

New York City Borough-Based Jails

**Manhattan Site: 80 Centre Street, 125 White Street, and the
Streetbed of Hogan Place between Centre and Baxter Streets**

BLOCK 166, LOT 27 AND BLOCK 167, PART OF LOT 1; NEW YORK, NEW YORK

Phase 1A Archaeological Documentary Study

Prepared for:

New York City Department of Correction
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Prepared by:



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Management Summary

CEQR Number: 18DOC001Y

Lead Agency: New York City Department of Correction
New York City Office of Management and Budget

Phase of Survey: Phase 1A Documentary Study

Location Information

Location: Manhattan
Minor Civil Division: 06101
County: New York County

Survey Area

Block/Lot: Block 166, Lot 27
Length: 336.09 to 456.19 feet
Width: 182.5 to 219.08 feet
Area: 1.63 acres (71,104 square feet)

Block/Lot: Block 167, Part of Lot 1
Length: 130 feet
Width: 224.08 feet
Area: 0.67 acres (29,130.4 square feet)

Streetbed: Hogan Place between Centre and Baxter Streets
Length: Approximately 250 feet
Width: 50 feet
Area: 0.29 acres (12,500 square feet)

USGS 7.5 Minute Quadrangle Map: Brooklyn Quadrangle

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A. INTRODUCTION

The City of New York, through the New York City Department of Correction (DOC), is proposing to implement a borough-based jail system as part of the City's continued commitment to create a modern, humane, and safe justice system. The proposed project would develop four new detention facilities to house individuals who are in the City's correctional custody with one located in each of four sites under consideration in the Bronx at 320 Concord Avenue; Brooklyn at 275 Atlantic Avenue; Manhattan at 80 Centre Street (with relocation of certain uses currently in 80 Centre to 124 and 125 White Street); and Queens at 126-02 82nd Avenue. This Phase 1A Archaeological Documentary Study addresses a portion of the Manhattan site, as described in greater detail below (see **Figure 1**).

B. PROJECT DESCRIPTION

Under the proposed project, all individuals in DOC's custody would be housed in the new borough-based detention facilities. The City would no longer detain people at Rikers Island. Each proposed facility location is City-owned property and a number of discretionary actions would be required to implement the proposed project that are subject to the New York City Environmental Quality Review (CEQR) and Uniform Land Use Review Procedures (ULURP). These actions include, but are not limited to, site selection for public facilities, zoning approvals, and for certain sites, changes to the City map. Pursuant to CEQR, consultation regarding the proposed Borough-Based Jail project was initiated with the New York City Landmarks Preservation Commission (LPC). In a comment letter dated August 8, 2018, LPC determined that the Bronx, Brooklyn, and Queens sites do not possess archaeological significance and that no further archaeological analysis of those sites would be required.¹ However, LPC determined that although portions of the Manhattan Site were disturbed as a result of 20th century development, portions of the site are potentially archaeologically sensitive and that an archaeological documentary study is necessary to further clarify the site's archaeological sensitivity. This Phase 1A Archaeological Documentary Study has been prepared to satisfy LPC's request.

The Manhattan site comprises Block 166, Lot 27 (80 Centre Street); Block 167, part of Lot 1 (125 White Street); and Block 198, Lot 1 (124 White Street); and the streetbed of Hogan Place between Centre and Baxter Streets. The proposed project could involve subsurface disturbance to Block 166, Lot 27 (80 Centre Street), the northern portion of Block 167 (125 White Street), and the streetbed of Hogan Place; these locations make up the study area of this Phase 1A Archaeological Documentary Study (see **Figure 1**). Although the site at 124 White Street (Block 198, part of Lot 1) was also identified as potentially archaeologically sensitive by LPC, subsequent to that review, the plans for the proposed project changed. As currently proposed, the proposed project will involve only interior renovation of the existing building at 124 White Street (Block 167, part of Lot 1) and due to the absence of proposed subsurface disturbance, that site is excluded from the current study.

¹ LPC's comment letter also makes reference to several potential sites that have since been eliminated from the Borough-Based Jail System project plans.

80 Centre Street on Block 166, Lot 1 is currently developed with the Louis J. Lefkowitz State Office Building, which was constructed at 80 Centre Street in Lower Manhattan. This portion of the site is bounded by Centre Street, Hogan Place, Baxter Street, and Worth Street. While the proposed project has not yet been designed, it is assumed that the existing building would be demolished and replaced with a new building that would occupy the entire footprint of Block 166, Lot 27. The new detention facility is expected to retain the existing façade of 80 Centre Street. It is also assumed that subsurface improvements to unknown depths could take place within the de-mapped section of Hogan Place. Block 167, Lot 1 (125 White Street) is currently developed with the Manhattan Detention Complex South Tower. With the proposed project, this building is assumed to be demolished and a new structure constructed across the entire footprint of the site.

C. RESEARCH GOALS

The Phase 1A of the Manhattan Site of the Borough-Based Jail System project has been designed to satisfy the requirements of the LPC and follows the guidelines of the New York Archaeological Council (NYAC). The study documents the development history of the proposed project site and its potential to yield archaeological resources, including both precontact and historic cultural resources. In addition, this report documents the current conditions of the project site, as well as previous cultural resource investigations that have taken place in the vicinity.

This study has four major goals: (1) to determine the likelihood that the project site was occupied during the precontact (Native American) and/or historic periods; (2) to determine the effect of subsequent development and landscape alteration on any potential archaeological resources that may have been located within the project site; (3) to make a determination of the project site's potential archaeological sensitivity; and (4) to make recommendations for further archaeological analysis, if necessary. The steps taken to fulfill these goals are explained in greater detail below.

The first goal of this study is to determine the likelihood that the project site was inhabited during the precontact or historic periods, and identify any activities that may have taken place in the vicinity that would have resulted in the deposition of archaeological resources.

The second goal of this Phase 1A study is to determine the likelihood that archaeological resources could have survived intact within the project site after development and landscape alteration (i.e., erosion, grading, filling, etc.). Potential disturbance associated with paving, utility installation, and other previous construction impacts was also considered. As described by NYAC in their Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State:

An estimate of the archaeological sensitivity of a given area provides the archaeologist with a tool with which to design appropriate field procedures for the investigation of that area. These sensitivity projections are generally based upon the following factors: statements of locational preferences or tendencies for particular settlement systems, characteristics of the local environment which provide essential or desirable resources (e.g., proximity to perennial water sources, well-drained soils, floral and faunal resources, raw materials, and/or trade and transportation routes), the density of known archaeological and historical resources within the general area, and the extent of known disturbances which can potentially affect the integrity of sites and the recovery of material from them (NYAC 1994: 2).

The third goal of this study is to make a determination of the project site's archaeological sensitivity. As stipulated by the NYAC standards, sensitivity assessments should be categorized as low, moderate, or high to reflect "the likelihood that cultural resources are present within the project area" (NYAC 1994: 10). For the purposes of this study, those terms are defined as follows:

- Low: Areas of low sensitivity are those where the original topography would suggest that Native American sites would not be present (i.e., locations at great distances from fresh and salt water resources), locations where no historic activity occurred before the installation of municipal water and sewer networks, or those locations determined to be sufficiently disturbed so that archaeological resources are not likely to remain intact.
- Moderate: Areas with topographical features that would suggest Native American occupation, documented historic period activity, and with some disturbance, but not enough to eliminate the possibility that archaeological resources are intact on the project sites.
- High: Areas with topographical features that would suggest Native American occupation, documented historic period activity, and minimal or no documented disturbance.

As mentioned above, the fourth goal of this study is to make recommendations for additional archaeological investigations where necessary. According to NYAC standards, Phase 1B testing is generally warranted for areas determined to have moderate sensitivity or higher. Archaeological testing is designed to determine the presence or absence of archaeological resources that could be impacted by a proposed project. Should they exist on the project sites, such archaeological resources could provide new insight into the precontact and historic occupation of Lower Manhattan.

D. RESEARCH METHODOLOGY

DOCUMENTARY RESEARCH

To satisfy the four goals as outlined above, documentary research was completed to establish a chronology of the project site's development and landscape alteration, identify any individuals who may have owned the land or worked and/or resided there, and determine if buildings were present there in the past. Data was gathered from various published and unpublished primary and secondary resources, such as historic maps, topographical analyses (both modern and historic), historic and current photographs (including aerial imagery), newspaper articles, local histories, and previously conducted archaeological surveys. These published and unpublished resources were consulted at various repositories, including the Main Research Branch of the New York Public Library (including the Local History and Map Divisions). File searches were conducted at LPC, the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP), and the New York State Museum (NYSM). Information on previously identified archaeological sites and previous cultural resources assessments on file with OPRHP and NYSM was accessed through the New York State Cultural Resource Information System (CRIS).¹ Online textual archives, such as Google Books and the Internet Archive Open Access Texts, were also accessed.

¹ <https://cris.parks.ny.gov>

Chapter 2: Summary of Previous Archaeological Investigations in the Vicinity of the Project Site

A. INTRODUCTION

Dozens of archaeological investigations have been completed within one mile of the project site, including Phase 1A Archaeological Documentary Studies, Phase 1B Archaeological Investigations, Phase 2 Archaeological Surveys, and Phase 3 Data Recoveries. In the immediate vicinity of the project site, numerous investigations have resulted in the documentation of archaeological sites of incredible significance. Two sites in the immediate vicinity, the African Burial Ground and the Five Points Site, were completed in the 1990s and resulted in the collection of vast quantities of data that were subjected to extensive and thorough analyses that have resulted in substantial contributions to the archaeological record of New York City. The conclusions and results of the investigations in close proximity to the project site (within a two- to three-block radius) are summarized below.

B. SUMMARIES OF PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

AFRICAN BURIAL GROUND

The archaeological investigation of the New York African Burial Ground in Lower Manhattan in the early 1990s has proven to be one of the most significant archaeological investigations that has occurred within the City of New York (La Roche and Blakey 1997; Howard University New York African Burial Ground Project). The archaeological investigation encompassed the burial ground site in the area bounded by Duane Street, Centre Street, Chambers Street, and Broadway to the southwest of the project site (Howard University New York African Burial Ground Project 2009). The analyzed sample of the burial ground—which was in use between the 17th century and its closure in 1795—involved more than 400 intact or disturbed graves situated beneath a layer of fill that reached a maximum thickness of 25 feet below the ground surface (La Roche and Blakey 1997; Howard University New York African Burial Ground Project 2009).

The investigation and subsequent analysis changed the way that race and ethnicity are studied and addressed through archaeological investigations both in New York City and across the nation (Orser 2007). In particular, the investigation transformed how archaeologists work with descendant communities, i.e., the individuals and organizations with a demonstrated interest in an undertaking or property, and then balance the communities' interest with that of the research design. That project also led to greater sensitivity in the terminology used in cemetery projects and the avoidance of racialized terms that could result in incorrect interpretations of the identities of the population being analyzed through the archaeological investigation (LaRoche and Blakey 1997; Blakey 2008). Similarly, in recent years, archaeological research has focused on the ways that “segregated spaces,” such as African cemeteries, have helped to foster a new version of African-American identity and promoted a “sense of self and belonging among African Americans that may have come from racially exclusive spaces” (Matthews and McGovern 2015: 14).

THE FIVE POINTS SITE

The Five Points archaeological site was documented in 1991 and 1992 during archaeological investigations completed in advance of the construction of a new courthouse to the southeast of the project site on the south side of Worth Street opposite the terminus of Baxter Street (Yamin, et al. 2000). The neighborhood was named for the five angled corners at the intersection of Worth, Baxter, and Park Streets and would later become one of the most infamous neighborhoods in 19th century New York City (ibid). The investigation resulted in the archaeological documentation of 22 features—32 additional features were observed but not excavated—associated with the occupation of more than one dozen historic lots between the late 18th and late 19th centuries and resulted in the collection of more than one million artifacts (ibid). The six-volume final report for the project was issued in 2000 and includes comprehensive background information and historical narrative of the Five Points area, including portions of the Borough-Based Jail System Manhattan Site. Information from the Five Points report has been included in this document where appropriate.

METROPOLITAN CORRECTIONAL CENTER TUNNEL SITE

In 1995, archaeological monitoring was completed by John Milner Associates, Inc. in association with the construction of the Metropolitan Correctional Center (MCC) Tunnel connecting the existing United States District Court building to the MCC across Pearl Street to the west of Park Row, one block to the south of the Borough Jails project site. This location was also included within the historic Five Points neighborhood, and the archaeological investigation involved an extensive reconstruction of the area's historical landscape over a 10,000-year period (Yamin and Schuldenrein 2007). This resulted in one of the most extensive investigations of landscape archaeology that has been completed to date in New York City. The information collected showed the processes through which the Collect Pond was filled and assessed the landscape modification that resulted in the removal of large hills and the filling in of the surrounding areas, which raised the grade of former lowland areas (ibid). Relevant information from this investigation is included elsewhere in this Phase 1A Archaeological Documentary Study.

101-117 WORTH STREET

Historical Perspectives, Inc. prepared a Phase 1A Archaeological Documentary Study of the site of 101-117 Worth Street in 1995. The site, located along the northern side of Worth Street between Broadway and Lafayette Street, is located two blocks to the west of the Borough-Based Jail System Manhattan Site. The site was considered potentially sensitive for archaeological resources associated with the African Burial Ground and an 18th century pottery, both of which were documented farther to the south. The study determined that the site possessed neither precontact nor historic period archaeological sensitivity due to its location (HPI 1995). Originally a sloping hill extending from Broadway east toward the Collect Pond, it was subsequently modified through filling and grading before being developed and redeveloped with structures with basements during the 19th and 20th centuries (ibid).

Despite HPI's recommendation that no additional analysis was required, a Phase 1B Archaeological Investigation of the 110-117 Worth Street project site was completed by URS Corporation in 2003. Prior to the completion of the 1B testing, an examination of soil borings had revealed that the site was covered with a layer of fill ranging in thickness between 18.5 to 23.5 feet across the site, suggesting that archaeological resources associated with 18th century tanneries and potteries could be present across the site (URS 2003). The investigation resulted in the documentation of foundation wall remnants of the early- to mid-19th century Broadway Tabernacle Church; a truncated stone well dating to the mid-19th century, the top of which was at a depth of 8.73 feet above mean sea level; and a ground surface—known as a paleosol—dating to the Holocene (8,290 ±50 years before present) at a depth of 1.2 to 2 feet of fill (ibid). The paleosol was determined to be similar to that observed during the archaeological investigation

of the MCC tunnel (*ibid*). The investigation concluded that the 19th century development disturbed all earlier ground surfaces and that the project site was not sensitive for 17th or 18th century archaeological resources (*ibid*).

RECONSTRUCTION OF FOLEY SQUARE

In 1993, archaeologist John H. Geismar, PhD, prepared a Phase 1A study of the Foley Square area—including modern Blocks 155, 158, 166, and 168—in advance of its reconstruction. The study area included a portion of the streetbed of Worth Street to the south of the Borough-Based Jail System Manhattan Site. The Phase 1A study included a comprehensive historical context for the area and identified numerous areas of archaeological sensitivity associated with the African Burial Ground; an early-18th century powder house; the landscape modifications associated with the transformation of the Collect Pond; infrastructure associated with 19th century utilities; 19th century industrial sites; and 19th century residential sites (Geismar 1993). The study recommended a review of additional soil borings and archaeological testing in advance of the renovation of Foley Square (*ibid*).

Limited archaeological monitoring and testing was completed in Foley Square over a period ranging from 1994 to 2003 and Dr. Geismar prepared a final report summarizing the testing in 2014. No archaeological resources were observed during this work (Geismar 2014). Testing was proposed in the vicinity of a mid-19th century shot tower—a location where ordnance was manufactured—but because physical obstructions made the testing impractical, an alternate mitigation strategy was employed that involved a geoarchaeological assessment of the area using soil borings (*ibid*). The study was completed by Joseph Schuldenrein, PhD (2003). Schuldenrein’s study combined information from other projects—including the MCC tunnel site, the Five Points site, and the Worth Street site—to identify three stratigraphic levels representing the general stratigraphy of the area: (1) a 24-foot-thick layer of historic fill (extending to a point 32 feet below the ground surface) dating to the 19th and 20th centuries; (2) a 3- to 4-foot-thick layer of estuarine sediment including peat and silt dating to between 3,500 and 2,500 years before present [BP]; and (3) a more than 5-foot-thick layer of “near shore deposits” dating to the Middle Holocene between 4,700 and 3,500 BP (Schuldenrein 2003: 45). Historic disturbance was identified to a depth of 6 feet below mean seal level (*ibid*).

WORTH STREET RECONSTRUCTION

A Phase 1A Archaeological Documentary Study of the streetbed of Worth Street between Hudson Street and East Broadway was prepared by HPI in 2013 in advance of the reconstruction of that portion of the street. This study area therefore included the streetbed and northern sidewalk of Worth Street immediately to the south of the Borough-Based Jail System Manhattan Site. The study focused on the portion of the streetbed east of Centre Street, as the area to the west was determined by LPC not to be potentially archaeologically sensitive. HPI’s report determined that the streetbed of Worth Street was constructed over former historic lots when it was laid out in the early 19th century and after the road was widened twice in 1833 and again in 1860, the road was expanded to cover additional historical lots that had been developed and occupied in the 18th and 19th centuries (HPI 2013). The study recommended that archaeological monitoring occur during the construction of the proposed project, although it is not known if such monitoring occurred. No reports describing any field efforts are on file with LPC or OPRHP.

COLUMBUS PARK

The northern portion of Columbus Park, located to the northeast and east of the project site, was recently reconstructed. In 2005, Chrysalis Archaeological Consultants, Inc. (CAC) issued a Phase 1A study that incorporated the results of a limited archaeological monitoring that was completed in the park. The Phase 1A study determined that the site was sensitive for archaeological resources associated with the 18th and

19th century tenement houses that formerly occupied the park (CAC 2005). The limited monitoring resulted in the observation of in situ brick foundation walls but no clear stratigraphy suggesting the presence of intact archaeological resources and additional monitoring was recommended (ibid). The results of subsequent monitoring efforts were summarized in a final report issued by CAC in 2007. The monitoring resulted in the identification of an intact historic period cistern in the southeastern portion of the existing park pavilion; however as the project was redesigned to avoid impacts to the feature, no additional archaeological analysis was completed (CAC 2007). No other archaeological features or undisturbed stratigraphic levels were observed within the park and no additional archaeological analysis was recommended.

62-64 MULBERRY STREET

A Phase 1A study of a site at 62 to 64 Mulberry Street—located two blocks northeast of the Borough Jail System Manhattan Site outside the boundaries of the Collect Pond—was completed by Greenhouse Consultants, Inc. in 1994. The site was determined to be sensitive for archaeological resources associated with the area’s precontact occupation as well as shaft features dating to the 18th and 19th centuries and Phase 1B archaeological testing was recommended (Greenhouse Consultants, Inc. 1994). Greenhouse Consultants, Inc. completed archaeological testing the following year and identified two brick cisterns containing fill detain to the late-1850s (Greenhouse Consultants, Inc. 1995). A data recovery of the two cisterns was recommended; however, it is unknown if such an investigation was completed and no reports regarding a data recovery of this site are on file with LPC or OPRHP.

COLLECT POND PARK

During construction-related excavation in 2012, foundation walls associated with the former Tombs prison were encountered within the boundaries of Collect Pond Park along the western side of Centre Street between Franklin and Leonard Streets (AKRF 2012).¹ The walls were encountered at depths of 1.5 to 2 feet below the ground surface and were determined to be remnants of the eastern wall of the prison and the perimeter wall that lined Centre Street. The walls extended to a depth of more than 7 feet and their base was not encountered during project-related excavations. The site was previously inundated by the Collect Pond and, like the Borough-Based Jail System Manhattan Site, had been filled in the late 18th century and developed in 1838 and 1898 with different prison buildings. The walls were documented in place and the project was designed to avoid impacts to the prison remnants (ibid).

¹ Leonard Street became modern-day Hogan Place.

