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STAGE 1A CULTURAL RESOURCES ASSESSMENT

BELT PARKWAY BRIDGES PROJECT

BROOKLYN, NEW YORK

DOT CEQR NO. 97DOT006K

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I. INTRODUCTION AND METHODOLOGY

The New York State Department of Transportation has proposed a program to rehabilitate nine bridges on the Belt Parkway in southeastern Brooklyn, along the shoreline of Sheepshead and Jamaica Bays. Their locations are, proceeding from west to east: Ocean Parkway, Coney Island Avenue, Nostrand Avenue, Gerritsen Inlet, Flatbush Avenue, Mill Basin, Paerdegat Basin, Rockaway Parkway and Fresh Creek Basin. (See Figs. 1a-i, 2a and 2b.) The program involves the rehabilitation or the replacement-in-kind of each of the nine bridges. A tenth bridge, the East 8th Street Access Ramp, may also be rehabilitated. It is discussed in the Coney Island Avenue Bridge section of this report. Because of this joint discussion, throughout this report the total number of bridges cited is nine.

As many as four different reconstruction alternatives have been or are still being considered for each bridge, and each alternative varies in the area and depth of impact. In view of this, and so that this report covers all possible contingencies (a worst-case scenario for disturbance), the surface boundaries of the nine project sites have been defined by the parkway right-of-way and the proposed alternative which impacts the greatest area in each location. For a description of the areas of the nine project sites, see the individual bridge discussions (Section IV) and also Figures 1a-i.

Although the original construction of the Belt Parkway during the period from 1938 to 1940 may have severely disturbed buried prehistoric and historical cultural remains all along its route, deeply-buried cultural resources may have been preserved beneath modern landfill and construction, and may be endangered by the proposed rehabilitation program.

The purpose of this assessment report is to determine the presence, type, extent and significance of any cultural resources which may be present on the nine sites. It is based on archival research which documents the probability that the nine Belt Parkway bridge sites hosted any prehistoric or historical resources, and their likely survival of post-depositional disturbances, including Belt Parkway construction, which may have accompanied any subsequent development.

In addition, although the bridges have undergone some alteration since they were first constructed, some of these structures may be of historic significance. This report assesses the Gerritsen Inlet, Mill Basin, Paerdegat Basin and Fresh Creek Basin bridges, in order to understand their technology and design within the context of bridge construction and development in the 20th century. For a full discussion of this review, which also includes photographs of the four bridges, see Appendix B.

In order to address the above concerns, various sources of data were researched. Primary source material on the project sites was collected to determine the sites' original topography, and to compile a building history and disturbance record. Historical maps and descriptions of the study area were collected in the Local History and Map Divisions of the New York Public Library, the NYCDOT archives, and the Long Island Division of the Queens Borough Public Library. Plans and reports relating to the bridges' original construction were provided by HNTB/EBASCO.

To place the bridge sites within their prehistoric context, archaeological literature, available site reports and journal publications were researched for data specific to the project sites and their vicinity. These include the works of archaeologists Arthur C. Parker, Reginald P. Bolton and Ralph Solecki, as well as historians such as Grumet, Van Wyck and Thompson. William Ritchie's *The Archaeology of New York State* provided a valuable overview of Native American culture and lifeways during the prehistoric period. Inquiries on inventoried prehistoric and historical sites were sent to the New York State Museum and the Office of Parks, Recreation and Historic Preservation. Their responses are discussed within the report and can be found in Appendix A.

A site visit (9/16/96) and photographic record of current conditions was made. (See Photos 1-16.)

The Environmental Setting (Section II) and Prehistoric Era (III) are first discussed in general terms, and then specifically for each bridge site in Section IV. Historical context and potential for each bridge site is addressed within the Bridge Site Analysis section (Section IV).

II. ENVIRONMENTAL SETTING

Long Island is the top of a Coastal Plain ridge formation that is covered with glacial drift, in reality an elevated sea bottom demonstrating low topographic relief and extensive marshy tracts. In the last million years, as glaciers advanced and receded three times, the surficial geology of the island, including the study sites, was profoundly altered. "The glacier was an effective agent of erosion, altering the landscape wherever it passed. Tons of soil and stone were carried forward, carving and planing the land surface. At the margins of the ice sheet massive accumulations of glacial debris were deposited, forming a series of low hills or terminal moraines" (Eisenberg 1978:19). Circa 18,000 years ago, the last ice sheet reached its southern limit, creating the Harbor Hill moraine that traverses the length of Long Island. Before extensive alteration of the landscape during the nineteenth and twentieth centuries, a gently sloping plain extended south of the moraine to the ridge of sand hills forming the Queens mainland. Separating this ridge and the barrier beach known as the Rockaway Peninsula, was a wide expanse of tidal marsh drained by numerous small creeks and their tributaries which ran into Jamaica Bay.

The exposed continental shelf served as Long Island's Atlantic shoreline from c.12,000 to 10,000 years before present (B.P.), but was submerged as sea levels rose fairly rapidly until c.4,000 to 2,000 B.P., and continued to rise more slowly to the present. The gently sloping glacial outwash plains of Western Long Island led to the formation of the extensive salt marsh areas along Jamaica Bay. Such marshes are formed in areas with no strong currents and lying no more than one to two feet below low water. In such conditions, eel grass becomes established, trapping silt and building up a layer of dead grass and silt until the surface is slightly above high water (Pickman 1987:5).

An examination and comparison of historical maps show that prior to filling and development during the 19th and 20th centuries, vast marshes bordered Jamaica Bay in an almost unbroken stretch along southern Kings and Queens Counties, divided by creek channels and interrupted by the occasional area of high ground. The nine Belt Parkway bridge sites, which will later be discussed individually, were part of this environment. (See e.g., Figs. 4a-4c.)

III. PREHISTORIC ERA

The prehistoric era on the south shore of western Long Island is traditionally divided into time periods based on prehistoric man's adaptations to changing environmental conditions. These are generally known as the Paleo-Indian (c.12,000 to 9,500 B.P.), the Archaic (c.9,500 to 3,000 B.P.) and the Woodland (c.3,000 to 500 B.P.). In order to be able to assess the potential of the nine bridge sites for prehistoric exploitation, it is first necessary to review these time periods and their associated settlement patterns.

Paleo-Indian Period (c.12,000 B.P.-9,500 B.P.)

Toward the end of the Wisconsin Glaciation, during the Late Pleistocene Epoch, the first humans wandered across the exposed land bridge which connected Siberia and Alaska. These small groups of hunters were probably following the roaming herds of megafauna which were their chief prey. The most distinctive weapon in their chipped-stone tool kit was the fluted point, which has been found in association with mammoth, mastodon, bison and horse remains at various sites in the southwestern United States. Although none of these "kill sites" is located east of the Mississippi, the discovery of campsites such as that at Port Mobil, Staten Island, suggest a scattered, highly mobile population in bands of approximately 20 individuals, who ranged across a vast area necessary to support lifeways organized around the hunting of migratory game (Ritchie 1980:1-3, 13).

In the Northeast, the glacially-lowered sea level exposed the broad coastal plain of which Long Island was a part, and indicating that the project area would have been dry land during this period. "This large area apparently contained abundant big game resources and provided access along the entire length of the south shore to the area that is present day Long Island" (Saxon 1978:251).

The lanceolate points, two to five inches in length with a concave base and channeled or fluted faces, presumably to facilitate hafting, exhibit a considerable range in shape and size. They were usually made from a high-grade silicious stone, often exotic to the region in which they are recovered, a function of their makers' seasonal migrations. Other artifacts in the Paleo-Indian tool kit include scrapers, knives, borers and gravers, tools which indicate extensive handiwork in wood, bone and leather (Ritchie 1980:3,6).

From the locations of recorded sites in the Northeast, Paleo-Indians exhibited a marked preference for well-elevated situations. However, 30% of sites were found on or near the margins of swampy ground. Environmental characteristics which appear to have been attractive to Paleo-Indians include the proximity of major waterways, large fertile valleys and the coastal plain, where the densest population of desired food animals was supported (Ritchie 1980:7). However since 10,000 years ago, the rise in sea level estimated to be from 75 to 80 feet, has submerged large numbers of these sites.

The retreat of ice from Long Island approximately 18,000 B.P. and a global warming trend c.14,000 B.P., encouraged Paleo-Indian settlement in the Northeast. The post-glacial environment of spruce and pine underwent a gradual modification in favor of deciduous hardwoods such as oak and hickory, which have greater importance in terms of nutritional value to both animals and humans than do conifers. By 10,000 years ago, these deciduous species dominated forests along the eastern seaboard. In addition, the megafauna on which Paleo-Indian diet was based "were rapidly becoming extinct, and were being replaced by the temperate-climate fauna that are indigenous today" (Gwynne 1982:190-191).

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

The warming trend at the end of the last glaciation completely transformed the northeastern coastal environment from tundra and conifer-dominated forests, to the present deciduous woodlands with generally modern distributions of fauna. Due to the dwindling contribution of meltwater from disappearing glaciers, the reduced flow of streams and rivers promoted the formation of swamps and mudflats. These wetlands created a congenial environment for migratory waterfowl, and a host of edible plant species and shellfish. The new mixed hardwood forests of oak, hickory, chestnut, beech and elm attracted such mast-eating fauna as white-tailed deer, wild turkey, moose and beaver.

Although the Archaic diet was still based on hunting and gathering, due to the greater variety of plants available and exploited, excavated Archaic sites yield a wide array of plant processing tools, including grinding stones, mortars and pestles. The diagnostic tool was the grooved axe. In the coastal areas of New York, have been found numerous, small "nearly always multi-component sites variously situated on tidal inlets, coves and bays, particularly at the heads of the latter, and on fresh-water ponds on Long Island." By the Late Archaic, these areas provided shellfish, small game, fish, salt hay and tuberous grasses making larger more permanent settlements possible. Semi-nomadic life is still indicated, but wandering occurred within well-defined territorial limits, with seasonal movements between camps near exploitable resources. A dietary shift to shellfish in coastal New York near the end of the Archaic suggests a scarcity of large game, and a change from the early Archaic inland adaptation of forest hunting. Coastal sites show a principal reliance upon shellfish, especially oysters, hard and soft shell clams and bay scallops, which were easily gathered all around Long Island (Ritchie 1980:142-143).

In contrast to conditions during the Paleo-Indian, Early and Middle Archaic, "by Late Archaic times sea level was so close to present levels that its subsequent small rise has failed to obliterate much of what remains on Long Island from that period" (Gwynne 1982:192). Hence the Late Archaic Wading River complex, four sites on the north shore of Suffolk County, was found at the edge of a salt marsh, on dry ground ranging only two to seven feet above mean high water (Wyatt 1982:71).

The Transitional or Terminal Archaic (4,000 to 3,000 B.P.) is a pre-ceramic stage, highlighted by the production of ground and polished soapstone vessels. Characteristic of the Transitional Archaic were "fish-tailed" projectile points (Ritchie 1980:150, 166, 167, 171).

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

Pottery use became widespread following the introduction of soapstone vessels in the Transitional Archaic, and although copper tools were utilized during that period, the earliest copper ornaments, tubular beads, made their appearance during the Woodland. Stone or clay smoking pipes were also an Early Woodland innovation (Ritchie 1980:179-180)

Settlement patterns were substantially altered with the introduction of agriculture, the systematic cultivation of maize, beans and squash possibly beginning as early as 1000 A.D. During this time large villages within palisaded enclosures were developed and occupied by semi-sedentary inhabitants. Groups moved seasonally, depending on exploitable food resources, between villages and camps of varying population concentrations. Preferred village/camp sites were in protected, elevated locations at the confluence of two water systems. "Nearly all the permanent sites are situated on tidal streams and bays on the second rise of ground above water" (Smith 1950:101). Despite the advent of agriculture, shellfish and small game remained an important component of the Woodland diet. Shellfish refuse heaps, termed "middens," reached immense proportions, covering from one to over three acres. Deer, turkey, raccoon, muskrat, ducks and other game were stalked with bow and arrows, replacing the spear and javelin, while dug-out boats, bone hooks, harpoons and nets with pebble sinkers were employed in fishing (Ritchie 1980:180,267).

Contact Period (c.500 B.P.-300 B.P.)

At the time of the first European contact with Native Americans, Kings County, at the western end of Long Island, is generally believed to have been inhabited by Munsee-speaking Canarsee Indians, or subgroups of the Canarsee, members of the Delawaran or Lenape culture group. Although Canarsee is the traditional identification, it is probable that group affiliation was somewhat less monolithic, both geographically and temporally. Historical documents give only three direct references to the Canarsee, and these are restricted to the vicinity of the present Canarsie section of southeastern Kings County, and then only during the mid-17th century (Grumet 1981:6).

Nevertheless, historical narratives written by European travelers and settlers provide eyewitness descriptions of Indian customs and lifeways during the 17th century. Johannes de Laet, in his *New World, or Description of West India*, published in Holland in 1625 observed:

> They were clothed in the skins of elk, foxes and other animals. Their canoes were made out of the bodies of trees; their arms were bows and arrows, and the arrows had sharp points of stone fastened to them with hard pitch (Thompson 1918:93-94).

> Some lead a wandering life, others live in bark houses, their furniture mainly mats and wooden dishes, stone hatchets, and stone pipes for smoking tobacco (Bolton 1972:16).

Native American settlement patterns at the time of contact incorporated seasonal hunting and gathering. Semi-permanent villages or hamlets, containing oval and round mat-covered structures, were established near planting fields. Large subsurface pits were dug nearby to store dried meat, fish and corn, and were eventually filled with trash. Although fields were commonly burned at the end of the planting season to encourage floral and faunal repopulation, settlements centered on agricultural land were generally moved every ten to twenty years as soil fertility, firewood supplies and game resources were depleted (Salwen 1975:57).

Contact with Europeans had far-reaching effects on Native American cultures. European goods such as metal and glass began to replace traditional materials, while warfare and European-introduced diseases against which the Indians had no protection decimated the population in the New York City area. This caused many groups to merge and remerge in complex ways in order to maintain viable communities. In 1670, Daniel Denton observed that the six towns on western Long Island had been reduced to two small villages (Thompson 1918:103). When the Canarsee are last mentioned in 1684 they were joined with the Rockaway and Massapequa groups. Although the Massapequa eventually moved farther east on Long Island, many Canarsee lingered on at the fringes of European settlements until well into the 19th century (Grumet 1981:6-7).

Nineteenth- and 20th-century research, survey and excavation have revealed a strong Native American presence in the Borough of Brooklyn. Archeologist Arthur C. Parker noted that "without a doubt . . . it was occupied in nearly every part, and was once an important place of Indian travel and traffic" (Parker 1920:582). The southeastern section of the Borough of Brooklyn, the vicinity of the project site bridges, is particularly rich in known archaeological sites, and numerous historical documents refer to Native American settlements and toponyms, or place names. Very likely this is attributable to the excellent natural resources which the creeks and marshes of the study area presented to prehistoric man, and the relatively late and sparse commercial and residential development which these areas have undergone.

IV. BRIDGE SITE ANALYSIS

1. Belt Parkway over Ocean Parkway

The Belt Parkway Bridge over Ocean Parkway site runs 1,500 feet approximately east/west along the Belt Parkway, divided equally at the centerline of Ocean Parkway, therefore extending 750 feet both to the east and west. The Belt Parkway right-of-way, extending roughly north and south of the centerline of the Belt Parkway is 560 at the center of the traffic cloverleaf, narrowing to 280 feet outside the cloverleaf at the eastern and western edges of the site. (See Fig. 1a.)

Topography and Environment

The bridge site appears as marsh as late as 1873, with the nearest elevated land approximately 600 feet to the north. (See Figs. 4a, 5a and 6a.) Coney Island Creek snakes through the marsh through the southeastern quarter of the site. Ocean Parkway was built by 1897, and that year's topographic map shows no marsh - elevations lie between 0 and 20 feet above mean sea level. No structures appear on the project site prior to the construction of the Belt Parkway bridge. (See Figs. 7 and 9a.) On the current U.S.G.S. topographic map, the 10- and 15-foot contour lines surround each bridge abutment, indicating that the abutment locations have elevations between 15 and less than 20 feet, while the adjacent, surrounding parts of the project site and the Ocean Parkway surface between the abutments exhibits elevations between 5 and 10 feet. (See Fig. 2a.)

Evidence of Prehistoric Occupation

The Belt Parkway Bridge over Ocean Parkway occupies an area north of Coney Island and Sheepshead Bay, which prior to 19th and 20th century development was a neck of land separated from the rest of the study area by Gerritsen and Shellbank Creeks. Present Gravesend Neck Road, approximately 3,800 feet north of the bridge, follows an old Indian trail, and Grumet maps three undescribed "habitation sites" in the area between this trail and the Belt Parkway (Grumet 1981:70). (See Fig. 3.)

Although archaeologist Reginald P. Bolton labels the area which includes the project site Narioch ("a point of land"), this appears to be in dispute, since other authorities identify Narioch/Nariockh with Coney Island, which was also called Mannahanung.(Grumet 1981:26,37; Bolton 1922:163, Map VIII, D #69).

The New York State Museum (NYSM) has identified a number of inventoried pre- and proto-historic sites in the vicinity of this part of the project site. Given the disagreement and incomplete locational descriptions provided by various authorities, it is probable that some

of the separate inventory numbers refer to a single site. For maps showing locations provided by the NYSM and the Office of Parks, Recreation and Historic Preservation (OPRHP), see Appendix A.

NYSM-7878 (ACP Kings no#), described as burials, is generally located by the NYSM in a large area which includes part of the Belt Parkway at Coney Island Avenue, approximately 800 feet east of the Ocean Parkway. A second site, NYSM-7877 (ACP Kings no#), is centered on the Belt Parkway's Nostrand Avenue Bridge (about 7,500 feet east), and is reported as shell middens. These two locations correspond to burial and shell heap sites generally mapped, but unfortunately not further described by archaeologist Parker (Parker 1920:583,pl.179).

The NYSM also identifies NYSM-3608 (ACP Kings 4) centered on Avenue U, which places it approximately 10,000 feet northeast of the Ocean Parkway bridge. The site is described as dating to the Transitional (4,000-3,000 B.P.) and Woodland (3,000-500 B.P.) periods. Parker basically repeats an earlier description of the site, of a burial place in South Brooklyn found in 1897 "on Avenue U, and near Ryder's pond and Sheepshead Bay. 'Deep beds of oyster shells had the outer side of the shells uppermost. Pottery was found and over a dozen skeletons. There were a few other shells and fragments of bone'" (Parker 1920:582,583; Beauchamp 1978:80).

This Avenue U location and Parker's site description approximate the state museum's designation, NYSM-7459, a fourth inventoried site at the head of present Gerritsen Creek (Strome Kill, Gerritsen Mill Pond, Ryder Pond), approximately 10,000 feet northeast of the Ocean Parkway bridge. Considered the site of a Canarsee village, which Bolton identified with the toponym Shanscomacocke and placed in what is now Marine Park, basically east of Stuart Street, between Avenues S and U. Stone drills, celts, mortars, an arrowhead, whetstones, spears and flakes, as well as potsherds, shellheaps, animal and fish bones and a human skeleton were recovered there (Bolton 1922:152,157). Local Historian Frederick Van Wyck described the same site as having "many traces of the Indians besides the shell-banks" and "quantities of arrowheads" mainly on the western side of Gerritsen Creek, but that human bones "covered with quantities of large unopened oyster shells" were unearthed on the eastern side during the grading of Avenue U, c.1900 (Van Wyck 1924:649).

Prehistoric Potential

As outlined in the general Prehistoric Era discussion (Section III), our knowledge of prehistoric and contact period settlement patterns indicates a marked preference for sheltered, elevated sites close to wetland features and sources of fresh water. Such locations are likely to have been exploited by prehistoric Americans for their processing sites, camps and more permanent settlements. Evidence of Indian exploitation of natural resources in, and occupation of the vicinity of the project site is well-documented through archaeological and historical research. The earliest evidence of prehistoric occupation

comes from the inventoried site at the head of Gerritsen Basin (Ryders Pond - NYSM-3608, NYSM-7459) where artifacts dating to the Transitional Archaic period (4,000 to 3,000 B.P.) have been recovered.

Although these well-drained, elevated sites were preferred by the Indians for their activity and habitation sites, pre-historic land use, and therefore prehistoric archaeological potential is not confined to such areas. Often, low-lying and marshy areas adjacent to these dry, elevated habitation sites were utilized as garbage dumps. Such behavior has been documented archaeologically, as at Aqueduct in southwestern Queens, where soil borings identified shell middens beneath layers of fill, but in some cases atop layers of peat (Pickman 1987:4).

In addition, as described in the prehistoric overview, the environment of the project area has not been static since the final retreat of the glacial ice, c.18,000 B.P. One of the consequences of the post-glacial warming trend (c.14,000 B.P.) has been a continuous, increase in sea level, estimated at from 75 to 80 feet. Although not occurring at a uniform rate, this sea level rise gradually inundated the continental shelf, which was exposed during the Paleo-Indian period, and also the gently-sloping glacial outwash plain, creating the shallowly inundated areas which are conducive to the establishment of eel grass and therefore the creation of tidal marsh environments, adjacent to areas of not-yet-inundated dry land. With subsequent sea level rise, which slowed by about 4,000 to 2,000 B.P. and has slowed even more to the present, prehistoric and even historical archaeological sites in these areas may lie beneath the current water table, as well as historical fill and a number of feet of accumulated marsh mat. This has been substantiated at a number of locations in coastal New York and Connecticut where submerged prehistoric sites have been discovered during dredging activities, beneath, or in association with, the peat deposits produced by tidal marshes (Pickman 1987:6).

As Gimigliano (1983)[1] noted, the elevated islands and marshy flats within and adjacent to Jamaica Bay, would have been ideal for prehistoric exploitation prior to sea level rise. However, the archaeological survey of the area has been prevented due to the rise in sea level, and the massive landfill operations that have occurred there. The shores of the drowned creek/estuary crossings were considered particularly sensitive, given prehistoric man's preference for sites adjacent to watercourses (Gimigliano 1983:6-8).

Archaeologist Arnold Pickman, also concluded that there was a strong potential for submerged sites in an archaeological assessment of a study parcel at Mill Basin (an area of former salt marsh approximately 3.2 miles northeast of the Ocean Parkway bridge) (Pickman 1987:5,6). Both Gimigliano and Pickman recommended a series of borings in potentially sensitive locations to determine thickness of peat and fill layers, and the

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[1] The Gimigliano study parcel includes the sites of the six easternmost Belt Parkway Bridges (Gerritsen, Flatbush Avenue, Mill Basin, Paerdegat Basin, Rockaway Parkway and Fresh Creek Basin). See also Rutsch and Church (1983).

elevation of the basal peat and organic silt deposits, i.e., the approximate elevation of the ground surface/sea level at the time of inundation. Gimigliano hoped to identify archaeological material, such as shell midden deposits, in the pre-inundation layers (Gimigliano 1983:6-8; See also Rutsch and Church 1983) while Pickman went further to suggest that data on the pre-marsh sea level elevation could be used to extrapolate an inundation date, based on similar Carbon-14-dated boring samples (Pickman 1987:6).

Historical and cartographic research indicates that the Ocean Parkway bridge site, in its pre-development condition, was a low-lying marsh. In light of the preceding discussion, due to changing sea level, and the documented presence in the project area vicinity of prehistoric man by the time of the Transitional Archaic and through the historical period, it is theoretically possible that the location was occupied at some time during the prehistoric era.

The Ocean Parkway bridge site is rated as having a *low prehistoric potential.* Given the subsequent rise in sea level, the site would have been subject to impact from post-depositional tidal action. On the other hand, because any prehistoric cultural remains would be below the current water table, as well as deeply buried beneath fill and layers of marsh mat, the sites would be well-protected from historical construction disturbance, but the most problematic to identify and recover archaeologically.

Disturbance impact on this prehistoric potential, and the surviving potential archaeological sensitivity will be discussed in the conclusions section of this chapter.

Historical Period

Southeastern Kings County, was originally divided among several towns, whose jurisdictions extended into the meadowlands bordering Jamaica Bay. Gravesend was settled in 1643 by a group of New Englanders under the leadership of Lady Deborah Moody. They received a land grant and a town charter from Governor Willem Kieft, who named the settlement after the town of Gravesande in Holland. Gravesend included all of Coney Island and extended as far east as Gerritsen Creek, and included the site of the Ocean Parkway bridge. (See Fig. 4a.)

Modern, urban eyes might consider worthless the marshlands which once existed on the bridge site, and in the project area vicinity. However, during the 17th and 18th centuries, this meadowland was considered very valuable. The harvested salt grasses were an important source of much-needed feed for domestic animals. The numerous small creeks which drained into Jamaica Bay were important for fishing, transportation, and the locations of tidal grist mills. As visitors to the neighboring town of Flatlands commented in 1679:

> There is toward the sea, a large piece of low flat land which is overflown at every tide, like the schorr [marsh] with us, miry and muddy at the bottom, and which

> produces a species of hard salt grass or reed grass. Such a place they call valey and mow it for hay, which cattle[2] would rather eat than fresh hay or grass. It is so hard they cannot mow it with a common scythe, like ours, but must have the English scythe for the purpose.
>
> All the land from the bay to 't Vlacke Bos [Flatbush] is low and level, without the least elevation.
>
> There is also a tract which is somewhat large, of a kind of heath, on which sheep could graze . . . This meadow, like all the others, is well provided with good creeks which are navigable and very serviceable for fisheries. (Van Wyck 1924:183; Dankaerts and Sluyter 1966:131).

Portions of the meadows must have been extremely muddy, since the list of officials appointed at Gravesend's founding included men to extricate trapped cattle from the marshes. On the other hand, exploiting the natural resources like their Native American predecessors, European settlers occupied and built structures on the few existing dry, elevated areas at or near the bay shores. One of these elevated locations was on the north side of Sheepshead Bay, centered on present Ocean Avenue, about 6,000 feet east of the Ocean Parkway bridge site. (See Figs. 4a and 5a.) It is worth noting that this is the approximate location of prehistoric sites 7877 and 7878 described above. (See also Appendix A.)

Although the OPRHP records a number of early historical structures in Brooklyn along the Belt Parkway to the northeast, none is closer than 4 miles to the Ocean Parkway bridge site. (See Appendix A.)

During the 19th century, nearby Coney Island was developed as a recreational center for wealthy and upper middle class vacationers. Although the first hotel, the Coney Island House, was opened in 1829, and several others followed, Coney Island's importance as a resort is said to date from 1844, with the establishment of Messrs. Eddy and Hart's Pavilion and bathhouses at Norton's Point, the far eastern end of the island. White paddle boats from Manhattan brought picnickers to the resort, and elegant hotels and restaurants were erected along the shore and patronized by New York's wealthy (WPA 1982:472; Stillwell 1884:194). These developments caused roads and later railroads to be built connecting the resorts with the rest of the county and beyond. An early causeway was superseded by the Coney Island Plank Road, now Coney Island Avenue (1,000 feet east), built in 1849, which became the main thoroughfare to Coney Island, later widened to 100 feet (Stockman 1884:171). (See Fig. 5a.) Ocean Parkway was a much newer route to Coney Island, completed by 1897. (See Fig. 7.)

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[2] "Cattle" refers to livestock, rather than simply bovines.

With the creation of Greater New York in 1898, Jamaica Bay was seen more and more as a wasteland, ripe for development. In 1905 the City Comptroller released a report calling for the filling of most of the marsh and bay, leaving channels between islands for shipping lanes. The lowlands were to be filled by city ash and refuse, and extensive bulkheads and numerous wharves built. However, due to the grandiose nature of the plan, scandal and the Great Depression, only parts of this plan were ever implemented, such as the construction of Mill Basin, Paerdegat Basin, the creation of Floyd Bennett Field, the construction of Cross Bay Boulevard in 1923, and Canarsie Pier in 1925 (Hazen and Sawyer 1991:21-22).

Parks Commissioner Robert Moses managed to overturn the industrialization plan, and pushed through rezoning that limited industry to the northern sections of the bay, and promoted recreational and residential development. Under plans unveiled by Moses in 1930, the Shore Parkway, now known as the Belt Parkway, was constructed from 1938 (first contract signing) to 1940 (official opening). The bridges were designed by Madigan Hyland Consulting Engineers, with contract drawings dating from 1939 and 1940. The parkway was not intended to be the present heavily-traveled commuter artery, but a scenic drive along the shore and through the marshlands. Along with landscaping and numerous parks constructed along its length, the parkway construction, involving the placement of 11.8 million cubic yards of hydraulic fill, and 4.8 cubic yards of dry fill, brought the project area to approximately its present appearance (Ibid.:22; Caro 1975:341).

Historical Potential

No buildings or structures have been recorded on the Ocean Parkway bridge site prior to the construction of the Belt Parkway. There is no record of any historical occupation there. This site has *no historical archaeological potential.*

Conclusions

Historical Sensitivity

The Ocean Parkway bridge site has no historical archaeological potential, and is therefore *not sensitive* for buried cultural deposits from the historical period. No further study or other action is warranted.

Disturbance and Prehistoric Sensitivity

In order to determine archaeological sensitivity, the post-depositional changes to the topography, i.e. the amount of filling, and the depth of subsurface disturbance due to grading and modern construction must be first determined. For such a task, an accurate

profile/elevation of the existing bridge is necessary. Potential prehistoric cultural resources may be deeply buried, below or in marsh layers of unknown depth. They may be so deeply buried that they are not affected by bridge reconstruction.

Part of the tidal marshland in the 19th century, the Ocean Parkway bridge site presently has elevations ranging from 10 to less than 20 feet at each abutment, dropping to between 5 and 10 feet at the edges of the project site, as well as in the Ocean Parkway roadbed, indicating the presence of a fill overburden ranging from at least 5 to as much as 20 feet thick. In the absence of any data documenting construction disturbance impacting potentially sensitive stratigraphic deposits beneath this fill overburden, the Ocean Parkway bridge site must be considered *sensitive* for buried prehistoric cultural remains.

Recommendations

When the program of soil borings, necessary before bridge rehabilitation can proceed, takes place, this program should be designed with input from a qualified archaeologist, so that pertinent cultural and environmental data is recorded. It is recommended that the borings and subsequent analysis be part of a second phase of study, focusing specifically on potential prehistoric resources. The number of soil borings should be sufficient to cover the area of the project site, and of sufficient depth to determine whether there is evidence of the presence of strata that could have supported prehistoric occupation. Such evidence includes the presence/absence of a thick peat lens, a shell midden or other prehistoric cultural remains. This subsurface data will eliminate, narrow, or more clearly define any areas of archaeological sensitivity.

After the soil boring logs are analyzed by an archaeologist, if no evidence of potentially sensitive strata is found, then no further archaeological research or testing is recommended.

If the project site's prehistoric archaeological potential is corroborated by the soil borings data, then a subsequent phase of study may be required.

2. Coney Island Avenue over Belt Parkway

The Coney Island Avenue bridge site runs 590 feet roughly north/south, the distance divided into equal sections of 295 feet at the centerline of the Belt Parkway. The site also extends 310 feet roughly east/west, 155 feet on each side of the centerline of the Coney Island Avenue Bridge. (See Fig. 1b.)

In addition to the bridge proper, the East 8th Street access ramp between Coney Island Avenue and the westbound Belt Parkway will also be reconstructed. The access ramp extends approximately 500 feet west of the Coney Island Avenue Bridge centerline, and roughly 100 feet north and 200 feet south of the Belt Parkway centerline. Its location can also be seen on Figure 1b.

In the following pages, references to the Coney Island Avenue Bridge site include the access ramp location.

Topography and Environment

The bridge site appears to be within marsh in 1844, approximately 500 feet south of the nearest dry, elevated land. (See Fig. 4a.) By 1859, with the appearance of Coney Island Road (later Avenue), the study site seems to be north of the swamp in an elevated location, suggesting an early filling episode connected to the road construction. (See Fig. 5a.) The 1912 atlas records elevations of 3.2 and 3.5 feet for the bridge site, and with Coney Island Creek approximately 600 feet to the south, this elevation most likely declined as the creek was approached. No standing buildings are recorded on this site prior to Belt Parkway construction. (See Fig. 5b.)

According to the current U.S.G.S. topographic map and a recent survey (NYCDOT 1997:Drawing B), present elevations at the bridge abutments (northern and southern ends of the site) and the access ramp abutments range from 8 to 25 feet, while the remaining parts of the project site, including the Belt Parkway roadbed, show elevations between 5 and 10 feet. (See Fig. 2a.)

Evidence of Prehistoric Occupation

The Coney Island Avenue bridge site stands in an area north of Coney Island and Sheepshead Bay, which prior to 19th and 20th century development was a neck of land separated from the rest of the study area by Gerritsen and Shellbank Creeks. Present Gravesend Neck Road, approximately 3,500 feet north of the bridge site, follows an old Indian trail, and Grumet maps three undescribed "habitation sites" in the area between this trail and the Belt Parkway (Grumet 1981:70). (See Fig. 3.)

Although archaeologist Reginald P. Bolton labels the area around the project site Narioch ("a point of land"), this appears to be in dispute, since other authorities identify Narioch/Nariockh with Coney Island, which was also called Mannahanung.(Grumet 1981:26,37; Bolton 1922:163, Map VIII, D #69).

The New York State Museum (NYSM) has identified a number of inventoried pre- and proto-historic sites in the vicinity of this part of the project site. Given the disagreement and incomplete locational descriptions provided by various authorities, it is probable that some of the separate inventory numbers refer to a single site. For maps showing locations provided by the NYSM and the Office of Parks, Recreation and Historic Preservation (OPRHP), see Appendix A.

NYSM-7878 (ACP Kings no#), described as burials, is generally located by the NYSM in a large area which includes the Coney Island Avenue Bridge. A second site, NYSM-7877 (ACP Kings no#), is centered on the Belt Parkway at the Nostrand Avenue Bridge (about 6,000 feet east) and is reported as shell middens. These two locations correspond to burial and shell heap sites generally mapped, but unfortunately not further described by archaeologist Parker (Parker 1920:583,pl.179).

The NYSM also identifies NYSM-3608 (ACP Kings 4) centered on Avenue U, which places it approximately 8,000 feet northeast of the Coney Island Avenue bridge site. The site is described as dating to the Transitional (4,000-3,000 B.P.) and Woodland (3,000-500 B.P.) periods. Parker basically repeats an earlier description of the site, of a burial place in South Brooklyn found in 1897 "on Avenue U, and near Ryder's pond and Sheepshead Bay. 'Deep beds of oyster shells had the outer side of the shells uppermost. Pottery was found and over a dozen skeletons. There were a few other shells and fragments of bone'" (Parker 1920:582,583; Beauchamp 1978:80).

This Avenue U location and Parker's site description approximate the state museum's designation, NYSM-7459, a fourth inventoried site at the head of present Gerritsen Creek (Strome Kill, Gerritsen Mill Pond, Ryder Pond), approximately 8,000 feet northeast of the project site. Considered the location of a Canarsee village, which Bolton identified with the toponym Shanscomacocke and placed in what is now Marine Park, basically east of Stuart Street, between Avenues S and U. Stone drills, celts, mortars, an arrowhead, whetstones, spears and flakes, as well as potsherds, shellheaps, animal and fish bones and a human skeleton were recovered there (Bolton 1922:152,157). Local Historian Frederick Van Wyck described the same site as having "many traces of the Indians besides the shell-banks" and "quantities of arrowheads" mainly on the western side of Gerritsen Creek, but that human bones "covered with quantities of large unopened oyster shells" were unearthed on the eastern side during the grading of Avenue U, c.1900 (Van Wyck 1924:649).

Prehistoric Potential

As outlined in the Prehistoric Era discussion (Section III), our knowledge of prehistoric and contact period settlement patterns indicates a marked preference for sheltered, elevated sites close to wetland features and sources of fresh water. Such locations are likely to have been exploited by prehistoric Americans for their processing sites, camps and more permanent settlements. Evidence of Indian exploitation of natural resources in, and occupation of the vicinity of the project site is well-documented through archaeological and historical research. The earliest evidence of prehistoric occupation comes from the inventoried site at the head of Gerritsen Basin (Ryders Pond - NYSM-3608, NYSM-7459) where artifacts dating to the Transitional Archaic period (4,000 to 3,000 B.P.) have been recovered.

Although these well-drained, elevated sites were preferred by the Indians for their activity and habitation sites, pre-historic land use, and therefore prehistoric archaeological potential is not confined to such areas. Often, low-lying and marshy areas adjacent to these dry, elevated habitation sites were utilized as garbage dumps. Such behavior has been documented archaeologically, as at Aqueduct in southwestern Queens, where soil borings identified shell middens beneath layers of fill, but in some cases atop layers of peat (Pickman 1987:4).

In addition, as described in the prehistoric overview, the environment of the project area has not been static since the final retreat of the glacial ice, c.18,000 B.P. One of the consequences of the post-glacial warming trend (c.14,000 B.P.) has been a continuous, increase in sea level, estimated at from 75 to 80 feet. Although not occurring at a uniform rate, this sea level rise gradually inundated the continental shelf, which was exposed during the Paleo-Indian period, and also the gently-sloping glacial outwash plain, creating the shallowly inundated areas which are conducive to the establishment of eel grass and therefore the creation of tidal marsh environments, adjacent to areas of not-yet-inundated dry land. With subsequent sea level rise, which slowed by about 4,000 to 2,000 B.P. and has slowed even more to the present, prehistoric and even historical archaeological sites in these areas may lie beneath the current water table, as well as historical fill and a number of feet of accumulated marsh mat. This has been substantiated at a number of locations in coastal New York and Connecticut where submerged prehistoric sites have been discovered during dredging activities, beneath, or in association with, the peat deposits produced by tidal marshes (Pickman 1987:6).

As Gimigliano (1983)[3] noted, the elevated islands and marshy flats within Jamaica Bay, and the Belt Parkway Bridge project site itself, would have been ideal for prehistoric exploitation prior to sea level rise. However, the archaeological survey of the area has been

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[3] The Gimigliano study parcel includes the sites of the six easternmost Belt Parkway Bridges (Gerritsen, Flatbush Avenue, Mill Basin, Paerdegat Basin, Rockaway Parkway and Fresh Creek Basin). See also Rutsch and Church (1983).

prevented due to the rise in sea level, and the massive landfill operations that have occurred there. The shores of the drowned creek/estuary crossings (i.e. the Gerritsen Inlet, Mill Basin Paerdegat and Fresh Creek bridge locations) were considered particularly sensitive, given prehistoric man's preference for sites adjacent to watercourses (Gimigliano 1983:6-8).

Archaeologist Arnold Pickman, also concluded that there was a strong potential for submerged sites in an archaeological assessment of a study parcel at Mill Basin (an area of former salt marsh approximately 3 miles northeast of the Coney Island Avenue bridge site) (Pickman 1987:5,6). Both Gimigliano and Pickman recommended a series of borings in potentially sensitive locations to determine thickness of peat and fill layers, and the elevation of the basal peat and organic silt deposits, i.e., the approximate elevation of the ground surface/sea level at the time of inundation. Gimigliano hoped to identify archaeological material, such as shell midden deposits, in the pre-inundation layers (Gimigliano 1983:6-8; See also Rutsch and Church 1983) while Pickman went further to suggest that data on the pre-marsh sea level elevation could be used to extrapolate an inundation date, based on similar Carbon-14-dated boring samples (Pickman 1987:6).

Historical and cartographic research indicates that the Coney Island Avenue bridge site, in its pre-development condition, was low-lying marsh. In light of the preceding discussion, due to changing sea level, and the documented presence in the project area vicinity of prehistoric man by the time of the Transitional Archaic and through the historical period, it is theoretically possible that the location was occupied at some time during the prehistoric era.

The Coney Island Avenue bridge site is rated as having a *low prehistoric potential*. Given the subsequent rise in sea level, the site would have been subject to impact from post-depositional tidal action. On the other hand, because any prehistoric cultural remains would be below the current water table, as well as deeply buried beneath fill and layers of marsh mat, the sites would be well-protected from historical construction disturbance, but the most problematic to identify and recover archaeologically.

Disturbance impact on this prehistoric potential, and the surviving potential archaeological sensitivity will be discussed in the conclusions section of this chapter.

Historical Period

Southeastern Kings County, was originally divided among several towns, whose jurisdictions extended into the meadowlands bordering Jamaica Bay. Gravesend was settled in 1643 by a group of New Englanders under the leadership of Lady Deborah Moody. They received a land grant and a town charter from Governor Willem Kieft, who named the settlement after the town of 's-Gravesande in Holland. Gravesend included all

of Coney Island and extended as far east as Gerritsen Creek, and included the Coney Island Avenue bridge site. (See Fig. 4a.)

Modern, urban eyes might consider worthless the marshlands which once existed on the bridge site, and in the project area vicinity. However, during the 17th and 18th centuries, this meadowland was considered very valuable. The harvested salt grasses were an important source of much-needed feed for domestic animals. The numerous small creeks which drained into Jamaica Bay were important for fishing, transportation, and the locations of tidal grist mills. As visitors to the neighboring town of Flatlands commented in 1679:

> There is toward the sea, a large piece of iow flat land which is overflown at every tide, like the schorr [marsh] with us, miry and muddy at the bottom, and which produces a species of hard salt grass or reed grass. Such a place they call valey *[sic] and mow it for hay*, which cattle[4] would rather eat than fresh hay or grass. It is so hard they cannot mow it with a common scythe, like ours, but must have the English scythe for the purpose.
>
> All the land from the bay to 't Vlacke Bos [Flatbush] is low and level, without the least elevation.
>
> There is also a tract which is somewhat large, of a kind of heath, on which sheep could graze . . . This meadow, like all the others, is well provided with good creeks which are navigable and very serviceable for fisheries (Van Wyck 1924:183; Dankaerts and Sluyter 1966:131).

Portions of the meadows must have been extremely muddy, since the list of officials appointed at Gravesend's founding included men to extricate trapped cattle from the marshes. On the other hand, exploiting the natural resources like their Native American predecessors, European settlers occupied and built structures on the few existing dry, elevated areas at or near the bay shores. One of these elevated locations was on the north side of Sheepshead Bay, centered on present Ocean Avenue, about 3,000 feet east of the Coney Island Avenue bridge site. (See Figs. 4a and 5a.) It is worth noting that this is the approximate location of prehistoric sites 7877 and 7878 described above. (See also Appendix A.)

Although the OPRHP records a number of early historical structures in Brooklyn along the Belt Parkway to the northeast, none is closer than 3.6 miles to the Coney Island Avenue bridge site. (See Appendix A.)

During the 19th century, nearby Coney Island was developed as a recreational center for wealthy and upper middle class vacationers. Although the first hotel, the Coney Island House, was opened in 1829, and several others followed, Coney Island's importance as

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[4] "Cattle" refers to livestock, rather than simply bovines.

a resort is said to date from 1844, with the establishment of Messrs. Eddy and Hart's Pavilion and bathhouses at Norton's Point, the far eastern end of the island. White paddle boats from Manhattan brought picnickers to the resort, and elegant hotels and restaurants were erected along the shore and patronized by New York's wealthy (WPA 1982:472; Stillwell 1884:194). These developments caused roads and later railroads to be built connecting the resorts with the rest of the county and beyond. An early causeway was superseded by the Coney Island Plank Road, now Coney Island Avenue (1,000 feet east), built in 1849, which became the main thoroughfare to Coney Island, later widened to 100 feet (Stockman 1884:171). (See Fig. 5a.) Ocean Parkway was a second, much newer route to Coney Island, completed by 1897. (See Fig. 7.)

With the creation of Greater New York in 1898, Jamaica Bay was seen more and more as a wasteland, ripe for development. In 1905 the City Comptroller released a report calling for the filling of most of the marsh and bay, leaving channels between islands for shipping lanes. The lowlands were to be filled by city ash and refuse, and extensive bulkheads and numerous wharves built. However, due to the grandiose nature of the plan, scandal and the Great Depression, only parts of this plan were ever implemented, such as the construction of Mill Basin, Paerdegat Basin, the creation of Floyd Bennett Field, the construction of Cross Bay Boulevard in 1923, and Canarsie Pier in 1925 (Hazen and Sawyer 1991:21-22).

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Historical Potential

No buildings or structures have been recorded on the Coney Island Avenue bridge site prior to the construction of the Belt Parkway. There is no record of any historical occupation there. This site has *no historical archaeological potential.*

Conclusions

Historical Sensitivity

The Coney Island Avenue bridge site has no historical archaeological potential, and is therefore *not sensitive* for buried cultural deposits from the historical period. No further study or other action is warranted.

Disturbance and Prehistoric Sensitivity

In order to determine archaeological sensitivity, the post-depositional changes to the topography, i.e., the amount of filling, and the depth of subsurface disturbance due to grading and modern construction must be first determined. For such a task, an accurate profile/elevation of the existing bridge is necessary. Potential prehistoric cultural resources may be deeply buried, below or in marsh layers of unknown depth. They may be so deeply buried that they are not affected by bridge reconstruction.

Part of the tidal marshland in the 19th century, an early filling episode raised the elevation of the bridge site to approximately 3.2 to 3.5 feet above mean sea level by 1912. (See Fig. 9b.) At present, the elevations of the project site, including the roadbed are greater than 5 feet and as high as 25 feet, indicating at least 5 feet of fill in all areas. (See Fig. 2a.) In the absence of any data documenting construction disturbance impacting potentially sensitive stratigraphic deposits beneath this fill overburden, the Coney Island Avenue bridge site must be considered *sensitive* for buried prehistoric cultural remains.

Recommendations

The *majority* of the reconstruction activity at the Coney Island Avenue Bridge site, as currently planned, will involve only superstructure replacement, and should cause no subsurface disturbance. In the areas in which this is the case, no further archaeological action is necessary.

If additional substructural work, or regrading, is contemplated, but will not penetrate below the approximately 5-foot-thick fill overmantle which is believed to overlay the project site's pre-development surface, and therefore will not disturb potential prehistoric archaeological resources, then no further archaeological action is necessary. If subsurface work is planned which will penetrate this fill overmantle, then further action is required, along the lines described in the succeeding paragraphs.

In one small area of this site, at the East 8th Street Access Ramp, reconstruction will involve the installation of two new, reinforced pier columns between each of the two existing columns of Piers 1 and 2. Since the existing piers are approximately 25 feet apart

(NYCDOT 1996:7,Dwg. Nos. 7 and 12, Photo 5), there is the possibility that deeply-buried, potential prehistoric resources have survived undisturbed between the current piers and these potential resources may be impacted by the new pier installation, which will require the construction of new individual footings and piles.

Therefore, further action is necessary. When the program of soil borings, necessary before bridge rehabilitation can proceed, takes place, the program should be designed with input from a qualified archaeologist, so that pertinent cultural and environmental data is recorded in these areas of the East 8th Street Access Ramp. It is recommended that the borings and subsequent analysis be part of a second phase of study, focusing specifically on potential prehistoric resources. The number of soil borings should be sufficient to cover the area of the project site, and of sufficient depth to determine whether there is evidence of the presence of strata that could have supported prehistoric occupation. Such evidence includes the presence/absence of a thick peat lens, a shell midden or other prehistoric cultural remains. This subsurface data will eliminate, narrow, or more clearly define any areas of archaeological sensitivity.

After the soil boring logs are analyzed by an archaeologist, if no evidence of potentially sensitive strata is found, then no further archaeological research or testing is recommended.

If the project site's prehistoric archaeological potential is corroborated by the soil borings data, then a subsequent phase of study may be required.

3. Belt Parkway over Nostrand Avenue

The Nostrand Avenue bridge site extends 600 feet roughly east/west along the Belt Parkway, 300 feet on each side of the centerline of Nostrand Avenue. The north/south boundaries extend 130 feet on each side of the centerline of the Belt Parkway, for a total north/south width of 260 feet. (See Fig. 1c.)

Topography and Environment

The Nostrand Avenue bridge site is difficult to locate on early maps, but appears to be on dry ground at the edge of the tidal marsh area in 1859 (see Fig. 5a), but both the 1844 and 1873 maps show the location as an elevated neck of land reaching to the Sheepshead Bay shore between two marshy areas. (See Figs. 4a and 6a.) The more detailed 1912 atlas indicates an elevation between 3.5 feet above sea level sloping very gradually southward to 3 feet (Fig. 9c). On Block 7503 Lot 4, a 2-story frame dwelling lies in the path of the Belt Parkway, on the east side of Nostrand Avenue approximately 600 feet north of Emmons Avenue, and about 575 feet south of Voorhies Avenue. An additional seven 2-story wood frame houses lie along the eastern edge of the project site (Block 7503 Lots 25 and 26). The southern four houses (Lot 26), were built sometime after 1899, when the elevations were also between 3.0 and 3.5 feet (Hyde 1899:16). The northern four dwellings (Lot 25) and the Lot 4 house were constructed between 1897 and 1899 (Wilson 1897; Robinson 1890:22).

