

AD-A203 322

DTIC FILE COPY

2

CULTURAL RESOURCES SERIES

Report Number: COELMN/PD - 88/10



US Army Corps
of Engineers
New Orleans District

A CULTURAL RESOURCES SURVEY OF THE ST. CHARLES PARISH HURRICANE PROTECTION LEVEE, ST. CHARLES PARISH, LOUISIANA

Final Report

September 1988

Coastal Environments, Inc.
1260 Main Street
Baton Rouge, Louisiana 70802

DTIC
ELECTE
DEC 21 1988
S D
H

Prepared for

U.S. Army Corps of Engineers
New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267

UNCLASSIFIED. Distribution is unlimited.

DISTRIBUTION STATEMENT A
Approved for public release; distribution is unlimited.

88 12 20 05

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER COELMN/PD-88/10	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) A Cultural Resources Survey of the St. Charles Parish Hurricane Protection Levee, St. Charles Parish, Louisiana		5. TYPE OF REPORT & PERIOD COVERED Final Report
		6. PERFORMING ORG. REPORT NUMBER AR-237
7. AUTHOR(s) Thurston Hahn, III and Charles E. Pearson		8. CONTRACT OR GRANT NUMBER(s) DACW29-86-D-0092 Delivery Order 4
9. PERFORMING ORGANIZATION NAME AND ADDRESS Coastal Environments, Inc. 1260 Main Street Baton Rouge, LA 70802		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Department of the Army, New Orleans District, Corps of Engineers P.O. Box 60267, New Orleans, LA 70160-0267		12. REPORT DATE September 1988
		13. NUMBER OF PAGES 89
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified: Distribution is unlimited
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for Public Release: Distribution is Unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) Same		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Agricultural Drainage Mississippi River Archaeology Pontchartrain Basin Bayou Trepagnier St. Charles Parish Geology Louisiana		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Cultural resources surveys of five areas along the proposed Hurricane Protection Levee on the east bank of St. Charles Parish, Louisiana, were conducted in October and November 1987. Fieldwork within these areas located three archaeological sites (16 SC 65, 16 SC 66 and 16 SC 67). All three sites represent late-nineteenth to early-twentieth century, field drainage stations. None of these properties are considered significant in terms of National Register criteria. A series of geological cores made along the project right-of-way were used to assess and reconstruct the recent geological		

history of the area. A previously identified natural levee feature, buried approximately 12 ft below the surface, was studied. Radiocarbon dates obtained on samples taken from the cores indicate this buried levee dates circa 2000 to 3400 B.P. and could contain archaeological sites.



Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Date _____	
A-1	



DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT CORPS OF ENGINEERS

P O BOX 60267

NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF

Planning Division
Environmental Analysis Branch

To The Reader:

This cultural resources effort was designed, funded and guided by the U.S. Army Corps of Engineers, New Orleans District as part of our cultural resources management program. The effort documented in this report was a cultural resources survey of the proposed right-of-way of the St. Charles Parish Levee, a feature of the Lake Pontchartrain Hurricane Protection project.

We concur with the Contractor's findings and recommendations. Therefore, no further cultural resource studies of this project feature are planned.

A handwritten signature in cursive script, reading "Michael E. Stout".

Michael E. Stout
Authorized Representative
of the Contracting Officer

A handwritten signature in cursive script, reading "R. H. Schroeder, Jr.".

R. H. Schroeder, Jr.
Acting Chief, Planning Division

ACKNOWLEDGEMENTS

Fieldwork for this project was conducted by Charles E. Pearson; Thurston Hahn, III; Xu Jingxuan; and Stephanie Perrault. Geological interpretations were developed by Charles Pearson with the assistance of Sherwood Gagliano. Figures for the report were prepared by Curtis Latiolais, Don Hunter, and Thurston Hahn, III. Kim Smith and Ramona Mayer typed the report, and Linda Abadie edited the final version.

TABLE OF CONTENTS

Letter of Transmittal	1
Acknowledgements	3
List of Figures	7
List of Tables	9
Chapter 1: Introduction	11
Chapter 2: Environmental Setting	12
Geology	12
Age of the Levee System	21
Chapter 3: Previous Archaeological Research and Regional Culture History	25
Occupational History	25
Aboriginal Occupation	25
European Occupation	30
Chapter 4: Field Investigations	41
Area A	41
Area B	42
Area C	43
Area D	44
Area E	44
Chapter 5: Results of Field Survey	46
Prospect Plantation Drainage Machine	46
Almedia or Patterson Plantation Drainage Machine	46
Fairview Plantation Drainage Machine	46
Chapter 6: Historical Research	53
Prospect Plantation	58
Almedia or Patterson Plantation	62
Fairview Plantation	66
Chapter 7: Summary and Recommendations	75
References	77
Appendix	83

LIST OF FIGURES

1.	Five study areas within the right-of-way of the St. Charles Parish Hurricane Protection Levee	12
2.	East bank of Cross Bayou in Study Area C	14
3.	View of drainage canals in Study Area E from the back levee of Fairview Plantation	14
4.	Geological Cross Section A-A'	16
5.	Geological Cross Sections B-B' and C-C'	17
6.	Locations of geological cross sections	18
7.	Location of hand auger borings along Bayou Trepagnier	21
8.	Profiles of selected hand auger borings placed along Bayou Trepagnier	22
9.	Archaeological sites in the vicinity of the right-of-way of the St. Charles Parish Hurricane Protection Levee	29
10.	Circa 1723 <u>Carte Particulier du flueve St. Louis</u> showing St. Charles Parish area, the early German settlements and <u>Cannes Brulees</u>	33
11.	Plantations of St. Charles Parish as depicted on "Norman's Chart" of 1858	37
12.	Northern view of Prospect Plantation drainage machine	42
13.	Remains of tram road on west bank of Cross Bayou	43
14.	Remains of Almedia Plantation drainage machine	44
15.	Northwesterly view of Fairview Plantation drainage machine on Walker Canal	45
16.	Northeasterly view of Prospect Plantation drainage machine	47
17.	Plan view of the foundation remains of Prospect Plantation drainage machine	48
18.	Plan view showing the extent of rubble associated with the remains of the Almedia Plantation drainage machine	49

19.	Inlet of Fairview Plantation drainage machine	50
20.	Plan view of the foundation remains of Fairview Plantation drainage machine	51
21.	Belair Plantation drainage machine and mill	54
22.	Side view of scoop wheel of a drainage machine	55
23.	Frontal view of scoop wheel of drainage machine showing track which paddles pass through, pillars (spacers) seperating rings of the scoop wheel, and details of arm of scoop wheel	56
24.	1894 Mississippi River Commission map depicting cultural features of Almedia and Fairview Plantations within and around Study Area E	57
25.	1894 Mississippi River Commission Map of Prospect Plantation	59
26.	Projected location of Prospect Plantation drainage machine on 1860 plat map	61
27.	Projected location of Almedia Plantation and Fairview Plantation drainage machines on 1860 plat map	65
28.	1910 map of the rear of Almedia Plantation showing the "Old Pumping station"	67
29.	1912 map of the northwest quadrant of Almedia Plantation showing drainage station structure	68
30.	1938 U.S.G.S. 7.5-minute Luling, Louisiana, map depicting roads leading to drainage machines of Almedia and Fairview Plantations	69

LIST OF TABLES

1.	Coastal Louisiana Culture Sequence and Chronology	26
2.	Title Succession for Township 12 South, Range 8 East, Section 7 of Prospect Plantation, 1855-1901	60
3.	Title Succession for Township 12 South, Range 9 East, Section 40 of Almedia or Patterson Plantation, 1853-1912	64
4.	Title Succession for Township 12 South, Range 9 East, Section 39 of Fairview Plantation, 1850-1915	71

CHAPTER 1: INTRODUCTION

This report presents the results of cultural resources surveys of five areas within the right-of-way of the proposed Hurricane Protection Levee on the east bank of St. Charles Parish, Louisiana (Figure 1). The research was conducted by Coastal Environments, Inc. (CEI) under contract to the U.S. Army Corps of Engineers (USACE), New Orleans District. Fieldwork was carried out between 28 October 1987 and 7 November 1987. Analysis of the collected data and report preparation took place in December 1987 and January 1988.

Although the hurricane protection levee is to be continuous, limited access reduced the study area to those five areas (Figure 1) that offered the greatest probability of containing cultural materials. Those five areas are as follows:

1. Bayou Trepagnier Area - natural levees of approximately 200 ft on both banks of the bayou for a distance of 2,500 ft beginning at the northern border of the Norco sewage disposal plant, covering an area of approximately 23 ac;
2. Good Hope Oil and Gas Field - 800-ft-wide corridor 12,000 ft long where several roadways and waterways cross the levee right-of-way, covering a survey area of approximately 40 ac;
3. Cross Bayou and Cross Bayou Canal - 800-ft-wide corridor where the bayou and canal intersect the levee right-of-way, containing about 20 ac;
4. Pipeline Canal - 800-ft-wide by 500-ft-long corridor where the canal intersects the levee right-of-way, containing about 9 ac; and
5. Almedia to St. Charles-Jefferson Parish Boundary - 800-ft-wide 13,200-ft-long corridor, includes numerous canals, existing levee systems, roadways, and landfills, covering approximately 242 ac of area.

While these areas were selected for study primarily for their accessibility, both the Bayou Trepagnier and Almedia areas also offered excellent chances of archaeological site recognition.

All five survey areas are located north of U.S. Highway 61 (Airline Highway) between the Bonnet Carre Spillway and the St. Charles-Jefferson Parish boundary. These five survey areas fall within the backswamps of the area and have seen little recent cultural activity that would have resulted in construction. The field survey of these five areas located the remains of three field drainage machines, one each on the former lands of Prospect Plantation; Almedia, or Patterson Plantation; and Fairview Plantation.

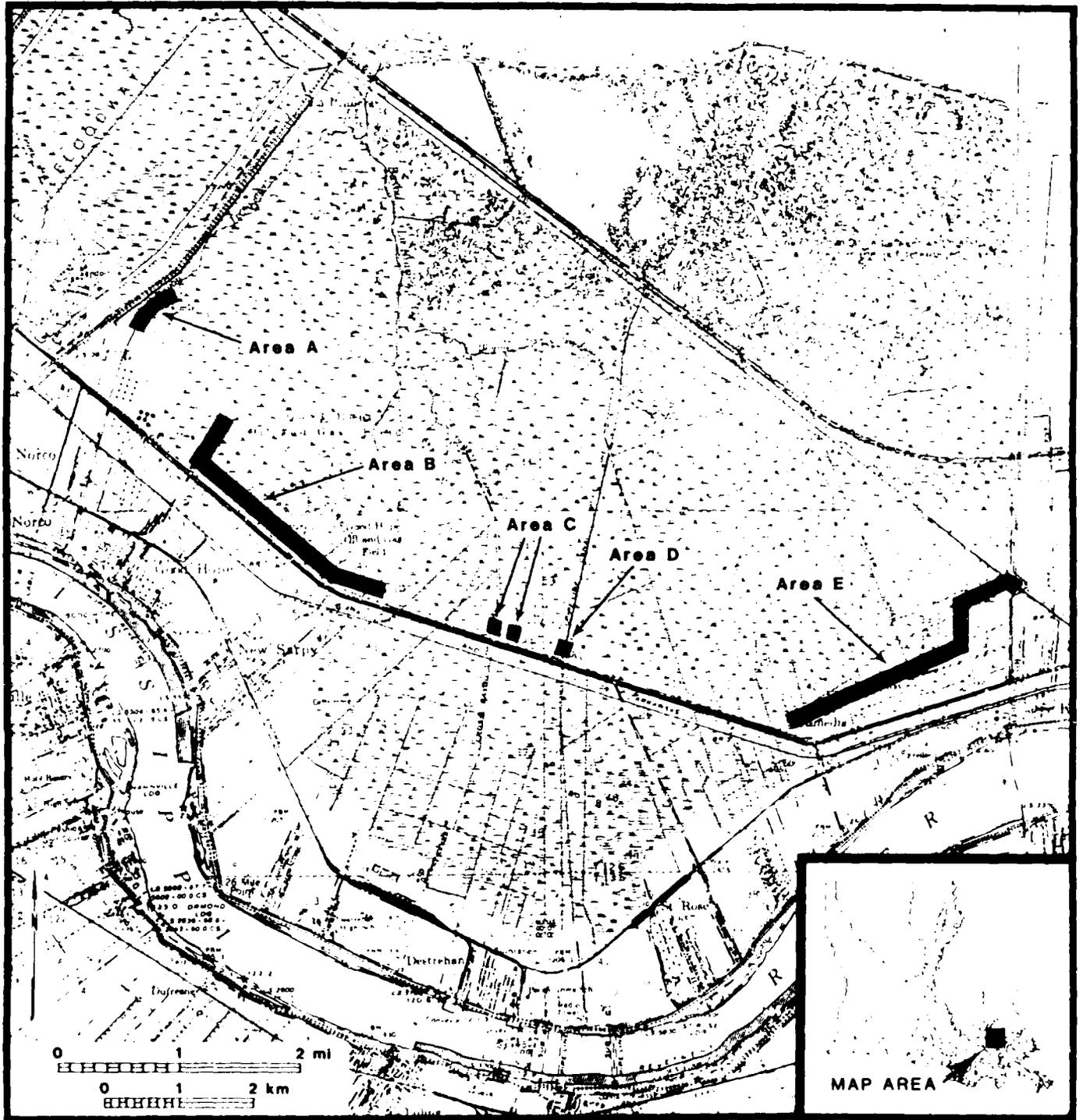


Figure 1. Five study areas within the right-of-way of the St. Charles Parish Hurricane Protection Levee.

CHAPTER 2: ENVIRONMENTAL SETTING

About 20% of the land area of St. Charles Parish consists of firm, loamy, and clayey soils laid down by the Mississippi River and its distributaries (McDaniel 1987:1). The remaining lands of the parish consist of mucky and clayey soils of marshes and swamps that are often ponded and frequently flooded (McDaniel 1987:1). Most of the undrained swamps of the area range in elevation from sea level to approximately 1-ft above sea level (McDaniel 1987:1).

Area A, along Bayou Trepagnier, consists of small, frequently flooded natural levees 15 to 30 cm high. The soils of these levees are composed of Sharkey clays (McDaniel 1987:Plates 4, 5), a fertile but poorly aerated soil. Upper story growth, flooding and poor aeration of the soil has kept undergrowth to a minimum in this area. Although the lack of undergrowth allowed easy surface surveying, thick deposits of humus greatly reduced ground visibility. Wastes from the nearby oil and chemical refineries, as well as the sewage disposal plant, have had a considerable impact on the area. Soils at or below the water table along the bayou have a distinct petrochemical odor. Visible amounts of petrochemicals were often encountered 10 to 210 cm deep during auger testing of the area.

Area B, an intermittent area through the Good Hope Oil and Gas Field, is generally under standing water except for several roads and a few small areas of exposed ground surface. Soils of this area consist of Fausse clays and Barbary muck (McDaniel 1987:Plates 5, 9). These very poorly drained soils are generally found in frequently flooded areas and support only those plants and trees that are water-tolerant.

Area C (Figure 2), around Cross Bayou Canal, and Area D, along Pipeline Canal, are virtually all under standing water. Only minor amounts of exposed natural land surfaces may be found in these areas. Bankline spoil, however, does offer some refuge from the surrounding water. The soils of this area are primarily Barbary mucks (McDaniel 1987:Plate 9). As with Area B, the amount of standing water precluded any type of surface survey over large portions of the study areas.

Much of Area E (Figure 3), between Almedia and the St. Charles-Jefferson Parish boundary, was under standing water at the time of the survey. Generally, the only portions of this area that could be traversed were the small levees built around agricultural fields and several abandoned roadways and paths. The natural soils of this area are Sharkey clays (McDaniel 1987:Plate 10). A large landfill, approximately 5 m high, has been created in this area over and along both sides of Walker Canal. This landfill, covered with a layer of sterile sand, represents the majority of the exposed land in this area.

Geology

The St. Charles Parish Hurricane Protection Levee project area is located within the floodplain of the modern Mississippi River at the southern edge of what is known as the Pontchartrain Basin (Saucier 1963). The geology of this area is dominated by the Mississippi River, its past deltaic processes, and the present fluvial activities associated with natural levee accretion and lateral channel migration. Over the past 30 years an extensive amount of geological research that provides the framework for understanding the geologic history and setting of the project area has been conducted in the region (e.g. Russell 1936; Fisk 1944; Kolb and van Lopik 1958; Frazier 1967; Kolb, Smith, and Silva 1975; and, especially, Saucier 1963). Of particular relevance



Figure 2. East bank of Cross Bayou in Study Area C.

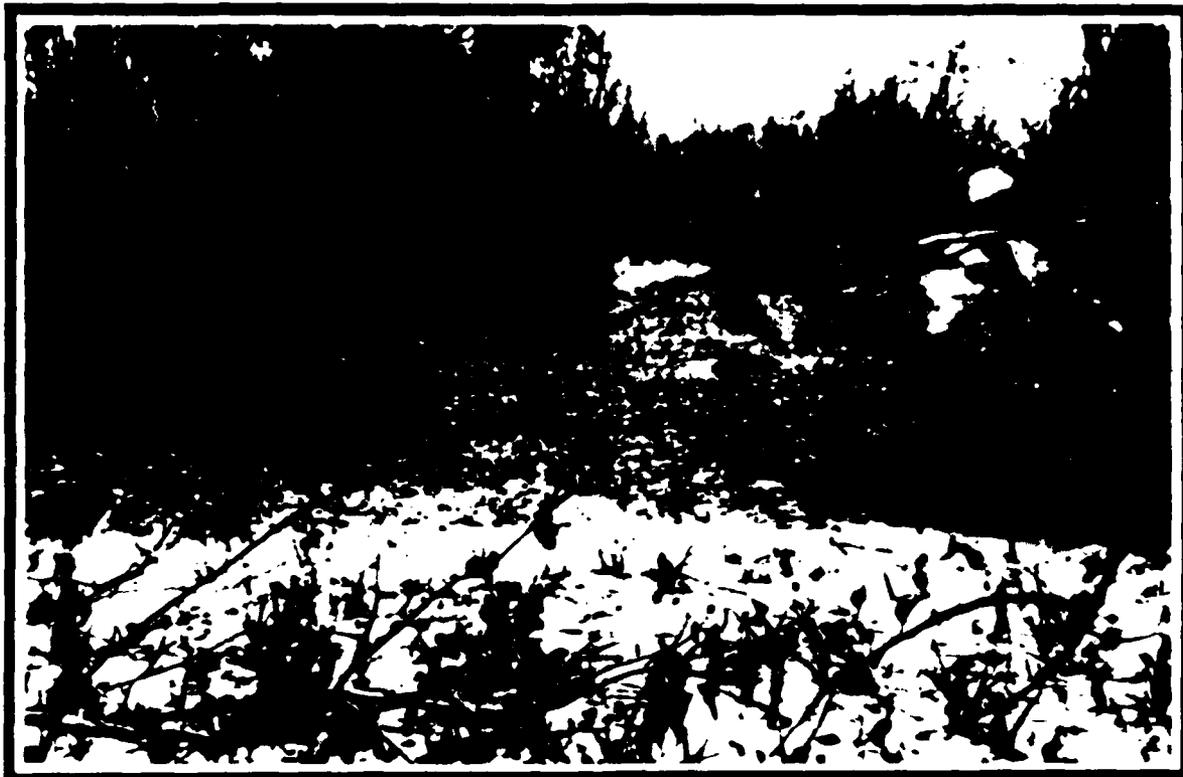


Figure 3. View of drainage canals in Survey Area E from the back levee of Fairview Plantation.

has been Roger Saucier's work (1963) on the geomorphic history of the Pontchartrain Basin. His study provides basic information on the geological sequence and chronology pertinent to the project area. Saucier's concepts have generally been followed by subsequent researchers; however, the utilization of different lines of evidence have lead to some variability in interpretation of the specific sequence and age of critical geological events. The present study offered an opportunity to examine the specific geology and geomorphology of the project area through examination of the cores and core logs from a series of borings made by the New Orleans District, USACE along the alignment of the proposed levee. The Scope of Services for this study required that four samples be selected from the borings for radiocarbon dating and that the analysis should attempt a "geomorphic reconstruction for the project area" and develop a "time-depth" estimate that could be related to the potential for archaeological site occurrence at or near the ground surface in the study area.

Three geological cross sections, shown as Figures 4 and 5, were derived from the core-log data. Interpretations were developed primarily by the USACE, with only minor modifications by the authors. The locations of these cross sections are shown in Figure 6. Sections A-A' and C-C' essentially parallel the modern course of the Mississippi River, while the short section labelled "B-B'" is perpendicular to the river. These profiles serve to guide the following discussions.

The deepest and oldest facies encountered in the cores is the Pleistocene-age Prairie Terrace formation (Figures 4 and 5). The Prairie formation represents the youngest of four coastwise-trending Pleistocene terraces identified in Louisiana. Saucier (1974:16) argues that the Prairie Terrace was formed over a long period of aggradation and progradation during the Sangamon Interglacial Stage and dates from about 80,000 to at least 100,000 years B.P. This surface was subareally exposed prior to Holocene marine transgression, which occurred in the project area probably about 7,000 to 8,000 years B.P. The boring logs indicate that the Pleistocene surface consists of well oxidized, stiff-to-very-stiff clays to silty and sandy clays. One characteristic that distinguishes these sediments from overlying deposits is their low water content.

The Pleistocene surface was encountered during coring at a depth of just over 50 ft below mean sea level. This surface, which correlates with the "First Pleistocene Horizon" identified by Kolb et al. 1975, slopes generally to the south in this region. In Cross Section A-A' (Figure 4), the Pleistocene surface begins to slope steeply toward the southeast and it was beneath the reach of the downriver-most cores along this line. This particular slope probably reflects a drop into a channel entrenched into the Pleistocene surface which Saucier (1963:Figure 14) and Kolb et al. (1975:Plate 6) locate in the vicinity of Kenner, just downriver of the project area.

Immediately above the Pleistocene surface are bay/sound sediments laid down during Holocene marine transgression. Much of the sediment in this deposit was locally derived from the underlying Pleistocene surface during transgression. In the project area the bay/sound sediments are variable, but generally consist of medium to very soft, silty-to-sandy clays containing scattered shell fragments. As seen in Figures 4 and 5, bay/sound deposits range from 5 ft to over 20 ft in thickness in the project area.

Initial formation of the Pontchartrain Embayment began when large barrier beaches formed along the southeastern shoreline of the later developing Lake Pontchartrain. These beaches, derived in part from the bay/sound sediments, formed a large barrier spit that extended from near the mouth of the Pearl River into northern Orleans Parish. Known as the Pine Island Beach trend, this feature partially encompassed what

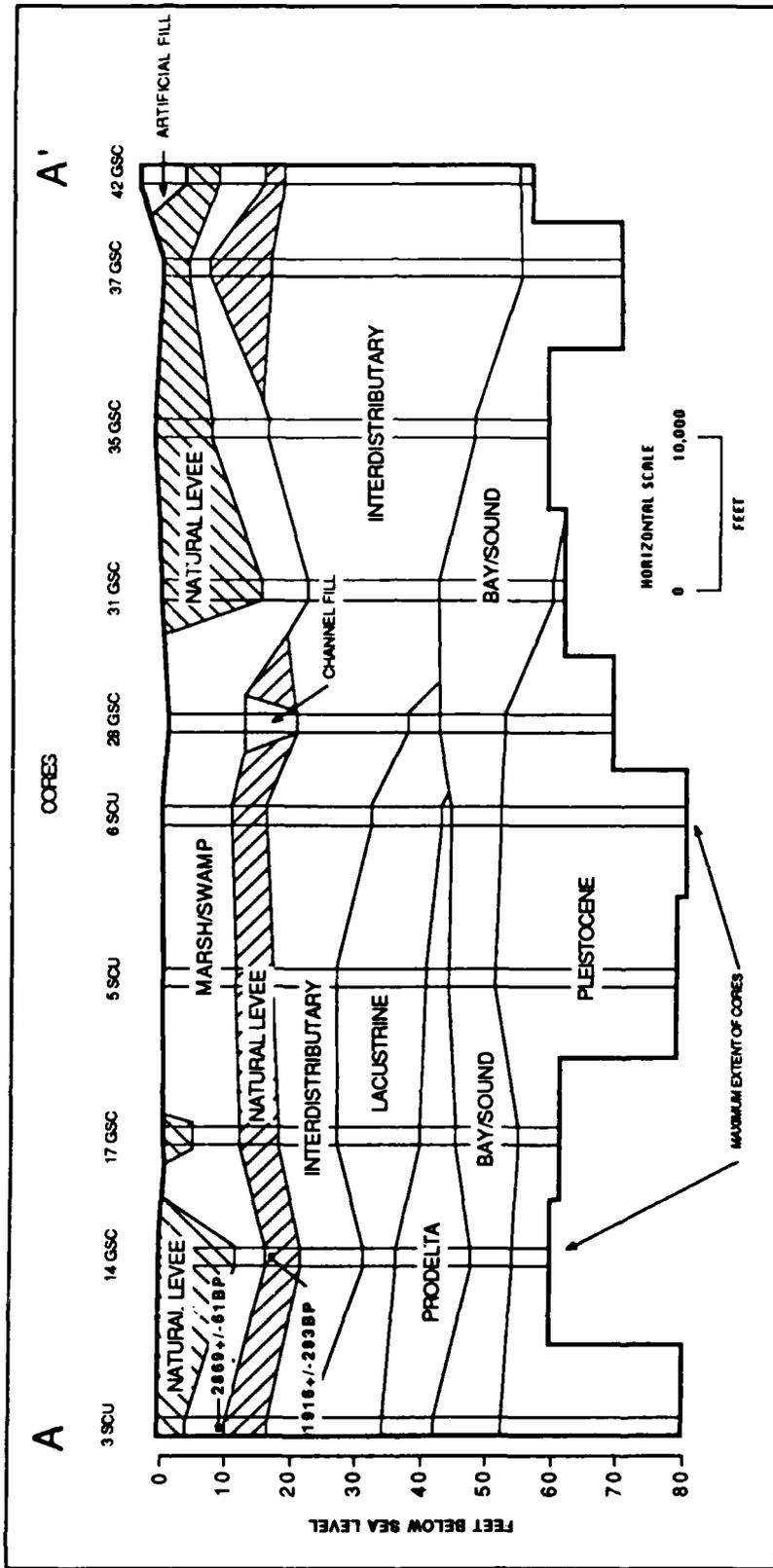


Figure 4. Geological Cross Section A-A'. See Figure 6 for location.

