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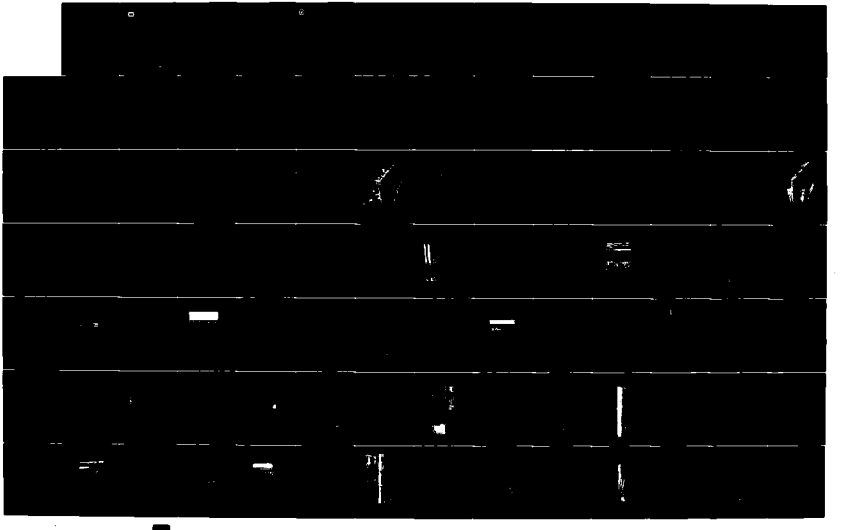

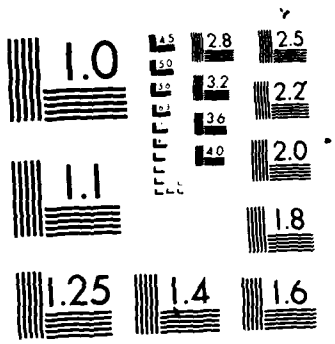

US Army Corps
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New Orleans District

CULTURAL RESOURCES SERIES
Report Number:COELMN/PD-86/04

BETWEEN TWO LEVEES: ARCHEOLOGICAL TESTING AND EVALUATION OF THE NATIONAL REGISTER ELIGIBILITY OF THE BAYOU GOULA LANDING SITE, IBERVILLE PARISH, LOUISIANA

Final Report

August 20, 1986

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) R. Christopher Goodwin & Associates, Inc. conducted an evaluation of the National Register eligibility of the Bayou Goula Landing site (16 IV 131) during October, 1985. Bankline survey and subsurface testing documented the nature and extent of cultural resources along the nearly one-mile length of the project area, and determined the influence of recent erosion on previously delineated		

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resources within the area. Only cultural remains in Artifact Scatter 1 retained contextual integrity. Intensive auger testing and controlled excavations then were conducted in the Artifact Scatter 1 locale. Intact cultural deposits were identified; however, this deposit was extremely limited in extent. It was determined that the research potential of the Artifact Scatter 1 area is exhausted, and that the site is not eligible for nomination to the National Register of Historic Places.

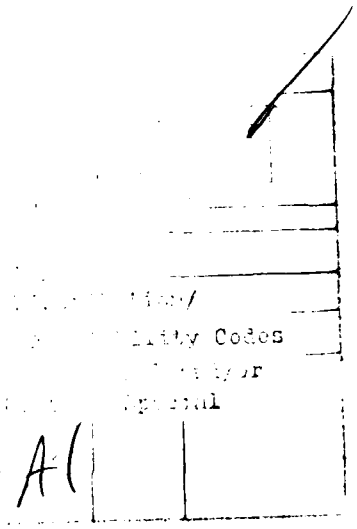
DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF

July 18, 1986

Planning Division

Environmental Analysis Branch



To The Reader:

The following report of testing at Bayou Goula Landing (16IV131) represents the culmination of two seasons of investigation sponsored by the U.S. Army Corps of Engineers, New Orleans District. The goals of both seasons were to locate and define buried deposits from some 200 years of occupation in this vicinity and to assess the extent of impact on any such deposits by proposed revetment construction along the Mississippi River bankline.

The first season of work, conducted by Coastal Environments, Inc. and reported separately, reconstructed the historical progression of settlement at this locale. Through a series of backhoe tests adjacent to the impact corridor, it was established that nearby site 16IVII does not extend into the impact area. Because of logistical difficulties, however, physical data pertinent to defining Bayou Goula Landing (16IV131) were limited to one feature in the bank face and secondarily deposited artifacts along the exposed erosional bench at the waterline. The impact corridor could not be tested by the technique chosen.

The second season of work, conducted by R. Christopher Goodwin and Associates, Inc., owes a debt to the historic research of the first season, but was designed specifically to gather new information regarding the extent and integrity of deposits within 300 feet of the 1985 bankline. The results show that no further remains of Bayou Goula (ca. 1880-1904) exist other than artifact scatters located immediately adjacent to the bankline. The State Historic Preservation Officer has expressed agreement that the site, as defined by the second season of work, is not significant. Revetment construction will proceed across the bankline face.

Carroll H. Kleinhans
Authorized Representative of the
Contracting Officer

Cletis R. Wagahoff
Chief, Planning Division

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CHAPTER I

INTRODUCTION

This report presents the results of archeological testing at Bayou Goula Landing (16 IV 131), Iberville Parish, Louisiana, pursuant to Delivery Order 03, Contract No. DACW29-85-D-0113 with the U.S. Army Corps of Engineers, New Orleans District. The Bayou Goula Landing site is located at M-196 on the west (right descending) bank of the Mississippi River, near the town of Bayou Goula, Louisiana (Figure 1). The project area consists of a corridor approximately 4200 ft (1280 m) in length, between Levee Stations 5128 and 5174. Field investigations at 16 IV 131 were designed to determine the presence of buried cultural deposits, to characterize the nature, size and integrity of any such deposits, and to assess whether sufficient data exist to warrant seeking a determination of eligibility for nomination to the National Register of Historic Places. Following the Scope of Services for this project, these investigations were conducted within the context of a research design for historic archeological study of the Bayou Goula Landing site previously developed by Pearson and Guevin (1984) for the New Orleans District. This research design is discussed in Chapter VI of this report. The 1983 research effort (Pearson and Guevin 1984) included primary archival and historic map research that established a chronological history of the project area. That study also documented the relocation of the town of Bayou Goula three times over the past 120 years. As a result of this antecedent documentary history (Pearson and Guevin 1984), the New Orleans District elected not to contract additional primary source archival research as part of the current effort. Therefore, the synopsis of the historic culture history of Bayou Goula, presented below in Chapter V, is drawn primarily from the Pearson and Guevin (1984) study.

The U.S. Army Corps of Engineers plans to construct a revetment in the White Castle Gap project area that includes the Bayou Goula Landing site. A continuous, articulated concrete mattress will be laid mechanically from the low water line to a point several hundred feet into the river channel. In addition, a three hundred foot wide project corridor will be cleared of all vegetation; an area of 150 to 200 feet immediately adjacent to the bankline will be graded to a standard slope. The bank grading corridor extends from the low water reference plane to the post-construction top-of-bank. Because of logistical problems encountered during the 1983 testing program, definition of the full areal extent, character, and data producing potential of deposits eroding from the bankline was prohibited. As a result, the problem of the significance of the Bayou Goula Landing site was not resolved, and revetment construction was postponed pending

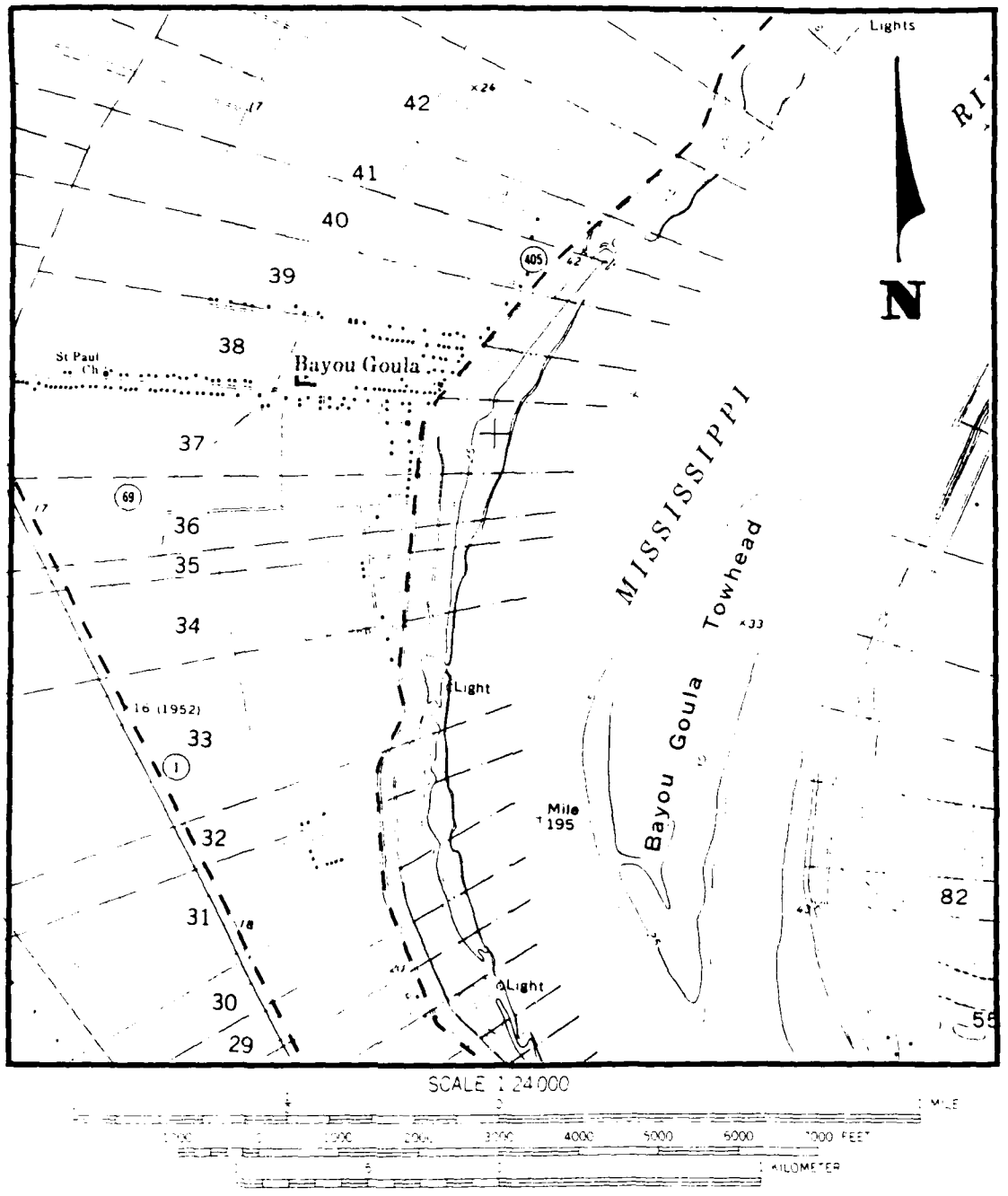


Figure 1. Excerpt from the White Castle, LA 7.5' Quadrangle Showing the Location of the Project Area.

conclusive evaluation of the significance of the Bayou Goula Landing site.

The investigations described in this report, which were conducted in Fall, 1985, focused on the identification and evaluation of cultural resources located along the present bankline of the Mississippi River. The survey area corresponds to the bank grading corridor, which extends from the low water reference plane of the Mississippi River to the post-construction top-of-bank (Figure 2). Cultural resources identified during previous studies (Bryant et al. 1982; Pearson and Guevin 1984) and still extant within the project area were tested to establish extent and integrity. Field investigations at 16 IV 131 included pedestrian survey and an intensive subsurface testing program along the batture; where appropriate, bankline stratigraphic profiles were cleaned and mapped. Previous collection localities along the bankline were relocated; all new features or other cultural deposits were identified and recorded. In addition, testing was undertaken at a previously identified feature (Feature 1, Collection Locality 3, viz Pearson and Guevin 1984:96). The locations of all auger tests, stratigraphic profiles, and test units, and the locations of all newly identified or relocated cultural resources, were plotted on a site map of the project area. Geomorphic features also were recorded and mapped, in order to permit assessment of the extent of erosion that has occurred since the 1983 investigations. Unfortunately, the 1983 field work did not establish the position of the bankline at that time; rather, the 1979 bankline was used in all base maps for that project. Given the rapid rate of erosion in this area, the precise location of features and collection localities recorded during the 1983 investigations cannot be recovered. The field investigations undertaken during 1985 are described in Chapter VII of this report.

All artifacts recovered during the 1985 field investigations were washed and labelled. Subsequent laboratory analyses focused on the chronological and functional classification of recovered materials. As will be seen, both ceramic and glass subassemblages dated from the last quarter of the nineteenth century and from the early twentieth century. Functional classes identified during this research effort also were shown to differ substantially from those described by Pearson and Guevin (1984). Chapter VIII presents the results of these analyses.

These results then were evaluated in light of the research design and of previous investigations at the site. The final sections of this report discuss the research potential of the Bayou Goula Landing site, within the context of an assessment of its significance applying the National Register criteria (36 CFR 60.4).

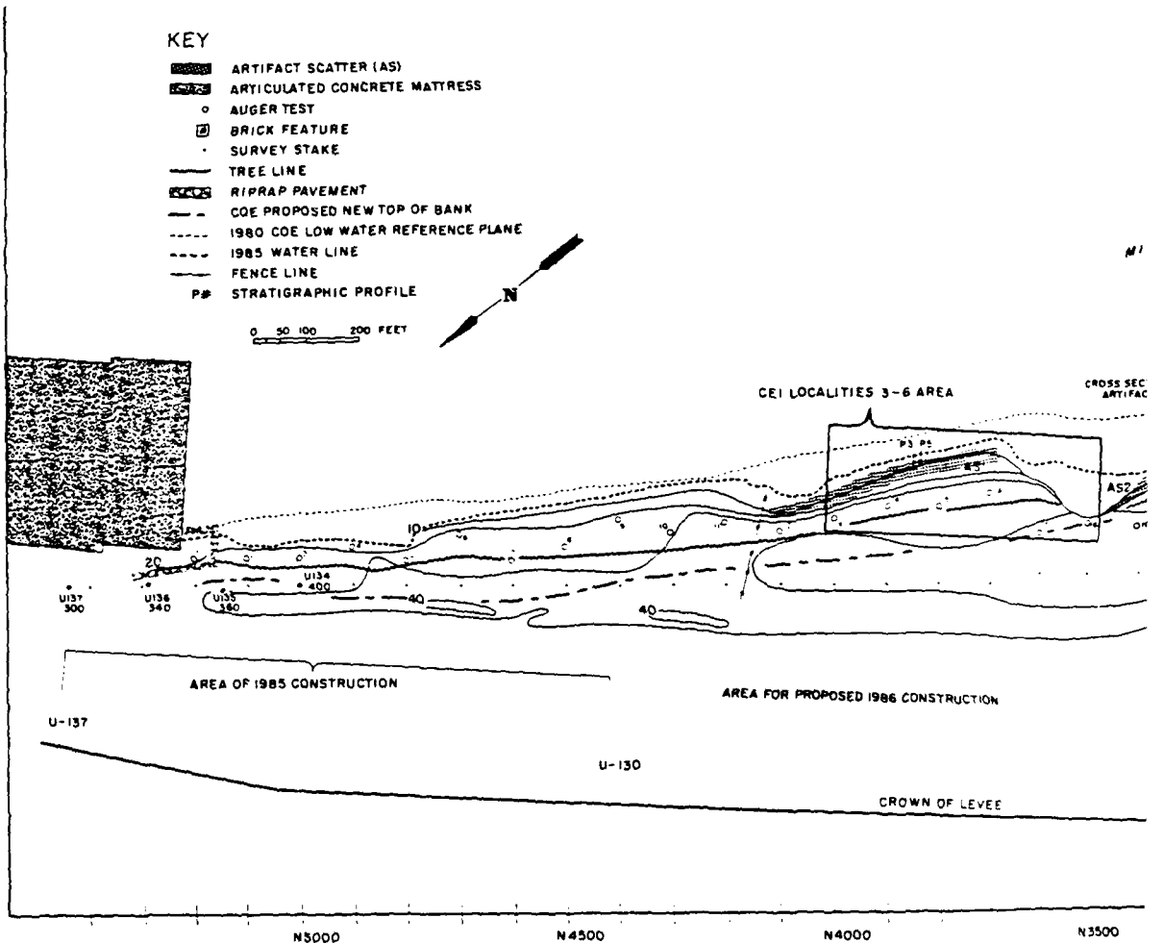
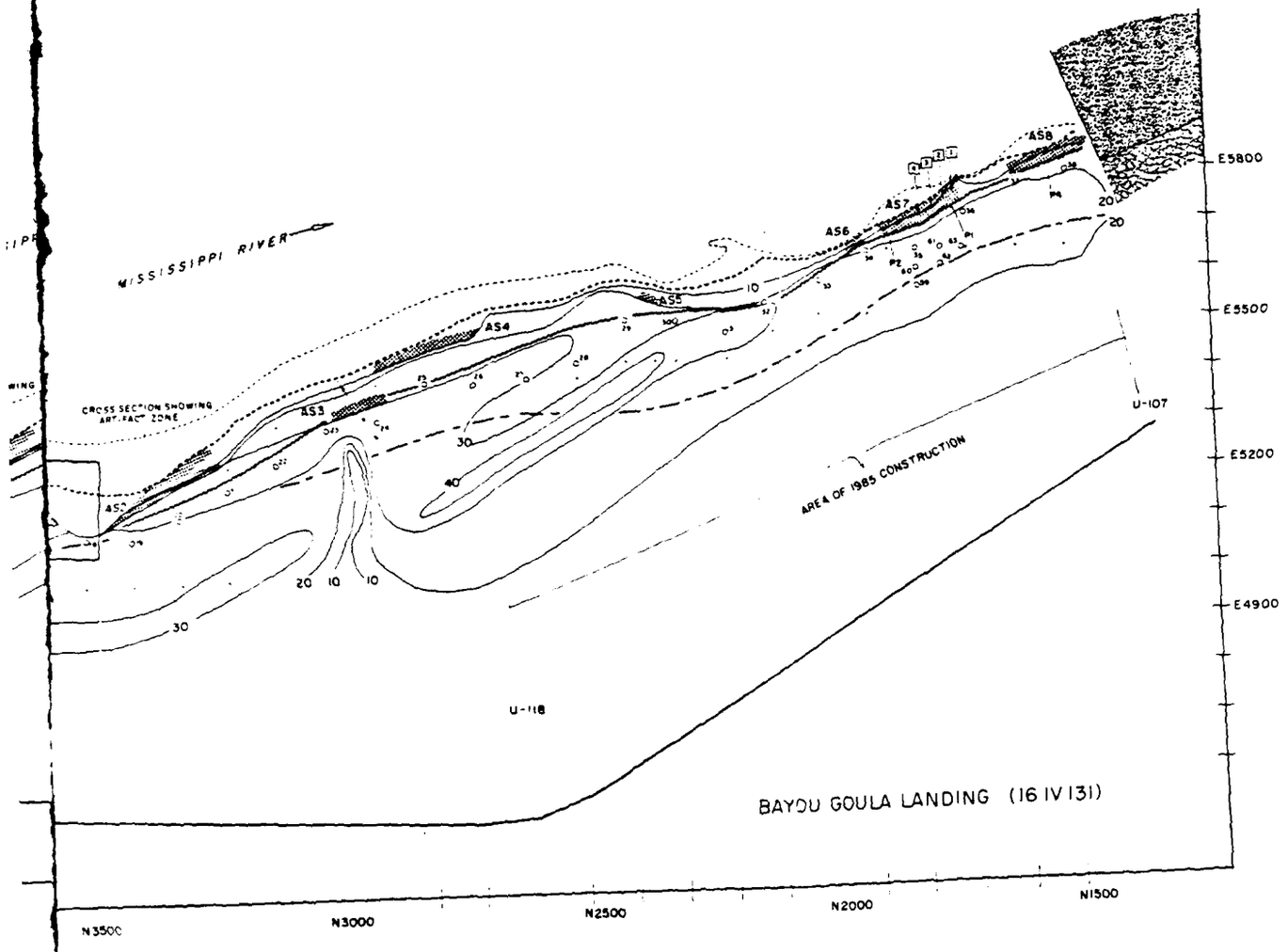


Figure 2. Plan of the Bayou Goula Landing Site.


MISSISSIPPI RIVER
AS8
AS7
AS6
AS5
AS4
AS3
AS2
CROSS SECTION SHOWING ARTIFACT ZONE
AREA OF 1985 CONSTRUCTION
U-107
U-118
BAYOU GOULA LANDING (16 IV 131)
E5800
E5500
E5200
E4900
N3500
N3000
N2500
N2000
N1500

CHAPTER II

PROJECT AREA DESCRIPTION

The Natural Setting

The Bayou Goula, or White Castle Gap, project area is located in the Upper Deltaic Plain of the Mississippi River within the modern meander belt, which the river has occupied for approximately the past 4800 years (Saucier 1974:22). Fluvial activity, including lateral migration and overbank deposition during flood stages, is the dominant geologic process in this region. The formation of natural levees, point bar deposits, and other geomorphic features such as crevasse channels and abandoned river courses, are well-documented (e.g., Smith et al. 1985). Prior to the construction of artificial protection levees, overbank deposition during flood stages created massive wedges of sediment, or natural levees, along corridors parallel to the river channel. In the broader region containing the project area, natural levees attain widths of up to 5 km. Natural levee deposits are highest near the river channel; they gradually diminish between the channel and the backswamps. Artificial levee construction has altered dramatically patterns of deposition and accretion along the river, so that recent fluvial activity has been restricted to the batture, or the land lying between the river and the modern artificial protection levees.

Natural levee deposits in the vicinity of the project area are substantially thickened as a result of a crevasse which formed at the cutbank at this locality. The alluvial ridge formed by this crevasse extends about 8 km into the backswamp (Pearson and Guevin 1984:10). The present-day Bayou Goula represents the relict channel of this crevasse; it currently flows for several kilometers into the backswamp, where it meets Choctaw Bayou. Pearson and Guevin (1984) suggest that a relict distributary channel they observed eroding from the riverbank in the northern portion of the project area represents the relict Bayou Goula channel, buried by overbank deposits near the Mississippi River. Like the higher elevations along the natural levees of the Mississippi River, crevasse channels were preferred areas for human habitation. Several prehistoric and early historic Amerindian sites are located in the vicinity of the Bayou Goula crevasse (see Chapter III).

Loamy and clayey soils characterize the batture and adjacent natural levee deposits. Convent soils and silty alluvial land are characteristic of the batture. These soils frequently are flooded; in times of flood, they are subject to scouring and deposition. They support a vegetation typical of initial stages

of ecological succession. Initial willow forest is dominated by black willow (Salix nigra), with cottonwood (Popular deltoides), sycamore (Platonus occidentalis), and hackberry (Celtis laevigata) comprising the major overstory vegetation. Sweetgum (Liquidambar styraciflua), green ash (Fraxinus pennsylvania), nuttall oak (Quercus nutalli), water oak (Quercus arkansana), elm (Ulmus spp.), and pecan (Carya illinoensis) may occur at higher elevations. Predominant understory vegetation includes poison ivy, grape, and trumpet creeper; groundnut, buckwheat vine, and sandvine also may be common locally.

During the early historic period, important faunal species included the black bear (Euarctos americanus), mountain lion (Felis concolor), deer (Odocoileus virginianus), cottontail rabbit (Sylvilagus floridanus), swamp rabbit (Sylvilagus aquaticus), raccoon (Procyon lotor), gray fox (Urocyon cinereoargenteus), opossum (Didelphis marsupialis), gray squirrel (Sciurus carolinensis), and fox squirrel (Sciurus niger). In addition, several species of birds, reptiles, and fish were common in habitats both within and near the present project area (Shelford 1963; Lowery 1974).

Bankline Changes

Changes in the landscape during the historic period have been created through both natural and artificial agencies, including lateral migration of the Mississippi River, overbank deposition, serial construction of protection levees, excavation of borrow pits, and serial removal and setback of the village of Bayou Goula since the mid-1800s. The Bayou Goula project area is situated along an eroding cutbank of the Mississippi River, opposite Toehead Island and Point Clair. Both lateral erosion and overbank deposition have been extensive in this region. The nature and rate of bankline erosion within the project area have been discussed previously by Pearson and Guevin (1984). Based on examination of the Board of State Engineers continuous bankline survey map of 1933, the Board of State Engineers, Atchafalaya Levee District, Mississippi River Survey map of 1936, and of 1979 aerial photographs, these authors concluded that approximately 950 ft (290 m) of bankline erosion has occurred in the past 100 years, a rate of bankline loss of about three meters per year. Based on these figures, Pearson and Guevin (1984:16) estimated that approximately 2618 ft (798 m) of bankline has been lost to the river since 1718, the date of the first important French settlement at Bayou Goula. Thus, the remains of prehistoric or early historic settlements near the river were destroyed by lateral migration of the river.

Severe bankline erosion in the Bayou Goula area is reflected in the history and placement of artificial levees. Pearson and

Guevin (1984:18) note that levees have been built in the Bayou Goula area since the mid-eighteenth century. Historic bankline data compiled by Pearson and Guevin (1984) indicate that the 1880 levee at Bayou Goula has been lost entirely to bankline erosion. However, the relict 1904 levee is present along portions of the modern batture, and it is visible along about two-thirds of the length of the project area under consideration here (Figure 2). The construction of artificial levees and the concomitant excavation of borrow pits have had a negative impact on cultural resources within the project area. Map data provided by Pearson and Guevin (1984) show extant borrow pits in the location of former structures from the town of Bayou Goula. Cultural resources are unlikely to survive extensive borrowing intact, and artificial levees have buried other resources to inaccessible depths. Although lateral river migration has destroyed earlier levees, cultural deposits deeply buried beneath these levees or natural overbank deposits have been observed eroding from the modern bankline. Indeed, as a result of artificial levee construction, overbank deposition during the last 100 years appears to be greatly accelerated. Observations during the 1985 field investigations indicate that local overbank deposits of over 10 feet may overlie cultural remains associated with the late nineteenth/early twentieth century occupation of Bayou Goula. However, patterns of overbank deposition are variable, in part because local erosion also has accelerated due to levee construction and wave-action from river traffic.

The settlement chronology for the town of Bayou Goula was discussed by Pearson and Guevin (1984). The continual impact of bankline erosion is an essential aspect in understanding the building sequence; the town has been relocated three times during the last 120 years. Based on map data compiled by Pearson and Guevin (1984), structural remains older than about 1880 have been lost to the Mississippi River. The town witnessed considerable expansion in the late nineteenth and early twentieth centuries; however, the 1927 flood prompted the construction of the modern levee and the 1904-1929 town was set back to accomodate this construction. Structures were transported on large logs pulled by mules; nearly two years were required to move the town to its present location. Pearson and Guevin (1984:76) note that "much of the pre-1929 town has been disturbed or destroyed by levee construction and borrowing activity."

Erosion of the present bankline is continuing at an alarming rate. Indeed, recent caving has affected levee stability along the downstream third (ranges U-108 to U-118) and the upper fourth (ranges U-130 to U-137) of the project area. These areas have been designated priority zones for the planned revetment construction. Since 1979, as much as sixty-one meters of bankline has been lost to the Mississippi River (see Chapter V). No bankline data were

collected during the 1983 investigations to compare to the 1979 base map, and specific changes between the years 1983 and 1985 cannot be determined. Because project area maps given in Pearson and Guevin (1984) utilize the 1979 bankline, the location of the features and collection localities recorded in 1983 may not be accurate.

Erosion since 1979 has affected virtually the entire bankline within the project area. Bankline erosion, including a major slump in the central portion of the project area during 1985, has modified substantially both the configuration of 1983 collection areas and the nature of surface and subsurface deposits. Judging from the location of artifact scatters recorded during the 1985 field investigations (see Chapter VII), slump deposits with artifacts initially accumulate near the water line. Where the bankline is steep, few surface concentrations of cultural material are evident. Where the bankline consists of broad terraces, artifacts may accumulate on deflated surfaces. No evidence was present to suggest that slump deposits or artifacts become compacted to form a permanent part of the lower bank profile.

CHAPTER III

PREVIOUS INVESTIGATIONS

The Bayou Goula area has been the subject of a number of archeological investigations. The presence of large aboriginal earthworks in the vicinity, the ethnographic record of contact period Amerindian occupation and interaction with French colonials, and the early presence of European settlements all have drawn scholarly interest to the area. More recently, the loss of later historic cultural resources to the river and the need to create barriers to further lateral migration of the river have prompted study of ante and post bellum nineteenth century remains. This chapter briefly reviews key archeological studies in the vicinity of the project area, with emphasis on the 1983 survey that preceded the research effort described herein.

Bayou Goula Landing (16 IV 131)

The Bayou Goula area was one of the earliest places of European settlement in Louisiana (see Chapter V). However, due to lateral migration of the Mississippi River and to human activities, much of the area of early historic occupation, including the former locations of the settlement of Bayou Goula, has been lost to bankline erosion and to borrow excavation. Portions of the 1904 protection levee and extensive borrow areas currently are present within the project area.

The Bayou Goula Landing site (16 IV 131) is described in the state files as a scatter of nineteenth century refuse and debris that extends approximately one mile along the right descending bank of the Mississippi River, near the present settlement of Bayou Goula. These remains occur both at the surface and below recent overbank deposits along the bankline. The densest concentrations of historic remains occur at the northern end of the site. Marksville period ceramics and contact period remains were recovered from the site during the 1983 investigations. Remains associated with Tally Ho Plantation (16 IV 135) occur at the downriver end of the project area (Bryant et al. 1982). The Bayou Goula site (16 IV 11) is located immediately northwest of 16 IV 131.

Archeological testing at 16 IV 131 was conducted in 1983 (Pearson and Guevin 1984), in advance of planned revetment construction at this locality. This research was conducted "to assess the nature, character and significance of cultural resources within the proposed revetment area" (Pearson and Guevin 1984:viii). In addition, this work was designed to "collect data sufficient to establish National Register eligibility and, as necessary, to develop mitigation plans for cultural resources

which may exist within the boundaries of the project area" (Pearson and Guevin 1984:1).

The 1983 investigations were conducted in several stages. Initially, archival and historical data were collected and synthesized. Particular attention was devoted to the recent geomorphic history of the locality and its relationship to settlement history. Fieldwork was designed to provide information pertinent to several research issues of a local and regional nature, as well as to provide data sufficient to enable assessment of the significance of cultural resources within the project area using National Register criteria. These issues, and the methodologies developed towards their resolution, constitute the 1983 research design (Pearson and Guevin 1984). That research design is reviewed in Chapter VI.

The 1983 fieldwork included pedestrian survey, controlled surface collection, backhoe excavation, and hand excavation. The project area was subdivided into nine segments or "Survey Collection Areas," each 137 m in length and extending from the water line to the riverside toe of the modern levee. Pedestrian survey revealed that the majority of artifactual remains occurred along the bankline of the Mississippi River. While most of these remains appeared to have been redeposited, partially intact features were observed within the cutbank. Subsequently, a total of 22 "collection localities" were established along the bankline in areas where artifactual remains were exposed (Pearson and Guevin 1984:89). One profile was cleaned and mapped along the cutbank; this profile exposed a cultural deposit 22 m in length at Locality 3, Collection Area 3. A brick feature (Feature 1) in association with a cypress post was observed near the center of the cutbank profile (Pearson and Guevin 1984:96-101). Hand excavations exposed portions of this brick feature, which was interpreted as the base of a chimney.

A total of twenty-two backhoe trenches were excavated during the 1983 investigations. Backhoe trenches were designed to recover remains associated with the Bayou Goula site (16 IV 11), and nineteenth and twentieth century structural remains from the town of Bayou Goula. Field conditions precluded backhoe trenching along the bankline; as a result, all trenches were placed between the toe of the modern levee and the landside edge of the borrow pit, outside the project construction corridor. No remains that could be associated positively with the site 16 IV 11 were recovered during the 1983 backhoe trenching program. Although late nineteenth and early twentieth century remains associated with the town of Bayou Goula were recovered from several trenches, no intact features were discovered and artifact densities were relatively low.

Subsequent artifact analyses were designed to aid in the interpretation and assessment of significance of cultural remains within the project area, and to address previously defined research issues. In particular, analysis focused on obtaining data for functional comparisons at the intra- and intersite level (Pearson and Guevin 1984:110-113). However, the artifact samples were derived from mixed proveniences that lacked contextual integrity. As a result, functional analysis was unsuccessful. A number of aboriginal sherds also were recovered at 16 IV 131, primarily from Collection Areas 4-6. These artifacts apparently derive from a now destroyed Coles Creek period occupation of the locality (Pearson and Guevin 1984:123).

While the majority of archeological remains recovered during the 1983 testing program lacked contextual integrity, it was recommended that limited data recovery be conducted in the vicinity of Collection Area 3, Locality 3, Feature 1, where in situ deposits were recorded. These remains were interpreted as residential debris from the late nineteenth and early twentieth century town of Bayou Goula. In addition, surface collections from Collection Areas 5 and 6 were interpreted as evidence for a late nineteenth century commercial district (Pearson and Guevin 1984:94). It was suspected that in situ deposits might remain in this area, though none were encountered during the 1983 study. The use of heavy equipment was recommended to expose these deposits, as well as additional features associated with the residential area in the vicinity of Feature 1.

Aside from the remains described above, no additional archeological data were recovered from the construction corridor. To the extent that these remains were older than 50 years and that at least a small portion thereof were determined to derive from primary context, the site was thought to meet the criteria for integrity as defined by the National Register. Finally, it was believed that additional buried, in situ features were present at the Bayou Goula Landing site; such data, if discovered, would enable the site to "yield information important in prehistory or history..." (Pearson and Guevin 1984:127). Thus, 16 IV 131 was felt to be significant in terms of the National Register criteria (Pearson and Guevin 1984:128).

Bayou Goula (16 IV 11)

In 1957, George Quimby reported on extensive archeological excavations at the Bayou Goula site (16 IV 11) located just north of the town of Bayou Goula. Excavations focused on the mounds and on several structures at the site. Two components were identified from the mound excavations: a prehistoric Coles Creek-Plaquemine component (A.D. 900 - 1699) and a contact period component. A number of refuse pits, and eleven burials were excavated at the

site; most appear to have derived from the later, historic component. Research at 16 IV 11 also yielded a large assemblage of aboriginal ceramics, faunal remains, and European trade materials. Recently, Brown (1976) has argued that the house structures, originally thought to be aboriginal, conform more closely to those of the early colonial French concession.

Bayou Goula II (16 IV 134)

Fredlund (1982) examined two eighteenth century archeological sites at Bayou Goula. One previously unrecorded site, 16 IV 134, yielded an impressive assemblage of aboriginal ceramic and chipped stone artifacts in association with eighteenth century European artifacts. Fredlund (1982) argues that 16 IV 134 may have been the site of the Bayougoula-Mugulasha village visited by d'Iberville in 1699. The site 16 IV 11, which traditionally was thought to have been the village, apparently conforms better to historical descriptions of the du Buisson - du Vernax Concession of 1718.

Clara Murry (16 IV 12)

McIntire (1958) reported on work conducted at the Clara Murray site (16 IV 12), which also was located just north of the town of Bayou Goula. Two pyramidal mounds, which have been plowed extensively, were present at the site. At least part of the ceramic subassemblage was identified as deriving from the late Tchula period (200 B.C. - 1 B.C.). Marksville and Plaquemine materials also were recovered.

Tally Ho Plantation (16 IV 135)

Bryant et al. (1982) reported on a bankline survey near the town of Bayou Goula, at the Tally Ho Plantation site (16 IV 135), a large nineteenth century sugar plantation. Bankline erosion and levee construction appear to have disturbed and destroyed most of the site; the majority of archeological remains were recovered from the surface. Remains associated with Tally Ho Plantation are present along the downriver margin of the Bayou Goula Landing project area under consideration here; bankline survey and limited testing were conducted in that area during 1985. The findings of that research are reported below.

