass and tape.

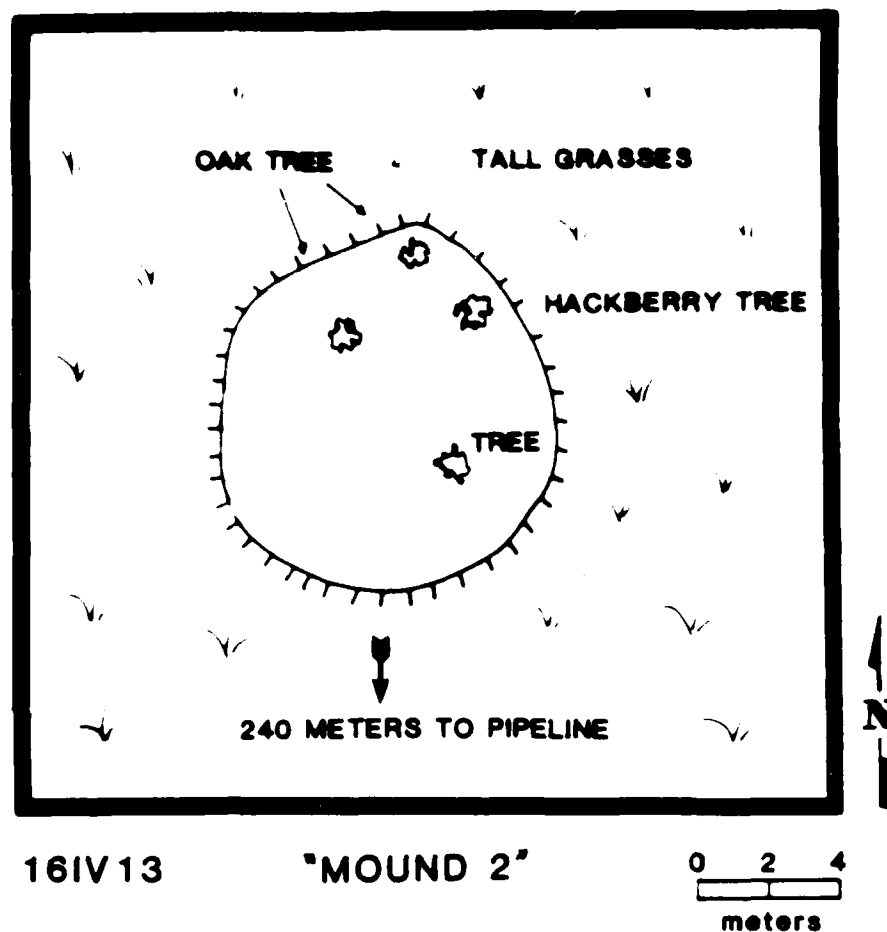


Figure 23. 16IV13 Mound 2 plan view.
Mapped with compass and tape.

pipeline and the stream in the southwest corner of Section 16 (Figure 18). Mound 1 was found to correspond with the isolated five-foot contour. It is difficult to identify positively, which of the present mounds, if either, is indicated on the present state site form. Mound 1 falls adjacent to the location shown on the state site form, while Mound 2 lies approximately in its center. Mound 1, at 18.5 m long, resembles the recorded 1.2 m by 23 m dimensions of the 16IV13 mound much better than Mound 2, which is 1.0 m in diameter.

Pigeon Bayou Mound (16IV15)

An unsuccessful attempt was made to relocate 16IV15 (Figure 24), a mound site on Upper Grand River discussed by C.B. Moore (1913) and by Neuman and Servello (1976). Recent failures to find this Pigeon-Grand River Mound may have been the result of looking in the wrong place. Moore stated that the mound was located 200 yards north-northeast from a point opposite Pigeon Bayou (Moore 1913). The map attached to the State site form, however, depicts a location less than 200 m from the present bank of Upper Grand River. Furthermore, examination of old quadrangle maps suggests that the course of that portion of the river may have been further north at the time of Moore's visit. The bank has remained stable since at least 1935. Thus, it seems likely that the plot on the State site form is inaccurate.

