Management Summary

Involved State and Federal Agencies	National Park Service New York State Office of Parks, Recreation and Historic Preservation
Phase of Survey	Phase I
Location Information	
Town	
County	New York
Survey Area	An area in the northern portion of Liberty Island in New York Harbor, bounded by the 1886-1901 lighthouse seawall on the west, the flagpole plaza to the south, and the seawall on the north and east.
USGS 7.5-Minute Quadrangle Map	*Jersey City, NY/NJ*, 7.5-Minute Series Topographic Quadrangle, 1981
Archeological Survey Overview	
Methods Used	Background research 5 backhoe trenches
Artifacts Recovered/ Features Identified	30 historical artifacts/6 historical features
Results of Archeological Survey	
No./Name(s) of Prehistoric Sites Identified	
No./Name(s) of Historic Sites Identified	
Recommendations	No additional work is recommended in the surveyed area unless project related disturbance extends deeper than the trenches excavated for this investigation, in which case monitoring during construction may be warranted.
Report Authors	Lauren Hayden and John Bedell, Ph.D.
Date of Report	April 29, 2016

Abstract

Louis Berger completed a Phase I archeological investigation in support of an environmental assessment for the New Museum Construction, Statue of Liberty National Monument project on behalf of the National Park Service. The proposed museum site is located in the northwestern part of Liberty Island in New York Harbor. The investigation included background research and fieldwork. The project area for the archeological investigation was slightly smaller than the proposed museum site: bounded on the west by the location of the 1886-1901 lighthouse seawall, on the south by the flagpole plaza, and on the north and east by the existing seawall. Archeological investigations were carried out to determine if significant remains are present in the project area that might be impacted by the proposed museum construction.

Previous archeological studies of the island have shown that it contains significant resources from both the precontact and post-contact periods. Historical maps show that buildings stood in the project area from 1879 onward. A single small building is shown on maps from 1879 in the eastern part of the project area, and a group of large structures is shown on the 1936 map. Archeologists from the National Park Service Northeast Region developed a plan for backhoe trenching. The plan showed four trenches; however, the plan had to be modified in the field because of the presence of a large construction trailer and utilities that included an 8-inch water main and several live electric and communication lines. Trench 4 had to be shifted because of the construction trailer and a fifth trench was added as an extension of Trench 4, shifted to the southeast to avoid electrical lines that appeared in the northwest wall of the trench. During the investigation Louis Berger excavated five trenches and recovered 32 artifacts (from Trenches 1 and 4), but for the most part the fill (other than brick rubble) was nearly sterile.

The trenches also uncovered the foundations of at least three buildings, apparently ones shown on 1936 mapping labeled as Building #12, Building #14, and Building #26. Significant parts of these foundations were located and mapped. Judging from the excavation of the trenches, it seems that the landscape was significantly modified at the time these buildings were constructed, so much so that no evidence of an earlier landscape was discovered. In addition, the landscape appears to have been significantly modified since the demolition of these buildings; therefore, other than the foundations themselves, no intact resources associated with the buildings remain within the project area.

Given the absence of significant, intact archeological resources, it is Louis Berger's opinion that no additional archeological investigations are needed in association with the current project designs. If excavations exceed the depth reached during this investigation, then archeological monitoring during the construction may be needed.

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I. Introduction

On behalf of the National Park Service, The Louis Berger Group, Inc. (Louis Berger), has completed a Phase I archeological investigation for the New Museum Construction, Statue of Liberty National Monument on Liberty Island, New York County, New York (Figure 1). Louis Berger conducted the subsurface excavations in support of an environmental assessment for the new museum.

The National Park Service is proposing to construct a new 1,858-square-meter (20,000-square-foot) Statue of Liberty Museum in the northwestern part of the island adjacent to the Administration Building and across from the Concession Building. The museum would connect to the back of the Administration Building through a modified doorway to allow NPS staff to go back and forth between the buildings. The proposed museum would include a green roof and paved terrace, accessible to the public by landscaped steps leading up from the flag plaza. The steps would also serve as a stage and seating area around the plaza. The museum foundation would be constructed on piles to raise it above the base flood elevation. Piles would be driven approximately 150 feet below grade to provide the necessary stabilization. The specifics of the pile driving actions would be determined following placement of test piles. Other features, such as potential detention basins, have not yet been designed. The area of potential effect (APE) depth will be determined after the final design development package has been completed.

The project area for the archeological investigation was slightly smaller than the proposed museum site: bounded on the west by the location of the 1886-1901 lighthouse seawall, on the south by the flagpole plaza, and on the north and east by the existing seawall. Archeological investigations were carried out to determine if significant remains are present in the project area that might be impacted by the proposed museum construction.

A. Project Location

The proposed project is located on Liberty Island in New York Harbor, located approximately 2.6 kilometers (1.6 miles) southwest of Manhattan. The project area is the entirety of Liberty Island; however, the majority of the proposed actions are confined to the northwest portion of the island adjacent to the Administration Building and in-water activity associated with the temporary pier on the north side of the island. For purposes of the archeological investigation, the project area was slightly smaller than the proposed museum site: bounded on the west by the location of the 1886-1901 lighthouse seawall, on the south by the flagpole plaza, and on the north and east by the existing seawall (see Figure 1; Figure 2).

B. Scope of Services

Louis Berger conducted the subsurface excavations in support of an environmental assessment for a new museum on Liberty Island. Previous archeological studies of the island have shown that it contains significant resources from both the pre-contact and post-contact periods. Review of historical maps included in the Overview and Assessment for the island (Griswold 1998) showed that buildings stood in the project area from 1874 onward. Archeological investigations were carried out to determine if significant remains are present in the project area that might be impacted by the proposed museum construction. The investigation included background research and the excavation of five trenches (see Figure 2).

Louis Berger followed the plan developed by archeologists from the National Park Service Northeast Region for backhoe trenching. The plan showed four trenches; however, the plan had to be modified in the field because of the presence of a large construction trailer and utilities that included an 8-inch water main and several live electric and communication lines. Louis Berger's fieldwork was conducted between November 23 and December 3, 2015. The investigation was conducted under the Site-Specific Health and Safety Plan submitted prior to the investigation.

Louis Berger conducted all archeological work in accordance with the guidelines established by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) and the *Standards for Cultural Resource Investigations and the Curation of Archeological Collections* published by the New York Archeological Council (2002). The field investigations and technical report meet the specifications of the New York State OPRHP and the

FIGURE 1: Project Area Location (ESRI World Topographic 2015a; USGS Jersey City 2014a)

FIGURE 2: Project Area and Subsurface Testing (USGS 2014b)

Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (*Federal Register* 48:190:44716-44742) (United States [U.S.] Department of the Interior 1983). The Principal Investigator who performed these investigations meets or exceeds the qualifications described in the Secretary of the Interior's Professional Qualifications Standards (*Federal Register* 48:190:44738-44739) (U.S. Department of the Interior 1983). All cultural materials collected and all records of this contract have been cared for in accordance with the requirements set forth in 36 CFR 79 and at the termination of the contract will be presented to the National Park Service.

This study was accomplished with assistance from the U.S. Department of the Interior, National Park Service. The statements, findings, conclusions, recommendations, and other data in this report are solely those of the author(s) and do not necessarily reflect the views of the U.S. Department of the Interior, National Park Service.

This report consists of six chapters and three appendices. Chapter II summarizes the results of the background research conducted for this project, and Chapter III summarizes the research design and methods Louis Berger employed for this survey. Chapter IV provides the results and analysis of the fieldwork. Chapter V gives a summary and recommendations, and Chapter VI contains a list of all references cited. The appendices are the artifact inventory (Appendix A), the methods and coding for the inventory (Appendix B), and the UTM coordinates for the five trenches excavated during the investigation (Appendix C).

Louis Berger personnel conducted this survey under the direction of Vice President-Heritage Resources Hope E. Luhman, Ph.D. Lauren Hayden and John Bedell, PhD. served as Principal Investigators. The fieldwork was conducted by Ms. Hayden, Dr. Bedell, and Louis Berger Field Archeologist Alex Piven. Principal Editor Anne Moiseev supervised the editing and production of this report, and Principal Draftsperson Jacqueline L. Horsford prepared all graphics.

II. Background Research

A. Environmental Setting

1. Geology/Physiography, Topography, and Soils

The project area is located on an island in New York Harbor within the Piedmont physiographic province. The Piedmont is a varied terrain underlain with sedimentary rocks of Triassic and Jurassic age that have eroded into gently rolling topography and highly resistant igneous formations of Jurassic age, which crop out as ridges. Liberty Island was approximately 2 acres smaller prior to the landscape modifications that have occurred during historic and modern times (Griswold 2003:5; URS 2010:4.7). The northwestern tip of the island did not exist during prehistoric times. The survey area is located in the portion of the island that is man-made, resulting from filling episodes that occurred between 1820 and 1951 (Griswold 1998; URS 2008; JMA 2008). Project area soils consist of Urban land, till substratum (Figure 3) (United States Department of Agriculture-Natural Resources Conservation Service [USDA-NRCS] 2015).

B. Prehistoric Context

Archeologists have divided the vast expanse of New York culture history into five general periods: Paleoindian (12,000 to 9500 years before present [BP]); Archaic (9500 to 3000 BP); Woodland (3000 to 500 BP); Contact (500 to 300 BP); and Historic (300 BP to present). The first three subdivisions (Paleoindian, Archaic, and Woodland) are thought to represent Native American cultural adaptation to changing climatic conditions since the arrival of humans in the New York region around 12,000 years ago—from Pleistocene (Ice Age) to Holocene (modern) norms. The region's natural environment and geomorphology have greatly influenced the nature of Native American settlement, land use, and cultural development. One important factor in the interpretation of New York prehistory is the impact of glaciation on the topographic and hydrologic conditions in the area since the end of the Pleistocene.

1. Paleoindian Period (12,000 to 9500 BP)

Humans (the Paleoindians) first entered the region from the south between 12,000 and 9500 BP, following the retreat of the Wisconsin glaciers. At its maximum extent (18,000 and 16,000 BP), the Wisconsin glacier covered all of New York State and extended south into northern New Jersey and Pennsylvania. As the ice sheets receded, open spruce woodland developed in the Northeast, with pine replacing spruce as the dominant arboreal species by about 10,000 BP (Gaudreau 1988).

Few definite habitation sites from the Paleoindian period have been identified in the Northeast. It is more common to encounter isolated finds of artifacts that are diagnostic for the period. Such artifacts include Clovis-type fluted projectile points, assorted scrapers, gravers, and drills. These lithic tools are usually made from cherts that originate in eastern New York and jaspers found in Pennsylvania and New Jersey. The Paleoindian sites that have been located in New York tend to be quarry-related activity areas, small base camps, and isolated kill sites.

The basic model for Paleoindian habitation in the Northeast assumes that Paleoindians coalesced in small, highly mobile bands that traveled and hunted through large territories, focusing on post-Pleistocene megafauna. However, it is also possible that Paleoindian populations used a relatively wide range of plant and animal resources that were encountered in more restricted territorial ranges.

2. Archaic Period (9500 to 3000 BP)

During the Archaic period the climatic improved, which eventually resulted in greater biodiversity in the resource base, and changes in technology, site size, and site location reflect utilization of a broader spectrum of resources. Researchers usually divide the Archaic into three subperiods: Early (9500 to 7000 BP), Middle (7000 to 5500 BP), and Late (5500 to 3000 BP).

