

THE ABBOTT FARM NATIONAL HISTORIC LANDMARK
INTERPRETIVE PLAN

CULTURAL RESOURCE TECHNICAL DOCUMENT

HAMILTON TOWNSHIP, MERCER COUNTY
BORDENTOWN TOWNSHIP AND THE CITY OF
BORDENTOWN, BURLINGTON COUNTY, NEW JERSEY

Prepared for:

COUNTY OF MERCER

Prepared by:

HUNTER RESEARCH, INC.

AUGUST 2009



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Prepared For:

County of Mercer

Prepared By:

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AUGUST 2009

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Compiling and analyzing the voluminous cultural resources data that pertains to the Abbott Farm National Historic Landmark (AFNHL) has been an exceptionally daunting task that would have been well nigh impossible to complete without the input and assistance of several valued colleagues, amongst whom are government officials, cultural resource and planning professionals, scholars and knowledgeable residents.

Within Mercer County government we offer profound thanks to Lisa Fritzinger, Supervising Planner, and Marisa Wieczorek, Senior Planner, of the Planning Division. Throughout this exercise, Lisa and Marisa have kept us on task, provided us with critical background information and mapping, and shared their immense enthusiasm for the cultural and natural history of the landmark. The completion of this project is a testimony to their responsible and energetic public service.

The technical document presented here is but part of a larger planning exercise. Hunter Research's scope of services has primarily involved the gathering, digesting and processing of technical cultural resources, recreational and tourism data to be fed to interpretive planning consultants Jane Clark Chermayeff & Associates LLC. We appreciate greatly the productive dialog with this firm that has developed over the course of more than a year. The gently probing and persistent questions of Jane Clark Chermayeff, Principal, Jill Gilmartin and Julia Rousakis have frequently caused us to look at the landmark with a fresh eye and with a clearer sense of how the public might experience its often-hard-to-appreciate treasures.

Numerous colleagues have graciously shared with us their superior knowledge of the landmark. Of particular note here is Gregory Lattanzi, Registrar of the New Jersey State Museum, who knows so intimately the sprawling collection of Abbott Farm data and arcana within this institution. Greg has been unfailingly patient with our seemingly endless requests for information and access to the museum's files. Robert Cunningham, an exceptionally observant lifelong resident of the landmark, has kindly shared several decades' worth of passionate interest in the history and archaeology of the Hamilton-Trenton area. We appreciate the assistance also of Mary Alessio Leck, Emeritus Professor, Rider University, Wendy Nardi of the Trenton Public Library, Scott Stanford of the New Jersey Geological Survey, and the staffs of the New Jersey State Library, the New Jersey State Archives and the Hamilton Township public library.

Hunter Research has leaned heavily on the advice and expertise of three subconsultants: Michael Stewart, Ph.D., Associate Professor, Department of Anthropology, Temple University; David Byers, CLA; and Gail Hunton, Historic Preservation Planner. Michael, unquestionably the pre-eminent prehistorian of the AFNHL, has played an invaluable role in our work, supplying data and ensuring we provide balanced and current inter-

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pretations of the resources. The bulk of Chapter 3 of this document has been written by Dr. Stewart. David, with his background as a landscape architect at the New Jersey Department of Transportation, prior involvement with the Trenton Complex highway project and extensive local knowledge, gathered and presented the recreational and tourism data provided in Appendix C and the attached CD. Gail has provided valuable insights into the potential interpretive development and management of the landmark and its component historic sites. We appreciate profoundly the contributions of each of these consultants.

Within the Hunter Research staff, background research has been carried out by Cheryl Hendry, Damon Tvaryanas and Richard Hunter. Fieldwork, both fieldwalking and canoeing, were conducted by William Liebeknecht, Damon Tvaryanas, Cheryl Hendry and Richard Hunter. Database tasks (design, data entry and data presentation) were handled by Cheryl Hendry and Charles Ashton. Resource mapping was undertaken by Frank Dunsmore and Katie Murphy. Graphic design work and report layout were completed by Marjan Osman under the direction of James Lee. This report was written by Richard Hunter and Damon Tvaryanas with assistance from Cheryl Hendry, and edited and organized by James Lee and Richard Hunter.

Richard W. Hunter, Ph.D.
Principal/President

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Chapter 1

INTRODUCTION

A. PROJECT BACKGROUND

This technical report, produced by Hunter Research, Inc., serves as a companion and supplementary information source for the Abbott Farm National Historic Landmark Interpretive Plan, a planning document produced by the consulting firm of Jane Clark Chermayeff & Associates LLC (JCC&A) for the County of Mercer. Hunter Research and JCC&A contracted separately with Mercer County, but worked in close concert throughout the creation of both documents. Funding for these documents was provided by a historic site management grant from the Garden State Historic Preservation Trust Fund (administered by the New Jersey Historic Trust) and by a grant from the Mercer County Open Space Preservation Trust Fund.

The purpose of this report is to provide the technical underpinning for the themes and management goals articulated in the interpretive plan. The interpretive plan, which emphasizes the tourism, recreational and educational potential of the landmark's culture history and cultural resources, is viewed as a complement to the Hamilton/Trenton Marsh Management Plan, completed in 1999, which focused primarily on the natural environment.

The Abbott Farm National Historic Landmark (AFNHL) comprises an approximately 2,000-acre tract of freshwater tidal marshland and adjoining upland at the confluence of Crosswicks Creek and the Delaware River (Figures 1.1-1.3). This locale played "a significant role in the developmental stages of the fields of archaeology and geology by becoming the focal point of a forty-year controversy concerning the antiquity of man in the New World, in which many of

America's most distinguished geologists, paleontologists and archaeologists and several European scholars participated" (Williams *et al.* 1976).

The AFNHL received its landmark designation from the National Park Service on December 8, 1976, at which time it was also accepted into the National Register of Historic Places (NHL ID #1654; NR Reference #76001158). Subsequent to receiving the imprimatur of the National Historic Landmark and National Register of Historic Places programs, the Abbott Farm was also accepted into the New Jersey Register of Historic Places on August 16, 1979. It has also periodically received confirmatory opinions of National Register eligibility from the New Jersey State Historic Preservation Officer both before and since these formal designations (e.g., December 19, 1975; November 6, 1979).

Much of the impetus for historic designation of the AFNHL arose in the 1960s and 1970s as the potentially damaging effect of major public infrastructure projects and ongoing residential expansion on the rich archaeological and natural resources of the marsh and upland began to be more fully appreciated. While infrastructure improvements have since occurred, most notably the completion in the early 1990s of the Trenton Complex (the intersection of Routes I-195, I-295 and N.J. 29), and residential growth has also continued, the effect of these developments on the historic and natural landscapes has been blunted somewhat by the constraining force of environmental regulation. The Trenton Complex, for example, was designed and built in such a way as to minimize impacts on the natural and cultural environment. Furthermore, some of the most archaeologically and



Figure 1.1. General Location of Project Area (starred).

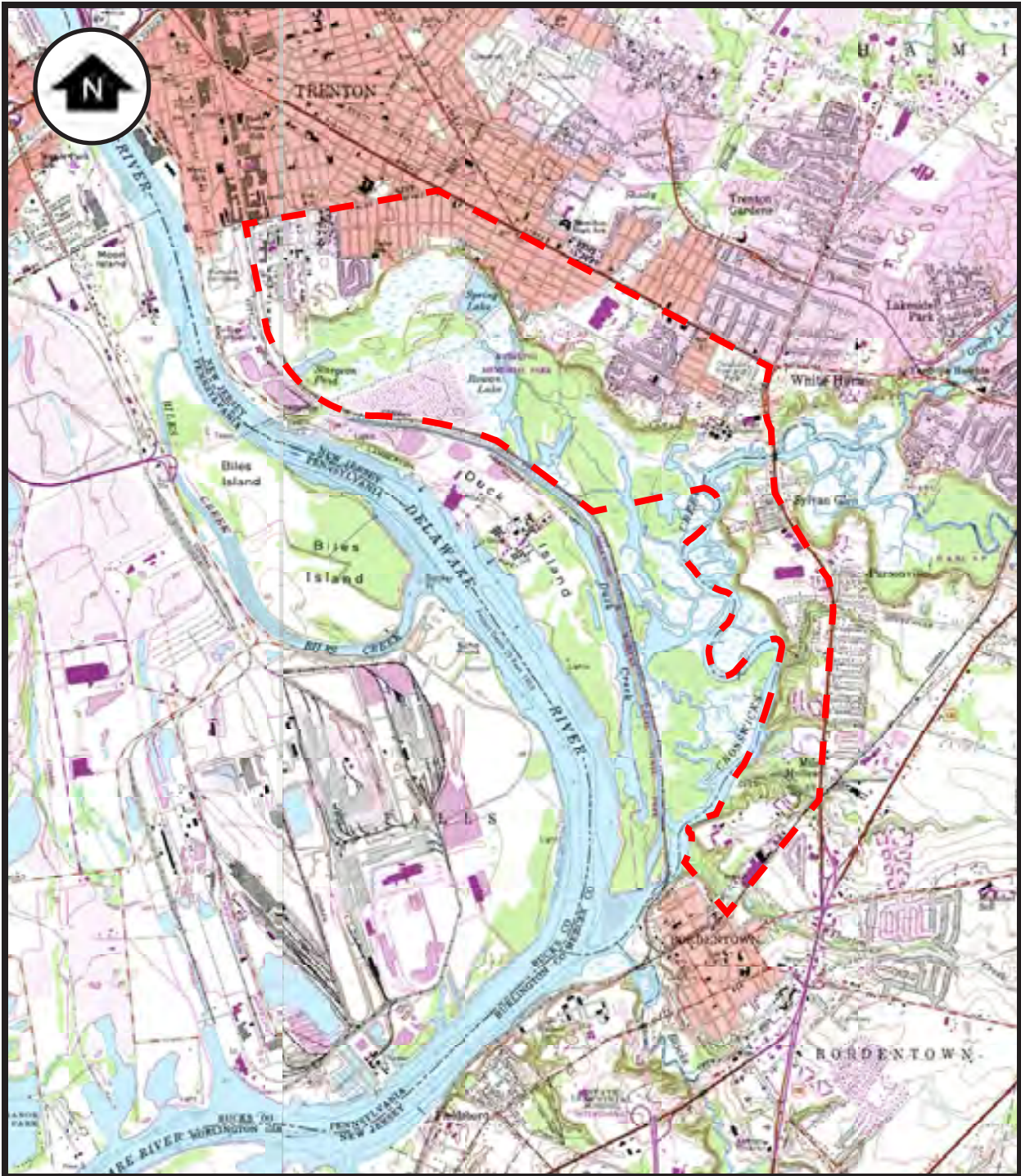


Figure 1.2. Detailed Location of Project Area Indicated with Dashed Line. Source: Trenton East and Trenton West, N.J. Quadrangles (1957 [Photorevised 1981]). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with dashed line.. Scale: 1 inch= 4,000 feet.

naturally sensitive land within the AFNHL is now preserved as a result of recent purchases by state, county and municipal agencies.

The AFNHL straddles the Crosswicks Creek estuary and includes substantial areas of tidal marsh on both sides of the creek as well as portions of the bluffs overlooking the wetland (Plate 1.1). Crosswicks Creek, flowing west and then south into the Delaware River, forms the boundary between Mercer and Burlington Counties. West and north of the creek, the AFNHL lies within Hamilton Township, Mercer County; south and east of the creek, the landmark is within Bordentown Township and the City of Bordentown in Burlington County.

Beginning at the northwest corner, at the intersection of N.J. Route 29 and Lalor Street, and proceeding clockwise, the AFNHL is bounded approximately as follows: east along the south side of Lalor Street to South Broad Street (U.S. Route 206); southeast along the southwest side of South Broad Street to the White Horse Circle; south along the west side of U.S. Route 206, across Crosswicks Creek, to East Park Street; southwest along the northwest side of East Park Street to Thorton Creek; downstream along Thorton Creek to Crosswicks Creek; upstream along the east side of Crosswicks Creek to the apex of the first southward bend in the creek downstream from the U.S. Route 206 crossing; west across the marsh to the east side of the River Line (the former Camden and Amboy Branch Railroad); and northwest along the northeast side of the River Line to the point of beginning (Figure 1.2; Plate 1.1). This represents a slightly more specific delineation of the landmark boundary than appears in the National Historic Landmark/National Register of Historic Places documentation. A re-evaluation and more accurate, formal mapping of the landmark boundary are sorely needed.

While the principal focus of the AFNHL is its wealth of Native American archaeological resources, and most especially its concentration of sites of the Middle Woodland period (*circa* A.D. 1 – A.D. 900), numerous other designated historic properties of local and regional interest are also located within the landmark limits. Table 1.1 summarizes the various prehistoric and historic resources within the landmark boundaries that have received formal historic designations. All of these properties are viewed as important components of the landmark and are widely referenced in this report and accompanying technical data. In addition, there is a variety of other important prehistoric and historic properties in the immediate vicinity of the landmark, including such well-known sites as the Delaware and Raritan Canal, the main and branch lines of the Camden and Amboy Railroad, the Bordentown and Lambertton historic districts, and Riverview Cemetery. These also have been taken into account in characterizing and analyzing the AFNHL.

B. METHODOLOGY

The creation of this technical report was preceded by the gathering and processing of technical cultural resources data, the collection of tourism and recreational information, and related database development and mapping. Hunter Research engaged three subconsultants to advise on and assist with this work: Dr. R. Michael Stewart of Temple University, an authority on the Abbott Farm and Delaware Valley prehistory; David Byers, a landscape architect with considerable local knowledge of tourism and recreation sites; and Gail Hunton, a historic preservation planner with experience in developing historic sites within a county park context. In the course of carrying out this work, Hunter Research staff and the project subconsultants met periodically with the Mercer County Planning Division and JCC&A to share data as it was collected and provide input into the interpretive planning process.

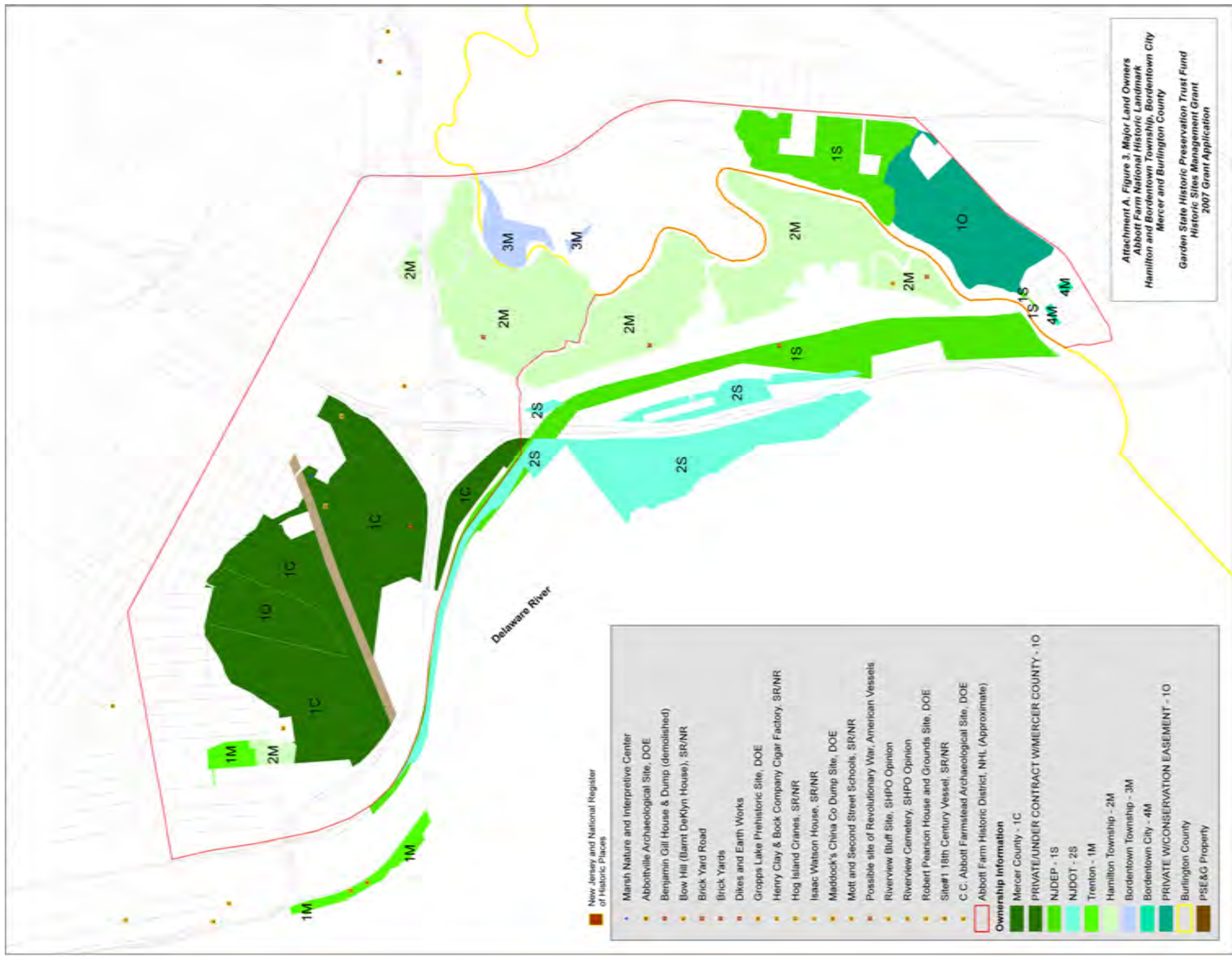


Figure 1.3. Map Showing Current Land Ownership Status of the Abbott Farm National Historic Landmark. Scale: 1 inch= 2,000 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red line. Source: Mercer County Planning Division.

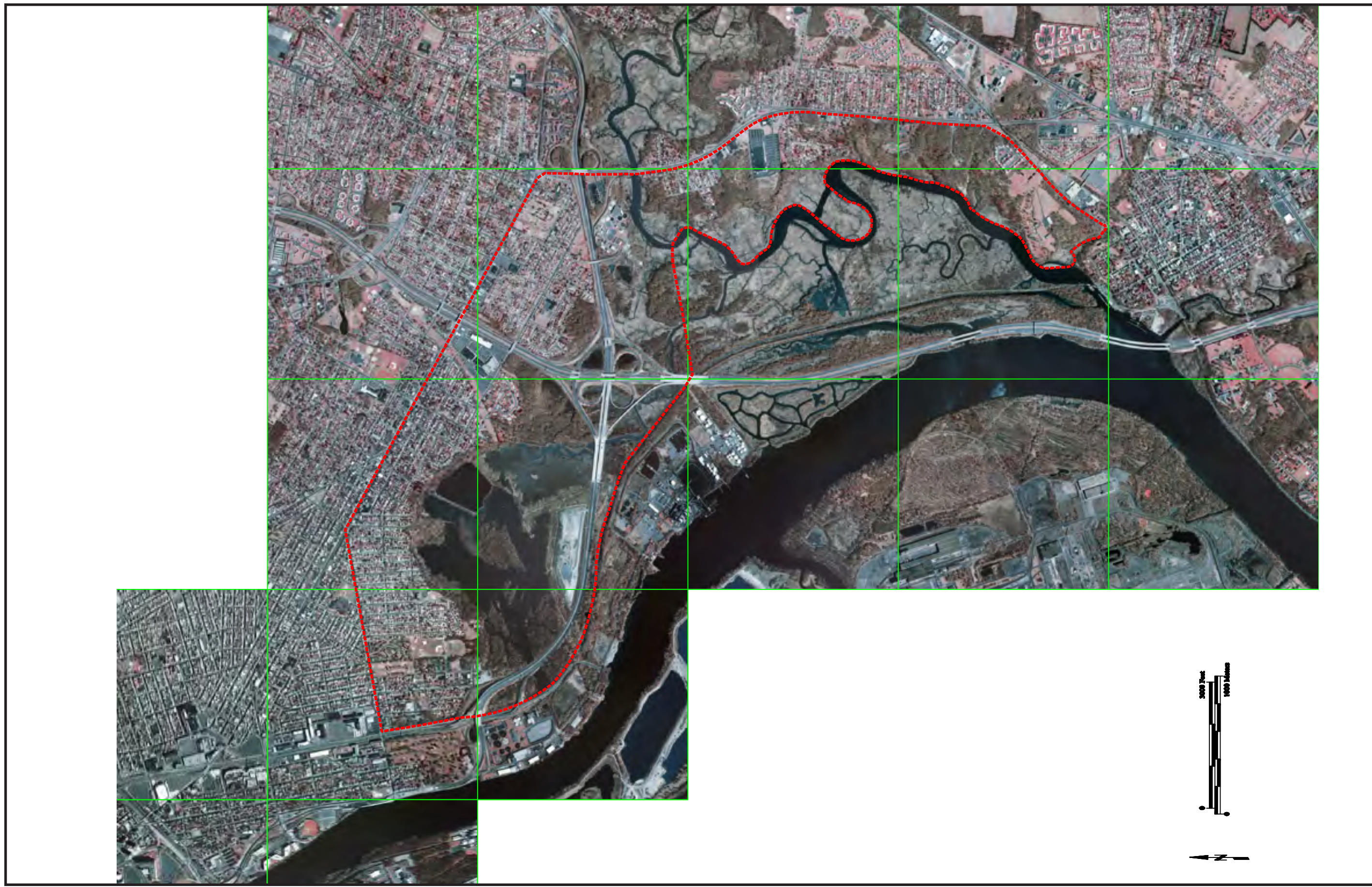


Plate 1.1. Aerial photograph of the Abbott Farm National Historic Landmark and vicinity. Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line. Source: Digital Ortho Quarter Quad (DOQQ), Office of Geographic Information Systems, New Jersey Department of Environmental Protection, 2002.

TABLE 1.1. DESIGNATED PROPERTIES WITHIN THE ABBOTT FARM NATIONAL HISTORIC LANDMARK

Property Name	Address	Municipality	County	Designation Status*	Smithsonian Registration #	NJHPO ID#	Database ID #	Notes
PREHISTORIC RESOURCES								
Abbott Farm National Historic Landmark	n/a	Hamilton Township Bordentown Township & Bordentown City	Mercer County Burlington County	NR 12/08/1976 (NR Reference #76001158)	28Me1A-1, 28Me10, 28Me114, 28Me116	1654	n/a	includes several discrete locations where Native American archaeological remains have been documented
Carney Rose Prehistoric Site	n/a	Hamilton Township	Mercer County	DOE 07/18/1983	28Me106	4188	413	separately designated within landmark
Mile Hollow Prehistoric Site	n/a	Bordentown Township	Burlington County	SHPO Opinion 05/23/1987	28Bu275	2972	428	separately designated within landmark
HISTORIC RESOURCES								
C.C. Abbott Farmstead Archaeological Site	n/a	Hamilton Township	Mercer County	DOE 07/18/1983; SHPO Opinion 12/19/1975	28Me105	1651	522	late 18thc thru early 20th farmstead site home of C.C. Abbott
Abbott-DeCou Mansion	58 Soloff Drive	Hamilton Township	Mercer County	NR 07/01/1976 (NR Reference #76001160); SR 07/07/1976	n/a	1656	502	late 18thc thru present, Federal style farmhouse
Bow Hill (Barnt Deklyn House)	Jeremiah Avenue	Hamilton Township	Mercer County	NR 01/25/1973 (NR Reference #73001111); SR 05/01/1972	n/a	1659	511	late 18thc thru present, Federal style farmhouse; Joseph Bonaparte association
Delaware and Raritan Canal Historic District	n/a	Hamilton Township	Mercer County	NR 05/11/1973 (NR Reference # 73001105); SR 11/30/1972	n/a	1600	541	centerline of canal is outside AFNHL, but designated canal corridor extends into landmark
Isaac Pearson House	Hobson Avenue at Emeline Avenue	Hamilton Township	Mercer County	NR 02/01/2006 (NR Reference # 05001568); SR 11/18/2005	n/a	4575	563	late 18thc thru present, Georgian farmhouse
Tindall/Pearson Farmstead and Site	n/a	Hamilton Township	Mercer County	DOE 07/18/1983; SHPO Opinion 08/15/1975 & 01/07/1976	28Me106	1671	638	late 17thc thru mid-18thc farmstead site
Isaac Watson House	151 Westcott Avenue	Hamilton Township	Mercer County	NR 01/21/1974 (NR Reference #74001173); SR 01/14/1972	n/a	1672	564	early 18thc farmhouse
Point Breeze Historic District	U.S. Route 206 & Park Street	Bordentown Township & Bordentown City	Burlington County	NR 08/10/1977 (NR Reference #77000848); SR 10/22/1976	n/a	752	601	early 19thc estate of Joseph Bonaparte

* Abbreviations: NR - National Register, SR - State Register, DOE - determination of eligibility; SHPO - State Historic Preservation Officer

Three principal tasks were undertaken:

1. *Compilation of Historical, Archaeological and Cultural Resources Data:* Initially, historical, archaeological and cultural resources bibliographic information about the AFNHL was compiled from a variety of sources, including government agencies, local libraries and historical/archaeological groups. A vast quantity of these data exist, but attention was given primarily to published sources (books and journal articles), technical reports (cultural resource reports), cartography (historic maps and historic aerial photographs) and historic images. These materials were organized into a comprehensive bibliography (Appendix A) and copies of key items were passed on to Mercer County officials and JCC&A for use in developing the interpretive plan.

Concurrently, the information gathering process involved the creation of a database containing information about historic sites and documented archaeological resources on public (state, county and municipal) and private lands within the AFNHL. Individual historic sites and archaeological resources were also mapped and cross-referenced to bibliographic sources. The database supplies comprehensive baseline information on specific cultural resources within the designated limits of the AFNHL and within a one-mile radius of the landmark. Samples of the database data entry forms (one each for historic architectural, pre-historic archaeological and historical archaeological resources) are included in Appendix B.

Key repositories and institutions contacted or visited during the course of the information gathering activity included: the Mercer County library system; the Trenton Public Library; the New Jersey State Library; the New Jersey State Museum; the New Jersey Historic Preservation Office; the New Jersey State Archives; the Trenton Historical Society; the

Hamilton Historical Society; the Friends for the Marsh; the Delaware and Raritan Canal Commission; and the New Jersey Department of Transportation.

In the course of compiling data on historic sites and documented archaeological resources on public lands within the AFNHL, the project team conducted limited field survey to locate and characterize several of the listed resources. This work involved field walking, exploration by canoe, documentation through field notes and digital photography, and annotation of maps and aerial photographs. No subsurface testing or collection of artifacts was undertaken. Data gathered from these field inspection activities were incorporated into the database to provide an up-to-date characterization of resources.

2. *Compilation of Recreational and Tourism Data:* In addition to the information-gathering activities noted above, data were also collected on recreational amenities and tourism trends within the AFNHL and surrounding area, with a focus on publicly accessible historic sites, museums and environmental/natural resources (specifically parks, wildlife areas, landforms and geological features). More specifically, studies and reports on tourism and recreation conducted within the past ten years within a ten-mile radius of the Abbott Farm Interpretive Center were identified and analyzed. Data on current recreational amenities (publicly accessible historic sites, museums, parks and wildlife areas) within a ten-mile radius of the interpretive center were also included in the database. The database thus provides basic information about each amenity (e.g., location, ownership, type and level of recreational usage). A sample of the database data entry form used for recreational and tourism sites is included in Appendix B.

A brief memorandum was prepared in support of the above-described recreational and tourism data, providing an overview of key sites in the area and an outline of tourism trends (Appendix C).

3. Map Representation: Concurrent with the creation and population of the database, maps were produced showing the locations of specific historic sites, archaeological resources and recreational amenities identified during the information gathering process outlined above. Two maps were created as ArcGIS files and linked to the database: one covering the AFNHL and the area within a one-mile radius of the landmark (excluding the Pennsylvania side of the Delaware River) that shows the locations of historic sites, archaeological resources and tourism and recreational sites superimposed over aerial orthophoto base mapping created in 2002 by the New Jersey Department of Environmental Protection; the other covering an area within an approximate ten-mile radius of the AFNHL (including the Pennsylvania side of the Delaware River) showing the locations of publicly accessible historic sites, museums, parks and wildlife areas in the surrounding region. The maps and the related database were produced in formats compatible with the County's GIS mapping program, although a user interface was not created.

Chapter 2

GEOGRAPHICAL SETTING

A. DRAINAGE

The Abbott Farm National Historic Landmark (AFNHL) is located on the east side of the Delaware River between two and five miles downstream of the head of tide at the “falls of the Delaware” (modern-day Trenton). The landmark occupies a naturally rich upland and freshwater tidal wetland setting focused on the confluence of Crosswicks Creek and the Delaware River. Flowing southeast alongside the southwestern edge of the AFNHL, the Delaware makes a sharp bend to the southwest at the point of entry of Crosswicks Creek at Bordentown (Figures 1.2 and 2.1).

The Delaware is one of the great river systems draining the east coast of the United States. The main stem is roughly 410 miles in length, some 360 miles of which extend from its headwaters deep in the Catskills in Delaware County, New York State to the head of the Delaware Bay. From its point of origin to Port Jervis, almost 100 miles, it serves as part of the boundary between New York State and Pennsylvania. From Port Jervis downstream to where it discharges into the Atlantic Ocean between Capes May and Henlopen, the Delaware River forms the western border of New Jersey, serving as this state’s boundary between Pennsylvania and Delaware (Vermeule 1894:229-234).

Crosswicks Creek, which forms the boundary between Mercer and Burlington Counties, is the principal drainage artery passing through the AFNHL. It drains an area of almost 140 square miles and its headwaters lie some ten miles from the Delaware in the Wrightstown area. The creek draws in water from several tributaries, the largest being Doctors Creek, which flows for roughly 13 miles from its headwaters near Clarksburg

to its junction with Crosswicks Creek near Yardville, just over a mile upstream of the AFNHL (Vermeule 1894:249).

Within the AFNHL, the main stem of Crosswicks Creek has a wide and meandering channel that flows in a generally north-to-south direction from the U.S. Route 206 crossing to its mouth at Bordentown (Plate 1.1). Moving upstream along the creek’s right bank, all or part of the following streams within the landmark flow into Crosswicks Creek: Duck Creek, an irregularly-formed tidal drainage which lies west of the Delaware and Raritan Canal and defines the northern and eastern edges of Duck Island; Barges Creek; and Watson’s Creek. The latter two creeks drain the large expanse of tidal wetland lying west of Crosswicks Creek, downstream from the U.S. Route 206 crossing. This wetland area, the core of the Hamilton-Trenton-Bordentown marsh, is bordered on the west by the Delaware and Raritan Canal/River Line transportation corridor and to the north by the bluffs that extend sinuously from Riverview Cemetery in the west to Yardville Heights in the east. Moving upstream along the left bank of Crosswicks Creek, four much smaller tributaries pass through the AFNHL: Thorton Creek; Mile Hollow; and two unnamed streams that cut down through the bluff edge just upstream of Mile Hollow. Tidal fluctuation along streams within the AFNHL can be in excess of nine feet in spring and fall.

B. TOPOGRAPHY

The AFNHL is contained within a roughly triangular area anchored by Trenton and the “falls of the Delaware” to the north, Bordentown and the mouth of Crosswicks Creek to the south, and the road intersec-

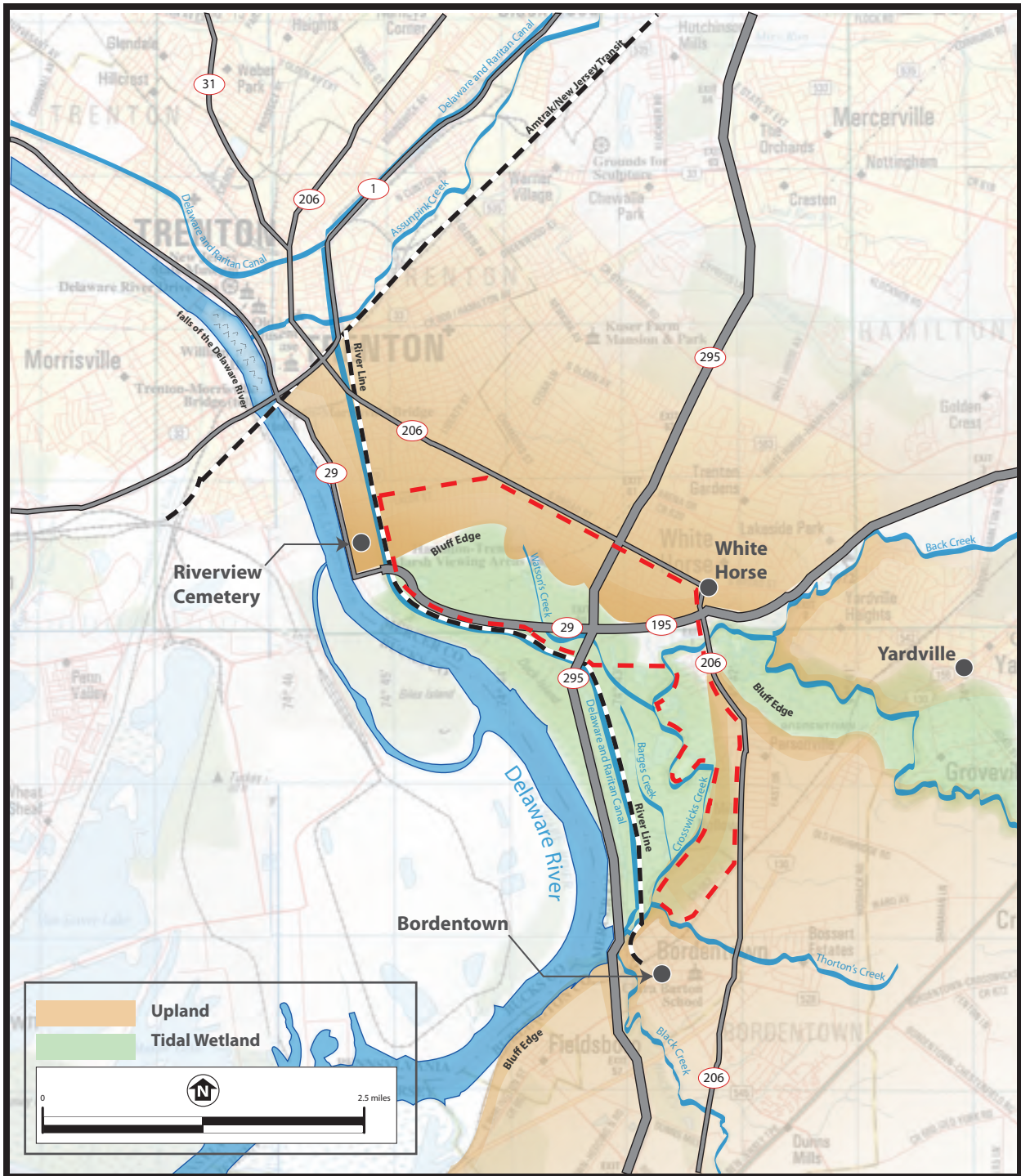


Figure 2.1. Map Showing Main Geographic Features in the Vicinity of the Abbott Farm National Historic Landmark. Approximate boundaries of the Abbott Farm National Historic Landmark indicated with dashed line.

tion known as the White Horse Circle (the junction of South Broad Street with Bordentown Road and White Horse Avenue) to the east (Figures 1.2 and 2.1). Within the framework of the drainage outlined above, the topography of this area may be broadly divided into an upland zone and a lowland zone.

The upland terrain comprises a relatively flat terrace-like landform with surface elevations mostly ranging between 40 and 80 feet above sea level (asl). The terrace is broken into two segments by Crosswicks Creek.

North and west of the Crosswicks Creek, in Hamilton Township, the upland extends from west to east from Riverview Cemetery, which directly overlooks the Delaware River, to the Hamilton Township sewage treatment plant, just south of the White Horse Circle. The southern limit of the upland is characterized by a strongly defined, yet meandering, wooded bluff edge that drops down sharply to the lowland zone. The bluff rim is mostly at an elevation of 50 feet asl, but immediately east of Route I-295 in the vicinity of Soloff Drive and Brafman Drive it rises to over 100 feet. Since the lowland is at roughly the 10-foot asl elevation, the height of the bluffs is quite pronounced, ranging mostly from 40 to 60 feet.

South and east of Crosswicks Creek, in Bordentown Township, the upland has a less winding bluff edge that runs briefly west and then south from the U.S. Route 206 crossing, becoming progressively higher in elevation toward Bordentown. The bluff rim is typically 50 to 60 feet asl, meaning that the height of the bluff is around 40 to 50 feet. As with the Hamilton Township upland segment, the Bordentown Township bluff edge is steep and wooded, and drops precipitously to the tidal marsh bordering Crosswicks Creek.

The lowland portion of the AFNHL occupies the greater part of the Hamilton-Trenton-Bordentown Marsh and extends south and west from the base of

the upland bluff edge to the Delaware and Raritan Canal/River Line corridor. The bulk of the marsh lies west of Crosswicks Creek, stretching for roughly a mile as far as Sturgeon Pond. Today, this portion of the landmark is dominated by the interstate highway interchange known as the Trenton Complex where Routes I-195 and I-295 and N.J. Route 29 intersect. The interchange, completed in 1994, has been constructed on piers to minimize impacts on the wetlands and Native American archaeological remains, and the marshland terrain still extends beneath the roadways as a tidal swamp. A dizzying array of guts and streams crisscrosses and meanders through this flat, watery landscape, feeding into the larger bodies of water known as Watson's Creek and Barges Creek. At the upstream end of Watson's Creek are Spring Lake and Rowan Lake, abandoned water features within the John A. Roebling Memorial Park. West of this are the densely wooded Rednor tract, Sturgeon Pond and a recently capped landfill lying adjacent to N.J. Route 29. Downstream along Watson's Creek toward Crosswicks Creek traces of the early/mid-20th-century cultural landscape can be seen in the form of abandoned hedgerows and fields, woodland copses and traces of farm lanes. Elevations throughout the lowland are 10 to 12 feet asl or less.

C. GEOLOGY AND SOILS

This overview of the geology and soils of the AFNHL draws on general texts and maps dealing more generally with Mercer County, New Jersey and the Delaware Valley as a whole (e.g., Peltier 1959; Jablonski 1972; Wolfe 1977; Stewart 1990a; Schuldenrein *et al.* 1991; Schuldenrein 1994; Owens *et al.* 1998), on material available on-line at the New Jersey Geological Survey web site (www.state.nj.us/dep/njgs) and on conversations with Dr. Michael Stewart of Temple University and Dr. Scott Stanford of the New Jersey Geological Survey.

The present-day landforms and soils upon which the AFNHL sits were mostly created through depositional and erosional processes that have occurred over roughly the past 2.5 million years during the Pliocene epoch of the late Tertiary period and the Pleistocene and Holocene epochs of the Quaternary period. Early on during this 2.5-million-year timeline a major river flowed generally from northeast to southwest across today's central New Jersey, connecting to the Lower Delaware and continuing on to the Delmarva peninsula. The Delaware River above Bordentown was a tributary to this drainage system. A vast river plain made up of braided stream deposits developed in this broad valley from South Amboy to Salem. Traces of this plain, referred to as the Pensauken Formation, survive within the AFNHL as yellowish sands and gravels and provide the basic form of the upland in the central portion of the landmark [Tp] (Figure 2.2).

Over the past two million years or so New Jersey has experienced three major glaciations. Although the ice sheets themselves never reached as far south as the Trenton area, the landscape was still greatly affected by the changes in environmental conditions caused by the ebb and flow of the ice and its meltwaters. During each glacial advance, sea level dropped as water from the oceans became locked up in ice sheets. Rivers extended and deepened their valleys to conform to the lower sea levels. Then, as the ice sheets melted, sea levels rose, flooding the valleys. Throughout the advance and retreat of the Pleistocene ice, drainage patterns were constantly changing and sedimentary deposits continued to be laid down and eroded away by river action. It was largely through these processes that the Delaware River took on its modern course in place of the earlier river across central New Jersey, thus causing the sharp bend in the river at Bordentown to emerge. Much of the upland within the AFNHL was formed as glacial and interglacial stream terrace deposits during the Illinoian glaciation, or the second of the three glacial episodes. The bluffs extending east from Crosswicks Creek in Bordentown Township, for

example, consist of middle to late Pleistocene yellow, reddish-yellow and yellowish-brown sands and gravels of Illinoian derivation [Qtu].

The third and most recent ice advance, referred to as the Wisconsinan glaciation, commenced around 80,000 years ago and concluded around 20,000 years ago, reaching as far south as Perth Amboy. Glacial streams emanating out from in front of the ice sheet continued to lay down deposits of sand and gravel on plains and terraces. These so-called Trenton gravels, which characterize the bluffs and upland extending east from the Delaware and Raritan Canal/River Line corridor to Independence Mall and Route I-295, were formed as glaciofluvial deposits during the late Wisconsinan period [Qwf]. This material, typically yellowish-brown to reddish-brown sands with pebble-to-cobble gravel, can be up to 50 feet thick and is generally found at elevations of around 50 to 55 feet asl. It was mined extensively in the late 19th and 20th centuries by the construction industry and used as an ingredient in concrete, mortar, plaster and other aggregates.

Within the AFNHL the Trenton gravels on the upland are frequently capped with a three- to-four-foot-thick layer of eolian (wind-blown) sand of Holocene age that accumulated between perhaps 6,000 and 2,000 years ago. The presence of these extensive eolian deposits implies that there was an ample source of sediments available for erosion and transport by wind in the surrounding area. In other words, there were likely broad areas of exposed bars associated with the Delaware River and its tributaries, and/or relatively open floodplain settings. Many of the richest archaeological finds within the AFNHL have occurred within these eolian soils directly above the Trenton gravels.

Bordering the Delaware River, extending beneath riverfront Trenton, the surface of a post-glacial stream terrace, referred to as the Valley Heads Terrace, is recognizable at an elevation of roughly 20 feet asl. This

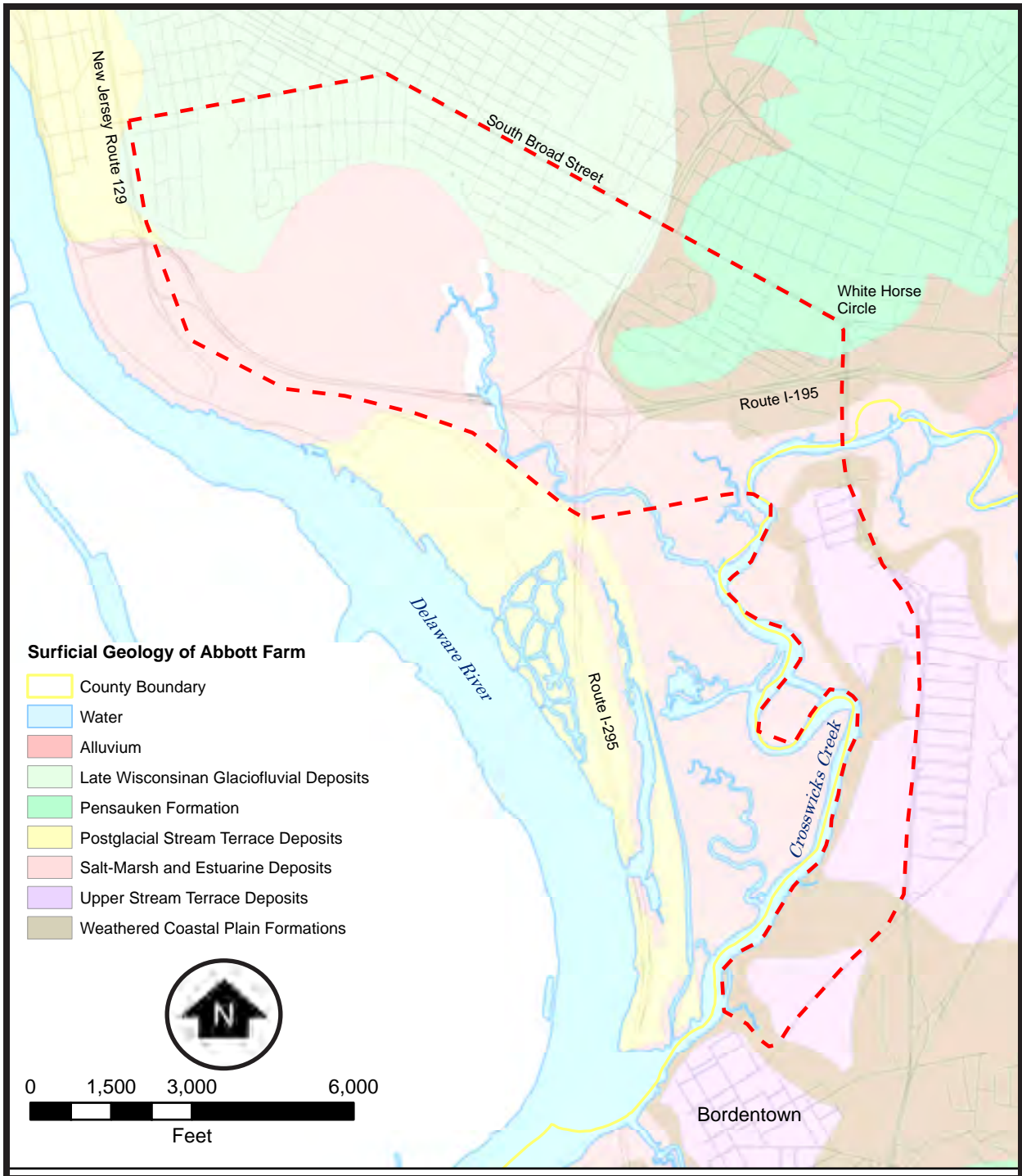


Figure 2.2. Surficial Geology in the Vicinity of the Abbott Farm National Historic Landmark. Approximate boundaries of the Abbott Farm National Historic Landmark indicated with dashed line. Source: New Jersey Geological Survey.

terrace, probably developed around 10,000 to 15,000 years ago and subsequently capped with overbank stream deposits, appears to continue further south at lower elevations beneath Duck Island and the lowland portions of the AFNHL [Qst]. Soils formed on top of this terrace have also yielded abundant archaeological information relating to Native American occupation within the AFNHL. An even more recent post-glacial stream terrace, formed perhaps 2,000 to 3,000 years ago, has been noted in geoarchaeological work on the left bank of the Delaware just downstream of Assunpink Creek. The surface of this terrace is identified at roughly the 10-foot asl elevation. While these two terrace landforms are highlighted here, the sequence of sediments that has built up in the Delaware Valley over the past 10,000 to 15,000 years is complex. Discontinuities have been observed in many soil profiles that speak of major episodes of erosion, implying substantial environmental change. A variety of buried surfaces likely exist dating to many different time periods and reflecting localized environmental events such as floods, erosion and mass wasting of slopes.

Even so, the physical landscape of the lowland portion of the AFNHL is overwhelmingly the product of the last 10,000 years or so, with some especially dramatic changes occurring within the past two centuries. The Hamilton-Trenton-Bordentown marsh that one sees today is fundamentally the result of Holocene sea level rise which has occurred in response to the retreat of the Wisconsin ice and warming temperatures. Over time there has been an ongoing vertical aggradation of marsh deposits (chiefly silts, sands, peat and clay) in an increasingly estuarine and tidal environment [Qmm]. This gradual accumulation of marsh deposits can be deduced from pollen samples, carbon-14 dates and archaeological soil sequences noted in the area around Watson's Creek, most notably at the sites referred to as Area B [28Me1-B] and Area D [28Me1-D] within the AFNHL. Roughly 6,000 years ago the marsh ground surface lay almost

10 feet below the present-day surface; 8,000 to 9,000 years ago it was close to 20 feet below the surface. Throughout this period it is likely that some type of wetland always existed flanking the base of the upland adjoining Watson's Creek because of the steepness of the bluff edge and the existence of springs/seeps originating along clay layers toward the bottom of the bluff. Exposures of these clays also provided a source of material for Native Americans making pottery.

Geoarchaeological research into the Late Pleistocene and Holocene paleoenvironment of the Delaware Valley over the past half-century has focused chiefly on the elucidation of sedimentary sequences in the terrace formations along the main channel of the Delaware River in New Jersey and Pennsylvania. Work has also taken place to a lesser extent on tributaries of the Delaware and on upland sites where associated eolian processes are in evidence. Beginning with the work of Peltier (1959), an increasingly sophisticated understanding of the late and post-glacial environmental history of the Delaware drainage has been obtained. The advent of systematic modern archaeological excavation on deep riverine deposits in the Delaware Water Gap area in the 1960s stimulated a convergence of traditional geological and archaeological research interests, chiefly through the identification and radiocarbon dating of deeply buried horizons containing evidence of human occupation. This work has been continued, chiefly by Stewart (1990a, 1991, 1994a) and Schuldenrein (1994; Schuldenrein *et al.* 1991), who have correlated alluvial sequences along considerable stretches of the Delaware Valley.

The current sedimentary model developed by Stewart and Schuldenrein predicts that in-situ prehistoric archaeological resources are likely to be elusive in terrace locations downstream of the Delaware Water Gap in contexts earlier than the Late Archaic period (about 6,000 to 3,000 B.P.), although one notable exception to this is the Sandts Eddy Site (Bergman *et al.* 1994). In the Upper Delaware Valley, upstream

of the Water Gap, earlier horizons of Middle Archaic date survive more frequently, as, for example, at Upper Shawnee Island [36Mr45] (Stewart 1990a:13-17; 1991; 1994a).

The absence of intact and in-situ early prehistoric sites in the lower sections of the river valley, including in the Abbott Farm vicinity, is due to a complex interplay of factors, including the instability of the river channel before the Late Archaic period and the possible development of a xerothermic episode. Accumulating evidence suggests that a period of erosion was caused by warming and drying of the climate in the mid-Holocene epoch, the so-called xerothermic episode. Although this theory remains controversial, there is considerable evidence from both upland and riverine sites in the Abbott Farm vicinity that suggests substantial erosion of soils in the period from about 8,000 to 6,000-5,000 B.C. (Stewart 1990a, 1991, 1994a). Stewart considers that most of the erosional episodes would have taken place in upland settings, with consequent deposition in the main valley, although there is also increasing evidence for erosion and reworking of soils on river terraces.

The Abbott Farm area is particularly interesting from a geoarchaeological viewpoint because it lies close to the head of tide and the Piedmont/Coastal Plain interface. In the Middle Delaware, upstream of the falls at Trenton, the valley is characterized by the presence of distinctive terrace formations, of which the most prominent is the Valley Heads Terrace. The Valley Heads Terrace was laid down in the Late Pleistocene epoch and capped with overbank deposits dating mostly from the Late Archaic period and later. In the Coastal Plain area the situation is somewhat different, with large alluvial outwash formations and the absence or only fragmentary presence of terraces. Below the head of tide the lowest terrace formation contains stratified prehistoric resources, while above

the head of tide it appears to be too recently formed to permit this circumstance (Stewart 1990:52-53;1991; 1994a).

Excavations at the Area D Site [28Me1-D] within the AFNHL in the Hamilton-Trenton-Bordentown tidal marsh recovered deeply stratified prehistoric archaeological materials (Stewart 1990a:53-60; 1991; 1994a; Wall *et al.* 1996b). Cultural deposits at this site extended back through the entire Middle Archaic period to before 8,000 B.P. in a soil column up to 15 feet deep. As with sites further upriver, however, the evidence from periods before the Late Archaic suggested an unstable environment with frequent floods. The location of the Area D Site away from the main channel of the Delaware may have made occupation between these episodes more feasible than in terrace locations closer to the river, and has helped to preserve evidence for such occupations. Similar evidence for the later sedimentary history of the area was recovered from the Area B Site and other locations in the Hamilton-Trenton-Bordentown tidal marsh (Cavallo 1978).

From analysis of maps made since the 1840s and aerial photographs taken since the 1920s, it is evident that the form of the marsh (and in particular its drainage characteristics) has been substantially altered by human action, while global climate change – fueled by human agency or not – may well be accelerating the rate at which the marsh is now being drowned. Comparison of historic maps with modern soils data also shows that stream downcutting along the upland fringe has been dramatic over the past century or so and is probably the result of rapid and excessive storm water run-off caused by suburban development and a proliferation of paved surfaces on the upland. Pockets of relatively poor quality clay also exist within the marsh. These deposits were exploited for brick making in the late 19th and early 20th centuries and probably also by Native Americans for pottery.

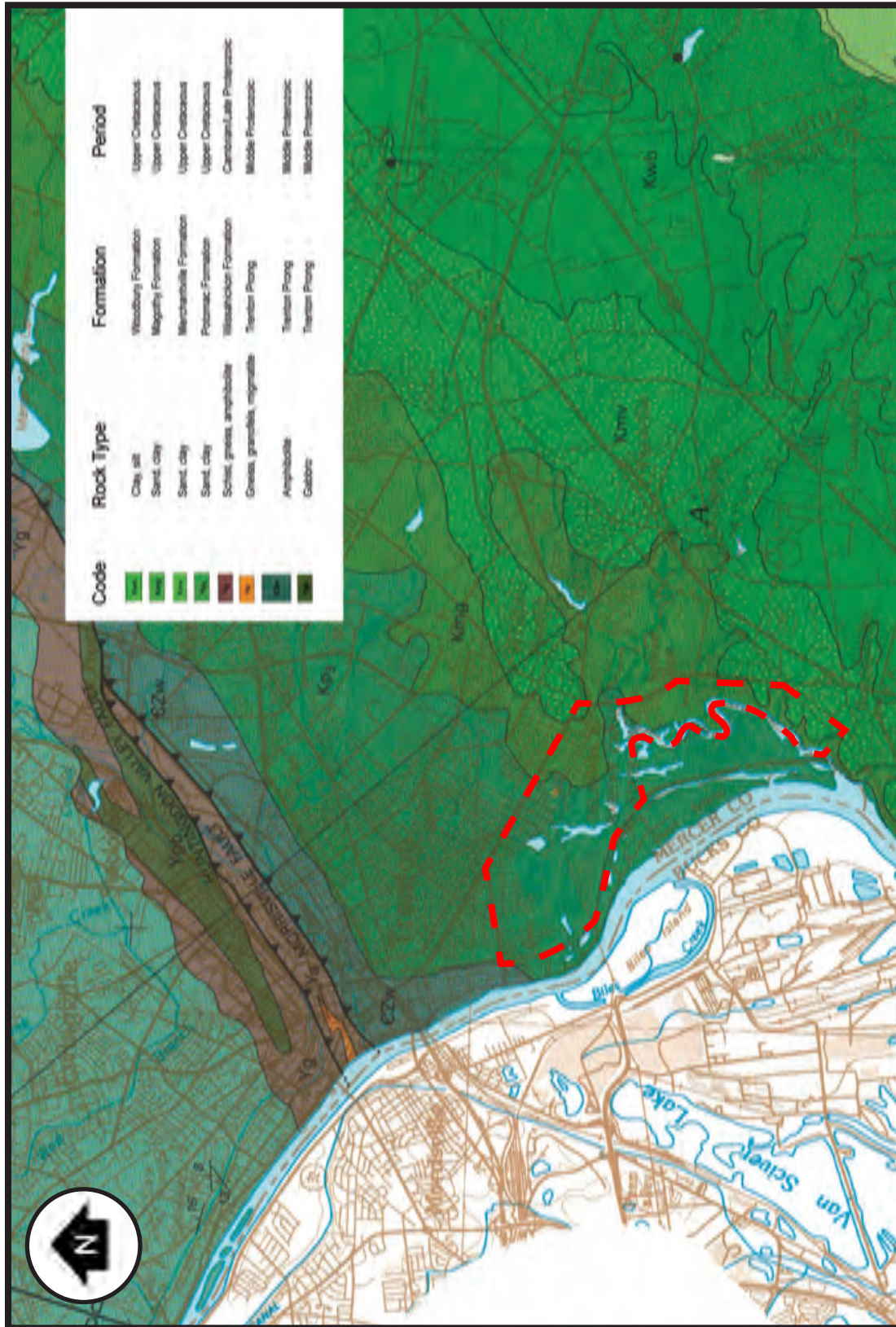


Figure 2.2. Bedrock Geology in the Project Site Vicinity. Location of interpretive center project site starred. Approximate boundaries of the Abbot Farm National Historic Landmark indicated with dashed red line. Scale: 1 inch: 1 mile. Source: Owens *et al.* 1998.

Tracing the geological time line back beyond 2.5 million years ago, one can also catch revealing glimpses of the deeper-buried bedrock geology within the AFNHL/Trenton area (Figure 2.3). Over the past 20,000 years since the end of the Wisconsinan glaciation, local rivers have continued to erode valleys into the adjoining landforms carrying debris further downstream. Along the bluff edge and the steeply incised valleys that reach into the upland, beneath the sands and gravels of the Pensauken Formation and the glaciofluvial plains and terraces, this river action has exposed in places the weathered sands and clays of the Coastal Plain [Qwcp] that are derived from the underlying Cretaceous and Tertiary period sediments. These deposits range in age from roughly 135 million to 5.3 million years old and consist of unconsolidated layers of sand, silt and clay laid down in alternating deltaic and marine environments in response to fluctuating sea levels. Dipping down and rapidly thickening to the southeast, they stretch from the Piedmont, just a few miles to the northwest of the AFNHL, to the edge of the Continental Shelf beneath the Atlantic Ocean.

Locally, within the AFNHL, a sequence of three principal Upper Cretaceous deposits is present beneath the Pleistocene and Holocene sands and gravels and the Holocene marsh. The youngest sediment is the clayey and silty sand of the Merchantville Formation, which underpins the upland in the White Horse Circle area. Beneath this, and extending under the upland on the Bordentown Township side of Crosswicks Creek as well as west of White Horse Circle, are the sands and gravelly sands of the Magothy Formation. Both formations are sporadically visible in the sides of the more deeply incised upland valleys feeding into Crosswicks Creek and in sand and gravel pits across central New Jersey. These deposits frequently reveal an abundance of fossil remains (clams, snails, ammonites and worm tubes in the Merchantville; plants, clams and snails in the Magothy). To the northwest

and under the marsh, more deeply buried and not visible at the surface, are clays and clayey silts of the upper levels of the Potomac Formation.

Just beyond the limits of the AFNHL, upstream along the Delaware River is one final location of specific geological interest. This is the “falls of the Delaware” at Trenton, where the outcroppings in the river bed and beneath the core of the downtown include some extremely old rocks between 1.5 and 0.5 billion years old. Two particular volcanic rock types, both extremely resistant to natural erosive forces, are in evidence: one is a combination of gneiss, granofels and migmatite, the other, known as the Wissahickon Formation, is composed of layers of schist and gneiss. These hard, old rocks have had a profound influence on the evolution of natural and cultural landscapes and help to explain why both the AFNHL and Trenton have emerged as foci of intense human activity in the past 10,000 years.

D. CURRENT LAND USE

The wetland portions of the AFNHL are today largely undeveloped, with the exception of three major urban infrastructure features. Foremost is the highway interchange of Routes I-195, I-295 and N.J. 29, which spans Watson’s Creek on piers and lies centrally within the landmark. N.J. Route 29 heads west across the marsh from the interchange, crossing the western end of Sturgeon Pond and ascending the bluff at N.J. Route 129 just southeast of Riverview Cemetery. N.J. Route 29 itself continues west and northwest along the Delaware River shoreline through downtown Trenton. Route I-295 heads south out of the landmark across Duck Island and the mouth of Crosswicks Creek, and also north on to the bluffs adjacent to the east side of Independence Mall. Route I-195 runs east along the base of the bluffs, rising on to the upland as it intersects with South Broad Street near Gropps Lake. The other two infrastructure features within

the lowland portion of the landmark are the Hamilton Township sewage treatment plant on the north bank of Crosswicks Creek, just west of the U.S. Route 206 crossing, and the capped and abandoned landfill between N.J. Route 29 and Sturgeon Pond.

Virtually all of the wetland portions of the landmark are now in public ownership and are being made increasingly available for passive recreational use (Figure 1.3). The single largest block of preserved marshland is the Mercer County-owned John A. Roebling Memorial Park (centered on the upper portion of Watson's Creek) and adjoining wetland extending west to Sturgeon Pond. Contained within this area is a privately held parcel, the Rednor tract, currently under contract for sale to Mercer County. Hamilton Township also owns a substantial tract of marsh east of Route I-295, south of Route I-195, bordering Crosswicks Creek and including the municipal sewage treatment plant, while Bordentown Township owns a smaller parcel of marshland on the left bank of Crosswicks Creek just below the U.S. Route 206 crossing. The Delaware and Raritan Canal State Park partly overlaps the southwestern margin of the landmark in the marsh.

Excluded from the landmark, lying between its southwestern edge and the Delaware River, is Duck Island. Formed in part on dredge spoil from the Delaware River and anchored on the east by the abandoned Delaware and Raritan Canal and the River Line, this heavily human-altered landform, formerly tidal marshland, today supports, from south to north: 70+ acres of restored wetland (created as mitigation of the environmental impact of the Trenton Highway Complex); a small oil terminal; the PSE&G Mercer Generating Station; a small marina; a series of light industrial structures and office buildings along Lambertson Road; the City of Trenton sewage treatment plant; and a somewhat larger marina (on the site of the former

Trenton Marine Terminal). Undeveloped portions of Duck Island, although once cleared and farmed, are today largely wooded.

