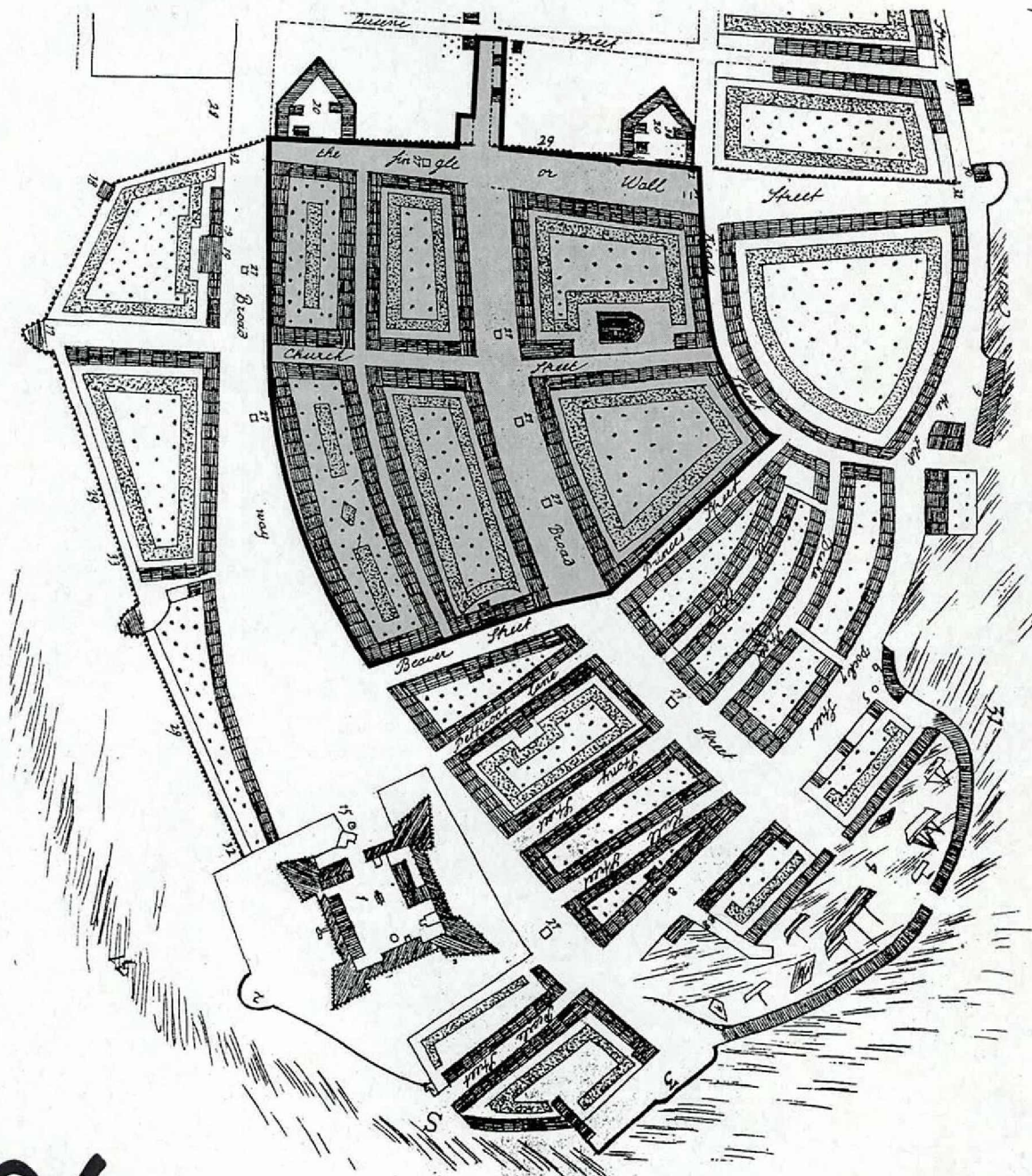


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Geismar
2003

New York Stock Exchange Security and Streetscape Improvements

Stage 1A Archaeological Assessment



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Miller 1696 enhanced

Prepared for AKRF, Inc.
Prepared by Joan H. Geismar, Ph.D.
November 2003

6/07-note pages 16, 17, 22, 56 replaced
after error discovered.

**New York Stock Exchange Security and Streetscape Improvements
Stage 1A Archaeological Assessment**

**Prepared For AKRF, Inc.
Prepared by Joan H. Geismar, Ph.D. LLC
November 2003**

ABSTRACT

This Stage 1A archaeological report was prepared as a component of the New York Stock Exchange (NYSE) Securities and Streetscape Improvements project environmental assessment (EA). It was carried out for AKRF, Inc., and presents the findings of documentary research and two episodes of test pit monitoring, the former to assess the archaeological potential of the project study area, the latter to determine subsurface conditions. To a degree, it is an expansion of a 1999 archaeological assessment completed by Historical Perspectives, Inc., as part of a Final Environmental Impact Statement (FEIS) for a new facility then proposed for the New York Stock Exchange. Nine of the locations identified as potentially sensitive in 1999 are relevant to the current assessment. These include five on Wall Street (just east of Broadway, west of New Street, east of New Street, just west of Broad Street, and just west of William Street); three on Exchange Place (just east of New Street, just east of Broad Street, and just west of William Street); and one on New Street (just north of Exchange Place). Since it was beyond the scope of the 1999 assessment to carry out Stage 1 documentary research, this Stage 1A study for the NYSE Security Project presents the findings of this level of research for the entire project study area. Included are two new assessment concerns: Exchange Place east of Broadway and New Street just north of Beaver Street.

Documentary research indicated that early utilities and street features, among them wells, pumps, sidewalk vaults, log water mains, early hydrants, and possibly remnants of the palisade that defined the northern limit of Dutch New Amsterdam and early New York and gave Wall Street its name, are potential, if remote, archaeological issues. The research also suggested that test pit excavations in streets without subways should continue to be monitored. Particularly relevant are areas where streets were widened and where tests will be conducted on sidewalks where no infrastructure is documented. At this writing, this includes sidewalk excavation on the east side of Nassau Street near Pine Street (this despite adjacent subway construction) where bollards are planned and on the south side of Wall Street between New Street and Broad Street where a guard booth is proposed on the sidewalk adjacent to the NYSE building. Indeed, the research suggests that the potential sensitivity of sidewalks should be considered throughout the project area of potential effects (APE).

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INTRODUCTION

This Stage 1A archaeological report was prepared as a component of the New York Stock Exchange (NYSE) Securities and Streetscape Improvements project environmental assessment (EA). It was carried out for AKRF, Inc., and presents the findings of documentary research undertaken to assess the archaeological potential of the project study area (Figures 1 and 2). To a degree, it is an expansion of a 1999 archaeological assessment completed by Historical Perspectives, Inc., as part of a Final Environmental Impact Statement (FEIS) for a new facility then proposed for the New York Stock Exchange (AKRF 2000:Appendix C). This earlier archaeological assessment, which was mainly a disturbance analysis, concluded that twelve proposed barrier locations had

the potential to impact archaeologically sensitive areas which lack documented disturbance. Furthermore, if security booths, possibly with deep basements and requiring utility connections, are placed within the sidewalks, they have the potential to impact archaeological resources outside the areas of prior utility installation. For these proposed impact areas, further documentary research should be completed in the form of Stage 1A studies to determine past uses that may have resulted in important archaeological resources (Historical Perspectives 1999:13).

Nine of the locations identified as potentially sensitive in 1999 are relevant to the current assessment (Figure 3). These include five on Wall Street (just east of Broadway, west of New Street, east of New Street, just west of Broad Street, and just west of William Street); three on Exchange Place (just east of New Street, just east of Broad Street, and just west of William Street); and one on New Street (just north of Exchange Place). However, it was beyond the scope of the 1999 assessment to carry out Stage 1 documentary research. Therefore, the 1A study for the NYSE Security Project presents the findings of this level of research for the entire project study area. Included are two new assessment concerns: 1) Exchange Place east of Broadway and 2) New Street just north of Beaver Street (see Figure 3).

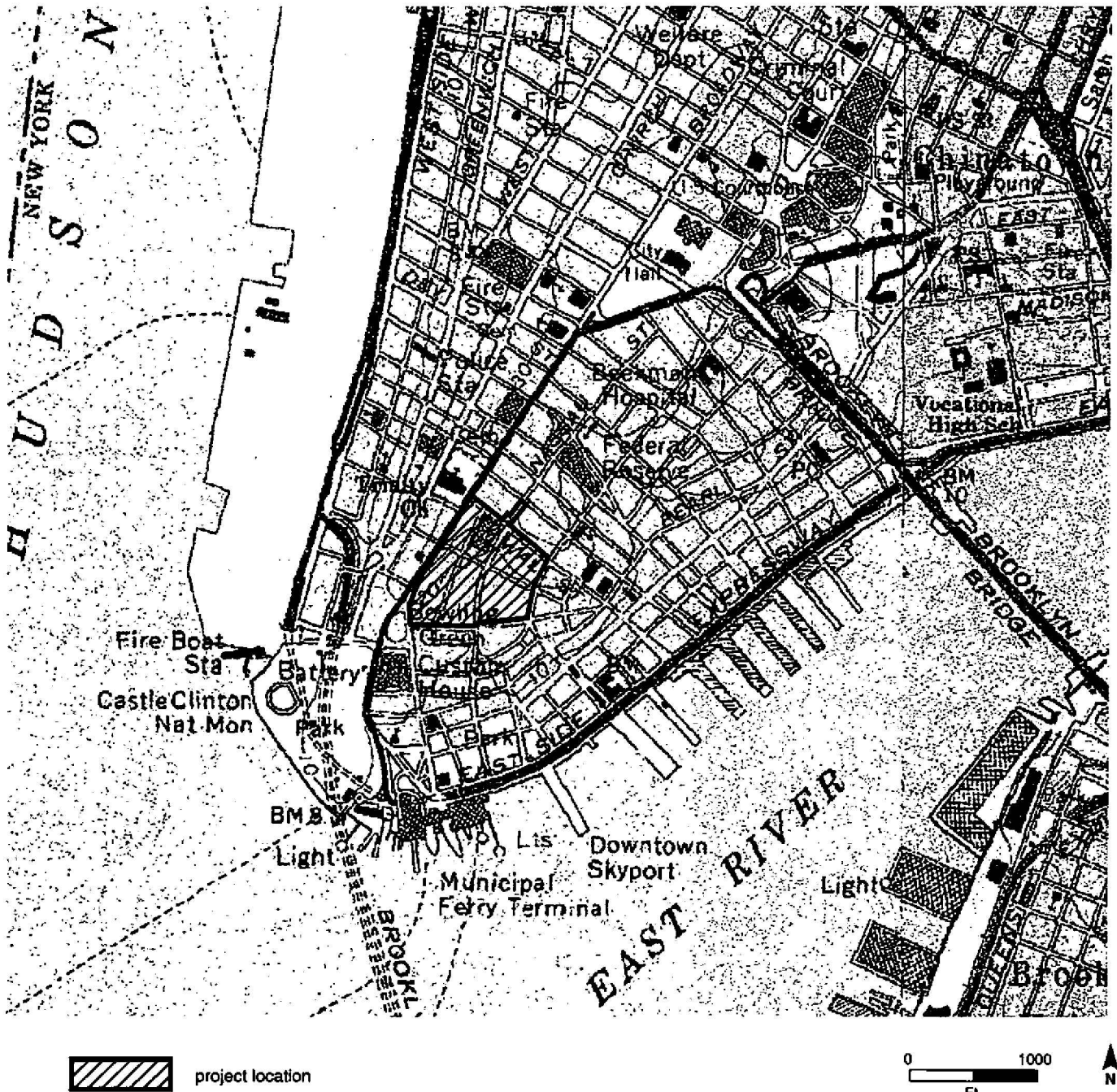
For this assessment, the area of potential effects, or APE, includes those places where direct and indirect project-related impacts will occur. This archaeological APE focuses on portions of the five streets in the study area where permanent security mechanisms are planned to ensure the safety of this potentially sensitive area in Post-9/11 Manhattan. These mechanisms include fixed and moveable street bollards and/or manned security checkpoints on Broad Street, Exchange Place, Nassau Street, New Street, and Wall Street (see Figure 3). Figures 4 to 12 document existing conditions in the project APE.

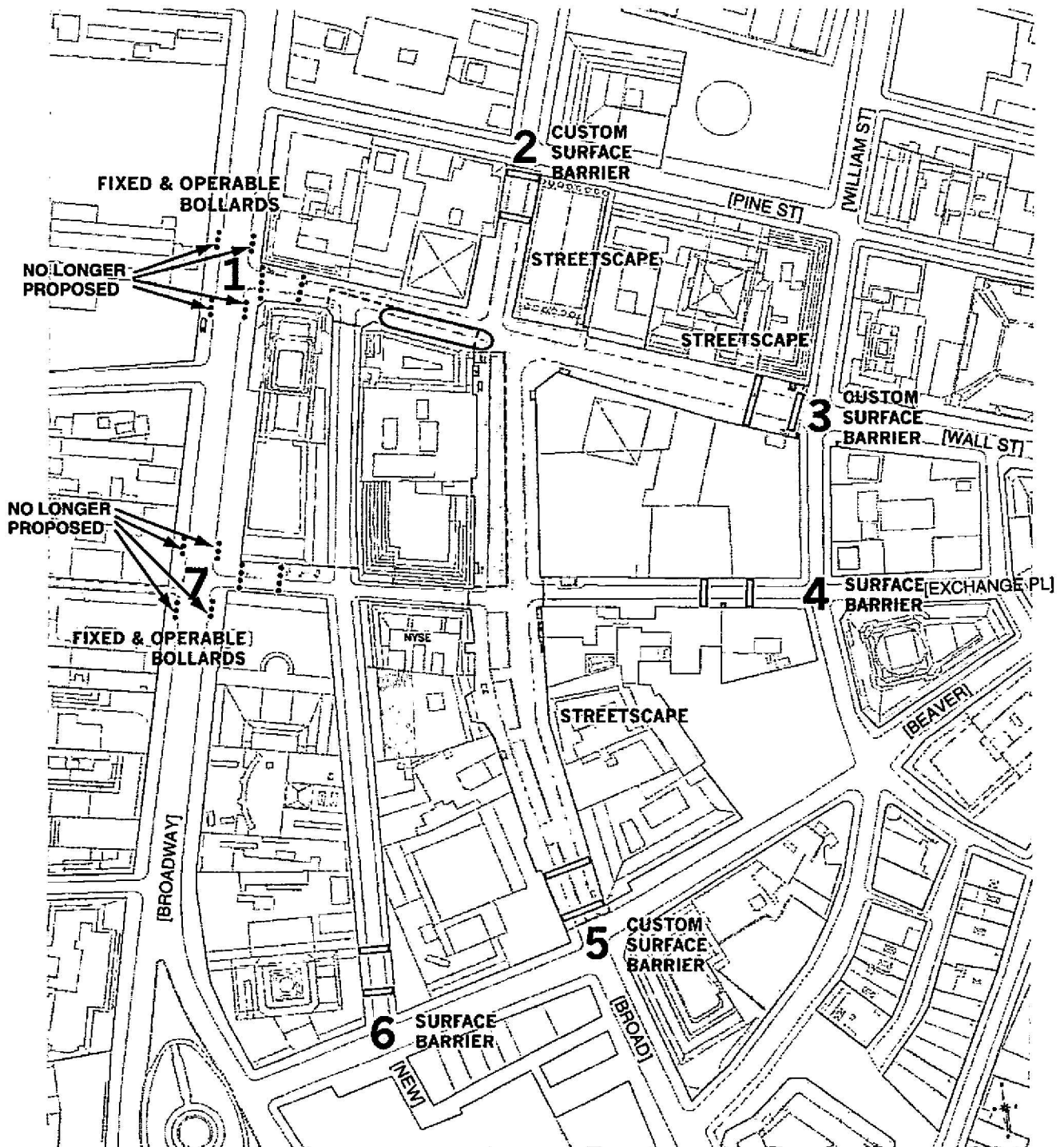
The study area comprises streets mainly included within a unique New York City landmark: the colonial street pattern that defined the Dutch city of New Amsterdam, an established New York City Historic District since 1983 (LPC 1983). Its location makes the project APE an area of historical concern and potential archaeological sensitivity. The only street in the study area not included in the historic district is Nassau Street between Wall and Pine. While this portion of Nassau Street, which is geographically a continuation of Broad Street, was situated beyond the protective wall of the 17th-century Dutch town of New Amsterdam, it, too, has 17th-century origins.

NYSE SECURITY & STREETSCAPE IMPROVEMENTS

Project Location (USGS Jersey City Quad 1967, Photorevised 1981)

1



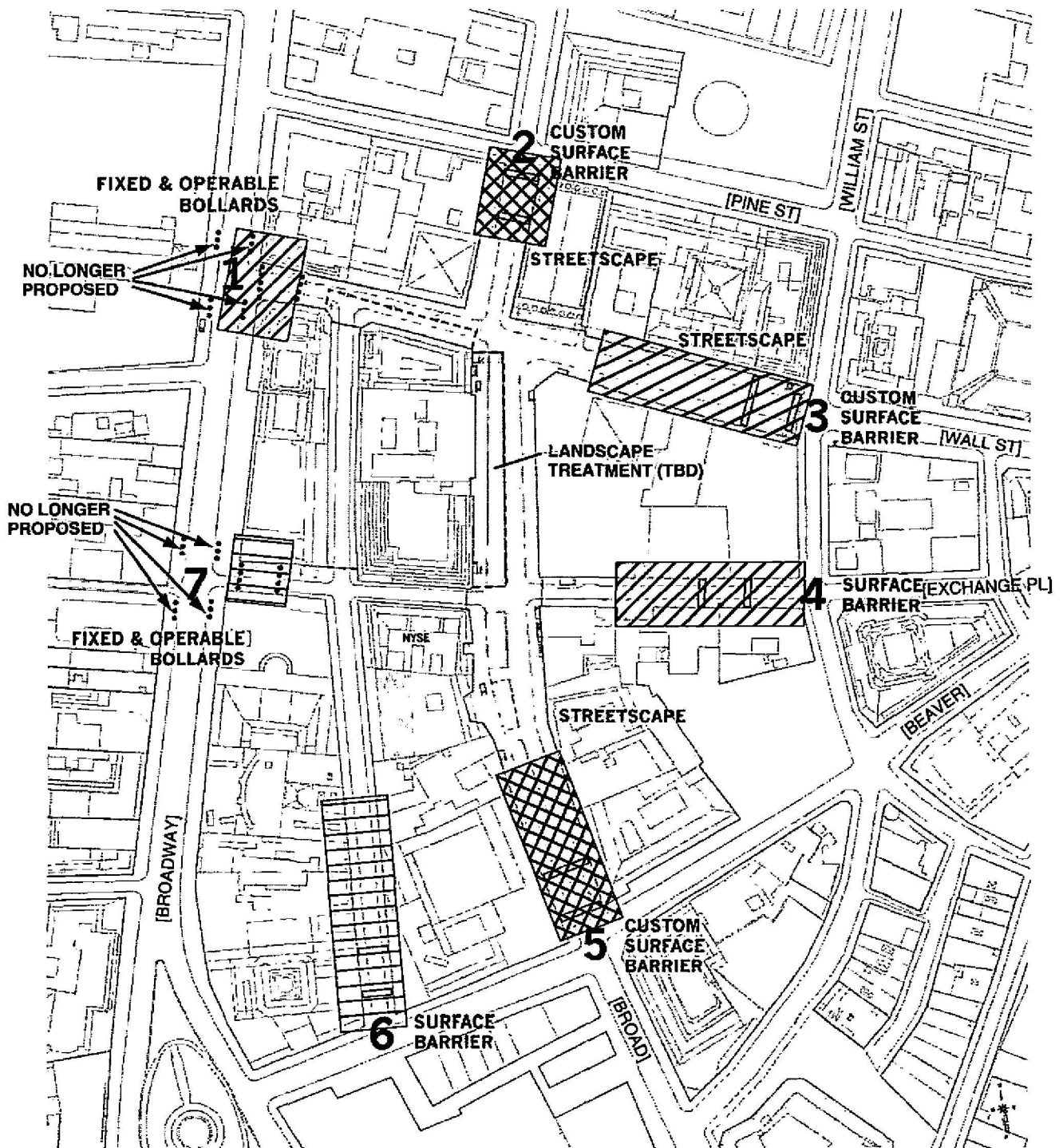


base map: Rogers Marvel Architects 2003

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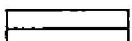


 proposed security booth

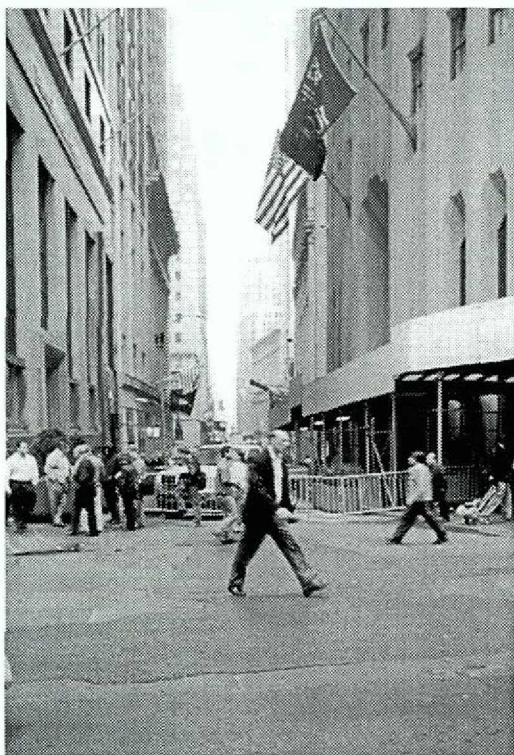


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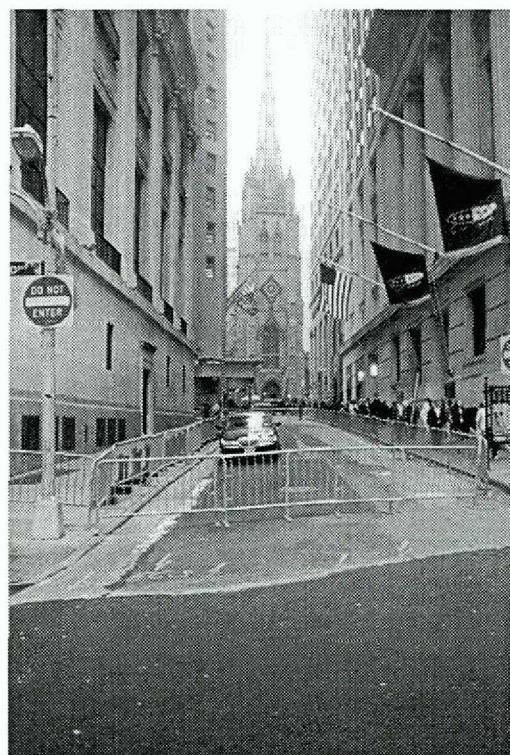
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-  new research to determine archaeological potential
-  possible potential for sensitivity (2001)
-  no archaeological sensitivity (2001)



