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**ARCHAEOLOGICAL MONITORING OF THE
ST. PETER STREET FLOODGATES PROJECT
ORLEANS PARISH, LOUISIANA**

FINAL REPORT

January 1992

**Museum of Geoscience
Louisiana State University
Baton Rouge, Louisiana 70893**

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**ARCHAEOLOGICAL MONITORING OF THE ST. PETER
STREET FLOODGATES PROJECT
ORLEANS PARISH, LOUISIANA**

FINAL REPORT



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1992

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New Orleans District
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**Museum of Geoscience
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Baton Rouge, LA 70893**



DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS

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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 report documents archeological monitoring of the St. Peter Street Floodgates project.

No archeological features or artifacts were recovered during construction monitoring. Therefore, no additional cultural resource studies are planned for this project.

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Chief, Planning Division

ABSTRACT

This report presents the results of archaeological monitoring of the St. Peter Street Floodgates Project, Orleans Parish, Louisiana. Construction excavations with the New Orleans Vieux Carre Historic District were monitored to insure that no significant cultural resources were adversely impacted. Construction took place on an elevated railroad embankment. No archaeological resources were encountered. Depth of excavation never went below artificial fill associated with the railroad embankment or with modern steel and concrete construction.



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CHAPTER 1 INTRODUCTION

This report presents the results of archaeological monitoring of the St. Peter Street Floodgates Project, Orleans Parish, Louisiana. The construction site was located in the New Orleans Vieux Carre Historic District which became a National Historic Landmark in 1965 (Scope of Services).

Archaeological monitoring of the construction site was conducted in accordance with Section 110(f) of the National Historic Preservation Act which charges Federal agencies to afford special protection to National Historic Landmarks. Monitoring was conducted under the Memorandum of Agreement concerning the Canal to Toulouse Street floodwall which was signed by the New Orleans District, the Louisiana State Historic Preservation Office, and the Advisory Council on Historic Preservation in 1982 (Scope of Services).

Construction occurred in an area measuring approximately 75 feet in length. Width was variable, ranging from 9 to 21 feet. The general location of the project area is shown in Figure 1. Figure 2 is a more detailed map of the area. The purpose was to construct reinforced concrete floodgates and rollergates as part of the floodwalls protection system for New Orleans. The existing Canal to Toulouse Street floodwall extends from Canal Street at the Spanish Plaza downriver to Dumaine Street at the French Market. It abuts the Jackson Brewery Complex. The St. Peter Street Floodgates were placed between the Jackson Brewery and the existing Dumaine Street floodwall which was built in the 1950s (Scope of Services).

Goodwin et al. (1987) indicated that the construction area was located in a portion of the Vieux Carre that represents a low sensitivity zone for the subsurface occurrence of significant archaeological resources. A review of geomorphology (Chapter 2), archival sources (Chapter 5), and results of previous floodwall monitoring efforts (Chapter 6) supported the low sensitivity assessment.

Archaeological monitoring was conducted during all periods of construction that entailed mechanical excavation (Chapter 7). No artifacts were recovered and no historic features were recorded. One railroad line was recorded 15 cm below surface. Other observed features consisted of concrete and steel associated with

modern construction episodes. Failure to recover historic features and artifacts is the result of relatively shallow excavation atop an artificial embankment (Chapters 7 and 8).



Figure 1. Excerpt from the USGS 7.5' New Orleans East quadrangle showing the location of the project area.

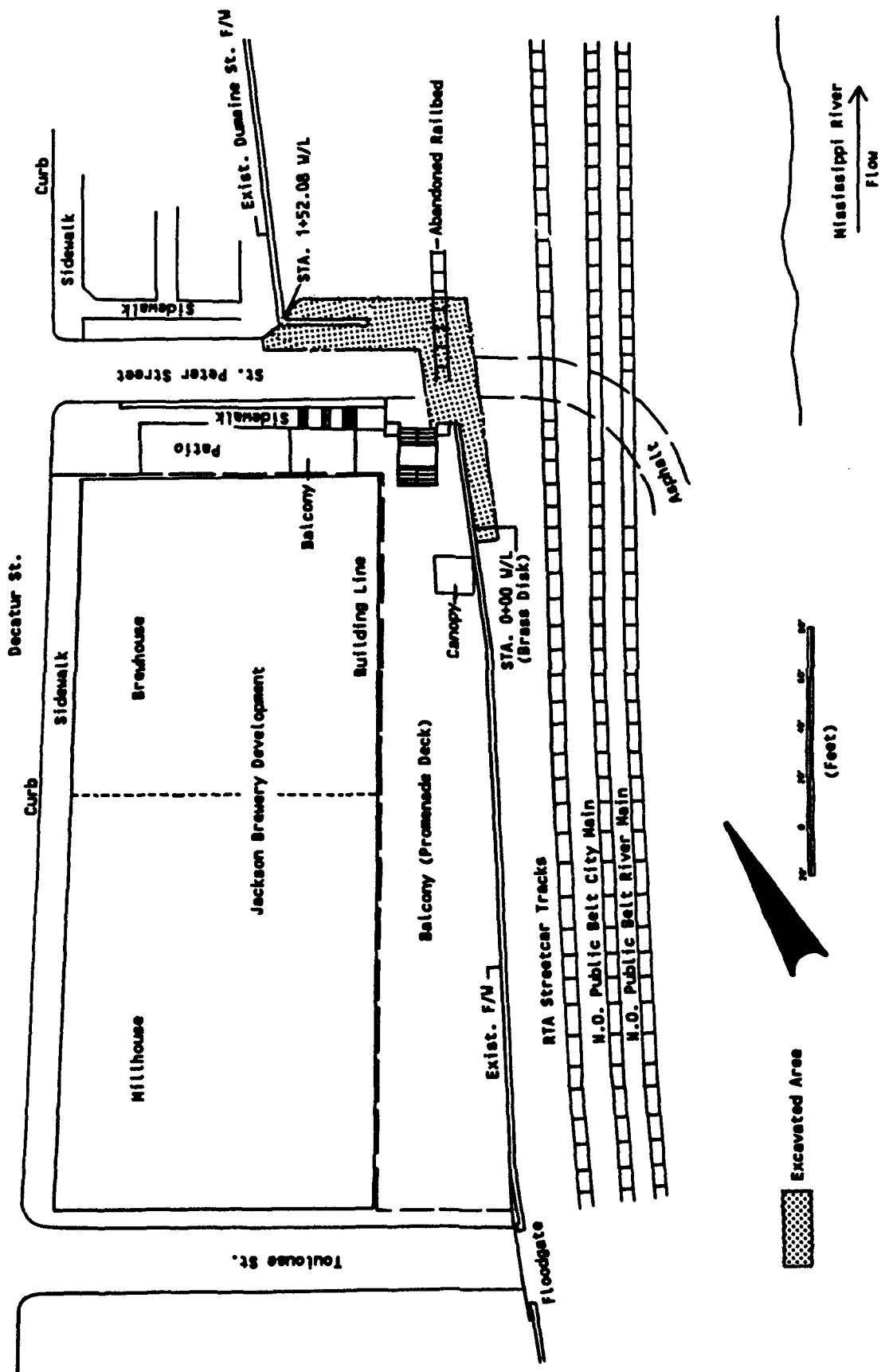


Figure 2. Detailed map of the project area.

