

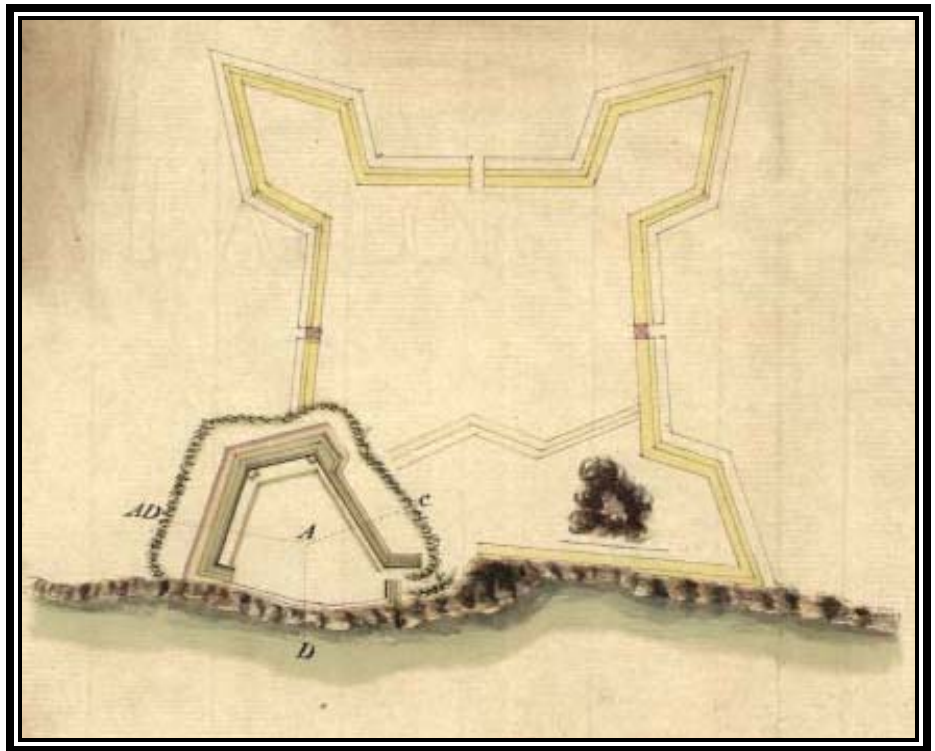
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Prepared for:

Plains All
American LLP
Houston, Tx

Archaeological Investigations of Revolutionary War Fort Billingsport

Paulsboro, Gloucester County, New Jersey



Prepared by:

URS

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Abstract

The following report documents the methodology and findings of a combined historical and archaeological investigation of the former Revolutionary War–era redoubt known as Fort Billingsport. URS Corporation (URS) was contracted to perform this study on behalf of Plains All American LLP, owners of the Paulsboro, New Jersey, Oil Storage Terminal, within which the former fort was believed to be located. Plains All American LLP undertook these investigations in cooperation with members of the Fort Billingsport Homeland Security Preservation Committee, an organization created by the mayor and council of the borough of Paulsboro. This investigation was initiated in association with the planned construction of a series of new storage tanks within the Paulsboro Terminal property, and in order to address concerns borough officials raised about possible surviving remnants of the fort being impacted in the process. More specifically, this study was undertaken to determine whether or not any portion of Fort Billingsport might still be preserved within a small (approximately 3-acre) parcel of undeveloped ground at the far northwestern corner of the terminal property.

These investigations involved the conduct of both intensive historical background research and limited archaeological investigations. Historical research determined conclusively that the site of Fort Billingsport was contained within the limits of the current Paulsboro Terminal facility; however, efforts to pinpoint the location of the fort within this larger property reached uncertain conclusions. Archaeological investigations involved the use of ground-penetrating radar (GPR), metal detecting, and limited shovel-testing methodologies. Field testing uncovered no evidence of subsurface features or artifact deposits that could be associated with the fort, and indicated that the entire study area had been extensively disturbed over recent years.

Based on the findings of this investigation, it is URS' opinion that neither preserved remnants of Fort Billingsport or intact associated artifact deposits are likely to be preserved within the Paulsboro Terminal property. While some features related to the fort may have survived into the nineteenth century, the extensive reworking of this site throughout the twentieth century has likely destroyed any of those once-surviving traces.

At the conclusion of this investigation, URS researchers communicated their findings to members of the Fort Billingsport Homeland Security Preservation Committee and Plains All American LLP staff (March 5, 2008) via a detailed presentation and discussion. This report restates those earlier findings and determinations in a somewhat more refined form.

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URS would also like to acknowledge the efforts of its contributing staff on this project. The Principal Investigator for this investigation was Senior Archaeologist Douglas Mooney, M.A. Senior Historian Ingrid Wuebber conducted historical research. GPR studies were performed under the direction of URS Lab Director Robert Weincek. Mr. Mooney, Mr. Weincek, Daniel Eichinger, and Drew Stanzas performed the field investigations. Mr. Mooney collected all field photo documentation.

Mr. Mooney and Ms. Wuebber wrote this report, and both exceed the requirements of the Secretary of the Interior's *Professional Qualifications Standards* (36 CFR 61) for archaeological investigators and historians. Paul Elwork performed report editing and production. Scott Hood produced report graphics.

Introduction

The following document presents the methods and findings of a cultural resources investigation of the military fortification known as Fort Billingsport. This defensive structure was constructed by Continental Army forces prior to the British assault on Philadelphia during the Revolutionary War and remained in U.S. government hands until the early 1830s. In the years since, all or virtually all visible evidence of the fort has been removed by neglect and redevelopment, although some local historians and preservationists have long maintained that some physical evidence of the associated earthworks remain preserved within property currently occupied by the Pacific Atlantic L.L.C. Oil Storage Terminal in Paulsboro, Gloucester County, New Jersey. Despite the significant role played by Fort Billingsport in American history the exact location of the fortifications, as well as the larger property on which it sat, have been forgotten since it was finally abandoned. Prior efforts to pinpoint the site of the fort have been based on incomplete assessments of the surviving historical data, while efforts to identify any surviving remnants of this structure have relied heavily on fragmentary historical memory and, good intentions aside, have been largely speculative in nature. This investigation sought to resolve lingering conflicts regarding the siting of the fort, and the potential for remnant fortifications to survive to this day, through the application of a broad-based research plan incorporating both historical and archaeological evidence.

PROJECT OVERVIEW

URS Corporation was contracted to perform this study on behalf of Plains All American LLP, the parent company of the Pacific Atlantic L.L.C. Oil Storage Terminal (hereafter referred to as the Paulsboro Terminal), after local historians and preservationists raised concerns that efforts to expand the Terminal's storage capacity might damage or destroy presumed surviving remnants of Fort Billingsport. These concerns were raised primarily by members of the Fort Billingsport Homeland Security Preservation Committee, an organization created by the Mayor and Council of the Borough of Paulsboro. Committee members were especially worried that proposed construction work could impact portions of a small, undeveloped parcel of land located at the Terminal's far northwest corner, and within which the remains of a large, partially in-filled pit are preserved. For many decades this undeveloped parcel had been identified as the presumed location of Fort Billingsport, and the pit believed to be a surviving remnant of the original earthen fortifications. Today, a series of historical markers and monuments commemorating Fort Billingsport and identifying its location are contained in a public park abutting the southern margins of this undeveloped parcel. A survey of the Paulsboro Terminal property conducted in the early 1950s also identifies the large pit within this parcel as the possible location of the fort. In 2006, the limits of this pit were re-surveyed within the parcel at the request of the Fort Billingsport Homeland Security Preservation Committee.

Despite instituting procedures to ensure that this undeveloped parcel would not be impacted by ongoing storage tank construction activities, officials with Plains All American LLP agreed to cooperate with the Fort Billingsport Homeland Security Preservation Committee to resolve issues relating to the potential presence of the fort within the larger Paulsboro Terminal property.

This investigation was initiated by Plains All American LLP in order to: 1) determine whether or not any portion of Fort Billingsport was originally constructed within the Terminal property; and 2) to determine whether or not any fort related features or deposits were preserved within the undeveloped parcel frequently cited as the former fort location.

RESEARCH PLAN

In addressing the specific objectives of this investigation URS researchers adopted a research plan that involved the conduct of both intensive historical background research and archaeological examinations of the undeveloped parcel within the Paulsboro Terminal. Historical research was completed at a number of local, state, and national archive repositories, with the goal of collecting a comprehensive array of information relating to the former fort and the property on which it once stood. More specifically, this research sought to re-establish the location and boundaries of the original 96-acre property where Fort Billingsport was constructed in 1777, to accurately relocate this original property within the current landscape of Paulsboro, and to track the gradual transformation of the original property through the late eighteenth, nineteenth, and twentieth centuries. Other aspects of the research focused on the fort itself, and sought to collect detailed information about this structure's actual construction and use, its placement within the original fort property, and its likely physical alteration resulting from subsequent land uses. Ultimately, the goals of the historic component of this investigation were to precisely identify the location of the fort, to evaluate the likelihood that any portion of the original fortifications could have survived later transformation of the landscape, and to draw insights regarding what would be the likely archaeological signature/subsurface remains of such an eighteenth-century fortification.

Initial historical background research was conducted within files acquired and maintained by members of the Fort Billingsport Homeland Security Preservation Committee, and housed at the Gill Memorial Library in Paulsboro. Other local archival repositories that were consulted included the Gloucester County Clerks Office and Gloucester County Historical Society, in Woodbury, the Haddonfield Historical Society, the New Jersey Historic Preservation Office, State Museum Archaeology Office, State Archives, and State Library, all in Trenton. Additional archives visited included the Historical Society of Pennsylvania and Independence Seaport Museum Library, in Philadelphia, and the National Archives in Washington, D.C. Finally, background research was also conducted within the digital libraries maintained by a large number of Internet databases. Among the types of documents researched at these various repositories were maps, surveys, plats, deeds, photographs and postcards, unpublished manuscripts, diaries, correspondence, military files, insurance records, death records, newspaper articles and advertisements, and published histories.

The archaeological component of this project involved the conduct of integrated Ground Penetrating Radar (GPR), metal detection, and limited shovel testing procedures within the undeveloped Paulsboro Terminal parcel (hereafter referred to as the study area) where local historians had identified potential surviving remnants of the former fort. These studies were specifically designed to: 1) assess the overall state of archaeological preservation within this parcel; 2) identify subsurface anomalies potentially related to the former fort; 3) identify and document any remnant structural components of the fort that may be present (e.g.,

entrenchments, architectural evidence of barracks or related interior buildings, etc.); and 4) recover any artifact deposits that might be associated with this historically significant military occupation. More detailed descriptions of the methodology employed during this stage of the investigation and the findings produced by it are contained in Chapter 5.

ARCHAEOLOGICAL STUDY AREA DESCRIPTION

The parcel of land that was the focus of archaeological evaluations under this project is located at the far northwest corner of the larger Paulsboro Terminal property, and encompasses a total area of approximately 3.03 acres (Figure 1). This parcel is rectangular in shape, measures some 400 feet east west by 330 feet north south, and is bounded by a steeply sloped, lightly wooded, earthen scarp and shoreline of the Delaware River to the north, a dirt access drive and Lincoln Park playground to the west, and the developed portions of the Paulsboro Terminal to the south and east. Unlike other portions of the Paulsboro Terminal property, which contain an assortment of large oil storage tanks, exposed and buried pipelines, paved parking lots and drives, offices, support buildings, and other modern structures, the present study area has never been intensively developed because of its long term association with surviving remnants of Fort Billingsport. In fact, when the Terminal land was initially acquired for use as an oil storage facility, in 1928, portions of the present study area were intentionally set aside and spared development in order to ameliorate concerns raised by local historians.

The study area land itself is comprised of portions of two, more or less equal-sized historical parcels. The southern half of the study area was formerly part of the estate of Joseph Bramell and was developed as a private residence during the second half of the nineteenth century. According to a survey completed in 1972, the Bramell plot at one time contained a modest stone and frame house, two small outbuildings, a privy, various walkways and access drives, and a paved path that wound down to the beach adjacent to the river (Figure 2). The Bramell parcel was eventually sold to the Esso Standard Oil Company, in 1952, and thereby incorporated into the present Paulsboro Terminal land holdings. While it is not known exactly when the Bramell house was eventually demolished, remnants of the foundations and associated structures were still visible in the early 1970s.

The northern half of the study area was part of the larger tank farm parcel purchased in 1928, and represents the area originally set aside for the preservation of features presumed to be related to Fort Billingsport. As surveyed in 1972, this northern tract was once dominated by a large trianguloid pit or hole measuring approximately 150 feet across, and extending to a depth of some 12-15 feet below the surrounding ground surface. Over the past decades this pit had been identified by many local historians and knowledgeable residents as being directly associated with the Revolutionary War fortifications, and was labeled in Figure 2 as the “possible Main Fort Location”. A small stone commemorative marker identifying this feature as part of the fort was erected at the northwest margins of the pit ca. 1928, at the behest of local historians. This marker remained in this location until 1974, when it was moved by the Paulsboro Terminal to the northeast corner of the adjacent Lincoln Park lot.

In the years since the Paulsboro Terminal’s acquisition of the Bramell lot both halves of the present study area have remained undeveloped; however, they have also been repeatedly, and in

some cases extensively impacted by a variety of site activities. As depicted in a series of aerial photographs (Figure 3), the southern half of the study area had been significantly transformed by at least 1965, in association with the demolition of the Bramell house, the removal of related outbuildings, and the establishment of interior dirt access roads. In contrast, the northern portion of the study area appears to have remained substantially unchanged through the mid 1970s, and continued to preserve the large pit or hole beneath the prominent tree canopy. By the late 1990s, however, the entire study area had been substantially altered by apparent vegetation clearing and earthmoving activities. These activities most significantly resulted in the partial in-filling of the large earthen pit in the northern part of the study area.

At the time of this investigation the study area appeared much as depicted in the 1999 aerial photograph included in Figure 3. The exterior margins of this parcel were covered in discontinuous stands of secondary growth trees of varying ages, while the interior spaces were primarily open and dominated by tall grass and woody shrub growth. Ground surfaces within the central and southern sections of the study area were largely level to gently sloping, and were gouged in places by deep tire ruts. Areas bordering the western river scarp contained large irregular piles of overgrown bulldozed soil or soil dumps, and ground in the south central section exhibited smaller piles of construction debris (Figures 4–6). The far northern margins of this space continued to contain remnants of the earthen pit thought to be associated with Fort Billingsport; however, the southern two-thirds of this feature were observed to have been entirely filled in with a combination of soil and dense, intertwined tree trunks. The pit has evidently also been used in recent times as a trash dump, and also contained quantities of trash, construction rubble, and truck tires (Figures 7–9). As a result of these in-filling activities the pit was no longer trianguloid in form, but had been reduced to an irregular crescent shaped depression that varied in depth from a few feet to approximately 12-15 feet below the surrounding ground surface.

ORGANIZATION OF THIS REPORT

The conduct of this investigation resulted in the accumulation of a large volume, and substantial variety of historical and archaeological data related to the fort and property. A detailed history of the fort property, including its later subdivision and historic usages, is presented in Chapter 2. Chapter 3 documents what is known about the construction of the fort itself, including its likely dimensions and associated features, while Chapter 4 traces the recorded historical memory of the fort and the various ways in which that memory has changed over time. Chapter 5 discusses the archaeological and ground penetrating studies conducted in the undeveloped Terminal parcel. The findings and conclusion generated by this investigation are synthesized in Chapter 6.

The Historical Development of Fort Billingsport

Billingsport was located on the narrowest point of the Delaware River below Philadelphia, where the shipping channel was deep. It became known as Bylling's or Billing's Point, at an early date, named for the New Jersey Proprietor Edward Byllinge. The Paul family was the first to purchase and settle the future site of Billingsport in the 1690s. A ferry was established around 1700 and an inn soon followed to provide accommodations and refreshments to travelers. The location of a landing place and ferry point made Billingsport a transportation nexus between the waterborne highway and an emerging network of colonial roads (*Mobil Researcher*, April 1981, page 11).

The story of the fort built during the American Revolution involves three players. It was located in New Jersey, but benefited Pennsylvania, putting Pennsylvania in the awkward position of having to request aid for fortifications at Billingsport from the state of New Jersey or the Congress. The interplay between Pennsylvania's governing council, state committees, state militia, and state navy with the Continental Congress, congressional committees, War Board, and Continental Army influenced the planning, construction, and military function of Fort Billingsport.

FORT BILLINGSPOINT DURING THE AMERICAN REVOLUTION

Billingsport Becomes Part of the Philadelphia Defense Plan

On April 19, 1775, the Battles of Lexington and Concord marked the beginning of armed conflict with Great Britain in the Revolutionary War. Committees of Safety were formed before and during the American Revolution in cities, counties, and states to direct security and defense measures. Revolutionaries gained control of each of the 13 colonial governments, set up the unifying Second Continental Congress, with its capital in Philadelphia, and formed a Continental Army under the leadership of George Washington. In Pennsylvania, the largest and most influential of the Middle States, the Provincial Convention assumed the functions of state government from the Assembly in July 1776. The Convention elected 26 men to form the Council of Safety, the successor to the Committee of Safety. The council was composed of 15 men from Philadelphia and vicinity; the remaining number represented each of the other counties (Hunt 1904:91–92).

Efforts to guard the Delaware River were set in motion. On July 6, 1775, the Pennsylvania Committee of Safety created a state navy to guard the waterborne approach to Philadelphia. Billingsport was chosen as one of the 13 alarm posts that stretched from Cape Henlopen (Lewes, Delaware) to Point No Point (Frankford Creek, Philadelphia) that would warn Delaware Valley inhabitants of an approaching enemy fleet. In July 1775, the Gloucester County Committee of Safety reconnoitered Billingsport as a possible location for a river obstruction. The committee concluded that the obstruction should be placed farther upriver at Hog Island instead (Jackson [1974]:30; Pennsylvania, Minutes of the Council of Safety 1852:294).

The river obstruction, known as a chevaux-de-frise, consisted of a series of large boxes, each about 30 feet square, chained together across the river channel. Stone ballast sunk the boxes below the water's surface and iron-tipped posts jutted up from the boxes, ready to inflict damage on the hulls of approaching ships (Walker [1981]:147). The idea for using the chevaux-de-frise, an ancient device, is credited to Robert Erskine, Washington's cartographer, who designed them for the Hudson River. Both Benjamin Franklin and Robert Smith are given credit for adapting the design of the chevaux-de-frise to fit conditions found in the Delaware River. Robert Smith, Philadelphia's foremost builder/architect, also devised a machine to lower and raise ballast into and out of the frames (Pennsylvania, Minutes of the Council of Safety 1852 v.10:299; Walker [1981]:121).

In January 1776, the Pennsylvania Committee of Safety sent a committee to survey the Jersey shore for potential fortification sites. The committee composed of David Rittenhouse, Daniel Joy, and John McNeal visited Billingsport, Red Bank, and Gloucester. David Rittenhouse was a renowned astronomer, inventor, mathematician, clockmaker, and surveyor. Daniel Joy was the owner of the Reading Furnace and the continental ordnance inspector. They recommended that no forts be built on the Jersey side of the river. They felt Billingsport and Red Bank were too distant from the proposed chevaux-de-frise at Hog Island and too insecure should the British land above or below the fort. Instead, the committee recommended that breastworks—by definition temporary, quickly constructed fortifications—be built at Billingsport and other convenient places. The breastworks could be part of a mobile defense system that used guns mounted on strong traveling carriages (Pennsylvania, Minutes of the Council of Safety 1852 v.10:465, 474–475).

The Committee of Safety came to a different conclusion. They felt that the Delaware River defense plan needed a fort somewhere on the Jersey shore. In May, Billingsport was chosen. It had a good building site on the bluffs, where the river narrowed. A fort would protect the anchorage of a chevaux-de-frise on the New Jersey side. The chevaux-de-frise's other end would be anchored on Billings Island (also known as Marsh Island), a low narrow island now part of the Pennsylvania shoreline just south of the Philadelphia International Airport. The river was too shallow between Billings Island and the Pennsylvania shoreline to allow sizable ships passage, so it was only necessary to obstruct the narrow shipping channel between Billingsport and Billings Island. The Billings Island end of the chevaux-de-frise would be protected by floating batteries of the Pennsylvania Navy lying in the shallow channel between Billings Island and the Pennsylvania shore (Pennsylvania, Minutes of the Council of Safety 1852 v.10:570, 572; Smith 1970:8).

On June 14, 1776, the Pennsylvania Council of Safety sent a petition to the Continental Congress stating that a redoubt (an enclosed defensive position) and a chevaux-de-frise were necessary at Billingsport in order to stop British ships from approaching Philadelphia. The petition was immediately granted. Congress agreed to fund the construction, but the Committee of Safety would superintend the work. With Congressional approval for the fort in their hands, the Pennsylvania Committee of Safety wrote to George Washington requesting that he send an engineer to view the ground at Billingsport and furnish plans for constructing a fort there (Pennsylvania, Minutes of the Council of Safety 1852 v.10:601–604).

On June 17, 1776, Washington replied that he only had one dependable engineer, Rufus Putnam, and he could not be spared from setting up defenses at New York. Washington wrote “Congress will know of my wants in this Instance and several of my late Letters to them have pressed the appointment of Gentlemen qualified for the business” (Fitzpatrick 1932:153–154). The predominantly defensive strategy of the war made trained engineers vital to the Continental Army. However, engineers with knowledge of fortifications or formal schooling in military technology were practically nonexistent in America. Rufus Putnam, Washington’s most trusted engineer, was a millwright. Although he had no formal training as a military engineer, he had surveying experience and had assisted British engineers in building fortifications. The need for military engineers intensified when states, recognizing the vulnerability of their coastlines and port cities, attempted to construct or refurbish defense works that had languished since the end of the Seven Year’s War in 1763 (Walker [1981]:4–5).

Even though a military engineer was not readily available, the Pennsylvania Committee of Safety proceeded with the fortifications at Billingsport by first constructing the chevaux-de-frise. On June 15, 1776, the committee authorized one of their own members, Robert Smith, to purchase the materials and hire the workmen needed to carry out construction of the Billingsport chevaux-de-frise immediately. Robert Smith was Philadelphia’s foremost builder and is considered to be Colonial America’s most important eighteenth-century architect, with a thorough knowledge of design and engineering. In the 29 years after his emigration from Scotland, he completed 52 building projects, including many Philadelphia’s landmarks, such as the steeple of Christ Church, St. Peter’s Church, Benjamin Franklin’s house, and Carpenter’s Hall. Smith also designed Nassau Hall at Princeton University (Robert Smith Collection).

Efforts to find an engineer to draw up plans for a fort at Billingsport were put in the hands of a committee composed of Colonel Daniel Roberdeau, George Clymer, David Rittenhouse, James Biddle, and Owen Biddle. This same committee also had the task of negotiating the purchase of the land on which the fort was to be erected. Four days later, on July 2, 1776, the Committee of Safety authorized the title for the Fort Billingsport tract to be put into the names of George Clymer and Michael Hillegas (Pennsylvania, Minutes of the Council of Safety 1852 v.10:603, 619, 625).

On July 5, 1776, the newly formed United States made its first land acquisition. George Clymer and Michael Hillegas, Treasurers of the Thirteen United Colonies of America, paid Margaret Paul and her son Benjamin Weatherby £600 in Pennsylvania currency for a 96-acre tract of farm land at Billingsport in Greenwich Township, Gloucester County. The fledgling nation was not interested in the house, outbuildings, or fences on the site, and gave the sellers the option to remove them. When they did not, Margaret Paul and Benjamin Weatherby were given another £50 in compensation (Gloucester County Deed Book C:280; Pennsylvania, Minutes of the Council of Safety 1852 v.10:645; Simmons [1977]:8).

An Engineer Is Assigned to Fort Billingsport

During the summer of 1776, four French volunteers received commissions as engineer officers in the Continental Army: Gilles Jean Marie Roland de Barazer, the Chevalier de Kermorvan; Antoine Felix Wuibert de Mézières; Christopher Pelissier; and a Monsieur St. Martin (Walker

[1981]:5n). Kermorvan arrived in America in early June 1776. He presented credentials that testified to “his good character, superior abilities in the art of war, and particularly as an engineer” to the Board of War in Philadelphia (Ford 1906 v. 6:490). The Board of War, a special standing committee created to oversee all military business, began functioning on June 21, 1776. It was staffed by five Congressional delegates, initially—John Adams, Roger Sherman, Benjamin Harrison, James Wilson, and Edward Rutledge (Ford 1906 v.5:434–435). Responsibility for construction of all fortifications came under the jurisdiction of the newly created board. On June 22, the Board of War contacted Congress and suggested that Kermorvan be given the task of planning and laying out the fortifications at Billingsport (Ford 1906 v.6:490).

On Independence Day, the Pennsylvania Committee of Safety was hard at work arranging men and supplies for the defense of the Delaware River and Philadelphia. Robert Smith was put in charge of building temporary shelters at Billingsport to house the 500 men expected to soon begin work on the fortifications. Later in the day, the committee got around to authorizing their accountant John Nixon to pay Benjamin Weatherby the £600 purchase money for the Billingsport tract. Simultaneously, the Committee of Safety sent a request to the Continental Army to have Monsieur Kermorvan, who was not yet a commissioned officer, lay out the “military works” at Billingsport. Kermorvan’s contribution to the design of Fort Billingsport is unknown. Less than two weeks after being assigned the task of laying out the fortifications at Billingsport, Kermorvan received his appointment as engineer in the continental service with the rank of lieutenant colonel and the pay of \$60 per month. The Congressional appointment issued by John Hancock on July 16, 1776 also contained Kermorvan’s orders to immediately join General Hugh Mercer’s flying camp in New Jersey. On July 29, 1776, Congress received a letter from Monsieur “Kirmovan” accompanied by “a plan and draughts.” These documents were passed on to the Board of War. Whatever Kermorvan’s plans might have been, they were evidently not acted upon, because the search for an engineer to draw plans for Fort Billingsport continued (Ford 1906 v.5:565, 613–614; Walker [1981]:122).

The Start of Construction at Billingsport

On July 2, 1776, before the continental congress had acquired title to the Billingsport tract, plans were made to have a battalion of Pennsylvania troops encamp at the site to build the fort. The soldiers were to be allowed two gills (eight ounces) of spirits per diem over their usual allowance of one gill while they worked on the fort. Before the militia could begin their construction mission at Billingsport, the battalion was ordered back to Philadelphia (Pennsylvania, Minutes of the Council of Safety 1852 v.10:625–626).

The newly formed Council of Safety became anxious about delays in getting the fort at Billingsport started. At the end of July, Council members met with the Board of War. They offered to take responsibility for supervising the construction of the fort, if the board had not already initiated project planning. Evidently, the Board of War in its first days of operation had not gotten around to dealing with Billingsport. Congress authorized the Council of Safety to build the fort at congressional expense. The following week, on August 9, 1776, a committee was appointed to make a plan for Fort Billingsport and then hire the engineers and workmen necessary to carry it out (Pennsylvania, Minutes of the Council of Safety 1852 v.10:660, 678).

Despite the lack of an engineer, Robert Smith proceeded with construction, using 50,000 feet of 3-inch planks. Hundreds of wheelbarrows, axes, shovels, spades, and grubbing hoes were purchased for the construction project. On August 29, Congress was presented with a £216 bill for boards and building material that Robert Smith needed to build the barracks and other buildings at the fort. The following day, Polish engineer Thaddeus Kosciuszko petitioned Congress to grant him a commission in the continental service. Kosciuszko came well qualified for the job, having studied military engineering, artillery, and political science in Paris. France was the center of technical education in Europe, and a training program for military engineering had been established in 1749 (Cizauskas 1986:47–50; Walker [1981]:6–7).

Kosciuszko arrived just as the need for engineering services for the Philadelphia defense system was most acute. His petition was passed on to the Board of War, who must have instantly dispatched him to Billingsport. During September and October, Kosciuszko worked on laying out fortifications at Billingsport, drawing for the first time upon his professional training. His commission came through on October 18, 1776, at which time Thaddeus Kosciuszko was appointed an engineer in the service of the United States with the pay of £60 per month and the rank of colonel. The following week, on October 24, the Pennsylvania Council of Safety paid Kosciuszko £50 “as a reward for his services in laying out a plan of a Fortification at Billingsport” and charged the sum to Congress (Ford 1906 v.5:719, vol. VI:888; Haiman 1943:9–10; Pennsylvania, Minutes of the Council of Safety 1852 v.10:672, 683, 695, 705, 719, 745, 755, 764, 770).

Kosciuszko laid out Fort Billingsport as a four-sided earthen redoubt with a bastion at each corner. Each of the four sides, from bastion tip to bastion tip, was to be 700 feet long and 7.5 feet high. A ditch, 9 feet deep and 18 feet wide, was to surround the fort (Simmons [1977]:7). On September 26, the Council of Safety appointed Colonel John Bull, a fellow council member, the task of carrying out the construction of Fort Billingsport according to Kosciuszko’s plan. Colonel Bull was given the title of “Superintendent General of Workmen at Fort Billingsport.” Perhaps to clarify his role as the head of the construction project, Colonel Bull’s title was changed to “Superintendent of the Works.” His assistant was James Dundass. The council appointed Captain Blaithwaite Jones to be the engineer of the project; his assistant was Mr. Thomas Hanson. Other members of the construction team included a clerk, a commissary of utensils (equipment manager), a commissary of provisions (responsible for distributing food and munitions), and two bricklayers. The construction crew was made up of Philadelphia militiamen paid three shillings a day plus meals (Pennsylvania, Minutes of the Council of Safety 1852 v.10:730).

John Bull enjoyed a distinguished military and civil career and lived to be 93. He became a member of the Pennsylvania Council of Safety in November 1775. He was elected colonel of the First Pennsylvania Battalion, Continental Army, but resigned his commission in January 1776. Colonel Bull served as the construction superintendent at Billingsport for 66 days, from September 27 until December 2, 1776. He received £97 in compensation. During the Revolutionary War, he served as a member of the executive government of Pennsylvania and as the adjutant general of the state’s militia (Bull 1919:319). His friendship with George Washington probably dated to the French and Indian War, when both were officers with the Forbes expedition in 1758 that captured Fort Duquesne. He was master of a Masonic Lodge that

was attended by General Washington when at Valley Forge (Bull 1919:11–12, 318–319; Pennsylvania, Minutes of the Council of Safety 1852 v.10:734, 737).

Blaithwaite Jones may not have had an engineering background, but he was well connected. He was born in Philadelphia in 1726 and pursued a career at sea, becoming a ship's master. He became a delegate to the Provincial Convention of Pennsylvania in January 1775 and became a member of the Pennsylvania Committee of Safety that same year. Like John Bull, Jones held a high office in the Pennsylvania Freemasonry. He became deputy grand master of the Provincial Grand Lodge of Pennsylvania in 1764 (Barratt and Sachse 1908:138).

George Washington lost battle after battle between August and November in the fight for New York City. The Billingsport chevaux-de-frise were sunk in October when an alarm reached Philadelphia that Hessian troops had departed Staten Island and might be headed towards the Delaware River. Washington retreated across New Jersey with the British in pursuit. The Continental Army crossed the Delaware on December 8, 1776. The British army halted at New Brunswick and Princeton; the Hessians stopped at Trenton. With Philadelphia in imminent danger of attack, Washington sent General Israel Putnam to take charge of the city's defenses (Fitzpatrick 1932 v.6:342, 344–345; Pennsylvania, Minutes of the Council of Safety 1852 v.10:753).

Washington urged the Pennsylvania Committee of Safety to remove any artillery or supplies from Fort Billingsport, because there were not enough men to protect the unfinished fort (Fitzpatrick 1932 v.6:390). Work on Fort Billingsport was suspended. All personnel were needed to shore up defenses in Philadelphia. Congress adjourned on December 12 and moved to Baltimore, Maryland. On December 25, George Washington crossed the Delaware River to surprise the Hessian soldiers in Trenton. The American victories at Trenton, Assunpink, and Princeton during the following 10 days provided a needed boost in morale and eased the pressure on Philadelphia. The British went into winter quarters in New Brunswick and Perth Amboy. Washington encamped the army at Morristown. The knowledge that the British would certainly target Philadelphia in the upcoming spring campaign made the construction of the fort at Billingsport more crucial than ever (Livingston 1901:329).

Completion of Fort Billingsport Becomes Crucial

Work resumed on Fort Billingsport in February 1777. Robert Smith died on February 11, 1777 while working on the barracks. Four days later, the Pennsylvania Congress appointed John Bull as “Colonel Commandant of the Fortifications at Billingsport and Superintendent of the Works,” giving him authority over military as well as civilian workmen. Blaithwaite Jones also received greater authority via his appointment as “Chief Engineer at Billingsport,” with the rank, pay, and rations of a lieutenant colonel (Bull 1919:317; Jackson 1974:89; Pennsylvania, Minutes of the Council of Safety 1852 v.11:125, 142).

Bull was directed to hire as many as 500 laborers and skilled workmen. The council suggested that he have an overseer for every 30 workmen. Workman's compensation was capped at six shillings per day. Bull was ordered to begin construction immediately and proceed as quickly as possible. To help fill the ranks of laborers, the Pennsylvania State Regiment of militia was

assigned to work on the fort. When South Carolina and Virginia troops arrived in Pennsylvania in July 1777, they were sent to assist the Pennsylvania and New Jersey militia troops working at Billingsport (Pennsylvania, Minutes of the Supreme Executive Council 1852 v.11:142, 236, 242).

On April 14, 1777, Washington wrote to the Pennsylvania Board of War:

I am afraid from the Situation of Billingsport, that the works which you are constructing there, cannot be supported, if an attack is made upon it by land, and I should therefore think that a small work with a few pieces of heavy Cannon, would be all that would be necessary... I have never seen a plan of the Works, I only speak from information. I would recommend a compact Work, to contain about three hundred Men... [Fitzpatrick 1932 v.7:410–411].

Washington's was not the only voice that pressed for scaling down Fort Billingsport. The Pennsylvania Navy Board issued a report in the spring of 1777 that concluded the ambitious works planned for Billingsport would be impossible to complete before the expected appearance of the enemy fleet. Further, from a military point of view, the fort was untenable and could provide little defense against an enemy man-of-war. The report raised the question whether construction of the fort at Billingsport should be abandoned (Smith 1970:8–9).

Thaddeus Kosciuszko continued to work on Philadelphia's defenses until April 1777, during which time he laid out the fort at Red Bank (Fort Mercer). Colonel Bull superintended construction of the principal part of Fort Mercer at Red Bank and laid the chevaux-de-frise between Fort Mercer and Fort Mifflin on Mud Island. (Bull 1919:317).

General Horatio Gates, in command of the Philadelphia defenses, was impressed with Thaddeus Kosciuszko's abilities. On March 25, Gates was ordered to take command of Fort Ticonderoga and asked Kosciuszko to join him in the north. Colonel Kosciuszko arrived at Ticonderoga on May 12, 1777 (Guthorn 1977:49; Ford 1907 vol.7:202; Walker [1981]:100). Colonel Bull remained in charge of the public works at Billingsport until June 17, 1777. He received a promotion to the office of adjutant general of the militia of Pennsylvania. He left a few weeks shy of having completed the construction work at Fort Billingsport (McGee [1919]:317). Blaithwaite Jones was officially attached to Billingsport's as its engineer until May 11, 1778 (Pennsylvania, Minutes of the Supreme Executive Council 1852 v.11:486).

Du Coudray Changes the Layout of Fort Billingsport

Even as the first wave of French engineers arrived to offer their services in the summer of 1776, Silas Deane was in France beginning a congressionally sponsored mission to arrange an alliance and recruit military engineers to the American cause. One of the French engineers Deane convinced to come to America was Philippe Charles Tronson du Coudray. Du Coudray promised to bring 200 pieces of brass cannon and two engineers with him to America. He was adjutant general of artillery in the French Army and wanted to be a general of artillery in the Continental Army, subject only to the orders of Congress, the Committee of War, or the commander in chief. If not, then he wanted to have the rank of major general. Deane entered into

an agreement with Du Coudray in September 1776, promising him the rank of major general and command of artillery and the yet-to-be-formed corps of engineers. Several French officers signed up as members of Du Coudray's staff and they began arriving in America in March and April 1777. Because Du Coudray's arrival in America would jeopardize the secrecy of French aid, the French government ordered him to renounce his American commission and remain in France. He disobeyed and arrived in America in May 1777 (Walker [1981]:6–12).

Benjamin Franklin arrived in Paris in December 1776 to negotiate an alliance with the French. He reiterated the American need for engineers to King Louis XVI, who secretly arranged for his minister of war to recruit a group of Royal Engineers to serve in America. The senior member of the engineering recruits was Louis Lebègue Duportail. He agreed to serve in the Continental Army if his rank were higher than the one he held in the French Army. Duportail also demanded that he have all engineers in the Continental Army under his command. Duportail chose three men of lesser rank in the Royal Engineers to accompany him: Jean Baptiste de Gouvioun, Jean Baptiste Joseph de Laumoy, and Louis de Shaix La Radière (Walker [1981]:12).

Most Army officers, as well as members of Congress, were dismayed to discover foreigners were being elevated above American officers. When Du Coudray presented himself in Philadelphia with an entourage that included 18 commissioned officers and 10 sergeants, his reception was chilly (Jackson [1974]:97). Congress believed Deane had overstepped his bounds. Washington suggested restraint in making promotions, except in the case of artillerymen and engineers, because of their absolute necessity (Walker [1981]:12). Tensions mounted when on July 5, 1777, Duportail and his companions presented their credentials to Congress. The Royal Engineers contended that Du Coudray had duped Deane. Meanwhile, Major Generals John Sullivan, Nathaniel Greene, and Henry Knox threatened to resign because Du Coudray would outrank them. Still more volunteers, led by the Marquis de Lafayette, arrived in Philadelphia in July with promises from Deane. James Lovell, a French-speaking member of Congress, threw his support behind Duportail and his Royal Engineers (Walker [1981]:13).

On June 3, 1777, Congress appointed a committee of three men—William Duer, John Adams, and Arthur Middleton—to confer with the Pennsylvania Board of War. The committee was authorized to “employ some skilful persons to view the works and defenses erected at, and near Billingsport, and report their opinion, whether those works ought to be completed or demolished” (Force 1907 v.8:414).

The committee recommended completing the works. On June 11, Congress requested 500 New Jersey militia men be sent to Billingsport to help complete the fortifications. In addition, Congress strongly recommended that the Supreme Executive Council of the State of Pennsylvania (the successor to the Council of Safety) work with General Mifflin and Monsieur du Coudray to carry out the most effective means for defending the Delaware River (Force 1907 v.8:451–452).

