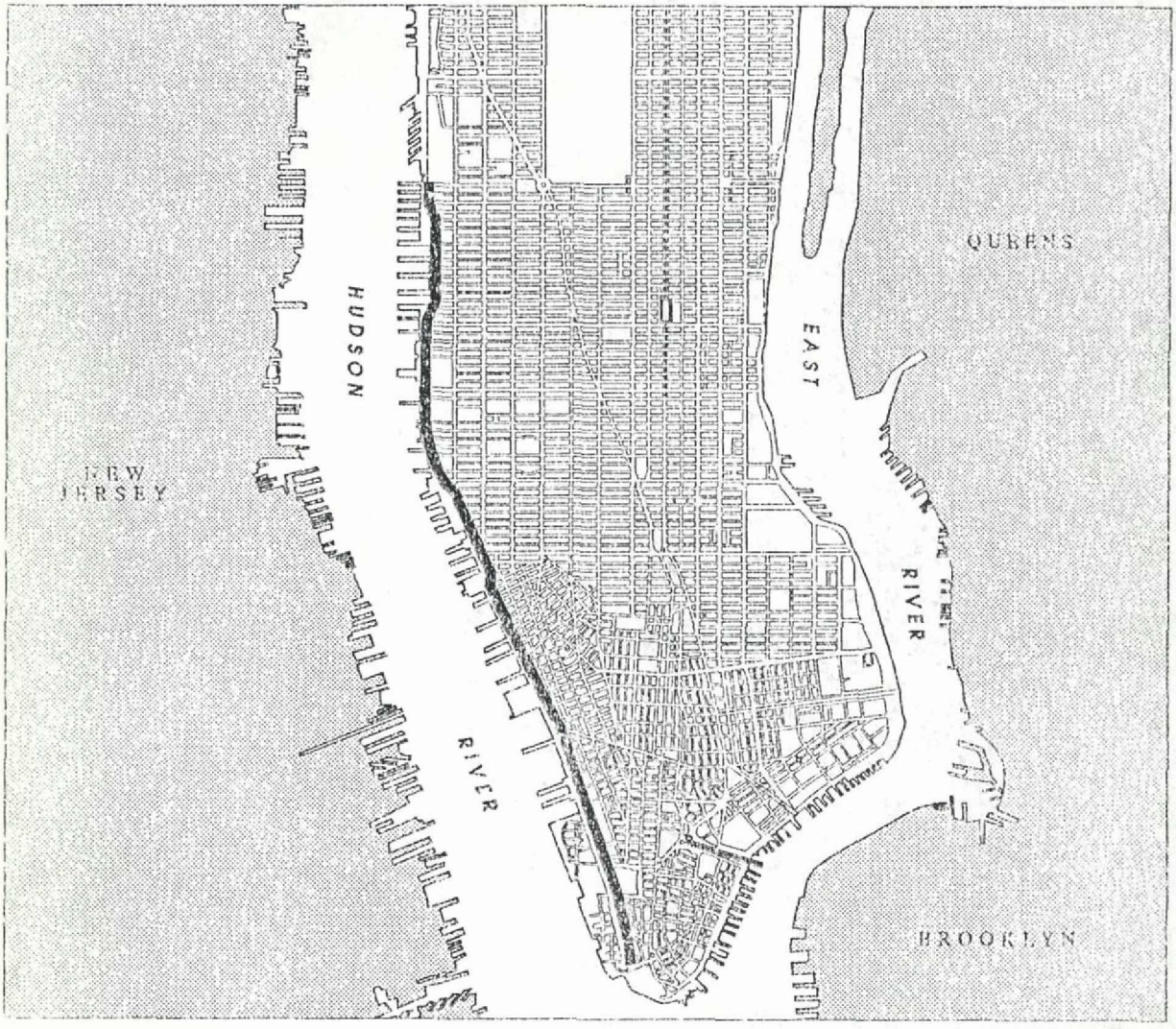
ROUTE 9A

RECONSTRUCTION PROJECT



DRAFT
ARCHEOLOGICAL ASSESSMENT REPORT

WEST 18TH STREET TO WEST 30TH STREET

March 1990

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Prepared By:
Hartgen Archeological Associates, Inc.
in association with
Historical Perspectives, Inc.

Prepared For:
New York State Department of Transportation
in cooperation with
Federal Highway Administration & The City of New York

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EXECUTIVE SUMMARY

INTRODUCTION

The Route 9A Reconstruction Project from Battery Place to West 59th Street has been undertaken in a collaborative effort between the New York State Department of Transportation (NYSDOT), the City of New York, and the Federal Highway Administration (FHWA). The planning and engineering process of the proposed reconstruction entails preparing an Environmental Impact Statement (EIS). As part of this EIS, potentially sensitive archeological resources within the archeological study area are being identified, and the effects of prior disturbance (demolition, excavation, or a change in historic context) on these cultural resources are being determined. The object of this study is to complete a list of sites which may meet the criteria for nomination to the National Register of Historic Places and an assessment of the impacts of the various alternatives on each of these resources. Hartgen Archeological Associates, Inc. (HAA), in affiliation with Historical Perspectives, Inc. (HPI), has undertaken preparation of an inventory of potential archeological resources in the archeological study area, an investigation of prior disturbance, and the final assessment of the impact of the proposed project alternatives.

The sites preliminarily identified as potentially sensitive archeological resources for this study area of the Route 9A project area will be re-evaluated after completion of research on the entire project area.

ARCHEOLOGICAL STUDY AREA

The proposed Route 9A Reconstruction spans from Battery Place to West 59th Street. This section of the report is concerned with the section between West 18th and West 30th Streets. The project area bounds are generally as follows: The southern boundary is West 18th Street and the northern boundary is West 30th Street. On the west the area is bounded by the U.S. Bulkhead line. On the east it is bounded by the west ends of numbered city blocks, and includes sidewalks along the block ends. At cross roads the project area extends an additional 50 feet east to include the first 50 feet of the crossroad and sidewalks on the north and south borders of the road. There are several exceptions to this:

- Between West 18th and West 22nd Streets, the project bounds extend west of the U.S. Bulkhead line to include a platform associated with the Chelsea Piers.

- The project boundary also extends west of the bulkhead line between West 22nd and West 23rd Streets to include a truck loading area with roof top parking.

- Between West 22nd and West 24th Streets the project boundary extends eastward to include two city blocks, numbered 668 and 669. Block 668

is currently occupied by the Thomas F. Smith Park, while Block 669 possesses several buildings.

METHODOLOGY

Background research was conducted to establish a prehistoric and historic framework for the interpretation of potential resources. As part of this context, general categories were defined for these resources. The following categories were utilized for classifying potentially sensitive archeological remains:

A) prehistoric remains
B) historic remains
   1) dwellings and associated outbuildings
   2) industrial buildings/complexes
   3) piers and wharves
   4) landfill
   5) other

Archeologically sensitive areas were identified through archival and cartographic research. Several phases of research have been performed including documentary research, cartographic analysis, and site files review at numerous repositories in Manhattan and Albany, New York. Reports from previous archeological projects and the New York City Landmarks Preservation Commission's predictive model for archeological site formation in New York City were consulted for data pertinent to the Route 9A project area.

A block by block summary of development in the project area was compiled based on this research. The disturbance record, which includes road construction and reconstruction, utility line installation, and general demolition activities, has been established based on utility maps and the documented historical development of the area.

Cartographic reconstruction of the prehistoric shoreline is necessary in order to assess the potential for deeply buried prehistoric archeological sites to exist beneath landfill. Data from the cultural resource report prepared for the Westway project in 1983 by Historic Conservation and Interpretation, Inc. (HCI) (Rutsch et al. 1983), was applicable to this section of the project area since it addressed the area south of West 44th Street. Specific areas categorized as potentially sensitive for prehistoric habitation were identified based on topography and characteristics known to be conducive to prehistoric habitation, now deeply buried beneath nineteenth century fill and river silts.

PREHISTORIC SENSITIVITY

Professional and amateur archeologists have been excavating prehistoric sites on Manhattan since the late nineteenth century. However, until after the 1930s, their field techniques and recording procedures were not comparable to the more scientific procedures that are used today. The data from the earlier excavations are generally

ambiguous so that findings cannot be assigned to a particular period and properly assessed. Thus it is necessary to continue trying to gather additional information on prehistoric lifeways in the metropolitan New York area.

HCI identified no areas having the potential to possess prehistoric archeological remains north of Gansevoort Street. The research conducted by HCI indicated that the shoreline within the project area north of Gansevoort Street, including this section, was inundated by 13,000 year ago, prior to the arrival of Native Americans in the area. Therefore, there is no sensitivity for prehistoric resources to have once existed beneath Twelfth Avenue landfill in this section of the project area.

HISTORIC SENSITIVITY

Archeologists have become increasingly concerned with research issues focusing on the development of the urban landscape and the development and change in waterfront construction, two issues important for understanding the process of urbanization. Resources that can potentially address these issues include: 1) early dwellings or 2) industrial buildings and complexes located along the shorefront, 3) piers and wharves, 4) possible sunken ships, and 5) landfill, including architectural features such as retaining devices. The significance of potential cultural resources located within the project area must be examined in this light.

Historical development has altered many of the natural topographic features that once characterized Manhattan. Between West 18th and West 30th Streets, the land now supporting Twelfth Avenue and Marginal Street was submerged through at least the middle of the nineteenth century. Prior to that time the Hudson River shoreline meandered between what are now Tenth and Eleventh Avenues. The shoreline was characterized by bluffs with beaches below. Shorefront development has contributed to the disturbance of these natural topographic features.

The extensive documentary and cartographic research to date for the project area between West 18th and West 30th Streets has revealed the location of several areas potentially sensitive for historical cultural remains. Prior impacts were assessed and a final list of areas deemed to be potentially sensitive was created. A preliminary evaluation of the resources in each of five categories as applicable is presented here. These include dwellings and outbuildings, industrial wharves, landfill, and other. The conclusions presented in this chapter may be altered when research on the entire project area is completed and a final list of all potentially sensitive areas along the entire length of the project corridor is compiled.

Numerous piers dating to the nineteenth century were located in the current route of Twelfth Avenue and Marginal Street and may have become part of the landfill It would be impractical to attempt either excavation or avoidance of all of these features.

However, the importance of such resources cannot be denied. The sample chosen and presented here for further consideration is preliminary and was based on age of construction and the potential for answering specific questions regarding shoreline development. It includes:

- Old Pier 61, at West 21st Street, was built between 1852 and 1859. The pier became part of West Street landfill by 1859 and only the western half may be sensitive. There may have been rip-rap deposited along the borders of the pier. [Clarification of the building sequence for the wharves and piers is available in the block history section of this report.]

- The West 25th Street Pier was built by 1879, and may have become part of Marginal Street landfill between 1897 and 1902. There is also the possibility that rip-rap was deposited along the pier's borders.

- The West 28th Street Pier was built c.1859, and may have become part of Twelfth Avenue and Marginal Street landfill between 1897 and 1902. The west half of the pier has remained undisturbed.

It is highly probable that undocumented piers, wharves, quays, and fill retaining devices were incorporated into the fill during the land reclamation process. Since a diverse number of methods of shoreline expansion were used in Manhattan, varying with age of construction and individualistic techniques, these resources are considered an important research issue toward documenting the development of the city.

The only other features which may warrant archeological investigations are the buildings once present on Blocks 668, 669 and 690 between West 18th and West 24th Streets.

- On Block 690 between West 18th and West 19th Streets, a building stood on Lots 61 and 62 between at least 1885 and 1902. The structure was occupied by the J.P. Ryon Moulding Company.

- On Block 668, between West 22nd and West 23rd Streets, two structures were located on Lots 50 and 51 associated with freight yard activities. These stood between at least 1879 and 1902.

- On Block 669 between West 23rd and West 24th Streets, a car house stood between at least 1902 and 1930 on Lots 21 through 25. On Lots 32 and 33 a building occupied by a lumber company stood between at least 1913 and 1950. On Lots 36, 37, and 39 through 41, brick buildings stood between 1902 and 1941. These buildings were occupied by industries integral to the composition of the middle-west side development.

As stated above, this is a preliminary evaluation and the conclusions presented may be altered when research on the entire project area is completed.

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A. INTRODUCTION

The Route 9A Reconstruction Project from Battery Place to West 59th Street has been undertaken in a collaborative effort between the New York State Department of Transportation (NYSDOT), the City of New York, and the Federal Highway Administration (FHWA). The planning and engineering process of the proposed reconstruction entails preparing an Environmental Impact Statement (EIS). Part of this EIS entails identification of potentially sensitive archeological resources within the project area, and then determination of the effects of prior demolition, excavation, or a change in historic context on these cultural resources. The result of this study is a preparation of an inventory of probable archeological sites, and recommendations of which sites are potentially significant and may meet the criteria for nomination to the National Register of Historic Places. This introductory chapter provided for each individual report will eventually be replaced by a final overall introductory section.

Vollmer Associates is coordinating the preparation of the EIS, while Allee King Rosen and Fleming, Inc. (AKRF) is directing the cultural resources portion of the EIS. Hartgen Archeological Associates, Inc. (HAA), in affiliation with Historical Perspectives, Inc. (HPI), has undertaken preparation of an inventory of potential archeological resources in the project area, an investigation of prior disturbance, and an assessment of the impact of the proposed project alternatives.

The proposed Route 9A Reconstruction spans from Battery Place to West 59th Street. This section of the report is concerned with the section between West 18th and West 30th Streets (Figure 1-1). The archeological study area bounds are as follows: The southern boundary is West 18th Street and the northern boundary is West 30th Street. On the west the area is bounded by the U.S. Bulkhead line. On the east it is bounded by the west ends of numbered city blocks, and includes sidewalks along the block ends. At cross roads, the project area extends an additional 50 feet east to include the first 50 feet of the crossroad and sidewalks on the north and south borders of the road. There are several exceptions, described below.

Between West 18th and West 22nd Streets, the project area bounds extend west of the U.S. Bulkhead line to include a platform associated with the Chelsea Piers. The project area boundary also extends west of the bulkhead line between West 22nd and West 23rd Streets to include a truck loading area with roof top parking. Between West 22nd and West 24th Streets the project area boundary extends eastward to include two city blocks, numbered 668 and 669. Block 668 is currently occupied by the Thomas F. Smith Park, while Block 669 possesses several buildings. North of these deviations the project area boundaries continue along the above described route. The Miller Elevated Highway is locally referred to as the West Side Highway (hereafter referred to as the Highway). Marginal Street lies between the 70 foot span of Twelfth Avenue and the U.S. Bulkhead line to the west. Between West 18th and West 23rd Streets, the West Side Highway was built on Eleventh

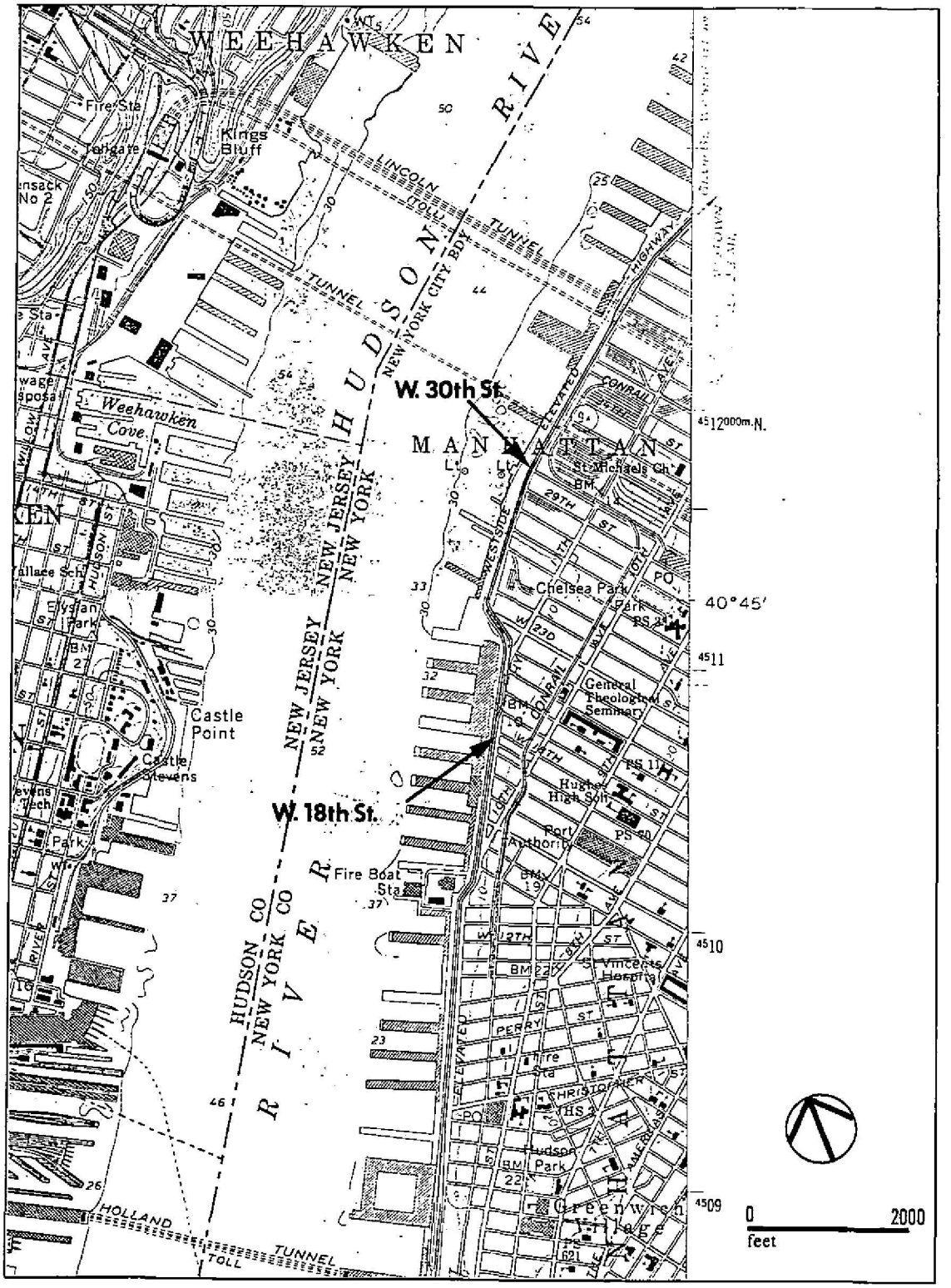
Avenue, the shoreline road. North of West 23rd Street, the shoreline road (the highway) is known as Twelfth Avenue.

Prehistorically, the land now occupied by West Street, Twelfth Avenue and Marginal Street were land beneath water. At various points in time, following deglaciation about 15,000 years ago, water levels were lowered exposing land along the shore. The width of the Hudson River was reduced and areas submerged at the time of European settlement were exposed for habitation by various flora and fauna. These drowned shorelines were probably once utilized by Native Americans for resource procurement and processing, as well as habitation. The estuarial environment and nearby uplands would have provided necessary resources to sustain prehistoric populations.

The shoreline reconstruction compiled by Historic Conservation and Interpretation, Inc. (HCI) in 1983 for the Westway project has been utilized to determine the degree of prehistoric sensitivity for those areas submerged at the time of European settlement. The cartographic reconstruction of the drowned shoreline, which identified areas having the potential to possess Native American remains, was based on topographic and environmental features. No potentially sensitive areas were identified by HCI between West 18th and West 30th Streets due to the steep slope of the original land along the shoreline and the early date of inundation.

Historically, development and landfilling were slower along the Hudson's shoreline than on the East River since the Hudson was deep and difficult to fill, and the East River accommodated the needs of early shippers. As new technologies were introduced, the use of the Hudson River increased and filling moved the shoreline from its original route between Tenth and Eleventh Avenues west to permit the construction of West Street and Marginal Street. The process of landfilling was slow, and often garbage, sunken ships, and shoreline features associated with shipping became part of the fill. The remnants of these activities have been encountered in a few places in lower Manhattan and probably exist in the project area. However, between West 18th and West 23rd Streets, the construction of the Chelsea-Gansevoort Piers in the late nineteenth and early twentieth centuries removed much of the landfill that was previously west of the project area.

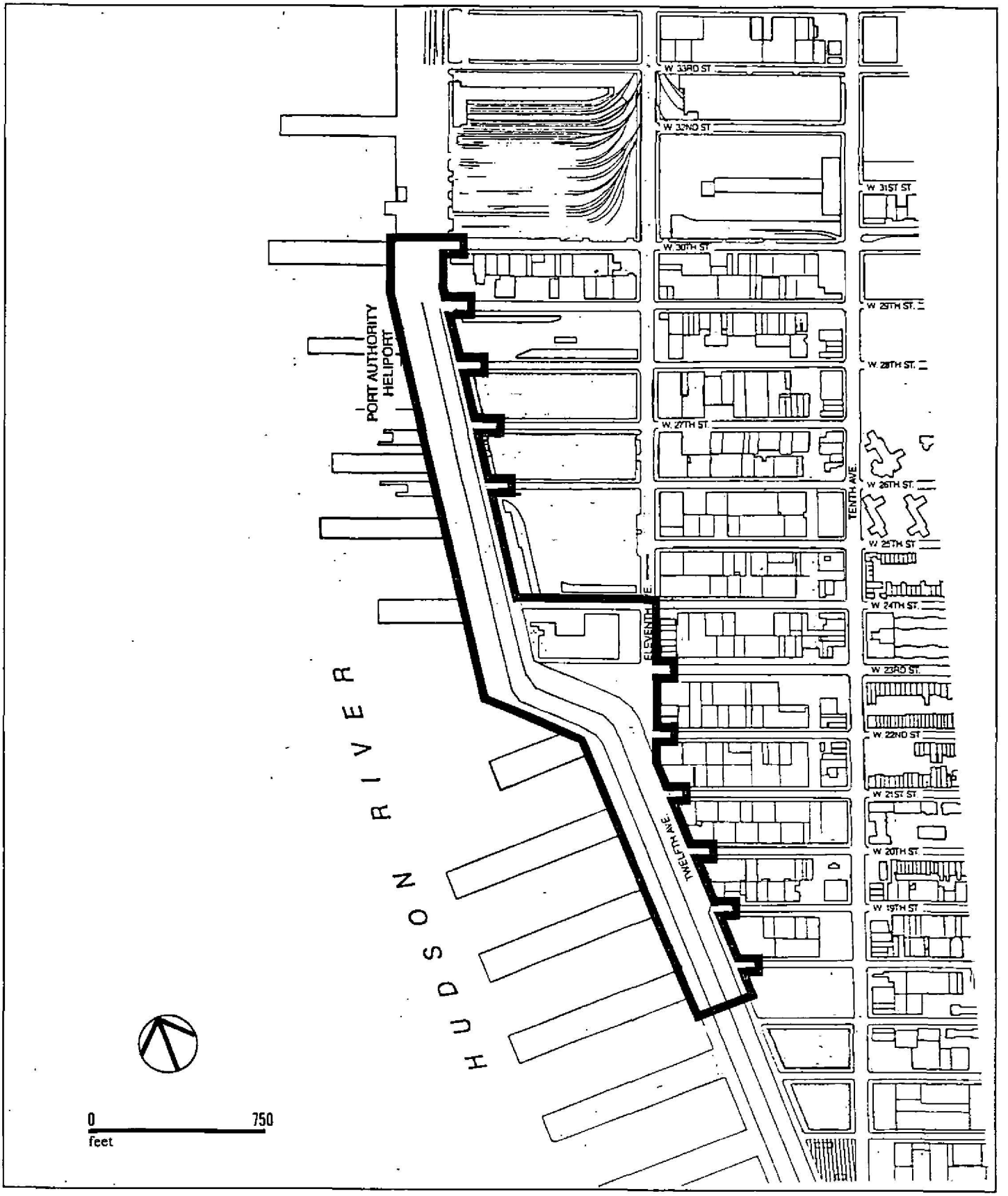
The following archeological study addresses the potential prehistoric and historical archeological sensitivity of the project area between West 18th and West 30th Streets. The analysis has provided a synopsis of these potentially sensitive areas, together with a record of the subsequent disturbance to these areas. A final list was compiled to present those features considered to be archeologically sensitive and previously undisturbed.



ROUTE 9A RECONSTRUCTION PROJECT

U.S.G.S. Topographic Map of the Archeological Study Area
Jersey City Quadrangle 1981/Weehawken Quadrangle 1979

Figure 1-1



ROUTE 9A RECONSTRUCTION PROJECT

Legend

Archeological Study Area

Archeological Study Area Boundaries
West 18th Street to West 30th Street

Figure 1-2

Chapter III:

A. METHODOLOGY

Background research was conducted to establish a prehistoric and historical framework for the interpretation of potential resources. Areas of prehistoric and historical sensitivity were identified through archival and cartographic research. The previously compiled Cultural Resource report prepared for the Westway project in 1983 by Historic Conservation and Interpretation, Inc. (Rutsch et al. 1983), was applicable to this section since it addressed potential sensitivity between Battery Place and West 44th Street.

The focus of the prehistoric sensitivity section of the 1983 Cultural Resource report for Westway differed from the focus of this report. The previous project area encompassed a large area outboard of the current shoreline together with several inboard interchanges, and only extended as far north as West 44th Street. The research conducted in 1983 entailed reconstructing the prehistoric shoreline beneath the West Side Highway landfill and the outboard area. Sensitivity was assessed based on prehistoric topography and the degree of likelihood that Native Americans once found such topographic features attractive for subsistence and settlement. The final analysis sufficiently assessed archeological sensitivity for the current project area south of West 44th Street based on current theoretical and methodological issues. It was not necessary to conduct any additional research for that area.

The historic research conducted for the Westway project also differed from that conducted in this report due to the differences in project area boundaries as well as changes in methodological and theoretical concerns. Research concerns have changed through time as new techniques became available and topics of investigation became more refined. The research conducted for this report is guided by such projects. The previous report provided details of historical development at interchange areas, outside of the current project area. Because of boundary differences, a cartographic reconstruction of historical development in the corridor has been compiled, and landowner lists and building histories have been acquired for areas where the Highway traversed previously lotted city blocks. Episodes of filling, construction, and disturbance have also been traced for the entire length of the corridor.

Currently, several phases of research have been performed including documentary research, cartographic analysis, and site files review. The scope of each of these tasks is presented below. The disturbance record has been established based on utility maps and the documented historical development.

DOCUMENTARY RESEARCH

A literature search was conducted of available ethnographic and historic accounts, and reports and data pertinent to the historic and prehistoric archeological record.

Archeological reports for the surrounding area were reviewed. In addition, permit applications from various state, city and federal agencies were examined. Where available, photographic, print and clipping files were also reviewed. The following libraries and agencies were contacted and researched in New York City and Albany.

American Museum of Natural History
Holland Society Library
Municipal Art Society Library
Museum of the City of New York-Reference Collection
New York City Landmarks Preservation Commission
New York City Municipal Reference Library
New York City Municipal Archives
New York City Society of Mechanics and Tradesmen Library
New York Historical Society Library
New York Public Library
New York State Library-Manuscripts and Special Collections
New York State Museum
New York State Office of Parks, Recreation and Historic Preservation (SHPO)
Port Authority of New York and New Jersey
Regional Plan Association Library
Society of Engineers Library
South Street Seaport Library
U.S. Army Corps of Engineers

CARTOGRAPHIC ANALYSIS

Historical maps and atlases were obtained, and were examined to establish the presence of standing structures and features within the project parcel throughout documented history, and to establish the prehistoric topographic and environmental conditions. Numerous maps and atlases were reviewed. It was sufficient to review maps and atlases at five-to-ten year intervals, since buildings of shorter duration would probably not greatly contribute to the archeological record. In addition, short-term temporary structures which would have stood for less than five-to-ten years, usually lack permanent subterranean foundations and therefore do not cause substantial disturbance.

In addition to the above libraries researched, the Olmstead Center in Flushing, Queens was contacted for maps of early parks existing within the project area. Certain maps at the United States Army Corps of Engineers were also reviewed for shoreline disturbance. At the Borough President's Office, the Topographic Bureau provided historical and geological maps.

PROPERTY RESEARCH

In order to determine the previous owners of land currently within the bounds of the project parcel, and the development and subsurface disturbance of these parcels, land transaction records were reviewed at the New York City Department of Finance, Index Division. Individual lot development was followed by obtaining Block and Lot files and microfiche from the New York City Buildings Department. This level of research was limited to reviewing ownership records, and did not include deed research. If appropriate, this documentation would be reviewed during the Stage 2 investigations.

SITE FILES REVIEW

The New York City Landmarks Preservation Commission (NYCLPC) was contacted for information on culturally significant areas previously identified in the project area and vicinity. In addition, the NYCLPC provided a predictive model of prehistoric site location for the project area. Site files were also reviewed at the New York State Museum and the State Office of Parks, Recreation and Historic Preservation.

FIELD VISIT

A walkover survey was conducted of the entire project area between West 18th and West 30th Streets and photographs were taken at each intersection of a cross road along West Street and Twelfth Avenue. Photographs were also taken from the Hudson River. Additional photographs were taken as deemed necessary.

A. PROJECT AREA CONDITIONS

ENVIRONMENTAL CONDITIONS

During the Pleistocene period, ice advanced in North America four times. In the last 50,000 years, the Wisconsonian period, ice was 1,000 feet thick over Manhattan. Gravel and boulders deposited at the ice sheet's melting margin formed Long Island about 15,000 years ago (Kieran 1982:26). During the last 10,000 years, glacial till and outwash were covered by the fluvial deposits of the Hudson River. Sea levels have gradually risen as glaciers retreated, and the velocity of the Hudson River has decreased (Vollmer Associates 1989:6). Estuary formation in the Hudson began between 11,000 to 12,000 years ago. Between 8,000 and 10,000 thousand years ago, the river experienced a reduction in salinity, which then increased between 7,000 and 8,000 years ago when the estuary obtained its maximum extent (Rutsch et al. 1983:25). The Hudson River is known for freezing in the winter, with ice floating down river during spring thaws (Luke 1953:10).

The project area between West 18th and West 30th Streets along the Hudson River is part of the embayed section of the Coastal Plain which extends along the Atlantic Coast and ranges from 100 to 200 miles wide (Figure 4-1). The Manhattan prong, which includes southwestern Connecticut, Westchester County, and New York City, is a small eastern projection of the New England uplands, characterized by 360 million year old highly metamorphosed bedrock (Schuberth 1968:11). The Manhattan ridge generally rises in elevation towards the north, and sinks towards the south. South of 30th Street, the bedrock dips down several feet beneath the earth's surface, and south of Washington Park it plunges down below 100 feet, forming a subterranean valley.

The prevalent gneissoid formation is known as Hudson River metamorphosed rock. The city is characterized by a group of gneissoid islands, separated from each other by depressions which are slightly elevated above tide and filled with drift and alluvium. The area consists of drift with underlying crystalline rocks including stratified gneiss, mica schist, hornblendic gneiss and hornblende schist with some feldspar and quartz (Gratacap 1909:27). Between West 13th and West 31st Streets there is little rock exposure, and the surface is diversified with hills of gravel, sand, and earth dotted with large boulders (Ibid.:10).

Historical development has altered many of the natural topographic features that once characterized Manhattan (Gratacap 1909:5). Between West 18th and West 30th Streets, the land now supporting West Street and Marginal Street was submerged through at least the early nineteenth century. Prior to that time the Hudson River shoreline meandered between what are now Tenth and Eleventh Avenues. The shoreline was characterized by bluffs with beaches below (Stokes Vol. 3, 1919:157). Shorefront development has contributed to the obliteration of these natural topographic features (Gratacap 1909:5).

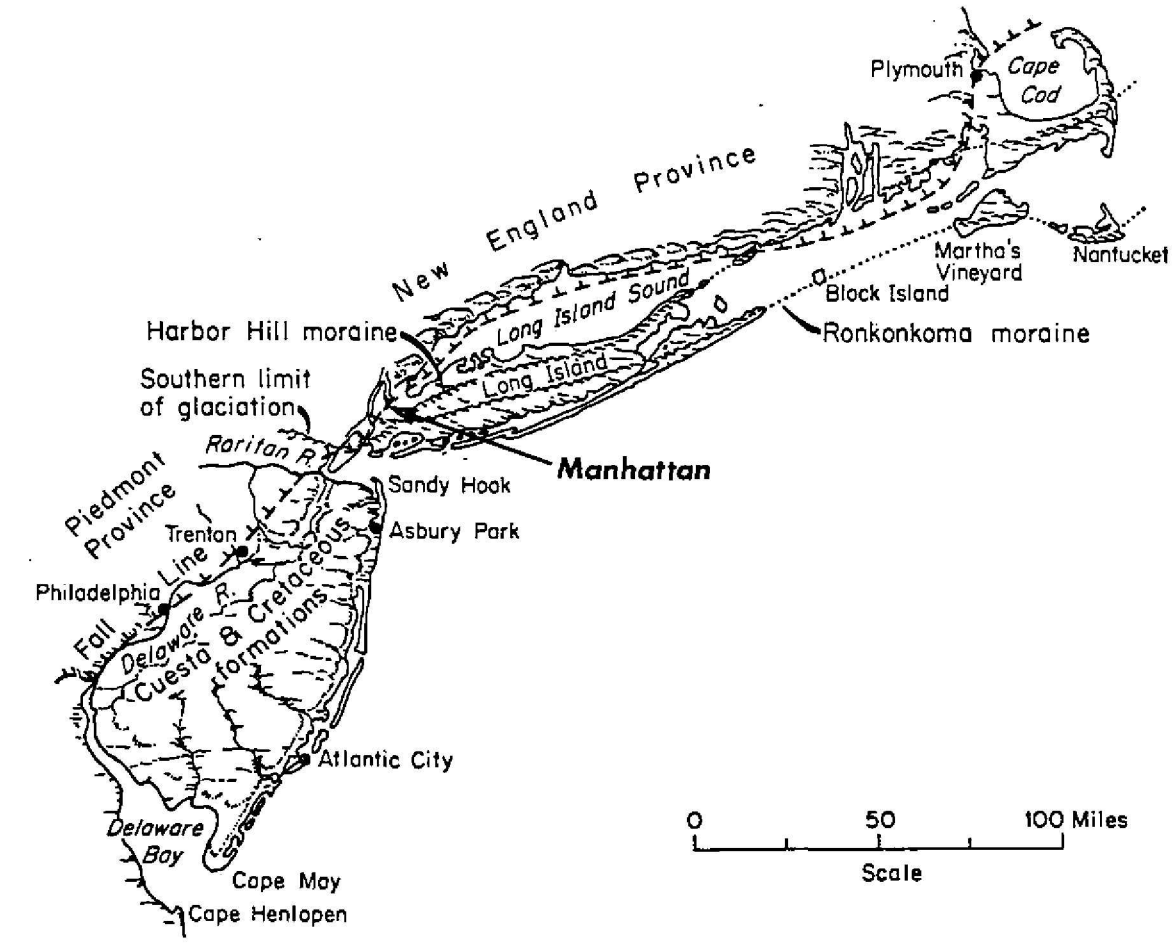
Soil within Manhattan is mostly glacial till, clay, sand, gravel, mud, and assorted debris (Kieran 1982:24). Within the project area, the soils include landfill, silty clay, clayey silt and fine sand, silty coarse to fine sand, and glacial till (Vollmer Associates 1989:7). The groundwater level fluctuates with tidal variations in the river (Ibid.:9).

CURRENT CONDITIONS

The original elevated West Side Highway has been removed from this section of the project, and an at-grade roadway exists where West Street was prior to the Highway's construction. Project area photographs show the current area conditions along the shoreline between West 18th and West 30th Streets (Figure 4-2). The area is generally non-residential, characterized by shipping related facilities, and small shops and businesses. The piers usage of within this section, active through the nineteenth and twentieth centuries, has declined.

The condition of the bulkhead varies along the project parcel. Between West 18th and West 23rd Streets the bulkhead is constructed of timber piles supporting a massive concrete structure faced with large granite blocks in the tidal range. Here the bulkhead lies entirely under building and platform structures. Between West 23rd and West 30th Streets, bulkhead construction is the same and the lack of platform buildings makes it visible along the shoreline (Mueser Rutledge 1988:9).