4 Wall Street looking east from Broadway.
(Geismar 11/5/03)



5 Wall Street looking west toward Trinity Church
on Broadway from Broad Street. (Geismar 11/5/03)



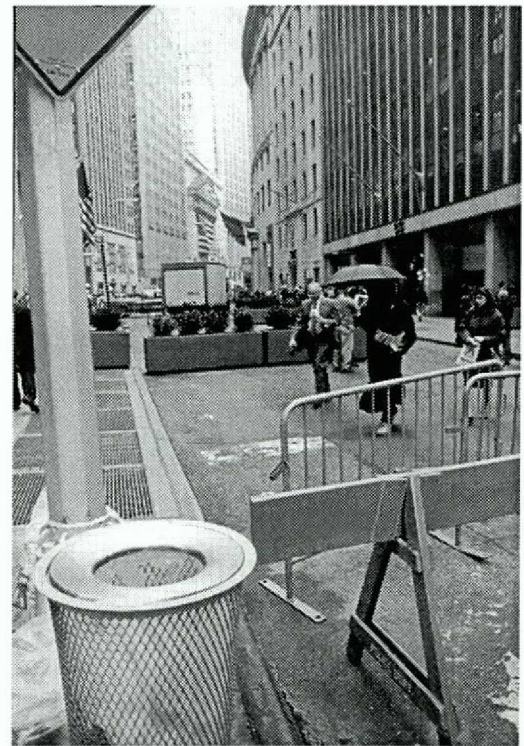
6 Exchange Place looking east from Broadway.
(Geismar 11/5/03)



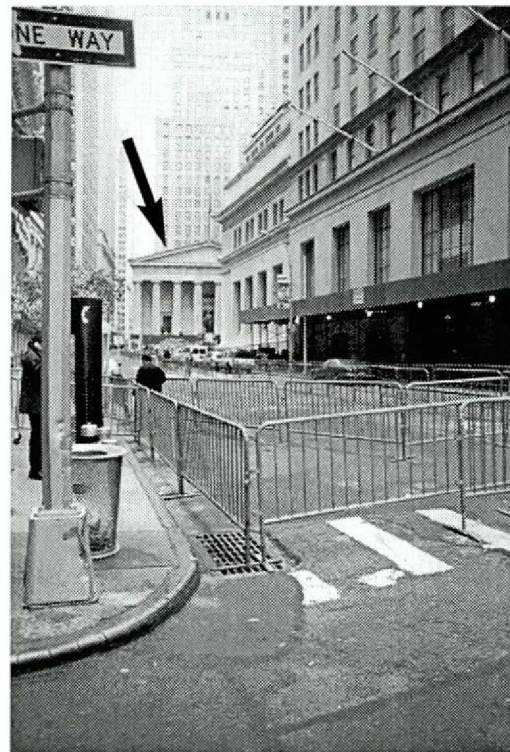
7 Exchange Place looking east from Broad
Street. (Geismar 11/5/03)



8 New Street looking north from Beaver Street.
(Geismar 11/5/03)



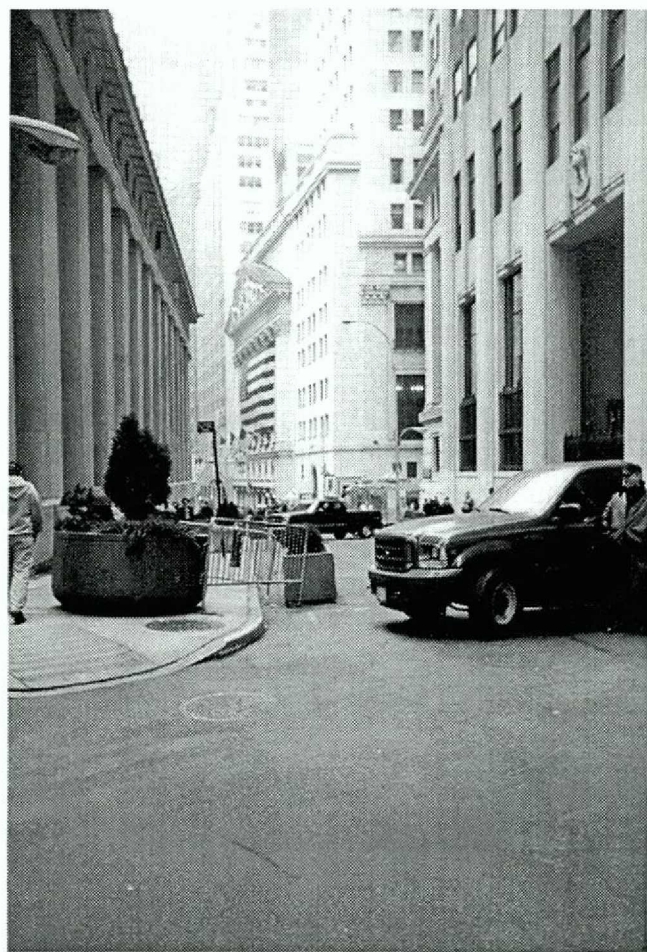
9 Broad Street looking north from Beaver Street.
(Geismar 11/5/03)



10 Broad Street looking north toward the Federal Hall National Memorial (the former Sub-Treasury, arrow) at Wall Street from Exchange Place and Broad Street. (Geismar 11/5/03)



11 Nassau Street looking north from the north side of Wall Street. The Federal Hall National Memorial (the former Sub-Treasury) is to the right. (Geismar 11/5/03)



12 Looking south on Nassau Street from Pine Street with the Federal Hall National Memorial to the left. (Geismar 11/5/03)

Urbanization, which shifted lower Manhattan from a mixed residential-commercial district to one that, until recently, has been mainly commercial,¹ has undoubtedly adversely affected archaeological resources that might have been found in these historic streets. However, the tenacity of archaeological features and deposits has been proven time and again, and it is possible that it may yet again be in evidence within the project APE. It was the goal of the 1A archaeological assessment to identify what form this evidence might take, and then to determine the likelihood of finding such evidence intact and with the integrity that would make any deposits and/or features eligible for listing in the National Register of Historic Places.

METHOD

Typically, archaeological assessments consider the likelihood of finding prehistoric resources. Moreover, in a historical, urban context the focus is often on the backyard privy pit and the cistern. The privy pit—the underground component of an outdoor toilet facility—and the in-ground cistern, also located in backyards and used to collect and store water, are the most ubiquitous archaeological features encountered in an urban context. But in the NYSE Security and Streetscape Improvements Project study area, the main archaeological concern was neither prehistoric deposits nor the privies and cisterns often found in 18th and 19th-century urban backyards. Instead, since the areas of impact are confined to streets, sidewalks, and occasionally to former block fronts obliterated during street widening, the assessment focused mostly on early private and public utilities and street furniture.

Documentary compilations—mainly the Minutes of the Common Council (MCC) and I. N. P. Stokes's *The Iconography of Manhattan Island*—were major resources consulted to address research issues. This was in addition to New York City directories, tax assessment records, and deeds consulted to locate street references found in city documents. Research was conducted at the Municipal Archives, the Municipal Reference Library, Manhattan Tapping (sewer information), the City Register's Office, the Topographical Bureau of the Manhattan Borough President's Office, the New York City Department of Sewers, and the Subsurface Exploration Division of the Department of Design and Construction (NYCDDC). Also consulted were the New York Public Library, the New York Society Library, the New York Historical Society Library, the Fire Department Library, and the Chase Archives, and. The aforementioned 1999 disturbance analysis, and published and unpublished histories and reports, were also reviewed and researched. In addition, nine construction-related test pits excavated for utility identification and subsurface information in two episodes were archaeologically monitored. The goal of testing and monitoring was not only to determine subsurface conditions for construction purposes, but also to ensure that the proposed undertaking would not impact any historical infrastructure or other archaeological features.

Relevant in-ground information was first recovered when construction personnel hand excavated five test trenches on September 27, 2003, to expose subsurface conditions within the APE on Wall Street between Broadway and New Street and on Exchange Place between Broadway and New Street and Broad Street and William Street. On November 15, 2003, monitoring again occurred when additional test pits were excavated on Wall Street between New

¹ A comprehensive history of the area's early development is beyond the scope of this assessment; in this regard, the reader is referred to David. T. Valentine's *History of the City of New York*, a classic work by a noted 19th-century historian and former, long-time City Clerk.

and Broad Streets.² Information from all these test episodes is included in this report. The following sections also include summary histories of streets in the project study area and identify documented street alterations. These sections also offer information about water supply and the historic infrastructure and street features and street furniture that may be encountered.

ARCHAEOLOGICAL POTENTIAL

Streets in the project area, or APE, were laid out between 1642 and 1690 with three of them—Wall Street, part of Exchange Place, and William Street—dating to the 1650s. This early, historically recognized road network is potentially archaeologically sensitive since then, as now, most, but not all, infrastructure was in the streets: wells, pumps, drains, sidewalk vaults, fire plugs and early hydrants are among the concerns, as are round and elliptical brick sewers at depths greater than 8 feet (*Annual Report of the Croton Aqueduct Department* 1857; Church 1987; Dempsey 1849; Dunshee 1952; Goodrich 1828; Holland 1797; Manhattan Tapping; MCC [various]; see Table 1). Bored-out log water mains introduced into these streets at the turn of the 19th century by the Manhattan Company are another concern (e.g., Koeppel 2000). Records of this company, which was the forerunner of what became the Chase Manhattan Bank and is now the Chase Bank, indicate it supplied water, albeit of questionable quality, to all the streets in the project APE (e.g., Water Works Journals 1821, 1823). The fact that these mains were tapped for water to fight fires suggests they were no more than 2 to 3 feet below original grade. Street excavations conducted over the years have sometimes revealed evidence of this extensive water supply system. The most recent discovery in the project APE occurred at the intersection of Exchange Place and New Street in 1955 (Figure 13), and experts feel strongly that similar isolated finds are possible (Greeley 2003:personal communication). This is indeed possible since photos and even pieces of these log mains found in relatively modern contexts are available in private archives. This includes a photo of a section of log main with a stop-cock, an apparatus associated with obtaining water for fire fighting, still in place (Figure 14). Sidewalk vaults, many of them documented in the archival compendiums, are another potential resource (see Table 1).

Another concern is the palisade, breastwork, and ditch that defined the northern limit of Dutch New Amsterdam and British New York during the second half of the 17th century. Intended to secure the Dutch town from a northern attack, this defense stretched from the East to the Hudson, or North, Rivers and gave Wall Street its name. The deteriorated wall was taken down in 1699 when a new city hall on the north side of Wall Street was to front along “the Line of fortifications...” at the head of Broad Street (MCC V 1917:329; see also Villard 1897). The Minutes of the Common Council not only offer a location for the wall, but also indicate that stones from the wall’s bastions (two of them, if Miller’s map of 1696 New York is at all accurate; see Figure 15) were to be “Appropriated to the building.” A map that reconstructs Dutch land grants also shows the wall on the north side of Wall Street (Figure 16), although the bastion locations do not exactly coincide with those shown on the Miller map (compare Figures 15 and 16). Other map reconstructions indicate the new City Hall, begun in 1699 and occupied in 1703, but not fully completed until the following year, was situated in what could only be described

² Other test pits excavated on Broad Street from Wall Street to just south of Exchange Place were not a concern since the earlier disturbance analysis determined that subway construction had eliminated any chance of archaeological sensitivity in Broad Street (AKRF 2000: Appendix C).

TABLE 1. NYSE SECURITY AND STREET IMPROVEMENTS – Street Features and Probable Locations

Beaver Street

MCC Date	Street Feature	Location Identified in MCC/ NYC Directory	Modern Location/ Remarks
1704	Well	Opposite Cap't Corbett's house; no street address	Filled
1714	Drain	John Parmyter; tavern keeper; no street address	NE corner of New St and Beaver; connecting to drain in Broad
1766	Well	W end of Beaver	No further information
1791	Well, Pump	4 Beaver	S side of Beaver between Broadway and New; well and pump filled
1803, 1804	Drain	18 Beaver	S side of Beaver between New and Broad; connecting to sewer; paving of street around drain
1804	Drain	No street address	Connecting to sewer between Broad and Wall
1804	Drain	No street address	Connecting to sewer in Beaver
1806	Trunk line (sewer)	29 Beaver	N side of Beaver between New and Broad; connecting to main drain in Broad
1806	Drain	36 Beaver	S side of Beaver between Broad and Williams; connecting to drain in Beaver
1806	Pump	24 Beaver	S side of Beaver between New and Broad; in front of Catherine Stonehouse's dwelling
1806	Drain	37 Beaver	N side of Beaver between Broad and William; connecting to drain in Beaver
1806	Drain	58 Beaver	S side of Beaver between Broad and Williams; connecting to drain in Beaver
1806	Drain	16 Beaver	S side of Beaver between New St and Broad; repaving around drain in Beaver
1808	Drain	No street address	Connecting to sewer in Broad
1815	Well	24 Beaver	S side of Beaver between New and Broad; filling in of well in Beaver
1818	Drain	14 Broadway	E side of Broadway, 2 nd lot N of Beaver; connecting to sewer in Beaver
1827	Sewer	Beaver between Broadway and Broad	Petition to have a permanent sewer built in Beaver to connect to the main sewer in Broad; confirmed 5/19/1828 (see sewer information)
1827	Hydrant	NW corner Beaver and New	Hydrant or stop cock
1827	Hydrant	NW corner Beaver and Broad	Hydrant or stop cock
1827	Hydrant	NW corner Beaver and William	Hydrant or stop cock

Note: Beaver Street sewer laid prior to 1801

Broad Street

MCC Date	Street Feature	Location Identified in MCC/ NYC Directory	Modern Location/ Remarks
1786	Pump	26 Broad	E side of Broad, N of Exchange Pl; in front of Henry Sickell's dwelling
1790	Sewer	Length of Broad	Contract for 1200 – 2 inch pitch pine planks for common sewer in Broad
1791	Well	Broad near City Hall; no street address	Filling well and sinking of another
1792	Drain	38 Broad	W side of Broad between Beaver and Exchange Pl; connecting to sewer in Broad
1793	Drain	23 Broad	SE corner of Broad and Exchange Pl; connecting to sewer in Broad
1794	Well	49 Broad	E side of Broad between Beaver and Exchange Pl

Table 1 . NYSE SECURITY AND STREET IMPROVEMENTS – Street Features and Probable Locations (continued)

Broad Street (continued)

MCC Date	Street Feature	Location Identified in MCC/ NYC Directory	Modern Location/ Remarks
1794	Drain	30 Broad	SW corner of Broad and Exchange Pl; connecting to sewer in Broad
1797	Drain	29 Broad/ corner of Broad and Garden *** (1794)	E side of Broad, 2 nd lot S of Exchange Pl; connecting to sewer in Broad
1798	Drain	No street address	Connecting to Common Sewer in Broad
1799	Drain	Corner of Broad and Beaver, no street address	Connecting to sewer in Broad
1807	Pumps	No locations	Removed from middle of street to sidewalks in Broad and Broadway
1808	Drain	A Length of Broad, no location	Wood drain installation on W side of Broad
1808	Drain	51 or 47 Broad	E side of Broad between Exchange Pl and Beaver; connecting to sewer in Broad
1810	Drain	39 Broad	E side of Broad between Exchange Pl and Beaver; connecting to sewer in Broad
1810	Vault	Corner Broad and Wall; no street address	No further information
1816	Vault	Store at 3 Broad	W side of Broad near Wall
1825	Paving; Culverts, Drains	Pearl to Wall	Broad repaved; culverts and drains to be constructed near head of Common Sewer

Exchange Place*

MCC Date	Street Feature	Location Identified in MCC/ NYC Directory	Modern Location/ Remarks
1686	Well	No street address	Lot of John Sipkes
1786	Pump	Corner New and Exchange Pl; no street address	No further information
1786	Pump	Exchange Pl and Broadway; no street address	Pump nearly opposite dwelling of John Slidel at Exchange Pl and Broadway
1827	Hydrant	NW corner Exchange Pl and New	Hydrant or stop cock
1827	Hydrant	NW corner Exchange Pl and William	Hydrant or stop cock
1827	Hydrant	NW corner Exchange Pl and Broad	Hydrant or stop cock

*Verlattenburgh (also mistakenly identified as Flatten Barrack on several maps) changed to Garden in 1794; Garden Street from William to Broad changed to Exchange Place 1827

[Nassau Street: no identified street features]

New Street

MCC Date	Street Feature	Location Identified in MCC/ NYC Directory	Modern Location/ Remarks
1698	Well	Upper end of New	No further information
1747	Well	No street address	Neighborhood has liberty to sink well in a convenient place
1792	Well, Pump	No street address	Old well to be filled; another sunk in a more convenient place
1799	Well	27 New	W side of New St between Wall and Exchange Pl
1799	Well	No street address	New well
1811	Well	No street address	New well near Beaver
1813	Well, Pump	No street address	New well and pump
1792	Well	No street address	Filling of well in New St
1811	Well	No street address	Filling of well in New St
1813	Well	No street address	Removal of pump & filling of well in New St

Table 1. NYSE SECURITY AND STREET IMPROVEMENTS – Street Features and Probable Locations (continued)

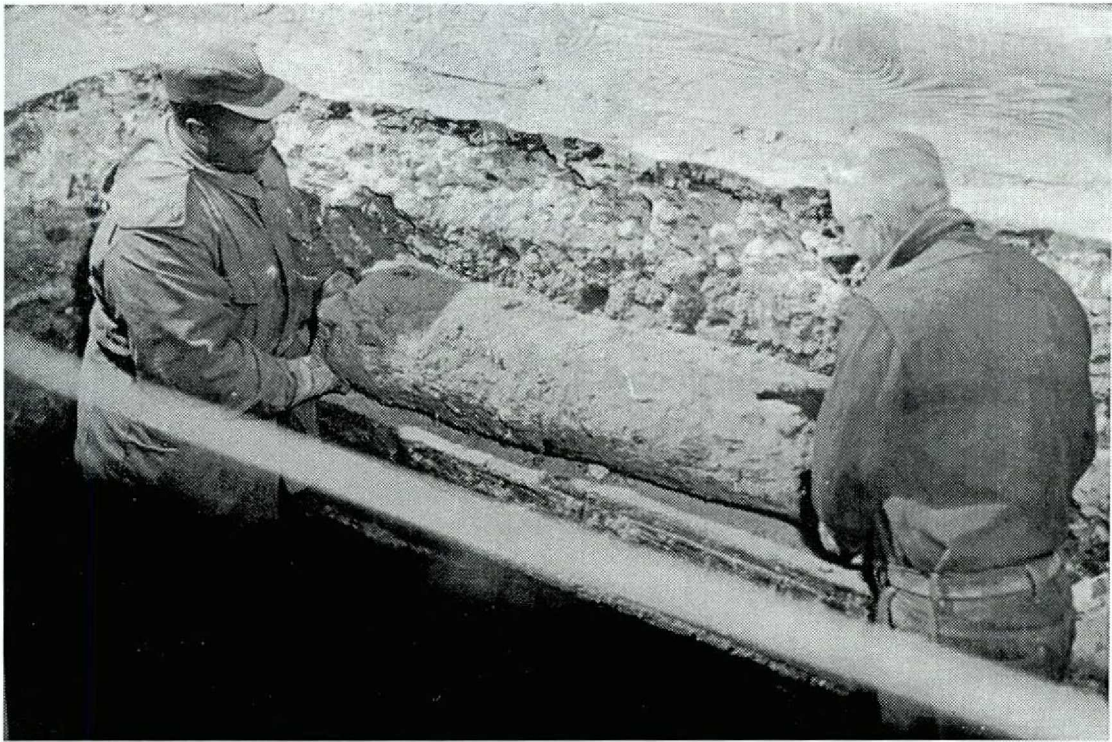
Wall Street

MCC Date	Street Feature	Location Identified in MCC/ NYC Directory	Modern Location/ Remarks
1704	Well	In Wall front on Smith**	Stopped and Covered
1804	Vault	28 Wall	N side of Wall between Broad and William
1806	Vault	29 Wall	S side of Wall between Broad and William
1806	Vault	19 Wall	S side of Wall between New and Broad
1809	Vault	First Presbyterian Church	N side of Wall between Broadway and Nassau, vaults to be extended under Wall
1813	Well	No street address; Samuel Corp, petitioner, owned property at Wall and Beaver	Petition for well in New
1813	Vault	13 Wall	S side of Wall between Broad and New
1816	Old Watch House	Corner Wall and Broad	SE corner of Wall and Broad
1816	Vault	8 Wall	N side of Wall between Broadway and Nassau
1816	Vault	7 Wall	S side of Wall between Broadway and New
1817	Vault	Wall just E of Broadway, no street address	No further information
1817	Vault	21 Wall	S side of Wall between Broad and William
1819	Wells, Pumps	Corner of Wall and William; no street address	No further information
1821	Vault	5 Wall	S side of Wall between and Broadway and New
1823	Vault	Union Bank, 17 Wall	S side of Wall between New and Broad
1827	Hydrant	SW corner of Wall and New St	Hydrant or stop cock
1827	Hydrant	SW corner of Wall and Broad	Hydrant or stop cock
1827	Hydrant	SW corner of Wall and William	Hydrant or stop cock

William Street

MCC Date	Street Feature	Location Identified in MCC/ NYC Directory	Modern Location/ Remarks
1798	Drain	26, 28 William	E side of William between Exchange Pl and Beaver; connecting to sewer in William
1802	Vault	No street address	In William
1804	Vault	No street address	In William
1805	Pump	No street address	Removed from William
1817	Cistern	No street address	In William
1817	Vault Drain	33 William	W side of William between Exchange Pl and Wall Drain connecting to sewer in Beaver
1823	Lamps	Wall to Pearl	Petition of inhabitants to have lamps replaced in street
1824	Vault	32 William	E side of William between Exchange Pl and Wall
1830	Cistern	No street address	In front of Mrs T. Turk's house in William

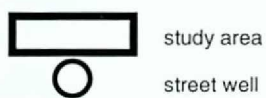
**Smith Street absorbed by William in 1793



13 Section of log water main being removed from intersection of New Street and Exchange Place in 1955. (Courtesy of Chase Archives)



14 Section of log water main with stop cock in place. (Courtesy of Chase Archives)



no scale





study area (approx.)

wall and bastions

no scale



as a square on the north side of Wall Street, with its portico extending into Wall Street (e.g., Dunshee 1952:45; Figure 17).³ Ownership of the city hall site was in question and contested for years. It was part of tract known as DePeyster's Garden (Figure 18) although Abraham DePeyster and Samuel Bayard were joint owners (American Scenic and Historic Preservation Society 1916:133).