CHAPTER 2 GEOMORPHOLOGY OF THE STUDY AREA

The project area is located adjacent to the Mississippi River near the east or left descending bank in a section of the Mississippi River delta plain that was deposited only a few thousand to a few hundred years ago. The Mississippi River delta plain consists of deposits of abandoned and active deltas and channels. These deltas partially overlap, and are the product of shifting of the Mississippi River during the Holocene (Mossa 1990:4, 10).

Deltaic development of the Holocene Mississippi River began when sea level rise began to slow. The delta plain consists of six major Holocene complexes, and there is some evidence to suggest that older complexes and lobes are buried beneath these. Four of the complexes (Maringouin, Teche, St. Bernard, and Lafourche) are deteriorating at present. Two (the Modern and Atchafalaya) are actively prograding (Mossa 1990:11).

The constructive phase of delta complexes begins with dispersion and deposition of sediments onto the inner continental shelf. The platform builds up due to deposition associated with flooding. Sediments deposited on the outside of bends form natural levees consisting of alluvial ridges sloping away from the river. These natural levees coalesce and increase in elevation through time, and thus attain an elevation sufficient to confine flow except during high water stages. Eventually, upstream diversion occurs when the active channel shifts to a shorter course and formation of a new delta begins. A destructive phase then begins for the abandoned delta complex. In the case of the Modern complex, channel abandonment and initiation of the destructive phase have been prevented through the efforts of the U.S. Army Corps of Engineers (Mossa 1990:11-14).

Study of a transect perpendicular to the river a short distance below the project area indicates that natural levee deposits are up to fifteen feet (4.5 m) thick adjacent to the river. Radiocarbon dates indicate that the deposits were laid down since 1200 years B.P., the approximate date when the modern river course was established. Sedimentation rates, then, average approximately 1 to 1.5 feet (30 to 45 cm) per century (Mossa 1990:17).

Artificial levee construction at New Orleans began in the early 1720s as a response to overbank flooding of the newly established city. By 1724, the artificial levee extended 3000 feet along the river. By 1727, the levee was described as being three feet high and eighteen feet wide at the top with a roadway on its crown (Franks 1990:69).

The rate of accumulation of natural levee deposits and construction of artificial levees have implications for recovery of archaeological features and artifacts. Pre-European materials, obviously, lie at depths below that of the base of historic period fill and levee construction episodes. The depth below the level of the old natural levee surface will vary inversely with their age. The very earliest remains associated with occupations directly adjacent to the course of the Modern channel could be as deep as approximately fifteen feet below the early historic period surface.

If artificial levees had not been constructed, remains associated with the very early development of New Orleans and located immediately adjacent to the river would be approximately 72 to 108 cm below surface. However, at batture locales between the levee and the river, the depth of early colonial period remains would be even greater because deposition rates were accelerated when the river was confined by artificial levees. Location of later historic period remains should be located at shallower depths, but will in all cases lie below the base of subsequent fill episodes.

CHAPTER 3 ENVIRONMENTAL SETTING

Biological Setting

The Mississippi River delta region within which New Orleans is situated is characterized by a set of ecological parameters which are integrated into a dynamic ecosystem with enormous biological productivity. The prime integrating feature of this ecosystem is water. Primary units of the system are forests, fresh water marshes, brackish marshes, saline marshes, and the offshore area (Bahr and Hebrard 1976:1-3; Bahr et al. 1983).

Climate

New Orleans is located within the subtropics, and its weather is strongly influenced by the nearby Gulf of Mexico. Rainfall exceeds 160 cm (64 inches) annually. Periods of greatest rainfall generally occur in August and September. October is, on average, the driest month. The mean annual temperature is about 21 degrees Centigrade (70 degrees Fahrenheit), with a mean low in January averaging 11 degrees Centigrade (52 degrees Fahrenheit) and a mean high in July of about 29 degrees Centigrade (84 degrees Fahrenheit). The growing season exceeds 260 days (White et al. 1983:103).

Hurricanes and storm surges occur intermittently, and these have profound effects on floral, faunal and human communities. Hurricanes and tropical storms are characterized by low barometric pressure. This causes a significant rise in sea level. In combination with winds up to 200 or more km/hr, storm surges as great as 7 m (23 ft) can drive ocean and lake water a considerable distance inland. The flooding problem is aggravated by accompanying tropical rains (Bahr et al. 1983:22-23).

Plant Communities

Prior to cultivation and urbanization of the New Orleans area, upland forests would have occupied most of the natural levee which is the location of the area of impact under discussion in this report. Woody species in a natural levee forest would have included oaks (*Quercus virginiana*, *Q. alba*, *Q. nigra*), shagbark hickory (*Carya ovata*), hackberry (*Celtis laevigata*), sweetgum (*Liquidambar styraciflua*), pecan (*Carya illinoensis*), magnolia (*Magnolia spp.*), and various

pinus (Bahr et al. 1983:82). A variety of birds and mammals occurred within these natural levee forests prior to urbanization.

Present-Day Urban Environment

The project area is situated on a road and railroad embankment parallel to the Mississippi River. Railroad sidings here were most recently associated with the Jackson Brewery. The structure that housed the Jackson Brewery is still present but is now in use as an indoor shopping area.

