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Sept, 1995

1A Archaeological Assessment of the 33rd Precinct Project Site Block 2112, Lots 10-42, Manhattan

CEQR No. 93-NYP001M



46 and 44 Jumel Place 1932

Prepared for the New York City Department of General Services
Prepared through Richard Dattner Associates, Architects
Prepared by Joan H. Geismar, Ph.D.
September 19, 1995

307

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INTRODUCTION/SUMMARY

This report presents the findings of 1A documentary research and an archaeological sensitivity evaluation of the proposed 33rd Precinct site located in the Washington Heights section of Manhattan (Block 2112, Lots 10-42; CEQR No. 93-NYP001M; Exhibit 1). The study was undertaken for the New York City Department of General Services through Richard Dattner Associates, architects of the proposed facility.

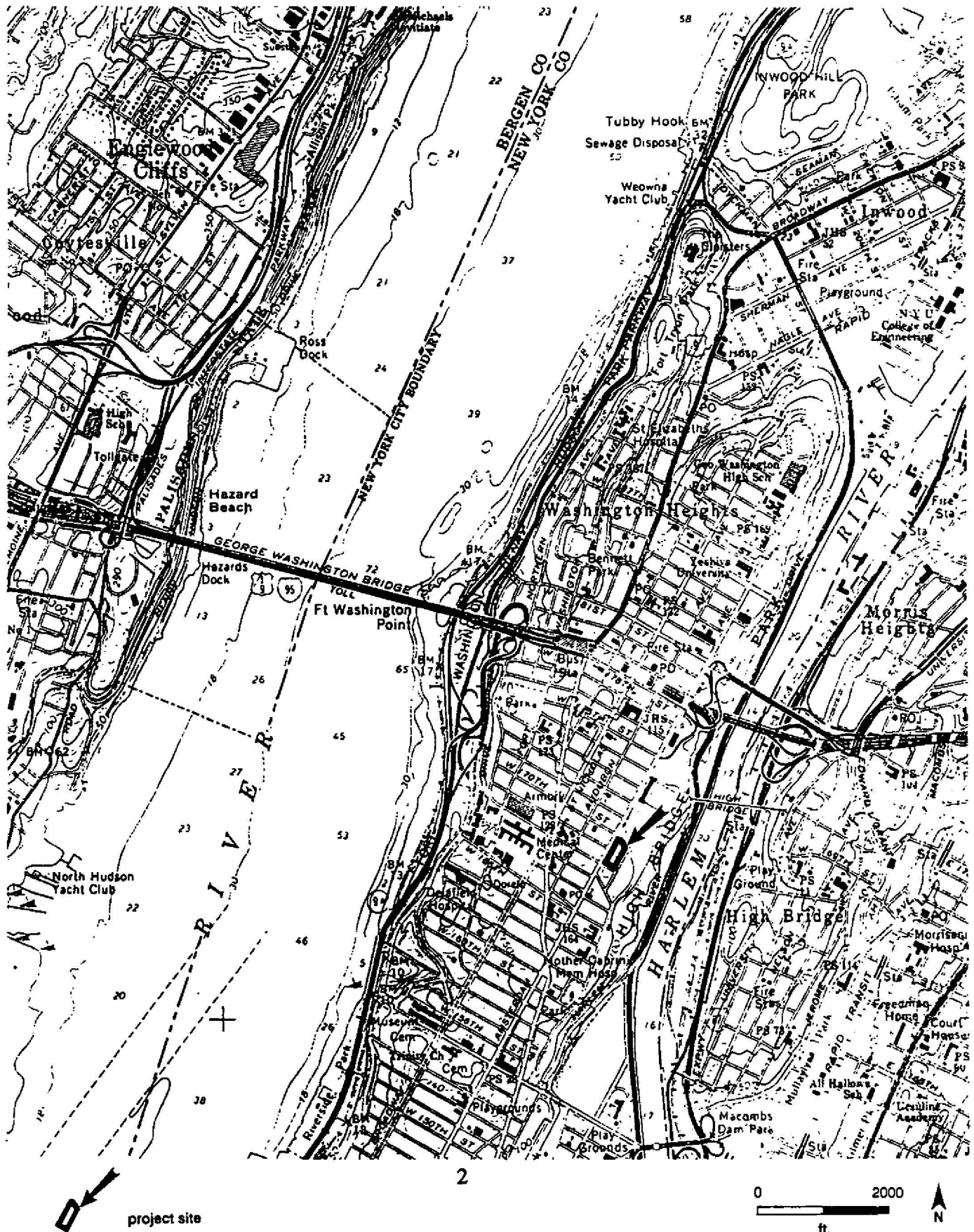
The U-shaped project site is bounded north by Edgecombe Avenue and West 170th Street, east by Jumel Place, and south by West 168th Street. The northwestern and southwestern project site lots are defined by Amsterdam Avenue, but because the site is U-shaped, it is also bounded on the west by the rear walls of five 6-story tenements (one of them vacant) that front on Amsterdam Avenue (see Exhibits 2 - 8 for the site plan and photos of existing conditions).

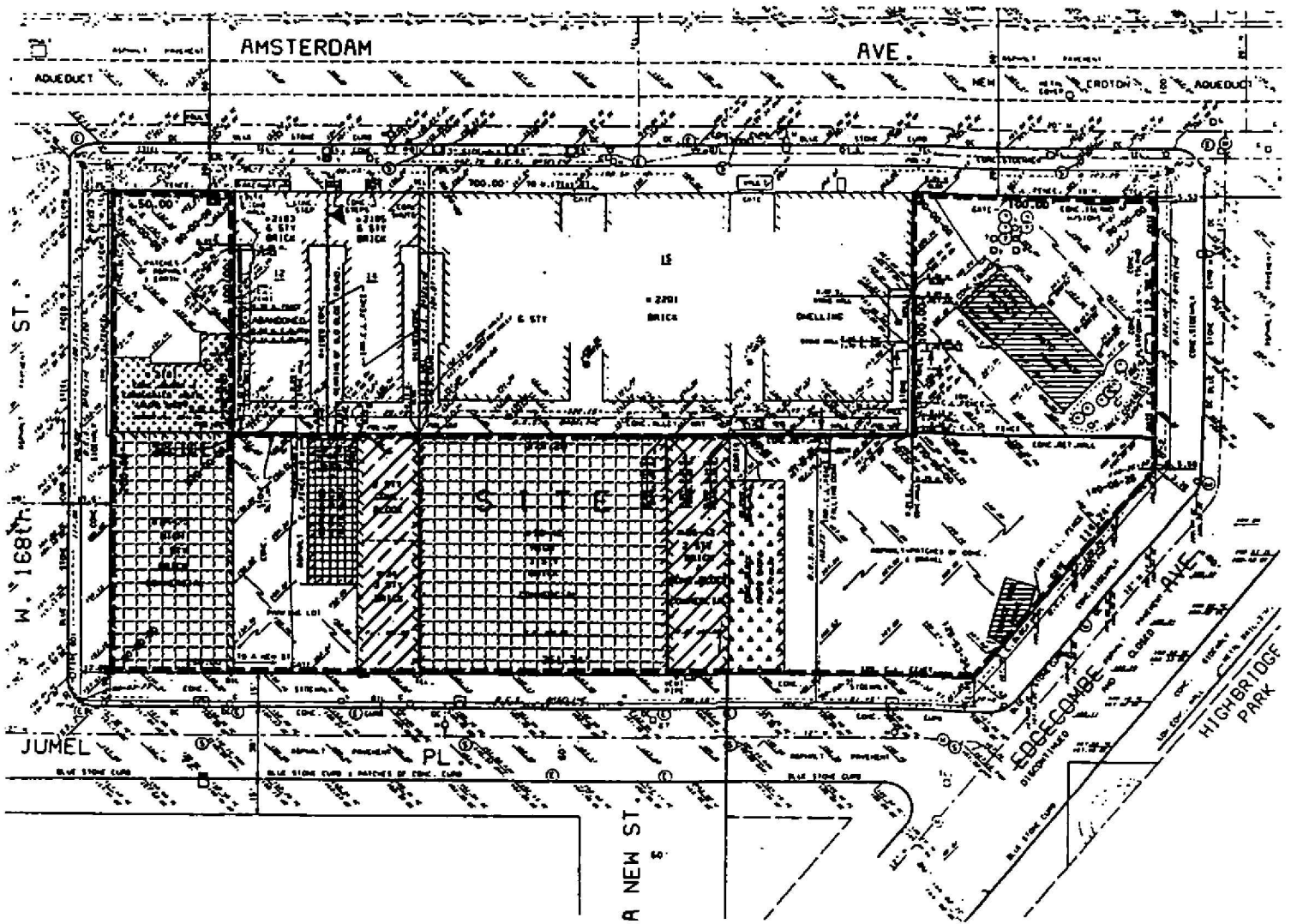
While situated in a section of Manhattan where prehistoric use and occupation are documented, archaeological issues from the millennia prior to European contact do not appear to be a concern. During the historic period, the site remained undeveloped until sometime between 1882 and 1884. This development followed the sale of land that had been in the Stephen Jumel family from 1810 until 1882 when it was subdivided. The site's first structures included an unidentified frame building that spanned two lots now covered by a 1-story brick parking garage at the corner of West 168th Street and Jumel Place (26-28 Jumel Place), and a frame stable that stood further north where another brick parking garage is now located (36-42 Jumel Place; see Exhibit 19). Structures remaining on the project site are now entirely commercial (see Exhibits 3-8), but this was originally a mixed commercial-residential block that, in the late-19th century, included an amusement park and resort, a bottling works, and mainly tenanted houses. Most development occurred after municipal water and waste sewers were available. This tends to eliminate the possibility of finding the backyard features—primarily privy pits, but sometimes abandoned water cisterns and wells—that often become the repositories of meaningful archaeological data. However, the stone foundation and possibly the associated artifacts of a rifle range built in 1888 may still remain, as might an original ground surface under fill that could harbor Native American deposits, although this seems less likely.




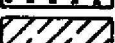



The findings summarized here are detailed in the following sections.

METHOD

Sources of information for this assessment included historical maps, atlases, published histories, newspaper accounts, directories, deeds, tax records, and other municipal, state, and federal documents. In addition, the collections of the Topographical Bureau of the Manhattan Borough President's Office, the New York Public Library, the New York Historical Society, and the New York Society Library were researched, and a site visit was made where existing conditions were photo documented.





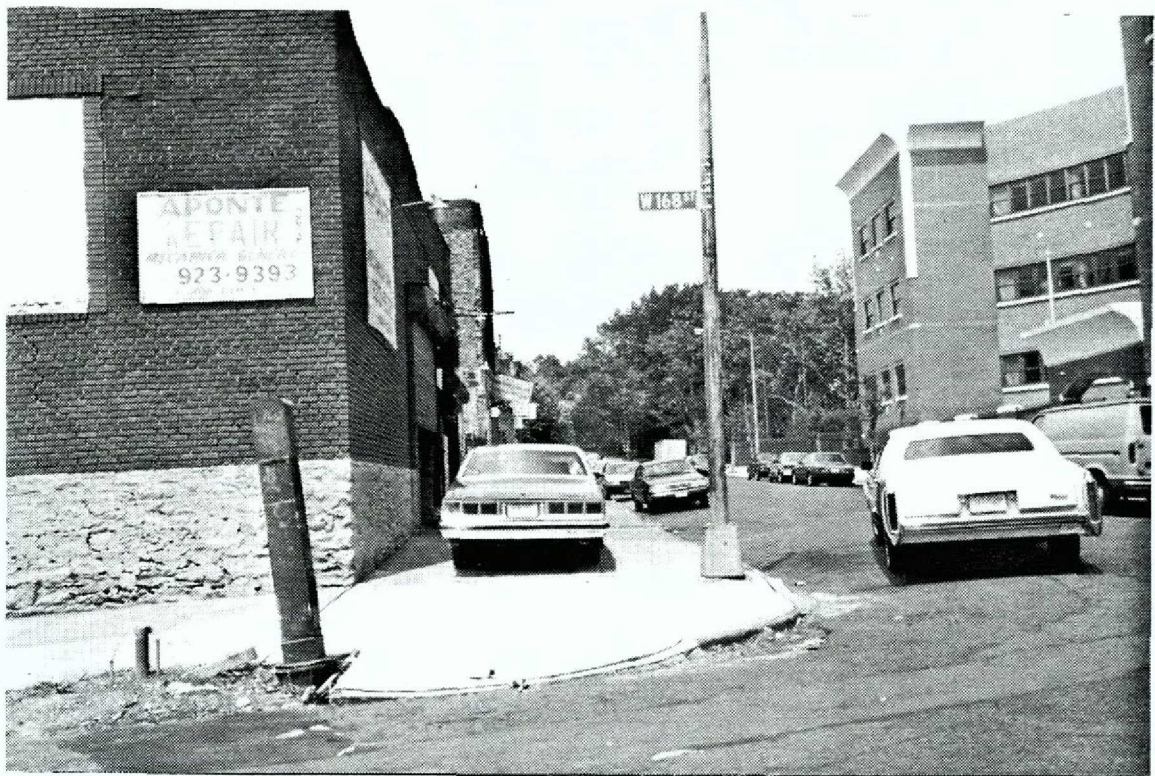
-  project site
-  brick
-  frame
-  cinderblock
-  brick/cinderblock
-  corrugated metal
-  corrugated metal/cinderblock

0 50
ft.

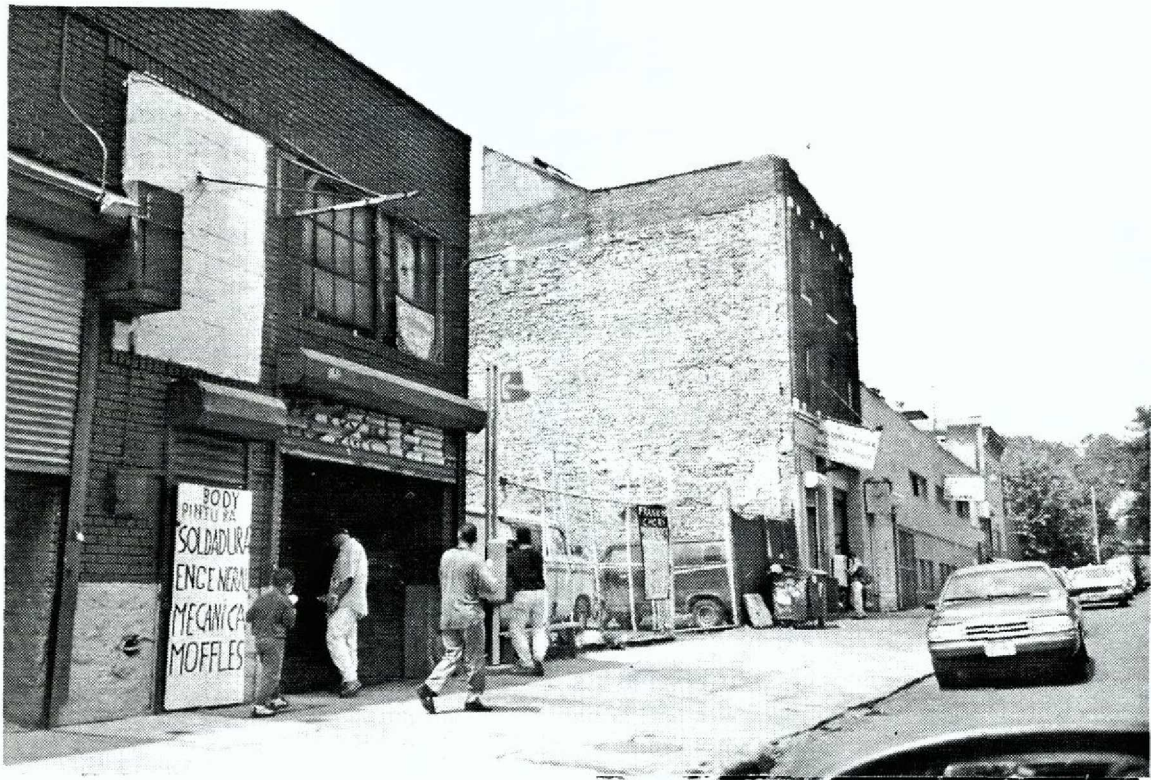




3 Northeast corner of Amsterdam and W. 168th St. (Lot 10), a former lumber yard now partially occupied by 1-story buildings in rear. View is east along 168th St. Note brick garage on corner of Jumel Pl. and 6-story tenement building on the left, one of five fronting on Amsterdam Ave. beyond the project site. (July 1995).



4 Garage on corner of W. 168th St. and Jumel Pl. (also shown in Exhibits 3 and 5). View is north on Jumel Pl. (July 1995).



5 View north on Jumel Pl., looking toward Edgecombe Ave. Garage (left) is the corner building shown in Exhibits 3 and 4. Vacant lots include one that was a bottling plant in the early years of this century. (July 1995).



6 North end of Jumel Pl. looking toward High Bridge Park at Edgecombe Ave. Garage (left) replaced a "HALL" that was part of "Gutterding's Cosmopolitan Park," a late-19th to early-20th-century resort complex on the northern part of the site. The 2-story structure just north of the garage, 44 Jumel Pl., is shown to be a residence in a 1932 photo (see Exhibit 27). (July 1995).