New River Bend and White Castle Areas

Goodwin, Yakubik, Stayner, and Jones (1984) reported on a cultural resources survey of the New River Bend Revetment Item located on the east (left descending) bank of the Mississippi River in Iberville Parish. Three sites were recorded during that survey: the Hard Times Plantation Batture Surface Scatter (16 IV

143), the Carville Dump site (16 IV 144), and the New River Bend site 1 (16 IV 145). None of these disturbed sites were considered eligible for the National Register of Historic Places.

In 1985, Goodwin, Gendel, Yakubik, and Franks (1985) reported the results of a cultural resources survey of the White Castle Revetment Item, located immediately downriver from the town of White Castle, Louisiana. During that survey, six sites were recorded on the right descending bank of the Mississippi River; state survey numbers were assigned to five of these sites. Historic period remains dominated these assemblages, although scattered Coles Creek period ceramic sherds were present on the eroded beach surfaces at several sites. Archeological remains at the sites 16 IV 147, 148, 150, and 151 were present only on the surface; the sites yielded very few artifacts, reflecting the destruction of the sites by lateral migration of the river. Limited archeological testing revealed in situ cultural deposits dating from the late eighteenth and early nineteenth centuries at 16 IV 147 and 16 IV 149; further research at these sites was recommended (Goodwin, Gendel, Yakubik, and Franks 1985).

CHAPTER IV

PREHISTORIC SETTING

This section provides a summary of the prehistoric cultural development in the larger region that includes the Bayou Goula Landing site. Attention here is focused on prehistoric cultural components identified from 16 IV 131.

The Marksville period (100 B.C. - 300 A.D.) to a large degree is a localized hybrid manifestation of the Hopewellian culture climax that preceded it in the Midwest. The type site is located at Marksville, 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. The economic base of the Marksville culture seems to be a further modification of the Poverty Point - Tchefuncte continuum, albeit prior emphasis on the importance of hunting, fishing, and gathering aspects of subsistence in relation to agriculture may have been overstated. 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, particularly 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. 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.

Aboriginal remains possibly dating from the Marksville period were recovered at 16 IV 131. Of the 41 sherds recovered from the site, all but one specimen was found washing out of the bankline, at the interface between the natural levee and backswamp deposits (Pearson and Guevin 1984:123). Thirty sherds were identified as Baytown Plain, var. unspecified. These sherds may date from the Marksville through the Coles Creek period. The largest percentage of specimens were recovered from Area 4, Locality 11. However, Baytown Plain sherds also were found at Area 3, Locality 1; Area 5, Locality 10; Area 6, Locality 17; Area 11, Locality 4; and in Trench J (lower zone).

Evidence for the succeeding Troyville or Baytown phase (A.D. 300-700) was not found at 16 IV 131.

The 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 again suggests Mesoamerican influence. 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 some also contained burials. Rounded smaller mounds still were 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 (Phillips 1970).

Coles Creek occupation at 16 IV 131 is suggested by the sherds of Pontchartrain Check Stamped, var. Pontchartrain, and the sherd of Coles Creek Incised, var. unspecified, all of which were recovered from secondary context in Area 5, Locality 11.

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 plain wares, such as Anna Burnished Plain and Addis Plain, were well made. Diagnostic Plaquemine projectile points are small and stemmed with incurved sides.

Archeological remains associated with the Plaquemine culture have been identified upriver from the White Castle project area. A plaza and two adjacent mounds were recorded at the Medora site, north of Bayou Goula (Quimby 1951). As noted previously, a Plaquemine culture component was identified by Quimby (1951) at the Bayou Goula site (16 IV 11), which contained two pyramidal mounds and a series of structures, hearths, and refuse pits.

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, called "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.

At the time of European contact, the region around White Castle was occupied by the Bayogoula Indians. In 1699, Pierre Le Moyne d'Iberville and a small expedition encountered a Bayogoula/Mugulasha settlement at the modern town of Bayou Goula. In 1700, d'Iberville returned to the Bayogoula/Mugulasha village, accompanied by Father Paul Du Ru, a Jesuit missionary. Du Ru eventually supervised the construction of a church at the Bayogoula/Mugulasha village; thus, Bayou Goula may be considered the oldest French settlement in Louisiana. However, later that same year the church was destroyed amid intertribal conflict. The Bayogoula Indians fled the area following a massacre by the Taensa Indians. By 1718, the region of Bayou Goula was settled by the Chitimacha. As noted previously, the site 16 IV 134 now is considered to be the site of the Bayogoula/Mugulasha village (Fredlund 1982).

CHAPTER V

HISTORIC OVERVIEW

Colonial Period

A concession was granted to M. Paris dit Duverney in 1718 at the "old village of the Bayougoulas" (McWilliams 1953:211). The concessionaire left management of his grant to a M. Dubuisson. Despite initial difficulties with neighboring Chitimacha Indians, the concession prospered, becoming an important producer of agricultural goods. The concession evidently survived throughout the French Colonial Period, since its existence was noted on maps and historical accounts into the 1760s (Pittman 1906:24).

France ceded Louisiana to Spain in 1762 under the secret Treaty of Fontainebleau, but Spain did not acquire formal control of the colony until 1769. Large numbers of Acadian refugees immigrated to Louisiana during the Spanish Colonial Period. Individuals with the Acadian names of LeBlanc, Landry, Hebert, and Comeau were granted lands in the vicinity of Bayou Goula during the late eighteenth century (Pearson and Guevin 1984:39). Most of these grants were less than six arpents front, and small farms continued to dominate the vicinity of the project area through the turn of the century.

The Antebellum Period

In the 1790s and early 1800s, Louisiana's economy underwent major changes. Cotton and sugar cane production replaced indigo as Louisiana's chief cash crop. Geopolitical changes in the early 1800s further influenced economic developments within the area. Spain secretly ceded Louisiana to France in 1800 under the secret Treaty of San Ildefonso. France then sold the colony to the United States in 1803. Acquisition of the Louisiana Territory stimulated American immigration into the region. Opportunities offered by the growing sugar and cotton industries attracted settlers. Because substantial outlays were required for sugar mills, cotton gins, levees, and slaves, small farmers and planters increasingly sold their holdings to large plantation owners or to wealthy speculators (White 1944:352). By the 1820s, the region surrounding Bayou Goula was becoming dominated by large and prosperous sugar plantations (Pearson and Guevin 1984:45)

The town of Bayou Goula began to develop during the early nineteenth century as a small commercial service center that served the surrounding plantations. By 1837, the town had a post office. The Iberville Parish Census of 1850 showed that by that

date Bayou Goula was a thriving community with merchants, clerks, blacksmiths, carpenters, tailors, cooks, bakers, barbers, saddlers, and common laborers. The town was an important landing for steamboats by the 1850s (Pearson and Guevin 1984:49-51).

A number of sugar plantations and farms were located adjacent to the town of Bayou Goula. Six planters in the vicinity of the town were listed in the antebellum sugar reports as the "Bayou Goula" Plantations. The large sugar plantation, Tally Ho, was located immediately downriver from Bayou Goula; it was owned by John Fleming, and later, by the Murrell family (Pearson and Guevin 1984:42, 49). On the eve of the War Between the States, a visitor described Bayou Goula as a "pleasant looking but very loosely settled place" (Prichard 1938:19). Despite this, the town boasted two hotels. In addition to "several well stocked stores," the traveler noted "some nice looking residences" (Prichard 1938:19).

The Postbellum Period

Iberville Parish was less seriously affected by the War Between the States than were other areas of Louisiana. Two military actions took place in the vicinity of Bayou Goula during the War. In the spring of 1863, three Texas cavalry regiments under the command Colonel J. P. Major destroyed the steamboats Lasykes and Anglo-American at Bayou Plaquemine. Confederate forces subsequently raided the Federal quartermaster commissary stores at Bayou Goula. The second action at Bayou Goula involved the capture of thirteen Federal couriers traveling from Plaquemine to Donaldsonville by twenty-four Confederate guerillas (Pearson and Guevin 1984:54).

Both local sugar production and the economy of Bayou Goula recovered fairly rapidly after the Civil War. Many plantations in the vicinity of Bayou Goula changed ownership during the immediate postbellum period; these included Greenwood, Augusta, Home Place, and Forest Home plantations. Tally Ho Plantation was retained by the Murrells, who established both moss and cotton gins on their plantation. They also experimented with manufacturing pressed wall boards from bagasse. By the early 1890s, the Murrells had constructed a 36 inch gauge railroad to haul cane from the sugar house to the plantation landing, and later, to the Texas and Pacific Railroad (Pearson and Guevin 1984:55-58).

By the mid 1870s, there were several dry goods stores, grocers, a saddle and harness maker, a pharmacist, and a coffee house and billiard saloon in the town of Bayou Goula. One of the most prominent denizens of post bellum Bayou Goula was Jeremiah Supple, who established a mercantile company in the town. He also purchased the nearby Teresa sugar plantation, which he renamed

Kinsale. Eventually, the J. Supple's Sons Mercantile Co., Ltd., acquired Forest Home, Lone Star, Nottaway, Cedar Grove, and Richland Plantations. The mercantile company, which was located on Front Street in Bayou Goula, became one of the leading local plantation company stores; its stock included furniture, household wares, and pharmaceuticals (Pearson and Guevin 1984:58-60).

An 1875 map of Bayou Goula shows eight large structures in the town; these probably included mercantile establishments, hotels, and large houses. In addition, two large structures, probably warehouses, were located at the steamboat landing. Numerous small structures, which probably were cabins and residences, were scattered throughout and north of the town (Figure 3). All of the 1875 town has been lost to the river (Pearson and Guevin 1984:63).

The town of Bayou Goula expanded during the 1880s and 1890s in response to the growing sugar and timber industries of Iberville Parish. The 1879-1880 Mississippi River Commission Map (Figure 4) and the 1894 Bayou Goula Bend Chart (Figure 5) show the town in ca. 1883 and 1894, respectively. Both maps show a linear arrangement of structures along the levee, with a row of structures extending landward from the levee at the southern end of town. Later maps of the area show that the former included the Supples' store, the San-tee Hotel, and the church (Figure 6). In addition, the northern end of Bayou Goula was subdivided into blocks that were structurally improved. The 1894 map shows three warehouses at the Bayou Goula Landing. Upriver from the town was St. Elizabeth Plantation, owned by A. G. Lorio; downriver was the Murrell's Tally Ho (Figures 4 and 5). Subsequent bankline erosion has destroyed the sites of nearly all of the structures that were located along the levee front during the 1880s and 1890s (Figure 6). Only a portion of the formerly developed properties located upriver from the northern half of Section 37 in T 10 S, R 13 E, have not eroded into the river.

Bayou Goula expanded rapidly between the late 1890s and the first decade of the twentieth century (Figure 7). Expansion of the town proceeded landward onto previously structurally unimproved lands. Due to bankline erosion, the impacts of this construction to structures extant prior to 1894 (Figure 6) cannot be assessed archeologically. Several stores, a bakery, and two churches were located in the town in 1904. The levee was set back that year; the new levee covered much of the commercial center of town (Figure 7). Subsequently, portions of the downriver section of Bayou Goula were lost to the river. However, the sites of structures formerly located in the northern area of town, and sections of the farmstead sites formerly located to the north of Bayou Goula presumably still are present on the modern batture (Figure 7), although disturbance by construction and borrowing

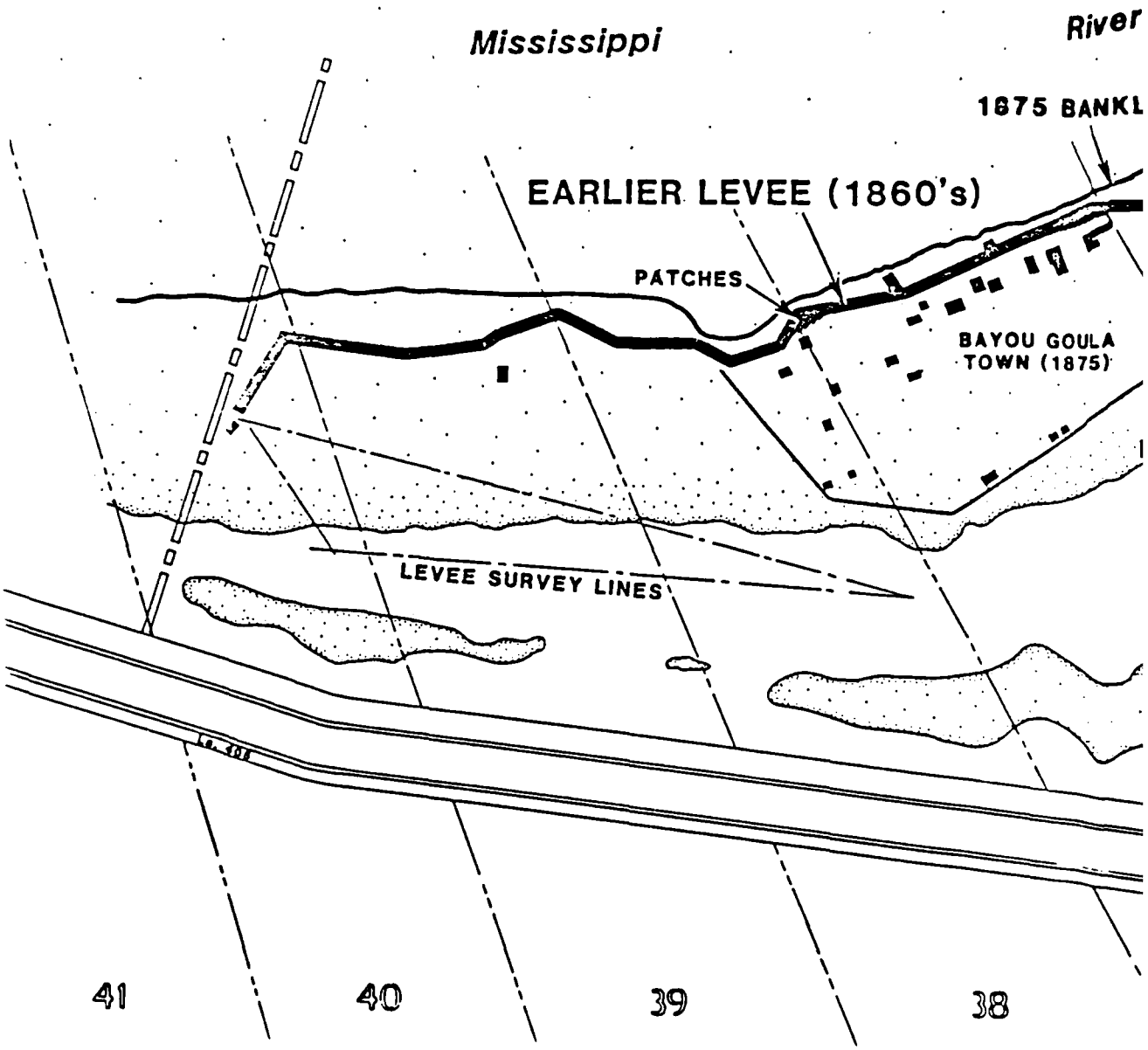
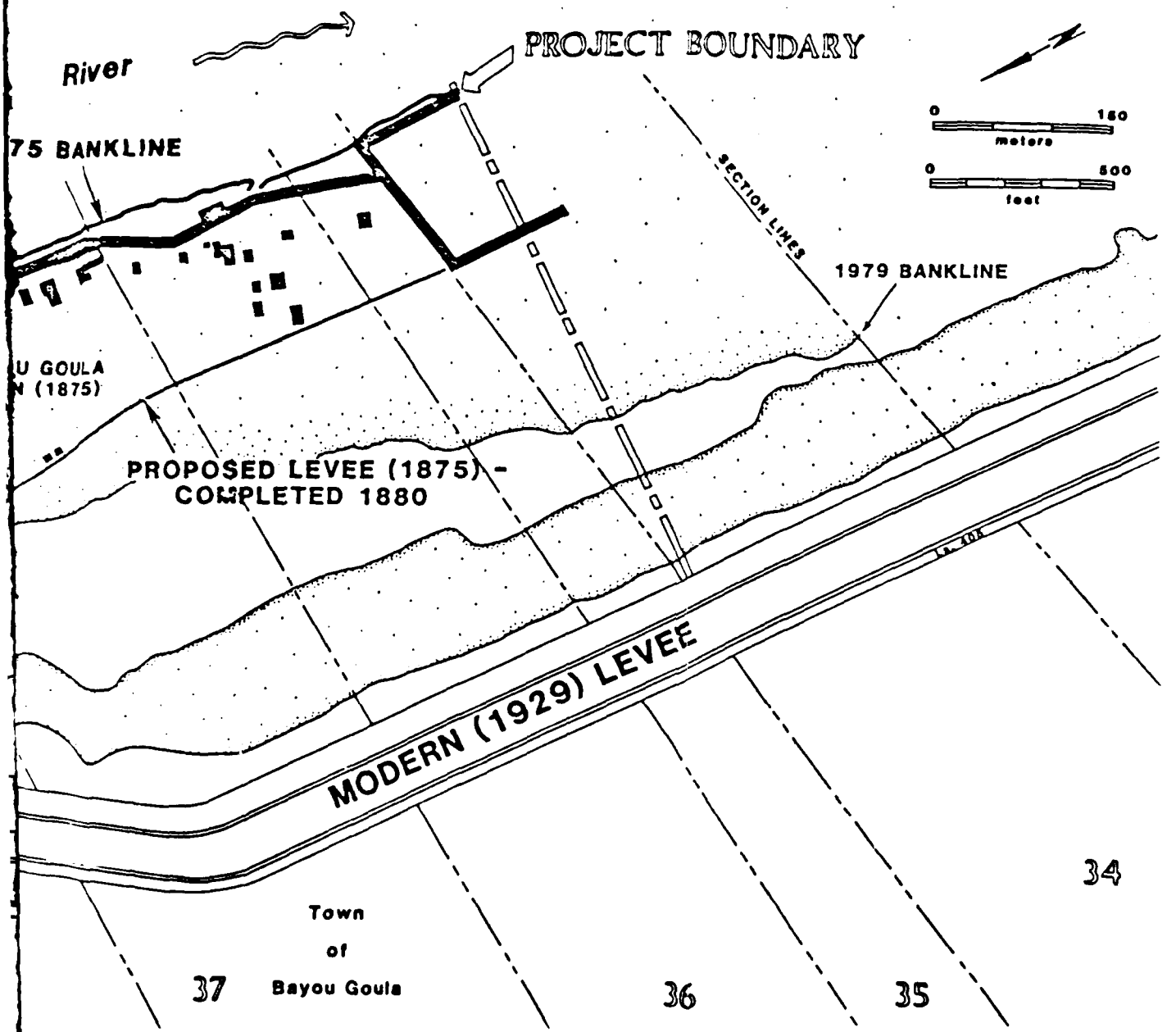


Figure 3. Excerpt from the 1875 Survey of the Bayou Goula Levees Superimposed on a Map of the 1983 Survey Area (Pearson and Guevin 1984: Figure 21).


River
PROJECT BOUNDARY
75 BANKLINE
SECTION LINES
0 150
meters
0 500
feet
1979 BANKLINE
U GOULA
N (1875)
PROPOSED LEVEE (1875) -
COMPLETED 1880
MODERN (1929) LEVEE
34
Town
of
37 Bayou Goula
36
35

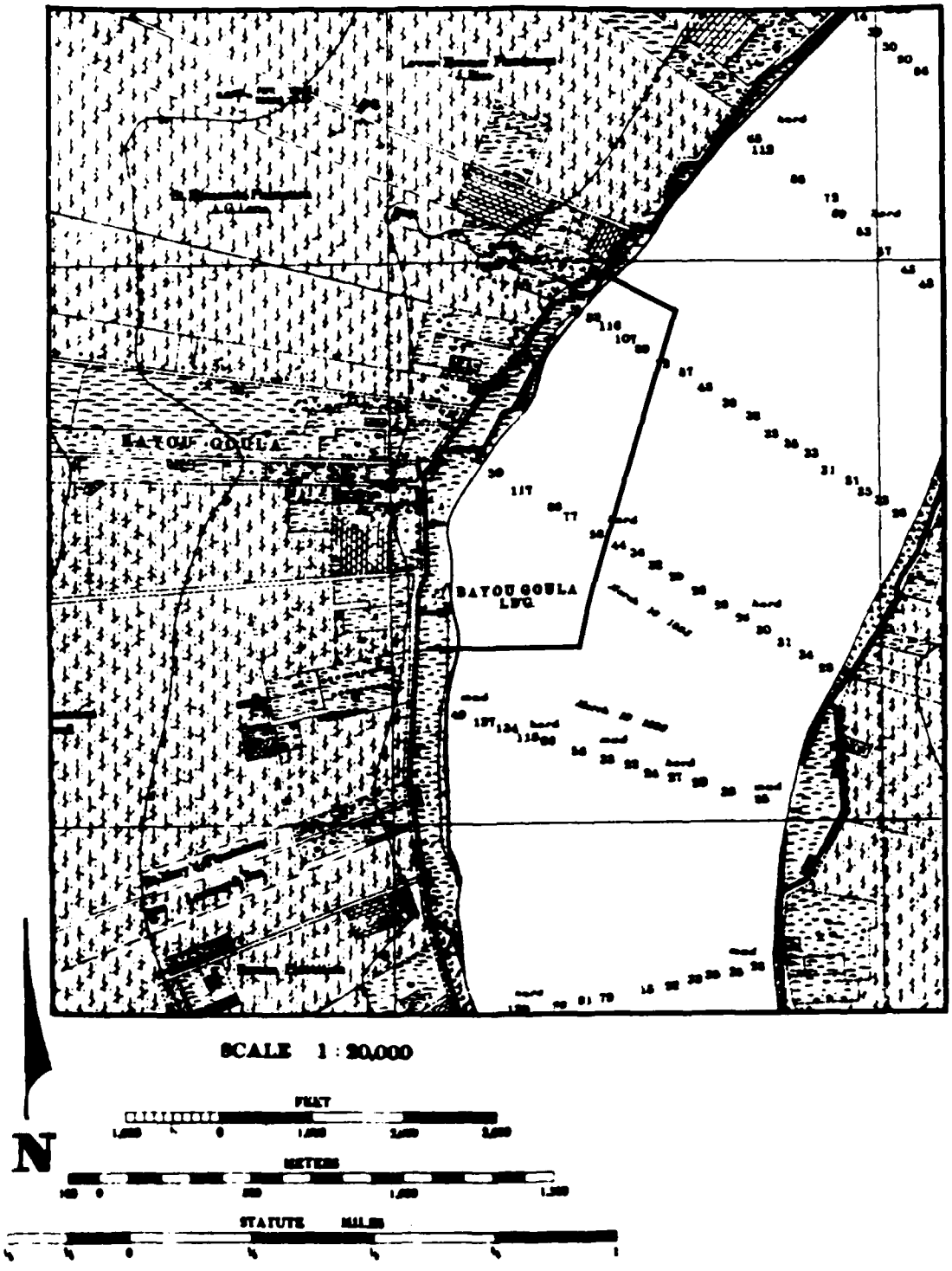


Figure 4. Excerpt from Chart 68 of the 1879-1880 Mississippi River Commission Maps (Drafted 1882-1883).

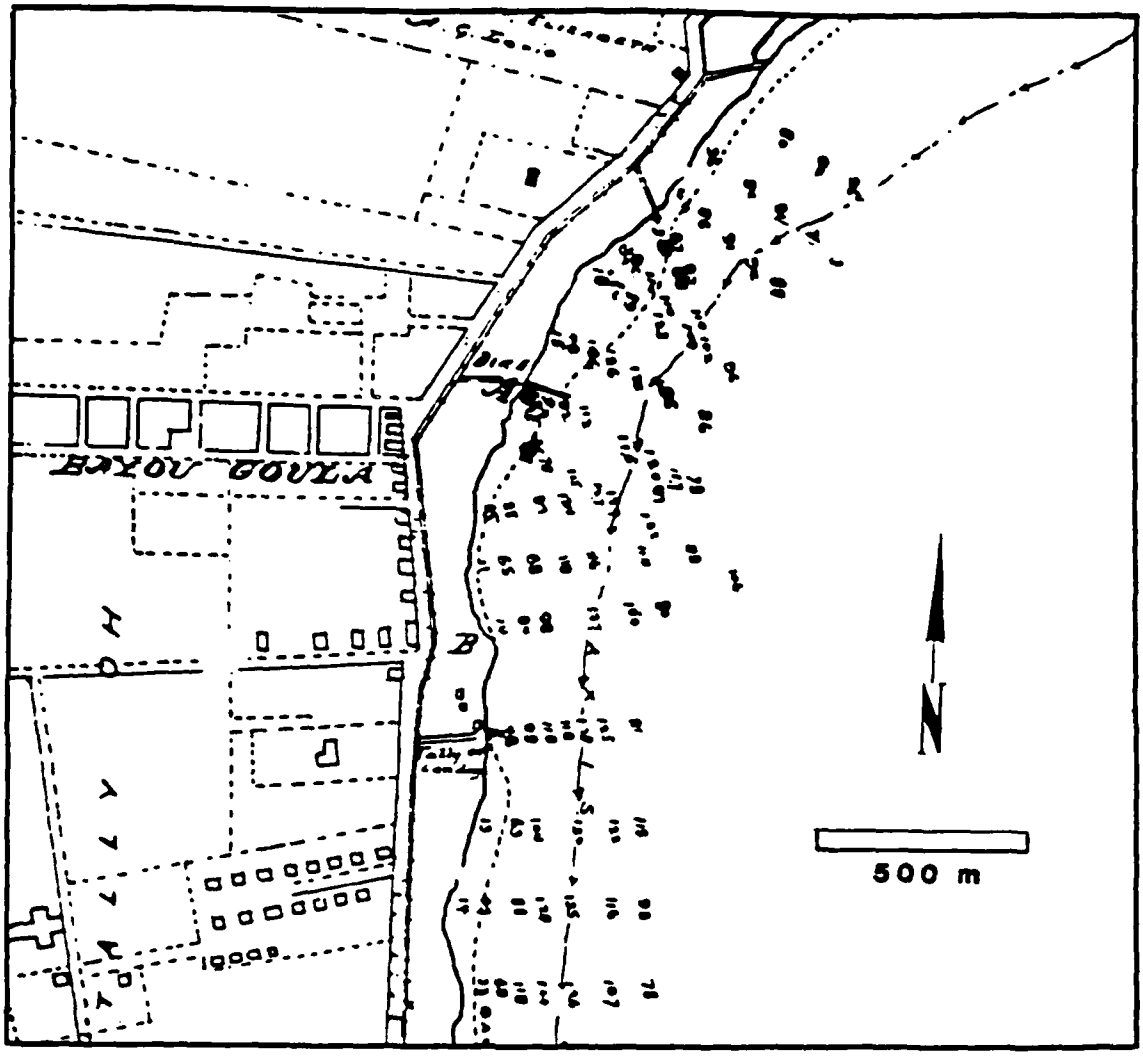


Figure 5. Excerpt from the 1894 Board of State Engineers Bayou Goula Bend Survey (Pearson and Guevin 1984: Figure 25).

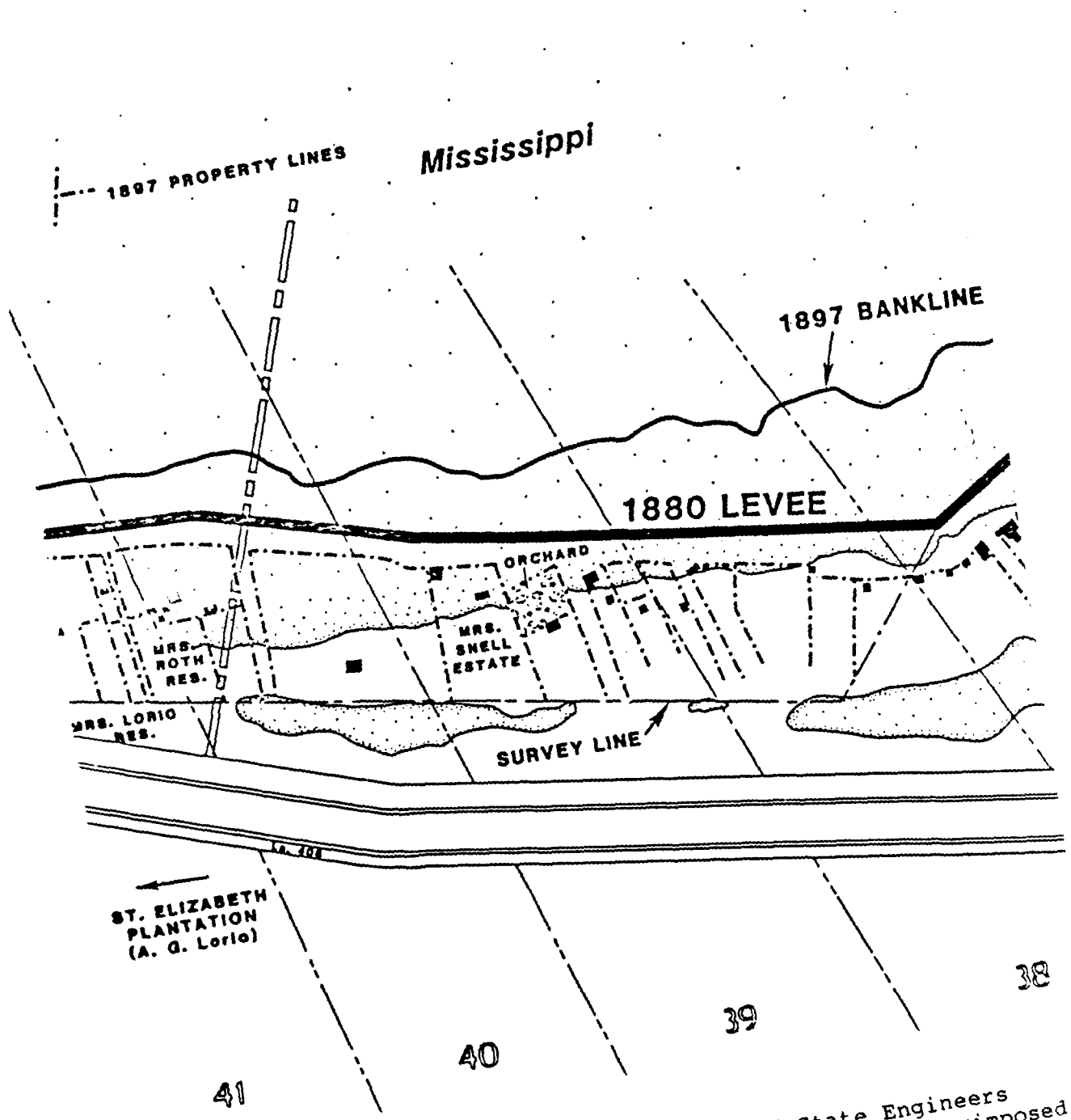
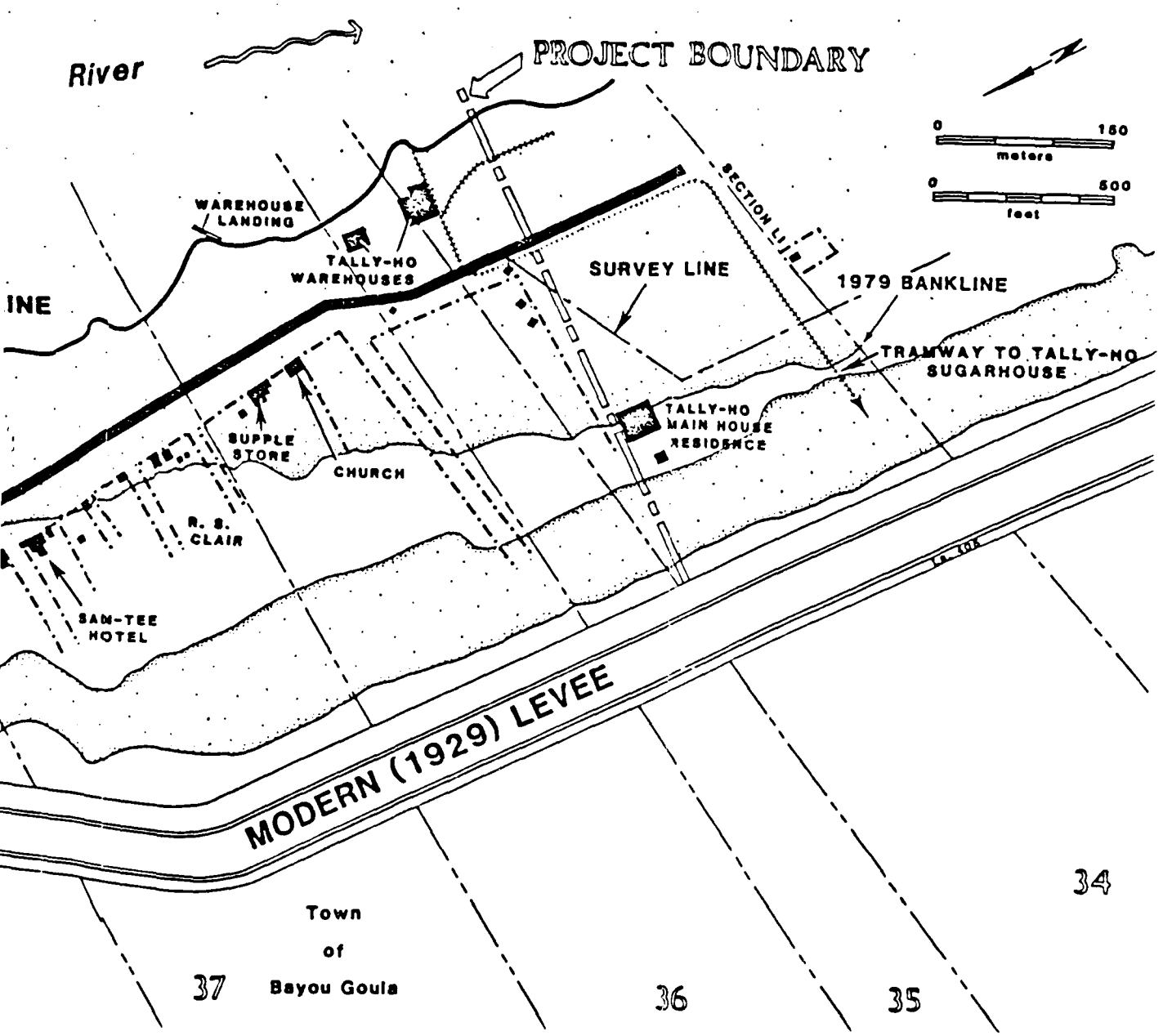


Figure 6. Excerpt from the 1894 Board of State Engineers Hanlon Levee Map of Bayou Goula Front Superimposed on a Map of the 1983 Survey Area (Pearson and Guevin 1984: Figure 26).