Current elevations range from 20 to 25 feet at the abutments and the Belt roadbed, while the adjacent areas of the project site lie between the 10- and 15- foot contours. (See Fig. 2a.)

Evidence of Prehistoric Occupation

The Nostrand Avenue bridge site lies in an area north of Coney Island and Sheepshead Bay, which prior to 19th and 20th century development was a neck of land separated from the rest of the study area by Gerritsen and Shellbank Creeks. Present Gravesend Neck Road, approximately one mile north of the bridge site, follows an old Indian trail, and Grumet maps three undescribed "habitation sites" in the area between this trail and the Belt Parkway (Grumet 1981:70). (See Fig. 3.)

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The New York State Museum (NYSM) has identified a number of inventoried pre- and proto-historic sites in the vicinity of this part of the project site. Given the disagreement and incomplete locational descriptions provided by various authorities, it is probable that some of the separate inventory numbers refer to a single site. For maps showing locations provided by the NYSM and the Office of Parks, Recreation and Historic Preservation (OPRHP), see Appendix A.

NYSM-7878 (ACP Kings no#), described as burials, is generally located by the NYSM in a large area which includes the Coney Island Avenue Bridge, and is approximately 800 feet west of the Nostrand Avenue Bridge. A second site, NYSM-7877 (ACP Kings no#), is centered on the Nostrand Avenue Bridge site, and is reported as shell middens. These two locations correspond to burial and shell heap sites generally mapped, but unfortunately not further described by archaeologist Parker (Parker 1920:583,pl.179).

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This Avenue U location and Parker's site description approximate the state museum's designation, NYSM-7459, a fourth inventoried site at the head of present Gerritsen Creek (Strome Kill, Gerritsen Mill Pond, Ryder Pond), approximately 3,800 feet north of the Nostrand Avenue bridge site. Considered the site of a Canarsee village, which Bolton identified with the toponym Shanscomacocke and placed in what is now Marine Park, basically east of Stuart Street, between Avenues S and U. Stone drills, celts, mortars, an arrowhead, whetstones, spears and flakes, as well as potsherds, shellheaps, animal and fish bones and a human skeleton were recovered there (Bolton 1922:152,157). Local Historian Frederick Van Wyck described the same site as having "many traces of the Indians besides the shell-banks" and "quantities of arrowheads" mainly on the western side of Gerritsen Creek, but that human bones "covered with quantities of large unopened oyster shells" were unearthed on the eastern side during the grading of Avenue U, c.1900 (Van Wyck 1924:649).

Prehistoric Potential

As outlined in the Prehistoric Era discussion (Section III), our knowledge of prehistoric and contact period settlement patterns indicates a marked preference for sheltered, elevated sites close to wetland features and sources of fresh water. Such locations are likely to have been exploited by prehistoric Americans for their processing sites, camps and more permanent settlements. Evidence of Indian exploitation of natural resources in, and

occupation of the vicinity of the project site is well-documented through archaeological and historical research. The Nostrand Avenue bridge site is on or adjacent to inventoried burial and shell midden sites (NYSM #7877 and #7878). The earliest evidence of prehistoric occupation comes from the inventoried site at the head of Gerritsen Basin (Ryders Pond - NYSM-3608, NYSM-7459) where artifacts dating to the Transitional Archaic period (4,000 to 3,000 B.P.) have been recovered.

These well-drained, elevated sites were preferred by the Indians for their activity and habitation sites. They provided access to rich hunting, fishing and gathering areas as well as access to coastal waterways for transportation. In addition, low-lying and marshy areas adjacent to these dry, elevated habitation sites were often utilized as garbage dumps. Such behavior has been documented archaeologically, as at Aqueduct in southwestern Queens, where soil borings identified shell middens beneath layers of fill, but in some cases atop layers of peat (Pickman 1987:4).

The Nostrand Avenue bridge site, in the vicinity of other prehistoric sites with similar environmental characteristics, must be considered to have *high prehistoric potential.* However, because prehistoric cultural remains in such contexts are usually shallowly-buried, i.e. within four feet of the pre-development surface (prior to filling activities), they are also particularly sensitive to subsequent grading and construction disturbance.

A discussion of disturbance impact and archaeological sensitivity can be found in the conclusions section of this chapter.

Historical Period

Southeastern Kings County, was originally divided among several towns, whose jurisdictions extended into the meadowlands bordering Jamaica Bay. Gravesend was settled in 1643 by a group of New Englanders under the leadership of Lady Deborah Moody. They received a land grant and a town charter from Governor Willem Kieft, who named the settlement after the town of 's-Gravesande in Holland. Gravesend included all of Coney Island and extended as far east as Gerritsen Creek, and included the Nostrand Avenue bridge site. (See Fig. 4a.)

Modern, urban eyes might consider worthless the marshlands which once existed on the bridge site, and in the project area vicinity. However, during the 17th and 18th centuries, this meadowland was considered very valuable. The harvested salt grasses were an important source of much-needed feed for domestic animals. The numerous small creeks which drained into Jamaica Bay were important for fishing, transportation, and the locations of tidal grist mills. As visitors to the neighboring town of Flatlands commented in 1679:

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Portions of the meadows must have been extremely muddy, since the list of officials appointed at Gravesend's founding included men to extricate trapped cattle from the marshes. On the other hand, exploiting the natural resources like their Native American predecessors, European settlers occupied and built structures on the few existing dry, elevated areas at or near the bay shores. One of these elevated locations was on the north side of Sheepshead Bay, centered on present Ocean Avenue, about 2,250 feet west of the Nostrand Avenue bridge site. The project site lay within the eastern edge of this elevated area. (See Figs. 4a and 5a.) It is also worth noting that this is the approximate location of prehistoric sites 7877 and 7878 described above. (See also Appendix A.)

Although the OPRHP records a number of early historical structures in Brooklyn along the Belt Parkway to the northeast, none is closer than 2.8 miles to the Nostrand Avenue bridge site. (See Appendix A.)

During the 19th century, nearby Coney Island was developed as a recreational center for wealthy and upper middle class vacationers. Although the first hotel, the Coney Island House, was opened in 1829, and several others followed, Coney Island's importance as a resort is said to date from 1844, with the establishment of Messrs. Eddy and Hart's Pavilion and bathhouses at Norton's Point, the far eastern end of the island. White paddle boats from Manhattan brought picnickers to the resort, and elegant hotels and restaurants were erected along the shore and patronized by New York's wealthy (WPA 1982:472; Stillwell 1884:194). These developments caused roads and later railroads to be built connecting the resorts with the rest of the county and beyond. An early causeway was superseded by the Coney Island Plank Road, now Coney Island Avenue (5,500 feet west), built in 1849, which became the main thoroughfare to Coney Island, later widened to 100 feet (Stockman 1884:171). (See Fig. 5a.) Ocean Parkway was a second, much newer

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[5] "Cattle" refers to livestock, rather than simply bovines.

route to Coney Island, completed by 1897, (see Fig. 7) while Nostrand Avenue was not yet opened in 1912. (See Fig. 9c.)

With the creation of Greater New York in 1898, Jamaica Bay was seen more and more as a wasteland, ripe for development. In 1905 the City Comptroller released a report calling for the filling of most of the marsh and bay, leaving channels between islands for shipping lanes. The lowlands were to be filled by city ash and refuse, and extensive bulkheads and numerous wharves built. However, due to the grandiose nature of the plan, scandal and the Great Depression, only parts of this plan were ever implemented, such as the construction of Mill Basin, Paerdegat Basin, the creation of Floyd Bennett Field, the construction of Cross Bay Boulevard in 1923, and Canarsie Pier in 1925 (Hazen and Sawyer 1991:21-22).

Parks Commissioner Robert Moses managed to overturn the industrialization plan, and pushed through rezoning that limited industry to the northern sections of the bay, and promoted recreational and residential development. Under plans unveiled by Moses in 1930, the Shore Parkway, now known as the Belt Parkway, was constructed from 1938 (first contract signing) to 1940 (official opening). The bridges were designed by Madigan Hyland Consulting Engineers, with contract drawings dating from 1939 and 1940. The parkway was not intended to be the present heavily-traveled commuter artery, but a scenic drive along the shore and through the marshlands. Along with landscaping and numerous parks constructed along its length, the parkway construction, involving the placement of 11.8 million cubic yards of hydraulic fill, and 4.8 cubic yards of dry fill, brought the project area to approximately its present appearance (Ibid.:22; Caro 1975:341).

Historical Occupation

The only recorded historical occupation on the Nostrand Avenue bridge site is a group of eight, 2-story frame dwellings which were constructed on Block 7503, east of Nostrand Avenue, four (on lots 4 and 25) between 1897 and 1899, and four (on lot 26) between 1899 and 1912 (Wilson 1897; Hyde 1899:16; 1912:39). They were presumably occupied until c.1938, when they were removed for the construction of the Belt Parkway in 1939-40. (See Figs. 7 and 9c.) A discussion of the project site's historical archaeological sensitivity will be found in the conclusions section of this chapter.

Conclusions

Historical Sensitivity

A group of eight, 2-story frame dwellings which were built on Block 7503, east of Nostrand Avenue, four (on lots 4 and 25) between 1897 and 1899, and four (on lot 26) between 1899 and 1912 (Wilson 1897; Hyde 1899:16; 1912:39). They were presumably occupied until

c.1938, when they were removed prior to the construction of the Belt Parkway in 1939-40. (See Figs. 7 and 9c.)

The privies, cisterns and wells associated with dwellings are important sources of information for archaeologists studying past lifeways. These shaft features are convenient cavities for the deposit of household refuse, becoming valuable, stratified time capsules.

No water lines are recorded for this location, and therefore wells or cisterns would have been in continuous use during site occupation. Active water sources would not have been fouled with household refuse. Although no municipal sewers are recorded, and it is possible that privies were associated with this dwelling, the presence of nearby creeks and swamp suggests that household wastes were simply flushed down a pipe into the nearby, convenient marsh. This was not an uncommon practice in New York City at the turn of the century. Since the building is believed to have been in use until the end of the 1930s, and if its inhabitants had their privy periodically pumped, only the latest remains, dating from the last 10 years or so of the building's use would be present. If the residents dug a new privy every time the old one became full, it might be necessary to locate four or five privy deposits, a long and costly process, given the existence of the bridge and heavy overburden of fill. Furthermore, considering the lateness of the occupation period post-1897 to c.1939, it is unlikely that the recovered artifacts would be of great research value.

Therefore, the Nostrand Avenue bridge site should be considered to have a *very low sensitivity* for buried cultural resources from the historical period, and no further research study or fieldwork is recommended.

Disturbance and Prehistoric Sensitivity

In order to determine archaeological sensitivity, the post-depositional changes to the topography, i.e. the amount of filling and the depth of subsurface disturbance due to grading and modern construction must be first determined. Potential prehistoric cultural resources may be deeply buried, below or in marsh layers of unknown depth. They may be so deeply buried that they are not affected by bridge reconstruction.

Elevations from 1912 indicate an elevation of between 3 and 3.5 feet above mean sea level, while the present elevations lie between 10 and 25 feet. (See Figs. 2a and 9c.) Plans and elevations of the current bridge show the abutments resting on embankments rising approximately 10.5 feet higher than Nostrand Avenue, indicating approximately seven feet of fill overlaying the pre-parkway surface. The bridge abutments do not appear to penetrate more deeply than this fill overmantle, leaving the pre-development surfaces beneath the abutments intact.

This fill overmantle is not evident between the abutments, in the Nostrand Avenue roadbed.

Support piers beneath the bridge stand directly in the Nostrand Avenue roadbed, which is also deeply disturbed by modern sanitary and storm sewers, as well as buried water, electrical and gas lines (Hardesty and Hanover 1996a:1-4,5).

The abutments of the bridge over Nostrand Avenue appear to rest on fill layers, leaving the pre-parkway historical surface undamaged. Given the high rating of prehistoric potential, and since the only pre-parkway disturbance was a group of eight 2-story frame dwellings on the eastern side of the project site, the Nostrand Avenue bridge site must be considered *sensitive for buried prehistoric cultural remains.*

Recommendations

When the program of soil borings, necessary before bridge rehabilitation can proceed, takes place, this program should be designed with input from a qualified archaeologist, so that pertinent cultural and environmental data is recorded. It is recommended that the borings and subsequent analysis be part of a second phase of study, focusing specifically on potential prehistoric resources. The number of soil borings should be sufficient to cover the area of the project site, and of sufficient depth to determine the exact thickness of the fill overmantle which overlays the dry, elevated, predevelopment surface. It is within three to four feet of this surface that potential prehistoric cultural remains would be located. Other evidence from the borings includes the presence of a shell midden or other prehistoric cultural remains. This subsurface data will eliminate, narrow, or more clearly define any areas of archaeological sensitivity.

After the soil boring logs are analyzed by an archaeologist, if no evidence of potentially sensitive strata is found, then no further archaeological research or testing is recommended.

If the project site's prehistoric archaeological potential is corroborated by the soil borings data, then a subsequent phase of study may be required.

4. Belt Parkway over Gerritsen Inlet

The Gerritsen Inlet bridge site follows the Belt Parkway roadbed for 3,000 feet, running roughly southwest/northeast. The distance is divided unequally at the bridge centerline, with 1,370 feet lying to the southwest, and 1,630 feet to the northeast of the bridge centerline. The site width follows the Belt Parkway right-of-way, which is 870 feet wide, 455 feet to the northwest of the parkway centerline, and 415 feet to the southeast. (See Fig. 1d.)

Topography and Environment

The Gerritsen Inlet bridge site is somewhat misnamed, since the current channel is not Gerritsen Inlet at all, but Plumb Beach Channel. The original Gerritsen Creek inlet was filled in during the construction of the Belt Parkway, and Plumb Beach Channel became the new inlet. Prior to 20th century filling operations, the project site touched on three marshy islands, beginning on Plumb Island on the west, crossing the aforementioned Plumb Beach Channel, spanning Willets Hassock , and the now-filled Gerritsen Creek inlet to another island on the east, sometimes called Riches Point Meadow. (See Figs. 4b, 5b, 6a, 6b, 7 and 9e.)

Plumb Island (Fig. 9d), the marsh island under the bridge's western touchdown was eventually attached by fill to the mainland. Willets Hassock and Riches Point were connected and linked to a number of other marsh islands, creating the present Floyd Bennett Field/Marine Park peninsula. Previous to 20th century filling episodes, neither island had any areas elevated above the marsh (Fig 8e).

Presently, the bridge abutments rest on mounds of fill which rise as high as 35 to <40 feet above the water level. Adjacent to the abutment mounds, elevations drop to below 5 feet, and the site includes at least three separate areas that are still salt marsh, on the northern and southern sides of the western touchdown area, and at the eastern corner of the northern touchdown area. Part of the northern touchdown appears to include sections of a golf course, which may explain the presence of a 25-foot hill immediately north of the bridge proper, but apparently unconnected with the parkway. (See Fig. 2a.)

Evidence of Prehistoric Occupation

Prior to the construction of the Belt Parkway, the Gerritsen Inlet bridge site was divided into numerous marshy islands or hassocks, crisscrossed by creeks and channels. Numerous toponyms in this area, which although generally disputed as to precise location, indicate a strong Indian presence in the vicinity.

The Gerritsen Inlet bridge links Plumb Island, now Plumb Beach (Hyde 1912:43 subplan) with the group of islands/hassocks which through fill operations have been joined to form present Floyd Bennett Field. Grumet, comparing and evaluating the research of Bolton, Van Wyck, Beauchamp and others, identifies Plumb Beach as the Native American Hoopainnah ("the inclosed or shut-in island place"), and the Bennett Field area as Equendito ("land broken up") and probably Wey Witt Sprintner (untranslated), which might have been the original name of Gerritsen Creek. (See Fig. 3.) Along with the Flatbush Avenue bridge, directly on the Equendito tract, the nearest inventoried sites are Ryders Pond - NYSM-3608 and NYSM-7459 which refer to the settlement and burials dating to the Transitional Archaic period (4,000 to 3,000 B.P.), about 1 mile to the northwest (Grumet 1981:10,14,59,70; Van Wyck 1924:546).

Prehistoric Potential

As outlined in the preceding section, our knowledge of prehistoric and contact period settlement patterns indicates a marked preference for sheltered, elevated sites close to wetland features and sources of fresh water. Such locations are likely to have been exploited by prehistoric Americans for their processing sites, camps and more permanent settlements. Evidence of Indian exploitation of natural resources in, and occupation of the vicinity of the project site is well-documented through archaeological and historical research. The earliest evidence of prehistoric occupation comes from the inventoried site about 1 mile northwest of the Gerritsen Inlet bridge site, at the head of Gerritsen Basin (Ryders Pond - NYSM-3608, NYSM-7459) where artifacts dating to the Transitional Archaic period (4,000 to 3,000 B.P.) have been recovered.

Although these well-drained, elevated sites were preferred by the Indians for their activity and habitation sites, pre-historic land use, and therefore prehistoric archaeological potential is not confined to such areas. Often, low-lying and marshy areas adjacent to these dry, elevated habitation sites were utilized as garbage dumps. Such behavior has been documented archaeologically, as at Aqueduct in southwestern Queens, where soil borings identified shell middens beneath layers of fill, but in some cases atop layers of peat (Pickman 1987:4).

In addition, as described in the prehistoric overview, the environment of the project site has not been static since the final retreat of the glacial ice, c.18,000 B.P. One of the consequences of the post-glacial warming trend (c.14,000 B.P.) has been a continuous, increase in sea level, estimated at from 75 to 80 feet. Although not occurring at a uniform rate, this sea level rise gradually inundated the continental shelf, which was exposed during the Paleo-Indian period, and also the gently-sloping glacial outwash plain, creating the shallowly inundated areas which are conducive to the establishment of eel grass and therefore the creation of tidal marsh environments, adjacent to areas of not-yet-inundated dry land. With subsequent sea level rise, which slowed by about 4,000 to 2,000 B.P. and has slowed even more to the present, prehistoric and even historical archaeological sites in these areas may lie beneath the current water table, as well as historical fill and a

number of feet of accumulated marsh mat. This has been substantiated at a number of locations in coastal New York and Connecticut where submerged prehistoric sites have been discovered during dredging activities, beneath, or in association with, the peat deposits produced by tidal marshes (Pickman 1987:6).

As Gimigliano (1983)[6] noted, the elevated islands and marshy flats within Jamaica Bay, including the Gerritsen Inlet bridge site, would have been ideal for prehistoric exploitation prior to sea level rise. However, the archaeological survey of the area has been prevented due to the rise in sea level, and the massive landfill operations that have occurred there. The shores of the drowned creek/estuary crossings (e.g., both of present Gerritsen Inlet and the now filled Gerritsen Creek Inlet) were considered particularly sensitive, given prehistoric man's preference for sites adjacent to watercourses (Gimigliano 1983:6-8).

Archaeologist Arnold Pickman, also concluded that there was a strong potential for submerged sites in an archaeological assessment of a study parcel at Mill Basin (an area of former salt marsh approximately 5,000 feet north of the Gerritsen Inlet bridge site) (Pickman 1987:5,6). Both Gimigliano and Pickman recommended a series of borings in potentially sensitive locations to determine thickness of peat and fill layers, and the elevation of the basal peat and organic silt deposits, i.e., the approximate elevation of the ground surface/sea level at the time of inundation. Gimigliano hoped to identify archaeological material, such as shell midden deposits, in the pre-inundation layers (Gimigliano 1983:6-8; See also Rutsch and Church 1983) while Pickman went further to suggest that data on the pre-marsh sea level elevation could be used to extrapolate an inundation date, based on similar Carbon-14-dated boring samples (Pickman 1987:6).

Historical and cartographic research indicates that the Gerritsen Inlet bridge site, in its pre-development condition, was a low-lying marsh. In light of the preceding discussion, due to changing sea level, and the documented presence in the project area vicinity of prehistoric man by the time of the Transitional Archaic and through the historical period, it is theoretically possible that the location was occupied at some time during the prehistoric era.

The Gerritsen Inlet bridge site is rated as having a *low prehistoric potential.* Given the subsequent rise in sea level, the site would have been subject to impact from post-depositional tidal action. On the other hand, because any prehistoric cultural remains would be below the current water table, as well as deeply buried beneath fill and layers of marsh mat, the sites would be well-protected from historical construction disturbance, but the most problematic to identify and recover archaeologically.

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[6] The Gimigliano study parcel includes the sites of the six easternmost Belt Parkway Bridges (Gerritsen, Flatbush Avenue, Mill Basin, Paerdegat Basin, Rockaway Parkway and Fresh Creek Basin). See also Rutsch and Church (1983).

Disturbance impact on this prehistoric potential, and the surviving potential archaeological sensitivity will be discussed in the conclusions section of this chapter.

Historical Period

Southeastern Kings County, including the Gerritsen Inlet bridge site, was originally divided among several towns, whose jurisdictions extended into the meadowlands bordering Jamaica Bay. The now-filled Gerritsen Creek channel, part of the project site, formed the border between the towns of Gravesend and Flatlands.

Gravesend was settled in 1643 by a group of New Englanders under the leadership of Lady Deborah Moody. They received a land grant and a town charter from Governor Willem Kieft, who named the settlement after the town of 's-Gravesande in Holland. Gravesend included all of Coney Island and extended as far east as Gerritsen Creek, including the site of the western abutment of the Gerritsen Inlet bridge. (See Fig. 4a.)

The town of Flatlands was the oldest Dutch settlement on Long Island, established in 1636 as Nieuw Amersfoort, although it did not receive official designation as a municipality until c.1647. Lying between Gerritsen and Paerdegat Creeks, Flatlands included approximately the eastern 400 feet of the Gerritsen Inlet bridge site. (See Fig. 4c.)

Modern, urban eyes might consider worthless the marshlands which form the greater part of the project site. However, during the 17th and 18th centuries, this meadowland was considered very valuable. The harvested salt grasses were an important source of much-needed feed for domestic animals. The numerous small creeks which drained into Jamaica Bay were important for fishing, transportation, and the locations of tidal grist mills. As visitors to Flatlands commented in 1679:

> There is toward the sea, a large piece of low flat land which is overflown at every tide, like the schorr [marsh] with us, miry and muddy at the bottom, and which produces a species of hard salt grass or reed grass. Such a place they call valey [*sic*] and mow it for hay, which cattle[7] would rather eat than fresh hay or grass. It is so hard they cannot mow it with a common scythe, like ours, but must have the English scythe for the purpose.
>
> All the land from the bay to 't Vlacke Bos [Flatbush] is low and level, without the least elevation.
>
> There is also a tract which is somewhat large, of a kind of heath, on which sheep could graze . . . This meadow, like all the others, is well provided with good creeks

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[7] "Cattle" refers to livestock, rather than simply bovines.

which are navigable and very serviceable for fisheries. (Van Wyck 1924:183; Dankaerts and Sluyter 1966:131).

Portions of the meadows must have been extremely muddy, since the list of officials appointed at Gravesend's founding included men to extricate trapped cattle from the marshes. On the other hand, exploiting the natural resources like their Native American predecessors, European settlers occupied and built structures on the few existing dry, elevated areas at or near the bay shores. One of these elevated locations was on the north side of Sheepshead Bay, centered on present Ocean Avenue, (about 6,000 feet west of the Gerritsen Inlet bridge site). (See Figs. 4a and 5a.)

The OPRHP records the sites of a number of early historical structures in southeastern Kings County (see Appendix A) although none is closer than 1.7 miles to the project site

During the 19th century, Coney Island was developed as a recreational center for wealthy and upper middle class vacationers. Although the first hotel, the Coney Island House, was opened in 1829, and several others followed, Coney Island's importance as a resort is said to date from 1844, with the establishment of Messrs. Eddy and Hart's Pavilion and bathhouses at Norton's Point, the far eastern end of the island. White paddle boats from Manhattan brought picnickers to the resort, and elegant hotels and restaurants were erected along the shore and patronized by New York's wealthy (WPA 1982:472; Stillwell 1884:194). These developments caused roads and later railroads to be built connecting the resorts with the rest of the county and beyond. An early causeway was superseded by the Coney Island Plank Road, now Coney Island Avenue (project bridge site), built in 1849, which became the main thoroughfare to Coney Island, later widened to 100 feet (Stockman 1884:171). (See Fig. 5a.)

As Jamaica Bay became more and more polluted from household sewage, and from the fertilizer and fish oil plants that were established on fill on the aptly-named Barren Island, about 6,000 feet southeast of the Gerritsen Inlet bridge site (see Fig. 7), Jamaica Bay was seen more and more as a wasteland within Greater New York (established in 1898), ripe for development. In 1905 the City Comptroller released a report calling for the filling of most of the marsh and bay, leaving channels between islands for shipping lanes. The lowlands were to be filled by city ash and refuse, and extensive bulkheads and numerous wharves built. However, due to the grandiose nature of the plan, scandal and the Great Depression, only parts of this plan were ever implemented, such as the construction of Mill Basin, Paerdegat Basin, the creation of Floyd Bennett Field, the construction of Cross Bay Boulevard in 1923, and Canarsie Pier in 1925 (Hazen and Sawyer 1991:21-22).

Parks Commissioner Robert Moses managed to overturn the industrialization plan, and pushed through rezoning that limited industry to the northern sections of the bay, and promoted recreational and residential development. Under plans unveiled by Moses in 1930, the Shore Parkway, now known as the Belt Parkway, was constructed from 1938 (first contract signing) to 1940 (official opening). The bridges were designed by Madigan Hyland Consulting Engineers, with contract drawings dating from 1939 and 1940. The

parkway was not intended to be the present heavily-traveled commuter artery, but a scenic drive along the shore and through the marshlands. Along with landscaping and numerous parks constructed along its length, the parkway construction, involving the placement of 11.8 million cubic yards of hydraulic fill, and 4.8 cubic yards of dry fill, brought the project area to approximately its present appearance (Ibid.:22; Caro 1975:341).

Historical Potential and Sensitivity

No buildings or structures have been recorded on the Gerritsen Inlet bridge site prior to the construction of the Belt Parkway. There is no record of any historical occupation there. This site has *no historical archaeological potential.*

Conclusions

Historical Sensitivity

The Gerritsen Inlet bridge site has no historical archaeological potential, and is therefore *not sensitive* for buried cultural deposits from the historical period. No further study or other action is warranted.

Disturbance and Prehistoric Sensitivity

In order to determine archaeological sensitivity, the post-depositional changes to the topography, i.e. the amount of filling, and the depth of subsurface disturbance due to grading and modern construction must be first determined. For such a task adequate data concerning subsurface conditions are necessary. Potential prehistoric cultural resources may be deeply buried, below or in marsh layers of unknown depth. They may be so deeply buried that they are not affected by bridge reconstruction.

Marshland until the construction of the Belt Parkway, a 1939 fill profile drawn for the New York Department of Parks (NYDP) indicates that between 20 and 40 feet of hydraulic fill were deposited here to form the bridge embankments on each side of the old Plumb Beach Channel. In addition, the channel was dredged from its depth of approximately -9 feet, to a new depth of -20 feet below mean sea level (NYDP Contract SS-38-1, sheet 3). Bridge foundations penetrate beneath the fill layer only along the shores of the channel, extending 20 feet below the pre-bridge marsh surface. Timber piles beneath this section extend an additional 20 feet into the marsh.

The bridge's center piers rest on foundations and piles in the channel that penetrate the marsh mud an additional 40 feet.

Under the remaining areas of the bridge abutments, piles penetrate the former marsh surface, between 5 feet to as much as 20 feet, below the pre-bridge surface, increasing as the current channel is approached.

In the sections of the project site beyond the bridge abutments, the amount of fill is much-reduced, declining to as little as 5 feet thick at the far western edge of the project site, but no less than 13 feet at the far eastern end, along the shores of the old Gerritsen Creek inlet. In addition, there remain areas of marsh within the project site, that appear to have little or no fill overmantle. These are at far eastern corner, the extreme southern edge and the northwestern corner of the project site.

In such a case as this, where the elevation of submerged potentially sensitive strata is not known, soil borings offer vital information to the archaeologist. A program of soil borings was performed, and the results analyzed for a project site which included sections of the Belt Parkway project site, among these, Gerritsen Inlet. This work was part of a Stage 1B cultural resources survey completed in 1983 (Rutsch and Church 1983).

One boring was done at the west and east embankments of present Gerritsen Inlet, respectively. They revealed 4 to 15 feet of fill overlaying what is believed to be the original marshy land surface, a gray sand stratum, 2.5 to 7 feet thick. Beneath this was a mixture of sand, clay and peat, beyond which the borings did not penetrate. Although no prehistoric cultural deposits were encountered, the borings do not appear to have reached pre-inundation levels which are considered potentially sensitive, and are therefore inconclusive for the purposes of this evaluation (Rutsch and Church 1983:8-9).

In the absence of any data documenting construction disturbance impacting potentially sensitive stratigraphic deposits beneath the fill overburden, the Gerritsen Inlet bridge site must be considered *sensitive* for buried prehistoric cultural remains.

Recommendations

When the program of soil borings, necessary before bridge rehabilitation can proceed, takes place, this program should be designed with input from a qualified archaeologist, so that pertinent cultural and environmental data is recorded. It is recommended that the borings and subsequent analysis be part of a second phase of study, focusing specifically on potential prehistoric resources. The number of soil borings should be sufficient to cover the area of the project site, and of sufficient depth to determine whether there is evidence of the presence of strata that could have supported prehistoric occupation. Such evidence includes the presence/absence of a thick peat lens, a shell midden or other prehistoric cultural remains. This subsurface data will eliminate, narrow, or more clearly define any areas of archaeological sensitivity.

After the soil boring logs are analyzed by an archaeologist, if no evidence of potentially sensitive strata is found, then no further archaeological research or testing is recommended.

If the project site's prehistoric archaeological potential is corroborated by the soil borings data, then a subsequent phase of study may be required.

5. Flatbush Avenue over Belt Parkway

The Flatbush Avenue bridge site runs 140 feet roughly northwest/southeast, divided equally on either side of the Belt Parkway centerline. The site also extends 45 feet on each side of the bridge centerline, for a total width of 90 feet. (See Fig. 1e.)

Topography and Environment

The Flatbush Avenue bridge site was formerly an unnamed marshy island, until 20th-century filling operations connected it to the mainland and the present Floyd Bennett Field/Marine Park peninsula. (See Figs. 6b and 9e.) Presently the bridge abutments rest on fill ramps which have elevations between 15 and <20 feet. The remainder of the project site has an elevation between 10 and 15 feet. (See Fig. 2a.)

Evidence of Prehistoric Occupation

Prior to the construction of the Belt Parkway, this section of the project site was divided into numerous marshy islands or hassocks, crisscrossed by creeks and channels. Numerous toponyms in this area, which although generally disputed as to precise location, indicate a strong Indian presence in the vicinity.

The Gerritsen Inlet bridge links Willetts Hassock (Hyde 1912:43 subplan) now part of Plumb Beach, with the group of islands/hassocks which through fill operations have been joined to form present Floyd Bennett Field peninsula. Grumet, comparing and evaluating the research of Bolton, Van Wyck, Beauchamp and others, identifies Plumb Beach (4,000 feet to the southwest) as the Native American Hoopainnah ("the inclosed or shut-in island place"), and the Bennett Field area as Equendito ("land broken up") and probably Wey Witt Sprintner (untranslated), which might have been the original name of Gerritsen Creek (about 2,250 feet to the west and southwest). (See Fig. 3.) Along with the Flatbush Avenue bridge, directly on the Equendito tract, the nearest inventoried sites are Ryders Pond - NYSM-3608, and NYSM-7459 which refer to the settlement and burials dating to the Transitional Archaic period (4,000 to 3,000 B.P.), about 1 mile to the northwest (Grumet 1981:10,14,59,70; Van Wyck 1924:546).

Prehistoric Potential

As outlined in the Prehistoric Era discussion (Section III), our knowledge of prehistoric and contact period settlement patterns indicates a marked preference for sheltered, elevated sites close to wetland features and sources of fresh water. Such locations are likely to have been exploited by prehistoric Americans for their processing sites, camps and more permanent settlements. Evidence of Indian exploitation of natural resources in, and

occupation of the vicinity of the project site is well-documented through archaeological and historical research. The earliest evidence of prehistoric occupation in the area comes from the inventoried site at the head of Gerritsen Basin (Ryders Pond - NYSM-3608, NYSM-7459) where artifacts dating to the Transitional Archaic period (4,000 to 3,000 B.P.) have been recovered.

Although these well-drained, elevated sites were preferred by the Indians for their activity and habitation sites, pre-historic land use, and therefore prehistoric archaeological potential is not confined to such areas. Often, low-lying and marshy areas adjacent to these dry, elevated habitation sites were utilized as garbage dumps. Such behavior has been documented archaeologically, as at Aqueduct in southwestern Queens, where soil borings identified shell middens beneath layers of fill, but in some cases atop layers of peat (Pickman 1987:4).

In addition, as described in the prehistoric overview, the environment of the project area has not been static since the final retreat of the glacial ice, c.18,000 B.P. One of the consequences of the post-glacial warming trend (c.14,000 B.P.) has been a continuous, increase in sea level, estimated at from 75 to 80 feet. Although not occurring at a uniform rate, this sea level rise gradually inundated the continental shelf, which was exposed during the Paleo-Indian period, and also the gently-sloping glacial outwash plain, creating the shallowly inundated areas which are conducive to the establishment of eel grass and therefore the creation of tidal marsh environments, adjacent to areas of not-yet-inundated dry land. With subsequent sea level rise, which slowed by about 4,000 to 2,000 B.P. and has slowed even more to the present, prehistoric and even historical archaeological sites in these areas may lie beneath the current water table, as well as historical fill and a number of feet of accumulated marsh mat. This has been substantiated at a number of locations in coastal New York and Connecticut where submerged prehistoric sites have been discovered during dredging activities, beneath, or in association with, the peat deposits produced by tidal marshes (Pickman 1987:6).

As Gimigliano (1983)[8] noted, the elevated islands and marshy flats within Jamaica Bay, such as the location of the Flatbush Avenue bridge site, would have been ideal for prehistoric exploitation prior to sea level rise. However, the archaeological survey of the area has been prevented due to the rise in sea level, and the massive landfill operations that have occurred there. The shores of the drowned creek/estuary crossings were considered particularly sensitive, given prehistoric man's preference for sites adjacent to watercourses (Gimigliano 1983:6-8).

Archaeologist Arnold Pickman, also concluded that there was a strong potential for submerged sites in an archaeological assessment of a study parcel at Mill Basin (an area

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[8] The Gimigliano study parcel includes the sites of the six easternmost Belt Parkway Bridges (Gerritsen, Flatbush Avenue, Mill Basin, Paerdegat Basin, Rockaway Parkway and Fresh Creek Basin). See also Rutsch and Church (1983).

of former salt marsh approximately 3,000 feet northeast of the Flatbush Avenue bridge site) (Pickman 1987:5,6). Both Gimigliano and Pickman recommended a series of borings in potentially sensitive locations to determine thickness of peat and fill layers, and the elevation of the basal peat and organic silt deposits, i.e., the approximate elevation of the ground surface/sea level at the time of inundation. Gimigliano hoped to identify archaeological material, such as shell midden deposits, in the pre-inundation layers (Gimigliano 1983:6-8; See also Rutsch and Church 1983) while Pickman went further to suggest that data on the pre-marsh sea level elevation could be used to extrapolate an inundation date, based on similar Carbon-14-dated boring samples (Pickman 1987:6).

Historical and cartographic research on the Flatbush Avenue bridge site indicates that prior to historical development, it was low-lying marsh. In light of the preceding discussion, due to changing sea level, and the documented presence in the project area vicinity of prehistoric man by the time of the Transitional Archaic and through the historical period, it is theoretically possible that the location was occupied at some time during the prehistoric era.

The Flatbush Avenue bridge site is rated as having a *low prehistoric potential.* Given the subsequent rise in sea level, the site would have been subject to impact from post-depositional tidal action. On the other hand, because any prehistoric cultural remains would be below the current water table, as well as deeply buried beneath fill and layers of marsh mat, the sites would be well-protected from historical construction disturbance, but the most problematic to identify and recover archaeologically.

Disturbance impact on this prehistoric potential, and the surviving potential archaeological sensitivity will be discussed in the conclusions section of this chapter.

Historical Period

Southeastern Kings County was originally divided among several towns, whose jurisdictions extended into the meadowlands bordering Jamaica Bay.

The town of Flatlands was the oldest Dutch settlement on Long Island, established in 1636 as Nieuw Amersfoort, although it did not receive official designation as a municipality until c.1647. Lying between Gerritsen and Paerdegat Creeks, Flatlands included the Flatbush Avenue bridge site. (See Fig. 4c.)

Modern, urban eyes might consider worthless the marshlands which form the greater part of the project site vicinity. However, during the 17th and 18th centuries, this meadowland was considered very valuable. The harvested salt grasses were an important source of much-needed feed for domestic animals. The numerous small creeks which drained into Jamaica Bay were important for fishing, transportation, and the locations of tidal grist mills. As visitors to Flatlands commented in 1679:

> There is toward the sea, a large piece of low flat land which is overflown at every tide, like the schorr [marsh] with us, miry and muddy at the bottom, and which produces a species of hard salt grass or reed grass. Such a place they call valey [*sic*] and mow it for hay, which cattle[9] would rather eat than fresh hay or grass. It is so hard they cannot mow it with a common scythe, like ours, but must have the English scythe for the purpose.
>
> All the land from the bay to 't Vlacke Bos [Flatbush] is low and level, without the least elevation.
>
> There is also a tract which is somewhat large, of a kind of heath, on which sheep could graze . . . This meadow, like all the others, is well provided with good creeks which are navigable and very serviceable for fisheries (Van Wyck 1924:183; Dankaerts and Sluyter 1966:131).

Portions of the meadows must have been extremely muddy, since the list of officials appointed at the neighboring town of Gravesend's founding included men to extricate trapped cattle from the marshes. On the other hand, exploiting the natural resources like their Native American predecessors, European settlers occupied and built structures on the few existing dry, elevated areas at or near the bay shores, such as the mainland area about 6,000 feet northwest of the Flatbush Avenue bridge site. (See Fig. 5b.)

The OPRHP records the sites of a number of early historical structures in the vicinity of the project site (see Appendix A), although none of these is closer than 1.3 miles to the project site.

The elevated dry ground at Canarsie Landing, about 1.9 miles to the northeast of the Flatbush Avenue bridge site, became a small seaside and sport fishing resort during the late 19th century. The 1873 atlas shows the Bay View Hotel at the tip of the landing, serviced by the terminus of the Brooklyn and Rockaway Branch Rail Road. (See Fig. 6b.) As Jamaica Bay became more and more polluted from household sewage, and from the fertilizer and fish oil plants that were established on fill on the aptly-named Barren Island (about 1.5 miles southeast of the project bridge site) (see Fig. 7.), the resort declined (WPA 1982:501-502). (See Fig. 9g.)

With the creation of Greater New York in 1898, Jamaica Bay was seen more and more as a wasteland, ripe for development. In 1905 the City Comptroller released a report calling for the filling of most of the marsh and bay, leaving channels between islands for shipping lanes. The lowlands were to be filled by city ash and refuse, and extensive bulkheads and numerous wharves built. However, due to the grandiose nature of the plan, scandal and the Great Depression, only parts of this plan were ever implemented, such as the construction of Mill Basin, Paerdegat Basin, the creation of Floyd Bennett Field, the

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[9] "Cattle" refers to livestock, rather than simply bovines.

construction of Cross Bay Boulevard in 1923, and Canarsie Pier in 1925 (Hazen and Sawyer 1991:21-22).

Parks Commissioner Robert Moses managed to overturn the industrialization plan, and pushed through rezoning that limited industry to the northern sections of the bay, and promoted recreational and residential development. Under plans unveiled by Moses in 1930, the Shore Parkway, now known as the Belt Parkway, was constructed from 1938 (first contract signing) to 1940 (official opening). The bridges were designed by Madigan Hyland Consulting Engineers, with contract drawings dating from 1939 and 1940. The parkway was not intended to be the present heavily-traveled commuter artery, but a scenic drive along the shore and through the marshlands. Along with landscaping and numerous parks constructed along its length, the parkway construction, involving the placement of 11.8 million cubic yards of hydraulic fill, and 4.8 cubic yards of dry fill, brought the project area to approximately its present appearance (Ibid.:22; Caro 1975:341).

Historical Potential

No buildings or structures have been recorded on the Flatbush Avenue bridge site prior to the construction of the Belt Parkway. There is no record of any historical occupation there. This site has *no historical archaeological potential.*

Conclusions

Historical Sensitivity

The Flatbush Avenue bridge site has no historical archaeological potential, and is therefore *not sensitive* for buried cultural deposits from the historical period. No further study or other action is warranted.

Disturbance and Prehistoric Sensitivity

In order to determine archaeological sensitivity, the post-depositional changes to the topography, i.e. the amount of filling, and the depth of subsurface disturbance due to grading and modern construction must be first determined. For such a task adequate data concerning subsurface conditions are necessary. Potential prehistoric cultural resources may be deeply buried, below or in marsh layers of unknown depth. They may be so deeply buried that they are not affected by bridge reconstruction.

The Flatbush Avenue bridge site was marshland until the 20th century, although it appears to have been filled prior to Belt Parkway construction, probably at the time the various

marshy islands were consolidated to form the current Floyd Bennett Field peninsula, during the 1920s. At the time of bridge construction, a cross sectional drawing at Flatbush Avenue shows that the location had an elevation of approximately 11.5 feet above mean sea level, and rather than add additional fill, about 5 feet of the 1938 surface was removed prior to bridge construction, reducing the parkway surface elevation to 6.6 feet (NYDP Contract SS-38-3, Sheet 9).

However, at present the abutment embankments, which lie to the north and south of the present parkway, range in elevation from 15 to less than 20 feet above mean sea level, indicating a fill layer of at least 15 feet thick in these areas. (See Fig. 2a.) Although this seems unlikely, there is insufficient information on this bridge to determine whether bridge construction impacted beyond the existing fill overmantle. Since there is no evidence that potentially sensitive strata have been destroyed by subsequent bridge and roadway construction, the Flatbush Avenue bridge site must be considered sensitive for buried cultural resources from the prehistoric period.

Recommendations

Reconstruction of the Flatbush Avenue bridge site, as currently planned, will involve superstructure replacement, and work on the approach slab and some utilities. If this work does not penetrate more than five feet below the currently-existing fill overmantle which is believed to overlay the project site's pre-development surface, and therefore will not disturb potential prehistoric archaeological resources, then no further archaeological action is necessary.

However, if substructural work is planned which will penetrate beyond five feet into the fill overmantle, then further action is required. When the program of soil borings, necessary before bridge rehabilitation can proceed, takes place, this program should be designed with input from a qualified archaeologist, so that pertinent cultural and environmental data is recorded. It is recommended that the borings and subsequent analysis be part of a second phase of study, focusing specifically on potential prehistoric resources. The number of soil borings should be sufficient to cover the area of the project site, and of sufficient depth to determine whether there is evidence of the presence of strata that could have supported prehistoric occupation. Such evidence includes the presence/absence of a thick peat lens, a shell midden or other prehistoric cultural remains. This subsurface data will eliminate, narrow, or more clearly define any areas of archaeological sensitivity.

After the soil boring logs are analyzed by an archaeologist, if no evidence of potentially sensitive strata is found, then no further archaeological research or testing is recommended.

If the project site's prehistoric archaeological potential is corroborated by the soil borings data, then a subsequent phase of study may be required.

6. Belt Parkway over Mill Basin

The Mill Basin bridge site has a total length along the Belt Parkway of 6,500 feet. At that location the parkway is running roughly north/south. This distance is divided unequally, with 3,700 feet north of the bridge centerline, and 2,800 to the south. The right-of-way, forming the other two site boundaries, is 382 feet wide, 194 feet west of the parkway centerline, and 188 feet east of it. (See Fig. 1f)

Topography and Environment

Prior to dredging and filling operations in the 20th century, the Mill Basin bridge site touched on three marshy islands in Jamaica Bay, two of these unnamed, and the third and westernmost, Riches Meadow Island, which later formed the largest part of the Floyd Bennett Field peninsula. The bridge site also crossed at least two channels, Crooked Creek, which was filled in the 1930s, and what was formerly known as Irish Creek, now called Mill Basin. (See Fig. 6b.) The historical maps generally show the islands as marsh in 1844, 1873 and 1912 (see Figs. 4b, 6b and 9e), suggesting that the 1897 map, which shows dry elevated areas on each of the three islands is incorrect. (See Fig. 7.)

The current topographic map indicates substantial fill around the abutments of the current bridge, which raises them to an elevation of between 30 and <35 feet above the water level. North and south of the abutments elevations decline gradually. At the northern end of the site, elevations decline to between 5 and 10 feet, with the northeast corner having an elevation below 5 feet. At the southern end of the Mill Basin bridge site, elevations decline gradually to between 5 and 10 feet, but the rise above 10 feet as the Flatbush Avenue cloverleaf is approached. (See Fig. 2a.)

Evidence of Prehistoric Occupation

The Mill Basin bridge site was formerly separated from the elevated ground of Bergen Island (later Bergen Beach) by a channel labeled Dam Creek in 1873. (See Fig. 6b.) The NYSM includes the bridge site in the area related to the "immense shell heaps" -NYSM-7391 (ACP Kings 3) - that Parker reports on Bergen Island, about 1,000 feet to the north (Parker 1920:582). The OPRHP siting (A047-01-0115 - #6 on map) is somewhat more conservative, placing the "Winnapague Site," a possible early historical Canarsee site, approximately 800 feet north of the Mill Basin bridge site.

Bergen Island, known to the Canarsee as Wimbaco (a fine water place) or Winnippague (Grumet 1981:63) has been identified as one of Long Island's largest centers of wampum production. (See Fig. 3.) Wampum, or sewan, were tiny (about 1/3" long) purple or white beads, the purple made from the shell of the quahog, or hard-shelled clam (*Mercenaria mercenaria*) and the white from the columella of the whelk (*Busycon* sp.). Since the purple

beads could only be made from a small part of the clam shell, they were more highly prized. As John Josselyn wrote in 1633:

> there are two sorts, blue and white; the first is their gold and the latter their silver. These they work out of certain shells . . . They drill and string them to adorn the persons of their sagamores and principal men and young women (Thompson 1918:113-114).

Presumably, wampum was manufactured by women, who cut, polished and bored the beads without the use of metal tools. Originally the beads were strung on sinew into belts and necklaces and exchanged between Indian groups as a show of good faith and friendship on important occasions. With the arrival of Europeans and the perennial lack of specie which plagued all of the American colonies, during the 17th century wampum was adopted by both the English and the Dutch as legal tender, and various colonial governors published rates of exchange between the beads and European currencies. Wampum was also highly prized by the Iroquois of upstate New York, and its manufacture became a valuable industry for the Canarsee (Ibid.:116; Bolton 1972:100,102; Van Wyck 1924:108).

The wampum making center on Bergen Island, with its huge shell midden or refuse heap has been noted by many historians and archaeologists (Thompson 1918:124; Beauchamp 1978:79; Parker 1920:582; Stiles 1884:65). Bolton notes that there "are extensive shell beds on this island, and stone implements have been found there" (Bolton 1972:52). In 1950, another source describes the island as "about the only site left in the entire county where relics are still obtainable" (O'Halloran 1950:63). Other historians record the fact that Flatlands and its inhabitants mined the Bergen shell midden for fertilizer and road-building material as late as the 20th century (Van Wyck 1924:120; Thompson 1918:142).