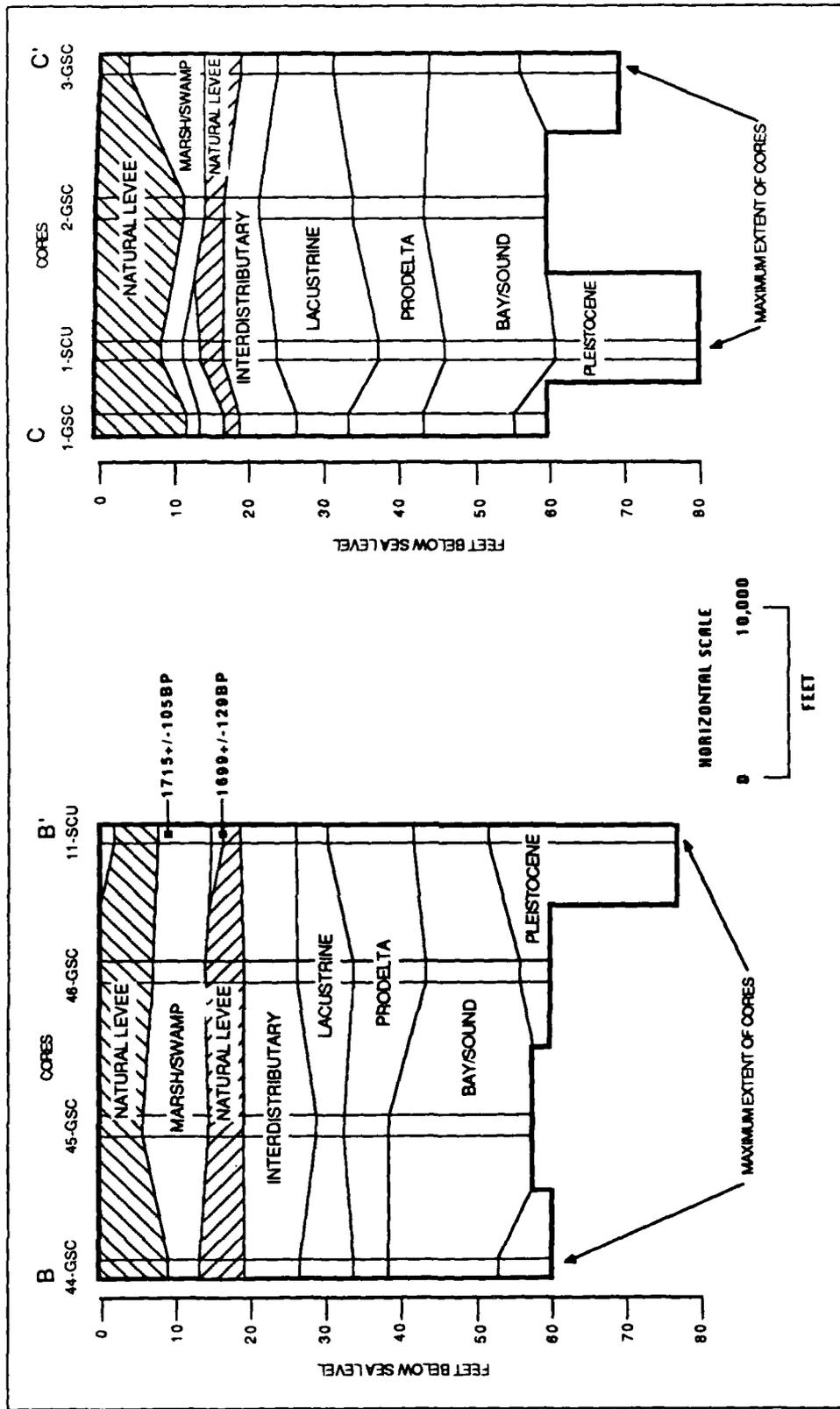


Figure 5. Geological Cross Sections B-B' and C-C'. See Figure 6 for locations.

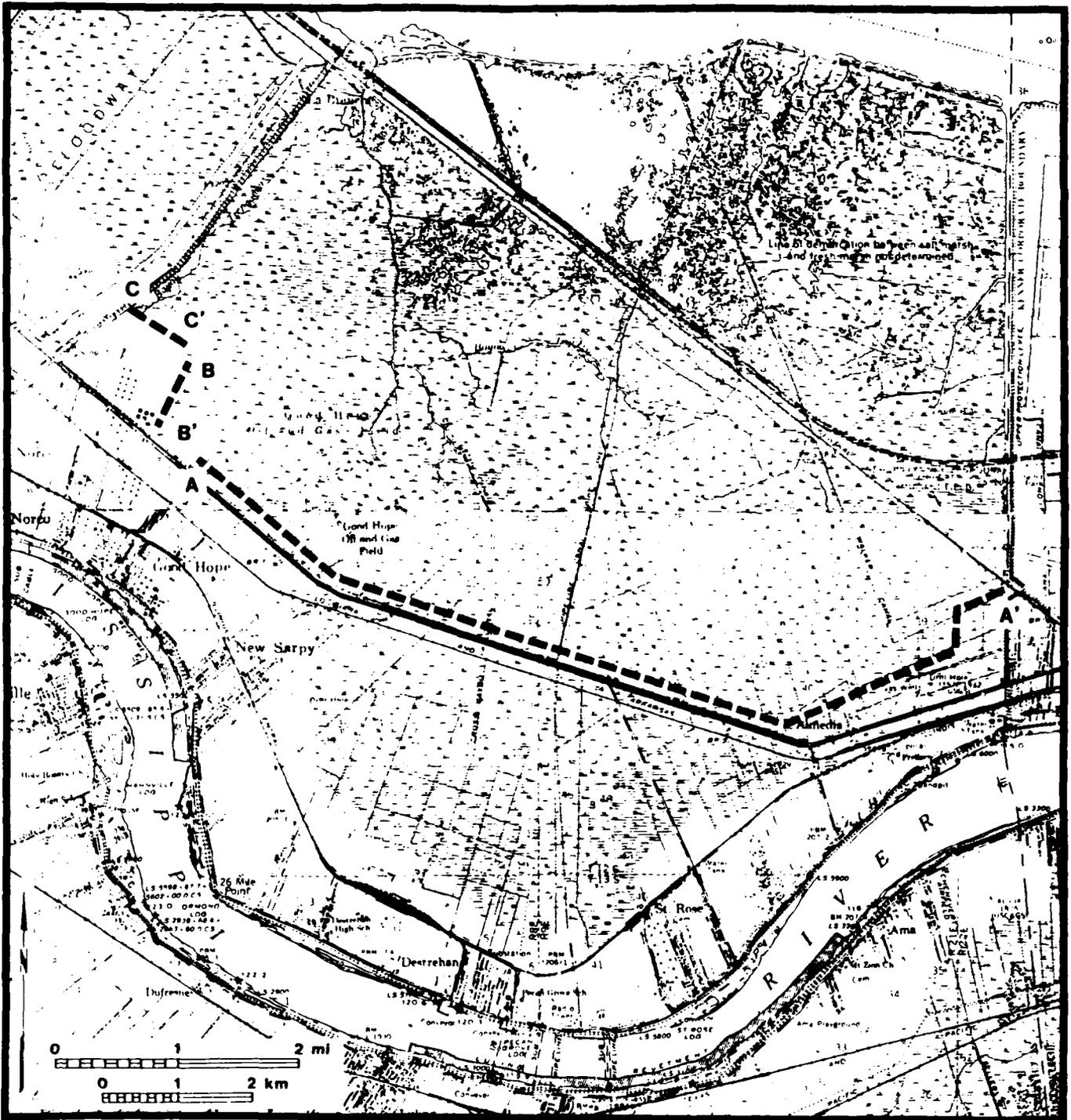


Figure 6. Locations of geological cross sections.

later became Lake Pontchartrain, eventually allowing for the development of brackish water conditions within the embayment. The subsurface configuration of the Pine Island Beach trend has been mapped in detail (Saucier 1963) and its extreme western end extends into northeastern Jefferson Parish, several miles east of the project area.

A stratum identified as prodelta deposits rests above the bay/sound sediments. These become thinner toward the southern end of the project area, as shown in Cross Section A-A' (Figure 4). These prodelta deposits represent sediments derived from the outflow of the Mississippi River when the river mouth was a considerable distance from this location, possibly in the area of present-day Baton Rouge. A wedge of identified lacustrine deposits lies above the prodelta stratum; these also get thinner toward the south (Figure 4). These lacustrine sediments consist of very soft to soft clays, silty clays and silts and contain scattered shell fragments. It should be noted that these deeper sections of the cores were not examined by the authors and the identification of the deposits as lacustrine is derived from the USACE. Roger Saucier (personal communication 1988) suggests these deposits are probably better identified as estuarine rather than lacustrine sediments. A careful examination of the shell species in these sediments could help clarify their environment of deposition. If correctly identified as lacustrine, these sediments represent the end of marine conditions and the beginning development of conditions associated with Lake Pontchartrain. Lacustrine conditions were dependent upon the closure, or partial closure, of the Pontchartrain Embayment by the progradation of deltaic deposits into this area. The thick interdistributary deposits shown between Cores 31-GSC and 42-GSC in Cross Section A-A' (Figure 4), may represent some of the deposits which eventually closed the embayment. However, Saucier (1963), in a series of cores taken near Reserve, Louisiana, about 12 mi north of the project area, identified no lacustrine deposits and his reconstructions of past configurations of Lake Pontchartrain all place its shoreline to the east of the present project area. If the identification of lacustrine deposits is correct, they represent a very early period in the development of Lake Pontchartrain.

Above the lacustrine (or estuarine) stratum is a zone of interdistributary deposits. While somewhat variable in composition, they consist primarily of bands of soft to very soft silts and clays, often containing sand. These sediments are generally gray in color but are commonly oxidized, suggesting shallow water deposition and/or some subaerial exposure.

A natural levee feature overlies these interdistributary deposits (Figures 4 and 5). This natural levee and the underlying interdistributary deposits are associated with the progradation of an early Mississippi River deltaic system into this area. This system has been termed the Cocodrie by Saucier (1963) and part of the St. Bernard Delta complex by Frazier (1967). Saucier, through an assessment of radiocarbon dates and prehistoric site occurrences, suggested that the major development of this buried levee feature occurred between about 3800 and 4000 B.P. (Saucier 1963:61-62). During the development of this deltaic system the trunk channel of the Mississippi River would have been near its present position in this area. It is known that expansion of the St. Bernard Delta complex continued after 3800 years B.P. (Frazier 1967:Figure 2), and it is presumed that upper portions of this levee feature date later than Saucier had originally suggested. The temporal position of this buried natural levee, especially in relation to archaeology, is more extensively discussed below.

These natural levee deposits consist of silty to slightly sandy clays with some interbedded silt and sandy silt strata. They contain wood fragments and roots and tend to be oxidized. Saucier (1963:55) indicates that these buried natural levee sediments have a firm to stiff consistency, while the Corps of Engineers' core logs developed for

this study indicate these deposits are commonly soft or very soft. The reasons for these differences are unknown.

As shown in Figure 4, the thickness of the buried natural levee is about 5 ft, and this is relatively consistent. A sand-filled, relict stream channel, incised into these levee deposits, was encountered in Core 28-GSC (Figure 4). The natural levee is missing in Cores 31-GSC and 35-GSC, suggesting that the line of cores in this cross section is near the backslope of the natural levee and is crossing areas of backswamp.

Marsh/swamp deposits overlie the buried natural levee feature (Figures 4 and 5). These sediments consist of clays and silty clays, often containing wood fragments and roots. These soils developed over the now-buried natural levee as it subsided and/or deteriorated. Subsidence would have occurred as active aggradation of the levee ended or lessened. Presumably, this coincided with the development of the Lafourche Delta complex, when significant Mississippi River flow was diverted down present-day Bayou Lafourche. Stream flow down the channel near the project area would have decreased and levee formation would have lessened or ceased. Weinstein and Gagliano (1985:123) have suggested that the Lafourche Delta system became active after 2000 B.P. and Frazier (1967:Fig. 12) also noted that significant flow was diverted down Bayou Lafourche after 2000 B.P., although he argued that this flow started by about 4300 B.P.

The uppermost deposits in the stratigraphic sequence are related to the modern natural levee (Figures 4 and 5). These sediments consist of clays and silty clays which are commonly oxidized in the upper sections. The thickness and presence of the modern levee feature varies considerably within the project area, as shown in Figures 4 and 5. This variability is a reflection of the position of the cores in relation to the main channel of the river. At either end of Cross Section A-A', the cores are closer to the main channel and are near cut-bank areas where overbank crevasse deposits are most extensive and thickest. The central portion of this line of cores crosses an area of backswamp located behind the present natural levee.

The modern levee is also thickened in the vicinity of Bayou Trepagnier, a stream which today extends from the backslope of the natural levee to Lake Pontchartrain (Figure 5). Apparently, Bayou Trepagnier was once a crevasse channel off the Mississippi River and it, or the crevasse or the crevasse event, have produced the extensive and deep levee deposits shown in the vicinity of the stream in Cross Section C-C'.

In an effort to more carefully examine the natural levees adjacent to Bayou Trepagnier, a series of 38 hand auger borings were placed along both sides of the bayou during this study. The natural levees of the bayou are considered to have a high potential for containing buried prehistoric archaeological sites and the augering was used as a technique for locating sites. Each line of auger holes was placed approximately 2.5 m from the edge of the bayou and borings were placed at 40-m intervals in an offset pattern along the two lines (Figure 7). A 1-in-diameter soil auger was used and all borings were taken to a minimum depth of 2 m. Information on soil texture, content and color was recorded for the entire length of each auger hole, except in several instances where the presence of petrochemicals in the sediments prevented the determination of soil color and texture.

All of the auger borings exhibited a generally similar stratigraphy (Figure 8). From the ground surface down, this consisted of a 10-cm-thick humus zone underlain by a 50- to 80-cm-thick stratum of dark gray to gray (10 YR 4/1-10 YR 5/1), heavily

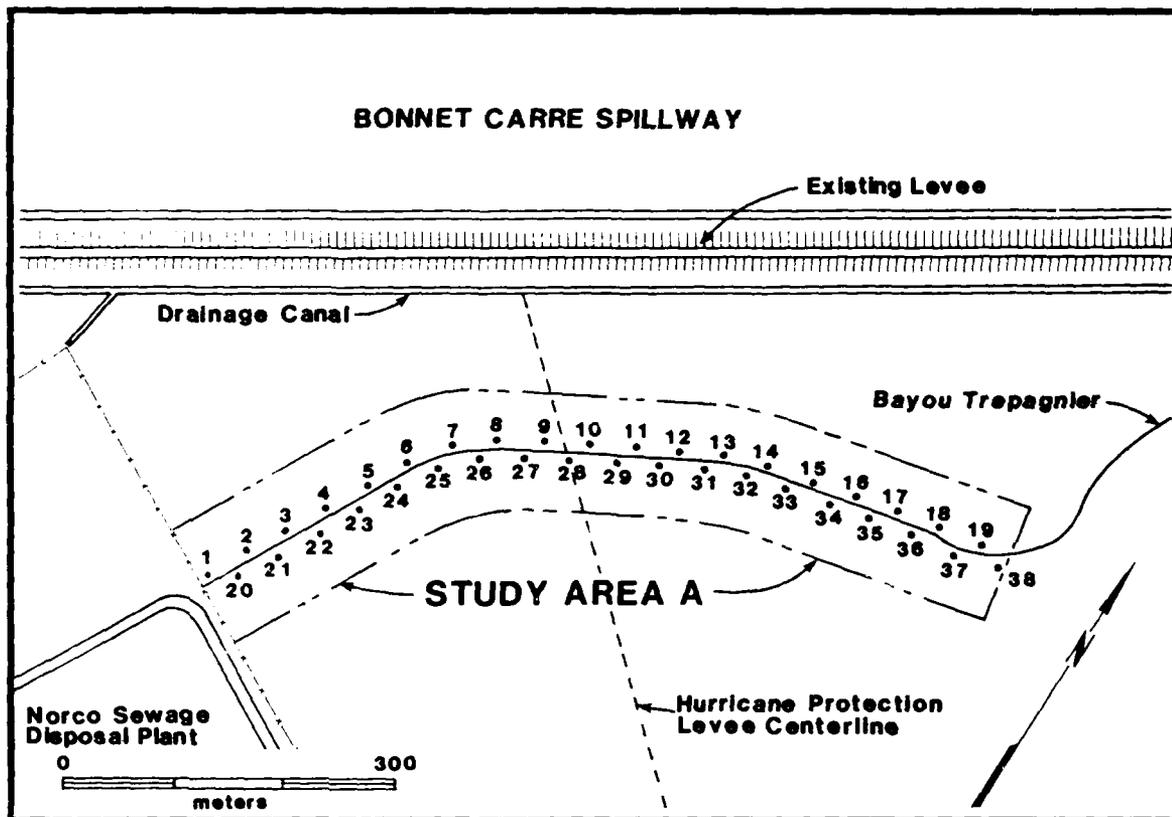


Figure 7. Location of hand auger borings along Bayou Trepagnier.

oxidized clay. Below this, and extending to the base of all of the auger holes (circa 200 cm), sediment consisted of gray (10 YR 5/1) clay containing numerous root and wood fragments. This organic material sometimes existed as thin lenses. In several of the auger borings, thin strata (less than 5 cm thick) of silts and silty clays were encountered at depths of 150 to 200 cm.

The stratigraphy of the hand auger borings suggests that all are entirely within natural levee deposits. No cultural remains (e.g. *Rangia cuneata*, ceramics, etc.) were encountered during the augering. It should be noted that in most of the borings, the sediment had a very "oily" feel and smell. This segment of the study area is directly behind the Norco Refinery and it appears that chemical by-products have been released into the backswamp during the 50 or so years the refinery has been in operation. The auger borings indicated that these chemicals had penetrated to depths of at least 210 cm.

Age of the Levee System

One objective of this study, as noted earlier, was to establish a geomorphic history of the project area and relate it to the archaeological potential of identified landforms. The natural levee features are of critical concern, because they are the only landforms likely to contain archaeological sites.

The buried natural levee feature identified in the core logs is assumed to be related to the early St. Bernard Delta system, as identified by Frazier (1967), or the Cocodrie, as identified by Saucier (1963). In order to try to more carefully define the age of this

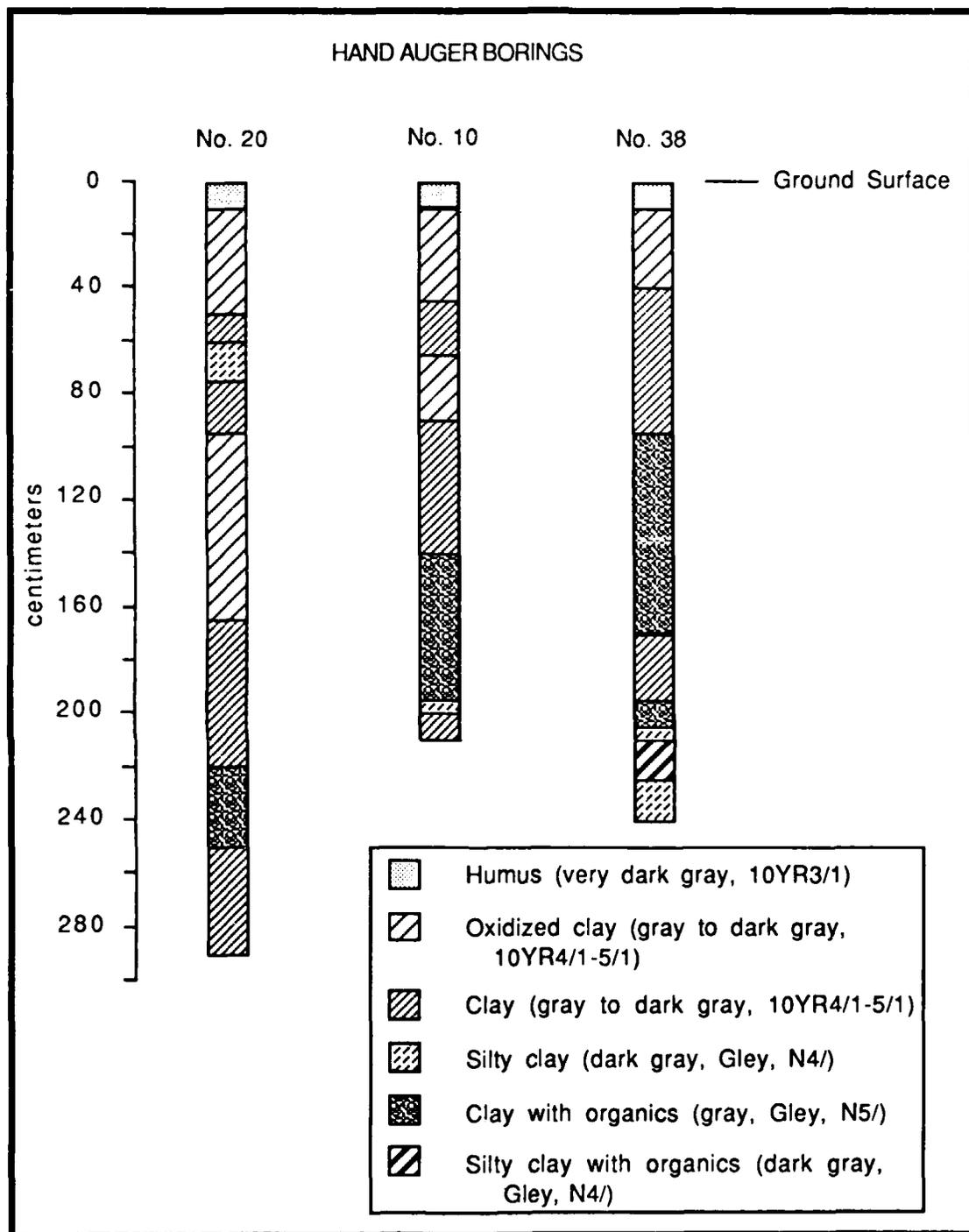


Figure 8. Profiles of selected hand auger borings placed along Bayou Trepagnier. (See Figure 7 for auger locations.)

underlying feature and its archaeological potential, four samples were submitted to the Center for Applied Isotope Studies, University of Georgia, for radiocarbon dating. The intent was to select samples that would "bracket" the lower levee feature; however, none of the core samples available from immediately beneath this levee feature contained organics suitable for dating. The four samples finally selected for dating consisted of the following: two from Core 11-SCU, one from the top of the buried natural levee feature at a depth of 16.7 ft and one from the overlying marsh/swamp deposit at a depth of 9.8 ft; one sample from the marsh/swamp deposit in Core 3-SCU at a depth of 10.2 ft; and one sample from within the buried natural levee feature in Core 14-GSC at a depth of 17.8 ft.

The one radiocarbon sample from the overlying marsh/swamp deposit at a depth of 9.8 ft in Core 11-SCU produced a date of 1715 +/- 105 B.P. (UGA 5751) (see Figure 5, Transect B-B'). Two dates were obtained from within the upper portion of buried levee feature. One of these, also from Core 11-SCU, provided an age of 1699 + 129 B.P. (UGA 5747); the other, from Core 14-GSC, produced an age of 1916 + 293 B.P. (UGA 5748) (see Figures 4 and 5). These two determinations may be dating organic material derived from vegetation associated with the immediately overlying marsh/swamp deposits rather than with the levee itself. Presumably, however, these dates provide a terminus ante quem for the underlying levee of approximately 1700 years B.P. This suggests that this buried levee feature represents deposition occurring through all but the last stage of Frazier's St. Bernard Delta complex (Frazier 1967:Figure 12) or through what Weinstein and Gagliano (1985) have termed the La Loutre Delta.