7 Composite view, west side of Jumel Pl. looking south from Edgecombe Ave. Note vacant lots north of 44 Jumel Pl., all of them former house sites, and the rear of tenements fronting on Amsterdam Ave. in the background. (July 1995).



8 Amsterdam Ave. and W. 170th St. looking south. An auto shop and travel agency share a corner building that replaced three homes built by the late 19th century. Tenement buildings on Amsterdam Ave. are not part of the project site. (July 1995)

PREHISTORIC CONSIDERATIONS

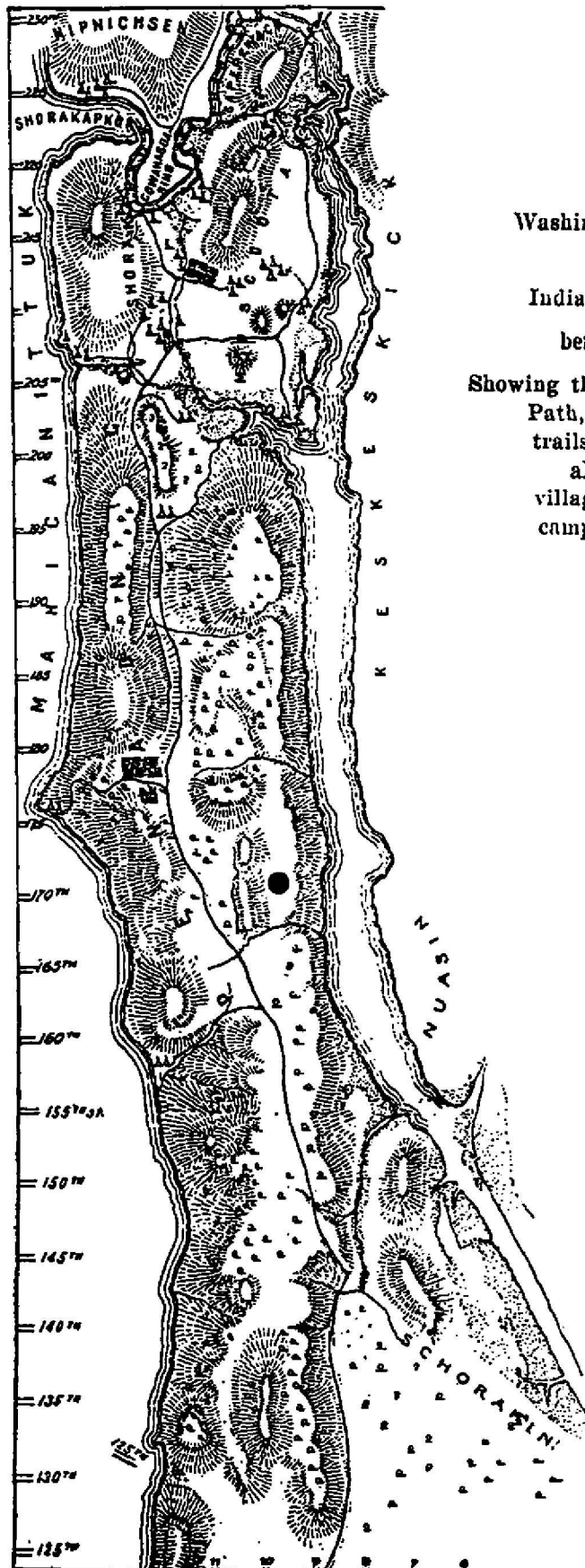
Early in the twentieth century, Reginald P. Bolton was a leading authority on New York City's Native American past. In addition he was an archaeological practitioner. Development was relatively sparse in Washington Heights at the time, and this part of Manhattan became the major focus of early archaeological explorations made by Bolton and his colleagues (among them Alanson Skinner and William L. Calver). In 1924, Bolton published *Washington Heights*, a history of the study area that included Native American considerations. Although more recent archaeological data have since revealed the great age of prehistoric occupation in the New York-metropolitan area (for example, Staten Island deposits conceivably date to about 8,000 years ago [Ritchie and Funk 1971]), Bolton remains an authority on the subject of Native Americans in the project area, and throughout Manhattan.

In *Washington Heights*, Bolton provides a map of the terrain (Exhibit 9) and comments on the archaeological potential of the project area:

Some of the most dramatic events in the early history of the City of New York took place on the northerly portion of the Island of Manhattan, now known as Washington Heights, and it is remarkable that at this late date [1924]... [its] retarded development has preserved some of the actual evidences of aboriginal life, of which in the lower and middle part of the island, all traces were long since swept away. (1924:1).

Here and elsewhere (e.g., Bolton 1934, 1920), Bolton identifies the "Indian Trails" that led to and through Washington Heights. He also identifies a "planting field" and a "village" site at Seaman Avenue and West 207th Street that included shell pits (or middens) that contained discarded oyster shells (clams were few and far between) and dramatic human burials. Artifacts recovered during these early archaeological explorations include worked stone projectile points and tools, a stone pestle for grinding corn, "banner-stones" considered ceremonial objects, glass trade beads, and a ceramic pot and miscellaneous fragments of Iroquoian design (Bolton 1924:45-47). Closer to the project site, Bolton documents a "maize field" on the west side of Broadway south of West 181st Street (1924:37-38). Although this is in the vicinity of the study area, Bolton does not identify any sites directly on the project block.

Both prehistoric and early historical use of the immediate site area may have been limited by the terrain. Noting its Indian name, *Penadnic*, which may mean "sloping mountain" (Bolton 1924:52), Bolton describes the project area in its natural state as a "range of hills covered with dense forest" (1924:12). As depicted on the 1865 Viele topographic map, the site block was located on high woodland (Exhibit 10). The 1860 Blackwell map (not illustrated), which provides elevations, is even more detailed. This map documents a high wooded plateau that varies from elevation 145 to 148 ft. along Amsterdam Avenue to 157 ft. on what became Jumel Place.



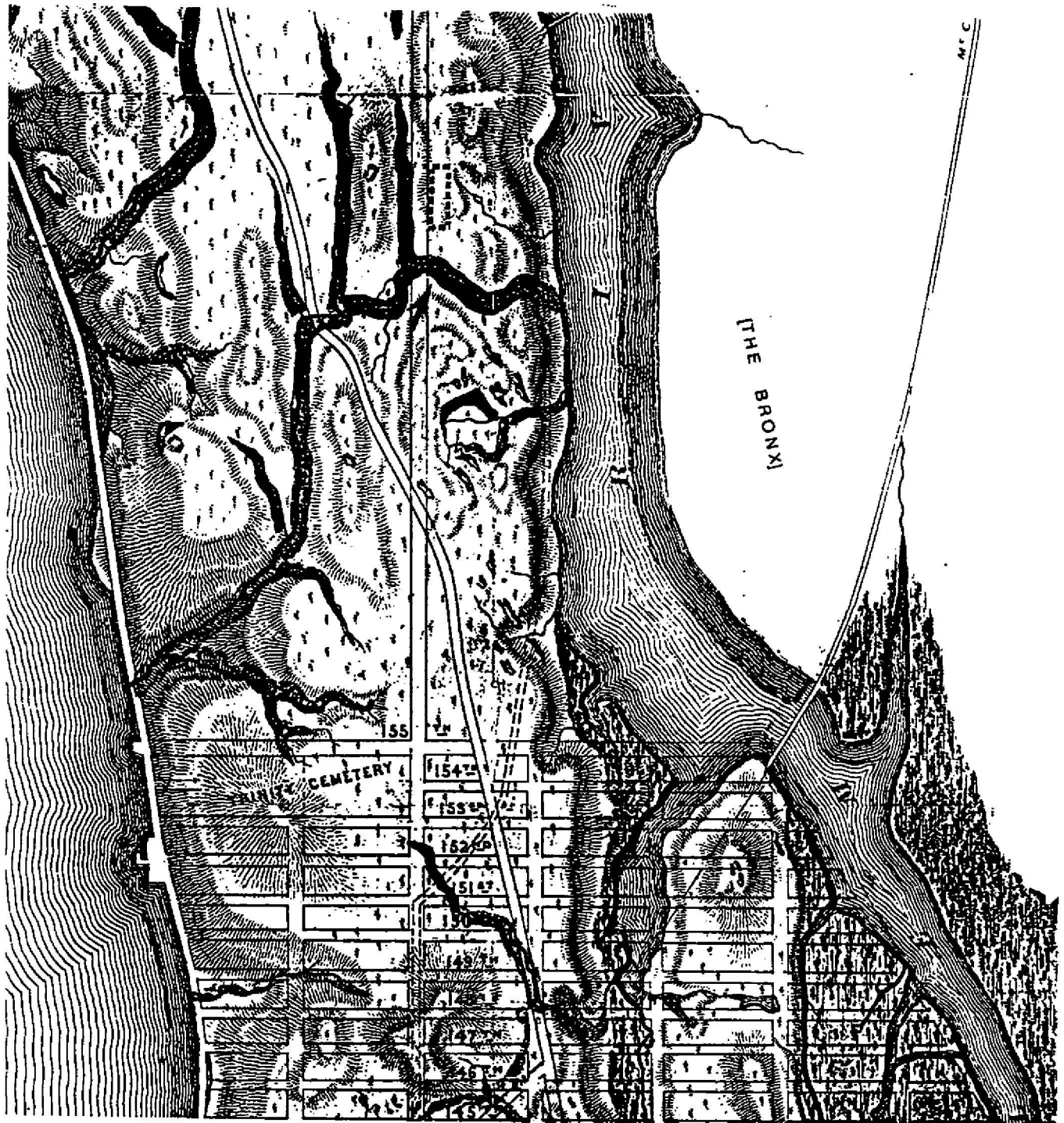
Washington Heights
in
Indian possession
before 1600.

Showing the Weckquaesgeek
Path, and branch
trails, connecting
all known
village sites and
camping places.

● project site (approx.)

no scale





----- project site location, approx.
→ stream

0 1000
ft.

According to a 1978 topographic map of Manhattan (Manhattan Topo 1978), where the site's elevation is documented between contour 150 ft. and 160 ft., its eastern elevation has remained relatively constant, but its western part has been raised, apparently through filling. According to a 1992 plan of existing conditions, the elevation in the southwest corner of the site varies from 166.63 to 169.92 ft. (Existing Conditions 1992; see Exhibit 2).

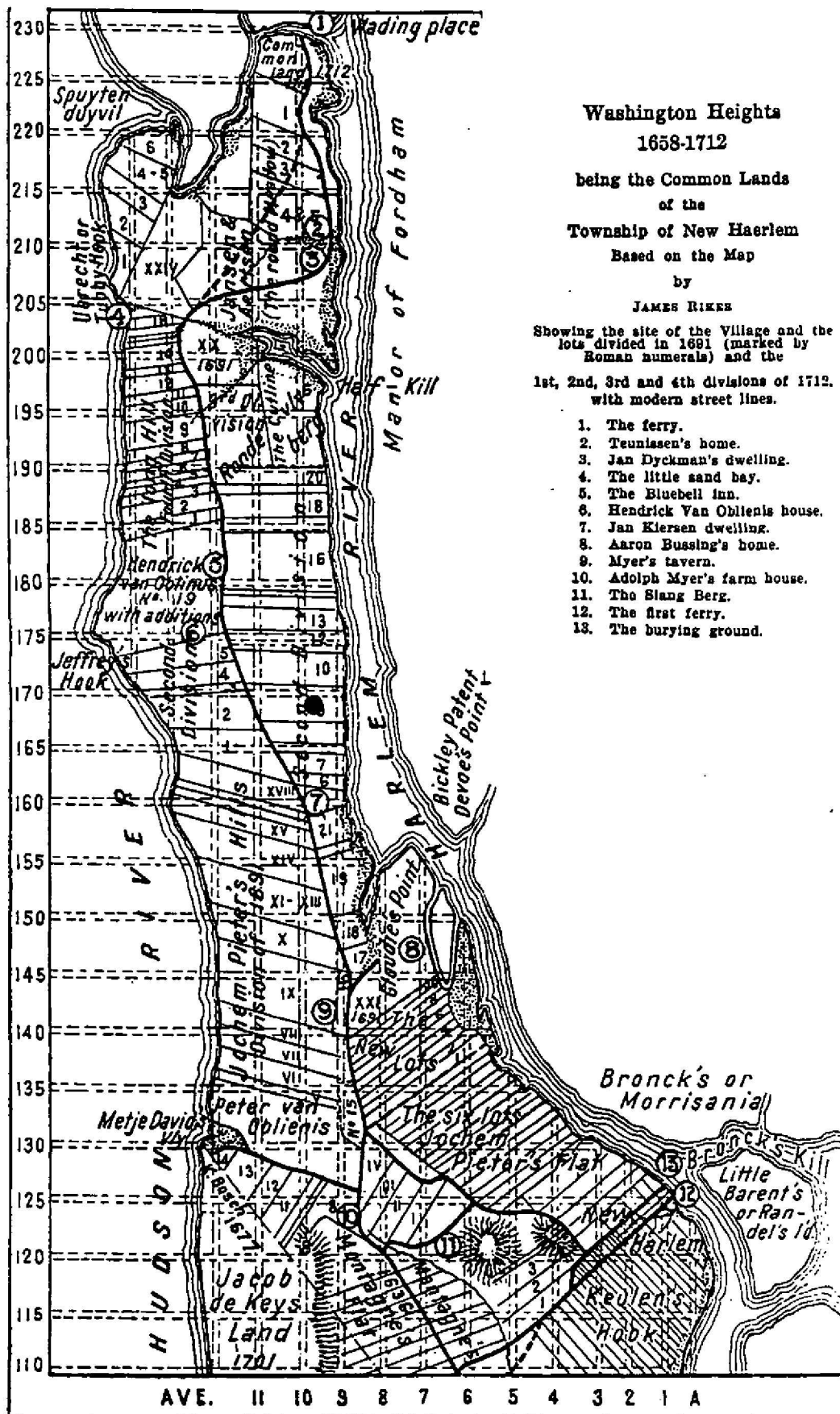
Six soil borings recently drilled directly on the site bear this out (Subsurface 1993:B2, B4, B9, B10, B11, and B12; see Appendix A). The one closest to Amsterdam Avenue (B2) documents at least 10 ft. of fill above 25 ft. of sandy soil followed by decomposed bedrock. To the east, what is either fill or, more likely, building rubble lies directly over decomposed bedrock (B10 and B12) or is separated from bedrock by a shallow deposit of sand with silt and gravel (B9 and B11). Only in the southwest corner of the site, where development appears to have been limited to 1-story lumberyard structures (see site Development below), might original terrain be buried under fill.

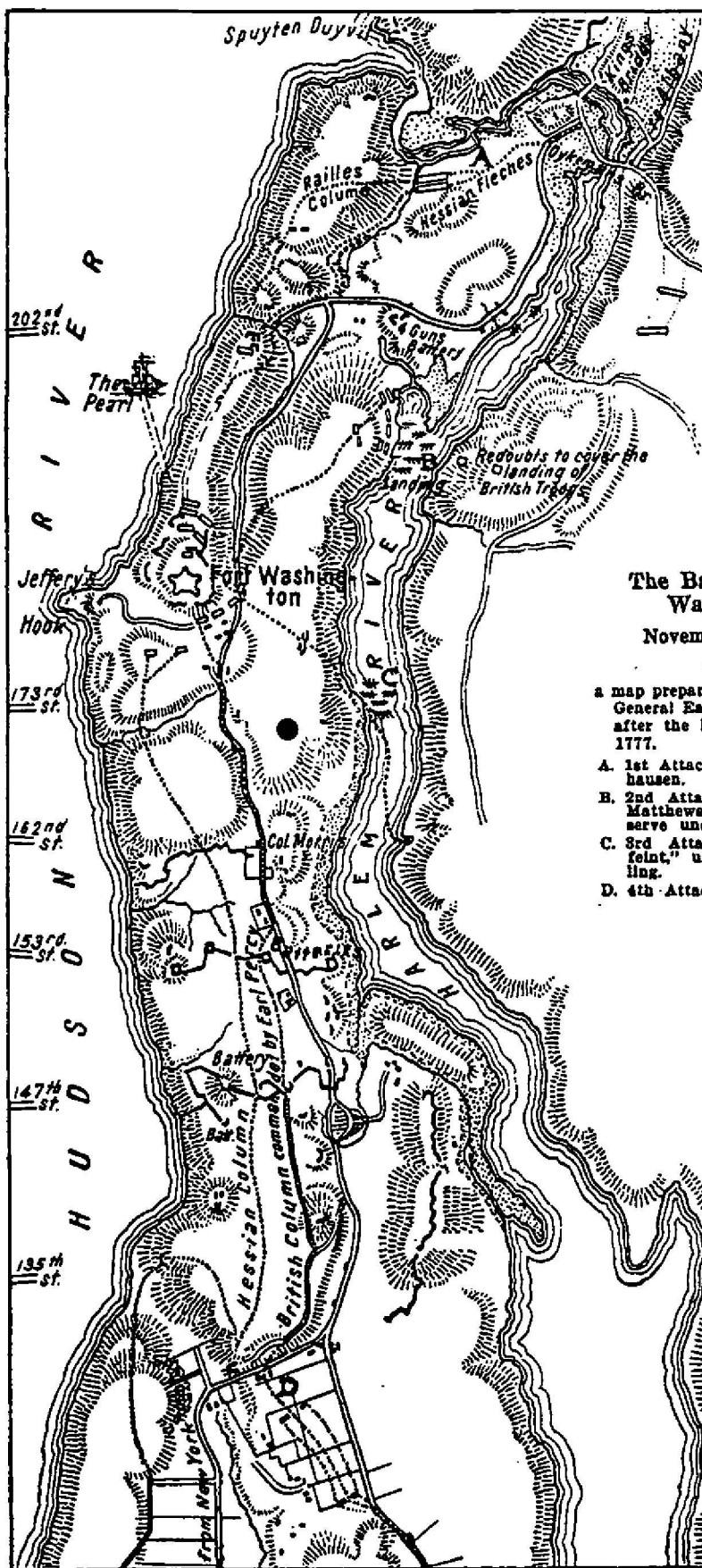
Whatever the subsequent disturbance, the viability of the site location for aboriginal use appears minimal. Although fresh water, considered a prerequisite for a Native American camp site, is documented nearby, there is none directly on the site (see Exhibits 17 and 19). Based on Bolton's assessment of inhospitable terrain and subsurface and surficial site conditions prior to development, it appears that Native American issues are not a project concern. This could be verified during construction through archaeologically monitored soil borings drilled on Lots 10 and 11.

