PHASE 1A ARCHAEOLOGICAL DOCUMENTARY STUDY

LOWER MANHATTAN DEVELOPMENT CORPORATION FULTON STREET REDEVELOPMENT PROJECT BURLING SLIP MANHATTAN, NEW YORK

PHASE 1A ARCHAEOLOGICAL DOCUMENTARY STUDY

LOWER MANHATTAN DEVELOPMENT CORPORATION
FULTON STREET REDEVELOPMENT PROJECT
BURLING SLIP
MANHATTAN, NEW YORK

Prepared for:

AKRF, Inc.
440 Park Avenue South, 7th Floor
New York, NY 10016

Prepared by:

Historical Perspectives, Inc.
P.O. Box 3037
Westport, CT 06880

Primary Author:

Faline Schneiderman-Fox, MA, RPA

Research:

Tina Fortugno, MA, RPA
Christine Flaherty, AbD

November, 2006

EXECUTIVE SUMMARY

The City of New York proposes to enhance Fulton and Nassau Streets Street and their environs into a vibrant retail corridor serving the surrounding commercial and residential sectors as well as the burgeoning visitor market. As the proposed project is necessary to the continued revitalization of Lower Manhattan, the Lower Manhattan Development Corporation (LMDC) would provide a portion of the funding. The core components of the proposed project include improvements to the streetscape and to the storefronts and facades of buildings that contribute to the heritage and experience of the corridor, as well as the creation, expansion or improvement of open space within the project area.

The proposed project centers on the Fulton Street Corridor (Corridor). Based on the most current design plans for the Corridor, there are five (5) areas within the project bounds that must be evaluated for potential archaeological resources. These include two areas of proposed open space, a park, a playground (Figure 2), and the Corridor streetbeds. This report solely addresses the open space area located at Burling Slip along John Street between Front and South Streets.

The proposed project requires review under the National Environmental Policy Act (NEPA), the State Environmental Quality Review Act (SEQRA), and New York City Environmental Quality Review (CEQR), all of which require the consideration of potential impacts to historic resources. In addition, potential effects on historic resources are considered in conformance with Section 106 of the National Historic Preservation Act of 1966 (NHPA) and the New York State Historic Preservation Act of 1980 (SHPA). The New York City Landmarks Preservation Commission (LPC) *Guidelines for Archaeological Work in New York City* outlines specific steps to determine whether a proposed action could affect areas of potential archaeological sensitivity. The Area of Potential Effect (APE) for the Burling Slip open space is defined as the portion of the Corridor project site that will experience subsurface impacts that may disturb areas of potential archaeological sensitivity.

Documentary research concluded that the Burling Slip APE has no potential for precontact archaeological resources, but it may be potentially sensitive for historical archaeological deposits. Resources potentially buried in the APE include fill that was deposited by the City of New York in ca. 1835-36 when the slip's use was discontinued, and possibly a wharf or other landfill retaining devices on the northeast side of the APE that would have been constructed between 1789 and 1833. The only portion of the APE considered to lack potential for historical archaeological deposits is a narrow corridor where a large (ca. 5-foot by 4-foot) sewer line, installed in the 1890s, is buried. The installation of this utility line would have destroyed archaeological resources in its path. While other utilities run through the Slip, they are shallowly-buried and small in size, and thus would have had little impact on the relatively large area of archaeological potential.

The proposed project will require excavation of up to four feet in depth across most of the APE, and up to eight feet in depth at the site of the proposed storage shed. Where disturbance will extend more than two feet below grade (the anticipated maximum depth of impacts from the roadbed), the proposed project may affect potential archaeological deposits. If these impacts

cannot be avoided, then an archaeological field testing program should be designed in coordination with the SHPO and LPC.

TABLE OF CONTENTS

FIGURES

PHOTOGRAPHS

1. Burling Slip APE facing north from the corner of South Street and John Street.

2. Burling Slip APE facing east from the corner of John Street and Front Street.

3. Burling Slip APE facing south from 167 John Street (South Street Seaport Museum) on Block 34.

4. Burling Slip APE facing south toward the intersection of South Street and John Street from the north corner of the APE at Front Street.

INTRODUCTION

The City of New York proposes to enhance Fulton and Nassau Streets Street and their environs into a vibrant retail corridor serving the surrounding commercial and residential sectors as well as the burgeoning visitor market. As the proposed project is necessary to the continued revitalization of Lower Manhattan, the Lower Manhattan Development Corporation (LMDC) would provide a portion of the funding. The core components of the proposed project include improvements to the streetscape and to the storefronts and facades of buildings that contribute to the heritage and experience of the corridor, as well as the creation, expansion or improvement of open space within the project area.

The proposed project centers on the Fulton Street Corridor (Corridor), which includes Fulton Street bounded by Church Street to the west and Water Street to the east; streets intersecting Fulton Street up to a three block area north and south, including John Street from William Street to South Street; and Burling Slip, located one block south of Fulton Street and east of Water Street (Figures 1, 2).

Based on the most current design plans for the Corridor, there are five (5) areas within the project bounds that must be evaluated for potential archaeological resources. These include two areas of proposed open space, a park, a playground (Figure 2), and the Corridor streetbeds. This report solely addresses the open space area located at Burling Slip along John Street between Front and South Streets (Figure 3; Photographs 1-4).

The proposed project requires review under the National Environmental Policy Act (NEPA), the State Environmental Quality Review Act (SEQRA), and New York City Environmental Quality Review (CEQR), all of which require the consideration of potential impacts to historic resources. In addition, potential effects on historic resources are considered in conformance with Section 106 of the National Historic Preservation Act of 1966 (NHPA) and the New York State Historic Preservation Act of 1980 (SHPA). The New York City Landmarks Preservation Commission (LPC) *Guidelines for Archaeological Work in New York City* outlines specific steps to determine whether a proposed action could affect areas of potential archaeological sensitivity. The first step in this process is an initial review of the affected area, in this case the Corridor, to define the Area of Potential Effect (APE). The APE is defined as the portion of the Corridor that will experience subsurface impacts that may disturb areas of potential archaeological sensitivity. Once the APE has been defined, an Archaeological Documentary Study – frequently referred to as a Phase 1A Study – must be undertaken to establish the potential effects of the project on potential archaeological resources.

RESEARCH GOALS AND METHODS

This Archaeological Documentary Study, as clarified by the LPC guidelines (2002), addresses only those land areas within the proposed Corridor that will be subject to direct construction activities, which is defined as the APE. As noted above, this study solely addresses one portion of the APE: the open space area located at Burling Slip along John Street between Front and South Streets.

In order to address the archaeological potential of the Burling Slip APE, sufficient information was gathered to assess the subsurface disturbance record, both horizontally and vertically, and to establish the potential for precontact period and historical archaeological resources. Prior archaeological studies and surveys that were undertaken for areas either within or directly adjacent to the Burling Slip APE provided an invaluable data base from which to complete the current assessment.

This documentary study, which also entails a cartographic analysis of the Burling Slip APE through time, is designed to determine areas of possible precontact and historical archaeological sensitivity as well as areas unlikely to produce archaeological materials due to prior disturbance from the installation of underground piping, extreme landscape manipulation for road and/or park construction, previous construction and demolition cycles, etc.

HPI's protocol adheres to a conservative and phased approach. It relies on a series of tasks to identify which – if any – of the Burling Slip APE parcels would require invasive testing to satisfy the applicable environmental review regulations. These tasks are described below.

Task 1:
Primary source material, which helps to establish a site-specific framework in which to assess the Burling Slip APE, were reviewed to identify historic land use through time. This includes reviewing the Minutes of the Common Council, conveyance records on file at the City Register's Office, and Water Lot Grants recorded at the Office of the Manhattan Borough President's Topographical Bureau. Atlases, maps, and other pertinent primary records, such as aerial photographs, were also reviewed.

Task 2:
In order to place the Burling Slip APE in a broader historical context, local and regional histories were reviewed.

Task 3:
Paralleling the research to determine the archaeological and historical sensitivity was research to determine the likelihood that resources are extant, having survived the normal destructive forces of urban development. Episodes of late 19th and 20th century construction may have eradicated archaeological potential in discrete locations.

Historical atlases and Sanborn Fire Insurance Maps were reviewed to establish construction episodes, building heights, and the presence of basements, which are indicators of subsurface disturbance. Cartographic comparisons were critical in demonstrating elevation changes over the last 150 years.

Task 4:
Pertinent archaeological reports for the surrounding vicinity were reviewed to establish a comparative framework for potential archaeological resources.

Task 5:
A walkover of the Burling Slip APE and a photographic record of the current conditions were completed in August 2006. Anomalies and areas of obvious ground disturbance were noted on the site sensitivity map.

BURLING SLIP SITE LOCATIONS AND CONDITIONS

Site Location and Current Condition: The Burling Slip APE is located partially within the John Street roadbed, and partially on the southern portion of City Block 74, bounded by John, Fulton, South, and Front Streets (Figure 3). The now vacant APE includes a portion of both City Lots 20 and 1 (Photographs 1-4).

Predevelopment Conditions: The precontact period and historical development of Manhattan has been influenced, in part, by existing topographic and ecological conditions. Establishing the project site's geological and ecological history is necessary toward understanding land-use history.

Manhattan Island lies within the Hudson Valley region and is considered to be part of the New England Upland Physiographic Province (Schuberth 1968:10). The underlying geology, much like that of the Bronx and lower Westchester County, is made up of "gneiss and mica schist with heavy, intercalated beds of coarse grained, dolomitic marble and thinner layer of serpentine" (Scharf 1886:6-7). During the three known glacial periods, ice was sometimes as thick as 1,000 feet over Manhattan. Advancing and retreating glaciers carved, scraped, and eroded the land surface in the Northeast. With the final retreat during the Post-Pleistocene, glacial debris, a mix of sand, gravel, and clay, formed the many low hills or moraines that constitute the present topography of the New York City area. Along these low hills many rivers, streams, lakes, and ponds were formed. The constant flow of these rivers and streams as well as the corresponding rise in sea level continued to mold the landscape. Manhattan, a low-lying island marked by hills, is surrounded by rivers and a large, protected deep water bay, and was formed following the last of the three glacial periods.

The project site falls within the embayed section of the Coastal Plain, which extends along the Atlantic Coast and ranges from 100 to 200 miles wide. The Manhattan prong, which includes southwestern Connecticut, Westchester County, and New York City, is a small eastern projection of the New England uplands, characterized by 360 million year old, highly metamorphosed bedrock (Schuberth 1968:11). The Manhattan ridge generally rises in elevation toward the north, and sinks toward the south. South of 30th Street, the bedrock dips down several feet beneath the earth's surface, and south of Washington Square Park it plunges down below 100 feet, forming a subterranean valley.

The prevalent gneissoid formation underlying the project site is Hudson River metamorphosed rock. Manhattan is characterized by a group of gneissoid islands, separated from each other by depressions which are slightly elevated above tide and filled with drift and alluvium. The area consists of drift with underlying crystalline rocks including stratified gneiss, mica schist, hornblendic gneiss, and hornblende schist with some feldspar and quartz (Gratacap 1909:27).

Historical development has altered many of the natural topographic features that once characterized Manhattan, including the early historic shoreline (Gratacap 1909:5). During the late precontact and early historical periods, portions of the project site were submerged under the East River and the coastline was at the southeastern side of present day Pearl Street, about two blocks northwest of the Burling Slip APE. In the 17th and early 18th centuries, the Burling Slip APE was inundated, lying outboard of the East River shoreline by about 250 feet (Viele 1865; Lyne 1730; Ratzer 1766/67, Figures 4, 5, and 6).

BURLING SLIP ARCHAEOLOGICAL POTENTIAL

Precontact Land Use

As described above, the Burling Slip APE was inundated at the time of European contact. Prior to the filling episodes along the Lower Manhattan shoreline that created the landscape evident today, the Burling Slip APE was depicted as lying in the East River (Lyne 1730, Buchnerd 1735; Grim 1813 [depicting 1742-44]; Montresor 1766; Ratzer 1766/67, Viele 1865; Figures 4, 5, and 6). Native Americans were actively utilizing resources in the area upland, northwest and southwest of the APE. According to researcher S. Grumet, the very southern tip of Manhattan was called Kapsee by Native Americans in the 17th century (Grumet 1981:68). This location was described as a ledge of rocks at the southernmost point of Manhattan Island, probably in the vicinity of what is now Battery Park (Ibid.:17). To the north was a landform, termed Ashibic, which was probably a narrow ridge or ancient cliff bounded by marshland to the south; this landform was located north of Beekman Street, and, therefore, the APE (Ibid.:3). In addition, "Catiemuts" was the term reportedly used to describe a "fort or hill located near Pearl Street and Park Row," about eight blocks north of the project site (Ibid.:8).

Researchers have noted that during the prehistoric era there were periods of time when a distinct rise and fall of water levels occurred. In some locations these fluctuations allowed native peoples access to formerly inundated areas - such as the East River shoreline - for resource procurement and temporary camps. These "drowned shorelines" (e.g., as documented along the Hudson River shoreline in Weiss 1988:3) are a topic of research interest to archaeologists who postulate that precontact peoples would have been exploiting these areas and, therefore, their potential archaeological sensitivity should be addressed.

As noted above, prior to filling, the Burling Slip APE was outboard of the shoreline, in the East River. While marshes or estuarial areas to the north of the APE were not necessarily suited for habitation immediately preceding European contact, their locations probably influenced the selection of precontact settlements, and may have served for resource procurement and as deposition areas where middens were created. Furthermore, when the East River was much lower and narrower during the precontact period, it is possible that the APE could have been well drained and suitable for habitation. Alternatively, it may have been a salt water marsh along the edge of the river. Regardless, the site was eventually filled to allow for historical development. The remnants of the surface that may have been previously exposed now lie beneath deep layers of fill.

Previous research conducted for the Second Avenue Subway project (Historical Perspectives, Inc., 2003) concluded that sections of the East River shoreline were potentially sensitive for precontact resources beneath fill, including Water Street between Fulton and John Street, excluding Burling Slip, which was judged to be disturbed by historical dredging. Furthermore, research for the East River Esplanade project found that in mid-19th century profiles of South Street, one covering Whitehall to Moore Streets (Smith 1846) and the other between Roosevelt and Catharine Streets (Profile c.1851), the then-existing street surface was between 2.1 and 8 feet above the high water mark. Since the current U.S.G.S. topographic map portrays the tidal rise from mean low to mean high water in Upper New York Bay as 4.5 feet (USGS 1981), this indicates that modern, human-deposited fill extends at least 6.6 feet or more below 19th-century street levels. This would suggest that portions of South Street may be sensitive for precontact resources buried beneath at least 6.6 feet of fill (Shaefer 2006:4).

