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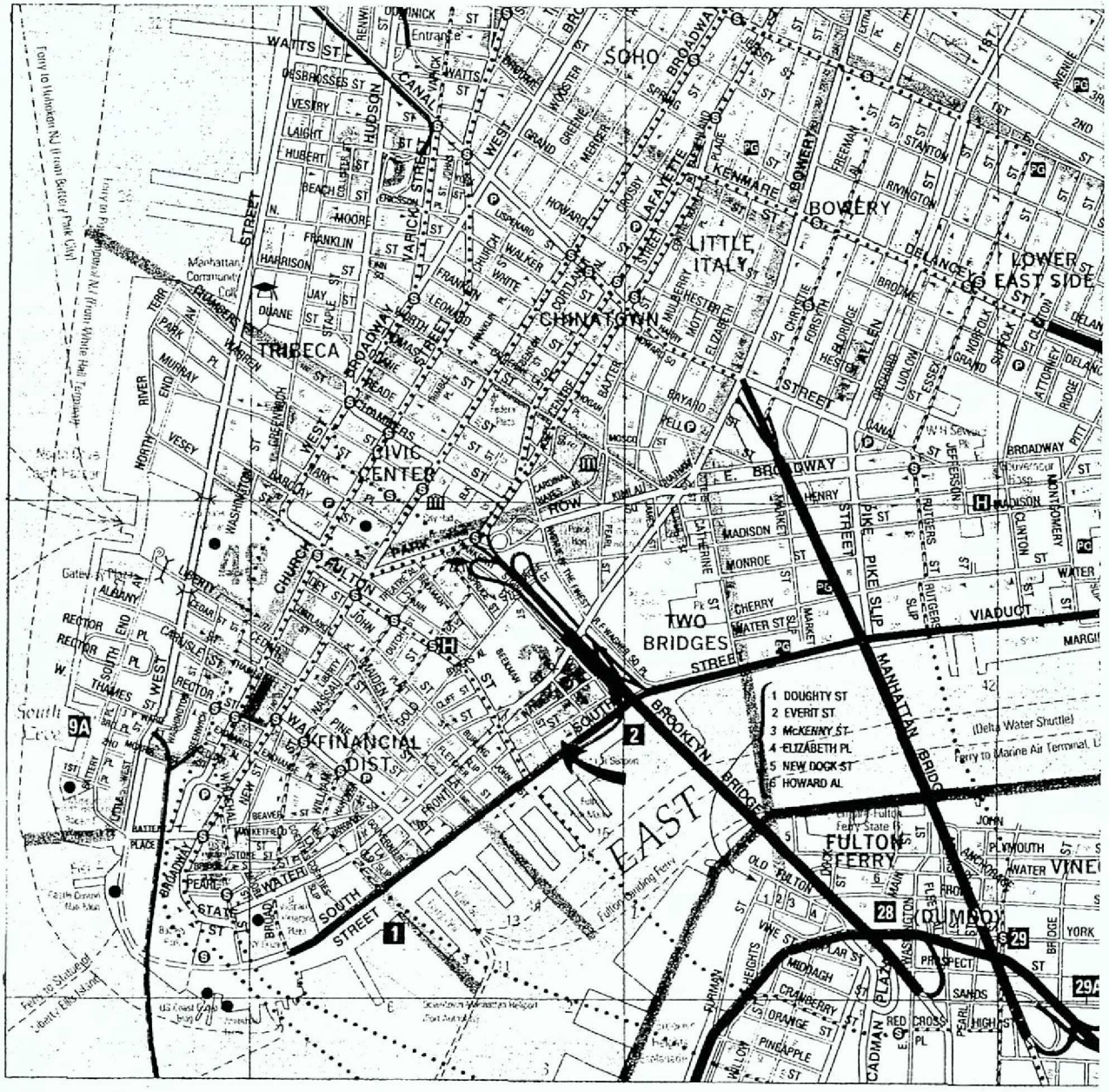
HISTORIC FRONT STREET REDEVELOPMENT

BLOCK 97, LOTS 18, 32, 37, 58

NEW YORK CITY DEPARTMENT OF CITY PLANNING

BOROUGH OF MANHATTAN, NEW YORK

PHASE IA ARCHAEOLOGICAL ASSESSMENT REPORT



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I. DESCRIPTION OF THE PROJECT SITE AND PLANNED DEVELOPMENT

The project sites are located on two blocks, both numbered 97, along most of the north and south sides of Front Street between Beekman Street and Peck Slip (report cover, figs. 1-7).[1] Block 97 north, which includes lots 40 and 41 (now part of lot 37), 32 and 58, is bounded on the north by Water Street, while block 97 south, which includes lots 18 through 23 (now lot 18), is bounded on the south by South Street.

These blocks lie in the heart of the South Street Seaport Historic District, a designated historic district bounded on the east by Dover Street, and on the north by Pearl Street as far as Fulton Street, then Front Street to just east of Fletcher Street, then South Street. On the west, the boundary runs just south of Maiden Lane to the East River and includes piers 15, 16 and 17. This area was the hub of commerce and shipping beginning with the British evacuation of the city in 1783 and throughout most of the 19th century. Imposing brick and granite warehouses and counting houses designed in Georgian-Federal and Greek Revival styles lined its streets. Among its famous institutions and structures are the Schermerhorn Row Block on Fulton Street and the rebuilt Fulton Street Market -- in the block immediately west of block 97 south -- which was the first section of the redeveloped historic district, along with two blocks of restored historic buildings, to open to the public in 1983 (fig. 2).

The New York City Department of City Planning proposes the disposition of City-owned property on block 97 to Sciame Development, Inc. for rehabilitation of ten abandoned historic buildings, including potential rooftop additions, and the construction of new buildings on four vacant lots currently used for parking and storage. The project will create a total of up to 150 dwelling units, an approximately 7,000 square foot maritime center to be operated by the Seamen's Church Institute, and approximately 22,000 square feet of ground-floor retail and gallery space.

Of the lots slated for redevelopment on block 97, the LPC has recommended that an archaeological documentary study be prepared for the currently vacant lots 41, 40, 32, 58, 18, 19, 20, 21, 22, and 23, where new construction is planned. The proposed building restorations on the remaining lots in the project area will not impact potential archaeological resources.

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[1] The orientation is actually roughly north northwest and south southeast, but for the sake of simplicity "north" and "south" are used here.

II. HISTORY OF THE EAST RIVER WATER FRONT: THE CREATION OF THE LAND CONTAINING THE PROJECT SITES

The Manhattan shoreline is composed of landfill in parts several blocks deep. At its southern end, where the first settlement and its port was established, the entire area south of Pearl Street, including the project site, is made land (fig. 8).

The process of land filling that resulted in the present-day New York City shoreline began under Dutch rule but was given added impetus shortly after the English take-over by the Dongon Charter of 1686. This provided that all unappropriated lands including those under water be vested in the Corporation of New York, thus giving the city control of the creation of new land along the East River waterfront where the port was situated (Rothschild, 11; see also CCM 1/5/1693, p. 194). Unlike the East River, the Hudson was subject to ice floes in the winter and was consequently not developed for shipping until larger vessels, requiring its deeper waters, were introduced from the 1860s on (Rosebrock 1984, 3). Beginning in 1687, private merchants --mostly owners of properties facing the East River -- purchased the underwater lots from the Corporation.[2] In exchange for the right to fill these lots as far as the low water mark, they were required to build brick or stone structures on them at least two stories in height (Berger 1983, 9).

The different methods for making land may be reconstructed from contemporary eye witness accounts, municipal records, archaeological excavations, and test pits excavated for engineering purposes.

A visitor to the city in 1770 observed the process of gently sinking cribbing made of pine trunks lashed together, which were filled with stones and then covered with earth.[3] Although this type of retaining structure is best suited for a rocky bottom in which it is not possible to sink piles, cribwork has been used on silty bottoms as well (Greene 1917, 52-54). The dirt for filling the lots thus created was obtained from the excavation for house foundations and the leveling of natural features such as Beekman's hill, once located immediately north of the project sites (Stevenson 1838, 26; Geismar 1981, 4).

Descriptions and diagrams of cribwork constructed in the 1870s by the New York City Department of Docks are depicted in Greene's treatise (Op. Cit.) Like the 18th century structures, these were made of floating cribs of round logs arranged to form eight by five foot cells. As the cells were built up, a "sufficient number" in each horizontal level were floored over -- perhaps in an alternating pattern with unfloored cells, judging by the diagram -- and filled with stones to sink the structure (fig. 10) The building and sinking proceeded until the structure was above low water. A final adjustment settled the base of the cribwork, designed to conform to the profile of the rock, in its correct location. Then the remaining cells were completely filled. Silty bottoms, like that of the East River, would have been dredged first to produce as even a surface as possible, and afterwards covered with a smoothed layer of gravel or broken stone (fig. 9). The face of the crib projecting above low tide was finished with planks.

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[2] From 1692, these individuals were given buying priority, Berger 1983, 9.

[3] Michel Guillaume Jean de Crèvecoeur, quoted in Still 1994, 17.

The minimum width required for cribwork up to 20 feet in height is approximately 16 feet. For deeper cribbing, the width could be from 18 to 25 feet (Greene 1917, 54). At the Telco Site, between Fulton and John Streets and Front and Water Streets, the depth of the landfill deposits and wharf sections was 15 feet below grade, and privies and cisterns associated with the 18th and 19th century occupations were discovered at depths of as much as 13 feet below grade (Berger 1983). Excavation of test pits and borings in the Schermerhorn Row indicated that the depth of the landfill in the East River here was also up to 15 feet (fig. 9; Kardas and Larrabee 1980, 18). The excavators described the cribwork they uncovered as built of "logs up to one foot in diameter, laid in alternating directions for each layer" and filled with soil that contained a great deal of cut leather (Ibid.) This material no doubt came from the tanning and leather goods manufactories in Beekman's swamp, which existed in the area north of Pearl Street and Peck Slip until ca. 1730 but was paved over by ca. 1740 (fig. 8; Moscow 1978, 27; Lyne 1728; Grim 1742). The test pits in the Schermerhorn Row were not large enough to expose the full dimensions of the cribwork, but P. Huey was able to observe the cribwork that was destroyed and removed in the excavations for the foundations of the Uris Building at Old Slip (Kardas and Larrabee 1980, 18). That platform was approximately 20 feet square and 20 feet deep. These dimensions conform to Greene's estimates, cited above.

Wharfs were also constructed by sinking wooden piles into the river. These composed the face of the piers, which projected from the quays. The piles were

> ...secured in their place by horizontal wale-pieces or stretchers, bolted on the face of the quay, and running throughout its whole extent. Diagonal braces are also bolted on the inside of the piles, and beams of wood are connected to the face-work, and extend behind it to the shore, in which they are firmly embedded (Stevenson 1838, 25)

The spaces between the piles were then filled with earth mounded to approximately 5 feet above high water at the spring tides. At this level, the tops of the piles were cut off, and the surface planked over. This wooden surface might be left exposed but usually "where there is great thoroughfare, the surface is pitched with round water-worn stones and corresponds in level with the adjacent streets" (Stevenson 1838, 26). Piles up to 60 feet in depth were made of white pine, oak, Norway pine, or short-leaf pine.[4]

A third method of creating land was to sink derelict vessels filled them with earth, as described above. A number of sunken ships, some certainly used as cribbing, have been partially or completely excavated by archaeologists or laborers. A few examples may be cited here: the ship, romantically identified as Adrian Block's *Tijger* (1617) was discovered near Dey and Greenwich Streets during the excavation for the Courtlandt Street Subway in 1916; portions of ships were recovered in the excavations for Hanover Square in the 1960s, and others in the excavations at the World Trade Center in the 1970s; the hull of an early-18th century vessel --the first ship to be investigated by archaeologists-- was found in the basement of 209 Water Street, now part of the South Street Museum; in 1982, archaeologists excavated a 92-foot merchantman dating ca. 1720 at 175 Water Street (Geismar 1983, 32; Geismar 1987, 34; Geismar 1992, 46). The bottom of the hull of this last

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[4] Greene 1917, 28; Geismar 1987, 33, adds yellow pine, imported from the southern United States.

was 18 feet below grade (Berger 1983). In addition to providing evidence of a land filling technique that could have been quite common in 18th and early 19th century New York and is also documented, in one instance, in England in the 1720s, the vessel itself at 175 Water Street proved to be of great historical importance, being the only surviving example of a cargo vessel built ca. 1720 that plied the so-called "triangle trade" between England, the Caribbean and the east coast colonies (Hern 1982).