Separating Duck Island from the core of the Trenton-Hamilton-Bordentown, and serving as the southwestern boundary of the AFNHL, is the Delaware and Raritan Canal/River Line transportation corridor. The canal, partially water-filled through tidal action, survives today mostly as an abandoned, overgrown ditch. Wedged between Route I-295 and the River Line, at the mouth of Crosswicks Creek, the terminal section of the canal, referred to as the Bordentown Outlet Lock, is especially densely wooded. The canal is part of the Delaware and Raritan Canal State Park and is the subject of ongoing restoration efforts by the State Park Service. The River Line, opened to public ridership in 2004, is a diesel light-rail system linking Trenton, Camden and several river towns in-between. Its alignment re-uses the course of the former branch line of the Camden and Amboy Railroad built in 1839-40 to connect Trenton, Princeton Junction and New Brunswick to the main Camden and Amboy corridor.

As this report will demonstrate, the tidal marshland around the mouth of Crosswicks Creek was intensively exploited by Native American populations and historically supported agriculture, fishing, brick making and even a few dwellings. The wetland landscape was irrevocably altered through the construction of the Delaware and Raritan Canal and the Camden and Amboy Branch Railroad in the 1830s. These transportation features have had a lasting effect on drainage and land use, contributing significantly to the landscape that exists today.

In sharp contrast to the marsh, the upland sections of the AFNHL are almost entirely developed. Within Hamilton Township, a mature and densely built-up suburban landscape dominated by early and mid-20th-century housing extends all the way from the western end of the landmark adjoining N.J. Route 129 and the

River Line to the White Horse Circle. Homes have been built almost to the edge of the bluff throughout the landmark area, effectively blotting out the precursor agricultural landscape save for a few older farmhouses perched at intervals along the bluff rim (e.g., Bow Hill, the Isaac Watson House, the Abbott-DeCou Mansion and the Isaac Pearson House). The housing is interspersed with several cemeteries and a few recreational fields, while commercial properties are concentrated along the South Broad Street corridor and at Independence Mall, sandwiched between Route I-295 and a PSE&G transmission line. Apart from Route I-295, other public rights-of-way and two municipally owned recreational parcels north of Bow Hill, the vast majority of upland in the Hamilton Township section of the landmark is in private ownership

The bluffs south and east of Crosswicks Creek, west of U.S. Route 206 and East Park Street, are less developed. Several tracts of 20th-century housing and apartment blocks are ranged along the west side of these two streets within the landmark boundaries, but these are separated by areas of undeveloped woodland. Only in a few instances does the housing extend to the rim of the bluffs. The southernmost upland portion of the landmark is taken up by the lightly developed property of the Divine Word Missionaries, who occupy the core and greater part of the former Point Breeze estate, the home of Joseph Bonaparte in the early 19th century. This property today serves as a home and retreat for retired missionaries and is bound by a conservation easement. Within the Burlington County section of the landmark, there is one focus of commercial land use on the west side of U.S. Route 206 opposite Hilltop Road and a few additional commercial premises extending north and south along the highway margin. Again, most of the upland terrain within the landmark in Burlington County is privately owned, although a substantial tract of upland woodland in Bordentown Township, north of the

Divine Word Missionaries property, has recently been acquired by the State of New Jersey and incorporated into the Delaware and Raritan Canal State Park.

Outside the landmark in Hamilton Township, suburban residential and commercial development extends off to the north and east, part of the greater Trenton area. Beyond the landmark limits in Burlington County, residential development stretches east and south to the convergence of U.S. Routes 206 and 130, a focus of commercial development on the eastern edge of the City of Bordentown.

The upland sections of the AFNHL saw prolonged agricultural land use throughout most of the historical period. In the later 19th century, Trenton expanded southward along the canal, rail and road arteries, with residential growth gradually building to produce the developed landscape that is seen today. It was this same terrain, especially the land extending back a quarter mile or so from the bluff edge, that was so intensively occupied by Native Americans. As residential development and accompanying infrastructural improvements spread into this zone, so also was its archaeological richness exposed. It is this upland fringe within the landmark that has received the most, although not exclusive, attention from archaeologists over the past century and a half, ultimately resulting in the designation of the AFNHL.

Chapter 3

PREHISTORIC OVERVIEW

A. OVERALL REGIONAL CONTEXT

The archaeology of the Delaware Valley reflects both typical trends and unique events in Native American life spanning the last 13,000 years. It encapsulates many of the significant developments that native cultures experienced throughout the Middle Atlantic region, and the Eastern Woodlands, including:

- the ways in which hunting and gathering groups adjusted to dynamic, shifting environments following the last ice age, as they colonized the area for the first time in human prehistory;
- the subsequent growth and spread of native populations, and the effect of this expansion on the development of regional alliances, group territories, and the development of trade and other economic relationships;
- the sporadic rise and disappearance of socially complex, hunting and gathering societies between 2,500 B.C. and A.D. 900;
- the adoption of a farming way of life (about A.D. 900), and all of its social implications, after pursuing alternative subsistence economies for many thousands of years; and
- direct contact in the early 17th century with European colonists and traders, and its effect on traditional native society (indirect contact probably dates from the late 16th century).

And yet there has always been cultural diversity throughout the lands now referred to as the Delaware Valley. Through the years, native life has been shaped

by much more than decisions regarding where and how the most bountiful natural resources could be obtained. Native lifeways are the result of humans acting on their own unique perceptions of their physical and social environment, and responding to the influences of their own distinctive histories. For most of the past 13,000 years, native cultures made their living through hunting, fishing, and gathering wild foods. But how these various activities were managed, and the size and nature of individual societies involved, changed through time, as did the climate and natural environments in which they lived. Hunting and gathering cultures 10,000 years ago are very different from hunting and gathering cultures 5,000 years ago.

Isolated examples of more socially complex cultures first appear around 2,500 B.C. One visible fingerprint of this complexity is seen in burial rituals involving cremations, and the placement of exotic trade goods with the dead. Larger groups seem to be living and working together, and there is a heightened sense of territoriality. The organization of work focused on traditionally favored resources also seems to have changed. What was hunted, collected, and eaten may not have changed, but **how**, **when**, and by **whom** food was procured, processed and distributed may have been transformed. It is a time when more formal leaders may have arisen among local groups. Although these initial developments are short-lived, complex societies reappear at later intervals of time, and show connections with elaborate cultures living in regions to the north, west, and south. Evidence of similarly complex societies can be attributed to the times 700 B.C. - 300 B.C. and A.D. 200 - A.D. 800.

By A.D. 900, many native cultures throughout the Middle Atlantic Region began farming, using domesticated crops originally developed in Central America. Although traditional wild foods were not abandoned, the new subsistence base heralds a number of changes in native life, especially in the ways that families and band segments cooperated with one another. Not all native peoples in the Delaware Valley, however, adopted farming. Some continued to follow a hunting and gathering way of life. Interesting social and political relationships are forged throughout the region as native life becomes more settled than it had ever been before.

At the dawn of contact between native peoples and Europeans, a traveler beginning a journey in the Upper Delaware River Valley and passing downstream to the Trenton area would encounter groups living in small farming communities, as well as people for whom domesticated crops held little importance, each group possessing a slightly unique material culture. By giving native populations generalized labels like the "Delaware Indians," Europeans unwittingly homogenized remarkably different lifestyles. Delaware Valley archaeology attempts to rediscover this cultural diversity, and understand its meaning for the broader study of human society.

B. DETAILED REGIONAL CONTEXT

The following portion of this chapter provides a more thorough discussion of the prehistory of the Middle Delaware Valley with a particular emphasis on the Late Archaic through Late Woodland periods as it is during this time span that the Abbott Farm National Historic Landmark (AFNHL) saw its most intense Native American occupation. A traditional chronological framework, slightly modified to suit the AFNHL, is adopted for this discussion (Table 3.1). The bulk

of this chapter segment has been authored by Michael Stewart and is based on recent published synthetic writings of his (notably, Stewart 1998, 2003, 2007).

In the Middle Delaware Valley, Paleo-Indian and Early Archaic finds have mostly been recovered from mixed and disturbed stratigraphic contexts and thus provide little information about the settlement patterns and subsistence strategies of early Native American populations living in the area. Isolated artifacts from these periods can, however, provide information on lithic technologies, raw material preferences, large-scale site distribution and perhaps cultural affiliation. For the Middle Archaic period (about 6,500 to 3,000 B.C.) the Abbott Farm area holds a somewhat higher expectation of yielding more coherent site information. The main reason for this is the identification of deep Middle Archaic strata at the Area D Site [28Me1-D] in the Hamilton-Trenton-Bordentown Marsh within the Abbott Farm National Landmark, characterized by the presence of triangular projectile points (summarized in Wall *et al.* 1996b:91-93, 108). Here, a series of intact surfaces interspersed by flood episodes has been distinguished.

Late Archaic through Middle Woodland archaeological sites in the Middle Delaware Valley are both larger and more numerous. Several of the Abbott Farm's sites studied during the Trenton Complex Archaeology program revealed traces of Late Archaic occupations, while evidence of an apparently substantial Late Archaic site have been encountered in the grounds of the William Trent House property (Hunter Research, Inc. 1995). Late/Terminal Archaic occupation has also been identified in the heart of downtown Trenton at the Old Barracks (Hunter Research, Inc. 1994) and along the bluff adjacent to the New Jersey State House (Hunter Research, Inc. 1993). From this period on, sites are generally more numerous in both floodplain and upland settings both in the Trenton area and elsewhere in the region.

TABLE 3.1. CHRONOLOGICAL FRAMEWORK FOR NEW JERSEY PREHISTORY

Period	Subperiod	Approx. Date Range	Lifestyle	Cultural Traits
Paleoindian		11,000 B.C. - 8000 B.C.	small bands, hunting and gathering	fluted points
Archaic	Early Archaic	8000 - 6500 B.C.	hunting and gathering	bifurcate-base points
	Middle Archaic	6500 - 3000 B.C.	hunting and gathering	ground stone tools
Woodland	Late Archaic	3000 - 1000 B.C.	hunting and gathering	first elaborate burials, population expansion
	Early Woodland	1000 B.C. - A.D. 1	hunting and gathering	ceramics, elaborate burial goods
	Middle Woodland	A.D. 1 - A.D. 900	hunting and gathering	
Contact	Late Woodland	A.D. 900 - A.D. 1600	hunting and gathering, farming	maize and bean cultivation, introduction of bow and arrow
		A.D. 1600 - A.D. 1750	hunting and gathering, farming	European trade goods

The higher incidence of Late Archaic through Middle Woodland archaeological sites is due in part to the greater stability of the alluvial deposits in riverine settings, which allows sites to survive. It also reflects a real increase in population and probably also a more regularized and predictable seasonal cycle of collecting and foraging for food and other resources. Another reason why sites become more numerous and larger over the course of the Late Archaic through Middle Woodland periods is that, for a variety of reasons, the territories over which groups moved seem to have gotten smaller through time. This resulted in the more frequent reuse of the same landscapes, and in many cases, specific sites, over time. Some large sites may thus be large because they are so frequently reused, while others are large because of the size of the group involved and the extended length of a particular occupation.

Although there are distinctions within and between the Late Archaic, Early and Middle Woodland periods, the work on the Trenton Complex sites suggests that these periods pose similar problems of interpretation. Sites of this period (about 3,000 B.C. to A.D. 1000) can, in fact, be fitted into a quadripartite settlement scheme of macrosocial and microsocal unit camps, transient camps and stations (Wall *et al.* 1996a:336). In all periods, the archaeological challenge is to determine which of the discrete elements at a site are contemporaneous. These elements typically include hearths and fire-cracked/thermally altered rock concentrations, clusters of lithic materials from tool making and tool curation, and pits of various sizes and forms. Repeated reuse of many of these sites makes detailed disentangling of the information a considerable challenge. Experience on the Trenton Complex sites suggested that examination of site peripheries might provide less confused data (Wall *et al.* 1996a:151).

The Late Woodland period is the best documented segment of Woodland prehistory and is represented by numerous archaeological sites in the Middle Delaware Valley. The attendant literature is voluminous and a variety of frameworks exist for dividing the time into coherent units (Custer 1984, 1986; Kraft 1986, 2001; Mounier 2003). The status of Late Woodland studies in the Middle Atlantic region was assessed in 1983 (papers published in Custer 1986) and again in 1994. A symposium at the annual Middle Atlantic Archaeological Conference in 1989 tackled the Middle to Late Woodland transition (various papers published in Volumes 11 and 12 of the journal *North American Archaeologist*). In recent volumes of the journals *Archaeology of Eastern North America*, and the *Bulletin of the Archaeological Society of New Jersey*, Stewart (1993, 1995, 1998, 2007) provides a synthesis of regional Late Woodland developments, building on the efforts of various researchers.

General characterizations of the Late Woodland period in the Middle Atlantic typically refer to very settled, farming-oriented cultures that raised maize and other cultigens. However, while sedentism characterized most settlements in the region, the role that cultigens played in cultural adaptations varied both through time and across space. Recent radiocarbon dates suggest that some farming communities may appear as early as A.D. 700-800 in sections of the Susquehanna Valley (Stewart 1993; 1994b). This broadens the scope of what can, or has been, considered as Late Woodland. The earliest physical evidence of maize appears most consistently between A.D. 900 and 1000. Even where preserved maize or other cultigens are not found, shifts in the location of settlements to broad arable tracts of floodplain are interpreted as a sign of early farming. There is a noticeable increase in dated occurrences of maize *circa* A.D. 1200-1300 and later. There are coastal areas, e.g., in southern New Jersey and Delaware, where farming seems to have never been important.

1. Late Archaic and Early Woodland Periods, c. 3,000 B.C. – A.D. 1.

The Late Archaic and Early Woodland periods, both in the Delaware Valley and the broader Middle Atlantic Region, appears to have been a time of intensive interaction between Indian populations. Evidence for both short- and long-distance trade is extensive. More people were evidently coming into more frequent contact with one another and having to cope with the results. Trade systems may have served a number of purposes including: transmitting information; reducing potential conflict between competing or neighboring groups; providing subsistence “insurance” or a means of maintaining potential access to resources outside of an individual’s or group’s exploitative territory; affirming and reaffirming social and political relationships; and expressing status. There seems to have been a heightened sense of territoriality, in some cases marked by the existence of cemeteries, and certainly by the reuse of specific sites on which caches of utilitarian goods are found. Expressions of ritual behavior varied by area/group, as seen most readily in the treatment of the dead and associated mortuary features.

Increasing social complexity is seen in geographically isolated examples of burial ceremonialism at sites like Savich Farm in the New Jersey Coastal Plain (Regensberg 1970, 1982; Burrow 1997), and in cultural systems based in coastal areas with highly productive and predictable resources, such as the Chesapeake Bay/Delmarva Peninsula area (Custer 1989). Given the presumed importance of social hierarchies and the communication of status in these systems, it is significant that these same geographic areas reveal the earliest evidence of focused exchange, caching, and hoarding. Furthermore, evidence of focused exchange and hoarding of goods reappears in these same areas through time. Societies exhibiting these traits are not the norm in the Middle Atlantic region.

A small number of areas within the Middle Atlantic region were home to peoples exhibiting some type of connection with the well known, mound-building Adena and Hopewell cultures of the Ohio Valley and Midwest (see Stewart 1989:57-63 for summary and compilation of relevant references). There was the Stone Burial Mound Complex in the Ridge and Valley section of Maryland, West Virginia and Virginia, the burial mound complexes of western Pennsylvania and the Upper Ohio Valley, the Delmarva Adena culture on the eastern shore of the Chesapeake Bay, and the Middlesex culture to the north in coastal New Jersey and sections of the Delaware Valley. Many of the traits associated with these complexes/cultures are curious mixtures of Ohio Valley Adena and Hopewell, and may extend in time to as late as A.D. 200 in some instances (Ford 1976; Gardner 1982:70; Custer 1984:113-114). All made use of artifacts, materials and styles with probable Midwestern origins. These represent the florescence of extra-regional goods gained in trade, ostensibly through hoarding and focused exchange. Similar artifacts, materials and artifact styles sporadically appear in other portions of the Middle Atlantic region, but are not intimately associated with a particular cultural complex.

Custer’s discussion of the Delmarva Adena culture is the most detailed in terms of addressing what spurred these experiments in social complexity and is relevant in outline to the mound-building cultures of the Ridge and Valley. First, it is important to recognize that these phenomena were experiments, since they did not possess continuity over a long period of time, and did not lead to even more complex forms of native society. Certainly, some form of contact with cultures in the Ohio Valley and the Great Lakes area was part of the equation. It is interesting to note that after 600/500 B.C., there is a dramatic increase in the quantity and areal distribution of trade items that originated outside the Middle Atlantic region (Stewart 1989:57). This does not necessarily imply the impor-

tation of a new way of life, but there must have been some coincidence of world view that made the cross-cultural use of symbols and ritual behavior viable and understandable.

Changes in the way that work was organized (the production of subsistence) may have been at the developmental core of these social experiments, specifically, the management of cooperative subsistence pursuits, rather than the traditional “every family for itself” approach. While the laundry list of exploited resources may be similar to that of earlier times, the intensity with which certain resources were exploited (e.g., fish, nuts/mast, certain types of toolstone) and how they were exploited (i.e., size of the group involved, which at a certain scale may imply the existence of temporary or task-specific leadership) varied throughout the Delaware Valley and broader region. What was hunted, collected, and eaten may not have changed, but how, when, and by whom food was procured, processed, and distributed may have been transformed. Reliance on managers and cooperative work would have sown the potential seeds of social inequality, and the role that trade may have played in such developments has been repeatedly demonstrated. That these Middle Woodland expressions of social complexity did not give rise to more fully realized, ranked society implies that there was no long-term, positive feedback for this type of socio-cultural system. There remained other options for exploiting desired resources, and the cultural landscape did not fill to the point where the consolidation and cooperation of communities was the best or only way to make a living. In light of this, the possible role of charismatic leaders should be considered in the development and maintenance of the Ridge and Valley mound building and Delmarva Adena cultures.

There were a number of technological innovations during the Late Archaic through Middle Woodland periods whose impact on overall life has not been thoroughly explored. For example, substantial wood-

working tools become more visible and frequent in the archaeological record during this time span and it is often assumed that dugout canoes made their first appearance in the region during the Late Archaic. More significantly, pottery was introduced into the Delaware Valley and the introduction of ceramics has traditionally been viewed as one of the original hallmarks for defining the Woodland period.

The earliest experiments with ceramics in the region occurred during what would chronologically be defined as the Transitional or Terminal Archaic. Ceramics have been found in association with Broadspear and Fishtail-type projectiles, and soapstone bowls. In addition to being a reflection of technological advance, the appearance of ceramics implies changes in settlement patterns (see Gardner 1982 and Custer 1987a for developmental summary). A semi-sedentary lifestyle is seen as a precondition for the adoption of the new technology, owing in part to the logistics of ceramic manufacture and the relatively fragile nature of clay pots, in contrast to other kinds of containers. There are few who would argue that Terminal Archaic settlement patterns did not involve some degree of sedentism (Stewart 2003).

There is no question that ceramic technology was a noteworthy innovation, although arguably its initial impact on native society was not revolutionary, nor equally shared across the region (Stewart 1998). For thousands of years prior to the appearance of pottery, or the appearance of stone bowls, for that matter, Native Americans possessed a container technology involving skin and hide bags, wooden vessels, and basketry. And they were obviously cooking, although through indirect means, with some of these containers. Granted, ceramic containers allowed cooking to be accomplished in different and more efficient ways, but the relatively low numbers of Early Woodland ceramic vessels/sherds found on sites in the region makes it doubtful that early pottery revolutionized the container technology of the time. Yet, on a smaller

scale, areas can be identified where early ceramic vessels appeared in profusion and in a variety of shapes and sizes (e.g., Mouer 1991; Stewart 1995).

Ceramic technology appears to have been adopted slowly and unevenly by native populations in the Middle Atlantic region. **This variability in the adoption and use of ceramic technology is more understandable if it is seen as an imitation of different aspects of the existing container technology.** In other words, rather than viewing early ceramic vessel forms as representing some type of progressive evolution beginning with the mimicry of soapstone bowls, and followed by the later development of other forms, perhaps the initial variation in vessel shape and use is more usefully seen as a function of the nature of the containers they were meant to supplement or replace. That ceramic containers never completely supplanted those fashioned from wood, bark, gourd, or fibers is obvious from ethnohistoric and ethnographic observations (e.g., Newcomb 1956:28). Stone-boiling in containers fashioned from perishable containers remained widespread among hunter-gatherer cultures of historic times, and was also practiced in conjunction with cooking in ceramic vessels.

Ceramic vessels did not become the mainstay of Native American container technology until Middle Woodland times, at least in terms of cooking and storage. The fact that some native peoples were relying more heavily on pottery than others could imply differences in the ways and intensity with which resources are being processed. For example, nuts could be eaten raw, or dried for later consumption, or boiled to produce nut oil, this latter process requiring cooking in a container. Fish could be smoked, dried, baked or boiled, and fish parts could be rendered for their oil. Again, the latter two processes required cooking in a container. Another implication is that some groups were more sedentary than others, since the use of pottery was not practical in a highly mobile lifestyle.

Setting aside the implications of technological change during the Terminal Archaic/Early Woodland period, the issue in attempting to distinguish cultural patterns becomes one of measuring the degree of sedentism reflected in the settlements of the two periods. The cyclical reuse of individual sites, evident during the Terminal Archaic, continued into Early Woodland times. This has been interpreted as evidence of scheduled settlement movements tied to subsistence pursuits, taking place within a fairly well-defined territory. There was a hierarchy of settlement types, inferred from the size of sites, the density of artifact deposits, and the variety of artifact classes (and, by implication, activities or behaviors) represented. This, too, is an elaboration of a Terminal Archaic trend or pattern, thought to represent the periodic gathering and splintering of band segments. This general pattern, however, masks a variety of differing settlement systems influenced by environmental and resource diversity within the region (cf., Gardner 1982:56-65; Custer 1984:75-113; Cavallo 1987; Mouer 1991:47-65). Differences in settlement and community patterning, and variability in the diversity and richness of biological resources in the region, imply that native society was organized in a variety of ways. Modeling of social organization for this time has not gone beyond distinguishing micro-band and macro-band types of settlements (Stewart 2003).

The basic inventory of what was hunted and gathered during the Terminal Archaic/Early Woodland period seems little different from a listing of earlier Archaic food resources, with variations depending on the physiographic province involved. What remains uncertain is the relative importance of individual foods to the overall diet. It has been inferred from the location of sites, increased levels of sedentism, and evidence of storage, that groups may have focused on a somewhat narrower range of highly productive resources, e.g., anadromous fish, nuts, shellfish, large mammals, seed and tuber producing plants. Whether such changes in

subsistence and technology involved a reorganization of work at the family or community level remains a matter of untested speculation.

Evidence for the involvement of regional cultures with plant cultivation is inferential at best. There is no direct evidence for domesticated plants in the region at this time. Hart and Sidell (1997) report cucurbit remains from earlier contexts at the Memorial Park Site in the Susquehanna Valley. Pumpkin/squash seeds (*Cucurbita pepo*) occur in Early Woodland deposits at Meadowcroft Rockshelter (Adovasio and Johnson 1981:72), located in the Ohio River Valley section of western Pennsylvania. Plant cultivation and domesticates have an even greater antiquity to the southwest in the Ohio Valley and Midwest (Smith 1994). Contacts between the native people of these areas and those inhabiting the Middle Atlantic Region can be inferred, but this is not a reasonable basis for assuming that experimentation with plant cultivation took place east of the Appalachians early in the Woodland period.

Evidence of widespread trade and exchange reveals connections both within and outside of the region (Stewart 1989:56-57). Exchange was both broad-based, involving down-the-line, web-like networks, and focused, involving closer connections between two specific geographic areas. Curiously, the volume of exchange between roughly 1,200 B.C. and 600 B.C. seems to have declined from earlier levels, at least from the perspective of imperishable artifacts whose raw materials can be traced back to natural sources. This would not be expected in light of trends in sedentary settlements. Exchange would have been one way to maintain access to goods and information when you were no longer willing, or able, to move around the landscape yourself.

No communities were fully sedentary. Some were semi-sedentary and cyclically reused certain locations, landscapes and resources. This patterning can

be interpreted as evidence of scheduled settlement movements tied to subsistence pursuits taking place within a fairly well-defined territory. Although floral and faunal data are sparse, there is no reason to suspect that subsistence practices differed from those of earlier times. The environmental setting of sites, and the resources that they provide access to, argues for such continuity. Specialized subsistence-related sites are most clearly related to fishing. Given the range of environmental zones and the variability in the diversity and richness of biological resources that can be associated with them, concomitant variation in hunter-gatherer settlement and subsistence patterns might reasonably be expected. Groups could well have been exploiting the same basic list of resources but in different ways and with varying emphasis.

From a mechanistic point of view, the argument could be made that there was sufficient environmental variability such that economic variability would be expected. On the other hand, how work is organized can be a human decision divorced from environmental imperatives and environmental constraints. Fishing is a good example here. This task can be organized on an individual or family basis and performed throughout the year, or it can be a large group/communal pursuit carried out on a seasonal basis. Each of these scenarios would have different economic and social consequences.

Territoriality may be evident in sub-regional patterns of lithic use and preferred materials. The cyclical reuse of lithic sources is underscored by the nature of the diagnostic artifacts found discarded at quarry sites. The used and wasted tools discarded at the quarries were made from the same materials being quarried. This contrasts with pre-Late Archaic/Woodland patterns. During earlier times specific quarries were not as frequently reused, so used-up and wasted tools discarded at one quarry would sometimes reflect materials procured at other quarries during geographically broad settlement movements.

2. Middle Woodland Period, c. A.D. 1 – A.D. 900

A thumbnail sketch of the Middle Woodland has much in common with characterizations of the Early Woodland. The trend in sedentary settlement continued. The complexity of societies varied dramatically across the region. In the Coastal Plain, the focus on fish and shellfish appears to have intensified as major nodes of settlement developed around productive estuarine and riverine environments. There is evidence of extensive interaction networks, trade, and travel over great distances, but the degree to which any single group within the region participated in these behaviors was extremely variable.

Fishing and shell-fishing based at large lowland camps were traditional economic pursuits continuing on from the Terminal Archaic/Early Woodland period (e.g., Waselkov 1982). Middle Woodland versions of such sites were larger and have often been found in slightly different locations than their more ancient counterparts. The biggest sites in the Coastal Plain, and greatest population densities, appear in settings from which a variety of resources could be exploited, generally localities near the saltwater/freshwater interface of drainage systems. Although small segments of the eastern or outer Piedmont were included in the settlement rounds of some Coastal Plain groups, more interior sections of the province seem to lack large Middle Woodland sites. Large group sites from the interior and Ridge and Valley section of the region do not match the size and depositional intensity of large group sites on the Coastal Plain (Gardner 1982).

Exchange systems were broadly comparable to those of earlier times (Stewart 1989). Adena, Middlesex, Delmarva Adena, and other Adena-like phenomena represent the florescence of extra-regional trade goods in the Middle Atlantic Region. A reduction in the overall volume of exchange involving lithic artifacts

originating within the region, and moving through broad-based networks, is evident between 400 B.C. and A.D. 200.

The increasingly sedentary nature of settlements through the Middle Woodland period is a trend originating in earlier times. Sedentism does not seem to have been dictated solely by the nature and potential of the resource base found in a given environment, since it characterized settlement systems throughout a region where the environment and richness of resources varied, often dramatically. Sedentism can be adaptive in a variety of economic and social situations; however, it is only one option of many for linking people and economies with resources and landscape. A good analogy is the way that Binford (1980) differentiates between hunter-gatherer collecting and foraging systems. Sedentism can also be understood as a response to perceived population densities, changes in the way that subsistence activities are organized, shifts in economic focus, or as part of a group's strategy for controlling a territory. Even so, intra-regional variability in settlement and community patterns is evident during the Middle Woodland period, as it was during the Early Woodland (cf., Gardner 1982; Potter 1982; Waselkov 1982; Custer 1984, 1989; Stewart 1990b; McLearen 1991, 1992).

The biggest Middle Woodland sites are in the Coastal Plain. These sites served as the focus of large-group activities (fishing, shell-fishing) and as a base from which forays into other environmental zones could be mounted. Occupations appear to have spanned the late spring through early fall. Segments of the Piedmont were included in the settlement rounds of some Coastal Plain groups. Some of these Piedmont sites were probably the result of task group forays away from base camp settings, and some may have represented the winter and early spring wanderings of small family groups, following the break-up of base camps. More interior sections of the region (including Pennsylvania) seem to lack large sites, and the ones

that are known do not match the size and depositional intensity of large-group sites on the Coastal Plain. Some areas seem even more empty than in earlier periods, if the site distribution data are to be trusted.

There are fairly clear patterns in the cyclical reuse of specific locations in specific types of environmental settings during the Middle Woodland. A listing of subsistence items would resemble one for earlier times, but it is also clear that some resources were more intensively used than ever before (e.g., fish and shellfish). Speculations regarding the re-organization and management of work, and the potential for the development of social hierarchies, make even more sense in light of the data for this time.

Prolonged residence at certain types of sites, such as base camps or hamlets, is a hallmark of Middle Woodland period settlement systems throughout the region, as is the recognition of distinctive settlement territories (cf., Barber 1983; Gardner 1986; McLearen 1991, 1992). This is a feature of the Middle Woodland period for the region at-large. Barber (1983) notes that the faunal evidence from some sites raises the possibility of some type of year-round residence, or at least the reuse of the same site during different seasons of the year.

Several models have been proposed to account for how recognized site types are related to one another in a settlement system (e.g., Gardner 1982; Potter 1982). Larger sites are interpreted as semi-permanent base camps from which task groups or segments of the community made forays which resulted in the creation of the smaller sites of the settlement system. The location of base camps may have shifted seasonally between resource zones. Alternatively, the large sites may be macro-social unit camps in a fusion/fission cycle of settlement, which again may have shifted seasonally between resource zones. This scenario is more in accordance with the current data. Many of the

smaller Middle Woodland sites contain a wider variety of artifacts and features than would be expected at camps created during forays from a base camp.

Data on subsistence are best for coastal areas of the region where there is a clear connection with the practices of earlier times (cf., Waselkov 1982; Custer 1988; Barber 1993). Based on data from Virginia, through the Middle Woodland period there was a reduction in the variety of the types of shellfish used, although this food source was exploited at all times of the year (Potter 1982; Waselkov 1982; Custer 1988:130).

Through an examination of fish behavior and ecology, and Native American technology, Schindler (2008) has shown that the intensive use of fish resources need not have constrained the timing of settlement movements and social cooperation, nor dictated the extensive use of storage or preservation technologies for Middle Woodland peoples in the Middle Atlantic region. This research highlights the utility of approaching archaeological problems from the perspective of cultural or human ecology.

The logic of this analysis needs to be taken further. How numerous and widespread are the settings where fish of a specific species are best taken given the time of year? Are all fishing related sites situated in the best places to fish given the time of year and the species being targeted? Can we infer a lack of interest in a particular species given the lack of sites situated in appropriate settings? Are some sites situated in secondary or ephemeral locations? Such data would improve our understanding, albeit indirectly, of the number of groups seeking the resource, whether the best fishing grounds are extensive and held in common, or if ideal fishing localities are limited generating competition and the use of less attractive settings and perhaps different fishing technologies.

Fishing does not have to be conducted as a large-group, cooperative activity in order to provide food year round. But was it? What would archaeologists need to see to indicate that fishing was a large-group activity involving groups from diverse sections of the Delaware Valley? Or, barring its role as a managed cooperative endeavor, could seasonal fishing at select locations served as the locus of one group mounting a feast for a gathering of groups?

One way to approach these questions would be to consider evidence that might reflect group diversity (if not group size) at sites related to fishing. If we are willing, for example, to associate some level of ceramic diversity (technological and/or decorative style) to specific groups, then sites where groups come together should reveal greater ceramic diversity than sites where smaller or fewer groups are represented.

Excavation 14 at the Abbott Farm, as Schindler has noted, is a logical place to evaluate evidence of fishing by Middle Woodland peoples. Ceramic diversity associated with Middle Woodland deposits at Excavation 14 and its extension into Roebing Park (*cf.* Cross 1956; Stewart 1998:141-157; Volk 1911:72-83) would appear to far outstrip diversity within any ceramic assemblage at contemporaneous sites in adjacent areas, regardless of the presumed functions of the occupations and the influence of settlement movements on where and with what materials pots were being made. These assertions have yet to be tested, but numerous technical reports, artifact collections, and published works are available for analysis of this sort.

A contributing factor in support of the group gathering argument is the occurrence of unique wares collectively referred to as Abbott Zoned Decorated pottery, described by Cross (1956) and Pollak (1971), but recognized earlier for their distinctness by Volk (1911) and Holmes (1903). This pottery is concentrated at Excavation 14 and Roebing Park, although there are

sporadic finds of this material in the broader region. It has been suggested that these vessels served in some capacity at public gatherings, with their infrequent occurrences elsewhere representing some token or reflection of group interaction.

It would be interesting to see how Schindler's type of analysis of fish resources would play out in other major coastal drainages of the Middle Atlantic Region. The documented use of fish by native peoples begins during Paleoindian times in the Delaware Valley. A heightened interest in fish and shell fish arguably begins during the Late Archaic period and seems to gain its greatest expression during Middle Woodland times. This trend is seen to varying degrees across the Middle Atlantic region, at least for coastal areas (e.g., Waselkov 1982; Custer 1989; Mouer 1991; McLearn 1992). A detailed understanding of the ecology of the fish/shellfish resources across the region will be critical for unraveling the socio-cultural processes behind this trend.

Later Middle Woodland peoples certainly had some knowledge of domesticated crops given the known dates for maize and other cultigens in the broader region (Adovasio et al. 1981; Smith 1995). Mouer (1989) argues that coastal peoples were farming or selectively nurturing the starchy and carbohydrate-rich roots and tubers found in swamps and marshes. The introduction of tropical domesticates did little to alter coastal adaptations, since rich and predictable sources of plant foods were a traditional part of the subsistence system. Conversely, in the Piedmont where naturally abundant sources of similar plant foods were lacking, the adoption of cultigens had a more visible effect on both settlement and subsistence systems. In the Shenandoah Valley, shifts in the location of sites within the floodplain have been construed as a reflection of the importance of plant foods during the Middle Woodland period (Gardner 1986:73-74).

Comparable shifts within western sections of the region cannot be seen, owing to a lack of data on sites and cultures of late Middle Woodland times.

The volume of trade in goods with origins within the Middle Atlantic Region increased after A.D. 200 and persisted until approximately A.D. 800. It is most evident in assemblages associated with Fox Creek/Selby Bay and related biface styles, and the ceramics that co-occur with them (Mockley and its cognates). The dominant flow of goods was decidedly from western interior areas to the Coastal Plain, and then south and north through coastal areas. After A.D. 200, few extra-regional goods are found on the Middle Woodland sites of the Piedmont and Coastal Plain of the Middle Atlantic region. The economic pursuits on the Coastal Plain served as one basis for interaction among large groups of people, and would have promoted trade.

There is the possibility that migrations and population replacements may have affected portions of the Middle Atlantic region. Based primarily on linguistic data, Fiedel (1987, 1990) identifies two waves of proto-Algonquian migrations through the region sometime between 600/200 B.C. and A.D. 300/700. This work refines and updates the earlier research of Luckenbach *et al.* (1987). Custer (1987b) employs an analysis of design grammars on pottery and ceramic style zones to postulate an Algonquian migration. His ongoing research with Webb Complex materials in Delaware indicates that this population movement may have occurred during the Middle to Late Woodland transition in the area, somewhat comparable to Fiedel's second wave of proto-Algonquian migration (Custer 1987b:21-23; 1988). Studies of early Late Woodland cultures in western sections of the Middle Atlantic Region also suggest that population movements may have occurred sometime prior to A.D. 700/800 during Middle Woodland times (Stewart 1994b). In these same areas, however, our inability to recognize late Middle Woodland cultures limits any speculation.

The Middle and Lower Delaware Valley were clearly linked to regional social and economic patterns of the Coastal Plain during the Middle Woodland. The settlement models described by Gardner (1982) find support in the available archaeological evidence. Intensive research at site complexes like the Abbott Farm show that there was multi-seasonal, large-group settlement at locations adjacent to productive wetland and riverine settings, followed by the splintering of the group into smaller family units and hunting and gathering over a broader territory. During the late fall and winter, some of these family groupings may have returned briefly to habitats near the original, large-group communities. Forays into the Piedmont of southeastern Pennsylvania, and northern sections of the Middle and Upper Delaware Valley were also postulated.

Lithic utilization patterns in the Delaware Valley help to define what appear to be distinctive group territories. This is best seen by considering the location of natural sources of argillite, jasper and chert. The prehistoric use of argillite does not exhibit a gradual fall-off pattern with distance from natural sources. The majority of sites near or adjacent to useful sources of argillite in the Piedmont show a preference for other types of lithic materials, notably jasper. Although the use of argillite in these areas changes through time, it generally does not account for more than 50% of the artifacts on sites of the region (see for example, Kingsley *et al.* 1990). In Coastal Plain areas of the Delaware Valley, and at great distances from natural sources of argillite, the frequency of argillite use is substantially greater than in areas immediately surrounding natural sources. Argillite can account for 70% to 100% of artifacts on Coastal Plain sites of the region.

The heaviest users of argillite were aboriginal groups from coastal portions of the Delaware Valley during the period 3000 B.C. to A.D. 900. The areas in southeastern Pennsylvania in which argillite occurs

as a natural deposit were not part of the overall territory of these coastal peoples. Argillite appears to have been regarded as a resource held in “common” by a variety of prehistoric cultures. Argillite quarries, quarry-related workshops, and archaeological sites containing high percentages of argillite artifacts tend to cluster along the Delaware River and major navigable tributaries, i.e., natural transportation routes. Native American groups whose home territories encompassed the areas where argillite occurs as a natural deposit, in contrast, were using the rock less intensively for the manufacturing of tools. These people opted, instead, for local jasper and chert as the raw material for tool production.

3. Late Woodland Period, c. A.D. 900 – A.D. 1750

Native American populations were organized in hamlets and/or villages during the initial stages of the Late Woodland period. For most of the Middle Atlantic region this entails the time prior to A.D. 1200-1300; in the Upper Potomac and northern Shenandoah valleys, it is the time before A.D. 1300-1400. Hamlet-like settlements were evident on the Delmarva Peninsula and in the Lower Delaware Valley, where cultigens do not appear to play a role in subsistence strategies. Regardless of the specific subsistence system, by the Late Woodland period all groups were operating from a sedentary base within a relatively small territory, or at least a territory demonstrably smaller than in previous times. Throughout much of Delaware and southern New Jersey, productive and predictable estuarine resources were capable of supporting sedentary populations without the need for agriculture. In similarly rich coastal areas to the south, maize and farming-oriented settlements were not pervasive until sometime after A.D. 1300-1400.

There were clear differences in the degree of social complexity exhibited by prehistoric cultures during the first half of the Late Woodland period. Mound

and cairn burials in portions of the Susquehanna and Potomac drainages distinguished the cultures of these areas from the remainder of the region (Stewart 1993; 1994b; Gardner 1986:77-92). These mound-building cultures were not continuous with mound-building cultures found in the same area during the first half of the Middle Woodland. Analogies for the social systems linked with the mound builders have been drawn with “big man” types of societies and tribal organizations (Gardner 1986:85; Hay *et al.* 1987:60-62; Stewart 1994b:29-31).

There were no appreciable differences in the intensity with which agricultural products seem to have been used from drainage to drainage; as yet, social complexity cannot be equated confidently with productive intensification and organization of work. While agriculture may have spread as part of a “package” involving plant technology and certain ideologies, its acceptance by groups of varying social complexity implies that it was viewed by Native American peoples as a solution to some common economic problems.

As noted by Custer (1986:161), because maize cultivation was not independently developed within the Middle Atlantic region, its presence throughout the area at basically the same time during the Late Woodland period implies extensive outside interactions. In particular, the interaction of Middle Atlantic peoples with groups to the north in Iroquoia, and to the south and west in the Ohio Valley, is viewed as a major stimulus in the adoption of agriculture and the development of social complexity. The great similarity in material culture and adaptations throughout the Appalachian Highlands prior to A.D. 1300 is evidence of the intensity of these interactions.

Between A.D. 1300 and 1400, a number of cultural changes became evident that persisted until historic times, or until the disruptions linked to the Susquehannock migration through the northern and

central portions of the region during the 16th century. Populations were nucleating throughout much of the region, settlements were larger and more planned in nature, and the occurrence of stockaded villages in many areas implies inter-group hostilities. Nucleation appears to have occurred even in portions of the region where settlements were not fortified, such as coastal zones of the Potomac Valley (Potter 1982). Also, a number of authors have presented evidence for population movements and population displacement at this time (e.g., Clark 1980; Gardner 1986:79-80; Graybill 1989). The effects of the Little Ice Age on climate and environment may have altered the productivity of agriculture in some western portions of the region where the growing season was short under normal conditions.

The basic assumption made by most researchers is that population growth during early segments of the Late Woodland period resulted in the fissioning of settlements (hamlets/villages) and the expansion of new groups into previously unoccupied areas. Through time, population densities reached the point where further fissioning and expansion of populations and settlements were not possible. Evidence of increasing population densities is seen in the location of sedentary settlements in more peripheral environments not inhabited by groups earlier in the period. However, these data have not been quantified; site densities cannot be objectively compared among the drainages of the region.

Nucleation into planned villages, intensification of subsistence production, concomitant elaborations in social organization and, ultimately, inter-group conflict were the presumed results in this generalized scenario of Late Woodland cultural change (e.g., Hatch 1980:325-326; Gardner 1986:71-92; Graybill 1992). Small population movements, possibly stimulated in part by shortfalls in agricultural productivity as a

result of the Little Ice Age, would have been another source of potential hostility between communities and a reason for the nucleation of groups (Custer 1986).

The time between A.D. 1300 and 1400 seems to have been critical throughout the Eastern Woodlands, as was dramatically summarized in a series of papers presented at the 1992 meetings of the Society for American Archaeology (Hart 1992). Population pressure, environmental stress and socio-political relations were shown to have been influential in transforming Late Woodland societies over a vast area. The significant point is that not all of these factors were operative on all of the cultures in the Eastern Woodlands; rather, the effects of the Little Ice Age had a dramatic effect on the functioning of agricultural societies in some northern and western sections of the Eastern Woodlands, while population densities are seen as having been influential in other areas. Each of these changes to individual cultures, however, had a domino effect on neighboring peoples. Abandonment of areas where the growing season was insufficient to support maize agriculture forced some groups into new areas and different contacts with other peoples. In turn, these new socio-political relationships reverberated through adjacent groups where previously environment, adaptation and society had been functioning on a relatively stable level. In short, the cultural landscape had filled to the point where changes in one part of the Late Woodland "world system" influenced other components or members of the system. Late Woodland cultural changes in the Middle Atlantic region must be studied and understood at different scales—local, regional and global.

Defensive settlements, population nucleation, growth and/or re-organization of settlements, and population movements or displacement were noticeably lacking in the Delaware Valley. What accounts for this cultural conservatism seen in the Delaware Valley through the Late Woodland period? Why do we not

see the gradual population growth and expansion that was an outgrowth of small, agricultural communities in other areas of the region?

Differences in the environmental potential among drainage basins in the region were clearly not at the root of the matter; all included relatively productive coastal zones, and interior riverine areas possessed considerable acreage suitable for farming. Explanations for these differences may relate to the nature of social organization at the time that agricultural communities got started. In much of the Susquehanna and Potomac basins, the society of the earliest farming cultures was already elaborated beyond that seen in the Delaware Valley, judging from the occurrence of mound burials and attendant ceremony and the probable economic and social linkage of multiple communities. If one assumes that the initial social complexity seen in these areas drove the organization of work and productive intensification, which in turn led to population growth and expansion, this might shed light on the slower rate of social and community development in the Delaware basin. Equally significant may have been the relationship between cultures of the Delaware Valley with Owasco and proto-Iroquois peoples to the north. Because neither the environment nor distribution of natural resources seem to have been limiting factors in either case, more socially or politically grounded explanations must be sought for the observed patterning.

Most assume that the presence of triangular projectiles in Late Woodland assemblages implies the existence of the bow and arrow. If this assumption is accepted, then there may have been attendant changes in hunting practices, i.e., greater mobility on the part of the hunter and possible shifts in the status accorded hunters and the craft specialists responsible for the creation of weaponry (e.g., Seeman 1984:10-17). As a weapon, the bow functions more efficiently in a wider variety of situations than the spearthrower, which is most useful in close-range ambush situations (Blitz

1988). If it is assumed that a certain degree of status was attributed to the hunter skillful with a spear and spearthrower, then the introduction of the bow could have served to make better hunters of a larger number of people; the social status of the hunter may have diminished from its pre-bow level.

The role that the bow and arrow may have played in technological changes during early Late Woodland times is difficult to assess. The stone portion of the projectile was easily made on a flake, but nonetheless needed to be of a certain morphology and weight to function effectively in conjunction with an arrow shaft (see Blitz 1988 for review). On the basis of ethnohistorical data, the production of the arrow shaft and the bow itself seems to have been accorded more importance and was the work of specialists (Seeman 1984).

Late Woodland tool production was firmly grounded in a core and flake technology. Bifaces persisted in tool kits to some degree, but they were typically made on flakes derived from cores, not from progressively reduced chunks or bifacial blanks or stages. The technological shift from Middle to Late Woodland times could have marked a change in who was making tools within aboriginal society. A core and flake technology would have been more accessible to a broader segment of the adult population. The re-emphasis on cryptocrystalline lithic material during the Late Woodland, in contrast to the more catholic preferences of Middle Woodland times, may have been related to this shift in stone tool production. The lack of appreciable trade in chipped stone projectiles during Late Woodland times (Stewart 1989:63-65) was perhaps an additional reflection of the decline in the importance of the knapper.

The decline in the exchange of archaeologically visible items during the Late Woodland period is puzzling considering the social functions of trade and the conditions that originally fostered regional networks (Stewart 1989). It is possible that, through

time, perishable goods were used more frequently in transactions and these are simply not well preserved in archaeological deposits. It is also possible that trade relations were left increasingly in the hands of real or putative heads of kin groups or communities and that exchanges involved fewer but more symbolically powerful items (Hall 1977; Kuhn 1987:306). However, the southern half of the Middle Atlantic region stands out as an area where marine shell and copper were mainstays of an exchange network once dominated by items made from stone (Stewart 1989:65).

C. THE ABBOTT FARM NATIONAL HISTORIC LANDMARK

The Abbott Farm National Historic Landmark and its environs are situated immediately below the fall line of the Delaware River drainage, the geological demarcation between the Coastal Plain and Piedmont physiographic provinces in New Jersey. This boundary, marked by a series of rapids in the Delaware River, also coincides with the approximate head of tide, although the waters just downstream of the fall line remain relatively fresh, except in cases of extreme drought. The Trenton vicinity was an ideal location for Native American settlement largely because of the accessibility of a wide variety of exploitable habitats. From at least the Archaic period onward, the tidal wetlands draining into Crosswicks Creek just south of Trenton offered a rich range of plant and animal resources. Anadromous fish (i.e., fish ascending the river to spawn) provided a reliable, high-volume food source that could be easily harvested from local waters during the early spring. The adjoining upland, the rim of which is lined with abundant springs, provided a dependable source of drinking water as well as supplemental food resources not found in the wetlands and floodplain terraces. The Pleistocene terrace gravels offered an abundance of cobbles, a reliable source material for the fabrication of lithic tools, while other useful lithic raw materials, such as argillite, jasper

and chert, outcropped nearby along the banks of the Delaware River, Assunpink Creek and other larger streams. Finally, clays suitable for making pottery and lining pits are accessible in stream cuts along the bluff edge and in the wetlands (Stewart 1990; Wall *et al.* 1996a).

1. The Evidence for Native American Occupation

To date dozens of archaeological sites representing the activities of Native Americans over the past 13,000 years have been documented in and adjacent to the Abbott Farm National Historic Landmark (AFNHL) (Figure 3.1). These sites are known because of the activities of professional archaeologists performing cultural resource management studies on behalf of a government or agency sponsor, museum and academic professionals pursuing research interests, amateur archaeologists interested in local prehistory and history, and artifact collectors who have brought their finds to the attention of professionals.

The actual number of known sites, and the degree to which they represent the total Native American archaeological record of the area, is difficult to ascertain with accuracy. The problem stems from two issues: 1). the degree to which any field effort was able to determine the boundaries of a deposit; and 2). the various ways in which the term “archaeological site” is defined. A site is often defined as a spatially bounded cluster of artifacts representing the activities of a group. There are large portions of the AFNHL where the distribution of artifacts and cultural features is nearly continuous across space, although the nature and frequency of artifacts and features varies. The bluff margins fronting the marsh and wetlands of the landmark are such an area.

The AFNHL has produced evidence of Native American presence extending through the whole time range of regional prehistory. However, it is only

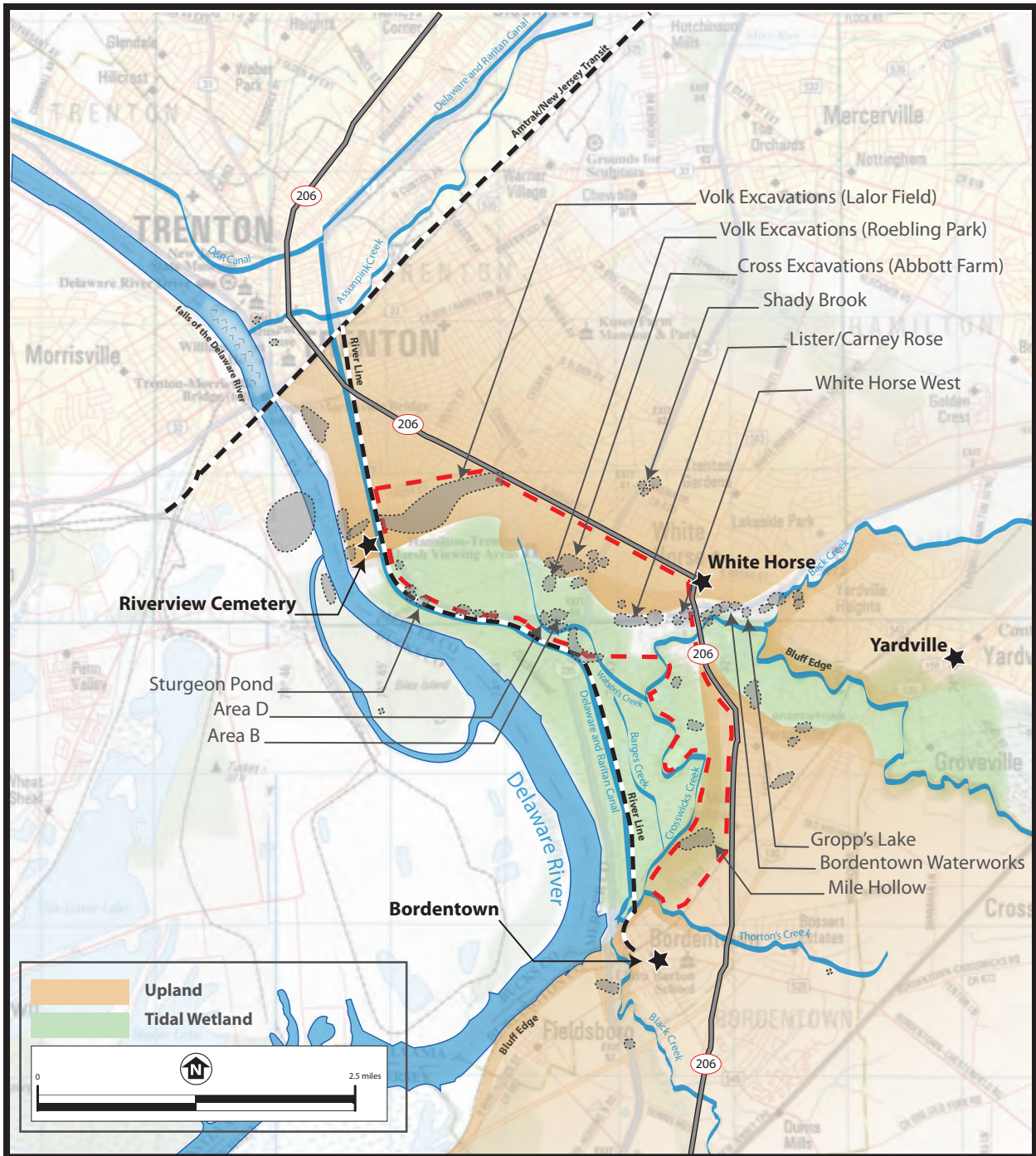


Figure 3.1. Native American Archaeological Sites within and close to the Abbott Farm National Historic Landmark. Approximate boundaries of the Abbott Farm National Historic Landmark indicated with dashed line.

around 4,000 to 5,000 B.C. that the area begins to experience consistent reuse by native peoples; occupation of landmark landscapes before this time is sporadic. In part, the initiation of this focus may be related to an increased interest on the part of Native Americans in plant resources (mast, seeds, tubers, greens, etc. for food, medicine, and raw materials) and fish, and the representation of such resources in and adjacent to the AFNHL marsh and wetlands. Use of AFNHL environs intensifies through time as seen in an increase in the number of deposits, the activities represented, and the seasons of the year during which occupations take place. During certain seasons of the year, portions of the landmark may be the focus of group gatherings, both for economic purposes (e.g., fishing) and social interaction. This seems especially evident during the time from A.D. 200 to A.D. 800. A unique set of pottery designs dating to this time, and with their apparent origin at the Abbott Farm, are found north into southern New England, and south into coastal Virginia. It should be noted that no group seems to live in the area on a permanent, year-round basis.

After A.D. 900 the farming of crops (initially maize and probably squash; beans are added after A.D. 1300) is adopted and results in a slight shift in the location of major settlements. Broad sections of the Delaware River floodplain (e.g., the Waterfront Stadium area of south Trenton) are targeted for farming hamlets. The adoption of farming does not result in the abandonment of previous economic practices, and environment and resources traditionally exploited continue to be so. The allure of the AFNHL area is that diverse environments are so positioned as to make it fairly easy to accommodate farming and the traditional use of the marsh and wetlands. Farming settlements in the area never develop into the highly organized, nucleated, and often stockaded villages seen in neighboring watersheds of the Middle Atlantic Region such as the Susquehanna. Social and political processes, as yet poorly understood, are obviously at work among the

native inhabitants of the Delaware Valley, making it relatively unique in the bigger picture of Native American prehistory.

While many scholars and disciplines have promoted our view of the time of contact between native peoples and Europeans through the use of documents, historic, ethnohistoric and ethnographic sources, the focus here is upon the archaeological expression of events. It is necessary to have a comprehensive view of pre-contact life to fully realize the potential of an archaeological perspective in addressing cultural continuity or change during contact and interactions with Europeans. Further, for years the archaeological study of native peoples during the contact/historic period has been hampered by questionable assumptions of what relevant sites or deposits should look like – for example, that they be loaded with trade goods, and structurally different from their prehistoric precursors. Setting aside such assumptions and giving closer attention to archaeological systematics, has changed this situation, and sites within the AFNHL contribute to this view.

Stone tool and ceramic technologies of Late Woodland/late prehistoric times (post-A.D. 900) persist through the 17th century and into the 18th century, and are used in conjunction with European-made implements gained in trade. Items gained in trade are integrated into longstanding native technologies and the social relations in which they are embedded. Trade goods, whether of a practical, social or ideological nature, are integrated into the systems within which traditional material culture continues to function. European trade goods are heavily curated and recycled, finding their most visible archaeological expression in Native American burials. In some respects trade goods seem to provide symbolic equivalents to late prehistoric grave goods. However, in many cases the nature and number of grave goods with a European origin reveals a shift in pre-contact native mortuary practices. Mortuary features of the Contact period

and historic times, as a group, contain more grave goods, and goods of a more varied nature, than mortuary offerings associated with internments of the 1,000 years pre-dating contact with Europeans.

This pattern in the use of European-made goods is one of the major reasons that archaeological surveys have failed to identify Native American settlements and activity areas dating to the time of contact with Europeans. Because such sites (excluding mortuary features) contain relatively few European goods, they are often mistakenly associated with the Late Woodland or late prehistoric period. The size and organization of individual settlements remain consistent through time, as do an economic reliance on farming and fishing. However, the location and environmental setting of settlements, and where economic activities take place, shifts by the 18th century.

2. Native American Subsistence

Hunting and Gathering:

Native peoples in the Delaware Valley and Trenton area hunted and gathered what they needed to survive for thousands of years before farming was added to their way of life sometime after A.D. 900. Even then, these traditional pursuits were not abandoned, but simply adjusted in ways that reflected an accommodation to the requirements of farming. But there is more than one way to be a hunter gatherer in the Delaware Valley, and the archaeology of the AFNHL reflects the diverse practices that were followed at particular times in the past. Unfortunately, the notion of what it means to live off the land to the average person today does not encompass such diversity and the implications that it has for society and culture. The ancient world is much more complicated and interesting because of this.

The hunting of deer by Native Americans kept the deer population at a certain level, which in turn affected the nature of the habitats from which deer derived sustenance. With lower deer populations the plants and shrubs upon which deer forage have a better chance of flourishing; a deciduous forest with few deer will look different from one in which deer are plentiful. It has been argued that during the time when native peoples (Paleoindians) first entered the Delaware Valley they may have hunted mastodon and mammoth, now extinct, elephant-like creatures. This type of animal eats hundreds of pounds of forage on a daily basis, and would thus have a substantial impact on the nature of the plant environments in which it lived. Take these megafauna out of the picture, as human predation may have done, and you impact the nature of the plant environment.

There are a large number of plants native to the local area and the AFNHL that Native Americans may have found useful for food, medicines, and raw materials for producing things like baskets, cordage, nets and other textiles. Further, there has always been some type of wetland present within the AFNHL, even prior to sea level rise that is responsible for the creation of the fresh water tidal marshes that are present today. This is due to the topography and elevation of the adjacent bluffs, the streams that cut through the bluff, and the ground water fed springs that break out along its slope. So not only useful terrestrial plants can be found in the area throughout time, but also those associated with aquatic and wetland habitats.

We know from the anthropological study of living hunter gatherers that they may do a number of things to nurture and support the survival of wild plants that are considered to be useful. This can include weeding wild stands of plants, coppicing certain types of shrubs or trees, re-planting/re-seeding, and transplanting. In light of this, we have to ask ourselves to what degree does the diversity of plant species, their frequency and distribution in the local environ-

ment relate to the activities of the people of the past? We take for granted that the actions of more recent and historic populations have had such an effect on the environment when we see ornamental plantings growing out in the woods, or encounter Japanese honeysuckle, garlic mustard, or multi-flora rose while hiking local trails. The effects of farming during historic and modern times in the local area is easily seen in the distribution and low frequency of old trees and distinctive “plowzone” horizons in soil profiles.

So in a sense, the environment of the AFNHL is domesticated in that humans, either intentionally or unintentionally, have shaped it to varying degrees. From the perspective of human ecology, it is the nature of the physical environment through time that has served to attract humans to the local area.

Farming:

Farming is not something that the average person typically associates with the ancient peoples of the Delaware Valley, or Native Americans in general. Yet the use of domesticated plants had a profound economic, cultural and social impact on the native peoples who incorporated farming into their way of life and relied on the agricultural produce to varying degrees.

Native peoples did not completely abandon the area as Europeans settled in the Trenton area. Native sites of the historic period exist and at least one in the AFNHL can be dated to the 18th century, well after concerted European settlement had begun. Nor were traditional crafts like the making of stone tools and pottery abandoned as natives gained access to European-made goods.

As has been noted, the farming of domesticated crops is practiced to varying degrees after A.D. 900 in the Trenton area and other portions of the Delaware

Valley. This occurs after thousands of years of a way of life based upon hunting and gathering. What is interesting is that farming does not seem to catch on in the Lower Delaware Valley (i.e., southern New Jersey) where there are numerous resource-rich marshes and wetlands. Why is farming adopted when it is, and not sooner? Domesticated forms of maize, squash, and beans, as well as domesticated forms of plants native to the Eastern Woodlands were in existence over 1,000 years prior to A.D. 900. Why does farming take hold in the Trenton area where productive marshes and wetlands supported hunter gatherers for millennia, but not in some downriver portions of the watershed where equally productive wetland habitats exist?

Fishing:

Fishing has been a part of Native American subsistence practices from the earliest settlement of the Delaware Valley, nearly 13,000 years ago, through to the time of contact and interaction with Europeans during the 17th and 18th centuries. What was fished, the technology involved, the importance of fish (and shellfish) in the Native American diet, and the social interactions that fishing required and promoted have all changed through time.