And finally, the configuration and development history of the streets suggest archaeological potential. For example, widening the west side of New Street variably from 12.5 feet at Beaver Street to 10 feet at Wall Street, and taking an entire city lot of 22 feet to widen the east side of Nassau Street between Wall Street and Pine Street (see Table 2), indicate there might be archaeological issues in these areas. These issues could include former sidewalk vaults that are now in street beds. They also might include wells and pumps that provided water for domestic or commercial use, or cisterns or hydrants to obtain water to fight fires (e.g., Carey 1945; Goodrich 1828; Holland 1797). Or they may include remnants of the aforementioned bored-out log water mains that, as noted above, were part of the city's earliest water supply system. In the middle of the street, just west of the intersection of Wall Street and William Street, there may be remnants not only of a well, but also of a statue of William Pitt that stood on or near the former well site from 1770 to 1787 (Stokes III 1918:964; MCC I 1917:285; see Table 1).

In regard to Nassau Street, maps and records suggest that a small area of potential archaeological sensitivity could be a concern. As noted above, development on the east side of Nassau Street at Wall Street includes construction of a new city hall from 1699 to 1704. It also includes the building's transformation into Federal Hall from 1787 to 1789; the demolition of this Federal style building in 1834 and construction of a larger Custom House from 1834 to 1842; the alteration of this newer structure to become the Sub-Treasury building in 1862/1863; and the designation of this building, first as a National Historic Site in 1939, and then as the Federal Hall National Memorial in 1955 (Bliven 2003; Keller 1995:394; Schapiro c.1987; Stokes III 1918:924). Construction and renovation incrementally filled the modern block front along Nassau Street between Wall Street and Pine Street. However, prior to construction of City Hall at the end of the 17th century, a lot that fronted on Pine Street and ran south along Nassau Street was taken to widen Nassau Street (e.g., American Scenic and Historic Preservation Society 1916:128-133; Dunshee 1952:45; see Figure 17).

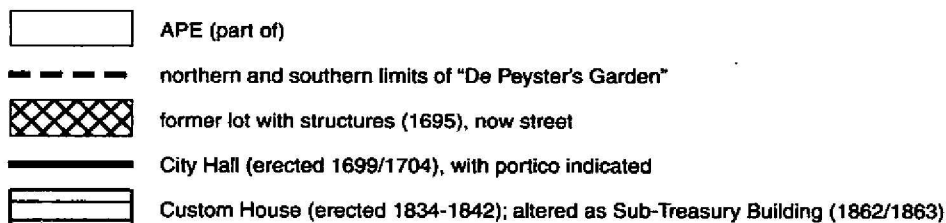
The Miller map, which depicts New York in 1695, indicates two unidentified structures on the Nassau Street side of this former Pine Street lot (see Figure 15). Subsequent disturbance includes gas and water mains, electrical lines (WPA 1938:Sheet 14; Figure 19), a sewer (Manhattan Tapping, N.D.), and, in 1931, a subway (Derrick 2003:personal communication); however, a narrow strip of sidewalk on the east side of Nassau Street near its intersection with Pine Street, where security bollards are planned at this writing, might retain some integrity. If so, there is the chance that evidence of 17th-century development on this former house lot, that is, remnants of building foundations or undocumented backyard features, could remain under the Nassau Street sidewalk. At this writing, no test pits have been excavated in this area (see Figure 20 for a detail of the Wall Street-Nassau Street development history).

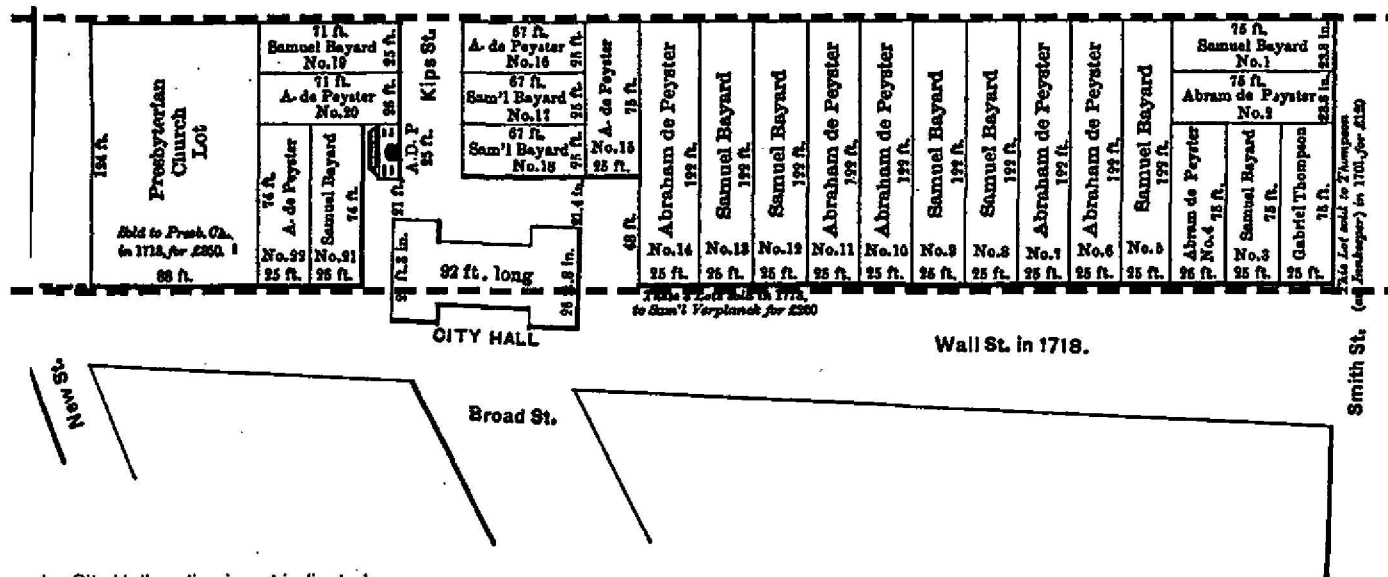
The two areas of proposed impact researched specifically for this analysis include Exchange Place between Broadway and New Street, and New Street just north of Beaver Street.

³ Other researchers suggest this location is not so clear (e.g., HCI 1984:12-14), but the location according to the MCC and reconstructed maps seems quite definite.

17

17





note: City Hall portico is not indicated

--- northern and southern limits of "De Peyster's Garden"

no scale

Table 2. NYSE SECURITY AND STREETSCAPE IMPROVEMENTS—Identified Street Alterations 1696-1914

Street	Location	Measurements	Date/ Reference	Remarks
Beaver	From pump opposite Mr Van Vorst's house to foundation of railing around King's Statue	Distance 157 feet raised 4 6/10 inches every 10 feet; head of Beaver to be raised 2 feet 4 inches	6/19/1696 (MCC I 1905: 324,325)	Street regulation; location not established (statue near Bowling Green)
	N side of Beaver and E "entrance of New"		2/29/1785 (MCC I 1917: 126)	Buildings to be in a straight line
	Van Cortlandt, Augustus		3/12/1798 (MCC II 1917: 426)	Taking private land for widening of Beaver St
	From Broad to William		2/11/1834-1850 (Post 1882; HM 1912-1915:Acc No. 21889)	Widening of street, including 14 to 22.5 feet variously on the south side of the street; also, a minor taking on NW corner of the intersection with William St
Broad			5/2/1791 (MCC I 1917: 639, 640)	A drain to be laid on each side of street near the Kennel (drain) at the public expense
Broad and Wall			5/23/1796 (MCC II 1917: 242)	Street widening, Broad & Wall corner lot, by city; taking land at 63 Broad belonging to estate of Nathaniel McKinley
Exchange Place	Broadway to New	Filled to 3 feet at intersection of New St	8/23/1786 (MCC I 1917: 243, 244)	Create a regular descent from the middle of Broadway to the middle of New of 7 3/4 inches on 10 feet for 198 feet; from thence to Broad to have a regular descent
	Broad to Smith		7/22/1791 (MCC I 1917: 659)	(Garden St) paved ascending from Broad 180 feet 4 2/3 inches on 10 feet then 98 feet with 2 inches on 10 feet; then 90 feet with 1 inch on 10 feet to intersection with Smith (William)
	Broad to William	Widening	8/15/1832 (Post 1882; BP Card #5); HM 1912 - 1915:Acc. No. 21889)	Widened at William St 1832 (Post) possibly from 38 feet to 38 feet 2 inches; N side widened about 5 feet between Broad and William in 1836 (HM 1912-1915:Acc. No. 21889)
Verlattenburgh* [Exchange Pl]	Where it crosses New St and meets Broadway	Raised 3 feet at New and lowered 3 feet at Broadway	3/29/1785 (MCC I 1917: 127); 8/23/1786 (MCC I 1917: 243-244)	
Nassau	S of Maiden Lane	Laid out 26 feet wide	5/25/1689; (Stokes IV 1922:352)	
	S part of Nassau laid out from the head of Broad at Wall		10/17/1696 (Stokes IV 1922:398)	Petition of Capt Teunis DeKey for a "cartway"
		Widened 22 feet	4/7/1812 (MCC VII 1917:351)	Widened on east side between Broad and Cedar

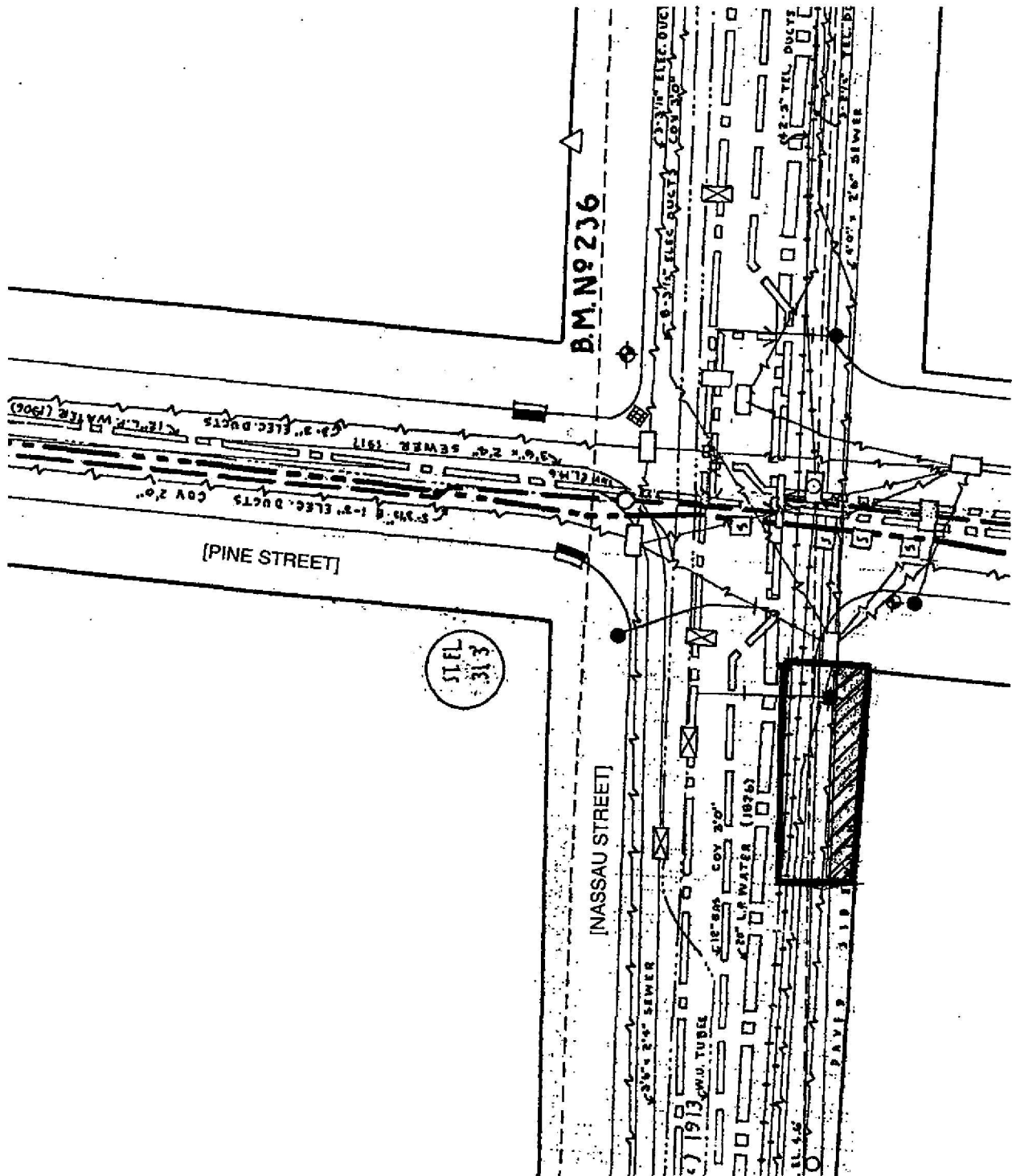
Table 2. NYSE SECURITY AND STREETScape IMPROVEMENTS – Identified Street Alterations 1696-1914 (continued)

Street	Location	Measurements	Date/ Reference	Remarks
New	Adjacent to Maiden Lane		8/27/1696 (MCC I 1917:380)	Ground to be taken to enlarge New St
	From Beaver to Verlattenbergh* [Exchange Pl]	Widened 6 feet, 3 feet on either side	3/29/1785 (MCC I 1917:126, 127)	
	N of Verlattenbergh* [Exchange Pl] to be widened	3 feet on the W side	3/29/1785 (MCC I 1917:26, 127)	Widening to diminish as street runs N; to come to a point at John Wiley's house (1 Nassau St re NYC Directory 1785)
	N of Verlattenbergh* [Exchange Pl] to be widened		8/23/1786 (MCC I 1917:244)	Filled to pump opposite Mr Sickell's house (26 Broad re NYC Directory 1786) to create easy descent down New to Verlattenbergh and to fill New down to Beaver St for regular descent of 1 inch on 10 feet
	From Wall to Beaver		7/17/1835 (Post 1882; HM 1912-1915 :Acc. No. 21885)	Widened variably along west side from 12.50 feet at Beaver St to 10.0 feet at Wall St
Wall	From Broadway to William (and beyond)	Palisade, in decay, demolished	1699 (MCC V 1917:329)	Former protective palisade, on line with front of new city hall, removed
	From City Hall to Broadway [Nassau Street to Broadway] Lot of Thomas Stevenson	Extended 10 inches into street	10/11/1720 (MCC III 1917:241) 9/1/1794 (MCC II 1917::96)	Wall to be 41 feet wide from fence of Meeting House to corner of New St Brought into line with buildings on Broad and Garden [Exchange Pl]
	Lots on site of "old City Hall"***		3/15/1813 (MCC VII 1917:402)	Front line of buildings to range with corner of Mr Taylor's house and stone wall of Presbyterian Church yard
	At Broadway		(Bridges Map 1845)	Wall St 49 feet 2 inches at intersection
	N side, Broadway to Nassau		6/4/1851 (BP Card #4)	Widened 4 feet
	Broadway to Nassau		6/3/1854 (BP Card #2)	Widened (no dimension or exact location given)
	SE corner of Wall and Broad		8/27/1914 (BP Card #6; Grade Map 1914: Acc No. 20830)	C. 12 feet removed from the corner and corner drain relocated
William and Wall			3/21/1787 7/16/1788 11/19/1788 (MCC I 1917:285, 386, 419)	Removal of Pitt Statue from middle of street W of intersection of William and Wall Sts in vicinity of former street well [probably Mr Wessel's well]

*Verlattenburgh also Flatten Bergh between Broadway and New Street (mistakenly identified as Flatten Barrack on several maps); renamed Garden St in 1794; Garden St from William to Broad changed to Exchange Pl in 1827

**This entry in the MCC is a puzzle since the city hall it refers to had been converted into Federal Hall and was still standing in 1813. Unfortunately, "Mr. Taylor" cannot be found in city directories to clarify the specified location

Key: BP=Topographical Bureau of the Manhattan Borough President's Office; HM=Historical Map



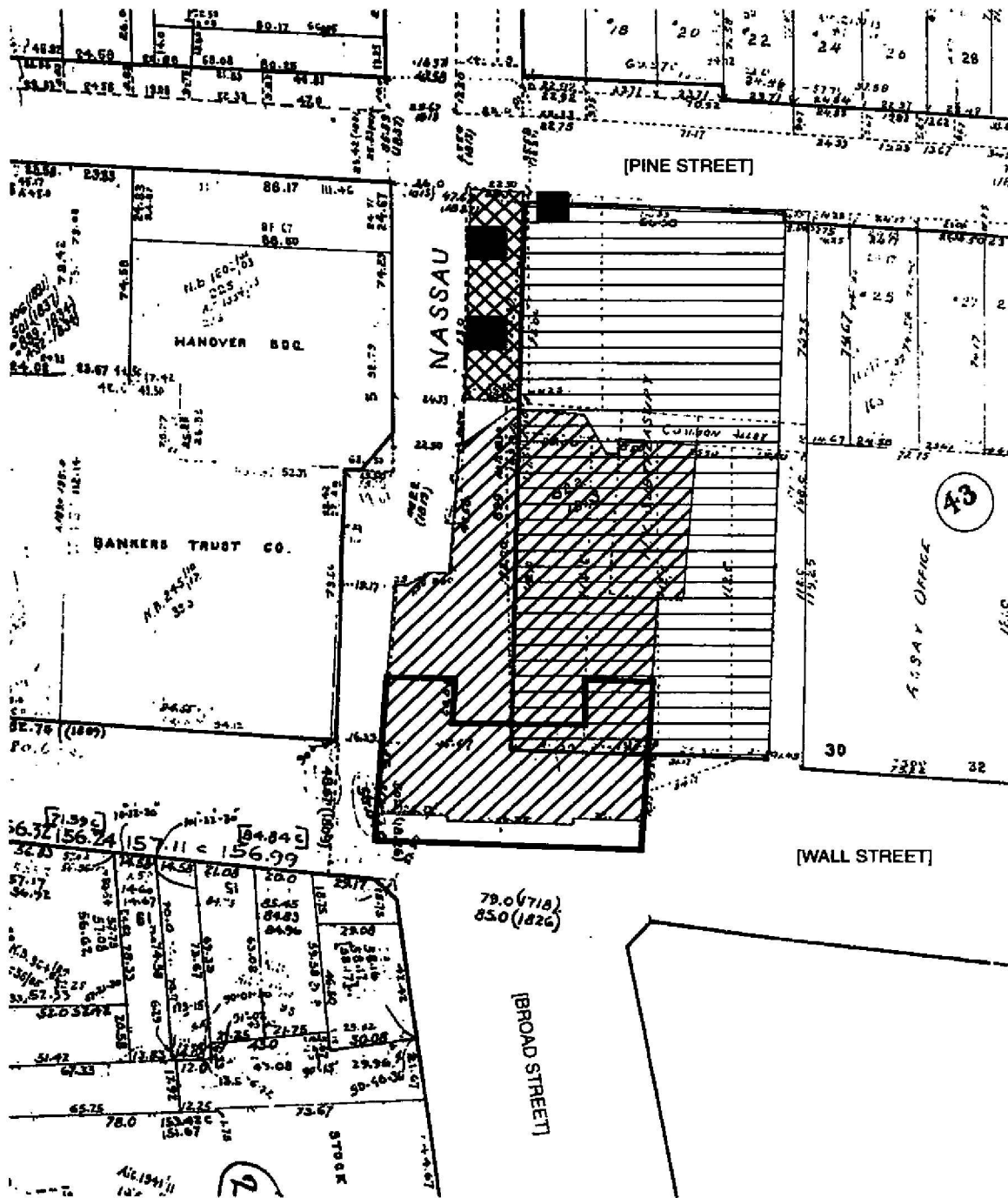
Note: sewers updated to 1971; note regarding asphalt block dates paving to 1932








former lot with houses

APE, possibly undistributed





-  City Hall (erected 1699/1704)(approx.)
-  Federal Hall (1788/89)
-  Custom House (erected 1834-1842); altered as Sub-Treasury Building (1862/1863)
-  former lot with structures (1695), now street
-  house/building 1695 (not on original map, location approx.)