HISTORICAL CONSIDERATIONS

Bolton compiled several maps for *Washington Heights* that summarize the history of the project area (Exhibits 11 to 15). This includes the division of common land into the Township of New Haarlem in 1691 (Exhibit 11), a map of the 1776 Revolutionary War Battle of Fort Washington (Exhibit 12), the conditions in 1782 near the end of the War (Exhibit 13), residential development in 1860 (Exhibit 14), and the street pattern and block divisions of 1924 (Exhibit 15)—essentially the modern configuration. The history of the project site is also well documented in other historical writings, most notably James Riker's *Revised History of Harlem* (1904), Hopper Striker Mott's *The New York of Yesterday* (1908), and William H. Shelton's *The Jumel Mansion* (1916).

To summarize, Washington Heights was only sparsely developed prior to the turn of this century, but its historical relevance is tied to thwarted attempts at settlement south of the project site area that date to 1658 (Bolton 1924:30). These failed because of disastrous, but perhaps inevitable, interactions with local and transitory Native Americans. As Bolton notes, these attempts were doomed by misunderstanding, greed, and bad politics. Only in 1691, twenty-seven years after the British takeover, and five years after all of Manhattan was opened to settlement by the Dongan Charter, was settlement, albeit sparse, successful. This was carried out under the





**The Battle of Fort
Washington,
November 16, 1776.**

Copy of

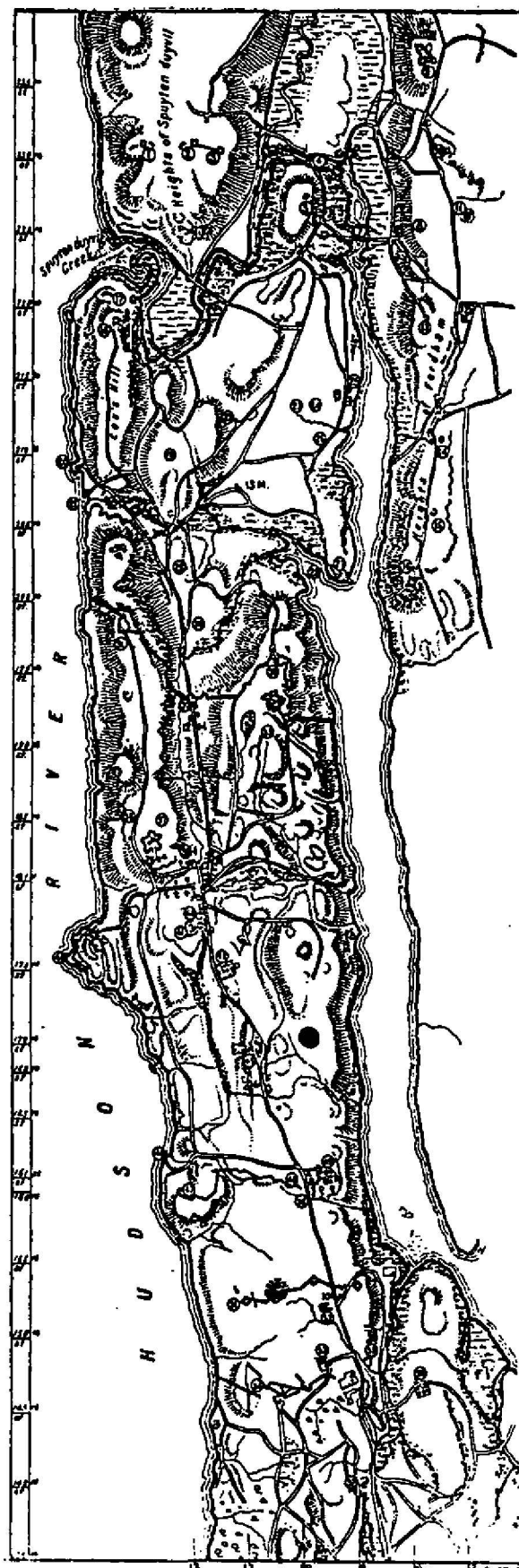
a map prepared by order of Lieut.
General Earl Percy immediately
after the battle, and published
1777.

- A. 1st Attack under Gen'l Knyp-
hausen.
- B. 2nd Attack under Brig-Gen'l
Matthews, supported by re-
serve under Lord Cornwallis.
- C. 3rd Attack, "intended as a
feint," under Lieut.-Col. Stir-
ling.
- D. 4th Attack under Earl Percy.

● project site (approx.)

no scale





Washington Heights

in 1782,

from the Survey by the
British Military Staff, known
as the Headquarters Map,
showing the fortifications.

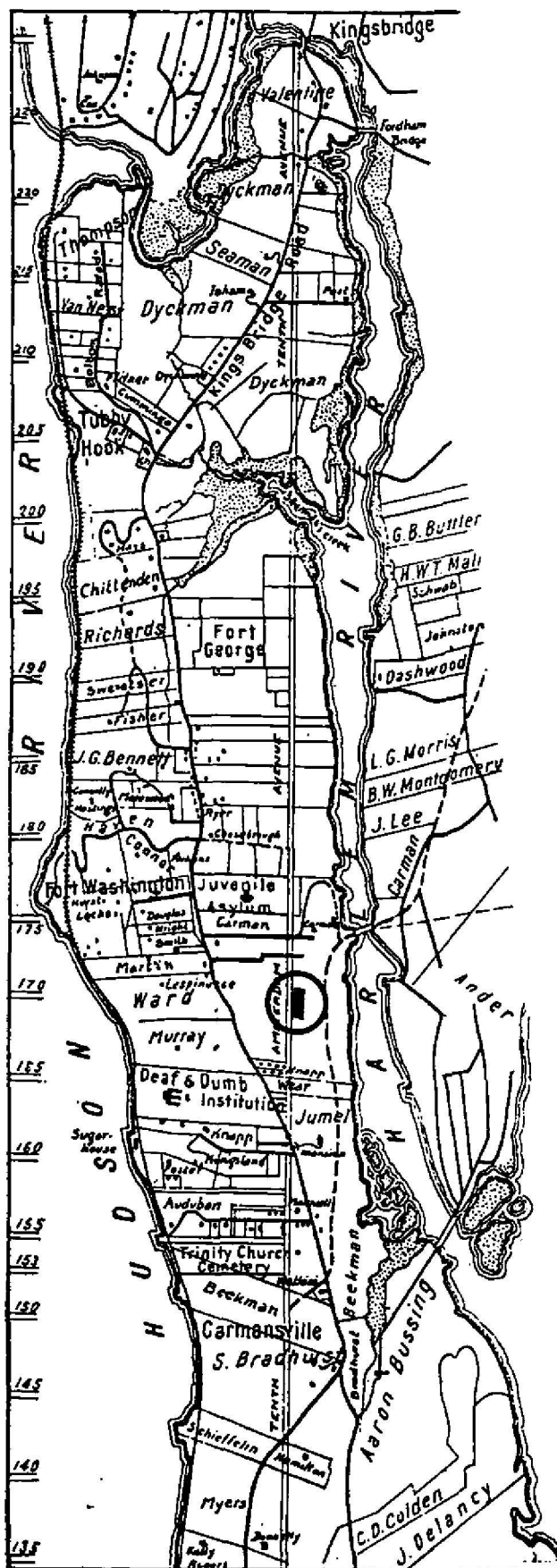
References.

1. Fort No. 1.
2. Fort No. 2.
3. Fort No. 3.
4. The King's Bridge.
5. Fort Prince Charles.
6. Hyatt's tavern.
7. The Farmers' Bridge.
8. Camp of Emmerich's Corps.
9. Fort Independence.
10. Fort No. 4.
11. The King's Redoubt.
12. Fort No. 5.
13. Fort No. 6.
14. Fort No. 7.
15. The Queen's Redoubt.
16. Fort No. 8.
17. Redoubt. Inwood hill.
18. Cock hill fort.
19. The Green Hill Camp.
20. Tubby Hook.
21. The little Sand Bay.
22. Site of present Dyckman house.
23. Negro burying ground.
24. The Nagel Cemetery.
25. Nagel dwelling, 1736.
26. Site of Dyckman's house.
27. Holland's ferry and camp.
28. The Half-hill, now Sherman's Creek.
29. Camp of the Leib Regt.
30. The Sanitary Camp.
31. Fort Tryon.
32. The Barrier Gate.
33. Fort Clinton.
34. Fort George.
35. Officer's camp.
36. Outworks Ft. Washington.
37. Fort "Knyphausen."
38. Garrison barracks.
39. The Blue Bell.
40. Officers' quarters.
41. Van Oblienis farm house.
42. Probably Artillery yard.
43. Imbert's Redoubt.
44. Jeffrey's Hook.
45. Von Donop Regt. Camp.
46. Col. Morris' Boat landing.
47. Redoubt of 1776.
48. The 3rd line of defense.
49. Washington's headquarters.
50. The White house.
51. The 2nd line of defense.
52. The Dyckman stone house.
53. Col. Maunsell's residence.
54. The 1st line of defense.
55. Redoubts in Colonial Park.
56. Bussing farmhouse.
57. Myer's Tavern.

● project site (approx.)

no scale





Washington Heights,
1850-60,

the district then being
known as

Carmansville, Fort Wash-
ington, Fort George, and
Tubby Hook, showing the
large estates into which the
district was divided.

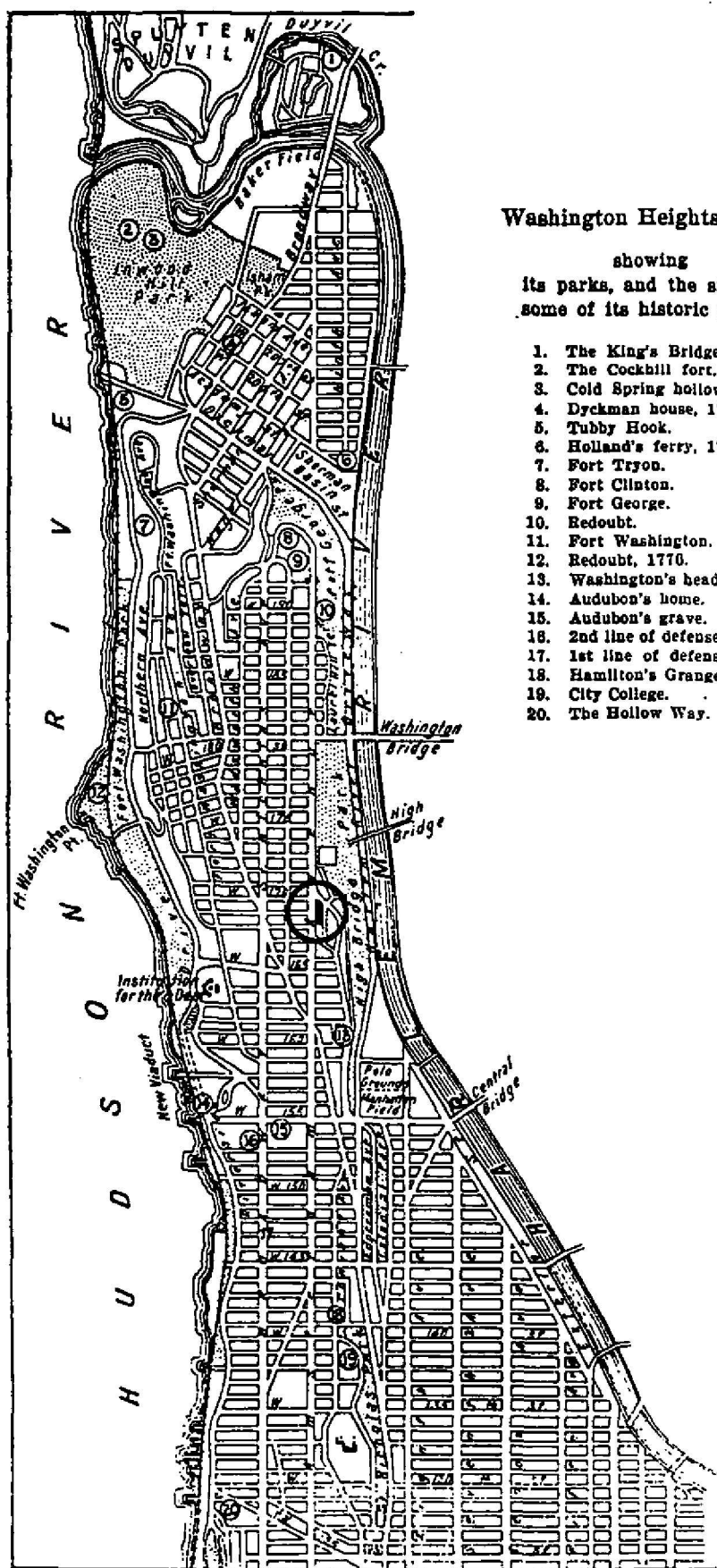
The only avenue in our
modern street system
which was partly laid out
was the 10th or Amsterdam
Avenue. The old Kings-
bridge road was still the
means of access to the
homes of the residents,
connected by private lanes
and driveways.



project site

no scale





Washington Heights today,
showing
its parks, and the sites of
some of its historic places.

1. The King's Bridge.
2. The Cockhill fort.
3. Cold Spring hollow.
4. Dyckman house, 1787.
5. Tubby Hook.
6. Holland's ferry, 1770.
7. Fort Tryon.
8. Fort Clinton.
9. Fort George.
10. Redoubt.
11. Fort Washington.
12. Redoubt, 1770.
13. Washington's headquarters.
14. Audubon's home.
15. Audubon's grave.
16. 2nd line of defense, 1776.
17. 1st line of defense, 1776.
18. Hamilton's Grange.
19. City College.
20. The Hollow Way.



project site

no scale



First Division of New Haarlem. A 1707 survey of the "King's Way," the former Indian trail that became the Kingsbridge Road (now incorporated into Broadway and St. Nicholas Avenue), indicates that no homes existed between West 160th Street and the farms of the Nagel and Dykman families above West 200th Street (Bolton 1924:59-60). A subsequent division in 1712 placed the undeveloped project site in Lot No. 9 of the Corporation's Second Division of Common Lands (see Exhibit 11).

The "King's Way" provided early access to and transit through the project area (Bolton 1924:55). The former Indian trail is described by Bolton as it crossed West 168th Street and headed north. To the south, it ran east of the project site and to the north it ran to the west: "Here [above West 168th Street] it crossed sometimes at one dry place and sometimes at another, the brook and bog which extended across its line, and then rising in grade, it reached its highest level at 173rd Street" (Bolton 1924:56). This trail, and its successor streets, connected the settlement of New Amsterdam at the southern tip of Manhattan with the mainland north of Spuyten Duyvil Creek.

At the very beginning of the Revolutionary War, while Manhattan was still in American hands, the project area was strategically situated. To the north at about West 183rd Street was Fort Washington; to the south between West 160th and West 162nd Streets was Washington's headquarters, the former Roger Morris mansion built in 1765 and known as "Mount Morris." In 1882, the extensive property surrounding this house stretched from the Hudson to the Harlem Rivers and extended north from West 159th Street to just below West 175th Street (Ruggles 1882). This included the undeveloped high woodlands of the project site.

Morris, who was born in England, was one of several famous New Yorkers who were members of the King's legislative council. He was torn between patriotism and his Loyalist sympathies, and his dilemma caused him to temporarily flee his adopted country, leaving the property that had come to him with his marriage to Mary Philipse in his wife's hands. This included his holding on "Haerlem Heights" (Shelton 1916:18-19). Maps of the time document densely wooded high ground in the project area (e.g., Sauthier 1777 in Shelton 1916:opp. 120; Stevens 1900 depicting 1782).