Fishing and shell fishing gain in importance in the Delaware Valley and broader region after 3,000 B.C. This trend can be linked to several factors. The rate of sea level rise slows between 3,000 B.C. and 2,500 B.C. allowing for the stabilization of marine, estuarine and riverine habitats. This environmental change would have had a dramatic impact on anadromous fish (e.g., sturgeon, shad) populations. Native American populations have increased and there is a noticeable reduction in the size of the geographic territory over which they traditionally move. Further, there appears to be a well-defined cyclical reuse of specific habitats and sites. Places where fishing could have been profitably carried out by groups large or small are among

these. Native hunter-gatherers are focusing more on locally available resources and devising ways to intensify subsistence production. The size of the group that lives and works together in single communities also appears to have gotten larger relative to earlier times. Moderate to intensive fishing is practiced beginning sometime between 2,500 B.C. and 1,000 B.C.

The most intensive fishing of the prehistoric era occurs between A.D. 200 and A.D. 800, both in the Delaware Valley and the general Middle Atlantic Region. Anadromous fish are a rather unique resource. The more effort/labor directed towards their exploitation, the more potential return in terms of consumable and storable food. Fish runs could withstand intensive exploitation without critically endangering the long-term health of fish populations (witness the incredible pressure that the fishing industry placed upon the resource during historic times before it started to collapse). Archaeologists see the increased emphasis on fishing between A.D. 200 and A.D. 800 as a signal of the re-organization of traditional labor. Harvesting large quantities of fish, and processing them before they spoil, requires intensifying labor and coordinating the efforts of a group that goes beyond that of the extended family. Subtle changes in the social organization of groups may also be inferred from this.

Some sites represent a combination of seasonal fishing and a somewhat settled, residential base. This occurs where fishing grounds are located in proximity to other types of habitats and useful food resources. The AFNHL is a good example of how the juxtaposition of diverse and productive environments can support multi-seasonal activities and occupations by native peoples.

Fishing was also an important industry in the Euro-American development of Trenton and adjacent areas. At the turn of the 20th century, after decades of intensive fishing and in the face of water pollution, the Delaware River could still produce five million

pounds of sturgeon on an annual basis (Jordan and Evermann 1905:4). The 500,000 shad that come into the Delaware Basin on a yearly basis today come nowhere close to the level of fish populations documented during earlier historic times. In 1896, 4 million pounds of shad were caught in the Delaware Bay, 10 million pounds in the tidal portions of the river, and one million in the river above the falls (Stutz 1992:84-85).

D. THE NATIVE AMERICAN DESCENDANT COMMUNITY

The role of Native American descendants and tribal members is an important factor to be considered in the development of the AFNHL interpretive plan. It would be ironic to ignore descendant communities while expending talent and resources in getting the public to appreciate local Indian history, ancient or more recent. How to bring Indian groups into the interpretive process is difficult to address in the context of this brief report, although it is appropriate to try and reach out to all descendant groups of Native Americans inhabitants of the Middle Delaware Valley. Owing to the complicated politics of Indian identity and legal status it is important that great care be taken in identifying descendant groups and individual points of contact. Furthermore, situations may arise where narratives about Native American life that are chosen for incorporation into the interpretive plan may be in conflict with narratives that the descendant communities would prefer to promote. Rather than see this as a potential stumbling block, such differences should be embraced as an opportunity to educate the public about why alternative viewpoints exist and how they might be reconciled. This would involve forays into the political history and the politics of power, the nature and value of oral traditions/oral history, and how a scientific approach to the past operates.

For a very readable account of the various descendant Delaware groups based primarily on documents, and incorporating previous syntheses, the reader is referred to Amy C. Schutt, *People of the River Valleys: The Odyssey of the Delaware Indians* (2007).

Within the Delaware Valley there are no federally recognized tribes. Federally recognized tribes whose ancestral homelands were in the Delaware Valley include:

- The Stockbridge Munsee, Bowler, Wisconsin (www.mohican-nsn.gov)
- The Delaware Nation, Anadarko, Oklahoma (www.delawarenation.com)

The Delaware Tribe of Indians, Bartlesville, Oklahoma (www.delawaretribeofindians.nsn.us) is situated within the Cherokee Reservation and has been granted and lost federal recognition. This group is in the process of trying to regain its federal status. There is also a Delaware tribe based in Canada.

In New Jersey there are Native American groups that have been recognized by the state. These include:

- The Nanticoke Lenni-Lenape Tribe of New Jersey (Bridgeton) (www.nanticoke-lenape.org)
- The Ramapough Lenape Indian Nation (Mahwah) (www.ramapoughlenapenation.org)
- The Powhatan Renape Nation (Rancocas) (www.powhatan.org)

There is also a New Jersey Commission on American Indian Affairs currently chaired by Lewis Pierce, a member of the Nanticoke Lenni-Lenape Tribe. The commission maintains a website at http://www.state.nj.us.state/american_indian/one/index.html.

There are Native American groups located in Pennsylvania with potential ties to the Delaware Valley, although it is unclear if the State of Pennsylvania has formally recognized them. They include:

- The Lenape Nation of Pennsylvania (Gilbert) (www.lenapenation.org)
- Eastern Delaware Nations (Mountville) (www.easterndelawarenations.com)
- Thunder Mountain Lenape Nation (Saltsburg) (www.thundermtlenape.org)

Chapter 4

LAND USE HISTORY

A. COLONIAL SETTLEMENT

Both the Dutch and the Swedish states had maintained a presence in the Delaware Valley for almost 40 years prior to the arrival of the English, but neither had any substantial influence on the lands contained within the Abbott Farm National Historic Landmark (AFNHL). Their supply ships plied the brackish waters of the Lower Delaware, while Dutch and Swedish soldiers manned the iron and brass cannon on the bastions of their primitive river fortifications. Dutch adventurers arrived first, establishing an outpost in the wilderness on Burlington Island, the original intended seat of the Dutch West India Company in North America. Had the initial plans of the West India Company's directors come to pass, the city of New Amsterdam would have risen on the banks of the Delaware River at the mouth of Assiscunk Creek. Instead, the small group of Walloons planted by the company on Mattinecunk Island in 1624 was soon relocated to the tip of Manhattan Island and planted the seed of the settlement that would ultimately become New York City (Weslager 1969:vii).

The Swedes established what is generally held to be the first permanent European settlement in the Delaware Valley: Fort Christina, located near the site of modern day Wilmington. Unlike the Dutch West India Company, the powers behind the Swedish enterprise were focused, at least initially, on planting a successful colony on the Delaware River, rather than establishing ephemeral fur trading networks. The Swedes purchased vast tracts of land from the Indians and began to settle in clusters of farmsteads that were heavily dependent on the river for access to the outside world. As a result, these farms were typically oriented towards the creeks and streams that drained

into the Delaware, and the zone of settlement covered the fertile plain that extends along both sides of the river between the site of present-day Philadelphia and the head of Delaware Bay. These farming communities were established directly under the resentful noses of the Dutch, who claimed sole right to the lands of the Delaware Valley. Fortunately for the Swedes, when their ships first arrived on the river, Dutch Fort Nassau was garrisoned by only about 20 men. With insufficient troops or armament to oppose the new arrivals, the Dutch representatives could only bluster helplessly of their claim to the territory the newcomers intended to settle.

The limits of the lands that the Swedes aimed to settle were outlined in a set of instructions issued by the Swedish crown to the newly appointed Governor of New Sweden, Johan Printz, upon his departure for the colony in 1642:

“... the boundaries of the country which our subjects have taken into possession, extend through the medium and by virtue of the deeds entered into with the wild inhabitants of the country, as its rightful owners, from the sea-coast at Cape Hinlopen, upwards along the west side of Godin's bay, and thus further the Great South River, unto Minque's Kil, where Fort Christina is located, and then still farther the South River and up to a place the wild inhabitants call Sankikans, where the further-most boundaries of New Sweden are to be found” (Johnson 1930 [1642]:68).

The place the “wild inhabitants call Sankikans” was the farthest flung limit of either Swedish or Dutch influence on the middle and lower Delaware. The

word “Sankikans” or “Sanhicans” as it was sometimes spelled appears in numerous 17th-century descriptions of the South or Delaware River and on a number of similarly dated cartographic depictions. The term had a dual meaning. It was alternately used to refer to an Algonquian-speaking Native American people that populated an area extending roughly between the modern-day site of Trenton and the east bank of the Hudson opposite Manhattan and to a specific location near the “Falls of the Delaware” that probably included the northernmost part of the AFNHL.

Although the Swedes held that Sankikans was the northern limit of their settled area, the first Europeans to actually take up lands on the east bank of the Delaware River within the immediate vicinity of the AFNHL were almost certainly Englishmen. On March 12, 1664, King Charles II of England, in an act of flagrant nepotism, granted his brother James, the Duke of York, a patent for title to property in North America including land in Maine, Long Island and all the territory between the Connecticut River and the Delaware Bay. On June 24 of the same year, out of this familial largesse, James granted the lands roughly comprising the present-day State of New Jersey to two political allies and supporters, Lord John Berkeley (also sometimes spelled “Berkley”) and Sir George Carteret. Both the King’s generosity to his brother and the Duke of York’s generosity toward Berkeley and Carteret were tempered by the fact that the lands between the Connecticut and Delaware Rivers were still under Dutch control at the time of both sets of grants. This was viewed as little more than a technicality by the royal siblings as England had never acknowledged Dutch claims to New Netherland, and an English initiative was in any event under way to forcibly remove the Dutch West India Colony from its seat in New Amsterdam (Pomfret 1956:65-105).

A substantial English naval expedition was organized, placed under the command of Colonel Richard Nicolls, and dispatched for Boston Harbor, which was to serve

as the principal staging point for an assault on the Dutch-controlled Hudson River. On August 28, 1664 the English fleet entered New York Bay. Without any means of effective defense against an English force of this size, the Dutch Director, Peter Stuyvesant, was forced to surrender Fort New Amsterdam the following day.

Although, with the fall of New Amsterdam, the English effectively took over control of New Netherland, it was not until late in September that English troops were sent south to remove the last vestiges of Dutch control from the Delaware River. In 1673 war broke out between Holland and England and for a few months (between November 1, 1673 and February 4, 1674), the Dutch briefly regained and held control over their former colony of New Netherland. The Treaty of Westminster of 1674 returned these territories to the English, with the final transfer of authority from the Dutch to the English taking place on November 10, 1674. All of the Delaware Valley once again fell under the control of the English Crown.

The future of the Delaware Valley changed dramatically on March 18, 1674, when Lord John Berkeley sold his ½ share of the proprietary rights of New Jersey to two English Quakers, Edward Byllynge and John Fenwick, for £1,000. Byllynge provided most of the financial backing, but was himself in the midst of bankruptcy. He probably viewed the purchase as an investment through which he could quickly reclaim both his reputation and misspent fortune. Unable to formally participate in the purchase due to these ongoing bankruptcy proceedings, Byllynge arranged for Fenwick to “front” the transaction on his behalf (Pomfret 1956:65-68).

Fenwick and Byllynge had a dual motive in making such a large investment in a largely unknown and distant land. First and foremost in their minds was profit. Second, probably a distant second, was the goal of establishing a refuge for English Quakers.

The territory they were purchasing was envisioned, both by them and their Quaker brethren, as a colony with cheap and plentiful land, free of the religious persecution and the morally corrupting influences encountered in England.

Fenwick and Byllynge could not agree on the best manner in which to settle their colony. The squabbling over this issue became increasingly bitter and ultimately divisive. Because of his bankruptcy, Byllynge was forced to allow the deeds for the new province to be made out in Fenwick's name. Fenwick, in possession of the title, then refused to transfer them back to Byllynge's trustees (Gawen Lawrie and Nicholas Lucas). To avoid a court-implemented settlement, William Penn was appointed to arbitrate the dispute. Penn agreed to join Lawrie and Lucas as a trustee of Byllynge's estate. The three trustees, Fenwick and Byllynge then signed the "Quintipartite Deed" formally recognizing Fenwick's 10% interest in the purchase in return for him signing over his rights to the remaining 90%.

Fenwick independently set about planning an entirely separate settlement that would encompass within its bounds 10% of the total acreage of the Byllynge/Fenwick purchase. Byllynge's trustees also set about planning the settlement of the colony. Believing that they possessed the right to govern as well as occupy the lands purchased from Lord Berkeley, the trustees formulated a seminal document entitled *The Concessions and Agreements of the Proprietors, Freeholders, and Inhabitants of the Province of West-New-Jersey in America*. They both anticipated and hoped that the shares in the new colony would be sold to members of the Society of Friends. However, although the *Concessions and Agreements* were tailored towards the creation of a safe haven for Quakerism, its authors also wished to create a governmental framework attractive to all potential purchasers in order to more readily facilitate the sale of shares. Thus, the colony would be a religious haven, but first and foremost the

sale of shares needed to be profitable, albeit profitable in a fair and just Quaker manner. The plainly written document that resulted from their efforts was perhaps the most liberal and democratic colonial charter of its time. It spelled out a system of government founded on the power of a General Assembly periodically elected through the secret ballot of freeholders. The cornerstone of the document was its forward-looking guarantee of individual liberties both religious and civic.

The *Concessions and Agreements* also spelled out the methods by which shares in the colony were to be sold. The proprietors were concerned that land rights should be openly distributed and not dominated by the interests of a relatively few wealthy individuals. This was an issue of major importance to 17th-century Quakers. There was a communal desire to provide small landed estates for growing Quaker families which drove the West Jersey trustees in their efforts to establish a land distribution system which would avoid the concentration of most of the land in the hands of a relatively few individuals (Pomfret 1956:86-89). Most of the purchasers of shares in the new colony were Englishmen, but 17 Irishmen and three Scotsmen were also included within the list of purchasers. Of the approximately 120 purchasers in total, 32 individuals acquired one or more full shares. Most, however, acquired only a fraction of a single share. Both Quaker investors and potential settlers bought shares in the colony. Real estate speculators outnumbered potential colonists. Only 25% of the purchasers actually settled in West Jersey. By and large, the purchasers were relatively affluent. Few 17th-century English Quakers could be considered wealthy, but most of those who bought shares in the colony were from the wealthiest stratum of the Society of Friends. In spite of the driving force posed by the need for agricultural land, most purchasers were craftsmen or "middle-class" merchants. They

were the individuals with the most capital to invest. Only three were identified as “yeomen” (Pomfret 1956:86-89).

John Fenwick arrived in the Delaware Bay in the fall of 1675 aboard the *Griffin* with approximately 150 settlers. This group established West Jersey’s first English colonial settlement at the site of present-day Salem, New Jersey. The initial purchasers of Byllynge’s shares did not arrive in the province until August of 1677 when the ship *Kent*, carrying 230 passengers, entered the Delaware Bay (Pomfret 1956:103). Instructed to plant the colony above Fenwick’s settlement at Salem, the nine commissioners appointed to lead the settlement effort had the *Kent* unload the settlers at the mouth of Raccoon Creek in present-day Gloucester County, New Jersey. Nearly all of the ship’s passengers were Quakers and they were divided into two main groups: a party from London and the outlying vicinity, and a contingent from Yorkshire and counties in the neighboring North Midlands.

The London proprietors were determined to settle on the lands between Pennsauken Creek and Rancocas Creek and establish a town in the vicinity of present-day Gloucester City. The Yorkshire group’s financial interests in the colony were based on the single largest group of shares assigned by Byllynge’s trustees. Five Yorkshire Quakers (Thomas Hutchinson, Mahlon Stacy, George Hutchenson, Joseph Helmsley and Thomas Pearson) had purchased all the debt of Edward Byllynge to persons in Yorkshire and agreed to forgive it in return for ten shares of the colony to be used in founding a settlement for Yorkshire Friends at the Falls of the Delaware (Pomfret 1956:88). Members of the Yorkshire group were to be assigned properties between Rancocas Creek and Assunpink Creek. Upon reviewing their relatively limited numbers, representatives of the London and Yorkshire groups came to the conclusion that a single relatively central town made more sense. Thus, the village of

Bridlington or Burlington came to be laid out at the mouth of Assiscunk Creek opposite Mattinecunk Island (Pomfret 1956:104).

In general, the first lands to be taken up by the English were those immediately adjacent to the Delaware and its largest tributaries. These properties offered both the best and most fertile soils and, obviously, close proximity to major waterways. The watercourses represented the easiest and most efficient local transportation and communication routes. Rivers and creeks defined early West Jersey: they were the source of place names; they formed boundaries between tenths, settlement areas and individuals properties; and nucleated settlements developed at their mouths. Until bridges began to be constructed in the 1680s and 1690s, they also hindered overland traffic as readily as they facilitated waterborne transport. Although a basic road network had begun to take shape, most transportation of people, goods and produce continued to be undertaken by boat throughout most of the 17th century. Ships, shallops, ketches, canoes, barges and other watercraft linked settlement to settlement and plantation to plantation. The major overland routes that did develop often traced the earlier Native American network of trails. The most significant of the early roads were those that linked Burlington with the Falls of the Delaware, the falls with Elizabethtown in East Jersey and, by the 1680s, the Salem Road or King’s Highway, which linked the colony’s principal settlement, Burlington, in the north with its second most populous town, Salem, in the south. The road to Elizabethtown eventually led on to New York, later connecting this latter settlement with Philadelphia. It also served to connect the Delaware and Raritan valleys providing a vital linkage between the principal West Jersey settlements and those of East Jersey.

Settlement on and near the east bank of the Delaware in the vicinity of Crosswicks Creek began in the spring of 1679 with the arrival of Mahlon Stacy “of Handsworth in the County of York, Tanner” (West

Jersey Deed B:311). Although Mahlon Stacy, himself, did not settle within the AFNHL, his activities served as an important catalyst. Mahlon Stacy was one of the Yorkshire Quakers who had consolidated Edward Byllynge's Yorkshire debt and waived it in exchange for ten shares in the Province of West Jersey, retaining two full shares for himself. Stacy, along with most of the other Yorkshire Friends in West Jersey, arrived in the New World aboard the *Shield* in 1678. Most of the passengers on the *Shield* spent their first winter in Burlington before taking up the properties to which they were entitled in the following spring. With the coming of spring, Mahlon Stacy selected a large and prominent property straddling both sides of Assunpink Creek near its confluence with the Delaware, just above the first fall line. He erected a house on the Delaware River waterfront and a mill on nearby Assunpink Creek. Stacy's mill appears as the "Falls Mill" on the Worlidge map of East and West "New Jarsey" of 1706 (Figure 4.1).

Mahlon Stacy's property encompassed most of the downtown core of the modern day city of Trenton and was located approximately a mile and a half north and west of the AFNHL. In 1682, Mahlon Stacy along with four men, William Emley, Thomas Lambert, John Lambert and Joshua Wright, who had purchased portions of a proprietary share from him, were surveyed a tract of 2,000 acres at the Falls of the Delaware (Revel's Book of Surveys 76). This tract appears to have included the plantation on which Stacy was already installed. At least initially, the five men, all Quakers from the North Midlands/South Yorkshire area of England, legally held the property jointly, although amongst themselves they seem to have recognized the boundaries of individual tracts.

The most desirable of the tracts of lands that these individuals took up (after Mahlon Stacy's) was that which included the eastern bank of the Delaware River just below the Falls and the high bluff overlooking the "Falls Meadow." This property was assigned

to John Lambert who probably appended his share of the 2,000-acre tract of 1683 to a six-acre house and lot at "the falls meadow" that Lambert had purchased in November of 1681 from Mahlon Stacy and Thomas Revell (West Jersey Deeds B:571). The lot was initially laid out for Revell, one of the earliest Quaker settlers at the Falls, but he apparently lived there only briefly. After selling out to Lambert, Thomas Revell moved to Burlington and erected the small brick house which still stands in the city today (Reed and Miller 1944:77-79; Toothman 1977:47-58).

John Lambert's property (Figure 4.2), which stood just to the north and west of the AFNHL was attractive both for its cultivable land and for its valuable river frontage at the highest point of navigation. John Lambert had arrived in West Jersey aboard the *Shield* in 1678. Accompanying Lambert, a bachelor, were a single servant whose name has been lost to history, his brother, Thomas, Thomas's wife, Elizabeth Hooton Lambert, their children, Elizabeth, Thomas, John, James and Hannah, and several male and female servants bound to Thomas (Smith 1765 [1877]:109).

Both John "of South Wingfield in ye County of Derby Joyner" and Thomas "of Handsworth Woodhouse in the sd county of York" possessed portions of proprietary shares in the Province of West New Jersey. These shares were purchased from Mahlon Stacy in January of 1677 before the company of Quakers departed for America on *The Shield*. John Lambert purchased 1/16th of a proprietary share and Thomas obtained 1/12th of a share (West Jersey Deeds B:311 and B:571). A third brother, James, also purchased a 1/12th share but died in the months prior to the *Shield's* arrival at Burlington in the summer of 1678. Thomas inherited James's share (West Jersey Deed R:380). Upon arrival on the Delaware, John and Thomas Lambert stayed briefly in Burlington before relocating to the vicinity of the Falls. John probably relocated to the house in the "Falls Meadow" in 1681. Thomas Lambert would have followed soon



Figure 4.1. John Worlidge. *A New Mapp of East and West New Jersey*. 1706. Scale: 1 inch= 2 miles (approximately). Approximate location of the Abbott Farm National Historic Landmark circled in red.

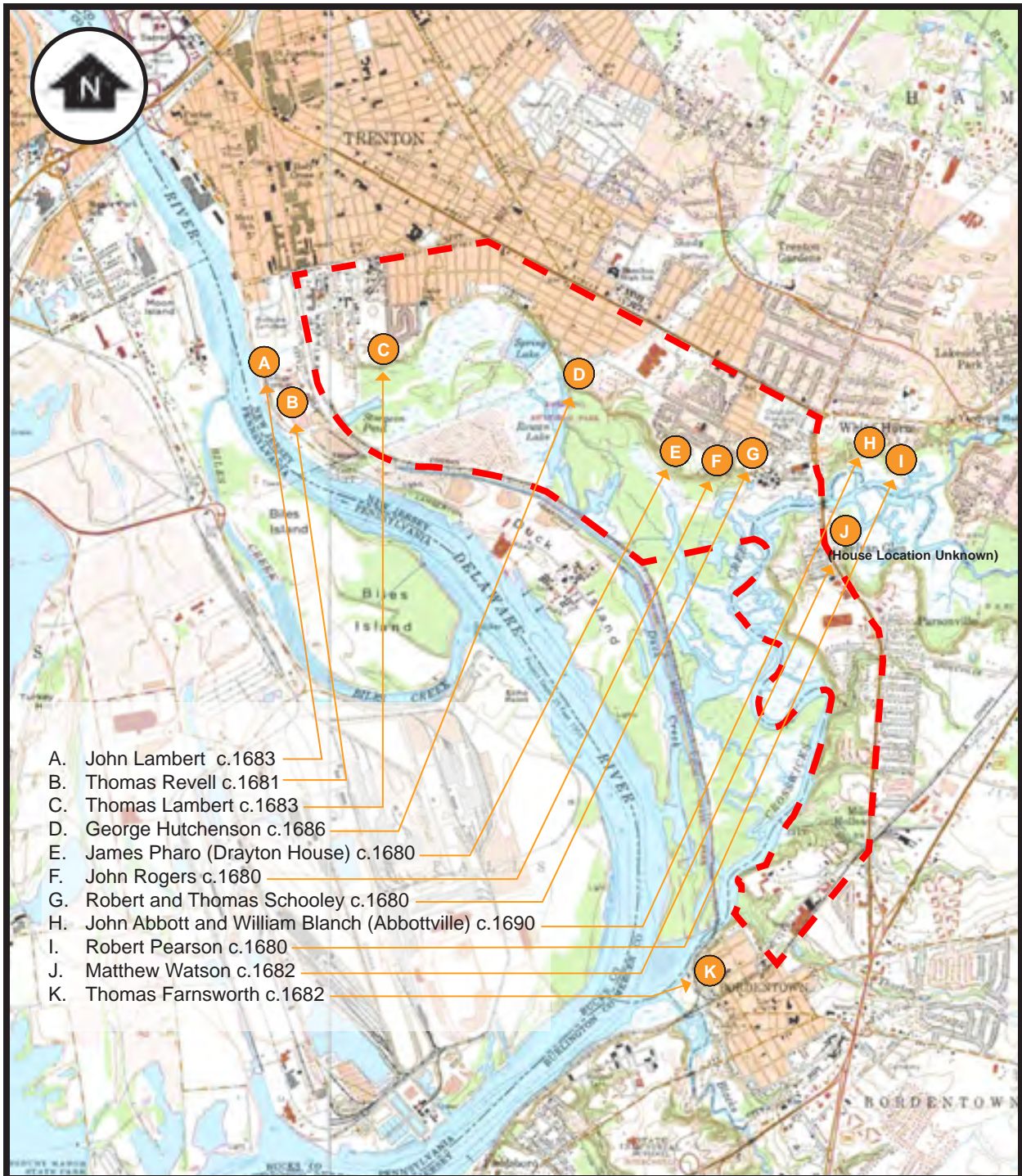


Figure 4.2. Late 17th-century Homesteads within and close to the Abbott Farm National Historic Landmark. Scale: 1 inch= 4,000 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.

after. Following the survey of 2,000 acres in 1683, John Lambert took up his share of the property on the bluff overlooking the Falls Meadow and the Delaware River. John Lambert's house was probably situated on the bluff edge overlooking Falls Meadow in the vicinity of present day Riverview Cemetery (tantalizing archaeological evidence from which may have been encountered at the furthest southwest corner of the cemetery during construction of the Route 29 tunnel in the late 1990s). Thomas Lambert settled the property immediately to the east of John's. The boundary line between the Lambert brothers' properties has not been recorded and is probably impossible to accurately reconstruct as the two plantations were later merged (Smith 1765 [1877]:108-109; Toothman 1977:56-60).

Thomas Lambert, a tanner and Quaker dissenter, appears to be the only one of the beneficiaries of the 2,000-acre survey of 1683 to erect his house upon lands within the AFNHL. The land on which he initially settled included the area atop the bluff in the northwestern corner of the landmark. Thomas is believed to have erected a house and tannery near the site currently occupied by the late 18th-century house known as "Bow Hill" which stands today at the southern end of Jeremiah Avenue. Thomas Lambert's house was later occupied by Major William Trent, the youngest son of William Trent, after whom Trenton is named. Major William Trent was a military figure of some note during "King George's War," "Pontiac's War" and the French and Indian War. As a soldier, merchant and land speculator, he played an important role in the early westward expansion of the British North American Colonies and the United States. A survey made of the property during the Major's tenure provides a somewhat iconographic depiction of the residence formerly occupied by the Lamberts, but also provides evidence of commercial fishing along the Delaware River frontage (Figure 4.3). Made in 1777, the survey labels the body of water currently known as "Sturgeon's Pond" as a "fish pond" and shows

that it was an artificial impoundment. Both of these names suggest that this was a live holding pond for an adjacent Delaware River fishery which probably made use of seines to capture sturgeon and shad. The next island downstream from the pond, today the northern part of Duck Island, is labeled "Fishing Island" on this survey, providing additional evidence of the fishery's activity (Hutchinson Papers 1915:Book 5, 114; Hewitt 1916; Trenton Historical Society 1929:388).

Immediately to the east of Thomas Lambert's holdings were lands taken up by George Hutchenson, a well-to-do distiller from Sheffield in Yorkshire (Figure 4.2). Hutchenson was one of the leading figures in the settlement of West Jersey and, as mentioned above, was one of the five Yorkshire Quakers who had jointly acquired ten shares in the colony from Edward Byllynge (Pomfret 1956:88). By the late 1680s, Hutchenson was in possession of plantations in both Springfield and Nottingham Townships. According to Charles R. Hutchinson, a noted early 20th-century genealogist and historian, George Hutchenson erected a log house on the bluff overlooking the head of the course of water today known as Watson's Creek (Louis Berger & Associates, Inc. 1998:303).

The log house is believed to have stood in approximately the same spot now occupied by the Isaac Watson House. John Watson acquired this property in 1699 from Martin Scott, who had purchased the property from Hutchenson in 1695. Scott is thought to have purchased this particular tract in order to live close to the Lambert family. Thomas Lambert had died the previous year leaving his lands to his eldest son, Thomas Lambert II, Martin Scott was Thomas Lambert II's brother-in-law twice over. Thomas Lambert II was married to Martin's sister, Margaret, while Martin's brother, John Scott, married Thomas Lambert II's sister, Hannah in the same year that Martin acquired the plantation from George Hutchenson. Scott only held the property for approximately two years before selling the 405-acre parcel

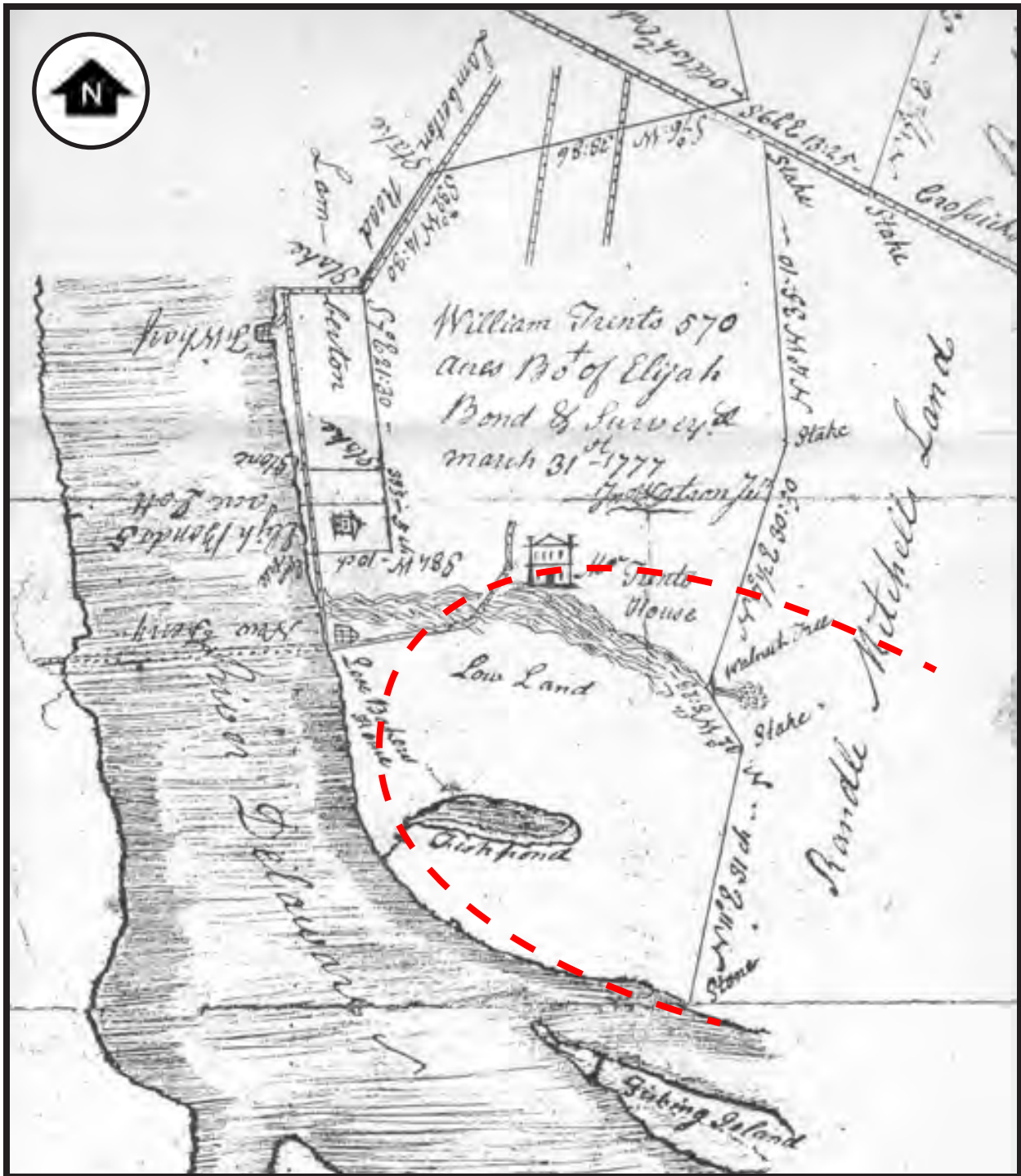


Figure 4.3. Survey of William Trent's 570 Acres Bo't of Elijah Bond. 1777. Scale: 1 inch= 2,050 feet (approximately). Approximate location of the Abbott Farm National Historic Landmark western portion indicated with red dashed line.

with “dwelling house, Barn and other buildings, Orchards Gardens” and other improvements to John Watson (Louis Berger & Associates, Inc. 1998:305).

John Watson was also interested in the property because of familial proximity. Two years earlier, John Watson’s father, William, had purchased an adjacent 250-acre plantation known as “Drayton House.” This property, which included both uplands and lowland meadows, was situated immediately to the east of the Hutchenson plantation (Figure 4.2). It had been assembled by James Pharo largely through several abutting surveys executed in 1680 and 1681. James Pharo lived on this property until his death in 1688. Afterwards, it was occupied by his son, Gervais Pharo, and James Pharo’s widow, Anne. When Gervais and his mother sold the property to William Watson in 1699, it was described as including “Houses, Barns, Beofhouses, Gardens, Orchards, Hedgings, Fencings ditchings” and other improvements (Louis Berger & Associates, Inc. 1998:299-301).

Although the “ditchings” referenced in the Pharo deed of sale, may simply refer to farm ditches on the upland portions of the property, the phrase may also be interpreted as evidence that efforts had already begun by the end of the 17th century to drain the meadows along Watson’s Creek. Historical records document that a track, path or road lead out of the Pharo family’s meadow on the creek, crossed over a swamp by means of a bridge and led along the base of the bluff to the Trenton-Bordentown Road (the predecessor today’s South Broad Street) (Louis Berger & Associates, Inc. 1998:303). The physical effort invested to construct such a road and the fact that the Pharo family had to purchase land from the Hutchensons for its right-of-way indicates that activities of some importance were already taking place in the meadows.

As suggested above, the first plantations along bluff rim overlooking Watson’s Creek and Crosswicks Creek were situated in extraordinarily advantageous

locations. The owners of these properties not only held prime farmland on the bluff top but also, in most cases, the rights to the meadows/marsh below. The marsh supported an abundance of game in the form of waterfowl and fish, and also, when drained, provided extraordinarily rich, well-watered soils suitable for cultivation and pasturage. These plantations all had access to either Watson’s Creek, Crosswicks Creek or the Delaware River, rivers that offered easy waterborne transportation for people and goods traveling between these farms, the nascent villages soon to be known as Trenton and Bordentown, and the larger more developed settlements of Burlington and Philadelphia. They were also situated in close proximity to some of the best roads in the new colony. The major overland route between Philadelphia and New York which ran from the settlement at the Falls (Trenton) to Perth Amboy was located just a few miles to the north of these properties.

In 1701, John Watson died while on a voyage to Antigua, leaving his brother, Isaac, in control of his plantation. By 1708, Isaac Watson had replaced the original log house constructed by George Hutchenson with the large stone house that currently stands on the property (Plates 4.1 and 4.2). In 1709, William Watson sold his house and farm to Isaac, thereby uniting the two neighboring Watson family plantations into a single holding that would remain within the Watson family throughout much of the 18th century (Louis Berger & Associates, Inc. 1998:308-309).

Immediately to the east of the lands originally owned by John Pharo and later owned by William and Isaac Watson was a tract of 100 acres settled by John Rogers (Figure 4.2). Little is known about John Rogers’ life prior to his purchase of this property other than the fact that he was a member of the Burlington Monthly Meeting of the Society of Friends. In 1680, the same year he first occupied his bluff-top property overlooking the Crosswicks Creek meadows, John Rogers married Mary Schooley, the sister of Robert and Thomas



Plate 4.1. Historic photograph of the Isaac Watson House. *Circa 1911* (Source: Volk 1911).



Plate 4.2. Historic photograph of the Isaac Watson farmstead from the meadows. *Circa* 1911
(Source: Volk 1911).

Schooley (Louis Berger & Associates, Inc. 1998:176). The Schooley brothers, both Quakers, took up a 200-acre parcel that adjoined John Rogers' land along its eastern boundary. Mary Schooley Rogers died in childbirth in 1681. Her brother Thomas appears to have resettled elsewhere a short time later, but Robert Schooley remained on the property acquired by his two brothers until his death in 1690. Following Robert's death the property was sold to John Lambert, Thomas Lambert's youngest son. In 1699, John Lambert sold the plantation, by then enlarged to 460 acres, to Thomas Tindall. Following Thomas Tindall's death, the property passed to his son, Thomas Tindall II. In 1723, in the wake of Thomas Tindall II's death, it was in turn sold to Robert Pearson II, Thomas Tindall II's brother-in-law. In 1716, Pearson had purchased the adjoining Rogers property meaning that in 1723 both plantations were united into a single large landholding. In 1773, a large brick residence was constructed by Robert's son, Isaac, replacing the earlier residence (Plate 4.3). This house still stands today (Louis Berger & Associates, Inc. 1998:179-183).

The easternmost of the original 17th-century plantations ranged along the bluff rim north of Crosswicks Creek within the AFNHL was taken up in 1689 by John Abbott and William Blanch (Figure 4.2). Abbott and Blanch were step-brothers. John Abbott's father had taken William Blanch's mother as his second wife. Both step-brothers arrived in the Delaware Valley as servants indentured to William Watson. Upon completing their five-year term of service, the two men jointly purchased the right to have 100 acres of ground surveyed to them from George Hutchenson. Blanch shared this property with Abbott into the early 1690s before finally selling out and returning to England. Abbott, for his part, substantially expanded his holdings, purchasing several large tracts which he joined to the original 100-acre tract (which was subsequently found to actually contain 140 acres). This plantation eventually grew to over 800 acres. The bulk

of the Abbott property would remain in the Abbott family throughout the 18th century (Louis Berger & Associates, Inc. 1998:113-117).

In addition to its use for agriculture, the Abbott plantation was also of broader commercial value. Both John Abbott and William Blanch were identified as wheelwrights in the document through which they jointly acquired the rights to their property, leading some to speculate that the two possibly operated a wheelwright shop on the property during the earliest years of their occupation. By 1693, Abbott's profession was described as "husbandman," indicating that agriculture had become the main focus of his economic activity, although the Abbott family's agricultural pursuits eventually expanded beyond just farming (Louis Berger & Associates, Inc. 1998:114). While the several secondary accounts maintaining that Timothy, and perhaps also his father, John, operated a tannery on the property during the 18th century cannot be confirmed, a tannery and a distillery were definitely operated on Abbott property during the 19th century, showing the diversification of the family's economic pursuits. By the middle of the 18th century, the Abbott family also seems to have established a landing on Crosswicks Creek that included both a wharf and a storehouse. Formerly both wider and deeper, Crosswicks Creek saw a fair amount of river traffic during the colonial period. Agricultural produce, lumber and other goods were shipped from the Abbott landing and other small wharves further downstream on the creek and from there passed on down the Delaware River to Philadelphia and other markets. At the same time, sloops and other shallow draft vessels brought manufactured goods to the same landings for sale to the region's local population. The Abbott landing became an important hub in this local waterborne transportation network. John Abbott's son, Timothy, a later owner of the property, operated at least one vessel himself and was described in at least one instance as a merchant rather than a "yeoman" or farmer (Louis Berger & Associates, Inc. 1998:118-119).



Plate 4.3. Historic photograph of the Isaac Pearson House. Undated (Source: Historical Society of Hamilton Township 1998:52).

While the 17th- and 18th-century history of the farms that line the bluff north of the Crosswicks Creek and Watson's Creek meadows has been subjected to fairly intensive study in recent years, the early ownership history of the bluffs overlooking the southern and eastern bank of Crosswicks Creek has been less thoroughly researched. In 1682, Thomas Farnsworth, another early Quaker immigrant, took up a tract of land that included much of the Delaware River frontage within modern day Bordentown, a community that has its roots in the settlement known as Farnsworth's Landing (Figure 4.2). Over time, Farnsworth expanded his holdings to include the land on the east side of Crosswicks Creek for quite some distance north of its confluence with the Delaware River. In 1740, Joseph Borden acquired the core parts of Farnsworth's original holdings, including the landing, and began assembling other nearby properties into another large land holding. Making use of the geographically strategic location of the property, Borden began operating a packet boat back and forth to Philadelphia. At the landing, passengers could disembark and take a stage wagon bound for South Amboy where they could board ferries heading for Perth Amboy and Manhattan. Borden's transportation interests and his real estate holdings quickly led to development of the community surrounding the landing. This transshipment point grew to become Borden's Town or Bordentown.

Further up Crosswicks Creek were lands held by Matthew Watson in the 17th century. Watson's holdings were centered on the property extending between the current U.S. Route 206 bridge over Crosswicks Creek and the Groveville Road bridge crossing, a short distance upstream (Figure 4.2). Prior to the construction of the first bridge at the U.S. Route 206 crossing Matthew and then later his son, Marmaduke Watson, operated a ferry that transported travelers across the creek. Although there has been some debate concerning this ferry location, the strongest evidence seems

to point to it having been situated near the current U.S. Route 206 bridge over Crosswicks Creek (Louis Berger & Associates, Inc. 1998:119-120).

By at least as early as the third quarter of the 18th century, a crossroads community had begun to develop just to the north of the ferry crossing. Soon to become known as "White Horse," this small cluster of buildings included a tavern, a blacksmith shop and a number of residences. White Horse stood on the main overland route between Trenton and Burlington and the importance of this road contributed to the value of the plantations along the nearby bluffs, especially the Schooley and Abbott properties, which directly fronted the roadway. In 1763, the importance of the route was further increased with the construction of a drawbridge that replaced the Watson ferry and facilitated greater movement of traffic along the roadway. During this period, the continued growth of the village of Bordentown, which also lay along the route, added to the number of travelers making use of the highway (Louis Berger & Associates, Inc. 1998:119-120).

B. THE AMERICAN REVOLUTION

The Revolutionary War brought a period of considerable economic and social upheaval to the Delaware Valley. In addition to being the scene of important battles and many smaller skirmishes, the region experienced a wholesale disruption of trade and industry. Even the area's farms were impacted as agricultural help was enlisted into the militia, while foraging parties from both British and American armies swept the area at various times for supplies. The local population was divided in its response to the war. Although strong support for the Revolution could be found in numerous households across Burlington County, many of the region's most prominent and long established families belonged to the Society of Friends and thus were opposed to the conflict on moral grounds. As many of these Quakers were by

this time landed gentry with family roots going back to the initial English settlement of the area, they were not particularly receptive to the social upheaval that the Revolution threatened to bring with it. Loyalist tendencies were even stronger among members of the Anglican church who represented another large faction within colonial Burlington County's social, political and economic elite.

The events of the war had a severe impact on some of the area's families. Isaac Pearson, who had only recently completed construction of a large brick residence that stood on the bluff near White Horse (see above), played an important role in organizing resistance in Burlington County to the policies of the King and Parliament. When hostilities first broke out, Pearson remained loyal to the Revolutionary cause, but he apparently wavered following the initial string of Continental Army defeats prior to the Battles of Trenton. According to some period and later accounts, Pearson was on his way to take a formal oath of allegiance to the Crown when he was intercepted by a group of "patriots" (or bandits, depending on which account is read) who murdered him and apparently confiscated a substantial sum of money which he was carrying. Pearson's widow, Elizabeth, would later file a number of war-related damage claims stating that the Continental Army had taken two horses with saddles and bridles, while the British forces had taken 12 sheep, a "chair harness," and a cow, and had impressed into their service her wagon and driver for 15 days. It is worth noting that Isaac Pearson's will documents the presence of at least eight slaves on his property at the time of his death (Louis Berger & Associates, Inc. 1998:193-195).

The AFNHL witnessed military activity at several times during the course of the war. In December of 1776, following a series of devastating defeats in New York, the Continental Army retreated across New Jersey and into Pennsylvania. Closely followed by British forces commanded by General William Howe, the main body of the Continental Army crossed the

Delaware at Trenton. On December 8, a battalion of English light infantry was sent southwards to guard the drawbridge over Crosswicks Creek on the Bordentown Road (Dwyer 1983:111). These troops were replaced a few days later by approximately 100 Hessian soldiers under the command of Colonel Johann Gottlieb Rall (Fischer 2004:189). Colonel Carl Von Donop occupied Bordentown at this time, lodging his three battalions of Hessian troops in every available house and in small camps along the roads leading into town. Forces under Donop's command also occupied Burlington and Mount Holly. The impact of the Hessian occupation on the area must have been considerable. Town folk were turned out of their houses. On December 13, Howe ordered Von Donop to require all local farmers to undertake a census of their cattle, grain and forage out of which he was required to "form magazines for subsisting the troops." Any large supplies of salt, flour or rum were to be confiscated and Donop's troops were ordered to cut firewood as necessary for the army's use. Howe intended that local farmers be compensated in gold or silver for the supplies they furnished, but more often, in practice, they were given promissory notes or no payment at all (Fischer 2004:173).

Bordentown remained under Hessian occupation until Christmas night when Washington's victory on the following morning at Trenton prompted Von Donop to pull his forces back, first to Allentown and then later to Princeton. Donop was careful in his withdrawal orders to provide adequate protection for the 150 wagons full of plunder that the Hessians had extracted from the houses of Bordentown and properties in the surrounding communities (Fischer 2004:260-261).

Following the Second Battle of Trenton and the Battle of Princeton on January 2 and 3, 1777, British and Hessian forces withdrew from Burlington County and some measure of calm returned to the daily life of local residents. This respite, unfortunately, proved relatively brief. In September of the same year, the

British army occupied Philadelphia and disrupted traffic along the river. Earlier, in 1775, when the prospect of armed hostilities with Great Britain had first appeared on the horizon, colonial officials in Pennsylvania had begun planning for the defense of the Delaware against just such a British incursion. Fort Mifflin, on the Pennsylvania side of the river, and Forts Mercer and Billingsport in New Jersey, were constructed to bar passage upriver from the bay to Philadelphia. Two rows of chevaux-de-frise (literally a “Frisian horse” – a form of mobile defensive structure, in this case a boom or chain of connected obstructions across the river) were placed across the Delaware near the forts to impede the passage of vessels. Complementing these defenses was a small fleet of vessels, specially constructed or modified to patrol the river and protect its defenses.

The larger vessels in this so-called “Pennsylvania Navy” were the flagship *Montgomery*, the armed schooner *Delaware* and the brig *Convention*, but there were also a number of other mid-sized vessels, including sloops, shallops, “fire ships” and more schooners. The core of the navy, however, was the 13 double-ended galleys designed by John Wharton and Emanuel Eyre. Each was fitted with two masts and 20 double-banked oars and each mounted a single 18- to 32-pound gun in its bow. When it was clear in late September of 1777, that the British army would soon capture Philadelphia, the city’s wharves were largely cleared of ships, both merchant and military. Most were moved further upriver for safety. Among these were two partially constructed frigates belonging to the Continental Navy, the *Effingham* and the *Washington* (Jackson 1974:25, Dolan Research 1998:3-14).

The Continental Navy Board reported to Washington on November 10, 1777 that the frigates *Effington* and *Washington* had been scuttled in the Delaware River off White Hill in order to prevent their capture and that their crews were ordered to construct a battery

overlooking the site using guns salvaged from the *Washington*. The submergence of the two ships would prove to last only a short time as it soon became apparent that their hulls would be useful to house members of the Continental Navy who had lost their ships when Philadelphia was taken (Jackson 1974:208, 296).

Several other ships, both merchant vessels and privateers, were taken further upriver to Bordentown and then on up Crosswicks Creek. According to the Navy Board, all of the vessels both “great and small (one only excepted) we have with great labor crowded up Crosswicks Creek, where most of them lye aground at high water, nor can any be got down but by means of an extraordinary tide, or Fresh, nor then, but with the utmost skill and patience” (Dolan Research 1998:3-14). Included among these is known to have been the packet ship *Mercury*. The “excepted” vessel was a large merchant ship belonging to Robert Morris, which carried a load of tobacco. The Navy Board had planned to unload the ship, move it some distance up the creek and then ground it or sink it in the channel. It was also hoped to sink a large vessel, perhaps Morris’s ship, across the mouth of the creek to prevent passage of any of the ships moored upstream back down into the Delaware (Dolan Research 1998:3-15).

On November 15, 1777, Fort Mifflin fell to the British. This effectively trapped the main body of the Pennsylvania Navy, stationed at the mouth of Big Timber Creek in Gloucester County, New Jersey, between the British Army in Philadelphia and the British Navy to the south. A plan was hatched to run these vessels upriver past Philadelphia on the nights of November 20 and 21. The first group to make the trip consisted of most of the smaller vessels, principally the galleys and the even smaller guard boats. Under the supervision of Commodore Hazelwood, the overall commander of the Pennsylvania Navy, 13 galleys and nine armed boats were successfully moved upstream to Bristol, Pennsylvania. The following night the larger vessels attempted the same trip, but

were quickly sighted by the British. Many were either destroyed by cannon fire or deliberately scuttled to prevent them from falling into British hands. According to American records 13 galleys, 12 armed boats, the sloops *Province* and *Ammunition*, the brig *Convention*, one ammunition sloop, one provision sloop, one provision schooner and two “flats” with stores and 11 18-pound cannons succeeded in getting past the British positions. Another account maintained that the ammunition sloops *Defiance* and *Industry* were also among the vessels to make the passage (Wallace 1884:252-253; Dolan Research 1998:3-15).

On December 20, the fleet was moved upriver and taken into Crosswicks and Watson’s creeks (Wallace 1884:259). These boats spent the winter of 1777-78 tied up at Bordentown’s wharves and at anchor within the creeks. In early March, when the Delaware became sufficiently clear of ice, the galleys resumed their patrols as far south as Burlington. But General George Washington feared that, with Philadelphia in enemy hands, this small fleet would be vulnerable to British attack and recommended that the galleys should be stripped of all valuable equipment, guns and supplies and scuttled. Considerable debate ensued as to whether this was the correct course of action as it was feared that the loss of the diminutive fleet would provide the British unobstructed access to the river. In the end, eight galleys were taken to the wharves at Trenton Landing (modern day Lambertson) and readied for sinking, while four galleys and four smaller “guard boats” remained in service stationed off Burlington. On April 16, the eight stripped boats were moved into Watson’s Creek and plugs were pulled from the bottoms of their hulls allowing them to settle to the creek bed leaving only their masts projecting above water (Jackson 1974:290-292).

News of the scuttling of the American river fleet soon reached the British in Philadelphia. With the river largely undefended, an expedition was quickly organized to proceed to Bordentown and destroy the

remaining ships in the water. On the evening of May 7, 1778, a naval detachment under the command of Captain John Henry headed upriver. The flotilla’s flagship was the *Vigilant*, which was accompanied on this mission by the galleys *Hussar*, *Cornwallis*, *Ferret* and *Philadelphia*, the armed schooners *Pembroke* and *Viper*, and four gunboats. Also accompanying the flotilla were 18 flatboats carrying the 2nd Battalion of Light Infantry and two field pieces under the command of Major John Maitland. Around noon on May 8, Maitland landed his force just south of White Hill. The *Effingham* and *Washington* at anchor, along with a barge and a sloop, were all set ablaze. Maitland’s force then proceeded onward to Bordentown quickly overcoming a group of New Jersey militia who were manning an artillery battery that had been thrown up as part of the town’s defenses (Griffin 1903:87-90; Dolan Research 1998:3-16).

Maitland’s troops set fire to four warehouses in the town that contained provisions, military stores and equipment. One of the largest houses in the town, Colonel Joseph Borden’s residence, was also burned down during the attack, although it is unclear as to whether the British forces actually set light to the building or whether it was torched by a Tory sympathizer. In the Delaware River, at the mouth of Crosswicks Creek, the British naval force ‘burnt two new ships, one of which was pierced for 18 guns, one privateer sloop for 10 guns, with 10 sail of brigs, schooners and sloops’ (Griffin 1903:887-90; Dolan Research 1998:3-16).

The British troops then embarked again on their flatboats and continued with those members of the flotilla that could navigate the small channel into Crosswicks Creek. All of the ships and boats encountered were put to the torch. Among the vessels set ablaze were “the *Sturdy Beggar*, privateer, pierced for 18 guns and 8 sail of brigs, sloops and schooners...” Following

these actions, Maitland's troops were ferried across the Delaware River to Pennsylvania where they spent the night (Dolan Research 1998:3-16).

The next day the galleys *Hussar* and *Ferret* proceeded up Biles Creek on the opposite side of the Delaware and burned another half dozen vessels: "one new schooner pierced for 14 guns, one new sloop for 16 guns, one old schooner for ten guns, one old large sloop for 16 guns and two large new sloops." As these were armed vessels they were either privateers or some of the larger sailing vessels commandeered for the Pennsylvania Navy. Gun boats were then sent up Watson's Creek in search of the American galleys that had been scuttled there. The sunken boats were located but were found to be too deeply submerged to be destroyed. In the meantime, the *Hussar* and *Ferret* had themselves run aground and, before they were re-floated, briefly exchanged fire with cannon of the New Jersey militia under the command of General Philomen Dickinson, positioned on either the southern end of Duck or Biles islands. Maitland's troops burned Colonel Joseph Kirkbride's house and ferry house opposite Bordentown and then marched to Bristol, where they rejoined the flotilla and proceeded downriver to Philadelphia, continuing their attacks on American vessels whenever they were encountered (Wallace 1884:284).

The success of this British attack weighed heavily on the minds of local officials and residents and spurred efforts to raise the galleys in order to provide for some naval defense of the Delaware. By the middle of June, Commodore Hazelwood had managed to raise two galleys and was planning to re-float two more, while all of the time lobbying for the men and equipment needed to raise, refit and man all of the scuttled fleet. It is unclear whether any more than two galleys were eventually raised.

Memories of the British attacks up the Delaware lived long in the minds of Bordentown's residents and for years the hulks of burned ships were reported in the marshes and in the creek beds. E.M. Woodward in his *Bordentown and its Environs, History* (1876:202) reported that two wrecks were viewed at an extraordinary low tide in 1875 in Bard's (or Barges) Creek near its mouth. One of the Barges Creek wrecks was archaeologically identified in the 1970s. Other wrecks were reported at the mouth of Blacks Creek and in the bed of Crosswicks Creek itself (Dolan Research 1998:3-17).

The AFNHL witnessed Revolutionary War-era military action on another occasion when, in the wake of the British evacuation of Philadelphia in June of 1778, American troops engaged a British column attempting to utilize the drawbridge over Crosswicks Creek to facilitate its march northward. An anonymous account of the skirmish praising the actions of the New Jersey Militia was published in the *New Jersey Gazette* on July 8, 1778:

"I have for two weeks past been with the militia of this State, under the command of Major-General Dickinson. It truly affords me the most heartfelt pleasure to see in what numbers and how suddenly my brave countrymen poured in from every quarter, to the defence of our glorious cause.—During the whole time they underwent the greatest fatigues, severe and long marches, without a murmur.— In every skirmish they behaved with the greatest spirit, and appearing always confident of the courage and prudence of their General, they obeyed his orders of every kind with the utmost cheerfulness and alacrity. At the drawbridge near Bordentown, when General Dickinson with great propriety had ordered some lines to be thrown up, they appeared anxiously to desire the arrival of the enemy. The continental troops and great part of the militia had however been

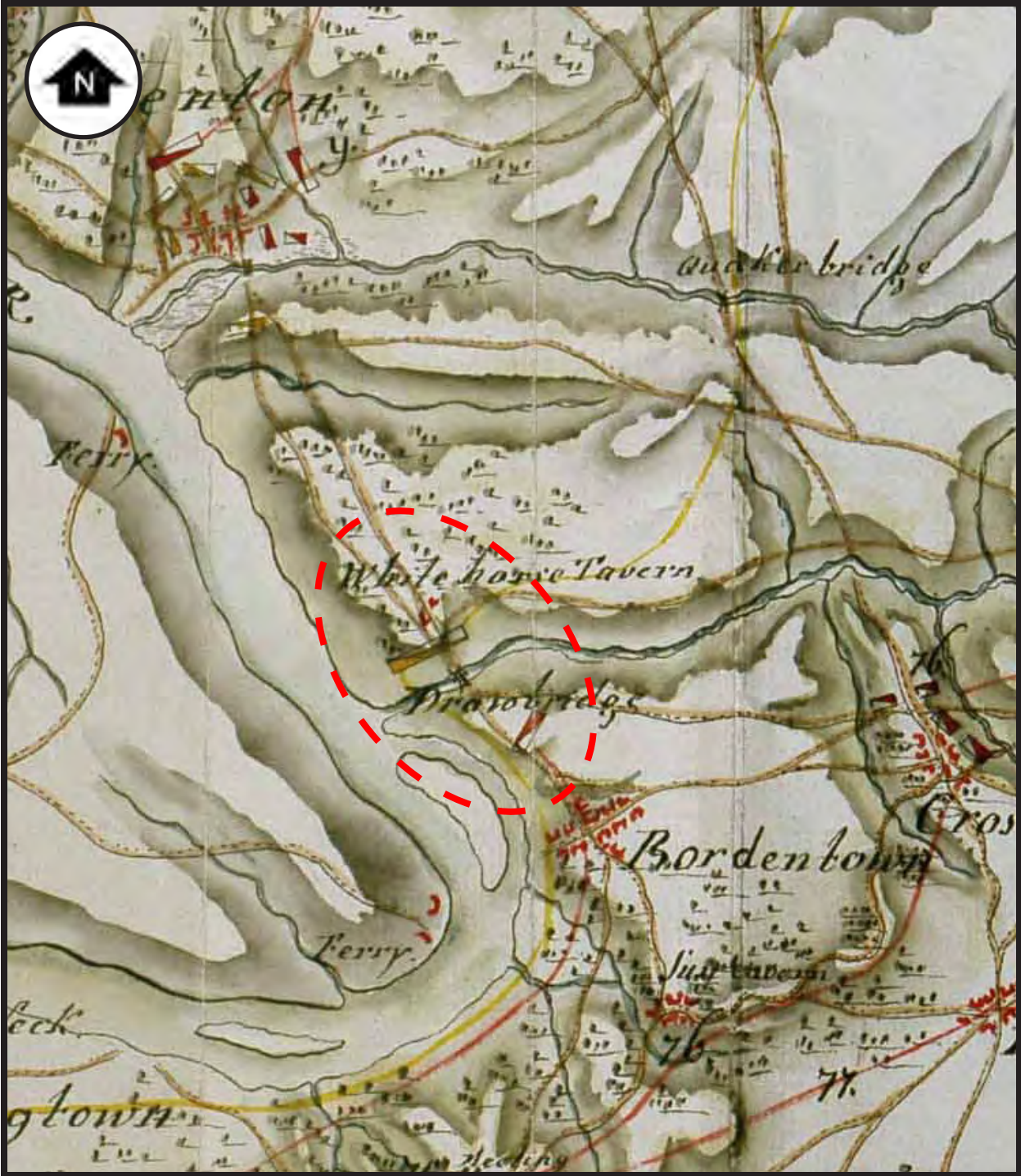


Figure 4.4. Manuscript Map Showing Troop Movements in Central New Jersey and Parts of Pennsylvania and New York in June 1778. Scale: 1 inch= 1.3 miles (approximately). Approximate location of the Abbott Farm National Historic Landmark circled with red dashed line.

withdrawn, except those of Colonels Phillips and Shreve, who were previously detached to guard a ford one mile further up the creek, and only the three regiments of Colonels Frelinghuysen, Van Dike and Webster remained, when a party of the enemy appeared, and with great zeal began to repair the bridge, which had been cut down—Upon the very news of their approach, the troops rushed down with the greatest impetuosity, and a small party from one of the regiments which happened to be considerably advanced, caused them to retire, after having killed four and wounded several others. In the morning the lines were again manned, but the enemy thought proper to change their rout. This conduct of the militia saved, in my opinion, Trenton and the country adjacent from rapine and desolation. In short, their conduct during the whole time, gave me the most pleasing ideas of the strong love of liberty which is natural to the human soul. Surely whilst the farmers of the country are induced by the mere fondness for freedom to leave all their domestic concerns at this season of the year, and undergo the hardships of a soldier's life; to suffer the several fatigues and with pleasure face every danger – I say, whilst this continues to be the – spirit of Americans – Americans must and will be free.”

The location of the skirmish and the Crosswicks Creek drawbridge are all depicted just to the south of the Whitehorse Tavern on a manuscript map showing troop movements in Central New Jersey and parts of Pennsylvania and New York in June of 1778 (Figure 4.4).