Precontact Archaeological Potential

In addition to the issue of archaeological presence, the integrity of potential resources must be considered when assessing sensitivity. If any precontact resources were once deposited in the APE that were 1) later inundated; and, 2) subsequently buried by landfill, they would have been subjected to a variety of impacts prior to filling. These would vary from displacement by natural current and tidal action for perhaps thousands of years to later dredging, especially at the site of slips that needed to maintain a deepwater channel.

All slips on the East River were dredged periodically in order to allow the passage of vessels with deep hulls, such as the brigs and schooners of the 19th century, many of whose hulls extended at least 12 feet below the waterline (http://website.lineone.net/~dee.ord/Golden.htm). Several dredging episodes at Burling Slip were recorded in the Minutes of the Common Council (MCC). As early as 1766 the MCC reports that 50 scow loads of mud and filth were removed from Burling Slip, and in 1768 Luke Roome was paid for "cleansing" Burling Slip (MCC 1766 7:43,119). Again in 1769 Jacob Brewerton was ordered to take 50 scow loads of mud out of the slip (MCC 1769 7:171), and in 1772 another 80 scow loads of mud were removed (MCC 1772 7:368). Although these specific references cite dredging episodes that would have occurred north of the Burling Slip APE, which was still in the East River in 1772, they demonstrate that the slip was periodically cleaned of debris that could have impeded passage. This suggests that it was necessary to clear the slip periodically, right up until the time when it was finally considered obsolete and filled ca. 1835 (see Historical Land Use below).

These disturbances to the slip suggest that the APE probably has no sensitivity for precontact resources with research potential that would meet the criteria necessary for inclusion on the National Register of Historic Places. River inundation, tidal action, and episodes of dredging have most likely eradicated any fragile precontact resources that may or may not have been deposited in the APE.

Historical Land Use

As described above, the East River shoreline at the time of European contact and into the early 17th century was about one and a half blocks northwest of the Burling Slip APE. Throughout the

historical period, the desire for new commercial, waterfront real estate spurred the City of New York and entrepreneurs to enthusiastically support improvements to the East River shoreline. Filling episodes were also undertaken in an effort to support and maintain the thriving waterfront economy as the coastline became overburdened with haphazardly built piers and the natural accretion of river silt.

The 1687 Dongan Charter transferred ownership of all unencumbered lands within the low-water mark to the City of New York, inducing adjacent property owners to fill and develop their property along the waterfront (Buttenwieser 1987:27). Further inciting the expansion of Lower Manhattan was the 1731 Montgomery Charter that expanded land-ownership privileges four hundred feet beyond the low water mark or Water Street on the Lower East Side (Ibid:34). Eventually the shoreline at what is now John Street was moved southward to its current configuration.

Historical cartographic resources confirm that what is now John Street between Front and South Street, including the entire Burling Slip APE, was situated in the East River through at least the mid-to-late 18th century (e.g., Lyne 1730, Buchnerd 1735; Grim 1813 [depicting 1742-44]; Montresor 1766; Ratzer 1766/67, Figures 5, 6). As the shoreline pushed southward, Burling Slip - known for a period as Lyons Slip, Rodmans Slip, and Van Clyffe Slip - was created. The slip allowed cargo ships to dock along wharves protected from the currents of the East River. Wharf construction and filling allowed for the creation of the slip north of the APE sometime before 1692. At that time two wharves, each twelve feet wide, were constructed on either side of the "slipp of Mrs. Van Clyffe" (MCC 1692 I:279). The slip, then 24 feet wide, was to be maintained by the city (Ibid.). By 1730, filling had extended south far enough to allow for the creation of Water Street northeast and southwest of the slip (Lyne 1730, Figure 5).

The Montgomery Charter resulted in the granting of numerous water lots in the 18th century as efforts were made to improve conditions along the waterfront and to push the shoreline further outward. In 1736 a 200-foot water lot was granted to James Alexander and Archibald Kennedy for the area lying between Burling Slip and Fletcher Street (one block southwest of the APE), in order "to make further improvements for the better conveniency [sic] of trade and navigation and enlargement of this City in its buildings" (MCC 1736 4:323). In 1737 a water lot was granted to Henry Van Borsom on the east side of the slip, north of the APE (MCC 1803 3:232). Borsom's lot was subdivided into the three lots; the easternmost going to John Riker (MCC 1803 3:232). In 1749, a similar grant was given to David Provoost for a 200-foot water lot to the northeast of the slip. Provoost was responsible for building a wharf "of the breadth of 18-foot (and) building a strong and substantial peer [sic] and leaving a street of 18-foot in breadth &c. and that he constantly keep the same in good and sufficient repair" (MCC 1749 5:288).

These early 18th century water grants provided for the creation of land north of Front Street (formerly Dock Street), but the process of wharf construction and filling was slow to become realized. By 1766 a wharf had been constructed on the west side of Burling Slip, extending what is now John Street southward as far as Front Street - then identified as Burnett's Key (Montresor 1766; Ratzer 1766/67, Figure 6; Stokes Vol. III 1918:988). However, on the east side of the slip, construction and filling extended only mid-way between what are now Water and Front Streets.

An undated plan of waterfront lots shows that piers were eventually constructed on either side of Burling Slip between Water and Front Streets, north of the APE (Figure 7).

As the shoreline edged south, the northern end of the slip was filled to allow passage over Water Street. In 1761 John Sackett was paid 77 GBPs for filling a portion of Burling Slip north of the APE, and in 1767 the slip is shown filled as far south as the north side of Water Street (Ratzer 1766/67, Figure 6; MCC 1761 VI:259). Filling continued to push the shoreline south through the end of the 18th century. As the slip was extended, the City of New York retained ownership to the water rights (Stokes Vol. IV 1922:858).

The first granting of lots southwest of Front Street between John Street and Fletcher Street dates to 1773 (Soil Systems Inc. 1981:7). At this time Jacob Brewerton was granted a water lot in front of his store house in the East Ward to extend...

> *from the south side of the wharf or street, two hundred feet into the River under the river...and make at his own expence* [sic] *for the use of this Corporation, a street or pier of 18 feet on the northeast side of the water lot to be granted him the whole length thereof to be continuous to a certain slip called & known by the name of Burling Slip & that the streets & pier there be built be finished on or before the 25th of March 1777..."* (MCC 1773 7:433)

This grant allowed for the creation of a portion of Block 72 southwest of Burling Slip between Front and South Streets. Shortly thereafter, in 1786 a petition was filed with the Common Council calling for filling the northeast side of Burling Slip between Front and South Streets:

> *A petition for several Inhabitants at Burlings Slip praying that the East side of the said slip may be wharfed out equal to the West side & that the street in front of the said Street may be paved...* (MCC 1786 I:223)

Despite approval of the petition, two years later the wharfing and filling of the east side of the slip was either inadequate or incomplete. In an effort to improve the northeast side of the slip, in 1788 the Common Council moved to inform the proprietors of the lands adjoining the east side of the slip, namely John Riker, that unless it was properly wharfed out and improved to the conditions of the original grant by December 1, the board would take "measures" (MCC 1788 1:399). Concurrently, a petition of Peter Van Zandt was heard regarding "running out a pier on the west side of Burling Slip," as was a petition of John Byvanck and others "praying that the said Slip may be filled up & Front Street continued across it" (Ibid.).

A 1789 map shows that a wharf on the southwest side of the slip had been extended southward, but not quite as far as the future route of South Street (McComb 1789; Figure 8). The map also suggests that a wharf had been constructed on the east side of the slip as far south as what is now South Street, within or adjacent to the northeast side of the APE (Ibid.). Contradicting this configuration, the 1797 Taylor-Roberts map shows that neither the east nor west sides of the slip had been extended as far south as the future route of South Street (Taylor Roberts 1797; Figure 1797). Both maps, however, show that the slip itself remained open for passage as far north as

Water Street, suggesting that Byvanck's 1788 request to fill Front Street was tentatively denied or stalled.

Throughout the end of the 18th and into the mid-19th century, Burling Slip remained open to passage as far north as Water Street, despite several petitions and pleas that were made to fill portions of it (Stokes Vol. VI 1928:668-669; MCC 1788 1:233; 362, 399; 1805 4:78; McComb 1789, Figure 8; Taylor-Roberts 1797, Figure 9; Bridges 1807; Burr 1832). The brackish water in the slip was considered a nuisance and a possible contributor to a yellow fever epidemic of lower Manhattan in the 1790s (McAtamney 1909:100; Stokes Vol. VI 1928:669).

In 1801 the City of New York passed an act regulating the buildings, streets, wharves, and slips and directing the proprietors of lots adjoining streets or wharves along the river to fill intermediate spaces. In return, the proprietor would obtain ownership of the filled area (MCC 1910 6:73). According to the Water Lot conveyances available for Block 74, in 1803 the water lot on the north side of Burling Slip, directly northeast of the APE, had been granted to George Codwise (Manhattan Borough President's Office, nd, Figure 7; Water Lot Grants Book E:57, Appendices A and B). George Bowne (1804) and Peter Schermerhorn (1807) were granted the lots directly to the north of Codwise's shortly thereafter (Ibid.; Figure 7). Conveyance records indicate that the block – while still under water – went through several transfers of ownership, but that individual lots were not devised until after 1809. No instruments of record were available for the period between 1810 and 1814, but by 1816 Block 74, exclusive of the APE, was filled and lotted (City Register, Block 74; Appendix A).

On the south side of the slip, south of the APE, Robert Carter held the water lot directly southwest of Front Street, with Peter Van Zandt owning a small lot to the south, fronting South Street (Figure 7). The City of New York had granted Van Zandt a water lot on the southwest side of Burling Slip extending into the East River 200 feet from Front Street in 1803 (MCC 1810 6:73). His holdings included 43 feet of intermediate space that needed to be filled (Figure 7). Upon doing so, he considered himself to also have the right to the water in the slip and along the East River shoreline at South Street (MCC 1810 6:73). The Common Council verified Van Zandt's legal title to the 43 feet of filled ground, but refuted his rights to the waterfront and to "obstructing the entrance into a public slip." They concluded that Van Zandt's claim "to the water in the slip, in front of his 43 feet of ground & at the end of South Street including the wharfage is not well founded" (Ibid.).

In 1803 a petition was filed by John Riker, Simeon and Rem Remson, Jordan Wright, Thomas Pearsall and others regarding Burling Slip. It was their opinion that in order to serve the mercantile interests of the City, that Burling Slip should be extended eastward to allow it to be 100 feet wide, and that the wharf on the east side should be 25 feet wide. They further requested that the owner of the water lot adjoining the wharf (presumably Codwise) be directed to take out his grant and that the wharf should be completed by December (MCC 1803 3:294).

Responding to the petition, in 1807 Peter Schermerhorn and George Codwise filed a petition for the construction of a pier or wharf at Burling Slip and requesting compensation by the City of New York (MCC 1807 4:471). The Common Council concluded that Schermerhorn and Codwise should be permitted to contract with someone to build a pier and that the City would

pay one-third of the expense. In return, they would be entitled to receive the wharfage on the east side of the pier for two berths of ships, or for the use of the water within 60 feet of the pier (Ibid.). The pier was to extend from the south side of South Street out into the East River.

By 1809 the Common Council recognized that it was likely that Burling Slip would be filled in the near future (MCC 1809 5:638). Despite this, it was still a vital commercial element in the early 19th century, being sufficiently clear to allow passage of sea-going vessels. By 1811 Block 74, exclusive of the APE, had been filled by the three owners of water lots (Codwise, Browne, and Schermerhorn), and several buildings had been constructed on it directly northeast of the APE (http://www.southstseaport.org/places/aalow.shtm; Appendices A and B; Figure 7). That same year, inhabitants near the slip complained to the Common Council that sea vessels were in the habit of lying in the slip to the exclusion of the coasters – which was impeding trade in this part of the city (MCC 1811 6:698). The citation of Burling Slip being a "public slip" in 1810 indicates no private ownership (MCC 1810 6:73).

Several large conflagrations plagued lower Manhattan in the late 18th and early 19th centuries that may have contributed to the subsequent filling of the waterfront. In December of 1816 a resolution was considered to take the property between Water and Front Streets, Burling Slip and Fulton Street for a new market, given that all of the buildings on these lots had been destroyed by a fire in the recent months (MCC 1816 8:724).

The slip's commercial importance was further exemplified in 1828 when Henry Dudley and others petitioned to permit vessels of 150 tons to enter the slip, and to prevent dismantled vessels from lying in the slip during the winter months (MCC 1828 16:658). In 1832 the slip remained passable as far north as Front Street (Burr 1832).

In early 1835 the Common Council moved to have the slip filled. At that time a State Commissioner presented "a draft of an ordinance for building a bulkhead across Burling Slip, continuing the drain to South Street, and filling up the said Slip"(MCC 1835 8:112-113). The bulkhead was constructed on the south side of South Street to allow for its creation. The work to accomplish this was not permitted to begin until March 1 of that year (Ibid.). Assessments were made for the work in October of 1835 (MCC 1835 8:135; 9:310), and in January 1836 returns of delinquents on assessments were made and warrants were issued to the collectors as not all assessments had been paid (MCC 1836 10:123, 134). Maps show that the Burling Slip APE was entirely filled as far south as South Street between 1833 and 1836 (Hooker 1833; Colton 1836; Figures 10 and 11) indicating that the issue of delinquents on assessments was either resolved or that it failed to hinder the ultimate goal of filling the slip.

If the slip was not entirely filled by the end of 1835, as the delinquent assessments may suggest, it is entirely possible that demolition debris from the Great Fire of 1835 – which took place in early December and devastated over 600 buildings in Lower Manhattan - was used as fill, although there are no records available to support this.