Our reconnaissance also failed to locate the site. The survey procedure consisted of surface inspection along a single transect following the north bank of Upper Grand River. The mouth of Bayou Pigeon was apparently silted over, and it could not be observed by boat from Upper Grand River. From a point opposite the map location of the confluence of Upper Grand River and Bayou Pigeon, areas approximately 500 m (East/West) by 150 m (North/South) upstream of the confluence, and approximately 730 m (East/West) by 100 m (North/South) downstream of the confluence, were inspected visually. No indication of a mound feature was observed. Nevertheless, this level of effort might not have detected the mound if it actually is located 200 m from the river as suggested above.

A second reason for the failure of recent visitors to relocate the mound could be burial of the site through sedimentation. This reason was given by Neuman and Servello (1976) for their inability to find the site. They noted that Bayou Pigeon was completely silted in at that time (Neuman and Servello 1976). Kniffen noted as early as 1938 that "three feet of silt now cover the mound on Upper Grand River opposite Bayou Pigeon" (Kniffen 1938). Sedimentary processes were probably occurring during the visit of C. B. Moore, who noted that at high water most of the mound was under water and accessible only by boat (Moore 1913).

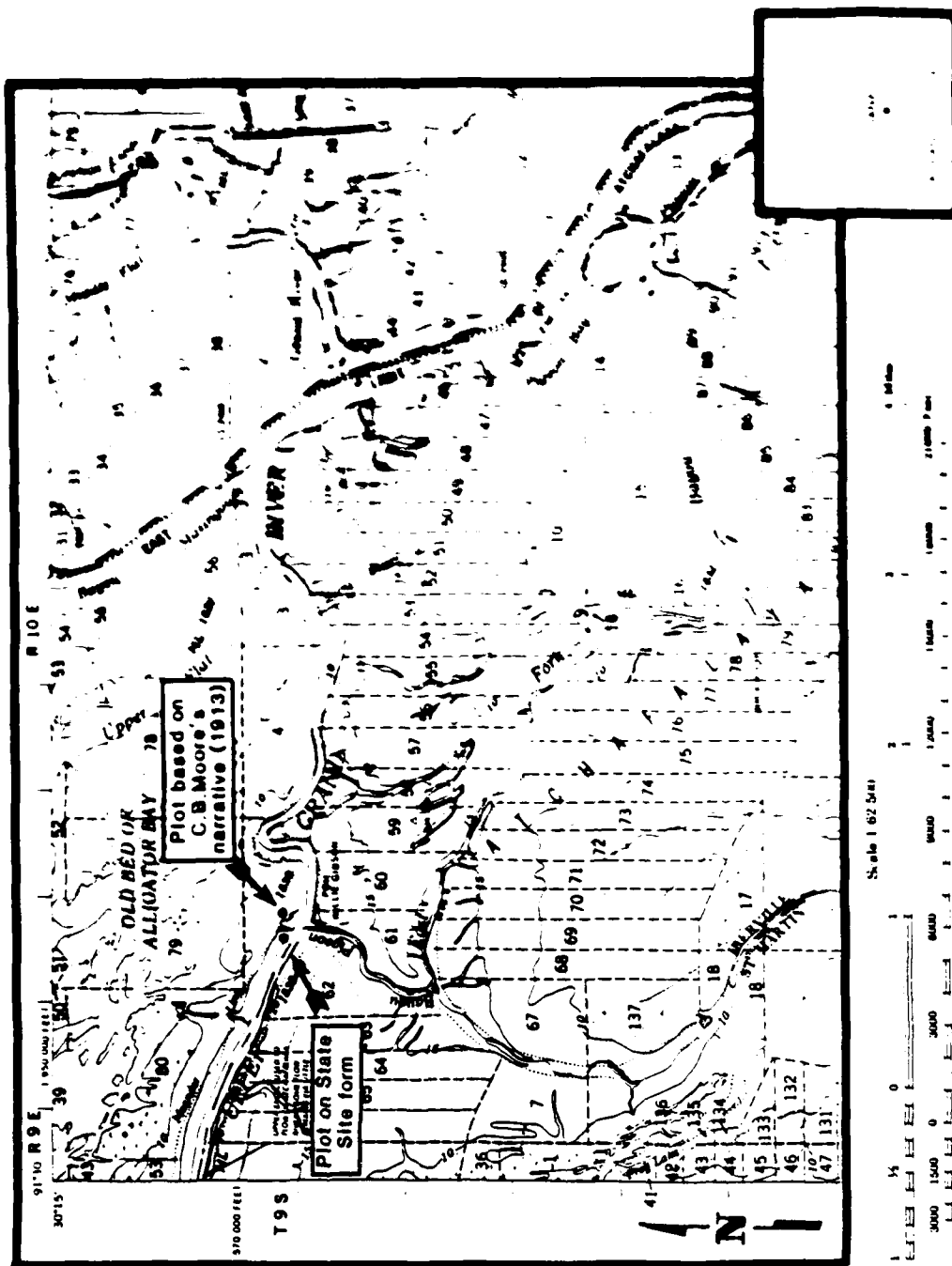


Figure 24. Possible locations of 161V15, Lake Chicot quadrangle, Louisiana, 1973.

Indian Village

An attempt also was made to find local collections related to "Indian Village," a community identified on the USGS 7.5 minute Addis, LA., quadrangle (photorevised 1980). Residents of the area who were questioned believe that the term merely refers to the name of their community and does not necessarily relate to any specific Indian settlement at that locale. No local residents consulted could relate the discovery of prehistoric ceramics, stone tools, or other artifacts in the vicinity. The point at the stream confluence is presently occupied by an industrial yard or lay-down area. Disturbance caused by this recent industrial activity precluded archeological survey of the area.

"Kniffen 1938"

Map and field investigations also were undertaken at the "Kniffen 1938" site location appearing as a circled zone on maps of the state site files (Figure 18). Map study suggests that this circled area resulted from inaccurate transfer of a site plot reported in the literature. The source for the circle drawn on the map is probably the Geological Survey publication (Kniffen 1938) on Iberville Parish mounds (Duke Rivet, personal communication, 1987). If so, the circle probably refers to "reported site #1," one of the two sites on Kniffen's map (Kniffen 1938:Figure 22). Distance to the circled locale. Remeasurement of distances from Kniffen's map, and replotting on the USGS quadrangle with reference to canals shown on his figure, results in a location for "reported site 8" approximately 3.5 km south of the circled area.