The development of the shoreline has progressed sporadically and the condition of subsurface remains reflects this development. In general, subsurface respirces along West Street and Marginal Street undoubtedly "contain cribs, old bulkheads, sections of old piers, abandoned utility lines and other remnants of abandoned previous construction" (Vollmer Associates 1989:11). More recent utility lines are also present.



Physiographic Map of the North End of the Embayed Section of the Coastal Plain
Source: Eisenberg 1976:10

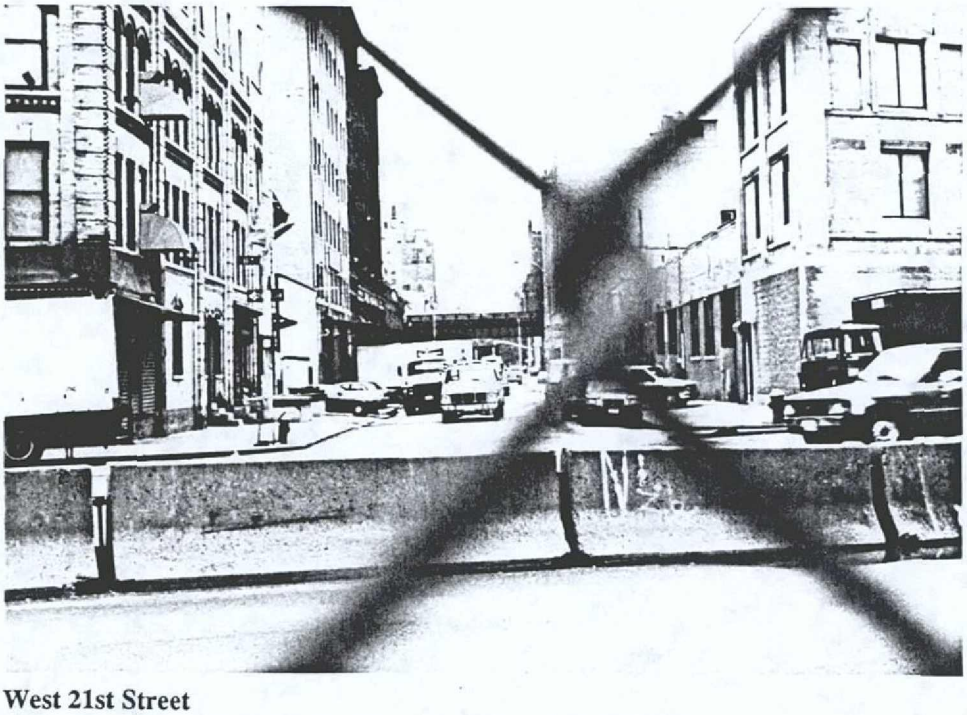
Figure 4-1

Piersheds along study area boundary for Piers 60, 61, and 62
Facing northwest from West 19th Street to West 23rd Street 9/13/89

West 19th Street
Facing west from Pier 60 parking lot 9/13/89

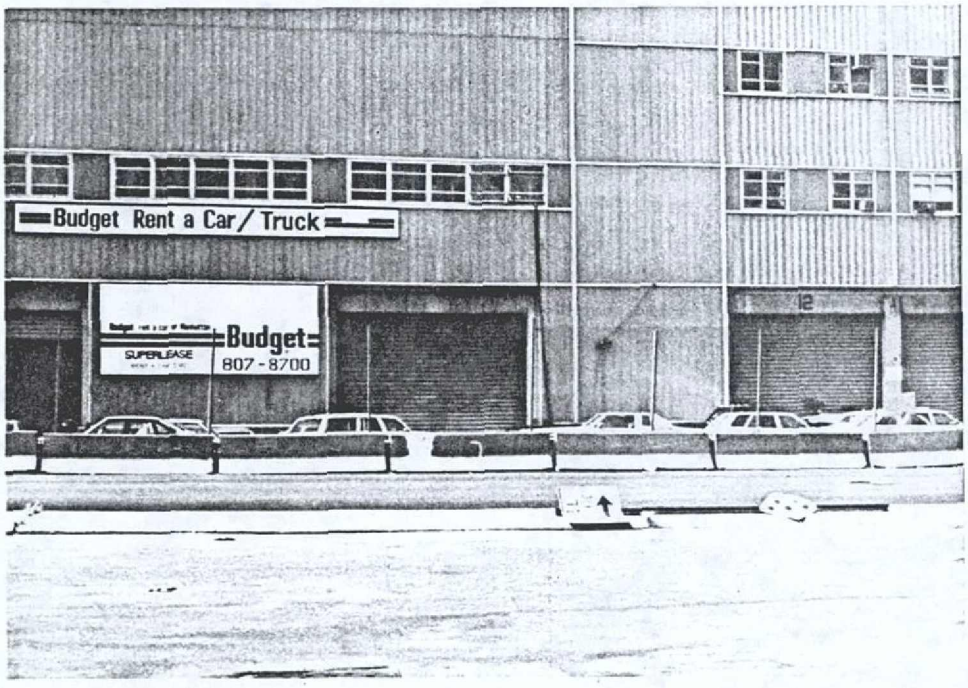
This section contains photographs of present site conditions. Included are photographs showing the east and west extensions of the archeological study area into the streets intersecting Eleventh Avenue and Twelfth Avenue.

West 20th Street
Facing west from Pier 61 parking lot 9/13/ 89

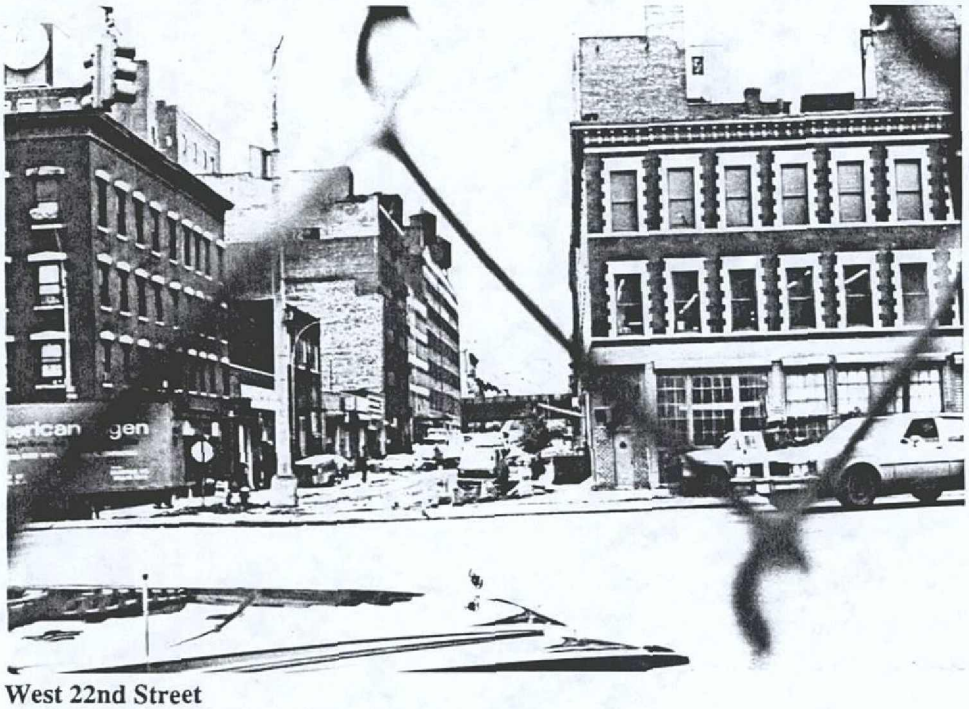


West 21st Street
Facing west from parking lot between Piers 61 and 62 9/13/89

Figure 4-2 (cont'd)

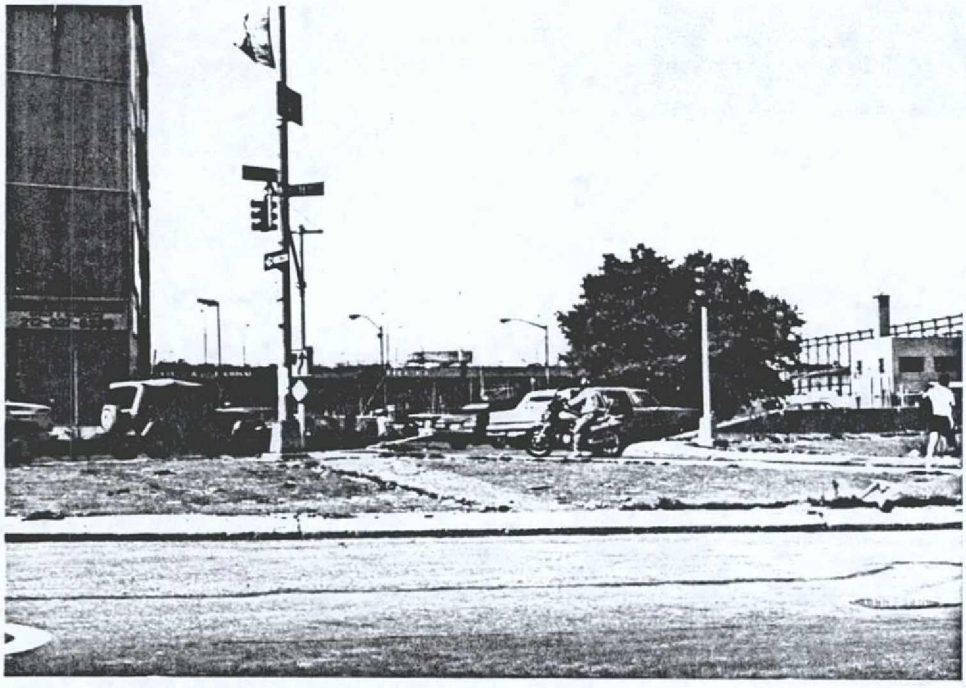


Pier 61 piershed
Rental agency lot within study area boundaries
Facing west from West 21st Street 9/13/89

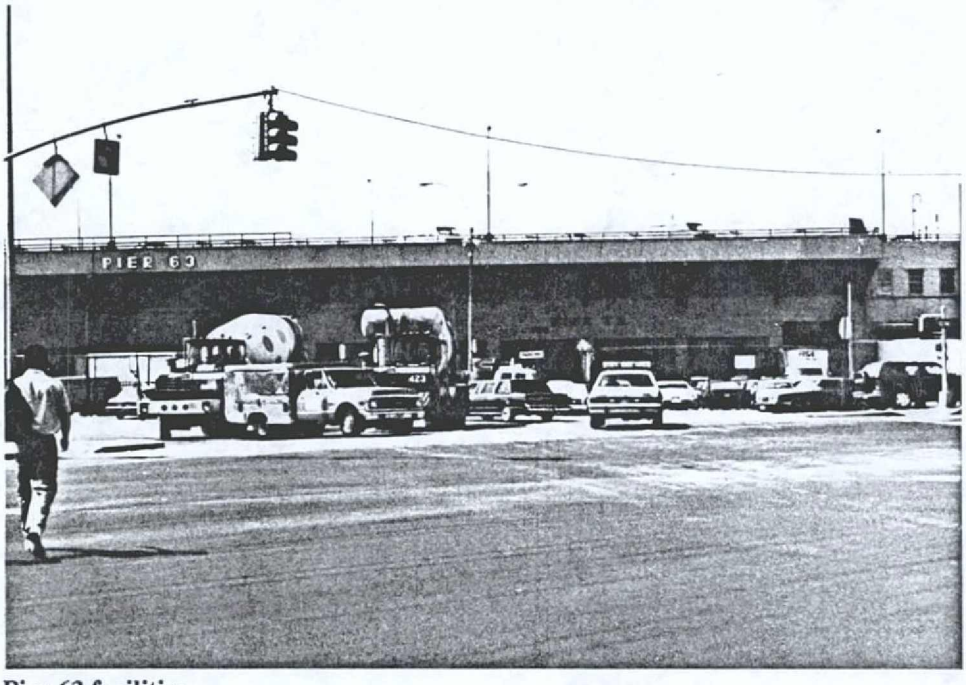


West 22nd Street
Facing east from the foot of Pier 62 parking garage 9/13/89

Figure 4-2 (cont'd)



Intersection of Eleventh Avenue and Twelfth Avenue
Facing west from 22nd Street, south of Thomas F. Smith Park 9/13/89



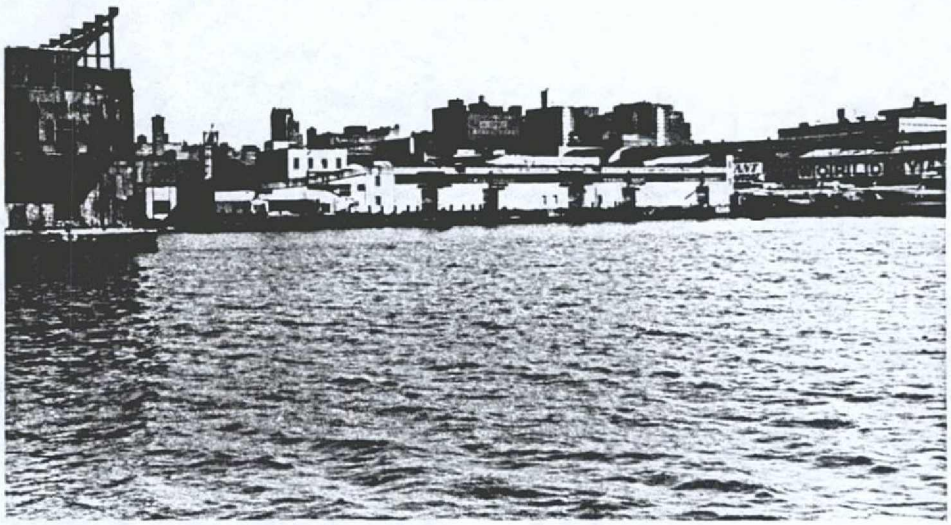
Pier 63 facilities
Facing west from the corner of West 23rd Street and Twelfth Avenue 9/13/89

Figure 4-2 (cont'd)

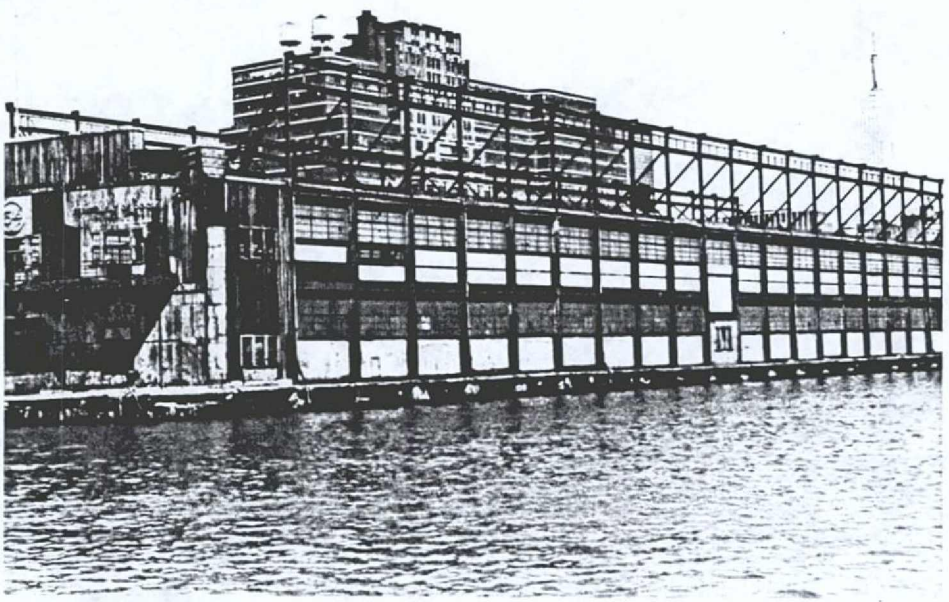
West 23rd Street
Facing east from Pier 63 truck loading parking lot 9/13/ 89

West 23rd Street
Facing west from Eleventh Avenue, Thomas F. Smith Park at left 9/13/89

Figure 4-2 (cont'd)



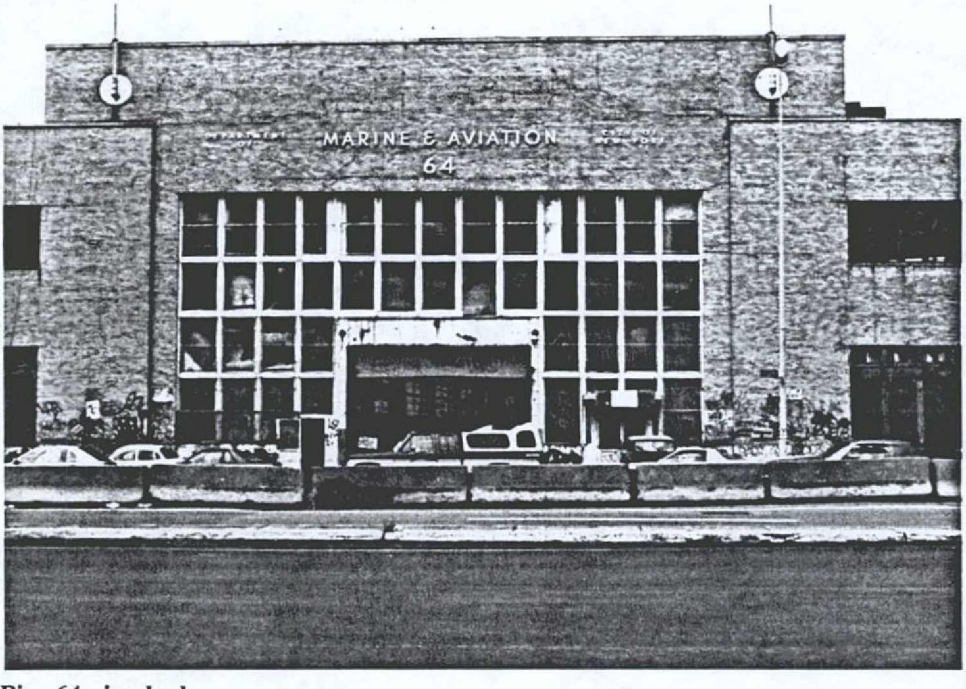
From left: Pier 64, Pier 63 facilities off West 23rd Street, and Pier 62
View from the Hudson River facing southeast 4/27/89



Pier 64 piershed
View from the Hudson River facing northeast 4/27//89

Figure 4-2 (cont'd)

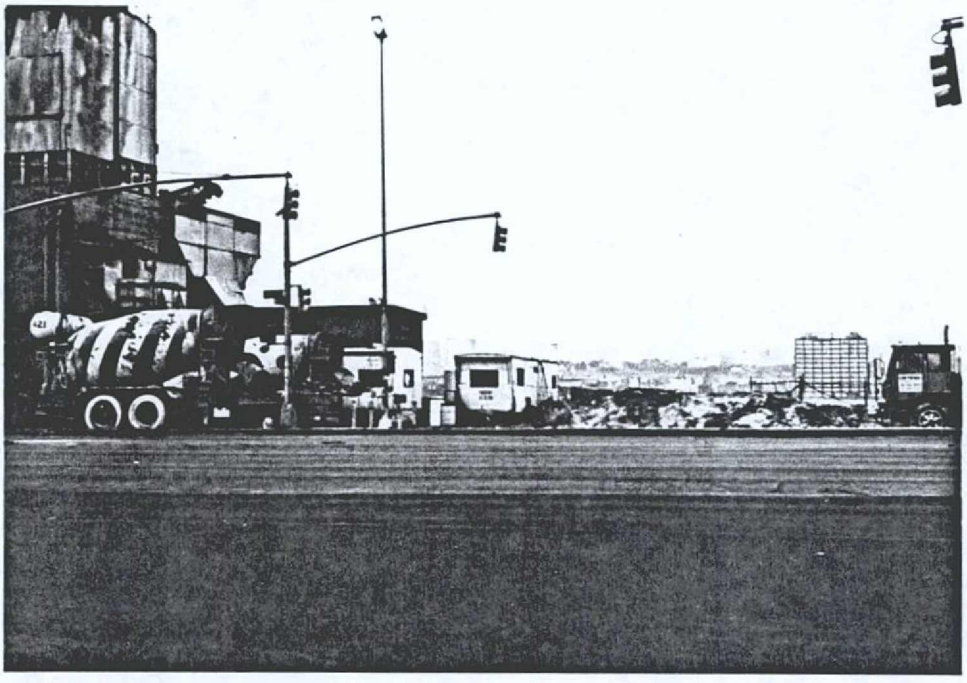
West 24th Street
Facing east from Marginal Street at foot of Pier 64 9/13/89



Pier 64 piershed
Facing west from West 24th Street 9/13/89

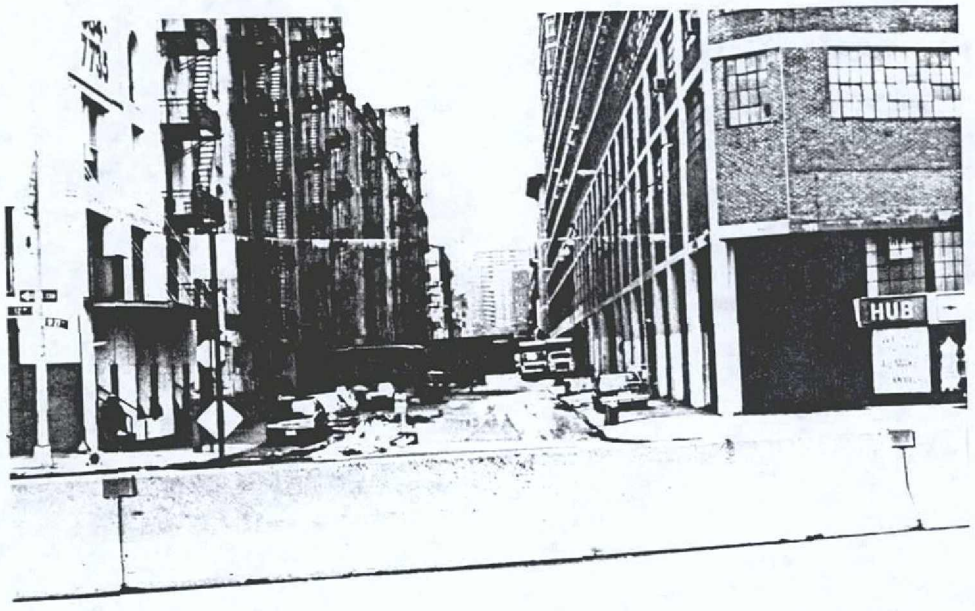
Figure 4-2 (cont'd)

West 26th Street
Facing east from Marginal Street 9/13/ 89



Twelfth Avenue, Marginal Street, and the Certified Concrete Co. plant
Facing west from West 26th Street 9/13/89

Figure 4-2 (cont'd)

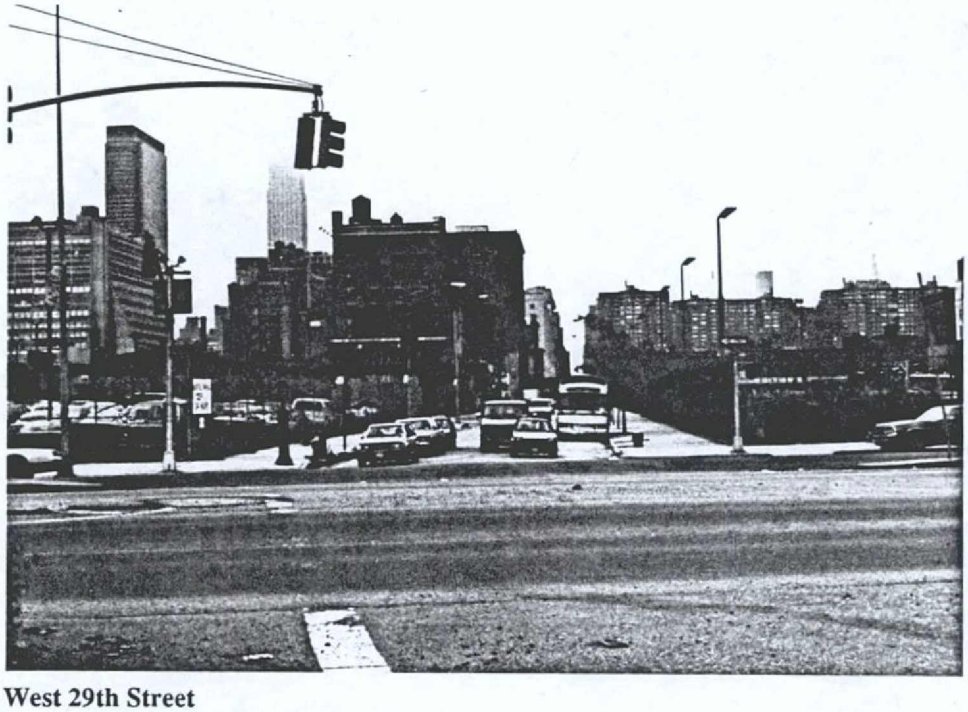


West 27th Street
Facing east from Marginal Street 9/13/89

Starret Lehigh Building at right, remains of old Pier 66 center
View from the Hudson River facing east 4/27/89

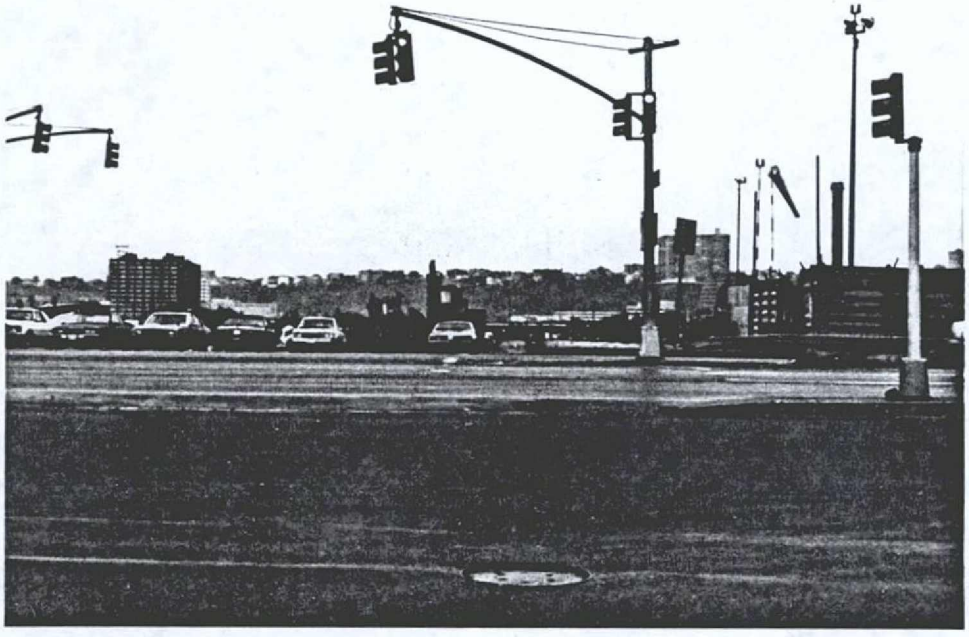
Figure 4-2 (cont'd)

West 28th Street
Facing east from Marginal Street at the foot of Pier 67 9/13/ 89

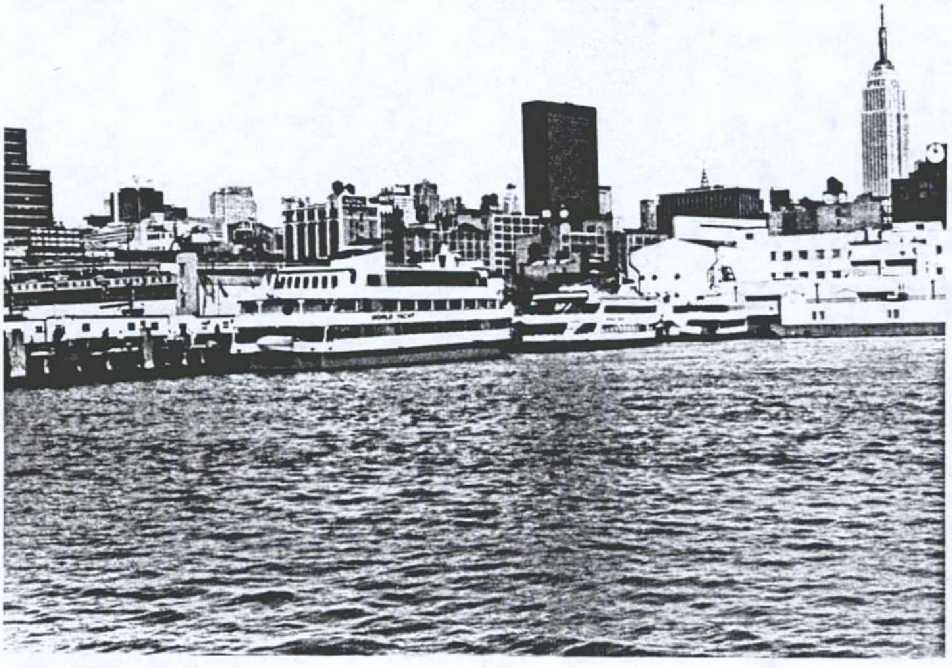


West 29th Street
Facing east from Marginal Street 9/13/89

Figure 4-2 (cont'd)



Parking in Marginal Street within study area boundaries
Facing west from West 29th Street 9/13/ 89



World Yacht Pier 62
View from the Hudson River facing northeast 4/27/89

Figure 4-2 (cont'd)

A. PREHISTORIC RESEARCH

PREHISTORIC BACKGROUND

The scant archeological record that characterizes Manhattan renders it necessary to rely on regionally established models of prehistoric sequences for a comparative reference. Prehistoric settlement and subsistence trends have been established for the lower Hudson Valley and coastal New York areas, providing a contextual understanding of prehistoric land and resource utilization. The outline presented summarizes the prehistory of the region, based on long term archeological research. It should be noted that as research in the area continues, theoretical issues become more refined, affecting this regional chronology.

Prior to the arrival of Native Americans and subsequently Europeans, the Northeast experienced heavy glacial activity. During the last episode of the Pleistocene in the Northeast, the Wisconson, ice reached its maximum advance between 18,000 and 16,000 years ago. After this period, glaciers slowly began to retreat north, with glacial gravel being deposited along the melting margin. By 13,000 years ago, ice had retreated north far enough so that the lower Hudson Valley and surrounding area was open for the re-establishment of flora and fauna. As ice melted, glacial lakes formed, eventually filling with sediments and becoming swamps. Current studies indicate that shortly after deglaciation, Native American populations arrived in the Northeast.

PaleoIndian Period (12,000-9,500 B.P.)

Between 14,000 and 12,000 years ago the Northeast was generally characterized as open woodland, rich in spruce. By 10,000 years ago, this had changed and the region was predominately pine (Gaudreau 1988:240). Pollen analysis shows that the southeastern New York region was comprised of a mixed coniferous-hardwood forest following deglaciation (Salwen 1975:43). The post glacial environment supported a diverse array of mega-fauna including mammoth, giant ground sloth, horse, and giant beaver, undoubtedly hunted for prehistoric subsistence. The PaleoIndian period represents the earliest documented human occupation in the Northeast, dating approximately between 12,000 to 9,500 B.P. (Before Present).

Few remnants of these first inhabitants have been encountered. It is quite possible and probable that Native Americans first occupied the continental shelf which was exposed during glaciation. The massive amount of water locked up in ice sheets and glaciers drastically lowered the sea level, extending the Atlantic coastline twenty to thirty miles south and east of what it currently is (Ibid.). The exposed continental shelf, now submerged beneath the ocean, would have possessed the resources necessary to support the emergent PaleoIndian population (Edwards and Emory 1977:19).

Artifacts attributed to this period from sites in the Hudson River Valley and throughout the Northeast include diagnostic Clovis-type fluted projectile points and processing tools such as scrapers, gravers, and drills. Often these were made from cherts originating in eastern New York, and jasper from Pennsylvania and New Jersey. Lithics recovered far from their sources suggest well-defined or extensive travel or trade networks in operation at that time. Research in the Northeast has lead to the postulation that small bands of hunters nomadically roamed large territories, relying predominantly on post-pleistocene megafauna. Alternative hypotheses based on research in eastern New York suggest that PaleoIndians inhabiting the area utilized a wide array of resources and had a restricted territory in which they operated (Eisenberg 1978:139). Additional research continues to assist in developing and refining models of subsistence and settlement.

There are many unanswered questions regarding the settlement and subsistence systems of PaleoIndians. Sites that have been identified tend to be located in three specific geographic locales: on lowland waterside camps near coniferous swamps and near larger rivers; on upland bluffs in areas where deciduous trees dominated; and on ridge tops also dominated by deciduous trees (Eisenberg 1978:138). Throughout the Northeast it has been more common to locate isolated spot finds of diagnostic artifacts than habitation sites. The lack of recovered habitation sites may be due to post-glacial changes in topography or development where habitation sites once existed (Saxon 1973:252). The rising sea levels and resultant changes in water courses have probably inundated numerous encampments. However, since the Hudson River is a fjord (a narrow inlet of the sea bordered by steep cliffs), it is possible that early occupation sites may be preserved along the naturally elevated post-glacial shoreline (Snow 1980:180). Currently, no habitation sites have been identified on Manhattan Island.

Nearby on Staten Island, a PaleoIndian habitation site was located at Port Mobil (Ritchie 1980:xvii). The site was situated on high ground, sloping down to the Arthur Kill, about 1000 feet away. Although the site experienced significant disturbance, several fluted points were recovered together with additional tools made of eastern Pennsylvania tan and yellow jasper, and eastern New York Normanskill flint. Nearby along the tidal beach of the Arthur Kill, six fluted points were also found, made of jasper and local and exotic flints (Ibid.). This represents the only PaleoIndian component recovered within the metropolitan New York area. Spot finds further north have occurred along the Hudson River and its tributaries (Funk 1976:205).

Archaic Period (9,500-3,000 B.P.)

The Archaic period, spanning approximately 6,500 years, has been subdivided into the Early, Middle, Late, and Terminal periods. During the Early Archaic (9,500-7,000 B.P.) fluctuations in the environment occurred, eventually giving way to a gradual warming trend, allowing newly available resources to become established. Although sea levels were rising, New York Harbor was still considerably smaller than it is today (Salwen 1975:49). As a result of environmental changes, it appears that the primary dependence on big game gave way to a hunting, fishing,

and gathering economy, reliant upon a diversity of resources. The more reliable resource base may have facilitated population growth.

Artifacts of the period include bifurcate-base points which are often found along major drainages. Early Archaic sites in the coastal New York area tend to be located on tidal inlets, coves, and bays, and on fresh water ponds (Ritchie 1980:143). Few inland sites of the Early Archaic period have been found in northern New York and New England. However on Staten Island four sites containing cultural materials dating to this period were reported (Salwen 1975:50). Salwen attributes the earlier and more prolific population of the southeastern New York area to the early establishment of hardwood forests in that region (Ibid.). Although resources may have been abundant in the more northern areas, the climatic instability would not have provided a reliable resource base. The established hardwood forests may have attracted people to the more stable, southern New England and New York area (Dincauze and Mulholland 1977:450).

Middle Archaic cultures thrived from about 7,000 to 5,500 years ago, as the climate continued to warm allowing new flora and fauna to become established. Dincauze and Mulholland (1977) suggest that at this time seasonal movements based on the exploitation of specialized resources became well established, which may have encouraged territoriality. Tool kits expanded in response to diverse resource utilization, and artifacts include Neville and Stark projectile points. During the Middle Archaic period the exploitation of oysters along the Hudson River is represented by numerous shell middens. At Croton Point and Montrose Point, north of the project area along the Hudson in Westchester County, shell middens yielded dates of between 5,600 to 5,800 B.P. (Brennan 1974:85).