Following the filling of Burling Slip in 1835-36 by the City of New York, the APE remained vacant – serving vehicular access to the waterfront at South Street (Colton 1836, Figure 11; Tanner 1838; Ensign 1845; Dripps 1852; Perris 1852, 1857-62; Bromley 1879; Robinson 1885,

1893, Figure 12; Bromley 1897, 1911, 1916, 1926, 1932, 1974; Hyde 1913; Sanborn 1984-85, 2005, Figure 3; Photographs 1-4). The 1873 *Map of the High and Low Water Mark and the Original City Grants of Lands Under Water* shows that water lots were granted to the northeast and southwest of Burling Slip, but fails to show any private owner of the slip itself (Department of Docks 1873).

In the 19th century the width of the slip – from water lot line to water lot line - was 142.10 feet at South Street and approximately 139.1 feet at Front Street (Figure 7). Today, from building line to building line between Blocks 74 and 72, the slip is the same approximate width (Sanborn 2005, Figure 3). The width of the Burling Slip APE is 95 feet; the southwesternmost footage along the southwest side of John Street is precluded (Figure 3).

Several utility lines run through the APE, including a 5-foot by 4-foot sewer along the south side of the APE that was installed in the 1890s (City of New York, DEP Bureau of Sewers 1981; WPA 1937). In addition, a 12 inch water main runs through the northern portion of the APE (Water Main Distribution Map 2006). WPA Utility maps show that there are numerous smaller utility conduits running beneath John Street including electrical, gas, and telephone ducts. Most of these are less than a foot in diameter, and they are roughly equally divided between the southernmost side of the street out of the APE and the northern side of the street in the APE (WPA 1937). The small size of these conduits would have virtually no impact on potential archaeological resources, however, since they are rather shallow and the excavation locations for their installation would have been narrowly confined.

Historical Resources in the Vicinity

Burling Slip is surrounded by a rich architectural and archaeological heritage. It is located within the boundaries of the South Street Seaport Historic District, which is a New York City Landmark (NYCL) and is listed on the State and National Registers of Historic Places (S/NR). The following is a summary of the historic structures and archaeological resources previously identified in the immediate vicinity of the APE.

Directly to the northeast of the APE on Block 74 is the South Street Seaport Museum, which falls within the South Street Seaport Historic District. According to the museum's website (http://www.southstseaport.org/places/aalow.shtm), the buildings at 167-171 John Street on the northeast side of Burling Slip – directly adjacent to the APE – were constructed in 1849-1850, replacing earlier buildings that were constructed in 1811 (Ibid.).

> *At the pinnacle of the China trade was the firm of A. A. Low & Brothers, founded in 1840 by Abiel Abbot Low, just back from a clerkship in Canton, where he had learned the special practices of the China trade from Houqua, a hong merchant, who was a prominent mentor of young Americans. During its first decade, the firm shared Fletcher Street headquarters with a drug importing concern owned by Seth Low, Abbott's father. In 1849–1850, Low built his strikingly handsome brownstone-faced countinghouse at 167–171 John Street, for which he largely demolished three brick buildings dating from 1811. The Low firm occupied its Burling Slip building from 1850 until after the turn of the century. The cast-iron*

double storefront is probably original and was made by Badger's Architectural Iron Works, pioneers in the fabrication of cast-iron curtain walls.

The fine old building, set high above a tall basement, has cast-iron piers which once had elaborate Corinthian capitals at the ground floor. When Low's building was finished, Burling Slip was graced with two of the finest waterfront commercial buildings in downtown New York, the other being a large gray building on the opposite side of John Street (Nos. 170–176), erected ten years before, in 1840. (http://www.southstseaport.org/places/aalow.shtm)

Schermerhorn Row. The Schermerhorn Row Block, which comprises 2-18 Fulton Street, 189-195 Front Street, 159-171 John Street, and 91-92 South Street on Block 74, is a NYCL and is S/NR listed, as well as being located within the boundaries of the South Street Seaport Historic District. As part of the archaeological study of the Schermerhorn Row Block, Kardas and Larrabee undertook an extensive review of fill retaining structures utilized in Manhattan dating from the 17th through 19th centuries to understand the fill-retaining devices that could be identified on the block (Kardas and Larrabee 1991:26). Their analysis of changes in the types of fill-retaining devices utilized over time concluded that 17th through mid-18th century structures tended to be wooden, and used more logs. These were frequently placed in horizontal layers, with each layer at a right angle to the one below it, and they exhibited "great variability in design and execution" (Ibid.).

Kardas and Larrabee report that in the late 18th century and early 19th century more open "cell-like" structures with modules were employed, as these could be easily assembled as needed (Ibid.). A solid layer or platform of logs created a floor, and "above these was an open grid of logs running in alternate directions, notched or fastened together with some cross bracing" (Ibid.:26). In the second quarter of the 19th century, steam-powered pile drivers enabled advances in waterfront construction. Long vertical pilings could be driven to further depths than were previously allowed.

At the Schermerhorn Row site, both primary landfill and cribbing dating to the early 18th century were found. The fill retaining structure was constructed with large logs, up to one-foot in diameter, laid in alternating directions for each layer in order to provide cribbing. The landfill consisted of large and medium-sized rocks placed around and over the cribwork. Within this was a dark gray to black muck with clay, topped by a thin lens of oyster shell in black muck in several locations (Kardas and Larrabee 1991:277). Mixed in the fill was a large quantity of cut leather, possibility originating from the tanneries that once stood north of Pearl Slip in the early 18th century. On top of the timber cribbing - which was estimated to be about 20 feet square and 20 feet deep - was a stratum of reddish brown soil, designated as secondary fill, which was presumably placed directly after stone foundations were built (Ibid.:278). Final fill levels were encountered within cellars, and represented discrete deposits within each structure that once stood on the block (Ibid.:280). The water level varied, but was generally encountered at about six to seven feet below grade in the dark gray/black sandy silty muck of the primary landfill (Ibid.:279).

A table summarizing the results of the archaeological investigation of the Schermerhorn Row block found the stratigraphy generally as follows:

- From plus 5 feet to plus 2 feet is the first level of fill dating to post-1810. This is varied between and within structures.
- Beneath this was secondary landfill from ca. plus 2 feet to 0 feet, dating to 1810-1812. This is reddish brown sand with lenses of brick and mortar with many artifact deposits.
- Primary landfill was found beneath this from ca. 0 feet to -10 feet on the west side of the block, and 0 feet to -20 feet on the east side of the block (Ibid.). This period of fill dates from ca.1800-10, and includes rocks and cribbing (sunk or pushed into a level of organic silty clay).

(Kardas and Larrabee 1991:282 – Table 3, Major Stratigraphic Units).

175 Water Street. In their early 1980s study of the 175 Water Street site (Block 71), which is bounded by Burling Slip, and Water, Front, and Fletcher Streets southwest of the APE, Soil Systems, Inc. (1981,1983) concluded that this block was filled between 1730 and 1766-67. Archaeological deposits were found beneath the foundations of structures which stood on the block in the 19th and 20th centuries. Despite historic documents indicating that filling was completed by 1755-56, filling was, in fact, a continual process that was probably started sometime after 1730 and was completed sometime after 1754 but before 1766-67 (Soil Systems Inc. 1983:692). Land west of 175 Water Street was reportedly filled between 1660 and 1730.

The archaeological study of this block found that the process of land filling was complex and iterative, and that numerous primary and secondary fill episodes support this. Primary fill was noted as "trash and harbor-related accumulation" (Soil Systems Inc. 1983:706). Its matrix was composed of black to gray silt and sands, replete with cultural material. The presence of a late 17th to early 18th century merchant ship and wharf/grillage[1] provided evidence of retaining devices employed to create the block (Ibid.:685, 702). Secondary filling in a subsequently-built cofferdam box, dated to ca.1790-1820, was believed to have been employed to eliminate stagnant water (Ibid.:693).

Telco Block. In a documentary study of Block 74W, the Telco Block, located between John, Front, Fulton, and Water Streets (immediately northeast of the APE), the earliest episode of filling was found to date between 1732 and 1735 (Soil Systems Inc. 1980:42). This block lies within the S/NR-listed boundaries of the South Street Seaport Historic District, but not the boundaries of the NYCL district (Soil Systems 1982:2). Deeds, maps, and water grants were tracked through the 18th and 19th centuries to establish potential filling episodes, which continued for several decades (Ibid.:43).. Excavations found numerous brick, stone, and wood features indicative of 18th century waterfront use. A final level of red-brown sandy silt was found underlying the fill (Ibid.). Fill and wharf sections extended to 15 feet below grade.

209 Water Street. At the 209 Water Street site, located on the block between Water, Front, Beekman, and Fulton Streets – near but not within the APE – the partial remains of a ship were excavated (Henn 1978:3). Initially, wooden cribbing was encountered, but further investigations

[1] Grillage, or a raft wharf, is made of several alternating courses of headers and stretchers (cross-layered) that are weighted with stone. Rafts are stacked atop each other to form a block which is then sunk.

found this to be the frame of an 18th century ship (Ibid.). The outer hull of the ship was identified by the presence of horsehair and tar, applied to prohibit worm infestation. The lack of metal objects on the ship suggested that it was stripped of reusable material prior to sinking or abandonment (Ibid.:4). It is postulated that the ship was sunk as fill or to function as cribbing during the filling process. The ship apparently extended eastward and, if intact, may actually lie, in part, beneath Water Street on the block north of Fulton Street (Ibid.). Filling at the site was dated to the period between 1755 and 1767.

Assay Site. Although the Assay Site is not in proximity to the Burling Slip APE, a discussion of the results of research are included in this report as it, too, is bounded by South and Front Streets, approximately seven blocks to the southwest. Documentary research and soil testing concluded that cultural levels extend from the surface down to between 27 and 30 feet below grade on the western end of the block near Front Street, and between 33 and 37 feet below grade at the eastern end of the block near South Street (Greenhouse 1983:25). Levels of fill and timber were observed in soil borings taken directly south of Gouverneur Lane. The deepest cultural levels of clay, mud, and fill were found to be consistent with still or backwater sediments produced by slower currents, such as those in and around piers, slips, and jetties (Ibid.:26). Directly beneath this were levels of coarse sand and sandy clay, interpreted as river bottom that was "probably sterile" (Ibid.:26).

Beekman Street Roadbed. Recent archaeological monitoring by Alyssa Loorya of Chrysalis Archaeological Consultants in Lower Manhattan – on Beekman Street between Water and Pearl Streets (within the South Street Seaport Historic District), about a block northeast of the Burling Slip APE – has found that the top two feet of the street corridor lack archaeological potential due to disturbance from the creation of the roadbed (personal communication, Cece Saunders, September 12, 2006). Monitoring has also found deposits, or pockets, of historical artifacts between and around existing utility trenches that run beneath the two feet of disturbance. The precise nature and depositional history of these materials have yet to be interpreted. Loorya has also identified undisturbed deposits/features, but these have been recovered at approximately eight feet below grade.

Historical Archaeological Potential

Piers, Wharves, Urban Landfill, and Landfill Retaining Devices:
For the past several decades, archaeologists have focused on research documenting changes in urban landfill and the growth and development of the urban waterfront. These two issues have important implications for our understanding of the process of urbanization in Manhattan. Archaeologists are interested in the possibility that information from archaeological resources pertaining to landfilling might cast light on the process of urbanization in general. This could be accomplished through a comparison of data from sites located in different neighborhoods and cities, as well as comparing resources from different time periods.

Archaeological research in Lower Manhattan, and particularly in the vicinity of the Burling Street APE, has shown that landfill and landfill retaining devices can be potentially important resources, and differ in content and context from site to site. Fill retaining devices were generally one of several configurations. As demonstrated at the Schermerhorn Row site, wooden

cribbing (ca.1730) would be constructed and then be sunk and filled (Kardas and Larrabee 1980:18). Alternatively, wharves were constructed by sinking wooden piles into the river and secured through one of several means, with the spaces between the piles filled with earth and then topped with a plank surface (Bergoffen 2002:3).

Another method to retaining fill was the deliberate sinking of ships, which served to add bulk along the shoreline. The Minutes of the Common Council record the stripping of ships prior to sinking in order to remove valuable fittings and riggings which could be reused (Hartgen et al 1992:8). While some hulls were intentionally raised from the river bottom, others were left as fill, such as the buried vessel found at 175 Water Street (Soil Systems Inc. 1983:865).

A review of the shoreline maps created for the period that the Burling Slip APE would have first contained any historical features and was then subsequently filled, roughly between the 1780s and 1835, indicates that the APE has the potential to contain buried evidence of piers, wharves, landfill, and landfill retaining devices (Ratzer 1866/67; McComb 1789; Taylor-Roberts, 1797; Hooker 1833; Undated Water Lot Grants). A composite map was created using maps dating between 1766/67 and 1833, overlaid on a modern Sanborn map (2005), in order to visually portray the continual changes to the shoreline over this period of time, and to estimate the approximate location of potential buried features (Figure 13). However, because historical mapping efforts were not exact, and because there were few stationary landmarks on the landscape from which to compare maps, the composite map must be considered as only an approximation. The overlay map suggests that there may be waterfront features dating from ca.1789 through ca. 1833 in the Burling Slip APE.

In order to establish the existing subsurface conditions in the APE, and thus its potential archaeological integrity, soil boring logs were sought for review. The 1973 Rock Data Maps from the Office of the Manhattan Borough President show borings taken on South Street directly south of the APE. The closest two of these, Borings #349 and #351, show the following stratigraphy (Rock Data Maps 1973):

Boring #349:
- 0-.7' below grade granite block
- .7-44' below grade miscellaneous fill
- 44-59' below grade medium brown sand

Boring #351:
- 0-.7' below grade granite block, concrete
- .7-38.5' below grade miscellaneous fill and timber
- 38.5-73' below grade medium brown sand and gravel

Both borings indicate that there is an extremely deep layer of fill from a little more than half a foot down to more than 35 feet below grade. It is entirely possible that the Burling Slip APE has similar subsurface conditions. Therefore, the APE has the potential to contain ca.1835-36 landfill in addition to fill retaining devices and a possible wharf that may have been constructed on the northeast side of the slip in the APE in the late 18th or early 19th century. Outside of the immediate location of the corridor disturbed for the cut-and-cover installation of a 5-foot by 4-

foot sewer pipe in the 1890s (WPA 1937), the APE is potentially sensitive for the wharf and ca.1835-36 landfill and retaining devices below the top two feet of the roadbed.