On November 14, 1776, the house and its out buildings fell to the British along with the rest of Manhattan. Within a few days, Fort Washington was renamed Fort Mifflin and the entire heights became a British stronghold for the remaining war years (Shelton 1916:123-128). For a short time, and then on and off over the years, the Morris house was General Clinton's headquarters. The property was restored to its owners during the war although it continued to be occupied by various British commanders and the British government paid the Morris' rent. At the end of the war, as was the case with the holdings of other British supporters, the property was confiscated. In 1784 it was sold by the Commissioners of Forfeiture to John Berrian and Isaac Ledyard. A succession of absentee owners followed until, in 1810, the intact property with its run-down house was purchased by Stephen Jumel, a French-born, self-made man (Shelton 1916:129-138). Shelton notes that "from the close of the Revolution to the purchase of the property by Stephen Jumel, the old house...was by turns a tavern with swinging sign and a

humble farmhouse" (1916:135). The Jumels restored it to its original splendor, but the respectability of the Morris family was never achieved by its Jumel owners according to William Shelton, the chronicler of the Jumel Mansion (Shelton 1916:223-224). Stephen Jumel died suddenly without leaving a will, and his widow, Betsy Jumel, survived him by thirty-three years, dying in 1865 "in her 92nd year" (*NY Times* 1865). Her estate was not settled until 1882 (*NY Times* 1882).

The site property remained undeveloped throughout Jumel ownership. Stephen Jumel's widow was the infamous Madame Jumel. Of illegitimate birth, originally the wife of a British soldier and then of the wealthy Stephen Jumel, when widowed, she briefly became the wife of Aaron Burr, her solicitor. Upon the settlement of her estate, a subdivision and sale of 783 lots was carried out that included the project site (Ruggles 1882)

While no development had occurred directly on the site, by this time the High Bridge (1848) a component of the innovative Croton Aqueduct system, had been constructed just to the north across the Harlem River. The Croton system would change the dynamics of the city and, more locally, of the Harlem River. Originally planned as a low bridge to carry the iron water pipes across the river, remonstrances of residents on the Westchester side (now the Bronx) caused it to be redesigned with 100-ft. high Roman arches to allow river navigation (Stokes III 1918:706). High Bridge was the first municipal structure to connect New York City to the mainland. River navigation continued to be a problem, and the bridge was rebuilt with a single steel span in the early 1920s to facilitate river traffic. Only a few of the original arches remain (WPA 1939:300).

In 1849, Madame Jumel had sold land to the city for \$1.00 that became High Bridge Park (Stokes V 1926:1822). Additional park land was acquired between 1876 and 1906 through condemnation (Stokes III 1918:970; V 1926:1822). The park now runs from 155th Street north to Dykman Street east of Edgcombe Avenue in the site area, but just above West 170th Street, it extends one block west to Amsterdam Avenue. Although it has been altered, its original designers were Calvert Vaux and Samuel Parsons, Jr. (Willensky and White 1988:463). A receiving reservoir, completed in 1869, was constructed east of 10th (Amsterdam) Avenue at 174th Street (Stokes III 1918:976). Since it appears on the 1867 Dripps map (see Exhibit 16), the reservoir was apparently under construction at that time (making it contemporaneous with the receiving reservoir in Central Park). The reservoir became a swimming pool in 1934. A third component in the local system is the water tower located in the park west of the High Bridge. This octagonal structure is the only survivor of several similar towers once located throughout the city. It was designated a New York City Landmark in 1967 and is attributed to John Jervis, the engineer of the Croton water system (Diamonstein 1988:161; Willensky and White 1988:463). It was erected in 1872 to equalize water pressure thirty years after the system opened, but is no longer functioning.

SITE DEVELOPMENT HISTORY

Late-19th century ownership and initial development of project lots are summarized in Table 1. In addition to the Revolutionary War maps previously noted, early real estate atlases

Table 1. 33rd PRECINCT -- Block 2112: Early Development History of Project Lots

Lot No. (Old Lot)	Address	First Year Developed	Original Own- er/Developer	Original Tenant/ Occupant	Function	Source	Remarks
10 (333)	21 79 Amsterdam Avenue	by 1933	Unknown	White Lumber Co.	Lumber Yard	Sanborn 1921; NYC Dir	Includes former lot 11 (334)
23 (345)	2203 Amsterdam Avenue	1888	Henry Hughes/ Guterding?	Jacob Guterding	Cosmopolitan Park "Rifle Range"	LD2:151; NB88, 1888; Sanborn 1896	Guterding de- velops "Park"
24 (346)	2205 Amsterdam Avenue	1888	Henry Hughes/ Guterding?	Jacob Guterding	Cosmopolitan Park "Rifle Range"	LD2:151; NB88, 1888; Sanborn 1896	c1888. No deed of sale to Guter-
25 (347)	2207 Amsterdam Avenue	1888	Henry Hughes/ Guterding?	Jacob Guterding	Cosmopolitan Park "Rifle Range"	LD2:151; NB88, 1888; Sanborn 1896	ing found; LD2: 151 is Guterding
26 (348)	2209 Amsterdam Avenue	1888	Henry Hughes/ Guterding?	Jacob Guterding	Cosmopolitan Park "Rifle Range"	LD2:151; NB88, 1888; Sanborn 1896	lease to son
28-29 (425-426)	673 Edgecombe Road	1890	Unknown	Unknown Henry Bracker (1899-1903)	Residence	1891 TA; NYC Dir.; 1900 FC	Bldg & sheds demolished btwn 1955 & 1967
30 (427)	672 Edgecombe Road	1887?- 1888	L.J. Phillips	Possibly John Hart (1887-1909)	Residence?/ Commercial	1888 TA; NYC Dir.; 1900 FC	Only bldg on lot; demolished btwn 1955 & 1967
31 (428)	671 Edgecombe Road	1887	L.J. Phillips	Unknown Fredericka Radle (1893-1902)	Residence	1888 TA; NYC Dir.; 1900 FC	Only bldg on lot; demolished btwn 1955 & 1967
32 (424)	46 Jumel Place	by 1932	Unknown	Unknown	Residence	Sanborn 1921; MCNY 1932	Built btwn 1921 & 1932
33 (423)	44 Jumel Place	1888	L.J. Phillips	Unknown	Unknown	1889 TA	Bldg standing
34-37 (422-419)	42-36 Jumel Place	1887	George Ehret	Jacob Guterding	Cosmopolitan Park "Hall"	LD2087:183; NB261, 1887	Guterding buys property 1887; forfeited 1908
35-36 (420-421)	40-38 Jumel Place	by 1884	N.A. Lisper- asse	Unknown	Stable	Robinson 1884; 1884 TA	Stable precedes "Hall"
38 (418)	34 Jumel Place	by 1940	Unknown	Jumel Wagon Works	Auto Repair Shop	Sanborn 1921; Tax Photo	Bldg standing
39 (417)	32 Jumel Place	1895	Susie E. Ormsby	Susie & Dorman L. Ormsby	Bottling plant & Residence	LD5:446; 1896 TA; 1st NYC Dir listing 1897	Bldg demolished in 1968
40 (416)	30 Jumel Place	by 1916	Unknown	Unknown	Bottling plant?	Hyde 1912; LD52: 346	Only map to label bldg "bottling plant"
41-42 (415-414)	28 Jumel Place	by 1884	L.J. Phillips	Unknown	Unknown	Robinson 1884	1884 map shows unidentified bldg; garage on site built btwn by 1921

FC: Federal Census; LD: Liber of Deeds; NB: New Building number; NYC Dir: New York City Directory; TA: Tax Assessment

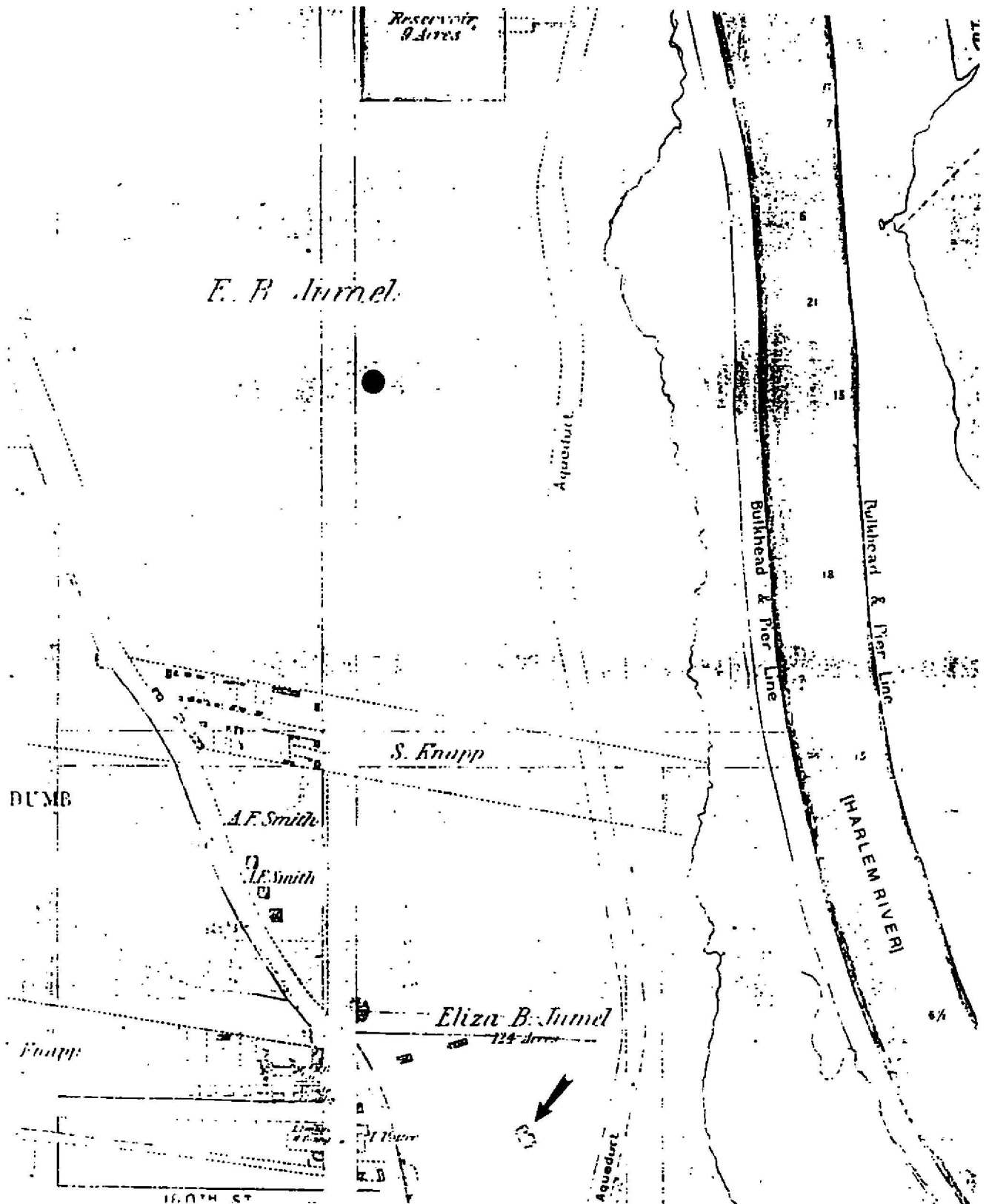
confirm the site's undeveloped state (Dripps 1867 and Bromley 1879; Exhibits 16 and 18). Road development and planning preceded lot development, and 10th Avenue (Amsterdam Avenue since 1890 [Stokes III 1918:1010]) was opened in the project area by 1848 (Street Opening Map n.d.). However, as late as 1865, 10th Avenue was noted as being merely "used for the aqueduct of the Croton-water...beyond the aqueduct the avenue has no improvements" (*Citizens' Association Report* 1865:338). As early as 1876, and therefore prior to the subdivision of the project area, the running of Edgecombe Road (now Edgecombe Avenue) and Jumel Place was in the works (Map 3204; Exhibit 17) although these two roads would not be opened officially until 1894 and 1902 respectively (Street Index; Street Opening Map). A later addition was West 168th Street between Amsterdam Avenue and Jumel Place which was acquired in 1913 and opened in the project area between that year and 1921 (Street Index; see compare Exhibits 21 and 22).

As noted above, the development history of the project site began with subdivision and sale in 1882. According to real estate atlases, the earliest documented development directly on the project site occurred between 1879 and 1884 (Exhibits 18 and 19), but the subdivision date tightens this construction time to the two years between 1882 and 1884. As noted in the introduction, by this latter year, two structures had been built, one an unidentified frame building at what is now the corner of Jumel Place and West 168th Street (Lots 41 and 42), the other a mid-block frame stable (Lots 35 and 36; see Exhibit 19). Both locations are now garage sites.

By 1888, the unidentified frame structure on the corner of West 168th Street and Jumel Place was gone. According to deed, tax, and directory data, three houses were erected on the northeastern part of the project block between 1888 and 1890 (see 671 to 673 Edgecombe Avenue on Table 1). It appears that 672 Edgecombe Avenue was both a residential and commercial property. The building's early tenant was John Hart who sold liquors at that address in 1887 and operated a boarding house there between 1897 and 1905 (*New York City Directories*, hereafter NYCD 1887-1905). From 1905 until 1910, Hart operated a stable on the lot. A widow, Fredricka Radle, lived next door to the east at 671 Edgecombe Avenue from 1892 until 1902. Mrs. Radle apparently ran her deceased husband's "sawing" business at 611 West 36th Street which ultimately became a piano company at the same address (NYCD 1891-1906). On the other side of Hart from 1898 until 1903 was Henry Bocker, a butcher and produce man who worked out of Washington Market (NYCD 1897-1906).

At about the time the Edgecombe Avenue houses were built, the northwestern portion of the project site, on Amsterdam Avenue and West 170th Street, had become an amusement park or resort known as "Guterding's Cosmopolitan Park." Despite intensive efforts to identify and document this "park," the only information obtainable came from deeds, mortgage libers, sparse building records, and an 1896 Sanborn Insurance map that identifies "Cosmopolitan Park," its "Rifle Range," and a "Hall" (Exhibit 20). Even tax assessments fail to record its existence.

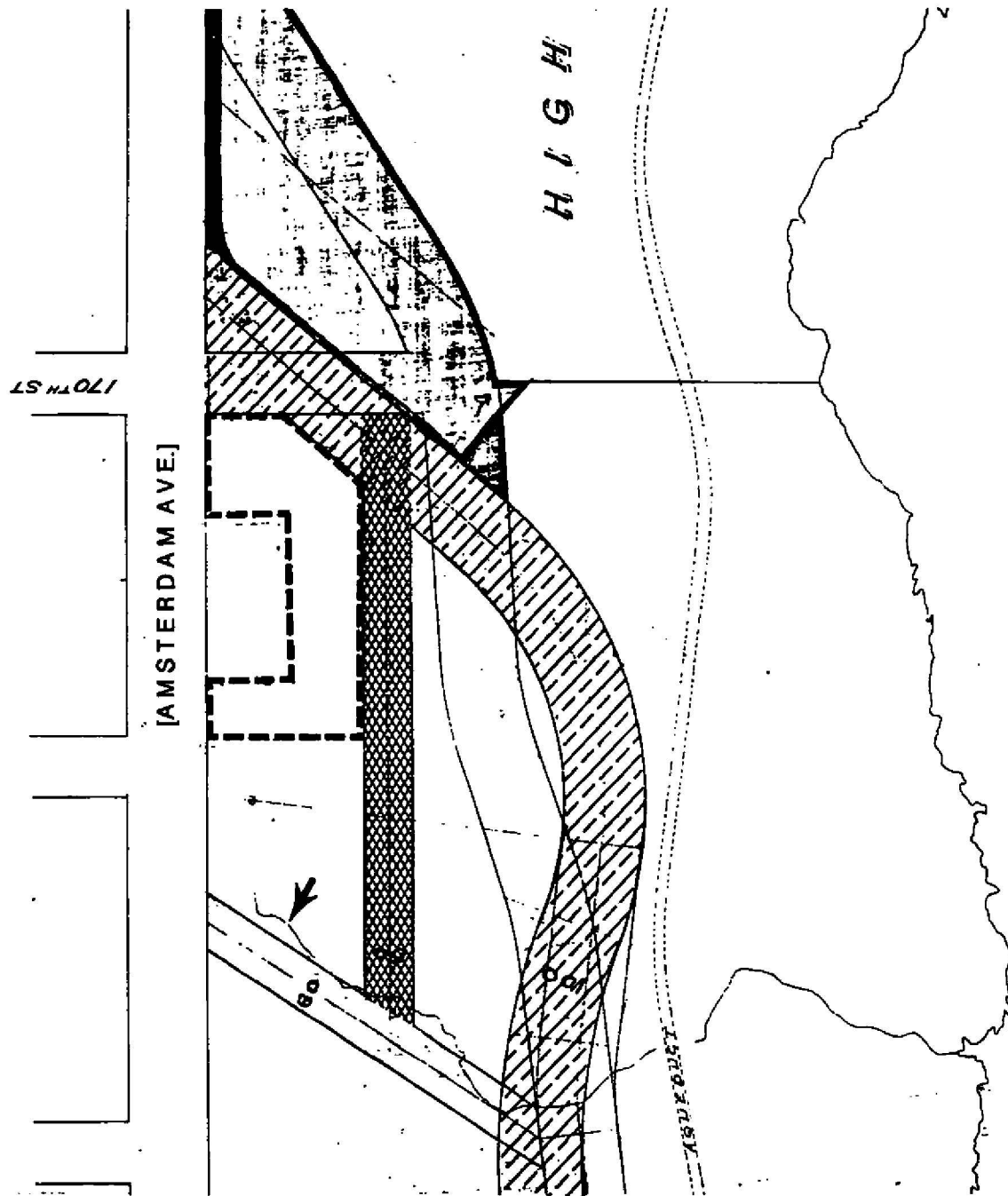
While leases to Guterding have been located for the Amsterdam Avenue lots that are not part of the project site (e.g., Liber of Deeds [hereafter LD] 1891:56), nothing has been found on record for Jacob Guterding's ownership or lease of the project lots included in his park or resort. His acquisition of the property is circumstantial based on an 1891 sublease to his son that indi-



project site (approx.)