In June 1777, Livingston, governor of New Jersey, was asked to call out the militia of the counties bordering the Delaware River; i.e., Burlington, Gloucester, Salem, and Cape May. Livingston put the Southern New Jersey brigade of militia under the command of Brigadier

General Silas Newcomb in Woodbury, five miles from Fort Billingsport (Fitzpatrick 1933 v. 8:491).

Du Coudray began a survey of the Delaware River defenses. He recommended that the major defense work be concentrated at Billingsport, which commanded the river at its narrowest point and therefore was the easiest to defend (Simmons [1987]:7). In early July 1777, members of the Pennsylvania Supreme Executive Council, the Board of War, and the Navy Board accompanied Monsieur du Coudray on an inspection tour of the fortifications at Billingsport. The party included General John Armstrong, a trained civil engineer, David Rittenhouse, and General Benedict Arnold. They went first to Billingsport, then to Fort Mifflin, and then to Fort Mercer at Red Bank. The group journeyed downriver on three boats, each pulled by eight oarsmen. Their entourage included a musical band. They dined at Red Bank and were entertained by a parade of the garrison. A few days later, on July 14, Du Coudray presented the council with an architectural plan, a “definite project to correct the fort of Billingsport” (Pennsylvania, Minutes of the Supreme Executive Council 1852 v.11:243, 245) (Figure 10). Two days later, on July 16, Congress approved Du Coudray’s plan for Billingsport and ordered the Supreme Executive Council be charged with carrying out work immediately (Force 1907 v.8:557; Simmons [1987]:8).

Washington realized little time was left before Howe would threaten the Delaware River defenses. On July 22, he enjoined the Continental Congress to complete Fort Billingsport as soon as possible (Fitzpatrick 1933 Vol. 8:454). Washington wanted to scale down Fort Billingsport to support a garrison of 300 men and be outfitted with a few cannon of comparatively light caliber that could be removed quickly if it became necessary to evacuate the fort (Smith 1970:9n).

Du Coudray continued to champion Billingsport and offered his services and those of his assistants to prepare Fort Billingsport, Fort Mercer, and Fort Mifflin for the impending attack. He suggested that Congress call out 1,000 workmen for the Billingsport fortifications who would be supervised by the engineers he had stationed there. The labor force, provided with the necessary tools, would construct batteries and repair ordnance carriages. Another 200 workmen were needed at Fort Mifflin and 100 at Red Bank. Du Coudray promised to have these forts ready within a month. When completed, 400 soldiers and 80 artillery men could defend Fort Billingsport (Walker [1981]:151).

General Washington arrived at Philadelphia on August 1, 1777, first stopping off for an inspection at Fort Billingsport, Fort Mercer, and Fort Mifflin. That same day, Washington received word that the enemy fleet had been sighted under sail off the Capes of Delaware. Day after day, residents of the Delaware Valley anxiously waited to see where the fleet would appear. Washington, from his camp outside Germantown, wrote to John Hancock, president of the Continental Congress. He compared the defensive capabilities of Fort Billingsport and Fort Mifflin, and came down heavily in favor of the upper fort. Among his arguments was that Billingsport had only one row of chevaux-de-frise, while Fort Island had three. Also, the galleys and floating batteries meant to protect the chevaux-de-frise would be completely exposed should the enemy gain control of the high bluffs on the Jersey side of the river. Washington pointed out that even the strongest advocates of Fort Billingsport admitted that it would not withstand a siege of more than 15 or 20 days at the most (Fitzpatrick 1933 v. 8:505n; v.9:45–53).

Washington sent General Nathaniel Greene to inspect the Delaware River defenses in September 1777. Greene reported back that although large amounts of money had been spent on the fortification at Billingsport, the enemy could easily approach by landing a short distance below it (Figure 11). Greene suggested that Fort Billingsport should be redesigned again to a smaller version of the original plan (Smith 1970:9n). On September 28, Washington ordered Colonel Lewis Nicola, commander at Fort Mifflin, to “call in the few Men that are at Billingsport and if there are any Stores there, remove them to Fort Mifflin” (Smith 1970:9).

In mid-September 1777, Du Coudray fell into the Schuylkill River and drowned (Jackson 1974:110–112). His death strengthened the position of the Royal Engineers lead by Duportail, who served as the army’s chief engineer for the duration of the war. Most of Du Coudray’s group returned to France, but three remained and were commissioned as engineer officers by Congress. They were François Louis Teissède de Fleury, Jean Louis Ambroise de Genton, the Chevalier de Villefrance, and Pierre Charles L’Enfant (Walker [1981]:21–22n).

The Fight for Control of the Delaware River

On July 23, 1777, the British army occupying New York City under the command of Lieutenant General Sir William Howe boarded the more than 250 ships of the British fleet under the command of his brother, Vice Admiral Lord Richard Howe. General Howe left New York with a force of about 18,000 men that included British, German, and American Loyalist soldiers (Clement 2007:20–21).

The British fleet rendezvoused with the British blockading squadron at the Delaware Capes. After learning from Loyalists of the river defenses along the Delaware, the British commanders decided to attack Philadelphia through the back door. They sailed up the Chesapeake and disembarked at the head of navigation on the Elk River in Maryland, 57 miles from Philadelphia. Howe’s army of 13,000 British and Hessian soldiers met Washington’s 11,000 soldiers at the battle of Brandywine in Delaware on September 11, 1777. Howe defeated Washington, who then withdrew to Chester. Howe swung his army westward and the British entered Philadelphia unopposed on September 26, 1777. With the British army in control of the erstwhile capital of the United States (the Continental Congress having moved to Lancaster), it was now General Howe’s aim to clear the obstacles from the Delaware River to allow Admiral Howe’s fleet to sail up to Philadelphia and open a secure supply line (Simmons [1977]:10–11).

On September 28, 1777 General Washington ordered Colonel William Bradford of the Pennsylvania militia to take command of Fort Billingsport and oversee its evacuation. This was the first time Army regulars took over defense of the river forts from the militia. Colonel Bradford arrived at Fort Billingsport the next day. He found Colonel Will of the Fourth Battalion with about 100 men and Captain Massey’s Company of Artillery reduced by desertion to 12 men. After Bradford’s arrival the Continental troops were reinforced with 150 New Jersey militiamen (Simmons [1987]:13). The fort was composed of a redoubt with an unfinished northwest bastion and armed with five cannon, chiefly nine pounders (Simmons [1977]:11-12; Simmons [1987]:13).

Lieutenant Colonel Thomas Stirling led two British regiments consisting of the 10th and 42nd Foot and a battery of light artillery from Wilmington to across the Delaware River at Chester on the afternoon of September 29 (Simmons [1987]:14). Stirling's troops landed near the mouth of Raccoon Creek, about six miles south of Billingsport (Simmons [1987]:14).

Brigadier General Silas Newcomb of the New Jersey militia met with Colonel Bradford at Fort Billingsport on October 1. Their strategy was to pull all the militiamen out of Fort Billingsport to augment Newcomb's other militia forces in the area and advance toward the invaders, believed to be a force of about 400 or 500 men. Newcomb moved his 300 men (Jackson 1974:133) down the Salem Road and met Stirling's forces at Mickelton, about 9 o'clock on the morning of October 2. The few hundred militiamen were no match for the 1,500 seasoned British troops marching north. Another skirmish at the bridge over Mantua Creek drove off the militia and left the British unimpeded on their 3-mile march to Fort Billingsport (Simmons [1987]:15). Hearing the cannon and rifle fire, Colonel Bradford sent out Majors Marsh and Boys with a few men to reconnoiter. They reported back that Newcomb's militia was in retreat and the British were advancing upon the fort. Colonel Bradford ordered an immediate withdrawal (Smith 1970:10).

The Continental brig *Andria Doria* was standing by to evacuate the garrison to Fort Mifflin. Captain Robinson of the *Andria Doria* and a few men managed to take the ammunition out of the fort, spike the five cannon, and set the barracks and cookhouse on fire. A dwelling at the fort escaped the fire. About 12 o'clock noon, while still in the fort, Colonel Bradford saw the enemy coming toward them "thro' a cornfield... not more than 30 yards away." There were several exchanges of shot as the last of the garrison force jumped into the one remaining guard boat and started rowing out to the *Andria Doria* (Smith 1970:10).

Colonel Stirling set up two 12-pounders to take the place of the spiked cannons and left 300 soldiers to man the fort. He and the remainder of his forces set off on a foraging expedition. The guerilla tactics of the New Jersey militia resulted in losses among the foragers. Stirling retreated from the New Jersey swamplands and returned to Fort Billingsport, where he feared an attack would be imminent. On October 5, Stirling evacuated his men from the fort and "Set Fire to all the Works & Houses that were left at Billingsport... Every Thing that would take fire." They left in such a hurry that an American detail of soldiers close upon their heels found "all our own guns one of which was a twelve pounder they had taken out the spike and left it open." Commodore Hazelwood's ships arrived and began closing the gap in the chevaux-de-frise by scuttling two ships to plug the gap, the brig *Vesuvius* and *Strombolo*, stripped of their rigging. Then the American Navy sailed upriver again. No attempt was made to reoccupy the fort because they believed the British would soon be back (Smith 1970:11).

On October 7, the British returned to complete their mission to disable the chevaux-de-frise enough to let their ships sail through. The two scuttled American ships were "put to one side." The Americans tried to prevent the re-opening by harassing the workmen with fire rafts, galleys, and other armed craft. Because the gap was so close to the New Jersey shore, the Americans were able to tow the fire rafts from shore and release them under the cover of darkness (Smith 1970:11). On October 12, the gap was widened enough to get the *Roebuck* through, but Commodore Hazlewood sent "two chains of fire rafts" downriver and the *Roebuck* retreated

downriver. On October 14, the gap was widened enough for the large ships to come upriver (Smith 1970:11) (Figure 12).

Despite harassing gunfire from Fort Mifflin and the Pennsylvania State Navy, along with several skirmishes, British engineers managed to construct batteries on Schuylkill Point on the north side of the Schuylkill River, Carpenter's Island, and Province Island (Clement 2007:70). The British began the bombardment of Fort Mifflin from land batteries on Carpenter's Island on October 12 (Clement 2007:73). On October 21, Colonel Count von Donop crossed the Delaware at Cooper's Ferry (now Camden) on a mission to take Fort Mercer. In his assault upon the fort on October 22, his brigade of 1,200 men suffered severe losses, including the mortal wounding of the colonel. A squadron of five big British ships and a number of small ones came through the chevaux-de-frise gap on October 21 and 22 to join in the bombardment of Fort Mifflin. The British 64-gun *Augusta* and sloop *Merlin* ran aground on the Jersey side of the river. The *Augusta* caught fire and blew up, killing about 150 of her crew of 500. The *Merlin* had to be abandoned and blown up. On October 26, a detachment of about 100 British Marines landed and once again occupied Fort Billingsport. They were followed the next day by 200 men from the 71st Regiment and two 18-pounders (Simmons [1987]:17).

On the night of November 15, the American garrison at Fort Mifflin evacuated across the river to Fort Mercer at Red Bank. Fort Mercer and all the American forces on the Jersey side of the river were under the command of Brigadier General James Varnum of Rhode Island, a total of about 2,000 troops. Varnum arrived in Woodbury on November 2, reconnoitered, and concluded that possession of Fort Billingsport was vital to the river's defense. He ordered that the defenses at Fort Mercer be strengthened and put the fort in the hands of veteran Continental Rhode Island regiments (Clement 2007:70). He placed a small battery on the east side of the mouth of Mantua Creek, including a 12-pounder ready for action on November 5. In a dispatch to General Washington written on November 6, Varnum wrote, "I beg Liberty to repeat that Billingsport is of far more Importance than all the Forts and Gallies put together..." (Smith 1970:27 and Jackson 1974:217 as cited in Simmons [1987]:18).

On November 17, 1777, Cornwallis crossed the Delaware River from Chester, Pennsylvania, to Fort Billingsport with 2,000 men. He joined another 3,000 men under the command of Sir Thomas Wilson, who landed at Billingsport on November 18. Cornwallis's forces included at least two military engineers, John Hills and John Montresor, who might have drawn the anonymous plan of Fort Billingsport now found in the Peter Force Collection at the Library of Congress (Figure 13). Cornwallis' forces also included a German military engineer, Wangenheim, who drew a sketch of Fort Billingsport in French (Figure 14).

On November 21, Cornwallis marched into Woodbury. He sent out his light infantry to reconnoiter Fort Mercer. They got there in time to see the fort go up in flames as it was evacuated. The American brig *Andria Doria* and several smaller ships near League Island (now the Philadelphia Navy Yard) were also set afire. Washington moved his army up the Schuylkill River to a winter encampment at Valley Forge and Howe settled his army into Philadelphia for the winter (Simmons [1977:16–17; Simmons [1987]:19). The British partly dismantled or burned the fortifications at Billingsport and opened a gap in the chevaux-de-frise. The remaining sections of chevaux-de-frise were not removed until 1784.

In March 1778, Washington wrote to Brigadier General John Cadwalader of the Pennsylvania militia, “The importance of the place you speak of [Billingsport], is obvious; it has engrossed much of my thoughts...”(Simmons [1987]:19). Washington’s campaign plan for 1778 included a blockade of the Delaware River with Billingsport as the bulwark with a large enough force of defenders to hold it against the enemy’s whole force, if need be. Washington, in fact, hoped to have 17,000 Continental troops fit for duty and 10,000 to 11,000 militiamen by the first of June 1778 (Simmons [1987]:20). In the spring of 1778, Continental soldiers of the 2nd New Jersey Regiment under the command of Major Richard Howell were on a mission to gather forage and supplies in Gloucester County. On April 4–5, Howell and his forces attempted to surprise about 150 American Loyalists entrenched at Fort Billingsport. However, the Loyalists had learned of the planned attack and were able to repulse Major Howell’s forces. The Loyalists remained in control of Fort Billingsport until the British evacuated Philadelphia in June 1778 (*New Jersey Gazette*, April 8, 1778, page 3).

Washington’s campaign plan for the Delaware River became moot when the British left Philadelphia. The British fleet abandoned the Delaware River to counteract the French fleet sailing to America to help in the Patriot cause. The British army marched across New Jersey to occupy New York.

The Patriots Take Back Control of Fort Billingsport

In September 1778, the Pennsylvania Supreme Executive Council once again turned to Colonel John Bull in an effort to repair the damage caused during the British occupation. From September 12 to December 3, 1778, Bull erected batteries and temporary barracks at Fort Billingsport and Fort Mifflin. The council arranged to take planks, timbers, spikes, etc., from redoubts the British had erected during their occupation and deliver them to Colonel Bull. British guardhouses were recycled into barracks at the forts. Fort Billingsport got four pieces of heavy artillery and three men stationed there to take care of the guns (Bull 1919:11–12; Pennsylvania, Minutes of the Supreme Executive Council 1852 v.11:572, 575, 636).

In May 1778, Congress established three companies of engineer troops to receive instruction in field fortifications. Each company consisted of a captain, three lieutenants, four sergeants, four corporals, and 60 privates. The intent was to make this corps a school for engineers. The primary duties of the Army engineers entailed the construction and repair of fortifications. On March 11, 1779, the Army engineers became the Corps of Engineers. The first Chief Engineer was Duportail (Walker [1981]:36–37).

It was thought prudent to have Duportail formulate a defensive plan for the Delaware River. Duportail made a preliminary survey of the river in February 1779. A final survey and soundings were completed on May 14, 1779, with the assistance of Colonel Radière, Major Genton, and the Chevalier de Villefranche (Figure 15)(Walker [1981]:200).

Duportail concluded that defense efforts should be concentrated at Fort Mifflin and Fort Billingsport. Radière was given another two weeks after the survey to help layout the principal lines of the fortifications (Walker [1981]:200). Duportail’s “very complete and elegant draught” for the proposed fortifications for the defense of the Delaware River and Philadelphia was

presented to the Supreme Executive Council in May 1779. In payment for his engineering services, Duportail was paid \$2,000. Other French engineers were also awarded payments, including Villefranche, who was given \$600 (Pennsylvania, Minutes of the Supreme Executive Council 1852, v.11:776).

Colonel Bull was given the assignment of rebuilding both forts according to Duportail's plan. Colonel Bull was paid \$24 a day for his superintending duties from February 27 to November 25, 1779. A company of Philadelphia's Battalion of Artillery was called up to relieve the garrison at Billingsport (Bull 1919:320; Pennsylvania, Minutes of the Supreme Executive Council 1852, v.11:757, 767, 777). In December 1780, French officers—including the Marquis de Chastellux, a major general in the Comte de Rochambeau's army—visited Billingsport. He described the fort as "somewhat neglected. The entire battery consisted of one rather good brass mortar and five eighteen-pounders" (Walker [1981]:200).

Because it was so expensive to maintain garrisons at Fort Mifflin and Billingsport, the Supreme Executive Council decided to discharge them on September 1, 1781. In place of the garrison, the council advertised for a "trustworthy and careful" person to oversee the fortifications on a yearly basis. This person would need to know how to repair banks and would reside at either Fort Mifflin or Billingsport (Pennsylvania, Minutes of the Supreme Executive Council 1853 v.13:17, 30).

William Smith was appointed to the caretaker's position in September 1781. His duties entailed taking care of the artillery stores, buildings, etc., at Billingsport, Mud Island, and the Pest House. Plans called for the land at Billingsport to be fenced in and a licensed public house set up. Mr. Smith would live at Billingsport. Over 2,000 rails for fencing in the government land were delivered to Billingsport in 1782. In an effort to cut expenses still further, the Supreme Executive Council informed William Smith in November 1782 that his pay would cease. If he continued to care for Mud Island and Billingsport, he would receive his full compensation by having use of the lands attached to the forts. Smith agreed to the new deal. Smith paid property taxes due on the Billingsport government tract, but was rebated the expense (Ibid. 1853 v.13:54, 276, 325, 429, 449).

BILLINGSFORT AND THE NEW NATION

The Revolutionary War formally came to a close with the signing of the Treaty of Paris on September 3, 1783. Without a purpose, Fort Billingsport was left to deteriorate. John Hills, a British military engineer, remained in America after Yorktown and made his living as a surveyor, architect, draftsman, and cartographer (Guthorn 1976:10). Hills surveyed the countryside around Philadelphia between 1801 and 1807. His survey indicates that Fort Billingsport was in ruins by this time (Hills 1808).

Without a military purpose, efforts focused on deriving revenue from the government land at Billingsport. Secretary of War Henry Dearborn wrote to General William Irvine, the superintendent of military stores, in 1802 regarding plans to sell the 96-acre government tract. Dearborn did not believe the property was valuable enough to lease out. A quick disposal of the property was precluded by the requirement that Congress pass a law authorizing its sale. Therefore, Henry Dearborn recommended that Irvine take charge of any moveable property,

particularly pieces of iron, and move it all to Fort Mifflin. Even old broken pieces of iron were of value to blacksmiths (Dearborn 1802).

Evidently, Dearborn's suggestion regarding the old iron either did not include large pieces such as cannon or went unheeded. Fort Billingsport's cannon were still in situ in 1808 when the secretary of war suggested selling the old cannon in the fort ruins as scrap iron to a furnace. In his experience, old cannon had netted from \$15 to \$20 per ton (Dearborn 1808).

The responsibility for the 96-acre tract containing the former fort devolved upon two units of the War Department—the Quartermaster Department and the Engineer Department. Captain Babcock of the Corps of Engineers was put in charge of all the fortifications on the Delaware River. He was responsible for leasing out the fishery at Billingsport and sending the rent money to the War Department (Engineer Department 1818:24). Henry Dearborn delegated responsibility for leasing the government land at Billingsport to William Linnard, the quartermaster stationed in Philadelphia (Dearborn 1808).

The land itself was leased to Benjamin Weatherby, the former owner, who had gone to live in Mullica Hill, about seven miles south of Billingsport. Correspondence mentions that Weatherby's lease began in 1806 and ran for a term of three years. He may in fact have been in possession of the government land through consecutive leasehold agreements for a number of years. Weatherby installed a family on the 96-acre tract and paid the property taxes due. In 1808, Weatherby complained to his landlord, Secretary of War Henry Dearborn, that the buildings on the government property were so old that they were ready to fall down if not repaired. He had laid new floors in one room of the house but the other room was uninhabitable. Weatherby offered to repair and maintain the buildings and the fences around the property if the secretary would agree to extend the lease until 1812 (Weatherby 1808).

Weatherby probably got his wish because the Billingsport tract was held under a lease agreement until 1813, when enemy ships were sighted off the Delaware Capes during the second war with England. Responsibility for the Billingsport tract devolved upon the commander of Fort Mifflin. During the War of 1812, Delaware River defenses were concentrated at Fort Mifflin and Fort Delaware, a new fort located at the mouth of the Delaware River. British ships did not sail up the Delaware or attack Philadelphia from the west as they had in the previous war. After Washington City's capture and the advance upon Baltimore in 1814, Philadelphians rushed to join militia units and set defensive plans in motion. None of these defensive works appear to have directly involved the site of Fort Billingsport. However, the 96-acre tract was utilized for an encampment of a militia brigade, around 1,300 men, under the command of Brigadier-General Ebenezer Elmer (Stewart 1934:109).

General Ebenezer Elmer was in charge of Fort Billingsport's rehabilitation and its conversion into a military training center between September and December 1814. Two thousand men were sent from Fort Billingsport to defensive positions around New York City and the New Jersey coast. Fort Billingsport was mustered out of service in 1815 (Archut 1957; New Jersey, Adjutant General's Office, 1909:112–137). The militia was subsequently blamed for cutting down about 15 acres of wood and destroying all the fences. Military preparations came to an unexpected halt

with the signing of the Treaty of Ghent in December 1814 (Babcock 1815:81; Linnard 1824a ; Young 1895:165—167).

Major Linnard was still quartermaster at Philadelphia in 1824 when he reasserted his authority over the Billingsport tract. He had not visited Billingsport since 1813. In the ensuing decade, the government's land had been in a state of limbo without any caretakers. According to Major Linnard, it was

free to the ravages of ill disposed persons, who have destroyed the fences etc. nearly the whole front on the river and distance back, is broken up by digging for the Breastwork, and embrazures [sic], and would cost more to level it than that part of the ground is worth, the remainder is tolerable good Jersey land, formerly it was an excellent fishing place for shad but the bottom of the *Augusta* drifting on the shore after she was blown up has injured it much [Linnard 1824b].

Rumors circulated around the neighborhood that the government tract was up for sale. Several men approached Major Linnard with offers to buy the property. Linnard set about trying to resolve the Billingsport situation. One man wanted to buy the government land for a shipyard to build river craft. Upon learning only a lease could be arranged, the shipbuilder declined because of the expense of building a wharf and house (Linnard 1825a).

In April 1825, Major Linnard went on an inspection tour of the Billingsport tract accompanied by a neighboring property owner. Linnard described the tract as “a desolate place not a single post or rail of the fences to be seen nor a vestige of any building” (Linnard 1825b). He estimated that about 35 or 40 acres of the tract was cleared, including the 6 or 7 acres of the site of Fort Billingsport, which was “much broken up by digging the ditches and breast work” (Ibid). The remainder of the cleared land was level but sandy soil not well suited for agriculture without fertilizer. The remaining 50 or so acres were wooded with “a close grown thriving young wood” that when ready to be harvested would yield 500 or 600 cords of excellent fire wood. Linnard estimated that the river frontage measured about 755 yards (2,265 feet). The riverbank was about 25 feet high. The upper 5 feet consisted of a mixture of sand and gravel. Below this stratum was fine yellow sand. Signs of excavation were clearly visible. Linnard learned that “North Carolina vessels... sometimes stopped and took in their ballast there” (Ibid).

Major Linnard hired Benjamin Devault, who lived near the government land, to be its caretaker for \$20 a year. Devault had once acted as an unofficial caretaker of the property under the auspices of Major Babcock of the Corps of Engineers. The new caretaker was given strict instructions to prevent the taking of wood, gravel, or sand off the property. The exception being any gravel or sand that might be required at either Fort Mifflin or Fort Delaware (Linnard 1825c). In 1832, Commodore James Barron requested a few shallop (barge) loads of gravel from the banks of the Billingsport tract for improvements underway at the Philadelphia Navy Yard (Bender 1832).

In March 1830, Lieutenant Colonel Linnard received a visit from Garrot Clark, a wealthy landowner who owned the ferry, inn, and wharf at Billingsport. Clark's hotel was acknowledged to be the oldest on the Delaware River south of Burlington City (*Paulsboro News*, May 8, 1924).

His property adjoined the road that formed the east line of the government tract and led directly to the ferry. Clark wanted to cut a new road to his ferry that went through the government's property. Upon being told that he needed to receive permission from the secretary of war or the quartermaster general, Mr. Clark returned home to Billingsport. A few days later, Benjamin Devault contacted Linnard with news that Garrot Clark had begun building a road through the government property (Figure 16). Bowing to Linnard's authority, Garrot Clark stopped the road but vowed to get permission to proceed from the local court. Clark's petition to the Gloucester County Court of Common Pleas to open the road was refused after the timely arrival of Devault in court with a written request from Lieutenant Colonel Linnard to oppose the petition (Linnard 1830a).

Linnard fought all encroachment on the government's property because it would reduce the size of the tract and hence its value in any forthcoming sale. Besides, the new road was cutting through the tract's most valuable asset—the woods. He recognized that the U.S. Government would have to dispose of this property, as it no longer had any defensive value. However, the only way to prevent the Court of Common Pleas exercising its eminent domain was through the intervention of the governor or legislature of the state of New Jersey (Ibid).

In the June session, the court granted Garrot Clark's petition for a new road to Billingsport (the present-day Billingsport Road) and sent out five of the county's elected highway surveyors to plot out the new road (Figure 17). The road survey noted the boundary line between Garrot Clark and the government land, as well as the alignment of Billingsport Road, making it possible to locate the 96-acre Billingsport tract using the metes and bounds recorded in the 1776 deed. Colonel Linnard was able to derive some satisfaction from opening the new road when the Treasury of the United States received \$41 for the sale of all the wood cut while building the road through the Billingsport tract (Linnard 1830b).

Colonel Linnard's prediction that the timber would play an important part in the sale of the Billingsport tract came true in 1834. In January of that year, Joseph C. Gill—a man in the timber business from Clarksboro, Gloucester County—sent an offer to buy the oak and pine timber off the government land. This offer prompted Assistant Quartermaster Aeneas Mackay to make an inspection of the tract. He reported that about 70 acres of the tract was “covered with wood in the proportion of one part pine to four parts scrub oak mingled” (Mackay 1834). He estimated that the tract contained 800 to 1,000 cords of wood. After taking into account the cost of chopping, hauling to the wharf, and transporting to Philadelphia, the wood would yield the same price offered by Joseph Gill, namely \$2.50 a cord for hardwood and \$2.00 a cord for pine (Ibid).

The quartermaster general believed that the timber on the Billingsport tract was more valuable than the land itself. He authorized Aeneas Mackay to negotiate a good price for the timber (Jesup 1834). Joseph Gill felt it was too late in the timber-cutting season to clear the wood off the government's land. Instead, he offered to pay \$2,000 to buy the entire 96-acre tract outright (Gill 1834).

SALE AND SUBDIVISION OF THE FORT BILLINGSPORT TRACT

In December 1834, the United States Secretary of War Lewis Cass sold the 96-acre Fort Billingsport tract to Joseph C. Gill and his partner John Ford for \$2,000 (Figure 18). After the

partners harvested wood off the tract for six years, Ford bought out Gill's share in the land venture. As soon as John Ford acquired sole title to the tract in 1840, he sold a 200-foot-wide parcel fronting on the Delaware River to local resident Thomas Thompson for \$270. The parcel, which extended back to the Billingsport Road, included a dwelling house (Gloucester County Deed Book L3:532; V-3:569; W-3:371). Thompson was evidently already a tenant, as his son Fred H. Thompson was born in this house in 1839 (*The Record*, October 3, 1963).

In July 1840, Ford, who was a resident of Northern Liberties in Philadelphia County, sold his 90-acre farm to Joseph C. Brittin, a grocer from Southwark in Philadelphia County. Brittin paid \$3,000 for the property. His primary residence was in Southwark and he rented out the Billingsport farm to James Thompson. Brittin died in 1843 and his family was taken to court to recover the money he still owed to John Ford (Gloucester County Deed Book X-3:37; Gloucester County Inventory Book N-7:212; New Jersey Chancery Court Volume 1:650).

The United States Coast Survey of 1842 and 1848 both indicate that the former Fort Billingsport tract was still heavily wooded. A large section of cultivated land was located along the river and adjacent to Billingsport Road. The Thompson family had two buildings on their lot. Joseph C. Brittin owned the third house in 1842, and Garrott Clark owned it in 1848 (Figures 19 and 20).

Garrott Clark, the Billingsport innkeeper and farmer, purchased the Brittin farm in 1844 at a sheriff's sale. He paid \$1,075 for the former government land. A few months later, in July 1844, he carved a 2-acre lot out of the northwestern corner of the tract. He sold this riverfront lot to Selby Murray for \$95. The lot was 200 feet wide and 440 feet deep (Gloucester County Deed Book E-4:48; E-4:256). A few years later, Clark sold an identically sized lot to Murray, so that he had a lot that was 200 feet wide and 880 feet deep. Murray was a waterman; his lot and the house he built on it were worth \$900 in 1850 (Gloucester County Division of Lands, Volume 3:119; U.S. Bureau of the Census, Greenwich Township, Gloucester County, 1850:117)(Figure 21).

Garrott Clark died in Billingsport on January 24, 1852 (Clark, Garrott obituary); he was about 55 years old (U.S. Bureau of the Census, Greenwich Township, Gloucester County, 1850:115). His real estate was divided through the Orphan's Court among his heirs in November 1852. Each of his children received a lot fronting the Delaware River that extended back to Clonmell Road. Lot Number 1 (5.80 acres) was assigned to Garrott Clark (Junior); Lot Number 2 (5.72 acres) was assigned to Elizabeth Thomson; Lot Number 3 (5.62 acres) was assigned to Rufus W. Clark; Lot Number 4 (5.52 acres) was assigned to Mary Thomson; Lot Number 5 (5.42 acres) was assigned to Rebecca Y. Clark; Lot Number 6 (7.48 acres) was assigned to Beulah G. Clark (Gloucester County Division of Lands 3:119). The east half of the Fort Billingsport project area is located on what once was Lot 6 of the Garrott Clark estate division. The west half of the project area is located on the house lot of Selby Murray.

COUNTRY RETREATS

The children of Garrott Clark sold off their inherited lots to Philadelphians interested in establishing country retreats (Figure 22). Lots 1 and 2 became the 11.52-acre property of Charles D. Freeman in 1857. He also owned Lot 6 (Gloucester County Deed Book S-4:425; T-4:467).

Paul Salomon acquired Lots 3, 4, and 5 in 1852 and combined them into a 16.56-acre tract (Gloucester County Deed Book O-4:351 and F-5:81).

Charles Dudley Freeman was about 40 years old in 1860. He was an attorney with \$30,000 worth of real estate and \$12,000 worth of personal property. Later, he became president of the Camden and Atlantic Railroad (*Philadelphia Inquirer*, June 16, 1878, page 3). He was living at Billingsport during the summer of 1860 with his wife Sarah and six children. His neighbors were mostly farmers and waterman with a much more modest income (McElroy 1850:141; U.S. Bureau of the Census, Greenwich Township, Gloucester County, 1860:151). Charles Freeman sold the former Lot 6 to Thomas J. Ryan in 1889 (Gloucester County Deed Book 149:467).

Paul Salomon, a French émigré, was listed in Philadelphia city directories as a “gentleman” who lived in Rittenhouse Square (McElroy 1853; Salomon 1846). His wife Sophia’s maiden name was “Paul” (Sophia Salomon Death Notice 1874). A connection to the local branch of the Paul family might explain what brought the Salomons to the neighborhood. When Salomon purchased Lots 3, 4, and 5 for \$1,650, they were vacant land. He built a house that survived into the Lincoln Park–era. His country house tract had a river frontage of about 495 feet. He and his wife lived in Philadelphia with three live-in servants. Salomon’s real estate holdings were worth \$26,000 and he had a personal estate valued at \$49,000 (U.S. Bureau of the Census, 8th Ward, Philadelphia, 1860:616). In 1864, Salomon transferred title of his Billingsport country house to his son-in-law, John Reuben Jennings. Jennings was required to pay Paul Salomon an annual rent of \$720 during his lifetime and to keep the house insured. During the Civil War, Jennings served as the assistant quartermaster in Philadelphia and rose to the rank of brevet major of volunteers (Gloucester County Deed Book B-5:126; Heitman 1903:572). Paul Salomon died at his home in Philadelphia in 1867 at the age of 70 (Paul Salomon Death Notice 1867).

In June 1867, John Reuben Jennings sold the country house in Billingsport to Charles Edgar Gibbs for \$7,000 (Gloucester County Deed Book F-5:83). Gibbs was enumerated in his Billingsport home for the decennial census in the summer of 1870. He was a 35-year-old grain dealer and commission merchant, part of the firm of Gibbs & Brother on North Water Street in Philadelphia (Charles Edgar Gibbs Death Notice 1885a). His real estate holdings were valued at \$20,000 and his personal property at the same amount. He was the head of a predominantly female household that included his mother and two unmarried sisters, Eliza and Mary Louise. They had a live-in servant and two farm workers sharing their home (U.S. Bureau of the Census, Greenwich Township, Gloucester County, 1870:155). Charles Edgar Gibbs died at his home in Billingsport on the last day of 1884 (Charles Edgar Gibbs Death Notice 1885b).

Because Charles Edgar Gibbs died without leaving a will, it became necessary to have the Chancery Court make a partition of his estate. His heirs included his sisters Eliza, Sarah, Margaret, and Mary, as well as a number of nieces and nephews. The court determined that the Billingsport property could not be partitioned among so many heirs without damaging its value. Therefore, a public sale was held on October 10, 1885. The property sold to the highest bidder, Mary L. Gibbs, for \$10,500. Mary and Eliza Gibbs continued to live in Billingsport until 1889, when they sold their property to Thomas J. Ryan (Gloucester County Deed Book 140:233; New Jersey Chancery Court Docket Volume 11:292; 149:464).

THE WATERMAN'S LOT

Selby Murray was a 54-year-old waterman and had real estate worth \$2,000. He was the head of a household that included his wife Mary and four children. He was earning a living as a fisherman 10 years later at the age of 63. His house and lot were worth \$1,200, and he had personal property worth \$500 (U.S. Bureau of the Census, Greenwich Township, Gloucester County, 1860:152; 1870:154).

In 1873, Selby Murray sold his house and lots to Catharine Wood, an unmarried woman from Camden County. She paid him \$3,200 for his property and agreed to assume a mortgage debt of \$300 that he owed to Paul Salomon's estate (Gloucester County Deed Book P-5:306). After Catharine's death in 1890, the property passed through a series of relatives until it was sold to Joseph Bramell of Paulsboro in 1916 (Gloucester County Deed Book 257:581). The Lincoln Park interests did not purchase this lot. It remained in the Bramell family until 1952, when Ada and Gertrude Bramell sold it to the Esso Standard Oil Company (Gloucester County Deed Book 720:214).

LINCOLN PARK

In April 1889, Thomas J. Ryan assembled properties along the Delaware River for an amusement park that would be known as Lincoln Park. These properties, former Lots 1 through 6 of the Garrott Clark estate, became a single tract of 35.56 acres (Figure 23). The tract included the Gibbs house and tower (Figures 24 and 25). He laid out a total of \$27,125 to buy up all the properties. The resulting tract was about 1,000 feet wide at the shoreline and just over 1,100 hundred feet wide along Clonmell Road. The Lincoln Park tract measured about 1,400 feet back from the river to Clonmell Road. Ryan sold the 35.56-acre tract to the Lincoln Park Company in two transactions that netted him \$38,130 in cash and 3,160 shares of capital stock in the Lincoln Park Company, at a par value of \$158,000 (Gloucester County Deed Books 149:464–467; 150:574–575).

George McGowan, Robert S. Patterson, Joseph Madden, James J. Ryan, and Captain A. B. Stoney incorporated the Lincoln Park Company (*Philadelphia Inquirer*, October 12, 1889, page 7). The major stockholders and officers were George McGowan, president; Robert S. Patterson, treasurer; and D. Howard Conrad, secretary (*Philadelphia Inquirer*, March 3, 1890, page 5). These men conceptualized a family-oriented summer resort for day-tripping Philadelphians accessible by steamboat patterned after the resort of Glen Island on the Hudson River (*Gloucester County Democrat*, August 15, 1889, page 3).

Billingsport was an ideal location—set on the high, breezy bluffs of the Delaware River in a bucolic setting, yet only 12 miles from Philadelphia. Lincoln Park's owners made money by controlling the transportation to the site, along with the food and drink concessions in the park. The roundtrip fare was 25 cents for adults and 10 cents for children under the age of 10 (*Philadelphia Inquirer*, May 26, 1894, page 4). The average factory worker earned \$1.50 per day and worked a 60-hour week (Rees 1961:33). Lincoln Park was different than some of the other amusement parks of the day because it had a liquor license. The beer garden faced a large band shell (Bailey and Parkhurst 1979:36). It was a seasonal park, open from Memorial Day to Labor

Day. Opening day of each new season brought new rides, new entertainments, and new landscape improvements that kept the public interested in coming back.

Lincoln Park Management

The Lincoln Park & Steamboat Consolidated Company was incorporated on January 15, 1891 in New Jersey. Its principal office was located at Lincoln Park. In May 1892, the Lincoln Park Company transferred all of its assets to the Lincoln Park & Steamboat Consolidated Company. The new company consolidated the real-estate holdings of Lincoln Park and the ownership of the steamboats that brought visitors to Lincoln Park (*Moore v. Lincoln Park & Steamboat Consolidated Co.*, 1900). The board of directors of the Lincoln Park & Steamboat Consolidated Company included George McGowan, president; Thomas J. Ryan, general manager; Joseph Madden; Charles Benton, treasurer; William Boyle; Joseph H. Klemmer; A. B. Stoney, vice president; Hugh C. Moore; and D. Howard Conrade, secretary (July 11, 1892, page 2; *Philadelphia Inquirer*, January 16, 1894, page 5).

Robert S. Patterson was one of Lincoln Park's chief promoters and supervised its construction (Black undated). He moved into the Gibbs house with his family in the summer of 1889 (*Woodbury Constitution*, July 3, 1889, page 3). Patterson was born in Aberdeen, Scotland, in 1844 and came to America while still a young boy. He began his working life as a teamster for wholesale merchants and within a few years had taken over the hauling company. He remained a teamster for the remainder of his life and also invested in shipping. Like the other members of the Lincoln Park management, Robert S. Patterson was a high-ranking member of the Democratic Party in Philadelphia, having served as its chairman (*Philadelphia Inquirer*, June 2, 1890, page 2). He was appointed to the politically plum job of harbor master of the Port of Philadelphia by the governor on March 24, 1891, and was still serving in that office when he developed pneumonia and died (*Philadelphia Inquirer*, May 1, 1892, page [1]; May 16, 1891, page 5).