River
PROJECT BOUNDARY
0 150
meters
0 500
feet
WAREHOUSE LANDING
TALLY-HO WAREHOUSES
SECTION LI
SURVEY LINE
1979 BANKLINE
TRAMWAY TO TALLY-HO SUGARHOUSE
TALLY-HO MAIN HOUSE RESIDENCE
SUPPLE STORE
CHURCH
R. S. CLAIR
SAM-TEE HOTEL
MODERN (1929) LEVEE
34
Town
of
Bayou Goula
37
36
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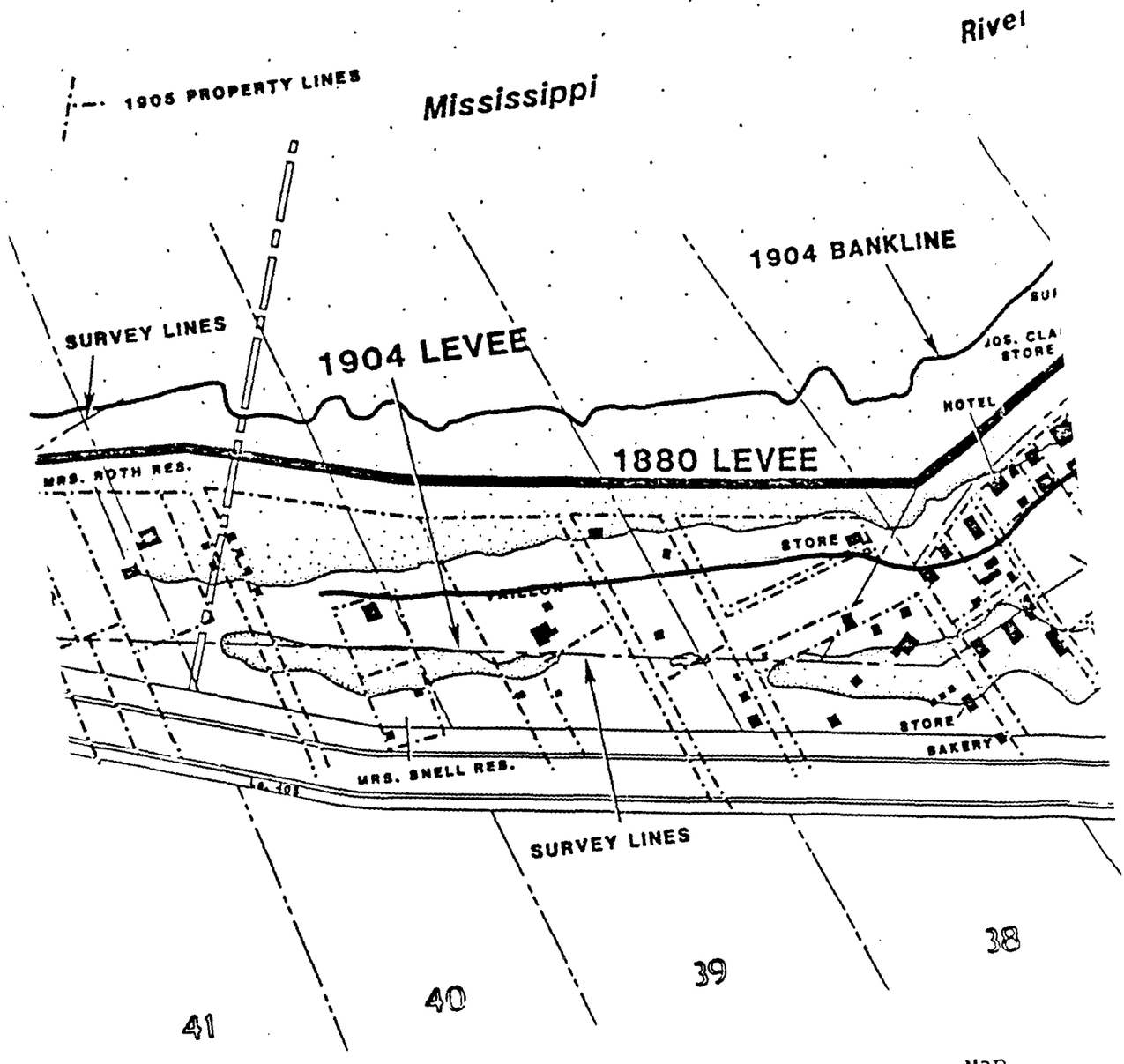
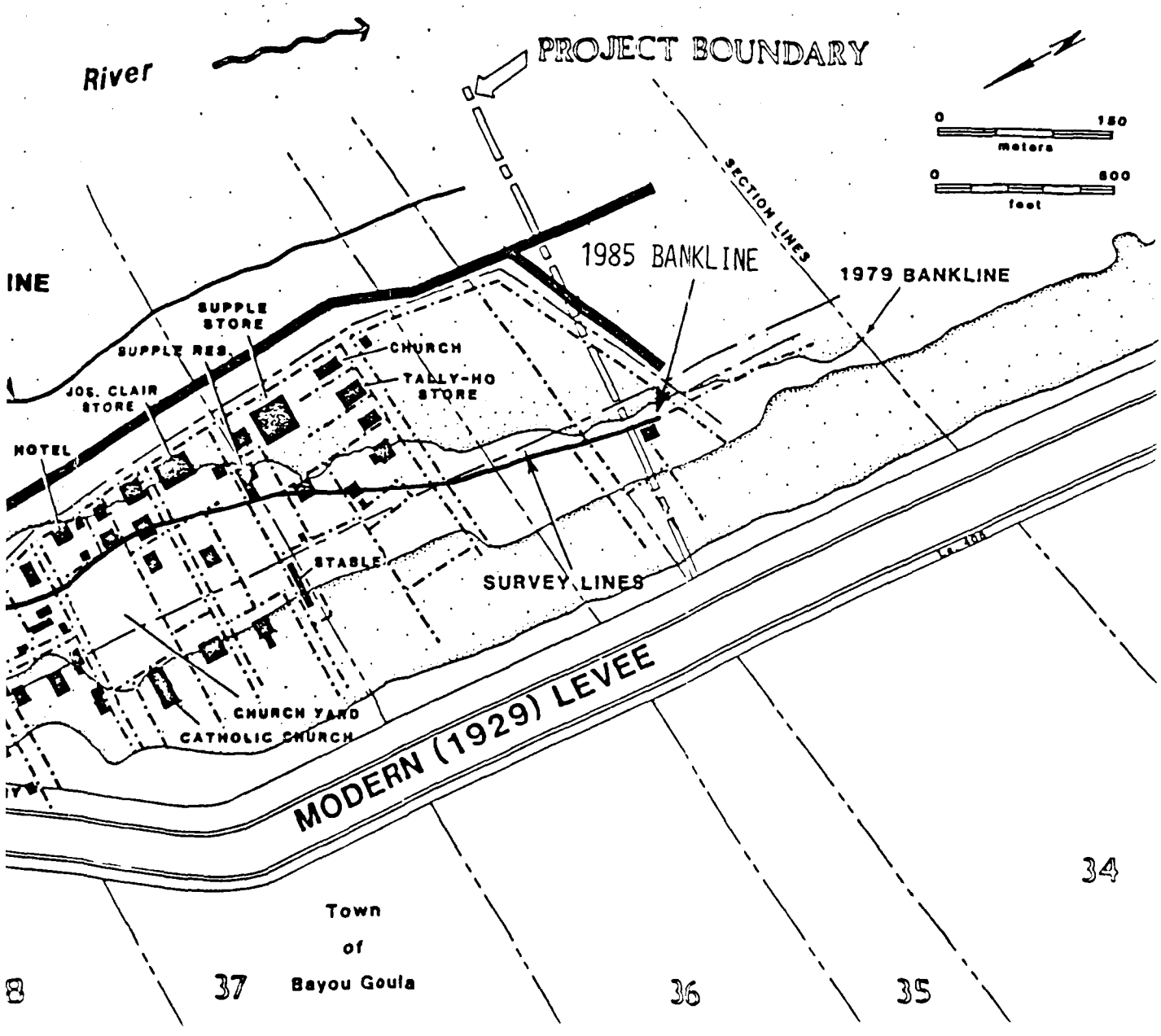


Figure 7. Excerpt from the 1904-1905 Bayou Goula Levee Map Superimposed on a Map of the 1983 Survey Area (Pearson and Guevin 1984: Figure 27).


River
PROJECT BOUNDARY
0 150
meters
0 500
feet
SECTION LINES
1985 BANKLINE
1979 BANKLINE
INE
SUPPLE STORE
SUPPLE RES.
CHURCH
TALLY-HO STORE
JOS. CLAIR STORE
MOTEL
STABLE
SURVEY LINES
CHURCH YARD
CATHOLIC CHURCH
MODERN (1929) LEVEE
34
Town
of
Bayou Goula
8
37
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activity is likely. In addition, it should be emphasized that base maps of the project area prepared during the 1983 field investigations (e.g., Figure 7 above) used a 1979 bankline base map, and do not reflect the impact of erosion between 1979 and 1983. The 1985 bankline is given in Figure 7, which indicates the total extent of erosion since 1979.

The commercial importance of Bayou Goula declined in the early twentieth century. Much of the town's population relocated to White Castle because of employment opportunities afforded by the White Castle Shingle and Lumber Company (Pearson and Guevin 1984:63). Despite this, Bayou Goula continued to develop landward of the 1904 levee (Figure 8). By the 1920s, the population of Bayou Goula was approximately 1,000. Commercial establishment included J. Supple and Sons Mercantile Co., an adjacent drugstore, a post office, The George M. Murrell Planting Co. (Tally Ho) plantation store, two confectioners, a meat market, groceries, a movie theater, a cobbler, and a barber shop for colored patrons. Two churches were St. Luke's Methodist Church and St. Paul's Roman Catholic Church. The latter included a parochial school; there was also a public school in the town. Meeting halls for social/fraternal organizations included a Knights of Pytheas Lodge and a colored Odd Fellows Lodge. Downriver, at Tally Ho Plantation, the tramway continued in operation, and warehouses still were located at the riverfront. The modern levee was constructed in 1929; structures riverward of this levee were relocated during construction (Pearson and Guevin 1984:73-76).

The present project area includes portions of the 1880-1904 town of Bayou Goula and the farmsteads to the north. Bankline erosion has removed the majority of remains of structures present prior to 1894 (Figure 6). Substantial erosion also has removed major portions of the later commercial district of the town. In addition, borrow pits have impacted a number of structures formerly associated with the 1904 town, including the Catholic church, a stable, and a store. The functions of remaining structures whose archeological remains may have survived erosion and borrowing activity are unknown (Figure 7), but may include commercial structures, residences, their associated outbuildings, and their surrounding yards.

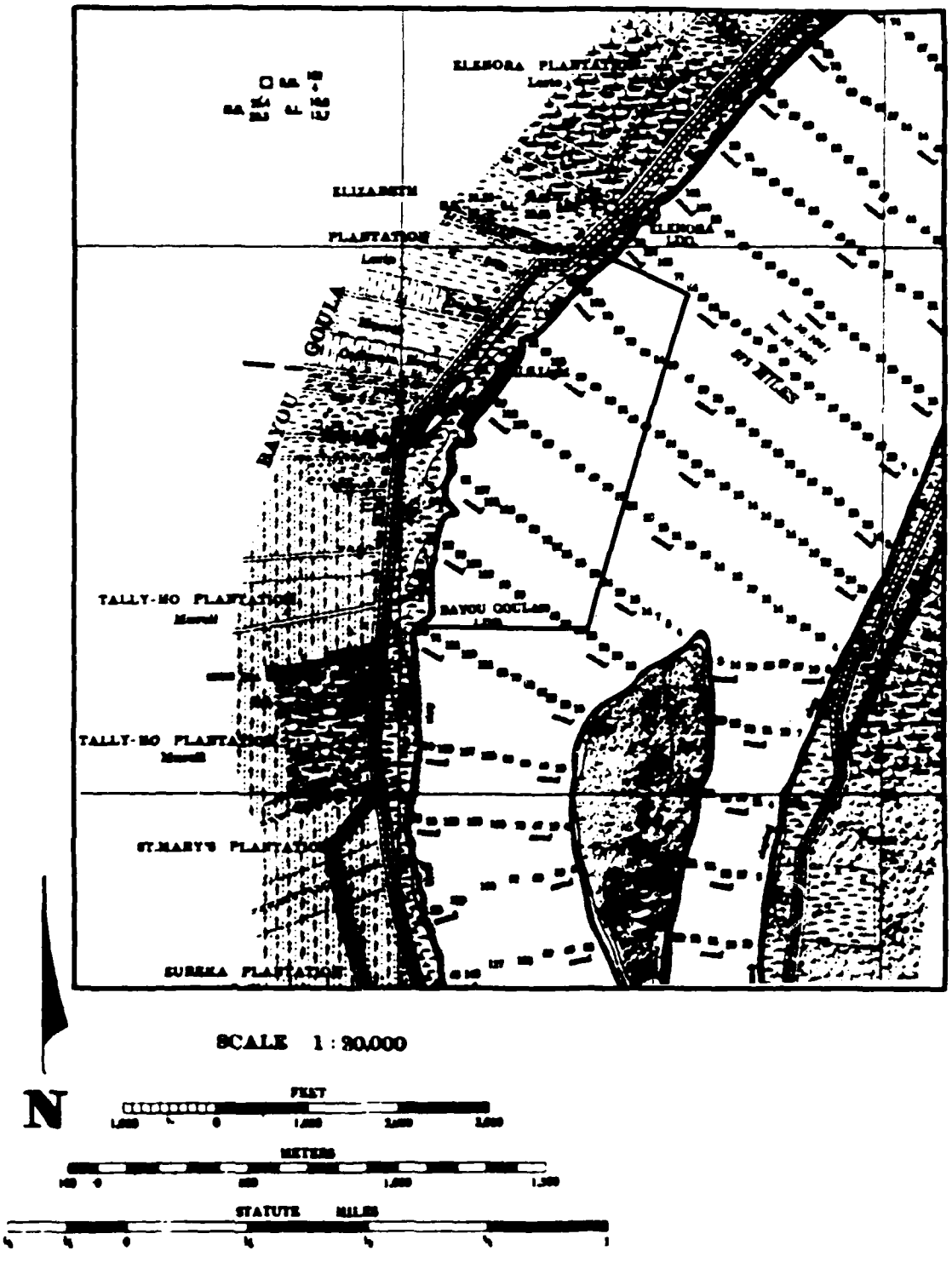


Figure 8. Excerpt from Chart 68 of the 1921 Mississippi River Commission Maps.

CHAPTER VI

RESEARCH DESIGN

As in the case of historic research, the research design applied during the 1985 study at the Bayou Goula Landing site was an outgrowth of the previously contracted effort (Pearson and Guevin 1984). Because the explicitly stated goal of the Scope of Services for the 1985 study was to carry the previous investigation to its logical conclusion at the testing level, the current effort was conducted using research questions already formulated for the project area (Pearson and Guevin 1984). In the following discussion, the 1983 research design (Pearson and Guevin 1984) is reviewed briefly, as is the conclusion of significance offered in that study. In addition, an additional research research theme pertaining to the archeology of the Bayou Goula landing site is identified and briefly discussed.

The 1983 Investigations

Previous archeological and historical investigations at the Bayou Goula Landing site (Pearson and Guevin 1984) were designed to recover data appropriate to the assessment of significance, applying the National Register criteria. In addition, Pearson and Guevin (1984:5-8) identified several research issues that might be addressed using data recovered during the testing program. These issues included a primary organizing focus and a series of expectations concerning the research potential of archeological deposits at the Bayou Goula Landing site.

The organizing focus of the research concerned the relationship between the geomorphic and settlement history of the locality. The authors argued that:

> the river is the prime factor in dictating the patterns of human settlement and use along its banks and is largely responsible for the content and condition of the resultant archeological record (Pearson and Guevin 1984:5-6).

These relationships were addressed largely through the examination of historical map data pertaining to the former locations of banklines, levees, and standing structures in the vicinity of Bayou Goula. In addition, the following research issues, or objectives, were identified:

1. The project area will provide information on the nature and content of the material culture of the prehistoric Plaquemine culture component reportedly found there.

2. The Bayou Goula locale should provide material evidence of French frontier life.

3. The project area would provide information on the material culture of nineteenth and twentieth centuries (sic) occupations of the community of Bayou Goula (Pearson and Guevin 1984:5-8).

Archeological remains recovered during the 1983 testing program pertained almost entirely to the third research objective cited above. As noted previously, these remains consisted predominately of surficial deposits. However, because some in situ finds were recorded at Area 3, Locality 3, and because of the possible existence of "undiscovered, buried, in situ features," it was felt that information pertaining to the third research objective potentially existed at the site. Therefore, the site was considered to fulfill the significance criteria promulgated by the National Register (Pearson and Guevin 1984:128). In particular, remains associated with the commercial district in the town of Bayou Goula were expected to occur in the vicinity of Collection Areas 5 and 6.

The 1983 field investigations did not include test excavations beyond the bankline of the specific impact corridor, in part due to logistical problems encountered in the field. Cultural deposits in this area were thought to occur under extensive overburden, requiring heavy machinery to expose the cultural strata. Thus, despite the implied historical significance of the Bayou Goula Landing site, archeological testing during 1983 provided information about areas adjacent to the construction corridor but did not characterize and assess cultural remains present in the impact easement. Data pertaining to recent (post 1979) changes in the bankline were not obtained. As a result, the impacts of recent erosion on potential cultural resources could not be evaluated. Because the issue of site significance rested with the archeological assessment of these uninvestigated areas, the U.S. Army Corps of Engineers, New Orleans District, contracted for additional testing of 16 IV 131.

The 1985 Investigations

Additional testing of the Bayou Goula Landing site was undertaken during October, 1985, and was designed to determine the significance of cultural deposits within the U.S. Army Corps of

Engineer's construction corridor. Specifically, it was necessary to resolve whether or not the archeology of the Bayou Goula site had the potential to yield information important in history [36 CFR 60.6(d)]. For example, while the historic or associative significance of the Bayou Goula locality is undisputed, all data accumulated concerning the landing site in 1983 indicated that any remains associated with the important colonial period occupation either were not located within the project area or were lost to lateral migration of the Mississippi River prior to 1979. Therefore, the 1985 research focused on the twin objectives of locating intact archeological deposits, and determining whether the contents of those deposits could provide any archeological information regarding the prehistory or history of the Bayou Goula Landing site, particularly as an example of a nineteenth century river town.

Pursuant to the scope of services, these investigations were conducted within the framework of the previous research design (Pearson and Guevin 1984), outlined above. However, it was felt that the Bayou Goula Landing site offered the opportunity to investigate additional theoretical and methodological issues not specifically addressed by Pearson and Guevin (1984). These questions offered an additional, and complementary, perspective with which to evaluate the significance of the archeological deposits at 16 IV 131. These additional research questions are discussed below.

As Pearson and Guevin (1984) pointed out, the influence of the Mississippi River on the occupation of the Bayou Goula locality is of paramount importance. Knowledge of bankline changes and of site burial and destruction processes, including those of anthropogenic origin, are essential for determining the extent and condition of archeological remains within the project area. However, the study of site destruction processes is distinct from the goals of anthropological research. Along with changes in riverine and bankline conditions over time, the consequences of that activity, the successive relocation of the town of Bayou Goula, also deserves inspection. The result has been a series of occupation and abandonment phases, structured horizontally over space. Those phases are relatively short-lived, as opposed to the continual occupation of a single locality over the same period of time.

Little attention has been given to the question of technique abandonment in historical archeological sites in south Louisiana. Aside from catastrophic termination of settlement, archeological assemblages from deliberate abandonment may not be representative of assemblages created during the initial settlement and subsequent occupational phases. The possibility of defining abandonment assemblages represents a potentially exciting avenue

of research. Such assemblages eventually may be compared to contemporary or ethnoarcheological examples, in order to understand how past assemblages from abandonment phases are created. The second testing phase at the Bayou Goula locality was approached in this light, as an opportunity to study cultural site formation processes, and not merely natural site destruction processes.

Viewed from this perspective, the definition of "activity areas" across the site is not a self-evident fact of the archeological record. Rather, activity areas result from a complex of cultural and natural agencies involving manufacture, use, discard, and post-depositional activities that track the life-history of specific artifacts, associated tool-kits, and structures. Between 1927 and 1929, individual structures were removed from Bayou Goula and relocated landward of the 1929 Mississippi River Protection Levee. Presumably, associated foundations and areas of artifact disposal remain in place. If they survived postdepositional disturbances, they offer the possibility for empirical examination of the effects of abandonment behavior on the representation of functional types and on activity areas. Similarly, stylistic types and attributes, defined to yield socio-economic or chronological data, may be associated in a complex manner not readily unravelled by viewing the archeological record as a static phenomenon. It was hypothesized that horizontal stratigraphy at the Bayou Goula Landing site may offer an opportunity to view tight occupational episodes, and to characterize assemblages based upon stylistic criteria. Presumably, these episodes could be dated independently of stylistic analysis of artifacts.

Aside from determination of the extent and integrity of deposits at 16 IV 131, then, archeological testing was designed to assess the potential of the Bayou Goula landing site to yield data relevant to the additional research questions posed above. In order for the site to possess such potential, it was recognized that meaningful units of analysis, such as a household, refuse area, etc., be identified, if not fully excavated at this phase of the study. The objective of data analyses, then, was not to characterize abandonment assemblages; rather, field and laboratory research was designed to assess the potential of the site for retrieving such information. As will be shown below, while preliminary laboratory analyses were suggestive of the nature of abandonment behavior, surviving cultural deposits at the site were neither sufficiently extensive nor well-preserved to suggest that these goals could be addressed by further research.

CHAPTER VII

FIELD INVESTIGATIONS

Introduction

Field investigations at the Bayou Goula Landing site were designed to fulfill the original 1983 research design by establishing the presence or absence of cultural deposits within the construction corridor, by characterizing the nature, extent, and integrity of any cultural deposits within the project area, and by providing data requisite to the assessment of the research potential and significance of 16 IV 131.

Fieldwork at 16 IV 131 was conducted in two phases. Following the establishment of horizontal and vertical control, a program of pedestrian survey and systematic subsurface testing was conducted along the entire 4200 ft (1280 m) segment of batture that comprises the project area. As noted in Chapter II, the study area extends from the present water line to the landside margin of the bank grading corridor, where the most severe impacts resulting from the planned revetment will be incurred (Figure 2). Bankline inspection survey and a systematic auger test regime were implemented to relocate and assess the condition of collection localities recorded during the 1983 testing program, as well as to determine the presence and nature of additional cultural deposits recently exposed along the bankline. Recent bankline erosion has altered the nature of previously defined archeological deposits; however, very few additional cultural resources were encountered during this phase of fieldwork. In addition to the pedestrian survey and subsurface testing, several profiles were cleaned and mapped along the bankline in order to clarify the cultural and natural stratigraphy at various points within the project area.

Pursuant to the scope of services, hand excavation units then were placed in the area of Collection Area 3, Locality 3, Feature 1, as defined by Pearson and Guevin (1984). These excavations were designed to expose and record the remaining portions of Feature 1, and to define the nature and extent of associated cultural deposits. While a total fifteen square meters were exposed during testing in Locality 3, the cultural materials previously defined as Feature 1 were not relocated; they appear to have been lost to bankline erosion since the 1983 field investigations. Nevertheless, excavation units and stratigraphic profiles were placed at strategic locations within Locality 3 to determine the nature, integrity, and extent of cultural deposits. Intact cultural deposits at this locality are discussed in detail below.

Horizontal and Vertical Control

Prior to pedestrian survey and subsurface testing, a baseline was established to provide horizontal and vertical control for the entire site. This line, oriented roughly parallel to the bankline of the Mississippi River, extended from Range 137 to Range 108; it intersected existing Range Markers (wooden posts) U137-300 and U134-400 within the project area (Figure 2). The baseline was staked and flagged at intervals of 100 ft (30.48 m); the locations of stakes along the baseline are shown in Figure 2. A site datum was established at Range Marker U134-400 (27 feet; 8.2 m NGVD); it was assigned grid coordinates N5000, E5000. Pursuant to the scope of services, English measurement was utilized for horizontal grid control, in order to permit correlation with construction plans. Metric measurements were used to control excavation.

Bankline Inspection

Intensive pedestrian survey was conducted along the entire length of the project area, from N5400 to N1500, including all terrain located between the water line and the current top-of-bank. The bankline inspection was designed to relocate the 1983 collection localities, to determine their present condition, and to identify and record any additional cultural resources present along the bankline. Data on recent bankline changes obtained during this study explained many of the changes in the condition and location of cultural resources within the project area. However, previously compiled data on the location of major artificial features (Pearson and Guevin 1984) appear to be somewhat inaccurate, and resulting correlations between 1983 collection localities and the present survey are approximate. Pursuant to the scope of services, surface collection was not conducted in 1985. Additional collection of secondarily deposited artifacts would not have contributed to the interpretation of in situ archeological features.

A series of low terraces or benches occur throughout the area; in places, the cutbank forms a nearly vertical bluff. A recent slump zone was present between about N3700 and N3200; it represents the most dramatic geomorphic event since the 1983 study. However, considerable erosion appears to have affected many areas along the bankline since 1983. The upriver portion of the project area lies riverward of the 1904 levee. The 1880 levee appears to have been lost recently to bankline erosion (Pearson and Guevin 1984). The 1904 levee intersects the top-of-bank at about N2200. Cultural resources downriver from this point lie landward of the 1904 levee.

Bankline inspection proceeded from the upriver boundary of the project area. During the course of the survey, five stratigraphic profiles were cleaned and mapped. Stratigraphic profiles were numbered sequentially in the order of their

excavation. No cultural remains whatsoever were encountered between Range U-137 and Range U-130, one of two priority survey areas targeted for revetment construction during 1985. A series of artifact scatters were encountered downriver from grid N4150 (Artifact Scatters 1-8). These scatters are described below.

Artifact Scatter 1:

This scatter was located between about grid N4150 and N3860 (Figure 2). It consisted of variable densities of historic bricks, metal, ceramics, glass, and shell located between the water line and the edge of a low bench, located fifteen to twenty feet (4.6-6.1 m) landward of the water line. A few aboriginal ceramic sherds also were observed at this locality. Beginning at about grid N4000, a stratum of cultural remains was exposed along the sloping bench; it extended downriver for approximately 280 feet (85.34 m). Considerable horizontal variability characterized this deposit; bricks and brick rubble were present intermittently between zones containing differing frequencies of historic artifactual and ecofactual remains.

Artifact Scatter 1 corresponds to Collection Area 3, Locality 3 (including Feature 1), defined during the 1983 field investigations (Pearson and Guevin 1984). However, this scatter also appears to include Collection Localities 4, 5, and 6. Two stratigraphic profiles (Profiles 3 and 5) cleaned and mapped in this vicinity are described below. In addition, and as noted above, this locality also was the subject of a more intensive mapping and testing effort.

Stratigraphic Profile 3 was located near the mid-point of the 280 ft-long (85.34 m) exposure (Figure 9). The upper 45 cm of the profile presented a series of tnin clay loam and silt loam fluvial deposits (Strata I-VIII). Stratum IX consisted of a single course of intact brick masonry and associated brick rubble. The scatter of ceramics and bricks observed along the bankline immediately riverward of Profile 3 clearly originated from this stratum. Stratum X was a very dark grayish brown (10 YR 3/2) clay silt loam between about 50 and 65 cm below surface, containing mortar, brick fragments, and charcoal flecks. Stratum XI, a black (2.5 Y 2/0) silt loam with abundant charcoal and ash, brick fragments, and mortar fragments, occurred between 65 and 77 cm below surface. Brick fragments, charcoal, and a few fragments of metal also were present in Stratum XII, a brown (10 YR 5/3) silty clay loam from about 77 to 93 cm below surface. Stratum XIII was a culturally sterile very dark grayish brown (10 YR 3/2) clay silt loam between about 93 and 110 cm below surface. Finally, Stratum XIV was a culturally sterile brown (10 YR 5/3) silt loam present between about 110 cm and the base of the profile at 125 cm below surface.

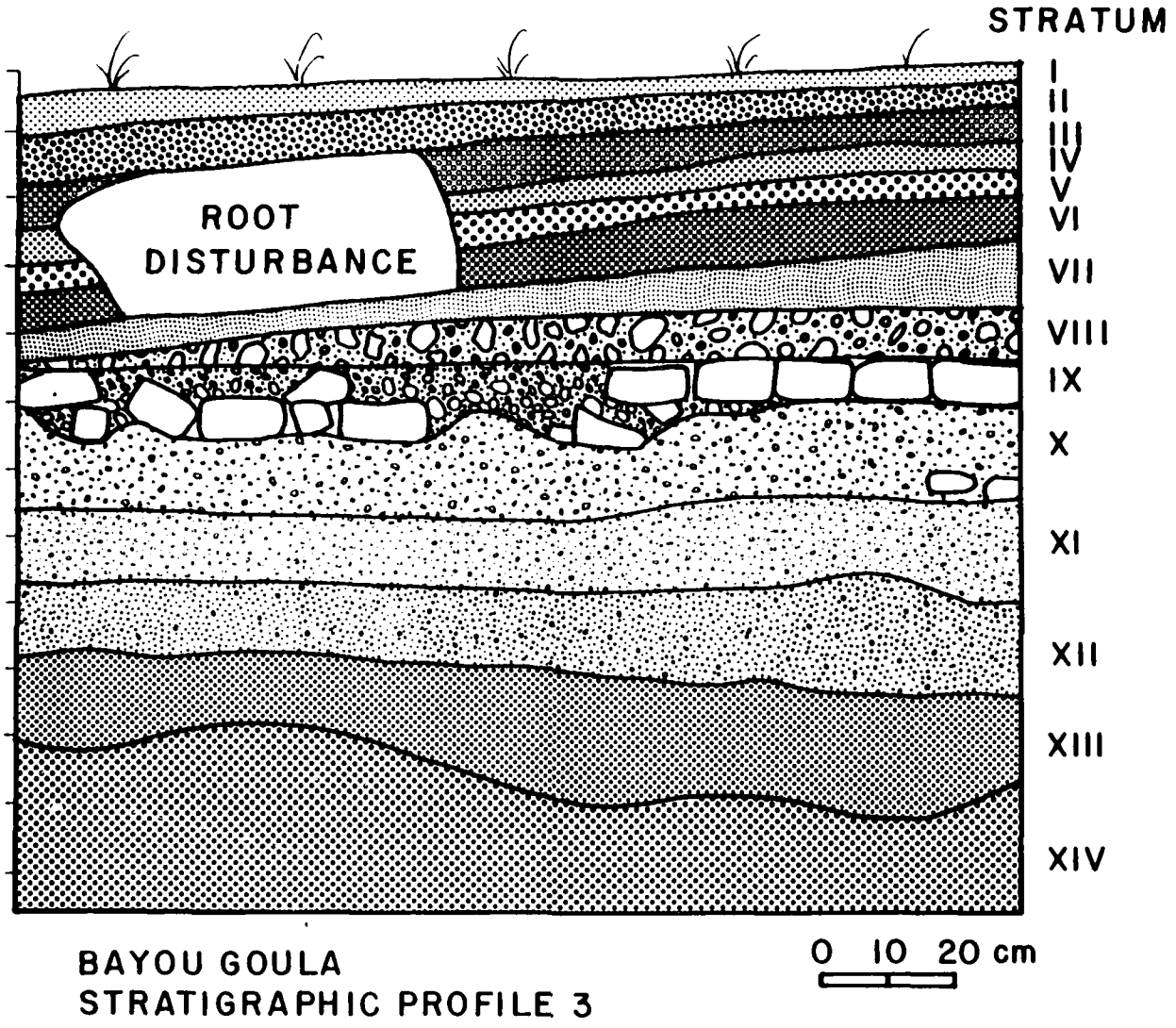


Figure 9. Bayou Goula Landing Site, Stratigraphic Profile 3.

Figure 9, Continued.

Stratum I:	Brown (10 YR 5/3) sand
Stratum II:	Dark grayish brown (10 YR 4/2) clay loam
Stratum III:	Brown (10 YR 5/3) silt loam
Stratum IV:	Brown (10 YR 5/3) clayey silt loam
Stratum V:	Brown (10 YR 5/3) sandy silt loam
Stratum VI:	Dark grayish brown (10 YR 4/2) clay loam
Stratum VII:	Yellowish brown (10 YR 5/4) sandy silt
Stratum VIII:	Very dark grayish brown (10 YR 3/2) silt loam with brick fragments, metal, coal, charcoal, shell, and mortar
Stratum IX:	Brick and brick rubble
Stratum X:	Very dark grayish brown (10 YR 3/2) clayey silt loam with mortar, brick fragments, and charcoal
Stratum XI:	Black (2.5 Y 2/0) silt loam with abundant charcoal and ash, brick fragments, and mortar
Stratum XII:	Brown (10 YR 5/3) silty clay loam with brick fragments, charcoal, and metal
Stratum XIII:	Very dark grayish brown (10 YR 3/2) clayey silt loam
Stratum XIV:	Brown (10 YR 5/3) silt loam

Stratigraphic Profile 5 was located about fifteen feet (4.6 m) downriver from Profile 3 (Figure 10). Like Profile 3, cultural remains occurred below about 40 cm of overbank deposits (Strata I-V). Stratum VI was a dark grayish brown (10 YR 4/2) silt loam with abundant charcoal, brick fragments, mortar, ceramics, glass, metal (square nails), and oyster shell; it was located between 40 and 55 cm below surface. A lens of charcoal occurred within this stratum. Stratum VII, between about 55 and 70 cm below surface, was a dark yellowish brown (10 YR 4/4) silt loam containing bone, ceramics, metal, brick fragments, and shell. Stratum VIII, between 70 and 75 cm below surface, is a brown (10 YR 5/3) silty clay. A depression or pit, originating from this stratum, contained abundant charcoal flecks, but no additional materials were observed. Stratum IX, a culturally sterile dark brown (10 YR 3/3) silty clay loam, was present between about 75 and 90 cm below surface. Finally, a dark yellowish brown (10 YR 4/4) mottled silty clay loam, devoid of cultural material, occurred between 90 cm and the base of the profile at 125 cm below surface.

Profiles 3 and 5 document some of the horizontal variation that characterizes the cultural deposit in the vicinity of Locality 3. The artifact-bearing strata appear to represent small pockets of remains of former standing structures and associated refuse areas. Moreover, much of the deposit already has been lost to bankline erosion, and the previously defined Feature 1 could not be located. Apparently, Feature 1 was lost to bankline erosion since the 1983 field investigations; slightly different portions of the cultural deposit are now exposed along the cutbank. More intensive investigations at this locality are reported below.

Artifact Scatter 2:

These remains were encountered near the base of a recent (1985) slump zone, between about grid N3400 and N3200 (Figure 2). Remains included historic bricks and brick fragments, ceramics, glass, metal, and oyster shells. In addition, a lens of cultural material observed in the cutbank appeared to contain a similar range of artifacts. Inspection of the exposure indicated that the lens was approximately one to two feet (30.4-61 cm) thick and about 20 feet (6.1 m) in length; it contained only a modest density of remains, dominated by brick fragments. A cross-section of the bankline at this locality (Figure 11) shows the extent of overburden presently capping this cultural deposit. Highest elevations along the bankline here reach 32 ft (9.75 m) NGVD, indicating the presence of over seven feet (2.14 m) of overburden above the artifact lens shown in Figure 11. Artifact Scatter 2 appears to correspond to 1983 Collection Localities 8, 9, 10, and 11 (Pearson and Guevin 1984).

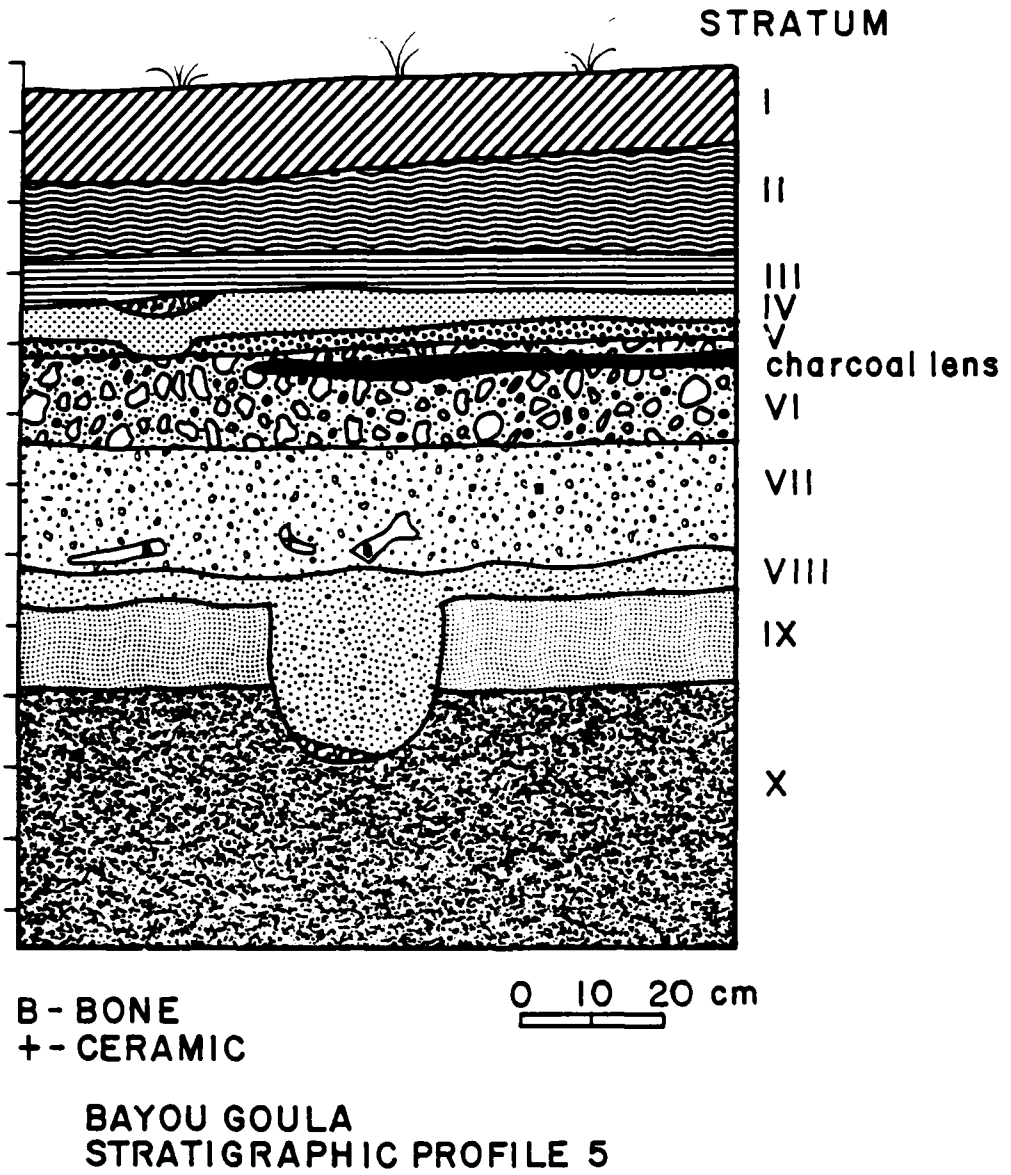


Figure 10. Bayou Goula Landing Site, Stratigraphic Profile 5.