The ship at 175 Water Street was sunk parallel to the shore, i.e. it was moored to a wharf, to create the cribbing for an extension. But other ships may not have been intentionally submerged. The earliest record of an abandoned ship in the Common Council Minutes of 1784, for instance, states that the Committee actually repaired a partially submerged, abandoned ship, half sunk in Beekman's Slip and half over the ground where the street was to be made.[5] The slips were indentations left in the shoreline between the projecting sections of wharves and piers, and as new land was created and wharf added to wharf, the part of the slip closest to the shoreline gradually filled with refuse, including probably derelict vessels as well. Keeping the slips open and free of garbage and debris was a constant challenge. The malodorous sludge running into Peck Slip (and no doubt also into other slips) made this an unpleasant area in which to live.[6] Perhaps this is why, according to the Common Council Minutes of 1788, many of the "inhabitants" of Ferry Street (formerly continuing Peck Slip to the west) were indigent.[7] By 1797 it was necessary to "dig out" Peck Slip and clean it of "filth" (CCM 4/10/1797, p. 336). At the same time, an ordinance was passed to pave the streets on either side of Peck Slip between Water and Front Streets (CCM 4/28/1797, p. 340). The building on the project site lot at the corner of Peck Slip and Front Street, was erected by this date (1797).

The eastern side of block 97 north was first traced between the mid 1740s and 1755, when Rosevelt's (*sic*) wharf was built along the south side of Peck Slip from what would become Water Street out to the planned line of Dock Street -- later Front Street (Maerschalck 1755). It is unclear whether the dock actually stood on the project site (lots 58 and 32), or ran along what is now the street, Peck Slip. The 1763 Maerschalckim map shows that the land including block 97 north had been granted by the Corporation for the construction of docks or wharves by that date. But in 1781 the waterfront still ran along Water Street (Grim 1781).

As for the creation of Front Street, in 1788 concerned parties petitioned the city to fill up Beekman Slip and continue Front Street across it.[8] The first instruments in the records of deeds and

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[5] Cited in Geismar 1981, 4 and Geismar 1983, 32;

[6] After 1795, according to Still (1994, 58), visitors like the Count de Volney "criticize the filthiness of the streets, especially in the vicinity of the wharves and docks".

[7] CCM 10/17/1788, p. 410: an order to "cause the sewer in Pecks Slip to be repaired and as many of the inhabitants in Ferry Street are indigent ... to cause sand which lodges in said street to be removed and prevented from running into the slip".

[8] The city was again petitioned in 1795 to fill up part of Beekman's Slip (CCM 12/28/1795, p. 205).

conveyances for lots on the north side of Front Street date to that year. Certainly by 1791, the street was laid, and C. Th. Goerck made a survey of water grants along it between Beekman and Peck Slips. But there are no street addresses in the 200s on Front Street in the 1797 City Directory. The earliest found was 1802.

It is not until the Taylor map of 1797 (fig. 11) that we see the beginning of land filling on the south side of Front Street, with eight wharves between the north side of Beekman Slip and the south side of Peck Slip extending into the East River.[9] But all those named on the 1803 Goerck and Mangin map (fig. 12) existed at least as early as 1795, when they were listed in the City Directory.

By 1790 New York had become the largest city in the United States, and in the next twenty years, its population tripled (Lankevich and Furer 1984, 65, 74). By 1800 it was the country's busiest port.[10] A wide variety of shops and businesses crowded the wharves and piers of the East River. Steven's Wharf, the second west of Peck Slip, belonged to the important merchant Ebenezer Stevens who, in 1797, owned stores at 226 Water Street and here (fig. 11; City Directory; Barrett 1885, 234). Near it was Sickles and Betts' cooperage shop. From 1797, Clark's wharf (fig. 12) was the site of Nathaniel Clark & Sons lumberyard. On Crane's wharf, in the 1790s, were the store of merchants Samuel Ward & Brothers; Mathew Cook, hairdresser, and a tavern owned by Edward Healy. Crane's Wharf was the extension, into the river, of a street of the same name that began at Water Street. Further north, the line of this street continued as Beekman Street (figs. 11, 12 and 13).[11] Crane's wharf then ran immediately east or possibly through part of the project site.[12]

Block 97 north was probably filled in the later 1780s, with the wharves on the south side of Front Street built soon after, certainly before 1795. As for the date when block 97 south was created, it must have been between 1799 and 1802: on the one hand, Barrett (1885, 237) noted that in 1799 Ebenezer Stevens changed his address from 226 Water Street to 222 Front Street (lot 38), where he faced the water, i.e. the water lots on the south side of Front Street were not yet filled in; on the other hand, our earliest recorded address on the south side of Front Street dates to 1802. The date of the filling is confirmed by the 1803 Goerck & Mangin map (fig. 12), which shows the line of piers south of Front Street as they stood at the end of the 18th century (Cohen and Augustyn 1997, 96-97).

In the early 19th century, the rapidly expanding port was transformed from a mixed residential

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[9] A wharf, according to Webster's New World Dictionary, is designed for "ships to lie alongside", i.e. parallel to the shore; a quay is the same thing as a wharf. A pier is built out over the water. Yet the 1797 Taylor map connects the names of the wharves with dotted lines to what are, properly speaking, piers. The same is implied on 1803 Goerck & Mangin map and the 1807 Bridges map. Presumably, the pier was considered part of the owner's wharf.

[10] Rosebrock 1980, 2; or by 1807, Lankevich and Furer 1984, 74.

[11] The line of this street today appears to run further to the south than indicated on the 1797 Taylor map.

[12] Goerck's report to the Common Council is not entirely clear, but it seems to indicate that the pier stood on lots 26-25/24; "...from Beekmans to the east side of Crane's wharf should be agreeable to the grants 225'9" and it measures 228'9"...", CCM 4/23/1791, p. 638.

and commercial area to a purely commercial one. Some of the stores and warehouses on the project site lots that survived into the 1950s were erected during this period. They were large, brick buildings that completely covered each of the lots. An account of the earliest owners of these buildings and their businesses, traced through the City Directories and the first tax assessments of 1808, is given in the lot histories presented in the following section.

III. LOT HISTORIES

Currently, lots 18 through 23 are subsumed by lot 18. The old lot numbers listed below were replaced between 1893 and 1907.

As will be seen from the summaries below, the City Directories list addresses on five of the project sites -- indicating presumably that there were buildings on them -- by 1810. Lots 20-23 were first built upon in 1818 or 1819. As there are no dimensions given in the early tax assessments, we can not be sure whether these were the same as the buildings shown on the 1853 Perris map, the earliest detailed map of the sites.

North Side of Front Street

Lot 41 - 216 Front Street, old lot 1207, 72.11 X 25.1 ft. (fig. 3)
Lot 40 - 218 Front Street, old lot 1208, 72.6 X 24.11 ft. (fig. 3)

The outlines of the pitched roofs of the pair of buildings that formerly stood on these lots are visible on the outer walls of the adjoining structures at 214 and 220 Front Street (fig. 3).

A grocer's store like its neighbor at 218 Front Street, was first listed at 216 Front Street in the City Directory in 1807 when Elias M. Stilwell, grocer, was the owner. The tax assessments list him as the owner of a store and lot here in 1808. His home was around the corner at 22 Ferry Street (i.e. Peck Slip, at the corner of Water Street; Bridges 1807).

Nathaniel and Thomas Bloodgood owned a wine store at 218 Front Street in 1803. This is the first listing of an address on the north side of Front Street in the City Directory. In 1807, Bloodgood's home was listed as 45 Frankfort. The tax assessments of 1808 list him as the owner of a store and lot here.

Thomas Bloodgood was a prominent merchant who became President of the City Bank (Barrett 1885, 80). In addition to the wine store on Front street, he also owned nurseries in Flushing, his hometown.

According to Rosebrock (1980, 44), the three-story buildings on these lot formed a pair and were erected in 1822. Unfortunately, she did not cite her source for this information and it was therefore not possible to verify it.[13] The LPC (1977, 15), gave the construction date only as the first quarter of the 19th century. As noted above, the earliest listing for residences at 218 Front Street is in the first decade of the 19th century. The Perris maps from 1852 (fig. 14A) and 1867 show at both addresses a three-story brick store or warehouse occupying all of the lot save a narrow strip at the rear. By 1881 (fig. 15), the rear portions of both lots were also built upon. The buildings were demolished in 1962 (Rosebrock 1980, 44; LPC 1977, 15).

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[13] The building is shown as three stories on the 1867 and 1875 Perris maps, as three and a half stories on the 1932 Bromley. The value of the properties climbed steeply in the early 1820s, but this may or may not reflect new construction: 216 Front Street: 1821 - $7500, 1822 - $9000, 1823 - $9250; 218 Front Street: 1821 - $4000, 1822 - $5000, 1823 - $9000. There are no records from this period in the block and lot files.

Since there is no undisturbed backyard area associated with either property, these lots are not considered archaeologically sensitive for historic remains.

Lot 32 - 236 Front Street / 30 Peck Slip, corner of Front Street and Peck Slip, old lot 1216, 55.4/55.2 X 23.4/25 ft. (figs. 4 and 5)

Both Henry Morgan, a grocer, and Moses Ward, a merchant are listed at this address in the 1797 City Directory. These are the first listings for this property, whose address is given as 30 Peck Slip. In 1806, Morgan & Co. Henry Grocers occupied these premises, and in 1808, Henry was succeeded by grocer Richard Morgan (his son?, City Directory, Tax Assessments).

The 1852 (fig. 14A) and 1867 Perris maps show a four-story brick store or warehouse at this address; the 1932 Bromley (fig. 17), a five-story building. By 1951 (fig. 18), it was "vacant and boarded up", though still standing in 1977 (fig. 19) and described in the LPC's designation report (1977, 16). The LPC recorded the date of construction of this building as 1827. It was owned by the Corporation of the City of New York, it was rented to grocer Edward G. Faile and sold to him in 1840.

Historic maps, beginning with the 1852 Perris, show that this building had no backyard, but completely covered the lot. The lot is therefore not considered archaeological sensitive for historic remains.

Peck Slip

Lot 58 - 24-26 Peck Slip, old lots 1217 and 1218, 23.4/23.2 X 46.3/46 ft. (figs. 4 and 5)

Isaac Cock, a merchant, is listed at 26 Peck Slip in the 1795 directory, the earliest listing for a property on this site, but that portion of lot 58 immediately to the north, at number 24 Peck Slip, already appears in the City Directory of 1792, as the establishment of Andrew and Isaac Cock, grocers. The same individuals are listed on Peck's Slip already in the 1789 and 1790 Directories but without a street address. Probably this is the shop that becomes 24 Peck Slip. In 1797, Frederick Davoue, a merchant, was listed at this address. In the 1808 tax assessments, he is listed as the owner of a house and lot at 24 Peck Slip, while Farmar is listed as the owner of the house and lot next door at number 26.

Historic maps, beginning with the 1852 Perris (fig. 14A), show that this building had no backyard, but completely covered the lot. It was a five-story brick store or warehouse. By 1951 (fig. 18), this building was "vacant and boarded up", though still standing in 1977 (fig. 19). This lot is not considered archaeological sensitive for historic remains.

South Side of Front Street

Lot 18 - 213 Front Street, old lot 1263, 77.8/78 X 24.9 ft. (figs 6 and 7).

The 1805-06 City Directory lists merchants Kirby & Wood, as well as the flour merchant Wilet Robins at this address. The 1808 tax assessments list Robins as the owner of a store and lot

here. The cross directory of 1851 records that the establishment was still owned by a flour merchant, Peter Neefus, at mid-century.

The 1852 Perris map (fig. 14B) shows a brick store or warehouse covering all but a small area at the rear of the lot, where a frame building stood. By 1867, the rear portion of the five-story building was built over, with a brick extension. The 1907 Belcher Hyde (fig. 16B) and 1932 Bromley (fig. 17) both show that the lot was completely covered by a brick building. In 1955 this was replaced by a two-story parking garage (Demolition permit no. 557; New building permit no. 114, 1955). This lot is not considered archaeologically sensitive for historic remains.

Lot 19 - 215 Front Street, old lot 1262, 74 X 24.10 (figs. 6 and 7)

The 1802 listing for Mott and Bowne, merchants, is the first we have located for an address on the south side of Front Street between Beekman and Peck Slips.

In addition to his store at 213 Front Street, The flour merchant, Willet Robbins, acquired a shop here in 1807. His home was at 18 Vandewater. He is listed as the owner of the store and lot at this address in the tax assessments of 1808.

The 1852 Perris map (fig. 14B) shows a brick warehouse or store covering most of the lot. A small area at the back of the lot was covered by 1867, when a rear chamber with hatchway or dumbwaiter was added to the five-story structure.

The 1907 Belcher Hyde (fig. 16B) and 1932 Bromley (fig. 17) both show that the lot was completely covered by a brick building. In 1955 this was replaced by a two-story parking garage (Demolition permit no. 557; New building permit no. 114, 1955). This lot is not considered archaeologically sensitive for historic remains.

Lot 20 - 217 Front Street, old lot 1261, 74.6 ½/73.4 X 25.3 ft. (figs. 6 and 7)

The widow of Byvancks was assessed for taxes in 1810, for a property at the first of a series of un-numbered properties between 215 and 227. In the 1808 tax assessments, the only visible word at this point in the list is "wharf". One of wharfs between Beekman Street and Peck Slip shown on the 1803 Goerck and Mangin map was evidently named after Byvanck's husband, although the name there is written "Byrancks". The first house on this lot, owned by the widow Byvank, was erected either in 1818 or 1819 (tax assessments, listed as a house, not a store).