George McGowan, president of the Lincoln Park Company, was a prominent Philadelphia attorney specializing in real estate and estate administration cases. He was born in Philadelphia in 1847, educated in city schools, and admitted to the bar in 1868. In 1869, he was appointed assistant city solicitor. He served in the State Legislature in 1870–1871 and in 1884–1886, and was a delegate to four Democratic National Conventions (*Philadelphia Inquirer*, May 22, 1896, page 14). In 1894, McGowan stepped aside from his candidacy as a representative in the State Legislature in favor of D. Howard Conrade, his law partner (*Philadelphia Inquirer*, September 7, 1894, page 8). George McGowan died in 1908 (*Philadelphia Inquirer*, August 26, 1908, page 7).

Captain A. B. [Alfred Bedle] Stoney was born in 1842, the son and grandson of steamboat captains who had operated the ferry service between Keyport, New Jersey, and New York City since 1839. After captaining on his family's steamboat line for several years, Captain Stoney became general manager of the Keyport Steamboat Company in 1879. He gave up his position in 1885 when he bought a river steamer and began operating passenger service on the Delaware River. He was a staunch democrat, served in the New Jersey State Legislature, and was elected speaker of the house (Nelson 1902:394–396). He was the general manager of Lincoln Park (*Philadelphia Inquirer*, August 9, 1891, page 8).

Thomas J. Ryan, who consolidated the Lincoln Park tract, was a Democratic Party boss in Philadelphia. His involvement with Lincoln Park was the beginning of a prominent career in the amusement industry. Ryan was born in Philadelphia in 1857. He was elected to the Common Council in 1881 and elected to the Select Council three years later. He served on the Select Council until 1892, when he succeeded his friend Robert S. Patterson as Philadelphia's harbor master (*Philadelphia Inquirer*, May 13, 1892, page 2). Ryan resigned his post as harbor master in 1895; his friend Joseph H. Klemmer succeeded Ryan. Klemmer was a republican on the Philadelphia Select Council who also sat on the board of the Lincoln Park & Steamboat Consolidated Company (*Philadelphia Inquirer*, March 7, 1895, page [1]). Ryan was elected to the office of City Commissioner in 1896 (*Philadelphia Inquirer*, September 6, 1896, page 2).

Thomas J. Ryan was head of the Ryan Amusement Company of Philadelphia and a large stockholder in the American Amusement Company, which held important concessions in amusement parks throughout the country (*Charlotte Daily Observer*, October 7, 1912, page 8). Ryan was a close friend of Peter A. B. Widener, the traction magnate. With Widener's backing, Ryan took over a majority of the amusement concessions at Willow Grove Park. Among Ryan's rides was "Chase through the Clouds," a giant racing coaster advertised as the largest and costliest amusement in America (*Philadelphia Inquirer*, July 16, 1911, page 6). In about 1905, he opened the first of several rides at Coney Island in Dreamland Park. He lost about \$125,000 when his amusements at Dreamland were destroyed in a fire. In 1912, while in the midst of developing Point Breeze, a new amusement park in South Philadelphia, he committed suicide (*New York Times*, October 7, 1912, page 9).

Lincoln Park Construction

The Lincoln Park Company hired Paulsboro resident James J. Cowgill to be the superintendent of construction for the amusement park (Figure 26). Construction began in July or August 1889 when a crew of about 10 men began clearing the land so that a street could be built to the planned steamboat wharf. W. H. Lownsbury & Company was awarded the contract to build the pile pier and solid crib for the wharf. Work on the wharf and the road leading to it began early in September. Other crews were busy with re-landscaping the property to a park-like setting by grading and planting grass, trees, lawns, and flowers. Landscape plans included cementing the areas around buildings and laying out gravel walks and drives (*Gloucester County Democrat*, August 29, 1889, page 3; *Woodbury Constitution*, September 11, 1889, page 3). On October 21, 1889, the contract to build the stone sea wall along the front of the Lincoln Park tract was awarded to W. F. Ackley. He was paid \$2.72 per lineal foot for the wall, or about \$2,700. The sea wall was completed by the end of November (*Gloucester County Democrat*, November 14, 1889, page 3; Lincoln Park Notes).

Local resident Tom Devault was employed as a laborer with the construction crew building Lincoln Park in October 1889. He was grading a road that would connect the steamboat wharf with the interior of the park. Underneath the foundation of a barn, Devault's pick unearthed an oblong tin box containing \$20,000 in counterfeit bank notes. Buried near the bank notes were 16 steel plates that had been used to print the money. The counterfeit notes and plates were the work of a gang based at Red Bank (now National Park). The counterfeit money was never circulated because the Secret Service got wind of their plans and put the gang under surveillance. The

gang's leader, "Colonel" Jack Sherman, clandestinely buried the evidence on what was then the Garrott Clark farm around 1850. The barn was built at a later date at the boundary line between the Gibbs and Freeman properties (*Philadelphia Inquirer*, October 9, 1889, page 1; *Woodbury Constitution*, October 9, 1889, page 3).

The design for Lincoln Park's buildings was awarded to the Philadelphia architectural and engineering firm Rowe and Dagit (*Philadelphia Inquirer*, October 12, 1889, page 7). The principal architect Henry D. Dagit was primarily known for his Catholic churches and institutional designs. He was architect for the Trenton archdiocese, for whom he designed 175 buildings between 1898 and 1908. One of his best-known churches is the Byzantine revival Saint Francis de Sales Church in Philadelphia. Henry Dagit opened his own architectural practice about 1888. He was awarded Lincoln Park when he was 24 years old. It may have been his first big commission (Tatman 2008). The Dagit architectural firm under the control of Henry Dagit's descendants continues a distinguished practice in institutional design up to the present day. When Charles Dagit retired from the firm of Dagit-Saylor in 2008, the name was changed to Saylor Gregg Architects (<http://www.saylorgregg.com/profile.html>).

Originally, Lincoln Park was to include a large hotel pavilion, with restaurant and kitchen, ladies' cottage (restroom), rookery building, little Germany house, two rustic buildings and lookout tower, flying-horse pavilion, billiard room, and bowling alley (*Philadelphia Inquirer*, October 12, 1889, page 7).

A rookery was planned consisting of large boulders found on the property and "designed in an original and unique manner, one story in height, with open timber roof, and to be used as an adjunct to the restaurant. The interior will be decorated with relics connected with the place." Another planned restaurant in the park was named "Little Germany" (*Philadelphia Inquirer*, May 27, 1890, page 7; October 12, 1889, page 7).

None of the structures indicated on the series of Sanborn maps of Lincoln Park include a "rookery" or a "Little Germany" restaurant. The only one-story building near the shore was the ice cream pavilion (Figure 27) (Sanborn Map Company 1896).

On December 9, 1889, the firm of J. J. Jackson & Son of Chester was awarded the contract to build the hotel pavilion, the largest building at Lincoln Park. They bid \$16,854 to complete the job in six months (*Gloucester County Democrat*, November 14, 1889, page 3; Lincoln Park Notes). The pavilion was designed with a square tower 56 feet high. In the upper stories were 10,000-gallon water tanks that supplied all the buildings throughout the park. Dagit estimated that the park would require a water system capable of supplying 60,000 gallons a day. The pavilion's restaurant was large enough to accommodate 500 diners (*Philadelphia Inquirer*, February 23, 1890, page 3; March 28, 1890, page 5).

Construction probably slowed down somewhat during the winter, but by early March, work was underway on two cottages to be used as barber shops and waiting rooms. In April, the Lincoln Park Company awarded a contract to George C. Stratton of Woodbury for the construction of five additional buildings, a ladies' cottage, a gentleman's cottage, a music shell, a refrigeration building, and the electric light plant. All of these projects were to be completed by May 23. The

ladies' cottage was two stories high, containing reception, retiring, and reading rooms. The gentleman's cottage featured a barbershop and a smoking room. Henry Dagit designed the music shell with Moorish architectural elements. It was 125 feet across the front and 60 feet deep. Five or six contracting firms had work crews on the property during the spring of 1890 trying to meet a June 1 deadline. Construction continued until July (*Philadelphia Inquirer*, February 23, 1890, page 3; April 28, 1890, page 6; August 24, 1890, page 7; *Gloucester County Democrat*, April 24, 1890, page 3).

In May 1890, Henry D. Dagit, the supervising architect of Lincoln Park, was still awarding construction contracts for buildings at the park. These projects included a carousel building, water tower, two additional boiler houses, two servants' buildings, and several pavilions. The water tower was expected to hold tanks storing 60,000 gallons of water.

The park's plumbing and drainage contractor was Reeves & West of Philadelphia. Their contract for \$3,015 was awarded on April 28, 1890. Franklin P. Reynolds built the water tank for \$1,600 on a contract awarded on May 5, 1890 (*Philadelphia Inquirer*, April 23, 1890, page 7; *Woodbury Constitution*, January 29, 1890, page 3; Lincoln Park Notes).

Henry Dagit designed the electric light plant estimated to cost about \$20,000, the same estimate for building the large hotel and restaurant pavilion (*Philadelphia Inquirer*, February 23, 1890, page 3). The electric light plant was located a short distance behind the pavilion. A 60-foot-high tower was attached that included a 1,000-gallon water tank (Sanborn Map Company 1891). The electric plant consisted of four 12-horsepower engines and eight dynamos that could power 120 arc and 1,200 incandescent lamps. When it opened, Lincoln Park had 500 incandescent electric lamps in the pavilion and music stand and 75 electric arc lights in the grounds, as well as along the bluff and beach (*Philadelphia Inquirer*, March 28, 1890, page 5).

Lincoln Park's landscape design incorporated fountains illuminated by electric light. It was a popular feature of the 1889 Paris Exposition, the first exposition to utilize electricity for lighting many of its exhibits. Major fairs and amusement parks have often been showcases for new technologies. Amusements offer a means to display complex or novel technologies to a wide audience, demonstrating them as safe as well as commercially viable (Adams 1995:45-55; *Philadelphia Inquirer*, October 12, 1889, page 7; Sanborn Map Company 1891).

The most influential fair was the World's Columbian Exposition held in Chicago between May and October 1893 to commemorate the 400th anniversary of Columbus' arrival in the New World. It is also referred to as the Chicago World's Fair. It was the coming-of-age for American arts and architecture, and it had a profound effect on the American consciousness. Over 27 million people attended the exposition, at a time when the population of America was about 65 million. It was the place where Westinghouse and Tesla's alternating-current system vanquished Thomas Edison's direct-current system by being chosen to illuminate the exposition. It introduced the American masses to electricity. The commonly held view of electricity changed from something that was frightening, dangerous, and unproved to a benign servant of man with the potential to enrich human life.

The Chicago World's Fair's influence on the amusements industry was also profound. The Ferris wheel made its first American appearance at the fair. Moving pictures were shown at the first

commercial movie theater there. Lincoln Park, like other amusement parks of the era, borrowed directly from the popular displays of the 1893 World's Fair. Lincoln Park installed "The Night in Venice," vari-colored electric lights that lit the flowerbeds, trees, and lawns (World's Columbian Exposition, wikipedia.org; August 5, 1894, page 6).

Lincoln Park: The Famous Family Resort

Lincoln Park opened on June 14, 1890. *The Philadelphia Inquirer* claimed opening day attendance was 15,000 people, but a local newspaper put the attendance at a more realistic 6,000. By the following Sunday, attendance was calculated to be 10,000 to 12,000 people (*Woodbury Constitution*, June 14, 1890). The Fourth of July holiday in 1890 drew a record 40,000 people to the park (*Philadelphia Inquirer*, July 5, 1890, page 5). The park had 300,000 visitors its first season (*Philadelphia Inquirer*, April 22, 1891, page 2). Shady picnic groves offered a cool respite from stifling rowhouses and youngsters could ride the carousel or toboggan slide for free. Electric lights lit up the buildings and picnic groves in the evening (Bailey and Parkhurst 1979:36; *Philadelphia Inquirer*, June 15, 1890, page 2).

Five steamers arrived at 30- to 60-minute intervals. The management of Lincoln Park emphasized its family-friendly atmosphere by prohibiting the sale of alcohol on Sundays. The company adopted the moniker "Famous Family Resort" for the park. Consumption statistics for one Sunday in 1890 were as follows: 9,000 sandwiches; 6,800 plates of ice cream; 3,000 glasses of lemonade; and 8,000 oysters. The toboggan slide attracted 3,800 riders and over 2,000 people rode the carousel. Several hundred people paid a nickel to hear music played on an Edison phonograph (*Philadelphia Inquirer*, June 23, 1890, page 5).

In the spring of 1891, the Lincoln Park Company made improvements to the park by planting 200 shade trees to create more picnic groves. New walks were laid out and flowerbeds planted in many parts of the park (*Philadelphia Inquirer*, April 22, 1891, page 2). A new feature of the 1891 season was the building housing the swings, described as "extensive and costly." Also new was a "substantial and ornamental double-deck pavilion, 100 x 40 feet... on the pier." In 1891, the Lincoln Park Company operated six steamboats picking up passengers at the Race and Christian Street wharves on the Delaware River and at the Chestnut and South Street wharves on the Schuylkill River. The largest of their steamboats could carry 6,500 passengers, and the smaller ones carried 1,500 people (*Philadelphia Inquirer*, April 22, 1891, page 2).

Advertisements to entice summertime excursionists to the park included descriptive hyperbole, such as "brisk breeze off the broad sweep of the Delaware" and "great, fragrant pine groves on the bluff that keeps off the sunshine but lets in the breeze" (*Philadelphia Inquirer*, June 15, 1892, page 8); "from purgatory to paradise" and "vast groves of whispering pines" (*Philadelphia Inquirer*, June 20, 1892, page 8); and "a cool breeze is the prevailing attraction of Lincoln Park" (*Philadelphia Inquirer*, June 22, 1892, page 8).

By stressing the park's genteel and orderly atmosphere, managers were able to attract a high proportion of women and children. Visits by various church, school, social, and business groups were cataloged in the newspaper (*Philadelphia Inquirer*, July 10, 1892, page 11). Ice water was provided free of charge, as was the musical program. The rides were included in the price of the 25-cent steamboat ticket (*Philadelphia Inquirer*, July 17, 1892, page 11).

During the spring of 1893, workers were hired to make improvements at Lincoln Park. The steamboats were also overhauled and fitted with more deck space. Efforts were underway to make the steamboats faster (*Philadelphia Inquirer*, April 24, 1893, page 5). For the fourth season, Lincoln Park was beautified, with new walks, new flower beds, and new trees. The picnic grounds were remodeled and improved. The toboggan ride was enlarged and strengthened. New boilers and dynamos were added to the electric light plant that increased its capacity for additional light fixtures. A new ride was added—a race course 150 feet in circumference with six mechanical horses that flew around the track, each ridden by a differently costumed jockey. An audience watched from a grand stand (*Philadelphia Inquirer*, May 21, 1893, page 10). Technical problems with the ride delayed its opening until the end of the season (*Philadelphia Inquirer*, August 27, 1893, page 12). Lincoln Park management promised that the race course would be enlarged and improved for the fifth season in 1894. Alternating with the horses would be boat and tub races, and also two chariots with drivers using the same track as the mechanical horses (*Philadelphia Inquirer*, September 3, 1893, page 10).

The management of Lincoln Park was always on the lookout for some new attraction. On August 7, 1893, fireworks designed by noted British pyrotechnicians James Pain & Sons were introduced to the park. The pyrotechnics were set off from a large float anchored in the river. In later years, firework displays were given in an open field directly behind the picnic grounds (*Philadelphia Inquirer*, August 8, 1893, page 2; August 12, 1894, page [6]). Lincoln Park’s resident orchestra, Wannemacher’s Band, played on the bridge between the cottage and the stone tower during the fireworks nights to entertain the crowd before the display began (*Philadelphia Inquirer*, August 13, 1893, page 12).

Lincoln Park was described as having “pleasant walks, spacious lawns, and cozy nooks innumerable” and that the “many groves and picnic grounds are filled with tables and benches.” An “immense level field” had been developed for baseball, football, lacrosse, cricket, and croquet. Competitions were held to win silver trophies. Attractions included “two mammoth toboggan slides, a children’s extensive swing house, an immense carousel, and the only race track in operation in New Jersey” (*Philadelphia Inquirer*, May 26, 1894, page 4; August 6, 1893, page 14).

For the sixth season at Lincoln Park, in 1895, managers introduced the latest in amusement technology, including phonographs, kinoscopes, fortune machines, and age machines (*Philadelphia Inquirer*, January 26, 1895, page 9). Thomas Edison formed the Edison Phonograph Company in 1887 to market his machines. The company produced musical cylinders for coin-slot phonographs, probably what appeared in the phonograph stand at Lincoln Park on the 1896 Sanborn map (Sanborn 1896). Edison gave the first public demonstration of his Kinetoscope in 1893. It was an early motion picture exhibition device that allowed an individual to look at a film through a viewer in a cabinet in which a strip of perforated film passed over a light source. Edison had his invention patented the following year. In April 1894, the first Kinetoscope parlor opened in midtown Manhattan (Edison Chronology 1879).

The sixth season also brought more landscape changes, with new flower beds and walks. One of the amusements greeting patrons was the haunted swing. The haunted swing was an illusion ride in which a large swing, suspended from a bar in a room, allowed seated passengers to feel odd sensations of oscillation when the closed room itself shifted back and forth as the swing

remained stationary (Rabinovitz 1998:143). Lincoln Park continued their popular colored lights display, but on a much larger scale. Ten thousand lamps created a “fairy land” (*Philadelphia Inquirer*, March 24, 1895, page 16; May 26, 1895, page 17).

Lincoln Park’s opening day of the sixth season, May 30, 1895, broke all attendance records with 25,000 people (*Philadelphia Inquirer*, May 31, 1895, page 6). Faced with the increasing competition for attendance, the Lincoln Park management invested in greater attractions while keeping the cost of admittance the same. The Chicago Marine Band, a popular attraction at the World’s Columbian Exposition was engaged for the entire 1896 season. James Pain, the pyrotechnical wizard, designed a spectacle called “The Carnival of Venice.” Following successful runs of “The Carnival of Venice” on Coney Island and at the World’s Columbian Exposition in Chicago, James Pain brought the extravaganza to Lincoln Park. It cost \$5,000 to stage. The fireworks show required the work crew of 60 men for the construction of a cement-lined artificial lake 350 feet long and 100 feet wide. Behind the lake stood a stage and a 450-foot-long painted backdrop. Buildings in the stage set were lit with 1,000 incandescent lamps. Besides the cast of 400 performers, the production included Venetian gondolas, high-wire acts, a ballet chorus, and, of course, fireworks. An amphitheatre with seating for 12,000 was built to view the spectacle. Landscape was continually improved with new flower beds, walks, and trees (*Philadelphia Inquirer*, April 26, 1896, supplement page 21; June 2, 1896, page 3; June 27, 1896, page 11; July 4, 1896, page 8).

Lincoln Park promoters emphasized that the “pleasure grounds” had lots of space for all sorts of sporting events in the 1896 season, from baseball to lawn tennis, as well as the “ever popular new woman’s game, basket ball.” Boating was also offered on the river. Also on offer for the 1896 season was the Edison vitascope. The vitascope was an early film projector first demonstrated in 1895. It was not invented by Edison, but manufactured by him. The vitascope images wowed audiences, showing scenes such as busy New York street corners, vaudeville acts, or a new ride that was sweeping the nation, the shoot-the-chute, in action (*Philadelphia Inquirer*, May 24, 1896, page 20; May 31, 1896, page 21).

Shoot-the-Chute

The main attraction of Lincoln Park’s sixth season in 1896 was the shoot-the-chute ride (Figure 28). The shoot-the-chute was a water ride credited to Captain Paul Boyton. In fact, Boyton’s version was based on a coaster patented by John P. Newburg of Rock Island, Illinois, in 1889. Newburg’s innovation was to build his “inclined pleasure railway” beside a body of water and use a boat-shaped car to skim along the water (Newburg 1896). Similar water toboggan rides had been popular in Europe for a while. Newburg’s coaster did not explain how the cars and riders would get up to the top of the incline. Paul Boyton came up with a solution that he patented in 1895. He suggested moving people to the top of the incline by means of an elevator located in the frameworks at the rear elevation. The boat cars would be hoisted up a tower opposite the incline and then slid back to the top of the incline along a cable between the two points (Boyton 1895).

Paul Boyton was an internationally known aquatic showman and adventurer. Many of his celebrated feats involved his promotion of a life-saving inflatable rubber suit in which he crossed

the English Channel and navigated many of the large rivers of America and Europe. He served in the Union Navy during the Civil War and later in the French Navy and Mexican Navy. He helped organize the United States Life-Saving Service, one of the precursors to the modern-day United States Coast Guard. He was appointed captain of the Atlantic City, New Jersey lifesaving service. In another story, his captain's rank was presented by a grateful Peruvian government after he blew up a Chilean man-of-war by paddling out to it in his rubber suit and attaching a torpedo (Stanton 1998).

He formed an aquatic circus and toured for several years. In 1895, he bought 16 acres of land and opened the Sea Lion Park on Coney Island as a headquarters of his aquatic circus, creating the first permanent enclosed amusement park with an admission fee in North America. It later became the Coney Island Amusement Park. He enclosed his operation with a fence to keep out the riffraff. This resulted in a historic first-charging a gate fee to enter his park, as opposed to pay-as-you-go concessions. His headlining attraction, aside from the sea lion show, was his water chute ride consisting of a ramp with a pool at the bottom. He had opened his first chute ride in Chicago at the White City Amusement Park on July 4, 1894. Exactly one year later, on July 4, 1895, he opened a sister attraction he dubbed "Shoot-the-Chutes" in Coney Island. Boyton and inventor Thomas Polk had designed an upcurve at the incline's lower end that launched the flat bottomed boats into the air before hitting the surface of the water. The result was a series of hops and skips that heaved passengers out of their seats, then thumping them down again. It was thrilling for both its passengers and spectators. This ride became one of the most emulated attractions in the early decades of the amusement industry (Midway Plaisance, "The Enduring Coney Island"; Stanton 1998).

Boyton's shoot-the-chute ride at Coney Island used boats seating eight to 10 passengers that

glided swiftly down an inclined plane 350 feet long into a large basin of water... After striking the water the boat ricocheted a considerable distance along the surface, sometimes rising several feet in the air and throwing up a pretty spray. The passenger who makes the trip will undergo a novel and exciting experience without much danger. Under the conditions it is almost impossible for a barge to overturn. Down the chute flows a pretty rippling stream of water. Descending in a barge, it needs little imagination to fancy that one is actually shooting the rapids [*New York Times*, July 5, 1895, page 3].

Boyton solved the problem of transporting passengers to the top of the incline in a unique way. He used a funicular railway with open cars to carry people to the top of the incline. The funicular operation used two cars counterbalancing each other with a steel cable that ran through a pulley at the top of the incline. As one car ascended, the other descended. Empty boats were slowly pulled to the top of the incline by a continuously moving steel chain, which also ran through a pulley at the top of the incline. The riders descended a single chute on a stream of water with a boatman at the back to steer the flat-bottomed boat once it hit the water (Edison Manufacturing Company 1896).

Boyton capitalized on his ride's success by selling non-exclusive rights to the name and the ride's design through the Paul Boyton Chute Company. The company was incorporated in Chicago in 1895. It owned the patents on every portion of the machinery used in the operation of the ride (*Inter Ocean*, March 7, 1895, page 8; May 16, 1895, page 7). In the autumn of 1896, the

Paul Boyton Chute Company was reorganized as the Paul Boyton Shooting the Chutes Company (*St. Louis Republic*, June 6, 1897, page 5).

A shoot-the-chute ride opened in Atlantic City in June 1895, based on its popularity in Chicago and London. The Atlantic City shoot-the-chute conveyed riders to the top of the chute by special carriers. The riders then entered the boats. The boats sent up a tremendous spray but left the passengers dry. A large grandstand was provided for those wanting to watch the fun from the lakeside (*Philadelphia Inquirer*, June 30, 1895, page 16). Washington Park and Willow Grove had shoot-the-chute rides in 1896, as well (*Philadelphia Inquirer*, May 28, 1896, page 2).

The shoot-the-chute in Lincoln Park was operated as a concession owned by the Lincoln Park Chute Company. The company was incorporated in Camden County, New Jersey on April 1, 1896 and capitalized at \$25,000 (*Philadelphia Inquirer*, April 2, 1896, page 2). The Lincoln Park shoot-the-chute was under construction in May 1896 when a carpenter on the construction team fell off the incline 40 feet to his death (*Philadelphia Inquirer*, May 22, 1896, page 11). Even though the shoot-the-chute was the centerpiece of the advertisements for Lincoln Park's 1896 season, work was not completed until the second week in June (*Philadelphia Inquirer*, June 11, 1896, page 11).

The Lincoln Park managers advertised their shoot-the-chute as the latest improved version and largest ever built at the time. One of its unique features was that the boats skipped into a natural river as opposed to a manmade lagoon (*Philadelphia Inquirer*, May 24, 1896, page 20). The Lincoln Park shoot-the-chute was similar to the ride Coney Island inventor Stephen E. Jackman described in his 1896 patent application (Jackman 1896)(Figure 20). Lincoln Park touted its ride as an improved version of other shoot-the-chutes without the typical delays in reaching the top. Instead passengers exited and entered the boat on a platform built over the river at the foot of the incline. The Lincoln Park improvement entailed doubling the tracks and chutes. With two tracks, a continual flow of boat cars moved up the face of the incline, probably utilizing a continuous chain mechanism like that seen on the Boyton shoot-the-chute at Coney Island (Edison Manufacturing Company 1896). At the top of the incline, boats were maneuvered into to one of four separate chutes. Two of the chutes had a straight course and the remaining two had several humps built into the chutes (Jackman 1896; *Philadelphia Inquirer*, May 28, 1896, page 7).

This configuration required an engine house at the top of the incline, where a pump brought water up from the river and into a perforated pipe across the top of the chutes for the rippling water effect. A steam engine or electrical motor was also located in the engine house; it rotated the shaft that operated the pulley system for the chain (Jackman 1896).

A semi-circular platform, 12 feet wide, was built on piles over the water. It had seating for 1,000 spectators to watch the shoot-the-chute ride (*Philadelphia Inquirer*, April 26, 1896, supplement page 21) (see Figure 20).

Lincoln Park's Financial Woes

The 1896 season was a crucial test for the popularity of Lincoln Park. The World's Columbian Exposition in 1893 had spawned many amusement parks throughout the nation. By 1895, Lincoln Park had competition for the patronage of Philadelphia families. Washington Park, only

six miles upstream from Lincoln Park, opened in 1895. It was nestled on 600 acres along the Delaware River in West Deptford Township and could be reached by steamboat or a trolley line built to the park from Woodbury (*Philadelphia Inquirer*, May 30, 1895, page 3). In direct competition to Lincoln Park was an amusement park named Germania Park. It opened in 1893 on a stretch of the riverbank between Lincoln Park and Mantua Creek. By the end of the 1890s, 19 amusement parks had opened in South Jersey (Duhart 2006). Germania Park was sold under foreclosure to pay off a \$30,000 mortgage. One hundred thousand dollars had been invested in the summer resort, but it garnered a mere \$16,000 when it was sold at a sheriff's sale in December 1896 (*Philadelphia Inquirer*, June 2, 1896, page 2; December 6, 1896, page 10).

Even more detrimental competition was the opening of the Willow Grove Amusement Park in 1896 on a 100-acre tract at the end of a trolley line and toll road out of Philadelphia. It began as a picnic ground that expanded to include a general amusement park. The park emphasized entertainment of a cultural nature, as opposed to the Coney Island form of entertainment more prevalent among amusement parks. It had over 100 amusement concessions, mostly dating to 1904–1905, when the park was rebuilt. Efforts were made to maintain a high tone, such as the prohibition of vaudeville acts. Other aspects of Willow Grove also mirrored standards set by Lincoln Park. Musical programs became regular entertainment. Willow Grove was able to hire nationally renowned musicians, including the New York Symphony Orchestra, the band of John Philip Sousa, and Victor Herbert's Orchestra. Just as at Lincoln Park, electric lighting illuminated buildings, walkways, and picnic groves. By the 1920s, the popularity of amusement parks was waning due to improved roads, ever increasing number of automobiles, and the competing entertainment of moving pictures and radio. However, the core of Willow Grove's amusement park is still extant (Cox 1963:2–7).

Despite the high attendance numbers, the Lincoln Park managers found it difficult to keep up with expenses. In July 1896, Pain's Pyro-Spectacle Company began legal proceedings to recover \$14,632.70 owed for services rendered (*Philadelphia Inquirer*, July 22, 1896, page 12). A few days later, the Lincoln Park Company sought protection from their creditors by having George McGowan and Bernard Gilpin appointed as receivers. Court documents revealed that the Lincoln Park & Steamboat Consolidated Company owned two steamboats valued at \$100,000 and real estate in New Jersey valued at \$200,000. The company was indebted to the People's Bank of Philadelphia for \$4,000; owed payroll in the amount of \$5,000; had a bonded indebtedness of \$120,000 secured with mortgages; and had various debts owed to other creditors amounting to \$20,000. The Lincoln Park Company contended that if their enterprise was broken up in order to pay the debt owed Pain's Pyro-Spectacle Company, their business would become insolvent. The attachment lien issued on the Lincoln Park property allowed the sheriff to seize the company's steam boats (*Philadelphia Inquirer*, July 25, 1896, page 11). The Court of Common Pleas of Philadelphia appointed George McGowan, Bernard Gilpin, and Alfred B. Storey to be receivers for the Lincoln Park & Steamboat Consolidated Company (*Philadelphia Inquirer*, July 29, 1896, page 4). Although the boats were officially under the control of the sheriff, they continued to run regularly (August 2, 1896, page 7).

To increase attendance, the steamboat fare was cut back to 10 cents in August 1896 (*Philadelphia Inquirer*, August 9, 1896, page 24). Due to the continuing legal problems, the receivers, in essence the company officers, decided to end the 1896 season earlier than usual on August 23 (*Philadelphia Inquirer*, August 23, 1896, page 24). Other creditors appeared in court

to sue the Lincoln Park & Steamboat Consolidated Company for money owed. Surprisingly, one of these creditors was George McGowan himself, who sued to recover \$8,200, the balance owed him for his salary as president of the company (*Philadelphia Inquirer*, August 29, 1896, page 11; November 10, 1896, page 3). George McGowan received a salary of \$5,500 per year as president of the Lincoln Park Company. His salary would be the equivalent of about \$135,000 in today's money (*Philadelphia Inquirer*, November 11, 1896, page 5; measuring worth.com).

On May 6, 1897, Lincoln Park was sold at a receiver's sale to Charles Heald for \$4,400. Heald was agent for a New York syndicate headed by Eugene Walton that had taken control of the Lincoln Park & Steamboat Consolidated Company. The sale was subject to the payment of a first mortgage in the amount of \$70,000 and a second mortgage for \$49,500. The sale included all of the real estate and personal property of Lincoln Park, except for the "shoot the chutes." Various creditors attended the sale to submit their claims, including a claim for \$1,900 owed to Paulsboro resident Edward G. Miller for lumber and \$1,567.94 in unpaid property taxes. An agent for the company that owned the shoot the chute ride presented a claim for \$1,000. The buyers intended to make the grounds and buildings ready for an early seasonal opening (*Philadelphia Inquirer*, May 7, 1897, page 5; November 23, 1897, page 2).

Lincoln Park's new owner discovered that the property came with a lien of \$4,100 in addition to the outstanding mortgage debt. He immediately took steps to cancel the sale (*Philadelphia Inquirer*, May 25, 1897, page 5). In September 1897, the Equitable Trust Company of Philadelphia began foreclosure proceedings against the Lincoln Park & Steamboat Consolidated Company (*Philadelphia Inquirer*, September 28, 1897, page 2).

A. B. Stoney, one of the principal stockholders in the Lincoln Park & Steamboat Consolidated Company, purchased two of the company steamboats and his son purchased another. This was part of the effort at reopening Lincoln Park, which had gone into receivership. Stoney brought in three capitalists from New York to make a bid for the Lincoln Park property at the public auction in May. He competed with the Philadelphia Traction Company, which contemplated laying tracks to Greenwich point and ferrying passengers to the park from there (*Gloucester County Times*, April 22, 1897).

On February 14, 1898, Lincoln Park was sold at a sheriff's sale to Winthrop Smith, chairman of a committee representing first mortgage bondholders for \$31,000. The real estate was assessed for taxation at \$100,000 and in foreclosure proceedings appraised at \$140,000. The company owed \$120,000 in bonds secured by two mortgages. Each mortgage had a group of bondholders. The sheriff's sale divested the interest of the bondholders of the second mortgage. The first mortgage bondholders were already in negotiation with parties who would purchase, open, and manage Lincoln Park during the upcoming 1897 summer season (Gloucester County Deed Book 177, page 219; *Philadelphia Inquirer*, February 15, 1898, page 6). Smith quickly disposed of the Lincoln Park property to the Equitable Trust Company of Philadelphia (Gloucester County Deed Book 177:219).

Lincoln Park does not appear to have opened for the 1898 summer season, as suggested by the lack of newspaper ads that usually appeared about local amusement parks. Lincoln Park reopened on July 1, 1899. Newspaper stories promised that the park had undergone "extensive

alterations.” One of the main attractions was a live vaudeville show. Musical bands were still part of the daily entertainment program. Alcohol was available at any of the three bars in the park. The main access route continued to be by steamer from Philadelphia’s Race Street wharf (*Philadelphia Inquirer*, June 4, 1899, page 6; July 2, 1899).

In 1900, Lincoln Park opened under new management when the Equitable Trust Company leased the park to Alexander Mueller, Robert Summers, and Edwin F. Poulterer of Philadelphia (*Philadelphia Inquirer*, June 5, 1900, page 7). Admission was free if one took the trolley directly to the park (*Philadelphia Inquirer*, June 19, 1900, page 9). An orchestra containing 25 pianos provided musical entertainment. A first-class restaurant was also added to the park. Rides included a gigantic toboggan, merry-go-round, and shoot the chutes. Access to the park was provided by trolleys running through Southwest Philadelphia, which lies directly across the river (*Philadelphia Inquirer*, June 10, 1900, page 16).

Business must not have lived up to expectations. In September 1900, the sheriff shuttered the hotel at Lincoln Park because of outstanding debts owed the Cunningham Supply Company of Philadelphia (*Philadelphia Inquirer*, September 8, 1900, page 5). Lincoln Park was offered for sale or rent in the spring of 1901. The toboggan slide, shoot the chutes, carrousel, and hotel were included (*Philadelphia Inquirer*, March 24, 1901, page 7).

In 1905, the Equitable Trust Company sold Lincoln Park to the Lincoln Park Transportation Company in exchange for 1,800 shares of capital stock in the company (Gloucester County Deed Book 199:564). On September 21, 1906, a receiver for the Lincoln Park Transportation Company sold Lincoln Park to Colonel John I. Rogers, who held the mortgage on the park. He bought it for \$2,000 above the \$57,000 debt the property carried in various liens and unpaid taxes. Rogers refurbished the resort and reopened it for the 1907 season with George Mason of Philadelphia as its manager. In addition to the former amusements, the park now offered a movie palace, an art gallery, and a small-gauge miniature railway for children. Lincoln Park also featured nightly balloon ascensions. The park was advertised as “Philadelphia’s Coney Island.” Two excursion boats ran between Philadelphia and Lincoln Park hourly (Black undated).

A series of calamities struck Lincoln Park after the turn of the century. It lost its liquor license. The boat wharf and two ferries were lost in a fire a month after the 1904 season ended. For the next couple of years the park was not open to the public. Its facilities were used frequently, however, by Philadelphia’s Union League and other Republican Party groups for political outings (Black undated; Bailey and Parkhurst 1979:36).

Marcus Cramer of the Amusement Company leased Lincoln Park in 1916 (*Gloucester County Democrat*, February 10, 1916). Occupants of the grounds were notified to vacate by June. Lincoln Park opened as a picnic ground for the final season in June 1916 with few or no amusements. It was served by one steamboat from Philadelphia (*Gloucester County Democrat*, May 11, 1916; June 15, 1916). The former Lincoln Park property became the site for Standard Oil Company storage tanks in 1952 (*Paulsboro Record*, February 7, 1952).

The Military Defenses of Fort Billingsport

Having reviewed in detail the history of Fort Billingsport, and the evolution of the fort property from the eighteenth through twentieth centuries, it is worth taking a closer look at the specific military structures constructed in association with this outpost. In part, the purpose of this chapter is to evaluate sometimes-inconstant historical information regarding the appearance of the fort and the structures associated with it. Other goals are to assess where the fort and its various individual elements were located within the original property and—with respect to the current Paulsboro Terminal land—to determine what, if any, portions of the fort could be contained within the present study area, and to offer interpretations regarding the likelihood that portions of the fort could have survived impacts during subsequent development and the possibility for any surviving elements to be detected archaeologically. Additional evidence related to the survival of the fort will also be discussed in the following chapter.

Any discussions of the military fortifications associated with Fort Billingsport must acknowledge that this outpost experienced multiple design changes, was occupied by numerous military forces (including Continental Army, British, American Loyalist, and War of 1812–era troops), and underwent several successive periods of construction, rebuilding, and modification over a relatively short period of time. Each of these different events likely left their own marks on the appearance of the fort and its various support structures, and evidence suggests that none of these disparate design changes may have been carried through to completion. Surprisingly, despite the importance placed on these fortifications at the time of their active use, comparatively little detailed information has survived about what was actually built, about how the various elements related to each other and the larger property, and about how specifically the fort was modified over time. In particular, little more than vague references have been found to date relating to changes made to the fortifications after American forces abandoned them in 1777. Given this shortage of accurate information, discussions below will focus primarily on what is known about the fort at the time of its original construction and at the time of the British Philadelphia Campaign.

THE KOSCIUSZKO DEFENSES

As related in the preceding chapter, the first defensive structures associated with Fort Billingsport were laid out according to the plans of Thaddeus Kosciuszko and constructed under the supervision of Robert Smith and Colonel John Bull. Kosciuszko's plans called for the construction of a four-sided redoubt measuring 700 feet across, with bastions at each corner, 7.5-foot-high breastworks, and an exterior ditch 9 feet deep and 18 feet across. While historic maps depicting the fort do indicate that some version of this large fortification system was built (see Figures 10–15), construction of these features was still underway when Washington ordered the fort to be drastically reduced in size, and it seems very likely that these works were never completed as originally intended. In addition, it would seem that the fortifications actually constructed, though laid out in approximation of Kosciuszko's plan, did deviate somewhat and were substantially larger than originally intended. The most-detailed contemporary map of Fort Billingsport (and the only one to include a scale) was likely drafted by British engineers in 1777

and indicates that the larger American redoubt was not completely symmetrical, measuring some 980 feet along the riverfront (north-south) by nearly 880 feet east-west (Figure 29). If this plan and scale are accurate, then the original Billingsport redoubt would have extended across nearly half of the riverfront side of the entire fort property.