C. JOSEPH BONAPARTE AND POINT BREEZE

One of the more extraordinary events in the history of the AFNHL occurred in 1816 when a 200-acre farm on Crosswicks Creek was purchased by Joseph Bonaparte, Napoleon Bonaparte's elder brother (Plate 4.4). During the opening decade of the 19th century, Joseph Bonaparte both aided his younger brother's military and political exploits and capitalized on his success. In order to consolidate his growing empire and to foster his dynastic aspirations, Napoleon in some instances arranged for his siblings to marry into Europe's most prominent royal families and in other instances forcibly placed them on the thrones of European nations that fell under his sway. In 1806, Napoleon thus installed Joseph as the King of Naples and Sicily. This move into the lower ranks of European royalty was apparently much to Joseph's liking. He was rather less pleased, however, when, in 1808, Napoleon removed him from the Neapolitan throne and, in a blatantly political move, elevated him to become the King of Spain. In order to consolidate his control over Spain and to clear the way for the ascension of his brother, Napoleon had deposed the sitting Spanish monarch. This deposition and Joseph's subsequent coronation led to an uprising in Spain which expanded into all-out war in August of 1808 when Great Britain landed an expeditionary force in Portugal under Lieutenant General Arthur Wellesley (later the 1st Duke of Wellington). Over the course of the next five years, the Spanish insurgents and Wellesley's Anglo-Portuguese army forced Joseph to retreat to northern Spain, ultimately contributing to Napoleon's defeat in the Iberian peninsula and Joseph's eventual abdication from the Spanish throne in December of 1813.

Upon Napoleon's final fall from power following the Battle of Waterloo in 1815, Joseph Bonaparte engaged a ship for passage to the United States. After unsuccessfully attempting to convince Napoleon to take



Plate 4.4. Engraving of Joseph Bonaparte. Circa 1838 (Source: Maginnis 2008).

advantage of the escape route he had secured, Joseph sailed from the port of Royan on the west coast of France aboard the 200-ton brig *Commerce*. Thirty-two days later the brig tied up at a wharf on the East River in New York City. Although it was obvious to all that he was a man of considerable distinction, Joseph managed to keep his identity a secret not only from the brig's captain, but also from the officers of a British frigate that had overhauled the vessel during its passage. Upon his arrival in New York, Joseph used the title of Comte de Survilliers in order to obscure his identity, fearing the possible repercussions if his presence in the city became widely known. On the advice of New York's mayor, Joseph soon set off for Washington, D.C. in order to formally present himself to President James Madison and declare his good will. Joseph's presence in the country and his intent to meet with the President soon became well-known, for on his way south to Washington he received a communication from Madison requesting that he continue no further because the President could not officially receive him given the United States position of neutrality in the still ongoing European conflicts (Tower 1918:295-301; Stroud 2005).

Joseph at this juncture returned northward and, in September of 1815, settled in Philadelphia, still retaining his identity as the Comte de Survilliers. Supposedly, Joseph kept this title in part because it provided the United States government with the cover to feign ignorance that it was sheltering the deposed King of Spain and in part because he hoped the ruse would last long enough so his followers and possessions could reach him in the New World. He feared especially that the British Navy would be more rigorous in its efforts to intercept and search American-bound ships if they knew that they might be carrying friends and wealth to a Bonaparte. Joseph remained in Philadelphia over the winter of 1815-16 taking up residence in a modest house on Ninth Street. Then, in the following year, he purchased from Stephen Sayre 200 acres on Crosswicks Creek just upstream from

the village of Bordentown, the core of a property that was to serve as his home for more than two decades (Tower 1918:302).

As a foreign citizen Joseph could not legally purchase property in the United States, but he had arranged for an exemption from the New Jersey legislature in order to make his 200-acre purchase and he soon began assembling the vast 1,800-acre estate that became known as Point Breeze. Point Breeze emerged as an early 19th-century American version of a European pleasure palace. Bonaparte's first house was set high on the bluff edge overlooking the confluence of Crosswicks Creek and the Delaware River. Here, the exiled dignitary entertained a long list of (Plate 4.5) famous European and American visitors in opulence unrivaled in the United States. In 1820, the first house that Joseph Bonaparte erected on the property burned to the ground. Although Joseph was not in residence at the time, most of his possessions were saved by the townspeople of Bordentown. Joseph then built an even grander residence (Plate 4.6) closer to the main road (Stroud 2000:36). The footprint of this second house is shown on a U.S. Coast Survey map of 1844 (Figure 4.5).

The three-story mansion built in 1820-21 had a large central block and two flanking wings. It was surrounded by heavily landscaped grounds including formal gardens, 12 miles of carriage drives and an artificial pleasure lake. Numerous descriptions of the estate are contained in the letters and diaries of the prominent persons who flocked there to visit the deposed King. Among those who visited Bonaparte at his residence were numerous Philadelphia-area political and society figures, along with well-known national figures such as President John Quincy Adams, Henry Clay, Daniel Webster and the Marquis de Lafayette (Stroud 2002). Bonaparte was also visited by two of his daughters, Charlotte, who came in 1821, and Zénaïde, who arrived in 1823, with her husband/cousin, the naturalist Charles Lucien Bonaparte, the son of Joseph and



Plate 4.5. Charles B. Lawrence. "Point Breeze." *Circa 1816* (Source: New Jersey Historical Society).



Plate 4.6. Karl Bodmer. “Manor House of Joseph Bonaparte near Bordentown.” 1832 (Source: Joslyn Art Museum).

Napoleon's younger brother Lucien. Joseph erected a large guest house beside the lake below the mansion for the use of Zénaïde and her husband (Stroud 2000:36-38).

Charles Lucien Bonaparte may have been the first naturalist to scientifically study the flora and fauna of the marsh. In 1823, he set about collecting and cataloging examples of all of the mammals, birds, reptiles and butterflies that could be found on his uncle's property. Servants, friends and family (including Joseph himself) also assisted Charles in his search for fauna, providing examples of animals shot during hunts or encountered during day to day activities on the property. His collections were preserved and displayed in glass cases in the lake house. Charles also worked to document the native plant species of Point Breeze documenting over 174 different species (Stroud 2000:44-45). His career as a naturalist blossomed. Since his uncle was a member of the American Philosophical Society (APS), Charles soon began attending the group's meetings in Philadelphia where he became acquainted with some of America's greatest early naturalists and scientists. It was through the APS that he was introduced to John James Audubon, with whom he quickly developed a strong and longlasting friendship. He sponsored the young Audubon's application to become a member of the APS, but this was rejected despite his best efforts. Charles then set about undertaking what was perhaps his greatest work, a revision and correction of the most esteemed work on the birds of North America, Alexander Wilson's *American Ornithology; or the Natural History of the Birds of the United States*. In 1826, Charles and his wife and family returned to Europe (Stroud 2000).

In 1825, Joseph Bonaparte's household was enlarged by another family member, Prince Lucien Charles Joseph Napoléon Murat. Murat was the second son of Joseph's sister Caroline Bonaparte and Joachim Murat. Joachim Murat had replaced Joseph as the ruler of Naples and Sicily following Joseph's corona-

tion as King of Spain, but was executed in 1815 following Napoleon's fall from power. Lucien Charles Joseph Napoléon Murat was forced to flee Italy and, after a prolonged stay in the Austrian empire and later capture by Spain, was granted assistance and asylum by President James Monroe. Although frequently away on prolonged trips to Europe and other destinations, Murat married the daughter of a local Bordentown family and remained in residence in the area until 1848, when he finally returned to France for good. The location of the house in which Murat lived with his wife in the latter part of his residency at Bordentown is shown south of the bridge over Crosswicks Creek on the U.S. Coast Survey map of 1844, labeled "Prince Murat" (Figure 4.5).

Joseph Bonaparte's wife, Julie, did not accompany him to the New World. With his spouse an ocean away, Joseph soon sought alternative female companionship and seemingly discharged his affections quite liberally. He is known to have fathered two male children, each by a different Bordentown housemaid, but his most famous dalliance was with Ann (or Annette) Savage with whom he fathered two daughters (Plate 4.7). Most accounts of this latter relationship hold that Joseph, enthralled by Ann, leased a house for her in Nottingham Township, so that she could be near his Bordentown estate. Bow Hill (Plate 4.8), a residence built by Barnt DeKlyn on the site of Thomas Lambert II's home, is almost always identified as having been Joseph and Ann's love nest. Of French Huguenot descent, DeKlyn had made a substantial fortune manufacturing woolen cloth during the American Revolution. He purchased the Lambert family residence in 1784 following its occupancy by Major William Trent. When the original dwelling house burnt in 1785 DeKlyn erected a grand federal-style brick house on its site. No formal documentation of a lease between DeKlyn and Bonaparte survives, but that does not necessarily mean that one never existed.

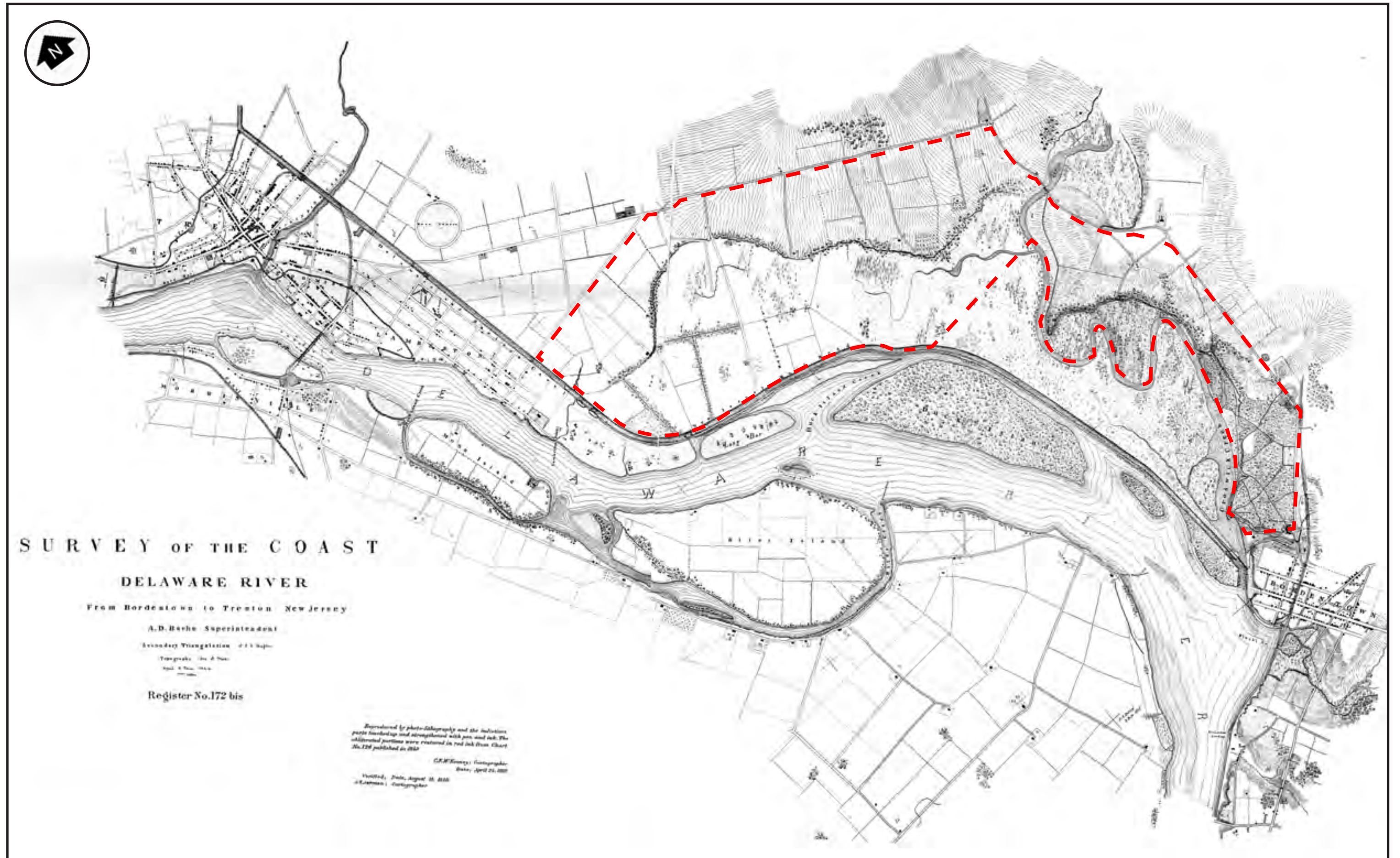


Figure 4.5. United States Coast Survey. *Survey of the Coast of the Delaware River from Bordentown to Trenton, New Jersey*. 1844. Scale: 1 inch= 2,500 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.



Plate 4.7. A portrait painted by Bass Otis in 1823 of Ann Savage and her two daughters, Pauline Josephann and Caroline Charlotte, fathered by Joseph Bonaparte (Source: Philadelphia Museum of Art).



Plate 4.8. Historic photograph of Bow Hill Mansion. 1937 (Source: Historic American Building Survey 1937).

Many of the oft-repeated details of Joseph and Ann's trysts stem from the exaggerated account contained within the pages of W. Jay Mills' *Historic Houses of New Jersey* of 1902. In the chapter devoted to Bow Hill, Mills wrote of "the greatest romance in the annals of the old house The love of a king and a poor little descendant of the Quakers":

"Many tales have been told of this American wife of King Joseph. Her mother and herself are said to have conducted a small dry-goods shop in Philadelphia at the time Bonaparte met them, and it is traditional gossip that the brother of Napoleon I fell in love with the dark-eyed maiden as she sold him suspenders over her little counter. For a time he lived with her in a villa some distance below the city proper. The blue-blooded aristocracy of the Quaker City looked on the amour with horror, and the little Quakeress was made to feel all the cruel stings which spring from virtuous indignation. The count, who was very fond of society, looked in vain for the familiar equipages of Friends in his driveway. When he gave parties, half the invited guests were sure to send regrets. Finally, becoming enraged at what he termed "insults," he decided to go back to Jersey. Wishing to secure a mansion that was beautiful as well as sequestered, he persuaded his friend Barnt DeKlyn to rent him Bow Hill, and he in return for the privilege gave him the use of another villa he owned in Trenton. Little is known of Annette Savage's life at Bow Hill to-day, although the house is still in the possession of a descendant of Barnt DeKlyn, Miss Caroline Lalor. Her love for her ancient abode amounts almost to a worshipful veneration, but the subject of Bonaparte's stay there was always prohibited in family conversation by her father. A secret door in the wall of Annette Savage's room, through which Bonaparte used to enter, is still shown to interested visitors. On

one of her window-panes facing the Delaware is the sentence "God is love," scratched with a diamond, and it is a family tradition that it was her work" (Mills 1902:281-282).

While there is no documentation firmly linking Ann Savage with Bow Hill, there are surviving records linking her with another property in the vicinity known as Pine Grove. Ann and a Margaret Jewett Savage, Ann's mother, purchased another, smaller house on the Trenton riverfront from Barnt DeKlyn in 1819 (Burlington County Deed K-2:140). It is possible that Ann lived at Bow Hill for a short spell before coming to this other residence, the site of which lay within what is today Riverview Cemetery. This is, in fact, the scenario presented by Alfred Heston in 1924 in his book *South Jersey - A History 1664-1923*. According to Heston, Ann was initially an unwilling participant in the arrangement, having been pressured into the relationship with Joseph Bonaparte by her mother. Barnt DeKlyn, furthermore, "regretted having allowed his house to be stigmatized by an affair of the heart entailing scandal, and at the expiration of a year refused to renew the lease. After some persuasion, however, on account of his friendship for Bonaparte, he consented to sell him another property, nearer Trenton, afterwards known as Pine Grove The household included Annette's mother and three servants. Here they lived for a number of years surrounded by every luxury that wealth could provide" (Heston 1924:121).

A somewhat less romantic version can also be extrapolated from other documented facts. In 1824, Ann Holton buried an infant daughter, Pauline, in the graveyard of St. Michael's Episcopal Church in Trenton. The identity of the child's father is not given by the tombstone's inscription, but the child's middle name – Josephann – told all that there was to know. The patrimony of Ann's daughter was an open secret, but it was not one that could be voiced outwardly with any degree of respectability. In naming her daughter,

Ann did the best that she could to proclaim to the world her child's parentage. The tombstone carved for Pauline Josephann Holton's grave indicated that the child was four years old at the time of her death.

In all likelihood, Joseph Bonaparte took up with Ann Savage in Philadelphia toward the end of the second decade of the 19th century. Philadelphia society tolerated the arrangement, but Joseph probably understood that a pregnancy would be the straw that broke the camel's back. With the help of his friend, Barnt DeKlyn, a house in Trenton was quickly arranged when Ann was found to be pregnant. Ann would have endured her pregnancy at Bow Hill in secret and in seclusion. She took the pseudonym "Ann Holton" to conceal her identity and her connection to Bonaparte. After the child was born a more permanent arrangement was needed, and the smaller house was sold to "Ann Holden" and her mother with money provided by Bonaparte. Ann later had another child by Bonaparte, Caroline Charlotte, who grew to maturity. Caroline was commonly known as Charlotte in honor of Joseph's legitimate daughter, Charlotte. This was apparently an unsuccessful attempt by Ann to curry favor with Charlotte Bonaparte, who was then resident at Point Breeze.

An undated newspaper clipping found in an old book gives another colorful account of the travails of Ann Savage:

"The late Miss Sarah Stafford, who was employed as governess for the elder of the two children born there, has described the wretchedness of this woman who loathed the life she led, and her agony and remorse upon the death of the younger child, which she looked upon as a just retribution for her sin. At length, wearied by her tears and reproaches, Bonaparte gave her the freedom she desired, and she with her daughter left this locality to begin life anew in a distant part of the country."

Sadly, it seems that by the date of Pauline's death, Joseph Bonaparte had already tired of Ann, as he was already in the process of arranging another affair of an even more questionable nature than that which he had had with either Ann or his housemaids. Joseph was attracted to the wife of Felix Lecoste, a former French Army officer and now a merchant on the island of St. Domingue (Santo Domingo). Joseph enticed the couple to Point Breeze in 1823 where he convinced them to live. He then arranged for Felix to become editor of a New York-based French language newspaper, and in the latter's absence, his wife, Emilie was left free, in 1825, to bear Joseph an illegitimate son (Hofer and Olsen 2002:145-145).

Ann Savage went to France in 1826 with Caroline Charlotte and there, in Paris, met and married Alexis de la Folie. In anticipation of her departure, the rights to her property in Lamberton were transferred to John R. Savage, Ann's brother, to be held in trust in Ann's absence. Ann's marriage may actually have been arranged by Joseph Bonaparte. She was still in Paris when she wrote to Joseph on December 24, 1827, asking him to buy her house in Lamberton for \$18,000. She said that she needed this money in order to educate and care for their child, an expense that she did not want to put on her husband. She also informed Joseph that she intended to leave America for good (Burlington County Deed C3:569; Patricia Tyson Stroud, April 2, 2003:personal communication).

In 1832, John R. Savage, Ann Holton la de Folie and Alexis de la Folie sold their Lamberton properties to Joseph Bonaparte for the sum of \$14,000 (Burlington County Deed S2:22). Although less than what Ann had been asking of Joseph Bonaparte, this still appears to have been a vastly inflated price, one that probably represented as much a "divorce" and "child support" settlement as a real estate purchase. Ann and Alexis then returned to New York State, where Alexis de la Folie apparently died in 1840. Two years later, Ann married Henry Horr of Watertown, New York.

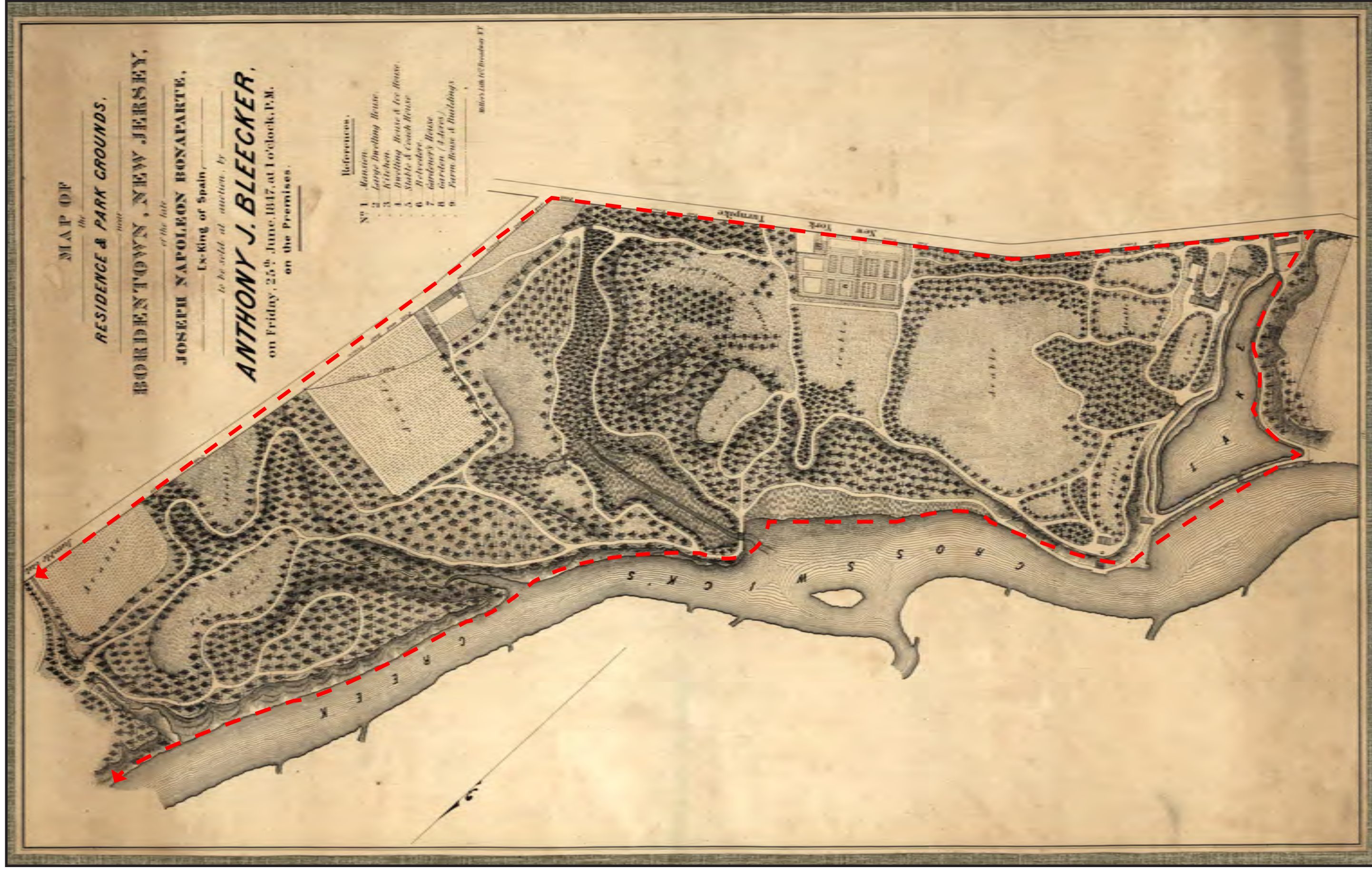


Figure 4.6.. Map of the Residence & Park Grounds near Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte... Circa 1847. Scale: 1 inch= 670 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.

They moved to New York City, where Ann died in 1865 (Patricia Tyson Stroud, April 2, 2003:personal communication; Custer 2003). According to Heston, Caroline Charlotte Holton (Bonaparte) visited France in later years and was recognized by Napoleon III as his cousin. But Caroline Charlotte was still illegitimate and an American after all. Not accepted by the new French aristocracy, she married Zebulon Hart and died in 1890 in relative obscurity at Richfield Springs, New York (Weebers 2000).

Almost immediately after formally acquiring Ann's lands in 1832, Joseph Bonaparte set sail for a five-year visit to England. In 1839, Joseph Bonaparte returned to Europe for good but he retained his Bordentown estate until his death in 1844, when it passed to his grandson Joseph. The latter sold the property in 1847. A map prepared at the time of this sale (Figure 4.6) documents the extent of Bonaparte's landscaped grounds and the extent of the property's architectural infrastructure. In 1850, "Bonaparte's Park" was purchased by Henry Beckett. Beckett demolished the primary Bonaparte house but retained the guest house known as the Lake House and some of the outbuildings. He erected his own grand Italianate residence in place of the Bonaparte mansion, although on a different site. Following Beckett's death, the property was subsequently sold to Harris Hammond who restored and embellished Beckett's house. Hammond lost much of his extensive personal wealth in the Great Depression and the property was sold. In 1941, it was purchased by the Society for the Divine Word, a Catholic missionary community which occupied the Beckett house until its demise in a fire in 1983. The Society for the Divine Word retains the property today and occupies facilities constructed on the property in the 1960s.

D. RAILROAD AND CANAL

Prior to the construction of the large highways that crisscrossed the marshes in the final quarter of the 20th century, the most dramatic manmade changes to the landscape of the AFNHL were related to the construction of the Delaware and Raritan Canal and the Camden and Amboy Railroad in the 1830s. The Delaware and Raritan Canal was chartered in 1830, constructed in 1830-34 and operated into the third decade of the 20th century. Substantial portions of the waterway still survive and it serves today both as a major source of potable water and as a recreational amenity. The southernmost portion of the canal's main line runs along the western edge of the AFNHL. The main line of the Camden and Amboy Railroad was constructed at the same time as the canal and was supplemented in 1839-40 with a branch line that passed through Trenton, Princeton Junction and New Brunswick. The portion of the main line between Camden and Bordentown, and the segment of the branch line between Bordentown and Trenton, survive today as the River Line. The latter segment runs parallel to the canal alongside the western edge of the landmark.

The Delaware and Raritan Canal linked Bordentown on the Delaware River with New Brunswick on the Raritan River and was primarily supplied with water via a 22-mile long feeder canal which extended along the left bank of the Delaware River from Bulls Island to Trenton. The entire system covered a distance of 65 miles and included 17 locks. The five original locks (Locks 1-5) located to the south of Lalor Street in the vicinity of the landmark all appear on the U.S. Coast Survey's *Survey of the Coast of the Delaware River from Bordentown to Trenton, New Jersey* of 1844 (Figure 4.5).

Lock 1 was situated at the canal's outlet on the Delaware River at the mouth of Crosswicks Creek. Problems with how this lock was originally engi-

neered led to the realignment, sometime between 1844 and 1849, of approximately 1,000 feet of the southern end of the canal to connect with a new outlet about 400 feet to the west of the original one. Both the original outlet and the newer realigned terminus of the canal are shown in Plate 4.9. The original outlet appears with a steamboat tied up in its mouth at the right of the view just to the west of the railroad bridge over Crosswicks Creek. The newer outlet appears at the left of the image. Plates 4.9-4.12 show the extent of the infrastructure that surrounded Lock 1 at the end of the 19th century. Plate 4.11 also shows how dredge spoil was already beginning to reshape the western edge of Duck Island during the late 19th century. Dredging was undertaken both within Crosswicks Creek and in the Delaware River in order to create a deeper channel for steamboats traveling between Philadelphia and Trenton.

Lock 2 is shown by the U.S. Coast Survey map (Figure 4.5) as having been situated on the east bank of the Delaware River just north of the island labeled "Long Bar." As with most locks on the canal, a lock tender lived in a house close to the lock (Plate 4.13). Locks 3, 4 and 5 formed a close-set series of locks that carried boats up and down the bluff edge just to the east of Lambertton Point. Sometime between 1844 and 1860, probably around 1853 when a canal-wide program of lock lengthening was in progress, these three locks were reconfigured as two, and Lock 5 ceased to be enumerated as such (compare Figures 4.5, 4.7 and 4.10). Most likely Lock 4, the central one of the three, was removed, and old Lock 5 came to be known as new Lock 4. Today, the locations of Locks 3 and 4 lie beneath the merging intersection of N.J. Routes 29 and 129.

The Delaware and Raritan Canal was the second major canal built in New Jersey, following after the Morris Canal constructed between 1825 and 1831. Yet the idea for the Delaware and Raritan Canal originated at the end of the 18th century. A proposal to construct a

canal to link the Delaware and Raritan Rivers was first formally put forward in 1796, leading to the incorporation of the Assanpink Creek Navigation Company. In 1804, the New Jersey Navigation Company was incorporated "for the purpose of opening a communication by water to commerce from the tidewater of the Raritan River to or near New Brunswick, to the tidewater of the Delaware at or near Lambertton." Neither of these ventures was successful; nor were several others that were attempted during the early part of the 19th century (Hunter Research, Inc. 1989).

Part of the difficulty arose in finding a suitable route for the canal. Eventually, a route was proposed that corresponded to the one finally used, estimates were obtained and a charter was granted to the New Jersey Delaware and Raritan Canal Company in 1820. This charter was voided, however, when the company failed to raise the necessary capital to begin construction. Finally, after the appointment of Canvass White to the position of Chief Engineer of the Delaware and Raritan Canal in 1825, and the submission of revised cost estimates, another charter was granted on February 4, 1830, on the same day that a charter was granted to the Camden and Amboy Railroad (Westcott 1833; Lane 1939; Hunter Research, Inc. 1989).

The Camden and Amboy Railroad, like the canal, was constructed between 1830 and 1834, establishing a rail link between the Philadelphia and New York metropolitan areas. The railroad initially connected Camden on the Delaware River with South Amboy on the Raritan Bay. It was both the first railroad chartered by the State of New Jersey and the first in the state to go into operation. It was the third railroad to be chartered in the nation, preceded only by the Granite Railway (chartered 1826) and the Baltimore and Ohio Railroad (chartered 1827). Buoyed by tremendous public enthusiasm, the railroad was able to sell nearly \$1,000,000 in stock shortly after the charter was issued (Lane 1939; Cunningham 1951; Hunter Research Associates 1986).

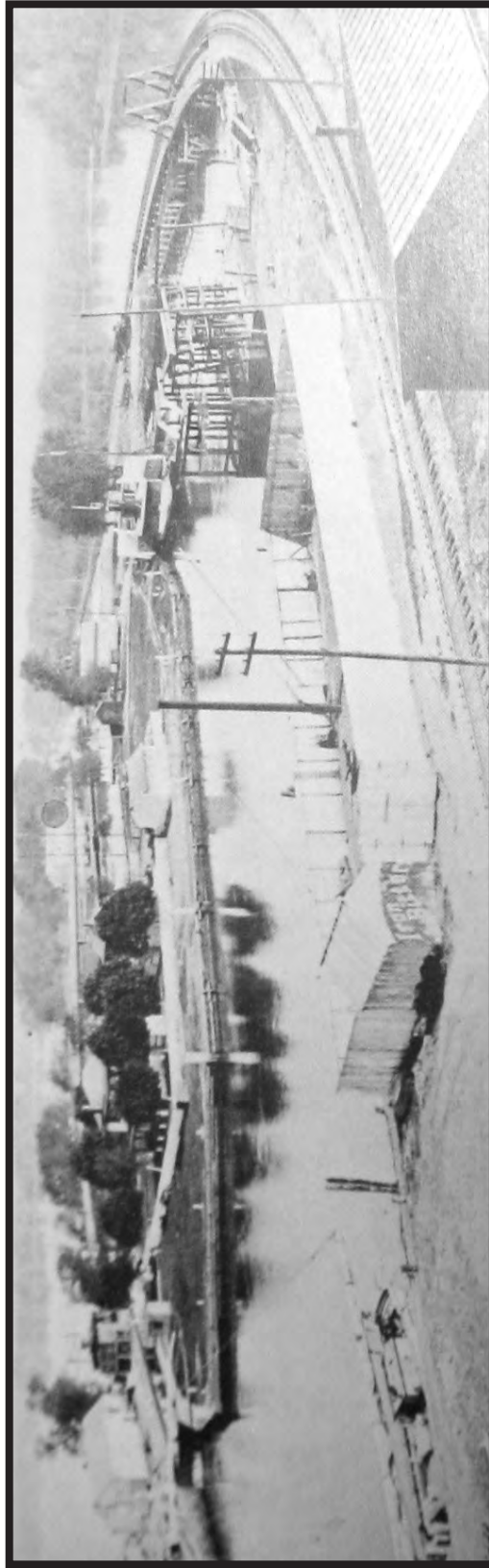


Plate 4.9. Historic photograph of the Delaware and Raritan Canal Outlet Lock from Bordertown. *Circa 1886* (Source: McKelvey 1975:9).



Plate 4.10. Historic photograph of the Delaware and Raritan Canal Outlet Lock from Bordentown. *Circa 1886* (Source: McKelvey 1975:10).



Plate 4.11. Historic photograph of the Delaware and Raritan Canal Outlet Lock from Bordentown. Undated (Source: McKelvey 1975:10).



Plate 4.12. Historic photograph of buildings at the Delaware and Raritan Canal Outlet Lock opposite Bordentown. April 1935 (Source: Henry B. Kümmel Collection, New Jersey State Archives).



Plate 4.13. Historic photograph of the lock tender's house at Delaware and Raritan Canal Lock 2. April 1935 (Source: Henry B. Kümmel Collection, New Jersey State Archives).

The driving force behind the creation of the Camden and Amboy Railroad was the Stevens family of Hoboken, led by Colonel John Stevens and his two sons, Robert, who was the first President of the company, and Edwin, the first Treasurer. The railroad quickly became the primary means of passenger travel across the state. Part of its success was the result of shrewd management, but much was owed to the legislated monopoly that the Camden and Amboy received over train service between Philadelphia and New York City.

The initial alignment for the Camden and Amboy Railroad followed a route across central New Jersey that in places ran more than ten miles to the east of the course surveyed for the Delaware and Raritan Canal. The 14-mile Bordentown-to-Hightstown section of the railroad was opened in September of 1832. Service between Hightstown and Amboy was added in December of the same year. The link southward between Bordentown and Camden went into operation in January of 1834 and the entire track, from Camden to Amboy was in full use by the early spring of 1835. The initial plan was for trains to use the Bordentown to Camden section of the railroad only during the winter months, with passengers taking the steamboat down the Delaware to Philadelphia from Bordentown in the summer. The Bordentown to Camden line was, however, soon used year-round, with passengers using the ferry service between Camden and Philadelphia.

Public enthusiasm for the canal lagged behind that for the railroad, and it took months to raise the necessary backing. It was only through a massive infusion of funds from Robert F. Stockton that the canal construction was able to begin. The problem of competition from the Camden and Amboy Railroad for freight remained, however, and the canal officials approached the railroad in an effort to work out a compromise. This led to the merger of the two entities and the formation of the "Joint Companies." This marriage of convenience included a clause preventing the con-

struction of competitive lines of transportation across central New Jersey for 30 years. As a direct result of this corporate merger, the Delaware and Raritan Canal was able to establish a sound economic position which it was able to maintain until the final quarter of the 19th century. The greatest period of canal prosperity was between 1850 and 1875 (Watkins 1891; Meyer 1917; Barton 1927; Hunter Research Associates 1986; Hunter Research, Inc. 1989).

The 14-mile section of the canal between Trenton and Kingston was completed and opened to traffic in 1833. The full length of the canal was formally opened on June 25, 1834. About the same time that the canal was completed, the Joint Companies acquired control of the Philadelphia and Trenton Railroad. The Philadelphia and Trenton Railroad ran on the west bank of the Delaware River from Philadelphia to Morrisville, opposite Trenton. The Joint Companies also engineered the purchase of a majority of shares in the Trenton Bridge Company, which operated the only bridge over the Delaware River at Trenton. With the laying of rails over this bridge, Trenton was now connected by rail to Philadelphia. The final step was to establish a direct rail link between Philadelphia and the west bank of the Hudson opposite New York. This was accomplished in 1839-40 when the Camden and Amboy Railroad branch line was constructed from Bordentown across the mouth of Crosswicks Creek, through Trenton and New Brunswick, running for much of its course along the east bank of the Delaware and Raritan Canal. Within a very short time, the Trenton and New Brunswick branch line of the Camden and Amboy surpassed the main Bordentown to South Amboy section as the primary route across central New Jersey (Watkins 1891; Meyer 1917; Barton 1927; Hunter Research Associates 1986).

The success of the Delaware and Raritan Canal and the Camden and Amboy Railroad spurred Trenton's transformation from a market town into a major industrial center. The iron, steel and ceramics industries

made extensive use of both modes of transportation for bringing coal, iron, clay, feldspar, flint and other raw materials into the city and for shipping metal and ceramic products out to market. The canal and railroad also had a profound effect on the countryside through which they passed. Materials brought into the countryside included coal, lumber, fertilizers and manufactured goods. The surrounding farms made use of the canal and railroad for shipping agricultural products to urban markets in Philadelphia, Trenton, New Brunswick and New York City. The railroad also served as major mover of people (Hunter Research, Inc. 1989).

In 1867 the Joint Companies merged with the New Jersey Railroad and Transportation Company to form the United Canal and Railroad Companies of New Jersey. In 1871 the property of the United Companies was leased to the Pennsylvania Railroad for 999 years, and the volume of freight on the canal soon began to decline as the new operator was far more interested in promoting rail transport. Traffic on the canal continued to decline as other trans-state rail lines were put into service. By 1900, the canal was running at a deficit from which it never recovered, and finally ceased operation in 1933. After its closure, it was taken over by the State of New Jersey and adapted into a water supply system for central New Jersey communities. In 1936, most of the canal between Lock 2 and its junction with the Feeder Canal was filled in as part of a Works Progress Administration project. In the 1960s and 1970s the historical value and recreational potential of the entire length of the canal began to be recognized. It was listed in the National Register of Historic Places in 1973 and in the following year was designated a state park and placed under the supervision of the State Park Service and the newly formed Delaware and Raritan Canal Commission (Hunter Research, Inc. 1989).

The construction of the railroad and the canal had a pronounced impact on the area now designated as the AFNHL. These two regional transportation elements represented the first real intrusions of the industrial age into what was otherwise (with the notable exception of Joseph Bonaparte's Point Breeze estate) largely an agrarian or natural landscape. They spurred residential growth in the area surrounding Bordentown and fueled the southward expansion of Trenton into Hamilton Township. The construction of the canal and railroad embankments also had a dramatic effect on drainage patterns within the marsh. Tidal flow was now heavily constricted by the limited number of openings in the canal/railroad embankment. The U.S. Coast Survey map of 1844 (Figure 4.5), for example, shows that a single culvert passing under the embankment to permit Watson's Creek to continue to drain into the Delaware. Otherwise, all drainage from the marsh was deflected eastward into Crosswicks Creek.

E. CHARLES CONRAD ABBOTT AND 'THREE BEECHES'

The AFNHL takes its name from a property lying at its core that was owned and inhabited in the late 19th and early 20th centuries by Charles Conrad Abbott, naturalist, antiquarian and one of the most colorful and controversial figures in the history of American archaeology (Plate 4.14). Born in 1843, C.C. Abbott was the great great great grandson of John Abbott of Abbottville. Although the original nucleus of the Abbottville plantation had passed out of Abbott family ownership in 1825 and actually lies outside the boundaries of the AFNL (Plate 4.15), Charles Conrad Abbott grew up playing on family-owned farms overlooking the marshes that bordered the edges of Crosswicks and Watson's creeks (Louis Berger & Associates, Inc. 1998:319).



Plate 4.14. Historic photograph of Charles Conrad Abbott. Undated (Source: Trentoniana Collection, Trenton Public Library).

During Abbott's childhood, two, and then later, three adjacent properties on the bluff were owned by members of the Abbott family. The Otley and Keily wall map of Mercer County, published in 1849 (Figure 4.7), shows the extent of the Abbott family holdings in 1849, one year before Ephraim Abbott, Charles's uncle, purchased the Isaac Watson House and its associated farm. Edmund Abbott, a cousin of C.C. Abbott's father, owned the bulk of the land that had formerly comprised the Pharo plantation. On it, in 1797, C.C. Abbott's great great uncle Samuel had erected the large brick residence known today as the Abbott-DeCou House. It is labeled "E. Abbott" on the Otley and Keily map. Between the Watson House farm (then owned by "H. Cole") and Edmund Abbott's lands was "Prospect Hill," a farm purchased in 1800 from William Watson by Abbott's great grandfather, John. John, being the principal heir to John Abbott I, was master of Abbottville at the time of this purchase and was not acquiring the land for himself but rather for the use of one of his younger sons, Joseph (C.C. Abbott's grandfather). According to C.C. Abbott's own account John erected a two-story frame house (Plate 4.16) on the property prior to turning the property over to Joseph in 1807. In the construction of the new house's kitchen wing (Plate 4.17) and some of the farm's outbuildings, Joseph apparently made use of components of a dwelling that had been erected on the property by the Watson family, its previous owners (Louis Berger & Associates, Inc. 1998:314-317).

Charles Conrad Abbott initially lived with his father, Timothy, and his mother, Susan Conrad Abbott, in Trenton. Abbott's father had built a successful career first as a Philadelphia hardware merchant and then later as a banker, rising to the position of President of the Mechanics National Bank of Trenton. He later relinquished his Presidency of the Bank to serve as the Vice-President and Treasurer of the Trenton Iron Company, but returned after a number of years to take up his old post. As a youth, C.C. Abbott attended some of the best schools in Trenton, including the

Trenton Academy, but it was the time on his family's farms which seems to have made the most impression on him. Abbott's favorite childhood memories were of wandering the bluffs overlooking Watson's Creek and through the meadows which extended southerly as far as Crosswicks Creek (Figures 4.8 and 4.9). He later stated that it was during this childhood period that the desire to own one of the three Abbott family farms on the bluff top first took root in his mind (Louis Berger & Associates, Inc. 1998:319). The Lake and Beers *Map of the Vicinity of Philadelphia and Trenton* of 1860 (Figure 4.10) shows how the three Abbott family properties stood in a row and formed a solid block of family ownership along the bluff overlooking Watson's Creek.

In 1861 Abbott enrolled at the University of Pennsylvania where he studied medicine. His studies were briefly interrupted by the Civil War, but he completed a doctoral dissertation on diphtheria in 1865 and received his degree. Although Abbott went ahead and completed his degree, there is little, if any, evidence that he had any interest in practicing medicine. In 1867, he married Julia Boggs Olden, the daughter of Job Olden, a wealthy and well connected member of a prominent Princeton family. While his own relatively modest means were not enough to support his dream of owning a bluff-top farm, his father-in-law's wealth was much more substantial (Kraft 1993:2). In 1874, Job Olden purchased "Prospect Hill" from Abbott's Aunt Susan. Evidently, Abbott's dream of possessing one of his family's ancestral farms must have led to a request by his wife for assistance from her father. Ironically, however, Abbott would have no actual ownership interest in or control over the property himself. A codicil made to Olden's will at the time of the purchase clearly stipulated that the property had been purchased solely for the use of his daughter and that in the event of Julia's death, the property was to pass to her heirs and not to Abbott. Such was Olden's control over the property that it appears under his name on the Everts and Stewart map of Hamilton Township in their

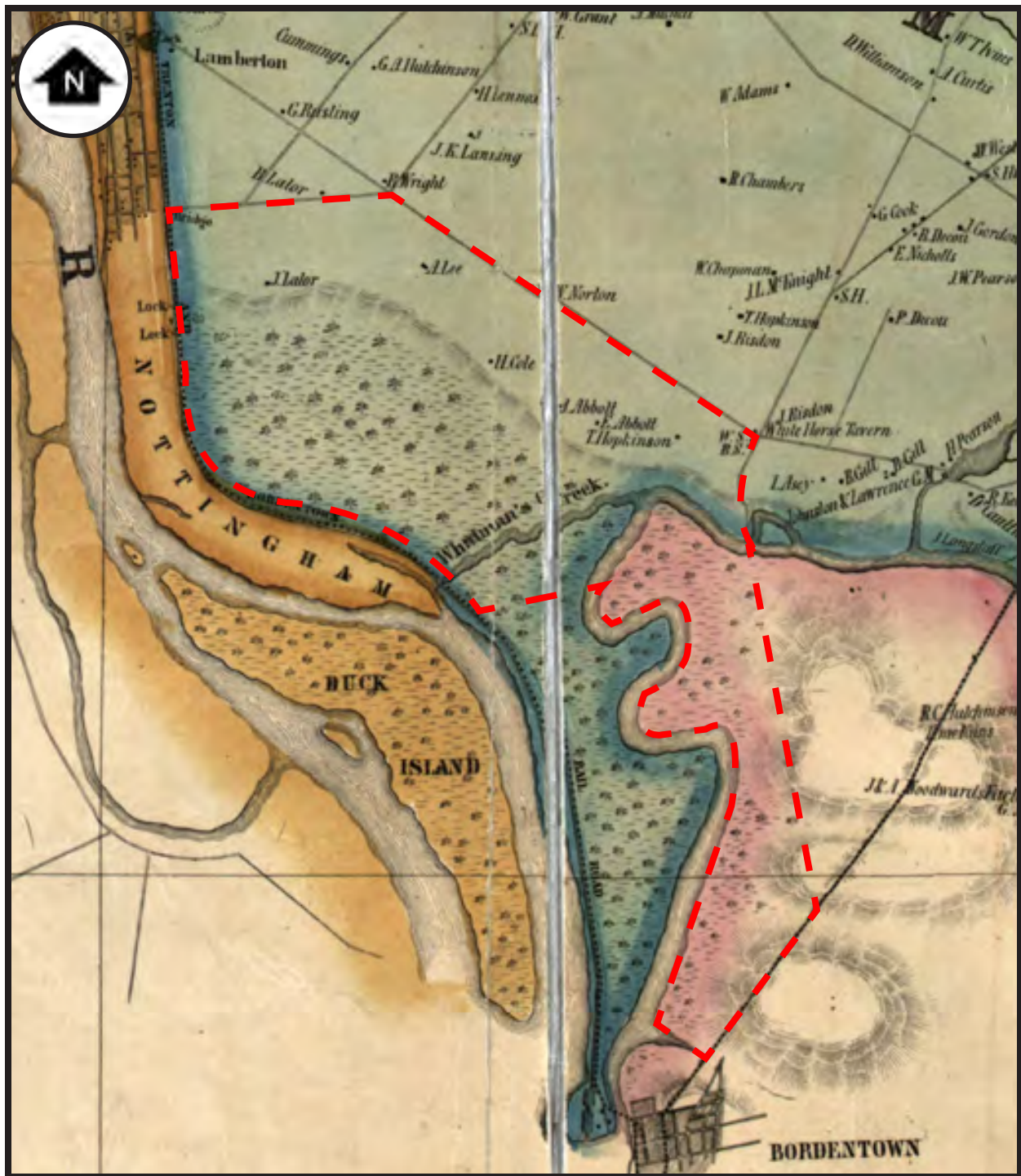


Figure 4.7. J.W. Otley and J. Keily. *Map of Mercer County*. 1849. Scale: 1 inch= 3,400 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.



Figure 4.8. J.W. Otley and R. Whiteford. *Map of Burlington County*. 1849. Scale: 1 inch= 4,400 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.

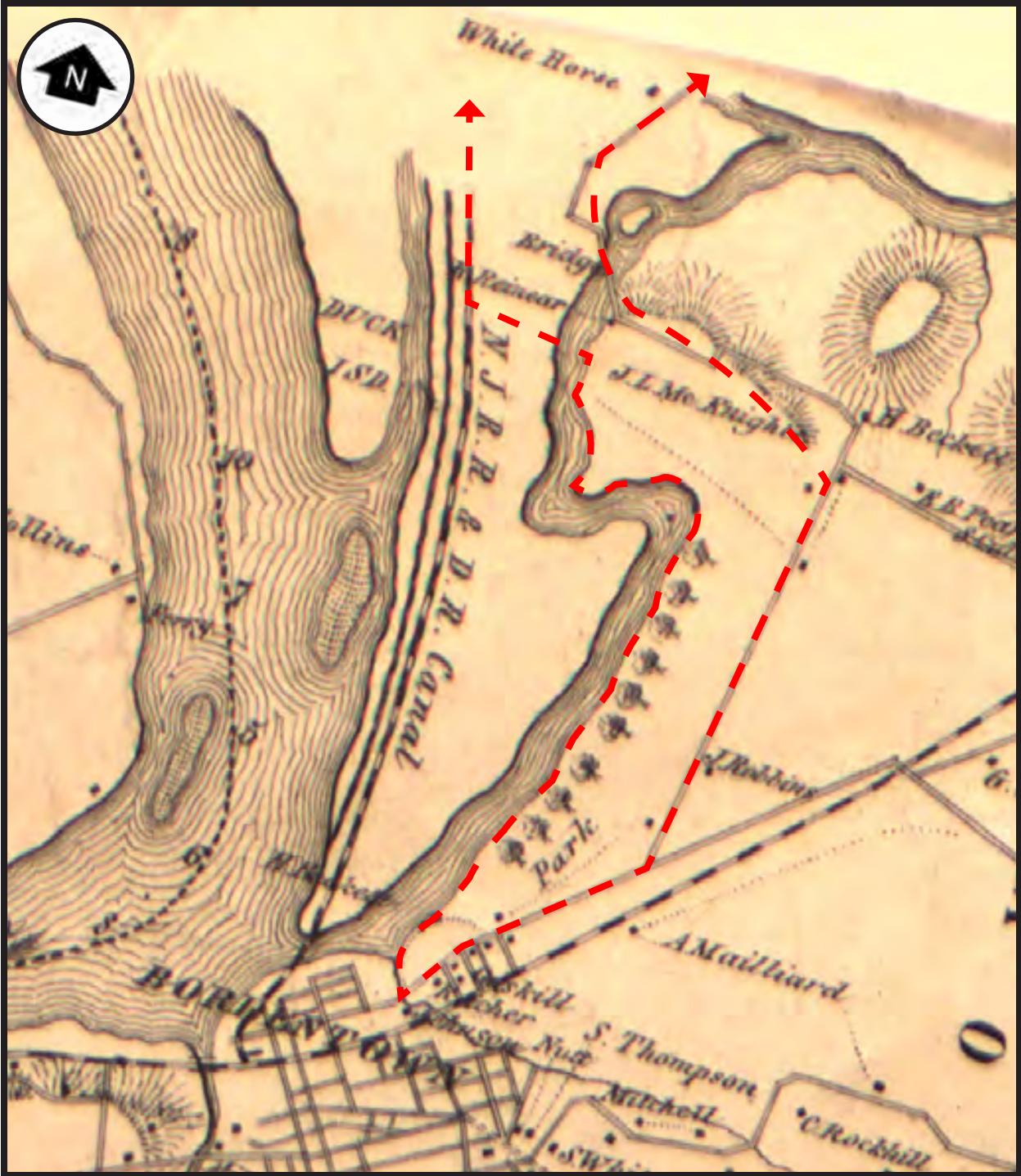


Figure 4.9. William Parry, George Sykes and F.W. Earl. *New Map of Burlington County*. 1858. Scale: 1 inch= 2,900 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.



Figure 4.10. D.J. Lake and S.N. Beers. *Map of the Vicinity of Philadelphia and Trenton*. 1860. Scale: 1 inch= 3,450 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.



Plate 4.15. Historic photograph of Abbottville from South Broad Street. *Circa* 1885 (Source: Historical Society of Hamilton Township 1998:54).



Plate 4.16. Historic photograph of the main house at “Three Beeches.” Undated (Source: Louis Berger & Associates, Inc. 1998:282).



Plate 4.17. Historic photograph of the main house at “Three Beeches.” Undated (Source: Louis Berger & Associates, Inc. 1998:283).

Combination Atlas of Mercer County, New Jersey of 1875 (Figure 4.11) (Louis Berger & Associates, Inc. 1998:321-322).

Charles and Julia moved into the farm in 1867 and renamed the property “Three Beeches” (Plate 4.18). Abbott’s choice of a name, assuming it was his, shows the importance that the landscape held for him. The name, derived from a cluster of trees that were known by Abbott and his family to have stood on that property since the 17th century, emphasized their historical ties to the land (Plate 4.19). The name was also a nod by Abbott to the natural assets of the farm and the neighboring marsh which he cherished so much. Intimately connected to a landscape which he viewed as his birthright, he had grown up roaming the farm fields and the adjacent marshes and probably knew them as well as anyone alive.

Abbott’s life was uniquely shaped by his sense of his heritage. Even his interest in the natural world seems to have been something of a birthright acquired from his mother’s side of the family. Abbott’s maternal grandfather was Solomon White Conrad, the owner of a publishing house, who was also a mineralogist, a professor of botany who taught at the University of Pennsylvania, and the librarian of the Academy of Natural Sciences in Philadelphia. His uncle, Timothy Abbott Conrad, was a noted early leader in the field of American paleontology. It seems inevitable that Charles would commence his career as a professional natural scientist and that the chief focus of his interests would be the lands surrounding “Three Beeches” (Louis Berger & Associates, Inc. 1998:318).

Abbott at first tried to operate the farm himself but soon had to admit that he was a failure. Despite his agricultural shortcomings, the upland fields and drained portions of the farm’s meadows were kept in active agricultural production (Plate 4.20), while Abbott turned his attention to his work as a naturalist. Abbott had turned to hired help to maintain the

farm but found no more success using this approach, believing that he was being constantly swindled. Eventually, he had better luck when he turned the operation over to his brother, Thomas, and then later, to his son, Richard (Louis Berger & Associates, Inc. 1998:324).

In truth, the real heyday of the farm had already passed by the time C.C. Abbott and his family first occupied “Three Beeches.” Much of the agricultural prosperity of the Abbott properties had been based on the fertility of the meadows below the bluff. An extensive dike and ditch system kept the tide from overflowing these lands and rendered them suitable for pasturage and growing hay. Following the construction of the railroad and the canal in the 1830s the drainage of the lowlands was dramatically impacted. Watson’s Creek was permitted to drain through a culvert that extended beneath the railroad and the canal, but the opening was narrow and often backed up. Other smaller tributaries were entirely cut off from the Delaware River and soon cut new paths into Watson’s Creek thereby increasing its flow, flooding adjacent lands and overwhelming the carefully constructed drainage systems. Farming continued in the meadows into the 20th century, but at ever decreasing rates of productivity as more and more of the lands became marsh (Louis Berger & Associates, Inc. 1998:24, 315-316).

Throughout this period Crosswicks Creek still remained an important transportation route, even though it was no longer navigable for masted vessels after the drawbridge at the Bordentown Road crossing was replaced in 1833 by a fixed covered bridge. Instead, a channel was left beneath the bridge for smaller boats (Louis Berger & Associates, Inc. 1998:127). Joseph Abbott continued to maintain a secondary landing on Watson’s Creek for a small scow, but the principal Abbottville landing just downstream of the bridge had largely gone out of use by the 1820s, as is evidenced by the demolition of the two storehouses which stood

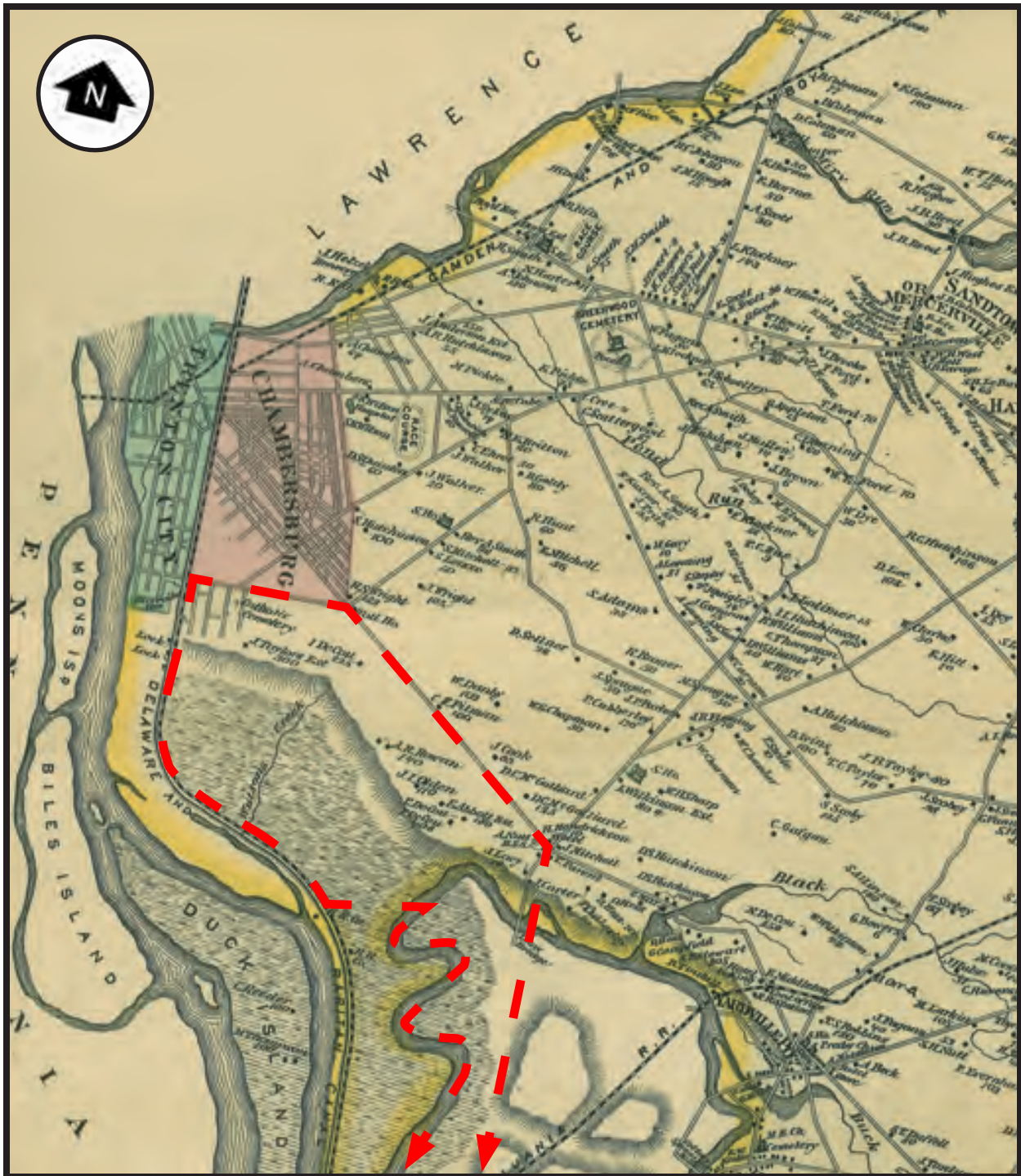


Figure 4.11. Everts & Stewart. *Combination Atlas Map of Mercer County, New Jersey*. 1875. Scale: 1 inch= 5,000 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.



Plate 4.18. Historic photograph of the lane leading to “Three Beeches.” *Circa* 1884 (Source: Historical Society of Hamilton Township 1998:54).



Plate 4.19. Historic photograph of the beech trees after which Charles Conrad Abbott named his home. Undated (Source: Historical Society of Hamilton Township 1998:54).



Plate 4.20. Historic photograph of the Charles Conrad Abbott farmstead at “Three Beeches;” taken from the meadows. Undated (Source: Louis Berger & Associates, Inc. 1998:280).

on that property at some point prior to the construction of the new bridge (Louis Berger & Associates, Inc. 1998:127-128).

Although no longer utilized for the shipping of agricultural produce and commercial merchandise, the old Abbottville landing played a role in the local clay mining industry. Substantial beds of clay were known to exist under the “Three Beeches” property and several of the neighboring farms. Extensive clay mining operations were begun on sections of the bank belonging to the DeCou family in the 1860s. The beds were exposed on the edge of the bluff about 20 feet down from the bluff rim and clay was extracted by tunneling into the bank. These horizontal beds were found to extend for approximately 200 feet into the bluff. The extracted clay was carted overland to Trenton, where it was used in the manufacture of saggars and terracotta ware. Large-scale clay mining activities on the DeCou property only took place for a few years until they were abandoned due to the costs associated with constructing timber roof supports for the tunneling, but work continued close to the old Abbottville landing where a sand/gravel/clay pit was opened by the family of Israel Lacey (Lacy). This operation was located on a 15-acre parcel, including the landing site, which was acquired by the Laceys in 1861 (Geological Survey of New Jersey 1878:237; Louis Berger & Associates, Inc. 1998:128).

The Lacey family operated two tug boats and a small fleet of barges that were constructed on the riverbank to assist in the shipping of their mined products and other goods along Crosswicks Creek (Plate 4.21). Soon after they started their mining operations, the Laceys began dredging the main channel of the creek, at least as far upstream as the bridge, to improve navigation (Figure 4.12). Much of the sand, gravel and clay mined and dredged by the Laceys was sold to the Florence Iron Works (Historical Society of Hamilton Township, Inc. 1998:48-49). This increased waterborne activity on the creek may have led to the cut-

ting of a new channel through a bend in the creek that first appears on topographic maps produced in the late 1870s and early 1880s by the Geological Survey of New Jersey (Figure 4.13) (Louis Berger & Associates, Inc. 1998:24, 315-316).

From a naturalist’s perspective, Charles Conrad Abbott was perhaps more of a romantic than a pure scientist. He was best known for the numerous popular books and articles that he wrote about his experiences with nature. These works present often jumbled information about the flora and fauna he observed on his daily walks through the fields, woods, meadows and marshes surrounding his farm, interspersed with occasional notes on geology, climate and prehistoric man, and commentary on the impact of modern man upon the natural environment. All of these topics were addressed in a prose that at times bordered on poetry. Over the course of his career, he would author 17 books on natural topics. A truly comprehensive list of Abbott’s articles, which were published in many of the nation’s best known popular magazines and scientific journals, has yet to be compiled. Many of his publications are listed in Appendix A of this report.