CHAPTER 4 ABORIGINAL OCCUPATIONS IN SOUTHEASTERN LOUISIANA

This discussion of prehistoric culture begins with the Tchula Period, for it is likely that this is when an adaptive strategy allowing full exploitation of the Mississippi River delta and the coastal plain was developed. That adaptive strategy, of which the harvesting of *Rangia cuneata* was an integral part, was maintained through subsequent occupations. Unfortunately, little is known about the nature of aboriginal occupations on the natural levee associated with the presently active river channel in and below New Orleans.

The Tchula Period (250 B.C. to A.D. 0)

Tchula period occupations in the Lower Mississippi Valley are associated with the Tchefuncte culture. The period has been called "the early ceramic period" because, with the exception of fiber-tempered pottery, it was the interval during which initial pottery complexes appeared in the Lower Mississippi Valley. Sites are few and scattered, and there are no universal markers. However, within subareas such as South Louisiana, regional markers, primarily Tchefuncte type ceramics, have been identified (Phillips 1970:7, 8, 15, 76). The basic Tchefuncte ware is temperless or grog-tempered, with accidental inclusions of small quantities of sand and vegetable fiber. Sand-tempered wares represent a minority constituent of Tchefuncte site assemblages (Shenkel 1984:47-48).

The Marksville Period (A.D. 0 to A.D. 300)

The Marksville period is associated with a Hopewellian culture and tradition manifested throughout the Lower Mississippi Valley (Phillips 1970:7, 17-18, 886). The Hopewell culture's two major centers of development were in Ohio and Illinois, and date to between 200 B.C. and A.D. 400. Diffusion of aspects of the culture may have resulted from the activity of traders who established a wide-ranging network, sometimes termed the "Hopewellian Interaction Sphere."

In addition to diagnostic pottery types of the Marksville period, conical burial mounds were characteristic of the culture. Interments are generally associated with grave goods. Some of these were manufactured from exotic raw materials (Neuman 1984:142-168).

The Baytown Period (A.D. 300 to A.D. 700)

The Baytown period has been defined as the interval between the end of Hopewellian/Marksville culture and the emergence of Coles Creek culture. In the southern half of the Lower Mississippi Valley, there are no area-wide horizon or period markers (Phillips 1970:901).

The Baytown period is often referred to as the "Troyville period" by Delta archaeologists. Because of the lack of diagnostic markers in southeastern Louisiana, it is often assimilated with the subsequent Coles Creek period, and the two are together referred to and discussed as "Troyville/Coles Creek cultures" (e.g. Neuman 1984).

The Coles Creek Period (A.D. 700 to A.D. 1000)

The Coles Creek period is the interval that begins with the emergence of Coles Creek culture in the southern part of the Lower Mississippi Valley and ends with the establishment of "full-blown" Mississippian culture in the northern part of the Valley (Phillips 1970:18). Although it appears to represent a population zenith in the eastern delta province, many sites tentatively classified as Coles Creek may actually be from the Baytown period (Wiseman et al. 1981:3/5).

Coles Creek culture was characterized by small ceremonial centers with mounds. These were surrounded by villages of varying size. The culture developed in the area between the mouth of the Red River and the southern part of the Yazoo Basin. Its influence filtered into the delta region of southeastern Louisiana (Brown 1984:95).

Mounds associated with the Coles Creek culture generally are larger and exhibit more construction stages than those associated with the earlier Marksville culture. A more significant difference is that Coles Creek mounds are pyramidal and flat-topped, and they were used as substructures for religious and/or civic buildings. In contrast, Marksville peoples generally built conical burial mounds (Neuman 1984:167).

The Mississippi Period (A.D. 1000 to A.D. 1700)

The beginning of the Mississippi period is marked by the emergence of Mississippian culture in the northern part of the Lower Mississippi Valley and

Plaquemine culture in the southern part (Phillips 1970:18-19). The Plaquemine culture is sometimes considered to be the classic development of temple mound construction in the lower portion of the Lower Mississippi Valley. However, archaeological excavations suggest that it actually represents a late prehistoric development of the preceding Coles Creek culture. Multi-mound construction and artifact assemblages are evidence that link the two. Absence of European trade goods indicates that the Plaquemine culture reached its zenith prior to contact (Neuman 1984:258-259).

Sites dated to the late Mississippi period and to the period of contact represent a Delta-Natchezan phase. Proportions of ceramic types change, some new styles and types appear, and European trade goods are often found in association with the aboriginal materials (Quimby 1957:118-119, 134-144).

Aboriginal Occupation during the Colonial Period

Identities and locations of Indian tribes in Louisiana cannot be determined for any period prior to about 1700. At about that time, literate French settlers and visitors began to record their observations regarding aboriginal occupants of the area. Even so, it remains difficult to sort pre- and post-contact culture traits. This is especially true for the lesser tribes living along the Mississippi River and other areas within southeastern Louisiana (Kniffen et al. 1987:45).

The protohistoric and early historic periods were traumatic for aboriginal society in southeastern Louisiana. The effects of disease and of the ever-increasing European population are reflected in the declining aboriginal population and in the migrations by remnants of various tribes. Internecine warfare typified relations between the various groups (Giardino 1984).

Expectations for Prehistoric Site Occurrence on the Natural Levee in the Vicinity of New Orleans

A review of the nature and period of natural levee development in the vicinity of New Orleans (Chapter 2) indicates that prehistoric sites directly associated with the Modern channel should represent the Coles Creek or the Mississippi period. Early sites (ca. 1200 B.P.) adjacent to the river may be buried beneath as much as fifteen feet of naturally deposited sediments. Deposits

thin at greater distances from the river, so that early sites may be less deeply buried in those locations.

**CHAPTER 5
AN OVERVIEW OF THE GROWTH AND DEVELOPMENT
OF NEW ORLEANS**

The French Colonial Period

Although LaSalle had claimed for France all of mid-continental America drained by the Mississippi in 1682, France did little initially to develop the new territory. In 1698, Pierre LeMoyne d'Iberville, accompanied by his younger brother Jean-Baptiste LeMoyne de Bienville, was sent to establish French sovereignty over the Mississippi Valley and the Gulf Coast in the vicinity of the river's mouth. Bienville established Fort Maurepas at Biloxi Bay in 1699, and the following year he founded Fort de la Boulaye on the east bank of the Mississippi River somewhere within present-day Plaquemines Parish. Both sites were abandoned within a few years, and a settlement at Mobile became the center of French activity (Wilson 1987:1).