Jumel Mansion

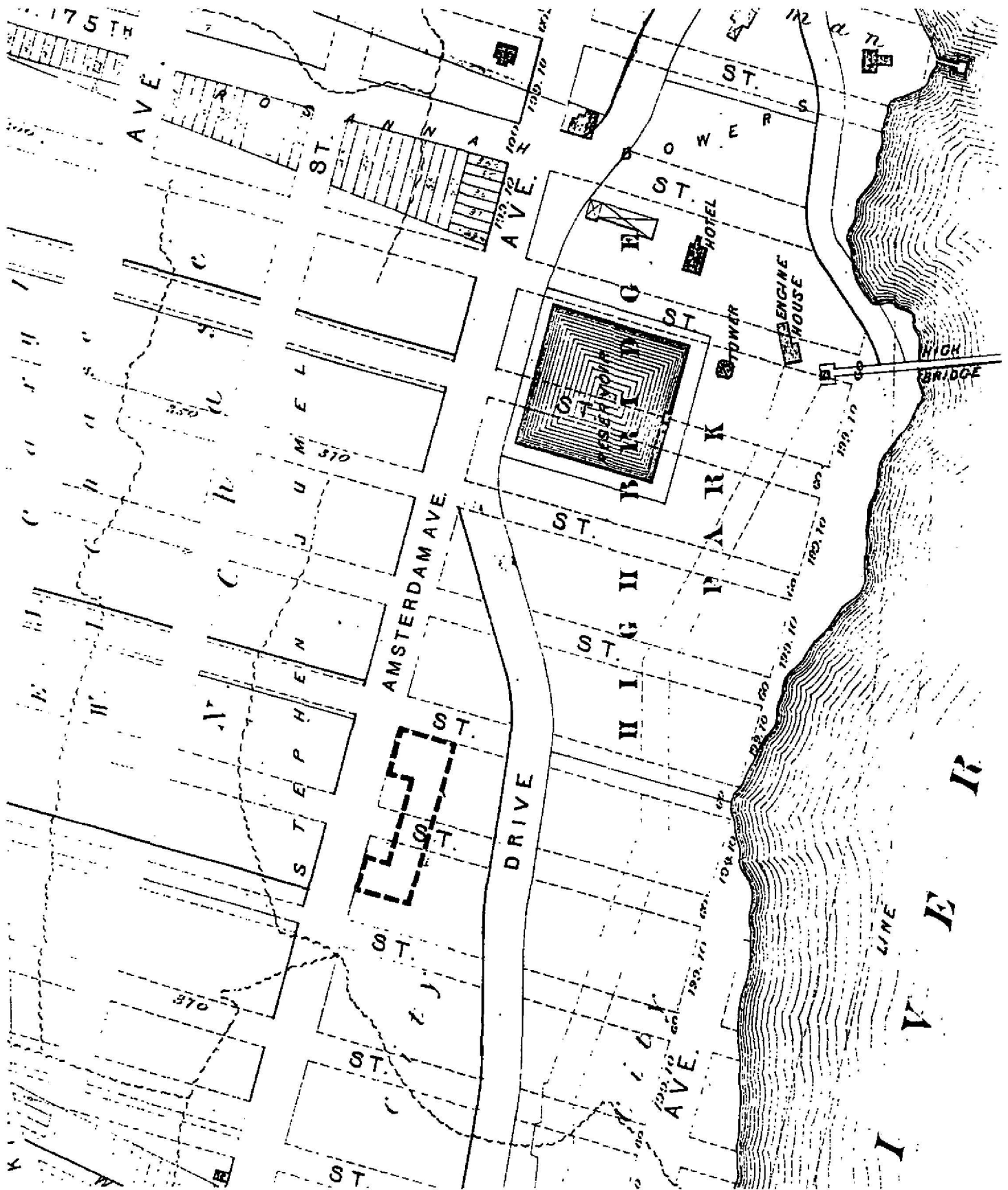
no scale

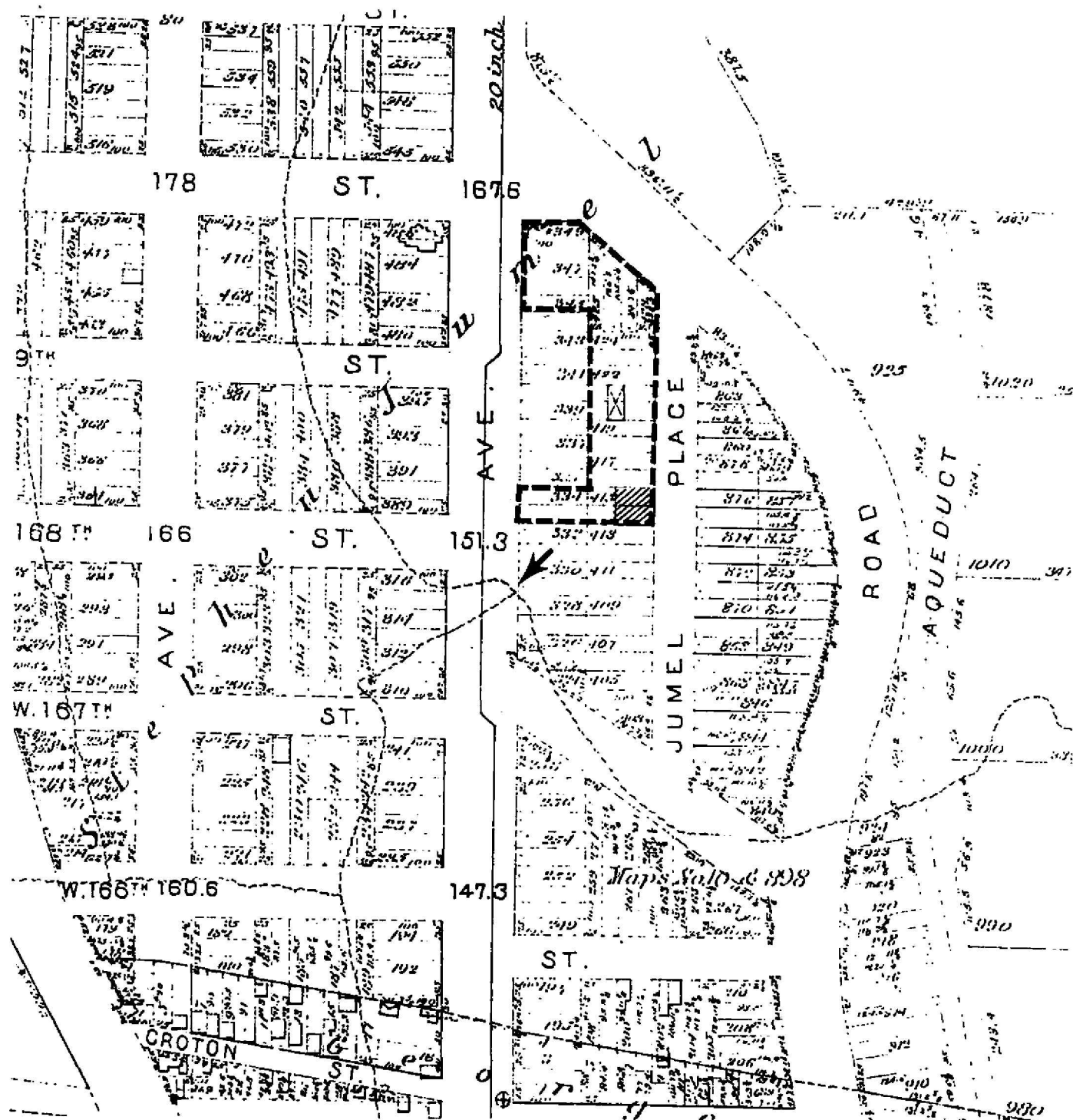


- project site
- ▨ Edgecombe Road
- ▩ Jumel Place
- stream

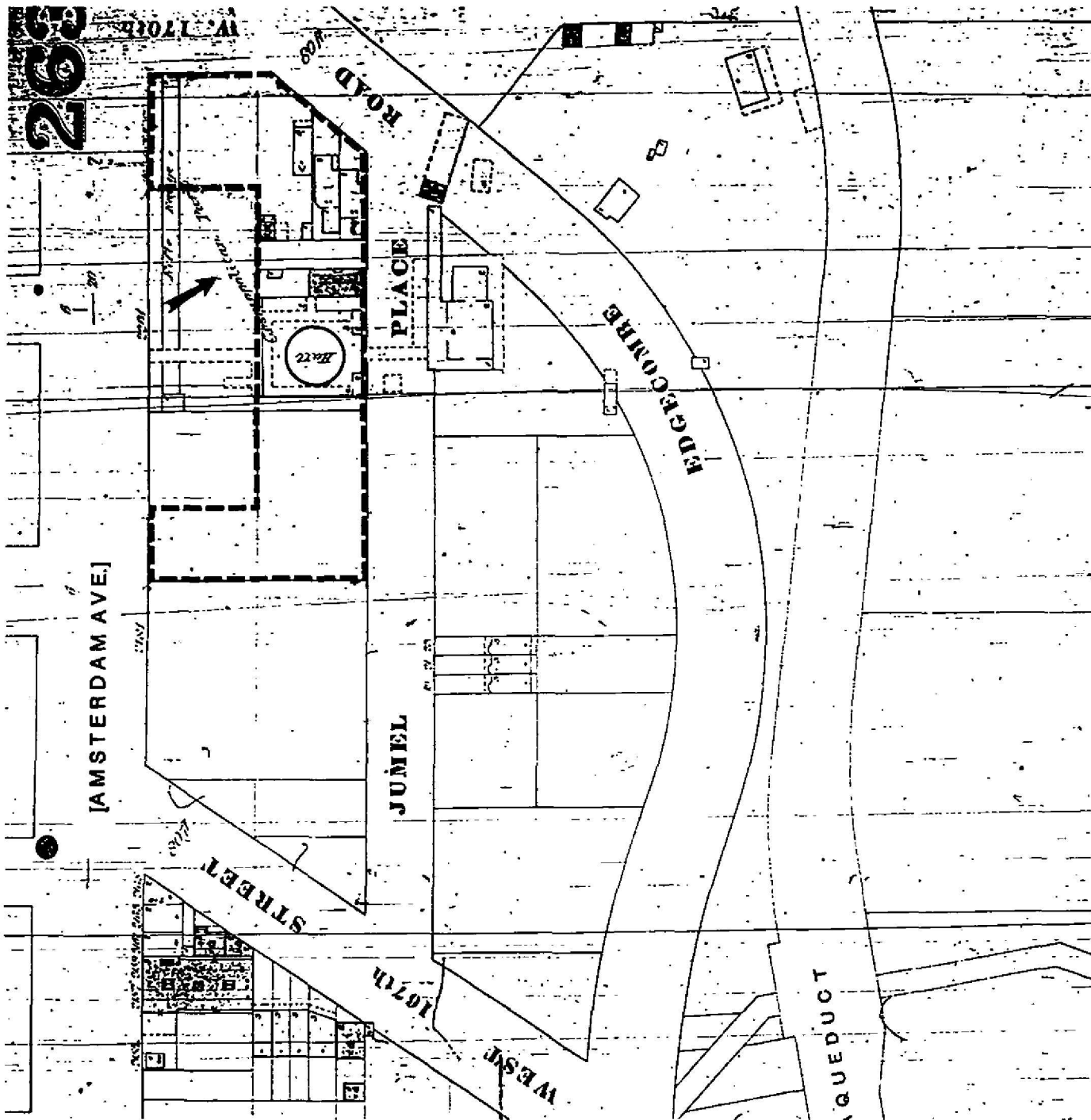
no scale










- project site
- ⊠ frame stable
- ▨ unid. frame building
- ➔ former stream



 project site
 Guterding's "Cosmopolitan Park"
 hall

A horizontal scale bar with a black outline. The left end is labeled '0' and the right end is labeled '160'. Below the bar, centered, is the unit 'ft.'. The bar is divided into four equal segments by three vertical tick marks.

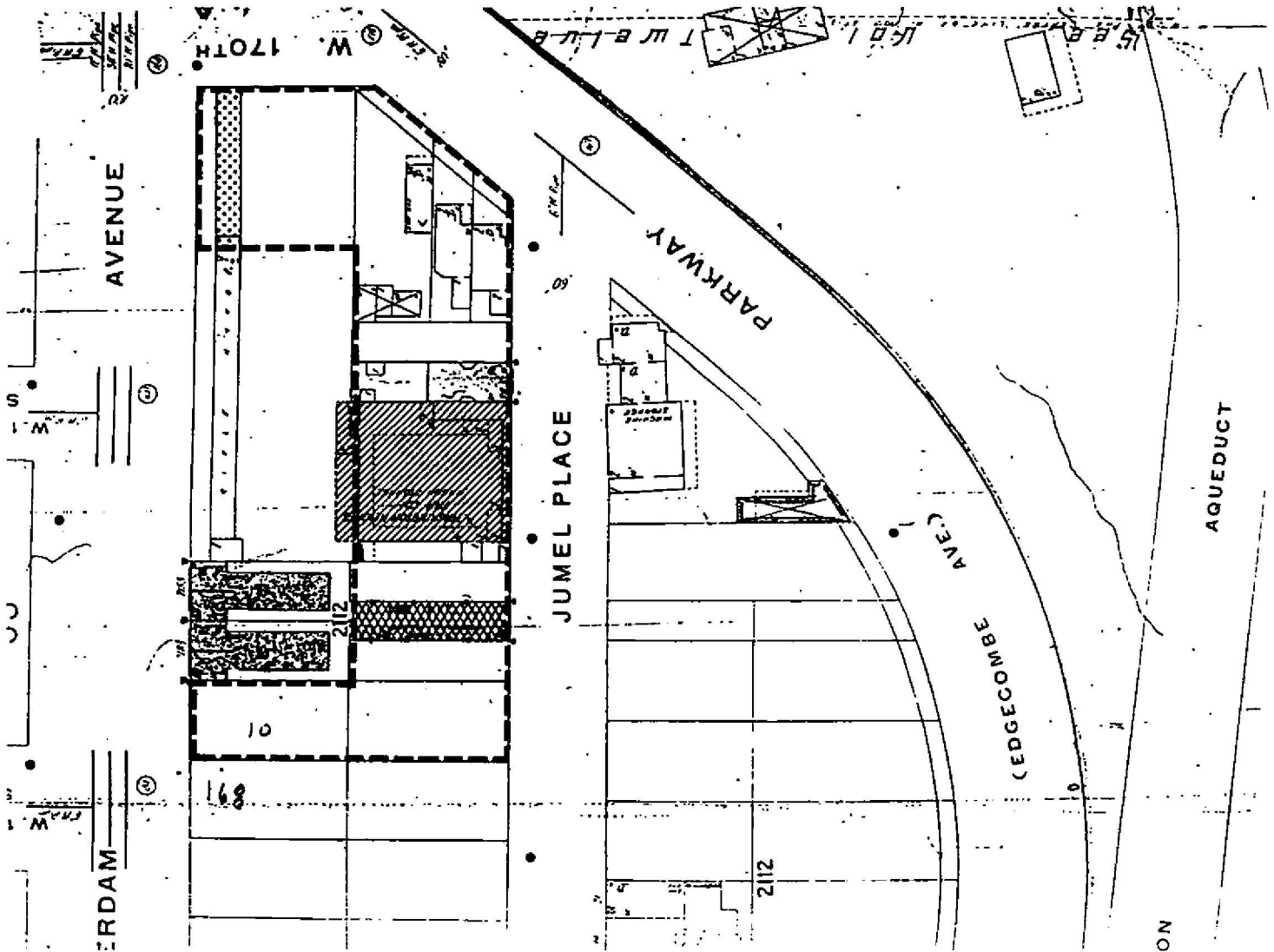
cates Guterding had rented several pieces of land for Cosmopolitan Park from Henry Hughes (e.g., LD 2 1888:151) and on a 1908 forfeiture record that documents Guterding's ownership in 1887 (LD 32 1908:283).

When Guterding first acquired the park property, he lived on Orchard Street, as did his son who was also named Jacob (NYCD 1888)]. According to the 1891 lease between father and son, the sublet on Amsterdam Avenue was for a "shooting gallery and scups," and a new building record (hereafter NB) indicates that a 9-ft. high, 23- to 16-ft. wide, and 200 ft.-long stone and wood rifle range, with a stone foundation and a gravel (and therefore a flat) roof had been built for Jacob Guterding between February 9 and March 31, 1888 (NB 1888:86). According to descriptions in an early 20th-century treatise on rifle ranges, Guterding's was a large, free standing facility that was more permanent than most (Wilson 1909:124). It is more than likely that its targets were the clay pipes, crockery, and bottles popularly used throughout the 19th century, but it is also possible that mounted theatrical posters--depicting life sized acrobats, women in tights, and clowns--may have been used (Mangels 1952:194). Its designers were Kurtzer & Rohl, late 19th century New York City architects who neither specialized in any particular type of structure nor are associated with any building of note (Francis 1979:48).