The French engineer Du Coudray, following his July 1777 inspection of the works, provided evidence that the Kosciuszko plan of fortifications may never have been fully completed to specification. In his report to the Pennsylvania Supreme Executive Council, Du Coudray notes that work on the fort is still ongoing, and goes on to state that much of that already completed had been poorly executed and wholly ill-suited for the task at hand. With respect to the redoubt breastworks, he indicates that a large portion of those structures had been constructed using loose sand and required the installation of wooden planks and piles to hold the sand embankments in place. Moreover, he states that “the Piles instead of being inclined to bear against the Bank (of the breastworks), have been fixed perpendicular and are already overturned,” presumably because of the erosion and back-sliding of the sand (Fort Mifflin Historical Society 2007).

THE REDESIGNED REDOUBT

Following Du Coudray’s inspection of the river defenses, he submitted a plan for revising the design of Fort Billingsport, and intended to reduce the scale of the fortifications in accordance with Washington’s directives. Congress approved this new plan in July 1777 and called for the creation of two reinforced demi-bastions located at the northwest and southwest corners of the original redoubt (refer to Figure 10). Although work was authorized to begin immediately on this modification, work progressed slowly and remained incomplete by the end of September. When Colonel William Bradford inspected Billingsport at that time, he found that work had only started on the northwest bastion, but unfortunately provided no specific details regarding what specifically had been constructed or what remained to be finished.

The fact that defensive works remained incomplete when the British ejected American forces from Fort Billingsport in October 1777 presents something of a quandary. British plans of the fort (Figure 29) produced that year do depict what appears to be the completed reduced redoubt at the northwest bastion. Based on the scale provided with this map, the smaller redoubt measured approximately 390 feet north-south by a little more than 300 feet east-west. Detailed cross-sectional drawings included with the overall plan indicate the presence of a completed parapet standing 7.5 feet high, and associated ditches measuring 9.5 feet deep by 18 feet wide and 7.5 feet deep by 11 feet wide, respectively. Interestingly, the title caption for the map notes that “Rebel” (American) fortifications are depicted in yellow, and shows only the larger Kosciuszko-inspired breastworks so highlighted. Though far from conclusive, this map depiction, along with reports that American work on the reduced fortifications was incomplete at the time of capture, may suggest that work to finish the northwest redoubt could have been completed by British forces, or by Loyalist troops under British direction. While Loyalist militia are known to have occupied and retained control of Fort Billingsport until June 1778, historical information pertaining to work they may or may not have been performed on the fortifications is largely non-existent. British troops did work throughout 1777–1778 to establish fortified positions to defend Philadelphia and surrounding regions against counter attacks by Continental forces, including the construction of 10 strong redoubts across the northern limits of the city, and

it is possible that the strengthening of Fort Billingsport was undertaken in conjunction with these efforts.

Following the British evacuation of Philadelphia, American forces reoccupied Fort Billingsport and set about repairing damage done by the enemy. In 1779, French engineer Duportail produced plans for revamping both Forts Mifflin and Billingsport; however, it is not known at this time how significantly his new designs may have differed from that already constructed, or event to what extent any construction according to these new plans was carried out before military occupation ended in 1781. A little over 30 years later, during the War of 1812, Fort Billingsport was again called into action and transformed into a training ground for militia forces. It is also unknown what specific alterations to the fortifications may have occurred at that time.

ASSOCIATED STRUCTURES

Surviving historical accounts do indicate that a variety of structures were built at various times in association with the military defenses at Billingsport. Among the types of structures mentioned in historic accounts are included troop barracks, private residences (presumably for commanding officers), and a bake house or cookhouse. Although details relating to the sizes or appearance of these structures are fleeting at best, it seems likely that most were insubstantial in nature and intended primarily as temporary features of the fort landscape. Despite numerous mentions of their presence, no information has yet been identified, in terms of either written accounts or maps, that give any firm indication of where these structures were located within or with respect to the fort itself.

One quite different related structure mentioned frequently in later nineteenth- and twentieth-century accounts of the fort is an underground powder or ammunition magazine. Given the importance placed on Fort Billingsport for the defense of the Delaware River, it certainly makes sense that such a structure would have been built within the fort. Indeed, an iron reinforced subterranean powder magazine was constructed within the contemporary military installation of Fort Mercer, in nearby Red Bank, New Jersey, and was discovered during early archaeological investigations of that site in 1905 (Crist and Mooney 2000). Unfortunately, as logical as this possibility may seem, not one shred of unequivocal evidence has thus far been identified to suggest that any powder magazine was constructed at Fort Billingsport, and no mention of such a structure has been found in any known reference predating the late nineteenth century. More detailed discussions of a possible fort-related magazine will be presented in the following chapter.

LOCATION OF MILITARY DEFENSES WITHIN THE FORT BILLINGSFORT PROPERTY

During the conduct of background research, both written and visual evidence was sought that might help to more accurately place the military fortifications within the original Billingsport property, and with respect to both the present Paulsboro Terminal property and study area. Unfortunately, these efforts have been only partially successful, and the precise placement of Fort Billingsport remains to an extent elusive. Eighteenth- and early-nineteenth-century accounts of the fort were found to give its location in only the broadest, most general of terms, and were therefore essentially non-informative on the subject (see the following chapter for the value of

more recent accounts). Historic maps, on the other hand, proved to be somewhat more useful, but still suffered critical shortfalls. Ultimately, attempts to use maps to match the fort location with respect to persistent and readily identifiable natural or manmade landmarks, both along the Delaware River coastline and farther inland, was hampered by the overall paucity of such geographic markers, by frequent inconsistencies between historic maps in terms of the depiction of potential landmarks and/or the level of detail included, and by the significant alteration of the local shoreline and landscape resulting from persistent development throughout the late nineteenth and twentieth centuries.

In the end, efforts to locate the fort within the larger Billingsport property were based on details shown in the most accurate historical maps, in particular that produced by Villefranche in 1779 (refer to Figure 15). Key map features helped place the fort and its depicted position with respect to both Mantua and Clonmell Creeks and the general shape of the riverfront shoreline. Although these landmarks did not prove accurate enough to afford a precise placement of the fort, general consensus was achieved between URS researchers that the military fortifications were most likely situated wholly or in large part within the southern portion of the larger original Billingsport property. Figure 30 shows URS' best estimate regarding the approximate location of fort within the current Paulsboro Terminal property.

Additional efforts to fine-tune the location of the fort were also attempted based on the association of the defenses with a very specific local landscape feature. This feature is depicted on the all three of the most detailed historic maps of the fort (Du Coudray, British Plan, and Villefranche) and consists of an apparent natural ravine that extended from the shoreline to the interior of the fort, adjacent to the southwest bastion (Figure 31). The existence of this gorge or swale is clearly indicated in both the Du Coudray and Villafranche maps, and in the British map corresponds to what appears to be an apparent clump of trees within the original breastworks. The possible partial in-filling and eradication of this feature depicted in the British plan may be supported in Du Coudray's 1777 observations that the construction of the fort, and the placement of cannon along the bluff, made it "necessary to shut the Gorge of the Battery, so that the Enemy might be obliged to land and open Trenches, in order to take Possession of it"* (Fort Mifflin Historical Society 2007). The utility of using this specific local landscape feature to more accurately locate the fort within the original Billingsport, and to match it up with features of the fort that may have survived into more recent times, is explored in greater detail in the following chapter.

FORT-RELATED ARCHAEOLOGICAL POTENTIAL OF THE PRESENT STUDY AREA

Information gathered about the specific construction of Fort Billingsport, interpretations of its probable location on the original landscape, and details about how this landscape have been altered over time were combined in order to assess the range and nature of subsurface features and/or archaeological deposits potentially contained within the Paulsboro Terminal study area, and that might be detected during subsequent field investigations. Based on this analysis, it was initially thought that the overall probability of identifying any significant fort-related features within this parcel was low and that, if any remnant was present, it most likely would be

* In his report to the Pennsylvania Supreme Executive Council, Du Coudray goes on to describe that his redesigned double redoubt plan of the fort would be created in part "by cutting those two Demi-Bastions by the Gorge."

represented in truncated trenches associated with the original Kosciuszko-designed breastworks. This evaluation was based primarily on the size and orientation of the fortifications with respect to the study area. The study area is located in the far southwest corner of the original Fort Billingsport property, which means that the vast majority of the defensive earthworks and related structures must lie to the north of this parcel, within land that is part of the active Paulsboro Terminal. The only part of the fort that could potentially fall within the study area would be limited to portions of the southwest bastion, and that possibility would be entirely dependent on the precise location of the breastworks within the larger Billingsport property. Given historical information suggesting that much of these original breastworks were little more than poorly executed sandy ditches, and photographic evidence indicating that the study area itself had been extensively impacted in recent decades, it was anticipated that the continued preservation of truncated trenches associated with the southwest bastion was indeed possible, though unlikely.

It was also anticipated that intact artifact deposits related to the occupation or construction of the fort were unlikely to be present. The documented disturbance of near-surface soils within the study area would have certainly impacted or removed any sheet midden deposits originally situated on or near the ground surface. It was considered possible, however, that any artifacts that had been discarded or deposited in the bottoms of the fort's trenches (if preserved trenches were present within the study area) could remain intact below the level of disturbance. Any such artifact deposits could contain much valuable information related not only to the construction of this important American fortification, but also to what life was like for the soldiers and militia once stationed here.

The possibility of encountering subsurface features associated with barracks or other structures built in association with the fort could not be conclusively ruled out. However, the complete absence of historical data indicating where such structures were once located made it impossible to anticipate where related features might be identified within the study area. In addition, the apparent slight manner in which these support structures were constructed made it significantly less likely that preserved subsurface remnants might be identified. Finally, the possible presence of more deeply buried cannon or related hardware—perhaps contained within heavily disturbed soils—could not be excluded, although the probability of such a discovery was considered very low.

Fort Billingsport in Historical Memory

In the course of conducting background research, a number of newspaper articles, published accounts, and recorded reminiscences were found describing remnants of Fort Billingsport that continued to be preserved for some time on the landscape of what is now the Paulsboro Terminal. As discussed in Chapter 2, at least some badly preserved remnants of the breastworks for the fort were still visible on the ground surface when the government sold the property in 1834. However, published accounts beginning in the late 1890s, and continuing through to the present day, continue to cite and describe surface features believed to be associated with the original earthen fort. These accounts and reminiscences were studied as part of this investigation in order to assess what specific features of the fort appeared to have survived over time, to determine where these preserved fort remnants were located within the larger fort property, and as a means of trying to more precisely locate the fortifications with respect to the present Paulsboro Terminal and study area. This analysis revealed that identified accounts relatively consistently cite the same or similar types of surviving features, but are often at odds with one another in terms of where the remnants were located. In addition, evidence was detected which suggested that the location of presumed fort remains has likely shifted over time, and that features associated with the fort today may not be the same ones described in earlier accounts.

The specific features identified by reporters, local residents, folklorists, and amateur historians and attributed to Fort Billingsport most frequently were represented by sections of trenches believed to mark the outlines of “the fort,” as well as a large deep pit or crater interpreted as the remains of a former underground powder magazine. While accounts of these features are frequently lacking in detail and vague in terms of their location, the vast majority are in agreement that supposed fort remnants were preserved in or near the riverbank of the former Lincoln Park property (now the Paulsboro Terminal land) and support the interpretation that the boundaries of the fort originally extended a considerable distance to the north of the present study area. The following sections will explore the information contained in these accounts, attempt to identify where these remains may have been situated, and assess the likelihood that the features described are in fact remnants of the original fortifications.

Before moving on, it should be pointed out that not all accounts of surviving fort remains are confined to discussions of earthen trenches and pits. At least one local folklorist, writing in the late 1930s, appears to have conflated remains of the fort with non-military structures built at a later date.

...it is an unusual privilege to record that the remains of the fort are visible now, even though no effort has been made to preserve them. More remarkable still, no interest has been shown in protecting the old fortress tower and its adjoining wall from those who enjoy themselves best in destroying whatever they can... Up the river a short distance from the turret and crumbling wall is a deep, stone-lined road, sloping up from the river shore ... This road either led into the fort from the rear or, possibly, was used by a later ferry [Beck 1937: 222–223].

In this particular instance, the turret described was the one Charles Edgar Gibbs built in the mid-nineteenth century and discussed in Chapter 2. Both the stone wall and road included in this account were both constructed during the Lincoln Park period.

LINCOLN PARK–ERA ACCOUNTS (1889–CIRCA 1916)

Perhaps the most detailed accounts of the remains of Fort Billingsport were found in a handful of newspaper articles published in the last decade of the nineteenth century, and in reminiscences of that time published at slightly later dates. Of particular interest in this group are accounts of the new Lincoln Park facilities and the various amenities to be provided. These stories provide the greatest amount of detail about supposed fort remains, which were incorporated into the park design as featured attractions. Of even greater utility is the fact that they provide some real clues as to the location of these features within the park by referencing their proximity to specific park buildings. Interestingly, almost all of the accounts from this time revolve around the remains of the powder magazine, with only fleeting mention of earthworks or trenches.

The earliest newspaper story to mention the fort remains appeared in October 1889, as the park was still under construction, and includes the most detailed account of the magazine.

The ladies' cottages will be located on the edge of the woods near the picnic grounds, and will contain all the necessary conveniences for those who visit the grounds with basket picnics. The rookery will be built of huge boulder stones found on the grounds, and will be designed in an original and unique manner, one story in height, with open timber roof, and be used as an adjunct to the restaurant. The interior will be decorated with relics connected with the place. *"Little Germany," will be a quaint building after the Dutch, one story in height, situated in the old powder magazine, which is 60 feet in circumference, and will be reached through the shore side through a heavy arch and also by a winding path from the top to the bottom [emphasis added].* This building will be used for the sale of German luncheons and delicacies. Shooting galleries and flying-horse pavilions will be located near the children's playground [*Philadelphia Inquirer*, October 12, 1889].

Despite the rather precise detail included in this story, the information included is ultimately problematic in that no "Little Germany" restaurant was ever constructed within Lincoln Park. Sanborn Insurance maps of the park indicate that the only one story building located near the shore was the ice cream pavilion and do not include any depiction of the powder magazine (refer to Figure 27).

A second article published a few months later also provides additional details of the magazine and its possible location within this property.

In a finely wooded tract at the southern end, which will be set aside for family parties, may still be seen the rolling ground where the breastworks were thrown up around the fortress, and surrounded by clumps of tall chestnut trees is the old magazine pit [*Philadelphia Inquirer*, March 28, 1890].

Finally, an article from May 1890 provides a further direct association with the magazine and one of the park buildings, stating that “the refreshment pavilion will be erected on the site of the old powder magazine” (*Philadelphia Inquirer*, May 27, 1890).

Reminiscences from the turn of the century about Lincoln Park and the fort generally provide less detail, but are nonetheless interesting in that they make first mention of gorges or trenches marking the preserved defenses. An article published in the Paulsboro Press on November 1, 1901 (reprinted in 1954) states: “There are the gorges as marks of old Fort Billingsport down by the River where Lincoln Park stands” (*Paulsboro Record*, August 26, 1954). Additional remembrances of the fort’s remains are provided by Billingsport local Oliver Sheets.

[Lincoln Park] was a meca [sic] for thousands to come daily during the summer season and view the remnants of the old Fort Billings, its trenches, barracks and ammunition “dump”... There was a merry-go-round... a shoot-the-shoot that took you over one hundred feet in the air and then your boat slid down a tramway into a basin, a toboggan [sic] slide and haunted swing...[sheets undated].

Accounts of possible fort remains from this time period are quite remarkable for the level of detail they provide, and suggest that both “gorges” and a 60-foot-wide crater potentially associated with a former powder magazine were preserved along the riverside margins of Lincoln Park as tourist attractions. At the same time, several of these descriptions are somewhat problematic in that they make reference to nearby park structures that may never have been built. Possible clarification of these specific references, however, may be provided in the details of the advertising poster for Lincoln Park.

This poster shows great detail about the structures and attractions built within the park and may include some of the features described in the accounts above. While this image does not portray the entire frontage of the park, a sizeable portion is shown, and it would be expected that large features such as those discussed above should be apparent in this poster. Although no “Little Germany” restaurant was ever constructed, the Ice Cream pavilion depicted in the foreground of this image does in other ways seem to match descriptions provided in the 1889 account. It is located at the top of the river bluff, is one story in height, and does seem to bear some architectural details of a structure built “after the Dutch” style. More significantly, however, ground immediately to the south (left) of this structure does appear to contain a large fenced-off pit or depression partially hidden in the trees. In addition, the shoreline just to the right of the Lincoln Park sign also appears to indicate the presence of a sunken path or entranceway leading into the larger depression that could contain the “heavy arch” described in the 1889 article (Figure 32).

The second article above, on the other hand, specifically notes that the “magazine pit” was not in the central portions of Lincoln Park, but rather located at its southern end. Curiously, the poster also appears to depict portions of another fenced-off pit or depression just above and to the right of the stone tower attached to the Gibbs House. Although not shown in its entirety, this feature does seem to be associated with a low outer embankment that might have been a remnant (or a recreation) of a portion of the fort’s breastworks. Perhaps, too, these two apparent pits or craters were referenced as “the gorges” in the 1901 article. Though far from representing proof positive,

these poster features do in some ways seem to correlate with published descriptions of surviving fort elements.

Beyond corroborating historic descriptions, however, it is useful to question whether or not the features observed within the park were actually remnant fort features or possibly something else entirely that were interpreted at the time as fort related. In particular, it is important to point out once again that no account or description of Fort Billingsport prior to 1889 makes any mention of a subterranean powder magazine constructed here. Moreover, as discussed in Chapter 2, military overseers of the fort in the first decades of the nineteenth century recorded that commercial shipping vessels at least occasionally stopped in this vicinity to mine sand and gravel out of the riverbank for use as ballast, and at least some quantity of riverbank sediments were reported to have been quarried out for use in the reconstruction of Fort Mifflin. In the absence of more specific details, then, it seems impossible to determine with any degree of certainty whether or not the riverbank features found within Lincoln Park, and potentially depicted in the park poster, were in actuality surviving remnants of the fort itself. Documentation of the fort's history does provide potential and reasonable alternative explanations for the "gorges" and pits visitors observed at Lincoln Park.

OIL TANK FARM—ERA ACCOUNTS AND DESCRIPTIONS (1928—PRESENT)

No additional mention of Fort Billingsport or the potential remnants of its construction were found in newspaper or other published accounts until the late 1920s, when the Lincoln Park property was sold to the Standard Oil Company of New Jersey for the construction of an oil tank farm. At that time, local historians and preservationists became alarmed by the possible destruction of the fort property and once again began to write about potential preserved elements of the fortifications. Stories and recollections of the fort generated during this period also make mention of both trenches and the magazine; however, some new distinctions were also introduced. In particular, descriptions of preserved fort remnants over this time period predominantly and increasingly focus on the far southwest corner of the tank farm property, including the immediate vicinity of the present study area, and largely involve discussions of the crater or pit associated with the fort's powder or ammunition magazine.

Local historian Frank Stewart spearheaded efforts to rally support for preserving the remaining portions of Fort Billingsport and began in earnest shortly after Standard Oil's purchase of the former Lincoln Park property. The first description of fort elements preserved within this property appeared in December 1928 and included the following:

A trip through the place reveals numerous trenches showing how the Colonial troops fortified themselves against the British... Plans for the fort, of which the powder house remains, and for the supporting earthworks were drafted by the famous Polish patriot, Thaddeus Kosciuszko [*Courier-Post*, December 14, 1928].

Shortly after this article, Stewart was able to draft support among members of the Gloucester County Board of Chosen Freeholders for the possible purchase of a portion of the tank farm property in order to preserve these remnants of the fort. A story that also appeared in December 1928 indicates that the freeholders specifically wanted to buy "the portion of the [Standard Oil]

tract which was the site of the fort. This is between what is now known as ‘Fort Billings’ and Clonmell road” (*Courier-Post*, December 20, 1928). This account corresponds with the study area for this investigation. Efforts to acquire this land back from Standard Oil were made with the intent of establishing a permanent public park in this space, and were motivated by the condition of the ruins which “were allowed to fall into almost complete decay, and the entire plot of ground overrun with weeds and jungle-like vegetation” (*Courier-Post*, December 20, 1928).

Although Stewart and the freeholders were ultimately unsuccessful in their efforts to see this site bought from the tank farm, they did evidently persuade Standard Oil to back off any immediate plans to develop this parcel. In more recent years, Billingsport native Brigadier General Edwin H. Simmons, USMC (Retired), was able to reflect back on his boyhood days in the 1930s and recall that he could then “still follow the traces of what we called the trenches, but what [others] would call the ditch outlining the main works. We used to dig around in these trenches...” and occasionally found round lead shot, possibly dating to the Revolutionary War period (Simmons [1977]:3–4). The general also recalled that this area of boyhood ramblings was later covered by oil storage tanks, and the only part of the fort “preserved” was on a “pie-shaped piece of ground rescued by the borough of Paulsboro” (Simmons [1977]:3–4). While this latter parcel of ground refers to the large pit or crater contained within the northern portion of the present study area, Simmons’ statement that other surviving remnants of the fort had since been destroyed during tank farm development supports interpretations raised in the preceding section, that at least some remains of the fort located farther to the north may have also escaped destruction prior to the 1930s.

Accounts of partially preserved sections of Fort Billingsport do not appear again until the 1950s, when efforts were yet again made to preserve the above parcel of ground from destruction, and to have it commemorated with a marker of some sort. In 1952, the Humbol (Esso) Oil Company (formerly Standard Oil) purchased the Bramell property, at the extreme southwest corner of the original Fort Billingsport property, and added it to the tank farm holdings. Sometime around 1955, the tank farm agreed to fence off the area of the large crater in what is presently the northern half of this investigation’s study area and, under pressure from the Gloucester County Historical Society, agreed to erect a stone marker identifying the pit as the location of Fort Billingsport (*Philadelphia Inquirer*, July 3, 1966).*

With the establishment of this marker began the final phase of public reflections about the fort, which largely persist to this day. By this time, attention regarding preserved remnants of the Revolutionary fortifications focused exclusively on the large pit adjacent to the marker—contained within the present study area—and in public memory this crater was transformed into *the* site of the former fort (*The Record*, October 9, 1974). During the 1960s and 1970s, the association of the crater with the fort was even taken a step further, and in some reports from this period the study area pit seems to have itself become the fort. In 1966, the *Philadelphia Inquirer* reported that “the fort today is just a large hole in the ground overgrown by weeds and briars” (*Philadelphia Inquirer*, July 3, 1966). As indicated in the 1972 survey of the study area (see Figure 2), this pit was labeled as the possible “main fort location” (CES Engineering 1972).

* This marker was moved to its present location inside the adjacent Fort Billings Park in 1974 (*The Record*, October 9, 1974).

THE STUDY AREA PIT OR CRATER

In collecting historical material relating to the fort, efforts were made to evaluate the veracity of public interpretations that the study area crater did in some way represent a preserved remnant of the original fort. More specifically, an attempt was made to assess whether or not this crater could be associated with the apparent circular clump of trees depicted adjacent to the southwest bastion in the 1777 British plan of the fort (see Figure 31). In the preceding chapter, this clump of trees was identified as possibly being associated with a gorge shown entering the fort from the riverbank in other contemporary maps, and that Du Coudray reported had been in-filled by American soldiers constructing the fortifications. This object is of unknown function in that map, and on the surface would appear to serve no obvious military purpose. However, it was postulated during research for this investigation that it might potentially represent or be associated with the powder magazine noted by nineteenth- and twentieth-century local historians above. Regardless of function, it was hoped that the ability to match this mapped cluster of trees with the extant study area pit or crater would allow the more secure placement of Fort Billingsport within the larger surrounding landscape.

In attempting to examine these two features, one approach adopted was to determine whether or not historic maps and other sources of information could demonstrate either the long-term persistence of the study area crater on the landscape (in which case, its possible association with the cluster of trees on the British plan might be supported), or that it represents a relatively young addition to the landscape (and therefore could not be associated with the fort). Comparative analysis of known historic maps for this vicinity eventually identified one particularly strong association with this crater that could indicate its relatively recent creation. Specifically, the combination of the 1972 survey of the current study area with late-nineteenth-century insurance maps demonstrated that the crater falls in direct alignment with the former location of the shoot-the-chute amusement ride established within Lincoln Park in 1896 (Figure 33).

The shoot-the-chute ride built at Lincoln Park was itself a massive structure standing more than 100 feet high and extending approximately 275 feet inland from the stone river wall of the park. While many of the specific details of its construction remain unknown, it is very likely that it required a fairly robust foundation in order to provide structural integrity and ensure for the safety of its riders. Given this alignment between the crater and ride, it seems plausible that at least some aspects and characteristics of the study area pit were created during activities associated with the construction and subsequent dismantling of this attraction.

This alignment, however, does not conclusively rule out the possibility that the study area crater could be fort related and predate the shoot-the-chute. If this is true, then park officials intentionally constructed the latter ride directly over and in obstruction of a historical feature that was itself a prominent park attraction. Certainly this could have been the case, and there are countless cases throughout this country where financial considerations led to the destruction of important historic resources. Unfortunately, historic documentation studied in conjunction with this investigation provides no unequivocal or even implied indication that the ride was built through or damaged a portion of the fort. It should be pointed out that all known historic accounts that mention park attractions in some detail always mention surviving fort elements and the shoot-the-chute separately from one another, suggesting that there was no overlap.

Field Investigations and Findings

Field testing for this investigation was confined to the limits of the undeveloped study area parcel at the far southwestern corner of the Paulsboro Terminal property, and was intended to evaluate the potential for Fort Billingsport–related subsurface features and/or artifact deposits to be preserved within this space. Given that much, if not all, near-surface soil deposits within this parcel had been disturbed to some extent in the past (see Chapter 1), initial site investigations were built around the use of remote-sensing technology to assess the likelihood that more deeply buried fort-related archaeological deposits were still preserved in this area. More specifically, preliminary archaeological evaluations employed the use of both systematic GPR and metal-detection methodologies, coupled with limited subsurface testing—shovel test pits (STPs)—to identify any preserved features or *in situ* artifact deposits.

Based on the results of background and historical research presented in previous chapters, it was initially surmised that the archaeological resources likely to be preserved within the study area were those associated with the most robust aspects of the fortifications, such as the lower portions of exterior defensive entrenchments. Although no historical evidence was identified that could verify whether or not Fort Billingsport ever contained a reinforced subterranean armory or magazine (or indicate where within the fort such a feature might have been located), it was also thought possible that deep features such as this might also remain partially intact, and would be readily detectible through remote-sensing examinations. Unfortunately, because the fort seems to have been constructed largely of earthen and wooden elements, and because the study area has been subjected to repeated prior disturbances, preliminary expectations held that shallow, near-surface fort features or artifact deposits were not likely to have survived intact, and could probably not be identified within the study area. Given that the fort was reoccupied by the U.S. military through the early decades of the nineteenth century, and that primary weaponry had evidently been removed and sold for scrap prior to the site’s abandonment and sale, it was further anticipated that cannon and other military artifacts dating to the time of the Revolution would probably not be present in great numbers, or in the form of extensive primary deposits. Instead, any such artifact deposits that might be present were thought to exist predominantly in secondary contexts, as refuse or discards at the bottom of any surviving deep features, like entrenchments or the magazine.

METHODOLOGY

GPR investigations encompassed all portions of the study area containing relatively level ground and that were free of substantial surface obstructions. All considered, approximately two-thirds to three-quarters of the study area did possess sufficient surface characteristics to permit remote-sensing activities. The only areas that could not be tested were portions of the large pit occupying the far northern sections of the study area, where massive obstructions (partially buried trees, surface debris) prevented free movement of the GPR equipment; the western riverfront scarp; and limited areas along the east study area margins containing rubble piles and dense tree cover. In order to maximize the area that could be directly examined, personnel from

the Paulsboro Terminal grubbed and cleared thick grass and woody shrub growth from as much of this parcel as possible prior to the start of fieldwork.

GPR examinations of the study area were completed using a SEEKER SPR radar unit equipped with a 500 MHz antenna (manufactured by U.S. Radar/Subsurface Imaging Systems). URS has successfully employed this equipment in prior archaeological investigations of this sort; this technology is capable of accurately detecting subsurface anomalies (walls and other structural elements, modern utilities, trench excavations, large metal artifacts, etc.) to depths exceeding 8 feet below surface. Metal-detecting equipment utilized consisted of two high-end, commercially available machines capable of identifying a variety of metal objects (steel/iron, lead, brass/copper, etc.) to depths of approximately 16–24 inches below the surface.

GPR examinations of the study area involved the use of both systematic and non-systematic survey methodologies (Figure 34). In order to produce a broad overview of subsurface conditions within the site, radar equipment was initially moved across the study area in a series of parallel, north/south-oriented transects spaced approximately 20 feet apart. In all instances where the equipment detected possible evidence of subsurface anomalies, these locations were marked at the surface with pin flags and their precise provenience recorded using submeter accuracy global positioning system (GPS) equipment. Once the systematic survey of the study area had been completed, additional random-pattern passes with the radar equipment was made in the vicinity of each marked possible anomaly. This latter approach was completed in order to better determine the horizontal and vertical extent of previously detected anomalies, and specifically to try and define any potential linear subsurface features that could be associated with large trench remnants and similar fort-related features.

Sweeps of the study area with metal-detecting equipment (Figure 35) were made after the GPR examinations, and were completed in a deliberate and comprehensive, though non-systematic pattern. Wherever the metal detectors picked up strong “hits,” limited excavations of varying depths were completed in order to recover the objects(s) identified. In completing these excavations, 100% of all excavated soils were screened through ¼-inch hardware cloth, and any recovered artifacts were retained in plastic bags for subsequent analysis at the URS laboratory in Burlington, New Jersey. The precise locations of all artifacts collected during the metal-detector sweeps were recorded using GPS equipment.

In several locations associated with both GPR anomalies and metal-detector hits, expanded STP excavations were additionally completed. These subsurface tests were designed to gather more detailed information regarding near-surface soil stratigraphy within the study area, as well as to attempt to expose some physical evidence of the identified anomalies. All STPs extended to depths of between 3–4 feet below the ground surface.

It should also be noted that supplemental GPR examinations were also completed within portions of the Lincoln Park property immediately adjacent to the present study area. Radar sweeps in this level, open grassy area were completed in a similar manner to that described above and were intended to fulfill a two-fold purpose: 1) to provide data regarding subsurface conditions in an adjoining parcel that could be compared/contrasted with that collected for the study area; and 2) to effectively expand the search area and check for additional belowground anomalies that could

also be potentially related to the fort. Efforts in Lincoln Park produced findings that are broadly similar to those found within the Paulsboro Terminal study area. Radar returns here did detect a series of linear anomalies in limited sections of the park (Figure 36), but which appear to be associated with nineteenth-century residential structures (probable truncated foundation walls). No evidence of subsurface features/anomalies was found in the park that could be associated in any way with Fort Billingsport.

TESTING RESULTS

GPR examinations of the study area did successfully produce data that assisted in the assessment of this parcel's archaeological potential, but ultimately found no evidence of any subsurface features that could possibly be associated with Fort Billingsport. Radar and other investigations were completed on February 4 and 5, 2008, and confirmed prior interpretations that virtually the entire study area has been disturbed/impacted to varying extents by activities associated with the removal of the Bramell house, earthmoving/grading, and by in-filling of the large pit at the north end of the site. Given the extent of this disturbance, there is believed to be almost no potential for intact near-surface, fort-related artifact deposits and/or features to remain preserved in this parcel.

GPR investigations of the study area specifically sought to identify any deeper fort-related features, such as truncated defensive entrenchments, that might survive at least partially intact below the maximum extent of surface disturbance. Intensive scanning of the study area resulted in the identification of a total of four subsurface anomalies within this property; however, none are believed to be related to either the construction or occupation and use of Fort Billingsport. Summaries of the discovered anomalies and interpretations as to their likely associations are provided below. The locations of these anomalies and sample radar images of those targets are provided in Figures 36–39.

Anomaly 1 was found to extend across the entire study area and represents the interface between disturbed soils and underlying intact natural soils (i.e., the maximum depth of disturbed soils). Radar data indicates that this boundary exhibits an undulating depth across the site, and indicates that near-surface disturbances extend from between 3 feet to more than 8 feet below the present surface. In general, disturbances appear to be shallowest near the center of the study area, and get deeper toward the south and north sections. Deeper fills in the northern portion of the site are associated with past in-filling of the deep hole or pit thought by some to be associated with Fort Billingsport.

Anomaly 2 was the only linear subsurface feature identified via radar, and is located in the southern portion of the study area. GPR equipment was able to determine that this anomaly is oriented along a roughly east-west alignment and extends for a distance of more than 100 feet. This anomaly is relatively narrow and appears at a depth of approximately 4 feet below surface. Radar signals returned from this anomaly were comparatively strong and suggest that it is likely associated with a buried utility line of some sort. Comparison of this anomaly's location with historic information strongly suggests that the utility in question most likely relates to the former Bramell family home.

Anomaly 3 was located in the central portion of the study area, near the southern limits of the deep pit, and was associated with a comparatively poorly defined radar signal. Efforts to better define the limits of this anomaly indicate that it is somewhat amorphous and irregular in its horizontal distribution, and appears at approximately 4–5 feet below surface. Interpretation of the radar images suggests that it is not part of any larger linear disturbance, and that it is not likely associated with any truncated trench or other fort-related feature. It is possible that this anomaly could be related in some way with material used to backfill portions of the northern deep pit.

Anomaly 4 was located a short distance to the north of Anomaly 3 and falls within the limits of the partially filled pit. It appeared at a depth of approximately 3 feet below surface and exhibited a quite limited horizontal extent. Current interpretations maintain that it could be associated with debris used to fill in the larger deep pit.

A total of three judgmentally placed STPs were excavated within the study area in order to better document near-surface conditions and to attempt to verify the nature of identified anomalies (see Figure 36). STP 1 was placed in the vicinity of Anomaly 1 and extended to a depth of approximately 2 feet below surface before extremely compact soils prevented further excavation. STP 2 was located within the limits of the in-filled pit and was excavated in order to identify a strong signal from the metal detector. It extended to a depth of greater than 3 feet below surface. STP 3 was located within the alignment of Anomaly 1, in the southern section of the study area, and was excavated to a depth of approximately 4 feet below surface. In all instances, STPs exposed soil profiles that were extensively disturbed and characterized by deep, multiple fill/reworked soil horizons (Figure 40). None of these STPs were able to penetrate below the maximum level of ground disturbance, and so none were able to expose and evaluate the appearance and nature of any undisturbed soils within this site.

Metal-detecting activities were conducted after the GPR survey and concurrent with shovel testing. Non-systematic sweeps of the study area resulted in the determination that abundant metal objects were scattered throughout the site, with hits being detected every few feet. Excavations to identify metal artifacts at multiple locations determined that the vast majority of hits were associated with shallowly buried modern rubbish (tin can fragments, unidentified iron scraps) or construction debris (predominantly nails) possibly deposited in association with the destruction of the Bramell house. Other objects identified by the metal detectors include a variety of badly rusted and unidentified iron artifacts of indeterminate age, as well as a single brass disc (undecorated) of unknown function or association.

Only a single possible military-related artifact was recovered with the metal detectors: a well-preserved lead musket shot. Examination of this artifact in the URS lab indicates that it had likely never been fired (no percussion or impact scars). While it is possible that this artifact could be related to the military occupation of Fort Billingsport, the fact that it was recovered from disturbed soils makes positive determination of this association impossible. In the end, it cannot be concluded with any degree of certainty whether or not this shot dates to the time of the Revolution or from some more recent period.

It should be noted that plans for conducting subsurface testing within the study area were developed after the completion of the GPR studies. This supplemental regimen would have

involved the use of targeted trench and test unit excavations to verify, refine, and expand on GPR findings, as well as to sample ground in the bottom of the extant hole/pit at the northern margins of the study area. However, subsurface investigations were never implemented following the presentation of initial field and historical background findings to members of the Fort Billingsport Homeland Preservation Committee (March 8, 2008). In the aftermath of that presentation, members of the committee acknowledged URS interpretations that further archaeological investigations were unlikely to identify significant preserved remnants of the fort. Concurrently, representatives from Plains All American LLP determined that additional archaeological testing would not be required.

Summary and Conclusions

Fort Billingsport was constructed in 1777 on a 96-acre parcel that was the very first piece of property the fledgling United States government purchased. It was conceived as one of three Continental Army military sites intended to protect the port city of Philadelphia from British naval attacks and, more specifically, was established to provide protection for the southernmost line of submerged anti-shipping obstructions known as chevaux-de-frise. Placed in a commanding location, atop a high bluff overlooking the narrowest part of the Delaware River, Fort Billingsport ultimately proved vulnerable to assault by land forces and fell into British hands at the outset of the Philadelphia Campaign. In the years after the Revolution, Fort Billingsport was briefly reused for military purposes, but ultimately fell into disrepair, was abandoned and sold off by the U.S. Government, and was forgotten by the majority of the public. The land it once sat on was eventually redeveloped for other purposes and, in time, the exact location of the fort and the issue of whether or not any of the original earthworks were extant was reduced to a matter of speculation.

In addressing the specific objectives of this investigation, URS adopted a research plan that involved the conduct of both intensive historical background research and archaeological examinations of the undeveloped parcel within the Paulsboro Terminal. Historical research was completed at a number of local, state, and national archive repositories, with the goal of collecting a comprehensive array of information relating to the former fort and the property it once stood on. More specifically, this research sought to reestablish the location and boundaries of the original 96-acre area to accurately relocate this original property within the current landscape of Paulsboro, to track the gradual transformation of the original property through the late eighteenth, nineteenth, and twentieth centuries. Other aspects of the research focused on the fort itself, and sought to collect detailed information about this structure's actual construction and use, its placement within the original fort property, and its likely physical alteration resulting from subsequent land uses. Ultimately, the goals of the historic component of this investigation were to precisely identify the location of the fort and to evaluate the likelihood that any portion of the original fortifications could have survived later transformation of the landscape.

