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PHASE ONE
ARCHAEOLOGICAL IMPACT REPORT
for
SITES 1A, 1B, 5B, and 5C
WASHINGTON STREET URBAN RENEWAL AREA
NEW YORK CITY, NEW YORK

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INTRODUCTION

The Washington Street Urban Renewal Area, situated on the lower west side of Manhattan south of Hubert Street, north of Barclay Street and bounded by Greenwich Street on the east and West Street on the west, has been undergoing re-development over the past five years as block parcels within the area have experienced major construction. (See Fig. 1-3) The area has been divided into 7 site parcels from north to south with sites 2, 3, 4, the southwest portion of 5, and 6 having already experienced construction development (Community College of Manhattan, Independence Plaza North, College of Insurance, and Irving Trust, respectively). The remaining two site parcels, 1 (1A and 1B) and the major portion of 5 (5B and 5C) are to be developed in the near future. Pursuant to proposed development plans, New York City Landmarks has required an archaeological impact report be incorporated into the Environmental Impact Study for sites 1 and 5B and C of the Washington Street Urban Renewal Area. The purpose of the impact report is to locate, identify, and evaluate potential archaeological resources in the project sites, to assess the impact on such resources by the proposed action, and to consider what alternative courses of action could be applied to possibly affected resources.

Site 1, Blocks 186 and 216, is bounded by West Street, Hubert Street, Greenwich Street and North Moore Street. Beach Street, running east to west through the site is still functional whereas the north-south Washington Street is only functional for vehicular parking. These four blocks in the heart of Tribeca, presently are either vacant or used for parking passenger cars or construction equipment. Sites 5B and 5C, Lot 1 of Block 142, is bounded on the east by Greenwich Street, on the west by West Street, northerly by Chambers Plaza and on the south by Murray Street (1981). The majority of this block contains parking lots. Washington Street is now only detectable by Belgian blocks and manhole covers running in a north-south direction. The one extant structure on the block is located at 179 West Street.

HISTORY OF THE AREA

PREHISTORIC

Paleo-Indians, hunters of big game, were the first inhabitants of the Manhattan area approximately 10,000 - 12,000 years ago. Evidence of these first inhabitants is often very difficult to locate archaeologically because the sea level rise since that time period has inundated the coastal sites. (Saxon, 1973: p. 252) However, it is possible to identify the probable locations of certain Paleo-Indian sites through research done by Leonard Eisenberg. He has identified three geographic locations preferred by Paleo-Indians:

- (1) "lowland waterside camps near coniferous swamps and near larger rivers;
 - (2) upland bluff camps in areas where deciduous trees dominated; and,
 - (3) ridge-top camps, also where deciduous trees dominated."
- (Rutsch, 1983: p. 33) Within the vicinity of the Washington Street Urban Renewal Area sites the inevitability of drowned sites is not as certain as on the east side of Manhattan. Until the present sea level was reached the Hudson River was the world's lowest latitude fjord. Only a few fjords existed on the eastern seaboard at any time. Therefore, it is possible that early occupation sites may be preserved on the natural shoreline of 10,000 B.C. along the Hudson River while "possibly being destroyed in other locations in aboriginal New England. (Snow, 1980: p.180)

The Early Archaic Stage (c. 9,000 years ago) followed the Paleo-Indian Stage in the coastal and tidewater area of New York and "is represented by numerous, small, nearly always multi-component sites, variously situated on tidal inlets, coves, and bays, particularly at the heads of the latter, and on fresh-water ponds on Long Island, Fishers Island, and Staten Island". (Ritchie, 1980: p. 143) The exploitation of oysters along the Hudson River began during the Middle Archaic Stage of approximately 8,000 - 6,000 years ago and intensive exploitation of shellfish resources began in the Late Archaic Stage (Snow, 1980: p. 182) High, sandy river terraces were apparently the preferred site location for the Snook Kill Tradition (a southern sub-area representative of the Transitional Stage). (Ritchie and Funk, 1973: p. 342)

By approximately 3,000 years ago the sea level and, consequently the exposed coastal lands, were as they appear today. This was the time of the Woodland Stage when occupation sites were predominantly on knolls or well-drained terraces in close proximity to a water resource. According to the archaeological record, Early Woodland/ Middlesex Phase sites are most

likely to be discovered during sand and gravel mining operations located near a lake or river. (Ritchie, 1980: p. 201) Ritchie, in 1980, reported that Late Woodland Stage sites within the Washington Street Urban Renewal Area of southern New York were usually located on the "second rise of ground above streams or coves" and on "well-drained sites". (Ritchie, 1980: pp. 264-265)

In order to take advantage of the valuable resources of a marine, estuarine or lacustrine site, native Americans would have, at a minimum, placed their temporary camps within a short distance of the water source. Hunting and gathering within these site locations yielded necessary floral and faunal materials. However, it is not likely that permanent camp and village sites (usually one to three acres in size) would have been located within or directly adjacent to a marshy area.

Research yielded from the West Way project can help in the prediction of aboriginal sites along the present course of the Hudson River. Edward Rutsch, principal investigator of the archaeological impact report for the West Way, has endeavored to calculate the shape of Manhattan's west shoreline through time. Combining West Way soil boring information and published excavation reports, Rutsch has predicted at what depth potential evidence of exploitation at a certain time period would be encountered. In other words, 7,000 years ago a cove, thirty feet below the present Westside Highway, would have been a favored location for native Americans. Pertinent to this report on sites 1 and 5 are four locations of potential archaeological resources. None of these identified areas are within the confines of the project area but their close proximity demands attention:

- (1) Murray Street and West Street intersection-
c. 6500 to 7000 y.a.
30 feet below present sea level
small spit of land extended into the river
- (2) west end of North Moore Street
c. 7200 to 7500 y.a.
50 feet below present sea level
shoreline edge dipped sharply eastward, south end
of a bay with (possibly) steep slopes to the water
- (3) west end of North Moore Street
c. 7000 to 7200 y.a.
40 feet below present sea level
southern margin of a bay
- (4) west side of Beach Street and West Street intersection
c. 7500 to 8,000 y.a.
60 feet below present sea level
small lagoon, possibly near a marsh. (Rutsch, 1983:

The standard preliminary inquiry as to aboriginal connections with a site under investigation is a primary literature and map search complemented by a search through archaeological literature. According to this type of research conducted for sites 1 and 5, only a general association of one particular Indian group, the Warpoes, was noted on MacCoun's reconstructed map of the 1609 time period. (MacCoun, 1909) Although it is most likely that aboriginal exploitation did occur on the ridge tops bordering the Hudson River, there are no published reports of professional or amateur excavations within the area. The project sites would have afforded distinct advantages to an aboriginal population:

- (1) defense and protection positioning;
- (2) proximity to water source and related resources;
- (3) cleansing breezes; and
- (4) position for hunting/locating large land animals.

A distinct disadvantage to the sites, as recorded by the European settlers, was the strong northwesterly wind current that regularly swept down the Hudson River. This disadvantage could very possibly have also retarded aboriginal exploitation of the site area.

These high ridges that paralleled the Hudson River and the subsequent roadway to the north of the island may have held evidence of past inhabitants. However, after c. 1750 these ridges/bluffs were cut down in regulating activities for road construction. Therefore, the potential archaeological resources for the inundated sites and the ridge sites on the west and east portions, respectively, were either covered with fill deposits or cut down. The fill deposits on sites 5B and 5C are approximately 14 to 24 feet in depth; and the fill deposits on site 1 are approximately 7 to 40 feet in dept.

HISTORIC

The west bank of the Hudson River along the Manhattan shoreline when first explored by Henry Hudson in the early seventeenth century was topographically much different than today. Research of early documents and maps, as well as scholarly studies has produced evidence of the physical features of the Washington Street Urban Renewal Area c. 1600. At about where Greenwich Street is today there was a ridge of high bluffs (Fig. 4,5) running north south along the river bank. Figure 6 is a copy of a plan view of lower Manhattan c. 1732 and shows the bluffs along which ran a very early roadway. The position of the early shoreline is corroborated by Townsend MacCoun's reconstruction of Manhattan in 1609, the Viele map of 1865, PLAN OF THE CHURCH FARM, n.d., as recorded in Janvier, 1894, Gerard, 1872: NEW MAP OF THAT PART OF THE CITY OF NEW YORK, n.p., Gratacap, 1909: p. 28, Stokes, Vol. 6: plate 64, and Valentine, 1853: p. 378. This shoreline apparently bulged westward north of Warren Street toward Hubert Street. Therefore, while one can conclude that major portions of sites 1, 5B and 5C were originally under water, the eastern sectors were part of the river bank. Specifically, the eastern halves of the Greenwich, Washington, North Moore and Hubert Street blocks and also the Greenwich, Washington, Warren, and Chambers Street block are not man-made land, but original land.

Sites 5B and 5C were part of a large land grant of 62 acres dating from 1636 made to Roeloff Jansen (or Jans) by Van Twiller (Stokes, Vol. 3: p.145-6). After Jansen's death, his widow Anneke (Anetze, Anna) married a clergyman, Dominie Bogardus, and the whole parcel was thence called "Dominies' Bouwery". The property bounds were approximately from Warren Street north along Broadway to Duane Street "thence northwest a mile and a half to Christopher Street thus forming a sort of triangle" (French, 1860: p. 79). After Anneke's death in Albany in 1663, her heirs conceded the farm parcel to the English crown by way of Governor Lovelace on March 9, 1671. It remained crown property until 1705 when Queen Anne's representative, Viscount Cornbury, deeded it in perpetuity to Trinity Episcopal Church. In later years the existing land and the adjacent water lots were sold off by the church after the city and the church agreed on specific rights and actions dictated by the Dongan Charter.

Efforts to regularize and extend the shoreline and the roadways paralleling it as far north as Rector Street are evident in an ordinance passed by the Common Council in 1729. The ordinance mandated the creation of two streets - one (now Greenwich Street) at high water mark and another (now Washington Street) at low water mark. (Gerard, 1872: p. 218) These streets were not officially opened until years later, but the legislation recognized both the need for them and demonstrated an awareness of the land-making process already well established on the eastern shore of Manhattan. Commercial and maritime development was slower along the Hudson River than the East River because of various geographical conditions. For example, David Grim reminisced in 1813 that during his childhood in the 1740s there was only one slip on the Hudson in the vicinity of the present Liberty Street. (Valentine, 1855: pp. 584-585) But there was in and activity during that period in the form of civil defense building. A band of palisades was erected across the width of Manhattan from near the east side of Greenwich Street to Peck's Slip on the East River. Associated with the palisades were block houses and city gates at intervals - one such city gate at approximately the intersection of Greenwich Street and Chambers Street. (See Fig. 7) These structures were shown on several maps such as the Delancy Map reproduced in Stokes ICONOGRAPHY, Vol. 1: plate 34. Stokes also reports that the Common Council directed that an eight-gun battery and block house be built on "Dominies' Hook" (Stokes, Vol. 4: p. 589) and that, also by action of the Common Council, a cannon was mounted at the same place in 1757. (Stokes, Vol. 4: p. 692)

It was of course, vital for this research to determine whether or not Dominies' Hook was in the project area, but this has been a difficult task because of conflicting evidence. After exhaustive research, it is concluded that Stokes erred when he placed Dominies' Hook (and, specifically when he was referring to the battery) between Chambers Street and Warren Street. Stokes, Vol. 3: p. 965) Several factors support this conclusion. For one, no map was located showing a land projection at that spot. (Stokes may well have been referencing the southwest extreme of the Dominies' Bouwery, discussed above, which corresponds to the westward bulge of the shoreline.) Another scholar, J. H. French, located Dominies' Hook somewhere between Canal Street and Duane Street (French, 1860: p. 419) The New York City Topographic Bureau's MAP OF STREET OPENING AND CLOSINGS, shows it between Greenwich Street and Hudson Street at the end of North Moore Street.

The specific location of Dominies' Hook appears to be between sites 5B, 5C, and 1 according to Figure 8, so as to take advantage, for defense purposes, of the projection into the river. The possibility does exist that the battery did lie within or just to the east of site 1. The MINUTES OF THE COMMON COUNCIL for January 30, 1805 record the passing of an ordinance to "remove wooden bastions at Rhinelanders' wharf. . .and appropriate the same for fuel for the use of the poor. Also to cause the superfluous earth where the said bastions are erected to be removed and disposed of for the use of said poor." The removal of the battery and surrounding earthworks virtually destroyed any remaining archaeological evidence.

Circa 1735 a tavern, Sherman's Mead House (?), was located on or near the present Greenwich Street where it intersects with Warren or Chambers Street. This information is recorded on a PLAN OF THE CITY OF NEW YORK IN THE YEAR 1735 which also notes Bowling Green, a tavern known to have existed adjacent to the project site 5C.

Another series of defense structures - entrenchments - are depicted in Ratzler's 1767 map series. They were placed along the western edge of Greenwich Street from Murray Street northward past Duane Street to the previously discussed battery - which Ratzler shows as having six, not eight, embrasures. (See Fig. 9, 10, 11) The city fathers probably ordered these defense measures in reaction to the Stamp (1765) Riot.

Since a major portion of Sites 1, 5B and 5C were originally underwater, it is important to trace the early transactions which promoted landfill and led eventually to the creation of the land mass present today. As stated above, the project area was part of what was originally Dutch property which was transferred to the English crown and thence to Trinity Church in 1705. (See Fig. 12, 13) The Dongan Charter of 1686 allowed the city to sell water lots to low water mark (Luke, 1953: p. 10), so the church eventually acquired the rights to the water lots fronting their land lots. According to the GRANTS OF LAND UNDER WATER located in the New York City Topographic Bureau, Trinity Church was given the underwater rights with the proviso that any sub-division of the property would entail the creation of two streets at high and low water marks (Greenwich and Washington, respectively) and a third (West) to the west and running parallel to them. (MINUTES OF THE COMMON COUNCIL, Vol. 5: pp. 330-331; See Appendix 1)

Although labeled "unaccepted", the Trinity Church Archives contain a plan to fill the water lots bounded by

Greenwich, Warren, Washington and Murray and west of William Dean's property. This plan must be before Abraham Wilson's 1790-1793 actions in filling the lots just to the north within site 5C since the plan indicates its initiation of the filling process in the area. An undated, unsigned schematic in the same Water Lots file at the Archives, shows the wharves, basin, and projected lots in site 5B before the 1790-1793 Wilson expansion. (Trinity Archives, Water Lots File, 1703+; See Fig. 15)

The earliest cartographically depicted structure on the property of the project sites was the Bowling Green shown on a c. 1730 map. (See Fig. 8) If there were any previous structures, church records of them were lost in the great fire of 1776 according to Phyllis Barr, the Trinity Church archivist. There is spotty real estate activity on the project sites prior to 1773, but the pace quickened considerably thereafter as the church sold off parcels such as the large piece to Columbia College just south of site 5B. (See Fig. 8, 14)

As noted earlier, Greenwich had been proposed in 1729, but it was not until 1784 that it was regulated and opened as shown on the STREET OPENINGS AND CLOSINGS MAP. The same map notes an ordinance passed in 1802 for the filling of Washington Street from Hudson Market to Warren Street (Washington Street had been completed as far north as Hubert Street as shown on the Taylor-Roberts Map of 1797, reproduced in Fig. 16.) West Street was proposed in 1794 (Stokes, Vol. 4: p. 1310) and "surveyed and laid out and the city bounded and limited on the Hudson River" in 1796. (Blunt, 1828: p. 77) It was not formally opened until 1828 (STREET OPENINGS AND CLOSINGS MAP, NYC Topographic Bureau), though Stokes thinks West Street existed in at least poor condition by 1800. (Stokes, Vol. 4: p. 1310) The Taylor-Roberts Map of 1797 does not show it (Fig. 16, 17, 18). The Goerck-Mangin of 1800 and the Commissioners' Plan of 1811 show it as it is proposed. West Street was opened as far north as Duane Street as early as 1817 (Stokes, Vol. 1: p. 456) but was probably not opened between Duane Street and Charlton Street before the official 1828 opening. Sites 5B and 5C would, therefore, have been bounded to the west by a passable West Street as early as 1817 while West Street near site 1 was not opened until 1828.

Manhattan's earliest extant tax assessment rolls are for 1794, and in that year, an Abraham Wilson or Willson is listed as owning property somewhere on Warren Street. He had been sold sixteen lots at "Vauxhall" (discussed below) in perpetual lease by Trinity Church in 1789. (Stokes, Vol. 5: p. 727) These lots were bounded by Greenwich, Chambers,

West Broadway and Warren and Wilson was operating a pottery on that parcel by 1793. Wilson purchased, in 1793, the eastern half of block 138 bounded by Chambers, Greenwich, Warren, and Washington Streets, although it was land under water at the time. (Liber 49, pages 145-174) (The current designation of block 142 for project sites 5B and 5C does lead to a lack of definition for the purposes of this study and, therefore, the old block designation numbers -131, 138 - will be retained.)

In 1794 William Denning bought the eastern half of block 131 from Trinity. (Under water at the time, but to be bounded by Warren, Greenwich, Murray, and Washington.) The Trinity Church resolved to widen Warren Street and other streets to the north within the church estate in March of 1791. (Stokes, Vol. 5: p. 1278) The area is shown as almost filled as far as Washington Street on the 1796 Taylor-Robert map (Fig. 16); and an 1808 War Map (See fig. 19) shows the blocks partially filled. Although actual real estate building may not have begun, the tax rolls of 1808 indicate that development had taken place all the way to Washington Street. William Denning and others presented a case to the Common Council against paving Warren Street from Greenwich Street to the water in 1798 (File 6415). Henry Ten Broek received six lots for 2,245 pounds from the Trinity Church in early 1795. (Archives, Box 1) Tenbroek's dock is shown at the foot of Chambers on the Taylor-Roberts map. Dean's Dock is shown at the bottom of Murray Street on the Longworth map of 1804 (Rutsch, 1983: plate 68), and by 1808 William Denning seems to own it according to the tax records. (See Appendix 2) Although it is impossible to tell for sure, a map done by Louis A. Risse in 1800 may show some piers extending from the Washington Street area. On July 12, 1804, the Trinity Church resolved to grant the Corporation of the City "right and title to Murray, Warren, Chambers, Reade, Church, and Chappel Streets, as the same are now open and in public use." (Stokes, Vol. 5: p. 1425)

The Minutes of the Common Council include an ordinance for the regulation and pavement of Murray Street from Greenwich to the west side of Washington Street in 1803. (MCC: July 25, 1803) Warren Street was definitely extended from Washington westward and Murray may have been so extended as indicated by the 1825 tax rolls. George Clinton (former Governor of New York) purchased the western half of block 131 in 1811. He was to erect a "good, sufficient and firm wharf" on the north and south ends of the property, leaving a street of 70 feet in breadth on the westerly line of the property (West Street). (Grants of Land Under Water, Liber F, Vol. 1, p. 78) In 1818 this area is

referred to: "The late Gov. Clinton had spent about ten years ago, \$20,000 to make a dock at the foot of Murray and Warren Streets, the corporation now calls again upon his heirs, to rebuild and extend the same dock, entirely rotten." (Genet, 1818, n.p.) Most of the property in the western half of block 138, was acquired by George Janeway early in its development. The western edge is shown as a bulkhead on the 1839 tax rolls.

North Moore, Beach and Hubert Streets were laid out as early as 1797 as far west as Washington Street (See Fig. 16) but did not come into existence until a few years later. The Record of Assessments for 1795 have no listings for the streets in site 1. The land bounded by Hubert and North Moore Streets and lying west of Greenwich Street was ceded to the city in 1802 by the Trinity Corporation. In 1804, Alexander Campbell and Joseph Newton each purchased a lot from the Corporation of New York City in perpetual lease (Liber E, Vol 1: pp. 204-206, Vol. 2: pp. 213-215) and in 1809 John B. Murray and William Ogden completed the purchase of the block bounded by Hubert, Beach, West Streets and the high water line. William Rhinelander Jr. and John McKie, in 1806 and 1807, purchased lots in the block bounded by Beach, North Moore, West Streets and the high water line in perpetual lease. (Liber E: Vol. 2: 284-288 and Liber F: Vol. 1: p. 7, See Fig. 20) These leases from the city state that each is for:

all that certain water lot vacant ground or soil underwater to be made land and gained out of the north or hudson's river situate lying and being on the west side of Greenwich Street between high watermark and a certain new street of seventy feet in breadth laid out or intended to be laid out and fronting on the said north river called West Street... Excepting and reserving so much and such part of the said lands as will be necessary to be taken for the intersection of a certain street of sixty feet in width called Washington Street... (Liber E: Vol. 1: p. 204, Vol. 2: p. 213, 284, 364, Liber F: Vol. 1: p. 7)

The Record of Assessments for the Fifth Ward in 1808 indicates that North Moore, Beach and Hubert Streets were now at least partially settled. The records, however, are unclear as to the exact location of buildings on these streets but we believe that all three streets extended as far west as Washington Street and possibly farther. The listings pertaining to Hubert Street give no indication of which side of the street is being referred to, so we can only assume that at least some of the people listed owned property within site 1. (See Appendix 3) By 1815 the assessor lists indicate that North Moore, Beach and Hubert extended all the way to West Street. Washington Street seems to be complete and although West Street is not listed separately, it appears that enough lots extend back from Washington Street through the block to indicate that West Street must have been present in some form. It may still only have been in planned form. (See Appendix 3)

The filling in and building up of sites 1, 5B and 5C was done piecemeal by various individuals over a period of about thirty-five years. How the fill was accomplished and of what it consisted are the next questions to consider. In 1983, Joan Geismar wrote about a similar, though earlier, situation in lower Manhattan "although there are no detailed or specific accounts of the landfilling techniques used suggestions are available in the historical documentation to alert archaeologists to what may be found". (Geismar, 1983: p. 676)

The placement of fill in the process of making land in the sites was episodic. The bluff which ran along the shore---line west of Greenwich, as shown on early maps, may have been the first of these episodes. William A. Duer's remembrances of the early nineteenth century tells of when the "ridge commencing near the Battery and extending the length of the island, had not been dug through". (Stokes, Vol. 5: p. 1150) Old earthwork defense positions, as recorded by Ratzler, would have been destroyed during street regulation or reclaimed by the river. The next episode may have seen the waterfront as the recipient of waste from the neighborhood (see the following discussions under Pottery and Tavern) in a kind of ad hoc procedure (as opposed to using the regular, regulated, and deliberate use of refuse for landfill). To aid landfill, natural silting may have gone undredged both before and during land filling.

All along the Hudson River shore in this area, the processes of landmaking, street regulating, and waterfront development progressed simultaneously. Evidence of these activities appears in the written record. So that excess water would drain off and not stagnant, streets leading to the river had to have a certain slope as legislated by the Common Council. This was done after the streets were laid out, but before they were paved. For example, in 1803, the Common Council ordered that North Moore, Beach and Hubert Streets be "filled up" on the west side of Greenwich Street. (MCC, Vol. 3: 319) Sometimes the dirt extracted from streets was used to fill vacant, low-lying or water-lots or "to raise the ground of some streets, to level some others". (Stokes, Vol. 5: p. 1328) The Common Council Minutes contain an estimate to "dig out Warren Street" in March of 1793. During the same period of time, the Minutes refer to the filling in of Washington Street.

Owners had to fill land and build streets and wharves or bulkheads according to the proviso attached to their water lot grants. (Buttonweiser, 1983: p.18) As the city and its commerce increased ever more rapidly and the acknowledgement of the health hazards of stagnant water became more prevalent, the city officials apparently placed ever more stringent constraints upon the creation of land. In 1691 the Common Council required waterfront property owners to use the river mud fronting their land, 20 feet into the Dock, for filling "their owne Lotts." (MCC: Dec. 1691, Vol. 1: p. 259) In 1731 the Corporation (City) allowed Mr. Chambers five years to fill his property 250 feet into the Hudson River and to "wharfe" out 220 feet from high

water mark (MCC, Vol. 4: p. 64). Common Council Minutes of the nineteenth century indicate the reduction of time allowances for filling and the construction of wharves and docks plus tighter control of the quality of fill material. (MCC: Vol. 10: p. 328) Rather stringent time constraints were placed on owners for the accomplishment of these tasks. The VanZandt estate, on June 7, 1817, made a request for more time to build a bulkhead between Warren and Chambers while M.B. Talmadge made one for Murray and Warren. (MCC, Vol. 9: p. 191) Apparently, the owner could hire a professional to do the building or filling for him, as illustrated by a petition for a contract filed by Higgins and Parks in 1817. (MCC, Vol. 9: p. 154) Although expensive, dredged material was occasionally used for fill. (Gerard, 1872: p. 188).

A significant form of employment during the early nineteenth century and one of the most important contributors of landfill was the carting of material from one place to another. Many laws are on the books which pertain to this business. A modest fee was paid to the city by the cartmen for the privilege of dumping their loads at certain designated locations, during times when there was a great deal of waste materials to be carted away. The cartmen were paid by the city when debris was scarce or the city needed fill for some reason. (Buttenweiser, 1983: p. 36) Every type of material, from building debris to offal, was discarded.

In 1803 the place selected as "a proper place for depositing occasionally the Street dirt" is "near the Battery on the North River in the rear of Mr. Rhinelander's House," this being "a large unoccupied space, contiguous to the River, and at a considerable distance from any dwelling houses." (Stokes, Vol. 5: 1926) Although there were complaints over the offensive city dump, the Common Council retained the dump location as a depository for manure in 1806 when the Corporation property at Rhinelander's Wharf (near the location of the dismantled battery) was divided into lots. (MCC, Vol. 4: p. 171) Although one researcher (Buttenweiser) has placed this 1803 dump site at Park Place (south of sites 5B and 5C), where Mr. Rhinelander had a wharf and basin, we believe the dump was located at Mr. Rhinelander's Dock (1797), between Harrison and Jay Streets at Washington Street, which was near the 1743 block house/battery and south of site 1. (Stokes, Vol. 3: p. 991; MCC, Vol. 2: p. 157; See Fig. 2) William Rhinelander did own property in the southern one-quarter of site 1 but none of his lots are listed as docks or wharves.

Confusion and busy activity accompanied all this land making/earth moving and the Common Council ordinances reflect this. In 1813, the Common Council accepted a plan to tear down a government building, filling in "that part of the ground

at present bare at low water mark" with "ground, rubbish and stone" from the demolished building. (Stokes; Vol. 5: p. 1563) The Common Council, in 1808, upbraided "proprietors of certain lots moving earth from streets to vacant lots" which is against regulations (MCC, Vol. 5: p. 305). The use of earth from streets to fill in water lots was condemned by the Street Commission twice in 1825 (Common Council Papers, April 11, 1825). Landfilling was accomplished as quickly and cheaply as possible by owners.

The process of landfilling was greatly influenced by neighborhood landowners and tenants and the following two subsections deal with this issue. The ownership and business on one such property will be detailed and the resulting consequences in relation to the landfilling of sites 5B and 5C will be discussed.

Tavern

A tabern and garden called the Bowling Green was the earliest landmark in the vicinity of the Washington Street Urban Renewal Area. (See Fig. 21) This was in existence at least by 1735, and was considered "far away in the country". (Janvier, 1894: p. 258) When the house on the Trinity Church farm burned to the ground in 1738, it was referred to as the "old" Bowling Green. (The term "old" may have been used to differentiate this place from the Bowling Green near the Battery.) In 1759, the tavern was called Mount Pleasant and run by John Marshall. Although "the militia company of grenadiers met here to celebrate the king's birthday, when they roasted an ox and ate and drank loyally" (Stokes quoting from the NEW YORK POST-BOY for November 10, 1759), the place was for sale in 1762. When John Elkin became the tavern-keeper, it became the Spring Gardens. In 1764, it was taken over by Samuel Frauncis (Francis) and called Vauxhall. According to the Trinity Church Archives, Samuel Frauncis leased the entire block bounded westerly by the new Greenwich Road on December 5, 1769. (Box 2) By 1765, it was the residence of a Major James. His support of the Stamp Act so enraged the populace that they destroyed his belongings and possibly wrecked the house. Frauncis was again in the tavern by 1768 and remained there until 1774 when the property passed to Erasmus Williams who renamed it Mout Pleasant. (Stokes, Vol. 4: p. 556) A second Vauxhall, established around 1800, was mentioned by W. Harrison Bayles in 1915. "... the first, at the corner of Warren and Greenwich Streets, which before the war flourished under the management of Sam Francis, having been converted, some years previous, into a pottery." (Bayles, 1915: p. 218)

Bowling Green or Vauxhall, during part of its existence, included gardens which are often mentioned in the literature. It is referred to in French's GAZETEER, in the section on Public Houses, c. 1770-85, as a garden at "the foot of Warren Street reaching to Chambers Street". (French, 1860: p. 759) The gardens were as important, if not more so, than the structure according to Stokes and the early maps. Francis's land leased from the Trinity Church Farm was large (bounded by Greenwich, Chambers, Chapel, and Warren Streets). (Stokes, Vol. 4: p. 793) The parcel was on the waterfront since the Trinity Church, in 1771, appointed a committee to "secure the Bank before Samuel Francis's House." (Stokes, Vol. 4, p. 820) (See Fig. 22). Janvier, in 1898, wrote that the tavern was "sunk to the level of a low groggery in what then was the shabbiest part of the town". (Janvier, 1894: p. 258) He also writes that the garden was sold for building lots. Janvier must have been referring to a period somewhere between 1774 and about 1789.

A public facility of some type, existed near the Washington Street Urban Renewal Area sites 5B and 5C for over fifty years.

