Draft Integrated Interim Response Feasibility Report and Environmental Assessment for Actionable Elements

NEW YORK-NEW JERSEY HARBOR AND TRIBUTARIES COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

APPENDIX A-2G HARLEM RIVER CULTURAL RESOURCES

July 2025

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EXECUTIVE SUMMARY

This discussion compliments the main report and the main report Environmental Assessment Appendix of which this document is a Sub-Appendix to, comprising of an Integrated Interim Response Feasibility Report (FR) and Environmental Assessment (EA). The details included herein are presented as a summary in the main text, as a more condensed version than what has been detailed here, to simplify the discussion of the main text and provide additional detail where needed specific to each particular Actionable Element (AE) EA Appendix. This Sub-Appendix focuses primarily on the Existing Conditions of the AE site, and the Cultural Resource Effects (both adverse and beneficial) of the AE Alternative, including the No Action Alternative.

The Actionable Element documented in this appendix is referred to as Harlem River, located in Manhattan, New York, which falls within the Lower Hudson/East River Planning Region of the Comprehensive Plan, discussed in the Draft Integrated FR/Tier 1 (Programmatic) EIS. This Actionable Element serves as an interim action of the Comprehensive Plan. The Harlem River Actionable Element is a Coastal Storm Risk Management (CSRM) feature with complimentary nature-based features (NBF) to the NYNJHAT Study Overall Comprehensive Plan, providing high-frequency flood risk reduction NBF, and serves as a multi-line of defense to the NYNJHAT Study, Harlem River section of Manhattan. This CSRM includes two separate alignments for public consideration: (1) shore-based measures, in-water barriers, deployable flood barriers, and NBF (referred as Seaward Alignment). (2) in-land measures with in-land barriers, floodwalls, deployable flood barriers, and invasive vegetation species management and replacement with native species (referred as Landward Alignment)

The Purpose and Need for the action, including the Interim Response Action, and the Alternative details for each Actionable Element site are discussed in more depth in the Main Text, of which this document is a sub-appendix to. The affected environment and environmental consequences and benefits detailed here, are presented in the main text in summary format.

This Sub-Appendix is organized by Cultural Resource Categories, originally identified in the Draft Integrated FR/Tier 1 (Programmatic) EIS. Each Resource Category, if applicable to this AE, includes an existing conditions summary for resources of the Natural Environment and Physical Environment. Each Cultural Resource Category also includes an assessment of potential direct and reasonably foreseeable indirect adverse and beneficial effects of the Alternative. A cumulative effects analyses is included in the main text. Any Cultural Resource Category not applicable to this AE is stated as such in this document, and does not include any score or associated adverse or beneficial effects analyses, because the resource is not present, or potentially present, in a manner that would incur any kind of effect directly, indirectly, or cumulatively.

1 FEDERAL AND STATE CULTURAL RESOURCE COMPLIANCE

Federal and state laws require the USACE to consider effects on cultural resources. The Council on Environmental Quality's regulations implementing the National Environmental Policy Act (NEPA), as amended, require that Federal agencies consider the "unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas" and "the degree to which the [proposed] action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources" (40 CFR §1508.27(b)(3), (8)).

The USACE must also consider the effects of its undertaking on historic properties as defined in 54 U.S.C. §300308 of the National Historic Preservation Act (NHPA). The NHPA (54 U.S.C.§300101 et. seq.) distinguishes historic properties as any prehistoric or historic district, sites, building, structure, artifacts, or object included on, or eligible for inclusion on, the National Register of Historic Places (NRHP). Other Federal laws and regulations also protecting these resources include the Archaeological and Historic Preservation Act of 1974 (54 U.S.C. §§312501- 312508), and the Archaeological Resources Protection Act of 1979 (16 U.S.C. §§470aa-470mm). These Federal laws, specifically Section 106 and Section 110 of the NHPA, require Federal agencies to consider the effects of their actions on cultural resources and historic properties, including districts, sites, buildings, structures, and objects included or eligible for inclusion in the NRHP.

Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR Part 800) requires an assessment of the potential impact of an undertaking on historic properties that are within the proposed project's area of potential effects (APE). The NHPA defines the APE defined as the geographic area or areas "within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16(d)). Additionally, Section 110(f) of the NHPA (54 U.S.C. § 306107) requires USACE to minimize harm to all National Historic Landmarks (NHL) within the APE to the maximum extent possible.

For the NYNJHAT AE study, the APE for cultural resources extends beyond the study area to encompass the following: 1) areas where structural measures are implemented (to include construction, demolition, vibration, and auditory effects); 2) where non-structural measures are applied to historic properties, and 3) where structural or non-structural measures has the potential to affect the viewshed of historic properties. An effect is an alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP (36 CFR 800.16(i)). Examples of effects include visual intrusions, alterations of setting, noise, vibrations, viewsheds, and physical impacts. Indirect effects to historic properties are those caused by the undertaking that are later in time or farther removed in distance but are still reasonably foreseeable. Applicable state laws include the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) Section 14.09 of the New York State Historic Preservation Act and the New Jersey Register of Historic Places Act, (Laws of 1970, Chapter 268).

Federal agencies are required under Section 106 of the National Historic Preservation Act to "consider the effects of their undertakings on historic properties" and consider alternatives "to avoid, minimize or mitigate the undertaking's adverse effects on historic properties" [(36 CFR 800.1(a-c)] in consultation with the State Historic Preservation Officer (SHPO) and appropriate federally recognized Indian Tribes (Tribal Historic Preservation Officers -THPO) [(36 CFR 800.2(c)].

2 METHODOLOGY

The focus of this Draft EA study is to present a preliminary assessment of Direct Areas of Potential Effects (APEs) and the Indirect Areas of Potential Effects/ Visual Impact Areas for the project's alternatives. The APE includes the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking", 36 CFR 800.16(d). For the NYNJHAT Project, the District shall consider potential direct, indirect, and cumulative effects to historic properties and all aspects of integrity, including their associated settings as applicable.

This study uses the broad term 'cultural resources' to apply to places, archaeological sites, buildings, structures, objects, cultural practices, or collections of these physical and nonphysical manifestations that have significance to humans. Definitions of cultural resources and other terms are summarized in a glossary.

2.1 DIRECT AREA OF POTENTIAL EFFECTS

This Draft EA preliminarily identifies known cultural resources that could be directly affected by the AEs. The activities associated with the proposed undertaking include all new construction, improvements, and maintenance activities related to the proposed AEs. For this study, the direct APE for cultural resources is defined as the area within 100 m (328 ft) of each proposed project component and any temporary construction actions (e.g., access roads, staging areas, etc.). Temporary construction actions are typically developed relatively late in the planning process, and have not been designed as of this writing. The 100- meter APE around planned measures used herein to define the direct APE will circumscribe most, if not all, future planned temporary construction actions. The direct APE is the area in which an undertaking is most likely to have impacts on cultural resources. The direct APE includes the area that may be affected by direct physical impacts, such as demolition, alteration, or disturbance of a resource.

In general, an undertaking has an effect on an historic property when the undertaking may alter characteristics of the property. Section 106 of the National Historic Preservation Act and 36 CFR 800.5 provide a useful definition of adverse effects, as well as helpful examples:

> **Criteria of adverse effect**. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.
>
> **Examples of adverse effects**. Adverse effects on historic properties include, but are not limited to:
>
> (i) Physical destruction of or damage to all or part of the property;
>
> (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR 68) and applicable guidelines;
>
> (iii) Removal of the property from its historic location;
>
> (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
>
> Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(v) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vi) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term reservation of the property's historic significance [36 CFR 800.5].

2.2 INDIRECT AREA OF POTENTIAL EFFECTS/ VISUAL IMPACT AREA

This study provides preliminary identification of known cultural resources that could be visually affected by the AEs. Visual analysis is part of the NEPA and Section 106 analyses and includes a broad look at the potential impacts to historic properties. By definition, a visual effect occurs whenever a proposed undertaking will be visible from an historic property. The mere existence of a visual effect does not automatically imply that the effect is adverse. An *adverse* visual effect occurs only when the addition of a new element to a landscape is found to diminish those aspects of a property's significance and integrity, such as its historic setting, which make it eligible for the State and National Registers of Historic Places (S/NRHPs).

Adverse visual effects are generally of two types, aesthetic or obstructive. An adverse aesthetic effect transpires when an undertaking's visual effect has a negative impact upon the perceived beauty or artistic values of an historic structure or landscape, thereby diminishing the appreciation, experience, or understanding of the resource. Common examples of adverse aesthetic impacts include the diminution or elimination of open space, or the introduction of a visual element that is incompatible, out of scale, in great contrast, or out of character with the historic resource or its associated setting. An adverse obstructive effect occurs when the proposed undertaking blocks any part of an historic property or eliminates scenic views historically visible from the property.

In keeping with USACE guidance, the APE for visual impacts on historic properties for the AEs cultural resource study is defined as those areas within one mile of proposed features which are within the potential viewshed (based on topography) of each Alternative. The New York State Department of Environmental Conservation (NYSDEC) defines *Visual Impact* as:

> *…when the mitigating effects of perspective do not reduce the visibility of an object to insignificant levels. Beauty plays no role in this concept. A visual impact may also be considered in the context of contrast. For instance, all other things being equal, a blue object seen against an orange background has greater visual impact than a blue object seen against the same colored blue background. Again, beauty plays no role in this concept [NYSDEC 2000:10-11].*

The analysis takes into consideration the resource's geographical distance and the effect of topography on whether the Project is visible from historic resources. A visibility analysis that takes the built environment and vegetation into account are described in Section 4.5.

2.3 RESEARCH METHODS

This study is intended to provide a baseline of cultural and historic information that will inform preliminary planning decisions regarding cultural resources.

In addition to guidance from the USACE, the technical approach for the cultural resources survey was conducted in accordance with the:

(1) New Jersey Historic Preservation Office's (2004) Guidelines for the Preparation of Cultural Resource Management Archaeological Reports;

(2) New York Archeological Council's (NYAC) *Standards for Cultural Resources Investigations and the Curation of Archeological Collections in New York State*;
(3) New York State Office of Parks, Recreation, and Historic Preservation's (2005) *State Historic Preservation Office Phase I Archaeological Report Format Requirements*; and
(4) Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48FR44734-37)

Background research for the project included a review of existing cultural resource reports, management plans, archaeological site files, historic maps, and nominations to the National Register of Historic Places (NRHP). All work was performed by and under the direct supervision of individuals meeting the Secretary of the Interior's professional qualifications standards (36 CFR 61). The background research and an assessment of the archeological sensitivity and State and National Registers of Historic Places sensitivity of the study area were conducted in during the period of January through June 2025. Table 1 outlines the sources of background cultural resources Information.

The New York State Office of Parks, Recreation and Historic Preservation (OPRHP) provided cultural resources data for the visual impact area in New York State. The results of the indirect area of potential effects will only include the proposed project locations in New York State. Potential visual impacts to architectural resources in New York, topographic viewshed only, are presented for each of the build alternatives.

Geographically, New York is a city with 5 boroughs, 59 community districts and hundreds of neighborhoods. The locations and names of neighborhoods and communities in HATS regions in New York City were identified by reviewing the *New York City A City of Neighborhoods* map (City of New York Department of Planning 2014).

3 CULTURAL BACKGROUND OF THE HARLEM AE, MANHATTAN: FROM NATIVE AMERICAN INHABITANTS TO THE PRESENT

The historic cultural background narrative for the AE includes broad trends in sub-regional developments for historic time periods, specific to each of the three AEs. The historic background identifies information on specific topics of New York history and is presented below.

A 2014 report for Hudson-Raritan Estuary Comprehensive Plan (Harris et al. 2014) compiled cultural resources background information to serve as an appendix to the Feasibility Study and Programmatic Environmental Impact Statement for the Hudson-Raritan Estuary Ecosystem Restoration Program. The report provided a detailed cultural/historical overview for eight regions in northeastern New Jersey, New York City, and the lower Hudson River Valley. These areas are very similar geographically to planning regions presented in this study. The present study includes the Mid-Hudson and Upper Hudson Regions, which were not included in 2014, and combines the Arthur Kill and Lower Bay regions, which were separate in 2014. Please refer to that study for additional detailed information on the regions.

The 2022 Tier I Environmental Impact Statement and Cultural Resource Assessment: New York-New Jersey Harbor and Tributaries Study completed an initial investigation of the comprehensive study area to provide information about cultural resources that will contribute to the New York District's decision-making process in selecting a build alternative for the New York-New Jersey Harbor and Tributaries flood risk management system. To do so, the investigation included two parts: an historical review of the study area to provide contextual information for the cultural resources it contains; and preliminary assessments of the potential direct and indirect (i.e., visual) effects of each of the build alternatives on cultural resources. The historic context covered the New York District-defined study area, while the effects assessments are limited to areas near the planned build alternatives.

Each planning region's historic background was presented as its own project area and covered the period between initial European contact with Native American inhabitants of New Jersey and New York to the present time. There was some overlap in the historic contexts of the planning regions due to the proximity of the regions. This cultural background included broad trends in regional developments for historic time periods, including early explorers (1500-1625); colonial settlement (1625-1775), developments and changes in industrialization, urbanization, and agricultural activities; immigration and economic and urban expansion; suburban development; metropolitan development; and modern activities. For additional background beyond what is described below, see the Tier I Cultural Resource Appendix A8 of the Tier I HATS EIS.

3.1 INTRODUCTION

North Central Harlem, or Southwestern Washington Heights, reflects a microcosm of New York City's complex demographic and socioeconomic transformations, shaped by centuries of migration, industrialization, and urban policy (Freeman, 1994). With Native American origins to its current status as a vibrant urban community, the neighborhood has continually evolved, shaped by waves of immigration, industrialization, and urban development. Understanding this history is essential for appreciating the cultural richness and complexity of this neighborhood today.

3.2 EARLY HISTORY AND NATIVE AMERICAN INHABITANTS (PRE-1625)

Native American history in the Northeast spans at least 13,000 years (Lepper and Funk 2006; Lothrop and Bradley 2012:9, 17; Archambault 2006). Archaeologists typically divide this past into three main periods: Paleoindian, Preceramic (or Archaic), and Woodland/Ceramic. Cultural change in the area can be summarized as a gradual increase in social complexity, punctuated by several important cultural and/or technological innovations (Ritchie 1980; Engelbrecht 2003; Tuck 1978a; Tooker 1978).

The Paleoindian period (13,000–10,000 BP) marks the earliest known human occupation. These groups were nomadic hunter-gatherers who exploited Pleistocene megafauna and adapted to the tundra and park tundra environments near glacial lakes and wetlands (Funk 1972; Marshall 1982; Lothrop and Bradley 2012). Evidence from sites such as Duchess Quarry Cave shows they hunted caribou with fluted projectile points (Ritchie 1980; Salwen 1975). Sites like Port Mobil on Staten Island show use of cherts and jasper in toolmaking, with settlements located on well-drained elevated land (Kraft 1986; Lothrop and Bradley 2012:18–20).

The transition to the Archaic period (10,000–4,000 BP) reflects major environmental changes and the retreat of glaciers, resulting in more diverse forest biomes and the rise of deciduous trees like oak and chestnut (Kraft and Mounier 1982; Salwen 1975). Populations increased and became less nomadic, forming small territorial bands that fished, hunted deer and small game, and gathered plant foods (Kraft 1986; Banks 1999). Early Preceramic tools included notched and bifurcated projectile points and a growing reliance on locally sourced raw materials such as argillite (Brennan 1979; Ritchie and Funk 1971).

In the Middle Archaic period (8,000–6,000 BP), warming climates and rising sea levels pushed groups inland. Settlements remained small and mobile, but woodworking tools and fishing gear suggest a growing reliance on riverine resources (Pagoulatos 2002). Heavy ground-stone tools were introduced, likely for canoe building and food preparation (Kraft 1986). Stemmed projectile points such as Neville and Stanley were common (Kraft 1986:58).

By the Late Archaic (6,000–4,000 BP), environmental conditions resembled today's. Populations increased, leading to more substantial settlements and new food strategies focused on nuts, shellfish, and wild cereals like goosefoot (Pagoulatos 2006). House patterns appear at sites like Lamoka Lake and Wapanucket No. 6 (Ritchie and Funk 1973; Robbins 1960). New tools included semilunar knives, mortars, and pestles made of stone, and atlatls for hunting (Gwynne 1984; Brennan 1977). Distinct projectile point types such as Lamoka and Wading River reflect regional cultural traditions, particularly from the Southeast (Kraft 1986).

The Woodland Period in the Northeast (ca. 3,000 BP to European contact) was marked by major cultural innovations, including the adoption of pottery and a gradual shift toward agriculture and sedentism (Stewart 1995:185; Curtin 1996:6). Early Woodland cultures—such as Orient, Meadowood, Middlesex, and Bushkill—show regional diversity in artifacts and burial practices. The Orient phase, with its distinctive fishtail projectile points and communal burials, spread across Long Island and the Hudson Valley (Ritchie 1980:165; Kraft 1986). Pottery types like Marcey Creek Plain and Vinette-1 reflect experimentation with new vessel forms and materials (Lavin 1999; Lindner 1992).

The Adena-Middlesex tradition (ca. 2,800–2,300 BP), marked by elaborate burial rituals and exotic grave goods, likely represents the spread of new beliefs rather than new populations (Kraft 1986; Stewart 1995:188–189). Sites like Rosenkrans offer evidence of ritual reburials and possible shamanic practices (Kraft 1986:102). The Early to Middle Woodland also saw growing interaction spheres, with exotic materials found in burials indicating long-distance trade (Ritchie 1980).

The Middle Woodland (ca. 2,000–1,000 BP) brought increasing population, material diversity, and possibly early maize agriculture (Hart 2011). The Fox Creek phase (2,000–1,500 BP) emphasized fishing, evidenced by net-marked pottery and specialized tools like the Petalas blade (Funk 1976; Kraft 1986). Later, Point Peninsula influences (e.g., Jack's Reef points, dentate-stamped pottery) suggest bow and arrow technology and wide-ranging exchange networks (Kraft 1986:114).

Late Woodland (ca. 1,000–450 BP) cultures increasingly relied on domesticated plants and complex settlement systems. In the Hudson Valley, seasonal movements between lowland and upland sites were common, while the Haudenosaunee built fortified villages west of the region (Lavin 2004; Curtin 2004). Mortuary customs evolved, including dog burials that may reflect both household and ritual significance (Strong 1985).

3.3 CONTACT PERIOD

The land now called North Central Harlem and Washington Heights, east of the Hudson River in present-day New York State, was occupied by Munsee- speaking groups, such as the Wappinger (the Dutchess-Putnam area), the Kichtawink (northern Westchester), the Sinsink (Ossining), and the Wiechquaeskeck (eastern Westchester and southwestern Connecticut), although the internal politics and external boundaries of these groups are uncertain (aboriginal groups in the mid-Hudson are discussed generally as "Delaware Indians"). Native Americans in southwestern Connecticut during this period were loosely grouped as Paugusett or Siwanoy, and occupied coastal villages of Petuquapaen, Asamuck, Patomuck, and Miossahassaky (Bragdon 1996:21; Brasser 1978a, 1978b)

3.3.1 Early European Exploration and Settlement (1500–1625)

The Contact period (ca. AD 1550–1750 [400–200 BP]) marks the beginning of sustained interactions between Native American groups and European settlers. By the time of European contact, Native peoples inhabited a broad region along the Atlantic Coast, stretching from Saco Bay, Maine, to the Housatonic River area in Connecticut, and extending southward through Long Island, across Manhattan, and into New Jersey, including inland territories. These groups shared many cultural similarities: they spoke closely related Algonquian languages, practiced horticulture focused on maize, beans, and squash, and supplemented their diets through hunting, fishing, and wild plant gathering. Their societies were structured around villages, which served as the primary social units (Figure 1), and they followed broadly similar religious, social, and political customs (Salwen 1978). While resources were typically used within specific territorial boundaries, some areas—such as hunting grounds, fishing sites, or marshlands, were shared between neighboring villages.

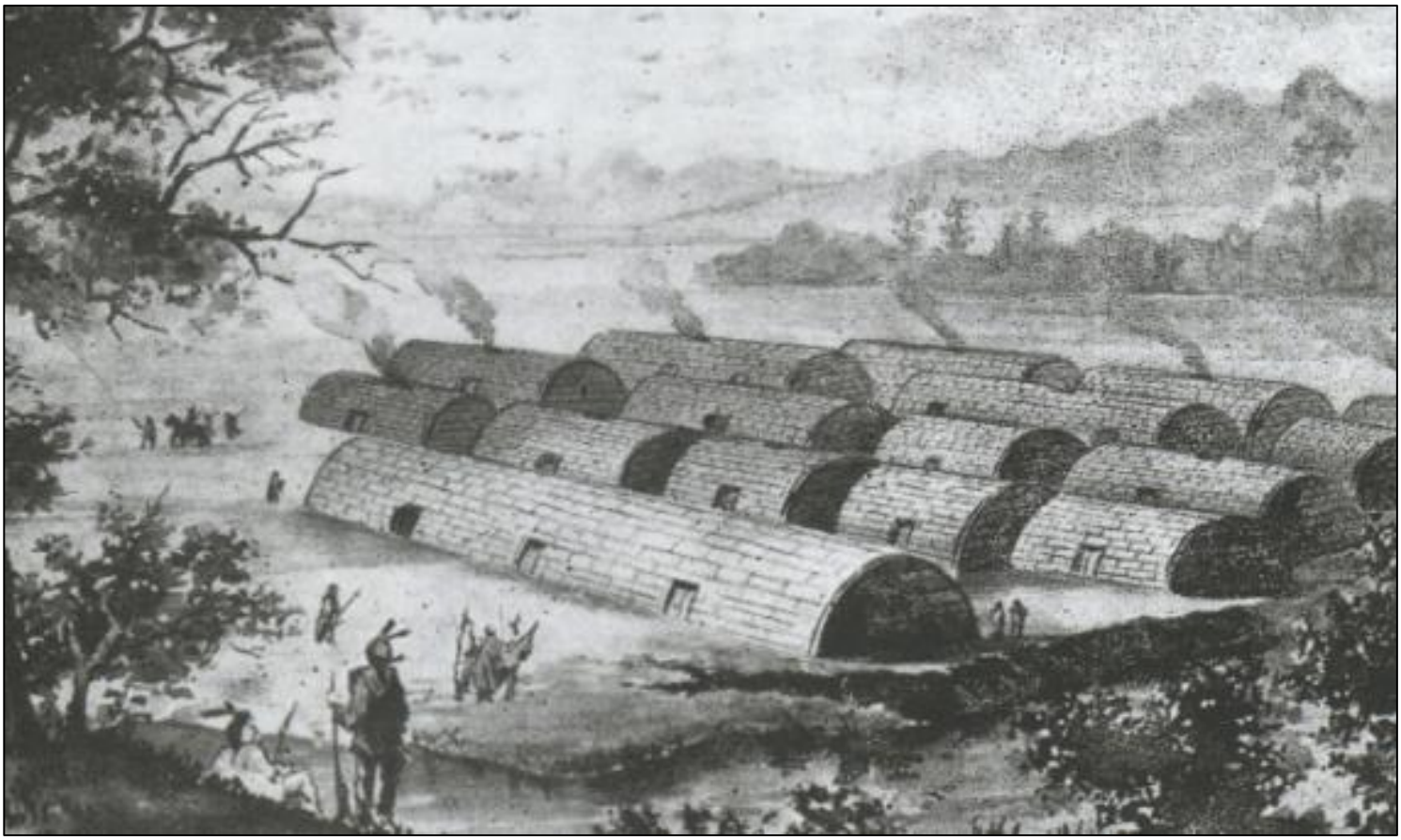


Figure 1. Native settlement on Manhattan Island (Adams, Harlem Lost and Found).

Long before the arrival of European explorers in the sixteenth century, Native American communities in southern New York, Long Island, and New Jersey were active participants in extensive trade networks that connected them with inland groups. European explorers recorded finding European trade items already in circulation among Native populations, suggesting that these networks were effective in linking distant communities. The introduction of

European goods, such as metal tools, textiles, and glass beads, would eventually transform Native economies and material culture, as sustained political, military, religious, and economic interactions with Europeans disrupted longstanding Indigenous lifeways.

Native groups in eastern New York and New Jersey were deeply impacted by the arrival of the fur trade, which began to shape their economies even before permanent European settlements were established. Starting in the final decades of the sixteenth century, increasing contact with Europeans triggered the spread of Old-World diseases among Native populations who had no prior exposure or immunity. Epidemics of typhus, smallpox, measles, and other illnesses swept through Indigenous communities, leading to significant population loss. According to a 1640 statement by Native peoples along the Hudson River, their numbers had already been drastically reduced by disease (Brasser 1978a:83).

The Dutch explored the region in the early 1600s, with Henry Hudson's 1609 voyage marking the start of European involvement. Harlem was not initially settled, but the area was included in Dutch land transactions and agricultural expansion (Freeman, 1994). Throughout most of the seventeenth century, much of upper Manhattan remained largely unsettled. The first land grant in this area was made by Director-General Willem Kieft in 1647 to Pieter Jansen and Huyck Aertsen (Riker 1904; Bolton 1924). When question arose following Jansen's death as to the validity of the title, the land passed to the town of New Haerlem, established in 1656, for a sum of 300 guilders (Riker 1904). In 1691, the common lands of New Haerlem were divided among the local patentees.

3.3.2 Colonial Settlement and Development (1625–1775)

The landscape for the Harlem AE, situated between the massive Coogan's Bluff and the Harlem River, has seen dynamic changes over the last 400 years. The first purchase of Indian land in the lower Hudson Valley north of what is now the Harlem River was made by the West India Company in 1639. About the same time, Jonas Broncks purchased land along the river that now bears his name in what would become Morrisania (

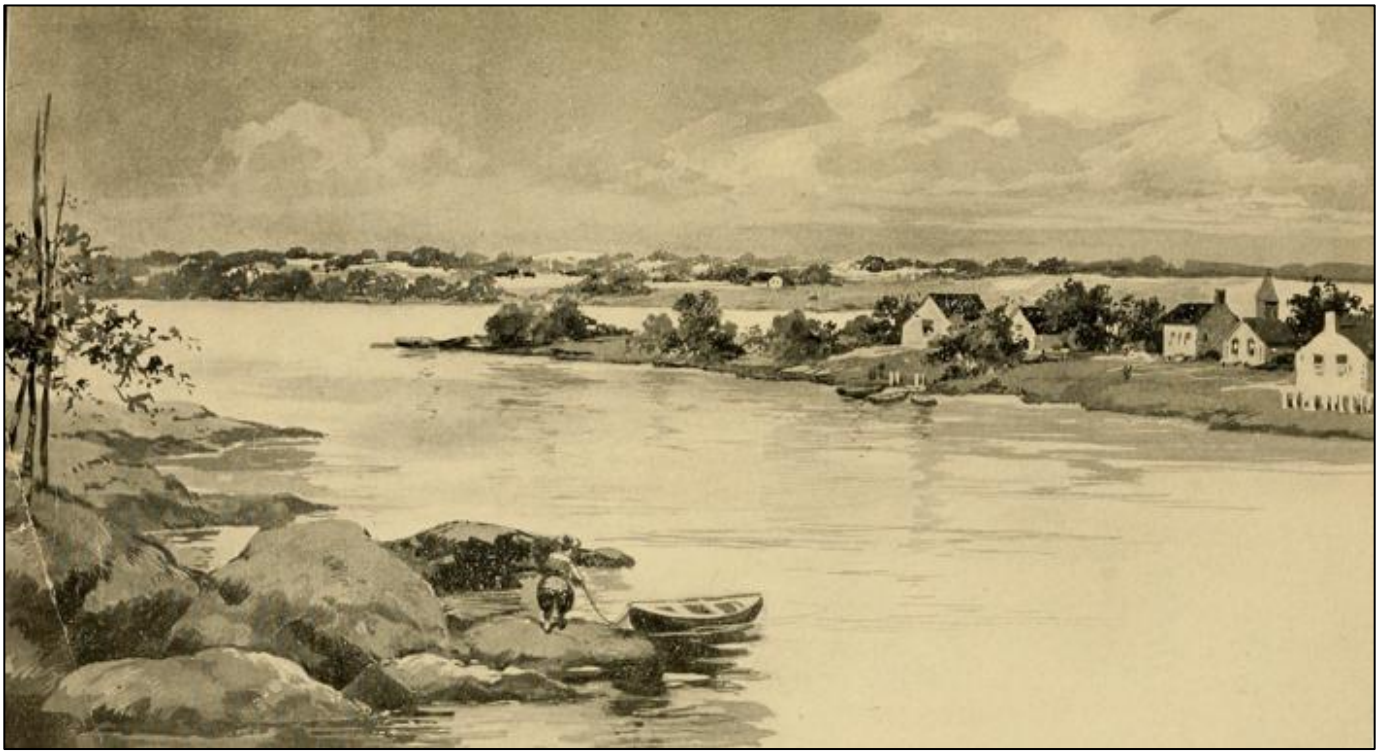


Figure *2*). The Dutch called this area north of Manhattan *Vredeland* ("land of peace") (Kim 1978:4-8; Gehring and Starna 1988: xiii-xxiv;French and Clark 1925:31, 35, 167). Harlem's establishment by Dutch colonists in the 1660s as "Nieuw Haarlem" was part of broader patterns of agricultural settlement north of New Amsterdam (Figure *4*; Figure *5*).

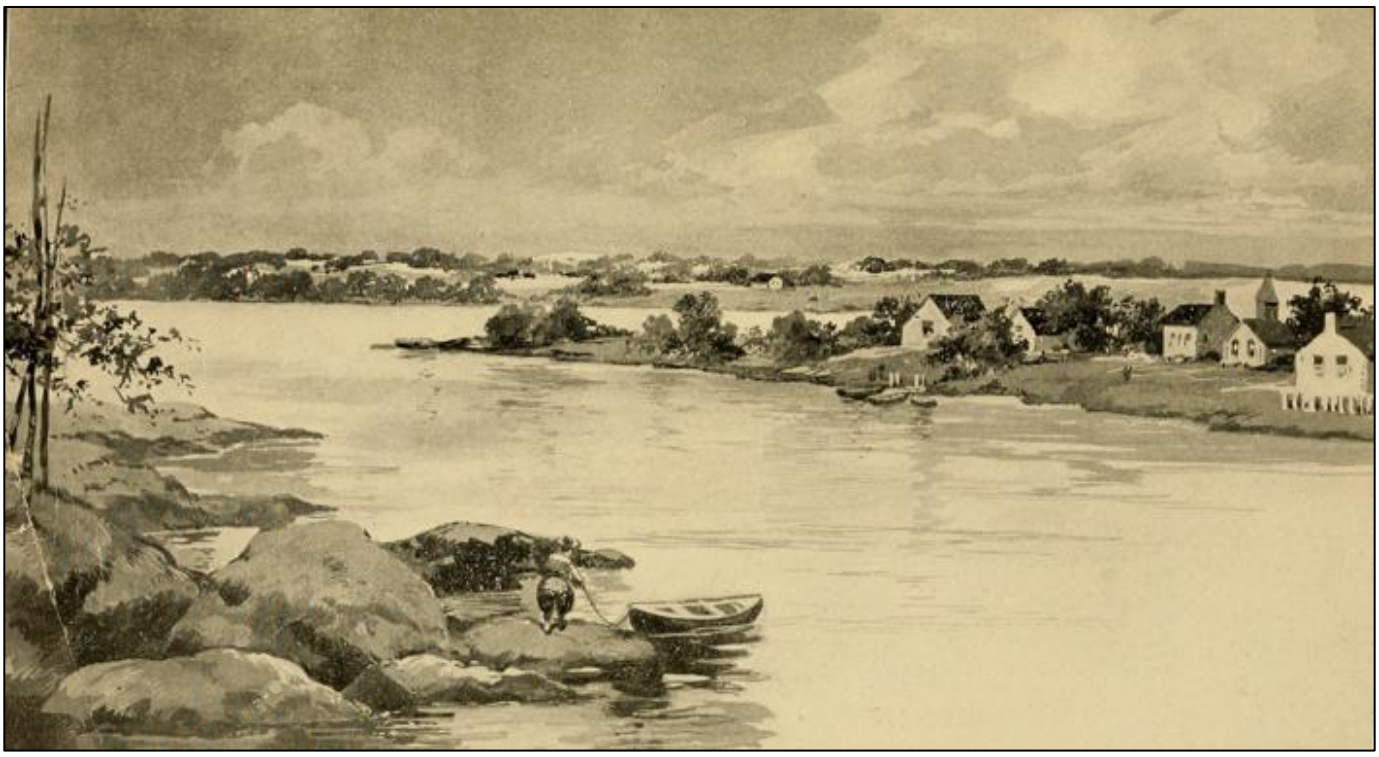


Figure 2. The Village of Nieuw Haarlem, viewed from Morrisania in the Bronx, 1765.

This particular area was originally part of a farm granted by the British Crown to John Gardiner in the early 1700s after the English took control of the new Netherland colony and anglicized the name of the town to Harlem (Figure 6). Harlem was "a synonym for elegant living through a good part of the nineteenth century." Control shifted to the British in 1664, but the area remained sparsely populated and particularly defined by riverine marshes east of Edecombe Road until the 19th century (Adams 2001, Bolton 1934, Pierce 1903).

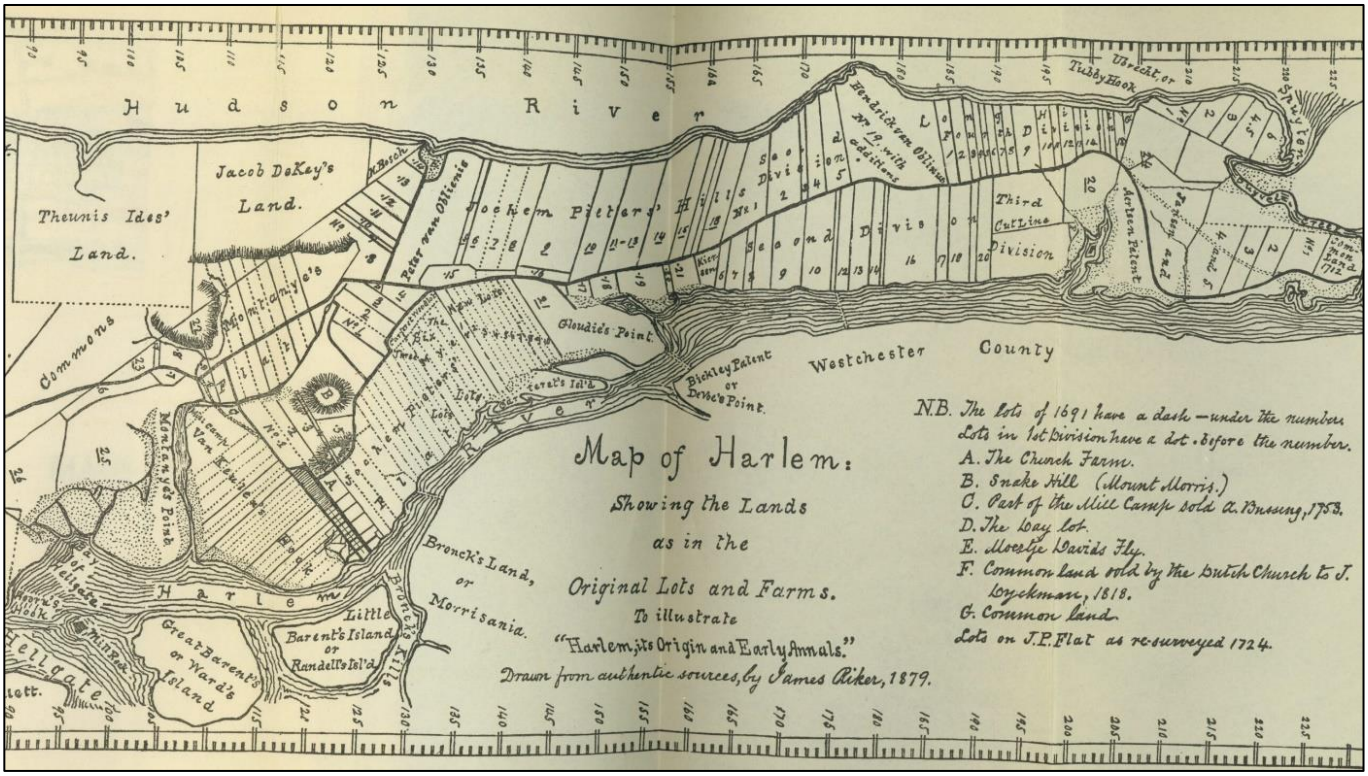


Figure 3. The site of the original Village of Nieuw Haarlem, detailed Map of Dutch Grants from Map of Original Grants, 1928.