From approximately 5,500 to 4,000 B.P., Late Archaic cultures flourished across the Northeast. Warming trends promoted a resource-rich environment. Point types diagnostic of this period include small stemmed points such as Lamokas and Taconics, as well as Squibnocket and Brewerton Points. The lower Hudson Valley experienced increased habitation, with numerous shell middens along it dating to this period (Brennan 1974:87). Sites of this period include rockshelters, open woodland camps, and high bluffs along the Hudson. Archaic points found in the metropolitan New York area represent a high percentage of quartz use for this period (Suggs 1966:42). The dependence on local lithics could represent decreased areas of seasonal migration or a reduction in trade with neighboring groups.

The subsistence pattern in operation may have been one of a centrally based wandering pattern focused on the exploitation of seasonal resources. A high degree of cultural complexity is represented by the wide range of site types and the great diversity in site locations. More Late Archaic sites have been reported than for either of the two previous periods. The increase in the number of sites may reflect either an increase in the population brought on by the stabilizing environment, or a bias in site visibility. By the Late Archaic period, sea levels were much as they are today, and sites of this period would have less of a chance of being inundated. In addition, archeologists in the Northeast have postulated that small stemmed quartz points attributed to this period, actually represent an underlying cultural tradition,

persistent through later periods (McBride 1984:133). Therefore, sites attributed to this period based on projectile point typologies may actually have been misidentified.

Three cultural traditions persisted in the Northeast during the Terminal Archaic period (4,000-3,000 B.P.). These include the Laurentian tradition represented by the Vergennes phase and the Vosberg complex; the small stemmed tradition represented by the Sylvan Lake complex; and the Susquehanna tradition represented by the Snook Kill and Orient phases (Funk 1976:250). Although Funk defines these three separate traditions as persisting in the Hudson River valley, Snow reassesses the distribution of Terminal Archaic points and suggests that the Susquehanna tradition dominated the first half of the period, comprised of Snook Kill, Perkiomen and Susquehanna Broad points, while the latter half of the period was dominated by the Orient complex characterized by the Orient Fishtail point (Snow 1980:237). The precise sequence of Terminal Archaic traditions, complexes and phases is a continued source of debate.

It is postulated that these traditions, based on distinct projectile point types, have different settlement patterns representing utilization of specific resource niches. According to Funk and Ritchie, authors of Aboriginal Settlement Patterns in the Northeast, sites of the Snook Kill Tradition, predominant in the southern sub-area, tend to be located on high, sandy river terraces (1973:342). Orient phase habitation and burial sites have been recovered from eastern Long Island (Ibid.:344). Whether these three distinct traditions, Laurentian, small stemmed and Susquehanna, represent the migration of new people into the area, or the spread of technologically new ideas, has yet to be determined. Lithic technologies were predominantly based on locally available raw materials, with the small stemmed point tradition relying heavily upon quartz.

Terminal Archaic groups ground and polished soapstone into bowls and other items. The majority of sites encountered in the region thus far existed along the Hudson River and its major tributaries. This appears to result from high visibility along major river drainages as opposed to the actual lack of sites in remote settings, as continued research from interior areas has produced sites of this period. Orient points have been radiocarbon-dated to approximately 4,000 to 2,800 B.P. in the Hudson Valley.

Woodland Period (3,000-500 B.P.)

The Woodland period persisted in the Northeast from approximately 3,000 to 500 years ago. Again divided into three sub-categories, this period consists of the Early, Middle and Late periods. The first of these, the Early Woodland period, lasted from about 3,000 to 1,700 years ago and is represented by the Middlesex Phase in eastern New York. This period is marked by the introduction of ceramic vessels as part of the material culture. Crude, undecorated pottery called Vinette 1 was often tempered with steatite. Simply designed pottery of this type has largely been recovered from sites on major waterways and tributaries. Early Woodland, Middlesex Phase sites are commonly discovered during sand and gravel mining

operations near a lake or river, as sites tend to be located on well drained knolls adjacent to fresh water (Ritchie 1980:201).

During this period a gradual cooling of the climate occurred, perhaps limiting resource availability. Settlement systems varied as a result of the desire to exploit alternative resources. Coastal resources providing year round stability were often sought, while upland hunting and gathering remained an important activity. Fish runs in rivers provided a stable and reliable resource. Woodland period fish weirs were utilized in the Hudson and smaller tributary rivers for the recovery of large quantities of anadramous fish (Brumbach 1986:35).

The Middle Woodland period, lasting from ca. 1,700 to 1,000 B.P., is marked by regional changes in ceramic styles. Stone tool assemblages of this period are characterized by Jack's Reef Corner Notched and Pentagonal as well as Fox Creek projectile points. A significant amount of exotic lithic materials were utilized, perhaps indicating increased trade networks. By this time, subsistence and settlement seem to have been characterized by semi-permanent settlements with task-specific locations utilized for the purpose of exploiting target resources. Ritchie and Funk identify several settlement types for Middle Woodland cultures including recurringly occupied small and semi-permanent large camps, small temporary camps, cemeteries, burial mounds and workshops (1973:349).

Numerous shell middens along the coast and the Hudson River attest to the importance of aquatic resources. During this period, maize was introduced from Meso-America and horticultural practices were slowly adapted into the lifeways of local Indians. The nature and extent of maize use prehistorically has been much debated by archeologists working in the Northeast. Research on Long Island has led to the hypothesis that prior to European contact, maize was not cultivated on the sandy, nutrient-poor soils of the island. The desire to trade with Europeans led Native Americans to settle more permanently along the coast where shells were available for wampum manufacturing. Concurrent with this shift in the settlement system was the need for a stable, storable economic resource. It is thought that maize horticulture was adopted to provide the support required for these villages (Ceci 1979:72). In addition to the research conducted in coastal New York areas, archeologists throughout the Northeast are now questioning the distribution and adoption of non-indigenous horticultural goods.

Material items of this period include ornamental pendants, pins, and the bow and arrow. Ceramics became technologically more advanced as walls became thinner and overall shape became rounded. It is suggested that the change to a rounded bottom corresponds with the introduction of maize and resulted from the desire to cook food longer (Braun 1980:100). Netmarking became a popular mode of decoration associated with this period. Ornamentation of the collars and bodies of pots also increased, often suggesting the cultural affiliation of the maker. Overall the remains representative of this period recovered from eastern New York are limited in number, compared to those found further to the west in the Great Lakes region (Funk 1976:298). This may be a misrepresentation resulting from biased sampling and preservation rather than the actual lack of sites.

The Windsor tradition was established in this period, with components of this tradition found along the Long Island Sound, and the Hudson and Connecticut drainages. In the lower Hudson Valley and on western Long Island, the tradition is represented by the Windsor North Beach and Clearview phases (Snow 1978:63). The Fox Creek Phase of the Middle Woodland period appears to have its center of distribution in the New York coastal region, and in the eastern New York drainages (Ritchie and Funk 1973:356). Settlement patterns reflect a restricted wandering system, excluding large base camps and semi-permanent villages. However, general trends of the period show a move toward a settlement system incorporating semi-permanent village occupations.

During the Late Woodland period, 1,200 to 500 years ago, the climate was similar to that of today. The documented settlement pattern indicates the use of diverse environmental settings including inland rockshelter sites, coastal and island sites, inland sites on major drainages, and campsites located near swamps and along streams. There is marked evidence of an overall increase in site size, abundance and artifact frequencies. An annual subsistence round of seasonal movements between riverine, coastal and inland wintering sites may have existed. The increase in horticultural activities may have affected seasonal movements, with spring and summer spent planting crops. While maize, beans, and squash became available, these did not comprise the entire subsistence base, as deer, small mammals, nuts, berries, and shellfish continued to be utilized. The semi-permanent settlement pattern may have led to competition and defense of arable land, contributing to regional territoriality (Mulholland 1988:163).

Artifact types of this period include the Levanna triangular projectile point and Cayadutta Incised pottery. The Windsor tradition was replaced by the East River tradition by about 600 B.P., and the Bowmans Brook and later Clasons Point phases are local manifestations of this period (Snow 1978:63). It is thought that the Bowmans Brook culture entered New York from New Jersey through Staten Island, where artifacts of this phase have been found (Ritchie 1980:269). Sites of this phase are situated on tidal streams or coves, with large village sites containing between fifty to one hundred pit features (Ibid.). Shellfish utilization is apparent at such sites. Ritchie notes that sites of the Clasons Point culture tend to be located on the second rise of ground above high-water level, on tidal inlets, and have many of the characteristics of the Bowmans Brook Phase (Ibid.:271).

Contact Period (500-300 B.P.)

The Contact period dating from 500 to 300 B.P. is typified by the initial interactions between Native American groups and Europeans. Native settlement patterns at the beginning of this period were essentially the same as those of the Late Woodland, and consisted of seasonal hunting and gathering. In spring and fall, areas along streams were occupied to take advantage of fish runs. Upland and inland task specific sites were occupied for short periods for hunting, trapping, and lithic procurement activities. Semi-permanent villages near planted fields were also located in the interior, containing oval and round, bark and mat covered houses. Large pits were used for storing dried meat, fish, and corn, and it was common practice to burn

fields to facilitate hunting, trapping and planting. It was not uncommon for horticultural villages to move to new locations after ten or twenty years as soil fertility, firewood and nearby game resources were depleted (Salwen 1975:57).

The first contacts between Native Americans and Europeans occurred when early explorers began to trade with the native population. As European materials were introduced, settlement and subsistence patterns changed drastically. Traditional tools were replaced by adopted European goods such as copper and iron. Shell beads and wampum were produced and furs were collected by Native Americans as a medium of exchange. Europeans were anxious to acquire furs from Native Americans, thus numerous trading posts were established along the Hudson River. Although early historic accounts suggest the presence of stockaded villages or forts in the Hudson Valley and coastal New York, archeological data indicate they were not present prior to the middle of the seventeenth century (Ritchie and Funk 1973:368).

During the seventeenth century, Manhattan was occupied by Indians speaking a Munsee dialect of the Eastern Algonquian language (Goddard 1978b:73; Figure 5-2). Northern Manhattan was primarily occupied by Native Americans, identified by the colonists as Wiechquesgeck (Grumet 1981:60). Large scale conflicts did not break out in New York until the arrival of Governor Willem Kieft in 1638, who maintained a hard-line policy with the local Indians. This policy caused the death of 1000 Native Americans between 1640 and 1645 due to conflicts (Washburn 1978:98). In 1655 Native Americans attacked New Amsterdam, and the ensuing Esopus Wars, named so for the involvement of the Esopus Indians, lasted until 1664. As a result, Algonquian bands in the lower Hudson Valley lost independence and fell under Dutch control (Ibid.).

The subsequent breakdown of native sociopolitical organization during the seventeenth century was caused by intertribal stress, plagues, and the desire of newcomers to obtain land rights. The plagues of 1616-1620, introduced by Europeans, depopulated many groups, with population losses in southern New England and New York estimated between 70-90 percent (Snow 1980:34). The conflicts engendered by rapid colonial expansion, war, and epidemics, caused many Native American groups either to leave the area or take up habitation in established communities (Brasser 1978:85).

At the time of European contact, the closest known Native American habitation site to the project area between West 18th and West 30th Streets was Sapohanikan Point now in Greenwich Village (Figure 5-1). Bolton reports that Sapohanikan was probably a landing place for canoes arriving from and departing to New Jersey (Bolton 1934:53). However, Skinner states that Sapohanikan was an Indian village probably located near the block bounded by Gansevoort, Little West 12th, West, and Washington Streets, and that there was an Indian settlement there as late as 1661 (Skinner 1961:52). He also notes that the name may have been applied to the general area. Skinner also reported Site 9, a village site on the Collect Pond near Canal Street, which possessed a large deposit of shells (Ibid.:630).

Grumet noted several other features south of this portion of the project area possessing Native American names. These include "Kapsee," a ledge of rocks now under Battery Park (Figure 5-1). Bolton suggested that this translated to "where the sharp rocks are," however Grumet notes that this was probably a derivation of the Dutch word "Kaaphoekje," meaning a little cape or promontory (Grumet 1981:17). In addition, "Catiemuts" was possibly a "fort or hill located near Pearl Street and Park Row" (Ibid.:8). "Ishpatena" was identified as a hill between Chatham and Varick Streets, which has since been leveled (Ibid.:16). "Werpoes," a label seen on many historic maps such as the MacCoun 1609 Hudson River map (MacCoun 1909a), was a derivative of the Delaware word "Wipochk," which meant a bushy place or thicket (Grumet 1981:58). This was the name given to an area of elevated land below Canal Street. At the time of European settlement, Native Indians referred to the Hudson River as "Mahicanituk," which translated to "the great waters or seas, which are constantly in motion" (Ibid.:22). The island of Manhattan itself was called "Minna-atn" which meant "Island of Hills" (Bolton 1934:47).

Established cultural chronologies are based on prehistoric sites found in the Metropolitan New York Area. On Staten Island, numerous prehistoric sites have been reported, ranging from the PaleoIndian through Woodland periods. A burial site on the southern portion of the island was found on a bluff overlooking the shoreline. The Tottenville site may include a wampum manufacturing station (Jacobson 1980:5). In total, over one hundred prehistoric sites have been reported from Staten Island, although significantly fewer have been scientifically studied. It has been postulated that cultural groups occupying the island were probably affiliated with groups in New Jersey and the mid Atlantic region. The island may have been between the bounds of New York and New Jersey groups (Ritchie 1980:145). If this is the case, then the role of Manhattan Island may have been similar. Because of the proximity of New Jersey cultural groups, as well as Long Island Sound groups, cultural traits of Manhattan Indians would undoubtedly reflect these associations.

The apparent settlement systems established for the coastal New York area have primarily been based upon the large and highly visible shell midden sites along the coast. An intensive survey of Shelter Island in the Long Island Sound has yielded a number of small short term lithic workshops and food processing stations, previously unseen and excluded from settlement pattern studies (Lightfoot et al. 1985:59). Further research and unbiased testing strategies in upland areas have shown that numerous sites exist in these locales. While the coast of Manhattan was undoubtedly attractive for Native American habitation, smaller interior sites may have been utilized as well.

SITE SURVIVABILITY

Professional and amateur archeologists have been excavating on Manhattan since the late nineteenth century. However, until after the 1930s field techniques and recording procedures were not comparable to the more scientific procedures used today. The data from these excavations are generally ambiguous so that findings cannot be assigned to a particular period (Baugher-Perlin et al. 1982:5). According to Alanson Skinner's research at the turn of this century, in southern Manhattan there had been Indian settlements at the Collect Pond along the east end of Canal Street, on Corlear's Hook at the East River, and at the village of "Sappokanican," situated on the Hudson River just south of 14th Street. His estimation was that the only Indian remains left on Manhattan Island apparently were located at the extreme northwestern end (Skinner 1926:51). He does note, however, that the preponderance of findings from northern Manhattan is a reflection of both lower Manhattan's earlier development and northern Manhattan's relatively late occupation by Native Americans.

Recently it has been demonstrated that prehistoric archeological sites do still exist in the highly developed borough of Manhattan. "In 1980 during the excavation of Stone Street, as part of the Stadt Huys block, aboriginal pottery and lithics were found in the lowest levels of the excavation" (Baugher-Perlin et al. 1982:12). In the later Broad Street field investigation led by Joel Grossman, an in situ Contact period feature was found in direct association with the Dutch West India stockhouse (Karen Rubinson, personal communication to Cece Kirkorian, June 27, 1989). In addition to these in situ prehistoric finds, secondary deposits of prehistoric materials have also been recovered at numerous sites in Manhattan.

SHORELINE RECONSTRUCTION

A cartographic reconstruction of the prehistoric shoreline is necessary in order to assess the potential for deeply buried prehistoric archeological sites to exist beneath landfill. A subsurface soil and fill profile of West Street was constructed by HCI during the original survey for the Westway project. Based on core samples, paleoecologists and prehistorians reconstructed the post glacial shoreline between Battery Place and West 44th Street (Rutsch et al. 1983:17). Research was largely concerned with the nature of shoreline development outboard of current West Street. The research concluded that prior to European settlement, West Street was submerged beneath the Hudson River, and that "the area north of approximately Gansevoort Street was inundated by rising sea level at least as early as 13,000 B.P." (Ibid.:20). The topography of the top of the glacial gravel surface deposited prior to inundation was generally lowest in the northern section of the study area near West 32nd Street (Ibid.:19).

Borings taken north of Charles Street showed a stratum of inorganic silts between organic silt deposits and the lower surface of glacial deposits. There were also indications of the presence of a deep canyon prior to inundation (Rutsch et al. 1983:43). The discrepancy in the levels of organic content in the two silt levels may have resulted from differences in the level of pollen deposited in various periods

after glaciation. Both silt levels were believed to be the result of river silt deposited after inundation indicating when the shoreline was no longer accessible for habitation.

PREHISTORIC SENSITIVITY

It has been demonstrated that sites tend to be located on well drained elevated soils near fresh water resources. Environments providing diverse resource availability are conducive for prehistoric habitation. Coastal and riverine areas are particularly attractive habitation spots for this reason, providing a mix of aquatic, estuarial and terrestrial resources. In particular, the confluence of streams and/or rivers were considered primary spots for habitation, and have a high potential to yield prehistoric archeological resources. Coves and inlets, providing protection from the strong winds coming down the Hudson would have also been desirable habitation sites. Archeological research on islands within the southern New England area shows that settlement patterns are often affected by strong prevalent winds. Research on Nantucket and Block Island, each with strong northerly winds, shows a preference for settlement on south facing slopes (Little 1985:26). Presumably the strong winds coming down the Hudson would have had a similar affect on settlement patterns.

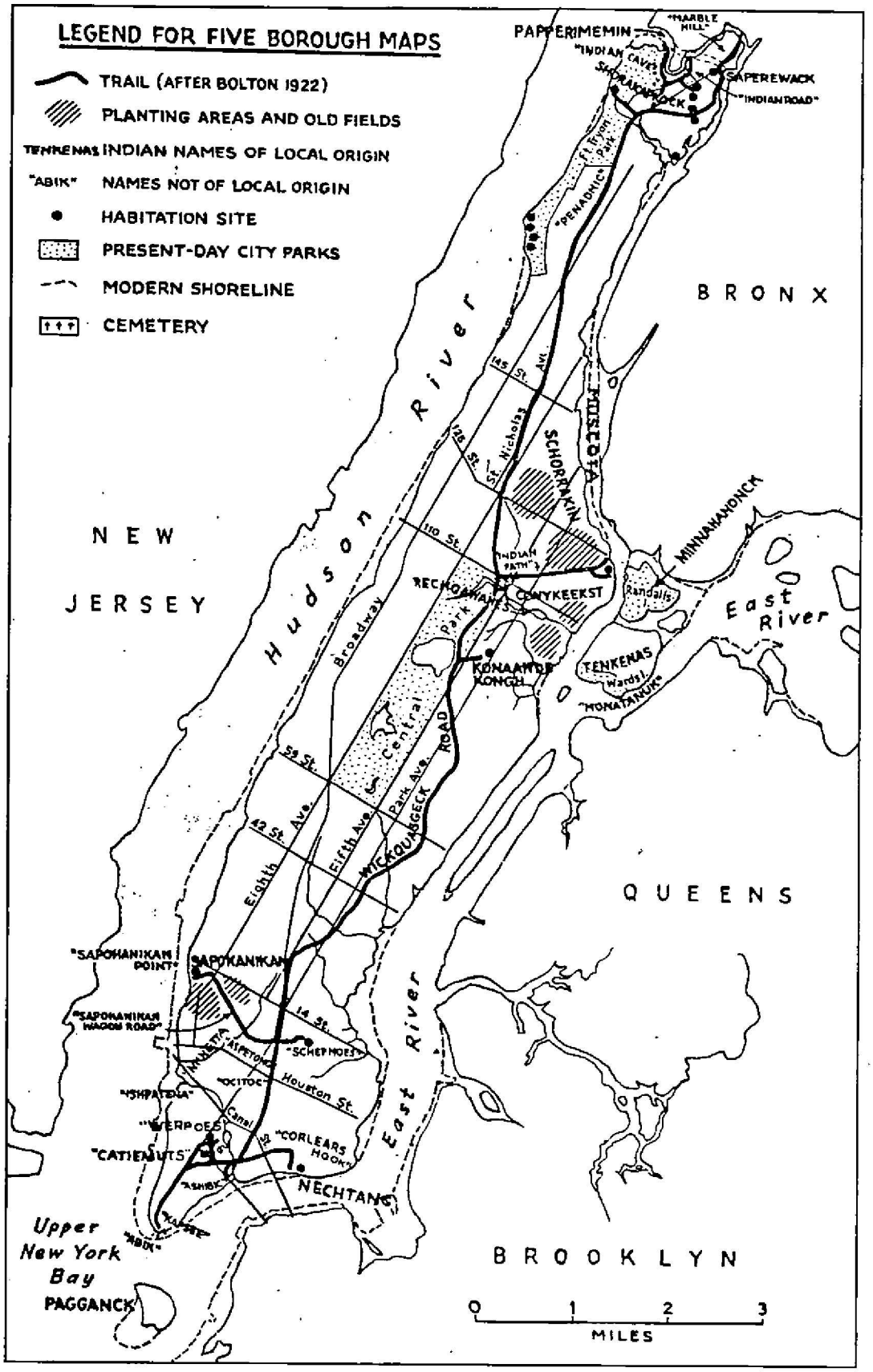
According to a study done by the New York City Landmarks Preservation Commission (NYCLPC), which identified areas potentially sensitive for prehistoric archeological remains within Manhattan, there are no sensitive areas within this section of the project parcel (Figure 5-3). It should be noted that the model is based on the potential to recover sites from the area of Manhattan that existed as original land at the time of European settlement. The model does not attempt to determine the potential sensitivity of drowned shorelines, once exposed for habitation. However, this particular task was attempted for the project parcel during the original Westway project.

Research, conducted for the Westway project by HCI for the New York State Department of Transportation (see Rutsch et al. 1983), entailed a cartographic reconstruction of prehistoric shoreline development prior to filling. All of Twelfth Avenue and Marginal Street were submerged beneath the Hudson River when Manhattan was first settled by Europeans. However, during various prehistoric time periods when water levels were reduced, these areas were exposed and the Hudson's shoreline was further west. These historically submerged areas may have supported Native American populations prehistorically.

The paleoenvironmental study of the Westway project between Battery Place and West 44th Street was conducted by Richard R. Pardi and Dennis Weiss of Queens College and City College, respectively. The following is a synopsis of their conclusions (for a full description of research conducted, see Rutsch et al. 1983:Appendix 2). Radiocarbon and chemical samples from cores were used to establish the prehistoric chronological development of the shoreline. A topographic map was constructed showing the location and elevation of the shoreline as it changed through time. Specific areas categorized as potentially sensitive for prehistoric habitation were identified, based on topography and characteristics known

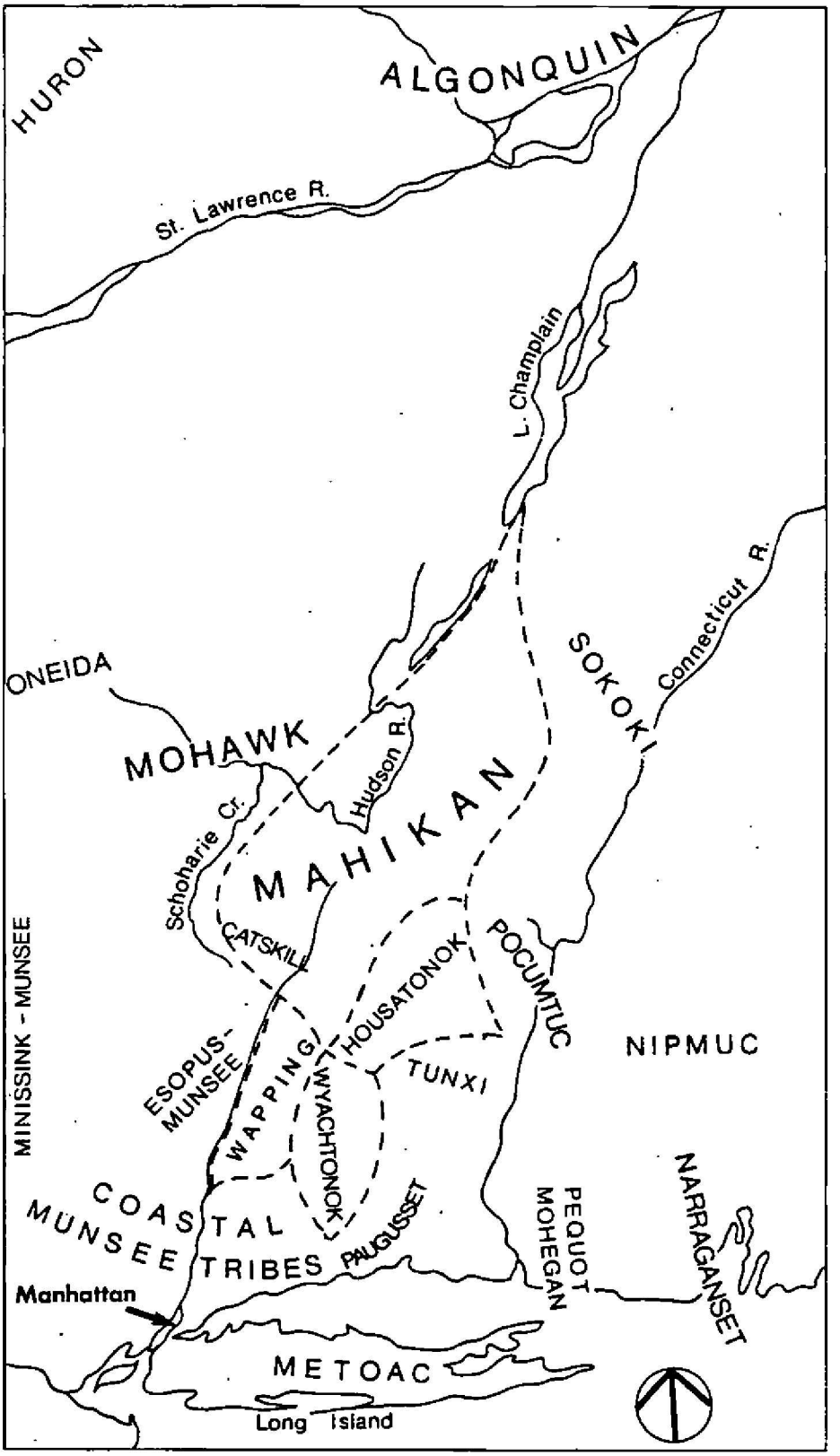
to be conducive for prehistoric habitation. These areas are currently deeply buried beneath nineteenth century fill and river silts.

Although numerous areas were identified in lower Manhattan by HCI as having the potential to possess prehistoric archeological remains, no areas were identified north of Gansevoort Street. The research conducted by HCI indicated that the prehistoric shoreline within the project area north of Gansevoort Street was inundated by 13,000 year ago, prior to the introduction of Native Americans into the area (Rutsch et al. 1983:20). Therefore, there is no sensitivity for prehistoric resources to have once existed beneath landfill in this section of the project area.



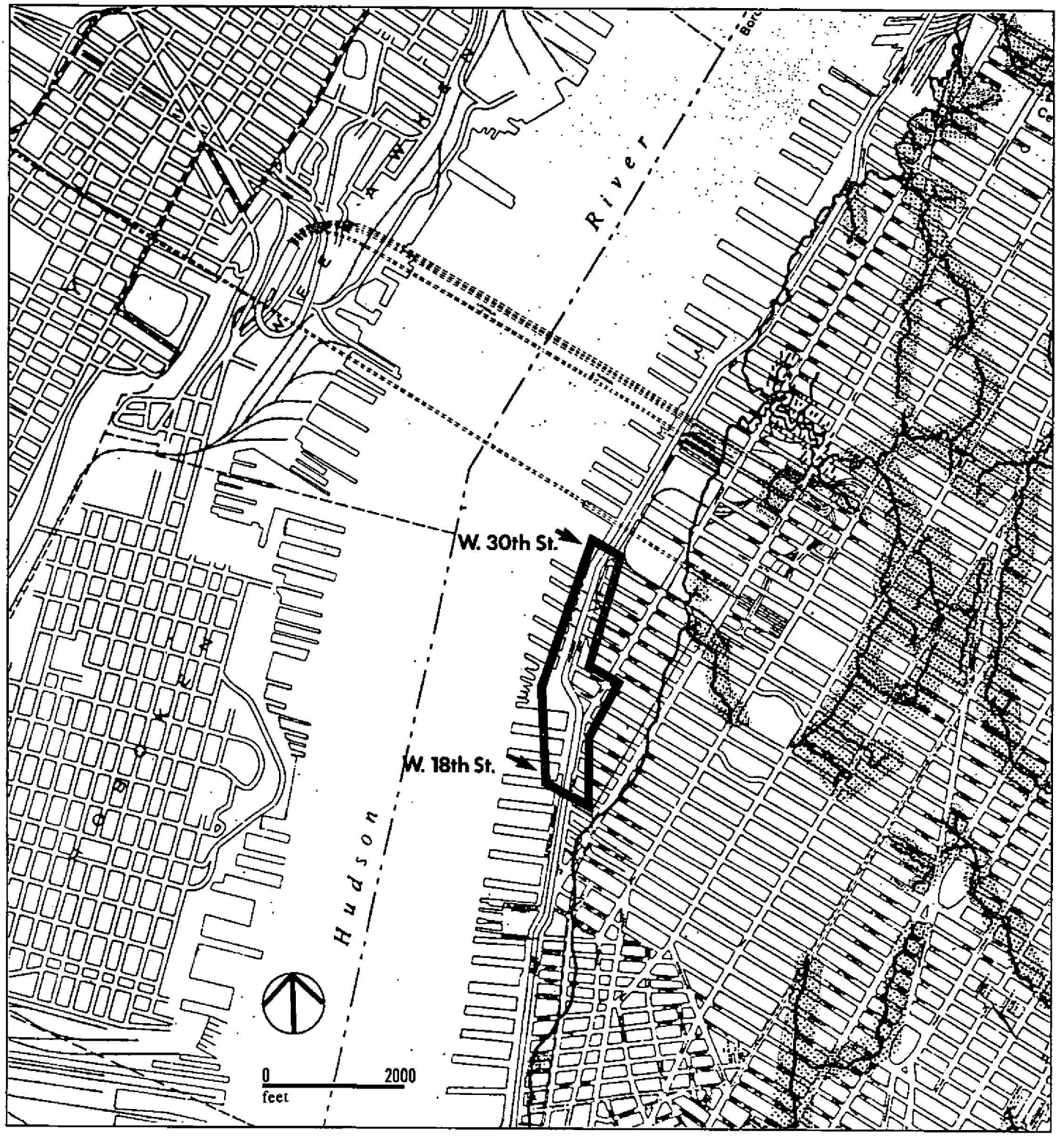
17th-century Native American Trails and Place Names on Manhattan Island

Figure 5-1



17th-century Native American Territories
Source: Brasser 1974

Figure 5-2



ROUTE 9A RECONSTRUCTION PROJECT

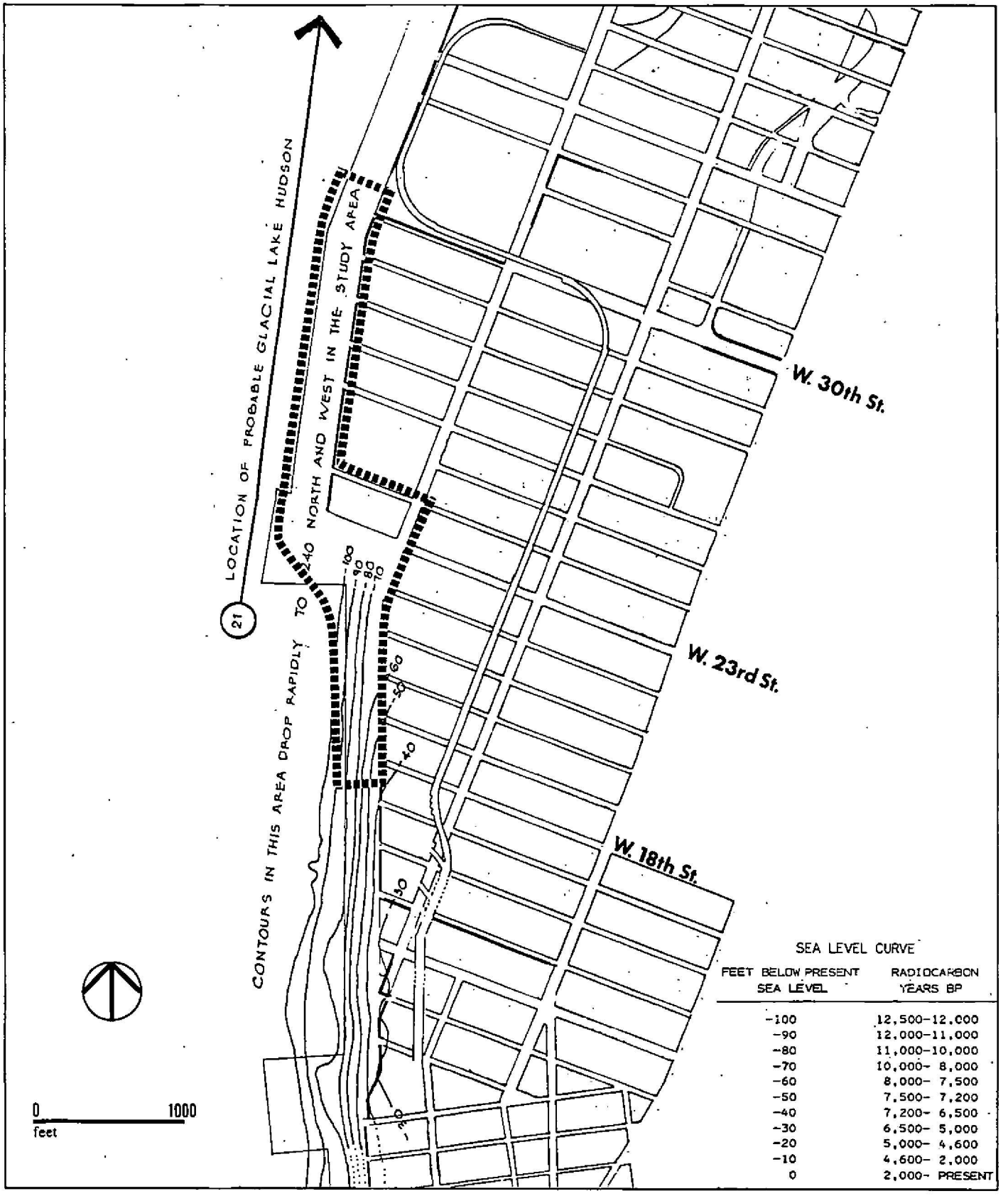
Legend

High Potential Site

Approximate Boundary of Study Area

Detail of Fig. 2: Prehistoric Sites, from the New York City Landmarks Preservation Commission Report "Towards an Archaeological Predictive Model for Manhattan: A Pilot Study"

Figure 5-3



Legend

Extrapolation of Contour Lines

Map Reference Areas

Approximate Boundary of Study Area

Prehistoric Sites Identified in the Westway Project Investigation by Historic Conservation and Interpretation, Inc.

Source: Rutsch, et al. 1983:48

Figure 5-4

A. HISTORIC RESEARCH

HISTORIC BACKGROUND

The first European to view Manhattan was probably Giovanni de Verrazano, when he sailed into New York harbor in 1524. Despite reports of Portuguese explorers entering into the bay prior to Henry Hudson's voyage, historical accounts are sketchy and often can not be verified (Kieran 1982:2). The nature of early trading voyages suggests that even if they did sail into the bay and up the Hudson River, activities were probably confined to the traders' ships, so as not to set foot on unexplored territory. It was not until 1609 when Hudson sailed up the great river, now bearing his name, that Europeans first landed on the island.

In 1613 the New Netherlands Company, which sponsored many voyages to the new world in search of trade goods, set up a storage and trade house on the southern tip of Manhattan (Wilson 1902:395). In addition, several shacks were built for traders settling on the island. As the fur trade grew, so did the population of Manhattan, and the small village expanded. In 1623 the Dutch West India Company received from the Dutch States General, a grant for all lands within Manhattan (Hoag 1905:32). Later, in 1626 Peter Minuit, the Director General, purchased Manhattan Island from the local Indians for what amounted to less than 25 dollars (Jones 1978:10).