The majority of the project land, being under water until after the demise of the tavern, precludes the possibility of the tavern having been on the site itself. It was so close in proximity though, that some of the refuse might have made its way across Greenwich Street, to the site, since 'over the bank' is a convenient dumping place. The Landmarks Preservation Commission Pilot Study points out that such sites are likely to have a large quantity of artifacts and are valuable sites for their sensitivity to dating techniques and comparison studies. (Baugher-Perlin, et.al., 1981: pp. 36-37)

Pottery

Potteries are also discussed in the Pilot Study prepared for the Landmarks Preservation Commission in 1982. Potteries are included in the category of "structures or areas of activities that would be archaeologically distinct and visible and that would provide information about urban development". (Baugher-Perlin, et.al., 1982: p. 6) Two secondary sources have references to Wilson and his business. In EARLY POTTERS AND POTTERIES OF NEW YORK STATE, William Ketchum writes that:

Another early manufactory of earthenware products was established in 1789 by Abraham Wilson. Stokes' ICONOGRAPHY OF MANHATTAN ISLAND, (Vol. 5) notes the sale to Wilson (who appears to have been a merchant, not a potter) of sixteen lots at Vauxhall, an area at the western end of Warren Street near the Hudson River. The seller, Trinity Church, also leased certain other lots in the area (which is now bounded by Greenwich, Chambers, Warren and West Broadway) to the new proprietor. The date of these transactions was July 1, 1789.

One Cornelius Bogardus had a clay pit on Thomas Street near the Hudson, and it may have been Wilson's intention to use this soil in the making of fine quality earthenware, because he appears in the 1790 New York directory as the operator of a "Queens Ware Manufactory" at Vauxhall. This is not certain, however, since the term "Queens Ware" was often used to denote any earthenware rather than just a better grade.

The proprietor's efforts in this area did not prove fruitful. On April 21, 1790, he petitioned the Church to relinquish its lease on the lots where the potter's shop stood in order that he might obtain a grant of money then being offered by the state legislature to encourage domestic production of earthenware. The Church assented to the request, though with some qualification, but the making of the Queensware did not go forward. The 1791 directory indicated that Wilson was now making stoneware.

The following year there was a new owner, Thomas Oakes, who began the making of brown earthen-

ware (probably redware glazed with dark brown Albany slip) which he publicized in THE NEW YORK DAILY ADVERTISER on at least two occasions: April 21, 1794, and January 17, 1798. Oakes operated the factory at 90 Warren Street, then known as the Vauxhall Pottery, until 1801, when he went into the business of glass and china merchandising. During the period 1792-96 Abraham Wilson Jr., son of the former owner, was associated in the running of the kiln, probably as an employee.

In the year 1796 this same factory was used by Thomas Eldridge for a brief venture in stone-ware making. His project did not last twelve months. (Ketchum, 1967: pp. 33-34)

Rita Gottesman in THE ARTS AND CRAFTS IN NEW YORK quotes the two advertisements mentioned by Ketchum (though he erred on one date):

Vauxhall Pottery.— Thomas Oakes. Begs leave to inform the public, that he has purchased the paint works erected on part of his concerns at the Pottery Vauxhall by Mr. Davenport, where he shall at all times have for sale ground white lead, Spanish brown, yellow ochre, verdegrease, prussian blue and patent yellow, of the first quality and on the lowest terms. Orders received at the works, or by Wood and Dawson 44 front street, who will always have a constant supply of the same on hand, for sale either wholesale or retail. Merchants shipping paints to the Southward or the West Indies, can be supplied with any quantity of the above in suitable packages.

The Pottery works carried on in the same extensive manner as usual.

NEW YORK DAILY ADVERTISER,
July 17, 1789.

Vaux-Hall Pottery, Thos. Oakes, acquaints his customers and the public, that he continues his manufactory of brown earthen ware at Vaux-Hall, the lower end of Warren Street, where general assortment are always kept. A decided preference still holds to his ware, and hopes by every exertion to merit the approbation of his generous fellow citizens. Chymists, sugar bakers, refiners

and all others, that may want any thing made out of common way, may be supplied at his manufactory, upon as low terms as upon the continent, country traders would do well to apply here.

Goods shipped and delivered in any part of the city free of expence. (sic) NEW YORK DAILY ADVERTISER, April 21, 1794.

The City Directories confirmed that in 1790 Wilson first appears as owning a Queen's ware manufactory at Vauxhall. Thomas Oakes is listed as the potter there in 1792, with James Wilson and Abraham Jr. listed as inhabitants of the place. The pottery, at 90 Warren Street, is numbered for the first time in the 1794 directory. Thomas Eldridge joined Oakes and Wilson, Jr. in 1796, while James Wilson is listed as a sea captain. Eldridge and James are never mentioned again and 1798 is the last record of Oakes at that address. The 1812 city directory used street instead of name listings. There is no 90 Warren Street, however a widow Oakes resides at 87 Warren Street.

Abraham Wilson is listed as the owner of several plots somewhere on Warren Street in the earliest tax records (1789 and 1791). He is listed as owner of a pottery on Warren Street (no street number given) in the next two sets of tax records (1794 and 1795). Thomas Oakes is in residence at this location. All evidence points to the conclusion that the pottery was located on the east side of Greenwich Street and presumably not even on the corner, but further eastward; the location of Vauxhall in its earlier forms as discussed previously; the specific reference that prior to 1798 one of the Vauxhall taverns had been converted "into a pottery" (Bayles, 1915: p. 400); no listings for Washington Street appear on tax listings for 1794 and 1795; a July 29, 1794 property transaction describes the sale by Abraham Wilson to John Rogers of a piece of land "commonly known by the name Voxhall" which was bounded to the south by Warren Street, westerly by a lot owned by John Adam, north by five lots belonging to Robert Valentine, Uzal Tuttle, John King, Thomas Whitchurch, and Samuel Durgee, and easterly by church property (Liber 50, pp. 256-268); 90 Warren Street is not shown on 1808 tax rolls, although 93 Warren Street is shown and there is one other unnumbered lot between it and the east side of Greenwich Street; and number 90 Warren Street have been located, through time, on the north side of Warren, a few lots east of Greenwich Street. Today there is a vacant lot located four doors from the corner which should be 90 Warren Street.

Corollary facts from the record should be noted although the pottery did not exist on the 5B and 5C sites. Wilson purchased property to the west of Vauxhall while he owned the pottery. The transactions are between the Protestant Episcopal Church and Abraham Wilson (merchant); (1) in 1789 Abraham Wilson (owner of 16 contiguous lots bounded by Greenwich, Chambers, Warren and Church property) received a perpetual lease from the rector for property west of Greenwich Street and extending into the river 150 feet on the condition that he complete a good and substantial dock or wharf across the breadth of the new land by December 1, 1790 (Archives, Box 2, File 36) and (2) Wilson purchased, on July 31, 1793, lots 1 to 43 bounded easterly by Greenwich Street, southerly by Warren Street (a continuation), northerly by a continuation of Chambers and extending westerly into the Hudson River 200 feet from low water mark. Owners of water lots, as discussed above, were required to fill them in by a certain time. Wilson made a petition requesting that a bulkhead be built at Warren Street so that he could proceed with his plans for opening and extending Greenwich Street. (Original petition at the Municipal Archives)

That your petitioner anctions (sic) to carry into execution the plan of opening and extending Greenwich Street which is at present obstructed by a high fall of water at the bottom of Warren Street. Your petitioner conceives that running a bulkhead across the slip at low water mark will greatly contribute to the [same?]. He therefore prays that you will take the same into your consideration and if what he proposes meets with your approbation that you will pledge to order the same to be done. He has a number of docklogs which will [answer?] the purpose which he will deliver to your order at the cost that is 6 shillings

[??] Will also give a helping hand in filling up the same and as in duty bound will ever Pray.

Abraham Willson

New York March 17th 1790

We the subscribers are of opinion that the above petition is reasonable and highly necessary.
 Fred^k Rhinelanders Wm Denning

(Dates on documents often differ from when they were filed, approved or put into effect, so the discrepancy in the dates above should not be viewed too seriously). Wilson certainly could have used wasters from his pottery as landfill, especially since this would have been cheap and readily accessible fill. The LPC Pilot Study points out that "potteries in particular would leave the durable by-products of the firing process: broken sherds, kiln wasters, kiln furniture, saggars, vitreous brick, ash piles, salts. Dump deposits may be the best way to study the question of what types of wares were made locally. Trace analysis can pinpoint chemical features linking clay vessels to clay sources." (Baugher-Perlin, et.al., 1982:p. 32)

In 1794, William Denning (who signed Wilson's petition regarding the bulkhead in Warren Street) is listed on tax rolls as owning a distillery (valued at \$1000) at the foot of Murray at Greenwich Street. In 1808, he is listed as owning corner lots on Warren and Washington which are still being filled and as owner of a "dock and bason". The boundaries of his property are described as west of Greenwich Street and between Warren and Murray, bounded easterly by Greenwich, south by Murray, north by Warren and west by land belonging to the mayor and the city, in the records of his transaction of January 15, 1800 with the Trinity Church. (Liber 57, p. 317)

There are clues, but no conclusive evidence, of the technology used to retain fill. Ralph Solecki, while doing salvage work on the Tyger, a seventeenth century Dutch ship, whose partial remains were found on the site of the World Trade Center, noticed very large, rough-hewn timbers in the ground which may have been used as cribbing to hold fill (Solecki, personal communication, 1983). Obsolete piers, wharves, docks, and other harbor structures were present as the waterfront moved outward. They would have been convenient retaining devices and would explain the presence of wood in the many borings done in the area. Although very slow, casual, and non-technical, allowing river silt to deliberately accumulate would have been one way of depositing fill.

One of the research questions for this study was the evaluation of the possibility of a sailing craft having been sunk, either accidentally or intentionally, and then used as a repository for fill. Certainly, dealing with sunken ships was a problem indigenous to the island. All references, in the Minutes of the Common Council, were read that referred to "sunken hulks." The first such reference is for June 1784 when a petition was made to remove an old hulk from Beekman's Slip. In July 1784 it is "ordered that Alderman and Assistants in their respective Wards enquire (sic) into the State of the Slips with respect to any Old Hulks or other Incumbrance." (MCC, Vol. 1: p. 60) This certainly indicates the chronic nature of the problem.

A proposal of "Ebenezer Markham for removing certain hulks from Coenties and Other docks presented to the Board" is made on July 13, 1785. On August 17, 1785 the Council directs the "removing the wrecks at Coenties Wharf", but by August 26, they cancel the order as it has become too expensive to continue. This significant entry implies that due to the expense of removing sunken crafts, some may have been left in place.

Two payments are recorded for 1785, in September and December, for the removal of old hulks; one to Jeremiah Wool of the "Committee for removing old hulks" and one to involve raisings at the "Albany pear and the Dock at the North River Viz." (MCC, Vol. 1: p. 190) Beekman's Slip, Coenties Pier, Albany Pier, White Hall Slip, and Albany Basin all have references pertaining to hulks within them for the period between May 1787 and November 1790. A "sunken vessel" lying near Corlears Hook is mentioned in 1804. In July of 1809 there is a petition recorded that asks for removal procedures to deal with sunken vessels of unknown ownership. "A law respecting Vessels sunk in Public Slips was read and ordered to pass" a few weeks later. (MCC, Vol. 5: p. 616)

References to wrecks are found in 1812 to basins at Spring Street, and at the ends of Canal Street and White Hall Ferry. In 1815, the New Albany Basin had a dismantled sloop lying in it, and in 1816, there was a petition by an individual to be paid for "weighing" a sunken ship. Individuals attempting to use the Spring Street Basin and the Grand Street Slip were inconvenienced by sunken hulks in 1817 and 1818. Attempts to solve this problem were being made since Messrs. West and Bloome requested to be paid for removing a hulk from a public slip, but the specific slip is not recorded. In 1824, Silas Southworth asks to be "relieved from a fine incurred by encumbering one of the public slips with the hulk of a vessel" he had bought for firewood, but which the weather had prevented him from dismantling. (MCC, Vol. 8: p. 790) One can't help but sympathize with Southworth's dilemma.

Between 1817 and 1828, entries pertinent to our sites appear. The wharf at the foot of Chambers Street had a sunken craft at the side of it and on December 3, 1827, the river captains requested its removal. Jacob P. Dean and Isaac Batterson want to be paid \$400 for raising the vessel in April of 1828. The vessel must still be there in October when the Council resolves to remove it "with as little delay as the nature of the case will admit." (MCC, Vol. 17: p. 413) J. Huntoon is finally to be paid for removing it in November, eleven months having elapsed since the vessel was first mentioned. A vessel loaded with bricks was sunk at the same place during the same time period. A log from the Corporation Pier (at the foot of Warren Street) was named as the cause of the sinking of Stephen Miller's ship in 1828. He petitioned for the resulting damages. (MCC, Vol. 17: p. 688) In 1829 there is an entry referring to the "Vessels" sunk at the foot of North Moore Street. In 1830 the owners of the sloop Maria Ann are warned that the ship will be sold at auction if they do not pay the cost of raising her from where she sunk in the basin at the foot of Jay Street. This is the last Minutes of the Common Council reference to sunken vessels or hulks. Because West Street had been opened, but not fully developed by 1818, the time period, the late eighteenth and early nineteenth centuries, in question has been covered.

The record of the period from 1776 to 1784 is unknown because there are no Minutes of the Common Council for these years. The Committee on Wharves and Pier data, found at the Municipal Archives in Common Council Documents file boxes, were also examined. Ships used for retaining fill may not have been mentioned in the records, even if there were more complete records available. There are two known examples on the east side of Manhattan where this technique was used but not recorded in the literature, 175 Water Street and 207-209 Water Street.

When a utility trench was opened at the intersection of West and Warren Streets, Madig Kachian, a resident of 179 West

Street for twenty-two years and a sculptor/art teacher, recovered large pieces of teak. If the recovered timbers were really teak (now part of art pieces), we can speculate that some form of ship was, or still is, located under the street at this intersection.



POST-LANDFILL USE

As made land pushed outward from Greenwich Street to West Street, the waterfront structures were continually replaced. Although this process began in the late eighteenth century, its pace was slow and sporadic into the second decade of the nineteenth century. Stokes describes this area as it would have appeared on May 25, 1789. The residents and property owners on Murray Street entered a complaint that "this street has never been paved, that it is hills and vallies, that in rainy weather parts of it are over the shoes in mud, that the lower part is washed into such hollows that it is not passable with carts and dangerous for foot passengers after dark, that other parts of the street is higher than their lower floors.... it may be absolutely necessary that a small bulkhead should be built across the Slip to prevent the entire breaking up of the street". The Common Council, postponing "until the continuation of Greenwich Street be compleated", did direct that a bulkhead be built at the bottom of the street. They agreed, on July 9, 1789, to fill up part of the slip and to build a bulkhead. (Stokes, Vol. 4: p. 1248)

The Hudson shorefront was practically untouched in 1800 because, according to Myron Luke, it was "less satisfactory for wharfage facilities than the East River due to the possibility of freezing as well as the danger to wooden hulls from ice drifting downstream". (Luke, 1953: p. 10) "Another deterrent to the expansion of the lower west side of Manhattan into the river was the depth of the water, which in places touched hard rock at forty feet necessitating complicated and expensive filling procedures". (Buttenweiser, 1983: p. 24)

Erection of structures did not usually occur immediately after the land was made. On June 24, 1791, for example, the Common Council ordered that vacant lots along Murray Street be fenced and on March 17, 1828 the same order was repeated for Hubert Street. (MCC, Vol. 1: p. 650 and Vol. 17: p. 49) In 1808, the tax assessment rolls attest to the fact that many lots were still unimproved. It is interesting to note how many boarders are listed for the houses that do exist. (See Appendix 2)

In 1807, Fulton's invention of the steamboat gave impetus to waterfront development but the Washington Street Urban Renewal Area lagged far behind. Leo Hershkowitz noted in 1981 in his documentary study that "It seemed, by 1818, the only distinguishing feature of the Murray Street area was the ferry at the foot of the street.... The census of 1816 contains no mention of West Street at all in the third ward [sites 5B

and seldom for the Fifth Ward, site 1]. Murraray Street in the same census shows no listing for anything beyond lower Greenwich Street while Washington Street lists intermittent houses and lots only on its western side ... very few occupancies in the third ward on the eastern side of Washington". (Hershkowitz, 1981: pp. 6-7) In 1816, the Common Council was petitioned for use of the bridge constructed by the United States at the foot of Hubert Street as a public pier or wharf, the area lacking any others. (This refers to the Red Fort lying west of site 1, as seen on Viele, 1874 and The Commissioner's Map, 1807, Figures 23 and 18) (MCC, November 18, 1816) The Common Council in 1818, received a complaint that "the present landing place of the Ferry of this side of the River is at the foot of Murray Street, a situation too remote from the Market ... and is moreover destitute of every convenience for landing having neither Piers, Floats, nor Bridge". (MCC, June 8, 1818)

A few bolocks east of the waterfront must have been significantly different. Barclay, Murray and Warren Streets are described in Blunt's guidebook of 1817 as being among the "pleasantest streets for the residence of private and genteel families". (Blunt, 1817: p. 1460) A view of Murray Street, in 1822, from Henry Brown's OLD NEW YORK, shows "when it sloped to the river and was the abode of many of New York's best families". (Brown, 1913: p. 300)

Greenwich Street was a "place of considerable retail trade" in 1818. (Blunt, 1818: p. 37) Ward 3, sites 5B and 5C, 1825 tax assessment rolls show that this is spreading westward toward West Street. West Street now has a number of grocery soores while Washington Street also has a number of unspecified stores and at least one stable. Both streets are still sparsely developed. On Murray Street a pumpmaker worked and a tailor and carpenter had shops on Warren Street. A watchmaker, chairmaker, and silk merchant had shops on the west side of Greenwich Street. "Directories of the period seem to indicate that shopkeepers lived in the same structure or close by". (Luke, 1953: p. 33) There are obviously a number of boarders in the neighborhood, but not as large a percentage as in 1808. The 1825 tax assessment rolls for Ward 5, site 1, unfortunately, do not indicate occupations for residents, but like site 5B and 5C, the number of boarders has decreased over time. (See Appendix 3)

The EWEN WATERFRONT MAPS from 1827-1830 show site 1 divided into individual lots. The only business listed is the West Point Foundry Association which owned lots in the eastern sections of Blocks 186 and 216 (See Figures 3 and 24). The West Point Foundry was present on Beach Street as early as April 15, 1818; with the first American built locomotive built there in the same year. (Stokes, Vol. 6: p.668)

check

In 1825, the Erie Canal opened and coal fueled steamboats soon began regular runs on the Hudson River. Changing land uses and times are reflected in 1839 tax assessment rolls for sites 5B and 5C. Coal yards now occupy the western part of

block 138 and most of block 131. West Street is now developed with buildings all along it, although three still have bulkheads. Greenwich Street still has many merchants, especially grocers, along it.

By 1840 the Hudson River had 53 wharves but was still far behind the East River in maritime business. Albion's research of a normal spring day in 1836 shows 921 vessels tied up along the East River and only 320 vessels tied up along the Hudson River. The latter total make up chiefly of little schooners and sloops. Of the square-rigged ships and brigs, the aristocrats of the sea lanes, 305 were moored in the East River and only 39 in the Hudson River. (Albion, 1961: p. 221)

The William Perris Land Use Atlas indicates that the commercialization/urbanization has progressed even further by 1852. Twenty small lots with second and third class brick or stone buildings almost completely cover the eastern section of block 138. Some of these buildings have associated stores underneath but none are named. An alley of about nine feet in width that extends from Chambers to Warren Street about half way in from Greenwich, is about the only vacant space in this block. The Union Coal Yard is shown as occupying the northeast one-third of block 138. Facing Washington and backing into the Union Coal Yard is a "mahogany yard", and another small coal yard is located farther down on Washington Street from Chambers Street. Like the eastern half of 138, the western half of block 131 contains about twenty lots, most with second and third class brick dwellings with stores on the ground floor. There are no completely vacant lots on either block. (Utilities, railroads, and trolley lines are not indicated for these maps). The Corporation of the City of New York owned Pier 29 at the foot of Warren Street, and Pier 30 at the foot of Chambers Street in 1855. These two are valued at \$90,000. (See Fig. 25)

In 1849, James Bogardus completed a four-story row of storehouses for Edgar H. Laing. The Laing Stores - erected in two months - was not a complete iron structure such as Bogardus and Daniel Badger fabricated later in their separate works. It was considered architecturally valuable by some critics during the 1960's because it had a historically early ironclad exterior, and was the only known complete building by Bogardus surviving until the 1960's. It stood at the northwest corner of Washington and Murray Streets but was demolished by 1972. (See Fig. 26)

The William Perris LAND USE ATLAS OF 1853 and the ATLAS OF THE FIFTH WARD OF NEW YORK CITY show an increase in commercialization/urbanization for site 1 area. (See Fig.27 and

28) Block 186 has a variety of different types of structures present, including a coal yard and an iron yard probably owned by the Delaware and Hudson Canal Company, and an iron foundry and marble works that are unnamed. Also within this area are stone or brick stores, framed and brick buildings, framed and brick or stone dwellings, framed and brick or stone dwellings with stores underneath, and some areas that were either empty or the Atlas gave only partial information. Block 216 has the same types of buildings listed on the atlas with a mahogany yard and an iron foundry, probably the West Point Iron Foundry Association, as the only identified buildings. It is interesting to note that between Greenwich and Washington Streets, on the south side of Hubert Street, the entire block is designated as eight brick or stone dwellings.

Although records of the earliest city sewer service in project sites were not located, the Bureau of Sewers street index file and the account plans/profiles do indicate, to some degree, the time and type of sewer service:

- c. 1843 The Chambers Street sewer is connected to a receiving basin (Hudson River) and the corners bordering West Street (see Fig. 29);
- 1847 The Murray Street sewer line is opened;
- 1850 The Greenwich Street sewer between Beach and Hubert is completed;
- 1854 The North Moore Street sewer is opened by 1854;
- 1855 The northeast and southeast lines at the intersection of Beach and West Streets is connected into one line running to the bulkhead;
- 1857 The Beach Street sewer between Greenwich and the bulkhead (pier #37) is enlarged to a 4'x2.8' egg line dropping 4' per 100 ft. and is only partially below the high water line at approximately 8.5 ft. below the surface (see Fig. 30);
- 1860's The Greenwich Street sewer is enlarged by segments throughout the 1860's;
The Washington Street sewer is enlarged by segments throughout the 1860's and again in the late 1890's;
- 1867 The old Washington Street connection between Hubert and Beach Streets is a 12" line;
- 1888 An elliptical line was laid under West Street (4' x 2'8") between Warren and Duane Streets

- 1890 The Washington Street line between Beach and North Moore Streets is replaced by a 2' x 3' egg resting on timbers that are approximately 12' to 12.96' below the surface;
- 1891 A 4' circular line is laid in West Street between (at a minimum) Fulton and Murray Streets;
- 1894 The Washington Street sewer between North Moore and Franklin Streets is replaced with a 2'4" x 3'6" egg resting on 4" x 4" timbers that are approximately 11' to 15' below the surface, the manholes in Washington Street are also placed on top of 4" x 4" timbers;
- 1897 The Washington Street sewer between Murray and Chambers Streets is replaced with a 2'4" x 3'6" egg resting on 4" x 4" timbers that are approximately 10 to 13' below the surface;
- 1901 The Hubert Street sewer between West and Greenwich Streets is enlarged (4' circular);
- 1929 The North Moore Street sewer is enlarged;
- n.d. The West Street sewer line between (at a minimum) Hubert and North Moore Streets measured 5' x 3'6" in diameter (See Fig. 31)

Apparently the problem of derelict, abandoned vessels still exists. 1859 and 1866 ordinances forbid anyone to "careen vessels in the slips, to encumber them with wrecks, to cast anchors in the docks, slips, wharves" (Gerard, 1972: p. 193)

At sites 5B and 5C, a second generation of three, four, and five story brick or stone buildings began, in 1860, to replace the earlier, smaller structures. This area, in the third ward, was experiencing a building boom caused by the expansion of clothing and drygoods businesses. These new buildings usually did not have residences built into them. (Spann, 1981: pp. 100-101) This transition, illustrated in a photograph taken in the early 1870s, is of the the south side of Chambers Street looking toward the Hudson River. Ship masts appear in the distance and the Pavoma Ferry Building is at the river's edge. There are three narrow two and three story buildings at the corner of Chambers and West Streets. One has large awnings overhanging the sidewalk. Two buildings, identical in appearance, have five stories with twelve windows across the front. The last building in the photograph is located at 188 and 190 Chambers Street. It is the home of Burhalter Masten and Co., wholesale grocers. At street level, for this building, there is an entrance to a lower level. Trolley tracks are shown running down Chambers and turning the corner onto West Street. (Asher, 1879: n.p.; and See Fig. 32).

The increasing industrialization of the area is also illustrated by the change in the areas surrounding site 1. Hudson Square (also called St. John's Park), west of site 1, bounded by Beach, Hubert, Hudson and Varick Streets, was in one of the most fashionable parts of the city in 1823 and was one of the finest parks in the city. (Stokes, Vol. 3: p. 609) In 1867, though, the park was destroyed to make way for a freight depot.

The increased density of the sites is illustrated by the Robinson Atlas of 1881. (Fig. 33 and 34) Only one framed structure is left on the sites and the only vacant space of any size is the nine-foot alley on sites 5B and 5C shown in 1852 and now called "Bishop's Lane". (Bishop's Lane only appears on maps after c. 1850 and no mention of it could be found in the written record.) The tracing of the 1881 atlas for sites 5B and 5C shows the development of urban utility service (e.g., water mains, sewer lines, and fire hydrants) and of public transportation (e.g., elevated railroads). The Bromley Atlas of 1899 and a Belcher Hyde Atlas of 1910, corrected in 1916 and 1917, show very little change in physical characteristics for blocks 131, 138, 186, and 216. The types of businesses housed on these blocks, light manufacturing and wholesale distributors, have also remained about the same, with only the names and owners changing.

These maps show the expansion of the utility services for the project sites. Trolley service is now listed for West, Washington, Greenwich and Chambers Streets. (See Fig. 35) There are steam collection pipes running the length of Washington and Warren Streets within sites 5B and 5C, according to a Bureau of Sewers plan of 1897. An 1894 Bureau of Sewers plan indicates that North Moore was serviced by 6" water pipes and underground gas pipes at both the north and south curbs and that the "supposed location" of electric wires on Washington Street were identical to the steam/subway route. On the Hyde atlas showing site 1, no basements were indicated. This is interesting in light of the fact that we have information from block and lot folders indicating that at least some of these buildings did have "cellars". See the section called EXISTING CONDITIONS for more details.

The maritime activity and development in this area of Manhattan came to almost a complete halt in the 1920s. Distribution centers were still maintained in the project areas by wholesale grocers, probably as an extension of the Washington Street Market located to the south. (NYPL Archives, 1024, 1018) Shopkeepers/owners were largely replaced by real estate companies, as indicated by the 1945-1946 tax assessment rolls. Most of the buildings on sites 5B and 5C were designated as loft buildings with retail stores (L8's). There were three walk-up apartments (C4's) and four miscellaneous factory or industrial buildings (F9's). Two hotels were on West Street: one on the corner of West and Chambers, called the Northwestern Hotel in 1916, and a small hotel, with granite arches and lintels, at the corner of West and Warren Streets. This southernmost hotel, the Susquehannah, was the filming site for "Requiem for a Heavyweight". (See Photograph of site 1)

An interview with Mr. W. J. O'Connor, an executive with Tetley, Inc. at 190 Franklin Street, revealed the personality and vitality of the sites 1 and 5 area during the first half of the twentieth century. Although Tetley, Inc. has only been located at the northeast corner of Greenwich and Franklin since 1949, Mr. O'Connor visited the site area a boy before working on a neighboring street prior to 1949. He recalled commuting from Jersey City to the area via the Erie Line ferry off of Chambers Street and walking through Bishop's Lane in the northeast block of site 5C. He would often take the elevated tram from the Franklin and Warren Street stations on Greenwich Street. Before World War II the Old Dominion/Eastern Steamship Line at the end of North Moore Street had passenger liners leaving Pier 25 (See photograph of Site 1) for Norfolk, Virginia several times a week; and, from the Warren Street Pier 18 and overnight liner left regularly for Boston. The entire Washington Street Urban Renewal Area was a fruit and vegetable commission market and, specifically, a tomato trading center.

Mr. O'Connor reminisced on the business schedule of the project neighborhood which began about 11:30 p.m. with the arrival of produce from the docks. The actual trading, conducted on the sidewalks under the metal, first-floor canopies, opened at approximately 2:00 a.m. and by 8:00 a.m. the area was cleaned up and closed down. Earlier in the twentieth century older commission merchants still resided above the produce stores and would use the crates and produce barrels for chairs during quiet days for neighborly conversations.

Anthony (Tony) Fasciani, service manager of Magneto Repair Corporation at 182 Franklin Street, has been working in the Washington Street Urban Renewal Area since 1938 when the area between Chambers Street and Harrison Street was the butter and egg market center for the city. (The streets just south of Chambers and east of Greenwich hosted the electric supply

market). Mr. Fasciani also recalled that a very small number of the area buildings (e.g., 184 Franklin Street) were small apartment buildings and a few residences were above the ground floor retail space. According to this informant (and validated by atlas information and photo archives) the site 1 building configuration was similar to the block he presently occupies with a small (6 to 9 foot) air space between the rears of the 4 to 6 story loft buildings. Mr. Fasciani recalled single basements similar to his present one (10 feet in depth from street level) in most of the site 1 demolished buildings. These basement cavities received the destruction debris as the buildings, stripped of their stained glass, murals, and plaster work, were ripped apart and pushed down.