The other radiocarbon date was obtained from Core 3-SCU on organics within the marsh/swamp deposits which overlie the buried natural levee. This sample provided an age of 2869 + 61 B.P. (UGA 5750), or about 1000 years earlier than the other two samples, despite the fact that it is stratigraphically above those samples (see Figure 4). The differences in these dates make it difficult to establish with confidence a terminal date for the buried levee feature. It could be as late as 1700 B.P. or as early as 2800 B.P. Saucier (1963:56) indicates that average subsidence rates in the area are 0.39 ft per century. The lower levee feature is approximately 12 ft below present sea level, suggesting about 31 centuries of subsidence. This line of evidence supports the pre-2800 B.P. date for the buried natural levee.

No date for the initial formation of the buried levee feature was obtained in this study. Following Saucier (1963), however, the early date could be approximately 4300 years B.P.

The postulated age of this buried levee indicates that it could contain archaeological deposits dating from the late Archaic period (circa 4000 years B.P.) into the Poverty Point period (circa 2500 years B.P.) or, if the late date is accepted, into the Early Marksville period (circa 1700 years B.P.). Saucier (1963) presents some archaeological evidence which bears on the question of the age of this feature. He associates the Bayou Jasmine site (16 SJB 2) with buried natural levees of his Cocodrie Delta (Saucier 1963:59-60). These are, presumably, partially contemporary with the buried natural levee feature in the project area. The early occupation at the Bayou Jasmine site is associated with the Bayou Jasmine phase of the Poverty Point period, dating circa 2900 to 3400 years B.P. Later occupations, dating from Tchefuncte through Plaquemines times, are, however, also reported from the site. The data from the Bayou Jasmine site support a pre-3500 year B.P. date for the establishment of the buried levee system in the project area. They are however, inconclusive as to the terminal date for this feature.

Another archaeological site that was of use in addressing the question of the age of the buried natural levee is the Bayou Trepagnier site (16 SC 10), located along Bayou Trepagnier about 3.2 km north of the project area. This site, a Rangia cuneata shell midden, is totally subsided and was originally discovered in dredge spoil removed from Bayou Trepagnier. Ceramics recovered from the site suggest an initial occupation during the Pontchartrain phase of the Tchefuncte culture (circa 2200-2400 years B.P.), with later occupations occurring during Baytown and Coles Creek periods (Weinstein et al. 1977:44). Auger borings made at the site in the 1950s encountered Rangia shell to at least 13 ft, the limit of augering. There is a possibility that this shell was slumped into a channel and may not reflect the actual depth of in situ material (Sherwood Gagliano, personal communication 1987).

A critical question is whether or not Bayou Trepagnier is associated with the buried natural levee encountered in the project area. The cores taken closest to the bayou, shown in Cross Section C-C' (Figure 5), indicate a period of marsh/swamp development between the two levee features. Thus, if this interpretation is accepted, it seems to suggest that Bayou Trepagnier is associated only with the modern (upper) levee system. This, however, does not correlate with the information suggested by two of the radiocarbon dates. The two youngest dates indicate that the modern natural levee is less than about 1700 years in age, much younger than the earliest archaeological component identified at the Bayou Trepagnier site. Following this line of evidence, it would appear that Bayou Trepagnier, when originally formed, was a distributary off of the buried natural levee system. The present-day bayou has reoccupied or, possibly, has continuously occupied the old course.

This later interpretation seems to be the most reasonable in view of the available evidence. A suggestion that the channel has been reoccupied rather than continuously occupied is provided by the lack of Marksville period (circa 1900-1500 years B.P.) ceramics at the Bayou Trepagnier site. It is possible that a site was established on the natural levees of Bayou Trepagnier, then a distributary off of the main channel of the St. Bernard Delta system, during Tchefuncte times or about 2400 years B.P. At about 2000 B.P. a significant portion of the flow down the Mississippi River diverted to Bayou Lafourche, thereby causing an end or decrease of sedimentation in the vicinity of the project area. The natural levees of the main channel and of the ancestral Bayou Trepagnier course began to subside during this period. Eventually, those natural levees along the bayou may have become uninhabitable. It was not until about 1500 B.P. that settlement again appeared at the Bayou Trepagnier site (i.e. Baytown period). Reoccupation of the site suggests increased flow in the trunk channel related to the late St. Bernard or the Plaquemine Delta complex with concomitant flow and levee development along Bayou Trepagnier.

This model seems reasonable in light of the available data; however, the examination of other lines of evidence may be needed to more carefully define the exact sequence of events. Questions about the geological and archaeological history of Bayou Trepagnier can probably best be addressed through study of the Bayou Trepagnier site itself.

CHAPTER 3: PREVIOUS ARCHAEOLOGICAL RESEARCH AND REGIONAL CULTURE HISTORY

Although several prehistoric sites in the immediate vicinity of the project area were first recorded in the early 1950s, very little prehistoric archaeology has been conducted in the area, with the exception of several surface collections. The most extensive survey and review of area prehistoric sites was conducted by Weinstein, Burden, and Gagliano (1977). Only a few historical sites in the area have been extensively studied archaeologically. The most extensive historical archaeology of the area was conducted by The University of New Orleans at Destrehan Plantation (Lamb 1983), by Richard Beavers, Eugene Cizek, and the Louisiana Archaeological Society at Destrehan Plantation (16 SC 18) in 1984-1986; by Franks et al. (1986) at Montz; and by Yakubik et al. (1988) at the Bonnet Carre Floodway. Additional discussions of sites and surveys in the area include McIntire (1958, 1976, 1979a, 1979b, 1979c), Saucier (1963), Phillips (1978), Neuman (1973, 1977), Price (1977), and Weinstein (1980).

Occupational History

Based on known geologic history (see Chapter 2) and the presence of other sites within the vicinity of the project area, it appears that this area of Louisiana may have been occupied for up to 3000 years.

Aboriginal Occupation

Although aboriginal populations have been residing in Louisiana since the Paleo-Indian Period (Table 1), the earliest known archaeological remains in the region surrounding the project area date to the Poverty Point Period (1500 B.C.-500 B.C.). Characteristics of the Poverty Point Period include distinctive baked clay balls, microlith and lapidary industries, and earthworks. While the nearby Bayou Jasmine site (16 SJB 2), in St. John the Baptist Parish, has a Poverty Point component, as well as later components, any Poverty Point sites located in the project area may be too deeply buried to be encountered in shovel or auger testing. The possibility of the presence of buried Poverty Point sites within the project area, however, should be acknowledged even though they may be too deeply buried to be discovered during archaeological testing or during levee construction.

Because of the fluvial geomorphology of the project area and the antiquity of known area sites, the earliest aboriginal sites expected to be found at or near the surface in this area would date to no earlier than the Tchula Period (ca. 500 B.C.-A.D. 1) Tchefuncte culture. The project area has the potential for containing archaeological remains from the Tchula and all later periods. Pottery with a laminated and apparently untempered paste is the most diagnostic artifact of the Tchefuncte culture. This culture may also be evidenced by the cultivation of squash, bottle gourd, and possibly knotweed (Byrd and Neuman 1978:11-13), which was used as an agricultural base. Mound building is a dominant theme in the Tchefuncte culture, as well as in later cultures.

Following the Tchula Period is the Marksville Period (A.D. 1-400). Cultures of this period may have developed out of intermittent Tchefuncte contact with Illinois River Valley cultures (Toth 1977:470-477). The Marksville Period is characterized by widespread trading patterns that brought diverse goods from other areas of the country into the Lower Mississippi Valley.

Table 1. Coastal Louisiana Culture Sequence and Chronology.

STAGE	PERIOD	CULTURE	TIME INTERVAL	PHASES		
				Eastern Area	Central Area	Western Area
Formative	Historic	Various Cultures	PRESENT A.D. 1750	← Various Tribes →	 Little Pecan
	Mississippi	Mississippi Plaquemine	A.D. 1700	Delta Natchezan Medora Barataria	Petite Anse Burk Hill	Bayou Chené
			A.D. 1600			
			A.D. 1500			
			A.D. 1200			
	Coles Creek	Transitional Coles Creek	A.D. 1000	St. Gabriel	Three Bayou	Holly Beach
		Coles Creek	A.D. 900	Bayou Ramos	Morgan	Jeff Davis
			A.D. 850	Bayou Cutler	White Lake	Welsh
	Baytown	Troyville-like	A.D. 700	Whitehall	?	Roanoke
	Markeville	Markeville	A.D. 400	Gunboat Landing	Veazey	Lake Arthur
A.D. 200			Smithfield	Jefferson Island		
A.D. 1			LaBranche			
Tchula	Tchefuncte	250 B.C.	Beau Mire Pontchartrain	Lafayette	Grand Lake	
		500 B.C.				

Table 1 concluded.

STAGE	PERIOD	CULTURE	TIME INTERVAL	PHASES		
				Eastern Area	Central Area	Western Area
Archaic	Poverty Point	Poverty Point	500 B.C.	Garcia	Beau Rivage	?
			1000 B.C.		Rabbit Island	
	Late Archaic	Archaic	1500 B.C.	Pearl River	Copell	Bayou Blue
			3000 B.C.	Monte Sano	Banana Bayou	?
	Middle Archaic	Archaic	5000 B.C.	Amite River		
	Early Archaic			St. Helena	?	?
Lithic	Late Paleo	Paleo-Indian	6000 B.C.	Jones Creek	Vatican	Strohe
	Early Paleo		8000 B.C.	?	Avery Island	?
	Pre-Projectile Point	?	10,000 B.C.	?	?	?
			?			

The Baytown Period (A.D. 400-700) saw the introduction of two new, painted pottery complexes (Belmont and Williams 1981) and the use of the bow and arrow. The introduction of the bow and arrow is evidenced by the use of small arrow points, replacing larger dart points. The Baytown Period was replaced by the Coles Creek Period (A.D. 700-1200) and is characterized by the use of ceramic vessels with incised, stamped, and punctated designs largely limited to a band around the rim of the vessel.

The Mississippi Period (A.D. 1200-1700) cultures were based on an intensive agriculture of maize, beans, and squash. The Mississippian culture, the predominant culture of the period, is most characterized by their shell-tempering ceramic industry. This period extends until 1700 even though European exploration of the area began in 1542 when the survivors of the De Soto expedition passed through on their way to Texas. It was not until the late-seventeenth and early-eighteenth centuries that extensive European contact with native Americans occurred in Louisiana.

There are numerous known aboriginal sites within and around St. Charles Parish. Within the immediate vicinity, the following aboriginal sites have been located and recorded (Figure 9):

1. The Bayou Trepagnier site (16 SC 10), 610 m long and at least 4 m deep, is located on the west bank of Bayou Trepagnier. Previous collections at the site were made in 1951, 1958, 1963, and 1977. These collections reveal that the site probably has three components: Tchefuncte (Pontchartrain Phase), Baytown, and possibly Mississippian (Bayou Petre Phase). This site was located during the dredging of Bayou Trepagnier (Weinstein et al. 1977:44).
2. The Bayou Labranche mouth site (16 SC 11) is located on the east bank of Bayou Labranche and consists of a wave-washed shell deposit 80 m long on the shore of Lake Pontchartrain and 55 m long on the bank of the bayou. Archaeological collections made in 1963 and 1977 indicate the site was inhabited during the Marksville period. Historic ceramics and glass at the site also suggest a late-nineteenth or early-twentieth-century occupation (Weinstein et al. 1977:49, 51, 53).
3. The Bayou Labranche site (16 SC 12) is located on the east bank of Bayou Labranche about 400m inland from the bayou's mouth. Although the site was located during dredging operations in 1951, the site has yet to yield artifacts (Weinstein et al. 1977:53).
4. An unnamed site (16 SC 16) is located on the east bank of the mouth of Bayou Piquant. The site, dating from the Troyville-Coles Creek culture, consists of a shell midden spread 64 m along Lake Pontchartrain's shore and 27 m along the bayou (Yakubik et al. 1986:44, Weinstein et al. 1977:53). Weinstein (1980) was unable to locate the site, as 50 or more meters of the bankline had recently eroded, destroying the site in the process.
5. A second unnamed site (16 SC 17) is located on the west bank of the mouth of Bayou Piquant. The site consists of a shell midden stretching along the shore of Lake Pontchartrain for 46 m and along the bank of the bayou for 9 m. The ceramics from this site indicate a post-Marksville occupation (Yakubik et al. 1986:44, Weinstein et al. 1977:53). Weinstein (1980) was unable to relocate the site.

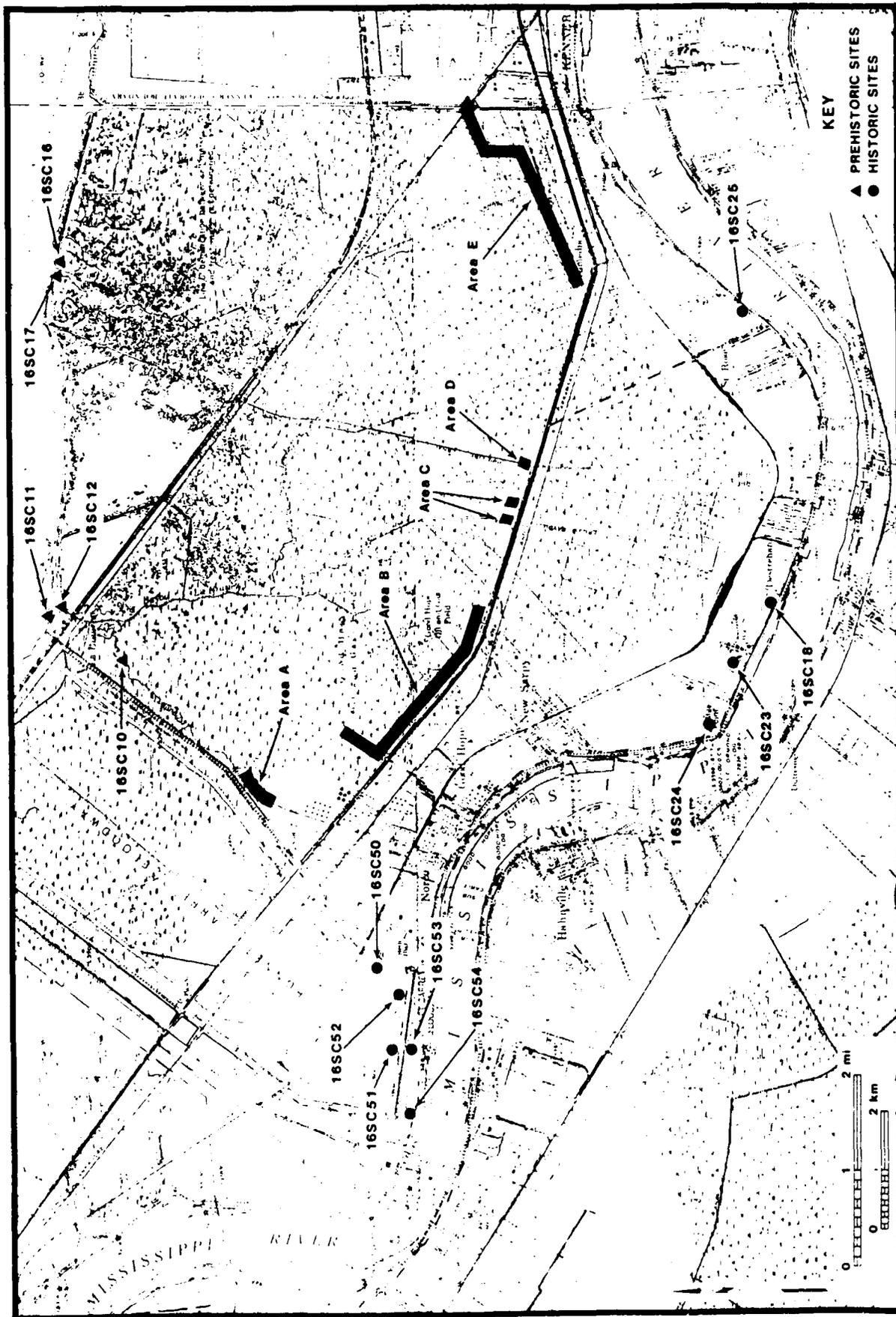


Figure 9. Archaeological sites in the vicinity of the right-of-way of the St. Charles Parish Hurricane Protection Levee.

Weinstein (1980:5-3) also recorded a possible prehistoric site on the west bank of the mouth of Fall Canal, but determined that the wave-washed shells may have been dredged into the area to dam access canals built during the construction of Interstate 10 (I-10). These canals were originally excavated to allow construction equipment to be barged to the highway site but also allowed saltwater to intrude into area swamps. To prevent further land loss, the canals were closed by shell embankments and sheet pilings after construction of I-10 was completed (Weinstein 1980:1-1). Weinstein (1980) postulated that the same types of construction may also have been the case for the formation of 16 SC 16 and 16 SC 17. Although there are no other known aboriginal sites in the area, their existence may be concealed from surface observations due to the degree of subsidence and inundation present in the area. Sites 16 SC 16, 16 SC 17, and the possible site on Fall Canal have since been largely destroyed by recent levee construction projects to replace earlier saltwater intrusion dams and/or by erosion.

Historic aboriginal groups have also been documented as living along the Mississippi River in the general vicinity of the project area. The Quinipissa were recorded as living in a village adjacent to the Mississippi River, probably in or around present-day Good Hope and Destrehan, by La Salle in 1682. The Quinipissa apparently abandoned the village by 1700 as Iberville and Sauvole recorded the village deserted in that year (Yakubik et al. 1986:53).

European Occupation

Rene Robert Cavelier, Sieur de La Salle, and a small group of French explorers were the first Europeans to pass through the area of what would eventually become St. Charles Parish. La Salle, intent on finding a trade route from Canada to China, travelled down the Mississippi River to its mouth where he arrived on 7 April 1682. After exploring the delta region, La Salle claimed the entire Mississippi River valley for France in a ceremony held on 9 April 1682. Although he had made plans to establish a settlement at the mouth of the Mississippi River, La Salle's plans fell through and no further exploration of the area was made until 1699. In that year, Pierre le Moyne, Sieur d'Iberville, and Jean Baptiste le Moyne, Sieur de Bienville, formed a French settlement on Biloxi Bay and began exploration of the lower Mississippi River in earnest. While exploration of the St. Charles area continued into the early-eighteenth century, followed shortly thereafter by land claimants, it was not until circa 1719 that settlement of the region began.

French Colonial Period

The actual settlement of the east bank of St. Charles Parish is very complex since it was eventually settled by two distinct groups of people moving into the area from opposite directions. From the upriver side came the Germans from the area of present-day Edgard in St. John the Baptist Parish. The German settlers were primarily small-farm owners who sold their vegetables and other farm goods to New Orleans consumers and merchants (Davis 1971:71). From the downriver side came the wealthy plantation-owning French whose land holdings in Cannes Brulees were often quite vast as compared to the German farms. Although St. Charles Parish came to be known as part of the German Coast because of the number of Germans residing there, the French plantation owners held the real wealth and power of the parish and, indeed, the whole colony of New Orleans.

German Coast

The settlement of the German Coast is closely tied to the career of John Law, a Scottish financier. Law organized the General Bank of Finance in 1716 after convincing Philippe, Duc d'Orleans, that France would become a very wealthy country by printing paper money. In 1717 Law's paper money became accepted in France and his bank was made the Royal Bank of France the following year. During this same period, Law also organized the Company of the West in order to use some of the bank deposits to develop the French colony of Louisiana. In 1717 the Company of the West was given the proprietorship of Louisiana in return for the settling of the territory at the company's expense (Davis 1971:52,53).

In order to attract settlers of good character, the Company of the West and its successor, The Company of the Indies, sent pamphlets and handbills throughout Germany and the surrounding areas extolling the virtues of Louisiana. The Germans responded positively to the advertisements, and in 1719 many made their way to the colony. Thousands of these eager immigrants died enroute to French ports and thousands more died during their oceanic voyage to the Louisiana territory (Deiler 1969:17,17). Once in Louisiana, thousands of the surviving Germans died of disease and hunger after being disembarked in New Biloxi (Davis 1971:58; McWilliams 1953:235).

Many of the surviving Germans who arrived in 1719 settled in an area that soon became known as the German Coast and later as St. John the Baptist and St. Charles Parishes. The first settlement in this area, "Le premier ancien village allemand," was founded in 1719, only one year after the establishment of New Orleans (Adams in Gianelloni 1965:ix, O'Neil et al. 1984:21). This village, about 30 mi above New Orleans, was located about 1.5 mi inland on the west bank of the Mississippi River. The German immigrants were given this land on the west bank as the French believed it to be mostly worthless swamp (Maudel 1972:vii). The remainder of the 1719 German immigrants were settled on John Law's concession in Arkansas.

When news reached Europe that Louisiana was not as rich as had been advertised and that life was not at all as idyllic as had been promised, French businessmen began withdrawing their holdings from the Royal Bank of France. Gold and silver became scarce, paper money flooded the market, and the French government was forced to devalue their paper money. A run began on the bank, which soon collapsed. Law was forced to flee France for his life in December 1720 (Davis 1971:61).

Shortly after the bank's collapse, a second group of Germans arrived in Louisiana under the leadership of Karl Friederich D'arensbourg. D'arensbourg and his fellow colonists settled near "Le premier ancien village allemand," except 3/4 mi closer to the river (Deiler 1969:52). The two villages later became known collectively as "Karlstein." Both villages were abandoned in 1721 in favor of higher ground nearer the river (Figure 10) after a September hurricane inundated the area by pushing the waters of area bayous and lakes into it (Deiler 1969:51).

The size of the German settlement on the German Coast grew rapidly in 1722 with the arrival of the German colonists from the abandoned Arkansas settlement. By 1722 the Arkansas Germans realized that their fate as a colony was doomed without the financial support of John Law. In early 1722 they descended the river to New Orleans and requested that Governor Jean Baptiste Le Moyne, Sieur de Bienville, give them return passage to Europe. Bienville was able to persuade the Arkansas Germans, however, to join their compatriots on the German coast rather than returning to

Europe. These German engages settled along the banks of the river amongst the earlier settlers (Figure 10). By May 1722 the population of the German coast consisted of 257 individuals (Deiler 1969:37,38,74).

In 1724 the German coast consisted of approximately 185 inhabitants (Yakubik et al. 1986:57), a cemetery, and a church on the habitation of "Le Sassier", later known as Trinity Plantation (Deiler 1969:63). When the census of 1724 was taken, there were only seven cows, each with a different owner, and no horses in all of the German Coast (Deiler 1969:58). This situation remained much the same until after 1731 (Davis 1971:74).

All of the Germans were apparently still residing on the west bank of the river when the 1724 census was taken. It was not until after 1728 that the east bank of the German Coast began to be settled. Prior to 1728 a number of large concessions had been made along the Mississippi River to individuals who were to improve and settle their property. The concessionaires in many places, however, failed to improve their lands. In response to this, a royal edict was passed in 1728 that cancelled many of the large unimproved concessions along the Mississippi River between Bayou Manchac and the Gulf of Mexico (Deiler 1969:76). This measure was undertaken as a means of forcing landholders to improve their holdings and of breaking up large, unimproved holdings. It was hoped that this would result in increasing the number of settlers in the colony, thereby dissuading the Spanish and English from encroaching on French lands. The 1728 edict effectively opened the east bank up for settlement and by 1731 there were several German habitations on its shores along the German Coast (Deiler 1969:76,77).

The growth of German settlements on the east bank of the river, however, was hampered by sporadic Indian attacks that continued until the mid-eighteenth century. In April 1747 a Choctaw raid resulted in the killing of one German settler and the kidnapping of seven others. French troops were sent to the area to protect the colonists but were soon removed. The Germans, fearing for their welfare, fled to the west bank for safety. A similar raid occurred on 9 November 1748 when two Frenchmen and two negroes were killed on the east bank of the river (Deiler 1969:60,61).

Cannes Brulees

The settlement of Cannes Brulees, present-day Kenner and surrounding area, is also closely tied to John Law and the Company of the West. When the Company of the West received the proprietorship of Louisiana in 1717, it also acquired the right to grant land to settlers. By 1720 two grants were made in Canes Brulees, one to Count d'Artagnon and the other to Monsieur d'Artiguet (McWilliams 1953:242,243, Swanson 1975:66). Monsieur d'Artiguet's concession was managed by his brother, Monsieur Diron d'Artiguet, the inspector general of Louisiana troops (McWilliams 1953:243).

By the time the circa 1723 map Carte Particulier du Fleuve St. Louis... (Figure 10) was made, several other concessions were made in Cannes Brulees. Ascending the river from the habitation of Monsieur Diron d'Artiguet were the habitations of Count d'Artagnon, Chantreau de Beaumont, Sieur de La Coste, and the concession of Denis Ferandon. These five tracts of land are shown as abutting one another and are located in present-day Kenner and the eastern portions of St. Rose in St. Charles Parish. Farther upriver, in an area called Ance aux Outardes, was the habitation of Sieur



Figure 10. Circa 1723 Carte Particulier du flueve St. Louis showing St. Charles Parish area (center), the early German settlements (lower left), and the Cannes Brulees (upper right).

Sanson, near present-day Montz and Norco. No other land holdings are shown to exist in or around the project area at that time.

The 1724 census adds several landholders to the above list. Ascending the river from Diron d'Artiguettes are the lands of d'Artagnon, Beaumont, Jean Pujeau, Joseph Harasse, Claude Merand, and finally Ferandon (Conrad 1970:19,20). Above Ferandon are the lands of Francois Moyne, Edme Dounon, Sebastien Bouette, Francois Cheval, Rene Chesneau dit Duchesne, Philippe Dauny, Pierre Brout, two unknown families, and Pierre Cezard (Conrad 1970:19,20). Unfortunately, the exact position of the land holdings of these last ten families on the riverbank is unknown, although they are known to have resided in the area between Reserve in St. John the Baptist Parish and St. Rose.