The 1852 Perris map (fig. 14B) shows most of the lot covered by a brick store or warehouse. A small area at the back of the lot contained a chamber with a boiler. By 1867, this rear portion was built over with a brick extension to the three-story building.

The 1907 Belcher Hyde (fig. 16B) and 1932 Bromley (fig. 17) both show that the lot was completely covered by a brick building. In 1955 this was replaced by a two-story parking garage (Demolition permit no. 557; New building permit no. 114, 1955). This lot is not considered archaeologically sensitive for historic remains.

Lot 21 - 219 Front Street, old lot 1260, 70.9 X 16.9 ft. (figs. 6 and 7)

In the 1808 and 1810 tax assessments, this property seems to have been listed as a wharf. In the later assessment, the owner is Schermerhorn & Stevens. But in 1818 or 1819, when the first house on this lot was erected, the owner was listed as the widow Byvank (fig. 11; tax assessments, listed as a house, not a store).

The 1852 Perris map (fig. 14B) shows most of the lot covered by a brick store or warehouse, with a narrow unbuilt portion at the rear. By 1867, this rear portion was covered by a brick extension to the three-story building.

The 17 X 17 X 70 feet, four-story building on this lot, along with its neighbors on lots 22 and 23, was demolished by 1955 and replaced by a parking lot (New building permit no. 114, 1955). This lot is not considered archaeologically sensitive for historic remains.

Lot 22 - 221 Front Street, old lot 1259, 70.9 2/3 / 70.11 X 16.9 ft. (figs. 6 and 7)
Lot 23 - 223 Front Street, old lot 1258, 70.1 1/3 / 70.11 X 16.9 ft. (figs. 6 and 7)

Lots 22 and 23 were an extension of the water lot purchased by Ebenezer Stevens and Peter Schermerhorn from William Beekman in 1795 (LPC 1977, 17; Rosebrock 1980, 43-44). Their store, covering these lots as well as 225 Front Street, is listed in the 1819 tax assessments. Like 217-219 Front Street, these properties had no street addresses in the 1808 tax assessments and seem to have been wharves. In 1798, Schermerhorn and Stevens built on 220-226 Front Street, opposite the project site (Rosebrock 1980, 43-44). In the 1808 / 1810 tax assessments, Peter Schermerhorn and Schermerhorn and Stevens are listed as the owners of the wharf between 215 and 227 Front Street, while Ebenezer Stevens owned the building opposite at 222 Front Street.

Peter Schermerhorn was a ship chandler and merchant. He married the daughter of Ebenezer Stevens, Rebecca. Stevens, a General in the Revolutionary War, and in 1802, elected to the New York State Assembly, made his fortune as a liquor importer and owner of a fleet of ships that plied the West Indies route (Rosebrock 1980, 43-44)

The 1852 Perris map (fig. 14B) shows most of the lot covered by a brick store or warehouse, with a narrow unbuilt portion at the rear. By 1867, lot 22's rear portion was covered by a brick extension to the three-story building. Lot 23 was completely covered by 1881 (fig. 15) when a brick extension was added to what was then a three-story building.

The 17 X 17 X 70 feet, four-story buildings on these two lots, along with their neighbor on lot 21, were demolished by 1955 and replaced by a parking lot (New building permit no. 114, 1955). They are not considered archaeologically sensitive for historic remains.

VI. BORINGS AND TEST PITS

The following is a summary of the report created by Pillori Associates, P.A. (2000).[14]

Eight borings were drilled on the project sites between September 25 and October 8, 2002: numbers B-1 and B-2 on lot 37; numbers B-3, B-4W, B-5 and B-6 on lot 18; B-8W on lot 32, and B-7 on lot 58 (fig. 20). On October 18, 2002, five test pits were excavated on the project sites: numbers 4, 5, and 6 on lot 18, number 7 on lot 32, and number 8 on lot 58 (fig. 20).[15] The author of this report observed the excavation of test pits 4, 5, 6, and parts of test pits 1 and 7.[16]

The borings were excavated to between 77 and 102 feet in depth below grade. Fragments of wood, possibly deriving from old wharves or cribbing were found in all of the borings' fill layers. The depths of the fills, containing timber, boulders, construction debris, silty sand and gravel, were approximately 13 feet except in B-3 and B-5, on the northern side of lot 18, which had fill layers 18 feet in depth, and B-8W, near the corner of Peck Slip and Front Street, where the fill layer was only 9 feet deep. In B-4W, on the southwest side of lot 18, the engineers noted wood possibly from old cribbings (Pillori Associates P.A. 2000, Boring Logs B-1 to B-4W). Below the fill layer was between 8 and 22.5 feet of the clayey silt deposited by the river, and at the bottom, the fine-grained sand and silt deposited by Glacial Lake Flushing. Bedrock is anticipated to lie between 150 and 190 feet below street level.

Regarding the test pits: Test pit 4, located against the east wall of the building at 211 Front Street and 5 feet 3 inches south of the Front Street curb, was filled with brick debris presumably from the demolition of the garage. The stepped footing of the adjacent building, consisting of a mortared, rubble stone wall over a brick foundation, was exposed on the west side of the trench. The trench was excavated to a depth of 4 feet 5 inches until a concrete slab was encountered that made further penetration impossible. Aside from quantities of bricks, the fill removed from the trench consisted of black coarse to fine sand with some silt and gravel. Groundwater was not encountered in the test pit, but in boring B-4W, located approximately 30 feet east, it was encountered at 5 feet 3 inches below grade.

Test pit 5, located between 2 and 3 feet west of test pit 6 and 4 feet 8 inches south of the Front Street curb, was excavated to a depth of 6 feet 5 inches where a concrete slab made further penetration by backhoe impossible. Groundwater was seeping in at the bottom of the trench, but in

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[14] Job no. 020513. I thank Pillori Associates and Manny Abuan for providing copies of the section drawings and borings for this report.

[15] An additional three test pits were excavated in the buildings at 214, 220 and 222 Front Street.

[16] The author also observed part of the excavation of test pit 1 on lot 37, in the basement of the building at 214 Front Street (not part of the project site assessed in this report). This was the only test pit excavated by Pillori Associates that revealed wooden beams apparently belonging to a layer of cribbing. But the exposed area at the base of the pit, below groundwater, was only approximately two feet wide and there was therefore very little to be seen.

boring B-5, located approximately 20 feet to the north and 20 feet to the east, ground water was encountered at 4 feet 3 inches below grade. The concrete floor in test pit 5 was therefore below the level of the groundwater. A brick foundation wall with concrete stucco running north-south was exposed at the eastern side of the trench. It ran into a mortared, rubble stone wall running east-west. The first should be the west foundation wall of the building that stood here until 1955 when it was replaced by a parking lot. The fill removed from the trench consisted of brown coarse to fine sand with a small amount of silt and gravel, also cobbles and brick fragments no doubt from the demolition of the old stores.

Test pit 6 was excavated against the west face of the building at 225 Front Street. The brick footing of the building was exposed. The fill was composed of rubble including black to brown coarse to fine sand, some silt, some gravel, and brick and concrete fragments. Groundwater was encountered at 5 feet 6 inches below grade. The trench was excavated to a depth of 6 feet 5 inches where a concrete slab or boulder prevented further penetration.

Test pit 7 was excavated in the northwest corner of lot 58 against the east wall of the building at 234 Front Street. The trench revealed the L-shaped brick footing of that building. A concrete slab encountered at a depth of 4 feet 2 inches brought a halt to the excavation. The material removed from the trench was fill composed of black silt, medium to fine sand, coarse to fine gravel and other miscellaneous material.

Test pit 8 was excavated against the east wall of the building at 234 Front Street in lot 32. Again, the brick footing of the building was exposed. The material of the fill was composed of cinders and coarse sand with some fine gravel. Groundwater was encountered at approximately 3 feet 8 inches below grade. According to a notation on the test pit section, excavation ceased at 6 feet below grade "due to unstable fill material and uncontrollable sloughing".

The concrete slab in test pit 4 may have been laid when the garage was built in 1955; the one at the bottom of test pit 5 should belong to the building that stood on the lot until it was demolished in 1955, as should the concrete slab or boulder at the bottom of test pit 6. In order to impact remains of potential archaeological significance, excavations on this lot would therefore have to penetrate to depths below approximately 6 feet 5 inches. This would be below groundwater level. Note that the water in test pit 6 was not brackish, therefore not sea water. At the northern end of lot 58, excavation would have to penetrate below the concrete slab at 4 feet 2 inches.

The engineers concluded that shallow foundations for new construction would lead to excessive settlement, and recommended that deep pile foundations be drilled into the glacial deposit. They advised that "piling contractors should anticipate encountering buried wharf and cribbing structures...during the production piling" (Pillori Associates, P.A. 2000, 5).

VII. CONCLUSIONS AND RECOMMENDATIONS

From the outset, the project site lots were occupied by commercial buildings, either stores or warehouses. These buildings eventually covered the entire area of each of the lots leaving no backyard area that might have contained a cistern or a privy connected with the life of the shop in the 19th century. The map research indicated that the buildings continued to exist until the 1950s or later. Their basements, therefore, preserved under the parking or empty lots, do not contain closed deposits of 19th century date associated with the buildings' occupants at that time.

The historical interest of these properties lies deeper, under the concrete slab footings discovered in the excavation of the test pits, at depths up to 18 feet below grade. The proposed construction will involve penetrating below these concrete footings when deep piles are drilled for the foundations of the new buildings. Evidence from the historic maps and borings indicate the presence of wooden structures in every area of the project sites. It is therefore recommended that an archaeologist be present to monitor and document the historic structures that may be revealed during excavations for future construction. Information about the nature of the East River landfill and its design and construction is extremely sparse in spite of scattered test-pit excavations in the South Street Seaport area -- including those on the project sites. Basic research questions, such as how the former piers and wharves were incorporated in the land filling process, remain unanswered. There is also the possibility of encountering a sunken ship used as cribbing, which could provide important information about the history of shipping.

In conclusion, we concur with Geismar (1983, 22), who observed that "Buildings still stand in New York City on colonial landfill, testifying to the skill with which it was accomplished. This fact alone justifies serious attention to its history".

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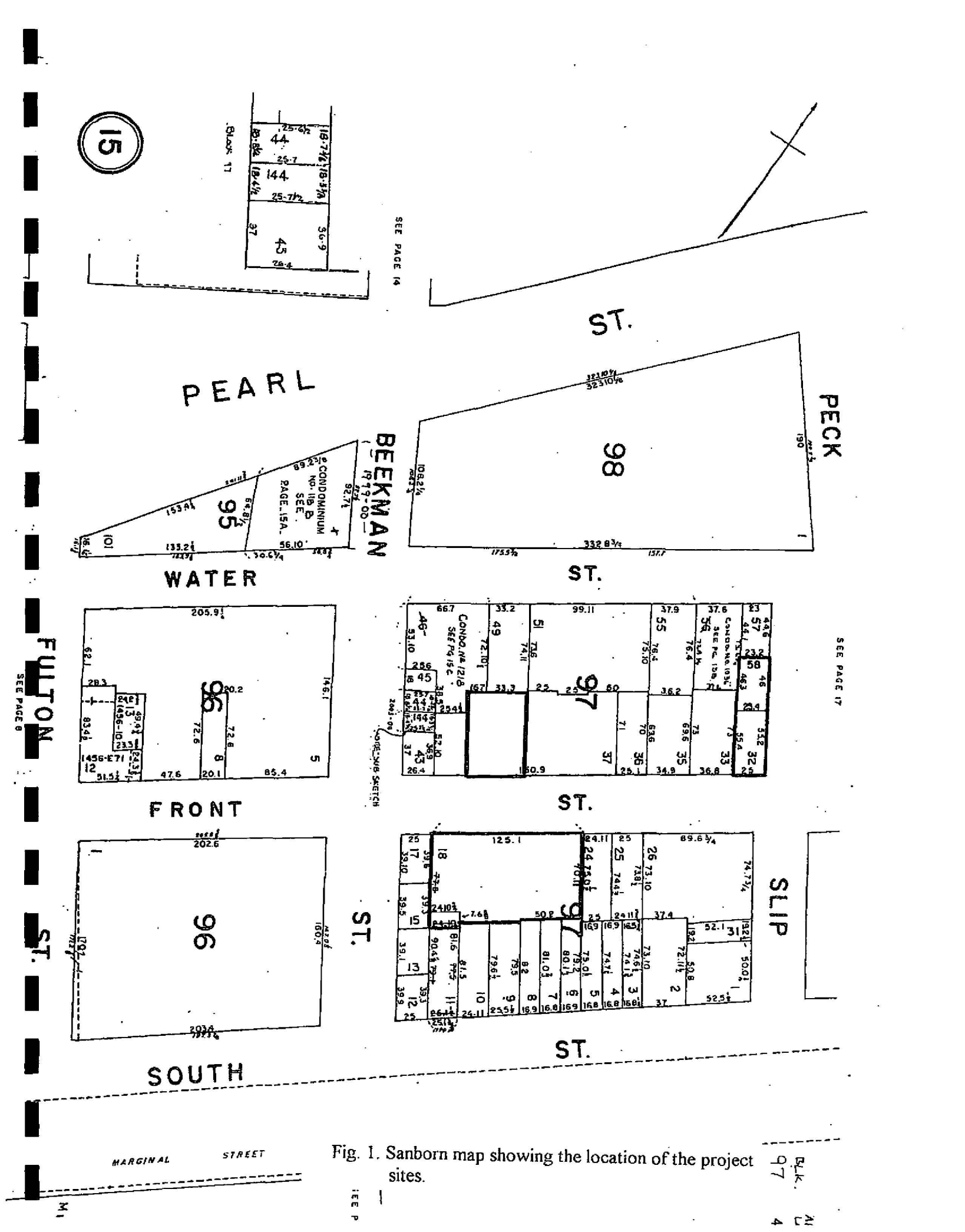


Fig. 1. Sanborn map showing the location of the project sites.