In the late 1930's the West Side Express Highway extension impacted the project area by blocking easy access to the docks and wharves. (NYPL Photo Archives 1045-E3; 1046-A1) After a period of general decline, magnified by the highway extension, the City of New York, in 1961, designated blocks 131, 138, 186, and 216 as part of the Washington Street Urban Renewal Area. The STREET OPENINGS AND CLOSINGS MAP in the Topographic Bureau shows the two project sites as closed and the buildings demolished as of December 7, 1972.

EXISTING CONDITIONS

Block 216, Lot 1: Block bounded by Hubert, Beach, West and Washington Streets

This block was completely created from landfill in the late eighteenth century, early nineteenth century. It had had various structures and industries associated with it, including homes and stores of brick, stone or frame, and businesses such as iron foundries (including the West Point Foundry Association), saw mill, and mahogany yard. There was very little vacant space by the 1880's. The Block and Lot folder revealed that a building permit was approved, in 1899, for a building at the corner of Beach and West Streets (numbers 235-239 West Street). The blueprints for this building show it completely covering the associated lots and the "cellar" under the entire structure. At the corner of Hubert and West Street there was a nine story building erected in 1910. This covered its lot but had no associated cellar. They were demolished approximately 25 years ago and the lot is presently a storage facility for Battery Park City construction equipment.

Block 216, Lot 16: Block bounded by Hubert, Beach, Washington, and Greenwich Streets

This lot was partially made land and partially natural land. It also has had a series of structures and industries associated with it, including homes and stores of brick, stone and frame, and businesses. The Block and Lot folder has records for the construction of a building at 379, 381, and 383 Washington Street (67 Beach Street) to be used as a warehouse. This was a 5 story building covering the lot completely and having no cellar. It was demolished in 1967 by the city and replaced by the parking lot (400 Greenwich Street, operated by Bob Smith).

Block 186, Lot 1: Block bounded by North Moore, Beach, West and Washington Streets

Map and building records indicate that this block, created by landfill, had had various structures and industries associated with it. Over time, the site was occupied with homes and stores, both brick and framed structures, and by businesses such as an iron works or yard, coal yard, iron foundry, oil manufactory, alcohol distillery and mahogany yard, including the West Point Iron Foundry Association. Records for this block in the Department of Buildings, which contained all original documents relating to building activity from 1875 to about

1950, were missing. It, therefore, is unknown what specifically happened to this block between the 1880's and the present. This lot is presently vacant and recently graded.

Block 186, Lot 24: Block bounded by North Moore, Beach, Washington and Greenwich Streets.

The eastern part of this block existed as natural land while the western portion was created from introduced materials by early owners in the first part of the nineteenth century. As mentioned in the history, there is the possibility that the Battery of the 1740's was located on the very eastern section of this block but it is unlikely that any archaeological evidence remains since the Common Council specifically ordered its dismantling. Over time, the site was occupied with homes and stores, both brick and framed structures, and by businesses such as a marble works. There was very little vacant space by 1881. (See Fig. 34)

The Block and Lot folder was located for this area. It contained records for the building at the corner of Washington and North Moore Streets (365 to 367 Washington Street, 85 North Moore Street). The records indicate that this structure covered the lot with only inches to spare and the "cellar" was under the entire structure. The building was demolished in 1967 and presently the entire block is a vacant lot.

The southern boundary of site 5, Murray Street, was altered in 1981 due to the construction plans for the College of Insurance. The extreme southeast corner of Block 131 is, in actuality, the extinct Murray Street roadbed.

Block 131: Bounded by Greenwich, West, Warren, and Murray Streets

This block was made up entirely of land fill. It has had many types of structures and businesses associated with it, including brick, stone and frame houses and stores, and businesses such as hotels, clothing and drygood businesses. By 1881 (See Fig. 35), there was very little vacant space left in the entire block. The Block and Lot folder for this block could not be located. The block is presently a parking lot.

Block 138: Bounded by Greenwich, West, Chambers and Warren Streets

This block was both made land and natural land. After the waterfront was pushed westward beyond the project site bounds, it was covered by many types of structures, including the Union Coal Yard and a mahogany yard. In the 1850's, the only vacant area in the block is Bishop's Lane.

A four story building located at 179 West Street, is the only standing structure on either of the project sites. Two interviews were conducted pertinent to this building: one with Mardig Kachian, a resident for twenty-two years, and, one with Madeline Todd, a renter of the same address. A restaurant was located in this building prior to 1945. The dining area was the first two floors with the kitchen area on the third. The concrete floor area for washing dishes is still visible on the third floor. In c. 1950 the top floor was used for an experimental television station and during the fifties and sixties there was a liquor store, McCluskey's, in the ground floor space. Beneath the entire building is a crawl space/basement approximately five feet deep. It is supposed to have a concrete floor but for the past few years, it has been continually under water. The street opening to this basement is sealed tightly and, according to Simon Rosenbaum of the New York City Department of Housing, Preservation, and Development, opening it would be very difficult.

Behind the building, there appears to be an enclosed area. Kachian explained that it was originally roofed by a skylight, making it a first floor extension. It was normal, to meet zoning regulations pertaining to light and circulation standards, to have ten to twelve foot expansions of the first floor. Light and air regulations, for the upper stories, were met by using a skylight. This practice of first floor extensions would explain the designation of "covered" (or the dimensions indicating that a building covered a lot) as it appears in the tax assessment rolls. Since 179 West Street has a basement under the entire building, all backyard and privy resources from previous occupants were destroyed by its construction to a depth of at least six feet.

As previously mentioned, Kachian did recall that when the telephone company dug up West Street near his house a few years back, they encountered wood. Kachian, and artist/sculptor teaching at Queens College at the time, took some of the wood for classroom use. He says that it was "fresh, like new" and teak. (Teak is not indigenous to this part of the world; it was commonly used for ship building.) During some construction work on the house, Kachian found a c. 1876 bill of lading for coconuts between the joists.

See appended photographs.

Extensive effort has been made to locate the Block and Lot folder on this property. Files/microfilm on 179 West Street were not located at the Plan Desk, Municipal Building, or in the original microfilm files in the Borough Manager's Office, Municipal Building. The block designation for 179 West Street in the Building Index file is incorrect, on both old cards and the new computer listing. Attempts were made to locate the folder under all old and new block designations to no avail. The original Block and Lot folder was ordered from the

Municipal Archives but the archivist, Ken Cobb, was unable to locate the material.

Other structures from the past have been removed to make way for the parking lot that surrounds 179 West Street on the north and east sides.

THE FUTURE WITHOUT THE PROJECT

If there could be assurance that no future ground disturbance, which could be occasioned by any number of routine activities such as utility line repair, would ever occur, then the lack of a development project would be good for the existing archaeological resources. (This means, for example, that parking lot pavement is as effective a protective sealer as any other.) Archaeological resources are finite and non-renewable; no action protects them for the future. Assurance, however, of no disturbance is patently impossible. All too easily the resources are eaten away; in small bites or large gulps by urban encroachments. For example, site 1 has recently experienced landscaping activity along the eastern periphery of Block 186 and the proposed West Side Highway will most certainly impact both sites at least secondarily. A development project such as the proposed one which takes into consideration archaeological concerns, affords an opportunity for controlled and organized data retrieval, with a reasonable timetable, as warranted; as opposed to, either no archaeological consideration or salvage archaeology which too often is hastily undertaken one step ahead of a bulldozer.

PROBABLE IMPACTS OF THE PROJECT

The proposed development of sites 1 and 5B and C, as well as the completed development of sites 2-7, will increase the economic vitality and quality of life in the lower section of west Manhattan. The revitalization of Tribeca and its neighboring streets will have a profound positive effect on the extant structures in the project area as adaptive re-use and rehabilitation become accepted procedures. The demolition in the 1960's and 1970's of the structures on the 8 project site blocks may well have destroyed archaeological/architectural structures worthy of preservation. The building debris, however, now resting within the foundation remains of the once active market warehouses had created a time bracketed repository of archaeological resources. The proposed project will destroy these resources.

All above ground remains from nineteenth century construction activity in the project sites would be destroyed if the demolition of 179 West Street occurs. This loss is not cause for consternation; however, the extant market warehouses that border portions of the sites and constitute a block of buildings that portrays the neighborhood's past activity and contribution to the development of the city should be preserved if possible.

An area-wide lowered water table could be the result of development on sites 1, 5B and 5C if care is not taken. This can be an important adverse effect extending beyond the boundaries of the site, sometimes caused by extensive dewatering procedures employed in construction projects for deep foundation excavations. The homeostasis is disturbed by a lowered or fluctuating water table. Wooden timbers, used in the original construction and covered by water, would rapidly deteriorate after oxygen is introduced. Care, therefore, should be taken that the proposed project does not result in lowering the water table to a degree that will endanger the foundation integrity of the surrounding extant structures.

IMPACT DURING CONSTRUCTION

The development plans for sites 1, 5B and 5C are not definite. Site 1, is expected to be developed in two phases: Phase I construction is expected to be complete by 1986, while Phase II construction may be completed as early as 1988 or as late as 1990. Phase I, to be located on the northern portion of the site, will be a nine story (plus basement) structure with a foot print of 72,000 - 75,000 square feet (200 feet by 360 feet). Phase II on the southwestern portion of site 1 will be a 33 story tower with a foot print of approximately 46,000 square feet. An elementary school of approximately 50,000 square feet may also be located on the southern portion of site 1. There will be a landscaped/designed plaza on the southeast corner of the site which may, if the school is built on this site, include a playground of 20,000 square feet.

Jim Schmidt of PDC does not, at this time, anticipate subsurface construction to a depth of greater than 15 feet on site 1 which would accommodate vehicular parking. The subsurface excavations necessary to accommodate a 15 foot subsurface building plus the placement of elevator shafts, water tanks, utility lines, etc., entails a considerably greater depth of disturbance.

The development plans for site 5B and 5C are less definite than the more northern project site. It is estimated (Jim Schmidt, December 30, 1983) that site 5B will host a 65,000 square foot building at its base (height not predicted) and site 5C will host a 60,000 square foot building at its base (height not predicted). The footprint of each of the proposed buildings would cover approximately two-thirds of each of the blocks, 131 and 138, respectively. As in site 1, one level of underground parking for each building can be assumed. Again this 15 foot subsurface excavation for the buildings' basement does not consider the additional impact of the elevator shafts, utility lines, landscaping, etc.

Connections for gas, water, sewer, electricity, and telephone services will involve a major impact on subsurface resources as well as sidewalk, curb, and road repair work in the project sites. Because the majority of the sites is made up of "nominally unsatisfactory bearing materials" it is possible that piles will have a major function in the foundation construction of all four proposed buildings. Piles are necessarily destructive to archaeological resources.

MITIGATING MEASURES

Evidence from documentary study of the history of sites 1, 5B and 5C in the Washington Street Urban Renewal Area posits that five particular types of archaeological resources exist on the site: (1) landfill; (2) pottery/tavern waste; (3) early nineteenth century iron foundry; (4) late nineteenth century commercial building; and, (5) neighborhood cartway.

Primarily, there is landfill, the technique by which much of present day Manhattan was created. There have been opportunities to study this phenomenon on the east side of Manhattan and in Brooklyn, but, to date, no such opportunity has been available on the west side. The introduced material, i.e., the context of the fill, can be of importance to archaeologists in revealing time sequences, socio-economic status, and development patterns of the neighborhood and city. The preceding discussion has focused on the kinds of material that might be waste from a pottery or tavern and used to fill in a water lot. One particular resource within this project is the possibility of locating and studying the remains of a particular New York City potter and real estate developer, Abraham Wilson.

The frequent presence of wood in the series of soil borings studied indicates fill retention structures or the remains of docks, piers, wharves, crafts, or sewer supports. These boring logs also give an indication of the depth of the fill over the original river bottom: 7.4' to 40'. Without subsurface testing it is impossible to predict what else may be present within the fill. Also, the integrity of the fill deposits is questionable---how much disturbance has the fill undergone since primary deposition. For instance, the written record implies the absence of basements on site 5C but the existing structure on the property does have a basement/crawl space.

In an article, "Review of the General Work of the Department of Street Cleaning of New York", of 1898 it was stated that until 1894 wastes of the city were disposed of in two ways: (1) it was dumped on barges and then taken out to sea, or, (2) it was dumped on shore lands which had been bulkheaded. When the waste was used for fill, it had to be deposited in winter and then in summer covered with "dirt or clean ashes". (Waring, 1898: p. 97) It is possible that stratified deposits depicting this waste disposal process could be revealed in test trenches on the sites.

There is the possibility of there being ship remains on the sites. It may be that some craft was sunk prior to the

eighteenth century - either accidentally or purposefully -but not entered into the record as was the case on the east side of Manhattan. Development did begin earlier on the east side than on the Hudson River which most probably is due to many factors, one of which is the steep shoreline/bluff on the west side. By the time landfill did begin and a sunken hulk would have been incorporated into the new land, written records show that these hulks were considered nuisances to be removed rather than serendipitous or deliberately placed technological aids.

A second category of possible existing archaeological resources is that representative of significant or unique activities, structures, or inhabitants on these sites. Nothing in the record warrants a conclusion other than that of Hershkowitz's which is that the area is interesting, but not archaeologically unique. (Hershkowitz, 1981: pp. 16-17) Two city fortifications (c. 1743 and c. 1807) were built within close proximity to the sites (and fortification locations are usually exceptional archaeological resources). The 1743 battery was most probably just south of site 1 before its total dismantling (including earthworks) in c. 1805; and, the 1807 Red Fort was just west of site 1 on the west side of the West and Hubert Streets intersection. No physical landmarks have been identified within the sites; no particular ethnic group is associated with the neighborhood; and, no extraordinary events occurred on the sites. However, a current research topic for New York City archaeologists is how neighborhoods are created and evolve. The Landmarks Preservation Commission staff has expressed concern that while neighborhood development patterns have been studied in portions of New York City for some time periods, little work has yet been done on the period 1790 to 1840, the time period when the project area was coming into being. The remaining three types of resources (iron foundry, cartway, and deposits underneath the standing structure) could yield important data on the development of this type of neighborhood.

The project area in general followed the path of urban evolution from farmland/residential, to residential/small commercial to commercial/industrial to manufacturing/processing to processing/decline. This movement toward ever larger buildings, wider streets, and underground utilities necessarily destroyed the integrity of most loci of archaeological potential.

We recommend a Phase II archaeological investigation be implemented in accordance with a research design to (1) investigate specific resources of the sites' past (e.g., iron foundries, pottery, tavern), (2) investigate the land making technique of a time and area; and (3) investigate normative New York City neighborhood growth between 1790 and 1840.

The exact placement of the Phase II field trenches would be decided by the director of the proposed field work; however, we have specified four locations that should be the most potential loci for yielding information in the above described research design. (See Fig. 36) In all locations the archaeological investigations could be coordinated with the construction schedule so as not to require heavy equipment on the properties before necessary for construction/demolition. The following block and lot categories detail the mitigating measures necessary for the site resources.

Block 138 west portion: bounded by West, Washington, Chambers,
and Warren Streets

The standing structure at 179 West Street provides an opportunity to examine the foundation of a c. 1875 building, construction techniques and associated artifacts. This opportunity, in itself, would not warrant archaeological field work. However, this structure on West Street does offer the only opportunity within the area to archaeologically examine a typical structure from the late nineteenth century. If the structure is demolished without collapsing the debris into the foundation cavity, the foundation, when removed for the eventual construction schedule could yield data not only on the building's past inhabitants but very likely on the landmaking processes of the nineteenth century.

Research on the techniques employed for retaining fill and on the source of the fill has been conducted in the archives and in the field on Manhattan's east side; however, only documentary research has been conducted on the made land sites on Manhattan's west side. These two sites of the Washington Street Urban Renewal Area provide an opportunity to complement these archival studies. The resources in the location of 179 West Street could afford this opportunity. We recommend that an archaeologist(s) examine, record and retrieve artifacts from the foundation resources at 179 West Street before construction commences on that location.

Block 138 east portion: bounded by Washington, Greenwich, Chambers,
and Warren Streets

Bishop's Lane was a cartway or alley between Warren and Chambers and Greenwich and Washington Streets that existed for approximately a hundred years. Research to date has not indicated any utility service into the Lane although it may well have existed but been unreported.

As field work in other urban centers have indicated (Tamara Wamsley, *et al.*, October 16, 1983), alleys may yield artifacts diagnostic of time and social conditions. An opportunity to examine the soil underneath the Bishop's Lane parcel could very likely yield information on the life patterns of the project sites' past neighborhood. The tightness of the lot construction through time precluded the survival backyard and privy resources within the neighborhood. As is probable throughout the two project sites, any subsurface examination could yield data on the landmaking process.

We recommend that an archaeologist(s) examine the subsurface deposits under the Bishop's Lane location before construction commences on that location.

As described previously, a tavern and pottery existed on the property just east of Greenwich Street and bounded northerly and southerly by Chambers and Warren Streets respectively. It

is known that the potter, Abraham Wilson filled the site Block 138 within a short time period. It is likely that he optimized the empty lot and dumped his kiln waster material in the cavity. It is also likely that his series of predecessors, the tavern keepers, also utilized the riverbank just west of their property as a dump site. This locale, a strip bounding Greenwich Street, could yield data on an early city tavern, a pottery, and the landmaking process. We recommend that an archaeologist(s) examine, record and retrieve artifacts from the possible resources at this location before construction commences.

Block 216, Lot 1: bounded by Hubert, Beach, Washington and West streets

The south section of this block, according to atlases and plans from the nineteenth century, was the center of the West Point Foundry Association. The investigation of industrial sites is a growing segment of American and British historical archaeology. Industrialism and its accompanying technology is and inextricable part of the urban evolutionary process so evident in the project area. This area in the Washington Street Urban Renewal Area would give us additional data about nineteenth century iron foundries, to supplement the documentary record. We recommend that an archaeologist examine, record and retrieve artifacts from this location before construction begins.

Block 131: bounded by West, Greenwich, Warren and Murray Streets

As predicted, the four resources of archaeological information can be tapped at the project sites without mitigating measures being recommended for this block.

Block 186, Lot 1: bounded by Washington, West, Hubert and Beach Streets

Same as above.

Block 186, Lot 24: bounded by Washington, Greenwich, Beach and North Moore Streets

and

Block 216, Lot 16: bounded by Washington, Greenwich, Hubert and Beach Streets

These blocks are one-half made land and one-half natural shoreline and could yeild important data on fill retention devices employed in c. 1800. We therefore recommend that an archaeologist(s) be present to monitor deep construction activities to gather information for at least one of these blocks.

The small air spaces, 6 to 9 feet areas, were behind the commercial structures built in the late nineteenth century (as discussed by Tony Fasciani in our interview). These small areas, as a result of the construction that created them, would have been extremely disturbed. The likelihood of locating an area of this size that is undisturbed, and thus able to yield information about previous inhabitants of the site area, is extremely small. We recommend that archaeologists on the site keep these spaces in mind while monitoring or excavating on the site, but do not recommend that the archaeologist(s) attempt to specifically locate them.

6285 IV SW
CENTRAL F

JERSEY CITY QUADRANGLE

NEW JERSEY - NEW YORK

7.5 MINUTE SERIES (TOPOGRAPHIC)

GEORGE WASHINGTON BRIDGE 8 MI

CITY (INT 495) 2 MI 2'30" 581 582 2 180 000 FEET (N. J.) 583 584 74°00' 40°45'

USGS TOPOGRAPHIC SERIES

New Jersey-New York

Jersey City Quadrangle

Site 1

UTM Coordinates:

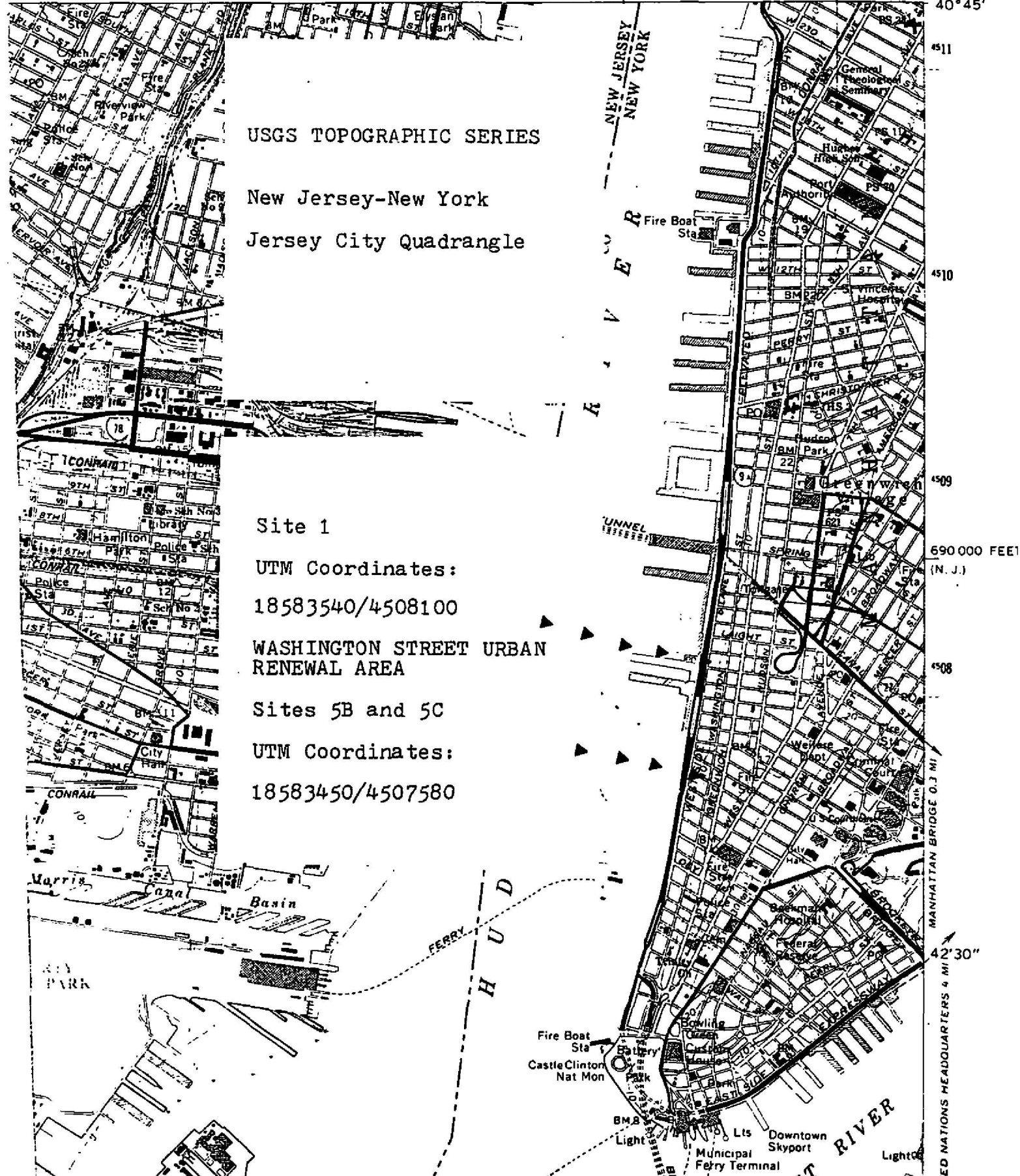
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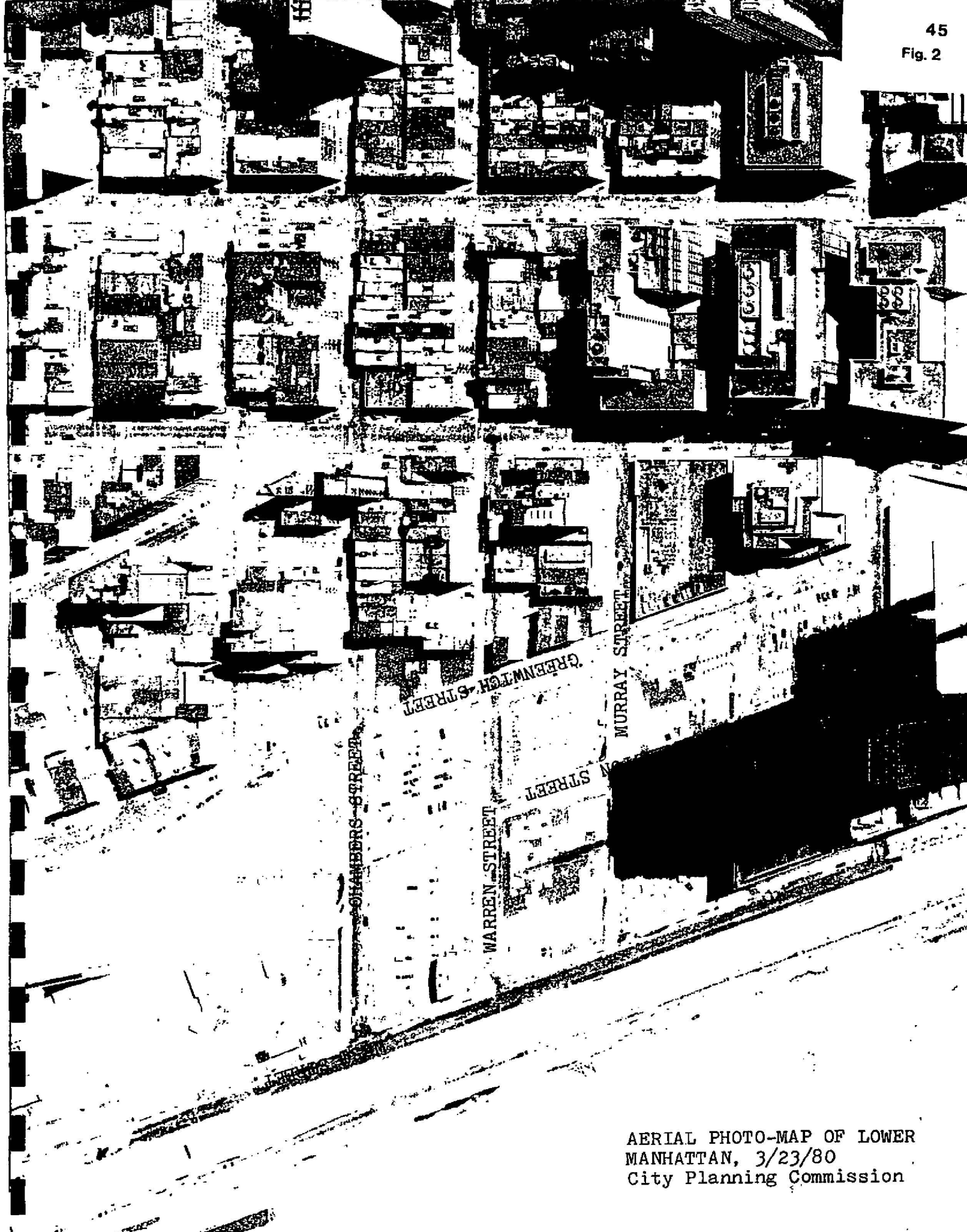
WASHINGTON STREET URBAN
RENEWAL AREA

Sites 5B and 5C

UTM Coordinates:

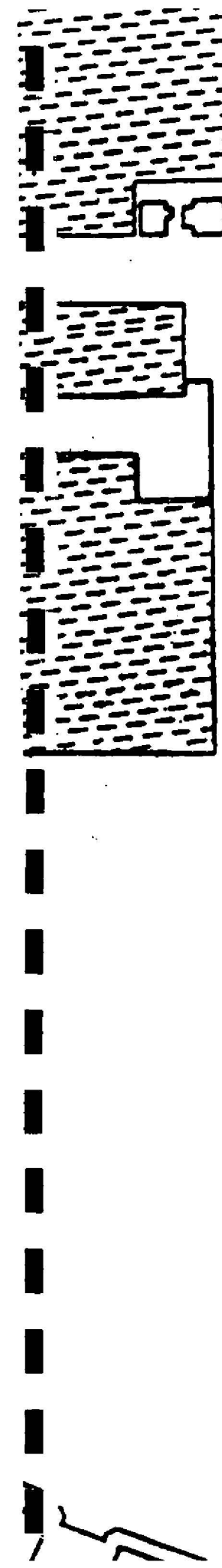
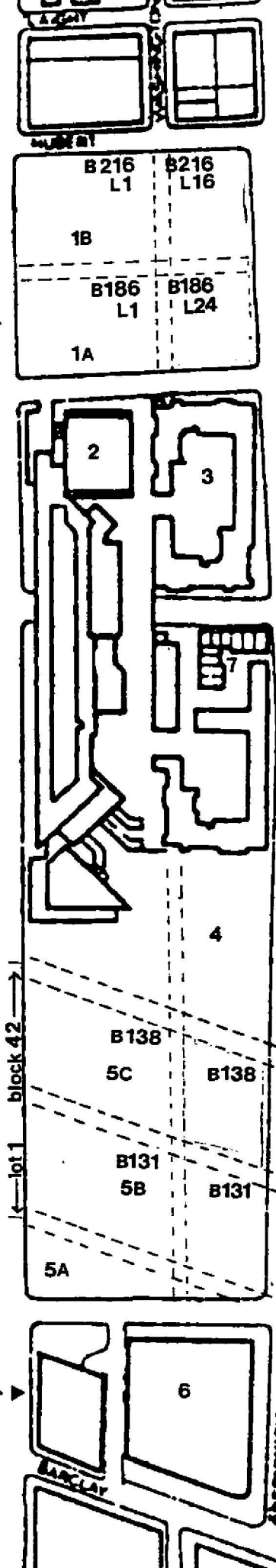
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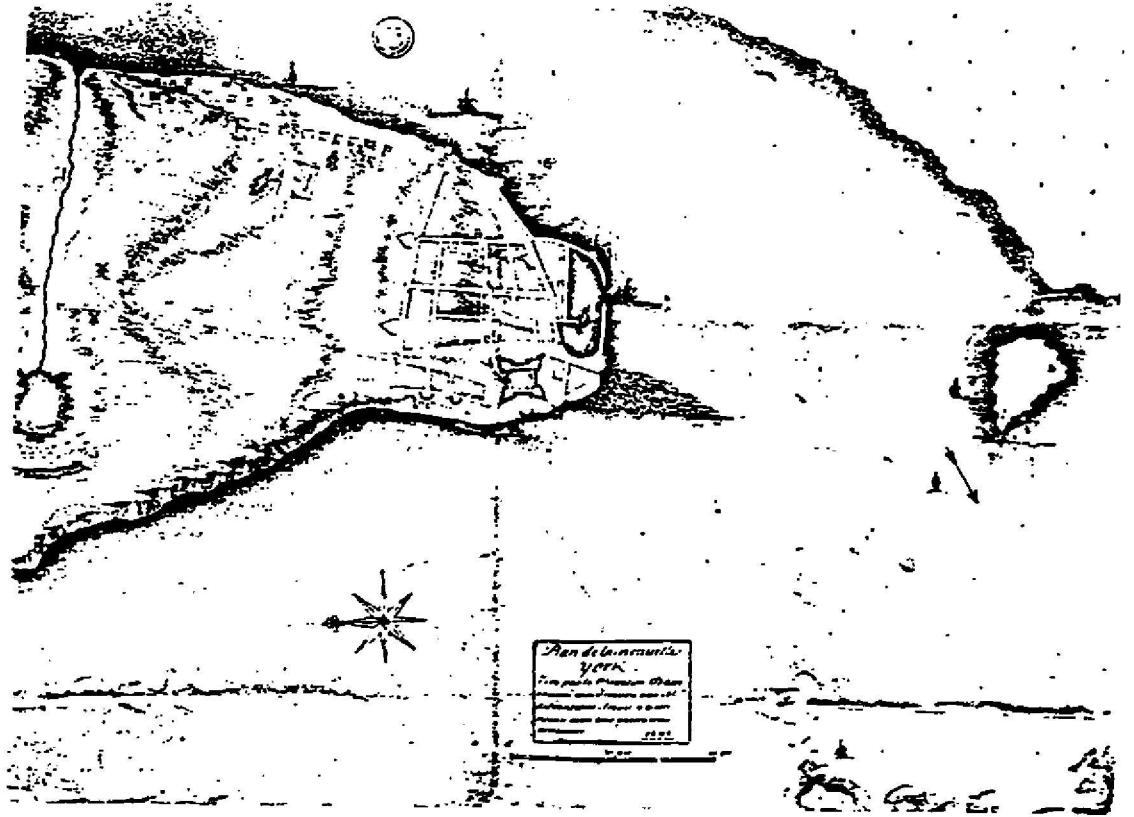