A. CURRENT CONDITIONS

The southern portion of the Manhattan Site is currently developed with the Louis J. Lefkowitz State Office Building which was constructed at 80 Centre Street in Lower Manhattan (see **Photographs 1 and 2**). The eight- to nine-story building, completed in 1930, has a basement and occupies nearly the entire footprint of Block 166, Lot 27. The streetbed of Hogan place to the north is a paved, active streetbed. Hogan Place is adjacent to this portion of the project site and is a paved, active roadway, is lined with fire hydrants, sidewalk ventilation shafts, street lights, and numerous manhole covers, suggesting a network of active utility lines within the streetbed (see **Photographs 3 and 4**). The northern portion of the Manhattan site is located at 125 White Street and includes a portion of Block 167, Lot 1. This portion of the site is currently developed with the City Prison, a 2- to 15-story building with a basement that was constructed in 1939 (see **Photographs 5 and 6**). The building is connected by two bridges to the Lower Manhattan Detention Center at 124 White Street (Block 167, Lot 1) and to the Criminal Court building to the south, on the remainder of Block 167, Lot 1.

The subway tunnel that carries the J and Z train lines runs beneath the streetbed of Centre Street, which is adjacent to the western side of the project site. The subway extends under the eastern sidewalk of Centre Street and ventilation shafts are visible along the sidewalk's edge. Maps depicting the subway tunnels included in other archaeological studies (e.g., Geismar 2003; Geismar 2014; HPI 2013) do not indicate that subway-related infrastructure extends into the project site.

B. GEOLOGY AND TOPOGRAPHY

The island of Manhattan is found within a geographic bedrock region known as the Manhattan Prong of the New England (Upland) Physiographic Province (Isachsen, et al. 2000). Bedrock in the vicinity of the project site is known as the Manhattan Formation and is comprised largely of politic schist and amphibolite dating to the Middle Ordovician period which ended approximately 458 million years ago (Fisher, et al. 1970; Isachsen, et al. 2000). The surficial soil deposits are composed of glacial till (Caldwell 1989). The landscape of Manhattan was shaped by four major glaciations that affected the region until approximately 12,000 years ago when the Wisconsin period—the last glacial period—came to an end (Schuberth 1968). The rocks and sand deposits left behind as a result of glacial movements brought about the creation of hundreds of sand hills, some of which were nearly 100 feet tall. These hills include one historically known as Catimuts that was located to the south of the project site and another to the west of the Collect Pond that is referred to as the “Kalkhock Promontory”—a reference to Kalck Hoek, the Dutch name for the pond (Grumet 1981; Yamin and Schuldenrein 2007). Several 18th century maps (e.g., the 1782 British Headquarters map and the 1782 Hills map) also depict smaller hills to the northeast and east of the pond, in closer proximity to the project site. All of these hills have since been cut down as a result of landscape modification (see **Figure 2**).

The melting waters left behind by retreating glaciers also resulted in the formation of ponds and wetlands over a period of thousands of years. Prior to the early 19th century, the majority of the 80 Centre Street site, a portion of the streetbed of Hogan Place, and the southeastern portion of the 125 White Street site

were inundated by the waters of the Collect Pond. The large fresh water pond was an important source of drinking water, fish, and other fresh water resources, to Native Americans and early European settlers alike. The pond, long assumed to be “bottomless” by many city residents, was approximately 40 to 60 feet deep and was fed by several underground springs (*New York Times* 1902). The depth of the pond at its perimeter is assumed to have been approximately 10 feet (Schuldenrein 2003). Hutchings’ 1846 map depicting the former location of the pond circa 1793 (see **Figure 3**) indicates that the western half of the project site was within the pond, which was 50 feet deep in that area. The eastern halves of both the 80 Centre Street site, the streetbed of Hogan Place, and the 125 White Street sites were covered with marshland adjacent to the pond, and an upland area typical of the “wet and boggy” area to the north of the pond was located at the extreme eastern end of the block (Bolton 1922: 44). This was contrasted by two large hills that dominated the landscape to the south and west of the pond. The grading of these hills provided much of the fill material that was used to transform the Collect Pond into dry, developable land (Mix and Mackeever 1874).

The Collect was historically divided into two segments, known as the Collect Pond and the Little Collect, within an approximately 5-acre basin formed by glacial activity (Bolton 1922; Yamin and Schuldenrein 2007). The boundaries and water levels of both fluctuated over time as a result of human-initiated landscape modification and variation in rainfall and groundwater depth over time (Yamin and Schuldenrein 2007). Therefore, the inundated portion of the project site may have changed over time (ibid). In 1843, early soil investigations were completed in the vicinity of the filled pond during which “iron rods were sunk forty feet through artificial earth, thirty feet through black mud, five to ten feet of blue clay, then [through] a bed of gravel resting on the [bed]rock” (Mather 1843: 138).

Following a long period of industrial development surrounding the pond and its subsequent contamination, the pond was filled in the early years of the 19th century and the area was subsequently developed (described in detail below). The natural springs that once fed the pond were channeled through a series of sewer infrastructure (Kouwenhoven 1953). Since the land was filled, it was developed and redeveloped for various urban uses. Several historic maps include data regarding the elevation of street corner intersections, as presented below in **Table 4-1**. These maps confirm that only moderate changes in elevation have occurred in the area surrounding the project site since the late-19th century.

Table 4-1
Street Corner Elevations as Identified on Historic Maps

Historic Map	Datum Used	Elevation at the Intersection of:					
		Leonard and Centre Streets	Leonard and Baxter Streets	Worth and Centre Streets	Worth and Baxter Streets	White and Centre Streets	White and Baxter Streets
1885 Robinson	At High Tide	13.6	16	15.4	19.1	12	17.6
1897 Bromley	Above High Tide	13.6	16.6	15.2	19.1	12	17.6
1899 Bromley	Above High Water	13.6	<i>Not provided</i>	16.2	19	12	17.6
1923 Sanborn	Above High Water	13	17	15	20	12	18
1940 Rock Data Map, Legal Street Grade	Manhattan Borough Datum (MBD)	13.3	16.6	15	19.7	11.6	17.6
1951 Sanborn	Above High Water	13	17	15	20	12	18
2016 Sanborn	Above High Water	13	17	15	20	12	18
2014 Lidar (elevations for project site at adjacent corner)	NAVD88	16 (14.348 MBD)	18 (16.348 MBD)	16 (14.348 MBD)	20 (18.348 MBD)	14 (12.348 MBD)	18 (16.348 MBD)
Notes: The Rock Data Map includes a specific datum—the Department of Works datum at 2.750 feet above mean sea level at Sandy Hook, NJ—which appears consistent with the modern Manhattan Borough Datum. The consistency of the elevations from the Rock Data Map with those seen on other maps suggests that the same or similar datum point was used consistently since 1885. Modern Lidar information provided by the United States Geological Service.							

As shown in **Table 4-1**, each map includes elevation recorded relative to a specific datum, or the point from which surface elevations are measured (where the elevation is considered to be zero). Elevations of the same ground surface, recorded at the same time, but taken relative to different datum points, will obviously differ despite the fact that they refer to the same location. As shown in **Table 4-1**, datum points used in the 19th and 20th centuries were historically been linked to tidal action, either mean sea level (representing the average of high and low tide) or the high water mark. Therefore, understanding the datum from which an elevation was measured is critically important to an analysis of historic elevations and landscape change. However, given historic surveying techniques and inaccuracies that may exist in measuring tides and elevations, especially during the 19th century, as well as sea level rise, there may be discrepancies when comparing current and historic elevation data. Furthermore, many historical maps reflect the legal grade, or the planned grade, and may differ from what was actually. These elevations were compared to current Lidar information published by the United States Geological Survey (USGS) in 2014. The Lidar elevations are measured relative to the North American Vertical Datum of 1988 (NAVD88).

LANDSCAPE MODIFICATION ASSOCIATED WITH THE FILLING OF THE COLLECT POND

Archaeological investigations of similar sites in the vicinity, such as that of the African Burial Ground, have identified extensive fill deposits across portions of Lower Manhattan that have protected and preserved archaeological sites at great depths. The 18th century ground surface beneath which the African Burial Ground—situated adjacent to the Collect Pond to the southwest of the project site—was located was encountered at depths or up to 25 feet below the 20th century ground surface (Howard University New York African Burial Ground Project 2009). This fill was deposited following the closure of the burial ground and the filling of the Collect Pond (*ibid*). Similarly, the circa 1730 ground surface to the south of the pond was encountered at a depth of nearly 15 feet during archaeological excavations conducted for the construction of the Metropolitan Corrections Center Tunnel approximately one block to the south of the project site along Pearl Street between Cardinal Hayes Place and Park Row (Yamin and Schuldenrein 2007). Therefore, an assessment of landscape modification is appropriate for all sites situated near the Collect Pond so that the elevation of the 17th and 18th century ground surface can be identified and compared with the modern ground surface. The archaeological history of the Collect Pond and its surrounding landscape has been previously studied and it has been determined that “the Collect’s tangible remains are hidden beneath complex layers of urban infrastructure.” (Yamin and Schuldenrein 2007: 76). The following sections include discussions of landscape modification on Blocks 166 and 167 based on historical soil borings dating to the 1920s and 1930s. While no borings were available for the streetbed of Hogan Place, the soil profile of that area is presumed to be similar to that of the adjacent land on Blocks 166 and 167.

SOIL BORINGS WITHIN BLOCK 166

Within Block 166, a series of 35 historical soil borings completed by the firm Watson G. Clark in advance of the start of the construction of the existing state office building in 1928 was included with the Department of Borough Works’ “Rock Data Map,” which was issued in 1937 and updated through 1940 (see **Table 4-2** and **Appendix A**). The borings were completed during the construction of the existing Lefkowitz office building and after the demolition of historical buildings and the excavation of the site to approximately 12 feet or more (the development history of the site is explained in detail in **Chapter 5, “Development of the Project Site During the Historic Period”**). In general, the surface of Block 166 in the northwest corner (borings 49, 57, and 58) was consistently between 0.6 to 1.6 feet below the North

American Vertical Datum (NAVD88).¹ The elevations rose to approximately 7.652 feet NAVD88 along the eastern side of the site (borings 42, 43, 44, 71, and 72); approximately 9.152 feet NAVD88 at the southwestern corner (borings 47, 47, and 51); and between 6.652 and 7.152 feet NAVD88 along the southern side of the site (borings 52-54, 62, 62, 68, and 69).

Table 4-2

Summary of Borings on Block 166 from the 1940 Rock Data Map

Boring #	Ground Surface Elevation* (MBD/NAVD88)	Fill depth (ft)	Bog Layer Thickness (fit)	Boring #	Ground Surface Elevation* (MBD/NAVD88)	Fill depth (ft)	Bog Layer Thickness (fit)
40	4.5 / 6.152	12	1.2	58	-1.2 / 0.452	31	<i>not present</i>
41	5.1 / 6.752	7.8	5.8	59	5 / 6.652	20.5	10.6
42	6 / 7.652	9.8	2.1	60	5.5 / 6.352	27.4	<i>mixed into fill</i>
43	6 / 7.652	9.8	2.1	61	5.4 / 7.052	9.2	1.3
44	6 / 7.652	8.7	1.3	62	5.3 / 6.952	11.4	1.5
45	5 / 6.652	11	9.2	63	5.6 / 7.252	15.4	7.1
46	18.2 / 19.852	20.3	3.9	64	3.3 / 4.952	9.5	6.6
47	7.6 / 9.252	2.4	<i>not present</i>	65	5.2 / 6.852	12.9	0.7
48	7.6 / 9.252	10.5	7	66	4.1 / 5.752	10.6	1.6
49	-1.1 / -0.848	42.2	2.7	67	5.8 / 7.452	9.2	0.9
50	5.6 / 7.152	14.6	32.2	68	5.2 / 6.852	8.6	1.2
51	7.5 / 9.152	18.5	4.1	69	-5.4 / -3.748**	2.3	0.8
52	5.5 / 6.352	13.2	1.6	70	-5.6 / -3.948**	3.7	1.2
53	5.5 / 6.352	13.2	1.6	71	5.9 / 7.552	7.7	0.6
54	5.5 / 6.352	14.1	<i>mixed into fill</i>	72	6.3 / 7.952	9.2	1.2
55	4.7 / 6.352	30	1	73	5.4 / 7.052	22.8	4.1
56	-2.5 / -0.848	7.8	2.41	74	7.6 / 9.252	30.4	7.5
57	-1.9 / -0.248	40.3	<i>not present</i>				

Notes: All borings completed in advance of the start of the construction of the existing state office building in 1928.
 *These borings may have been completed following excavation to a depth of as much as 12 feet as part of the construction of the existing office building (*New York Herald Tribune* 1928b); Boring 43 is the only boring not identified as having been completed by Watson G. Clark and may have been completed earlier.
 **The surface elevation of these borings is indicated as a negative number in the boring logs, but this is not consistent with the surface elevation of surrounding borings or the depth of the bog layer and the negative surface elevation may be an error.

Source: Department of Borough Works 1940

Each of the 35 borings identified a layer of fill ranging between 2.3 and 42.2 feet in thickness located immediately beneath the ground surface of each boring, suggesting that original fill deposits were more extensive. As expected, the fill deposits tended to be deeper towards the western portion of the block, in the area formerly inundated by the waters of the Collect Pond. The majority of the borings also identified “bog” deposits presumably associated with the Collect Pond and the marshes that lined its eastern side. The thickness of the bog-related deposits ranged from 0.6 feet and 32.2 feet; however, bog deposits were mixed into fill or other soil levels in those levels with a thicker bog stratum and most bog layers appeared to be within 1 to 3 feet in thickness. Because of the variations in the elevation of the ground surface of the soil borings, the depth of the bottom of the fill deposits ranged from -44.648 feet to 1.448 feet relative to

¹ The datum point for the NAVD88 is situated 1.652 feet below that of the MBD; therefore to convert from MBD to NAVD88, one must add 1.652 feet to the elevation relative to MBD. This document will refer to elevations relative to NAVD88 unless otherwise specified.

the NAVD88, with the areas of deeper fill generally located along the western side of the site and the shallower fill deposits situated along the eastern side. Similarly, the depth of the bottom of the bog deposits ranged from -44.348 to 0.648 feet relative to the NAVD88, with the areas of deeper bog deposits located to the west of the site in those areas that were previously inundated by the Collect Pond and the shallower deposits along the eastern side in the location of former marsh deposits.

SOIL BORINGS WITHIN THE NORTHERN END OF BLOCK 167

In advance of the construction of the existing Criminal Courts Building and Prison in 1939, P&F Moran completed a series of soil borings on Block 167, including 30 that were located within or immediately adjacent to the portion of the block that is included in the study area for this Phase 1A study (see **Table 4-3**). The borings revealed a similar soil profile as that seen on Block 166. Whereas the borings within Block 166 were largely completed after the demolition of buildings and preliminary excavation of the site, the majority of the borings on Block 167 included the depths of cellars beneath the buildings located on the historical lots that formerly occupied the project site. On average, the depth of the cellars and associated stone, concrete, or wood floors was 9.44 feet across this portion of the block. The ground surface of the borings was generally close to that of the legal grade of the adjacent streetbeds but varied slightly across the project site.

Table 4-3
Summary of Borings on Block 167 from the 1940 Rock Data Map

Boring #	Ground Surface Elevation* (MBD/NAVD88)	Fill Depth over Peat Deposits (ft)	Peat Layer Thickness (ft)	Boring #	Ground Surface Elevation* (MBD/NAVD88)	Fill Depth over Peat Deposits (ft)	Peat Layer Thickness (ft)
291	14.2/15.852	33	14	306	14.2/15.852	34	10
292	14.21/15.862	33	13	307	13.33/14.982	22	9
293	13.3/14.952	22	19	308	15.2/16.852	17	
294	14.36/16.102	23	5	309	15.3/16.952	21	2
295	15.72/17.372	n/a	n/a	310	16.9/18.552	n/a	n/a
296	16.93/18.582	n/a	n/a	311	16.86/18.512	n/a	n/a
297	17.24/18.892	n/a	n/a	312	12/13.652	25	11.5
298	13.98/15.632	31	17.05	313	13.32/14.972	22	5
299	14.31/15.962	34.58	12.08	314	15.24/16.892	17	6
300	13.3/14.952	23	13	315	17.1/18.752	17	6
301	14.4/16.052	17	10	318	13.27/14.922	24	3
302	15.7/17.352	24	2	319	14.75/16.402	20	5
303	16.95/18.602	12	5	320	14.8/16.452	n/a	n/a
304	16.93/15.582	17	6	321	17.18/18.872	14	4
305	14.11	30	13	322	17.22	n/a	n/a

Notes: All borings completed by P&F Moran in 1938; the borings in this table represent only those in the northern portion of Block 167.

Source: Department of Borough Works 1940

Once again, all but five of the borings contained evidence of the former Collect Pond and its surrounding wetland in the form of either “river mud,” peat, or “running sand,” which is similar to quicksand. The borings where peat was not identified were clustered in the northeastern corner of Block 167, which was historically an upland area. However, these borings were intermixed with those where peat deposits were found and which had no identified fill deposits, suggesting that they may have originally contained similar deposits that were removed as a result of construction-related disturbance. The thickness of the peat and mud deposits ranged in thickness from 2 to 17.05 feet, with slightly thicker deposits appearing to be located in areas of deeper fill, which likely protected those deposits from development-related disturbance. These peat and mud deposits were observed beneath a layer of fill that ranged between 12

and 34.8 feet below the ground surface, with deeper fill deposits along the western and southern sides of the site, in the former vicinity of the Collect Pond.

SUMMARY OF EXTENT OF LANDSCAPE MODIFICATION ACROSS THE PROJECT SITE

In summary, the landscape of the project site has been extensively modified as a result of three major development episodes, although prior to the construction of the existing buildings on the project site, evidence of the former wetland environment was present at great depths. The first development episode that modified the landscape involved the filling of the Collect Pond, which resulted in the deposition of more than 40 feet of fill—and likely more than 50 feet in total given the excavation that occurred before the soil borings were completed—in the western portion of Block 166 and more than 30 feet within Block 167. Within both blocks, the deepest fill deposits appear to be located in those areas that were formerly within the boundaries of the Collect Pond. Deposits of bog, peat, and river mud in what were historically upland areas of the project site indicate that the marshes of the Collect likely extended east and northeast of the pond to varying degrees.

The second episode of landscape modification occurred as a result of the development of Blocks 166 and 167 in the 19th century, when each block was divided into a number of historical lots, each of which was developed. The majority of the buildings that stood on both portions of the project site were constructed with cellars or basements, and the soil borings from Block 167 show that the basements were of a somewhat consistent size ranging from 8 to 10 feet, with an average height of 9.44 feet across the site. Similar information was not available for Block 166, though the average cellar depth is presumed to be similar. The third and final episode of landscape modification involved the demolition of these 19th century buildings and the construction of the existing buildings. As described in greater detail in **Chapter 5, “Development of the Project Site During the Historic Period,”** the buildings on Block 166 and the northern portion of Block 167 were constructed with basements and rest atop a large number of piles of various lengths that were designed to ensure the structural stability of the buildings given the mud and quicksand underlying much of the site.

C. SOILS

The “Web Soil Survey” maintained by the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture (USDA) indicates that two soil complexes associated with heavily developed urban areas are located in the vicinity of the project site.¹ The first, located across the majority of both Blocks 166 and 167 is a complex known as “Urban land, reclaimed substratum.” The typical soil profile for this complex includes up to 15 inches of cement or pavement underlain by gravelly, sandy loam in areas with slopes ranging between 0 and 3 percent. A small area near the northeastern corner of Block 167 is characterized by “Urban land, tidal marsh substratum,” which is similar to the previous soil type and features 0 to 3 percent slopes. In the extreme southwestern corner of the Manhattan Site, the soils are characterized as “Urban land, outwash substratum.” The typical profile of this soil type includes up to 20 inches of cement or pavement over gravelly sand in areas with 0 to 8 percent slopes.