In 1717, the Company of the West, which was in charge of the colony's financial affairs, directed that a city named New Orleans be established on the Mississippi River some thirty leagues from the mouth (Wilson 1987:3-4). In 1718, Bienville, now commandant general of the colony, selected the site of the present-day Vieux Carre as the locale for establishing this new city. Colonists were recruited in France, Germany, and other European countries, and they were granted large concessions on the Mississippi River and some of its tributaries (Wilson 1987:4).

Construction within the city began in 1718. Father Charlevoix wrote in January of 1722 that New Orleans consisted of only about one hundred huts placed with little order, and one-half of a warehouse. (Wilson 1968:9). A plan dated April of 1722 placed the public square (Place d'Armes) in the center of the city. The city extended for four square blocks above and below the square, and six blocks back from the river. The blocks flanking the public square were reserved for use by the Crown and the church. Squares as far back as Bourbon Street were divided into lots which were to be granted to those individuals best able to construct houses. Subsequent plans from the 1720s show that the city extended along the river to provide a total of eleven squares front (Wilson 1968:10-12).

In September of 1722, a hurricane destroyed most of the public and private buildings within the city proper.

Immediately afterwards, Bienville ordered the inhabitants to enclose their houses or lands within wooden palisades or forfeit their property to the Company. During that same year, several individuals were forced to remove structures erected within the alignment of projected streets. Orderly development was difficult to maintain during the early years of growth (Wilson 1968:13-15).

One significant achievement of the 1720s was construction of a levee to prevent inundation of the city by the river's floodwaters. It was erected between January of 1723 and May of 1724. In 1724, the levee was almost 3000 feet in length (Wilson 1968:15). By 1727, it was 5400 feet long, three feet high, and eighteen feet wide at the top with a roadway on its crown. By 1735, the levee extended about twelve miles below and thirty miles above the city (Elliot 1932).

When the Crown took possession of Louisiana from the Company in 1731, total population of the territory was about 5000, of whom approximately 3000 were slaves. The population was concentrated in New Orleans and its environs, and included 1000 soldiers and male civilians. Population remained stable in the city until 1745. The 1730s and 1740s were arduous for the colonists, as hurricanes and flooding alternated with years of drought. Crop losses were frequent and severe (Clark 1970:46-49).

Between 1745 and 1763, the population in New Orleans increased to almost 5000 whites and Blacks. Although new houses were mostly of wood, enough brick structures were erected to support production by three brick kilns just outside the city. Port traffic also increased as ocean-going vessels, canoes, dugouts, pirogues, batteaux, and flats anchored in the vicinity of the market, the King's Storehouses, and the Intendant's quarters. Many of the smaller vessels were bringing farmers and their produce to market. It was here that merchants, planters, African-American longshoremen, and the city's peddlers congregated. During this period, New Orleans was a frontier market town, a seaport, a provincial capital, and a military center (Clark 1970:49-51).

In overview, France succeeded in establishing a settlement on the Lower Mississippi that would in the next century become, for a time, one of the world's major ports. Further, she had fostered the growth of a plantation system capable of partially supplying the

local market with food and of producing some exportable commodities. However, French economic policy in the colony was largely a failure, for it enhanced the position of neither the mother country nor the colony in the developing world economy (Clark 1970:148).

The Spanish Colonial Period

Hostilities between France and Britain subsequently termed the Seven Years' War in Europe and the French and Indian War in North America, ended in 1763. New Orleans and all of French territory west of the Mississippi were ceded to Spain. Spain's initial attempts to take control of the colony were marked by disorder. In 1769, Governor O'Reilly arrived with sufficient troops to take and maintain Louisiana for the King of Spain (Clark 1970:158-159; Wilson 1968:39).

The final three decades of French rule of Louisiana had seen little change in population size or productive capacity. It was during the Spanish period that new settlements grew throughout the entire Mississippi Valley which was New Orleans' natural hinterland. The city's promise as a major port, foreseen by early Company officials such as Bienville, began to be realized. Although prohibited by treaty from settling the old Illinois Territory west of the Appalachians, the British rapidly expanded the fur trade there. That trade now flowed through New Orleans, helping to revitalize commerce. Also, British settlers in the vicinity of Natchez, Baton Rouge, and other locales expanded rapidly the inhabited area of New Orleans' agricultural hinterland (Clark 1970:181-183).

Several events in the last two decades of the eighteenth century consolidated New Orleans' increasingly important role in world markets, a role seemingly guaranteed by her geographic location near the mouth of the Mississippi. In the 1790s, steam engines were harnessed to power looms, and Eli Whitney perfected the cotton gin. The cost of cotton clothing was thereby reduced which in turn increased the demand for raw cotton. Supply of and demand for that single commodity would pace the Industrial Revolution in the United States and Great Britain for decades to come. Nearly all of the raw cotton grown in America would pass through the port of New Orleans (Clark 1970:203).

Another critical factor in New Orleans' rise to pre-eminence followed the American Revolution, as large numbers of settlers arrived in the Upper and Lower

Mississippi Valley. Just as those in the Lower Valley would produce exportable cotton, those in the Upper began raising grain and livestock which for the coming decades would be shipped down the Mississippi to New Orleans, a center both for consumption and export (Clark 1970:202). New Orleans and the entire Louisiana Territory, despite their status as a Spanish colony, were drawn increasingly into the economic sphere of the newly formed United States and of the world's pre-eminent industrial power, Great Britain (Clark 1970:207-209).

Although economic growth of the Spanish colonial period alleviated recurrent shortages of food and other supplies suffered by New Orleans' residents under the French, life remained difficult. At least one visitor remarked on the unequal distribution of wealth as marked by the condition of many residences. The affluent ruling elite distinguished themselves by expenditures on visible symbols of wealth, including architecture, modes of dress and transportation, and home furnishings. Despite an extravagant and ostentatious lifestyle by the rich, the New Orleans environment remained that of a frontier town. Streets were unpaved and mostly unlighted, and were seasonally filled with either mud or potholes. Floods periodically topped the levee, leaving stagnant water and rotting fish in the city, along with garbage disposed of carelessly by the urban residents. Visitors commented on the stench emanating from the city. The environment was favorable to the proliferation of vectors of contagion, resulting in episodic outbreaks of epidemics of killing diseases (Clark 1970:252-253).

A devastating hurricane in 1779 destroyed most structures in New Orleans. Only a few years later in 1788, a fire destroyed 850 buildings, including most of the mercantile business establishments and residences of the wealthy elite (Wilson 1968:44-45). After the 1788 fire, the city was quickly rebuilt. However, a second conflagration in 1794 destroyed all of the structures in nine squares and in portions of four others. Again, rebuilding was rapid (Wilson 1968:48-49).