AERIAL PHOTO-MAP OF LOWER
MANHATTAN, 3/23/80
City Planning Commission

WASHINGTON STREET URBAN RENEWAL AREA: SITES 1A - 7

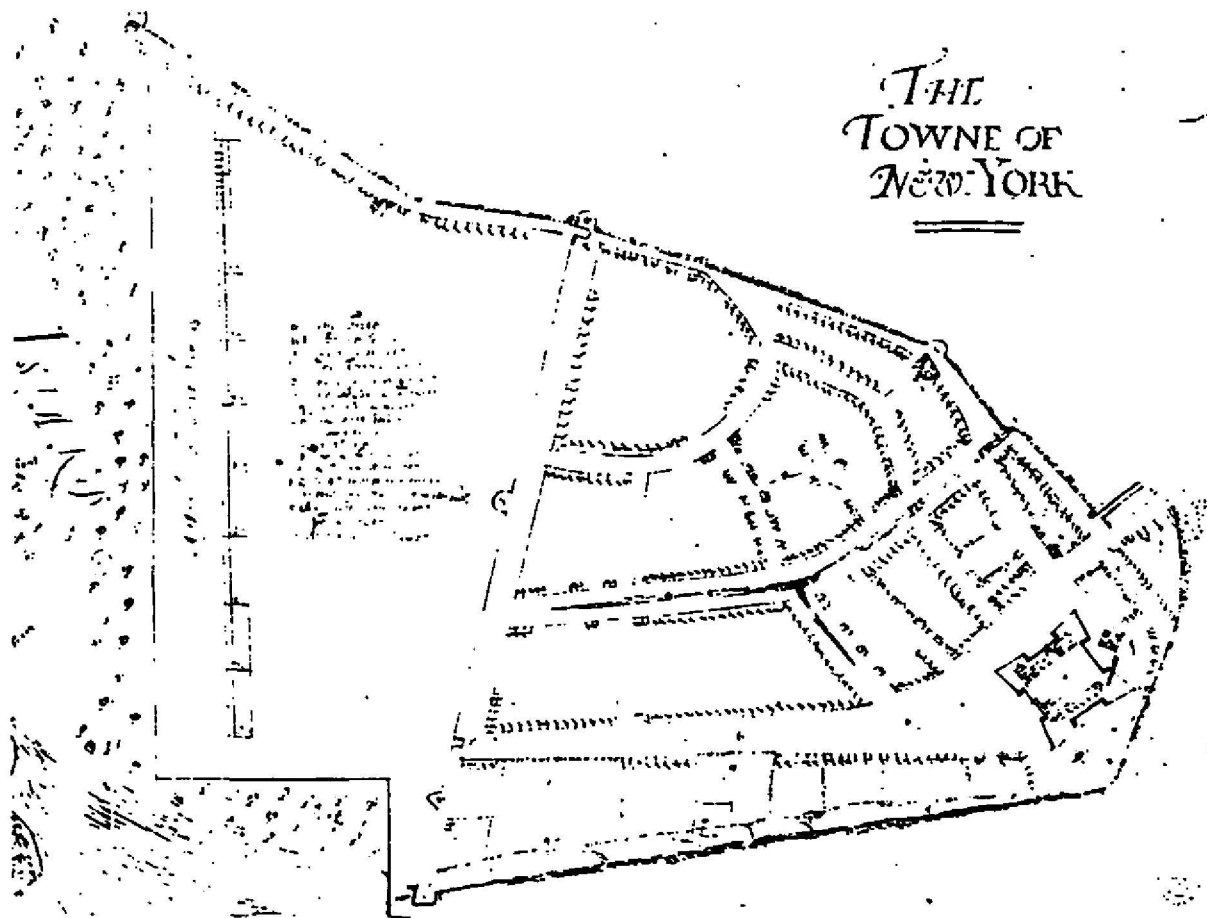




PLAN de la NOUVELLE YORK

1692

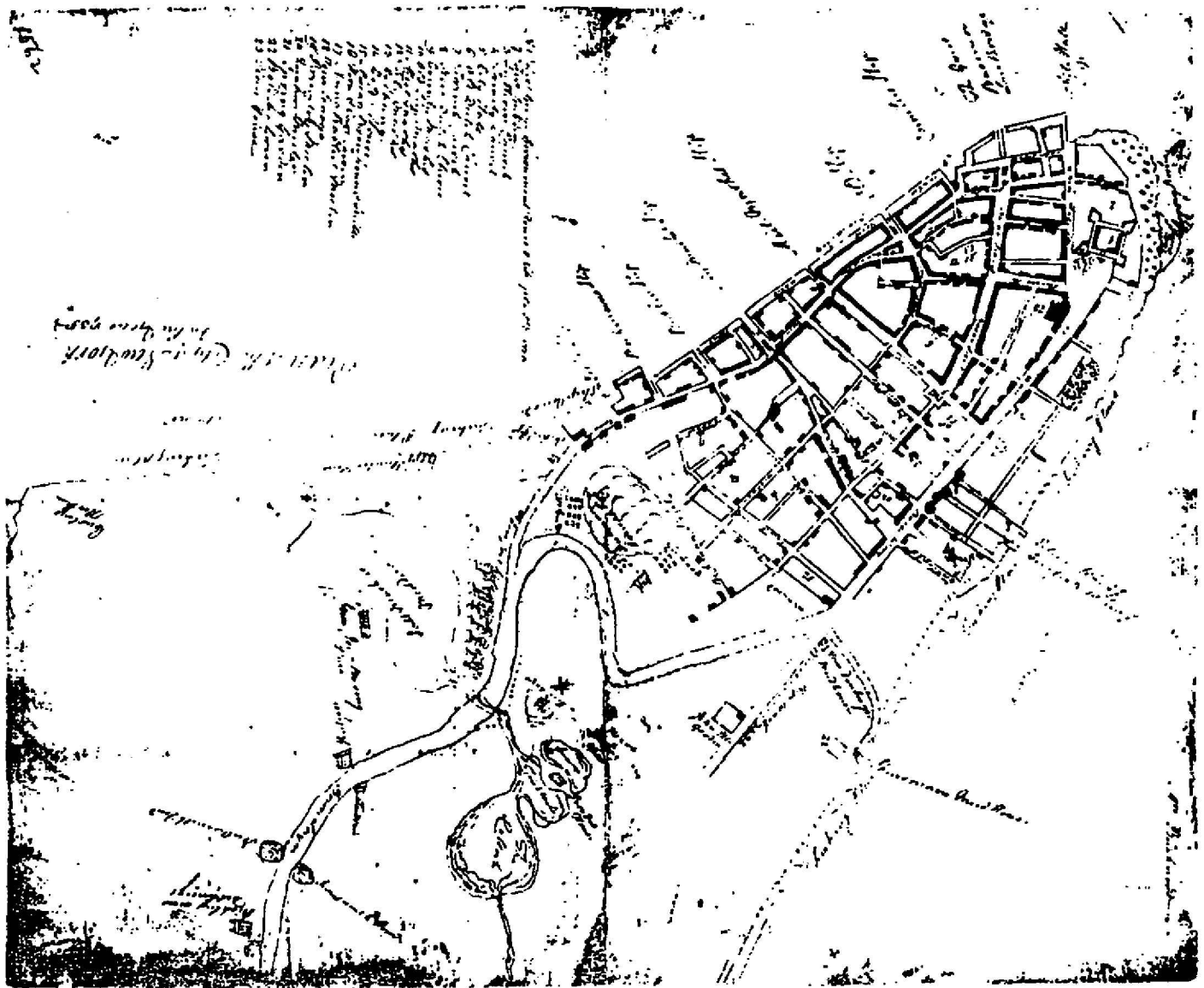
From Stokes, Vol. 1: plate 22



THE TOWNE OF NEW YORK, an inset in the plan of
THE ISLAND OF MANHADOS

Nicolls Map (or Survey)
1664-8

From Stokes, Vol. 1, plate 10a



copy of

PLAN OF THE CITY OF NEW YORK IN THE YEAR 1735
1732-1735

from Stokes, Vol. 1: plate 30

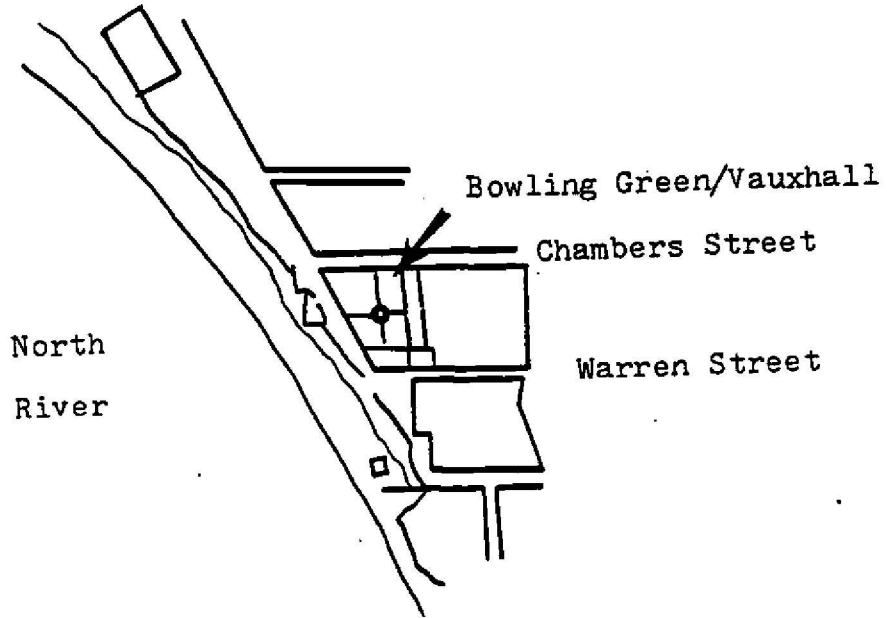


copy of PLAN OF THE CITY OF NEW YORK FROM AN ACTUAL SURVEY (DeLancey) 1754
Maerschalk

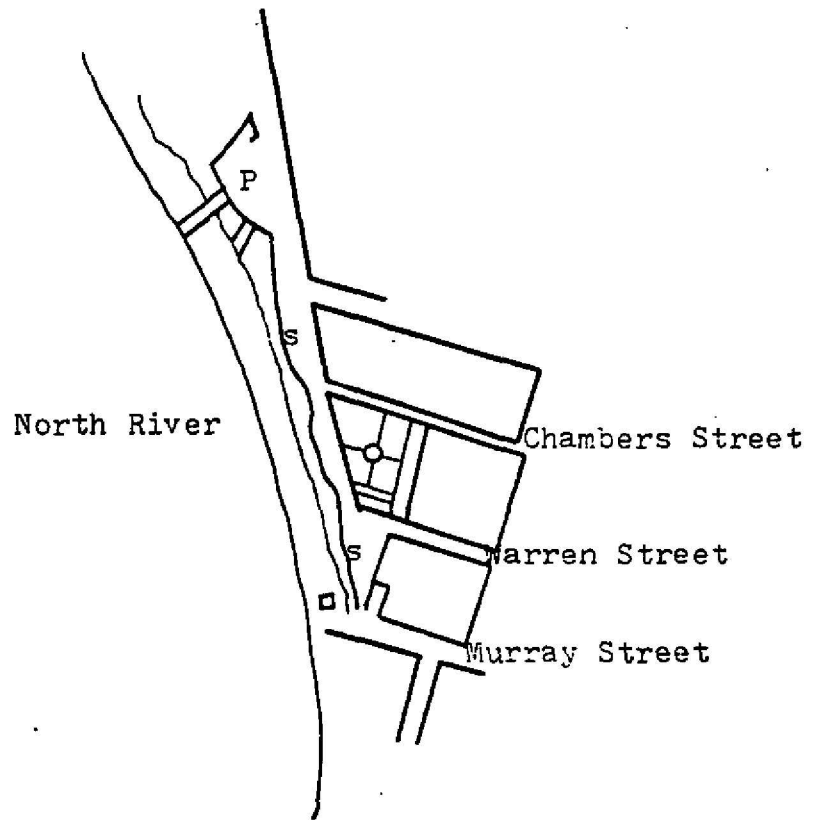
from Stokes Vol. 1: pl. 34



copy of
PLAN OF THE CITY OF NEW YORK ----- Ratzer, 1766-7
from Stokes, Vol. 1: plate 42



A Tracing of one of the
1767 Series
Ratzer
(NYPL, Map Division)



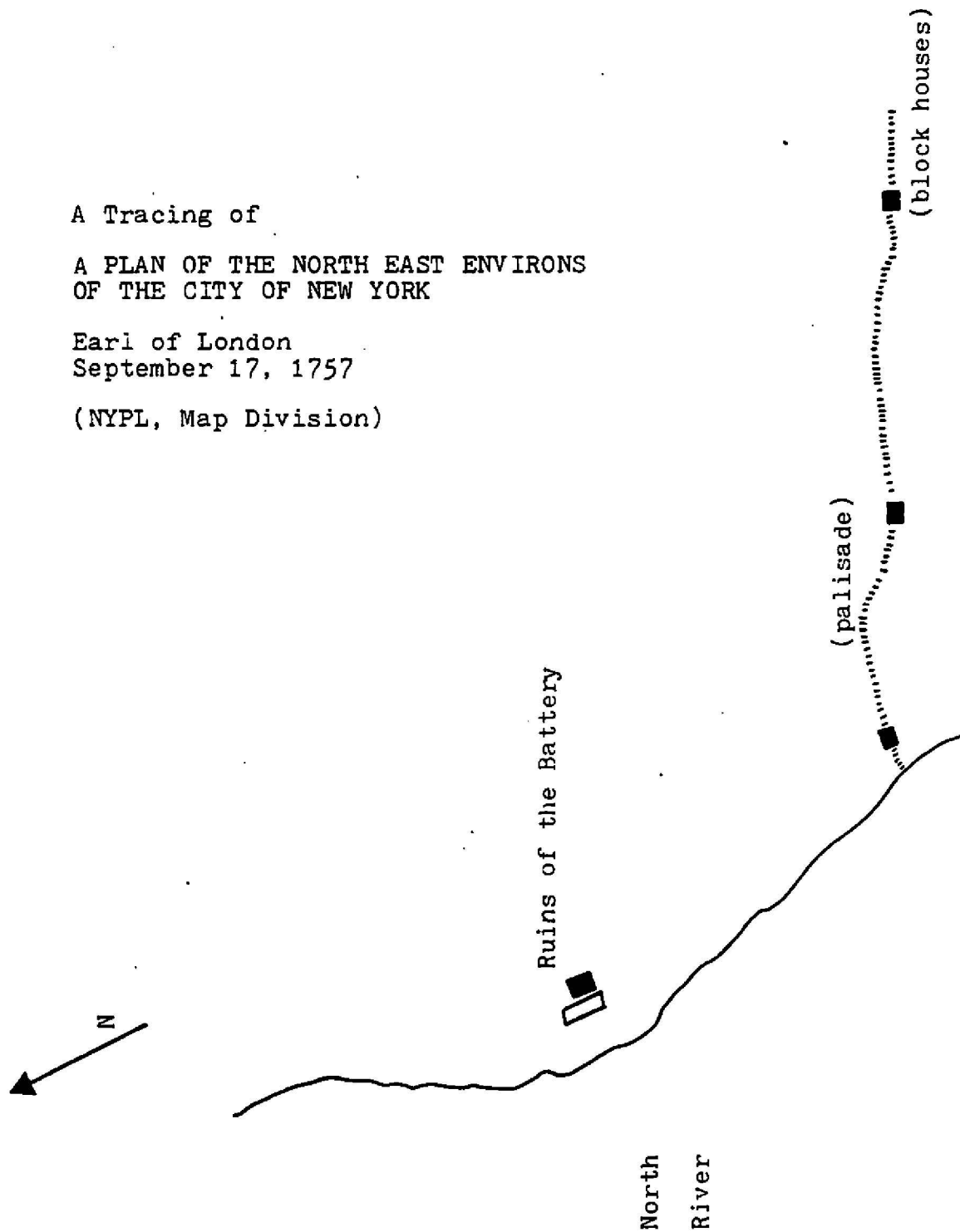
A Tracing of one of the
1767 Series
Ratzer
(NYPL, Map Division)

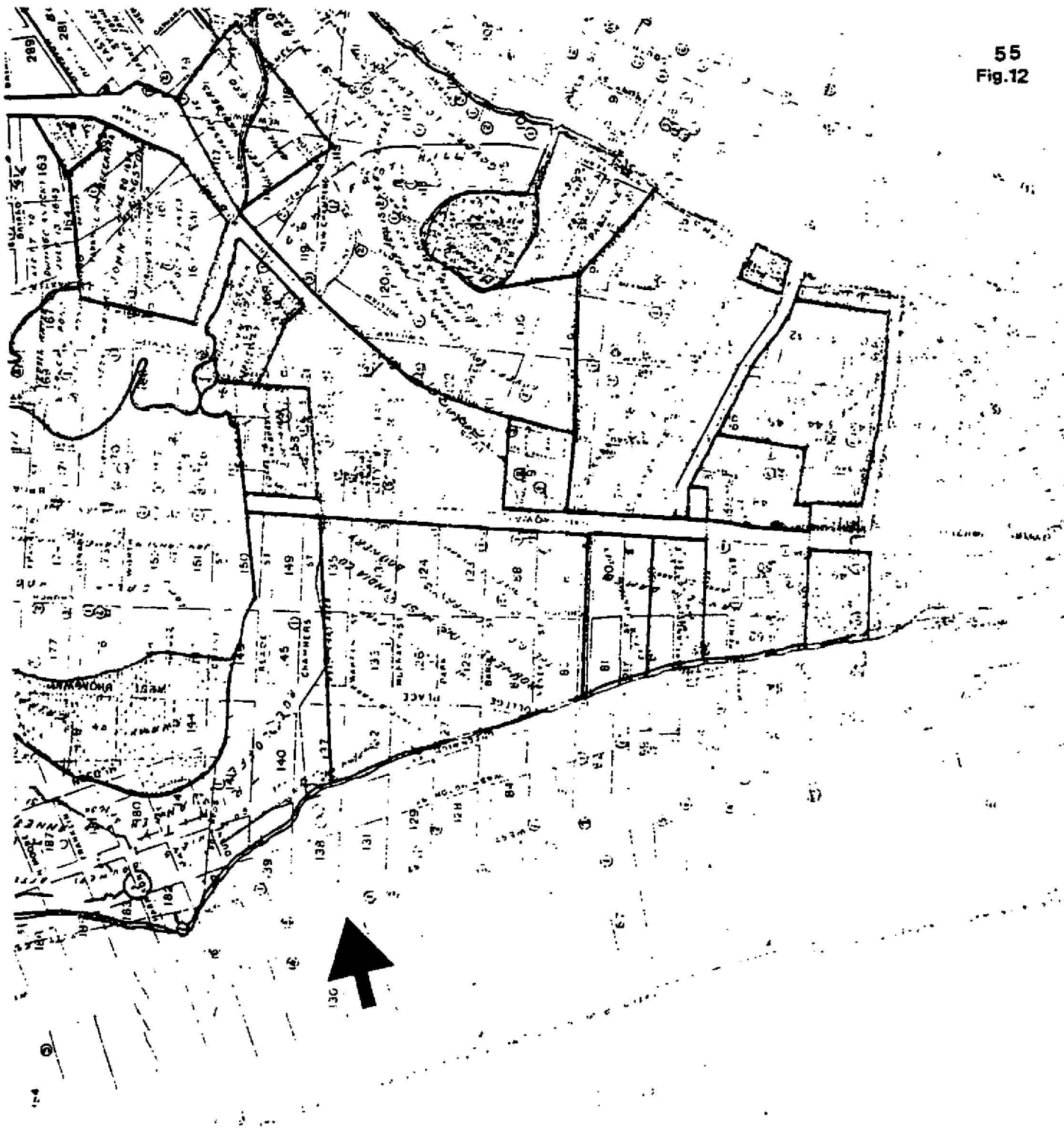
P: A Battery with 6 embrasures
s: Intrenchments in and about the town

A Tracing of
A PLAN OF THE NORTH EAST ENVIRONS
OF THE CITY OF NEW YORK

Earl of London
September 17, 1757

(NYPL, Map Division)





ITE 5B.C

copy of
ORIGINAL LAND
PATENTS

from
Stokes,
Vol. 6,
plate 64

copy of
ORIGINAL LAND
PATENTS

from
Stokes,
Vol. 6,
plate 64

SITE 1A,B



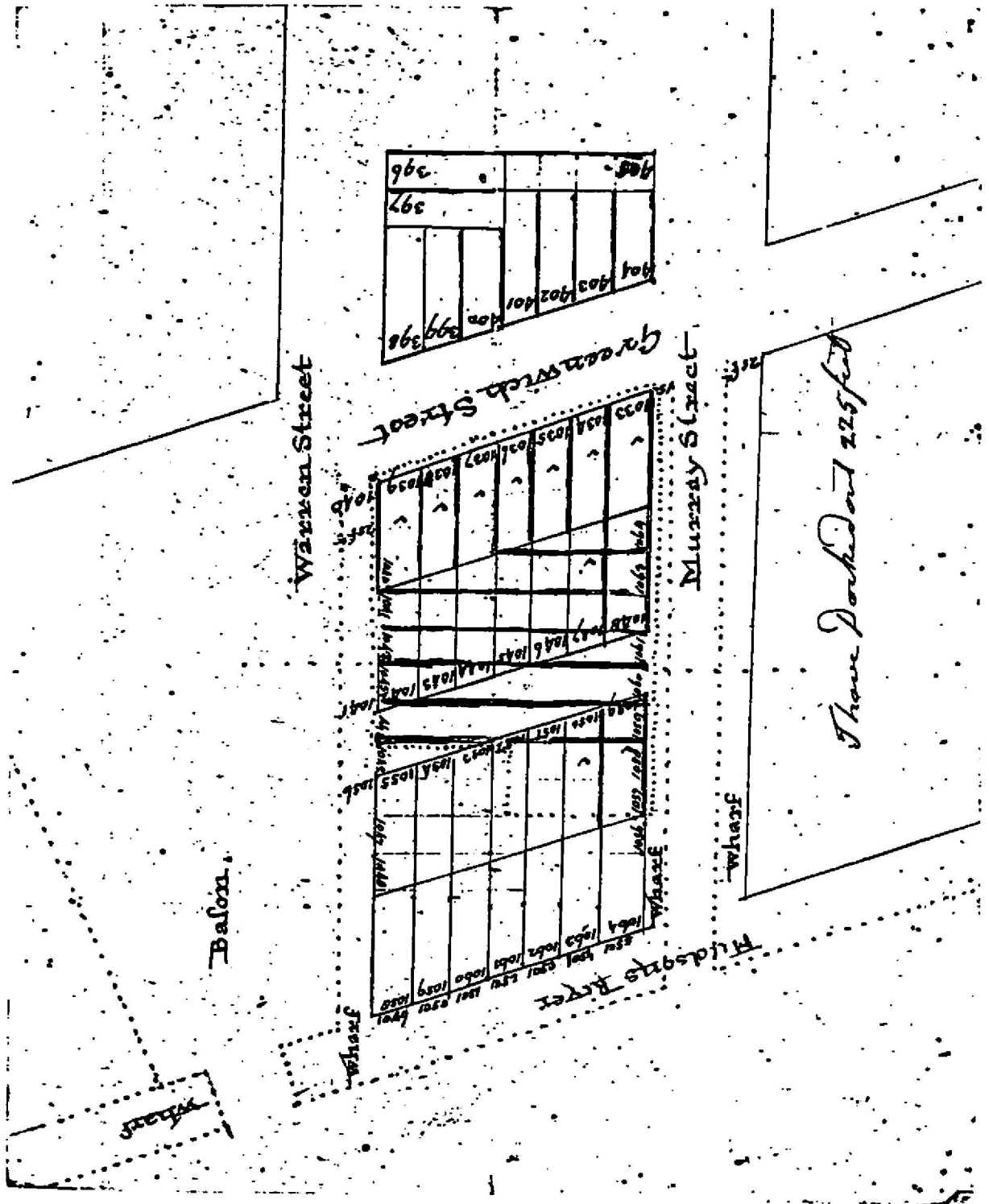


VIEW OF THE NORTH RIVER FROM THE BEACH NEAR
LISPENARD'S BREW HOUSE

Archibald Robertson
December 10, 1781

From Stokes, Vol. 2, plate 84.

A copy of
1703+ WATER LOTS FILE
Trinity Church, Office of Archives and Records





A NEW AND ACCURATE PLAN OF THE CITY OF NEW YORK IN THE STATE OF
NEW YORK (The Taylor - Roberts Plan)

1797

from Stokes, Vol. 1: plate 64

PLAN OF THE CITY OF NEW-YORK.

[Small, faint text providing details about the plan's scale and accuracy.]

References.