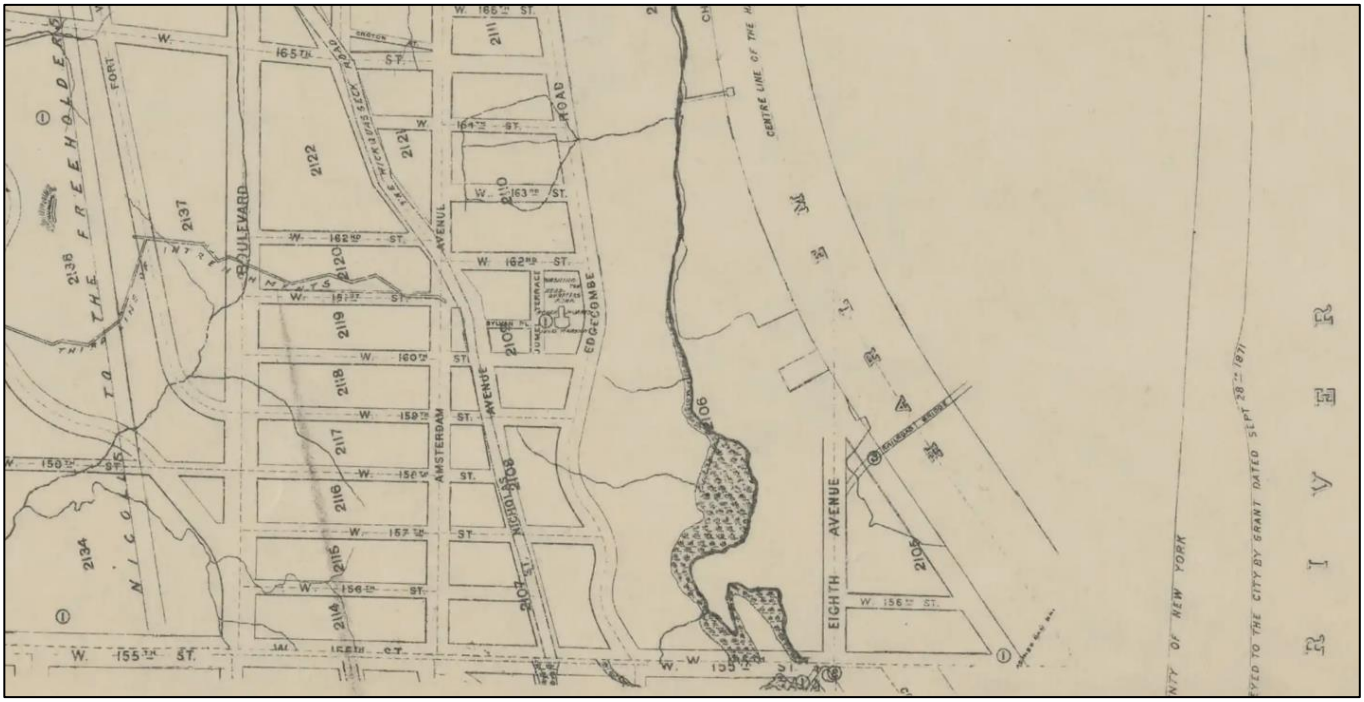


Figure 4. Detailed Map of Shows streets and land grants issued before Apr. 27, 1686, North of 155 St. (Maps of Farms 1868).

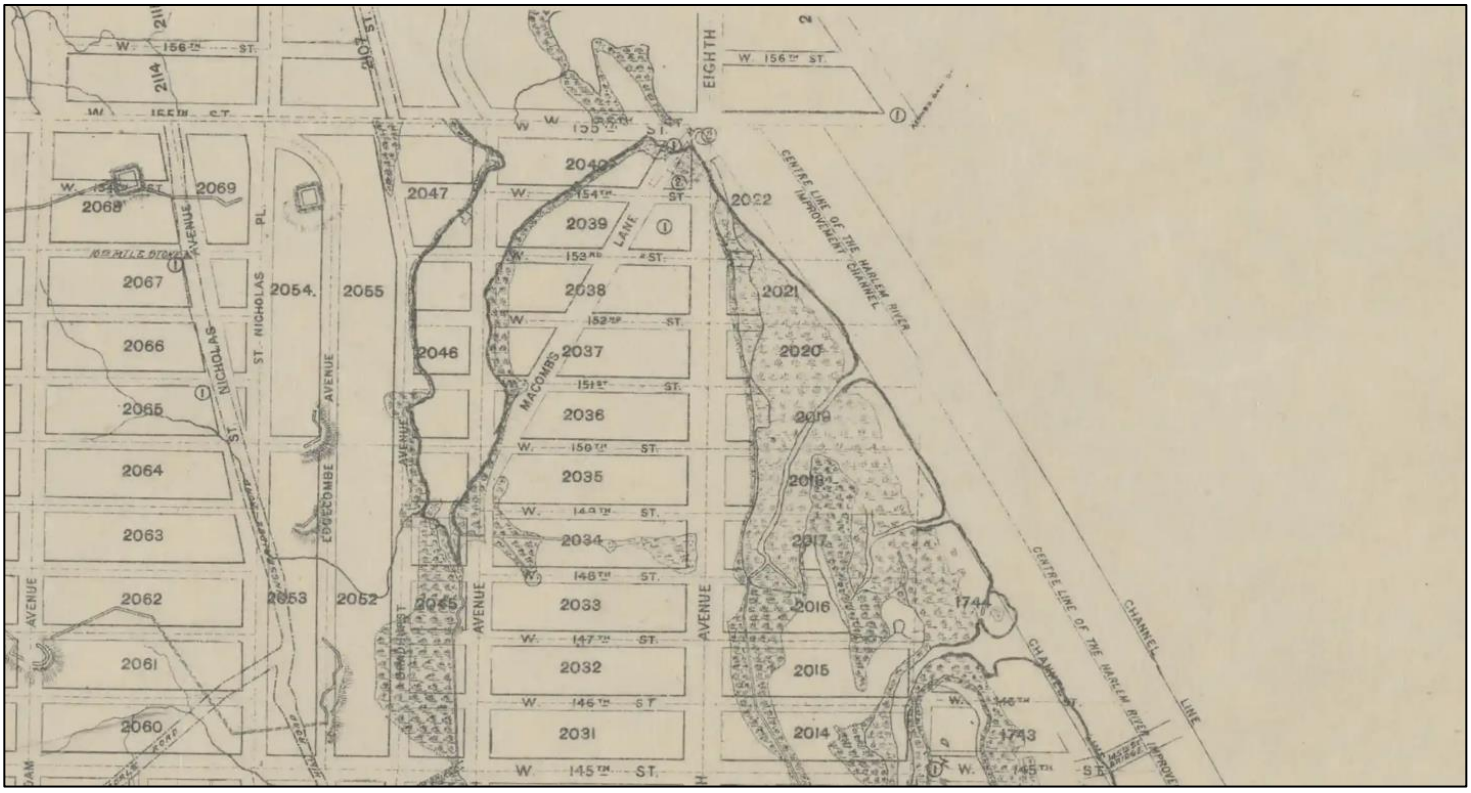


Figure 5. Detailed Map of Shows streets and land grants issued before Apr. 27, 1686 south of 155thSst. (Maps of Farms 1868)

Figure 6. Jamaica Bay, Kings and Queens Counties in 1775 (Montressor 1775)

3.3.3 Industrialization and Urbanization (1775–1900)

Into the first part of the nineteenth century, the town of New Harlem continued to be made up largely of scattered farmsteads (Bolton 1924). The 1815 Blue Book, drawn from the original on file in the street commissioner's office in the City of New York, documents Stephen Jumel, Dr. Watkins with parcels extending North of 155th St (Figure 7) and a parcel owned by Aaron Bussing extending from the Harlem River west from 155th St south to 138th St (Figure 8).

Figure 7.Detailed Map of Parcel Ownership in 1815, Bounded by W. 156th Street, (Hamilton Heights) Ninth Avenue, W. 136th Street and North River, Page 21 (Maps of Farms, 1868**)**

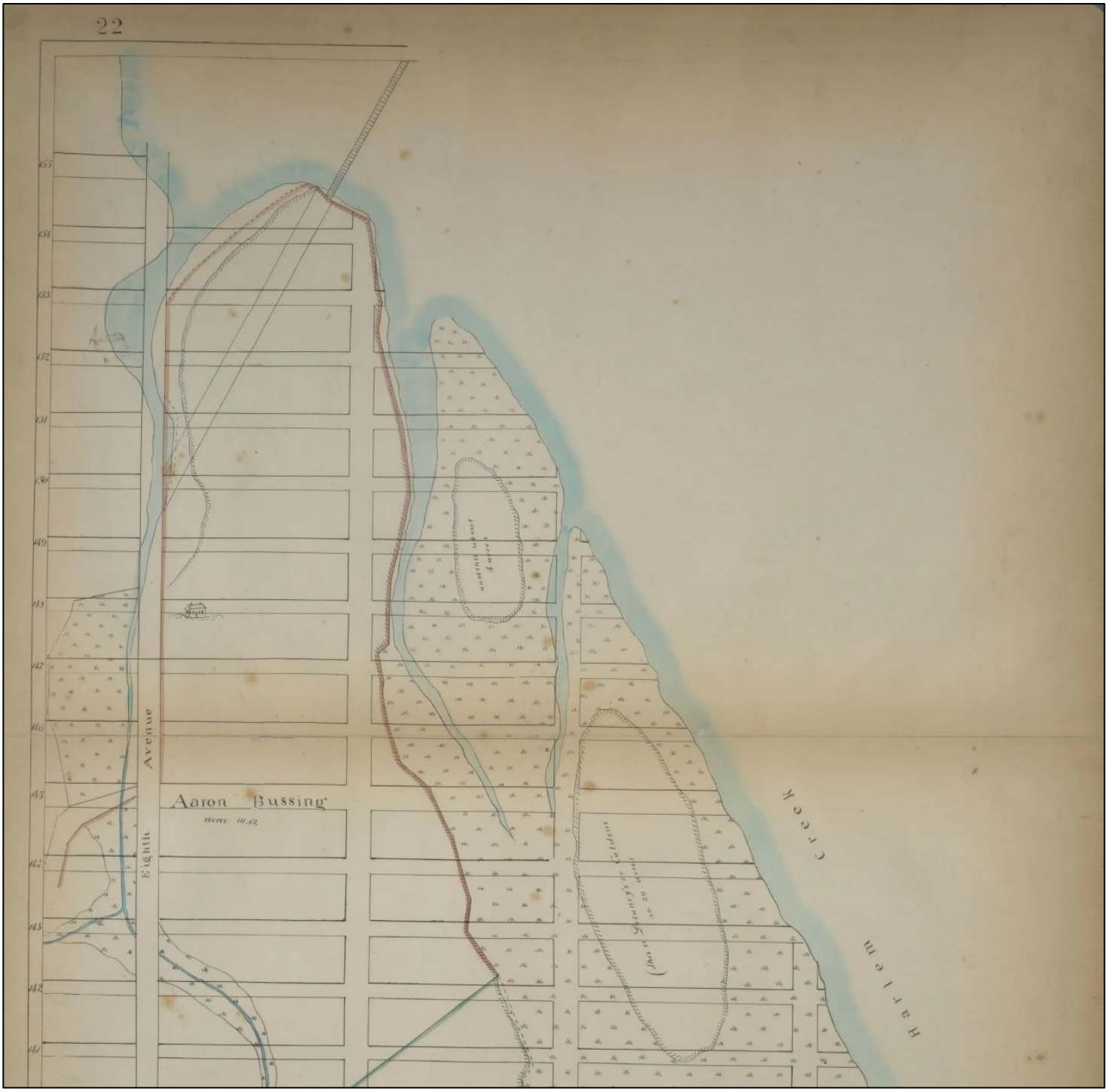


Figure 8. Detailed Map of Parcel Ownership in 1815, Bounded by W. 155th Street, Harlem Creek, 135th Street and Eighth Avenue, Page 22 (Maps of Farms, 1868)

Figure 9. Detail map of the study area showing the establishment of the city grid of the city of New York and island of Manhattan, as laid out by the commissioners appointed by the legislature, April 3d, 1807 (Bridges, 1811)

To the east of the King's Way in particular, the marshy conditions surrounding Sherman Creek deterred development. In 1811, the New York City Commissioners released their now-famous street grid plan for Manhattan. However, the grid did not extend beyond 155th Street, indicating that the Commissioners did not expect the dense urban development of the metropolitan area to reach upper Manhattan anytime soon. Instead, the 1811 Commissioners' Map of the New Haerlem area confirmed the unsettled, rural nature of the region.

By the mid-1800s, dense urban development had begun to cover much of Manhattan. Wealthy farmers, called 'patroons,' maintained country estates largely on the heights overlooking the Hudson River with these estates clearly visible in Colton's 1836 (**Error! Reference source not found.**).

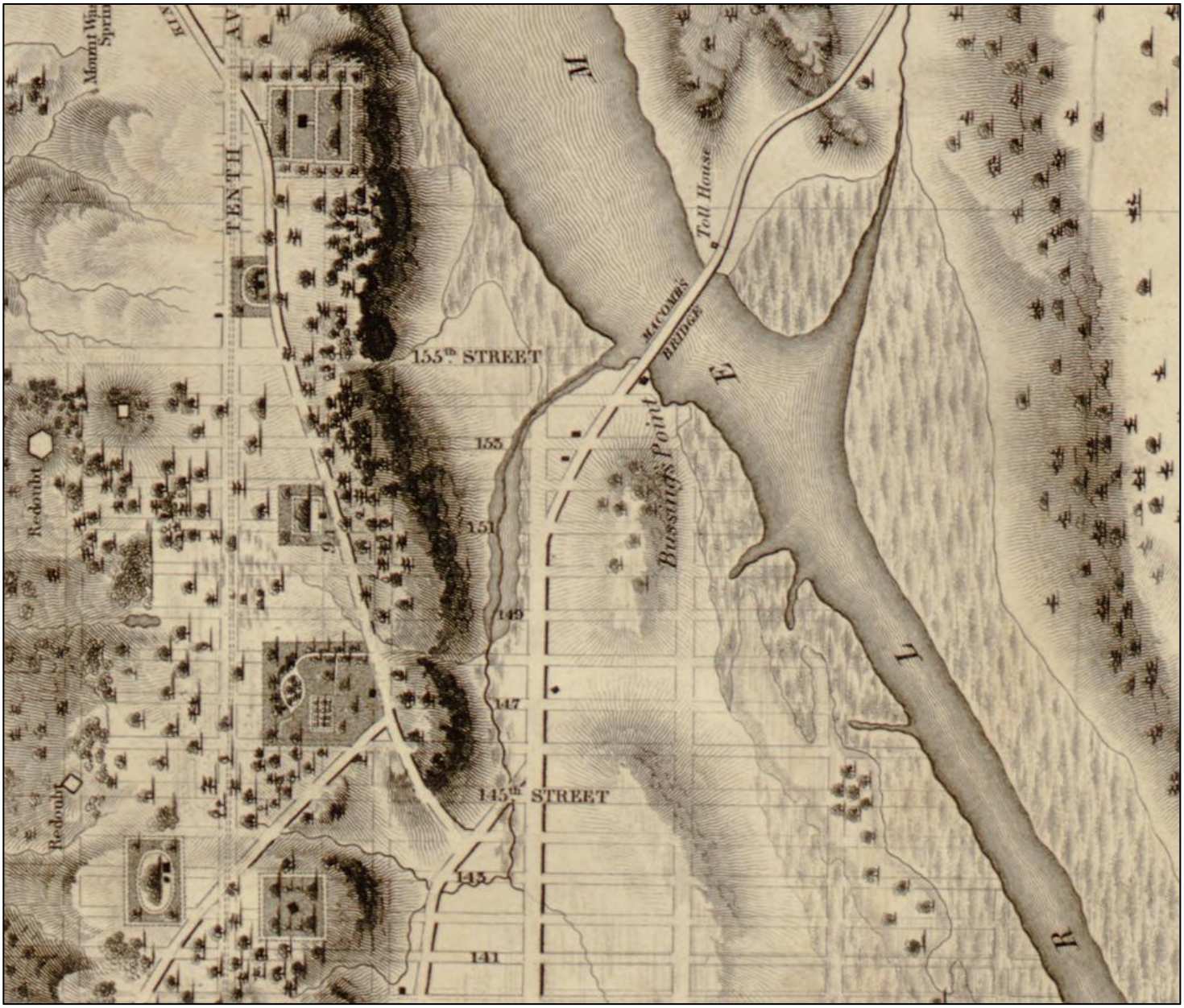


Figure 10. Detail topographical map of the city and county of New-York, and the adjacent country: with views in the border of the principal buildings, and interesting scenery within the study area J.H. Colton & Co 1836).

The low-lying land west of the proposed features associated with the AE, and north of 155th street is clearly delineated as marshland at this point. Also visible on Colton's 1836 map (Figure *10*. Detail topographical map of the city and county of New-York, and the adjacent country: with views in the border of the principal buildings, and interesting scenery within the study area J.H. Colton & Co 1836).), is the Macomb's Dam Bridge, which was a dam and bridge across the Harlem River between Manhattan and the Bronx in New York City, which existed from c. 1814 to c. 1858(Figure *11*, Figure *12*) The bridge was later replaced with the toll-free Central Bridge (Figure *13*), and since 1890, the current Macombs Dam Bridge.

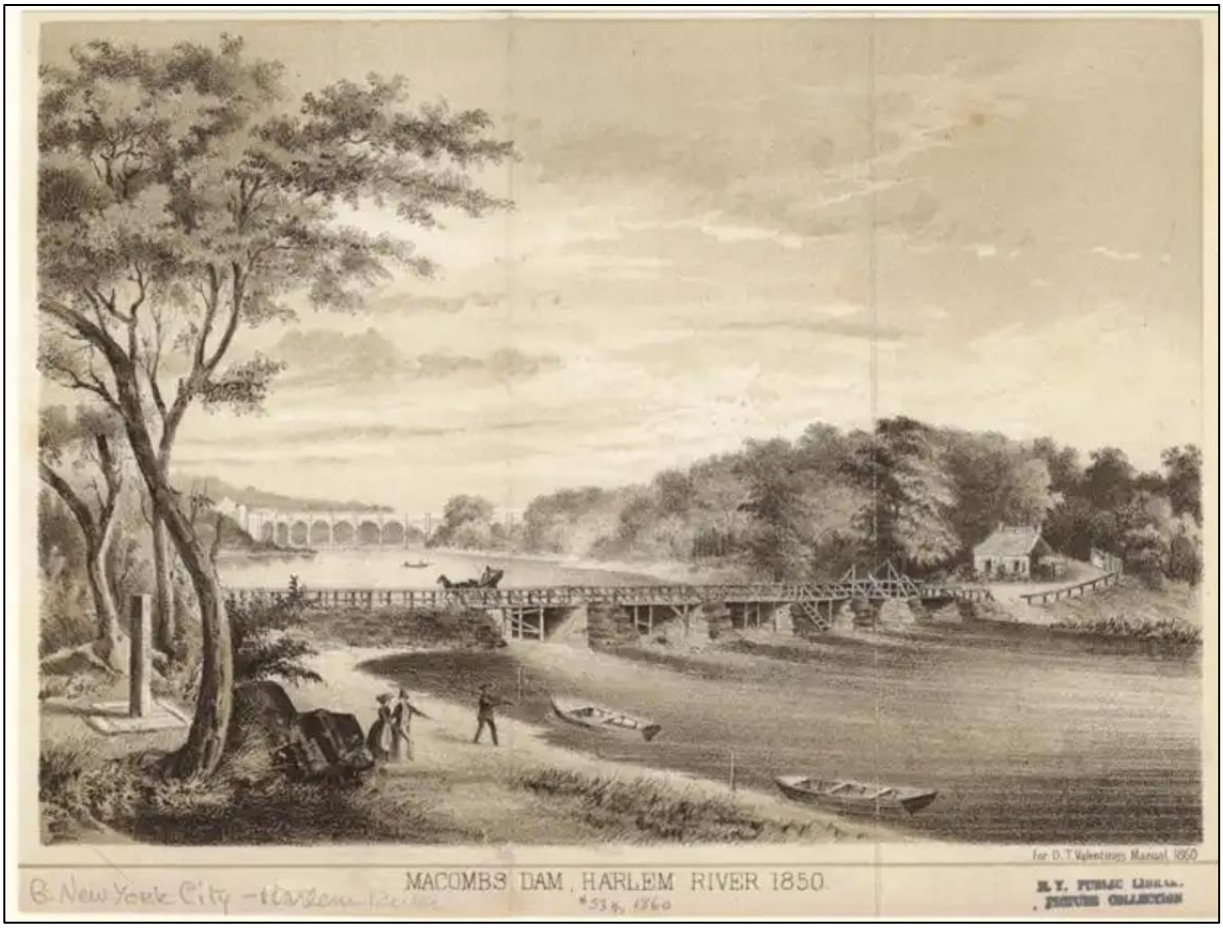


Figure 11. Macombs Dam, Harlem River 1850. Manual of the Corporation of the city of New York. (New York: The Council, 1840-1870) New York (N.Y.).

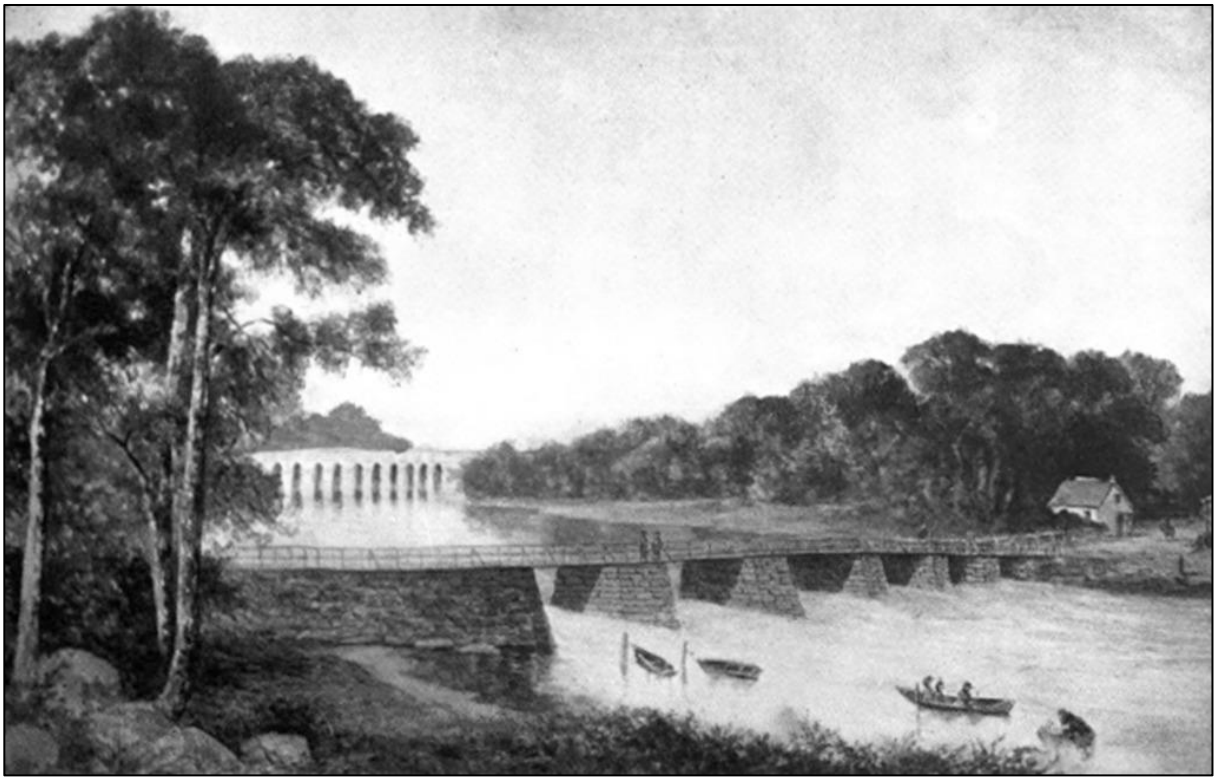


Figure 12. Another depiction of the original 1816 bridge (Gay 1904)

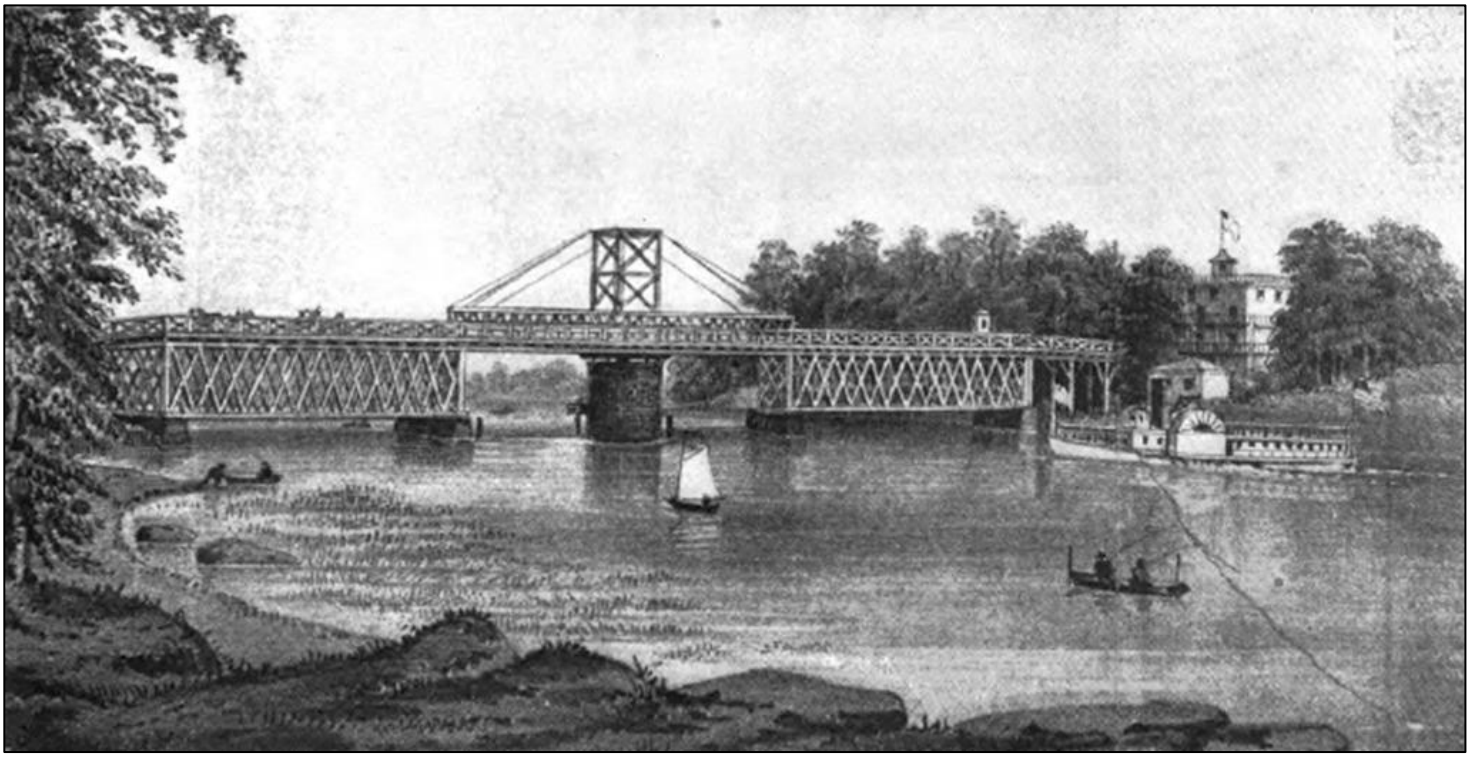


Figure 13. 1861 square swing frame bridge (Gay 1904)

Washington Heights was the last portion of the island to succumb to urbanization, boasting only a handful of residences by 1850 (Bolton 1924; Rubinson & Winter 1988). The first resident was that of J. Van Namee and was located east of present-day Amsterdam Avenue between 185th and 186th streets. With the completion of the New York and Harlem Railroad in 1837, Harlem became more accessible and began attracting a growing working-class

population. This infrastructure accelerated its transformation into a dense urban neighborhood (Freeman, 1994). Industrial and transportation development led to demographic shifts and increased demand for affordable housing. Viele's 1865 map shows all the original water courses of Manhattan Island, with the street grid superimposed on top and highlights the marsh and meadow within this area (Figure *14*).

By the late nineteenth century, however, upper Manhattan was in the midst of an unmistakable transition from a rural area to an extension of urban downtown and midtown Manhattan. In the years between about 1850 and 1870, the village of Harlem declined (Rubinson & Winter 1988). Many large estates, including the Hamilton Grange of Alexander Hamilton, were auctioned off as the soil was depleted and crop yields fell (Ellis 2004: 593); Riker 1904). The impoverished village was taken over by the city of New York in 1873. Recovery came when elevated railroads were extended to Harlem by 1880 (Figure *15*; Figure *16*; Figure *17*), and by 1879 we begin to see extensive development along Tenth Ave and St. Nicholas, while the area between the newly extended 8th Avenue has yet to be developed. With the construction of the elevated train lines, especially the 8th Avenue extension, urbanized development occurred very rapidly, with townhouses, apartments, and tenements springing up practically overnight(Figure *16*; Figure *17*). The then steam powered Ninth Avenue Elevated, New York's first elevated railroad (opening in stages beginning in 1871), went directly to the area, via Eighth Avenue above 110th Street, as seen in Figure *16*. The New York and Northern Railroad, later the New York Central's Putnam line, was another option for residents, extending from its 155th Street terminal to the Bronx and north into Westchester and beyond. In the 1870s, maps of upper Manhattan began to shift from an emphasis on topographical landforms to commercial real estate (Rubinson & Winter 1988).

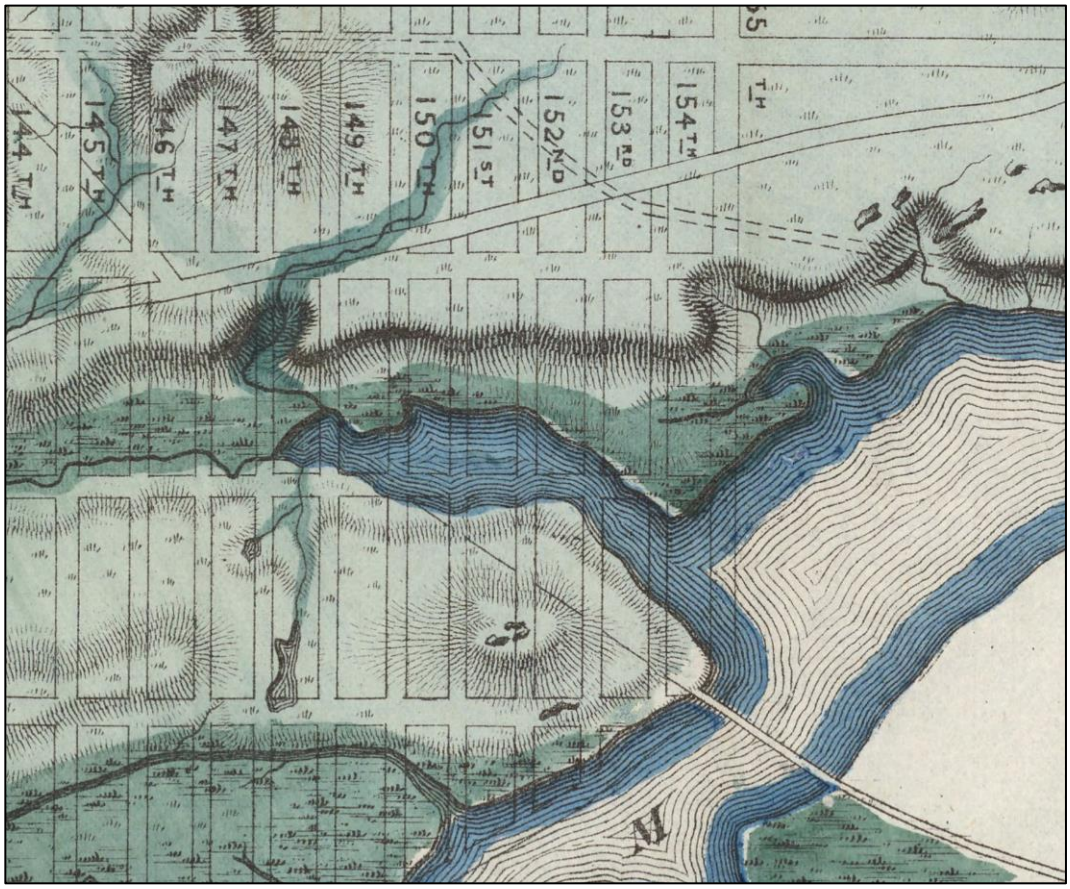


Figure 14. The map shows all the original water courses of Manhattan Island, with the street grid superimposed on top. Also, three different kinds of land are shown: Marsh, Made Land, and Meadow (Viele 1865)

Figure 15. Detail Map of the city of New York showing the proposed route of the "Arcade" Underground Railway (Viele, 1870)

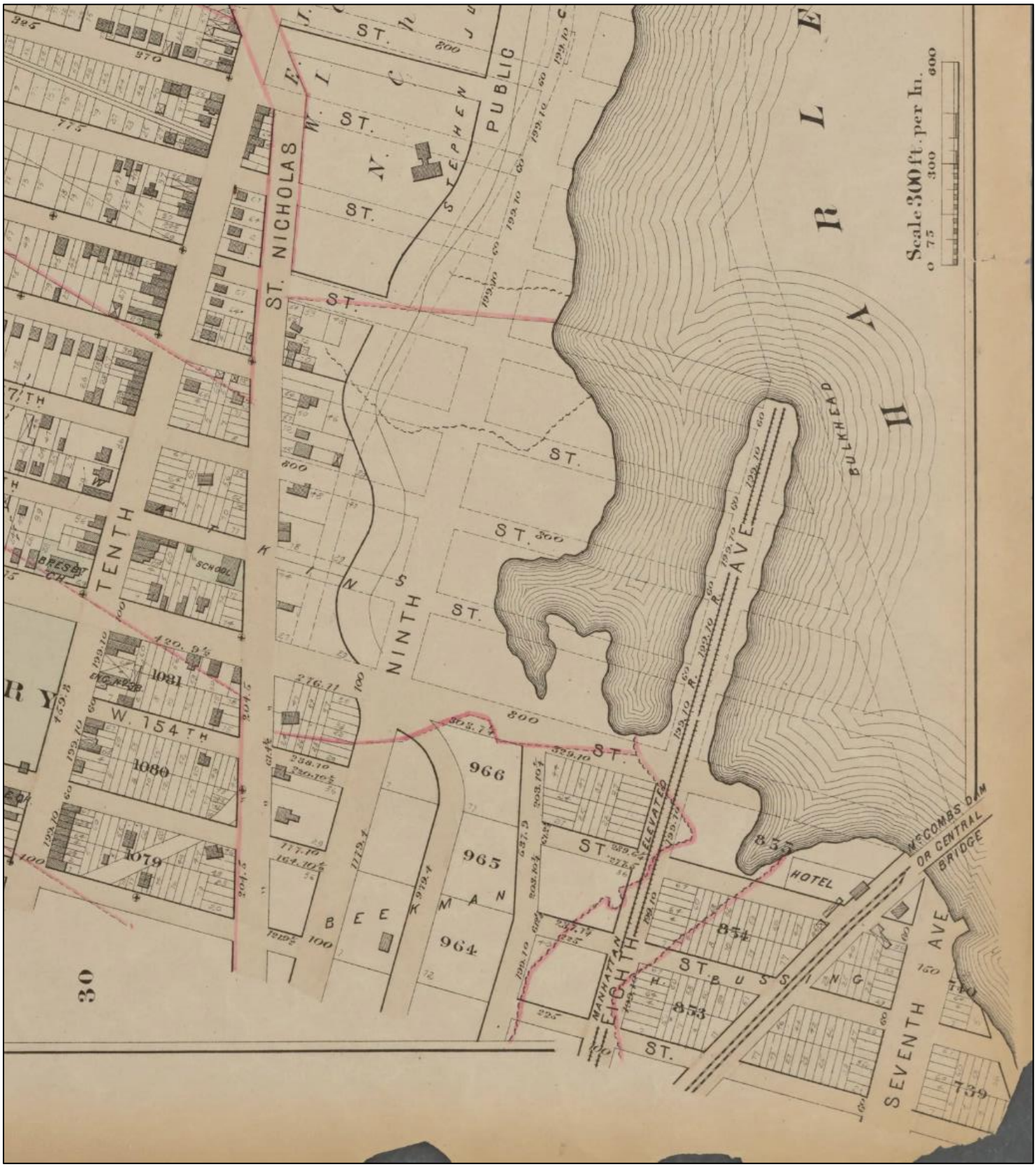


Figure 16. G.W. Bromley & Co 1879 detail map, bounded by W. 152nd St and W. 164th St (Lionel Pincus and Princess Firyal Map, 1879)

Figure 17. G.W. Bromley & Co 1879 detail map, bounded by W. 152nd St and W. 142nd St (Lionel Pincus and Princess Firyal Map, 1879)

During the 1880s, the hollow beneath the bluff was used for baseball and other amusements and informally acquired the name Manhattan Park or Manhattan Field (Figure *19*; Figure *20*). Tolerating such public use of the property was the Gardiner family, New York grandees who traced their ownership of this and other tracts of north Manhattan real estate back to 18th century (*"Many lots Sold" 1889).* When the New York Giants moved into Googan's Hollow, the flat area below the bluff in 1889, the area was considered the outskirts of town ("A New Baseball Field," 1889). Only in the past 30 years had the city even begun laying out streets on the eastern portion of Manhattan north of 155th street, which was on the southern boundary of the region, and it had also been barely 15 years since the area of the stadium occupied was anything other than river bottom wetlands that were more often than not covered with water. Landfill has been changing the size and shape of Manhattan ever since the Dutch arrived in the early seventeenth century, and the portion of land on which the Manhattan Field and the subsequent, adjacent Polo Grounds were built in 1890, had evolved from the fill that been dumped into the river. The 1891 G.W. Bromley & Co atlas and the 1893 Sanborn map demonstrates the volume of develop occurring during this period. One of the earliest depictions of the 'Polo Grounds" & 'Manhattan Field' as well as the land reclamation *between 8th Ave and the Harlem River(* Figure *19;*Figure *20).* A relatively modest two-story wooden grandstand was built at Manhattan Field in 1889, where the Giants promptly won their second championship. In 1891, the team made a short move into a larger ballpark on the adjacent lot at 157th Street. Later, the City's amazing IND Subway line (1932) would supplant the El in providing service to the Polo Grounds (Figure *18*).