Abbott also wrote extensively on the topic of the “antiquity of man” in the Delaware Valley. This was another avenue of interest rooted in Abbott’s attachment to his ancestral lands and which was fueled by his frequent finds of Native American artifacts and the more formal archaeological investigations of others. Abbott wrote extensively on the subject with his first major work, *The Stone Age in New Jersey*, being published in 1876. His writings and observations led to his appointment to the position of “special field collector” for Harvard University’s Peabody Museum of Archaeology and Ethnology and ultimately, in 1890, as the first curator of the University of Pennsylvania’s newly formed Department of American Archaeology. About this time, Charles and Julia Abbott established a second household in Bristol, Pennsylvania,



Plate 4.21. Historic photograph of the Lacy family barge being constructed on the banks of Crosswicks Creek. Undated (Source: Historical Society of Hamilton Township 1998:54).



Figure 4.12. J.D. Scott. *Combination Atlas Map of Burlington County, New Jersey*. 1876. Scale: 1 inch=3,800 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.

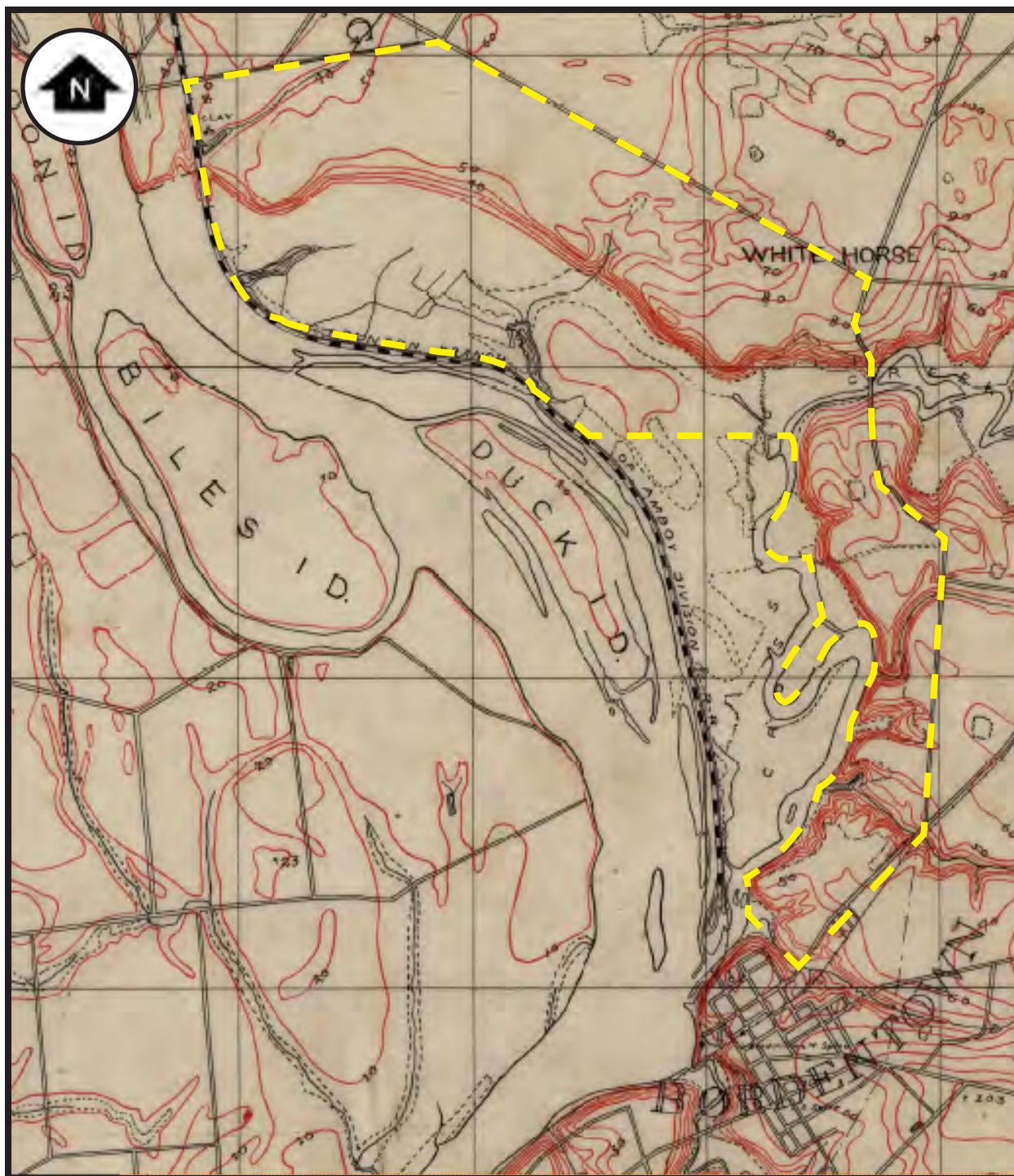


Figure 4.13. C.C. Vermeule. New Jersey Geological Topographic Survey Manuscript Sheet 54, n.d. (1870-1887). Scale: 1 inch= 3,100 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with yellow dashed line.

presumably to shorten Abbott's commute to work at the University of Pennsylvania (Kraft 1993:8; Louis Berger & Associates, Inc. 1998:328-330).

Although most of Abbott's personal income was derived from his popular nature writings, his interest in archaeology eventually came to overshadow this work and the sometimes bitter debate over his controversial archaeological theories, discussed in more detail in Chapter 5, dominated much of his later life. By the start of the 20th century, Abbott's naturalist musings had largely gone out of vogue. The cost of maintaining two properties was obviously quite high and Julia began negotiations with the Pennsylvania Railroad concerning the possible sale of "Three Beeches." A real estate development division of the railroad, the Manor Real Estate and Trust Company, was interested in obtaining the property for potential future development.

On Friday, November 14, 1914, prior to completion of the sale, a fire set by hunters along the railroad tracks in the meadows spread across the Trenton bluff and consumed "Three Beeches." The Abbott family was already in the process of moving out of the house but, still, nearly all of Abbott's personal effects were lost including much of his family furniture, his family documents, his natural collections and Native American artifacts, his library and many of his manuscripts. The loss of so much of his life and his beloved "Three Beeches" left Abbott a despondent man. In 1916, Julia finally conveyed the "Three Beeches" property to The Manor Real Estate and Trust Company. It was the last of the Abbott family farms to pass out of family ownership. Charles Conrad Abbott lived on for three more years. Although Dr. Abbott died in Bristol in 1919, his remains were interred in Riverview Cemetery in Trenton just a few hundred feet to the north of the meadows which he loved so dearly (Louis Berger & Associates, Inc. 1998:328-330).

F. SUBURBS, INFRASTRUCTURE AND RECREATION

The 20th century brought dramatic change to the landscape of the AFNHL. Spurred by the continued growth of nearby Trenton, the pace of residential and industrial development increased and began to work its way from west to east and north to south across the area today covered by the landmark. The groundwork for this transformation began to be laid in the later 19th century when Adam C. Deutz purchased a 32-acre tract of land bounded roughly by the modern-day alignments of Lalor Street and Deutz and Bunting avenues and by Sturgeon Pond. Deutz and his partner, Frederick Arend, were seeking a site on which to construct a jewelry factory and associated workers housing. A small grid of streets was laid out just east of the tracks of the Camden and Amboy Railroad and gradually a community developed around the buildings of the factory. The company, known initially as Frederick Arend and Company, was overseen by five partners, Deutz and Arend, Alphonse L. Girardin, Frank Arend and Richard Deutz. After Frederick Arend's death, the concern's name was changed to the Adam C. Deutz Jewelry Company. Until its demise in the early 1880s, the company was best known for the production of jewel-encrusted gold bracelets. Deutzville, as the little neighborhood surrounding the factory came to be known, was bordered on its eastern side by St. John's Catholic Cemetery. The cemetery was established in 1859 to serve the population of nearby Trenton around the same time that Deutz and Arend were initiating their plans for the adjacent factory community. Although unnamed, Deutzville first appears next to the cemetery on the Everts & Stewart "Map of Hamilton Township" in their *Combination Atlas Map of Mercer County, New Jersey* (Figure 4.11) (Historical Society of Hamilton Township, Inc. 1998:59-61).

Broader more sweeping changes to the area began after trolley service was introduced linking downtown Trenton to Deutzville and the bluff top overlooking Watson's Creek. The first such service was introduced in 1876 when the City Railway Company extended its horse car line down Centre Street through the rapidly developing South Trenton and Lamberton neighborhoods as far as Riverview Cemetery. Riverview Cemetery was the city's preeminent burying ground and a popular location for picnics and day trips. In 1885, service was extended up Lalor Street to the Delaware and Raritan Canal providing a direct link to Deutzville (Trenton Historical Society 1929:291-292).

The coming of the trolley line effectively opened up the land along the bluff top north of Watson's Creek for development. As agriculture became a less viable pursuit for the owners of the bluff-top farms, they increasingly began to view the sale of their fields to real estate developers as a viable alternative source of income. Among the individuals chiefly responsible for furthering this development were Andrew K. Rowan, who owned the lands associated with the Isaac Watson House, Eugene Willey and James Rusling. A company, known as the Broad Street Park Land Association, was formed to oversee the sale of lots and the organization of the new community which was known as Broad Street Park (Historical Society of Hamilton Township, Inc. 1998:58-59).

The name "Broad Street Park" was derived from the picnic grounds which had grown up around a property located on the bluff rim between Bow Hill and the Watson House. Formerly owned by Israel DeCou, this property boasted a large brick house, known as "The Overlook," that was constructed in the late 18th/early 19th century and which stood (and still stands) near the bluff edge. The park encompassed both bluff-top fields surrounding the house and a manmade body of water, Spring Lake, within the meadows below (Plates 4.22-4.25). Although it is unclear exactly when the

picnic grove first came into existence, by the early 1890s the Trenton Passenger Railway Company (the successor firm to the City Railway Company) was operating the facility in order to bolster ridership on the trolley line (Historical Society of Hamilton Township, Inc. 1998:58-59).

A newspaper article published in 1893, just after the electrification of the trolley line extolled the virtues of the park thus:

*THE BEAUTY OF BROAD STREET PARK
AND "THE MEADOWS"*

Among the numerous nearby places where a day's outing can be obtained readily and cheaply, Broad Street Park is worth a passing notice. Having an hour or two to spare on Saturday, the writer boarded an electric car, and in a few minutes was set down at Harrison Avenue, the entrance to the park, and a walk of a very few minutes sufficed to reach the park itself, and enjoy a view of nature unadorned. The scenery at the park is quite diversified, consisting of highland, lowland, lake, field and forest. On the bluff is located the Overlook House, on the spacious verandah of which cool breezes constantly play, and on Saturday Winkler's orchestra for an hour or two discoursed a number of choice selections. Near the mansion in the cozy groves are located tables and seats painted a vivid red and yellow, designed for the use of picnic parties. The view from the bluff is somewhat restricted because of the thick growth of trees and underbrush, which while it affords abundant shade, interferes with the view of the lake and the long low lying levels toward the river. The visitor may descend the bluff by means of the terraced stairs, in easy stages, by the road that winds down with many a turn, and angle. In passing down the steps the visitor reaches the side of "Spring Lake," which



Plate 4.22. Historic photograph of Spring Lake. Undated (Source: Trentoniana Collection, Trenton Public Library).



Plate 4.23. Historic photograph of Spring Lake. Undated (Source: Trentoniana Collection, Trenton Public Library).

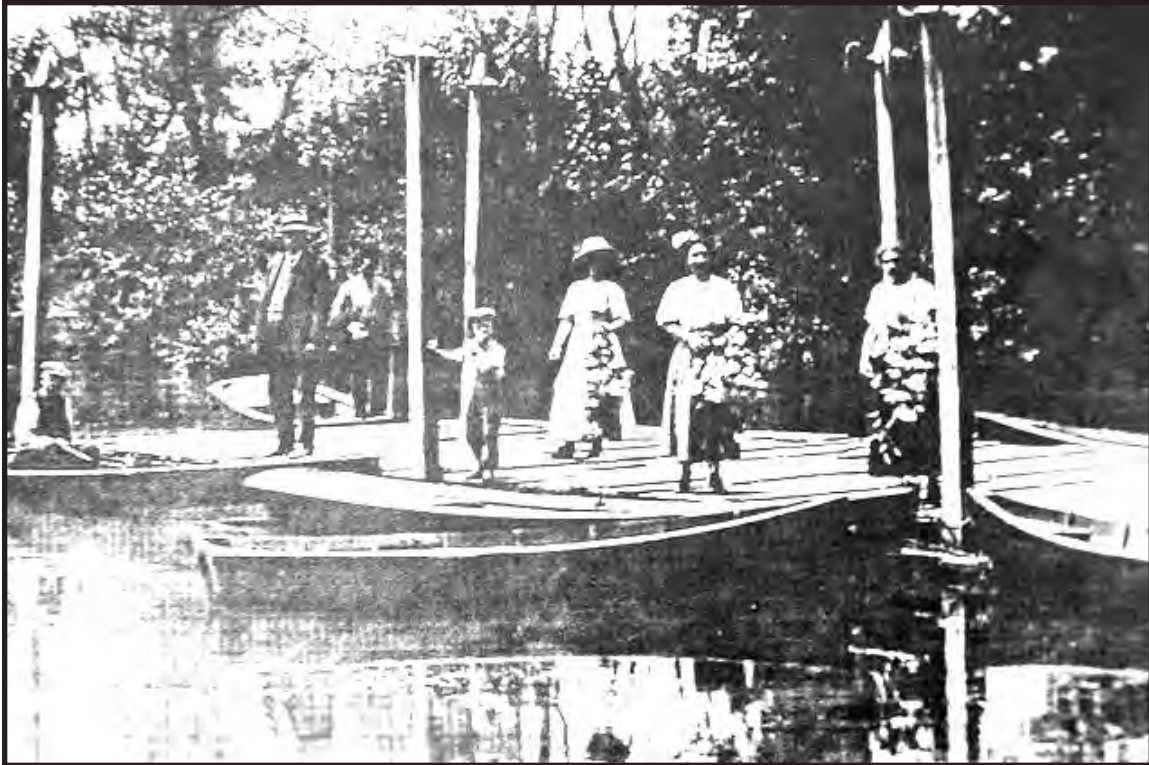


Plate 4.24. Historic photograph of dock and boats at Spring Lake. *Circa 1907* (Source: Trentoniana Collection, Trenton Public Library).



Plate 4.25. Historic photograph of boats on Spring Lake. *Circa* 1907 (Source: Trentoniana Collection, Trenton Public Library).

is supplied by springs, with which this locality abounds; in fact almost at the foot of the stairs is Silver Spring, affording an abundance of pure water cold as ice and distilled fresh from its rock-bound recesses. As one passes along Lakeside pathway other springs come in view bearing beautiful names. This pathway runs along the northern edge to its southern side, and then along in that direction until the ramble is reached, where the path diverges to the left beneath old forest trees grown heavy with age, and the real beauty of the place appears. Seats and tables are scattered about, and the debris lying around indicate that many a picnic party has had good times here. Passing over the Suspension Bridge, the Boiling Spring is reached, where the water boils up, cold as ice, and causes the white sand through which it forces its way to bubble as it in a cauldron. The meadows are covered with a luxuriant growth of red and white Boneset and other wild flowering plants, which present a beautiful appearance when in full bloom. If now wearied with walking, a boat is readily procured, and a row on the lake, covering twenty six [acres?], is an enjoyable way of passing an hour, or if your taste runs to fishing, you may gratify that at the same time. Water lilies and other aquatic treasures may be secured with but little effort. Wearied perhaps, with all this, you ascend the bluff, and there are swings inviting you to a dreamy siesta, or seated on the comfortable seats on the terrace you can feast your beauty-loving eyes on the attractions spread before you. A number of the city Sunday schools have already engaged days on which to enjoy their annual picnics and the youngsters say they always have a good time when they go to the Broad Street Park” (Glover 2005).

Beginning in 1898, a second railway company began construction of a new line to service the area. The Monmouth Traction Company was incorporated with the purpose of constructing a trolley line from the Atlantic Highlands to Camden. Its proposed alignment intercepted South Broad Street at White Horse and continued south to a new bridge over Crosswicks Creek. This ambitious plan to lay tracks across the middle of the state was never implemented but, in 1899, the name of the company was changed to the Camden and Trenton Railway Company and a new, more modestly conceived goal of connecting Camden with Trenton was adopted. This line was to begin at White Horse, where it would be joined by the tracks of the Trenton Passenger Railway Company, which were to be extended all the way down the full length of South Broad Street into downtown Trenton. The pile bridge over Crosswicks Creek was constructed immediately to the west of the existing covered bridge in 1898, but full service through to Camden did not begin until 1904 (Gummere n.d.:8-9).

In 1901 work began on an extension of the line that would run westward through the soon-to-be-developed farm fields between South Broad Street and the bluff, and concurrently the Camden and Trenton Railway Company began to entertain the idea of creating its own direct route to the center of Trenton. In this same year, the company abandoned its plans for connecting with the Trenton Passenger Railway at White Horse and a period of negotiation and track construction began, culminating in the extension of the company’s track to the intersection of State and Warren Streets in the center of Trenton in 1903 (Gummere n.d.: 17-19). The alignments of both the Camden and Trenton Railway Company and the Trenton Passenger Railway Company are shown on *Mueller’s Automobile Driving and Trolley Map of Mercer County, New Jersey* published in 1905 (Figure 4.14).



Figure 4.14. A.H. Mueller. *Mueller's Automobile Driving and Trolley Map of Mercer County, New Jersey*. 1905. Scale: 1 inch= 3,400 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.

The Trenton Passenger Railway Company, however, continued to operate its picnic grounds at Broad Street Park regardless of the fact that the new competing trolley line actually served the facility better than its own line down South Broad Street. The park grounds, now sometimes known as “Spring Lake Park,” continued to offer a variety of passive recreational amenities, including boating, fishing and musical performances and theater attractions (Plates 4.24 and 4.25). Wishing to draw even larger crowds, the trolley company began developing plans for a much more extensive program of entertainment options on the site. In 1907, it opened the “White City Park,” an amusement park that offered roller-skating, dancing, a “roller toboggan,” a “laughing gallery,” a shooting gallery, merry-go-round, “figure eight,” “House of Mystery,” “Mystic Maze,” “Katzenjammer Castles” and a “dream city” (Plates 4.26 and 4.27). Although the amusement park proved initially to be less lucrative than was hoped, and by 1910 was in receivership, it stayed in operation until the 1920s.

After the park facilities closed down, their lands lay vacant, but suburban development rapidly spread into the immediately surrounding area as neighboring farms were subdivided and houses began to be built (Plates 4.28a-e). On one neighboring property a large concrete block manufacturing plant was erected by Nick Innocenzi and Company in 1922. Manufacturing close to 2,000 concrete blocks a day, the plant must have had a profoundly damaging effect on the pastoral character of the marshland and Spring Lake (Historical Society of Hamilton Township, Inc. 1998:64). In the 1930s the Broad Street Civic Association was formed in an effort to control the rampant development of the area and preserve some of the lands along the edges of the marshes. The impetus behind the founding of the group was a plan to construct a large apartment building adjacent to the former White City grounds. The apartment complex plan was defeated, and with funds raised in part through a loan secured from a group called the “Philadelphia Conservationists.

Inc.,” 77 acres of land surrounding Spring Lake were purchased (Plates 4.29 and 4.30). Later fundraising, supplemented by substantial donations from the John A. Roebling’s Sons Company and various members of the Roebling family, enabled the purchase, in 1957, of an additional 330 acres. All of this land, which became Roebling Park, was eventually turned over to Mercer County’s care and control in the 1960s with the stipulation that it be utilized as a wildlife sanctuary (Historical Society of Hamilton Township, Inc. 1998:65). The development of the surrounding bluff-top fields continued throughout the 1950s and 1960s and effectively reached its high point with the construction of the Independence Mall commercial complex in the late 1950s.

Neighboring Duck Island also underwent notable changes in the early years of the 20th century. During the 18th and early 19th centuries the island was the site of a shad and sturgeon fishery, but was otherwise put to very little use. Prior to the dredging of a shipping channel in the Delaware River in the fourth quarter of the 19th century, the landform today known as Duck Island was actually two separate land masses separated by a low lying band of marsh that flooded with each high tide. Duck Island was the larger and more southern mass, while the northern island was known as the “Long Bar.” The intervening channel was labeled as “Duck Island Creek” on the U.S. Coast Survey map of 1844 (Figure 4.5). Over the course of the third quarter of the 19th century, the “Long Bar” appears to have grown in size and the channel in between seems to have become more constricted (Figures 4.13 and 4.15). The subsequent deposition of dredge spoil completely filled in the channel thereby creating a single, much larger island.

By the end of the 19th century, the entire length of Duck Island was taken up by six small farms. Corn, asparagus, horseradish, strawberries, raspberries and blackberries and tobacco were the major crops raised on the island with a particular emphasis apparently

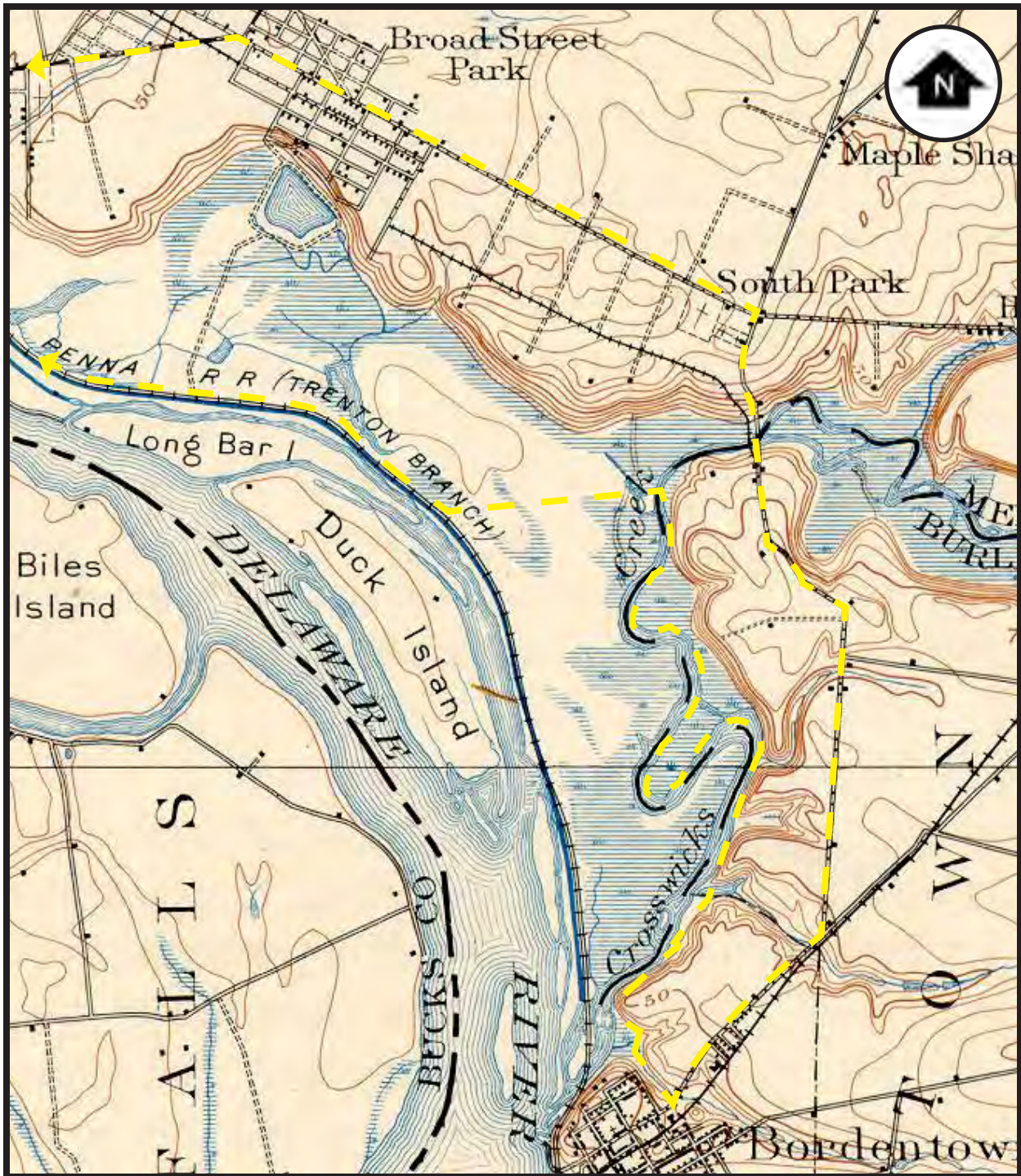


Figure 4.15. United States Geological Survey. *Bordentown Quadrangle, 15' Series, 1906*. Scale: 1 inch=2,600 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with yellow dashed line.



Plate 4.26. Historic postcard view of roller coaster at White City Amusement Park. Undated (Source: Trentoniana Collection, Trenton Public Library).



Plate 4.27. Historic postcard view of pavilion at White City Amusement Park. Undated (Source: Trentoniana Collection, Trenton Public Library).



Plate 4.29. Image from newspaper article about site clearance for Spring Lake Park. Undated (Source: Trentoniana Collection, Trenton Public Library).



Plate 4.28a. Historic aerial photographs of Mercer County. *Circa* 1926 (Source: New Jersey State Archives). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.

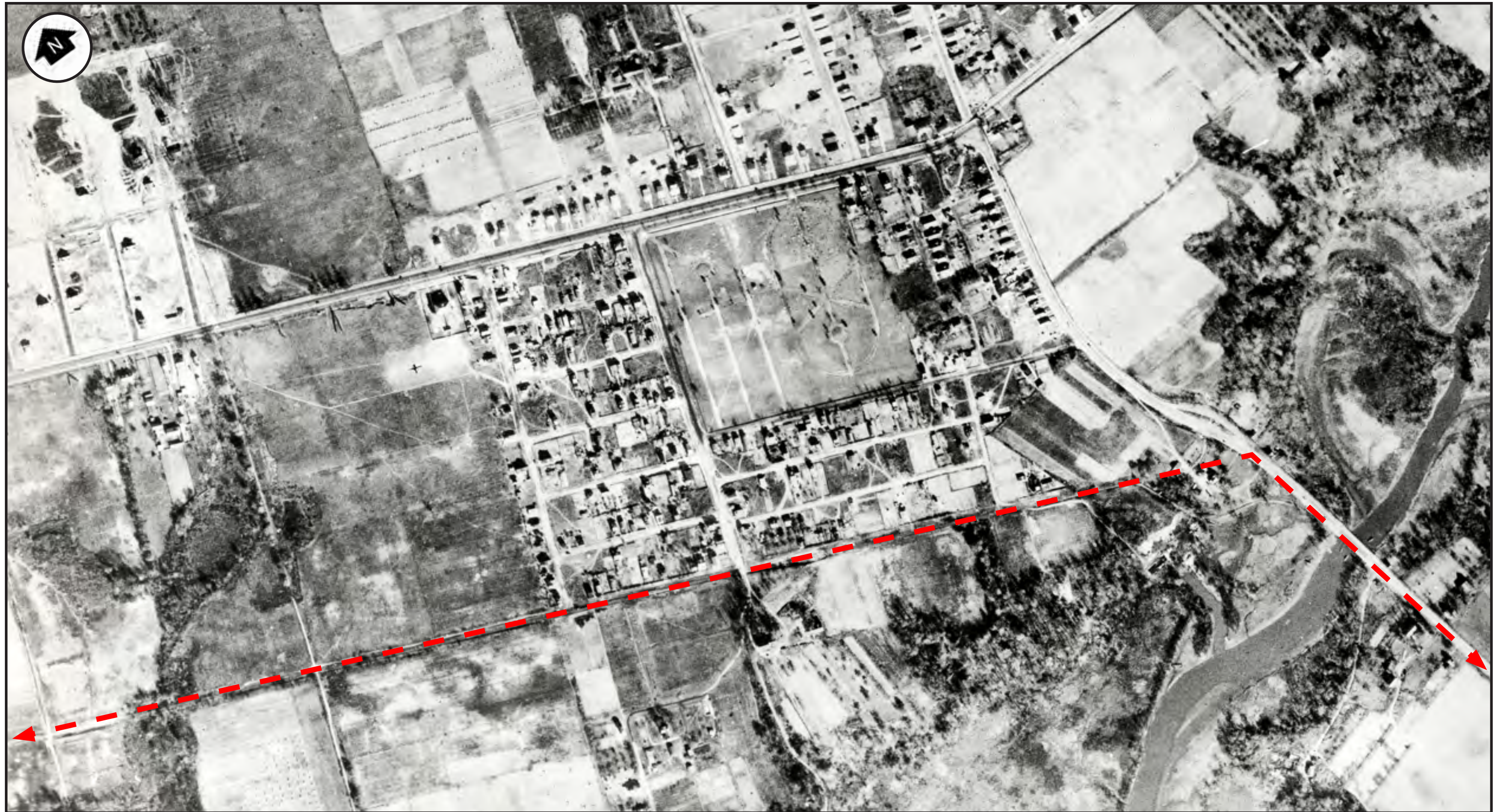


Plate 4.28b. Historic aerial photographs of Mercer County. *Circa* 1926 (Source: New Jersey State Archives). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.

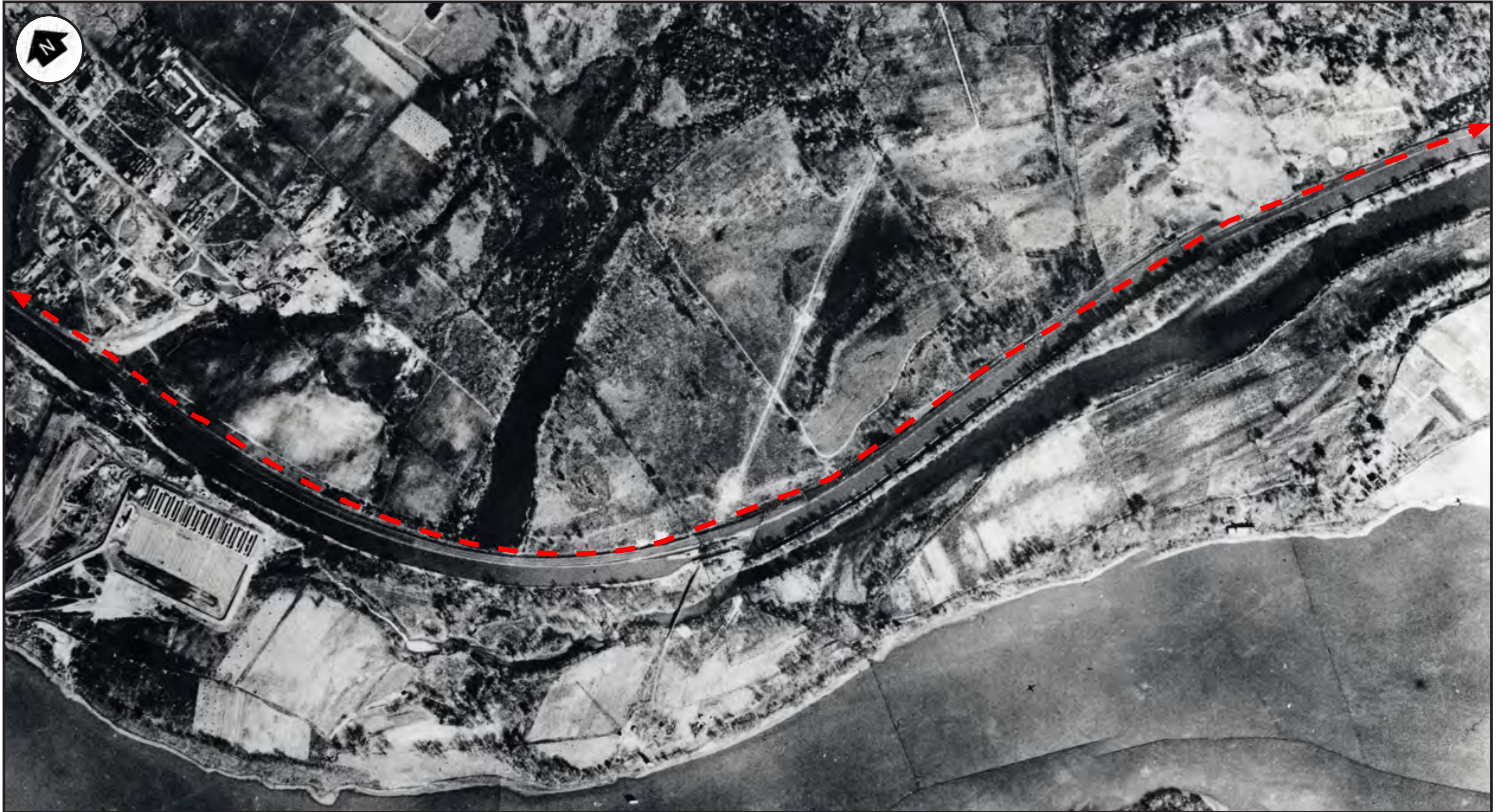


Plate 4.28c. Historic aerial photographs of Mercer County. *Circa* 1926 (Source: New Jersey State Archives). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.



Plate 4.28d. Historic aerial photographs of Mercer County. *Circa* 1926 (Source: New Jersey State Archives). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.

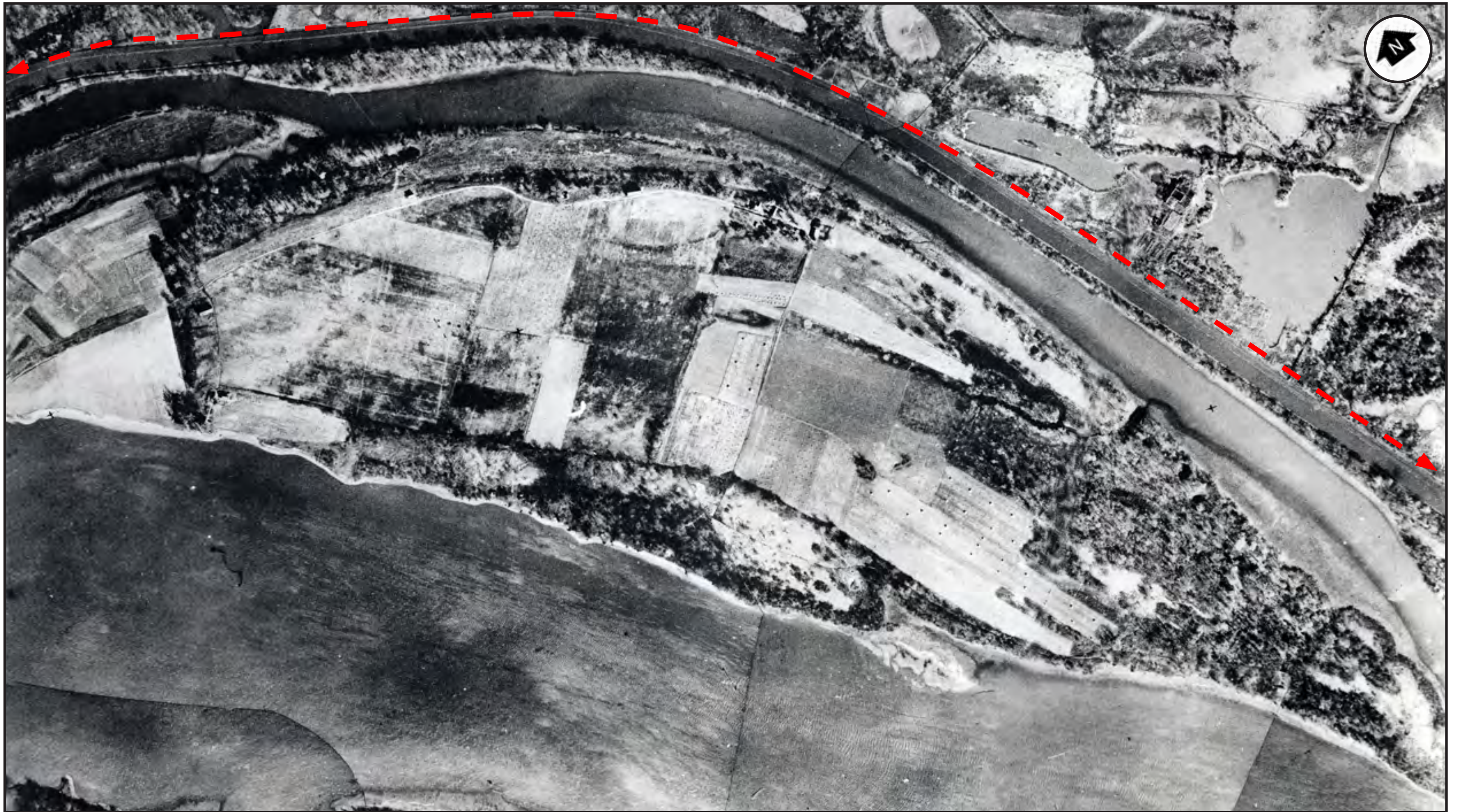


Plate 4.28e. Historic aerial photographs of Mercer County. *Circa* 1926 (Source: New Jersey State Archives). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.



Plate 4.30. Image from newspaper article about Spring Lake Park dedication showing Broad Street Park Civic Association members. September 16, 1956 (Source: Trentoniana Collection, Trenton Public Library).

being placed on the cultivation of tobacco. Orchards, including apple, peach and cherry trees, were also kept, along with poultry and other livestock. In the 1920s, nearly all of the land on the southern part of the island was purchased by T. Arthur Karno. Most of the buildings on these properties were demolished and the land was resold to oil companies who began, in the 1930s, to construct tank farms. Oil and petroleum products could be easily shipped upriver by barge to Duck Island and then distributed to the wider Trenton market (Historical Society of Hamilton Township, Inc. 1998:74-76). Since that time, the energy industry has played an important role in day-to-day life on Duck Island. The tank farms expanded over time to include facilities operated by American Oil Distributors, Atlantic Richfield, Gulf Oil, Shell, Socony, Mobil Oil, Sun Oil, Trenton Oil, Amoco, Consumers Oil and Phillips Petroleum (Figure 4.16). In the early 1960s the importance of Duck Island to the local oil industry was further strengthened when a 30-inch pipe was laid connecting the tanks to the main trunk of the Colonial Pipeline, the primary artery that linked the massive refinery complexes in northern New Jersey with the Gulf Coast oil wells offshore of Texas. In the late 1950s, Public Service Electric and Gas identified Duck Island as the site for a new generating plant which was constructed on the middle of the island. The demand for electricity was so great that, in 1961, it was already necessary to expand its operations. This plant was subsequently replaced by a larger facility in 1986 (Historical Society of Hamilton Township, Inc. 1998:74-76).

In 1959, a sewage processing facility was constructed at the extreme northern end of Duck Island. This plant is tied into the main Trenton sewer system and still processes most of the city's wastewater. In the late 1960s, the City of Trenton also began dumping much of its municipal trash into the marshes along the northeastern edge of Duck Island near the southern edge of Spring Lake. By the 1980s, this landfill had gone out

of use, but it was not finally fully capped until the late 1990s in concert with the construction of the Trenton Complex highway project.

In addition to serving as a receptacle and/or processing location for the Trenton area's sewage, garbage and petroleum supplies, Duck Island was also developed as the city's main 20th-century maritime link to the outside world. As early as 1912, the Board of Engineers for Rivers and Harbors had begun recommending the deepening of the Delaware River shipping channel between Trenton and Philadelphia to 18 feet. Steamboats, barges and other vessels used the river to bring passengers and goods up to the Trenton/Lamberton area, but the channel was shallow and narrow. To alleviate the problem the channel had been dredged off of Trenton's riverfront as far upstream as the falls and a municipal dock was constructed between 1915 and 1919 at the foot of Ferry and Federal streets, but only a few relatively small vessels could use this facility at any one time. City officials perceived the need for a more fully developed port facility in order to bolster Trenton's growth, especially since the proposed channel deepening project was bound up with grandiose plans for an intra-coastal canal. Envisioned as extending from New England to Florida, this project was fostered by the Atlantic Deeper Waterways Association, an organization established in Philadelphia in 1907. As initially conceived, this project included an overland canal that would have cut across the waist of New Jersey from the Delaware River at Duck Island to the Raritan Bay near South Amboy (Trenton Historical Society 1929:283-284; U.S. House Document 1936:74th Congress, 2nd Session, Doc. 90:Table 2).

The proposed 18-foot deepening of the channel was soon shelved following a decision by the board to restrict the depth of the intra-coastal canal between New York Harbor and the Delaware River to 12 feet. This eliminated the need for a deeper Delaware River channel. Nevertheless, the trans-Jersey canal was

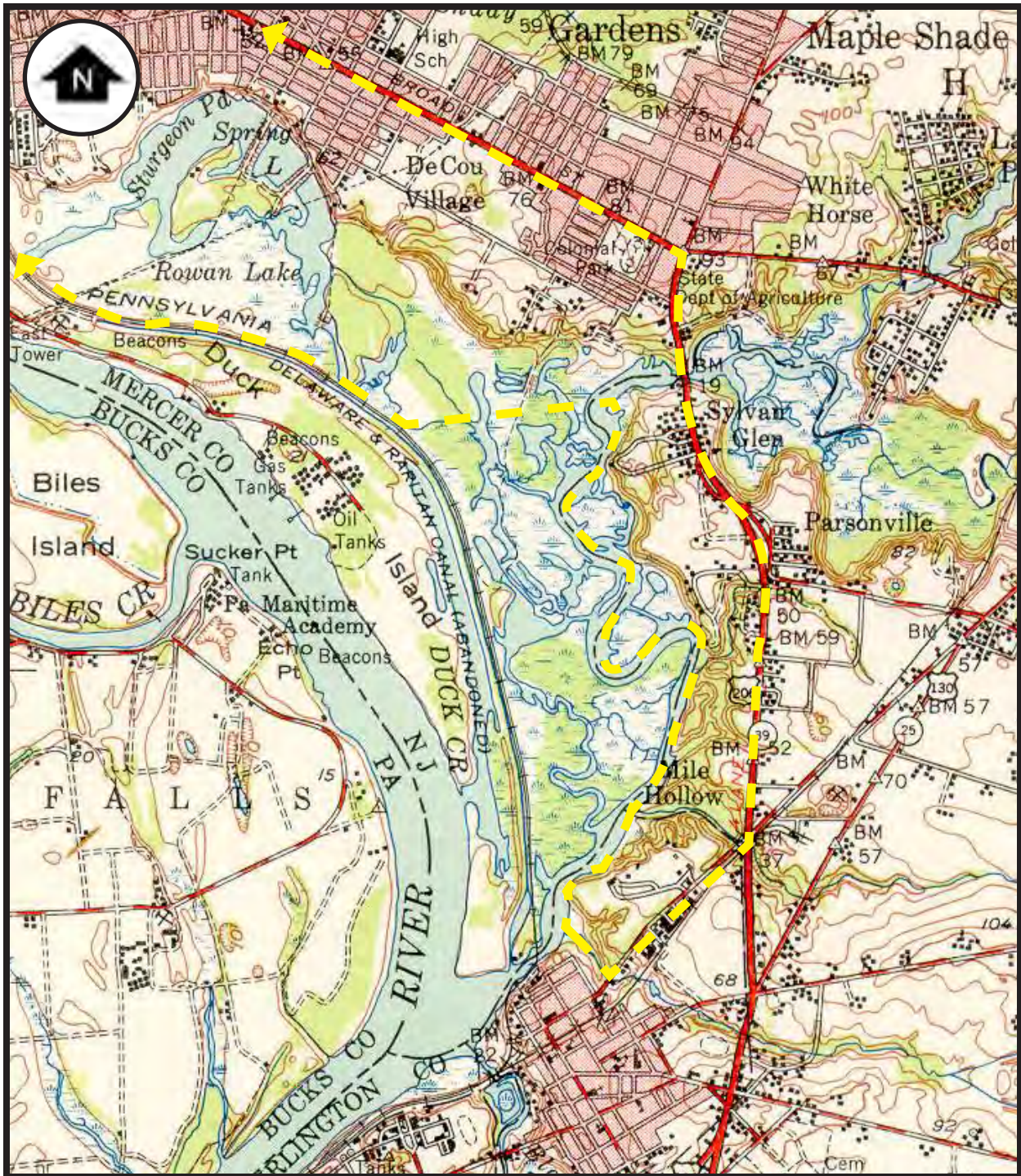


Figure 4.16. United States Geological Survey. *Bordentown Quadrangle, 15' Series, 1948*. Scale: 1 inch=2,800 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with yellow dashed line.

still authorized by the New Jersey Legislature and approved by the U.S. Army Corps of Engineers prior to the commencement of the First World War. The war stalled the project, but planning for the canal continued for some time afterwards with the push for a deeper channel also being revived (Trenton Historical Society 1929:283-284; U.S. House Document 1936:74th Congress, 2nd Session, Doc. 90:Table 2).

In 1925, Congress authorized the dredging of a 20-foot-deep Delaware River channel. The main goal of the project seems to have been the promotion of industry in the river towns north of Philadelphia, but planning for the intra-coastal canal still continued and remained a part of the equation. The City of Trenton was required by the River and Harbor Act of March 3, 1925 to construct adequate port facilities with suitable highway and railway connections before work on the 20-foot-deep channel could begin. The federal government agreed to provide \$1,500,000 towards this end, but expected the City to contribute \$450,000. There was considerable resistance in Trenton to this plan as the City had just made a considerable outlay of funds to construct the new municipal dock at Ferry and Federal streets. However, Mayor Frederick W. Donnelly and the city's industrial interests threw their support strongly behind the port project and it was finally approved in 1930. The new facilities were to be situated opposite Duck Island at a spot where Mayor Donnelly still hoped the Intra-Coastal Canal would terminate. Work began in 1931 and was completed in 1932. Terminal infrastructure included a 1,200-foot-long concrete dock, a transit shed, a warehouse and two lumber sheds, two steam gantry cranes relocated from the Hog Island shipyard near Philadelphia and six 70-foot steel cargo masts. A highway connection was made by extending Lamberton Street southward and a rail connection was provided to the nearby tracks of the former Camden and Amboy Railroad, now a part of the Pennsylvania Railroad system (Mace

1924; U.S. House Document 1929:71st Congress, 1st Session, Doc. 3:7-18 and 14; Hewes 1930; Trenton Chamber of Commerce 1932:15).

Twentieth-century transportation improvements would ultimately prove to have the most dramatic impacts upon the landscape of the AFNHL of any human activity since the construction of the Delaware and Raritan Canal and the Camden and Amboy Railroad in the 1830s. The rising popularity of the automobile greatly changed the environment surrounding the marshes. Indeed, it was the automobile which led to the demise of the White City amusement park as Trenton residents were able to travel further afield for their vacations, day trips and recreational activity.

As discussed above, a road was in place leading from Trenton to Bordentown by the early 18th century, if not earlier. This first road ran closer to the edge of the bluff overlooking Watson's Creek than the existing alignment of South Broad Street (U.S. Route 206) does today. In 1801, the road was straightened and realigned to roughly its present course. Between 1854 and 1899, much of this road was controlled by the Crosswicks and Trenton Turnpike Company. In 1896 and 1899, the company turned over segments of this right-of-way to the Township of Hamilton (Louis Berger & Associates, Inc. 1998:24, 215-216).

In 1922, responsibility for the upkeep of the Bordentown Road within the bounds of the AFNHL passed from Hamilton Township to the State of New Jersey which designated the road as "Route 2." This resulted in the New Jersey State Highway Department developing plans for the improvement of the new highway that included its reconstruction in concrete. The new concrete surface replaced a recently laid macadamized surface that stretched from Trenton all the way south at least as far as Crosswicks Creek. A new concrete bridge was also constructed over Crosswicks Creek. This bridge replaced a steel truss bridge that had, in turn, replaced the old covered bridge around

the turn of the century. The tracks of what was now known as the Trenton and Mercer County Traction Corporation remained in place down the center of the road until 1937, and by that date the Camden and Trenton Trolley line had also been abandoned (Louis Berger & Associates, Inc. 1998:131-132, 219). The old trolley lines could not compete with the popularity of the automobile. In 1939, additional highway improvements were undertaken by the State Highway Department. These included the construction of the White Horse Circle, which dramatically altered the landscape of the crossroads community. The width of the crossing over Crosswicks Creek was doubled at this time through the construction of a new bridge immediately to the west of the 1922 bridge. In the 1930s, adjacent to the White Horse Circle, the State of New Jersey operated a Japanese beetle quarantine laboratory (Louis Berger & Associates, Inc. 1998:131-133).

A short distance to the east of the bridge over Crosswicks Creek was the Bordentown Waterworks which was constructed around 1904 on part of the old Abbottville plantation. Although located in Hamilton Township, the City of Bordentown had purchased this property to take advantage of the clear springs that bubbled up at the base of the bluff in this location (Louis Berger & Associates, Inc. 1998:131-132). Immediately to the west of the bridge, to the south and west of the Isaac Pearson House, Hamilton Township constructed a wastewater treatment plant in the 1930s. In 1908, the property on which the wastewater plant was later to be located was acquired by a representative of the Independent Brick Company. The brick company operated at least one brickyard in the early 20th century in the marshes between Watson's Creek and the Delaware and Raritan Canal, and used the barn associated with the Isaac Pearson House to house brickyard employees. The remains of at least three brickyards can be observed in this area today. Bricks were hauled up out of the marshes along a lane which led to the Bordentown Road. This lane, previously

utilized for carting hay and other agricultural produce out of the meadows, can be seen crossing the lowland on aerial photographs taken in 1926 (Plate 4.28c) (Louis Berger & Associates 1998:217).

After the 1930s improvements the road network basically remained the same until the 1980s, when construction began on portions of the "Trenton Complex," as the massive interchange of Routes I-195 and I-295 and N.J. Routes 29 and 129 was known. Planning for Route I-295 had begun in the early 1940s when it was envisioned as a bypass route which would take the already rapidly building traffic pressure off the U.S. Route 130 corridor. The first sections of Route I-295 were constructed in Gloucester County in 1948 (Eastern Roads 2007a). By 1979 this roadway extended as far north as Black's Creek, just south of Bordentown. Route I-195 was similarly conceived of as a major highway extending across the waist of New Jersey linking the Trenton area and the New Jersey Turnpike with the New Jersey Shore. Construction began on Route I-195 in 1968 with the western terminus reaching Yardville near Gropps Lake in 1974 (Eastern Roads 2007b). N.J. Route 129 was to be a new highway which would run through South Trenton along a section of the old Delaware and Raritan Canal right-of-way which had been filled in the 1930s. It would eventually connect U.S. Route 1 in downtown Trenton with N.J. Route 29 and Route I-195. N.J. Route 29, which ran northwest along the left bank of the Delaware River between Trenton and Frenchtown, was to be extended southward along the riverbank through Lambertton, connecting with N.J. Route 129 close to the City of Trenton sewage treatment plant on Duck Island. By the mid-1970s, plans for the missing Trenton Complex interchange that would connect these major regional routes were sufficiently advanced that maps routinely showed their imminent construction (Figure 4.17), even though the route of Route I-295 around Bordentown and across Duck Island was ultimately adjusted.

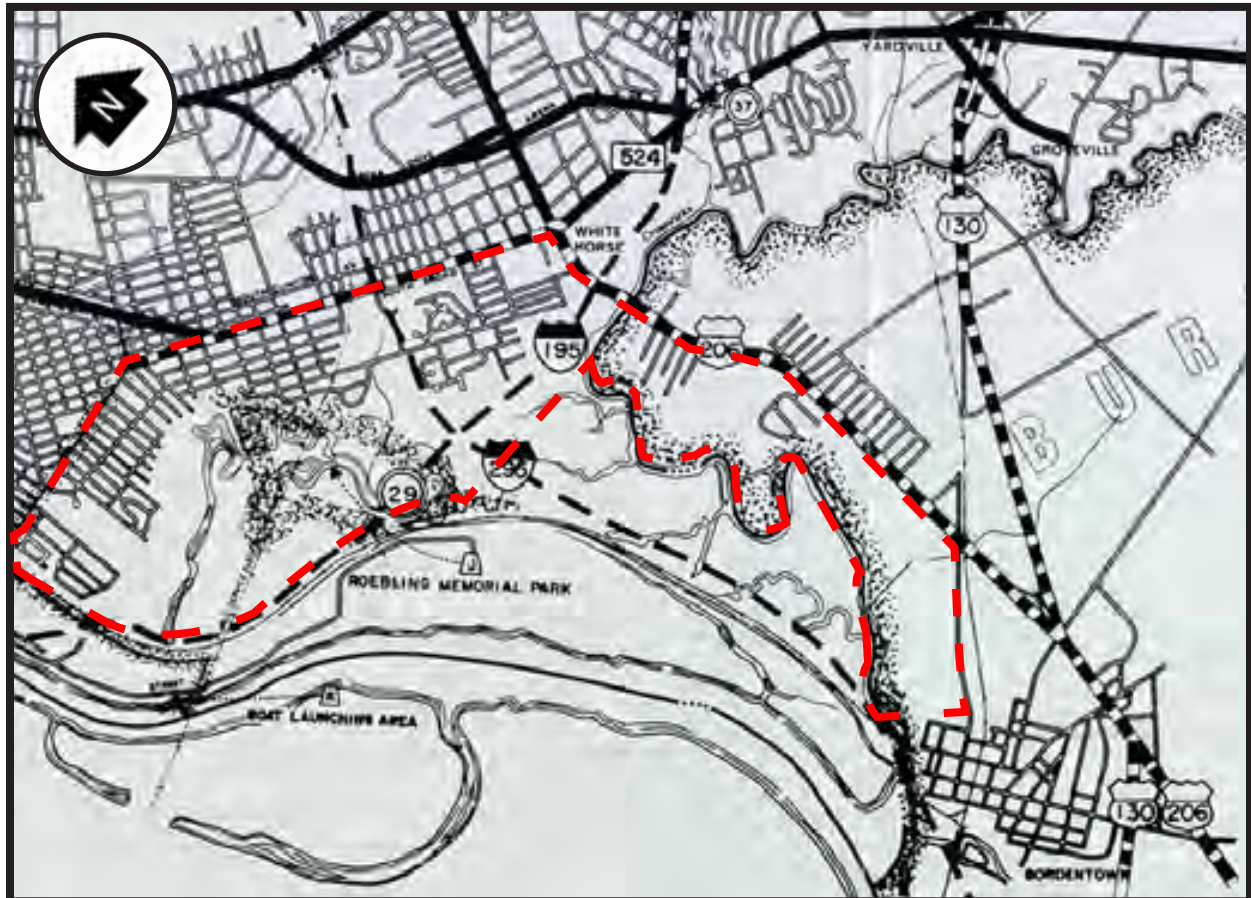


Figure 4.17. Donald Harney. Highway and Facilities Map, Mercer County, New Jersey. 1976. Scale: 1 inch= 4,100 feet (approximately). Approximate boundaries of the Abbott Farm National Historic Landmark indicated with red dashed line.

After completion of a lengthy environmental impact review process in 1981, in which due consideration was given to the unique natural and archaeological resources of the Hamilton-Trenton-Bordentown marsh, the designs for the Trenton Complex were modified to minimize impacts on the environment, and various archaeological and wetland mitigation projects were undertaken. Construction of the Trenton Complex through the AFNHL began in the late 1980s and was not fully completed until the early 1990s. On the one hand, these new highways have dramatically altered the character of the marshes in an adverse manner. On the other, they bring thousands of individuals into the marshes who have never before experienced them. With the construction of the new highways, the drainage patterns with the marshes have again been dramatically altered, in much the same way that the building of the canal and railroad had re-oriented the waterways a century and a half earlier.

Chapter 5

ARCHAEOLOGICAL HISTORY

The Abbott Farm National Historic Landmark (AFNHL) has figured prominently in the history of American archaeology, most notably in the extended international debate over human antiquity in North America that raged from the 1870s into the early 20th century (Willey and Sabloff 1980; Meltzer 1983; Joyce *et al.* 1989; Kraft 1993; Mounier 2003:39-48). At its peak during the late 1880s, 1890s and the first decade of the 20th century this debate engaged scholars in many of the country's elite universities and museums, gained considerable notice in Europe and stimulated intense and long-lasting interest in the prehistoric archaeology and geology of the Delaware Valley. Indeed, the Trenton area and the AFNHL have remained a strong focus of archaeological endeavor down to the present day resulting in several major programs of research and excavation, particularly in the late 1930s and more recently in the 1980s and 1990s (Cross 1956; Wall *et al.* 1996a). Thus, even though the first big debate over the antiquity of Native American imprints in the landscape may now be century-old news, ongoing cultural, environmental, archaeological and historical studies involving the AFNHL have kept the Delaware Valley in the vanguard of North American prehistory.

While the limits of the formally designated landmark cover a broad geographic area extending east from Riverview Cemetery to the White Horse Circle and on south to the mouth of Crosswicks Creek and Bordentown, the core of the AFNHL is the Abbott family farm known as "Three Beeches" and the central figure in the landmark's history is without question Dr. Charles Conrad Abbott himself (Plate 5.1). Beginning with Abbott, this chapter offers a brief summary of the principal archaeological practitioners and their activities within the AFNHL over the past century and

a half, placing them within the broader context of the development of North American and Delaware Valley prehistoric archaeology. The emphasis here, so far as Abbott himself is concerned, is on his contributions to the emerging discipline of New World archaeology; for a more rounded view of his life and surroundings, the reader is referred to Chapter 4, Section E.

Charles Conrad Abbott, born in 1843, grew up at "Three Beeches," a comfortably appointed farm property perched on the rim of the bluff overlooking Watson's and Crosswicks creeks. From early in his youth Abbott nurtured a lifelong fascination with the natural history of the local area and as a logical extension of this interest he soon began studying the Native American artifacts that turned up in abundance in the surrounding farm fields. Despite earning a medical degree from the University of Pennsylvania in 1865, Abbott chose to follow a more penurious career as a naturalist, archaeologist and author. After publishing several brief articles and a few longer texts on nature topics in the 1860s and early 1870s, he started writing pieces on local history and archaeology. Building on his knowledge of artifacts found in the Trenton area, Abbott presented his first major archaeological offering "The Stone Age in New Jersey" in the journal *American Naturalist* in 1872, elaborating and expanding on this in a lengthier article with the same title, which was included in the *Smithsonian Institution Annual Report* for 1875 (Abbott 1872, 1876).

In these early archaeological writings Abbott began to posit the existence of what he called "glacial man" in the New World. Based on the broad similarity of crude argillite artifacts he was finding locally with rough chipped tools then being unearthed in northwest Europe, Abbott believed he was finding evidence of

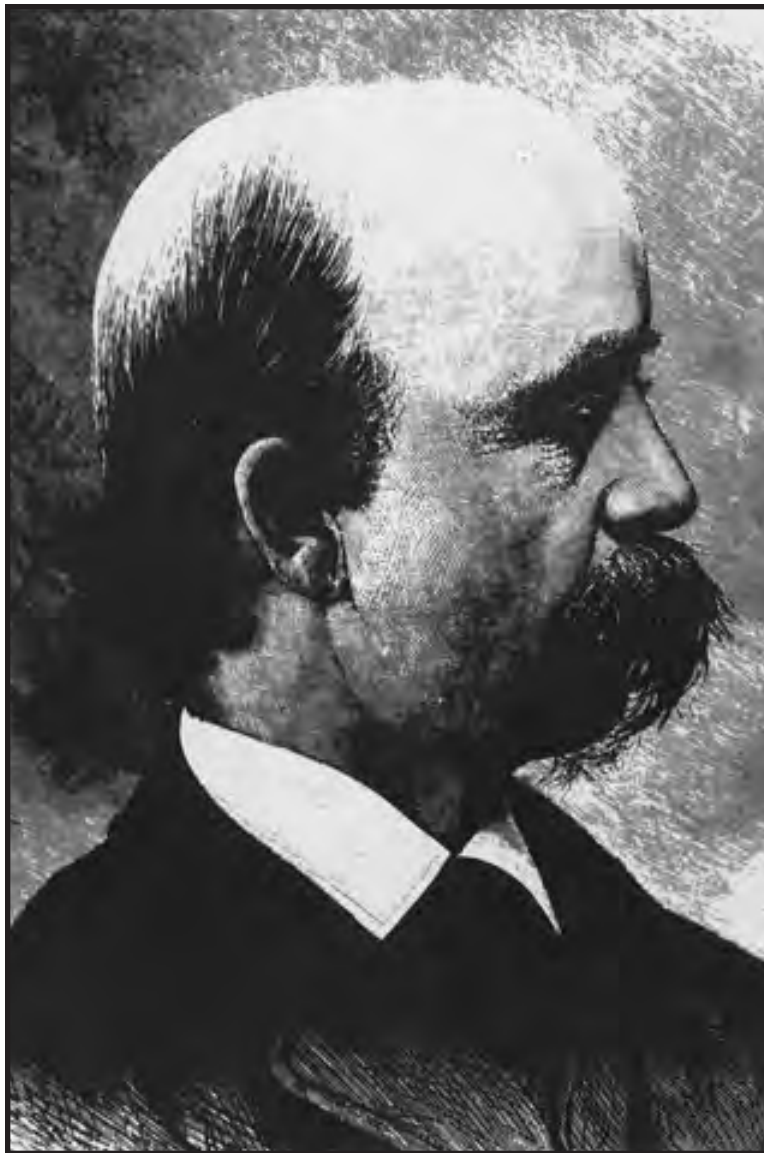


Plate 5.1. Charles Conrad Abbott (Source: Peabody Museum of Archaeology and Ethnology at Harvard University).