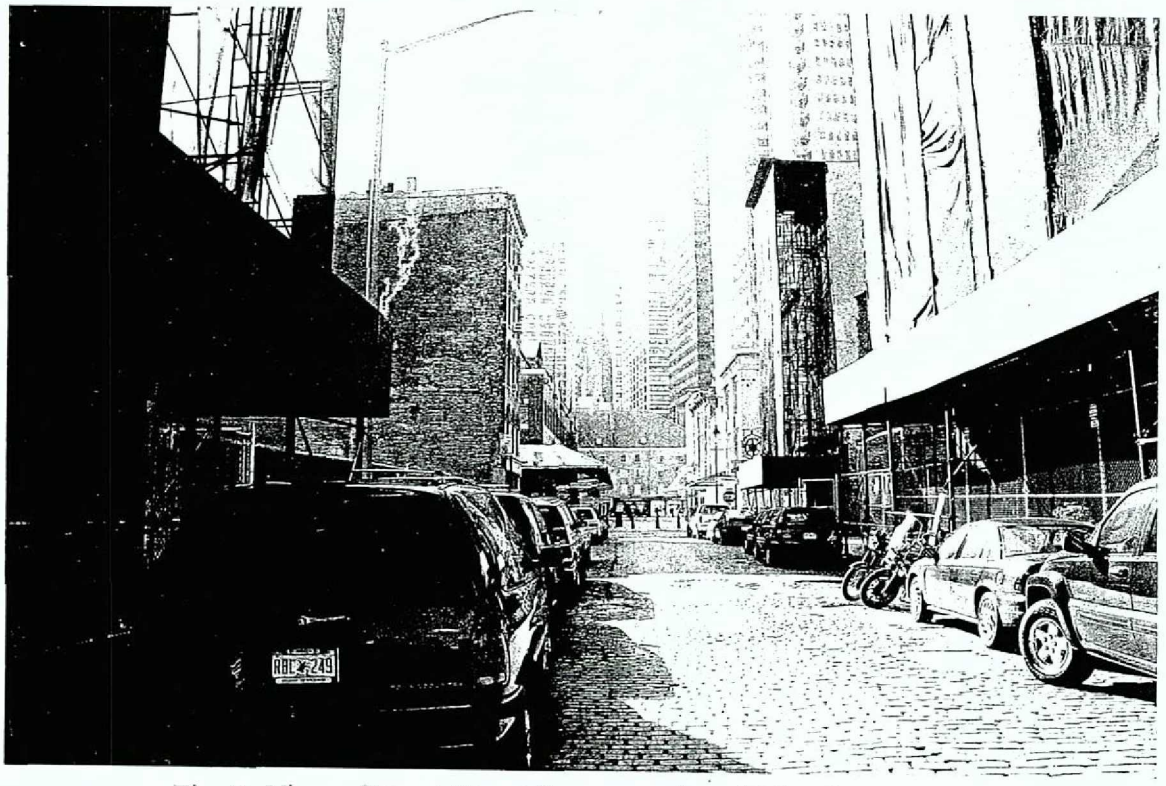


Fig. 2. View of Front Street from near the middle of the block looking west, lots 18 on the left, and 40 and 41 on the right just visible beyond the standing buildings.

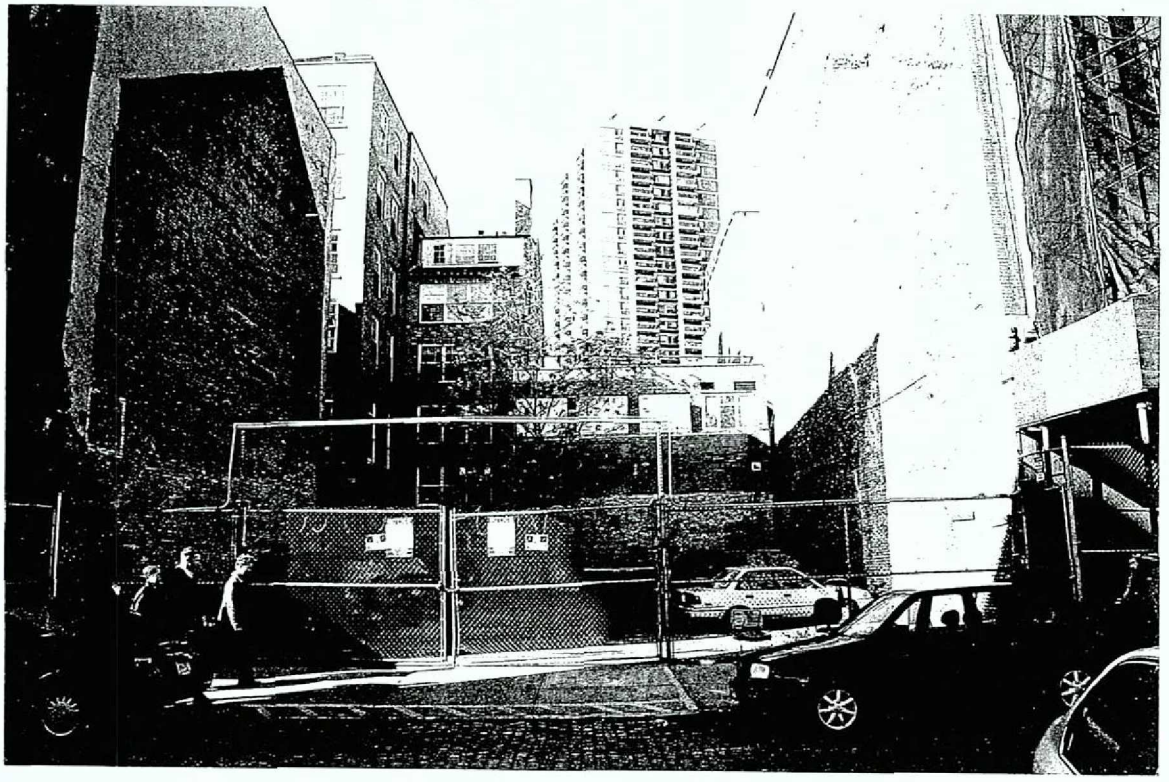


Fig. 3. View of project site lots 41 and 40 from Front Street looking north.

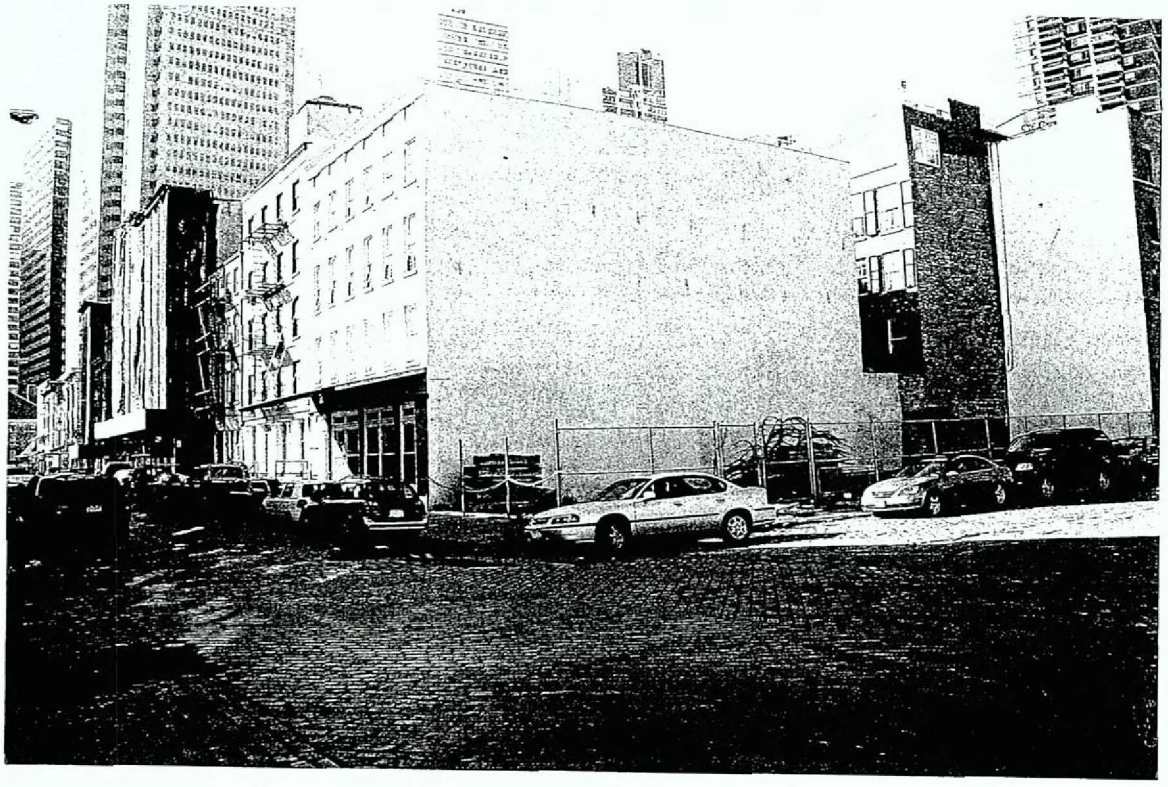


Fig. 4. View of project site lots 32 and 58 from Peck Slip looking west northwest.

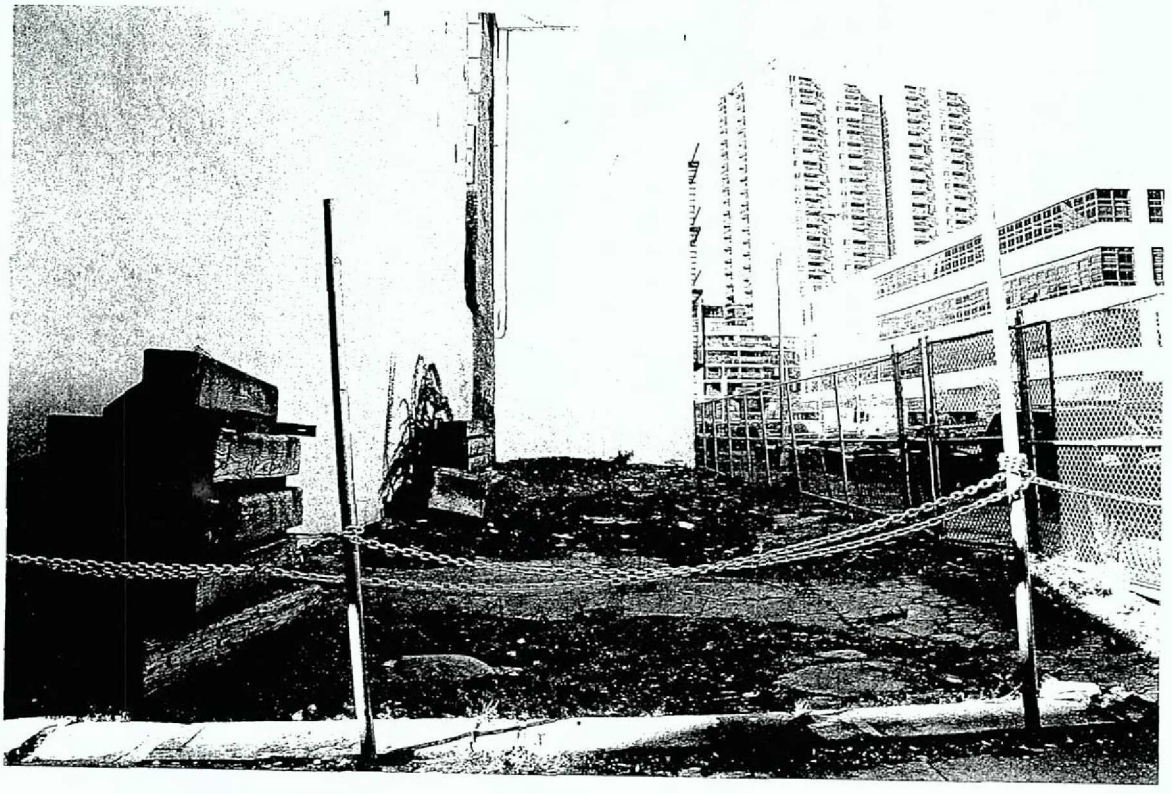


Fig. 5. View of project site lots 32 and 58 from Front Street looking north.