A Plan of the City of New Orleans by Carlos Trudeau dated 1798 (Wilson 1968:Figure 47) demonstrates growth of the city during the period of Spanish rule. The original settlement still extended back six squares from the river, and eleven squares still fronted the Mississippi. Also, Trudeau's Plan shows that an upriver area had been developed by that date. This was the

Faubourg St. Mary, and it was here that newly arriving British and American immigrants established themselves. Subdivision of larger properties for residential development had not yet begun in a downriver direction. Trudeau's Plan also shows the fortifications which were begun in 1792 and which surrounded the old city (Wilson 1968:45-50).

New Orleans in the Nineteenth Century

Louisiana, including New Orleans, was retroceded to France in 1803, and in the same year became a part of the United States. In 1805, the City of New Orleans incorporated with its downriver boundary at Canal des Pecheurs (Fisherman's Canal) just below the U.S. Barracks (Wilson 1968:57-59).

The U.S. Census of 1810 recorded a population of 24,522 in New Orleans, making it the largest city south of Baltimore and the fifth most populous city in the United States. At the time of the Louisiana Purchase, elements of the population in descending order of numerical importance were French Creole, African-American, and Anglo-American. The French and free African-American population expanded most rapidly prior to the 1810 census, largely because of immigration from the French West Indies via Cuba (Clark 1970:275).

The downriver traffic to New Orleans consisted of flats, barges, and keels. The numbers of those vessels arriving each season increased from hundreds to thousands, and the value of goods shipped downriver increased from about \$1.5 million annually during the years 1801 to 1803 to twice that amount by 1807. Flour was the most important item in this trade. Corn and its derivatives, pork and pork products, lard, tallow, and whiskey were also shipped (Clark 1970:301-302).

The most important illicit trade during the first decade of American rule was that in imported slaves. The federal government prohibited importation of foreign slaves to Louisiana in 1804, and that prohibition became a national one in 1808. However, local entrepreneurs continued to advertise the sale of Blacks from Africa after the prohibition became effective. Concurrently, New Orleans became an important market for the legal sale of slaves imported from other slave states. The demand for labor in this and subsequent decades was greater than the supply, and New Orleans would remain the South's most important slave market until the Civil War (Clark 1970:317-318).

The main effect of the War of 1812 on New Orleans prior to 1814 was the vastly increased danger for international trade. Late in the war, a British invading force led by General Henry Packenham arrived in Louisiana. Skirmishes between his forces and the American troops led by General Jackson took place on both sides of the river and within three miles of New Orleans in December of 1814 and January of 1815. Damage claims by plantation owners as close as two miles to the Vieux Carre were filed after the war. The main engagement at the Chalmette Battlefield on January 8, 1815 resulted in a decisive victory for the American forces. British troops were completely routed. Although the battle was unnecessary because peace terms had already been negotiated, the victory greatly enhanced American prestige and power.

New Orleans was deemed "America's Western Capitol" during the years from 1810 to the Civil War. She was the largest city west of the Appalachians in 1810, and only New York, Philadelphia, Boston, and Baltimore were more populous in that census year. For the next thirty years, the population growth rate exceeded that of all other American cities. By 1840, the population of the city was third in the nation with only several hundred fewer residents than second-ranked Baltimore. Newly arriving Americans continued to settle above the old city in the Faubourg St. Mary and in newer neighborhoods further upriver. The center of the city's commercial life was also now concentrated upriver from the original settlement. Descendants of the eighteenth century French Creoles continued to reside in the Vieux Carre, in the Faubourg Marigny, and in newly subdivided areas downriver. Many Irish and German immigrants also settled in the downriver portion of the city that later would become the Ninth Ward (Lewis 1976:32,39-40).

Steamboats were introduced to the Mississippi River in 1811, facilitating the growth of trade in an upriver direction. Regular service in the 1830s and 1840s dramatically increased the volume of trade between New Orleans and rapidly developing inland cities located on major waterways (Ward 1971:34).

Despite the importance of cotton for New Orleans' commerce, areas further upriver, which were continuing to provide grain, corn, pork, and pork products, were the agriculturally richest areas of the city's hinterland. Locally produced sugar, although important, was of lesser economic value than either cotton or

products from the upper Mississippi Valley (Lewis 1976:15).

Many Irish immigrants in the pre-Civil War era established residences below the old city. The number of Irish immigrants arriving in the 1830s and 1840s was great enough to change the racial makeup of the city from predominantly African-American to predominantly white (Goldfield 1982:55). Germans were the other immigrant group whose numbers helped change the racial and ethnic composition of the city during the decades prior to the Civil War. They began arriving after 1815, and by 1850 over 54,000 German immigrants had been counted at the Port of New Orleans. Although New Orleans was only a port of entry for many of these Germans, by the mid 1830s, 7000 German-born immigrants were residing in the city (Nau 1958:4).

Throughout the decades prior to the Civil War, New Orleans' commercial export economy continued to expand. From 1840 to 1860, 83 percent of the cotton passing through New Orleans was shipped to foreign ports. During the 1850s the value of cotton receipts increased by 160 percent. The value of southern and western produce passing through the port increased from \$22 million in 1830 to \$185 million by 1860. The volume of trade has led to characterization of the 1850s as "the golden age of river commerce" (Goldfield 1982:56-57,87).

However, such growth figures, which were cherished by the city's boomers, masked the fact that New Orleans was entering a period of relative decline from which she would never recover. Newly built railroads were now carrying crops produced north of the cotton belt directly to Eastern markets, thereby leaving the Mississippi River as a regional highway. During the 1850s, the proportion of flour transported by rail increased from three percent to 91 percent. In the years from 1846 to 1849, two times as much flour and eight times as much bacon were exported from New Orleans than was true for the years 1858 to 1861. Southerners' cherished hope of an economic and political alliance with the West was fading as that region became more closely linked to the Northeast and especially to New York City. It was the increase in cotton receipts alone that accounted for New Orleans' trade increase in the decade before the Civil War. Nevertheless, trade figures for 1856 to 1860 were impressive, as New Orleans handled 28.4 percent of the United States' exports compared to New York City's 31 percent (Goldfield 1982:60,126).