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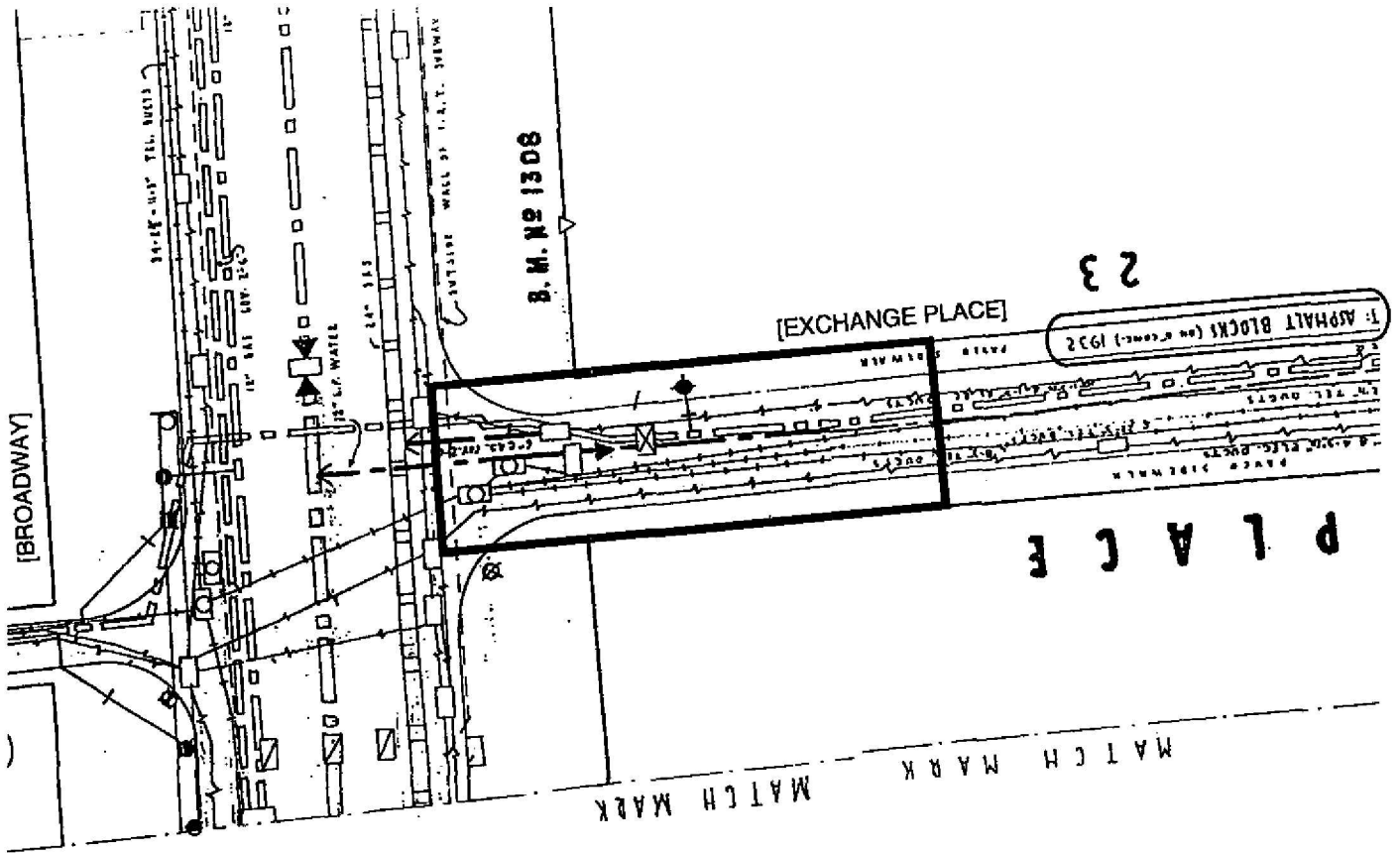
The 1938 WPA Utility maps used in the 1999 archaeological assessment were also consulted in this assessment (WPA 1939; Figures 21 and 22). Both show the expected range of utilities (water, gas, and electric lines and hydrants) with utility disturbances ranging from 1.6 to 4.8 feet below the 1938 street level. A sewer installed in 1903, and assumed to be at least 8 feet below grade, runs along the centerline of Exchange Place. The New Street sewer, also in the center of the street but installed in 1938, does not appear to extend to the area of potential impact near Beaver Street (Manhattan Tapping N.D.). However, mid-19th-century records document a sewer on New Street constructed in 1834 (Annual Report of the Croton Aqueduct Department 1857:125). This 2.6-foot circular sewer, presumably of brick, is the earliest documented in the project APE. While it is almost inconceivable that this conduit is still in use, it is entirely possible and suggests deep, or relatively deep, street disturbance almost 170 years ago. As for the Exchange Place location, two monitored test pits excavated on September 27, 2003 did not reveal any archaeologically significant resources (see Field Investigations). At both locations, with the exception of curb line utilities and hydrants, sidewalk disturbance seems minimal.

STREET HISTORIES

As noted previously, five of the six streets in the APE are included in New York City's landmarked colonial street pattern, and, as such, are components of a unique historic district (LPC 1983:LP 1235). Nassau Street, the sixth street in the APE, while an early road, was beyond New Amsterdam's gated north wall, and is therefore not included in the historic district. Even after the British took control of the Dutch colony in 1664, it was not until they regained control in 1673, after a brief Dutch recovery, that the legal groundwork to expand the city was implemented. The Dongon Charter of 1686 sanctioned this expansion when it defined the city as "the whole of the island of Manhattan, including all...of the Water Courses belonging to the Same Island as far as the low marke [sic]" (Petereson 1917:82).). Nassau Street, is therefore one of the two streets in the study area, that do not date from Dutch times; the other, which is included in the historic district, is New Street (see below).

A summary history of each of these six streets is presented here in alphabetical order. The information in these summaries came from *The Iconography of Manhattan Island* (Stokes 1914 to 1926), the Minutes of the Common Council (1905 and 1917), the designation report for the Street Plan of New Amsterdam and Colonial New York (Landmarks Designation Report 1983:LP 1235), Street Files at the Topographical Bureau of the Manhattan Borough President's Office, and a Street Opening Map (N.D.) in the author's collection. The distinction between a street being "Laid Out," which is equivalent to being run, and being "Opened," which is when the city takes title (Marks 2003:personal communication), should be noted. As time went on, these two dates were often the same, but in early times, there could be many years, if not decades, between them.

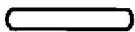
A series of maps is presented to provide historical context for the street histories. One is yet another map of reconstructed Dutch land grants that offers topographical information about the project site in 1642 (NYPL Scrap Book, N.D.; Figure 23). Others depict the project study area in 1730, 1744, 1754, and, for contrast, 1886 (Bradford/Lyne 1730; Grim 1744; Maerschallck 1755; Robinson 1886; Figures 24 to 27).



Note: sewers updated to 1971

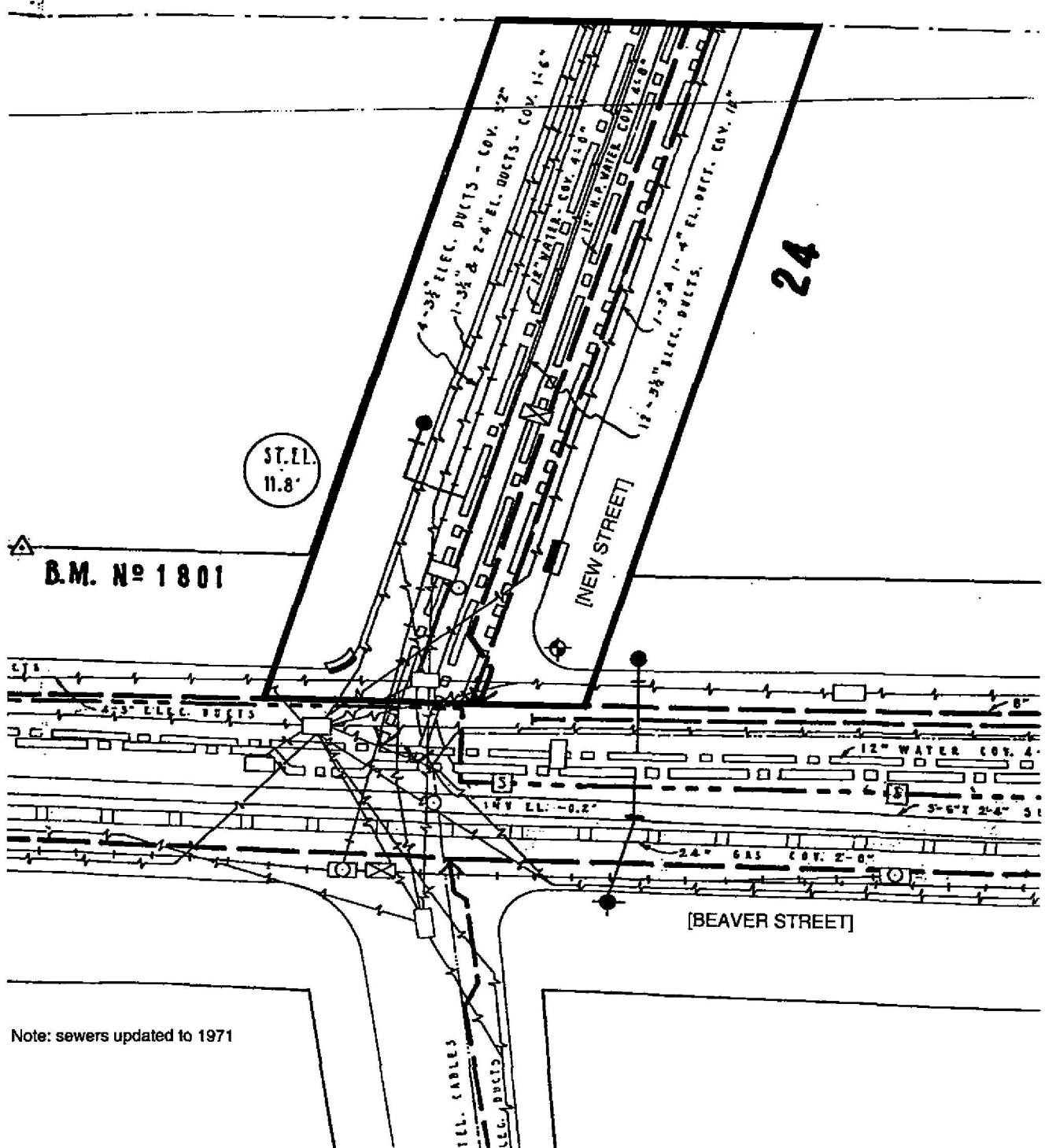



Broadway and Exchange Place APE



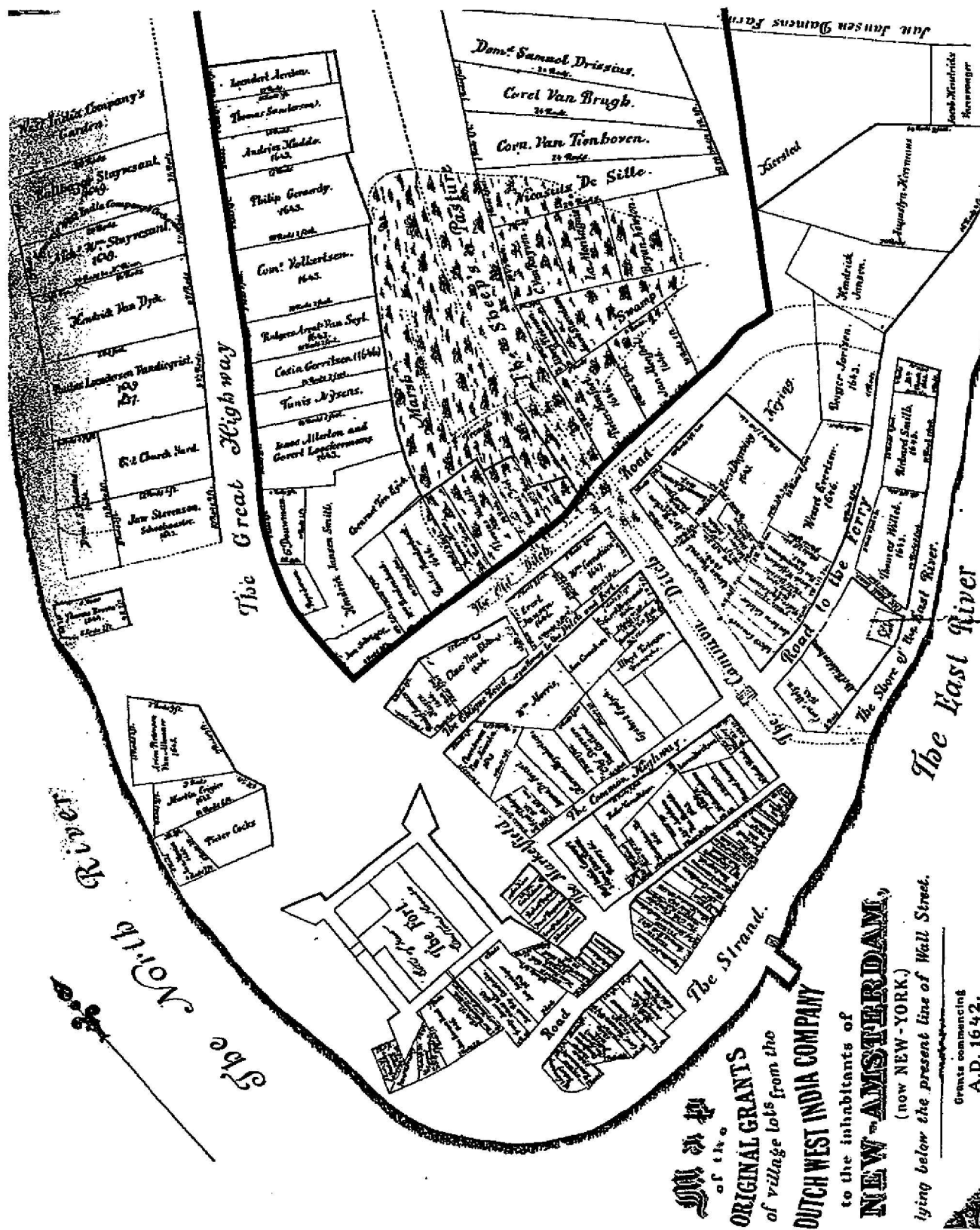
note regarding introduction of asphalt blocks on concrete in 1932