Shortly after the Dutch settled Manhattan, the western portion of the island, spanning between what are now West 14th and West 125th Streets, including the project area, became farmland. Now known as the middle-west side, "Bloomingdale" was described as "Fertile, rolling fields, for the most part free of crags or clumps of underbrush" (Works Progress Administration 1939:146). The land was farmed for nearly two centuries and farms in Bloomingdale grew as demand for produce to supply the city increased.

By 1639 there were a number of farmhouses along the shore of the Hudson River. Two of these belonged to Jan van Rotterdam, also known as Jan Cornelissen (Stokes Vol. 6 1926:118). The southernmost tract of Cornelissen's land was transferred to Anthony and Paulus Leendertsen van der Grift in 1662, two burgomasters of New Amsterdam. As a result, the tract between West 14th and West 24th Streets, Eighth Avenue, and the Hudson River became known as the Burgomaster's Bouwery (Ibid.:118). By 1679, this tract was owned by the Mandeville family.

The early settlement on Manhattan was concentrated on the southern tip of the island. The Wall Street stockade, built in 1653 by the Dutch, demarcated the northern boundary of the city (Works Progress Administration 1939:58). By 1664 the English had obtained possession of the island, and King Charles II granted the land to the Duke of York. In 1699 the British removed the stockade and the city slowly began to expand northward. At that time, West Street between West 18th

and West 30th Streets was submerged land, and the shoreline along the Hudson River ran between what are now Tenth and Eleventh Avenues.

In 1686 the Dongon Charter was put forth by Lieutenant Governor Thomas Dongon, who granted a charter to the Mayor Alderman of New York City, transferring land ownership from the Crown to the City of New York out to the low water mark (Hoag 1905:32). Private expansion along the Hudson River was slow compared to that along the East River, largely because the small number of wealthy landowners who controlled the use of the waterfront had no interest in expanding their properties since they enjoyed the residential atmosphere (Buttenwieser 1987:32). The earliest filling episode documented along the Hudson occurred between 1699 and 1701. This involved a grant issued to Meiser and others. West Street was still land under water at that time.

Despite the early settlers' reliance upon waterways for transportation, the Hudson (or North) River was not a popular place for docking, and the East River was more heavily relied upon. The depth of the Hudson and the high bluffs along the shore impeded its usage, and there were few coves to provide protection to ships from the strong northerly winds coming down the valley. In addition, during the winter months the Hudson was more likely to ice up than the East River (Buttenwieser 1987:27). All of these reasons contributed to the low usage of the Hudson shoreline during the seventeenth and eighteenth centuries.

In the 1740s Sir Peter Warren purchased about 300 acres with several houses bordering the Hudson, including what is now Greenwich Village. The river frontage included in his estate was described as "a bluff along the river with a fine beach below" (Stokes Vol.3 1919:157). In 1750 Captain Thomas Clarke, a veteran of the French and Indian Wars, owned a house on the block bounded by Ninth and Tenth Avenues and West 22nd and West 23rd Streets which he named Chelsea after a soldier's hospital near London (Works Progress Administration 1939:151). His grandson, Clement C. Moore, was born in the house in 1799 and eventually sold the estate for lotting in the 1820s.

In an attempt to spur the construction of a street along the shore, in 1795 the Common Council passed an ordinance creating an outer street, 70 feet wide, beyond which no grants could be made and no buildings erected. Three years later this was named West Street (Buttenwieser 1987:28). The proposed construction of West Street was intended to compel landowners to pursue landfilling where they were granted water rights. At that time the shoreline meandered between Tenth and Eleventh Avenues.

In 1811 a city plan was devised to provide for a system of streets and avenues for Manhattan. The Commissioner's Plan laid a grid system over the city, disregarding natural topographic features which may have impeded road construction. Regulation of the streets involved grading and filling, removing massive rocks and boulders, and tearing down houses standing in the path of proposed roadway construction. Although the plan was laid down on paper, many of the roads were not actually constructed until decades later. West Street was depicted as a mostly completed

outer street extending as far north as Christopher Street, although it was incomplete in far more places than shown. According to the Commissioner's Plan, the Canal Street Basin and Townsend's Dock at West 12th Street were the only major docking facilities on the Hudson north of Harrison Street (Rutsch et al. 1983:245). As a result, the tight development of narrow finger piers at each street-end south of West 59th Street was encouraged. By 1831 roads had been cut through the Moore estate as per the 1811 Commissioner's Plan, and slowly the village of Chelsea grew.

Although the Common Council was active in their attempt to assure the complete construction of West Street, filling and development was slow. Two distinct processes were associated with land reclamation and filling which entailed either unstructured harbor buildup and river accretion, or carefully engineered fill put within deliberately placed retaining devices (Geismar 1983:672). In lower Manhattan, ships have been sunk as cribbing in order to stabilize fill (Berger 1983:9). After wharves and piers were built, derelict ships were often sunk, and together these features contributed to and operated to retain fill. In one such case, a burned seventeenth century Dutch ship named the "Tiger" was sunk, only to be encountered during subway excavation at the corner of Dey and Greenwich Streets in 1916 (Solecki 1974:109). During the excavation of the adjacent World Trade Center, archeologists unsuccessfully searched for a portion of the ship not found during the subway construction.

Wood was a popular material for maritime use since it was a durable material which preserved well in water. Wooden cofferdams, wharves and bulkheads were also built as retaining devices, framed with hewn logs, filled with loose stone, and covered with earth (Geismar 1983:30). The use of timber grillage as cribbing, common in Manhattan, has been traced to fifteenth century architect Marcus Vitruvius Pollio. Colonists continued to use this method as both the Dutch and English had previously, largely aided by the abundant supply of wood in the new world. Quays were built which entailed driving a row of wooden piles into the river with diagonal braces bolted to the inside, forming the face work of the quay. Earth and excavation materials filled the area behind, which was then planked over to form a roadway level with adjacent streets (Ibid.:31). Wooden jetties helped to enlarge the accommodations of ports, and were built in the same manner as quays.

Landfill used to create West Street, Twelfth Avenue, and the necessary cross roads originated from an array of sources. When the monetary value of clean fill from building excavations was realized, this ceased to be used for filling along the Hudson. Dirt from three hills that were razed during grading for west side avenues helped to fill in a cove between West 21st and West 24th Streets (Buttenwieser 1987:41). Often wharves and piers were used as dumping boards, where collected garbage was eventually pushed overboard into scows. Between West 18th and West 30th Streets, only one dumping board was documented. It existed at West 30th Street in 1910 (Ibid.:44). Often garbage collected on piers and wharves, only to be thrown into the adjacent slips as landfill. Rubbish, ash, ballast, street trash, and previously excavated materials deposited along the Hudson pushed the shoreline further west, and the dumping boards helped create lots beyond the City's 400 foot outer limit.

By the middle of the 1800s the use of the Hudson waterfront increased as newly designed ships required deeper berths. The introduction of the steamboat in 1807 and the production of larger vessels by local shipbuilders contributed to the need for longer piers in deeper water. The opening of the Erie Canal in 1825 and the demand for coal in New York City also contributed to this need (Buttenwieser 1987:39). To accommodate these industries, new piers were built extending into the Hudson. Soon the city was transformed into a major market place and financial center.

Prior to 1844 private parties or individual owners built the piers, wharves, and slips along the rim of Manhattan (Hoag 1905:36). The waterfront conditions along either side of the island during the middle of the nineteenth century were considered deplorable. The solid base construction of the piers prohibited the flow of sewage out to sea, which created disease-infested waters (New York Pier and Warehouse Co. 1869:58). Recurrent plagues drove New Yorkers northward into cleaner residential districts. The piers themselves were also in a state of disrepair. Transportation of goods to and from the waterfront on the Hudson River was difficult due to the large volume of freight and numerous pedestrians.

In 1850 the Council on Wharves and Piers supported a resolution to build a bulkhead along the westerly line of Thirteenth Avenue from West 13th Street south to Gansevoort Street, and from Thirteenth Avenue along Gansevoort Street to West Street (Rutsch et al. 1983:98). At that time West Street extended as far north as Great Kill Road, now Gansevoort Street, and shoreline filling had created Thirteenth Avenue, one block west of West Street along the shoreline between Gansevoort and West 23rd Streets (Dripps 1852). In 1853 Clement C. Moore, landowner, "informed the City that he had recently built bulkheads from 19th to 20th Streets and from 20th to 21st Streets, making a continuous line from 18th to 24th Streets" (Vollmer Associates 1987:3-14).

In 1847 the Hudson River Railroad was organized and a track was laid from "Chambers Street at Hudson Street, up Hudson to Canal Street, from Canal to West Street, thence along Tenth Avenue to 30th Street" (Rutsch et al. 1983:258). The railroad served waterfront docks, which helped to spur the industrial and commercial nature of the lower and middle-west side of Manhattan. In the 1870s the Hudson River Railroad merged with the New York Central and added a new passenger and freight terminal at St. Johns Park near Canal and Hudson Streets (Buttenwieser 1987:75). By 1851 a railroad station was opened at West 30th Street and Eleventh Avenue, and by 1852 the Eight Avenue Railroad opened a line between Chambers and West 51st Streets (Works Progress Administration 1939:146). The use of railroads increased and 1875 marked the completion of elevated railways in Manhattan, facilitating travel to and from the southern part of the city (McCabe 1882:239). The Ninth Avenue elevated train ran north to West 30th Street, "destroying the charm and property values of Chelsea's most sedate avenue, but making possible additional profits for successful speculators engaged in building tenements" (Works Progress Administration 1939:147).

In the 1870s, gas companies built coal landing barges and utility floats between West 16th and West 20th Streets (Buttenwieser 1987:57) Also in 1870, the Department of Docks was created. In the following year, the Commissioner of the Land Office granted rights and land to New York City for the construction of wharves, bulkheads, docks, piers, basins, and slips. The McClellan Plan resulted in the construction of a solid block and granite bulkhead wall around the southern half of Manhattan between West 61st and East 51st Streets. The wall was placed outside of the previously existing bulkhead, to allow for the expansion of streets and the construction of Marginal Street. Directly along the shoreline, adjacent to the bulkhead, Marginal Street was designed to handle shorefront traffic, relieving congestion from Twelfth Avenue and West Street (Buttenwieser 1987:73).

The width of West Street south of West 11th Street, together with Marginal Street, was slated as 250 feet as per the McClellan Plan. North of West 11th Street shoreline filling had pushed West Street inland by a block, and the route maintained its 70 foot width. At that time the shoreline road was Thirteenth Avenue, also known as Twelfth Avenue in some places.

Transatlantic crossings in the late nineteenth and early twentieth centuries became very competitive, and steamship companies vied for space at the few longer piers that existed south of Perry Street (Buttenwieser 1987:83). Each year steamships were built longer, and New York's pier space could not keep up with steamship company needs. In 1880 the Chelsea-Gansevoort Plan was proposed by Chief Engineer George Greene. The plan detailed the construction of piers long enough to accommodate the newly built steamships. Previously, the piers between West 11th and West 23rd Streets were "intentionally undeveloped, as decades of filling had caused the land here to nestle against the state pierhead line" (Ibid.:84). The proposal called for adding 21 piers between West 11th and West 23rd Streets, 80 feet wide and up to 530 feet long, and entailed removing shoreline fill and extending the piers east of the 1880 shoreline.

> The section between West 12th and Gansevoort Streets was partially filled with the remains of prominent family estates. George Greene...recommended that all of the filling that had taken place at Chelsea-Gansevoort since the 1830s be undone. To construct new piers that met the requirements of contemporary steamships, part or all of the buildings on twenty-three city blocks would be razed and the blocks themselves excavated and turned back into deep water (Buttenwieser 1987:86).

Due to funding problems and legalities, the Chelsea-Gansevoort Plan was not actually acted upon until years later. In 1890 the War Department set new western limits on the pierhead line between West 11th and West 14th Streets, and the original proposal was modified to include six 728 foot piers between these streets. Work began on the Gansevoort section in 1894, and was complete by 1902 when the six piers were opened to the Cunard, White Star, and Leyland lines for passenger ships (Buttenwieser 1987:94). Also in 1902, work began on the Chelsea section of

the project, which had also been revised from its original 1880 proposal. In 1897 the planned piers were lengthened to 800 feet by proposing removal of an additional quarter-block of land to the east. In 1903 the Chelsea Improvement Plan was changed to build 1000 foot piers (Ibid.:96).

Architects Warren and Wetmore, designers of Grand Central Station, were hired by the city to design pier sheds for the Chelsea Improvement Plan. The result was a row of concrete and pink granite buildings spanning the shore. "The two-story, unified facade was designed with triangular pediments that hung over the entryways at the ends of east-west streets. In these, and over the first floor windows, heroic cement sculptures were set celebrating the history of trade" (Buttenwieser 1987:99). The project was completed in 1910 (Figure 6-1).

With the construction of the Chelsea Piers, everything west of what is now Eleventh Avenue between West 18th and West 22nd Streets was removed. The width of the new eleventh Avenue between the city blocks and the bulkhead line, now within the project area, was 250 feet after this alteration. The route remained this way until sometime between 1950 and the 1980s when a shoreline platform was built west of the bulkhead line between West 17th and West 22nd Streets. The project area extends west of the bulkhead line to include this platform.

North of the Chelsea Piers, the West 23rd Street area was utilized by several railroad companies operating ferry terminals. The Delaware, Lackawanna and Western Railroad, Erie Railroad, and Pennsylvania Railroad occupied a ferry terminal at this site between 1904 and 1907. All together the three railroad companies had a common plaza-which later became Thomas F. Smith Park-and a total of six slips (Rutsch et al. 1983:317). The ferry landings themselves consisted of pile-supported platforms between adjacent piers. The ferries were loaded and unloaded with transfer bridges.

In 1907 the City of New York acquired property between West 23rd Street, Eleventh Avenue, and Marginal Street for the Department of Docks. The plot was given to the Department of Parks, although it was not until 1936 that the parcel was actually landscaped and turned into the Thomas F. Smith Park (Federal Highway Administration 1975:6). Since 1951 the U.S. Bureau of Customs has maintained a scale and shed in the park, south of the West Side Highway. The scale is currently inactive, and the remainder of this area has occasionally been used for automobile parking. The park currently consists of pavement interspersed with several trees and public benches (Ibid.:7).

In the 1930s, West Street was edged with busy docks and was the "main highway for the city's incoming and outgoing supplies" (Works Progress Administration 1939:58). Also on the lower west-side were some of the city's largest produce markets, and numerous warehouses interspersed with tenements. South of West 23rd Street, the Hudson River was walled by an "almost unbroken line of bulkhead sheds and dock structures" (Ibid.:69). Cross streets experienced heavy traffic bound for ferries and steamers.

The West Side Highway (Highway) was constructed in the 1920s and 1930s to help alleviate waterfront congestion (Figure 6-2). In the 1930s the Highway ran from its northern border at West 72nd Street as far south as Duane Street where entrance and exit ramps were located (Works Progress Administration 1939:71). By 1947 the elevated structure continued as far south as Rector Street. Between Rector Street and West 39th Street the "viaduct columns were supported on grillage-type footings which in turn were supported by 18 inch diameter steel pipe piles driven to bedrock and filled with concrete" (Vollmer Associates 1989:10). A 350 foot parabolic bridge over Canal Street linked the southern section with the remaining elevated northern section (Works Progress Administration 1939:70) The Highway was demolished south of West 43rd Street in the 1970s, and an at-grade roadway was built to replace it. The remainder of the Highway south of West 59th Street was removed in 1989.

WEST SIDE HIGHWAY CONSTRUCTION

In 1925 Nathan Miller, Manhattan Borough President, outlined plans for an elevated highway running from Canal to West 72nd Street, to alleviate traffic from Twelfth Avenue and Marginal Street. The plan was approved by Governor Smith in 1926 and construction was started in 1927 (Stern et al. 1987:698). The City and Hudson River Railroad Company shared in the expense of construction. In 1929 the Depression caused a temporary halt in construction, and when funds ran low, Robert Moses convinced Governor Herbert Lehman that the entire highway was a continuous grade crossing and thus could receive funding from the Grade-Crossing Elimination Fund (Ibid.:698). Highway construction was completed between Canal Street and West 72nd Street, and opened by 1938 (Csanyi 1938:177). The construction along the shoreline for the highway caused a tremendous amount of disturbance, as described below.

According to the Contract Bid proposal for the construction of the West Side Highway, the construction entailed numerous stages. The following is a list of requirements for the construction of the highway:

> Fill and Backfill-"All trenches shall be backfilled, and backfill shall include clean earth, clean ash, clean cinders, and stone."
>
> Sidewalks-"Sidewalks shall be graded to a depth of 10" below the finished sidewalk grade."
>
> Piles-"Piles that are less than 24' shall be constructed of cement and reinforced steel." Some piles are over 40 feetlong.
>
> Width of Excavation-"For each as follows: sewers, basin counts, drains, manholes, inlets...6" wide pipe=2'6" wide trench. 8" wide pipe=2'8" wide trench. 10" wide pipe=2'10" wide trench. 12" wide pipe=3' wide trench. 15" wide pipe=3'3" wide trench. 18" wide pipe=3'6" wide trench. 24" wide pipe=4' wide trench. For all concrete sewers, one foot on each side of the sewer, above the foundation. For manholes, risers, basins, overflow chambers, and inlets, one foot on all sides of the structure above the foundation."
>
> Depth of Excavation-"Water pipe trenches: 4" pipe=2.4' wide, and 1' below top of pipe. 6" pipe=2.5' wide, and 1.1' below top of pipe. 8" pipe=2.7' wide and 1.3' below the top of pipe. 12" pipe=3' wide and 1.6' below the top of pipe. 16" pipe=3.3' wide and 2' below the
>
> top of pipe. 20" pipe=3.7' wide and 2.3' below top of pipe. 24" pipe=4' wide and 2.7' below top of pipe."
>
> Hydrants-"Total excavation in addition to the pipe trench is 4'long and 4' wide, the depth to 15" below the bottom of the hydrant."

> Restoration of Park Areas-"Excavate, regrade and replace top soil and subsoil within the limits of...park."

General construction activities which caused subsurface disturbance entailed the following:

> Remove rock ledge from areas adjacent to sewer structures by blasting, barring and wedging....If necessary to relocate water lines-permission must be granted by the Department of Water Supply, Gas and Electric. Fence posts extend 3' into the ground. Existing granite-block pavement will be covered with cement. Install under-ground lead-covered cables in the conduit provided for the Fire Alarm System (City of New York 1926:45-138).

The construction of the highway during the 1930s entailed sinking cast-iron cassions between 40 and 48 feet deep, and 4 to 5 feet wide. According to a report on the construction of the Miller Elevated Highway, subsurface conditions encountered during excavation proved to be quite interesting.

> The original shoreline was much farther inland than it is at present and various buildings, docks and piers were built in what is now Twelfth Avenue. All these subsurface structures were allowed to remain when the area was filled in to form Twelfth Avenue...Rock-filled cribs and old bulkhead walls were frequently encountered. Such conditions were not at all unusual (Harrington 1934:124).

BLOCK HISTORIES

The block histories presented are based on cartographic sources. An extensive array of maps and atlases were reviewed in order to observe potentially sensitive archeological features within the project area. Maps and atlases were reviewed at approximately five-to-ten year intervals. In some cases, several maps were used dating to the same period since the accuracy of each was difficult to ascertain. It was believed that this is sufficient to identify potentially sensitive areas and accurately track landfilling episodes. Buildings or features present for less than five to ten years rarely are constructed in such a manner as to leave a vertical or horizontal footprint on the landscape. Additionally, disturbance by these short term structures tends to be minimal. The chronological description presented is based on the atlases and maps reviewed. A full title list of cartographic sources referenced is provided in the Map and Atlas Section of the Bibliography, and the repositories where research was conducted are listed in the Methodology section. This section only presents potentially sensitive areas without assessing disturbance. Subsequent impact to these areas is presented in the Subsurface Disturbance section.

All lot numbers referenced in this section correspond to those visually presented on Figure 6-3 for clarification of each lot's location. For consistency, the lot numbers presented reflect the location of the lots as per the 1879 Bromley atlas. At later dates, lots were often renumbered, subdivided, or expanded to include a number of lots. In order to avoid confusion, the 1879 lot numbers were consistently used to refer to the specific locations of features.

The historical land owners listed are only for those properties which historically were lotted and are within the bounds of the project area. The blocks have each been presented individually and, where possible, lot numbers have been included. The information was acquired from the New York City Finance Department, Index Division, and from I.N.P. Stokes Iconography of Manhattan Island (1915-1926). In some cases, information from Stokes was limited or unclear so only the Index Division's material was presented.

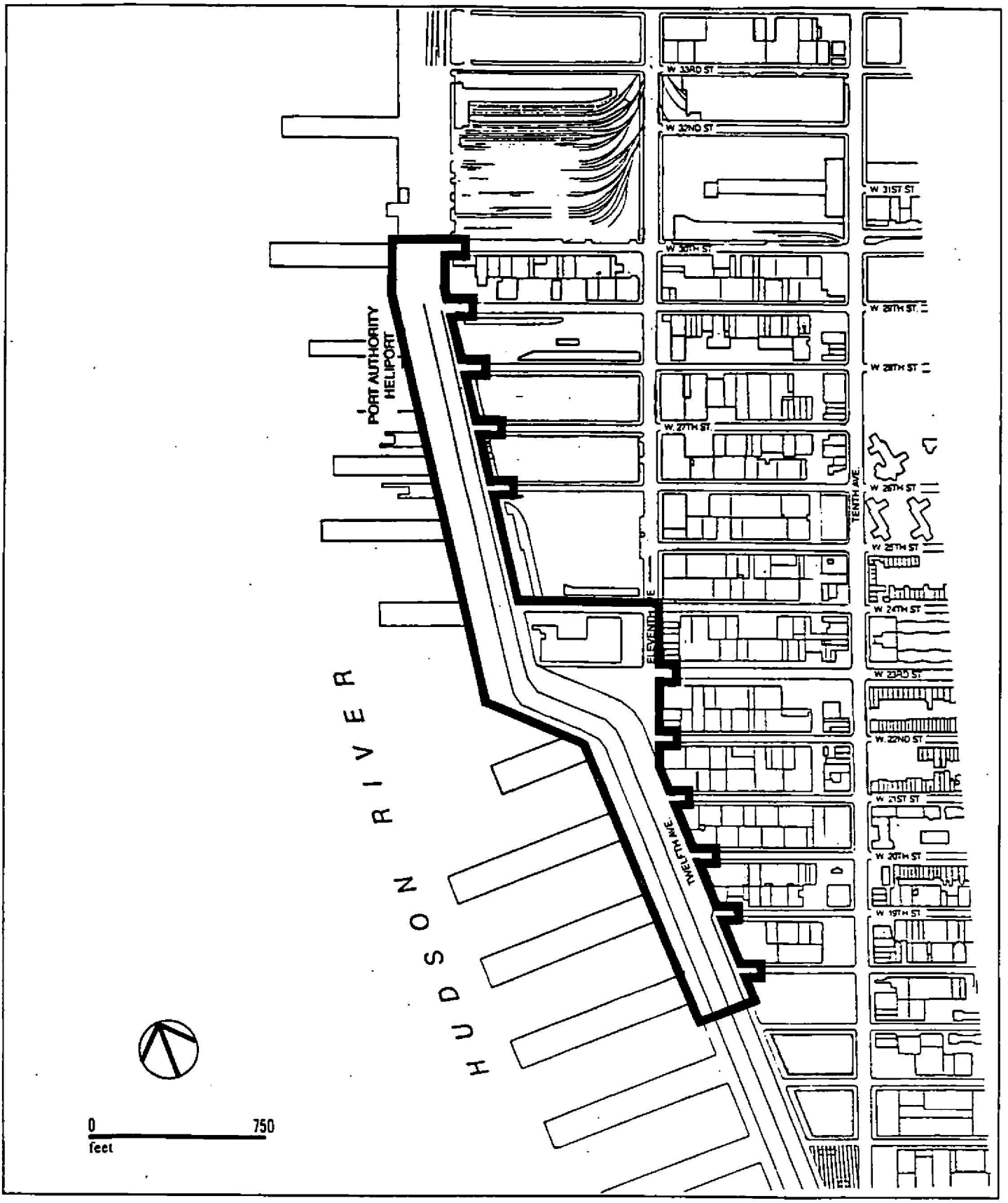
Historical development has been traced along Eleventh and Twelfth Avenues for the seventeenth through the twentieth centuries. The avenues' names have changed through time as development altered their configurations. For ease of understanding refer to the figures presented in the text. The filling and development is presented from south to north, with each section demarcated by adjacent cross streets. Each section presented includes the development that occurred between the south boundaries of both the southern and northern cross streets. The only exception to this is the block between West 29th and West 30th Streets, which extends northward to include the northern boundary of West 30th Street. The only other areas covered are the blocks encompassed in the project area where the project boundaries are extended eastward between West 22nd and West 24th Streets. Here the project bounds run along Eleventh Avenue for two blocks, encompassing Blocks 668 and 669.

While performing cartographic research, it was noted that there were several inconsistencies and problems with some of the resources as discussed below. It should be noted that the 1609 MacCoun map is a re-creation, not an original document. The map was compiled in 1909. The 1859 Viele Map of the City of New York, showing the original topography of Manhattan Island, does not pay attention to detail and obliterated many of the smaller features noted by Randel within the project area. Since the original historic shoreline was east of the project area, and the 1859 Viele map was not considered accurate, it was not included in this report.

There were problems with comparisons of the 1817 Poppleton and Longworth maps. Quite often, these two maps did not agree, even though they were produced at the same time. In some cases, later maps substantiated the information on the Longworth maps, and in other cases it substantiated the Poppleton maps. There is a handwritten notation on the 1817 Poppleton map which states that the surveying for the publication actually took place in 1814. This may account for the inconsistencies between the two maps. Therefore, each block was treated individually with regard to map accuracy, and both maps were included in the attempt to delineate the correct cartographic depiction at that time.

Another problem was with the 1834 and 1837 Burr maps. These were consistently found to more accurately reflect development shown in the 1850s. For this reason, they were not included in the historical reconstruction of the project area. In addition, the 1855 Miller map did not accurately reflect the 1855 shoreline, but presented the original high water mark and farm borders. Since both of these features were east of the project area, it was also not included in this assessment.

Documenting development in the 1860s posed a problem since there were few resources found dating to this period. During the Civil War, New York's cartographers were redirected, and atlases were not produced in the abundance that they were in the 1850s (Alice Hudson, Director of the Map Division, New York Public Library, personal communication to Faline Schneiderman-Fox, April 1989). The only detailed map found dating to this period, Dripps 1868 Plan of New York City, showed West Street, and Eleventh and Twelfth Avenues as a continuous road along the shoreline of the river, uninterrupted by intrusions. It seems that Dripps simply depicted the road as it was supposed to be for convenience.



ROUTE 9A RECONSTRUCTION PROJECT

Legend

Archeological Study Area Boundaries

Reference map for the following section
West 18th Street to West 30th Street

West 18th Street to West 19th Street - Eleventh Avenue and Marginal Street.

The lots within the project area include what was previously Block 690, Lots 1 through 12 and 55 through 64.

HISTORIC LANDOWNERS

According to the early twentieth century historian, Isaac Newton Phelps Stokes, Block 690 was land under water adjacent to the Burgomasters' Bouwery and David Mandeville Farm (Stokes Vol.6 1926:83).

As per the Index Division's Block Summary:
"Block 690 was conveyed by the City of New York in grants to Samuel Boyd on Jan 2, 1827, and W. Hockman on Dec 29, 1845."

* Indicates that this is a lease.

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Rivington, J./F. Buyce, M./J./M. Higgins, B./	partition deed	not lotted	1789	45	519
Compton, E./ Higgins, M.	Smith, A.		1801	59	485
Buyce, J.	Brantingham, T.		1803	64	81
Waldron, W.	Brantingham, T.		1803	64	83
Brantingham, T./H.	Hoffman, M.		1803	64	85
Buyce, J.	Brantingham, T.		1803	64	87
Hoffman, M./B.	Seton, J.		1803	64	89
Seton, J./M.	Smith, A.		1803	64	92
Boyd, S.	Chappins J. *		1813	104	37
Smith, A./I.	Boyd, S.		1816	116	489
Boyd, S./A./ Moore, C. et al..	Mayor Alderman		1828	231	210
Boyd, S./A.	Mayor Alderman		1828	233	278

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Handley, M.	Arnois, C./ Lecour, E.	not lotted	1883	1687	181
Arnois, C./ Lecour, E.	Stewart, R./J.	pier	1885	1889	399
Stewart, J.	Stewart & Co. *	pier	1887	2001	419
Mayor Aldermen	Handler, M. et al.		1874	1278	178
Bottjer, Henry	Bottjer, Minnie		1911	165	355
Bottjer, Minnie	Salaistros, Irene		1926	3585	124

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1845 Ensign - (Figure 6-4) The project parcel is west of the shoreline in the Hudson River.

1852 Dripps - The block has been filled and is vacant.

1859 Perris - (Figure 6-5) Lots 1 through 5 and 60 through 64 are vacant and labeled "Pipe Yard" and "Manhattan Gas Light Company." In the northern three-quarters of Lot 6, extending north onto all of Lot 59, is a structure labeled "Storehouse" with the northern end fronting West 19th Street. On the northern three-quarters of Lots 7 and 8 is a building mid-block, north of West 18th Street, labeled "Providence Chemical Works." Fronting West 18th Street on the southern one-third of Lots 9 and 10, are two small structures. Mid-block, on the north ends of Lots 9 and 10 and extending north onto all of Lots 55 and 56 and fronting West 19th, Street is another structure labeled "New York City Plaster Mills."

1868 Dripps - The block is vacant, although this is probably a cartographic error according to earlier and later maps.

1874 Viele - No structures are shown on this map.

1879 Bromley - (Figure 6-6) Lots 1 through 4 and 61 through 63 are vacant and labeled "M. Gas Co." The building on Lots 6 and 59 is still present. The building previously located on Lots 7 and 8 has been removed. The two structures fronting West 18th Street on Lots 9 and 10 have also been removed. The eastern half of Lot 7 is completely covered with part of the Stewart and Company Pottery building. The C-shaped building extends to cover all of Lot 8, the western half of Lot 9, the southern half of Lot 10, all of Lot 57, the western half of Lot 56, and the northern half of Lot 55. Since lot configurations were not present in 1859 it is possible that

the Pottery building is an expansion of the Plaster Mill building. There is a shed covering all of Lot 61.

1885 Robinson - (Figure 6-7) Lots 2 through 4, 63, and 64 are still vacant. There is a small structure on the western end of Lot 1 at the corner of West 18th Street and Eleventh Avenue. The building on Lot 6, extending onto Lot 59, has been removed. On the southern end of Lot 6 is a building fronting West 18th Street with a second structure on the northern end of the lot. On the northern halves of Lots 58 and 59 is a building fronting West 19th Street. The shed on Lot 61 has been replaced by a building on Lots 61 and 62 at the corner of Eleventh Avenue and West 19th Street labeled "J.P. Ryon Mouldings." The Stewart and Company Pottery building is still present.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - (Figure 6-8) The building shown on the western half of Lot 1, fronting Eleventh Avenue, is three stories tall. The eastern half of the lot is covered by a shed. On Lot 2, fronting Eleventh Avenue, is a small two-story structure. On the western end of Lot 3 is a three-story shed fronting Eleventh Avenue. On the eastern one-third of Lots 2 and 3 is another shed. There is a two-story shed covering all of Lot 4. Fronting West 18th Street, on the southern end of Lot 5, is a shed. The two buildings on Lot 6 have been removed and the lot is vacant. There is a two-story shed covering all of Lot 7, and Lots 8 and 9 are vacant. There still appears to be a structure on the southern half of Lot 10, possibly a remnant of the Stewart and Company Pottery. On the northern ends of Lots 10 and 11 is a three-story building extending north onto all of Lots 54 and 55, fronting West 19th Street. There is another building on the southern half of Lot 11. The western ends of Lots 63 and 64 have a three-story building on them also fronting Eleventh Avenue. On the remainder of Lots 63 and 64, to the east, is a U-shaped structure with a vacant yard in the middle of it. Fronting Eleventh Avenue, on Lots 61 and 62, is a four-story structure that appears to be the 1885 J.P. Ryon Mouldings building with an addition. On Lots 56 through 58 is a three-story building fronting West 19th Street, replacing the building previously on Lots 57 and 58. Lot 59 has a one-story shed covering the entire lot, replacing the previous smaller structure. Lot 60 is also covered by a structure.

1913 Hyde - (Figure 6-9) The Chelsea Piers have been built and the new route of Eleventh Avenue has been placed across all of these lots. All of the buildings have been razed. There are pier sheds along the shoreline in Marginal Street.

1925 Bromley - Same as the 1913 Hyde atlas.

1930 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - The West Side Highway has been built on Eleventh Avenue.

SHORELINE FILL

The project parcel experienced filling in its entirety between 1845 and 1852.

HISTORIC SENSITIVITY

All of the buildings present in 1859 were removed and replaced by later buildings which probably disturbed most subsurface remnants. The only buildings identified as potentially sensitive and not subsequently disturbed by later buildings include the following: The Stewart and Company Pottery building, constructed between 1859 and 1879, spanned several lots. All of these were later disturbed except Lot 8, the western half of Lot 9, and the southern half of Lot 10, which may retain subsurface integrity. Lots 8 and 9 were vacant by 1902, and Lot 10 was vacant by 1913. The J.P. Ryon Moulding Company occupied a building on Lots 61 and 62 which was built between 1879 and 1885. The structure was razed between 1902 and 1913. Sheds and structures built by 1902 are not considered sensitive since they were razed between 1902 and 1913.

West 19th Street to West 20th Street - Eleventh Avenue and Marginal Street.

The lots within the project area include those on former Block 691. These are Lots 1 through 9 and 57 through 64. Part of the original route of Eleventh Avenue is also in the project area.

HISTORIC LANDOWNERS

As per the Index Division's Block Summary:
"This block was the property of Clement C. Moore, conveyed to him by grant from the City of New York in 1849. The first conveyance by him of lots was made in 1828."

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Boyd, Samuel & Moore, Clement	Mayor Alderman		1828	231	210
Boyd, Samuel/ Anna M.	The Mayor, Aldermen and commonalty of City of New York	not lotted	1828	231	210
The Mayor, Aldermen, etc.	Moore, Clement C.	not lotted	1849	515	340
Moore, C.C.	Tietjen, Henry	pier*	1861	831	621
Jones, Samuel (ref.)	Moss, John	pier*	1862	856	449
Moore, C.C. (exec.)	Moss, John	pier*	1866	959	392
Moss, John	Rohrs, John/ Henry/Herman	pier*	1866	959	393
Moore, C.C. (exec.)	Manhattan Gas Light Co.	11-14 52-57	1866	974	185
Manhattan Gas Light Co.	Consolidated Gas Co.	11-14 52-57	1885	1863	27
Supreme Court/ Board of Docks	Order appointing Commissioners of Estimate		1900		
Consolidated Gas Co.	Warwick Thomson Co.	11-14 52-57	1910	161	224

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Warwick Thomson Co.	City Real Estate Co.	11-14 52-57	1926	3549	445
City Real Estate Co.	Consolidated Gas Co. of NY		1926	3549	446

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1852 Dripps - (Figure 6-4) The project area is west of the shoreline in the Hudson River.

1859 Perris - (Figure 6-5) The project area has been filled and the block is vacant.

1868 Dripps - There is one small building at the corner of West 19th Street and Eleventh Avenue in Lot 1, and the rest of the lots are empty. The block is owned by the Manhattan Gas Company.

1874 Viele - No structures are shown on this map.

1879 Bromley - (Figure 6-6) The building on Lot 1 has been removed, and there is a small structure on the southern one-third of Lot 9, fronting West 19th Street. The remainder of the lots are vacant.