Issues of slavery and the South's colonial economic status, combined with intransigence and paranoia among some politicians of the region, resulted in the outbreak of war in 1861. In New Orleans, merchants attempted to conduct business as usual. However, by the end of 1861 a Union naval blockade brought commerce to a near-complete halt. Surrender of New Orleans came relatively early in the war and was probably a relief for local businessmen. Trade resumed and the presence of federal soldiers injected United States currency into the local economy (Goldfield 1982:81).

The most far-reaching effect of the Civil War on New Orleans was the change in Black-white relations. With the arrival of Federal troops in the area, large numbers of slaves began leaving plantations. They congregated at Union camps and at contraband camps and refugee colonies designated by Federal officers. By the summer of 1862, more than 10,000 refugee slaves were present in New Orleans. Many joined the Union Army to fight for freedom, while others were conscripted as laborers for the Union effort. But many were homeless and jobless, dependent on relief efforts for subsistence. Whites in the city were frightened and shocked. One hundred and fifty years of a legitimized slave/free dichotomy had left them unprepared for this upheaval in social relations (Blassingame 1973:25-47).

Because of her early surrender, New Orleans' port, commercial facilities, and residential neighborhoods were undamaged by the war. Plantations in southern Louisiana were generally less devastated than those elsewhere in the South. While large portions of Virginia and the upland South lay wasted and in ruins, Louisiana's planters suffered primarily from the loss of their slave-holdings which had represented a high proportion of their pre-war wealth. This financial setback resulted in the sale and resale of large numbers of sugar plantations, but production of sugar augmented by rice quickly resumed with hired laborers. By the 1870s, the central factory system was replacing antebellum plantation-based refining methods (Sitterson 1953:258).

Cotton production in other parts of the South also resumed, now based on a tenant system of labor. By 1883, New Orleans' cotton receipts reached pre-War levels. One significant change occurred, however. Increased construction of east-west railroads resulted in increased use of these systems for transport. Only

those planters for whom the Mississippi was more convenient than the new railroads were routing their cotton through New Orleans. The city's relative decline, in terms of both commerce and population, was accelerating. In 1860, the city's population was the sixth largest in the country, while in 1870 it was eighth and by 1900 had dropped to fifteenth (Goldfield 1982:86).

New Orleans in the Late-Nineteenth and Early-Twentieth Centuries

In 1896, the Board of Commissioners for the Port of New Orleans was established by law. That group, commonly referred to as the "Dock Board" undertook projects from 1900 to 1910 to rebuild and expand the city's port facilities. In 1879, completion of the South Pass jetties had removed sand bar obstacles to large ships at the mouth of the river. Concurrently, railroad construction, belated though it was, made New Orleans one of the southern hubs for overland transit of bulk goods. The Southern Pacific line linking New Orleans and California, and the Illinois-Central line linking New Orleans and Chicago, were two of the most important. Cotton remained important to the city's commercial life, while trade with Latin countries was increasing. Importation of coffee and bananas was the mainstay of the Central and South American trade (Lewis 1976:48-57).

The Great Depression of the 1930s slowed the pace of international trade, and thereby severely affected New Orleans. World War II stimulated some growth in the city's economy, particularly as a result of rapid expansion of the ship-building industry in the area. After the war, ongoing changes in the shipping industry such as the use of trucks, rail mergers, use of container ships, and completion of the St. Lawrence Seaway cut into the port's volume of business. However, by 1967, New Orleans was still largely dependent on the port. Only 14 percent of the work force was involved in manufacturing compared with a national average of 23 percent for cities with populations above 200,000 (Lewis 1976:67-68).

Historic Land Use at the St. Peter Floodgate Locale

Four important sources were examined to determine the nature of land use in the historic and recent periods at the area of impact. These sources were Reeves and Reeves (1983), Wilson (1968), Goodwin et al.

(1987), and the Vieux Carre Survey books housed at the Historic New Orleans Collection. The latter provide a block-by-block reference source of maps, photos, press clippings, and miscellaneous documents. Examination of these sources as well as examination of historic maps indicated that the construction site has been used as a transportation and river access corridor since the founding of New Orleans. There is no record that any structures ever occupied the construction locale.

CHAPTER 6
DISCUSSION OF RESULTS OF PREVIOUS MONITORING
EFFORTS ASSOCIATED WITH FLOODWALL CONSTRUCTION

Franks (1991:83-104) provides a detailed review of most previous archaeological investigations in urban New Orleans. These are summarized in Table 1. This chapter supplements that review by examining results of archaeological monitoring associated with floodwall construction.

The construction of the St. Peter Street floodgates completes part of the riverfront floodwall in the city. The results of earlier monitoring of floodwall alignments suggests that excavation within the railroad corridor parallel to the river may be archaeologically productive, although shallow trenching within the elevated embankment is unlikely to yield in situ archaeological material. The importance of documentary research prior to fieldwork is highlighted by the varied history of land use within the narrow belt of modern riverfront occupied by the floodwall. Some construction areas were built up as accreting banks during the nineteenth century. Other areas were utilized for a variety of purposes during the colonial period.

The location of the St. Peter Street floodgates has been used as a transportation and river access corridor from the founding of the city, and there is no record of any structure occupying the present project site. The archaeological expectations of the investigator in the field must be informed by area-specific knowledge of this nature, because it enables recognition of significant cultural features and artifacts uncovered during the course of excavation.

A key document for identification of land use patterns along the riverfront is Peeves and Reeves (1983). That study summarizes the documentary information on riverbank stability, batture ownership, the construction of revetments and shipping facilities, and the pattern of property utilization prior to the twentieth century. An earlier study of the French Quarter with valuable map coverage is the Vieux Carre demonstration study (Wilson 1968). The Vieux Carre Survey Books (1961-1966) housed at the Historic New Orleans Collection provide a block-by-block reference source of maps, photos, press clippings and miscellaneous documents.

Table 1 (Continued). Summary of Archaeological Investigations within Urban New Orleans.

Locale	Function	References	Artifact Dates
St. Peter St. Cem.	Cemetery	16	18th cent.

Key to References

1	Castille (1978)
2	Gibbens (1978)
3	Hudson (n.d. a)
4	Hudson (n.d. b)
5	Shenkel et al. (1977)
6	Lamb and Beavers (1983)
7	Davis and Giardino (1983)
8	Yakubik (1990)
9	Shenkel et al. (n.d.)
10	Goodwin et al. (1984)
11	Goodwin and Yakubik (1982)
12	Castille et al. (1979)
13	Castille et al. (1982)
14	Castille et al. (1986)
15	Yakubik and Franks (1990)
16	Owsley et al. (n.d.)