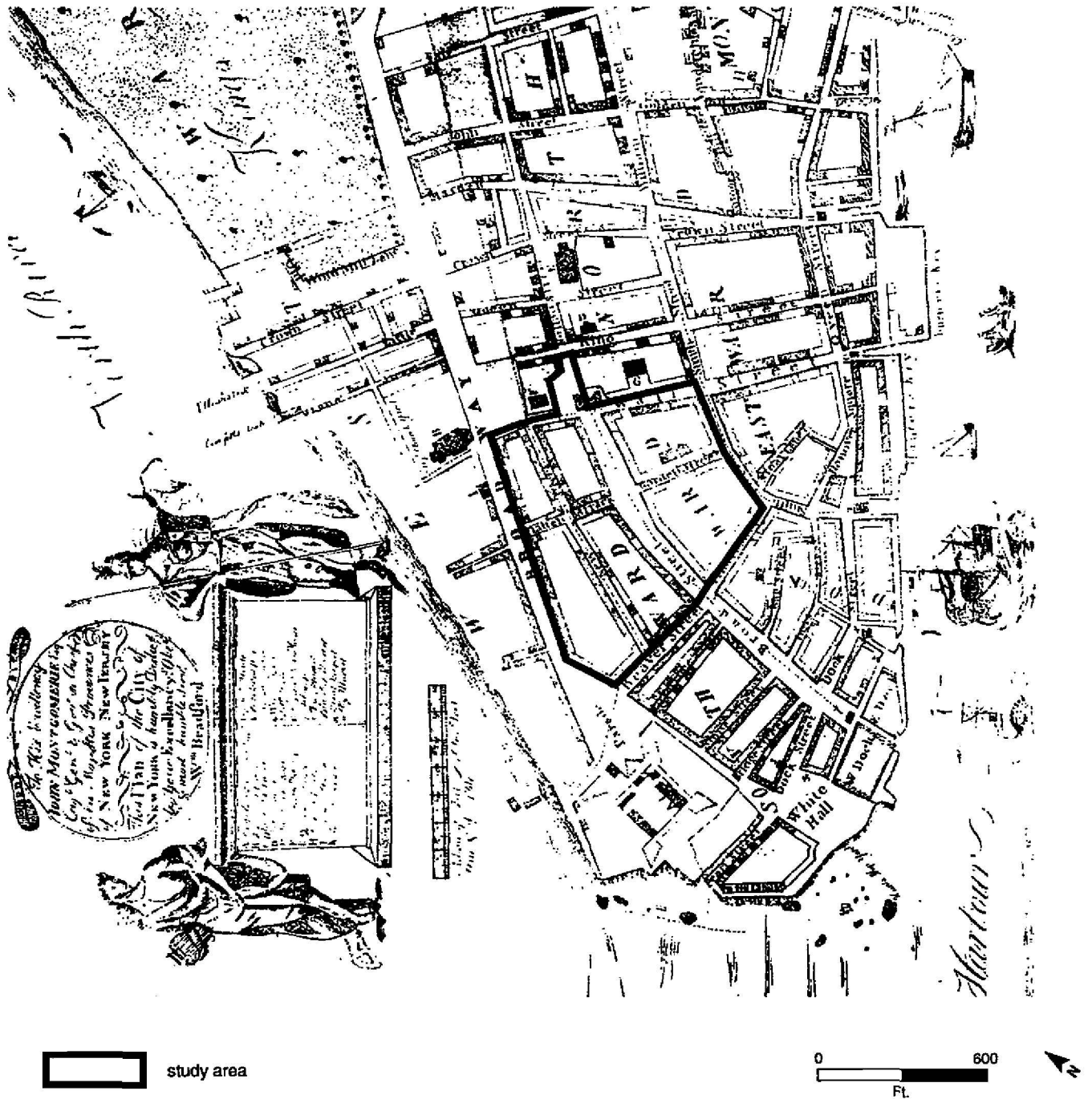


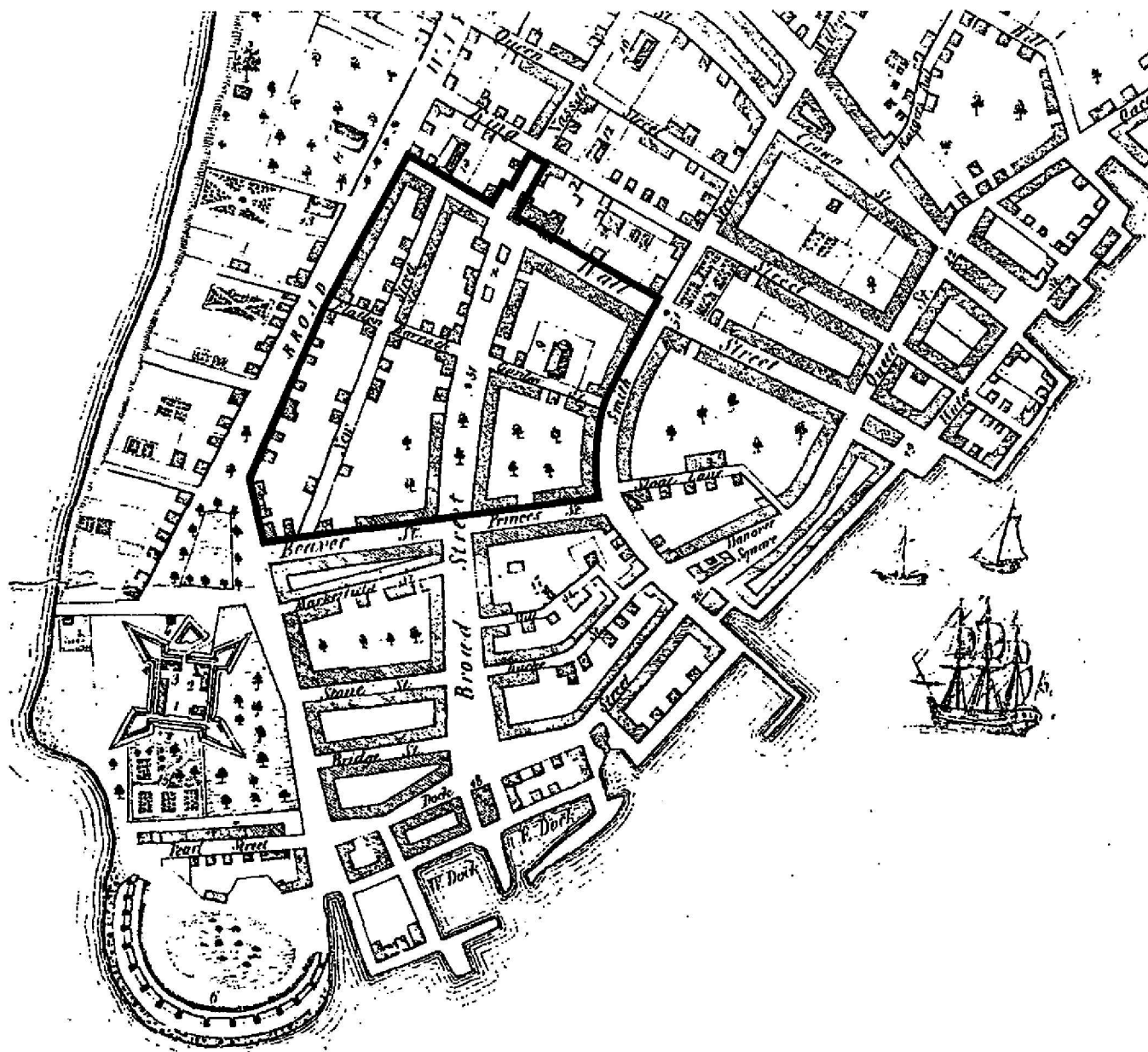


 New and Beaver Streets APE





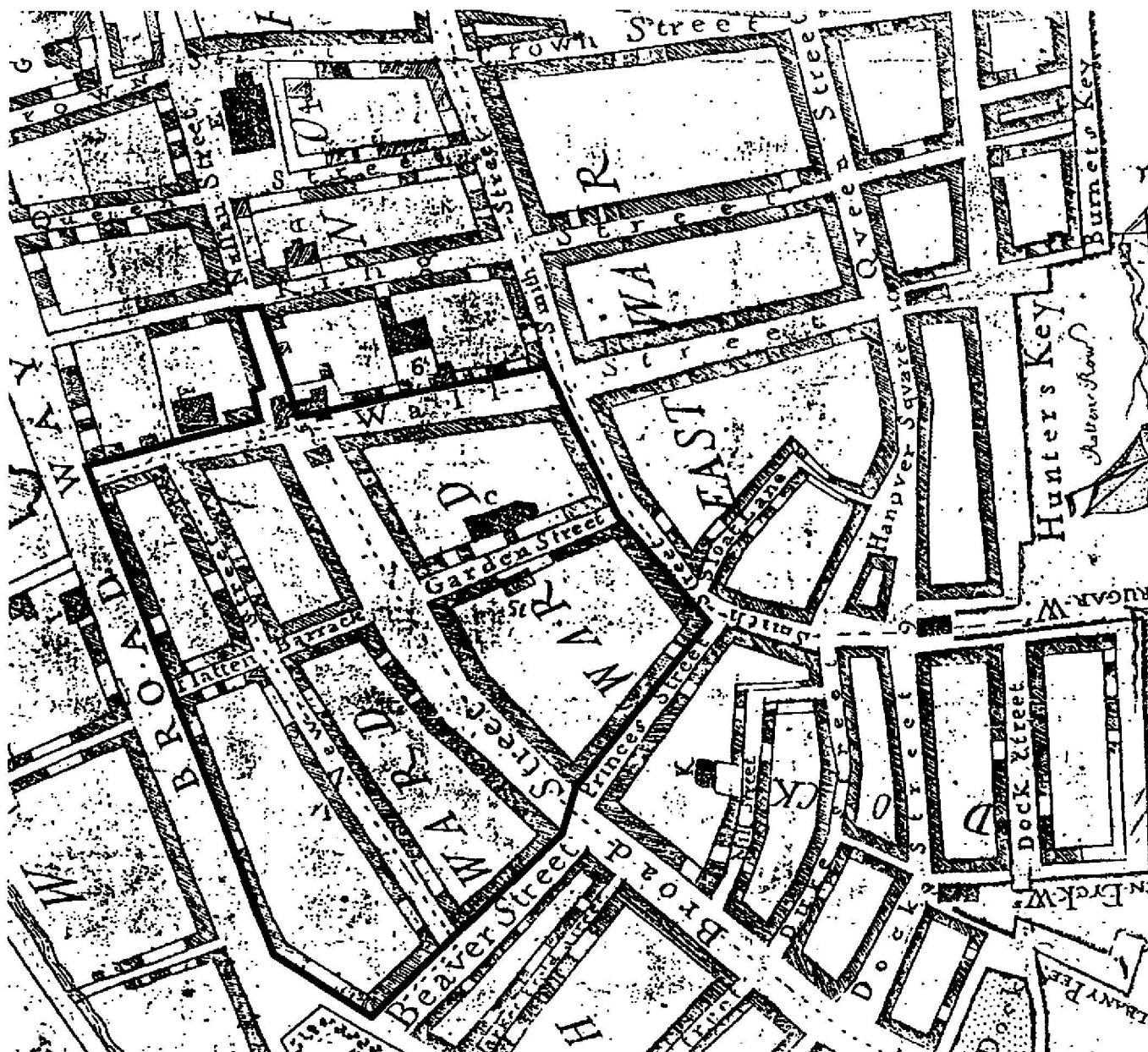





 study area

no scale





 study area

0 300
 Ft. 



study area



- Beaver Street (Incorporating Bever [sic] Graft, Princes Street, and Sloat Lane from Broadway to Pearl Street). Laid out in the project APE between Broadway and Broad Street in 1642 and between Broad and William in 1657. Opened between Broadway and William by 1657 or 1658. Named Beaver Street between Broadway and William Street in 1794. Widened to its present width by taking between 14 and 22.5 feet from various locations on the south side of the street from Broad to William, possibly in 1850.
- Broad Street (From Wall Street to Pearl Street, incorporating Heere Graft, also Prince Graft). Laid out in 1642; the canal, which was originally merely a narrow inlet off the East River that extended as far north as Exchange Place, was also referred to as "The Common Ditch." The street on either side of the original canal or ditch was first paved in 1655. This inlet was enlarged to become a canal with streets emanating from it by 1664. The canal, or ditch, was filled and the newly created street paved in 1676. Named Broad Street in 1692. In 1790, a wooden sewer was constructed in the middle of the street. The southeast corner of Broad and Wall, formerly the site of a colonial Watch House (Dunshee 1952; see Figure 17), was widened 6 feet (from 79 to 86 feet) in 1796. The BMT's J Line was opened by 1931.
- Exchange Place (Incorporating Heer dwars Street [Cross Road], also Verlattenburgh or Flatten Barrack, a corruption of Verlattenburgh). Opened between Broadway and Broad Street and Tuyn (Garden) Street, from Broad Street to William in 1657; named Church Street between Broadway and New Street and Garden Street between Broad and William in 1690; all Garden Street in 1794; named Exchange Place in 1827 following erection of the Merchants Exchange at Wall and William, just east of the project APE. East side of the street from Broad to William widened in 1832 (see street widening information, Table 2). Test pits excavated in September 2003 to determine the location of street utilities exposed a segment of earlier street paving 1.5 feet below the modern surface that proved to be a 1931 street surface of asphalt block on a 9-inch concrete base (see Figure 38). This was the only evidence of an earlier surface, albeit one dating from the 20th century, encountered during testing to date and may be related to 1931 subway construction.
- Nassau Street: (Not part of the Dutch Colonial Street System; southern portion, just above Wall Street, originally "the Street that Runs by the Pye Woman's," and then Kip Street, after Jacob Kip, north of the second City Hall at Wall Street). Laid out in the study area in 1689 as a cart way, the aforementioned "street that Runs by the Pye Woman's," was apparently named Kip Street by 1695 according to the Miller map (as depicted in Cohen and Augustyn 1997:52-53; not illustrated); it was renamed Nassau Street by 1730 in honor of William, Prince of Nassau (Bradford/Lyne 1730; see Figure 23). As mentioned earlier, the east side of Nassau Street between Pine and the second City Hall, and therefore in the project APE, was widened 22 feet by taking a full sub-divided lot on Pine and Nassau Street for the purpose (see Table 2).

- New Street: (Laid out in 1670, opened in 1679, and named New Street in that year). Like Nassau Street, New Street was not a Dutch Street, but it was the first one added to the original Dutch street configuration after the English takeover. As such, it is included in the historic street pattern designation.
- Wall Street: (Laid out as “The Single,” or “Cingle” in the APE in 1653, and as Wall Street in 1685; opened in 1688). Named for the protective palisade wall erected by the Dutch in 1653 that ran from the Hudson to the East Rivers along what later became Wall Street (e.g. Miller 1696; Figure 15). Wall Street is perhaps the best known of the colonial streets. New Netherland encompassed all the land from the North, or Hudson River to the South, or Delaware River.⁴ This included the thriving town of New Amsterdam, the seat of the Dutch government in the New World by 1626⁵ and renamed for the Duke of York after the British takeover.

As noted previously, the exact location of the palisade that once defined the town’s northern limit, is a question. However, a contemporary entry in the Minutes of the Common Council that describes the wall’s demolition to make way for the city’s second City Hall at the head of Broad Street in 1699 identifies its location along the north side of the street (MCC V 1917:329). This same account describes a ditch on the south side of the wall and goes on to document demolition of the wall’s stone bastions and the reuse of the stones to build the new city hall. A town plan created from memory by James Miller in 1696 depicts what was by then New York (see Figure 15). It shows the palisade and stone bastions, and identifies “The Cingle” (or “The Single”) that became Wall Street. This plan, albeit with its accuracy questioned by some (e.g., American Scenic and Historic Preservation Society, 1916:130; Cohen and Augustyn 1997:52), depicts the town in 1695, the year Miller returned to England. It is said that he threw his papers overboard, including the original plan, to keep them from falling into the hands of French privateers who attacked his east-bound ship. The published plan apparently was drawn a year later while Miller was safely in England (e.g., Cohen and Augustyn 1997:52). As noted earlier, a reconstruction of Dutch land grants indicates the wall just about where it is documented on Miller’s map, albeit with different locations for the bastions (see Figure 16).

FIELD INVESTIGATIONS (TEST PITS)

On September 27, 2003, construction personnel hand excavated six curb-to-curb test pits (TP), or trenches, to determine subsurface conditions at six street locations: For the purpose of the Stage 1A research, these were designated TP1 to TP6. The locations were at Wall Street between Broadway and New Streets (TP1 and TP2); Exchange Place between Broadway and New Street (TP3 and TP4); and Exchange Place between Broad Street and William Street (TP5 and TP6). In five trenches, excavation was taken to approximately 5 feet below the asphalt as

⁴ It appears from early maps that the East River at the southern end of Manhattan was originally considered a harbor and was not named (e.g., see Maerschalk 1755; Figure 26).

⁵ Parenthetically, the original intention of the Dutch West India Company was to make an island in the Delaware River the seat of the government in the New World, but the dominance of New Amsterdam was acknowledged in 1626 (e.g., Geismar 2003).

planned, but utilities encountered in TP5 made it impossible to extend below 4 feet. Probes were introduced where possible to determine if obstructions extended beyond these depths. (For a view of TP1 under excavation on Wall Street east of Broadway, see Figure 28; Test pit locations, photographs of completed excavations, and test pit plans and profiles, drawn by Curtis Smith of Vollmer Associates, will be found in Figures 29 to 37.)

Testing documented a dense network of utilities in almost all the test pits, including those on Wall Street, determined to be potentially sensitive in the 1999 archaeological assessment. Exceptions were the two test pits on Exchange Place between Broadway and New Street (TP3 and TP4). Fewer utilities were found in this area that, coincidentally, was not part of the 1999 archaeological assessment. In TP3, located approximately 36 feet east of the Broadway-Exchange Place intersection, a 9-inch thick fragment of flat concrete with impressions of 12 by 5 inch blocks was exposed approximately 1.5 feet below the current ground surface (BGS); whole and fragmentary asphalt blocks, 5 inches wide by 12 inches long and 5 to 3 inches thick, were found in the fill (Figure 38). This proved to be the remnant of a roadway introduced in 1931 or 1932 (Paving Plan 1931; Figure 39; WPA 1938/1939:Sheet 14; see Figure 21).⁶ Approximately 50 feet to the east, in TP4, which also proved to have fewer utilities than the Wall Street pits, the fill contained trash that included high-top shoe fragments and a 7-Up soda bottle dating to 1952. No other cultural material or evidence of former road surfaces was found, nor was there any evidence of historical utilities in the trenches.

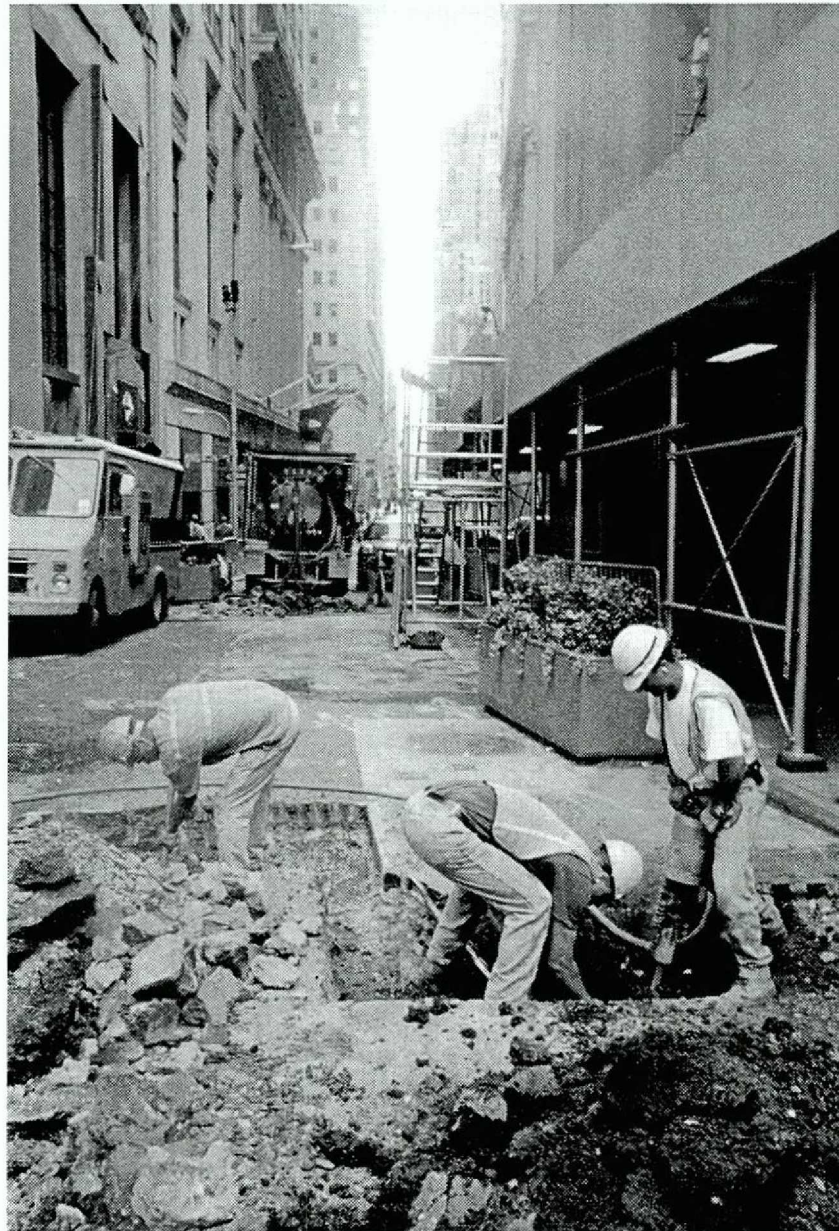
A second round of test pits was excavated on November 15, 2003. Two pits located on Wall Street between New and Broad Streets (TP7 and TP8) were archaeologically monitored (See Figure 40 for a view of the monitored test area and Figure 41 for a location plan and photographs of the test pits). TP7 was excavated until street utilities again made it impossible to extend to the projected 5-foot depth. This was also true in TP8, although this pit was taken in part to 5 feet BGS as planned. Neither trench revealed any evidence of archaeological features.

THE MANHATTAN WATER COMPANY

The Manhattan Water Company, or Manhattan Water Works, was a private company incorporated in 1799 to supply water to residents, trades, and industries under a charter that included banking and other privileges (Stokes V 1926:1364-1365). Aaron Burr was a major organizer. The water company and the Manhattan Bank, forerunner of the Chase Manhattan Bank, now the Chase Bank, were established at the same time. The methods and policies of the Manhattan Company, which included distributing water from wells adjacent to the recognizably polluted Collect Pond,⁷ support the assertion that it "provided only enough water service to maintain the franchise, for its founders had used the charter primarily as an entry into the banking business" (Duffy 1968:201). The company's offices were established at what is now 40 Wall Street, later the location of the Manhattan Bank building (Stokes V 1926:1369; see Stokes V 1926: 1364-1369 for details of the water company's beginnings and Duffy 1968: 202-211 for a synthesis of its goals and operation; also Church 1987:B-9 to B-12 and Koepfel 2002:70-101),

⁶ Attempts to determine earlier official street elevations in this area proved unsuccessful.

⁷ By 1799, filling began to eliminate the pond polluted by the noxious industries that had developed around it; by 1810, the filling process was complete (Geismar 1993:9).

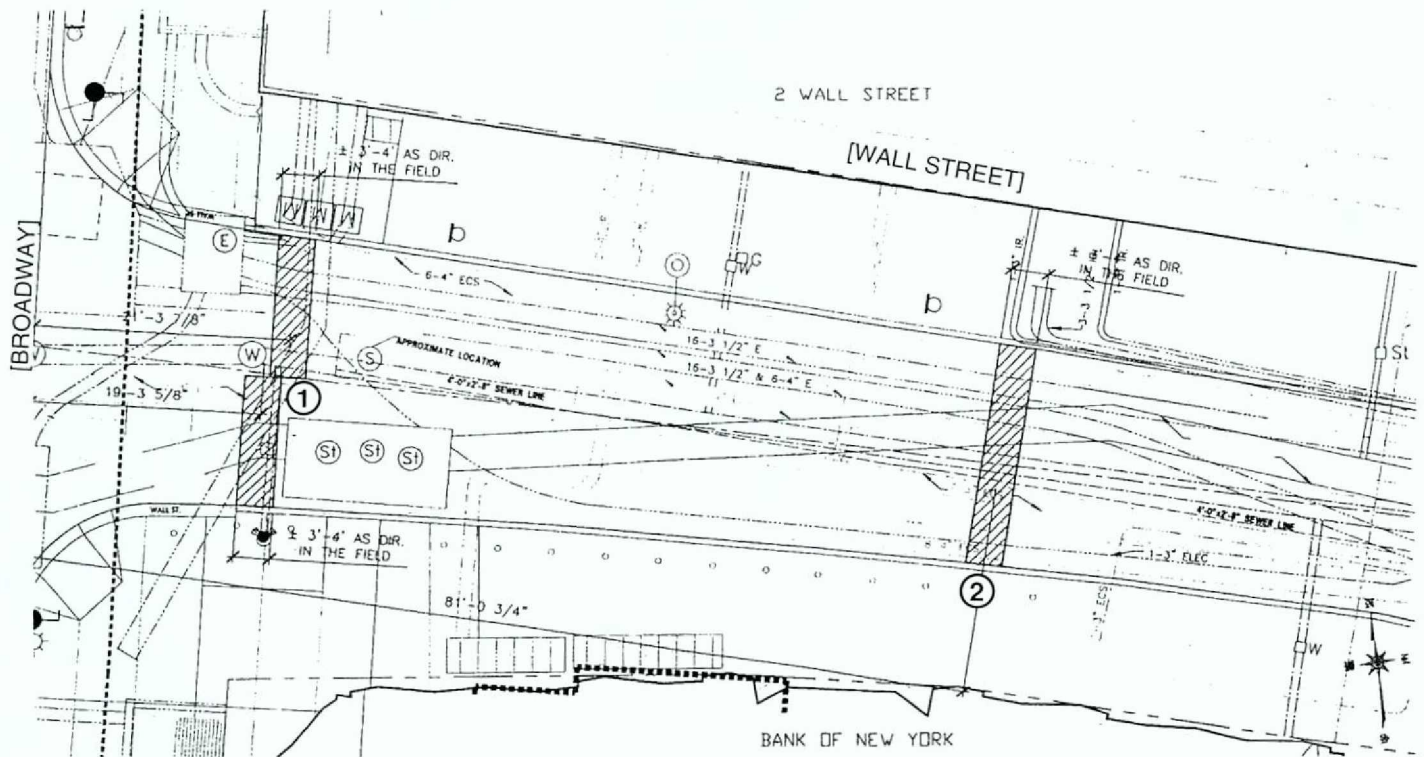


28 View east on Wall Street looking toward New Street when excavation of Test Pit 1 (TP1) was beginning. (Geismar 9/27/03)

NYSE SECURITY & STREETSCAPE IMPROVEMENTS

Test Pits 1 and 2 (TP1 and TP2), Wall Street Between Broadway and New Street Location
Plan (Quennell Rothschild 2003, detail) and Photos