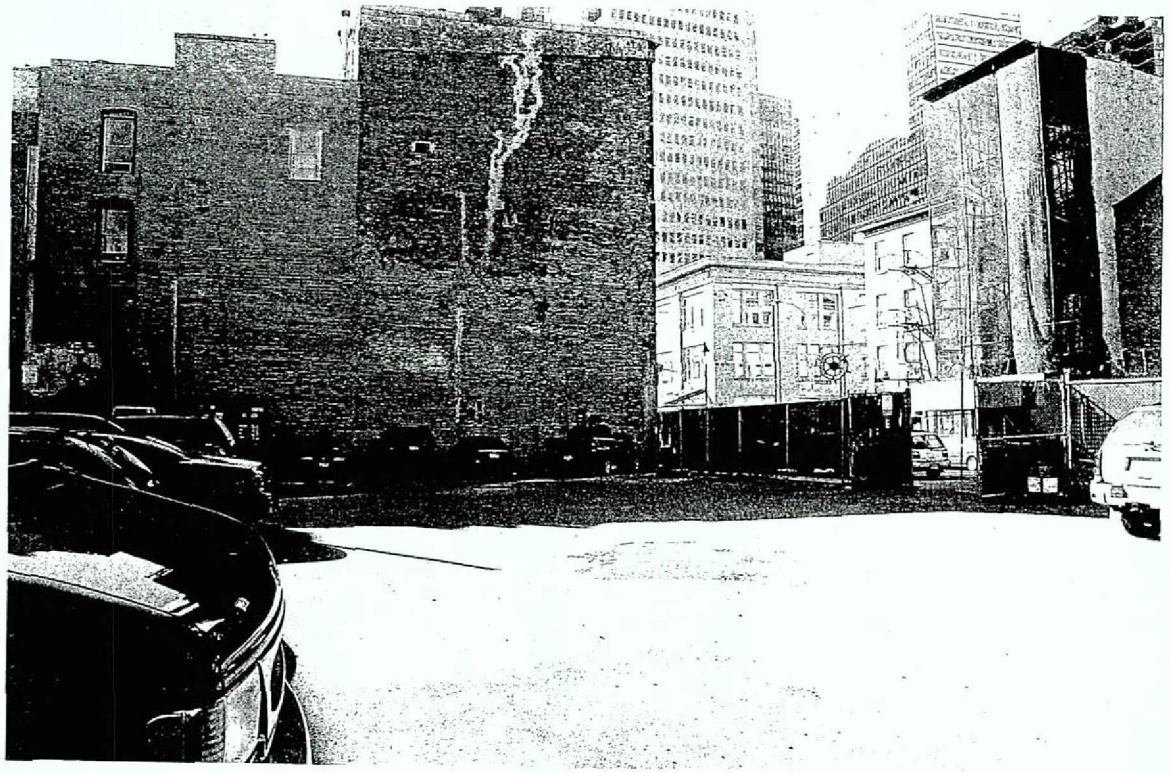


Fig. 6. View of project site lot 18 from near its eastern end, looking west.

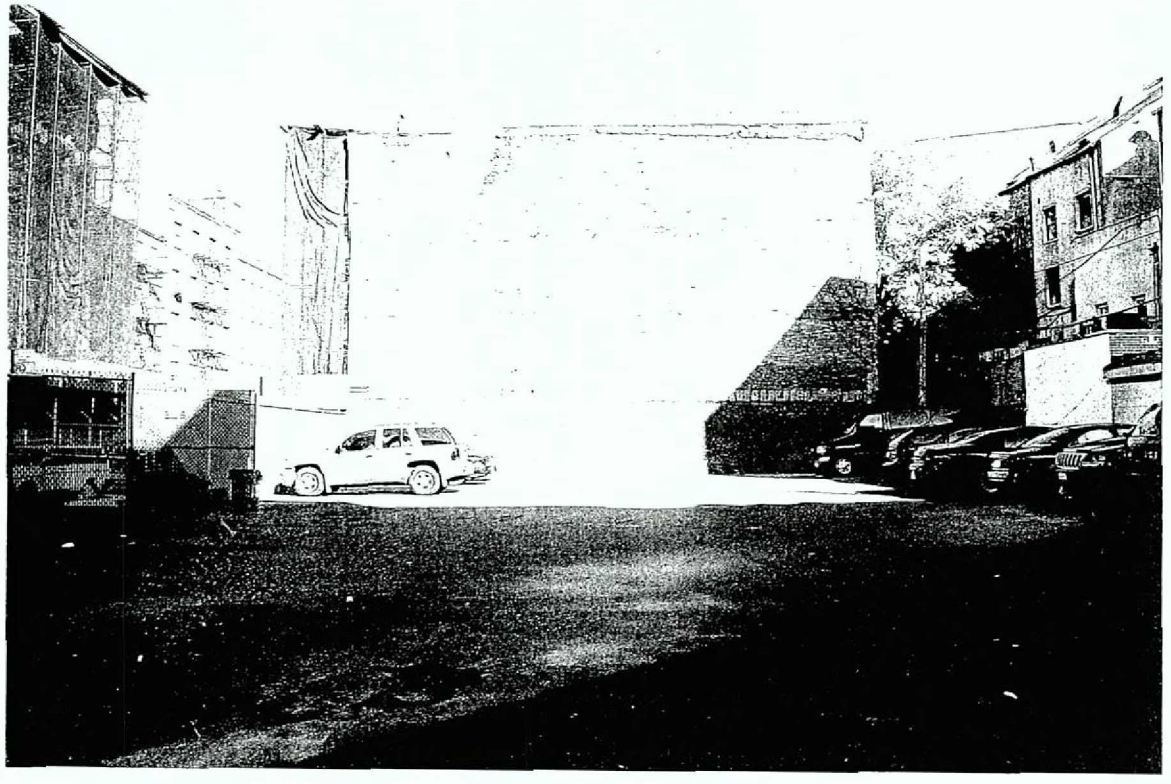


Fig. 7. View of project site lot 18 from near its western end, looking east.

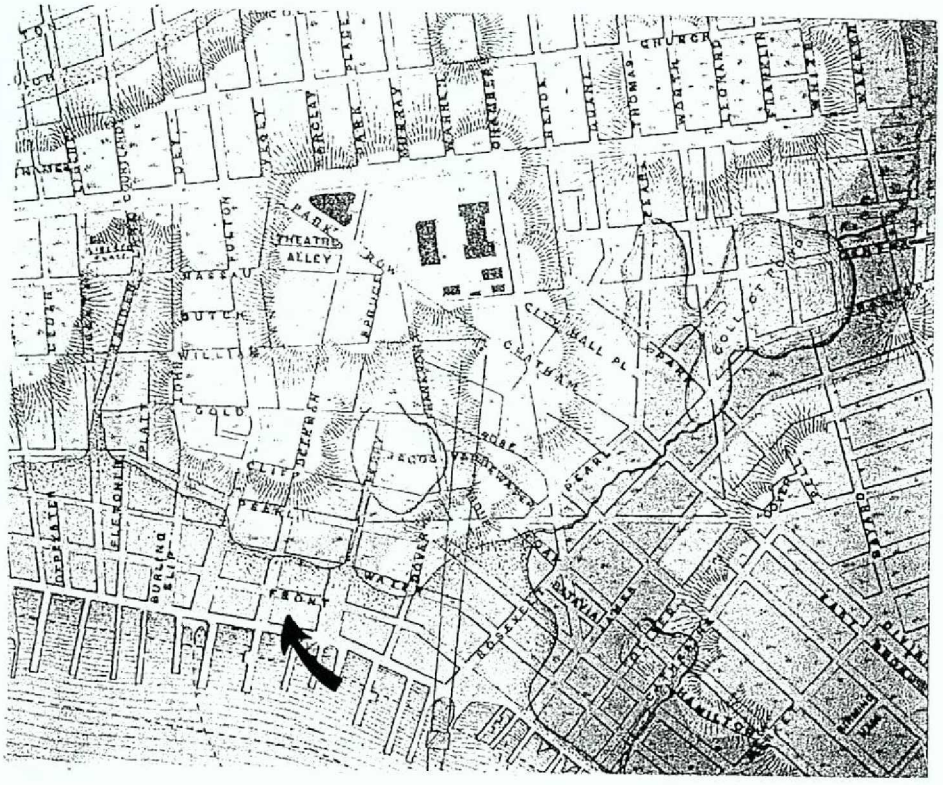


Fig. 8. Viele map showing the location of the project sites.

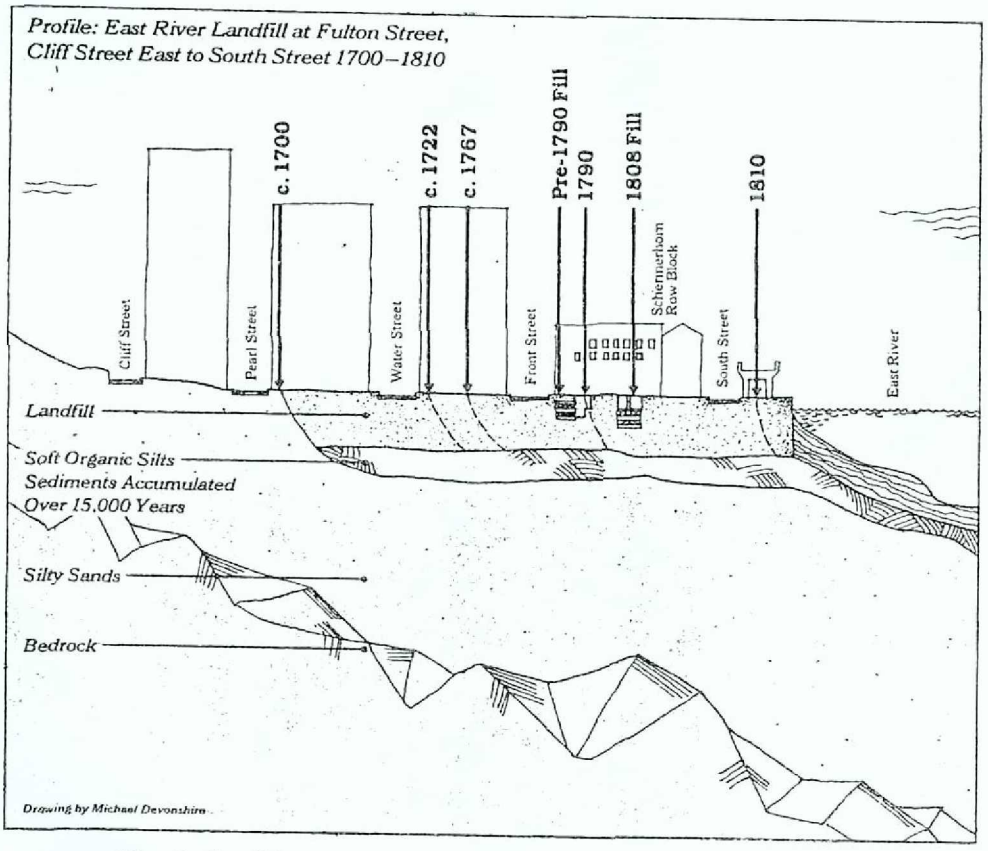


Fig. 9. Profile: East River Landfill at Fulton Street, from Kardas and Larrabee 1980, 16, drawing by Michael Devonshire.

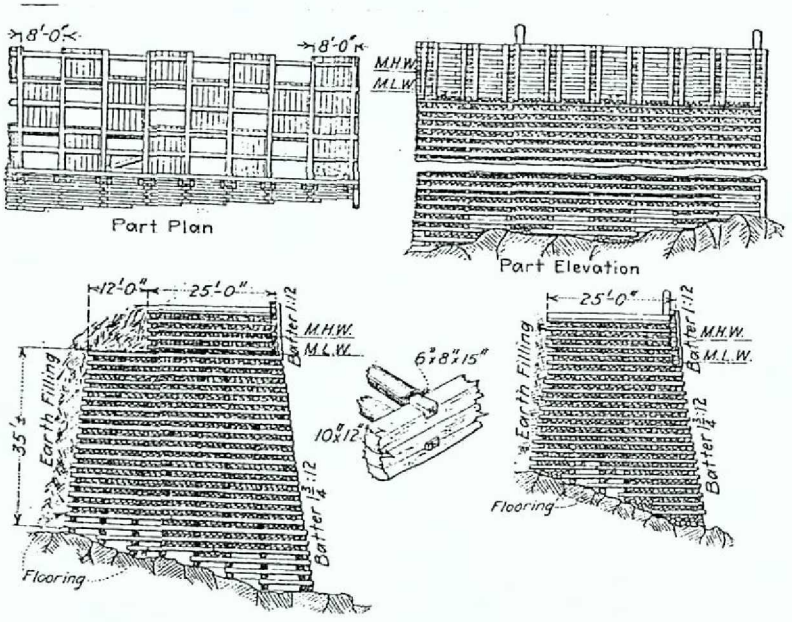


Fig. 10. Crib Wall of Round Logs, New York, N.Y., from Greene 1917, 53, fig. 10.