Field investigations attempted to confirm the locational information. The "circled area" is located south of Route 75, making physical access to the area very difficult. "posted" signs within the area list several landowners. No entry could not be obtained despite repeated attempts to contact the landowners. Thus, this area was not examined.

Boat access south along Wilbert Bayou was attempted. A person employed to visit "reported site #1" was unable to reach the intersection shown on Kniffen's map. The area was walked in a cultivated field on the west bank of the Wilbert Bayou. No artifacts were observed during this examination. A more thorough examination of the entire vicinity would be necessary to determine whether the site is present. The area received only a cursory examination. Further require systematic examinations covering the area south and at least

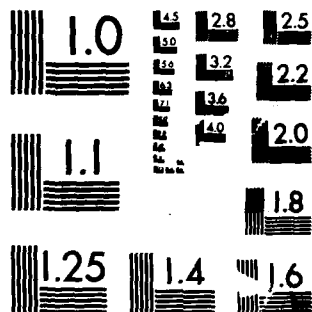
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larger area should be surveyed to improve the probability of locating the site, since Kniffen's (1938) map location was only approximate. In addition, the site may never have existed; it was a "reported site," i.e., one not actually visited by Kniffen during his investigations (1938).

Summary

Field investigations of the EABPL Item E-44 project area, and of cultural resources in the vicinity, revealed no previously unreported archeological sites, with the potential exception of another mound at 16IV13. Systematic survey of 13 borrow areas was constrained by the presence of standing water in 12 of those areas. Tracts inspected ranged over backswamp, levee, and active floodplain environments. Intensive survey efforts were employed in high-probability zones identified through study of regional geomorphology and archeological site distribution patterns. No cultural resources were encountered in any of the tracts included within the EABPL Item E-44 study area.

Supplementary field studies outside of the EABPL project area included five known or potential archeological site locations. Three of these cultural resources could not be located. Brief investigations were made at the fourth locale, 16IV4. Systematic survey in the 16IV13 vicinity revealed the possibility of a previously unrecorded mound.