¹ <https://websoilsurvey.sc.egov.usda.gov>

In general, Native American habitation sites are most often located in coastal areas with access to marine resources, near fresh water sources and areas of high elevation and level slopes less than 10 to 12 percent (NYAC 1994). Further indication of the potential presence of Native American activity near a project site is indicated by the number of precontact archaeological sites that have been previously identified in the vicinity. While the majority of the project site was formerly inundated by the waters of the Collect Pond (see **Figure 2**), documented Native American activity occurred along the coastline in the immediate vicinity of the project site, and the Collect Pond itself is known to have been an important source of resources for the local indigenous population.

Information regarding such previously identified archaeological sites was obtained from various locations including the site files of OPRHP and NYSM, accessed via the New York State Cultural Resources Information System (CRIS)¹ and published accounts such as R.P. Bolton's 1920 work, *Indian Paths in the Great Metropolis*. These sites are summarized in **Table 3**, below. Because many of these sites were discovered and reported in the early 20th century by archaeologists not yet trained with modern methods (e.g., Parker 1920, Bolton 1922), there is limited descriptive information available for these sites. The distances indicated in Table 3 represent the distances between the project site and the archaeological sites as mapped in CRIS; however, other sources suggest that the actual sites may be at a greater distance, as described below.

Table 3
Precontact Archaeological Sites in the Vicinity of the Project Sites

Site Name/ Number	Time Period	Approximate Distance from Project Site	Site Type
<i>Shell Point/Werpoes</i> NYSM: 4059	Precontact	Overlaps study area as mapped by OPRHP, 350 feet as mapped by Bolton (1922)	Native American village and shell middens
<i>Nechtanc</i> NYSM: 4060	Precontact; Contact	1,850 feet (0.35 miles)	Native American village used as a retreat during 17th century wars with the Dutch
Sources: The New York State Cultural Resources Information System (CRIS); Parker 1920, and Bolton 1922.			

As described in **Table 3**, two Native American village sites have been identified within one mile of the project sites. The first site, known as “Shell Point” or “Werpoes” (NYSM site #4059) was located north of City Hall Park along the southwestern side of the Collect Pond to the southwest of the project site. OPRHP maps the site as a large area in CRIS; however, Bolton (1922) indicates that the village was significantly smaller and was situated along the southwestern shore of the Collect Pond (see **Figure 2**). The village was located on a hill known *Kalch Hoeck* adjacent to the Collect (Bolton 1922; Bolton 1975). The name *Werpoes* is possibly derived from the word *Wapu*, meaning “a hare” and “Shell Point,” likely refers to the many shell middens that covered the site (ibid). A trail connected Werpoes with points to the

¹ Accessible at: <https://cris.parks.ny.gov>

north and south near what is now Park Row and the Bowery in the vicinity of the project site (Bolton 1922). The village was consistently occupied until the mid-17th century, during the Dutch occupation of New York. An unsubstantiated folk legend described by Pritchard (2007:62) suggests that upon the arrival of a group of Dutch colonists hoping to build a settlement near the Collect Pond, the Dutch showed the local indigenous population proof of ownership and “the gentle Werpoes...simply said something to the effect of ‘Oh, we’re sorry. We didn’t know,’ and moved to Brooklyn.”

The other village site, most commonly referred to as *Nechtanc*, meaning “sandy place” (Grumet 1981), is also known as *Rechtauck* or *Naghtogack* (Bolton 1922; Bolton 1975). According to Bolton’s 1922 map of Native American trails, the village was located atop a large hill, later known as Jones’ Hill, in the vicinity of the intersection of Jefferson, Henry, Clinton, and Madison Streets (Bolton 1922). *Nechtanc*’s high elevation and close proximity to the river’s varied resources would have made it an ideal location for a precontact village. Later in the Contact Period, its natural topography also made it an important refuge for the Lower Hudson River Delaware Indians from all over the New York City area. Brutal wars with the Dutch took place in the early 1640s, and forced many Native Americans to flee their homelands. Ultimately, *Nechtanc* was not a safe haven for them, and in 1643, the Dutch staged a nighttime attack on several Native American villages, including *Nechtanc*, at which time many Native Americans were killed in their sleep (Grumet 1981).

Other Native American place names in the area included *Kapsee*, rocky ledge at the southern end of the island (Grumet 1981, Bolton 1975); *Catemiuts*, a fort and hill located near the modern-day intersection of Pearl Street and Park Row, and *Ashibic*, a rocky cliff north of today’s Beekman Street that abutted a marshy tract (Grumet 1981). A series of Native American trails connected these locations with the villages discussed above as well as other Native American habitation sites further north. A major Native American roadway—known as *Wickquasgeck*—ran along the southern line of modern Broadway before splitting into two roads; one angling to the northeast and continuing northward along the approximate path of today’s Bowery Road, and the other continuing east towards *Nechtanc*. West of the fork in the trail, two offshoots extended from the main road, one traveling northward towards *Werpoes* and the other heading south towards the East River shore in the vicinity of the Brooklyn Bridge (Grumet 1981, Bolton 1922; Bolton 1934).

A. INTRODUCTION

The broader historical context of the neighborhood in which the study area was situated has been described in detail in previous archaeological investigations, including the final reports for the Five Points site project (Yamin, et al. 2000) and the African Burial Ground project (Howard University New York African Burial Ground Project 2009). Therefore, this chapter will focus on the specific development and disturbance history of Block 166 and the northern portion of Block 167. Relevant contextual and background information previously described in other reports is included in this analysis as necessary. As described in detail in this chapter, the construction of the existing buildings on the project site resulted in extensive disturbance and as such, this chapter addresses issues related to development and disturbance and not the identities of those who resided on the project site.

B. EARLY COLONIAL HISTORY

Following the period of initial European contact beginning with the arrival of Henry Hudson's voyage in 1609, New York became a Dutch colony (Burrows and Wallace 1999). In 1621, the States-General in the Netherlands chartered the Dutch West India Company (WIC) to consolidate Dutch commercial activities in the Americas. After the English conquest of New Amsterdam in 1664, the colony was renamed "New York" (ibid). As described in **Chapter 2, "Environmental and Physical Settings,"** the majority of the project site was inundated by the waters of the Collect Pond before the late-18th century. As a large source of fresh water, the area around the Collect Pond was an attractive area for historic period settlement for both the Dutch and the English. However, in the early years of European settlement, the 17th century colony of New Amsterdam and the 17th and 18th century colony of New York were largely limited to the extreme southern end of the island of Manhattan.

The densest part of the Dutch settlement of New Amsterdam was located at the southern tip of Manhattan, but the Dutch granted large tracts of land in the areas to the north. Known as *bouweries*, these large farms were granted to individual settlers and were typically used for agricultural purposes. Johannes Vinckeboons' circa 1639 map of Manhattan, considered one of the first of the area, depicts the bouweries throughout what is now Lower Manhattan. The history of the early farm properties located on Blocks 166 and 167 are presented below.

17TH AND 18TH CENTURY OWNERSHIP HISTORY OF BLOCK 166

The eastern/upland portion of what is now Block 166 was included within a larger parcel of land granted by Peter Stuyvesant—then the Director-General of the Dutch colony of New Netherland, of which New Amsterdam was part—to Paulus Schrick (or Schryck) on October 7, 1653 (Stokes 1967). Schrick's farm encompassed most of what would later become known as the Five Points area and while the development history of the site before the early 18th century is unknown, its ownership history was reconstructed by Stokes (1967). In 1662, Schrick sold the land to Johannes Megapolensis and his son-in-law Cornelis van Ruyven and the grant to Megapolensis and van Ruyven was later confirmed by British Governor Richard Nicolls in 1667 or 1668 (ibid). The two men had also purchased the farm adjacent to the northeast, which

had been granted by Stuyvesant to William Beekman in 1654 (ibid). Megapolensis died in 1669 and van Ruyven inherited his property and sold the farm to Wolfort Webber in 1673. Webber in turn sold the land to his own sons-in-law, Philip Minthorne, and Jacques Fountaine, in 1699 and 1706, although Minthorne consolidated ownership of the entire farm between 1713 and 1715 (ibid).

A will prepared by Minthorne in 1726 indicated that the property contained a dwelling house that would be inherited by his son, John, upon his death, which occurred two to three years later (Stokes 1967). The location of the house is unknown; however, a map drawn by David Grim in 1813 (published 1854) purporting to show the conditions of the area in the early 1740s suggests that the Minthorne house was located to the south of the project site along the Road to Boston. It is unknown if this is the only house that was ever located on the property. Early maps of New York, including those published by James Lyne in 1730 and 1731, do not depict the project site in its entirety and instead only show a portion of the Collect Pond. The area to the southwest of the pond is shown on the maps as common lands and the “High Road to Boston” is depicted to the east of the pond.

John Minthorne’s will was proved in 1751 after his death and his heir subsequently sold the property—at that point measuring more than 12 acres—to a blacksmith named John Kingston (Stokes 1967). Several maps depicting the project site were produced in the mid-18th century. Francis Maerschalk’s circa 1755 map is one of the earliest to depict streets in the area. A precursor to Baxter Street—then known as Orange Street—is shown on the map, as is an unnamed, no longer extant street to the west lining the shore of the Collect Pond. Worth Street was not yet cut through, and a former street known as “Cross Street” ran to the south at an angle perpendicular to that of modern Worth Street. Only Cross Street is shown on Holland’s 1757 map of the area (see **Figure 4**). Both maps depict few buildings in the vicinity of this portion of the project site with the exception of one located northeast of the project site on the eastern side of Orange Street, which is identified on the Holland map as a slaughterhouse. Nicholas Bayard, the owner of the adjacent property, had been granted permission from the Common Council of the City of New York (CCCNY) to build a slaughterhouse next to Minthorne’s land in 1750 (CCCNY 1905 5:303). Both maps also depict a series of tanning yards to the south of the project site along the eastern side of the Collect Pond.

By 1763, early streets had been cut through the area, and in 1763, Kingston deeded the land on which the streets were located to the City of New York (Stokes 1967; CCCNY 1905 6:321). The proposed streets are depicted on Ratzer’s 1776 map of Manhattan depicting conditions circa 1776 and 1777, although it does not appear that the streets were fully constructed at that time (see **Figure 5**). No structures are depicted on that map within the upland portion of this part of the project site.

17TH AND 18TH CENTURY OWNERSHIP HISTORY OF BLOCK 167

The former Kingston farm extended into the extreme southern end of what is now Block 167. The northern portion of the block—that which is included in this study area—was included within a portion of two separate properties that were all included within a larger tract later known as the “Smith’s Hill Farm.” Smith’s Hill Farm was part of a larger farm of Nicholas Bayard, a member of one of the earliest families to live in the New York area (Stokes 1967). The smaller parcels making up the larger Bayard farm were unique in that the majority of them had been granted by the Dutch government to individuals of African descent in the early to mid-17th century (ibid). These settlers may have been enslaved persons owned by Captain Johan de Vries (ibid).

The majority of this portion of the project site was included within a parcel of land granted by Dutch Director-General William Kieft to Domingo Anthony, an individual of African descent, in 1643 (Stokes 1967). The northwestern corner of this portion of the project site was included within a separate land grant made by Kieft in 1645 to Paulo De Angola (ibid). De Angola and Clara Crioli, both of whom were

of African descent, sold the land to Symon Joosten in 1651 (ibid). Both properties would be acquired by Augustine (Augustyn) Hermans, who purchased the former De Angelo parcel from Joosten in 1651 and later received a grant for Anthony's property from British Governor Nicolls in 1668 (a formal deed was executed in 1672) (ibid). Hermans later sold these land holdings to Nicholas Bayard, who would quickly assemble numerous tracts of land in the vicinity (ibid). Bayard Street, which originally extended through the center of the northern part of Block 167, is named in honor of Bayard. After his death in 1707, his heirs sold a portion of the estate to Dominick Lynch, whose heirs would maintain ownership through the late-18th century (Stokes 1967). Lynch was involved in the filling of the Collect Pond and was responsible for filling in the swamps on his own property to the east of the Collect Pond (ibid). The 1915 map of Tracts and Farms maintained by the New York City Register's Office suggests that Lynch's land holdings excluded the extreme northeastern corner of this portion of the project site, which remained part of the Bayard estate in a larger 175-acre estate known as the "East Farm."

Maps published through the mid- to late-18th century do not depict any structures on the project site. Rutzer's map depicting conditions circa 1766 (see **Figure 5**) depicts the line separating the Lynch property from Bayard's East Farm as well as Smith's Hill Farm in the eastern side of Block 167. The map also shows that a portion of Bayard Street had been constructed to the east of the project site almost as far as the future location of Baxter Street.

C. THE IMPACT OF THE REVOLUTIONARY WAR AND SUBSEQUENT LANDSCAPE MODIFICATION

The study area remained largely undeveloped as the Revolutionary War brought New York's commerce and development to a halt between 1776 and 1783. During this time, the City was occupied and controlled by the British, and many citizens who sided with the American patriot cause fled during those years (Burrows and Wallace 1999). Three maps produced in 1782, near the end of the war, include the 1782 British Headquarters Map,¹ the Hills map, and the Holland map. None of these three maps depicts the line of Orange Street and they appear to suggest that the general area of both Block 166 and 167 were still occupied by marshy wetland. The marsh was by that time being drained by a large canal that had been excavated between the pond and the Hudson River, the first step in the gradual filling of the Collect and the transformation of the landscape in Lower Manhattan. This canal was located to the west of the project site. All structures seen on that map were situated to the east of the future line of Orange/Baxter Street. McComb's 1789 map of Manhattan, one of the first produced after the end of the war and the departure of British loyalists, depicts the project site in similar conditions and suggests that Orange Street was partially constructed to the south of Block 166, but not in the vicinity of the project site itself.

Following the war, as the City began to rebound and regrow, numerous industries established themselves along the shores of the Collect Pond (Koeppel 2000). The first substantial development within and in the immediate vicinity of the project site was a large ropewalk that was constructed on or immediately adjacent to the project site and spanned the length of almost three blocks to the north along the eastern side of the pond, passing through Block 167. The ropewalk had been built by Peter Schermerhorn (Yamin, et al. 2000). The ropewalk is shown on both Hutchings' 1846 map depicting conditions circa 1793 (see **Figure 3**) and the 1797 Taylor-Roberts plan (see **Figure 6**). Hutchings' map suggests that the rope walk extended to a point just north of the line of modern Walker Street. The Taylor-Roberts plan suggests that the ropewalk extended as far as the line of Leonard Street and that a second, slightly larger building was located adjacent to the ropewalk on its southern side. The filling of the Collect Pond resulted

¹ Both the original map and the facsimile copy produced by B.F. Stephens in 1900 were reviewed for this assessment.

in the flooding of the rope walk and as a result, Schermerhorn sued the City and later relocated his business (CCNY 1917 6:674).

The Taylor-Roberts map also suggests that Orange Street south of Bayard Street and Mary Street to the north had been constructed through the area. Hutchings' map suggests that Baxter Street was a formally constructed street as far north as Leonard Street, where it continued as a path or dirt road identified as "Road to Bayard's Place." The map also depicts a series of buildings identified as a "row of houses" along the western side of Baxter Street and the eastern side of the project site. As shown on the map, at least six of the houses were wholly or partially within Block 166 and the adjacent streetbed of Leonard Street/modern-day Hogan Place, with the remainder extending into the adjacent streetbeds or the block to the south.

D. THE DEVELOPMENT OF THE SITE IN THE 19TH CENTURY

With the completion of the landfilling process in the early 19th century, the Manhattan site was, for the first time, developable land. The City of New York began to grow northward at a rapid pace, and it was during the 19th century that the developed portion of the urban area expanded north, far from the protected enclosure that kept early colonists safe in the 17th and 18th centuries. Bonar's 1804 map of Manhattan depicts the filling of a large portion of the Collect Pond south of Cross Street but suggests that the southern portion of the study area was still inundated. The map continues to depict the line of Schermerhorn's ropewalk, but the manner in which it is depicted suggests that by that time it was already damaged. Finally, the map depicts the line of White Street—then known as Nicholas Street—but suggests that it was planned but not fully constructed at that time. Longworth's 1808 map of Manhattan depicts the area in a similar manner, but depicts two parallel ropewalks along the line of Baxter (Orange) Street to the east of what remained of the Collect Pond and partially extending into Block 166. It also depicts a number of streets that were not fully constructed in the vicinity of the project site; these include a street in the vicinity of future Centre Street identified on the map as "Rynders Street." The location of Block 167 is depicted on the map as marshland.

Between 1807 and 1811, the City laid out and began to implement its plan for a new street grid, which dramatically altered the landscape of Manhattan and prompted the further northward surge in the City's growth (Koeppel 2015). The 1811 Bridges map depicts the proposed street grid, including the streets surrounding the project site. The map depicts the line of Leonard Street along the northern side of the project site and a portion of Worth Street—then known as Anthony Street—along the south side. The map also shows the line of Centre Street—then known as Collect Street—along the western side of the study area. Bayard Street extended to the west through or immediately south of the portion of the project site located on Block 167; however, White Street is depicted only as far west as Centre Street so it therefore did not extend across the northern side of the project site. A map published by Longworth in 1817 depicts the site in the same manner.

By the publication of the 1824 Hooker map of Manhattan, Worth Street had been extended eastward to connect to Baxter Street. The street was laid out in 1817 and its extension formed the fifth component of the intersection that would become known as the Five Points (HPI 2013). Hooker's map depicts a stippled shading across both Blocks 166 and 167, indicating that they were entirely developed at that time. At that time, a narrow alley known as Little Water Street crossed through the western portion of Block 168 on a southeast-northwest angle from Worth Street. Bayard Street is not shown as running across Block 167, although White Street had been constructed across the northern side of the block by that time. The project site is depicted in a similar manner on the 1836 Colton map and the 1849-50 Perris map.

The first maps to depict accurate building footprints and descriptions of the uses of the buildings on the project site were published in the early 1850s. Dripps' 1852 map depicts Block 166 as divided into more

than 40 historic lots and the northern portion of Block 167 as divided into more than one dozen lots, each of which was developed with at least one building and most with a vacant rear yard or courtyard between buildings. As a result of the presence of Little Water Street in the western portion of Block 166 and the angled line of Baxter Street, that block was divided into lots of unusual size and shape, many of which were at an angle perpendicular to that of Both Baxter and Little Water Streets. The lots on Block 167 were of a more standard size and shape.

RESIDENTIAL AND COMMERCIAL EXPANSION IN THE 1850S

More information about these buildings and the use of the lots within Blocks 166 and 167 is provided by the 1853 Dripps map. On both Blocks 166 and 167, dozens of buildings, rear dwellings, and outbuildings constructed of either wood (shaded in yellow) or brick (shaded in pink) covered the project site at this time. The buildings represented a variety of uses, which were divided into classes by Perris and indicated by a series of solid circles representing brick or stone stores (buildings shaded in green) or brick or stone dwellings; or open circles, which denote dwellings with stores underneath.¹ The majority of the buildings shown on the map were either first or second class dwellings with stores on the ground floor, although two fourth-class buildings were also shown on each block included within the study area. This suggests that the project site was actively used for both residential and a wide variety of industrial/commercial uses.

The 1857 Perris atlas depicts the project site in nearly identical conditions on both Blocks 166 and 167 (see **Figure 7**). By that time, Anthony Street was renamed Worth Street and Little Water Street had been renamed Mission Street in honor of the Five Points Mission, which was located two blocks to the south of Block 166. The only substantial change in the development of Block 166 was the construction of the “House of Industry” on the lots formerly known as 153 to 157 Worth Street, which were developed with a row of identical wood frame houses on the 1853 Perris map. The House of Industry had been established by Reverend Louis M. Pease in 1854 in an attempt to provide paying jobs and stability to those living in the Five Points area and was one of several social intervention initiatives intended to change the character of the neighborhood (Burrows and Wallace 1999).

Given the angled lot lines that characterized much of Block 166, the House of Industry building was an unusual shape and its extension occupied the irregularly-shaped undeveloped spaces to the north and east of the central portion of the building. The House of Industry appeared to have been expanded before the publication of the 1867 Dripps and 1867 Lloyd maps of Manhattan and again before the publication of the 1879 Bromley atlas. The latter also identifies the presence of an “Italian School” to the north of the House of Industry, along the southern side of Leonard Street. The remaining lots within the site were developed at this time with other small buildings. Maps from the 1860s and 1870s depict very few changes to the portion of the site included within Block 167.