By 1731 the lands of the Cannes Brulees area had changed hands in many instances. Extending upward from d'Artiguettes' lands in 1731 were Andre Crespe, Jean Barre dit Lionnis, Huet dit Dulude, Noyon, Sanson, St. Amant, Antoine Roux, Favrot, and Mace (Conrad 1970:53,59). Mace is recorded as the last resident of Cannes Brulees before reaching the lands of Rousseau and La Coste at Ance Aux Outardes (Conrad 1970:59). Based on the census data it does not appear that the Sanson of the 1731 census is the same person as is depicted on the circa 1723 Carte Particular.... If these two Sansons are the same person, he had apparently moved at some point in time prior to 1731.

While the German Coast residents were primarily engaged in truck farming, the Cannes Brulees plantations were primarily engaged in cultivation of cash crops such as indigo and tobacco, and, to a lesser degree, silk and candleberry tree (Davis 1971:73). This is not to say that food crops were not produced; both corn and rice were grown throughout the area. Rice agriculture was developed in Louisiana very early in the colony's history, as corn, a native cultigen, was not particularly favored by the Europeans. Le Page Du Pratz reported that rice was introduced into the colony shortly after 1712 (Davis 1971:72). Rice was competing with corn as a staple crop in the young colony by 1720 even though rice mills weren't introduced until the 1740s (Davis 1971:72).

While Cannes Brulees residents were generally more wealthy than their German counterparts and were of different heritages, it did not stop them from intermingling. The only church in the New Orleans area during the early colonization effort was located at present-day Killona on the west bank of St. Charles Parish (Baudier 1972:71; Bezou 1979:26). The church at Killona, which was established in 1723, continued to be the only church in the New Orleans area until the completion of the first St. Louis Cathedral in New Orleans in 1727 (Baudier 1972:56, 71, 118). A church was built at the Chapitoulas (Tchoupitoulas) in 1729 but was abandoned in the 1740s because it was unpopular (Baudier 1922:118, 143). In 1740, St. Charles Borromeo Church was established on the east bank in present-day Destrehan (Bezou 1979:26). The lack of area churches and the difficulty of travel made St. Charles Borromeo Church very attractive to the residents of Cannes Brulees and the even more distant Chapitoulas area (Bezou 1979:56). Throughout the French colonial period, and into the Spanish colonial period, Cannes Brulees residents often attended church services at St. Charles Borromeo for baptisms, marriages, and burials (Bezou 1979:56).

In 1732 Cannes Brulees along with the rest of Louisiana, reverted to the French crown as the Company of the Indies found that it could no longer support the colony. By the 1750s France had realized that Louisiana was a financial burden and that there had been little return for the millions of livres spent on the development and supply of the colony. In 1762 France ceded Louisiana and the Isle of Orleans to Spain in the secret

Treaty of Fountainebleau. While France saw Louisiana as a financial drain, Spain saw the colony as a defensive mechanism against British expansionism. Although the legal transfer of the colony took place in November 1762, it was not until October 1764 that the colonists actually found out that the transfer had taken place (Davis 1971:61, 62, 69, 70).

Spanish Colonial Period

Although the transfer of Louisiana from France to Spain occurred in 1762 and was made public in 1764, it was not until March 1766 that Don Antonio Ulloa, the first Spanish governor of Louisiana, arrived in the colony to formally take possession of the territory. The French and Francophiled German residents of the colony did not want their government transferred to Spain and hoped that the slow transfer reflected lack of Spanish resolve in taking over the colony. In October 1768 Nicholas Chauvin de Lafreniere, attorney general of the province, presented a list of grievances to Governor Ulloa (Moore 1976:149) which had been signed by many of the German Coast and Cannes Brulees settlers. In October 1768 approximately 500 Germans and Acadians arrived in New Orleans to express their dissatisfaction with Governor Ulloa. The Acadians had been falsely told that Ulloa was withholding specie that was to be used to redeem their worthless Acadian script and the Germans had been informed that Ulloa had no intention of paying them for their goods that had already been shipped to New Orleans (Moore 1976:151). In truth, Ulloa had no specie for exchange and had sent Gilbert de St. Maxent to the German Coast to pay off Spanish debts (Moore 1976:150, 151). St. Maxent, however, had been abducted by cohorts of Lafreniere and was unable to make the payment (Moore 1976:150).

Once in New Orleans the Acadians and Germans were convinced to support the Superior Council in an effort to rid the colony of Governor Ulloa. Realizing that he had little popular support, Ulloa was forced to evacuate Spanish civil authorities from New Orleans on 1 November 1768 (Moore 1976:163) Although this temporarily rid the colony of Spanish authority, a new Spanish Governor, General Alejandro O'Reilly, arrived in the colony in August 1769 to take formal possession of the colony for Spain. O'Reilly found Lafreniere and five of his cohorts guilty of conspiracy and had five of them executed by firing squad, the sixth had already died of natural causes.

By the 1770s most of the land facing the Mississippi River in the German Coast had been claimed (Conrad 1981:vii). While many grants in the project area extended as far as Lake Pontchartrain, some had a depth of only 40 arpents. While some of these smaller landholders had second depth grants of 40 arpents made by the Spanish government, it was not a common practice until the American period (Conrad 1981:vii). Some of the larger landholdings in the German coast began to break up in the 1770s, as the original owners began to divide their holdings among their children (Conrad 1981:vii).

German Coast planters continued to grow vegetable crops for sale in New Orleans as their primary crops until the end of the eighteenth century (Conrad 1981:viii). Francisco Bouligny's 1776 account of the area notes that most planters cultivated only the 600 to 800 varas nearest the river and reserved the rest for pasture and timber (Din 1977:45). After a 1793 St. Dominique slave revolt, many residents of the island moved to Louisiana, bringing an interest in sugarcane agriculture with them (Conrad 1981:viii). In 1795 Etienne de Bore recognized the need to grow cane on a large-scale to make the venture of producing granulated sugar a profitable enterprise. By planting large quantities of cane, de Bore was able to produce the first profitable granulated sugar in Louisiana during the 1795 growing season. De Bore, a resident of

Tchoupitoulas at the time of his discovery, once owned much of what is now present-day St. Rose.

Indigo, the predominant cash crop during the 1760s in Cannes Brulees, became unprofitable to grow in Louisiana during the 1790s because of high production costs, soil exhaustion, and pollution (Holmes 1967:346-348). De Bore's introduction of a profitable method of growing sugar cane along with Antoine Morin's refinement of the granulation process allowed large landholders to begin large-scale production of sugarcane. An 1802 account of the colony by Berguin-Duvallon noted that by that time indigo was only rarely grown, while sugar and cotton were the main cash crops (Davis 1806:131).

American Period

Louisiana remained under Spanish control only until 10 October 1800 when the unprofitable colony was returned to France under the Treaty of San Ildefonso. On 2 May 1803 Louisiana was transferred from France to the United States in the Louisiana Purchase even though France did not take formal possession of the colony until 30 November 1803. The Americans took formal possession of Louisiana on 20 December 1803.

The east bank of St. Charles Parish at the time of the Louisiana Purchase was considered to be part of the Isle of Orleans. In 1805, the Orleans territory was divided into twelve counties, one of which was the County of the German Coast. The County of the German Coast, consisting of the present-day east banks of St. Charles and St. John the Baptist Parishes, remained in existence from 1805 until 1807. St. Charles Parish was one of nineteen parishes formed in May 1807.

The agriculture of the newly formed parish remained similar to what it had been during the earlier colonial period, although sugarcane became increasingly important as time passed. As sugarcane was such a lucrative crop, many planters sought to form sugar plantations. Economically viable sugar plantations, however, require a great deal of land; many smaller farms in St. Charles Parish were gradually consolidated into larger and larger plantations (Figure 11).

Rice continued to be grown well into this period and St. Charles Parish became a major rice producer in the state. C. C. Robin's early-nineteenth-century account of rice agriculture on the German Coast notes that the rice fields were flooded during high river stages by trenches cut through the river levee (Robin 1966:112). These trenches, while providing necessary irrigation for the fields, represented weak spots in the river levee system and were the culprit of many crevasses during the eighteenth and nineteenth centuries.

While several small Civil War skirmishes were fought in St. Charles Parish, all occurred on the west bank. Numerous buildings, however, were destroyed on both sides of the river by Union gunships (Yoes 1973:79, 80). Other buildings, including several in the vicinity of the project area, were confiscated for use by the Union government. The closest the east bank of the parish came to fighting was during a minor Civil War skirmish in August 1862 which took place near present-day Hahnville after Federal troops learned of a Confederate attempt to gather cattle on the east bank of the river (Yoes 1973:80).

Sugar production fell off during the Civil War and Reconstruction as planters lost their financial resources and their labor supply (Ginn 1940:34) In response to these

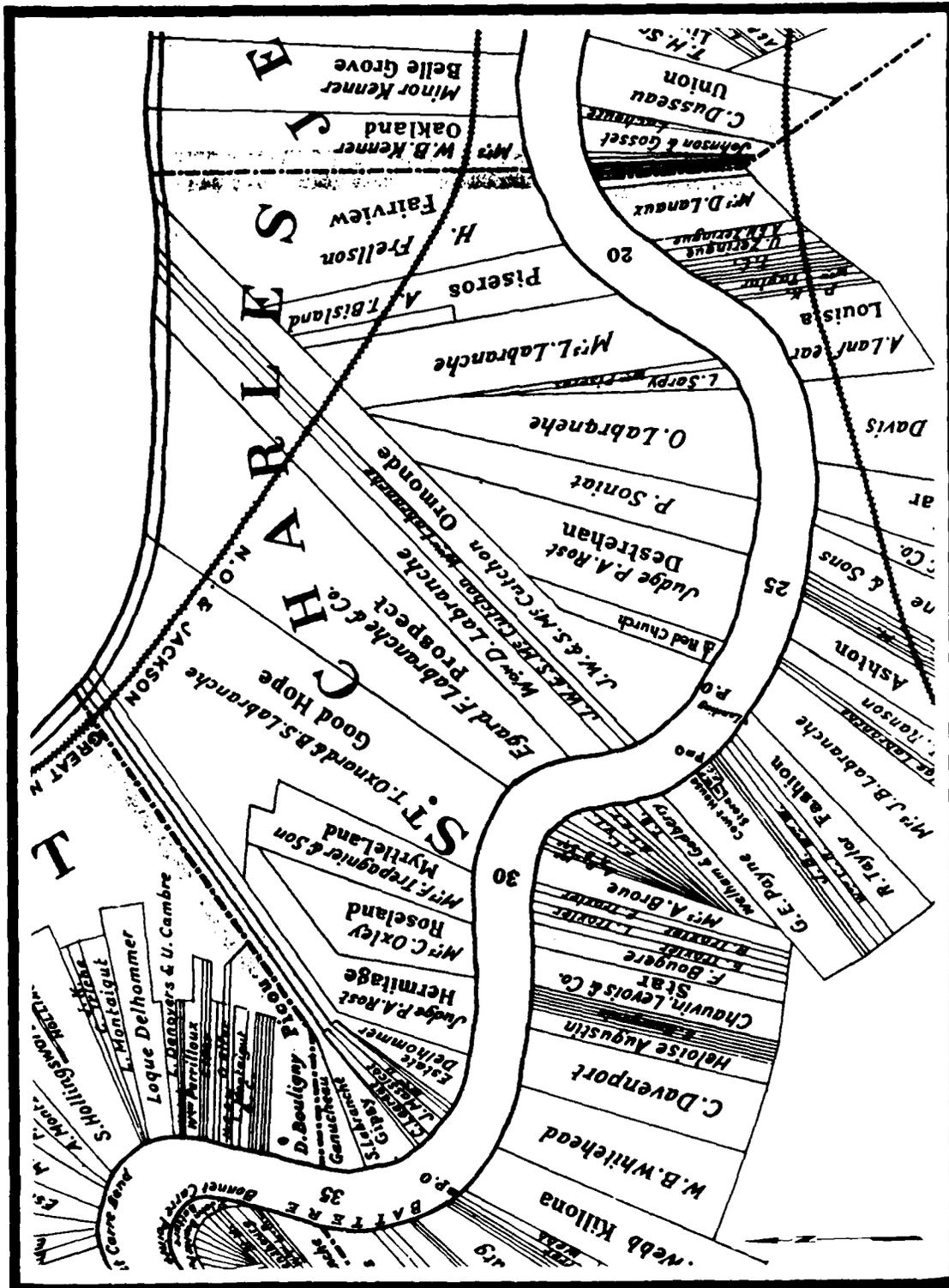


Figure 11. Plantations of St. Charles Parish as depicted on "Norman's Chart" of 1858 (Pelican Publishing Co. 1967).

difficulties, area sugar planters turned their attention increasingly towards rice cultivation, as it was less expensive and less labor-intensive than sugar cultivation. The rice industry expanded so rapidly during the early post-bellum years that it rapidly became the most important crop of the state (Ginn 1940:35).

Rice production in St. Charles Parish increased from 800,000 pounds in 1840 to 2,238,200 pounds in 1870 and was second in Louisiana rice production only to Plaquemines Parish throughout this period (Ginn 1940:43). Rice production in St. Charles Parish fell off to only 609,943 pounds in 1880 but increased to 2,925,000 pounds in 1890 and to 3,372,992 pounds in 1900 (Ginn 1940:43). Although sugar production remained important to the St. Charles Parish economy into the twentieth century, there were only four sugar plantations on the east bank of St. Charles Parish in 1890 (Bouchereau 1892) and only three in 1900 (Bouchereau 1902). Prospect Plantation was the last sugar plantation on the east bank of St. Charles to produce cane, ceasing production in 1912 (Bouchereau 1917:47).

The east bank of St. Charles Parish underwent a great deal of change during the early years of the twentieth century. Plantations and truck farms began to give way to industrial complexes, particularly those related to petroleum, during the second decade of the century. Destrehan Plantation became the home of the Mexican Petroleum Company in 1914 although production did not commence at the plant until 1916 (Grey 1936). The Mexican Petroleum Company was later taken over by the Pan-American Petroleum Company and continued operations until 1958. In 1920 the Petroleum Import and Export Corporation began construction of a refinery in St. Rose. The St. Rose refinery was opened in 1921 and was later taken over by Cities Services Oil Company (Elfer 1936:8).

What was to become the largest refinery in the parish began with the construction of the Marine Terminal, a refinery of several 55,000-barrel storage tanks, near the town of Sellers in 1916. This facility, built by the Roxana Petroleum Company, began operations in 1918. Following World War I, an asphalt refinery was built by the New Orleans Refining Company near the Marine Terminal. This refinery came to be so important to the local economy that the town of Sellers was renamed Norco, the acronym of the New Orleans Refining Company. In the spring of 1929, Shell Petroleum Corporation (formerly Roxana Petroleum Company) took over the Norco plant and began modernizing the facility. The plant resumed operations in 1930 with 650 workers (Dawson 1936).

During the middle of the twentieth century, the Good Hope Oil and Gas Field, north of the town of Good Hope, was established as a major oil field. Expansion of the oil industry during this period brought an increased need for oil and chemical refineries, several of which were built along both banks of the Mississippi River in St. Charles Parish.

Several historic sites have been recorded in the vicinity of the project area (see Figure 9), all of which are located along the banks of the Mississippi River. They are as follows:

1. Scatter B (16 SC 54) is a nineteenth-century scatter of artifacts on the western boundary of the Bonnet Carre Floodway (Yakubik et al. 1986:284-286).
2. Kugler Cemetery (16 SC 51) is an abandoned cemetery located in the Bonnet Carre Floodway (Yakubik et al. 1986:244-282).

3. Scatter A (16 SC 53) is a brick scatter in the Bonnet Carre Floodway (Yakubik et al. 1986:283-286).
4. Roseland Sugar House site (16 SC 52), the remains of a nineteenth-century sugar house, is located on the eastern side of the Bonnet Carre Floodway (Yakubik et al. 1986:198-206).
5. Kenner Cemetery (16 SC 50) is an abandoned cemetery located on the eastern edge of the Bonnet Carre Floodway (Yakubik et al. 1986:207-243).
6. Ormond Plantation (16 SC 24) is located immediately west of Destrehan. No archaeological work has been conducted at the site to date (Yakubik et al. 1986:47).
7. Little Red Church (16 SC 23), located in Destrehan, consists of a nineteenth-century church and cemetery (Yakubik et al. 1986:47).
8. Destrehan Plantation (16 SC 18), a renovated late-eighteenth-century plantation, is located in Destrehan. Archaeological work was conducted on the plantation in 1983 (Lamb 1983) and 1984-1986 (Yakubik et al. 1986:45).
9. La Garconniere (16 SC 25), an early-nineteenth-century residence, was located in St. Rose. The site was reported as being destroyed in 1978 (Yakubik et al. 1986:47).

As noted earlier, the lands of St. Charles Parish were consolidated into large holdings during the early-nineteenth century for the establishment of sugar plantations. By the mid-nineteenth century there were 16 large plantations (Figure 11), as well as a number of smaller landholdings on the east bank of St. Charles Parish. The five survey areas of this study fell into the former lands of six of these plantations. Beginning at the upstream side of the parish, these six plantations were: Good Hope, Prospect, Victoria, Destrehan, Almedia or Patterson and Fairview. As it was not feasible to conduct in-depth research into each individual landholding, research was limited to those areas that produced significant cultural remains.

Background research for the field survey indicated that late-nineteenth-century structures were located within the project area on the former lands of Almedia or Patterson Plantation and Fairview Plantation. The ensuing field survey located one structure on the lands of each of these plantations and a third structure on the former lands of Prospect Plantation. A more in-depth history of these three plantations is provided in Chapter 6.

CHAPTER 4: FIELD INVESTIGATIONS

A field survey of the right-of-way for the St. Charles Parish Hurricane Protection Levee, St. Charles Parish, Louisiana, was conducted between 28 October 1987 and 7 November 1987. Much of the project area is in a continually inundated backswamp setting, thereby limiting the study area to those places which were accessible by boat or by foot. Because of limited accessibility, the study area within the much larger project area was confined to the five areas (see Figure 1) that offered the greatest probability of containing cultural materials.

The main purpose of the field survey was to locate possible cultural remains within the project area. Prior to the initiation of the fieldwork, a brief geomorphological, archaeological, and historical background study was conducted in an attempt to pinpoint areas of potential cultural remains. This background survey indicated that there was a relatively high potential for locating aboriginal remains at or below present land surfaces along Bayou Trepagnier in Area A. The review of historical records indicated that a late-nineteenth century drainage machine was located within the right-of-way in area E on a canal serving as the boundary between Sections 40 and 41, Township 12 South, Range 9 East and that another drainage machine possibly existed within the right-of-way on Walker Canal. This brief background historical study also indicated that numerous roadways, canals, and levee systems existed throughout the project area in the nineteenth and twentieth centuries.

During the field investigations, an attempt was made to locate cultural remains in all five areas through surface surveying, shovel testing, probing, and auger testing. Although the lack of rainfall in the weeks prior to the field work had considerably reduced the water level within the backswamps of the project area, much of the area was still impassable due to the continued presence of standing water and soft soils. Surface surveying was conducted in all five areas wherever there was an exposed ground surface. Systematic shovel testing was conducted at 20-m intervals wherever field conditions permitted. In areas that were extensively inundated, however, shovel testing was conducted wherever possible. Probing was done primarily in an effort to delineate the boundaries of cultural remains located through surface surveying and shovel testing. Auger testing, at 40-m intervals, was conducted only along Bayou Trepagnier. As survey conditions—and hence, techniques—varied from area to area, a detailed account of the field investigations and conditions is provided for each, along with a brief overview of the cultural remains found within each area.

Area A

Area A, consisting of a 2,500-ft stretch of Bayou Trepagnier with the southern boundary abutting the Norco sewage disposal plant, was surface surveyed along its natural levees and hand-augered in 40-m intervals in an offset pattern (see Figure 7). As at least 95% of this area was elevated above water, the pedestrian survey was able to cover approximately 22 ac of the 23 ac included in this area. The pedestrian survey of Area A proved to be fruitless, as surface visibility was hampered by accumulated leaf clutter. Although the remaining 5% of this area was under standing water, it was visually surveyed. The only cultural remains found during the pedestrian and visual survey of this area were the remains of a mid-twentieth-century, tin-roofed building on the east bank of Bayou Trepagnier, 30 m from the rear of the Norco sewage disposal plant.

Auger testing of the natural levees of the bayou was accomplished through the use of a 1-in diameter soil auger. A total of 38 borings were taken approximately 2.5 m from

the edge of the bayou to a depth of 210 to 300 cm. Augering was halted in several instances as the ground was so saturated with petroleum by-products that Munsell soil-color readings and grain-size determination were not possible. Carbon dating of organic material recovered during augering was not feasible because of these contaminants. The natural levees of the bayou appear to be relatively intact as spoil from the dredging of the bayou was deposited 10 to 12 m from its western bank.

Area B

Area B, an 800-ft-wide by 12,000-ft-long corridor through the Good Hope Oil and Gas Field, was surface surveyed wherever the levee right-of-way crossed oil field roads and canals. As only certain portions of this area were subject to survey, only 40 of the 220 ac of this area were surveyed. Of these 40 ac, approximately 95% was under standing water and was subjected only to a visual inspection rather than a pedestrian survey. Because of the amount of standing water, systematic shovel testing proved to be impossible. Therefore, shovel testing was conducted wherever possible. Petroleum waste in some portions of this area, however, prevented the digging of shovel tests altogether. The pedestrian and visual survey and shovel testing near roadways and on canal banks in this area yielded no cultural remains other than the remains of a drainage machine (16 SC 65) of Prospect Plantation (Figure 12), located near the southern boundary of the right-of-way on the western edge of Shell Oil Company's main roadway into the oil field.



Figure 12. Northern view of Prospect Plantation drainage machine.

Area C

Area C (see Figure 2), an 800-ft-wide corridor where the right-of-way intersects Cross Bayou Canal and Cross Bayou, was surveyed by boat and, where possible, by foot. The only land in this 20-ac area consisted of a tram road on the dredge spoil on the west bank of Cross Bayou (Figure 13) and dredge spoil on the east bank of Cross Bayou Canal. Those areas that were not amenable to pedestrian or boat survey were visually inspected. Shovel testing of the area consisted of a single line of shovel tests at an interval of 20 to 30 m, where possible. No cultural remains were located during the surface survey or shovel testing of this area.



Figure 13. Remains of tram road on west bank of Cross Bayou.

Area D

Area D, an 800-ft-wide by 500-ft-long corridor along Pipeline Canal, was surveyed by boat and, where possible, by foot. As over 90% of the 9 ac in this area was under standing water, shovel testing was limited to any exposed land surface that was encountered during the pedestrian survey. Those areas that were not accessible by boat or by foot were visually inspected. The survey of this area yielded no cultural remains.

Area E

Area E, an 800-ft-wide by 13,200-ft-long corridor between Almedia and the St. Charles-Jefferson Parish boundary, was surveyed by foot wherever water and soil conditions permitted. Although much of this area had once been used as agricultural fields, swamp growth has since reclaimed all portions of the area that are not in current use. Over 70% of the 242 ac in this area was under standing water at the time of the survey (see Figure 3). Most of the 65 to 70 ac of visible land surface consisted of spoil piles, roadways, old levee systems, and modern landfills. Shovel testing of Area E was limited to those few areas that offered amenable conditions. Visual inspection was conducted in those areas that were not accessible to pedestrian survey.

The remains of two drainage stations were located within the right-of-way of Area E. The first drainage station (16 SC 66) was found immediately south of the levee centerline along a canal that extends northwestward from Louisiana 50 (Almedia Road) in Almedia (Figure 14). The remains of the second drainage station (16 SC 67) were



Figure 14. Remains of Almedia Plantation drainage machine.

found on Walker Canal, north of the levee centerline, and abutting a modern landfill (Figure 15). Shovel testing and probing were conducted at both drainage stations in an effort to delineate their boundaries and features. No other cultural remains were located in the survey of this area.



Figure 15. Northwestern view of Fairview Plantation drainage machine on Walker Canal. (Canal is in foreground.)

CHAPTER 5: RESULTS OF FIELD SURVEY

Several roadways and numerous canals and levees were surveyed during this project. Although these remains, both historic and modern, are a cultural residue of past and present human activity, they are not of such significance as to warrant further discussion. Although one modern landfill was also visited during this survey, it is of no significance other than its possible impact on nearby and underlying cultural features. One mid-twentieth-century structure of wood and tin was found on Bayou Trepagnier. The remains of this modern structure, 12 by 24 m in extent, are not of cultural significance, as they are less than 50 years old and have no historical importance.

The only potentially significant cultural features located on this survey were the previously unrecorded archaeological remains of three nineteenth- and early-twentieth-century drainage stations. These structures are described in more detail below.