CHAPTER VIII

CONCLUSIONS AND RECOMMENDATIONS

Hypotheses Concerning the Absence of Cultural Resources

No cultural resources were discovered in any of the thirteen proposed borrow areas surveyed in EABPL Item E-44. Several hypotheses may be offered for the absence of cultural resources within the project area. These include: the lack of human activities within the project area that would have created an archeological record, the burial of once-existing sites by recent sediments thereby preventing their discovery, and the inability of the survey techniques employed to discover the resources present within the study area.

First, the study area may not have been a suitable location for human habitation in the past. As noted earlier, distributary levees and lake shore environments seem to have been the preferred locations for prehistoric occupation. Historic occupations preferred higher areas that are not prone to flooding. Lake shore environments are uncommon in this portion of the Atchafalaya Basin. Distributary levees are not distributed widely within the tracts which comprised the survey area. Parcels of high ground are not present in most of the study area. In fact, only two of the high-probability areas delineated in the research design are accessible natural features. Eleven of the thirteen borrow areas are located completely or partially in a backswamp setting. Most of these areas are inundated at present, and they may be permanently inundated. Thus, landforms suitable for human occupation in general are not present in the project area. The absence of cultural resources in this portion of the project area appears to confirm expectations based on the distribution of recorded archeological sites within the region.

On the other hand, desirable environments may have existed in the EABPL project area in the past, but are now buried under accretion deposits. Progressive sedimentation of the Atchafalaya Basin has occurred throughout the Holocene. Backswamps and shallow lakes have been the chief depositional environments, although to a certain extent natural levees and localized distributary channels also have been affected. As a result, archeological sites on the flanks of the natural levees and in the backswamps are becoming buried. In fact, distributary levee and lake shore environments exist in the subsurface of the Basin and may be buried by as much as 30 to 35 m of sediment (Smith et al. 1986). Man's recent modifications of the hydrology of the Atchafalaya Basin also may have contributed to site burial. Sedimentation is occurring at an increased rate throughout the

Atchafalaya Basin as a result of increased flow from the Mississippi River (Smith et al. 1986). The deep alluvial soils observed in Borrow 10, for example, probably have been deposited recently by flooding of Bayou Maringouin. Any evidence of prehistoric occupation of that area could be deeply buried under meters of sediment. Additionally, previous levee construction probably has destroyed the natural levee originally associated with this backswamp, leaving only the area least suitable for previous human occupation. This construction may have destroyed or buried any cultural resources that once existed on the levee surfaces. Thus, cultural resources that once existed in the project area may have been deeply buried or destroyed, preventing their discovery during the current survey.

Inadequacy of discovery techniques may have contributed to the failure of the survey to locate deeply buried archeological sites. The transect intervals and shovel test intervals provided coverage that is certainly adequate by current standards of archeological techniques in wooded environments (see Lovis 1976). If, however, the cultural resources have been buried deeply (i.e., greater than 1.5 m below the ground surface), the shovel and auger tests employed during this survey would have been unable to locate the buried sites. Other site discovery techniques, such as the use of power augers or backhoes, would be required to discover deeply buried cultural resources. These kinds of equipment, however, normally require vehicles to support and operate their digging apparatus. Such an approach is not feasible given the environmental conditions that exist within the project area.

Another condition that limited the ability of the site discovery techniques employed during the survey is the presence of standing water in many of the survey tracts. Shovel and auger testing is difficult, if not impossible, under these conditions. Therefore, cultural resources may have been present under the inundated portions of the project area where they remain undiscovered due to our inability to examine the ground surface. However, the probability of discoverable sites existing beneath the inundated portions of the study area is low. The presence of water stains 2-3 m above the present ground or water surface in many of these areas implies that these portions of the proposed borrow areas may be permanently inundated, and possibly at depths much greater than those observed during the field investigations. If so, discovery techniques that would accommodate the presence of standing water would have to be developed and implemented to determine whether any resources are present in these inundated areas. If these areas are permanently inundated, however, sedimentation within these areas is probably extremely heavy. Therefore, any cultural resources present in the flooded areas also may be deeply buried. As stated above, this condition requires more elaborate discovery techniques than those

customarily employed in archeological survey.