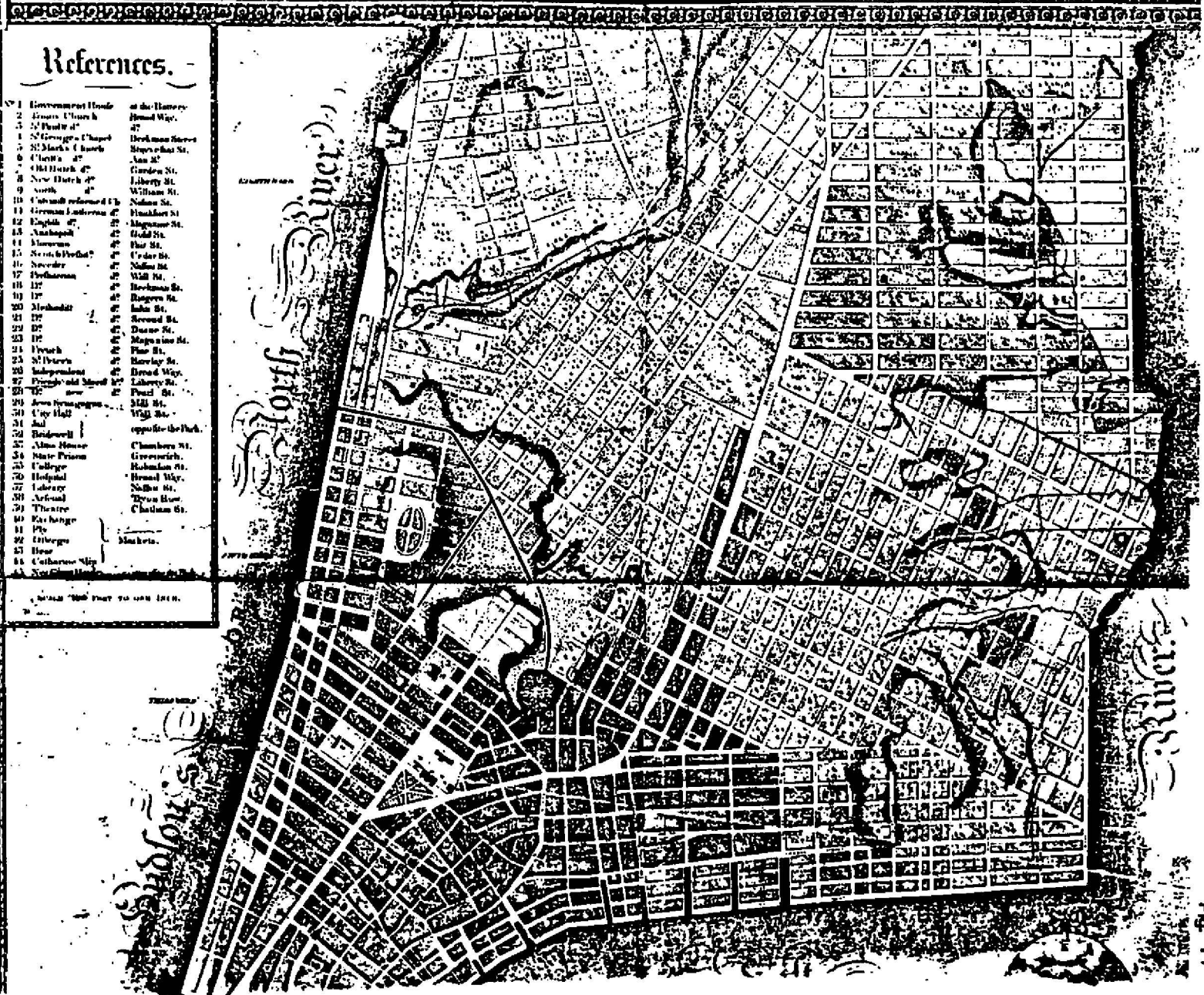
1	Government House	at the Battery
2	Great Church	Broad Way,
3	St Paul's	47
4	St George's Church	Brookman Street
5	St Mark's Church	Street what St.
6	St Peter's	Jan St
7	Old Dutch	Garden St.
8	New Dutch	Liberty St.
9	South	William St.
10	City Hall	Nelson St.
11	City Hall	Franklin St.
12	City Hall	Kingston St.
13	City Hall	Gold St.
14	City Hall	Bay St.
15	City Hall	Water St.
16	City Hall	Chlorine St.
17	City Hall	Wall St.
18	City Hall	Beekman St.
19	City Hall	Rogers St.
20	City Hall	John St.
21	City Hall	Bowling St.
22	City Hall	Duane St.
23	City Hall	Madison St.
24	City Hall	Flower St.
25	City Hall	Barclay St.
26	City Hall	Broad Way.
27	City Hall	Labarre St.
28	City Hall	Peel St.
29	City Hall	Mill St.
30	City Hall	Wall St.
31	City Hall	opposite the Park.
32	City Hall	Chambers St.
33	City Hall	Greenwich.
34	City Hall	Richardson St.
35	City Hall	Broad Way.
36	City Hall	South St.
37	City Hall	Bronx House.
38	City Hall	Clinton St.
39	City Hall	Market.
40	City Hall	
41	City Hall	
42	City Hall	
43	City Hall	
44	City Hall	
45	City Hall	

copy of

A PLAN AND REGULATION OF THE CITY OF NEW YORK

The Goerck-Mangin Plan 1799

from Stokes, Vol. 1, Plate 70

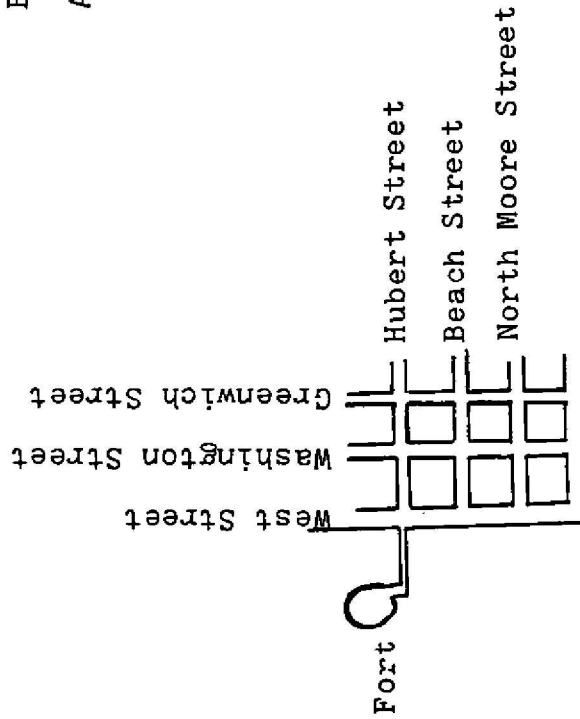


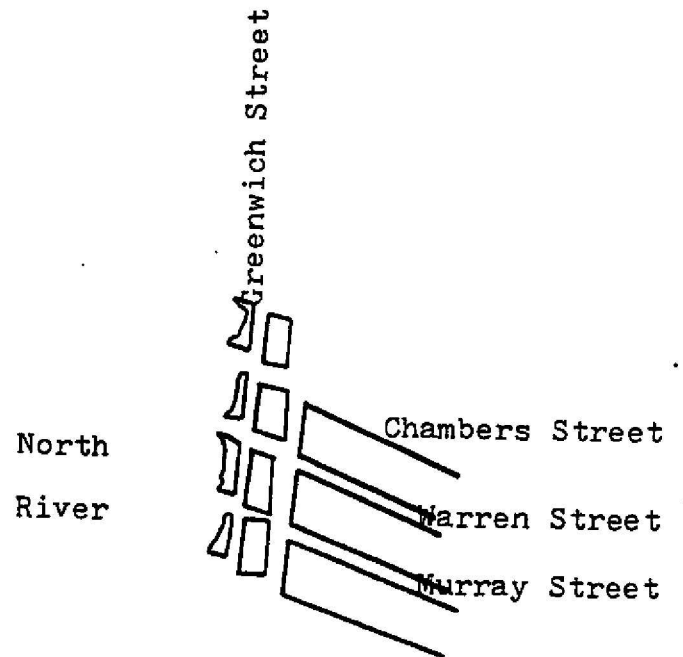
A Tracing of

Commissioner's Map

THIS MAP OF THE CITY OF NEW YORK
AND ISLAND OF MANHATTAN AS LAID
OUT BY THE COMMISSIONERS APPOINTED
BY THE LEGISLATURE

April 3, 1807

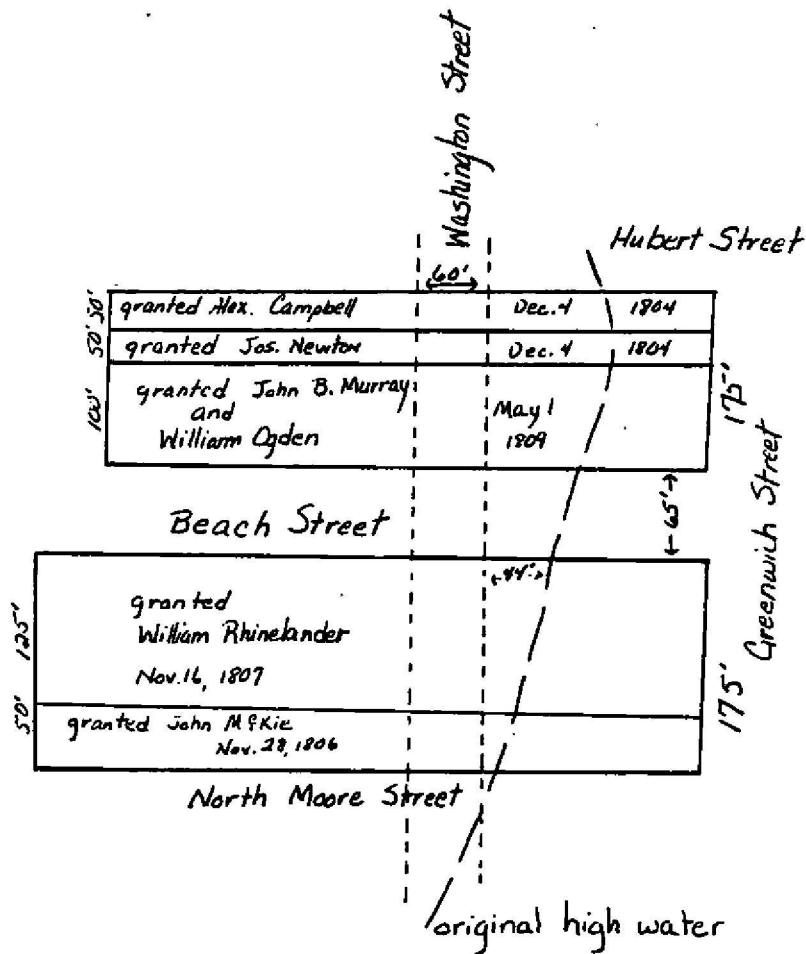




A Tracing of
PLAN OF THE CITY OF NEW YORK
1808
(Municipal Archives, Ward Map)

information from
EWEN WATERFRONT MAP SERIES
Volume 2
1827-1830

(not to scale/measurements recorded)



BLOCK HOUSES
25

CITY GATES
52

BOWLING GREEN
59

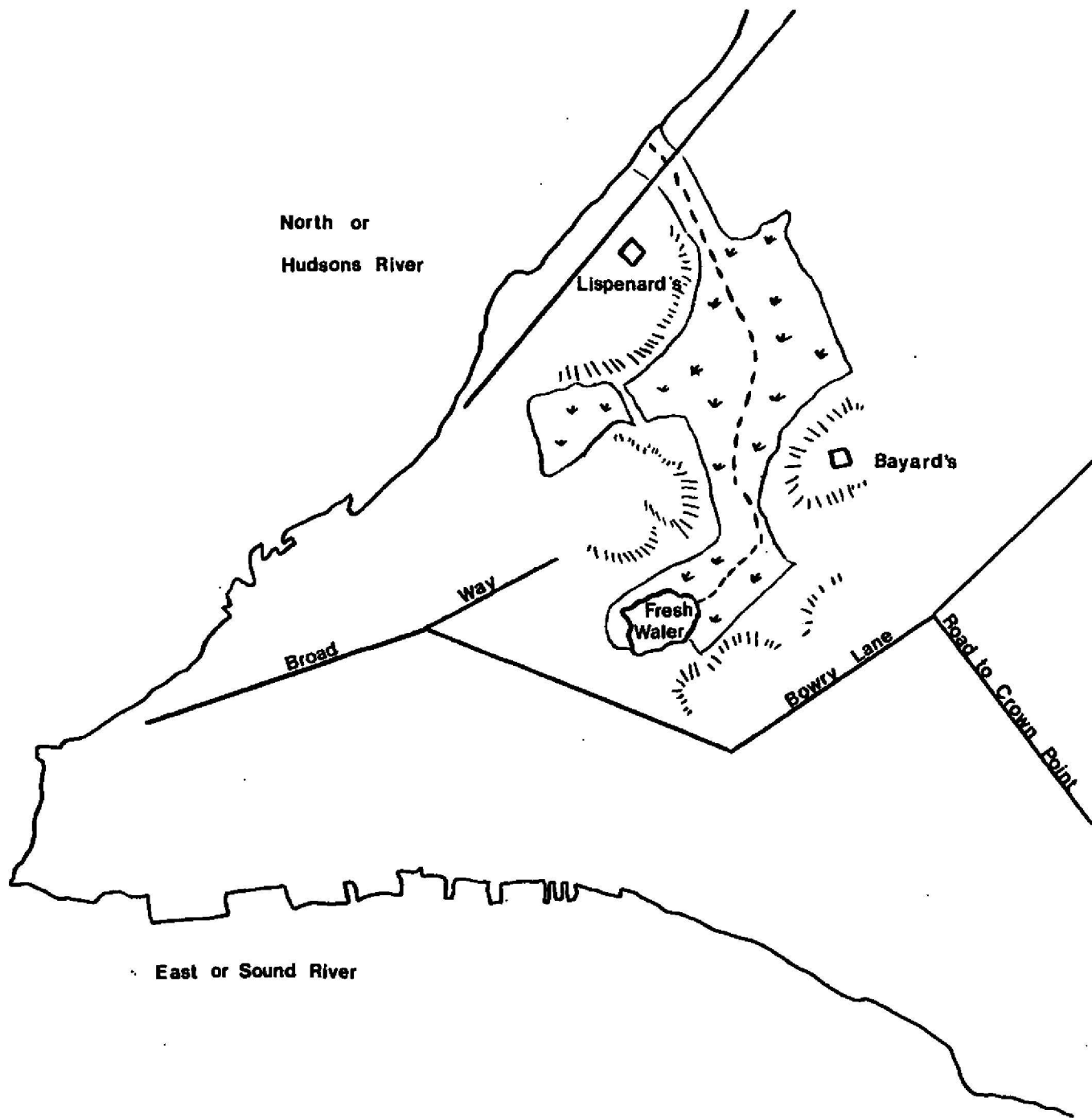


copy of
GRIM'S GENERAL PLAN, 1742-3-4
from Stokes, Vol. 1: pl. 32



copied from Stokes, Vol. 1

THE MONTRESOR PLAN
1766

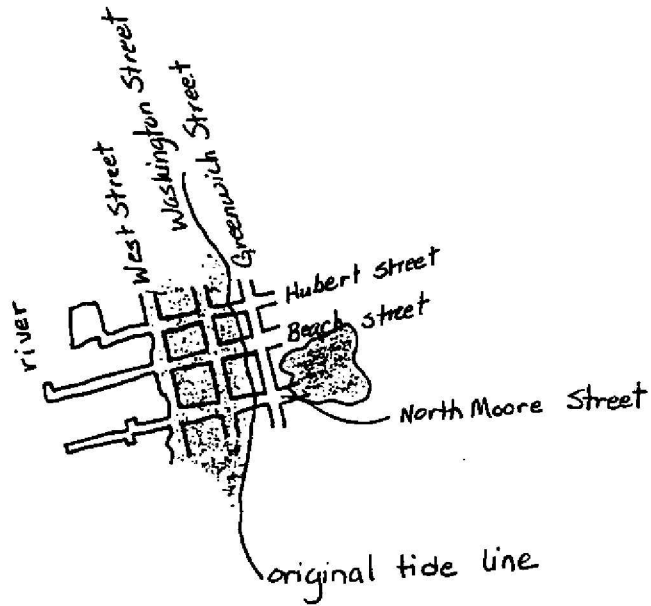


a tracing of
THE MONTRESOR PLAN
John Montresor
1775
from
Stokes, Vol. 1:plate 40


A tracing of

SANITARY AND TOPOGRAPHICAL MAP OF THE CITY AND ISLAND
OF NEW YORK, PREPARED FOR THE COUNCIL OF HEALTH AND
PUBLIC HYGIENE OF THE CITIZEN'S ASSOCIATION

Egbert L. Viele
1874, revision of the 1865 edition

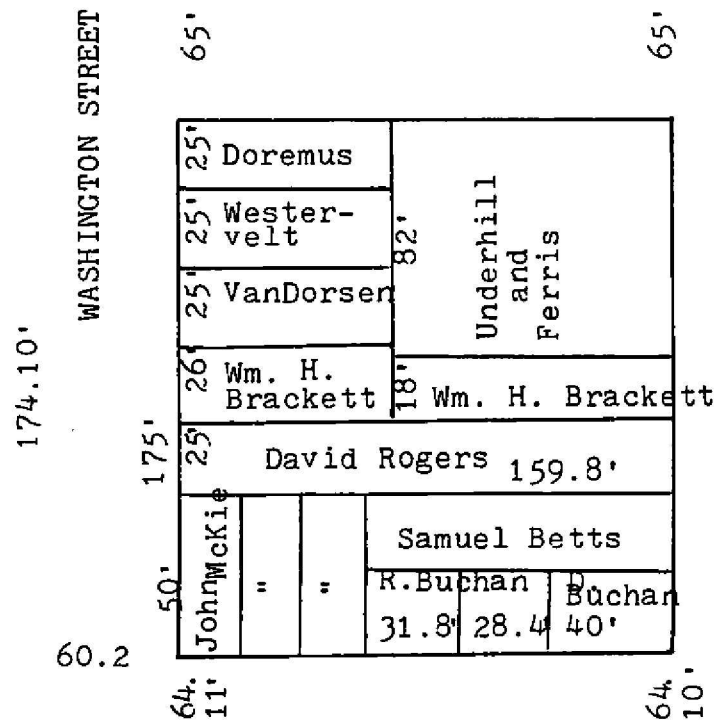
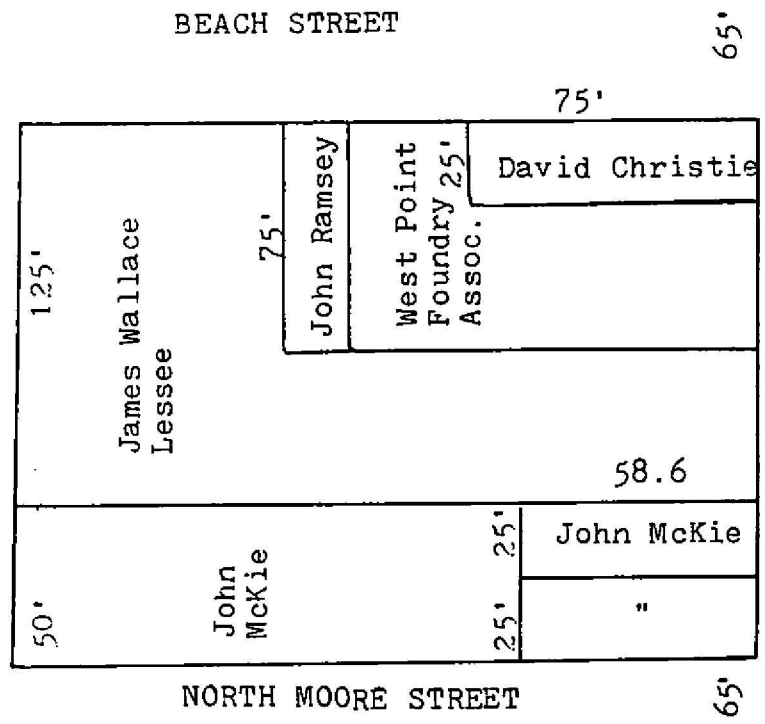
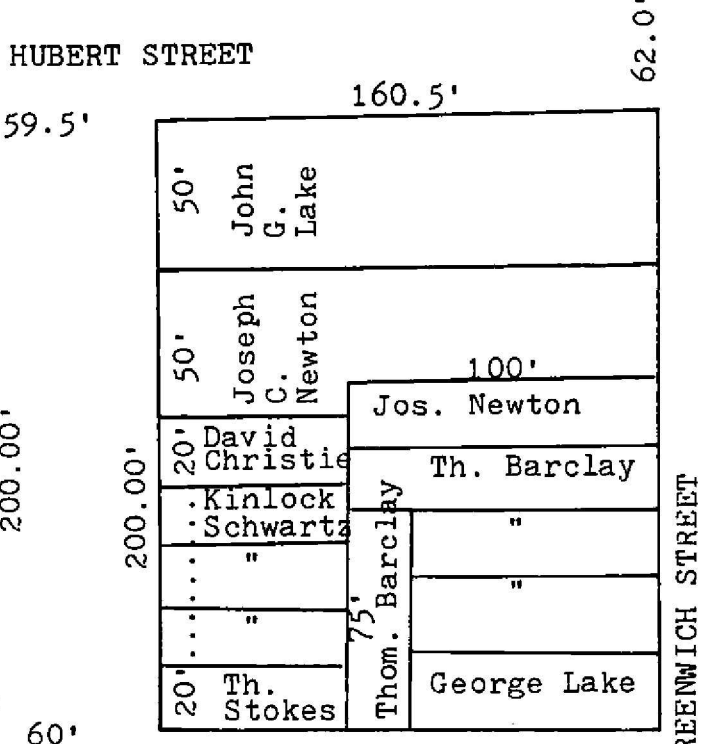
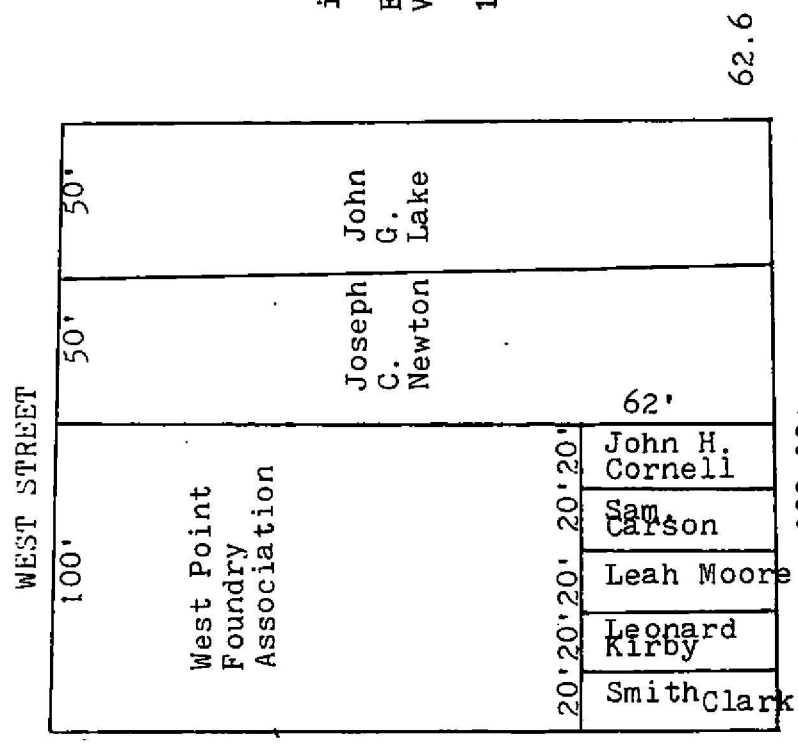


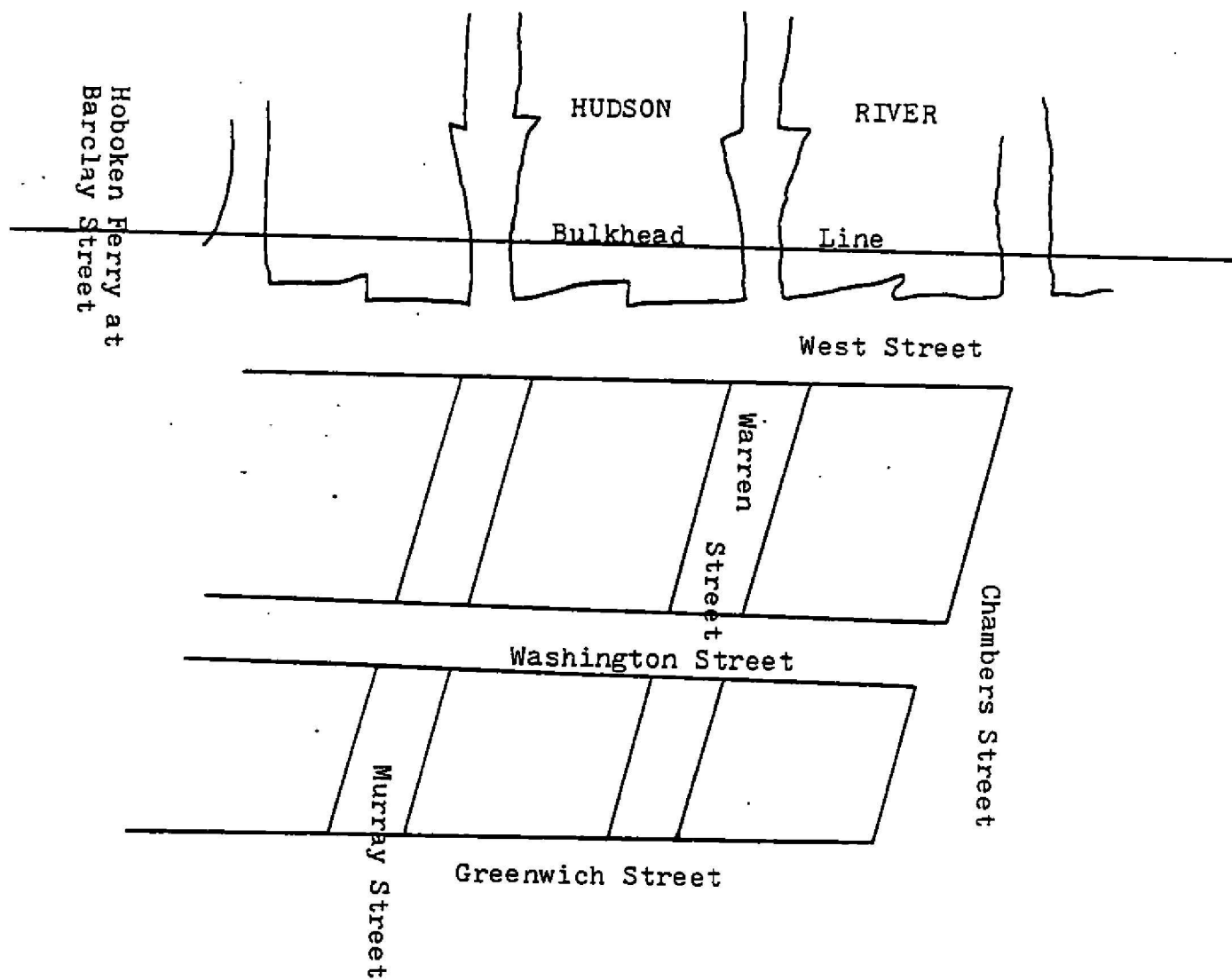
scale: 1" = 1000'

 = identified as made land

information from
 EWEN WATERFRONT MAP SERIES
 Volume 2
 1827-1830

(not to scale/
 measurements recorded)





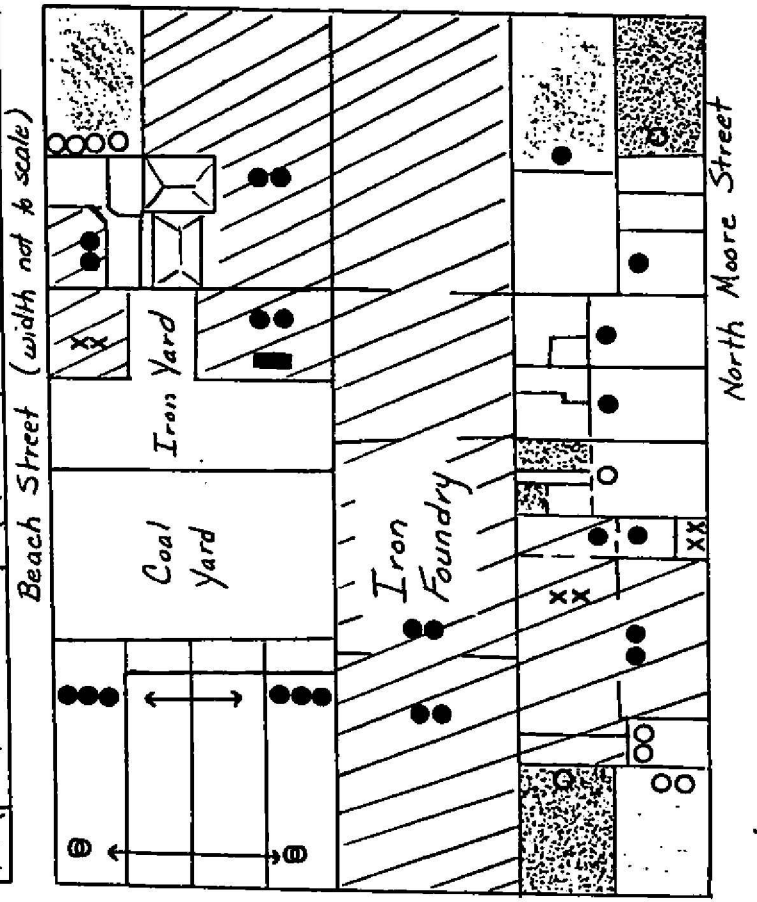
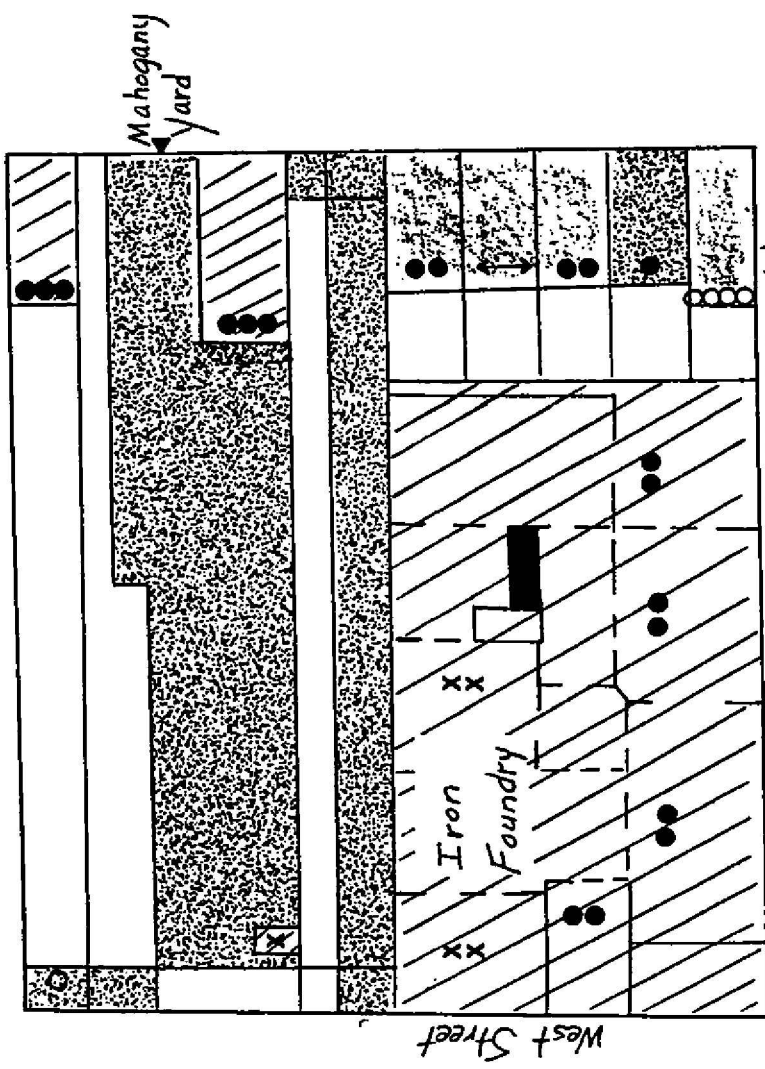
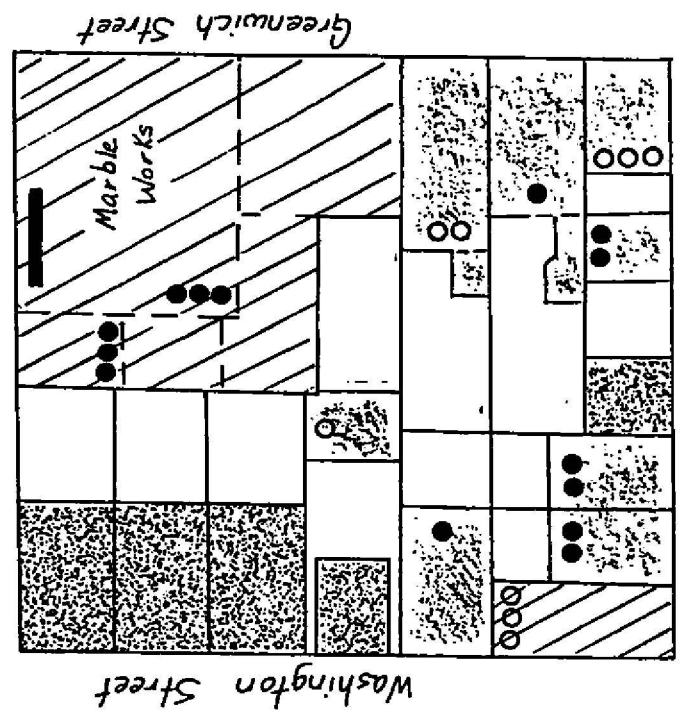
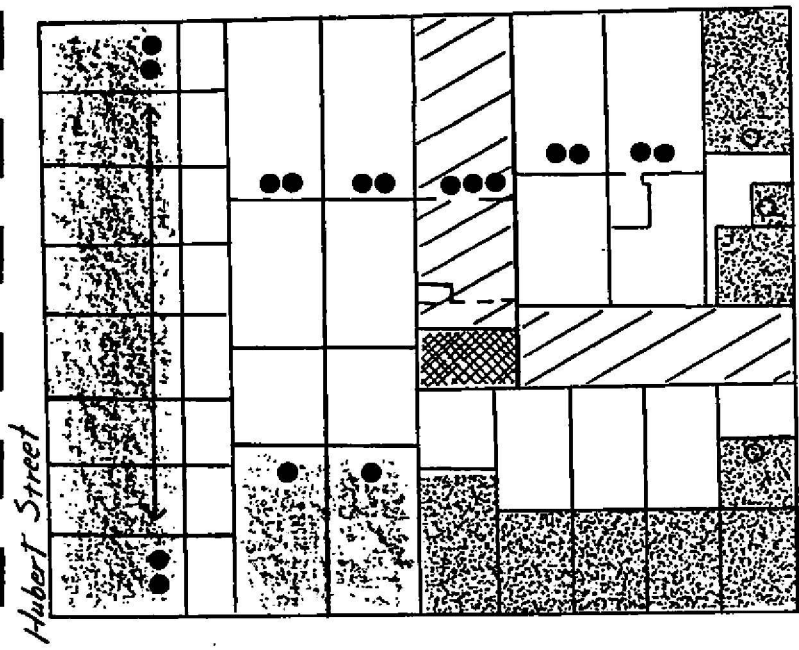
traced from