1885 Robinson - (Figure 6-7) The shed on Lot 9 is gone and all of the lots are vacant.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - (Figure 6-8) The lots are all now labeled "Consolidated Gas Company" and there is a large gas tank covering a portion of all the lots. In the middle of Lot 7 there is a small rectangular structure adjacent to the gas tank.

1913 Hyde - (Figure 6-9) The Chelsea Piers have been built and the new route of Eleventh Avenue has been placed across all of these lots. All of the buildings have been razed. There are pier sheds along the shoreline in Marginal Street. Pier 60, occupied by the White Star Line, has been built west of the bulkhead line at mid-block.

1925 Bromley - Same as the 1913 Hyde atlas.

1930 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - The West Side Highway has been built on Eleventh Avenue.

SHORELINE FILL

The project area experienced filling between 1852 and 1859. Pier 60 was built by 1913. and the eastern end of it is in the project area.

HISTORIC SENSITIVITY

The only potentially sensitive feature identified was Pier 60 discussed above.

West 20th Street to West 21st Street - Eleventh Avenue and Marginal Street.

The lots within the project area include those on former Block 692. These are Lots 1 through 6 and 60 through 64. Former Block 667 included Lots 30 through 37. Part of the original route of Eleventh Avenue is also within the project area.

HISTORIC LANDOWNERS

BLOCK 692

As per the Index Division's Block Summary:
"This block is the property of the General Theological Seminary, and was conveyed to them by grants from the City of New York in 1828, 1835, and 1866."

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Myers, Eliz.	Meyers, A.	7-9, 57-62	1892	19	368
Fogarty, Michael	Halpin, J.J.	63	1914	191	305
Halpin, Henry	Halpin, J.J.	63	1914	191	348
McLaughlin, W.	Halpin, J.J.	63	1914	191	349
Halpin, M.	Halpin, J.J.	63	1914	191	350

BLOCK 667

As per the Index Division's Block Summary:

"This block is wholly land under water. A grant of the southerly part of this block was made by the City of New York to Clement C. Moore in 1866. The northerly part of this block was granted by the City of New York the same year to the General Theological Seminary."

* Indicates that this is a lease.

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Mayor Alderman	The Gen Theo. Seminary of the Protestant Episcopal Church		1859	727	436
Moore, C.	Denman, A.		1857	731	444

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Camman, C.	DECLARATION	water lot	1858	754	105
Denman, A.	Moore, C. *		1860	816	448
Gen. Theo. Sem.	Phillips, L./ Oakley, F.*		1862	855	269
The NY Ice Co.	Phillips, L./ Oakley, L.*		1863	867	354
Coughlan, J.	Moore, J. *		1863	867	354
Denman, I.	Denman, A. *		1863	864	440
Denman, A.	Downer, S. *		1864	922	218
Moore, C. (exec.)	Denman, A.		1864	922	219
Mayor Alderman	Moore, C. (exec.)		1865	977	6
Oakley, F.	Phillips, L. *		1865	970	604
Gen. Theo.	Coughlan, J./ Moore, J.*		1866	967	479
Moore, J.	Gibson, J. *		1866	967	485
Moore, C. (exec.)	Knickerbocker Ice		1866	962	629
Mayor Alderman	Gen. Theo.		1867	1009	358
Gen. Theo.	Dunbar, J. *		1867	1032	92
Woods, W. Moore, M.	Downer, S.		1868	1051	534
Moore, W.	Downer, S.		1868	1051	536
Ogden, M.	Downer, S.		1868	1051	539
Downer, S.	Knickerbocker Ice *		1868	1051	541
Gen. Theo.	Lynch, J. *		1869	1084	254
Phillips, L.	Detmold and Cox *		1869	1089	134

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Ingraham (ref.)	Repplier, G.		1870	1141	529
Repplier, G.	Knickerbocker Ice *		1870	1133	511
The NY Ice Co.	Knickerbocker Ice *		1870	1143	628
Moore, C.	Woods, W. et al.*		1870	1154	522
et al.	Chapman, J. et al.*		1870	1154	531
Chapman, et al.	Newell, D. *		1870	1154	532
Gibson, J.	Meyer, Asendorf *		1872	1209	210
Asendorf, H.	Meyer, H. *		1877	1410	303
Ogden, M.	Knickerbocker Ice *		1877	1455	360
Moore, M.	Knickerbocker Ice *		1877	1455	369
Moore, W.	Knickerbocker Ice *		1877	1455	377
Gen Theo.	Knickerbocker Ice *		1879	1489	444
Gen Theo.	Meyer, H. *	(30?)	1879	1494	304
Mayor Alderman	Gen Theo.		1881	1606	245
Gen Theo.	Collins, W. *		1883	1761	181
DC Newell & Sons	Boynton, J.		1885	1824	496
Moore, C. et al.	partition deed		1887	2030	28
Boynton, Moore	Newell, D. *		1887	2049	222
Gen Theo.	Lynch, J. *		1889	2271	72
Heilshorn, G.	Consumers Brewing *		1891	6	340
Meyer, H.	Heilshorn, J. *		1892	12	148
Newell, et al.	Condie, J. *		1892	14	147
Knickerbocker Ice	McAuley, J. *		1893	25	34

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Levy, L.	Barron, E. *		1893	23	292
Meyer, H.	Wurtzmann, E. *		1894	29	374
Wurtzmann, E.	Kolz, H. *		1894	30	496
Ogden, F.L.	Ogden, Margaret V.C.		1895	39	49
Knickerbocker Ice	Consolidated Ice Co.		1898	58	86
Moore, K.	Consolidated Ice Co.		1879	64	412
Moore, M.V.C.	Consolidated Ice Co.		1879	66	129
Moore, M.	Consolidated Ice Co.		1879	67	45
Consolidated Ice	NY Knickerbocker Co.		1903	90	298
Martin, N.	Hamer, J.		1912	172	189

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1852 Dripps - (Figure 6-4) The project area is west of the original shoreline in the Hudson River.

1859 Perris - (Figure 6-5) The project area has been filled. Block 692 is vacant. Block 667 has a brick building at the corner of West 20th Street and Eleventh Avenue. The building is covering the eastern half of Lot 30. There is another small structure on the western end of the lot.

1868 Dripps - Block 692 is still vacant. The building on the eastern end of Lot 30, Block 667, is still present. The remainder of the lots are vacant.

1874 Viele - No buildings are shown on this map.

1879 Bromley - (Figure 6-6) Block 692 is still vacant. On Block 667, Lots 30 through 37 are labeled "John Lynch Lumber Yard." There is a structure covering all of Lot 30 and a shed is covering all of Lot 31. The building on Lot 30 seems to have replaced the previous structure shown on the 1859 Perris map. On Lots 35 and 36 fronting Eleventh Avenue, is a small shed on the eastern ends of the lots. On the eastern half of Lot 37 there is another structure at the corner of Eleventh Avenue and West 21st Street.

1885 Robinson - (Figure 6-7) All of the buildings are the same as on the 1879 Bromley atlas with the addition of a building on the western ends of Lots 35 and 36.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - (Figure 6-8) There is a four-story box factory covering all of Lots 1 through 4 on Block 692. There is also a two-story shed covering all of Lot 61 at the corner of Eleventh Avenue and West 21st Street. On Block 667, the structures on Lots 30 and 31 are still present and now appear as one four-story building. On the western ends of Lots 32 through 35 is a single structure which has replaced the previous structure on the western end of Lot 35. The buildings on the eastern ends of Lots 35, 36, and 37 are still present, and the building on Lot 37 is depicted as three stories tall. There is a shed fronting West 21st Street on the western portions of Lots 36 and 37. All of the lots are labeled as part of a lumber yard.

1913 Hyde - (Figure 6-9) The Chelsea Piers have been built and the new route of Eleventh Avenue has been placed across all of these lots. All of the buildings have been razed. There are pier sheds along the shoreline in Marginal Street. Pier 61, occupied by the White Star Line, has been built west of the bulkhead line slightly south of West 21st Street.

1925 Bromley - Pier 61 is now occupied by the Red Star Line.

1930 Bromley - Same as the 1925 Bromley atlas.

1950 Hyde - The West Side Highway has been built on Eleventh Avenue.

SHORELINE FILL

The project parcel was filled between 1852 and 1859. The western end of Pier 61, built between 1902 and 1913, is in the study area.

HISTORICAL SENSITIVITY

In addition to Pier 61, on Block 667, a building dating to c.1879 spanned all of Lots 30 and 31. Lots 35 and 36 had a structure on the eastern ends of the lots, standing from c. 1879 to c.1913. On the eastern end of Lot 37, a three-story building stood from c.1879 to c.1913. By 1902 two buildings were constructed on the western ends of Lots 32 through 35, 36, and 37. These were both razed by 1913. On Block 692, Lots 1 through 4, a four-story box factory was built prior to 1902 and was razed prior to 1913. A two-story shed stood on Lot 61, also built by 1902 and razed by 1913.

West 21st Street to West 22nd Street - Eleventh Avenue and Marginal Street.

The lots within the project area include those on former Block 693. These are Lots 1 through 4. Former Block 668 included Lots 7 through 23. Part of the original route of Eleventh Avenue is also in the project area.

HISTORIC LANDOWNERS

BLOCK 668

According to the early twentieth century historian, Isaac Newton Phelps Stokes, Block 668 was land under water adjacent to the Chelsea (Clarke) Farm (Stokes Vol.6 1926:83).

As per the Index Division's Block summary:

"This block was the property of Clement C. Moore conveyed to him by grant from the City of New York, March 8th, 1849. The first conveyance made by him of lots was made May 8th, 1849."

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Moore, C.	Kroger, C. *	18	1860	824	156
Moore, C.	Wells, T. *	16,17, 19,20	1860	824	342
Wells, T.	Ross, P. * 19,20	16,17,	1860	824	353
Moore, C.	McClave, S. * et al.	16,17	1864	906	75
Kroger, C.	Kroger, N. *	18	1866	978	232
Moore, C.V.C.	McClave, S. *	15	1868	1065	307
Moore, M.	McClave, S. *	11-14	1868	1065	313
McClave, S.	McClave, J. *	7-10	1876	1369	57
McClave, S.	McClave, J. *	11-14	1876	1369	49
McClave, S.	McClave, J. *	15	1876	1369	52
McClave, S.	McClave, J. *	16,17	1876	1369	54

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Kroger, N.	Schultz, J. *	18	1878	1465	246
Hencke, H. (exec.Blase, A.)	Farrell, T. *	18	1891	6	464
Moore, M.	Hencke, H. *	18	1891	9	95
Schultz, J.	DECLARATION *	18	1894	26	172
Kroger, C. (adm. of)	Harrison, A. * et al.	(18?)	1895	36	391
Daly, C.	Farrell, T. *	18	1895	37	171
Harrison, A. et al.	Daly, C. *	18	1895	39	3
McClave, J.	McClave, J. *	16,17	1896	47	295

BLOCK 693

"This block was the property of Clement C. Moore conveyed to him in three grants from the City of New York, 1826, 1837 and 1849."

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Mayor Aldermen	C. Moore	1-17	1849	515	345
Mayor et al.	exec. of Moore	1-17	1866	977	6
Lee, J.	The Lee Box & Lumber Company *	1-9	1874	1308	94
Herrick, W.	Van Alstyne, P.	1-9	1877	1432	83
Van Alstyne, P.	Salisbury, N. *	1-9	1880	1529	129
Van Alstyne, P.	Herrick, W. *	1-9	1880	1537	190
Herrick, W.	Dielmann, C. *	1-9	1880	1537	192
Moore. M.	Van Emburg, G.	1	1886	1994	155
Moore, C.de R.	Moore, K.	1-5	1907	135	402

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Moore, K.	Quinn & Smith	1	1908	144	174
Moore, K./	AGREEMENT	1	1909	149	291
Quinn & Smith	Acme Mortgage Co.				
Acme Mortgage Co.	Saranac Realty * Co./Jo Kelly	1	1909	149	336
Kelly, J.	Fox, M. *	1	1912	178	64
Fox, M.	Popp, J. *	1	1912	180	29
Acme Mortgage Co.	McBreen, P. *	1-7	1914	187	389
McBreen, P.	Kurte, L.	1	1915	198	418
Saranac Realty Co.	Grady, M. *	1	1915	201	387

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1845 Ensign - (Figure 6-4) The route of the project area is west of the original shoreline in the Hudson River.

1852 Dripps - The project area is still land under water. There is a pier extending west from the shoreline through the route of Eleventh Avenue at West 21st Street. The pier is numbered 61.

1859 Perris - (Figure 6-5) The project parcel has been entirely filled. Block 693 is vacant. On Block 668, Lots 7 through 15 are vacant. The northeastern corner of the block, from Lot 15 through Lot 21, is labeled "Packing Box Factory." Fronting Eleventh Avenue, Lots 16 and 17 are completely covered by a two-story brick building that extends west onto the middle-third of Lot 19, and the southern half of Lot 20. On Lot 18, at the corner of Eleventh Avenue and West 22nd Street, is a four-story brick building on the eastern three-quarters of the lot. The remainder of Lot 18, together with the northern and southern-thirds of Lot 19, is vacant. From the western edge of Lot 20, extending west through the southern quarter of Lots 21 and 22, is a wooden stable. On the northern one-quarter of Lot 22 is a one-story brick building labeled "Office."

1868 Dripps - Block 693 is still vacant and labeled "Lumber." The western half of Block 668 on Lot 23, extending west of the project area, has a structure. The western half of the building on Lots 16 and 17 has been removed, together with the extension onto Lots 19 and 20. The building on Lot 18, at the corner of Eleventh Avenue and West 22nd Street, is still present. The stable formerly on

Lots 20, 21, and 22 has been removed. On the northern ends of Lots 20, 21, and 22 is a structure fronting West 22nd Street, possibly incorporating the building previously on the northern end of Lot 22. The remainder of the lots are vacant and labeled "Lumber."

1874 Viele - There are no buildings shown on this map.

1879 Bromley - (Figure 6-6) On Block 693 there is a shed covering all of Lot 4, fronting Eleventh Avenue. The rest of the lots on this block are vacant. On Block 668 the building previously on Lot 23 has been removed. There is a shed now covering all of Lot 7, extending north onto the southern three-quarters of Lot 22. The buildings on the eastern ends of Lots 16 and 17 have been removed. From the northern half of Lot 13, extending north through Lot 17 is a planing mill fronting Eleventh Avenue. The building on Lot 18 is still present. The building on Lots 20, 21, and 22 is still present and is shown as a shed. The other vacant lots are labeled "Lumber John McClave."

1885 Robinson - (Figure 6-7) On Block 693 the shed is still present on Lot 4. Lots 1 through 3 are vacant and labeled "B.N. Smith and Company Packing Box Factory." On Block 668 the shed on Lots 7 and 22 is still present. There is a building on all of Lots 11, 12 and 13, fronting Eleventh Avenue and labeled "Furniture Factory A. S. Hess." The planing mill, previously shown on Lots 13 through 17, is now on Lots 14 through 17, and extends west from Lot 17 onto the centers of Lots 19, 20, and 21. Lot 18 is now vacant. The building on the northern ends of Lots 20 through 22 has been extended to include the northern end of Lot 19. The vacant lots are still labeled as John McClave Lumber.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - (Figure 6-8) On Block 693 the shed has been removed from Lot 4 and replaced by a small shed on the western half of the lot fronting Eleventh Avenue. The southern three-quarters of Lot 1 has a building. From the northern end of Lot 1 extending through the southern half of Lot 3, on the western halves of each lot, is a structure fronting Eleventh Avenue. In the northwest corner of Lot 3, abutting the shed on Lot 4, is a small structure also fronting Eleventh Avenue. All of the lots appear to be part of a Lumber Yard. On Block 668 there is a four-story planing mill covering the eastern three-quarters of Lots 11 through 17. This appears to be the planing mill and furniture factory buildings joined together. The shed has been removed from Lots 7 and 22. Covering all of Lots 7, 8, 22, and the southern end of Lot 21 is one structure. The extension of the planing mill onto Lots 19, 20, and 21 has been removed, as has the building on the northern halves of Lots 19 through 22. There is a four-story structure covering all of Lot 18 and extending west onto the northern one-quarter of Lots 19 and 20, fronting West 22nd Street. There is a three-story building covering the northern portion of Lot 21 fronting West 22nd Street.

1913 Hyde - (Figure 6-9) The Chelsea Piers have been built and the new route of Eleventh Avenue has been placed across all of these lots. All of the buildings have

been razed. There are pier sheds along the shoreline in Marginal Street. Pier 62, occupied by the American Line, is west of the bulkhead line.

1925 Bromley - Same as the 1913 Hyde atlas.

1930 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - The West Side Highway has been built on Eleventh Avenue.

SHORELINE FILL

The project area was filled between 1852 and 1859. Between c.1852 and c.1859 a pier, numbered 61, was in the route of West 21st Street extending through Eleventh Avenue. The eastern end of Pier 62, built between 1902 and 1913, is within the project area.

HISTORIC SENSITIVITY

In addition to Pier 62, the only potentially sensitive buildings identified were the furniture factory building and planing mill building spanning across Lots 11 through 17. The planing mill was first constructed on Lots 13 through 17 between 1868 and 1879. The furniture factory was then built on Lots 11 through 13 between 1879 and 1885. Both were razed between 1902 and 1913. All of the earlier buildings on other lots were replaced by later structures and are not considered sensitive due to probable disturbance by later buildings.

West 22nd Street to West 23rd Street - Eleventh Avenue and Marginal Street.

The lots within the project area include those on former Block 668. These are Lots 30 through 64. Part of the original routes of Eleventh and Twelfth Avenues are also in the project area.

HISTORIC LANDOWNERS

According to the early twentieth century historian, Isaac Newton Phelps Stokes, Block 668 was land under water adjacent to the Chelsea (Clarke) Farm (Stokes Vol.6 1926:83).

As per the Index Division's Block Summary:

"This block was the property of Clement C. Moore conveyed to him by grant from the City of New York, March 8th, 1849. The first conveyance made by him of lots was made May 8th, 1849."

* Indicates that this is a lease.

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Mayor Aldermen	Moore, C.	not lotted	1849	515	345
Moore, C.	Heins, J. *	43	1859	771	479
Moore, C.	Chapin, A. *	59-64	1859	795	455
Moore, C.	Heins, J. *	44	1860	801	159
Heins, J.	Heins, H. *	44	1863	876	332
Heins, J.	Heins, H. *	43	1863	876	333
Chapin, A.	Berdell, R.H. *	59-64	1864	903	607
Erie Railway Co.	Moore, C.*	30-39, 59-64	1864	928	56
Moore, (exec.)	Erie RR Co.*	30-39, 59-64	1864	928	58
Moore, C. (exec.)	Bell, T. *	40-45	1866	983	177
Moore, C.	Bell, T. *	39-41, 52-54	1866	983	186
Moore, W.	Bell, T.	51-53	1873	1269	241

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Moore, W.	Bell, T.	47-50	1873	1269	242
Ogden, M.	Bell, T.	45,46	1873	1269	244
Bell, T.	Erie RR Co. *	51-53	1873	1269	250
Bell, T.	Erie RR Co. *	45,46	1873	1269	252
Bell, T.	Erie RR Co. *	47-50	1873	1269	254
Moore, W.	New York, Erie & Western RR Co.*	54-64	1893	24	257
Ogden, M.	New York, Erie & Western RR Co.*	30-39	1893	24	267
Heins, H. (exec.)	Heiser, E. *	43,44	1894	29	392
Ogden, M.V.C.	Ogden, F.	30,31, 34-36	1895	39	218
Ogden, F. et al.	Ogden, M.	40-46	1895	39	234
Ogden, F. et al.	Ogden, M.V.C.	37-39	1895	39	249
NY, Lake Erie & Western RR Co.	Erie Railroad Company		1895	41	1
Farmers Loan & Trust Company	Erie Railroad Company		1896	44	89
McClave, J.	Robert Wick & Company *		1900	69	13
McClave, J.	Dielmann & Lincks		1901	72	172
City of New York	Central RR of NJ		1915	195	458

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1852 Dripps - (Figure 6-4) The project area is west of the original shoreline in the Hudson River.

1859 Perris - (Figure 6-5) Eleventh Avenue, Block 668, and Twelfth Avenue (then Thirteenth Avenue) are all filled. In the western half of Lot 30, at the corner of West 22nd Street and Twelfth Avenue, are two small structures. The eastern half of Lot 43 has a three-story building at the corner of West 22nd Street and Eleventh Avenue. In the eastern half of Lot 44 is another three-story building, fronting Eleventh Avenue. In the southeast corner of Lot 42 is a small one-story building fronting West 22nd Street. Lots 37 through 41 and 44 through 55 are vacant and labeled "Timber Yard." In the northern three-quarters of Lot 56 is a one-story building fronting West 23rd Street. The portion fronting West 23rd Street is labeled "Office." The northwest corner of Lot 58, fronting West 23rd Street, has a two-story structure. The buildings on Lots 56 through 58 are part of a kindling wood factory. On the southern end of Lot 59 is a two-story building. On the southern end of Lot 60, extending west onto the southern three-quarters of Lot 64, is another building. In the northwest corner of Lot 61, at the corner of West 23rd Street and Twelfth Avenue, is a structure labeled "Office." The remaining vacant portions of Lots 60 through 64 are labeled "Lumber Yard." To the west of Twelfth Avenue, in the project area, is an unlabeled pier at the end of West 22nd Street.

1868 Dripps - All of the buildings have been removed except for the three-story buildings on the eastern ends of Lots 43 and 44. On the western ends of each of these lots is an additional structure. The vacant lots are part of a lumber yard. The pier is still present.

1874 Viele - There are no buildings shown on this map. The pier is still shown. There is a ferry landing north of the pier which extends north to the northern border of West 23rd Street. The landing is labeled "Pavonia Ferry and Erie Railroad."

1879 Bromley - (Figure 6-6) The buildings on Lots 43 and 44 are still present. Lots 30 through 34 and 59 through 64 are vacant and labeled "E. W. McClave and Company Lumber Yard." Covering all of Lots 36 and 57 is a shed. Lots 37, 40, 53 and 56 are also vacant and labeled "Lumber Yard." Fronting West 22nd Street, in the southeast corner of Lot 41 and the southern one-quarter of Lot 42, is a small structure. The northern half of Lot 42 and the southern three-quarters of Lot 51 are spanned by one shed. Lots 43 through 50 are labeled "Bell Bros. Lumber." Fronting West 23rd Street, the western end of Lot 50 and the northern end of Lot 51 have one structure. The pier is still present, and the ferry landing is now labeled "23rd Street NY Lake Erie and Western RR Co. Ferry."

1885 Robinson - (Figure 6-7) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - (Figure 6-8) The buildings on Lots 43 and 44 are still present. All of the other buildings present in 1879 have been removed. Covering all of Lot 30, and extending through the southern halves of Lots 31 through 42, is a one-story building fronting West 22nd Street. The remaining lots are covered by railroad

tracks, and labeled "N.Y.L.E. and W.R.R. Freight Yard." The pier is now labeled "Albany Day Line" and the ferry is labeled "Erie RR Ferry."

1913 Hyde - (Figure 6-9) The block is vacant and labeled "City of New York Plaza." The pier at the end of West 22nd Street has been removed. There is a platform extending southwest from the end of West 22nd Street which supports a two-story pier shed labeled "C. R. R. of New Jersey." Adjacent to the pier, on the north, is a one-story structure labeled "Hoboken Ferry Lackawanna R.R." within the ferry complex. To the north of this building is another one-story building labeled "Erie R.R.," also part of the ferry landing complex. The actual ferry landing berths are west of the project area.

1925 Bromley - Same as the 1913 Hyde atlas, although Block 668 is now a park.

1930 Bromley - Same as the 1925 Bromley atlas.

1950 Hyde - The West Side Highway has been built on Eleventh Avenue.

SHORELINE FILL

The project parcel was filled between 1852 and 1859. Between 1902 and 1913 a platform with a pier shed was built to the southwest off of West 22nd Street. It was occupied by the Central Railroad of New Jersey and stood through at least 1950. The Erie Railroad ferry landing, located to the north of the pier, was built between 1868 and 1879 and stood through at least 1950.

HISTORIC SENSITIVITY

In addition to the ferry landing and pier, the only buildings identified as potentially sensitive are those on the eastern ends of Lots 43 and 44, built by 1859 and removed by 1913, and the buildings on the western ends of the same lots, built by 1868 and also removed by 1913. The sheds and buildings on Lot 36 and 57, 41 and 42, 42 and 51, and 50 and 51 were all built between 1868 and 1879 and were removed sometime prior to 1902. Since these were all associated with freight yard activities, as a group they may be considered sensitive. Earlier buildings were undoubtedly disturbed by later construction and freight yard activities.

West 23rd Street to West 24th Street - Eleventh Avenue, Twelfth Avenue and Marginal Street.

Lots within the project area include Block 669, Lots 1 through 41.

HISTORIC LANDOWNERS

According to the early twentieth century historian, Isaac Newton Phelps Stokes, Block 669 was land under water adjacent to the Chelsea (Clarke) Farm (Stokes Vol.6 1926:83).

As per the Index Division's Block Summary:

"The City of New York in 1849 and 1850 gave a water grant of land under water including this block to Clement C. Moore."

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Mayor Alderman	Moore, C.		1849	515	350
Moore, C.	Belloni, et al.*	1-10	1857	739	183
Moore, C.	Haselton, J. *	31-40	1863	873	210
Belloni, R./C.	Farrar, G. *	1-10	1863	877	328
Mulligan, R.	Haselton, J. *	31-40	1865	929	327
Moore, C. (exec.)	Chapin, A./W. *	11-20	1865	944	493
Haeger, H.	Ross, A. et al.*	31-40	1866	977	6
Dudley, J.	Haselton, J. *	31-40	1867	1000	605
Dudley, J.	Mulligan, R. *	31-40	1867	1000	606
Moore, C. (exec.)	Chapin, A. *	21-30	1868	1053	54
Farrar Coal Co.	23rd RR Co. *	1-10	1872	1221	244
Farrar, G.	Farrar Coal Co. *	1-10	1872	1222	375
O'Neill, J. (ref.)	Christy, T. * (exec.)	21-30	1876	1355	296
O'Neill, J. (ref.)	Christy, T. * (exec.)	11-20	1876	1355	299
Christy (exec.)	23rd St. RR Co.*	11-20	1876	1386	289

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Moore, B. (trust)	Eagle Co.*	31,32	1884	1803	242
Moore, B.	Eagle Co.*	33-38,40	1884	1803	249
Moore, B.(devise)	Moore, M.	5,15,16,19, 20,35,36, 37,40	1887	2030	28
Moore, B.(devise)	Moore, C	1-4,9,10, 13,33,34	1887	2030	28
Moore, B.(devise)	Moore, R.	8,12,18,20, 37,38,40	1887	2030	28
Moore, B.(devise)	Moore, K.	6,7,11,37, 38,40	1887	2030	28
Eagle Tube Co.	Holsten, H.	38	1888	2128	136
Moore, C. (exec.)	Moore, W./ Ogden, M. et al.	21-32	1889	2225	164
Christy (exec.)	Partridge, H. *	21-30	1893	17	441
H.M. Partridge and Son	Metropolitan Traction Co.	21-30	1894	28	458
Holsten, H.	John, K. *	38	1895	37	306
Ogden M. (devise)	Ogden, M.M.	25	1895	39	234
Metropolitan Traction Co.	Metropolitan * Street Railway Co.	21-30	1897	51	273
Moore, K. et al.	Allotment to Sherman, M.M.	25	1898	58	72
Moore, C. de R.	Moore, C.C.		1902	77	316
Moore, C.C. et al.	Moore, C. de R.	15-19, 36-37	1902	77	322
Moore, C. de R.	23rd St. RR Co.	15-20	1906	126	177
Moore, C. de R.	23rd St. RR Co.	12	1906	126	184

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Moore, K.	23rd St. RR Co.	11	1906	126	191
Moore, C.C.	23rd St. RR Co.	13,14	1906	126	198
Eagle Tube Co.	Beckmann, C. *	40	1906	128	12
Moore, K.	Eagle Co.*	35,37, 38,40	1906	128	300
Moore, C.C.	Eagle Tube Co.*	32-34	1906	128	306
Moore, C. de R.	Eagle Co.*	31,36, 37,40	1906	128	490
Beckman, C.	Silberstein, P.*	40	1907	130	156
Holstein, H.	Lendrum, W. *	38	1907	130	156
Bottjer, H.	Meyer, C. *	38	1909	146	395
Ogden, F.	Metro. St. RR Co.*	24	1909	146	467
Moore, K.	Metro. St. RR Co.	26-28	1909	146	474
Tolken, C.	Consumers Brewing Co.*	40	1909	146	491
Beckman, C.	Tolken, C. *	40	1909	146	492
Moore, C. de R.	Metro. St. RR Co.*	29	1909	148	145
Moore, C. de R.	Metro. St. RR Co.*	22	1909	148	160
Moore, K.	Metro. St. RR Co.*	23	1909	148	152
Moore, K.	Metro. St. RR Co.*	21	1909	149	1
Moore, K.	23rd St. RR Co.*	6,7	1909	149	9
Moore, C.C.	23rd St. RR Co.*	9,10	1909	149	17
Moore, C. de R.	23rd St. RR Co.*	8	1909	149	26
Moore, C.C.	23rd St. RR Co.	5	1909	149	34
Moore, C.C.	Metro. St. RR Co.*	30	1909	150	17

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Ogden, M.	Metro. St. RR Co.*	25	1909	150	25
Eagle Tube Co.	Bottjer, H. *	38	1909	429	38
Meyer, C.	Hecht, F. *	38	1910	153	493
Moore, K.	Moore, C. de R.	21	1911	164	99
Hecht, F.	Pfeuffer, G. *	38	1911	169	157
Metro St. RR Co.	Tripp, G. *	21-30	1912	174	30
Tripp, G. et al.	NY Railways Co.	1-20	1912	174	1
Metro. St. RR Co.	Tripp, G. *	1-20	1912	174	74
Pfeuffer, G.	Wallach, H.	38	1914	187	478
Moore, L.M.	Moore, W. et al.	13,14, 32-34	1917	3005	369
Moore, W.	Moore, C.	13,14, 34	1920	3130	345
Moore, C. de R.	Moore, W. et al.	12	1920	3134	257
Moore, W. et al.	Moore, K.T.	12	1920	3134	259
Moore, K.T.	Moore, W.		1920	3135	278
Moore, C. de R. et al.	Moore, W. et al.		1920	3138	72
Moore, W. et al.	Chelsea-Moore Co.	32	1920	3160	325
Moore, W. et al.	Moore, B. et al.	26-28	1920	3163	472
LeRoy, G. et al.	Bradley, et al.	32,33	1920	3177	412
LeRoy, Grace	Lenox Trading Co.	26-28	1924	3434	333
Lenox Trading	Moore, B. et al.	26-28	1926	3545	208
Blavette, Claire	Ogden, C.M.	23	1927	3617	367
Moore, W. et al.	Le Roy, Grace		1930	3772	138

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
LeRoy, G. et al.	Moore, B. et al.	34,35	1930	3772	140
Ogden, F. et al.	Moore, H. et al.	23,24	1931	3806	181
Ogden, C. et al.	Ogden, G. et al.	23	1931	3809	84
Moore, B. et al.	603 West 23rd St.	13-17	1937	3958	82
Moore, H.F.	603 West 23rd St.	29	1937	3958	89
Le Roy, G.	603 West 23rd St.		1937	3958	90
Moore, B. et al.	603 West 23rd St.	26-28	1937	3958	92
Moore, B. et al.	Chelsea Motor Co.	31	1937	1958	93
Chelsea Motor	Moore, B. et al.		1937	3958	94
Bradley, M.	603 W. 23rd St.	25	1937	3958	96
603 W. 23rd St.	Moore, B. et al.	26-28	1937	3970	91
Moore, B. et al.	603 W. 23rd St.	13-17, 30	1937	3970	291
Moore, B. (exec.)	603 W. 23rd St.	13-17, 26-28	1937	3971	295
Moore, B. (exec.)	Le Roy, R.	18-20, 24,36, 37	1940	4077	587
Moore, B. (exec.)	Le Roy, R.	23,34, 35	1940	4077	589
Moore, B.	13th Ave. & 24th Street Co.	36-38, 40	1942	4141	296
603 W. 23rd St.	Hunt, G.	11	1949	4652	210
603 W. 23rd St.	Moore, H.F.	11	1949	4652	214
Moore, H.F.	Hunt, G.	11	1951	4713	588
Moore, H.F.	Hunt, G.	11	1951	4739	170

GRANTOR	GRANTEE	LOTS	DATE	LIBER	PAGE
Moore, H.F.	Hunt, G.	11	1952	4765	229
Moore, H.F.	Hunt, G.	11	1952	4787	451
Moore, H.F.	Hunt, G.	11	1952	4809	9
Moore, H.(exec.)	Hunt, G.	18-24	1957	5023	677
Chelsea-Moore Corp.	Hunt, G.	31	1959	5068	52
13th Ave. & 24th Street Co.	Hunt, G.	36-38, 40	1962	5190	324

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1852 Dripps - (Figure 6-4) The project area between West 23rd and 24th Streets is land under water.

1859 Perris - (Figure 6-5) The entire parcel has been filled and Twelfth Avenue is labeled Thirteenth Avenue. Lot 1, at the corner of West 23rd Street and Twelfth Avenue, has four buildings on it. The westernmost structure is labeled "Office," the second building has no label, the third building is two-stories tall, and the fourth is also unlabeled. On the northern ends of Lots 6 through 10 is a building. Fronting West 23rd Street, on the southern half of Lot 11, is another building. Lots 2 through 31 are vacant and Lots 2 through 11 are labeled "Coal Yard." Lots 31 through 41 are covered by a building labeled "Hazelton and Co's. Oil Depot."

1868 Dripps - Lots 1 through 30 are vacant and Lots 11 through 30 are labeled "Lumber." Lots 31 through 41 are now labeled "Mechanics Mutual Building Materials," and the structure is still present.

1874 Viele - There are no structures shown on this map. However, there is a ferry landing extending west from Twelfth Avenue from the northern border of West 23rd Street, south through West 22nd Street. The landing is in the route of what will be Marginal Street at West 23rd Street and is labeled "Pavonia Ferry and Erie Railroad."

1879 Bromley - (Figure 6-6) There is a building on Lot 1 at the corner of West 23rd Street and Twelfth Avenue. From the eastern halves of Lots 3 and 4, extending east through Lot 16, is a structure labeled "23rd Street R.W. Co. Stables and Car Ho." On the eastern ends of Lots 17 and 18 are two structures fronting Eleventh Avenue. There is a shed covering all of Lot 20. Lots 21 through 25 are labeled "Tolan and Carr Lumber Yard." A shed covers all of Lots 23 and 24 at the corner of West 24th Street and Eleventh Avenue. In the southeast corner of Lot 25 is

another structure. On the western half of Lot 27, extending through Lot 29, is a shed covering the northern ends of each lot. On the southern ends of Lots 28 and 29 is another shed. Lots 27 through 29 are labeled "Lumber Yard." From Lots 30 through 37, and Lots 39 through 41 is another shed covering all of the lots labeled "Eagle Tube Works." On the northeast corner of Lot 38, at the corner of West 24th Street and Twelfth Avenue, is a structure. The ferry landing is the same as on the 1874 Viele map and is labeled "23rd Street N.Y. Lake Erie and Western R.R. Co. Ferry."

1885 Robinson - (Figure 6-7) The buildings all appear the same as on the 1879 Bromley atlas, although the stables and car house on Lots 3 through 16 are now labeled "23rd Street Horse Railway Depot and Stables," Lots 25 through 29 are now labeled "P. Moore Lumber Yard," and Lots 38 through 41 are now labeled "Coal Yard." The ferry appears the same. Lots 21 through 25 are still labeled "Tolan and Carr Lumber Yard."