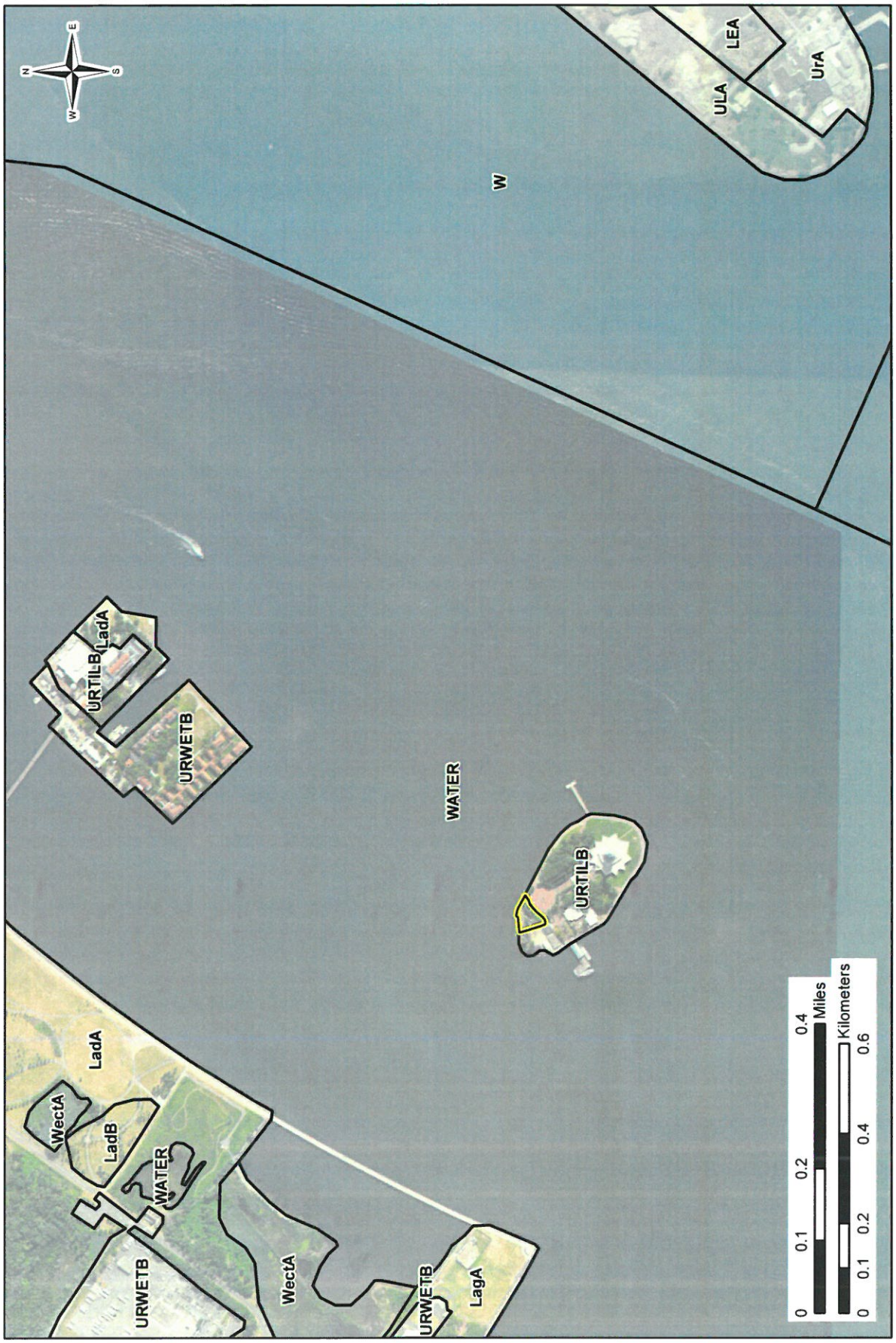


FIGURE 3: Aerial View of Project Area with Soil Types (USDA-NRCS 2015; USGS 2014b)

During the Early Archaic period (9500 to 7000) the climate initially fluctuated and eventually stabilized into a warming trend. The warmer conditions enhanced biological diversity in the plant and animal communities developing in the region. The subsistence focus of aboriginal populations shifted from a primary focus on hunting post-Pleistocene megafauna to hunting, fishing, and gathering a diverse range of animal and plant forms. Populations may have increased as a result of the greater stability of the resource base. Most of the evidence of human occupation during this period is based on isolated finds of artifacts diagnostic for the period that are most often located along major drainages.

During the Middle Archaic (7000 to 5500 BP) the climatic warming trend continued. New varieties of flora and fauna became established in the region. The subsistence and settlement pattern of the human occupants of the region continued to shift toward seasonal transhumance focused on utilization of specialized resources within limited ranges, which may have fostered a greater degree of territoriality (Dincauze and Mulholland 1977). Diagnostic artifacts included Neville and Stark projectile points. The reliance on diverse and specialized resources fostered expansion of the toolkit, which included adzes, axes, drills, mortars and pestles, netsinkers, and hammerstones.

Climatic warming continued into the Late Archaic (5500 to 3000 BP). The rich and diverse biotic resource base enabled increased habitation. Diagnostic artifacts for the subperiod include small stemmed projectile points such as Lamoka, Taconic, Squibnocket, and Brewerton.

By the Terminal Archaic, or Transitional, period people were grinding and polishing soapstone to make bowls and other cultural items. The Terminal Archaic is characterized by three cultural traditions: the Laurentian tradition (Vergennes phase and Vosberg complex); the small stemmed tradition; and the Susquehanna tradition (Snook Hill and Orient phases). Based on a reassessment of the distribution of Terminal Archaic points, Snow suggests that the Susquehanna tradition (Snook Hill, Perkiomen, and Susquehanna Broad points) was dominant in the first half of the Terminal Archaic, and superseded by the Orient complex (Orient Fishtail points) in the second half of the period (Snow 1980:237). The exact nature of the cultural differences reflected in the technological and stylistic differences between these traditions has not been conclusively discerned. They may represent differences in settlement system and technology based on utilization of different resource niches, the migrations of new people into the region, or the spread of distinctive technological ideas.

3. *Woodland Period (3000 to 500 BP)*

The Woodland period is divided into three subperiods: Early Woodland (3000 to 1700 BP); Middle Woodland (1700 to 1200 BP); and Late Woodland (1200 to 500 BP). In general, Early Woodland occupations in the Eastern Woodlands are characterized by a continuation of Late Archaic lifeways. Throughout the eastern United States it appears that Early Woodland groups were sedentary or semisedentary, with residential sites located in riverine and upland contexts, and with logistical sites located in a variety of physiographic contexts.

Ritchie and Funk (1973:96) write that "as in the case of the Transitional [Archaic] stage, it [the Early Woodland] is marked by the appearance of certain new traits and by the characteristic expression of other, older traits," but "there is no evidence for significant changes in subsistence or settlement patterns." Substantial residential sites of the Late Archaic are often referred to as base camps, yet similar sites of the Early Woodland become "villages" with the presence of ceramics and possible storage pits at these sites.

Broadspear forms were phased out in the Early Woodland period, and small stemmed and notched forms, as well as lanceolate and teardrop forms, dominate hafted biface assemblages. Ground grooved axes, seen in the Late Archaic, continue into the Early Woodland but are refined, and the repertoire of such implements is expanded. Slate gorgets, pendants, and ground slate pieces have also been recovered from Early Woodland sites.

The mortuary complexity exhibited by some Late Archaic groups continued into the Early Woodland. Meadowood (3000 to 2560 BP) cremations, bundle burials, and flex burials include red ochre, cache blades ("up to 1,500 in one grave"), gorgets, tubular pipes, and copper objects, as well as utilitarian items such as hafted bifaces, other bifacial tools, adzes, celts, bone tools, carbonized nets, and basketry (Ritchie and Funk 1973:96, 348). Early Woodland groups also created burial mounds for their dead, which represent one of the most dramatic manifestations of the social complexity inherent in Adena societies.

The Early Woodland period (Middlesex phase) is characterized by the introduction of ceramic vessels, in this region typed as Vinette 1 undecorated wares, some with steatite temper. Sites of the period are usually found on well-drained knolls next to fresh water (Ritchie 1980:21).

The Middle Woodland period is marked by changes in lithic and ceramic technology. During the Middle Woodland period maize agriculture and other horticultural practices were gradually incorporated into the subsistence adaptations of the occupants of the region, promoting development of semipermanent village settlement. Subsistence practices during the Middle Woodland period were not very different from those of earlier periods although intensified hunting, gathering, and small-scale agriculture increased use of resources. The climate during this cultural period remained similar to that of the Early Woodland period. Episodic fluctuations in temperature and precipitation did occur, which affected the distribution and composition of biotic communities. Site types identified include small camps (some temporary and some reoccupied over time), semipermanent large camps, cemeteries, burial mounds, and workshop activity areas (Ritchie and Funk 1973:349).

The bow and arrow were introduced in this period. Diagnostic lithic artifacts include Jack's Reef Corner Notched and Pentagonal projectile points, and Fox Creek projectile points. The presence of increased amounts of exotic lithic materials suggests further development of interregional trade networks. Other items of material culture associated with the Middle Woodland include ornamental pendants and pins. Ceramic technology became more sophisticated as indicated by a decrease in the wall thickness of pots and a rounding of vessel shape. Ceramic decoration, including netmarking, and ornamentation of collars and bodies increased. During the Late Woodland period aboriginal populations continued to grow and expand into riverine environmental zones. Agriculture continued to increase in importance as part of aboriginal subsistence systems. Maize became a major component of the prehistoric diet. By the time of the Late Woodland, the climate was very similar to that of today. A greater number of sites, larger sites, and sites with a higher density of cultural material are associated with this period in prehistory than with earlier periods. Sites have been encountered along major drainages, in association with rockshelters, in coastal areas, and on islands. Small campsites are also located near swamps and streams. The settlement-subsistence system for this period appears to be characterized by an annual pattern of seasonal movement between riverine, coastal, and inland sites. The semipermanence of many of the occupations and resource areas may have fostered greater territoriality (Mulholland 1988:163). Diagnostic artifacts include Levanna projectile points and Owasco-related ceramics.

4. *Early Historic Contact Period (500 to 300 BP)*

Native American settlement and subsistence adaptations of the Late Woodland continued during the early Contact period, characterized by seasonal hunting and gathering and focusing on streams and major watercourses in the spring and fall for the seasonal fish runs. During this period Native Americans also accessed smaller sites in inland and upland areas for hunting and resource procurement. Larger semipermanent village sites, consisting of oval and round houses and large pits, were also located in the interior near planted fields. In the winter smaller bands of people occupied sites in inland and upland settings close to forest game (Cronon 1983:48).

Initial contact between Europeans and Native Americans was made when early explorers entered the area to engage in trade. The introduction of European material goods, the demands of trading relationships, rapid colonial expansion, and the spread of diseases brought by the Europeans had profound effects on the settlement and subsistence adaptations of the native populations. Native groups gradually became dependent on trade with the Europeans. Tribal and clan affiliations were affected, and much of the native population disappeared or was displaced (Brasser 1978). Some estimates suggest that between 60 and 90 percent of the native population was lost to European diseases in the seventeenth century in southern New England and New York (Snow 1980:34).

The first known habitation of Liberty Island occurred during the Woodland Period (3000 BP-550BP), as evidenced by a shell midden located in the southern portion of the island. However, Liberty Island was approximately 2 acres smaller prior to the landscape modifications that have occurred during historic times and modern times (Griswold 2003:5; URS 2010:4.7). As such, the northern western tip of the island did not exist during prehistoric times. The survey area is located in the portion of the island that is man-made, resulting from filling episodes that occurred between 1820 and 1951 (Griswold 1998; URS 2008; JMA 2008). As such, it is very unlikely that the project area contains intact prehistoric deposits. If any prehistoric deposits are located within the survey, they most likely are associated with the imported fill.

C. Historic Context

1. Historical Background of Liberty Island

Liberty Island is located in New York Harbor, one of the busiest ports in the world. The Island, which is mostly flat, has an average elevation of approximately 1.5 meters (5 feet) above sea level, and is about 402 meters (0.25 mile) long and 241 meters (0.15 mile) wide at its widest point. Owned by the National Park Service since 1933, the island is served by multiple ferries running regularly from New York and New Jersey. Prior to 1956, Liberty Island was known as Bedloe's Island (also spelled Bedlow), named after Isaac Bedlow, who bought the island in 1667. The Bedlow estate retained the island until it was sold in 1732 to Adolphe Philipse and Henry Lane (Griswold 2003:10). Although the island remained privately owned throughout the first half of the eighteenth century, because of its tactical location in New York Harbor the island was commandeered at various times for public use as a smallpox quarantine station, a pest house, and, prior to the Revolutionary War, to house Tory refugees. In 1776 colonists burned the buildings that were constructed for the Tory refugees during a siege (Griswold 1998, 2003).

After the Revolutionary War, the island was ceded to the federal government for the construction of a defensive fort. The 11-point star-shaped fort, Fort Wood, was constructed in 1811 in the southern portion of the island as part of the defenses of New York Harbor. The fort is one of the New York harbor fortifications designed by Col. Jonathon Williams.

The status of the fort began to decline during the late nineteenth century. During that time France decided to gift a statue to the United States to commemorate the American Centennial, as a symbol of freedom. In 1871 French sculptor Frederic-Auguste Bartholdi visited Bedloe's Island during a scouting trip and later recommended the island for the placement of the statue. Construction of the statue was completed in 1884. Upon completion of the pedestal, which utilized the existing parade ground of the former fort, the Statue of Liberty was unveiled in 1886.