Figure 18. Harlem River Speedway (Driveway), north from West 155th Street, showing this serpentine roadway separating the Polo Grounds, the Interborough Rapid Transit yards and the river from Highbridge Park. The hilly prominence at the left was formerly known as Coogan's Bluff. On the far side of the Harlem River is the Bronx, being joined to Manhattan by the High and Washington Bridges. Ewing Galloway (Manhattan: Harlem River Drive-155th Street (West), 1909)

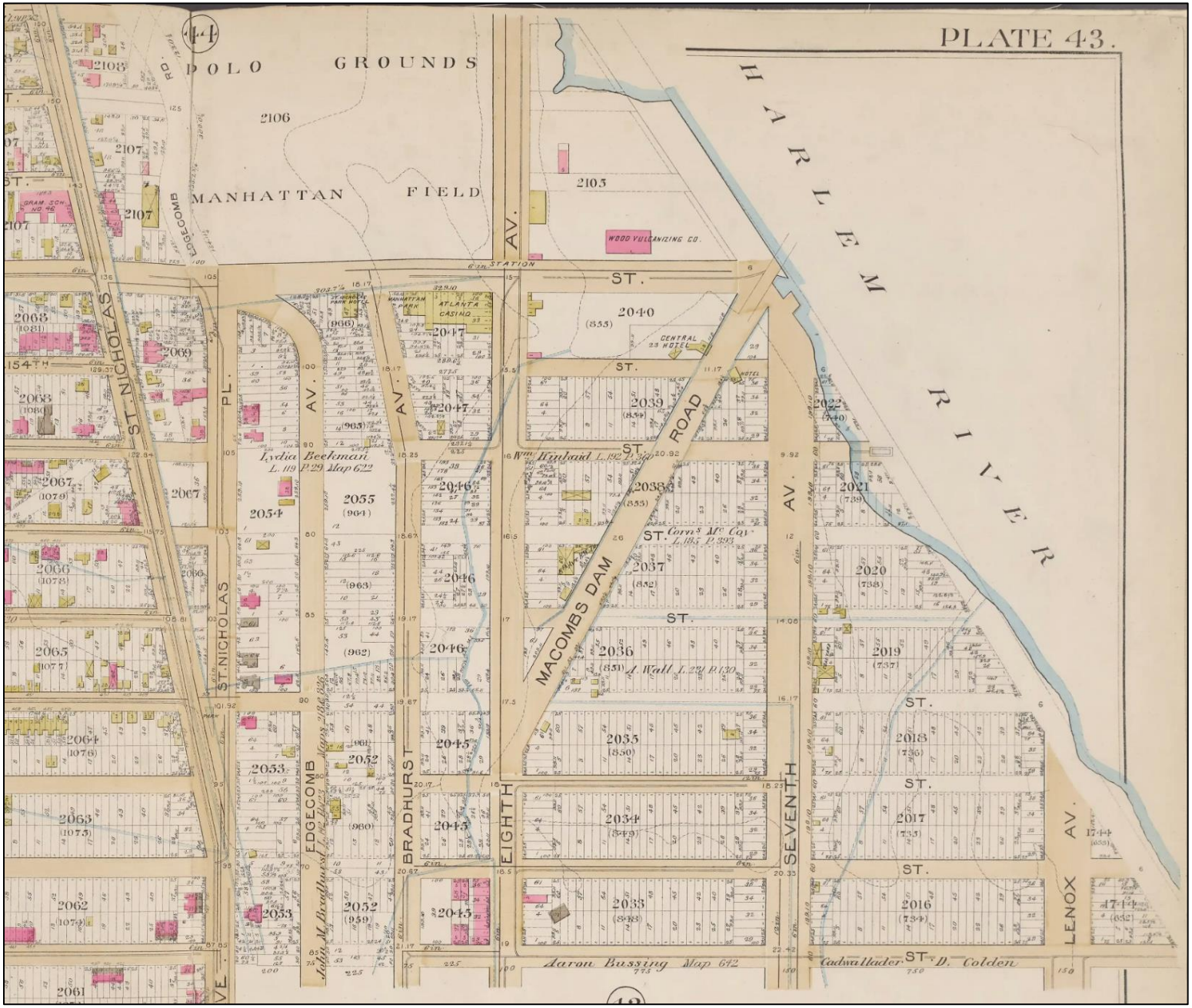


Figure 19. 1891 G.W. Bromley & Co detail map bounded by W. 158thSt., Harlem River, W. 148th St., Hudson River, Plate 43 (Lionel Pincus and Princess Firyal, 1891)

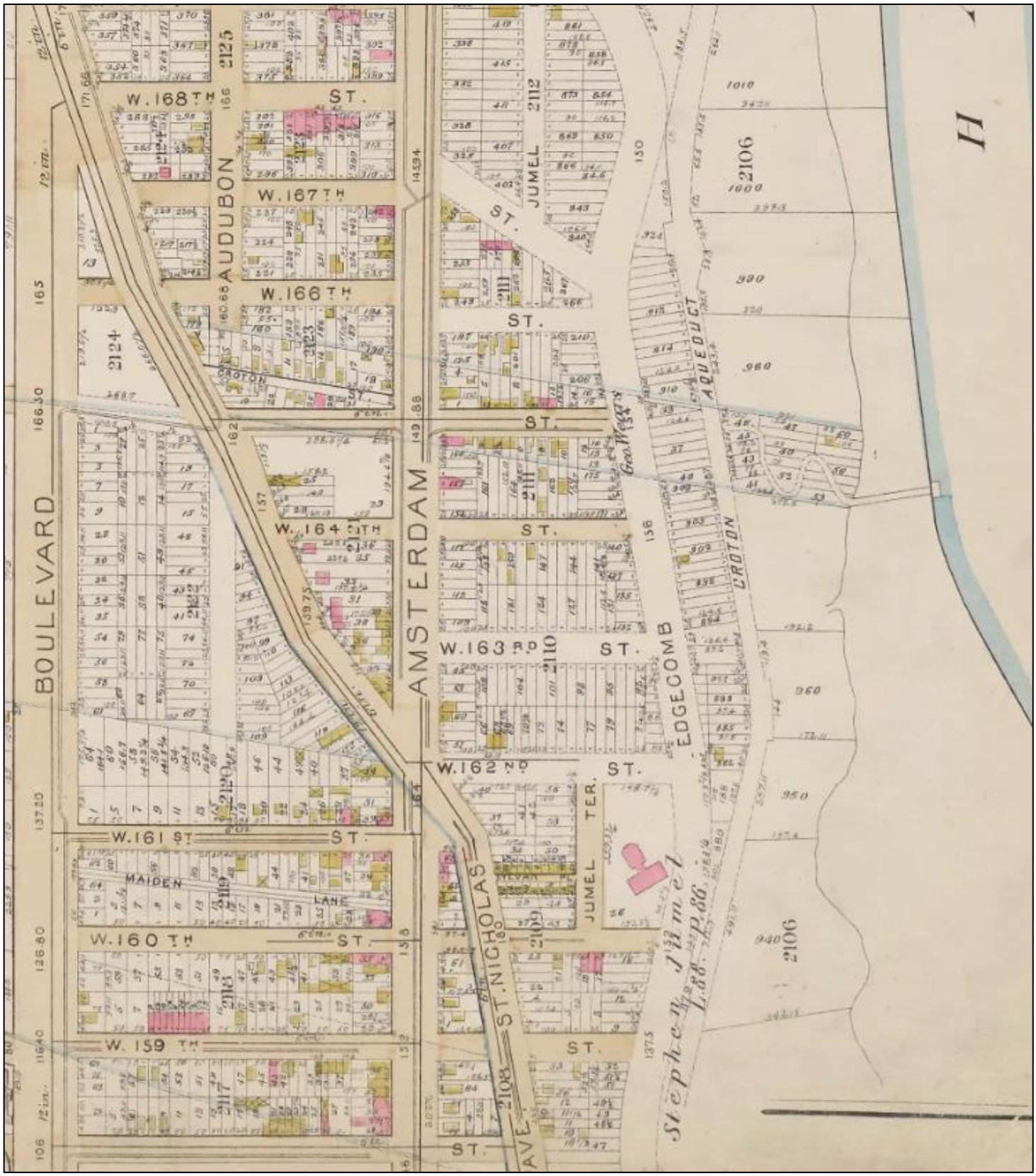


Figure 20. 1891 G.W. Bromley & Co detail map bounded by W. 158th and W. 168th by Hudson River, Harlem River, Plate 44 (Lionel Pincus and Princess Firyal, 1891)

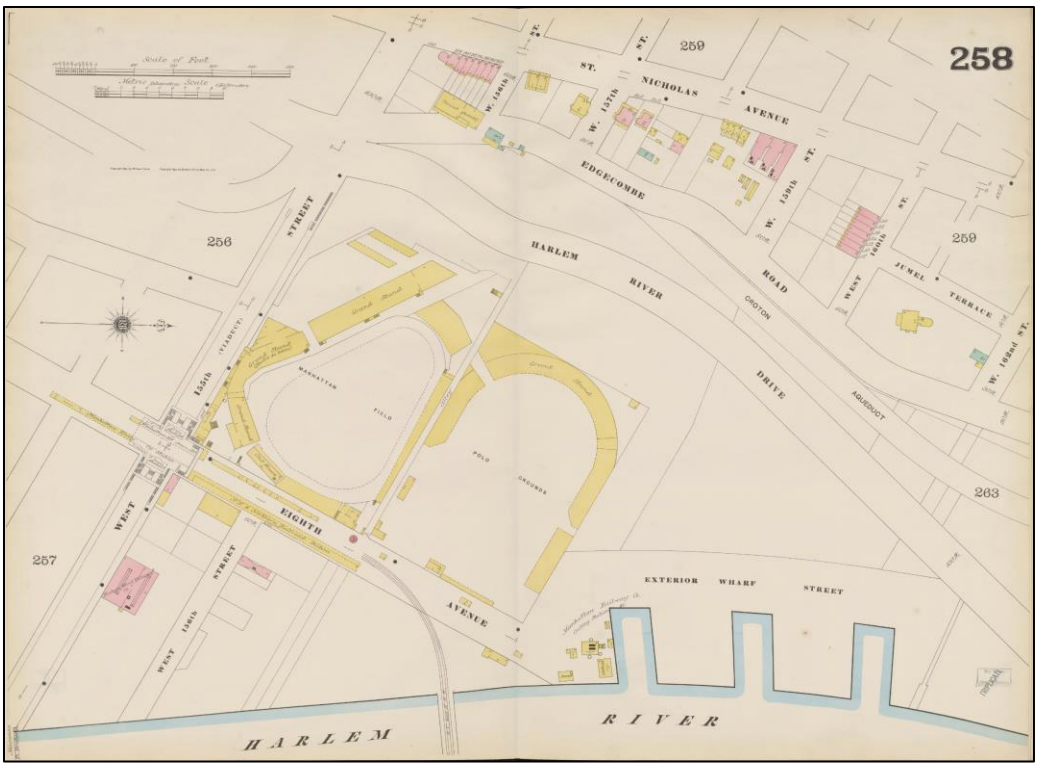


Figure 21. 1893 Detail of Manhattan, V. 11, Double Page Plate No. 258 [Map bounded by St. Nicholas Ave., Harlem River, W. 155th St.]

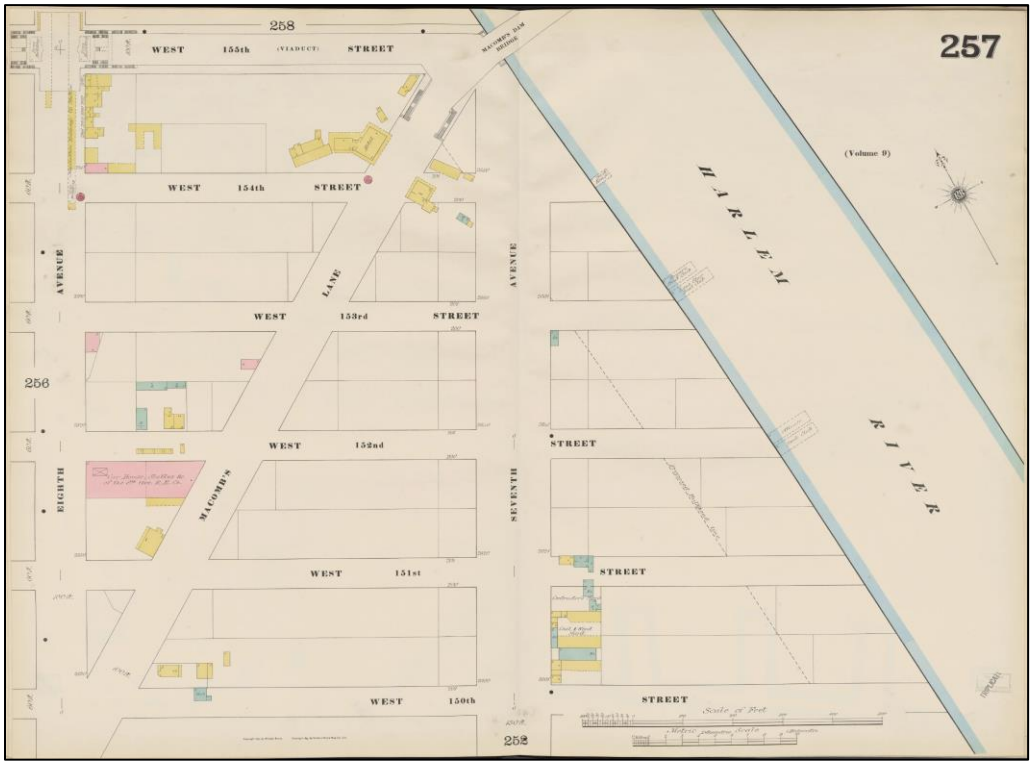


Figure 22. 1893 Detail of Manhattan, V. 11, Double Page Plate No. 257 [Map bounded by W. 155th St., Harlem River, W. 150th St., 8th Ave.]

Additional development and new neighborhoods were established in and around the study area. Industry concentrated along the Harlem River, including stables, coal & wood yards, the Haskin Wood Vulcanizing. With the completion of the 166th St station for the N.Y & Northern Railroad and Manhattan Railway and the infill of the shoreline, sees the development of docks and wharfs along the newly hardened Harlem River *(*Figure 21*;* Figure 22*)*. By 1893, the streets and for that matter, the ground were all relatively new, and this part of Harlem was now served by public transit, providing a way for people to get to this portion of Manhattan. Elevated railroads first reached the area in the 1880s, followed by subways in the early twentieth century.

3.3.4 Immigration and Economic Expansion (1900–1945)

Between 1900 and 1940, subway lines extended into northern portions of Manhattan, although aboveground portions of the system and trolleys were already in use. The picturesque grandstand built on this third site was destroyed by a mysterious fire early in the 1911 season. The ballpark was subsequently rebuilt and then dramatically expanded and remodeled in 1923.

In the years leading up to World War I, the southern and eastern sections of Washington Heights underwent a significant construction boom (Katznelson 1981:77) (Figure *24*, Figure *25*). Improved downtown access via the Interborough Rapid Transit (IRT) spurred rapid densification, marked by the widespread construction of five- and six-story New Law Tenements—most of which still stand today (Lowenstein 1989). The study area sees the development the IRT trainyard at west 148th St. and a series of industrial complexes as well as wharfs and docks associated with various boat clubs.

Many new residents relocated from overcrowded immigrant neighborhoods like the Lower East Side, (Snyder 2015:15) where population density dropped by half between 1910 and 1930(Snyder 2015:73). The 1930 G.W. Bromley & Co (Plate 162;165, 1930) show the density of development, with an increase in both residential multi-family housing as well as commercial and industrial spaces west of Macombs Place as well as west of the Highbridge Park. This surge in development led to a dramatic population increase, the area's growing population was largely composed of people of European descent. By 1920, nearly half identified as Protestant, typically with U.S.-born parents, while the rest were predominantly Jewish and Catholic, often recent immigrants or the children of immigrants. By 1937 (Figure 32, Figure 33) we see a dramatic shift in the study area as the area south of Macomb's Dam Bridge was redeveloped into a high-rise public housing complex under the federal Housing Act of 1937, where the NYC Housing Authority (NYCHA) demolishes tenements to make way for high-rise public housing buildings, a process that continues for two decades (Figure 34; Figure 35; Figure 36).

Figure 23.1928, A local baseball field in the shadow of the Polo Grounds (extreme left) and the 155th Street viaduct, seen from the Harlem River Driveway (Recreation and Hobbies-Baseball, 1928).

Figure 24. Developmental changes to the Harlem shorefront between 1926(left), 1935(Center) and 1941(right) (Harlem River-Manhattan-155th Street (West))

Figure 25. Board of Water Supply. City Water Tunnel No. 1. A portable drill rig collects core samples of the rock deep below upper Manhattan. These borings helped geologists and engineers to determine the best route for the 18-mile City Water Tunnel No. 1. The rig is set up near 156th Street and the Harlem River Speedway, originally built for horse racing and replaced by Harlem River Drive in 1964. July 20, 1910 (Urban Archive, Board of Water Supply).

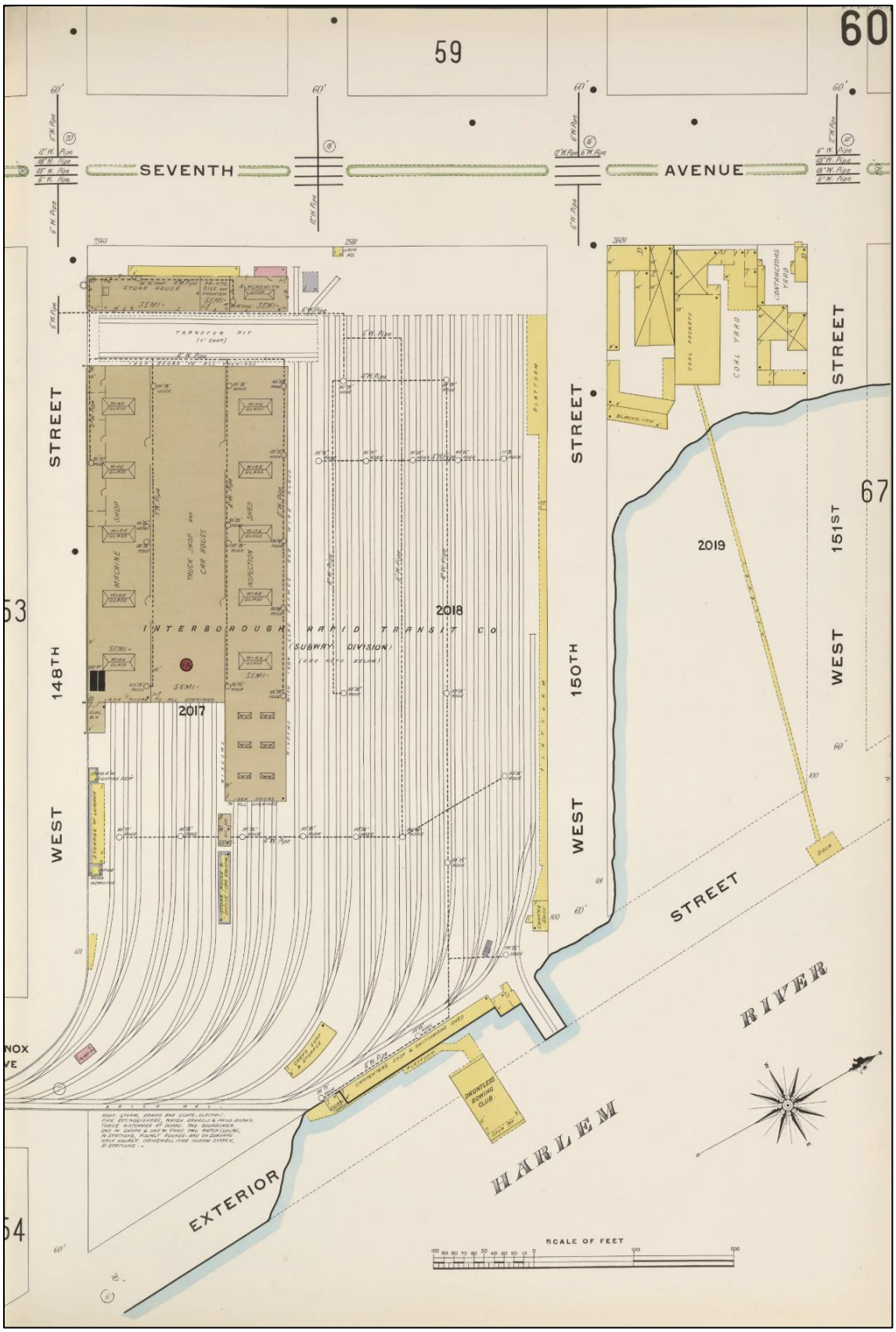


Figure 26. 1909 Sanborn Map, Manhattan, V. 11, Plate No. 60 [Map bounded by 7th Ave., W. 151st St., Exterior St., W. 148th St.]

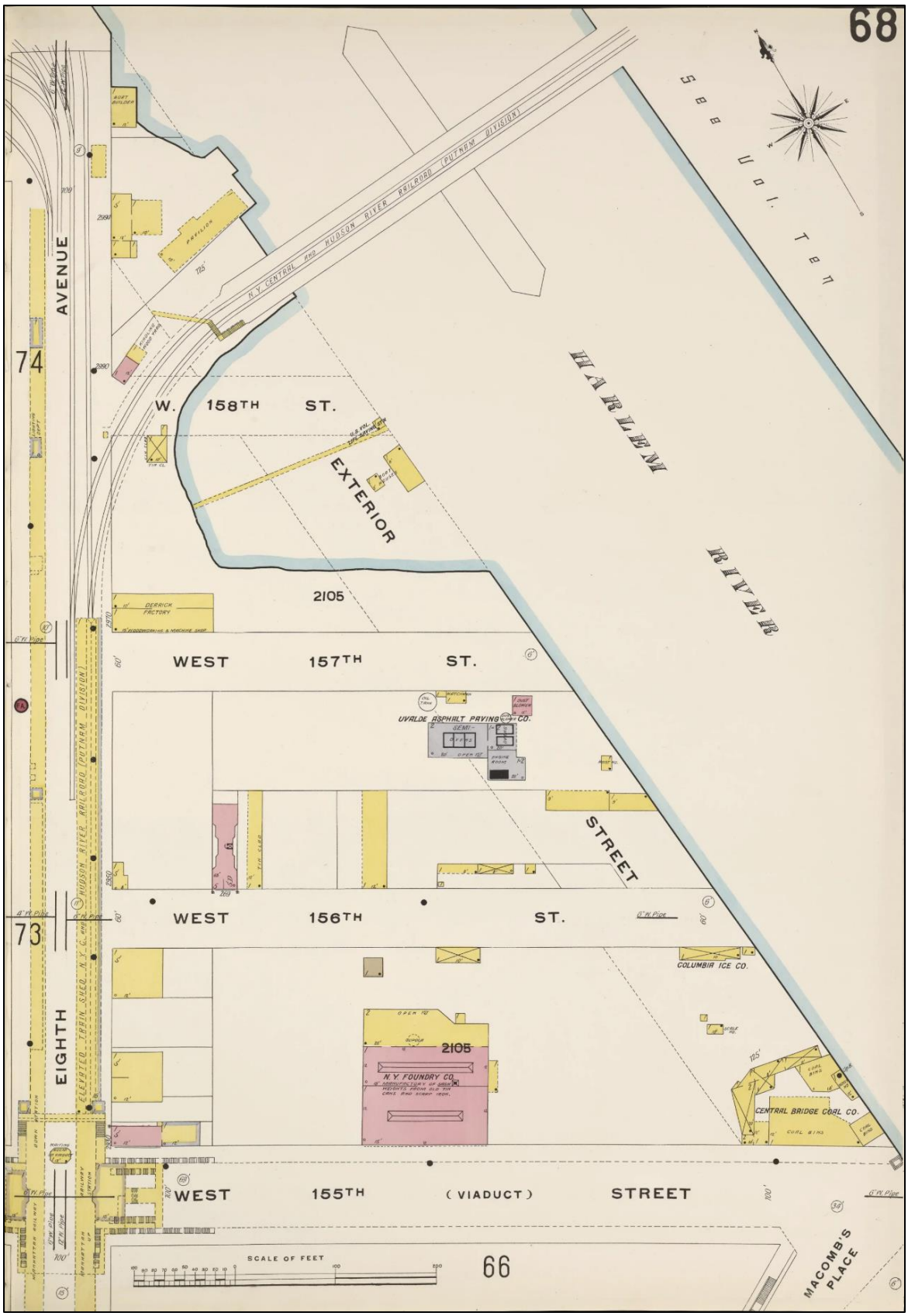


Figure 27.1909 Sanborn Map, Manhattan, V. 11, Plate No. 68 [Map bounded by Harlem River, W. 155th St., 8th Ave.]

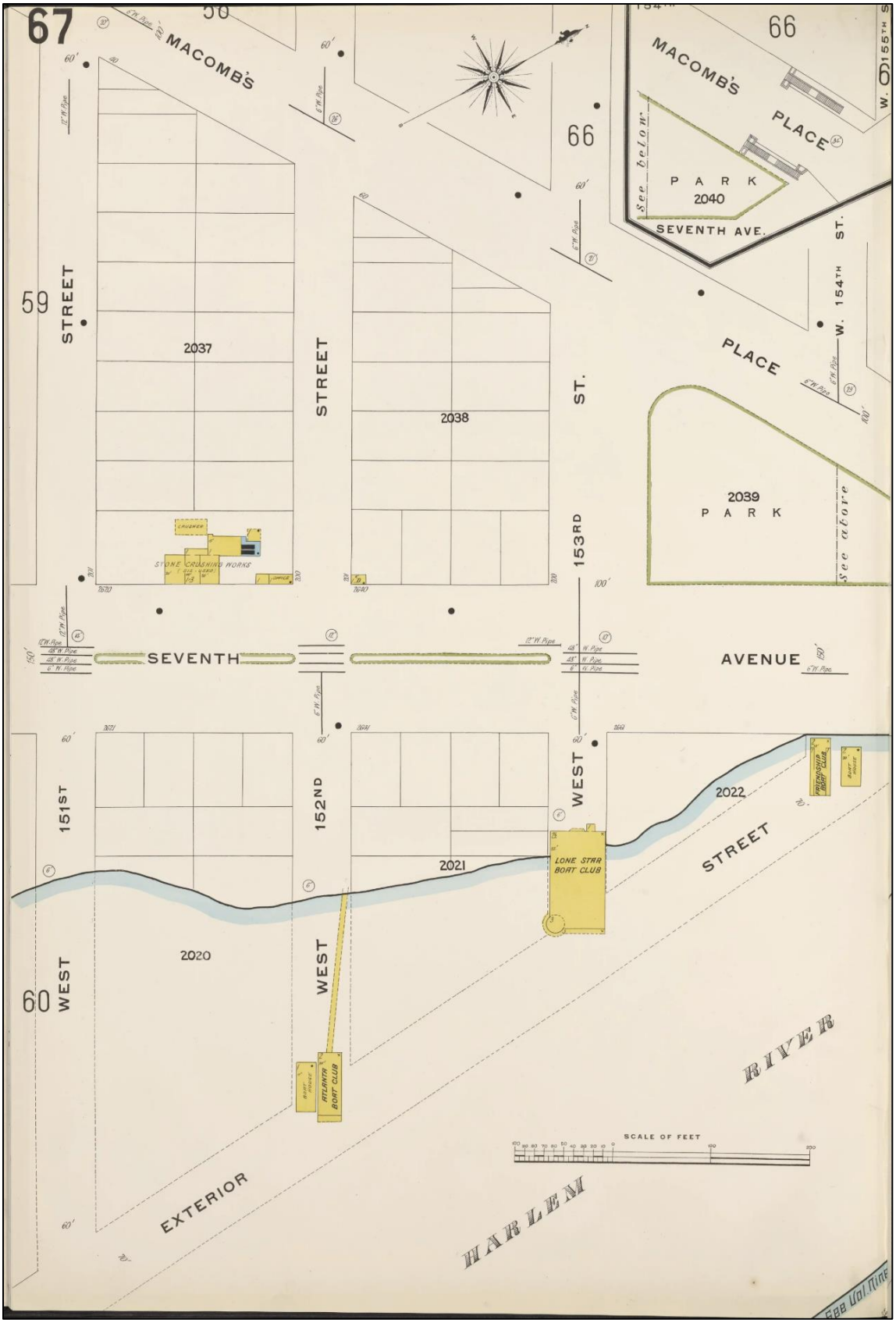


Figure 28. 1909 Sanborn Map, Manhattan, V. 11, Plate No. 67 [Map bounded by Macombs Place, Exterior St., W. 151st St.]

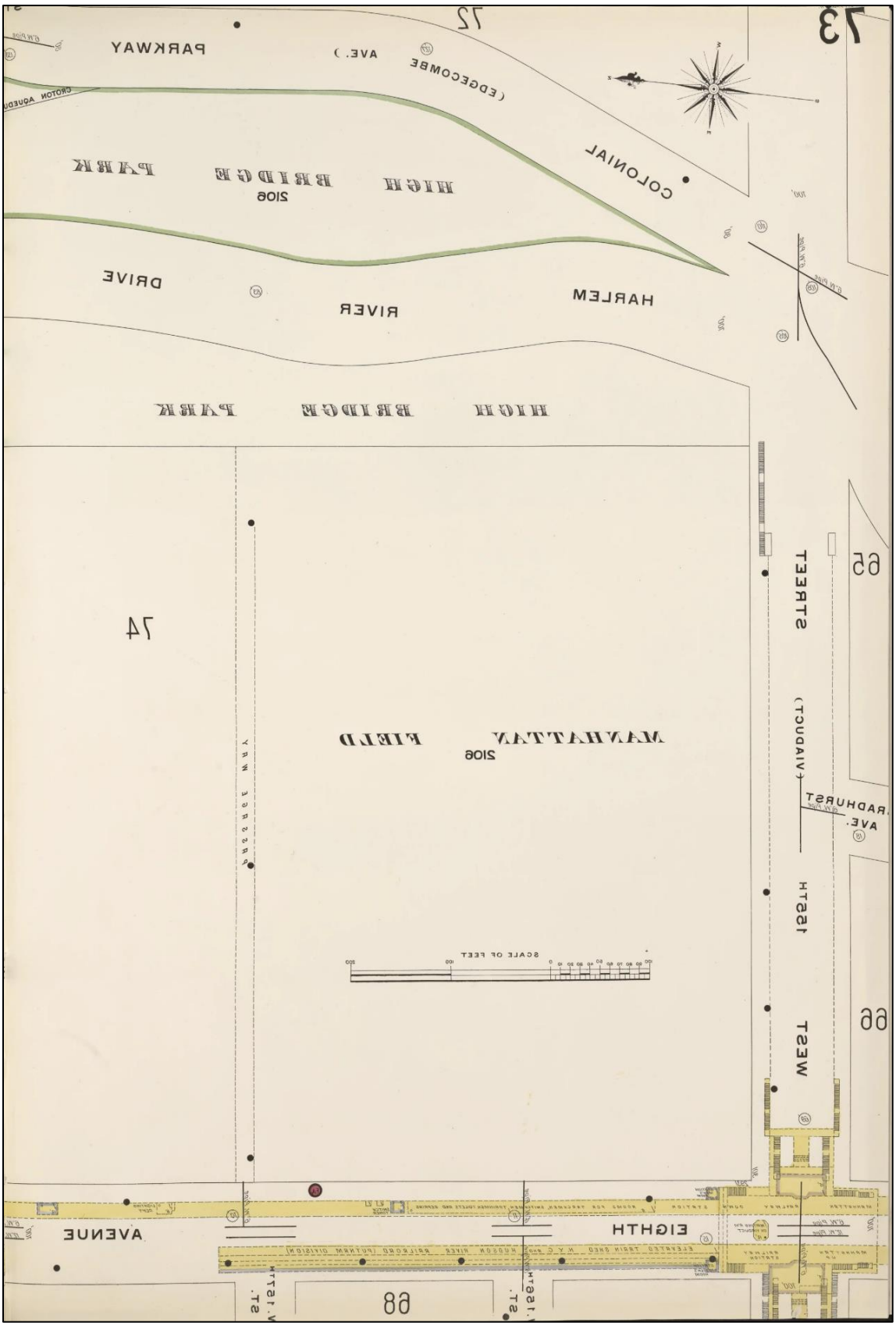


Figure 29. 1909 Sanborn Map, Manhattan, V. 11, Plate No. 73 [Map bounded by Colonial Parkway, 8th Ave., W. 155th St.]

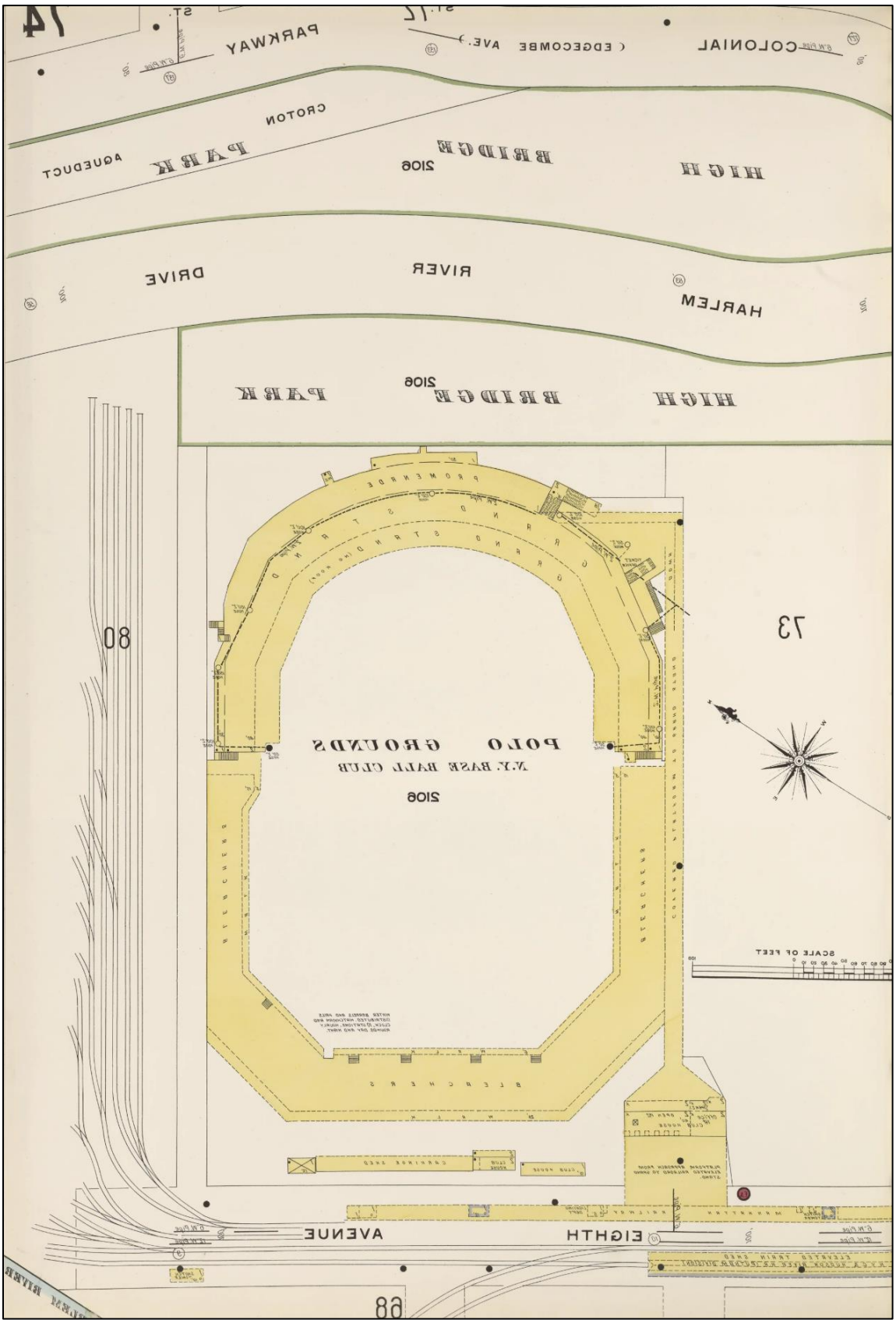


Figure 30. 1909 Sanborn Map, Manhattan, V. 11, Plate No. 74 [Map bounded by Colonial Parkway, 8th Ave.]