Figure 10, Continued.

Stratum I:	Dark yellowish brown (10 YR 4/4) cross-bedded clay and silt loams
Stratum II:	Brown (10 YR 5/3) horizontal bedded silt loams
Stratum III:	Dark yellowish brown (10 YR 4/4) clay with thin horizontal beds
Stratum IV:	Brown (10 YR 5/3) sandy silt
Stratum V:	Dark yellowish brown (10 YR 4/4) clay loam
Stratum VI:	Dark grayish brown (10 YR 4/2) silt loam with abundant charcoal, brick fragments, mortar, ceramics, glass, metal, and shell
Stratum VII:	Dark yellowish brown (10 YR 4/4) silt loam with bone, ceramics, metal, brick fragments, and shell
Stratum VIII:	Brown (10 YR 5/3) silty clay with charcoal
Stratum IX:	Dark brown (10 YR 3/3) silty clay loam
Stratum X:	Dark yellowish brown (10 YR 4/4) silty clay loam

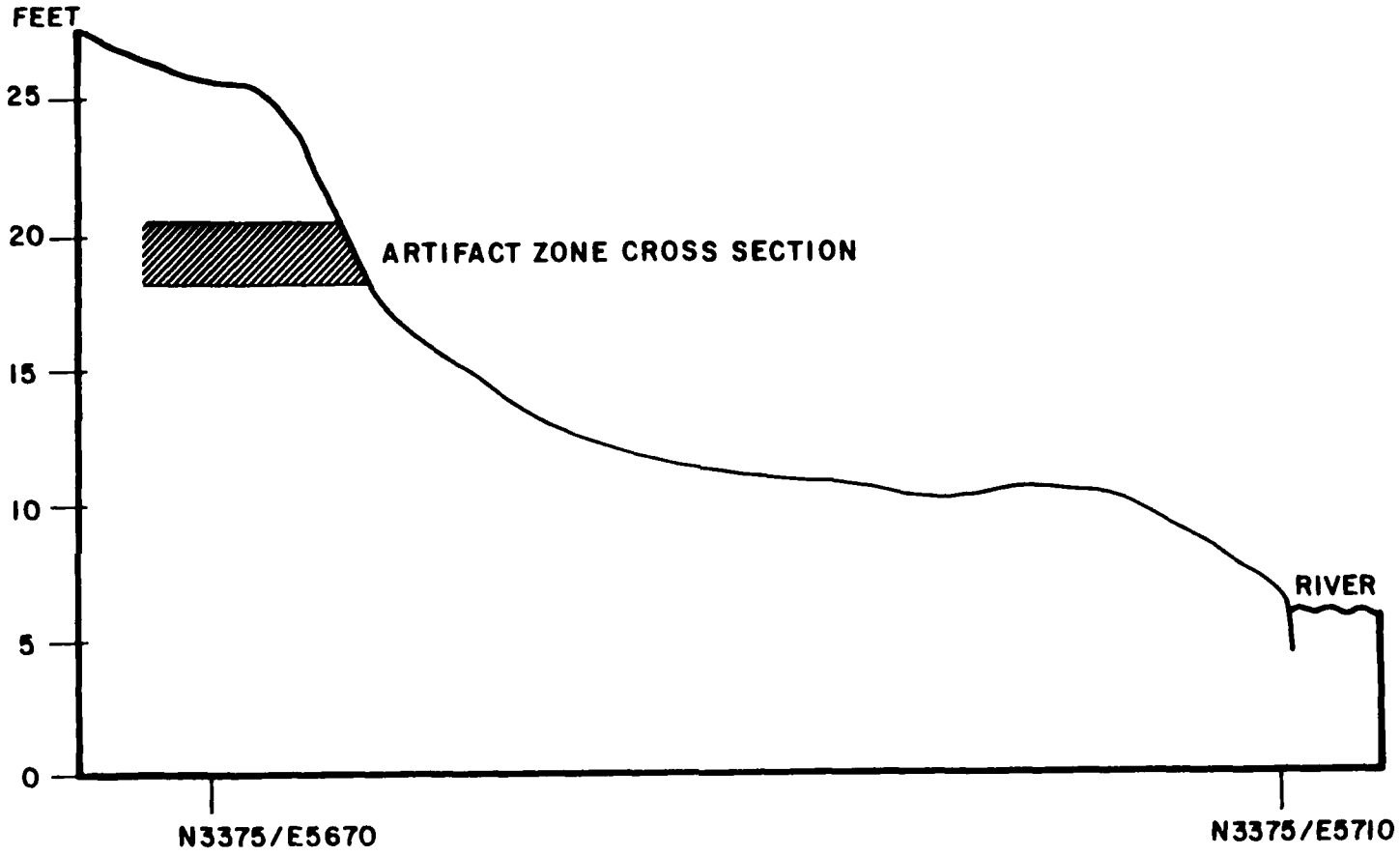


Figure 11. Cross-Section of the Bankline at N3375 Showing the Cultural Lens at Artifact Scatter 2.

Artifact Scatter 3:

Artifactual remains in this scatter were confined to the deflated surface. They extended for about 100 ft (30.5) along the bankline, from grid N3000 to N2900 (Figure 2). Historic glass, ceramics, metal, brick, and shell were present. No intact cultural deposits were observed. Scatter 3 corresponds approximately to the 1983 Collection Localities 15, 16, and 17.

Artifact Scatter 4:

This scatter was located along the water line, immediately downriver from Artifact Scatter 3. It was approximately 200 ft (60.96 m) in length, extending from grid N2900 to N2700 (Figure 2). Artifactual remains included historic ceramics and oyster shell. Like Scatter 3, no intact cultural deposits from which the remains may have originated were observed. The 1983 Collection Localities 18, 19, 20, and 21 appear be included within Scatter 4.

Artifact Scatter 5:

At about N2350, E5650, at the edge of a steep cutbank, the remains of a partially preserved wooden barrel were encountered (Figure 2). Artifactual and ecofactual remains, including historic ceramics, glass, metal, oyster shell, egg shell, and bone, were scattered within a 3-4 foot (.91-1.22 m) radius around the barrel, and appear to represent its former contents. This scatter occurred in complete isolation from any cultural deposits or other surface manifestations; it apparently was not encountered during the 1983 field investigations.

Between Artifact Scatters 5 and 6, an extremely light scatter of remains, consisting primarily of Rangia shell and of small brick and coal fragments, was observed. No intact cultural strata were observed at this locale. It is possible that these materials derived from a previously disturbed context within the 1904 levee, which intersects the bankline at this point (Figure 2). A separate number was not assigned to this highly diffuse surface scatter.

Artifact Scatter 6:

Artifact Scatter 6 consisted of a lens of brick, coal, ceramics, and metal exposed in the bankline between grid N1960 and N1900 (Figure 2). Artifacts were not abundant in this six-inch (15.24 cm) thick cultural deposit, which appears to be an extension of deposits associated with Artifact Scatter 7.

Artifact Scatter 7:

Like Scatter 6, Artifact Scatter 7 consisted of exposed lenses of artifacts located at high elevations along the cutbank, with only limited surface manifestations present along the bankline. A higher lens, about four inches (10 cm) in thickness and situated about 30 inches (76 cm) below the present ground surface, consisted primarily of gravel and extended from about N1860 to N1780. Based on historic map data, it is likely that this lens of gravel represents the former Tally Ho Plantation sugar house road. A second cultural deposit, again about four inches (10 cm) in thickness, was situated some 22 inches (56 cm) below the gravel deposit, or about 52 inches (132 cm) below the top-of-bank. This stratum contained historic brick, metal, glass, ceramics, gravel, shell, and coal; it extended from approximately grid N1850 to N1700 (Figure 2). A series of brick features (designated Brick Features 1-4) were observed eroding from this lens near its downriver margin (Figure 2). Brick Features 1 and 2 were the best preserved; along with two stratigraphic profiles (Profiles 1 and 2) cleaned and mapped at this locality, these features are described below.

Stratigraphic Profile 1 was located near the downriver margin of Scatter 7, adjacent to intact bricks (Brick Feature 1) observed eroding from the cutbank (Figure 2). Stratum I was a brown (10 YR 5/3) sandy silt with clay inclusions and crushed brick fragments, which extended to a depth of 35 cm below surface (Figure 12). It appears to represent recent slope wash from higher elevations along the cutbank. Stratum II, between 35 and 45 cm below surface, was a light brownish gray (10 YR 6/2) silt loam containing bricks, brick fragments, mortar fragments, metal, and coal. Unlike Stratum I, Stratum II represents an in situ cultural deposit. Stratum III was a brown (10 YR 5/3) mottled silt loam between 45 and 60 cm below surface; the base of Brick Feature 1 was located within this stratum. Brick Feature 1 consisted of a remnant of brick masonry with three courses. Probing indicated that the feature, or what remains of it, is only one course thick. Strata IV and V are devoid of cultural remains; they consisted of a brown (10 YR 5/3) mottled silt loam and a brown (10 YR 5/3) sandy silt loam, respectively.

Stratigraphic Profile 2 was located 150 feet (45.72 m) upriver from Profile 1; it was placed to clarify the stratigraphic position of the two lenses comprising Scatter 7 (Figure 13). Strata I-IX consisted of culturally sterile overbank deposits, from the surface (top-of-bank) to about 75 cm below surface (Figure 13). Stratum X was the lens of gravel, noted above, in a heterogeneous matrix of clay and silty sand. This lens was about 14 cm thick at the downriver margin of the profile; it thinned upriver to a thickness of about 8 cm. Below the gravel lens was a highly compacted brown (10 YR 5/3) sandy silt (Stratum XI), between about 90 and 110 cm below surface. The underlying stratum (XII)

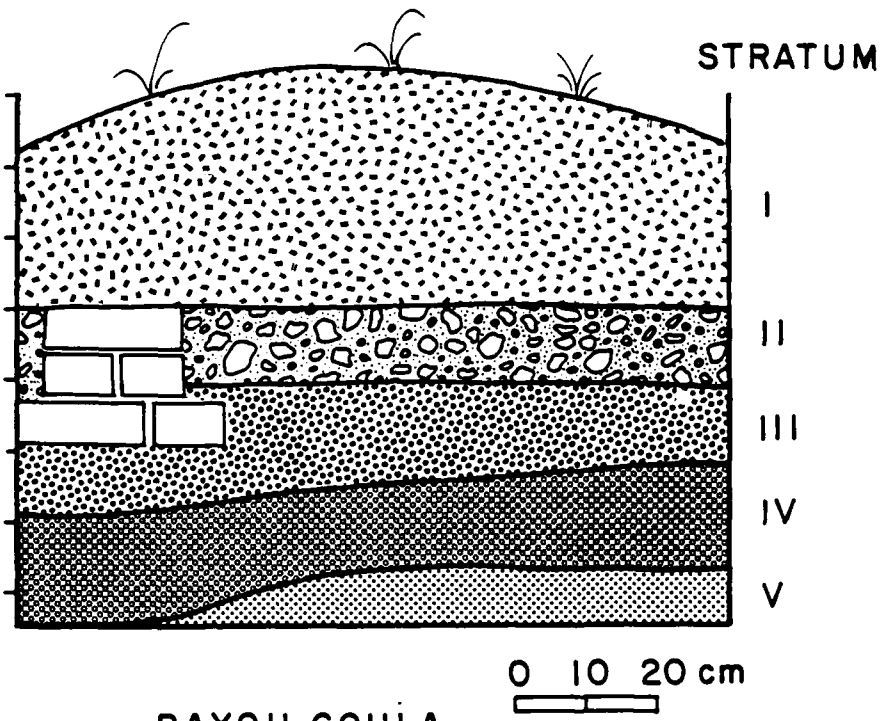


Figure 12. Bayou Goula Landing Site, Stratigraphic Profile 1.

Figure 12,

Stratum I:

Stratum II:

Stratum III
Stratum IV:
Stratum V:

lt with clay
k fragments
2) silt loam with
tar, metal, and

brick

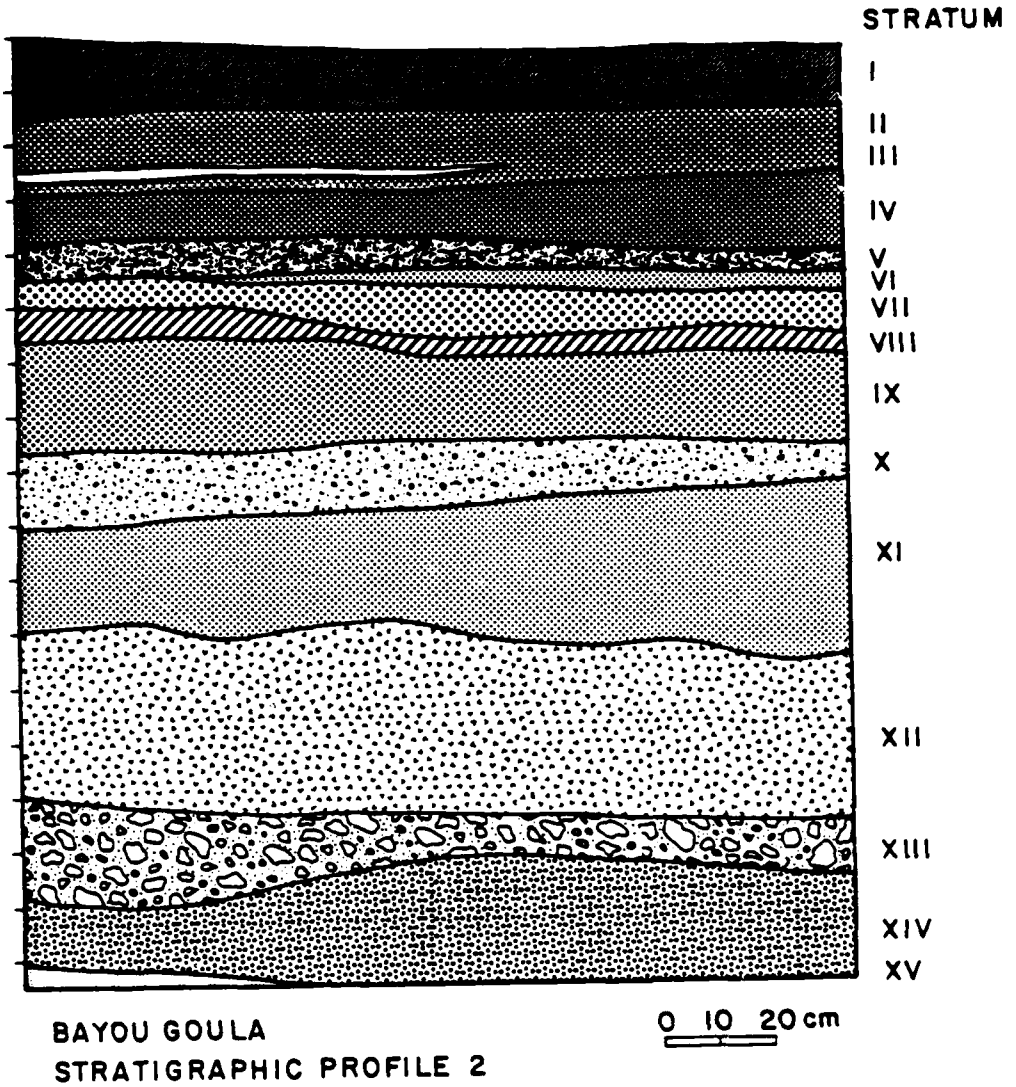


Figure 13. Bayou Goula Landing Site, Stratigraphic Profile 2.

Figure 13, Continued.

Stratum I:	Brown (10 YR 5/3) clay
Stratum II:	Dark grayish brown (10 YR 4/2) clay
Stratum III:	Brown (10 YR 5/3) sandy silt
Stratum IV:	Brown (10 YR 5/3) clay loam
Stratum V:	Dark grayish brown (10 YR 4/2) mottled clay loam
Stratum VI:	Brown (10 YR 5/3) silty clay loam
Stratum VII:	Very dark grayish brown (10 YR 3/2) clay
Stratum VIII:	Brown (10 YR 5/3) clay loam with sandy loam lenses
Stratum IX:	Very dark grayish brown (10 YR 3/2) clay
Stratum X:	Brown (10 YR 5/3) clay and silty sand with gravel
Stratum XI:	Highly compacted brown (10 YR 5/3) sandy silt
Stratum XII:	Dark grayish brown (10 YR 4/2) clay and sandy silt
Stratum XIII:	Dark grayish brown (10 YR 4/2) silty clay loam with mortar, brick fragments, coal, charcoal, and ceramics
Stratum XIV:	Brown (10 YR 5/3) silt loam
Stratum XV:	Brown (10 YR 5/3) sandy silt loam

appears to have been a highly disturbed or redeposited dark grayish brown (10 YR 4/2) clay and sandy silt. Both Strata XI and XII were devoid of cultural remains. Stratum XIII corresponded to the second, lower lens identified at Scatter 7; it contained brick and mortar fragments, coal, charcoal, and ceramics in a dark grayish brown (10 YR 4/2) silty clay loam matrix, between about 140 and 155 cm below surface. As noted above, this stratum extended for about 150 feet (45.72 m) along the bankline; it correlated with Stratum II from Profile 1. All brick features in the vicinity of Artifact Scatter 7 were associated with this stratum. Strata XIV and XV were devoid of cultural remains, and consisted of a brown (10 YR 5/3) silt loam and a brown (10 YR 5/3) sandy silt loam, respectively.

As noted previously, four brick features were observed eroding from the cutbank at Artifact Scatter 7 (see Figure 2). Two of these features consisted of small concentrations of brick rubble. Brick Feature 1, as noted above, was exposed and recorded during the excavation of Profile 1. Brick Feature 2 appeared to be a brick pier several courses in depth and thickness; this feature is shown in Figure 14. At the time of its discovery, this feature was perched precariously on the cutbank; it probably will not survive additional erosion. Based on historic map data compiled during previous investigations, all of the remains comprising Artifact Scatter 7 appear to derive from Tally Ho Plantation. Aside from the gravel deposit, artifactual remains were not abundantly represented on the surface, and profile excavations indicated that artifacts were only diffusely distributed over the former occupation surface.

Several additional auger tests subsequently were placed to the landside of the riverbank in order to determine the horizontal extent of these deposits. The locations of these tests (A-59 through A-63) are shown in Figure 2; strata descriptions for these auger tests are provided in Appendix 3. Cultural materials similar to those recorded in profile along the bankline, extended as far as 100 feet (30.5 m) landward from bankline.

Artifact Scatter 8:

Located at the downriver margin of the project area, Artifact Scatter 8 consisted of a light scatter of gravel, brick fragments, and coal between approximately grid N1600 and N1500 (Figure 2). These remains appear to have been deflated from a thin cultural stratum; portions of this deposit could be observed intact intermittently along the bankline in this area. In addition, metal rails associated with the previously recorded Tally Ho tramway (Bryant et al. 1982; Pearson and Guevin 1984) were located along the bankline at this locality.

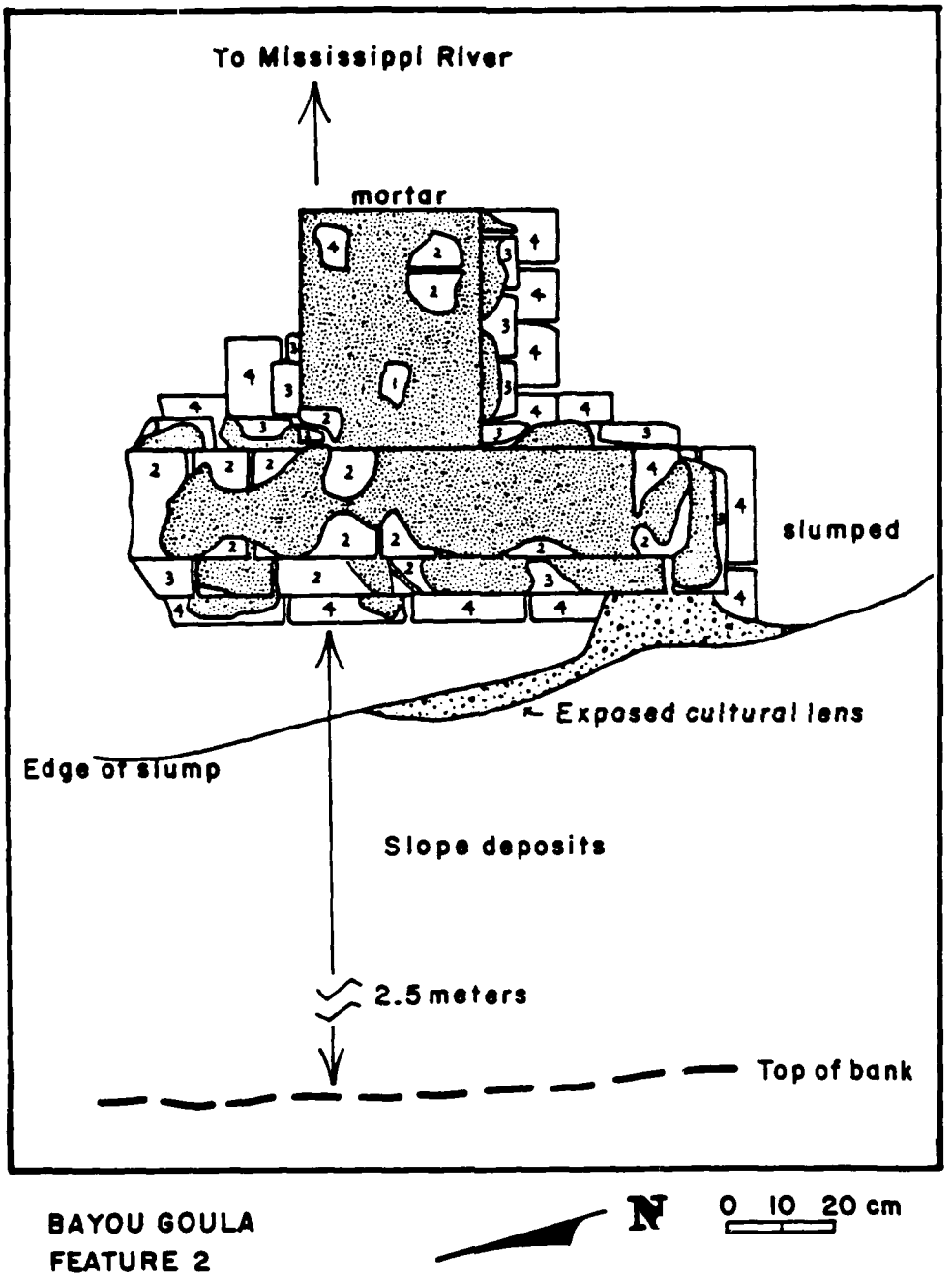


Figure 14. Bayou Goula Landing Site, Artifact Scatter 7, Feature 2.

Stratigraphic Profile 4 was cleaned and mapped along the cutbank at Scatter 8 (Figure 15) in order to define more clearly the nature of the eroding deposits in this portion of the site. Strata I-IV consisted of culturally sterile overbank deposits between 0 to 40 cm below surface. Stratum V consisted of a brown (10 YR 5/3) clay with gravel and brick fragments; the latter materials were not abundant in this thin (2-3 cm) lens, an impression consistent with the generally light density of remains observed throughout the Scatter 8 area. A series of culturally sterile silts and loams (Strata VI-XII) occurred between about 43 cm below surface and the base of the profile at 70 cm below surface. The thin stratum of refuse observed in Stratum V may be related to the Tally Ho Plantation tramway features present at this locality; however, artifactual remains generally were not abundant in this area of the site.

Summary

Pedestrian survey along the bankline at the Bayou Goula Landing site revealed the presence of eight discrete concentrations of surface remains and/or cultural deposits exposed in the cutbank. The heaviest concentration (Artifact Scatter 1) occurred near the water line, in the vicinity of the 1983 Collection Localities 3-6. This subassemblage was associated with an intact cultural deposit exposed along a small bench or terrace fifteen to twenty feet (4.57-6.1 m) from the water line. Other artifact concentrations observed in 1985 correlated less precisely with previous collection localities; recent erosion has altered the configuration of the bankline, and previous spot finds defined during the 1983 field investigations no longer exist. Apart from a deeply buried lens of limited extent at Artifact Scatter 2, and lenses exposed at the extreme downriver margin of the project area, only surface materials were encountered along the remaining, intervening portions of the bankline. Several small brick features were observed at Scatter 7, in association with a thin stratum of materials thought to derive from Tally Ho Plantation. A lens of gravel, perhaps representing the Tally Ho Plantation road, also was recorded at the same locality.

Subsurface Testing

A program of subsurface auger testing was implemented at the Bayou Goula Landing site in order to locate any deeply buried intact cultural deposits within the project area and to determine, if possible, whether these deposits were ir situ or disturbed. All auger tests were placed within the bank grading corridor; the majority of these were located on low benches along the present bankline. Auger tests were excavated at 100 foot (30.5 m) intervals, along a staggered transect parallel to the baseline (Figure 2). Thirty-seven six-inch (15.24 cm) auger tests were

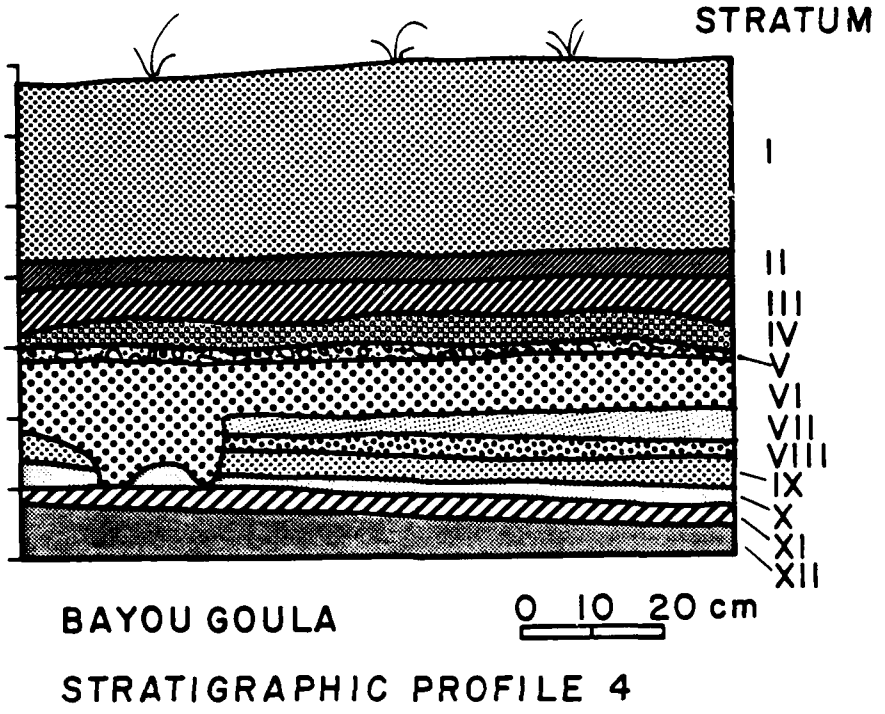


Figure 15. Bayou Goula Landing Site, Stratigraphic Profile 4.

Figure 15, Continued.

Stratum I:	Vary dark gray (10 YR 3/1) clay
Stratum II:	Very dark grayish brown (10 YR 3/2) clay loam
Stratum III:	Dark grayish brown (10 YR 4/2) clay loam
Stratum IV:	Brown (10 YR 5/3) silty clay loam
Stratum V:	Brown (10 YR 5/3) clay with brick fragments and gravel
Stratum VI:	Brown (10 YR 5/3) silt loam
Stratum VII:	Light yellowish brown (10 YR 6/4) sandy silt
Stratum VIII:	Light yellowish brown (10 YR 6/4) clayey silt loam
Stratum IX:	Light yellowish brown (10 YR 6/4) sandy silt
Stratum X:	Light yellowish brown (10 YR 6/4) silt
Stratum XI:	Light yellowish brown (10 YR 6/4) clay loam
Stratum XII:	Light yellowish brown (10 YR 6/4) silt

excavated along this staggered transect to an average depth of fifteen feet (4.57 m). An additional twenty tests were placed in the vicinity of Feature 1, Locality 3; another five tests were excavated in the downriver Tally Ho portion of the project area.

Appendix 1 gives the grid coordinates and strata descriptions for the initial testing regime along the bank grading corridor. As Appendix 1 illustrates, all auger test profiles recorded a sequence of overbank deposition in the upper strata, consisting primarily of silts and loams. Individual flood events, particularly those that resulted in very thin lenses of silt and clay, generally could not be resolved using the six-inch hand auger. The series of overbank deposits rest upon backswamp deposits (clay), encountered at varying depths below surface. Auger Tests 1-29 were situated on the riverside of the 1904 levee. The Auger Test 10 profile, shown in Figure 16, is representative of subsurface deposits across this portion of the project area, the vast majority of which failed to yield any evidence of buried cultural deposits. During this initial auger test regime, subsurface artifactual remains were encountered in only two tests riverward of the 1904 levee (A-13 and A-14). Brick fragments were present at a depth of about 91 cm in A-13, while A-14, shown in Figure 17, yielded a stratum of dark gray (10 YR 4/1) silty clay loam containing brick fragments between 106 and 122 cm below surface. A-13 and A-14 both were located in the vicinity of the 1983 Collection Locality 3, where subsurface cultural deposits previously had been identified. The nature of cultural resources in this area of the site are discussed in greater detail below.

Auger Tests 30-32 were located on or near the 1904 protection levee, near the point where it intersects the modern bankline in the downriver portion of the project area. Fragments of brick and shell were encountered in A-31 at a depth of four feet (1.22 m) below surface, within a matrix of loose yellowish brown (10 YR 5/4) silty loam (Stratum II). A distinct stratigraphic horizon incorporating the cultural remains was not identified, and the artifacts appeared to derive from a disturbed context. As noted above, a light scatter of brick fragments and shell were observed along the bankline adjacent to the eroding 1904 levee; these remains may originate from the levee fill.

Auger tests 33-38 were located on the landside of the 1904 levee, near the downriver margin of the project area at Tally Ho Plantation. Auger Test 35 (Figure 18) produced two artifact-bearing strata: a lens of gravel was present between about 109 and 123 cm below surface (Stratum IV), and a very dark brown (10 YR 2/2) clayey silt loam containing mortar, brick, and coal fragments occurred between about 132 and 145 cm below surface. The relative position and contents of these strata correspond to those identified in Stratigraphic Profile 2 (see above). A thin stratum

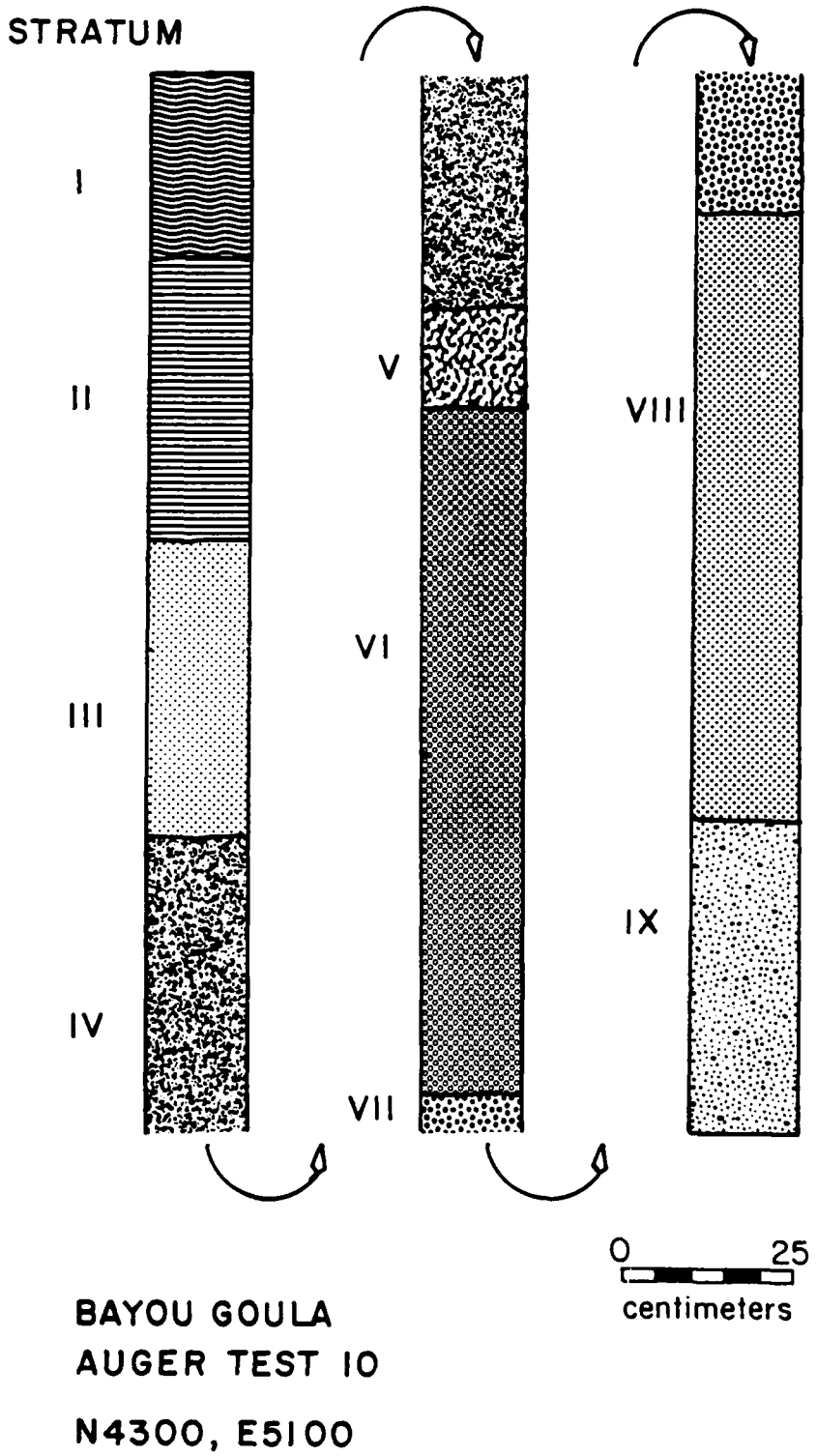


Figure 16. Bayou Goula Landing Site, Auger Test 10.