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - (Figure 6-8) The building on Lot 1 is gone. Covering all of Lots 1 and 2 is a hotel. The building spanning Lots 3 through 16 is labeled "Metropolitan St. R. W. Co." and has one through four-stories, varying from lot to lot. The building on the eastern half of Lots 17 and 18 is still present and is shown as a two-story structure. Covering the remainder of Lot 17 and 18, all of 19, and the western half of Lot 20 is another structure, replacing the shed on Lot 20. On the eastern half of Lot 20 is a small structure fronting Eleventh Avenue, separated from the other building by an L-shaped yard. On Lot 21 through Lot 30 is a one-story structure at the corner of Eleventh Avenue and West 24th Street. The building on Lots 30 through 37 and 39 through 40 has been removed. From the southern half of Lot 33, extending through Lot 35, is a structure. On Lots 34 and 35 is a building on the northern ends of the lots fronting West 24th Street. On all of Lots 36 and 37 is a two-story structure also fronting West 24th Street. Lots 33 through 37 are labeled "American Air Power Company." The building on Lot 38 was removed. The western three-quarters of the lot and the northern one-quarter of Lot 39 has a two-story brick structure. Covering the southern three-quarters of Lot 39, and extending northward onto the eastern end of Lot 38, is an L-shaped two-story brick structure. There is another building covering all of Lots 40 and 41. Marginal Street has been filled. Extending west beyond the bulkhead line, between West 23rd and 24th Streets, is the 23rd Street Ferry Pennsylvania Railroad complex. The Erie Railroad ferry landing still extends through Marginal Street to the west off of West 23rd Street.

1913 Hyde - (Figure 6-9) The hotel on Lots 1 and 2 is gone, replaced by a two-story building on all of Lot 1, and a one-story structure on the southern three-quarters of Lot 2. Lots 3 through 20 are now vacant, although it is noted that a car depot is under construction. The one-story building on Lots 21 through 30 is still present. The building previously on Lots 33 through 35 has been removed, and Lots 34 and 35 are now vacant. On the northern halves of Lots 32 and 33 is a brick two-story building fronting West 24th Street. The building previously on Lots

36 and 37 has been removed. Fronting West 24th Street in the northwest corner of Lot 36 is a two-story building. Covering the southern halves of Lots 36 and 37 is a four-story metal building. On the northern half of Lot 37 is a two-story brick building. The building on the western three-quarters of Lot 38 and the northern one-quarter of Lot 39 is still present and appears to have incorporated the extension on the eastern end of the lot, previously part of the Lot 39 building. The building on the southern three-quarters of Lot 39 appears to have been incorporated into the two-story brick structure on Lots 40 and 41. Although the brick building on Lots 39, 40, and 41 appears to be the same structure present on Lots 40 and 41 in 1902, the very eastern end of the building now appears as one-story in height as opposed to two-stories. The Erie and Pennsylvania Railroad ferry landings are still present.

1925 Bromley - There is now a four-story garage spanning all of Lots 1 through 10, replacing any previous structures. Lots 13 through 16 are vacant and labeled "Yard For Cars." The building on Lots 21 through 30 is labeled "New York Railway Company," and is a car house. The two-story office building on the northern halves of Lots 32 and 33 is still present and labeled "A. B. Rodger and Son Lumber Yard." The metal building on Lots 36 and 37 is still present. The entire eastern half of Lot 36 is vacant. The building on the northwest corner of Lot 36 has been incorporated into a two-story brick building spanning the northern half of Lot 37 and the eastern ends of Lots 38 and 39, labeled "Garage." The two-story building on the western end of Lot 38 and the northern one-quarter of Lot 39 is still present. The building on Lots 39, 40, and 41 appears the same. The Pennsylvania Railroad ferry landing is gone and the Erie Railroad landing is still at the end of West 23rd Street. There are pier sheds along the shoreline.

1930 Bromley - The buildings on Lots 1 through 10, 21 through 30, and 32 and 33 are still present. The eastern half of Lot 36 is still vacant, and the two-story garage is still on Lots 36, 37, 38, and 39. The two-story building on the west end of Lot 38 and the northern one-quarter of Lot 39 is also still present. The metal building on the southern ends of Lots 36 and 37 has been removed and the brick building on Lots 39, 40, and 41 has been extended east to cover this location. The Erie Railroad landing is still at the end of West 23rd Street. The pier sheds are still present in Marginal Street.

1950 Hyde - The building on Lots 1 through 10 is still present. The one-story brick building on Lots 25 through 30 has been extended south to cover all of Lots 11 through 16, and is labeled "Consolidated Motor Lines." There is a gas station on the western three-quarters of Lots 18, 19, and 20. Lots 21 through 24 are now vacant. The two-story structure on Lots 32 and 33 is still present. The configuration of the buildings on Lots 36 through 41 appears as it did in 1913, however the building at the corner of West 24th Street and Eleventh Avenue, on the western end of Lot 38 and the northern one-quarter of Lot 39, has been removed. The West Side Highway has been built on Twelfth Avenue and there are pier sheds still standing along the shoreline in Marginal Street. The Erie Railroad landing is still present.

1988 Sanborn - The only buildings present are the four-story garage on Lots 1 through 10 and the one-story building on Lots 11 through 16 and 25 through 30. The remainder of the buildings have been removed, and several lots function as parking lots. The Erie Ferry Railroad landing is now occupied by the Department of Ports and Terminals.

SHORELINE FILL

The project area was originally land under water. The route of Twelfth Avenue was filled between 1852 and 1859 and Marginal Street was filled between 1897 and 1902. The Erie Railroad Ferry landing, once occupied by the ferry to Pavonia, was built between 1868 and 1874 and appears to remain standing. The Pennsylvania Railroad ferry pier between West 23rd and 24th Street was built by 1902 and extended through Marginal Street. This may have become part of the landfill between 1913 and 1925.

HISTORIC SENSITIVITY

In addition to the ferry landing piers discussed above, pier sheds were built along the shoreline in Marginal Street by 1925 and stood through at least 1950. The two buildings on Lots 1 through 10, and Lots 11 through 16 and 25 through 30 are still standing and are not sensitive for archeological remains. A car house, built on Lots 21 through 30, stood between at least 1902 and 1930. Lots 26 through 30 were subsequently disturbed, however Lots 21 through 25 may be sensitive. A two-story building associated with Rodger and Son Lumber stood on Lots 32 and 33 from at least 1913 to 1950. A number of brick buildings stood on Lots 36 through 41 between c.1902 and 1950 which may also be sensitive.

West 24th Street to West 25th Street - Twelfth Avenue and Marginal Street.

There are no lots in this parcel, because only the original path of Twelfth Avenue and Marginal Street is included.

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1874 Viele - (Figures 6-4 and 6-5) The route of Twelfth Avenue between West 24th and 25th Streets is land under water.

1879 Bromley - (Figure 6-6) Twelfth Avenue is completely filled and there is some filling in Marginal Street although it has not yet extended as far west as the bulkhead line. There is a pier at the foot of West 24th Street labeled "Boat to Albany" extending through what will be Marginal Street.

1885 Robinson - (Figure 6-7) The section of Marginal Street that experienced filling as seen in 1879 is labeled "Ward and Olyphant Coal Yard." All else appears the same as on the 1879 Bromley atlas.

1897 Bromley - Same as the 1885 Robinson atlas.

1902 Bromley - (Figure 6-8) Marginal Street has been completely filled. The pier, labeled "Anchor Line," now extends west of Marginal Street.

1913 Hyde - (Figure 6-9) There is a small square building in Marginal Street on the waterfront mid-way between West 24th and 25th Streets.

1925 Bromley - There is one pier shed on the shoreline in Marginal Street at West 24th Street and the previous building has been removed.

1930 Bromley - The route of the proposed West Side Highway has been placed on the map, although the Highway itself does not yet appear.

1950 Hyde - The West Side Highway has been built on Twelfth Avenue.

SHORELINE FILL

Twelfth Avenue remained as land under water until the route was filled between 1874 and 1879. Marginal Street first experienced filling between 1874 and 1879 and was entirely filled by 1902. A pier at the foot of West 24th Street stood in the route of Marginal Street between 1879 and when it was filled in 1902.

HISTORIC SENSITIVITY

In addition to the pier discussed above, there was a pier shed in Marginal Street at the foot of West 24th Street between at least 1925 and 1950.

West 25th Street to West 26th Street - Twelfth Avenue and Marginal Street.

There are no lots included in this parcel, because only the original path of Twelfth Avenue and Marginal Street is included.

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1874 Viele - (Figures 6-4 and 6-5) The route of Twelfth Avenue between West 25th and 26th Streets is land under water.

1879 Bromley - (Figure 6-6) Twelfth Avenue, then labeled Thirteenth Avenue, is entirely filled. There is a pier off of West 25th Street, extending through the path of what will be Marginal Street. There is some filling in Marginal Street but it does not yet extend as far west as the bulkhead line. Two structures are in Marginal Street, labeled "LE. S." and "LT. W." from north to south. These are probably storehouses for lumber yards located to the east of the project area.

1885 Robinson - (Figure 6-7) Same as the 1879 Bromley atlas.

1897 Bromley - Same as the 1879 Bromley atlas.

1902 Bromley - (Figure 6-8) Marginal Street has been completely filled and the pier is now west of Marginal Street. The buildings in Marginal Street have been removed.

1913 Hyde - (Figure 6-9) Same as the 1902 Bromley atlas, although there are railroad tracks shown extending across Twelfth Avenue and Marginal Street.

1925 Bromley - Same as the 1913 Hyde atlas.

1930 Bromley - Same as the 1913 Hyde atlas.

1950 Hyde - The West Side Highway has been built on Twelfth Avenue. There are pier sheds along the shoreline spanning between West 25th and West 26th Streets in Marginal Street.

SHORELINE FILL

Twelfth Avenue was land under water until it was entirely filled between 1874 and 1879. Marginal Street first experienced filling between 1874 and 1879 and was entirely filled by 1902. A pier extended off the foot of West 25th Street, built by 1879, traversing the path of Marginal Street. This may have become part of the landfill.

HISTORIC SENSITIVITY

In addition to the West 25th Street pier, there were two buildings in Marginal Street which were built by 1879 and removed by 1902. Pier sheds spanned the block, however they were built at a late date, sometime between 1930 and 1950, making them not sensitive.

West 26th Street to West 27th Street - Twelfth Avenue and Marginal Street.

There are no lots included in this parcel, because only the original path of Twelfth Avenue and Marginal Street is included.

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1874 Viele - (Figures 6-4 and 6-5) The route of Twelfth Avenue between West 26th and West 27th Streets is land under water.

1879 Bromley - (Figure 6-6) West 26th Street and Twelfth Avenue are entirely filled. There is a pier off of West 26th Street extending through the route of what will be Marginal Street.

1885 Robinson - (Figure 6-7) There is some filling in Marginal Street al.though it does not yet extend as far west as the bulkhead line. The pier is still present in the path of Marginal Street.

1897 Bromley - Same as the 1885 Robinson atlas.

1902 Bromley - (Figure 6-8) Marginal Street is entirely filled and the pier is now to the west of Marginal Street.

1913 Hyde - (Figure 6-9) There is a small one-story building on the waterfront in Marginal Street at West 26th Street and a small two-story pier shed is just south of West 27th Street. There are also two small one-story buildings in the eastern portion of Twelfth Avenue.

1925 Bromley - The structures are absent.

1930 Bromley - Same as the 1925 Bromley atlas.

1950 Hyde - The West Side Highway has been built on Twelfth Avenue. One pier shed extends from the middle of the block north, to West 27th Street, along the shorefront in Marginal Street.

SHORELINE FILL

The route of Twelfth Avenue was originally land under water and was entirely filled between 1874 and 1879. Marginal Street first experienced filling between 1879 and 1885 and was entirely filled by 1902. A pier at the foot of West 26th Street was built by 1879 and may have become part of the Marginal Street landfill.

HISTORIC SENSITIVITY

In addition to the pier at the foot of West 26th Street, there was a pier shed built in Marginal Street between 1930 and 1950.

West 27th Street to West 28th Street - Twelfth Avenue and Marginal Street.

There are no lots included in this parcel, because only the original path of Twelfth Avenue and Marginal Street is included.

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1897 Bromley - (Figures 6-4 through 6-7) The route of Twelfth Avenue between West 27th and 28th Streets is land under water.

1902 Bromley - (Figure 6-8) West 27th Street is entirely filled, as are Twelfth Avenue and Marginal Street.

1913 Hyde - (Figure 6-9) Same as the 1902 Bromley atlas, although there are now railroad tracks shown running across Twelfth Avenue and Marginal Street.

1925 Bromley - Same as the 1902 Bromley atlas.

1930 Bromley - Same as the 1902 Bromley atlas.

1950 Hyde - The West Side Highway has been built on Twelfth Avenue.

SHORELINE FILL

Marginal Street and Twelfth Avenue were both west of the original shoreline and were filled between 1897 and 1902.

HISTORIC SENSITIVITY

None.

West 28th Street to West 29th Street - Twelfth Avenue and Marginal Street.

There are no lots included within this parcel, which only includes the original path of Twelfth Avenue and Marginal Street.

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1852 Dripps - (Figure 6-4) The route of Twelfth Avenue is west of the shoreline, in the Hudson River.

1859 Perris - (Figure 6-5) In the route of what will be West 28th Street there is a pier extending off of the shoreline through the path of what will be Twelfth Avenue. There is no filling in Twelfth Avenue or Marginal Street.

1868 Dripps - Twelfth Avenue appears entirely filled although this is probably a cartographic error.

1874 Viele - Twelfth Avenue is not filled as it was on the 1868 Dripps map, and the project area appears as it did on the 1859 Perris map.

1879 Bromley - (Figure 6-6) Same as the 1874 Viele map.

1885 Robinson - (Figure 6-7) Same as the 1874 Viele map.

1897 Bromley - Same as the 1874 Viele map.

1902 Bromley - (Figure 6-8) The routes of West 28th Street, Twelfth Avenue, and Marginal Street have all been filled.

1913 Hyde - (Figure 6-9) There is one pier shed just north of West 28th Street in Marginal Street.

1925 Bromley - The pier shed does not appear on this map

1930 Bromley - There is a pier shed along the shoreline in Marginal Street has reappeared at the end of West 28th Street.

1950 Hyde - There is an additional pier shed north of the one that appeared in 1930. The West Side Highway has been built on Twelfth Avenue.

SHORELINE FILL

Twelfth Avenue and Marginal Street were both filled between 1897 and 1902. There was a pier in the route of West 28th Street, built by 1859, extending through Twelfth Avenue. The pier may have become part of the Twelfth Avenue landfill by 1902.

HISTORIC SENSITIVITY

In addition to the pier in West 28th Street, there was a pier shed in Marginal Street by 1930, and a second was built by 1950. Due to the late date of both of these structures, neither are considered to be potentially significant.

West 29th Street to West 30th Street - Twelfth Avenue and Marginal Street.

There are no lots included within this parcel, which only includes the original path of Twelfth Avenue and Marginal Street.

CARTOGRAPHIC REVIEW

1811 Commissioner's through 1897 Bromley - (Figures 6-4 through 6-7) Twelfth Avenue is west of the original shoreline, in the Hudson River.

1902 Bromley - (Figure 6-8) Twelfth Avenue, Marginal Street, and West 29th Street are entirely filled. There is one small pier shed along the shoreline in Marginal Street just south of West 30th Street.

1913 Hyde - (Figure 6-9) In addition to the pervious pier shed is a second pier shed slightly to the south of the first.

1925 Bromley - The pier shed in Marginal Street is labeled "Coal." All else appears the same as on the 1902 Bromley atlas.

1930 Bromley - Same as the 1925 Bromley atlas.

1950 Hyde - The West Side Highway has been built on Twelfth Avenue and the pier shed for coal has been removed.

SHORELINE FILL

Both Twelfth Avenue and Marginal Street experienced landfilling between 1897 and 1902.

HISTORIC SENSITIVITY

A small pier shed was built on the shoreline in Marginal Street which stood between at least 1902 and 1930.

HISTORIC SENSITIVITY

Specific areas sensitive for potentially significant historical remains exist between West 18th and West 30th Streets. Several buildings actually stood in the route of Eleventh and Twelfth Avenues which could be considered potentially sensitive. Additional areas were found sensitive due to the eighteenth and nineteenth century landfill and wharf features they possess. Areas identified are referenced in the Block Histories section, which is based largely on cartographic data. The following presentation also includes information gathered at the Buildings Department, Block and Lot Division, and from secondary sources.

Categories of sensitivity were devised, and include dwellings and associated outbuildings; industrial buildings/complexes; piers and wharves; landfill; and other. The blocks along Eleventh and Twelfth Avenues include the potential sensitivity for the cross street on the south. Going from south to north the following areas have been identified as being potentially sensitive for historical remains.

Dwellings and Associated Outbuildings

Between West 23rd and West 24th Streets on Block 669, a building spanned all of Lot 38, built between 1897 and 1902. According to a 1930 demolition permit for this lot, a two-story brick tenement measuring 40 feet by 43 feet, was removed at that time (DEM 111, 1930; Block and Lot File). The structure at the southeast corner of West 24th Street and Twelfth Avenue, was owned by J.M. Wells and Sons (Ibid.). Since the tenement was built after utility lines were well established in the area, there is no sensitivity for potentially significant back-yard features.

Industrial Buildings and Complexes

Few building records were available for structures that were razed during the construction of the Chelsea Piers. According to Kenneth Cobb, Curator at the New York City Municipal Archives, prior to the 1970s the Building Department destroyed records of buildings that had been demolished (Personal Communication to Mary Dieter, October 11, 1989). From south to north, the following buildings were identified.

Between West 18th and West 19th Streets on Block 690, the Stewart and Company Pottery building, constructed between 1859 and 1879, spanned several lots. All of these were disturbed by later buildings except Lot 8, the western half of Lot 9, and the southern half of Lot 10, which may retain subsurface integrity. Lots 8 and 9 were vacant by 1902, and Lot 10 was vacant by 1913. The J.P. Ryon Moulding Company occupied a building on Lots 61 and 62 which was built between 1879 and 1885. The structure was razed between 1902 and 1913.

Between West 20th and West 21st Streets, several buildings were identified on Blocks 667 and 692. On Block 667, a building, dating to c.1879, spanned all of Lots 30 and 31 and was razed prior to 1913. Lots 35 and 36 also had a building on the eastern end of the lots built prior to 1879 which was razed between 1902 and 1913. On the

eastern end of Lot 37, a three-story building also stood from c.1879 to c.1913. By 1902 two buildings were constructed on the western ends of Lots 32 through 35, 36, and 37. These were both razed by 1913. On Block 692, Lots 1 through 4, a four-story box factory was built prior to 1902 and was razed prior to 1913. A two-story shed stood on Lot 61, also built by 1902 and razed by 1913.

Between West 21st and West 22nd Streets on Block 668, there were two structures spanning Lots 11 through 17 which housed a furniture factory and planing mill. The planing mill was first constructed on Lots 13 through 17 between 1868 and 1879. The furniture factory was then built on Lots 11 through 13 between 1879 and 1885. Both were razed between 1902 and 1913. Between West 22nd and West 23rd Streets, on Block 668, there were buildings on the eastern ends of Lots 43 and 44, built by 1859 and removed by 1913. There were also buildings on the western ends of the same lots, built by 1868 and removed by 1913. Sheds and buildings on Lot 36 and 57, 41 and 42, 42 and 51, and 50 and 51 were all built between 1868 and 1879 and were removed sometime prior to 1902. Since these were all associated with freight yard activities, as a group they may be considered *sensitive*.

Between West 23rd and West 24th Streets a car house on Block 669, Lots 21 through 30, stood between at least 1902 and 1930. A demolition permit for Lot 24 indicates that a one-story brick car barn, owned by the New York Railroad Corporation, was removed in 1936 (DEM 386, 1936; Block and Lot File). Lots 26 through 30 were subsequently disturbed when a trucking transfer station building was built across them in 1937 (NB 45, 1937; Block and Lot File). However, Lots 21 through 25 may be sensitive. A two-story building associated with Rodger and Son Lumber stood on Lots 32 and 33 from at least 1913 until 1950. A number of brick buildings stood on Lots 36 through 41 between c.1902 and 1950 which may also be sensitive. According to a Demolition Permit, two two-story brick buildings were demolished on Lots 36 through 40 in 1941 (DEM 152, 1941; Block and Lot File). In addition, there were three 550 gallon gasoline tanks installed in 1933 on these same lots, although the specific location is unknown (1941 Letter to Department of Housing and Buildings, Block and Lot File). A two-story addition on the rear of the building on Lot 40 was removed in 1937, and was replaced by a one-story masonry building (DM 412, 1937; NB 86, 1941; Block and Lot File). The complex of buildings appears to have been associated with the trucking business, since loading platforms, gas pumps, and a trucking area were present on the block in 1941 (Ibid.)

In addition to the above structures, the only other structures identified in this category are the pier sheds once present in the route of Marginal Street. Almost the entire span from West 18th to West 30th Streets possessed mid-to-late nineteenth century and twentieth century pier sheds on the western portion of Marginal Street. The majority of these pier sheds, located along the shoreline in Marginal Street, were built during the construction of the Chelsea Piers at the turn of the twentieth century and stood through at least the 1950s. Some sheds were removed as the piers settled into a state of disrepair, others continue to stand. There is no archeological significance associated with these buildings due to the late date and extensive

documentation pertaining to construction. Currently standing pier sheds can provide adequate information on issues of historical interest associated with the Chelsea Piers.

Piers and Wharves

Numerous eighteenth and nineteenth century piers traversed the route of Eleventh and Twelfth Avenues and Marginal Street. Going from south to north, the following piers and wharves were identified.

Between West 19th and West 20th Streets, Pier 60 was built between 1902 and 1913, mid-block west of the bulkhead line, and was once occupied by the White Star Line. The eastern end of it is now in the project area. Between West 20th and West 21st Streets, the western end of Pier 61, built between 1902 and 1913 slightly south of West 21st Street, is in the project area. The pier was occupied by the White Star and Red Star Lines. Between West 21st and West 22nd Streets, the eastern end of Pier 62, built between 1902 and 1913 and occupied by the American Line, is within the project area.

Also between West 21st and West 22nd Streets, a pier numbered 61 was in the route of West 21st Street, extending through Eleventh Avenue, between c.1852 and c.1859. The pier is hereafter referenced as "Old Pier 61" in order to avoid confusion with the twentieth century Pier 61 discussed above. Between West 22nd and West 23rd Streets, a ferry landing for the Erie Railroad ferry stood between at least 1874 and 1950. The eastern half of the landing is possibly in Marginal Street landfill, while the western half now appears to be occupied by the Department of Ports and Terminals. It is unclear whether the western spur, currently seen on maps, represents the 1874 ferry landing or a more recent construction. The northern part of this landing is at the base of West 23rd Street, and is therefore referenced in the West 23rd to West 24th Street section. Adjacent to this to the south, a platform for the Central Railroad of New Jersey pier shed stood between at least 1913 and 1950. It is unclear whether this was removed or replaced since 1950.

Between West 23rd and West 24th Streets, the Erie Railroad ferry landing at West 23rd Street, built by 1874, is in the project area. The eastern half of the landing may be part of the Marginal Street landfill, while the western half still appears on maps. The landing may have been rebuilt, and the area is currently occupied by the Department of Ports and Terminals. The pier was once used as a landing for the Pavonia and Erie Railroad ferries. In addition, the Pennsylvania Railroad ferry landing between West 23rd and West 24th Streets was built by 1902 and extended through Marginal Street. This may also be part of the landfill.

Between West 24th and West 25th Streets a pier stood at the foot of West 24th Street, built by 1879. The pier, occupied by boats destined for Albany, may have become part of the Marginal Street landfill by 1902. The West 25th and West 26th Street piers were both built by 1879 and may have become part of Marginal Street landfill by 1902. The West 28th Street pier, built by 1859, may have become part of the Twelfth Avenue landfill by 1902.

Landfill

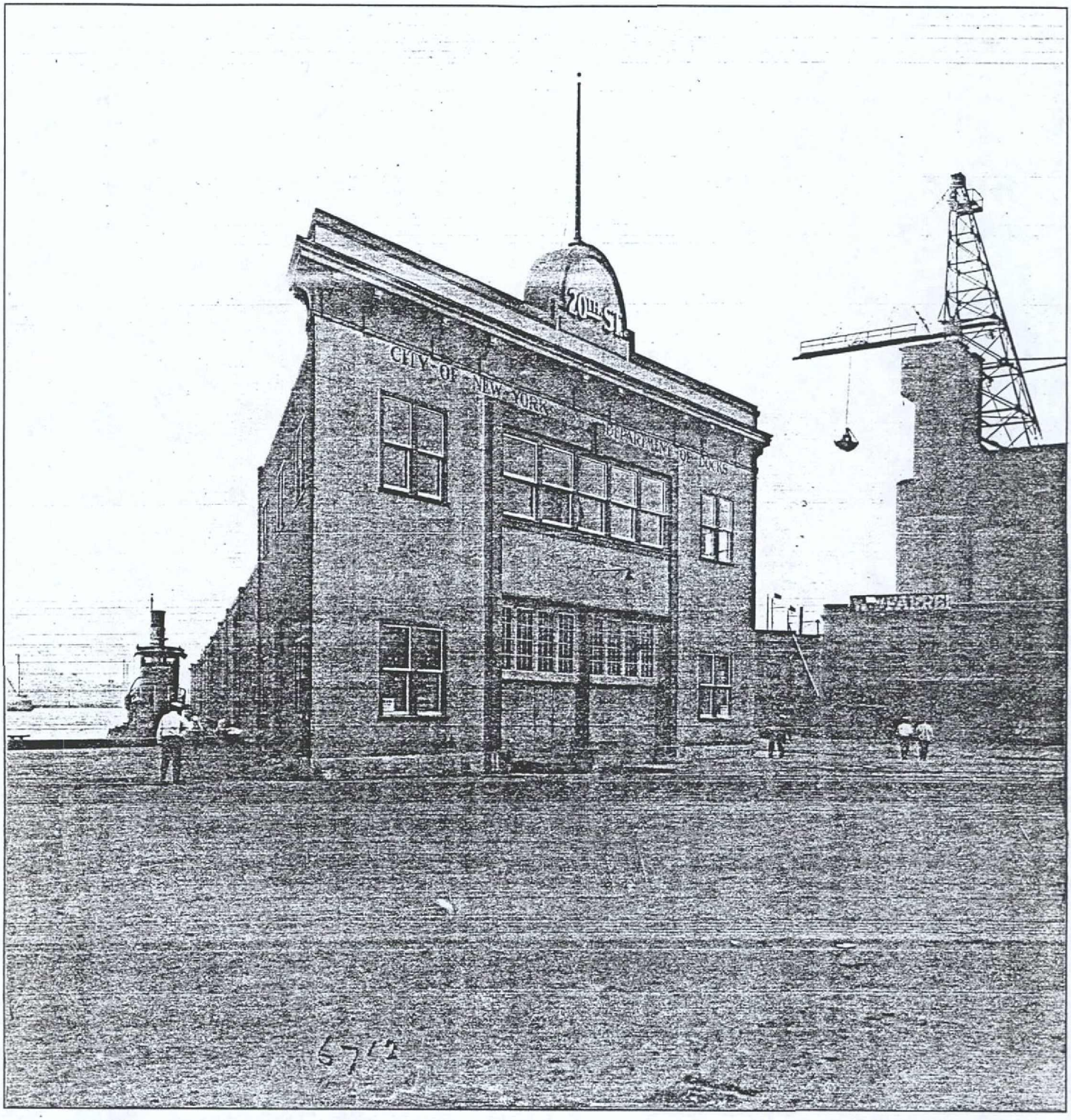
The process of filling the shoreline and expanding the size of Manhattan began in the eighteenth century and has continued through the twentieth century. The earliest known episode of landfilling in Eleventh or Twelfth Avenues in this section of the project area occurred sometime between 1845 and 1852 between West 18th and West 19th Streets. The two major episodes of landfilling took place between 1852 and 1859 (Figure 6-5), and between 1874 and 1879 (Figure 6-6). The remainder occurred by 1902 (Figure 6-8). In Marginal Street, landfilling dates as early as 1852, with the majority of filling completed between 1879 and 1902 (Figures 6-6 and 6-8).

The landfill in and of itself is not judged to be sensitive since filling episodes have been documented and artifacts found in this secondary context render little information. Numerous projects within Manhattan have documented land reclamation along both the shore of the East and Hudson Rivers. Records of the Common Council also documented landfilling as it occurred. In order for landfill itself to be considered worthy of subsurface archeological investigation, the deposition must be tied in to a specific episode by a group or individual, such as a manufacturer discarding waste materials from the production process. Thus, if the resources are in situ, specific information can be gathered regarding manufacturing process or an individual's lifeways. If deposition is simply the collection of trash from an undesignated area, together with materials excavated elsewhere and debris from disasters, the information that can be acquired in such a context is minimal. In addition, since this section was filled at a later time, there is probably no sensitivity for sunken ships to exist within the landfill.

Although the contents of landfill may not contribute to our knowledge of early historical lifeways and neighborhood development, the retaining devices designed to create fast land varied technologically and may be considered potentially sensitive. Undoubtedly construction techniques changed through time as new materials and methods were adopted. While these types of features are rarely documented cartographically, areas which experienced filling may be sensitive for these types of remains.

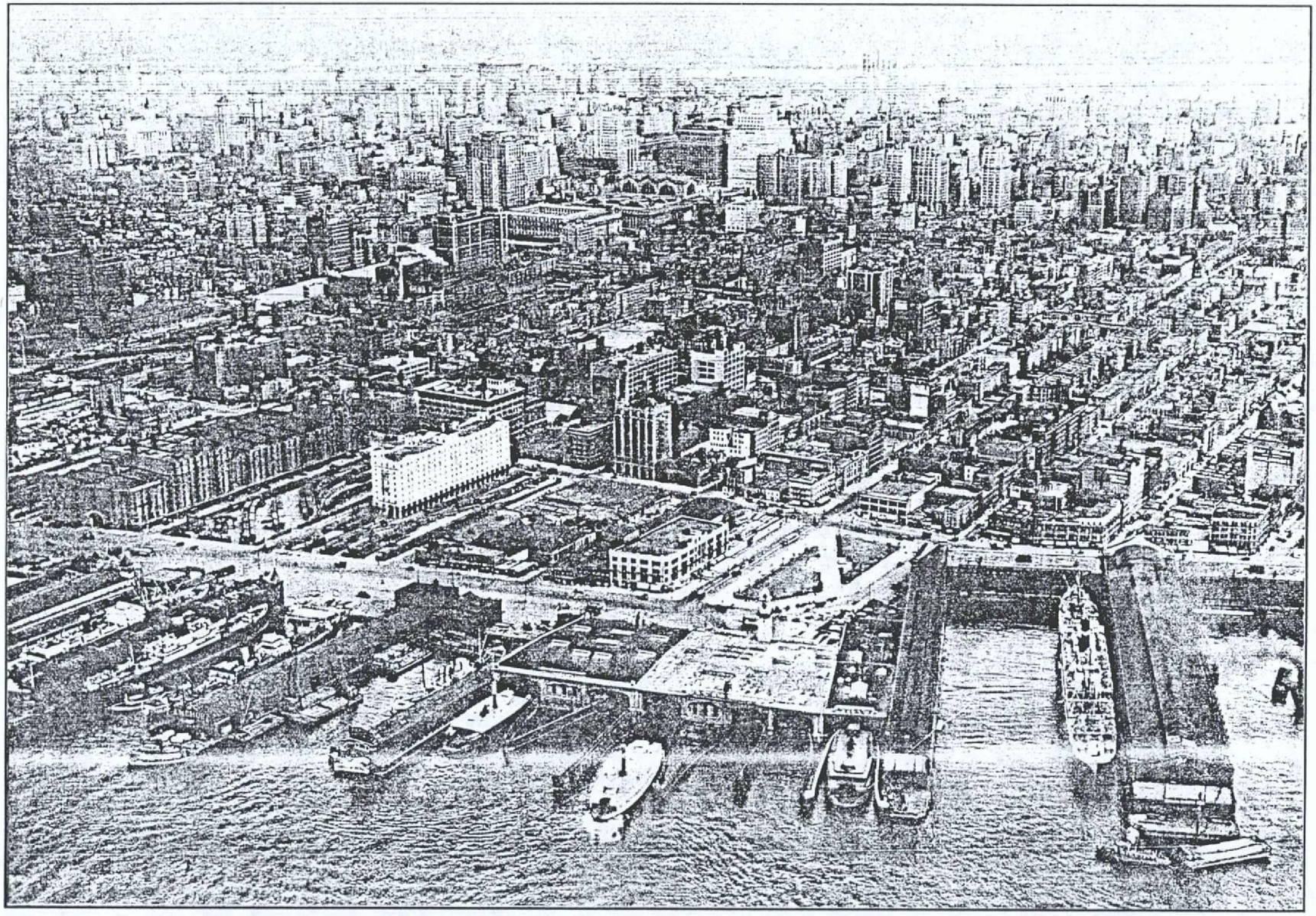
Other

NONE.