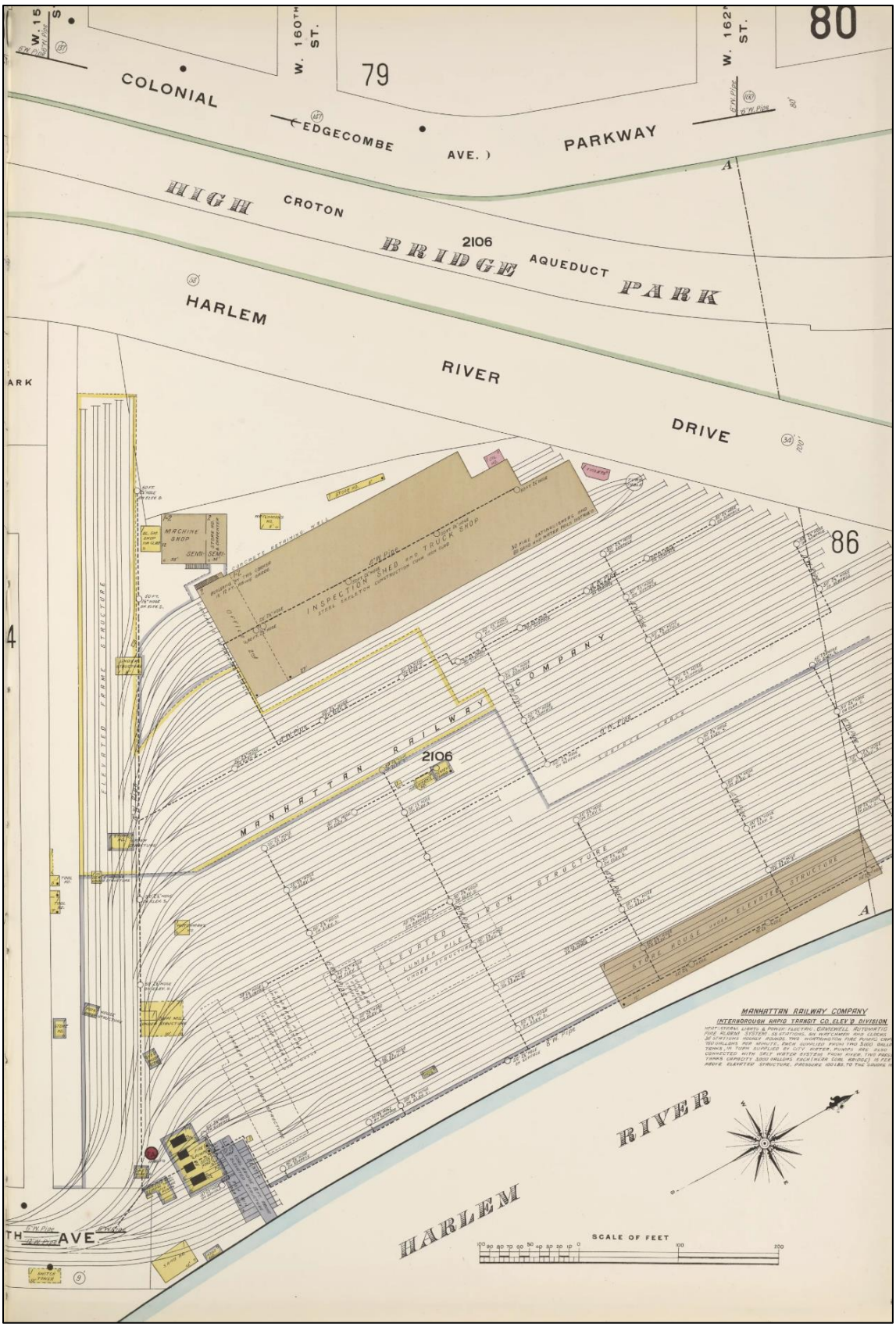


Figure 31. 1909 Sanborn, Manhattan, V. 11, Plate No. 80 [Map bounded by Colonial Parkway, Harlem River].

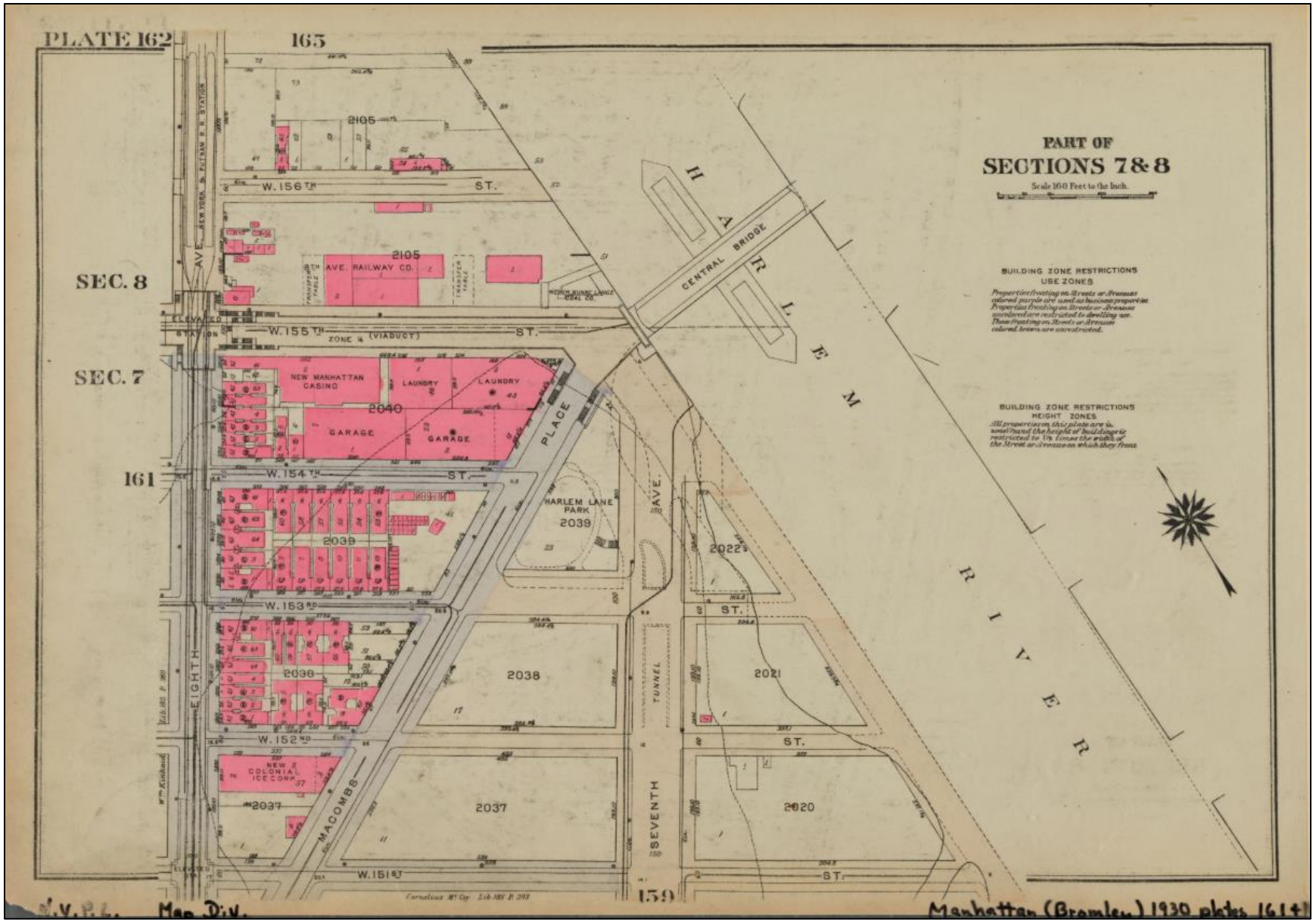


Figure 32. Plate 162, Part of Sections 7 & 8: [Bounded by W. 156th Street, Harlem River, Seventh Avenue, W. 151st Street and Eighth Avenue] (Plate 162, 1930).

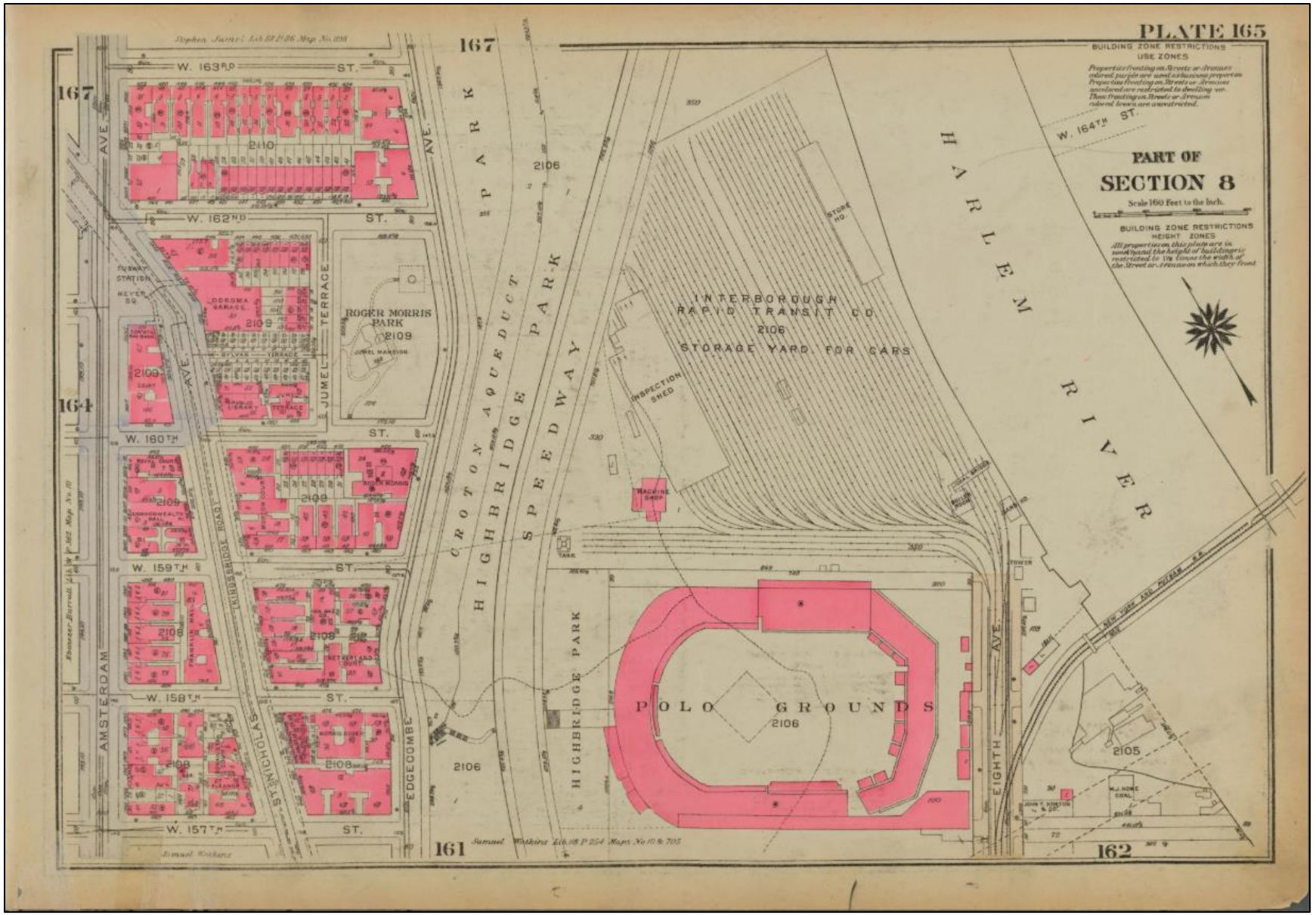


Figure 33. Plate 165, Part of Section 8: [Bounded by W. 163rd Street, (Croton Aqueduct, Highbridge Park, Harlem River) Edgecombe Avenue, W. 157th Street and Amsterdam Avenue] (Plate 165, 1930)

Figure 34. Harlem River - Manhattan - 155th Street (West) - [Harlem Houses.] (Harlem River 1937).

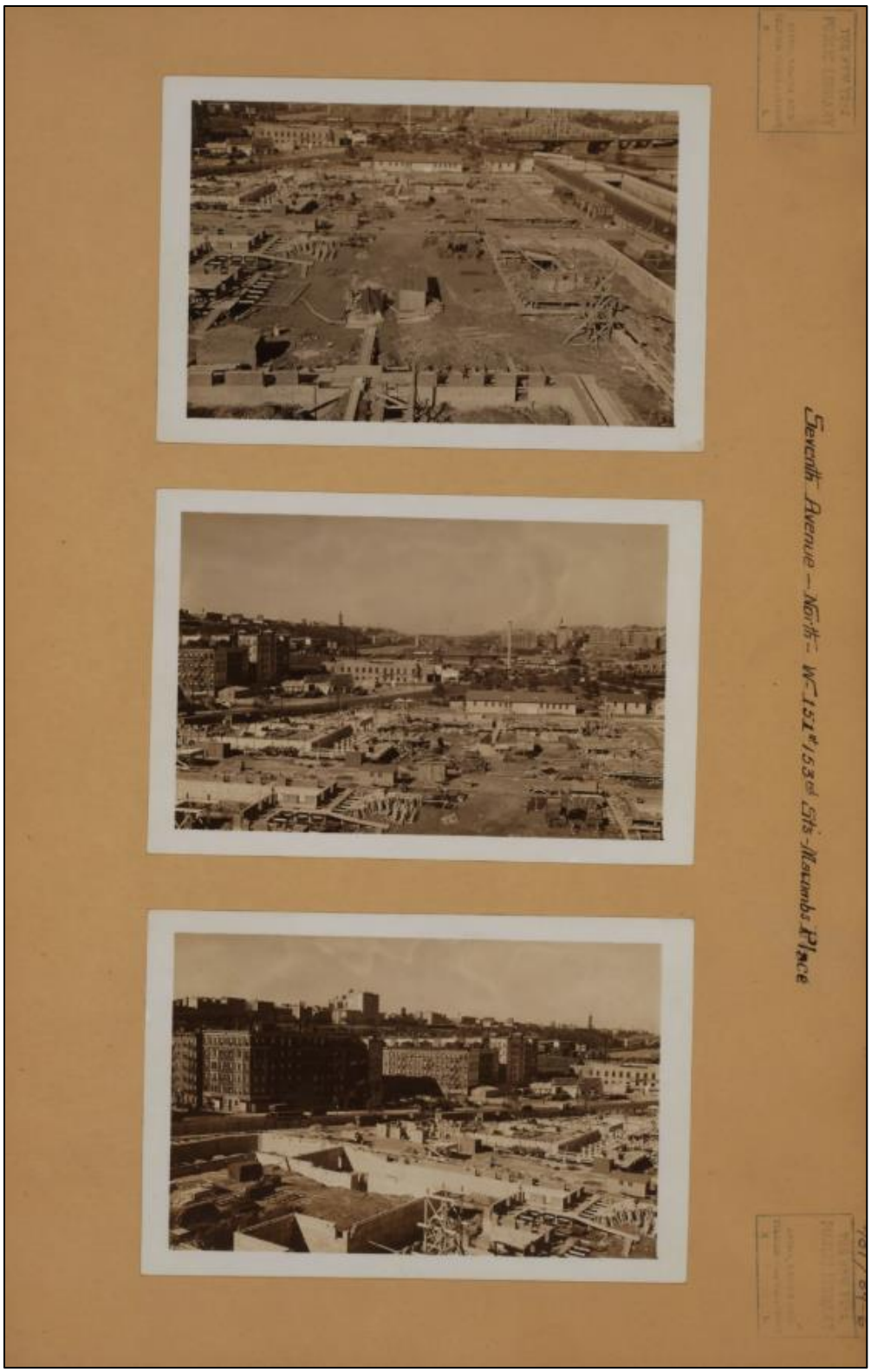


Figure 35. Seventh Ave., north from about West 151st Street, to the Central Bridge (155th Street), which crosses the Harlem River to the Borough of Bronx. Shown on both sides of Seventh Ave., is work in progress for a U.S. Government slum clearance and low-cost housing development, under the auspices of the W.P.A. and P.W.A. September 19, 1936. P. L. Sperr. (2) Another view slightly northward. September 19, 1936. (Seventh Ave 1936)

Figure 36. Seventh Ave., north from about West 150th Street, to the Central Bridge West 155th Street. A panoramic view of the new U.S. Government slum clearance and housing project in Harlem; a local subdivision of Manhattan and bordering onto the Harlem River. This scene consists of several views; each a continuation of the other, and showing mainly the development on the east side of Seventh Ave. (Seventh Ave 1936).

Figure 37. View of future Holcombe Rucker Park from beneath the elevated 8th Avenue, facing southeast. (Weber-Bunke-Lang 1940).

Figure 38. View east from the future location of Frederick Johnson Park on 151st (West). (View of Nonpareil Boatdock, 1940).

Figure 39. 1940 Eighth Avenue, at West 155th Street, showing various aspects of this locale. View No. 1 is northward along the line of the Avenue showing the "El" trains thereupon. At the left is the baseball park, the Polo Grounds (Recreation and Hobbies-Baseball 1940-1928

Figure 40. 8th Ave South from 155th St. (Manhattan 8th Avenue-155th Street (West), 1940).

Figure 41. Eastward showing the viaduct carrying 155th Street over this point. In the background is the Bronx shore of the Harlem River. Beyond the 155th Street Bridge appears the super structures of the Yankee Stadium and the new Borough Hall Building (Recreation and Hobbies-Baseball 1940-1928).

3.3.5 Post-War Changes and Suburban Development (1945–1970s)

Just north of the Polo Grounds, the 159th Street Yard once served as a key maintenance and storage facility for the Ninth Avenue Elevated (El) until the line's closure in 1940. By 1942, as part of wartime mobilization, the city began accepting bids to dismantle the yard and salvage its scrap metal for the war effort. The site was eventually cleared to make way for the Colonial Park Houses—now the NYCHA Ralph Rangel Houses—constructed between 1948 and 1951 (Figure *42*; Figure *43*). This development was emblematic of the broader postwar transformation of Harlem. After World War II, many Italian and Jewish families moved to the outer boroughs or suburbs, while Harlem increasingly became a center of African American and Puerto Rican life and culture (Sydney 2015:33).

By the 1950s, the nearby Polo Grounds had clearly entered a period of decline. Although the Giants had once enjoyed great success there, attendance steadily waned in the face of the postwar economic boom, suburbanization, and the rise of automobile-based transportation. The stadium's constrained location—wedged between Coogan's Bluff and the Harlem River—left little room for modernization or expansion, rendering it increasingly obsolete. The construction of large-scale public housing adjacent to the ballpark further diminished its appeal. In the 1960s, the City of New York acquired the Polo Grounds and the adjacent Manhattan Field through eminent domain. Following the demolition of the Giants' final stadium, the area was redeveloped into a high-rise NYCHA housing complex.

The rapid proliferation of public housing in this period—accounting for over 25% of all housing units in the area—was part of a citywide strategy to address chronic housing shortages. However, these projects also had the unintended effect of reinforcing patterns of racial segregation and concentrated poverty (Wong, 2006). Together, these shifts marked a profound transformation of the neighborhood's physical and social landscape in the postwar decades.

Figure 42. Historic aerial showing the construction of the NYCHA housing north of the Polo Grounds (1951).

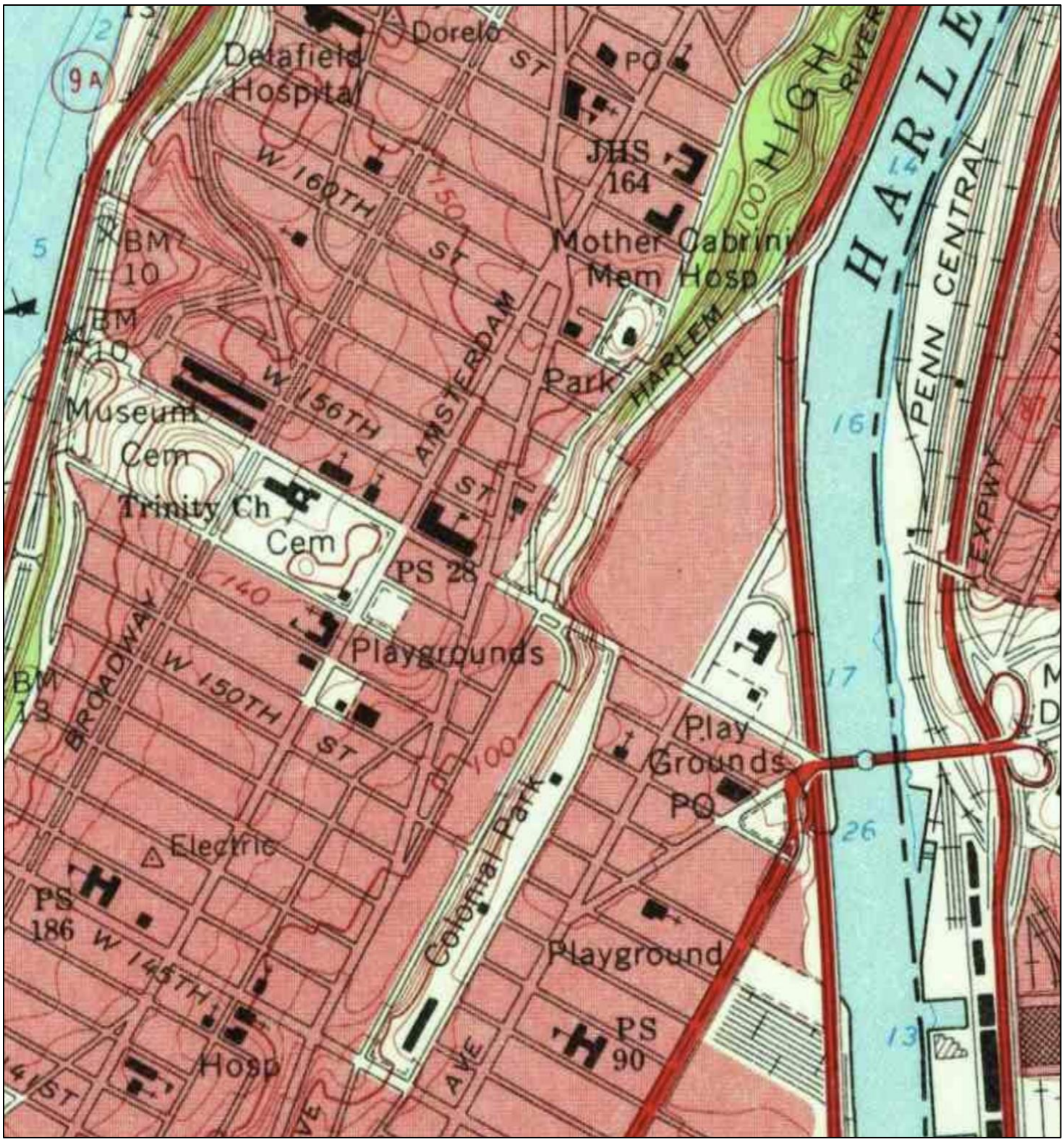


Figure 43. Detail portion of the USGS topographic map demonstrating the land clearing associated with the NYCHA housing replacing the Polo Grounds by the 1960s (USGS Central Park, NY 1966)

3.3.6 Metropolitan Development and Gentrification (1980s–2000s)

A comparative review of historical and contemporary maps indicates that the overall pattern of development within the study area has remained relatively stable, with the street grid, lot layout, and general land use persisting across time. However, notable shifts in commercial activity are evident, particularly in the corridors adjacent to transit routes and major thoroughfares. These changes align with broader socioeconomic transformations experienced in Upper Manhattan during the late 20th and early 21st centuries. In particular, rezoning policies and private redevelopment initiatives implemented in the latter half of the 20th century contributed to cycles of disinvestment and reinvestment in both Washington Heights and Harlem. While large-scale changes to the physical built environment were limited in some sections, shifts in commercial tenancy and land use patterns reflect broader neighborhood restructuring. These dynamics were further intensified by gentrification pressures that accelerated through the 1990s and 2000s, as middle-class professionals increasingly moved into the area, prompting new development and contributing to rising rents and property values (Wong, 2006; Snyder, 2015).

Overall, while the physical layout of the study area has not dramatically changed, the functional landscape—particularly in terms of commercial and residential use—has undergone notable transformation driven by evolving economic and social forces.

3.3.7 Modern Activities and Cultural Renaissance (2010s–Present)

An analysis of spatial data and land use patterns from the 2010s to the present reveals that development within the study area has largely followed existing infrastructure and neighborhood patterns, but with marked intensification in certain commercial and residential zones. While the core layout of the street grid and major land parcels has remained constant, the period has seen ongoing redevelopment activity—particularly in the form of infill housing, commercial renovation, and adaptive reuse of older structures.

In areas such as Northern Central Harlem and Southeastern Washington Heights, these changes reflect broader pressures linked to urban reinvestment, rising land values, and demographic turnover. The impacts of rezoning, increased developer interest, and shifting real estate markets are evident in both new construction and the changing uses of older properties. At the same time, many historically significant buildings and community landmarks remain in active use, often serving as focal points in neighborhood identity.

Tensions between preservation and redevelopment remain central to local politics and community planning efforts (Sparrow, 2019). This is particularly pronounced in communities with strong cultural legacies and long histories of displacement and reinvention. From its Indigenous foundations to its current status as a site of overlapping community interests and economic redevelopment, the area's evolution in the 2010s and 2020s underscores the persistence of community advocacy and cultural continuity as counterweights to market-driven transformation (Freeman, 1994; Sparrow, 2019).

4 EXISTING CONDITIONS AND CULTURAL RESOURCE EFFECTS

As presented in the Environmental Appendix, Cultural Resource Categories within the Study Area have been reviewed to determine if there is a potential for the Alternatives to effect, either adversely or beneficially, Resource Categories starting with an initial screening to identify *if* there is a potential for adverse effects (Yes – Y; or No – N) by the measures of each Alternative, followed by an assessment of the magnitude of those identified potential adverse effects, rated on a scale of 0 (No Adverse Effects) to minus 5 (–5, Significant Adverse Effects), by Alternative. Each Cultural Resource includes a summary discussion of the anticipated and reasonably foreseeable effects of each Alternative, additionally reflected by qualitative magnitude of effect ratings. Based on comments received following release of the Draft Report, the qualitative rating system and criteria has been revised and expanded upon in the following manner:

- Adverse effects rating criteria ranges from 0 to –5, with negative markers added to emphasize the anticipated qualitative negative effect.
- Beneficial effects rating criteria was established and presented herein, following a similar structure as the adverse effects rating criteria, except the beneficial effects ranging from 0 to +5, including a positive marker to emphasize the anticipated qualitative beneficial effect.
- The No Action was assessed in the same manner as the Alternative Actions, with qualitative rating scores accompanying each description.
- Cultural Resource Impacts require a more refined framework tailored to cultural resources is essential to adequately assess both adverse and beneficial effects, guide meaningful mitigation, and ensure compliance with federal preservation mandates. This approach enables more precise evaluations and protects cultural heritage in ways that environmental scoring systems alone cannot achieve.

Cultural resources are vulnerable to the impacts of storm surges, flooding, and sea-level rise. These types of exposures can diminish the physical and historic integrity of archaeological sites, historic buildings, and cultural landscapes through physical damage or destruction. Integrity is essential for historic properties to retain their designations as National Historic Landmarks, State / National Register listed or eligible resources, NYC Landmarks, and / or NPS parks or site units, examples of all of which are present throughout the study area.

4.1 CULTURAL RESOURCE LIST AND POTENTIAL TO EFFECT DETERMINATION

This table represents the overview of the Resources identified in the September 2022 Draft Report as potentially occurring within the Study Area to determine if the Comprehensive Plan would affect said resources. These same resources were again reviewed for the Harlem River AE Site and assessed in the same manner as summarized below. The difference between the September 2022 Draft Report assessment and this one, is that this one includes the negative and positive markers to establish the presence/absence of adverse and/or beneficial effects. A deviation from this process, is the exclusion of the New York Bight Ecological Model (NYBEM) Developed by the U.S. Army Corps of Engineers, Engineering Research and Development Center, as it is not applicable to these AE sites but rather the larger Comprehensive Plan as a whole.

4.2 CULTURAL RESOURCE QUALITATIVE RATING METHODOLOGY AND SCORING PROCESS

A rating methodology was developed, adopted, and enhanced from the September 2022 Draft Integrated Report and Tier 1 EIS to qualitatively assess as well as the current Draft EA Qualitative Rating Methodology to compare the adverse impacts of each resource within the Study Area. While environmental impact frameworks provide a broad lens for evaluating project effects, cultural resources require a more nuanced and specialized approach due to their historical, archaeological, and intangible values. Environmental models often emphasize biophysical metrics such as land use, hydrology, or emissions, which can overlook the complex regulatory, contextual, and community-based significance of cultural resources. Under Section 106 of the National Historic Preservation Act, federal undertakings must consider not only physical alterations but also visual, auditory, and contextual impacts

to historic properties and archaeological sites. Therefore, a more refined framework tailored to cultural resources is essential to adequately assess both adverse and beneficial effects, guide meaningful mitigation, and ensure compliance with federal preservation mandates. This approach enables more precise evaluations and protects cultural heritage in ways that environmental scoring systems alone cannot achieve.

Cultural Resources Impact Evaluation Framework

Resource Categories:

- Above-Ground: Historic structures, viewsheds, cultural landscapes
- Below-Ground: Archaeological sites (terrestrial and submerged)
- Project Phases Considered: Construction, Operation & Maintenance
- Impact Types: Adverse (Negative) Effects, Beneficial Effects

Evaluation Factors:

- Impact Magnitude (Intensity/Extent)
- Geographic Scope (Local/Regional)
- Temporal Scope (Short-/Long-Term)
- Regulatory Thresholds (e.g., NEPA, NRHP eligibility, Section 106 compliance
- Mitigation Potential (Avoidance, Minimization, Treatment, Enhancement)

Table 1. Adverse Effects Rating Table (With Mitigation Evaluation Built In)

Impact Rating	Score	Description	Example	Mitigation Category
High	-5	Permanent destruction of resource; exceeds regulatory thresholds; mitigation **insufficient** to reduce impact to an acceptable level.	Demolition of an NRHP-listed building without documentation or alternatives.	**No effective mitigation possible**; total loss of integrity/significance.
Mod–High	-4	Significant adverse effect; mitigation **necessary and substantial**, but cannot eliminate loss of integrity.	Cut through historic landscape with unavoidable impacts.	**Partial mitigation** (e.g., detailed documentation, interpretive signage, data recovery).
Moderate	-3	Impact is localized and within thresholds; mitigation **can fully address** resource loss or damage.	Archaeological site disturbed by utilities, but full data recovery is planned.	**Effective mitigation** (e.g., redesign, excavation, relocation, HABS/HAER documentation).
Low–Mod	-2	Minor adverse impact; mitigation **simple and sufficient** to avoid significance loss.	Short-term construction next to historic structure with vibration monitoring.	**Standard BMPs** or buffer zones.
Low	-1	Temporary, negligible effects; no mitigation required.	Minor access near site boundary.	**No mitigation necessary**.
No Impact	0	No effect on cultural resources.	Boring in fully disturbed, tested area.	Not applicable.

Table 2. Beneficial Effects Rating Table (With Enhancement Evaluation)

Benefit Rating	Score	Description	Example	Mitigation Enhancement Category
High	+5	Regionally significant enhancement of a cultural resource or site; measurable, long-term improvement; promotes public engagement.	Adaptive reuse of a historic building as public space with interpretation.	**Preservation + Public Benefit** (e.g., funding, easements, partnerships).
Mod–High	+4	Strong enhancement locally or regionally; mitigation or restoration improves condition or setting.	Viewshed restoration at a historic site through invasive species removal.	**Restoration + Setting Rehabilitation**.
Moderate	+3	Measurable benefit to one or more cultural resources; increased protection or documentation.	Phase III recovery with public education materials produced.	**Public interpretation, research access, stewardship agreements**.
Low–Mod	+2	Some improvement beyond existing condition; resource protected or documented more completely.	HABS documentation of vulnerable site.	**Archival mitigation + limited outreach**.
Low	+1	Minor benefit, such as improved access, visibility, or documentation.	Signage for nearby unmarked historic feature.	**Minimal enhancement**.
No Impact	0	No beneficial effect beyond current condition.	Routine maintenance in non-sensitive areas.	Not applicable.

Both rating methodologies analyses and qualitative scoring informed the effects assessments and the EQ account for Plan Selection and identifying the environmentally preferred alternative for each Actionable Element site. Scores for adverse impacts were rated for each resource on a scale of 0 to –5, with 0 being no impact to the resource, and –5 being significant impacts to the resource that would be considered not
Example explanation:

Table 3. Cultural Resource Impact Summary Table

Resource Qualitative Rating	Adverse Effects			Beneficial Effects			NO ACTION TOTAL SCORE	ON-LAND TOTAL SCORE	IN-WATER TOTAL SCORE
	No Action	On-Land Alignment	In-Water Alignment	No Action	On-Land Alignment	In-Water Alignment			
Construction/Footprint									
Historic Structures	-1	-2	-1	0	3	3	-1	1	**2**
Viewshed / Historic Setting	-1	-4	-1	0	1	4	-1	-3	**3**
Terrestrial Archaeological Resources	-1	-3	0	0	1	1	-1	-2	**1**
Submerged Archaeological Resources	-1	0	-1	0	0	0	-1	0	**-1**
O&M Assumptions									
Historic Structures	0	-1	-1	0	1	2	0	0	1
Viewshed / Historic Setting	0	-2	-1	0	1	2	0	-1	1
Terrestrial Archaeological Resources	0	0	0	0	0	1	0	0	1
Submerged Archaeological Resources	0	0	0	0	0	0	0	0	0
Mitigation (if applicable, otherwise 0)	0	0	0	0	0	0	0	0	0
Subtotal Resource Score with mitigation									
ACTION TOTAL SCORE (calculated, additive, with mitigation)							**-4**	**-6**	**8**

4.3 EXISTING CONDITIONS

Cultural resources are vulnerable to the impacts of storm surges, flooding, and sea-level rise. These types of exposures can diminish the physical and historic integrity of archaeological sites, historic buildings, and cultural landscapes through physical damage or destruction. Integrity is essential for historic properties to retain their designations as National Historic Landmarks, State / National Register listed or eligible resources, NYC Landmarks, and / or NPS parks or site units, examples of all of which are present throughout the study area.

4.3.1 Aboveground Resources

World Heritage Sites. There are no United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites within the study area.

Traditional Cultural Properties. A Traditional Cultural Property (TCP) is "one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in the community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1998:1). Currently, there is no comprehensive list of such properties within the study area.

The Stockbridge Munsee Tribe recognizes Papscanee Island, located on the Hudson River just two miles south of Albany, outside of the study area, as a traditional cultural property of religious and cultural importance. The New York State Office of Parks, Recreation and Historic Preservation has, based on these criteria, determined the site eligible for inclusion in the National Register of Historic Places.

If other TCPs exist in the region, they may be linked to Native American Nations or ethnic groups from more recent waves of migration, including those from Europe, Asia, Africa, South America, Australia, and other parts of North America.

Ethnographic Resources. In NPS parlance, ethnographic resources are "sites, structures, objects, landscapes, and natural resources or features of traditional importance to a contemporary cultural group through associations three generations or more in length" (Rockman et al. 2016:19). Currently, these resources have not been quantified for the study area. If they are present, they may be connected to Native American Nations, as well as ethnic groups from more recently arrived populations from Europe, Asia, Africa, South America, Australia, and other regions of North America.

Cultural Landscapes. A cultural landscape is "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values" (NPS 2021). The National Park Service defines four types of cultural landscapes, which are not mutually exclusive: Historic Designed Landscapes; Historic Sites; Historic Vernacular Landscapes; and Ethnographic Landscapes. At present, cultural landscapes are not well-quantified for the study area.

Museum Collections. The NYNJHAT AE Study Area does not contain any of the 145 museum collections associated with the rich and varied cultural history of New York and New Jersey, the United States, and other collections from around the world.

4.3.2 Archaeological and Submerged Resources

Submerged Cultural Resources. The submerged cultural resources portion of the Direct APE is defined as the depth and breadth of the geographic areas potentially affected by any bottom-disturbing activities. The marine/riverine Direct APE also includes maritime/riverine cultural resources landward of the shoreline (i.e., onshore) and resources offshore of the AEs and tributaries. The recent WSP 2022 remote sensing survey of the East River indicated that this portion of the river is free from submerged resources, see the Cultural Resource Surveys within the 100-meter Direct APE for additional information.

Potential For Encountering Submerged Native American Sites. Preceramic-period sites in the Northeast are typically located on high ground along major river terraces, often near confluences, offering views of expansive land areas. During this time, river systems were larger, longer, and more dynamic, shaped by glacial meltwater that moved glacial outwash boulders, cobbles, and pebbles, materials that could serve as lithic resources. As sea levels rose, river mouths were submerged, creating bays, estuaries, and salt marshes that expanded over the retreating coastal plain. These environments would have been attractive to early human settlers for habitation or resource exploitation. Such areas, especially lee and back-bay settings, may also help preserve archaeological sites, as estuarine sedimentation can protect older or contemporaneous deposits from erosion caused by rising sea levels (Panamerican 2020:17).

Potential Native American Archaeological Sites. For Native American archaeological sites, areas of interest include the margins of streams, lakes, ponds, and estuarine environments. Channel facies are typically identified as concave-shaped reflectors, while potential reflectors might include deltaic features (wedge-shaped deposits), characterized by alternating layers with varying reflective properties and indicative slope (Panamerican Consultants 2020:18). The potential for Native American Archaeological sites is considered low.

Geomorphology and Submerged Prehistoric Resources. Remote Sensing survey results (WSP 2022) demonstrated that the Harlem River has been heavily modified, including historical blasting to widen the bedrock channel for navigation. Bedrock outcrops and closely spaced ripple bedforms throughout the Harlem AE study area suggested limited fine sediment cover over bedrock or coarse substrate. The river has been effectively canalized with shallow, hardened banks, and historical charts (e.g. Beers and Gaylord 1891) show much of it was once shallow and intertidal in the late nineteenth century. Given the highly altered, artificial nature of the riverbed and the prevalence of bedrock or coarse material, no precontact archaeological potential is assigned to this stretch of the river, despite its shallow depth (WSP 2022).

Archaeological Site and Shipwreck Inventory. Studies of shipwrecks in the New York/New Jersey Harbor area have revealed that numerous vessels have been lost in the region since the early seventeenth century. The waters surrounding New York have served as a major route for ships spanning every era in U.S. history, making it home to a wide array of shipwreck sites, many of which remain undocumented and unidentified.

Estimates of the number of shipwrecks in the region vary, ranging from hundreds to thousands. The coastlines of Long Island and New Jersey form a natural "funnel" that directs maritime traffic into New York Harbor, leading to a higher concentration of shipwrecks than anywhere else along the East Coast of the United States, possibly with the exception of Cape Hatteras on the Carolina Outer Banks [Sheard 1998:8].