The archaeological component of this project involved the conduct of integrated GPR, metal detection, and limited shovel-testing procedures within the undeveloped Paulsboro Terminal parcel, where local historians had identified potential surviving remnants of the former fort. These studies were designed to assess the potential for subsurface features, specifically backfilled trenches from the original earthworks, and/or artifact deposits associated with Fort Billingsport to be contained within this area. Fieldwork resulted in the determination that the entire parcel had been previously and severely impacted over the past several decades, to a depth of at least 3–4 feet below the present ground surface. GPR examinations did identify a single linear anomaly, probably associated with a buried nineteenth- or twentieth-century utility line; however, no evidence of preserved entrenchments was identified. Metal detecting and shovel-testing activities resulted in the recovery of a single example of muzzle-loading lead shot, potentially dating to the Revolutionary War period, as well as a series of modern wire nails, tin can fragments, and iron scrap. No artifacts that could be unequivocally associated with the

construction or operation of Fort Billingsport were recovered, and all artifacts found within this parcel derived from the upper disturbed soil layer.

Based on the results of this investigation, URS has determined conclusively that Fort Billingsport was constructed within land currently encompassed by the Plains All American LLP Paulsboro Terminal property. However, interpretations of collected historical research suggest that—based on the slight manner in which the fort was originally constructed and the extreme transformations the property has experienced over the last 120 years—it is our opinion that it is extremely unlikely that any portion of the fort survives below the surface today. Actions that would have been especially damaging to fragile fort structures were those associated with nineteenth-century agriculture, the construction and landscaping of Lincoln Park, and the progressive industrial development of the Paulsboro Terminal property in the twentieth century.

Although background research was not able to precisely pinpoint the location of the Revolutionary War fortifications within the larger fort property, available evidence suggests that the majority, if not all, of the fortifications were contained in the southern half of the associated shoreline frontage. In addition, primary defensive structures of the fort related to the reinforced northwestern bastion were originally located outside and north of the present study area, and likely now fall within the heavily developed central sections of the Paulsboro Terminal waterfront. The present study area parcel was formerly the site of a private residence in the nineteenth and early twentieth centuries, and has been severely impacted during clearing and infilling operations since it was incorporated into the Paulsboro Terminal property in the 1950s. Historical evidence suggests that the partially filled pit at the northern end of this parcel was at least in part created sometime in the late nineteenth and/or early twentieth centuries, possibly in conjunction with the construction and/or removal of a popular amusement ride called the shoot-the-chute. No conclusive evidence was identified, either via background research or field investigations, to indicate that this pit could represent a surviving remnant of Fort Billingsport.

In the final analysis, the conclusions presented here remain informed interpretations of primarily historical documentary data, and would require the conduct of targeted subsurface archaeological testing in order to achieve conclusive verification.

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April 26, 1896	“For Amusement Lovers,” page supplement 21.
May 22, 1896	“Accident at Lincoln Park,” page 11.
May 22, 1896	“The Bar,” page 14.
May 24, 1896	“Nearby Excursion Resorts.” page 20.
May 28, 1896	“Lincoln Park’s Opening,” page 7.
May 28, 1896	“Work At Washington Park,” page 2.
May 31, 1896	“Near-by Excursions,” page 21.
June 2, 1896	“Dramatic Notes,” page 3.
June 11, 1896	“Amusements,” page 11.
June 27, 1896	“Carnival of Venice,” page 11.
July 4, 1896	“Excursions-Lincoln Park,” page 8.
July 22, 1896	“The Day In The Courts,” page 12.
July 25, 1896	“The Day In The Courts,” page 11.
July 29, 1896	“Jersey Receivers,” page 4.
August 2, 1896	“A Day In The Courts,” page 7.

August 9, 1896	“Crowds at Lincoln Park,” page 24.
August 23, 1896	“Lincoln Park Closes Tonight,” page 24.
August 29, 1896	“A Young Wife’s Strange Doubt,” page 11.
September 6, 1896	“Ryan Is Confident,” page 2.
October 6, 1896	“Camden News Condensed,” page 7.
November 10, 1896	“Many Decisions By The Superior Court,” page 3.
November 11, 1896	“Julia Marlowe Taber Sues Manager Howe,” page 5.
December 6, 1896	“Germania Park Sold For A Song,” page 10.
May 7, 1897	“Lincoln Park Sold,” page 5.
May 25, 1897	“Purchaser Wants the Sale Set Aside,” page 5.
September 28, 1897	“Clearing Up Lincoln Park Wreck,” page 2.
November 23, 1897	“Little Ones From Jersey,” page 2.
February 15, 1898	“Sheriff Sells Lincoln Park,” page 6.
June 4, 1899	“Got The License,” page 6.
July 2, 1899	“Lincoln Park Is Open,” page 8.
June 5, 1900	“
June 10, 1900	“Lincoln Park to Open,” page 16.
June 19, 1900	“Amusements-Lincoln Park on the Delaware,” page 9.
September 8, 1900	“Jersey In Short Metre,” page 5.
March 24, 1901	“City-Lincoln Park,” page 7.
August 26, 1908	“Death Notices-McGowan,” page 7.
July 16, 1911	“The Ryan Amusement Co.,” page 6.
October 7, 1912	“T.J. Ryan A Suicide After Heavy losses,” page 9.
July 3, 1966	“Revolutionary War Fort Nearly Forgotten by History.”

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October 9, 1974	“National Register Listing Sought For Ft. Billings.” Page 2.

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July 3, 1889 “Paulsboro,” page 3.
September 11, 1889 “Paulsboro,” page 3.
October 9, 1889 “Paulsboro,” page 3.
January 29, 1890 “Paulsboro,” page 3.
June 14, 1890

Maps

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1972 Untitled hand-drawn survey of the Bramell property and possible main fort location.

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Appendix A
Report Figures

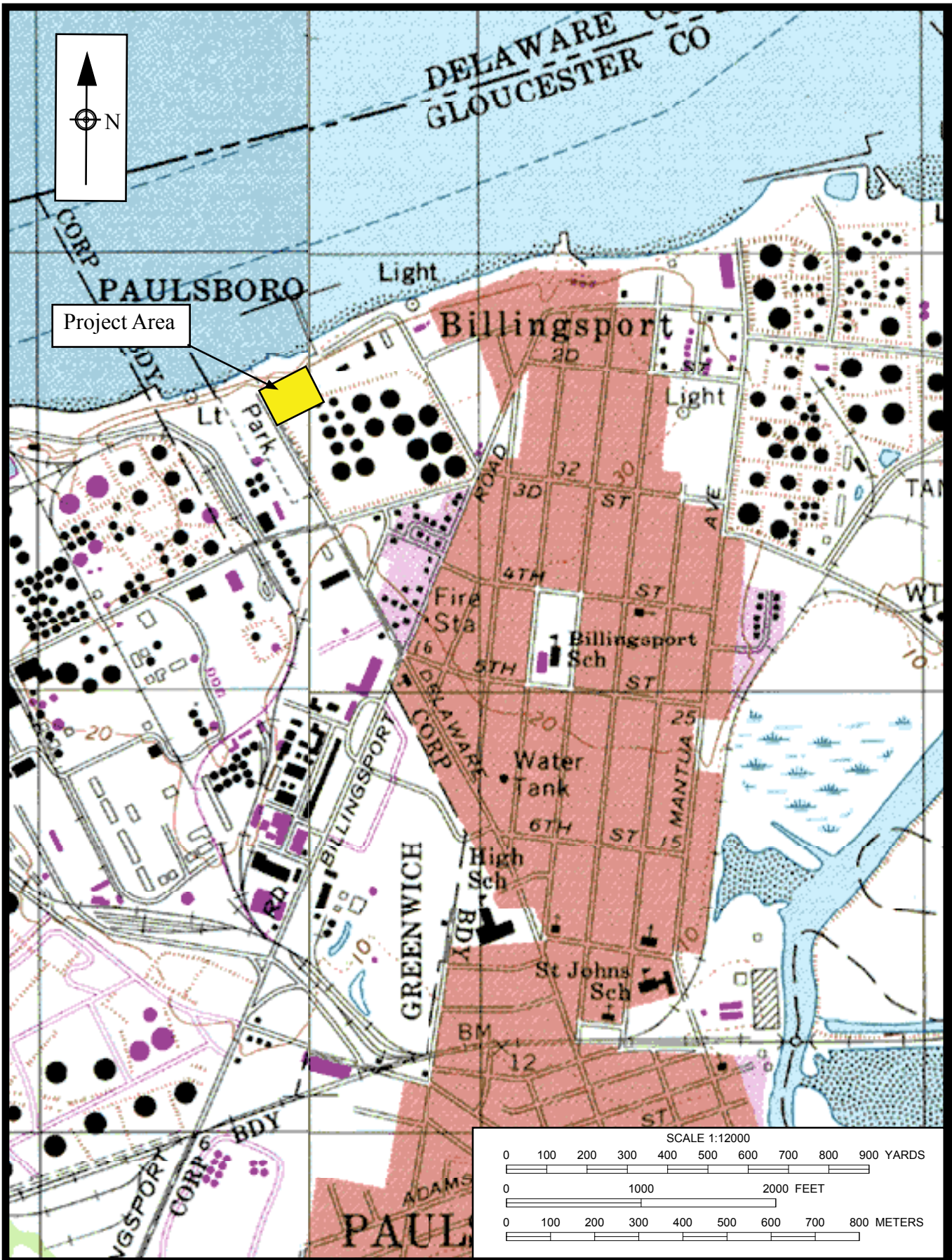


Figure 1 Project location map (Source: Woodbury Quadrangle, NJ, Maptech 1997).

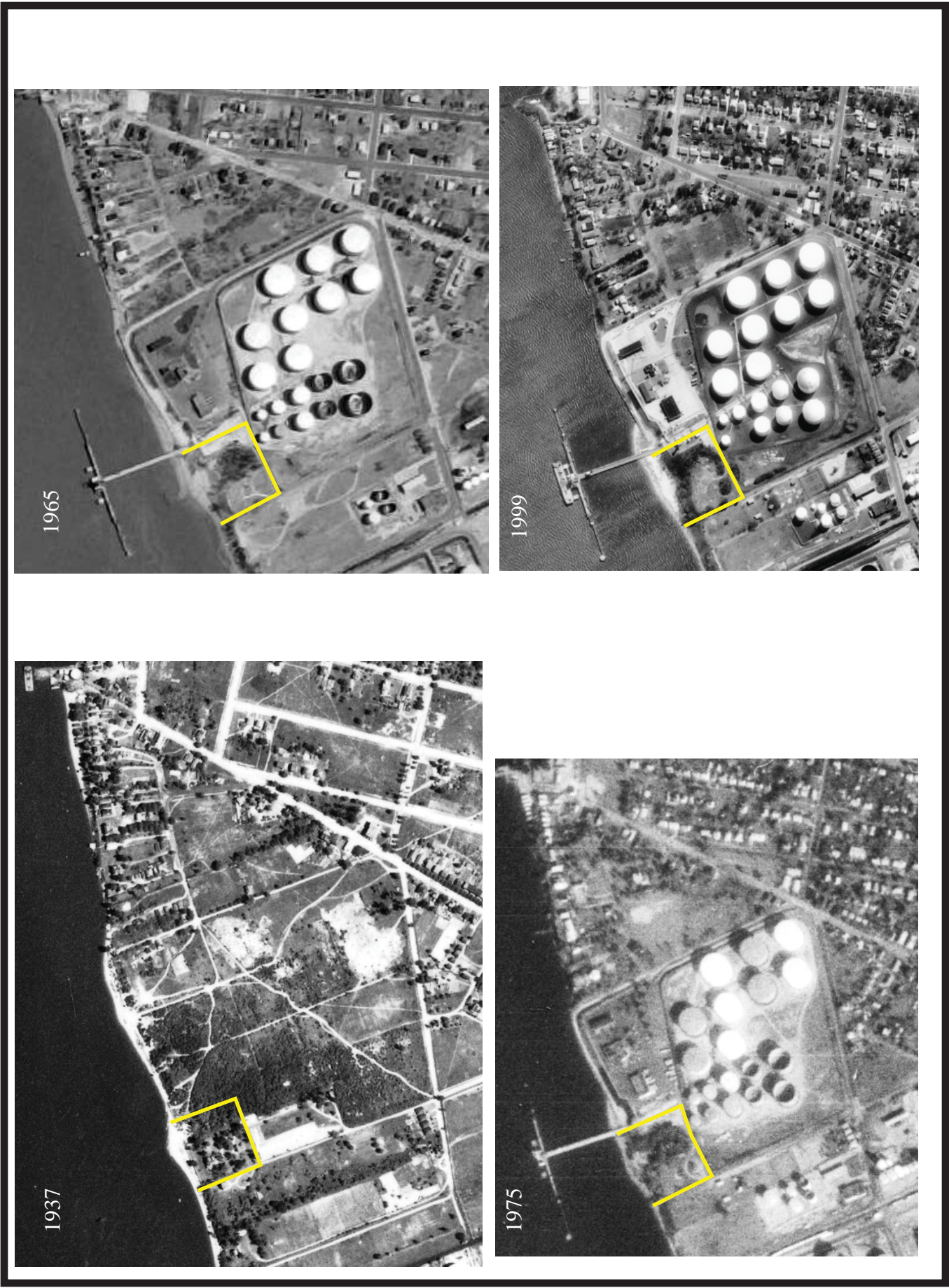


Figure 3 Aerial photographs of the study area showing changing conditions between 1965-1999.



Figure 4 Overview of the study area looking north.



Figure 5 Overview of the study area looking south.



Figure 6 Soil piles lining the western study area margins, at the top of the riverside scarp.



Figure 7 Overview of the supposed Fort Billingsport related hole or pit at the north end of the study area



Figure 8 Detail of the hole/pit showing backfilled debris, trash, and truck tires.



Figure 9 Detail of the hole/pit showing partially backfilled tree trunks.

Philadelphia 1777.

POSTE DE BELLING'S PORT.

417

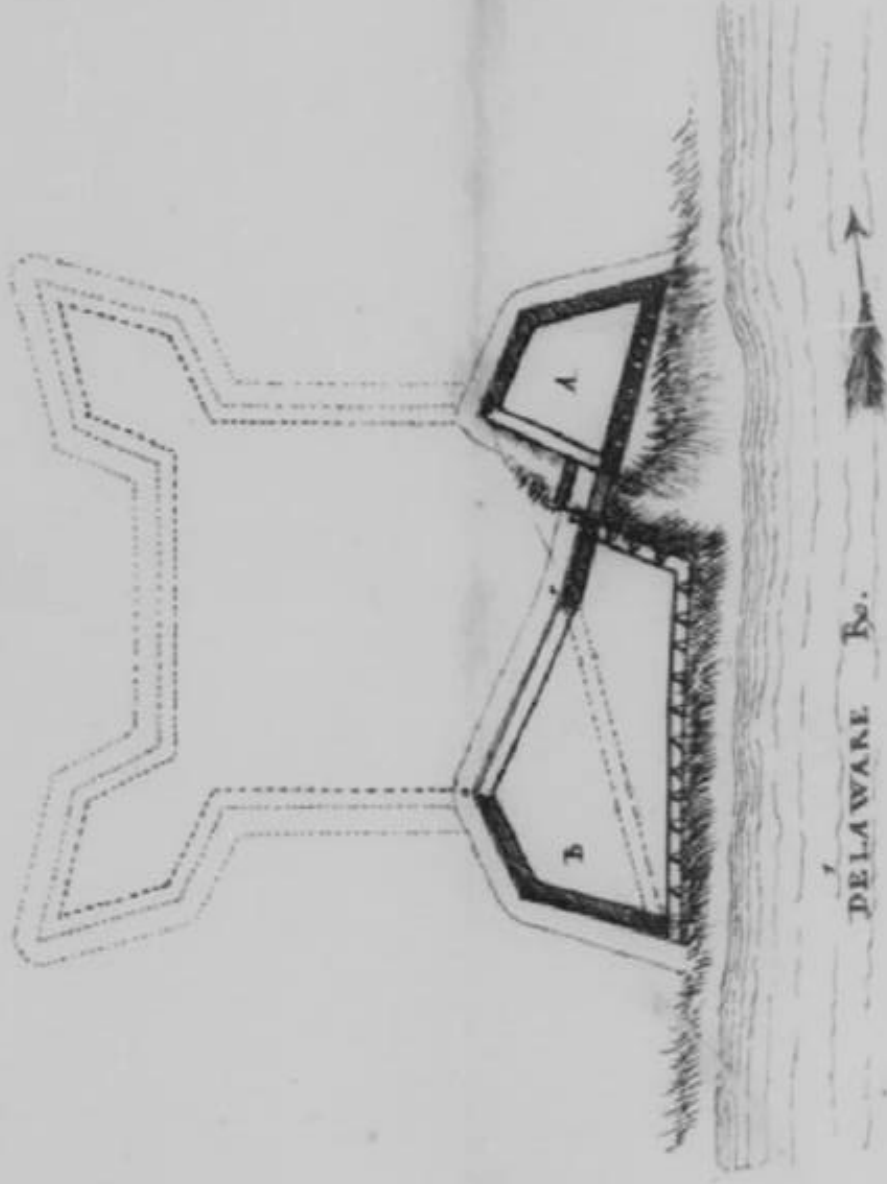


Figure 10 Plan of Fort Billingsport, 1777.

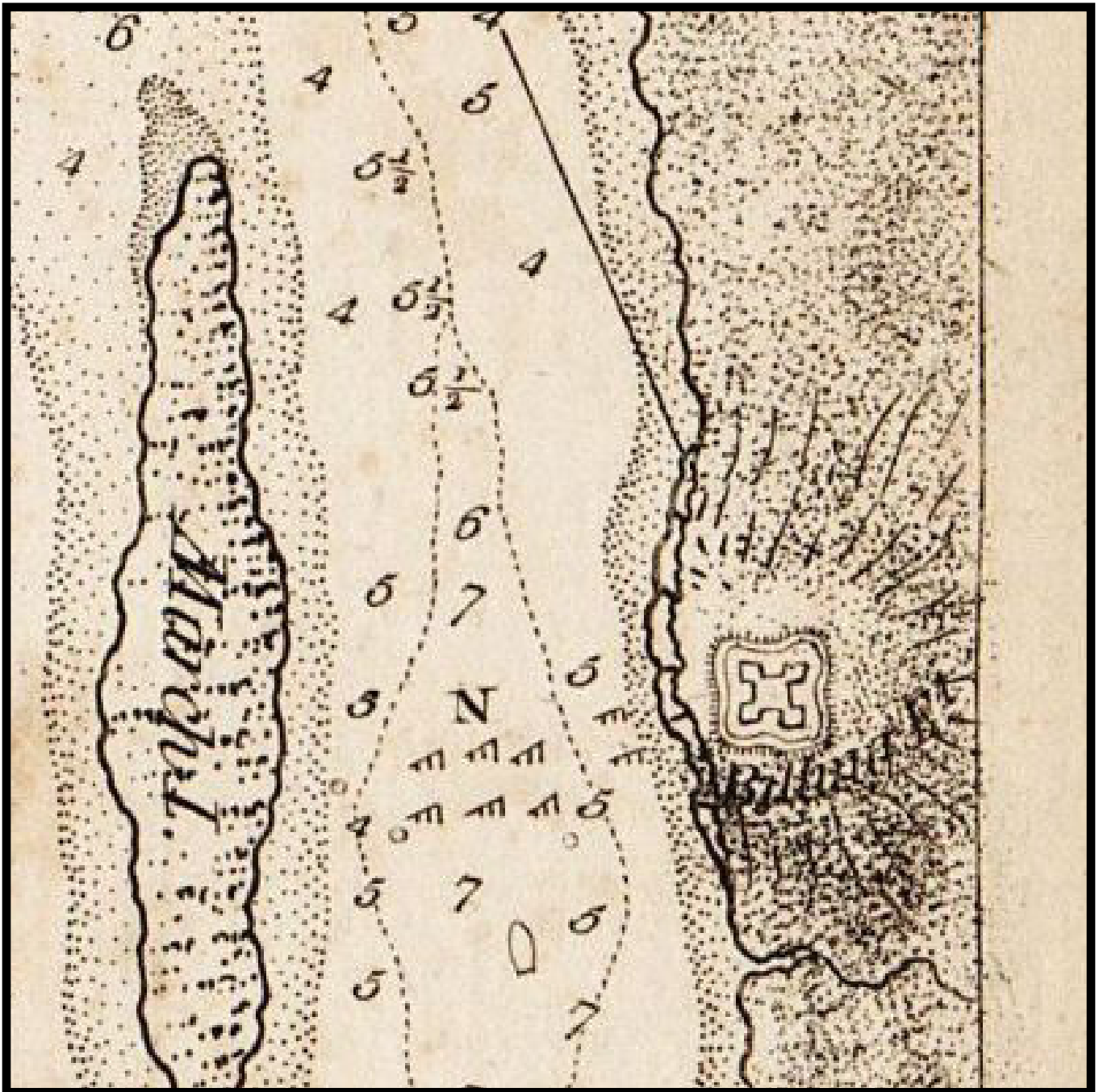


Figure 11 Hunter map of Fort Billingsport, 1777.

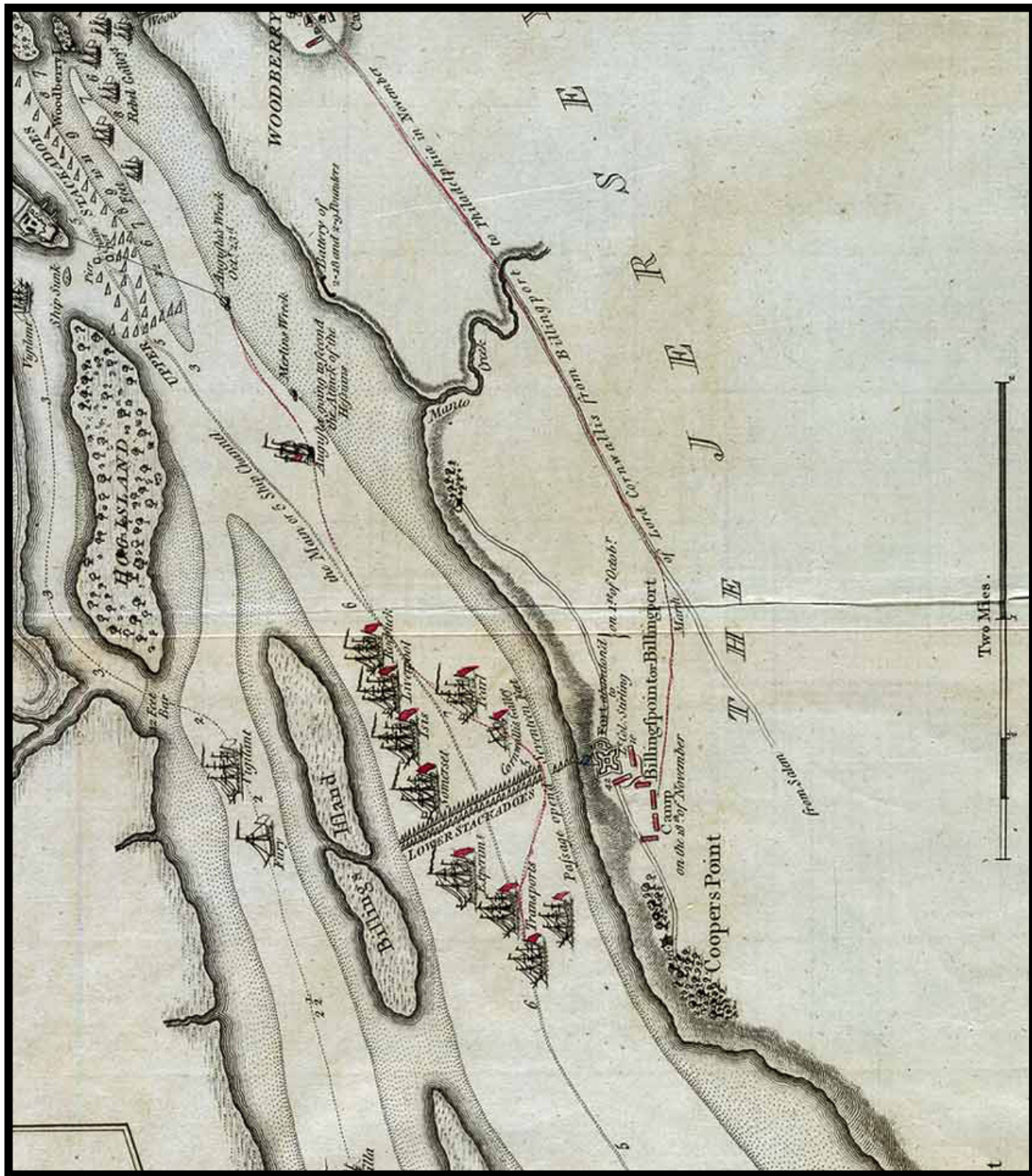


Figure 12 Billingsport in the defense of Philadelphia (Source: Faden 1785).

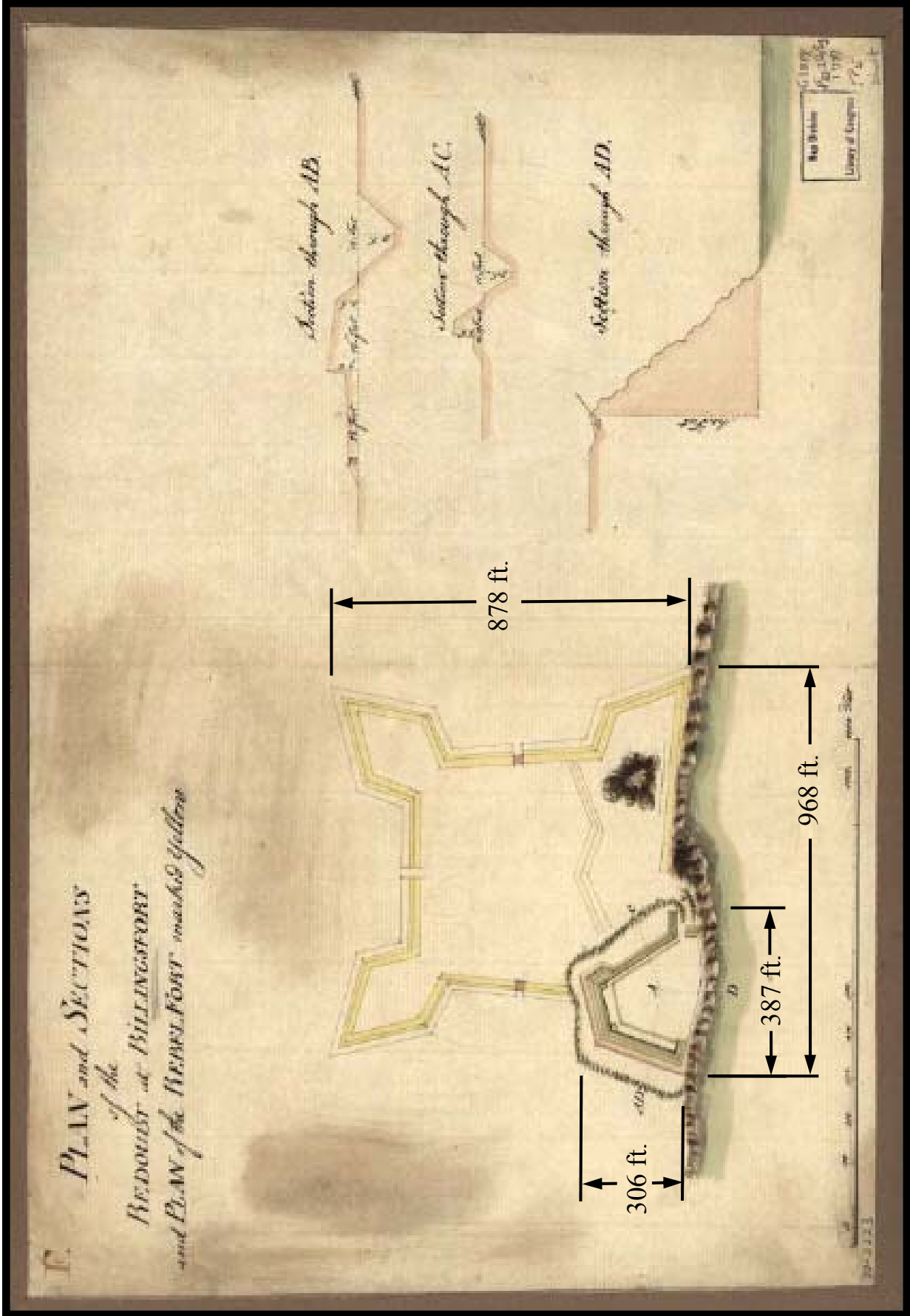


Figure 13 British military plan of Fort Billingsport.



Figure 14 Wangenheim plan of Fort Billingsport, 1777.

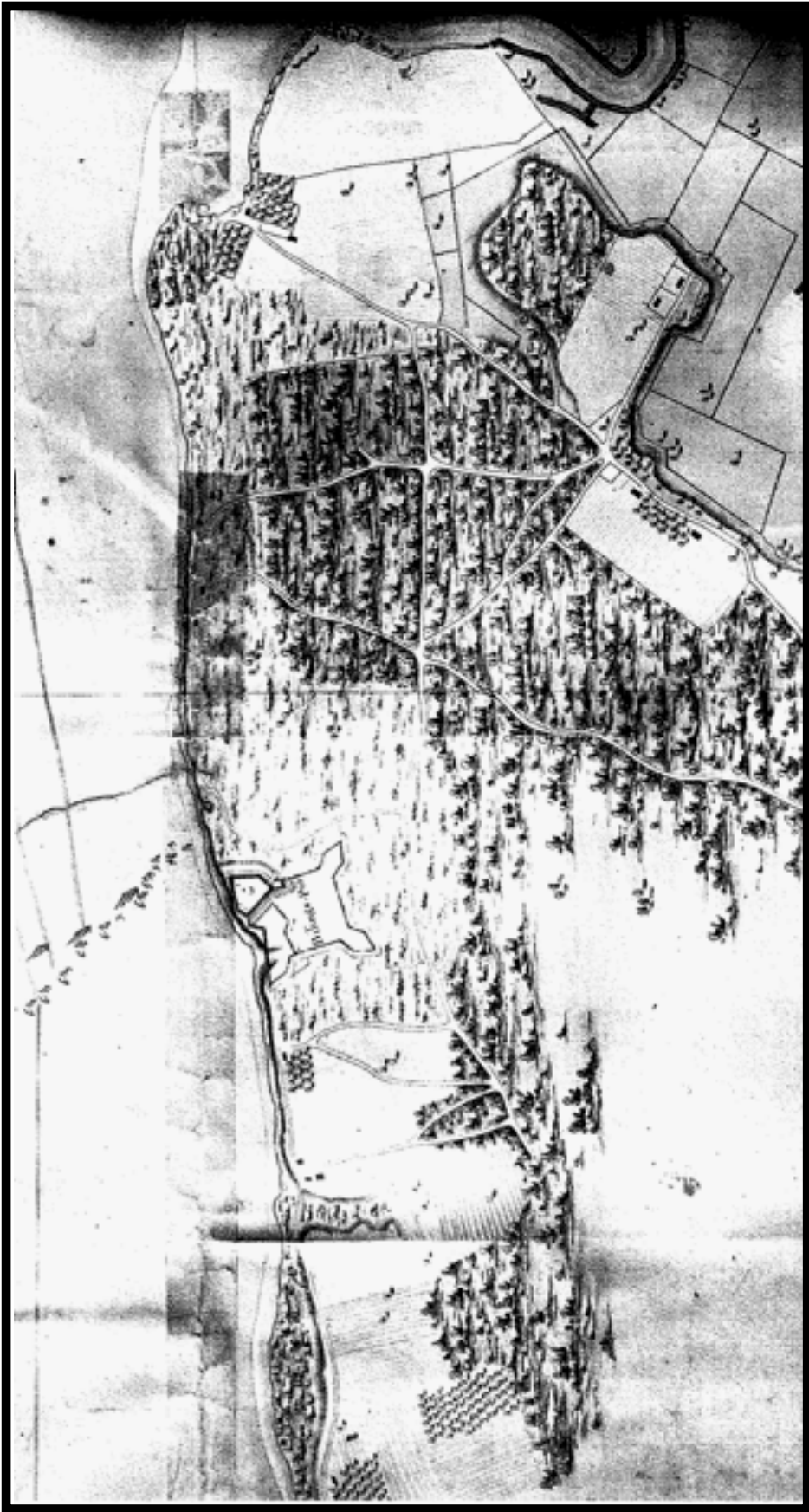


Figure 15 Villefranche map of Fort Billingsport, 1779.

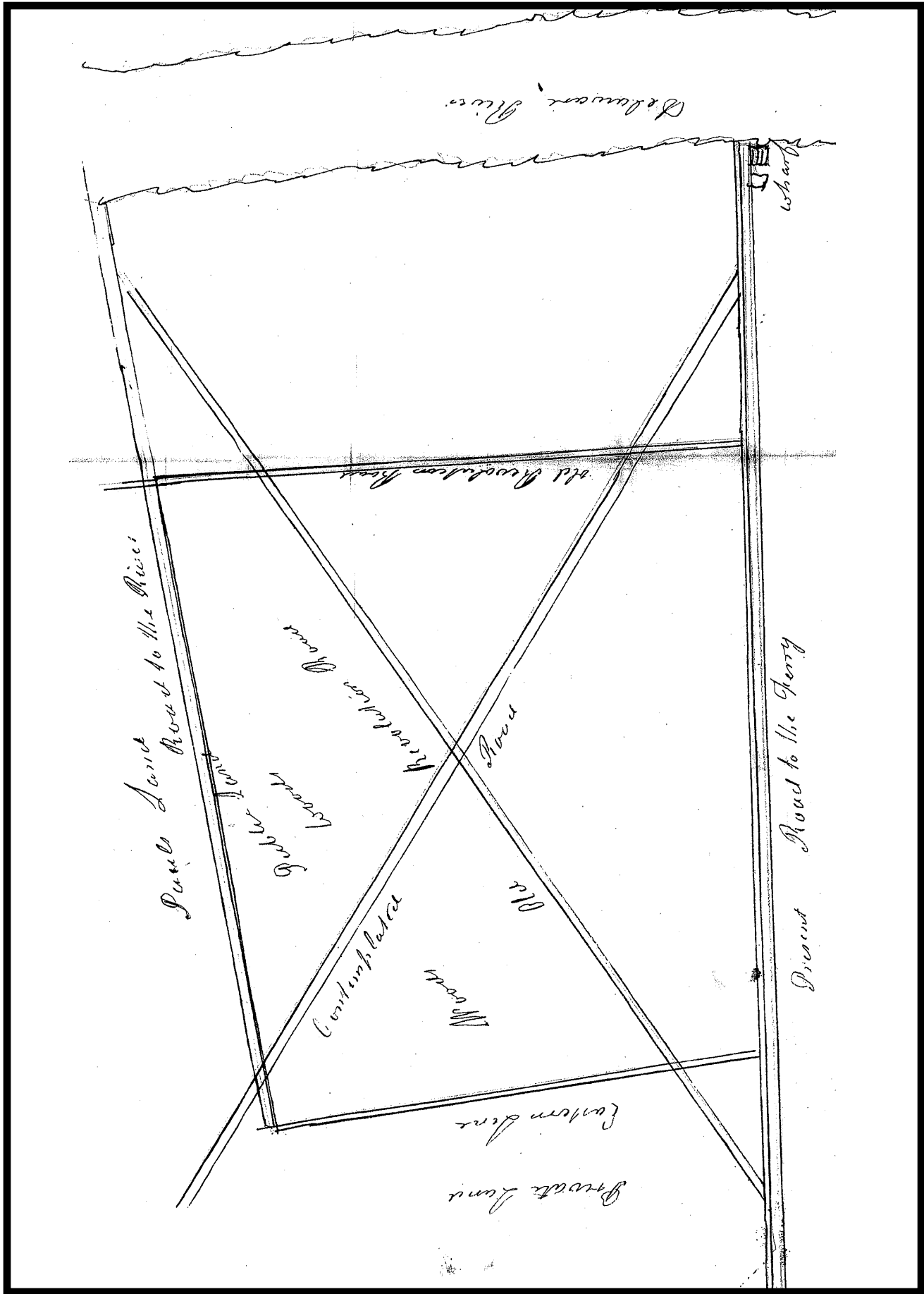


Figure 16 Devault's sketch map of government land at Billingsport (Source: Linnard 1830).

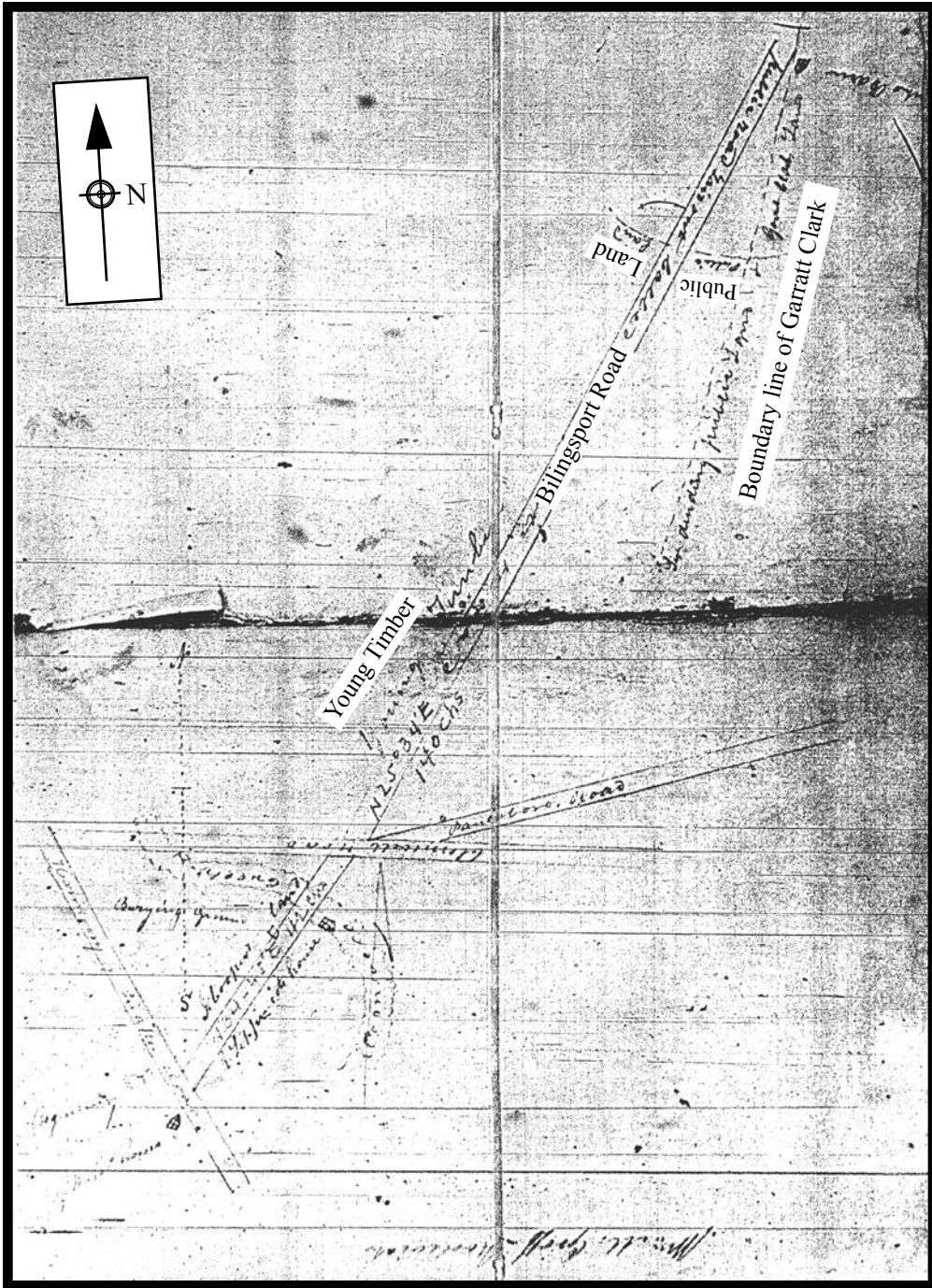


Figure 17 Survey of Billingsport Road in 1830 (Source: Gloucester County Road Book C pg.178).