Prospect Plantation Drainage Machine (16 SC 65)

The remains of the Prospect Plantation drainage machine in the Good Hope Oil and Gas Field (Figures 12, 16, and 17) covers an area of approximately 10 by 14 m and stands approximately 250 cm above water surface. This drainage station, located in Section 7 of Township 12 South, Range 8 East, may once have been much larger, as there is scattered brick in the spoil bank of a small pond that immediately abuts the northwest edge of the visible remains. Construction of a rangia roadbed and above ground pipes immediately adjacent to the southeast edge of the remains may have also impacted them, although no evidence of such a disturbance was found on the surface. Extensive probing of the area failed to reveal additional brick features and was useful only in delineating the extent of the northwest portion of the foundation. The only artifacts recovered from this drainage station were two complete bricks from the pond dredge spoil impressed with the mark of "Evens and Howard/St. Louis" and one brick fragment.

Almedia or Patterson Plantation Drainage Machine (16 SC 66)

The remains of the Almedia or Patterson Plantation drainage machine (Figures 14, 18) near Almedia consist of scattered brick covering an area of approximately 39 by 24 m. None of the remains of this drainage station remain above ground surface. The lack of above ground structures and the lack of complete bricks in the area suggest that the building may have been disassembled for reuse of the bricks. Two spoil piles within the area of brick rubble and several spoil piles to the north of the area suggest that surrounding canal systems had been dredged after use of the structure ceased. Four shovel tests were excavated to determine the depth of the remains of the structure (Figure 18). These shovel tests revealed that a dense lens of coal slag extends from 5 to 10 cm below ground surface to a depth of 65 to 70 cm. Within this coal slag lens were brick fragments as well as lesser amounts of unburned coal. Three complete bricks were also recovered from this area.

Fairview Plantation Drainage Machine (16 SC 67)

The Fairview Plantation drainage machine (Figures 15, 19, 20) on Walker Canal appeared to be the most complete and least disturbed drainage machine of the three that were located during this survey. The remains of this structure, covering an area of approximately 20 by 20 m, consist of numerous brick foundations and an earthen mound approximately 1 m high. Although much of the structure was visible on the



Figure 16. Northeastly view of Prospect Plantation drainage machine.

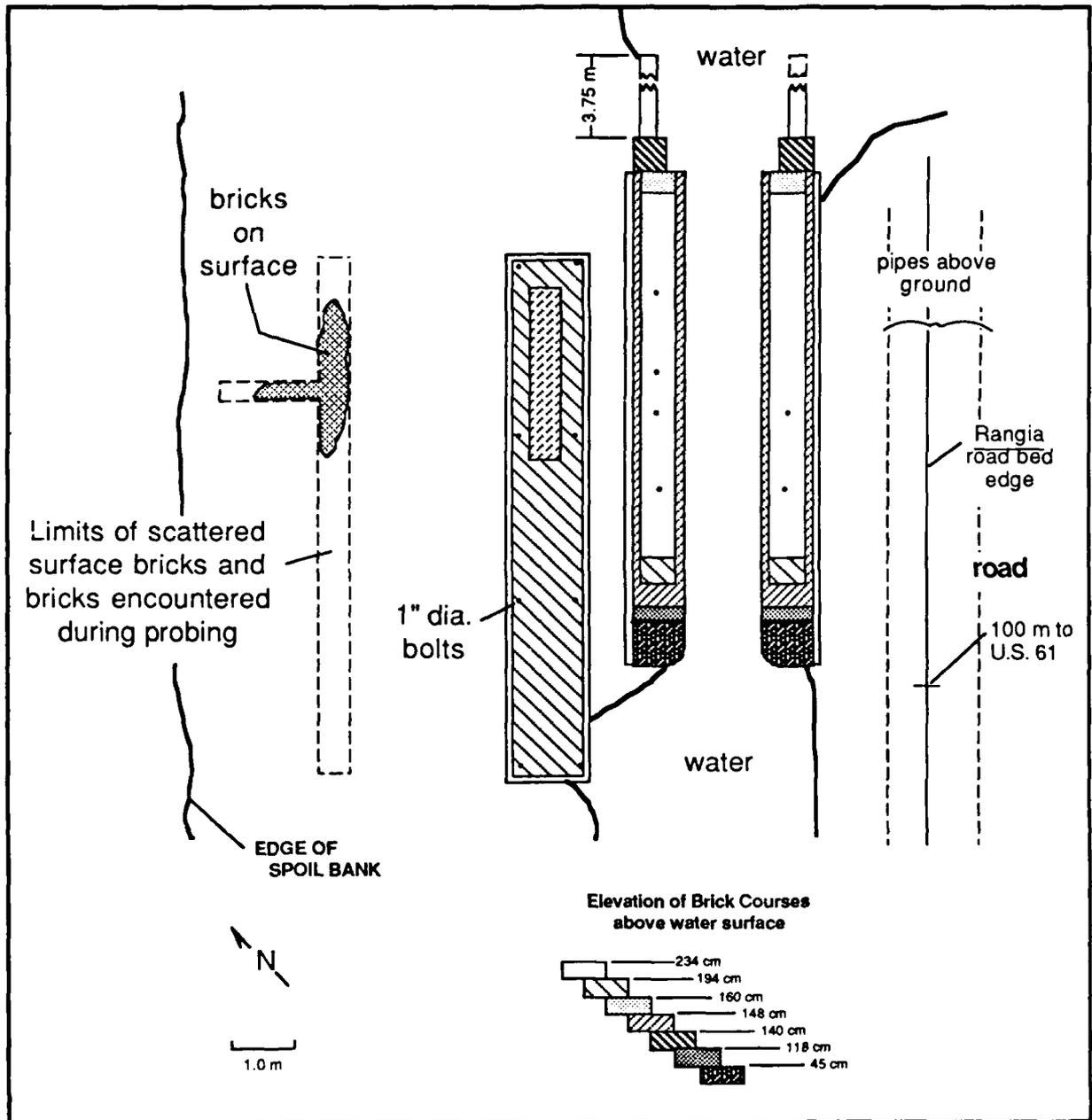


Figure 17. Plan view of the foundation remains of Prospect Plantation drainage machine.

ground surface, extensive probing and shovel scraping were necessary to delineate the limits of several brick features. Although it appears that a landfill to the immediate east of the structure merely abuts the drainage machine, it may, in actuality, have encroached enough so as to cover some of the structure's brick features. As no complete bricks were present, except those mortared to the structure, only brick fragments were collected. In addition to three brick fragments, three pieces of coal and a 1-in-diameter bolt 5 in long with a nut still attached were recovered.

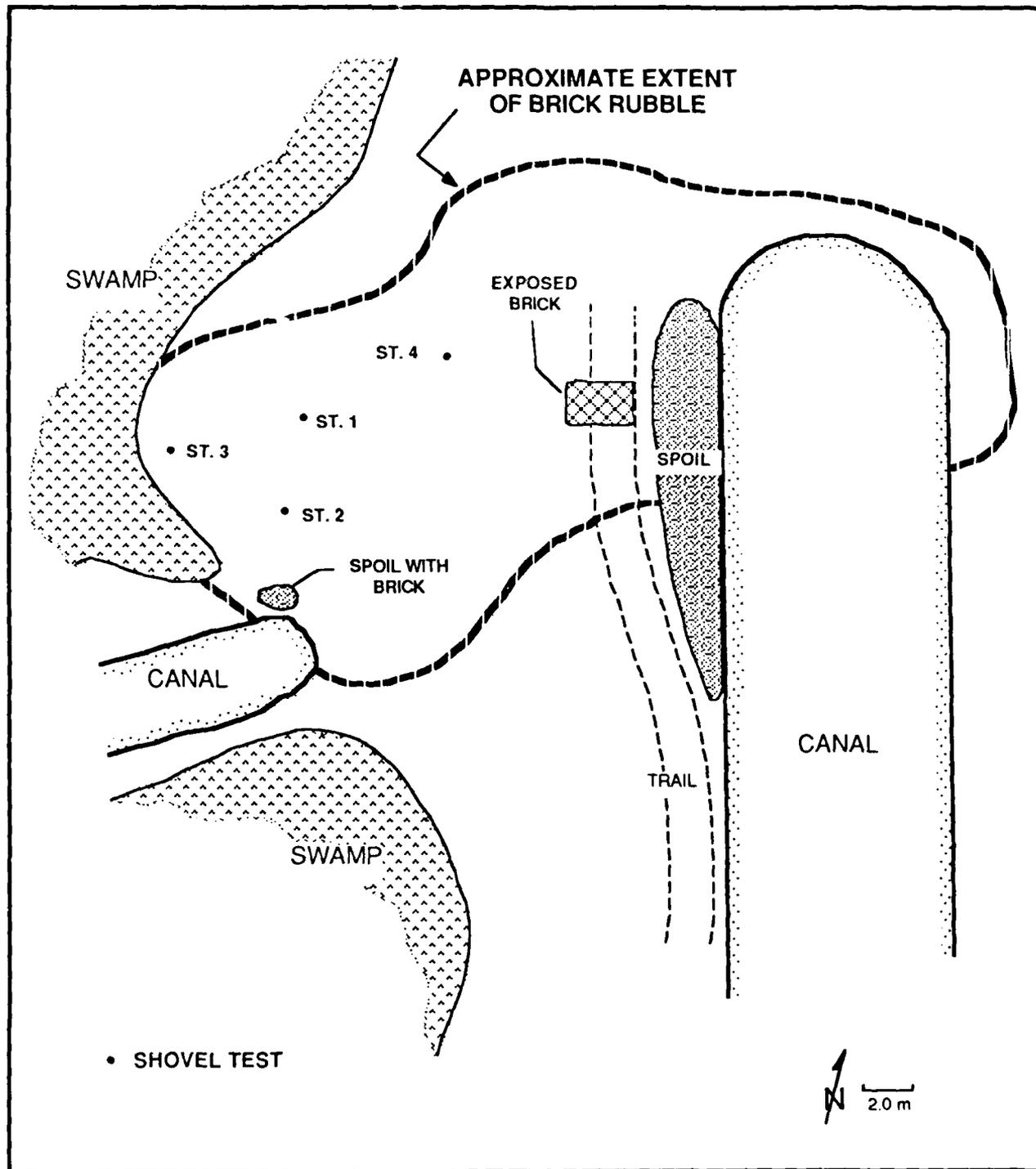


Figure 18. Plan view showing the extent of rubble associated with the remains of the Almedia Plantation drainage machine.



Figure 19. Inlet of Fairview Plantation drainage machine (Walker Canal in foreground).

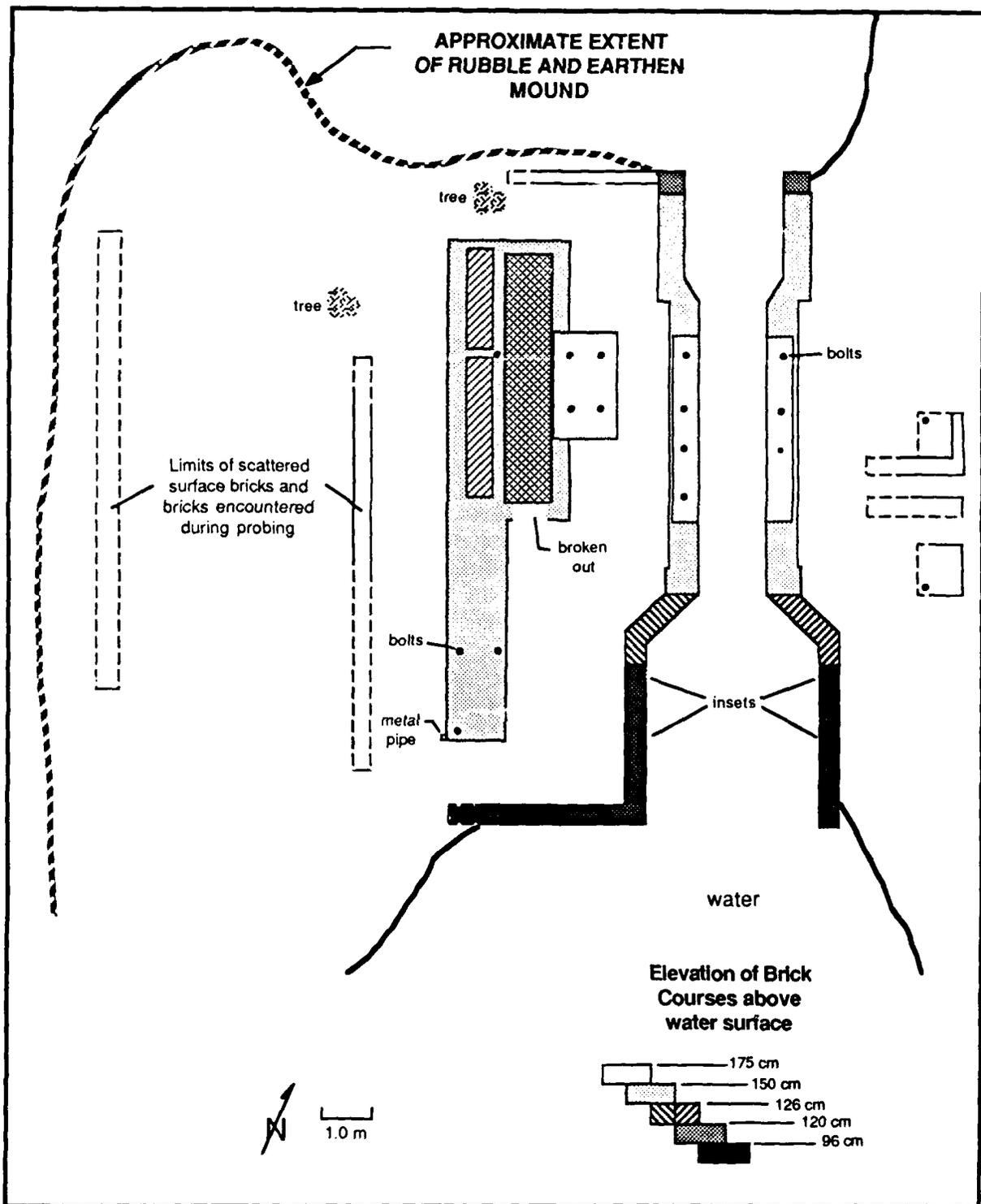


Figure 20. Plan view of the foundation remains of Fairview Plantation drainage machine.

CHAPTER 6: HISTORICAL RESEARCH

Although south Louisiana plantations were generally built along relatively high natural levees, they were still subject to periodic flooding during the high-water periods of whatever stream they were bordering. Hence, man-made levees were built along the streams to prevent the flooding of the plantation lands. Crevasses and high water from rain and high tides also required the construction of side and back levees in many areas in order to keep agricultural lands reasonably dry and tillable.

The east bank of St. Charles Parish has been subjected to numerous floods resulting from overflows of the Mississippi River. Prior to the construction of artificial levees, beginning in 1727 at New Orleans and extending to Baton Rouge by 1812 (Saucier 1963:88), flooding of the project area would have been a relatively common occurrence. Even after the construction of levees, crevasses continued to flood the area as the Mississippi River overpowered the man-made levees. During the historic period, crevasses have been noted at Bonnet Carre near LaPlace for the years 1718, 1735, 1770, 1782, 1785, 1791, 1796, 1799, 1809, 1811, 1813, 1815, 1816, 1823, 1824, 1828, 1844, 1849, 1850, 1857, 1858, 1859, 1867, 1871, and 1874-1882 (Yakubik et al. 1986:31, Saucier 1963:Fig. 33). Other crevasses in the area include the 1892 Anchor crevasse near the St. John the Baptist-St. Charles Parish boundary, the 1892 Prospect crevasse in Good Hope, and the 1892 Sarpy crevasse in New Sarpy (Saucier 1963:Fig. 33). It was not until the construction of the Bonnet Carre Floodway in 1929-1931 that the area became relatively safe from the effects of crevasse flooding. Since the Bonnet Carre was completed in 1931, its floodgates have been opened in 1937, 1945, 1950, 1973, 1975, 1979 and 1983.

While the levees kept the surrounding water at bay, drainage systems were still required within the diked area for irrigation and flood control. Generally, the main canals of the plantation would run along the plantation's side levees. The location of these canals was regulated primarily by the need of fill for building the side levees. Smaller canals, parallel to the main canals, were often interspersed through larger fields in an effort to promote better water flow from the highlands of the natural levee to the lower backswamps. These canals were fed by water flowing from ditches that ran perpendicular to the canals. These ditches were fed, in turn, by smaller ditches that ran parallel to the canals (Holmes 1986:83).

The gentle slope of the natural levees and occasional high water in the backswamps generally precluded rapid drainage of agricultural lands. To aid drainage, many plantation owners found it necessary to construct drainage machines and pumps at the intersection of the main canals and back levees to force water out into the surrounding area (Sitterson 1953:129). Drainage machines, which were water wheels originally powered by horse and later by coal and/or wood-fired steam engines, could be quite extensive in size (Figure 21) and expensive to operate (De Bow 1847:66).

Drainage machines could also be used along the banks of the Mississippi River to throw water from the river into irrigation canals when the river was too low to provide free flowing water into the intake canals (Wilkinson 1854:537). This procedure allowed crop irrigation during periods of drought and low water on the river. Water wheels used for this purpose did not have to be very large. Wilkinson (1854:537) states that a 6- to 8-ft-diameter wheel powered by two horses or mules was sufficient to irrigate any field then under cultivation. The cost of a one-horse machine capable of draining 50 ac or irrigating 170 to 200 ac would have been between \$150 and \$250 in 1854 (Wilkinson 1854:537).

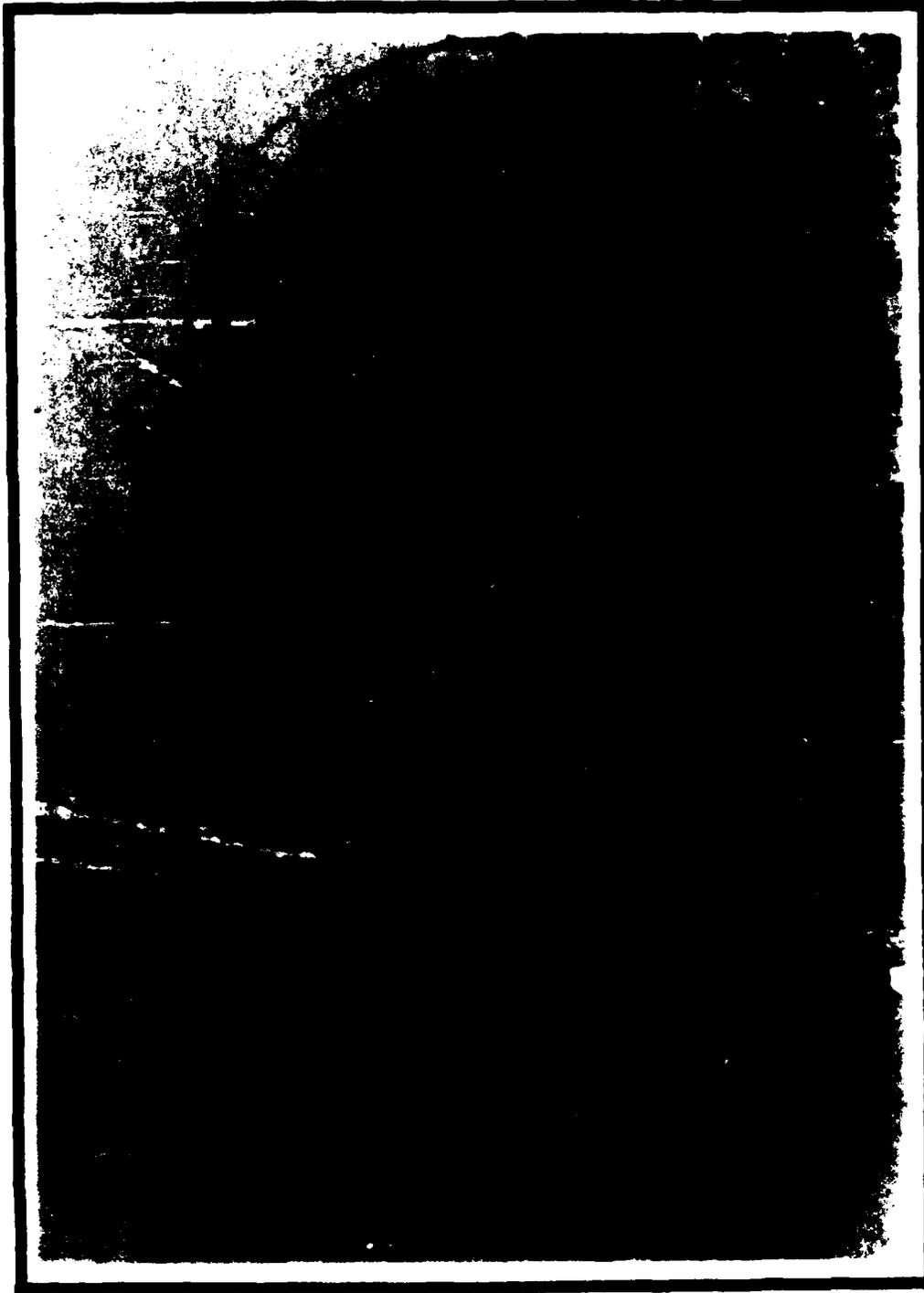


Figure 21. Belair Plantation drainage machine and mill (Begnaud 1980:43).

American farmers, seeking to utilize their lowlands, began inspecting European drainage machines in the 1840s in an effort to design better drainage systems for their own land (Sitterson 1853:129). The English, who previously used windmills for drainage, were successfully using steam-powered drainage machines by at least 1825 (De Bow 1847:77). Maunsel White's description of English drainage machines in 1847 (De Bow 1847:68-80) provides an in-depth view of their operating principles and construction.

White found that drainage machines worked best when the water in the ditches was kept 18 in below the surface of the agricultural field and that the drainage outfall was never higher than within 4 or 5 ft of the axis of the water wheel (De Bow 1847:73, 74). The water wheels (Figure 22), which could be up to 35 ft in diameter, were generally made of cast iron with wooden floatboards placed at an angle of 45° from horizontal at the point that they delivered the water (De Bow 1847:71, 74). Each floatboard of a 28-ft diameter wheel was 5.5 ft high and 5 ft wide (De Bow 1847:75). The floatboards moved through a track of stone or masonry (Figure 23) at a rate of about 6 ft per second for best results (DeBow 1847:74). According to White, a good drainage machine should be able to lift and discharge 3,168 cu ft (19,800 gallons) of water to a height of 10 ft per horse power, per hour (De Bow 1847:74).

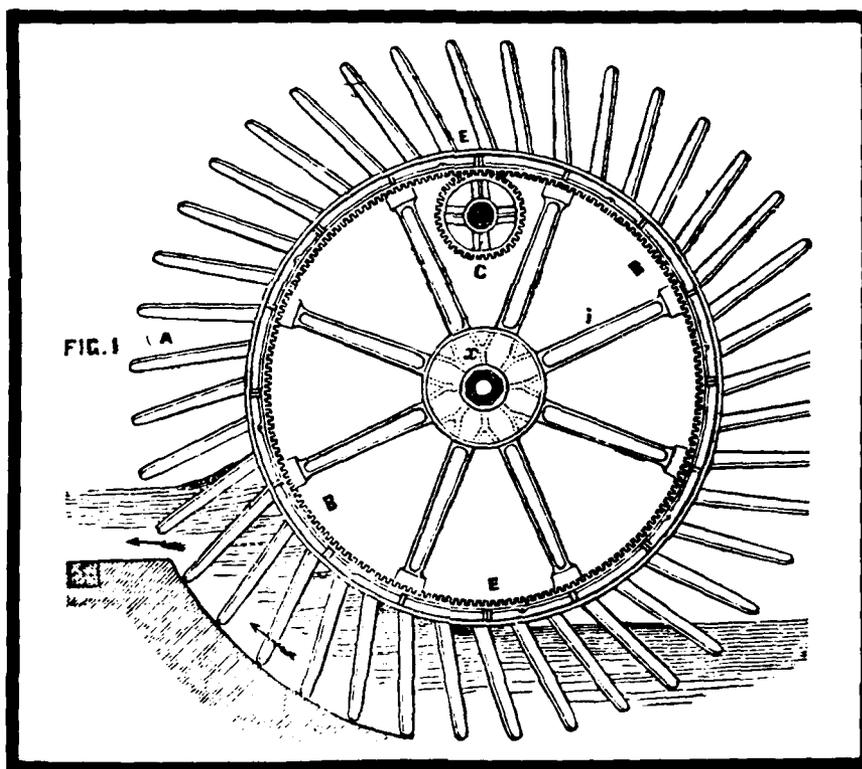


Figure 22. Side view of scoop wheel of a drainage machine (De Bow 1847:72).

As the water wheel and accompanying machinery could be quite heavy (a 35-ft diameter wheel weighed 64 tons [De Bow 1847:78]), the construction of substantial foundations was an obvious requirement in the swamps of Louisiana as it was in the fens of England. In Louisiana, foundations were generally of bricks, similar to those found during the field survey for the hurricane protection levee.