Numerous accounts have been written about the hazards faced by ships navigating the approach to New York New Jersey Harbor. These vessels were often lost due to adverse weather conditions, lack of navigational aids, marine accidents, or grounding near the surf zone. In many cases, ships could not be salvaged, resulting in the degradation of their hulls. According to Rattray (1973:50), the southern shore of Long Island is notorious for shifting sandbars that extend along the entire length of the island. These dangerous features, along with other factors, made the approach to New York New Jersey Harbor, and the harbor itself, a prime location for shipwrecks and maritime disasters (Panamerican Consultants 2020:35). Much like other submerged cultural resources, the potential for shipwrecks in this portion of the East River is considered low per the recent WSP 2022 remote sensing survey, see the Cultural Resource Surveys within the 100-meter Direct APE for additional information.

National Register Listed and Eligible Resources. According to the NYSHPO's Cultural Resource Information System (CRIS), more than 16 National Register listed or eligible resources are in the study area. This includes 1 archaeological site (NYSM archaeological area), 7 individual aboveground historic resources (2 listed and 4 eligible properties), and 9 historic districts (8 listed and 1 eligible). There are no known archaeological sites that have yet to be investigated to determine whether they are eligible for NRHP.

New York State Museum Archaeological Sites. The NYSM has records for 0 archaeological sites and 1 archaeological area in the study area.

National Historic Landmarks (NHLs). National Historic Landmarks are historic properties that illustrate the heritage of the United States. There are currently more than 2,600 NHLs designated which represents an outstanding aspect of American history and culture (NPS 2022a). There are many types of NHLs which include historic buildings, sites, structures, objects, and districts. There are no identified NHLs within the study area.

New York City Landmarks. The New York City Landmarks Preservation Commission (LPC) administers the city's Landmarks Preservation Law. It is responsible for protecting New York City's architecturally, historically, and culturally significant buildings and sites by granting them landmark or historic district status and regulating them after designation (NYC LPC 2022).

NYC LPC landmarks are designated in four categories: individual landmarks, interior landmarks (i.e., building interiors), scenic landmarks, and historic districts. The National Register is separate from the LPC although many of New York City's individual landmarks and historic districts are also listed on the National Register. There are more than 37,600 landmark properties in New York City, most of which are in 152 historic districts and historic district extensions in all five boroughs (NYC LPC 2022). None of the NYC Scenic Landmarks are in the study area.

Approximately 4 NYC Landmark individual properties and historic districts have been identified as partially in or adjacent to the 100-m Direct APEs for the project alternatives.

4.4 ENVIRONMENTAL CONSEQUENCES HARLEM, NEW YORK STUDY AREA

The Direct APE for this alternative consists of the physical footprint of individual measures and a 300 meters (328 feet) buffer around the AE which consists of a total area of 10.35 sq mi (36.8 sq km) with a risk managed area estimated to protect approximately 2,414 cultural resources. The AE has the potential for adverse effects to historic properties in and adjacent to the 100-m (328 feet) Direct APE. This Section provides the results of a preliminary review of cultural resources data available in the NYS OPRHP and NJ HPO databases, as well as the NOAA ENC database and the NYC Landmarks Preservation Commission's internet accessible geographic information system, for proposed measures for the AE. To protect archaeological sites, in compliance with Federal and State laws, their locations and names are not provided in this EA report. The features for the AE involve the construction of structures that have a potential to affect directly historic properties and cultural resources in both terrestrial and submerged environments. The proposed alternative is in an area that would be considered to have a moderate probability for terrestrial and submerged cultural resources to occur. At the most general level, Native American archaeological sites are most likely to be located near water; by definition, submerged resources are in water and early non-Native American settlements clustered near water, particularly in the time before plumbing and sanitary sewer systems. For further discussion and analysis of project features please see the Cultural Resource Appendix A8

Table 3. Cultural Resources within the 100-meter Direct APE

Historic Property Type	Number of properties in Harlem Direct APE
National Historic Landmark	0
Historic District, NR-listed	9
Historic District, NR-eligible	1
Individual aboveground property, NR-listed	1
Individual aboveground property, NR-eligible	4
NYC LPC individual landmarks	4
NYC LPC landmark districts	0
Archaeological site, NR-listed*	0
Archaeological site, NR-eligible*	0
Archaeological site, undetermined eligibility*	0
NYSM archaeological site	0
NYSM archaeological area	1
Shipwreck	0
National Recreation Area	0
Cemeteries	0

Preliminary Totals of Cultural Resources within 100 meters (328 ft) of the Alternative (Direct APE) *(after data from the NYSHPO, NYSM, NJSHPO, NPS, NOAA, and the NYC LPC).*

The Harlem APE includes:

SR/NR Listed Building: Harlem River Houses (90NR00946), Jackie Robinson Park (6101.001957)
SR/NR Eligible Building: Holcombe Rucker Park (06101.023435), 155TH St Viaduct (06101.001520), Macombs Dam Bridge (06101.000043), Rangel Houses (06101.018570)
LPC: Macomb's Dam Bridge (LP-01629), Historic Street Lampposts (LP-01961), Harlem River Houses 9 (LP-00894), Jackie Robinson Park (6101.001957)
Ineligible Building: Harlem River Drive (06101.022173), P.S. 46
Undetermined District: Polo Grounds Towers (06101.023487)
Undetermined Building: Macomb's Bridge Branch (06101.018602), NYPL, 161st Street Tunnel (06101.022188)
NRHP Eligible District: Colonial Park Houses (06101.023488)
NYSM: 4065

Cultural Resource Surveys within 100-meter Direct APE

The NYSHPO and LPC list one survey (22SR00507) within either the Seaward or Landward alignment Direct APEs. The remote Sensing survey by WSP (2022) demonstrated that the Harlem River has been heavily modified, including historical blasting to widen the bedrock channel for navigation. Bedrock outcrops and closely spaced ripple bedforms throughout the Harlem AE study area suggested limited fine sediment cover over bedrock or coarse substrate. The river has been effectively canalized with shallow, hardened banks, and historical charts (e.g. Beers and Gaylord 1891) show much of it was once shallow and intertidal in the late nineteenth century. Given the highly altered, artificial nature of the riverbed and the prevalence of bedrock or coarse material, no precontact archaeological potential is assigned to this stretch of the river, despite its shallow depth (WSP 2022). Much like other submerged cultural resources, the potential for shipwrecks in this portion of the East River is considered low per the recent WSP 2022 remote sensing survey.

4.4.1.1 No Action

Adverse Effects

The No Action or No-Build Alternative was assessed in relation to the project's purpose and need. Under this scenario, no measures would be implemented to address future flood risks, which are anticipated to worsen due to relative sea level rise. As a result, this alternative would leave existing aesthetic, visual, historical, and cultural resources vulnerable to damage. Dozens of archaeological sites and aboveground historic resources within the study area face the risk of deterioration or destruction from coastal flooding and sea-level rise. Additionally, submerged cultural resources may be affected by underwater storm activity and alterations in seawater flow patterns associated with flooding and rising sea levels.

Cultural resources throughout Manhattan are increasingly threatened by environmental changes. The impact of recent extreme weather events underscores this vulnerability. For instance, Hurricane Sandy in 2012 significantly affected the New York–New Jersey Harbor region and caused widespread damage across 26 states. The most severe impacts occurred in New York and New Jersey, particularly within the New York Metropolitan Area. Storm surges reached 9.4 feet at The Battery (southern Manhattan) (USACE 2019:5). Floodwaters from the storm reached depths of up to nine feet in Manhattan. Many historic structures suffered extensive damage, with

some lost entirely, revealing critical weaknesses in the region's coastal storm risk management (CSRM) systems and their capacity to protect cultural resources.

Numerous early Euro-American settlements in New York were historically established along waterfronts, both coastal and inland. Similarly, Native American archaeological sites in the study area are commonly located near low-elevation water sources—coastlines, estuaries, and rivers—placing them at heightened risk. Historic buildings, landmarks, and archaeological sites across Manhattan face growing threats from flooding, tidal erosion, and intensified storm activity as climate-related impacts escalate.

Without flood protection measures, roughly 67 square acres of the study area will be within the 100-year flood zone. The affected area includes parts of all the AE Study Area.

Beneficial Effects

No beneficial effects of no action are anticipated, as the area would continue to be vulnerable to coastal flood risk and damages. Therefore, this effects category is representative as no impact, with a corresponding Impact Score of 0.

The no action is anticipated to continue to have cultural resources vulnerable to coastal flood risk and damages. Coastal storm damages would contribute to continued loss of habitat and food species based on repeated flooding and wind from storms and relative sea-level change (RSLC). Coastal erosion may contribute to habitat removal or alterations not consistent with pre-existing conditions pre-storm, including transitional areas which are critical for coastal wildlife species. Although the no action would continue on the existing condition trajectory, frequency of storms may increase over time, as may RSLC.

4.4.1.2 Seaward Alignment

The seaward alignment along the East Harlem shoreline is within the Lower Hudson / East River study region. This measure involves approximately 4,864 ft (1,547 m) of seawall along the west shoreline of the East River and Harlem River. The south end of this measure begins at the eastern end of Frederick Johnson Playground, a NYC Parks unit, in the Harlem neighborhood of Manhattan. The APE extends north along Harlem River Drive, which forms the edge of Manhattan as it meets the East River. Near West 150th St a flood wall is proposed to cross under Harlem River Drive and continue north on the west side of the thoroughfare. It runs along the eastern edge of two NYC Parks playgrounds Frederick Johnson Playground and Percy E. Sutton Playground and then crosses under Harlem River Drive from the east edge of Brigadier General Charles Playground at 153rd St. The measure continues north along the river and cross under Harlem Drive where it terminates at point at the south end of Highbridge Park, opposite West 164th and West 165th streets in Washington Heights. The measure passes under the Macombs Dam Bridge. This Direct APE intersects: 0 SHPO-cataloged archaeological sites; 1 NYSM archaeological area (4065); 5 above-ground historic properties that are NR eligible (of which 4 are individual properties and 1 is a historic districts); 1 NR-listed individual property; eight NR-listed historic districts; 3 LPC landmarks. The NOAA ENC database lists 0 shipwrecks in the Harlem portion of the Direct APE. The SHPO data does not indicate there are any cemeteries in the APE.

Adverse Effects

While the seaward alignment is generally considered to have low adverse impacts, some changes to Harlem's historic riverfront environment are unavoidable. The construction of a seawall and infill will alter the natural shoreline profile, causing some modification to the current riverfront viewshed. Although this impact is limited by the seaward location being more visually removed from the urban core, minor vibration and visual disturbances may occur near historic bridges during construction. The potential disturbance of submerged archaeological resources is minimal due to the narrow construction footprint and prior substrate disturbance; however, it cannot be entirely ruled out. Furthermore, routine operations and maintenance of the floodwall may introduce low-level visual effects, though these are offset by the floodwall's role in reducing storm damage and protecting historic fabric. There are no significant anticipated benefits to terrestrial archaeological resources beyond incidental documentation and protection efforts, limiting the cultural gains from this alternative.

Beneficial Effects

The seaward alignment presents several moderate long-term benefits that support the preservation of Harlem's historic character and resilience. By minimizing physical impacts on the shoreline, this approach maintains the integrity of the existing street grid and limits alterations to the historic viewshed. Unlike more intrusive options, the seaward alignment helps preserve the important spatial relationship between water and land, which has been a defining feature of this urban environment. Opportunities for public access to the waterfront are retained, allowing future development to enhance the shoreline without restricting community connection to the water. Additionally, the floodwall construction offers protection against storm-related flooding, thereby safeguarding adjacent historic structures and fabric. These benefits can be further enhanced through landscape improvements and thoughtful design interventions that mitigate visual impacts, ensuring the historic setting remains largely intact while enhancing resilience and accessibility.

4.4.1.3 Landward Alignment

The landward alignment along the East Harlem shoreline is within the Lower Hudson / East River study region. This measure involves approximately 3,535 ft (1,077 m) of seawall along the western edge of the Harlem River Dr N right-of-way. The south end of this measure begins along Macombs Pl between W 154th St and W 155th St and turns north-west at W 155th St where the alignment extends north along Harlem River Drive and adjacent to Holcombe Rucker Park where it terminates at point at the south end of Highbridge Park. This Direct APE intersects: 0 SHPO-cataloged archaeological sites; 1 NYSM archaeological area (4065); 5 above-ground historic properties that are NR eligible (of which 4 are individual properties and 1 is a historic districts); 1 NR-listed individual property; eight NR-listed historic districts; 3 LPC landmarks. The NOAA ENC database lists 0 shipwrecks in the Harlem portion of the Direct APE. The SHPO data does not indicate there are any cemeteries in the APE.

Adverse Effects

The landward alignment would result in a range of adverse impacts, particularly during construction and in terms of long-term visual effects. Short-term construction activities pose low to moderate risks to historic structures due to potential vibrations and excavation in sidewalk and median areas, which may disturb historic or pre-contact archaeological layers and temporarily restrict access. More significantly, the permanent introduction of a substantial vertical floodwall barrier, ranging from 7 to 12 feet in height, within the historic street grid would cause moderate to

high adverse impacts on the viewshed. This barrier would disrupt historic sightlines to the Harlem River, nearby parks, and surrounding architecture, creating a new physical and visual obstruction where none existed before. These changes diminish the historic spatial relationship between land and water, which is critical to Harlem's cultural landscape. Additionally, construction-related ground disturbances risk moderate to high impacts on buried archaeological resources, though these can be managed with careful monitoring and recovery efforts. Long-term maintenance and repair activities may further disturb buried deposits and contribute to ongoing changes in the historic setting, with moderate adverse effects anticipated over time.

Beneficial Effects

The landward alignment offers moderate long-term benefits primarily through its strong protective role for Harlem's historic properties and their surrounding environments. By maintaining alignment with the historic street grid, this alternative preserves the spatial organization that has shaped the urban character over time. Importantly, the floodwall reduces flood risk, helping to safeguard vulnerable historic buildings and park spaces from future storm events. This protective function supports the preservation of cultural heritage and the continued use of the area. Although the floodwall introduces physical changes, it provides resilience that contributes positively to the long-term stewardship of the historic landscape, allowing the community to maintain its unique historic fabric while adapting to climate challenges.

4.5 CULTURAL RESOURCES WITHIN VISUAL IMPACT AREA (INDIRECT EFFECTS)

The measures included in the Action Alternative could disrupt or enhance existing viewscapes, depending on location and scale. Construction of structural measures may affect scenic byways, diminish or lose existing residential views, and/or obstruct access to historic coastal sites (USACE 2019). Aesthetic valuation, a judgement of value based on appearance of an object and emotional responses, of the public is ongoing and will be updated as stakeholder input is aggregated, but was not used to determine the preliminary impact rating.

Aerial photographs and field observations were analyzed for each alternative of visual effect, that will later be considered in determining the build alternative. This includes project visibility and viewsheds from neighbors and travelers as well the influence of topography, vegetation, and structures. An inventory of existing landscape character, viewers and visual quality is the baseline for this documentation. Characterization of visual quality of landscape compositions based on intrinsic characteristics of natural, and existing roadway features; stakeholder values, public interest, real estate and scenic designations may be altered by the implementation of the proposed structural measures but will greatly manage the impact from coastal storms. Generally, implementing the alternatives could provide direct benefits by reducing the severity of damage to coastal sites and residences.

In support of the aesthetic viewshed analysis, New York District undertook a preliminary identification of known cultural resources that could be visually affected by the project in accordance with the New Jersey Historic Preservation Office's (2004) Guidelines for the Preparation of Cultural Resource Management Archaeological Reports; New York Archeological Council's (NYAC) Standards for Cultural Resources Investigations and the Curation of Archeological Collections in New York State; New York State Office of Parks, Recreation, and Historic Preservation's (2005) State, Historic Preservation Office Phase I Archaeological Report Format Requirements; and the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48FR4473437), and the USACE NYNJHATS OSE Report (2022).

Visual analysis, as a component of the NEPA and Section 106 analyses, includes a broad look at the potential impacts to historic properties. By definition, a visual effect occurs whenever a proposed undertaking will be visible from an historic property. The mere existence of a visual effect does not automatically imply that the effect is adverse.

Background research for the project included a review of existing cultural resource reports, management plans, archaeological site files, historic maps, and nominations to the National Register of Historic Places (NRHP). The analysis takes into consideration the resource's geographical distance and the effect of topography on whether the Alternative is visible from historic resources. A visibility analysis that takes the built environment and vegetation into account are beyond the scope of the Study. Additional discussion and evaluation of the visual impacts from each Alternative is available in the following Sections.

Measures proposed for the AE will involve the construction of structures that have a potential to indirectly affect historic properties, most prominently by altering the visible environment (i.e., setting) of those resources. For this study, the visual impact study area (Indirect APE) includes those places within one mile (1.6 km) of proposed measures for the alignments that are in the potential viewshed (based on topography). This Visual Impact Area, or Zone of Visual Influence (ZVI), encompasses parts of northeast Harlem, Washington Heights and the Bronx, New York City. As of this writing, this preliminary visual impact analysis is an initial screening of impacted historic properties and will be refined in subsequent iterations.

LiDAR from 2017 was acquired for the area, then converted into an elevation raster where the 'LAST' return of the light pulses were used to generate elevation (so as to capture existing features such as buildings and bridges). The alignment line from each, inland and seaward, were 3D Buffered by 17.5 feet (preliminary expected feature height) in the vertical datum of NAVD88, then converted into a raster of elevation values. This raster was copied and is considered the 'no action' alternative, showing the area's elevations without either alignment feature. Each alignment was combined with the 2017 raster into a new raster (one for each alignment). Thirty varying observation points were generated along the western side of the Harlem River adjacent to the alignments and also further away. Many of the points were moved or had their elevation adjusted to capture potential viewsheds from ground level to roofs, and several floors between to more thoroughly capture any occlusion the alignments would create.

The no action raster and each alignment raster were compared against the same 30 observation points by running the Radial Line of Sight tool.

This tool created output polygons of areas that depict visibility numbers for the no action and each alignment. The seaward/inland alignments and no action polygons were unioned (having each polygon intersected with the other to determine all areas of overlap and nonoverlap) with resultant figures. Each contained attributes for No Action Visibility and Alternative Visibility. A new attribute was created that used the formula *[No Action Visibility] – [Alternative Visibility]*. This formula was selected to highlight the different visibility possibilities for each polygon. The final visibility metric was numbered between 0 and 11. Zero represented areas where there was no visibility change between the no action alternative and the alignment in question. The 0 values were removed from the final dataset. The rest of the values were between 1 and 11. 1 being that, in a given area, the alternative feature occluded 1 observation point from that area. Whereas 11 meant 11 observation points were occluded from visibility. The final visibility attribute was classified to show that 1-3 showed 'Some Occlusion' (1 to 3 of the observation points could not see this area based on the

inland or seaward alignment); 4-7 were classified as “Moderate Occlusion”; and 8-11 were classified as “Heavy Occlusion”.

The baseline visuals (Figure 48,Figure 45) were created using topobathy LiDAR data from 2017, converted into a digital elevation model raster and colorized through elevation values in a multidirectional shaded relief color ramp. The gray buildings are 3-D building model depictions of urban development (Source: Map data OpenStreetMap contributors, Microsoft Building Footprints, Scene Layer by ESRI). The alternative features are 3-dimensional 17.5 buffers of the alignment lines using the NAVD88 vertical datum.

Total areas of each image were calculated, then each feature was split from the resulting areas depending on where the alternative feature was present. Recalculations were done after the split to get the total area and the obstructed area from the observer standpoint with percentages then created to depict obstruction percentages. These examples show the minimal visual impact of each alternative based on a shared observation point on the opposite shore. The preliminary visual assessment will undergo additional quality assurance or quality control prior to the final draft EA. It is possible that due to human or software error that assigned visibility values are incorrect or incomplete. With regard to the Occlusion maps and data the elevation information was acquired from a 2016/2017 LiDAR dataset and, therefore, the data may lack any newer buildings or structures that would impact the visibility analysis

Visual Impacts: No Action Alternative (Future Without-Project Condition)

The No Action Alternative would involve no action as a result of this Study. Because factors associated with extreme weather will persist an increase in the frequency and strength of storms, the risk of coastal inundation will rise and over time, the natural morphological processes of erosion and siltation will occur (USACE 2019). Under the no action alternative, erosion, subsidence, and flooding in the Study Area are anticipated to continue to occur and will have an adverse impact on coastal viewsheds.

Visual Impact: Seaward Alignment

Interior Viewpoints

The Seaward Alignment for the Harlem River waterfront places the majority of its features within the river channel itself, thereby mitigating the severity of visual impacts to cultural resources along the shoreline. Because the alignment is located offshore and largely detached from historic buildings or structures on land, the new features are visually distant from most sensitive viewpoints and do not introduce dominant elements into the foreground of historic settings. This spatial separation significantly reduces the potential for adverse aesthetic or obstructive visual effects criteria and the less obtrusive visual profile avoids introducing new vertical elements into historically significant pedestrian corridors or parks.

Analysis of the visual impacts reveals that the vast majority of affected area falls under the Some Occlusion category, totaling approximately 17.384 acres (

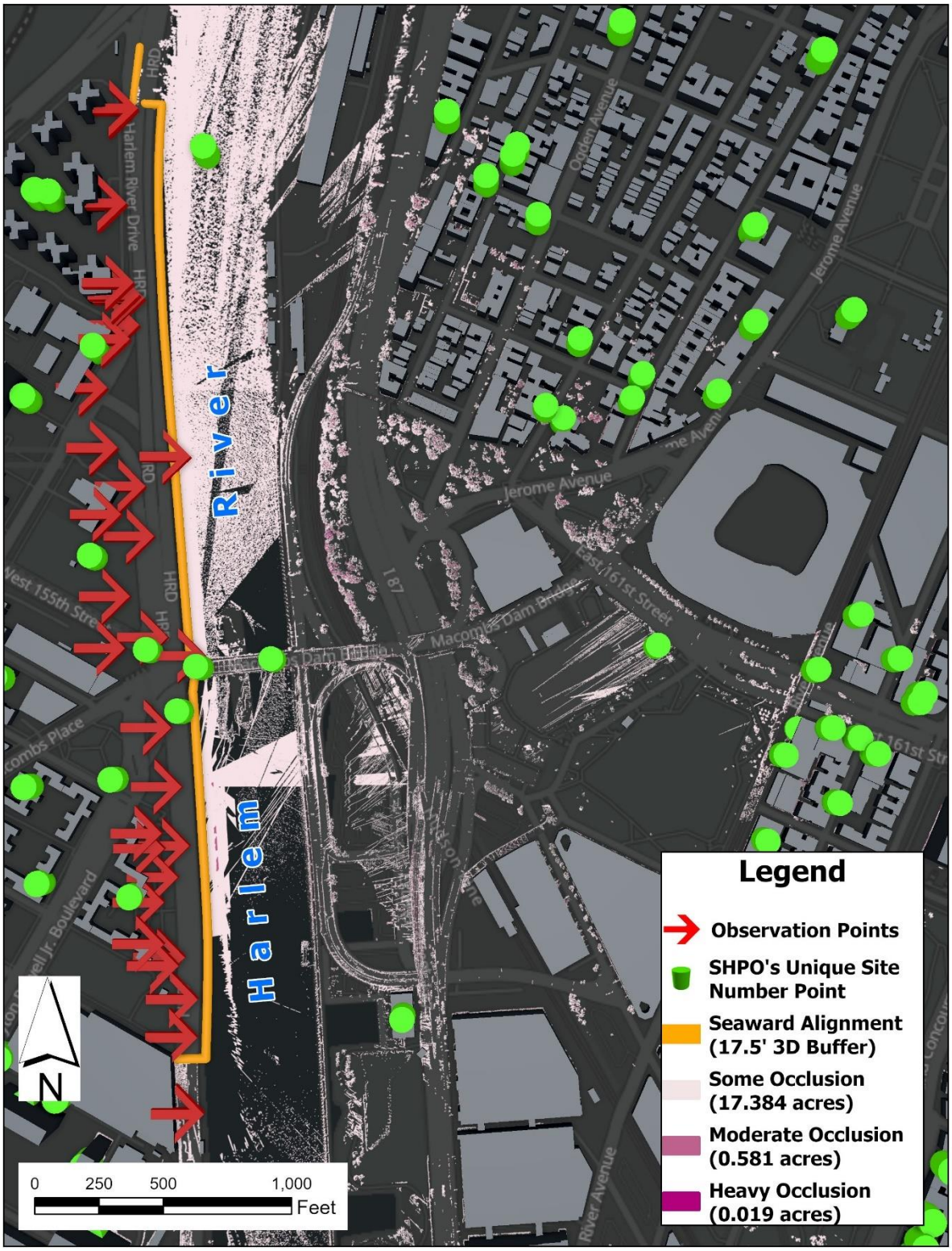


Figure *44*.Seaward Alignment Occlusion Map.

Table *4*). This level of impact suggests a minimal intrusion into view corridors, one in which visual elements may be partially seen but do not substantially diminish scenic or historic character. Combined Moderate Occlusion and Heavy Occlusion areas total less than one acre, and due to their extremely limited extent and the scale of the map, they are difficult to discern. These highest-level occlusions are spatially concentrated near vertical or large-scale features, such as the Macombs Dam Bridge, where the elevation and
clustering of alignment features and the Dam itself, produce minor cones of visual obstruction (Figure 44).

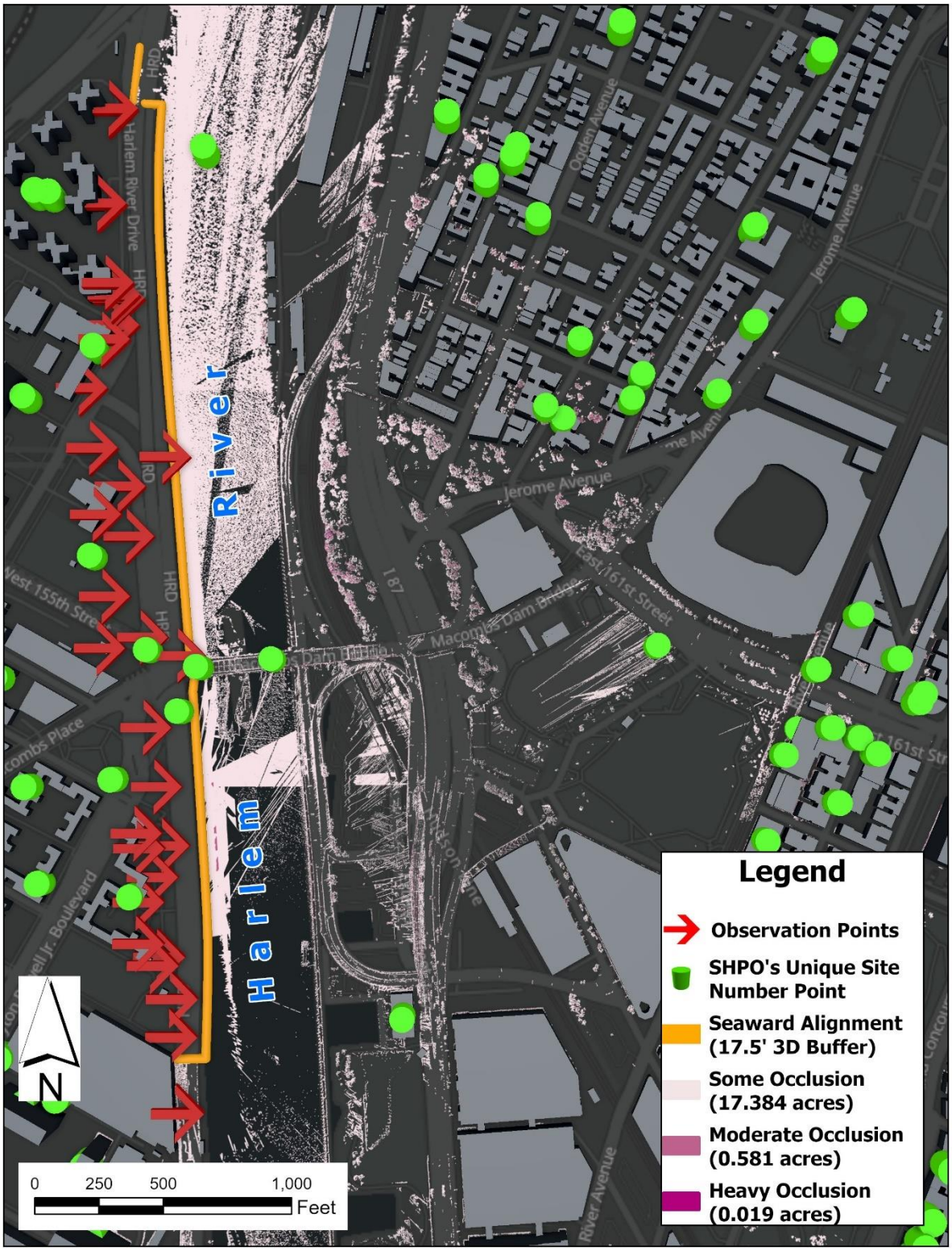


Figure 44.Seaward Alignment Occlusion Map.

Table 4. Occlusion Level of Seaward Alignment: Onshore Observation Points

Occlusion Level	Total Number of Instances	Total Acres
Heavy Occlusion	1,592	0.019
Moderate Occlusion	48,816	0.581
Some Occlusion	438,230	17.384

The most prominent area of occlusion occurs directly over the Harlem River, yet even here the classification remains in the Some Occlusion category. This indicates that although the area of potential visual change is broad, the intensity of the change is low. The placement of the alignment within the river minimizes its prominence in views from historic resources and preserves the overall integrity of the historic setting for properties located along the shoreline.

Exterior Viewpoints

Compared to the Landward Alignment, the Seaward Alignment results in less severe visual impacts, due in large part to its placement within the Harlem River channel and the elevated topography of key Bronx observation points. The river itself acts as a natural buffer, while the generally higher elevation and built form along the eastern bank of the Harlem River allow for greater visibility over the proposed alignment, thus reducing the number and severity of occluded view corridors.

The viewshed model applied a continuous visibility metric ranging from -18 to 16, assessing the difference in visible surface area between the No Action Alternative and the Seaward and Landward Alignments across 27 observer locations. Negative values corresponded to edge effects caused by raster misalignment and were excluded from final impact interpretation. A score of 0 represented no change in visibility, while values from 1 to 16 reflected increasing obstruction of a given location by the proposed alternative.

Visibility results were categorized into three classes:

- Some Occlusion: 1–5 observers unable to see the area;
- Moderate Occlusion: 6–11 observers occluded;
- Heavy Occlusion: 12–16 observers occluded.

The majority of the study area falls within the Some Occlusion category, covering approximately 13.747 acres, while Moderate and Heavy Occlusion zones combined account for just 0.26 acres. Even within the highest category, individual polygons of Heavy Occlusion are negligible in scale, ranging from 0.000002 acres (0.073 square feet) to 0.000036 acres (1.572 square feet), effectively imperceptible at the urban landscape scale. For clarity, these areas were symbolically enhanced on maps to aid interpretation.

The Bronx side's elevated observation points, including those situated along parkland ridgelines and multi-story residential buildings, provided less obstructed vantage points even after placement of the alignment in the river. As a result, the occlusion values remained low, and visual continuity between land and river was largely preserved. These factors significantly mitigate the visual impact of the Seaward Alignment, despite its broader areal extent.

The Seaward Alignment introduces some changes to viewsheds across the Harlem River, its riverine location and the naturally elevated perspectives of key observers contribute to a

marginal and dispersed pattern of visual effect, in stark contrast to the more concentrated and intrusive visibility impacts associated with the Landward Alignment.

Table 5. East side of Harlem River - Seaward Alternative Occlusion Level table:

Occlusion Level	Total Number of Instances	Total Acres
Heavy Occlusion	172	0.001755
Moderate Occlusion	17,461	0.238267
Some Occlusion	255,069	5.285336

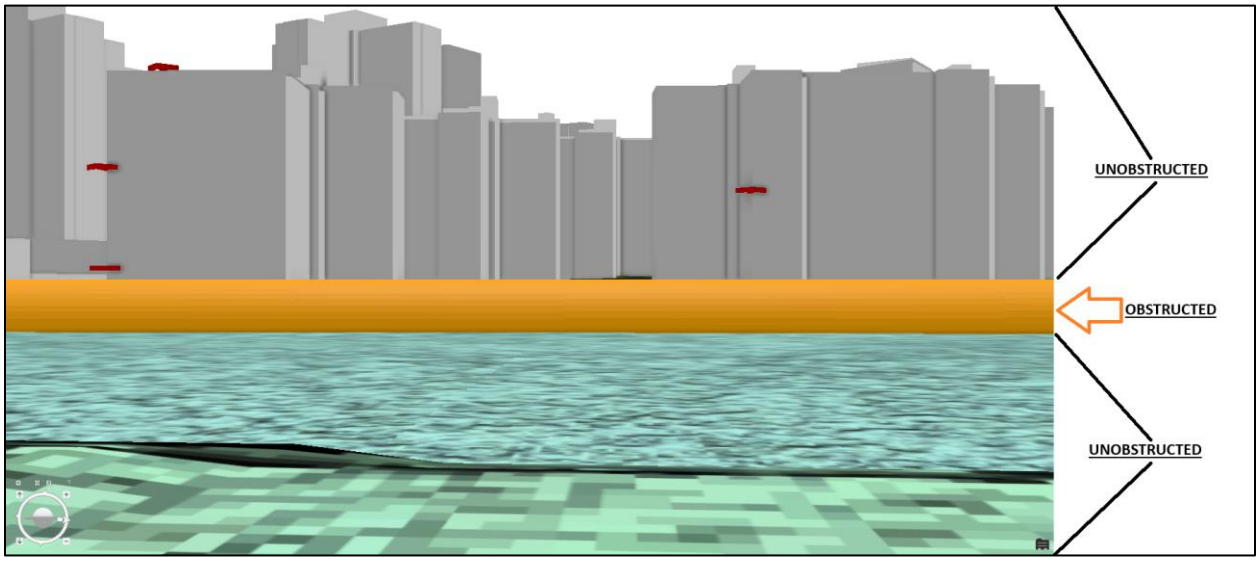


Figure 45. This graphic depicts a pedestrian level perspective of the Harlem River facing west, identical perspective as Figure 48, but with the seaward feature (coded as orange in the graphic) that would obstruct 9.83% of the available viewshed from the graphics extent in the Bronx.

In summary, while the Seaward Alignment affects a larger area in terms of geographic scope, the severity of visual impact is reduced due to the offshore siting of infrastructure and the limited degree of occlusion observed. As a result, the visual character of historic properties in the project area is expected to be minimally affected, and the potential for adverse visual effects is considered low.

Figure 46.Seaward Occlusion Map, View from the Bronx

Visual Impact: Landward Alignment

Interior Viewpoints

The Landward Alignment proposes the construction of a substantial vertical floodwall, ranging from 7 to 12 feet in height, along an inland corridor within the historic Harlem street grid. This configuration places the alignment in close proximity to sensitive cultural resources, including Harlem River Houses, Holcombe Rucker Park, Rangel Houses, P.S. 46, Polo Grounds Towers**,** Colonial Park Houses, which are integral to the neighborhood's cultural and historic landscape. Unlike the Seaward Alignment, which is distanced from historic resources by placement in the river channel, the Landward Alignment introduces a permanent physical and visual barrier within the pedestrian and urban context of the Harlem River's waterfront-adjacent neighborhoods.