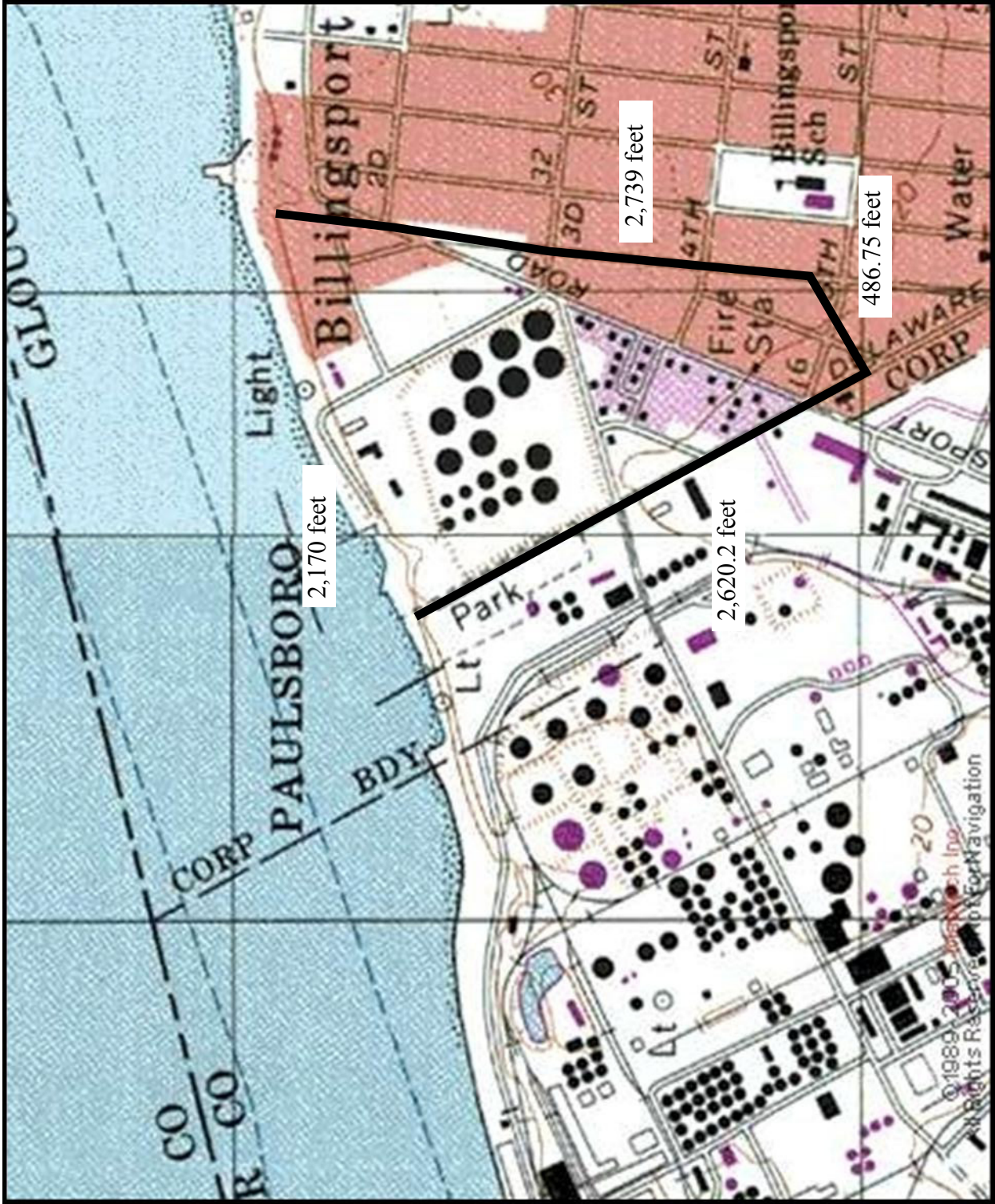


Figure 18 Fort Billingsport 96-acre tract.

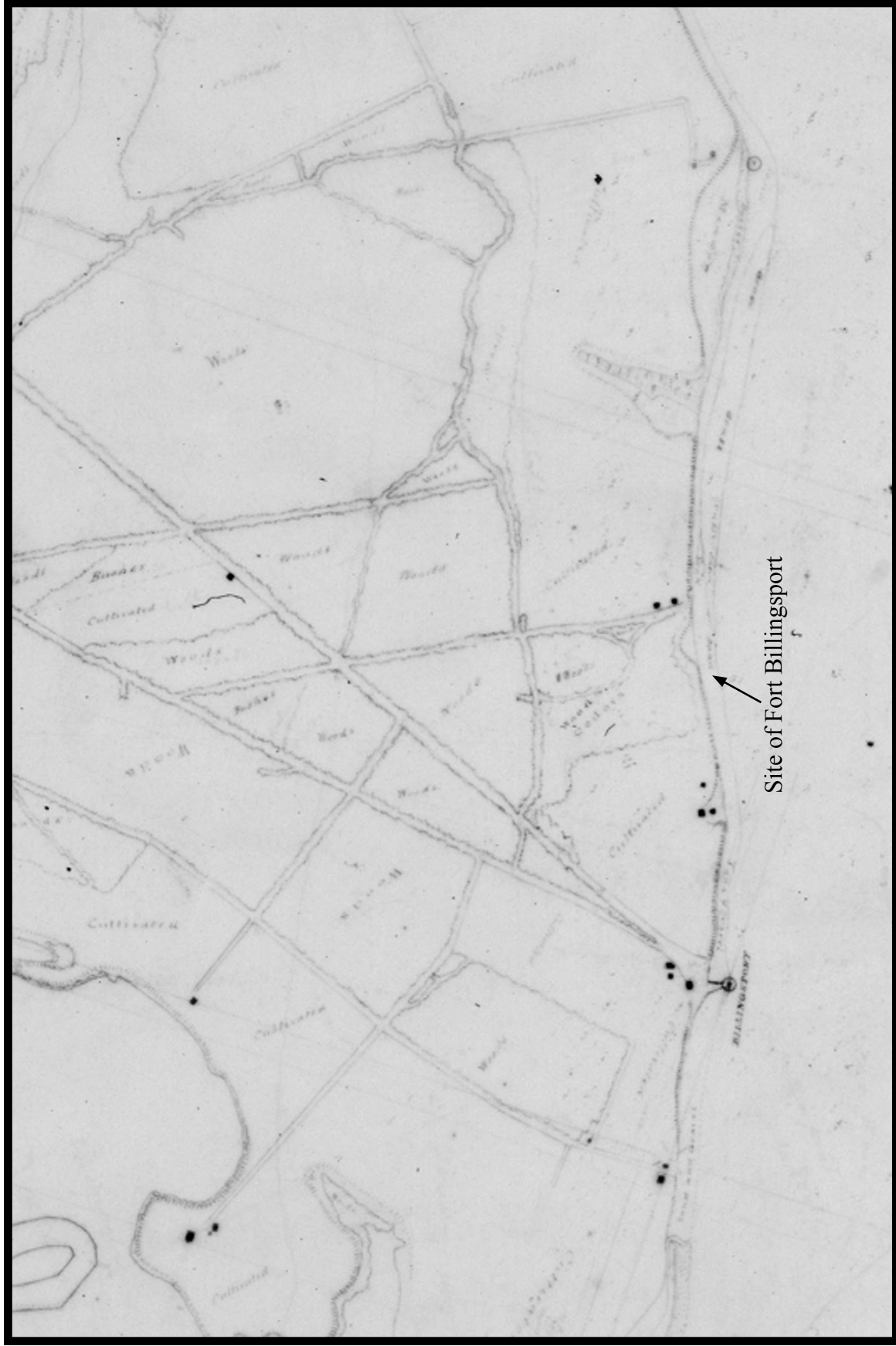


Figure 19 U.S. Coast Survey of Billingsport in 1842.

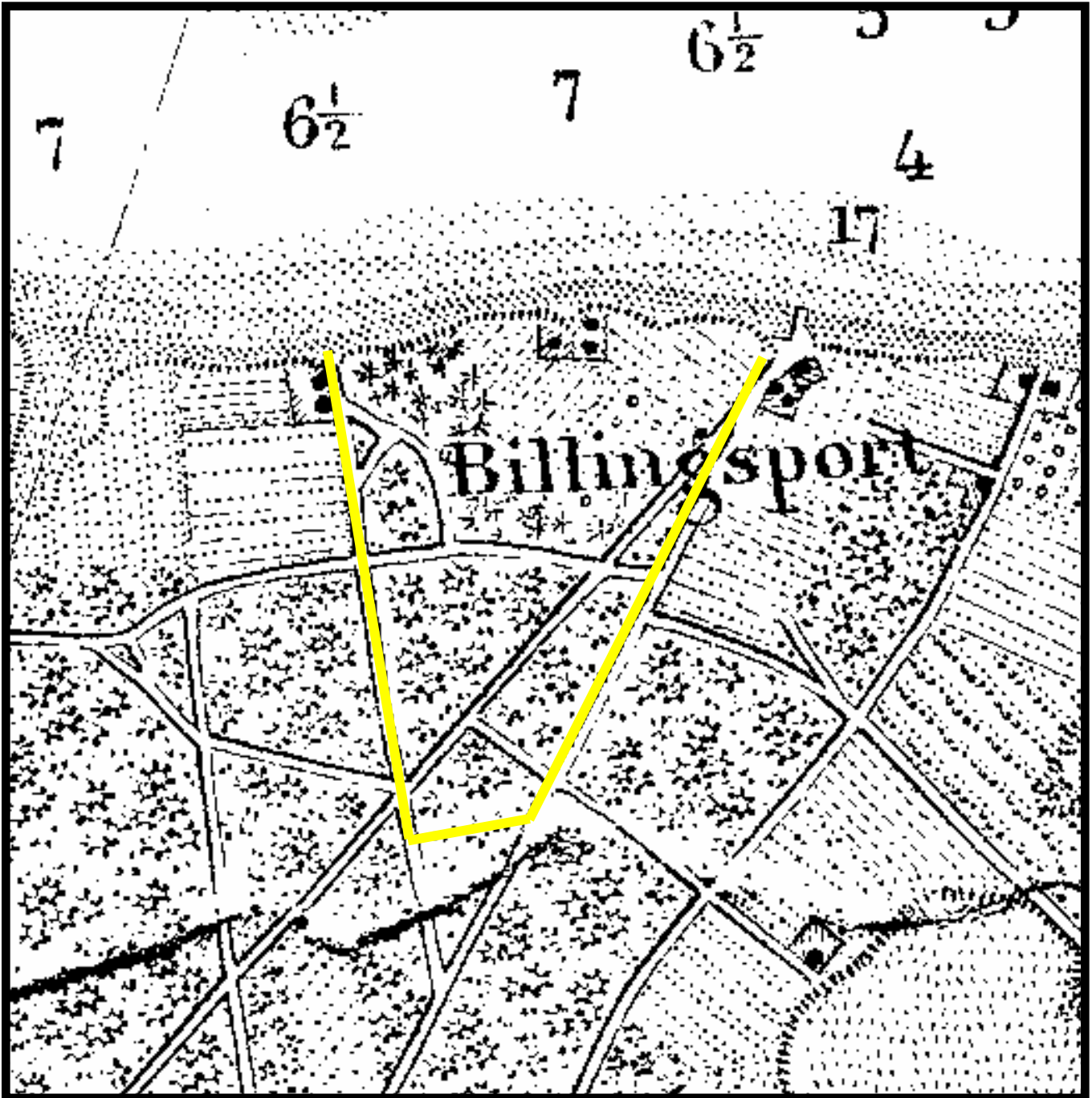


Figure 20 U.S. Coast Survey of Billingsport in 1848 (Source: U.S. Coast Survey 1848).

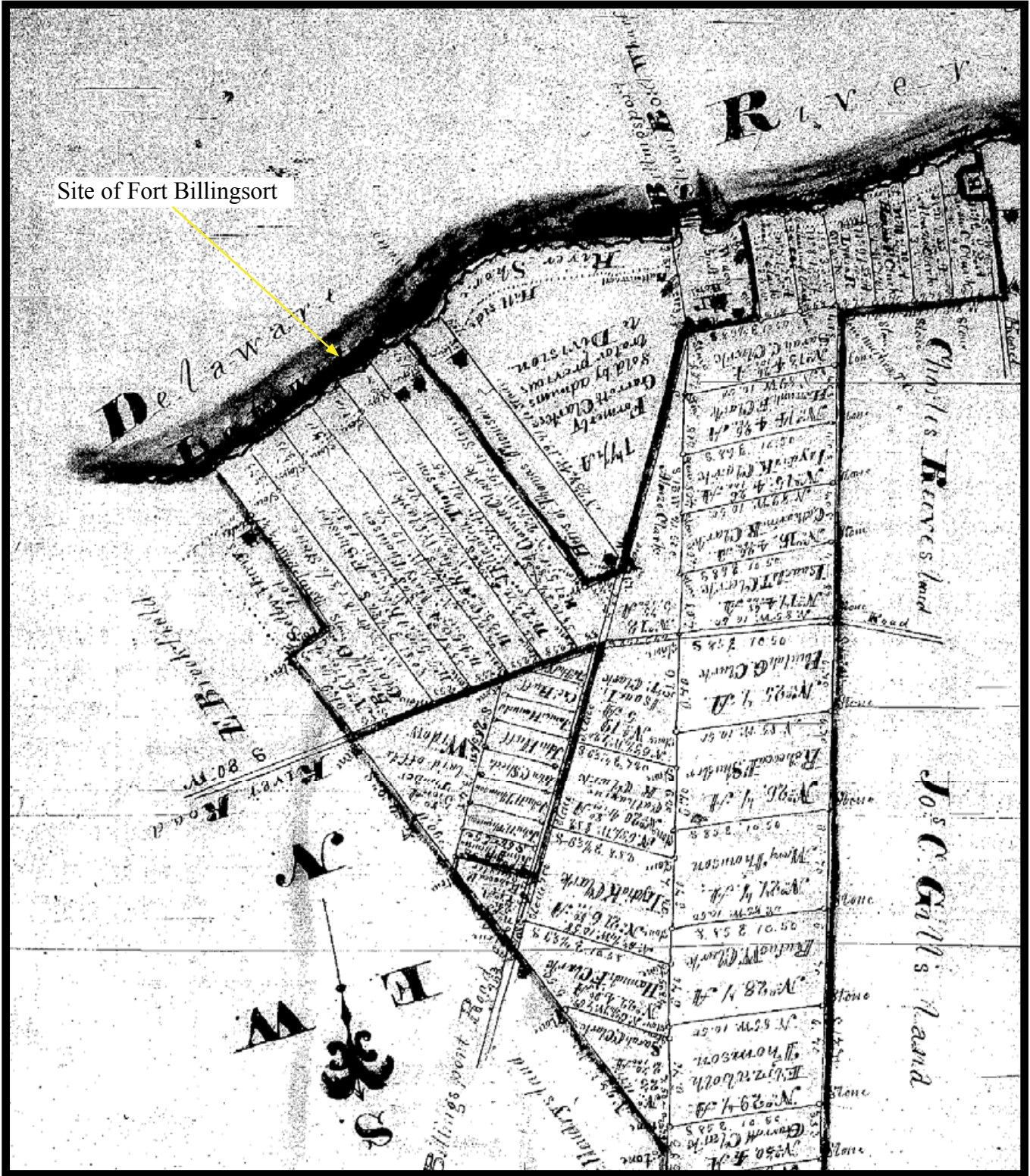


Figure 21 Division of Garret Clark's estate (Source: Miscellaneous Gloucester County Maps 1852).

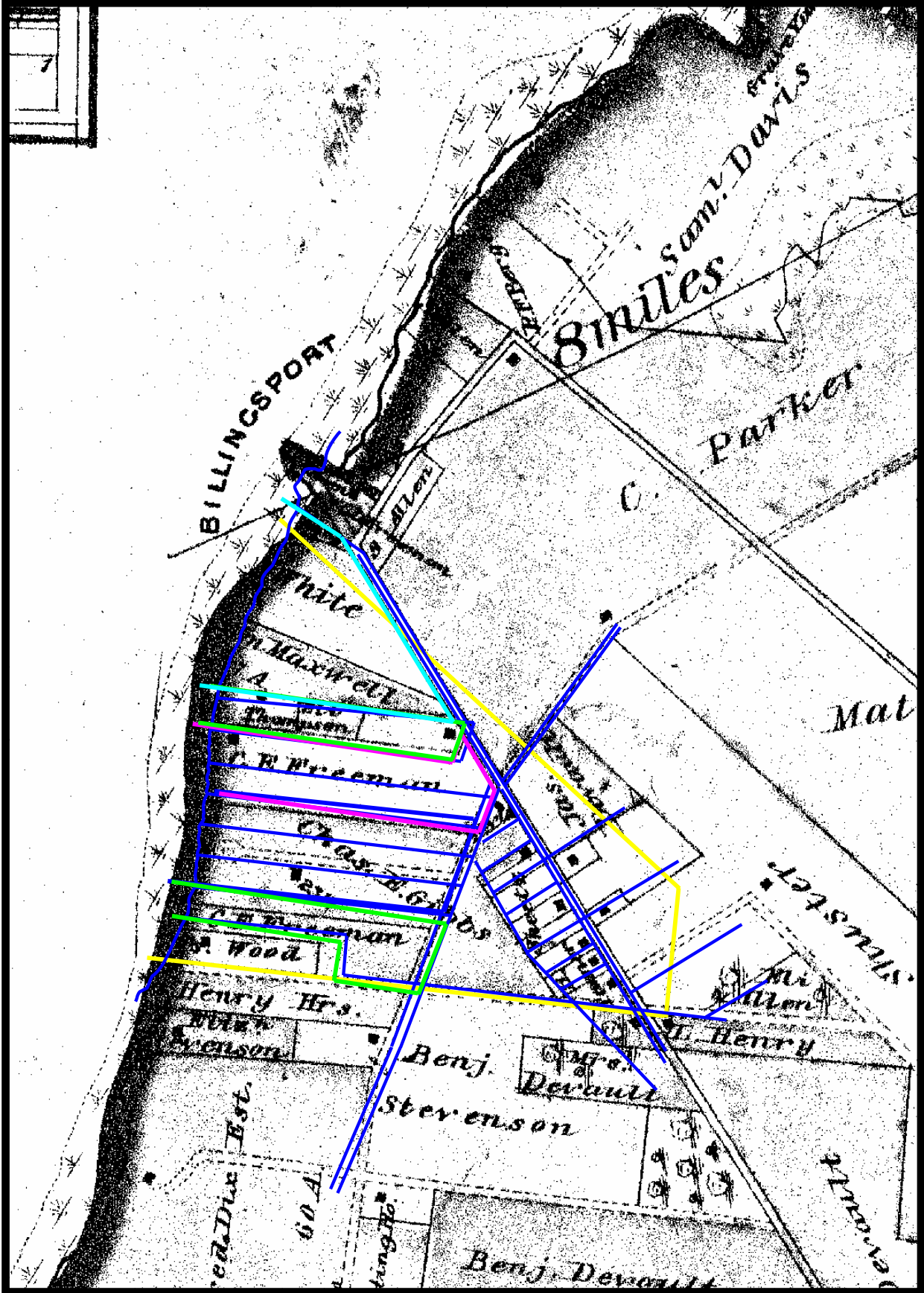


Figure 22 Nineteenth-century subdivisions of the Fort Billingsport tract.

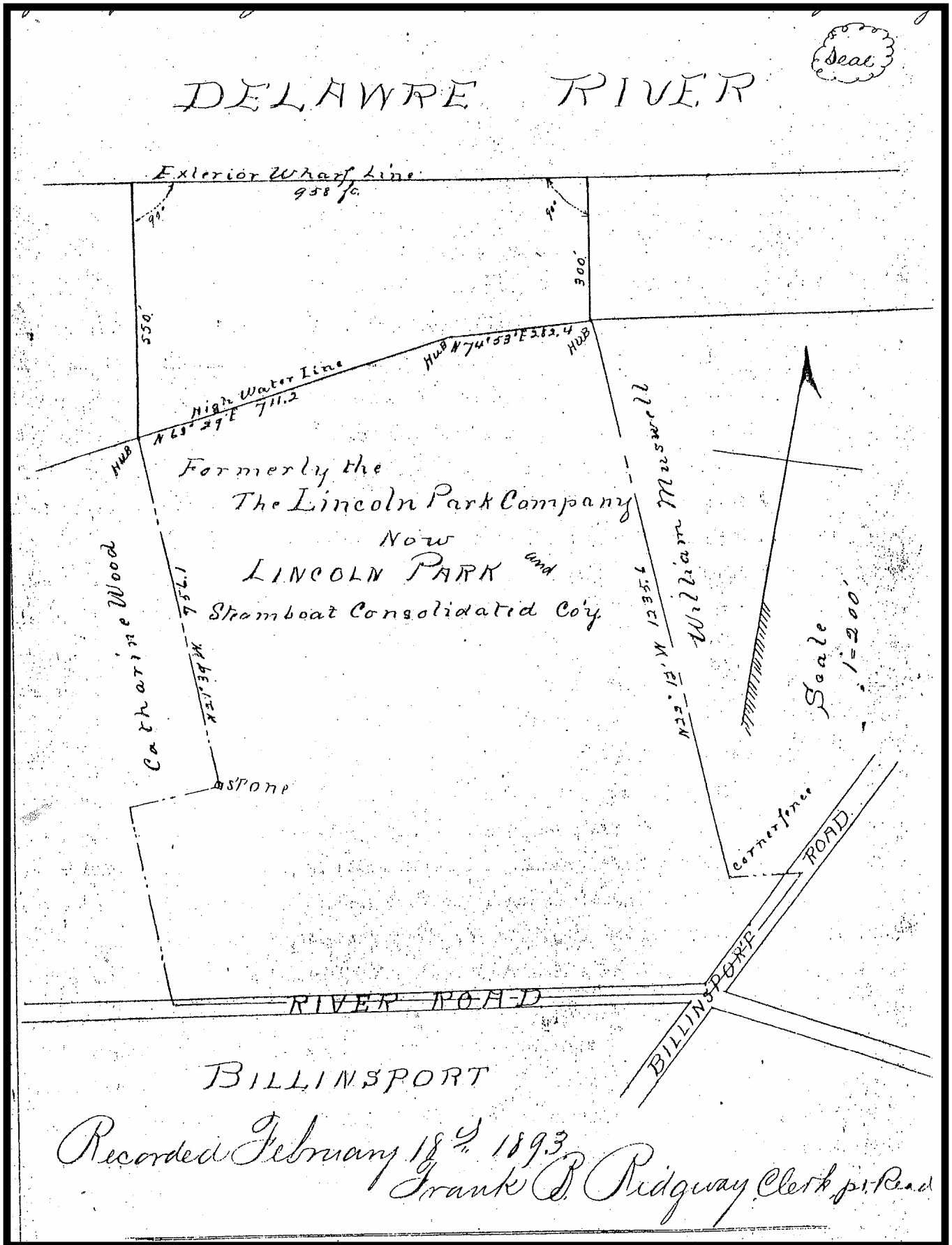


Figure 23 Lincoln Park property.

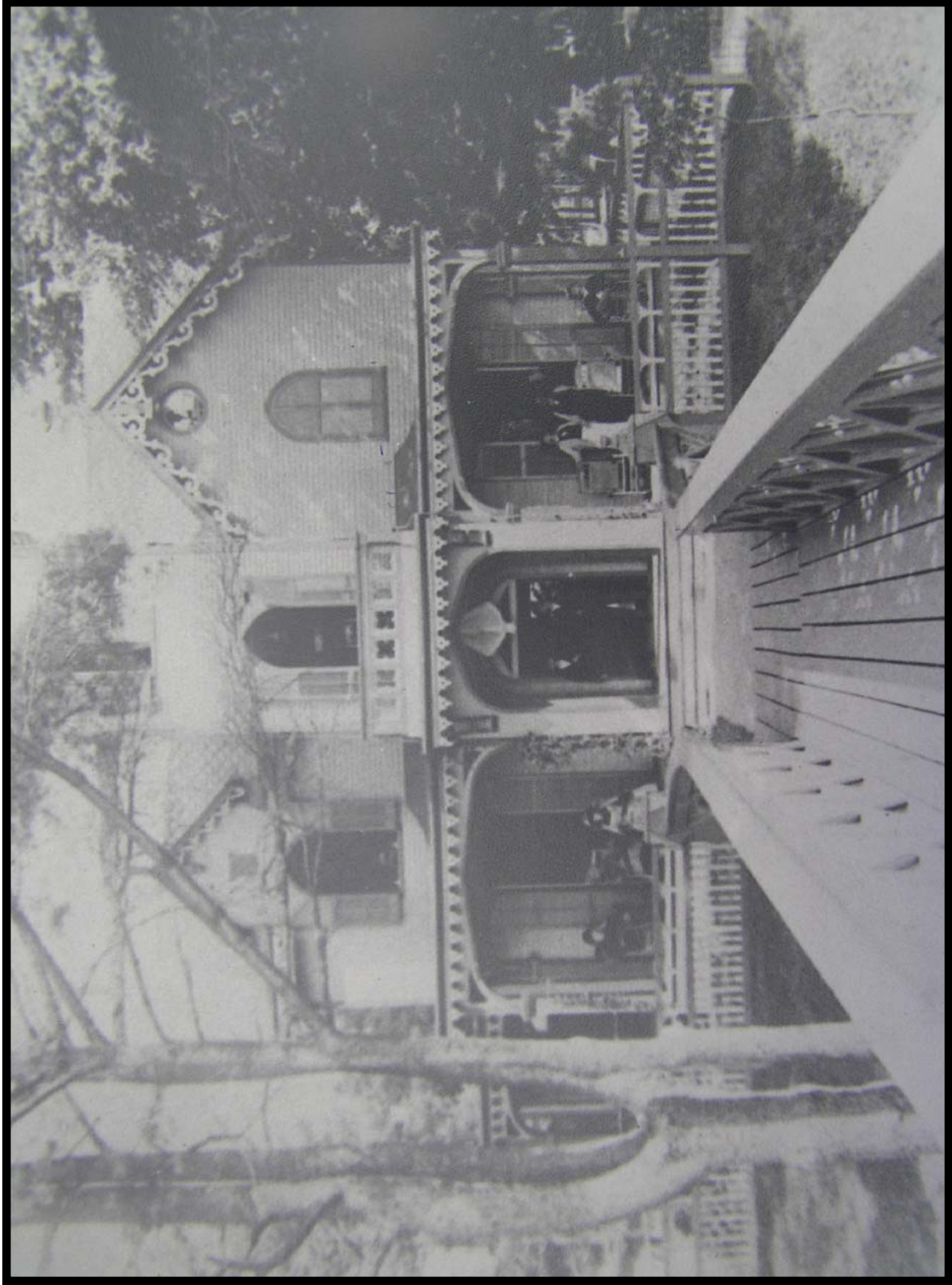


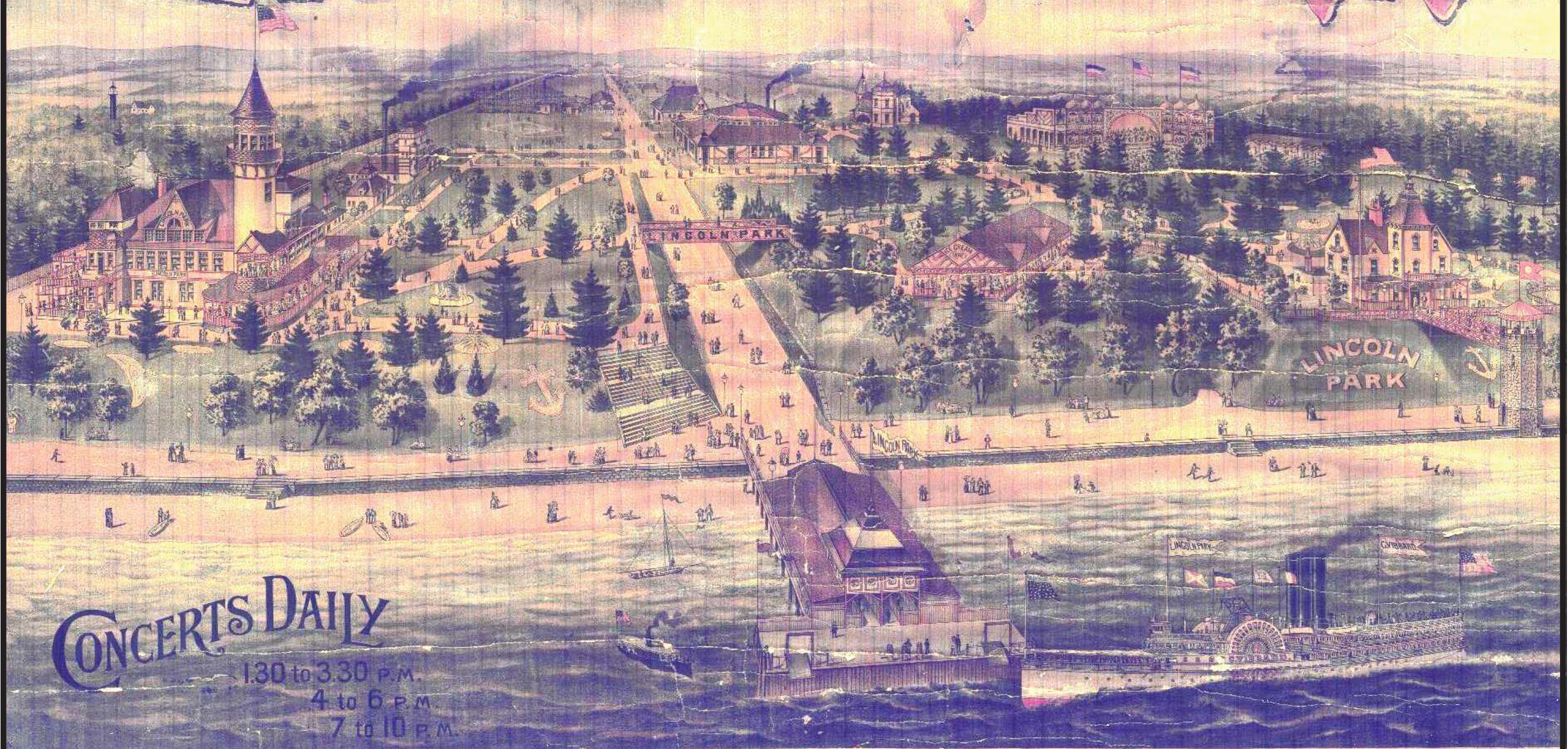
Figure 24 The former Salomon/Gibbs house in Lincoln Park.



Figure 25 Lincoln Park tower, connected to the Gibbs House.

STEAMERS EVERY HALF HOUR FROM RACE & WRESTLING STREET WHARVES FOR

LINCOLN PARK



CONCERTS DAILY

1:30 to 3:30 P.M.
4 to 6 P.M.
7 to 10 P.M.

FARE 25 CENTS. ROUND TRIP.

Figure 26 Lincoln Park poster.

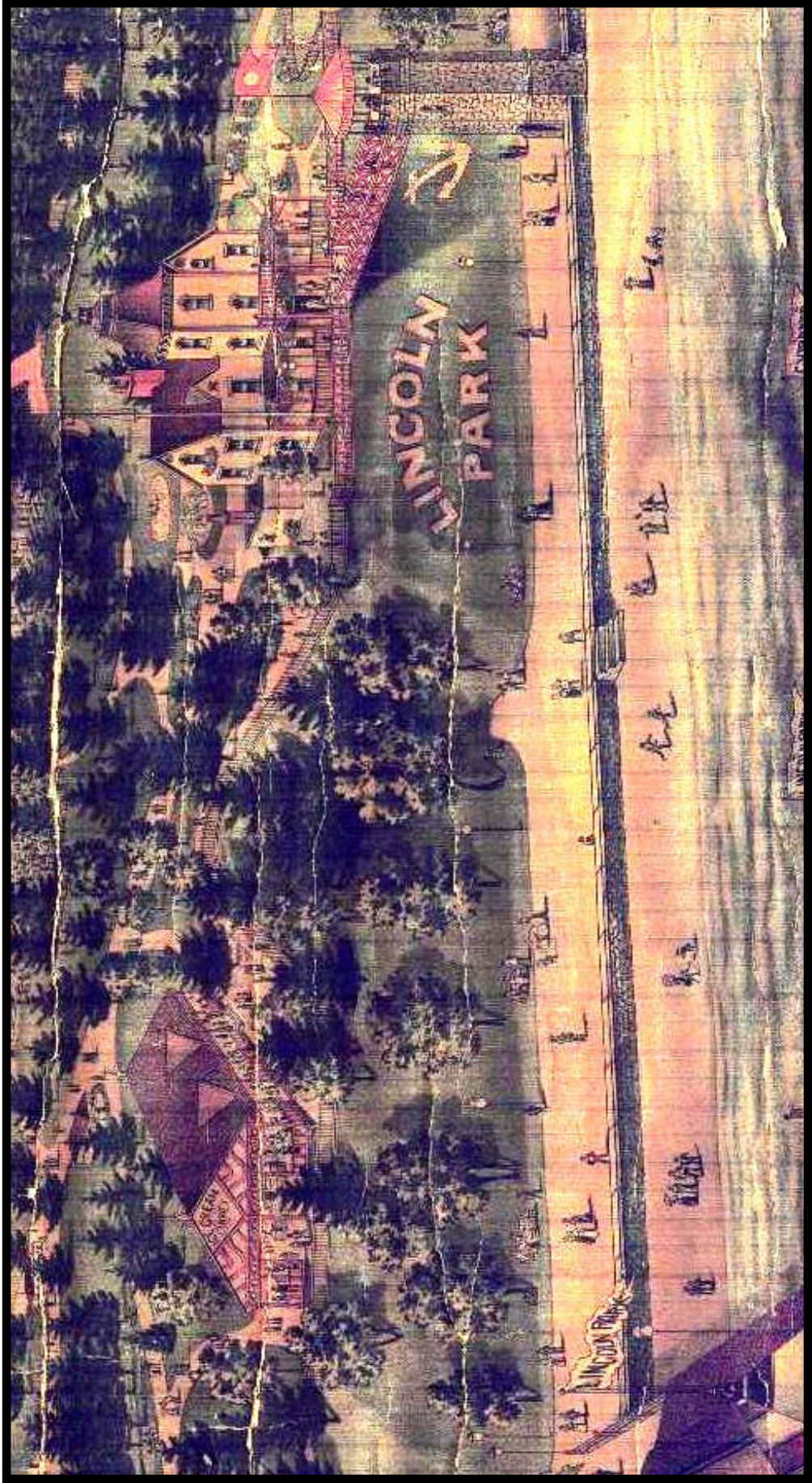


Figure 27 Detail of former Gibbs house in Lincoln Park.

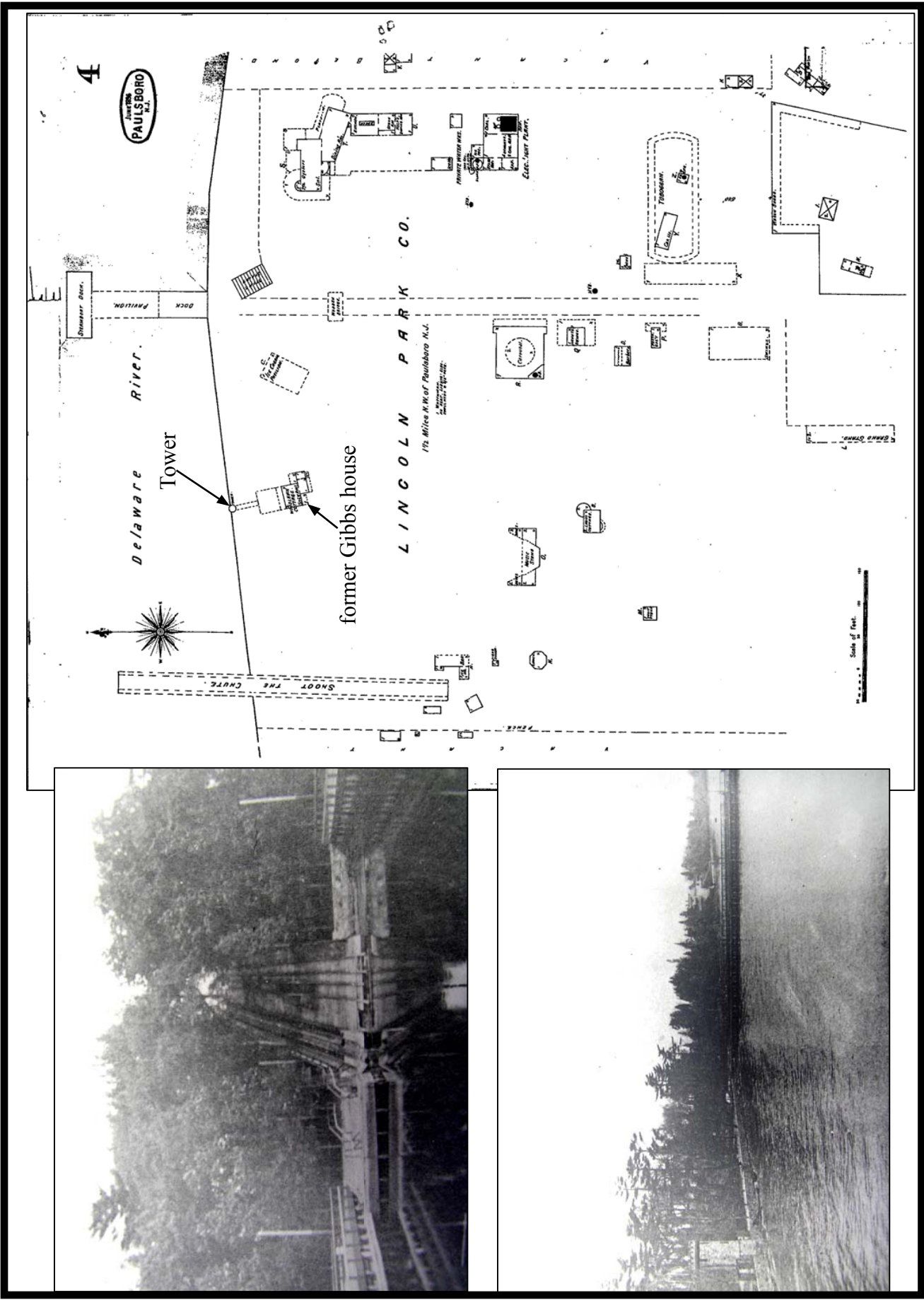


Figure 28 Shoot the chute in Lincoln Park (Source: Sanborn Map Company 1896).