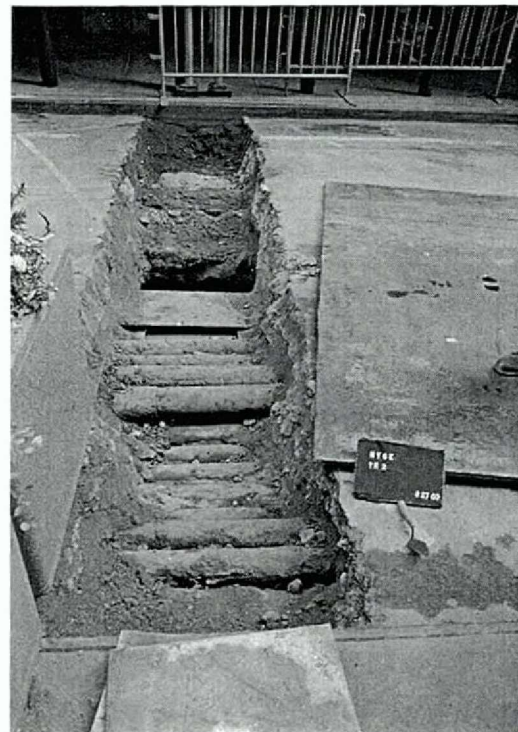
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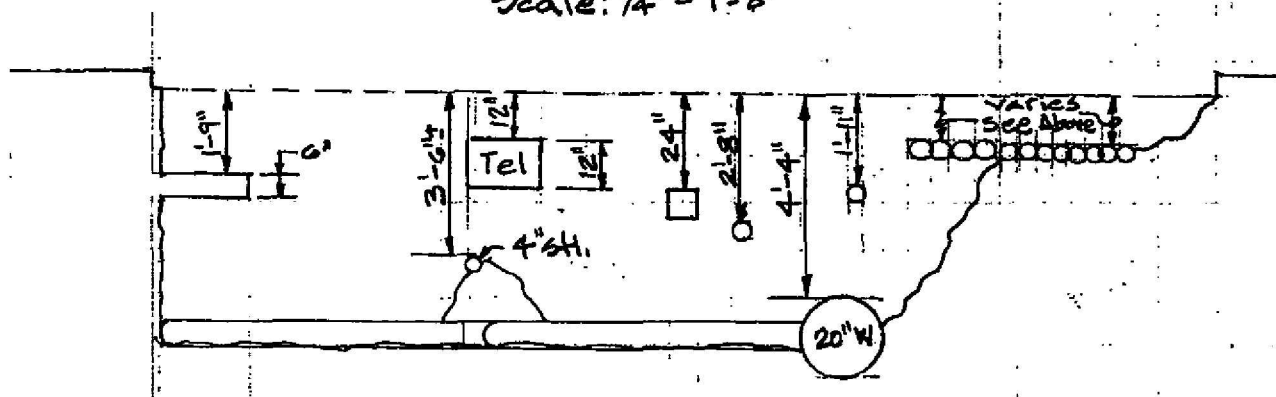
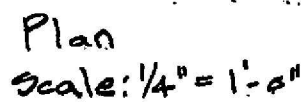
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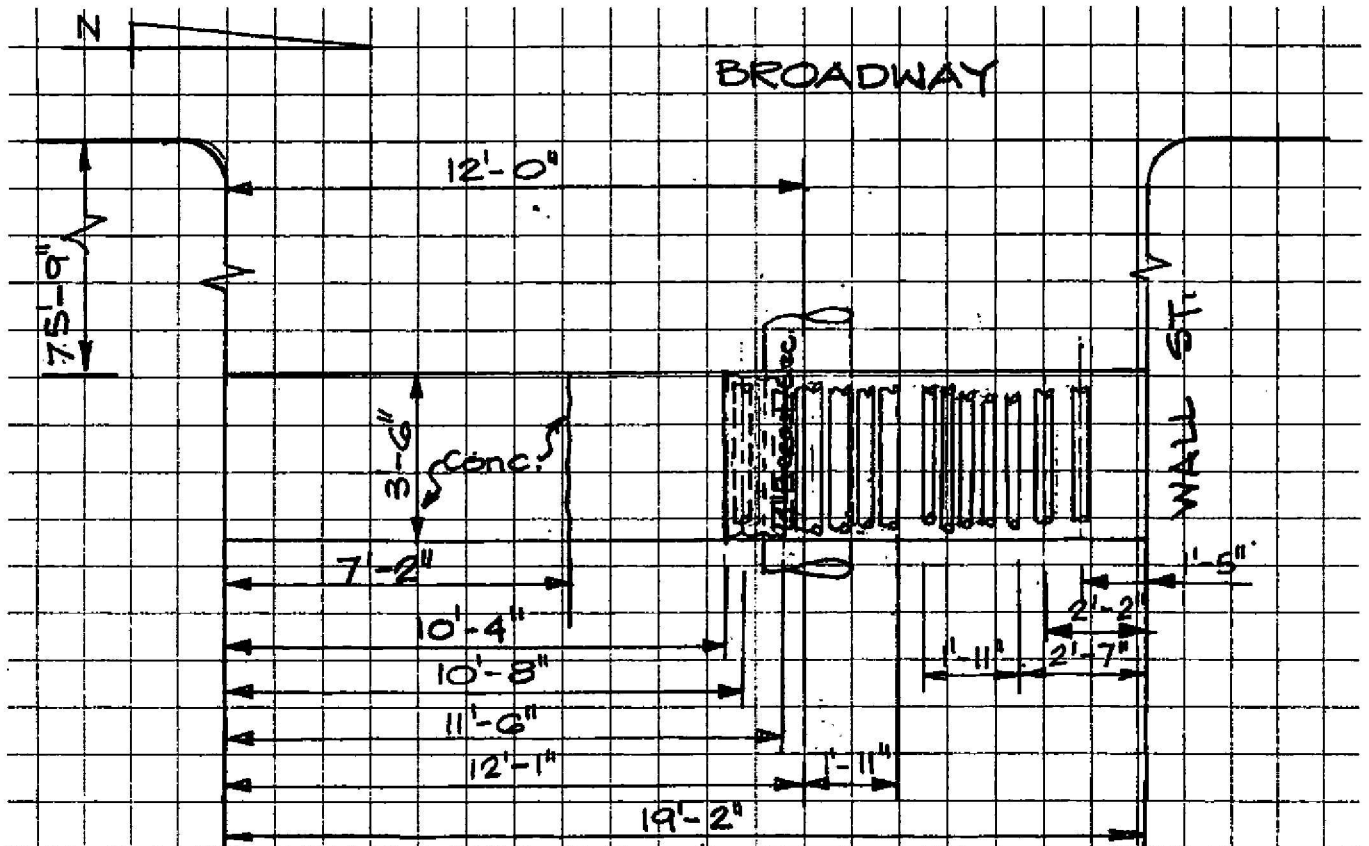


TP1, view N (Geismar 9/27/03)



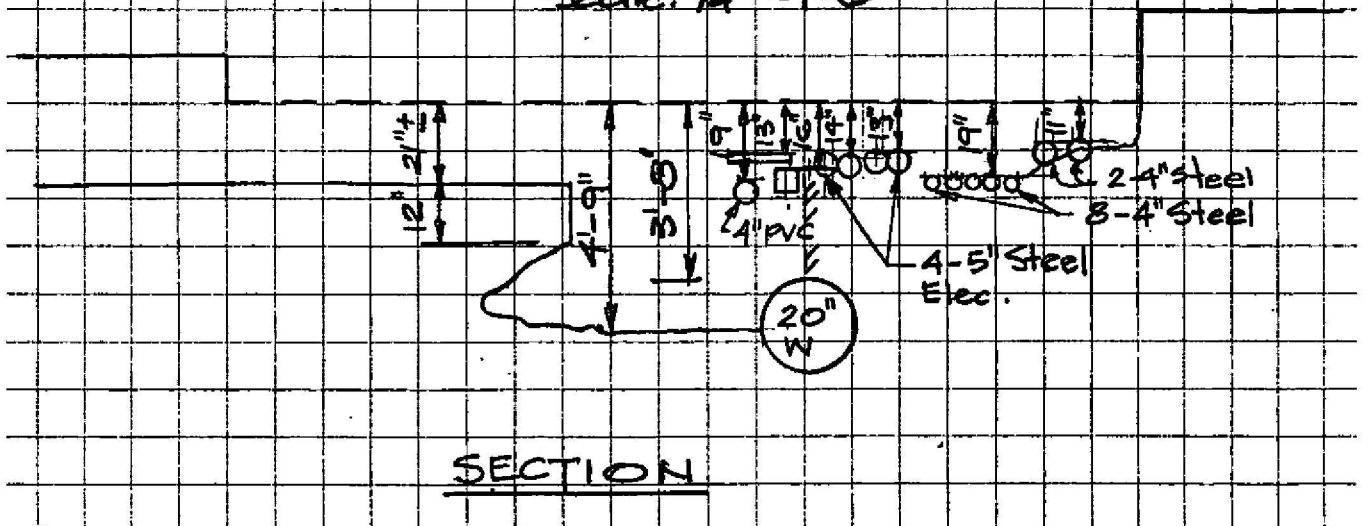
TP2, view S (Geismar 9/27/03)





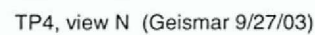
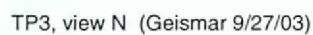
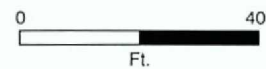
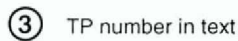
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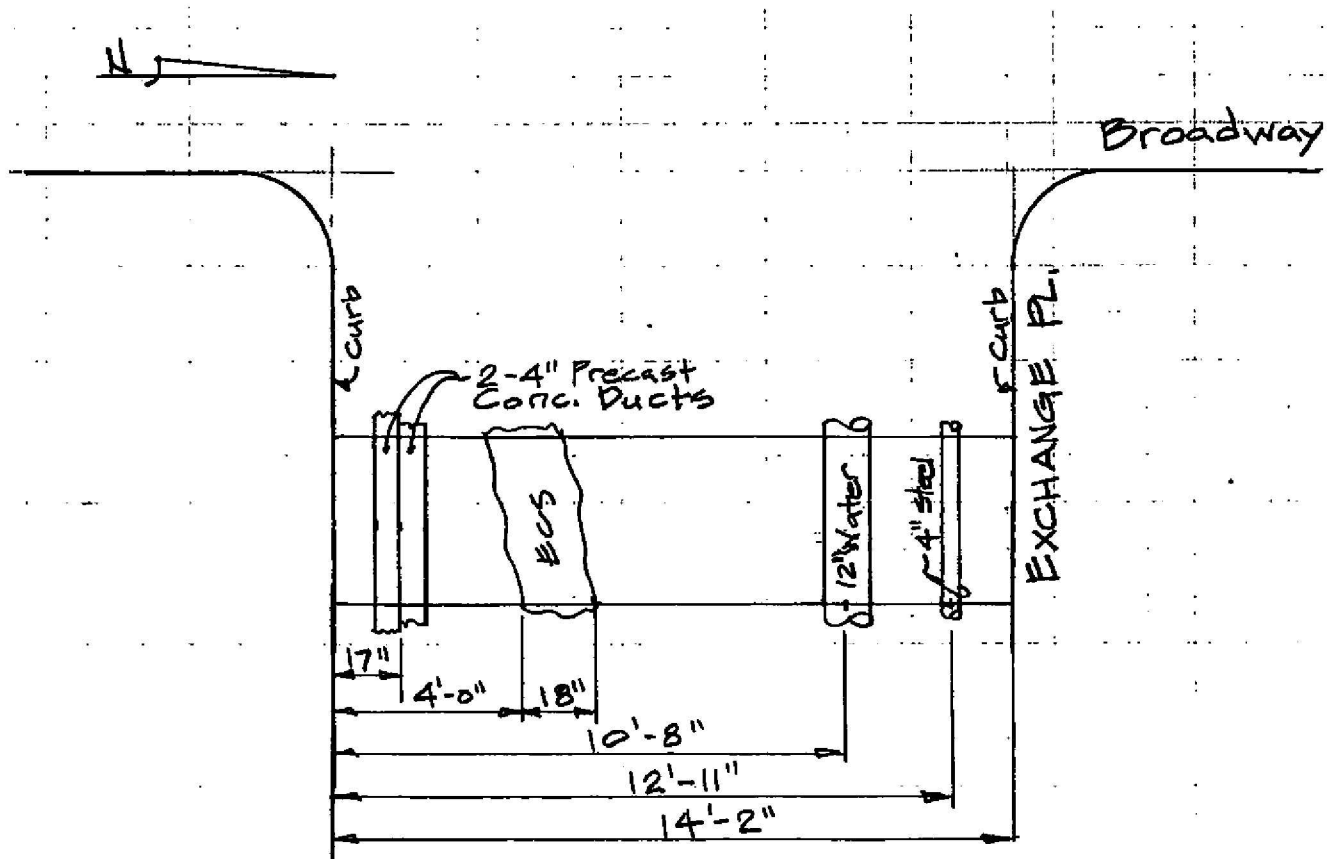
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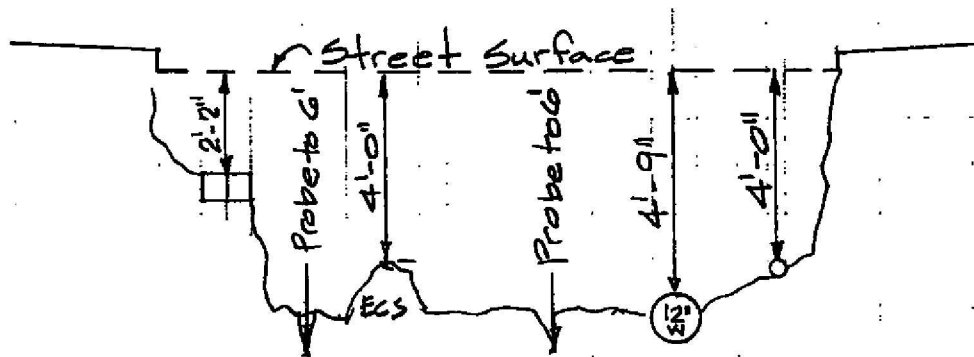
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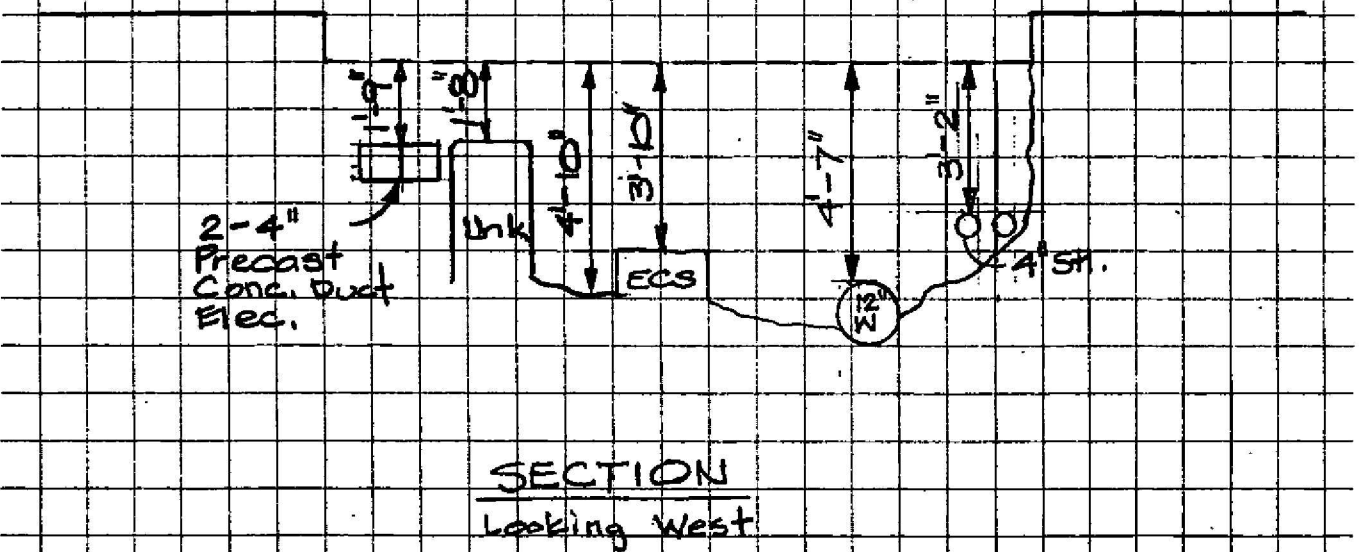
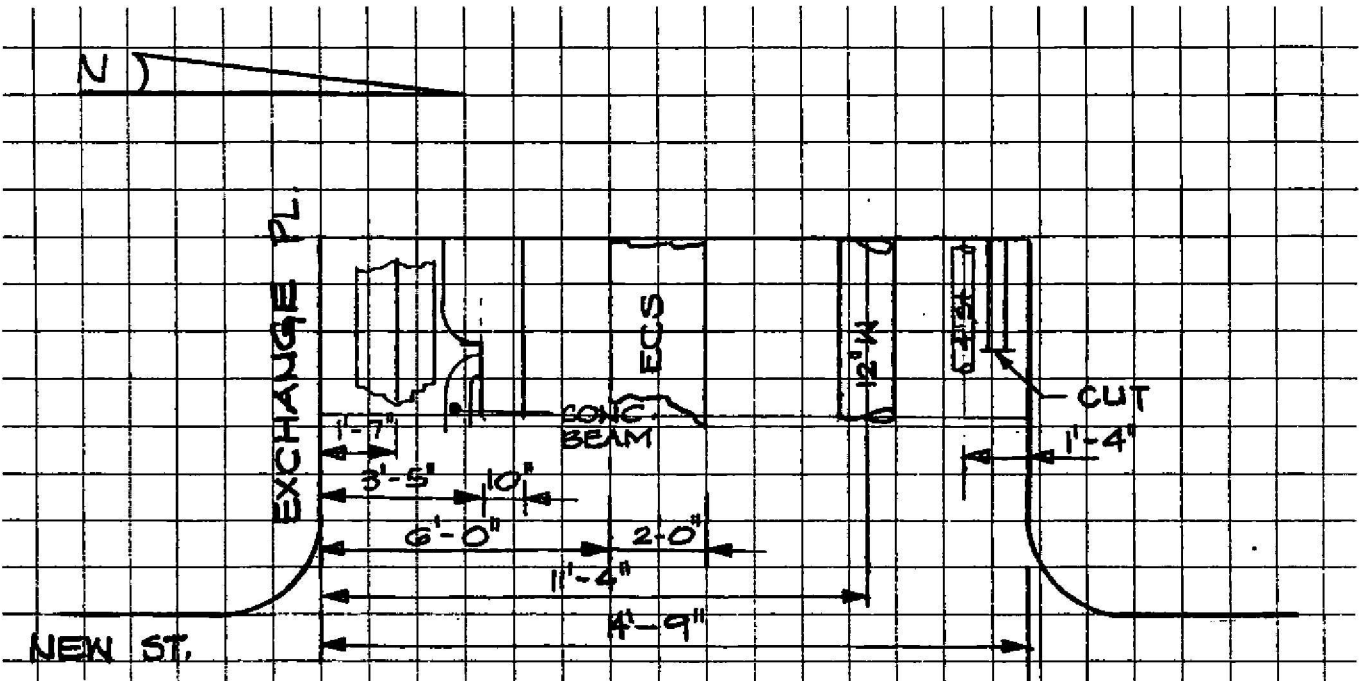




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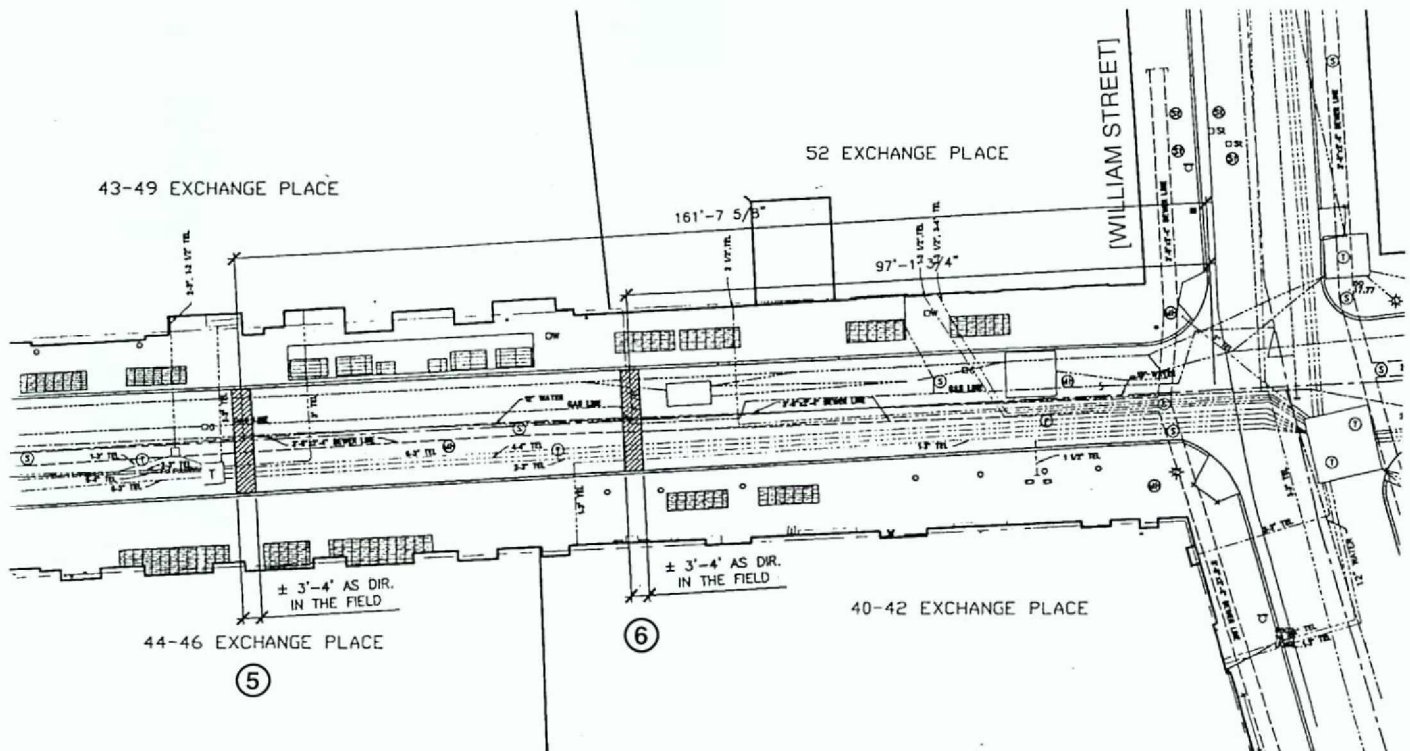
SECTION
Looking West