Table 6. Occlusion Level of Landward Alignment: Onshore Observation Points

Occlusion Level	Total Number of Instances	Total Acres
Heavy Occlusion	1,564	0.024
Moderate Occlusion	48,910	0.693
Some Occlusion	471,811	12.629

While quantitative occlusion metrics indicate that the total areas of Moderate and Heavy Occlusion are minimal, with the largest Moderate Occlusion polygon measuring just 0.000492 acres (21.423 sq ft) and the largest Heavy Occlusion area only 0.000277 acres (10.906 sq ft),

these data must be interpreted in relation to the project scale and urban setting (

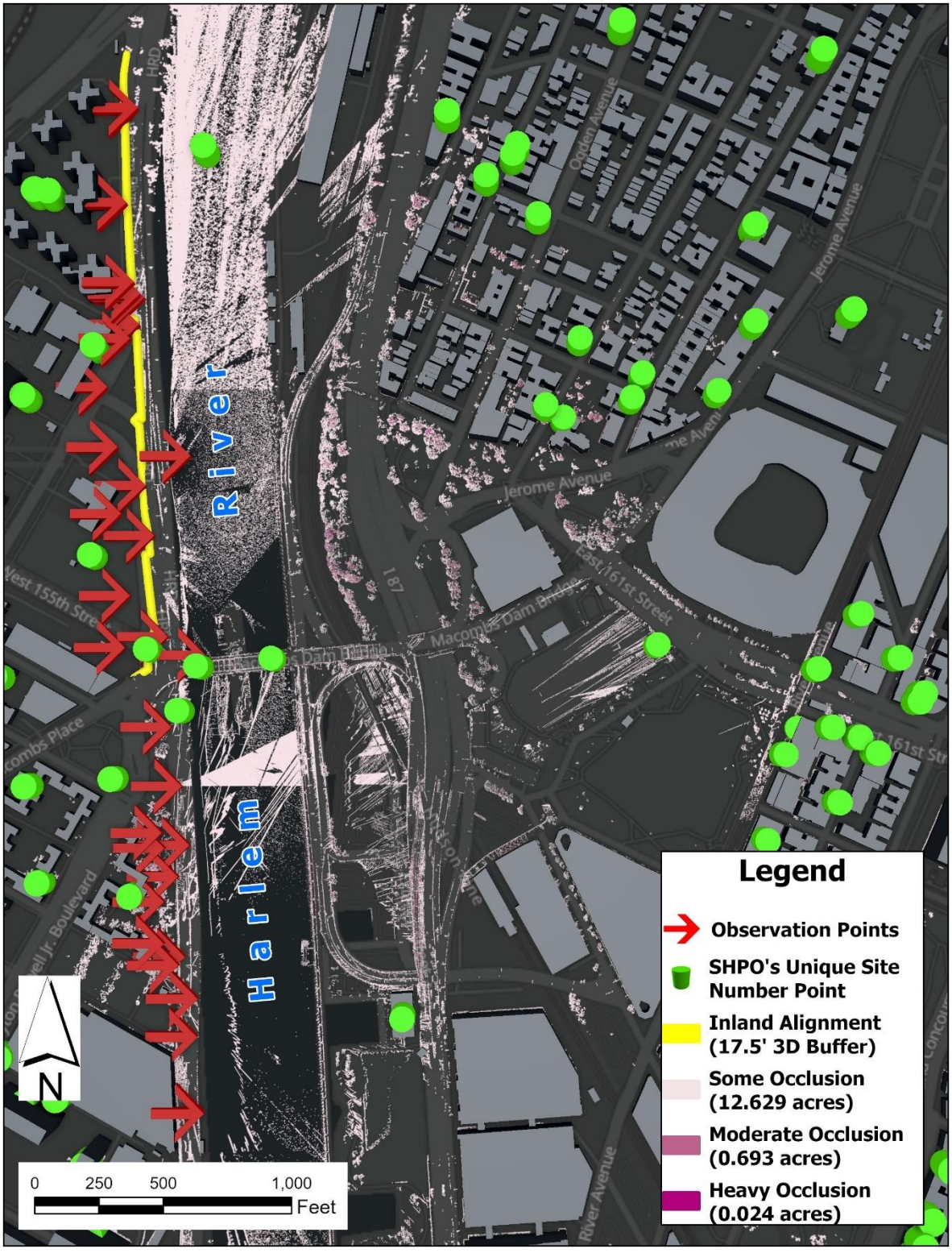


Figure 47. Inland Alignment Occlusion Map.
). The small size of these polygons at 1:5,800 map scale reflects the narrow width of the alignment, but not the significance of its visual disruption in key sightlines and public spaces. The Landward Alignment constitutes a substantial alteration to the setting and spatial organization of this cultural landscape. The floodwall's mass, scale, and material contrast with the surrounding built environment, particularly within proximity to Holcombe Rucker Park and public housing developments that define the community's historic and social fabric (Figure 1Figure 47).

These effects are considered both aesthetic and obstructive under the visual criteria guidance. The alignment's scale and placement in the line-of-sight from culturally significant resources and community spaces results in moderate to high adverse visual impacts, despite the relatively minor footprint of occlusion areas in technical terms. The barrier's height, uniformity, and permanence exacerbate these effects, marking a distinct contrast with the historic urban landscape.

More significantly, the vertical massing of the floodwall along the historic grid introduces a prominent visual intrusion into public viewsheds. This includes views from adjacent streets, parks, and residential buildings that have traditionally maintained relatively open vistas to the Harlem River. The floodwall would sever the visual and spatial relationship between land and water, a connection that has historically defined the neighborhood's interaction with the waterfront. In doing so, it compromises the integrity of the historic setting, diminishes the appreciation of surrounding architecture, and alters the character of culturally significant gathering spaces such as Holcombe Rucker Park.

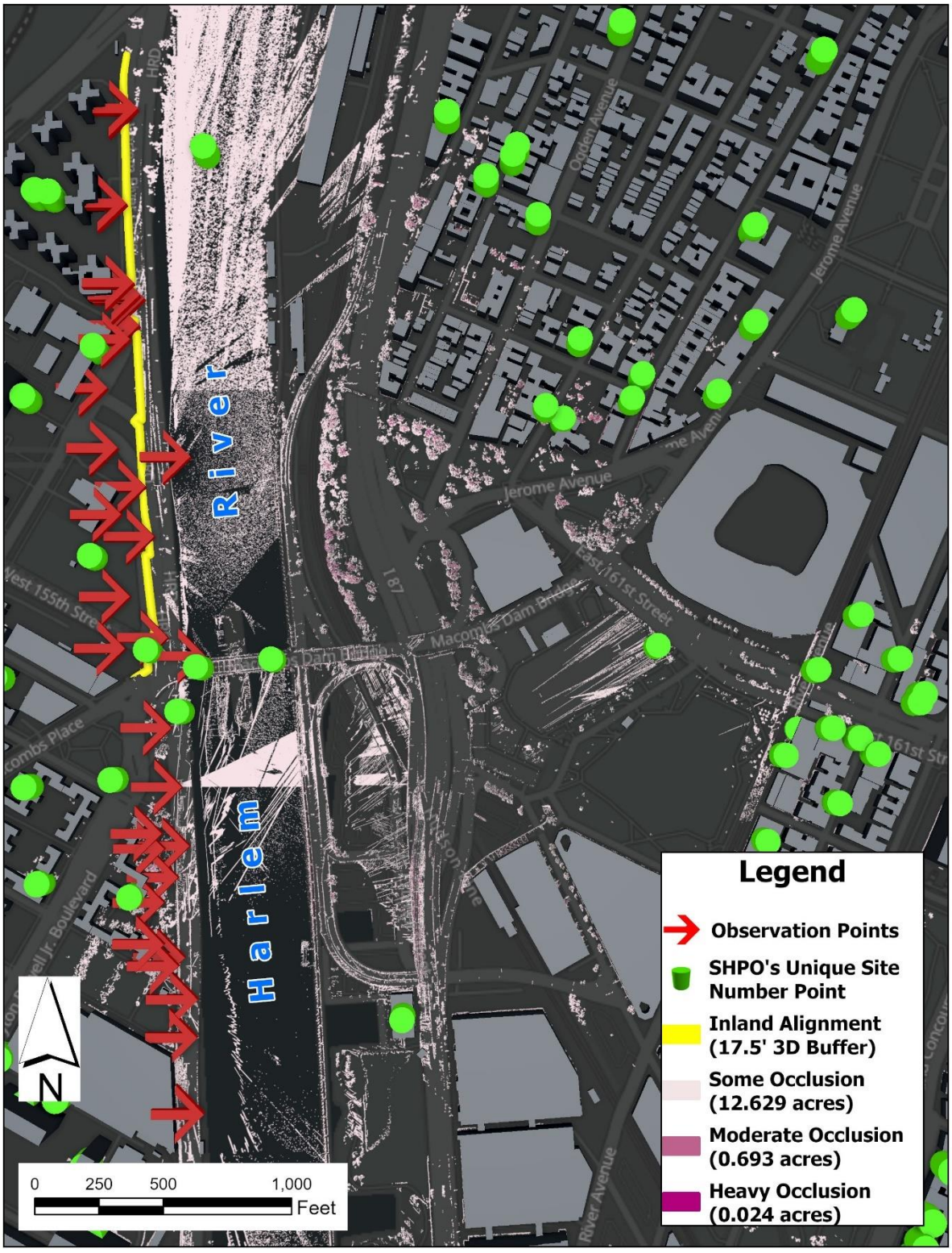


Figure 47. Inland Alignment Occlusion Map.

Exterior Viewpoints

The Landward Alignment demonstrates a relatively high degree of visibility from exterior viewpoints based on the results of the preliminary viewshed analysis Figure *48*). The vast majority of the project footprint falls into the "Some Occlusion" category, totaling 5.285 acres, indicating that project features are generally visible, though not fully unobstructed, across a broad area (Table 7).

The "Moderate Occlusion" and "Heavy Occlusion" zones are extremely limited in extent, comprising a combined total of only 0.24 acres (Figure *49*). Within these, the smallest identified Heavy Occlusion area is effectively negligible at 0 acres (0.003 square feet), and the largest Heavy Occlusion zone measures only 0.000024 acres (1.035 square feet). These minimal areas suggest that few locations within the modeled landscape provide significant natural or built screening that would meaningfully reduce visibility of the alignment.

Table 7. East side of Harlem River -Inland Alternative Occlusion Level table:

Occlusion Level	Total Number of Instances	Total Acres
Heavy Occlusion	176	0.002098
Moderate Occlusion	14,527	0.224621
Some Occlusion	185,537	4.272347

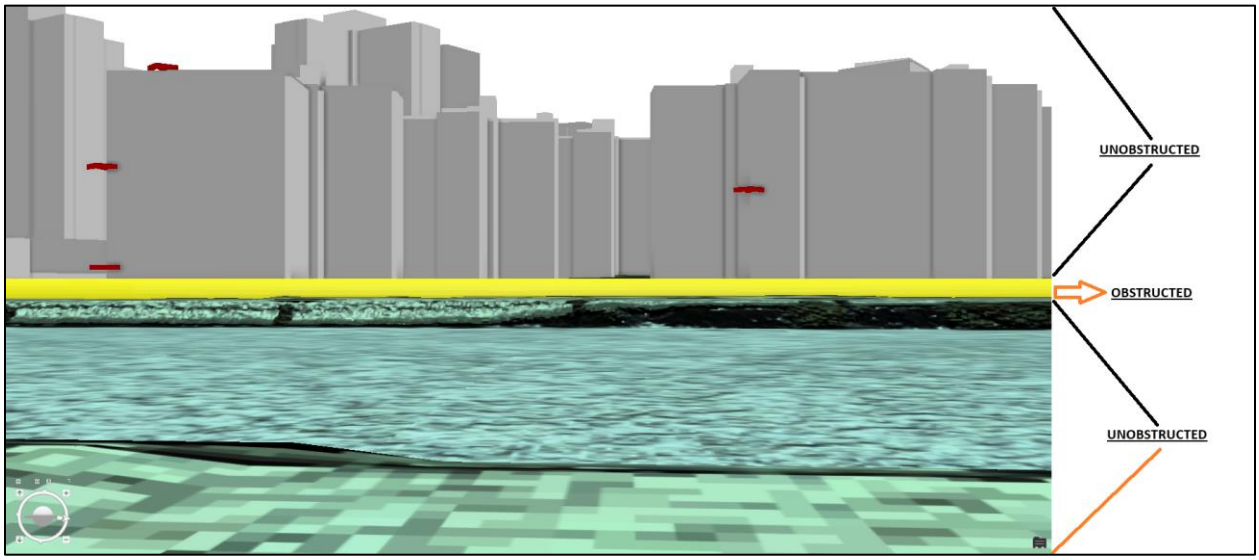


Figure 48. This graphic depicts a pedestrian level perspective of the Harlem River facing west. The proposed alternative includes an inland feature (coded as yellow in the graphic) that would obstruct only 3.01% of the available viewshed, due to the inland offset of the structure, from the graphics extent in the Bronx.

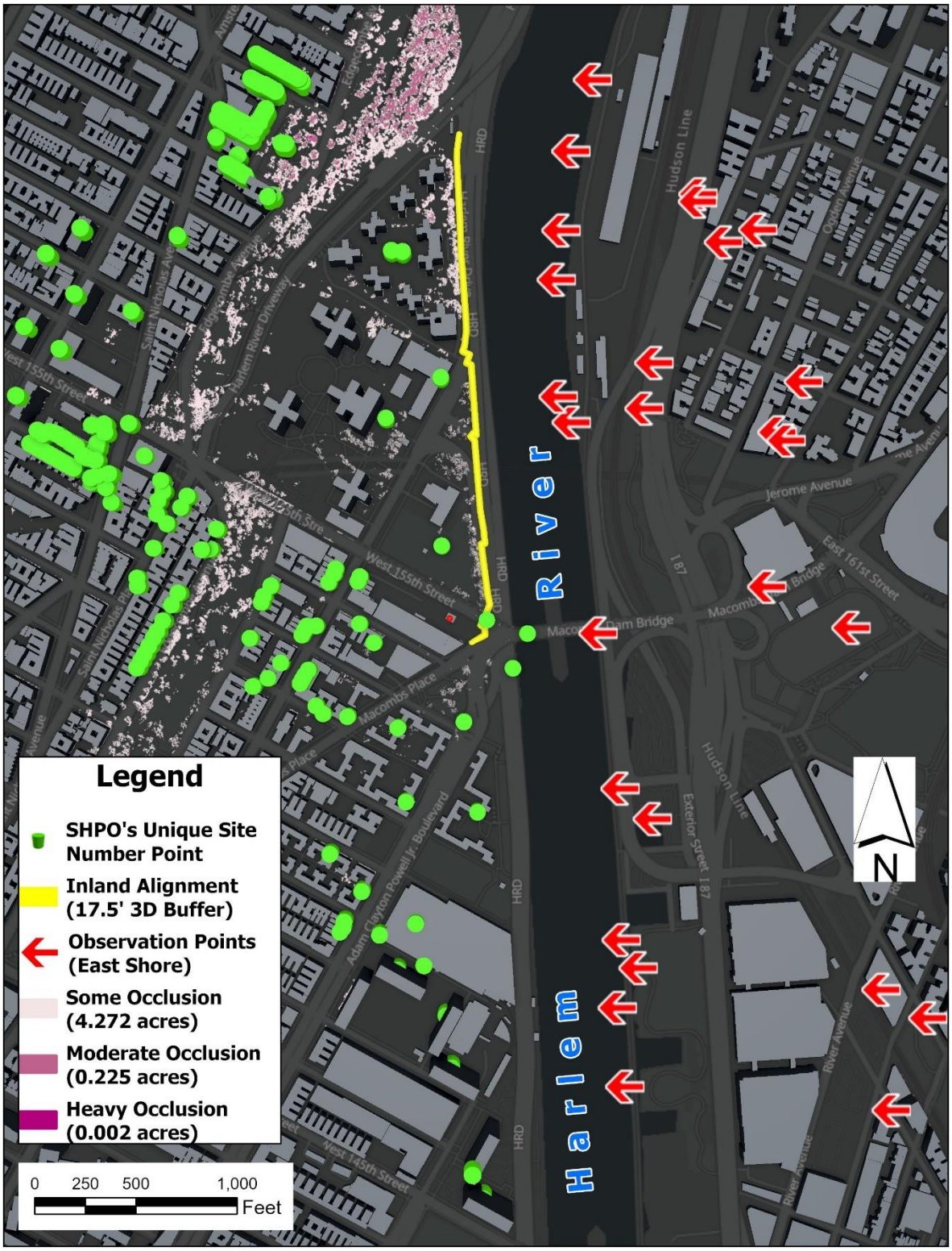


Figure 49.Inland Occlusion Map, View from the Bronx

Due to the minor scale of the Moderate and Heavy Occlusion polygons, their boundaries were widened in the mapping outputs for interpretability. However, this cartographic adjustment emphasizes that, in practical terms, the Landward Alignment remains largely unobstructed in the existing built environment. This is consistent with its inland siting, which places the alignment in close proximity to low-rise structures, open recreational areas such as Holcombe Rucker Park, and historically open sightlines to the Harlem River, all of which amplify the alignment's visual presence within the historic urban context.

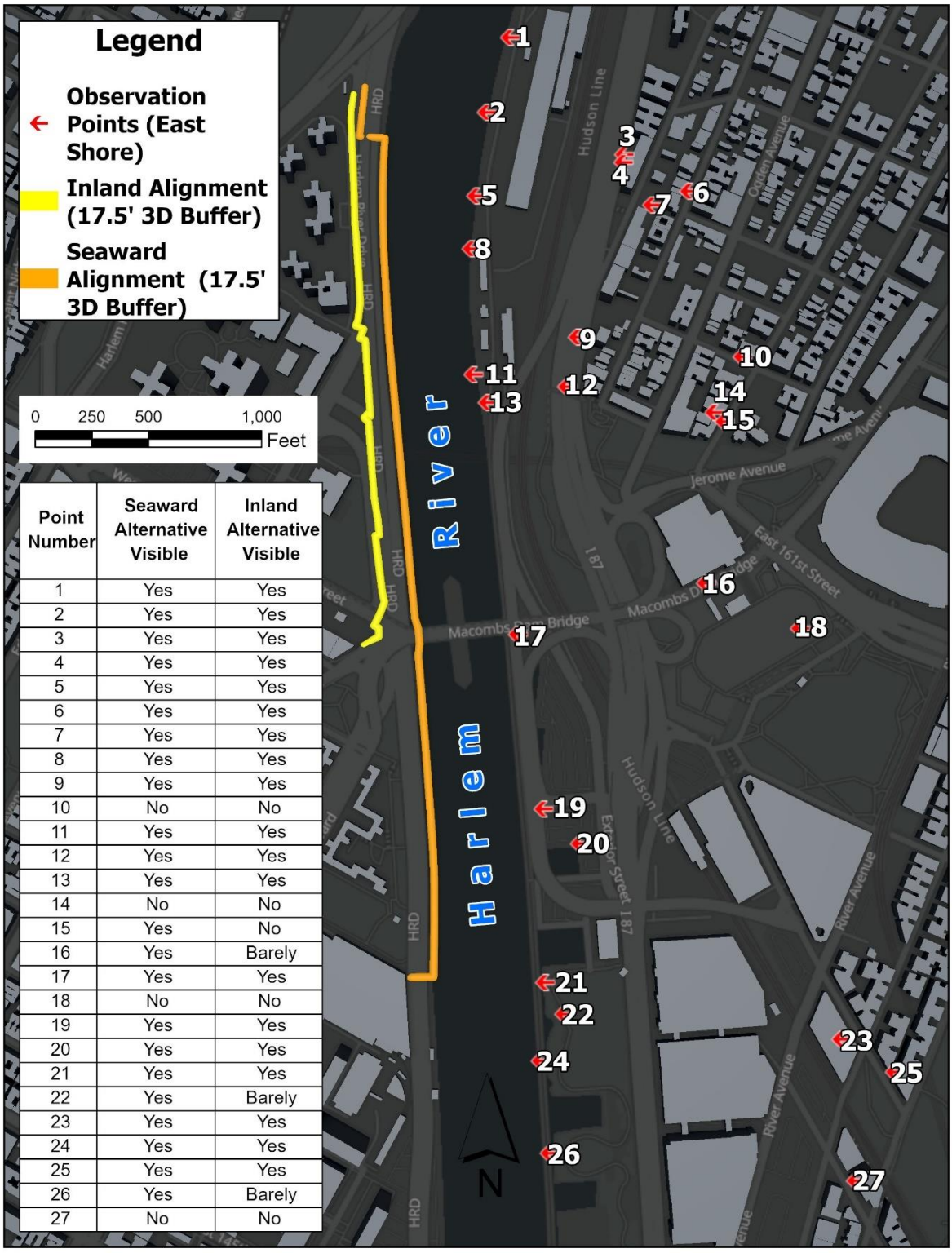
In conclusion, while the Landward Alignment produces limited measurable occlusion in areal terms, its location, elevation, and character produce substantial visual effects within Harlem's historic environment. The location and vertical prominence of the proposed structure result in an impact that is disproportionate to its footprint. The visual dominance of the floodwall introduces an incompatible element into the cultural landscape and may diminish public understanding and appreciation of the historic environment. These impacts are assessed as moderate to high adverse in severity due to the intrusive nature of the intervention and its potential to diminish the significance and legibility of the historic and cultural landscape.

Preliminary Viewshed Analysis: Historic Properties.

A detailed visibility assessment was conducted for historic properties within the Area of Potential Effects (APE) to evaluate potential visual impacts from the proposed seaward and inland alignments. Each property was analyzed using the NYSHPO's Unique Site Number point data, with visibility determined through 3D modeling of New York City's built environment. Properties such as underground subway stations, where visibility would be categorically impossible, were removed from the dataset prior to analysis.

Visibility determinations considered line-of-sight from each historic property to the proposed alignments, taking into account existing buildings and terrain. Properties classified as **"Barely" visible** are those where potential views are extremely limited, such as narrow slivers between buildings or roofline-only perspectives, and are unlikely to be seen from street level due to the dense, vertical urban fabric of the area (Figure 52;Figure 53; Figure *54*; Figure *55*)

Some historic properties within the 1-mile indirect APE (166:Inland Alignment, 150: Seaward Alignment) were excluded, or screened out, entirely from analysis due to significant pre-existing obstructions or distance, which would block views regardless of the proposed alternatives, see Table 8. This analysis is an approximation and does not account for transient or natural obstructions such as vegetation or large vehicles.



Point Number	Seaward Alternative Visible	Inland Alternative Visible
1	Yes	Yes
2	Yes	Yes
3	Yes	Yes
4	Yes	Yes
5	Yes	Yes
6	Yes	Yes
7	Yes	Yes
8	Yes	Yes
9	Yes	Yes
10	No	No
11	Yes	Yes
12	Yes	Yes
13	Yes	Yes
14	No	No
15	Yes	No
16	Yes	Barely
17	Yes	Yes
18	No	No
19	Yes	Yes
20	Yes	Yes
21	Yes	Yes
22	Yes	Barely
23	Yes	Yes
24	Yes	Yes
25	Yes	Yes
26	Yes	Barely
27	No	No

Figure 50. Visual Impact Assessment Observation Points, Eastern Shore.

Table 8. Visual Impacts on Historic Properties Within 1-Mile of the Alternative

Inland Alignment				
Visibility Scale of Historic Properties				
	Barely	**No**	**Yes**	**Grand Total**
East Side	1	35	26	62
West Side	12	131	47	190
Grand Total	13	166	73	252
Seaward Alignment				
Visibility Scale of Historic Properties				
	Barely	**No**	**Yes**	**Grand Total**
East Side	1	32	29	62
West Side	20	118	52	190
Grand Total	21	150	81	252

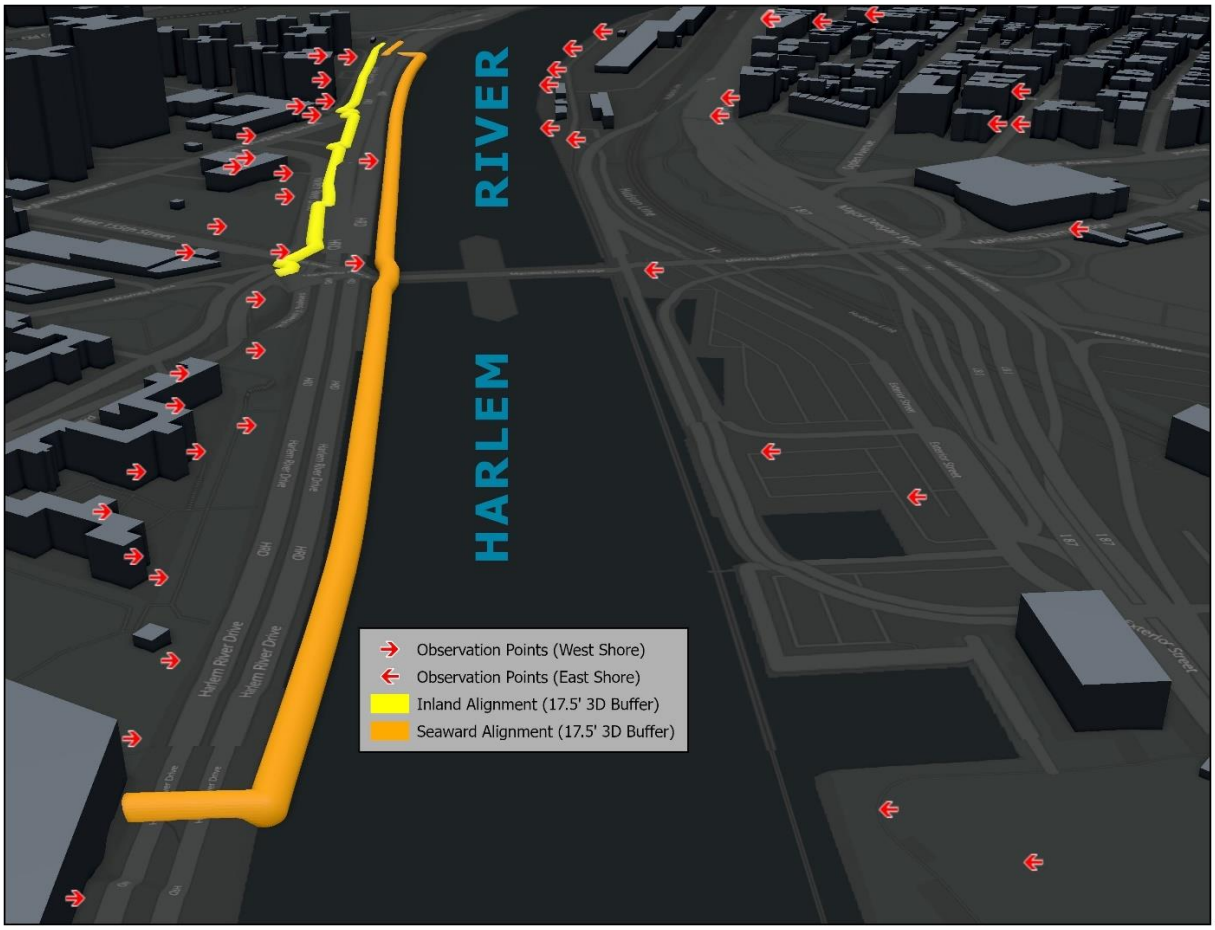


Figure 51. Visual Impact Assessment Observation Points, Oblique angle view.

While the seaward alignment is theoretically visible from a greater number of historic properties, especially on the west side of the Harlem River, its physical position within the river and below the general elevation of the historic urban street grid marginally mitigates its visual impact. In many cases, the alignment would not be visible from surface level due to intervening development and topography. As a result, although the seaward alignment intersects more theoretical viewsheds, the actual perceptibility of the project features is lower, particularly at street level.

In contrast, the inland alignment, with its proximity to residential neighborhoods and historic properties and integration into the historic street grid, introduces more immediate and obtrusive vertical elements, leading to greater intensity of visual impact for historic properties where visibility exists.

Comparative Viewshed Impact Summary for Seaward and Landward Alignments

The comparative analysis of viewshed effects and historic property visibility for the Seaward and Landward Alignments highlights how location, elevation, and proximity to cultural resources influence potential visual impacts and historic setting integrity.

Landward Alignment

The Landward Alignment introduces a permanent vertical floodwall structure, ranging from 7 to 12 feet in height, placed within the historic Harlem street grid, in close proximity to sensitive cultural resources such as NYCHA housing, Holcombe Rucker Park, Jackie Robinson Park and various State/National Register-eligible properties Figure 52; Figure 53). This placement results in direct and proximate visual disruptions, particularly from interior observation points (i.e., from within the built environment), where the wall obstructs long-established sightlines to the Harlem River and adjacent parklands. The loss of this visual relationship diminishes the spatial integrity of the Harlem River corridor, an element central to the neighborhood's historical and cultural identity. The loss of visual access to the Harlem River and surrounding landmarks diminishes residents' experience of place and disrupts cultural continuity.

Externally, the Landward Alignment remains clearly visible across numerous viewpoints. While most of the area was classified under Some Occlusion (5.285 acres), the placement within a hyper-urbanized area amplifies its perceptual prominence. Moderate and Heavy Occlusion zones are small in areal terms (<0.25 acres), but they occur in locations with concentrated cultural value, intensifying their impact despite limited spatial footprint making the perceptual impact more significant than the mapped footprint suggests.

Historic Property Visibility: Of the 190 historic properties west of the alignment, 73 properties had a direct "Yes" visibility classification, and 13 fell into the "Barely" visible category. East of the alignment, 26 properties were marked "Yes" and 1 as "Barely." This concentration of visibility from eligible or listed properties suggests a moderate to high risk of adverse effects under Section 106 due to proximity and visibility-based setting disruption

Seaward Alignment

By contrast, the Seaward Alignment is sited within the Harlem River channel, placing it further from densely occupied land and behind existing shoreline features (Figure 54; Figure 55). The increase in elevation among Bronx-side observation points, particularly from high-rise housing and parkland ridgelines, allows for greater visibility over the alignment, thereby reducing

the perceived scale and frequency of occlusions. The placement in the river also helps maintain historic land-water relationships from the perspective of both Manhattan and Bronx observers.

Interior viewshed analysis supports this conclusion, showing fewer direct intrusions into significant cultural settings. From external viewpoints, the vast majority of the Seaward Alignment's visible impact falls under the Some Occlusion category (13.747 acres), with Moderate and Heavy Occlusion combined barely exceeding 0.26 acres. These occluded zones appear as small, dispersed fragments, often buffered by distance or intervening urban features. The seaward location effectively disperses visual impacts across a wider area while keeping the severity of any single intrusion low. No historic spatial relationships between the built environment and shoreline are severed.

Historic Property Visibility: 81 historic properties had a "Yes" visibility classification and 21 fell into the "Barely" visible category. On the east side, 29 were marked "Yes", and 1 as "Barely." While more properties overall can "see" the Seaward alignment, this visibility is often from a greater distance, or across the river, where scale and contextual intrusion are more subdued.

Comparison and Summary

While both alternatives alter the visual environment, the Landward Alignment produces more direct, intrusive impacts on historic properties and culturally sensitive viewsheds, particularly within Harlem's historically significant waterfront community. Its close proximity to the built environment and role in obstructing longstanding land-water sightlines presents greater risk of visual and setting-related adverse effects under Section 106 of the NHPA.

Conversely, the Seaward Alignment, though visible to a greater number of historic properties, distributes its impact over a larger, less sensitive area, with limited perceptual consequence due to distance, elevation, and the buffering effect of the river. This alignment avoids interrupting key spatial or visual relationships and presents a lower-intensity effect on the historic setting overall. In conclusion, while neither alignment is entirely without impact, the Seaward Alignment offers a visually and historically more compatible solution, particularly in the context of preserving Harlem's rich cultural and architectural landscape.

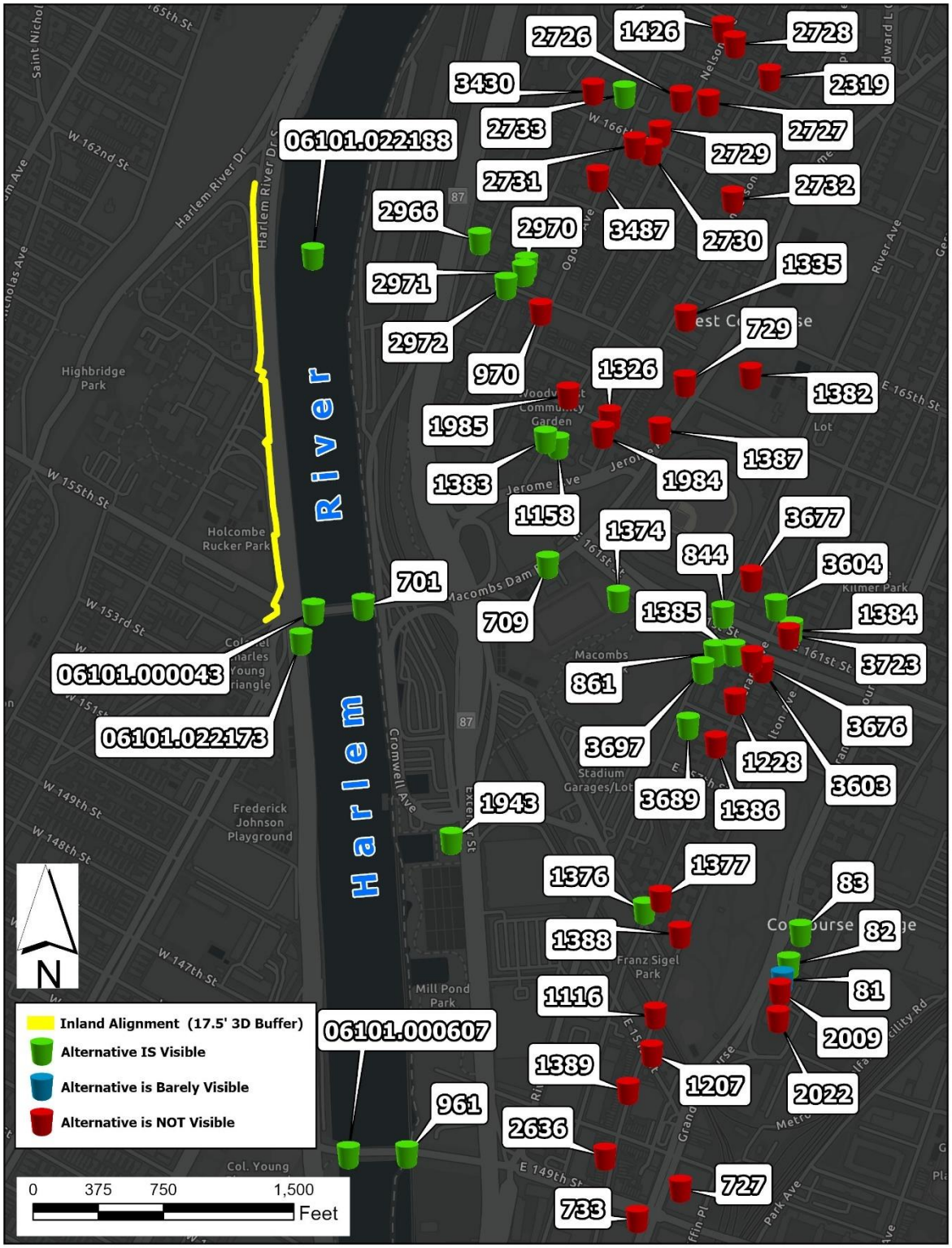


Figure 52. Historic Property Visual Assessment from the Inland Alignment, View from the Bronx. Historic Properties within the 1-mile Viewshed Analysis *(after data from the NY SHPO).*

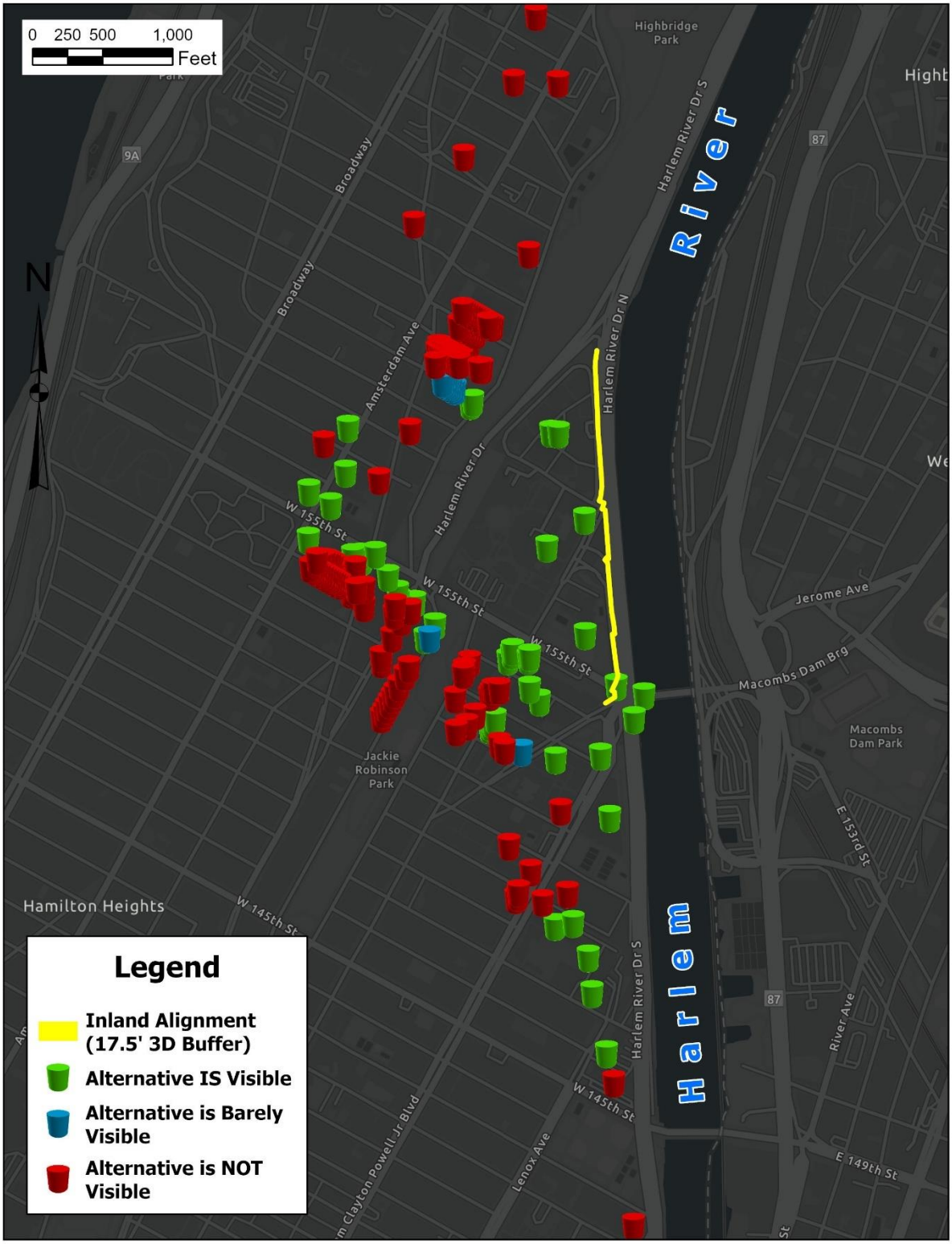


Figure 53.Historic Property Visual Assessment from the Inland Alignment, View from Manhattan. Historic Properties within the 1-mile Viewshed Analysis *(after data from the NY SHPO).*

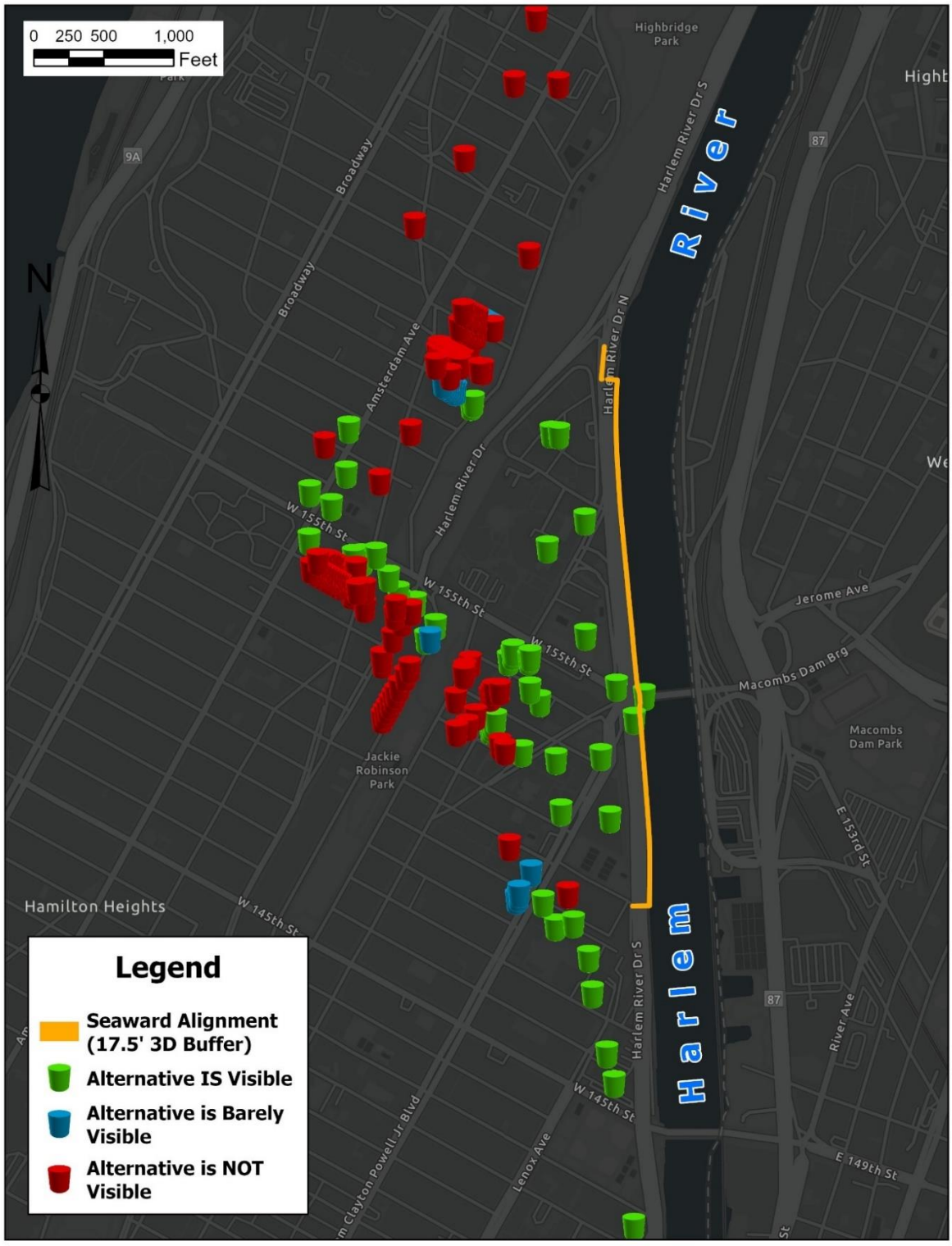


Figure 54. Historic Property Visual Assessment from the Seaward Alignment, View from Manhattan. Historic Properties within the 1-mile Viewshed Analysis *(after data from the NY SHPO)*.