Following its construction, the statue was given to the United States Lighthouse Board to be used as a beacon. At that time the northern tip of the island was used as a lighthouse reserve (Griswold 1998, 2003). In 1901 control of the statue was transferred to the United States War Department. In 1924 the Statue of Liberty was designated a National Monument, and in 1933 the statue was transferred to the National Park Service.

2. Historical Background of the Project Area

The project area is situated on man-made land. The original tip of the northern portion of the island was located approximately where the Flag Plaza stands today (Figure 4). The land in the project area was created through multiple fill episodes during the nineteenth century. These episodes have been extensively documented in previous cultural resource studies (Griswold 1998; URS 2008; URS 2010). The *Liberty Island Seawall: Historic Structure Report* (URS 2008) further details the seawall construction and fill episodes, depicting the enlargement of the island during the nineteenth and twentieth centuries (Figures 5-7). Two filling events are particularly relevant to the current project. During the early 1850s plans for the establishment of an army recruiting station and quartermaster's depot with their associated buildings required the eventual expansion along the northern portion of the island (URS 2008:10). As part of an effort to improve visitor experience of the island, as set forth in the 1939 master plan, the National Park Service decided to move the visitor entrance from the eastern portion of the island to the northwestern side of the island and add supporting buildings such as the administrative building, a concession stand, and staff residences (URS 2010:4.26). To achieve this vision, more land was created on the northwestern end of the island (URS 2010:4.26).

Throughout the nineteenth century the northern portion of the island contained military-related structures, a gun house, stable, hospital, morgue, and coal yard (Griswold 1998). The 1874 map of Bedloe's Island depicts a brick commanding officer's house and three unlabeled buildings in the project area (see Figure 5). By the end of the nineteenth century, the project area was used as a light house reservation. In 1937 the project area was occupied by five brick buildings (see Figure 6). The three buildings in the northeastern part of the project area from west to east are labeled Building #12, Building #20, d Building #22. Building #12 was originally used as the light keeper's residence, then the commanding officer's house. In its final days the building was used to house noncommissioned officers (NCOs) (URS 2010:4.41). Building #12 was demolished in 1939. Building #20 was also used to house

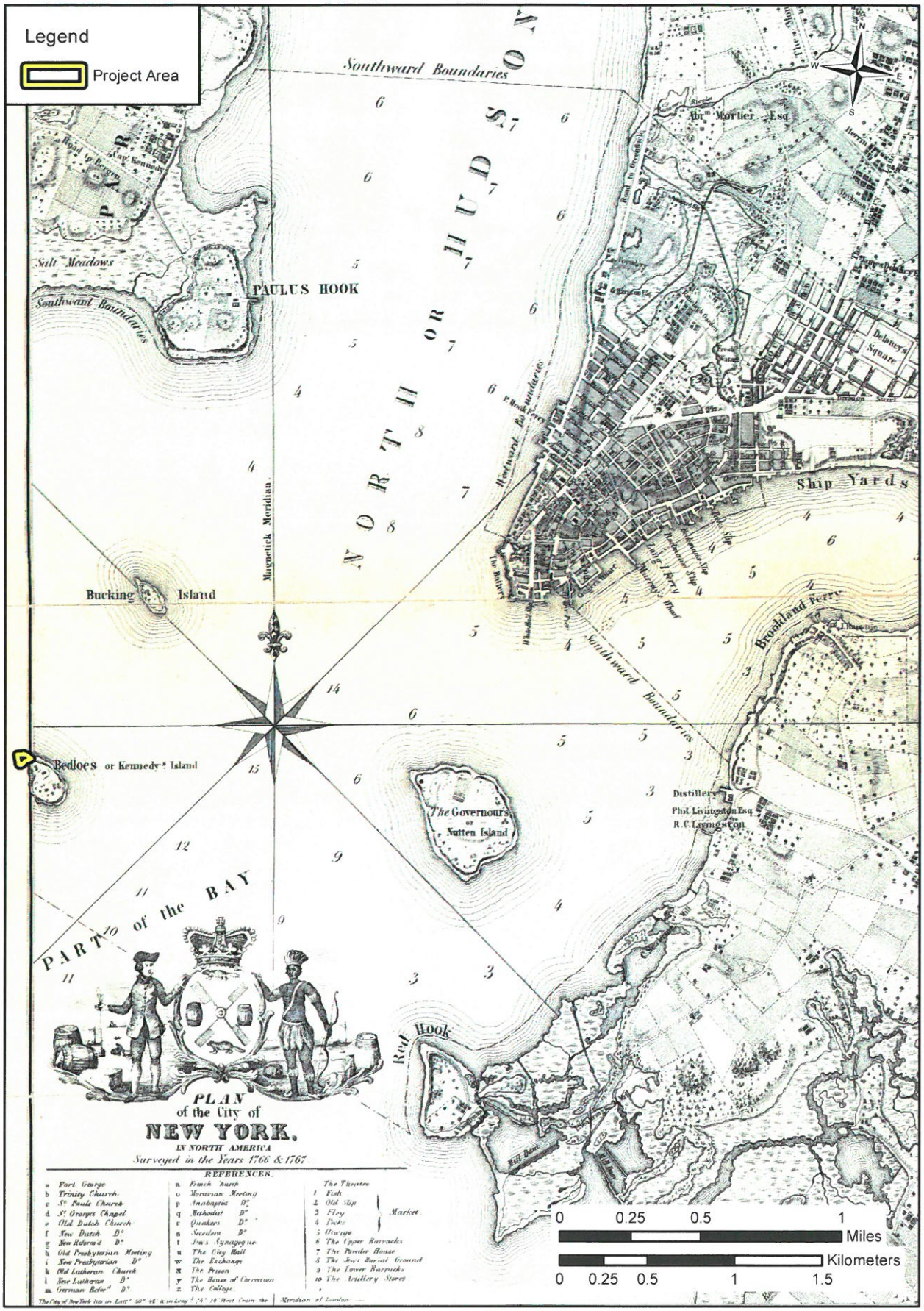


FIGURE 4: Liberty Island in 1766 (Ratzer 1776)

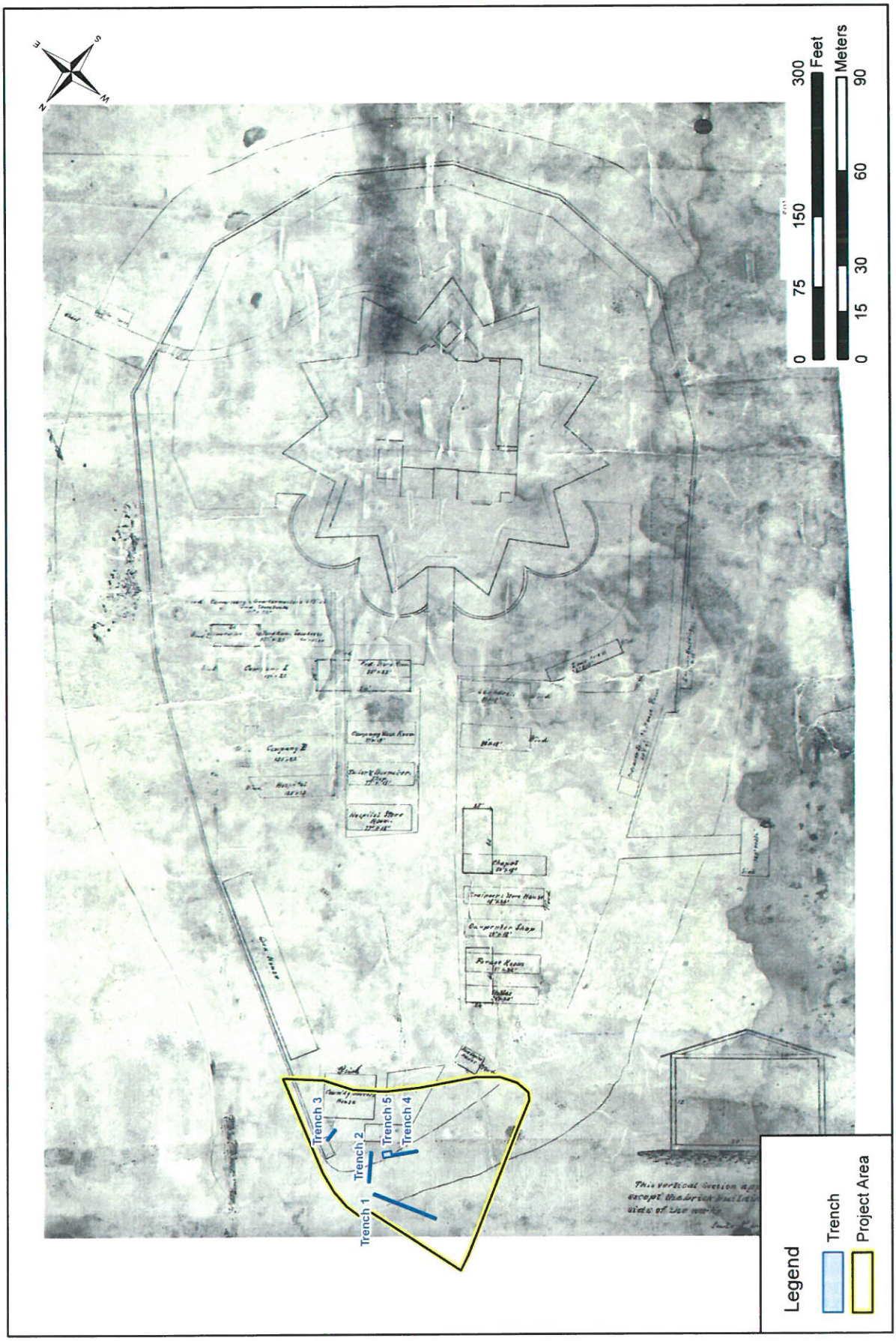


FIGURE 5: Liberty Island in 1874 (URS 2008)

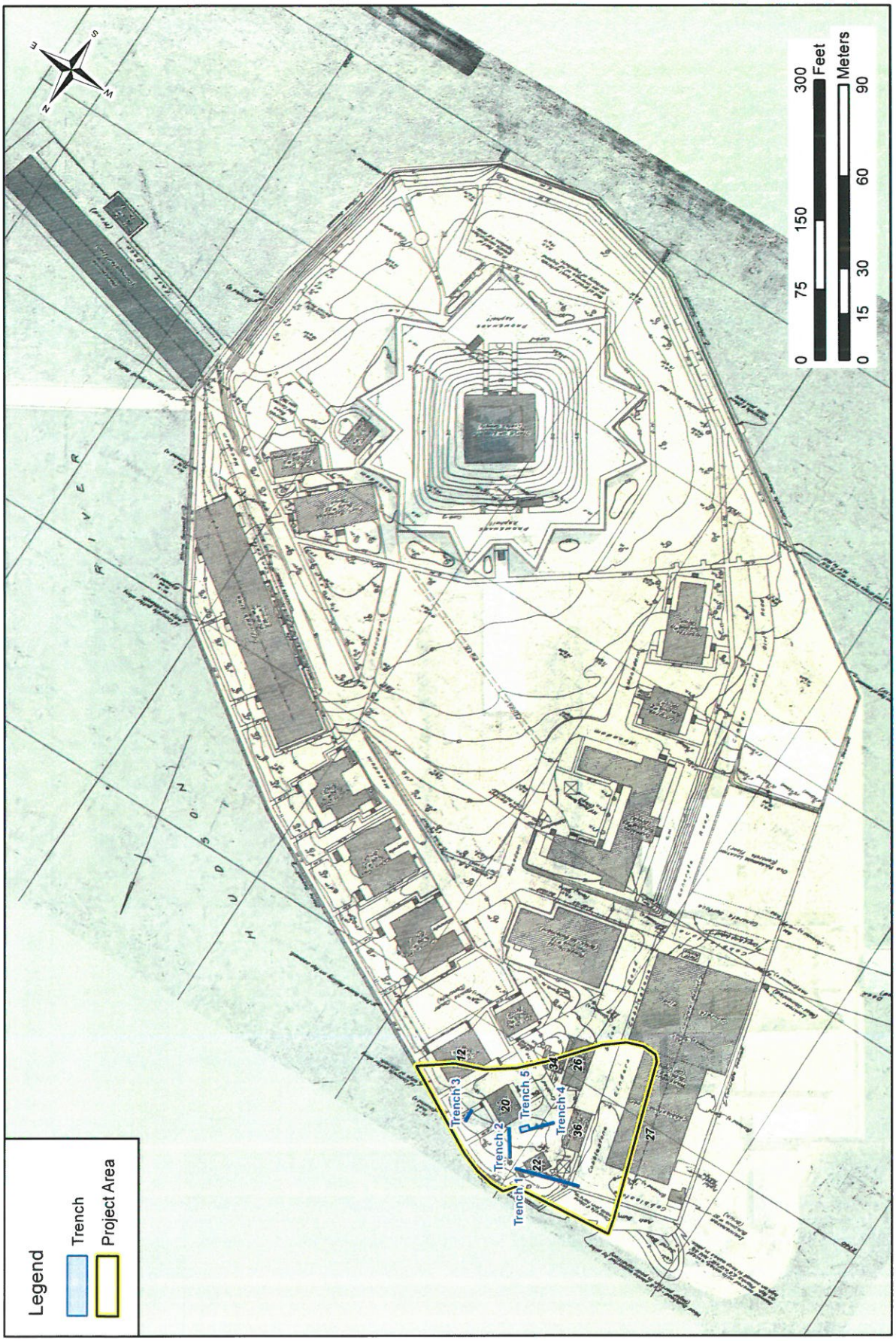


FIGURE 6: Approximate Location of Project Area in 1937 (URS 1998; USGS 2014b)