Another new building record indicates that a 75-ft. wide by 90-ft. deep, 2-story, peak-roofed, frame building on a brick foundation designed by Charles Rentz was under construction at about the same time as the rifle range (NB 1888:261). Like Kurtzer & Rohl, Rentz practiced in New York City, and at one time was Kurtzer's partner. He appears to have designed large spaces, among them Webster Hall on East 11th Street, originally built as a dance hall in 1886, and more recently used as a rock-and-roll club (Francis 1979:64; Willensky and White 1988:159). The Cosmopolitan Park hall, which was completed on June 30, 1888 and was most likely also a dance hall, was apparently the "hall" documented on the 1896 Sanborn map (see Exhibit 20). According to the new building record, it was built by George Ehret, the mortgagee of the property, not Jacob Guterding.

Jacob Guterding's Cosmopolitan Park, or Jacob Guterding, "Liquors," is listed in the directories on the project site through 1908, the year of the property forfeiture. The 1900 Federal Census (FC) indicates that a Jacob Guterding, a forty-year-old hotel keeper, was living on Jumel Place (listed as "J.P.") with his wife and young family. It seems this was the younger Jacob Guterding. In 1909, his address in the directories is 510 West 176th Street (NYCD 1909). A Sanborn insurance map from the same year indicates that the rifle range was then still standing, but that the "hall" had become "The Washington Heights Van Company," a wagon storage facility (Exhibit 21).

By this time, two 6-story tenement buildings that still stand had been constructed on Amsterdam Avenue. In addition, a bottling works belonging to D. L. (Dorman Leonard) Ormsby had been erected on Lot 39 (32 Jumel Place). Apparently built after 1895 for Ormsby and his wife, Susan, as a 3-story residence, it was designed by an architect named Frederick Friend (*Real Estate Record* 1895:890); whatever its original purpose, it appears to have become a bottling works as well as a residence by 1897, the first year the plant is listed in the directories (NYCD



- project site
- ▤ rifle range
- ▦ bottling works
- ▧ 6-story tenements
- ▨ van company

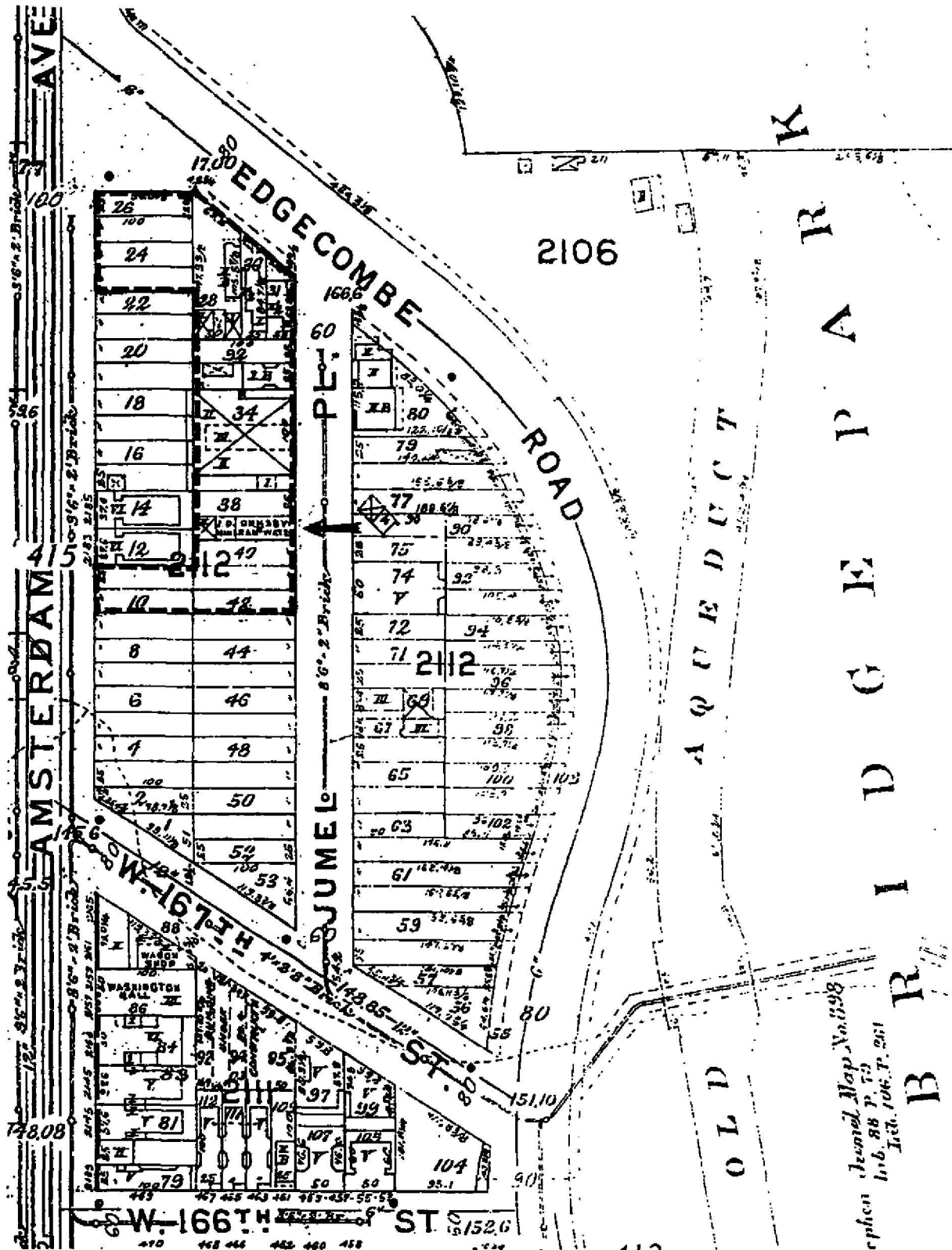


1897). In 1900, the thirty-two year old Ormsby was living at 417 Jumel Place with his wife, Susan, and their three children (FC 1900) and a tax record for that year indicates that a 1-story extension had been added to the 48-ft. house (Tax Record 12th Ward 1900). By 1905, an additional 2-story brick extension and basement had been built, and the building almost covered the entire lot. The next year his business is listed in the *New York City Business Directory* (NYCBD 1906) as "Ormsby, Dorman L. (firm of) waters, 417 Jumel Place." This street number corresponds to the property's original tax lot number (Record of Assessments 1873-1897).

Ormsby's bottling works was still at Jumel Place in 1907, but by then he also operated an automobile business nearby at 1045 St. Nicholas Avenue (NYCD 1907). By 1909, he was no longer listed as having a bottling company, but he maintained a garage on West 150th Street (NYCD 1909). While Ormsby appears to have given up his bottling business, a 1912 atlas notes an "L. D. (rather than a D. L.) Ormsby Bottling Co." at the 32 Jumel Place location (see Hyde 1912; Exhibit 22). This was probably Ormsby's son, Leonard Dorman, who was nine years old in 1900 (FC 1900) and is mentioned in his father's 1945 *New York Times* obituary. However, directories do not verify this location or bottling as his occupation (NYCD 1909-1915). At his death in 1945, the elder Ormsby, a seventy-eight year old "retired soda water manufacturer in New York and formerly in the automobile sales and public garage business," had remarried and was living in Yonkers (*NY Times* 1945).

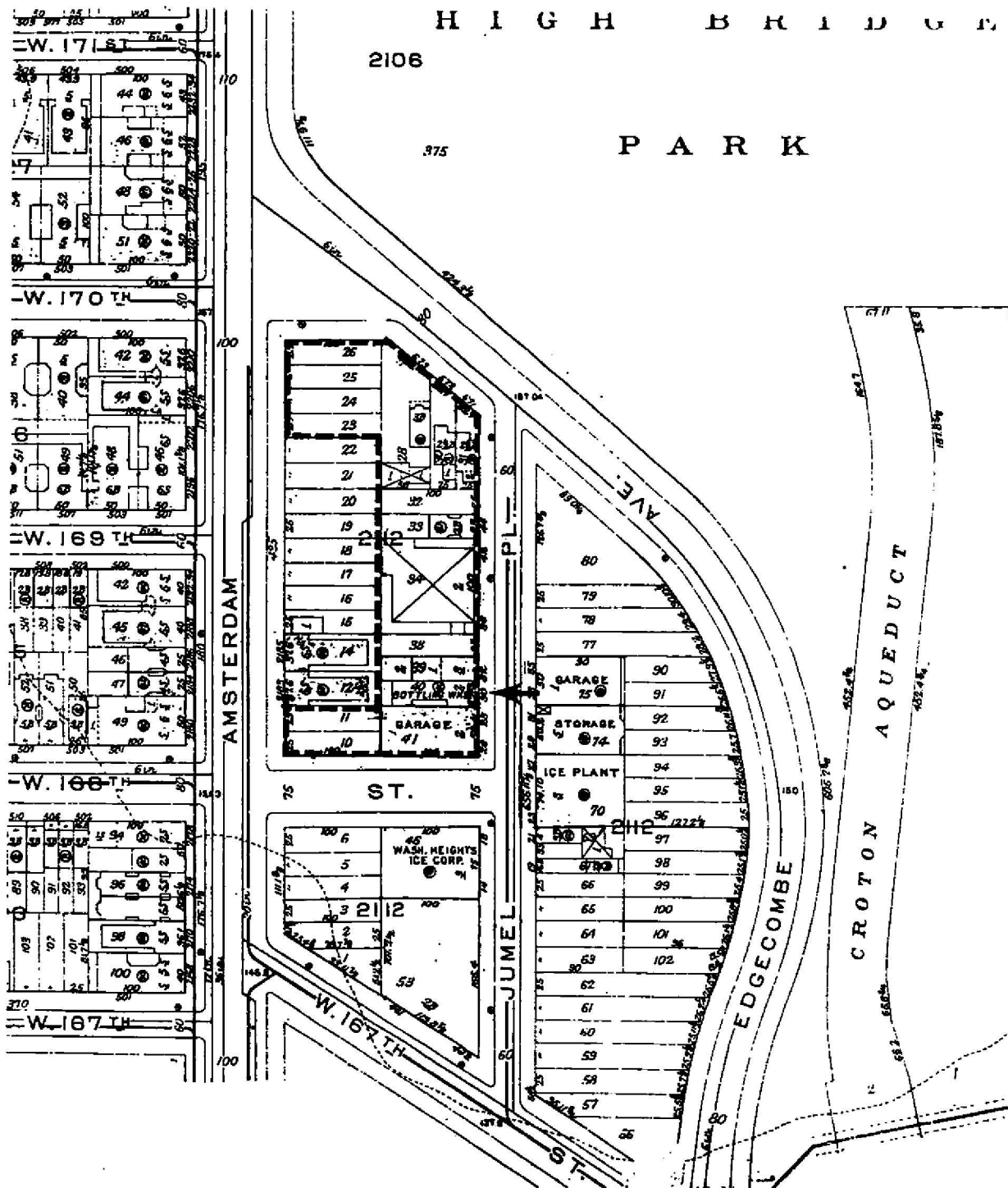
Various insurance atlases from the late 19th and early 20th centuries indicate the site's continuing development (Hyde 1912; *Manhattan Land Maps* 1921, 1934, 1955, 1975; Exhibits 22-26). This development appears to have reached its peak in 1934 when every site lot is improved, including a lumber yard with 1-story structures on Lots 10 and 11, a gas station at the corner of Amsterdam Avenue and West 170th Street on the lots where the rifle range had stood (but east of the actual rifle range location), and, off the project site, three more tenement buildings on Amsterdam Avenue (Exhibit 24). A frame house had been erected at 46 Jumel Place (Lot 32), the last solely domestic structure built on the site. Since wooden buildings are somewhat unique in Manhattan, 46 Jumel Place was documented as part of a photographic record of Manhattan's frame structures in 1932 (Exhibit 27). In addition to the frame dwelling, the photo shows a larger residential building (44 Jumel Place) just to the south. According to map data, this building was erected by 1896 (Sanborn 1896; see Exhibit 20). It still stands, but has been altered (see Exhibit 6).

Subsequent maps and city records document the demolition of many site structures. By 1955, this included the lumber yard on Amsterdam Avenue (see Exhibit 25). Twenty years later, it also included the 1930s frame building at 46 Jumel Place which had been faced with brick by 1940 (Tax Photos 1940). Number 44 Jumel Place had been extended over the full length of its yard by 1955, and buildings still stood at 30 and 32 Jumel Place. Number 32 was the former bottling works and Number 30, built by 1921 and perhaps mistakenly also identified as a bottling works, is subsequently shown to be a laundry (*Manhattan Land Maps* 1934, 1955; see Exhibits 24 and 25). A 1962 demolition date is recorded for 671 and 672 Edgecombe Avenue (Demolition Application 1962:249) and 32 and 34 Jumel Place were demolished six years later (Demolition Application 1968:229). At this writing, a garage built at 26 Jumel Place on the southwest corner of West 168th Street and Jumel Place and another at 36 Jumel Place on the site of the Cosmopol-



--- project site
 ↑ "L. D. Ormsby Mineral Water"

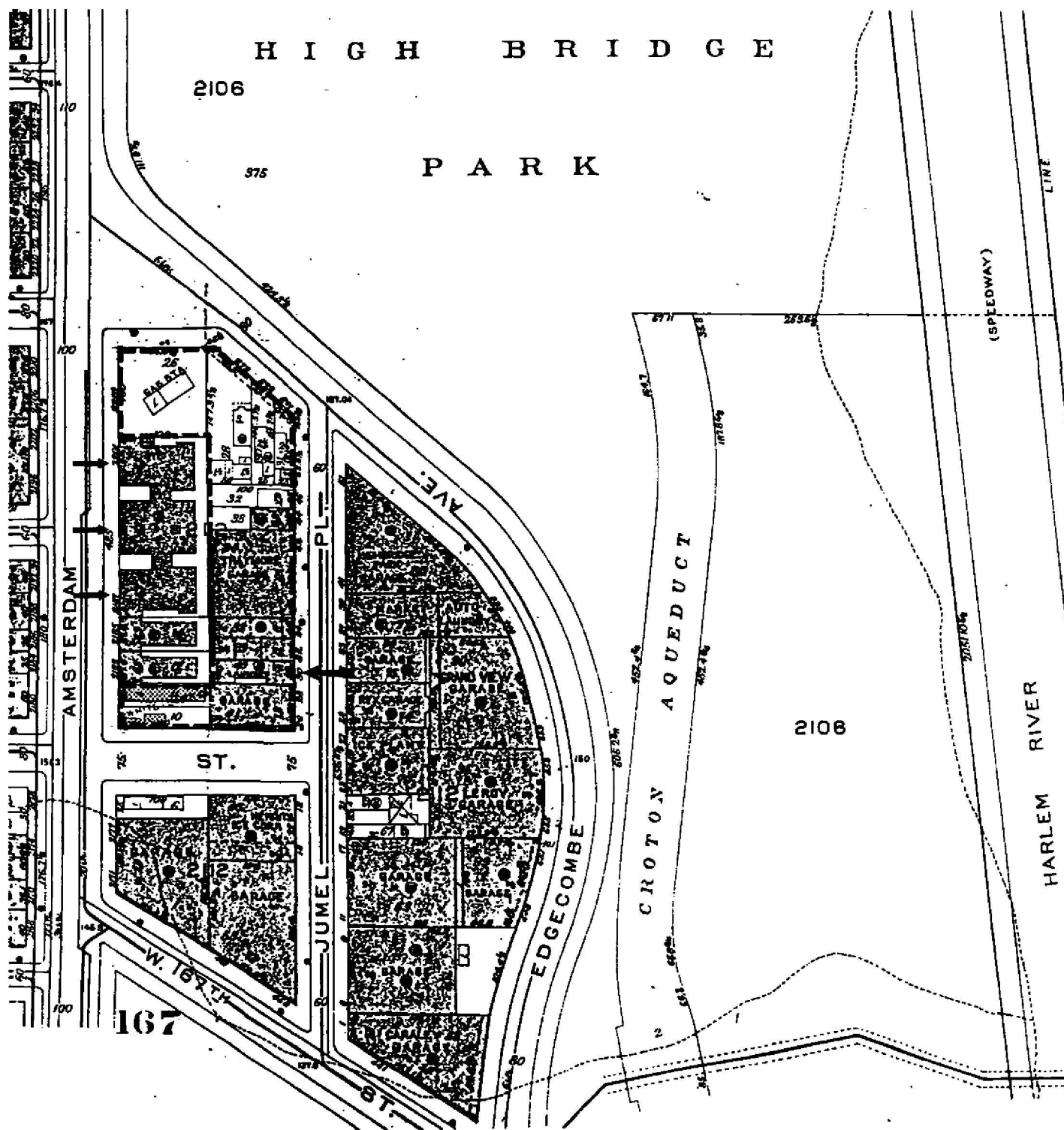
0 100
 ft.