“Stone Age” culture in the New World. He alternately suggested that these “palaeoliths” (as he called these stone objects) were made by the direct ancestors of the Indians encountered by the European colonists (i.e., the Lenape-Delaware) or were fashioned by an altogether different, earlier Native American people (Cross 1956:1-2; Joyce *et al.* 1989:60; Mounier 2003:40).

By the early 1880s, having gathered still more artifacts and information from the field, Abbott had expanded his theories somewhat and recognized three distinct and successive but overlapping cultures: a “palaeolithic” culture, characterized by crude chipped stone artifacts, which flourished during the Ice Age, but continued with lessening intensity through into the early historic period (the “glacial” attribution of this culture was based on these artifacts supposedly being recovered from the Trenton outwash gravels); an “argillite” culture, characterized by projectile points and other lithic artifacts fashioned from argillite, typically recovered from a distinctive “yellow sand” that occurred at depths of around two feet on the bluff top; and a “modern Indian” culture, to which he ascribed the Lenape-Delaware peoples, characterized by more refined stone tools made from flint and chert.

Abbott focused most of his attention on the intermediate argillite culture, in part because his hypothesized palaeolithic culture was founded on such a limited yield of artifacts and because the modern Indian culture was, relatively speaking, quite well known and also traceable through ethnography and the historical record. In contrast, archaeological evidence of the argillite culture was freshly recognized, abundant and close at hand, literally outside his own back door beneath the bluff-top farm fields (Plates 5.2 and 5.3). According to Abbott, the artifactual expression of the argillite culture represented “both in workmanship and design a marked advance over the palaeolithic implements, and yet is so uniform in pattern and so inferior in finish, when compared with the average

flint implement of the Indian, that it has been assigned to an earlier date than the latter, and [is] considered the handiwork rather of the descendants of palaeolithic man.” One other theme evident in Abbott’s interpretations around this time was his insistence that Eskimo peoples were descendants of his palaeolithic culture via the argillite culture (Abbott 1883; Cross 1956:2; Joyce *et al.* 1989:60).

By the mid-1880s Abbott’s writings and theories were beginning to reach a wider audience, sparking what proved to be a sometimes contentious debate which lasted for close to a quarter century. Over this period numerous archaeologists and geologists around the world were drawn by Abbott into the argument over the oldness of his finds and their cultural interpretation – several were well-known local figures with specific knowledge of the Trenton area, while others were professors associated with respected museums and institutions of higher learning across the country. Abbott also sought the opinions of many intellectual stalwarts overseas – British and French scholars working to link human antiquity in the Old World to Darwinian evolutionary theory (Plates 5.4-5.6).

Among local archaeologists, Henry Mercer (founder of the Mercer Museum in Doylestown) was initially receptive to Abbott’s theories, but eventually adopted contrary opinions. Local geologists such as Dr. George H. Cook and Professors N.S. Shaler and H. Carville Lewis were also somewhat lukewarm with their support, maintaining circumspection as Abbott tried to use their geological dating of the Trenton gravels to bolster his claims for the advanced age of his palaeolithic culture. However, Abbott early on found support from other geologists, notably George Frederick Wright at Oberlin Theological Seminary, and from the naturalist and anthropologist Frederick Ward Putnam at the Peabody Museum of Archaeology and Ethnology at Harvard University, a seminal figure in the emergence of American archaeology as an academic discipline. Indeed, Putnam, in 1889, com-



Plate 5.2. Charles Conrad Abbott at work in his study at “Three Beeches.” “This picture was taken in 1884 – I think – and at a time when I was busier in a literary way, than at any time later” (Abbott n.d., reproduced in Kraft 1993:5).



Plate 5.3. Charles Conrad Abbott (upper right) observing George Frederick Wright (left) as he examines a soil profile at the Abbott Farm.

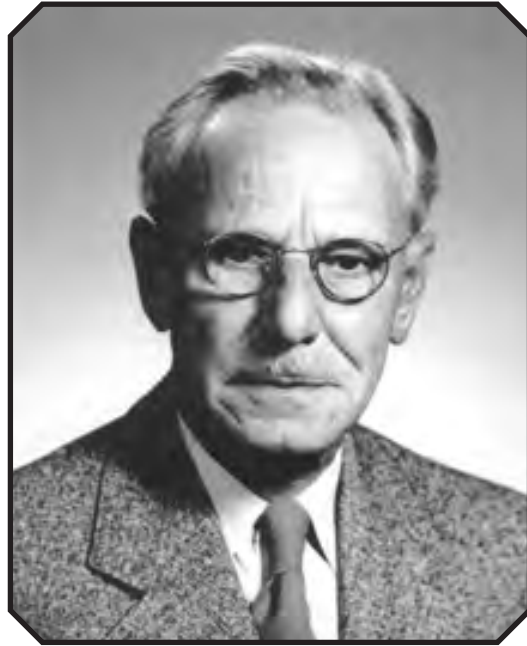


Plate 5.4. Contemporaries of Charles Conrad Abbott engaged in the debate over “palaeolithic” and “argillite” cultures in the Delaware Valley. *Upper left:* Henry Mercer, archaeologist and antiquarian, 1856-1930. *Upper right:* Leslie Spier, anthropologist, 1893-1961. *Lower left:* George H. Cook, geologist, 1818-1889. *Lower right:* Rollin D. Salisbury, geologist, 1858-1922.

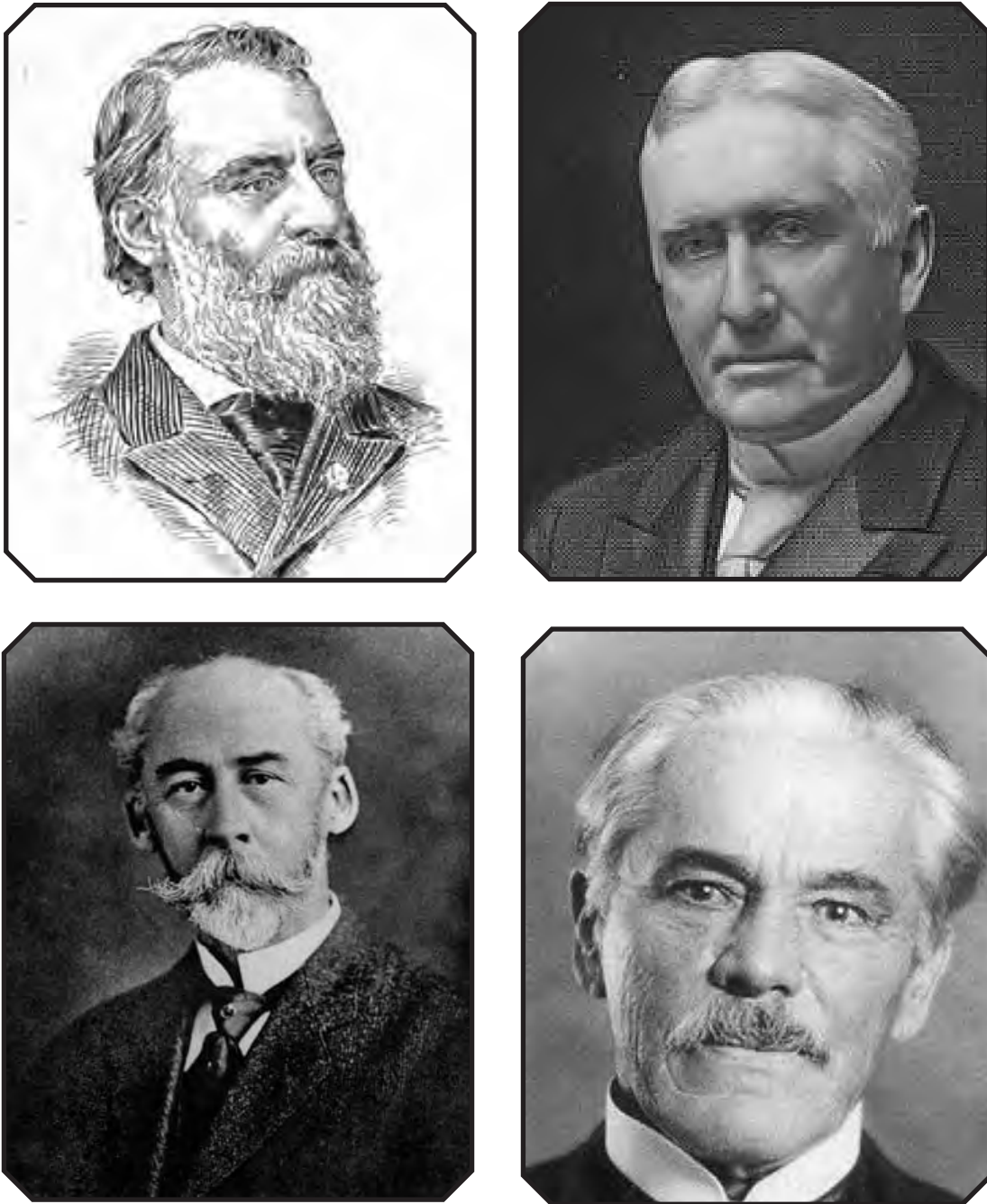


Plate 5.5. Contemporaries of Charles Conrad Abbott engaged in the debate over “palaeolithic” and “argillite” cultures in the Delaware Valley. *Upper left:* Frederick Ward Putnam, naturalist and anthropologist, 1839-1915. *Upper right:* George Frederick Wright, geologist and theologian, 1838-1921. *Lower left:* William Henry Holmes, archaeologist and geologist, 1846-1933. *Lower right:* Ales Hrdlicka, physical anthropologist, 1869-1943.

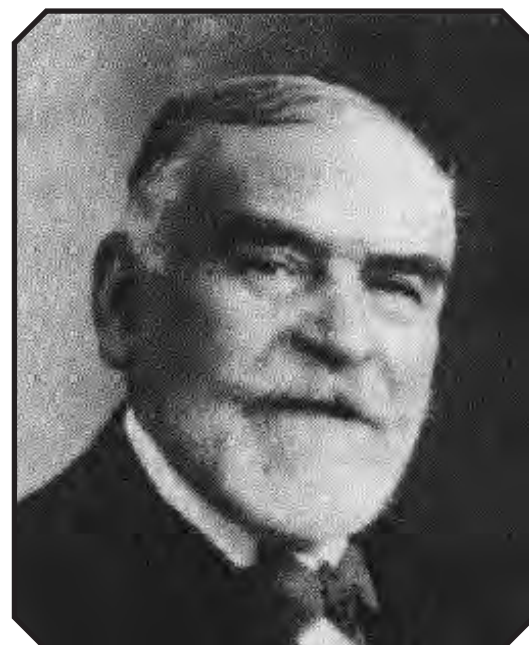


Plate 5.6. Contemporaries of Charles Conrad Abbott engaged in the debate over “palaeolithic” and “argillite” cultures in the Delaware Valley. *Upper left:* William Boyd Dawkins, archaeologist and geologist, 1837-1929. *Upper right:* John Lubbock, naturalist, archaeologist and politician, 1834-1913. *Lower left:* Gabriel de Mortillet, anthropologist, 1821-1898. *Lower right:* Marcellin Boule, paleontologist and archaeologist, 1861-1942.

menced what turned into a more than two-decade-long program of field research in the Trenton area undertaken by Ernest Volk, a protégé, colleague and friend of Abbott. This work specifically aimed to test and expand further on Abbott's hypotheses.

Abbott also sought opinion and credibility from across the Atlantic and corresponded at one time or another with British and French antiquarians and archaeologists, including such leading figures as Sir John Lubbock and William Boyd Dawkins, Gabriel de Mortillet and Marcellin Boule, who were instrumental in framing the Palaeolithic, Mesolithic and Neolithic cultural system in the Old World. Boule, in particular, lent his support to Abbott's theories, visiting Trenton and examining both sites and artifacts (Cross 1956:3-5; Joyce *et al.* 1989:59-62, 66).

Others were less enamored of Abbott's theories and gradually, during the late 1880s and early 1890s, a body of opposition began to coalesce within both the geological and archaeological communities. Geologists T.C. Chamberlin and D.G. Brinton took issue with George Frederick Wright, a particularly vocal proponent of Abbott's ideas, while William Henry Holmes of the U.S. Geological Survey (from 1889 at the U.S. National Museum [which later became the Smithsonian Institution]) questioned both the stratigraphic integrity and human origin of the chipped stone artifacts being found in the outwash gravels. Aside from Abbott himself, who was constantly and often cantankerously publishing and speaking out about his finds and his theories, it was Holmes and Wright who occupied the vortex of the Abbott Farm debate in these early years. The high point for scholarly acceptance of Abbott's views may be placed in the early 1890s, not long after he summarized his work for the American Association for the Advancement of Science (AAAS), an organization of which he was then a Vice-President. Around this time, artifacts from the Abbott Farm were featured in several prestigious museums (the University of Pennsylvania Museum

of Anthropology and Archaeology, the Chicago Field Museum, the American Museum of Natural History, the Peabody Museum) and even displayed at the World's Columbian Exposition in Chicago in 1893 (Abbott 1889; Cross 1956:2-4).

As the 1890s wore on skepticism grew over the validity of Abbott's palaeolithic culture. Holmes's view that the artifacts found in the Trenton gravels had either slumped down into exposed gravel layers from deposits higher up in the stratigraphic sequence, or were of natural not human origin, gained greater credence. By the time of an AAAS meeting in Detroit in the summer of 1897, the balance of opinion was tipping away from Abbott's theories, although Abbott himself fought on vigorously. It was now a quarter century since he had found his first "palaeoliths" and some 22 years since he had found specimens he considered of human origin in the gravels. It was clearly hard for him to renounce his deeply embedded ideas which had for so long been accepted by many in the academic world. However, even Putnam, his most prominent long-time backer, was by this time beginning to waver in his support, a change in heart propelled in part by the ongoing work being undertaken by Ernest Volk on behalf of the Peabody Museum (Abbott 1892; Holmes 1893; Mercer 1894; Holmes 1898; Mercer 1898; Putnam 1898; Abbott 1902; Cross 1956:5-7).

The final nail in Abbott's palaeolithic coffin came in the years immediately following the Detroit meeting when Putnam enlisted the services of Ales Hrdlicka, a physical anthropologist, to examine human skeletal materials believed by Abbott and others to have originated from the Trenton gravels. Hrdlicka, who later enjoyed a stellar career as the first curator of physical anthropology at the U.S. National Museum (Smithsonian Institution), was a leading figure in establishing the now widely accepted theory of human colonization of North America from east Asia. He concluded that the bulk of these human remains were

Indian (some were also attributed to early European immigrants) and of some antiquity, but not of some early pre-Indian “palaeolithic” people. While he reserved judgment on a single human femur recovered from the gravels by Volk in 1899, it was clear to Hrdlicka that these human remains provided no real basis for upholding Abbott’s claims for “glacial man.” Hrdlicka’s conclusions echoed and amplified those recently reached by Frank Russell, another eminent anthropologist who had studied human skeletal remains found in the Trenton gravels. Again, it was generally concluded that these remains, like the bonafide stone artifacts, had found their way into the gravels at a later date and their stratigraphic provenience had been misinterpreted (Abbott 1885; Russell 1899; Hrdlicka 1902, 1907; Kraft 1993:7-8).

Despite Abbott’s intransigence over the palaeolithic question in North America, the debate over the antiquity of the Trenton gravels and the related evidence for early human occupation in the Delaware Valley was effectively settled within the realm of academe in favor of the Holmes/Hrdlicka position well before the end of the first decade of the 20th century. Abbott himself in fact produced very little in the way of new evidence for his palaeolithic culture between 1890 and 1910, while with his pen he mostly rehashed his earlier arguments. Volk, for his part, while adopting Abbott’s tripartite interpretive framework (Trenton gravels/yellow sand/black soil) to report his more than two decades of research in 1911, produced nothing of real substance to support Abbott’s palaeolithic culture (Volk 1911; Cross 1956:8).

History has not been especially kind to Abbott on the matter of his palaeolithic culture. He is frequently cast as a difficult, argumentative and unprofessional archaeologist and ungracious debate loser, which in some respects may be a valid characterization, but he was also curious, literate, extremely knowledgeable about his immediate surroundings and, initially at least, open to intellectual engagement. Were it

not for his early observations, finds and persistent writings, clarity in resolving these early questions about human antiquity in North America and more specifically in the Delaware Valley might have taken years to emerge. After all, a single viewpoint does not a debate make and Abbott’s, although ultimately discredited, represents an immense contribution to the advancement of American archaeology and prehistory. Indeed, in hindsight, Abbott was so nearly right in his arguments – while the outwash gravels of the Wisconsinan ice advance are now generally accepted as not containing evidence of human occupation that is contemporary with their deposition, the timeline of Native American activity in the Delaware Valley is viewed as extending back to the immediate post-glacial period, some 13,000 years ago. Some of the stone artifacts recovered by Abbott, Volk and others “from the Trenton gravels” may perhaps, under a modern chronological framework, be assignable to the Paleoindian or Early Archaic periods.

As the furore over the North American palaeolithic receded, interest in Abbott’s so-called argillite culture came to the fore. Much of the proceedings of the Detroit AAAS conference in 1897 were in fact given over to discussion of this intermediate culture, being fueled in large measure by Volk’s ongoing work at the Lalor Farm. “Lalor Fields,” as this site was also known, was located just a short distance along the bluff top to the west of the Abbott Farm (Figures 5.1. and 5.2). Again, both archaeologists and geologists participated and considerable argument ensued over the origin of the “yellow sand,” the principal layer within which artifacts belonging to the argillite culture were found. New Jersey geologists Henry Kummel and Rollin Salisbury posited a wind-blown origin for this deposition; George Frederick Wright, keying on the “red veins” or clayey iron-rich laminations within the sand, preferred a water-laid explanation. Kummel, supported by Salisbury, argued that the red veins were not stratified deposits of aqueous origin, but instead represented “zones or bands of infiltration and depo-

1. Paved place on the surface of the yellow drift.
2. Argillite workshop, 10 inches in the yellow drift.
3. Black spot on surface of the yellow drift.
4. Argillite implement, 3 inches in yellow drift.
5. Argillite workshop, 4 inches in yellow drift.
6. Argillite workshop, 14 inches in the yellow drift.
7. Charcoal pit, 6 inches in the yellow surface.
8. Heap of Isirite stone on the surface of the yellow drift.
9. Disturbed soil, no bones.
10. Yellow soil burnt red.
11. Heap of broken pebbles.
12. Workshop of argillite.
13. Argillite implement.
14. Black streak, 16 inches in the yellow drift.
15. White Quartz lens.
16. Workshop, 4 inches in the yellow drift.
17. Argillite implement and rude flakes, 4 inches in the yellow drift.
18. Traces of a large tree.
19. Argillite slabs, 1 foot in the yellow drift.
20. Grave II.
21. Workshop, 12 inches in the yellow drift.
22. Grave III.
23. Hearths, 6 inches in the yellow drift.
24. Little heap of broken pottery.
25. Thick rude pottery.
26. Pit in the yellow drift.
27. Cache of seven Argillite implements, 18 inches below the present surface in the yellow drift.
28. Three stones, 14 inches below surface.

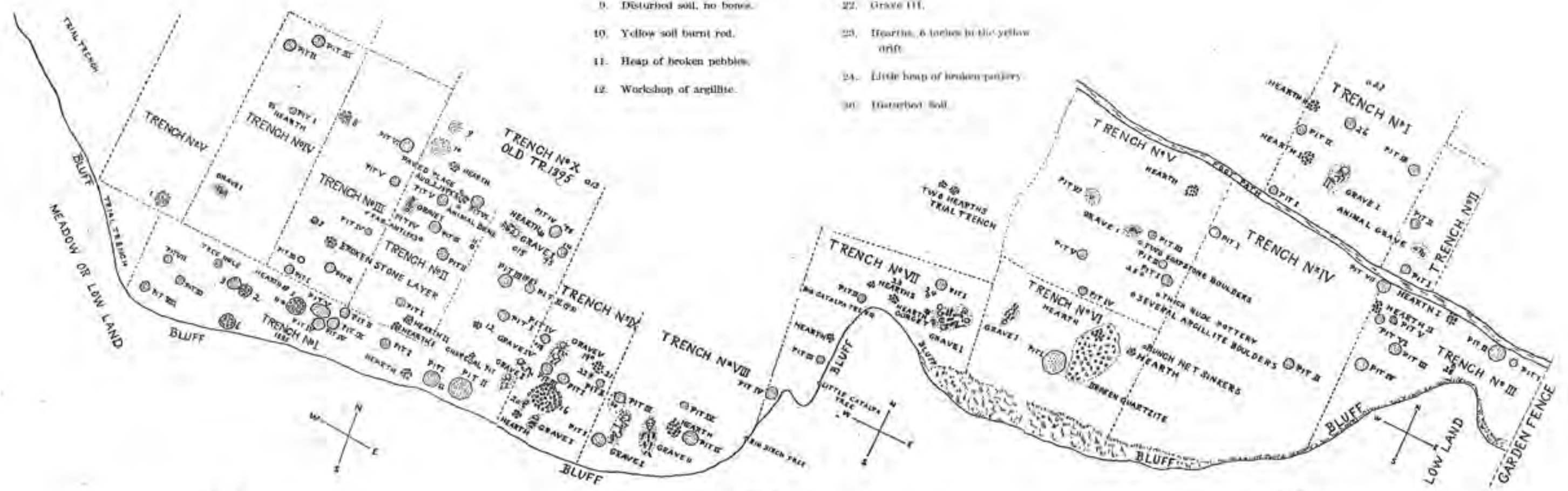


FIG. 8.
Lolor Field: Trenches west of house. Exploration of 1895.

FIG. 9.
Continuation of plan from Fig. 8. Explorations of 1894 and 1895.

FIG. 10.
Continuation of plan from Fig. 9. Explorations of 1894.

Figure 5.1. Composite Sketch Map Showing Locations of Ernest Volk's Excavations and Archaeological Features Found in the Lolor Farm Fields within the Abbott Farm National Historic Landmark (Source: Volk 1911:25-27). Scale: 1 inch= 200 feet (approximately).



Figure 5.2. Modern Aerial Photograph Showing Approximate Area of Main Excavations by Ernest Volk within the Abbott Farm National Historic Landmark (Source: Volk 1911:25-27; New Jersey Department of Environmental Protection 2002).

sition of ferric oxide which has somewhat cemented the sand grains.” Ultimately, a wind-blown origin for the artifact-bearing yellow sand at Lalor Fields won out and today this interpretation is generally accepted for the upper sandy layers found along the bluff top between Riverview Cemetery and White Horse Circle (Kummel 1898; Salisbury 1898; Wright 1898; Cross 1956:6).

Archaeological discussion of the argillite culture focused chiefly on the stone artifacts, their vertical and horizontal distribution, their typology and the kinds of raw material in use, but argument also centered on whether or not pottery was being found in the yellow sand. Henry Mercer questioned the viability of a distinct argillite culture, noting that artifacts were found over a wide range of depths. Kummel, emphasizing the horizontality of most of the argillite artifacts, made the important point that they were likely *in situ* and of the same age as the sand, and had therefore not been disturbed or redeposited (Mercer 1898; Kummel 1898; Cross 1956:6-8).

These discussions over the argillite culture were all taking place in something of a void, since very little in the way of systematically collected scientific data was available in published form. Abbott, although he continued writing and clung to many of his earlier interpretations up until his death in 1919, never provided a comprehensive or quantitative account of his life-long archaeological explorations. Ernest Volk also published very little during the period when he was actively working in the field and it was not until 1911 that he summarized his 22 years of research in *The Archaeology of the Delaware Valley*, a publication of the Peabody Museum (Volk 1894; Abbott 1907-09; Volk 1911; Abbott 1912).

Volk’s work in the Trenton area on behalf of the Peabody Museum between 1889 and 1910 was wide-ranging and involved not only formal excavations but also extensive monitoring of ground disturbance

caused by new construction and mining. As is apparent from his published journal extracts between 1906 and 1910, included in *The Archaeology of the Delaware Valley*, he examined countless railroad and sewer line cuts, sand and gravel pits, dredge spoil, and excavations for building basements, particularly with an eye to recovering artifacts from the Trenton gravels, a task in which he was not entirely successful. Volk’s formal excavation activity mostly took place on the bluff top to the west of the Abbott Farm, concentrated especially between modern-day Hewitt and Reeger avenues, within 500 feet or so of the bluff rim, on either side of Bow Hill (Figures 5.1 and 5.2). At the time this area consisted of cultivated fields on the outskirts of Trenton on farmland owned by the Lalor and Wright families.

Volk also excavated extensively further to the east on the Rowan farm, including close to the Isaac Watson House (the nucleus of the farm) and in the lowland below the house alongside Watson’s Creek within what is today Roebling Park (Figure 5.2). While sketch maps and representative profiles of Volk’s excavations in the Lalor and Wright fields are included in the publication of 1911, little detail is provided about the precise location and soils of this other work. Nevertheless, it is apparent that both the Rowan and Abbott farms, the lowland and countless other locations all produced a large volume of archaeological features and artifacts (Volk 1911).

Volk’s excavations dealt predominantly with what Abbott had referred to as the black soil (essentially the upper humic layer and plowzone) and the yellow sand (the immediately underlying layers of sand of variable texture and depth, within which were bands of reddish sandy clay, the so-called “red veins”) (Figure 5.3). He found an abundance of cultural material within the yellow sand, especially argillite artifacts, evidence of Abbott’s argillite culture, which today would mostly be assigned to the Middle Woodland period. The darker soil above also yielded large quan-

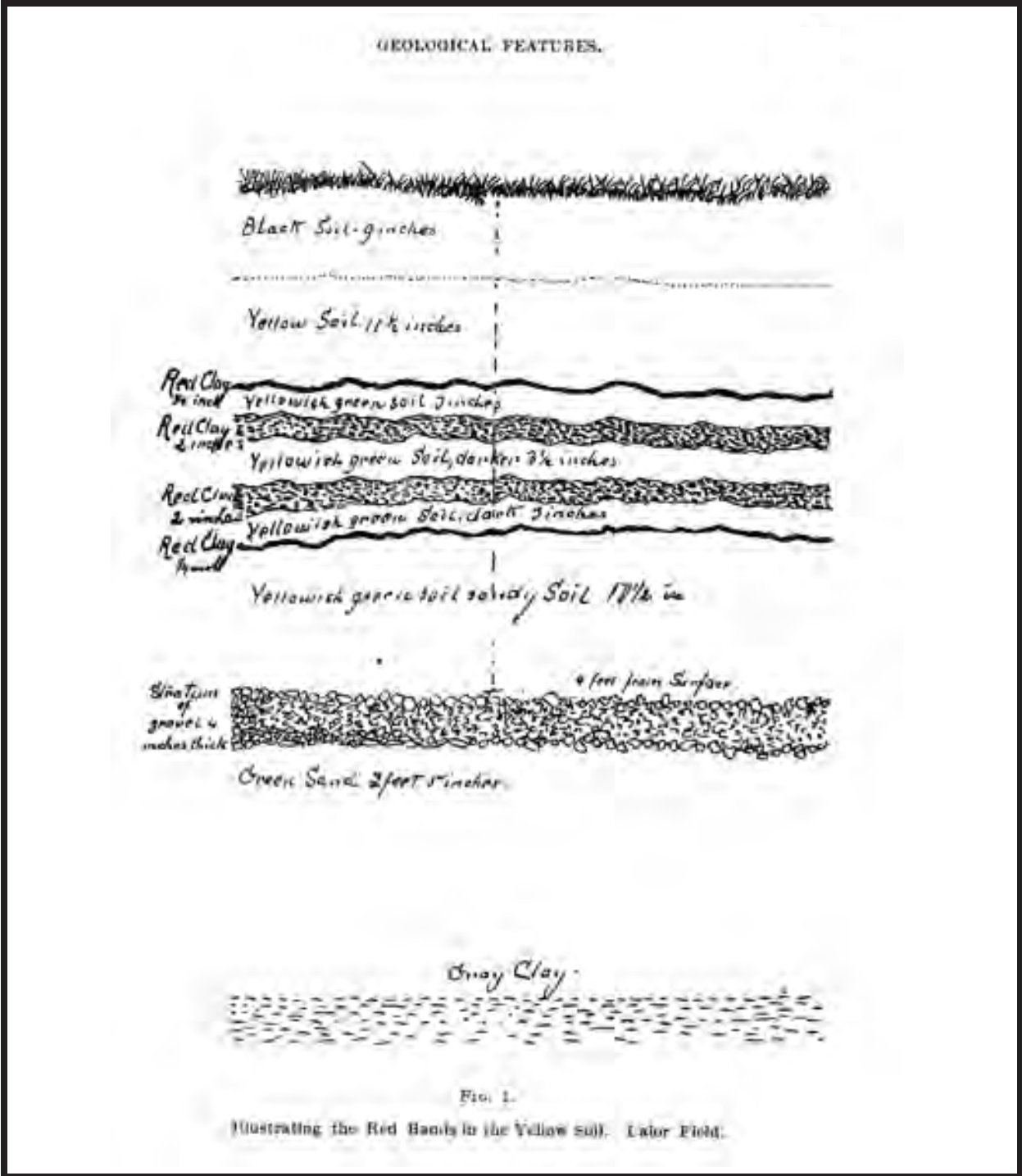


Figure 5.3. Typical Profile from Archaeological Test by Ernest Volk in the Lalor Farm Fields (Source: Volk 1911:9).

tities of artifacts, but with a higher proportion of non-argillaceous material, most likely attributable to the Late Woodland and Contact periods. Numerous pit features, including refuse and storage pits and many graves with human skeletal materials (and occasional grave goods), were identified, mostly at the interface of the black soil and yellow sand, but also within the sand (Plate 5.7).

By modern archaeological standards, Volk's reporting of his Peabody-supported research is disappointing. Locational information is sparse; quantification is absent. Data are presented in selective fashion using Abbott's earlier tripartite cultural framework, but with minimal synthesis and no real conclusions. Perhaps this was done in deference to Abbott, from whose friendship and mentoring Volk had benefited early on in his archaeological career. In any event, Abbott found enough in Volk's publication to feel vindicated in his opinions, so much so that he resumed a correspondence with Frederick Ward Putnam in which he felt able to articulate his legacy in his own mind, even if few others would have agreed:

"... although I won out in the end, I suppose the archaeologists in the future will steal all my thunder and become celebrated and I be forgotten, yet you know well enough, I did more than anyone to put archaeology of this country on a really scientific basis and not let it remain a mere matter of Indian history. But let the past bury its dead." (Letter, Charles Conrad Abbott to Frederick Ward Putnam, December 12, 1912 [Kraft 1993:9]).

In his twilight years Abbott approached the American Museum of Natural History and asked this institution to mount an excavation in advance of the planned sale of the "Three Beeches" property for development. As a result, in the summer and fall of 1914, Alanson Skinner, an Assistant Curator of Anthropology at the museum, assisted by Leslie Spier, then a student, dug a series of trenches in the Abbott's Lane area, close to

the point where Independence Avenue today crosses over Route I-295. Spier (Plate 5.4), who later made his name as an archaeologist and anthropologist specializing in Native American peoples of the American Northwest and Southwest, continued the work in the following year and ultimately reported on the findings. While limited in scope, this work was notable for its thoroughness and for some statistical analysis of the depths at which artifacts and fire-cracked pebbles were found. Spier reported that only around 16% of the artifacts were found in the "yellow sand" and thus attributable to the argillite culture; the remainder were recovered from the topsoil and linked to Delaware Indian occupation. Spier effectively distinguished two principal components: a deeper-buried, relatively simple argillite culture of some antiquity, characterized by predominantly argillite artifacts; and a more developed Delaware Indian culture within the plow-zone and upper sand layers, characterized by a broader range of artifact types that included blades, projectile points, hammerstones and rubbing stones fashioned from raw materials other than just argillite (Skinner 1915; Spier 1918; Cross 1956:8-9; Perazio 1986:8).

On November 13, 1914, not long after Skinner and Spier completed their initial season of fieldwork at the Abbott Farm, a fire started by pheasant hunters in the meadows along Watson's Creek spread on to the bluff, burning down the Abbott home and outbuildings. Abbott's library, his furnishings, many of his papers and numerous artifacts were all destroyed and Abbott himself was devastated. By now in his 70s and the hub of his life's work reduced to ashes, he removed to Bristol, Pennsylvania, where he spent his final years writing a family history that remains unpublished to this day. Abbott died on July 27, 1919. He was buried in Riverview Cemetery where his grave is marked, not inappropriately, by a rough glacial boulder, supposedly dredged from the bed of the Delaware River, on which a plaque is mounted and wishfully inscribed: "IN THIS NEIGHBORHOOD



Plate 5.7. One of many human skeletons discovered by Ernest Volk; Grave 4, Skeleton 1, Wright's Field, 1891 (Source: Volk 1911:Plate XXXIII).

DR. ABBOTT DISCOVERED THE EXISTENCE OF PALEOLITHIC MAN IN AMERICA” (Plate 5.8) (Kraft 1993:9).

Following Spier’s research there was no formal archaeological exploration of the Abbott Farm or the immediately surrounding area until the New Jersey State Museum, supported by the Works Progress Administration (WPA), instituted the far-reaching program of the Indian Site Survey on April 17, 1936. In the interim, however, the notoriety of the Abbott Farm encouraged collectors and avocational archaeologists to search for artifacts in the fields and keep an eagle eye on development-driven ground disturbance as suburban Trenton expanded southeast across the bluff top. The New Jersey State Museum was frequently called upon to identify objects recovered by local residents from the bluffs and made occasional forays into the field to examine possible burials and other archaeological features. In 1929, the museum invited Ernst Antevs, a Swedish geologist later famous for his work on North American varves, to investigate and provide his opinion on the yellow sand. Following microscopic and particle size analysis and lengthy debate with New Jersey State Geologist Henry B. Kummel, it was concluded that the sand could be of either windblown or fluvial origin, but was of post-glacial origin (Cross 1956:9-10).

The Abbott Farm excavations carried out between April 1936 and February 1941 were the flagship project of the Indian Site Survey. Directed by Dr. Dorothy Cross of the New Jersey State Museum and carried out with funding assistance from the federal government through the WPA, these represent by far the single largest program of archaeological excavation ever carried out in the State of New Jersey and quite possibly along the entire eastern seaboard. For much of the period of the excavations large field crews were mobilized and the project became an important source of work for many unemployed surveyors, draftsmen and laborers in the Trenton area (Plate 5.9).

In Dorothy Cross, a recent graduate of the University of Pennsylvania with a background in Middle Eastern archaeology, the Indian Site Survey possessed a rigorous and focused leader, a tenacious, well-educated woman who more than held her own in a traditionally male-dominated discipline (Plate 5.10). The voluminous site archive, maintained by the State Museum, and the quality of the second volume of *Archaeology of New Jersey*, published in 1956, which synthesized and interpreted the Abbott Farm work, are a clear testimony to the intellectual and organizational abilities of Cross. This latter publication, which received an award from the American Association for State and Local History, has stood the test of time well and more than half a century later remains a critical benchmark in the study of New Jersey and North American prehistory. In addition to her duties as head of the Indian Site Survey, New Jersey State Archaeologist and Curator of Archaeology at the New Jersey State Museum, Dorothy Cross also held a professorship in the anthropology department at Hunter College and played a leading role in the founding of the graduate program in anthropology at the City University of New York (Cross 1956; Claassen 1994:14-17).

The Indian Site Survey’s five-year program at the Abbott Farm entailed excavations, several of them immense in scale, at some 20 different locations, most of them on the bluff top, but some also in the lowland surrounding Watson’s Creek and Sturgeon Pond (Figures 5.4-5.7; Table 5.1). In all, an area in excess of 170,000 square feet was subject to excavation and roughly 25,000 cubic yards of soil were archaeologically removed by hand to depths of around four feet below grade (and considerably deeper in some locations). Some parts of the site, notably Excavations 2, 3, 9, 10, 11 and 12 on the bluff top and Excavation 14 in the lowland directly below the Isaac Watson House, produced an abundance of features and artifacts (Plate 5.11). These areas yielded no less than 85 burials, most of them within pits, and 35 caches (deliberately placed concentrations) of various types of stone artifacts. In



Plate 5.8. The rough boulder and plaque that mark the grave of Charles Conrad Abbott in Riverview Cemetery (Photographer: Michael Murphy, Hunter Research, Inc.).



Plate 5.9. The Indian Site Survey excavations at the Abbott Farm mobilized large field crews during a time of high unemployment; a general view of excavators and surveyors working at Excavation 3 (Source: Cross 1956:Plate 1a).



Plate 5.10. Dorothy Cross and Eugene Golomshtok excavating a Native American ceramic storage vessel found in Burial Pit 32, Excavation 2 at the Abbott Farm Site (Source: Cross 1956:Plate 19b).

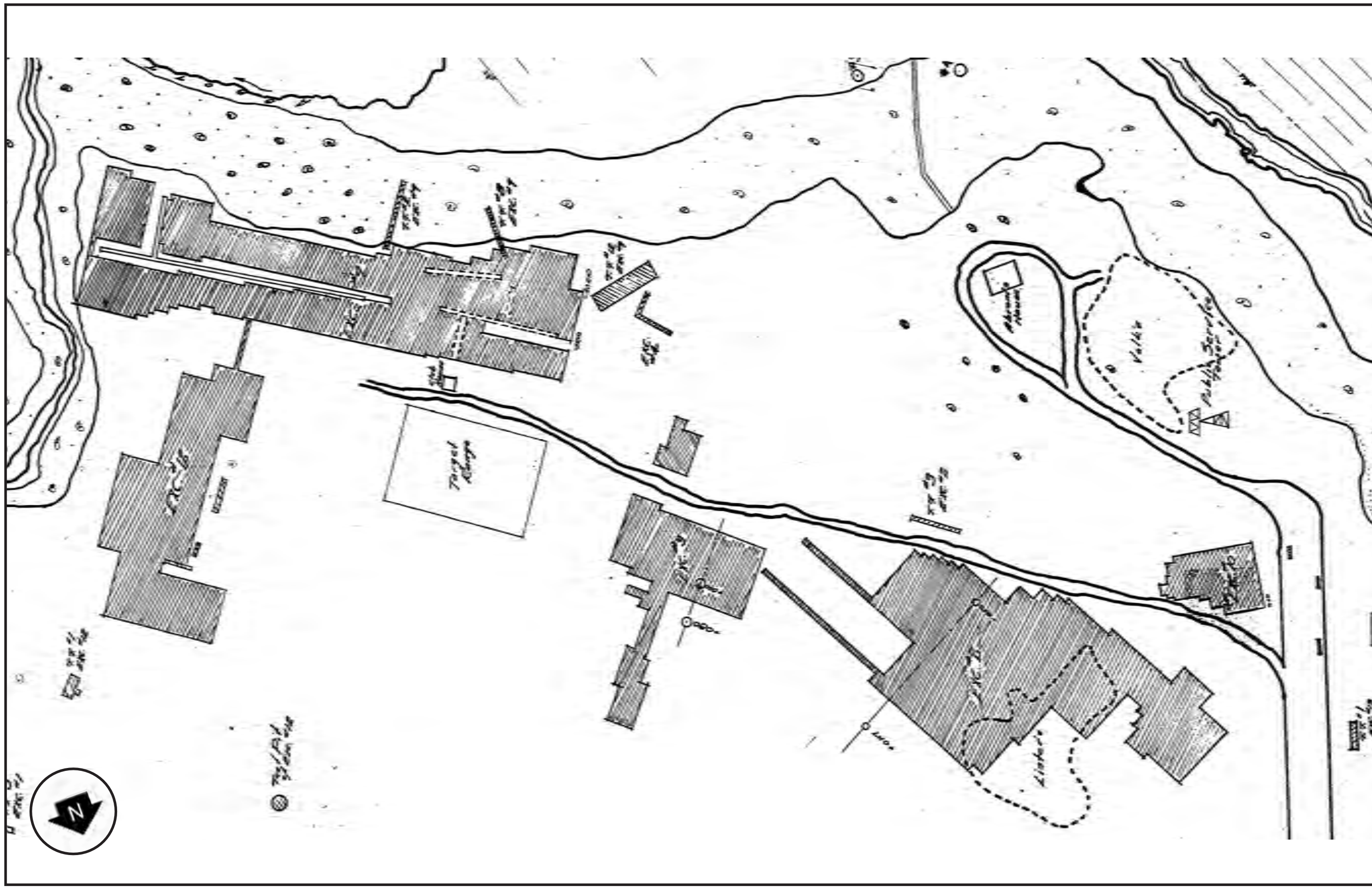


Figure 5.4. Portion of Manuscript Site Plan Showing Locations of Indian Site Survey Excavations of 1936-41 at the Abbott Farm Site (Source: New Jersey State Museum, Indian Site Survey). Scale: 1 inch= 150 feet (approximately).

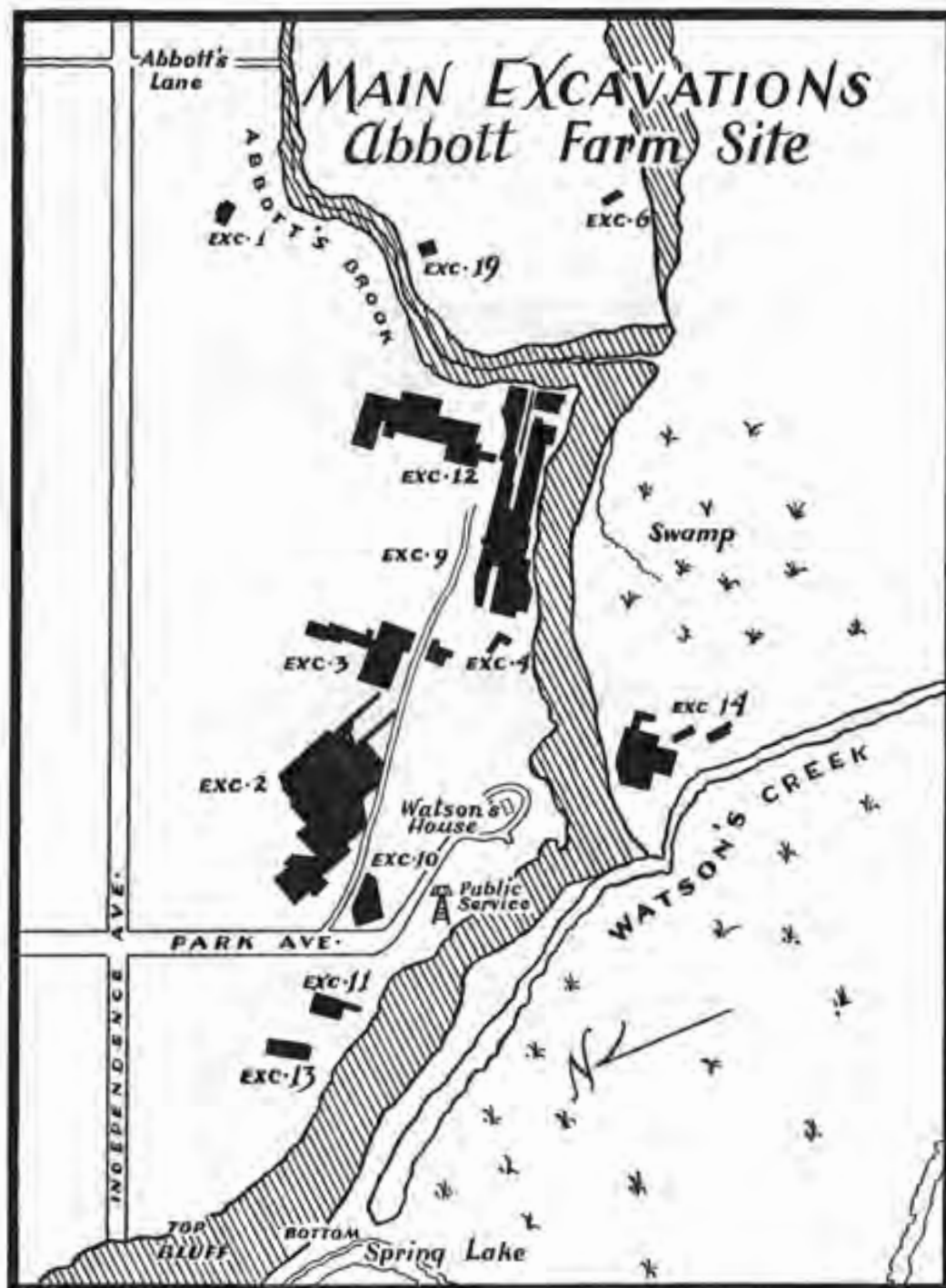


Figure 5.5. Published Site Plan Showing Locations of Indian Site Survey Excavations of 1936-41 at the Abbott Farm Site (Source: Cross 1956:13). Scale: 1 inch= 200 feet (approximately).



Plate 5.11. Eugene Golomshtok (left) and unidentified New Jersey State Museum staff member examine a large stone pestle discovered in Excavation 3 at the Abbott Farm Site (Source: New Jersey State Museum, Indian Site Survey Photographic Archive, #573).



Figure 5.6. Modern Aerial Photograph Showing Approximate Area of Main Excavations by the Indian Site Survey within the Abbott Farm National Historic Landmark (Source: Jersey State Museum, Indian Site Survey; Cross 1956:13; New Jersey Department of Environmental Protection 2002).



Figure 5.7. Aerial photograph taken in 1940 showing several of the large-scale Indian Site Survey excavations at the Abbott Farm Site (Source: United States Department of Agriculture 1940). Scale: 1 inch= 215 feet (approximately).

TABLE 5.1. SUMMARY OF INDIAN SITE SURVEY EXCAVATIONS AT THE ABBOTT FARM, 1936-41

Excavation #	Location	Dates Excavated	Excavation Type	Typical Depth (ft.)	Area Excavated (sq. ft.)	Volume Excavated (cu. ft.)	# of Pits	# of Hearths	# of Burials	# of Caches
Excavation 1	bluff top	4/17/36-5/6/36	1 block, 7 trenches	five to 8	750	6450				
Excavation 2	bluff top	5/7/36-2/26/38	1 block, 5 trenches	four	42900	171989	69	5	18	7
Excavation 3	bluff top	6/7/36-3/11/38	2 blocks	four	15725	67761	13	2	4	2
Excavation 4	bluff top	7/7/36-7/12/36	1 trench	four	425	1612				
Excavation 5	lowland	8/12/36-10/15/36	9 trenches	four and a half	975	4387				
Excavation 6	bluff top	10/19/36-12/18/36	2 trenches	no data	275	640				
Excavation 7	bluff top	1/5/37-8/14/40	4 trenches	4.5 to 5	2925	12900				
Excavation 8	bluff top	1/28/37-2/2/37	6 trenches	no data	721	2204				
Excavation 9	bluff top	12/3/37-8/8/39	1 block, 9 trenches	four	56800	206837	52	2	20	14
Excavation 10	bluff top	8/29/38-1/15/39	1 block	four	5250	20624	14			2
Excavation 11	bluff top	1/12/39-3/26/39	1 block, 1 trench	four	2675	9000	8		3	
Excavation 12	bluff top	2/14/39-8/4/39	1 block, 4 trenches, 1 test pit	no data	21625	72332	15	2	1	7
Excavation 13	bluff top	4/12/39-4/27/39	1 block, 1 trench	three and a half	3125	10940	6			
Excavation 14	lowland	8/7/39-2/4/41	1 block, 8 test pits	five and a half	10241	61478	44	13	39	2
Excavation 15	lowland	8/15/39-8/16/39	15 test pits	four	250	1000				
Excavations 16-18	bluff top	8/21/39-9/28-39	3 blocks, 10 trenches	1.5 to 4	5615	16583				1
Excavation 19	bluff top	3/5/1940	1 trench	three	300	900				
Excavation 20	lowland	3/27/40-4/17/40	7 trenches	no data	875	2187				
TOTALS					171542	669824	221	24	85	35

Source: Cross 1956

all, 245 pits and hearths, close to 20,000 stone, bone and antler artifacts and roughly 30,000 sherds of pottery were found. While the bluff-top locations were characterized by a fairly straightforward and uniform sequence of topsoil over yellow sand with laminations over progressively more gravelly deposits of sand (much like Volk's excavations), Excavation 14, on the other hand, within a 12-foot soil column, revealed a series of three buried humus layers, each separated by mostly sterile sand.

Cross's eventual publication of the Abbott Farm excavations in 1956 reviewed the earlier work of Abbott, Volk and others, summarized the state of geological knowledge as it then existed, presented the archaeological data in a concise and logical – if somewhat selective – form, and then developed a noticeably more coherent cultural interpretation of the site drawing heavily on typological analyses of the stone artifacts and pottery. Using the then relatively new cultural time frame that still remains largely in use today she recognized artifacts attributable to all the major cultural periods (Paleoindian through Archaic and Woodland to European contact) and interpreted the vast and varied body of archaeological data as part of an occupational “continuum” ranging all along the top and base of the bluff with particularly intense activity taking place in the Early and Middle Woodland periods. For students of the prehistoric archaeology of the Delaware Valley, Cross's Abbott Farm volume remains essential reading even today and is a vital link to the work of Abbott, Volk and others involved in the debate over North American human antiquity. However, it was not universally well received: a contemporary review published by well-known North American archaeologist Richard S. MacNeish in *American Antiquity* noted, not a little unkindly, that “little or no cultural assignment either in terms of time periods or in terms of focus or phase is given in these archaeological features” (1958:443).

Even as Cross was analyzing her excavation results and bringing her work on the Abbott Farm to final publication, the richness of the archaeological resource was becoming more widely known within the local Hamilton-Trenton community. Although antiquarians and collectors had undoubtedly roamed the farm fields on top of the bluff ever since Abbott's day, picking up stray artifacts brought to the surface through cultivation, it has been mostly since World War II that the Abbott Farm Site has experienced a steady rise in looting and uncontrolled digging. In addition, with the spread of residential development across the bluff top between the 1950s and 1970s, construction of homes and infrastructure was continually encountering Native American remains, including numerous burials. Even the most innocuous of domestic activities like gardening will still occasionally turn up artifacts. Sadly, while some finds have been reported to the State Museum, most objects recovered during the course of development activity or through home gardening have gone unrecorded, with the materials in question remaining in private hands.

Today, many people who have lived and grown up in the area do fully appreciate the wealth of Native American culture that lies in the ground and can speak anecdotally and knowledgeably of where particular finds occurred during the most intense period of development in the third quarter of the 20th century. Of note in this regard are individuals such as Robert J. Cunningham and Andrew Stanzaski, two avocational archaeologists who have shared much valuable information with the professional archaeological community from their observations and activities during their youth in the 1960s. Cunningham and Stanzaski continue to serve as a vital link between archaeologists and residents, knowing personally many of the homeowners who have private collections of artifacts from the Abbott Farm Site. Former Hamilton Township Mayor Jack Rafferty is another locally knowledgeable

able individual appreciative of the importance of the Abbott Farm, who likewise has been a valuable conduit for archaeological information.

It was not until a quarter century after the Indian Site Survey finished fieldwork at the Abbott Farm Site that the next formally reported archaeological investigation took place there. In the fall of 1966 a delicate balance was struck between private property owner, collector, avocational archaeologist and professional archaeologist to achieve some limited controlled excavation on the grounds of the Isaac Watson House, within the heart of what is today the AFNHL. In advance of the grounds being “permanently landscaped” by Mercer County and the Daughters of the American Revolution, the Unami Chapter of the Archaeological Society of New Jersey, under the direction of Janet S. Pollak, then a professional archaeologist in training, undertook an excavation of 700 square feet, finding no less than 28 separate Native American features, including three burials and four hearths. Artifacts dating from as early as the Early Archaic period were recovered, but the bulk of the cultural materials found were of Middle Woodland and Late Woodland age, including a hitherto unrecognized type of Middle Woodland pottery classified as “Abbott Zoned Punctate.” A brief note, without drawings, was published on this work in the *Bulletin of the New Jersey Academy of Science* (Pollak 1968:84).

Janet Pollak went on to complete a Master’s degree in anthropology at Temple University, using her work at the Isaac Watson House and a wealth of other artifacts recovered by local residents during construction in the Westcott Avenue/Wedge Drive area as the basis for a thesis in which she re-interpreted some of the Indian Site Survey excavation results in this part of the AFNHL. In particular she emphasized the strong Hopewellian influences in the Middle Woodland component of the Abbott Farm Site, recognizing what she referred to as the “Abbott Phase.” She also hinted at the possibility of “a special or perhaps ceremonial

aching area” on the bluffs east of the Watson House around what is today the western end of Wedge Drive, just southeast of Cross’s Excavation 3 in the general vicinity of the target range shown on the Indian Site Survey excavation plan (Figure 5.4) (Pollak 1971:78-79, 115-118).

Over the past four decades or so, important tenurial changes and legislative initiatives have occurred that have helped to secure the future of the Abbott Farm Site as one of the nation’s most prized archaeological resources, affording its physical remains a level of recognition and protection they did not previously enjoy. Much of the land lying within what is now the landmark has come into public ownership during this period, most notably several sizeable tracts of lowland and tidal wetland that have been progressively acquired by Mercer County, the State of New Jersey and Hamilton and Bordentown townships. Smaller parcels on the bluff top and rim northwest of Crosswicks Creek have also been bought by Mercer County and Hamilton Township, most notably the Isaac Watson property, which was purchased by Mercer County in 1964. The State of New Jersey, Burlington County and Bordentown Township have acquired land or bought up development rights with preservation in mind for upland areas on the opposite bank of the creek.

Nationwide, public ownership of land and development controls exercised by public agencies have been coupled with environmental and historic preservation legislation to the benefit of archaeology, although the main preservation emphasis has typically been more on natural and above-ground cultural as opposed to below-ground archaeological resources. Nevertheless, federal laws, such as the National Historic Preservation Act of 1966 and the National Environmental Policy Act (NEPA) of 1969, and matching state laws, such as the New Jersey Register of Historic Places Act of 1970, along with state permitting procedures and county and municipal regula-

tions, can all potentially ensure a measure of responsible management for the archaeology of the Abbott Farm. To date, archaeological resource management of the Abbott Farm has been predominantly addressed at the federal and state level through government review authority rooted in the designation process of the New Jersey and National Registers of Historic Places and related land use regulations. So far as the Abbott Farm is concerned, there are no county or municipal ordinances specifically aimed at protecting or managing archaeological resources on lands under these agencies' ownership or jurisdiction.

Federal and state-level environmental and historic preservation laws and regulations brought into being in the late 1960s and early 1970s dictate that publicly funded and permitted actions consider, and minimize, project effects on historical and archaeological resources meeting the eligibility criteria of the National Register of Historic Places. Longstanding plans to complete the national interstate highway network in the Trenton area required the Federal Highway Administration (FHWA) and the New Jersey Department of Transportation (NJDOT) to develop a project that was in compliance with both NEPA and Section 106 of the National Historic Preservation Act. Planning and design for the "Trenton Complex," as the massive interchange of Routes I-195 and I-295 and N.J. Routes 29 and 129 came to be known, consequently involved the completion of numerous environmental and cultural resource studies, which soon brought to the fore two major areas of potential environmental impact – one relating to natural resources and the tidal wetlands at the confluence of Crosswicks Creek and the Delaware River; the other centering on the archaeology of the Abbott Farm Site. Thus, in 1975, there commenced an extended program of archaeological survey and excavation, involving identification and evaluation of resources followed by mitigation of project impacts through archaeological

data recovery, a program that was not fully implemented until the late 1990s when the final publication of the results of this work was completed.

At the outset of this long and arduous tale of environmental compliance, the Abbott Farm Site was a well-known, but as yet undesignated historic resource, the subject of more than a century of concerted archaeological study and the intermittent focus of intense scholarly debates over human antiquity in North America and the prehistory of the Delaware Valley. The proposed highway improvements (completed in the early 1990s) involved construction of a massive interchange in the lowland straddling Watson's Creek with roadways leading in to this spot from the north, just east of the site of "Three Beeches;" from the east along the north side of Crosswicks Creek, just below the White Horse Circle; from the south across the mouth of Crosswicks Creek and Duck Island; and from the west between Sturgeon Pond and Duck Island (Figure 5.2). The Trenton Complex highway project was effectively due to be set directly within the core of the Abbott Farm Site and ultimately spawned one of the largest, most complicated examples of archaeological resource management in the Middle Atlantic region – a protracted slow-motion collision of transportation infrastructure development with a particularly sensitive expanse of natural and cultural landscape, mediated by a cumbersome multi-level bureaucracy still learning – rather, still braiding – the ropes of environmental compliance.

As part of the initial Section 106 compliance, NJDOT and FHWA contracted in 1975 with Louis Berger & Associates, Inc., the engineering consulting firm responsible for the Trenton Complex highway design, for completion of the requisite cultural resource studies. Berger in turn subcontracted with Janet S. Pollak for treatment of prehistoric archaeological resources and with the firm of Historic Sites Research (headed by Edward Larrabee and Susan Kardas) for handling historic sites and structures. Phase I-level surveys

were duly conducted to identify historic and archaeological resources within the limits of the proposed construction corridor. In the case of the prehistoric archaeological studies, Pollak produced a detailed diary of the fieldwork that was undertaken, which included subsurface testing at numerous locations along the highway alignment where buried features and artifacts were documented (Pollak 1975). The detailed results of the Phase I cultural resource investigations were presented in the form of a technical appendix to the project's draft environmental impact statement and as a "case report" (FHWA and NJDOT 1976; Pollak 1977).

An important outcome of this initial round of survey work, directly favoring the preservation of the Abbott Farm Site, was the formal designation of the resource. This critical and overdue step, in effect a classic case of resource designation playing "catch-up" with environmental review, followed the New Jersey State Historic Preservation Officer's issuance of an opinion on December 19, 1975, as part of the Section 106 process, that the Abbott Farm Site met the criteria for eligibility for inclusion in the National Register of Historic Places. Appropriately, given the significance and history of the site, the nomination documentation for what was referred to as the "Abbott Farm Historic District" (confusing terminology considering that this was a prehistoric resource) was prepared by staff of the New Jersey State Museum and the National Park Service (Williams *et al.* 1976). Almost a year later, AFNHL, with only marginally more fitting nomenclature, received its landmark designation from the National Park Service, at which time it was also accepted into the National Register of Historic Places (December 8, 1976; NHL ID #1654; NR Reference #76001158).

In the late 1970s the fate of the landmark with respect to the Trenton Complex was bounced back and forth between several federal and state agencies (chiefly FHWA, the U.S. Department of Transportation, the

National Park Service, the Advisory Council on Historic Preservation, NJDOT and the New Jersey Department of Environmental Protection). Extended discussion took place over how the highway design could be modified to minimize effects on archaeological remains. On August 16, 1979, the designation status of the landmark was cemented at the state level when it was accepted into the New Jersey Register of Historic Places, meaning that the Trenton Complex project would now also be subject to review under the New Jersey Register of Historic Places Act of 1970. Emphasizing the significance of the resource, the New Jersey State Historic Preservation Officer issued a second confirmatory opinion of National Register eligibility on November 6, 1979.

It is worth noting that, at this juncture, the planning for the highway construction had reached a relatively developed stage with little room for adjustment of road alignments, while the designation of the landmark took in a vast area of land of almost 2,000 acres, including several tracts of housing, Independence Mall, a number of commercial strips, transmission lines, roads, a sewage disposal plant and other infrastructure, the construction of much of which had likely compromised or removed soils of archaeological interest. In retrospect, while sufficient funding was not made available to accomplish this at the time, a more rigorous and judicious delineation of the landmark boundary, particularly on the bluff top, might well have brought greater clarity to defining the archaeological implications of the Trenton Complex and accrued to the long-term benefit of local land use regulation in Hamilton and Bordentown townships.

After the initial cultural resource surveys and the designation of the landmark, it rapidly became apparent that the Trenton Complex highway project could have an immense impact on cultural resources, including both historic architectural properties and prehistoric and historical archaeological resources, and that further evaluation and mitigation of the project's effects

would be necessary. As a direct consequence of this realization Louis Berger & Associates, Inc. in 1980 established its own archaeology and historic preservation section within the structure of the larger engineering corporation, a department that continues in existence to this day. The Cultural Resource Group of Louis Berger & Associates, Inc. thus undertook all subsequent historical and archaeological activity related to the Trenton Complex project.