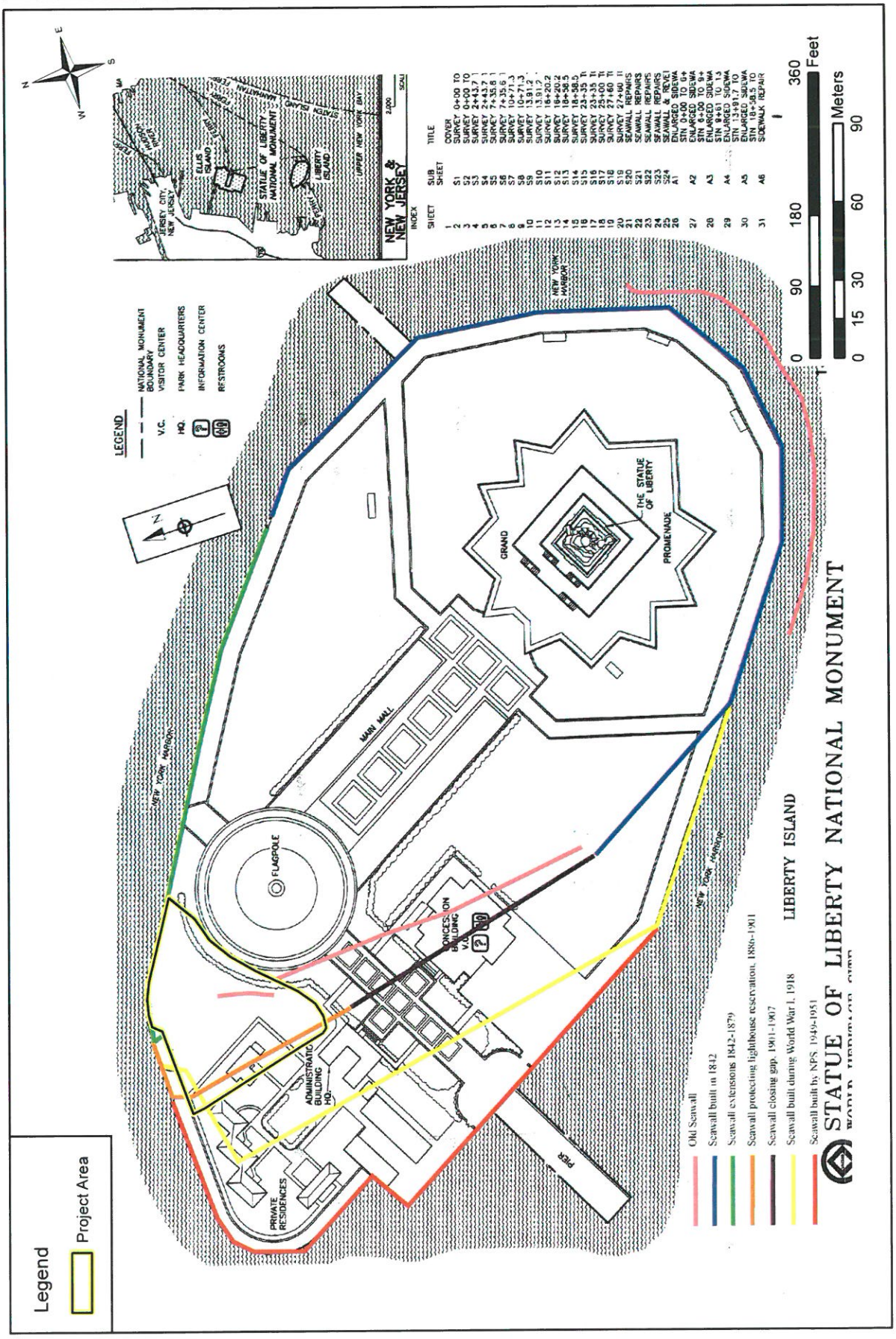


FIGURE 7: Seawall Construction Timeline (URS 2008)

NCOs and appears to have been in use from 1907 until circa 1950 (URS2010:4.41). Building #22 appears to be associated with the adjacent radio tower. Building #36 is labeled as an oil house. Building #26, located in the southwestern part of the project area, was used as a garage in 1936 and then as a brick stable from 1907 to 1934 (URS 2010:4.41). Building #34, located east of #26, was used as a pump house from 1907 until it was demolished circa 1950 (URS 2010:4.41).

D. Previous Cultural Resource Investigations

Numerous cultural resource investigations have been conducted on Liberty Island since 1937 when the National Park Service assumed administrative responsibility over the Island (Table 1). These investigations involved limited photo-documentation and artifact recovery during monitoring of construction activities associated with the removal of fill material between the base of the Pedestal and the stone walls/ramparts of Fort Wood (conducted by John Cotter 1961-1963); excavations of a late eighteenth-century to early nineteenth-century midden overlying a prehistoric shell midden and pit feature that was identified during the installation of utilities on the west side of the main approach to the Statue (conducted by Dick Hsu 1985); geophysical survey of the entire island, with the exception of the northwestern portion of the Island, which was artificially created from imported and dredged fill in the twentieth century (conducted by Hager-Richter Geoscience, Inc. 1999); an archeological overview and assessment conducted by the National Park Service (Griswold 1998); additional excavations by the National Park Service at the prehistoric midden and pit feature identified in 1985 (Griswold NPS 1999); the excavation of 55 shovel tests in the locations of large subsurface anomalies identified during the 1999 geophysical survey throughout the Island (Griswold 2001); documentation of the development of the Liberty Island seawall (URS 2008); Phase I archeological investigations conducted in the northwestern portion of the island (URS 2008); Phase I and II archeological investigations in the southern portion of the island; and archeological monitoring of life and safety upgrades in the northern, western, and southern parts of the island (Hunter Research [Hunter] 2013).

The excavations conducted in the Project APE are of particular interest. A total of 13 shovel tests were excavated in the APE during the 2000 investigation of large subsurface anomalies identified during the 1999 geophysical survey (Griswold 2001). These excavations found that this portion of the island has deep deposits of fill and construction and demolition debris (Griswold 2001:14). A large cut stone block and the remnants of a filled-in brick building with a cement floor were found in two of the shovel tests.

Portions of the APE were also investigated during the Phase I archaeological survey conducted by JMA in 2008. A total of 20 shovel tests and five 1x1-meter test units were excavated in the Project APE during those investigations (JMA 2008). All of the excavations encountered fill deposits; no intact soils were identified. Similar to the 2000 excavations, many of the shovel tests and test units consisted of demolition debris. Building material such as concrete slabs, a schist slab, two cut stones, and a granite block were also identified in some of the shovel tests and test units (JMA 2008:6). JMA recovered a total of 818 artifacts during their investigations. Some of the artifacts have an early historic date range, which led JMA to conclude that some of the fill deposits in the northern portion of the island may have originated in the vicinity of Fort Wood (JMA 2008:8). JMA determined that all of the deposits encountered during their investigations were fill deposits and therefore not significant.

One of the trenches monitored during the 2013 archeological investigations extended through a portion of the Project APE. A brick semi-circle feature was exposed just south of the seawall. The researchers determined that this feature was most likely part of an abandoned water element of a water system dating to the late nineteenth or early twentieth century (Hunter 2013). A second feature consisting of a 2-foot-thick concrete slab was uncovered approximately 2 feet below the ground surface. This feature was determined to be part of an early twentieth-century building that does not appear on any known historical maps (Hunter 2013). The investigators also believe they may have encountered the basement or crawl space of the NCOs' building (Building #15) within the Project APE (Hunter 2013). No intact ground surfaces were identified in the Project APE during the 2013 investigation (Hunter 2013).

TABLE 1

SELECTED PREVIOUS CULTURAL RESOURCE RESEARCH PROJECTS ON LIBERTY ISLAND

YEAR OF SURVEY	PROJECT (AUTHOR)	OBJECTIVE AND RESULTS
1961-1963	John Cotter	Objective: monitor the removal of the fill materials located between the walls of Fort Wood and the base of the pedestal. The first 20 feet of fill in the pedestal area date to the mid-late nineteenth century and the fill below dates to the first half of the nineteenth century.
1985	Dick Hsu	Objective: conduct archeological excavations within an excavated utility trench on the west side of the main approach to the Statue. A historic midden predating the construction of Fort Wood was identified overlying a prehistoric shell midden and pit feature.
1998	Liberty Island: Archeological Overview and Assessment (Griswold)	Objective: to identify and evaluate potential archeological resources on Liberty Island through existing records. The study identified several areas of archeological significance and areas of potential significance; including, the shell midden around adjacent to the plaza, remnants of Fort Wood, and building remnants.
2000	Geophysical Survey: Statue of Liberty National Monument (Hager-Richter Geoscience, Inc.)	Objectives: Identify areas that contain archeological resources on Liberty Island. Researchers employed GPR, EM, and Magnetometry to investigate 8 acres of the Island; the current project area was excluded. Results indicated utilities, unidentified buried objects, changes in stratigraphic profiles, possible former structures, areas of fill, disturbed ground surfaces, etc.
2001	Ground Truthing the Geophysical Investigations: An Evaluation of the Remaining Archeological Resources, Liberty Island National Monument (Griswold)	Objectives: to field test the results of the 1999 geophysical survey of approximately 8.5 acres of Liberty Island. The study identified several archeological deposits in addition to several military buildings and portions of a previously identified late eighteenth/early nineteenth century midden.
2002	Archeology of a Prehistoric Shell Midden, Statue of Liberty National Monument, New York (Griswold)	Objectives: to evaluate and define the boundaries of a prehistoric shell midden identified in 1985. The study succeeded in identifying the boundaries of the prehistoric shell midden.
2003	The Ground Beneath Her Feet: The Archeology of Liberty Island, Statue of Liberty National Monument, New York, New York (Griswold)	Objectives: Provide a summary of the prehistory and early history of Liberty Island from three years of study that included the documentary investigations, the geophysical survey, and the prehistoric shell midden investigations.
2008	Liberty Island Seawall: Historic Structure Report (URS)	Objectives: Document the development of the seawall and analyze previous recommendations for rehabilitation of the wall. URS, in general, agreed with previous recommendations.
2008	Discover Liberty! Phase I Archeological Survey Statue of Liberty Monument New York, New York (JMA)	Objectives: to identify and evaluate potential archeological resources within the project area located in the northwestern portion of the island. No significant deposits were identified.
2010	Phase IA-IB/II Archeological Assessment Install Power and Communications Lines for the Perimeter Security Project, Statue of Liberty Monument, New York County, New York (URS)	Objectives: to identify and evaluate potential archeological resources within the project area located in the southern extent of the island. Additional monitoring recommended in portions of the project area that contained intact archeological deposits.
2013	Archeological Monitoring Life and Safety Upgrades Statue of Liberty National Monument Liberty Island, New York City, New York (Hunter Research)	Objectives: archeological monitoring of life and safety upgrades within the original footprint of Fort Wood, along a waterline extending from the northeast corner of the fort to the administrative area, and an area outside the northwest corner of the fort. Despite soil disturbances, intact cultural deposits and features were identified.

III. Research Design and Fieldwork Methods

Previous archeological investigations conducted in the project area have not reached intact subsoil (Griswold 2001; Hunter 2013; JMA 2008). The majority of the project area is believed to be located on manmade land; however, previous investigations conducted by Griswold and URS have recommended further investigations in the project area, if and when necessary, to determine if deeply buried deposits exist (Griswold 2001; URS 2010). The purpose of the current investigation is to determine if archeological resources exist in the project area that would be impacted by the proposed project and to evaluate the significance of any such resources identified.