MAP OF THE WHARVES AND PIERS ON THE
HUDSON AND EAST RIVERS

Edwin Smith, City Surveyor
G. Hayward, Lith., New York

1855

scale:
1" = 50'



LEGEND

☉ Brick or Stone Stores
 ●first class
 ●●second class
 ●●●third class

☉ Brick or Stone Dwellings
 ●first class (slate or metal roof and coped)
 ●●second class(" " , not coped)
 ●●●third class (slate and shingle roof)
 ●●●●fourth class (shingle roof)

☉ Brick or Stone Dwellings with Stores Underneath
 ○first class (slate or metal roof and coped)
 ○○second class(" " , not coped)
 ○○○third class (slate and shingle roof)
 ○○○○fourth class (shingle roof)

//// Light Manufacturing, e.g., the following in either brick or framed building:

●brick, first class
 *framed, "

bakers	hat manuf.
boat builders	malt houses
brewers	oil manuf.
brush manuf.	oil cloth manuf.
comb makers	private stables
copper smith w/forges	tobacco manuf.
dyers	type and stereotype
floor cloth manuf.	founders
	wheelwrights

●●brick, second class
 **framed, "

book binders	iron founders
brass founders	livery stables
coach makers	paper mills
cotton presses and	printers of books
cotton mills	and job printers

●●●brick, third class
 ***framed, "

blind and sash makers
 bleaching works
 cabinet makers work shops
 carpenters' shops
 candle makers
 chair makers' work shops
 distillers
 gas manuf.
 flour mills
 ink maers (printers ink)
 india ink & gutta percha manuf.
 lamp black and ivory black manuf.
 looking glass & picture frame makers
 musical instrument makers
 omnibus stables
 organ makers
 piano forte makers
 rectifiers of liquors by fire heat
 soap-makers
 tallow melters or chandlers
 wool mills

●●●●brick, fourth class
 ****framed, "

brimstone works
 camphene or spirit gas manuf.
 coffee and spic mills
 chemical laboratories
 drug and spice mills
 fire work manuf.
 planing, groving or moulding mills
 rope and cordage makers
 saw mills
 sugar refineries
 tar boiling houses
 turpentine distilleries
 varnish makers

continued above

☐ Framed Dwellings

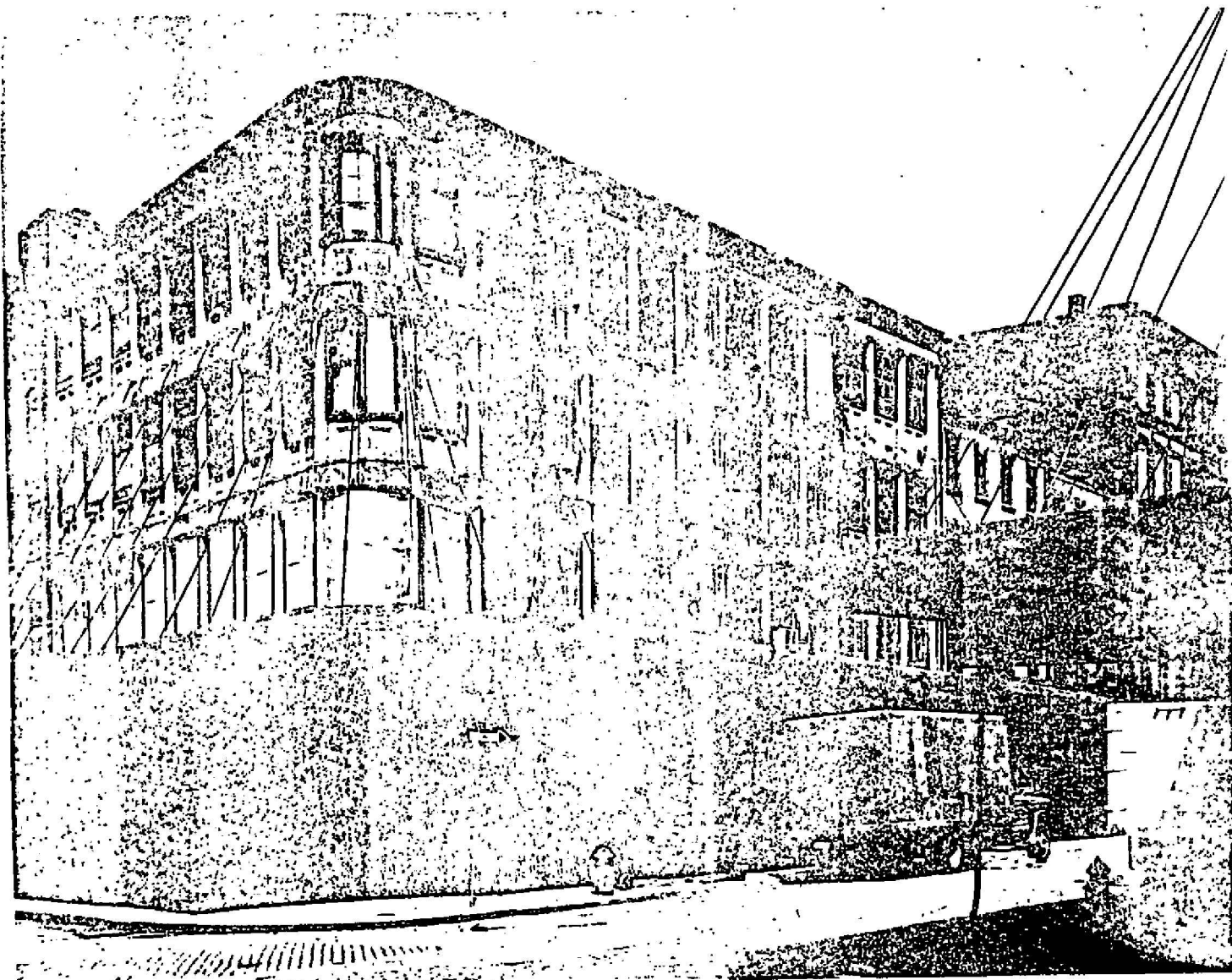
☐ Framed Dwellings with Stores Underneath

☐ Smoke House

☐ Outbuildings

--- Buildings Communicating

A copy from
Silver, 1969: p. 214



Bogardus Loft Building: The Laing Stores, a historically early ironclad exterior, at the northwest corner of Washington and Murray Streets.

A tracing of
 FIFTH WARD MAP, October 1853
 GREENWICH STREET

HUBERT STREET

Wm. Gibbons	"	"	"	R. Williamson	Samuel Bell	Robt. Aansley
J. H. Hains	"	"	"	W. Ellsworth	I. Brower	D. Christie
Est. of Grand	"	"	"	H. D. Plum	H. D. Plum	H. D. Plum
"	"	"	"	Robt. Ridley	Robt. Ridley	Reed
"	"	"	"	Sela VanDuzen	Sela VanDuzen	Chas. W. Jewell
"	"	"	"	Est. of Hen. Stokes	Est. of Hen. Stokes	George Lake

# 378	Cor. Doremus	J. H. Ferris
376	Jos. Jewell	"
374	Garnt Vandolson	"
372	Arch. Somerville	Arch. Somerville 100'
368	Arch. Somerville	Arch. Somerville
366	"	Sela VanDuzen
	Jas. Clark	Robert Buchanan
	" 20'	31.8' 31.8' 40'

WASHINGTON STREET

John L. Brower	116.10'	John L. Brower	116.3'
"	"	"	"
"	"	"	"
John E. Coffee	106.8'	West Point Foundry	25'
"	"	West Point Foundry	25'
"	"	West Point Foundry	25'
"	"	J. R. Livingston	20'
"	"	Hill Kumble	20'
"	"	D. Moore	20'
"	"	J. Harrison	20'
"	"	"	62'

# 378	D. Christie	75'
376	Ed. Truesdale	
374	"	
372	Henry Stokes	
370	"	
368	And: Stark	50'
366	Thom. McKee	25'

Beach Street (width of Beach Street not to scale)

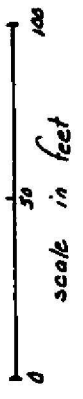
WEST STREET

house #:

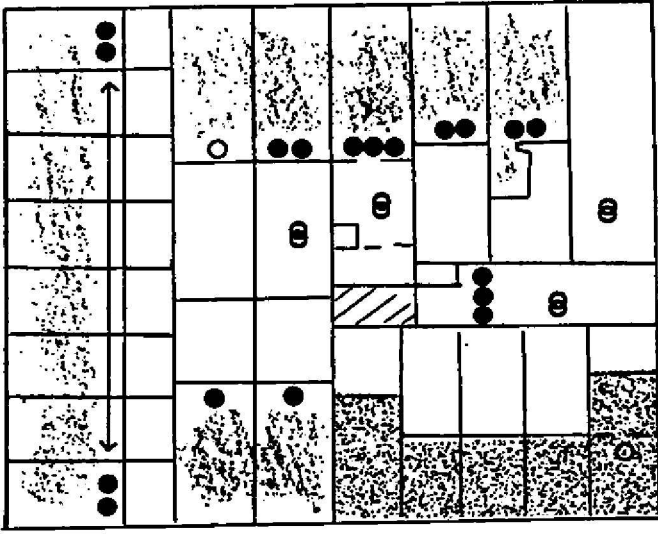
103 101 99 97 95 NORTH MOORE STREET

91 89 87 85 83

A tracing from
PERRIS ATLAS, 1857

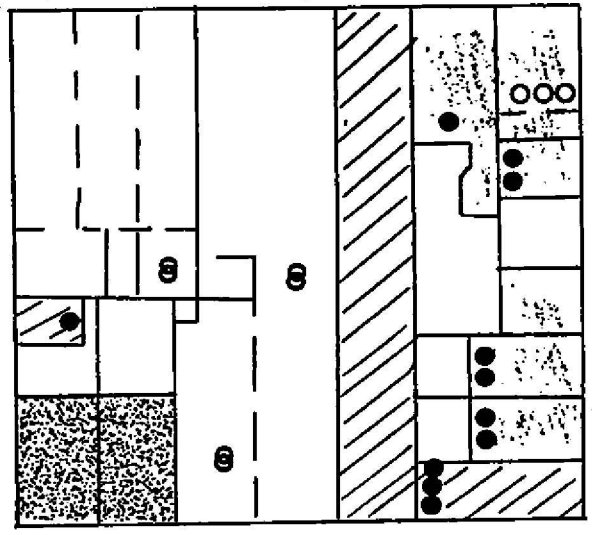


Hubert Street



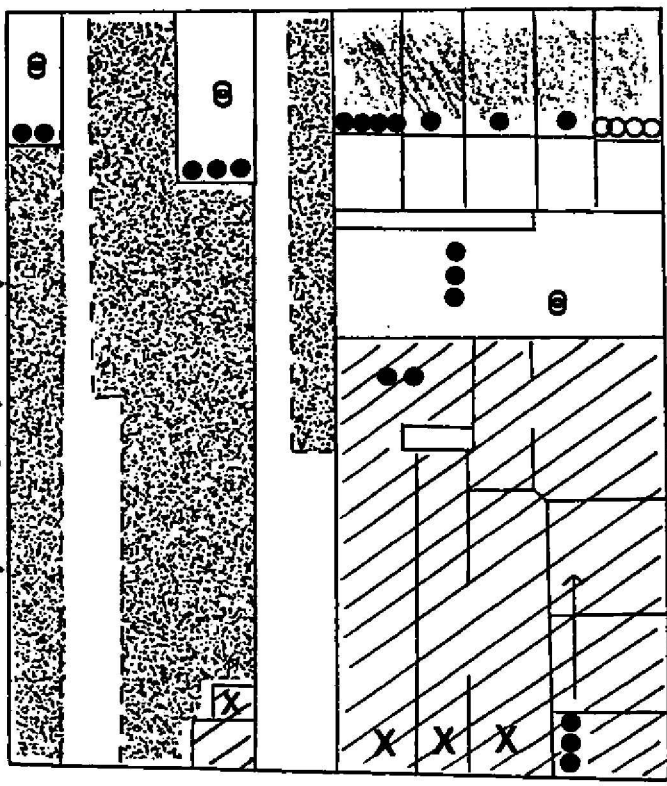
Beach Street

Greenwich Street

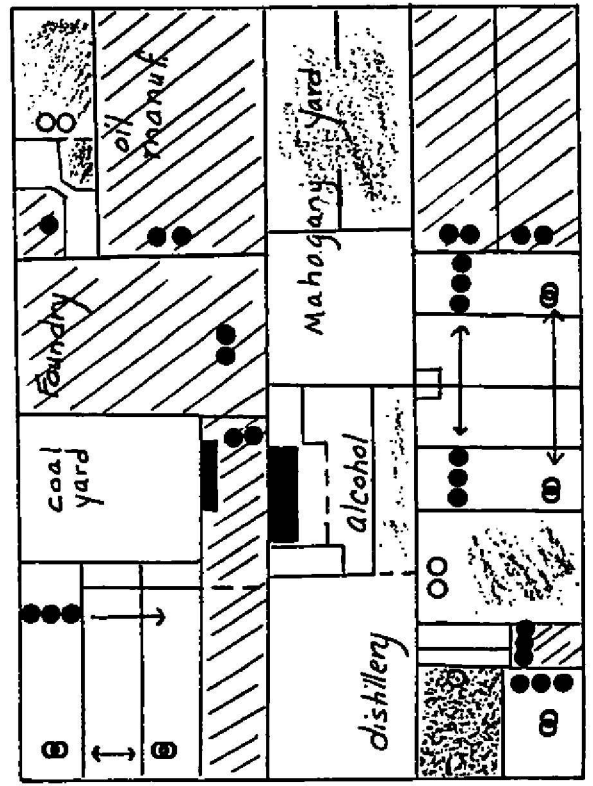


North Moore Street

▼ Mahogany Yard



Washington Street



West Street

LEGEND

■ Brick or Stone Stores
 ●first class
 ●●second class
 ●●●third class

■ Brick or Stone Dwellings
 ●first class (slate or metal roof and coped)
 ●●second class (" " , not coped)
 ●●●third class (slate and shingle roof)
 ●●●●fourth class (shingle roof)

■ Brick or Stone Dwellings with Stores Underneath
 ●first class (slate or metal roof and coped)
 ●●second class (" " , not coped)
 ●●●third class (slate and shingle roof)
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 *framed, "

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boat builders	malt houses
brewers	oil manuf.
brush manuf.	oil cloth manuf.
comb makers	private stables
copper smith w/forges	tobacco manuf.
dyers	type and stereotype foundry
floor cloth manuf.	wheelwrights

●●brick, second class
 **framed, "

book binders	iron foundry
brass foundry	livery stables
coach makers	paper mills
cotton presses and	printers of books
cotton mills	and job printers

continued above

●●●brick, third class
 ***framed, "

blind and sash makers
 bleaching works
 cabinet makers work shops
 carpenters' shops
 candle makers
 chair makers' work shops
 distillers
 gas manuf.
 flour mills
 ink maers (printers ink)
 india ink & gutta serena manuf.
 lamp black and ivory black manuf.
 looking glass & picture frame makers
 musical instrument makers
 omnibus stables
 organ makers
 piano forte makers
 rectifiers of liquors by fire heat
 soap makers
 tallow melters or chandlers
 wool mills

●●●●brick, fourth class
 ****framed, "

brimstone works
 camphene or spirit gas manuf.
 coffee and spice mills
 chemical laboratories
 drug and spice mills
 fire work manuf.
 planing, groving or moulding mills
 rope and cordage makers
 saw mills
 sugar refineries
 tar boiling houses
 turpentine distilleries
 varnish makers

■ Framed Dwellings

■ Framed Dwellings with Stores Underneath

■ Smoke House

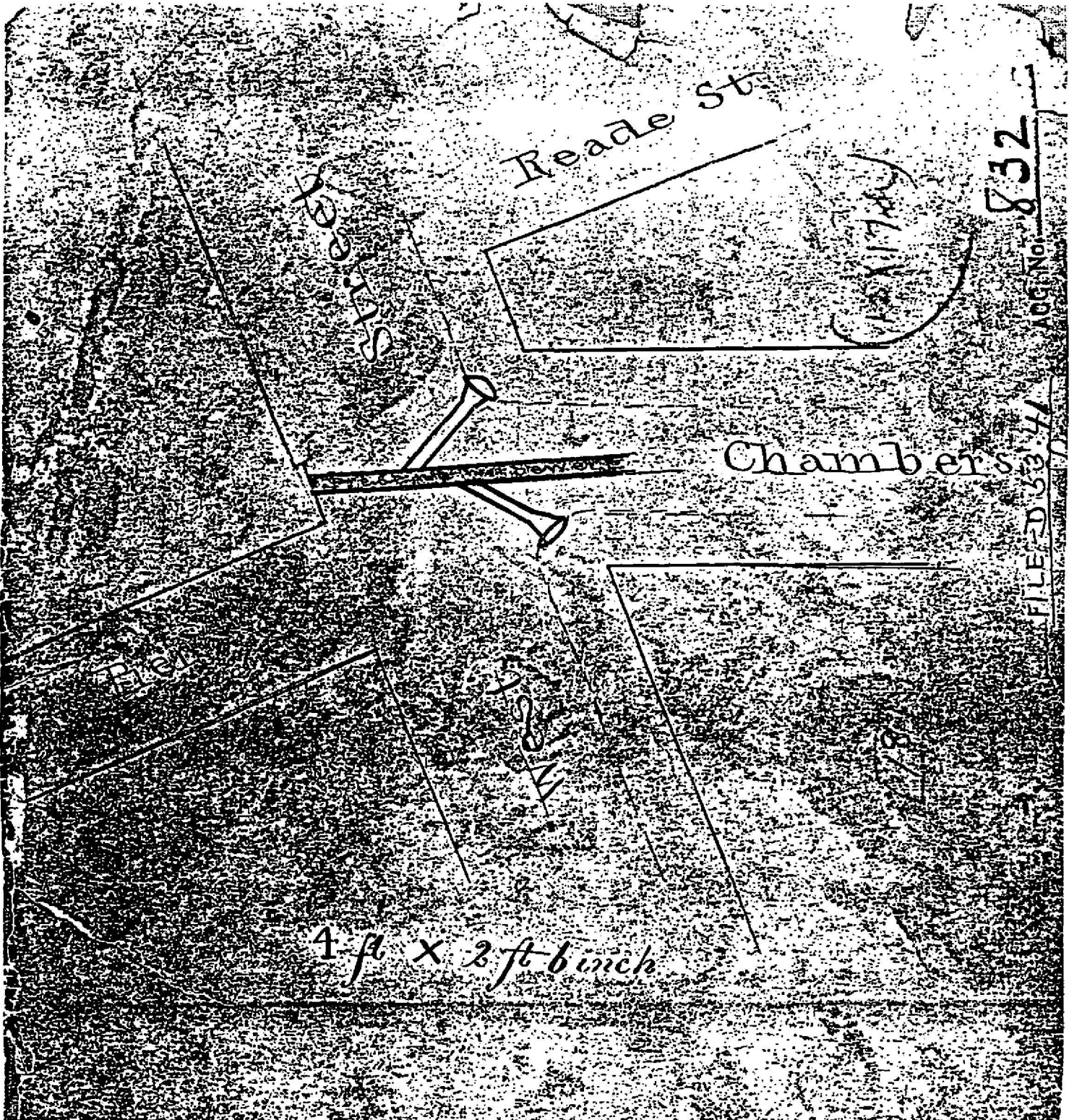
■ Outbuildings

--- Buildings Communicating

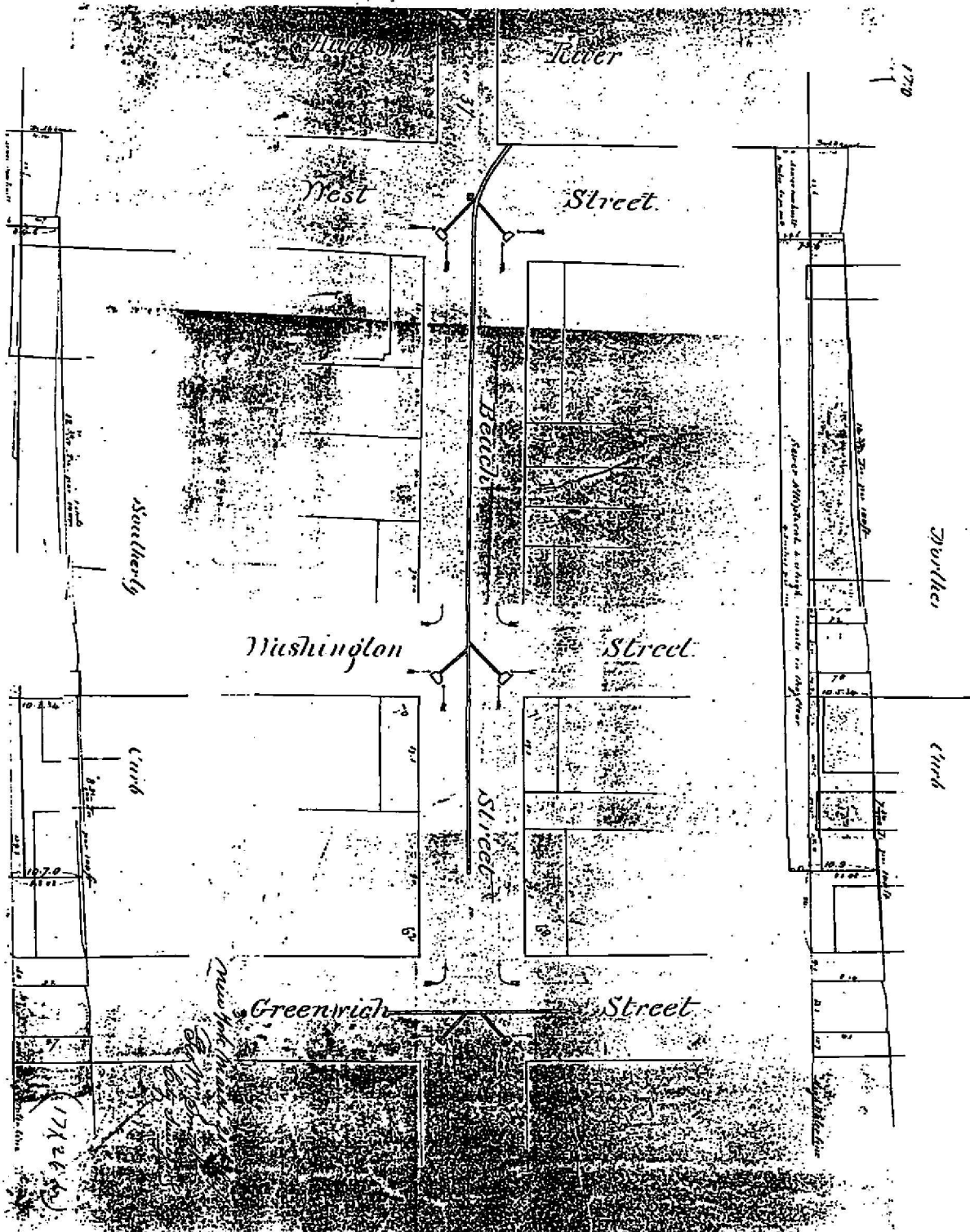
A copy of

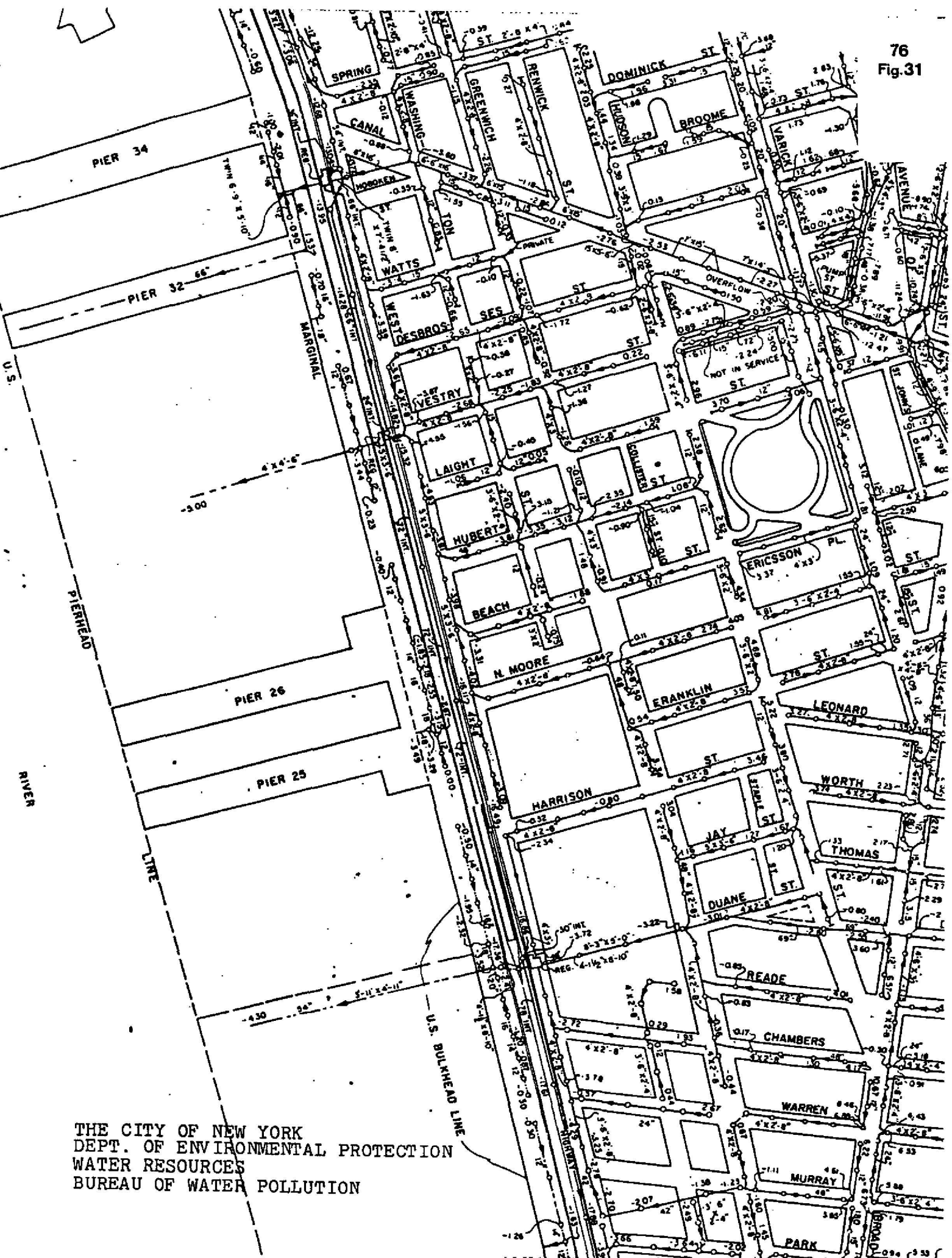
Account Number 832 Plan
c. 1843

Department of Environmental Protection,
Bureau of Sewers, New York City



A copy of
Account Number 1770 Plan
March 20, 1857
Department of Environmental Protection,
Bureau of Sewers, New York City