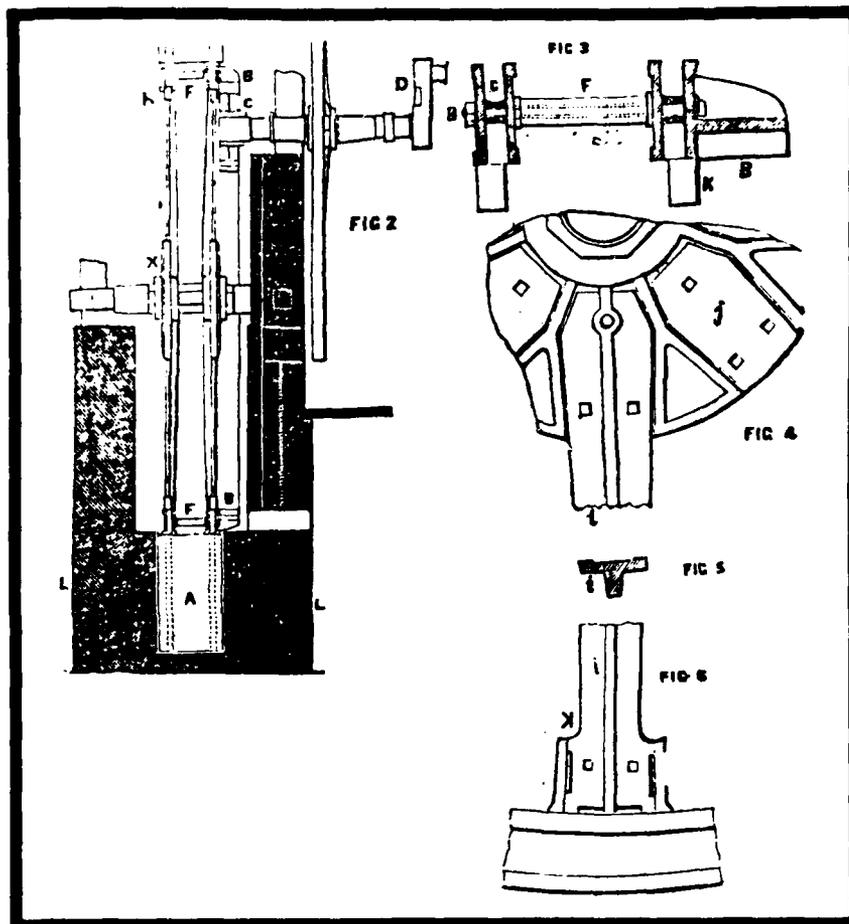


Figure 23. Clockwise from left: frontal view of scoop wheel of drainage machine showing track which paddles pass through, pillars (spacers) separating rings of the scoop wheel, details of arm of scoop wheel (De Bow 1847:73).

In addition to the three drainage machines located in this survey, two others, located on the east bank of St. Charles Parish, are depicted on the 1894 Mississippi River Commission map, one at Destrehan Plantation and another at Fairview Plantation. The archaeological remains of similar drainage machines have also been recorded at Waterford Plantation on the west bank of St. Charles Parish (Castille 1980:29, 30) and at Christmas Plantation and Pecan Grove Plantation in Jefferson Parish (Holmes 1986:79, 80, 100, 173).

As noted earlier, there were a number of plantations and smaller landowners along the east bank of the Mississippi River in St. Charles Parish whose landholdings extended into the backswamps as far as the project area and even to the shores of Lake Pontchartrain. As it was not feasible to conduct in-depth historical research of each plantation, each of which was comprised of several tracts of land, only those plantations showing evidence of improvements within the project area were studied prior to the field survey. This procedure, based largely on an examination of historic maps, particularly the 1894 Mississippi River Commission map (Figure 24), resulted in the study of Almedia or Patterson Plantation and Fairview Plantation.

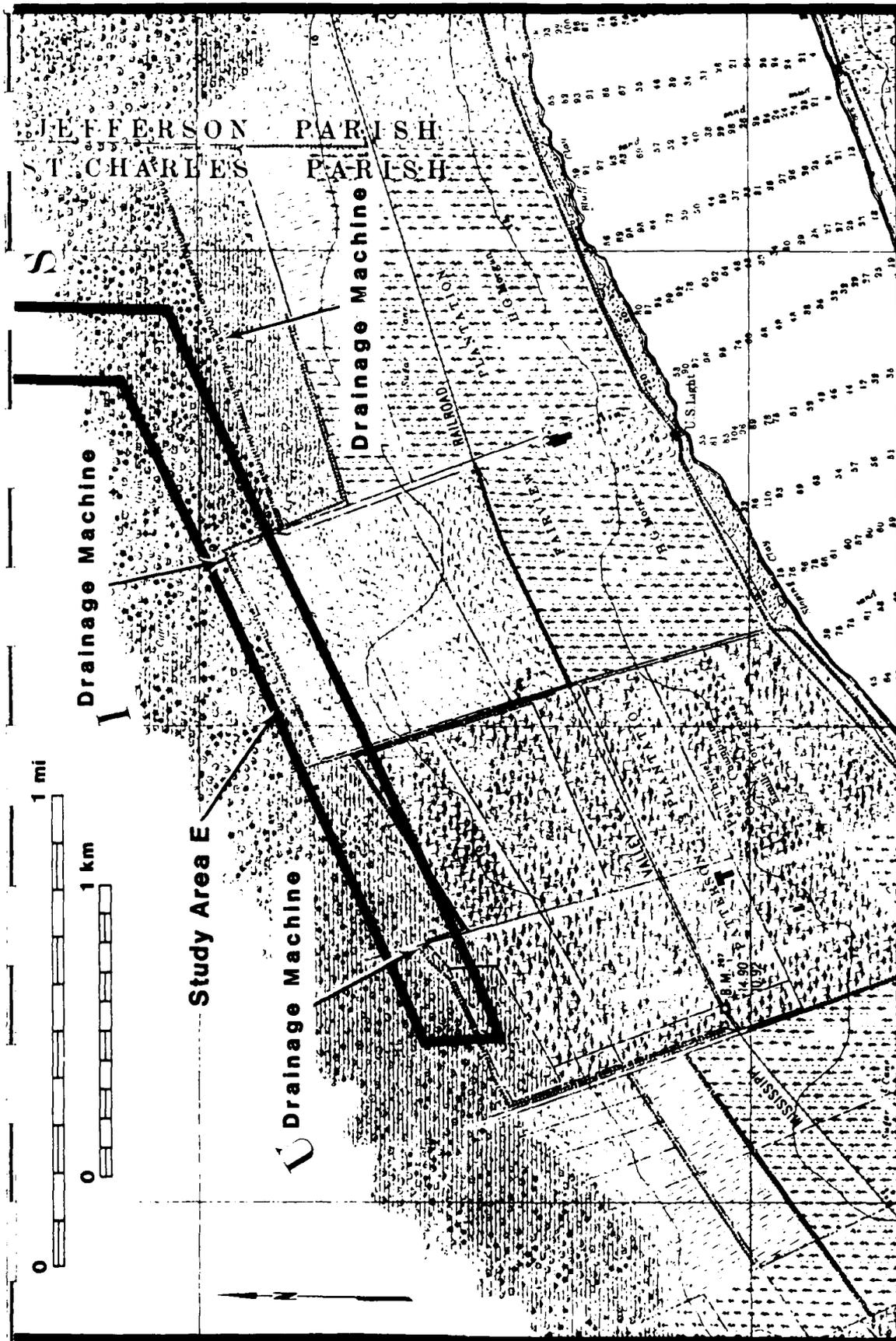


Figure 24. 1894 Mississippi River Commission Map depicting cultural features of Almedia and Fairview Plantations within and around Study Area E.

The results of the field survey, as anticipated, generally supported the expectations derived from the cartographic research. One drainage machine was found on each of the plantations. Both of these structures had been recorded on the historic maps examined. The field survey also located the remains of a previously unknown drainage machine on the former lands of Prospect Plantation. Because the lands of Prospect Plantation were not developed into the backswamps prior to 1894 (Figure 25), this drainage machine probably was not constructed until a . . . that date.

A brief historical sketch of each of the three plantations whose drainage machines were located within the right-of-way is presented below. As these machines were probably not constructed until the mid- or late-nineteenth century and ceased operation in the early-twentieth century, each historical sketch will focus on the period 1850 to 1910, although some information is provided for the early ownership of the land.

Prospect Plantation

The first known owner of the lands that would eventually become part of Prospect Plantation was Bernard Bernoudy, who was residing there by 1804 (Conrad 1974:405). Bernoudy's 23-arpent front plantation was primarily used for sugar and corn cultivation (Conrad 1974:405) and was the home for himself and Marie-Jeanne Robin de Longy, his wife (Conrad 1981:82). Although it did not occur within the study area, a slave revolt began in January 1811 at Manuel Andry's plantation and was dispersed on Bernard Bernoudy's plantation (Conrad 1981:100-101). Over 60 slaves were killed during the revolt and 75 were brought to trial (Conrad 1981:101). At least 33 slaves were executed for their participation in the revolt (Conrad 1981:102, 106, 108-110). Also of interest is that Jean-Noel Destrehan, the owner of nearby Destrehan Plantation, was Bernoudy's brother-in-law (Conrad 1974:382), and Adelard Fortier, the owner of Almedia or Patterson Plantation, was Bernoudy's son-in-law (Conrad 1981:107).

By 1828 the plantation had been acquired by Drausin Labranche (Degelos 1892:67). After Drausin Labranche's death, the land became the property of his wife (Champomier 1845:4). Mrs. Drausin Labranche apparently shared ownership of the property with Constance Deblanc at this time, as she is listed as an owner at the time of the 1855 succession sale of the property (Table 2) to E. F. Labranche and Adeline Labranche (Widow Norbert Fortier), Drausin Labranche's children (COB B, 349). The name "Prospect Plantation" was apparently first applied to the property at this time (Champomier 1856:18) by E. F. Labranche.

A survey of the area in 1858 by Theodore Gillespie (Figure 26) found that the fields of the property gave way to woods 92.00 chains (6072 ft) from the river along its upriver side and 51.00 chains (3366 ft) from the river along its downriver side (Gillespie 1858:61, 64), well short of the survey area. Gillespie also notes that the woods gave way to cypress swamps at 164.40 chains (10,850.40 ft) along the upriver border and 120 chains (7920 ft) along its downriver border (Gillespie 1858:61, 64). This would indicate that the future location of the drainage machine was on the boundary between the woods and the swamp.

The ownership of the plantation apparently passed on solely to Adeline Labranche in the early 1860s as Leon Sarpy acquired the land from her through a Sheriff's Sale in 1867 (COB C, 386). Sarpy later acquired Good Hope Plantation, the plantation immediately upriver from Prospect, as well as lands immediately below Prospect. Both plantations passed into the hands of his wife and children upon his death in 1889 (COB I, 132). During Sarpy's ownership of Prospect Plantation, its sugarcane



Figure 25. 1894 Mississippi River Commission Map of Prospect Plantation.

Table 2. Title Succession for Township 12 South, Range 8 East, Section 7 of Prospect Plantation, 1855-1901.

Succession-Le dame Constance Deblanc and Widow Drausin Labranche to E. F. Labranche and Widow Norbert Fortier (Adeline Labranche)	1855
Sheriff's Sale-Widow Norbert Fortier to Leon Sarpy	1867
Succession-Leon Sarpy to Mrs. Leon Sarpy (Marie Anna de Vesine Lavue), Mrs. Gustave V. Soniat (Marie Sarpy), Edward Sarpy, Lydia Sarpy, Pierre Lestang Sarpy, Mrs. Marie L. Henry	1889
Mrs. Marie Soniat (Marie Anna de Vesine Lavue) to Edward Sarpy	1890
Lydia Sarpy and Jeanne Sarpy (Marie Sarpy?) to Edward Sarpy, Henry Sarpy and Pierre Lestang Sarpy	1901

References: COB 'B', Folio 49 (1855)
 COB 'C', Folio 386 (1867)
 COB 'I', Folio 132 (1889)
 COB 'I', Folio 217 (1890)
 COB 'L', Folio 379 (1901)

production became one of the greatest in the parish. Sarpy was also the first to begin rice cultivation on the plantation, the first crop being harvested in the 1886-1887 season (Bouchereau 1887:37).

Edward Sarpy, one of Leon Sarpy's children, evidently became the prime motivator of the plantation as he was agent for the plantation in 1890 (Bouchereau 1892:91). In 1890 Edward Sarpy purchased Marie Anna de Vessine Lavue's (Edward's mother) share of the plantation (COB I, 217). Apparently Edward Sarpy shifted the produce of the plantation from rice and sugar back to sugar, as no rice was cultivated in the 1888-1889 season (Bouchereau 1889:48). Sugar output, on the other hand, increased from 931,439 lbs in 1888-1889 (Bouchereau 1889:48) to 1,580,000 lbs in 1890-1891 (Bouchereau 1892:91). Sugar output of the plantation remained high throughout the late-nineteenth century and early-twentieth century except for 1892. In 1892, abnormally high water on the Mississippi River caused crevasses to occur at Prospect Plantation, and another at Sarpy, near present-day New Sarpy (Saucier 1963:88). These two crevasses caused the loss of all sugar crops on the plantation (Bouchereau 1893:27).

In 1901, Edward Sarpy, along with his brothers Henry and Pierre Lestang, purchased his two sisters' shares of the plantation (COB L, 379). A few months later Edward, Henry, and Pierre Lestang formed a copartnership to run the plantation (COB L, 388). By this time, Prospect was one of only three sugar plantations operating on the east bank of St. Charles Parish. The two other plantations were Destrehan and Fairview.

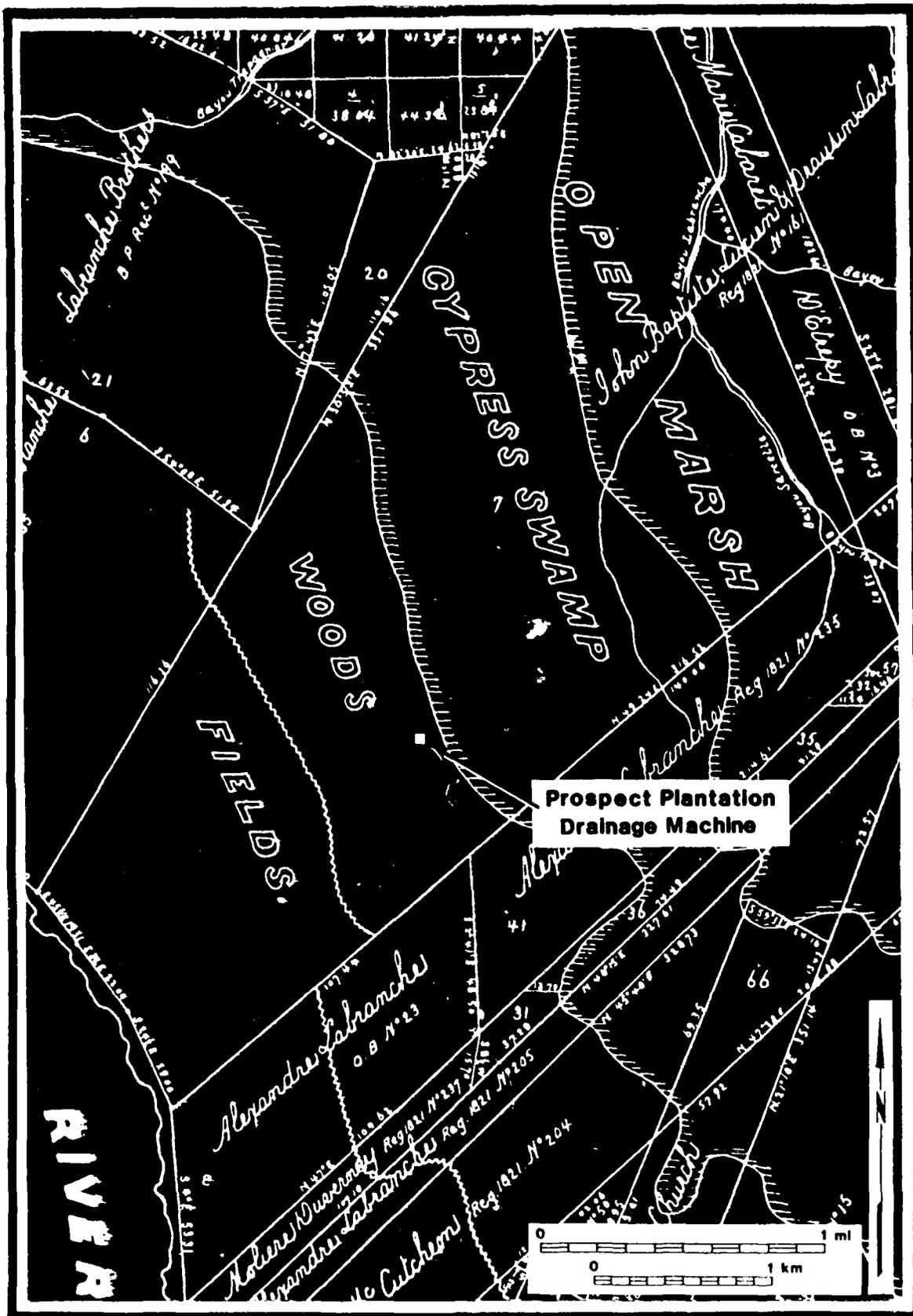


Figure 26. Projected location of Prospect Plantation drainage machine on 1860 plat map (LDNR-DSL).

The Sarpy brothers sold numerous small parcels of their land during ownership of Prospect. Because of this, it is very difficult to determine exactly which party purchased which portion of land. In 1906 the plantation was owned by the Prospect Plantation Company, Ltd. (Bouchereau 1909:47). By 1907, however, Ernest Vicknair had obtained possession of the plantation (Bouchereau 1910:47). Whether or not the area of the drainage machine was included in these two transfers is presently unknown.

The last sugar crop produced at Prospect Plantation was during the 1911-1912 growing season (Bouchereau 1917:47). By this time Prospect was owned by the Coffee Investment Company (Bouchereau 1917:47). The plantation changed hands again the following year when August Lasseigne became the owner (Bouchereau 1916:47). Prospect Plantation was the last operating sugar plantation on the east bank of St. Charles Parish.

While the 1936 USGS 7.5-minute Hahnville, Louisiana map does not show a structure at the location of the drainage machine, it does show the canal on which it was built and clearings along the canal in the area of the drainage machine. Although the usage dates of the drainage machine are unknown, it may be surmised that it was not constructed until very late in the nineteenth century or very-early-twentieth-century, as the canal that fed the drainage machine was not depicted on the 1894 Mississippi River Commission map (see Figure 25). As crops ceased to be grown on the plantation in 1911 it may be assumed that the drainage machine was no longer of use at that date. Today, the town of Good Hope lies in the northern half of Prospect and the town of New Sarpy in the southern half.

Almedia or Patterson Plantation

Louis-Augustin Meullion, one of the wealthiest men on the German Coast, was the first known owner of what would eventually become Almedia Plantation and later Patterson Plantation. Although the plantation changed shape several times during its existence, its front primarily consisted of Section 40, Township 12 South, Range 9 East, and extended all the way to Lake Pontchartrain. Although it is not known when Meullion first acquired the property, he had ownership of it by the time the census of 1763 was taken (Voorhies 1973:65). Meullion was involved in a number of land transactions until the time of his death in 1810. Because of this it is difficult to determine when his plantation increased from a 12-arpent front in 1763 (Voorhies 1973:65) to a 15 ²/₃-arpent front in 1804 (Conrad 1974:402). The increase may have resulted when, in 1782, Meullion purchased Francois Scimar de Bellisle's plantation immediately downriver from his own plantation (Conrad 1974:100). Meullion was the husband of Marie-Jeanne Piseros, the sister of Jean-Francois Piseros (Conrad 1974:225). Piseros was Meullion's next-door neighbor.

In 1770 Meullion's plantation had 41 slaves and produced corn and beans (Voorhies 1973:263). In 1804 the plantation's produce included sugar, molasses, tafia, rice, corn, and peas and was the home for 72 slaves. The 1811 sale of Meullion's household objects following his death in 1810 did not conform to a previous inventory of the estate, as the plantation was burned and pillaged during the previously mentioned 1811 slave revolt (Conrad 1981:102, 104). Still, the sale of the property and slaves generated over \$130,000 (Conrad 1981:104, 110).

Unfortunately, it is not known exactly what happened to the property immediately following the death of Meullion. Apparently, Adelard Fortier purchased the lands from Meullion's heirs in 1811. Following Fortier's death in the second decade of the

nineteenth century, the plantation became the property of H. Bernoudy, his wife (COB A, 203). In 1820 Mrs. Fortier sold a share of the plantation to her brother Noel Clairville Bernoudy (COB A, 203). The plantation remained in their hands until about 1830 when Mrs. Fortier died and left her share of the property to her heirs (COB A, 203, Degelos 1892:66).

In 1831 Jean-Francois Piseros purchased the property, and retained possession of it until his death, which occurred about 1852 (COB A, 203). Piseros left the land to his wife Adelaine Labranche who immediately sold it (Table 3) to Augusta A. Walker (COB A, 203). Walker added these lands to the lands of Fairview Plantation which he had purchased the preceding year (COB A, 148). Walker ran both plantations as one and included both crops under the name Fairview Plantation.

In 1857 Walker sold both plantations, Fairview going to Henry Frellsen (COB B, 254) and Almedia to Thomas A. Bisland (COB B, 263). The plantation changed hands several times during the next decade. Bisland lost the property in a Sheriff's sale to Robert Patterson in 1858 (COB B, 353). Patterson immediately sold the property to George R. Price (COB B, 253). A survey of the Township made in 1858 (Figure 27) by Theodore Gillespie (1858:17, 20) found that Price's back levee along its lower border was 88.88 chains (5866.08 ft) from the river and 94.00 chains (6204 ft) on its upper side. The Patterson or Almedia Plantation drainage machine located during this survey was located at the intersection of the back levee Gillespie describes along the lower line and a canal running perpendicular to the Mississippi River. As both the levee and canal were both constructed by the 1860s, it is highly probable that some sort of drainage station was erected at their intersection by the 1860s. Without datable artifacts from the site, however, it is not possible to substantiate this statement.

When Price died in 1866, Patterson regained possession of the plantation in a Sheriff's sale (COB C, 360). Patterson retained the property until 1883 when he sold it to Henry Baldwin, Pierre Edward St. Martin, and Theophile Perret (COB G, 251). It was during Patterson's second ownership of the property that it became known as Almedia Plantation. The sugar yield of the plantation was relatively low throughout most of the period of Patterson's ownership. Although Patterson grew rice crops in 1869 and 1870 (Bouchereau 1869:19, Bouchereau 1870:37), rice agriculture lapsed on the plantation until 1884 (Bouchereau 1884:45).

Baldwin, St. Martin, and Perret ran the plantation under the auspices of St. Martin, Baldwin and Company until 1884 when Baldwin sold his share of the plantation to St. Martin and Perret (COB G, 651). St. Martin and Perret continued growing rice on the plantation until they sold it in 1891; sugar production was halted in 1885 (Bouchereau 1885:47).

St. Martin and Perret sold the 20 1/2 arpent-front plantation in 1891 to Oscar Champagne, Paul Hymel, and Robert E. Torregossa (COB I, 597). Included in this sale were six scythe blades, one lot of rice straw, one thresher, assorted rice irrigation pipes, and one complete draining machine with a 2-cylinder steam engine and drainage wheel (COB I, 597). The drainage machine described in this transfer is undoubtedly the one located during the field survey, as the 1894 Mississippi River Commission map depicts a structure at its location (see Figure 22). Although sugar was no longer grown on the plantation at this time, rice production appears to have utilized the majority of the arable lands of the plantation.

Champagne, Hymel and Torregossa lost the plantation in a sheriff's sale to Henry D. Forsythe in 1896 (COB K, 13). Although Forsythe bought the land and most of its

Table 3. Title Succession for Township 12 South, Range 9 East, Section 40 of Alameda or Patterson Plantation, 1853-1912.