To sample the fill deposits and search for buried landscape surfaces, the National Park Service proposed the excavation of six trenches, 18 meters (59 feet) long and 0.9 meter (36 inches) wide, in the project area. Additional small, mechanically excavated holes to define foundations were proposed as needed. The trench depth was specified to extend 1.52 meters (5 feet) bgs. The National Park Service requested in their scope that deeper samples be taken at 5-meter (16.4-foot) intervals or where specific fill episodes were identified. Soils were to be sampled for cultural material but not necessarily systematically retained.

Based on a review of historical maps and other documents, as well as a site visit, archeologists from the National Park Service Northeast Region developed a plan for backhoe trenching with four trenches. The plan had to be modified in the field because of the presence of a large construction trailer and utilities that included an 8-inch water main and several live electric and communication lines. Trench 4 had to be shifted because of the construction trailer and a fifth trench was added as an extension of Trench 4, shifted to the southeast to avoid electrical lines that appeared in the northwest wall of the trench (Figure 8). The trenches were excavated with a backhoe using a 2-foot-wide toothed bucket. Trench excavations reached a depth of at least 1.52 meters (5 feet) where possible, taking deeper samples when feasible. The excavation was monitored closely by the supervising archeologists. When archeological features were encountered, archeologists entered the trench to excavate with shovels and trowels. When deposits were noted that contained domestic artifacts, a sample of at least 10 gallons was screened to obtain an artifact sample.

All archeological field investigations were conducted and recorded in English measurements. Field observations and excavation data were recorded on standardized forms developed by Louis Berger. The locations of the trench excavations were collected with a Trimble GeoXT Global Positioning System (GPS) unit. Excavated soils were recorded and described in terms of both texture and color, using USDA soil classifications and Munsell charts. Photographs of the excavations, the project area, the progress of the fieldwork, and the surrounding area were taken as appropriate. Stratigraphic profile drawings were prepared of at least one wall of each trench. The investigations followed all safety procedures specified in the project Health and Safety Plan (HASP).

FIGURE 8: Excavation Plan and Modifications (USGS 2014b)

IV. Fieldwork Results and Analysis

A. Results of Subsurface Testing

The fieldwork was conducted between November 23 and December 3, 2015. A total of five trenches were excavated in the project area (see Figure 2).

1. Trench 1

Trench 1 was excavated in the northwestern part of the project area (see Figure 2). The trench was aligned northeast-southwest and measured 70 feet long and approximately 2 feet wide (one backhoe bucket). The maximum depth reached throughout most of the trench was approximately 6 feet. An attempt was made to take a deeper sample; however, because of relatively shallow groundwater and the location of utilities and two foundations, a deeper sample was not possible.

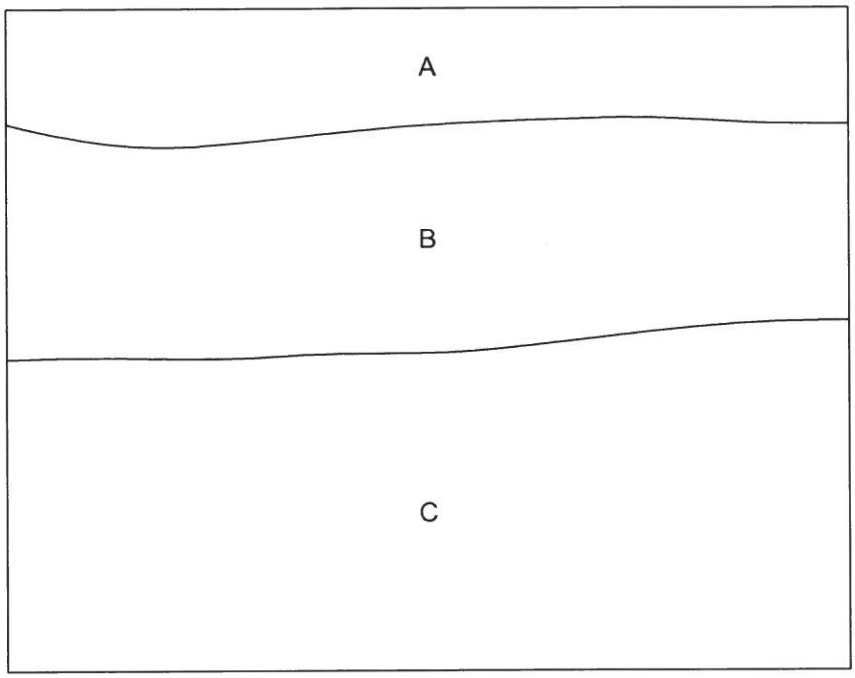
The corner of a poured concrete foundation (Feature 1) was uncovered approximately 9 feet from the northeastern edge of the trench at approximately 0.5 foot below ground surface (bgs) (Photograph 1). The backhoe was used to locate two additional corners of the foundation, which appeared to measure approximately 23x18 feet. The interior of the foundation was filled with brick rubble; bricks were noted with an S&F Co. stamp. The S&F Co brick can be traced to the Sayre & Fisher Company, a brick making company that was located in Sayreville, New Jersey (Brick Collecting.com 2016). The Sayre & Fisher Company was founded by James Sayre of Newark and Peter Fisher of New York in 1850. The plant produced bricks until it was closed in 1969 (Sayreville Historical Society 2016). Utility lines located on either side of the foundation prevented further exploration to determine the depth of the foundation. This feature is most likely the foundation associated with Building #2, a brick building associated with the radio tower (URS 2010:4.41) (see Figure 6). A second feature (Feature 2) was identified approximately 60 feet southwest of the northeastern edge of the trench. A stepped concrete block measuring approximately 5 feet wide with rebar sticking out of it was located approximately 2 feet bgs (Photograph 2). The nature of the block is unclear. The trench was opened up a few feet to the north where an edge of the block was located. The block extended to a depth of approximately 3 feet.

The soil profile exhibited by Trench 1 generally consisted of an overlying layer of very dark grayish brown (10YR 3/1) sand underlain by a brown sand (7.5YR 4/4) followed by less compact brown (7.5YR 5/4) sand with approximately 20 percent gravel (Figure 9; Photograph 3). A total of 26 artifacts were collected from Trench 1: 11 sherds of unidentified glass, one piece of window glass, an intact beer bottle, a fragment of a bottle base, two unidentified bottle/jar fragments, two pieces of ironstone, one pearlware fragment, one piece of red-bodied slipware, a piece of soft-paste porcelain, one undecorated whiteware sherd, a piece of blue transfer-printed whiteware, a piece of purple transfer-printed whiteware and two measureable pipe stem fragments. Shell fragments were noted throughout the trench (Table 2). Only four of the collected artifacts were diagnostic: the blue transfer-printed whiteware, the red bodied slipware, the purple transfer-printed whiteware, and the pearlware fragments have a mean manufacturing date of 1825 (Table 3). Previous researchers who have recovered similar findings in the northern portion of the island have proposed that some of the fill in this portion of the island may have been redeposited there from areas closer to Fort Wood and may be associated with the military occupation of the island (Hunter 2013; JMA 2008).

PHOTOGRAPH 1: Trench 1, North Wall Profile

PHOTOGRAPH 2: Trench 1 and Feature 1

Trench 1
North Wall Profile



Legend

A Very dark gray (10YR 3/1) sand

B Brown (7.5YR 4/4) silty sand

C Brown (7.5YR 3/4) sand; water table

FIGURE 9: Trench 1, North Wall Profile

PHOTOGRAPH 3: Trench 1 and Feature 2

TABLE 2

ARTIFACTS RECOVERED FROM TRENCH 1

CLASS	TRANSLATION	MATERIAL	COLOR	COUNT
Small Finds/ Architectural	Unidentified Glass	Glass	Blue	2
	Unidentified Glass	Glass	Blue and Green	1
	Unidentified Glass	Glass	Gray and White	1
	Unidentified Glass	Glass	Green	1
	Unidentified Glass	Glass	Green and White	2
	Unidentified Glass	Glass	Light Green	1
	Unidentified Glass	Glass	Red and Yellow	1
	Unidentified Glass	Glass	Yellow	2
	Window Glass	Glass	Aqua	1
Small Finds/Architecture Total				*12*
Glass	Bottle	Glass	Aqua	1
	Beer Bottle	Glass	Aqua	1
	Unidentified Bottle/Jar	Glass	Aqua	2
Glass Total				*4*
Historic Ceramic	Ironstone		White	2
	Pearlware		Blue	1
	Red Bodied Slipware, Light Slip Interior, Yellow Glaze, Both Surfaces		Brown and Yellow	1
	Soft-Paste Porcelain, Colored Glaze		Light Green	1
	Whiteware		Undecorated	1
	Whiteware, Transfer-Printed, Blue		Blue	1
	Whiteware, Transfer-Printed, Other Colors		Purple	1
Historic Ceramic Total				*8*
Pipes	Pipe Stem, Measurable			2
Pipes Total				*2*
			Total	26

TABLE 3

DIAGNOSTIC HISTORIC CERAMICS RECOVERED FROM TRENCH 1

CLASS	TRANSLATION	BEGIN DATE	END DATE	MEAN MANUFACTURING DATE	COUNT
Historic Ceramic	Whiteware, Transfer-Printed, Other Colors	1825	1915	1867	1
	Red Bodied Slipware, Light Slip Interior, Yellow Glaze Both Surfaces	1670	1850	1760	1
	Whiteware, Transfer-Printed, Blue	1820	1915	1867	1
	Pearlware	1775	1840	1807	1
				Total	4

2. Trench 2

Trench 2 ran roughly southeast to northwest, beginning at the edge of the bushes screening the Flag Plaza and ending just short of Trench 1 (see Figure 2). Its overall length was 32 feet, and the width was 2 feet. The maximum depth reached throughout most of the trench was 6.5 feet bgs. The southeast 11-foot portion of the trench was located within a building. A poured concrete floor was encountered at a depth of about 4.5 feet bgs. This floor extended to a stone wall, made with hard modern mortar that rose to about 1.5 feet bgs (Feature 3) (Photograph 4). The wall was 1.2 feet thick and ran roughly east-west. Northwest of the wall, two apparently active utility lines were encountered, so the trench was shallow for a distance of 6 feet from the wall. After that point the trench was dug to a greater depth, up to 6.5 feet bgs.

The upper soil stratum across the entire trench was brown sandy loam fill, mostly clean. Beneath Stratum A inside the building was a layer of brick, stone, and concrete rubble. Some of the bricks bore the same S&F Co. stamp observed in Trench 1. No domestic artifacts were noted. Outside the building an apparent surface was noted about 0.5 foot below the top of the surviving wall. This surface was marked by compaction and the presence of numerous pieces of plastic sheeting, along with a scatter of brick rubble. Beneath this possible surface was more sandy loam fill, a mix of brown and yellowish brown (Figure 10).

The stone wall was followed to the northeast until a corner was found, about 4 feet beyond the original trench. The corner location was then mapped with the GPS unit and photographed.

The feature encountered during the excavation of Trench 2 is most likely associated with Building #20, one of the NCOs' quarters buildings depicted on the 1936 map of the project area (see Figure 6).

3. Trench 3

Trench 3 was placed in the northeast part of the project area (see Figure 2), in the approximate location of a building shown on maps beginning in 1879 (Griswold 1998). The trench began in the berm, between two pine trees, and cut through the bushes. The overall length was 14 feet, and the maximum depth reached throughout most of the trench was 4.7 feet bgs. The most significant feature was a poured concrete foundation (Feature 4). This foundation was 1.6 feet wide and 1.0 foot deep; it extended across the trench from north to south. Even with the top of the foundation and extending toward the southeast was an obvious surface, a layer of gravel and dark grayish brown loam so compacted that the backhoe operator mistook it for concrete. Above this surface was brown sandy loam fill with occasional pieces of brick rubble. Beneath it was a dense layer of concrete rubble, including pieces larger than the trench, which prevented the backhoe from penetrating the layer (Figure 11; Photograph 5). The concrete foundation was poured after the layer of concrete rubble had been put down. The foundation may be associated with Building #12, which was originally used as the light keeper's residence, then the commanding officer's house (see Figure 6). East of the wall, the backhoe encountered blue tape marked Water Line, so the trench was terminated at that point.

4. Trench 4

Trench 4 was placed in the south part of the project area, behind the construction trailer and along the edge of the bushes (see Figure 2). The plans called for a trench running southeast-northwest in this location, but that was not possible because the backhoe could not maneuver behind the trailer to dig in that direction. Therefore the trench was rotated 90 degrees from the plan (see Figure 8). The 27-foot-long trench encountered a concrete obstacle at 3.5 feet bgs (Feature 5). This floor or pad extended 23 feet along the trench before it ended (Photograph 6). At the end the pad was 1.2 feet deep. Since no walls were noted and little building rubble was encountered, the nature of the concrete pad is unclear.