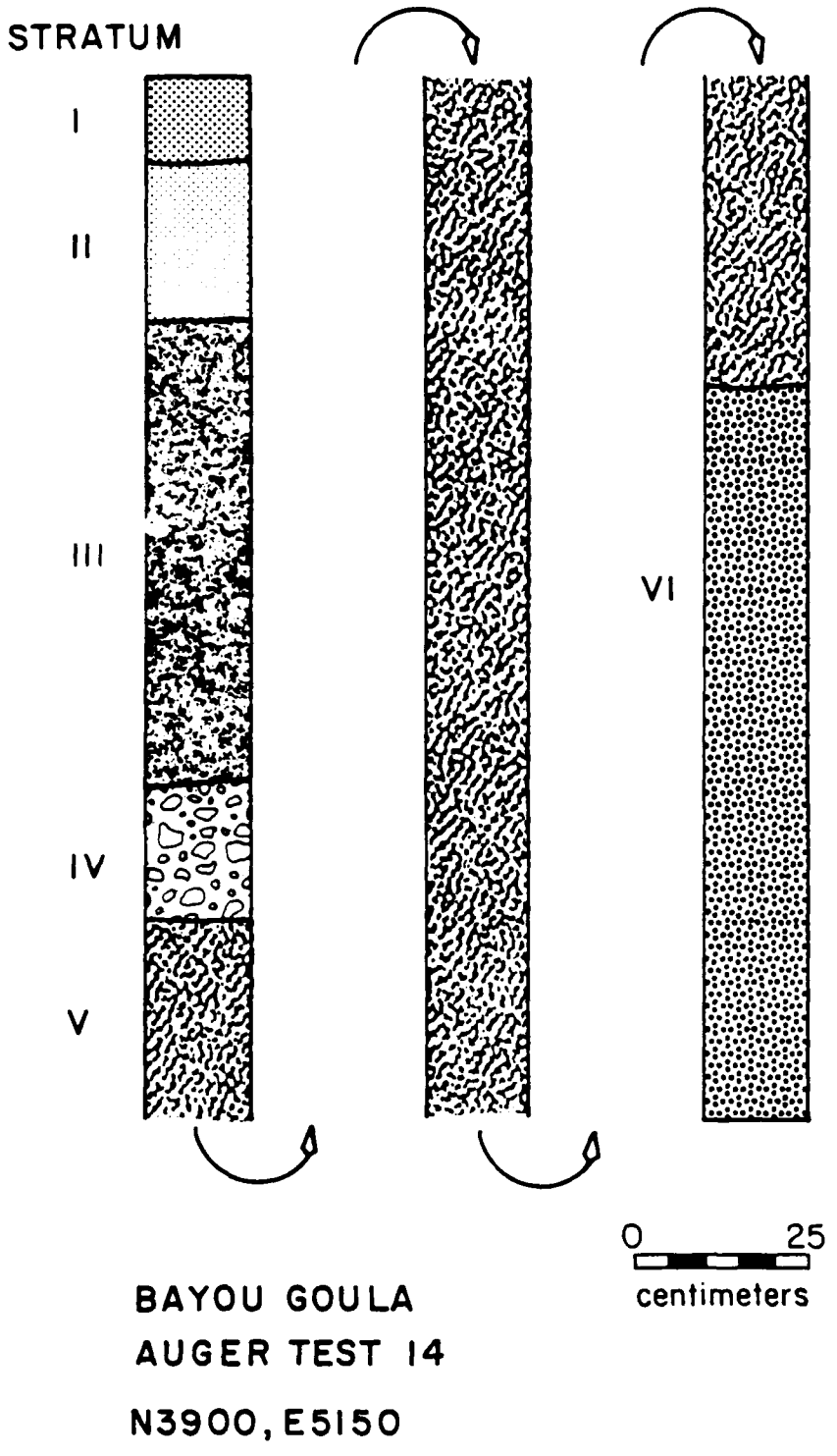


Figure 17. Bayou Goula Landing Site, Auger Test 14.

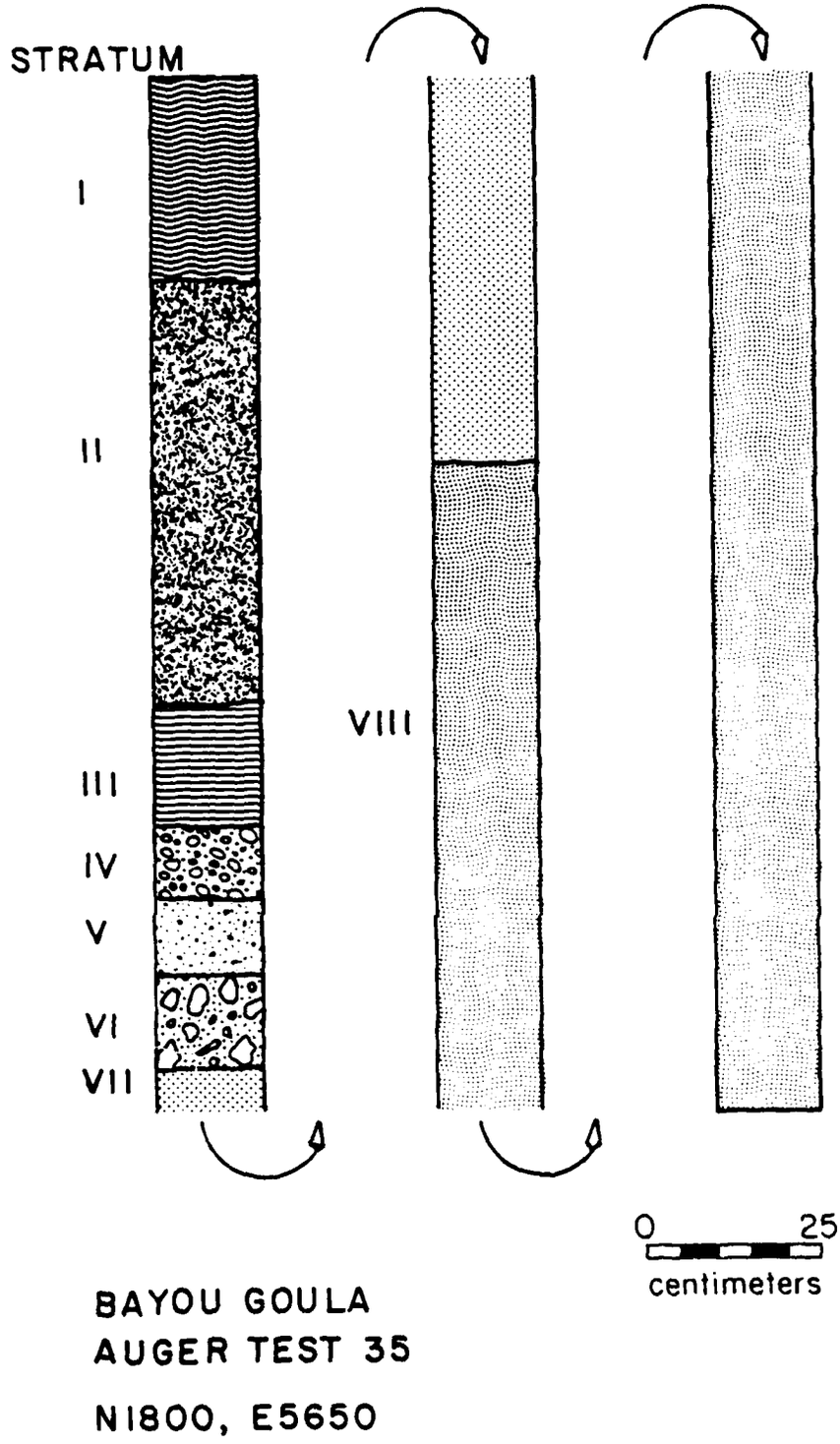


Figure 18. Bayou Goula Landing Site, Auger Test 35.

of gravel also was recorded in A-36 at a depth of four feet (1.22 m) below surface. Finally, brick fragments were encountered in Auger Test 38, at a depth of three feet (.91 m) below surface.

Initial auger testing did not reveal the presence of abundant intact buried cultural deposits within the Bayou Goula Landing project area. Six tests, A-13, A-14, A-31, A-35, A-36, and A-38, contained artifactual remains; none of those remains occurred below a depth of four feet (1.22 m) below surface. Cultural deposits associated with A-13 and A-14 occurred within an area where subsurface deposits previously had been identified and targeted for more extensive investigations. Artifacts from A-31 apparently form part of the 1904 levee fill, and derive from a disturbed context. Finally, subsurface remains associated with Tally Ho plantation, consisting primarily of gravel and brick fragments, were recovered from A-35, 36, and 38. As noted above, additional buried cultural deposits, such as those exposed at Artifact Scatter 2, also were present within the project area. However, at least in the case of Scatter 2, these deposits were discontinuous and evident across only short sections of the exposure. Auger test intervals of 100 feet (30.5 m) may not have encountered cultural strata having such limited extent. As previously indicated, thirty additional auger tests were excavated to clarify the nature and extent of cultural resources identified during the survey and subsurface testing program, and are discussed below.

Testing at Locality 3, Feature 1

Pursuant to the scope of services, archeological testing was conducted in the area of the previously defined Collection Locality 3, Feature 1 (Pearson and Guevin 1984). These excavations were designed to expose Feature 1, which was believed to have derived from a former residence at the edge of Bayou Goula, and to expose associated architectural and activity loci.

Six hand excavation units were placed along the low bench at Artifact Scatter 1, exposing a total surface area of 15 square meters (Figure 19). As indicated above, Scatter 1 included the 1983 Collection Locality 3; it also may have encompassed Localities 5 and 6. In addition, twenty auger tests (Auger Test numbers 39-58) were placed along the low bench in order to determine the extent and depth of the cultural deposit in this area. The locations of all test units, auger tests, surface concentrations of cultural remains, and major natural features are shown in Figure 19. Cultural remains exposed near the water line were mapped and described; however, no surface materials were collected.

As noted above, an intact cultural deposit, exposed along the

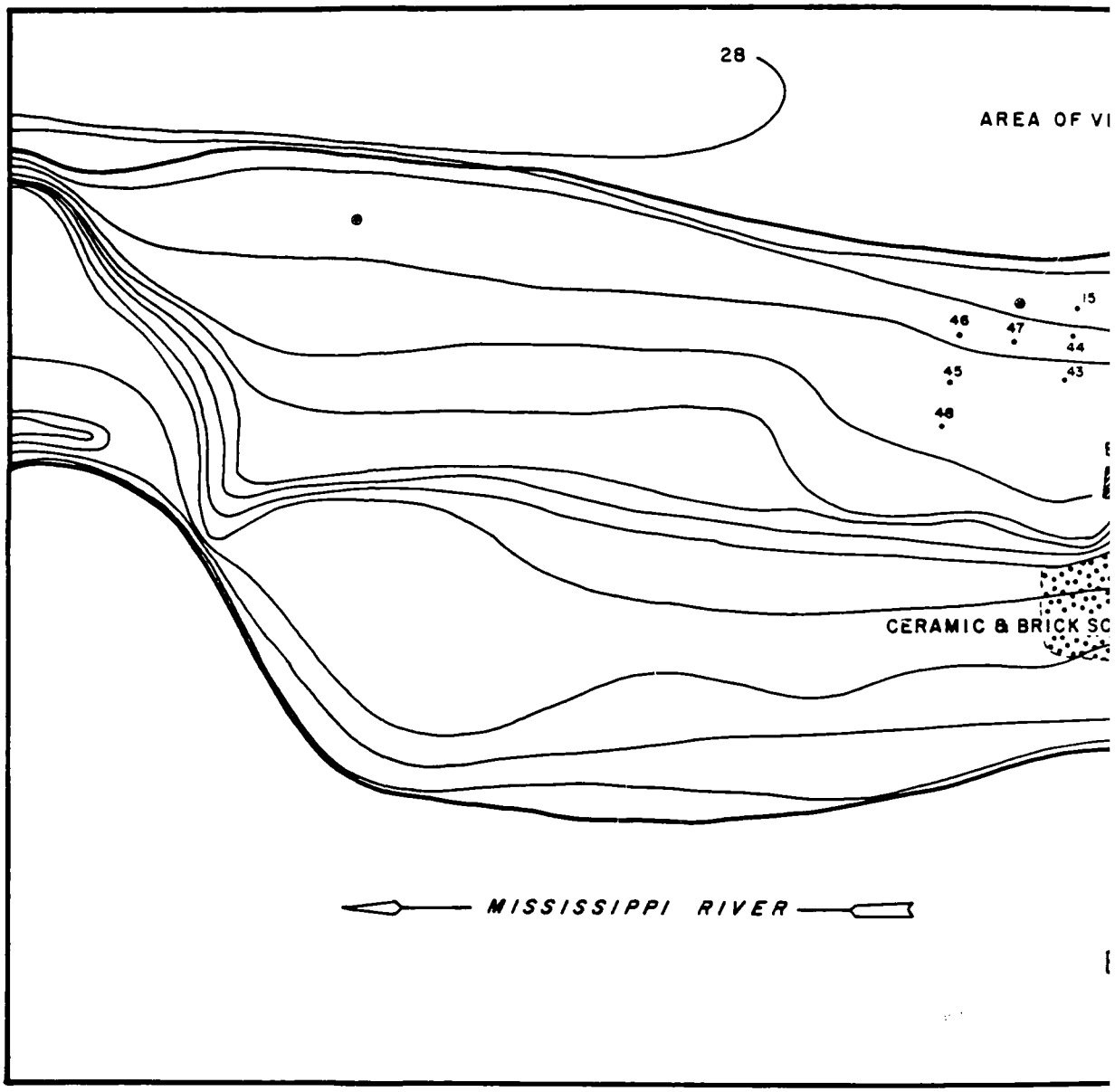
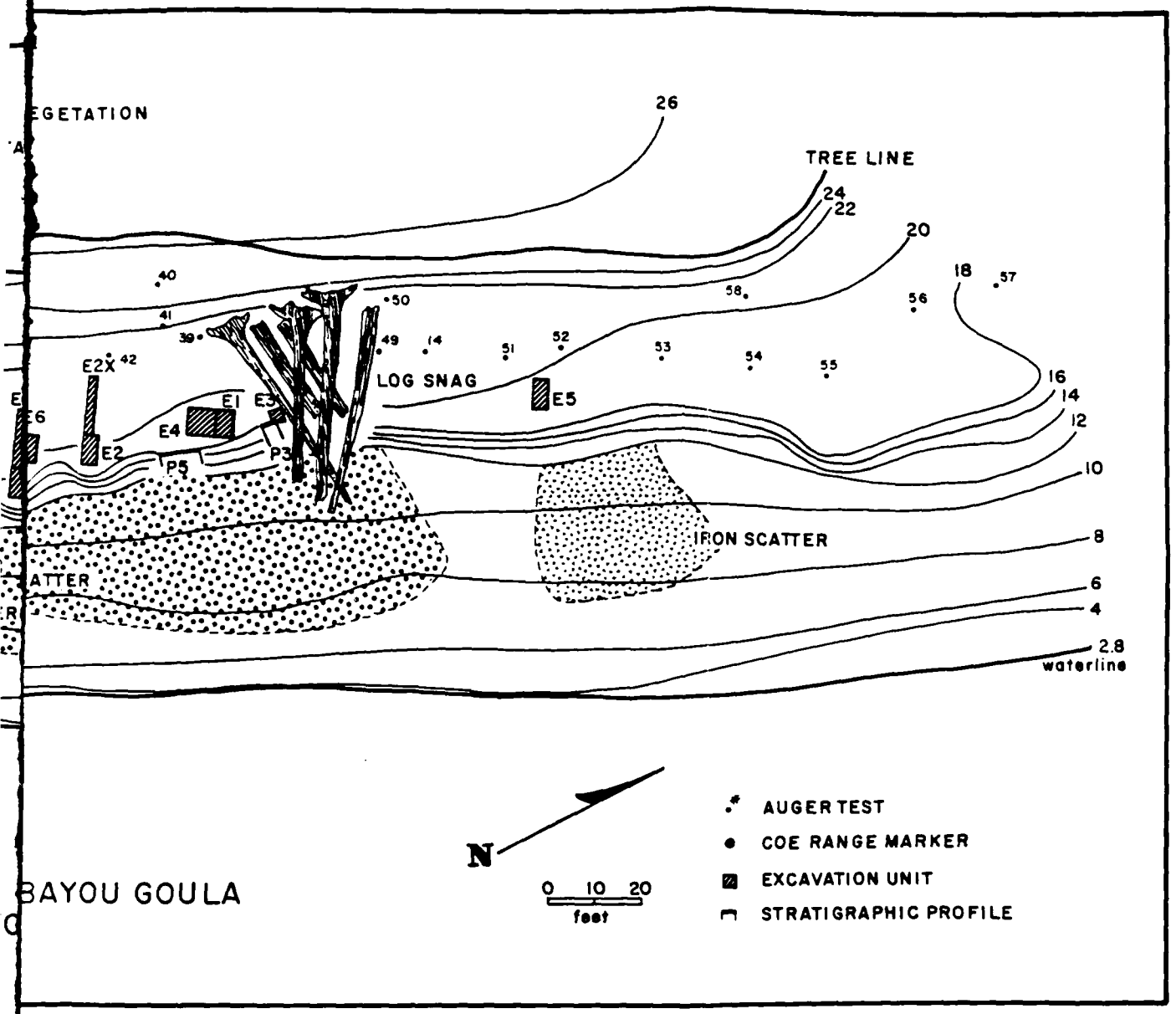


Figure 19. Plan of Artifact Scatter 1 (CEI Localities 3-6).


EGETATION
26
TREE LINE
24
22
20
18
16
14
12
10
8
6
4
2.8
waterline
40
41
39
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50
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E2X
E1
E3
E4
E5
E6
E2
P5
P3
LOG SNAG
IRON SCATTER
ATTER
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feet
AUGER TEST
COE RANGE MARKER
EXCAVATION UNIT
STRATIGRAPHIC PROFILE

low bench at this locality, was identified during the bankline survey. Two stratigraphic profiles were cleaned along this exposure, documenting the depth and indicating some of the horizontal variability that characterizes the deposit. This variability also is suggested by the horizontal distribution of artifactual remains located along the bankline surface riverward of this exposure. These materials extend for about 300 feet (91.44 m) along the beach. Two primary artifact concentrations were identified (Figure 19). Metal artifacts dominate the upriver concentration, while a second, downriver concentration includes a massive scatter of bricks. Historic ceramics and glass were present in both concentrations, but they were most frequent in the zone of brick rubble, which also contained bone and oyster shell. It appears that these remains have not experienced extensive lateral (downriver) displacement. Rather, they have been deposited adjacent to their original position within the bankline exposure at Localities 3-6. These deposits document some of the horizontal variability previously suggested by inspection of exposed cultural strata in profile at this locality.

Auger Testing

Prior to hand excavation at Locality 3, Feature 1, twenty six-inch (66.04 cm) auger tests were placed across the bench or terrace proximal to the surface manifestations exposed near the water line. The locations of these tests are shown in Figure 19, and strata descriptions are given in Appendix 2. On the basis of the auger test data, subsurface cultural remains appear to be concentrated in the area immediately adjacent to the scatter of ceramics and brick along the bankline. These remains occur beneath about three to four feet (.91-1.22 m) of overbank deposits, such as those shown in the A-39 profile (Figure 20). Artifactual remains recovered through auger testing become less frequent landward of the bankline exposure, and tests near the tree line (approximating the top-of-bank) were devoid of cultural materials (e.g., A-46, Figure 21). Cultural deposits also thinned both upriver and downriver of the ceramic and brick scatter. However, traces of small brick fragments extended to the northern, upriver margin of the locality. No indications of intact architectural features were revealed through auger testing. Judging by the results of the additional auger test program alone, it appears likely that the vast majority of the cultural deposit that formerly may have been present at this locality already has been lost to bankline erosion. As will be seen below, this conclusion is borne out by the controlled test excavations, which did not result in the recovery of a substantial artifactual assemblage.

Excavation Units

Six hand excavation units were placed in the Locality 3 area,

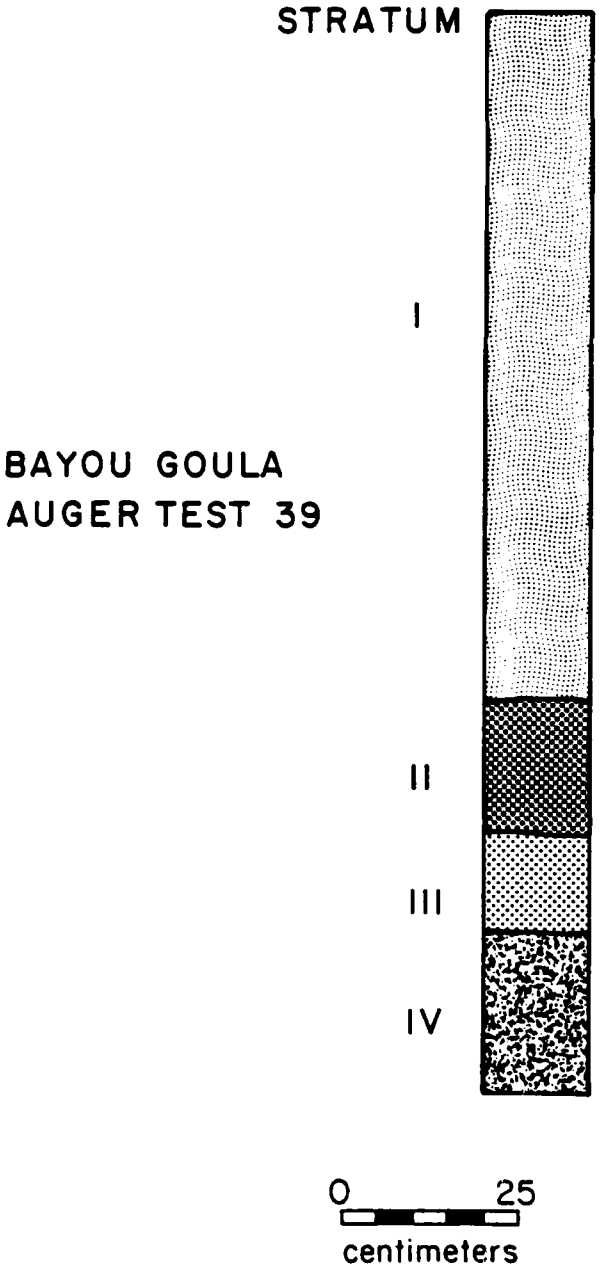


Figure 20. Bayou Goula Landing Site, Auger Test 39.

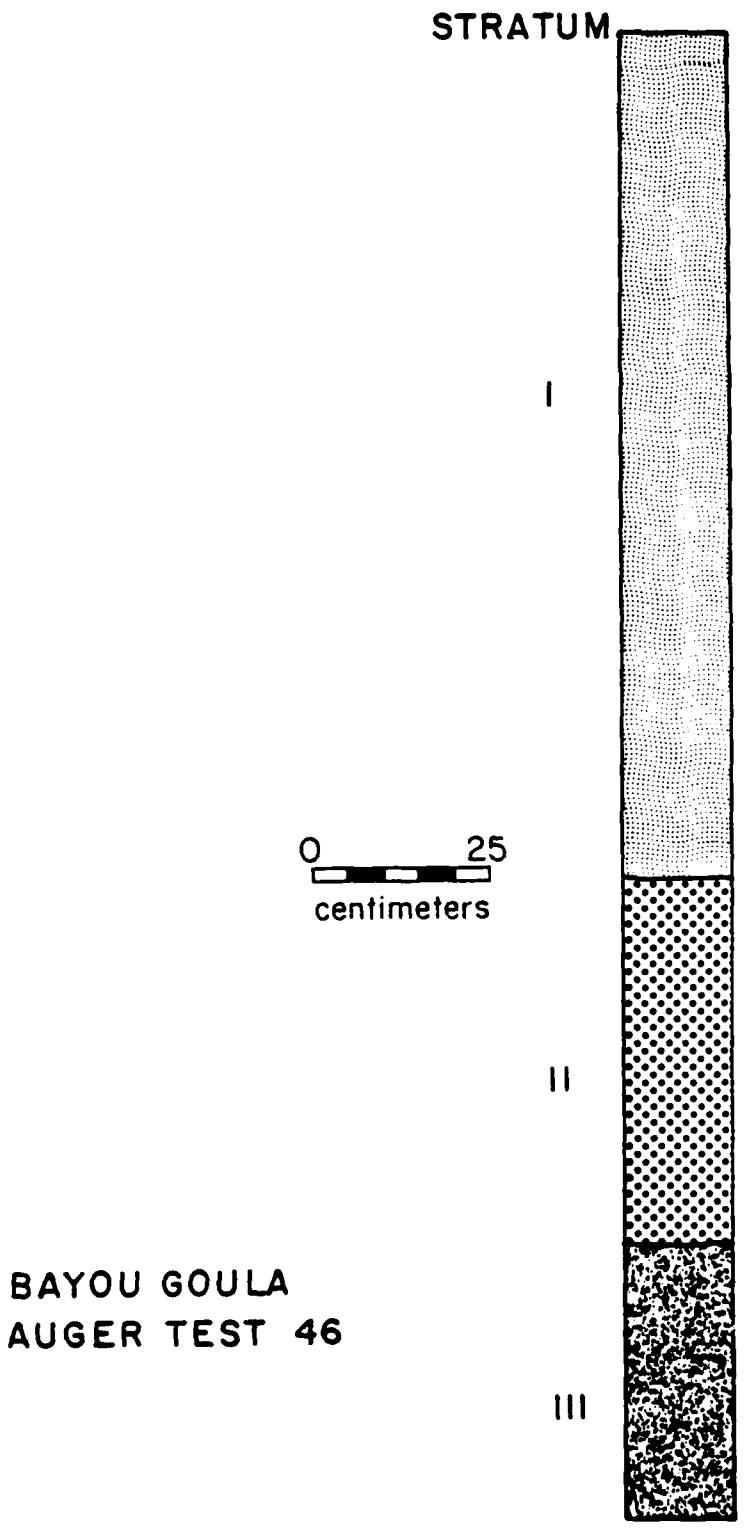


Figure 21. Bayou Goula Landing Site, Auger Test 46.

exposing a total of 15 square meters. Pursuant to the scope of services, one goal of these investigations was to excavate and expose Feature 1. However, intensive inspection of the bankline and of the exposed deposits within the cutbank, failed to yield traces of Feature 1 as described by Pearson and Guevin (1984). Therefore, excavations at Locality 3 were designed to identify and expose additional architectural features, if present, and to recover associated refuse disposal and/or activity loci.

Excavation Unit 1 (1 x 2 m) was located immediately landward of the bankline exposure, adjacent to Stratigraphic Profiles 3 and 5. Here, about 55 cm of overbank deposits (Stratum I) consisting of fine lenses of brown (10 YR 5/3) silt loam, gray (10 YR 5/1) silty clay loam, and brown (10 YR 5/3) sandy silt loam, covered the cultural deposit (Figure 22). Stratum II, which contained the majority of artifactual remains, was a dark reddish brown (5 YR 3/2) silt loam containing brick, metal, mortar, glass, ceramics, and oyster shell. Figure 23 shows the horizontal distribution of bricks, brick rubble, and artifacts at the top of Stratum II. A depression in this stratum, shown in profile, may represent a small pit. Stratum III was a dark gray (10 YR 4/1) silty clay loam, between 70 cm below surface and the floor of the unit at 90 cm below surface. Scattered fragments of charcoal and oyster shell were present near the top of this stratum, which otherwise was devoid of cultural materials. A total of only 12 glass, ceramic, and metal artifacts, described below, were recovered from EU1.

Excavation Unit 2 (1 x 2 m) was situated about thirty feet (9.14 m) downriver from EU1, adjacent to a series of bricks exposed in the cutbank. A cultural stratum (Stratum VI) was situated beneath a series of overbank deposits (Strata I-V) extending from 0 to 70 cm below surface (Figure 24). Stratum VI (70-80 cm below surface) was a very dark gray (10 YR 3/1) clayey silt containing brick fragments, mortar, ceramics, glass, and charcoal. A plan of EU2 at the top of Stratum VI shows a light scatter of artifactual remains distributed across the unit (Figure 25). Excavation to the base of this stratum (Figure 26) exposed a quantity of brick fragments, suggesting the presence of a destroyed architectural feature. This interpretation is reinforced by the discovery of a square posthole at the base of the stratum, which disturbed the underlying sterile dark grey (10 YR 4/1) silty clay (Stratum VII). Excavation Unit 2 was extended eastward in the form of a small (2 x 0.5 m) trench (Excavation Unit 2 Extension), in order to examine a transverse section across the cultural deposit (Figure 24). Stratum VI, containing cultural remains, was present along the length of the trench; however, the density of brick fragments and other artifactual remains dropped off markedly. An additional posthole was encountered at the western margin of EU2 Extension. Like EU1, only a modest artifactual assemblage was recovered from the combined EU2 and EU2 extension units.

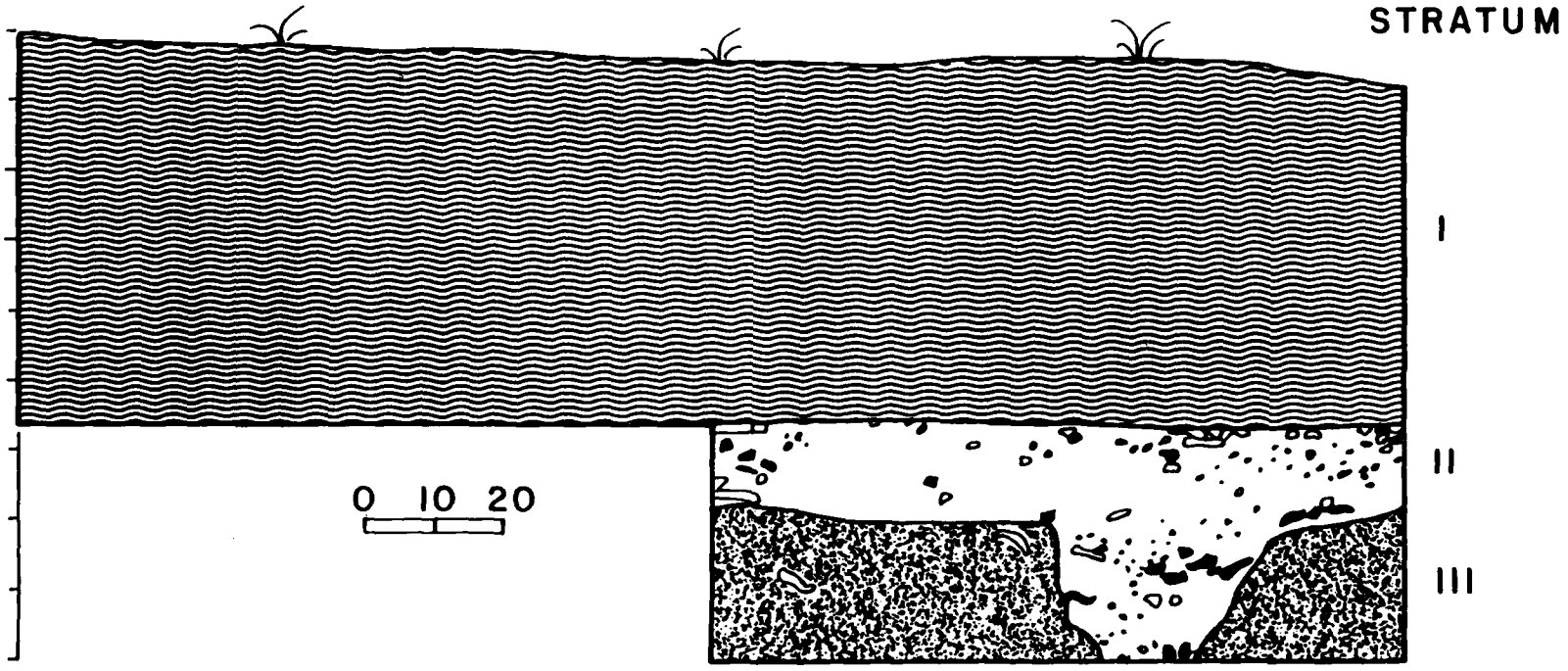


Figure 22. Bayou Goula Landing Site, Excavation Unit 1, North Wall Profile.

Figure 22, Continued.

Stratum I:	Fine lenses of brown (10 YR 5/3) silt loam, gray (10 YR 5/1) silty clay loam, and brown (10 YR 5/3) sandy silt loam.
Stratum II:	Dark reddish brown (5 YR 3/2) silt loam with brick fragments, metal, charcoal, mortar, glass ceramics, and oyster shells.
Stratum III:	Dark Gray (10 YR 4/1) mottled silty clay loam with scattered charcoal and shell fragments.

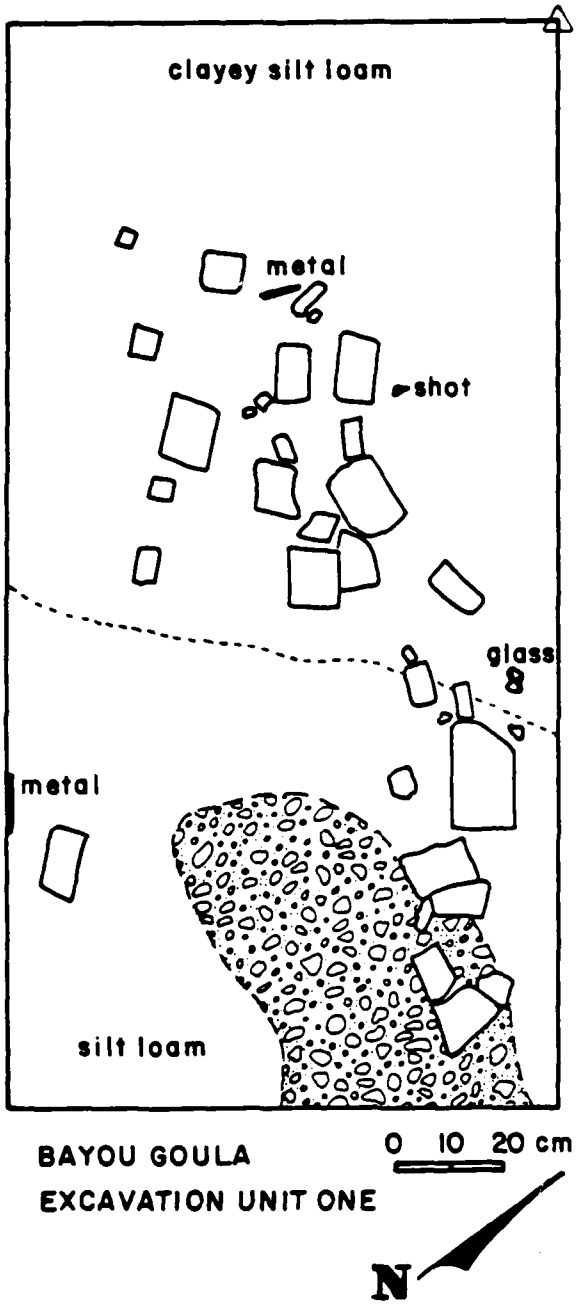


Figure 23. Bayou Goula Landing Site, Excavation Unit 1, Top of Stratum II.