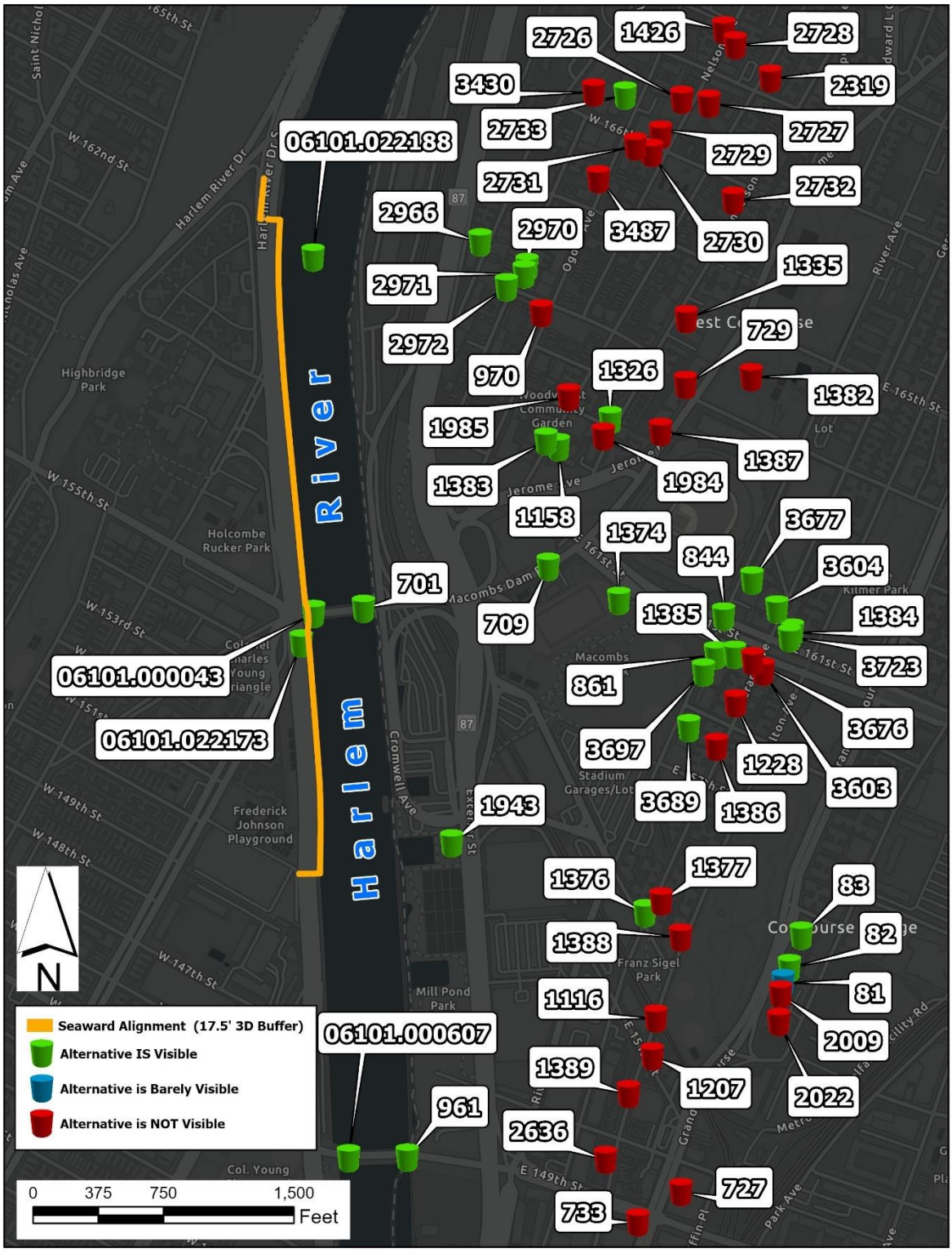


Figure 55. Historic Property Visual Assessment from the Seaward Alignment, View from the Bronx. Historic Properties within the 1-mile Viewshed Analysis *(after data from the NY SHPO).*

Table 9. Historic properties in New York within one mile of Seaward structures, and the total historic properties within that area from which project structures will potentially be visible (after data from the NY SHPO).

USN Num	Map Number	USN Name	City	NR Eligibility	Seaward Visible	Map Side
501.000081	81		BRONX	Listed	Barely	East Side
6101.000627	627		MANHATTAN	Listed	Barely	West Side
6101.001957	06101	Jackie Robinson (Colonial Park)	MANHATTAN	Listed	Barely	West Side
6101.001957	1957		MANHATTAN	Listed	Barely	West Side
6101.001958	1958		MANHATTAN	Listed	Barely	West Side
6101.001959	1959		MANHATTAN	Listed	Barely	West Side
6101.00196	1960		MANHATTAN	Listed	Barely	West Side
6101.001962	1962		MANHATTAN	Listed	Barely	West Side
6101.001963	1963		MANHATTAN	Listed	Barely	West Side
6101.001964	1964	cccc	MANHATTAN	Listed	Barely	West Side
6101.001966	1966	427 West 162nd Street, New York	MANHATTAN	Listed	Barely	West Side
6101.001969	1969		MANHATTAN	Listed	Barely	West Side
6101.001971	1971		MANHATTAN	Listed	Barely	West Side
6101.001973	1973		MANHATTAN	Listed	Barely	West Side
6101.001975	1975		MANHATTAN	Listed	Barely	West Side
6101.008873	8873	ROWHOUSE (1884)	MANHATTAN	Listed	Barely	West Side
6101.008874	8874	ROWHOUSE (1884)	MANHATTAN	Listed	Barely	West Side
6101.012877	12877		MANHATTAN	Listed	Barely	West Side

6101.012878	12878		MANHATTAN	Listed	Barely	West Side
6101.012879	12879		MANHATTAN	Listed	Barely	West Side
6101.012301	12301		MANHATTAN	Listed	Barely	West Side
6101.001967	1967		<Null>	<Null>	Barely	West Side
501.000082	82		BRONX	Listed	Yes	East Side
501.000083	83		BRONX	Listed	Yes	East Side
501.000861	861	Stadium Souvenirs	Bronx	Not Eligible	Yes	East Side
501.001158	1158	(FORMER) AMERICAN FEMALE GUARDIAN SOCIETY	BRONX	Eligible	Yes	East Side
501.001326	1326	Woodcrest Court Apartments	Bronx	Not Eligible	Yes	East Side
501.001376	1376	Oxford Knolls (1930s apt complex)	BRONX	Eligible	Yes	East Side
501.001383	1383	Church of God	BRONX	Eligible	Yes	East Side
501.001384	1384		BRONX	Eligible	Yes	East Side
501.001385	1385	former Semi Earl Theatre (aka Billy's Sport Bar)	Bronx	Eligible	Yes	East Side
501.000701	701	MACOMBS DAM BRIDGE; BIN 2-24009-0	BRONX	Eligible	Yes	East Side
501.000709	709	JEROME AVE. APPROACH TO MACOMB'S DAM BRIDGE	BRONX	Eligible	Yes	East Side
501.000961	961	145TH ST BRIDGE; BIN 2-24008-9	BRONX	Not Eligible	Yes	East Side

		(original 3 thru tr				
6101.000043	6101.000043	MACOMBS DAM BRIDGE; BIN 2-24009-0	Manhattan	Eligible	Yes	East Side
6101.000607	6101.000607	145TH ST BRIDGE; BIN 2-24008-9 (original 3 through	Manhattan	Not Eligible	Yes	East Side
501.001943	1943	Bronx Terminal Market Building J	BRONX	Undetermined	Yes	East Side
501.001374	1374	Macomb's Dam Park District Office Building	BRONX	Not Eligible	Yes	East Side
501.000844	844	161st Street Station (IND Concourse)	BRONX	Not Eligible	Yes	East Side
501.002733	2733	Highbridge House	Bronx	Eligible	Yes	East Side
501.002966	2966	1001 University Ave	New York	Not Eligible	Yes	East Side
501.00297	2970	1012 Summit Avenue	Bronx	Not Eligible	Yes	East Side
501.002971	2971	1008 Summit Avenue	Bronx	Not Eligible	Yes	East Side
501.002972	2972	997 Summit Avenue	Bronx	Not Eligible	Yes	East Side
6101.022173	6101.022173	Harlem River Drive BIN 1077030	New York	Not Eligible	Yes	East Side
6101.022188	6101.022188	161st Street Tunnel	Manhattan	Undetermined	Yes	East Side
501.003604	3604	Key Food Supermarket	Bronx	Not Eligible	Yes	East Side

501.003677	3677	Commercial Building	Bronx	Undetermined	Yes	East Side
501.003689	3689	South Bronx United and The Clubhouse Cafe	Bronx	Not Eligible	Yes	East Side
501.003697	3697	Ballpark Sports	Bronx	Not Eligible	Yes	East Side
501.003723	3723	81-95 E 161ST STREET/ 872 GERARD AVE	Bronx	Not Eligible	Yes	East Side
6101.001523	1523		MANHATTAN	Undetermined	Yes	West Side
6101.001524	1524		MANHATTAN	Not Eligible	Yes	West Side
6101.001525	1525		MANHATTAN	Not Eligible	Yes	West Side
6101.001526	1526		MANHATTAN	Not Eligible	Yes	West Side
6101.007089	7089	New York State Army National Guard Fifth Avenue Armory	New York	Listed	Yes	West Side
6101.008334	8334	APARTMENTS	MANHATTAN	Listed	Yes	West Side
6101.008335	8335	APARTMENTS	MANHATTAN	Undetermined	Yes	West Side
6101.010698	10698	254 West 154th St, New York	New York	Not Eligible	Yes	West Side
6101.012169	12169		MANHATTAN	Undetermined	Yes	West Side
6101.012189	12189		MANHATTAN	Not Eligible	Yes	West Side
6101.01219	12190		MANHATTAN	Not Eligible	Yes	West Side
6101.012191	12191		MANHATTAN	Not Eligible	Yes	West Side
6101.012192	12192		MANHATTAN	Not Eligible	Yes	West Side

6101.012193	12193		MANHATTAN	Not Eligible	Yes	West Side
6101.012302	12302		MANHATTAN	Listed	Yes	West Side
6101.012323	12323	TROGER'S HOTEL	MANHATTAN	Listed	Yes	West Side
6101.012342	12342		MANHATTAN	Listed	Yes	West Side
6101.012559	12559		MANHATTAN	Listed	Yes	West Side
6101.01256	12560		MANHATTAN	Listed	Yes	West Side
6101.012562	12562		MANHATTAN	Listed	Yes	West Side
6101.012563	12563		MANHATTAN	Listed	Yes	West Side
6101.017222	17222	P.S. 28/Wright Brothers	MANHATTAN	Eligible	Yes	West Side
6101.018602	18602	Macomb's Bridge Branch, NYPL, 1955	MANHATTAN	Undetermined	Yes	West Side
6101.000043	43	MACOMBS DAM BRIDGE; BIN 2-24009-0	Manhattan	Eligible	Yes	West Side
6101.00152	1520	155TH ST VIADUCT (MACOMB'S DAM BRIDGE APPROACH)	MANHATTAN	Eligible	Yes	West Side
6101.019045	19045	Polo Grounds Towers (NYCHA, 1968)	New York	Not Eligible	Yes	West Side
6101.01857	18570	Ralph J. Rangel Houses (NYCHA housing, 1951)	MANHATTAN	Not Eligible	Yes	West Side
6101.019072	19072	Rangel Houses	New York	Not Eligible	Yes	West Side

6101.019086	19086	Justice Thurgood Marshall Plaza (NYCHA, 1986)	New York	Not Eligible	Yes	West Side
6101.00646	6460	HARLEM RIVER HOUSES	MANHATTAN	Listed	Yes	West Side
6101.006461	6461	Harlem River Houses	Manhattan	Listed	Yes	West Side
6101.006459	6459	HARLEM RIVER HOUSES	MANHATTAN	Listed	Yes	West Side
6101.019183	19183	c	New York	Listed	Yes	West Side
6101.01923	19230	262 West 154th St, New York	New York	Not Eligible	Yes	West Side
6101.02088	20880	101 West 147th Street	Manhattan	Not Eligible	Yes	West Side
6101.020881	20881	720 Lenox Avenue	Manhattan	Not Eligible	Yes	West Side
6101.020882	20882	700 Lenox Avenue	Manhattan	Not Eligible	Yes	West Side
6101.020878	20878	2569 Adam Clayton Powell Jr. Blvd	Manhattan	Not Eligible	Yes	West Side
6101.020879	20879	129 West 147th St	Manhattan	Not Eligible	Yes	West Side
6101.0213	21300	Harlem/148th Street Station	Manhattan	Not Eligible	Yes	West Side
6101.021309	21309	Dunwell Plaza	New York	Not Eligible	Yes	West Side
6101.021424	21424	Mary McLeod Bethune Gardens	New York	Listed	Yes	West Side
6101.007661	7661	ONE-HUNDRED-FORTY-EIGHTH STREET YARD	MANHATTAN	Undetermined	Yes	West Side

6101.022173	22173	Harlem River Drive BIN 1077030	New York	Not Eligible	Yes	West Side
6101.023264	23264	P.S. 46	New York	Not Eligible	Yes	West Side
6101.023435	23435	Holcombe Rucker Park	New York	Eligible	Yes	West Side
6101.001762	1762	PAUL ROBESON HOME	<Null>	<Null>	Yes	West Side
6101.012399	12399		<Null>	<Null>	Yes	West Side
6101.012403	12403		<Null>	<Null>	Yes	West Side
6101.012564	12564		<Null>	<Null>	Yes	West Side
6101.012565	12565		<Null>	<Null>	Yes	West Side
6101.022175	22175	155th Street Station	<Null>	<Null>	Yes	West Side

Table 10. Historic properties in New York within one mile of Inland structures, and the total historic properties within that area from which project structures will potentially be visible (after data from the NY SHPO).

USN Num	Map Number	USN Name	City	NR Eligibility	Inland Visible	Map Side
501.000081	81		BRONX	Listed	Barely	East Side
6101.001957	1957		MANHATTAN	Listed	Barely	West Side
6101.001958	1958		MANHATTAN	Listed	Barely	West Side
6101.001959	1959		MANHATTAN	Listed	Barely	West Side
6101.00196	1960		MANHATTAN	Listed	Barely	West Side
6101.00196 2	1962		MANHATTAN	Listed	Barely	West Side
6101.00196 3	1963		MANHATTAN	Listed	Barely	West Side
6101.00196 4	1964	cccc	MANHATTAN	Listed	Barely	West Side
6101.00887 3	8873	ROWHOUSE (1884)	MANHATTAN	Listed	Barely	West Side
6101.00887 4	8874	ROWHOUSE (1884)	MANHATTAN	Listed	Barely	West Side
6101.01230 1	12301		MANHATTAN	Listed	Barely	West Side

6101.001961	1961		MANHATTAN	Listed	Barely	West Side
6101.001957	06101	Jackie Robinson (Colonial Park)	MANHATTAN	Listed	Barely	West Side
501.000082	82		BRONX	Listed	Yes	East Side
501.000083	83		BRONX	Listed	Yes	East Side
501.000861	861	Stadium Souvenirs	Bronx	Not Eligible	Yes	East Side
501.001158	1158	(FORMER) AMERICAN FEMALE GUARDIAN SOCIETY	BRONX	Eligible	Yes	East Side
501.001376	1376	Oxford Knolls (1930s apt complex)	BRONX	Eligible	Yes	East Side
501.001383	1383	Church of God	BRONX	Eligible	Yes	East Side
501.001384	1384		BRONX	Eligible	Yes	East Side
501.001385	1385	former Semi Earl Theatre (aka Billy's Sport Bar)	Bronx	Eligible	Yes	East Side
501.000701	701	MACOMBS DAM BRIDGE; BIN 2-24009-0	BRONX	Eligible	Yes	East Side
501.000709	709	JEROME AVE. APPROACH TO MACOMB'S DAM BRIDGE	BRONX	Eligible	Yes	East Side
501.000961	961	145TH ST BRIDGE; BIN 2-24008-9 (original 3 thru tr	BRONX	Not Eligible	Yes	East Side
6101.000043	6101.000043	MACOMBS DAM	Manhattan	Eligible	Yes	East Side

		BRIDGE; BIN 2-24009-0				
6101.000607	6101.000607	145TH ST BRIDGE; BIN 2-24008-9 (original 3 through	Manhattan	Not Eligible	Yes	East Side
501.001943	1943	Bronx Terminal Market Building J	BRONX	Undetermined	Yes	East Side
501.001374	1374	Macomb's Dam Park District Office Building	BRONX	Not Eligible	Yes	East Side
501.000844	844	161st Street Station (IND Concourse)	BRONX	Not Eligible	Yes	East Side
501.002733	2733	Highbridge House	Bronx	Eligible	Yes	East Side
501.002966	2966	1001 University Ave	New York	Not Eligible	Yes	East Side
501.00297	2970	1012 Summit Avenue	Bronx	Not Eligible	Yes	East Side
501.002971	2971	1008 Summit Avenue	Bronx	Not Eligible	Yes	East Side
501.002972	2972	997 Summit Avenue	Bronx	Not Eligible	Yes	East Side
6101.022173	6101.022173	Harlem River Drive BIN 1077030	New York	Not Eligible	Yes	East Side
6101.022188	6101.022188	161st Street Tunnel	Manhattan	Undetermined	Yes	East Side
501.003604	3604	Key Food Supermarket	Bronx	Not Eligible	Yes	East Side
501.003689	3689	South Bronx United and The Clubhouse Cafe	Bronx	Not Eligible	Yes	East Side

501.003697	3697	Ballpark Sports	Bronx	Not Eligible	Yes	East Side
6101.001523	1523		MANHATTAN	Undetermined	Yes	West Side
6101.001524	1524		MANHATTAN	Not Eligible	Yes	West Side
6101.001525	1525		MANHATTAN	Not Eligible	Yes	West Side
6101.001526	1526		MANHATTAN	Not Eligible	Yes	West Side
6101.008334	8334	APARTMENTS	MANHATTAN	Listed	Yes	West Side
6101.008335	8335	APARTMENTS	MANHATTAN	Undetermined	Yes	West Side
6101.010698	10698	254 West 154th St, New York	New York	Not Eligible	Yes	West Side
6101.012169	12169		MANHATTAN	Undetermined	Barely	West Side
6101.012189	12189		MANHATTAN	Not Eligible	Yes	West Side
6101.01219	12190		MANHATTAN	Not Eligible	Yes	West Side
6101.012191	12191		MANHATTAN	Not Eligible	Yes	West Side
6101.012192	12192		MANHATTAN	Not Eligible	Yes	West Side
6101.012193	12193		MANHATTAN	Not Eligible	Yes	West Side
6101.012302	12302		MANHATTAN	Listed	Yes	West Side
6101.012323	12323	TROGER'S HOTEL	MANHATTAN	Listed	Yes	West Side
6101.012342	12342		MANHATTAN	Listed	Yes	West Side
6101.012559	12559		MANHATTAN	Listed	Yes	West Side
6101.01256	12560		MANHATTAN	Listed	Yes	West Side
6101.012562	12562		MANHATTAN	Listed	Yes	West Side
6101.012563	12563		MANHATTAN	Listed	Yes	West Side

6101.017222	17222	P.S. 28/Wright Brothers	MANHATTAN	Eligible	Yes	West Side
6101.018602	18602	Macomb's Bridge Branch, NYPL, 1955	MANHATTAN	Undetermined	Yes	West Side
6101.000043	43	MACOMBS DAM BRIDGE; BIN 2-24009-0	Manhattan	Eligible	Yes	West Side
6101.00152	1520	155TH ST VIADUCT (MACOMB'S DAM BRIDGE APPROACH)	MANHATTAN	Eligible	Yes	West Side
6101.019045	19045	Polo Grounds Towers (NYCHA, 1968)	New York	Not Eligible	Yes	West Side
6101.01857	18570	Ralph J. Rangel Houses (NYCHA housing, 1951)	MANHATTAN	Not Eligible	Yes	West Side
6101.019072	19072	Rangel Houses	New York	Not Eligible	Yes	West Side
6101.019086	19086	Justice Thurgood Marshall Plaza (NYCHA, 1986)	New York	Not Eligible	Yes	West Side
6101.00646	6460	HARLEM RIVER HOUSES	MANHATTAN	Listed	Yes	West Side
6101.006459	6459	HARLEM RIVER HOUSES	MANHATTAN	Listed	Yes	West Side
6101.019183	19183	c	New York	Listed	Yes	West Side

6101.01923	19230	262 West 154th St, New York	New York	Not Eligible	Yes	West Side
6101.02088	20880	101 West 147th Street	Manhattan	Not Eligible	Yes	West Side
6101.020881	20881	720 Lenox Avenue	Manhattan	Not Eligible	Yes	West Side
6101.020878	20878	2569 Adam Clayton Powell Jr. Blvd	Manhattan	Not Eligible	Yes	West Side
6101.020879	20879	129 West 147th St	Manhattan	Not Eligible	Yes	West Side
6101.021309	21309	Dunwell Plaza	New York	Not Eligible	Yes	West Side
6101.021424	21424	Mary McLeod Bethune Gardens	New York	Listed	Yes	West Side
6101.007661	7661	ONE-HUNDRED-FORTY-EIGHTH STREET YARD	MANHATTAN	Undetermined	Yes	West Side
6101.022173	22173	Harlem River Drive BIN 1077030	New York	Not Eligible	Yes	West Side
6101.023264	23264	P.S. 46	New York	Not Eligible	Yes	West Side
6101.023435	23435	Holcombe Rucker Park	New York	Eligible	Yes	West Side
6101.001762	1762	PAUL ROBESON HOME	<Null>	<Null>	Yes	West Side
6101.012399	12399		<Null>	<Null>	Yes	West Side
6101.012403	12403		<Null>	<Null>	Yes	West Side
6101.012564	12564		<Null>	<Null>	Yes	West Side
6101.012565	12565		<Null>	<Null>	Yes	West Side
6101.022175	22175	155th Street Station	<Null>	<Null>	Yes	West Side

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US Army Corps of Engineers®
New York District

NEW YORK-NEW JERSEY HARBOR AND TRIBUTARIES

COASTAL STORM RISK MANAGEMENT PROJECT

AE Programmatic Agreement

July 2025

PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT,
THE NEW YORK STATE HISTORIC PRESERVATION OFFICE,
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICE AND
THE NATIONAL PARK SERVICE

REGARDING THE NEW YORK – NEW JERSEY HARBOR AND TRIBUTARIES
COASTAL STORM RISK MANAGEMENT PROJECT

ACTIONABLE ELEMENTS
EAST RISER, HARLEM RIVER, and OAKWOOD BEACH

WHEREAS, the US Army Corps of Engineers, New York District (District) is proposing to undertake early, Actionable Elements which are near-term recommendations for potential construction authorization, associated with comprehensive measures to manage coastal storm risk and minimize impact throughout the New York Metropolitan Area, including the most densely populated city in the United States, and the six most populated cities in New Jersey. The shorelines of some of the New York New Jersey Harbor and Tributaries Coastal Storm Risk (NYNJHAT) study area are characterized by low elevation areas, developed with residential and commercial infrastructure and are subject to tidal flooding during storms. The NYNJHAT Actionable Elements consist of three distinct areas: East Riser, Meadowlands, NJ, Harlem River, Manhattan, NY and Oakwood Beach, Staten Island, NY (Project); and

WHEREAS, the comprehensive NYNJHAT study effort was authorized by the River and Harbor Act of 14 July 1960, and subsequently modified in accordance with Section 31 of the Water Resources Development Act of 1974 and Sections 103, 502 and 934 of the Water Resources Development Act of 1986 (P.L. 99-662), and Public Law 113-2; and

WHEREAS, in January 2015, USACE completed the North Atlantic Coast Comprehensive Study (NACCS), which identified high-risk areas on the Atlantic Coast for warranting further investigation of flood risk management solutions, and the NYNJHAT focus area was one of the focus areas identified to investigate coastal flood risk within the New York-New Jersey Harbor region; and

WHEREAS, the National Environmental Policy Act (NEPA) of 1969 requires federal agencies, including the District, to consider the potential environmental impacts of their proposed actions and any reasonable alternatives before undertaking a major federal action, as defined by 40 CFR 1508.18, therefore the District initially drafted an integrated Feasibility Report and Environmental Impact Statement (FR/EIS) which will be conducted in two stages or tiers; Tiering, which is defined in 40 CFR 1508.28, is a means of making the environmental review process more efficient by allowing parties to “eliminate repetitive discussions of the same issues and to focus on the actual issues suitable for decision at each level of environmental review” (40 CFR 1502.20) with Tier 1 as a broad-level review, and Tier 2 consisting of subsequent specific detailed reviews; and

WHEREAS**,** the draft FR/EIS presented the formal Tentatively Selected Plan, which consisted of: integrated shoreline based measures (SBMs) along with the Arthur Kill, Kill Van Kull, Jamaica

Bay, Newtown Creek, Gowanus Canal, and Flushing Creek storm surge barriers. The required SBMs include managing risk reduction for the New Jersey Upper Bay and Hudson River shoreline from Liberty State Park to Hoboken, New York City West Side shoreline from Brooklyn Bridge to Pier 78, East Harlem shoreline from Carl Schurz Park to Washington Heights, the Red Hook shoreline and the Long Island City-Astoria shoreline from Astoria Park to Ed Koch Queensboro Bridge. To mitigate the residual flood risk, residual risk features (RRFs) are proposed along the shorelines of the Upper Bay, the Arthur Kill region, Jamaica Bay, and the Hackensack and Passaic Rivers. Induced flooding is expected to occur in portions of the East River and Harlem River and on the flood side of the Jamaica Bay storm surge as a result of the presence of the above stated storm surge barriers, thus, induced flooding features (IFFs) are suggested to be placed in these regions. A schematic concept for the TSP and the referenced reaches is shown in Appendix A.

WHEREAS, following development of the TSP Milestone and release of the draft FR/EIS, the District was directed develop a **Draft Interim Response Actionable Elements Integrated Feasibility Report and Environmental Assessment** focusing on investigating coastal storm risk management measures in the study area consistent with the study authority, which may be put forward to Congress for consideration in a Water Resources Development Act (WRDA). Such opportunities include the investigation of Actionable Elements, as well as a framework for a comprehensive regional plan (Comprehensive Plan Framework), which will highlight the types of measures that could be funded to meet the NYNJHAT study's planning objectives.

WHEREAS, the Actionable Elements, heretofore referred to as the Project focus on addressing coastal storm risk through a combination of measures in three distinct areas; East Riser, Meadowlands, NJ (channel, culvert, and bridge modifications), Harlem River, Manhattan, NY (floodwall or seawall) and Oakwood Beach, Staten Island, NY (nature-based solutions); and

WHEREAS**,** the District has determined that the Project constitutes an undertaking, as defined in 36 C.F.R. § 800.16(y), and therefore, is subject to Section 106 of the National Historic Preservation Act of 1966 (NHPA), 54 U.S.C. § 306108; and

WHEREAS**,** the District is the Lead Federal Agency for compliance with Section 106 of the NHPA for this Project pursuant to 36 C.F.R. § 800.2(a)(2); and

WHEREAS, Cooperating Agencies include the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Coast Guard, National Oceanic and Atmospheric Administration National Marine Fisheries Service, and the National Park Service(NPS), while the Federal Emergency Management Agency is a Participating Agency; and

WHEREAS, the non-federal sponsors are the New Jersey Department of Environmental Protection (NJDEP) and New York State Department of Environmental Conservation (NYSDEC), in partnership with the New York City Office of Recovery and Resiliency (NYCORR); and

WHEREAS, the Project minimizes exacerbating riverine/fluvial flooding, covered under the Flood Risk Management (FRM) mission of USACE, and includes measures to alleviate any induced flooding with measures like levees, floodwalls, and non-structural (TBD) and natural and nature-based features (TBD) which are also included in the Project; and

WHEREAS, the District has determined that the Project's APE includes the area of construction, non-structural measures, and indirect impacts on the viewshed during the feasibility level analysis of the Project (see depiction in **Attachment A** to this Agreement); the APE considers the following impacts: 1) construction effects, to include demolition, vibration, and auditory effects, will be considered within a coordinated buffer of either side of proposed measures, the living shoreline, and other constructed features (e.g. pump stations and surge gates); 2) effects of non-structural measures will be considered at each location; potential visual impacts will be considered from the perspective of cultural resources within the APE consisting of 3) the exterior viewshed (historic properties that view an Actionable Element, and 4) the interior viewshed (historic properties located with a view of an Actionable Element); and

WHEREAS**,** numerous archaeological and/or architectural resource surveys have been conducted within the APE and background research conducted through New York's and New Jersey's online cultural resources information system (CRIS and LUCY), the New York City Landmark Preservation Commission mapper, and the National Park Service's (NPS) National Register Database, documented the presence of approximately 26 previously identified historic properties within 100 meters of the Project, while the preliminary viewshed analysis documented approximately 2,050 previously identified historic properties within 1 mile of the Project where Project structures will potentially be visible, detailed in **Attachment B** to this Agreement; and

WHEREAS**,** the District has determined that the undertaking may have an adverse effect on historic properties which are listed or eligible for listing in the National Register of Historic Places (NRHP), which the agency is required to take into account pursuant to Section 106 of the NHPA; and

WHEREAS, schedule and budgetary constraints, including Section 1001 of the Water Resources Reform and Development Act (WRRDA) of 2014 (Public Law 113-121) (limiting duration and cost of Corps of Engineers final feasibility reports), limit the detailed engineering design of the Project features during the feasibility phase such that the District cannot conduct all of the necessary surveys to fully identify and evaluate historic and cultural resources, fully determine adverse effects of the Project on historic properties, or fully avoid, minimize or mitigate those adverse effects, prior to completing the appropriate NEPA documentation for the feasibility phase; and

WHEREAS**,** because implementation of the Preconstruction, Engineering and Design (PED) phase (where detailed engineering design will occur) is contingent on either authorization by Congress or the Secretary of the Army's determination that the Project is justified, appropriation of funds by Congress, and execution of a Design Agreement (DA) between the NJDEP and NYSDEC, in partnership with NYCORR, the District may implement PED in phases to the extent that design and/or construction authority is phased and funds are appropriated, so that efforts to identify and evaluate historic properties, determine effects from Project features, identify appropriate avoidance, minimization or mitigation, and conduct related consultation may occur over a period of multiple years as the design for each Project construction phase and/or feature is finalized; and

WHEREAS, the District recognizes that significant historic districts and properties in and around the Project area are an integral part of the community's life and character; and preservation of this irreplaceable heritage is in the public interest. The knowledge and identification of New York and New Jersey's historic resources, together with the goal of preserving the integrity of these resources, will improve the planning and execution of the Project. The District commits to

considering the avoidance and minimization of adverse effects to historic properties in its design of the Project; and

WHEREAS, the District has determined that as Project features are further designed during the PED phase of the Project, the APEs may be further refined, cultural resources surveys to be conducted may identify additional historic properties within the APEs, and effects on historic properties may be further identified; and

WHEREAS, the District intends to comply with Sections 106 and 110(f) of the NHPA for the undertaking, and while it has complied to the extent practicable in an effort to avoid, minimize, or mitigate adverse effects on historic properties and minimize harm to Historic Properties during the feasibility phase of the Project, recognizes that there are potential effects on historic properties which cannot be fully determined prior to approval of this complex undertaking; and

WHEREAS, the District intends to ensure compliance for all NYNJHATS phases and features with Sections 106 and 110(f) of the NHPA for the undertaking through the execution and implementation of this Programmatic Agreement (PA), and future PAs for other elements associated with the Comprehensive Plan, pursuant to 36 C.F.R. § 800.14(b)(3); and

WHEREAS, in accordance with 36 C.F.R. § 800.6(a)(1) and § 800.10(a), the District has notified the Advisory Council on Historic Preservation (ACHP) of its intension to develop this Agreement, and the ACHP has chosen to participate/ declined to participate and will remain a Consulting Party, in the consultation pursuant to 36 C.F.R. § 800.6(a)(1)(iii); and

WHEREAS, the New York State Historic Preservation Office (NYSHPO), has concurred in the use of a Programmatic Agreement and in being a Signatory to this Agreement; and

WHEREAS, the New Jersey Historic Preservation Office (NJHPO), has concurred in the use of a Programmatic Agreement and in being a Signatory to this Agreement; and

WHEREAS, the New Jersey Department of Environmental Protection (NJDEP) and New York State Department of Environmental Conservation (NYSDEC), in partnership with the New York City Office of Recovery and Resiliency (NYCORR) are the non-Federal sponsors for this project, and the District has invited them to sign this Agreement as an Invited Signatory and they have chosen to participate/ declined to participate and will remain a Consulting Party; and

WHEREAS, any measure to be constructed within NPS Land or land managed by the NPS, mutual acceptability between the Department of Interior and the Department of Army is required pursuant to the Gateway National Recreation Area (GATE) enabling legislation (P.L. 92-592, 1972); and

WHEREAS, the District has invited the NPS to sign this Agreement as a Signatory, in accordance to P.L. 92-592, 1972, 36 C.F.R. § 800.10(c), as a mutually acceptable plan between NPS Interior Region 1 Office, and the District requires concurrence between both parties, support of Project objectives, minimization of impacts to NPS cultural, natural and recreational resources, and mitigation for all unavoidable impacts to NPS resources, and the NPS has elected to participate; and

WHEREAS, in accordance with 36 C.F.R. § 800.6(c)(3), the District is consulting with the, the Delaware Nation, the Stockbridge Munsee, the Delaware Tribe of Indians, regarding the effects

of the undertaking on historic properties, and has invited these Tribes to sign this Agreement as Invited Signatories or Concurring Parties;

WHEREAS, in accordance with 36 C.F.R. § 800.6(c)(3), the Delaware Nation has responded and elected to participate as a Concurring Party in this Agreement; and

WHEREAS, in accordance with 36 C.F.R. § 800.6(c)(3), the Stockbridge Munsee has responded and elected to participate as a Concurring Party in this Agreement; and

WHEREAS, the District has consulted with the NYC Landmarks Preservation Commission (LPC) regarding the effects of the undertaking on historic properties and the District has invited them to sign this Agreement as a Signatory and they have elected to participate; and

WHEREAS, the District has consulted with local, county and state historical societies regarding the effects of the undertaking on historic properties and has invited them to each sign this Agreement as a Concurring Party and they have/ have not elected to participate each as a Concurring Party; and

WHEREAS, the District has consulted and will continue to consult with the NYSHPO, NJHPO, the Delaware Nation, the Stockbridge Munsee, the Delaware Tribe of Indians (federally-recognized tribes), the NPS, and municipal and county historic societies, and other appropriate Consulting Parties to define and implement process for taking into consideration the effects of the Project on historic properties; and

WHEREAS, the NYSHPO, NJHPO, NPS, ACHP, in partnership with NJDEP and NYSDEC, NYCORR, Interested Tribes, the LPC, and other interested parties are hereinafter collectively referred to as Consulting Parties; and

WHEREAS, the District has, and will continue to, consult with the NJSHPO, the NYSHPO and LCP in regard to portions of the APE within their relevant areas of responsibility and jurisdiction: and

WHEREAS, in accordance with 36 C.F.R. § 800.2(d) the District is soliciting public comment on the Project through the release of the draft Feasibility Report/Environmental Assessment (EA) for a period of 30 days, and through a series of in person and virtual informational meetings with stakeholders to share information about the project and to discuss the District's ongoing efforts to evaluate the project's potential to affect cultural resources; and

NOW, THEREFORE, the District, New York SHPO, New Jersey HPO, and NPS (hereinafter collectively referred to as Signatories) agree that the Undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the Project on cultural resources and undertake appropriate planning and actions with regard to resources and associated with GATE.