The soil above the pad had three distinct strata. At the top was a layer of crushed rock gravel and dark grayish brown loam, possibly a parking pad. Beneath that was the usual brown sandy loam fill. Beginning at a depth of about 2 feet was a layer of dark yellowish brown loam with some brick rubble and a few domestic artifacts (Figure 12). A sample of this soil was screened. It produced flat glass and aqua and clear bottle glass, plain whiteware, whiteware with hand-painted blue decoration, blueish vessel glass, and a coarse red bodied earthenware spout, as well as small pieces of chicken and pig bones. The spout, whiteware, and light blue glass fragment were the only artifacts retained (Table 4).

PHOTOGRAPH 4: Trench 2 and Feature 3

PHOTOGRAPH 5: Trench 3, West Wall Profile

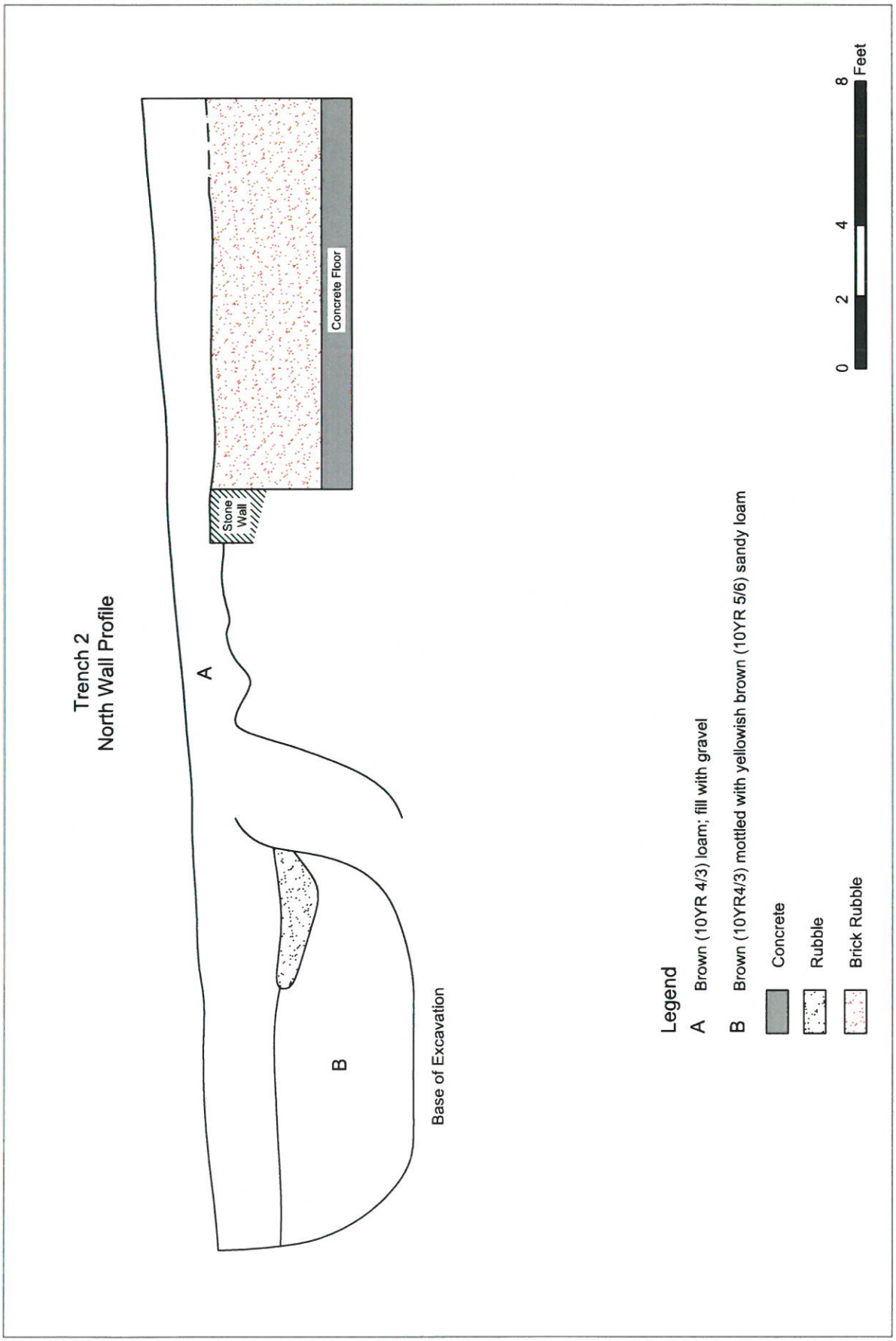


FIGURE 10: Trench 2, North Wall Profile

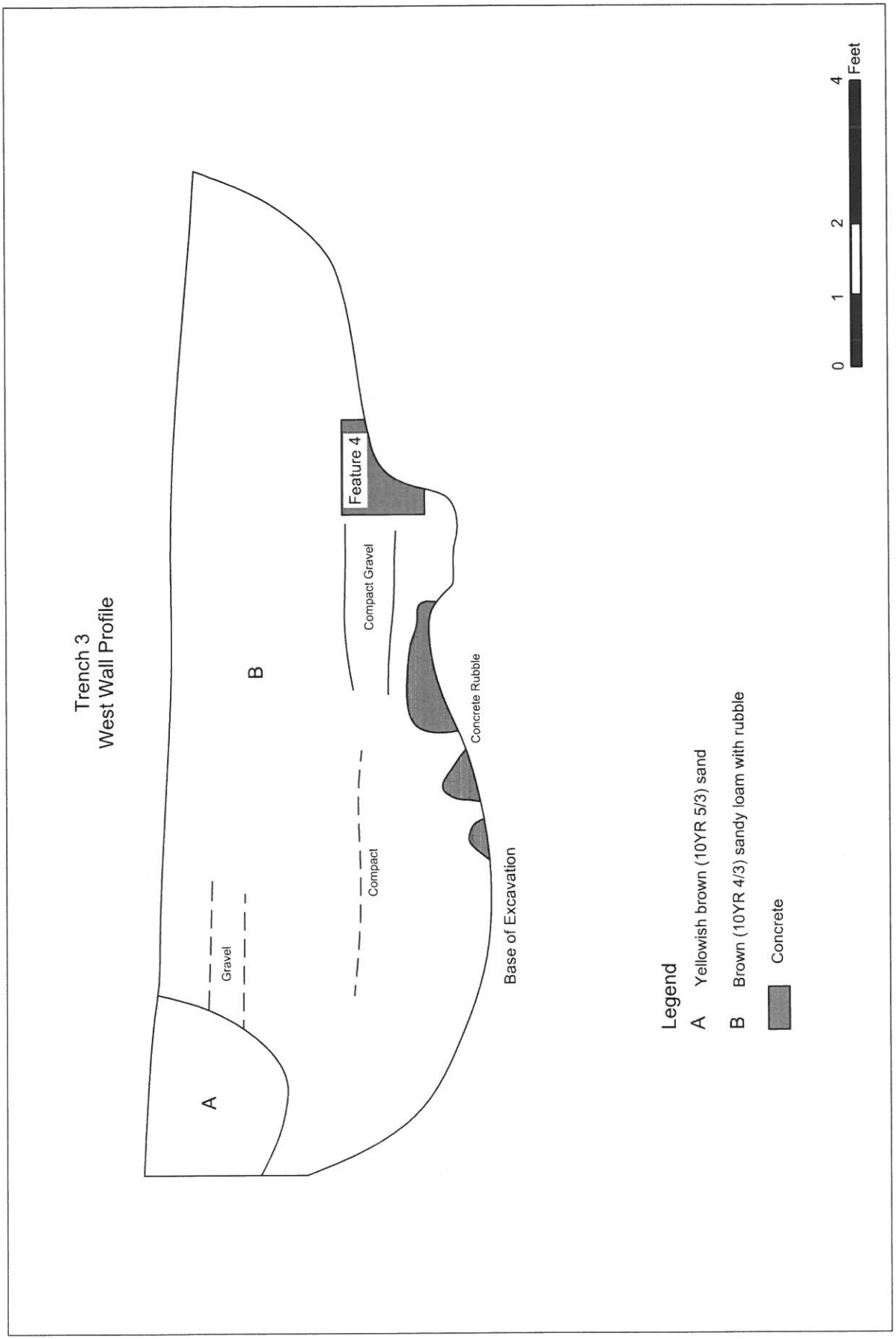


FIGURE 11: Trench 3, West Wall Profile

PHOTOGRAPH 6: Trench 4 and Feature 5, View East

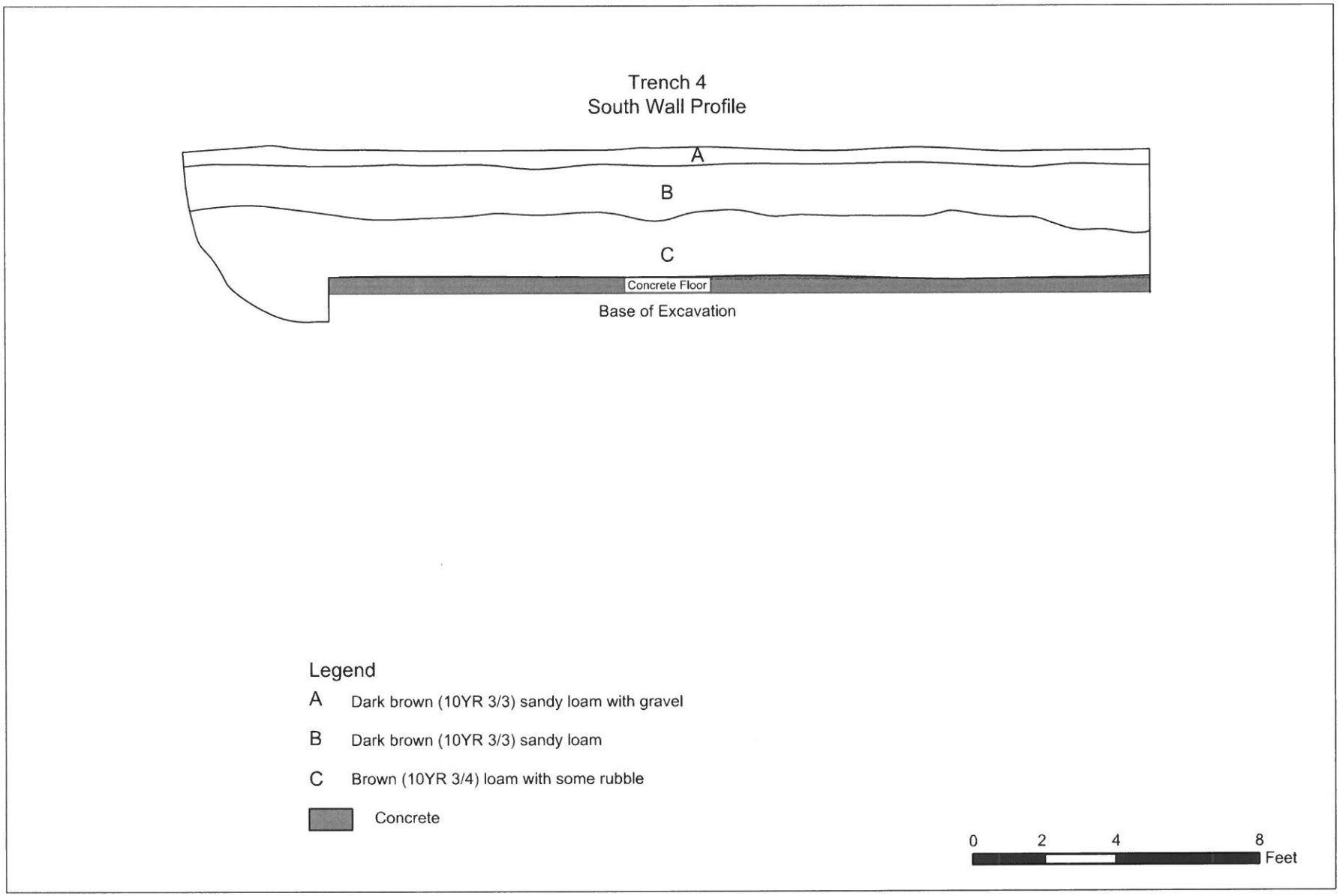


FIGURE 12: Trench 4, South Wall Profile

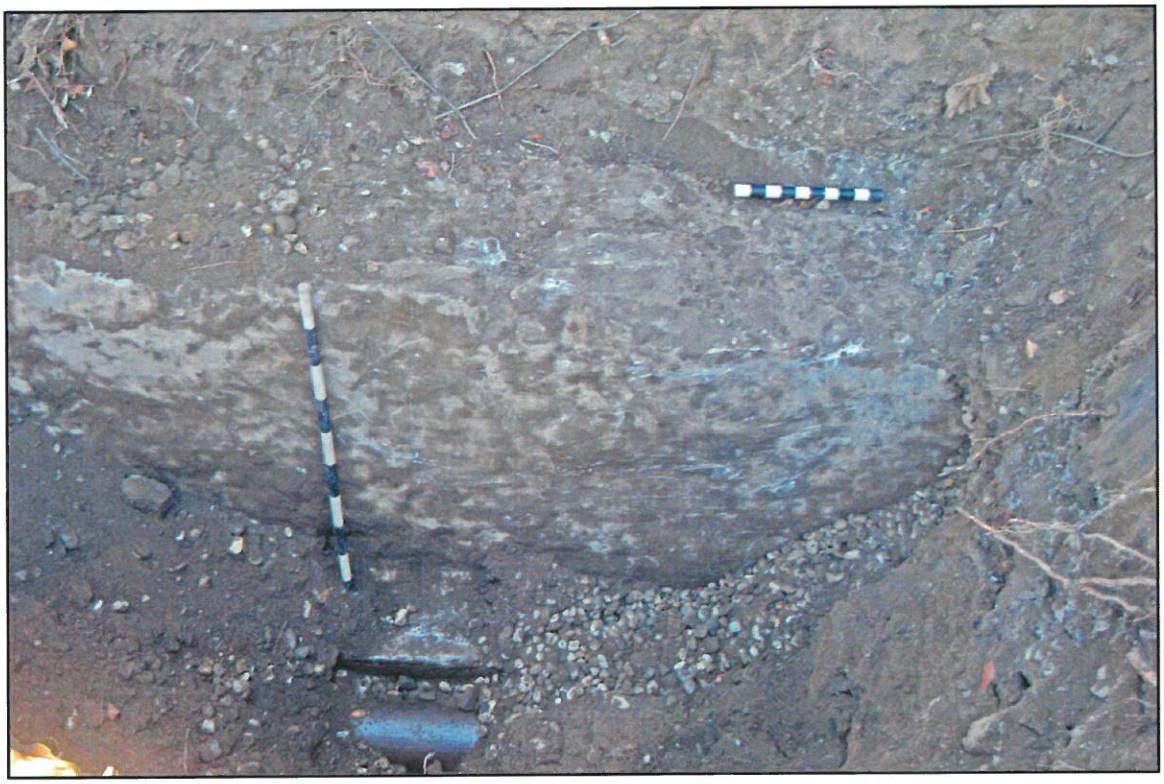
TABLE 4

ARTIFACTS RECOVERED FROM TRENCH 4

CLASS	TRANSLATION	MATERIAL	COLOR	COUNT
Small Finds/Architectural	Unidentified Glass	Glass	Light Blue	1
Small Finds/Architecture Total				*1*
Historic Ceramic	Redware, Other			1
	Whiteware			1
	Whiteware, Transfer-Printed, Blue		Blue	1
Historic Ceramic Total				*3*
			Total	4

5. Trench 5

Trench 5 was essentially an extension of Trench 4, shifted to the southeast to avoid electrical lines that had appeared in the northwest wall of the trench (see Figure 2). The goal was to extend the trench until it encountered the foundation noted in Trench 2. The trench measured 9.5x6.0 feet. Trench 5 did encounter a stone wall (Feature 6) (Photograph 7), but it was a massive construction, probably not part of the same building as Feature 3. The wall was at least 3.0 feet thick; its southeast edge was not found. The northwest side was identified and followed down to a poured concrete spread footer at 5.2 feet bgs. Just outside the spread footer was an iron pipe set in a bed of rounded gravel, apparently the 8-inch waterline shown on plans of the project area. The wall was followed 25 feet to the southwest; its end was not found (Figure 13).



PHOTOGRAPH 7: Trench 5 and Feature 6

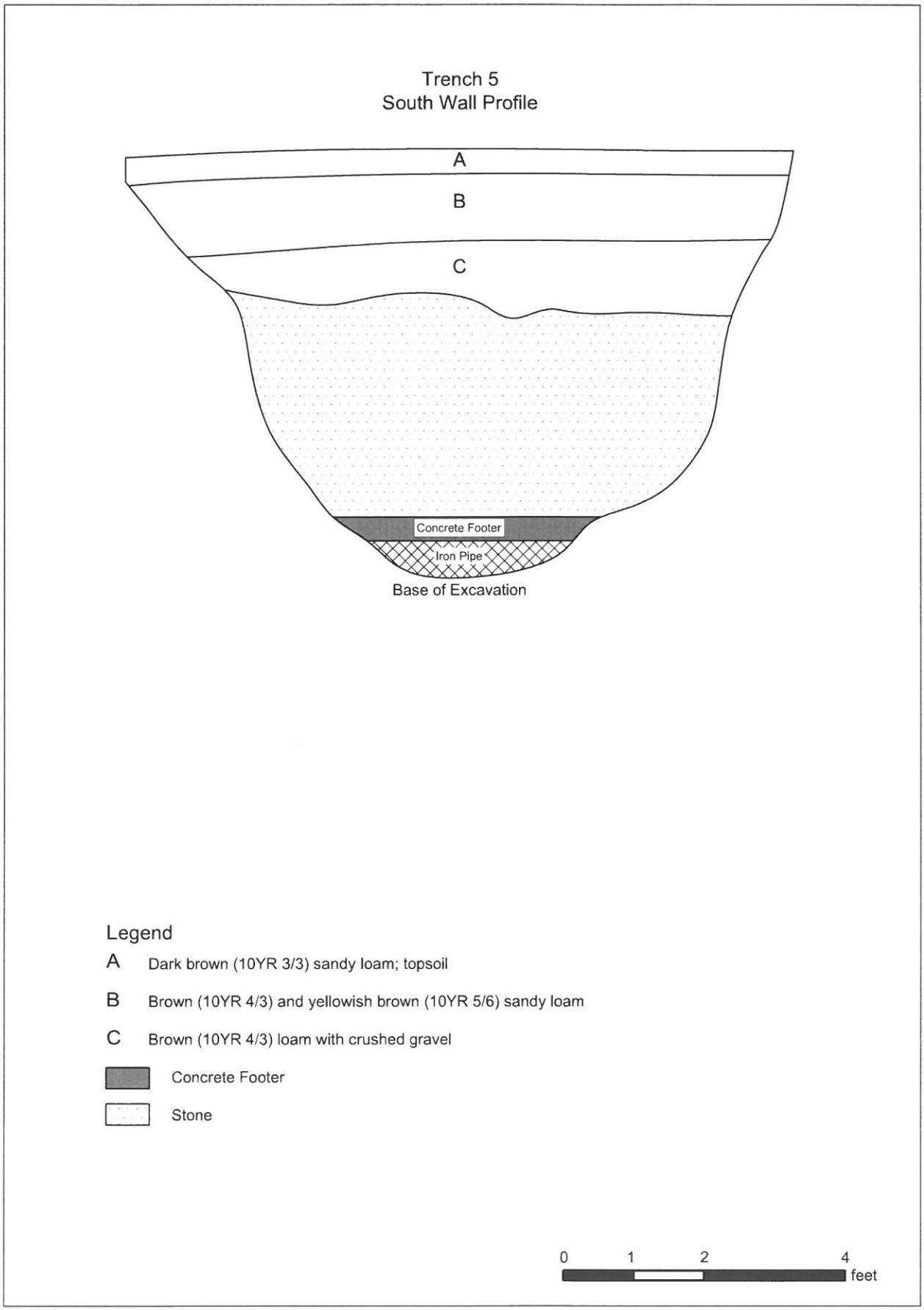


FIGURE 13: Trench 5, South Wall Profile

V. Conclusions and Recommendations

Louis Berger completed a Phase I archeological investigation in support of an environmental assessment for the New Museum Construction, Statue of Liberty National Monument project on behalf of the National Park Service. The proposed museum site is located in the northern part of Liberty Island in New York Harbor. The investigation included background research and fieldwork. The project area for the archeological investigation was slightly smaller than the proposed museum site: bounded on the west by the location of the 1886-1901 lighthouse seawall, on the south by the flagpole plaza, and on the north and east by the existing seawall. Archeological investigations were carried out to determine if significant remains are present in the project area that might be impacted by the proposed museum construction.