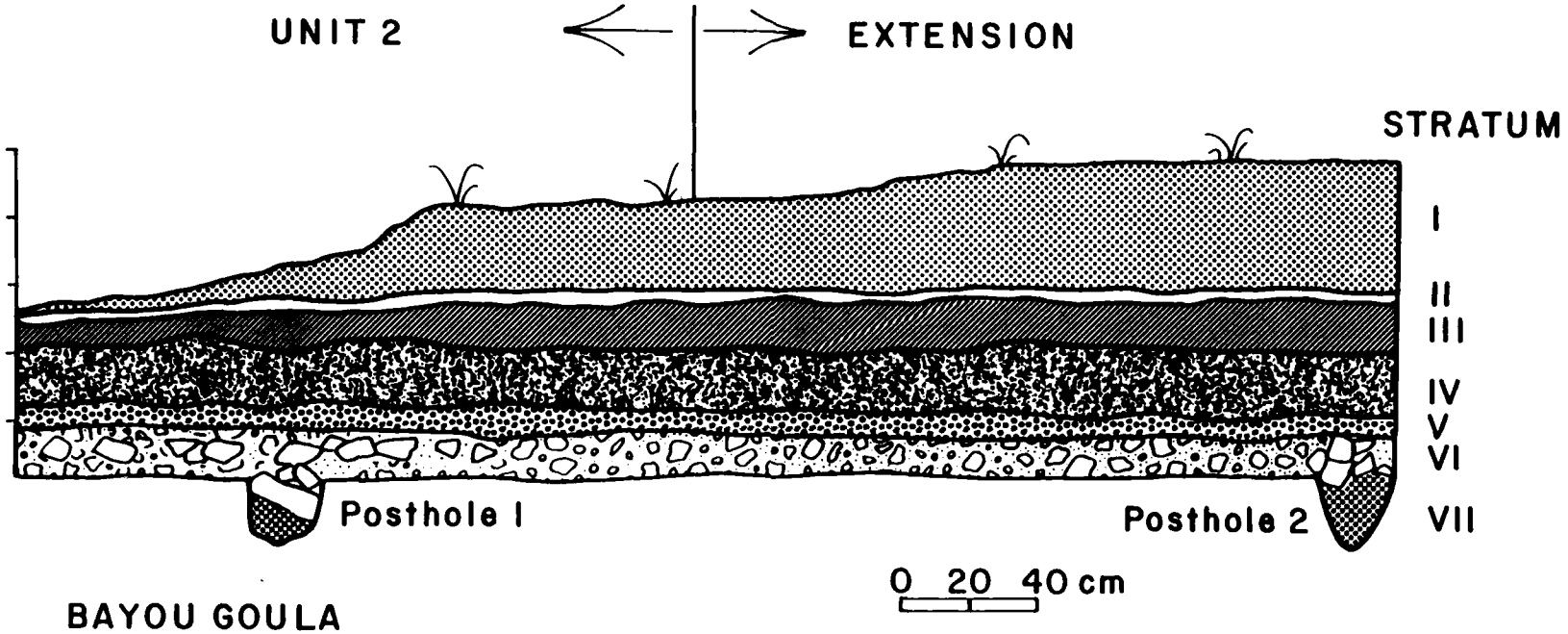


Figure 24. Bayou Goula Landing Site, Excavation Unit 2 and Unit 2 Extension, South Wall Profile.

Figure 24, Continued.

Stratum I:	Dark grayish brown (10 YR 4/2) sandy silt.
Stratum II:	Dark yellowish brown (10 YR 4/4) silty clay.
Stratum III:	Gray (10 YR 5/1) silty clay.
Stratum IV:	Dark grayish brown (10 YR 4/2) silty clay loam.
Stratum V:	Dark grayish brown (10 YR 4/2) silty clay.
Stratum VI:	Very dark gray (10 YR 3/1) clayey silt with brick, glass, ceramics, metal, bone, shell, charcoal, and mortar.
Stratum VII:	Dark gray (10 YR 4/1) silty clay.

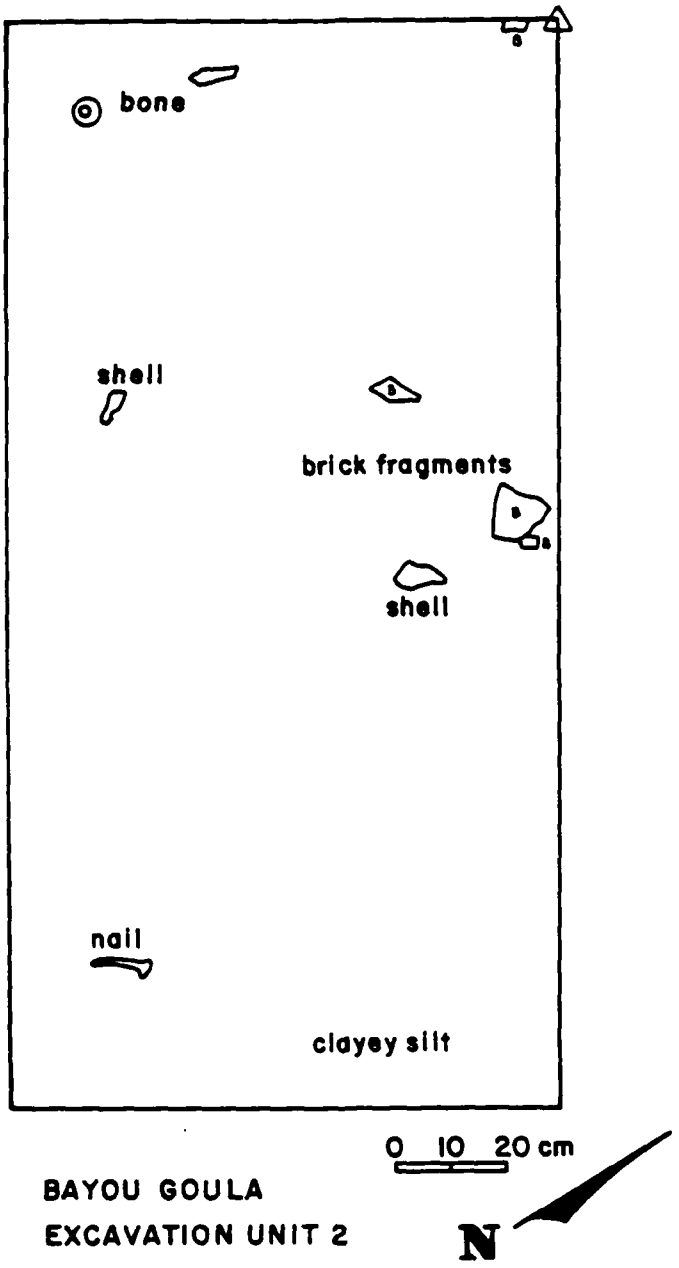


Figure 25. Bayou Goula Landing Site, Excavation Unit 2, Top of Stratum VI.

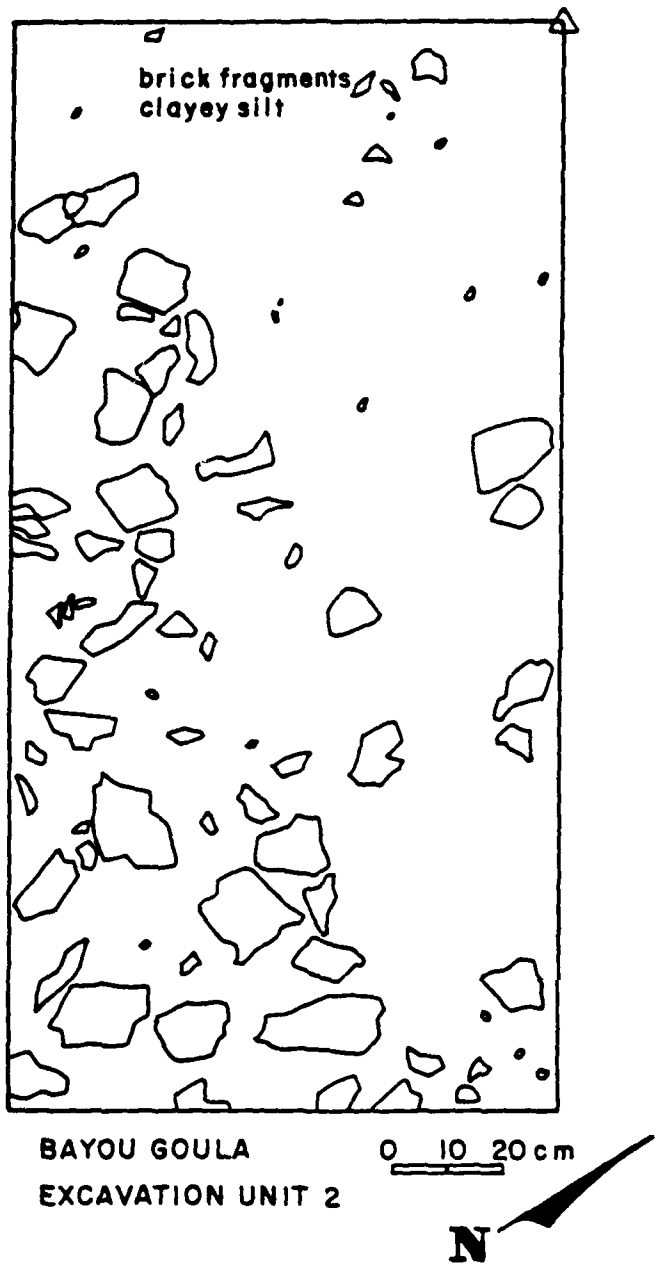


Figure 26. Bayou Goula Landing Site, Excavation Unit 2, Base of Stratum VI.

Excavation Unit 3 (1 x 1 m) was placed directly above the set of articulated bricks exposed in Stratigraphic Profile 3. Intact brick and other artifactual remains (Stratum VII) were encountered beneath about 45 cm of overbank deposits (Strata I-VI). The East Wall profile (Figure 27) indicated that intact bricks terminated in the downriver direction, where they were replaced by a very dark gray (10 YR 3/1) silt loam containing small brick and mortar fragments, and metal artifacts. A plan of EU3 at the top of Stratum VII (Figure 28) shows an intact brick floor extending across the northern half of the unit. A concentration of oyster shell and miscellaneous artifacts occurred immediately adjacent to this feature. Below this stratum of brick, additional cultural deposits were present. Stratum VIII, between about 50 and 60 cm below surface, was a dark grayish brown (10 YR 4/2) silt loam, containing mortar, metal, and brick fragments. Stratum VIII rested upon a thin (3 cm) stratum (IX) containing abundant charcoal in a very dark gray (10 YR 3/1) clay loam matrix. Here, a square posthole cut through a culturally sterile light yellowish brown (10 YR 6/4) silt loam (Stratum X) and a gray (10 YR 5/1) clayey silt loam (Stratum XI). The North Wall profile of EU3 (Figure 29) illustrates the changing stratigraphy of the locality over short distances. A thin lens of heavily charcoal stained silt loam was present immediately above the brick stratum, while the lens of charcoal exposed in the East Wall (Stratum IX) increased in thickness toward the river (North Wall Profile, Stratum X).

Evidence obtained from EU3 suggests that architectural remains may be present primarily north and west of the unit. Indeed, the massive scatter of bricks and ceramics along the bankline may represent destroyed elements of that structure. Unfortunately, extension of the excavations northward was not possible due to the presence of a massive accumulation (snag) of trees resting atop the cultural deposit (Figure 19).

Excavation Unit 4 (2 x 2 m) was placed adjacent to EU1 in order to expose a more extensive horizontal surface and to increase the sample of artifacts from this portion of the cultural deposit. The stratigraphy exposed in the South Wall profile of EU4 (Figure 30) is considerably more complex than that recorded three meters to the north (EU1, North Wall). An initial stratum containing cultural remains (Stratum II) was present beneath about 50-55 cm of overbank deposits (Stratum I). Stratum II was a dark gray (7.5 YR 4/0) silty clay loam with charcoal, brick fragments, wood, bone, and shell. A plan of the base of Stratum II (Figure 31) shows a light scatter of artifactual and ecofactual remains distributed across the unit. Faunal remains were more abundant in EU4 (n=22) than elsewhere at the site, a finding consistent with the observation of a concentration of bones located immediately adjacent to the unit along the bankline. Stratum III, a thin lens

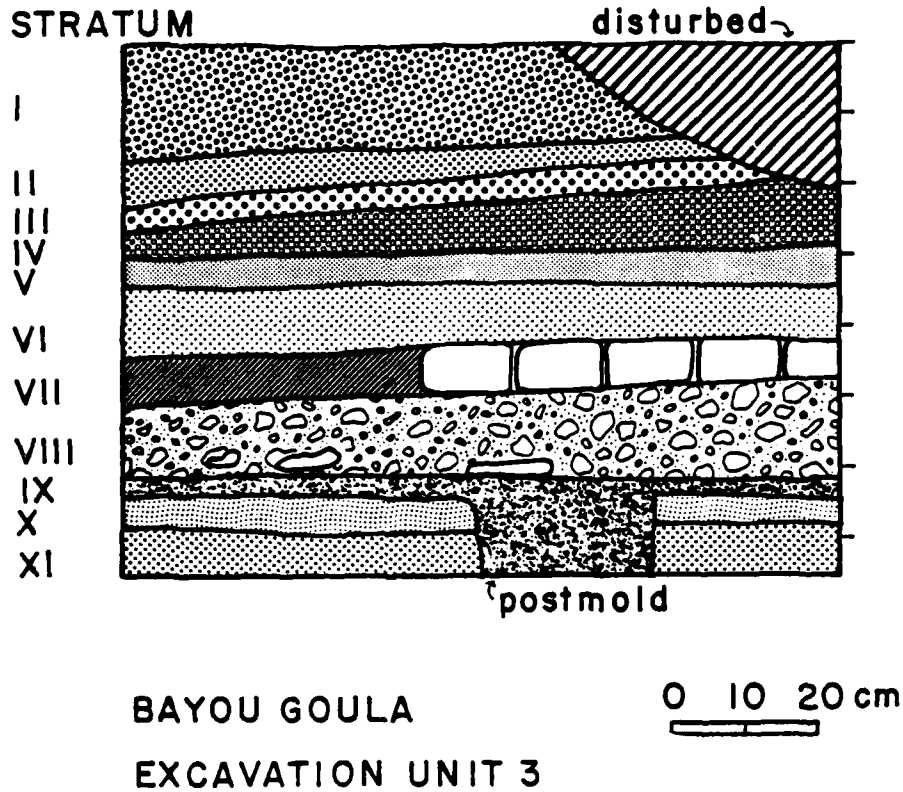


Figure 27. Bayou Goula Landing Site, Excavation Unit 3, East Wall Profile.

Figure 27, Continued.

Stratum I:	Dark gray (10 YR 4/1) clayey silt loam
Stratum II:	Brown (10 YR 5/3) silt loam
Stratum III:	Gray (10 YR 5/1) silty clay loam
Stratum IV:	Brown (10 YR 5/3) clay loam
Stratum V:	Dark gray (10 YR 4/1) clay loam
Stratum VI:	Yellowish brown (10 YR 5/4) sandy silt loam
Stratum VII:	Very dark gray (10 YR 3/1) silt loam with brick and metal
Stratum VIII:	Dark grayish brown (10 YR 4/2) silt loam with mortar, metal, and brick fragments
Stratum IX:	Very dark gray (10 YR 3/1) clay loam with charcoal
Stratum X:	Light yellowish brown (10 YR 6/4) silt loam
Stratum XI:	Gray (10 YR 5/1) clayey silt loam

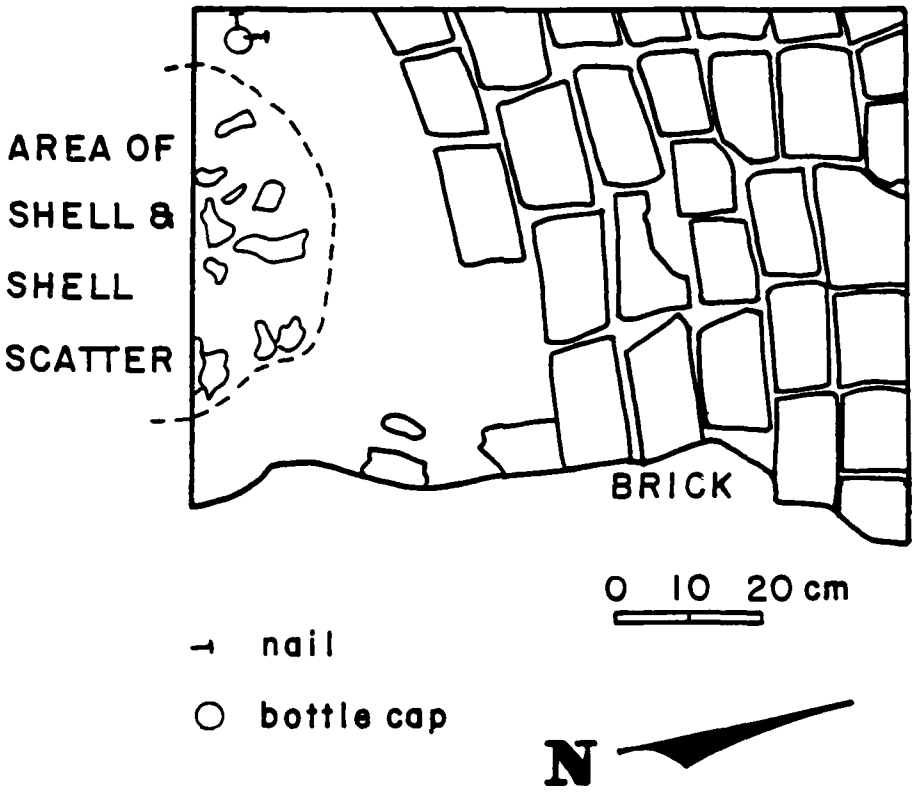


Figure 28. Bayou Goula Landing Site, Excavation Unit 3, Top of Stratum VII.

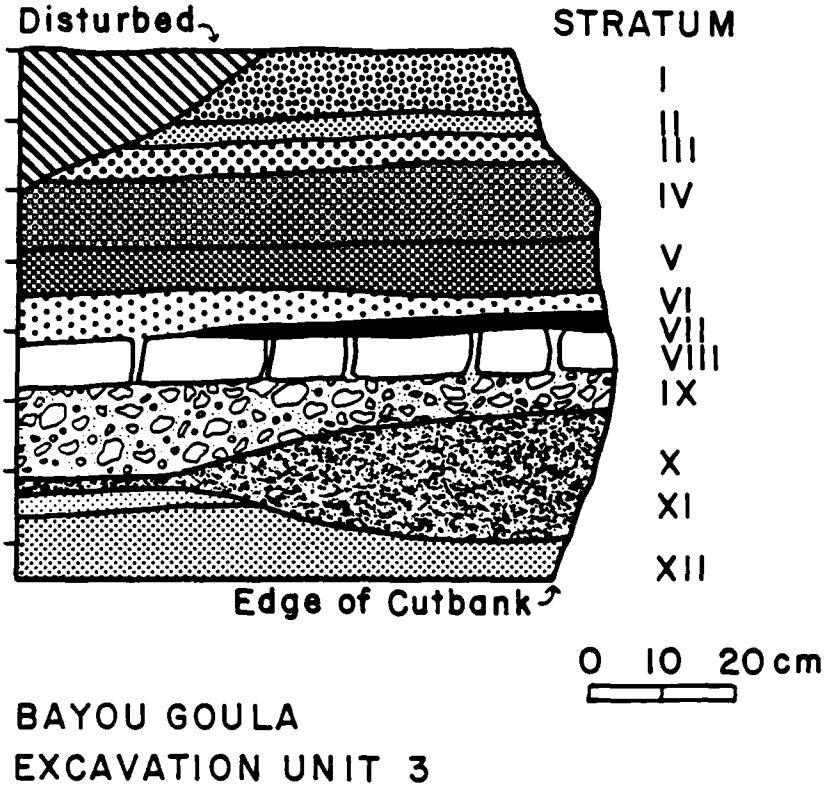


Figure 29. Bayou Goula Landing Site, Excavation Unit 3, North Wall Profile.

Figure 29, Continued.

Stratum I:	Dark gray (10 YR 4/1) clayey silt loam
Stratum II:	Brown (10YR 5/3) silt loam
Stratum III:	Gray (10 YR 5/1) silty clay loam
Stratum IV:	Brown (10 YR 5/3) clay loam
Stratum V:	Dark gray (10 YR 4/1) clay loam
Stratum VI:	Yellowish brown (10 YR 5/4) sandy silt loam
Stratum VII:	Black (10 YR 2/1) silt loam with charcoal staining
Stratum VIII:	Brick
Stratum IX:	Dark grayish brown (10 YR 4/2) silt loam with mortar, metal, and brick fragments
Stratum X:	Very dark gray (10 YR 3/1) clay loam with charcoal flecks
Stratum XI:	Light yellowish brown (10 YR 6/4) silt loam
Stratum XII:	Gray (10 YR 5/1) clayey silt loam

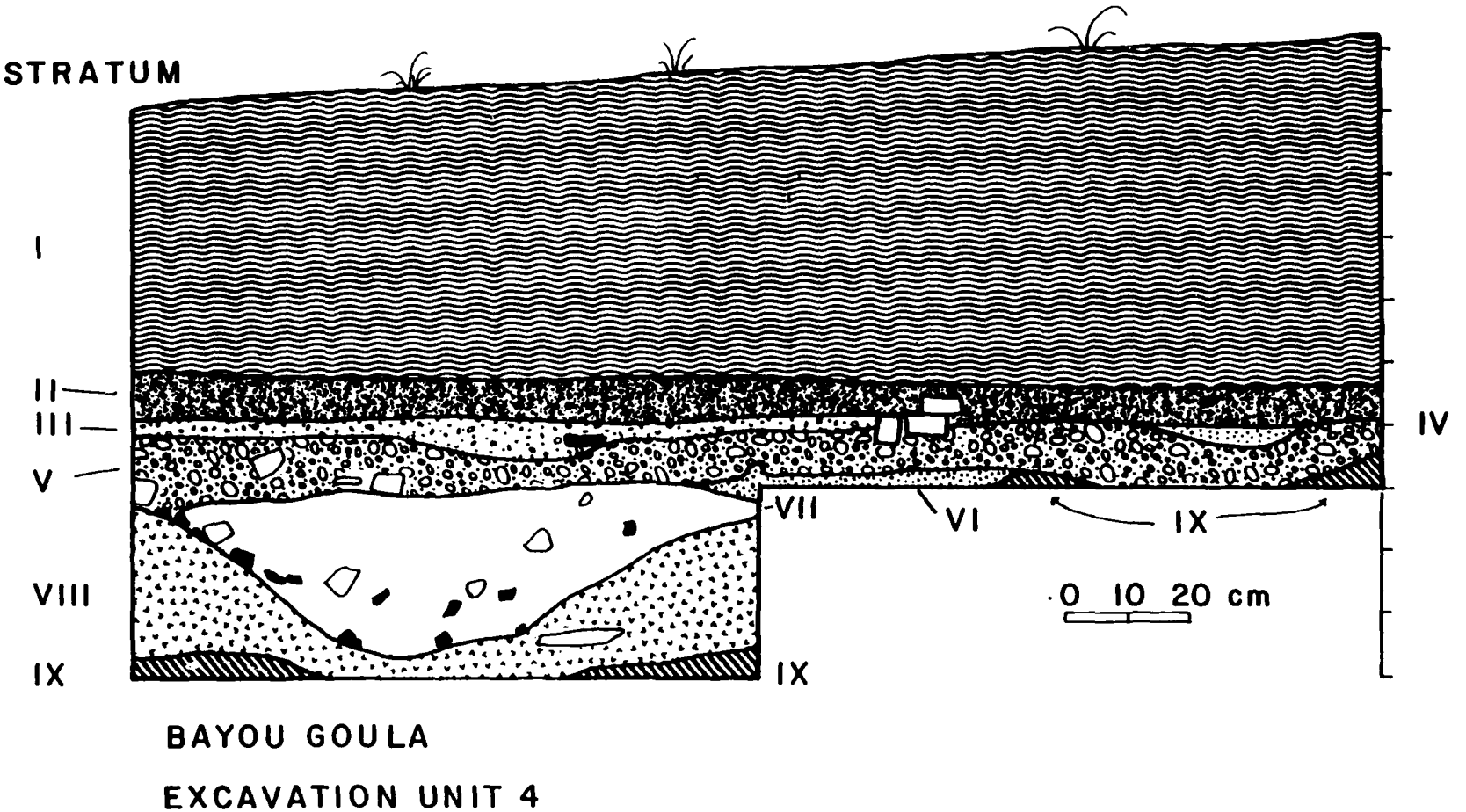
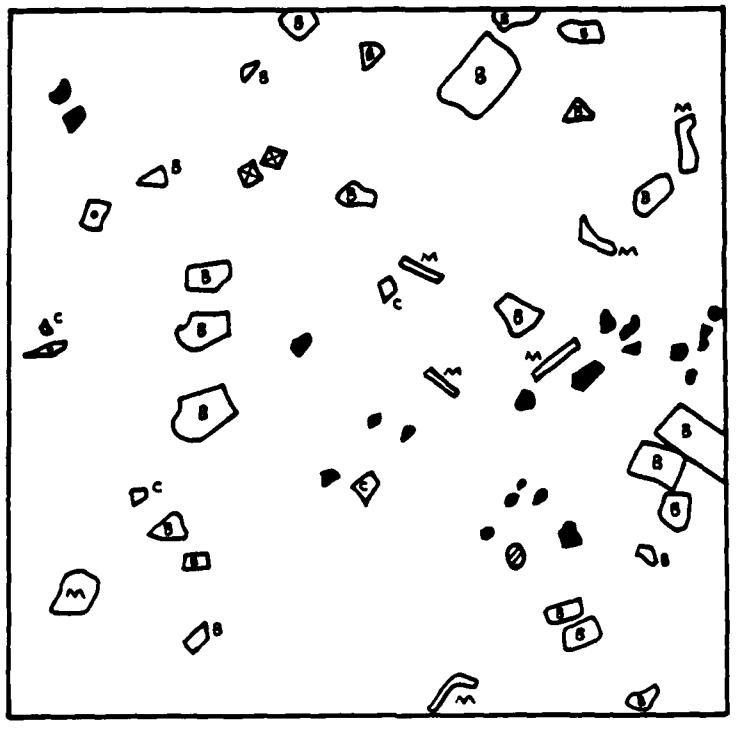


Figure 30. Bayou Goula Landing Site, Excavation Unit 4, South Wall Profile.

Figure 30, Continued.

Stratum I:	Fine lenses of brown (10 YR 5/3) silt loam, gray (10 YR 5/1) silty clay loam, and brown (10 YR 5/3) sandy silt loam
Stratum II:	Dark gray (7.5 YR 4/0) mottled silty clay loam with charcoal flecks, brick, wood, bone, and shell
Stratum III:	Black (10 YR 2/1) clay with charcoal flecks, ceramics, and glass
Stratum IV:	Brown (10 YR 5/3) sandy silt loam
Stratum V:	Gray (10 YR 5/1) mottled clay loam with shell, brick, charcoal, ceramics, metal, glass, bone and shell
Stratum VI:	Light yellowish brown (10 YR 6/4) mottled sandy silt loam with charcoal flecks
Stratum VII:	Light yellowish brown (10 YR 6/4) sandy silt loam with abundant charcoal
Stratum VIII:	Dark reddish brown (5 YR 3/2) silt loam with brick fragments, metal, charcoal, mortar, glass ceramics, and oyster shells.
Stratum IX:	Dark gray (10 YR 4/1) mottled silty clay loam



0 20 40 cm

⊘ FRUIT PIT

⊡ BONE

B BRICK

C CERAMIC

CHARCOAL/COAL

⊠ GLASS

M METAL

N

BAYOU GOULA
EXCAVATION UNIT 4.

Figure 31. Bayou Goula Landing Site, Excavation Unit 4, Base of Stratum II.

of black (10 YR 2/1) clay with charcoal flecks and artifacts, was present between about 60 and 63 cm below surface; a much smaller lens (Stratum IV) of culturally sterile brown (10 YR 5/3) sandy silt loam occurred over a limited surface of the unit at about the same depth. A more substantial artifact bearing stratum (Stratum V) was present between 63 and 70 cm below surface; it consisted of a gray (10 YR 5/1) clay loam containing shell, brick, bone, charcoal, ceramics, glass, and metal. Stratum VI, a light yellowish brown (10 YR 6/4) sandy silt loam with charcoal flecks, was only partially exposed. Stratum VII was a thick deposit containing abundant charcoal in a dark reddish brown (5 YR 3/2) silt loam. Artifacts in this stratum include brick fragments, metal, charcoal, mortar, glass, ceramics, and oyster shells. This stratum appears in the form of a shallow trench or pit. It is situated above a culturally sterile stratum (VIII) consisting of a dark gray (10 YR 4/1) mottled silty clay loam. This latter stratum occurred between about 75 and 90 cm below surface. Indeed, Strata VII and VIII of EU4 correspond to Strata II and III in the North Wall profile of EU1; their relative stratigraphic positions are indicated by the three-meter long west wall profile of EU1-EU4 (Figure 32). Thus, south of EU1, a wedge of refuse rests above the lowest level. Judging by the frequency of architectural debris and associated domestic refuse (see below), deposits exposed in EU4 most likely represent a portion of a former residential structure.

Excavation Unit 5 (1 x 2 m) was situated near the upriver margin of the cultural deposit, adjacent to the metal concentration exposed along the bankline. Auger testing in the vicinity of EU5 suggested a decline in the density of artifactual remains in this area; this finding was confirmed at EU5. Overbank deposits (Stratum I) were present to a depth of about 75-80 cm below surface (Figure 33). Stratum II, 75-80 cm below surface, was a very dark gray (10 YR 3/1) clay loam containing very small quantities of brick fragments, metal, and a fragment of leather. The distribution of artifacts across the unit at the top of Stratum II is shown in Figure 34. Stratum III, a dark gray (10YR 4/1) clay loam between about 80 and 90 cm below surface, also contained very small frequencies of brick, glass, metal, and shell. Stratum IV, between 90 and 98 cm below surface, was a very dark gray (10 YR 3/1) clay loam with extremely small fragments of brick, metal, and shell. Finally, a culturally sterile dark gray (10 YR 4/1) silt loam was present at the floor of the excavation unit. A total of thirteen artifacts (see below) were recovered from EU5.

The last excavation unit (EU6; 1 x 2 m) was placed near the downriver margin of Locality 3. Here, a single cultural stratum (Stratum VI) occurred beneath a series of sterile overbank deposits (Strata I-V) (Figure 35). Stratum VI was a very dark gray (10 YR 3/1) clayey silt loam which contained only scattered brick

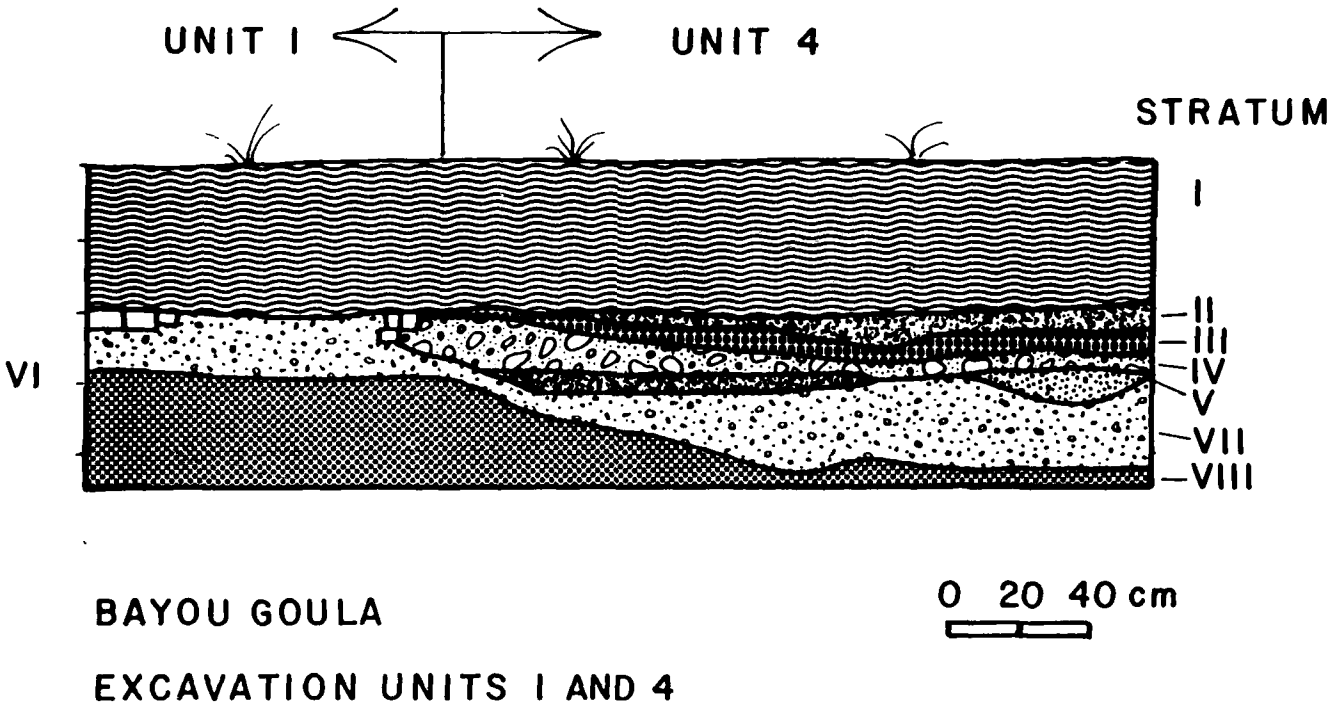


Figure 32. Bayou Goula Landing Site, Excavation Units 1 and 4, East Wall Profile.

Figure 32, Continued.

Stratum I:	Fine lenses of brown (10 YR 5/3) silt loam, gray (10 YR 5/1) silty clay loam, and brown (10 YR 5/3) sandy silt loam
Stratum II:	Dark gray (7.5 YR 4/0) mottled silty clay loam with charcoal flecks, brick, wood, bone, and shell
Stratum III:	Black (10 YR 2/1) clay with charcoal flecks, ceramics, and glass
Stratum IV:	Brown (10 YR 5/3) sandy silt loam
Stratum V:	Gray (10 YR 5/1) clay loam containing shell, brick, charcoal, ceramics, metal, glass, and bone
Stratum VI:	Light yellowish brown (10 YR 6/4) sandy silt loam with abundant charcoal
Stratum VII:	Dark reddish brown (5 YR 3/2) silt loam with brick fragments, metal, charcoal, mortar, glass, ceramics, and oyster shells.
Stratum VIII:	Dark gray (10 YR 4/1) mottled silty clay loam

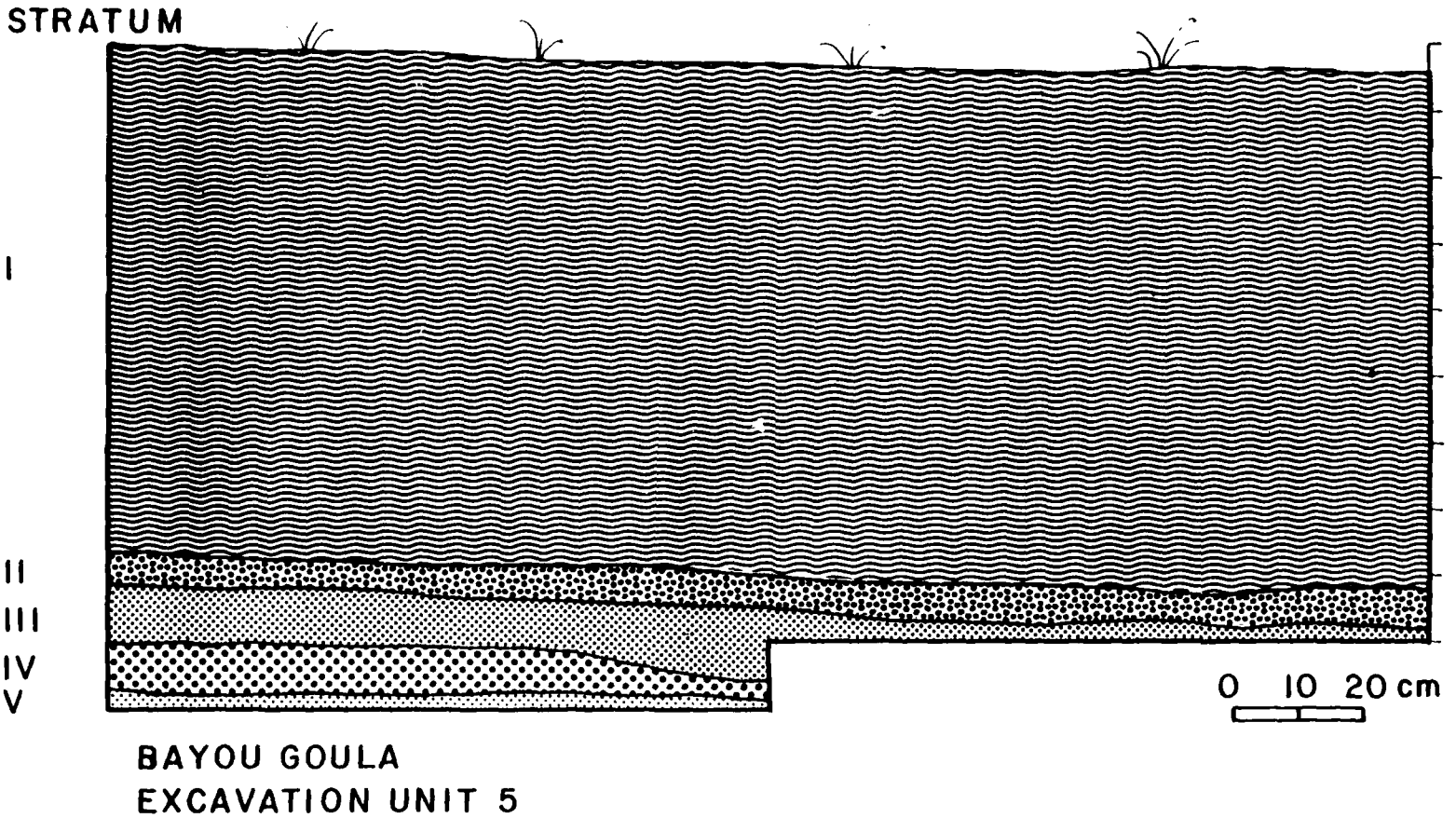


Figure 33. Bayou Goula Landing Site, Excavation Unit 5, North Wall Profile.