Mrs. Jean F. Piseros (Adelaine Labranche) to Augusta W. Walker	1853
Augusta W. Walker to Thomas A. Bisland	1857
Sheriff's Sale-Thomas A. Bisland to Robert Patterson	1858
Robert Patterson to George Reagan Price	1858
Succession-Geroge Reagan Price to Robert Patterson	1866
Robert Patterson to Henry Baldwin, Pierre Edward St. Martin and Theophile Perret	1883
Henry Baldwin, Pierre Edward St. Martin and Theophile Perret to Pierre Edward St. Martin and Theophile Perret	1884
Pierre Edward St. Martin and Theophile Perret to Oscar Champagne Paul Hymel and Robert E. Torregossa	1891
Sheriff's Sale-Oscar Champagne, Paul Hymel and Robert E. Torregossa to Henry D. Forsythe	1896
Henry D. Forsythe to Thomas Landeche, Lezin Landeche and Henry Landeche	1897
Thomas Landeche, Lezin Landeche, and Henry Landeche to Charles A. Duchamp	1910
Charles A. Duchamp to Almedia Truck Garden and Development Company	1910
Almedia Truck Garden Development Company to Joseph W. Sheldon	1912

References: COB 'A', Folio 203 (1853)
 COB 'B', Folio 263 (1857)
 COB 'B', Folio 349 (1858)
 COB 'B', Folio 353 (1858)
 COB 'C', Folio 360 (1866)
 COB 'G', Folio 251 (1883)
 COB 'G', Folio 651 (1884)
 COB 'T', Folio 597 (1891)
 COB 'K', Folio 13 (1896)
 COB 'K', Folio 362 (1897)
 COB 'P', Folio 101 (1910)
 COB 'P', Folio 119 (1910)
 COB 'Q', Folio 158 (1912)

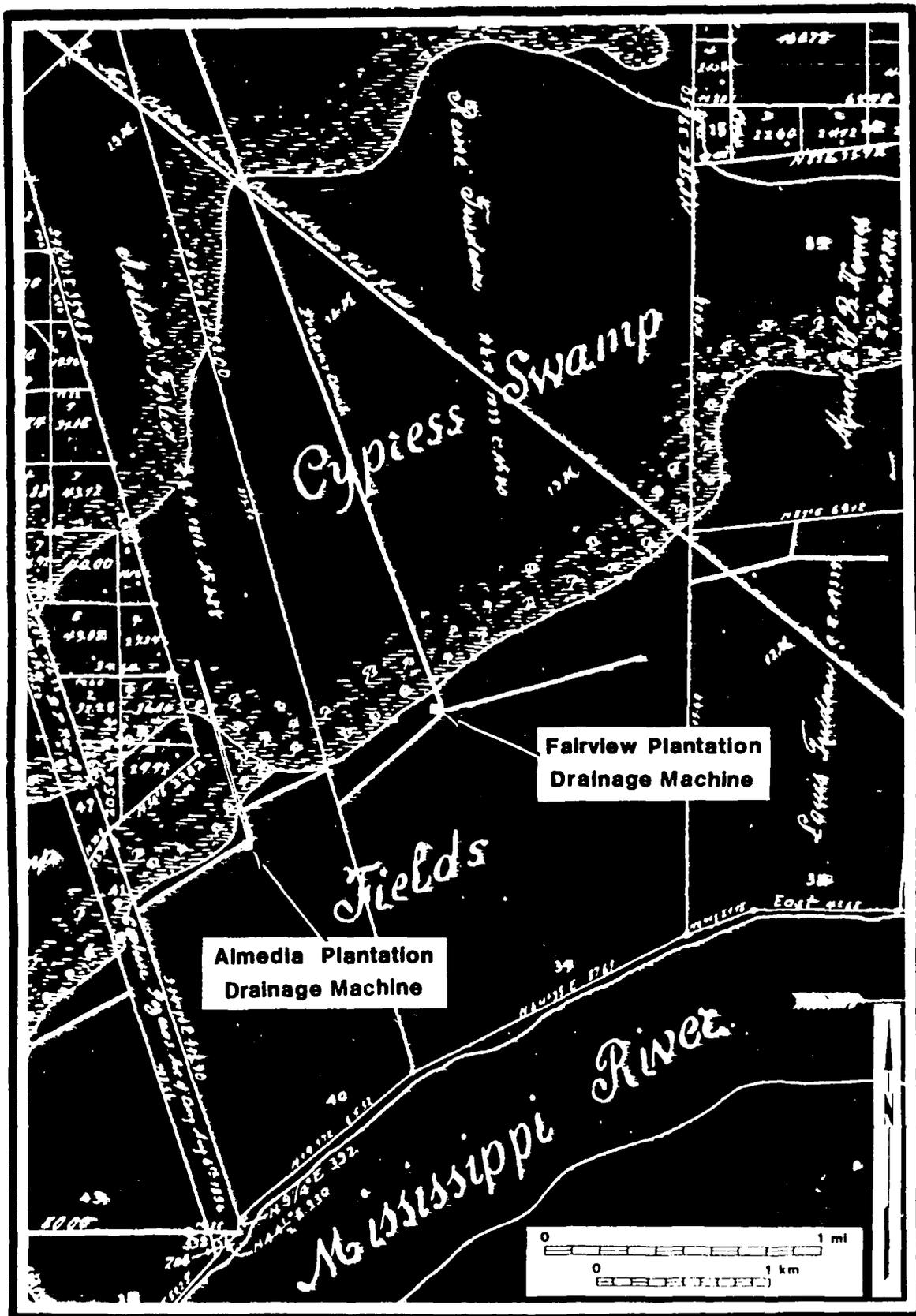


Figure 27. Projected location of Almedia Plantation and Fairview Plantation drainage machines on 1860 plat map (LDNR-DSL).

movables, St. Martin and Perret purchased several items at the sheriff's sale also (COB K, 13). Forsythe owned Almedia for only one year before selling it to Thomas, Lezin, and Henry Landeche (COB K, 362). The Landeches retained possession of the property until 1910 when they sold the plantation to Charles A. Duchamp (COB P, 101). Duchamp immediately sold the land to the Almedia Truck Garden and Development Company (COB P, 119).

The Almedia Truck Garden and Development Company planned to develop the higher lands of the plantation and subdivided it into numerous smaller tracts of land which were to be sold individually. A map of a portion of Almedia Plantation was made in 1910 showing the individual tracts of land, the ditches, canals, levees, and the "old pumping station" (Figure 28). The old pumping station is the same drainage station that is depicted on the 1894 Mississippi River Commission map (see Figure 22) and the same one that was located during the field survey.

In 1912 the Almedia Truck Garden and Development Company sold a portion of Almedia Plantation to Joseph W. Sheldon (COB Q, 158). Another map of the area was made at that time showing the various land lots near the drainage station and a structure at the location of the drainage machine (Figure 29). It is doubtful that the drainage machine was still in use at that time, as its operations would have required fairly large outlays of cash that would have been prohibitive for an owner of non-agricultural land. Because of the breakup of the plantation beginning in 1910, it is very difficult to track land ownership of the property after that date.

The 1938 USGS 7.5-minute Luling map (Figure 30) does not indicate a structure at the location of the Almedia Plantation drainage machine but does show a private road extending to its actual location. This road is still present today, although it primarily serves as a trail for area hunters. This drainage machine, or another in the same location, probably began operation by the 1860s. Operation of the machine presumably had ceased at approximately the same time that the plantation stopped producing agricultural goods, probably during the first decade of the twentieth century. Today, the remains of the drainage machine are spread over a relatively wide area and are slowly being reclaimed by area swamps.

Fairview Plantation

The first known owner of the lands of Fairview Plantation was Francois Scimar de Bellisle. Although Bellisle, the commandant of La Cote des Allemands from 1770 to 1782, was the owner of the property, he apparently did not reside there during the entire time of his ownership, which began sometime before 1763 (Voorhies 1973:65). Bellisle's residence, at least in 1763 and 1770, was in St. John the Baptist Parish (Voorhies 1973:65, 264). Shortly after Bellisle was replaced by Jacques Massicot, the commandant of La Cote des Allemands from 1782 to 1794, Bellisle sold the property to Louis-Augustin Meullion (Conrad 1974:100). The farm at that time was 40 arpents wide and extended back to Lake Pontchartrain (Conrad 1974:100). Meullion, former captain of the First Company of the militia of La Cote des Allemands (Robichaux 1973:70), added this property to his holdings immediately upriver from Bellisle, which he had acquired sometime prior to 1763 (Voorhies 1973:65).

Meullion, one of the wealthiest men on the German Coast, owned several tracts of land on both sides of the river. Meullion apparently resided on the tract of land next to Bellisle even after he acquired Bellisle's farm (Conrad 1974:402), on which M. Medre's family resided, at least in 1804, and acted as overseers for the production of sugar, molasses, corn, tafia, and rice (Conrad 1974:402). The plantation in 1804 consisted of a 34 $\frac{3}{4}$ -arpent front (Conrad 1974:402).

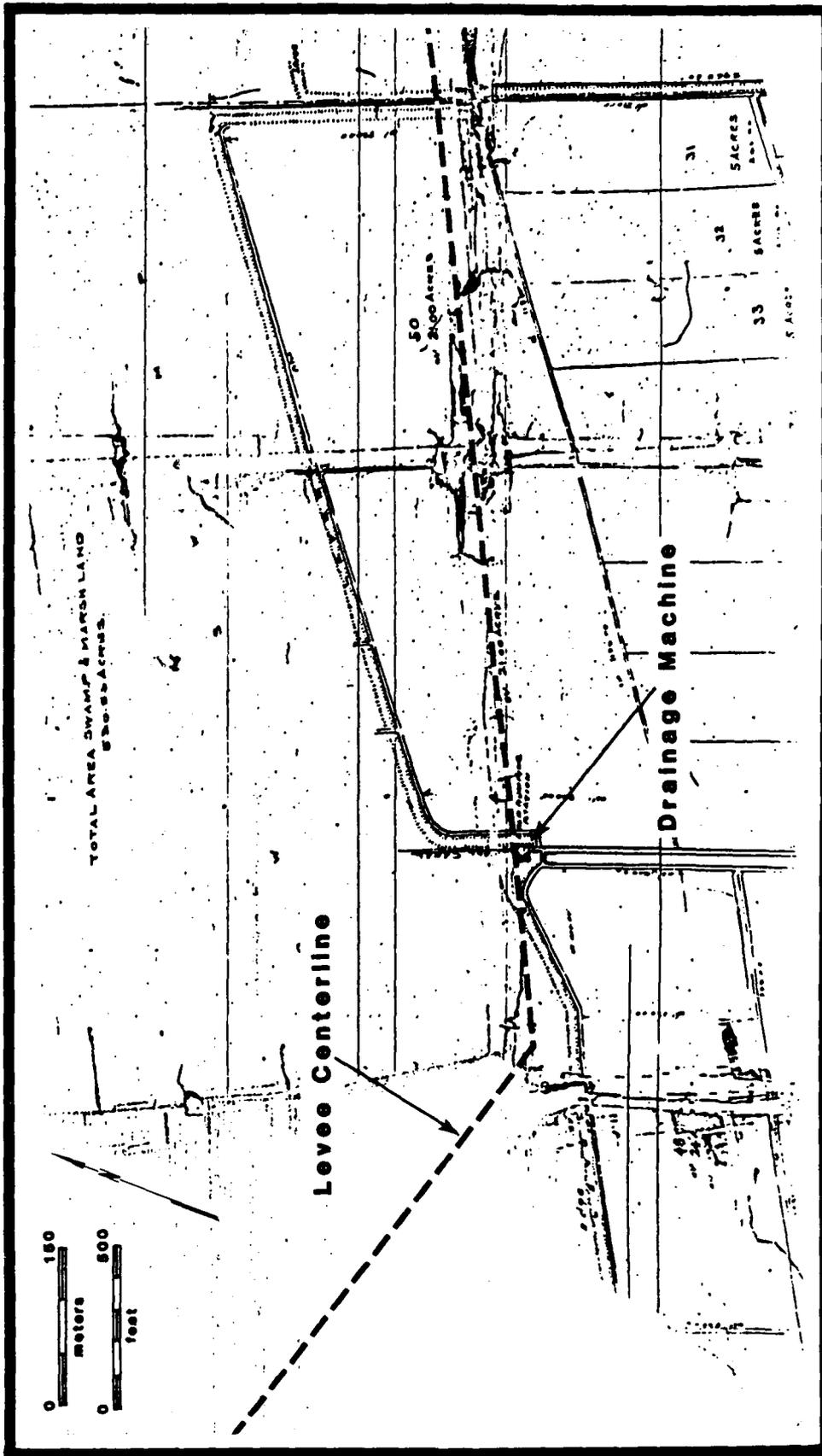


Figure 28. 1910 map of the rear of Almedia Plantation showing the "Old Pumping Station." Hurricane protection levee centerline has been added (St. Charles Parish Maps, Ward 5:4).

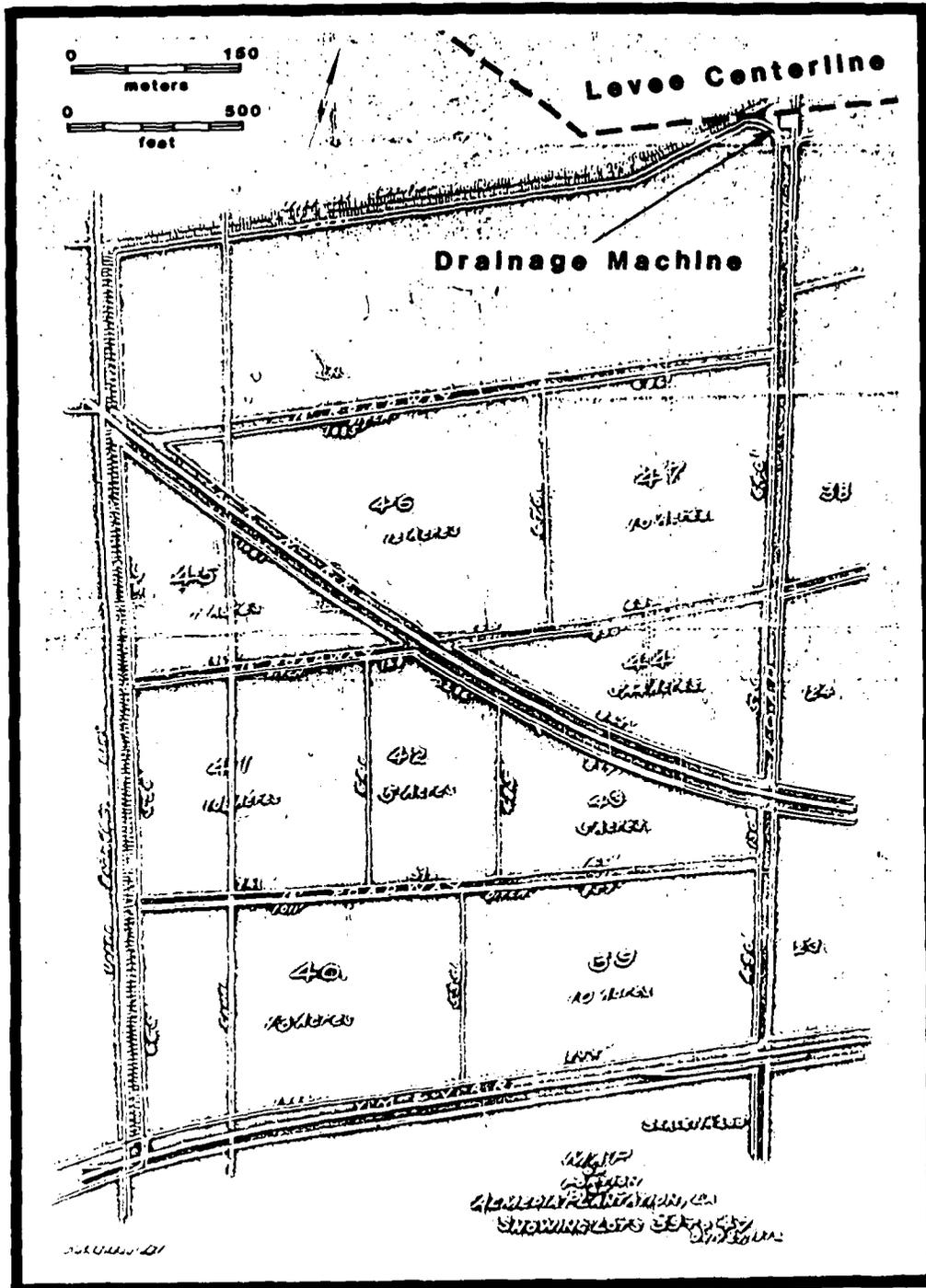


Figure 29. 1912 map of the northwest quadrant of Almedia Plantation showing drainage station structure. Hurricane protection levee centerline has been added (COB Q, 158).

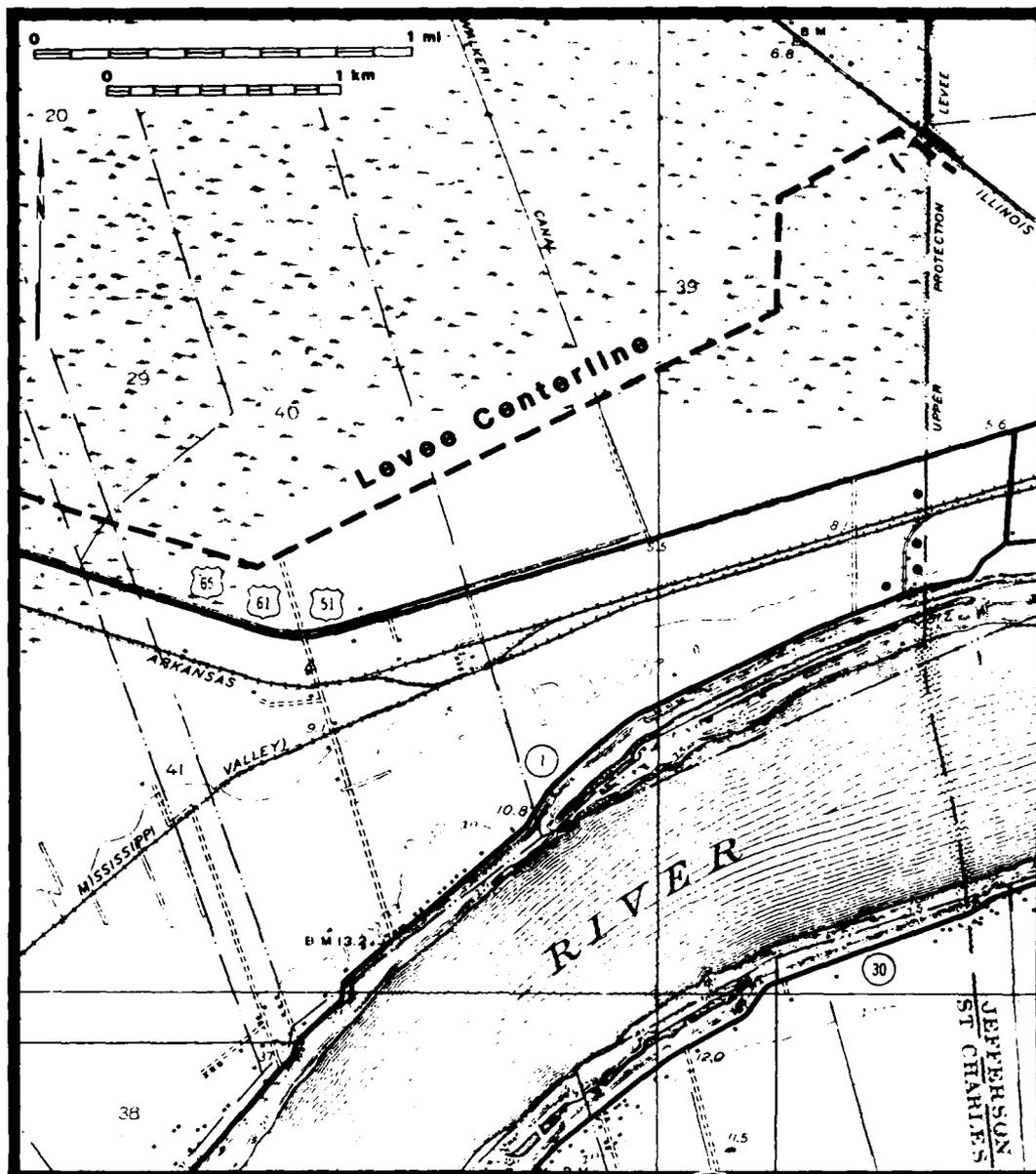


Figure 30. 1938 USGS 7.5-minute Luling, Louisiana, map depicting roads leading to drainage machines of Almedia and Fairview Plantations. Position of hurricane protection levee centerline has been added.

In 1806 Meullion sold 28 arpents of his 34 arpents of the farm to Zenon Trudeau, reserving 6 arpents for himself in the sale (Conrad 1981:37). The sale, including 31 slaves, was sold for \$80,000 in Mexican silver (Conrad 1981:37). Zenon Trudeau moved his family onto the land and by 1810 had 90 slaves working its fields (1810 Manuscript Census, St. Charles Parish). Zenon Trudeau, a lieutenant colonel in the Louisiana Regiment and ex-Lieutenant Governor of Upper Louisiana, apparently died sometime between 1811 and 1828 and left the property to Rene Trudeau, his son (Conrad 1981:87, Degelos 1892, Gillespie 1858:17). Rene Trudeau, previously the manager of his father's farm, married Celestine Destrehan, daughter of Jean-Noel Destrehan and Marie-Claude Elenore de Longy (Conrad 1981:87).

By 1844 the plantation was in the hands of Edmond Fortier, Jr. and Company (Champomier 1845:4). Edmond Fortier, Jr. was a cousin of Adelard Fortier and was a descendant of, and married into, the Labranche family (Arthur and Kernion 1971:45). Fortier and Dame R. Labranche retained possession of the plantation until 1850 (COB A, 57) when Babyles and Victoria Labranche acquired it (Table 4). The Labranches retained possession of the property for only two years before selling it to Augusta W. Walker (COB A, 148). A year later Walker added the lands of Almedia Plantation to his holdings, it was at this time that Fairview Plantation received its name (Champomier 1854:19). Walker ran both Fairview and Almedia as one plantation under the name of Fairview during his ownership of the property. In 1857 Walker sold both plantations separately, Fairview going to Henry Frellsen (COB B, 263). Frellsen lost the plantation in a sheriff's sale to Daniel Fairex in 1863 (COB C, 132) but regained ownership of it in 1872 following the death of Fairex (COB D, 270).

An 1858 survey of the upriver boundary of the property made during Frellsen's first ownership, found that Frellsen's back levee at that time was 81.70 chains (5392.2 ft) from the river (Gillespie 1858:17). This back levee is still in existence, immediately north of the center line of the hurricane protection levee. The Fairview Plantation drainage machine (see Figure 27) located during the field survey is located on the intersection of the canal associated with the back levee and Walker Canal (then Frellsen's Canal). The swamp at this time was 8.30 chains (547.8 ft) north of Frellsen's back levee (Gillespie 1858:18).

As Walker Canal was constructed, at least in part, during Walker's ownership of the property (1852-1857) and the back levee of the property was in place in 1861, it is highly probable that a drainage machine was constructed at their intersection during this period. Walker Canal would have provided the major drainage of the area, extending all the way from the natural levee to Lake Pontchartrain.

During Frellsen's second ownership of the plantation, Frellsen kept a Plantation Diary, covering the years 1878 until his death in 1884. The diary makes numerous comments about the drainage machine, pumps, and other daily activities on the plantation. As there was a second structure possibly representing a drainage machine on the property (see Figure 24), it is not possible to distinguish between the two in Frellsen's Plantation Diary. The diary does, however, provide insight into the operation of the machines. Several excerpts of the diary are provided below:

- | | |
|------------------|--|
| January 1878 | "Finished ditching. Hauled boilers to draining machine and Garrow commenced putting them up...Bought engine for \$600 also 3000 bricks." |
| 17 March 1878 | "Adolph putting up engine at draining machine." |
| 12 May 1878 | "Hauled some coal to draining machine." |
| 18 January 1880 | "...draining daily with small pump and every other day with wheel." |
| 26 December 1880 | "Engaged Jean Marie as carpenter and to run draining machines at \$50 per month." |
| 22 January 1881 | "Draining wheel broke down on the twenty-first." |

Table 4. Title Succession for Township 12 South, Range 9 East, Section 39 of Fairview Plantation, 1850-1915.

Dame R. Labranche and Edmond Fortier, Jr. to H. Babyles Labranche and Victoria Labranche	1850
H. Babyles Labranche and Victoria Labranche to Augusta W. Walker	1852
Augusta W. Walker to Henry Frellsen	1857
Sheriff's Sale-Henry Frellsen to Daniel Fairex	1863
Succession-Daniel Fairex to Henry Frellsen	1872
Succession-Henry Frellsen to Helena E. Frellsen, Mrs. Edward Page (Kate Frellsen), Mrs. Henry Gibbs Morgan (Laura Frellsen), Mrs. George Mather (Louise Frellsen), Joseph Walker Frellsen, and Katie B. Frellsen	1885 (1911)
Helena E. Frellsen, Mrs. George Mather, Mrs Henry Gibbs Morgan and Mrs. Edward Page to Joseph Walker Frellsen	1886
Sheriff's Sale-Joseph Walker Frellsen to Henry Gibbs Morgan	1893
Henry Gibbs Morgan to Herbert Wadsworth	1910
Herbert Wadsworth to J. N. Colomb	1910
J. N. Colomb to Fairview Land Company	1911
Fairview Land Company to H. McCullough	1915

References: COB 'A', Folio 57 (1850)
 COB 'A', Folio 148 (1852)
 COB 'B', Folio 254 (1857)
 COB 'C', Folio 132 (1863)
 COB 'D', Folio 270 (1872)
 COB 'Q', Folio 112 (1885)¹
 COB 'H', Folio 61 (1886)
 COB 'J', Folio 38 (1893)
 COB 'O', Folio 456 (1910)
 COB 'O', Folio 668 (1910)
 COB 'Q', Folio 109 (1911)
 COB 'S', Folio 239 (1915)

Notes: 1. Although transfer occurred in 1885, it was not registered until 1911.

- 5 February 1881 "Engineers repairing draining machine."
- 26 February 1881 "Engineer Schmidt and carpenters at draining wheel."
- 19 March 1881 "Bricklayer at boiler on draining machine."
- 19 February 1882 "...back levees leaking very much--draining day and night, except two days when draining wheel broke..."

Frellsen, who resided in New Orleans and only paid weekly visits to Fairview, began growing rice at Fairview on a commercial basis in 1883 for the first time since at least 1869. The first mention of rice production in the plantation diary is on 24 December 1881 when Frellsen wrote, "...one load lumber for rice flume and gutters." The first crop, however, was not planted until April 1883 when Frellsen had at least 65 ac of rice planted. The growing of rice in 1882 may have been abandoned following the flooding of the plantation that occurred when the plantation's front levee gave way to a crevasse on 30 January 1882 (Frellsen 1884). During the years of the plantation diary, Frellsen planted corn, sugarcane, rice, and peas. When water conditions permitted, Frellsen also exploited the lumber resources of his land, making numerous comments in his plantation diary concerning the timbering of the areas to the rear of the plantation near the drainage machine.