¹ As defined by Perris, first class stores included any of the following: bakers; boat builders; brewers; brush manufactories; comb makers; copper smiths with forges; dyers; floor cloth manufactories; hat manufactories; malt houses; oil manufactories; oil cloth manufactories; private stables; tobacco manufactories; type and stereotype foundries; and wheelwrights. Second class structures housed book binders; brass foundries; coach makers; cotton presses and mills; iron foundries; livery stables; paper mills; and book and job printers. Fourth class buildings included brimstone works; camphene or spirit gas manufactories; coffee and spice mills; chemical laboratories; drug and spice mills; fire work manufactories; match manufactories; planning, grooving, or moulding mills; rope and cordage makers; saw mills; sugar refineries; tar boiling houses; turpentine distilleries; and varnish makers.

The 1885 Robinson atlas depicts Block 166 in a generally similar manner, although it is the last to depict the line of Mission Place, which would be closed and the land developed soon after. The map suggests that some changes had occurred on Block 167, with many of the smaller buildings seen in the northwestern corner of that portion of the project site on previous maps having been replaced with a larger structure.

The 1891 and 1897 Bromley atlases and the 1893 Robinson atlas depict similar conditions to those seen in 1885. The maps reflect the closure of Mission Place on Block 166 and the area's redevelopment with a new building associated with the House of Industry. The 1894 Sanborn map depicts the site in a similar manner and indicates that several buildings on the Block 167 portion of the project site were industrial in nature (see **Figure 8**). A circa 1890 photograph depicting the northwest corner of the intersection of the Five Points (and the southeast corner of the project site) is in the collection of the New York Public Library.¹ Additional photographs taken in the 1880s or 1890s in the collection of the New York City Municipal Archives depict the rundown buildings located along Worth Street near the end of the 19th century.²

By the time of the publication of the 1899 Bromley atlas, the House of Industry had been replaced with a new building, which is more clearly depicted on the 1905 Sanborn map (see **Figure 9**). By that time, the buildings at the extreme southeastern end of the project site had been demolished and the land turned into a park. The newly constructed House of Industry was a stone building that stood between 2 and 8 stories tall (with basement) and fronted on Worth Street. It connected via a bridge to the Infirmary Building to the west, which had been constructed across the former line of Mission Place in the late 1880s or early 1890s and was the only remnant of the earlier facility. Its irregular pentagonal shape mimicked the odd angle of the original House of Industry complex that had been adjacent to the east. The House of Industry facility was surrounded by vacant yard space to the north and west and between the main building and the infirmary.

The 1905 Sanborn continues to depict a variety of commercial/industrial buildings and dwellings on the lots elsewhere on Block 166, including the Italian School, which by that time was associated with the charitable institution the Children's Aid Society; a 5-story (with basement) federal office building at the northwest corner of the site; and a 7-story playing card factory at the southwest corner. The map is the first to clearly identify which buildings across the project site were constructed with basements, which included nearly all of the buildings with the exception of those at 44 and 46 Baxter Street (including both front and rear dwellings) and 150 to 154 Leonard Street (including both front and rear dwellings). Several photographs of these buildings taken in 1912 and 1913 are in the collection of the Museum of the City of New York. The 1905 Sanborn map depicts a series of 3- to 7-story buildings, most of which had basements, as well as several undeveloped courtyard or rear yard areas.

The House of Industry merged with the Children's Aid Society in 1909 and the House of Industry made plans to move its operations to Westchester County (*New York Tribune* 1909a). The 1911 Bromley atlas indicates that its former main building was by that time occupied by the "Italian Industrial School." The former infirmary had been demolished and the surrounding area developed with the "New York Dispensary." The land for the dispensary, a portion of which was formerly used as a playground for the House of Industry—which by that time had transformed into an institution dedicated to the care of impoverished and homeless children—was sold in 1908 after the buildings on the surrounding lots grew so tall that the grounds were cast into shadow (*New York Tribune* 1908). As an institution, the dispensary was established in the late-18th century and was one of the oldest organizations devoted to providing

¹ Accessible at: <https://digitalcollections.nypl.org/items/c9c01810-ab0f-0132-bce4-58d385a7b928>.

² Accessible at: <http://nycma.lunaimaging.com/luna/servlet/s/8jvu4e> and <http://nycma.lunaimaging.com/luna/servlet/s/7cg52i>.

medical care to the City's residents (Burrows and Wallace 1999). Their new facility opened on Worth Street in 1909 (*New York Tribune* 1909b).

E. THE CONSTRUCTION OF THE CIVIC CENTER IN THE 20TH CENTURY

The early 20th century saw the transformation of the area surrounding the project site into a planned civic center made up of a network of new government office buildings, courthouses, and prison facilities. The civic center supplemented older government buildings constructed in the 19th century such as City Hall, the first and second Tombs prison buildings, and the Tweed Courthouse, and was expanded with the addition of the Municipal Building in 1914, the Surrogate's Court in 1911, and the State Supreme Courthouse in 1921. The accessibility of the area was changed dramatically as a result of the construction of the Interborough Rapid Transit (IRT) Company's subway line—the first in the City—in 1904 (Geismar 1993). An additional subway tunnel was constructed by 1918 through the streetbed of Centre Street, adjacent to the project site to the west (*ibid*). These tunnels were constructed using cut-and-cover construction, meaning that the entire streetbed was excavated during the construction process (*ibid*). In 1912, during the early years of the planning of the civic center, the City proposed to construct a new criminal courthouse surrounded by a large park on Blocks 166 as well as several adjacent blocks (*New York Times* 1912). The southern portion of Block 167 was selected as the site of a proposed criminal court building, but the northern portion of the block was not included in the plan for the civic center at that time (*ibid*).

CONSTRUCTION OF 80 CENTRE STREET, 1928 TO 1930

As part of the proposed courthouse project, Block 166 would have been bisected to allow for Baxter Street to continue through to Worth Street as a straight line (*ibid*). The construction of the new court building was expedited and early plans intended for it to be completed within a span of three years to replace the former courthouse, which was showing signs of structural fatigue (*New York Tribune* 1912). Block 166 and the surrounding area were officially condemned in 1913, paving the way for the demolition of some of the last remnants of the old Five Points neighborhood (*New York Times* 1913a). The buildings on Block 166 were demolished the following year, and the *New York Times* published a photo of the site during demolition in 1914. The former New York Dispensary Building at 145 Worth Street appears to have been the only building left standing, perhaps due to a public outcry in opposition to the loss of services provided by the organization (*New York Times* 1913b). The dramatic scale of the proposed courthouse and park proved too costly, however, and shortly after demolition began, the plans were changed to construct the new courthouse surrounded by a large, circular street further to the east, partially on Block 166 (*New York Sun* 1914). The 1916 Bromley atlas depicts the proposed courthouse in this configuration, although it was never actually constructed on the project site. The plan for the courthouse was later dramatically changed due in part to the presence of quicksand and filled pond deposits that would have made its construction too costly. These conditions forced the City to construct the new courthouse on the block to the south of Block 166, where it was completed in 1927 and where it still stands today (*New York Times* 1928a; *New York Daily News* 1928a).

After the demolition of the majority of the buildings on Block 166, the proposed Manhattan Site remained largely vacant while the construction of the civic center was stalled. In 1918, more than a year after the United States had entered World War I, the City granted the United States War Department's request to use the vacant courthouse site bounded by Centre, Pearl, Leonard, and Baxter Streets for temporary barracks and offices (*New York Tribune* 1918). The collections of the Museum of the City of New York contain a series of four photographs taken in July 1918 that depict the construction of three long, 2-story wood frame buildings and two smaller buildings on the court house site to the south of Block 166. The

ground surface of both the site to the south and Block 166 appears to be a level paved surface in all of the photographs.

By the publication of Bromley's 1921 atlas of Manhattan, the entire courthouse site was depicted as vacant with the exception of two buildings, both of which were on Block 166: the former one-story dispensary at 145 Worth Street and an irregularly shaped 1-story brick building lining the northern and western sides of a playground located at the southeast corner of the site. A 1920 photograph of Worth Street east of Centre Street that was taken by the Manhattan Borough President's Office and is in the collection of the New York Public Library depicts the vacant land at the southwest corner of Block 166 as slightly higher in elevation than the adjacent streetbed.¹

As the block was no longer needed block for the construction of the courthouse, in 1927, the City of New York offered Block 166 to New York State to help expand the growing civic center in downtown New York. Governor Alfred E. Smith requested that the existing building be constructed that would be "architecturally monumental to harmonize with the other buildings" in the area (*New York Herald Tribune* 1927:4). The State was granted the property despite a competing request from the Federal Government, which had proposed to construct a new post office and federal courthouse on the property (*New York Times* 1927).

The construction of the building began in February 1928 and the foundation was excavated using "a steam shovel and gangs of men" (*New York Times* 1928b:15). Approximately two months into construction, the foundation excavation and associated pile driving was immediately stopped after the swampy deposits of the former Collect Pond were encountered, requiring a redesign of the support piles intended to hold up the building (*New York Times* 1928a). The work was ordered to stop by William Acheson, the Chief Engineer of the Department of Public Works, after he was informed that soil borings—presumably those included in the 1940 Rock Data Map and discussed in **Chapter 3, "Environmental and Physical Settings"**—identified bedrock at a depth of 120 feet, meaning that the originally proposed 20-foot concrete piles would not support the new structure (*ibid*). The borings were completed after deposits of quicksand were observed at a depth of 12 feet during the foundation excavation (*ibid*). Different newspaper reports at the time indicated that the contractor initially proposed that columns instead be extended to a depths of either 43 feet or 100 feet under at least 20 percent of the foundation and that the construction of cussions was a possibility (*ibid*; *New York Daily News* 1928a; *New York Herald Tribune* 1928a). Similar problems had resulted in the structural instability of the nearby Tombs prison, which reportedly would rise and fall in response to tidal action in inclement weather (*New York Times* 1902). During the construction, the contractor reported that a china teacup had been found at a depth of 65 feet and was "the most substantial material encountered" in the area where they wanted to construct a foundation (*New York Herald Tribune* 1928a:1). At the time the work had begun, approximately 150 pre-made concrete columns approximately 43 feet in length and/or 250 20-foot piles had already been fabricated before the former pond deposits were encountered (*ibid*; *New York Herald Tribune* 1928b). The shorter piles were intended to be 11 inches square and the longer piles 14 inches square (*New York Times* 1928c). A photograph published in the *New York Daily News* on April 24, 1928 depicts Block 166 as a large excavation—while the photograph is not clear, it may up to one story below grade—surrounded by construction fencing with a large, deeply excavated pit on one side that was filled with rising groundwater (*New York Daily News* 1928b).²

Following the work stoppage, the state government, led by Acheson, denied having stopped the project threatened to assume control of the construction from J.L. McDonald, the contractor who had begun the

¹ Accessible at: <https://digitalcollections.nypl.org/items/510d47dd-62a2-a3d9-e040-e00a18064a99>

² This content can be accessed through Newspapers.com and the image therefore cannot be reproduced here.

construction of the foundation (*Brooklyn Daily Eagle* 1928a; *New York Herald Tribune* 1928b). The contractors accused Acheson and the state of intentionally arranging for the construction so that the contract would ultimately be awarded to a favored sub-contractor that made a specific type of pre-fabricated support pile (*Brooklyn Daily Eagle* 1928b; *New York Times* 1928d). In May 1928, the State Superintendent of Public Works rejected these claims and ordered the contractor to remove any piles that had been driven as they were 121 square inches in cross section and not consistent with the 196 square-inch piles required by the original contract specifications (*New York Herald Tribune* 1928c; *New York Times* 1928e). The construction proceeded and ultimately, support piles of up to 78 feet were used to complete the foundation and the cornerstone was laid by Governor Smith in December 1928 (*New York Herald Tribune* 1928d). The completed building was opened in October 1930 and its first tenant was the Department of Taxation and Finance (*New York Herald Tribune* 1930).

The building continues to stand on Block 166. In 1984 was named after Louis J. Lefkowitz, the Attorney General of New York State between 1957 and 1978, in honor of his 80th birthday (*New York Daily News* 1984). The building continues to be used as government office space for both state and city agencies (New York City Department of Citywide Administrative Services 2018).

CONSTRUCTION OF 125 WHITE STREET, 1938

The expanded civic center in the 1920s included the City’s prison, nicknamed “The Tombs,” which was located in two buildings located on the block bounded by Leonard, Centre, Franklin, and Lafayette Streets. The original building was constructed in the 1830s and was replaced in the 1890s as a result of structural instability and overcrowding (AKRF 2012). In 1937, the City planned to replace the outdated prison and criminal court buildings with a new, consolidated facility on what is now Block 167 and the former streetbed of Franklin Street between Centre and Baxter Streets (*New York Times* 1937). As originally designed, the court building (to the south of the project site) was separated from the prison (within the project site) by a courtyard and the buildings were designed “in harmony with the adjoining buildings of the civic center” (*New York Herald Tribune* 1937a:4). Both the court and prison buildings were built with both a basement and a sub-cellar (*New York Herald Tribune* 1937b; *New York Times* 1941). Furthermore, the prison was designed for maximum security and was referred to at the time as being “escape proof” (*New York Herald Tribune* 1938a: A3).

The construction of the new prison facility required the demolition of the buildings on modern Block 167, which was completed by July 1938 (*New York Herald Tribune* 1938b). As shown on the 1923 Sanborn map, almost the entire portion of the project site was developed with a large building with a basement at that time, with only small courtyard and rear yard areas left undisturbed by the excavation of basements (see **Figure 10**). The original plans called for the court and prison to be connected by a series of bridges on upper floors and an underground tunnel, allowing for the flow of people between the two buildings (*New York Herald Tribune* 1938c). As with the state office building at 80 Centre Street, the developers of the new prison were aware of the presence of deposits associated with the filling of the former Collect Pond beneath the northern portion of Block 167 and as described in **Chapter 3, “Environmental and Physical Settings,”** soil borings were completed in 1938 in order to better understand the underlying soils (see **Appendix A**). To ensure that the new prison did not suffer from the same structural failures that affected the previous Tombs building, “foundations...[were] sunk to natural beds from eighty to 120 feet below ground,” presumably through the driving of piles (*New York Herald Tribune* 1938a). The groundbreaking ceremony for the new building occurred in August 1938 and the foundation was constructed by the Department of Public Works the following month (ibid). The foundation was not finished until November 1939, at which time it was described “by engineers to be the largest and most difficult feat of its kind in New York history” and a “conquest of the old Collect Pond” (*New York Herald Tribune* 1939).

Once again the construction of the foundation was plagued with legal disputes between the contractor responsible for building the foundation and the City, and once again resulted in litigation and the replacement of the contractor (*New York Herald Tribune* 1939). Following the demolition of the older buildings on the project site, the original contractor “found hundreds of boulders and large quantities of water where he had expected to find solid rock” (*New York Herald Tribune* 1941: 9). For the final construction, “the contractors passed through various layers of earth and boulders and the peat at the pond bottom” using pumps and 700 steel cassions that extended to the depth of bedrock and were 130 to 150 feet in length (*New York Herald Tribune* 1939:A3). The cassions were filled with cement and used as structural supports for the court and prison complex (ibid). In addition, sump pits were constructed to collect the flowing groundwater so that it could be safely pumped away from the site (ibid). Artifacts were reportedly found during construction, including “a large deposit of blue handmade pottery...[that were] almost perfect specimens” of the colonial-era work of famed potter and stoneware manufacturer Johann Willhelm Crolius and his descendants, whose pottery was located nearby in the 18th century (ibid; Janowitz 2008).

With the construction of the foundation complete, construction continued and the cornerstone of the new building was laid by Mayor Fiorella LaGuardia in June 1940 (*New York Times* 1940). The building was completed and dedicated the following year, with the first prisoners transferred to the building in November 1941 (*New York Herald Tribune* 1941). The building was modified after the construction of the new Men’s Detention Center on Block 198 in the late 1980s. At that time, the old prison and the new detention center were connected by an elevated bridge.

F. HISTORICAL AND MODERN UTILITIES IN AND AROUND THE PROJECT SITE

ACCESS TO UTILITIES IN THE 19TH CENTURY

Despite its status as one of America’s largest and most industrial cities, New York did not have a reliable network of water and sewer lines until the mid-19th century. The first water pipes were installed in the early 19th century by the Manhattan Company, the precursor to what would later become the Chase Manhattan Bank (Koeppel 2000). These wooden pipes carried water from local sources, including the Collect Pond, to other areas of Lower Manhattan. By 1829, the City had constructed a reservoir near the intersection of modern 13th Street and the Bowery (Burrows and Wallace 1999). An iron pipe ran between the reservoir and Catherine Street, bringing water to the Lower East Side (ibid). Previous research into the historic occupation and development of the East River waterfront has resulted in the documentation of early-19th century wooden water pipes representing some of the earliest infrastructure in Manhattan’s streetbeds (Chrysalis Archaeological Consultants 2007).

The initial water supply system could not be sustained for very long because the Collect Pond, as one of the largest sources of fresh water in all of Manhattan, became too polluted for continued use. It was not until 1842 that the Croton Aqueduct system brought significant amounts of clean water into Manhattan. A map of the complex distribution system associated with the Croton waterworks published by Endicott in 1842 depicts water lines and stop cocks running through most of Lower Manhattan, including in the streets surrounding and included within the project site. Although water lines were present by 1842, sewers were not installed throughout the majority of the City until after the 1850s and many buildings were not immediately connected to the sewers after their initial installation (Goldman 1997). Sewer lines were located within Leonard, Baxter, Worth, and Centre Streets—but not in White Street—before 1857 as shown on a map of New York’s sewer infrastructure that was published by C. Currier that year. Viele’s 1865 map continues to indicate that no sewer was present within the streetbed of White Street.

Therefore, historic properties that were developed before water and sewer networks were accessible in the mid-19th century relied on backyard shaft features (e.g., privies, cisterns, and wells) for the purposes of water gathering and sanitation. Privies—the shaft features constructed beneath outhouses—are typically expected to be located at the rear of the historic property while wells and cisterns are typically located closer to a dwelling. These features would have remained in use until municipal water and sewer networks became available in the mid- to late-19th century, and possibly for decades after and were typically filled with refuse either during or following their periods of active use.

20TH CENTURY UTILITIES

A map prepared in 1937 in advance of the construction of the new courthouse and jail buildings on Blocks 167 and 198 depicts a large sewer in the streetbed of Leonard Street that measured 3 feet, 10 inches by 3 feet, 10 inches as well as a 6-inch water main. The map indicates that the sewer's depth increased to the east and at its western end (near Centre Street) the sewer was located at an elevation of between 13.5 and 0.8 feet relative to MBD (15.152 and 2.452 feet relative to NAVD88), or a depth of more than 12.7 feet. At its eastern end (near Baxter Street) the sewer was located at an elevation of between 16.47 and 0.32 feet relative to MBD (18.122 and 1.972 feet relative to NAVD88), or a depth of more than 16.15 feet. Based on information provided by the New York City Department of Environmental Protection (NYCDEP), this older sewer was replaced in 1941 sewer line measuring 28 by 48 inches. A second brick sewer line that measured 36 by 54 inches was installed in 1910 and was located along the western side of the project site, parallel to the subway tunnel along Centre Street.

A current survey of utility lines reviewed as part of this study does not depict all existing utilities but shows a number of manholes, catch basins, hydrants, vaults, and lampposts, indicating the presence of utility lines. A number of other utilities, including gas, electricity, and water lines are shown in the streetbed; however, the full extent to which the streetbed has been disturbed by utilities is unknown.

A. CONCLUSIONS

As part of the background research for this Phase 1A Archaeological Documentary Study, various primary and secondary resources were analyzed, including historic maps and atlases, historic photographs and lithographs, newspaper articles, and local histories. The information provided by these sources was analyzed to reach the following conclusions.