Throughout the late 1970s and early 1980s, FHWA, NJDOT and Berger continued with the full range of environmental compliance work required under NEPA with the historical and archaeological studies serving as one of the most critical subsets of activity. The final environmental impact statement for the project was completed and formally submitted in January 1981. With considerable uncertainty still surrounding the character and extent of archaeological remains within the project corridor, Berger archaeologists in 1981-82 conducted more focused Phase II cultural resource surveys along the various alignments of the Trenton Complex, evaluating specific historic and archaeological resources in greater detail (Louis Berger & Associates, Inc. 1983a). Following on from this and in coordination with the predecessor agencies of today's New Jersey Historic Preservation Office (first the Office of Cultural and Environmental Services; then the Office of New Jersey Heritage), Berger on behalf of NJDOT and FHWA formulated mitigation plans for individual archaeological sites both within and outside the landmark that could form the basis for an overarching Memorandum of Agreement between the key state and federal agencies involved with the Trenton Complex (Louis Berger & Associates, Inc. 1983b).

Beginning in May of 1982 at the Shady Brook Site, a series of Phase III data recovery excavations were carried out at ten different Native American sites that lay within the path of the Trenton Complex and which were judged to meet the National Register of Historic

Places eligibility criteria (Figure 5.8; Table 5.2). Three of the ten sites, the Shady Brook, Gropp's Lake and Bordentown Waterworks sites, lay outside the landmark boundaries. Of the seven within the landmark, four were located on the bluff top (the White Horse West, Carney Rose, Lister and Abbott's Lane sites) and three were in the lowland (the Area B, Area D and Sturgeon Pond sites). The bulk of these data recovery excavations were completed between the fall of 1983 and late 1985. A supplementary phase of data recovery work was completed in 1989 at the Area D Site where deeply buried deposits below the present-day water table produced important new evidence of Archaic period occupation in the tidal wetland portion of the landmark.

The Berger excavations of the 1980s were nothing like as extensive as those carried out by Volk or by Cross and the Indian Site Survey. The actual placement of the excavations was dictated by the limits of the proposed highway-related ground disturbance and by the exigencies of the environmental impact review process. However, with the increasing sophistication of archaeological excavation and analytical techniques over the course of the 20th century, the Berger investigations were carried out in a more exacting and scientifically rigorous manner than the earlier work within the AFNHL and have generated valuable new data and new insights. Considerably more attention was given to controlled methods of excavation and recording, to quantitative analysis of artifacts, to paleoenvironmental reconstruction, and to geomorphological and sedimentological studies. Advantage was also taken of recent advances in archaeometry with carbon-14 dates being derived for several key levels and features.

In 1996 a 15-volume series of technical reports was published by the Cultural Resource Group of Louis Berger & Associates, Inc., which detailed the results of the more than two decades of archaeological study undertaken in connection with the Trenton Complex.

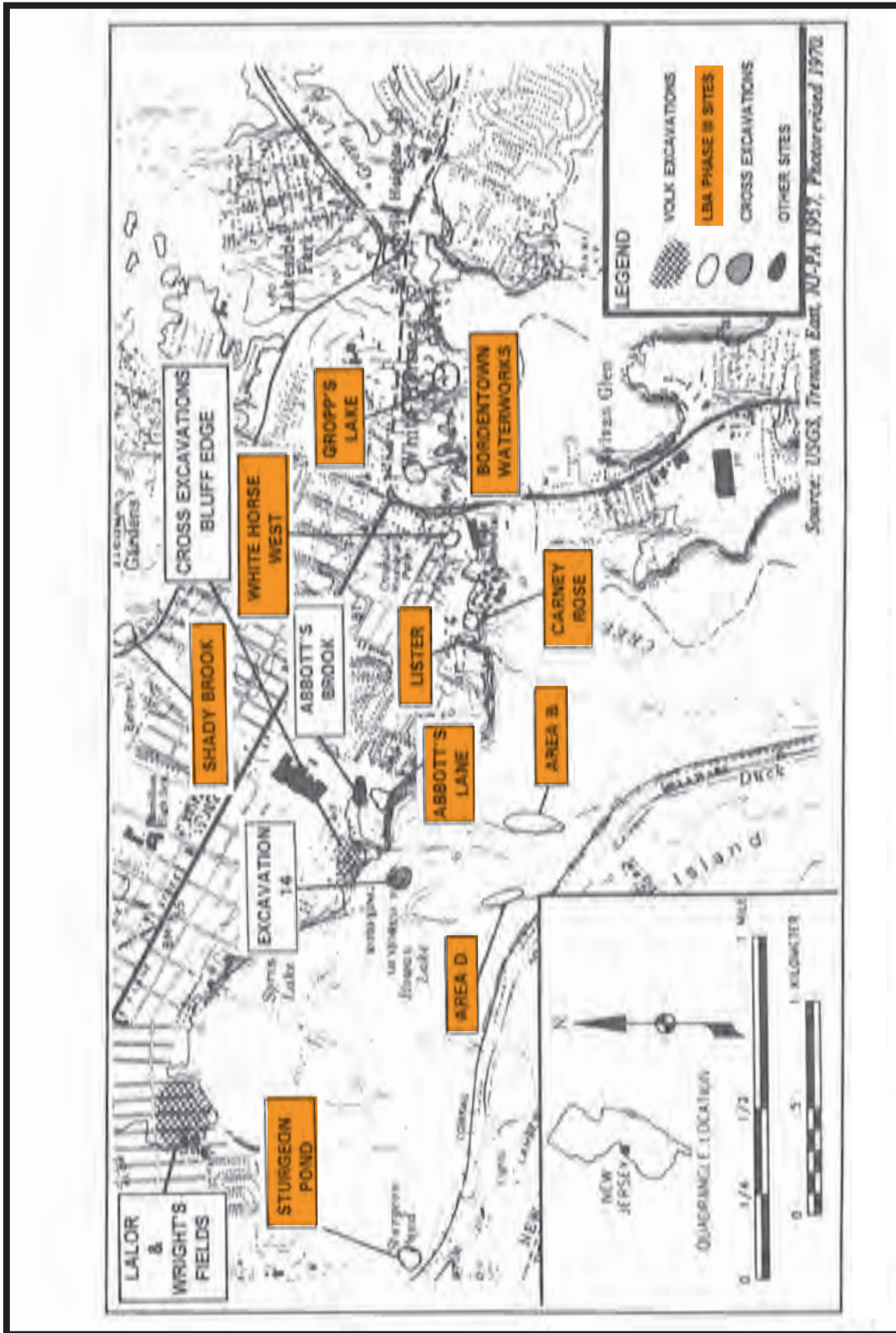


Figure 5.8. Locations of Prehistoric Archaeological Sites Subjected to Phase III Data Recovery Excavations by the Cultural Resource Group of Louis Berger & Associates, Inc. in connection with the Trenton Complex (Source: Wall *et al.* 1996a:2).

TABLE 5.2. SUMMARY OF PREHISTORIC ARCHAEOLOGICAL SITES SUBJECTED TO PHASE III DATA RECOVERY EXCAVATIONS PRIOR TO CONSTRUCTION OF THE TRENTON COMPLEX

Site Name	Site #	Within AFNHL	Setting	Date Excavated	Lead Investigator	Cultural Period										Site Type	Reference	
						P*	EA	MA	LA	EW	MW	LW	C					
Shady Brook Site	28Me20/28Me99	no	upland interior	May-July 1982	Michael Stewart				X	X	X	X	X	X			revisited short-term camp	Stewart 1986a
White Horse West Site	28Me116	yes	bluff rim	October-November 1983	Douglas McLearn				X	X	X	X	X	X			revisited short-term camp	McLearn and Fokken 1986
Gropp's Lake Site	28Me100G	no	bluff rim	October-November 1983	Michael Stewart				X	X	X	X	X	X			seasonally re-occupied camp	Stewart 1987
Carney Rose Site	28Me106	yes	bluff rim	October-November 1983	Robert Foss				X	X	X	X	X	X			long-term camp	Foss 1986
Lister Site	28Me1-A	yes	bluff rim	October-November 1983	Michael Stewart				X	X	X	X	X	X			revisited short-term camp	Stewart 1986b
Bordentown Waterworks Site	28Me37	no	bluff rim	October-November 1983	Douglas McLearn				X	X	X	X	X	X			revisited short-term camp; longer-term occupation in Late Woodland	Dumont and McLearn 1986
Abbott's Lane Site	28Me1-I	yes	bluff rim	July-September 1984	Philip Perazio				X	X	X	X	X	X			revisited short-term camp	Perazio 1986
Area B	28Me1-B	yes	lowland	August-December 1984	John Cavallo				X	X	X	X	X	X			fish processing	Cavallo 1987
Sturgeon Pond	28Me114	yes	lowland	July-October 1985	Michael Stewart							X	X	X			small-group/family fishing camps used in spring and early summer	Wall and Stewart 1996
Area D	28Me1-D	yes	lowland	summer/fall 1985; summer/fall 1989	John Cavallo; Michael Stewart				X	X	X	X	X	X			small-group/family fishing camps used in spring and early summer	Wall et al. 1996b

Source: Wall et al. 1996a; *Abbreviations: P - Paleo Indian, EA - Early Archaic, MA - Middle Archaic, LA - Late Archaic, EW - Early Woodland, MW - Middle Woodland, LW - Late Woodland, C - Contact

In addition to the ten volumes that comprise individual site reports (Table 5.2), this series contains: a volume on the Delaware and Raritan Canal dealing with the survey and excavation of Locks 4 and 6A (Louis Berger & Associates, Inc. 1996); a volume summarizing work at several historic sites within the project corridor (four farmsteads sites, a mill site and some submerged Revolutionary War vessels) (Louis Berger & Associates, Inc. 1998); a volume that presents a typological and technological framework for the analysis of stone artifacts from the Abbott Farm Site and surrounding area (Wall *et al.* 1996c); a volume that presents a synthesis and analysis of Native American ceramic types represented at the Abbott Farm Site (Stewart 1998); and a final volume that presents a “prehistoric archaeological synthesis” for the entire program of Trenton Complex archaeological work (Wall *et al.* 1996a). Other non-technical, educational products from the Trenton Complex cultural resource compliance work are *The Turtle Stone: The Legacy of the Abbott Farm* video and teacher’s guide (for use in the 4th to 8th grades) and a 24-page booklet oriented to general readers.

Viewed as a whole, the Trenton Complex work has contributed substantively to our knowledge of the AFNHL and helped to clarify the main types of Native American activity taking place in lowland and upland settings around the mouth of Crosswicks Creek. The basic chronology and material culture of Native American occupation have been characterized with greater confidence, in greater detail and with fresh insights. For example, one of the sites studied in the lowland, the Area B Site, located along a levee bordering Watson’s Creek and Muckey Meadow Creek, has been characterized as a Terminal Archaic and Early Woodland “specialized camp,” seasonally occupied in the early spring for the procurement and processing of anadromous fish (Cavallo 1987). The Area D Site, located nearby, allowed recognition of this same type of activity back into the Middle Archaic period (Wall *et al.* 1996b). On the rim of the bluff

overlooking the lowland, several sites, both within and outside the landmark boundary, have been cast as typical, intermittently occupied transient camps in use from the Late Archaic through Late Woodland times. Excavations at these sites indicated that the most intensive use occurred during Middle/Late Woodland times (e.g., Dumont and McLearn 1986; Stewart 1986b, 1987).

Over the past quarter century, many other archaeological investigations have been conducted within the AFNHL, mostly in response to the dictates of the environmental impact review process. None of these have been of equivalent scale to those performed by Berger for the Trenton Complex, but some have produced important evidence that has contributed to our knowledge of Native American activity in the area. A rich site has been identified in the upland area surrounding the Bordentown Township Sewage Treatment Plant. Referred to as the Mile Hollow Site, this location has been extensively looted by collectors over the years, but has recently been acquired by the State of New Jersey. It has reportedly yielded artifacts of Paleoindian through Late Woodland date (Mounier 1986). On the bluff rim, adjacent to the Lister Site examined by Berger, archaeological survey in advance of planned residential construction identified Late Archaic through Late Woodland remains, as well as a Paleoindian fluted point, at what is known as the Abbott-DeCou Prehistoric Site (Cultural Resource Consulting Group 1993; Bello and Pagoulatos 1995:80-83). Another survey, for the planned Bywater Residential Subdivision, encountered Late Archaic/Early Woodland artifacts on the bluffs overlooking Crosswicks Creek, west of U.S. Route 206 in Bordentown Township (Richard Grubb & Associates, Inc. 2000). Just beyond the limits of the landmark, archaeological survey and data recovery along the recently reconstructed section of N.J. Route 29 between Duck Island and the Amtrak Northeast Corridor rail line have helped to expand the broader context of Native American settlement in the Abbott

Farm area further upstream to the falls of the Delaware and the mouth of Assunpink Creek (Hunter Research, Inc. 1997, 2002).

Currently, two important archaeological projects are in progress within the AFNHL. Within the core of the landmark, a stone's throw from the Isaac Watson House, archaeological investigations are being carried out in advance of soil remediation and new construction at the Abbott Farm Interpretive Center, a new Mercer County facility whose mission is to promote public appreciation of the natural and cultural resources of the landmark. Part of this site lies within the footprint of Dorothy Cross's Excavation 3, but archaeological testing has nevertheless yielded an abundance of Woodland period (predominantly Middle Woodland) artifacts, as well as several suspected Native American burials (Hunter Research, Inc. 2009). On the Point Breeze promontory, just north of Bordentown, Monmouth University is conducting an archaeological field school under the direction of Dr. Richard Veit. While the main focus of this work is the early 19th-century estate and mansions of Joseph Bonaparte, whose historical significance is a world apart from that of Charles Conrad Abbott and the Abbott Farm, excavations are finding ample evidence of Native American occupation that more than justifies the inclusion of this property within the landmark (Veit 2007).

As the Point Breeze excavation activity indicates, there is a wealth of historical archaeological resources within the AFNHL. Interest in the archaeology of the historical period of the United States is mostly a post-World War II phenomenon and began in earnest with the work that was conducted at colonial sites such as Jamestown and Williamsburg in Virginia, and Plimoth Plantation in Massachusetts, in the third quarter of the 20th century. Within the landmark, historical archaeological endeavors effectively commenced with the Trenton Complex cultural resource surveys of the mid-1970s and early 1980s, which considered

several of the bluff-top colonial farmstead sites. One of these properties, the site of the late 17th/early 18th-century Tindall/Pearson Farmstead, was ultimately subjected to archaeological data recovery (Louis Berger & Associates, Inc. 1998). Limited study of other historical archaeological sites in the area has also taken place over the past quarter century, much of it centered on the Delaware and Raritan Canal. With the emphasis of archaeological inquiry so focused on the nationally significant Native American remains concentrated within the landmark, the potential for significant historical archaeological remains often tends to be overlooked. The landmark contains a wide variety of historic sites capable of producing valuable archaeological data of which the most important are probably the bluff-top farmstead nuclei, their associated landings and fishing stations in the lowlands, and the wrecks of several Revolutionary War-era vessels sunk or scuttled in Crosswicks and Watson's creeks during the fight for control of the Delaware River in 1777-78.

In conclusion, while the Abbott Farm area has been the focus of intense professional archaeological and geological scrutiny for close to a century and half, driving much of the early debate over human antiquity in the New World and then more recently receiving rigorous and sophisticated study through the environmental impact review process, it is sobering indeed to reflect on how many archaeological finds have undoubtedly been dispersed into private hands during this period without documentation of provenance and informed analysis. One has only to inspect modern aerial photographs to see how much land has been given over to development and ground-altering land use over the past 80 years or so, and one realizes that vast portions of the landmark are now archaeologically compromised. Especially sad to see on the ground are the acres of pock-marked woodland along the bluff rim, many of them publicly owned and recently disturbed (within the past five to ten years), where shovel-bearing looters have scoured the

landscape in search of salable collectibles. The hope is that, with coordinated public outreach and public education, more and more residents, corporations, public and private institutions, and public agencies will learn to appreciate not only the archaeological and academic value of the landmark, but also its extraordinary potential contributions to the life of the local community. Opportunities abound for using the landmark and its archaeological content as a means of engaging and bringing together the local community in ways that can protect and celebrate the deep and time-wrought landscape it sometimes so heedlessly occupies. AFNHL, imperfect as it may be in terms of pure preservation, still deserves the most sensitive cultural resource management and has a vital future as a shared heritage asset of the highest order.

Chapter 6

SUMMARY OF CULTURAL RESOURCES

An important component of the technical studies performed in conjunction with the interpretive plan centered on compiling basic information on pre-historic archaeological resources, historic architectural resources and historic archaeological resources within and immediately adjacent to the Abbott Farm National Historic Landmark (AFNHL). This task commenced with a comprehensive review of agency files and secondary sources, then proceeded on to a systematic analysis of historic maps and aerial photographs, and finally involved some carefully targeted field inspection. Information on individual resources was organized within a database using MS Access. Resource locations were mapped and in some instances delineated (e.g., historic districts; areas of archaeological investigative activity) using AutoCAD and also exported into ArcView for compatibility with Mercer County's GIS mapping system. Ultimately, two maps were created as ArcGIS files and linked to the database: one covering the AFNHL and the area within a one-mile radius of the landmark (excluding the Pennsylvania side of the Delaware River) that shows the locations of historic sites, archaeological resources and tourism and recreational sites; the other covering an area within an approximate ten-mile radius of the AFNHL (including the Pennsylvania side of the Delaware River) showing the locations of publicly accessible historic sites, museums, parks and wildlife areas in the surrounding region. New Jersey Department of Environmental Protection digital orthoimagery quarter quadrangle (DOQQ) aerial mapping produced in 2002 served as a base for plotting resource locations.

This chapter, with the help of tables generated from the resource database and location maps, gives a brief summary of the cultural resources (prehistoric, his-

toric architectural and historic archaeological) within the landmark boundaries, along with a few additional comments about other resources in the surrounding area. Sample forms from the database are reproduced in Appendix B and show the types of resource information gathered. The full database and related mapping are provided on the DVD accompanying this document.

Also incorporated into the resource database and mapping is information on recreational and tourism sites within an approximate ten-mile radius of the AFNHL. These data, gathered by David Byers, form the basis for a memorandum reproduced as Appendix C in this report. The full body of recreational and tourism data and related mapping are included on the DVD accompanying this document.

A. PREHISTORIC RESOURCES

A total of 31 separate locations within the AFNHL are noted where prehistoric archaeological resources have been identified (Figure 6.1; Table 6.1). Twenty-two of these locations fall within Hamilton Township, Mercer County; nine are within Bordentown Township, Burlington County. Twelve of the 22 Hamilton Township locations are ranged along the bluff top between Riverview Cemetery and White Horse Circle, mostly within 500 feet of the bluff rim overlooking Sturgeon Pond, Watson's Creek and Crosswicks Creek. The remaining ten locations are in the lowland below the bluff, comprising six in the vicinity of Sturgeon Pond and four within Roebling Park on the east side of Watson's Creek. All of the Bordentown

TABLE 6.1. SUMMARY OF PREHISTORIC ARCHAEOLOGICAL RESOURCES WITHIN THE ABBOTT FARM NATIONAL HISTORIC LANDMARK					
Map Identification Number	Name	Site Number	Notes	References	
Hamilton Township, Mercer County					
400	Abbott Bluff Site	28Me46	Site location recorded by Alanson Skinner and Max Schrabisch in 1913; within general area of Ernest Volk's Labor Field excavations; subsequently confirmed by Matt Horvath of ASNJ; details in New Jersey State Museum files	NJSM Site Registration Files; Skinner and Schrabisch 1913:64	
401	Abbott's Brook Site	28Me1-H	Location of excavations by Alanson Skinner and Leslie Spier in 1914-15; produced approximately 400 artifacts, most of which were recovered from uppermost soils; re-examined as part of Phase II archaeological survey for the Trenton Complex by Louis Berger and Associates, Inc. in 1981 and distinguished from nearby Abbott's Lane Site	Skinner 1915; Spier 1918; Perazio 1986 (Trenton Complex Archaeology Report 7)	
402	Abbott's Lane Site	28Me1-I	Abbott's Lane Site was initially considered part of the Abbott's Brook Site (28Me1-H) until excavations in 1981 determined the site could be divided into two distinct areas; Abbott's Lane Site (28Me1-I) is the southern portion of the original larger site and lies adjacent to the C.C. Abbott Farmstead Site (28Me105); terrace edge of this site was the most intensively occupied portion, especially during the Middle Woodland which is represented by a Fox Creek component; identified features include a typical Woodland hearth basin filled with burned soil, six clusters of fire-cracked rock and a lithic cache consisting of a hammer and unworked cobbles	NJSM Site Registration Files; Perazio 1986 (Trenton Complex Archaeology Report 7)	
403	Area B Site	28Me1-B	A specialized camp in the lowland, occupied for most of its history by small groups; likely a processing site for local resources, notably anadromous fish	NJSM Site Registration Files; Cavallo 1987 (Trenton Complex Archaeology Report 8)	

Map Identification Number	Name	Site Number	Notes	References
404	Area D Site	28Me1-D	The remains of camps used for seasonal fish processing; occupied from the late Middle Archaic to the early Late Archaic period, with some Late Woodland/Contact period activity; occupations are marked by diagnostic triangular projectile points and associated lithic debris	NJSM Site Registration Files; Wall et al. 1996 (Trenton Complex Archaeology Report 9)
411	Bunting Park Site	28Me133	Site examined in the 1980s by New Jersey State Museum; within the general area of Ernest Volk's Loror Field excavations; evidence of Woodland period pits; Archaic period artifacts in subsoil	NJSM Site Registration Files
413	Carney Rose Prehistoric Site (Tindall/Pearson Farmstead Site)	28Me106	Evidence indicated that portions of the site along the terrace edge served as a residential camp for small groups during both the Archaic and Woodland periods; other areas of the site, situated away from the terrace edge, suggested short-term transient encampments; an early historic component of the site was represented by the late-17th to early 18th century Tindall/Pearson farmstead	NJSM Site Registration Files; NJHPO Site Files; Foss 1986 (Trenton Complex Archaeology Report 5)
415	Cross Excavation #14		Indian Site Survey excavations in 1939-41 documented a deep sequence of human occupation at the base of the bluff below the Isaac Watson House, including four separate cultural horizons; features excavated included pits, hearths and burials	Cross 1956
416	Cross's Upland Archaeological Excavations		The site of several Indian Site Survey excavations carried out on the bluff top within the Abbott Farm between 1936 and 1941 under the supervision of Dorothy Cross; comprises the locations of Excavations 1-4, 6, 9-13 and 19, which yielded an abundance of Late Archaic through Late Woodland features and artifacts	Cross 1956

Map Identification Number	Name	Site Number	Notes	References
418	Deutzville Site	28Me11	Site of fragments of human parietals and human femur found by Ernest Volk in the gravels in a railroad cut south of Hancock Street on December 1, 1899; exact location unclear	NJSM Site Registration Files; Volk 1911:115-117, 242-249; Skinner and Schrabisch 1913:65;
423	Isaac Watson House Prehistoric Site		In 1966, the Unami Chapter of the Archaeological Society of New Jersey, under the direction of Janet S. Pollak, undertook an excavation of 700 square feet, finding 28 separate Native American features, including three burials and four hearths; artifacts dating from as early as the Early Archaic period were recovered, but the bulk of the cultural materials found were of Middle Woodland and Late Woodland age, including a hitherto unrecognized type of Middle Woodland pottery classified as Abbott Zoned Punctate	Pollak 1968
424	Lalor Fields and Wright Fields	28Me10	The Lalor and Wright farm fields were a major focus of the excavations carried out by Ernest Volk on behalf of the Peabody Museum between 1889 and 1911; work revealed part of a continuous chain of village sites which occupied the bluff rim and supposedly marked the headquarters of the Unami division of the Lenni Lenape; Volk found a wigwam site surrounded by ten graves and a fragment of bison bone, also numerous other pit features, including burials	NJSM Site Registration Files; Volk 1911; Skinner and Schrabisch 1913:64
425	Lister Site/Abbott-DeCou Prehistoric Site	28Me1-A, 28Me257	The remains of a series of short-term transient camps were identified during survey and data recovery excavation carried out in 1981-83; evidence suggested that the Lister Site was a hunter-gatherer camp used periodically for limited resource procurement and processing; further survey in 1993 in connection with a planned residential development produced a Paleoindian "Clovis" fluted point and artifacts of late Archaic through Late Woodland date.	NJSM Site Registration Files; Stewart 1986 (Trenton Complex Archaeology Report 6); Cultural Resource Consulting Group 1993; Bello and Pagoulatos 1995:80-83

Map Identification Number	Name	Site Number	Notes	References
432	Roebling Park Site		Location of Ernest Volk's lowland excavations in the 1890s; like the site of the nearby Indian Site Survey Excavation 14, this site is deeply stratified and documents a wide range of human occupation; numerous burials were encountered	R. Michael Stewart's Files; Volk 1911:60-83
435	South Sturgeon Pond Site #1	28Me114	Site represents portions of small group/family fishing camps inhabited during the spring to early summer; Late Woodland ceramics and associated artifacts were found in a buried historic plowzone; ceramics are similar to those found in Late Woodland context at the Shady Brook Site; other artifacts include sand/grit-tempered aboriginal pipe stem, small-sized cryptocrystalline debitage and a few tools	NJSM Site Registration Files; Wall and Stewart 1996 (Trenton Complex Archaeology Report 10)
436	South Sturgeon Pond Site #2	28Me115	Late Woodland artifacts found in plowzone, buried during the late 19th or 20th centuries; Late Woodland designation is based on ceramics associated with horizon and shown to be Late Woodland elsewhere; other artifacts include small-sized cryptocrystalline debitage and a few tools.	NJSM Site Registration Files
437	South Sturgeon Pond Site #3	28Me116	Pure Late Woodland component in buried plowzone. Late Woodland designation is based on ceramic association with horizons in other Sturgeon Pond areas; other artifacts include small-sized cryptocrystalline debitage and a few tools	NJSM Site Registration Files
438	South Sturgeon Pond Site #4	28Me117	Late Woodland artifacts in buried historic plowzone; Late Woodland designation based on ceramics associated with horizons which are known from Late Woodland contexts elsewhere in the area; other artifacts include small sized cryptocrystalline debitage	NJSM Site Registration Files

Map Identification Number	Name	Site Number	Notes	References
439	South Sturgeon Pond Site #5	28Me118	Late Woodland component in buried 19th-century or later plowzone; Late Woodland context based on presence of ceramic from late contexts elsewhere which includes incised decoration and a fine sand/grit temper and friable paste; other artifacts include small sized cryptocrystalline debitage and a few tools	NJSM Site Registration Files
442	Stewart Site #3		Site location in te Sturgeon Pond vicinity recorded by Michael Stewart	R. Michael Stewart's Files
445	White Horse West Site	28Me119	Evidence suggests that during the Late Archaic and Early Woodland periods the site was principally used for small-scale resource procurement, processing and consumption, with more intense and complex use occurring in the Middle Woodland period	NJSM Site Registration Files; McLearn and Fokken 1986 (Trenton Complex Archaeology Report 4)
446	Rowan's Farm Site		Area referred to as Rowan's Farm (centered on the Isaac Watson House) excavated by Ernest Volk in 1909 yielded numerous pits, burials and artifacts	Volk 1911 :183-202
Bordentown Township, Burlington County				
405	Bi-Water Development	28Bu386	Finds included lithic debris, an arrowhead, a broken pestle and an anvil stone; raw materials represented include argillite, quartz, quartzite, jasper and chalcedony	NJSM Site Registration Files; Indian Site Survey #7
412	Bywater Site	28Bu566	Diagnostic artifacts recovered in 1999 included prehistoric ceramics, an Adena-like quartz biface fragment, an Ohio fireclay blocked end tube pipe fragment, bifaces, a celt and argillite flakes which suggest an occupation spanning the Late Archaic/Early Woodland and possibly through the Late Woodland period.	NJSM Site Registration Files; Richard Grubb & Associates, Inc. 2000

Map Identification Number	Name	Site Number	Notes	References
417	Crosswicks Creek Site	28Bu36	Site of an Indian ford across Crosswicks Creek recorded in the early 20th century; no mention of artifacts	NJSM Site Registration Files; Skinner and Schrabisch 1913:63
427	Looted Site #2		Location identified by Michael Stewart as site of looting	R. Michael Stewart's Files
428	Mile Hollow Site	28Bu275	Alan Mounier reported collectors finding a wide variety of artifacts from Paleo-Indian to Late Woodland periods at this site; site subsequently surveyed by RAM, Inc.; much of the site has been looted, but some portions remain intact	NJSM Site Registration Files; Mounier 1986
441	Stewart Site #2		Site location recorded by Michael Stewart	R. Michael Stewart's Files
City of Bordentown, Burlington County				
426	Looted Site #1		Location identified by Michael Stewart as site of looting	R. Michael Stewart's Files
429	Point Breeze		Site currently being excavated by Monmouth University (2007-08) under direction of Richard Veit and William Schindler	R. Michael Stewart's Files; Veit 2007
430	Point Breeze Site B		Site currently being excavated by Monmouth University (2007-08) under direction of Richard Veit and William Schindler	R. Michael Stewart's Files; Veit 2007

Township locations are on the bluff top, again within approximately 500 feet of the bluff rim overlooking Crosswicks Creek.

Most of the prehistoric resources are individually numbered and mapped as spot locations, representing places where archaeological excavations or major finds have occurred. In the case of Volk's main areas of excavation activity in the Lalor and Wright farm fields on the bluff top and in the lowland below the Isaac Watson House, in the absence of detailed site plans, more generalized zones of investigation are shown in Figure 6.1. The principal Indian Site Survey excavations on the bluff top, directed by Dorothy Cross are individually mapped and grouped under a single resource number. Excavation 14 in the lowland is separately numbered and mapped. No attempt has been made to separately identify and map locations where Charles Conrad Abbott found Native American remains.

Reducing and summarizing the prehistoric resource locational data in this manner is of limited assistance in communicating the true character, distribution and potential of prehistoric archaeology within the landmark. The fact that sites of Native American activity have been identified in these particular locations is part serendipity and historical accident (e.g., chance finds made during the course of cultivation of fields, gardening and unrestrained development), part the result of intentional and relatively unrestrained searches (e.g., Abbott; Volk; the Indian Site Survey; Monmouth University at Point Breeze) and part the result of highly constrained, development-driven cultural resource studies (e.g., the Trenton Complex surveys and excavations). The distribution pattern of known prehistoric sites within the landmark today is heavily biased toward certain locales where professional and avocational archaeologists, observant residents and looters have chosen to look, or been required to look, over the past century and a half during a period of human history when increasing atten-

tion happens to have been paid to the leavings of past cultures. Moreover, there is, over time, a cumulative interest in particular find spots that tends to draw archaeologists and others back to the same places over and over again, a growing inherent influence that also introduces bias into the pattern of documented sites within the cultural landscape.

Accessibility has been an important factor in establishing the current prehistoric site distribution pattern. Land ownership – private or public; receptive or non-receptive to archaeological inquiry – has pushed those searching for archaeological remains toward certain locations and away from others. The sheer ease of digging on the bluff top in well-drained, loosely-bound sands and gravels and the occurrence of most finds within the uppermost three to four feet of soils have attracted proportionately more archaeological endeavor to the upland rim. The bluff top is, of course, where most human occupation and most human disruption of the ground surface have been concentrated. It is no surprise that this type of setting has been the focus of such intense archaeological interest.

In contrast, in the lowland sections of the landmark, despite its evident richness, the archaeology is difficult to get at. It can be deeply stratified; it has been shown to extend below the water table; and it is often covered by dense wetland vegetation and tidal mud. Human activity in the lowland during the historical period has been of a very different character. Rather than experiencing the people-intensive habitation of the bluff top, the lowland has seen intermittent low-level fishing and farming succeeded by certain large infrastructure projects (the Delaware and Raritan Canal, the Camden and Amboy Railroad, sewage and water treatment plants, power generation and waste and dredge disposal facilities, and the Trenton Complex), land uses that in some cases may have involved large numbers of people moving through the landscape, but have brought few people into close or regular contact



Figure 6.1. Locations of Prehistoric Archaeological Resources within the Abbott Farm National Historic Landmark (see Table 6.1 for further detail).

with artifact-bearing soils. Some of the infrastructure projects, in fact, have either directly or indirectly served to bury or make less accessible the archaeology of the landmark. Indeed, it has only been through the concerted, relatively small-scale efforts of Ernest Volk in Roebling Park and Dorothy Cross at Excavation 14, followed by Michael Stewart at Area D, that the true archaeological potential of the lowland portions of the landmark has begun to be appreciated.

So how should we regard and generally characterize the prehistoric resources of the AFNHL from the standpoint of overall survival and archaeological resource management? The first, most fundamental and very obvious point to be made is that, without conscious excavation, the prehistoric archaeology of the AFNHL is for the most part invisible, not only to casual and uninformed visitors and local residents, but also to archaeologists. Aside from a very few places where freshly weathered soils will occasionally expose artifacts (and even then these will mostly go unrecognized except to the most discerning archaeological eye), Native American sites and artifacts rarely present themselves at the ground surface in an intelligible manner.

Typically, signage is not employed to draw attention to specific locations where finds have been made or excavations have taken place, in part to avoid encouraging looters. In truth, there is not much to be gained by precisely marking what are often visually unimpressive locations where Native American remains may once have lain, or may still lie, beneath one's feet. A far more rewarding and revealing approach to communicating past Native American activity in the landscape is to emphasize the contours of the land, the hydrography and the potentially exploitable natural resources of the upland, lowland and tidal settings within the landmark. Creating meaningful views, and using trails, signage, images and the written and spoken word to explain the land and its bounty, can prompt modern-day visitors to ponder how Native

American peoples interacted with the landscape to procure water, food, shelter, clothing, fuel, tools and the like, and how they might have lived and died as individuals, families and larger social groupings.

The prehistoric archaeology of the AFNHL, even in its present-day depleted and invisible state, is still extraordinary in its complexity and potential richness. A wealth of cultural and environmental data still lies in the ground, especially in the less disturbed lowland, but also in "pockets" all along the bluff top. This "fall line" locale was arguably more intensively and more extensively used by Native Americans than any other place in the Middle Atlantic region, perhaps even along the entire North American eastern seaboard. Its archaeological resources are most appropriately viewed as representing an extended continuum of occupational activity through time and space.

At least 8,000 years of Native American activity are reflected in the soils of the landmark, often in stratigraphic sequences several feet deep and with multiple, overlapping cultural horizons stacked one above another. While there is a preponderance of Woodland period remains, especially Middle and Late Woodland, evidence has been forthcoming from all cultural periods – Paleoindian, Archaic, Woodland and Contact.

Spatially, while the formally designated landmark boundary attempts to set horizontal limits on the Native American archaeological expression in the landscape, the resources themselves say otherwise. Past Native American activity clearly did not respect historical constructs such as canal/rail corridors and roadways that had yet to be foisted on the natural landscape. Consequently, the bluff-top prehistoric archaeology of the landmark in reality continues west across N.J. Route 129 into Riverview Cemetery and on northward beneath Lambertson and South Trenton along the bluff and terraces overlooking the Delaware to the mouth of Assunpink Creek. It eventually

tapers off in intensity as one heads upstream along the Delaware toward the Trenton/Ewing line, but the land around the confluence of Assunpink Creek and Petty's Run with the Delaware River formed another major focus of Native American occupation not unlike that around the mouth of Crosswicks and Watson's creeks. Similarly, the archaeology of the AFNHL continues upstream along both banks of Crosswicks Creek east of U.S. Route 206 and south to the mouth of Blacks Creek, although the archaeological imprint is less intense with increasing distance from the Delaware River. West and southwest of the landmark, Native American remains have been documented in abundance on Duck Island, on other nearby islands in the Delaware and on the Pennsylvania side of the river. The archaeology in essence is contingent on the natural landscape, and the landmark in one sense merely defines a core zone of Native American land and resource usage that was still recognizable as such when metropolitan Trenton was expanding into Hamilton Township in the mid-20th century.

Within the prescribed and somewhat arbitrary limits of the AFNHL prehistoric resources may be grouped according to whether they occur on the bluff top or in the lowland. Bluff-top resources north of Crosswicks and Watson's creeks are concentrated in the uppermost three to four feet of soils within a band along the bluff rim extending back for approximately 500 feet from the bluff edge. Much of this land is today covered with single-family homes, landscaped yards and roads, but prehistoric remains were once pretty much continuous throughout the landmark from the Delaware and Raritan Canal/Camden and Amboy Branch Railroad/N.J. Route 129 corridor to the Hamilton Township sewage treatment plant.

Ernest Volk's excavations in the fields of the Lalor and Wright farms focused on the section of the bluff rim between present-day Deutz and Reeger avenues, finding predominantly Middle and Late Woodland remains, including burial pits, storage pits, caches,

abundant argillite artifacts and pottery. Volk found similar evidence on the Rowan Farm (immediately northwest of the Isaac Watson House), further east along the bluff rim, and viewed these portions of the bluffs as supporting a series of "Indian villages". The Indian Site Survey excavations mostly concentrated on the section of the bluff rim between the Isaac Watson House and the site of the C.C. Abbott House (between modern Rowan Avenue and Route I-295), again finding mostly Middle and Late Woodland remains and again including many burials, pit features and cached artifacts. The bluff-top excavations carried out by the Cultural Resource Group of Louis Berger and Associates, Inc. in connection with the Trenton Complex were largely confined to the Routes I-195 and I-295 rights-of-way and occurred between Route I-295 and U.S. Route 206 at the Abbott's Lane, Lister, Carney Rose and White Horse West sites. The Berger excavations and several other smaller-scale archaeological projects along the bluff rim produced still more evidence of predominantly Middle and Late Woodland occupation. Despite the extensive development that has taken place over the past century, the various focused archaeological investigations and the sporadic looting of sites, significant archaeological data without question still survive all along the bluff rim within Hamilton Township in previously unexcavated areas.

South and east of Crosswicks Creek within the AFNHL, in Bordentown Township and the City of Bordentown, there is again a band of prehistoric archaeological resources on the bluff top extending back roughly 500 feet from the bluff edge. Likewise, cultural stratigraphy is typically no more than three to four feet in depth. Several small-scale archaeological studies carried out over the past quarter century, including some required through the environmental impact review process, have produced clear indications of widespread Native American activity within this strip of land. The Bywater site, the Mile Hollow site and two separate locations on the Point Breeze

estate are the most notable examples of this activity. In comparison with the Mercer County upland sections of the landmark, the Burlington County upland has been less intensively studied for its archaeology and has also experienced somewhat less development. On this basis there may be a somewhat higher potential for prehistoric remains surviving intact south and east of Crosswicks Creek, although as yet evidence of major village sites and multiple burials has not been found.

The lowland portions of the landmark lie mostly north and west of Crosswicks Creek within Hamilton Township. On the Bordentown bank there is only a narrow strip of wetland at the base of the bluff and a few small expanses of wetland between meanders of the creek. Owing to the rising water table, tidal fluctuation and the drainage-altering effects of the canal and railroad construction and Duck Island development, the archaeology of the lowland portions of the landmark is much more difficult to characterize, in part because these phenomena have caused substantial sediment build-up over the past two centuries. Relatively few archaeological investigations have been specifically directed at the lowland terrain – access is often problematic; the vegetation cover is awkward; and, ideally, dewatering is necessary to examine the full sequence of cultural deposits. Nevertheless, the few archaeological studies that have taken place have been exceptionally revealing. Volk's excavations along the east side of Watson's Creek within what is today Roebling Park found numerous burials, charcoal pits, other types of pits, caches and many stone and ceramic artifacts, all considered to be evidence of a major village site, probably of Late Woodland age. The Indian Site Survey's Excavation 14, at the foot of the bluff below the Isaac Watson House (just north of Volk's area of study), found four separate cultural horizons within a 12-foot depth. The Trenton Complex data recovery excavations at the Area B and Area D sites revealed complicated, and in the case of Area D, deep-stratified sequences of Native American activity with a clear emphasis on fish processing.

Further west, less intensive investigation along the alignment of N.J. Route 29 around Sturgeon Pond (without deep testing) produced further evidence of Late Woodland fishing camps.

Clearly the lowland – tidal and non-tidal – around the confluence of Crosswicks Creek, Watson's Creek and the Delaware River, both within and outside the AFNHL boundaries, has considerable potential for yielding deep sequences of cultural deposits. The land around the upper reaches of Watson's Creek, which likely displayed markedly different drainage patterns in prehistory, has already borne testimony to the richness of this potential and gives some foretaste of what may be expected elsewhere. While the basic topography, pedology and hydrology of the upland terrain have changed little over the past 10,000 years, providing the archaeology with a higher measure of predictability, the same cannot be said of the lowland. For this reason, archaeological effort should be directed as much at paleoenvironmental reconstruction as at material culture studies. Important future contributions to our understanding of the archaeology of the lowland portions of the AFNHL can be expected from carefully coordinated research by paleo-specialists in the fields of botany, zoology, palynology and sedimentology.

B. HISTORIC RESOURCES

Although the Abbott Farm National Historic Landmark is primarily recognized for its importance in North American prehistoric archaeology and Native American studies, the designated area also contains many notable historic resources, both architectural and archaeological, that reflect the land use history of the past three centuries (Figure 6.2; Tables 6.2 and 6.3). These resources are predominantly of regional and local, as opposed to national, historical significance, but they offer several additional opportunities from the standpoint of interpretive planning for the

landmark. They also have the advantage of being more tangible and visually apparent features in the landscape in comparison with the landmark's entirely subsurface and mostly invisible Native American expression.

One hundred and sixty-five separate historic resources have been identified within the landmark. Twelve are historic architectural properties, representing the most important buildings, structures and sites. The majority are older houses located on the bluff top, with just the White City Amusement Park staircase and PSE&G power transmission line being noted in the lowland. No attempt has been made to address the historical or architectural value of individual properties within the vast mass of late 19th- and 20th-century buildings now standing on the bluff top.

So far as historic archaeological resources are concerned, these have been derived through a systematic analysis of historic maps dating between 1844 and 1918, coupled with some limited fieldwork. The sites of all buildings shown as individual structures on these maps have been plotted in Figure 6.2; not all of these properties have been field-checked to establish whether buildings still stand in these locations. The Delaware and Raritan Canal Historic District has been included as a resource within the AFNHL solely because its designated boundary overlaps with that of the landmark. In actuality, all canal-related historic archaeological resources lie outside the limits of the AFNHL.

From the late 17th-century onset of European settlement in the area through into the late 19th century, historic period land use was largely agricultural and dominated by the series of farmsteads ranged along the bluff top. These properties mostly took the form of long rectangular tracts of several hundred acres stretching back across the lowland from the Delaware River, up the bluff rim and on to the upland, and then across the Bordentown Road and beyond into the inte-

rior. Associated with some of the most storied family names in Burlington and Mercer County history – the Abbotts, Watsons, Lamberts, Pearsons, Tindalls, Hutchinsons, to name a few – these farms enjoyed a reasonable measure of prosperity practicing mixed crop and livestock agriculture, and moving their produce to regional markets in the Delaware valley, first via the river and later by the local road network.

In terms of the historic farmscape, very little survives today on the upland apart from a few persistent road alignments and property boundaries that have helped to frame suburban development. Clearer traces may be seen in undeveloped sections of the lowland around Watson's and Crosswicks creeks where fragments of roadways and field boundaries cross the marsh. The most compelling resources, however, are the series of 18th-century farmhouses ranged along the bluff rim to the north of Crosswicks and Watson's creeks, comprising, from west to east, Bow Hill (Plate 6.1), the DeCou-Lee House, the Isaac Watson House (Plate 6.2), the Abbott-DeCou House (Plate 6.3) and the Isaac Pearson House (Plate 6.4). All five of these houses are of architectural interest and occupy prime settings with fine views to the south and west across the marsh. Two are in public ownership (the Mercer County-owned Isaac Watson House and the Hamilton Township-owned Isaac Pearson House); Bow Hill is owned by the Ukrainian-American Cultural Center; the DeCou-Lee and Abbott-DeCou houses are privately owned. The Isaac Watson House, built in 1708, is of particular note as the probable oldest house in the County and possessing a rare type of cruck-framed roof construction. Bow Hill and the Isaac Pearson and Abbott-DeCou houses are all excellent examples of late Georgian/early federal style brick domestic architecture.

The land immediately around each of these farmhouses possesses a rich potential for historical archaeological remains (in addition to prehistoric remains). The Isaac Watson House and Bow Hill, for example, were

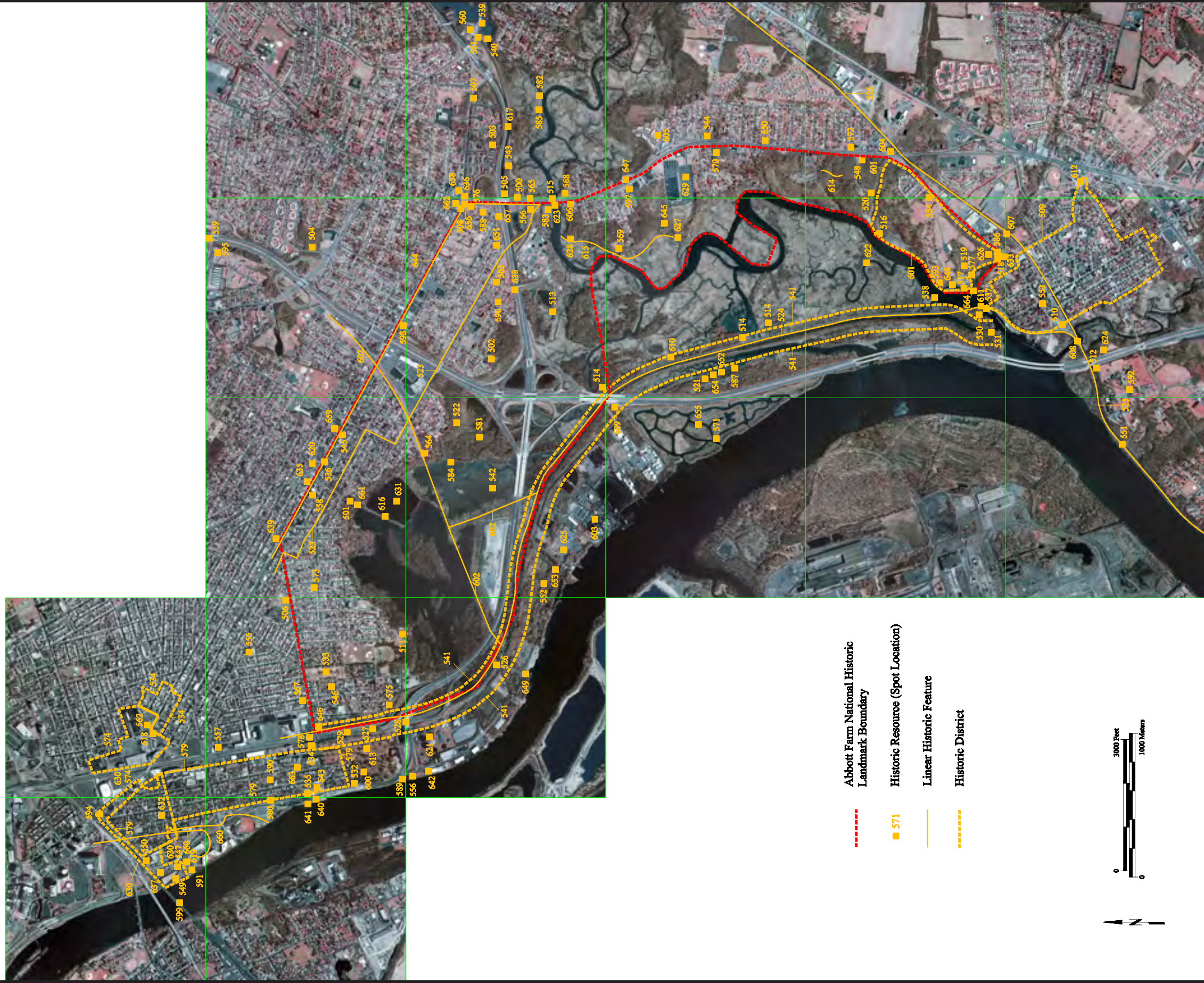


Figure 6.2. Locations of Historic Resources within the Abbott Farm National Historic Landmark (see Tables 6.2 and 6.3 for further detail).

TABLE 6.2. SUMMARY OF HISTORIC ARCHITECTURAL RESOURCES WITHIN THE ABBOTT FARM NATIONAL HISTORIC LANDMARK

Map Identification Number	Name	Description	References
Hamilton Township, Mercer County			
501	DeCou-Lee House	Late 18th-century two-story frame dwelling set on the bluff rim overlooking Spring Lake	United States Coast Survey 1844; Otley and Keily 1849; Lake and Beers 1860; Everts and Stewart 1875
502	Abbott-DeCou House	Fine example of early federal-style brick farmhouse built by Samuel Abbott in 1797; subsequently served as a residence for Samuel's son and later for the DeCou family; the property is rich in both prehistoric and early historic archaeological resources	NJHPO Site Files; Clark <i>circa</i> 1976; United States Coast Survey 1844; Otley and Keily 1849; Lake and Beers 1860; Everts and Stewart 1875
511	Bow Hill	Built by Barnt de Klyn in 1790, this is one of the finest examples of federal-style brick domestic architecture in Mercer County; the most famous resident of Bow Hill was Joseph Bonaparte, who lived here for two years	NJHPO Site Files; Greiff and Blake 1971a; United States Coast Survey 1844; Otley and Keily 1849; Lake and Beers 1860; Everts and Stewart 1875
533	St. John's Catholic Cemetery	A cemetery is shown in this location on the Everts and Stewart map of 1875 and remains in use today	Everts and Stewart 1875; Aerial Photographs 1920s
536	Church		Pugh and Downing 1903; Mueller 1918

Map Identification Number	Name	Description	References
564	Isaac Watson House	<p>Though it is not the first house to occupy this location, the Isaac Watson House, built in 1708, is one of the earliest stone houses in Mercer County; it is architecturally notable for its cruck-framed roof; the house occupies a prominent bluff-top location overlooking Watson's Creek that is exceptionally rich in Native American archaeological remains; excavations in the immediate vicinity of the house in 1909, the 1930s and 1960s yielded an abundance of Native American artifacts and numerous burials</p>	<p>NJHPO Site Files; NJSM Site Files; Cross 1956; Greiff and Blake 1971b</p>
588	Methodist Episcopal Church	<p>A church still stands at this location, but was likely rebuilt in the 20th century</p>	<p>Lake and Beers 1860; Mueller 1918</p>
602	PSE&G Power Transmission Line	<p>Built <i>circa</i> 1920, this power line serves an example of the early regional energy infrastructure; an important component in the early 20th-century industrial development of the marsh and specifically the use of Duck Island as a site for power generation; the power line is a highly visible linear feature on both the upper and lower portions of the Abbott Farm NHL landscape</p>	<p>Aerial Photographs 1920s</p>

Map Identification Number	Name	Description	References
661	White City Amusement Park Staircase	The only visible remains of the White City Amusement Park, which opened in 1907; the concrete staircase once allowed park visitors to descend to the promenade around Spring Lake; the main area of the park contained a roller-coaster, carousel and other rides as well as a Katzenjammer Castle, Mystic Maze, movie theater and dance hall; in 1957, the lowland portion of the former White City Amusement Park was rededicated as Broad Street Park (now Roebbling Park) and was intended to be a wildlife refuge; the main area of the former amusement park is now covered by residential development	Aerial Photographs 1920s
Bordentown City, Burlington County			
554	Gardener's House	<i>One of the few buildings still remaining that can be directly associated with Joseph Bonaparte's Point Breeze estate; probably erected circa 1816-40</i>	United States Coast Survey 1844; Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte circa 1847; Parry, Sykes and Earl 1859; Lake and Beers 1860
Bordentown Township, Burlington County			
606	Reinear House	House of R. Reinear is shown on the Parry, Sykes and Earl map of 1859; mid-19th-century (possibly earlier) two-story frame dwelling currently stands at this location	United States Coast Survey 1844; Parry, Sykes and Earl 1859; Lake and Beers 1860; Scott 1876; Aerial Photographs 1920s

TABLE 6.3. SUMMARY OF HISTORIC ARCHAEOLOGICAL RESOURCES WITHIN THE ABBOTT FARM NATIONAL HISTORIC LANDMARK			
Map Identification Number	Name	Description	References
Hamilton Township, Mercer County			
508	Blacksmith Shop Site	A structure is shown on maps in this location as early as 1844; A. Nutt's blacksmith shop is shown on the Everts and Stewart map of 1875; the site probably lies beneath the roadway and sidewalk at the South Broad Street/White Horse Circle intersection	United States Coast Survey 1844; Otley and Kelly 1849; Lake and Beers 1860; Everts and Stewart 1875
513	Brickyard Road	Also known as "The Hay Road," this road ran from just north of the Isaac Pearson house to the vicinity of the brickyards alongside the Delaware and Raritan Canal in the marsh; it was used for hauling hay as late as the 1920s	NJHPO Site Files; Kardas and Larrabee 1975
514	Brickyard Ruins	Archaeological remains of three brickyards, the northernmost is located within the AFNHL boundaries; these factories were sited alongside the Camden and Amboy Branch Railroad and presumably used the railroad for receiving raw materials and shipping out finished products; little research has been conducted on these sites, which appear to have been active in the first quarter of the 20th century	NJHPO Site Files; Kardas and Larrabee 1975
522	C.C. Abbott Farmstead Site	Archaeological remains of the C.C. Abbott farmstead at the core of which lay Abbott's house, known as "Three Beeches;" the house may date to the late 18th century; Abbott used "Three Beeches" as a base for his study of nature and early man in the area until the home burned in 1914; the site was subjected to archaeological testing as part of the cultural resource studies undertaken for the Trenton Complex highway project	NJHPO Site Files; NJSM Site Registration Files; Kardas and Larrabee 1975; Louis Berger and Associates, Inc. 1998 (Trenton Complex Archaeology Report 12)
523	Camden & Trenton Trolley	The course of this trolley line is shown on the Pugh and Downing map of 1903; no longer in existence	Pugh and Downing 1903
541	Delaware and Raritan Canal Historic District	The canal was built in 1830-34 to link the Delaware River at Bordentown with the Raritan River in New Brunswick; its main water supply was a feeder canal which extended from Bulls Island to Trenton; the canal was used to haul coal and raw materials, agricultural produce and manufactured goods; its use peaked in the immediate post-Civil War era; the portion of the main line of the Delaware and Raritan Canal within the Hamilton-Trenton Marsh survives as an abandoned partially water-filled channel, with a concentration of surface remains at the outlet	NJHPO Site Files; McKelvey 1975; United States Coast Survey 1844; Otley and Kelly 1849; Lake and Beers 1860; Everts and Stewart 1875

Map Identification Number	Name	Description	References
542	Ditches and Berms	In order to farm the land below the bluff, property owners built ditches and berms in the wetlands prior to the 1830s; most of the ditches and floodgates were rendered useless by the construction of the embankment of the Delaware and Raritan Canal and the Camden and Amboy Branch Railroad, circa 1830-40, which significantly altered the drainage pattern; an important dam was built at Sand Point to hold back tidal encroachment and had a flood-gate where Watson's Creek passed through into Crosswicks Creek	NJPO Site Files; Kardas and Larrabee 1975; Aerial Photographs circa 1926, 1940
545	Willey House Site	House of P. Willey is shown on the Pugh and Downing map of 1903; unknown if this house is standing (possibly destroyed)	Pugh and Downing 1903; Mueller 1918
546	Dolls House Site	House of E.Z. Dolls is shown on the Lake and Beers map of 1860; unknown if this house is still standing (probably destroyed)	Lake and Beers 1860
558	Hotel Site	Hotel is shown on the Mueller map of 1918; unknown if this building is still standing	Mueller 1918
566	Lacy House Site	House of J. Lacy shown on Everts and Stewart map of 1875; no longer standing	Everts and Stewart 1875; Mueller 1918
573	Breatley House Site	House of J.G. Breatley is shown on the Lake and Beers map of 1860; unknown if house is still standing (probably destroyed)	Lake and Beers 1860
575	Flanigan House Site	House of John Flanigan is shown on Lake and Beers map of 1860; unknown if house is still standing (probably destroyed)	Lake and Beers 1860
576	Worthy House Site	House of L. Worthy shown on the Lake and Beers map of 1860; no longer standing; site may lie beneath U.S. Route 206	Olley and Kelly 1849; Lake and Beers 1860; Everts and Stewart 1875
581	Landing Site	Site of a 19th-century (possibly earlier) landing, likely linked to the C.C. Abbott farmstead	Louis Berger & Associates, Inc. 1998 (Trenton Complex Archaeology Report 12)
583	Landing Site	A critical landing point immediately downstream of the historic U.S. Route 206 crossing of Crosswicks Creek; historically probably associated with the Abbottville plantation; currently tidal marsh, but archaeological remains may survive	Louis Berger & Associates, Inc. 1998 (Trenton Complex Archaeology Report 12)
584	Landing Site	A landing near the head of Watson's Creek, likely linked to the plantation based at the Isaac Watson House	Louis Berger & Associates, Inc. 1998 (Trenton Complex Archaeology Report 12)
596	DeCou House Site	House of P. DeCou is shown on the Lake and Beers map of 1860; unknown if house is still standing (possibly destroyed)	Lake and Beers 1860; Everts and Stewart 1875; Pugh and Downing 1903
598	DeCou House Site	House of P.E. DeCou is shown on the Pugh and Downing map of 1903; unknown if the house is still standing	Pugh and Downing 1903; Mueller 1918

Map Identification Number	Name	Description	References
610	Site of Railroad Company Building	This building is shown on the Everts and Stewart map of 1875; it probably serviced freight traffic on both the Delaware and Raritan Canal and Camden and Amboy Branch Railroad	Everts and Stewart 1875
616	Road Leading to Fish House	Road leading from the base of the bluffs across the marsh towards a "Fish House" on Duck Island	United States Coast Survey 1844; Mercer County Aerial Photographs 1920s
631	Spring Lake	Spring Lake is the principal remnant of the former Spring Lake Park (earlier known as Broad Street Park) that was in existence circa 1890-1920; now part of Roebling Park	Mueller 1918
638	Tindall/Pearson Farmstead Site	This late 17th-century farmhouse was the predecessor of the still-standing Isaac Pearson House; the house's cellar hole and surrounding area were documented through archaeological data recovery excavations and then removed through construction of Route I-195	NJHPO Site Files; Louis Berger and Associates, Inc. 1998 (Trenton Complex Archaeology Report 12)
644	Trenton Street Railroad (1903)	Alignment of this street railroad is shown on the Pugh and Downing map of 1903 and the Mueller map of 1918	Pugh and Downing 1903; Mueller 1918
646	Site of Unidentified Building	Unidentified building is shown on the Otley and Keily map of 1849 and the Everts and Stewart map of 1875; structure is located adjacent to the canal and railroad corridor; the site of this building has probably been destroyed through road construction and other development	Otley and Keily 1849; Everts and Stewart 1875
651	Site of Unidentified Building	Unidentified building shown on the Lake and Beers map of 1860	Lake and Beers 1860
656	Site of Unidentified Building	Unidentified building shown on maps of 1844, 1849, 1860 and 1875; site probably lies beneath White Horse Circle roadways	United States Coast Survey 1844; Lake and Beers 1860; Everts and Stewart 1875; Louis Berger & Associates, Inc. 1998 (Trenton Complex Archaeology Report 12)
657	Site of Unidentified Building	Unidentified building shown on historic maps; site probably removed through construction of Route I-195	Louis Berger & Associates, Inc. 1998 (Trenton Complex Archaeology Report 12)

Map Identification Number	Name	Description	References
Bordentown City, Burlington County			
517	Bridge Site	A bridge is shown in this location on a map of <i>circa</i> 1847; situated mid-way along the dam that spanned the mouth of Thorton Creek creating the large lake below Point Breeze, this bridge may also have included some sort of tidal control structure	Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte <i>circa</i> 1847; Lake and Beers 1860
518	Bridge Site	A bridge is shown on maps of 1844 and <i>circa</i> 1847 as straddling Thorton Creek just downstream of Park Street	United States Coast Survey 1844; Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte <i>circa</i> 1847
519	Bridge Ruins	Ruinous single-span stone masonry structure on stone abutments with brick side walls; a bridge is shown in this location on a map of <i>circa</i> 1847	Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte <i>circa</i> 1847
577	Lake Site	Former lake at mouth of Thorton Creek created as a landscaping feature within the Point Breeze estate; now drained and reverted to tidal marsh	United States Coast Survey 1844; Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte <i>circa</i> 1847; Lake and Beers 1860; Scott 1876
586	House Site on Point Breeze Estate	Site of a dwelling shown on a map of the Point Breeze estate, <i>circa</i> 1847, reputed to have been occupied by the daughters of Joseph Bonaparte	Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte <i>circa</i> 1847
593	Site of Joseph Bonaparte's First Mansion and Belvedere at Point Breeze	The site of Joseph Bonaparte's first mansion and belvedere at Point Breeze; currently the subject of archaeological excavations directed by Dr. Richard Veit of Monmouth University and the Archaeological Society of New Jersey; the mansion was built <i>circa</i> 1817	United States Coast Survey 1844; Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte <i>circa</i> 1847; Parry, Sykes and Earl 1859; Lake and Beers 1860
601	Point Breeze Historic District	Joseph Bonaparte's early 19th-century estate, the core of which is under the ownership of the Divine Word Missionaries; traces of the estate's historic landscape are still intact and ongoing archaeological excavations are showing that substantial remains	NJHPO Site Files; NJSM Site Files; United States Coast Survey 1844; Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte <i>circa</i> 1847; Parry, Sykes and Earl 1859; Lake and Beers 1860
626	Site of Joseph Bonaparte's Second Mansion and Outbuildings at Point Breeze	Site of the second Joseph Bonaparte mansion built at Point Breeze in the early 1820s; unexcavated, but traces of buildings can be seen at the ground surface	United States Coast Survey 1844; Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte <i>circa</i> 1847

Map Identification Number	Name	Description	References
633	Stable and Coach House	Part of Joseph Bonaparte's Point Breeze estate; traces of foundations visible in the undergrowth	United States Coast Survey 1844; Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte circa 1847
648	Site of Unidentified Building	Unidentified structure, possibly a boat house, shown on a map of the Point Breeze estate circa 1847	Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte circa 1847; Parry, Sykes and Earl 1859
664	Site of Unidentified Building	A structure is shown in this location on a map of the Point Breeze estate circa 1847	Map of the Residence and Parkgrounds near Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte circa 1847
Bordentown Township, Burlington County			
515	Bridge Site	A succession of bridges has likely existed at this location since the late 17th century; the Everts and Stewart map of 1875 indicates a drawbridge at this location	United States Coast Survey 1844; Otley and Keily 1849; Lake and Beers 1860; Everts and Stewart 1875; Mueller 1918; Mercer County Aerial Photographs 1920s
520	Bridge Site	A bridge is shown in this location of a map of circa 1847	Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte circa 1847
548	Farmstead Site	A farmhouse and other farm buildings are shown in this location on the U.S. Coast Survey map of 1844 and a map of the Point Breeze estate circa 1847; these farm buildings were probably originally part of the Point Breeze estate; archaeological traces of these buildings may survive	United States Coast Survey 1844; Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte circa 1847; Parry, Sykes and Earl 1859; Lake and Beers 1860; Scott 1876
569	McKnight House Site	House of J. McKnight House is shown on Lake and Beers map of 1860; no longer standing	Lake and Beers 1860
570	McKnight House Site	House of J. McKnight shown on Lake and Beers map of 1860; no longer standing; site may lie beneath modern residential development or in adjacent wooded area	Parry, Sykes and Earl 1859; Lake and Beers 1860
597	Martin House Site	House of P. Martin is shown on the Scott map of 1876; no longer standing	Scott 1876; Mercer County Aerial Photographs 1920s
614	Road	Section of a road that was once part of the road network of the Joseph Napoleon Bonaparte estate at Point Breeze; this section of road now remains as part of a trail in the Delaware and Raritan Canal State Park	Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte circa 1847

Map Identification Number	Name	Description	References
615	Road at the Base of the Bluff	Early road on the east bank of Crosswicks Creek, downstream from U.S. Route 206 crossing; shown on the U.S. Coast Survey map of 1844	United States Coast Survey 1844
623	Site of Early Bridge over Crosswicks Creek	The earliest bridge over Crosswicks Creek lay a short distance downstream from the current U.S. Route 206 crossing; traces of this structure may survive beneath the marsh	
627	Site of Unidentified Building	Unknown brick structure, concentrations of brick and traces of at least one wall remain	Field observation (08/14/2008)
628	Site of Unidentified Building	Surface remains of brick and concrete structure, located on the bluff top; an early 20th-century domestic dump is located to the east, between this site and U.S. Route 206	United States Coast Survey 1844; Lake and Beers 1860; Mercer County Aerial Photographs 1920s
629	Site of Unidentified Buildings	Unidentified buildings are shown in this location on the U.S. Coast Survey map of 1844; no longer standing	United States Coast Survey 1844; Pairy, Sykes and Earl 1859; Lake and Beers 1860
645	Site of Unidentified Building	Unidentified building is shown on the U.S. Coast Survey map of 1844	United States Coast Survey 1844
City of Bordentown, Burlington County			
516	Bridge Site	Map of the Point Breeze estate in 1847 shows a bridge over the mouth of a short unnamed tributary	Map of the Residence & Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte circa 1847



Plate 6.1. Bow Hill, constructed in 1790: view looking south (Photographer: David Byers 2008).