During the investigation Louis Berger excavated five trenches (based on National Park Service plans) and recovered 32 artifacts (from Trenches 1 and 4), but for the most part the fill (other than brick rubble) was nearly sterile.

The main finding during the 2015 backhoe trenching was the foundations of at least three buildings. These seem to be the ones shown on the 1936 map of the island labeled as Building #12, Building #14, and Building #26. (Griswold 1998) (see Figure 6). Significant parts of these foundations were located and mapped. Judging from the excavation of the trenches, it seems that the landscape was significantly modified at the time these buildings were constructed, so much so that no evidence of an earlier landscape was discovered. In addition, the landscape appears to have been significantly modified since the demolition of these buildings; therefore, other than the foundations themselves, no intact resources associated with the buildings remain in the project area.

Given the absence of significant, intact archeological resources, it is Louis Berger's opinion that no additional archeological investigations are needed in association with the current project designs. However, with the exception of Trench 1, which encountered ground water approximately 6 feet below ground surface, the bottom of the fill in the project area was not reached. Therefore it is possible, although unlikely, that an intact ground surface exists below 6.5 feet south of Trench 1. If excavations exceed 6.5 feet, then archeological monitoring during the construction may be needed.

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APPENDIX A

Artifact Inventory

2004790.09_ New Museum Construction, Statue of Liberty Ph I

Trench	Stratum	Level	HlfQd	Other	Cat #	Field #	Spec #	Class	Artifact Description:	Count	Weight (g)	Begin Date	End Date	Comments
I	Unk	0-5ft		NW edge to approx. 5'5W	STLI 51665	1	1	Historic Ceramic	Whiteware - Transfer Printed - Other Colors	1		1825	1915	Hollowware rim sherd; interior purple floral and geometric motif; exterior unidentifiable purple motif
I	Unk	0-5ft		NW edge to approx. 5'5W	STLI 51665	1	2	Historic Ceramic	Soft Paste Porcelain - Colored Glaze	1				Base sherd; footring; both surfaces pale green glaze
I	Unk	0-5ft		NW edge to approx. 5'5W	STLI 51665	1	3	Glass	Bottle	1				Aqua base and body fragment; thick; many air bubbles
I	Unk	0-5ft		NW edge to approx. 5'5W	STLI 51665	1	4	Pipes	Pipe Stem - Measurable	1				Fragment; 5/64th
I	Unk	0-5ft		NW edge to approx. 5'5W	STLI 51665	1	5	Pipes	Pipe Stem - Measurable	1				Fragment; 6/64th
I	II			NW of Feat.1	STLI 51666	2	1	Historic Ceramic	Red Bodied Slipware - Light Slip Interior, Yellow Glaze Both Surfaces	1		1670	1850	Rim to base; possible shallow bowl; both surfaces glazed; interior thin brown bands near rim
I	II			NW of Feat.1	STLI 51666	2	2	Historic Ceramic	Whiteware	1		1820	2000	Body sherd; hollowware; undecorated; glazed both
I	II			NW of Feat.1	STLI 51666	2	3	Historic Ceramic	Ironstone	1		1840	2000	Rim; hollowware; interior plain; exterior molded curved lines below wavy band