ASSESSMENT OF PREVIOUS DISTURBANCE

BLOCK 166

The landscape of Block 166 was dramatically altered in the late 17th and early 19th centuries when the Collect Pond was filled and the land developed. Soil borings advanced during the construction of the existing Lefkowitz building identified a layer of fill measuring between 2.3 and 42.2 feet in thickness over bog deposits representing the original bottom of both the pond and the adjacent marshes. The borings occurred after the site had already been excavated to a depth of approximately 12 feet, suggesting that the fill layer was originally much thicker. During the 19th century, the entire block was developed with buildings, most of which were constructed with basements. Much of the disturbance associated with 19th century basements would have disturbed the 12-foot layer that was excavated in advance of the construction of the existing building. Additional disturbance to greater depths would have occurred during the construction of the existing building. Following the excavation of the site to a depth of 12 feet, additional subsurface work occurred in conjunction with the construction of the foundation. This involved the driving of hundreds of piles with widths of approximately 11 inches and lengths between 20 to 43 feet or more, the removal of those piles, and then the driving of a new set of 14-inch-wide piles of a larger width that were up to 78 feet in length. These piles would have resulted in extensive disturbance that likely penetrated the fill layer and the bog layer, extending through all soil levels that would potentially contain undisturbed cultural deposits.

BLOCK 167

As with Block 166, the northern portion of Block 166 is located in an area of filled marsh and pond that was extensively disturbed as a result of development. Soil borings on this site were completed from the ground surface in 1938. The borings identified disturbance to a depth of 8 to 10 feet associated with the construction of basements/cellars across the majority of the site. A fill layer of 12.0 to 34.8 feet was observed across the site beneath the cellar-related disturbance and fill depths ranging between 14 and 24 feet were observed in the small number of borings where cellars did not exist. However, as with the construction of the building at 80 Centre Street, the construction of 125 White Street involved the construction of a very complicated foundation in order to develop on the site of the former Collect Pond. The building, which contains both a sub-cellar and a cellar, is situated atop a number of cement-filled steel cussions, 700 of which were constructed across the entirety of Block 167, and a subsurface network of sump pumps and drainage infrastructure that divert water from natural springs away from the site. An underground tunnel was also constructed to connect the building to the criminal court complex to the

south. Therefore, while the footprint of the prison building does not cover the entire project site at the northern end of Block 167, given the extensive and deep disturbance of both the prison and the connected courthouse, the entire portion of the project site was likely disturbed to a depth greater than that of the fill deposits.

STREETBED OF HOGAN PLACE (FORMER LEONARD STREET)

Like Block 166 and 167, the streetbed of Hogan Place is situated in an area of filled pond and marsh. While soil borings were not available for the streetbed itself, the soil profile of the streetbed is presumed to be similar to that of the northern portion of Block 166. The entire length of the streetbed is presumed to be disturbed to a depth of approximately 2 feet as a result of the construction of the streetbed itself as well as disturbance associated with grading, paving, and road maintenance. The streetbed was further disturbed by the installation of utilities between the 19th century and the present. The installation of utilities would also have resulted in disturbance, with electrical, gas, and telecommunications lines expected to be at relatively shallow depths (2 to 3 feet below the ground surface); water lines at a depth of approximately 5 feet below ground surface; and sewer lines at greater depths of 6 to 10 feet below grade. However, portions of some of the streetbeds may not contain utility lines and may therefore be undisturbed. It is assumed that the locations of any existing utilities are disturbed from the ground surface to a depth of 2 feet below the bottom of the utility line and to a distance of up to 2 feet beyond the outer sides of each utility line, representing the trench that was likely dug as part of the line's installation. Any location where no utilities are present or where there is a space of 5 feet or more between the outer edges of or below existing utilities should be considered to be undisturbed. Those locations beneath the disturbed portions of existing utility trenches are also to be considered undisturbed. Given the depth of fill in this area—assumed to range between approximately 22 and 54 feet—utility-related disturbance may have only affected fill levels.

PRECONTACT SENSITIVITY ASSESSMENT

As described in **Chapter 4, “Precontact Resources,”** Native American habitation sites in the region are most often located in coastal areas with access to marine resources, near fresh water sources and areas of high elevation and level slopes less than 10 to 12 percent (NYAC 1994). Further indication of the potential presence of Native American activity near a project site is indicated by the number of precontact archaeological sites that have been previously identified in the vicinity. While the majority of the project site was formerly inundated by the waters of the Collect Pond (see **Figure 2**), documented Native American activity occurred along the southwestern shore of the pond, and the Collect Pond itself is known to have been an important source of resources for the local indigenous population. Historical soil borings identified peat or bog deposits across all portions of the study area, suggesting that the entire site was at some point inundated by the waters of the Collect Pond or covered with its associated marshes. Therefore, the site was not likely used as a habitation site given its inundation, but would have served as an important resource to the local indigenous population.

Given the extent to which Blocks 166 and 167 were disturbed, it is unlikely that intact precontact deposits would be present in either area. Therefore, Blocks 166 and the northern portion of 167 are determined to have low sensitivity for archaeological resources dating to the precontact period. However, portions of the Hogan Place streetbed may not have been disturbed beneath the depth of fill, and as such, there is a slight chance that undisturbed deeply buried precontact resources could be present. Therefore, undisturbed portions of the streetbed of Hogan Place beneath the depth of historic fill are determined to have low to moderate sensitivity for archaeological resources associated with the precontact occupation of Manhattan.

HISTORIC SENSITIVITY ASSESSMENT

The historic period occupation of the study area began in the late-18th century when landfilling created developable land in the area. By the 1790s, houses were located in the eastern portion of Block 166 and by the mid-19th century, Blocks 166 and 167 were fully developed with dozens of residential and/or commercial/industrial buildings. Block 166 was in the heart of the infamous Five Points neighborhood and was the site of several well-known institutions associated with the neighborhood in the early- to mid-19th century. However, the extensive disturbance to the area resulting from the construction of the existing state office building on Block 166 and the prison and courthouse buildings on Block 167 likely disturbed most of the historic ground surface. The residents of the late-18th and early-19th century buildings would have relied on shaft features (e.g., privies, cisterns, and wells) prior to the installation of municipal water and sewer networks, and such features would likely have extended between 10 and 15 feet below the 19th century ground surface. However, soil borings and historical accounts confirm that the project sites were disturbed to depths of greater than 12 feet on Block 166 and presumably to greater depths on Block 167, where the existing building has both a basement and a sub-cellar. Both portions of the project site contain a number of support piles or cussions that would have resulted in additional disturbance to greater depths. Blocks 166 and the northern portion of Block 167 are therefore determined to have no archaeological sensitivity for deposits associated with the historic period. However, intact historic period archaeological deposits could be present within undisturbed portions of the streetbed of Hogan Place. Undisturbed portions of the streetbed are therefore determined to have moderate archaeological sensitivity for resources associated with the historic period.

B. RECOMMENDATIONS

Block 166 and the northern portion of Block 167 are sufficiently disturbed that they are not considered archaeologically sensitive, and therefore no additional archaeological analysis is recommended for those portions of the study area. Undisturbed portions of the streetbed of Hogan Place have been determined to have low to moderate sensitivity for deeply buried precontact resources and moderate sensitivity for archaeological resources associated with the historic period. At present, no subsurface disturbance is proposed for Hogan Place and the street will only be de-mapped as part of the proposed project. If project plans are revised in the future and would result in disturbance to undisturbed portions of the streetbed, then additional archaeological analysis in the form of Phase 1B archaeological testing or monitoring would be recommended. All testing or monitoring would be completed in consultation with LPC. Prior to the start of any additional analysis, a Phase 1B Work Plan would be prepared and submitted to LPC for review and approval.

References

- AKRF, Inc.
2012 "Archaeological Assessment: Collect Pond Park Unanticipated Discoveries." Prepared for: the Lower Manhattan Development Corporation; New York, NY.
- Blakey, Michael L.
2008 "An Ethical Epistemology of Publicly Engaged Biocultural Research." In, *Evaluating Multiple Narratives: Beyond Nationalist, Colonialist, Imperialist Archaeologies*. J. Habu, C. Fawcett, and J.M. Matsunaga, eds. Pages 17-28. New York: Springer.
- Bolton, Reginald Pelham
1922 "Indian Paths in the Great Metropolis." In *Indian Notes and Monographs*. Miscellaneous #22. New York: Museum of the American Indian, Heye foundation.
1934 *Indian life of long ago in the city of New York*. New York: J. Graham.
1975 *New York City in Indian Possession*. Museum of the American Indian, Heye Foundation, New York.
- Bonar, T.
1804 *The Great Metropolis in 1804*. New York: T. Bonar.
- Borough President of Manhattan
1937 "Architects survey of Court House and Jail Site Bounded by Leonard St., Centre St., Franklin St., & Baxter St. and Franklin St., Centre St., White St., & Baxter St." New York: Office of the Borough President of Manhattan.
- Bridges, William
1811 *Map of the city of New York and island of Manhattan, as laid out by the commissioners appointed by the legislature, April 3d, 1807*. New York: unknown.
- "The British Headquarters Map"
Ca. 1782 New York: Unknown.
- Bromley, G.W. and Company
1879 *Atlas of the City of New York, Complete in One Volume*. New York: George W. Bromley and E. Robinson.
1891 *Atlas of the City of New York, Manhattan Island, From Actual Surveys and Official Plans*. Philadelphia: G.W. Bromley & Co.
1897 *Atlas of the City of New York, Manhattan Island, From Actual Surveys and Official Plans*. Philadelphia: G.W. Bromley & Co.
1899 *Atlas of the City of New York, Borough of Manhattan, From Actual Surveys and Official Plans*. Philadelphia: G.W. Bromley & Co.
1911 *Atlas of the City of New York, Borough of Manhattan, From Actual Surveys and Official Plans*. Philadelphia: G.W. Bromley & Co.
1916 *Atlas of the Borough of Manhattan, City of New York: Desk and Library Edition*. Philadelphia: G.W. Bromley & Co.
1921 *Atlas of the City of New York, Borough of Manhattan, From Actual Surveys and Official Plans*. Philadelphia: G.W. Bromley & Co.
- Brooklyn Daily Eagle*
1928a "Contractor Defies State as Work on Its Building Halts." *Brooklyn Daily Eagle*. April 23, 1928: 20. Brooklyn. NY.

NYC Borough-Based Jail System Manhattan Site—Phase 1A Archaeological Documentary Study

- 1928b “State Building Work Plot Charged.” *Brooklyn Daily Eagle*. April 24, 1928: 12. Brooklyn. NY.
- Burrows, Edwin G. and Mike Wallace
1999 *Gotham*. New York: Oxford University Press.
- Caldwell, Daniel, compiler/editor
1989 *Surficial Geologic Map of New York: Lower Hudson Sheet*. New York State Museum-Geological Survey, Map and Chart Series #40. Albany: New York State Museum.
- Chrysalis Archaeological Consultants, Inc. (CAC)
2005 “Columbus Park; New York, (New York County) New York—Phase 1A and Partial Monitoring Report.” Prepared for: City of New York—Department of Parks and Recreation; Queens, NY.
- 2007 “Columbus Park; New York, (New York County) New York—Monitoring Report for Phase II Construction.” Prepared for: City of New York—Department of Parks and Recreation; Queens, NY.
- Colton, J.H.
1836 *Topographical Map of the City and County of New York and the Adjacent Country*. New York: J.H. Colton and Co.
- The Common Council of the City of New York
1905 *Minutes of the Common Council of the City of New York 1674-1776*. In Eight Volumes. New York: Dodd, Mead and Company published under the authority of the City of New York.
- 1917 *Minutes of the Common Council of the City of New York 1784-1831*. In Nineteen Volumes. New York: The City of New York.
- Currier, C.
1857 *Map of the City of New York Showing the Sewers & Drains*. New York: C. Currier’s Lith. In the collection of the Stephen S. Clark Library, University of Michigan Library.
- Department of Borough Works
1937 *Rock Data Map of Manhattan*. Updated through January 1, 1940. New York: Office of the Borough President.
- Dripps, Matthew
1852 *Map of the City of New York Extending Northward to Fiftieth St Surveyed and Drawn by John F. Harrison*. New York: M. Dripps.
- 1867 *Plan of New York City from the Battery to Spuyten Duyvil Creek*. New York: Matthew Dripps.
- Endicott
1842 “Map of the Croton Water Pipes with the Stop Cocks.” In, *Manhattan in Maps*, by Paul E. Cohen and Robert T. Augustyn. New York: Rizzoli (1997).
- Geismar, Joan H.
1993 “Reconstruction of Foley Square: Historical and Archaeological Resources Report.” Prepared for: The City of New York Parks and Recreation, New York, NY. Prepared through CLRR Coe Lee Robinson Roesch Inc.; New York, NY.
- 2014 “The Reconstruction of Foley Square, Monitoring and Testing, 1994 to 2003 (Selected Data).” Submitted to the New York City Landmarks Preservation Commission; New York, NY.
- Goldman , Joanne Abel
1997 *Building New York’s Sewers: Developing Mechanisms of Urban Management*. West Lafayette, Indiana: Purdue University Press.

- Greenhouse Consultants, Inc.
1994 "Archaeological and Historical Sensitivity Evaluation for 62-64 Mulberry Street Public Parking Garage; Borough of Manhattan, New York, New York." Prepared for: D.I.D. Architects, New York, NY.
- 1995 "62-64 Mulberry Street Public Parking Garage; Manhattan, New York: Archaeological Testing Report." Prepared for: D.I.D. Architects, New York, NY.
- Grim, David
1813 *Reminiscences of the City of New York and Its Vicinity*. Copied 1854. New York: D.T. Valentine.
- Grumet, Robert S.
1981 *Native American Place Names in New York City*. New York: Museum of the City of New York.
- Fisher, Donald W., Yngvar W. Isachsen, and Lawrence V. Rickard, compilers/editors
1995 *Geologic Map of New York: Lower Hudson Sheet*. Originally published 1970, reprinted 1995. New York State Museum and Science Service Map and Chart Series No. 15. Albany: New York State Museum.
- Hills, John
1782 "The Hills Plan." In *Manhattan in Maps* by Paul E. Cohen and Robert T. Augustyn. New York: Rizzoli (1997).
- Historical Perspectives, Inc. [HPI]
1995 "Phase IA Archaeological Assessment: 101-117 Worth Street, Manhattan." Prepared for: Allee, King, Rosen, and Fleming, Inc.; New York, NY.
- 2013 "Phase IA Archaeological Documentary Study: Worth Street Reconstruction, Centre Street to Mott Street, New York, New York." Prepared for: New York City Department of Design and Construction; Long Island City, NY.
- Holland, Samuel
1757 *A Plan of the North East Environs of the City of New-York Performed by Order of his Excellency the Early of Loudon &c &c*. In the collection of Columbia University.
- 1776 *Plan of the City of New York and Environs*. In the collection of the New York State Library.
- Hooker, William
1824 *Hooker's new pocket plan of the city of New York / compiled & surveyed by William Hooker, A.C.S.A., hydrographer & engraver*. New York: William Hooker.
- Howard University New York African Burial Ground Project
2009 *The New York African Burial Ground: Unearthing the African Presence in Colonial New York*. Washington, DC: Howard University Press in association with the General Services Administration.
- Hutchings, John
1846 *Origin of Steam Navigation: A View of Collect Pond and its Vicinity, City of New York in 1793*. Williamsburgh, Long Island: published by the author.
- Isachsen, Y.W., E. Landing, J.M. Lauber, L.V. Rickard, W.B. Rogers, editors.
2000 *Geology of New York: A Simplified Account*. Second Edition. New York: New York State Museum Educational Leaflet 28.
- Janowitz, Meta F.
2008 "New York City Stonewares from the African Burial Ground." *Ceramics in America 2008*. Robert Hunter, ed.: online edition. Milwaukee, WI: Chipstone Foundation. Accessed October 2018: <http://www.chipstone.org/issue.php/9/Ceramics-in-America-2008>.

- Koeppel, Gerard T.
2000 *Water for Gotham: A History*. Princeton, NJ: Princeton University Press.
2015 *City on a Grid: How New York Became New York*. Philadelphia, PA: DaCapo Press.
- Kouwenhoven, John A.
1953 *The Columbia Historical Portrait of New York*. Garden City, New York: Doubleday & Co, Inc.
- LaRoche, Cheryl J. and Michael L. Blakey
1997 “Seizing Intellectual Power: The Dialogue at the New York African Burial Ground.” In, *Historical Archaeology* 31(3): 84-106.
- Lloyd, J.T.
1867 *Lloyd’s Mammoth Map*. New York and London: J.T. Lloyd.
- Longworth, David
1808 *Plan of the city of New York*. New York: D. Longworth.
1817 *Actual Map and Comparative Plans Showing 88 Years Growth of the City of New York*. New York: D. Longworth.
- Lyne, James
1730 *A Plan of the City of New York from an Actual Survey*. New York: William Bradford.
1731 *Map of New York City: From an Actual Survey*. New York: William Bradford.
- Maerschallck, Francis
1755 *A Plan of the City of New York From an Actual Survey*. New York: G. Duyckinck.
- Matthews, Christopher N. and Allison M. McGovern
2015 “The Archaeology of Race in the Northeast: An Introduction.” *The Archaeology of Race in the Northeast*. Christopher N. Matthews and Allison M. McGovern, eds: pages 1-25. Tallahassee: University Press of Florida.
- Mather, William W.
1843 *Geology of New York: Part I Comprising the Geology of the First Geological District*. Albany: Carroll & Cook.
- McComb, John
1789 *Plan of the city of New York*. New York: unknown.
- Mix, James B. and Samuel A. Mackeever, editors
1874 *The New York Tombs: Its Secrets and Mysteries*. San Francisco: A. Roman & Co.
- New York Archaeological Council
1994 *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State*. The New York Archaeological Council.
- New York City Department of Citywide Administrative Services
2018 “Louis J. Lefkowitz State Office Building.” Accessed October 2018: http://www.nyc.gov/html/dcas/html/about/man_louislefkowitz.shtml.
- New York City Register’s Office
1915 *General Map of Tracts and Farms*. New York: Register’s Office, New York County Reindexing Department Map Division.

New York Daily News

- 1928a "Digging Halted for New State Office Building." *New York Daily News*. April 22, 1928: page 33. New York, NY.
- 1928b "Old Map Lists Bog at Site of New Office Site." *New York Daily News*. April 24, 1928: page 8. New York, NY.
- 1984 "Honor for Lefky." *New York Daily News*. August 6, 1984: page 64. New York, NY.

New York Herald Tribune

- 1927 "7-Million State Office Building Planned Here." *New York Herald Tribune*. March 5, 1927: page 4. New York, NY.
- 1928a "High Costs Halt Work on State's New Office Here." *New York Herald Tribune*. April 22, 1928: page 1. New York, NY.
- 1928b "Acheson Denies Halting Work on State Office." *New York Herald Tribune*. April 23, 1928: page 30. New York, NY.
- 1928c "State Rejects Piling Work on Building Here." *New York Herald Tribune*. May 15, 1928: page 2. New York, NY.
- 1928d "State Building Cornerstone is Laid Tomorrow." *New York Herald Tribune*. December 16, 1928: page 9. New York, NY.
- 1930 "State Opens New Office Building Here Tomorrow." *New York Herald Tribune*. October 26, 1930: page 10. New York, NY.
- 1937a "Levy Lauds Blueprints of New Courts Building." *New York Herald Tribune*. October 22, 1937: page 4. New York, NY.
- 1937b "New Courthouse to Shelter Judges and Jailers." *New York Herald Tribune*. November 14, 1937: page A3. New York, NY.
- 1938a "City Prepares to Quit the Tombs: New Prison and Court Buildings Designed to Meet Modern Needs." *New York Herald Tribune*. November 27, 1938: page A3. New York, NY.
- 1938b "No One Wants to Take Old Postoffice." *New York Herald Tribune*. July 3, 1938: page A1. New York, NY.
- 1938c "P.W.A. Grants Fund to Replace Tombs Prison." *New York Herald Tribune*. July 10, 1938: page 2. New York, NY.
- 1939 "Court Building Gets its Legs, Despite Gravity and the Law." *New York Herald Tribune*. November 26, 1939: page A3. New York, NY.
- 1941 "June 30 is Set for Dedicating Court Building." *New York Herald Tribune*. May 31, 1941: page 9. New York, NY.