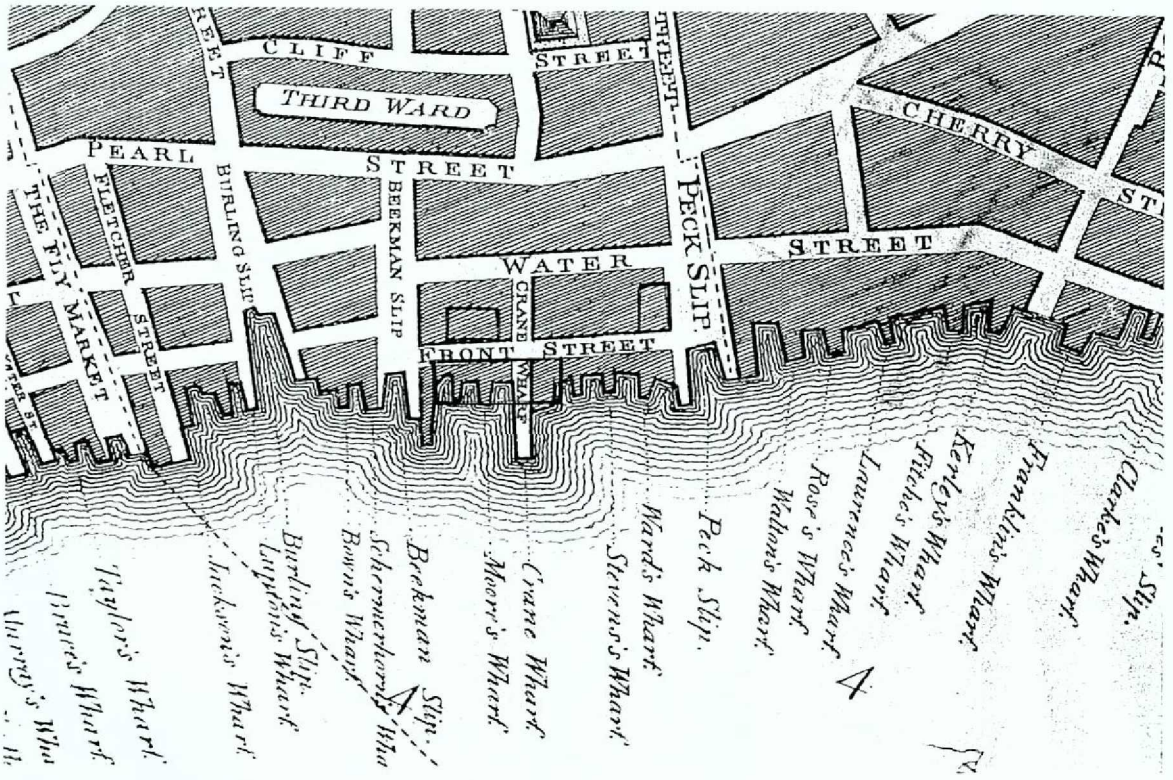


Fig. 11. 1797 Taylor map showing the approximate location of the project sites.

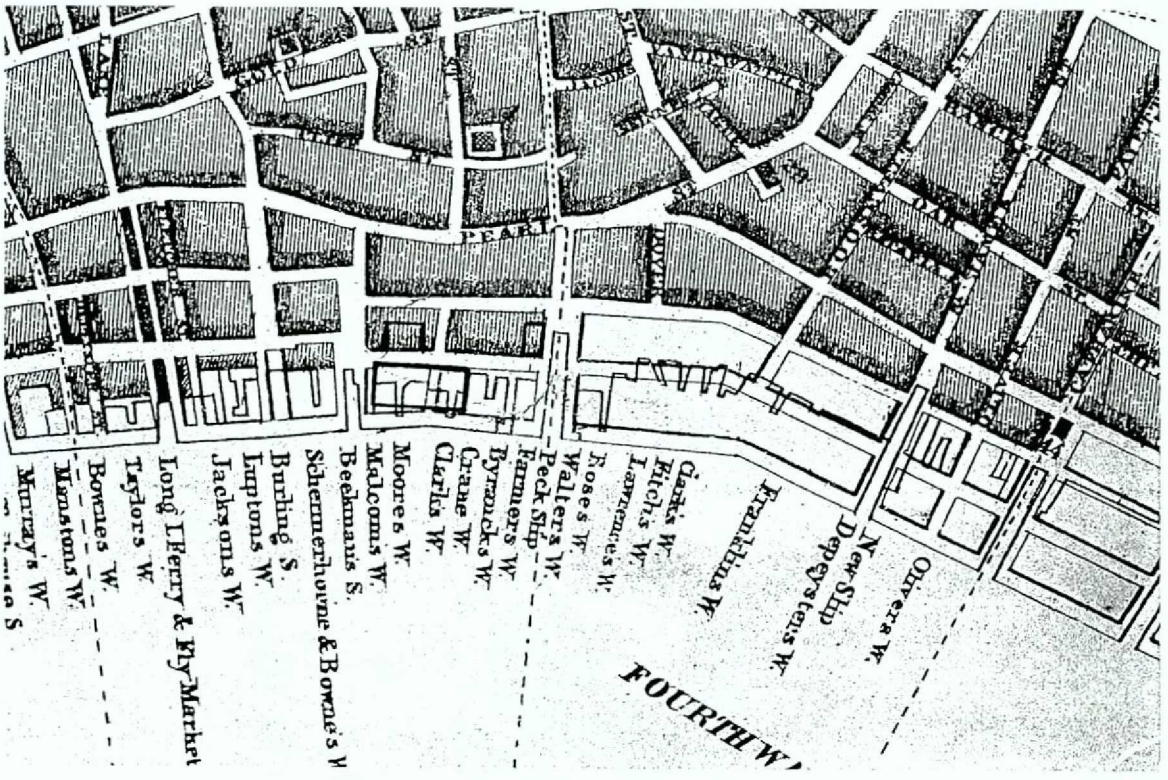


Fig. 12. 1803 Goerck & Mangin map showing the approximate location of the project sites.

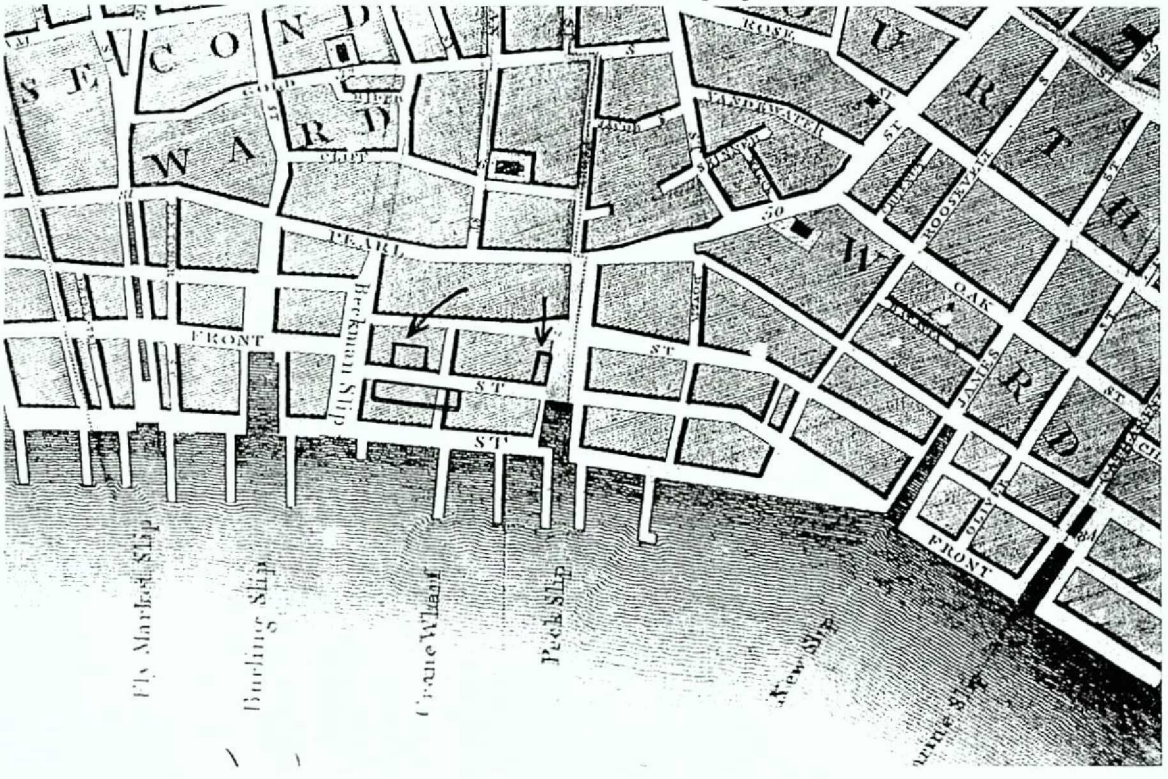


Fig. 13. 1807 Bridges map showing the approximate location of the project sites.

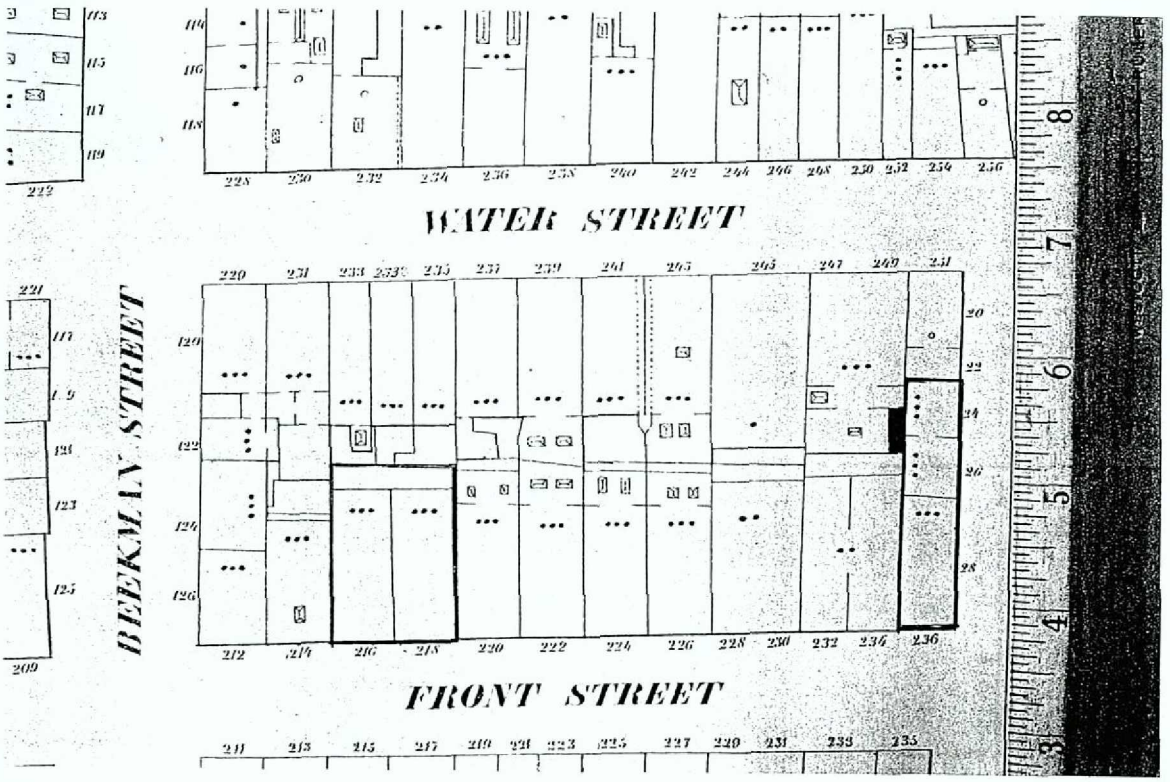
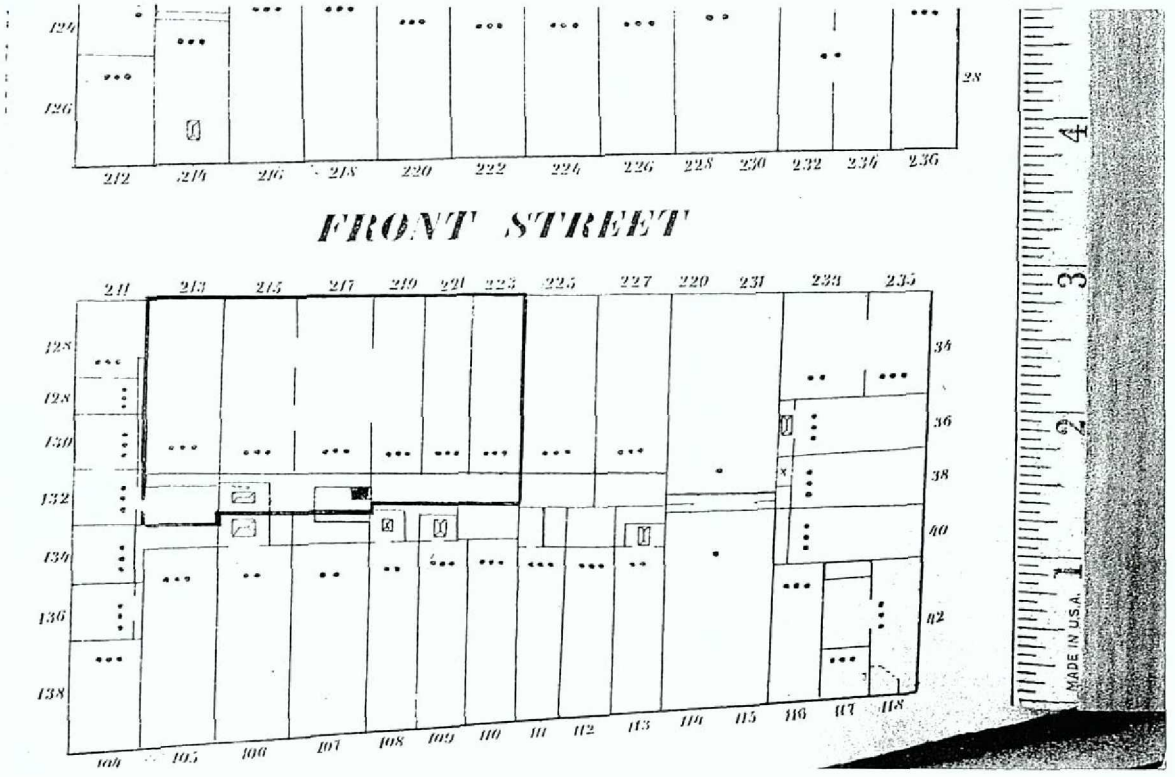


Fig. 14A & B. 1852 Perris map showing
the location of the project sites.