Prehistoric Potential

As outlined in the Prehistoric Era discussion (Section III), our knowledge of prehistoric and contact period settlement patterns indicates a marked preference for sheltered, elevated sites close to wetland features and sources of fresh water. Such locations are likely to have been exploited by prehistoric Americans for their processing sites, camps and more permanent settlements. Evidence of Indian exploitation of natural resources in, and occupation of the vicinity of the project site is well-documented through archaeological and historical research. The earliest evidence of prehistoric occupation comes from the inventoried site at the head of Gerritsen Basin, about 6,000 feet west of the Mill Basin bridge site (Ryders Pond—NYSM-3608, NYSM-7459), where artifacts dating to the Transitional Archaic period (4,000 to 3,000 B.P.) have been recovered.

Although these well-drained, elevated sites were preferred by the Indians for their activity and habitation sites, pre-historic land use, and therefore prehistoric archaeological potential is not confined to such areas. Often, low-lying and marshy areas adjacent to these dry, elevated habitation sites were utilized as garbage dumps. Such behavior has been

documented archaeologically, as at Aqueduct in southwestern Queens, where soil borings identified shell middens beneath layers of fill, but in some cases atop layers of peat (Pickman 1987:4).

In addition, as described in the prehistoric overview, the environment of the project area has not been static since the final retreat of the glacial ice, c.18,000 B.P. One of the consequences of the post-glacial warming trend (c.14,000 B.P.) has been a continuous, increase in sea level, estimated at from 75 to 80 feet. Although not occurring at a uniform rate, this sea level rise gradually inundated the continental shelf, which was exposed during the Paleo-Indian period, and also the gently-sloping glacial outwash plain, creating the shallowly inundated areas which are conducive to the establishment of eel grass and therefore the creation of tidal marsh environments, adjacent to areas of not-yet-inundated dry land. With subsequent sea level rise, which slowed by about 4,000 to 2,000 B.P. and has slowed even more to the present, prehistoric and even historical archaeological sites in these areas may lie beneath the current water table, as well as historical fill and a number of feet of accumulated marsh mat. This has been substantiated at a number of locations in coastal New York and Connecticut where submerged prehistoric sites have been discovered during dredging activities, beneath, or in association with, the peat deposits produced by tidal marshes (Pickman 1987:6).

As Gimigliano (1983)[10] noted, the elevated islands and marshy flats within Jamaica Bay, and the Belt Parkway Bridge project site itself, would have been ideal for prehistoric exploitation prior to sea level rise. However, the archaeological survey of the area has been prevented due to the rise in sea level, and the massive landfill operations that have occurred there. The shores of the drowned creek/estuary crossings (i.e. the Gerritsen Inlet, Mill Basin Paerdegat and Fresh Creek bridge locations) were considered particularly sensitive, given prehistoric man's preference for sites adjacent to watercourses (Gimigliano 1983:6-8).

Archaeologist Arnold Pickman, also concluded that there was a strong potential for submerged sites in an archaeological assessment of a study parcel at Mill Basin (an area of former salt marsh approximately 1,500 feet west and north of the Mill Basin bridge site) (Pickman 1987:5,6). Both Gimigliano and Pickman recommended a series of borings in potentially sensitive locations to determine thickness of peat and fill layers, and the elevation of the basal peat and organic silt deposits, i.e., the approximate elevation of the ground surface/sea level at the time of inundation. Gimigliano hoped to identify archaeological material, such as shell midden deposits, in the pre-inundation layers (Gimigliano 1983:6-8; See also Rutsch and Church 1983) while Pickman went further to suggest that data on the pre-marsh sea level elevation could be used to extrapolate an inundation date, based on similar Carbon-14-dated boring samples (Pickman 1987:6).

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[10] The Gimigliano study parcel includes the sites of the six easternmost Belt Parkway Bridges (Gerritsen, Flatbush Avenue, Mill Basin, Paerdegat Basin, Rockaway Parkway and Fresh Creek Basin). See also Rutsch and Church (1983).

Historical and cartographic research on the Mill Basin bridge site indicates that prior to historical development, it was low-lying marsh, divided into three marshy islands, by two channels. In light of the preceding discussion, due to changing sea level, and the documented presence in the project area vicinity of prehistoric man by the time of the Transitional Archaic and through the historical period, it is theoretically possible that the location was occupied at some time during the prehistoric era.

The Mill Basin bridge site is rated as having a *low prehistoric potential*. Given the subsequent rise in sea level, the site would have been subject to impact from post-depositional tidal action. On the other hand, because any prehistoric cultural remains would be below the current water table, as well as deeply buried beneath fill and layers of marsh mat, the sites would be well-protected from historical construction disturbance, but the most problematic to identify and recover archaeologically.

Disturbance impact on this prehistoric potential, and the surviving potential archaeological sensitivity will be discussed in the conclusions section of this chapter.

Historical Period

Southeastern Kings County was originally divided among several towns, whose jurisdictions extended into the meadowlands bordering Jamaica Bay. The town of Flatlands was the oldest Dutch settlement on Long Island, established in 1636 as Nieuw Amersfoort, although it did not receive official designation as a municipality until c.1647. Lying between Gerritsen and Paerdegat Creeks, Flatlands included the Mill Basin bridge site. (See Fig. 4c.)

Modern, urban eyes might consider worthless the marshlands which form the greater part of the project site vicinity. However, during the 17th and 18th centuries, this meadowland was considered very valuable. The harvested salt grasses were an important source of much-needed feed for domestic animals. The numerous small creeks which drained into Jamaica Bay were important for fishing, transportation, and the locations of tidal grist mills. As visitors to Flatlands commented in 1679:

> There is toward the sea, a large piece of low flat land which is overflown at every tide, like the schorr [marsh] with us, miry and muddy at the bottom, and which produces a species of hard salt grass or reed grass. Such a place they call valey [*sic*] and mow it for hay, which cattle[11] would rather eat than fresh hay or grass. It is so hard they cannot mow it with a common scythe, like ours, but must have the English scythe for the purpose.

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[11] "Cattle" refers to livestock, rather than simply bovines.

> All the land from the bay to 't Vlacke Bos [Flatbush] is low and level, without the least elevation.
>
> There is also a tract which is somewhat large, of a kind of heath, on which sheep could graze . . . This meadow, like all the others, is well provided with good creeks which are navigable and very serviceable for fisheries (Van Wyck 1924:183; Dankaerts and Sluyter 1966:131).

Portions of the meadows must have been extremely muddy, since the list of officials appointed at the neighboring town of Gravesend's founding included men to extricate trapped cattle from the marshes. On the other hand, exploiting the natural resources like their Native American predecessors, European settlers occupied and built structures on the few existing dry, elevated areas at or near the bay shores, such as Bergen Island, about 1,000 feet north of the Mill Basin bridge site. (See Fig. 5b.)

The OPRHP records the sites of a number of early historical structures in the vicinity of the project sites. (See Appendix A.) Those within one mile of the Mill Basin bridge site are:

> **Bergen House Site** (A047-01-0119, Map #5), on the elevated section of Bergen Island in the Present Bergen Beach section, was an 18th-century building first occupied by Olaf Stoothoff, and transferred to John Bergen in 1791. The house stood until c.1924, approximately 1,000 feet northwest of the Mill Basin bridge site. (See Fig. 5b.)
>
> **King's Bayview House Site** (A047-01-0125, Map #3), the location of a probable 18th-century residential building in Canarsie, generally located about 5,000 feet north of the Mill Basin bridge site. (See Fig. 4c.).

The elevated dry ground at Canarsie Landing, about 1.2 miles northeast of the Mill Basin bridge site, became a small seaside and sport fishing resort during the late 19th century. The 1873 atlas shows the Bay View Hotel at the tip of the landing, serviced by the terminus of the Brooklyn and Rockaway Branch Rail Road. (See Fig. 6b.) As Jamaica Bay became more and more polluted from household sewage, and from the fertilizer and fish oil plants that were established on fill on the aptly-named Barren Island (see Fig. 7), the resort declined (WPA 1982:501-502). (See Fig. 9g.)

With the creation of Greater New York in 1898, Jamaica Bay was seen more and more as a wasteland, ripe for development. In 1905 the City Comptroller released a report calling for the filling of most of the marsh and bay, leaving channels between islands for shipping lanes. The lowlands were to be filled by city ash and refuse, and extensive bulkheads and numerous wharves built. However, due to the grandiose nature of the plan, scandal and the Great Depression, only parts of this plan were ever implemented, such as the construction of Mill Basin, Paerdegat Basin, the creation of Floyd Bennett Field, the construction of Cross Bay Boulevard in 1923, and Canarsie Pier in 1925 (Hazen and Sawyer 1991:21-22).

Parks Commissioner Robert Moses managed to overturn the industrialization plan, and pushed through rezoning that limited industry to the northern sections of the bay, and promoted recreational and residential development. Under plans unveiled by Moses in 1930, the Shore Parkway, now known as the Belt Parkway, was constructed from 1938 (first contract signing) to 1940 (official opening). The bridges were designed by Madigan Hyland Consulting Engineers, with contract drawings dating from 1939 and 1940. The parkway was not intended to be the present heavily-traveled commuter artery, but a scenic drive along the shore and through the marshlands. Along with landscaping and numerous parks constructed along its length, the parkway construction, involving the placement of 11.8 million cubic yards of hydraulic fill, and 4.8 cubic yards of dry fill, brought the project area to approximately its present appearance (Ibid.:22; Caro 1975:341).

Historical Potential

No buildings or structures have been recorded on the Mill Basin bridge site prior to the construction of the Belt Parkway. There is no record of any historical occupation there. This site has *no historical archaeological potential.*

Conclusions

Historical Sensitivity

The Mill Basin bridge site has no historical archaeological potential, and is therefore *not sensitive* for buried cultural deposits from the historical period. No further study or other action is warranted.

Prehistoric Sensitivity

Formerly marshland, the Mill Basin bridge site touched on three marshy islands in Jamaica Bay, two of these unnamed, and the third and westernmost, Riches Meadow Island, which later formed the largest part of the Floyd Bennett Field peninsula. The bridge site also crossed at least two channels, Crooked Creek, which was filled in the 1930s, and what was formerly known as Irish Creek, now called Mill Basin. (See Fig. 6b.)

A 1938 plan and profile drawn prior to bridge construction shows the site of the southern abutment below water level, sloping down to the basin from between 0 and -1 feet (mean sea level is assumed) to as low as -10 feet adjacent to the basin (NYDP Contract SS-38-3, Sheets 5 and 9). Another drawing, dated 1939, shows that the mud of the abutment site was considered insufficient for a solid foundation, and was removed and replaced to a relatively uniform depth of -15 feet (below mean high water (NYDP Contract MS-39-3A; Gimigliano 1983:14). Except for pilings, the foundations of the south abutment do not

extend below the water level (considered to be 0 feet) and therefore are in a previously-disturbed area. However, the pilings beneath the south abutment and the adjacent piers penetrate to a depth of approximately -60 feet.

The location of the bridge's northern abutment had received some fill during the creation of Mill Basin, raising elevations to between 0 at the water line and 7.5 feet above mean sea level, sloping up northward from the basin. Additional fill was added just prior to bridge construction, increasing the total fill layer under the northern abutment to between 0 feet at the water line to 16.25 at the northern end of the abutment (NYDP Contract SS-38-3, Sheets 5 and 10). Although piles beneath this abutment and one of the adjacent piers go to a depth of -70 feet, easily penetrating the fill layer, there is presently insufficient information about this abutment's foundations to chart the extent of disturbance.

The former marsh to the north and south of the bridge proper received substantially less fill than near the new Mill Basin channel. At the northern end of the site, elevations decline to between 5 and 10 feet, with the northeast corner having an elevation below 5 feet. At the southern end of the Mill Basin bridge site, elevations decline gradually to between 5 and 10 feet, but the rise above 10 feet as the Flatbush Avenue cloverleaf is approached. (See Fig. 2a.) Except for the more elevated area near the cloverleaf, the thickness of the fill overburden on the predevelopment marsh surface appears to range between as little as 0 feet to as much as 10 feet thick. This layer would be expected to thin out as elevations slope away from the parkway roadbed.

Mill Basin channel itself loping sharply down from the abutment locations to a fairly level bottom with a depth between -30 and -34 feet (NYDP Contract SS-38-3, Sheet 5). The four central piers have substantial foundations which extend to approximately -40 feet, and all piers have piles continuing to at least -65 feet. The second channel, Crooked Creek, was completely filled in, but its former depth, and exact location is difficult to pinpoint on current maps.

A program of soil borings was performed, and the results analyzed for a project site which included the Mill Basin bridge site. This work was part of a Stage 1B cultural resources survey completed in 1983. No prehistoric cultural materials were identified in these borings (Rutsch and Church 1983).

Five borings were made at Mill Basin, two on the south embankment, one on the north, and one in the water adjacent to each embankment. Beneath a layer of fill, and a 10-foot layer of marsh deposits, gray sand extended to a depth of 50 feet below the present surface. Although some stray shells were identified in the marsh deposits, no cultural deposits or materials were present in any of these borings (Rutsch and Church 1983:9-10).

Although the borings did not identify any cultural deposits, and may suggest that the channel banks have no archaeological sensitivity, they are inconclusive. A total of five soil borings are woefully insufficient to cover an area as large as the Mill Basin bridge site, with dimensions 6,500 by 382 feet. Because the depths of potentially sensitive strata are not

known, and in the absence of any data documenting construction disturbance impacting these potentially sensitive stratigraphic deposits beneath the fill overburden, the Mill Basin bridge site must be considered *sensitive* for buried prehistoric cultural remains.

Recommendations

When the program of soil borings, necessary before bridge rehabilitation can proceed, takes place. this program should be designed with input from a qualified archaeologist, so that pertinent cultural and environmental data is recorded. It is recommended that the borings and subsequent analysis be part of a second phase of study, focusing specifically on potential prehistoric resources. The number of soil borings should be sufficient to cover the area of the project site, and of sufficient depth to determine whether there is evidence of the presence of strata that could have supported prehistoric occupation. Such evidence includes the presence/absence of a thick peat lens, a shell midden or other prehistoric cultural remains. This subsurface data will eliminate, narrow, or more clearly define any areas of archaeological sensitivity.

After the soil boring logs are analyzed by an archaeologist, if no evidence of potentially sensitive strata is found, then no further archaeological research or testing is recommended.

If the project site's prehistoric archaeological potential is corroborated by the soil borings data, then a subsequent phase of study may be required.

7. Belt Parkway over Paerdegat Basin

The Paerdegat Basin bridge site extends 3,400 feet along the Belt Parkway, this length centered on the centerline of the Paerdegat Basin bridge, and running roughly southwest to northeast. The project site is 217 feet wide, extending 121 feet north and 96 feet south of the parkway centerline. (See Fig. 1g.)

Topography and Environment

Prior to early 20th-century filling operations, much of the Paerdegat Basin bridge site was in the shallow waters of Jamaica Bay immediately east of the shore of Bergen Island/Beach. East and southwest of Paerdegat Basin, elevations ranged from -5 to -7 feet, suggesting an area that was usually inundated. However, given the site's great length, 3,400 feet, its southwestern edge was partially on more elevated (+5 feet) ground at the eastern corner of Bergen Beach, while the northern 1,300 feet of the site were in the marshes west of the Canarsie Landing, with elevations between 0 and +5 feet. (See Figs. 5b, 6b and 9g.)

Current elevations around bridge abutments range from 15 to <25 feet., while beyond the abutments, elevations drop gradually to between 5 and 10 feet, and below 5 feet as the shores of Jamaica Bay are approached (see Fig. 2a and 2b.)

Evidence of Prehistoric Occupation

The Paerdegat Basin bridge site was adjacent to an important, inventoried site of prehistoric and early historical occupation. The NYSM includes most of the southern part of the project site in the area related to the "immense shell heaps" -NYSM-7391 (ACP Kings 3) - that Parker reports on Bergen Island (Parker 1920:582). The OPRHP siting (A047-01-0115 - #6 on map) is somewhat more conservative, placing the "Winnapague Site," a possible early historical Canarsee site, approximately 1,000 feet southwest of the Paerdegat Basin bridge site. (See Appendix A.)

Bergen Island, known to the Canarsee as Wimbaco (a fine water place) or Winnippague (Grumet 1981:63) has been identified as one of Long Island's largest centers of wampum production. (See Fig. 3.) Wampum, or sewan, were tiny (about 1/3" long) purple or white beads, the purple made from the shell of the quahog, or hard-shelled clam (*Mercenaria mercenaria*) and the white from the columella of the whelk (*Busycon* sp.). Since the purple beads could only be made from a small part of the clam shell, they were more highly prized. As John Josselyn wrote in 1633:

> there are two sorts, blue and white; the first is their gold and the latter their silver. These they work out of certain shells . . . They drill and string them to adorn the

persons of their sagamores and principal men and young women (Thompson 1918:113-114).

Presumably, wampum was manufactured by women, who cut, polished and bored the beads without the use of metal tools. Originally the beads were strung on sinew into belts and necklaces and exchanged between Indian groups as a show of good faith and friendship on important occasions. With the arrival of Europeans and the perennial lack of specie which plagued all of the American colonies, during the 17th century wampum was adopted by both the English and the Dutch as legal tender, and various colonial governors published rates of exchange between the beads and European currencies. Wampum was also highly prized by the Iroquois of upstate New York, and its manufacture became a valuable industry for the Canarsee (Ibid.:116; Bolton 1972:100,102; Van Wyck 1924:108).

The wampum making center on Bergen Island, with its huge shell midden or refuse heap has been noted by many historians and archaeologists (Thompson 1918:124; Beauchamp 1978:79; Parker 1920:582; Stiles 1884:65). Bolton notes that there "are extensive shell beds on this island, and stone implements have been found there" (Bolton 1972:52). In 1950, another source describes the island as "about the only site left in the entire county where relics are still obtainable" (O'Halloran 1950:63). Other historians record the fact that Flatlands and its inhabitants mined the Bergen shell midden for fertilizer and road-building material as late as the 20th century (Van Wyck 1924:120; Thompson 1918:142).

Bolton describes an "extensive station of the Canarsie," a large village site with an extensive planting field, centered on East 92nd Street from Canarsie Beach Park to Avenue J, beginning about 1,000 feet northwest of the project site (Bolton 1972:146). Near Canarsie Beach Park, which surrounds the eastern half of the Paerdegat Basin bridge site "numerous objects of native manufacture have been found." However, this area west of Rockaway Parkway is considered to be more a place of cultivation and wampum manufacture than a settlement (Bolton 1922:150; Map VIII, D). Several 17th-century documents refer to the Canarsee planting fields or meadows in this area, with variations on the word Castuteeuw ("where grass is cut or mowed"). The 1666 Hubbarde Map labeled the vicinity "Conarise Indian Field" (Grumet 1981:7). (See Fig. 3.)

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Prehistoric Potential

As outlined in the preceding section, our knowledge of prehistoric and contact period settlement patterns indicates a marked preference for sheltered, elevated sites close to wetland features and sources of fresh water. Such locations are likely to have been exploited by prehistoric Americans for their processing sites, camps and more permanent settlements. Evidence of Indian exploitation of natural resources in, and occupation of the vicinity of the project site is well-documented through archaeological and historical research. The earliest evidence of prehistoric occupation comes from the inventoried site at the head of Gerritsen Basin (Ryders Pond - NYSM-3608, NYSM-7459) where artifacts dating to the Transitional Archaic period (4,000 to 3,000 B.P.) have been recovered.

Although these well-drained, elevated sites were preferred by the Indians for their activity and habitation sites, pre-historic land use, and therefore prehistoric archaeological potential is not confined to such areas. Often, low-lying and marshy areas adjacent to these dry, elevated habitation sites were utilized as garbage dumps. Such behavior has been documented archaeologically, as at Aqueduct in southwestern Queens, where soil borings identified shell middens beneath layers of fill, but in some cases atop layers of peat (Pickman 1987:4).

In addition, as described in the Prehistoric Era discussion (Section III), the environment of the project area has not been static since the final retreat of the glacial ice, c.18,000 B.P. One of the consequences of the post-glacial warming trend (c.14,000 B.P.) has been a continuous, increase in sea level, estimated at from 75 to 80 feet. Although not occurring at a uniform rate, this sea level rise gradually inundated the continental shelf, which was exposed during the Paleo-Indian period, and also the gently-sloping glacial outwash plain, creating the shallowly inundated areas which are conducive to the establishment of eel grass and therefore the creation of tidal marsh environments, adjacent to areas of not-yet-inundated dry land. With subsequent sea level rise, which slowed by about 4,000 to 2,000 B.P. and has slowed even more to the present, prehistoric and even historical archaeological sites in these areas may lie beneath the current water table, as well as historical fill and a number of feet of accumulated marsh mat. This has been substantiated at a number of locations in coastal New York and Connecticut where submerged prehistoric sites have been discovered during dredging activities, beneath, or in association with, the peat deposits produced by tidal marshes (Pickman 1987:6).

As Gimigliano (1983)[12] noted, the elevated islands and marshy flats within Jamaica Bay, like those on the Paerdegat Basin bridge site, would have been ideal for prehistoric exploitation prior to sea level rise. However, the archaeological survey of the area has been prevented due to the rise in sea level, and the massive landfill operations that have

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[12] The Gimigliano study parcel includes the sites of the six easternmost Belt Parkway Bridges (Gerritsen, Flatbush Avenue, Mill Basin, Paerdegat Basin, Rockaway Parkway and Fresh Creek Basin). See also Rutsch and Church (1983).

occurred there. The shores of the drowned creek/estuary crossings (i.e. the Gerritsen Inlet, Mill Basin, Paerdegat and Fresh Creek bridge locations) were considered particularly sensitive, given prehistoric man's preference for sites adjacent to watercourses (Gimigliano 1983:6-8).

Archaeologist Arnold Pickman, also concluded that there was a strong potential for submerged sites in an archaeological assessment of a study parcel at Mill Basin (an area of former salt marsh approximately 4,000 feet southwest of the Paerdegat Basin bridge site) (Pickman 1987:5,6). Both Gimigliano and Pickman recommended a series of borings in potentially sensitive locations to determine thickness of peat and fill layers, and the elevation of the basal peat and organic silt deposits, i.e., the approximate elevation of the ground surface/sea level at the time of inundation. Gimigliano hoped to identify archaeological material, such as shell midden deposits, in the pre-inundation layers (Gimigliano 1983:6-8; See also Rutsch and Church 1983) while Pickman went further to suggest that data on the pre-marsh sea level elevation could be used to extrapolate an inundation date, based on similar Carbon-14-dated boring samples (Pickman 1987:6).

Historical and cartographic research on the Paerdegat Basin bridge site indicates that prior to historical development, it was low-lying marsh, adjacent to elevated land at Bergen Beach, a location known for its extensive shell midden deposits. In light of the preceding discussion, due to changing sea level, and the documented presence in the project area vicinity of prehistoric man by the time of the Transitional Archaic and through the historical period, it is theoretically possible that the project site was occupied at some time during the prehistoric era.

The Paerdegat Basin bridge site is rated as having a *moderate prehistoric potential.* Given the subsequent rise in sea level, the site would have been subject to impact from post-depositional tidal action. On the other hand, because any surviving prehistoric cultural remains could be below the current water table, as well as deeply buried beneath fill and layers of marsh mat, these potential remains would be well-protected from historical construction disturbance, but the most problematic to identify and recover archaeologically.

Disturbance impact on this prehistoric potential, and the surviving potential archaeological sensitivity will be discussed in the conclusions section of this chapter.

Historical Period

Southeastern Kings County was originally divided among several towns, whose jurisdictions extended into the meadowlands bordering Jamaica Bay.

The town of Flatlands was the oldest Dutch settlement on Long Island, established in 1636 as Nieuw Amersfoort, although it did not receive official designation as a municipality until

c.1647. Lying between Gerritsen and Paerdegat Creeks, Flatlands included the western touchdown of the Paerdegat Basin bridge site. (See Fig. 4c.)

Midwout, later Flatbush, was settled in 1652, and officially organized in 1654, and originally included all the land from the eastern shore of Paerdegat Creek to the present Queens County border. The eastern touchdown of the Paerdegat Basin bridge was in the territory of Flatbush.

Modern, urban eyes might consider worthless the marshlands which form the greater part of the project site. However, during the 17th and 18th centuries, this meadowland was considered very valuable. The harvested salt grasses were an important source of much-needed feed for domestic animals. The numerous small creeks which drained into Jamaica Bay were important for fishing, transportation, and the locations of tidal grist mills. As visitors to Flatlands commented in 1679:

> There is toward the sea, a large piece of low flat land which is overflown at every tide, like the schorr [marsh] with us, miry and muddy at the bottom, and which produces a species of hard salt grass or reed grass. Such a place they call valey [*sic*] and mow it for hay, which cattle[13] would rather eat than fresh hay or grass. It is so hard they cannot mow it with a common scythe, like ours, but must have the English scythe for the purpose.
>
> All the land from the bay to 't Vlacke Bos [Flatbush] is low and level, without the least elevation.
>
> There is also a tract which is somewhat large, of a kind of heath, on which sheep could graze . . . This meadow, like all the others, is well provided with good creeks which are navigable and very serviceable for fisheries (Van Wyck 1924:183; Dankaerts and Sluyter 1966:131).

Portions of the meadows must have been extremely muddy, since the list of officials appointed at neighboring Gravesend's founding included men to extricate trapped cattle from the marshes. On the other hand, exploiting the natural resources like their Native American predecessors, European settlers occupied and built structures on the few existing dry, elevated areas at or near the bay shores. One of these elevated locations was Bergen Island, about 500 feet west of the Paerdegat Basin bridge site. It is worth noting that this is the approximate location of prehistoric site 7391. (See Appendix A.)

The OPRHP records the sites of a number of early historical structures in the vicinity of the Paerdegat Basin bridge site (see Appendix A. They are:

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[13] "Cattle" refers to livestock, rather than simply bovines.

Bergen House Site (A047-01-0119, Map #5), on the elevated section of Bergen Island in the Present Bergen Beach section, was an 18th-century building first occupied by Olaf Stoothoff, and transferred to John Bergen in 1791. The house stood until c.1924, approximately 750 feet west of the Paerdegat Basin bridge site. (See Fig. 5b.)

Van Wicklen Cottage and Mill Site (A047-01-0123, Map #4), a tidal mill built in 1763 and demolished in 1934, and later "cottage," which was destroyed by fire in 1924. These sites are incorrectly placed "Along Paerdegat Basin (near foot of former Crescent Street)." The Van Wicklen site is actually on Spring Creek, near the foot of ***present*** Crescent Street, approximately 3 miles to the northeast (Kearns, Kirkorian and Schaefer 1988:16-17,19-20; Walling 1859).

Schenk House Site (A047-01-0118, Map #2), a house built in 1664 at Canausey (Canarsie) Landing and demolished after c.1936. It stood near the foot of Remsen Avenue approximately 750 feet north of the Paerdegat Basin bridge site. (See Fig. 4c.) The later 19th-century Martin Schenk homestead, also stood nearby. (See Fig. 5c; also Appendix A.)

King's Bayview House Site (A047-01-0125, Map #3), the location of a probable 18th-century residential building in Canarsie, generally located about 750 north of Paerdegat Basin bridge site.

The elevated dry ground at Canarsie Landing, about 1,250 feet northeast of the Paerdegat Basin bridge site, became a small seaside and sport fishing resort during the late 19th century. The 1873 atlas shows the Bay View Hotel at the tip of the landing, serviced by the terminus of the Brooklyn and Rockaway Branch Rail Road. (See Fig. 6b.) As Jamaica Bay became more and more polluted from household sewage, and from the fertilizer and fish oil plants that were established on fill on the aptly-named Barren Island (see Fig. 7), the resort declined, and by the 1930s the area was associated with immigrant shacks and garbage dumps, and the noisome odors emanating from the industrial establishments (WPA 1982:501-502). (See Fig. 9g.)

With the creation of Greater New York in 1898, Jamaica Bay was seen more and more as a wasteland, ripe for development. In 1905 the City Comptroller released a report calling for the filling of most of the marsh and bay, leaving channels between islands for shipping lanes. The lowlands were to be filled by city ash and refuse, and extensive bulkheads and numerous wharves built. However, due to the grandiose nature of the plan, scandal and the Great Depression, only parts of this plan were ever implemented, such as the construction of Mill Basin, Paerdegat Basin, the creation of Floyd Bennett Field, the construction of Cross Bay Boulevard in 1923, and Canarsie Pier in 1925 (Hazen and Sawyer 1991:21-22).

Parks Commissioner Robert Moses managed to overturn the industrialization plan, and pushed through rezoning that limited industry to the northern sections of the bay, and promoted recreational and residential development. Under plans unveiled by Moses in 1930, the Shore Parkway, now known as the Belt Parkway, was constructed from 1938 (first contract signing) to 1940 (official opening). The bridges were designed by Madigan Hyland Consulting Engineers, with contract drawings dating from 1939 and 1940. The parkway was not intended to be the present heavily-traveled commuter artery, but a scenic drive along the shore and through the marshlands. Along with landscaping and numerous parks constructed along its length, the parkway construction, involving the placement of 11.8 million cubic yards of hydraulic fill, and 4.8 cubic yards of dry fill, brought the project area to approximately its present appearance (Ibid.:22; Caro 1975:341).

Historical Potential

No buildings or structures have been recorded on the Paerdegat Basin bridge site prior to the construction of the Belt Parkway. There is no record of any historical occupation there. This site has *no historical archaeological potential.*

Conclusions

Historical Sensitivity

The Paerdegat Basin bridge site has no historical archaeological potential, and is therefore *not sensitive* for buried cultural deposits from the historical period. No further study or other action is warranted.

Prehistoric Sensitivity

Prior to early 20th-century filling operations, much of the Paerdegat Basin bridge site was in the shallow waters of Jamaica Bay immediately east of the shore of Bergen Island/Beach.

At its center, the Paerdegat Basin channel was as deep as -22 feet, and a 1938 drawing shows the south abutment location at between -5 and -10 feet below mean sea level. Fill added for the south abutment embankment raised the elevations to approximately 20 feet sloping down to the basin at about 6 feet, indicating a layer of fill between about 25 and 16 feet thick. Abutment foundations do not extend below this fill layer, except for clusters of piles which go to a depth of approximately -60 feet, beneath the abutments and bridge piers (NYDP Contract MS39-3, Sheets 2 and 3; Contract SS-38-3, Sheets 6 and 11).

At the time of bridge construction the shores of Paerdegat Basin channel sloped steeply down from -10 to between -20 and -22 feet. The bridge piers in the channel penetrate the

channel bottom and rest on pile clusters extending to approximately -60 to -70 feet below the water level (NYDP Contract MS39-3, Sheets 2 and 3; Contract SS-38-3, Sheets 6 and 11).

In 1938 the north abutment site sloped up to the north from -5 to less than 0 feet, and was constantly underwater or just at the water surface. The higher elevations on the site east of the north abutment may be due to earlier fill deposited at the time of the creation of Canarsie Beach Park, which appears as an elevated area adjacent to the north abutment, in a place that was earlier marsh. Additional fill was added prior to the construction of the north abutment, raising the elevations to approximately 3 feet near the basin sloping up northward to about 21 feet. This would represent a layer of between 8 and 21 feet of fill, deposited over what may be earlier fill. Like the south abutment, foundations do not extend below this fill layer, except for clusters of piles which go to a depth of approximately -60 feet, beneath the abutments and bridge piers (NYDP Contract MS39-3, Sheets 2 and 3; Contract SS-38-3, Sheets 6 and 11).

East of the north abutment, elevations ranged from 0 to 5 feet, but some fill may have been added prior to the parkway construction which added less than five feet of fill in this area to bring it up to 7.5 feet. Subsequent filling has increased this elevation to over 20 feet near the north abutment, sloping down to below 10 feet at the northern edge of the site, indicating a fill overmantle in this section varying from less than 5 to more than 20 feet thick. (NYDP Contract MS39-3, Sheets 2 and 3; Contract SS-38-3, Sheets 6 and 11).

Southwest of Paerdegat Basin, the project site sloped steeply upward toward the west, as Bergen Beach was approached. Elevations formerly began at -5 feet on the bay side, rising to 5 feet, indicating an area that was usually inundated (NYDP Contract SS-38-3, Sheet 6). At present, this area has elevations ranging from 15 feet near the south abutment dropping to between 5 and 10 feet near Bergen Beach, and between 10 and 0 feet toward Jamaica Bay, indicating a layer of fill overburden ranging from as little as 0 to 5 feet near Bergen Beach, to as much as 15 feet along the bay and near the south abutment.

A program of soil borings was performed, and the results analyzed for a project site which included the Paerdegat Basin bridge site. This work was part of a Stage 1B cultural resources survey completed in 1983. No prehistoric cultural materials were identified in these borings (Rutsch and Church 1983).

Two borings were done on the south bank, and one on the north bank of Paerdegat basin. Below fill layers were the remains of earlier marsh surfaces between approximately 8 and 20 feet thick, beneath which gray sand extended to between 30 and 42 feet below the surface. No cultural deposits or materials were observed in any of these borings (Rutsch and Church 1983:10).

Although the borings did not identify any cultural deposits, and may suggest that the channel banks have no archaeological sensitivity, they are inconclusive. A total of three soil borings are woefully insufficient to cover an area as large as the Paerdegat Basin bridge

site, with dimensions 3,400 by 585 feet. Because the depths of potentially sensitive strata are not known, and in the absence of any data documenting construction disturbance impacting these potentially sensitive stratigraphic deposits beneath the fill overburden, the Paerdegat Basin bridge site must be considered *sensitive* for buried prehistoric cultural remains.

Recommendations

When the program of soil borings, necessary before bridge rehabilitation can proceed, takes place, this program should be designed with input from a qualified archaeologist, so that pertinent cultural and environmental data is recorded. It is recommended that the borings and subsequent analysis be part of a second phase of study, focusing specifically on potential prehistoric resources. The number of soil borings should be sufficient to cover the area of the project site, and of sufficient depth to determine whether there is evidence of the presence of strata that could have supported prehistoric occupation. Such evidence includes the presence/absence of a thick peat lens, a shell midden or other prehistoric cultural remains. This subsurface data will eliminate, narrow, or more clearly define any areas of archaeological sensitivity.

After the soil boring logs are analyzed by an archaeologist, if no evidence of potentially sensitive strata is found, then no further archaeological research or testing is recommended.

If the project site's prehistoric archaeological potential is corroborated by the soil borings data, then a subsequent phase of study may be required.

8. Belt Parkway over Rockaway Parkway

The Rockaway Parkway bridge site stretches 1,400 feet along the Belt Parkway, running roughly southwest to northeast, this distance equally divided at the centerline of Rockaway Parkway. The project site is 217 feet wide, extending 121 feet north and 96 feet south of the Belt Parkway centerline. (See Fig. 1h.)

Topography and Environment

Bridge site appears as part of Jamaica Bay in 1844-45. The "Canausey" or Canarsie Landing indicated in the historic maps indicates a small creek to the north of the project site, where boats could penetrate the marsh and reach dry land. Filling activity commenced before 1873, when much of the western half of the Rockaway Parkway bridge site had been filled, and the Bay View Hotel constructed on the newly made dry land. (See Figs. 4c and 6b.) Ocean Parkway and the remainder of the project site to the east were not filled until after 1912. (See Fig. 9g.)

Current elevations for the Rockaway Parkway bridge site are between 10 and 15 feet above mean sea level. (See Fig. 2b.)

Evidence of Prehistoric Occupation

The bridge crossing Mill Basin links Bennett Field to the present mainland south of Bergen Beach, but before the construction of the Belt Parkway this was a separate island or hassock. The Paerdegat Basin Bridge appears also to have been situated on a former unnamed section of marsh. The NYSM includes most of the two bridge locations in the area related to the "immense shell heaps" -NYSM-7391 (ACP Kings 3) - that Parker reports on Bergen Island (Parker 1920:582). The OPRHP siting (A047-01-0115 - #6 on map) is somewhat more conservative, placing the "Winnapague Site," a possible early historical Canarsee site, approximately 3,000 feet north of the Mill Basin bridge and 2,300 feet west of the Paerdegat Basin bridge.

Bergen Island, known to the Canarsee as Wimbaco (a fine water place) or Winnippague (Grumet 1981:63) has been identified as one of Long Island's largest centers of wampum production. (See Fig. 3) Wampum, or sewan, were tiny (about 1/3" long) purple or white beads, the purple made from the shell of the quahog, or hard-shelled clam (*Mercenaria mercenaria*) and the white from the columella of the whelk (*Busycon* sp.). Since the purple beads could only be made from a small part of the clam shell, they were more highly prized. As John Josselyn wrote in 1633:

> there are two sorts, blue and white; the first is their gold and the latter their silver. These they work out of certain shells . . . They drill and string

> them to adorn the persons of their sagamores and principal men and young women (Thompson 1918:113-114).

Presumably, wampum was manufactured by women, who cut, polished and bored the beads without the use of metal tools. Originally the beads were strung on sinew into belts and necklaces and exchanged between Indian groups as a show of good faith and friendship on important occasions. With the arrival of Europeans and the perennial lack of specie which plagued all of the American colonies, during the 17th century wampum was adopted by both the English and the Dutch as legal tender, and various colonial governors published rates of exchange between the beads and European currencies. Wampum was also highly prized by the Iroquois of upstate New York, and its manufacture became a valuable industry for the Canarsee (Ibid.:116; Bolton 1972:100,102; Van Wyck 1924:108).

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During the building of the Belt Parkway through southeastern Kings County in the 1930s, archaeologist Ralph Solecki and his colleagues investigated a number of prehistoric sites in this area. Just north of Paerdegat Basin (about 1.1 miles north of the Paerdegat Basin bridge) he noted the excavation of four shell pits, and recorded a shell midden covering about 600 square feet (at the surface), as well as areas littered with stone flakes and chips. This was a long-known site, believed to be associated with the Canarsee's main settlement (Solecki 1941).

Evidence of Prehistoric Occupation

The Rockaway Parkway bridge site lies within close proximity of a number of Indian sites associated with the main village of the Canarsee (NYSM-3609) in the present Canarsie section of Brooklyn. The NYSM places the village around the head of Fresh Creek, about 1,200 feet north of the project site. The records of the OPRHP (A047-01-113 - #1 on map) indicate the village dates to the late prehistoric/early historical period. In addition, Parker notes a campsite (NYSM-3610) in the area adjacent on the north to the project site, which the NYSM overlaps with the village site. Parker splits the two, placing the village to the east side of Fresh Creek, and the campsite on the west side (Parker 1920:583).

In association with the village and campsite, NYSM also records shell middens on the east (NYSM-3607) and west NYSM-7390 (ACP Kings 3) shores of Fresh Creek, from 4,000 to

6,000 feet to the east of the Rockaway Parkway bridge site. The authorities concur that these shell heaps were immense (Parker 1920:582,583; Thompson 1918:124; Beauchamp 1978:80), and it is probable that wampum manufacture was associated with the Canarsie village as well.

Bolton describes an "extensive station of the Canarsie," a large village site with an extensive planting field, centered on East 92nd Street from Canarsie Beach Park to Avenue J (Bolton 1972:146). Near Canarsie Beach Park, which surrounds the Rockaway Parkway bridge, "numerous objects of native manufacture have been found." However, the area west of Rockaway Parkway is considered to be more a place of cultivation and wampum manufacture than a settlement (Bolton 1922:150; Map VIII, D). Several 17th-century documents refer to the Canarsee planting fields or meadows in this area, with variations on the word Castuteeuw ("where grass is cut or mowed'). The 1666 Hubbarde Map labeled the vicinity "Conarise Indian Field" (Grumet 1981:7). (See Fig. 3.)

As outlined in the Prehistoric Era discussion (Section III), our knowledge of prehistoric and contact period settlement patterns indicates a marked preference for sheltered, elevated sites close to wetland features and sources of fresh water. Such locations are likely to have been exploited by prehistoric Americans for their processing sites, camps and more permanent settlements. Evidence of Indian exploitation of natural resources in, and occupation of the vicinity of the project site is well-documented through archaeological and historical research. The earliest evidence of prehistoric occupation comes from the inventoried site at the head of Gerritsen Basin (Ryders Pond - NYSM-3608, NYSM-7459) where artifacts dating to the Transitional Archaic period (4,000 to 3,000 B.P.) have been recovered.

Although these well-drained, elevated sites were preferred by the Indians for their activity and habitation sites, pre-historic land use, and therefore prehistoric archaeological potential is not confined to such areas. Often, low-lying and marshy areas adjacent to these dry, elevated habitation sites were utilized as garbage dumps. Such behavior has been documented archaeologically, as at Aqueduct in southwestern Queens, where soil borings identified shell middens beneath layers of fill, but in some cases atop layers of peat (Pickman 1987:4).

In addition, as described in the prehistoric overview, the environment of the project area has not been static since the final retreat of the glacial ice, c.18,000 B.P. One of the consequences of the post-glacial warming trend (c.14,000 B.P.) has been a continuous, increase in sea level, estimated at from 75 to 80 feet. Although not occurring at a uniform rate, this sea level rise gradually inundated the continental shelf, which was exposed during the Paleo-Indian period, and also the gently-sloping glacial outwash plain, creating the shallowly inundated areas which are conducive to the establishment of eel grass and therefore the creation of tidal marsh environments, adjacent to areas of not-yet-inundated dry land. With subsequent sea level rise, which slowed by about 4,000 to 2,000 B.P. and has slowed even more to the present, prehistoric and even historical archaeological sites in these areas may lie beneath the current water table, as well as historical fill and a

number of feet of accumulated marsh mat. This has been substantiated at a number of locations in coastal New York and Connecticut where submerged prehistoric sites have been discovered during dredging activities, beneath, or in association with, the peat deposits produced by tidal marshes (Pickman 1987:6).

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Historical and cartographic research indicates that the Rockaway Parkway Bridge site, prior to its development as a resort area in the late 19th century, was a completely inundated section of Jamaica Bay. In light of the preceding discussion, due to changing sea level, and the documented presence in the project area of prehistoric man by the Transitional Archaic and through the historical period, it is theoretically possible that the location was occupied at some time during the prehistoric era.

The Rockaway Parkway bridge site is rated as having a *low prehistoric potential*. Given the post-occupation rise in sea level, the site would have been subject to impact from post-depositional tidal action. On the other hand, because any prehistoric cultural remains would be below the current water table, as well as deeply buried beneath fill and layers of marsh mat, the sites would be well-protected from historical construction disturbance, but the most problematic to identify and recover archaeologically.

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Disturbance impact on this prehistoric potential, and the surviving potential archaeological sensitivity will be discussed in the conclusions section of this chapter.

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Modern, urban eyes might consider worthless the marshlands which form the greater part of the project site. However, during the 17th and 18th centuries, this meadowland was considered very valuable. The harvested salt grasses were an important source of much-needed feed for domestic animals. The numerous small creeks which drained into Jamaica Bay were important for fishing, transportation, and the locations of tidal grist mills. As visitors to neighboring Flatlands commented in 1679:

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>
> There is also a tract which is somewhat large, of a kind of heath, on which sheep could graze . . . This meadow, like all the others, is well provided with good creeks which are navigable and very serviceable for fisheries (Van Wyck 1924:183; Dankaerts and Sluyter 1966:131).

Portions of the meadows must have been extremely muddy, since the list of officials appointed at nearby Gravesend's founding included men to extricate trapped cattle from the marshes. On the other hand, exploiting the natural resources like their Native American predecessors, European settlers occupied and built structures on the few existing dry, elevated areas at or near the bay shores. One of these elevated locations was the at Canarsie, northwest of the Rockaway Parkway bridge site. (See Fig. 4c.)

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[15] "Cattle" refers to livestock, rather than simply bovines.

The OPRHP records the sites of a number of early historical structures in the vicinity of the Rockaway Parkway bridge site. (See Appendix A.) Those within a radius of 1 mile are:

Van Wicklen Cottage and Mill Site (A047-01-0123, Map #4), a tidal mill built in 1763 and demolished in 1934, and later "cottage," which was destroyed by fire in 1924. These sites are incorrectly placed "Along Paerdegat Basin (near foot of former Crescent Street)." The Van Wicklen site is actually on Spring Creek, near the foot of ***present*** Crescent Street, approximately 3 miles to the northeast (Kearns, Kirkorian and Schaefer 1988:16-17,19-20; Walling 1859).

Schenk House Site (A047-01-0118, Map #2), a house built in 1664 at Canausey (Canarsie) Landing and demolished after c.1936. It stood near the foot of Remsen Avenue approximately 900 feet northwest of the Rockaway Parkway bridge site. (See Fig. 4c.) The later 19th-century Martin Schenk homestead, also stood nearby. (See Fig. 5c; also Appendix A.)

King's Bayview House Site (A047-01-0125, Map #3), the location of a probable 18th-century residential building in Canarsie, generally located about 3,000 feet northwest of the Rockaway Parkway bridge site.

The elevated dry ground at Canarsie on and adjacent to the Rockaway Parkway bridge site, became a small seaside and sport fishing resort during the late 19th century. The 1873 atlas shows the newly-filled land jutting out into Jamaica Bay, with the Bay View Hotel (within the western half of the project site) at the tip of the landing, serviced by the terminus of the Brooklyn and Rockaway Branch Rail Road. It became known as Canarsie Landing, rather than the creek which held the title previously. Channels were dredged adjacent to the hotel landing to ferry people to Rockaway (Robinson 1890:31). (See Fig. 6b.)

As Jamaica Bay became more and more polluted from household sewage, and from the fertilizer and fish oil plants that were established on fill on the aptly-named Barren Island (see Fig. 7), the resort declined, and by the 1930s the area was associated with immigrant shacks and garbage dumps, and the noisome odors emanating from the industrial establishments (WPA 1982:501-502). (See Fig. 9g.)

With the creation of Greater New York in 1898, Jamaica Bay was seen more and more as a wasteland, ripe for development. In 1905 the City Comptroller released a report calling for the filling of most of the marsh and bay, leaving channels between islands for shipping lanes. The lowlands were to be filled by city ash and refuse, and extensive bulkheads and numerous wharves built. However, due to the grandiose nature of the plan, scandal and the Great Depression, only parts of this plan were ever implemented, such as the construction of Mill Basin, Paerdegat Basin, the creation of Floyd Bennett Field, the construction of Cross Bay Boulevard in 1923, and Canarsie Pier in 1925 (Hazen and Sawyer 1991:21-22).

Parks Commissioner Robert Moses managed to overturn the industrialization plan, and pushed through rezoning that limited industry to the northern sections of the bay, and promoted recreational and residential development. Under plans unveiled by Moses in 1930, the Shore Parkway, now known as the Belt Parkway, was constructed from 1938 (first contract signing) to 1940 (official opening). The bridges were designed by Madigan Hyland Consulting Engineers, with contract drawings dating from 1939 and 1940. The parkway was not intended to be the present heavily-traveled commuter artery, but a scenic drive along the shore and through the marshlands. Along with landscaping and numerous parks constructed along its length, the parkway construction, involving the placement of 11.8 million cubic yards of hydraulic fill, and 4.8 cubic yards of dry fill, brought the project area to approximately its present appearance (ibid.:22; Caro 1975:341).

Historical Potential

The western section of the Rockaway Parkway bridge site, west of current Rockaway Parkway, was part of the Canarsie Landing resort, a small group of structures standing on a narrow peninsula created from fill in the late 19th century. At its center, the Bay View Hotel appears there by 1873, at the terminus of the Rockaway Branch Rail Road. (See Fig. 6b.) The hotel was called the Kings Hotel in 1890, and the Bay View House in 1899, when it can be seen next to its own railway siding, also on the project site, and a number of additional frame buildings lie to the west, beyond which the westernmost 350 feet of the bridge site were still part of the bay. The original shoreline is shown on these maps, about 200 feet northwest of the project site. The additional buildings appear to be sheds, barns and boat storage structures, although the largest, at the southwest corner of the landing seems to be an open-sided recreational shelter. (See Fig. 9.)

By 1912, the remaining underwater sections of the project site had been filled in, but the hotel and the earlier buildings, as well as the railway siding had been replaced by an amusement park. This included at least two carousels, a few sheds, one large round building which appears to be some sort of amusement park ride, and a saloon with an adjacent shed or stable. Finally, at the water along the eastern edge of the landing, west of as yet unbuilt Rockaway Parkway, stood the Harbor Precinct police station. (See Fig. 9g.)

Conclusions

Historical Sensitivity

The section of the project site west of Rockaway Parkway hosted numerous structures during the late 19th and early 20th centuries. By the 1870s, and through the early 1900s the Bayview Hotel and its auxiliary structures, which appear to have included a saloon/restaurant (in operation through 1912), served vacationers there, and when the

resort declined in popularity, due to increasing pollution, an amusement park was built in its place.