New York Sun

- 1914 "Change in County Court House Site Will Save City Cash, Says McAneny." *New York Sun*. May 11, 1914: page 14. New York, NY.
- 1915 "Court House Site May Now Come Under Fire." *New York Sun*. December 15, 1915: page 6. New York, NY.

New York Times

- 1902 "Mysterious Waters Found Under the Tombs." *New York Times*. June 29, 1902: page 26. New York, NY.
- 1912 "New Court House in Park of its Own." *New York Times*. January 12, 1912: page 22. New York, NY.
- 1913a "Five Points House of Industry Slated for Destruction." *New York Times*. August 3, 1928: page 6. New York, NY.
- 1913b "City Again Orders Famous Dispensary to 'Move on'." *New York Times*. June 8, 1913: page 44. New York, NY.
- 1914 "Tearing Down Old Buildings in Five Points Section to Prepare for New Court House and Civic Centre." *New York Times*. April 26, 1914: page 2. New York, NY.
- 1927 "State and Nation Ask Same Building Site." *New York Times*. March 8, 1927: page 9. New York, NY.

NYC Borough-Based Jail System Manhattan Site—Phase 1A Archaeological Documentary Study

- 1928a “New State Building is Suddenly Halted.” *New York Times*. April 22, 1928: page 1. New York, NY.
- 1928b “State Offices Here Begun.” *New York Times*. February 22, 1928: page 15. New York, NY.
- 1928c “State Building Here Arouses New Conflict.” *New York Times*. May 9, 1928: page 3. New York, NY.
- 1928d “Plans \$60,000 Suit on State Building.” *New York Times*. May 12, 1928: page 19. New York, NY.
- 1928e “Col. Greene Backs State Engineer.” *New York Times*. May 15, 1928: page 29. New York, NY.
- 1937 “City Votes Land for Court House.” *New York Times*. May 8, 1937: page 8. New York, NY.
- 1940 “Stone for Court, Jail Will be Laid Friday.” *New York Times*. June 22, 1940: page 10. New York, NY.
- 1941 “House Warming for New Tombs.” *New York Times*. November 7, 1941: page 25. New York, NY.

New York Tribune

- 1908 “Tall Buildings Ruin Playground.” *New York Tribune*. October 15, 1908: page 3. New York, NY.
- 1909a “Child Charities Unite.” *New York Tribune*. March 1, 1909: page 12. New York, NY.
- 1909b “New York Dispensary’s New Home.” *New York Tribune*. August 31, 1909: page 6. New York, NY.
- 1912 “To Rush Courthouse.” *New York Tribune*. January 19, 1912: page 14. New York, NY.
- 1918 “U.S. Wants New Courthouse Site for an Army Jail” *New York Tribune*. June 7, 1918: page 7. New York, NY.

Orser, Charles E., Jr.

- 2007 *The Archaeology of Race and Racialization in Historic America*. Tallahassee: University Press of Florida.

Parker, Arthur C.

- 1920 *The Archaeological History of New York*. Albany: The University of the State of New York.

Perris, William

- 1850 *Map of the City of New York*. New York: Perris and Hutchinson.
- 1853 *Maps of the City of New York Surveyed Under Directions of Insurance Companies of Said City*. New York: Perris and Browne.
- 1857 *Maps of the City of New York: Third Edition*. New York: Perris and Browne.

Pritchard, Evan T.

- 2007 *Native New Yorkers: The Legacy of the Algonquin People of New York*. Revised second edition paperback. San Francisco: Council Oak Books.

Ratzer, Bernard

- 1776 *Plan of the city of New York in North America: surveyed in the years 1766 & 1767 / B. Ratzer, lieutt. in His Majestys 60th or Royal American Regt. ; Thos. Kitchin, sculpt., engraver to His Late Royal Highness, the Duke of York, &c.* London: Jeffrys and Faden.

Robinson, E. and R.H. Pidgeon

- 1885 *Robinson’s Atlas of the City of New York, 1883-1888*. New York: E. Robinson.

Sanborn Map Company

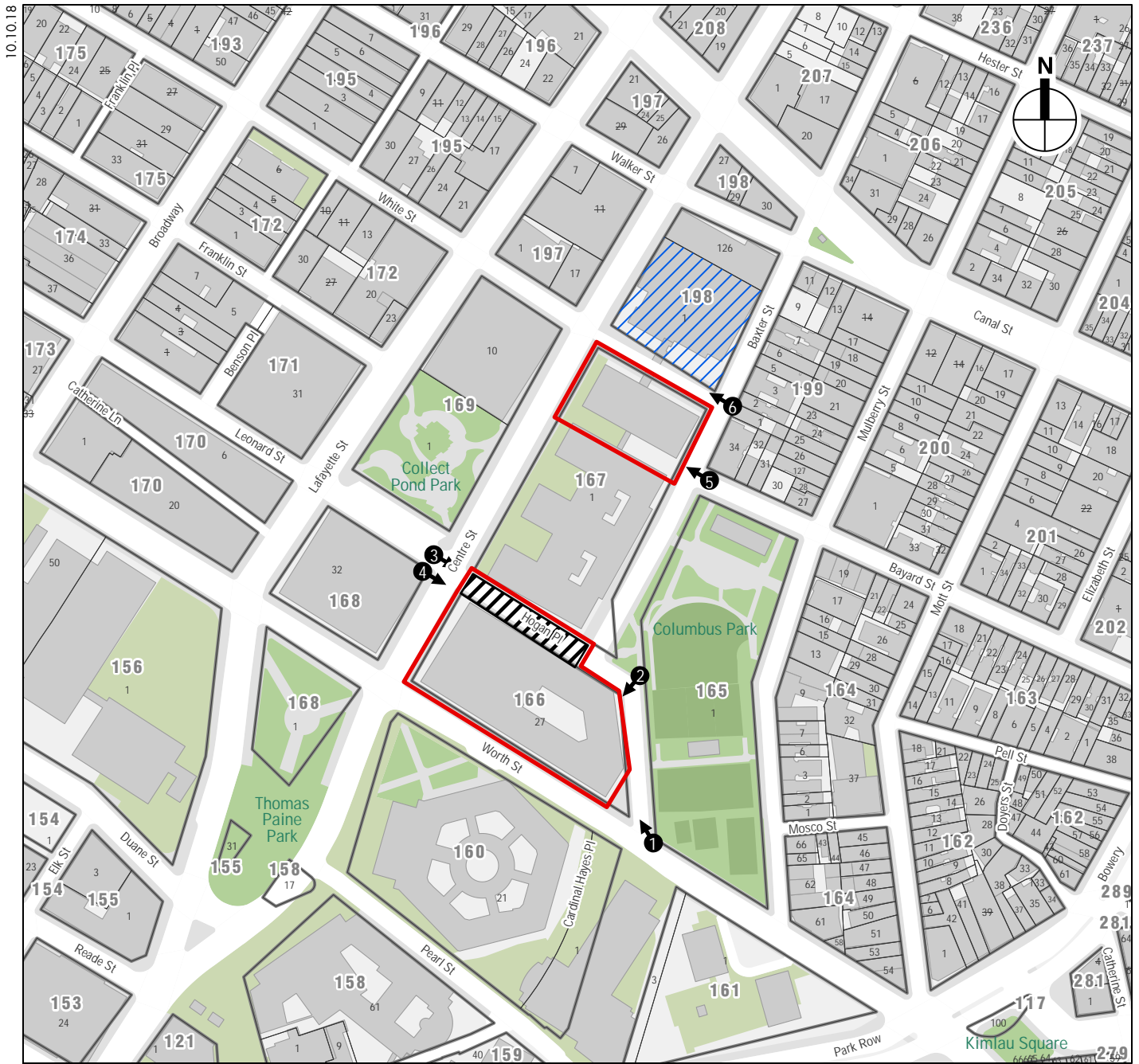
- 1894 *Insurance Maps of the City of New York*. New York: Sanborn-Perris Map Co.
- 1905 *Insurance Maps of the City of New York*. New York: Sanborn Map Co.
- 1923 *Insurance Maps of the City of New York*. New York: Sanborn Map Co.
- 1951 *Insurance Maps of the City of New York*. New York: Sanborn Map Co.







Schuberth, Christopher J.

- 1968 *The Geology of New York City and Environs*. Garden City, New York: The American Museum of Natural History, the Natural History Press.

-
- Schuldenrein, Joseph, PhD
2003 "A Geoarchaeological Assessment of the Buried Landscape at the Foley Square Reconstruction Area, New York, New York." Prepared for: Joan Geismar, PhD, LLC; New York, NY.
- Stevens, B.F.
1900 *B. F. Stevens' facsimile of the unpublished British headquarters colored manuscript map of New York & environs (1782)*. Reproduced from the original drawing in the War Office, London. London: B.F. Stevens.
- Stokes, I.N.P.
1967 (reprint) *The Iconography of Manhattan Island, 1498-1909* Volumes I-VI. Originally published 1915-1928. New York: Robert Dodd.
- Taylor, Benjamin and John Roberts
1797 *A New and Accurate Plan of the City of New York in the State of New York in North America*. New York: Publisher unknown.
- United States Geological Survey
2013 "USGS New York CMGP Sandy Lidar." Accessed through: [LAS.xml](#)
- URS Corporation
2003 "Phase IB Archaeological Field Investigations: Block 170, 101-117 Worth Street; New York, NY. Prepared for: Allee King Rosen and Fleming, Inc.; New York, NY.
- Viele, Egbert L.
1865 *Sanitary & Topographical Map of the City and Island of New York*. New York: Ferd. Mayer & Co.
- Vinckeboons, Joans
1639 *Manatvs gelegen op de Noot Riuiet*, or, "The Manatus Map."
- Yamin, Rebecca, with contributions from Leonard Bianchi, Stephen A. Brighton, Robert K. Fitts, Claudia Milne, Reginald H. Pitts, and Rebecca Yamin
2000 *Tales of Five Points: Working-Class Life in Nineteenth-Century New York*. Volume 1. Prepared for: Edwards and Kelcey Engineers, Inc.; Livingston, NJ and the General Services Administration; New York, NY.
- Yamin, Rebecca and Joseph Schuldenrein
2007 "Landscape Archaeology in Lower Manhattan: The Collect Pond as an Evolving Cultural Landmark in Early New York City." *Envisioning Landscape*. Dan Hicks, Laura McAtackney, and G.J. Fairclough, eds: pages 75 to 100. London and New York: Routledge.

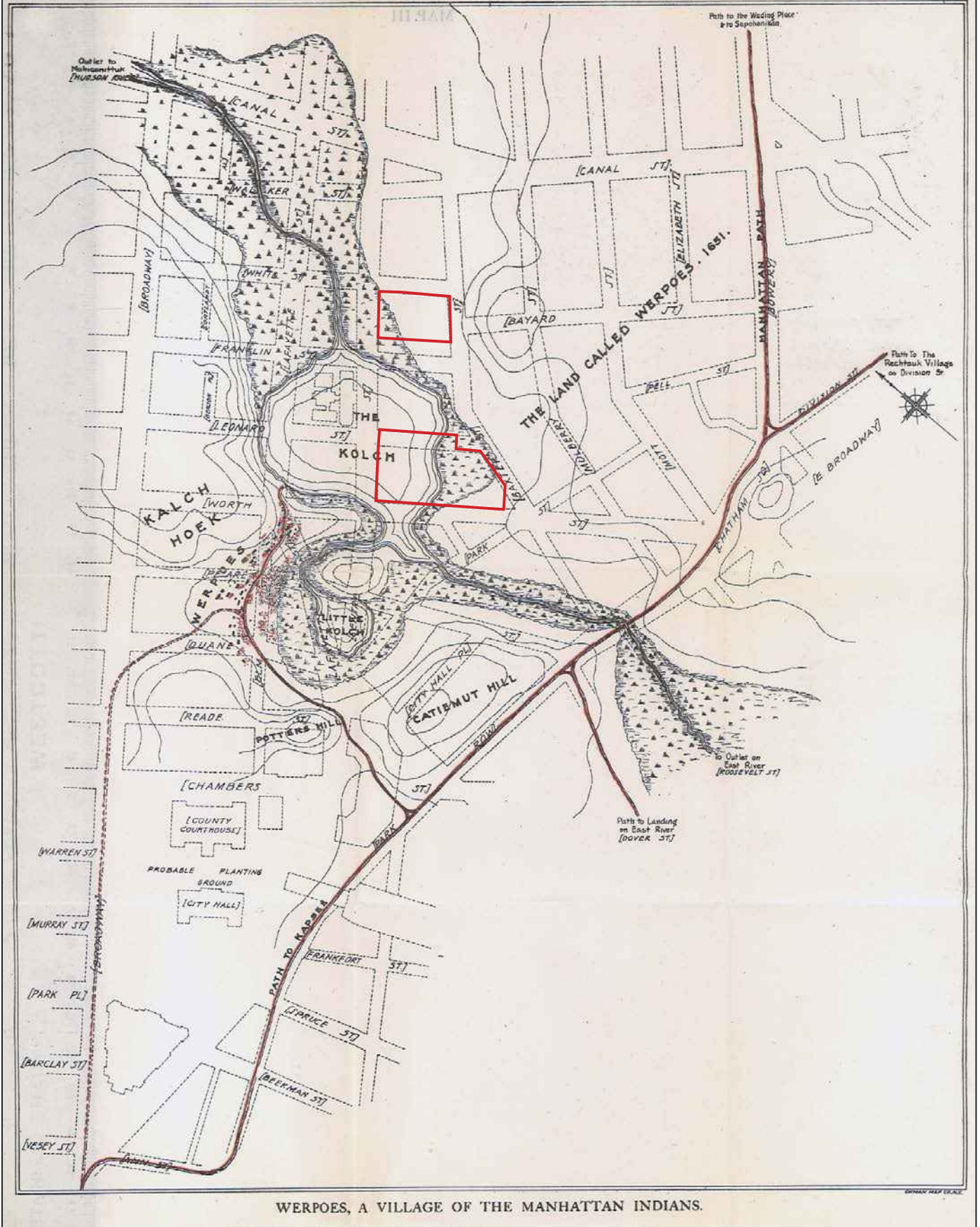
Figures



-  Proposed Demapped Area
-  Portion of Project Site where no Subsurface Disturbance will Occur
-  Phase 1A Study Area
-  Photograph View Direction and Reference Number
-  Tax Lot Boundary
-  Tax Block Boundary

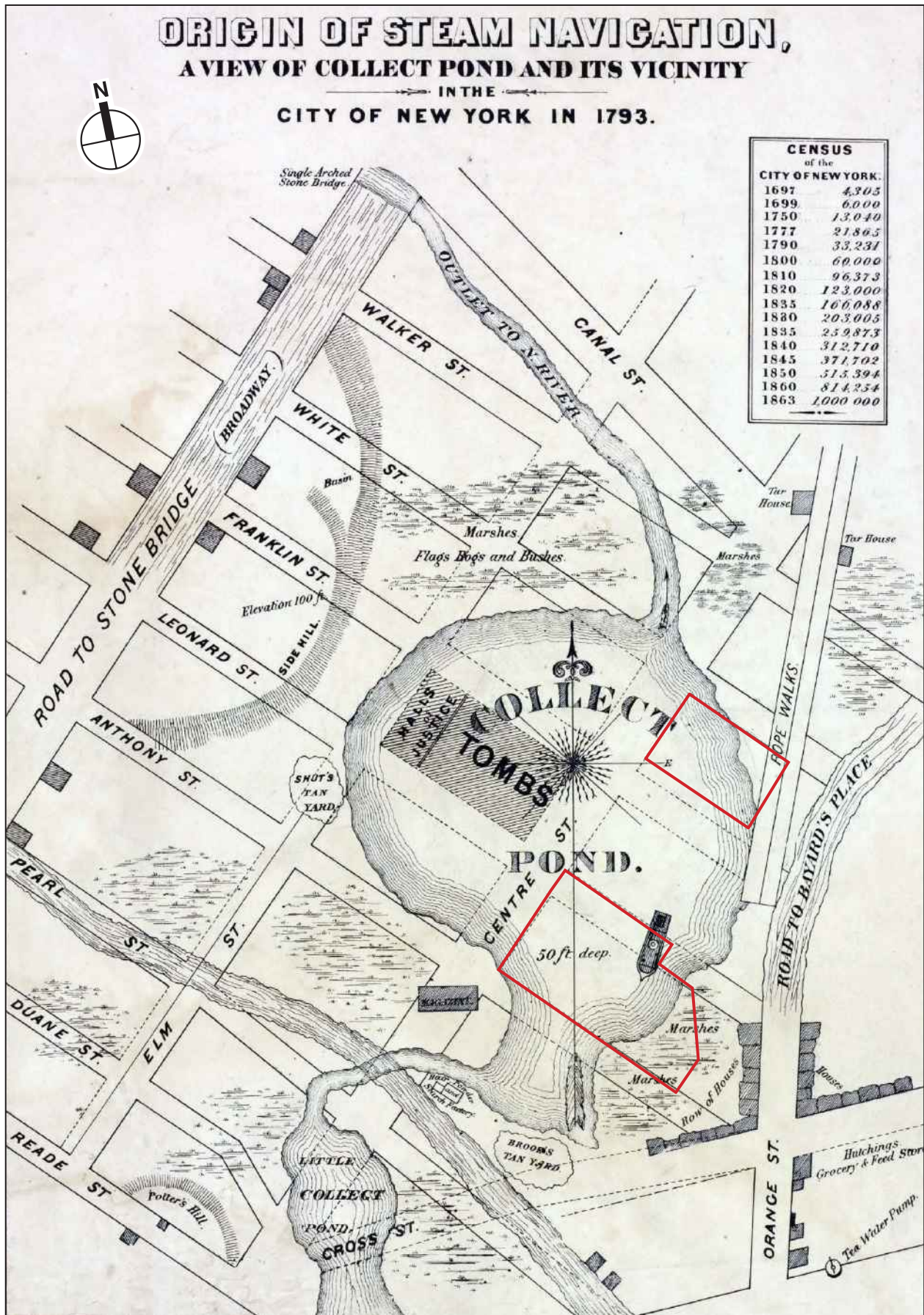


Manhattan Site
Project Location
Figure 1



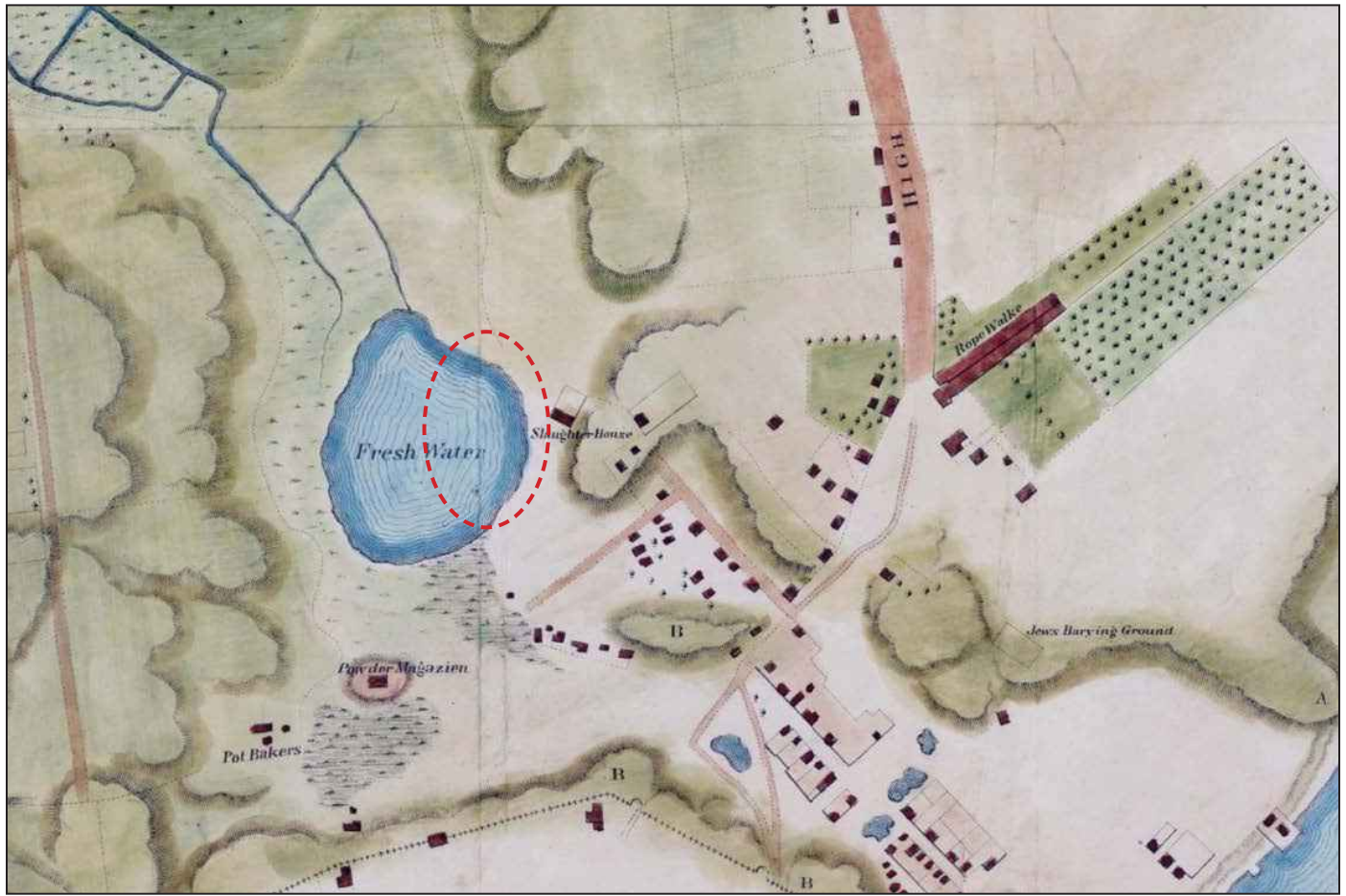
WERPOES, A VILLAGE OF THE MANHATTAN INDIANS.