Wooden Water Mains:
No wooden water mains are anticipated in the Burling Slip APE. Prior to the introduction of Croton water in 1842, water was distributed in mains composed of hollowed-out logs, replaced with cast iron pipes and hydrants beginning in 1827. The Manhattan Company maintained numerous mains in Lower Manhattan during its existence from 1799 to 1842. The wooden mains were shallowly buried so that they could be tapped by firemen in the course of their duties, and were most recently encountered within four feet of the surface in Coenties Slip, west of the APE (Geismar 2005a:1-3). Given the cut-off date of ca.1827, wooden water mains are not anticipated to be present in the Burling Slip APE, as it was filled between 1835 and 1836, which is when underground utility pipes would have first been installed (MCC 1835 8:112-113; Hooker 1833, Colton 1836, Figures 10, 11).

BURLING SLIP POTENTIAL IMPACTS

The proposed park to be created within the Burling Slip APE is anticipated to involve grading to create a modest variation of the ground plane, generally one to two feet up or down, and will contain typical park elements such as lighting, irrigation, drainage, landscaping, and benches. It may also include sand and water play areas and moveable play equipment, as well as a small storage structure for movable equipment. The size and location of the storage structure have not yet been determined. Excavation for the park is not expected to exceed four feet, except for the storage structure, which may require excavation up to eight feet below grade. Although the location of the storage structure has not yet been defined, it is assumed for the purposes of this study that the entire APE could be subject to excavation of up to eight feet in depth.

BURLING SLIP CONCLUSIONS AND RECOMMENDATIONS

The Burling Slip APE was found to have no potential for precontact archaeological resources, but it may be potentially sensitive for historical archaeological deposits. Resources potentially buried in the APE include fill that was deposited by the City of New York in ca. 1835-36 when the slip's use was discontinued, and possibly a wharf or other landfill retaining devices on the northeast side of the APE that would have been constructed between 1789 and 1833. The only portion of the APE considered to lack potential for historical archaeological deposits is a narrow corridor where a large (ca. 5-foot by 4-foot) sewer line is buried. The cut-and-cover installation of this large pipe would have destroyed archaeological resources in its path. While other utilities run through the slip, they are shallowly-buried and small in size, and thus would have had little impact on the relatively large area of archaeological potential.

The proposed project will require excavation of up to four feet in depth across most of the APE, and up to eight feet in depth at the site of the proposed storage shed. Where disturbance will extend more than two feet below grade (the anticipated maximum depth of impacts from the roadbed), the proposed project may affect potential archaeological deposits. If these impacts cannot be avoided, then an archaeological field testing program should be designed in coordination with the SHPO and LPC.

BIBLIOGRAPHY

Atwood, John
1848 Map of the city of New York: with the adjacent cities of Brooklyn & Jersey City, & the Village of Williamsburg / drawn & engraved by John M. Atwood, 145 Fulton St., N.Y.

Augustyn, Robert T. and Paul E. Cohen
1997 *Manhattan in Maps.* Rizzoli International Publications, New York.

Bergoffen, Celia
2002 *Phase 1A Archaeological Assessment Report, Historic Front Street Redevelopment, Block 97 Lots 18, 32, 37, 58.* Prepared for the New York City Department of City Planning, Borough of Manhattan.

Bridges, William
1803 *Plan of the City of New-York, with the recent and intended improvements.*

1807 William Bridges, New York.

Bromley, George W. and Walter S.
1879 *Atlas of the entire city of New York : complete in one volume ; from actual surveys and official records.* G. W. Bromley & E. Robinson, New York.

1897 *Atlas of the City of New York, Borough of Manhattan. From actual surveys and official plans / by George W. and Walter S. Bromley.* G.W. Bromley & Co., Philadelphia.

1911 *Atlas of the City of New York, Borough of Manhattan. From actual surveys and official plans / by George W. and Walter S. Bromley.* G.W. Bromley & Co., Philadelphia.

1916 *Atlas of the City of New York, Borough of Manhattan. From actual surveys and official plans / by George W. and Walter S. Bromley.* G.W. Bromley & Co., Philadelphia.

1926 *Land Book of the Borough of Manhattan, city of New York* . G.W. Bromley, New York.

1932 *Atlas of the City of New York, borough of Manhattan. From actual surveys and official plans.* G. W. Bromley, Philadelphia.

1974 *Atlas of the City of New York, borough of Manhattan. From actual surveys and official plans.* G. W. Bromley, Philadelphia.

Buchnerd, Mrs.
1735 *Plan of the City of New York In the Year 1735.* Repository: The New York Public Library, I. N. Phelps Stokes Collection.

Burr, David H.
1832 *Map of the city and county of New York: with the adjacent country.* David H. Burr.

Burr (con't.)
1839 *Map of New York Exhibiting the Post Offices, Post Roads, Canals, Rail Roads, &c.* John Arrowsmith, London.

Buttenwieser, Ann L.
1987 *Manhattan Water-Bound.* New York University Press, New York.

City of New York, Borough of Manhattan, City Register (City Register)
n.d. Block Index of Reindexed Conveyances, pre 1917.

City of New York, Department of Public Works
1958 *Office Record, Plan of Sewers.* City of New York, Borough of Manhattan, Office of the President, Department of Public Works, Bureau of Engineering. Updated to 1961.

Colton, Joseph H.
1836 *Topographical Map of the City and County of New York and the Adjacent Country.* Published by J.H. Colton & Co., New York.

Department of Docks, City of New York
1873 *Map Showing the High and Low-Water Marks and Original City Grants of Underwater Land made to Various Parties, 1686-1873, Battery to 51st Street, Hudson and East Rivers.* Department of Docks.

Doggett, John, Jr.
1848 *Doggett's New York City Street Directory for 1848.* John Doggett, Jr., New York.

Dripps, Matthew
1852 *Map of the City of New York Extending Northward to 50th Street.* M. Dripps, New York.

Geismar, Joan H.
2005a *Construction of Coenties Slip Archaeological Report.* Prepared for Trocom Construction Corporation, Inc.

2005b *Fulton Street Transit Center (FSTC), Archaeological Assessment of Foundation Walls at Maiden Lane and Broadway.* Prepared for New York City Transit (MTA-NYCT).

Gratacap, Louis Pope
1909 *The Geology of the City of New York.* Third ed. Henry Holt, New York.

Greenhouse Consultants Inc.
1983 *Historical Documentary Report, Assay Office Site, New York, New York.* Prepared for Fox & Fowle Architects, New York.

Greenhouse Consultants Inc. (con't.)
1984a *Pre-E.I.S. cultural Resource Sensitivity Evaluation for the East River Landing Project.* Prepared for Energy and Environmental Analysts, Inc., by Greenhouse Consultants Incorporated.

1984b *Assay Office Site. The Results of the Archaeological Testing and the Recommendations for Mitigations for the "Backyard Areas" in Lots 7, 8, and 9; 41, 42, & 43; Block 35, New York City.* Prepared for Energy and Environmental Analysts, Inc., by Greenhouse Consultants Incorporated.

Grim, David
1813 *A Plan of the City and Environs of New York as they were in the years 1742, 1743 & 1744.* David Grim, New York.

Grumet, Robert Steven
1981 *Native American Place Names in New York City.* Museum of the City of New York.

Hartgen Archaeological Associates and Historical Perspectives, Inc.
1992 *Route 9A Reconstruction Project, Contextual Study, Sunken Ships and Landfill Retaining Devices.* Prepared for the New York State Department of Transportation in cooperation with the Federal Highway Administration and the City of New York.

Henn, Roselle
1978 *The Water Street Site: Final Report on 209 Water Street.* Ms. on file at the New York City Landmarks Preservation Commission, New York.

Historical Perspectives, Inc.
2003 *Second Avenue Subway Phase 1A Archaeological Assessment.* Prepared for AKRF, Inc., New York.

Hooker, William
1833 *Hooker's New Pocket Plan Of The City Of New York.* William Hooker, New York.

Hyde, E. Belcher
1913 *Atlas of the Borough of Manhattan.* E. Belcher Hyde. E. B. Hyde, Brooklyn.

Kardas, Susan and E. Larrabee
1991 *Summary Report of 1981-1983 Archaeological Excavation, The Schermerhorn Row Block.* Prepared for Bureau of Historic Sites, New York State Office of Parks, Recreation, and Historic Preservation and the New York City Public Development Corporation by Historic Site Research, Princeton, New Jersey.

Lyne, James
1730 *A Plan of the City of New York From an Actual Survey.* (Lyne-Bradford Plan). William Bradford, New York.

Manhattan Borough President's Office
nd *ACC No 30041: 1772 Water Grants East River to Whitehall Street to James Slip.* Manhattan Borough President's Office, Topographical Division.

McAtamney, Hugh E.
1909 *Cradle Day s of New York 1609-1825.* Drew and Lewis, New York.

McComb, John Jr.
1789 *The New-York Directory and Register for the Year 1789.* John McComb Jr. As printed in Augustyn and Cohen, 1997.

Minutes of the Common Council of the City of New York (MCC)
1905 *Minutes of the Common Council of the City of New York, 1675-1776.* Dodd, Mead and Company, New York.

1930 *Minutes of the Common Council of the City of New York, 1784-1831.* Published by the City of New York, New York.

Montresor, John
1766 *A Plan of the City of New-York & its Environs to Greenwich on the North or Hudson River...Surveyed in the Winter, 1766.* Mary Ann Rocque, London.

New York City Landmarks Preservation Commission (LPC)
2002 *Landmarks Preservation Commission Guidelines for Archaeological Work in New York City.* Prepared by the New York City Landmarks Preservation Commission.

Perris, William
1852 *Maps of the City of New-York.* William Perris, New York.

1857/ *Maps of the City of New-York.* Third edition. William Perris, New York.
1862

Phillips,
1776 *Map of America.* From Universal Magazine, Vol. 59, Nov. 1776. Lawrence H. Slaughter Collection. Repository: New York Public Library.

Profile of South Street (Profile)
c.1851 *Profile of South Street [from Roosevelt Street to Catharine Street].* File D69.22. Acc. No. 1162. Drawer 45. Collection: Manhattan Borough President's Office).

Ratzer, Bernard
1766/ *Plan of the City of New York. Surveyed in 1767.* As printed in Augustyn and
67 Cohen, 1997.

Robinson, Edward
1885 *Atlas of the City of New York.* Robinson, New York.

Robinson, Edward (con't.)
1893 *Atlas of the City of New York.* Robinson, New York.

Rock Data Maps
1973 *Rock Data Map showing Original Shore-Line, Ponds, Marshes, and Waterways, Together with Rock Floor of Manhattan Island as Determined by Core Borings and Excavations.* Office of President, Bureau of Manhattan, Topographic Bureau. Base Map 1944. Revised 1969, 1973.

Rockman, Diana, Wendy Harris and Jed Levin
1983 *The Archaeological Investigation of the Telco Block, South Street Historic District, New York, New York.* Prepared for Jack Resnick and Sons, Inc.

Sanborn Map Company
2005 *Insurance Maps of the City of New York: Borough of Manhattan.* Sanborn Map Co., New York.

Schaefer, Richard et al
2006 *Preliminary Assessment/Disturbance Report, East River Waterfront Esplanade and Piers Project.* Prepared for AKRF, Inc.

Scharf, J. Thomas
1886 *History of Westchester County, New York.* Two volumes. Picton Press, Maine. L.E. Preston and Company, Philadelphia.

Schuberth, Christopher J.
1968 *The Geology of New York City and Environs.* Natural History Press, Garden City, New York.

Smith, Calvin
1846 *New map of the city of New York : with part of Brooklyn & Williamsburg* / by J. Calvin Smith ; engraved on steel by Stiles, Sherman & Smith.

Soil Systems Inc.
1980 *Historic Background and Study of the Block 74W [Telco Site].* Prepared by Wendy Harris for the New York City Office of Economic Development

1981 *175 Water Street History.* Prepared for Fox and Fowle Architects, New York.

1982 *The Archaeological Investigation of the Telco Block, South Street Seaport Historic District. New York, New York.* Prepared by Diana Rockman, Wendy Harris & Jed Levin for Jack Resnick and Sons, Inc.

1983 *Archaeological Investigation of the 175 Water Street Block.* Prepared by Joan Geismar for Fox and Fowle Architects, New York.

Stokes, I. N. Phelps
1918 *The Iconography of Manhattan Island.* Vol. III. Robert Dodd, New York.

1922 *The Iconography of Manhattan Island.* Vol. IV. Robert Dodd, New York.

1926 *The Iconography of Manhattan Island.* Vol. V. Robert Dodd, New York.

1928 *The Iconography of Manhattan Island.* Vol. VI. Robert Dodd, New York.

Tanner, Henry
1838 *A New Universal Atlas Containing Maps of the various Empires, Kingdoms, States and Republics Of The World. With a special map of each of the United States, Plans of Cities &c.* H.S. Tanner, Philadelphia.

Taylor, Benjamin and John Roberts
1797 *A New and Accurate Plan of the City of New York.* (Taylor-Roberts Plan). As printed in Augustyn and Cohen, 1997.

United States Department of the Interior, National Park Service
19 ? *South Street Seaport Historic District Extension, New York City, New York. NPL 06101.000604.* National Register of Historic Places, Inventory Nomination Form.

USGS
1981 *Jersey City Quadrangle New Jersey – New York.* 7.5-minute series. Published 1967, photorevised 1981. United States Geological Survey, Reston, VA.

Viele, Egbert Ludovicus
1865 *Map of the City of New York from the Battery to 80th Street Showing the Original Topography of Manhattan Island.* Egbert L. Viele, New York.

Water Main Distribution Map
2006 *Water Main Distribution Map From GDS Geodatabase.* Source: New York City Department of Environmental Protection.

Weiss, Dennis
1988 *Paleo-Shorelines, Trump Project Site, Borough of Manhattan, New York City.* Submitted to Greenhouse Consultants Inc., New York.

WPA (Works Progress Administration)
1937 *Subsurface Conditions: Lower East Side, Manhattan, Department of Water Supply, Gas and Electric.* Works Progress Administration, New York.