--- project site
 ← unid. bottling works

0 100
 ft.

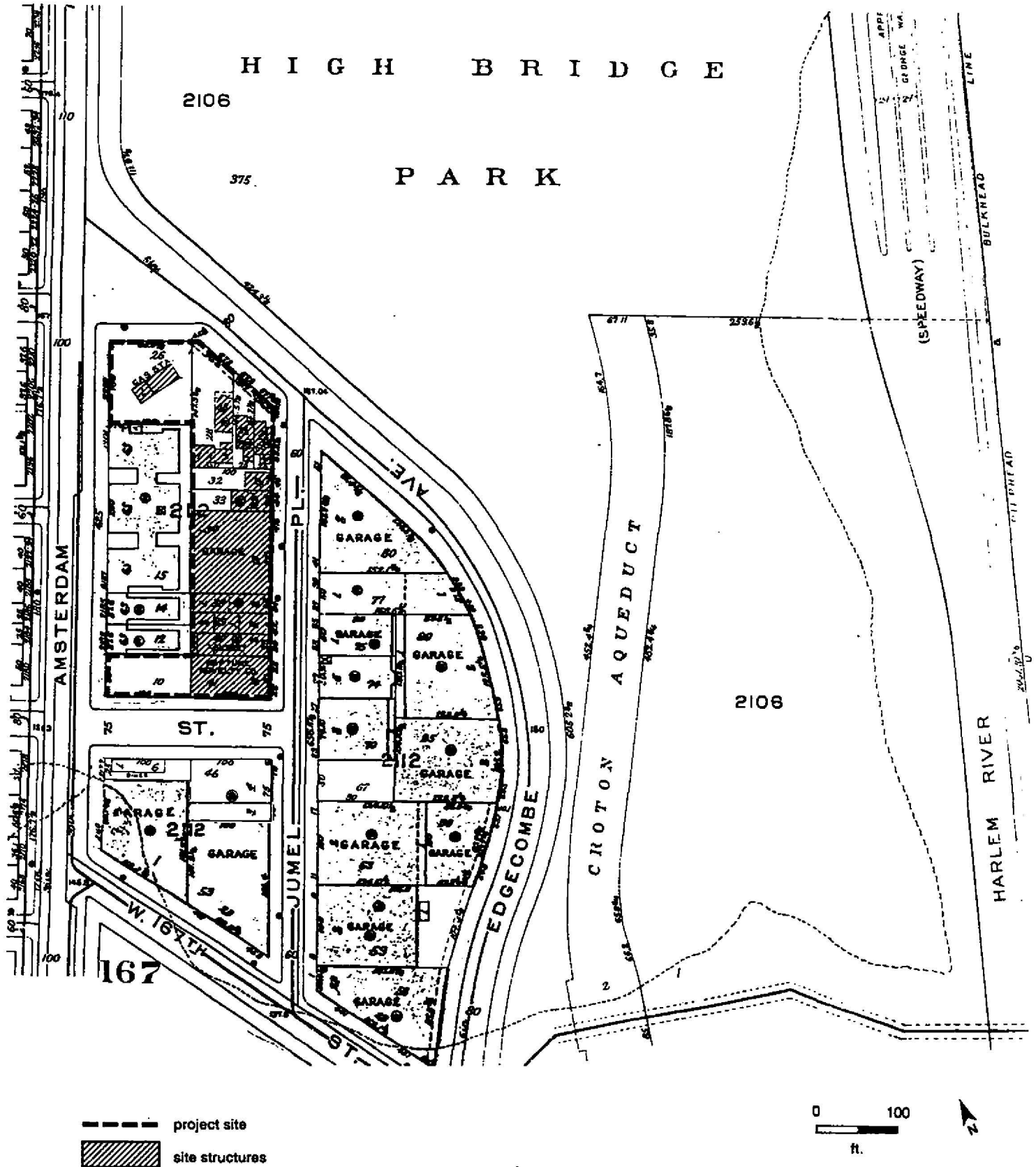


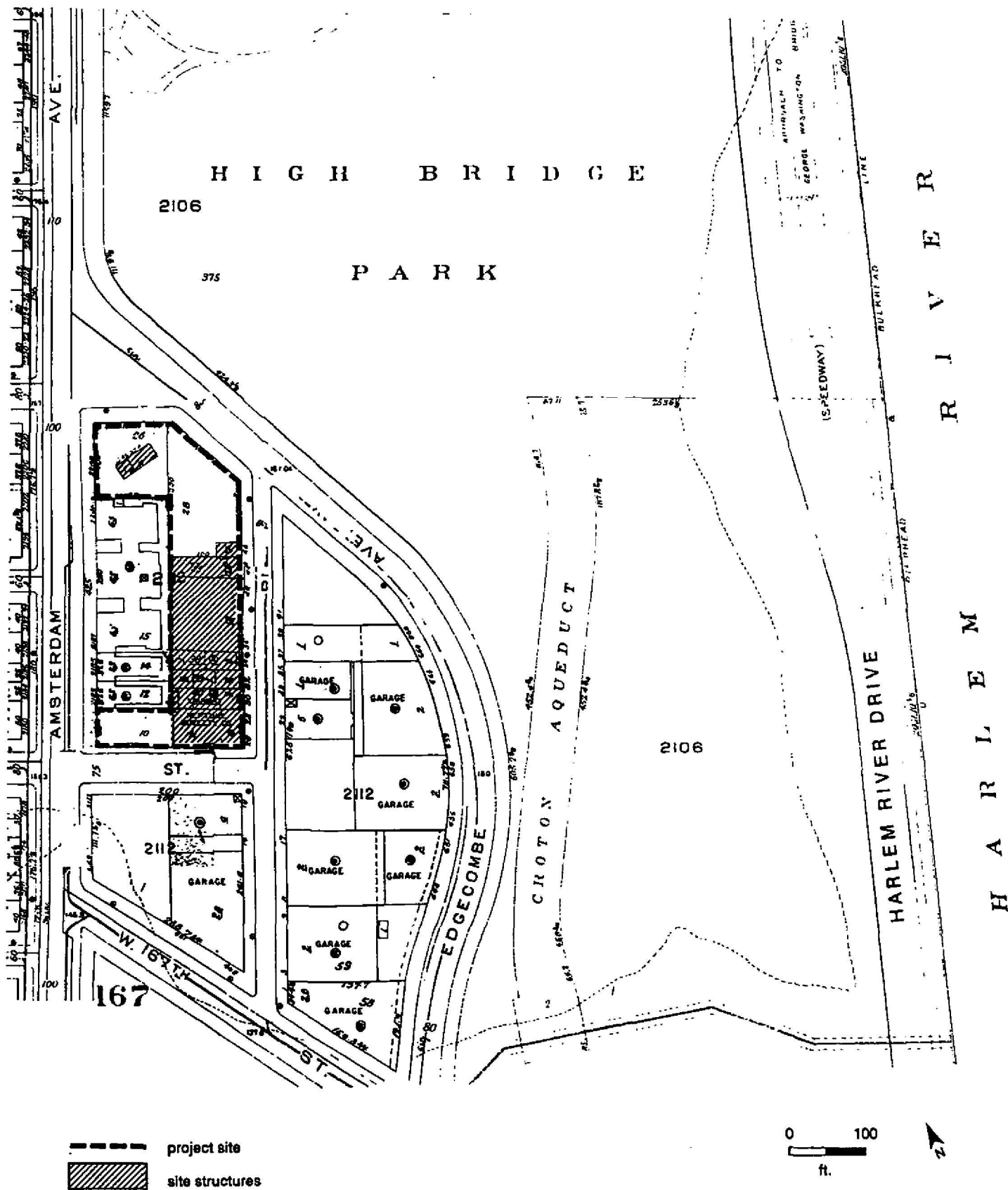


-  project site
-  "bottling works" now a laundry
-  additional tenement houses
-  1-story structures/White Lumber Co.

0 100
ft.









27 1932 photo of 46 Jumel Pl., now demolished. Photo is one of a series documenting frame structures in Manhattan. The lot is now vacant (see Exhibit 6). To the left is 44 Jumel Pl., a brick residence that has since been altered and is a commercial property (see Exhibit 6). To the right is the rear of 671 Edgecombe "Rd." (Lot 31), a 2-story, shingled house erected in 1887 and demolished between 1955 and 1967. (photo courtesy of the MCNY, Von Urban Collection No. 458).

itan Park hall shown on the 1921 *Manhattan Land Map* still stand. An auto repair and travel agency have replaced the gas station at Amsterdam Avenue and West 170th Street. Ten 550-gallon gas tanks, which may still be in place, were documented northwest of the building in the 1950s (Block/Lot Folder 1958?).

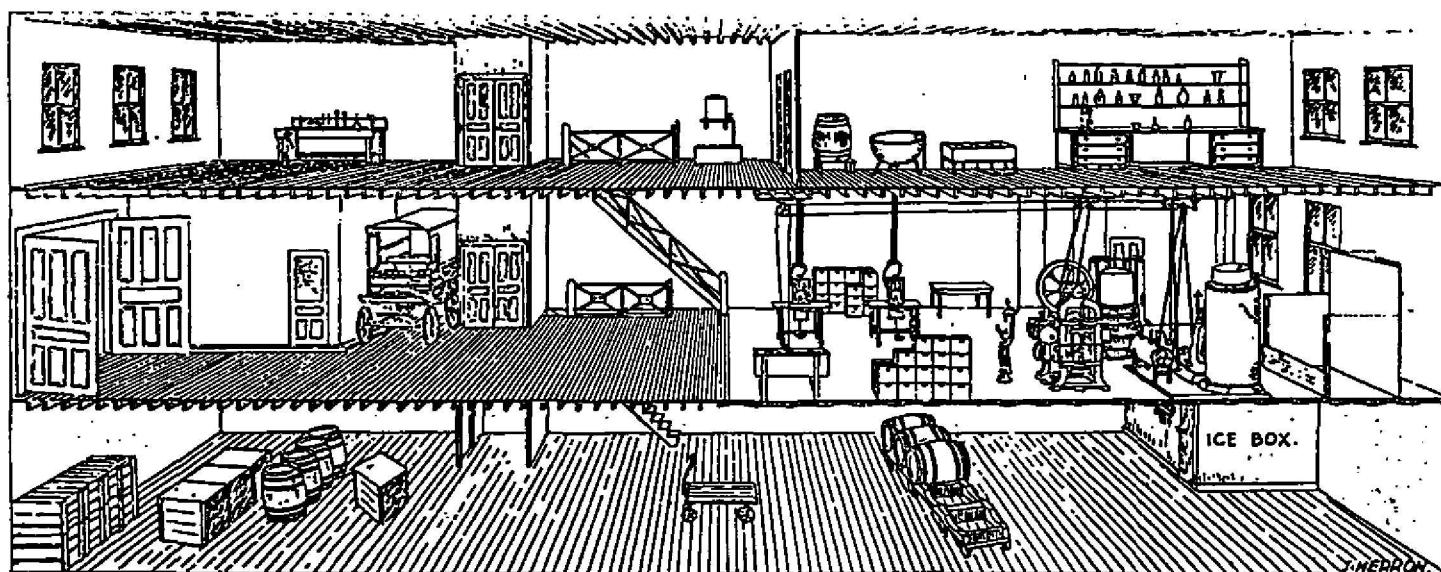
An important factor in assessing archaeological potential is the installation of street sewers to carry away household waste. Prior to their installation, backyard facilities were in use on urban lots, and once abandoned, these privy pits and water cisterns often become sealed repositories of discarded household trash that are excellent sources of archaeological data. According to city sewer maps, sewers were installed on Amsterdam Avenue in the project site area by 1886; on Jumel Place, they were somewhat later, and are documented in 1904 (Sewer Maps nd).

THE D. L. ORMSBY BOTTLING WORKS

Although D. L. (Dorman Leonard) Ormsby was producing soda and mineral water on the project site for just under a decade (from about 1897 to 1906), he was a vocal practitioner. His letters, comments, and even his business forms appear in the turn-of-the century *National Bottlers Gazette*, the journal of his trade. In addition to documenting Ormsby's position as a bottler, this journal and other writings describe the production of mineral and soda water at the end of 19th century and the beginning of the 20th (e.g., Crook 1899; Goosmann 1906). A short article from the March 5, 1898, issue of the *National Bottlers Gazette* describes the "modern" plant (Appendix B). The writer, a New York City bottler named James Herron, urged the bottler to arrange a plant "in a systematic manner in order to do business with accuracy and promptness." He goes so far as to provide a plan for a 25 by 75-ft. plant that operates on two floors and a basement (Exhibit 28 reproduces the plan from Mr. Herron's article). Given the date of the article, the obvious pride Mr. Ormsby took in being in the bottling industry as revealed in his letters and notes in the *National Bottlers Gazette*, and the building he had erected on Jumel Place as a bottling works and residence, it seems likely that his plant was similar to what Mr. Herron advocated and illustrated. For example, a 1940 tax photo of the building when it had become the Empire Motorcycle Club, Inc., indicates the first floor wagon entry advocated by Mr. Herron (parenthetically, the photo indicates that at the time it was taken the third and top floor was still used as a residence).

At least three entries in the bottler's gazette concern Ormsby. The drivers' slip he devised was reproduced in the April 5, 1898, issue. In his accompanying note, he indicates that he had exchanged his seltzer water business for "J. W. Katzenberger's soda business" and that he was getting ready "to put on another wagon." He goes on to say that "business is increasing each year...so [he] has no cause to complain." In 1898, Ormsby produced a ginger ale that was given a very good review in the gazette:

We have been favored with a small case of ginger ale, the product of the factory of Dorman L. Ormsby, 168th street (sic) E. of Amsterdam avenue (sic), New York City. We



must confess to a surprise, for we had not known that Mr. Ormsby was putting up such excellent goods. The bottles were not only well charged, but the taste was dry and fruity, and the aroma and bouquet of excellent flavor (comment in the *National Bottlers Gazette* November 5, 1898:26).

Ormsby's response to this review highlights his "modern" approach to bottling. He sings the praises of a "Tuft's Cataract," a machine he considers "an up to date improvement":

...I note your kind remarks on [my] ginger ale....as you know, I have been born and brought up in this business.... I pride myself on my goods and business, and therefore I am making a success of same. I have all the up-to-date improvements, including a Tufts Cataract, that I have had in use three years...You could see by samples the way it charges. I would be pleased to have you call, if you happen to get up my way...I remain yours, D. L. Ormsby
(*National Bottlers Gazette* December 5, 1898:48).

The reference to a "Tufts Cataract," a machine illustrated in several industry advertisement, reveals at least one major piece of equipment used by Mr. Ormsby at his Jumel Place bottling works. Whether it was a machine used in his earlier establishment on Sedgewick Avenue (NYCD 1895) or one that he installed for the first time in his new plant, is a question. This important piece of equipment is illustrated and described in a 1901 advertisement (Exhibit 29).

In the summer of 1901, Ormsby was granted labels for other products, one a "Lithia" water that he named "White Fawn Natural Sparkling Lithia Water," the other a mineral water of the same name ("White Fawn Natural Sparkling Mineral Water"; *National Bottlers Gazette* July 5, 1901:58).

In addition to the probable layout and the machinery used in the bottling process, the building's placement on the lot is important in relation to archaeological data recovery. If there were backyard features, such as a privy pit, a water cistern, or a well, these might contain bottles or other plant paraphernalia. Based on the information in the 1895 *Real Estate Guide*, as noted above, the Ormsby's original building was meant to be a residence 25 by 48 ft. on a 100 ft. lot. Since it does not appear on the 1896 Sanborn Insurance map, its construction may have been delayed. By 1897, the 48-ft. building is documented on a tax record. The next available map, the 1909 Sanborn Insurance map, shows a three-part building almost covering the entire lot. On the street was a 3-story section, to the rear a 2-story section, and between them a 1-story mid-section (see Exhibit 21), the addition noted previously. All three sections had basements, all were made of brick. Whether or not they were built at the same time, the final building configuration precludes backyard features.

It seems more than likely that machinery from the bottling works has been removed from

Straight Talk.

Money spent in advertising a poor thing is money thrown away. The average man drinks what he **LIKES**. He may risk a nickel on a new drink, but if he doesn't like it he is not easily induced to try it again.

You are a bottler. No matter what effort you expend or how hard you push your business, your carbonated product will be a failure sooner or later unless you are able to do two things:

Charge Thoroughly

AND

Charge Uniformly.

You must further do it at a cost which will enable you to meet competition and leave you a good profit beside.

You know that the manufacturers of Hires Root Beer could not succeed to-day if their Cataracts produced a flat or half-charged beverage. The manufacturers of Moxie know that the best is none too good if they are after reputation and success. You could not induce either of these clever business houses to use a carbonator which did not build up their reputation with every bottle carbonated.

Now we claim that no machine on the market to-day is so **THOROUGH** in its work, so **UNIFORM** in its work, and so **ECONOMICAL** in its work as the

CATARACT.

This machine forces into the water all the gas that it will absorb. You regulate the temperature and pressure, and at that temperature and pressure no more gas can be forced in after the Cataract has

done its work. The water is thoroughly saturated,—completely charged with gas. Air makes soda water flat. Air and gas cannot be separated,—the air must be excluded to produce high grade results. It is excluded in the Cataract.