Figure 33, Continued.

Stratum I:	Fine lenses of clay loam and silt loam
Stratum II:	Very dark gray (10 YR 3/1) clay loam with brick fragments, metal, and leather
Stratum III:	Dark gray (10 YR 4/1) clay loam with brick fragments, glass, metal, and shell
Stratum IV:	Very dark gray (10 YR 3/1) clay loam with small brick fragments, metal, and shell
Stratum V:	Dark gray (10 YR 4/1) silt loam

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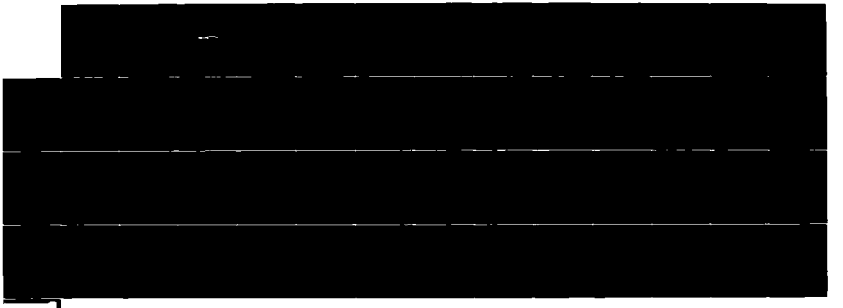

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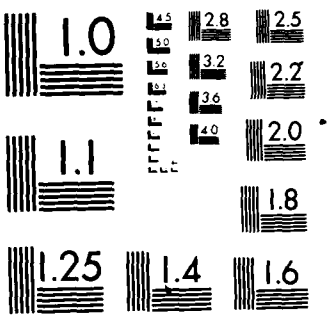

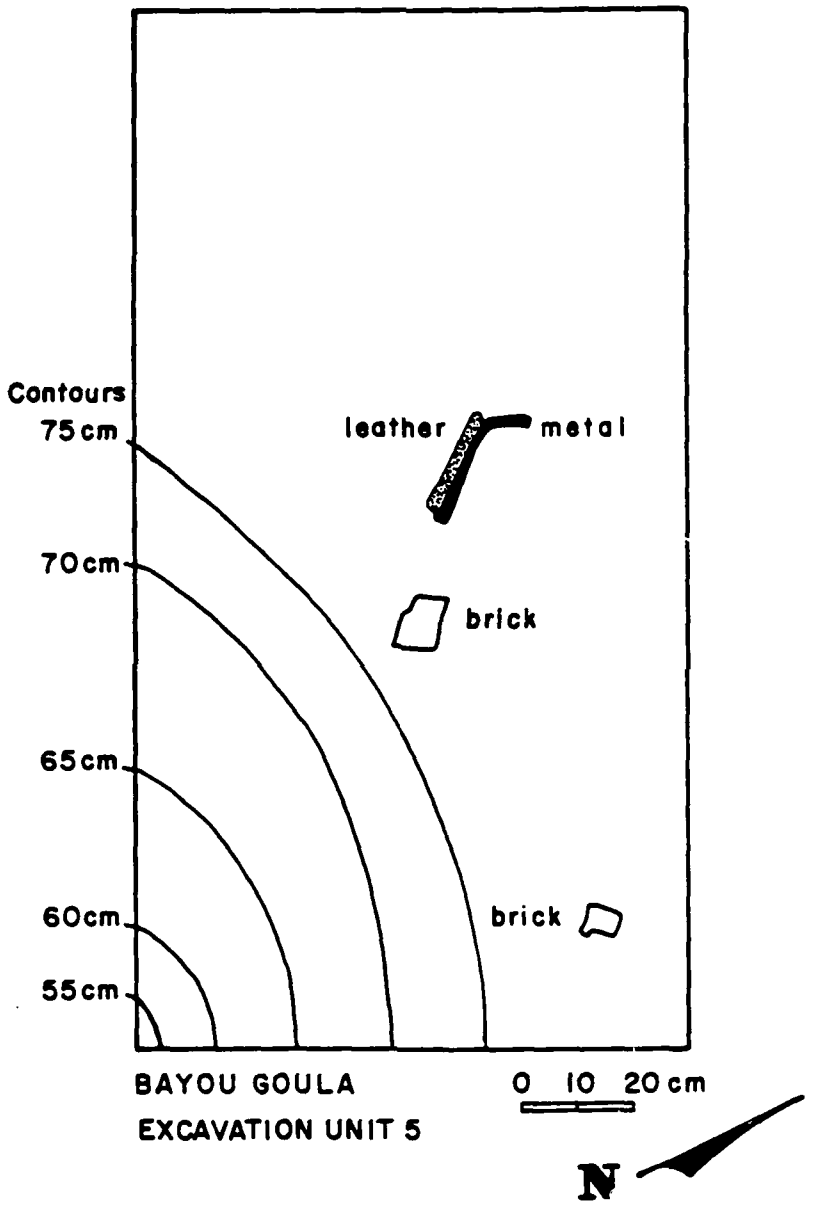

Figure 34. Bayou Goula Landing Site, Excavation Unit 5, Top of Stratum II.

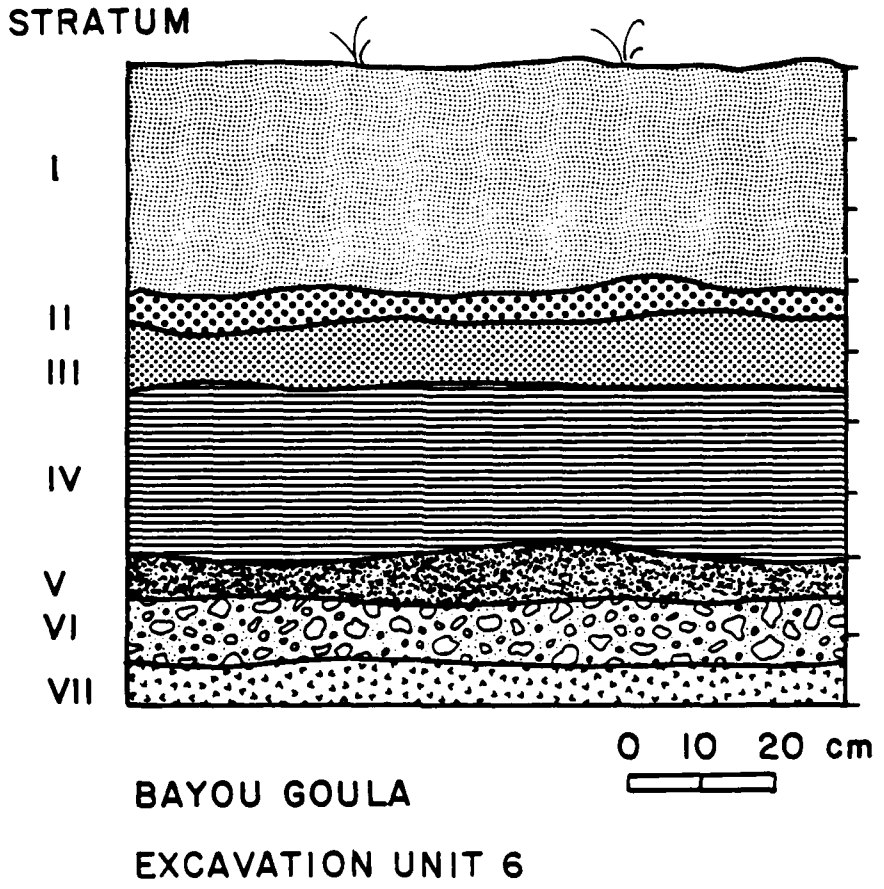

Figure 35. Bayou Goula Landing Site, Excavation Unit 6, South Wall Profile.

Figure 35, Continued.

Stratum I:	Dark grayish brown (10 YR 4/2) sandy silt.
Stratum II:	Dark yellowish brown (10 YR 4/4) silty clay.
Stratum III:	Gray (10 YR 5/1) silty clay.
Stratum IV:	Dark grayish brown (10 YR 4/2) silty clay loam.
Stratum V:	Dark grayish brown (10 YR 4/2) silty clay.
Stratum VI:	Very dark gray (10 YR 3/1) clayey silt with brick, glass, ceramics, and metal
Stratum VII:	Dark gray (10 YR 4/1) silty clay.

fragments, glass, and metal, overlying a sterile dark gray (10 YR 4/1) silty clay at the floor of the excavation unit. Again, Excavation Unit 6 yielded an extremely sparse artifactual assemblage.

Conclusions

Field investigations at the Bayou Goula Landing site were conducted in a staged and designed survey and testing effort incorporating pedestrian survey, subsurface auger testing, profile excavations, and controlled archeological excavations. Surface reconnaissance and mapping of the 1985 bankline demonstrated that recent erosion has altered the configuration of previously defined artifact concentrations and cultural deposits. Eight primary concentrations of cultural remains were recorded along the present bankline; these correspond only in part to previously identified cultural resources within the project area. Substantial intact cultural deposits occurred primarily in the vicinity of Artifact Scatter 1. Artifact-bearing deposits also were encountered at the downriver portion of the project area. However, aside from a gravel road, these deposits appear to represent diffuse and disturbed materials associated with Tally Ho Plantation occupation surface.

Additional auger tests and hand excavation test units were placed within a cultural deposit located at Artifact Scatter 1, which encompasses the previously defined Collection Locality 3. Intact archeological deposits, including a portion of a brick floor, were exposed and recorded, and it was possible to identify limited activity/occupational loci. However, these deposits were limited in extent, and they did not yield an abundant artifactual assemblage. It is likely that the vast majority of this stratum, only the last vestiges of which survive intact, have been lost to lateral migration of the Mississippi River.

CHAPTER VIII

ARTIFACT ANALYSIS

Ceramic Artifacts

A small collection of late nineteenth and early twentieth century ceramics were recovered from 16 IV 131 (Table 1). The vast majority of the collection consisted of white colored earthenware. White colored earthenware resulted from the introduction of small amounts of cobalt into the cream colored earthenware paste perfected by Wedgwood and Whieldon in 1759, and popularized by Wedgwood in the form of creamware (1762) and pearlware (1779) (Noel Hume 1969:390, 395; 1970:128). The addition of cobalt to the cream colored earthenware paste had occurred by the early nineteenth century. Over time, the body of these ceramic vessels became thicker and coarser, and the net result of these changes distinguishes white colored earthenware from cream colored earthenware. During the first quarter of the nineteenth century, this white colored earthenware often was covered with the cobalt-tinted glaze typical of pearlware (Sussman 1977:105-106). Cream colored earthenwares with very lightly tinted pearlware glazes, and white colored earthenwares with a copper-tinted creamware glaze, also are found from contexts dating from this period.

The use of copper and cobalt oxides in glazes gradually was reduced, and at the end of the first quarter of the nineteenth century, a ceramic type with a white colored earthenware body and with a transparent alkaline glaze appeared. This type commonly is called whiteware. A similar ceramic type developed in the mid-nineteenth century in England and in the United States has been called ironstone, stone china, or granite ware. It also has a refined white colored earthenware body (this should not be confused with Mason's patented Ironstone China of 1813). While Worthy (1982:335-337) classifies ironstone as a white stoneware, she also states that it is "almost vitreous," which precludes it being a true stoneware because stonewares by definition are vitrified. Worthy (1982) is correct in stating that late ironstones are easily distinguishable from whitewares. However, distinctions at mid-nineteenth century are less clear. Although some practitioners (Noel Hume 1970:130; South 1977:211) distinguish ironstone from whiteware, and while it seems likely that there are sufficient differences between these types in terms of body composition, body permeability, body thickness, decoration, and color to warrant their segregation, it also is clear that these differences are poorly understood at the present time. As with pearlware and whiteware, the difference between whiteware and ironstone form a continuum, rather than consisting of distinct types after the time of ironstone's introduction.

Table 1. Ceramic Artifacts Recovered from 16 IV 131.

	EU1	EU2	EU3	EU4	EU5	EU6	TOTAL
Whiteware/ironstone	1	4		23	1		29
Annular whiteware/ironstone				1			1
Ironstone		2	3	19	1		25
Decaled ironstone				1			1
Brownware		1				1	2
Burnt ceramics			4				4
TOTAL	1	7	7	44	2	1	62

There is little agreement in the literature on the criteria that distinguish these types. Other authors have used a unicameral classification for them (South 1977; Nicholson 1979; Lees 1980). Barber (1902:19) states that the ceramic formula of ironstone is similar to that used in all white wares, e.g., flint, feldspar, kaolin, and ball clay. Therefore, a single classificatory unit of whiteware/ironstone was used in this study for the purpose of classifying intermediate and/or indeterminate types.

Whiteware/ironstone continued in production throughout the twentieth century. Although it frequently was decorated, particularly with transfer-printing, all but one sherd from the Bayou Goula Landing site was undecorated. The one decorated sherd had annular decoration, which consists of horizontal bands of slip on the vessel.

Ironstone, as stated above, should not be confused with Mason's patented Ironstone, which was developed in 1813 (Noel Hume 1969; Ramsey 1947:107). Rather, the ironstone under consideration here was developed in England ca. 1850 and it was produced at a slightly later date in the United States. Although it often is very similar in appearance to whiteware, for chronological purposes it is helpful to isolate as many true ironstone sherds as possible. Ironstone is defined as having a hard, white, often thick ceramic body. It is not completely vitrified, but it is more vitrified than whiteware. The fractures are even and smooth. The surface of the vessels are hard and smooth, usually covered with a bluish-grey tinted glaze which often is opaque-looking in appearance.

Ironstone tended to be undecorated or simply molded into oblong patterns, raised barley or wheat sheaf motifs, and, infrequently raised flowers. With the exception of one decaled sherd, all of the ironstone from 16 IV 131 was undecorated. Ironstone was meant for durable tableware use, and it remained in production until ca. 1940.

In addition to white colored earthenwares, two sherds of the yellow colored earthenware type known as brownware were recovered. Yellow colored earthenware is a coarse American ceramic body type. In fact, the body consists of stoneware and not earthenware clays; it is considered an earthenware because it is not fired to vitrification. The bodies range from low-fired pieces which are soft and quite porous, to high-fired, almost vitrified pieces. The body color ranges from buff to brown-yellow, varying with the type and amounts of impurities in the clays and with firing temperature.

Surface treatments on yellow colored earthenware varied with function. Yellow colored earthenware covered by a dense, matte

brown to black slip glaze known as an Albany slip is referred to as brownware. Brownware was produced between 1830 and 1900 (Ramsey 1947:144). This variant most frequently was used for straight-sided crocks, jugs, and storage jars. It generally was wheel thrown.

Glass Artifacts

A small collection of glass artifacts were recovered from 16 IV 131 (Table 2). The majority of these had no diagnostic attributes, but those that did were sherds of mold-made bottles. Within the first two decades of the nineteenth century, hinged molds that shaped the shoulders and the necks of the vessels as well as the body came into widespread use in the United States and England. The three-piece hinged mold had a dip mold body and a two piece, hinged section which served to form the shoulders and the neck. Bottles manufactured in a three-piece hinged mold have a seam horizontally around the shoulder seam. There is no base seam. One wine bottle base manufactured in a three-piece mold was recovered at 16 IV 131.

A second type of hinged mold was the two-piece hinged bottom mold. Occasionally utilized in the United States after 1810, these two-piece molds were hinged at the base. Therefore, the resultant bottles had a single vertical seam that ran down the neck and body of the vessel, across the base, and up the other side. By the mid-1840s, two-piece molds began to replace three-piece molds (Lorraine 1968:40). During the 1850s, the two-piece mold was improved and made more stable by the use of cup bottoms and post bottoms (Haskell 1981:62). In the former, a rounded seam encircles the base of the vessel, rather than crossing the bottom. In the latter, the side seams run over the base of the vessel to meet with the basal circular seam. Several sherds of bottles manufactured in two-piece molds, both with cup and post bases were recovered at 16 IV 131.

In the late eighteenth and nineteenth centuries, bottle lips were cut off with shears while the glass was still soft. This process was known as a sheared lip, and it is characterized by an abraded, plain cylindrical top. Midway through the nineteenth century, two other lip finishing techniques came into general use. The first was the technique of applying a ring of glass at or below the neck opening. This technique, called a "laid on ring," is distinguished by irregularities of the lip itself. The second technique, called an applied lip or tooled lip, employs the use of what was known as a lipping tool. This consisted of a central piece which was placed within the bottle neck and an external arm which, when rotated, formed an even lip of soft glass applied to the neck of the vessel. It should be mentioned that during this process of applying the lip and finishing the vessel, the neck seam

Table 2. Glass Artifacts Recovered from 16 IV 131.

	EU1	EU2	EU3	EU4	EU5	EU6	TOTAL
Amethyst tumbler/goblet glass				8			8
Brown glass			2				2
Brown bottle base, two piece mold, cup base		1					1
Clear glass		1	1	6		1	9
Clear pharmaceutical bottle neck, tooled lip					1	1	2
Dark green glass	2			4	1	1	8
Light green glass	1	2	2	5	4	4	18
Light green pane glass	1			3			4
Light green bottle neck, two piece mold, tooled lip	1					1	2
Light green bottle base, two piece mold, post base						1	1
Light green bottle base, two piece mold, cup base						1	1
Milk glass		1					1
Pressed milk glass						1	1
Opaque black wine bottle base, three piece mold						1	1
TOTAL	5	5	5	26	6	12	59

had a tendency to be obliterated as a result of reheating the neck. Consequently, the seam only went partially up the neck. A few of the bottle sherds from 16 IV 131 had tooled lips (Table 2).

During the 1880s, manganese oxide began to be utilized to eliminate the natural color of glass. Because of the presence of manganese, such glass tends to become amethyst colored when exposed to the sun. The use of manganese oxide to clarify glass continued until the outbreak of World War I. Between 1916 and 1930, selenium also was utilized as a decoloring agent. Selenium tints the glass a light amber with exposure to the sun (Munsey 1970:55). Eight sherds of amethyst glass were recovered from 16 IV 131.

A fully automatic bottle machine was developed and patented by Michael Owens in 1903 (Lorrain 1968:43). All hand labor was eliminated with this process; the glass was drawn into the mold by suction. Bottles manufactured by this process have a ring seam around the base, and the side seam is continuous up to and including the lip. By 1920, the change to automated production of bottles was complete. None of the bottle sherds from 16 IV 131 showed evidence of having been manufactured by an automatic bottle machine.

Metal Artifacts

The majority of metal artifacts recovered from 16 IV 131 were nails. Most of these were square cut nails (Table 3). Square cut nails first were produced in 1790, and continued in production throughout the nineteenth century. Wire nails, which first were produced in 1850, did not come into widespread use until the turn of the century (Noel Hume 1969). Other recovered hardware include spikes, a bolt, wires, and a washer. A jar lid and a fork also were recovered.

Miscellaneous Artifacts

Miscellaneous artifacts included architectural materials, such as brick, wood and mortar fragments, and shoe fragments. Faunal and botanical materials were recovered, as well as charcoal and cinders (Table 4).

Dating the Artifacts

A modified version of Stanley South's (1977:201-236) Mean Ceramic Date formula was used to date the ceramic subassemblages from Bayou Goula. This formula was developed as a method for calculating the mean date of manufacture for British ceramics found on eighteenth century historical sites. Like Ford's (1962) seriational method, the Mean Ceramic Date formula is based on the

Table 3. Metal Artifacts Recovered from 16 IV 131.

	EU1	EU2	EU3	EU4	EU5	EU6	TOTAL
Wire nail			1	10			11
Square cut nail	4	4		33			41
Miscellaneous nail		1	6	11			18
Spike	1	2	1	4		1	9
Bolt		1					1
Wire		1		1			2
Washer			1				1
Metal strip					1		1
Jar lid			1				1
Fork				1			1
Miscellaneous metal	1		3	10	1		15
Slag		1					1
TOTAL	6	10	13	70	2	1	102

Table 4. Miscellaneous Artifacts and Materials Recovered from 16 IV 31.

	EU1	EU2	EU3	EU4	EU5	TOTAL
Brick Fragment			2	2		4
Mortar fragment		1				1
Wood fragment				3		3
Shoe leather				4	2	6
Peach pit				1		1
Charcoal				5		5
Cinder		5	1			6
Bone	2		3	15		20
Oyster shell	3		1	7	1	12
TOTAL	5	6	7	37	3	58

twin assumptions of normalcy and unimodality, so that a ceramic type's peak popularity is represented by the median date between its introduction and discontinuance in the sequence. South's date ranges for each of seventy-eight ceramic types are derived in large part from Ivor Noel Hume's A Guide to Artifacts of Colonial America (1970), and from personal communication with Noel Hume.

Although Mean Ceramic Dating was developed for eighteenth and early nineteenth century ceramics, South (1977:213) did not preclude its application to nineteenth century sites. Rather, he offered the possibility that the formula might be extended to include additional types, providing that dates of manufacture are known. In fact, this is a necessity if the formula is to be used with any accuracy for subsequent periods. The major limitation of the method as presented by South (1977) is that as one historically approaches and surpasses the mid-nineteenth century, mean ceramic dates become increasingly too early (Goodwin et al. 1983a, 1983b; Goodwin and Yakubik 1982a, 1983). The following types, date ranges, and median dates, as shown in Table 5, constitute both a modification of South's method and an addition to his original data base.

In addition, Worthy (1982) makes the excellent though obvious suggestion of utilizing datable makers' marks to provide date ranges and median dates for individually marked pieces. Of course, the limitation to this method is that one cannot expect to get an adequate sample of makers' marks from an individual provenience to yield reliable dates. None of the sherds in the Bayou Goula collections bore makers' marks.

The ceramic subassemblage from the Bayou Goula Landing site yielded a Mean Ceramic Date of 1876.4 (n=58). This is somewhat earlier than the date of 1889 (n=11) obtained for the 1983 collections (Pearson and Guevin 1984:19). It should be noted that this latter date was based exclusively on ceramics datable through makers' marks, whereas no marked ceramics were obtained from the 1985 test excavations. Also, the mean ceramic date of 1889 was based on only eleven ceramic sherds, which represent less than two per cent of the total 1983 ceramic collection. Finally, the 1985 collection was recovered from controlled excavations, whereas the 1983 collections apparently derived primarily from mixed proveniences. However, artifact counts given in Pearson and Guevin (1984) were not presented in such a way that specific proveniences could be separated. Thus, a difference of more than twelve years between the two dates is not surprising; the samples from which they were derived are not directly comparable.

Whole bottles or bottle sherds possessing diagnostic attributes also can be used for dating purposes. Previously, it has been hypothesized that bottles are more accurate chronological

Table 5. Types, Date Ranges, and Median Dates of Nineteenth Century Ceramics.

Type	Date Range	Median Date
Transfer-printed pearlware	1795-1830	1813
Transitional pearlware/white colored earthenware types	1800-1830	1815
Transfer-printed transitional pearlware/white colored earthenware	1800-1840	1820
Stoneware, glazed in any way with an Albany slip	1810-1900	1855
Embossed edge whiteware/ ironstone	1820-1840	1830
Salt glazed redware, unglazed interior	1825-1850	1838
Flow blue whiteware/ironstone	1830-1880	1855
Blue Chelsea	1830-1880	1865
Yelloware	1830-1900	1865
Rockinghamware	1830-1900	1865
Brownware	1830-1900	1865
Annular Yelloware	1840-1900	1870
Mocha Yelloware	1840-1900	1870
Unglazed brownware (yellow colored earthenware)	1840-1900	1870
Ironstone	1850-1940	1895
Blue Chelsea ironstone	1850-1880	1865
Flow blue ironstone	1850-1880	1865
Parian	1850-1900	1875
Salt glazed redware, Albany slipped interior	1850-1880	1865
English Majolica	1851-1900	1876
Albany slipped redware	1860-1900	1880
Albany slipped and lead glazed redware	1860-1900	1880
Late Spatter	1880-1920	1900
Porcelaneous stoneware	1880-present	1930
Clifton/Avalon ware	1882-1914	1898
Decaled wares	1900-1950	1925

markers than ceramics after bottles began to be mass produced during the nineteenth century. This is based on a more rapid discard rate, since bottles were discarded shortly after they were emptied of their contents (Goodwin and Yakubik 1982a). Ceramics presumably would be used until broken, or even repaired after breakage. By comparing mean ceramic dates to glass dates, cases of relict use of ceramics may be identified (Goodwin and Yakubik 1982a). Bottles may be dated effectively utilizing bracketed dates.

The application of bracketed glass dating techniques does have limitations for early nineteenth century subassemblages, in large part due to small sample sizes. During analysis of artifacts from Elmwood Plantation (16 JE 138), it was noted that relatively little glass was recovered from late eighteenth and early nineteenth century components (Goodwin, Yakubik, and Goodwin 1984). Analyses of data from Algiers Point demonstrated a diachronic increase in the frequency of glass during the nineteenth century, illustrating the boom in the glass making industry during and immediately after the War Between the States (Goodwin, Yakubik, and Gendel 1984). As has been seen, many important bottle making techniques were introduced during the late 1850s. Devices such as the snap case (1855), the lipping tool (1856), and the blow-back mold (1858), simplified bottle manufacture and thereby made bottles cheaper and easier to produce. The pharmaceutical industry experienced rapid growth during the War, and new bottle shapes were introduced at this time. The development of the slug plate ca. 1860 permitted the inexpensive and uncomplicated embossing of bottles. In short, during the late 1850s and early 1860s, bottles became more commonplace and they began to be used for more purposes than ever before. The net result was that glass articles became more expendable, as seen in the archeological record.

Recently, Hill (1982) has presented research that would seem to disprove assumptions of rapid deposition of glass bottles. Hill utilized an adaptation of South's (1977) Mean Ceramic Date formula to demonstrate a substantial lag time between the manufacture of a bottle and its subsequent deposition. This was accomplished by finding the difference between the mean manufacturing date for a collection of bottles and the documented terminal date of the site. A close examination of Hill's calculations reveals problems inherent in technique that produce seemingly lengthy "lag" times between a bottle's manufacture and its discard. First, the mean manufacturing date of the bottles is subtracted from the terminal date of the site. Two of Hill's test cases (the Custer Road site and the Silcott site) had lengthy deposition histories. It is unlikely that all of the bottles were discarded during the last year of the site's use. Thus, there naturally is a "lag" between the average manufacturing date of the

artifacts and the site's closing date. Hill's other two test cases are a commercial steamboat cargo ship (the Bertrand wreck site) and a trash deposit of short duration, about one year (the Edgewood Site), which presumably would not be affected by the above problem. However, Hill's median dates are skewed to produce a greater "lag" than probably was the case in fact. Hill (1982:293) calculates her median dates as follows:

> When a bottle's manufacturing dates terminate prior to the site's documented closing date, the bottle's median manufacturing date should be calculated as described in (South's) formula. However, if the bottle's manufacturing dates extend beyond the time the site was closed it is necessary to use the site's documented terminal date as the bottle's terminal manufacturing date. This adjustment acknowledges that the artifact could not have been manufactured after its deposition.

While her final statement is accurate, Hill has created a situation in which a particular bottle never could have been manufactured in the same year as its deposition, if that year was the site's terminal date. Hence, there will necessarily always be a "lag" between the terminal date of the site and the mean manufacturing date of the bottles, even when the site's depositional history is short. That "lag," then, is built into Hill's method.

The latter problem skews the data to produce a "lag" time, but it skews the data uniformly. Thus, the researcher can utilize these data to measure differences in the manufacture-deposition time between different functional classes of bottles from the same site, so long as it is recognized that the "lag time" is relative and not absolute. The former problem, because it is related to the length of use of a particular site, limits the comparability of "lag times" from different sites. Hill's method (1982) has not established lengthy time periods between a bottle's manufacture and its discard, nor does it address basic differences in discard patterns of ceramics and glass. Mean ceramic dating only provides a single point in time; it gives no data on length of site occupation.

We still maintain that bottles enter archeological contexts more rapidly than ceramics, and that the former may portray site occupation or use length more accurately than the latter. As Stanley South (1977:214-217) has demonstrated, date ranges for archeological sites may be obtained by plotting on a time line the limits of duration of manufacture for each ceramic type recovered. South suggests that this broad range, from beginning to ending date of manufacture, can be refined by bracketing the poles of the bar

graph to create an interpreted period of occupation. The left bracket is placed at a point where "at least half of the ceramic type-bars are touching or intersecting the bracket" (South 1977:214). The same principle is utilized in the placement of the right bracket, except that it must be placed far enough to the right to at least touch the beginning of the latest type present. These bracketed dates may be refined further using the absence of chronologically diagnostic types.

This technique is applicable to any type of artifact for which secure date ranges of manufacture are available and which is commonly found on historic sites. Because of their frequency and known technological chronology, glass bottles are especially amenable to this type of analysis. However, some modifications in this dating technique have been initiated by us as a result of differences between manufacturing techniques for glass and ceramic artifacts. While ceramics generally can be assigned to discrete types which can be dated, the dating of glass is based on a combination of attributes resulting from manufacturing techniques. To illustrate, if a given bottle was recovered that was manufactured using a two piece mold, it may be assigned a date based on recognition that two-piece mold technology came into general use around 1845 and continued in use until around 1920. If further examination of the bottle revealed that it had a lip applied with a lipping tool, the assigned date might be modified because the lipping tools did not become common until about 1856, and it continued in use until about 1920. Finally, if the bottle is made of glass with an amethyst tint, it is known that this was the result of using manganese oxide to decolorize the glass, a technique utilized between 1880-1915. Taking all of these factors into consideration, the date range finally assigned for manufacture of this particular bottle would be 1880-1915.

Additionally, in the classification used for glass bottles, manufacturing techniques also are assigned weights based upon the duration of their industrial use. Returning to the hypothetical bottle, if it is green, rather than clear glass, the situation is confounded since green glass does not have a specific date range. Still, if the bottle was made in a two-piece mold with an applied lip, because the applied lip has a somewhat shorter date range than a two-piece mold (1850-1920 vs. 1845-1920), dating this particular piece would use the range of the applied lip, rather than a combination of traits. In the case of the clear glass bottle, the presence of clear glass provides a terminus post quem for when it could have been manufactured (1880), while the presence of an applied lip limits the latest date of its manufacture. Clear glass is still in use; however, the applied lip ceased to be used ca. 1920. In this case, since both manufacturing techniques are central to accurate dating, the combination of traits must be utilized.

A second problem is posed by the much higher relative frequency of bottle sherds than of complete bottles in most archeological contexts. In cases where a single sherd demonstrates a combination of attributes such as described above, that combination is used in dating. Where only one datable technological attribute is present, it comprises the sole criterion for dating.

Finally, in order to refine chronological estimates, the absence of clear and amethyst glass is used to delimit the end point of date ranges to 1880, since clear glass tinted with manganese oxide came into widespread use after that date. The absence of bottles manufactured by an automatic bottle machine was used to estimate the end point of the date range at 1910, since the automatic bottle machine was patented in 1903, and its products were ubiquitous by the 1920s (Jones 1971). Therefore, bottles produced by automatic machines would have been present in most contexts, and certainly in urban settings, by 1910. Table 6 lists datable glass manufacturing techniques/attributes and their date ranges.

A bracketed date of 1875-1910 was obtained for the glass subassemblage from the Bayou Goula Landing site; the range fits well with map data, which suggest that this area was occupied between 1880 and 1904 (Figures 3, 4, and 5). It should be noted that the Mean Ceramic Date falls within the earliest part of the bracketed range, which suggests greater lag time for the deposition of ceramics than for glass at this locale.

To recapitulate, a modified version of South's (1977) Mean Ceramic Date Formula was used to date ceramics from Bayou Goula. In order to achieve additional chronological control, an adaptation of South's (1977) bracketed date range was utilized for dating. In addition to providing chronological information, such comparisons also yield behavioral information. If it is true that (1) ceramics, being durable, were utilized for relatively long periods of times; (2) ceramics sometimes were repaired after breakage; (3) nineteenth century glass was cheap and expendable, and (4) bottles were discarded when empty, then bottle date ranges also may be used in testing for presence of relict ceramics.

Functional Analysis

Analysis of artifacts from the 1983 study (Pearson and Guevin 1984) emphasized the functional nature of the assemblages. Artifacts were separated into ten functional groups: Domestic/Household (ceramics, glass, and other domestic materials), Architecture (building materials), Agricultural/Industrial (farm machinery, animal husbandry implements,

Table 6. Date Ranges for Glass Bottle Manufacturing Techniques and Glass Attributes.

Dip mold	1775-1850
Two-piece hinged mold	1810-1880
Three-piece hinged mold	1821-1875
Two-piece mold with a separate base	1845-1920
Brown-back mold	1858-1900
Turn mold	1870-1920
Semi-automatic bottle machine	1894-1920
Automatic bottle machine	from 1904
Rough pontil	to 1875
Improved (bare iron) pontil	1840-1880
Snap case	1855-1920
Sheared lip	to 1850
Laid on ring	1840-1880
Tooled lip	1856-1920
Crown cap	from 1895
Pressed glass	from 1827
Slug plate	from 1860
French square pharmaceutical bottle	from 1860
Recessed label paneled flask	from 1862
Pearl top gaslamp	from 1883
Crimp top gaslamp	from 1885
"Opaque black" glass	1815-1885
Amethyst glass	1880-1915
Clear Glass	from 1880

and general hardware), Personal (clothing, cosmetics, tobacco, toys, and trinkets), Fauna, Municipal (material associated with public utilities), Arms (gun parts, ammunition, and firearms), Aboriginal, Undetermined (unidentified material), and Miscellaneous (non-culturally significant items such as rocks or pebbles) (Pearson and Guevin 1984:111). The frequencies of the functional groups from the 1983 Bayou Goula collections were compared to those from Tally Ho Plantation (16 IV 135). The Bayou Goula collection also was examined on an intrasite level. The frequencies of the functional groups of collections from the rural residential locales and from the town proper were compared. Neither of these efforts were as successful as the researchers had hoped:

> Known differences in the two areas examined are not specifically reflected in the material culture. One reason is the nature of the data themselves. In neither instance can we state that the artifact assemblage is representative of the site. Procedures in the two areas did not provide for the collection of representative samples... Larger and more rigorously collected samples are required for intersite comparisons of this site (Pearson and Guevin 1984:113).

Because the material from the 1985 archeological testing at Bayou Goula Landing was obtained from test excavation units, rather than surface collections, a comparison of functional artifact classes was made between the 1983 and 1985 collections. Several of the functional groups identified by Pearson and Guevin (1984:111) were not represented in the 1985 assemblage; no aboriginal, municipal, or arms remains were recovered. In addition, the undetermined and miscellaneous categories were not utilized for this comparison, because the latter group has no cultural significance and the cultural significance of the former group is unknown. The frequencies of each of the remaining functional classes were calculated. Table 7 shows the resulting distributions. The frequencies of Domestic/Household and Personal artifacts were lower than expected for the 1985 assemblage, while the frequencies of architectural and faunal remains were higher. This discrepancy between frequencies of domestic remains, although not marked, may reflect differences between post abandonment assemblages and occupational remains. Although the 1983 collection also may have represented an abandonment assemblage, it derived from mixed proveniences and was not representative of the remains still preserved in closed, undisturbed contexts. The 1985 assemblage derived from a single, discrete, intact cultural deposit in the vicinity of Area 3, Locality 3, whereas the 1983 collections lumped provenience units encompassing the entire project area. Functionally meaningful

Table 7. Distributions of Functional Artifact Classes in the 1983 and 1985 Archeological Surveys of the Bayou Goula Landing Site.