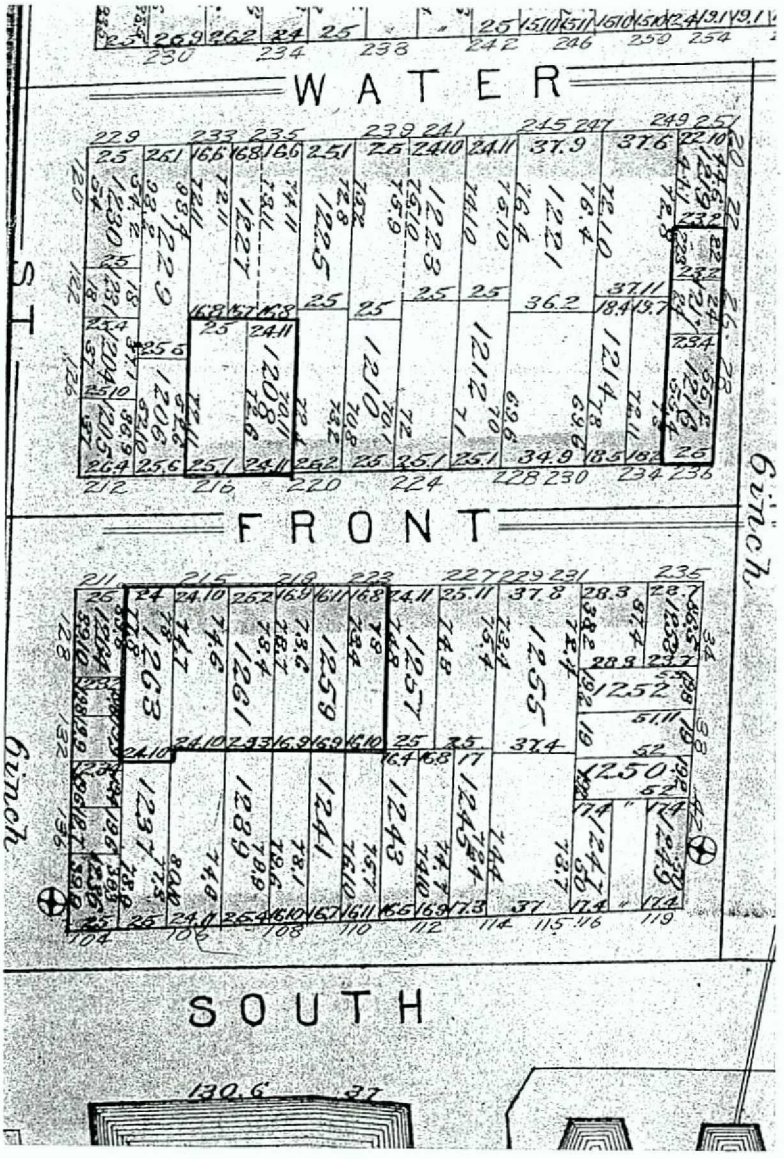


Fig. 15. 1881 Robinson map showing the location of the project sites.

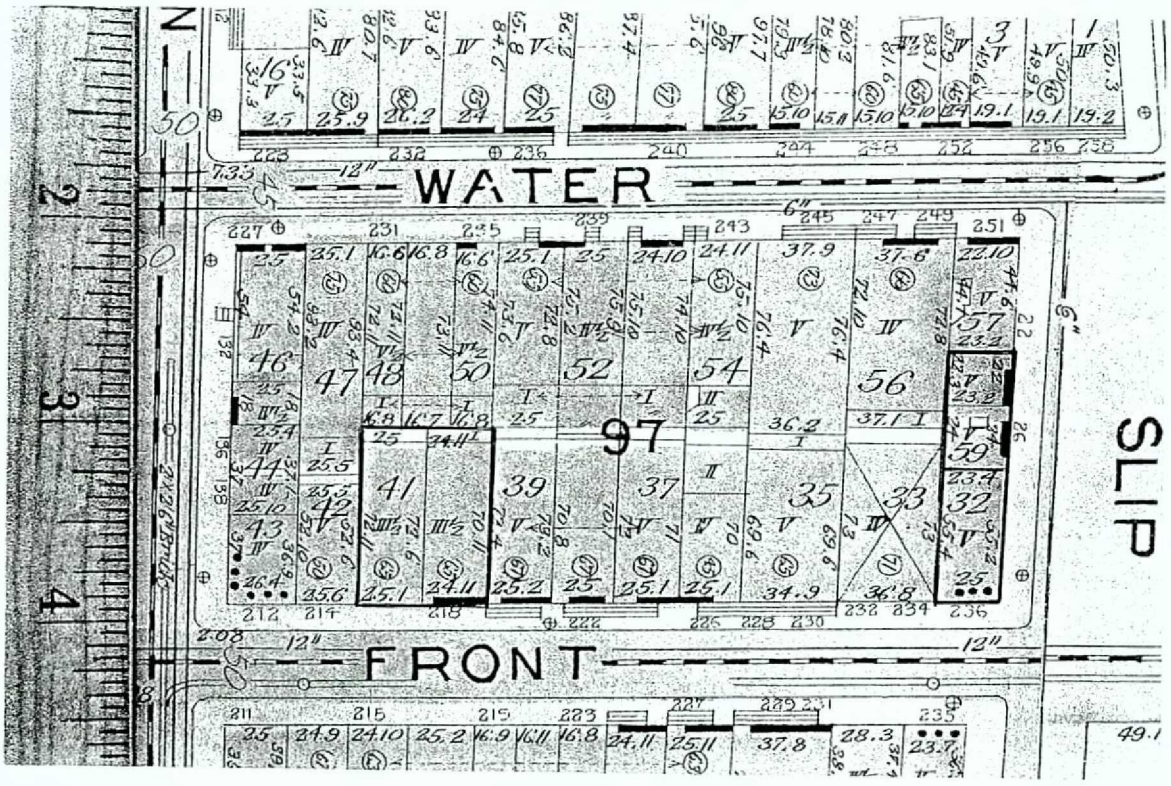
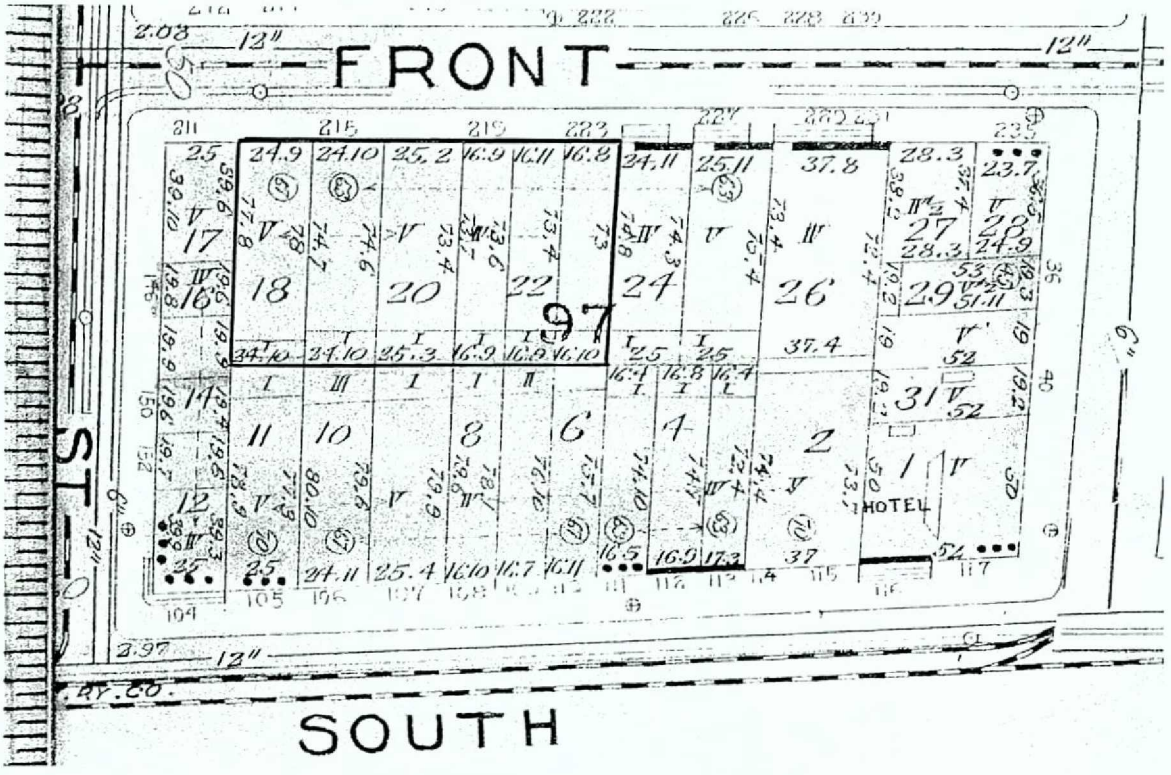


Fig. 16A & B. 1907 Belcher Hyde map showing the location of the project sites.



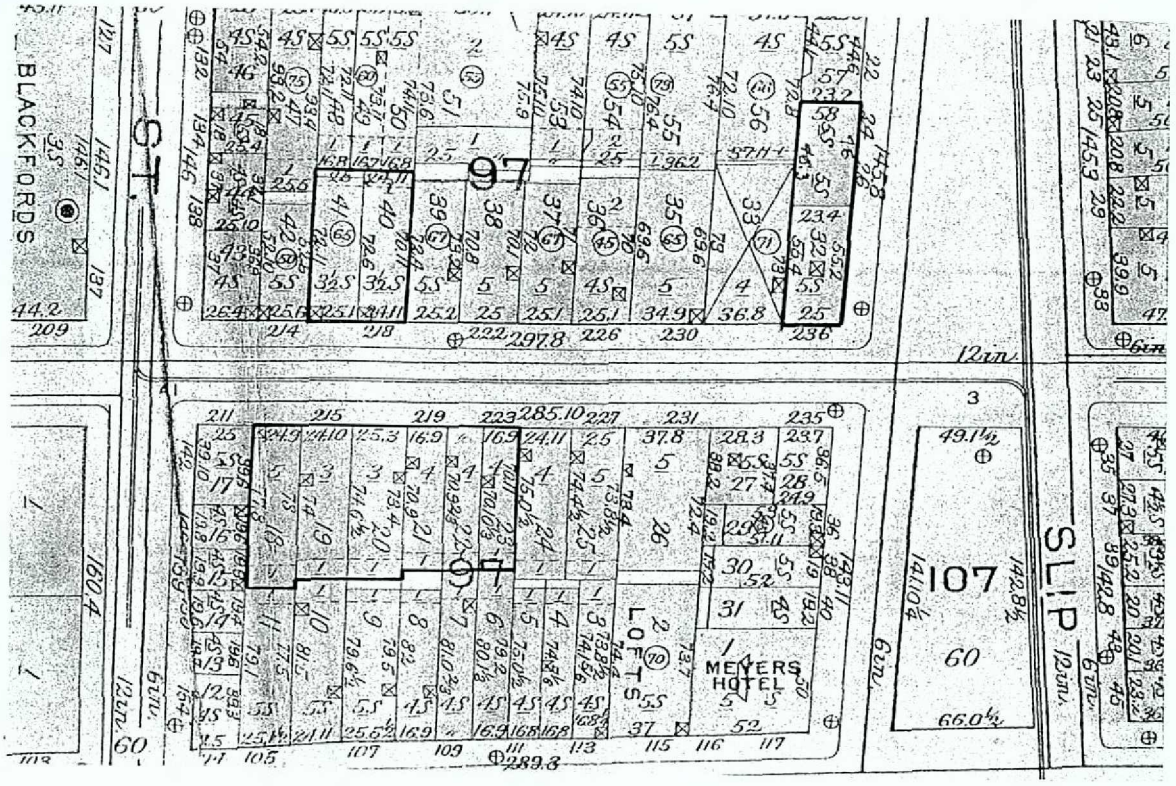


Fig. 17. 1932 Bromley map showing the location of the project sites.