STIPULATIONS

I. IDENTIFICATION AND EVALUATION

The District shall ensure that the following measures are carried out:

A. The New York District shall carry out cultural resources surveys for Project features that are advanced past feasibility phase to identify significant cultural resources within the APE. Survey methodology shall be tailored to the unique environment of the restoration site to identify resources and will consider previous survey results and consultation comments when designing the surveys. Consultation shall be carried out with the appropriate SHPOs depending on whether the site or site(s) are within the States of New York or New Jersey. If a survey is addressing multiple sites located within both states, both the NYSHPO and the NJSHPO shall be consulted.

1. The District shall consult with the NPS and the LPC in regards to only portions of the APE within their respective areas of responsibility and the District shall require their coordination and concurrence on any proposed identification and evaluation efforts, and any steps to avoid, minimize or mitigate those effects for actions proposed within their respective land or areas of responsibility and any eligibility determinations, see Stipulation VII.B.d.

2. The NPS must be consulted on each proposed cultural resource survey/evaluation on NPS managed land, and the necessary permits (Special Use Permit, Archaeological Resources Protection Act, etc.) must be obtained prior to initiating any work.

B. Prior to the initiation of construction-related activities which may affect historic properties, the District, in consultation with the relevant SHPO(s), NPS, LPC and other interested parties as appropriate, shall identify and evaluate:

1. Archaeological Sites

a. The District shall ensure that archaeological surveys within the uninvestigated portions of the APE are conducted in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44720-23) and guidelines set forth by the SHPOs including the New Jersey Historic Preservation Office Requirements for Archaeological Survey Reports - Standards for Report Sufficiency (N.J.A.C. 7:4-8.5), New Jersey Historic Preservation Office Requirements for Phase I Archaeological Survey at N.J.A.C. 7:4-8.4, the New York Archaeological Council's Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State (1994, adopted by NYSHPO in 1995), the NYSHPO's 2005 Phase I Archaeological Format Requirements, and take into account the National Park Service publication The Archaeological Survey: Methods and Uses (1978) and the statewide historic contexts developed by the SHPOs.

b. The scopes of work and survey reports shall be submitted to the appropriate SHPO(s), and other Consulting Parties, as appropriate, for review and comment.

2. Traditional Cultural Properties.

a. The District shall ensure that future surveys within the uninvestigated portions of the APE include procedures to identify traditional cultural properties (TCPs) and to consult with the Delaware Nation, the Stockbridge Munsee, and the Delaware Tribe of Indians,

(federally-recognized tribes) and other affected parties in accordance with the guidelines provided by National Park Service Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties and the U.S. Army Corps of Engineers Tribal Consultation Policy (2013).

b. In the event that the the Delaware Nation, the Stockbridge Munsee, and the Delaware Tribe of Indians, (federally-recognized tribes), or another affected group contacts the District regarding its recognition of a traditional cultural property, located within the APE, the District shall notify the appropriate SHPO, THPO and the ACHP to initiate discussions to consider whether the property is a traditional cultural property that meets the Criteria.

c. The identification of TCPs and Archaeological Sites on NPS managed land will require concurrence with Native Nations and will require further consultation. In case of disagreement regarding potential resolution of adverse effects, see Stipulation II.

3. Buildings and Structures

a. The District shall ensure that surveys are conducted for buildings and structures in the APE in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44720-23), and in New Jersey, the New Jersey Historic Preservation Office's l999 *Guidelines for Architectural Survey*, and take into account the statewide historic contexts developed by the SHPO(s). The Scope of Work and survey report will be consistent with the guidelines set forth by the SHPOs and shall be submitted to the appropriate SHPO(s), the ACHP, and other Consulting Parties for review.

b. The District, in consultation with the appropriate SHPO(s), the ACHP, and other Consulting Parties, shall identify and evaluate buildings and structures that are located adjacent to listed or eligible NRHP historic districts to determine whether such properties should be considered as part of the historic district or an expanded district.

4. Historic Landscapes and View Sheds

a. The District shall consult with the appropriate SHPO(s) and other Consulting Parties, including local historical societies, to identify and evaluate historic landscapes and viewsheds located within the APE. The District shall consult National Park Service Bulletins 18, How to Evaluate and Nominate Designed Historic Landscapes, and 30 Guidelines for Evaluating and Documenting Rural Historic Landscapes, National Park Service Preservation Brief 36, Protecting Cultural Landscapes, and other publications and materials made available by the SHPO(s), like the New Jersey Historic Preservation Office's l999 *Guidelines for Architectural Survey,* to assist in defining the criteria that should be applied to such properties.

b. The objective in conducting the surveys is to identity NRHP-listed or eligible historic landscapes and affected viewsheds within the project area that may be adversely

affected by the Project, and to determine whether they meet the NRHP criteria set forth in 36 CFR Part 60.4.

C. The District shall ensure that qualified professionals meeting the National Park Service professional qualifications for the appropriate discipline [National Park Service Professional Qualification Standards, Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44738-39)] are used to complete all identification and evaluation plans related to this undertaking, to include geomorphological, palynological, and archaeological surveys and testing, and documentation.

D. The District, the SHPO(s), and all other Consulting Parties shall consider the views of the public and interested parties, including local historic preservation groups, in completing its identification and evaluation responsibilities.

E. The District shall maintain records of all decisions it makes related to the NRHP eligibility of properties.

F. Application of Criteria:

1. The District, in consultation with the appropriate SHPO, and other Consulting Parties, shall evaluate historic properties using the Criteria established for the NRHP [36 CFR 800.4(c)(1)]:

a. If the District, the SHPO(s), and the other Consulting Parties agree that the Criteria apply or do not apply, in evaluating the NRHP eligibility of a property, the property shall be treated accordingly for purposes of this PA.

b. If the District, the SHPO(s), and other Consulting Parties disagree regarding NRHP eligibility, prior to the start of any project-related work at the site or in the vicinity of the property, the District shall obtain a formal Determination of Eligibility (DOE) from the Keeper of the National Register (Keeper), National Park Service, whose determination shall be final.

2. The District shall ensure that the identification and evaluation of historic properties that may be affected by each phase of the Undertaking is completed prior to the initiation of any formal action by the District including rehabilitation, relocation, demolition, etc.

3. Any changes to the project design that may have the potential to affect historic properties or extends beyond the current APE will be submitted to the Consulting Parties for review and comment.

4. If a property is determined to be eligible for the National Register, the District will consult with the NJSHPO, NYSHPO, NPS, LPC, and the appropriate Consulting

Parties to resolve the adverse effects in accordance with Stipulation II below.

II. RESOLUTION OF ADVERSE EFFECTS

A. If the District, in consultation with the appropriate SHPO(s), and other Consulting Parties, as appropriate, determines that the Project will have an adverse effect on historic properties, the District shall consult with the appropriate Consulting Parties and signatories, pursuant to 36 CFR Part 800.6, to determine how best to resolve adverse effects and document the proposed resolution.

B. The District shall invite the ACHP to participate in consultation when:

1. The District and SHPO determine that an agreement or treatment plan cannot be reached;

2. A National Historic Landmark is involved;

3. Human remains have been identified; or

4. There is widespread public interest in a historic property or properties.

C. Once there is agreement on how adverse effects will be resolved, the District will develop treatment plans that will identify the activities to be implemented to resolve adverse effects. The SHPO(s) and the appropriate signatories and other Consulting Parties, if identified, will be provided with copies of each treatment plan for review and comment. The District shall revise plans to address comments and recommendations provided by the Consulting Parties. The District shall ensure that treatment plans are implemented by the District or its representative(s).

1. Treatment plans will include a description of the historic property, the adverse effect to the historic property, and the treatment to mitigate the adverse effect to the historic property.

2. Draft treatment plans will be reviewed by the signatories and the applicable invited signatories. The signatories will have 30 calendar days to review the draft treatment plan and provide comments to the District.

3. The District will resolve all comments received. Once all comments have been agreed upon, a final treatment plan will be sent for signature to the signatories and applicable invited signatories.

II. PUBLIC INVOLVEMENT AND OUTREACH

A. The District shall inform the public of the existence of this PA and the District's plan for meeting the stipulations of the PA. Copies of this agreement and relevant documentation prepared pursuant to the terms of this PA shall be made available for public inspection via the District's website. Information regarding the specific locations of terrestrial and submerged archaeological sites, including potential wreck areas, will be withheld in accordance with the Freedom of Information Act and National Register Bulletin No. 29, if

it appears that this information could jeopardize archaeological sites. Any comments received from the public related to the activities identified by this PA shall be taken into account by the District.

B. The District shall develop publicly accessible information about the cultural resources and historic properties investigations for the Undertaking in the form of brief publication(s), exhibit(s), or website.

III. CURATION

A. Any collection resulting from the investigations undertaken as part of the agreement are the property of the landowner at the time the collection was made. The District does not retain ownership of any collection removed from land(s) it does not own.

B. The District shall ensure that all collections resulting from the identification and evaluation of surveys, data recovery operations, or other investigations pursuant to this PA are maintained in accordance with 36 CFR Part 79 until the collection is turned over to the landowner or other entity. Minimally, the District will ensure that analysis is complete and the final report(s) are produced and accepted by the New York and NJHPO before the collection is provided to the landowner.

C. The District shall be responsible for consulting with landowners regarding the curation of collections resulting from archaeological surveys, data recovery operations, or other studies and activities pursuant to this agreement. The District shall coordinate the return of collections to non-federal landowners. If landowners wish to donate the collection, the District, in coordination with the New York SHPO and NJHPO, determine an appropriate entity to take control of the collection.

D. The District shall be responsible for the preparation of federally-owned collections and the associated records and non-federal collections donated for curation in accordance with the standards of the curation facility.

IV. UNANTICIPATED DISCOVERY

A. The following language shall be included in construction plans and specifications:

"When a previously identified cultural resource, including but not limited to archaeological sites, shipwrecks and the remains of ships and/or boats, standing structures, and properties of traditional religious and cultural significance to the the Delaware Nation, the Stockbridge Munsee, and the Delaware Tribe of Indians (federally-recognized tribes) are discovered during the execution of the Project, the individual(s) who made the discovery shall immediately secure the vicinity and make a reasonable effort to avoid or minimize harm to the resource, and notify the Project's Contracting Officer's Representative (COR) and the District. All activities shall cease within a minimum of 50 feet from the inadvertent discovery (50-foot radius 'no work' buffer) until authorized by the District and the Project COR.

B. If previously unidentified and unanticipated properties are discovered during Project activities, the District shall cease all work in the vicinity of the discovery until it can be evaluated in accordance with 36 CFR Part 800.13 "Post Review Discoveries". Upon

notification of an unanticipated discovery, the District shall implement any additional reasonable measures to avoid or minimize effects to the resource. Any previously unidentified cultural resource will be treated as though it is eligible for the NRHP until such other determination may be made.

C. The District shall immediately notify the NYSHPO, NJHPO, LPC and NPS for unanticipated discoveries within their respective boundaries, as well as the Delaware Nation, the Stockbridge Munsee, and the Delaware Tribe of Indians (federally-recognized tribes), within 48 hours of the finding and request consultation to determination the nature of the find, the National Register eligibility and the assessment and resolution adverse effects, if identified.

1. Pursuant to [16 U.S.C. 470cc (a)], the unanticipated discovery of a cultural resource on land managed by the NPS will also require the immediate notification of the GATE Superintendent and the COR, who will coordinate with the NPS and other Consulting Parties in order to facilitate a timely resolution in tandem to the requirements outlined Stipulation IV.

D. If it is determined the unanticipated discovery is not eligible for the National Register, in consultation and concurrence with the Consulting Parties, then the suspension of work in the area of the discovery will end.

E. If it is determined that the cultural resource is eligible for the National Register, then the suspension of work will continue, and the District, in consultation with the NYSHPO, NJHPO, LPC and NPS for unanticipated discoveries within their respective boundaries, as well as the Delaware Nation, the Stockbridge Munsee, and the Delaware Tribe of Indians (federally-recognized tribes), will determine the actions to avoid, minimize, or mitigate adverse effects to the historic property and will ensure that the appropriate actions are carried out.

F. If there is a disagreement on the appropriate course of action to address an unanticipated discovery or effects to an unanticipated discovery, then the District shall initiate the dispute resolution process set forth in Stipulation XII below.

G. Inadvertent discovery under section 3 (d) of NAGPRA and the treatment of human remains is governed by Stipulation V.

V. DISCOVERY OF HUMAN REMAINS/FUNERARY OBJECTS

A. If any human remains and/or grave-associated artifacts are encountered during any of the investigations federal lands, including but not limited to land managed by the NPS, the District shall follow the Native American Graves Protection and Repatriation Act (PL 101-601) and its implementing regulations. All other project features not located on federal land will follow the NYSHPO Human Remains Discovery Protocol (2018; see Appendix D) and, as appropriate, develop a treatment plan for human remains that is responsive to the ACHP's Policy Statement on Human Remains" (September 27, 1988), and , US Army Corps of Engineers, Policy Guidance Letter No. 57 (1998) Indian Sovereignty and Government-to-Government Relations with Indian Tribes.

B. In the event that human remains as burials, fragmentary remains, or any associated

funerary objects, sacred objects, and objects of cultural patrimony are encountered, the following actions should be taken:

"In the event that human remains as burials or fragmentary remains are found, the following actions should be taken:

1. The Contractor will stop work in the general area of the discovery immediately and report the discovery to the Contracting Officer/Contracting Officer Representative (KO/COR), who will call the appropriate New York or New Jersey Police Department at 911 and the NY Office of the Chief Medical Examiner and direct the call to the Forensic Anthropology Unit or the NJ **Office of the Chief State Medical Examiner.**
2. The KO/COR will inform the District Archaeologist who, as appropriate, will call the New York Landmarks Preservation Commission, the New York State Historic Preservation Office, the New Jersey State Historic Preservation Office and the relevant federally-recognized Tribes as appropriate.
3. If, upon inspection by the appropriate legal authorities, the remains are determined to be a criminal matter and not archaeological, the District will ensure that appropriate legal and contractual requirements are followed.
4. If the remains are determined to be archaeological, the relevant State Archaeologist has jurisdiction to determine the appropriate treatment and options for the remains following additional coordination with the Consulting Parties.
5. At all times, the Contractor will treat human remains with the utmost dignity and respect.
6. The Contractor will secure and protect the general area of the discovery (not less than fifty feet in all directions from the location of the discovery) from damage, vandalism, and disturbance until released by the KO/COR.
7. The Contractor will leave human remains and/or associated artifacts in place and not disturb them. The Contractor will not collect skeletal remains or materials associated with the remains. Any displaced remains or those found after excavation will be turned over to the KO/COR immediately.
8. The Contractor will not conduct any activities in the vicinity of the site until these steps have been completed and the site has been released by the KO/COR.
9. The Contractor will continue to protect and secure the area until the site is released by the KO/COR.
10. The District will coordinate with all Consulting Parties, and other Interest Parties or descendent communities to develop a treatment or avoidance plan consistent with Stipulation IV"

-

C. The following language, in accordance with [43 CFR 10.2 (g)(4)], shall be included in the construction plans and specifications for Project features located on land managed by the NPS:

"In the event that human remains as burials, fragmentary remains, or any associated funerary objects, sacred objects, and objects of cultural patrimony are encountered, the following actions should be taken:

1. The Contractor will stop work in the general area of the discovery immediately and report the discovery to the Contracting Officer/Contracting Officer Representative (KO/COR), who will notify the GATE Superintendent who will then notify the appropriate

authorities once jurisdiction is situationally established after the Stop Work order is made.

2. The KO/COR and Superintendent will inform the District archaeologist who, as appropriate, will notify the New York Landmarks Preservation Commission, the New York State Historic Preservation Office, the New Jersey State Historic Preservation Office and the relevant federally-recognized Tribes.
3. If, upon inspection by the appropriate legal authorities, the remains are determined to be a criminal matter and not archaeological, the District will ensure that appropriate legal and contractual requirements are followed.
4. If the remains are determined to be archaeological, the GATE Superintendent has jurisdiction to determine the appropriate treatment and options for the remains following additional coordination with the Consulting Parties.
5. At all times, the Contractor will treat human remains with the utmost dignity and respect.
6. The Contractor will secure and protect the general area of the discovery (not less than fifty feet in all directions from the location of the discovery) from damage, vandalism, and disturbance until released by the KO/COR.
7. When human remains/funerary objects are encountered, all activity that might disturb the remains shall not resume until authorized by the GATE Superintendent, District Archaeologist, and the relevant federally-recognized Tribes.
8. The Contractor will leave human remains and/or associated artifacts in place and not disturb them. The Contractor will not collect skeletal remains or materials associated with the remains. Any displaced remains or those found after excavation will be turned over to the KO/COR immediately.
9. The Contractor will not conduct any activities in the vicinity of the site until these steps have been completed and the site has been released by the KO/COR.
10. The Contractor will continue to protect and secure the area until the site is released by the KO/COR.
11. The Corps will coordinate with all Consulting Parties, Interested Tribe(s), and other Interest Parties or descendent communities to develop a treatment or avoidance plan consistent with Stipulation IV"

VI. PROFESSIONAL QUALIFICATIONS AND STANDARDS

A. The District shall ensure that qualified professionals meeting the National Park Service professional qualifications for the appropriate discipline [National Park Service Professional Qualification Standards, Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44738-39)] are used to complete all identification and evaluation plans related to this undertaking, to include remote sensing surveys, underwater investigations, historic structure inventory and documentation.

B. All historic structures surveys carried out pursuant to this PA will be undertaken in accordance with the standards and guidelines of the NYSHPO, NJHPO, the LPC and the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (36 CFR Part 68) which takes into account the statewide historic contexts developed by the NJHPO and NY SHPO. The survey will be conducted following consultation with the NJHPO, NY SHPO, LPC and relevant historic and preservation groups and will be consistent with the appropriate guidelines for architectural surveys as identified by the

Consulting Parties.

C. All archaeological investigations carried out pursuant to this PA will be undertaken in accordance with the New York State Archaeological ACHP's Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State (1994) and Cultural Resources Standards Handbook (2000), the NYSHPO Archaeological Report Format Requirements (2005), and the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (36 CFR Part 68), and the New Jersey Historic Preservation Office Guidelines for Phase I Archaeological Investigations: Identification of Archaeological Resources (N.J.A.C. 7:4-8.4), the New Jersey Historic Preservation Office Requirements for Archaeological Reports – Standards for Report Sufficiency (N.J.A.C. 7:4-8.5)

D. For submerged portions of the APE, the archaeological survey should be designed with input from a qualified marine archaeologist and specialists in other fields as appropriate (e.g., geology and geomorphology), in a manner that is capable of identifying the precontact and historic period site types that are present offshore New Jersey and New York. The Report and analyses presented therein should be prepared by a qualified marine archaeologist and specialists in other fields as appropriate (e.g., geology, geomorphology). A qualified marine archaeologist must meet the Secretary of the Interior's Professional Qualification Standards (48 F.R. 44738-44739) and have experience in conducting high-resolution geophysical surveys of submerged environments and processing and interpreting the resulting data for archaeological potential.

VII. ADMINISTRATIVE TERMS

A. REPORTING

1. The District shall provide a summary report to the Consulting Parties by February 1st of each year detailing work undertaken pursuant to this PA in the preceding calendar year (Appendix E). This report will include any scheduling changes, problems encountered, project work completed, PA activities completed, and any objections and/or disputes received by the District in its efforts to carry out the terms of this PA. Copies of the summary report with be posted in the District project website.

2. Following authorization and appropriation, the District shall coordinate a meeting or equivalent with the signatories to be held annually on a mutually agreed upon date to evaluate the effectiveness of this PA and discuss activities carried out pursuant to this PA during the preceding year and activities scheduled for the upcoming year.

B. COORDINATION, CONSULTATION, AND REVIEW PERIODS

1. The District will consult with the NJSHPO, the NYSHPO, the NPS, the LPC and all other relevant Consulting Parties in regard to portions of the APE within their relevant areas of responsibility and jurisdiction unless otherwise formally requested by the Consulting Party.

2. National Park Service Land:

a. For all activities involving properties and/or investigations within the bounds of land held by the National Park Service, the District will obtain the required National Park Service permits to complete investigations.

b. The District will provide the draft and final reports pertaining to the investigations within the respective boundaries bounds of National Park Service Land, the NYSHPO, NJHPO, NPS, the Delaware Nation, the Stockbridge Munsee, and the Delaware Tribe of Indians (federally-recognized tribes), for review.

c. Coordination and consultation on eligibility determinations, the need for additional investigations within National Park Service Land based on results of completed investigations will include, where relevant, the NYSHPO, NJHPO, NPS, the Delaware Nation, the Stockbridge Munsee, and the Delaware Tribe of Indians (federally-recognized tribes).

d. All elements of the Project within the boundaries of, or impacting cultural resources of the NPS must be mutually acceptable to the Department of the Interior and the Department of the Army (P.L. 92-592, 1972):

   "The authority of the Secretary of the Army to undertake or contribute to water resource developments, including shore erosion control, beach protection, and navigation improvements (including the deepening of the shipping channel from the Atlantic Ocean to the New York harbor) on land and/or waters within the recreation area shall be exercised in accordance with plans which are mutually acceptable to the Secretary of the Interior and the Secretary of the Army and which are consistent with both the purpose of this sub chapter and the purpose of existing statutes dealing with water and related land resource development."

   The NPS 's authority to conserve and manage park resources is derived from the Organic Act of 1916, which states that "the fundamental purpose of the said parks .. .is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The NPS has discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of a park (NPS 2006 sec. 1.4.3). However, as mandated by the Organic Act, the NPS cannot allow an adverse impact that would constitute impairment of the affected resources and values (NPS 2006 sec 1.4.3). An action constitutes an impairment when its impacts "harm the integrity of Park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values" (NPS 2006 sec 1.4.5). To determine impairment, the NPS must evaluate "the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts" (NPS 2006 sec 1.4.5). The NPS cannot legally take or authorize an action that will result in impairment. Therefore, the District will continue to coordinate with and provide sufficient information to the NPS, upon which the NPS can make a written determination that the Districts actions authorized by the NPS will not lead to an impairment of park resources and values (NPS 2006 sec 1.4. 7).

3. Borrow Areas

a. All draft and final reports pertaining to investigations of Project borrow areas will be provided to the New York SHPO, NJHPO, the LPC NPS, and the Interested Tribes for review.

b. Coordination and consultation on eligibility determinations, the need for additional investigations for targets and anomalies will include the New York SHPO, NJHPO, NPS, and Interested Tribes.

4. Nearshore Sand Placement, Coastal Process Features, Measures for Residential and Non-Residential Structures, and Ringwalls:

a. All draft and final reports pertaining to investigations of the nearshore, the coastal process features, the measures for residential and non-residential structure Areas of Potential Effect outside of National Park Service Land will be provided to the New York SHPO, NJHPO, the LPC, NPS, Interested Tribes, the relevant municipality(ies) and local historical society(ies) or historic preservation group(s) for review (see Appendix E).

b. Coordination and consultation on eligibility determinations, the need for additional investigations, etc., resulting from the reviews completed in Stipulation XI.B.3.a above will include the New York SHPO, NJHPO, the LPC, Interested Tribes, the relevant municipality, its local historical society or historic preservation group(s) (see Appendix E), and the landowner(s).

5. Unless otherwise stated, all review periods will be 30 calendar days from the date of receipt by the Consulting Party and any comments resulting from those reviews must be submitted to the District in writing (via electronic or regular mail).

6. With the submission of final reports, the District will respond to comments, identifying how comments were/were not taken into account as part of report revisions or recommendation for additional action.

7. If a response is not received by the end of the review period, the District will assume concurrence with the subject determination, evaluation, plan, report or other document submitted.

8. Activities On New York City Lands:

a. For those portions of the Undertaking which take place on New York City (NYC) owned property, the District will fully engage the LPC in all consultations and secure LPC concurrence for all decisions related to identification, evaluation, effect determinations, and treatment of adverse effects. The District will submit all documentation and determination findings for properties on NYC land to the LPC for review and concurrence prior to submission to NYSHPO or ACHP. If the District, and NYSHPO cannot come to agreement on any such matters, the provisions of Stipulations V or XII will apply, as most appropriate.

XII. DISPUTE RESOLUTION

A. Should any Signatory object in writing to the District at any time to any actions proposed or the manner in which the terms of this PA are implemented, the District and the signatories shall attempt to resolve any disagreement arising from implementation of this PA.

B. If there is a determination that the disagreement cannot be resolved, the District shall forward all documentation relevant to the dispute to the ACHP and request the ACHP's recommendations or request the comments of the ACHP in accordance with 36 CFR Part 800.7(c).

C. The ACHP shall provide the District with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Any ACHP recommendations or comments provided in response will be considered in accordance with 36 CFR Part 800.7(c), with reference only to the subject of the dispute. The District shall respond to ACHP recommendations or comments indicating how the District has taken the ACHP's recommendations or comments into account and complied with the ACHP's recommendations or comments prior to proceeding with the Undertaking activities that are the subject to dispute. Responsibility to carry out all other actions under this PA that are not the subject of the dispute will remain unchanged.

D. If the ACHP does not provide its advice regarding the dispute within the thirty (30) calendar daytime period, the District may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the District shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories to the PA, and provide them and the ACHP with a copy of such written response.

XIII. WITHDRAWAL AND TERMINATION

A. Any signatory may withdraw its participation in this PA by providing thirty (30) days advance written notification to all other signatories. In the event of withdrawal, any signatory to this PA may terminate it by providing 30 calendar days, written notice to the signatories. In the event of withdrawal, this PA will remain in effect for the remaining signatories.

B. This agreement may be terminated in accordance with 36 CFR Part 800, provided that the signatories consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. Any signatory requesting termination of this PA will provide thirty (30) days advance written notification to all other signatories.

C. In the event of termination, the District will comply with 36 CFR 800.4 through 800.6 with regard to individual undertakings covered by this Agreement.

XIV. DURATION AND SUNSET CLAUSE

A. This PA shall take effect upon execution by the District, the New York SHPO, NJHPO, NPS with the date of the final signature.

B. This PA will continue in full force and effect until the construction of the Undertaking is complete and all terms of this PA are met, unless the Undertaking is terminated or authorization is rescinded or a period of five years from execution of the PA has passed, at which time the agreement may be extended as written provided all signatories concur.

XV. AMENDMENT

A. This PA may be amended upon agreement in writing by all Signatories. Within thirty (30) days of a written request to the District, the District will facilitate consultation between the signatories regarding the proposed amendment.

B. Any amendments will be in writing and will be in effect on the date the amended PA is filed with the ACHP.

XVI. ANTI-DEFICIENCY ACT

All requirements set forth in this PA requiring expenditure of funds by the District are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. 1341). No obligation undertaken by the District under the terms of this PA shall require or be interpreted to require a commitment to extend funds not appropriated for a particular purpose. If the District cannot perform any obligation set forth in this PA because of unavailability of funds that obligation must be renegotiated among the District and the signatories as necessary.

PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT,
THE NEW YORK STATE HISTORIC PRESERVATION OFFICE,
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICE AND
THE NATIONAL PARK SERVICE

REGARDING THE NEW YORK – NEW JERSEY HARBOR AND TRIBUTARIES
COASTAL STORM RISK MANAGEMENT PROJECT

ACTIONABLE ELEMENTS
EAST RISER, HARLEM RIVER, and OAKWOOD BEACH

Execution and implementation of this PA evidences that the District has satisfied its Section 106 responsibilities 36 CFR 800.6(b)(1)(iv) for all individual undertakings of the Project, and has afforded the New York , NJHPO, NPS and the ACHP an opportunity to comment on the undertaking and its effects on historic properties.

_____ _____

Matthew W. Luzzatto
Colonel, U.S. Army
New York District
Army Corps of Engineers

Date

PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT,
THE NEW YORK STATE HISTORIC PRESERVATION OFFICE,
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICE AND
THE NATIONAL PARK SERVICE

REGARDING THE NEW YORK – NEW JERSEY HARBOR AND TRIBUTARIES
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_____ _____

Jennifer T. Nersesian Date
Superintendent
Gateway National Recreation Area

PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT,
THE NEW YORK STATE HISTORIC PRESERVATION OFFICE,
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICE AND
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_____ _____

Katherine J. Marcopul, PhD Date
Deputy State Historic Preservation Officer
New Jersey State Historic Preservation Office

PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT,
THE NEW YORK STATE HISTORIC PRESERVATION OFFICE,
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICE AND
THE NATIONAL PARK SERVICE

REGARDING THE NEW YORK – NEW JERSEY HARBOR AND TRIBUTARIES
COASTAL STORM RISK MANAGEMENT PROJECT

ACTIONABLE ELEMENTS
EAST RISER, HARLEM RIVER, and OAKWOOD BEACH

Execution and implementation of this PA evidences that the District has satisfied its Section 106 responsibilities 36 CFR 800.6(b)(1)(iv) for all individual undertakings of the Project, and has afforded the New York SHPO, NJHPO, NPS and the ACHP an opportunity to comment on the undertaking and its effects on historic properties.

_____ _____

R. Daniel Mackay Date
Deputy Commissioner for Historic Preservation/Deputy SHPO
New York State Historic Preservation Office

PROGRAMMATIC AGREEMENT - APPENDIX A

REGARDING THE NEW YORK – NEW JERSEY HARBOR AND TRIBUTARIES
COASTAL STORM RISK MANAGEMENT PROJECT

ACTIONABLE ELEMENTS
EAST RISER, HARLEM RIVER, and OAKWOOD BEACH
STUDY MAPS

NY-NJ HARBOR AND TRIBUTARIES STUDY

U.S. ARMY
CORPS OF ENGINEERS
NEW YORK DISTRICT

East Riser Actionable Element Project Measures

Moonachie and Carlstadt Boroughs
Bergen County, New Jersey
Date: 6/25/2025

Legend

- Hackensack/Passaic Study Region
- Municipal Boundary

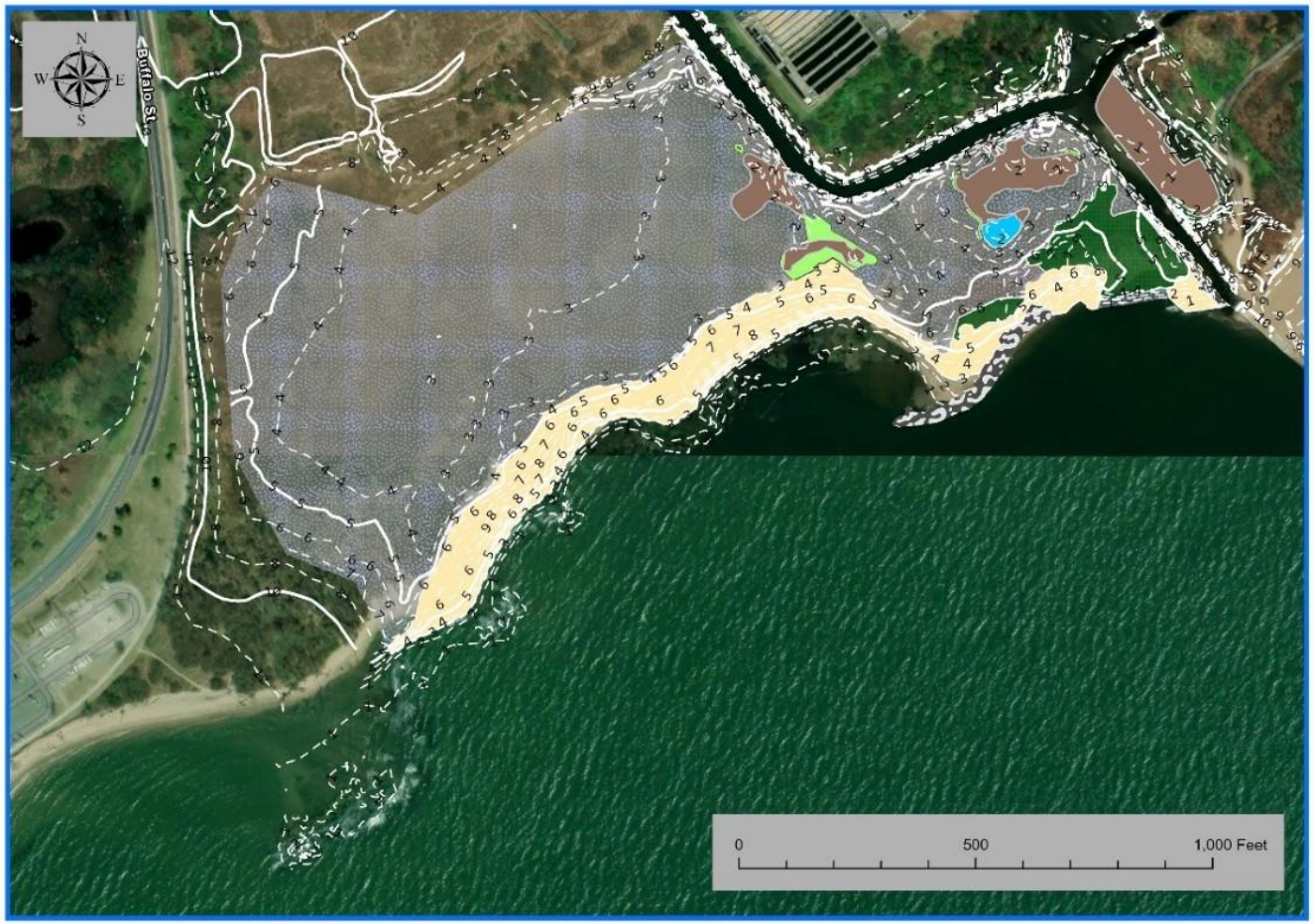
Measures

- Channel Modifications
- Culvert Replacement(s)
- Areas Impacted by Culvert Replacement(s)
- Railroad Bridge Replacement


Harlem River
Actionable Element
LANDWARD Alignment
Harlem River Dr
Harlem River Dr S
Amtrak Railroad
P.S. 046 Arthur Tappan
Holcombe Rucker Park Comfort Station
Macombs Dam
Colonel Charles Young Triangle
Harlem Lane Playground
Frederick Johnson Playground
Harlem-148 St
0 250 500 750 Feet


Harlem River
Actionable Element
SEAWARD Alignment
Harlem River Dr
Harlem River Dr S
Amtrak Railroad
P.S. 046 Arthur Tappan
Holcombe Rucker Park Comfort Station
Macombs Dam
Colonel Charles Young Triangle
Harlem Lane Playground
Frederick Johnson Playground
Harlem-148 St
0 250 500 750 Feet


Area of Detail
ROCKLAND
Ossining
White
Scarsdal
Yonkers
BRONX
NEW YORK
Queens
New York
Brooklyn
Jamaica
Scale 1:500,000
Legend
Lower Hudson/East River Study Region
Reduced Risk with Harlem River Actionable Element
Measures
Combi Wall
Deployable Flood Barrier - Vehicle Gate
Large Floodwall
Large Floodwall - Under Roadway
Tunnel Span
NY-NJ HARBOR AND TRIBUTARIES STUDY
Harlem River Actionable Element Alignment Comparison
Future With Project Reduced Risk (1% AEP w/ Intermediate Sea Level Rise in 2095)
Date: 6/20/2025
U.S. ARMY CORPS OF ENGINEERS NEW YORK DISTRICT



NY-NJ HARBOR AND TRIBUTARIES STUDY

Oakwood Beach Actionable Element

Existing Conditions

Staten Island, New York

Date: 6/26/2025

U.S. ARMY
CORPS OF ENGINEERS
NEW YORK DISTRICT

Legend

Existing Contours
- 5ft Interval Contours
- 1ft Interval Contours

Existing Environmental Zones
- Existing Rip Rap
- Phragmites Zone
- Mud Flat Zone
- Spartina Zone
- Salt Panne Zone
- Maritime Shrub Land Zone
- Dune Beach Zone

PROGRAMMATIC AGREEMENT - APPENDIX B

THE NEW YORK – NEW JERSEY HARBOR AND TRIBUTARIES
COASTAL STORM RISK MANAGEMENT ACTIONABLE ELEMENTS
EAST RISER, HARLEM RIVER, and OAKWOOD BEACH

CULTURAL APPENDIX