Thus, the first two hypotheses concerning the lack of cultural resources within the project area are more probable than the inadequacy of the site discovery techniques employed during the survey. All investigators in the Atchafalaya Basin in this century have noted the rapid and heavy accumulation of sediments throughout the basin. While the complete avoidance of the backswamps of the Atchafalaya Basin by past human groups is difficult to accept, the nature of the activities that were conducted by these groups in the project area may have prevented their reflection in the archeological resource base of the region. That is, the activities conducted in these areas did not produce remains that are readily recognizable or recoverable. The discovery techniques employed during this survey are capable of discovering archeological sites. Their implementation in other areas, in similar settings, attest to their adequacy. Therefore, no cultural resources appear to exist within the project area.

Recommendations Concerning the Project Area

The absence of cultural resources within the specified borrow areas implies that levee enlargement activities will have no impact on cultural resources in those specific tracts. Therefore, no further survey or additional archeological investigations are recommended for any of the project area. However, deeply buried archeological sites, which would remain undetected given the survey techniques employed, possibly may occur within the study area. If such cultural resources are encountered during the course of the construction activities, appropriate steps should be taken to assess their significance. These steps should include notification of the Environmental Analysis Branch, Planning Division, New Orleans District, U. S. Army Corps of Engineers, to determine whether additional archeological investigations at the deeply buried locales are in order.

Recommendations Concerning the Nearby Cultural Resources

The following recommendations are presented for future researchers who may be interested in any of the previously recorded sites near the project area. None of these recommendations needs to be undertaken by the New Orleans District, U. S. Army Corps of Engineers, with regard to the EABPL Item E-44 project; as noted above, all of these sites are well outside of the project area under consideration here.

There are several outstanding research problems pertaining

to the Bayou Sorrel Mounds site (16IV4). Initially, investigations must determine whether the truncated pyramidal mound is a prehistoric feature. A testing program should be implemented to identify stratified cultural deposits indicative of prehistoric mound construction. If the pyramidal mound is determined to be a prehistoric earthwork, its relationship to the cemetery mound should be investigated. The temporal affiliation of both mounds should be ascertained to test whether the mounds functioned contemporaneously as a single ceremonial center. Or, do the mounds represent two sites located on opposite banks of the river and utilized at different periods in prehistory? It may be possible to define the former course of the bayou through the utilization of remote sensing techniques. Results of these efforts could be employed to design a systematic testing program for defining the extent and content of any midden deposits associated with the mounds. Such information would provide the preliminary data for additional research into the role of this site in the regional subsistence and settlement systems.

Additional study at 16IV13 is necessary due to the probative definition of two mounds, rather than one. Field records of previous investigations at the site should be reviewed to ascertain which mound has in the past yielded prehistoric cultural material. Then the other mound should be tested to determine if it also is of prehistoric origin.

At 16IV15, relocation efforts should examine the area between 150 and 300 m from the river before utilizing remote sensing or deep testing to find the mound. This may serve to determine whether the site exists further north of the present bank of Upper Grand River than indicated at present.

Further investigations also should be undertaken in two locales with regard to the "Kniffen 1938" problem. Landowners should be contacted for permission to conduct intensive, systematic survey and shovel testing of the area circled on the map. A similar survey program should be implemented at the second location 3.5 km south, on another portion of the Wilbert Canal, to examine a broad area where "reported site 8" might occur.

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APPENDIX I
Scope of Services

SCOPE OF SERVICES

Cultural Resources Survey of EABPL Item E-44 Iberville Parish, Louisiana

1. Introduction. The proposed enlargement of Item E-44, a feature of the Atchafalaya Basin project, is designed to upgrade the existing levee to the 1973 MR&T Project Flood Flowline. Item E-44 is located in Iberville Parish between levee stations 2200+00 and 2590+00 (see attachment 1). Material for the proposed levee enlargement will be obtained from adjacent borrow areas.
2. Study Area. The study area for the cultural resources survey consists of the designated borrow areas for the proposed levee enlargement. The existing and proposed borrow areas are shown on the E-44 Right-of-Way drawings, File No. H-8-29316 (attachment 2). The study area is approximately 550 acres.
3. Background Information. A cultural resources survey of the East and West Atchafalaya Basin Protection Levee was conducted in 1980 by Dr. Jon L. Gibson. The survey did not locate any archeological sites in the project right-of-way. However, the survey area was limited to 750 feet on either side of the levee centerline. Review of the right-of-way maps (attachment 2) shows that the great majority of the designated borrow areas extend beyond 750 feet and, thus, have not been surveyed.