Pier Shed at West 20th Street ca. 1900
Courtesy of the South Street Seaport Herman Melville Library

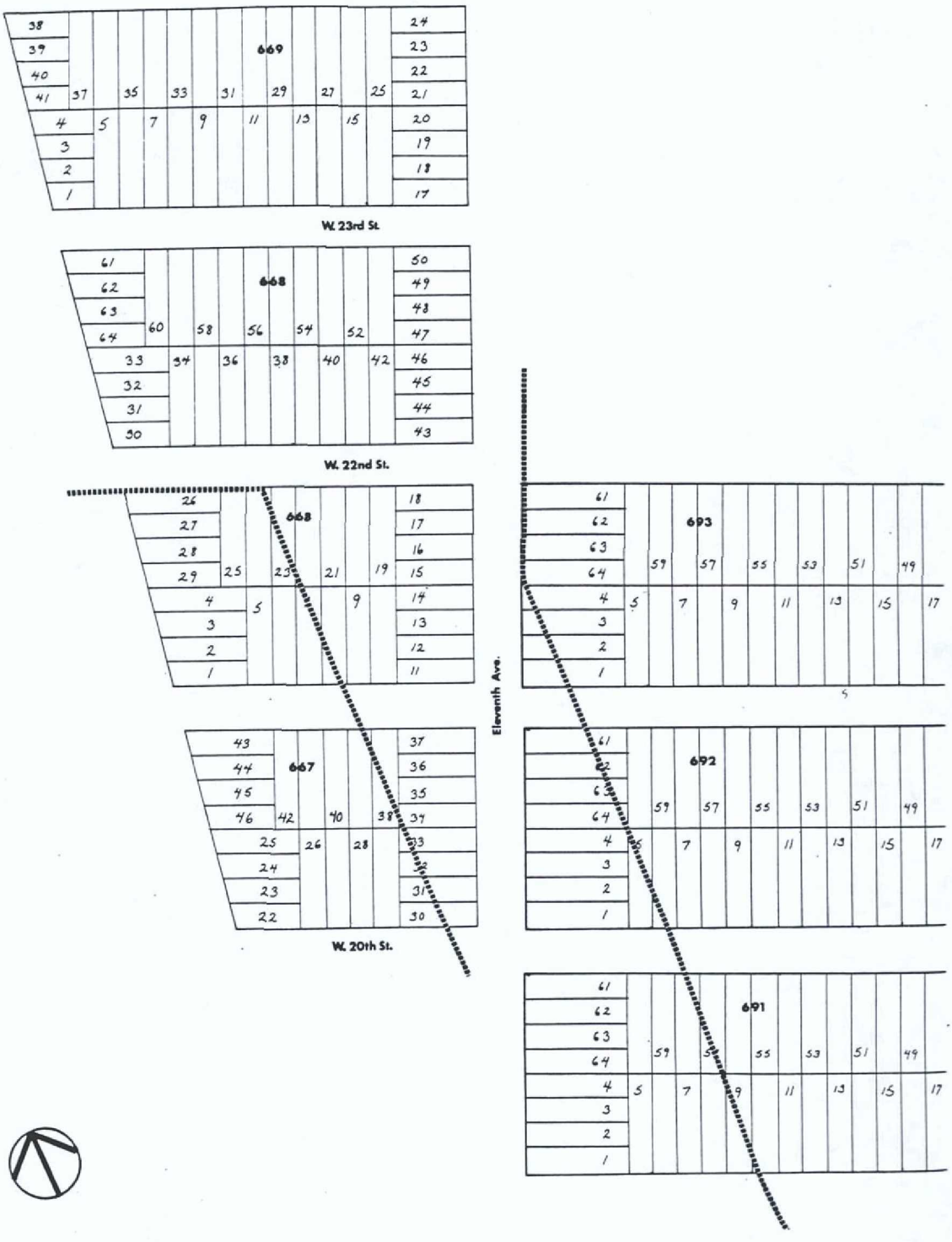
Figure 6-1



ROUTE 9A RECONSTRUCTION PROJECT

Aerial View of the Study Area Taken in 1924
From West 21st Street to West 29th Street
Courtesy of the New York Public Library

Figure 6-2



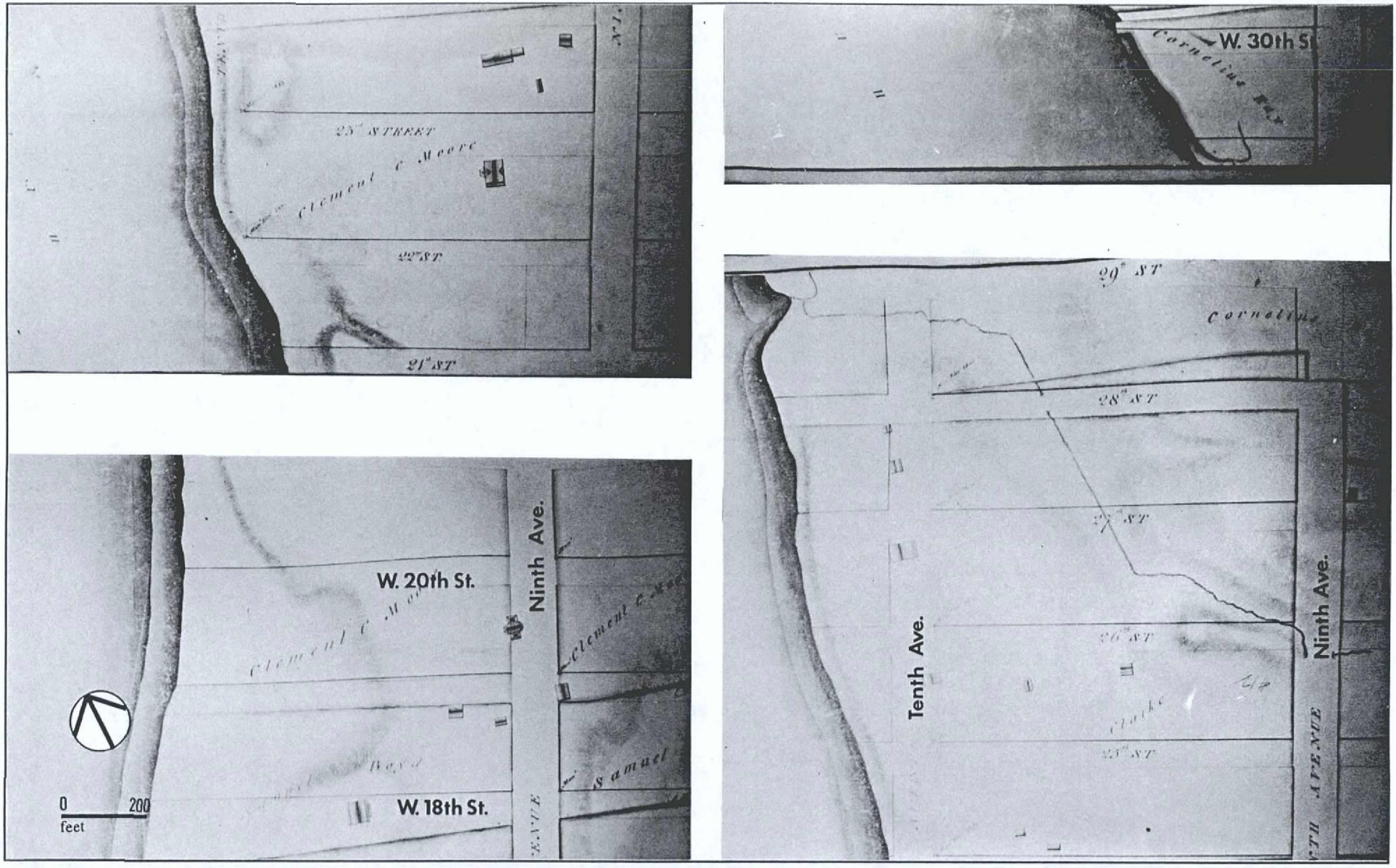
ROUTE 9A RECONSTRUCTION PROJECT

Legend

▪▪▪▪▪▪▪▪ *Approximate Boundary of Study Area*

Schematic Lot Configuration According to the 1913 Hyde Atlas for Blocks in the Chelsea Piers Area

Figure 6-3

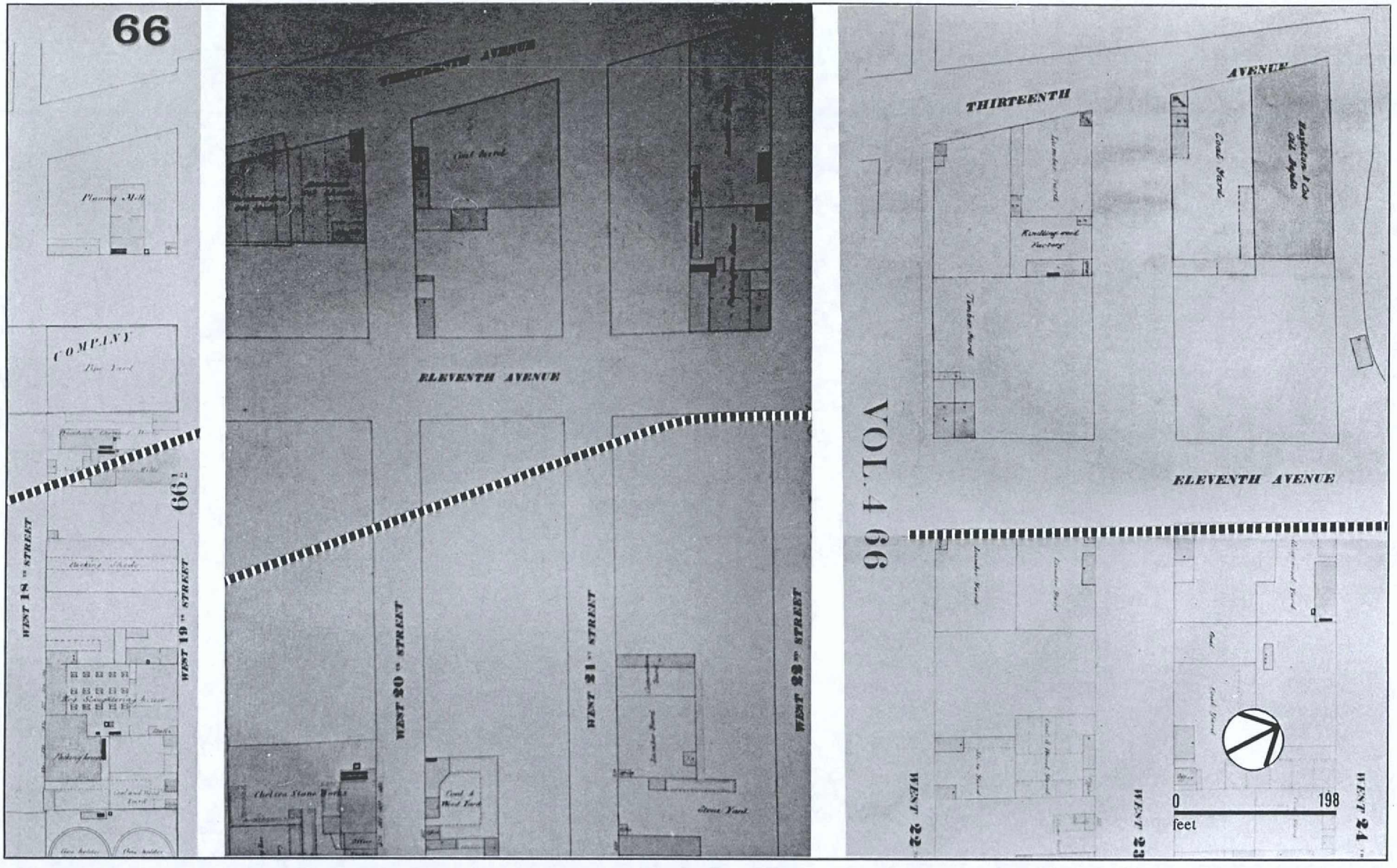


Legend

Approximate Eastern Boundary of Study Area
(West of visible shoreline)