Figures

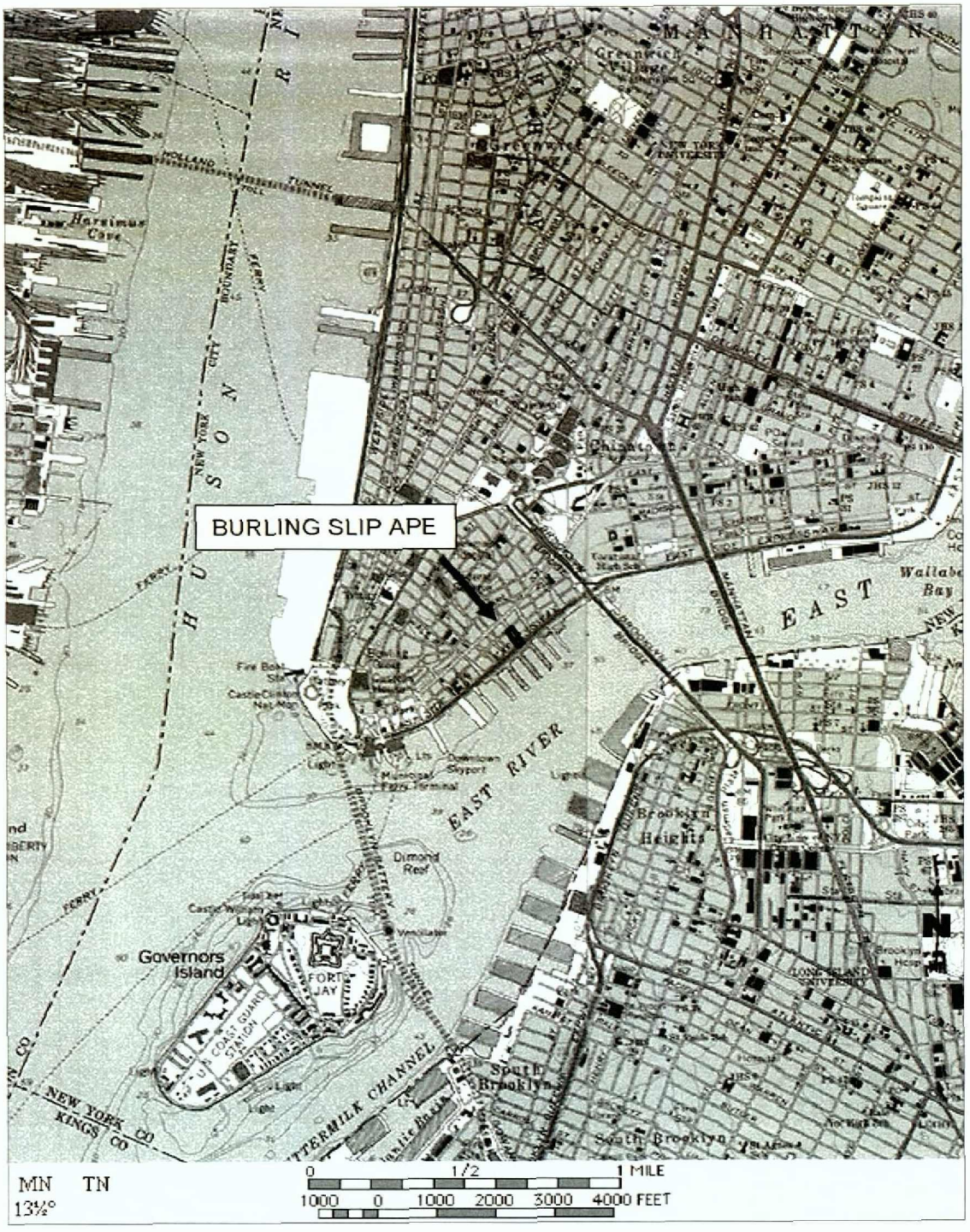

FIGURE 1

Burling Slip APE. U.S.G.S. Jersey City Quadrangle, 1979.

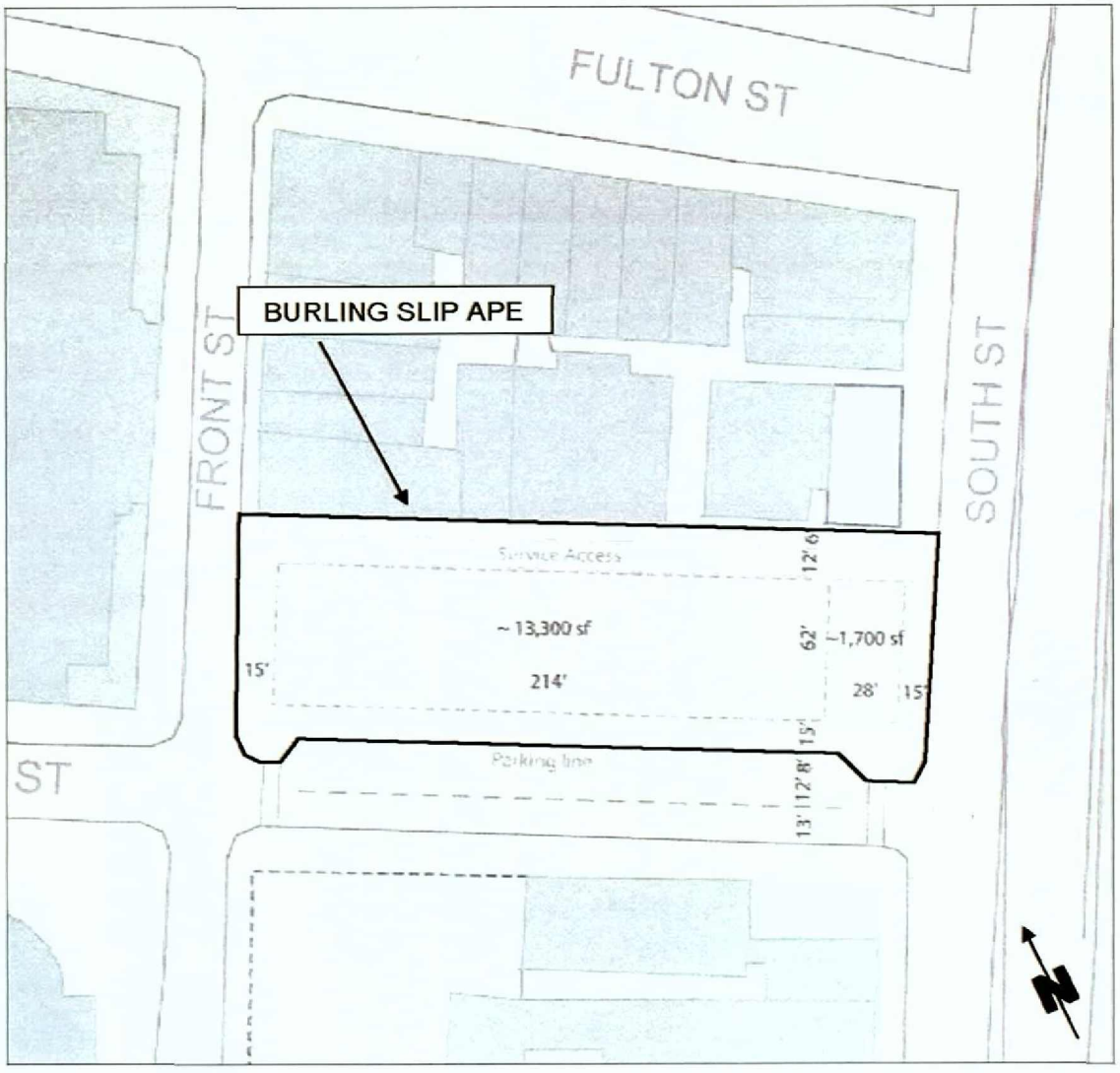

FIGURE 2

Burling Slip Archaeological APE. Source: AKRF Inc.

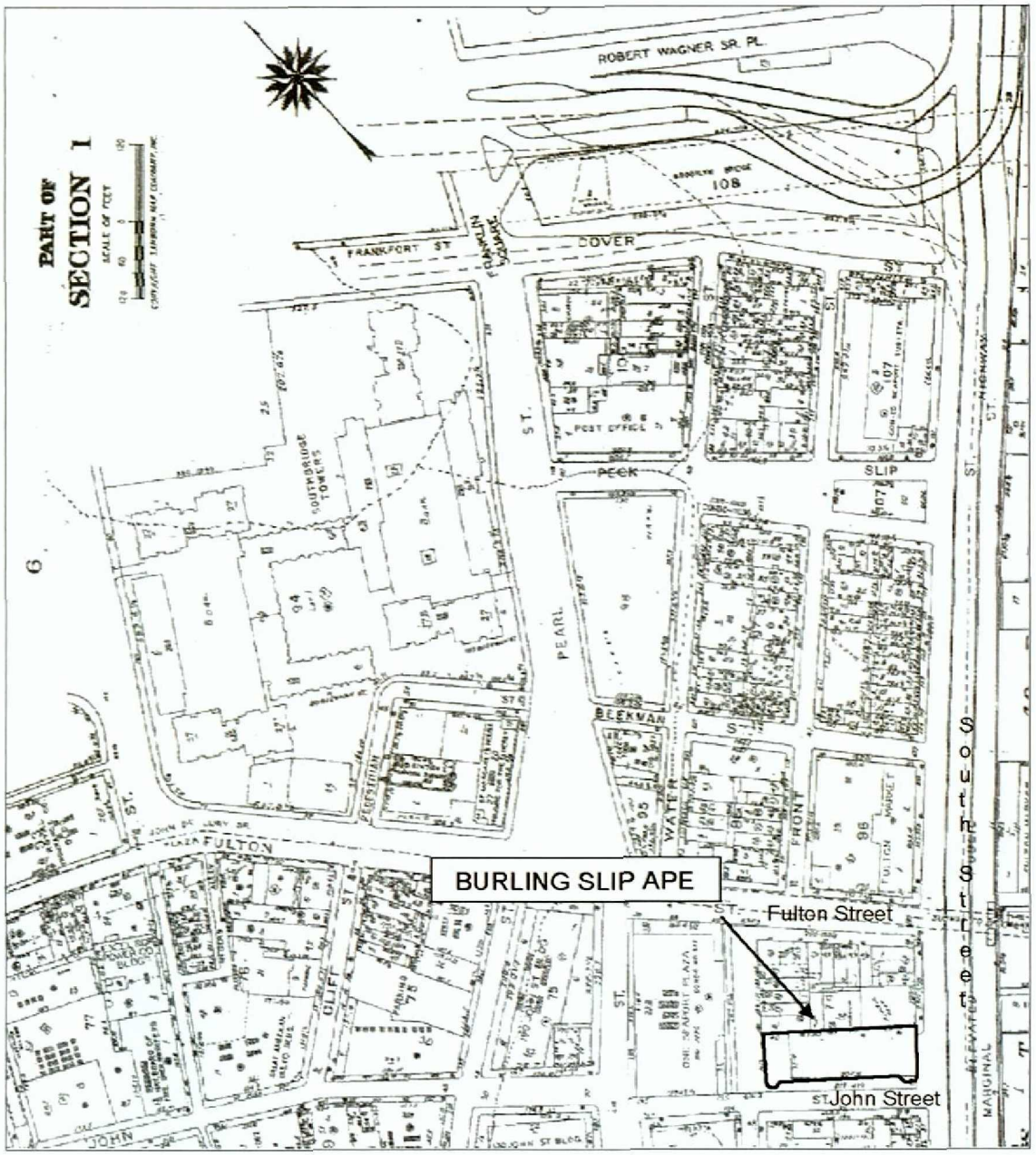

FIGURE 3

Burling Slip APE Boundaries. Sanborn, 2005.

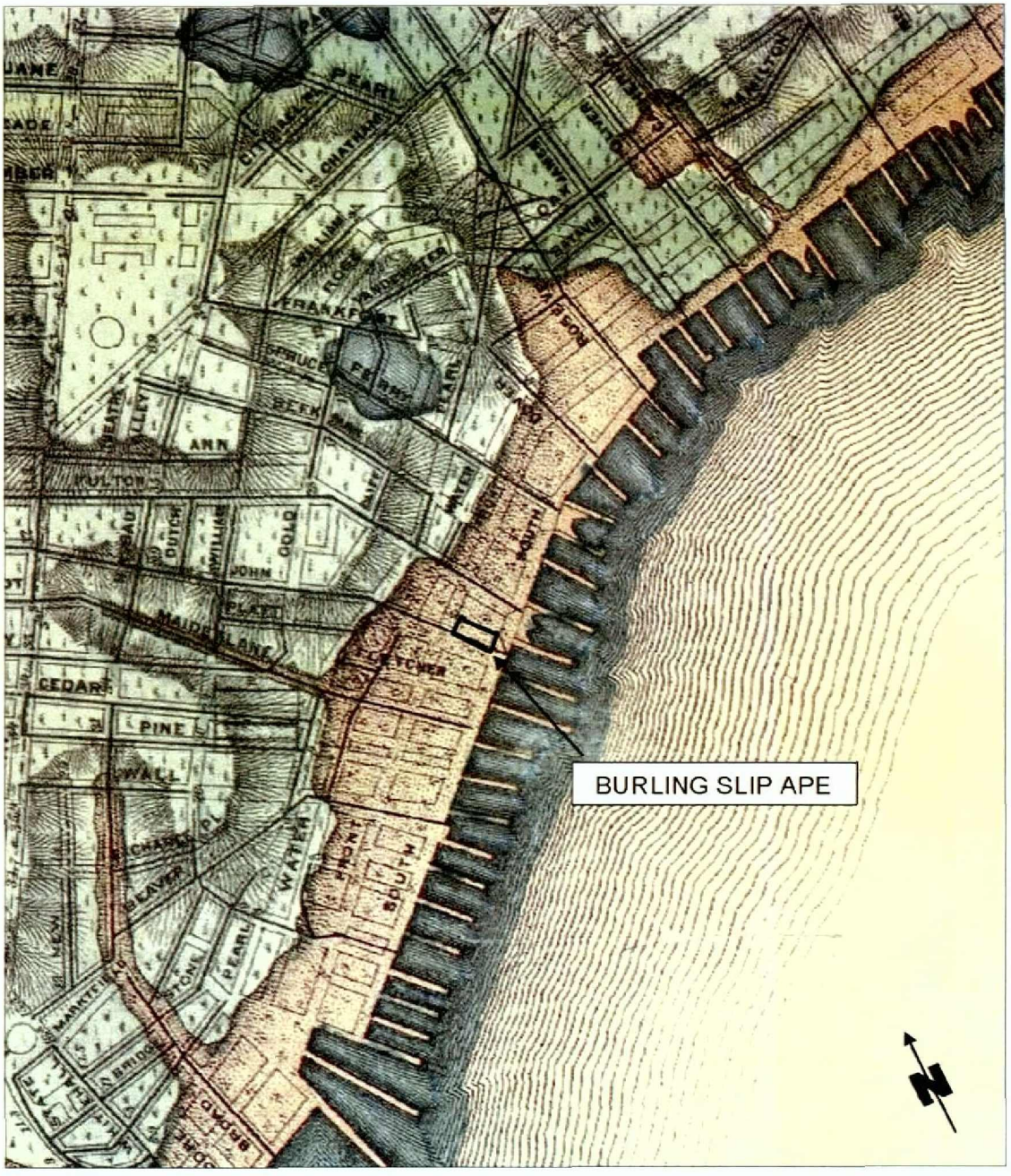

FIGURE 4

Map of the City of New York from the Battery to 80th Street Showing the Original Topography of Manhattan Island. Viele, 1865.