The geomorphic study of the Atchafalaya Basin (Smith et al, 1986) has identified abandoned distributaries in the study area. Additionally, infrareds from aerial surveys in 1978 and 1985 show distributary ridges in numerous portions of the designated right-of-way. Such features have been correlated with a high incidence of archeological sites and, thus, are considered high probability areas.

The study area has the potential for containing prehistoric and historic resources. Historic sites would probably post-date 1800 and could include a wide range of site types.

4. General Nature of the Work. The study will consist of background research, intensive cultural resources survey employing systematic and judgmental methods, and data analysis and report preparation. The study will utilize previous NOD sponsored studies of the Atchafalaya Basin to the maximum extent possible.

5. Study Requirements. The study will be conducted utilizing current professional standards and guidelines including, but not limited to:

the National Park Service's draft standards entitled, "How to Apply the National Register Criteria for Evaluation," dated June 1, 1982;

the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation as published in the Federal Register on September 29, 1983;

Louisiana's Comprehensive Archeological Plan dated October 1, 1983; and

The Advisory Council on Historic Preservation's regulation 36 CFR Part 800 entitled, "Protection of Historic Properties."

The study will be conducted in three phases: Background Research, Intensive Survey, Data Analysis and Report Preparation.

- A. Phase 1 Background Research. The study will begin with research of available literature and records necessary to predict the nature of the resource base in the project area and refine the survey methodology. This background research will include a literature review, review of the geomorphology, and research of historic records. The previous survey of the levee right-of-way (USL, 1982), the recent geomorphological study of the basin (Smith et al, 1986) and aerial infrared photography on file at NOD will be used in this phase. The review of historic records will include title searches, if necessary, and review of other written, cartographic, and aerial photography records.

A brief, interim report will be prepared at the conclusion of this phase and submitted to the Contracting Officer's Representative (COR). The report will specifically include the following:

- (1) an overview of the geomorphology, prehistory, and historic ownership and utilization of the study area,
- (2) predictive statements of the archeological expectations based on the background research, and
- (3) refinements in the survey methodologies as necessitated by these predictions.

The report shall be submitted within 3 weeks after delivery order award for review and approval. All review comments will be resolved or incorporated within 1 week after submittal.

- B. Phase 2 Intensive Survey. Upon approval of the Phase 1 report by the COR, the Contractor shall initiate the fieldwork. The survey shall be a combination of boat survey and intensive pedestrian survey of the borrow areas augmented with shovel testing. The boat survey will be utilized where the borrow areas are exposed at water's edge. This will involve visual inspection of the stratigraphic profile of the exposed banklines. The intensive pedestrian survey will utilize lane spacing of 20 meters and a shovel testing interval of 50 meters in an offset pattern. Shovel tests will be approximately 30x30 cm in the horizontal plane and approximately 25-50 cm deep, i.e. to sterile subsoil. The excavated soil will be screened through 1/4 inch wire mesh. This systematic procedure will be supplemented with judgmental shovel testing based upon the background research.

State site forms will be completed and state-assigned site numbers will be utilized for all archeological sites located by the survey. All sites located in the survey corridors will be sketch-mapped, photographed, and briefly tested using shovel, auger, and limited controlled surface collection to determine depth of deposit, site boundaries, stratigraphy, and cultural association. Any pre-World War II standing structures located in the survey transects will be recorded on Louisiana state standing structure forms and will include a minimum of three clear black and white photographs. For structures located in the survey transects, the contractor shall also address the archeological component of the site.

- C. Phase 3: Data Analyses and Report Preparation. All data will be analyzed using currently acceptable scientific methodology. The Contractor shall catalog all artifacts, samples, specimens, photographs, drawings, etc., utilizing the format currently employed by the Louisiana State Archeologist. The catalog system will include site and provenience designations. The Contractor shall classify each site located as either eligible for inclusion in the National Register, potentially eligible, or not eligible. The Contractor shall fully support his recommendations regarding site significance.

The analyses will be fully documented. Methodologies and assumptions employed will be explained and justified. Inferential statements and conclusions will be supported by statistics where possible. Additional requirements for the draft report are contained in Section 6 of this Scope of Services.