Phase 1A Study Area

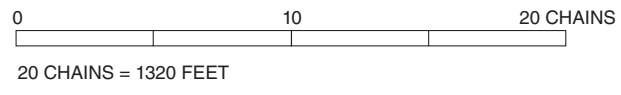


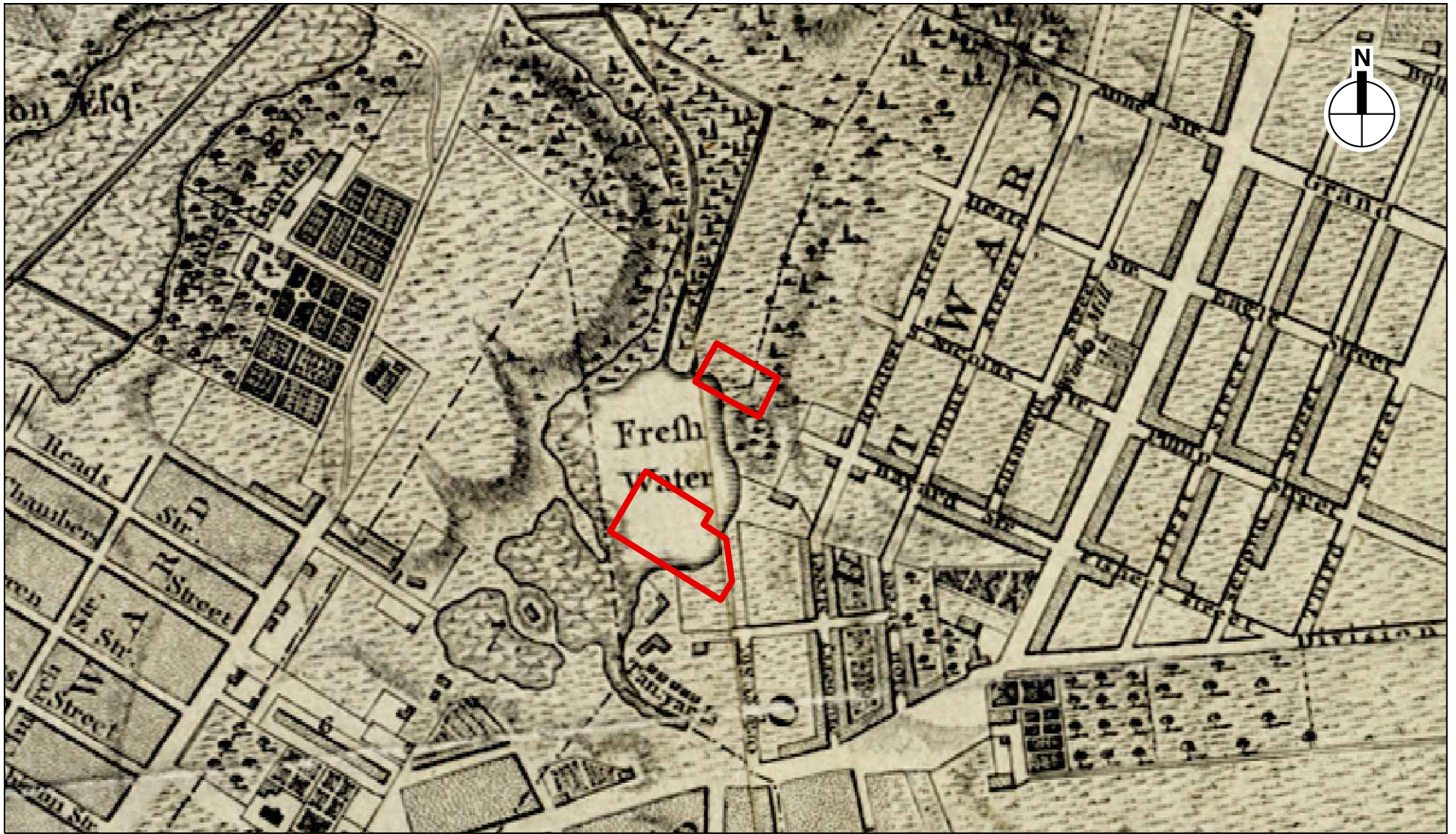
Phase 1A Study Area

1846 Hutchings Map Depicting 1793




 *Approximate Location of Project Site*





 Phase 1A Study Area

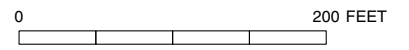
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 *Approximate Location of Project Site*

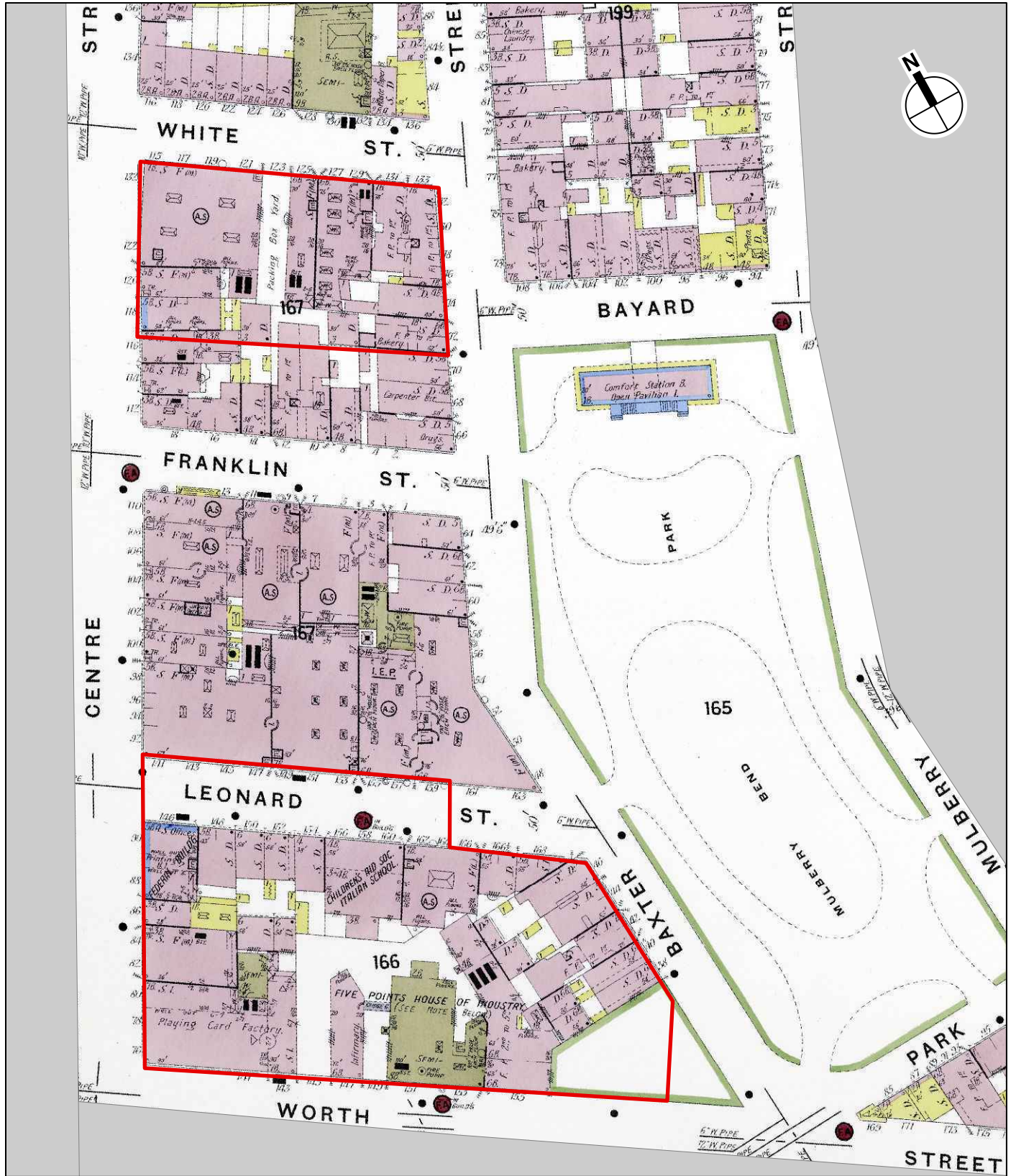


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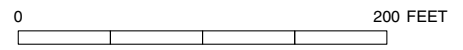


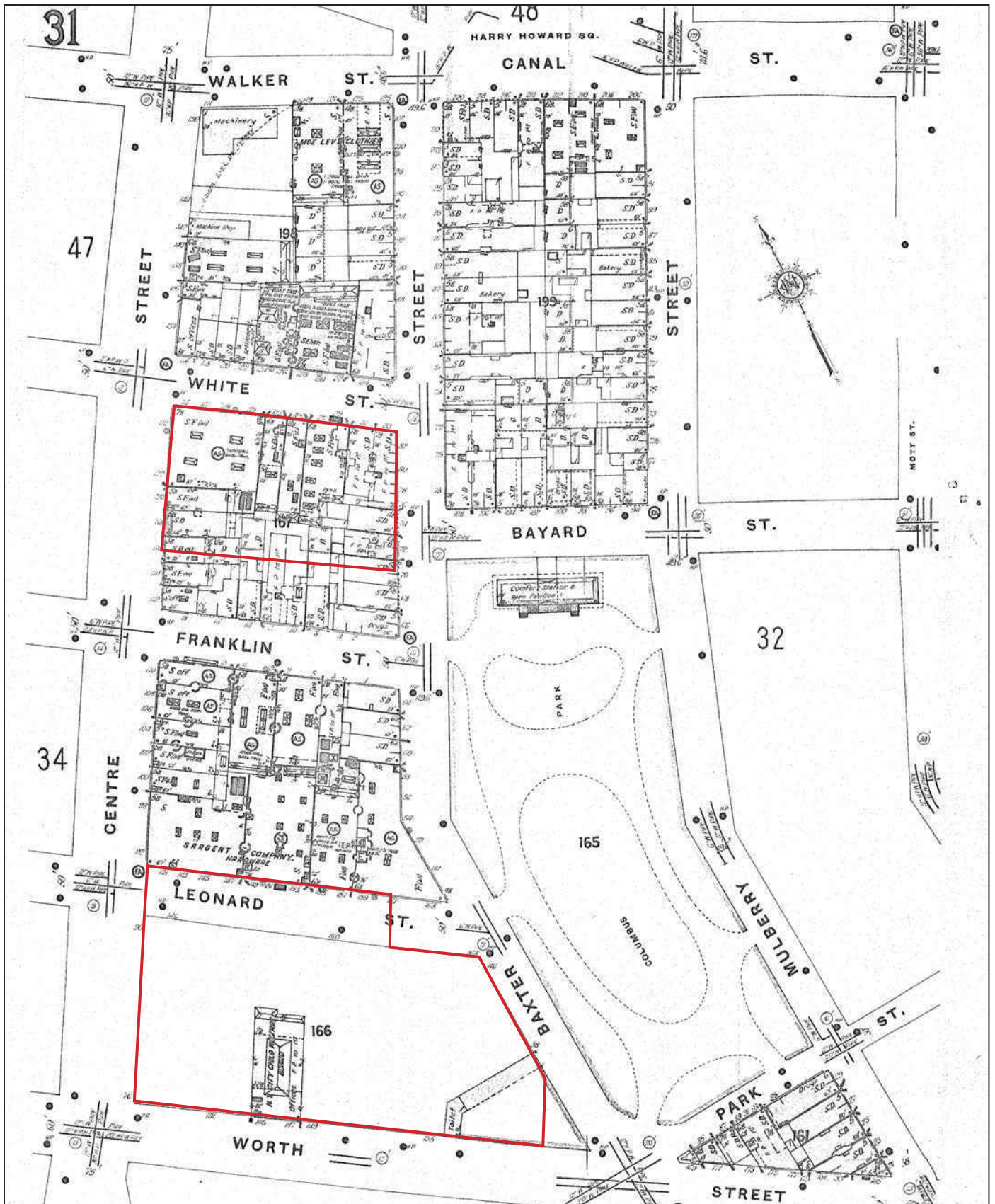


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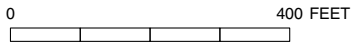
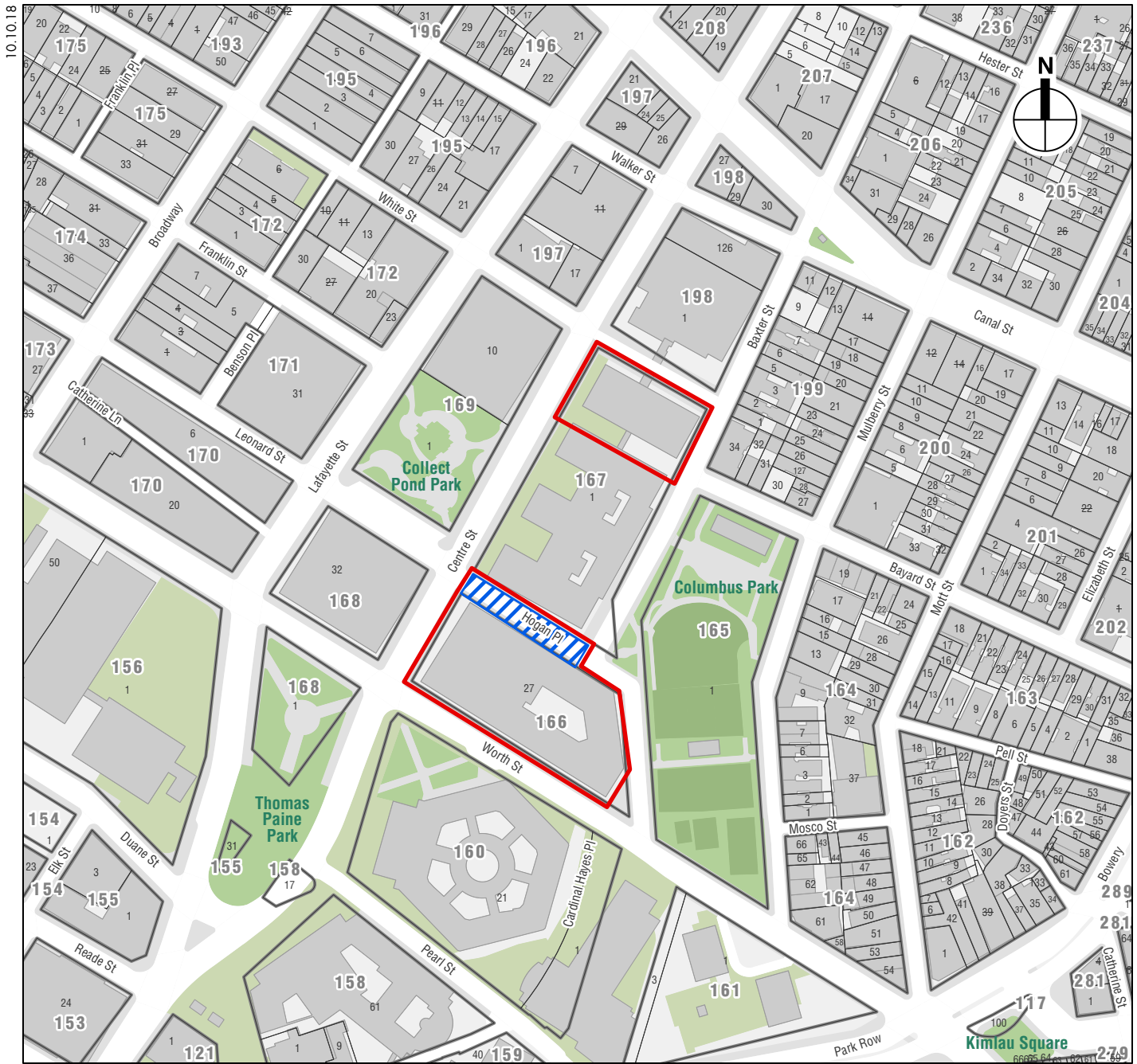
Phase 1A Study Area





Phase 1A Study Area

0 200 FEET



- Phase 1A Study Area
- Area of Archaeological Sensitivity



Manhattan Site
Area of Archaeological Sensitivity

Photographs



View northwest of the Louis J. Lefkowitz State Office Building (S/NR-eligible) at 80 Centre Street (Block 166, Lot 27) along Worth Street near Baxter Street

1



View southwest of the north façade of the Louis J. Lefkowitz State Office Building along Baxter Street

2



View east of the streetbed of Hogan Place from Centre Street 3



Looking east at the northern side of the state building at 80 Centre Street 4



View west at the court building (at left) and the prison at 125 White Street (at right) from Bayard Street, showing the connections between the two buildings 5



Looking east at White Street from Baxter Street, showing the prison at 125 White Street at right 6

Appendix A:
Summary of Soil Borings from the Rock Data Map

Table A-1

Rock Data Map Borings for Block 166

Boring #	Opening Elevation	Closing Elevation	Soil Type
40	4.5	-7.5	Fill
	-7.5	-8.7	Bog
	-8.7	-12	Sand
	-12	-14.4	Fine sand & mica
	-14.4	-24.1	Sand & little gravel
41	5.1	-2.7	Fill
	-2.7	-5.7	Bog
	-5.7	-8.5	Fine sand & bog
	-8.5	-22	Red sand & cobbles
42	6	-3.8	Fill
	-3.8	-5.9	Bog
	-5.9	-6.8	Sand
43	6	-3.8	Fill
	-3.8	-5.9	Bog
	-5.9	-6.8	Sand
44	6	-2.7	Fill
	-2.7	-4	Bog
	-4	-10.1	Sand
	-10.1	-14.2	Sand & gravel
	-14.2	-23.6	Red sand
45	5	-6	Fill & wood bog (colored)
	-6	-15.2	Fill sand bog & wood
	-15.2	-19.6	Gray sand & gravel
	-19.6	-26.5	Gray sand
46	18.2	-2.1	Fill brick & sand
	-2.1	-6	Fill sand bog & wood
	-6	-26.8	Red sand
47	7.6	5.2	Fill over concrete
48	7.6	-2.9	Fill
	-2.9	-6.2	Fill & sand
	-6.2	-10.1	Bog
	-10.1	-13.2	Gravel bog
	-13.2	-23.9	Fine sand & mica
	-23.9	-32.7	Red sand & trace of clay
	-32.7	-49.4	Sand & gravel
49	-1.1	-43.3	Fill sand & wood
	-43.3	-46	Bog & wood
	-46	-60.7	Silt
	-60.7	-77.1	Fine sand
	-77.1	-99.1	Fine sand & mica
50	5.6	-9	Fill
	-9	-11	Sand & bog
	-11	-23.2	Bog
	-23.2	-39.7	Silt & sand