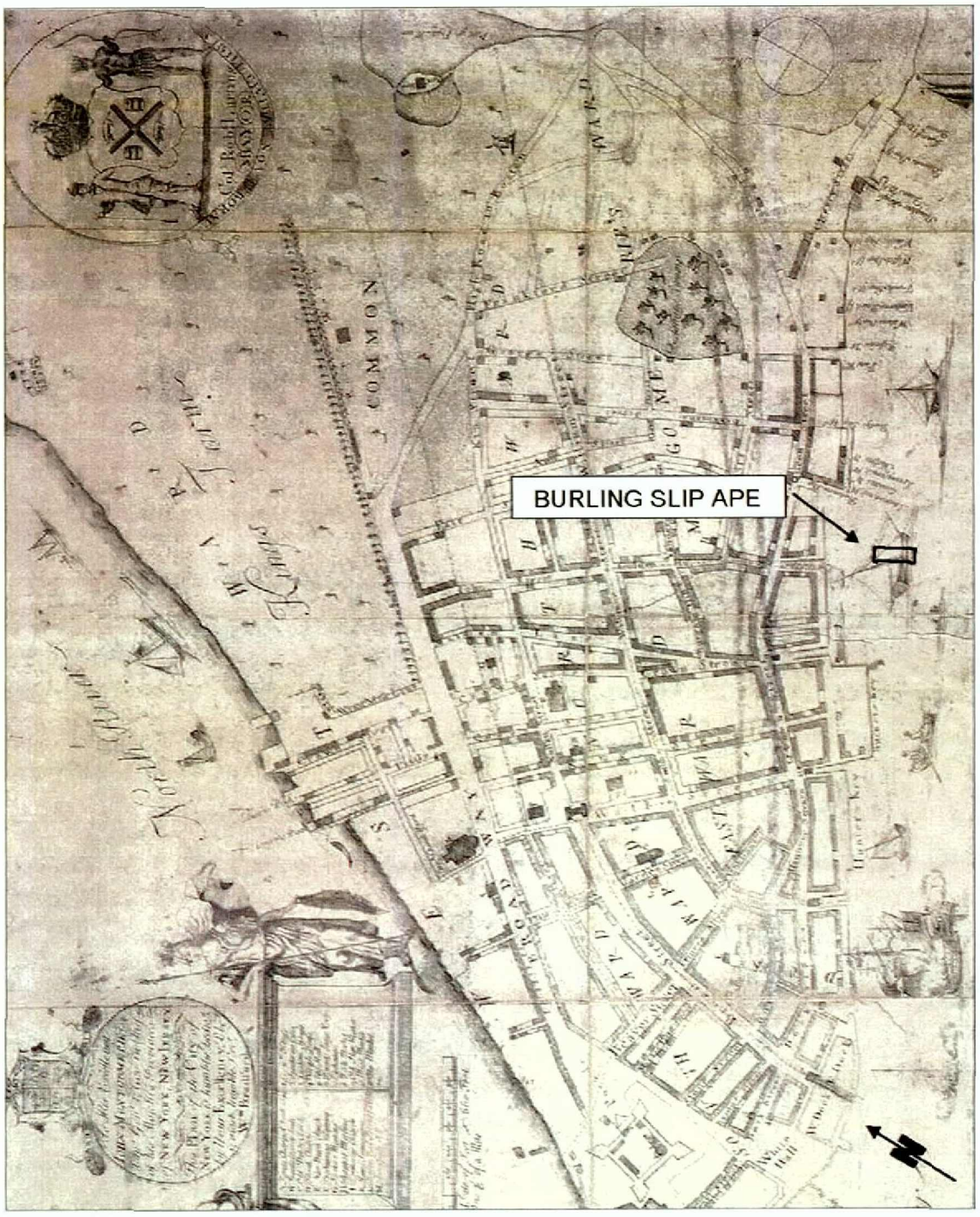

FIGURE 5

A Plan of the City of New York From an Actual Survey. Lyne, 1730.

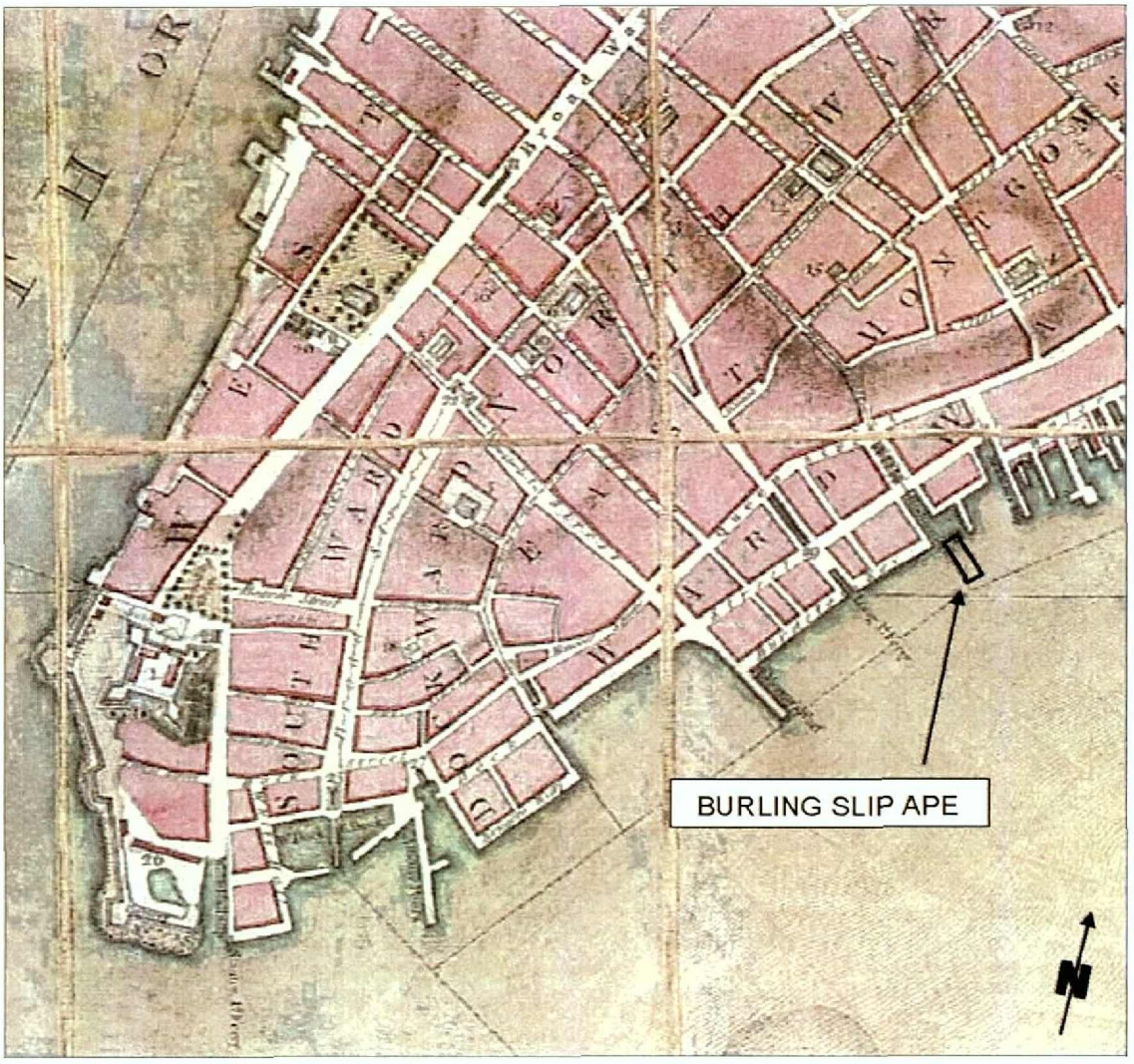

FIGURE 6

Plan of the City of New York. Surveyed in 1767. Ratzer, 1766/67.

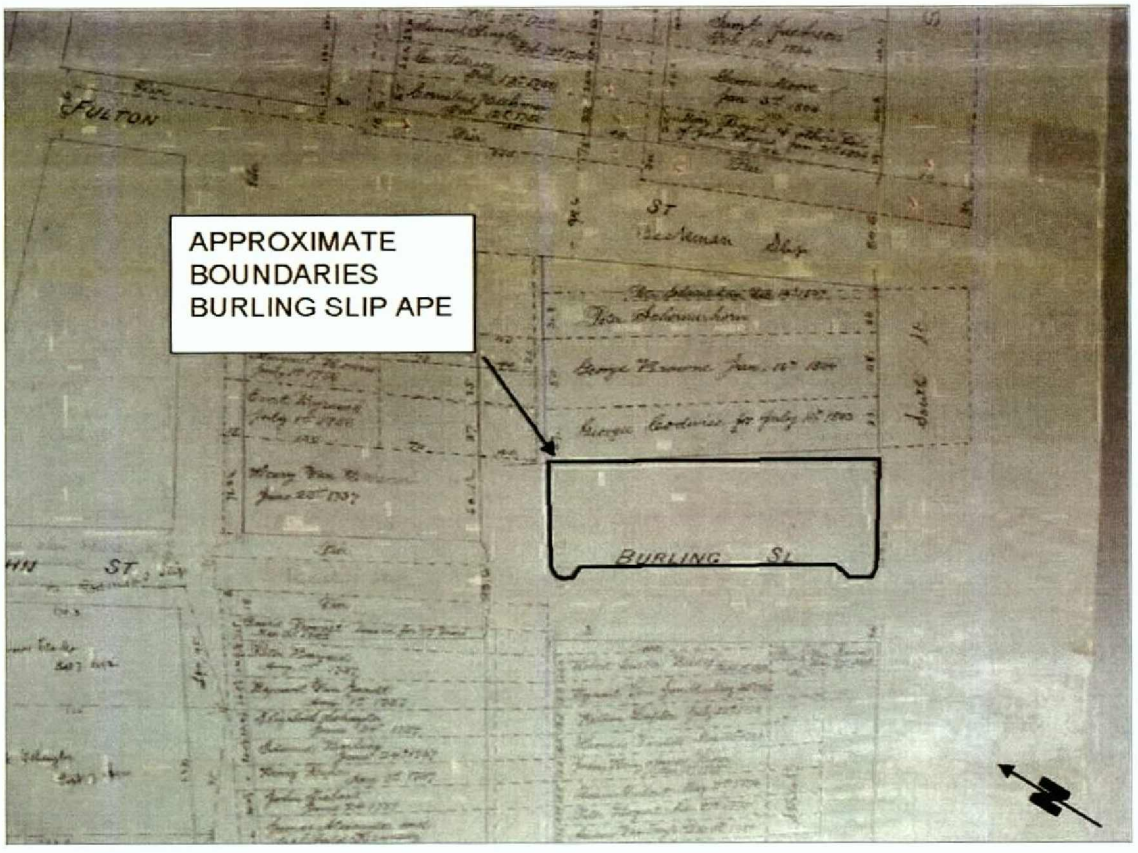

FIGURE 7

ACC No 30041: 1772 Water Grants East River to Whitehall Street to James Slip.
Manhattan Borough President's Office, Topographical Division.

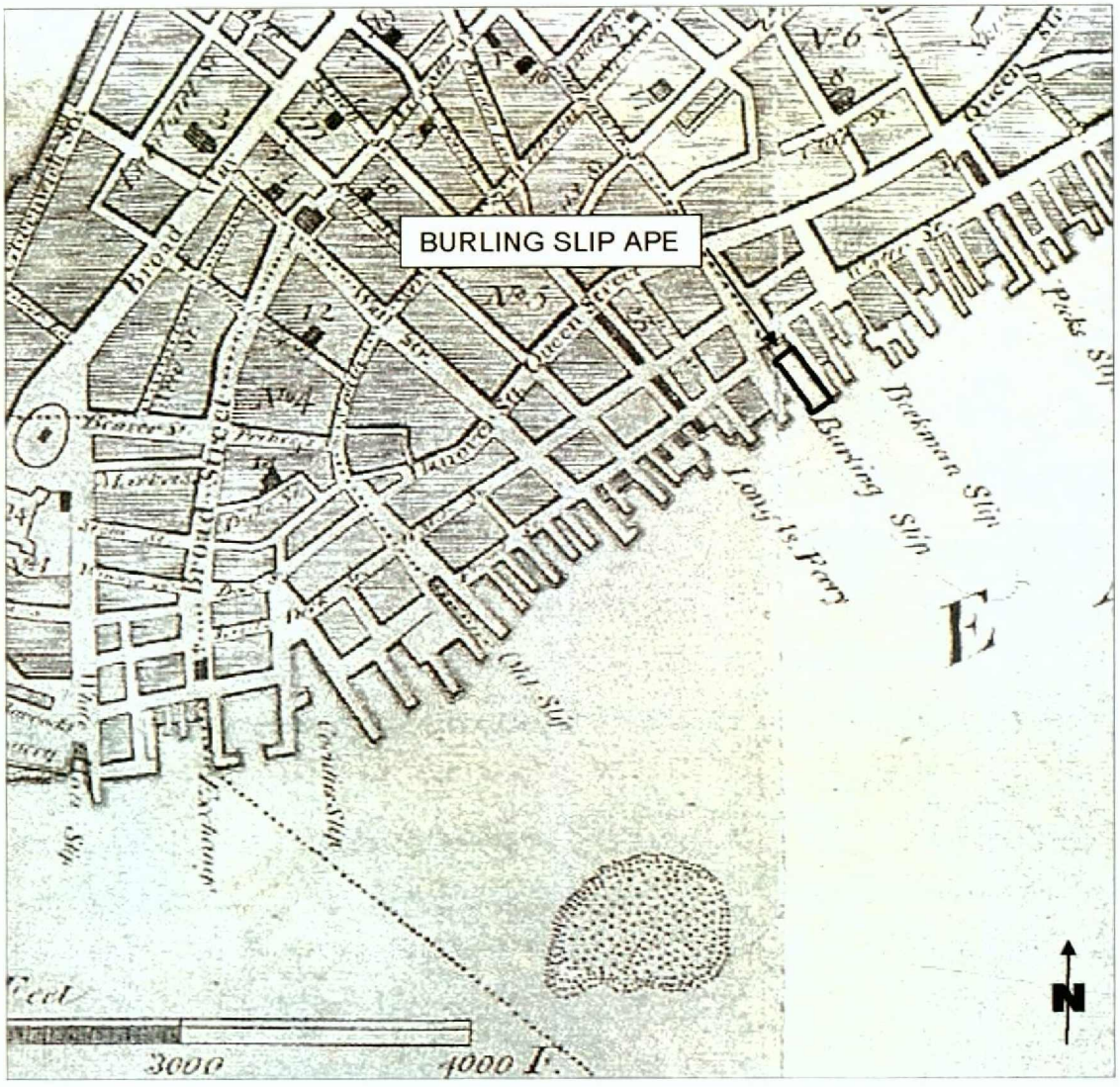

FIGURE 8

The New-York Directory and Register for the Year 1780.
McComb, 1789.