6. Reports:

- a. Phase 1 Report. Two copies of the report on the results of the Phase investigations will be submitted to the COR within 3 weeks after work item award for review and approval. This report will present in detail the proposed field methodology.

b. Draft and Final Reports (Phase 1-3). Eight copies of the draft report integrating all phases of this investigation will be submitted to the COR for review and comment within 14 weeks after work item award. Along with the draft reports, the Contractor shall submit three copies of support documentation for each site recommended as eligible for inclusion in the National Register. This documentation will follow the format and contain all of the data required by the Guidelines for Level of Documentation appended to Title 36 CFR Part 63. The Contractor shall also provide recommendations for mitigation for any sites recommended as eligible. As an appendix to the draft report, the Contractor shall submit the state site forms. The written report shall follow the format set forth in MIL-STD-847A with the following exceptions: (1) separate, soft, durable, wrap-around covers will be used instead of self covers; (2) page size shall be 8-1/2 x 11 inches with 1-inch margins; (3) the reference format of American Antiquity will be used. Spelling shall be in accordance with the U.S. Government Printing Office Style Manual dated January 1973. The COR will provide all review comments to the Contractor within 8 weeks after receipt of the draft reports (22 weeks after work item award). Upon receipt of the review comments on the draft report, the Contractor shall incorporate or resolve all comments and submit one preliminary copy of the final report to the COR within 4 weeks (26 weeks after work item award). Upon approval of the preliminary final report by the COR, the Contractor will submit 30 copies and one reproducible master copy of the final report to the COR within 28 weeks after work item award. Included as an appendix to the Final Report will be a complete and accurate listing of cultural material and associated documentation recovered and/or generated. In order to preclude vandalism, the final report shall not contain specific locations of archeological sites. Site specific information, including one set of project maps accurately delineating site locations, site forms, black and white photographs and maps, shall be included in an appendix separate from the main report.

7. Attachments (previously furnished).

1. Excerpt of Grosse Tete and Chicot Lake quad. maps.
2. Item E-44 Right-of-Way Drawings, File No. H-8-29316

APPENDIX II
16IV4 Cemetery Marker Inscriptions

- A. Grave marker. Concrete cross with stainless steel nameplate inscribed:

Ernest Diamond, Sr.
born June 30, 1880
Died Nov. 7, 1949

- B. Marble slab with no inscription; not fixed permanently in ground. 45.5 cm x 43 cm x 2.2 cm

- C. Marble marker, 23 cm x 36 cm 10.5 cm, inscribed:

+
Alexandria S.
KELLER
LOUISIANA
PVT. 162 DEPOT BRIG.
DECEMBER 17, 1940

- D. Unmarked concrete slab lying on ground.

- E. Unmarked slab, possibly granite, lying on ground.

- F. Grave marker inscribed:

Mrs. David E.
ALLEN
Sept. 29, 1879
June 7, 1943

- G. Grave marker, broken off from its base. Inscription:

MRS. Annie M. Seneca
Died
Jan. 8, 1941

- H. Marble grave marker inscribed:

MRS. R. J. WISDOM
BORN JUNE 28, 1872
DIED DEC. 24, 1940
A tender mother and
faithful friend.
MOTHER

- I. Homemade concrete grave marker, inscription scratched in wet concrete:

MRS.
CORA
DOHERTY
BORN
DEC 28 1880
DIED
OCT 12 1937

- J. Grave marker inscribed:

+
John
Calvin
Williams
Louisiana
PVT 43 INFANTRY
15 DIVISION
WORLD WAR I
MARCH 15 1893
APRIL 15 1950

- K. Grave marker inscribed:

+
in the memory
of
M THOMAS SHARKEY
Born in Ireland 1804
Died in August 17, 1844

- L. Slab set in ground; unmarked, except for this inscription scratched with a sharp instrument:

unknown
A friend to all

- M. Two concrete crosses:

Died
ELAINE COUVILLIER
MAY 5 1947

ABNER COUVILLIER JR
JR APRIL 17 1947

N. Upright marble slab, set in ground, adjacent to tree.
Inscription:

GONE HOME
(hand pointing upward)
L.A. WIARTZ.
DIED
May 4, 1882
AGED

9-8