THE CITY OF NEW YORK
DEPT. OF ENVIRONMENTAL PROTECTION
WATER RESOURCES
BUREAU OF WATER POLLUTION



Murray Street About 1850

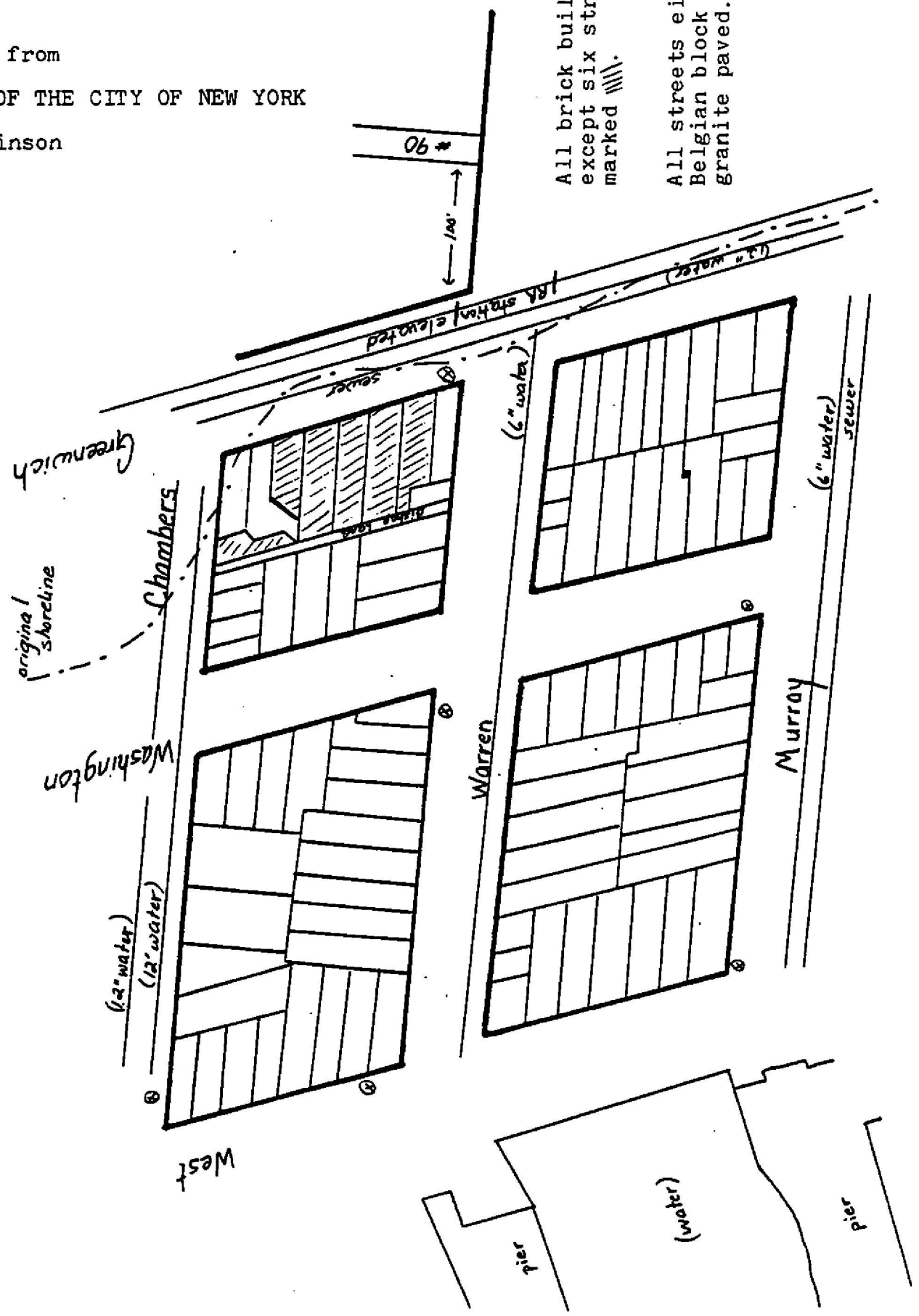
copied from

Asher, 1879: n.p.



"Showing the old firm of Kemp, Day & Co., who date back to 1833, and are the oldest firm in their line in New York. Their Wall Street store, established by Aaron Kemp in 1833, is the oldest building in that street continuously occupied by the same firm. (from the collection of Mr. Sidney Thursby)"

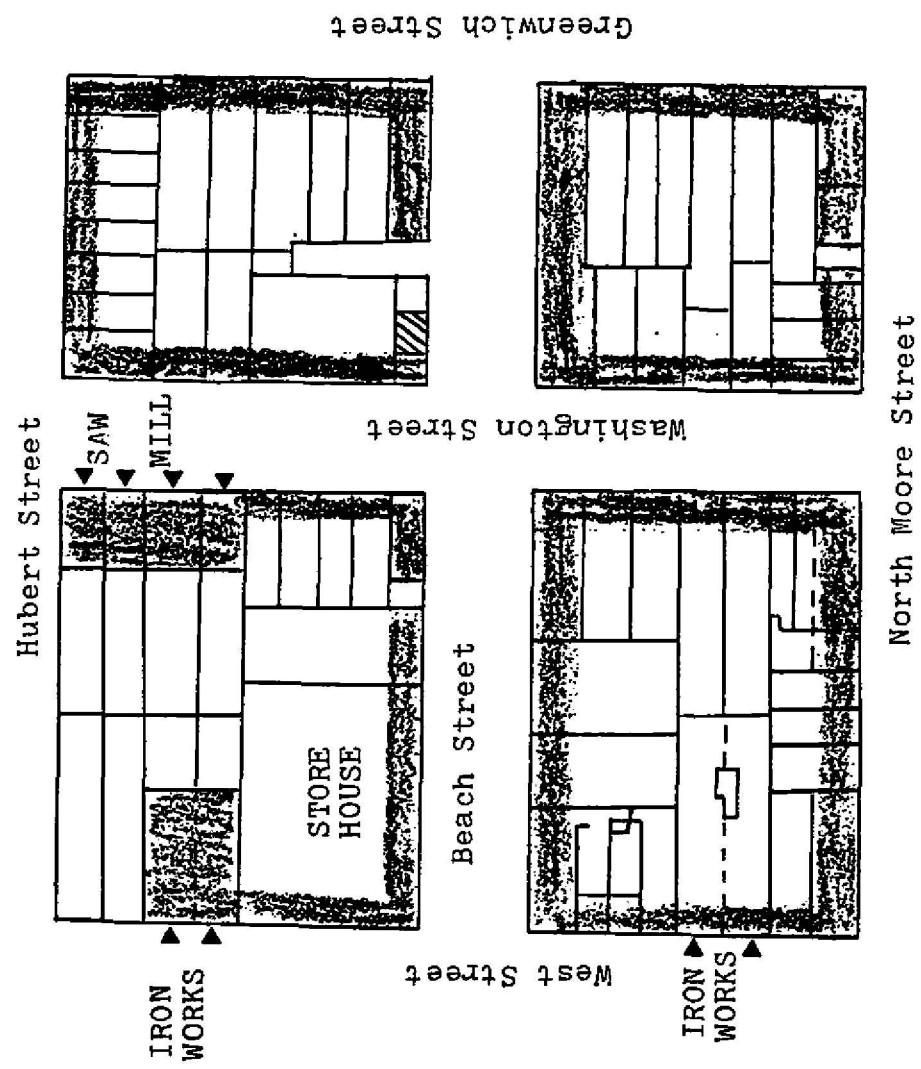
traced from
ATLAS OF THE CITY OF NEW YORK

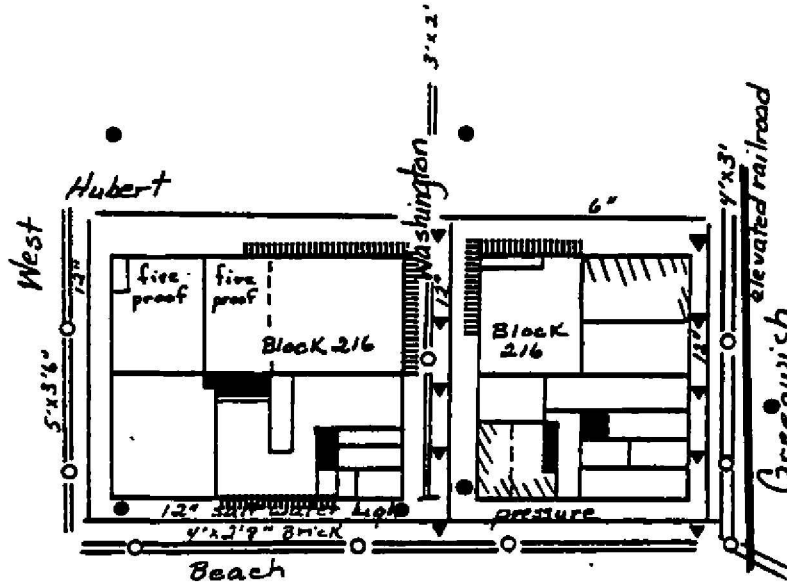
E. Robinson
1881



A tracing of
ATLAS OF THE CITY OF NEW YORK
LYING SOUTH OF 14th STREET
Roger Pidgeon, Plate 7
E. Robinson Company
1881

 brick or iron buildings
 frame buildings





tracing from

ATLAS OF THE
BOROUGH OF
MANHATTAN

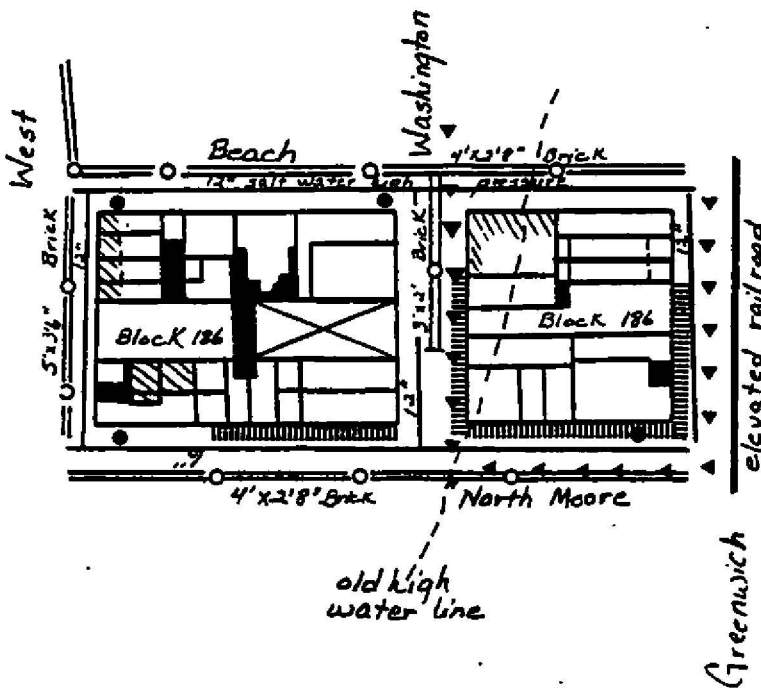
E. Belcher Hyde
1910, corrected
1916-7

Plate 5

scale: 1" = 150'

LEGEND:

- Brick building
 - Frame building/frame facade on brick building
 - Sheet iron cover on brick building
 - Stable
 - Water main with dimensions
 - Sewer/manholes with dimensions
 - Elevated railroad
 - Hydrants
 - Trolley line
- note: no basements indicated



tracing from

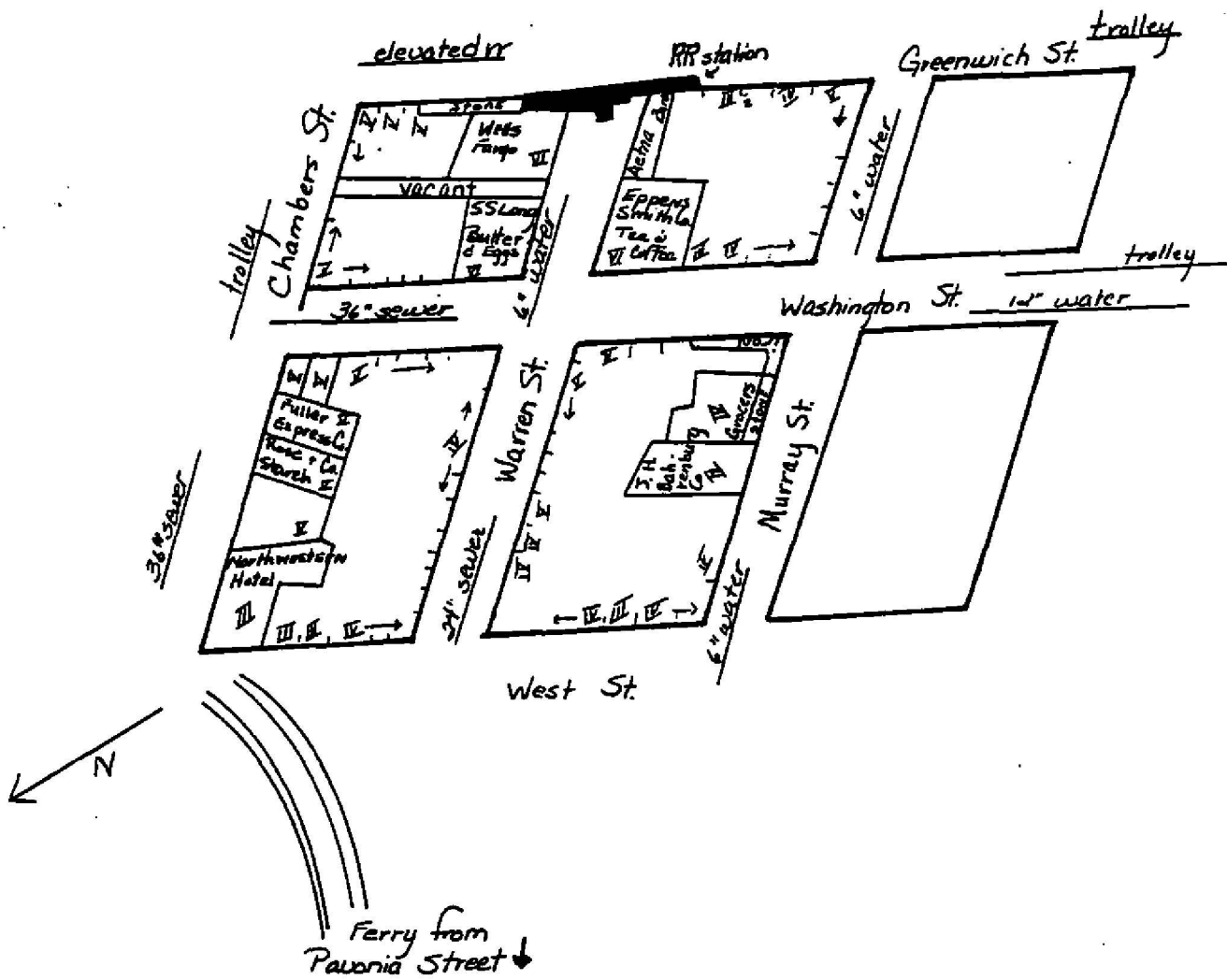
ATLAS OF THE
BOROUGH OF
MANHATTAN

E. Belcher Hyde
1910, corrected
1916-7

Plate 2

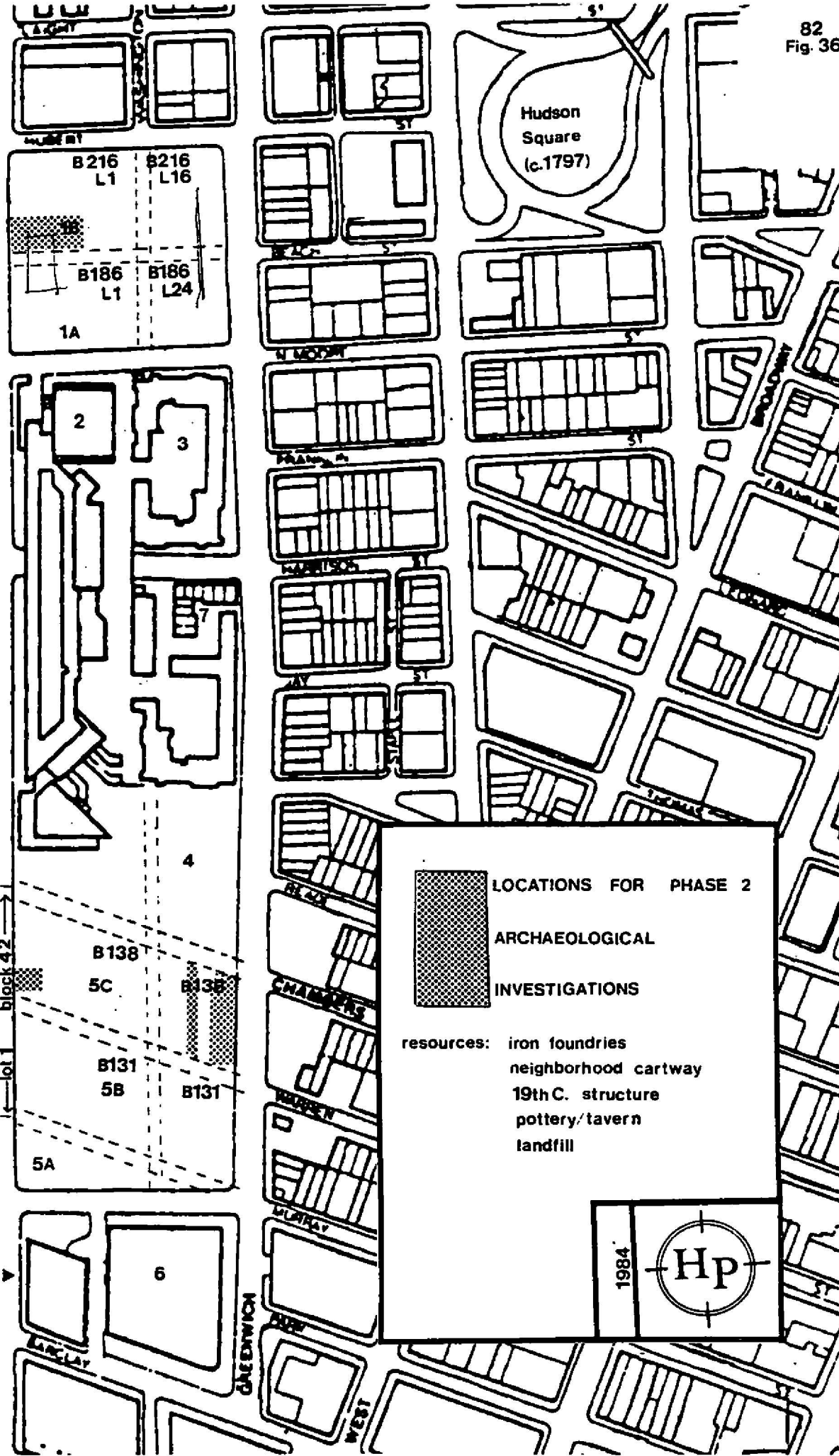
scale: 1" = 150'

tracing of
 ATLAS OF THE BOROUGH OF MANHATTAN
 E. Belcher Hyde
 1910, corrected 1916



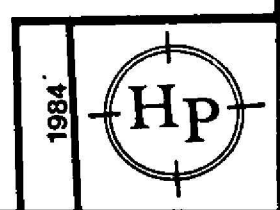
All area covered except
 where noted - with brick
 building

WASHINGTON STREET URBAN RENEWAL AREA: SITES 1A - 7



LOCATIONS FOR PHASE 2
 ARCHAEOLOGICAL
 INVESTIGATIONS

resources: iron foundries
 neighborhood cartway
 19th C. structure
 pottery/tavern
 landfill



IN THE MATTER OF TRINITY CHURCH QUIT RENTS

Mayor, Aldermen and
Commonalty of the City
of New York

to

Rector and Inhabitants
of the City of New York in
communion of the Church
of England.

GRANT
Dated Nov. 18, 1773
Rec. Comptrollers
Office L D page 423

RECITES

Rector etc. being seized in fee of 4 lots in West ward adjoining high water mark on Hudson River, each lot in breadth upon river containing 208 feet, petitioned for grant for all land and soil fronting said four lots on Hudson River from north side of Division Street to ground granted to Governors of the College upon north side thereof to stockadoes at low water mark and soil under water from thence 200 feet into river.

GRANTS

All that space of land and soil fronting three of their said lots, pieces or parcels of land containing together in breadth on Hudson River 524 feet English measure beginning from the north side of Veysey's Street and so extending from thence to the land and soil granted to the Governors of the College adjoining to a street called Barclay's Street and from the north side thereof to the north side of Chambers Street at low water mark and the soil under the water from thence the whole breadth thereof 200 feet into said river as by survey annexed under the yearly quit rent of one shilling a foot forever for the whole breadth thereof to commence from the date of the grant and to be made for the same.

Yielding, rendering and paying therefor on the 18th day of November next ensuing the rent or sum of L31-4 sh in Spanish milled pieces of eight at 8 sh each or the value thereof in gold and lawful money of the Colony of New York and the like sum of L31-4 sh on every 18th day of November forever and thereafter in full satisfaction of all other rents services, dues, duties and domains whatsoever for same three lots without any deductions, defaulcation or abatement for or in respect of any manner of taxes, rates, charges, assessments, impositions or

duties whatsoever. If yearly rent be behind or unpaid in part or in all by space of 20 days next after any day of payment (being first demanded) City may enter and destrain and same detain and withhold until rent arrearages and damages are fully paid, or to sell same for payment thereof or to reenter and repossess.

Parties of 2nd part covenant to leave a street 66 feet English measure in breadth all along high water mark, the whole breadth of ground granted to be called Greenwich Street or 1st Street and to remain a public street and to leave another street of 40 feet in breadth 160 feet from Greenwich Street to be called 2nd Street (at which distance low water mark is deemed) also another street 40 feet in breadth at outward or westernmost part of the 200 feet beyond low water mark the whole breadth of said water lots and to be called 3rd Street and that it will leave out of the ground soil and water lots the whole length thereof 40 feet to be added to Barclay's and Murray's Streets 20 feet to south side of Barclay's Street and 20 feet to north side of Murray's Street and will lease out two other streets of breadth of 40 feet each, one to range with Warren Street and other to range with Chamber Street in order that said two streets may be extended into Hudson River the whole length of granted premises, such streets be laid out as directed by a city surveyor and shall be completely made and finished on or before Mar 25, 1790 and from thenceforward and at all times thereafter shall be maintained, sustained, kept and repaired by Rector etc of Trinity Church, their successors and assigns, but said streets to be public streets.

Mayor, Aldermen & Commonalty
of the City of New York

ASSIGNMENT

to

Dated Nov 16, 1835
Rec in Comptrollers
Office
Liber H page 118
Cons \$1560

Rector, Churchwardens and
Vestrymen of Trinity Church
in the City of New York.

RECITES

Grant of Nov. 18, 1773 of land under water 624 feet in breadth on Hudson River at yearly rent of L31-4 sh to Rector and inhabitants of the City of New York in communion of the Church of England and that grantee is now known as Rector, Churchwardens & Vestrymen of Trinity Church in the City of New York and by that or some former name have at different times sold and conveyed premises so granted or portions thereof to several persons in lots or parcels subject to and charged with payment of proportional shares of rent reserved by grant, such shares being payable by owners to Rector etc of Trinity Church and that it

has been agreed between parties hereto that rent so reserved by said grant shall on payment of \$1560 by Rector etc of Trinity Church to Mayor etc. be assigned and transferred to the end that Rector etc may as to rent reserved stand in place and stead of Mayor etc and as to such parts, parcels as have since been sold, may continue to collect and receive from respective owners the proportional shares of said rent so charged thereon and that residue of said land shall be held by Rector etc.

Appendix 2

TAX ASSESSMENT ROLLS FIFTH WARD 1808

LOCATION: Murray Street. - seems to be both sides going east

NAME	HOUSE AND LOT	HOUSE NUMBER	REAL ESTATE Val.	PERSONAL Val.	REMARKS
Wm. Denning	dock & bason		6000		
John McKe son	House		300		
Joseph Bettit	in			100	
William Stone	H	96	900	200	artillery
Wm. Denning	H		1200		
Abraham Shotwell	in			500	
Wm. Denning	H			150	
" "	Distillery		3200		
Robt. Jamison	4 sm. shops	87			
L. Beraribin	in	600			
Robt. Jamison	H	85	1100		
Sam. Beatis	H	83	900	100	
Wm. Stevenson	in			100	
Thom. Alman	H	81	1300	150	
Wm. Wale	in			100	
Joseph Treadwell	in			100	
John Delaney	H	79	1900	150	
James Dutz	in			100	

LOCATION: Chambers Street - between Greenwich and Washington

Doctor Bradhurst	back House		700		
John Battice	in			100	
James D. Westervelt	H	104	1400	200	
Geo. Goodheart	in			150	
D. Bradhurst	lot/corner of Washington St.		1000		

LOCATION: Washington Street - probably north to south

Doctor Bradhurst	H	345	2400		
Alex McDongall	in			600	
Capt. Skinner	H	343	2900		
John H. Price	in			400	
Sam Wood	H	341	2000		
Capt. Issac Little	in			400	
P. P. Van Zandt	House on ChambersSt.		2700		
Wm. Denning	2 lots corner Warren and Washington				
Wm. Denning	4 lots and shop corner of Greenwich and Warren				
Wm. Denning	6 lots corner of Warren and Washington				

1808, continued

LOCATION: Warren Street - no south side given west of Greenwich
 slate yard

P. P. VanZandt	and Lot		400	
Hugh McIntire	H	122	1200	
Scofield Hatfield	H	120	1350	
Miller Baker	L&2L		1400	
P. P. VanZandt	2L		1000	
Latham	H		1450	
Peter Pride	in			100
John Garrison	in			150
Tunis Van Pelt	H	2300		
John Wood	in			500
Wm. Bailey	L&H	102	1900	150
Elias Burger	H	corner/Green	3400	
M. Rogers	H	96	1000	
James Patterson	in			200
Mrs. Rogers	&H	94	400	
Allen Graham	in			100

corner/Washington

TAX ASSESSMENT ROLLS THIRD WARD 1825

NAME	HOUSE OR LOT	HOUSE NUMBER	REAL ESTATE VALUE	PERSONAL VALUE	REMARKS
LOCATION: Warren Street bewtween Greenwich and Washington - north side					
Daniel Rogers	H&L	(corner)	5500		boarding house
Wm. Peck				400	
George Peck				400	Gent.
John Bingham	H&L	102	2400		
Wm. Bailey	H&L	104	2700		
Abraham Lockwood	H&L	"		1000	
A.G. Carpenter	H&L	"		1000	
Tunis Van Pitt	H&L	106	3600		
J. Fossbery	H&L	"		1000	
Hartman Vreeland	H&L	"		1000	
LOCATION: Warren between West and Washington - north side					
J. Skillman	H&L	110	2900	100	carpenter
Geoge Janeway	H&L	114	2500		
John Turnbull	H&L	"		1000	mahoging
Geo. Janeway	2 L ots		2500		
LOCATION: Warren between Greenwich and Washington - south side					
John Crapser	H&L	101	2000		
B. Forrest	H&L	"		200	tailor
Wm Denning	1 lot		2500		
Est. Bl Tamage	"		1500		
E. C. Genet	"		1500		
Floyd	"		1500		
Stephen Burkman	"		1500		
Geo. Janeway	H&L		1500		
Moody Wood	"		2300		
Asa Dillis	"			100	
Geo. Janeway	lot			100	
			1500		
LOCATION: Chambers Street between Greenwich and Washington - south side					
Geo. Janeway	H&L	172	2700		
Wm. Halstien	in			1000	
Geo. Janeway	H&L	174	2300		
" "	lots		6800		

(The remainder of the 1825 tax assessment rolls, in addition to the 1839 rolls, have been studied and copies of them are on file with Historical Perspectives.)