Table 1. Summary of Archaeological Investigations within Urban New Orleans.

<u>Locale</u>	<u>Function</u>	<u>References</u>	<u>Artifact Dates</u>
U.S. Mint (16OR52)	Public	1, 2	18th-19th cent.
Gallier House (16OR46)	Residence	3	19th-20th cent.
Gallier Warehouse (16OR46)	Commercial	4	19th cent.
Hermann-Grima House (16OR45)	Residence	5, 6, 7, 8	18th-19th cent.
Jazz Complex & Beauregard Square	Public & Residences	9	18th-19th cent.
Algiers Point	Residences & Commercial	10	19th cent.
N.O. General Hosp. (16OR69)	Orphanage & Residences	11	19th cent.
Esplanade Ave/ N. Rampart (16OR63)	Residences	12, 13	19th cent.
Greater N.O. Bridge (Multiple Nos.)	Residences & Commercial	14	19th-20th cent.
Carondelet St. (16OR127)	Residences	15	19th cent.

The first report to predict the block-by-block occurrence of archaeological material along the floodwall alignment, based on the documentary evidence, was issued prior to the onset of the last major phase of floodwall construction in the 1980s (Goodwin, Stayner, Yakubik, Jones, and Cooper 1985). That report classified sites into use categories and made recommendations for the selective field monitoring of designated city blocks traversed by the floodwall. The recommendations were based on the probability of recovering significant in situ features or material. The report also identified the locations of cultural resources potentially eligible for nomination to the National Register of Historic Places, should such remains be encountered during excavation. The report presented a strategy of selective field monitoring based on documentary assessment of historic resources, thus offering a cost-effective methodology for monitoring excavations and evaluating the recovered materials. A further elaboration of the "material class" predictive model, listing functional classes of sites with their associated features and artifact assemblages, was provided on a neighborhood scale in a subsequent report (Goodwin et al. 1987).

A series of archaeological monitoring projects based on the predictive model presented in 1985 were conducted through the late 1980s. The first of these projects (Goodwin, Peterkin, and Jones 1986) included areas within the Vieux Carre's riverfront (from Canal to Toulouse Streets, and downriver from Barracks Street). Large amounts of railroad-related debris were encountered in the Barracks to Montegut floodwall alignment. A lengthy segment of timber framework, probably a weight-bearing railroad structure, was recorded in this area. The framework (16OR104) was recognized within the five foot (150 cm) deep inspection trench but was clearly exposed only during deeper excavation. The area in the Canal to Toulouse phase II floodwall alignment also exhibited substantial amounts of railroad-associated artifacts. Several brick structural components and features categorized as pockets of nineteenth century refuse were recorded in this area as well. The use of the area for warehouses in the late nineteenth century provided an association for the cultural material (Goodwin, Peterkin, and Jones 1986:49-57).

The floodwall alignment near Canal Street traversed a zone of accreting batture dated to the 1800s, and the pockets of artifactual debris may in part reflect the

dumping of refuse near the water's edge prior to the consolidation of the area in the late nineteenth century. The location of the Canal to Toulouse floodwall alignment off of the primary railroad corridor, in an area of abandoned railroad sidings, suggests that the locale was less deeply covered by subsequent fill episodes. Several brick floor areas exposed at a depth of 150 cm (16OR102) probably represent a late-nineteenth century molasses warehouse.

All artifacts recovered during monitoring on these projects were from disturbed contexts. The timber framework (16OR104), the warehouse floor (16OR102), and several other features were exposed only at the bottom of the five foot deep pre-construction inspection trench excavated by the contractors. At shallower depths, the majority of recovered material was associated with the railroad operating in this corridor over the last century. A subsequent monitoring project downriver from the French Quarter, along the floodwall alignment from Montegut to Independence Streets, likewise recovered mostly material from the rail lines built in the late nineteenth century (Poplin and Goodwin 1988).

These reports show that the construction and fill episodes associated with the riverfront railroad have severely disturbed post-1880 cultural resources throughout this corridor. The high railroad embankment running atop the natural levee, especially where it exhibits the greatest elevation above the adjacent land surface (in the French Quarter and extending downriver to the Inner Harbor Navigation Canal), is itself unlikely to yield pre-railroad material. Only deep trenching in excess of 150 cm within the embankment might expose earlier cultural materials. The survival of early cultural material in situ below the railroad embankment is possible, but none of the monitoring projects encountered the pre-railroad ground surface. Even the structural remains identified in the Canal to Toulouse phase II alignment were in an area of industrial rail sidings on the landward side of the through tracks, and those buildings were not constructed earlier than the rail line that serviced them. Twentieth century demolition and land-filling have destroyed all but the foundations of those historic structures.

The weakness of the local predictive model applied to floodwall monitoring was the failure to consider the depth of excavation in relation to the absolute elevation of the manmade terrain features above the

adjoining ground surface. In many locales the bottom of the inspection trenches or other excavations was so far above the historic ground surface, judging by adjacent street elevations, that the height of the embankment precluded recovery of underlying features. Deeper cultural resources should not have been impacted by the construction of the floodwall, aside from the driving of steel sheet pilings. The opportunistic employment of pre-construction inspection trenches for archaeological monitoring did not provide an opportunity for evaluating underlying remains. Late-nineteenth and early-twentieth century materials had already been disturbed by subsequent construction along the rail corridor. Should earlier, more deeply buried cultural remains survive within the corridor, they are now effectively preserved in place.

CHAPTER 7 RESULTS OF MONITORING

Introduction

A review of historic maps and architectural surveys of the French Quarter was conducted prior to the start of construction activity at the St. Peter Street floodgates. This review provided no evidence of any documented structures at the construction site (Chapters 5 and 6). Engineering plans indicated the presence of an abandoned railroad track bed and existing steel sheet pilings extending through the construction zone, but these subsurface features are not of historic age. Previous archaeological monitoring of pre-construction inspection trenches along the railroad beds by the Mississippi River suggested that shallow excavations on this elevated embankment would not yield in situ historic or prehistoric material. Nonetheless, the possibility of encountering archaeological materials within the riverfront district of the Vieux Carre was deemed of sufficient importance to justify monitoring of mechanical excavation at this locale (Chapter 1).