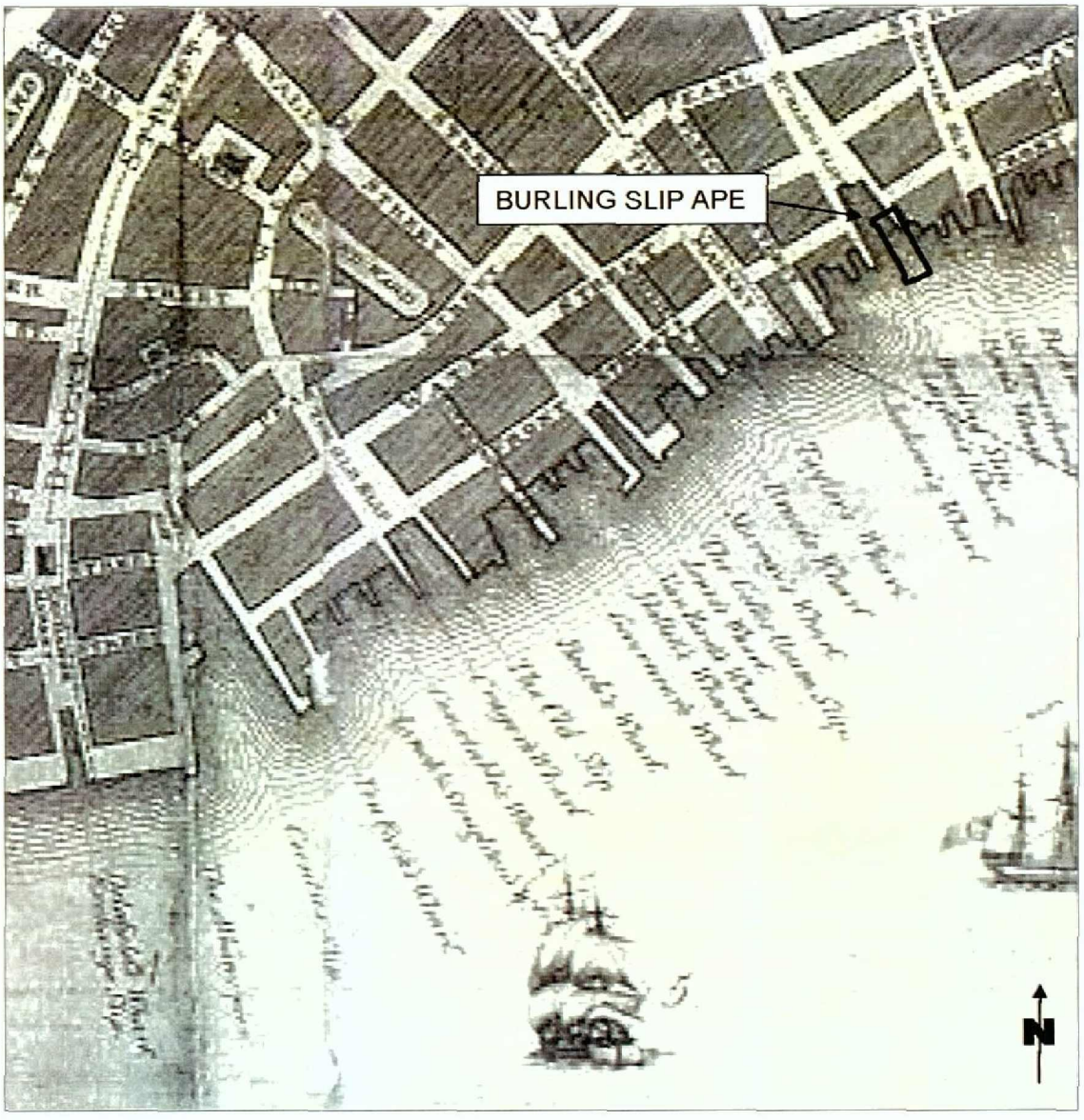

FIGURE 9

A New and Accurate Plan of the City of New York. Taylor-Roberts, 1797.

FIGURE 10

Hooker's New Pocket Plan Of The City Of New York. Hooker, 1833.

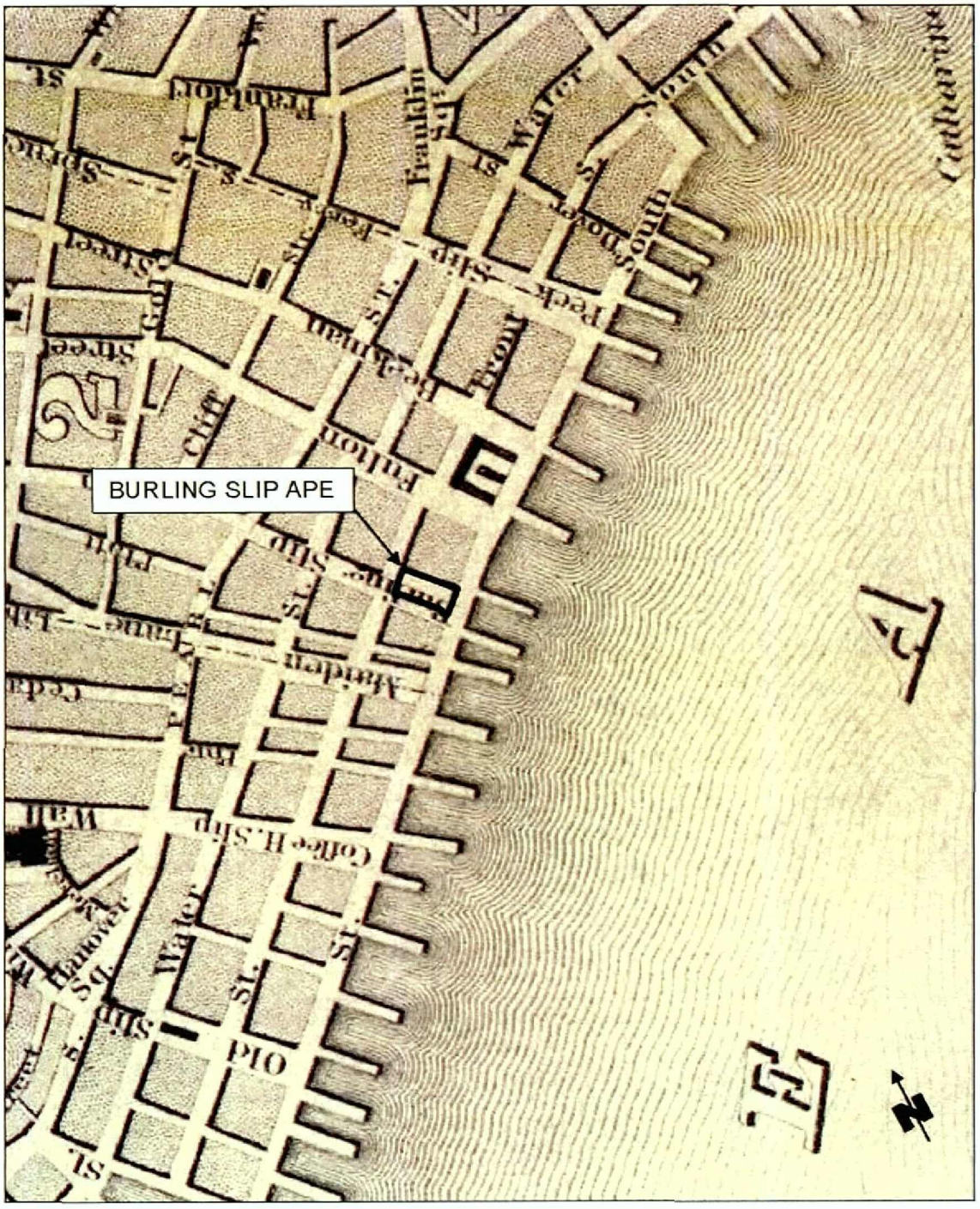

FIGURE 11

Topographical Map of the City and County of New York and the Adjacent Country. Colton, 1836.

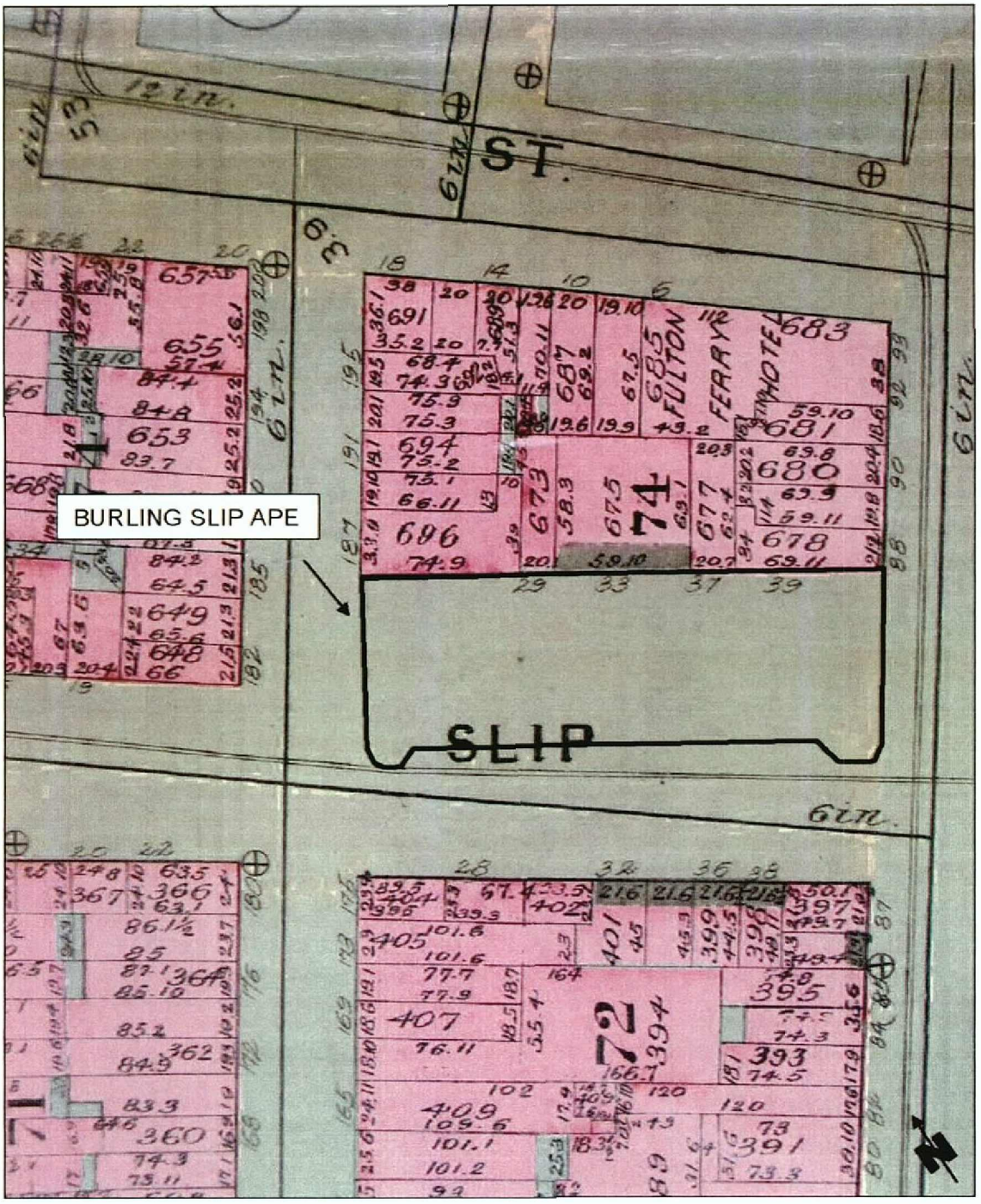

FIGURE 12

Atlas of the City of New York. Robinson, 1893.