Appendix 3

TAX ASSESSMENT ROLLS FIFTH WARD 1808

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value
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LOCATION: North Moore Street - seems to be the north side going west

Andrew Bennett	H	51	900	100
Ezra Allen	in			100
Thomas M. Gahagan	in			100
John Barker	H		1200	100
Widow Van Houten	H		1300	
James Stewart	in			100
Henry Mead	in			100
John Tallman	H		850	100
James Coterill	in			100
Abraham Bower (Corner)*	H		1800	
John Queen	in			150

*Seems to be the corner of Washington and North Moore Streets

LOCATION: Beach Street - seems to be going west

Widow Stymes	H (Corner Greenwich)		1200	
John Quackinbush (Corner)			3500	800
Nichol Quackinbush	in			300
Herman LeRoy	H		3300	
Robert Buchan	H		3400	
Edward Laight	in			800
John E. West (Corner)	H & L		2200	150

LOCATION: Hubert Street- only listings

Burris	1 Lot (corner alley)		500	
Clarkson	1 Lot		500	
Abraham Lewis	3 Lots (Corner of Greenwich)		1800	100
Hugh Cameron	in			100
John Leake	2 Lots (Corner of Washington)		700	
John Leake	4 Lots (Between Wash. & West)		1600	
James Donaldson	2 Lots (From Wash. to West)		800	
James Donaldson	H (Corner)		900	150
James Donaldson	H (Corner Greenwich)		1400	

LOCATION: Greenwich Street - seems to be the west side

Robert Buchan	H	367	1600	
Cornelius Mabie	H	365	950	
John Tule (?)	in			100
James Hardie	H	363	1400	150

1808 Tax Rolls Continued

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value
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LOCATION: Greenwich Street Continued

Robert Luckie	in			100
Abraham Lawson	in			100
Patrick Reed	in			100
John Robert	in			100
John Bruce	in			100
Adam Logan	H	361	1300	100
Charles Stoutengen	in			150
John Walder	H	358	1300	
John Moffet	in			100
John Dow	in			
N. McDougall	in			100
Michael Little	H		3100	
William Rhineland	H	360	700	
George Jourdan	H	362	1400	
James Leckie	in			150
Robert Cobusin	in			100
John Hughes	in			150
Francis Wilson	in			100
William Oliver	in			100
Alexander Thomson	H		700	100
William Rhineland	2 Lots (Corner Beach)		1200	
Elias Dob	H	379	1800	200
David A. Ogden	1 Lot		600	
Abraham Russell	1 Lot		600	
Jacob Van Tassel	H	373	1600	
John McKie	in			250
James Paxton	H	372	700	100
Alexander Walder	in			100
James McKean	H	374	700	100
Samuel Hogan	in			100
Thomas Foot	H	376	750	
John Pettitt	in			100
William Ferguson	1 Lot & Sawyard		1400	
Joseph Newton	H & Lots		4600	
Joseph Newton	H		4600	
John Leake (Corner)	H & 2 Lots		1300	
William Rhineland	Ground and sawmill on Washington, Beach and West Streets		6000	

TAX ASSESSMENT ROLLS FIFTH WARD 1815

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value	Remarks
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LOCATION: North Moore Street between Greenwich and West Streets going west but cannot differentiate between north and south sides of North Moore Street

Robert Buchan	H & L		2500		
Robert Buchan	H & L		2500		
John Wikie (?)	in			10000	
Henry Robertson	H & L		2500	5000	
Gerard and William Port	3 Small Lots on Wash.		4500		
Joseph Hucks	3 Lots		3750		
John Collard	2 Small Lots in West		2750		
Francis Cockran	2 Small Lots		2750		
John McKie and Sons	West, Wash. & Green.		10000		
Joshua Barker	H & L on Greenwich		6500	500	
John Graham	H & L	71	2300	100	
Mathew Beard	in			100	
Henry Berry	in			100	
Mary Vanhouten	H & L	69	2300		
Henry Marks	in			100	
John Gunter	in			100	
Abraham Storm	in			100	
"Cov" Maibie	H & L	67	3000	200	
John B. Fox	in			100	
William Busserry	Ch (?) & L	65	2000	100	
Thomas Campbell	H & L	63	3000		

LOCATION: Beach Street - North and south sides between Greenwich and West

Phillip Rhineland	5 Lots east side Washington		7500		
Phillip Rhineland	10 Lots on Wash., Beach & West		14000		
Robert Fulton	2 Lots		2500		
Murray and Ogden	9 Lots Between West & Washington		13500		
Murray and Ogden	4 lots East side of Washington		6000		
George Bisset	Shop & L		700		
Rich and Shotwell	H & L on Greenwich		2500		
James Douglass	in			100	
John Quackenboss	H & L on Greenwich		8000	8000	

1815 Tax Rolls Continued

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value	Remarks
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LOCATION: Hubert Street - Between Greenwich and West but cannot differentiate between north and south sides

William Paulding	1 Lot on Alley		1750		
David Clarkson	1 Lot on Alley		1750		
David Clarkson	1 Lot		1700		
Charles Watts Jr.	2 H & Ground from Washington to West		7000		
John Collard	in			200	
Adrian B. Holms	in			100	
Abraham Degroot	in			100	
James Donaldson	H & L on Washington		2000	100	
John Turnbull	in			100	
James Donaldson	H & L on Greenwich		3000		

LOCATION: Greenwich Street --West side between North Moore and Beach

Francis Cockran	H & L	367	3500		
John Dow	in				Artillery
Cornelius Maybee	H & L	365	2500		
Andrew Carr	in			100	
William Beacket	H & L	363	3000	500	
Abraham Lawsen	in			100	
James Currie	in			100	
Henry Acker	in			100	
Anthony Wilson	in			100	
Adam Logan	H & L	361	3000	100	
Hosea Dodge	in			100	
Joshua Barker	H & L	359	3500		

LOCATION: Greenwich Street - West side between Beach and Hubert

Corporation of Trinity Church	1 Lot on Hubert		6500		
Elias Dobb	H & L	379	5500		
Abraham Russell	H & L	377	7000		
John Leggett	1 Lot	375	2000		
Jacob Van Tassell	H & L	373	4000	200	
Joseph Lyons	in			100	
Murray and Ogden	3 Lots*		6000		

*Possibly corner of Beach Street

1815 Tax Rolls Continued

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value	Remarks
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LOCATION: Washington Street between North Moore and Hubert

Abraham Showell	H & L		3250		
Thomas Campbell	3 Small Lots on North Moore		4000		
Joseph Newton	4 Lots and West St.		6000		
John G. Lake	4 Lots and West St.		7000		

TAX ASSESSMENT ROLLS FIFTH WARD 1825

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value	Remarks
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LOCATION: North Moore Street - North side between Washington and Greenwich

John McKie (Corner)	H & L	91*	2800		
Alfred Thomas				200	
John McKie	H & L	89	2600		
Amos Ketchum				300	
John McKie	H & L	87	2600		
Morris Ketchum				300	
Robert Buchan, Jr.	H & L	85	1600		
E. G. Smith				200	

*Furthest west on North Moore is #91 which in 1834 is the corner of North Moore and Washington Streets

3 lots and foundry listed on south side of North Moore Street at western end between Washington and West Streets

LOCATION: Beach Street - North side between West and Greenwich going east

West Point Foundry Association	10 Lots & Building*		14000		
Col. Barclay	Stable and Lot		1400		
Herman LeRoy	H & L	55	5500		
Israel Foote					Artillery
Henry F. Jones (Corner)	H & L	53	5800		
Mary McClenachan				500	

*Probably is the entire block between West and Washington Streets making the corner (listed under Jones) Beach and Greenwich

LOCATION: Beach Street - Probably the south side of Beach Street, No boundaries or crossings given so listing the 7 westernmost parcels

William Rhinelander	L		800		
William Rhinelander	L		800		
William Rhinelander	L		900		
James Wallace	L		1200		
James Wallace	L		1200		
James Wallace	L		1200		
James Wallace	L		1200		

LOCATION: Hubert Street - South side (entire listing, no cross streets)

David Clarkson	L		1000		
David Clarkson	L		1000		

1825 Tax Rolls Continued

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value	Remarks
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LOCATION: Greenwich Street— West side from Hubert to Beach going south

I. G. Drake	Lot (Corner)		1700		
I. G. Drake			1500		
Joseph Newton	H & L	390	6000	1000	
John P. Newton				3000	
Joseph Newton	H & L	388	6000		
John Van Buran				5000	
Col. Barclay	H & L	386	6300		
Col. Barclay	H & L	384	4800		
Col. Barclay	H & L	382	4800		
Henry Crayer				1000	
George Luke (Corner)	H & L	380			Quaker
Underhill & Ferris		(Corner)	3000		
Underhill & Ferris	Lot		1300		
Underhill & Ferris	Lot		1300		
Alexander Thomson	Lot 372		1300		
William Rhineland	H & L	370	1400		
John Hayman				200	
David Rogers	H & L	368	7000		
Samuel Betts	H & L	366	5500	1000	
-----				200	
William Betts				300	
James Dick	(Corner)		2000		

LOCATION: Washington Street - East side from North Moore to Hubert going north

Thomas H. Smith (Corner)	H & L	329	2800		
Elbert Herring	H & 6 Lots		7000		
John Burdett	H & L	333	1100		Artillery
L. Skidmore		335	800		
William Falconer	H & L	347	900		
David Rogers	Lot		1000		
William Rhineland	H & L		1300		
G. Van Dolson	H & L	361	3000		
Elizabeth Ludlow				1000	
James Westervelt	H & L	363	3000		
Henry Fanning				1000	
M. Doremus (Corner)	H & L	365	3200		
L. G. Irving				600	
Thomas Stokes (Corner)	H & L		2000		
R. McKeys				100	
Kinlock Stuart	H & L	371	1800		

1825 Tax Rolls Continued

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value	Remarks
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Washington Street continued

Joseph Tute				200	
Kinlock Stuart	H & L	373	1800		
Benjamin Bakewell				400	
Kinlock Stuart	H & L	375	1800		
Thomas Creighton				100	
John Moffat				300	
David Christie	H & L	377	2400		
---- Hall				200	
Joseph Newton	Lot		1000		
Joseph Newton	Lot		1000		
John G. Leake	Lot		1000		
John G. Leake (Corner)	Lot		1100		

Total list for West Street in Fifth Ward was obviously south of North Moore Street and out of the project area.

TAX ASSESSMENT ROLLS FIFTH WARD 1850

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value	Remarks
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LOCATION: North Moore Street - North Side between West and Washington going east.

Garret de Forrest	H & L	101	3500		
Samuel Webb		99	3500		
William Crane		97	3200		
Thomas McKie (Corner)		95	2200		
Estate of James Clark		91	4000		
Samuel Burrill		89	3300		
John B. Martin		87	3300		
Robert Buchan		85	2000		
Robert Buchan		83	2000		

LOCATION: Beach Street - South side between Washington and West going west (no listing between Greenwich and Washington)

West Point Foundry		72	2000		
William Harrison		74	2000		
Wood & Mabbie (?)		76	2000		
(Estate of William Rhinelander)					

LOCATION: Beach Street - North side between West and Greenwich going east

Joseph E. Coffee (Corner) H&L		77	2900		
Joseph E. Coffee		75	2900		
West Point Foundry		73	3200		
West Point Foundry		71	3200		
B.D. & W. Moses (Corner of Beach, Washington and Greenwich)		65	5000		

LOCATION: Hubert Street - South Side between Greenwich and Washington going west (no listing for Washington to West)

William Gibbons (Corner)		19	4300		
William Gibbons		21	3800		
William Gibbons		23	3800		
William Gibbons		25	3800		
Richard Williamson		27	3800		
Richard Williamson		29	3800		
Richard Williamson		31	3800		
Estate of James Lain		33	3800		

1850 Tax Rolls Continued

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value	Remarks
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LOCATION: Greenwich Street - West side between Hubert and North
Moore going south

Samuel Bell	(Corner)	402	5500		
Robert Ainslie		400	5800		
B. D. & W. Moses		386	7000		
Brown, Brothers & Co.		384	4200		
Charles W. Sewell		382	4200		
George Harrison		380	4000		
John H. Ferris	(Corner)	378	5000		
John H. Ferris		376	4000		
John H. Ferris		374	5000		
John H. Ferris		372	5000		
Archibald Somerville		368	6000		
Archibald Somerville		366	6000		
Robert Buchan		364	3000		

LOCATION: Washington Street - West side between Hubert and North
Moore going south

John L. Brower	(Corner) H & L	396	4500		
John L. Brower	Lot	394	3000		
John L. Brower	H & L	392	5000		
John L. Brower	Lot	390	3000		
John R. Livingston	H & L	388	3000		
William Kemble		386	3000		
Estate of David Moore		384	3000		
James Harrison		382	3000		
James Harrison		380	3800		
David Christie	(Corner)	378	4200		
Edward D. Truesdell		376	2500		
Edward D. Truesdell		374	2500		
Henry Stokes		372	3000		
Henry Stokes		370	3000		
George E. Rodman		368	3800		
Thomas McKie		366	3000		

LOCATION: Washington Street - East side between North Moore and
Hubert Street going north

Claus Dosches	H & L	369	4000		
Underhill & Ferris		371	1800		
Garret Van Dolson		373	3000		
Charles M. Servill (?)		375	3000		
Cornelius Doremus		377	3800		

1850 Tax Rolls Continued

Name	House and Lot	House Number	Real Estate Value	Personal Estate Value	Remarks
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Washington Street- East side continued

William Hrrison (Corner)		379	3000		
Peter C. Ruck		381	2500		
Robert Ridley		383	2300		
Rath D. Plum		385	2300		
David Christie		387	2800		
George Bricklush, Jr. (?)		389	4500		
William Gleworth		391	4900		

LOCATION: West Street—East side from North Moore to Hubert going north

Gerardus de Forest (Corner)		226	5000		
Gerardus de Forest		227	1500		
Rodman and Co.		229	3500		
Rodman and Co.		230	3000		
William Harrison		231	2800		
William Harrison		232	2800		
William Harrison		233	3500		
Joseph E. Coffee (Corner) H & L		235	3800		
Joseph E. Coffee		236	2400		
Joseph E. Coffee		237	2400		
Joseph E. Coffee		238	3500		
John L. Brower	Lot	239	3300		
John L. Brower		240	3300		
John L. Brower		241	3300		
John L. Brower		242	4000		

TAX ASSESSMENT ROLLS FIFTH WARD 1875

Name	Stories High	Number of Buildings on Lot	Street Number	Real Estate Value
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LOCATION: North Moore Street - North Side between Greenwich and West going west

S. E. Fletcher (Corner)	2	1	77	4000
S. E. Fletcher	2	1	79	4000
John B. Martin (19x50 ft)	2	1	81	4500
A. Brower (19x50 ft)	2	1	83	4500
A. Brower (305x50 ft)	5	1	85	7000
Ralph J. Brush (Corner)	5	1	97	8000
Augustus Enbury	5	1	99	8000
A. E. Enbury	5	1	101	8000
Burton Thorne	3	1	103	5000

LOCATION: Beach Street - North side between Greenwich and West going west

C. A. Moses (Corner of Greenwich, Beach & Washington)	4	1	65	
Shippard Knepp (Corner of Washington, Beach & West)	2 (40'3" x 100'6"0)	1	71	9000

LOCATION: Beach Street - South side between Washington and West going west (no listing for Beach Street between Greenwich and Washington)

Estate of William Rhineland	1	1	72, 74	10000
William Harrison	4	1	76	15000

LOCATION: Hubert Street-South side between Greenwich and Washington going west (no listing for Hubert Street between Washington and West)

William Gibbons (20 x 50 ft)	2	1	19	5500
William Gibbons (20 x 50 ft)	2	1	21	4500
William Gibbons (20 x 50 ft)	2	1	23	4500
William Gibbons (20 x 50 ft)	2	1	25	4500
James Haine (20 x 50 ft)	2	1	27	4500
James Haine (20 x 50 ft)	2	1	29	4500
Jacob Fitzgerald (20 x 50 ft)	4	1	31	6000
Jacob Fitzgerald (20 x 50 ft)	4	1	33	6000

1875 Tax Rolls Continued

Name	Stories High	Number of Buildings on Lot	Street number	Real Estate Value
LOCATION: Greenwich Street-West Side between North Moore and Hubert going north				
S. E. Fletcher (Corner)	3	1	380	7000
William Mulberry	3	1	382	11000
Estate of C. Descher	5	1	384	1600
Thomas Smith	5	1	386	} 70000
Thomas Smith	5	1	388	
Thomas Smith	5	1	390	
Thomas Smith	5	1	392	
Thomas Smith	5	1	394	
George Harrison (Corner)	4			1400
John Connelly	4			1200
John O'Neil	4			1200
William Moses				} 2200
William Moses	2			
William Moses	1			
R. Ross, Jr.	1			11000

LOCATION: Washington Street.- East Side between North Moore and Hubert going North

Estate of Claus Doscher (Corner)	5	1	369	14000
Thomas Smith	5	1	371	10000
Nathan Worley	5	1	373	12000
Thomas (?) Walling	2	1	375	7500
Thomas Walling	2	1	377	9000
Augustus Embury (Corner)	3	1	379	6000
Peter C. Ruch	3	1	381	5000
Robert Ridley	2	1	383	4500
Peter Lynch	2	1	385	4500
Peter Lynch	2	1	387	4500
William Piggott	2	1	389	5500
F.W. Schmall	2	1	391	5500

LOCATION: Washington Street - West side between North Moore and Hubert going north

William M. Kell (Corner)	2	1	366	14000
R. C. Bush	2	1	368	10000
Harris & Willoughby	2	1	370	11000
Harris & Willoughby	2	1	372	11000
E. D. Treadwell	2	1	374	7000
E. D. Treadwell	2	1	376	7000
David Delaney	2	1	378	10000

1875 Tax Rolls Continued

Name	Stories High	Number of Buildings on Lot	Street Number	Real Estate Value
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Washington Street Continued

Martin Hencken (Corner)	4	1	380	11000
B. F. Domming	2	1		4500
O. H. P. Archer	2	1	384	4500
James Redmond	3			
James Redmond	3			
John L. Brown (25 x 116 ft)	Lumber yard			
John L. Brown	Lumber yard			
John L. Brown	Lumber yard			
John L. Brown (25 x 35 ft)	3		396	9000
	Lumber yard			

LOCATION: West Street - East side between North Moore and Hubert

Y. De Forrest	2	3	226	16000
Y. De Forrest	2	3	227	14000
E. D. Treadwell	3	1	229	15000
E. D. Treadwell	3	1	230	15000
William Harrison	4	1	231	9500
William Harrison	4	1	232	9500
William Harrison	4	1	233	9500
William Harrison	4	1	234	12500

Appendix 4

Soil boring logs and profiles, although often frustratingly cryptic and inconclusive, can: (1) validate the historical record in regards to the presence of fill; (2) yield depth of fill measurements; and, (3) detect anomalies. The evidence, however, taken from widely spaced, regulated interval, two and one-half inch spoon samples cannot accurately predict the presence or absence of archaeological resources.

For site 1, we studied both old and new boring reports and logs/profiles taken on the site and from adjacent properties. Fifty-five soil borings from on or very near site 1 were examined. The following synopsis of each boring project provides the results pertinent to this investigation. (The complete soil boring profiles and/or logs were studied. All soil boring elevations are based on the Manhattan Datum which is 2.75 feet above USGS datum at Sandy Hook, NJ. For this report we are recording the number of feet of fill below street level).

1. Department of Public Works (#135)
location: Site 1

180, 183, 185: Hubert Street between Greenwich and West Streets

179, 182: Beach Street between West and Washington Streets

Borings 180, 183 and 185 were located along Hubert Street running west (185 is at the corner of Greenwich, 183 at Washington, and 180 almost to West). These three illustrate a marked increase in recorded fill depth moving from east to west (the borings indicating fill depths of 19 feet, 28 feet and 40.5 feet respectively). Below the fill layer (made up of rock, sand, cinder, mud fill) lay thick layers of sand and mud. None contained wood.

Borings 179 and 182 were located on Beach Street between Washington and West Streets. These two show fill layers of 14 feet and 20 feet with the 14 foot deposit location lying farther east. This deposit contained a mixture of sand, gravel and wood while the westernmost deposit contained only sand and gravel fill. Beneath these layers, lay thick deposits of silt, sand and clay.

2. Newtown Creek P.C.P. (Job 159E)
location: Site 1 (West Street between Hubert and North Moore Streets)

These profiles indicate a change in depth of fill with the northern area having a depth of 17.7 feet while the southern area has a depth of 28 feet. The northern area fill is sand, silt, gravel, cinders and traces of

brick. Below this is sand, silt and gravel layers. The southern area fill is sand, silt, gravel, and brick to a depth of 23 feet (19 feet below datum) and soft organic silt with traces of sand, shell and wood from 23 feet to 28 feet.

3. M. Deutsch (Rock Data Map)
location: Site 1 (241 West Street --corner of Hubert)

Fill sequence on one profile revealed a fill layer of 18.2 feet made up of wood and sand. Other profiles done at this location did not have a designated fill sequence.

4. Board of Transportation
location: Site 1

These borings were made available by the Topographic Bureau.

These boring locations were found throughout the site 1 area. The profiles indicate layers of fill of various depths but give no further descriptions. Sand, clay and silt layers lay under the fill layers.

5. Sprague and Henwood (1946)
location: Beach Street between Greenwich and West Streets

The easternmost boring revealed a profile with fill described as sand and brick fill to a depth of 16 feet below surface. The profile at the corner of Beach and Washington Streets listed no fill layer but the profile given for a boring at the corner of Beach and West showed an interesting profile. The top layer, labelled as sand and gravel was 21 feet deep. Under this top layer was a layer of 17 feet of sand, gravel and wood. Underlying these layers of fill were layers of sand, clay and gravel.

6. The Foundation Company
location: Site 1

These borings were taken all over the site and had layers of various depths that were "not recorded". These would have been the fill layers. Below these unrecorded layers were layers of sand, gravel, clay or mud.

7. Department of Public Works: West Side Express Highway
location: West Street immediately to the west of site 1.

Many soil borings were done along West Street. Many had layers of "fill" underlying concrete or sand and gravel

We were unable to locate soil borings taken on sites 5B and 5C: therefore, with Amy Benenson's guidance, we found old boring reports and soil boring logs/profiles from properties adjacent to site 5C's northern boundary, to site 5B's southern boundary and to both site's western boundary. From six separate projects we were able to study a total of 83 boring profiles. This data, spanning fifty years, provided us, to varying degrees, with information on the depth of fill and type of fill. We have assumed that the boring information from neighboring sites would be comparable to borings actually taken from sites 5B and 5C. (For this report we have extracted only pertinent data but the entire profiles were studied and are on file with the listed offices. As reported on each profile, the elevations are based on the Manhattan Datum, which is 2.75 feet above the USGS datum at Sandy Hook, New Jersey. We have listed below the number of feet of fill below the street level.)

1. Irving Trust Construction Project
location: south of sites 5B and 5C within the WSURA's site 6

1934 and 1961 soil boring profiles were available from Skidmore, Owins, and Merrill.

The profiles, the easternmost available to us, illustrate a marked decline in recorded fill depth at the Greenwich Street locations (e.g. 7.0' and 7.4') and the greatest recorded of fill at the extreme westernmost locations - Washington Street (e.g. 24' and 16'). The probe was obstructed by a stone wall(?) at the edge of Park Place, south side, and again, on the opposite north side of Park Place (approx. 3' down) and partially rotted timbers obstructed the coring process at 14.19' down from the west side of the intersection of Warren and Washington Streets.

At the northeast corner of the same intersection the workers encountered a "brick vault roof basement" and subsequently the basement floor at approx. 6.5' below the street level. Descriptions of the fill include: sand, silt, gravel, fragments of brick, concrete, wood fibers, and one reference to glass (located at the 1767 Hudson River shoreline as drawn by PLANS OF THE CITY OF NEW YORK).

2. College of Insurance
location: south, southwest of sites 5B and 5C within the WSURA's site 5A

Muser-Rutledge's 1981 soil boring profiles and explanatory text of 18 soil borings were made available by the New York State Dormitory Authority.

Stratum F, the fill layer, was defined as a "heterogeneous mixture of fine to coarse sand, gravel and silt with inclusions of brick, concrete, wood and other debris. The fill was placed in an uncontrolled manner and in Building Code Class 11-65, 'nominally unsatisfactory bearing materials'. The fill is 11-28' thick at boring locations. The wood, concrete and other debris may include itmes large enough to obstruct pile driving." Only 5 of the total 18 borings did not contain wood and these locations were clustered south of Murray Street and east of West Street within the line of the new Murray Street. At one location the borers encountered wood they considered rotten.

3. Rock Data Maps

location: between Chambers and Murray Streets within West Street and 6 additional borings on the extreme east side of West Street (3) and in Washington Street (3)

1934 and 1935 borings were reviewed at the Topographic Bureau and 23 soil borings were studied for this area.

The 3 borings on Washington Street, at intersections with Warren, Chambers, and Murray, revealed a depth of fill to be 20', 23', and 18', respectively. On the extreme east side of West Street, at the same intersections listed above, depth of fill was recorded to be 20', 25', and 20'. The three borings from the middle of West Street require special note: B133: 20' of fill over clay; B132: 6' of fill over 6' of wood over 8' of fill over clay; B134: 15' of fill and wood over clay. Although these last 3 borings are to the west of the project sites they should be noted as possibly related to the dock and pier development as seen on the MAP OF THE WHARVES AND PIERS ON THE HUDSON AND EAST RIVERS.

4. Manhattan Community College

location: north, northwest of sites 5B and 5C within the WSURA's sites 2A, 2B, and 2C.

1974 soil borings were studied that bordered site 5C.

The boring spoon was obstructed by wood at two locations: (1) at approx. 35' east of West Street and 30' north of Chambers Street - wood encountered at 17' below the surface with an additional 9' of fill below this; (2) at the middle of the intersection between Harrison and Jay Streets - wood obstruction at 13.5' below surface. The fill layer, 12' -26', did not demonstrate any definitive pattern. A boring at 100' south of Harrison Street and 55' east of West Street (16' depth) revealed the only organic layering within the general matrix of sand, gravel, some concrete, brick, cinder, wood, and silt.

5. Wholesale Produce Market, Job 135
location: north side of Chambers Street intersection
with West Street, opposite site 5C and
within west one-half of site 5C

1946 soil borings were studied at the Subsurface Exploration Section of the Department of General Services - 9 in total.

The two borings on the extreme west side of West Street recorded a depth of fill at 37' and 38', one of which contained a wood obstruction at 7' below ground level. The easternmost boring location, intersection of Chambers and Washington Streets, recorded a depth of fill at 15'. Generally the fill matrix contained sand, gravel, brick, wood and ash.

6. Newtown Creek P.C.P. South Branch Inner-West Side, Job 159
location: east side of West Street between Chambers
and half-way between Murray and Warren Streets;
west side of West Street between Chambers
and half-way between Murray and Warren Streets,
west of sites 5B and 5C

1959 soil borings were studied at the Subsurface Exploration Section of the Department of General Services - 6 in total.

The fill matrix contained cinder, brick, sand, silt, concrete, shells, stones, tile, and slate. The slate is noteworthy when one considers that, according to the 1808 TAX ASSESSMENT ROLLS, a slate yard was in operation in this ward along the waterfront. The greatest depth of fill, at the intersection of Warren and West Streets (north side), was 35'.

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(Listed in the order of the depiction.)

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plan size):

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	1090	June 1850	Beach Street
	1605	1855	Beach and West Streets
	1770	3/30/1857	Beach Street
	2407	c. 1867	Washington, Hubert, and Beach Streets
	4798	3/13/1890	Washington and North Moore Streets
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New York City Landmarks Preservation Commission

New York City Subsurface Exploration Unit

New York City Topographic Bureau

New York City Records Department

New York City Department of Environmental Protection,
 Bureau of Sewers

City Planning Commission

Trinity Church Office of Parish Archives and Records

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Harold Hirsch, New York State Dormitory Authority

Kenneth Jackson, historian, Columbia University

Mar. Kachian, resident at 179 West Street for 22 years

W. J. O'Connor, executive at Tetley, Inc., NE corner of Greenwich
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 Department of Housing Preservation

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Ralph Solecki, archaeologist, Columbia University

Bill Wood and Max Saltzman, New York City University Operations
 and Technical ServicesCarolina Woo, Project Manager, Irving Trust Site, Skidmore,
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(Listed in the order of the depiction.)

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Site 1 400 Greenwich Street Block 216, L 16
east to west from east side of Greenwich Street



Site 1 Block 186, L 24
north to south across Beach Street

Independence Plaza North in the background.



Beach Street
east to west from the corner of Huson and Beach Streets

Site 1 in the extreme background:
view showing buildings typical of site 1 before
demolition.



Site 1
Block 186, L 1
northeast to
southwest:

across defunct
intersection of
Washington and
Beach Streets

Manhattan Community
College in the
background.



Site 1, Block 186, L 1, northeast to southwest

New York City Dept. of Docks, Pier 25
in the background.



Site 1 Beach Street
east to west



Site 1 Block 216, L 1
east to west, across defunct Washington Street
Storage lot for Battery Park City construction
equipment.



Site 1
south to north, down Washington Street
Buildings in background facing Hubert Street.



SITE 5C

northwest to
southeast

abandoned
Washington
Street in the
foreground,
Belgian Block
in evidence



SITE 5B,C

west to east

the intersection
of Warren and
Greenwich
Streets

present location
of 90 Warren St.
is the parking
lot of the left
side of the
photo

SITE 5B,C

Warren Street
east to west from
intersection of
Warren and Greenwich
Streets



the rear of 179 West
Street in the background

Washington Street
intersection lamp post
seen behind bus on the
left



Site 5C

southeast
to
northwest
from Warren
Street curb

179 West St.

(Manhattan
Community
College,
Chambers Pla,
rear, right)



SITE 5C west to east
 (eastern one-half)

intersection of Greenwich and Chambers Streets
 in left view/buildings are on the block east
 of the project site

note the air space between the rears of the
 buildings