1820 Randel Map of Farms

Figure 6-4



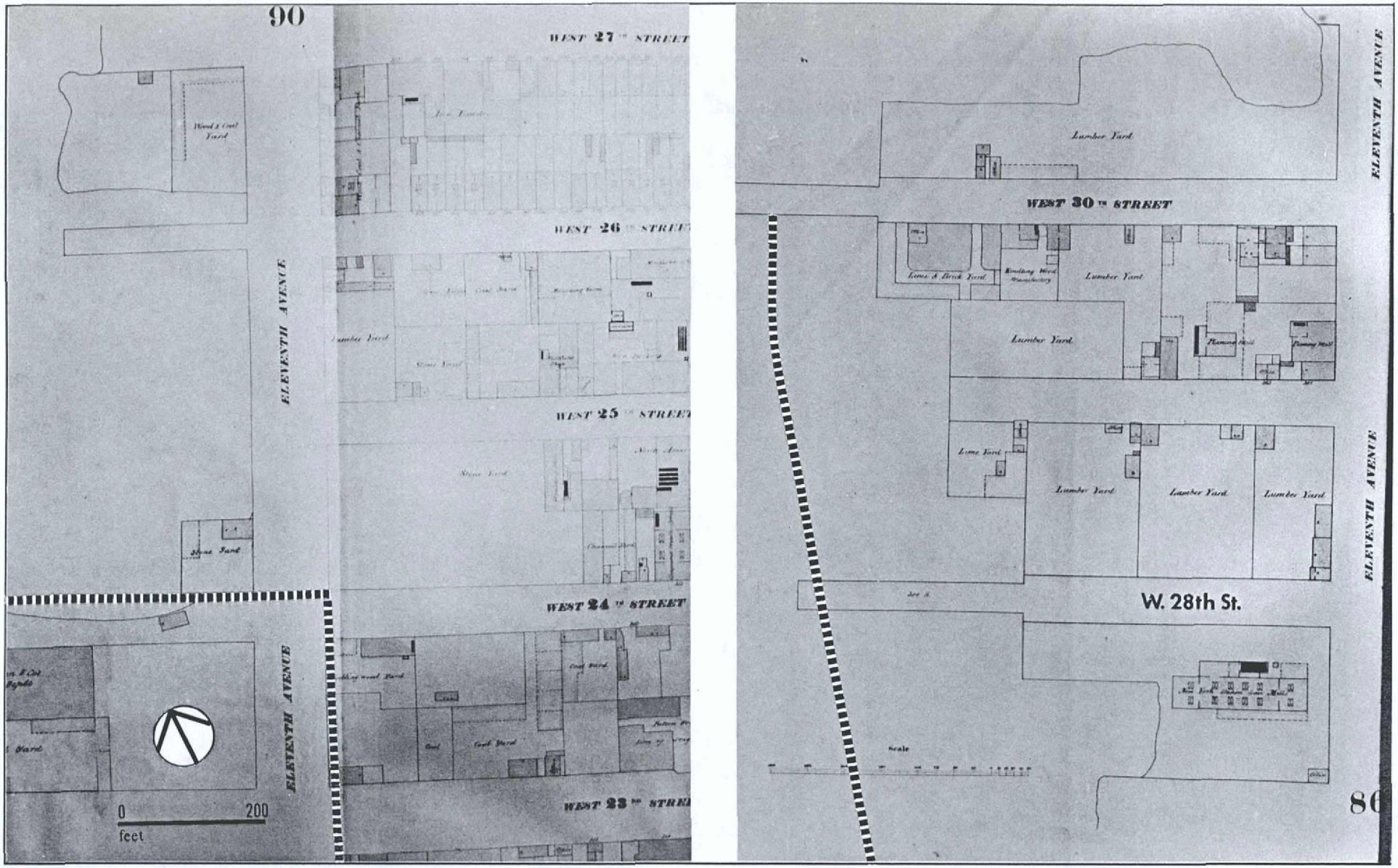
ROUTE 9A RECONSTRUCTION PROJECT

Legend

▪▪▪▪▪▪▪ *Approximate Eastern Boundary of Study Area*

1859 Perris Map of the City of New York

Figure 6-5A



VI-60

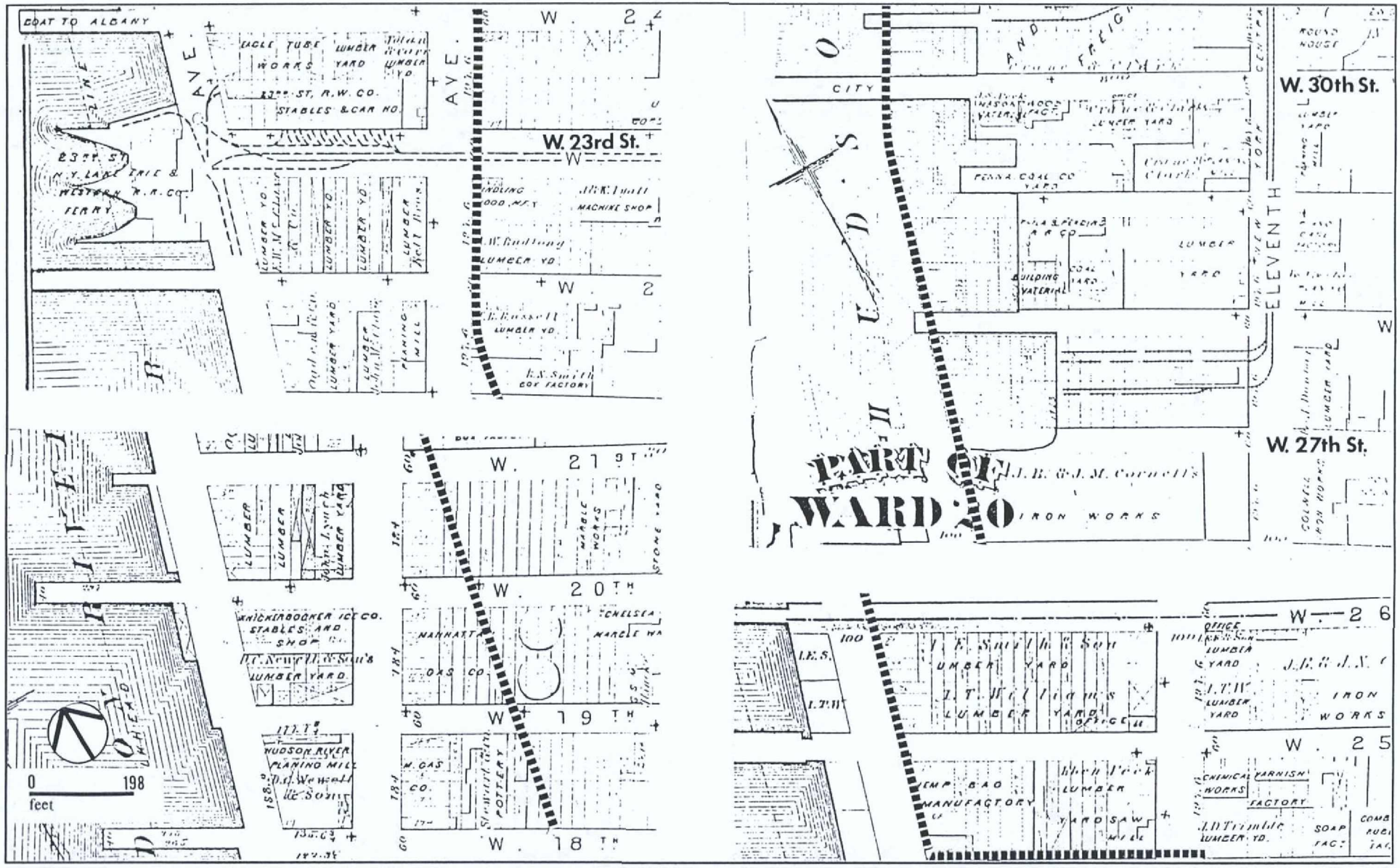
ROUTE 9A RECONSTRUCTION PROJECT

Legend

▪▪▪▪▪▪ *Approximate Eastern Boundary of Study Area*

1859 Perris Map of the City of New York

Figure 6-5B



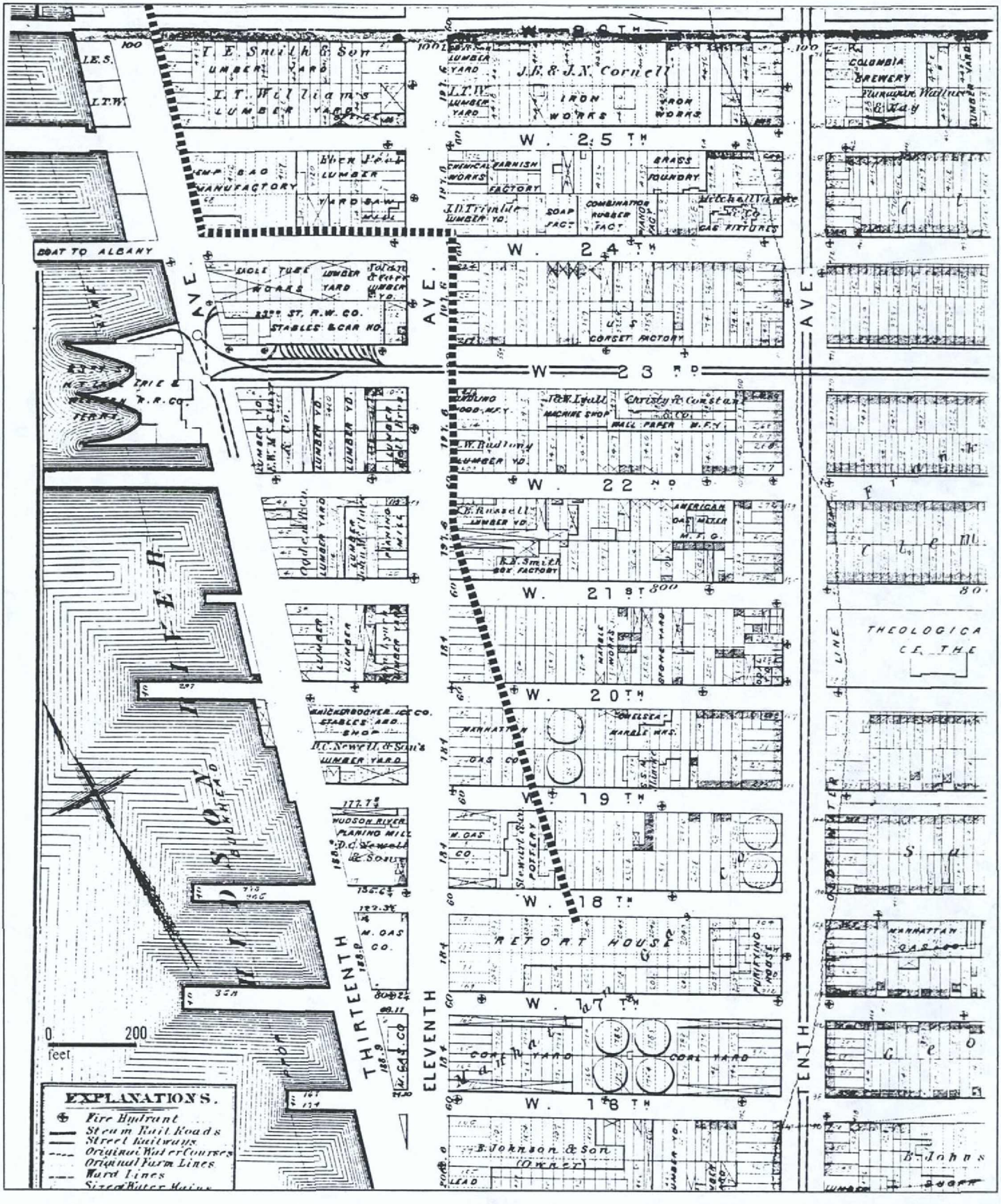
ROUTE 9A RECONSTRUCTION PROJECT

Legend

▪▪▪▪▪▪▪ *Approximate Eastern Boundary of Study Area*

1879 Bromley Atlas of the City of New York

Figure 6-6

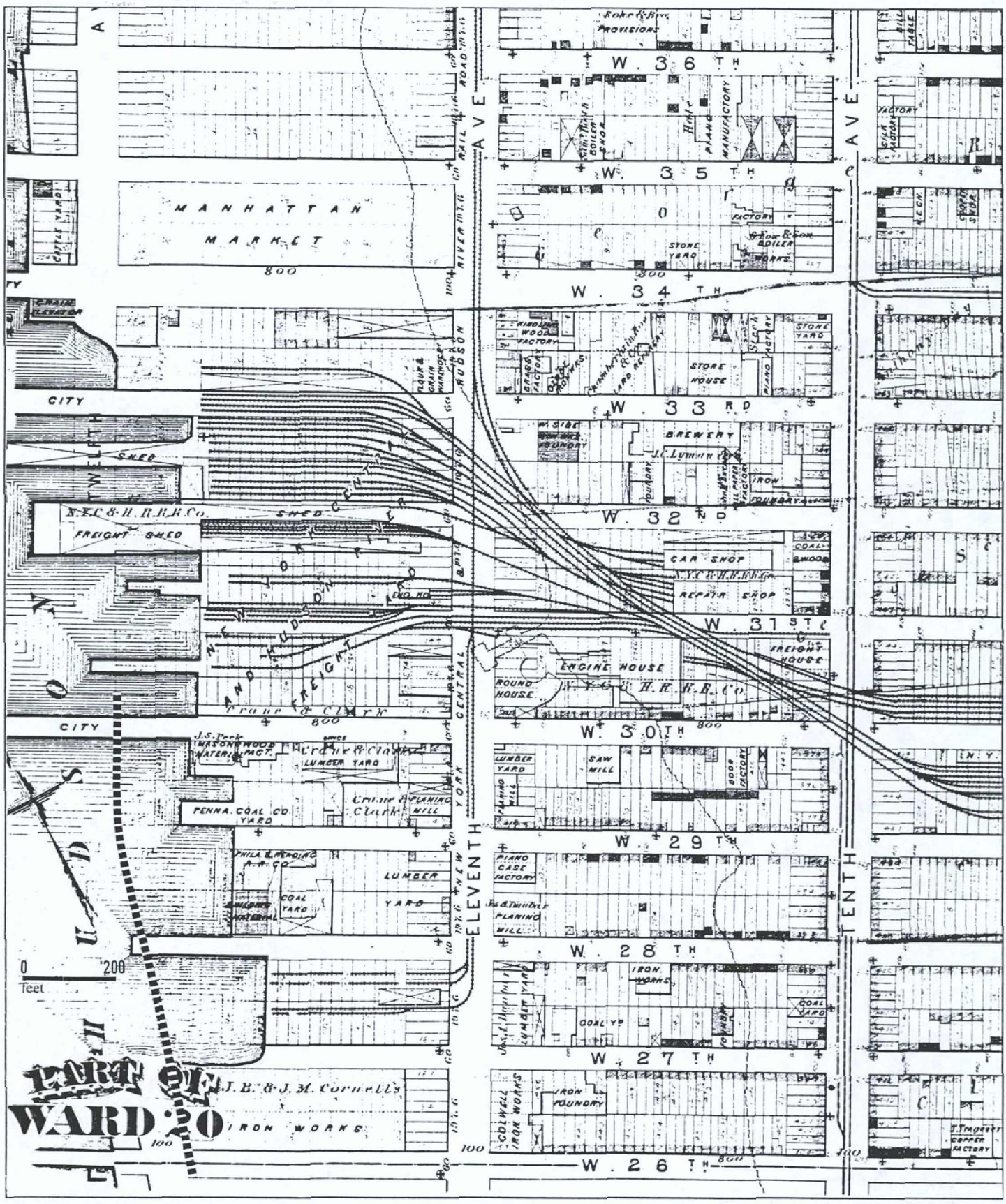


Legend

▪▪▪▪▪▪▪ *Approximate Eastern Boundary of Study Area*

1885 Robinson Atlas of the City of New York

Figure 6-7A



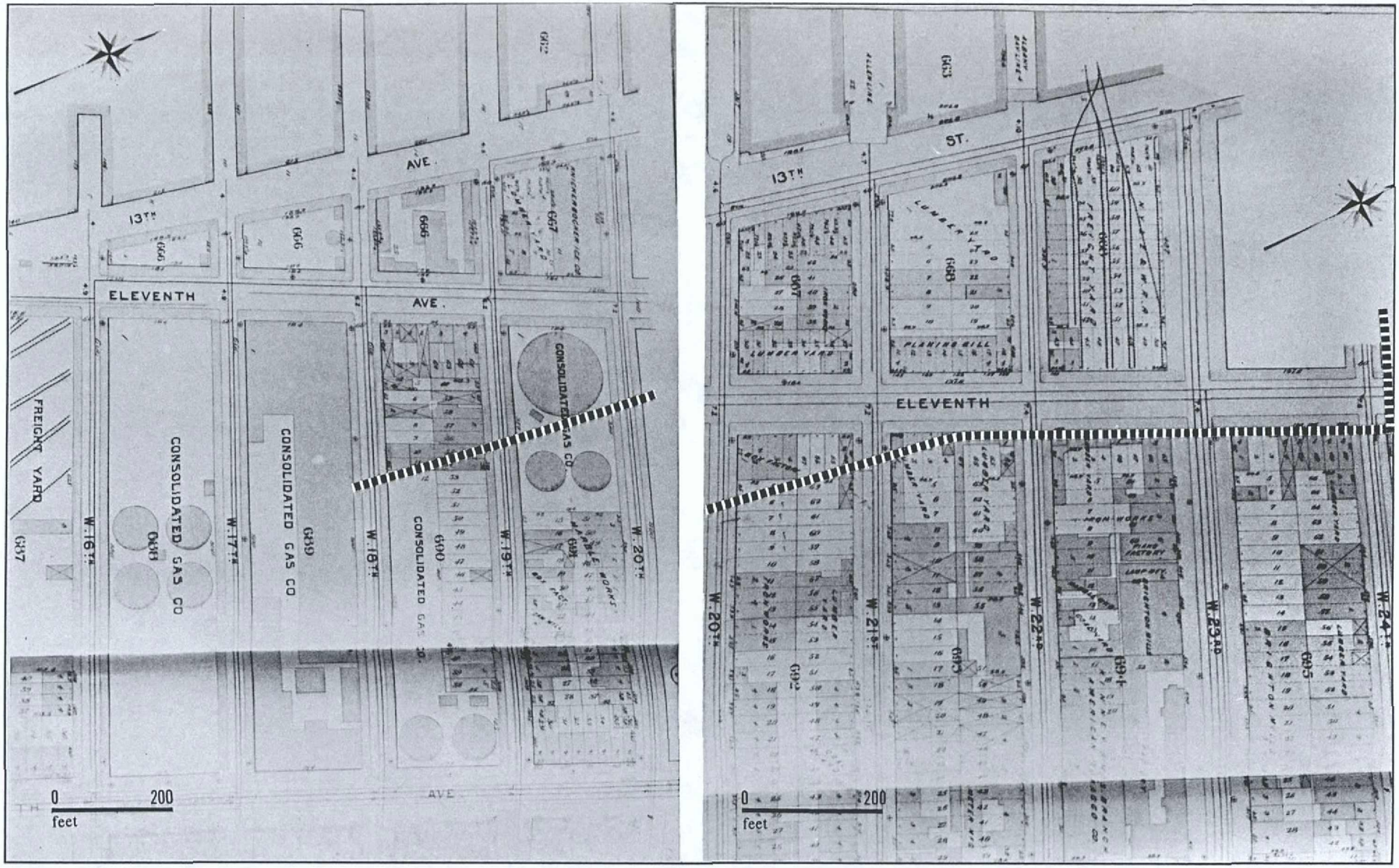
ROUTE 9A RECONSTRUCTION PROJECT

Legend

1885 Robinson Atlas of the City of New York

▪▪▪▪▪▪▪▪ *Approximate Eastern Boundary of Study Area*

Figure 6-7B

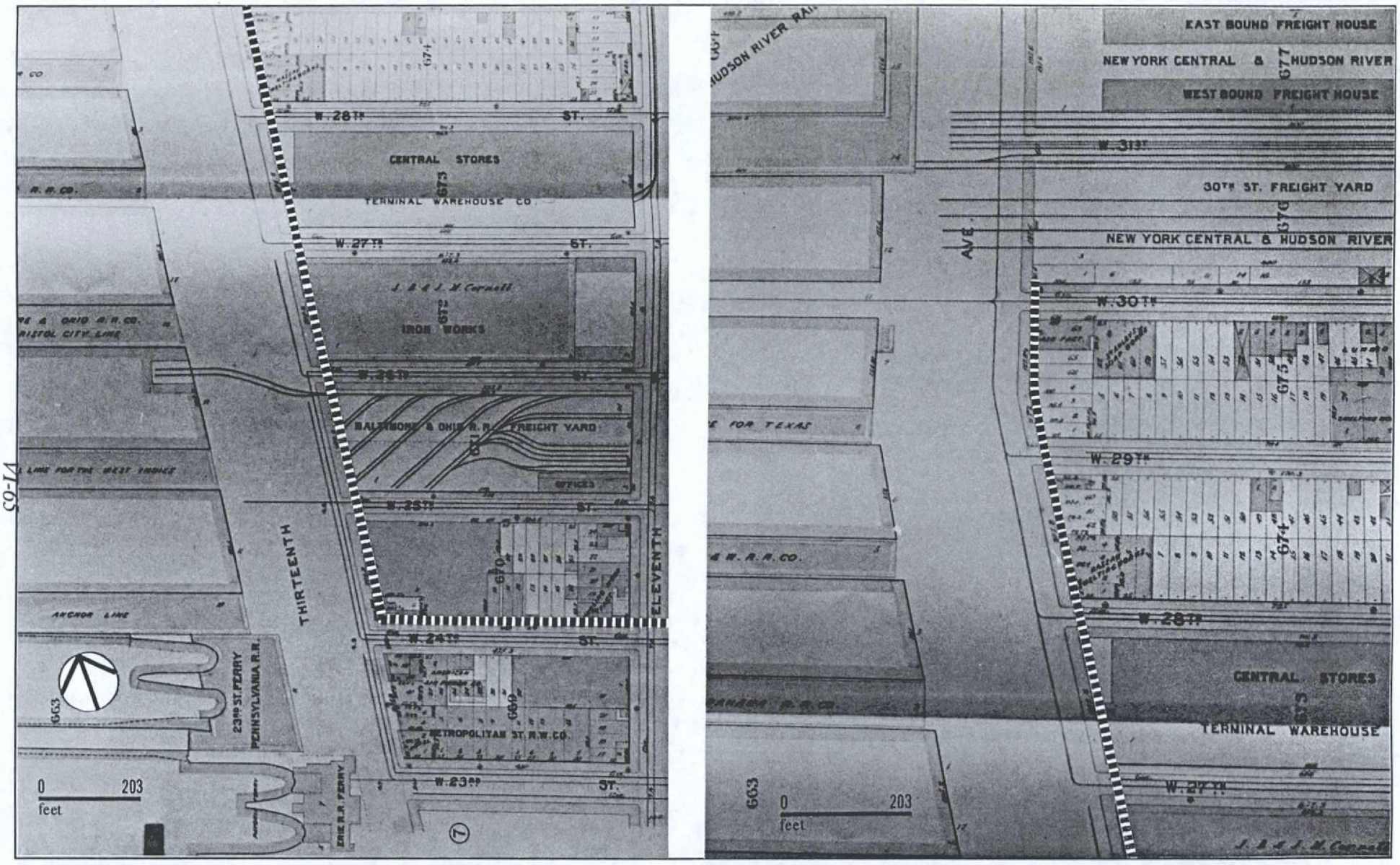


Legend

Approximate Eastern Boundary of Study Area

1902 Bromley Atlas of the City of New York

Figure 6-8A



VI-63

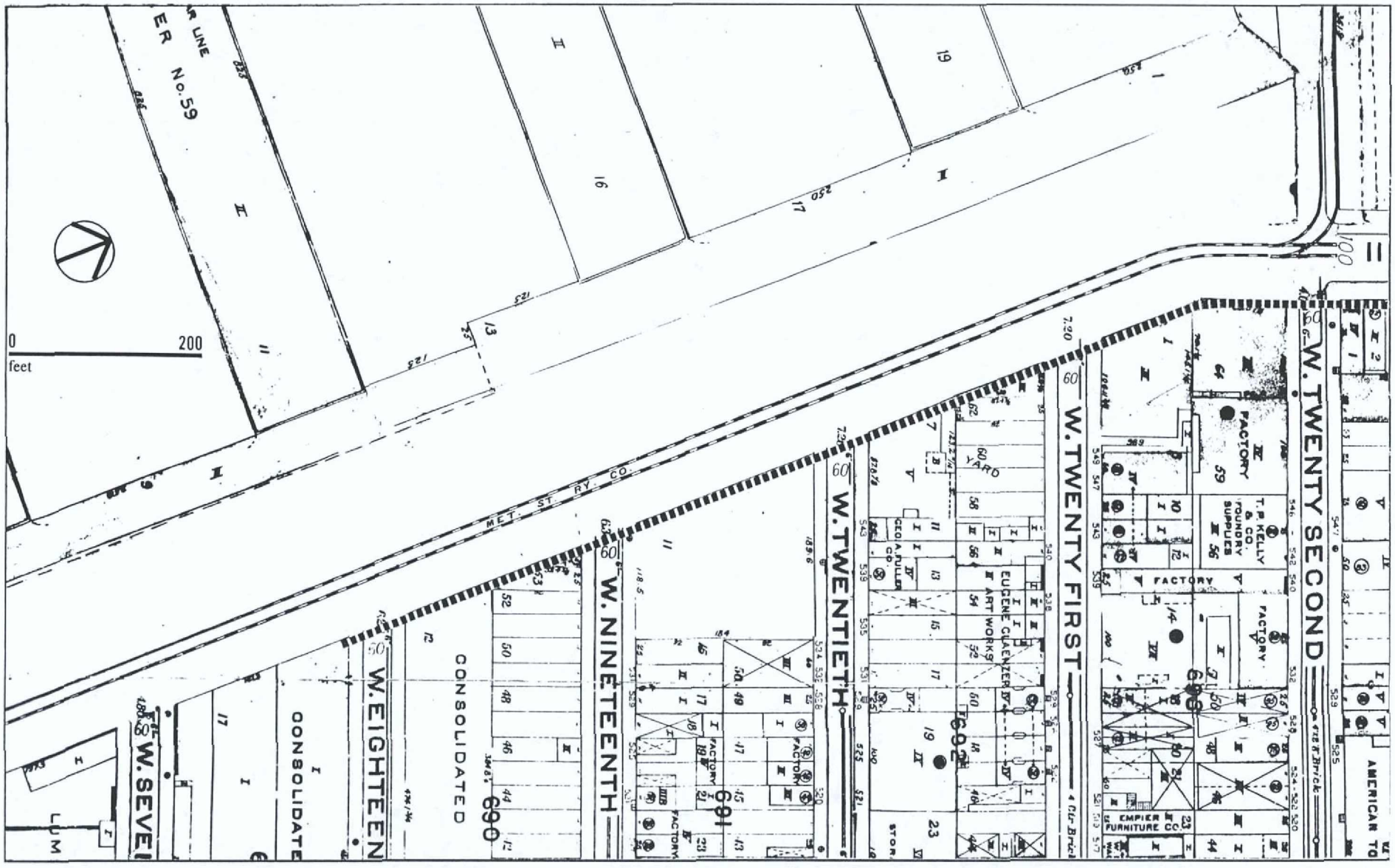
ROUTE 9A RECONSTRUCTION PROJECT

Legend

Approximate Eastern Boundary of Study Area

1902 Bromley Atlas of the City of New York

Figure 6-8B



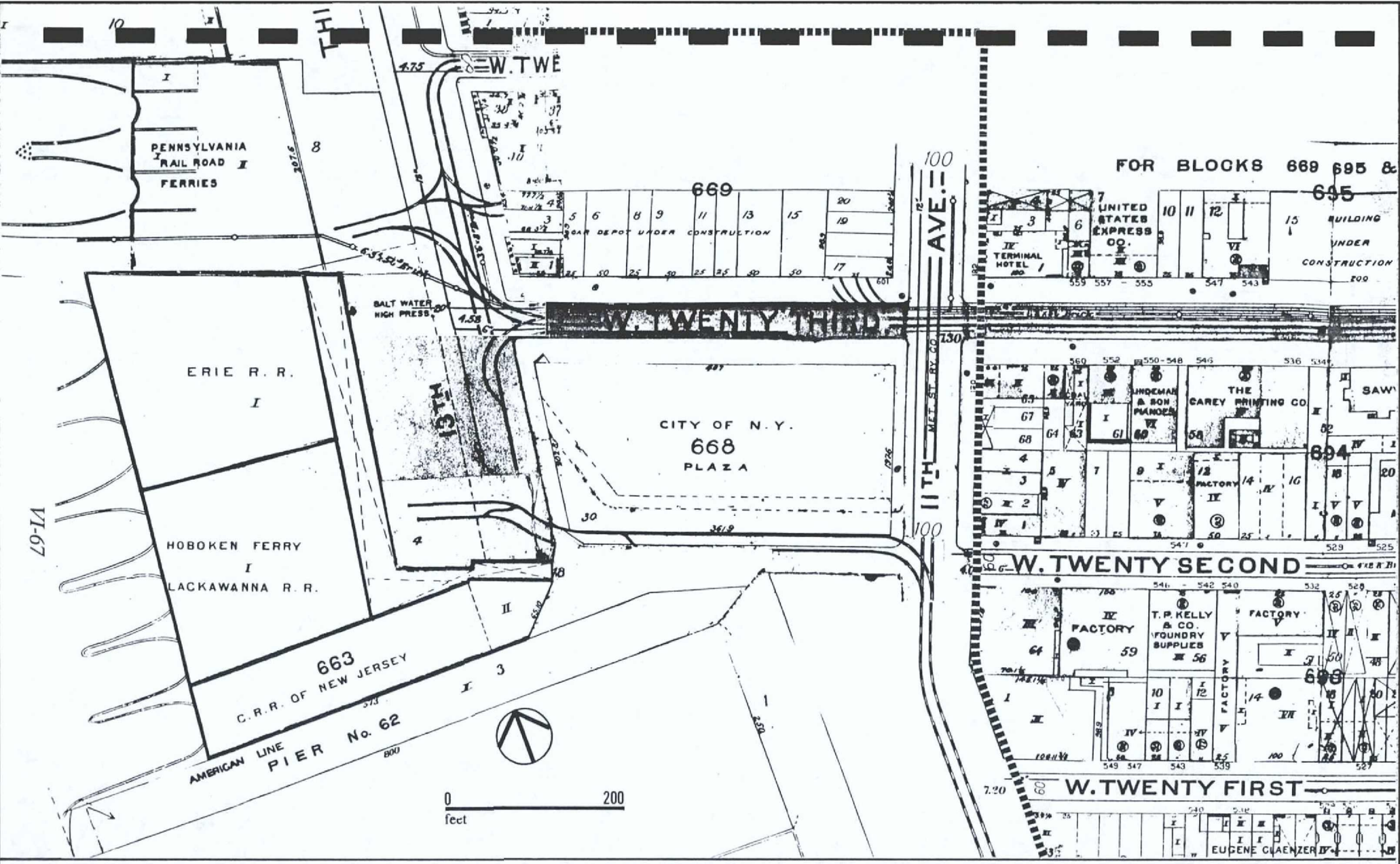
ROUTE 9A RECONSTRUCTION PROJECT

Legend

Approximate Eastern Boundary of Study Area

1913 Hyde Atlas of the Borough of Manhattan

Figure 6-9A



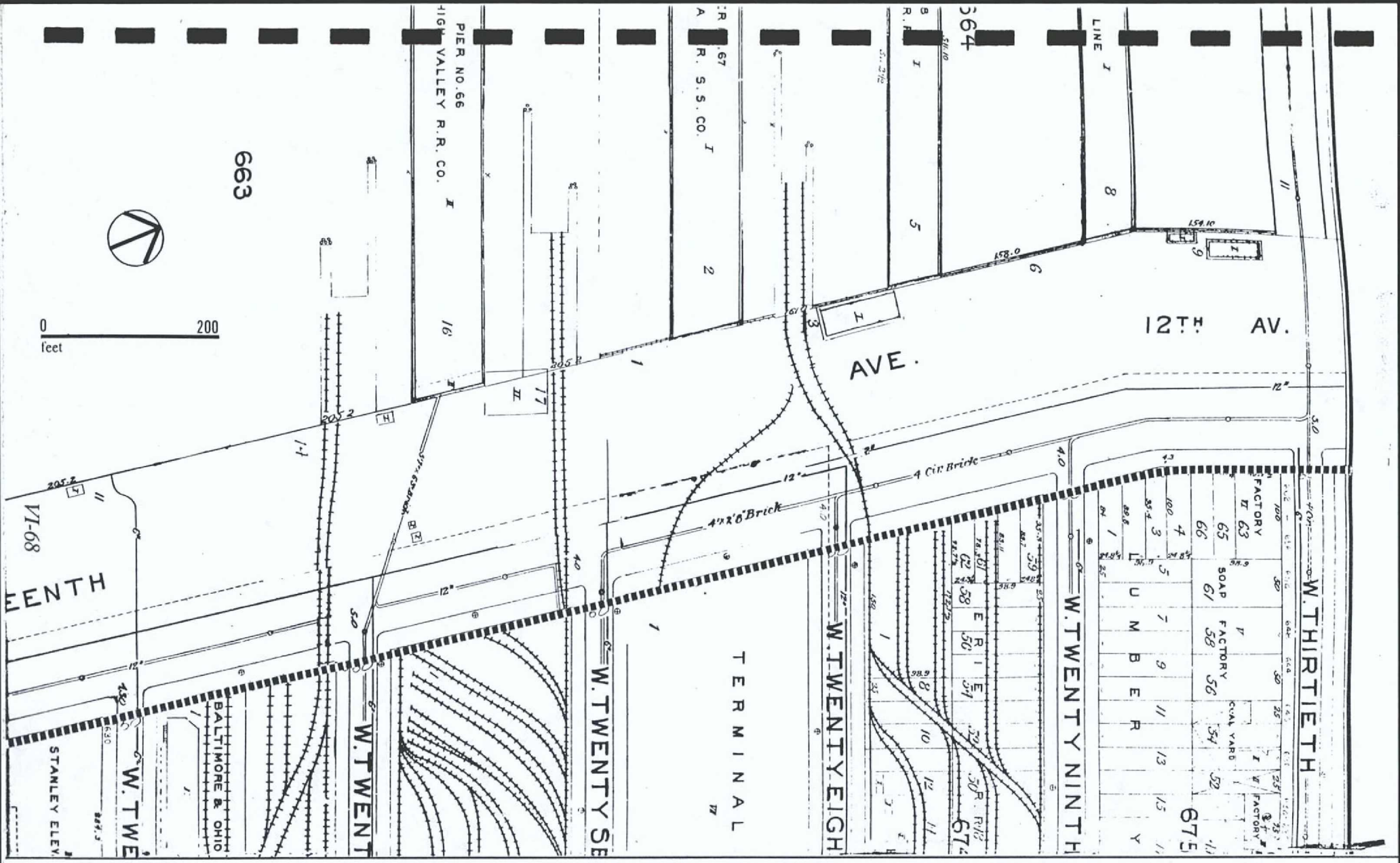
ROUTE 9A RECONSTRUCTION PROJECT

Legend

Approximate Eastern Boundary of Study Area

1913 Hyde Atlas of the Borough of Manhattan

Figure 6-9B



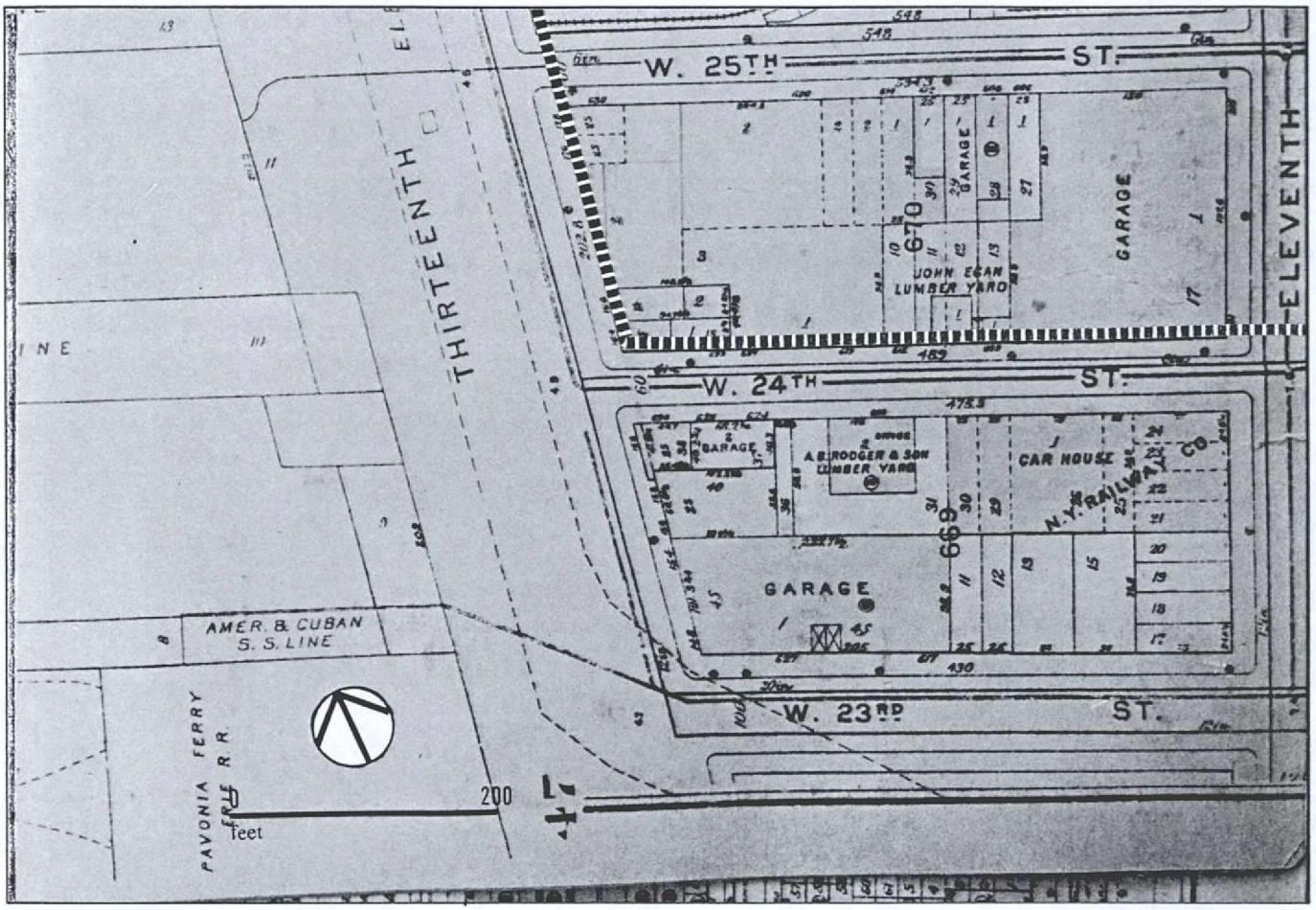
ROUTE 9A RECONSTRUCTION PROJECT

Legend

▪▪▪▪▪▪▪ *Approximate Eastern Boundary of Study Area*

1913 Hyde Atlas of the Borough of Manhattan

Figure 6-9C



ROUTE 9A RECONSTRUCTION PROJECT

Legend

▪▪▪▪▪ *Approximate Eastern Boundary of Study Area*

1930 Hyde Atlas of the Borough of Manhattan
Block 669, West 23rd Street to West 24th Street

Figure 6-10

A. SUBSURFACE DISTURBANCE

The research has identified several areas potentially sensitive for archeological remains. In order to determine the degree of potential for recovering such resources, it is necessary to reconstruct prior disturbance to these areas. Prior disturbance may have resulted from road construction and reconstruction, utility line installation, and demolition activities. The known disturbances are reported here to assess potential survivability of cultural resources.

Each potentially sensitive area was evaluated as to the amount of disturbance the area had received. Five categories were used:

- Very disturbed - 100% of the area appears to have been disturbed.
- Disturbed - 75-100% of the area appears to have been disturbed.
- Somewhat disturbed - 50-75% of the area appears to have been disturbed.
- Fairly undisturbed - 25-50% of the area appears to be disturbed.
- Undisturbed - 0-25% of the area appears to be disturbed.

Although the archeological potential of an area may not be totally destroyed by prior disturbances, sites that appear to be over 50% disturbed have not been recommended for additional investigation.

In the 1940s a report by the Works Progress Administration stated that the WPA was recurbing sidewalks and doing road adjustments along Marginal Street at that time (Works Progress Administration 1940:4). At that time, there were 14.14 miles of sewers in New York, and 98 sewers discharged into the Hudson (Ibid.:58).

Numerous utility lines exist in Eleventh and Twelfth Avenues and Marginal Street. These include water, gas, electric, and telephone lines, as well as private facilities for other purposes. A report on utilities in the Final Environmental Impact Statement for the West Side Highway Project stated the following:

> Water main systems...are located near the surface of the City's streets. The sizes of the mains vary from six to 30 inches in diameter. Gas mains, including manholes, regulators, drip traps and pumping sandpipes are located near the east property line in West Street. The size of gas mains in the Corridor are four to six inches in diameter. Steam lines coming from Rector Street, King Street and 15th Street terminate in West Street. Electric power lines are located throughout the Study Corridor. Telephone lines, including splice chambers and terminal boxes are located

throughout the Study Corridor (Federal Highway Administration 1975:135).

Plans compiled by the Environmental Protection Administration, Department of Water Resources (EPA) dating to 1968, show some of the subsurface conditions in the route of the project area (Figure 7-1). Old and new utility lines are shown in relation to the present configuration of Eleventh and Twelfth Avenues and Marginal Street. The detailed maps also include the locations of the 1857 bulkhead, some of the piers built prior to filling Marginal Street, old cribs, West Side Highway footings, electric, telephone, gas, water, and sewer lines. The majority of utility lines run through the center of the 70 foot width of Eleventh and Twelfth Avenues, and at cross roads branch off to run through the center of those as well. Sewer and utility lines are generally less than five feet below the surface, with the exception of the intercepter sewer line which is between 10 to 20 feet below the paved surface. The majority of old cribs and piers shown on the 1968 EPA map appear in the route of Marginal Street beneath the West Side Highway and have been bisected by few utility lines.

Several features considered to be of historical interest were shown on the 1968 EPA map. The placement of utilities and footings for the West Side Highway has deemed some of these more disturbed than others. In some cases several footings for the Highway, together with numerous utility lines, traversed potentially sensitive features rendering them sufficiently disturbed as to not warrant subsurface investigations. The following features were shown in outline on the map, labeled simply as old piers. The degree of disturbance to these features caused by utility lines and West Side Highway construction was assessed based on the map locations and specifications, and the known disturbances caused by utility line installations described in Section 6-B.

Old Pier 61 at West 21st Street, the west half is deemed fairly undisturbed while the east half is disturbed. Map shows rip-rap along the borders of the pier.

West 23rd Street Erie Railroad ferry landing deemed somewhat disturbed.

West 24th Street Pier deemed very disturbed.

West 25th Street Pier deemed fairly undisturbed. Map shows rip-rap along the borders of the pier.

The following piers were known to exist in the route of Twelfth Avenue and Marginal Street, as presented in the Historic Sensitivity section, and did not appear on the utilities map. Thus we have correlated the location of these piers with the utilities present and assessed the potential sensitivity based on prior impacts.

West 22nd Street Central Railroad of New Jersey ferry platform deemed undisturbed.

West 22nd to West 23rd Street Erie Railroad ferry landing deemed undisturbed.

West 23rd to West 24th Street Pennsylvania Railroad ferry landing, the west half is deemed fairly undisturbed.

West 26th Street Pier deemed very disturbed.

West 28th Street Pier, the west half is deemed fairly undisturbed while the east half is disturbed.

In addition to the piers, several buildings were identified on blocks between West 18th and West 24th Streets. Their location, which did not appear on the utility map, has also been correlated with the utilities present and the potential sensitivity has been assessed.

West 18th to West 19th Streets
Block 690, Lot 8, the western half of Lot 9, and the south half of Lot 10, Stewart and Company Pottery building deemed disturbed.

Block 690, Lots 61 and 62, J.P. Ryon Moulding building deemed fairly undisturbed.

West 20th to West 21st Streets
Block 667, Lots 30 and 31 building deemed disturbed.

Block 667, Lots 35 and 36 building deemed disturbed.

Block 667, Lot 37 building deemed disturbed.

Block 667, Lots 32 through 37, two buildings deemed disturbed.

Block 692, Lots 1 through 4 building deemed disturbed.

Block 692, Lot 61 shed deemed disturbed.

West 21st to West 22nd Streets
Block 668, Lots 11 through 17 Furniture Factory and Planing Mill deemed disturbed.

Block 668, Lots 43 and 44 two buildings deemed disturbed.

Block 668, Lots 36 and 57 building deemed disturbed.

Block 668, Lots 41 and 42 building deemed disturbed.

Block 668, Lots 42 and 51, Lot 42 deemed disturbed, Lot 51 deemed fairly undisturbed

Block 668, Lots 50 and 51 building deemed undisturbed.

The following structures stood on Block 669 between West 23rd and West 24th Streets and Eleventh and Twelfth Avenues. Since this block has remained in its original configuration, there are no utility lines traversing it. Therefore, the only disturbance to buildings identified during the cartographic review would have been caused by subsequent developments on the block. The following were identified as potentially sensitive and undisturbed.

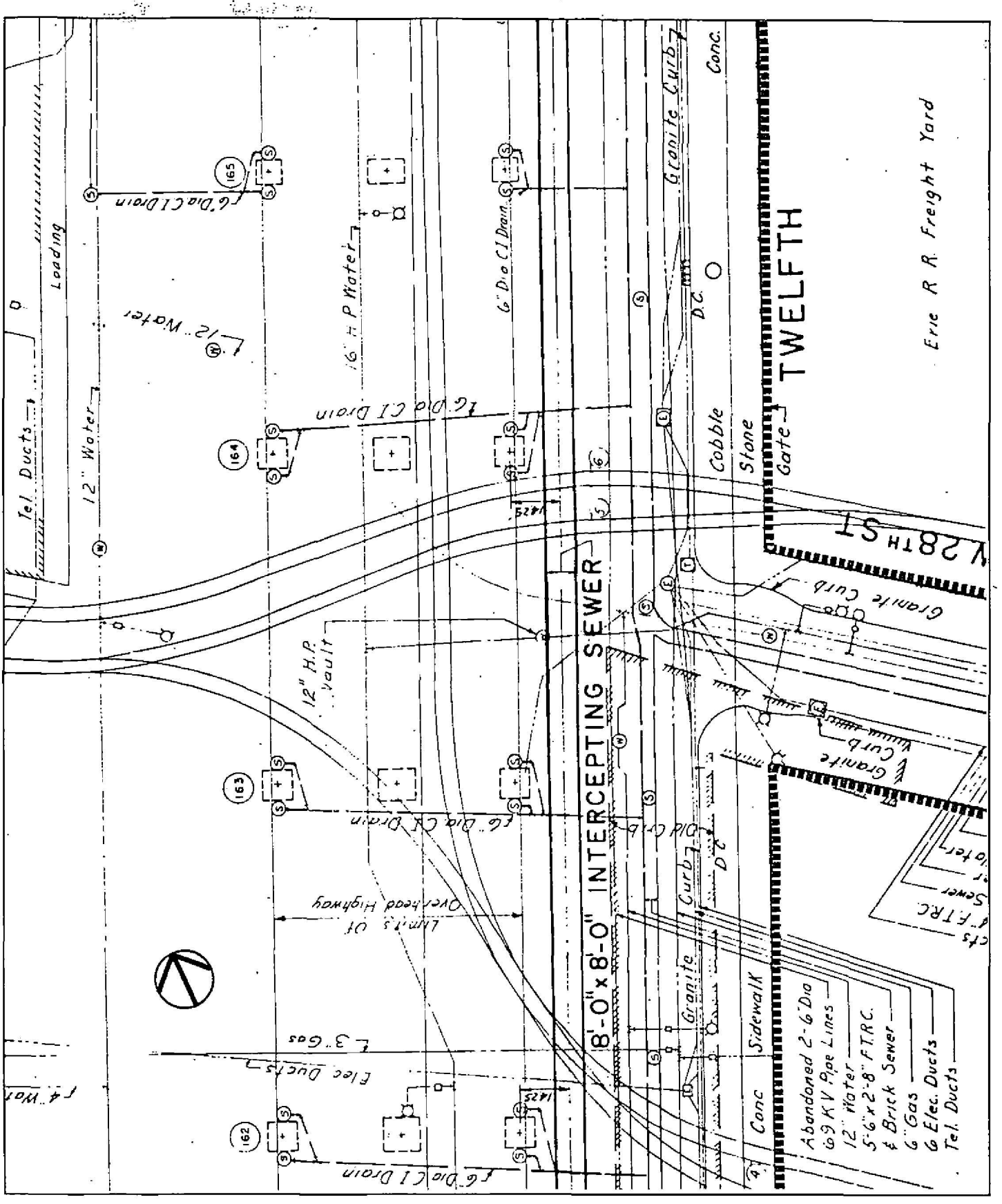
West 23rd to West 24th Streets
Block 669, Lots 21 through 25 car house.

Block 669, Lots 32 and 33 two-story brick building.

Block 669, Lot 38 tenement house.

Block 669, Lots 36, 37, and 39 through 41 brick buildings.

Three piers numbered 60, 61 and 62, were built between West 19th and West 22nd Streets in the early twentieth century. It should be noted however, that Piers 60 and 61 experienced substantial renovations between 1963 and 1968 (Rutsch et al. 1983:308). It is plausible that Pier 62 was also updated at that time. Any subsurface remains of these three piers that would be in the project area would be relatively recent and, therefore, not archeologically significant.



Legend

Archeological Study Area Boundaries

Example of Utilities in Archeological Study Area

Figure 7-1

A. SUMMATION OF POTENTIALLY SENSITIVE AREAS

The following categories were utilized for classifying potentially sensitive archeological remains:

A) **PREHISTORIC REMAINS**
B) **HISTORIC REMAINS**
   1) **Dwellings and associated outbuildings**
   2) **Industrial buildings/complexes**
   3) **Piers and wharves**
   4) **Landfill**
   5) **Other**

A list of sensitive resources within each category is provided below. Location of each resource is referenced in relation to the corresponding cross streets. The following list of areas includes potential sensitivity for Eleventh and Twelfth Avenues bordering the block to the west, and the cross road forming the southern border. For example, Eleventh Avenue between West 19th and West 20th Streets would include potential sensitivity for Eleventh Avenue, and the 50 foot span on West 19th Street, the southern of the two cross streets.

Much of the subsurface disturbance record has been documented, therefore some areas identified as sensitive in the prehistoric and historical sensitivity sections have subsequently been excluded due to prior disturbance. Features considered either somewhat disturbed or disturbed were not considered to have the potential to yield intact resources, and were therefore excluded from this list. Figure 8-1 shows the sensitive areas within this portion of the project area, as listed below.

PREHISTORIC SENSITIVITY

NONE.

HISTORIC SENSITIVITY

1. Dwellings

NONE.

2. Industrial Buildings and Complexes

Block 690 Between West 18th and West 19th Streets
- o Lots 61 and 62 J.P. Ryon Moulding building between c.1885 and c. 1902.

Block 668 Between West 22nd and West 23rd Streets
- o Lot 51 building associated with freight yard between c.1879 and c.1902

- o Lots 50 and 51 building associated with freight yard between c.1879 and c.1902.

Block 669 Between West 23rd and West 24th Streets

- o Lots 21 through 25 car house between c.1902 and 1930.
- o Lots 32 and 33 building of Rodgers and Son Lumber between c.1913 and at least 1950.
- o Lots 36, 37, and 39 through 41 brick buildings between c.1902 and 1941.

3. Piers and Wharves

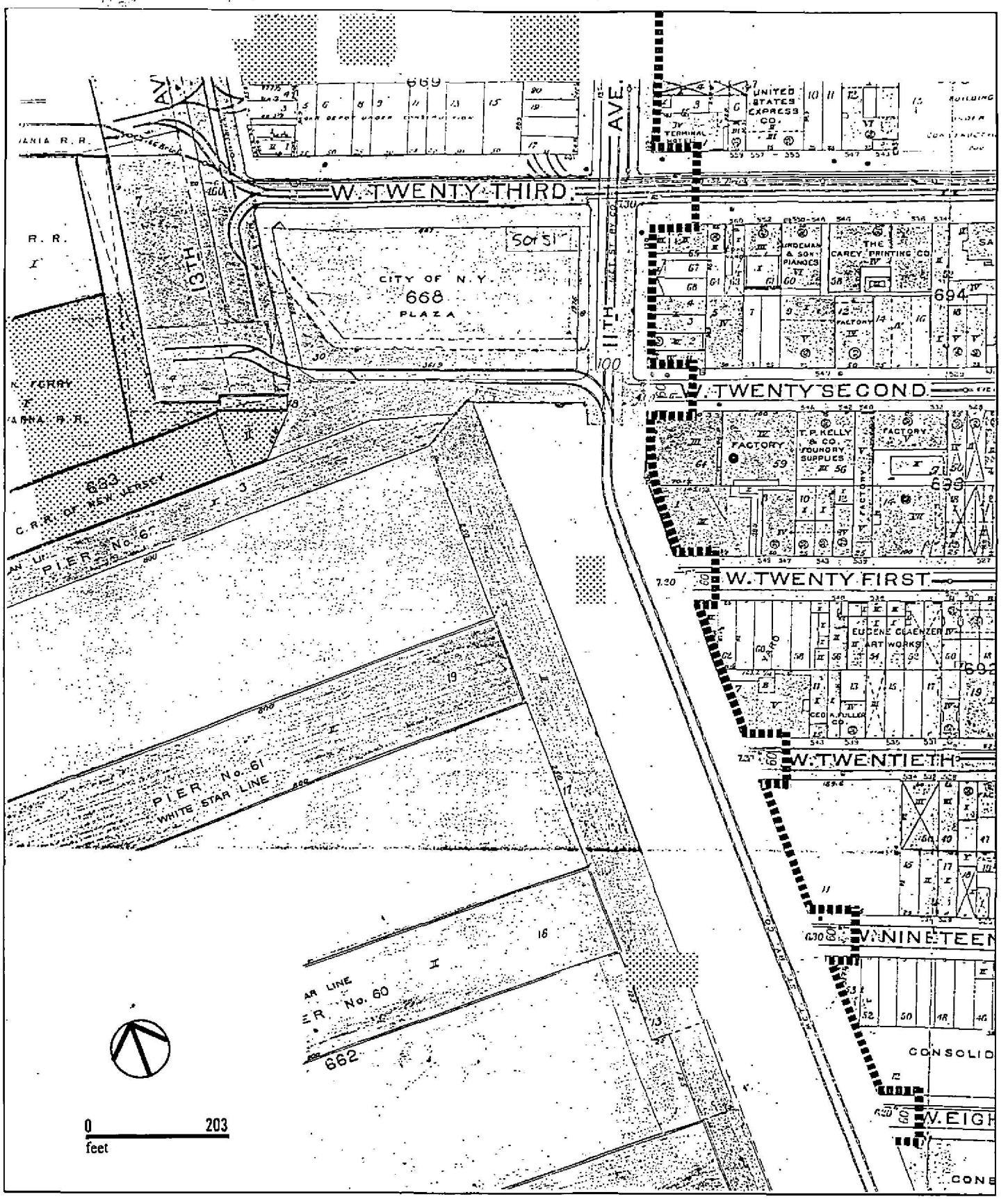
- o Old Pier 61 at West 21st Street, west half of pier, 1852-1859, part of landfill between 1852-1859.
- o West 22nd Street Central Railroad of New Jersey ferry platform, 1902-?, part of landfill between 1950-1989.
- o West 22nd Street to West 23rd Street Erie ferry landing, 1879-1902, eastern half part of landfill between 1897-1902, western half extant.
- o West 23rd to West 24th Street Pennsylvania Railroad ferry landing, west half of pier, 1902-1925, part of the landfill between 1913-1925.
- o West 25th Street Pier, 1879 to 1902, part of landfill between 1897-1902.
- o West 28th Street Pier, 1859 to 1902, west half of pier, part of landfill between 1897-1902.

4. Landfill

- o Possible fill retaining devices.

5. Other

NONE.



Legend

Historic Sensitivity

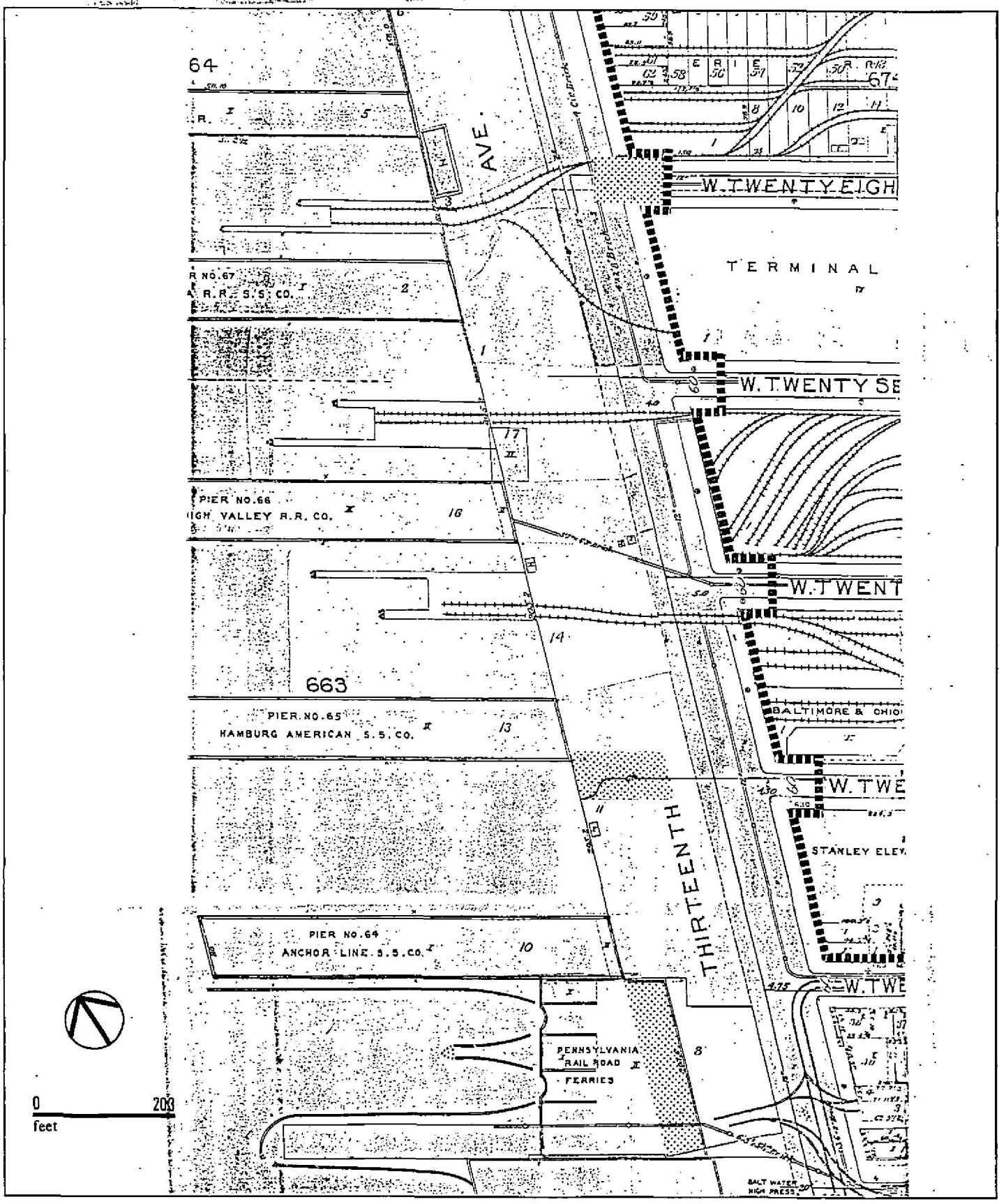
Approximate Eastern Boundary of Study Area

Base map contained depiction of original shore line

Areas of Potential Sensitivity - West 18th to West 30th Street

Superimposed on the 1913 Hyde Atlas of the Borough of Manhattan

Figure 8-1A



Legend

Historic Sensitivity

Approximate Eastern Boundary of Study Area

Base map contained depiction of original shore line

Areas of Potential Sensitivity - West 18th to West 30th Street

Superimposed on the 1913 Hyde Atlas of the Borough of Manhattan

Figure 8-1B

A. SUMMARY AND RECOMMENDATIONS

The extensive documentary and cartographic research to date of the project area between West 18th and West 30th Streets has revealed the location of several areas potentially sensitive for historic cultural remains. Potential remains were initially identified in the prehistoric and historic sensitivity sections. Prior impacts were assessed and a final list of areas deemed to be potentially sensitive was presented in Chapter VIII (See Figure 8-1). Each of the categories is discussed below and a preliminary evaluation of significance is made here. It should be noted, however, that the conclusions presented in this preliminary evaluation may be altered when research on the entire project area is completed and a final list of potentially sensitive areas is compiled.

Numerous piers dating to the nineteenth century were in the route of Twelfth Avenue and Marginal Street and may have become part of the landfill. Construction techniques varied through time and with individual owners. It would be impractical to attempt either excavation or avoidance of all of these features. However the importance of such resources cannot be denied. The sample chosen and presented here for further consideration is preliminary and was based on age of construction and the potential for answering specific questions regarding shoreline development. The following list of shoreline features represents different periods of construction.

Old Pier 61-West 21st Street 1852-1859, part of landfill by 1859. Possible rip-rap along borders.

West 25th Street Pier-1879-1902, part of Marginal Street landfill by 1897-1902. Possible rip-rap along borders.

West 28th Street Pier-1859-1902, part of Twelfth Avenue and Marginal Street landfill by 1897-1902.

It is quite possible that during excavations for the Route 9A Reconstruction project, that undocumented piers, wharves, quays, and fill retaining devices may be found. Cartographic references to cribbing have not been encountered, although it is highly probable that these features were constructed during the land reclamation process. Since a diverse number of methods of shoreline expansion were used in Manhattan, varying with age of construction and individualistic techniques, these resources are considered an important research issue toward documenting the development of the city.

Other features which may warrant archeological investigations are the buildings once present on Blocks 668, 669 and 690 between West 18th and West 24th Streets listed in Chapter VIII. These buildings were occupied by industries integral to the composition of the middle-west side development.

As stated above, this is a preliminary evaluation and the conclusions presented in this chapter may be altered when research on the entire project area is completed.

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