The privies, cisterns and wells associated with dwellings, as well as hotels and businesses are important sources of information for archaeologists studying past lifeways. These shaft features became convenient cavities for the deposit of household refuse, filling with artifacts and becoming valuable, stratified time capsules. However, in order to determine site sensitivity for shaft features, archaeologists first determine whether these facilities were necessary or even possible on a project site.

Although no water lines are recorded for this location, wells are highly unlikely to exist on a filled neck of land surrounded by a salt water bay. Therefore, cisterns would have been in continuous use during site occupation. However, active cisterns would not have been fouled with household refuse.

No municipal sewers are recorded, and while it is possible that privies were associated with this dwelling, since the low-lying nature of the site (elevations between 3 and 6 feet in 1938 -NYDP Contract SS-38-3:Sheet 6) would have filled in-ground privies with water at high tide, in-ground privies would not have been practical. Also, the presence of the bay on three sides of the project bridge site suggests that commercial/hotel wastes were simply flushed down a pipe into nearby, convenient Jamaica Bay. This was not an uncommon practice in New York City at the turn of the century.

Although the hotel/resort was in operation for at least 27 years, the archaeological visibility of such a building on low-lying ground is highly questionable, and considering the site's location beneath an existing bridge, approaches and heavy fill overburden, and the extremely low probability of finding intact deposits (which if they existed most likely would be under water), indicates that further archaeological consideration is unwarranted.

According to the 1912 atlas, the amusement park complex on the site included two carousels, another unnamed "ride," and a number of smaller sheds. The carousels were housed in a rectangular wood frame structure, most likely a shed which had removable sides, leaving the carousel open and visible. At night, or during the winter season, it could be sealed and protected. When the amusement park was shut down permanently, the carousel would have been moved to a new location or dismantled. The other round structure was probably similar. It would have no archaeological visibility.

Adjacent to the carousel, also in the area of the western abutment, the 1912 map depicts the Harbor Precinct Police Station. (See Fig. 9g.) This 1-story, wood frame building was a rectangle of approximately 30 by 21 feet, and appears to be a temporary or seasonal station. There are no outbuildings such as stables associated with it, suggesting a small force of men working from the building. As with the earlier resort complex waste, given the police station's proximity to the water, it is likely that human wastes were flushed directly into the bay, and no privies would have existed. The archaeological visibility of such a building is highly questionable, and considering the site's location beneath an existing

bridge and heavy fill overburden, and the low probability of finding intact deposits of questionable significance, further archaeological consideration is unwarranted.

Based on the preceding discussion, the Rockaway Parkway bridge site is *not sensitive* for buried cultural remains from the historical period, and no further archaeological research concerning historical remains is recommended.

Disturbance and Prehistoric Sensitivity

Prior to 19th-century filling operations, the Rockaway Parkway bridge site was part of Jamaica Bay. Historical maps indicate that the site was continuously submerged. (See Fig. 4c.) An evaluation of low prehistoric archaeological potential was based on our knowledge of rising sea levels, which inundated formerly habitable land within Jamaica Bay, and the presence of prehistoric man in the vicinity of the project site prior to that sea level rise. However, the exact depth of the potentially sensitive strata is unclear.

The earliest precise site elevations date from 1912, when much of the project site west of the Rockaway Parkway had already been filled. That section of the site is 3 feet above mean sea level. (See Fig. 9g.) By 1938, the entire western part of the project site had been filled in. Drawings made prior to Belt Parkway construction (NYDP Contract SS-38-3, Sheets 6 and 12) show elevations there between 3 and 7 feet, rising gradually toward Rockaway Parkway. Additional fill was added with Belt Parkway construction, bringing current elevations to between 10 and 15 feet (higher at the western abutment embankment), indicating an accumulated fill overmantle of at least 10 to 15 feet thick in the project site west of Rockaway Parkway (Fig. 2b).

The bridge's western abutment embankment, at its highest point is approximately 21 feet above mean sea level, for a total fill layer of at least 21 feet. Piles beneath the foundations of the west abutment lie within 10.5 of the embankment surface, but in areas where the fill layer is greater than 10.5 feet thick (Contract DD-38-3, Sheet 12; Hardesty and Hanover 1996b:1-4,5). The pre-fill ground surface of the project site west of Rockaway Parkway does not appear to be impacted by the Belt Parkway bridge construction.

The area between the embankments, including the Rockaway Parkway roadbed, although submerged in the 19th century, at the time of bridge construction, elevations had been raised to between 7 to 9 feet above mean sea level, and additional fill was not added there. Three sets of piers lie between the embankments and in the Rockaway Parkway roadbed. According to current bridge plans, pier foundations and bearings do not extend more than four feet below the current roadbed (NYDP Contract SS-38-3, Sheet 6) Buried utilities, including a storm sewer, and water line would lie below the frost line, but are unlikely to penetrate below the fill layer and into the water table (Hardesty and Hanover 1996b:1-4). Construction between the bridge embankments did not appear to impact the pre-development surface.

The area Eastern Abutment Rockaway Parkway and the project site to the east, had been filled by 1938, raising an area that was formerly under water to between 6 and 10 feet, sloping up gradually toward the current Belt Parkway roadbed (NYDP Contract SS-38-3, Sheet 6). Current elevations indicate that the construction of the Belt Parkway raised this section of the present project site to between 10 and 20 feet, sloping up gradually as the bridge is approached from the east.

The eastern abutment site was in Jamaica Bay until after 1912 (see Fig. 9g), therefore its elevation was less than 0 feet above mean sea level. Fill for the Rockaway Parkway construction raised it to between 6 and 10 feet. Additional fill was added for the embankment of the eastern abutment and the Belt Parkway roadbed, bringing elevations to a projected 18 feet (NYDP Contract SS-38-3, Sheets 6 and12), although current elevations indicate that the construction of the Belt Parkway raised this section of the project site to between 10 and 20 feet, sloping up gradually as the bridge is approached from the east.

Piles for the bridge abutment penetrate no more than two feet below the base of the embankment and do not impact the pre-fill surface (Hardesty and Hanover 1996b:1-4).

Construction disturbance on the Rockaway Parkway bridge site impacted historical fill layers. Given the low prehistoric potential for submerged prehistoric cultural remains, and no post-depositional disturbance, this project site is *sensitive* for buried cultural strata from the prehistoric era.

Recommendations

When the program of soil borings, necessary before bridge rehabilitation can proceed, takes place, this program should be designed with input from a qualified archaeologist, so that pertinent cultural and environmental data is recorded. It is recommended that the borings and subsequent analysis be part of a second phase of study, focusing specifically on potential prehistoric resources. The number of soil borings should be sufficient to cover the area of the project site, and of sufficient depth to determine whether there is evidence of the presence of strata that could have supported prehistoric occupation. Such evidence includes the presence/absence of a thick peat lens, a shell midden or other prehistoric cultural remains. This subsurface data will eliminate, narrow, or more clearly define any areas of archaeological sensitivity.

After the soil boring logs are analyzed by an archaeologist, if no evidence of potentially sensitive strata is found, then no further archaeological research or testing is recommended.

If the project site's prehistoric archaeological potential is corroborated by the soil borings data, then a subsequent phase of study may be required.

9. Belt Parkway over Fresh Creek

The Fresh Creek Basin bridge site extends 1,600 feet along the Belt Parkway, running roughly southwest/northeast. This length is divided equally at the bridge centerline. The site is 275 feet wide, 135 feet north of the Belt Parkway centerline, and 140 feet to the south. (See Fig. 1i.)

Topography and Environment

Prior to filling operations conducted for the construction of the Belt Parkway, the Fresh Creek Basin bridge site was at the shore edge of a large marshy tract. The site crossed the mouth of Fresh Creek. (See Figs. 4c, 5c and 6c.) The southern bridge abutment and the rest of the project site on the southern bank of the basin were in the marsh, but currently have elevations between 10 and 15 feet, dropping abruptly to 0 along the basin shore. (See Fig. 2b.)

The northern abutment and the adjacent parts of the project site on the northern side of the basin were partially in the water of Fresh Creek, and partially in the marsh. Added fill narrowed the creek mouth on the northern shore at the time of bridge construction. (Compare Figs 2b and 9g.)

Current elevations around the northern section of the project site are between 0 and 25 feet, rising abruptly as one proceeds eastward from the basin shore. (See Fig. 2b.)

Evidence of Prehistoric Occupation

The Fresh Creek Basin bridge site is in close proximity to a number of Indian sites associated with the main village of the Canarsee (NYSM-3609) in the present Canarsie section of Brooklyn. The NYSM places the village around the head of Fresh Creek, about 2,000 feet north of the project site. The records of the OPRHP (A047-01-113 - #1 on map) indicate the village dates to the late prehistoric/early historical period. In addition, Parker notes a campsite (NYSM-3610) in the area adjacent to the Fresh Creek bridge site on the northwest. The NYSM overlaps the same campsite with the village site. Parker splits the two, placing the village to the east side of Fresh Creek, and the campsite on the west side (Parker 1920:583).

In association with the village and campsite, NYSM also records shell middens on the east (NYSM-3607) and west NYSM-7390 (ACP Kings 3) shores of Fresh Creek, adjacent to the project site bridges. Shell midden NYSM-7390 is drawn overlapping the Fresh Creek bridge site. The authorities concur that these shell heaps were immense (Parker 1920:582,583; Thompson 1918:124; Beauchamp 1978:80). and it is probable that wampum manufacture was associated with the Canarsie village as well.

Bolton describes an "extensive station of the Canarsie," a large village site with an extensive planting field, centered on East 92nd Street from Canarsie Beach Park to Avenue J , about 6,500 feet west of the project site (Bolton 1972:146). Near Canarsie Beach Park, part of which surrounds the southern half of the Fresh Creek bridge site, "numerous objects of native manufacture have been found." However, the area west of Rockaway Parkway is considered to be more a place of cultivation and wampum manufacture than a settlement (Bolton 1922:150; Map VIII, D). Several 17th-century documents refer to the Canarsee planting fields or meadows in this area, with variations on the word Castuteeuw ("where grass is cut or mowed'). The 1666 Hubbarde Map labeled the vicinity "Conarise Indian Field" (Grumet 1981:7). (See Fig. 3.)

Prehistoric Potential

As outlined in the preceding section, our knowledge of prehistoric and contact period settlement patterns indicates a marked preference for sheltered, elevated sites close to wetland features and sources of fresh water. Such locations are likely to have been exploited by prehistoric Americans for their processing sites, camps and more permanent settlements. Evidence of Indian exploitation of natural resources in, and occupation of the vicinity of the project site is well-documented through archaeological and historical research. The earliest evidence of prehistoric occupation comes from the inventoried site at the head of Gerritsen Basin (Ryders Pond - NYSM-3608, NYSM-7459) where artifacts dating to the Transitional Archaic period (4,000 to 3,000 B.P.) have been recovered.

Although these well-drained, elevated sites were preferred by the Indians for their activity and habitation sites, pre-historic land use, and therefore prehistoric archaeological potential is not confined to such areas. Often, low-lying and marshy areas adjacent to these dry, elevated habitation sites were utilized as garbage dumps. Such behavior has been documented archaeologically, as at Aqueduct in southwestern Queens, where soil borings identified shell middens beneath layers of fill, but in some cases atop layers of peat (Pickman 1987:4).

In addition, as described in the prehistoric overview, the environment of the project area has not been static since the final retreat of the glacial ice, c.18,000 B.P. One of the consequences of the post-glacial warming trend (c. 14,000 B.P.) has been a continuous, increase in sea level, estimated at from 75 to 80 feet. Although not occurring at a uniform rate, this sea level rise gradually inundated the continental shelf, which was exposed during the Paleo-Indian period, and also the gently-sloping glacial outwash plain, creating the shallowly inundated areas which are conducive to the establishment of eel grass and therefore the creation of tidal marsh environments, adjacent to areas of not-yet-inundated dry land. With subsequent sea level rise, which slowed by about 4,000 to 2,000 B.P. and has slowed even more to the present, prehistoric and even historical archaeological sites in these areas may lie beneath the current water table, as well as historical fill and a number of feet of accumulated marsh mat. This has been substantiated at a number of locations in coastal New York and Connecticut where submerged prehistoric sites have

been discovered during dredging activities, beneath, or in association with, the peat deposits produced by tidal marshes (Pickman 1987:6).

As Gimigliano (1983)[16] noted, the elevated islands and marshy flats within Jamaica Bay, and the Belt Parkway Bridge project site itself, would have been ideal for prehistoric exploitation prior to sea level rise. However, the archaeological survey of the area has been prevented due to the rise in sea level, and the massive landfill operations that have occurred there. The shores of the drowned creek/estuary crossings (i.e. the Gerritsen Inlet, Mill Basin Paerdegat and Fresh Creek bridge locations) were considered particularly sensitive, given prehistoric man's preference for sites adjacent to watercourses (Gimigliano 1983:6-8).

Archaeologist Arnold Pickman, also concluded that there was a strong potential for submerged sites in an archaeological assessment of a study parcel at Mill Basin (an area of former salt marsh approximately 1,500 feet west of the Mill Basin bridge) (Pickman 1987:5,6). Both Gimigliano and Pickman recommended a series of borings in potentially sensitive locations to determine thickness of peat and fill layers, and the elevation of the basal peat and organic silt deposits, i.e., the approximate elevation of the ground surface/sea level at the time of inundation. Gimigliano hoped to identify archaeological material, such as shell midden deposits, in the pre-inundation layers (Gimigliano 1983:6-8; See also Rutsch and Church 1983) while Pickman went further to suggest that data on the pre-marsh sea level elevation could be used to extrapolate an inundation date, based on similar Carbon-14-dated boring samples (Pickman 1987:6).

Historical and cartographic research indicates that the Fresh Creek bridge site was formerly a low-lying marsh, with certain areas on the northern side of the creek mouth which were constantly and completely inundated by the historical period. In light of the preceding discussion, due to changing sea level, and the documented presence in the project area of prehistoric man by the Transitional Archaic and through the historical period, it is theoretically possible that the location was occupied at some time during the prehistoric era.

The Fresh Creek bridge site is rated as *having a low prehistoric potential.* Given the post-occupation rise in sea level, the site would have been subject to impact from post-depositional tidal action. On the other hand, because any prehistoric cultural remains would be below the current water table, as well as deeply buried beneath fill and layers of marsh mat, the sites would be well-protected from historical construction disturbance, but the most problematic to identify and recover archaeologically.

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[16] The Gimigliano study parcel includes the sites of the six easternmost Belt Parkway Bridges (Gerritsen, Flatbush Avenue, Mill Basin, Paerdegat Basin, Rockaway Parkway and Fresh Creek Basin). See also Rutsch and Church (1983).

Disturbance impact on this prehistoric potential, and the surviving potential archaeological sensitivity will be discussed in the conclusions section of this chapter.

Historical Period

Southeastern Kings County was originally divided among several towns, whose jurisdictions extended into the meadowlands bordering Jamaica Bay. Midwout, later Flatbush, was settled in 1652, and officially organized in 1654, and originally included all the land from the eastern shore of Paerdegat Creek to the present Queens County border. The Fresh Creek Basin bridge site was in the territory of Flatbush.

Modern, urban eyes might consider worthless the marshlands which form the greater part of the project site. However, during the 17th and 18th centuries, this meadowland was considered very valuable. The harvested salt grasses were an important source of much-needed feed for domestic animals. The numerous small creeks which drained into Jamaica Bay were important for fishing, transportation, and the locations of tidal grist mills. As visitors to neighboring Flatlands commented in 1679:

> There is toward the sea, a large piece of low flat land which is overflown at every tide, like the schorr [marsh] with us, miry and muddy at the bottom, and which produces a species of hard salt grass or reed grass. Such a place they call valey [*sic*] and mow it for hay, which cattle[17] would rather eat than fresh hay or grass. It is so hard they cannot mow it with a common scythe, like ours, but must have the English scythe for the purpose.
>
> All the land from the bay to 't Vlacke Bos [Flatbush] is low and level, without the least elevation.
>
> There is also a tract which is somewhat large, of a kind of heath, on which sheep could graze . . . This meadow, like all the others, is well provided with good creeks which are navigable and very serviceable for fisheries (Van Wyck 1924:183; Dankaerts and Sluyter 1966:131).

Portions of the meadows must have been extremely muddy, since the list of officials appointed at nearby Gravesend's founding included men to extricate trapped cattle from the marshes. On the other hand, exploiting the natural resources like their Native American predecessors, European settlers occupied and built structures on the few existing dry, elevated areas at or near the bay shores. One of these elevated locations was the Canarsie Landing, at the Fresh Creek Basin bridge site. (See Fig. 6b.)

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[17] "Cattle" refers to livestock, rather than simply bovines.

The OPRHP records the sites of a number of early historical structures in the vicinity of the Fresh Creek Basin bridge site. (See Appendix A.) Only one is within a radius of 1 mile:

> **Schenk House Site** (A047-01-0118, Map #2), a house built in 1664 at Canausey (Canarsie) Landing and demolished after c.1936. It stood near the foot of Remsen Avenue approximately 4,500 feet northwest of the Fresh Creek Basin bridge site. (See Fig. 4c.) The later 19th-century Martin Schenk homestead, also stood nearby. (See Fig. 5c; also Appendix A.)

The elevated dry ground at Canarsie Landing, 3,000 feet west of the Fresh Creek Basin bridge site, became a small seaside and sport fishing resort during the late 19th century. The 1873 atlas shows the Bay View Hotel at the tip of the landing, serviced by the terminus of the Brooklyn and Rockaway Branch Rail Road. (See Fig. 6b.) As Jamaica Bay became more and more polluted from household sewage, and from the fertilizer and fish oil plants that were established on fill on the aptly-named Barren Island (see Fig. 7), the resort declined, and by the 1930s the area was associated with immigrant shacks and garbage dumps, and the noisome odors emanating from the industrial establishments (WPA 1982:501-502). (See Fig. 9g.)

With the creation of Greater New York in 1898, Jamaica Bay was seen more and more as a wasteland, ripe for development. In 1905 the City Comptroller released a report calling for the filling of most of the marsh and bay, leaving channels between islands for shipping lanes. The lowlands were to be filled by city ash and refuse, and extensive bulkheads and numerous wharves built. However, due to the grandiose nature of the plan, scandal and the Great Depression, only parts of this plan were ever implemented, such as the construction of Mill Basin, Paerdegat Basin, the creation of Floyd Bennett Field, the construction of Cross Bay Boulevard in 1923, and Canarsie Pier in 1925 (Hazen and Sawyer 1991:21-22).

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Historical Potential

No buildings or structures have been recorded on the Fresh Creek Basin bridge site prior to the construction of the Belt Parkway. There is no record of any historical occupation there. This site has *no historical archaeological potential.*

Conclusions

Historical Sensitivity

The Fresh Creek Basin bridge site has no historical archaeological potential, and is therefore *not sensitive* for buried cultural deposits from the historical period. No further study or other action is warranted.

Disturbance and Prehistoric Sensitivity

Prior to 20th-century alterations, the southern abutment and adjacent project site areas were in the marsh, while the northern abutment and adjacent project site areas was partially in the waters of Fresh Creek and in the marshes on the north side of the creek. (See Fig. 6c.)

In 1938 the south abutment location had elevations between -2 and -15 feet, where mean sea level was approximately 0 feet. Before fill was added in 1939, the mud on the abutment site was excavated to more than -30 feet and replaced with sand fill. Only the piles beneath the abutment penetrate the sand fill, to a depth of approximately -38 feet (NYDP Contract MS39-14, sheet 2; Contract MS39-14, Sheet 2).

South of the abutment, pre-Belt Parkway project site elevations ranged from -2 feet at the abutment location, rising to between +6 and +7 feet at the southern edge of the project site. Fill was added during construction, raising the elevations to between 10 and 13 feet (NYDP Contract SS38-12, Sheets 12 and 13), which corresponds to current U.S.G.S. elevations of between 10 and 15 feet. The fill overmantle on this section of the project site is between 5 and 13 feet thick.

Fresh Creek channel had a depth of approximately -20 to -22 feet in 1938, while the piles beneath the bridge's piers go to a depth of greater than -50 feet (NYDP Contract MS39-14, sheet 2; Contract MS39-14, Sheet 2).

The 1938 drawings show elevations on the site of the north abutment between -2 and -10 feet, sloping down to Fresh Creek. As with the south abutment, mud was removed and replaced with sand fill to a depth between approximately -15 and -21 feet, sloping

downward toward the creek. Only timber piles penetrated beyond this fill layer, to a depth of less than -25 feet (NYDP Contract MS39-14, sheet 2; Contract MS39-14, Sheet 2).

The remainder of the project site north of the north abutment, had 1938 elevations with a low of -2 feet adjacent to the abutment, and rising to approximately +2.5 feet as one proceeded north. The northernmost 375 feet of the project site had elevations above 0 feet. A fill overmantle between 10 and 15 feet thick was added in this area prior to construction (NYDP Contract SS38-3:Sheet 13).

A program of soil borings was performed, and the results analyzed for a project site which included the Fresh Creek bridge site. This work was part of a Stage 1B cultural resources survey completed in 1983 (Rutsch and Church 1983).

One boring was performed adjacent to the southern bridge abutment, and two at the northern. Beneath fill was a layer of organic silty clay, with traces of sand and random pieces of shell from 4.5 to 12.5 feet thick. Gray/brown sand extended to 50 feet below the surface beneath this. No cultural deposits or materials were observed in any of these borings (Rutsch and Church 1983:10-11).

Although the borings did not identify any cultural deposits, and may suggest that the channel banks have no archaeological sensitivity, they are inconclusive. A total of three soil borings are woefully insufficient to cover an area as large as the Fresh Creek Basin bridge site, with dimensions 1,600 feet by 275 feet. Because the depths of potentially sensitive strata are not known, and in the absence of any data documenting construction disturbance impacting these potentially sensitive stratigraphic deposits beneath the fill overburden, the Fresh Creek Basin bridge site must be considered *sensitive* for buried prehistoric cultural remains.

Recommendations

When the program of soil borings, necessary before bridge rehabilitation can proceed, takes place, this program should be designed with input from a qualified archaeologist, so that pertinent cultural and environmental data is recorded. It is recommended that the borings and subsequent analysis be part of a second phase of study, focusing specifically on potential prehistoric resources. The number of soil borings should be sufficient to cover the area of the project site, and of sufficient depth to determine whether there is evidence of the presence of strata that could have supported prehistoric occupation. Such evidence includes the presence/absence of a thick peat lens, a shell midden or other prehistoric cultural remains. This subsurface data will eliminate, narrow, or more clearly define any areas of archaeological sensitivity.

After the soil boring logs are analyzed by an archaeologist, if no evidence of potentially sensitive strata is found, then no further archaeological research or testing is recommended.

If the project site's prehistoric archaeological potential is corroborated by the soil borings data, then a subsequent phase of study may be required.

V. CONCLUSIONS SUMMARY

Historical Period

The following summary is given in more detail in the individual sections. Historical period occupations are documented on only two of the nine project sites, the Nostrand Avenue and Rockaway Parkway bridge sites. These two sites were given a low rating of historical archaeological potential, based on the late dates of occupation and very low probability of finding shaft features (i.e., privies and wells) in a low-lying area with a high water table. Given the presence of a heavy fill overburden, and the questionable significance and research value of any potentially existing resources, the two bridge sites are *not sensitive* for buried cultural remains from the historical period. Further archaeological research and study is neither warranted nor recommended.

Prehistoric Period

As described in more detail in the Prehistoric Era discussion (Section III) our knowledge of prehistoric and contact period settlement patterns indicates a marked preference for sheltered, elevated sites close to wetland features and sources of fresh water. Such locations are likely to have been exploited by prehistoric Americans for their processing sites, camps and more permanent settlements. Evidence of Indian exploitation of natural resources in, and occupation of the vicinity of the project site is well-documented through archaeological and historical research. The earliest evidence of prehistoric occupation comes from the inventoried site at the head of Gerritsen Basin (Ryders Pond - NYSM-3608, NYSM-7459) where artifacts dating to the Transitional Archaic period (4,000 to 3,000 B.P.) have been recovered.

Belt Parkway over Nostrand Avenue

Only the Nostrand Avenue bridge site fits this profile, situated within an elevated area with access to Jamaica Bay, as well as the nearby salt marsh. It was rated as having a high potential for hosting buried prehistoric cultural remains. Because subsequent bridge and parkway construction appear to have impacted only layers of the historical fill overmantle, this site is considered *sensitive* for prehistoric cultural remains.

Although well-drained, elevated sites were preferred by the Indians for their activity and habitation sites, pre-historic land use, and therefore prehistoric archaeological potential is not confined to such areas. Often, low-lying and marshy areas adjacent to these dry, elevated habitation sites were utilized as garbage dumps. Such behavior has been documented archaeologically, as at Aqueduct in southwestern Queens, where soil borings identified shell middens beneath layers of fill, but in some cases atop layers of peat (Pickman 1987:4).

In addition, the environment of the project area has not been static since the final retreat of the glacial ice, c.18,000 B.P. One of the consequences of the post-glacial warming trend (c.14,000 B.P.) has been a continuous, increase in sea level, which gradually inundated the continental shelf, and also the gently-sloping glacial outwash plain, creating shallowly inundated marshy areas around Jamaica Bay, adjacent to areas of not-yet-inundated dry land. Prehistoric sites lie beneath the current water table, as well as historical fill and a number of feet of accumulated marsh mat. This has been substantiated at a number of locations in coastal New York and Connecticut where submerged prehistoric sites have been discovered during dredging activities, beneath, or in association with, the peat deposits produced by tidal marshes (Pickman 1987:6).

Based on this discussion, the remaining eight bridge sites, which were located in areas of historically-existing marshland or on completely inundated areas near such marshland, were rated as having a low potential for having hosted prehistoric cultural materials. These sites are:

Belt Parkway over Ocean Parkway

- Coney Island Avenue over Belt Parkway (Including the East 8th Street Access Ramp)
- Belt Parkway over Gerritsen Inlet
- Flatbush Avenue over Belt Parkway
- Belt Parkway over Mill Basin
- Belt Parkway over Paerdegat Basin
- Rockaway Parkway over Belt Parkway
- Belt Parkway over Fresh Creek Basin

Because these eight bridge sites were low-lying marsh, prior to historical construction a layer of fill was added to raise site elevations above sea/tidal level. Such a fill overmantle would have acted as a protective layer for pre-fill surfaces, mitigating the destructive effects of subsequent construction, namely the construction of the Belt Parkway and its bridges.

Secondly, because the elevations of potentially sensitive strata are unknown, their disturbance by post-depositional construction activities cannot be determined. Such data would be gathered in a program of soil borings, which, by determining the presence of thick peat lenses, shell middens or other prehistoric cultural materials, for example, would support or disprove the presence of potentially sensitive prehistoric layers. Since the disturbance of these potential strata cannot be documented at this time, the remaining eight bridge sites are potentially *sensitive* for buried prehistoric cultural remains.

Recommendations

The following paragraphs summarize the recommendations made at the end of each individual bridge discussion in Section IV.

Belt Parkway over Ocean Parkway

- Belt Parkway over Coney Island Avenue (Including the East 8th Street Access Ramp)
- Belt Parkway over Nostrand Avenue
- Belt Parkway over Gerritsen Inlet
- Belt Parkway over Mill Basin
- Belt Parkway over Paerdegat Basin
- Rockaway Parkway over Belt Parkway
- Belt Parkway over Fresh Creek Basin

When the program of soil borings, necessary before bridge rehabilitation can proceed, takes place, this program should be designed with input from a qualified archaeologist, so that pertinent cultural and environmental data is recorded. It is recommended that the borings and subsequent analysis be part of a second phase of study, focusing specifically on potential prehistoric resources. The number of soil borings should be sufficient to cover the area of the project site, and of sufficient depth to determine whether there is evidence of the presence of strata that could have supported prehistoric occupation. Such evidence includes the presence/absence of a thick peat lens, a shell midden or other prehistoric cultural remains (In the case of the Nostrand Avenue bridge site, which was not part of the marsh, these potentially sensitive strata would lie beneath the fill overmantle). This subsurface data will eliminate, narrow, or more clearly define any areas of archaeological sensitivity.

After the soil boring logs are analyzed by an archaeologist, if no evidence of potentially sensitive strata is found, then no further archaeological research or testing is recommended.

If the project site's prehistoric archaeological potential is corroborated by the soil borings data, then a subsequent phase of study may be required.

Flatbush Avenue over Belt Parkway

Of the nine bridges, the reconstruction at the Flatbush Avenue bridge site, as currently planned, will not involve any substructure replacement. If this work does not penetrate more than five feet below the currently-existing fill overmantle which is believed to overlay

the sites' pre-development surface, and therefore will not disturb potential prehistoric archaeological resources, no further archaeological action is necessary.

However, if substructural work is planned which will penetrate beyond five feet into the fill overmantle, then this bridge site must be included in the program of borings as outlined in the paragraphs above for the other sensitive bridge sites.

Conclusions—Bridge Analysis

The complete analysis of the bridges at the Gerritsen Inlet, Mill Basin, Paerdegat Basin and Fresh Creek is found in Appendix B. Of these four bridges, three, the Gerritsen Basin, Paerdegat Basin and Fresh Creek bridges *do not* meet the criteria for listing in the National Register of Historic Places. They are conventionally designed spans without distinguishing characteristics.

The Mill Basin bridge meets some National Register criteria, and might be considered potentially eligible for nomination to the National Register of Historic Places. It embodies the distinctive characteristics of the "Chicago" type bascule bridge. Although some modifications have been made, most of the historical materials are present. Consideration of some form of recordation is warranted. See Appendix B for further recommendations.

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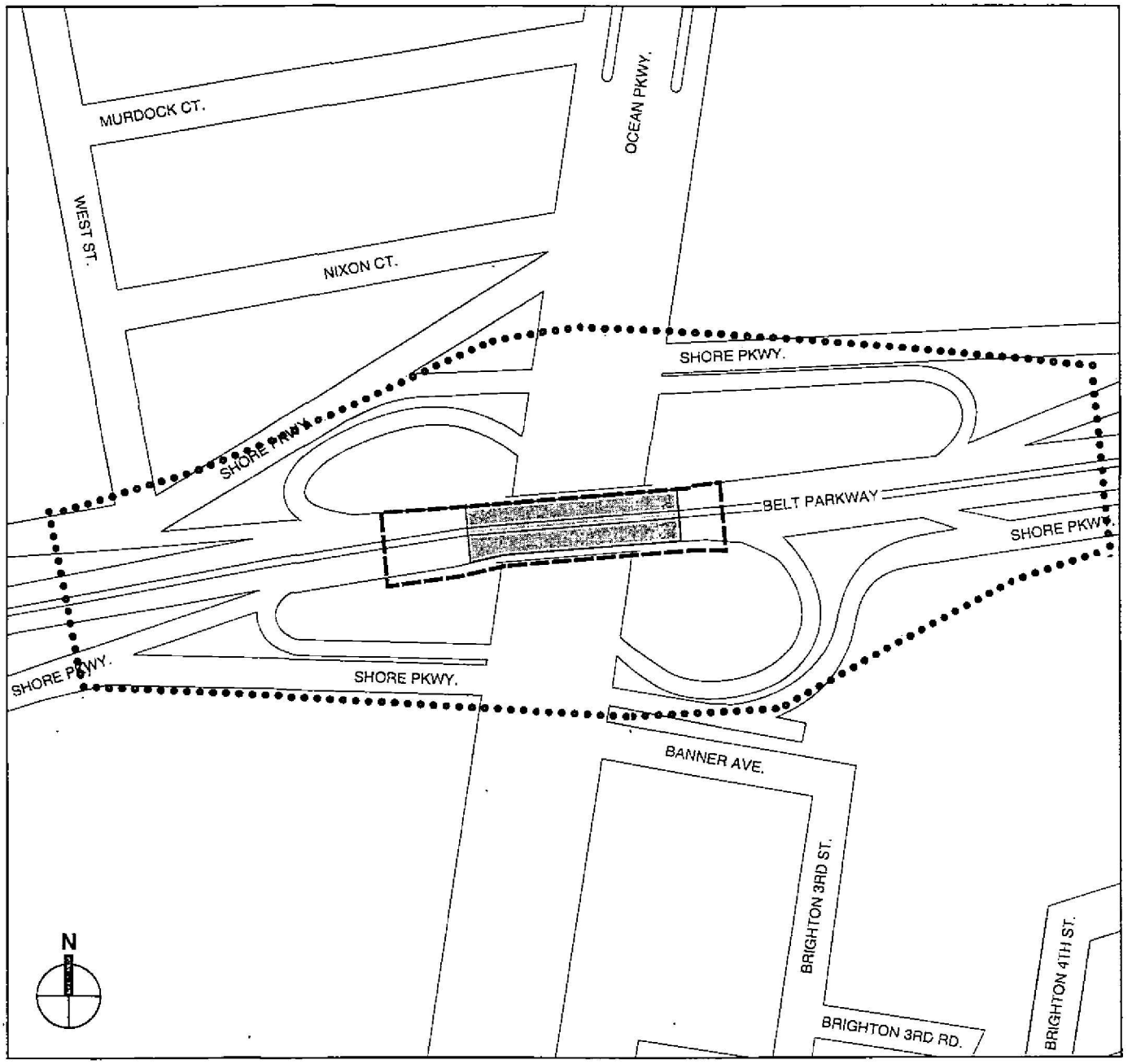


Figure 1a

Ocean Parkway

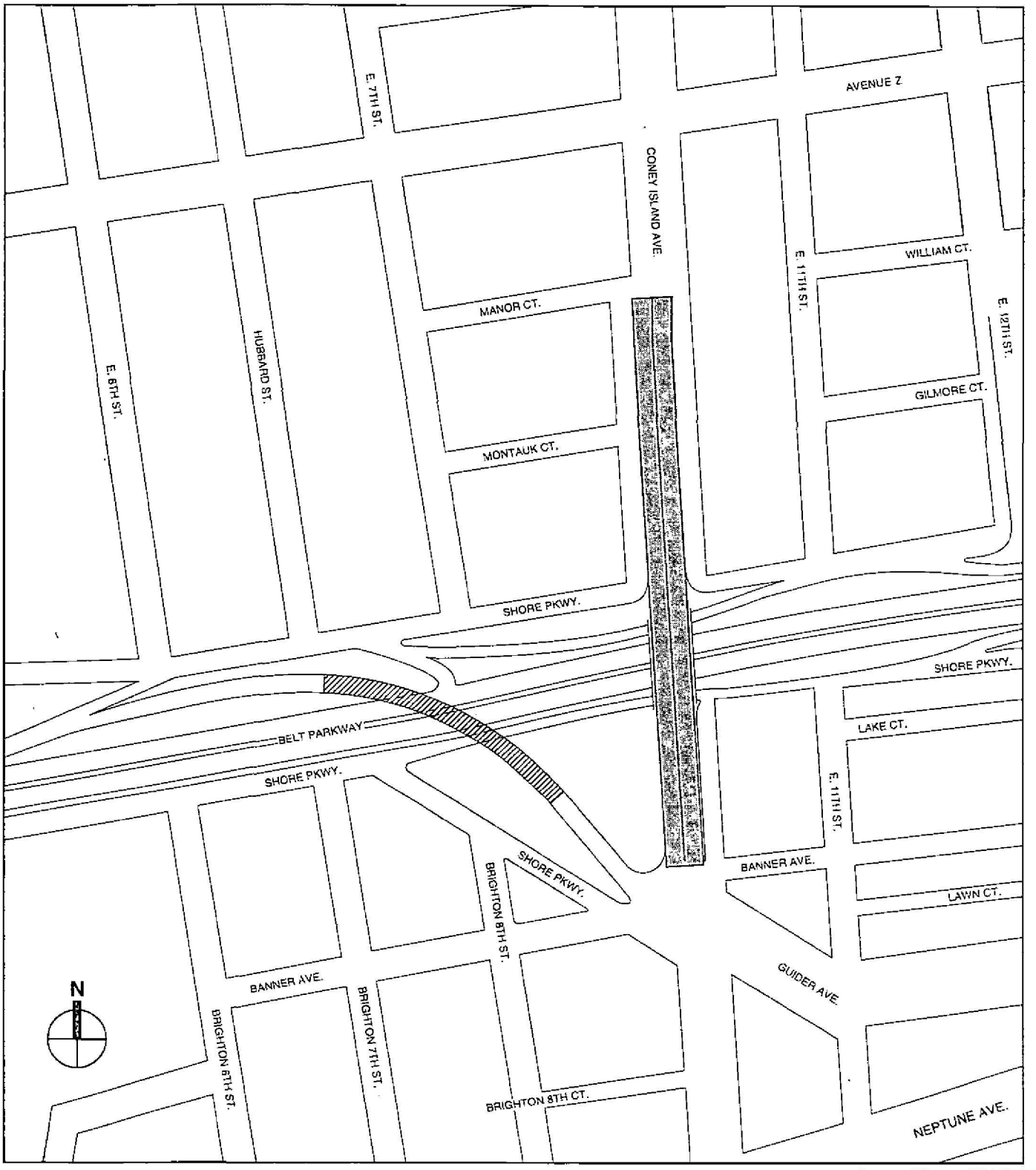


Figure 1b

Coney Island Avenue

Belt Parkway Bridges Reconstruction Project

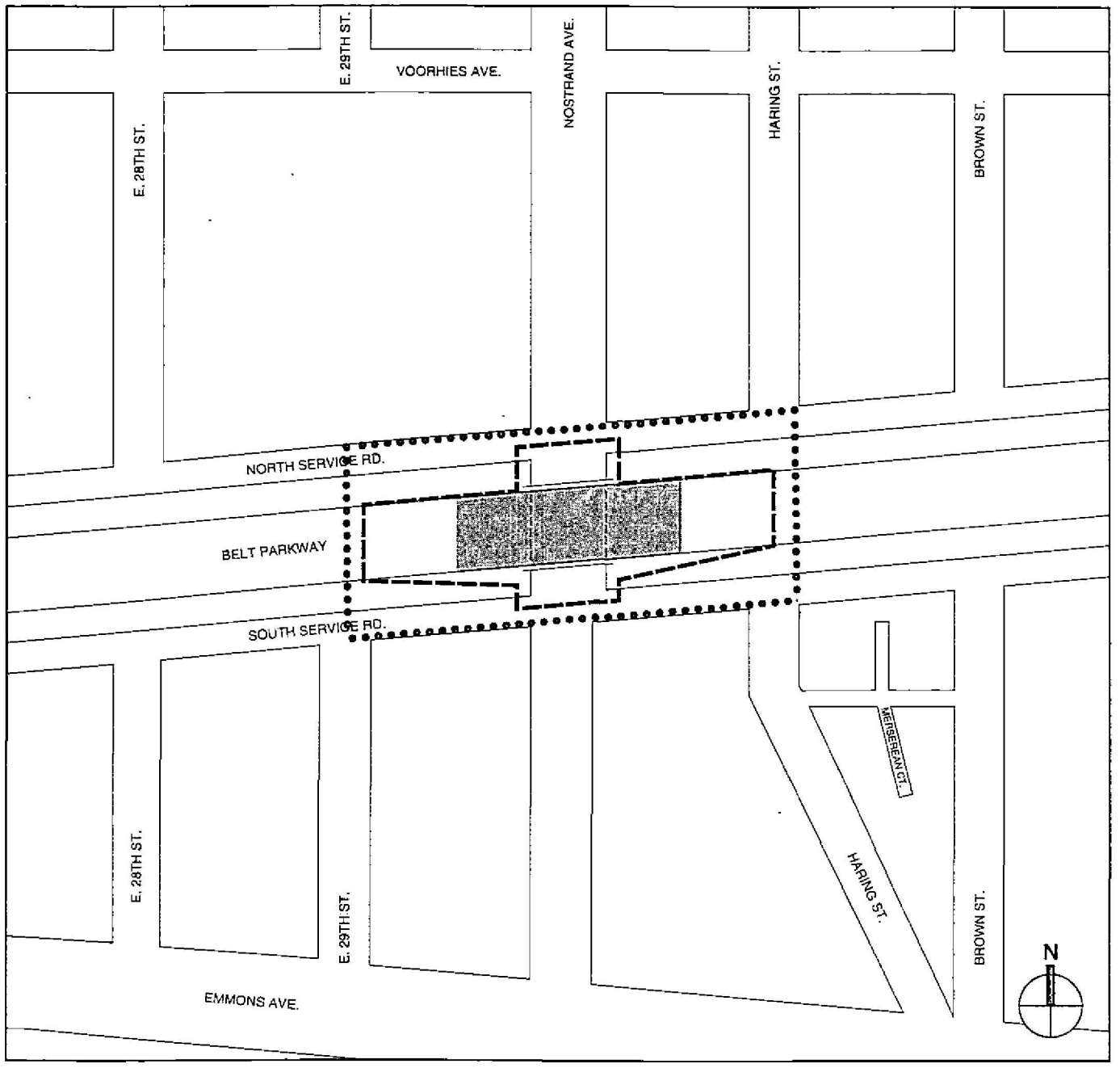


Figure 1c

Nostrand Avenue

Belt Parkway Bridges Reconstruction Project

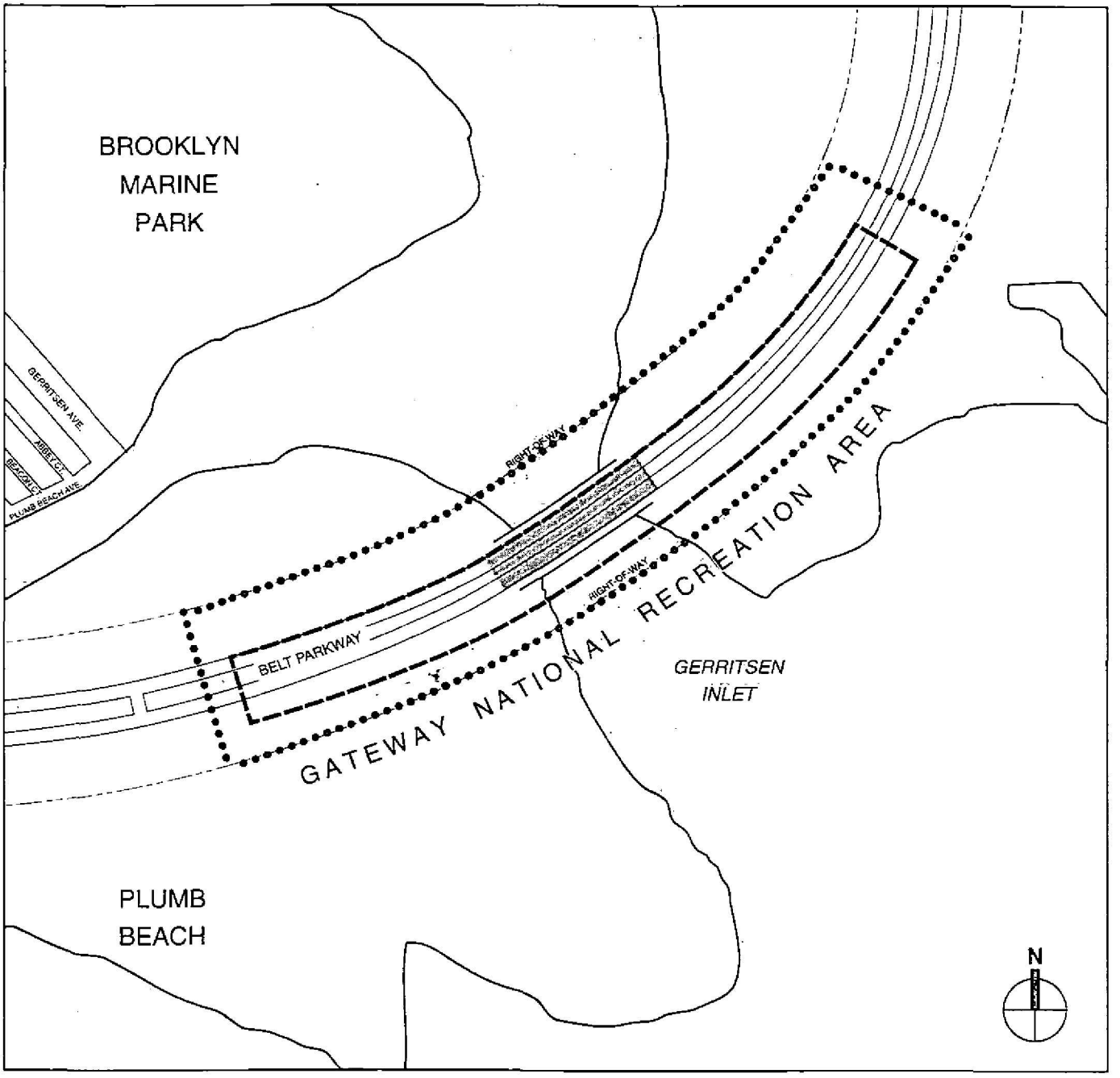
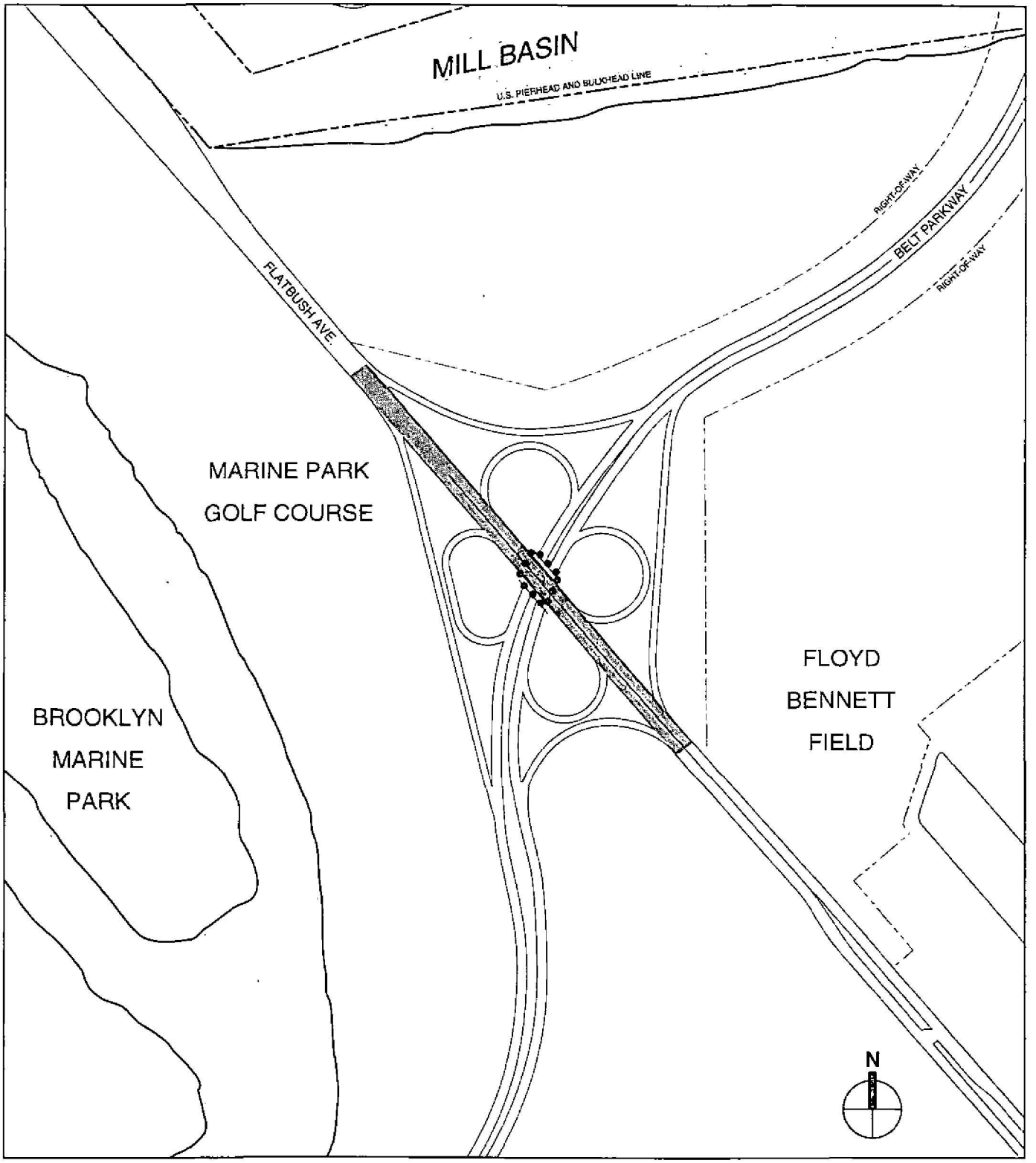