**Table A-1
Rock Data Map Borings for Block 166**

Boring #	Opening Elevation	Closing Elevation	Soil Type
	-39.7	-71.2	Fine red sand & trace of clay
51	7.5	-11	Fill
	-11	-15.1	Bog
	-15.1	-19.5	Sand
	-19.5	-27	Red sand & gravel
	-27	-34.5	Fine red sand
52	5.5	-7.7	Fill
	-7.7	-9.3	Bog
	-9.3	-15.5	Sand, gray & boulders
53	5.5	-7.7	Fill
	-7.7	-9.3	Bog
	-9.3	-12.5	Sand & gravel
	-12.5	-14.8	Wood
54	5.5	-8.6	Fill & trace of bog
	-8.6	-24.5	Red sand & trace of clay
	-24.5	-32.7	Coarse gray sand & trace of gravel
	-32.7	-66.8	Fine red sand & trace of clay
	-66.8	-71	Medium sand & gravel
	-71	-81.3	Fine sand & mica
55	-81.3	-9.5	Coarse sand & gravel
	4.7	-25.3	Fill
	-25.3	-26.3	Bog
	-26.3	-37.7	Silt & sand
	-37.7	-69.5	Very fine sand
	-69.5	-89.8	Medium fine sand
56	-89.8	-96.5	Medium sand & trace of gravel
	-2.5	-10.3	Fill sand & gravel
	-10.3	-12.7	Bog
	-12.7	-28.5	Red sand & gravel
	-28.5	-30.5	Sand & gravel
57	-1.9	-42.2	Fill
	-42.2	-50.1	Silt & trace of sand
	-50.1	-72.9	Fine red sand
58	-1.2	-32.2	Fill
	-32.2	-42.8	Silt & sand
	-42.8	-79.4	Coarse sand & gravel
	-79.4	-111.3	Coarse sand, gravel, & trace of clay
	-111.3	-121.4	Sand & trace of clay
	-121.4	-124.7	Soft rock
	-124.7	-127.7	Hard rock
59	5	-15.5	Fill
	-15.5	-26.1	Bog
	-26.1	-43.4	Silt & sand
	-43.4	-52.3	Very fine sand
	-52.3	-69.5	Sand & trace of clay
	-69.5	-80.1	Coarse sand & coarse gravel

**Table A-1
Rock Data Map Borings for Block 166**

Boring #	Opening Elevation	Closing Elevation	Soil Type
	-80.1	-93	Gravel & trace of clay
60	5.5	-21.9	Fill & bog
	-21.9	-38.7	Silt & sand
	-38.7	-49.9	Fine sand
	-49.9	-59.3	Medium Sand and gravel
60 (cont'd)	-59.3	-77.8	Fine sand mica & trace of clay
	-77.8	-97.2	medium sand trace of gravel & clay
61	5.4	-3.8	Fill
	-3.8	-5.1	Bog
	-5.1	-8.1	Sand & clay
	-8.1	-24	Sand, trace of gravel
	-24	-45.8	Fine sand
	-45.8	-79.7	Fine sand & mica
62	-79.7	-95.8	Sand & trace of gravel
	5.3	-6.1	Fill
	-6.1	-7.6	Bog
	-7.6	-19.7	Coarse sand & trace of clay
	-19.7	-73.6	Very fine sand
	-73.6	-90.2	Medium sand & trace of gravel
63	-90.2	-95.1	Coarse sand & trace of gravel
	5.6	-9.8	Fill
	-9.8	-16.9	Bog
	-16.9	-23.6	Gray sand & trace of silt
	-23.6	-47.8	sand & gravel
	-47.8	-55.4	Fine sand
	-55.4	-65.8	Sand & gravel
-65.8	-77	Fine sand trace of clay & gravel	
64	-77	-94.8	Fine sand, gravel, mica, & trace of clay
	3.3	-6.2	Fill
	-6.2	-12.8	Bog
	-12.8	-27.7	Sand & gravel (fill)
	-27.7	-41.9	Silt & sand
	-41.9	-58	Fine red sand
65	-58	-72.9	Sand & gravel
	5.2	-7.7	Fill
	-7.7	-8.4	Bog
	-8.4	-13.1	Fine sand
	-13.1	-20.7	Fine red sand
	-20.7	-40	Sand & coarse gravel
	-40	-46	Sand & gravel
66	-46	-64.3	Coarse sand & gravel
	4.1	-6.5	Fill
	-6.5	-8.1	Bog
	-8.1	-18	Gray sand & trace of bog
	-18	-24.2	Fine sand
	-24.2	-40.2	Medium coarse sand & gravel
	-40.2	-82.2	Red sand & gravel

**Table A-1
Rock Data Map Borings for Block 166**

Boring #	Opening Elevation	Closing Elevation	Soil Type
67	5.8	-3.4	Fill
	-3.4	-4.3	Bog
	-4.3	-14.1	Sand & wood
	-14.1	-37.3	Fine red sand & trace of clay
	-37.3	-43.4	Coarse sand
	-43.4	-59.2	Coarse sand & gravel
	-59.2	-69.7	Fine sand
68	-69.7	-86.5	Sand & coarse gravel
	5.2	-3.4	Fill
	-3.4	-4.6	Bog
	-4.6	-8.5	Gray sand & clay
	-8.5	-21.9	Fine red sand & trace of clay
	-21.9	-36.8	Coarse sand & gravel
	-36.8	-62	Red sand
69	-62	-73.1	Coarse sand & trace of gravel
	-73.1	-89.8	Coarse sand & coarse gravel
	-5.4	-2.8	Fill
	-2.8	-3.6	Bog
	-3.6	-9.1	Sand & trace of clay
70	-9.1	-53.6	Coarse sand & gravel
	-53.6	-80.2	Coarse sand
	-5.6	-1.9	Fill
	-1.9	-3.1	Bog
	-3.1	-7.7	Sand & clay
	-7.7	-16.4	Coarse sand
	-16.4	-37.4	Coarse sand & gravel
71	-37.4	-47.7	Red sand & gravel
	-47.7	-63.5	Red sand
	-63.5	-79.7	Sand & gravel
	5.9	-1.8	Fill
	-1.8	-2.4	Bog
72	-2.4	-20.2	Fine gray sand & trace of gravel
	-20.2	-24.6	Fine sand
	-24.6	-41.2	Coarse red sand & gravel
	6.3	-2.9	Fill
	-2.9	-4.1	Bog
	-4.1	-6.2	Sand
	-6.2	-22.9	Sand, gravel & wood
73	-22.9	-28.3	Fine sand
	-28.3	-36.5	Coarse sand
	-36.5	-40	Fine sand
	-40	-73.3	Fine sand & gravel
	5.4	-17.4	Fill
73	-17.4	-21.5	Bog
	-21.5	-40.7	Gray sand & trace of silt
	-40.7	-99.3	Red sand & trace of clay
	-99.3	-119.5	Sand, gravel, little clay & mica

Table A-1
Rock Data Map Borings for Block 166

Boring #	Opening Elevation	Closing Elevation	Soil Type
74	7.6	-22.8	Fill sand gravel & brick
	-22.8	-30.3	Bog
	-30.3	-39.6	Silt & fine sand
	-39.6	-77.7	Fine red sand
<p>Notes: Elevations presented are relative to the Department of Public Works datum, identified as 2.750 feet above mean sea level at Sandy Hook, NJ; consistent with the modern Manhattan Borough Datum.</p> <p>Source: Department of Borough Works 1940</p>			

Table A-2
Rock Data Map Borings for the Northern Portion of Block 167

Boring #	Opening Elevation	Closing Elevation	Soil Type
291	14.2	4.2	Cellar
	4.2	3.87	Concrete
	3.87	0.2	Sand and gravel
	0.2	-0.47	Boulder and timber
	-0.47	-18.8	Fill, sand and gravel
	-18.8	-32.8	Peat
	-32.8	-49.8	Clay
	-49.8	-52.8	Clay and silt
	-52.8	-71.8	Sand, gravel, and silt
	-71.8	-72.8	Coarse stone
	-72.8	-89.8	Sand, gravel, and silt
	-89.8	-94.8	Fine running sand
	-94.8	-98.5	Boulder and timber
-98.5	-101.8	Rock	
292	14.21	4.46	Cellar
	4.46	4.13	Conc. Floor
	4.13	-4.79	Sand and gravel fill
	-4.79	-18.79	Sand, gravel and clay
	-18.79	-31.79	Peat
	-31.79	-42.79	Silt
	-42.79	-59.79	Sand and gravel
293	13.3	5.3	Cellar
	5.3	4.3	Concrete Floor
	4.3	0.3	Fill
	0.3	-8.7	Clay and sand
	-8.7	-11.7	River mud
	-11.7	-27.7	Peat
	-27.7	-32.7	Silt and clay
	-32.7	-38.7	Soft brown clay and some sand
	-38.7	-43.7	Brown sand and clay
-43.7	-59.62	Sand, gravel, and clay	
294	14.36	5.36	Cellar
	5.36	5.19	Wood floor
	5.19	-8.64	Sand, gravel, little clay
	-8.64	-13.64	Peat
	-13.64	-29.64	Brown sand and little clay
	-29.64	-46.64	Sand and gravel
	-46.64	-47.64	Boulder
	-47.64	-54.64	Sand, gravel, and boulders
-54.64	-59.64	Sand	
295	15.72	5.72	Cellar
	5.72	-15.28	Sand clay and gravel
	-15.28	-20.28	Sand, clay, gravel, and boulder
	-20.28	-25.28	Fine brown sand
	-25.28	-30.28	Sand, gravel, boulders, and little clay
	-30.28	-35.28	Fine sand and gravel, little clay
	-35.28	-59.78	Sand, clay and gravel
296	16.93	6.93	Cellar
	6.93	1.93	Fill
	1.93	-8.07	Sand
	-8.07	-23.07	Sand and Clay
	-23.07	-38.07	Dark brown sand
	-38.07	-53.07	Sand, gravel and clay
	-53.07	-59.74	Sand, gravel, clay and boulders

Table A-2

Rock Data Map Borings for the Northern Portion of Block 167

Boring #	Opening Elevation	Closing Elevation	Soil Type
297	17.24	7.74	Cellar
	7.74	-1.76	Sand and gravel
	-1.76	-5.76	sand, gravel, and clay
	-5.76	-14.76	Coarse sand
	-14.76	-19.76	Gray sand
	-19.76	-26.76	Brown sand
	-26.76	-25.76	Fine sand and silt
	-25.76	-55.76	Sand and gravel
	-55.76	-63.76	Fine running sand
	-63.76	-67.76	Coarse sand
298	-67.76	-76.68	Fine running sand
	-76.68	-81.76	Mica schist
	13.98	3.98	Cellar
	3.98	-1.02	Sand, gravel and clay
	-1.02	-11.02	Sand and gravel
	-11.02	-17.02	Clay and sand
	-17.02	-34.52	Peat
	-34.52	-40.02	Silt & soft clay
299	-40.02	-50.02	Sand and clay
	-50.02	-55.02	Sand and gravel
	-55.02	-60.02	Brown sand and gravel
	14.31	4.31	Cellar
	4.31	-10.69	Sand, gravel, and small boulders
	-10.69	-20.27	Sand, gravel, clay, and small boulders
	-20.27	-32.35	Peat
300	-32.35	-36.68	Soft clay
	-36.68	-46.68	Fine sand, clay, and small boulders
	-46.68	-59.68	Sand, gravel, and small boulders
	13.3	5.3	Open space
	5.3	4.3	Concrete floor
	4.3	0.03	Fill
	0.03	-9.7	Sand, clay, and gravel
	-9.7	-12.7	River mud
301	-12.7	-22.7	Peat
	-22.7	-37.7	Gray clay and sand
	-37.7	-59.62	Sand, gravel, and clay
	14.4	6.23	Cellar
	6.23	-2.6	Sand, gravel, and clay
	-2.6	-7.6	Mud
	-7.6	-12.6	Peat
	-12.6	-13.6	Sand, gravel, and clay
302	-13.6	-27.6	Fine brown sand
	-27.6	-34.6	Sand
	-34.6	-45.6	Sand and little clay
	-45.6	-59.6	Sand, gravel, and clay
	15.7	5.7	Brick fill
	5.7	-8.3	Sand, gravel, and clay
303	-8.3	-10.3	Peat
	-10.3	-22.3	Fine brown sand and clay
	-22.3	-38.3	Brown sand and gravel and little clay
	-38.3	-59.8	Sand and gravel
	16.95	6.95	Cellar
6.95	4.95	Sand and gravel	
4.95	-0.05	Peat	
-0.05	-6.05	Clay	
-6.05	-35.05	Sand and clay	
-35.05	-59.63	Sand, gravel, and clay	

**Table A-2
Rock Data Map Borings for the Northern Portion of Block 167**

Boring #	Opening Elevation	Closing Elevation	Soil Type
304	16.93	6.93	Cellar
	6.93	-0.07	Sand, clay, and gravel
	-0.07	-6.07	Sand, clay, and peat
	-6.07	-8.07	Clay and fine sand
	-8.07	-38.07	Fine brown sand and little clay
	-38.07	-40.07	Brown sand and gravel
305	-40.07	-59.65	Clay, sand, and gravel
	14.11	4.28	Cellar
	4.28	4.11	Concrete floor
	4.11	-1.89	Fill
	-1.89	-15.89	Sand, gravel, and clay
	-15.89	-28.89	Peat
	-28.89	-34.89	Silt
306	-34.89	-54.89	Sand, some clay, and gravel
	-54.89	-59.89	Sand, gravel, and clay
	14.2	4.53	Cellar
	4.53	4.03	Concrete floor
	4.03	-14.8	Sand, gravel, and fill
	-14.8	-19.8	Sand and gravel
	-19.8	-29.8	Peat
307	-29.8	-34.8	Silt
	-34.8	-59.8	Small gravel and clay and small boulders from 63'
	13.33	5	Cellar
	5	4.67	Concrete
	4.67	-0.67	Fill
	-0.67	-8.67	Sand, gravel, and little clay
	-8.67	-9.67	River mud
	-9.67	-18.67	Peat
	-18.67	-21.67	Sand, clay, and gravel
	-21.67	-22	Wood [illegible]
	-22	-23	Sand, clay, and gravel
308	-23	-24	Boulder
	-24	-46.67	Sand, clay, and gravel
	-46.67	-51.67	Fine brown sand
	-51.67	-59.67	Coarse sand and trace of clay
	15.2	6.2	Cellar
	6.2	-1.8	Sand, gravel, and clay
	-1.8	-4.8	Mud
	-4.8	-9.8	Peat
	-9.8	-14.8	Sand, gravel, and clay
	-14.8	-18.8	Fine brown sand
309	-18.8	-29.8	Sand and clay
	-29.8	-47.8	Fine brown sand
	-47.8	-53.8	Sand and gravel
	-53.8	-55.8	Medium sand
	-55.8	-59.63	Sand, gravel, and little clay
	15.3	6.3	Cellar
	6.3	5.8	Concrete
	5.8	4.3	Fill
	4.3	3.3	Overhung footing
3.3	-5.7	Sand and clay	
309	-5.7	-7.7	Peat
	-7.7	-11.7	Sand, gravel, and clay
	-11.7	-20.7	Brown sand and little clay
	-20.7	-43.7	Sand, gravel, and clay
	-43.7	-59.62	Sand, gravel, and little clay

Table A-2

Rock Data Map Borings for the Northern Portion of Block 167

Boring #	Opening Elevation	Closing Elevation	Soil Type
310	16.9	16.82	Stone floor
	16.82	7.9	Cellar
	7.9	1.9	Sand, clay, cinder, and gravel fill
	1.9	-5.1	Sand, clay, and cinder fill
	-5.1	-39.1	Fine brown sand and some clay
	-39.1	-51.1	Fine brown sand, gravel, and some clay
311	-51.1	-59.6	Sand, gravel, clay, and small boulders
	16.86	16.78	Stone floor
	16.78	8.03	Cellar
	8.03	7.69	Concrete
	7.69	-2.14	Sand and gravel
	-2.14	-4.14	Clay and sand
	-4.14	-12.14	Sand, gravel, and clay
	-12.14	-20.14	Fine brown sand and some clay
	-20.14	-23.14	Fine brown sand
-23.14	-42.14	Fine brown sand and little clay	
312	-42.14	-59.64	Sand, gravel, small boulders, and little clay
	12	-13	Fill, cellar, fill incl.
	-13	-24.5	Peat
	-24.5	-31	Clay, river mud, and little peat
313	-31	-45	Clay and sand
	-45	-60	Sand and gravel
	13.32	4.99	Cellar
	4.99	3.99	Concrete floor
	3.99	-8.68	Sand, gravel, and little clay
	-8.68	-13.68	Peat
	-13.68	-20.68	Sand, gravel, and clay
	-20.68	-30.68	Sand and clay
	-30.68	-35.68	Fine brown sand and trace of clay
314	-35.68	-46.68	
	-46.68	-56.68	Fine running sand
	-56.68	-60.68	Sand, trace of clay
	15.24	5.24	Cellar
	5.24	-1.76	Sand, clay, and gravel
	-1.76	-4.76	River mud
	-4.76	-7.76	Peat
	-7.76	-10.76	Sand and clay
	-10.76	-22.76	Sand, gravel, and little clay
315	-22.76	-30.76	Sand
	-30.76	-40.76	Brown sand, clay, and gravel
	-40.76	-59.59	Sand and gravel
	17.1	7.1	Brick fill
	7.1	0.1	Fill
	0.1	-5.9	River mud and sand
	-5.9	-11.9	Sand, gravel, and clay
	-11.9	-16.45	Black sand and gravel
318	-16.45	-59.95	Sand and gravel
	13.27	-1.73	Fill, brick and wood
	-1.73	-10.73	Sand and gravel fill
	-10.73	-13.73	Peat and wood
	-13.73	-23.73	Grey clay and river mud
	-23.73	-31.73	Sand and little clay
	-31.73	-41.73	Sand, clay, and little gravel
	-41.73	-46.73	Sand with little clay
-46.73	-59.73	Sand and gravel	

**Table A-2
Rock Data Map Borings for the Northern Portion of Block 167**

Boring #	Opening Elevation	Closing Elevation	Soil Type
319	14.75	-0.25	Brick and wood fill
	-0.25	-5.25	Sand, gravel, and clay
	-5.25	-10.25	Peat
	-10.25	-15.25	Sand, gravel, and clay
	-15.25	-26.25	Sand and clay
	-26.25	-30.25	Sand, clay, and gravel
	-30.25	-45.25	Sand and little clay
320	-45.25	-59.75	Sand and clay and little gravel
	14.8	14.3	Concrete
	14.3	6.8	Cellar
	6.8	6.3	Concrete
	6.3	-13.2	Sand and gravel
	-13.2	-15.2	Sand, clay, and gravel
	-15.2	-23.2	Sand, clay, gravel, and small boulders
	-23.2	-25.2	Sand and Gravel
	-25.2		Sand, little clay, and gravel
-50.2	-59.7	Fine sand and little clay	
321	17.18	3.18	Fill
	3.18	-0.82	River Mud
	-0.82	-9.82	Sand and gravel
	-9.82	-14.82	Green sand and gravel
	-14.82	-18.82	Sand and gravel
	-18.82	-22.82	Coarse sand
322	-22.82	-59.82	Fine sand
	17.22	2.22	Fill
	2.22	-5.78	Sand, gravel, and boulders
	-5.78	-59.78	Sand and gravel
Notes:	Elevations presented are relative to the Department of Public Works datum, identified as 2.750 feet above mean sea level at Sandy Hook, NJ; consistent with the modern Manhattan Borough Datum.		
Source:	Department of Borough Works 1940		