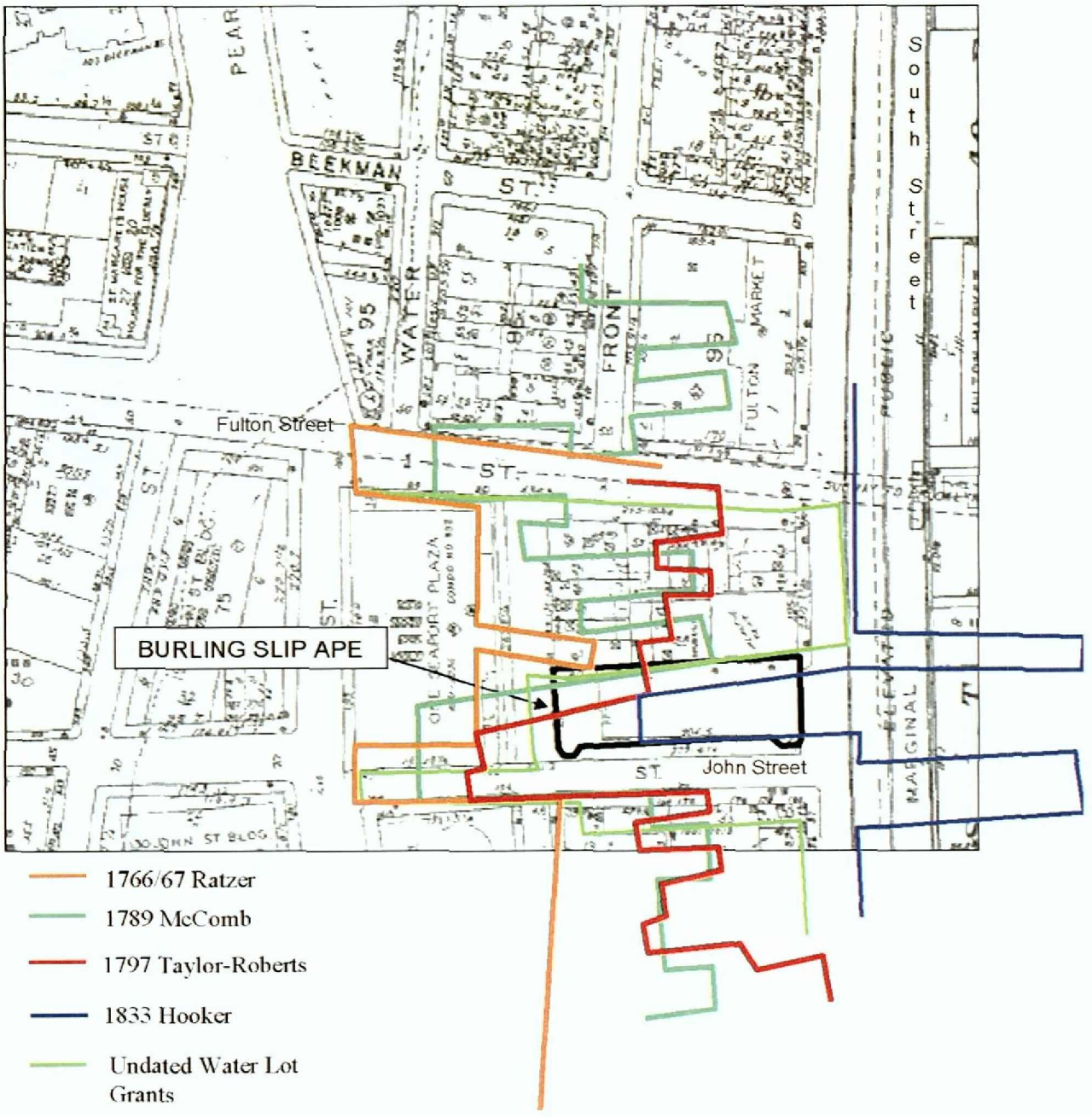

FIGURE 13

Burling Slip APE with Historical Shorelines Superimposed.

Base Map: Sanborn, 2005.

Note: All shoreline boundaries are approximate.
For full map titles, see the Bibliography.

Photographs

Photograph 1: Burling Slip APE facing north from the corner of South Street and John Street. Note: John Street is in the foreground.

Photograph 2: Burling Slip APE facing east from the corner of John Street and Front Street. Note: John Street is in the foreground.

Photograph 3: Burling Slip APE facing south from 167 John Street (South Street Seaport Museum) on Block 34.

Photograph 4: Burling Slip APE facing south toward the intersection of South Street and John Street from the north corner of the APE at Front Street.

Appendices

APPENDIX A: CONVEYANCE RECORDS

Block 74: **This block was included in lands under water.**
References: **Farm Histories V. p.**
Map of Tracts and Farms, Plate 2, R.D. 352.

Block/Lot	Year	Grantor	Grantee	Liber:Page
	1654-1716	No Instruments of Record		
Not Lotted	4/16/1717	Feust, Magdelen (widow of) Bartholomew Feust	Latham, Joseph	28: 295
Not Lotted	7/15/1717	Feust, Bartholomew (Exc of) Magdelen Feust	Gomez, Lewis	28: 309
Not Lotted	7/15/1717	Feust, Magdelen (widow of) Bartholomew Feust	Homez, Lewis	28: 310
Not Lotted	8/14/1719	Brouwer, Nicolaus	Latham, Joseph	28: 538
Not Lotted	8/20/1719	Breestede, Johannis Breestede, Reabecka	Latham, Joseph	28: 540
Not Lotted	8/16/1719	Latham, Joseph Latham, Jane	Bresteede, John	30:92
	1721-1726	No Instruments of Record		
Not Lotted	8/30/1727	Van Cortlandt, Stephenus (Exc of)	Van Cortlandt, Geertruyd	31: 199
	1728-1737	No Instruments of Record		
Not Lotted	7/4/1738	Wynkoop, Benjamin Wynkoop, Femmetje	Bowne, Robert	32: 105
Not Lotted	3/7/1739	Gomez, Lewis	Bowne, Robert	32: 151
Not Lotted	3/7/1739	Gomez, Lewis	Bowne, Robert	32: 153
	1740-1761	No Instruments of Record		
Not Lotted	3/22/1762	Van Borssom, Eghbert (Execs of) Van Borssom, Margaret R. (signs) Bosson Benson, Robert Benson, Catherine	Remsen, Rem Jr.	36: 100
	1763-1769	No Instruments of Record		
Not Lotted	6/27/1770	Remsen, Jeronemus R. Heir of Remsen, Rem	Denning, William	38: 454
Not Lotted	6/27/1770	Remsen, Jerominus R. Devisee of Remsen, Rem	Byvanck, John	38: 458
	1771-1793	No Instruments of Record		
Not Lotted	5/3/1794	Boyd, Robert (Sheriff) Remsen, George (Interest of)	Dunbar, Daniel	49: 505
Not Lotted	5/8/1794	Remsen, George (Heir of) Remsen, Jeronemus R.	Dunbar, Daniel	49: 511
	1796-1798	No Instruments of Record		
Not Lotted	7/23/1799	Codwise, George Jr. Codwise, Mary	Toule, Jane	56: 527
Not Lotted	7/24/1799	Byvanck, John (Exr of)	Codwise, Mary	56: 531
Not Lotted	11/14/1799	Codwise, George Jr. Codwise, Mary	Youle, Jane	57: 163
Not Lotted	11/15/1799	Byvanck, John (Exr of)	Youle, Jane	57: 165
Not Lotted	5/28/1804	Bowne, George	Codwise, George Jr.	66: 528
Not Lotted	10/4/1804	Tom, Thomas Tom, Catharine	Townsend, Thomas S.	68: 95

Block/Lot	Year	Grantor	Grantee	Liber:Page
Not Lotted	8/17/1807	Stewart, Charles Bloodgood, Thomas Adams, Samuel (Commissioners) Patten, James Patten, Dorothy	Patten, James Allen, Stephen	77: 239
Not Lotted	6/13/1808	Stilwell, Samuel	Mott, William Mott, John	80: 317
Not Lotted	6/2/1809	Lawrence, Catherine (Exrs of)	Grayson, John	83: 167
	1810-1814	No Instruments of Record		
9, 10, 11, 12, 13	7/11/1816	Champlin, John T. Mintum, Benjamin G.	Prime, Nathaniel Ward, Samuel Sands, Joseph	117: 565
Not Lotted	12/11/1816	Nostrand, Timothy Nostrand, Catharine	Callender, William	116: 648
Not Lotted	6/20/1817	Stewart, Charles Bloodgood, Thomas Adams, Samuel (Commissioners in Partition)	Stewart, Tieuntia	119: 509
Not Lotted (37?)	3/9/1818	Codwise, Mary (widow of Codwise, George Jr.)	Howard, William	125: 429
Not Lotted (38?)	3/9/1818	Codwise, Mary (widow of Codwise, George Jr.)	Benedict, James	125: 432
Not Lotted	6/6/1818	Payne, Thomas (Admx of) Walker, Peter	Tillou, Francis R.	128: 336
Not Lotted	6/6/1818	Tillou, Francis R.	Payne, Sarah L.	128: 340
Not Lotted	6/6/1818	Bowne, George	Paine, Thomas Paine, Jonas	130: 47
Not Lotted (30?)	9/29/1818	Wright, Jordan Wright, Rebecca	Wright, Isaac	131: 376
Not Lotted (30?)	9/29/1818	Wright, Isaac Wright, Sarah	Wright, Jordan	131: 378
Not Lotted (30?)	9/29/1818	Slocum, William T. Slocum, Mary	Wright, Jordan	131: 380
Not Lotted (30?)	9/29/1818	Hallett, Abraham S.	Wright, Jordan	131: 386
Not Lotted (30?)	9/29/1818	Dunbar, Naomi (widow of Dunbar, Daniel) Dunbar, Mary	Wright, Jordan Wright, Rebecca	131: 404
Not Lotted (30?)	9/29/1818	Dunbar, Naomi (widow of Dunbar, Daniel) Dunbar, Mary	Wright, Jordan Wright, Rebecca	131: 408
Not Lotted	4/24/1823	Bowne, Robert H. Bowne, Sarah H.	Codwise, Mary	164: 430
Not Lotted	3/26/1823	Payne, Sarah L.	Lawton, Charles	188: 496
Not Lotted	6/22/1825	Van Cortlandt, William-Rickets Van Cortlandt, Elizabeth	Kortwright, Lawrence	194: 151
Not Lotted	6/22/1825	Kortwright, Lawrence	Schermerhorn, Simeon Schermerhorn, Peter Schermerhorn, Cornelius Stewart, James Schermerhorn, Catharine	194: 153
10, 11	2/13/1827	Codwise, George Jr. (Exr of)	Phelps, Anson G.	215: 209
4-9 (incl)	7/27/1827	Codwise, Charles	Codwise, Mary	223: 490
Not Lotted	5/24/1830	Fowler, Catharine	Burling, James	263: 211

Block/Lot	Year	Grantor	Grantee	Liber:Page
		Heir of Payne, Thomas Fowler, Charles A.		
Not Lotted	4/4/1832	Schermerhorn, Peter Schermerhorn, Elizabeth Schermerhorn, Cornelius Schermerhorn, Rebecca Schermerhorn, Catherine Stewart, James S Stewart, Sarah Heirs of Schermerhorn, John	Schermerhorn, Simon	282: 543
11	5/8/1833	Phelps, Anson Phelps. Ulura	Macy, Josiah	296: 339
9, 10, 11	4/29/1834	Phelps, Anson Phelps, Olivia	Peck, Elisha	311: 342
   1, 18 3, 22 2	11/22/1834	In Chancery Schermerhorn—Peter, Abraham, Horatio, George Stevens, John P., William Henry; Jones—Edward R., Elizabeth; Gilbert—William N., Elizabeth Caroline—Plaintiffs against: Creighton: William, Jane, Jane the younger; Schermerhorn Creighton, Catharine, Defendants, Schermerhorn, John S., Jones, James J., Banker, Edward (Commissioners in Partition) Schermerhorn—Peter, Sarah, Abraham, Helen; Jones—Edward R., Elizabeth; Creighton, William; Schermerhorn—Horatio, Sarah D., George Stevens, Maria Isabella, John P., William Henry, Gilbert, William N., Elizabeth Caroline	Report of Commissioners in Partition Schermerhorn, George Stevens Schermerhorn, John P. Schermerhorn, William Henry Ratification	 319: 524
10	2/5/1835	Phelps, Anson G. Phelps, Olivia Peck, Elisha Peck, Chloe	Mackie, John F.	324: 321
2	2/21/1835	Schermerhorn, Peter (Exrs & Trus), Schermerhorn, Peter Schermerhorn, Abraham Jones, Edward A. (Trustees)	Gilbert, Elizabeth-Caroline	326: 132

?Lot #—penciled numbers next to "Not Lotted" entry
Lots 6-10 are on the northern side of Burling Slip;
Lots 1-6 are on the western side of South Street;
Lots 10-15 are on the eastern side of Front Street.

APPENDIX B: Water Grants: Between Burling Slip and Fulton Street

Date	Name	Book	Page	North	South	East	West
9/7/1692	Morris, William	A	101	Fulton	Burling Slip	Water	Pearl
9/7/1692	Vanderburgh, Derrick	A	115	Fulton	Burling Slip	Water	Pearl
8/1/1692	Van Cortlandt, Stephanus	A	106	Fulton	Burling Slip	Water	Pearl
1/23/1737	Van Borsen, Henry	B	296	Fulton	Burling Slip	Front	Water
7/1/1756	Byvanck, Evert	C	146	Fulton	Burling Slip	Front	Water
7/1/1756	Bowne, Margaret	C	151	Fulton	Burling Slip	Front	Water
7/1/1756	Rieinaudet, [sic]Belitie	C	157	Fulton	Burling Slip	Front	Water
5/30/1750	Van Cortlandt, Stephen	B	408	Fulton	Burling Slip	Front	Water
7/11/1803	**Codwise, George Jr.**	**E**	**57**	**Fulton**	**Burling Slip**	**South**	**Front**
2/12/1812	**Codwise, George Jr.**	**F**	**95**	**Fulton**	**Burling Slip**	**South**	**Front**
3/14/1814	**Codwise, George Jr.**	**F**	**337**	**Fulton**	**Burling Slip**	**South**	**Front**
1/6/1804	Bowne, George	E	91	Fulton	Burling Slip	South	Front
2/6/1804	Schermerhorn, Peter	E	95	Fulton	Burling Slip	South	Front
12/14/1807	Schermerhorn, Peter	E	423	Fulton	Burling Slip	South	Front
3/12/1810	Schermerhorn, Peter	F	49	Fulton	Burling Slip	South	Front
5/1/1804	Lawrence, Catharine	E	154	Fulton	Burling Slip	South	Front

Bolded entries directly adjacent to Burling Slip APE.