Figure 1d

Gerritsen Inlet



Flatbush Avenue Bridge and Potential Construction Area

Project Site

Figure 1e

Flatbush Avenue

Belt Parkway Bridges Reconstruction Project

6•97

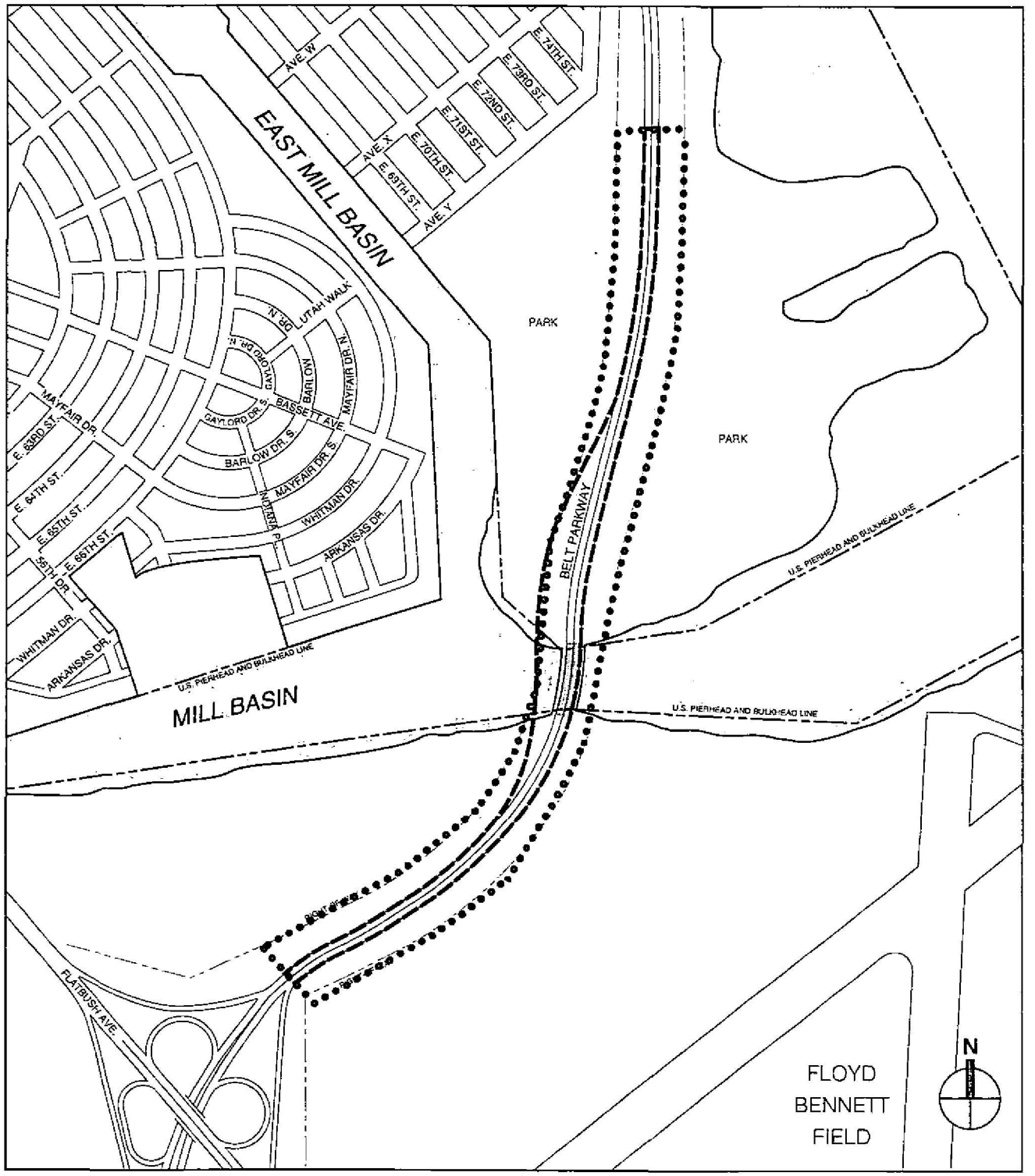
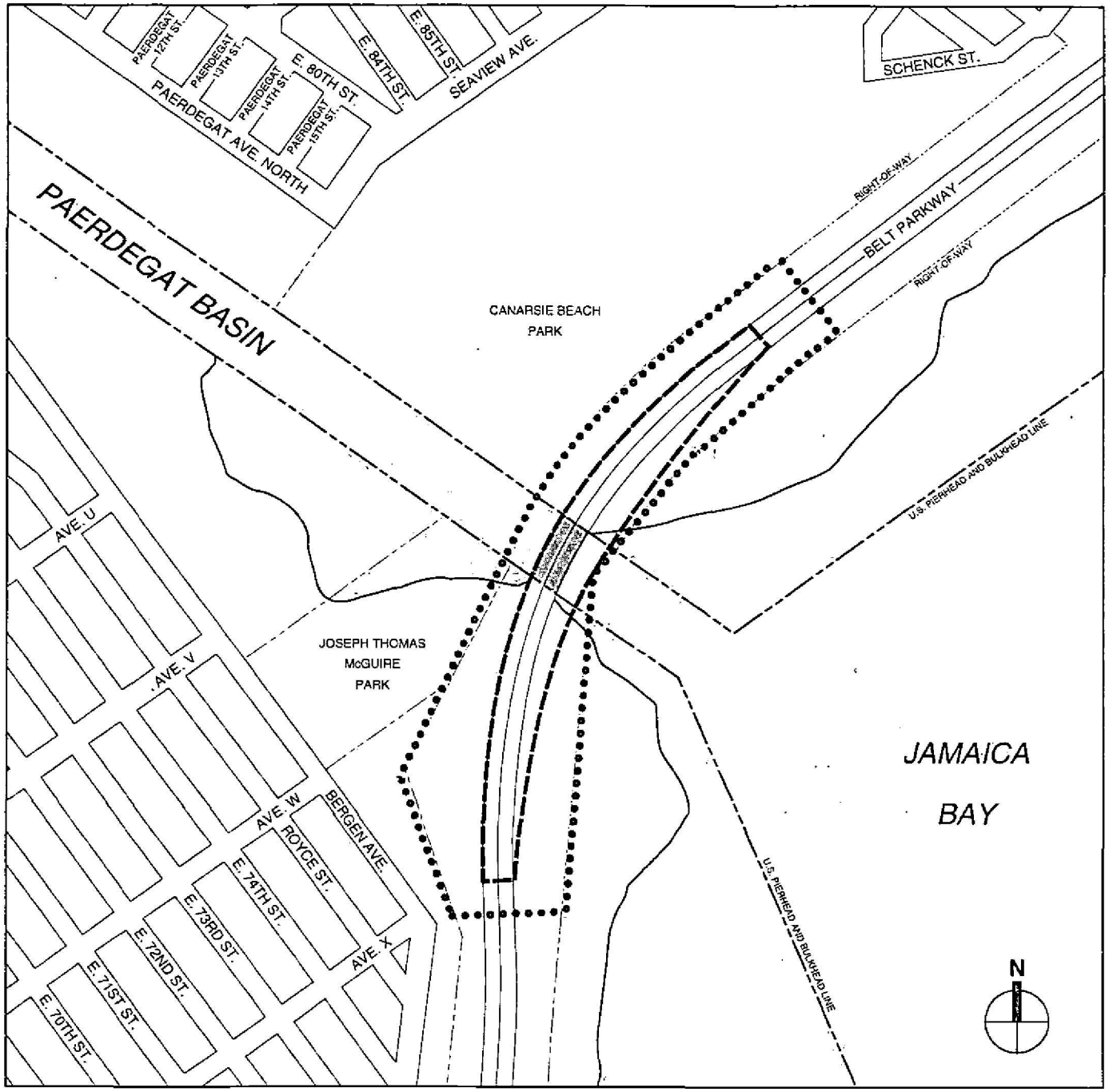


Figure 1f

Mill Basin



Paerdegat Basin Bridge

Potential Construction Area

Project Site

Figure 1g

Paerdegat Basin

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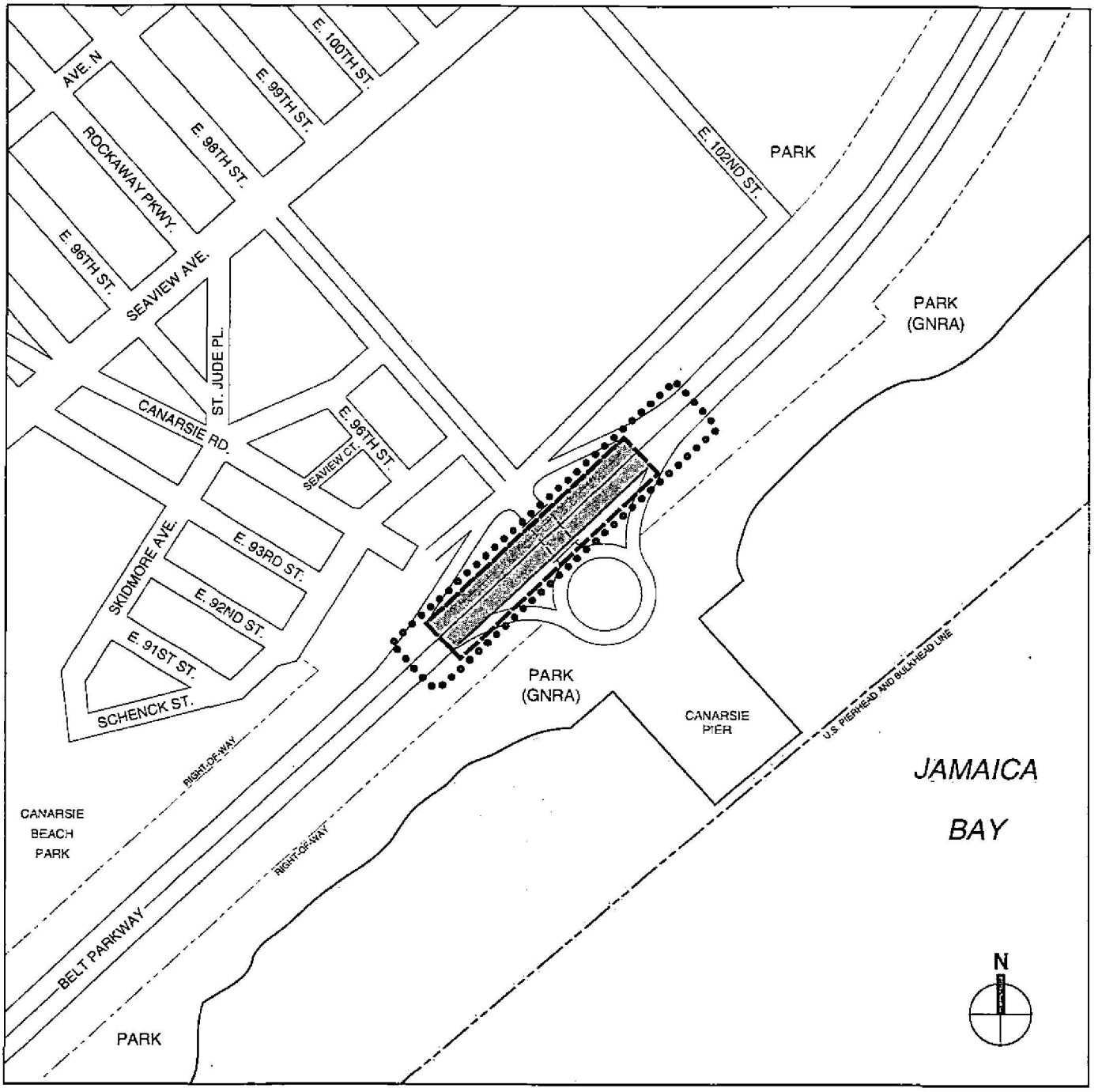
Belt Parkway Bridges Reconstruction Project



Rockaway Parkway Bridge

Potential Construction Area

Project Site

Figure 1h

Rockaway Parkway

Belt Parkway Bridges Reconstruction Project

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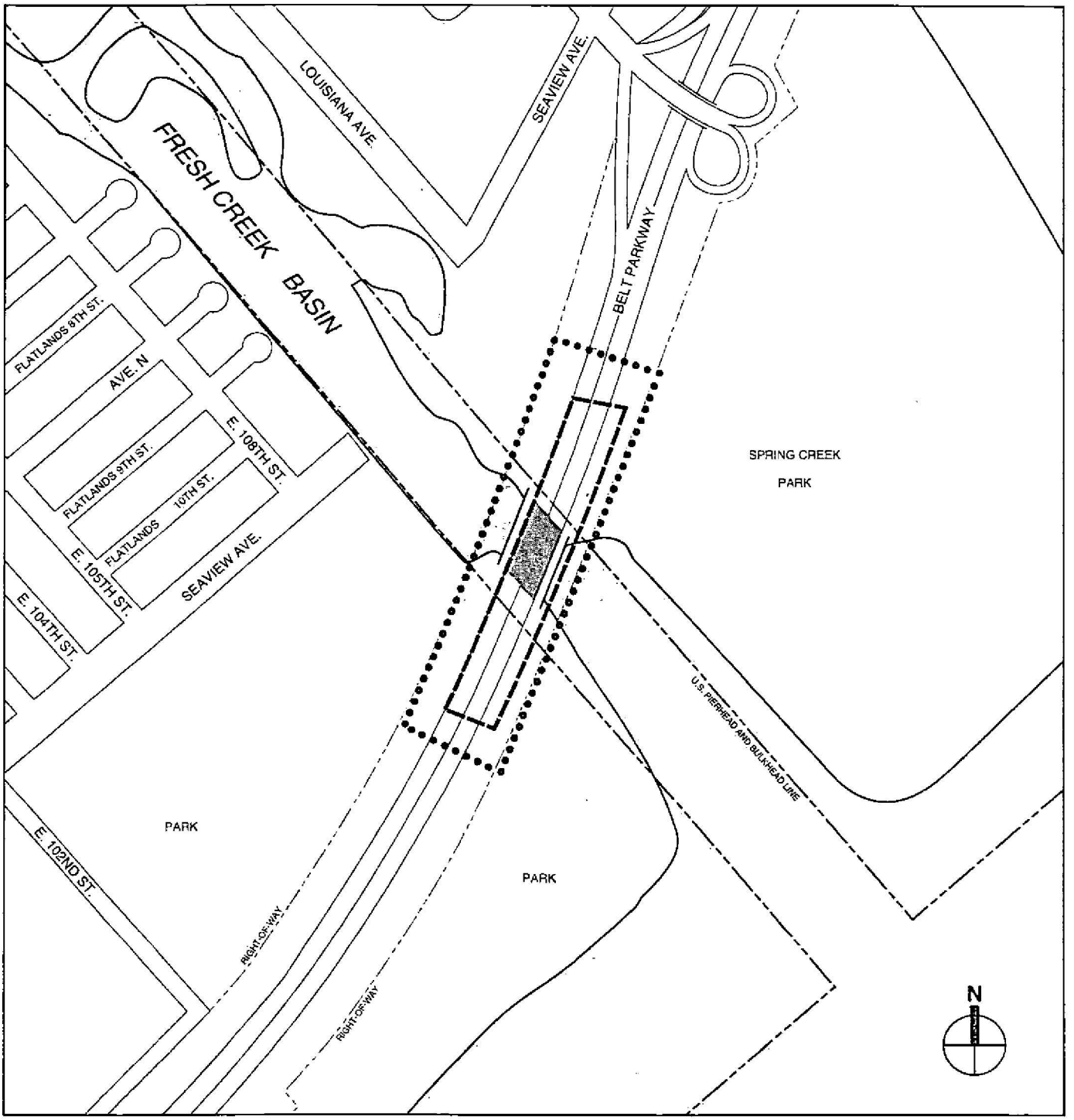

Figure 1i

Fresh Creek Basin

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Belt Parkway Bridges Reconstruction Project

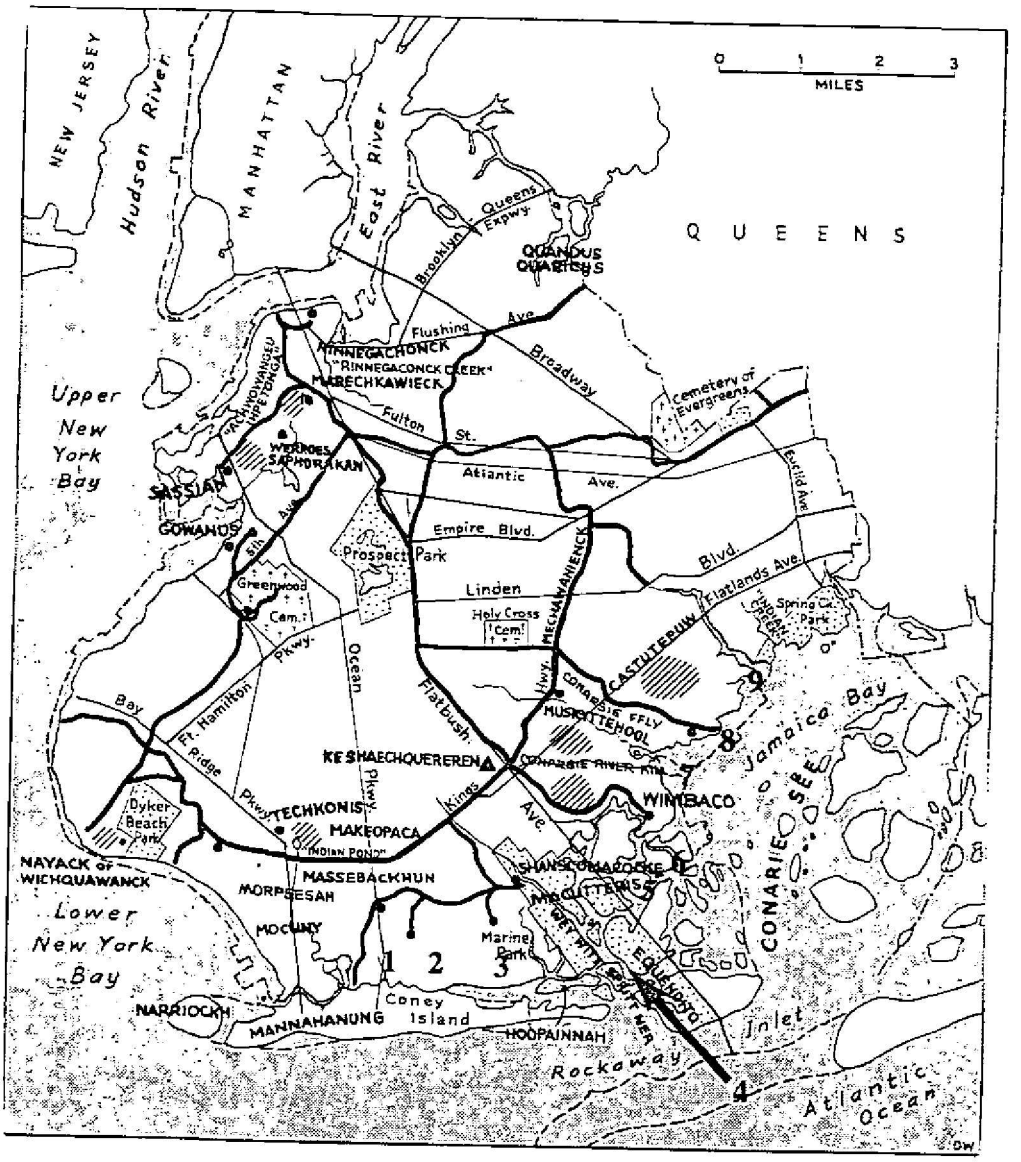


Figure 3. Grumet, Native American Trails, Planting Areas and Habitation Sites (Grumet 1981:70)

—Indian Trails /// Planting Sites • Habitation Sites

Arrows indicate project sites: 1. Ocean Parkway; 2. Coney Island Avenue; 3. Nostrand Avenue; 4. Gerritsen Inlet; 5. Flatbush Avenue; 6. Mill Basin; 7. Paerdegat Basin; 8. Rockaway Parkway; 9. Fresh Creek

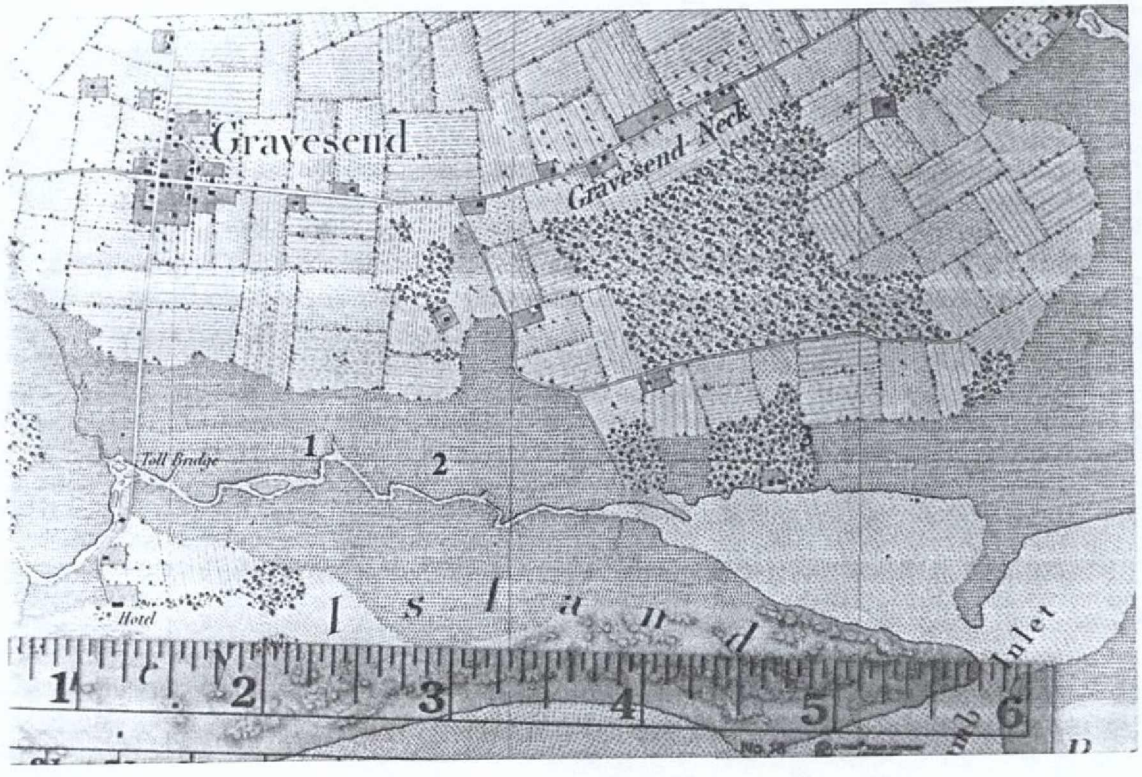


Figure 4a. Hassler, Map of New York Bay and Harbor and the Environs, 1844-45

Numbers indicate project sites: 1. Ocean Parkway; 2. Coney Island Avenue;
3. Nostrand Avenue.

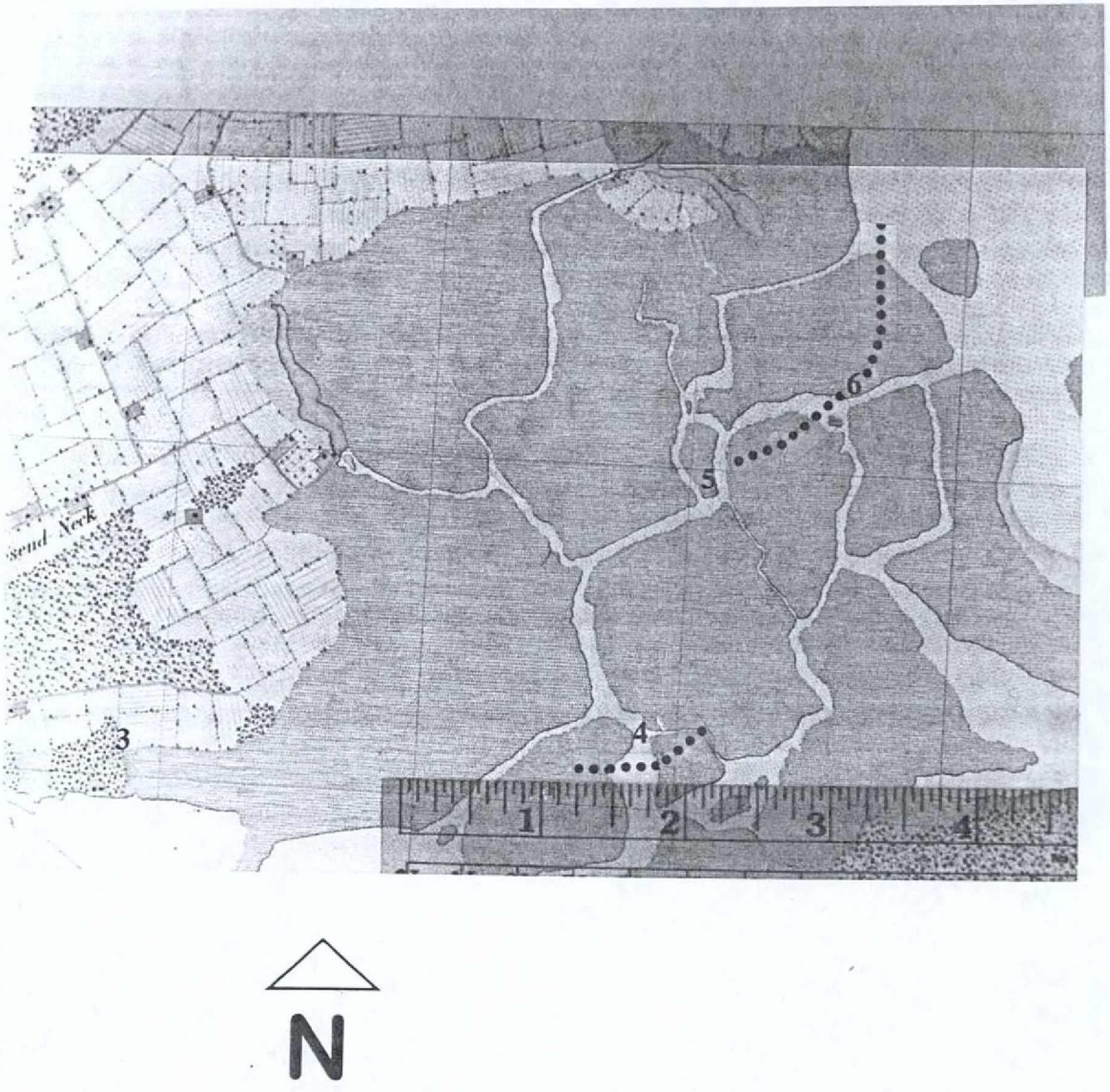


Figure 4b. Hassler, Map of New York Bay and Harbor and the Environs, 1844-45

Numbers indicate project sites: 3. Nostrand Avenue; 4. Gerritsen Inlet; 5. Flatbush Avenue; 6. Mill Basin.

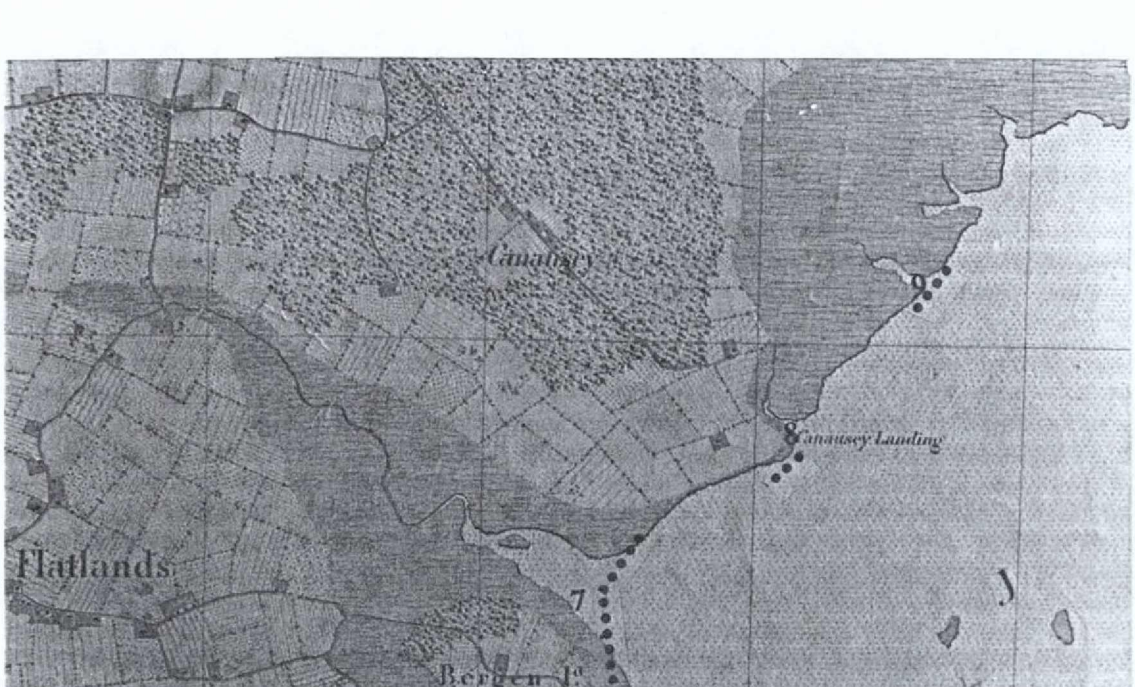


Figure 4c. Hassler, Map of New York Bay and Harbor and the Environs, 1844-45

Numbers indicate project sites: 7. Paerdegat Basin; 8. Rockaway Parkway; 9. Fresh Creek

Figure 5a. Walling, Topographical Map of the Counties of Kings and Queens, 1859

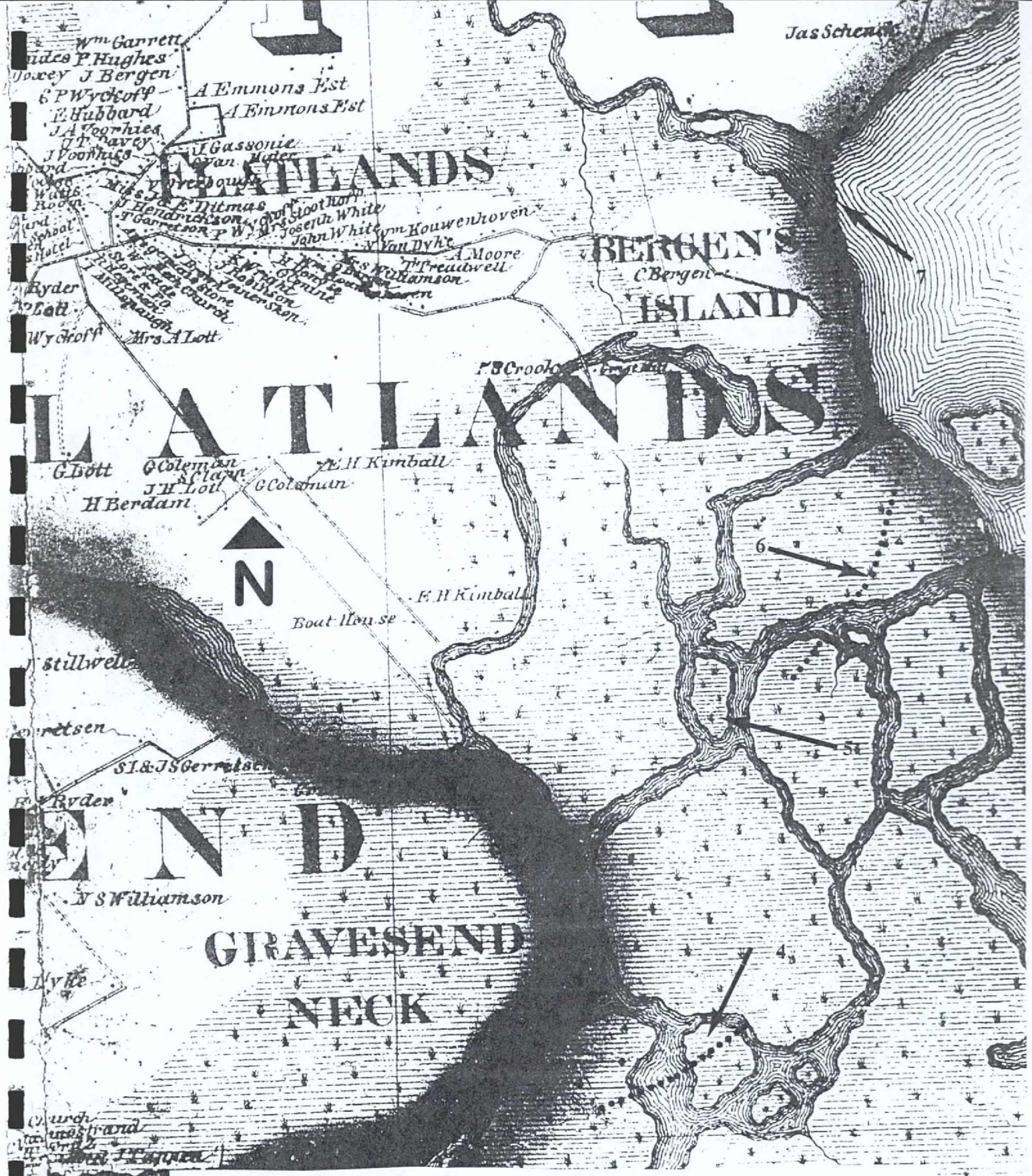


Figure 5b. Walling, Topographical Map of the Counties of Kings and Queens, 1859

Numbers indicate project sites: 4. Gerritsen Inlet; 5. Flatbush Avenue; 6. Mill Basin; 7. Paerdegat Basin.

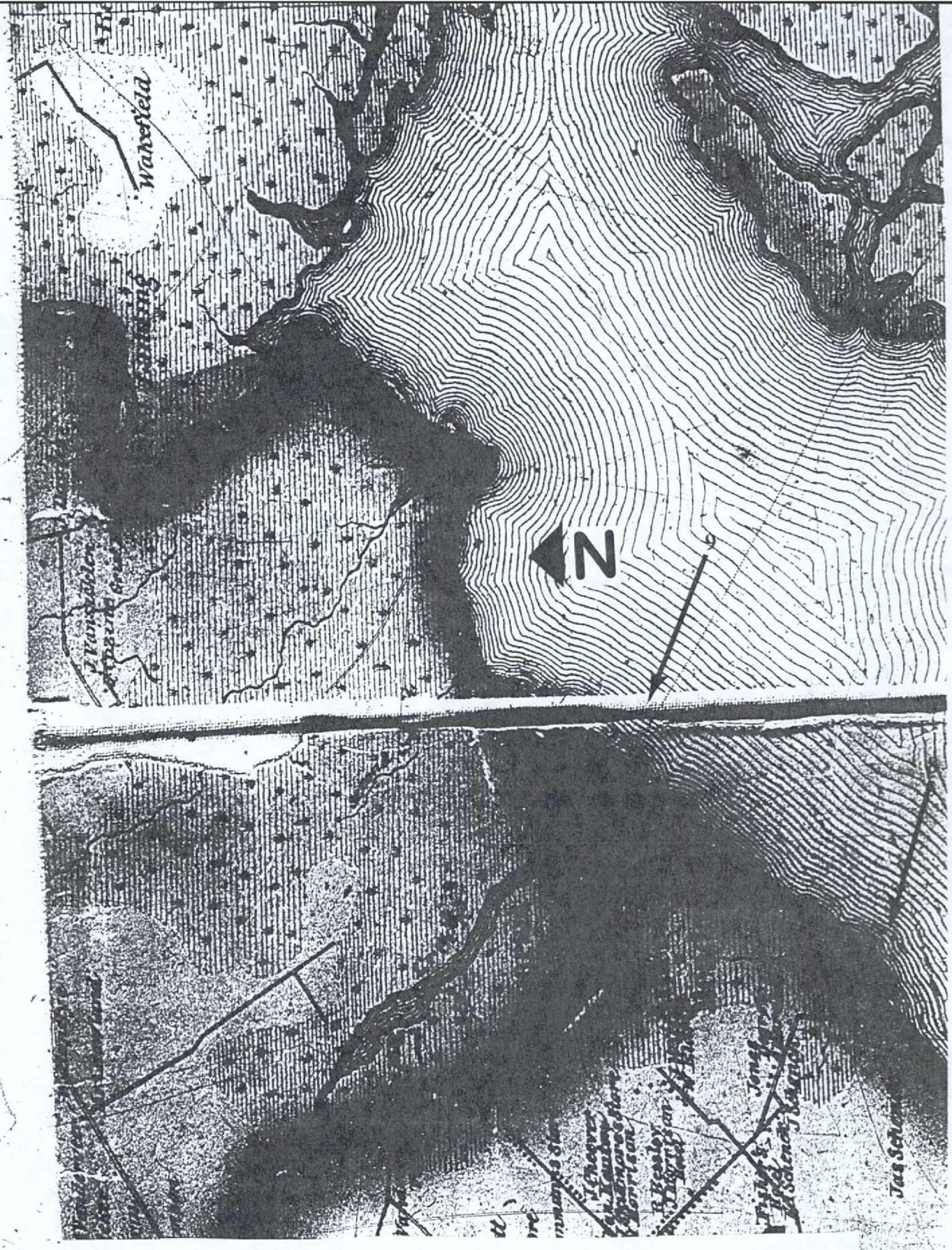
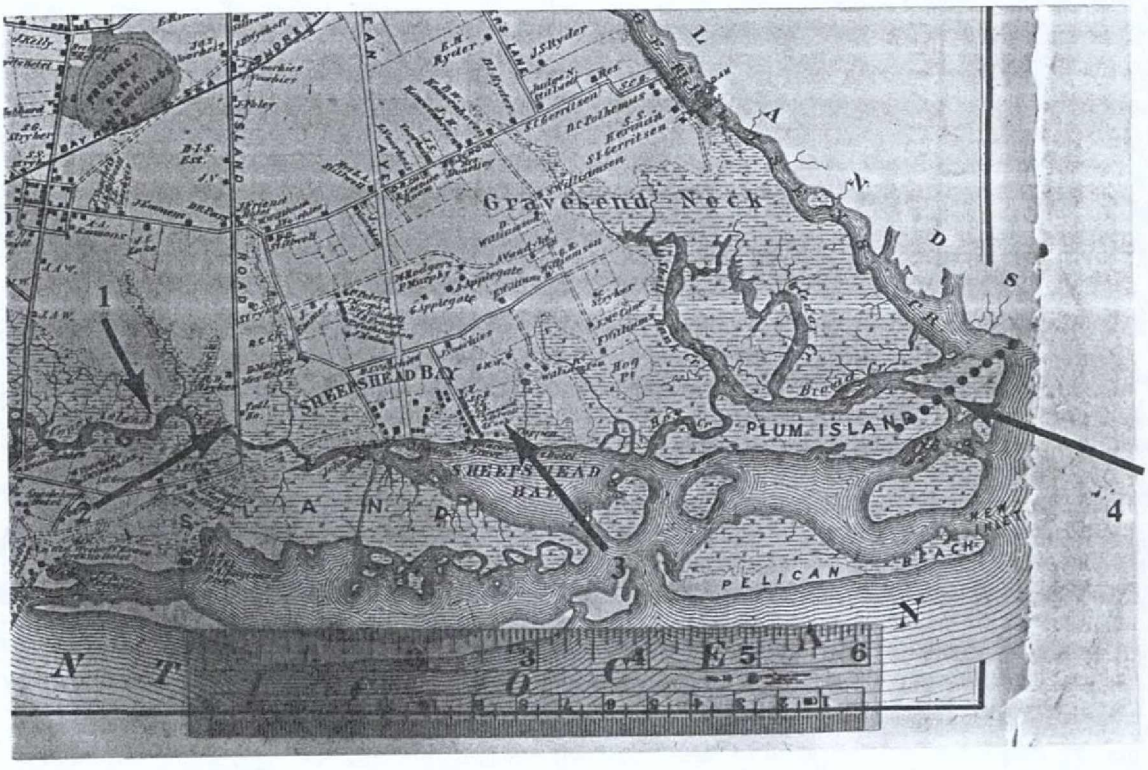


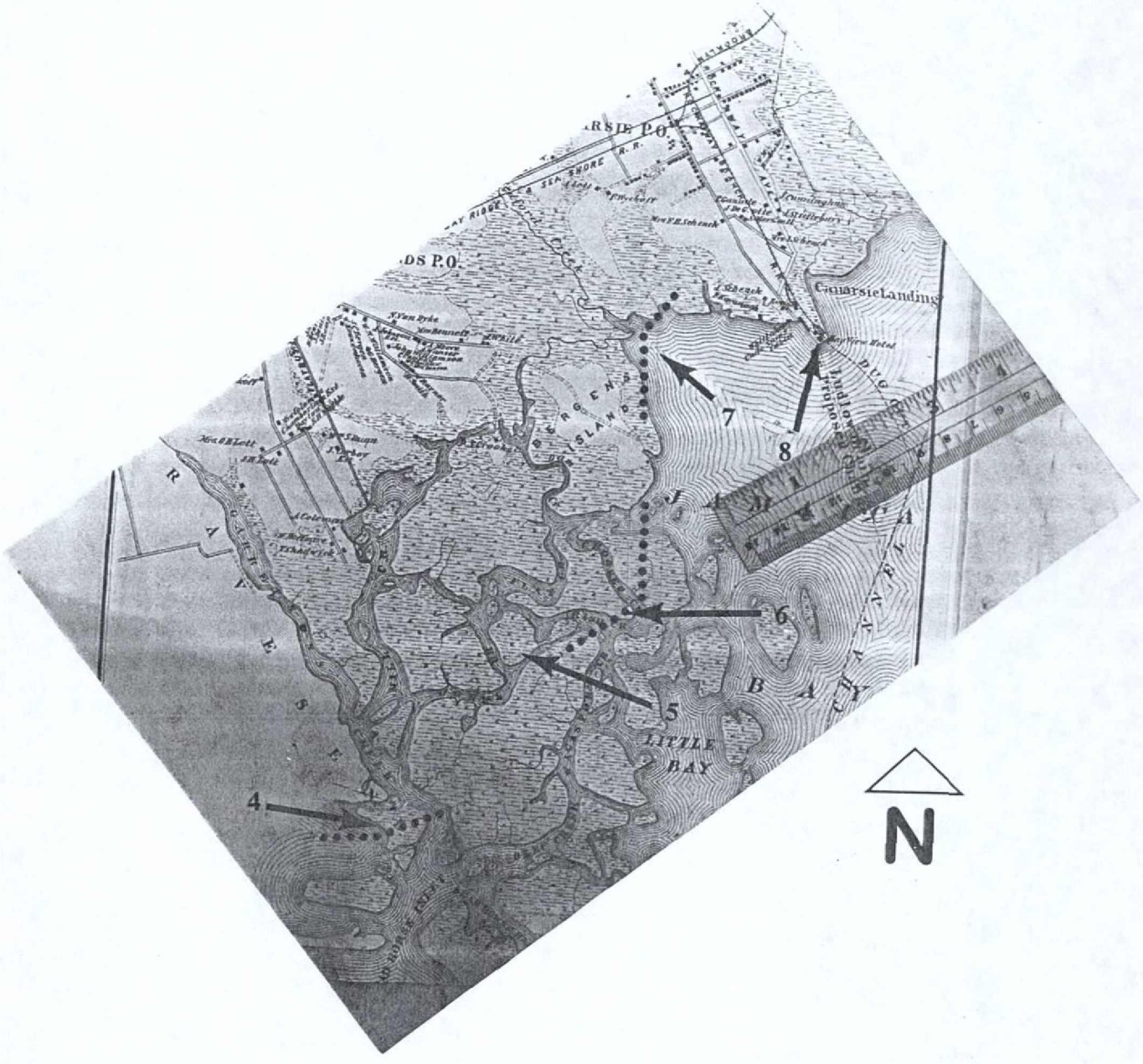
Figure 5c. Walling, Topographical Map of the Counties of Kings and Queens, 1859

Numbers indicate project sites: 8. Rockaway Parkway; 9. Fresh Creek.



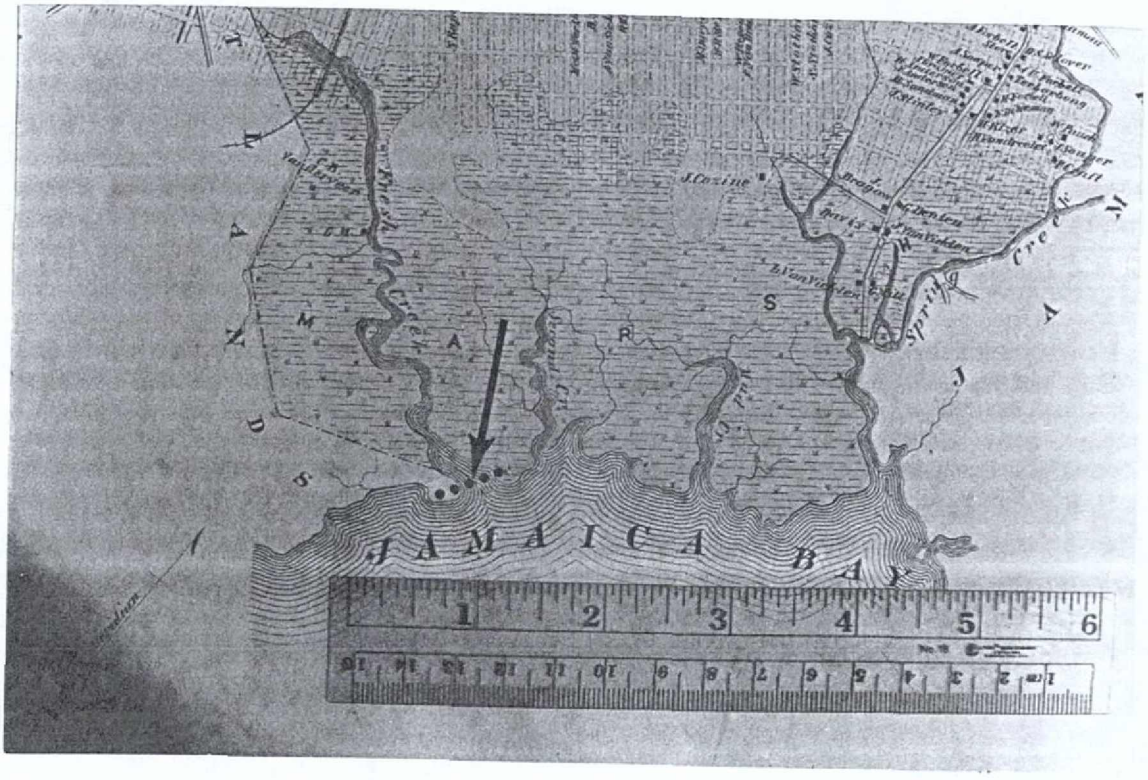
6a. Beers, Atlas of Long Island, New York, 1873

Arrows indicate project sites: 1. Ocean Parkway; 2. Coney Island Avenue; 3. Nostrand Avenue; 4. Gerritsen Inlet.



6b. Beers, Atlas of Long Island, New York, 1873

Arrows indicate project sites: 4. Gerritsen Inlet; 5. Flatbush Avenue; 6. Mill Basin;
7. Paerdegat Basin; 8. Rockaway Parkway.