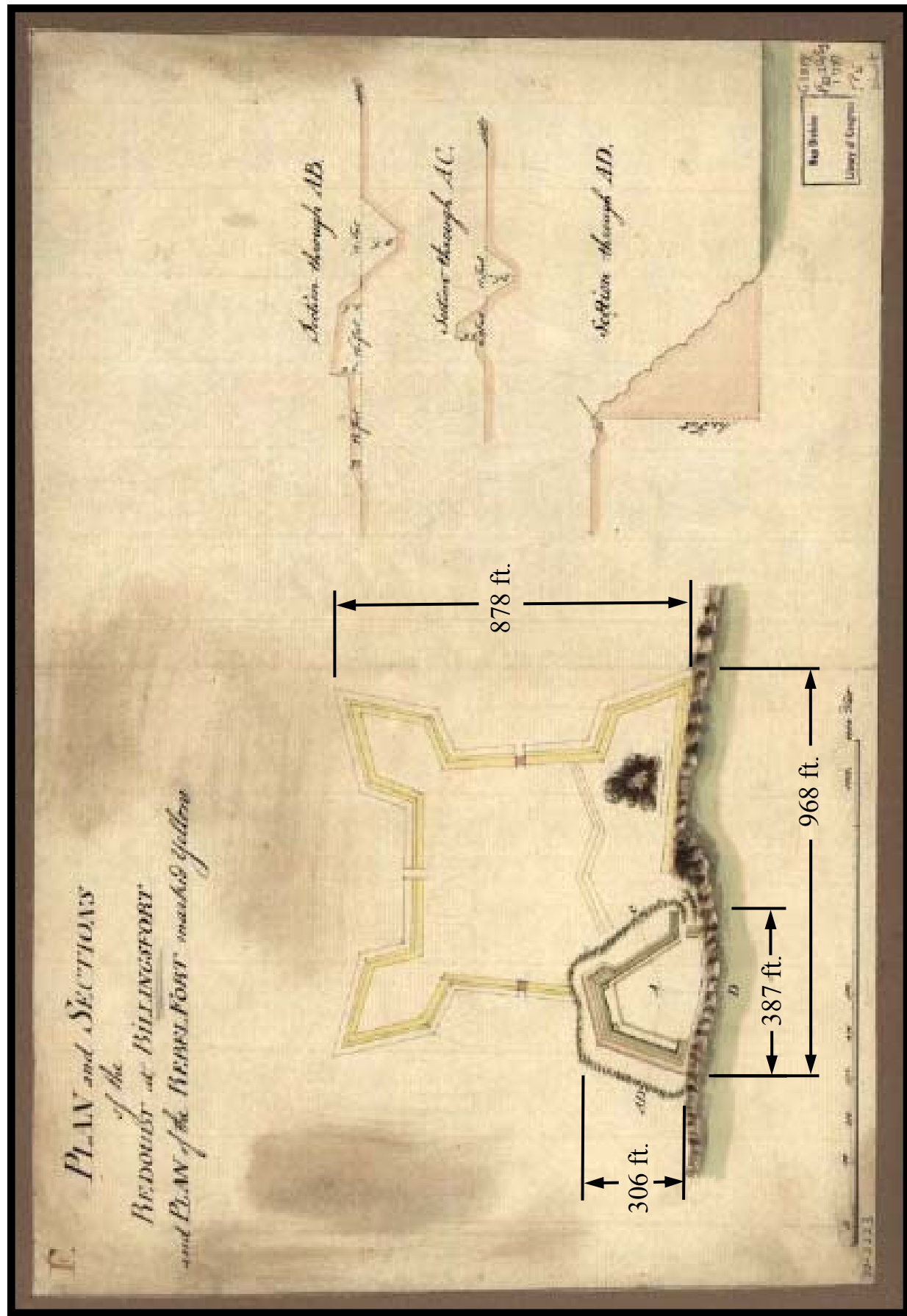


Figure 29 British plan of Fort Billingsport showing the dimensions of the original redoubt, based on the included scale.

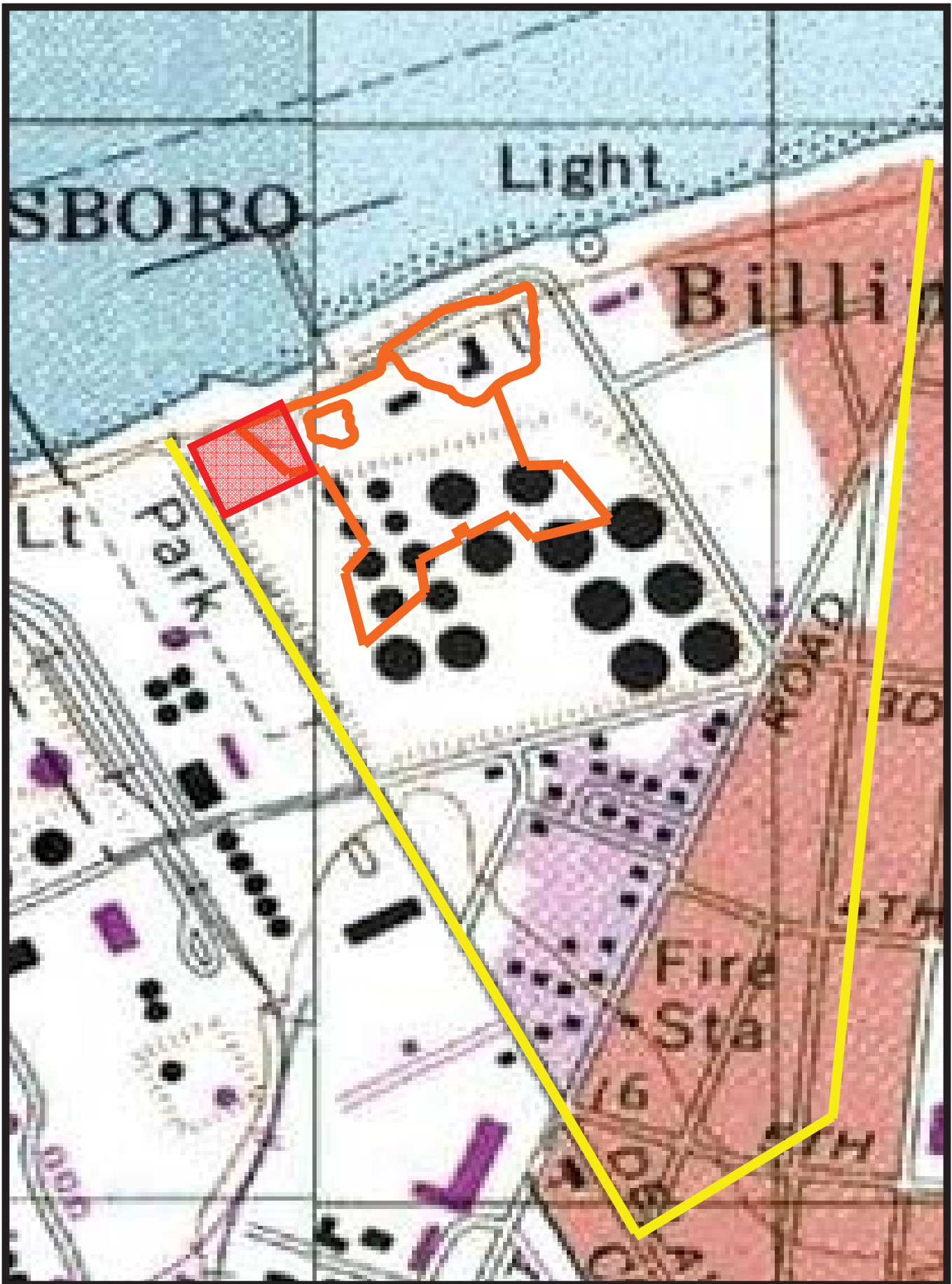
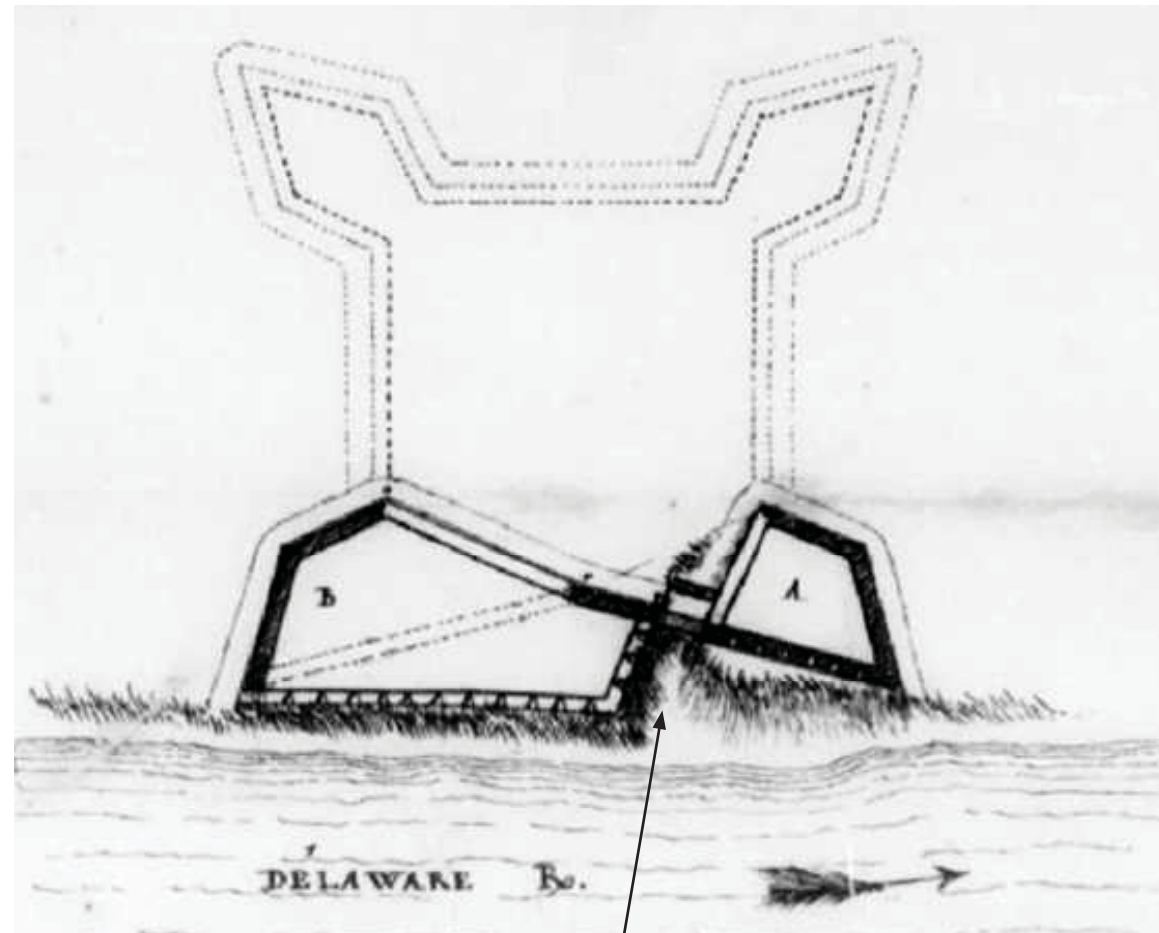
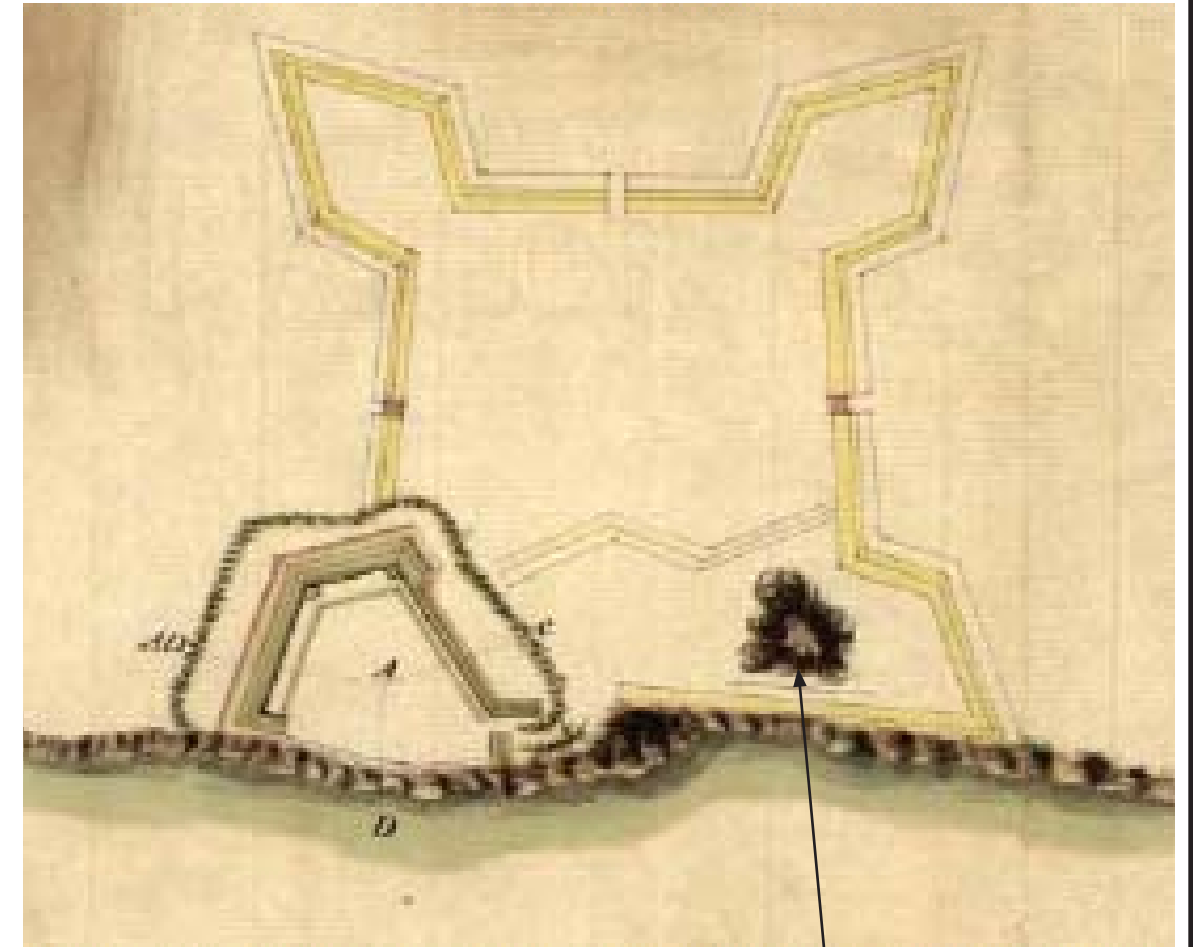


Figure 30 Approximate estimated location of the Fort Billingsport defenses with respect to the present Paulsboro Terminal property.

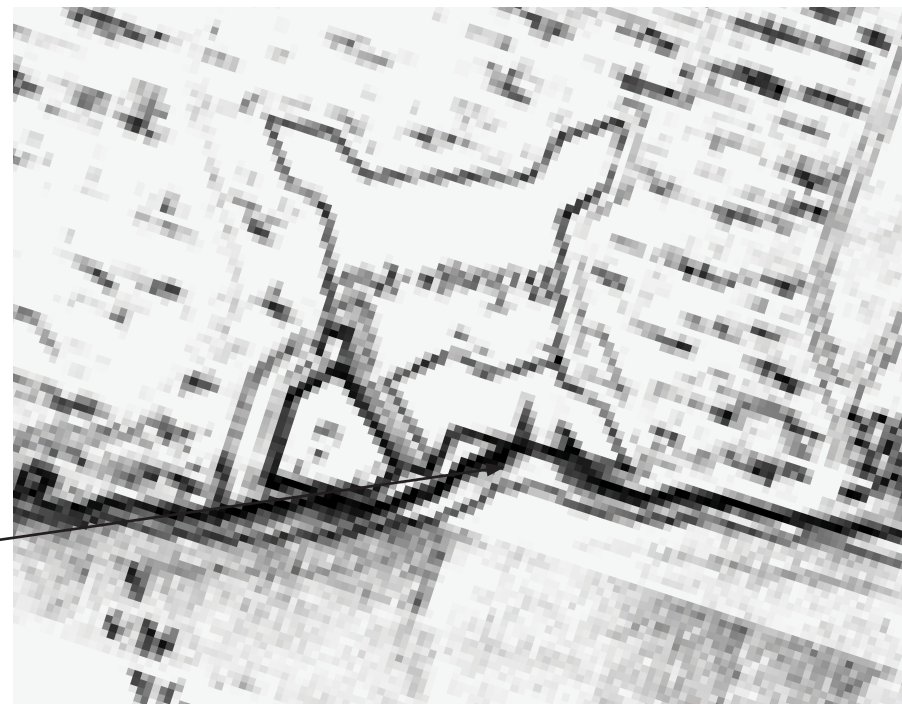
British Plan 1777



Du Coudry Plan 1777



Villefranche Map 1779



Riverbank Gorge or Ravine

Possible remnant of in-filled gorge or ravine

Figure 31 Fort Billingsport maps depicting features associated with a possible gorge or ravine entering the for from the riverbank.



Figure 32 Lincoln Park poster, showing the locations of possible fort-related features described in articles and recollections.

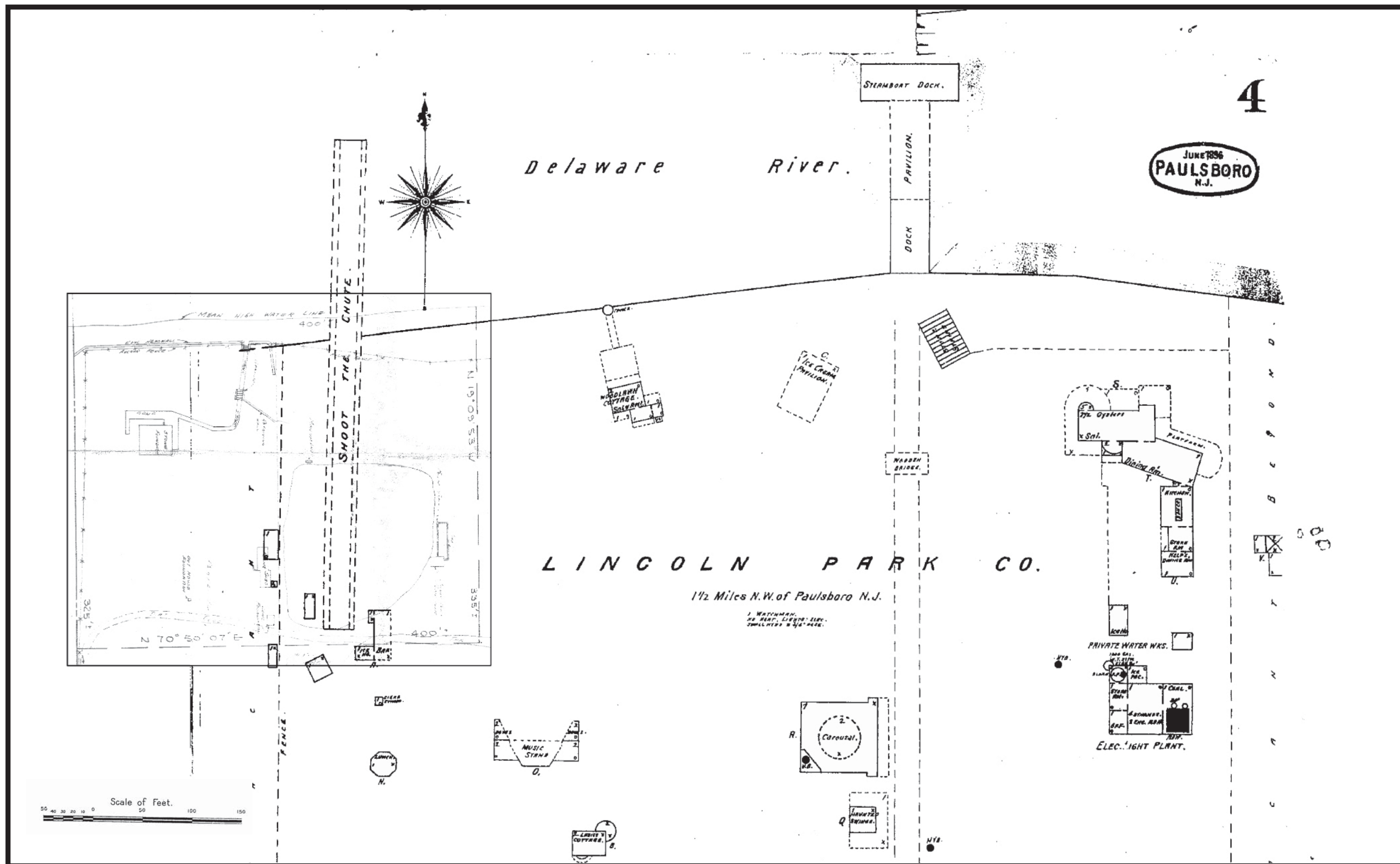


Figure 33 Overlay of the 1896 Sanborn Insurance map of Lincoln Park and 1972 CES survey of the study area, showing the relationship between the shoot-the-chute ride and the pit or crater in the north end of the study area.



Figure 34 Field crew conducting Ground Penetrating Radar investigations of the study area.



Figure 35 Field crew performing metal detector sweeps of the study area.

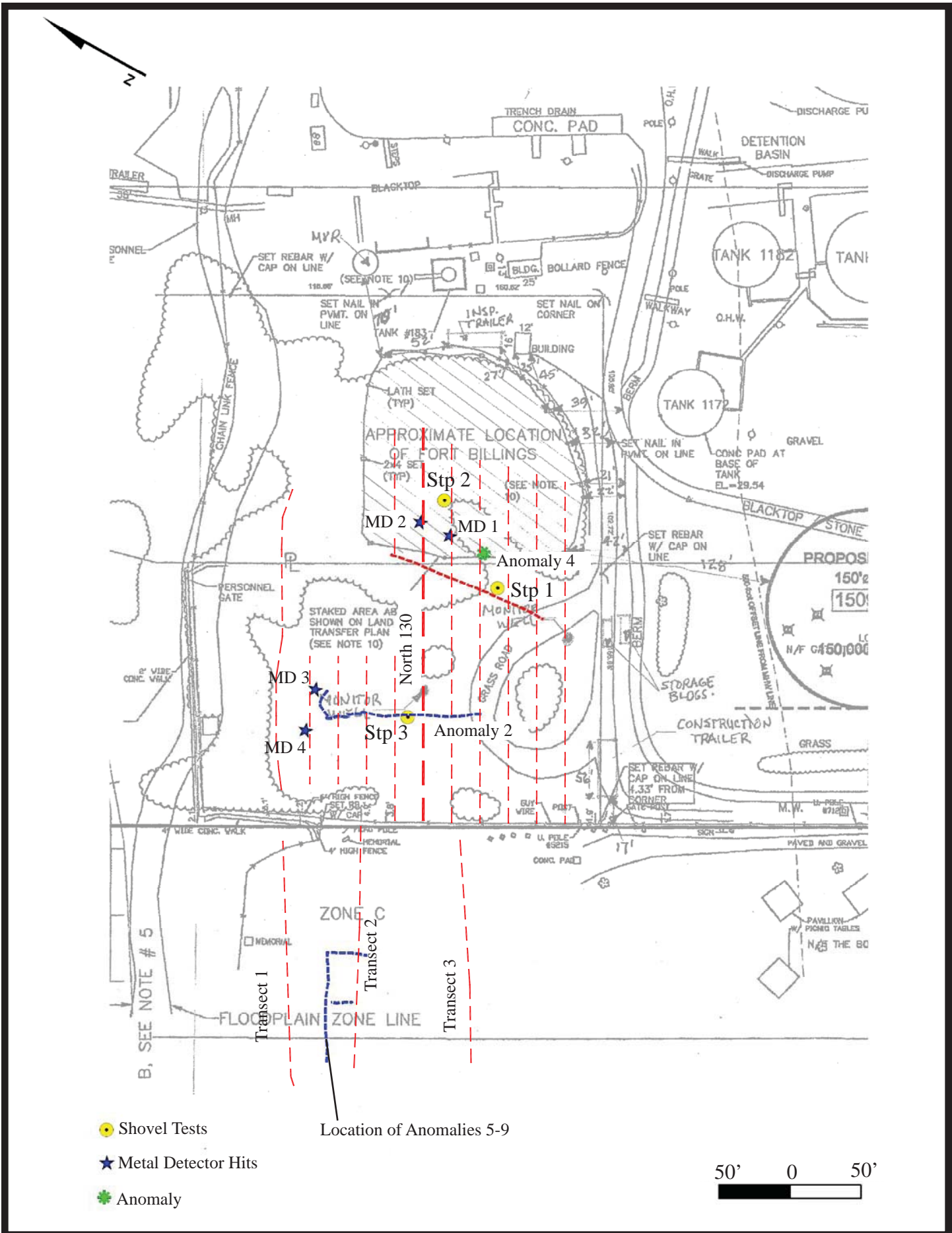


Figure 36 Results of field investigations showing orientation of systematic GPR transects, the location of identified anomalies, metal-detector hits, shovel test pits, and anomalies in the adjacent park property.

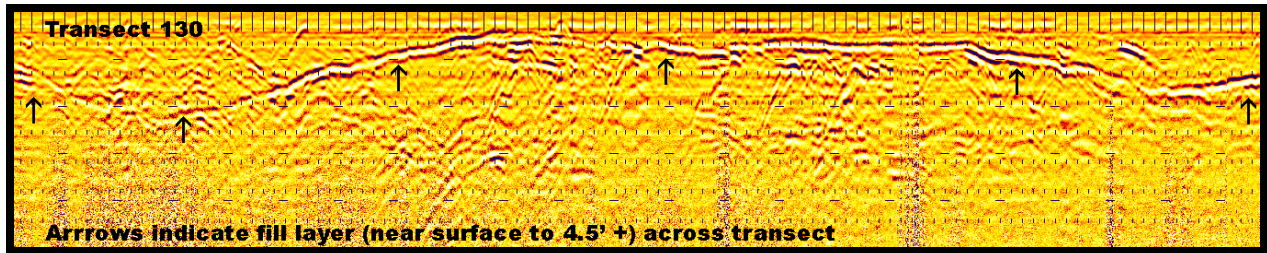


Figure 37 GPR image showing Anomaly 1 across the study area.

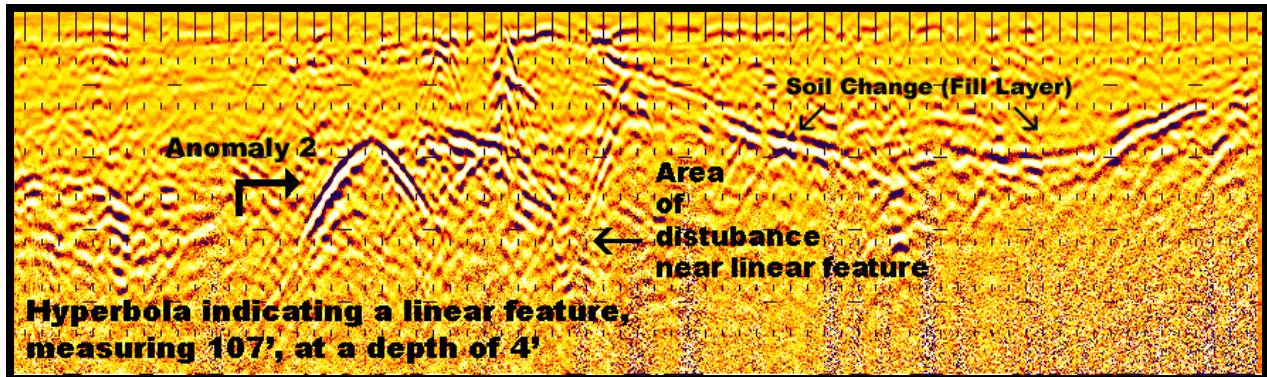


Figure 38 GPR image showing Anomaly 2 (probable Bramell House related utility trench).

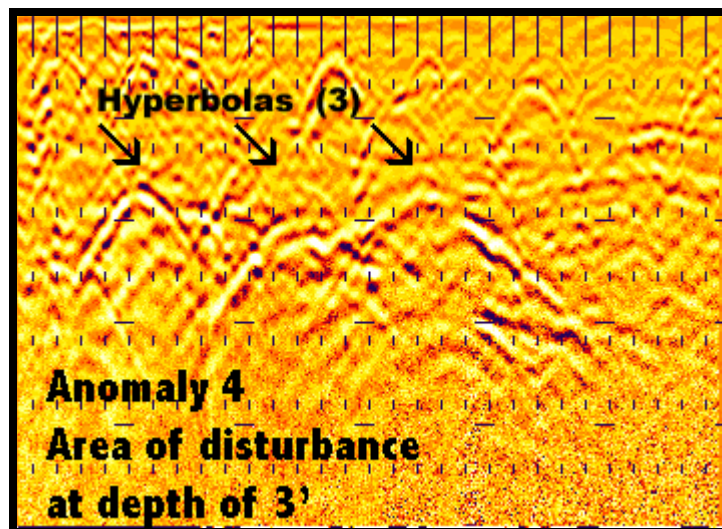


Figure 39 GPR image of Anomaly 4.



Figure 40 Shovel test profiles showing stacked layers of disturbed near surface soils.

Appendix B
Fort Billingsport Chains of Title

CHAIN OF TITLE

LINCOLN PARK TRACT

1928 **Edwin S. Hall, and his wife, Ida F., of Upper Montclair, New Jersey**
 to

Standard Oil Company of New Jersey, a Delaware corporation

Deed made: July 19, 1928; Deed recoded: July 24, 1928

Price: \$1

Description: Tract in Greenwich Twp. bounded by Billingsport Rd.; lot sold to Barnet Waisbain July 23, 1913; Clonmell Rd., land formerly of Sarah Brookfield (now Anna S. Gwilliam); land formerly of Catherine Wood (now Joseph Bramell); high water line of the Delaware River; exterior wharf line; lands of Emily Maxwell and William H. Flowers Jr.

Recitation: Rogers et al. to Hall, June 14, 1928

Reference: Gloucester County Deed Book 387, page 372

1928 **Elizabeth H. Rogers, Frank H. Rogers, Karl H. Rogers and Edmund H. Rogers, surviving executors & trustees under will of John I. Rogers, late of Wyncote, Montgomery County, Pennsylvania; and Elizabeth H. Rogers, widow, individually, of Philadelphia**
 to

Edwin S. Hall, of Montclair, Essex County, New Jersey

Deed made: June 14, 1928; Deed recorded June 18, 1928

Price: \$1

Description: Tract in Greenwich Twp. bounded by Billingsport Rd.; lot sold to Barnet Waisbain July 23, 1913; Clonmell Rd., land formerly of Sarah Brookfield (now Anna S. Gwilliam); land formerly of Catherine Wood (now Joseph Bramell); high water line of the Delaware River; exterior wharf line; lands of Emily Maxwell and William H. Flowers Jr.

Recitation: Part of premises George J. Bergen to John I. Rogers, October 13, 1906.

Reference: Gloucester County Deed Book 384, page 475

1910 **John I. Rogers died on March 13, 1910 leaving will recorded in Gloucester County Surrogate's Office in Will Book N, page 437**

Recitation: Gloucester County Deed Book 384, page 476

1906 **George J. Bergen, Receiver of the Lincoln Park Transportation Company**
 to

John I. Rogers, of Philadelphia, Attorney at law

Deed made: October 13, 1906; Deed recorded: October 15, 1906; Date of public auction: September 21, 1906

Price: \$2,000 plus subject to \$50,000 plus taxes and municipal liens

Description: **35.56 acre tract** known as "Lincoln Park" bounded by Billingsport Rd.; Clonmell Rd.; lands (now or before) of Sarah Brookfield, Catherine Wood (formerly Selby Murray); high water line of the Delaware River; lands of William Maxwell, E. Thompson, & Rufus Thompson (formerly George Huff & Isaac Thompson). Excluding part between low water mark & exterior wharf line.

Recitation: NJ Chancery Court in case W. Johns-Manville Company, a creditor, vs. Lincoln Park Transportation Company, insolvent, appointed Bergen the Receiver of all property belonging to Lincoln Park on October 18, 1905.

Reference: Gloucester County Deed Book 207, page 230

1905 William MacDonald Veale, of Philadelphia (merchant) and wife, Blanche Estelle

to

Lincoln Park Transportation Company

Deed made: April 22, 1905; Deed recorded: April 25, 1905

Price: 1,800 shares of capital stock of Lincoln Park Transportation Company

Description: **35.56 acre tract** bounded by Billingsport Rd.; Clonmell Rd.; lands (now or before) of Sarah Brookfield, Catherine Wood (formerly Selby Murray); high water line of the Delaware River; lands of William Maxwell, E. Thompson, & Rufus Thompson (formerly George Huff & Isaac Thompson)

Recitation: The Equitable Trust Company to Veale, April 22, 1905

Reference: Gloucester County Deed Book 199, page 564

1898 Winthrop Smith and wife, Florence C., of Philadelphia

to

The Equitable Trust Company, a Pennsylvania Corporation

Deed made: March 11, 1898; Deed recorded: March 14, 1898

Price: \$1

Description: **35.56 acre tract known as "Lincoln Park" and all personal property thereon (excluding part between low water mark and exterior wharf line)**

Recitation: Sheriff Collins to Smith, February 28, 1898

Reference: Gloucester County Deed Book 177, page 219

1898 William Collins, Sheriff of Gloucester County

to

Winthrop Smith, of Philadelphia

Deed made: February 28, 1898; Deed recorded: February 28, 1898

Date of public auction: February 14, 1898

Price: \$31,000

Description: **35.56 acre tract** bounded by Billingsport Rd.; Clonmell Rd.; lands (now or before) of Sarah Brookfield, Catherine Wood (formerly Selby Murray); high water line of the Delaware River; lands of William Maxwell, E. Thompson, & Rufus Thompson (formerly George Huff & Isaac Thompson)

Recitation: NJ Chancery Court case The Equitable Trust Company, Trustee, vs. The Lincoln Park & Steamboat Consolidated Company; Alfred B. Stoney, Bernard Gilpin & George McGowen, Receivers of said company; Hugh J. McCormac & William Dougherty (trading as H.J. McCormac & Co.); The Phoenix Iron Company; Edward G. Miller; Crawford Coates; Charles A. Idler; John Quincy Adams; John H. Kerlin; The Lincoln Park Chute Company; Samuel M. Clement; the Pains Pyro-Spectacle Company and Frank B. Ridgway, Receiver of the Lincoln Park Shoot the Chute Company, December 6, 1897. Sale of premises ordered. Lincoln Park Company to Lincoln Park & Steamboat Consolidated Company, May 10, 1892

Reference: Gloucester County Deed Book 177, page 169

1892

Lincoln Park Company, NJ Corporation

to

Lincoln Park and Steamboat Consolidated Company, NJ Corporation

Deed made: May 10, 1892; Deed recorded: May 12, 1892

Price: \$150,000

Description: **Lot 1 – 16.56 acre tract** bounded by Lot #2 of Garrot Clark estate division laid off to Elizabeth (nee Clark), wife of Isaac L. Thompson; Clonmell Rd.; Lot #6 of division laid off to Beulah G. Clark; and low water mark of the Delaware River [Lots #3,4,&5 of Garrot Clark estate division]. **Lot 2 – 11.52 acre tract** bounded by low water mark of Delaware River; land of Rufus Clark; Billingsport Rd.; lot of Isaac Thompson; lot of George Huff (Lots #1 & 2 of Garrot Clark estate division, set off to Garret Clark & Elizabeth Thompson, respectively. Elizabeth sold her lot to her brother, Garret). **Lot 3- 7.48 acre tract** bounded by land of Paul Solomon; low water mark of the Delaware River; land of Selby Murray; land of Sarah Brookfield; and river road (Clonmell Rd.) [Lot #6 of Garrot Clark estate division]

Recitation: Lot 1 – Ryan to Lincoln Park, June 8, 1889; Lots 2 & 3 – Ryan to Lincoln Park, June 8, 1889

Reference: Gloucester County Deed Book 158, page 585

1889

Thomas J. Ryan, of Philadelphia, and wife, Lizzie

to

Lincoln Park Company, NJ Corporation

Deed made: June 8, 1889; Deed recorded: June 10, 1889
Price: \$26,000 cash and 1,320 shares of capital stock of the Lincoln Park Company of the par value of \$66,000
Description: **16.56 acre tract** bounded by Lot #2 of Garrot Clark estate division laid off to Elizabeth (nee Clark), wife of Isaac L. Thompson; Clonmell Rd.; Lot #6 of division laid off to Beulah G. Clark; and low water mark of the Delaware River [Lots #3,4,&5 of Garrot Clark estate division]
Recitation: Mary L. Gibbs & Eliza A. Gibbs to Ryan, April 29, 1889
Reference: Gloucester County Deed Book 150, page 574

1889

Thomas J. Ryan, of Philadelphia, and wife, Lizzie T.
to

Lincoln Park Company, NJ Corporation

Deed made: June 8, 1889; Deed recorded: June 10, 1889
Price: \$12,130 cash and 1,840 shares of capital stock of the Lincoln Park Company of the par value of \$92,000
Description: **Lot 1 - 11.52 acre tract** bounded by low water mark of Delaware River; land of Rufus Clark; Billingsport Rd.; lot of Isaac Thompson; lot of George Huff (Lots #1 & 2 of Garrot Clark estate division, set off to Garret Clark & Elizabeth Thompson, respectively. Elizabeth sold her lot to her brother, Garret).
Lot 2- 7.48 acre tract bounded by land of Paul Solomon; low water mark of the Delaware River; land of Selby Murray; land of Sarah Brookfield; and river road (Clonmell Rd.) [Lot #6 of Garrot Clark estate division]
Recitation: Charles D. Freeman to Ryan, April 29, 1889
Reference: Gloucester County Deed Book 150, page 575

1889

Mary L. Gibbs and Eliza A. Gibbs, of Gloucester County
to

Thomas J. Ryan, of Philadelphia

Deed made: April 29, 1889; Deed recorded: May 20, 1889
Price: \$12,000
Description: **16.56 acre tract** with a mansion house at Billingsport bounded by Lot #2 (laid off to Elizabeth Thompson); Clonmell Rd.; Lot #6 (laid off to Beulah G. Clark); and low water mark on the Delaware River
Recitation: Special Master in Chancery, Charles V. D. Joline to Mary L. Gibbs, October 24, 1885
Reference: Gloucester County Deed Book 149, page 464

1889

Charles D. Freeman, of Philadelphia, and his wife, Sarah Augusta
to

Thomas J. Ryan, of Philadelphia

Deed made: April 29, 1889; Deed recorded: May 20, 1889

Price: \$9,000

Description: **11.52 acre tract** bounded by low water mark of Delaware River; land of Rufus W. Clark; Billingsport Rd.; lot of Isaac Thompson; lot of George Huff (Lots #1 & 2 of Garrot Clark estate division, set off to Garret Clark & Elizabeth Thompson, respectively. Elizabeth sold her lot to her brother, Garret).