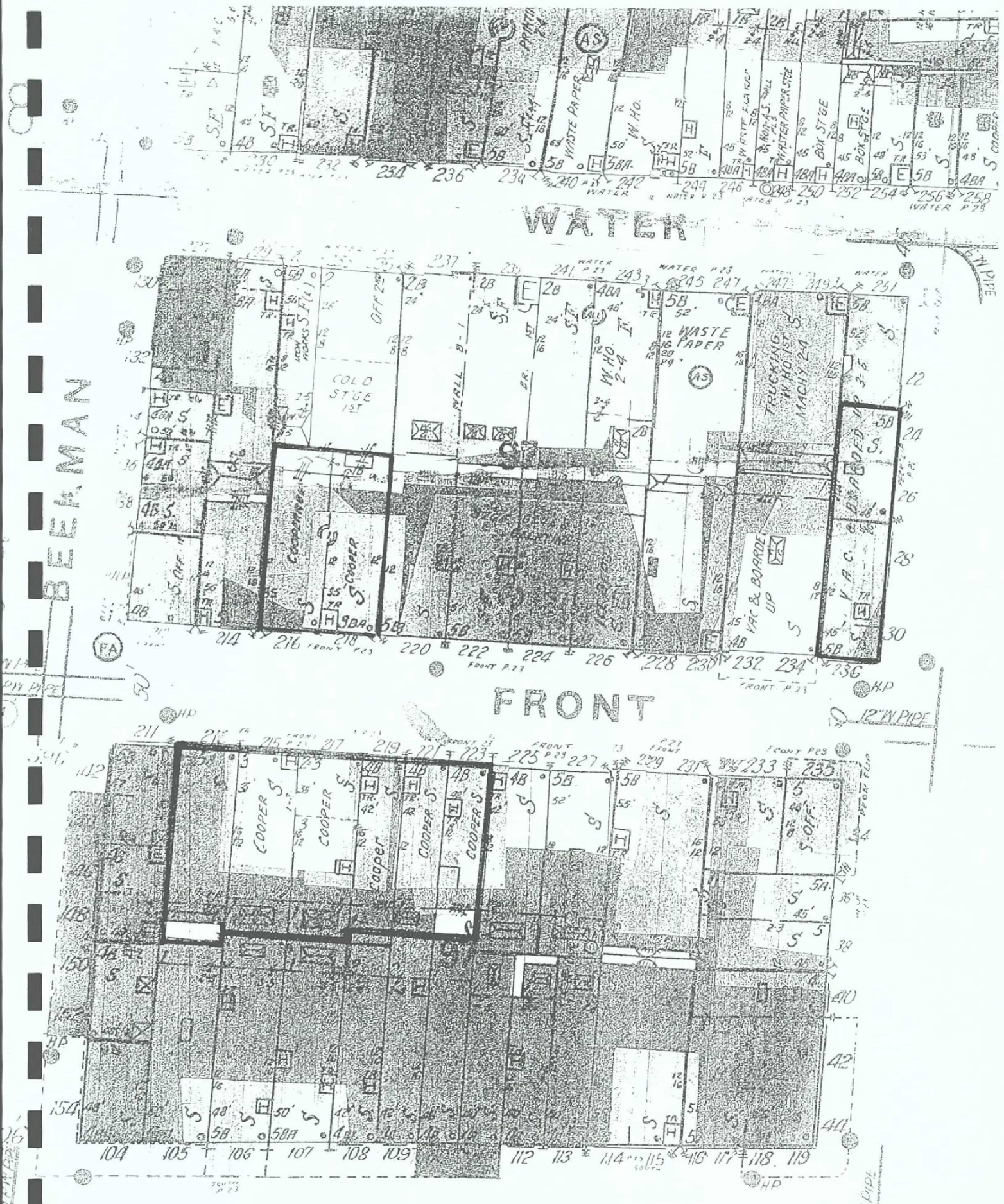


Fig. 18. 1951 Sanborn map showing the location of the project sites.

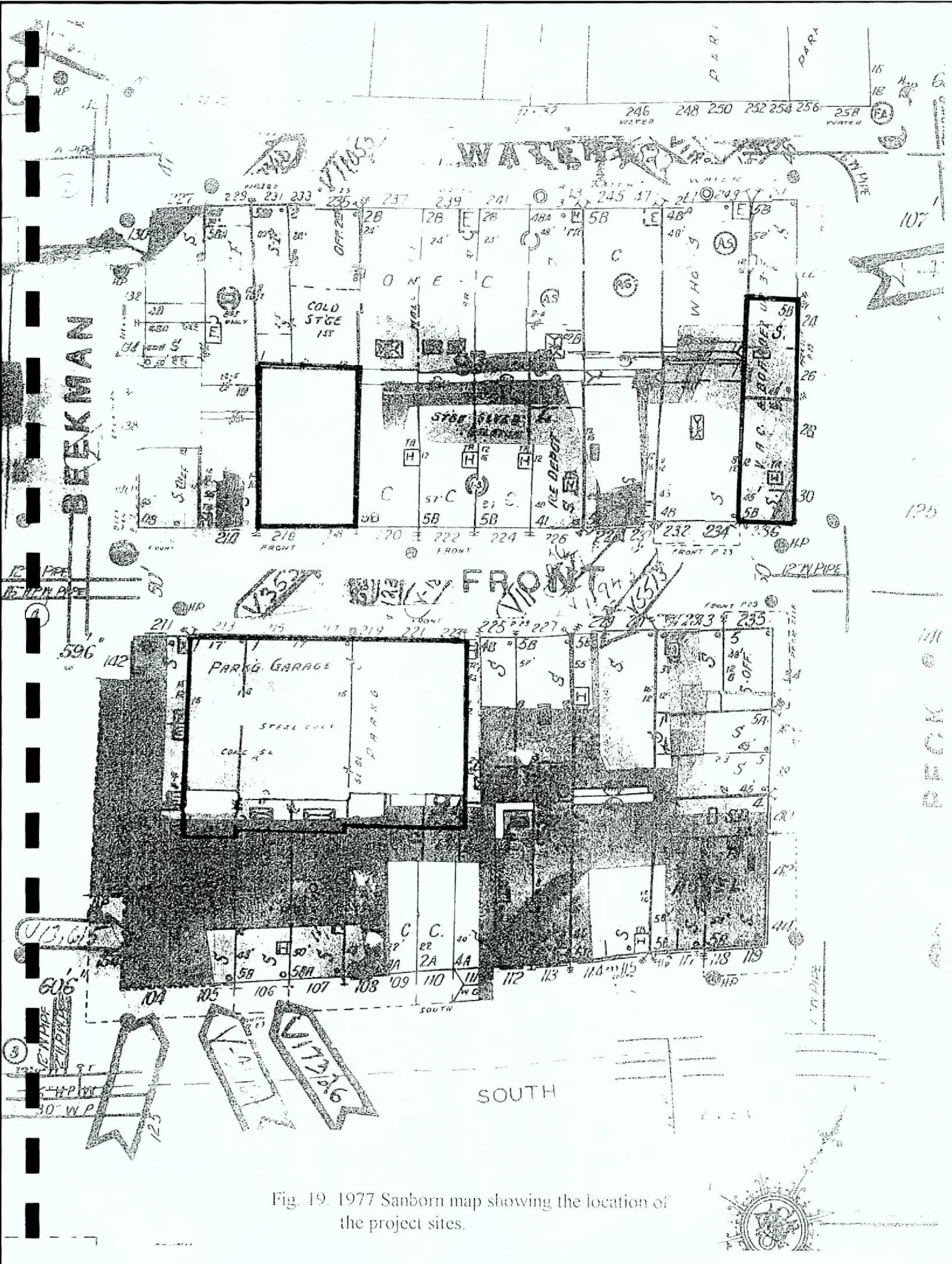
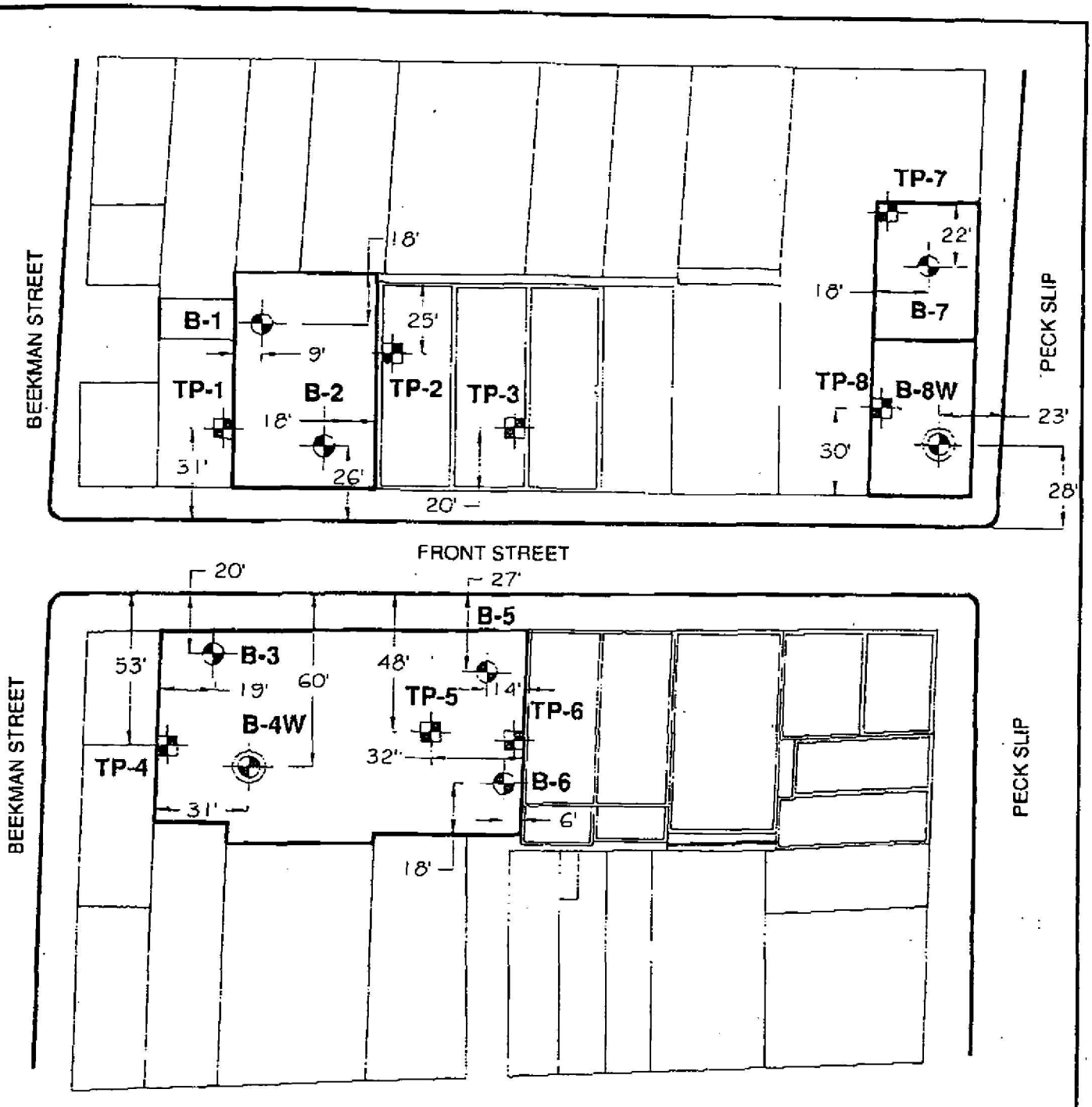


Fig. 19. 1977 Sanborn map showing the location of the project sites.



SITE PLAN

Scale 1:50

LEGEND:

B-1 — Boring No. and Location

B-4W — Boring No. and Location with monitoring well installed

TP-1 — Test Pit No. and Location

Title: **TEST PIT and BORING LOCATION PLAN**		
Project: **FRONT STREET DEVELOPMENT** NEW YORK, NEW YORK		
PILLORI ASSOCIATES, P.A. *Geotechnical Engineering* 71 Route 35, Laurence Harbor, NJ 08879	Date: 10-21-02	Dwg No. 1
	Job No.: 020513	

Fig. 20. Test pit and boring location plan showing the location of the project sites (by kind permission of Pillori Associates, P.A.)