N

6c. Beers, Atlas of Long Island, New York, 1873

Arrow indicates project site: Fresh Creek

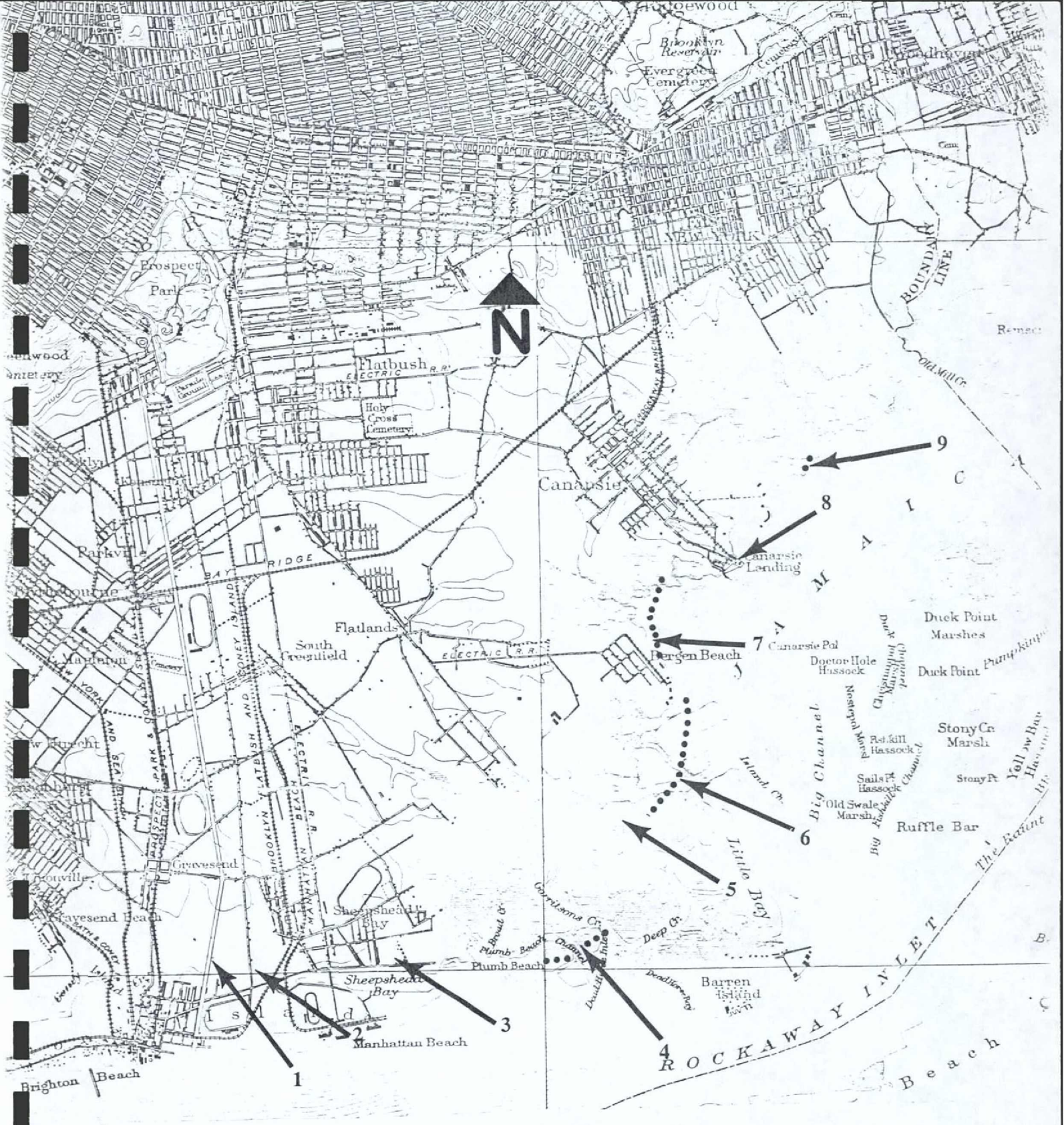


Figure 7. Wilson, U.S.C. & G.S., Brooklyn Quadrangle, 1897

Arrows indicate project sites: 1. Ocean Parkway; 2. Coney Island Avenue; 3. Nostrand Avenue; 4. Gerritsen Inlet; 5. Flatbush Avenue; 6. Mill Basin; 7. Paerdegat Basin; 8. Rockaway Parkway; 9. Fresh Creek

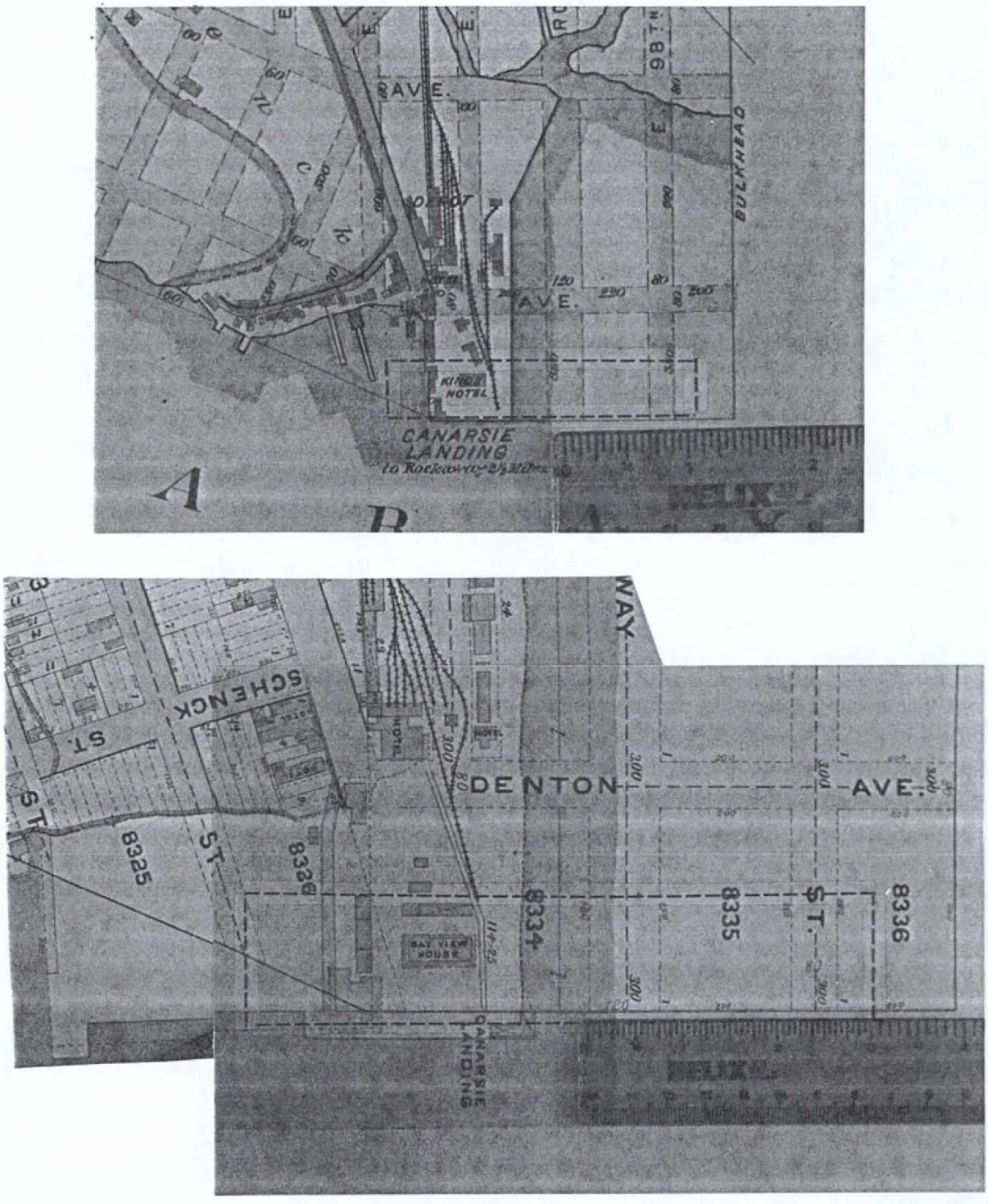


Figure 8. Rockaway Parkway bridge site ----

(top) Robinson, Atlas of Kings County, 1890 (Original scale: 1" = 400')

(bottom) Hyde, Atlas of the Borough of Brooklyn, 1899 (Original scale: 1" = 160')

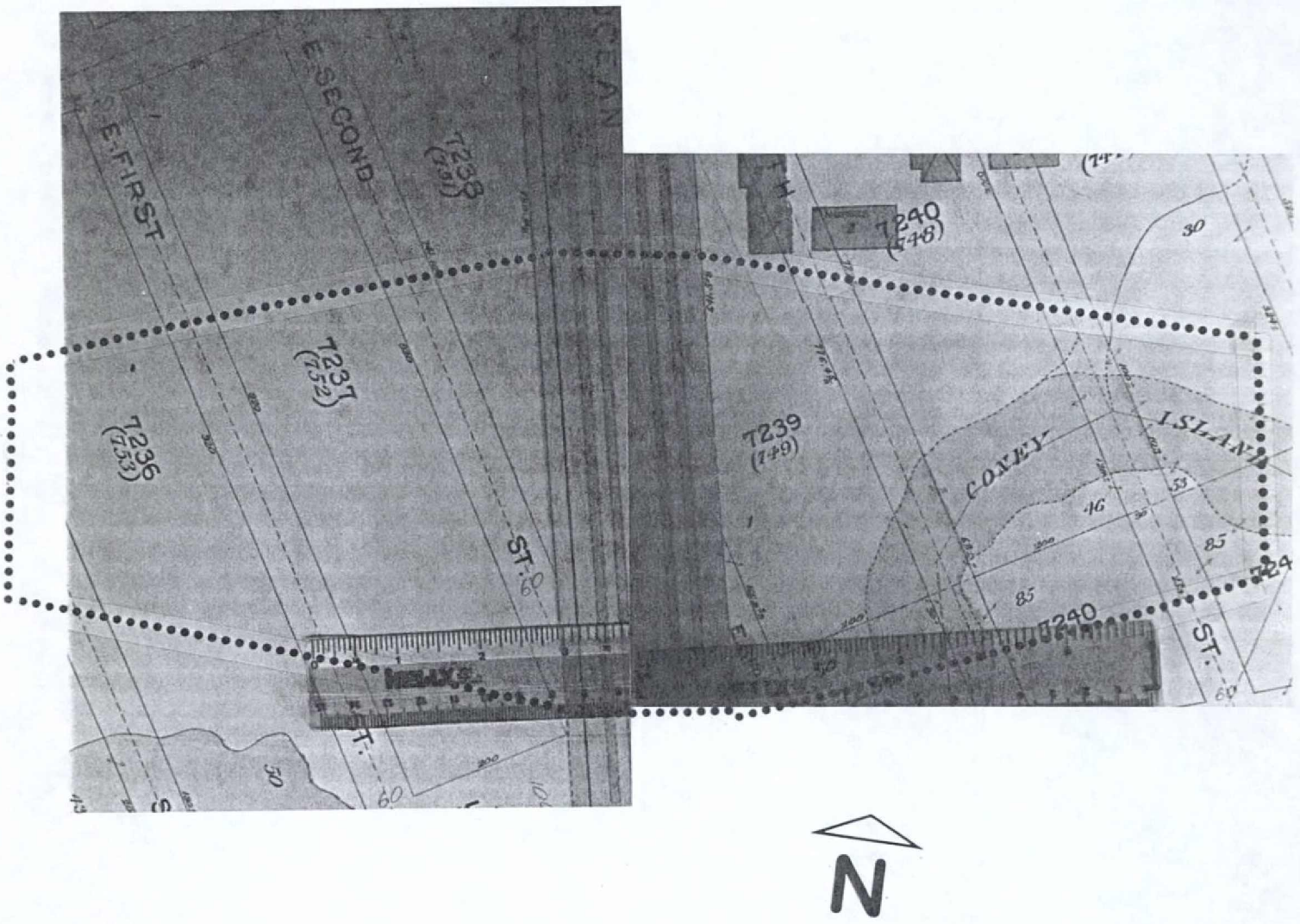


Figure 9a. Hyde, Atlas of the Borough of Brooklyn, 1912

••••• Ocean Parkway bridge site
(Original scale: 1" = 100')

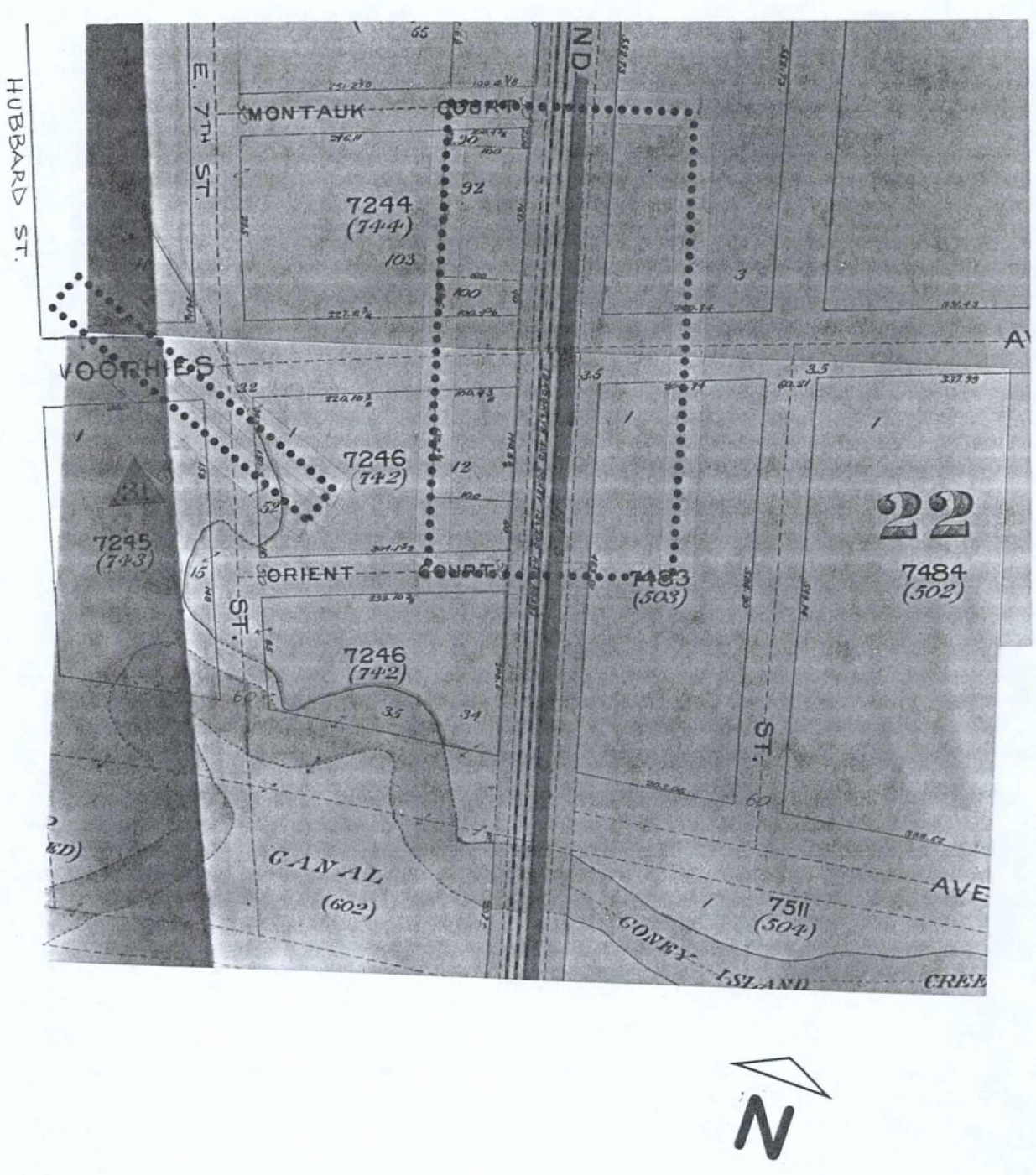


Figure 9b. Hyde, Atlas of the Borough of Brooklyn, 1912

••••• Coney Island Avenue bridge site
(1cm = approx. 77 feet)

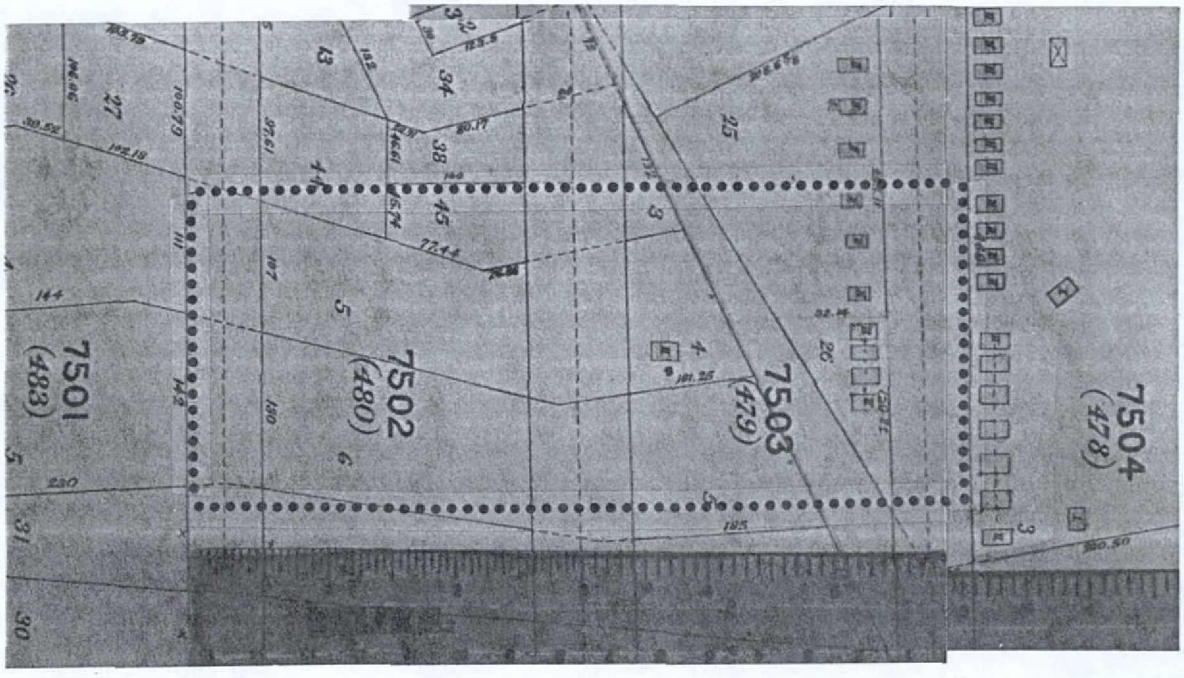


Figure 9c. Hyde, Atlas of the Borough of Brooklyn, 1912

••••• Nostrand Avenue bridge site
(Original scale: 1" = 100')

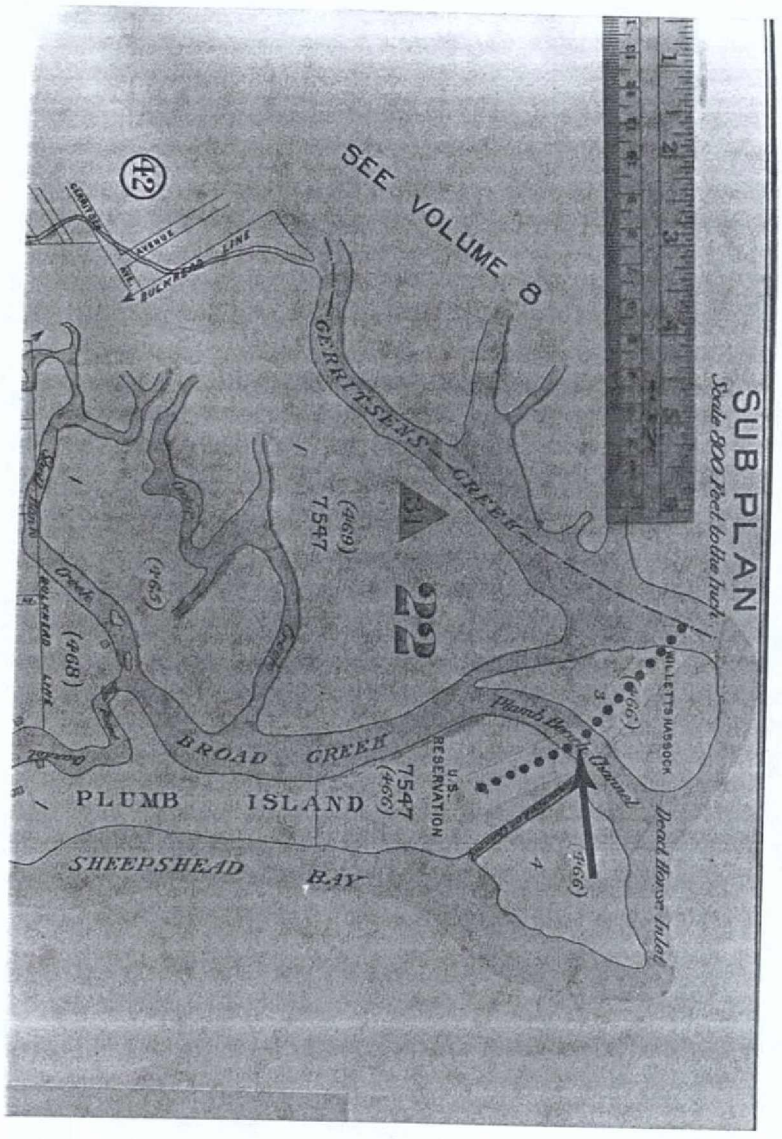


Figure 9d. Hyde, Atlas of the Borough of Brooklyn, 1912

Dotted line indicates Gerritsen Inlet bridge site

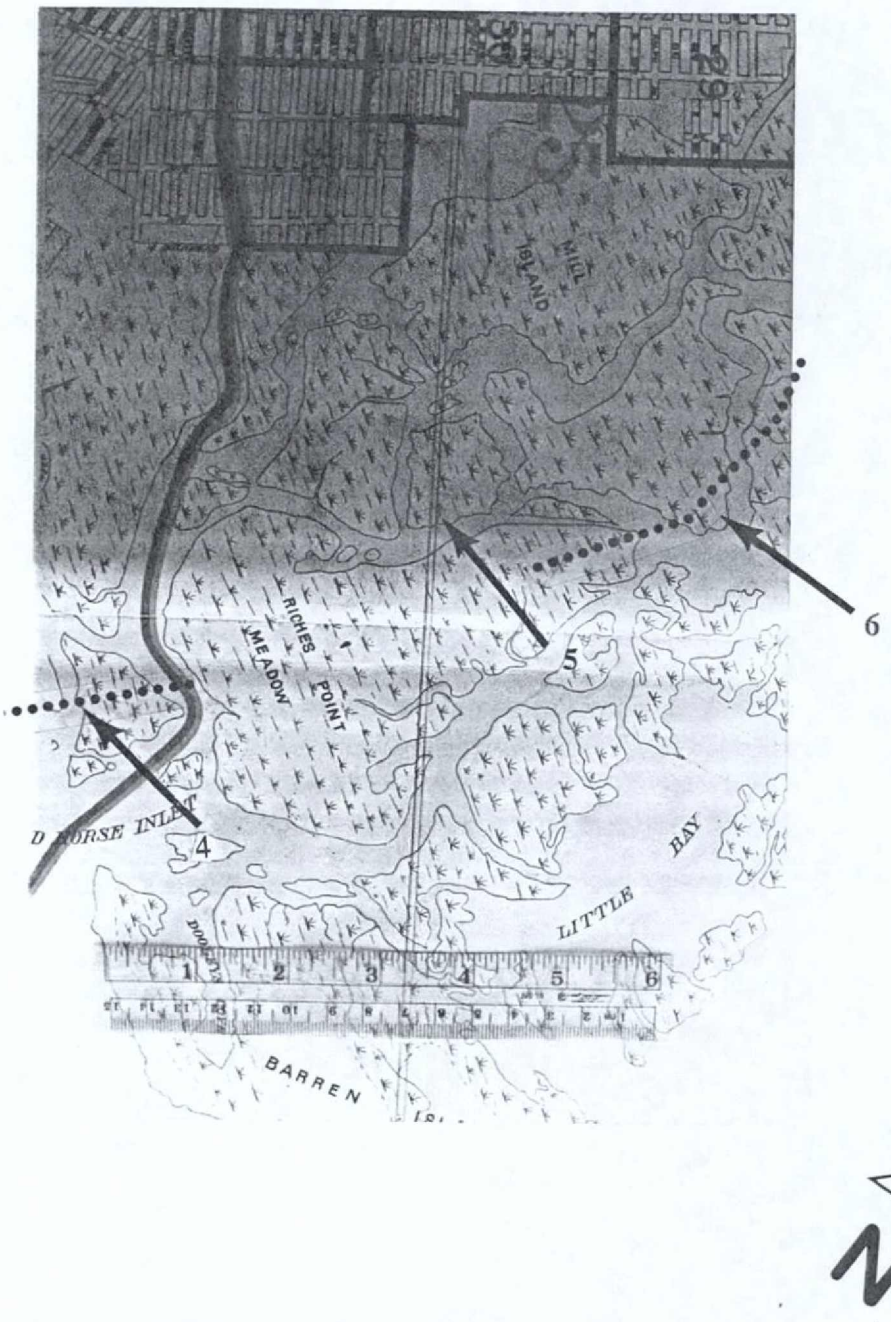


Figure 9e. Hyde, Atlas of the Borough of Brooklyn, 1912

Arrows and dots indicate project sites: 4. Gerritsen Inlet; 5. Flatbush Avenue; 6. Mill Basin (See also Fig. 9f)

Original scale: 1 3/16 inches = 1,500'

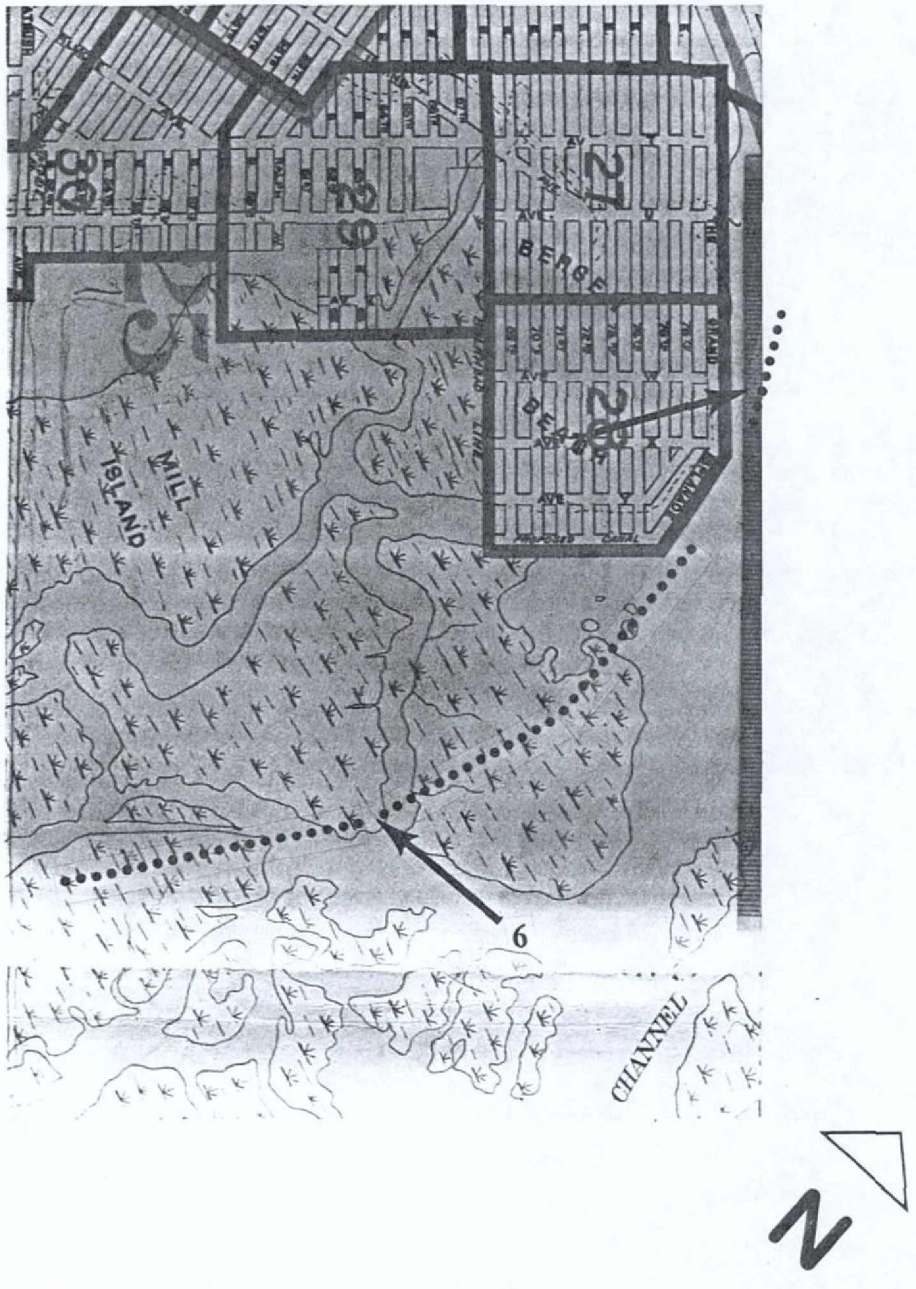


Figure 9f. Hyde, Atlas of the Borough of Brooklyn, 1912

Arrows and dots indicate project sites: 6. Mill Basin; 7. Paerdegat Creek Basin (See also Fig. 9g)

Original scale: 1 3/16 inches = 1,500'

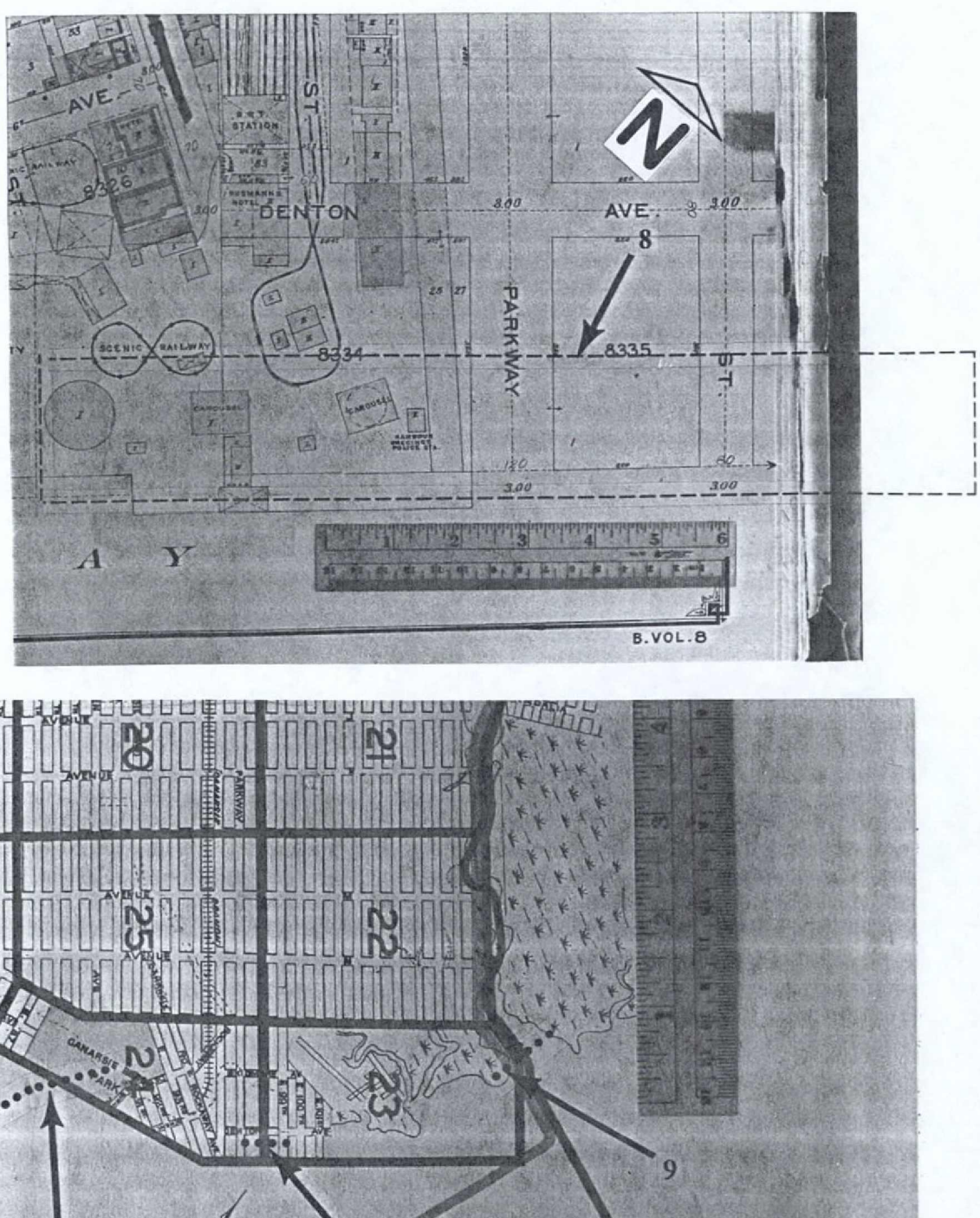


Figure 9g. Hyde, Atlas of the Borough of Brooklyn, 1912

Arrows and dots indicate project sites: 7. Paerdegat Basin; 8. Rockaway Parkway;
9. Fresh Creek Basin

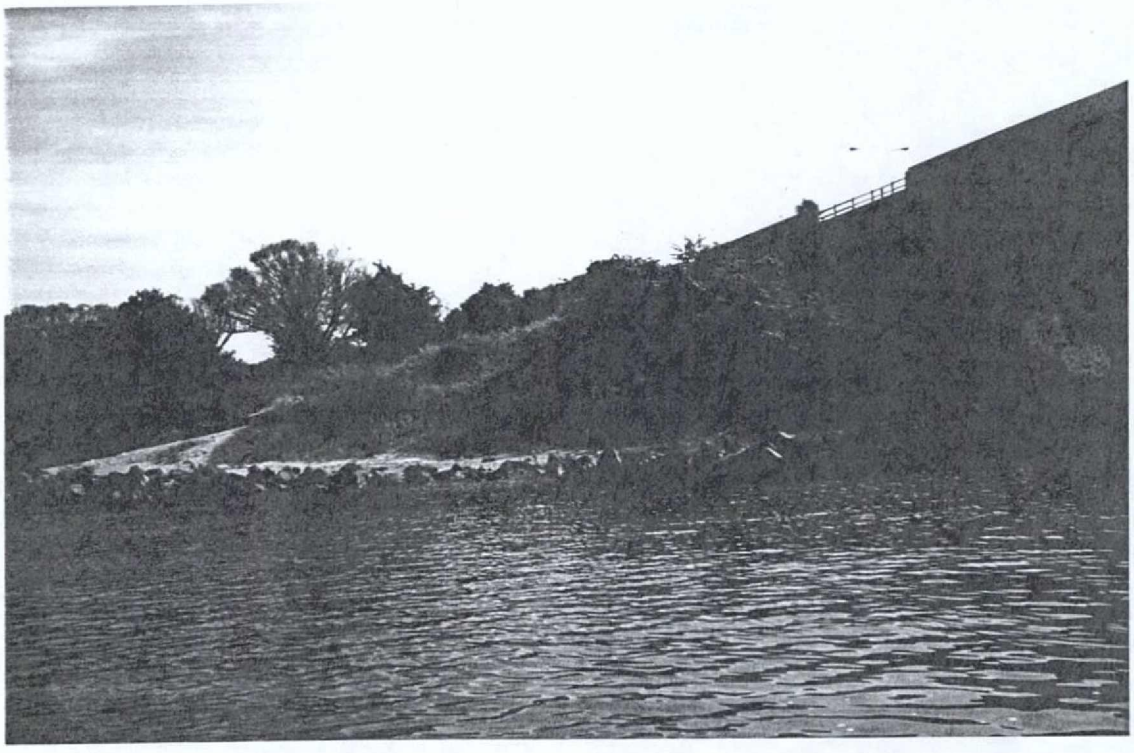
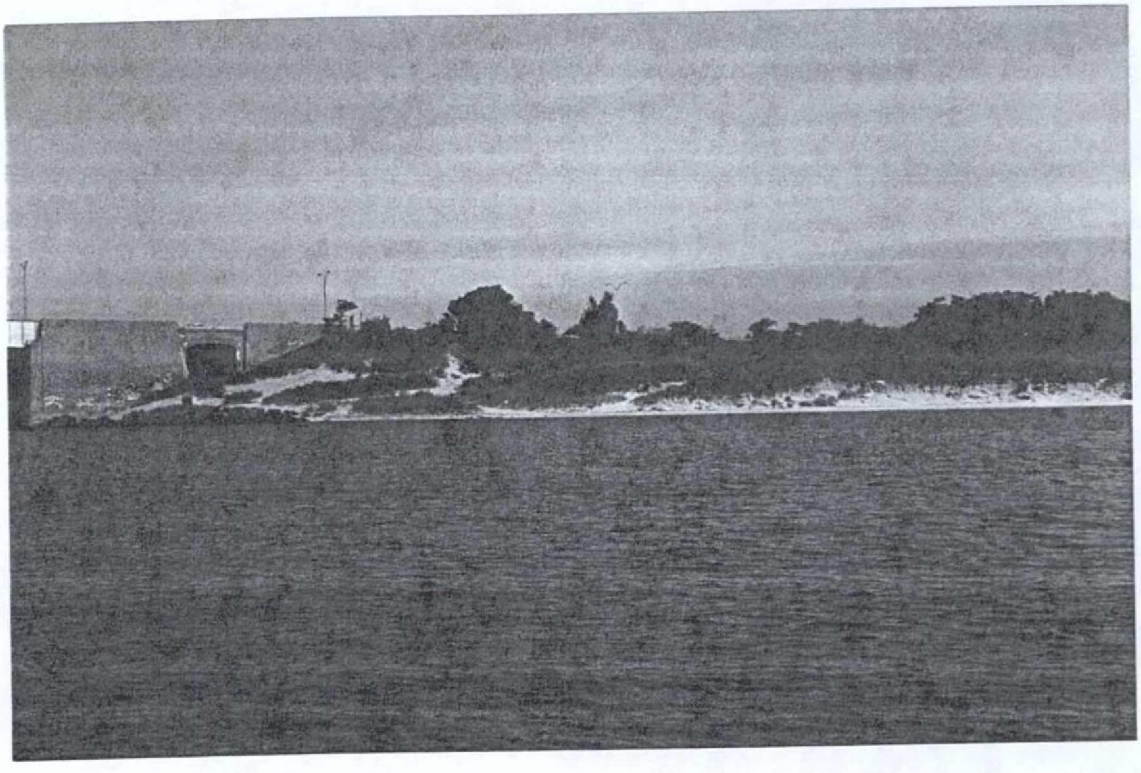


Photo 1: Gerritsen Inlet bridge, eastern abutment view from inlet toward east.
Photo 2: Gerritsen Inlet bridge, eastern abutment view from bay toward north.



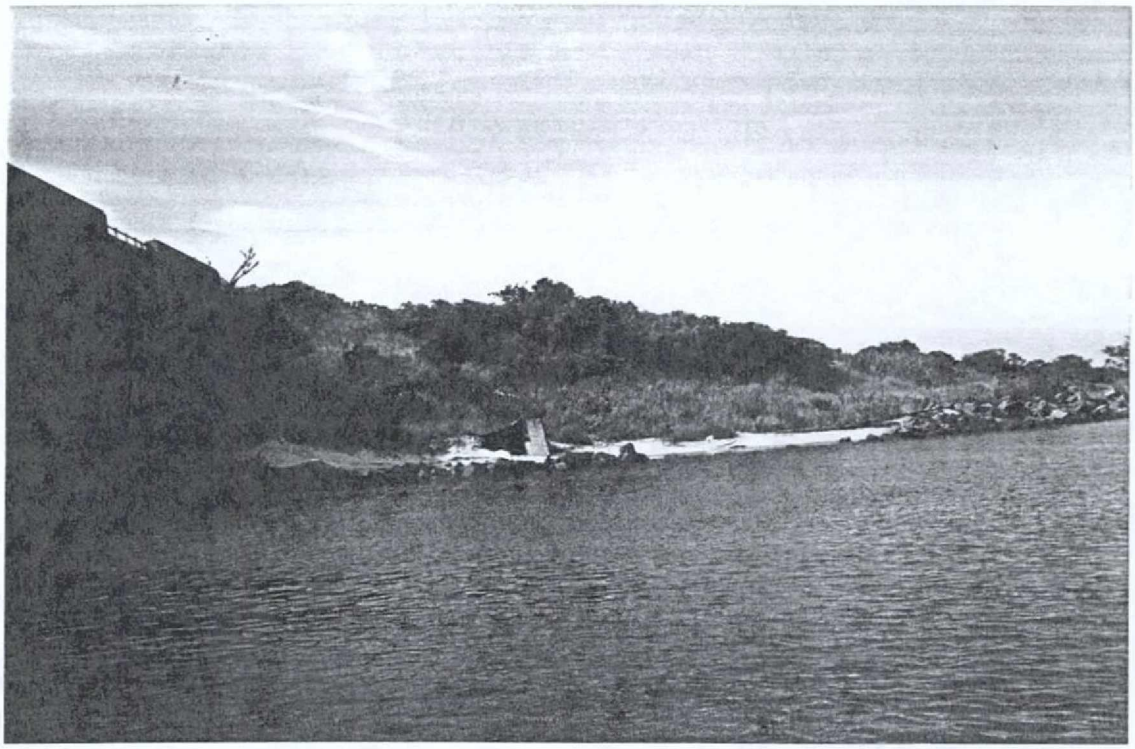
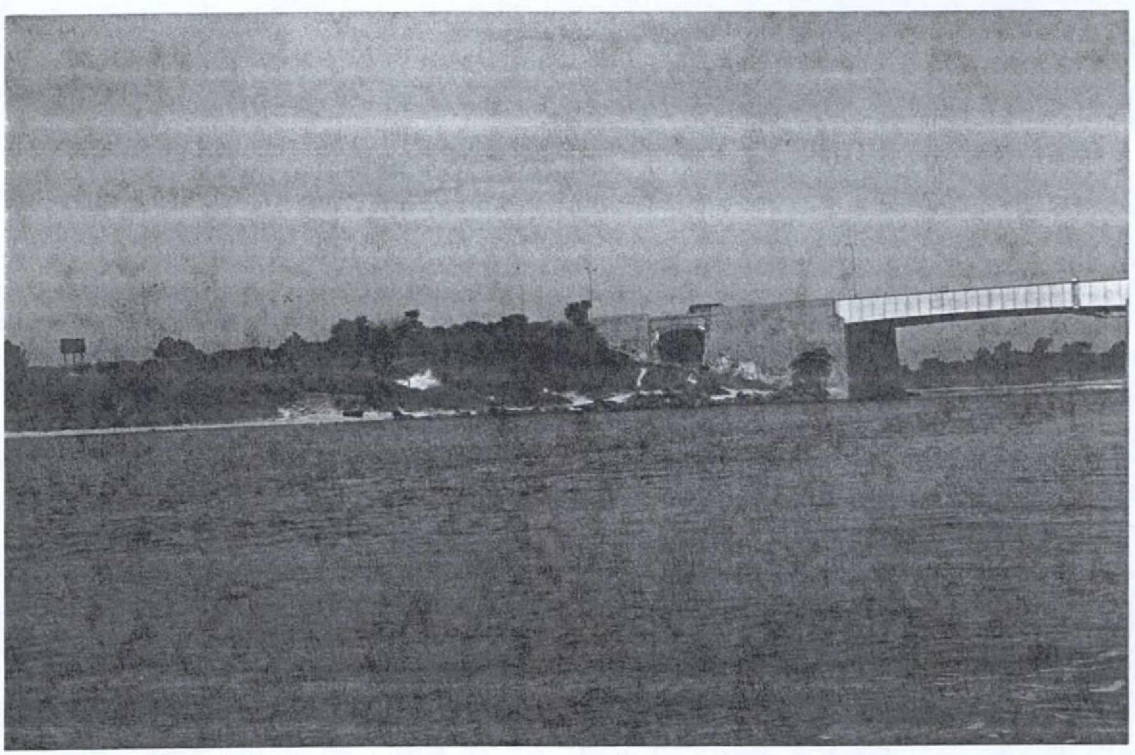


Photo 3: Gerritsen Inlet bridge, western abutment view from inlet toward south.
Photo 4: Gerritsen Inlet bridge, western abutment view from bay toward west.



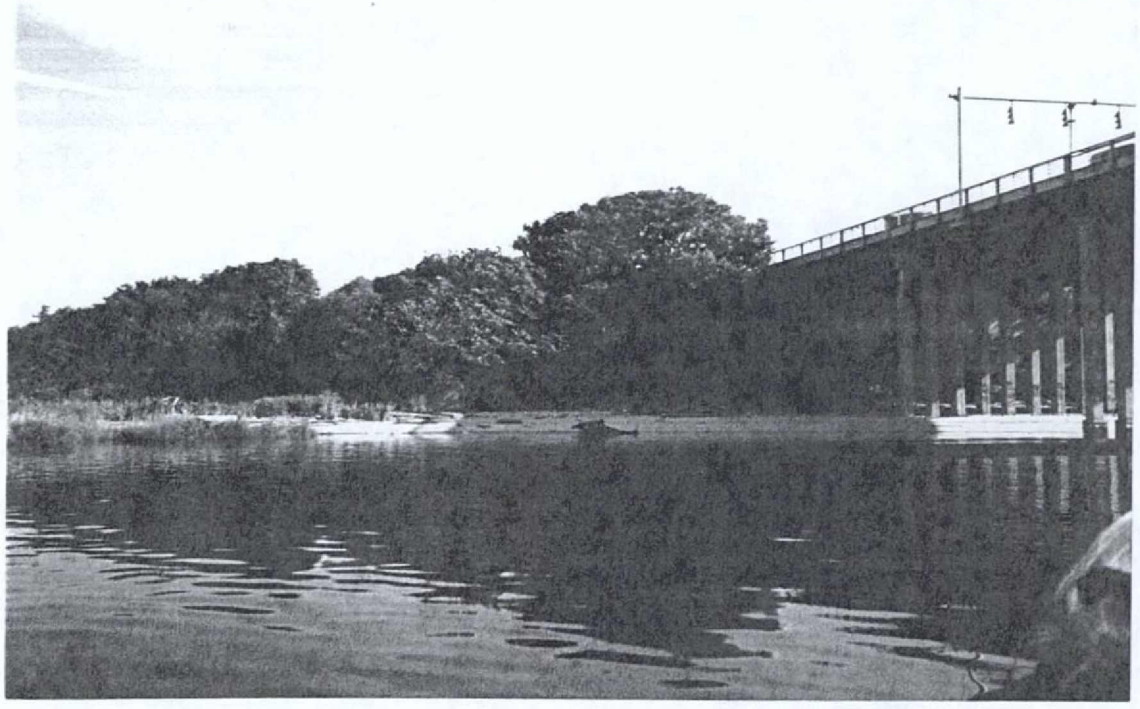
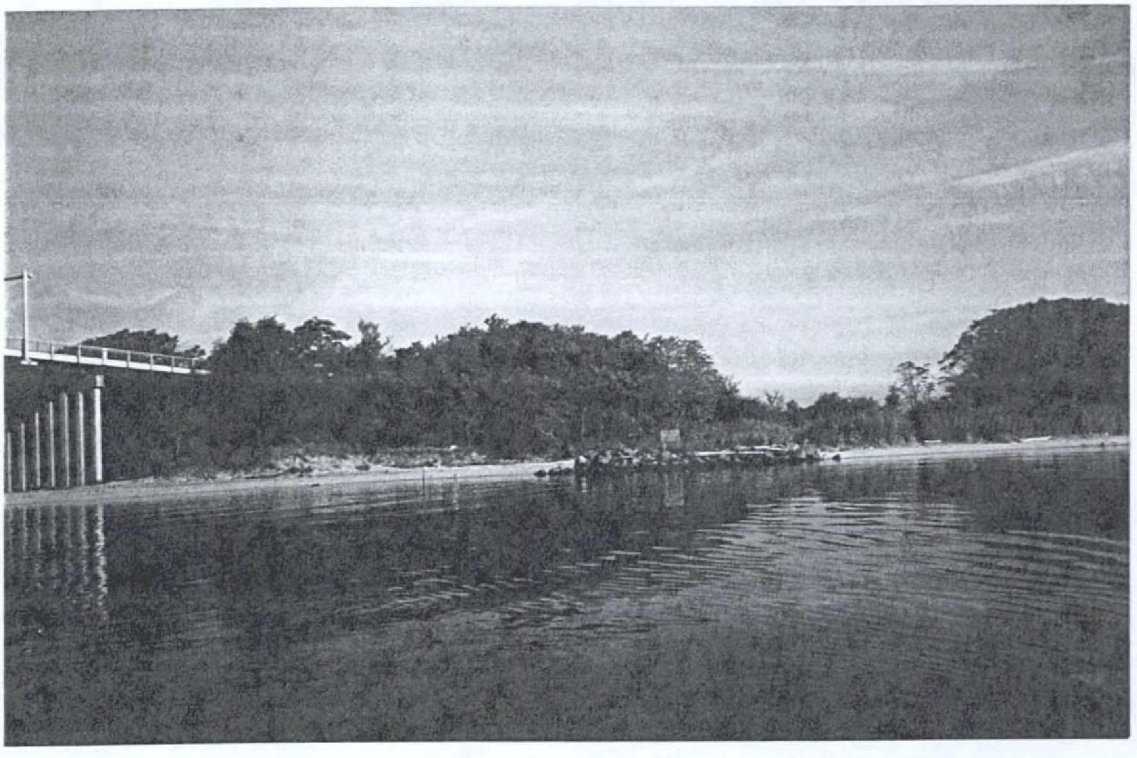


Photo 5: Mill Basin bridge, northern abutment view from basin looking northeast.
Photo 6: Mill Basin bridge, northern abutment view from bay toward northwest.