Functional Category	1983 Surface Collection		1985 Test Units		Total
	n	%	n	%	
Domestic/ Household	1099	61.57	120	45.50	1219
Architectural	184	10.30	90	34.08	274
Personal	332	18.60	5	1.88	337
Agricultural/ Industrial	129	7.23	17	6.43	146
Fauna	41	2.30	32	12.11	73
Totals	1785	100%	264	100%	2049

units of analysis, therefore, could not be obtained from the 1983 collection.

The large amount of architectural debris in the 1985 collection (34 per cent of the assemblage) also may have resulted from destruction processes related to the dismantling and/or relocation of structures at the time of the 1904 levee setback. Most of this material consisted of nails, although a few fragments of brick and mortar were recovered. This suggests that a frame structure, possibly raised on brick piers, previously was located in this area.

Domestic refuse represented only 45.5 percent of the 1985 assemblage. Typically, residential sites have much higher frequencies of domestic debris (Goodwin and Yakubik 1982; Goodwin, Yakubik, and Gendel 1984; Goodwin, Gendel, Yakubik, and Franks 1985; Goodwin, Franks, Gendel, and Yakubik 1985). In addition, the ceramic collection was remarkably homogeneous; there was little variability in the ceramic types or functional types recovered.

Previous research at the New Orleans General Hospital Site (16 OR 69) (Goodwin and Yakubik 1982a), at Elmwood Plantation (16 JE 138) (Goodwin, Yakubik, and Goodwin 1983), and at Harlem Plantation (16 PL 84) (Goodwin, Gendel, and Yakubik 1983a) has provided data pertaining to patterns of refuse disposal in nineteenth and twentieth century Louisiana. Comparison of data on the spatial distribution of material remains from these sites suggested a rural-urban dichotomy (Goodwin, Yakubik, and Goodwin 1983). Data from 16 OR 69 showed that at least as early as the mid-1820s, enclosed concentrations such as trash pits and privies were used for waste disposal in urban areas; however, a rural lag in this behavior pattern appears to have occurred. Trash remains found at 16 JE 138 resembled the Brunswick Pattern defined by South (1977) as representative of eighteenth century Anglo-American sites; that is, horizontal scatters of artifacts were found across the site, with concentrations occurring around structures. The distribution of material remains from 16 PL 84 was intermediate between these two patterns: test excavations adjacent to habitation areas were devoid of significant cultural remains, because the vast majority of cultural refuse from the Harlem New House site was deposited away from the structures. At these more distant locations, refuse had been dumped on the ground surface and subsequently scattered; it had not been deposited in discrete buried loci. While the majority of remains from 16 PL 84 derived from the twentieth century, it was hypothesized that during the latter half of the nineteenth century, current ideas of sanitation began to take hold in rural areas, leading to the abandonment of the Brunswick refuse disposal pattern. However, the existence of relatively greater space for waste disposal in rural settings

permitted the deposition of refuse outside of discrete, contained units.

As an alternative, Bayou Goula may provide an example of a fourth type of refuse disposal in a semi-urban settlement in a primarily rural area. The paucity of artifacts in the immediate vicinity of the structure suggests that the majority of refuse may have been disposed away from habitation areas, as was the case in both rural and urban contexts in the late nineteenth century. However, some debris clearly was discarded/abandoned in the vicinity of the living area, including small fragments of ceramics, glass, bone, shoe leather, and metal hardware.

To recapitulate, the artifacts from the 1985 investigations at Bayou Goula Landing consisted of a sample of the local material culture for the late nineteenth and early twentieth centuries. Comparisons with the 1983 collections from the site demonstrated that the functional class frequencies for the two assemblages differed significantly. Finally, refuse from the Bayou Goula Landing site may indicate an abandonment assemblage that differs from occupational debris, it may demonstrate refuse disposal practices, or it may reflect a constellation of unknown site formation and destruction processes. The small size of the collection precludes more cogent examination of these issues.

CHAPTER IX

CONCLUSIONS AND RECOMMENDATIONS

This report has presented the results of archeological testing for the evaluation of the National Register eligibility of the Bayou Goula Landing site (16 IV 131), Iberville Parish, Louisiana. These investigations were conducted within the context of a research design which focused upon two principal issues: (1) the presence, or lack thereof, of intact and deeply buried cultural deposits possessing contextual integrity, and (2) the potential of those deposits to yield information important to history, archeology, and anthropology, beyond that which could be obtained exclusively through documentary sources. In particular, this research design emphasized the investigation of a possible comparable area (e.g., the commercial district of Bayou Goula), cultural site formation processes in light of the peculiar setting of the Bayou Goula Landing site, and the potential of the site to yield novel information pertaining to the study of function, chronology, and style in historic period artifactual assemblages.

Field investigations were conducted in a multi-phase survey and testing effort. Initially, an intensive bankline inspection identified the locations of exposed cultural resources within the project area. Surface concentrations were described and mapped, and stratigraphic profiles were excavated to clarify the context of cutbank exposures containing cultural deposits. Subsequently, the bankline inspection was augmented by a systematic subsurface testing regime utilizing 63 deep six-inch (15.24 cm) auger tests to an average depth of fifteen feet (4.6 m). These tests were designed to locate and to determine the extent of buried cultural remains. The salient results of this stage of research may be summarized as follows:

1. Extensive intact subsurface deposits were encountered only at Artifact Scatter 1, which corresponds to the previously defined Collection Localities 3-6 (Pearson and Guevin 1984).

2. Buried cultural deposits of extremely limited extent were identified at Artifact Scatter 2, exposed in a nearly vertical cutbank beneath approximately 10 feet of overbank deposits. These deposits were dominated by brick rubble, probably originating from disturbed or destroyed architectural features. These deposits,

and associated surface manifestations, occur within a massive slump zone which virtually destroyed the 1983 collection localities, and with them much of the hypothesized comparable area of the Bayou Goula Landing site. Thus, aside from a small, isolated remnant deposit, the site here has been completely destroyed.

3. The extreme downriver portion of the project area contained buried cultural deposits associated with the former Tally Ho Plantation. Architectural debris (brick and mortar) dominated a sparse artifactual assemblage, which was scattered over a diffuse occupational surface. The Tally Ho Plantation area had been surveyed previously by the New Orleans District (Bryant et al. 1982; Pearson and Guevin 1984), and no additional work in that area was recommended. Based on the disturbed nature of remains in this area, we concur with these previous recommendations.

4. All remaining cultural resources were highly disturbed surface manifestations, totally lacking contextual integrity.

Based upon these findings, subsequent fieldwork was restricted entirely to Artifact Scatter 1, which already had been targeted for more intensive testing. Prior to the implementation of controlled test excavations at the Artifact Scatter 1 area, subsurface auger testing was conducted in order to determine more precisely the extent of the buried cultural deposit. Cultural remains appeared to decrease in frequency away from the cutbank exposure; they were most abundant adjacent to the surface concentration of ceramics and bricks exposed along the beach. Although this preliminary testing program suggested that buried deposits in the Artifact Scatter 1 area possessed contextual integrity, testing also indicated that only a small portion of what formerly was a more extensive stratum still survived intact. The destruction of extensive portions of this deposit by natural fluvial processes also is evident by the quantity of surface remains present along the beach. Map data indicate that up to 30 m of bankline loss has occurred in this area between 1979 and 1985. Data are not available to establish how much has eroded since 1983.

Subsequent archeological test excavations exposed an area of fifteen square meters. Artifactual remains from the last quarter of the nineteenth century and the early twentieth century were

recovered, confirming the suggested date of occupation (Pearson and Guevin 1984) inferred from the location of the site with respect to the sequence of levee setbacks. While these excavations confirmed the integrity of the deposits, only limited delineation of possible functional and activity loci could be accomplished. Again, the fact that significant portions of this deposit were lost to bankline erosion is largely responsible for this situation.

As noted in Chapter VI, research issues formulated for this study included the influence of cultural processes on the formation of archeological assemblages, and concomitant implications for traditional, functional, and morpho-stylistic analyses. However, controlled archeological test excavations at Locality 3, did not isolate a single, complete, behaviorally meaningful unit for analysis (e.g., a residence), nor is it likely that further excavation there would succeed in accomplishing this task. Only extensive horizontal excavations are appropriate to generate such a data base, the results of which would be seriously compromised in the face of demonstrable destruction of major portions of the site, and of individual features. Therefore, the construction of a body of middle-range theory pertaining to both cultural and natural assemblage and site formation processes, or the characterization of the present Bayou Goula Landing site assemblage as representative of a specific set of processes, would be a fruitless exercise.

Excavations at the Artifact Scatter 1/Locality 3 did not result in a substantial artifactual assemblage. Indeed, the assemblage must be characterized as extremely impoverished. While the possibility previously was entertained that such an assemblage may be representative of site abandonment assemblages, the small artifactual assemblage effectively prohibits statistical applications of more traditional chronological and functional methodologies. Nevertheless, subsequent laboratory analyses of the small sample of remains provided basic, if not statistically reliable, chronological and functional information. These results were compared to the 1983 assemblage recovered from this locality. A Mean Ceramic Date of 1876.4 (n=58) and a hacketed glass date of 1875-1910 were obtained for the 1985 Artifact Scatter 1 collection. Domestic/household and architectural remains dominated functional artifact classes recovered in the 1985 investigations.

The combined research results indicate clearly that the archeological value of the Artifact Scatter 1 area is too limited both in terms of artifact yields, structural preservation, and spatial extent to yield information important in history (36 CFR 60.6d). This absence of verifiable research potential effectively eliminates the possibility of National Register eligibility,

since the site assemblage lacks the requisite significance for archeological or historical problem solving. In addition, and as shown above (Chapter VII), the site in general lacks integrity as defined by the National Register criteria. Although pockets of intact remains were encountered, these areas were excavated intensively and extensively; those excavations, however, failed to provide new or valuable scientific or historical data.

Finally, the previous research design (Pearson and Guevin 1984) indicated the possibility of significance based upon an expectation that additional buried remains with both contextual integrity and research potential might be present in the Bayou Goula Landing project area. As shown above, extensive deep auger testing, bankline inspection, and test excavations failed to reveal a single such deposit. Taken together, the level of archeological examination of the Bayou Goula Landing site area conducted during 1983 (Pearson and Guevin 1984) and 1985 have provided extensive coverage of the impact zone. Despite the caution exercised by the previous investigators (Pearson and Guevin 1984) in recommending additional work, no expectation that remains of a significant nature might be found has been, or is likely to be, fulfilled. For this reason, then, no further work is recommended.

Because the previous investigations (Pearson and Guevin 1984) made a recommendation of significance, the reasons for that recommendation merit scrutiny. As noted in Chapter VI, there was no archeological rationale for the 1984 recommendation of significance. Rather, that recommendation was based upon the associative significance of the former Bayou Goula Landing with events that have played an important role in our history (36 CFR 60.6a). Although the historical importance of the colonial period town of Bayou Goula is undisputed, any archeological assemblage representative of that period within the project area was lost to the river many years ago. In the absence of data that could be utilized to study these important early periods, the reality of any associative significance amounts to little more than the recognition of what used to be. For historical archeology in disturbed settings, such as along the batture of the Mississippi River, the operative portion of the National Register criteria clearly is contained in the clause discussing what has become research potential (36 CFR 60.6d). For this reason, then, we have argued that archeological remains should be evaluated against an explicit set of expectations based on archeological theory and on the ability to provide information not otherwise available in the historic record. The latter task could not be accomplished at the Bayou Goula Landing site.

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APPENDIX 1

Appendix 1. Description of Deep Auger Tests from Initial Systematic Placement.

Auger Test Number	Grid Location	Depth B/S	Soil Description
A-1	N5200 E5050	------	On riprap pavement
A-2	N5100 E5050	0-11 in	Dark brown (10YR 4/3) silt loam
		11-30 in	Dark grayish brown (10YR 4/2) silty clay loam
		30-35 in	Brown (10 YR 5/3) silt loam
		35-49 in	Very dark grayish brown (10 YR 3/2) silty clay
		49-53 in	Dark brown (10 YR 4/3) silt loam
		53-56 in	Very dark grayish brown (10 YR 3/2) silt loam
		56-58 in	Dark brown (10YR 4/3) sandy silt
		58-61 in	Dark grayish brown (10YR 4/2) silty clay
		61-70 in	Dark grayish brown (10YR 4/2) silty clay loam
		70-79 in	Dark grayish brown (10YR 4/2) clay
		79-102 in	Dark grayish brown (10YR 4/2) silty clay
		102-153 in	Dark grayish brown (10YR 4/2) mottled clay
		153-180 in	Dark grayish brown (10YR 4/2) clay
A-3	N5000 E5050	0-46 in	Dark brown (10YR 4/3) silt loam
		46-54 in	Dark brown (10YR 4/3) clayey silt
		54-82 in	Dark brown (10YR 4/3) sandy silt loam
		82-84 in	Dark brown (10YR 4/3) silty clay
		84-118 in	Dark brown (10YR 4/3) silt loam
		118-180 in	Dark grayish brown (10 YR 4/2) clay

Appendix 1 (continued)

Auger Test Number	Grid Location	Depth B/S	Soil Description
A-4	N4900 E5075	0-1 in	Light yellowish brown (10 YR 6/4) silt loam
		1-16 in	Dark brown (10YR 4/3) silty clay loam
		16-32 in	Dark grayish brown (10YR 4/2) clay loam
		32-180 in	Dark grayish brown (10YR 4/2) clay
A-5	N4800 E5050	0-11 in	Dark brown (10YR 4/3) silt loam
		11-17 in	Dark brown (10YR 4/3) silty clay
		17-28 in	Brown (10YR 5/3) silt loam
		28-48 in	Dark grayish brown (10YR 4/2) clay loam
		48-60 in	Dark yellowish brown (10YR 4/2) silt loam
		60-66 in	Dark brown (10YR 4/3) clayey silt
		66-76 in	Dark brown (10YR 4/3) silty clay
		76-180 in	Dark grayish brown (10YR 4/2) clay
A-6	N4700 E 5100	0-21 in	Dark brown (10YR 4/3) sandy silt loam
		21-23 in	Dark grayish brown (10YR 4/2) silty clay
		23-26 in	Grayish brown (10YR 5/2) sandy silt loam
		26-29 in	Dark grayish brown (10YR 4/2) sandy silt loam
		29-46 in	Dark brown (10YR 3/3) sandy silt loam
		46-54 in	Dark gray (7.5YR 4/0) clay silt
		54-59 in	Dark grayish brown (10YR 4/2) silty clay
		59-139 in	Dark grayish brown (10YR 4/2) silty clay
		139-180 in	Dark grayish brown (10YR 4/2) clay

Appendix 1 (continued)

Auger Test Number	Grid Location	Depth B/S	Soil Description
A-7	N4600 E5050	0-15 in	Dark brown (10YR 4/3) sandy silt loam
		15-54 in	Grayish brown (10YR 5/2) sandy silt
		54-77 in	Grayish brown (10YR 5/2) sandy clay silt
		77-79 in	Dark grayish brown (10YR 4/2) clayey silt
		79-87 in	Dark grayish brown (10YR 4/2) clayey silt
		87-101 in	Dark grayish brown (10YR 4/2) silty clay
		101-121 in	Dark gray (7.5YR 4/0) silty clay
		121-180 in	Dark gray (7.5YR 4/0) clay
A-8	N4500 E5075	0-52 in	Dark brown (10YR 4/3) sandy silt loam
		52-66 in	Dark brown (10YR 4/3) silty clay
		66-78 in	Dark brown (10YR 4/3) clay silt
		78-85 in	Dark brown (10YR 4/3) sandy silt loam
		85-112 in	Dark brown (10YR 4/3) clay silt loam
		112-120 in	Dark brown (10YR 4/3) silty clay
		120-126 in	Very grayish brown (10YR 4/2) silty clay
		126-131 in	Dark brown (10YR 4/3) sandy silt loam
		131-138 in	Dark brown (10YR 4/3) sandy loam
		138-148 in	Dark grayish brown (10YR 4/2 clay loam
		148-152 in	Gray (7.5YR 5/0) silt clay
		152-180 in	Dark grayish brown (10YR 4/2) silty clay loam
A-9	N4400 E5125	0-10 in	Dark brown (10YR 4/3) sandy silt loam
		10-180 in	Dark grayish brown (10YR 4/2) clay

Appendix 1 (continued)

Auger Test Number	Grid Location	Depth B/S	Soil Description
A-10	N4300 E5100	0-11 in	Dark brown (10YR 4/3) sandy silt loam
		11-27 in	Grayish brown (10YR 5/2) sandy silt loam
		27-38 in	Light brownish gray (2.5Y 6/2 silt
		38-70 in	Dark grayish brown (10YR 4/2) silty clay
		70-76 in	Dark grayish brown (10YR 4/2) silty clay
		76-116 in	Dark grayish brown (10YR 4/2) clay
		116-126 in	Dark grayish brown (10YR 4/2) clayey silt
		126-162 in	Dark grayish brown (10YR 4/2) silty clay
		162-180 in	Dark grayish brown (10YR 4/2) silty clay
A-11	N4200 E5120	0-34 in	Dark grayish brown (10YR 4/2) silty clay loam
		34-56 in	Dark grayish brown (10YR 4/2) silty clay
		56-66 in	Dark grayish brown (10YR 4/2) clayey silt
		66-82 in	Dark grayish brown (10YR 4/2) silt loam
		82-126 in	Dark grayish brown (10YR 4/2) clayey silt
		126-180 in	Dark grayish brown (10YR 4/2) silty clay
A-12	N4100 E5100	0-28 in	Dark grayish brown (10YR 4/2) silty clay loam
		28-58 in	Dark gray (7.5YR 4/0) clay
		58-71 in	Dark grayish brown (10YR 4/2) silt loam
		71-82 in	Brown (10YR 5/3) silt loam
		82-116 in	Dark grayish brown (10YR 4/2) silty clay loam
		116-142 in	Dark grayish brown (10YR 4/2) sandy silt loam
		142-180 in	Dark grayish brown (10YR 4/2) silty clay

Appendix 1 (continued)

Auger Test Number	Grid Location	Depth B/S	Soil Description
A-13	N4000 E5125	0-82 in	Dark brown (7.5YR 4/2) silty clay loam; brick at 23-26 inches
		82-116 in	Dark grayish brown (10YR 4/2) silty clay
		116-130 in	Dark grayish brown (10YR 4/2) silty clay loam
		130-165 in	Dark grayish brown (10YR 4/2) silty clay
		165-180 in	Dark grayish brown (10YR 4/2) mottled clay
A-14	N3900 E5150	0-5 in	Dark grayish brown (10YR 4/2) silty sand
		5-14 in	Dark grayish brown (10YR 4/2) silty clay loam
		14-41 in	Dark grayish brown (10YR 4/2) clayey silt loam
		41-48 in	Dark gray (10 YR 4/1) silty clay loam with brick fragments
		48-138 in	Dark grayish brown (10YR 4/2) clay loam
		138-180 in	Dark grayish brown (10YR 4/2) silty clay
A-15	N3800 E5150	0-74 in	Dark grayish brown (10YR 4/2) sandy silt loam
		74-105 in	Brown (10YR 5/3) silt loam
		105-119 in	Dark grayish brown (10YR 4/2) clay silt loam
		119-180 in	Dark grayish brown (10YR 4/2) silty clay
A-16	N3700 E5175	0-22 in	Dark grayish brown (10YR 4/2) sandy silt loam
		22-34 in	Dark gray (7.5YR 4/0) silty clay
		34-180 in	Dark grayish brown (10YR 4/2) mottled clay
A-17	N3600 E5100	0-63 in	Dark grayish brown (10YR 4/2) silty clay loam
		63-106 in	Brown (10YR 5/3) silt loam
		106-118 in	Brown (10YR 5/3) silty clay
		118-180 in	Dark grayish brown (10YR 4/2) mottled clay

Appendix 1 (continued)

Auger Test Number	Grid Location	Depth B/S	Soil Description
A-18	N3500 E5125	0-7 in	Dark grayish brown (10YR 4/2) silty sand
		7-10 in	Very dark brown (10YR 2/2) silty clay loam
		10-16 in	Dark brown (10YR 3/3) sandy silt loam
		16-24 in	Dark grayish brown (10YR 4/2) silty clay
		24-81 in	Brown (10YR 5/3) sandy silt
		81-92 in	Dark grayish brown (10YR 4/2) silty clay loam
		92-180 in	Dark grayish brown (10YR 4/2) silty clay
A-19	N3400 E5110	0-5 in	Dark grayish brown (10YR 4/2) sandy silt loam
		5-8 in	Very dark brown (10YR 2/2) silty clay loam
		8-15 in	Very dark grayish brown (10YR 3/2) silty clay
		15-34 in	Brown (10YR 5/3) sandy silt
		34-44 in	Brown (10YR 5/3) silty clay loam
		44-79 in	Brown (10YR 5/3) sandy silt loam
		79-89 in	Brown (10YR 5/3) silty clay loam
		89-126 in	Brown (10YR 5/3) silt loam
		126-180 in	Dark grayish brown (10YR 4/2) mottled clay
A-20	N3300 E5150	0-4 in	Dark grayish brown (10YR 4/2) sandy silt loam
		4-8 in	Very dark brown (10YR 2/2) silty clay loam
		8-127 in	Dark grayish brown (10YR 4/2) silty sand loam
		127-155 in	Dark brown (10YR 5/3) silty clay loam
		155-180 in	Dark grayish brown (10YR 4/2) silty clay

Appendix 1 (continued)

Auger Test Number	Grid Location	Depth B/S	Soil Description
A-21	N3200 E5200	0-1 in	Dark grayish brown (10YR 4/2) sandy silt loam
		1-3 in	Very dark brown (10YR 2/2) silty clay loam
		3-170 in	Dark grayish brown (10YR 4/2) silty sand loam
		170-180 in	Dark grayish brown (10YR 4/2) silty clay
A-22	N3100 E5250	0-106 in	Dark grayish brown (10YR 4/2) silty sand
		106-180 in	Dark grayish brown (10YR 4/2) silty clay
A-23	N3000 E5330	0-13 in	Dark grayish brown (10YR 4/2) silt loam
		13-46 in	Dark grayish brown (10YR 4/2) sandy clay
		46-97 in	Dark grayish brown (10YR 4/2) clay
		97-180 in	Dark grayish brown (10YR 4/2) mottled clay
A-24	N2900 E5330	0-70 in	Dark brown (10YR 5/3) sand and silt loam
		70-118 in	Dark grayish brown (10YR 4/2) silty clay
		118-180 in	Dark grayish brown (10YR 4/2) mottled clay
A-25	N2800 E5410	0-3 in	Dark grayish brown (10YR 4/2) silty loam
		3-55 in	Dark grayish brown (10YR 4/2) loam
		55-180 in	Dark grayish brown (10YR 4/2) mottled clay
A-26	N2700 E5400	0-42 in	Yellowish brown (10YR 5/4) sandy silt loam
		42-47 in	Dark grayish brown (10YR 4/2) silty clay
		47-56 in	Dark brown (10YR 5/3) silt loam
		56-104 in	Dark brown (10YR 5/3) silty clay
		104-180 in	Dark grayish brown (10YR 4/2) silty clay

Appendix 1 (continued)

Auger Test Number	Grid Location	Depth B/S	Soil Description
A-27	N2600 E5410	0-73 in	Yellowish brown (10YR 5/4) silt
		73-80 in	Dark brown (10YR 3/3) silt 4/2) clay
		80-90 in	Brown (10YR 5/3) sandy silt loam
		90-94 in	Dark brown (10YR 3/3) silty clay loam
		94-105 in	Brown (10YR 5/3) silt loam
		105-110 in	Dark brown (10YR 3/3) silty clay
		110-119 in	Dark brown (10YR 3/3) clay silt loam
		119-150 in	Dark brown (10YR 3/3) silty clay loam
		150-180 in	Dark grayish brown (10YR 4/2) silty clay
A-28	N2500 E5530	0-9 in	Dark brown (10YR 3/3) silty clay
		9-106 in	Dark gray (7.5YR 4/0) sandy clay silt
		106-180 in	Dark grayish brown (10YR 4/2) silty clay
A-29	N2400 E5520	0-108 in	Dark grayish brown (10YR 4/2) silty sand
		108-113 in	Dark grayish brown (10YR 4/2) silty clay
		113-130 in	Dark brown (10YR 4/3) silty clay loam
		130-180 in	Dark grayish brown (10YR 4/2) clay
A-30	N2300 E5517	0-134 in	Dark grayish brown (10YR 4/2) silty sand
		134-142 in	Yellowish brown (10YR 5/5) silty clay
		142-155 in	Dark grayish brown (10YR 4/2) silty clay
		155-180 in	Dark grayish brown (10YR 4/2) clayey silt loam

Appendix 1 (continued)

Auger Test Number	Grid Location	Depth B/S	Soil Description
A-31	N2200 E5490	0-45 in	Dark brown (10YR 3/3) clay mixed with brown (10YR 5/3) silt; brick fragment at 6 inches
		45-81 in	Yellowish brown (10YR 5/4) silty loam with oyster shell fragments at 50 in
		81-180 in	Dark grayish brown (10YR 4/2) clay
A-32	N2100 E5505	0-39 in	Dark brown (10YR 3/3) clay mixed with brown (10YR 5/3) silt
		39-48 in	Dark brown (10YR 3/3) silty clay
		48-107 in	Brown (10YR 5/3) silty clay loam
		107-180 in	Dark grayish brown (10YR 4/2) silty clay
A-33	N2000 E5590	0-1 in	Variably colored sandy silts
		1-22 in	Dark brown (10YR 3/3) silty clay
		22-68 in	Light olive brown (2.5Y 5/6) silt
		68-78 in	Dark gray (10YR 4/1) clay silt loam
		78-106 in	Dark grayish brown (10YR 4/2) clayey silt
		106-138 in	Dark grayish brown (10YR 4/2) silty clay
		138-180 in	Dark grayish brown (10YR 4/2) clay
A-34	N1900 E5520	0-34 in	Dark brown (10YR 3/3) silty clay
		34-102 in	Brown (10YR 5/3) clay silt loam
		102-113 in	Dark grayish brown (10YR 4/2) silty clay
		113-180 in	Dark grayish brown (10YR 4/2) clay

Appendix 1 (continued)

Auger Test Number	Grid Location	Depth B/S	Soil Description
A-35	N1800 E5650	0-12 in	Dark gray (10YR 4/1) silt loam
		12-36 in	Dark brown (10YR 3/3) clay
		36-43 in	Brown (10YR 4/3) clay silt loam
		43-48 in	Brown (10YR 5/3) silty clay loam with gravel
		48-52 in	Brown (10YR 5/3) silt loam with gravel, coal, and brick fragments
		52-57 in	Very dark brown (10YR 2/2) clayey silt loam with mortar, coal, brick fragments, and artifacts
		57-82 in	Brown (10YR 5/3) silt loam
		82-180 in	Dark grayish brown (10YR 4/2) silty clay
A36	N1700 E5720	0-36 in	Very fine lensing of dark brown (10YR 3/3) and dark gray (2.5 YR 4/0) clay with dark brown (10YR 3/3) and dark grayish brown (10YR 4/2) silt
		36-48 in	Brown (10YR 4/3) clayey silty loam
		48-53 in	Brown (10YR 5/3) silty clay loam with gravel
		53-84 in	Brown (10YR 5/3) silt loam with some gravel
		84-180 in	Dark grayish brown (10YR 4/2) clay
A37	N1600 E5790	1-3 in	Dark brown (10YR 3/3) silt loam
		3-37 in	Dark brown (10YR 3/3) silty clay loam
		37-180 in	Dark grayish brown (10YR 4/2) clay

Appendix 1 (continued)

Auger Test Number	Grid Location	Depth B/S	Soil Description
A38	N1500 E5795	1-15 in	Dark brown (10YR 3/3) silt loam
		15-17 in	Dark brown (10YR 3/3) silty clay
		17-22 in	Dark brown (10YR 3/3) silt loam
		22-33 in	Dark brown (10YR 3/3) clay
		33-36 in	Dark brown (10YR 3/3) clayey silt
		36-38 in	Brick fragments
		38-54 in	Brown (10YR 5/3) silt loam
		54-78 in	Grayish brown (10YR 5/2) silt loam
		78-180 in	Dark brown (10YR 4/3) silty clay loam

APPENDIX 2

Appendix 2. Description of Purposively Placed Deep Auger Tests (Figure 19).

Auger Test Number	Depth B/S	Soil Description
A-39	0-39 in	Brown (10YR 5/3) sandy silt loam
	39-46 in	Black (7.5YR 2/0) sandy silt loam with artifacts and oyster shell
	46-52 in	Dark grayish brown (10YR 4/2) silty clay loam
	52-60 in	Dark grayish brown (10YR 4/3) silty clay loam
A-40	0-26 in	Brown (10YR 5/3) sandy silt loam
	26-39 in	Dark grayish brown (10YR 4/2) silty clay
	39-51 in	Brown (10YR 5/3) sandy silt loam
	51-66 in	Dark grayish brown (10YR 4/2) silty clay loam
	66-71 in	Dark grayish brown (10YR 4/2) slightly silty clay
	71-96 in	Brown (10YR 5/3) clayey silt loam
A-41	0-47 in	Brown (10YR 5/3) silt loam
	47-54 in	Black (7.5YR 2/0) sandy silt loam with artifacts and oyster shell
	54-64 in	Dark grayish brown (10YR 4/2) silty clay loam
A-42	0-28 in	Brown (10YR 5/3) sandy silt loam
	28-46 in	Dark grayish brown (10YR 4/2) silty clay
	46-61 in	Black (7.5YR 2/0) sandy silt loam with artifacts and oyster shell
	61-72 in	Dark grayish brown (10YR 4/2) silty clay loam
A-43	0-47 in	Brown (10YR 5/3) sandy silt loam
	47-67 in	Black (7.5YR 2/0) sandy silt loam with artifacts and oyster shell
	67-72 in	Dark grayish brown (10YR 4/2) silty clay loam
A-44	0-41 in	Brown (10YR 5/3) sandy silt loam
	41-59 in	Dark grayish brown (10YR 4/2) silty clay loam
	59-67 in	Black (7.5YR 2/0) sandy silt loam with artifacts and oyster shell
	67-80 in	Dark grayish brown (10YR 4/2) silty clay loam

Appendix 2 (continued)

Auger Test Number	Depth B/S	Soil Description
A-45	0-41 in	Brown (10YR 5/3) sandy silt loam
	41-50 in	Dark gray (2.5Y 4/0) clay loam with artifact traces (few)
	50-66 in	Dark grayish brown (10YR 4/2) clay loam
A-46	0-47 in	Brown (10YR 3/3) sandy silt loam
	47-68 in	Dark gray (2.5Y 4/0) clay loam
	68-84 in	Dark grayish brown (10YR 4/2) clay
A-47	0-49 in	Brown (10YR 5/3) sandy silt loam
	49-59 in	Dark gray (2.5Y 4/0) silty clay loam
	59-72 in	Dark grayish brown (10YR 4/2) clay loam
A-48	0-30 in	Brown (10YR 5/3) sandy silt loam
	30-39 in	Dark gray (2.5Y 4/0) silty clay with artifact traces (few)
	39-60 in	Dark grayish brown (10YR 4/2) clay loam
A-49	0-35 in	Brown (10YR 5/3) sandy silt loam
	35-49 in	Very dark gray (2.5Y 3/1) clay silt loam with artifacts
	49-60 in	Dark grayish brown (10YR 4/2) clay loam
A-50	0-49 in	Brown (10YR 5/3) sandy silt loam
	49-57 in	Light gray (10YR 6/1) clayey silt loam
	57-61 in	Dark grayish brown (10YR 4/2) silty clay loam
	61-70 in	Dark gray (2.5Y 4/0) clayey silt
	70-84 in	Dark grayish brown (10YR 4/2) clay loam
A-51	0-42 in	Brown (10YR 5/3) sandy silt loam
	42-47 in	Dark gray (2.5Y 4/0) clay loam with brick fragments (few)
	47-60 in	Dark grayish brown (10YR 4/2) clay loam

Appendix 2 (continued)

Auger Test Number	Depth B/S	Soil Description
A-52	0-30 in	Brown (10YR 5/3) sandy silt loam
	30-37 in	Dark gray (10YR 4/1) clay loam
	37-42 in	Dark grayish brown (10YR 4/2) clay loam
	42-49 in	Dark gray (10YR 4/1) silty clay loam
	49-60 in	Dark grayish brown (10YR 4/2) silty clay
A-53	0-30 in	Brown (10YR 5/3) sandy silt loam
	30-40 in	Dark gray (7.5YR 4/1) clay loam
	40-60 in	Dark grayish brown (10YR 4/2) silty clay loam
A-54	0-30 in	Brown (10YR 5/3) sandy silt loam
	30-36 in	Dark gray (7.5YR 4/1) clay loam
	36-60 in	Dark grayish brown (10YR 4/2) silty clay loam
A-55	0-30 in	Brown (10YR 5/3) sandy silt loam
	30-36 in	Dark gray (7.5YR 4/1) clay loam with brick fragments
	36-60 in	Dark grayish brown (10YR 4/2) silty clay loam
A-56	0-30 in	Brown (10YR 5/3) sandy silt loam
	30-42 in	Dark gray (7.5YR 4/1) silty clay loam with brick fragments
	42-60 in	Dark grayish brown (10YR 4/2) silty clay loam
A-57	0-36 in	Dark grayish brown (10YR 4/2) silty clay loam
A-58	0-36 in	Brown (10YR 5/3) sandy silt loam
	36-54 in	Light gray (10YR 6/0) clay loam
	54-60 in	Dark gray (7.5YR 4/1) clay loam with minute brick fragments
	60-72 in	Dark grayish brown (10YR 4/2) silty clay loam

APPENDIX 3

Appendix 3. Description of Purposively Placed Deep Auger Tests (Figure 2).

Auger Test Number	Depth B/S	Soil Description
A-59	0-26 in	Brown (10YR 5/3) silt loam
	26-38 in	Dark brown (10YR 3/3) silty clay loam
	38-44 in	Brown (10YR 4/3) clay silt loam
	44-50 in	Dark grayish brown (10YR 4/2) clay loam with brick fragments approximately 5 mm in length
	50-82 in	Brown (10YR 5/3) clay silt loam
	82-96 in	Dark grayish brown (10YR 4/2) silty clay loam
A-60	0-15 in	Brown (10YR 5/3) silt loam
	15-21 in	Dark gray (7.5YR 4/0) clay loam
	21-30 in	Dark brown (10YR 3/3) silty clay loam
	30-46 in	Dark grayish brown (10YR 4/2) silty clay loam
	46-56 in	Brown (10YR 5/3) silty loam with gravel
	56-61 in	Dark grayish brown (10YR 4/2) clay loam with oyster shell fragments
	61-80 in	Brown (10YR 5/3) silt loam
	80-96 in	Dark grayish brown (10YR 4/2) clay loam
A-61	0-15 in	Brown (10YR 5/3) silt loam
	15-23 in	Dark gray (7.5YR 4/0) clay loam
	23-31 in	Dark brown (10YR 3/3) clay loam
	31-38 in	Brown (10YR 5/3) clay silt loam
	38-44 in	Dark grayish brown (10YR 4/2) silty clay loam
	44-48 in	Gravel deposit within brown (10YR 5/3) silty loam matrix; brick fragments (few)
	48-50 in	Dark gray (7.5YR 4/0) silty loam with inclusions of gravel and cinder
	50-52 in	Auger encountered impenetrable matrix; possibly brick; test halted

Appendix 3 (continued)

Auger Test Number	Depth B/S	Soil Description
A-62	0-20 in	Brown (10YR 5/3) clayey silt loam
	20-28 in	Dark brown (10YR 3/3) silty clay loam
	28-37 in	Brown (10YR 5/3) clayey silt
	37-47 in	Dark grayish brown (10YR 4/2) silty clay loam
	47-64 in	Dark brown (10YR 3/3) silt loam
A-63	0-19 in	Brown (10YR 5/3) sandy silt loam
	19-46 in	Dark brown (10YR 3/3) clay loam
	46-52 in	Brown (10YR 5/3) silt loam with small quantities of brick, coal, and gravel
	52-76 in	Brown (10YR 5/3) silt loam


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