Plate 6.2. The Isaac Watson House, constructed in 1708; view looking south (Photographer: David Byers 2008).



Plate 6.3. The Abbott-DeCou House, constructed in 1797: view looking south (Photographer: David Byers 2008).



Plate 6.4. The Isaac Pearson House, constructed in 1773: view looking south (Photographer: David Byers 2008).

both preceded by earlier houses on approximately the same site. The Isaac Pearson House, however, succeeded the Tindall/Pearson House, the site of which now lies beneath Route I-195. All five of these farmhouses and their predecessors would have been accompanied by barns and outbuildings and shaft features such as wells, privies and cisterns, which frequently will yield informative assemblages of material culture. In addition to the bluff-top farmstead nuclei where buildings still survive, there are archaeological sites representing the hubs of several other former farm properties within the AFNHL. The most notable of these is the site of Charles Conrad Abbott's home "Three Beeches," which burned in 1913, but is still visible as a cellar depression. Other early farmstead sites are suspected along the bluff rim to the south and east of Crosswicks Creek between the U.S. Route 206 crossing and Thorton Creek, although more detailed archival research and fieldwork would be needed to pinpoint these resources with certainty. Some may correspond to the locations of houses that are shown on mid-19th-century maps, but which are no longer standing.

The AFNHL has few historic sites that can lay claim to strong associations with the events of the Revolutionary War. Apart from some minor skirmishing at the Bordentown Road (U.S. Route 206) crossing of Crosswicks Creek in June and July of 1778 no major military actions occurred within the landmark limits. In the early years of the war (1776-78) farms in the area were periodically ravaged for their crops and livestock and other useful items, leading to the filing of damage claims by local land owners at the war's end. The Isaac Pearson property, for example, lost livestock to both the British and American armies. The most notable military events occurred along the river in the spring of 1778 when several American vessels were scuttled and others were sunk by the British at the mouths of Crosswicks and Watson's creeks. Archaeological remains of Revolutionary War-era shipwrecks have been documented in the

marsh and there is a strong potential that other wrecks yet survive within the tidal sediments. Most of these vessels likely lie outside the AFNHL limits, although there is a slight possibility that some may have penetrated far enough upstream along the pre-canal course of Watson's Creek that their wrecks fall within the landmark boundary.

One of the most unique historic cultural resources within the AFNHL is the Point Breeze Historic District, located partially within Bordentown Township and the City of Bordentown in Burlington County. The main houses on this elaborately landscaped early 19th-century estate established by Joseph Bonaparte have all long since been pulled down. Only the Gardener's House still survives of the original buildings (Plate 6.5), but inspection of the grounds and recent excavations by the Monmouth University/Archaeological Society of New Jersey archaeological field school have provided strong indications of the considerable and widespread historic (and prehistoric) archaeological potential of the Point Breeze property. Not only do the sites of most of the major buildings appear to survive largely intact, there are remains of tunnels and numerous landscaping elements such as bridges, pathways, water features and vegetation scattered all across the estate. Coupled with the site's extraordinary history of transplanted high-style European living, the historical archaeology of the Point Breeze Historic District offers some exceptional possibilities for historic interpretive treatment.

In strictly physical terms the Delaware and Raritan Canal and the Camden and Amboy Branch Railroad lie outside and adjacent to the AFNHL, although the historically designated canal corridor technically overlaps the western edge of the landmark boundary. Despite this tangential relationship the construction of the canal/rail infrastructure has had an enormous effect on the drainage of the entire lowland area from Riverview Cemetery to the U.S. Route 206 crossing of Crosswicks Creek and on down to Bordentown.



Plate 6.5. The Gardener's House at Point Breeze, constructed *circa* 1820: view looking east (Photographer: Richard Hunter 2008).

These major regional transportation features are critical to any understanding of the recent land use history of the landmark and are important historic resources in their own right. The canal is abandoned, but still recognizable, across most of the lowland; it is abandoned and filled and mostly built over by highways from just south of Sturgeon Pond northward into downtown Trenton. The Camden and Amboy Branch Railroad alignment remains in use today as the River Line.

The canal is one of New Jersey's most significant and sensitive historic archaeological resources. The greater part of its alignment – from the Feeder Canal inlet at Bull's Island down to Trenton and then the main line of the canal from Old Rose Street in Trenton to its outlet on the Raritan River in New Brunswick – is a functioning waterway maintained, managed and protected by the New Jersey Water Supply Authority, the State Park Service and the Delaware and Raritan Canal Commission. The latter two agencies have oversight of the abandoned southern leg of the main canal between Trenton and Bordentown and theoretically have some responsibility for its historical and archaeological well being. Hitherto, however, this section of the canal has tended to receive less attention than the other more active and functional parts of the canal.

The area around the Bordentown outlet locks contains some of the most valuable and intact archaeological remains along the entire canal corridor. In its heyday, a small community, including houses and storage buildings, serviced traffic entering and leaving the canal at the southern end of Duck Island. There are substantial timber and masonry remains of two separate outlet locks along the right bank of Crosswicks Creek – one set of remains relating to the original outlet lock constructed in the early 1830s (Plate 6.6) and another set pertaining to the replacement outlet lock built in the late 1840s (Plate 6.7). In addition, archaeological traces of several buildings are visible

at the ground surface in this now heavily overgrown area. Ultimately this location has the potential for major historic interpretive development in ways that can serve as a valuable counterpoint to other sections of the canal that are still in use. For almost a mile upstream from the outlet locks, the canal survives as a swampy, tidal ditch bordered on one side by the River Line and on the other by the towpath bank (just recently improved as a canal-side trail). Archaeological remains of Lock 2, its associated lock tender's house and a nearby culvert very likely survive beneath fill near Sturgeon Pond, while it is not impossible that traces of Lock 3, the original Lock 4 and related canal-side buildings still exist beneath the Lambertson Road Connector and N.J. Route 129. The later Lock 4 (originally Lock 5) was archaeologically excavated and partly destroyed to make way for N.J. Route 129.

Few historic features relating to the Camden and Amboy Branch Railroad can be viewed along the River Line corridor adjacent to the AFNHL. Portions of the railroad bed and one possible culvert may survive beneath the existing River Line rail bed, but the structure of most historical interest is the trestle bridge that carries the rail line over the mouth of Crosswicks Creek. This structure, erected in 1899, likely sits atop the remains of abutments for at least one earlier span.

Between the canal/rail corridor and the base of the bluffs to the north of Watson's Creek there are various fragmentary features of the historic landscape still visible in the marsh, chiefly sections of farm lanes and field boundaries. These are most easily viewed on aerial photographs (especially when comparing historic and modern aeriels), but are difficult to trace on the ground because of alterations in the drainage pattern. South of the Trenton Complex interchange, between modern Watson's Creek and the River Line, are the remains of three separate late 19th/early 20th-century brickyards, one of which lies within the AFNHL boundaries. These provide an important link to the



Plate 6.6. The original outlet lock for the Delaware and Raritan Canal, constructed in the early 1830s: view looking north (Photographer: William Liebeknecht 2008).



Plate 6.7. The replacement outlet lock for the Delaware and Raritan Canal, constructed in the late 1840s: view looking north (Photographer: William Liebeknecht 2008).



Plate 6.8. The main staircase at the White City Amusement Park: view looking northeast; the house on the bluff in the background is the late 18th-century DeCou-Lee House (Photographer: Richard Hunter 2008).

once extensive clay mining industry in the marsh and along the edge of the bluff. Duck Island, across the canal/rail corridor from the landmark, today supports several mid- to late 20th-century energy and waste disposal-related facilities, which are of some urban historical interest. Sporadic earlier historic archaeological evidence of fishing and farming activity may exist on Duck Island in areas where later development has not resulted in deep ground disturbance.

The dominant land use today on the bluff top in both Hamilton and Bordentown Townships is residential and commercial, which has its roots in the late 19th- and early 20th-century suburban expansion of Trenton. The many streets of mostly single-family homes are of marginal historic architectural value, although a few churches, cemeteries and earlier mid-19th-century homes can be considered of local interest. The brief period between the 1890s and 1920s when the bluffs and marsh between Bow Hill and the Isaac Watson House were used for recreational purposes has left little obvious trace in the landscape apart from Spring Lake and the immense concrete staircase near the base of the nearby bluff (Plate 6.8). The bluff-top recreational facilities have all been overwhelmed by residential development. However, Broad Street Park (also known as Spring Lake Park) and the White City Amusement Park represent an important chapter in the landmark's history immediately prior to the spread of suburbia through this section of Hamilton Township.

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Appendix A

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Appendix B

SAMPLE DATABASE FORMS

Map No 404	Name Area D Site	Type of Resource Prehistoric	Inside Landmark Boundaries <input checked="" type="checkbox"/>	Interpretive Theme
			Publicly accessible <input checked="" type="checkbox"/>	
			Key Resource <input checked="" type="checkbox"/>	

Photograph of Site



Area D Site.jpg

Location

State New Jersey	County Mercer	Municipality Hamilton Township	USGS Quad Trenton East	SPCS X: 428751.7549	SPCS Y: 492016.3879
				Latitude: 40 11 02.37277	Longitude: 74 43 36.80181

Description of Location

N.J. Route 129 alignment, between Independence Avenue and Watsons Creek

Ownership

Publicly Owned Nonprofit organization Privately Owned Multiple Owners

State County Municipality

Owner's Name State of New Jersey, Department of Transportation	Owner's Address David J. Goldberg Transportation Complex 1035 Parkway Avenue Trenton, New Jersey 08625	Owner's Phone Number 609-630-2000
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Resource Information

Site Number 28Me1-D	Regulatory Status	National Register <input type="checkbox"/>	State Register <input type="checkbox"/>	DOE <input type="checkbox"/>	SHPO Opinion <input type="checkbox"/>	Individually Designated <input type="checkbox"/>
	National Register Date:	State Register Date:	DOE Date:	SHPO Opinion Date:		Contributing Resource <input type="checkbox"/>

Regulatory Comments

Within the boundaries of the Abbott Farm NHL; subjected to archaeological data recovery as mitigation for construction of the Trenton Complex highway project

Period

Paleo-Indian Early Archaic Middle Archaic Late Archaic Early Woodland Middle Woodland Late Woodland Contact Period Unknown

Current Site Conditions:

Beneath interchange of Routes I-195 and I-295 and N.J. Route 29

Soil Type(s)

Alluvial Land-Freshwater Marsh association

Stratified:

Evidence of Looting?

Nearest Water Source

Watson's Creek

Distance to Nearest Water Source

Elevation:

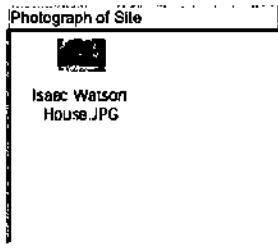
Additional Comments

The remains of camps used for seasonal fish processing; occupied from the late Middle Archaic to the early Late Archaic period, with some Late Woodland/Contact period activity; occupations are marked by diagnostic triangular projectile points and associated lithic debris

Previous Work

By Whom:	Date
Pollak	1975
Louis Berger and Associates, I	1981
Louis Berger and Associates, I	1985, 89

Map No. 564	Name Isaac Watson House	Type of Resource Historic architectural	Inside Landmark Boundaries <input checked="" type="checkbox"/>	Interpretive Theme
			Publicly accessible <input checked="" type="checkbox"/>	
			Key Resource <input checked="" type="checkbox"/>	



Location

State New Jersey	County Mercer	Municipality Hamilton Township	USGS Quad Trenton East	SPCS X: 428618.5775	SPCS Y: 494532.4016
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Ownership

Publicly Owned <input checked="" type="checkbox"/>	Nonprofit organization <input type="checkbox"/>	Privately Owned <input type="checkbox"/>	Multiple Owners <input type="checkbox"/>
State <input type="checkbox"/>	County <input checked="" type="checkbox"/>	Municipal <input type="checkbox"/>	
Owner's Name Mercer County Park Commission (leased to Daughters of the American Revolution)	Owner's Address 640 South Broad Street Trenton, NJ 08650	Owner's Phone Number 809-989-8559	

Resource Information

Regulatory Status						
Site Number	National Registrar <input checked="" type="checkbox"/>	State Registrar <input checked="" type="checkbox"/>	DOE <input type="checkbox"/>	COE <input type="checkbox"/>	SHPO Opinion <input type="checkbox"/>	Individually Designated <input checked="" type="checkbox"/>
	National Registrar Date: 01/21/1974	State Registrar Date: 01/14/1972	ODE Date:	COE Date:	SHPO Opinion Date:	Contributing Resource <input checked="" type="checkbox"/>

Regulatory Comments Located within the boundaries of the Abbot Farm NHL.	Current condition Good state of repair. Occupied by DAR, used as a residence, museum and office.
---	--

Period of Significance

17th Century 18th Century 19th Century 20th Century

Primary Method of Identification NJHPO Site Files; NJSM Site Files	Physical evidence is observable <input checked="" type="checkbox"/>	If so, how? Standing building
	Resource is currently interpreted <input checked="" type="checkbox"/>	If so, how? Portions of building publicly accessible at li

Description

Though it is not the first house to occupy this location, the Isaac Watson House, built in 1708, is one of the earliest stone houses in Mercer County; it is architecturally notable for its cruck-framed roof; the house occupies a prominent bluff-top location overlooking Watson's Creek that is exceptionally rich in Native American archaeological remains; excavations in the immediate vicinity of the house in 1909, the 1930s and 1960s yielded an abundance of Native American artifacts and numerous burials

Relationship to other sites

One of several early historic bluff-top farmsteads.

References

NJHPO Site Files; NJSM Site Files;
Cross 1956; Greiff and Blake 1971

Location of additional information

Map No. 583	Name Site of Joseph Bonaparte's First Mansion and Belvedere at Point Breeze	Type of Resource Historic archaeological	Inside Landmark Boundaries <input checked="" type="checkbox"/>	Interpretive Theme
			Publicly accessible <input type="checkbox"/>	
			Key Resource <input checked="" type="checkbox"/>	

Photograph of Site



Original Bonaparte House Site.jpg

Location

State New Jersey	County Burlington	Municipality Bordentown City	USGS Quad Trenton East	SPCS X: 432876.4435	SPCS Y: 481646.0217
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Ownership

Latitude: 40 09 19.98348	Longitude: 74 42 43.13420
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Publicly Owned Nonprofit organization Privately Owned Multiple Owners

State County Municipal

Owner's Name Privately owned	Owner's Address	Owner's Phone Number
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Resource Information

Regulatory Status

Site Number	National Register <input checked="" type="checkbox"/>	State Register <input checked="" type="checkbox"/>	DOE <input type="checkbox"/>	COE <input type="checkbox"/>	SHPO Opinion <input type="checkbox"/>	Individually Designated <input type="checkbox"/>
	National Register Date: 08/10/1977	State Register Date: 10/22/1976	DOE Date:	COE Date:	SHPO Opinion Date:	Contributing Resource <input checked="" type="checkbox"/>

Regulatory Comments Located within the boundaries of the Abbott Farm NHL and the Point Breeze Historic District	Current condition Lawn
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Period of Significance

17th Century 18th Century 19th Century 20th Century

Primary Method of Identification

Physical evidence is observable If so, how?
Buried foundations observed

Resource is currently interpreted If so, how?
Not interpreted

Description

The site of Joseph Bonaparte's first mansion and belvedere at Point Breeze; currently the subject of archaeological excavations directed by Dr. Richard Veit of Monmouth University and the Archaeological Society of New Jersey; the mansion was built circa 1816 and burned down circa 1820; excavations have found remains of the building's foundations

Relationship to other sites

Original focus of Joseph Bonaparte's Point Breeze estate

References

United States Coast Survey 1844; Map of the Residence and Park Grounds, Bordentown, New Jersey, of the late Joseph Napoleon Bonaparte circa 1847; Parry, Sykes and Earle 1859; Lake and Beers 1860

Location of additional information

Map No.
135

Name
John A. Roebling Memorial Park

Type of Resource:
Recreation/Tourism Destination
Recreational Historic
Cultural Environmental

Inside Landmark Boundaries

Interpretive Theme

Publicly accessible

Key Resource

Photograph of Site



John A. Roebling
Memorial Park.JPG

Location and Contact Information

Street Address
South Broad Street

Municipality:
Hamilton Township

County:
Mercer

State:
New Jersey

Zip Code:
08610

Phone Number
609-989-6559

Website
http://www.state.nj.us/counties/mercerc/commissions/park/roebing_park.html

SPCS X:
428508.08

SPCS Y:
492778.81

Ownership

Publicly Owned

Nonprofit organization

Privately Owned

Multiple Owners

State County Municipal

Latitude
40 11 09.88181

Longitude:
74 43 39.76681

Owner's Name
Mercer County Park Commission

Owner's Address
640 South Broad Street Trenton,
NJ 08650

Owner's Phone Number
609-989-6559

Visiting the Site

Hours
Dawn to dusk, 7 days per
week, 385 days a year

Fees
No fee

Amenities
Handicap access, public grills, picnic areas,
rental space available, parking, portable
restroom facilities.

Level of Usage
High

Comment

Description:

John A. Roebling Memorial Park is a 257 acre passive recreation park that is ideal for hiking, bird watching and fishing. The park is situated within the Trenton-Hamilton tidal freshwater marsh and includes Spring Lake which is a spring-fed lake.

Appendix C

TOURISM & RECREATIONAL MEMORANDUM (BY DAVID BYERS)

Tourism Destinations - Introduction

The following document lists tourism destinations that have various linkages to the Hamilton-Trenton-Bordentown Marsh and the Abbott Farm National Historic Landmark due to their close proximity to the marsh and/or thematic linkage.

The destination descriptions include a brief summary of the destinations including information regarding amenities, public access and any usage or visitation fees.

The destinations provide a wide variety of potential linkage opportunities including recreation, eco-tourism, cultural tourism and heritage tourism. The general destination categories include historic houses, museums, art museums, nature centers, environmental and historic interpretive centers, historical societies, passive and active recreational parks, river access, a cemetery, a power generating station, a landfill, a railroad station and a wetland re-creation site.

Destinations that are near the marsh or those that have a thematic linkage are shown on the accompanying maps. The maps printed in color show the locations of the labeled destinations. Red represents historical destinations. Green represents all parks including active and passive recreation. Blue represents sites that have water access along the Delaware River. Yellow represents other categories including a power generating station, a landfill and a railroad station.

Following the destination descriptions, there is a listing of tourism destinations by themes and also a listing of tourism destinations organized by themes into possible day trips. These themes and day trips include the following:

- Historic Houses and Estates
- Museums
- Parks
- Nature Centers
- Historic Cemetery
- Historical Society
- River Access
- Power Generating Station
- Landfill
- Railroad Station
- Wetland Re-creation Site
- Archeological Sites
- Scenic Overlook
- Hiking Trail Access
- Destinations suitable for large groups
- Urban Influences - Land Tour
- Urban Influences - Boat Tour
- Canoe/Kayak Tours
- Riverboat Tours
- Bordentown Tour

- Trenton Historic Sites Tours
- Roebling Park Walking Tour
- Scenic Photography Walking Tour
- Art Museum Tour
- Historic Re-enactment Tours
- Nature Walk Guided Tours
- Archeology Guided Tours
- Heritage Tourism Tours
- Heritage Tourism Events and Opportunities
- Walking Tour of Trenton and Bordentown Utilizing Public Transportation
- Trenton Renaissance Tour
- Weekend Only Tourism

There are numerous other combinations that could be considered as well. The lists are meant to provide a starting point for tourism planning.

Trenton-Hamilton-Bordentown Marsh Tourism Destinations

Abbott-Decou House (315)

The Abbott-Decou House, constructed in 1797, was the Homestead of Samuel and Lucy Abbott. The building is listed in the National Register of Historic Places. The house on Soloff Drive in Hamilton Township, NJ is a private residence and is not open to the public.

Abbott House Site (316)

The Abbott House Site was originally the home of archeologist Dr. Charles Conrad Abbott and his wife Julia Boggs Olden. Abbott became quite well known for his writings and published a book titled *The Stone Age in New Jersey*. Many of Abbott's theories were eventually disproved by scholars. He is considered to be New Jersey's first archeologist. Today only remnants of the house's foundation walls remain at the site.

Anchor Thread Park (6)

Anchor Thread Park is located on the site of a former textile mill on Crosswicks Creek. Amenities include a canoe launch ramp into Crosswicks Creek, ornamental landscaping, a gazebo and benches. The park is open from dawn to dusk.

Bordentown City Boat Ramp at Bordentown Beach (303)

The Bordentown City Boat Ramp provides access to the Delaware River and Crosswicks Creek. Amenities include parking, picnic tables and interpretive signage. The ramp is open from dawn to dusk and a ramp usage fee is required.

Bordentown Historical Society (24)

The Friends Meeting House built in 1740 now houses the Bordentown Historical Society's headquarters. The building has been restored to its original appearance and is open to the public Saturday afternoons from noon to 4:00pm except holidays and special event days. Street parking is generally available.

Bow Hill Mansion (26)

Bow Hill Mansion, built in 1787 was once the home of Joseph Bonaparte's mistress, Annette Savage, who had two daughters by Bonaparte. Joseph Bonaparte was the former King of Spain, Naples and Sicily. The property is listed on the National Register of Historic Places and now houses the Ukrainian-American Cultural Center. Amenities include parking and occasional historic tours. The building is usually not open to the general public.

City of Trenton Waterfront Boat Ramp (52)

The City of Trenton Waterfront Park Boat Ramp features a paved concrete boat ramp. Amenities include parking and seasonal restroom facilities. The ramp is open daily.

Civil War and Native American Museum (53)

The Civil War and Native American Museum in Hamilton Township is a small non-profit museum that occupies a house constructed about 1730 that was once part of the John Abbott II Farm. Amenities include parking, a gift shop and exhibits that include Civil War weaponry and Native American artifacts. The museum is open from 1:00pm to 4:00pm on the second and third Saturday of each month. School trips can be arranged by appointment.

Delaware and Raritan Canal State Park (72)

The Delaware and Raritan Canal was built between 1830 and 1834 and was used primarily for transporting coal. Portions of the remaining main canal extend from Bordentown to New Brunswick and a feeder canal extends from Raven Rock in Hunterdon County to Trenton. The canal was closed in 1932 and was established as a park in 1974. Amenities include canoeing, fishing, historic structures, birding, wildflowers, wildlife and a multi-use hiking and bicycling trail.

Docks on the Delaware (74)

The Docks on the Delaware located behind Trenton's Waterfront Park and are open daily from dawn to dusk, from May 21 to October 31 and are handicap accessible.

Duck Island (79)

Duck Island wetland re-creation area is located at the southern terminus of Lambertson Road where there is parking, access for fishing and a footpath along the edge of the Duck Island marsh. Amenities include fishing access, trails for hiking and a parking area.

Fishing Facility at the PSE&G Mercer Generating Station (317)

The Fishing Facility at the PSE&G Mercer Generating Station is located just south of the PSE&G Power Plant. Access to the area is provided through a security gate adjacent to Lambertson Road that connects to the Delaware River via a long linear walkway. Access is permitted for recreation and fishing. Amenities include parking, interpretive signage and access to the Delaware River for fishing.

Gropps Lake (318)

Gropps Lake is a 41 acre lake located on Back Creek, owned by Hamilton Township. The lake was created for recreational purposes in 1900 following the construction of an earthen dam. Access is permitted during daylight hours only. Launching of car top boats is permitted. However, there is no boat ramp. The use of outboard motors for boating is prohibited.

Grounds for Sculpture (104)

The Grounds for Sculpture, established in 1992, is a 35 acre sculpture park and museum located on the former New Jersey State Fairgrounds. There are more than 250 sculptures on view in the park. Amenities include seasonal outdoor and indoor exhibits, tours, a gazebo, restaurant, cafe, museum shop, and restrooms. The facility is open year-round, Tuesday through Sunday 10:00am to 6:00pm. An entry fee is required.

Hilltop Park (115)

Hilltop Park is a small residential park located in Bordentown on the edge of the bluffs overlooking the site of the Delaware and Raritan Canal's Lock #1. The picturesque park has an interpretive exhibit explaining the history of the Hamilton-Trenton Marsh. The park contains a memorial to William R. Flynn. The park also has a memorial to Franklin Carr who was well known as an international prize winning Iris hybridizer. Amenities include ornamental lighting, paved pathways, landscaping and seating areas.

Historic Walnford (117)

Historic Walnford is an 18th century industrial village and farm. The 36 acre historic district features a 19th century gristmill, a house built in 1774 and farm buildings that help visitors experience over 200 years of social, technological and environmental history. Amenities include a working gristmill, interpretive exhibits, restrooms and parking facilities.

Isaac Pearson House (130)

The Isaac Pearson House was built in 1773. Isaac Pearson served on the General Committee of Correspondence appointed by the Provincial Assembly in 1774 and the first Committee of Safety in 1775. He was killed while riding on horseback by robbers or Continentals who were angry he was not fully supporting the cause of independence. The house is listed on the New Jersey Register of Historic Places. Amenities include an outdoor garden. The house is closed to the public.

Isaac Watson House (131)

The Isaac Watson House was built on a bluff overlooking Watson's Creek in 1708. The house was built by Isaac Watson who was both a farmer and a surveyor. The Watson House is the oldest house in Mercer County and currently serves as the headquarters of the New Jersey State Society of the National Society of the Daughters of the American Revolution. Amenities include scheduled historic house tours, a garden and parking. The house is open from 1:00pm to 4:00pm on the second Sunday of the month during the months of April, May, June, September, October and November. Although there is no fee, donations are welcome.

John A. Roebling Memorial Park (135)

John A. Roebling Memorial Park is a 257 acre passive recreation park that is ideal for hiking, bird watching and fishing. The park is situated within the Trenton-Hamilton tidal freshwater marsh and includes Spring Lake which is a spring-fed lake. Amenities include handicap access, public grills, picnic areas, seasonal restroom facilities and parking facilities. The park is open year-round from dawn to dusk. There is no fee to use the park.

John Abbott II House (136)

John Abbott II built this house in 1730. It was originally located on the north side of Crosswicks Creek. The treasury of the State of New Jersey was hidden here in 1776. Amenities include a garden and parking. The house is open Saturdays and Sundays from 12:00 noon to 5:00pm. No fee is charged.

Kuser Park (146)

Kuser Park is a 22 acre active and passive recreation park that includes the Kuser Farm Mansion that was once the home of Frederick Kuser who in the early 1900's helped William Fox create 20th Century Fox. Visitors today can tour the 22 room Queen Anne style mansion and accompanying buildings. Amenities include park facilities, historic buildings including farm buildings and a clay tennis court. The mansion is partially handicapped accessible. There is no fee but group reservations are required in advance.

Landfill (319)

A large capped landfill exists between John A. Roebling Memorial Park and Route 29. The site is secured with fencing and a gate. There is no public access to the landfill site.

Marine Terminal Park (157)

Marine Terminal Park is an urban park adjacent to the Delaware River. In the past, amenities included a river walk promenade, fishing access, and historic cranes and machinery used to load and unload cargo from ships. The park is currently in need of significant maintenance and repairs and is closed to the public.

Mercer County Waterfront Park (166)

Mercer County Waterfront Park is a 3 acre ballpark facility with 8300 seats, built in 1994. It is the home to the Trenton Thunder Baseball Team, currently the Minor League Double-A affiliate of the New York Yankees. Amenities include parking, food service, handicap access, lighting, restrooms and vending machines. The park is open from April to September. There are fees for ticketed events.

Nature and Interpretive Center (320)

Mercer County in partnership with D&R Greenway Land Trust and NJDEP Green Acres Program has acquired a building adjacent to the entrance to John A. Roebling Memorial Park for use as a Nature and Interpretive Center. The proposed facility will be used to increase the public's awareness and understanding of wetland ecology in the vicinity of the Hamilton-Trenton-Bordentown Marsh. Renovation and construction of the new Nature and Interpretive Center is expected to begin in the near future.

New Jersey State House (182)

The New Jersey State House is the home to New Jersey's legislative and executive branches of government. The building has beautifully restored interior spaces and visitors can see the restored rotunda, legislative chambers, meeting rooms, and the Governor's Office. The State house is open Monday through Friday 10:00am – 4:00pm Saturday and group tours are available by appointment. The building is closed Sunday and State Holidays. Amenities include a public cafeteria, restrooms and a welcome center.

New Jersey State Museum (183)

The New Jersey State Museum features American art primarily from the 19th and 20th centuries. Amenities include art galleries, exhibition space, a planetarium, a children's theater, Native American artifacts, films, lectures, special events, a gift shop and

restrooms. The museum is open Tuesday through Saturday 9:00am-5:00pm and Sunday noon to 5:00pm. The museum is closed Mondays and Holidays. There is no fee.

Northern Community Park (187)

Northern Community Park is a suburban recreational park. The park is adjacent to the Hamilton-Trenton-Bordentown Marsh. Visitors can access the marsh via the Northern Community Park Trail that starts at the top of the bluff near the athletic fields. Amenities include walking trails with access to the marsh, interpretive signage, picnic areas, a pond, baseball fields, playground equipment, tennis courts, parking, restrooms and a community meeting room. The park is open from 6:00am to 10:00pm. There is no fee.

Old Barracks Museum (189)

The Old Barracks Museum originally built in 1758 to house troops during the French and Indian War is best remembered for its role in the 1776 and 1777 Battles of Trenton, the turning point of the American Revolution. The Barracks serves as an educational center and museum for Colonial and American culture and history. Amenities include special exhibits and events, historic re-enactments, collections of artifacts and weaponry, restrooms and a museum gift shop. The museum is open daily from 10:00am to 5:00pm. The museum is closed Thanksgiving, December 24 and 25, January 1 and Easter. There is an admission fee. Large group reservations are required.

Pennsbury Manor (199)

Pennsbury Manor is a meticulous re-creation of William Penn's country estate at its historic location on the Delaware River where he lived from 1682 to 1684 and 1699 to 1701 before returning to England. Amenities include a visitor center, manor house, estate gardens, smoke house, stable, kitchen, carpenter's shop, brew house, 17th century antiques, parking and picnic shelters for large groups. There is an admission fee. Large group reservations are required.

Point Breeze (201)

Joseph Bonaparte, the former King of Spain, Naples and Sicily acquired Point Breeze in 1816 and created a country estate in the English picturesque style after being exiled from Europe. Although the original house no longer exists, the original iron gates have survived. The historic site is private property and is owned by Divine Word Missionaries. Permission to access the site must be secured from Divine Word Missionaries.

PSE&G Mercer Generating Station (321)

The Mercer Generating Station is a 777 MW plant originally built in 1960. The plant is located along the Delaware River and has been upgraded several times. The plant uses state-of-the-art environmental control technology to remove particulates for cleaner emissions. The plant is currently undergoing major construction and is not open to the general public.

River Line Station at Bordentown (40)

The River Line Light Rail Train Station is located in Bordentown within walking distance to numerous shops and restaurants in downtown Bordentown. Amenities include pedestrian seating and shelter, ornamental lighting, interpretive exhibits, public artwork, bicycle racks, parking facilities, handicap access and connecting bus service to other municipalities. Passengers must pay a fee to ride the River Line.

Riverview Cemetery (217)

Riverview Cemetery contains the graves of many prominent families and individuals that helped Trenton rise as an industrial powerhouse during the 19th and 20th centuries. Much of the cemetery has a beautiful park-like setting with meandering paths and roadways. Some of the more prominent family names include the following: Ewing, Kuser, Mott, McClellan, Roebling and also the archeologist, Charles Conrad Abbott who documented significant archeological findings in the area now known as the Abbott Farm National Historic Landmark.

Route 295 Delaware River Scenic Overlook (227)

The Route 295 Delaware River Scenic Overlook provides a panoramic view of the river to the north and west and south and the Hamilton-Trenton-Bordentown Marsh to the east. Amenities include parking facilities and a pedestrian bridge structure that connects the Route 295 northbound and southbound parking areas.

Silver Lake Park Nature Center (238)

Silver Lake Park is a 465 acre park that includes a Nature Center that has outdoor environmental education programs and well designed interpretive exhibits illustrating the ecology and wildlife of the area. Park amenities include playgrounds, a picnic pavilion, hiking, boating, fishing, parking, nature trails, an outdoor amphitheater, interpretive exhibits, a gift shop, a reference library and restroom facilities. The park is open from dawn to dusk.

South River Walk Park (239)

Trenton's South River Walk Park located above the Route 29 tunnel along the Delaware River provides an active and passive recreational experience and includes a historic interpretive park that provides a chronological description of Trenton's past through a series of engraved granite pavers, bronze plaques and interpretive signage and large arches. Amenities include a promenade with a remarkable view of the Delaware River, walking paths, covered pavilions, lighting, handicap access, benches, picnic areas, playground facilities and interpretive exhibits.

South Trenton Complex (240)

South Trenton Complex is an urban neighborhood recreational park. Amenities include a Babe Ruth Field, a Little League Field, a concession stand, a field house restrooms and parking.

Spring Lake (see 135)

In 1907 Spring Lake was known as the White City Amusement Park. It was also known as Capital Park with roller coaster rides, a carousel, a scenic railway, a castle, a maze, a dance hall, a movie theater and boating and fishing on the lake. Today the

amusement park is gone. Spring Lake is now a refuge for wildlife and is utilized for passive recreation such as fishing, hiking and birding. Amenities include hiking, canoeing, kayaking and fishing. Spring Lake also has parking and seasonal restroom facilities.

Stacy Park (244)

Stacy Park is a linear woodland park located along the riverbank of the Delaware River with a multi-use path system. The park includes a multi-use trail system, a historic bridge known as the Shakey Bridge, access to two pedestrian bridges over Route 29 and a log basin pond. Amenities include bicycle and pedestrian paths, picnic areas, a pond, river access, scenic views and passive recreation.

Stony Brook-Millstone Watershed Association Nature Center (248)

The Stony Brook-Millstone Watershed Association Nature Reserve is a 860 acre facility that promotes environmental education and research. The Association is dedicated to enhancing the quality of the natural environment within the 265 square mile region of the Stony Brook and Millstone River watershed. The Association maintains the Kate Gorrie Memorial Butterfly House and the Buttinger Nature Center where education teams conduct environmental education programs for the public. Amenities include a nature center, gift shop, butterfly house, nature trails, picnic areas, restrooms, parking. Call for hours.

Switlik Park (251)

Switlik Park is an urban recreational park that is the birthplace of Babe Ruth baseball. Amenities include baseball fields, a picnic area, grills, playground equipment, benches, parking and restrooms.

Trail Access to the Bordentown Bluffs (322)

Trail access to the Bordentown Bluffs is located at the end of Orchard Avenue. Parking is available, but it is recommended that vehicles not be parked in the turn around or in front of mailboxes or driveways. There is also a pedestrian trail entrance at the end of Stanton Avenue. However, parking is not permitted anywhere along Stanton Avenue. Trail users should use the access and parking at Orchard Avenue.

Trenton City Museum at Ellarslie (259)

The Trenton City Museum at Ellarslie houses permanent exhibits of art and artifacts from Trenton's historical and cultural past. The Museum also houses changing exhibits of contemporary art. Amenities include, historic buildings, exhibits, galleries, a gift shop, restrooms and parking.

Trenton Visitor Center and Museum (191)

The Trenton Visitor Center and Museum is located in the Old Masonic Lodge building built in 1793 as a meeting place for Trenton's first Masonic body. The building is located at the corner of Lafayette and Barrack Streets and serves as a museum and a visitor center with a wealth of travel and tourism brochures and information. The Visitor Center is open daily from 10:00am to 4:00pm.

Veterans Park (273)

Veterans Park in Hamilton Township is a 333 acre park built in 1977 to honor Hamilton Township's veterans. The park has a lake and features most major field sports. The park is used for special events including concerts and fireworks. Amenities include baseball, soccer, tennis, hockey, skating, picnicking, grills, walking and hiking paths, playgrounds, woodlands, lake, lawn bowling, gazebos, court games, benches, restroom facilities and parking. The park is open from dawn to dusk.

Washington Crossing State Park Nature Center (281)

The Nature Center at Washington Crossing State Park has outdoor education programs and interpretive exhibits illustrating ecology, wildlife and the changing land uses patterns of the Delaware Valley. The park also includes a visitor center featuring a historical collection of artifacts, the Johnson Ferry house, an observatory, natural areas, trails, camping, playgrounds, picnicking, picnic shelters restrooms and parking. Call for hours. Group tours are available. There are no fees on weekends from Memorial Day to Labor Day.

William Trent House Museum (291)

William Trent was a wealthy Philadelphia merchant and lived with his family in this house that was built between 1716 and 1719. Today the house is open to the public and is decorated with colonial furnishings dating from 1675 to 1750. A working garden is also part of the estate. Amenities include historic buildings, period furnishings, a gift shop, restroom facilities and parking. The house and museum are open daily from 12:30 pm to 4:00pm. There is an admission fee.

Williamson Park (292)

Williamson Park is an urban neighborhood recreational park that is located along the banks of the Delaware River in Morrisville, PA. Amenities include baseball, soccer fields, tennis courts, basketball, picnic areas, playground equipment, restrooms and parking. The park is open from dawn to dusk with no admission fee.

Tourism Destinations Organized by Themes

Historic Houses and Estates

Abbott Decou House (315) - private
Bow Hill Mansion (26) - private
Historic Walnford (117)
Isaac Pearson House (130) – closed to the public
Isaac Watson House (131) – private, but open to the public at scheduled times
John Abbott II House (136)
Pennsbury Manor (199)
Trenton City Museum at Ellarslie (259)
William Trent House Museum (291)

Museums

Civil War and Native American Museum (53)
New Jersey State House (182)
New Jersey State Museum (183)
Old Barracks Museum (189)
Pennsbury Manor (199)
South River Walk Park (239)
Trenton City Museum at Ellarslie (259)
Trenton Visitor Center and Museum (191)
William Trent House Museum (291)

Parks

Anchor Thread Park (6)
Delaware and Raritan Canal State Park (72)
Gropps Lake (318)
Grounds For Sculpture (104)
Hilltop Park (146)
John A. Roebling Memorial Park (135)
Kuser Park (146)
Marine Terminal Park (157) – closed to the public
Mercer County Waterfront Park (166)
Northern Community Park (187)
South River Walk Park (239)
South Trenton Complex (240)
Spring Lake (see 135)
Stacy Park (244)
Switlik Park (251)
Veterans Park (273)
Williamson Park (292)

Nature Centers

John A. Roebling Memorial Park Nature Center (320)
Silver Lake Park Nature Center (238)
Stony Brook-Millstone Watershed Association Nature Center (248)
Washington Crossing Park Nature Center (281)

Historic Cemetery

Riverview Cemetery (217)

Historical Society

Bordentown Historical Society (24)

River Access

Bordentown City Boat Ramp (303)

City of Trenton Waterfront Boat Ramp (52)

Docks on the Delaware (74)

Fishing Facility at PSE&G Mercer Generating Station (317)

Power Generating Station

PSE&G Mercer Generating Station (321)

Landfill

Landfill (319) – adjacent to Route 195 south of Roebling Park

Railroad Station

River Line Station at Bordentown (40)

Wetland Re-creation Site

Duck Island (79)

Archeological Sites

Abbott House Site (316)

Point Breeze (201)

Scenic Overlook

Route 295 Delaware River Scenic Overlook (227)

Hiking Trail Access

Trail Access to the Bordentown Bluffs (322)

Tourism Destinations Organized by Themes Into Possible Day Trips

Destinations Suitable for Large Groups

Grounds for Sculpture (104)
Historic Walnford (117)
Mercer County Waterfront Park (166)
New Jersey State House (182)
New Jersey State Museum (183)
Old Barracks Museum (189)
South River Walk Park (239)
Trenton City Museum at Ellarslie (259)
William Trent House Museum (291)

Urban Influences - Land Tour

Duck Island (79)
Fishing Facility at PSE&G Mercer Generating Station (317)
PSE&G Mercer Generating Plant (321)
South River Walk Park (239)
Mercer County Waterfront Park (166)
Stacy Park (244)
Landfill (319)
Route 295 Delaware River Scenic Overlook (227)

Urban Influences - Boat Tour

Docks on the Delaware (74)
Marine Terminal Park (157)
City of Trenton Waterfront Boat Ramp (52)
PSE&G Mercer Generating Station (321)
Fishing Facility at PSE&G Mercer Generating Station (317)
Duck Island (79)
Bordentown City Boat Ramp (303)

14 Mile Round Trip Canoe/Kayak Tour (Ride with the tide)

Bordentown Beach (Park Street Cafe) (303)
Crosswicks Creek
Anchor Thread Park (Lunch) (6)
Crosswicks Creek
Bordentown Beach (303)

8 Mile Round Trip Canoe/Kayak Tour (Ride with the tide)

Bordentown Beach (303)
Crosswicks Creek
Watson's Creek
John A. Roebling Memorial Park (Lunch & hike to Spring Lake and return) (135)
Watson's Creek
Crosswicks Creek
Bordentown Beach (303)

Delaware Riverboat Tour (Private Boat, Liberty Belle, AJ Meerwald)

Trenton - Docks on the Delaware (74)

Bristol Riverfront (323)

City of Burlington Riverfront Promenade (51)

Trenton – Docks on the Delaware (74)

Bordentown Tour

Bordentown Historical Society (24)

Farnsworth Avenue

River Line Station at Bordentown (40)

Bordentown Beach (303)

Hilltop Park (115)

Clara Barton School House (54)

Thomas Paine Monument (256)

Trenton Historic Sites Tours

Trenton City Museum at Ellarslie (259)

New Jersey State House (182)

Old Barracks Museum (189)

William Trent House Museum (291)

Riverview Cemetery (217)

Trenton Battle Monument (258)

John A. Roebling Memorial Park Walking Tour (135)

Roebling Park Picnic Area

Watson's Woods Trail

Spring Lake Trail

Abbott House Trail

Scenic Photography Walking Tour

Downtown Trenton

- Streetscapes
- Architecture
- Delaware River

Hamilton/Trenton/Bordentown/Marsh

- Duck Island
- Spring Lake
- Roebling Park

Downtown Bordentown

- Streetscapes
- Architecture
- Delaware River

Art Museum Tour

Trenton City Museum at Ellarslie (259)

New Jersey State Museum (183)

Grounds for Sculpture (104)

Historic Re-enactment Tours

Pennsbury Manor (199)
William Trent House Museum (291)
Old Barracks Museum (189)

Nature Walk Guided Tours

Duck Island (79)
Spring Lake (see 135)
John A. Roebling Memorial Park (135)
Trail Access to Bordentown Bluffs (322)
Northern Community Park (187)
Delaware and Raritan Canal Towpath (72)
Two Bridges Walk - Trenton and Morrisville via Morrisville and Trenton Makes Bridges

Archeology Guided Tour

Abbott House Trail
Petty's Run
John A. Roebling Memorial Park (135)
South River Walk Park (239)
Watson Woods

Heritage Tourism Tours

Civil War and Native American Museum (53)
Historic Walnford (117)
John Abbott II House (136)
Kuser Farm Mansion (145)
New Jersey State House (182)
Old Barracks Museum (189)
William Trent House Museum (291)

Heritage Tourism Events and Opportunities

Follow the Crossroads of the American Revolution
Follow New Jersey's Women's Heritage Trail
Participate in Trenton's Patriots Week
Participate in Trenton's Heritage Days Celebration
Follow the Delaware River Scenic Byway
Follow the Delaware and Raritan Canal Alignment
Follow the Delaware and Lehigh National Heritage Corridor

Walking Tour of Trenton and Bordentown Utilizing Public Transportation

Depart from the River Line Station in Trenton
Arrive at the River Line Station in Bordentown
Take a walking tour of Bordentown
Depart from the River Line Station in Bordentown
Arrive at the River Line Station in Trenton

Take a walking tour of Trenton

Trenton Renaissance Tour

South Warren Street Shops

State Street Shops

Broad Street Bank Building

New Housing near the Trenton Battle Monument

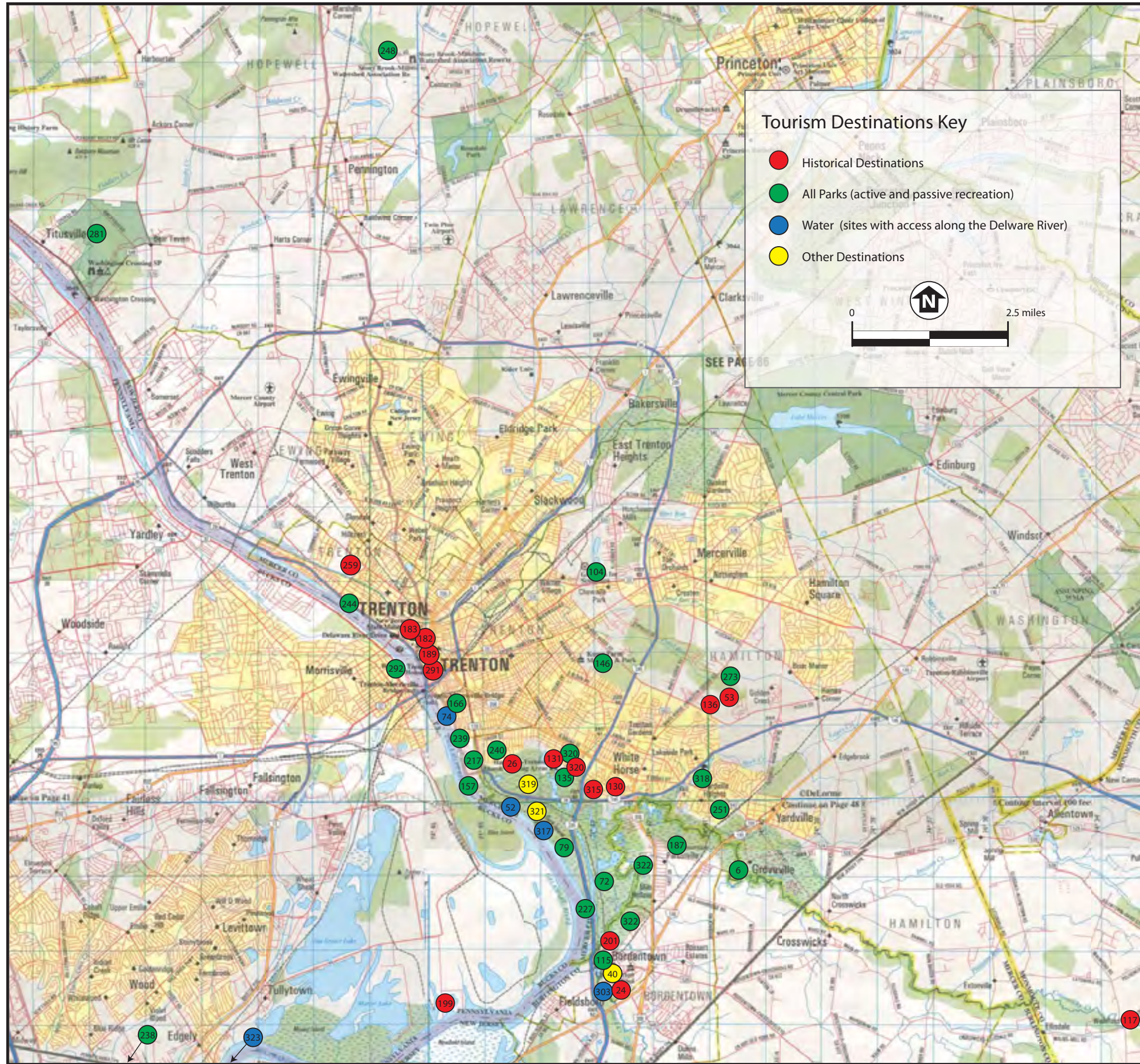
South River Walk Park

Roebing Market

Museum of Science

Weekend Only Tours

- Bordentown Historical Society (24) (Open Saturdays 12 noon to 4:00pm)
- John Abbott II House (136) (Open Saturdays and Sundays 12 noon to 5:00pm)
- Isaac Watson House (131) (Open 2nd Sunday from 1:00pm to 4:00pm in months of April, May June, Sept., Oct., Nov.)



Appendix D

RESUMES

RICHARD W. HUNTER
President/Principal Archaeologist, Ph.D., RPA

EDUCATION

Ph.D., Geography, Rutgers University, New Brunswick, New Jersey, 1999.
Dissertation Title: *Patterns of Mill Siting and Materials Processing: A Historical Geography of Water-Powered Industry in Central New Jersey*

M.A., Archaeological Science, University of Bradford, England, 1975

B.A., Archaeology and Geography, University of Birmingham, England, 1973

EXPERIENCE

1986-present President/Principal Archaeologist
Hunter Research, Inc., Trenton, NJ

Founder and principal stockholder of firm providing archaeological and historical research, survey, excavation, evaluation, report preparation, historic exhibit development and public outreach services in the Northeastern United States. Specific expertise in historical and industrial archaeology (mills, iron and steel manufacture, pottery manufacture), historical geography, historic landscape analysis, historic interpretive design and public outreach products. Participation in:

- Project management, budgeting and scheduling
- Proposal preparation and client negotiation
- Hiring and supervision of personnel
- Supervision of research, fieldwork, analysis and report preparation
- Historic exhibit development, popular and academic publications and public presentations

1999-2005 Faculty Member, Certificate in Historic Preservation
Office of Continuing Education, Drew University, Madison, NJ

1983-1986 Vice-President/Archaeologist
Heritage Studies, Inc., Princeton, NJ

1981-1983 Principal Archaeologist
Cultural Resource Group, Louis Berger & Associates, Inc., East Orange, NJ

1979-1981 Archaeological Consultant, Hopewell, NJ

1978-1981 Adjunct Assistant Professor,
Department of Classics and Archaeology, Rutgers University, NJ

1978-1979 Research Editor, Arete Publishing Company, Princeton, NJ

1974-1977 Archaeological Field Officer
Northampton Development Corporation, Northampton, England

1969-1970 Research Assistant
Department of Planning and Transportation, Greater London Council

SELECTED PUBLICATIONS

"Trenton Textiles and the Eagle Factory: A First Taste of the Industrial Revolution." *New Jersey History* [2009], forthcoming (with Nadine Sergejeff and Damon Tvaryanas).

"The Historical Geography and Archaeology of the Revolutionary War in New Jersey." In *New Jersey in the American Revolution*, edited by Barbara J. Mitnick, pp.165-193. Rutgers University Press [2005] (with Ian C.G. Burrow).

Power to the City: The Trenton Water Power. New Jersey Department of Transportation and Federal Highway Administration [2005] (24-page booklet).

Rolling Rails by the River: Iron and Steel Fabrication in South Trenton. New Jersey Department of Transportation and Federal Highway Administration [2005] (24-page booklet).

"Keeping the Public in Public Archaeology." In: *Historic Preservation Bulletin*, pp. 6-9. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Historic Preservation Office [2004].

"Eighteenth-Century Stoneware Kiln of William Richards Found on the Lambertson Waterfront, Trenton, New Jersey." In: *Ceramics in America*, edited by Robert Hunter, pp. 239-243. University Press of New England [2001].

"Trenton Re-Makes: Reviving the City by the Falls of the Delaware." *Preservation Perspective* XVIII (2): 1, 3-5 [1999]

From Teacups to Toilets: A Century of Industrial Pottery in Trenton, Circa 1850 to 1940, Teachers Guide sponsored by the New Jersey Department of Transportation, 1997 (with Patricia Madrigal and Wilson Creative Marketing).

"Pretty Village to Urban Place: 18th Century Trenton and Its Archaeology." *New Jersey History*, Volume 114, Numbers 3-4, 32-52 [Fall/Winter 1996] (with Ian Burrow).

Hopewell: A Historical Geography. Township of Hopewell [1991] (with Richard L. Porter).

"American Steel in the Colonial Period: Trenton's Role in a 'Neglected' Industry." In *Canal History and Technology Proceedings IX*, 83-118 [1990] (with Richard L. Porter).

"The Demise of Traditional Pottery Manufacture on Sourland Mountain, New Jersey, during the Industrial Revolution." Ch. 13 in *Domestic Potters of the Northeastern United States, 1625-1850*. Studies in Historical Archaeology, Academic Press [1985].

PROFESSIONAL AFFILIATIONS

Register of Professional Archeologists (RPA), accredited 1979
 Preservation New Jersey (Board Member, 1994 - 2003)
 New Jersey State Historic Sites Review Board (Member, 1983 -1993)
 Society for Historical Archaeology
 Society for Industrial Archaeology
 Council for Northeast Historical Archaeology
 Archaeological Society of New Jersey (Life Member)

OTHER AFFILIATIONS

Trenton Downtown Association (Board Member, 1998 – present; Chair 2007-09)
 Port of Trenton Museum Foundation (Board Member 2003 – present)
 Hopewell Township Historic Preservation Commission (Member, 1998 – 2007; Chair 2003-2004)

DAMON TVARYANAS
Principal Architectural Historian/Historian, M.S.

EDUCATION

M.S. Historic Preservation, University of Pennsylvania, 1993

B.A. Fine Arts, New York University, 1991

EXPERIENCE

1996- Principal Architectural Historian/Historian
Hunter Research, Inc., Trenton, NJ

Technical and managerial responsibilities for survey, evaluation and recording of selected Historic Architectural projects. Participation in:

- Historic structures survey and evaluation
- Overall site direction and day-to-day management
- Oversight of historical and archival research for all company projects
- Report and proposal preparation

2003-2005 Adjunct Instructor
Burlington County College, New Jersey

1992-1996 Historic Preservation Consultant
Assisted various clients in numerous preservation activities.
Including conducting or participating in:

- Historic structures survey and evaluation
- Preparation of National Register of Historic Places Nomination
- Historic research, boundary delineation and mapping
- Preparation of state application for determinations of eligibility
- Public outreach

1991-1992 Museum Assistant
Carpenter's Hall, Philadelphia, PA

Assisted curator develop and implement systems for the recording and conservation of museum's artifact, furnishing, art and tool collections.

1992 Intern
Architectural History Foundation, New York, NY

Prepared comprehensive, annotate bibliography of non-serial publications pertaining to the subject of pre-1865 American architectural history.

1991 Intern
Allaire State Park, Allaire, NJ

Performed interpretive duties at a 19th-century iron furnace complex interpreted as a living history museum. Developed guided tour of the park to introduce basic architectural concepts to school and youth groups.

PUBLICATIONS

"Parallel of Precedent: Patterned Brickwork Architecture and Quaker Needlework" *Folk Art*
Spring/Summer 2004

PROFESSIONAL AFFILIATIONS

National Trust for Historical Preservation
Burlington County Historical Society
Camden County Historical Society
Cumberland County Historical Society

CHERYL HENDRY
Historian, MA

EDUCATION

M.A., American History, Certificate in Museum Studies, University of Delaware, Newark, Delaware, 2005
B.A., History, University of Delaware, Newark, Delaware, 2003

EXPERIENCE

October 2006- present Historian,
Hunter Research, Inc., Trenton, New Jersey

Execution of research in support of historic, historic architectural and archaeological studies including:

- review of primary and secondary source materials
- title research
- genealogical investigation
- review of historic cartographic material
- selected contribution to reports

February 2006- October 2006 Education Assistant
Fonthill Museum, Bucks County Historical Society, Doylestown, Pennsylvania

- developed, implemented, and evaluated family and summer camp programs
- worked as part of a team to research, design, and install exhibits
- assisted with interviewing, training and supervision of volunteers

June 2005- October 2005 Historic Interpreter
Batsto Village, Wharton State Forest, Hammonton, New Jersey

- coordinated and delivered programs to adult and student groups
- led guided tours of Batsto Village to varied audiences
- trained volunteer and staff interpreters

Sept 2004- April 2005 Archival Assistant
Historical Society of Delaware, Wilmington, Delaware

- arranged and described a portion of the Congressional papers of United States Senator William V. Roth, Jr.
- assisted in preparing the collection's finding aid

June 2004- August 2004 Intern
Elfreth's Alley Association, Philadelphia, Pennsylvania

- led guided tours of the Elfreth's Alley historic site to varied audiences
- drafted a Collections Management Policy for the intellectual and physical care of the Association's archival and artifact collections

June 2003- May 2004 Intern
Historical Society of Delaware, Wilmington, Delaware

- worked with the curator on all aspects of collections management
- assisted with the installation of six museum exhibits

- June 2002-
Dec 2002 Stewart Intern
 Historic Houses of Odessa, Odessa, Delaware
- researched and reported on the Underground Railroad as it existed in Odessa
 - redeveloped tour scripts to incorporate African-American history
- Sept 2000-
May 2002 Research Assistant
 University of Delaware, Newark, Delaware
- catalogued and stored archaeological artifacts

PROFESSIONAL AFFILIATIONS

Organization of American Historians
Historical Society of Montgomery County

SPECIAL SKILLS

Knowledge of Microsoft Office Suite, DeedMapper and Citation reference software