Recitation: Garret Clark to Freeman, March 19, 1857

Reference: Gloucester County Deed Book 149, page 466

1889 Charles D. Freeman, of Philadelphia, and his wife, Sarah Augusta to

Thomas J. Ryan, of Philadelphia

Deed made: April 29, 1889; Deed recorded: May 20, 1889

Price: \$6,125

Description: **7.48 acre tract** bounded by land of Paul Solomon; low water mark of the Delaware River; land of Selby Murray; land of Sarah Brookfield; and river road (Clonmell Rd.) [Lot #6 of Garrot Clark estate division]

Recitation: John L. & Beulah G. Shuster to Freeman, September 10, 1855

Reference: Gloucester County Deed Book 149, page 467

1886 Henry C. Alexander, of Camden County, and his wife, Sarah M.; and Allen Cuthbert, of Camden County, and his wife, Margaret B. to

Mary L. Gibbs and Eliza A. Gibbs, of Gloucester County

Deed made: October 23, 1886; Date recorded December 4, 1886

Price: \$5,000

Description: **16.56 acre tract** with a mansion house at Billingsport bounded by Lot #2 (laid off to Elizabeth Thompson); Clonmell Rd.; Lot #6 (laid off to Beulah G. Clark); and low water mark on the Delaware River [Lot #3,4&5 of Garrot Clark estate division]

Recitation: Mary L. Gibbs to Eliza A. Gibbs et al., December 31, 1885

Reference: Gloucester County Deed Book 143, page 194

1885 Mary L. Gibbs, of Gloucester County to

Eliza A. Gibbs, of Gloucester County; Sarah M. Alexander, wife of Henry C., of Camden County; and Margaret B. Cuthbert, wife of Allen, of Camden County

Deed made: December 31, 1885; Deed recorded: January 1, 1886

Price: \$1

Description: Three-fourths part of **16.56 acre tract** with a mansion house at Billingsport bounded by Lot #2 (laid off to Elizabeth Thompson); Clonmell Rd.; Lot #6 (laid off to Beulah G. Clark); and low water mark on the Delaware River [Lot #3,4&5 of Garrot Clark estate division]

Recitation: Special Master in Chancery, Charles V. D. Joline to Mary L. Gibbs, October 24, 1885
Reference: Gloucester County Deed Book 140, page 384

1885 Charles V. D. Joline, one of the Special Masters in Chancery of New Jersey

to

Mary L. Gibbs, of Woodbury in Gloucester County

Deed made: October 24, 1885; Deed recorded: December 9, 1885
Public auction held: October 10, 1885 at Paul's Hotel, Woodbury
Price: \$10,500

Description: **16.56 acre tract** with a mansion house at Billingsport bounded by Lot #2 (laid off to Elizabeth Thompson); Clonmell Rd.; Lot #6 (laid off to Beulah G. Clark); and low water mark on the Delaware River [Lot #3,4&5 of Garrot Clark estate division]

Recitation: John Reuben Jennings to Charles Edgar Gibbs, June 4, 1867
Reference: Gloucester County Deed Book 140:233

1885 Eliza A. Gibbs and Henry C. and Sarah M. Alexander, vs. Allen and Margaret B. Cuthbert; Mary L. Gibbs; Mary H. Gibbs; Charles Gibbs; Alice Gibbs; Mira Gibbs; and Harry Gibbs

Bill for Partition presented: July 16, 1885; Bill filed: July 21, 1885

Description: Premises (**16.56 acre tract**) is valuable solely as a country residence and cannot be partitioned without losing its value.

Chancery Court directs sale of property at public auction.

Reference: Chancery Court Enrolled Volume C23, page 627-633

1868 John Reuben Jennings, of Philadelphia

to

Charles Edgar Gibbs, of Philadelphia, merchant

Deed made: April 28, 1868; Deed recorded: April 29, 1868
Price: \$7,000

Description: **16.56 acre tract** with mansion house at Billingsport bounded by Lot #2 (laid off to Elizabeth Thompson); Clonmell Rd.; Lot #6 (laid off to Beulah G. Clark); and low water mark on the Delaware River [Lot #3,4&5 of Garrot Clark estate division]

Recitation: Paul Salomon to Jennings, July 4, 1861

Reference: Gloucester County Deed Book F5, page 83

1864 Paul Salomon, of Philadelphia, Gentleman, and wife, Sophia P.

to

John Reuben Jennings, of Philadelphia

Deed made: July 4, 1864; Deed recorded: July 28, 1864

Price: \$1 and yearly rent of \$720 and yearly taxes and insurance on premises (during Paul Salomon's lifetime)

Description: **16.56 acre tract** in Greenwich Twp. bounded by Lot #2 (laid off to Elizabeth Thompson); Clonmell Rd.; Lot #6 (laid off to Beulah G. Clark); and low water mark on the Delaware River [Lot #3,4&5 of Garrot Clark estate division]

Recitation: Clark, Thompson & Shuster to Salomon, December 20, 1852

Reference: Gloucester County Deed Book B5, page 126

**1857 Garret Clark, of Greenwich Township, and wife, Anna Maria
to**

Charles D. Freeman, of Philadelphia

Deed made: March 19, 1857; Deed recorded: August 5, 1857

Price: \$7,350

Description: **11.52 acre tract** bounded by low water mark of Delaware River; land of Rufus W. Clark; Billingsport Rd.; lot of Isaac Thompson; lot of George Huff (Lots #1 & 2 of Garrot Clark estate division, set off to Garret Clark & Elizabeth Thompson, respectively. Elizabeth sold her lot to her brother, Garret).

Recitation: Lot 1- Laid off to Garret Clark in division of Garrot Clark estate, November 22-27, 1852. Lot 2-Elizabeth Thompson to Clark, January 3, 1853

Reference: Gloucester County Deed Book T4, page 467

**1855 John L. Shuster, of Greenwich Township, and wife, Beulah G.
to**

Charles D. Freeman, of Philadelphia

Deed made: September 10, 1855; Deed recorded: December 24, 1856

Price: \$748

Description: **7.48 acre tract** bounded by land of Paul Solomon; low water mark of the Delaware River; land of Selby Murray; land of Sarah Brookfield; and river road (Clonmell Rd.)

Recitation: Lot #6 of Garrot Clark estate division laid off to Beulah G. Shuster, nee Clark

Reference: Gloucester County Deed Book S4, page 425 (re-recording of R4, page 299)

**1852 Rufus W. Clark; John H. Thomson, & wife, Mary; and Clayton N.
Shuster, & wife, Rebecca**

to

Paul Salomon, of Philadelphia

Deed made: December 20, 1852; Deed recorded: July 8, 1853 and July 20, 1867

Price: \$1,656

Description: **16.56 acre tract** bounded by Lot #2 (laid off to Elizabeth Thompson); Clonmell Rd.; Lot #6 (laid off to Beulah G. Clark); and low water mark on the Delaware River [Lot #3,4&5 of Garrot Clark estate division]

Recitation: Lot #3 laid off to Rufus Clark; Lot #4 to Mary Thomson, (nee Clark); and Lot #5 to Rebecca Shuster (nee Clark) in division of Garrot Clark's estate. Conveyed to Garrot Clark, February 3, 1844
Reference: Gloucester County Deed Books O4, page 351 and F5, page 81

- 1844** **Mark Ware, Esquire, Sheriff of Gloucester County**
 to
 Garrot Clark, of Greenwich Township
Deed made: February 3, 1844; Deed recorded: February 3, 1844;
Date of public auction: January 20, 1844
Price: \$1,075
Description: **96 acre tract** in Greenwich Township bounded by low water mark in Delaware River
Recitation: NJ Chancery Court case John Ford vs. Sophia M. Brittin, Isabella A. Brittin, and John Williams, executors of Joseph O. Brittin, October 31, 1843.
Secretary of War to John Ford and Joseph C. Gill, December 17, 1834; Gill to Ford, February 29, 1840
Reference: Gloucester County Deed Book E4, page 48
- 1840** **John Ford, of the Northern Liberties, Philadelphia County**
 to
 Joseph C. Brittin, of Southwark, Philadelphia County
Deed made: July 11, 1840; Deed recorded: July 14, 1840
Price: \$3,000
Description: **96 acre tract** in Greenwich Township bounded by low water mark in Delaware River except for 6 acre lot with a dwelling [sold to Thomas Thompson, February 29, 1840
Recitation: Secretary of War to Gill & Ford, December 17, 1834 and Gill to Ford, February 29, 1840
Reference: Gloucester County Deed Book X3, page 37
- 1840** **Joseph C. Gill, Esquire, of Greenwich Township**
 to
 John Ford, of Philadelphia
Deed made: February 29, 1840; Deed recorded: March 17, 1840
Price: \$1,100
Description: **96 acre tract** in Greenwich Township bounded by low water mark in Delaware River
Recitation: Secretary of War to Gill & Ford, December 17, 1834
Reference: Gloucester County Deed Book V3, page 569
- 1834** **Lewis Cass, Secretary of War of the United States**
 to
 Joseph C. Gill and John Ford, of New Jersey
Deed made: December 17, 1834; Deed recorded: January 15, 1835

Price: \$2,000

Description: **96 acre tract** at Billingsport in Greenwich Township
bounded on low water mark of Delaware River

Recitation: Margaret Paul and Benjamin Weathersby to George Clymer
and Michael Hillegas, July 5, 1776

Reference: Gloucester County Deed Book L3, page 532

1776

**Margarett Paul, of Greenwich Township, widow of John Paul,
Yeoman, and Benjamin Weathersby, of Greenwich Township,
Yeoman, her son**

to

**George Clymer and Michael Hillegas, Esquires, of Philadelphia,
Treasurers of the Thirteen United Colonies of America**

Deed made: July 5, 1776; Deed recorded: July 15, 1776

Price: £600 Pennsylvania money

Description: **96 acre tract in Greenwich Township, part of 100 acre
tract called "Billingsport"**

Recitation: Land John Paul owned at time of death and devised to
Margaret & Benjamin by will written May 30, 1771 and proved in
Prerogative Court

Reference: Gloucester County Deed Book C, page 280

CHAIN OF TITLE

MURRAY/BRAMELL TRACT

- 1952** **Ada Bramell and Gertrude Bramell, single women, of Paulsboro**
 to
 Esso Standard Oil Company, corporation of Delaware
Deed made: August 13, 1952; Deed recorded: August 13, 1952
Price: \$1
Description: Tract in Paulsboro bounding lands formerly of Sarah
 Brookfield, corner to lands conveyed to Standard Oil (387:372);
 bounded by Clonmell Rd., low water mark of the Delaware River
Recitation: Hall to Bramells, July 21, 1951
Reference: Gloucester County Deed Book 720, page 214
- 1951** **Florence T. Hall, widow, of Woodbury**
 to
 Ada Bramell and Gertrude Bramell, of Paulsboro, as joint tenants
Deed made: July 21, 1951; Deed recorded: July 23, 1951
Price: \$1
Description: **Lot 1- 2 acre tract** bounded by low water mark of Delaware
 River and lands of Brookfield and others. **Lot 2 – 2 acre tract**
 bounded by land of Brookfield, corner of Murry's other lot, by
 land Freeman
Recitation: Ada & Gertrude Bramell to Florence T. Hall, same day
Reference: Gloucester County Deed Book 689, page 171
- 1951** **Ada Bramell, single, and Gertrude Bramell, single, of Paulsboro**
 to
 Florence T. Hall, of Woodbury
Deed made: July 21, 1951; Deed recorded: July 23, 1951
Price: \$1
Description: **Lot 1- 2 acre tract** bounded by low water mark of Delaware
 River and lands of Brookfield and others. **Lot 2 – 2 acre tract**
 bounded by land of Brookfield, corner of Murry's other lot, by
 land Freeman
Recitation: Whitall to Bramell, May 12, 1916
Reference: Gloucester County Deed Book 659, page 167
- 1933** **Sallie Bramell died November 7, 1933 leaving a will recorded in**
 Gloucester County Will Book V, page 247 in which she devised her
 estate to Ada and Gertrude Bramell
Reference: Gloucester County Deed Book 689, page 167

Deed made: October 21, 1873; Deed recorded: October 21, 1873
Price: \$3,200, subject to mortgage of \$300 owed to Paul Salomon, July 14,
1853 (Y:516)
Description: **Lot 1- 2 acre tract** bounded by low water mark of Delaware
River and lands of Brookfield and others. **Lot 2 – 2 acre tract**
bounded by land of Brookfield, corner of Murry's other lot, by
land Freeman
Recitation: Lot 1 - Garrett Clark to Murry, July 12, 1844; Lot 2 – Garrett
Clark to Murry, November 15, 1847
Reference: Gloucester County Deed Book P5, page 306

1844

**Garrett Clark, of Greenwich Township, and wife, Julian
to**

Selby Murry, of Deptford Township

Deed made: July 12, 1844; Deed recorded: July 24, 1844

Price: \$95

Description: **2 acre tract** bounded by low water mark of Delaware River
and lands of Brookfield and others

Recitation: part of premises Sheriff Ware conveyed to Garrett Clark,
February 3, 1844

Reference: Gloucester County Deed Book E4, page 256

Appendix C
Lincoln Park Inventory

Lincoln Park Inventory

On March 9, 1897 the Court of Chancery of New Jersey ordered the Receivers of the Lincoln Park and Steamboat Consolidated Company to put the company's property up for sale. An inventory of this property was published in a local paper on May 5, 1897, a day before the public auction (*The Constitution*, May 5, 1897, page 4). It gives the most detailed description to date of Lincoln Park in its heyday...

Lincoln Park, situate on the Delaware River (12 miles below Philadelphia) in Gloucester County, New Jersey. Having a frontage on the Delaware River about 1,000 feet and containing 35 & 56/100 acres. Together with the riparian rights and all buildings, improvements, fixtures and furniture therein and thereon, excepting the structure known as "Shoot the Chutes." This property has been operated since June, 1890, as a first-class family summer resort, having been built, equipped and furnished for that business. The improvements and buildings are

- large double-decker steamboat landing, pavilion and pier
- stone sea wall along the entire river frontage of the Park
- three-story hotel and restaurant with toilet rooms, complete plumbing for water, steam and drainage
- 2½-story café building (formerly the Gibbs home) with toilet rooms, bridge and stone tower on river front
- extensive ice house and refrigerating building
- electric light plant (incandescent and arc) with boiler house, dynamos, engine, switches, lamps, poles, lights and wires, with sufficient capacity for lighting buildings and grounds
- 2 toboggans with boiler house, sheds and car houses
- gents' cottage, barber shop, washstands, urinals and closets
- carousel building and boiler house
- ice cream pavilion
- photograph building
- haunted swing building
- pool and shuffle board pavilion
- 2-story ladies' cottage with retiring rooms, toilet rooms and lavatory
- handsome music shell building with rooms, closets, etc.
- supply bar building with ice house and refrigerator
- dairy building
- segar (sic) stand
- fruit and confectionery stands
- two-story house for servants
- large two-story barn and shed, 40 horse sheds and stables
- water tower building with 2 tanks of 30,000 gallons capacity each, with pumps, machinery, numerous fire plugs located upon various parts of ground and connected with water works

- handsome substantial wooden bridge over roadway
- ice plant building
- toilet rooms and urinals
- grand stand structure, seating capacity 8,000 persons
- cement lake, the whole enclosed with 9 feet high fencing around the same

Appendix D
Qualifications of Key Project Personnel



Douglas B. Mooney, M.A.

Senior Archaeologist

Areas of Expertise

Cultural Resource Management Studies

Section 106 of the National Historic Preservation Act
Archaeological Surveys and Excavations

Forensic and Crime Scene Investigations

Years of Experience

With Other Firms: 18 Years

Education

M.A./1994/Pennsylvania State University/Anthropology

B.A./1987/West Virginia University/Anthropology

Registration/Certification

40-Hour HAZWOPER Certification

Section 106 Review Certification

Overview

Mr. Mooney joined URS Corporation in 2006 and has twenty years experience in archaeology and cultural resources management. He has participated in the excavation of sites throughout the Mid-Atlantic Region and in England, and has served as Principal Investigator and Field Director on numerous and varied Phase I cultural resources surveys, Phase II site evaluations, and Phase III data recovery investigations. As a Senior Archaeologist with URS, his responsibilities include the conduct of historical research, the development and scoping of research designs, the direction of fieldwork, laboratory analysis, and report preparation, and project management. Mr. Mooney is the primary author of more than 50 technical reports and professional papers, and his experience encompasses prehistoric, historic, urban, and mortuary archaeological investigations.

Project Experience

Archaeological Investigations of the Aramingo Canal, I-95/Girard Avenue Improvement Project, Philadelphia, Pennsylvania. Senior Archaeologist. Directed data recovery excavations of a section of an unusual and poorly documented timber-lined industrial canal (ca. 1847-1902). Investigations documented a well preserved 50-foot section of the outer canal wall sealed beneath portions of the later Cramp Shipyard building complex. These excavations sought to document the preservation of the timber canal walls, study the methods of canal construction employed, and recover any associated artifact deposits.

Archaeological Investigations of the President's House Site, Independence National Historical Park, Philadelphia, Pennsylvania. Senior Archaeologist. Performed for the City of Philadelphia and Independence National Historical Park. Directed data recovery excavations of a portion of the former residential complex that served as the Executive Mansion for President's George Washington and John Adams (1790-1800). These investigations revealed substantial portions of the original foundations for these buildings, including architectural features that were associated with both the Office of the President and with the group of enslaved Africans who toiled on this land during Washington's tenure. Conceived from the start as an exercise in public archaeology, fieldwork for this project drew more than 300,000 visitors to the site over a four month period.

Archaeological Investigations, Red Bank Battlefield, National Park, Gloucester County, New Jersey. Principal Archaeologist. Directed Phase I survey of a National Landmark-listed Revolutionary War battlefield, fort, and associated 18th century Quaker house and multiple Native American occupations. Additionally prepared a comprehensive long-term archaeological management plan for the site.

Archaeological and Historical Investigations, Fort Billingsport, Gloucester County, New Jersey. Senior Archaeologist. Directed intensive Phase IA survey to securely determine the location of Fort Billingsport, one



of the Continental Army military fortifications constructed to defend Philadelphia against invasion by British forces, and to assess the possibility that portions of the fort could still be preserved below the present ground surface. Historic documents and deeds were used to positively identify the location of the former fort and to track its gradual destruction over time. Ground penetrating radar studies conducted in conjunction with this investigation confirmed that surface features presumed to be remnants of the original fortifications were related to the construction of a later 19th century amusement park.

James Oronoco Dexter Site Data Recovery, Independence National Historic Park, Philadelphia, Pennsylvania. Principal Archaeologist. Performed for the National Constitution Center and the National Park Service. Directed historical and archaeological investigations of the home site of an important early African American leader in the city. Project included the conduct of intensive historical research, close interaction with members of the city's African American community, site excavation, artifact analysis, and the production of a narrative site report. Site investigations resulted in the identification of six historic features, one of which was attributed to the members of Dexter's household.

Phase I through Phase III Data Recovery, National Constitution Center Site, Independence National Historical Park, Philadelphia, Pennsylvania. Principal Archaeologist. Directed archaeological excavations of an entire 18th century city block. Investigations employed a crew of 60 professional archaeologists and resulted in the excavation of 115 historic house lots and nearly 300 features, the relocation of some 150 individuals from the former 2nd Presbyterian Church Cemetery, and the recovery of more than 1 million artifacts. Investigations also resulted in the documentation of an intact Native American encampment and the recovery of artifacts associated with several intact 18th century African American home sites.

Pennsylvania Turnpike Bridge Replacement Phase I-III Archaeological Investigations, Dauphin County, Pennsylvania. Principal Archaeologist. Directed excavations of a stratified Early Woodland site for the Pennsylvania Turnpike Commission. Investigations involved the excavation of 84 one meter square test units, to a maximum depth of 7.0 feet below current ground surface. Testing also involved the use of geoprobe borings to evaluate the preservation of buried adjacent sections of the former Pennsylvania Main Line Canal.

Archaeological Investigations at Fort Dix, U.S. Army Training Center, Burlington County, New Jersey. Principal Archaeologist. Directed the survey of more than 2,600 acres within the Fort Dix Military Reservation, resulting in the documentation of more than 30 Native American and historic sites. Also directed Phase I and Phase II investigations of the National Register-listed Hanover Furnace historic ironworks complex.

Phase I Investigations, Johnson House Historic Site, 6306 Germantown Avenue, Philadelphia, Pennsylvania. Principal Archaeologist. Directed cultural resources survey of, and created archaeological management plan for a historically significant Underground



Railroad site, and the home of several important leaders in Philadelphia anti-slavery organizations.

Phase III Investigations, S.R. 11/15 Improvement Project, Perry and Juniata Counties, Pennsylvania. Principal Investigator/Senior Archaeologist. Directed five concurrent data recovery investigations of deeply stratified Native American sites along the Susquehanna River. The largest of these sites produced intact late Paleo-Indian and stratified Early Archaic site components dating back 11,500 years B.P.

Buffalo Potter's Field Cemetery, Buffalo, New York. Directed the exhumation, analysis, and reburial of 531 sets of human burial remains from the city's former pauper burial ground (ca. 1832-1885), until recently preserved beneath the grass yard of the Buffalo City Honor School. Worked closely with State, city, and School District personnel to develop an interactive educational outreach program based around the cemetery relocation, and offered to select secondary students from the high school.

Monument Cemetery, Philadelphia, Pennsylvania: Directed the recovery of human remains from a portion of the former Monument Cemetery (1837-ca. 1924) property in Philadelphia, Pennsylvania. Burial related material and coffin remains were identified during the construction of storm water facilities during the Philadelphia School District's improvement of the current Carver Elementary School site, which occupies portions of the former cemetery property. URS archaeologists investigated potential intact burials exposed during construction, tested the project area for evidence of any additional in situ graves, and monitored construction activities within the limits of the former cemetery in order to avoid impacts to any remaining burials.

Franklin Cemetery, Philadelphia, Pennsylvania: consulted with the Philadelphia School District regarding the planned construction of the new Willard Street Elementary School on the site of the former Franklin Cemetery (ca. 1800-1920; relocated by the City of Philadelphia ca. 1950). Developed archaeological work plan for determining whether historical graves remained in the cemetery, conducted preliminary testing of the site to verify the findings of prior ground penetrating radar (GPR) studies, and archaeologically documented the remains of a small number of remaining intact burials. Worked with the Philadelphia School District to prepare legal petitions to relocate remains, provided expert court testimony in support of those petitions, oversaw the exhumation and reburial of identified human remains, and performed archaeological monitoring of school construction activities to prevent the disturbance of any additional intact graves.

Spring Street Presbyterian Church Cemetery, New York, New York: Directed the archaeological recovery and relocation of burial remains from the Spring Street Presbyterian Church (ca. 1810-1963) in Manhattan, New York. Human skeletal remains were identified during the construction of a planned condominium/hotel, when excavation machinery struck one of a series of four burial vaults (ca. 1820-1840) within the property. Subsequent investigations resulted in the delineation of 45 partially intact sets of burial remains within these vaults, along with the relocation of crushed and disturbed remains from an estimated additional 150 individuals.



Washington Square/Potter's Field Cemetery, Philadelphia, Pennsylvania: Investigated human remains disturbed by the excavation of an electric utility access point at the northeast corner of Washington Square, Philadelphia. Project involved the recovery of skeletal remains from previously excavated soils and the documentation of the extent of impacts to any intact graves present. This investigation resulted in the recovery of remains belonging to a minimum of 10 and a maximum of 17 individuals originally buried within the city's Potter's Field in the late 18th century. Burials were found to be originally placed within a large pit or trench, and may be associated with persons killed by the 1793 Yellow Fever epidemic.

Montgomery Square United Methodist Church Cemetery Relocation, Montgomeryville, Montgomery County, Pennsylvania. Directed efforts to relocate a 19th-20th century church cemetery threatened by urban sprawl. Project involved assisting the church congregation obtain necessary reburial permits and providing expert court testimony, the conduct of intensive historical and genealogical research, compilation of existing burial records and the creation of a searchable cemetery database, the mapping, exhumation, and forensic analysis of human remains from more than 420 historic burials, and the production of a comprehensive technical report.

University of Pennsylvania Life Sciences Building, Philadelphia, Pennsylvania: Recovered human skeletal remains from the construction site of a new classroom facility in West Philadelphia. The remains consisted of concentrations of discarded medical/autopsy specimens from the collections of the former Blockley Almshouse/Philadelphia General Hospital, and were donated to the Mütter Museum by the University.

Salem United Church of Christ Cemetery, Berks County, Pennsylvania: Directed the exhumation, analysis, and relocation of the remains of 149 individuals (ca. 1810-1914) interred within the historic church cemetery. The remains were relocated to other parts of the existing burial ground in order to accommodate the construction of modern office and new Sunday School facilities. Assisted the church's legal council in preparing relocation-related court petitions, and provided expert testimony in support of those petitions.

Blockley Almshouse Cemetery, Philadelphia, Pennsylvania: Directed the exhumation of more than 450 individuals from the site of one of the city's former public poorhouses and insane asylums (ca. 1838-1905), in West Philadelphia. Remains were buried beneath approximately 15 feet of landfill deposits and construction debris, and were exhumed prior to the construction of parking facilities for the University of Pennsylvania and the Children's Hospital of Philadelphia. Included within this burial ground were large quantities of discarded, unidentified human medical/autopsy specimens from the collections of the Almshouse (later Philadelphia General Hospital). The cemetery remains were re-interred in the historic Woodlands Cemetery, while the medical specimens were donated to the Mütter Museum for permanent curation and study.

Absecon United Methodist Church Cemetery, Ocean County, New Jersey: Provided archaeological monitoring and forensic anthropology services for the exhumation and relocation of some 50 nineteenth century



burials, prior to the construction of an addition to the existing church building.

Professional Papers and Presentations

Mooney, Douglas B.

2009 “James Oronoco Dexter and Stephen H. Gloucester: Reflections on Two Early African American Leaders in Philadelphia.” Stenton African American History Month Celebrations, Philadelphia, Pennsylvania, February 7.

Mooney, Douglas B.

2009 “Rediscovering a Lost Public Highway: The Rise, Fall, and Archaeological Rebirth of the Aramingo Canal.” Society for Industrial Archaeology, Oliver Evans Chapter Annual Banquet, Philadelphia, Pennsylvania, January 23.

Morrell, Kimberly and Douglas B. Mooney

2009 “The James Oronoco Dexter Lot: The Archaeology of a Black Founder.” Symposium: *In the Shadow of Independence: Remaking the Image of Early America at the National Constitution Center Site in Independence National Historical Park*. Society for Historical Archaeology Conference, Toronto, Canada, January 8-11.

Tull, Stephen W. and Douglas B. Mooney

2009 “Lost Amidst the Rubble: Archaeological Investigations of the Spring St. Presbyterian Church Burial Vaults.” Symposium: *Archaeological and Forensic Investigations of an Abolitionist Church in New York City*. Society for Historical Archaeology Conference, Toronto, Canada, January 8-11.

Mooney, Douglas B.

2008 “It’s Beautiful!: Archaeological Discoveries from the President’s House Site in Philadelphia.” Society for Applied Anthropology Conference, Memphis, Tennessee, March 26-29; Society for Historical Archaeology Conference, Toronto, Canada, January 8-11.

Mooney, Douglas B.

2007 “The Brushmaker and the Water Well.” Archaeology Month Open House, Independence Living History Center, Philadelphia, Pennsylvania, October 20.

Mooney, Douglas B. and Jed Levin

2007 “The Powerful and the Powerless: Archaeological Investigations of the President’s House Site in Philadelphia.” Council for Northeast Historical Archaeology (CNEHA) Conference, Buffalo, New York, October 26-28.

Mooney, Douglas B.

2006 “The James Oronoco Dexter Site Revisited: Final Excavation Findings.” Archaeology Month Open House, Independence Living History Center, Philadelphia, Pennsylvania, October 14.



Mooney, Douglas B.

2005 “In Search of a Forgotten Founding Father: Archaeological Investigations of the James Oronoco Dexter Site.” Archaeology Month Open House, Independence Living History Center, Philadelphia, October 15.

Mooney, Douglas B.

2005 “We the People: Blue Collar Archaeology at the National Constitution Center Site.” Pennsylvania Archaeology Month Open House, Independence Living History Center, Philadelphia, October 15.

Morrell, Kimberly A., Douglas B. Mooney, Thomas A.J. Crist, and Petar D. Glumac

2004 “Rejected in Life, Forgotten in Death: The Rediscovery of a Cemetery Associated with the Blockley Almshouse, Philadelphia, Pennsylvania.” Middle Atlantic Archaeological Conference (MAAC), Rehoboth, Delaware, March 11-13.

Mooney, Douglas B., Kimberly A. Morrell, and Petar D. Glumac

2004 “Elusive But Not Gone: Recently Discovered Prehistoric Sites in the City of Philadelphia.” Middle Atlantic Archaeological Conference (MAAC), Rehoboth, Delaware, March 11-13.

Glumac, Petar D., Douglas B. Mooney, Richard J. Lewis, and Peter Pagoulatos

2004 “An Embarrassment of Riches: Recent Archaeological Investigations at Fort Dix, Burlington and Ocean Counties, New Jersey.” Middle Atlantic Archaeological Conference (MAAC), Rehoboth, Delaware, March 11-13.

Teaching

Introduction to Cultural Anthropology, Rockview State Correctional Institution, Bellefonte, Pennsylvania, 1994.

Professional Societies/Affiliations

Philadelphia Archaeological Forum (PAF); current President
Council for Northeast Historical Archaeology (CNEHA)
Society for Applied Anthropology (SfAA)

Chronology

2006-present: URS Corporation
1999- 2006: Kise Straw & Kolodner, Inc.
1998-1999: KCI Technologies, Inc.
1994-1996: Kittatinny Archaeological Research, Inc.
1993-1994: Greenhorne & O’Mara, Inc.
1992: 3-D Environmental Services, Inc.
1990-1991: Lantz Research, Inc.
1987-1994: John Milner Associates, Inc.



Ingrid Wuebber

Research Historian

Areas of Expertise

Section 106 of the National
Historic Preservation Act
Historic Preservation
Research
Public Outreach

Years of Experience

With URS: 9 Years
With Other Firms: 19 Years

Education

B.A./1979/Douglass College,
Rutgers University/Archaeology

Overview

Ms. Wuebber has over 25 years experience researching, analyzing, and writing contextual and site-specific histories for industrial, military, transportation, commercial, and residential properties in the Northeast, Mid-Atlantic, Southeast, and Midwest.

Project Specific Experience

Phase IA Cultural Resource Assessment for the Ithaca Reinforcement Project, NYSEG Article 7 Filing, Etna to Lapeer, New York. Contextual research and write-up of 15-mile transmission line right of way in Tompkins and Cortland Counties. For the New York State Electric and Gas Corporation.

Historic Structure Report, Liberty Island Seawall, Statue of Liberty National Monument, New York, New York, conducted for the National Park Service, Denver Service Center. Research Historian responsible for documentary, cartographic and photographic research for preparing the historical background, context, and chronology of development and use of the seawall for the historic structures report.

Phase IA Archeological Investigation, Rehabilitate Battery Weed Seawall and Dock, Fort Wadsworth Unit, Gateway National Recreation Area, Staten Island, New York, conducted for the National Park Service, Denver Service Center. Research Historian responsible for documentary, cartographic and photographic research for developing a program for the assessment of archaeological resources at Battery Weed in Fort Wadsworth, Staten Island, New York. The goal of the investigation was to collect and synthesize documentary information regarding the prehistory and history of the project area; prepare a series of recommendations for further archaeological work, to include field testing if required; and to prepare a project report documenting the investigation for use by National Park Service personnel.

Historic Architecture and Roadway Study of US Route 202, Somerset and Morris Counties, New Jersey. Contextual study and architectural survey of 10-mile section of US Route 202 in the Somerset Hills region. For the New Jersey Department of Transportation and the Federal Highway Administration.

Historic Structures Survey Report for the Williamsport Regional Airport Access Road, SR 2088, Section 001, Loyalsock Township and Borough of Montoursville, Lycoming County, Pennsylvania. Contextual research and write-up for proposed road and specific background on structures within the Area of Potential Effects. For Pennsylvania Department of Transportation, District 3.

King of Prussia Inn, S.R. 0202, Section 400, King of Prussia, Montgomery County, Pennsylvania. Conducted documentary, cartographic, and photographic research for the circa 1952 King of Prussia Inn. For the Pennsylvania Department of Transportation.



Modified Phase IA Cultural Resources Inventory. Floyd Bennett Field, Jamaica Bay Unit, Gateway National Recreation Area, Brooklyn, New York. Identified areas of disturbance and fill and delineated areas with the potential for prehistoric or historic sites on New York City's first municipal airfield. Floyd Bennett Field was built on Barren Island, the site of noxious smelling industries and its community of workers. For the National Park Service, Denver Service Center.

Phase I Archeological Investigations within the Gateway National Recreation Area at the Jacob Riis Bathhouse, Jamaica Bay Unit, New York, conducted for the National Park Service, Denver Service Center. Research Historian responsible for conducting documentary, cartographic, and photographic research for archaeological investigations at the Jacob Riis Bathhouse, Breezy Point, New York. Excavations through the concrete floor of the courtyard revealed heavily disturbed sandy fill related to the construction of the bathhouse. Disturbance included numerous utilities and a buried roadbed composed of oiled clinker and gravel. No further work was recommended since the investigations revealed that the development of the courtyard would not impact any archeological deposits.

Phase I Archeological Investigations within the Gateway National Recreation Area at the Jamaica Bay Wildlife Refuge, Broad Channel Island, Jamaica Bay Unit, New York, conducted for the National Park Service, Denver Service Center. Research Historian responsible for conducting documentary, cartographic, and photographic research for the archaeological investigations at the Visitor Contact Station and Building 101 of Jamaica Bay Wildlife Refuge. Excavations revealed levels of recently disturbed soil capping a thick layer of landfill. The recovered artifacts consisted of architectural/structural material (with a small number of container glass fragments). No further work was recommended because the investigations indicated that proposed development of the two sites would not impact any archaeological deposits.

Route 21 Cultural Resources Mitigation, Passaic County, New Jersey. Researched and wrote walking tour brochure for an ethnically diverse industrial neighborhood in Passaic. For the New Jersey Department of Transportation.

Phase I Archaeological and Historic Architectural Survey of a section of State Route 9, New Castle County, Delaware. For the Delaware Department of Transportation.

Phase I Investigation for Proposed Electric Generating Facility in Cass Township, Muskingum County, Ohio. Compiled archaeological and historical background data and wrote historical context for the project area. For the Dominion Resources, Inc. and Consolidated Natural Gas (DRI-CNG).

West Virginia Historic Bridge Study. Historic Context of pre-1955 Highway Bridges. Conducted for the West Virginia Division of Culture and History, State Historic Preservation office.

Phase IA Documentary Study, East Side Access Ventilation Shaft, 38th Street, New York, New York. Conducted documentary, cartographic and photographic research of a proposed site for a ventilation shaft in a 25 x 100-



foot lot. The purpose of the study is to provide information on the nature, location, and extent of intact and original soil surfaces within the project area and the depth of 20th-century fills above these surfaces. This information is needed in order to determine if proposed construction activities will extend to a depth that will encounter the historic and/or prehistoric surfaces that may contain archaeological resources. Conducted for the MTA New York City Transit/Long Island Railroad.

Phase II Archaeological Study for the Replacement of the Dover-Milton Road Bridge (County Bridge 930) Jefferson Township, Morris County, New Jersey. Study of nineteenth century mill complex in the village of Milton. Conducted for the Morris County Division of Engineering.

Phase IB Archaeological Field Investigations 101-117 Worth Street, New York, New York. Conducted documentary, cartographic and photographic research Principal Investigator for a Phase IB archaeological investigations of mid 19th to mid 20th century foundation remains and yard areas.. The Phase IB investigation consisted of both machine-excavated test trenches and hand-excavated test units, as well as monitoring of construction activities within a 150 x 260-foot site in lower Manhattan. The test trenches were utilized to determine the presence or absence of early intact surfaces, foundations, and/or shaft features within the project area. Test units were then used to further investigate potential intact surfaces and features encountered during trench excavation. The archaeological monitoring of construction activities afforded a wider exposure of the project area than otherwise provided by the excavation of test units and test trenches. The investigation identified two sections of intact stonewalls associated respectively with the Broadway Tabernacle Church (1835 – 1857) and a late-nineteenth-century commercial building, along with the truncated remains of a mid-nineteenth-century well and a buried Holocene surface. Conducted for AKRF, New York, New York.

U.S. 130, Craft's Creek Bridge, Burlington County, New Jersey. Conducted intensive documentary, cartographic, and photographic research. For the New Jersey Department of Transportation.

Professional Societies/Affiliations

Society for Industrial Archaeology
New Jersey Archaeological Society
National Genealogical Society

Chronology

1999–present: URS Corporation
1983–1999: Louis Berger