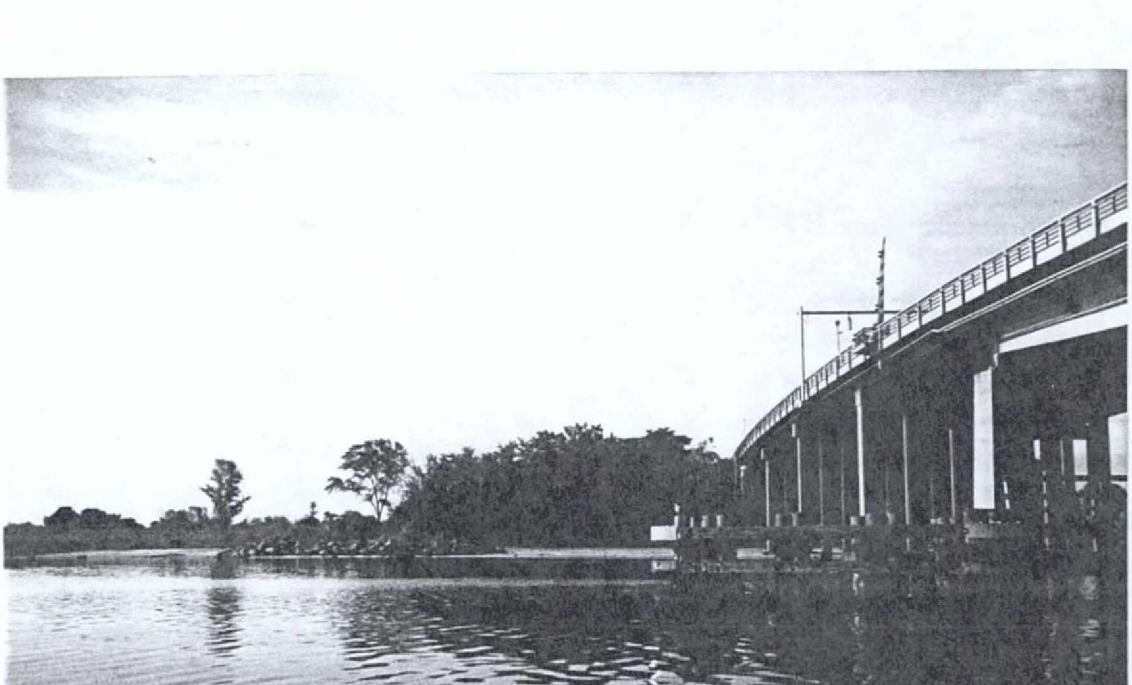


Photo 7: Mill Basin bridge, southern abutment, looking southwest from bay.

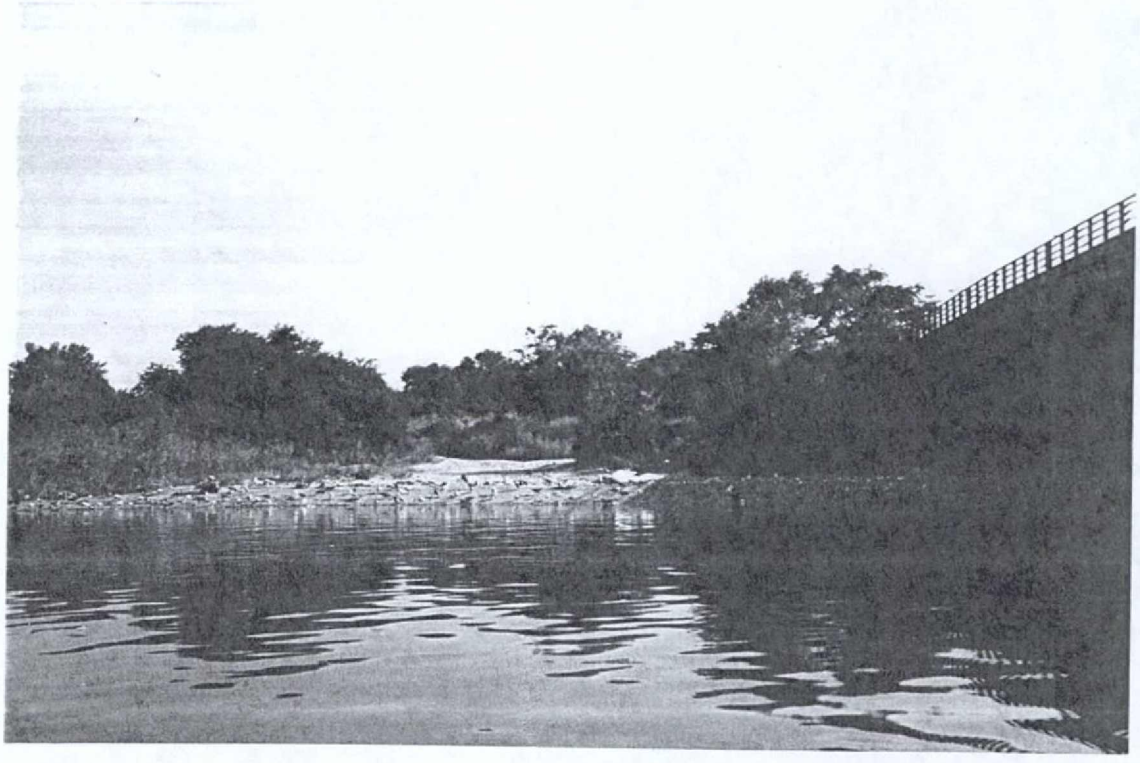


Photo 8: Paerdegat Basin bridge, northern abutment view from basin looking northeast.
Photo 9: Paerdegat Basin bridge, northern abutment view from bay toward north.

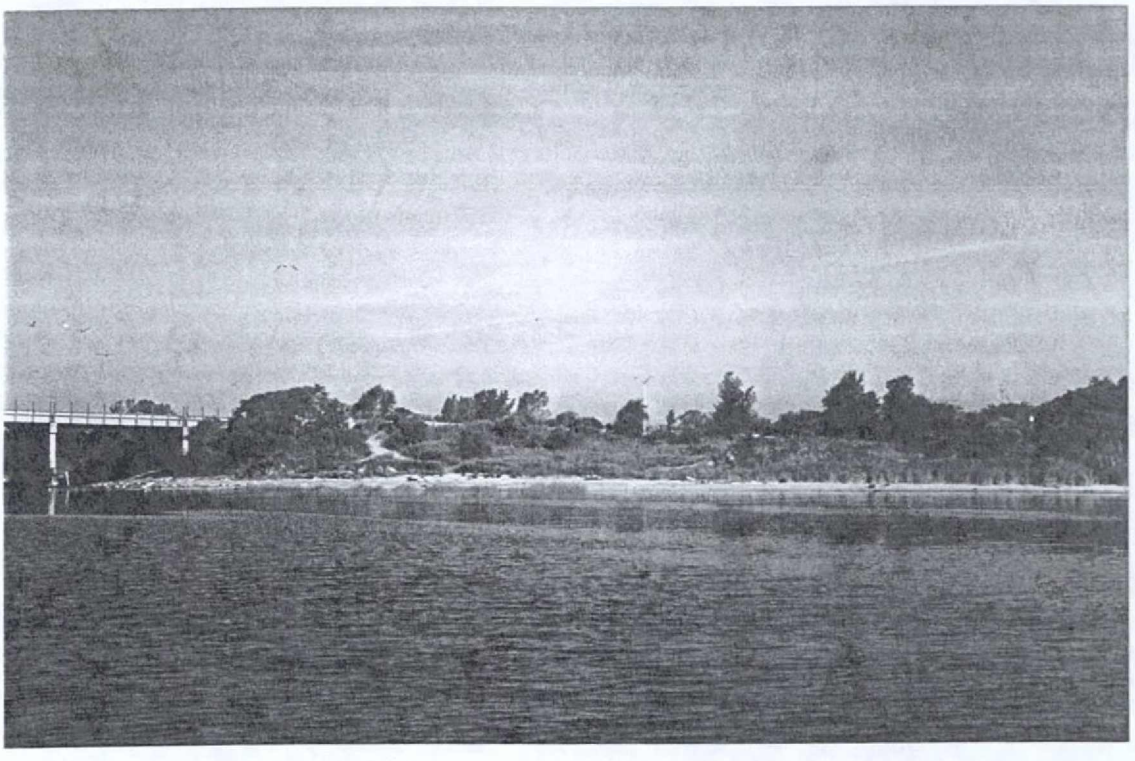
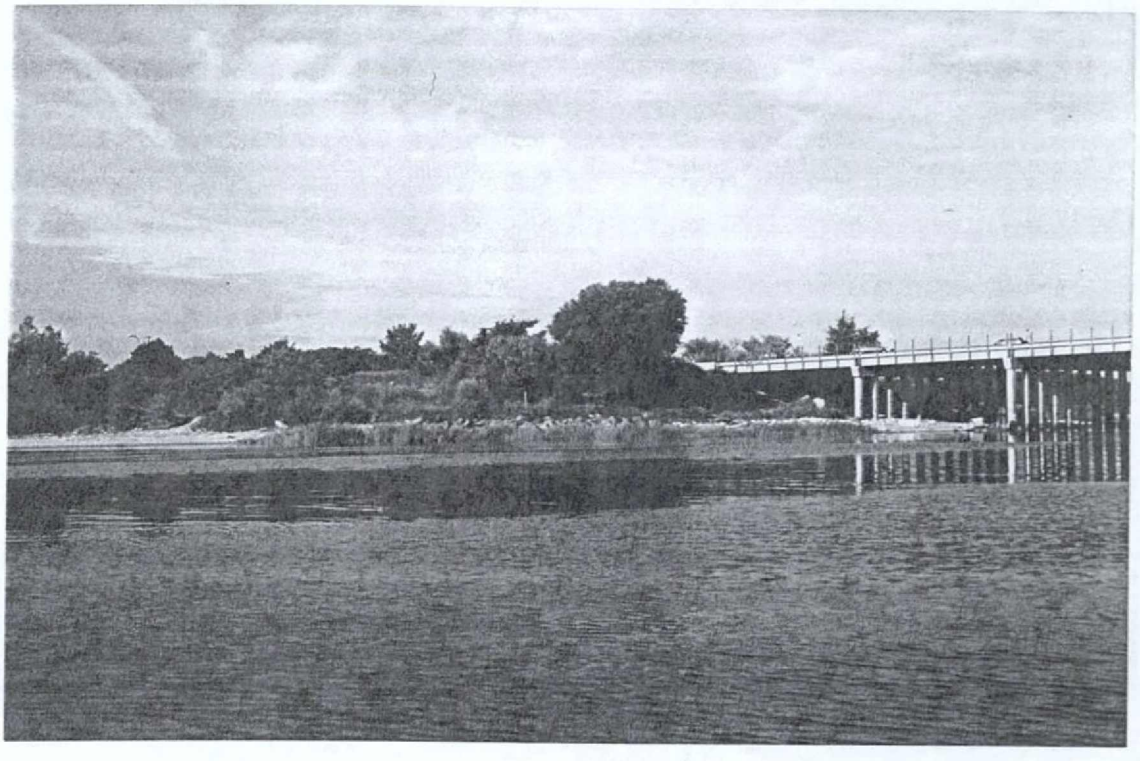


Photo 10: Paerdegat Basin bridge, southern abutment view from basin looking south.
Photo 11: Paerdegat Basin bridge, southern abutment view from bay toward southwest.



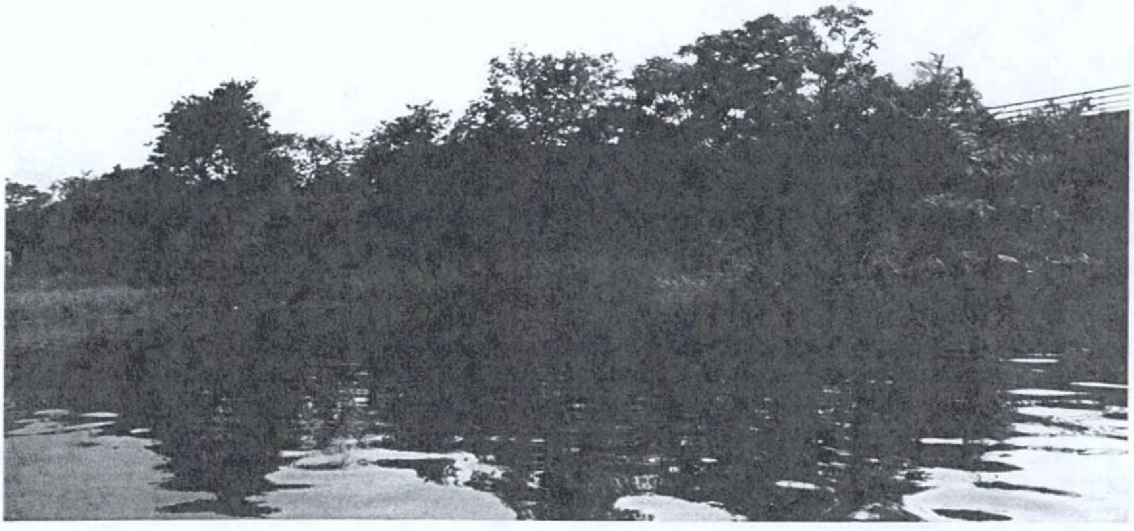
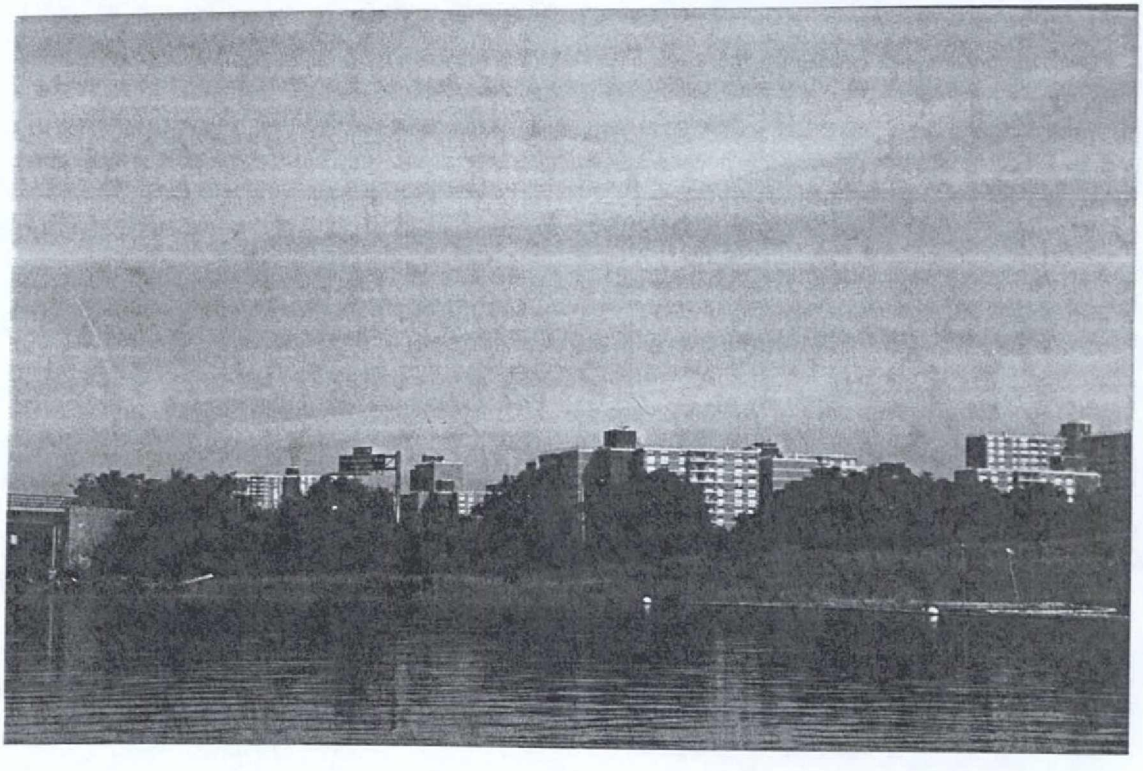


Photo 12: Fresh Creek bridge, northern abutment view from creek looking east.
Photo 13: Fresh Creek bridge, northern abutment view from bay toward north.



UNITED STATES
MENT OF THE INTERIOR
EOLOGICAL SURVEY

CONEY ISLAND QUADRANGLE
NEW YORK—NEW JERSEY
7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 2a. U.S.G.S. Topographic Map, Coney Island Quadrangle (photorevised 1979)
Scale: 1 inch = c.2,000 feet

Arrows indicate project sites: 1. Ocean Parkway; 2. Coney Island Avenue; 3. Nostrand Avenue; 4 Gerritsen Inlet; 5. Flatbush Avenue; 6. Mill Basin; 7. Paerdegat Basin.

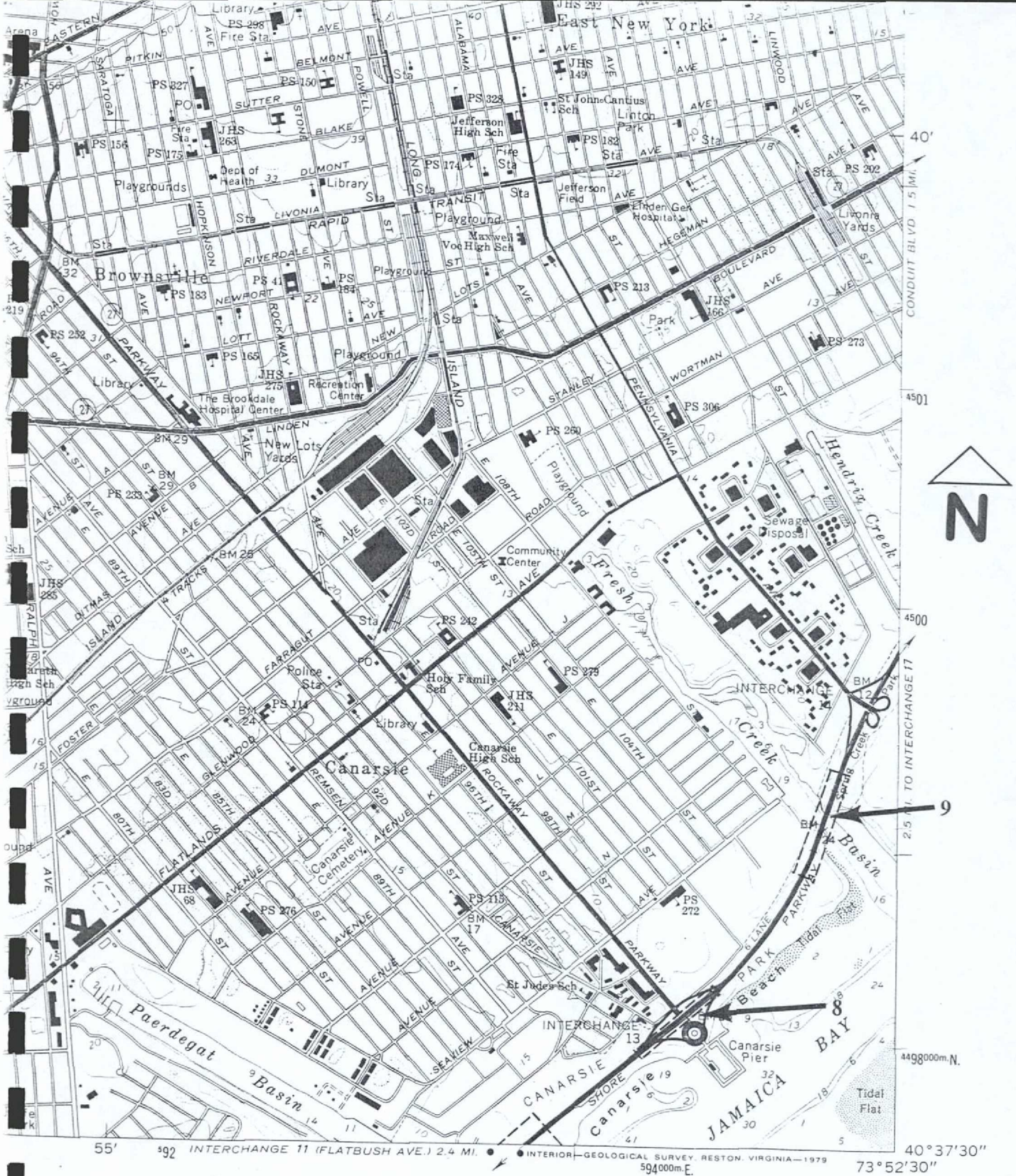


Figure 2b. U.S.G.S. Topographic Map, Brooklyn Quadrangle (photorevised 1979)
Scale: 1 inch = c.2,000 feet

Arrows indicate project sites: 8. Rockaway Parkway; 9. Fresh Creek.

QUADRANGLE LOCATION

Purple tint indicates extension of urban areas

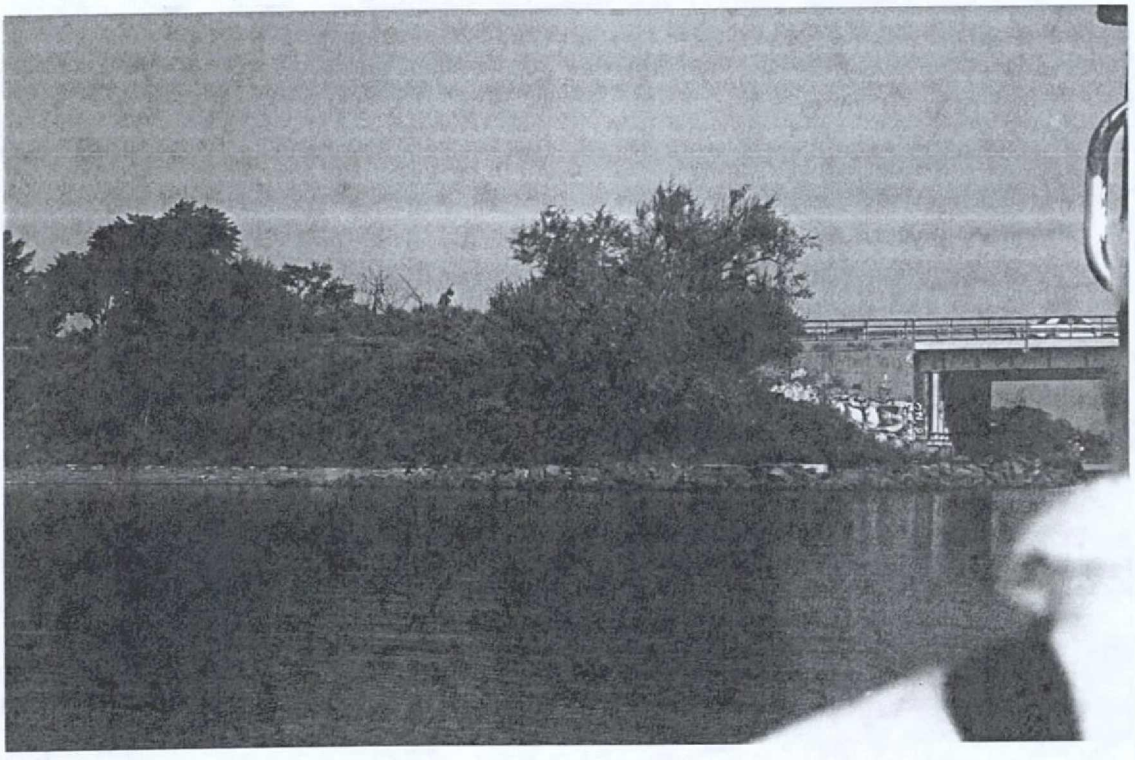
Revisions shown in purple compiled by the Geological Survey

BROOKLYN, N. Y.

N4037.5—W7352.5/7.5

1967

Photo 14: Fresh Creek bridge, southern abutment view from creek looking south.
Photo 15: Fresh Creek bridge, southern abutment view from bay toward west.



APPENDIX A

SITE FILE SEARCHES

NEW YORK STATE MUSEUM

AND

NEW YORK STATE OFFICE OF

PARKS, RECREATION AND HISTORIC PRESERVATION

NEW YORK STATE MUSEUM

3122 Cultural Education Center
Albany, NY 12230
518/474-5813 FAX 518/473-8496

Anthropological Survey

DATE: 9/18/96

To:
CECE SAUNDERS
HARTGEN ARCHEOLOGICAL ASSOC. FOR HISTORICAL PERSPECTIVES
P.O. BOX 3037
WESTPORT, CT 06880

Proposed Project: 9 BRIDGES
7.5' U.S.G.S. Quad: CONEY ISLAND, BROOKLYN, JAMAICA

In response to your request our staff has conducted a search of our data files* for locations and descriptions of prehistoric archaeological sites within the area indicated above. The results of the search are given below.

If specific information requested has not been provided by this letter, it is likely that we are not able to provide it at this time, either because of staff limitations or policy regarding disclosure of archaeological site data.

Questions regarding this reply can be directed to the site file manager, at (518) 474-5813 or the above address. Please refer to the N.Y.S.M. site identification numbers when requesting additional information.

Please resubmit this request if action is taken more than one year after your *initial information* request.

*[NOTE: Our files normally do not contain historic archeological sites or architectural properties. For information on these types of sites as well as prehistoric sites not listed in the N.Y.S.M. files contact The State Historic Preservation Office; Office of Parks, Recreation & Historic Preservation; Agency Building #1; Empire State Plaza; Albany, NY, 12238 at (518) 474-0479.

RESULTS OF THE FILE SEARCH:

Recorded sites ARE located in or within one mile of the project area. If so, see attached list.

Code "ACP" = sites reported by Arthur C. Parker in The Archeology Of New York, 1922, as transcribed from his unpublished maps.

SEARCH CONDUCTED BY: BW (initials) Anthropological Survey, NYS Museum

cc: N.Y.S. OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION; HISTORIC PRESERVATION FIELD SERVICES BUREAU

N.Y.S. MUSEUM ARCHAEOLOGICAL SITE FILE
RM. 3122, C.E.C., ALBANY, N.Y., 12230
CONFIDENTIAL: INFORMATION FOR RELEASE ONLY AS REQUIRED BY LAW
OR AS AUTHORIZED IN WRITING BY THE NYSM ANTHROPOLOGY SURVEY

-ID. # S- NYSM ----	ALT, OLD, (DHP)	SITE NAME --------	REPORTED: *:AGE :SITETYPE :STRATIG	REMARKS ---------	USGS TOPO 7.5'(15') :COUNTY ---------	REPORTER (RECORDER) -[EARLIER REPORTER]	PROJ. ID. # -----	DFILE 1NOTE 2MAP: 3ELOC
3607	ACP Kings no#		shell midders					
3608	ACP Kings ~~no#~~ 4		w +? ~~village~~ burials, shell midders, pottery					
3609	ACP Kings no #		~~camp~~ village					
3610	ACP Kings no#		camp					
7390	ACP Kings 3A		shell heaps at Canarsie or Flatlands					
7391	ACP King - 3B		shell midders.					
7459	BRK 1-3	Ryders Pond, Gerritsen Basin, Strome Kill	EW? MW LW H +?	supposedly Shanscomacocke Crist Canarsie vlg. pottery -> Clasons Pt, Bowmans Brook, Wickham intervcord marked; little contact material				
7878	ACP Kings no#		burials					
7877	ACP King no#		shell midders					
8376	ACP King no #		sites, general	Kings County was "without a doubt... occupied in nearly every part" ACP				

N.Y.S.M.SITE FILES
ROOM 3122
CULTURAL EDUCATION CENTER
ALBANY, NEW YORK 12230

PHONE: (518) 474-5813
FAX: (518) 473-8496

NEW YORK STATE MUSEUM: ANTHROPOLOGICAL SURVEY
PREHISTORIC SITE PROJECT SCREENING FILE: USE REQUEST FORM
Screening file site locations are by generalized .5 mile circle.

NAME Cece Saunders

AGENCY/COMPANY/INSTITUTIONREPRESENTED Hartgen Archeological Assoc. for: Historical Perspectives

ADDRESS PO Box 3037

Westport CT 06880 Phone # (203) _____

RESUBMIT THIS REQUEST IF ACTION IS TAKEN MORE THAN ONE YEAR AFTER RESPONSE DATE.

PURPOSE OF REQUEST: Identify the proposed project, contractor, and nature of the work.
Project identifier 9 Bridges

EVENTUAL DISTRIBUTION OF DATA: (Specify range of data use and distribution, publication, reproduction, etc.).

REQUESTED APPOINTMENT: Appointments are on the hour between 9 a.m. and 12 noon on Wednesdays.
1st Choice _____ _____ 2nd Choice _____ _____
date time (or any) date time (or any)
Appointments may be made by phone on Tuesday *mornings* or may be requested by mail. Requests should be mailed at least 2 weeks in advance of appointment date. You will be notified of your appointment date by mail.

U.S.G.S.7.5' MAPS REQUESTED: (indicate if 15' maps)
Coney Island Brooklyn Jamaica _____

SITE FILE USER; Indicate if the following information is requested and attach a copy of 1. The project map 2. Site data list

___ I am requesting the location of the following sites, if threatened by the proposed activity.

SITE #	7.5 MAP
7877	___
7879	Coney Island
7391	___
7390	Brooklyn

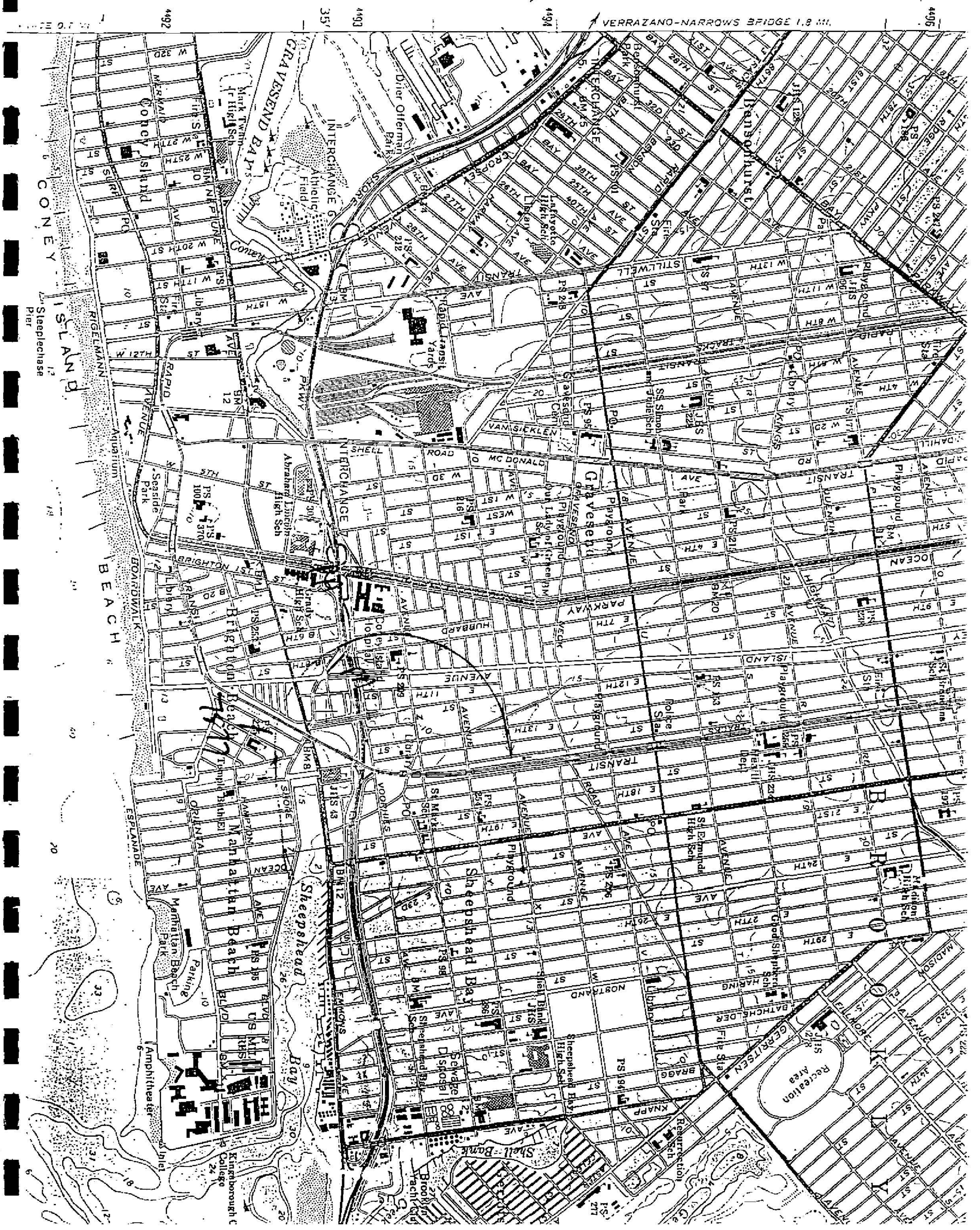
___ Further listings on back

___✓ Please provide a sensitivity rating for the attached project area.

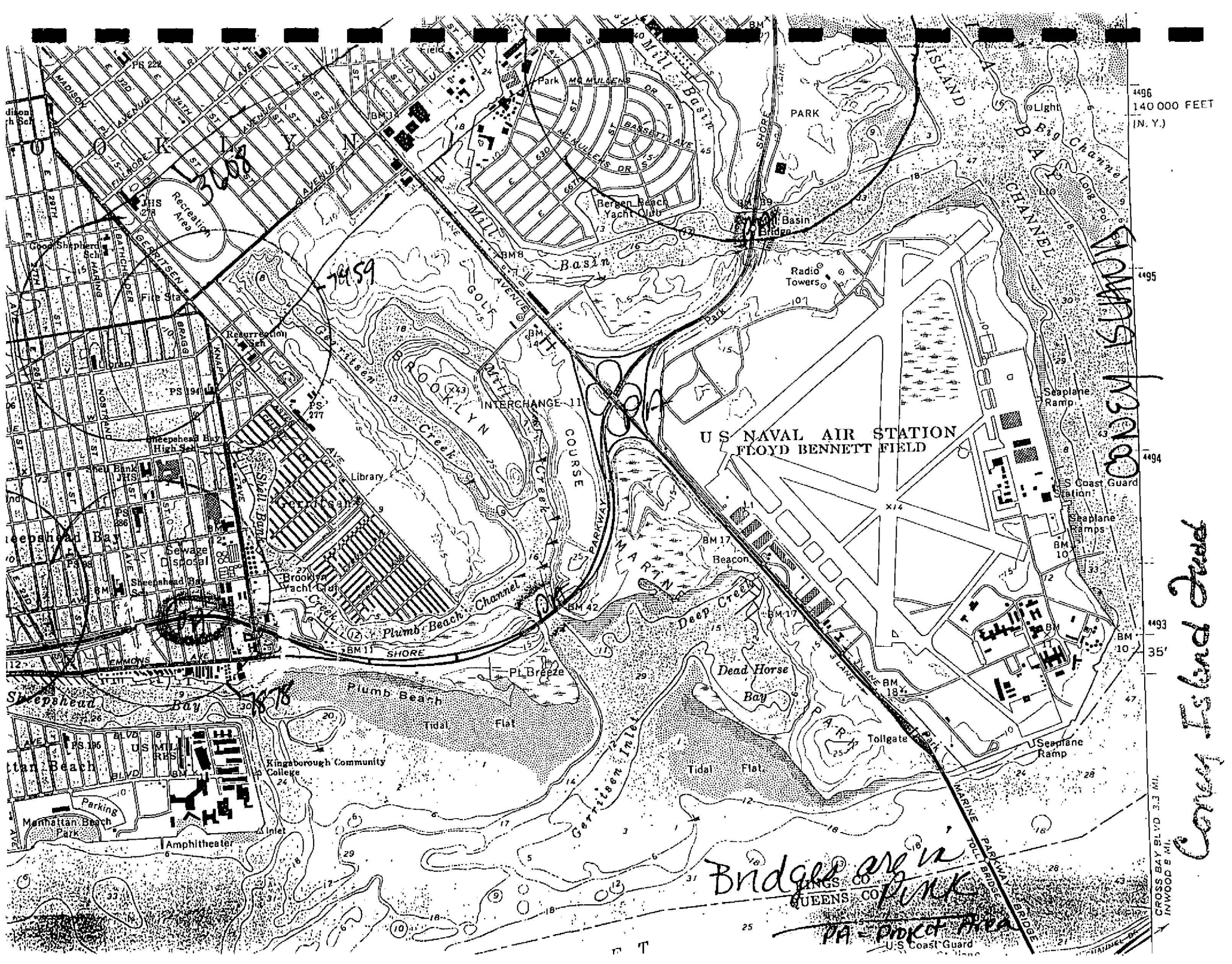
I understand that the information provided is to be used solely for the preparation of an environmental impact statement as required by State or Federal law and must be marked and maintained as "Confidential; for use only as required by State or Federal Law or with the written permission of the N.Y.S.Museum Anthropological Survey."

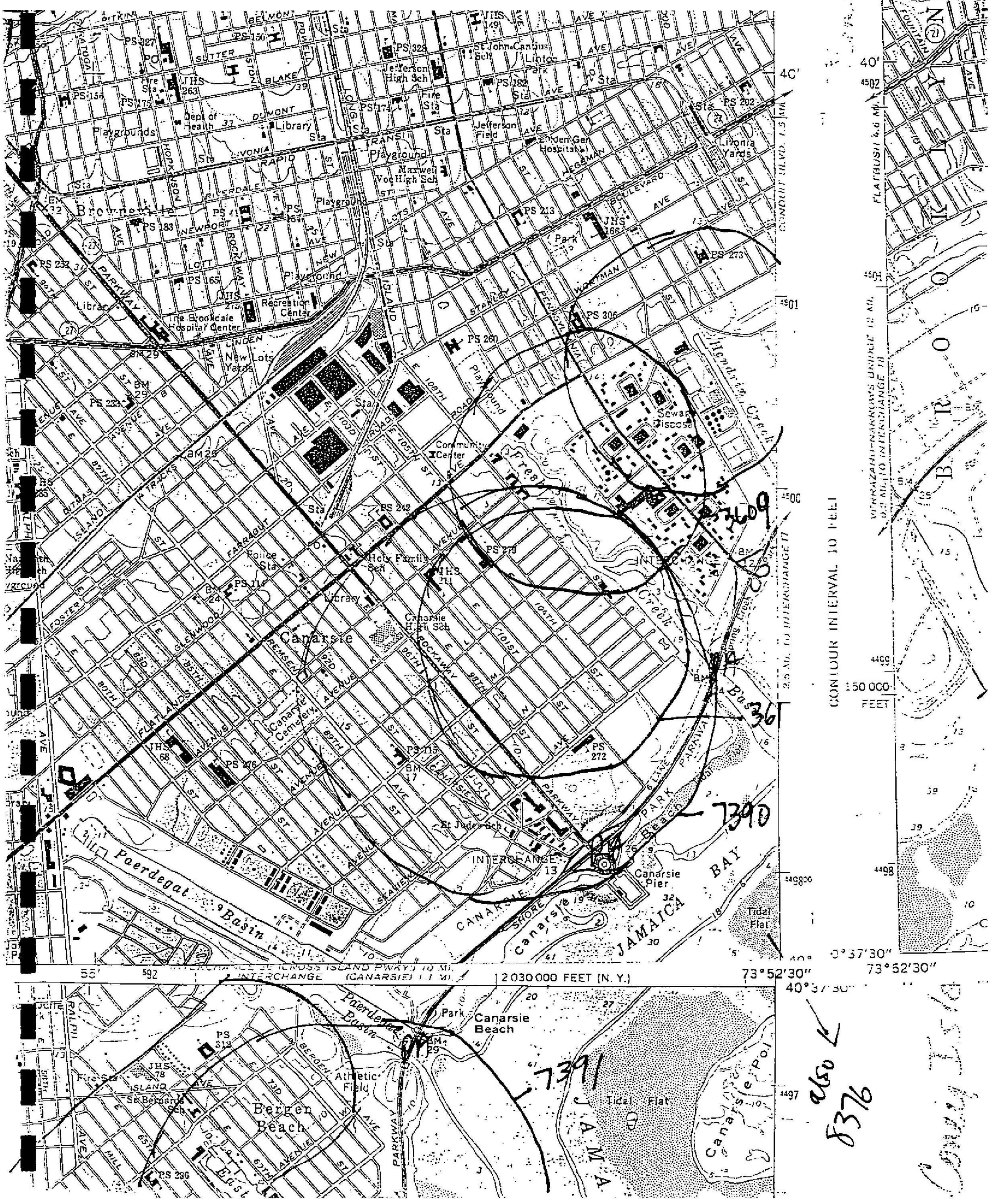
Cece Saunders 9/12/94
(Signature) (Date)

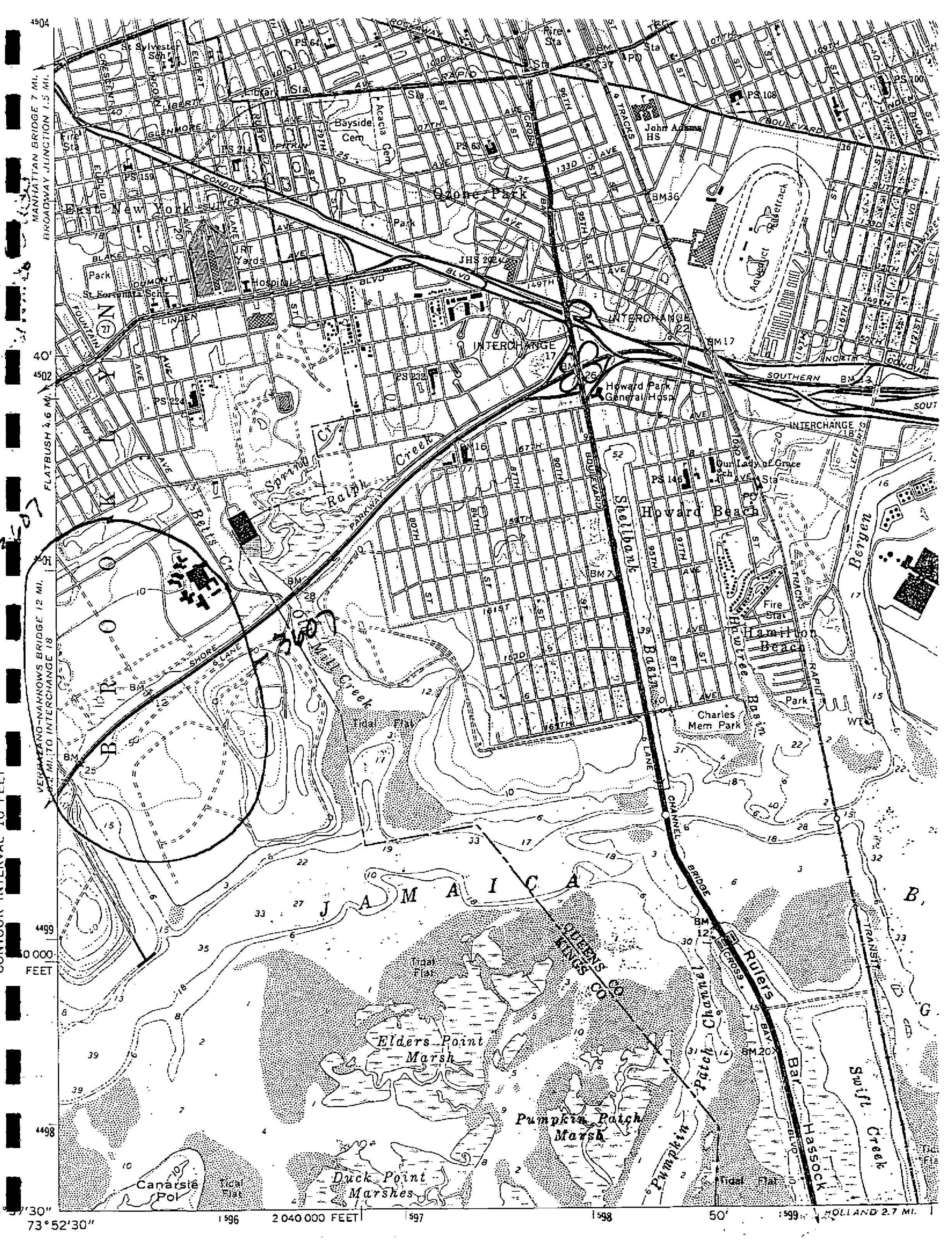
Indicate which you prefer
___✓ Mail my response (addressed envelope attached)
___ Hold my response for pick-up on (give date & time)



VERRAZANO-NARROWS BRIDGE 1.8 MI.
CONEY ISLAND
BEACH
BOARDWALK
RIGELMANN
Steeplechase Pier
Aquarium
Seaside Park
Coney Island
Brighton Beach
Manhattan Beach
Manhattan Beach Park
Sheepshead Bay
Gravesend
Gravesend Bay
Bensonhurst
Kingsborough College
Amphitheater
Recreation Area
Abraham Lincoln High Sch
Lafayette High Sch
Sheepshead Bay High Sch
Coney Island Hospital
Rapid Transit Yards
Athletic Field
Dreier Offerman Park
STILLWELL
SHELL ROAD
MC DONALD
VAN SICKLEN
OCEAN PARKWAY
SHORE PKWY
INTERCHANGE
EMMONS
KNAPP
GERRITSEN
NOSTRAND
BATCHELDER
ESPLANADE
ORIENTAL
BRIGHTON


BROOKLYN
Mill Basin
PARK
ISLAND
Big Channel
CHANNEL
Bergen Beach Yacht Club
Mill Basin Bridge
Radio Towers
Mill Basin
GOLF COURSE
INTERCHANGE 11
Gerritsen Creek
Mill Creek
Gerritsen
Resurrection Sch
PS 277
Shell Bank JHS
Sheepshead Bay High Sch
Library
Sewage Disposal
Brooklyn Yacht Club
Plumb Beach Channel
SHORE
PARKWAY
U S NAVAL AIR STATION
FLOYD BENNETT FIELD
Seaplane Ramp
U S Coast Guard Station
Seaplane Ramps
Deep Creek
Dead Horse Bay
Pl Breeze
Plumb Beach
Tidal Flat
Tollgate
Seaplane Ramp
Sheepshead Bay
Kingsborough Community College
Manhattan Beach Park
Parking
Amphitheater
Inlet
Gerritsen Inlet
MARINE PARKWAY TOLL BRIDGE
KINGS CO
QUEENS CO
U.S Coast Guard
CROSS BAY BLVD 3.3 MI.
INWOOD 8 MI.
140 000 FEET
(N. Y.)
Bridge
PA - PROJECT AREA


Brownsville
Canarsie
Bergen Beach
Canarsie Beach
Paerdegat Basin
Canarsie Pier
JAMAICA BAY
Tidal Flat
Fresh Creek
Hendrix Creek
Livonia Yards
New Lots Yards
The Brookdale Hospital Center
Canarsie Cemetery
Canarsie High Sch
Jefferson High Sch
Maxwell Voc High Sch
Sewage Disposal
INTERCHANGE 13
CONTOUR INTERVAL 10 FEET
2 030 000 FEET (N. Y.)
150 000 FEET
73°52'30"
40°37'30"
40'
7609
7390
7391
36
also 8376


East New York
Ozone Park
Howard Beach
Hamilton Beach
JAMAICA
B
G
Bayside Cem
Acacia Cem
IRT Yards
Hospital
St Sylvester Schl
St Fortunata Schl
John Adams HS
Racetrack
Aqueduct
Howard Park General Hosp
Our Lady of Grace Sch
Charles Mem Park
Park
Fire Sta
PO
PS 64
PS 108
PS 100
PS 63
PS 214
PS 159
PS 224
PS 232
PS 146
JHS 202
INTERCHANGE 22
INTERCHANGE 17
INTERCHANGE 18
Spring Cr
Ralph Creek
Betts Cr
Old Mill Creek
Shellbank Basin
Hawtree Basin
Bergen
Tidal Flat
Elders Point Marsh
Pumpkin Patch Marsh
Pumpkin Patch Channel
Duck Point Marshes
Canarsie Pol
Rulers Bar Hassock
Swift Creek
QUEENS CO
KINGS CO
CROSS BAY BLVD
CHANNEL BRIDGE
SHORE PARKWAY
BELT
CONDUIT
SOUTHERN
LINDEN
LIBERTY
GLENMORE
PITKIN
BLAKE
DUMONT
FOUNTAIN
EUCLID
ROCKAWAY
BOULEVARD
NORTH CONDUIT
TRANSIT
MANHATTAN BRIDGE 7 MI.
BROADWAY JUNCTION 1.5 MI.
FLATBUSH 4.6 MI.
VERRAZANO-NARROWS BRIDGE 12 MI.
1 MI. TO INTERCHANGE 18
HOLLAND 2.7 MI.
CONTOUR INTERVAL 10 FEET
40'
50'
73°52'30"
2 040 000 FEET
50 000 FEET

ARCHEOLOGICAL SITE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK
518 474-0479

FOR OFFICE USE ONLY
UNIQUE SITE NO. A047-01-0119
QUAD. Coney Island
SERIES 7 U.S.G.S. 7½'
NEG. NO. _____

REPORTED BY: John Milner Associates

YOUR ADDRESS: West Chester, Pennsylvania TELEPHONE: _____

ORGANIZATION (if any): NPS Contract CX-2000-7-0010

DATE: 2/10/78

* *

1. SITE NAME: JB-72 Bergen House Site

2. COUNTY: Kings TOWN/CITY: _____ VILLAGE: _____

3. LOCATION: On Bergen Island, today Bergen Beach, Jamaica Bay

4. PRESENT OWNER: _____

5. OWNER'S ADDRESS: _____

6. DESCRIPTION, CONDITION, EVIDENCE OF SITE: See Attached Form

☐ STANDING RUINS ☐ CELLAR HOLE WITH WALLS

☐ SURFACE TRACES VISIBLE ☐ WALLS WITHOUT CELLAR HOLE

☐ UNDER CULTIVATION ☐ EROSION ☐ UNDERWATER

☐ NO VISIBLE EVIDENCE ☐ OTHER _____

7. COLLECTION OF MATERIAL FROM SITE:

☐ SURFACE HUNTING BY WHOM _____ DATE _____

☐ TESTING BY WHOM _____ DATE _____

☐ EXCAVATION BY WHOM _____ DATE _____

☐ NONE

PRESENT REPOSITORY OF MATERIALS: _____

_____

8. PREHISTORIC CULTURAL AFFILIATION OR DATE: _____

9. HISTORICAL DOCUMENTATION OF SITE:

John Milner Associates
1976 "A Cultural Resources Inventory of the Gateway National Rec
Area, New York & New Jersey." Report prepared for the
(Copy on file at the NYSOPRHP.)