NYSE SECURITY & STREETScape IMPROVEMENTS

Test Pits 5 and 6 (TP5 and TP6), Exchange Place Between Broad and William Streets
Location Plan (Quennell Rothschild 2003, detail) and Photos

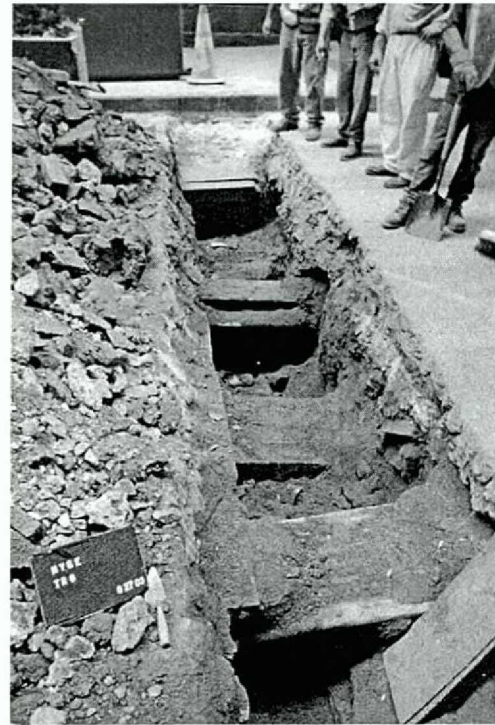
35



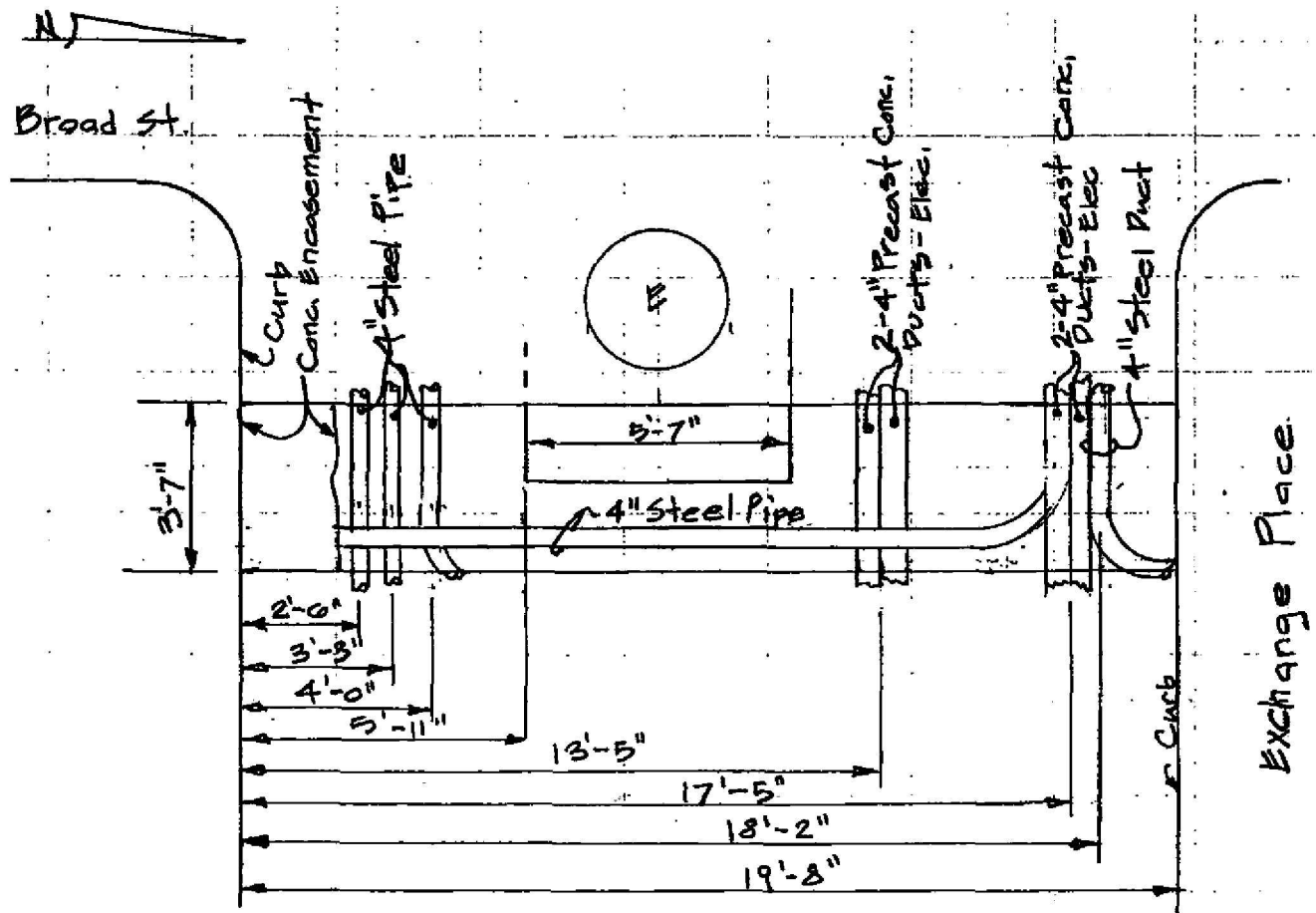
⑤ TP number in text



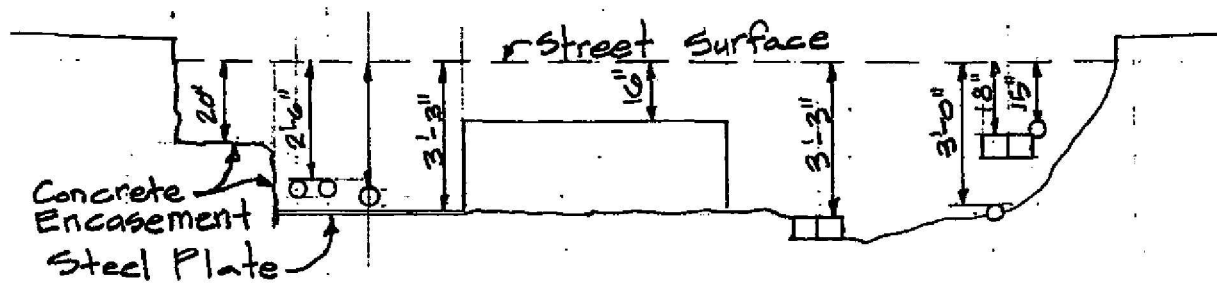
TP5, view N (Geismar 9/27/03)



TP6, view N (Geismar 9/27/03)



PLAN
Scale: $\frac{1}{4}" = 1'-0"$



SECTION
Looking WEST



Scale: $\frac{1}{4}" = 1'-0"$



LOOKING WEST

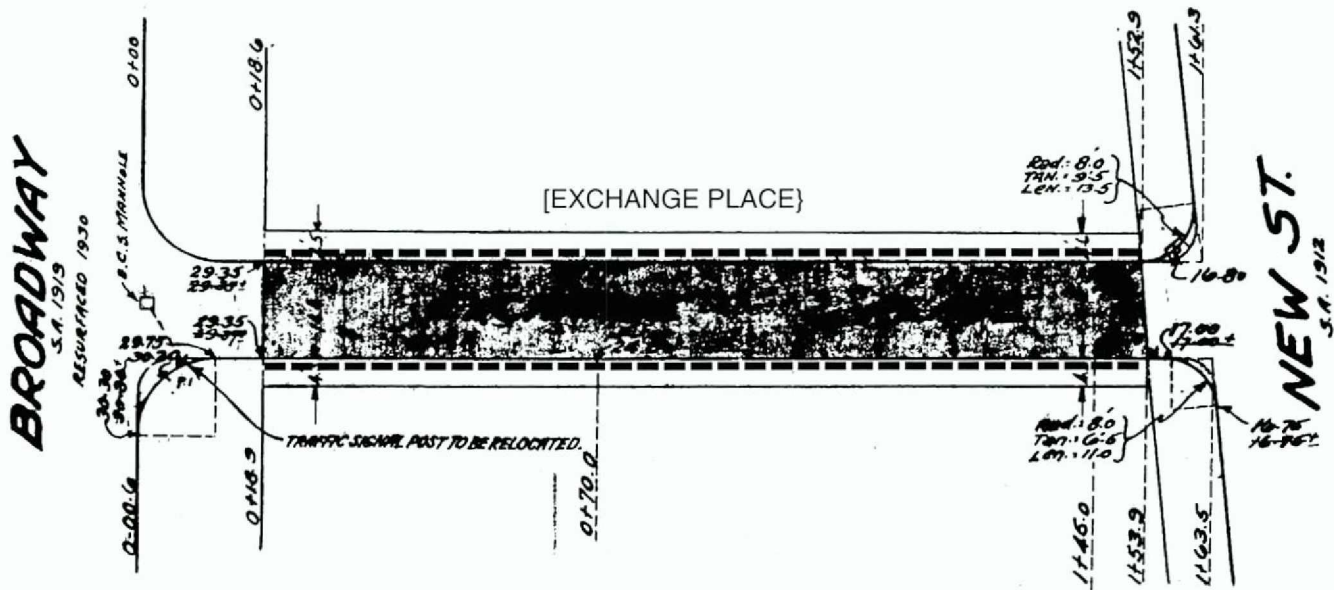


38 Remnant of 9-inch thick concrete base for asphalt block paving revealed in Test Pit 3 (TP3) on Exchange Place east of Broadway. Fragments of the asphalt block (arrow) and whole blocks, that measured 3 by 5 by 12 inches, were also noted. This road surface, which was 1.5 feet below current grade, was introduced in 1931 or 1932 (see text and Figure 39). (Geismar 9/27/03)

NYSE SECURITY & STREETSCAPE IMPROVEMENTS

Exchange Place Between Broadway and New Street, Paving Plan 1931 (Contract Plan 1931: Acc. No. 26636)

39



CITY OF NEW YORK BOROUGH OF MANHATTAN
OFFICE OF THE PRESIDENT
DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
CONTRACT PLAN
REGULATING AND REPAVING
WITH
ASPHALT BLOCK (GROUTED JOINTS)
ON A NEW 4" CONCRETE FUNDATION THE BROADWAY OF

----- APE (part of)

no scale



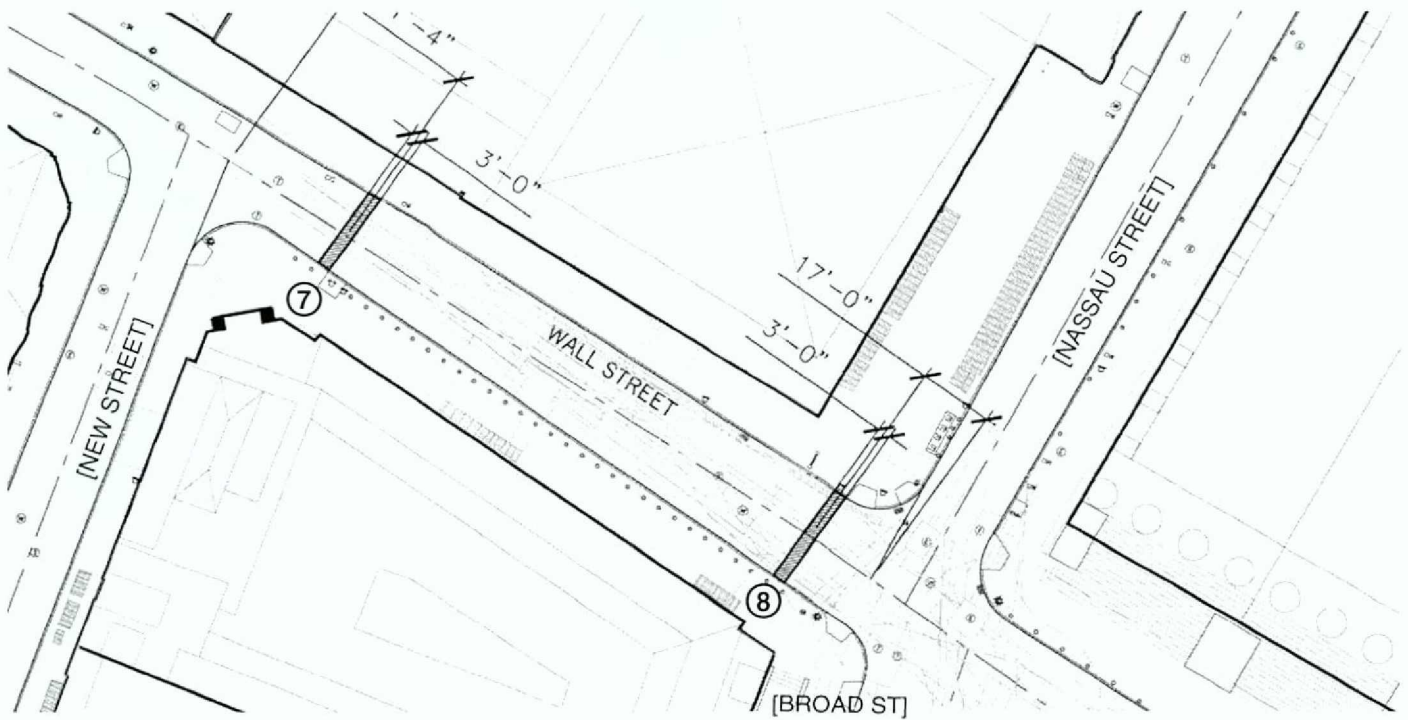


40 View east on Wall Street between New Street and Broad Street. Test Pit 7 (TP7) is in the foreground. Test Pit 8 (TP8) in the background (arrow) is near the Broad Street intersection. (Spritzer 11/15/03)

NYSE SECURITY & STREETSCAPE IMPROVEMENTS

Test Pits 7 and 8 (TP7 and TP8), Wall Street Between New and Broad Streets Location Plan (Quennell Rothschild 2003, detail) and Photos

41



⑦ TP number in text

0 20
Ft.

N



Looking south across TP7 from the north side of Wall Street. (Geismar 11/15/03)



Looking south across TP8 from the north side of Wall Street. (Spritzer 11/15/03)

Whatever the ulterior motive for its inception, and for better or worse, the Manhattan Company became the main supplier of water to New York City's residents in the early years of the 19th century (e.g., Koppel 2002). It also supplied water free to fight the fires that made a comprehensive water supply system a necessity in the growing city. Hand-written journals indicate that company water was available to residences and businesses on all the streets in the project study area during the first decade of the 19th century (indeed, many had cancelled the service during that same decade). Charges for the water were initially based on the number of fireplaces in a building, and commercial establishments paid more than private residences. Extant company records, and a series of questions and answers issued in 1823 (Lozier 1823), suggest that cheating the company was often the goal of householders and businesses alike: the former shared water among neighbors and the latter used free water as a come-on to attract business.

For almost three decades, water was distributed in mains created from hollowed-out logs, mainly of yellow pine. Fire fighting entailed exposing the main and tapping into it with a "cock." While no records were located that document the depth of the mains, their fire-fighting function suggests they were relatively shallow to allow tapping on demand (this is in contrast to an undated newspaper account that reports the discovery of a wooden main at Front and Water streets at a depth of 10 feet (Anon. N.D.). As mentioned earlier, a log section, now in the possession of the Chase Archive, was recovered within the study area at the intersection of New Street and Exchange Place in 1955 (see Figure 13), and other random discoveries have been made over the years (Elliot 2003:personal communication; Greeley 2003:personal communication). By 1827, the wooden mains were being replaced with cast-iron pipes and street hydrants were either planned or installed throughout the city (e.g., Goodrich 1828; see Figure 47 for examples of the types of mains, hydrants, etc., available at the time). Despite repeated efforts to relinquish their water supply operation to the city, and despite the recognized inferiority of the water it offered, the Manhattan Water Company persisted until the introduction of Croton water in 1842.

IDENTIFIED STREET ISSUES AND POTENTIAL STREET FEATURES

Issues:

As previously discussed or implied, many factors are involved in the potential archaeological sensitivity of the streets in the APE. Many have been widened, extending early colonial streets onto former building lots; all have been subject to the introduction of utilities with concomitant street disturbance, refilling, and repaving. The Minutes of the Common Council and the records of the Manhattan Company are replete with complaints about street disturbance and attempts to identify responsibility for repaving. There are also the water mains, first of wood and then cast iron, and sewers—then and now the deepest of the utilities—of wood, brick, and then iron. Installing sewers would have caused great disturbance to reach required depths and grades. There were also 17th- and 18th-century wells and pumps that supplied water for private and commercial consumption, and for fire fighting in a city with buildings of wood and with heat provided by fireplaces and light by candles and oil lamps. Street cisterns were also a source of water to fight fires. Previously mentioned sidewalk vaults were also urban features, and, finally, there were decorative or commemorative features, such as street statues that required pedestals. All these street features could leave archaeological evidence. Many of them are documented in

the archival records. Figure 42 presents a schematic of the locations of several of these resources identified through research. Details about what might be encountered are described below.

Potential Street Features (in Alphabetical Order):

Buildings, Unidentified: For example, on the east side of Nassau Street, between Pine and Wall Streets, where an entire house lot was taken to widen Nassau Street, there is the chance that a small segment of the former corner lot may remain undisturbed under the modern sidewalk. This is where unidentified structures stood at least during the last decade of the 17th century. Since a subway has run along Nassau Street since 1931, it is entirely possible that any evidence of these structures is long gone. On the other hand, it is also possible that this may prove to be another instance where archaeological resources are tenacious. Therefore, the sidewalk on the east side of Nassau Street just south of Pine Street should be considered potentially sensitive.

Building Foundations: Where streets have been widened, most notably on the east side of Nassau Street, but also on the north side of Exchange Place, on both sides of New Street, and on the west side of Broad Street where sidewalks may harbor evidence of early foundations. While foundations are not usually archaeologically significant, those with age may provide information about construction techniques and land use. It is also conceivable that foundations for the portico of the second city hall built at the turn of the 18th century on the north side of Wall Street east of Nassau Street may remain in the bed of Wall Street.

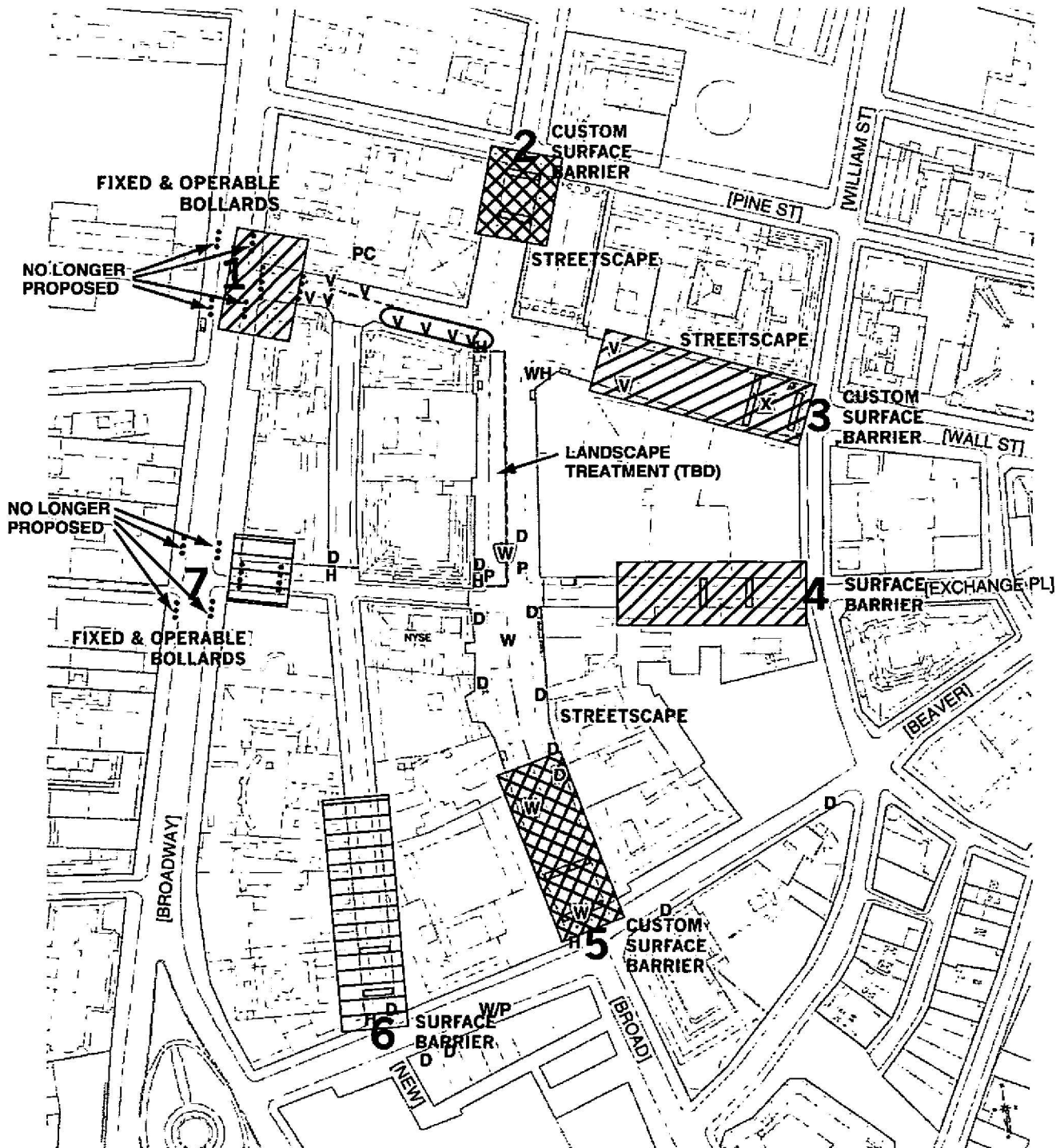
Drains: Drains that connected early street sewers to houses may be found under sidewalks or in streets if the streets have been widened. Drains, sometimes referred to as “Kennels” in the Minutes of the Common Council, also ran down the side or middle of streets. The Minutes of the Common Council document nineteen drains within the project APE: ten on Beaver Street and nine on Broad Street. None are documented on the other streets. This suggests that sewers and street drains were not installed on Exchange Place, Nassau Street, New Street, or Wall Street prior to 1831, the last year the Minutes of the Common Council consulted for this analysis are accessible.