The entire apparatus, seven feet high, is built on a 4 ft. x 5 ft. iron base, which requires no brick foundation. Little power runs it. Any one can understand it. After being oiled it needs no attention. Its capacity is 4 gallons per minute. It has high charging power, and the water is of an even quality. The Cataract makes your trade-mark and your good will with dollars.

We believe this is a matter of the first importance to every bottler, and we ask the privilege of showing you a Cataract, regardless of any intention on your part to purchase. May we do it?

Remember, besides the price being very low, we take your old apparatus in exchange, and make very easy terms of payment. Send for catalogue.

AMERICAN SODA FOUNTAIN CO., SUCCESSOR TO

JAMES W. TUFTS,

284 E. Congress street,

Boston, Mass.

the building which was used for other purposes before its demolition (for example, the aforementioned motorcycle club). It is possible, however, that bottles and debris from the plant may be mixed in the building rubble of the demolished building. This, however, does not necessarily constitute a significant archaeological resource. It would merely confirm the function of the building so well documented in official and unofficial records.

It should also be remembered that sewers were installed in Amsterdam Avenue prior to construction of the Ormsby plant and residence. Even if the building was built in sections, the 2-story, basemented segment at the rear of the lot precludes finding backyard features related to the building's occupants, either residential or commercial.

RECOMMENDATIONS

The documentary study and archaeological evaluation presented here indicates that the project site has limited archaeological potential. In its undeveloped state, it was situated on a high, wooded plateau not considered viable for Native American occupation. To verify this assessment, it is recommended that an archaeologist be present to monitor construction-related soil borings drilled on Lot 10 at the corner of West 168th Street and Amsterdam Avenue where only 1-story lumber yard structures have been documented and where fill is known to be present.

Although the project site was part of the estate of the Roger Morris Family and then of Stephen Jumel and his widow, Madame Eliza B. Jumel, development did not occur until after 1882. Therefore, it has no early historical archaeological significance. The only identified buried feature of note relates to 19th-century development. This is the stone foundation of a large, 200-ft. long by 16 to 23-ft. wide rifle range built in 1888 as an attraction at Guterding's Cosmopolitan Park (Lot 26). The park was an amusement park or resort located on the northern part of the project site beginning in 1887 until about 1906. Despite intensive research, little documentation has been found of the park, and more specifically, of 19th-century amusement park rifle ranges. Consequently, should elements of this feature remain, they appear to warrant field documentation to HABS/HAER standards (photos, sections, plans) prior to destruction. This is a minimal field effort that can be accomplished through monitoring. It should be noted that ten 550 gallon gas tanks were buried in the vicinity of the former rifle range when a gas station operated on this corner lot. These tanks are located east of the rifle range location, but soil contamination would have to be addressed prior to any in-ground explorations.

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10
 9
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 1



Selected Soil Boring Logs (NYCDGS 1993)

2

GULF. FLEV. 153.0

10	Fill:			
17	F-C+ DARK			
22	BROWN SAND,			
23	LITTLE TO COME			142.0
25	GILT,	1	15 10	
30	LITTLE TO COME			
27	GRAVEL,			
30	BRICKS, GLASS			
45	11-05			143.0
20	F-C+	2	11 8	
21	GRAY SAND.			
24	SOME GRAVEL			
55	COBBLES			
30	(GP) G-05			172.0
15	GRAY (BROWN	3	12 20	
17	GILT, AND FINE			
21	SAND, LITTLE			
45	CLAY			
70	(MH-GH) 10-05			173.0
82		4	30 35 20	
95				
80	F-M+			
82	BROWN			
25	SAND.			178.0
29	LITTLE	5	19 17 20	
32	GRAVEL			
39	(GP)			
45	G-05			173.0
50		6	35 42 45	
45				
55				
57				
76				
80				
95	DECOMPOSED	7	65 15 20	118.0
	CONFESSIC			119.5
	WITH			
	MICA			
	POSSIBLE			
	MINERAL			
	GCHIST			113.0
	GENUS			
		2	93	
	LIGHTLY	1	%	
	WEATHERED			
	CONFESSIC			108.0
	MICA			
	GCHIST			
	WITH QUARTZ	2	100	
	INTRUSIONS	2	%	
	DIP. 45°			
	JOINTS. 00°, 30°			
	2-05			103.0

4

GURF. ELEV. 159.0

10	20' CONCRETE		
11			
12	FILL:		
22	F-C+ BROWN		
21	SAND,		151.0
20	SOME	1	100
35	GRAVEL.	17	
17	BRICKS,		
19	CLAGG,		149.0
15	ETC.		
18	11-Q5	2	50
30	F-C+ GRAY	27	
35	SAND, TRACE		147.5
24	TO LITTLE		
9	GRVEL		144.0
40	(GP) T-Q5	3	114
35		100	142.5
37	GRAY/BROWN		
9	GILT,		
15	AND		139.0
35	SAND.	4	45
32	LITTLE CLAY,	10	*
72	TRACE		
77	GRVEL		
27	(MH-GH) 16-Q5	5	125
59		30	132.0
117			
0	POSSIBLE		131.0
0	DECOMPOSED		
	HIGH GILIST		129.0
	20' ± 15' ± 15' ± 15'		
	LIGHTLY		
	WEATHERED	2	97
	CONGESSIC	1	7
	HIGH GILIST		
	WITH QUARTZ		124.0
	INTRUSIONS	2	100
	DIP = 45°	2	7
	JOINTS = 45°, 30°		
	1-Q5		
			119.0

* = petroleum odor

Ⓐ = spoon blows &/ rock recovery for this material was below minimum load rating

No ground water was encountered to the depths penetrated by borings

Selected Soil Boring Logs (NYCDGS 1993), continued

9

GNRF: ELEV. 100.9

Roller		Foot	4 - ASPHALT			
			FILL:			
			F-1 BRK			
			BROWN GRNO,			
			TRCE SILT,			
11			GRNE GRAVEL	1	13	101.6
9			PRICK, ETC.			
14			11-05			
29			FINE GRAY/BROWN			158.6
75			GRNO, LITTLE			
			SILT, LITTLE			
			GRAVEL (SM) 8-09	2	13	159.6
20			2-12		10	
			DECOMPOSED SILT			154.6
			W/11/12/13/14/15			
			LIGHTLY			
			WEATHERED	2	70	
			CONFISSIC	1	7	
			MICH			149.6
			GCHIST			
			DIP = 60°	2	81	
			JOINTS = 45°	2	7	
			60°			
			2-05			
						144.6

CHURCH. ELEV. 197.5

Roller	Foot	Gr. Concrete			
9		Fill:			
12		F.C. BACK			
14		BROWN	1	7 10	162.5
11		CAND.		22	
19		SOLF			
10		GRAVEL			
21		PRICKS			
14		WITH R.P. RAP	2	23 21	157.5
19		11-05		27	
30					153.5
9		FINE GRAY			
10		BROWN CAND.	3	7 13	152.5
14		LITTLE SILT		41	
16		TRACE TO LITTLE			
32		GRAVEL			
77		(SM) 20-05			
112		DECOMPOSED			147.5
		MICA			
		GELIST			
		WASH GRAVEL			145.5
		WASH GRAVEL			
		LIGHTLY WEATHERED	2	58	
		GENERIC	1	7	
		MICA			
		GELIST			
		WITH			140.5
		QUARTZ			
		INTRUSIONS	2	91	
		DIP. 00°	2	7	
		JOINTS:			
		45° 00' 00'			
					135.5

10

SURF. ELEV. 1480.2

CONCRETE				
ROLLER PIT 4'-6"	FILL:			
	F.C. + DARK GRAY SAND, COBBLES, GLASS, VEGET.	1	10 25	103.2
	11-05			
	=====			101.2
	LIGHTLY WEATHERED CONCRETE GCHIST	2 1	45 %	
	WITH QUARTZ INTRUSIONS			150.2
	WEATHERED ZONE	2 2	80 %	
	DIP - 30° JOINTS - 30° 30°			151.2

12

CHIRP. ELEV. 1480.0

Roller Bit

5- CONCRETE DOGGONLE
MISC. FILL
11-05

103.0
102.0

1000

LIGHTLY WEATHERED CONFISSIC SCHIST WITH QUARTZ INTRUSIONS & THIN WEATHERED ZONES
DIP: 30°, 15°
JOINTS: 90°, 30°

157.0
152.0

2-05

The Interior Arrangement of a Modern Bottling Plant.

Plans—Specifications—Suggestions—Hints.

By JAMES HERRON.



A SURVEY of the field reveals an interesting comparison of ideas as to the proper and best way to conduct and arrange the interior of a model bottling works. In an age so bristling with energy as the present, something more than a modest effort has to be made to attract public attention. America, it is thought, leads the world in the consumption of carbonated beverages. Every bottler, should, therefore, realize the necessity of selecting and arranging a bottling plant in a systematic manner in order to do business with accuracy and promptness.

The methods of successful bottlers are always an interesting study; and their success is due chiefly from their improvements, both material and intellectual. Bottlers of this class are termed scientific men, and as science is defined as knowledge systematized, it must be presented in a systematic manner in order to be fully comprehended, and nowhere else can it be better exemplified than in a bottling establishment.

The plans and specifications here presented convey my ideas as to how a good practical working plant should be arranged. The engravings herewith shown represent a building 25x75 feet, consisting of a basement, ground floor and a floor overhead. Light and ventilation should be obtained at least on one side of the building, having an unobstructed view. On the first floor is a large door of sufficient size to permit your wagons to be driven in, on a floor of heavy planking, running back at least half the room, the remainder to be cemented, as it is here where the bottling is done. The wagons when empty, and the team taken away, are pushed by hand to places arranged for that purpose, where they can easily be brought forward to a convenient spot where they can be washed. This place should be well supplied with water where a hose is attached and the drain is sloped to the center to be carried off. It is customary to grease the wagon wheels once a week, during one of these washings.

Where these rules are observed the wagons always present a good appearance on the street; in fact it indicates that everything in the factory is looked after in like manner. The office, for convenience, is placed at the side of the entrance, where orders are received and business correspondence transacted and a perfect system of bookkeeping is absolutely necessary. The furniture being simple but select, a desk and safe for keeping money and books in, a chair or two and a few other simple articles.

The wagon space is arranged on each side of the room for a number of them; an elevator which runs from basement to second floor is necessary for raising sugar and cases of new bottles and boxes, etc., to the second floor, and for lowering heavy articles to the basement, a stairs also ascends and descends.

The arrangement of the various portions of the manufacturing plant are so placed as to speedily and correctly fill the greatest number of bottles during the working

JAMES HERRON, New York City, whose portrait is herewith shown, and the author of the accompanying article, is one of the most earnest and hard working men employed in the business. He is in the 39th year of his age, an American by birth, and an enthusiast of the first water in the matter of first-class carbonated beverages.

His early life was spent in the city of Easton, Pa., where he attended the public schools. In the fall of 1878 he came to New York and obtained employment as a commission salesman in a large confectionery concern, where he remained until 1880. He then accepted a minor position in the bottling establishment of Cook & Schreiber. At that time there were but few large bottling places in New York. He is at present with Ch. Steencken, 28 New Bowery, New York, where he makes his well-known drinks.



hours. The boiler and engine are placed in the background with a coal bin handy, and an engineer's work bench is quite necessary. The marble dust room is just opposite where marble dust is kept for convenience to the generator. A sink in one corner and a toilet room in the other complete the rear end. The gasometer is placed conveniently near the generator; and near by is a continuous carbonating machine. These machines are substantially made, and to my mind embody all the desirable features of a simple, easily managed method of forcing gas and water through the various patent devices. A cork bin adjoins the marble dust room; the several bottling tables are situated near the center of the room where the bottles coming from the washtubs, near by, are easily transferred, and when filled and placed in boxes, they are piled up in rows on the opposite side, and are ready for the wagons. One bottling table is generally used for quarts and cap goods. A siphon filler occupies a handy place on the floor, and a labeling table, where labels can be quickly put on, stands near by. As previously stated this part of the floor is a cemented one and the drainage from all parts should be perfect. These are necessary points in a model plant.

The second floor is divided so as to be in working harmony with the plant underneath; the laboratory, ten feet wide by twenty long, adjoining another the same size where sugar is stored and shelves put up for keeping labels, etc. Just outside of the laboratory is a filter and receiving reservoir, and a portion of this floor is used for a repair shop. The remainder for storage of new bottles and boxes.

The basement is used for beer bottling, if you are in that line, and for keeping various articles, such as shipping cases and barrels and things that are but infrequently used.

The laboratory is the technical department, and the system and plan here presented is substantially the same, except certain modifications and additions, as are seen in most first-class places, and where cleanliness should be observed to the greatest degree. Here is where sirups are

prepared with exactness, and only persons who are proficient in this branch should be in charge, as any mistakes made here are often proved costly.

It is noted in passing that during the last few years bottlers who do not understand the conditions necessary to making good extracts are buying from the manufacturer, who makes a specialty of the business. Also bottlers who have not the time to devote to this branch, are buying from the maker, thereby saving time and worry, and in this way he is sure of his goods being uniform. But those who do make their own extracts must understand the proper selection and handling of essential oils, which is a very important matter in making extracts. Also when made they should keep them in dark colored bottles in a dark place, as light will impair the virtues of some extracts.

The making of sirup is quite simple and the rule in general is for every gallon of water add 8 pounds of granulated sugar. This gives you nearly a 50 percent solution and will register 27 degrees on a saccharometer. Sirup can be made with hot or cold water. Where steam is used it is made quickly as in a steam jacketed kettle, as shown in the sketch. Sirup can be made with very little trouble, by straining it and keeping in a receptacle for that purpose. A stone or enameled or porcelain lined tank or vessel, holding 50 or more gallons, can be used where no acid is admitted. From here it is run into the different flavored sirup vessels as wanted.

The use of sugar substitutes is in the line of progress, and they are unhesitatingly recommended to the trade. An important advantage they possess over sugar is that they are of an antiseptic or preservative character when used in carbonated beverages. Saccharin has a pure sweet taste and is soluble in hot water. Bottlers generally use it in proportion of half saccharin and half sugar. It is much cheaper than sugar and is easily handled. A simple example may enlighten some bottlers not using this article. Suppose I am making ten gallons of sirup, half and half. I will take 25 pounds of sugar and three gallons of water. This makes five gallons of sirup. Now take three-quarters of an ounce of saccharin (equal to 25 pounds of sugar) and dissolve it in one gallon of boiling water. For this purpose use a stone crock. When all is dissolved pour this into the five gallons of sirup and add four gallons of water, and you will have ten gallons of sirup.

Note the difference in cost:

25 lbs. of sugar @ .5 cents lb.....	\$1.25
$\frac{3}{4}$ ounce saccharin @ \$15 "70

Saving in favor of saccharin..... .55

A saving of 55 cents on ten gallons is a very important item where quantities of sirup are used.

Of the use of water it is almost needless to enlarge, for it is universally felt and appreciated, and it is of the utmost importance to the bottling trade. To the quality of water may in many cases be attributable either the success or utter failure of an undertaking, especially in the production of carbonated beverages. Water contains, in many instances, various impurities which should be guarded against, destroyed or neutralized, and for the bottling trade a water still or an exceptionally good filter is absolutely necessary. The chemical composition of water is made up of two gases, oxygen eight parts, hydrogen one part. Water is the most universal solvent known. There

are but few substances which are not dissolved by it, and when perfectly pure water is tasteless and apparently colorless. When the water runs from the filter a good plan is to connect it to a receiving reservoir having a tight fitting cover, where it can be drawn from for making sirups and other purposes in the laboratory. The pipe leading from the reservoir to the carbonating machine should be made of block tin, with a coil placed in an ice box, where ice is put on in summer to lower the temperature of the water, so it can be better charged with gas. This box is placed near the machine.

In making gas from marble dust the coarse white marble is the best, as it contains about 44 per cent of its weight in carbonic acid gas. Therefore it is most generally used in bottling places. Whiting is used extensively also, both being carbonates of lime, although whiting is seldom so pure as marble. Tube or cylinder gas is being used in many places now, as it is very conveniently handled, the cost being about the same.

Be careful about your vitriol and see that it is pure. Keep the cork in the carboy after taking some out, as sulphuric acid has a great attraction for moisture, if left exposed for any length of time, and see that it stands at 66 per cent on the acidometer.

The bottlers as a class are an energetic people, and are quick to catch on to new ideas. Therefore, in expressing my views in a general way, as to how a bottling plant should be arranged to the best advantage, many of the minor details must be passed by, trusting that the general outline will suffice.

I think articles of this kind written by bottlers themselves and published in our trade papers, are interesting and are appreciated, as a little knowledge gained in this manner will afford the old as well as new beginners lessons, whereby they will see and learn principles which will enable them to keep down expenses and keep up the standard of the quality of their goods. Above all keep up prices. These are points which greatly effect the welfare of the trade and especially the pockets of the bottlers.

Some ideas of practical bottlers, along this line, with illustrations, will be looked for in the near future. Every one should be willing to contribute his mite in educating the trade in general. It is not necessary that all trade secrets should be published, but there are many points of general and common knowledge that we practical bottlers should be willing to communicate to each other, by and through the trade journals.