Trench	Stratum	Level	HlfQd	Other	Cat #	Field #	Spec #	Class	Artifact Description:	Count	Weight (g)	Begin Date - End Date	Comments
I	II			NW of Feat.1	STLI 51666	2	4	Glass	Unidentified Bottle/Jar	1			Aqua body fragment; slight patina/wear; few small air bubbles
I	II			NW of Feat.1	STLI 51666	2	5	Small Finds/Architectural	Unidentified Glass	1	5.9		Flat glass fragment; swirled semi-opaque yellow and red/dark pink; possible stained glass
I	II			10-15 from SW side Feat.1	STLI 51667	3	1	Glass	Beer Bottle	1			Intact; aqua; slight wear; side mold seam; blob-top finish with holes for lightning-type or cork closure present; Piel Bro's East New York Brewery; "THIS BOTTLE NOT TO BE SOLD" embossed on back
I	II			10-15 from SW side Feat.1	STLI 51667	3	2	Small Finds/Architectural	Window Glass	1	1.1		Flat aqua fragment; air bubbles
I	II			10-15 from SW side Feat.1	STLI 51667	3	3	Small Finds/Architectural	Unidentified Glass	1	20		Flat fragment; swirled green and blue; air bubbles; semi-opaque; possible stained glass
I	II			10-15 from SW side Feat.1	STLI 51667	3	4	Small Finds/Architectural	Unidentified Glass	1	3.6		Flat semi-opaque blue fragment; one surface raised wavy texture; air bubbles; possible stained glass
I	II			10-15 from SW side Feat.1	STLI 51667	3	5	Small Finds/Architectural	Unidentified Glass	1	3.4		Flat olive green fragment; air bubbles; one surface raised wavy texture; slight wear/patina
I	II			10-15 from SW side Feat.1	STLI 51667	3	6	Small Finds/Architectural	Unidentified Glass	1	3.4		Flat opaque white/light gray fragment; possible stained glass

Trench	Stratum	Level	HlfQd	Other	Cat #	Field #	Spec #	Class	Artifact Description:	Count	Weight (g)	Begin Date - End Date		Comments
I	II			10-15 from SW side Feat.1	STLI 51667	3	7	Small Finds/Architectural	Unidentified Glass	1	2.6			Flat yellow fragment; raised texture; slight wear/patina
I	II			10-15 from SW side Feat.1	STLI 51667	3	8	Small Finds/Architectural	Unidentified Glass	1	2.8			Flat fragment; swirled/layered green, white, and blue; patina on edges; opaque
I	I			Top of Feat. 2	STLI 51668	4	1	Historic Ceramic	Whiteware - Transfer Printed - Blue	1		1820	1915	Body sherd; flatware; interior light blue floral motif; exterior plain
I	I			Top of Feat. 2	STLI 51668	4	2	Small Finds/Architectural	Unidentified Glass	1	19.4			Green and white flat glass fragmnet; one surface wavy raised texture; semi-opaque; possible stained glass
I	I		SW	Backfill	STLI 51669	5	1	Historic Ceramic	Pearlware	1		1775	1840	Base; interior cobalt floral motif; exterior cobalt dots; blue pooling
I	I		SW	Backfill	STLI 51669	5	2	Historic Ceramic	Ironstone	1		1840	2000	Base and body sherd; hollowware; partial cobalt mark; heavily spalled
I	I		SW	Backfill	STLI 51669	5	3	Glass	Unidentified Bottle/Jar	1				Aqua body fragment; slight patina/wear; embossed "TH... " above "...OTT..."
I	I		SW	Backfill	STLI 51669	5	4	Small Finds/Architectural	Unidentified Glass	1	2.3			Pale yellow flat glass; semi-opaque; one surface wavy texture; possible stained glass

Trench	Stratum	Level	HlfQd	Other	Cat #	Field #	Spec #	Class	Artifact Description:	Count	Weight (g)	Begin Date - End Date	Comments
I	I		SW	Backfill	STLI 51669	5	5	Small Finds/Architectural	Unidentified Glass	1	1.1		Flat opaque pale green glass; smooth; possible stained glass
I	I		SW	Backfill	STLI 51669	5	6	Small Finds/Architectural	Unidentified Glass	1	2.7		Flat semi-opaque light blue fragment; one surface wavy texture; possible stained glass
IV	III					6	1	Historic Ceramic	Redware - Other	1			Coarse red bodied earthenware spout
IV	III					6	2	Historic Ceramic	Whiteware	1		1820 2000	Base sherd; worn smooth
IV	III					6	3	Historic Ceramic	Whiteware - Transfer Printed - Blue	1		1820 1915	Body sherd; hollowware; exterior light blue possible floral motif
IV	III					6	4	Small Finds/Architectural	Unidentified Glass	1	1.7		Light blue flat glass fragment; one surface textured; possible stained glass

APPENDIX B

Methods of Artifact Cataloging

METHODS OF ARTIFACT CATALOGING AND ANALYSIS

A. LABORATORY PROCESSING

All artifacts were transported from the field to the Louis Berger laboratory. In the field, artifacts were bagged in 4-mil, resealable polyethylene bags. Artifact cards bearing provenience information were included in the plastic bags. A Field Number was assigned to each unique provenience in the field. This number appears with all the provenience information and is used throughout processing and analysis to track artifacts.

In the laboratory, provenience information on each artifact card was checked against a master list of Field Numbers with their proveniences. Any discrepancies were corrected at this time and a Lot Number was assigned to each provenience, according to National Park Service National Capital Region curation guidelines.

Prehistoric lithics and most historic artifacts were washed in water with a soft toothbrush. Prehistoric ceramics, faunal material, and fragile artifacts were wet-brushed with a soft natural-bristle paint brush or were simply dry-brushed. Metal objects were cleaned using a dry toothbrush or stainless steel wire brush. All artifacts were laid out to air-dry in preparation for analysis.

During analysis, individual Specimen Numbers were assigned to artifacts. After analysis, the artifacts were re-bagged into clean, perforated 4-mil resealable polyethylene bags. Artifacts are organized sequentially first by Site Number, then Field Number and finally by Specimen Number.

When labeling, all artifacts dime sized and larger were labeled as follows using India Ink and quill with a base coat of 25 percent Acryloid B-72 in Acetone and a top coat of 10 percent Acryloid B-72 in Acetone.

State Site Number	18PR000
(Park) Catalog Number	PARK 0000

B. ANALYTICAL METHODS

All artifact analyses were conducted by the Laboratory Supervisor and/or Material Specialist(s). Louis Berger maintains an extensive comparative collection and laboratory research library to aid in making complete and accurate analyses.

Louis Berger has developed a flexible analytical database system that fully integrates all artifacts in one database for use in data manipulation and interpretation. The computerized data management system is written using Microsoft Access, a relational database development package that runs on a Windows® platform. Each class of artifacts (historic ceramics, curved (vessel) glass, small finds/architectural, historic tobacco pipes, and faunal) has a series of attributes, sometimes unique to that class, that are recorded to describe each artifact under analysis. Artifact information (characteristics) was entered into the system during the process of analysis. The system was then used to enhance the artifact records with the addition of provenience information. Louis Berger maintains a complete type and attribute coding system maintained in the database.

The format for the historic artifacts is based on the South/Noël Hume typology (South 1977), as modified for use in a computerized system (Louis Berger 2013).

The Notes field allows individual written comments applicable to a specific entry. In general, notes are used to describe particulars of decorative motifs or unusual characteristics, or to record bibliographic references used for identification or dating.

C. HISTORIC CERAMIC ANALYSIS

The ceramic tabulation provides the following information: identification of ware types and techniques of surface decoration; dates based on manufacturing and decorative techniques and, if present, maker's marks; identification of vessel forms and functions; and descriptions of decoration motifs.

Begin/End Dates. Sources for these dates include but are not limited to Cameron (1986), Denker and Denker (1985), Erickson and Hunter (2001), Howard (1984), Ketchum (1983), Magid and Means (2003), Miller (1980, 1987, 1991), Noël Hume (1969), Rickard (2006), South (1977), and Wetherbee (1980, 1985). When more precise dates can be determined from maker's marks or particular decorations or forms, these fields are entered manually. Sources used for identification of Maker's Marks or Decoration/Motif include Gates and Ormerod (1982), Godden (1964), Godden (1999), Hunter and Miller (1994), Kowalsky and Kowalsky (1999), and Lehner (1988).

Form. Form indicates the shape and possible function of the complete vessel as represented by the sherds present. General categories, such as "Tableware, Hollowware," are used for sherds whose small size or ambiguous characteristics make determination of form problematical. **Part** is used to indicate what part of a vessel is represented by the sherd(s) present. Definitions of forms are based, for the most part, on Beaudry et al. (1983), Greer (1981), Ketchum (1983), and Towner (1963).

D. SMALL FINDS/ ARCHITECTURAL ANALYSIS

For the small finds/architectural analysis, each artifact was identified by its group and class, Material Type and Part/Portion, and received a count and/or weight. Additional information, including Characteristic, Maker's Marks, Backmark, Color, and Decoration, is recorded as identified for the individual artifacts if present or needed.

Begin/End Date. Dates for certain artifact were generated in the database based on the Type/Subtype. Other dates were entered manually and were based on various artifact characteristics. References used for dating of artifacts include but are not limited to Edwards and Wells (1993), Gurcke (1987), Hughes and Lester (1981), Johnson (1942), Lamm et al. (1970), Lavitt (1983), Luscomb (1967), Munsey (1970), Nelson (1968), Noël Hume (1969), and Rock (2000).

Characteristic. A modifier that best described the form or manufacturing technique of each artifact was entered in this field.

E. CURVED (VESSEL) GLASS ANALYSIS

The glass artifacts from the collection were broken down, for analytical purposes, into functionally distinct groupings based on Bottle, Table, Lighting, and Other use-categories. All artifacts identified as to specific function and form were coded as such regardless of the degree of fragmentation. Window glass, considered more functionally inclusive under an architectural group of artifacts, was subsumed for analysis under Small Finds/Architectural materials.

Begin/End Date. Dating of the glass artifacts was completed according to established diagnostic criteria. These criteria, utilized either singly or in combination, can include various technological aspects of glass manufacture such as finish treatments, tooling methods, empontilling techniques, mold markings, Brand,

Maker's Marks, Color, and various stylistic elements (including Decoration/Motif) associated with certain tablewares. Sources for glass dating include but are not limited to Busch (1987), Cheney (1980), Ferraro and Ferraro (1964, 1969), Fike (1987), Haynes (1959), Jones (1971, 1983, 1986), Jones and Smith (1985), Jones and Sullivan (1985), Klamkin (1973), Kovel and Kovel (1986), Lief (1965), Lockhart (2004), Lorrain (1968), McKearin (1970), McKearin and McKearin (1948), McKearin and Wilson (1978), Miller and Sullivan (1984), Munsey (1970), Noël Hume (1961, 1968, 1969a, 1969b), Paul and Parmalee (1973), Riley (1958), Society for Historical Archaeology (SHA) (2007), Spillman (1981, 1982, 1983), and Toulouse (1971, 1969).

Finish. Finish and rim type were identified as specific types within one-part (100s), two-part (200s), and three-part (300s) categories. Common names, such as "Blob-top," "Crown," and "Screw," were used when appropriate.

Base. The majority of coded base types in the collection indicate the marks on the basal surfaces of glassware. "Snap case" indicates the lack of any markings when this device was used to hold a bottle in place while its finish was formed. Machine-made basal markings were also coded, if identifiable.

Manufacturing Technique. Manufacturing Technique refers to the distinctive mold seams and markings found on the bodies (and sometimes bases, finishes, or rims) of glassware.

Wear. The wear category has been devised to aid in specialized analyses, e.g., in distinguishing commercial as opposed to domestic deposits from urban sites (Diamond in Geismar 1983:315). Vessels from establishments offering glassware for sale would not be expected to show more than slight evidence of use-wear. On the other hand, vessels from domestic deposits would be expected to show use-wear ranging from heavy to very heavy. The code Wear on Interior can be used to indicate artifacts associated with fill deposits. The code Waterworn or Rolled can be used to indicate artifacts that have been rolled in surf.

Lead/Non-lead (Comments). A short-wave ultraviolet light was utilized to examine select colorless glass vessels and sherds for the presence of lead. Leaded glass exposed to UV light appears ice-blue in color while non-leaded glass appears pale yellow or has no change.

F. HISTORIC TOBACCO PIPES ANALYSIS

Pipes were identified by morphological type, Decorative Motif, Maker's Mark, Use Wear, Part, and Stem Bore Diameter. The analysis is designed for descriptive purpose and to generate dates and Origin whenever possible and draws on several works, including Bradley (2000) and Oswald (1961, 1975).

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APPENDIX C

Trench UTM Coordinates

TRENCH UTM COORDINATES

FID	DIMS (ft)	LABEL	RESULT	TRENCH	UTM_zone	UTM_N_m	UTM_E_m
0	70x2	Trench 1	Positive Historic	Trench 1	18N	4504895	580585
1	32x2	Trench 2	Negative	Trench 2	18N	4504893	580601
2	14x2	Trench 3	Negative	Trench 3	18N	4504892	580618
3	27x2	Trench 4	Positive Historic	Trench 4	18N	4504882	580596
4	9.5x6	Trench 5	Negative	Trench 5	18N	4504886	580600