Fire Plugs and Hydrants: The concept of the fire hydrant can be traced to about 1795, but it is not until 1817 that the hydrant enters New York City’s fire-fighting history. In that year, a hydrant was built at private expense and installed in front of a firefighter’s house on Frankfort Street (Carey 1945:29). This and other similar hydrants, described as the “forerunners of the modern post hydrant,” were “inserted [into a wooden main] by a tapering joint...and were sometimes carried [from fire to fire] by the brigades...” (Carey 1945:30). This hydrant was an improvement over the practice of tapping a main for water (a hole was dug in the street to find the main and another hole bored into the main where water was suctioned out or collected by bucket; the hole was then plugged and, theoretically, the street restored [Carey 1945:29]). With the introduction of cast-iron mains, hydrant technology improved. Sockets, or branch fittings could be inserted at intervals that provided permanent connections for flush-type hydrants (Carey 1945:30). With larger mains, the technology improved even further. Between 1850 and 1864, twenty-eight hydrant improvements were made either to drainage, to valves, or to frost protection. The hydrants introduced in the early 1900s were still in use at mid century. A compendium of hydrant designs and types is presented in Figure 43.

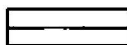



NYSE SECURITY & STREETSCAPE IMPROVEMENTS

Schematic Summary of Potential Features Identified in Study Area

42



base map: Rogers Marvel Architects 2003

-  new research to determine archaeological potential
-  possible potential for sensitivity (1999)
-  no archaeological sensitivity (1999)
-  proposed security booth

Sewer locations:
 westside of Broad – length of street
 eastside of Broad – length of street
 kennel ran down center of Broad
 Street statue of William Pitt

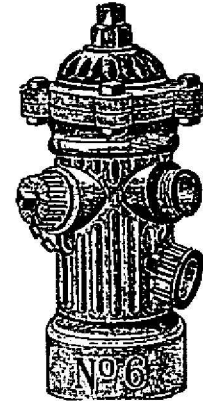
- D drain
- H hydrant
- P pump
- V vault
- W well
- X well, pump, Pitt's statue (in succession)
- WH watch house

no scale

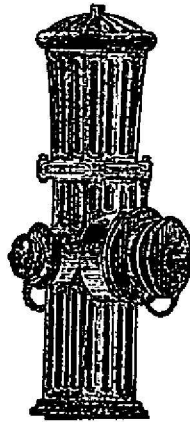




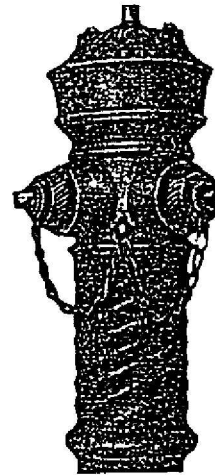
McLean



Eclipse



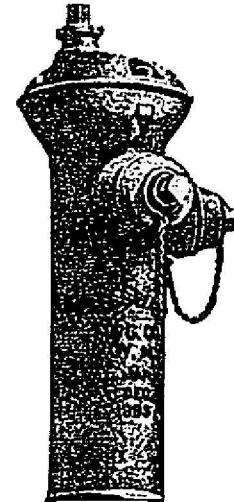
A. B. & C.



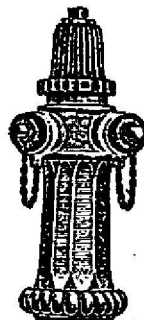
Kennedy



Perfection



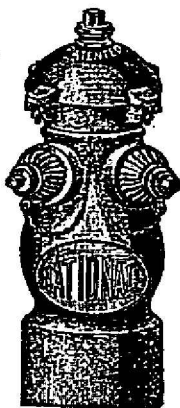
Corey



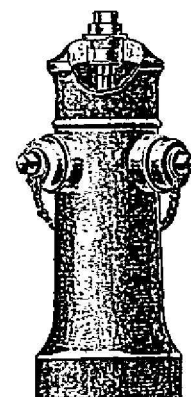
Waterous



Bourbon



National



Holyoke

Pumps and Wells: Six public wells are documented in Manhattan in 1696, all of them located in the middle of the street (Miller 1696; see Figure 15); sometime before the end of the 18th century, these were abandoned and new ones constructed on sidewalks, apparently throughout the city (e.g., Holland 1797; Figure 44). However, the quality of the water in these wells, which was mainly brackish, was far from acceptable (an exception was the Tea Water Well or Pump located near Park Row and Baxter Street, not far from the Collect Pond north of Worth Street; this spring provided pure water until the nearby pond became polluted by the industries that grew up around it [Church 1987:B-41]).

Public wells with hand pumps were common after the first half of the 18th century, and there were said to be 249 public wells in New York City by 1809 (Blake 1956 cited in Church 1987:B-41). Initially, water would have been drawn by bucket or balance-pole (Wegmann 1896:2), with hand pumps a later refinement (Wegmann 1896:3; see Figure 44 for examples of late-18th-century hand pumps).

Wells are documented in the project APE on Wall Street and on Broad Street in the 18th century (see Figure 15; also MacCoun 1909; Figure 45). However, it is clear that others mentioned in the Minutes of the Common Council (see Table 1) and undoubtedly still others that are not, were to be found in the project APE. Those documented in the APE, which should be considered only a minimum number, include five on Beaver Street, four on Broad Street, three on Exchange Place, ten on New Street, and three on Wall Street. In an archaeological context, they undoubtedly would be manifested by deep, circular or sometimes square or rectangular features of brick or stone that could be mistaken for manholes.

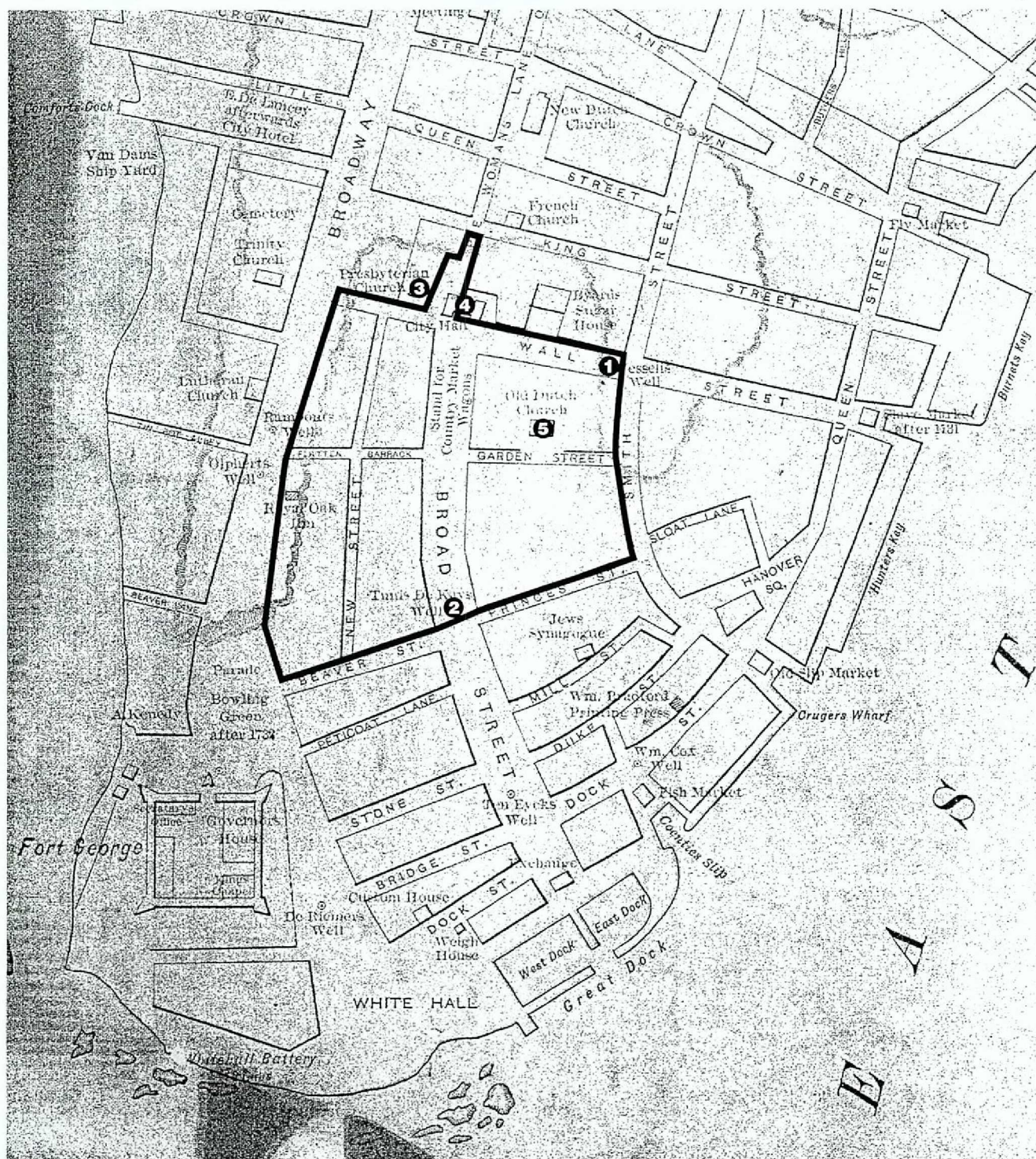
Sewers: The evolution of the canal on Broad Street into an open sewer has been discussed previously. As such, it is the earliest sewer identified in the project APE. Throughout the project study area, sewers that may originally have been private and made of wood, were replaced by those constructed mainly by the city, but sometimes by private individuals, and made of brick.

George Dempsey, a mid-19th century English engineer, described and illustrated the variety of sewers available in 1849. These included stone conduits, which were not very practical, but were more typically made of brick and were round, oval, or elliptical (Dempsey 1849; Figure 46).

As mentioned earlier, the *1857 Annual Report of the Croton Aqueduct Department* records the earliest municipal sewer in the project APE in New Street. It was a 2-foot 6-inch circular brick sewer between Exchange Place and Beaver Street constructed in 1834 (1857:125). This same record indicates that most of the sewers then in the streets of the project APE were also circular and between 2 feet and 5 feet in diameter (an exception was an elliptical, 3 by 4 foot sewer on Wall Street between Broadway and New Street installed in 1848); all were installed between 1845 and 1848, often in segments, and, with three exceptions, all were municipal. The exceptions included two on Exchange Place, one 2 feet in diameter located between New and Broad, and another 3 feet in diameter located between Broad and William, and yet another of 2.6 foot diameter on New Street between Exchange and Wall Street. All were installed in 1845 and were private. The only street segment with no sewer documented by 1857 was Exchange Place between Broadway and New Street. A modern record reveals that most of the sewers currently in



44 Broad Street from Exchange Place looking north to Wall Street and Federal Hall in 1797. Note hand pumps (arrows) on either side of the street. A hitching post is on the left side of Broad to the right of the pump. (Holland 1797)



study area

①

Wessel's Well

②

Tunis De Kay's Well

③

Presbyterian Church

④

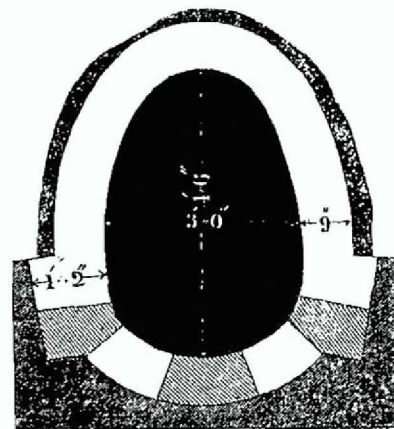
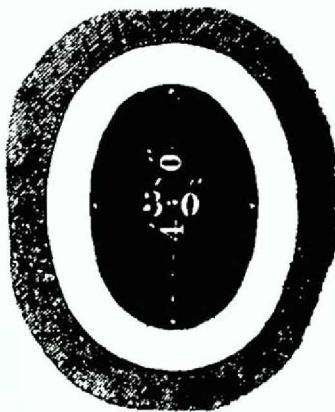
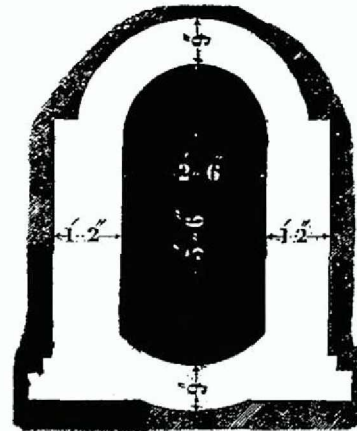
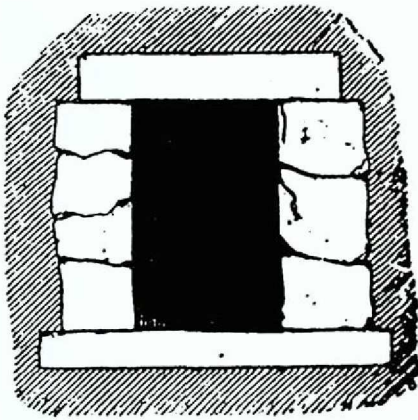
City Hall (1700, erected 1699/1704)

⑤

Old Dutch Church

no scale





use in the project APE were installed between 1903 and 1930 (the one on Nassau Street has no recorded date of installation) (Manhattan Tapping 2003). The proposed security measures are not expected to impact these deep conduits. However, their depth and the sewer record implies prior and continuous disturbance to the streets.

Statues: A statue of William Pitt is documented within the project APE. For seventeen years, from 1770 until 1787, it stood just west of the intersection of Wall Street and William Street on a site that was apparently near or on that of an early street well named for Tunis De Key (MacCoun 1909 depicting 1730; see Figure 45). Badly desecrated during the Revolutionary War, the city Aldermen decided to demolish the statue in 1787 (MCC I 1917:285, 386, 418; Stokes III 1918:964).

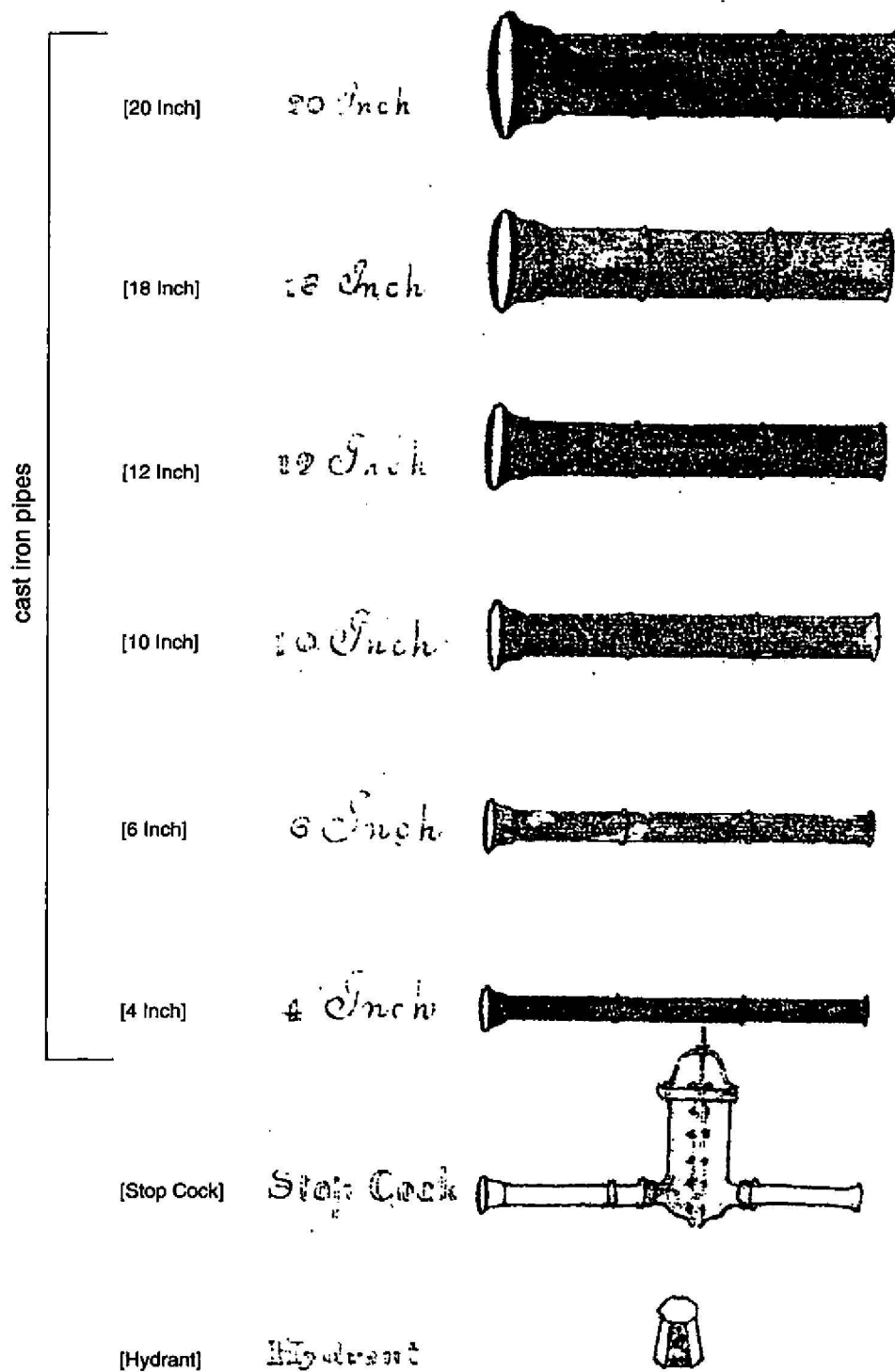
Vaults: Sidewalk vaults may still be found in their original locations if there has been little or no disturbance. Or they might be found under streets that have been widened, with former sidewalks now beneath the expanded roadways. This would only be possible where few or no utilities have been introduced, a rare circumstance indeed.

These 19th-century vaults, the earliest one documented in the APE dating from 1804, were probably intended for storage. Whatever their original purpose, as the century progressed, it is more than likely that at least some of them were used to receive and store coal (coal vaults are still found throughout areas of Jersey City, and a restaurant on Duane Street in Lower Manhattan has converted a sidewalk vault into a private dining room-wine cellar). If the few vaults seen to date are any example, they would be found directly under the sidewalk and be of brick. They also would have vaulted ceilings. Thirteen 19th-century vaults have been documented in the project APE (two on Broad Street and eleven on Wall Street; see Figure 42). Once again, this should be considered only a minimum number.

Water Mains: As mentioned earlier, bored-out logs were used to conduct Manhattan Company water to the homes and businesses that paid to receive it. The water came from wells mainly located near Manhattan's Fresh Water Pond, an apparent euphemism as time went on, or Collect Pond as it was also known. This pond was situated just north of Worth Street with a dip south into what is now Hamill Park south of Worth Street and east of Centre Street (Geismar 1993:10-11). Manhattan Water Company water was distributed from a large cistern on Reade Street that stood west of Centre Street until 1913 (American Scenic and Historic 1915 in Geismar 1993:40) and was stored in a Classic-style reservoir on the north side of Chamber Street almost directly across from what is now the Tweed Courthouse (Wegmann 1896:Plate 4; not illustrated). By 1828, the Manhattan Water Company was in the process of replacing its log mains with cast iron pipes of various sizes (e.g., Goodrich 1828; Figure 47).

CONCLUSIONS AND RECOMMENDATIONS

Historical research suggested that early infrastructure could be a concern in the project APE, but four test pits excavated to date indicate this is unlikely on Wall Street. One of two test pits on Exchange Place between Broadway and New Street revealed evidence of a former asphalt block road surface approximately 1.5 feet below current grade just east of Broadway that proved to date from 1931/1932. A second test pit just west of New Street contained trash that appeared



relatively old, but post dated 1952 based on a soda bottle in the fill. Exchange Place between Broadway and New Street, where these two test pits were located, was not part of the 1999 archaeological assessment.

None of the test pits excavated to date have revealed any evidence of the wells, pumps, sidewalk vaults, drains, early fire plugs and hydrants, or bored-out log water mains that could potentially be found in these streets. However, at this writing, no testing has been conducted on sidewalks where less disturbance is documented and security structures and bollards are planned.

Test Pit excavations in streets without subways should continue to be monitored. This is particularly relevant in areas where streets were widened, such as the west side of New Street; it is also relevant where tests will be conducted on sidewalks where no infrastructure is documented. At this writing, this includes sidewalk excavation on the east side of Nassau Street near Pine Street (this despite adjacent subway construction) where bollards are planned and on the south side of Wall Street between New Street and Broad Street where a guard booth is proposed on the sidewalk adjacent to the NYSE building. Indeed, it seems prudent to consider the potential sensitivity of sidewalks throughout the project APE where disturbance will occur.

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