An archaeological monitor remained in the field at all times when actual excavation was underway at the floodgates work site. The majority of the construction crew's time was spent on non-excavation tasks, including the demolition and removal of asphalt roadbed and subsurface obstacles, refilling and tamping excavated trenches, and the preparation of foundations for the gate structures. The field monitor therefore was present only on the dates when the crew was proceeding with excavation. The monitor was informed of the crew's work schedule through on-site and telephone conversations with the crew superintendent and the Corps of Engineers field representative.

The archaeologist at the job site was entrusted with the tasks of recording and photographing subsurface features of archaeological significance prior to their removal by the construction crew. The archaeologist informed the Contracting Officer's Representative of the progress of the fieldwork and was required to contact him were any potentially significant historic or prehistoric materials encountered during the course of excavation. Any artifacts recovered during the fieldwork were to be preserved for description and analysis.

No archaeological features or artifacts were encountered during the excavations (below). The construction trenches remained wholly within Rangia shell fill material and sterile clayey silt forming the road and railroad embankment parallel to the river.

Methodology

The field monitor remained with the construction crew at all times when they were conducting mechanical excavation. The work crew employed a backhoe to break up asphalt paving and to excavate the trenches for gate construction. Safety gear (hardhat and steel-toed work boots) was worn at all times on the job site. A bobcat-mounted power hammer was employed to break up subsurface concrete obstructions. Earplugs were worn during operation of that machine. The archaeological monitor maintained a field log during the course of the excavations, noting the progress of the trenching and recording observations on the work. The archaeologist also photographed subsurface obstructions and the sides of the excavation trenches with a 35 mm single lens reflex camera. A photo log was maintained.

Observations

Construction activity at the locale of the St. Peter Street floodgates commenced in December 1989 with the arrival of the Professional Construction Services, Inc. personnel at the contractor staging area, on the downriver side of St. Peter Street. Work on the floodgates proceeded through a series of predetermined stages, based on the need to maintain public access to the Jackson Brewery and surrounding facilities. The initial activity of these contractors was the establishment of an equipment and materials yard, with field offices in trailers, surrounded by a chain-link fence. Construction in the staging area, including the alteration of entrances to the adjacent parking lot, constituted Phase I of the contractor's fieldwork. This phase did not impact the St. Peter Street right-of-way.

The second phase of construction activity began with the removal of asphalt from the St. Peter Street excavation area, commencing on Monday, January 29, 1990. This Phase II area extended from the entrance of the Moonwalk parking lot to the center of the St. Peter Street roadway.

The asphalt was broken up with a backhoe and trucked out. The asphalt road surface was approximately

12" (30 cm) thick. The underlying excavated material was sterile fill (dredged *Rangia* shell) within the area of the railroad embankment. The embankment here lies parallel to Decatur Street. The maximum depth of excavation in this area was approximately 4' (122 cm). *Rangia* shell lay immediately below the asphalt throughout the area. Dark gray (5Y 4/1) clayey silt was observed below the *Rangia* shell at the bottom of the excavations, adjacent to a buried modern concrete wall parallel to Decatur Street and to steel sheet pilings parallel to St. Peter Street. The clayey silt contained no cultural material other than modern cable conduits running through it, and its direct association with the subsurface construction features suggests that it is sterile fill material.

The construction crew also cut away a portion of the abandoned and buried railroad track depicted in the engineering plans. This railroad track is parallel to the river side of the Jackson Brewery, and was a line or siding associated with the operation of the brewery. As required by the engineering plans, this "existing abandoned railroad track bed" was "removed to the minimum extent required to construct floodgates." The steel rails were approximately 15 cm below the present road surface of St. Peter Street, and the rails rested on creosoted wood ties 6" x 9" (15 cm x 23 cm) in cross section.

Subsequent to the excavation of fill material and removal of buried structures to the project depth, the bottoms of the excavated trenches were refilled with *Rangia* shell and mechanically tamped. All excavation in this area ceased on February 5, 1990. The following weeks were employed in the pouring of foundations for the roller gate tracks and columns.

Excavation by the downriver corner of the Jackson Brewery's riverside promenade began on Wednesday, March 28, 1990. This Phase III area extended from the end of the previously completed roller gate foundation, in the center of the St. Peter Street roadway, to the downriver end of the existing floodwall incorporated within the Jackson Brewery's riverside promenade. All excavation was completed by April 9, 1990. Construction trenches exposed *Rangia* shell around the buried seawall and the steel sheet pilings parallel to Decatur Street. No cultural material was observed within this dredged fill material. Part of the buried modern railroad track parallel to the brewery promenade was exposed during excavation. Obstructing portions of the ties and rails

within the excavation trench were cut away and removed, as were buried structures to the project depth. Excavation in this area extended to a depth of 80 cm (2' 8"). The completion of these foundation trenches ended the monitoring of mechanical excavation.

Subsequent activity by PCS, Inc. at the work site involved pouring of the foundation of the roller gate track for Roller Gate Number 1 (parallel to Decatur Street) and the installation of the floodgates. Construction of ornamental landscaped areas in the vicinity of the floodgate structures (the roller gate storage monoliths and the floodgate columns) did not require monitoring by archaeological personnel.

Summary of Results

No historic or prehistoric archaeological features were observed during visual reconnaissance of the work area, nor did any isolated artifacts appear in the backdirt removed from the excavation. Modern steel and concrete structures and sterile fill material were observed within the excavations. The fill was predominantly Rangia shell throughout the construction zone, although clayey silt was observed adjacent to the buried sheet pilings and a subsurface concrete seawall. These areas of admixture were adjacent to modern construction features and directly associated with them, probably through the filling and tamping of builders trenches.

CHAPTER 8 DISCUSSION AND RECOMMENDATIONS

No historic or prehistoric archaeological features or artifacts were recovered at any time during excavation monitoring. The negative results of field monitoring undoubtedly are due to the shallow depth of excavation within the artificially raised road and railroad embankment. Previous monitoring of floodwall alignments in New Orleans commonly involved the visual reconnaissance of pre-construction inspection trenches approximately five feet (150 cm) in depth, greater than any excavation depth for the St. Peter Street floodgates.

The marked elevation of the embankment above the level of Decatur Street at the project location indicates that substantial overburden has accumulated over the historic levee since the development of the riverfront landing as a railroad corridor. No further archaeological work within the elevated railroad embankments would be justified unless excavation were to penetrate the roadbed fill and extend into the historic levee deposits.

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