Following Frellsen's death in 1884, the plantation was taken over by his heirs (COB Q, 112). In 1886 Joseph W. Frellsen, Henry Frellsen's son, bought his mother's and siblings' shares of the property (COB H, 61). The younger Frellsen apparently continued rice agriculture on the plantation, as sugar production remained relatively low during his ownership, which lasted until 1893. In 1893 Frellsen lost the plantation at a Sheriff's Sale, possibly as a result of area floods that may have wiped out his 1892 crops. At the time of the Sheriff's seizure of the property, there were numerous mortgages and promissory notes standing against the plantation with crop yields of various years put up for collateral (COB J, 38).

Henry Gibbs Morgan took over the plantation in 1893 (COB J, 38) and quickly increased the sugar output from 476,008 lbs in 1894 (Bouchereau 1894:29) to 1,500,000 lbs in 1898 (Bouchereau 1898:35). Sugar output of the plantation remained high until at least 1907, Presumably, the high sugar output indicates a reduction in land devoted to rice agriculture. Morgan continued to exploit the backswamps of the plantation, selling lumbering rights on all of Fairview "...lying between the present Drainage Machine and Lake Pontchartrain..." to Southerland Innes Co., Ltd. (COB M, 554) in 1904.

In 1910 the plantation was sold to Herbert Wadsworth (COB O, 456). Ownership of the lands adjacent to the drainage station becomes unclear at this time as the property began to be broken up. Apparently J. N. Colomb purchased the property from Wadsworth later in 1910 (COB Q, 668) and resold it a year later to the Fairview Land Company (COB Q, 109). The last sugar cane crop was grown on the plantation sometime between 1907 and 1912 (Bouchereau 1910:47, Bouchereau 1917:47).

The 1938 USGS 7.5-minute Luling map (see Figure 30) does not show a structure at the location of the drainage machine, however, it does depict a private road extending to this locale. The dates of operation of the drainage wheel are unknown, but, it may be surmised that a drainage structure was built at this location during Walker's ownership of the property (1852-1857). Whether or not such a structure would have been

replaced at a later date is unclear. By 1878, however, it is clear that a drainage machine was constructed on Walker Canal and was still in existence, if not in operation, until at least 1894 (see Figure 24). Since the plantation ceased operations late in the first decade of the twentieth century, the drainage machine was probably not used after 1910. Today the site of the drainage machine is on the edge of an encroaching landfill and it may already be partially buried. The town of St. Rose now incorporates all of the lands of Fairview Plantation along the Mississippi River.

CHAPTER 7: SUMMARY AND RECOMMENDATIONS

Summary

In late October and early November 1987 a cultural resources survey of the right-of-way of the Hurricane Protection Levee on the east bank of St. Charles Parish, Louisiana was conducted by Coastal Environments, Inc. Five areas within the right-of-way were examined by pedestrian survey, shovel testing, probing, and hand augering. In addition, background research that established the prehistoric and historic setting of the area was conducted.

As a result of the survey procedures, three previously unrecorded late-nineteenth-century or early-twentieth-century drainage machines were located within the right-of-way. These drainage machines, which were essentially steam-powered waterwheels, were found on the former grounds of Prospect Plantation, Almedia or Patterson Plantation, and Fairview Plantation. Although excavations were not conducted, detailed drawings of the drainage machines were made. Since the right-of-way lies largely within the backswamps of the Mississippi River, it is unlikely that additional structures are located in this area.

Borings made by the Corps of Engineers along the right-of-way and hand-auger borings by Coastal Environments, Inc. along Bayou Trepagnier were used to study the geology of the area. This study concluded that prehistoric sites may exist on a buried natural levee feature located within the area. This buried levee feature is interpreted as an element of the St. Bernard Delta complex. Based on radiocarbon dates from the cores and on correlations with archaeological site data, it is argued that this buried natural levee dates from circa 2000 to 3400 years B.P. The data collected in this study also suggests that Bayou Trepagnier originally formed as a crevasse distributary of the now buried fluvial system (i.e. St. Bernard Delta system) and has been reoccupied or continuously occupied since that time.

Recommendations

While the remains of the drainage machines that were located during this study are of interest in understanding land use in late-nineteenth-century St. Charles Parish, it is unlikely that they would yield any significant archaeological, architectural, or historical information beyond what has already been gathered. Both the Prospect Plantation drainage machine and the Almedia or Patterson Plantation drainage machine have been severely impacted by cultural activity postdating their abandonment. While the foundation of the Fairview Plantation drainage machine is relatively intact, the lack of machinery or rubble suggests that the building was dismantled for reuse at another location or for scrap. In light of the above, no additional archaeological work relative to these structures is recommended.

REFERENCES

- Arthur, Stanley C. and George C.H. de Kernion
1971 Old Families of Louisiana. Claitors, Baton Rouge.
- Baudier, Roger
1972 The Catholic Church in Louisiana. Louisiana Library Association, Public Library Section. Originally published 1939, Roger Baudier, New Orleans.
- Begnaud, Allen
1980 The Louisiana Sugar Cane Industry: An Overview. Green Fields: Two Hundred Years of Louisiana Sugar. The Center for Louisiana Studies, University of Southwestern Louisiana, Lafayette.
- Bezou, Monsignor Henry C.
1979 Metairie: A Tongue of Land to Pasture. Pelican Publishing Company, Gretna.
- Bouchereau, Alcee
1878- Statement of the Sugar and Rice Crops Made in Louisiana. Various
1917 Publishers, New Orleans.
- Byrd, Kathleen M. and Robert W. Neuman
1978 Archaeological Data Relative to Prehistoric Subsistence in the Lower Mississippi River Alluvial Valley. Geoscience and Man 19:9-21.
- Castille, George J.
1980 Cultural Resources Evaluation of the Waterford 3 Electric Generating Plant, St. Charles Parish, Louisiana. Coastal Environments, Inc., Baton Rouge.
- Champomier, P. A.
1845 Statement of Sugar Made In Louisiana In 1844. Cook, Young and Company, New Orleans.
- Conrad, Glenn R.
1970 The First Families of Louisiana, Volume II. Claitor's Publishing Division, Baton Rouge.
-
- 1974 St. Charles: Abstracts of the Civil Records of St. Charles Parish, 1770-1803. University of Southwestern Louisiana, Lafayette.
-
- 1981 The German Coast: Abstracts of the Civil Records of St. Charles and St John the Baptist Parishes, 1804-1812. University of Southwestern Louisiana, Lafayette.
- Davis, Edwin A.
1971 Louisiana: A Narrative History. Claitor's Publishing Division, Baton Rouge.
- Davis, John
1806 Travels in Louisiana and the Floridas in the Year 1802, Giving a Correct Picture of Those Countries. I. Riley, New York.

- De Bow, J. D. B.
1847 Drainage. *The Commercial Review of the South and West* 4:66-80.
- Degelos, Pierre A.
1892 Statement of Sugar Made In Louisiana in 1828 and 1829. *The Louisiana Planter and Sugar Manufacturer* 9(4):66.
- Deiler, J. Hanno
1969 The Settlement of the Geman Coast of Louisiana and the Creoles of German Descent. Reprinted. Genealogical Publishing Company, Inc., Baltimore. Originally Published 1909.
- De Ville, Winston (editor)
1974 First Settlers of Pointe Coupee. Polyanthos, New Orleans.
- Din, Gilbert C. (editor)
1977 Louisiana in 1776: A Memoir of Francisco Bouligney, Louisiana Collection Series III, New Orleans.
- Fisk, H.N.
1944 Geological Investigation of the Alluvial Valley of the Lower Mississippi River. Mississippi River Commission, Vicksburg.
- Franks, Herschel A., Jill-Karen Yakubik, Jeffrey E. Treffinger, R. Christopher Goodwin, and Paul C. Armstrong
1986 Cultural Resources Inventory of the Montz Freshwater Diversion Project Corridor, St. Charles Parish, Louisiana. R. Christopher Goodwin & Associates, Inc. Submitted to the Department of the Army, New Orleans District Corps of Engineers, New Orleans.
- Frazier, David E.
1967 Recent Deltaic Deposits of the Mississippi River. *Transactions* No. 17:287-315.
- Gianelloni, E. B.
1965 Calender of Louisiana Colonial Documents, vol 3. Louisiana State Archives and Records Commission, Baton Rouge.
- Ginn, Milred K.
1940 A History of Rice Production in Louisiana to 1896. *The Louisiana Historical Quarterly* 23(2).
- Holmes, Barbara
1986 Historic Resources Study: The Baratavia Unit of Jean Lafitite National Historic Park. Southwest Cultural Resources Center, Santa Fe.
- Holmes, Jack D.
1967 Indigo in Colonial Louisiana and the Floridas; *Louisiana History* 8:329-349.
- Kolb, Charles R., Fred L. Smith, and Robert C. Silva
1975 Pleistocene Sediments of the New Orleans-Lake Pontchartrain Area. Technical Report S-75-6. Waterways Experiment Station, U.S. Army Corps of Engineers, Vicksburg.

Kolb, C.R. and J.R. van Lopik

1958 Geology of the Mississippi Deltaic Plain, Southeastern Louisiana. Technical Report 3-483. Waterways Experiment Station, U.S. Army Corps of Engineers, Vicksburg.

Lamb, Theresia

1983 Preliminary Archaeological Reconnaissance and Assessment of Destrehan Plantation, St. Charles Parish, Louisiana. Department of Anthropology and Geography, University of New Orleans.

Maudel, Charles R.

1972 The Census Tables for the French Colony of Louisiana from 1699 through 1732. Geneological Publishing Company, Ltd., Baltimore.

McDaniel, Donald

1987 Soil Survey of St. Charles Parish, Louisiana. United States Department of Agriculture, Soil Conservation Service. U.S. Government Printing Office, Washington, D.C.

McIntire, William G.

1958 Prehistoric Indian Settlements of the Changing Mississippi River Delta. Coastal Studies Series, Report No. 1. Louisiana State University, Baton Rouge.

1976 Archaeological and Historical Sites. Appendix A in Environmental Assessment of 10-Inch Ethylene Line from Norco to Sorrento, Louisiana. Report prepared for Shell Pipe Line Corporation. Dames and Moore, Atlanta.

1979a Cultural Resources Survey, Shell Pipe Line Corporation's Proposed Norco to Marathon 24" Pipeline. On file, Louisiana Department of Culture, Recreation and Tourism, Baton Rouge.

1979b Cultural Resources Survey, Shell Pipe Line Corporation's Norco to Dupont 4" Butadiene Pipe Line. On file, Louisiana Department of Culture, Recreation and Tourism, Baton Rouge.

1979c Cultural Resources Survey, Shell's Proposed Pipe Line from Clovelly Oil and Gas Field to Norco, Louisiana. On file, Louisiana Department of Culture, Recreation and Tourism, Baton Rouge.

McWilliams, Richebourg G.

1953 Fleur de Lys and Calumet. Louisiana State University Press, Baton Rouge.

Moore, John P.

1976 Revolt in Louisiana: The Spanish Occupation 1766-1770. Louisiana State University Press, Baton Rouge.

Neuman, Robert W.

1973 Archaeological Assessment of Water Resource Planning Areas 9 and 10, Louisiana. Report submitted to the National Park Service, Tallahassee.

- Neuman, Robert W.
1977 An Archaeological Assessment of Coastal Louisiana. Melanges, No. 11, Baton Rouge.
- O'Neil, Charles E., Joe G. Taylor, William Ivy Hair, Mark T. Carleton and Michael L. Kurtz
1984 Louisiana: A History. The Forum Press, Inc., Arlington Heights, Ill.
- Phillips, Philip
1970 Archaeological Survey in the Lower Yazoo Basin, Mississippi, 1949-1955. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, 60. 2 parts. Cambridge.
- Price, G.R. Dennis
1977 A Cultural Resource Survey and Evaluation of the Big Three Industries Pipeline Corridor - Geismer to Norco, Louisiana. Report on file at the Louisiana Department of Culture, Recreation and Tourism, Baton Rouge.
- Robin, Claude C.
1966 Voyage to the Interior of Louisiana, 1802-1806. Translated by Stuart O. Landry, Jr., New Orleans.
- Russell, R.J.
1936 Physiography of the Lower Mississippi River Delta. Bulletin of Louisiana Geological Survey. Baton Rouge.
- Saucier, Roger T.
1963 Recent Geomorphic History of the Pontchartrain Basin, Louisiana. Technical Report No. 16. Coastal Studies Institute. Louisiana State University, Baton Rouge.
- 1974 Quaternary Geology of the Lower Mississippi Valley, Research Series No. 6. Arkansas Archeological Survey.
- Sitterson, J. C.
1953 Sugar Country: The Cane Sugar Industry in the South 1753-1950. University of Kentucky Press, Lexington.
- Swanson, Betsy
1975 Historic Jefferson Parish from Shore to Shore. Pelican Publishing Company, Gretna, Louisiana.
- Swanton, John R.
1911 Indian Tribes of the lower Mississippi Valley and adjacent coasts of the Gulf of Mexico. Bureau of American Ethnology Bulletin 42.
- Toth, Edwin A.
1977 Early Marksville Phases in the Lower Mississippi Valley: A Study of Culture Contact Dynamics. Unpublished PhD dissertation, Department of Anthropology, Harvard University, Cambridge.

Voorhies, Jacqueline K.

1973 Some Late Eighteenth Century Louisianians. Census, Records of the Colony, 1758-1796. University of Southwestern Louisiana, Lafayette.

Weinstein, Richard A.

1980 Cultural Resources Survey of Six Proposed Levee Closures, St. Charles Parish, Louisiana. Coastal Environments, Inc., Baton Rouge. Submitted to Dawson Engineers, Inc.

Weinstein, Richard A., Eileen K. Burden, and Sherwood M. Gagliano

1977 Cultural Resource Survey of Interstate 410, St. Charles Parish, Louisiana. Coastal Environments, Inc. Baton Rouge. Submitted to the Louisiana Department of Transportation, Office of Highways.

Weinstein, Richard A. and Sherwood M. Gagliano

1985 The Shifting Deltaic Coast of the Lafourche Country and its Prehistoric Settlement. In The Lafourche Country: The People and the Land, edited by Philip D. Uzee, pp.122-149. Center for Louisiana Studies, University of Southwestern Louisiana, Lafayette.

Wilkinson, J.B.

1854 Rice - Its Uses and Production. De Bows Review and Industrial Resources, Statistics, etc. 16:535-538.

Yakubik, Jill-Karen, Herschel A. Franks, R. Christopher Goodwin, and Carol J. Poplin

1986 Cultural Resources Inventory of the Bonnet Carre Spillway, St. Charles Parish, Louisiana. R. Christopher Goodwin & Associates, Inc. Submitted to the Department of the Army, New Orleans District Corps of Engineers, New Orleans.

Yoes, Henry E., III

1973 A History of St. Charles Parish to 1973. St. Charles Herald Publishers, Norco, Louisiana.

Archival Sources

Anonymous

1723 Carte Particuliere du Flevue St. Louis dix lieves au deffus et au deffous de la Nouvelle Orleans ou font marque des habitations et les Terrains Concedes a plufieurs Particuliers au Mississipy. On file, Coastal Environments, Inc., Baton Rouge.

Dawson, L. W.

1936 Personal correspondence to Melba Elfer dated 2 December 1936. In A Case Study of St. Charles Parish by Melba Elfer (1936).

Elfer, Melba

1936 A Case Study of St. Charles Parish. Term Paper for Tulane University School of Social Work. On file, Louisiana and Lower Mississippi Valley Collections, Louisiana State University.

Frellsen, Henry

- 1884 Fairview Plantation, Saint Rose, Saint Charles Parish, Louisiana. Plantation Diary of Henry Frellsen 1878-1884. On file, Louisiana and Lower Mississippi Valley Collections, Louisiana State University

Gillespie, Theodore

- 1858 Field notes of Theodore Gillespie, Southeast District. On file, Division of State Lands, Louisiana Department of Natural Resources.

Grey, W. F.

- 1936 Personal correspondence to Melba Elfer dated 8 December 1936. In A Case Study of St. Charles Parish by Melba Elfer (1936).

Louisiana Department of Natural Resources, Division of State Lands (LDNR-DSL)

- 1860 Official Plat Map of Township 12 south, Range 8 East, Southeastern District, Louisiana.

-
- 1860 Official Plat Map of Township 12 South, Range 9 East, Southeastern District, Louisiana.

Mississippi River Commission

- 1894 Survey of the Mississippi River, Chart Number 74 and 75.

Persac's Map

- 1967 Plantations on the Mississippi River from Natchez to New Orleans, 1858. Pelican Publishing Co.

St. Charles Parish Conveyance Records (COB)

Office of the Clerk of Court, St. Charles Parish, Louisiana.

St. Charles Parish Maps

Ward 5. On file at Office of Clerk of Court. St. Charles Parish.

United States Geological Survey

- 1938 Luling, Louisiana, 7.5' topographic quadrangle map. U. S. Government Printing Office.

United States Geological Survey

- 1969 Bonnet Carre, Louisiana, 15' topographic quadrangle map. U. S. Government Printing Office.

-
- 1969 Hahnville, Louisiana, 15' topographic quadrangle map. U. S. Government Printing Office.

United States Manuscript Census: St Charles Parish

- 1810 Census of Population. Microfilm collection, Baton Rouge Public Library.
1820

APPENDIX
Scope of Services

SCOPE OF SERVICES

Cultural Resources Survey of the
St. Charles Levee, LP&V HP Project
St. Charles Parish, Louisiana

1. **Introduction.** The St. Charles Parish Levee is an authorized feature of the Lake Pontchartrain and Vicinity Hurricane Protection Project. This feature provides for the construction of a new levee parallel to and immediately north of U.S. Highway 61 (Airline Highway), between the levee along the Jefferson-St. Charles Parishes boundary and the east Bonnet Carre' Spillway guide levee. Four drainage structures will be provided through the earthen levee at locations where there is drainage through Airline Highway. The drainage structures would remain open to maintain existing drainage patterns and would be closed only during the threat of a hurricane. The new levee would provide protection to existing developed areas on the east bank of St. Charles Parish.

2. **Study Area.** The study area consists of designated portions of the construction right-of-way as shown on Attachment 1 and listed below:

a. Bayou Trepagnier area - both banks of the bayou for a distance of 2,500 feet lakeward from the sewage disposal plant at Norco;

b. Good Hope Oil and Gas Field - various locations where roads and canals cross the right-of-way;

c. Cross Bayou Canal - where it crosses the levee alignment;

d. Pipeline Canal - where it crosses the levee alignment; and

e. Almedia to St. Charles-Jefferson Parish boundary - the portions of this reach which are not inundated.

Except for the Bayou Trepagnier area, the survey corridor is 800 feet wide, centered on the levee centerline.

3. **Background Information.** A cultural resources study of interest to this project is the 1977 study by Coastal Environments, Inc., entitled "Cultural Resources Survey of Interstate 410, St. Charles Parish, Louisiana." This study provides a general overview and update of the known cultural resources in the vicinity of the study area.

The proposed levee alignment is located primarily in a cypress swamp environment. The only exceptions to this situation are cultural intrusions and the eastern portion of the right-of-way (east of Almedia) where the levee alignment approaches the Mississippi River. From west to east the modern cultural features in the right-of-way include:

- a. Good Hope Oil and Gas Field
- b. several canals
- c. two St. Charles Parish landfill sites
- d. a dump site, low levee system, and clearings in the area east of Almedia.

Geologic profiles of the right-of-way obtained from soil borings show natural levee deposits at the surface (with depths ranging from 10 to 4 feet) for most of the project length. The central portion of the alignment (between the Ormond Subdivision and the parish landfill sites) consists of swamp and marsh deposits at the surface. Thus, the soils information indicates that the western and eastern portions of the project are located on the subsiding edge of the Mississippi trunk stream natural levee. The majority of this depositional environment has subsided below water level and is now occupied by swamp vegetation.

Helicopter reconnaissance of the alignment revealed that most of the right-of-way is inundated and, therefore, not feasible for terrestrial survey. Review of the soil borings does not indicate the presence of distributaries or crevasse channels near the surface which would warrant a subsurface testing program. For these reasons, the survey is limited to those portions of the right-of-way which have a high potential for sites (Bayou Trepagnier), or provide subsurface information in their spoil banks (canals and roads), or are amenable to pedestrian survey methods (portion east of Almedia).

4. General Nature of the Work. The study will consist of background research, intensive cultural resources survey of selected portions of the levee alignment, geomorphological analysis of the study area, and data analysis and report preparation. The geomorphology portion of the study will include the radiocarbon dating of several organic samples from undisturbed borings obtained by the Corps of Engineers.

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

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

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

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

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

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

A. Phase 1 Background Research. The study will begin with research of available literature and records necessary to predict the nature of the resource base in the project area and refine the survey methodology. This background research will include a literature review, review of the geomorphology, and research of historic records.

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

(1) a brief description of the study area's geomorphology, prehistory, and history as they relate to the location, identification, and evaluation of archeological resources;

(2) predictive statements of the geomorphological and archeological expectations based on the background research, and

(3) refinements in the survey methodologies as necessitated by these predictions.

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

B. Phase 2 Intensive Survey. Upon approval of the Phase 1 report by the COR, the Contractor shall initiate the fieldwork. The survey shall be a combination of boat survey and intensive pedestrian survey with shovel testing. The boat survey will be utilized in those portions of the study area which are accessible by water. This will involve visual inspection of the stratigraphic profile of the exposed banklines as well as shovel testing at 20 meter intervals along the banks. Due to the high potential for buried archeological sites along Bayou Trepagnier, auger testing to a minimum depth of 2 meters will be substituted for shovel testing on this feature. The intensive pedestrian survey will utilize lane spacing of 20 meters and a shovel testing interval of 50 meters in an offset pattern. Shovel tests will be approximately 30x30 cm in the horizontal plane and approximately 25-50 cm deep, i.e., to sterile subsoil. The excavated soil will be screened through 1/4 inch wire mesh. This systematic procedure will be supplemented with judgmental shovel testing based upon the background research.

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

C. Phase 3: Geomorphological Analysis. This phase involves the analyses of radiocarbon dates, the Corps' geologic profile of the alignment, literature on the geology of the study area, survey observations, and available information on archeological sites in the project vicinity. The radiocarbon dates will be obtained from four organic samples taken from undisturbed borings of the project alignment and will be selected through consultation between the Contractor, the COR, and Corps geologists. The purpose of the analyses is to provide a geomorphic reconstruction for the study area (i.e., the east bank of St. Charles Parish), develop time-depth estimates for the study area, and, most significantly, relate this to the potential for archeological sites at or near the surface (i.e., surface to -30 feet NGVD).

D. Phase 4: Data Analyses and Report Preparation. All data will be analyzed using currently acceptable scientific methodology. The Contractor shall catalog all artifacts, samples, specimens, photographs, drawings, etc., utilizing the format currently employed by the Louisiana State Archeologist. The catalog system will include site and provenience designations. All cultural resources located by the survey will be evaluated against the National Register criteria contained in Title 36 CFR Part 60.4 and within the framework of the historic setting to assess the potential eligibility for inclusion in the National Register. The Contractor will classify each site as either eligible for inclusion in the National Register, potentially eligible, or not eligible. The Contractor shall fully support his recommendations regarding site significance.

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

6. Reports:

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

b. Draft and Final Reports (Phase 1-4). Eight copies of the draft report integrating all phases of this investigation will be submitted to the COR for review and comment within 16 weeks after work item award. Along with the draft reports, the Contractor shall submit three copies of the National Register Registration Forms for each site recommended as eligible for inclusion in the National Register. This documentation will contain all of the data required by NPS National Register Bulletin 16: Guidelines for Completing National Register of Historic Places Forms. The Contractor shall also provide recommendations for mitigation for any sites recommended as eligible. As an appendix to the draft report, the Contractor shall submit the state site forms. The written report shall follow the format set forth in MIL-STD-847A with the following exceptions:

(1) separate, soft, durable, wrap-around covers will be used instead of self covers; (2) page size shall be 8-1/2 x 11 inches with 1-inch margins; (3) the reference format of American Antiquity will be used. Spelling shall be in accordance with the U.S. Government Printing Office Style Manual dated January 1973. The COR will provide all review comments to the Contractor within 8 weeks after receipt of the draft reports (24 weeks after work item award). Upon receipt of the review comments on the draft report, the Contractor shall incorporate or resolve all comments and submit one preliminary copy of the final report to the COR within 4 weeks (28 weeks after work item award). Upon approval of the preliminary final report by the COR, the Contractor will submit 30 copies and one reproducible master copy of the final report to the COR within 30 weeks after work item award. Included as an appendix to the Final Report will be a complete and accurate listing of cultural material and associated documentation recovered and/or generated. In order to preclude vandalism, the final report shall not contain specific locations of archeological sites. Site specific information, including one set of project maps accurately delineating site locations, site forms, black and white photographs and maps, shall be included in an appendix separate from the main report.

7. Attachments.

1. Map of Study Area