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

11. REMARKS:

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME: _____

15 MINUTE SERIES QUAD. NAME: _____

U.S.G.S. COORDINATES: _____

D.O.T. COORDINATES: (if known) _____

ATTACH SKETCH, TRACING OR COPY OF MAP

See above cited report, p. 116, Fig. 7.2

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

(ATTACH)

NATIONAL HERITAGE

Historic Site Survey Record
Coney Island U.S.G.S. 7.5' Quadrangle (1966)

View:
Camera Facing:

UTM Grid ^{44}96,290m.N.
^{5}93,550m.E.

Note: Due to the extreme nature of 20th century disturbance in this area, this location should not be taken to be precise.

1. NAME
Historic JB-72
Common Bergen House

2. LOCATION
Street & No. Formerly on Bergen Island
Jamaica Bay

Zoning:_____ Map Reference Key #_____

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP		STATUS	ACCESSIBLE TO PUBLIC
___District ___Building X Site ___Structure ___Object	X Public ___Private ___Both	Public Acquisition: ___In Process ___Being Considered	___Occupied X Unoccupied Work in Progress ___Pres. ___Altera.	Yes: X Restricted ___Unrestricted ___No

PRESENT USE (Check One or More If Applicable)

___Agriculture ___Commercial ___Educational
___Government ___Industrial ___Military
___Museum X Park ___Private Residence (Owner Occupied)
___Religious ___Rental Residence ___Single Family ___Double ___Multiple
___Scientific ___Transportation ___Other

ORIGINAL USE: Residential Structure

4a. OWNERSHIP (Present)
Name: National Park Service
Street and Number:
City or Town:

4b. OWNERSHIP (Original, if known): Stoothoff
4c. BUILDER/ARCHITECT (If known):

5. DESCRIPTION Photographs on file at Long Island Historical Society

Features (exterior)	Materials
Facade Unknown	Unknown
Foundations	
Trim	
Roof Type: ___flat ___gable ___shed ___"French" ___gambrel ___hip ___other	
Chimney(s)	
Porch(es)	
Addition(s)	

Dimensions & Plan Unknown (Sketch):

Structural System:
___wood frame, interlocking joints ___wood frame, light member
___masonry load bearing walls ___log ___metal ___other

5. DESCRIPTION (cont.)

Number of Stories Unknown

Other notable features: _____

Condition: EXTERIOR ___Excellent ___Good *___Fair ___Deteriorated X Ruins
INTERIOR ___Excellent ___Good ___Fair ___Deteriorated ___Ruins

Integrity: a. X Original Site b. ___Moved If so, when and from where _____

c. Major alterations and dates (if known): _____

Site:
Frontage: Acreage:
Depth:
Related Outbuildings and Property: None Known
___barn ___carriage house ___garage(s) ___shop ___shed ___gardens ___orchards
___fencing (type)_____ ___walling (type)_____ ___other_____
Threats and/or Intrusions to Building:
___none known ___zoning ___roads X development ___deterioration ___other_____

6. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS

Relationship to Street: ___Pivotal ___Positive X Neutral ___Negative
Relationship to Village: ___Pivotal ___Positive ___Neutral ___Negative

7. SIGNIFICANCE

Date of Initial Construction:
___c.1840 ___c.1850 ___c.1860 ___c.1870 ___c.1880 ___c.1890 ___c.1900
___c.1910 ___after 1910 Specific Date (if known)_____

Style: ___Frontier ___Italianate ___Neo-Classic Revival ___Art Deco
___Classic Revival ___Romanesque Revival ___English Eclectic ___Ranch Style
___Gothic Revival ___Queen Anne ___Federal Revival ___Split-Level
___Tuscan Villa ___Eastlake ___Bungaloid ___Utilitarian
___Second Empire ___Georgian Revival ___Western Stick Style ___Other

National Register Status:
Presently on National Register or nominated for:
___national significance ___state significance ___local significance X none

COMMENTS: (expand on next page)

House built sometime before the Revolutionary War, first occupied by ancestors of Olaf Stoothoff. 1791, ownership of house transferred to John Bergen. Soon after, island became known as Bergen Island. House still extant as late as 1924.

Recorder: DGR Date of Inventory 7/77

Photographer: _____ Date of Exposure _____

ARCHEOLOGICAL SITE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK
518 474-0479

FOR OFFICE USE ONLY

UNIQUE SITE NO. A047-01-0125
QUAD. Brooklyn
SERIES U.S.G.S. 7½'
NEG. NO. _____

REPORTED BY: John Milner Associates

YOUR ADDRESS: West Chester, Pennsylvania TELEPHONE: _____

ORGANIZATION (if any): NPS Contract CX-2000-7-0010

DATE: 2/10/78

* *

1. SITE NAME: JB-78 King's Bayview House Site

2. COUNTY: Kings TOWN/CITY: _____ VILLAGE: _____

3. LOCATION: vicinity of Canarsie Pier, Jamaica Bay

4. PRESENT OWNER: _____

5. OWNER'S ADDRESS: _____

6. DESCRIPTION, CONDITION, EVIDENCE OF SITE: See attached form

☐ STANDING RUINS ☐ CELLAR HOLE WITH WALLS

☐ SURFACE TRACES VISIBLE ☐ WALLS WITHOUT CELLAR HOLE

☐ UNDER CULTIVATION ☐ EROSION ☐ UNDERWATER

☐ NO VISIBLE EVIDENCE ☐ OTHER _____

7. COLLECTION OF MATERIAL FROM SITE:

☐ SURFACE HUNTING BY WHOM _____ DATE _____

☐ TESTING BY WHOM _____ DATE _____

☐ EXCAVATION BY WHOM _____ DATE _____

☐ NONE

PRESENT REPOSITORY OF MATERIALS: _____

8. PREHISTORIC CULTURAL AFFILIATION OR DATE: _____

9. HISTORICAL DOCUMENTATION OF SITE:

John Milner Associates
1978 "A Cultural Resources Inventory of the Gateway National Recreation Area, New York & New Jersey." Report prepared for the NPS. (Copy on file at the NYSDH.).

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

11. REMARKS:

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME: _____

15 MINUTE SERIES QUAD. NAME: _____

U.S.G.S. COORDINATES: _____

D.O.T. COORDINATES: (if known) _____

ATTACH SKETCH, TRACING OR COPY OF MAP

See above cited report, p. 116, Fig. 7.2

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

(ATTACH)

NATIONAL HERITAGE

Historic Site Survey Record

Brooklyn ~~Coney Island~~ U.S.G.S. 7.5' Quadrangle (1966)

1. NAME
Historic JB-78
Common King's Bayview House

2. LOCATION
Street & No. Canarsie Pier
Jamaica Bay

View:
Camera Facing:

UTM Grid 44 97,350m.N.
5 93,500m.E.

Note: Due to the extreme nature of 20th century disturbance in this area, this location should not be taken to be precise.

Zoning:_____ Map Reference Key #_____

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO PUBLIC
___District ___Building _X_Site ___Structure ___Object	_X_ Public ___Private ___Both Public Acquisition: ___In Process ___Being Considered	___Occupied _X_ Unoccupied Work in Progress ___Pres. ___Altera.	Yes: _X_ Restricted ___Unrestricted ___No

PRESENT USE (Check One or More if Applicable)

___Agriculture ___Commercial ___Educational
_X_ Government ___Industrial ___Military
___Museum _X_ Park ___Private Residence (Owner Occupied)
___Religious ___Rental Residence ___Single Family ___Double ___Multiple
___Scientific ___Transportation ___Other

ORIGINAL USE: Residential Structure

4a. OWNERSHIP (Present)
Name:
National Park Service
Street and Number:
City or Town:

4b. OWNERSHIP (Original, if known):

4c. BUILDER/ARCHITECT (if known):

5. DESCRIPTION Drawing on file at Long Island Historical Society

Features (exterior) — Materials

Facade Unknown — Unknown
Foundations
Trim
Roof Type: ___flat ___gable ___shed ___"French" ___gambrel ___hip ___other
Chimney(s)
Porch(es)
Addition(s)

Dimensions & Plan Unknown (Sketch):

Structural System:

___wood frame, interlocking joints ___wood frame, light member
___masonry load bearing walls ___log ___metal ___other

5. DESCRIPTION (cont.)

Number of Stories Unknown

Other notable features: _____

Condition: EXTERIOR ___Excellent ___Good ___Fair ___Deteriorated X Ruins
INTERIOR ___Excellent ___Good ___Fair ___Deteriorated ___Ruins

Integrity: a. X Original Site b. ___Moved If so, when and from where _____

c. Major alterations and dates (if known): _____

Site:

Frontage: Acreage:

Depth:

Related Outbuildings and Property: None Known

___barn ___carriage house ___garage(s) ___shop ___shed ___gardens ___orchards

___fencing (type)_____ ___walling (type)_____ ___other_____

Threats and/or intrusions to Building:

___none known ___zoning ___roads X development ___deterioration ___other_____

6. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS

Relationship to Street: ___Pivotal ___Positive X Neutral ___Negative

Relationship to Village: ___Pivotal ___Positive ___Neutral ___Negative

7. SIGNIFICANCE

Date of Initial Construction:

___c.1840 ___c.1850 ___c.1860 ___c.1870 ___c.1880 ___c.1890 ___c.1900
___c.1910 ___after 1910 Specific Date (if known) 18th century

Style:

___Frontier	___Italianate	___Neo-Classic Revival	___Art Deco
___Classic Revival	___Romanesque Revival	___English Eclectic	___Ranch Style
___Gothic Revival	___Queen Anne	___Federal Revival	___Split-Level
___Tuscan Villa	___Eastlake	___Bungaloid	___Utilitarian
___Second Empire	___Georgian Revival	___Western Stick Style	___Other

National Register Status:
Presently on National Register or nominated for:

___national significance ___state significance ___local significance X none

COMMENTS: (expand on next page)

King's Bayview house was probably erected sometime in the 18th century. No further information available.

Recorder: DGR Date of Inventory 7/77

Photographer: _____ Date of Exposure _____

ARCHEOLOGICAL SITE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK
518 474-0479

FOR OFFICE USE ONLY

UNIQUE SITE NO. A047-01-0123
QUAD. Coney Island
SERIES U.S.G.S. 7½'
NEG. NO. _____

REPORTED BY: John Milner Associates

YOUR ADDRESS: West Chester, Pennsylvania TELEPHONE: _____

ORGANIZATION (if any): NPS Contract CX-2000-7-0010

DATE: 2/10/78

* *

1. SITE NAME: JB-76 Van Wicklen Cottage & Mill Site

2. COUNTY: Kings TOWN/CITY: _____ VILLAGE: _____

3. LOCATION: Along Paerdegat Basin (near foot of former Crescent Street), Jamaica Bay

4. PRESENT OWNER: _____

5. OWNER'S ADDRESS: _____

6. DESCRIPTION, CONDITION, EVIDENCE OF SITE: See Attached Form

☐ STANDING RUINS ☐ CELLAR HOLE WITH WALLS

☐ SURFACE TRACES VISIBLE ☐ WALLS WITHOUT CELLAR HOLE

☐ UNDER CULTIVATION ☐ EROSION ☐ UNDERWATER

☐ NO VISIBLE EVIDENCE ☐ OTHER _____

7. COLLECTION OF MATERIAL FROM SITE:

☐ SURFACE HUNTING BY WHOM _____ DATE _____

☐ TESTING BY WHOM _____ DATE _____

☐ EXCAVATION BY WHOM _____ DATE _____

☐ NONE

PRESENT REPOSITORY OF MATERIALS: _____

_____

8. PREHISTORIC CULTURAL AFFILIATION OR DATE: _____

9. HISTORICAL DOCUMENTATION OF SITE:

John Milner Associates
1978 "A Cultural Resources Inventory of the Gateway National Recreation Area, New York & New Jersey." Report prepared for the NPS. (Copy on file at NJSHPO.)

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

11. REMARKS:

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME: _____

15 MINUTE SERIES QUAD. NAME: _____

U.S.G.S. COORDINATES: _____

D.O.T. COORDINATES: (if known) _____

ATTACH SKETCH, TRACING OR COPY OF MAP

See above cited report, p. 116, Fig. 7.2

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

(ATTACH)

NATIONAL HERITAGE

Historic Site Survey Record

Coney Island U.S.G.S. 7.5' Quadrangle (1966)

View:

UTM Grid $^{44}97,350$m.N.

Camera Facing:

$^{5}93,500$m.E.

Note: Due to the extreme nature of 20th cen. disturbance in this area, this location should not be taken to be precise.

1. NAME
   Historic JB-76
   Common Van Wicklen Cottage and Mill
2. LOCATION
   Street & No. Banks of Paerdegat Basin Jamaica Bay

Zoning:_____ Map Reference Key #_____

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP		STATUS	ACCESSIBLE TO PUBLIC
___District ___Building X Site ___Structure ___Object	X Public ___Private ___Both	Public Acquisition: ___In Process ___Being Considered	___Occupied X Unoccupied Work in Progress ___Pres. ___Altera.	Yes: X Restricted ___Unrestricted ___No

PRESENT USE (Check One or More if Applicable)

___Agriculture	X Government	___Museum	___Religious	___Scientific	
___Commercial	___Industrial	X Park	___Rental Residence	___Transportation	
___Educational	___Military	___Private Residence (Owner Occupied)	___Single Family ___Double ___Multiple	___Other	

ORIGINAL USE: Residential Complex

4a. OWNERSHIP (Present)

Name: National Park Service

Street and Number:

City or Town:

4b. OWNERSHIP (Original, if known):

4c. BUILDER/ARCHITECT (If known):

5. DESCRIPTION Photographs on file at Long Island Historical Society.

Features (exterior)	Materials
Facade Unknown	Unknown
Foundations	
Trim	
Roof Type: ___flat ___gable ___shed ___"French" ___gambrel ___hip ___other	
Chimney(s)	
Porch(es)	
Addition(s)	

Dimensions & Plan Unknown (Sketch):

Structural System:

___wood frame, interlocking joints ___wood frame, light member

___masonry load bearing walls ___log ___metal ___other

5. DESCRIPTION (cont.)

Number of Stories Unknown

Other notable features: _____

Condition: EXTERIOR ___Excellent ___Good ___Fair ___Deteriorated X Ruins
INTERIOR ___Excellent ___Good ___Fair ___Deteriorated ___Ruins

Integrity: a. X Original Site b. ___Moved If so, when and from where _____

c. Major alterations and dates (if known): _____

Site:
Frontage: Acreage:
Depth:
Related Outbuildings and Property:
___barn ___carriage house ___garage(s) ___shop ___shed ___gardens ___orchards
___fencing (type)_____ ___walling (type)_____ ___other_____

Threats and/or intrusions to Building:
___none known ___zoning ___roads X development ___deterioration ___other_____

6. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS

Relationship to Street: ___Pivotal ___Positive X Neutral ___Negative
Relationship to Village: ___Pivotal ___Positive ___Neutral ___Negative

7. SIGNIFICANCE

Date of Initial Construction:
___c.1840 ___c.1850 ___c.1860 ___c.1870 ___c.1880 ___c.1890 ___c.1900
___c.1910 ___after 1910 Specific Date (if known) 1763

Style:
___Frontier ___Italianate ___Neo-Classic Revival ___Art Deco
___Classic Revival ___Romanesque Revival ___English Eclectic ___Ranch Style
___Gothic Revival ___Queen Anne ___Federal Revival ___Split-Level
___Tuscan Villa ___Eastlake ___Bungaloid ___Utilitarian
___Second Empire ___Georgian Revival ___Western Stick Style ___Other

National Register Status:
Presently on National Register or nominated for:
___national significance ___state significance ___local significance X none

COMMENTS: (expand on next page)

Mill erected in 1763, cottage at a later date. In 1924 the cottage was destroyed by fire, the mill was demolished in 1934.

Recorder: DGR Date of Inventory 7/77

Photographer: _____ Date of Exposure _____

ARCHEOLOGICAL SITE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK
518 474-0479

FOR OFFICE USE ONLY

UNIQUE SITE NO. AC47-01-0118
QUAD. Brooklyn
SERIES U.S.G.S. 7½'
NEG. NO.

REPORTED BY: John Milner Associates

YOUR ADDRESS: West Chester, Pennsylvania TELEPHONE:

ORGANIZATION (if any): N.P.S. Contract CX-2000-7-C010

DATE: 2/10/78

* *

1. SITE NAME: JB-71 Schenck House Site

2. COUNTY: Kings TOWN/CITY: VILLAGE:

3. LOCATION: End of Remsen Ave. near Canarsie Pier, Jamaica Bay

4. PRESENT OWNER:

5. OWNER'S ADDRESS:

6. DESCRIPTION, CONDITION, EVIDENCE OF SITE: See Attached Form

☐ STANDING RUINS ☐ CELLAR HOLE WITH WALLS

☐ SURFACE TRACES VISIBLE ☐ WALLS WITHOUT CELLAR HOLE

☐ UNDER CULTIVATION ☐ EROSION ☐ UNDERWATER

☐ NO VISIBLE EVIDENCE ☐ OTHER

7. COLLECTION OF MATERIAL FROM SITE:

☐ SURFACE HUNTING BY WHOM DATE

☐ TESTING BY WHOM DATE

☐ EXCAVATION BY WHOM DATE

☐ NONE

PRESENT REPOSITORY OF MATERIALS:

8. PREHISTORIC CULTURAL AFFILIATION OR DATE:

9. HISTORICAL DOCUMENTATION OF SITE:

John Milner Associates
1978 "A Cultural Resources Inventory of the Gateway National Recre
Area, New York & New Jersey. Report prepared for the
NPS. (Copy on file at NYSDHP)

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

11. REMARKS:

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME: _____

15 MINUTE SERIES QUAD. NAME: _____

U.S.G.S. COORDINATES: _____

D.O.T. COORDINATES: (if known) _____

ATTACH SKETCH, TRACING OR COPY OF MAP

See above cited report, p. 116, Fig. 7.2

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

(ATTACH)

NATIONAL HERITAGE

Historic Site Survey Record

Brooklyn ~~Coney Island~~ U.S.G.S. 7.5'Quadrangle (1966)

UTM Grid $^{4}4$97,350m.N.

^{5}93,500m.E.

View:

Camera Facing:

Note: Due to the extreme nature of 20th century disturbance in this area, this location should not be taken to be precise.

1. NAME
   Historic JB-71
   Common Schenck House

2. LOCATION
   Street & No. Vicinity of Canarsie Pier
   Jamaica Bay

Zoning:_____ Map Reference Key #_____

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO PUBLIC
___District ___Building X Site ___Structure ___Object	X Public ___Private ___Both Public Acquisition: ___In Process ___Being Considered	___Occupied X Unoccupied Work in Progress ___Pres. ___Altera.	Yes: X Restricted ___Unrestricted ___No

PRESENT USE (Check One or More if Applicable)

___Agriculture
___Commercial
___Educational
X Government
___Industrial
___Military
___Museum
X Park
___Private Residence (Owner Occupied)
___Religious
___Rental Residence
___Single Family
___Double
___Multiple
___Scientific
___Transportation
___Other

ORIGINAL USE: Residential Structure

4a. OWNERSHIP (Present)
Name:
National Park Service
Street and Number:
City or Town:

4b. OWNERSHIP (Original, if known):
Martin Schenck

4c. BUILDER/ARCHITECT (if known):

5. DESCRIPTION Photographs on file at Long Island Historical Society

Features (exterior) / Materials

Facade Unknown — Unknown
Foundations
Trim
Roof Type: ___flat ___gable ___shed ___"French" ___gambrel ___hip ___other
Chimney(s)
Porch(es)
Addition(s)
Dimensions & Plan Unknown (Sketch):

Structural System:
___wood frame, interlocking joints ___wood frame, light member
___masonry load bearing walls ___log ___metal ___other

5. DESCRIPTION (cont.)

Number of Stories Unknown

Other notable features: _____

Condition: EXTERIOR ___Excellent ___Good ___Fair ___Deteriorated X Ruins
INTERIOR ___Excellent ___Good ___Fair ___Deteriorated ___Ruins

Integrity: a. X Original Site b. ___Moved If so, when and from where _____

c. Major alterations and dates (if known): _____

Site:
Frontage: Acreage:
Depth:
Related Outbuildings and Property: None Known
___barn ___carriage house ___garage(s) ___shop ___shed ___gardens ___orchards
___fencing (type)_____ ___walling (type)_____ ___other_____
Threats and/or Intrusions to Building:
___none known ___zoning ___roads X development ___deterioration ___other_____

6. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS

Relationship to Street: ___Pivotal ___Positive X Neutral ___Negative
Relationship to Village: ___Pivotal ___Positive ___Neutral ___Negative

7. SIGNIFICANCE

Date of Initial Construction:
___c.1840 ___c.1850 ___c.1860 ___c.1870 ___c.1880 ___c.1890 ___c.1900
___c.1910 ___after 1910 Specific Date (if known) 1664

Style: ___Frontier ___Italianate ___Neo-Classic Revival ___Art Deco
___Classic Revival ___Romanesque Revival ___English Eclectic ___Ranch Style
___Gothic Revival ___Queen Anne ___Federal Revival ___Split-Level
___Tuscan Villa ___Eastlake ___Bungalow ___Utilitarian
___Second Empire ___Georgian Revival ___Western Stick Style ___Other

National Register Status:
Presently on National Register or nominated for:
___national significance ___state significance ___local significance X none

COMMENTS: (expand on next page)

House was still extant in 1936. There are five photographs on file at Long Island Historical Society. Van Wyck's map of Jamaica Bay area depicts the house and a nearby structure designated as the "Older Schenck House". Later structure owned by Martin Schenck. Built in 1664. House demolished early twentieth century.

Recorder: DGR Date of Inventory 7/77

Photographer: _____ Date of Exposure _____

ARCHEOLOGICAL SITE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK
518 474-0479

FOR OFFICE USE ONLY

UNIQUE SITE NO. A0-17-01-0113
QUAD. Brooklyn
SERIES 7½' U.S.G.S.
NEG. NO. _____

REPORTED BY: John Milnor Associates

YOUR ADDRESS: West Chester, Pennsylvania TELEPHONE: _____

ORGANIZATION (if any): NPS Contract CX-2000-7-0010

DATE: 2/10/78

* *

1. SITE NAME: Conarsie Site

2. COUNTY: Kings TOWN/CITY: _____ VILLAGE: _____

3. LOCATION: Extended back from Conarsie Beach Park as far as Avenue J, centered on E 92nd Street

4. PRESENT OWNER: NPS

5. OWNER'S ADDRESS: _____

6. DESCRIPTION, CONDITION, EVIDENCE OF SITE: See Attached Form

☐ STANDING RUINS ☐ CELLAR HOLE WITH WALLS

☐ SURFACE TRACES VISIBLE ☐ WALLS WITHOUT CELLAR HOLE

☐ UNDER CULTIVATION ☐ EROSION ☐ UNDERWATER

☐ NO VISIBLE EVIDENCE ☐ OTHER _____

7. COLLECTION OF MATERIAL FROM SITE:

☐ SURFACE HUNTING BY WHOM _____ DATE _____

☐ TESTING BY WHOM _____ DATE _____

☐ EXCAVATION BY WHOM _____ DATE _____

☐ NONE

PRESENT REPOSITORY OF MATERIALS: _____

_____

8. PREHISTORIC CULTURAL AFFILIATION OR DATE: _____

9. HISTORICAL DOCUMENTATION OF SITE:

John Milner Associates
1978 "A Cultural Resources Inventory of the Gateway National Recreation Area, New York & New Jersey." Report prepared for the NPS. (Copy on file at the NYSDHP)

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

11. REMARKS:

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME: Brooklyn

15 MINUTE SERIES QUAD. NAME: _____

U.S.G.S. COORDINATES: _____

D.O.T. COORDINATES:. (if known) _____

ATTACH SKETCH, TRACING OR COPY OF MAP

See above cited report, pgs. 110 & 110B, Figs. 7.1 & 7.1B

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

(ATTACH)

NATIONAL HERITAGE

Prehistoric Site Survey Record

1. DESIGNATION
Number
Name Canarsie

2. LOCATION
Relation to Surroundings North Shore
Jamaica Bay
Brooklyn Quad.
Map Reference ~~Canarsie~~ ~~Coney Island~~
County U.S.G.S. 7.5' Quadrangle(1966)
Township _____ Range _____
_____ 1/4 of _____ 1/4 of Sec. _____
_____ up from lower right printed margin
_____ over from lower right printed margin

Photo Numbers:

Camera Facing:

UTM Grid $^{44}97,330$m.N.
$^{5}94,390$m.E.

Note: Due to the extreme nature of 20th cen. disturbance in the area, this location should not be taken to be precise.

3. CLASSIFICATION

FUNCTION
___ encampment
X village
___ hunting
___ mortuary
___ petroglyph
___ other

PHYSIOGRAPHY
X Open
___ Rockshelter
___ Cave
___ Other

PRESENT USE (check one or more as applicable)
___ Agricultural
___ Commercial
X Government
___ Industrial
___ Military
X Park
___ Other

OWNERSHIP
X Public
___ Private
___ Both

Public Acquisition
___ In Process
___ Being Considered

4a. OWNERSHIP (present)
Name: National Park Service
Street & Number: _____
City or Town: _____

4b. OWNERSHIP (original, if known)
Name: _____
Street & Number: _____
City or Town: _____

5. DESCRIPTION
Dimensions: unknown
Vegetation: reed grasses
Elevation: 0 - 10 feet above sea level
Nearest Water: adjacent
Surface Soil: organic humus and landfill

5. DESCRIPTION (cont.)

Erosion/Deposition: probably erosion

Present Disturbance: landfilling

Impending Disturbances: none known

Structures:

Burials:

Other Features:

Artifacts Observed or Recovered:

6. SIGNIFICANCE

Tradition and Phase (if known): late prehistoric - early historic

Probable Dates of Occupation (if known):

National Register Status
Presently on National Register or nominated for:

___ national significance ___ state significance

___ local significance X none

Comments: Map on file at Long Island Historical Society (Kelly 1946) indicates that a village named Canarsie once stood northwest of Bergen Beach. Village may have been center of Canarsie Indians. Bolton (1934:146) described village as being extensive.

References Cited:

Bolton, Reginald Pelham
1934 Indian Life of Long Ago in the City of New York. New York: Harmony Books.

Kelly, James A.
1946 Map of Aboriginal Indian Villages in the Jamaica Bay Vicinity. On file at the Long Island Historical Society.

Recorder: Date of Inventory: 7/77

Photographer: Date of Exposure:

ARCHEOLOGICAL SITE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION
NEW YORK STATE PARKS AND RECREATION
ALBANY, NEW YORK
518 474-0479

FOR OFFICE USE ONLY

UNIQUE SITE NO. Ac47-01-0115
QUAD. Coney Island
SERIES USGS 7½'
NEG. NO. _____

REPORTED BY: John Milner Associates

YOUR ADDRESS: West Chester, Pennsylvania TELEPHONE: _____

ORGANIZATION (if any): NPS Contract CX-2000-7-0010

DATE: 2/10/78

* *

1. SITE NAME: Winnipaque Site

2. COUNTY: Kings TOWN/CITY: _____ VILLAGE: _____

3. LOCATION: Bergen Beach, Jamaica Bay

4. PRESENT OWNER: NPS

5. OWNER'S ADDRESS: _____

6. DESCRIPTION, CONDITION, EVIDENCE OF SITE: See attached form

☐ STANDING RUINS ☐ CELLAR HOLE WITH WALLS

☐ SURFACE TRACES VISIBLE ☐ WALLS WITHOUT CELLAR HOLE

☐ UNDER CULTIVATION ☐ EROSION ☐ UNDERWATER

☐ NO VISIBLE EVIDENCE ☐ OTHER _____

7. COLLECTION OF MATERIAL FROM SITE:

☐ SURFACE HUNTING BY WHOM _____ DATE _____

☐ TESTING BY WHOM _____ DATE _____

☐ EXCAVATION BY WHOM _____ DATE _____

☐ NONE

PRESENT REPOSITORY OF MATERIALS: _____

8. PREHISTORIC CULTURAL AFFILIATION OR DATE: _____

9. HISTORICAL DOCUMENTATION OF SITE:

John Milner Associates
1978 "A Cultural Resources Inventory of the Gateway Natio
Recreation Area, New York & New Jersey." Report
prepared for the NPS. (Copy on file at the NJ...

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

11. REMARKS:

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME: _____

15 MINUTE SERIES QUAD. NAME: _____

U.S.G.S. COORDINATES: _____

D.O.T. COORDINATES: (if known) _____

ATTACH SKETCH, TRACING OR COPY OF MAP

See above cited report, pgs. 110 & 110B, Figs. 7.1 & 7.1B

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

(ATTACH)

NATIONAL HERITAGE

Prehistoric Site Survey Record

1. DESIGNATION
Number
Name Winnipaque

2. LOCATION
Relation to Surroundings Floyd Bennett Field
Jamaica Bay
Map Reference
County
Township Range
1/4 of 1/4 of Sec.
up from lower right printed margin
over from lower right printed margin

Photo Numbers:

Camera Facing:

UTM Grid ^{44}95,750m.N.
^{5}93,340m.E.

Note: Due to the extreme nature of 20th cen. disturbance in this area, this location should not be taken to precise.

3. CLASSIFICATION

FUNCTION
___ encampment
_X_ village
___ hunting
___ mortuary
___ petroglyph
___ other

PHYSIOGRAPHY
_X_ Open
___ Rockshelter
___ Cave
___ Other

PRESENT USE (check one or more as applicable)
___ Agricultural
___ Commercial
_X_ Government
___ Industrial
___ Military
_X_ Park
___ Other

OWNERSHIP
_X_ Public
___ Private
___ Both

Public Acquisition
___ In Process
___ Being Considered

4a. OWNERSHIP (present)
Name: National Park Service
Street & Number:
City or Town:

4b. OWNERSHIP (original, if known)
Name:
Street & Number:
City or Town:

5. DESCRIPTION
Dimensions: unknown
Vegetation: developed
Elevation: 0 - 10 feet above sea level
Nearest Water: 50 yards
Surface Soil: developed

5. DESCRIPTION (cont.)

Erosion/Deposition: probably none

Present Disturbance: 20th century development and landfill

Impending Disturbances: none known

Structures:

Burials:

Other Features:

Artifacts Observed or Recovered: Bolton (1934:146) refers to shell beds and stone implements.

6. SIGNIFICANCE

Tradition and Phase (if known): probably early historic, perhaps Canarsle

Probable Dates of Occupation (if known):

National Register Status
Presently on National Register or nominated for:

___ national significance ___ state significance

___ local significance X none

Comments: According to Bolton (1934:144) Bergen Beach once suppored an aboriginal village named Winnipague. This site can also be attributed to Canarsie Indians and probably represents a permanent encampment.

Reference Cited:

Bolton, Reginald Pelham
1934 Indian Life of Long Ago in the City of New York. New York: Harmony Books.

Recorder: DGR

Photographer:

Date of Inventory: 7/77

Date of Exposure:

APPENDIX B

ANALYSIS OF FOUR BELT PARKWAY BRIDGES IN BROOKLYN, NEW YORK

FOR CRITERIA PERTAINING TO INCLUSION

IN THE NATIONAL REGISTER FOR HISTORIC PLACES

ANALYSIS OF FOUR BELT PARKWAY BRIDGES IN BROOKLYN, NEW YORK FOR CRITERIA INFLUENCING POSSIBLE NOMINATION TO THE NATIONAL REGISTER OF HISTORIC PLACES

BACKGROUND - THE BELT PARKWAY:

In 1922 New York City published a plan for development of Jamaica Bay. The plan proposed to join the islands of the Bay with landfill to create space for construction of a major seaport. A substantial section of the southerly shore of the bay was to be lined with docks and wharves. Implementation of the seaport master plan got underway at Mill Basin. But, the New York Department of Parks, under the leadership of Robert Moses, Commissioner, attacked the proposal for a seaport and substituted a plan for recreational and residential development. The Park Department's scheme proposed to provide public access to beaches across Jamaica Bay with causeways, parkways and bridges. Additional parkways would connect the recreational facilities to the city.

Most of the proposed parkway system circumnavigated Brooklyn and Queens. This became known as the Belt Parkway. The Park Department's stated objective for building parkways was to improve automobile access to several new state parks located on the Long Island shore. During the third and fourth decades of the 20th century Long Island Parkways pushed west into New York City. The Department of Parks and other municipal authorities sponsored projects that built beaches, reclaimed waterfront areas in Sheepshead Bay, built the Marine Parkway Bridge and set up the organization for building the Brooklyn-Battery Tunnel.

Moses initiated specific studies for a "circumferential drive around Brooklyn" in 1926. Originally he called the shore front portion a "Marginal Boulevard." Moses unveiled plans for the parkway at a meeting of the Park Association of New York City on February 25, 1930. The parkways and boulevards were part of his plan to construct a "northeastern bypass" that would allow interstate traffic to detour around Manhattan's crowded streets.

Moses signed the first contract for the Belt Parkway on November 16, 1938. When officially opened on December 10, 1940, the road made twenty-six park areas totaling 3550 acres more accessible to families with cars. Land acquisition costs for the Belt were modest because much of the parkway ran through undeveloped land or marshland. Moses called it "reclaimed" territory.

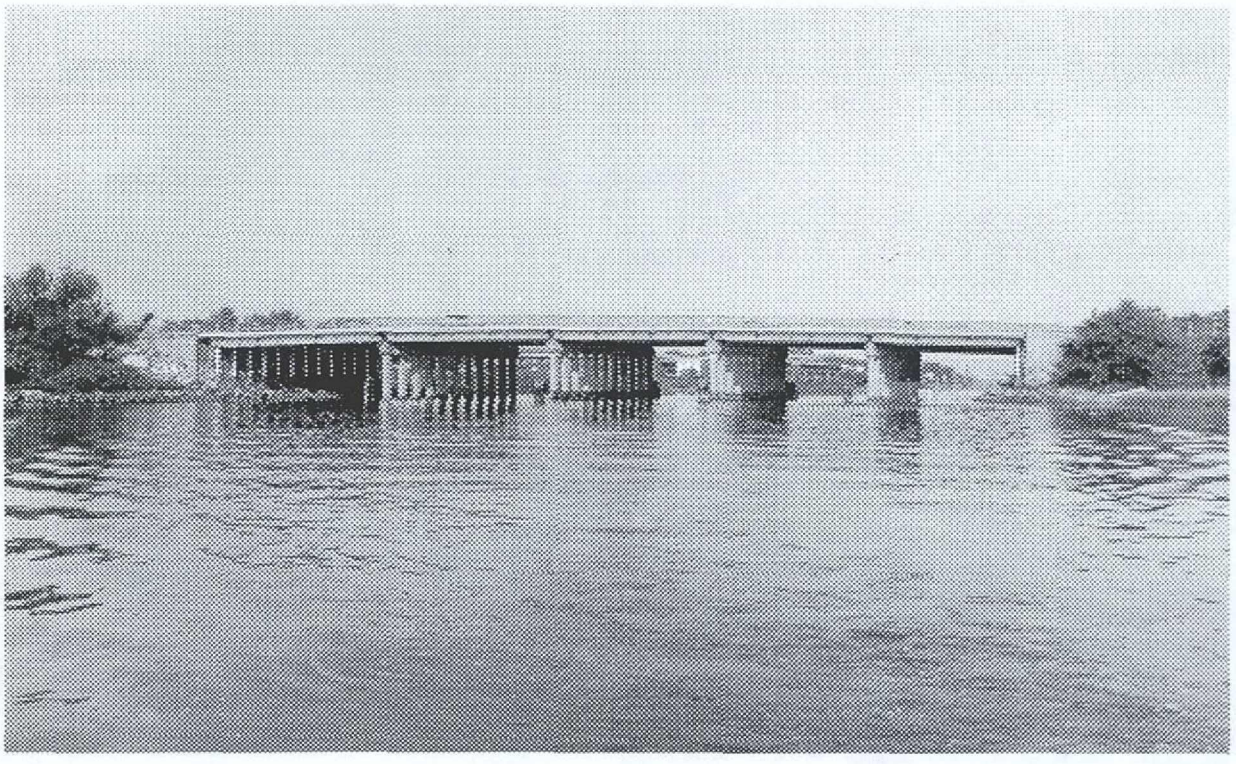
The Belt Parkway runs from Owl's Head to Whitestone, a distance of 34.9 miles. It connects with the marginal arteries of the Bronx, Westchester and Manhattan and the crossings into New Jersey. It combined the most advanced knowledge of engineering, landscaping and recreation planning. The road separated traffic with a median strip and had two lanes of pavement in each direction (increased to three after World War II). It had entrances at strategic points and

accelerating and decelerating lanes. The parkway lived up to its promise with incidental parks, playgrounds, walks, and bicycle paths along its borders.

Construction of the Belt Parkway required pumping of 11,800,000 cubic yards of hydraulic fill and moving 4,800,000 cubic yards of dry fill. Contractors placed 1,500,000 square yards of pavement, 11,500 cubic yards of masonry, 400,000 lineal feet of piles and 320 tons of steel. The project employed 9000 men.

The Parkway was paid for by a $12,000,000 grant from the Federal Emergency Administration of Public Works to supplement a $16,000,000 appropriation by the New York City Board of Estimate. The City also added $1,900,000 for lighting and the construction of a seawall at Gravesend for a total cost of $29,999,999 for 30.74 miles of actual construction. The south end of Laurleton Parkway and the Shore Parkway at Fort Hamilton, a distance of 2.12 miles, were already in place. The Triborough Bridge Authority later built 2.04 miles parallel to Eammons Avenue.

There are six bridges carrying the Belt Parkway over waterways. The four bridges discussed in this report are part of the original Parkway. Bridges at Fresh Creek Basin, Gerritsen Inlet, Paerdegat Basin and Mill Basin carry the Belt Parkway over Jamaica Bay estuaries along the south shore of Brooklyn, New York. The Mill Basin Bridge had to accommodate commercial ships that used the facilities constructed in the estuary before the city abandoned the plan for a new seaport. The bascule design allowed passage of ocean-going ships. Of the four, Mill Basin Bascule has features that potentially make it eligible for the National Register.



FRESH CREEK BRIDGE
BIN 2-23150-9

Location:	City of New York, spanning Fresh Creek Basin on Belt (formerly Circumferential) Parkway, Kings County, New York. USGS Brooklyn, N.Y. quadrangle, 1:24000 UTM Coordinates: 18.594820.4499040
Consultants:	Waddell & Hardesty/Robinson & Steinman
Engineers:	Madigan-Hyland Engineers: Emil H. Praeger/E.L. Pavlo
Architect:	Aymar Embury, II
Construction Dates:	1939-1941
Builders:	New York City Department of Parks, Triborough Bridge Authority and the New York State Department of Public Works.

Present Owner: City of New York, New York.

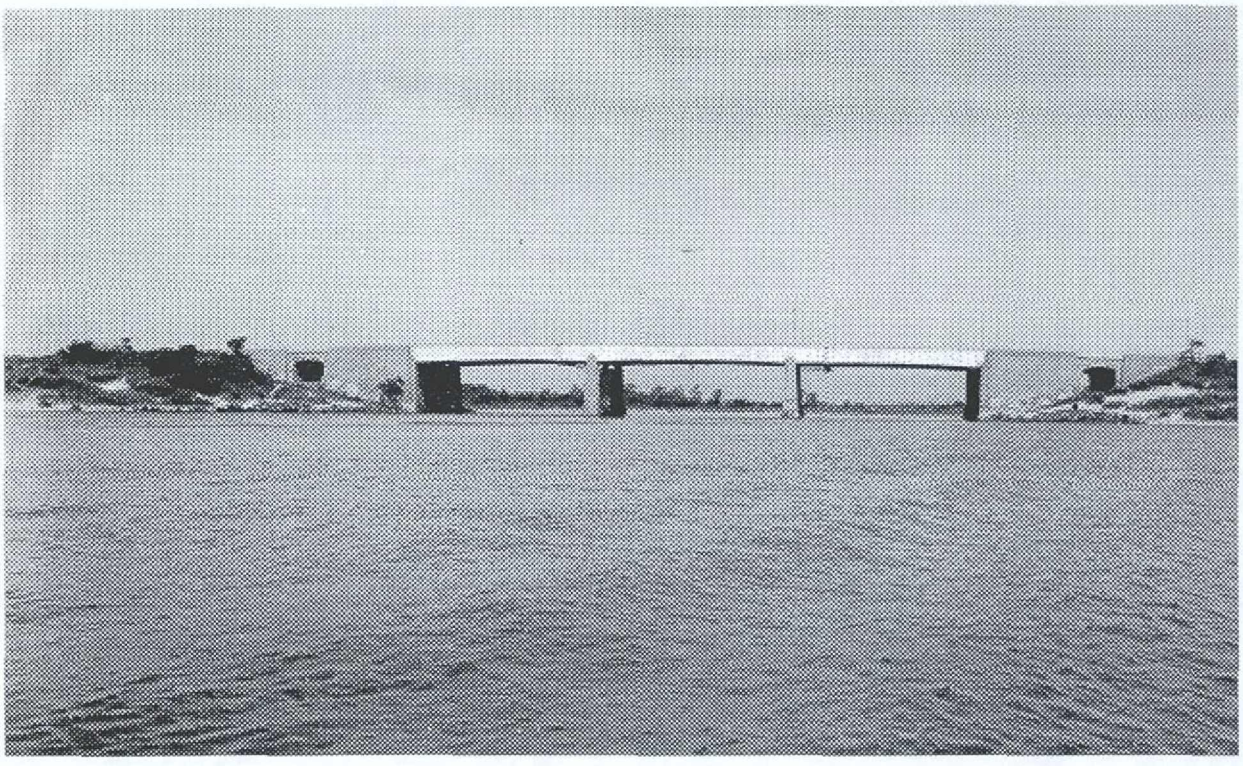
Present Use: Carries the Belt Parkway (Circumferential Parkway), 3 lanes of vehicular traffic in each direction, over Fresh Creek Basin, an estuary of Jamaica Bay.

Significance: The bridge is part of the Belt Parkway System, a high volume, limited access arterial highway which was partially opened and dedicated on December 10, 1938. In addition to the vehicular lanes the bridge carries an unpaved shoulder on the north side and a bike/foot path on the south side. The bridge superstructure is designed with five spans made up of multiple steel girders and has a riveted steel girder along the south fascia. The girders are supported on reinforced concrete pier capbeams and reinforced concrete abutments. Concrete piles support the concrete pier capbeams. The deck is a reinforced concrete slab supported on steel girders with an asphaltic wearing surface. A navigational channel passes under the center span of the bridge with a minimum vertical clearance of 21' - 0" at mean high water.

The Fresh Creek Bridge does not meet the criteria for listing in the National Register of Historic Places. While it is a component in the history of transformation from public to private transportation, its role in the broad pattern of history is insignificant. This bridge is a conventionally designed span without distinguishing characteristics. It was largely financed as part of a depression-era program to create employment through public works projects. Since these programs emphasized jobs over aesthetic concerns, the materials and construction are undistinguished. It is simply and sturdily built but without vital architectural or engineering significance.

While the men who were associated with this bridge, Fiorello H. LaGuardia, Mayor of New York, Robert Moses, Commissioner of Parks and Emil H. Praeger, Chief Engineer were well-known and distinguished professionals, their prominence substantially rests on other projects.

Under the HABS/HAER categorization system the bridge would be classified as category 3. This division embraces structures of minor importance which contribute to the grouping of which they are a part. The proposed reconstruction would not have a significant impact on areas pertaining to industrial archaeology and history of technology.



GERRITSEN INLET BRIDGE
BIN 2-23145

Location:	City of New York, spanning Gerritsen Inlet on Belt (formerly Circumferential) Parkway, Kings County, New York. USGS Coney Island, N.Y. quadrangle, 1:24000 UTM Coordinates: 18.592060.4493080
Consultants:	Waddell & Hardesty/Robinson & Steinman
Engineers:	Madigan-Hyland Engineers: Emil H. Praeger
Architect:	Aymar Embury, II
Construction Date:	1939
Builders:	New York City Department of Parks, Triborough Bridge Authority and the New York State Department of Public Works.

Structural Steel: Fort Pitt Bridge Works.

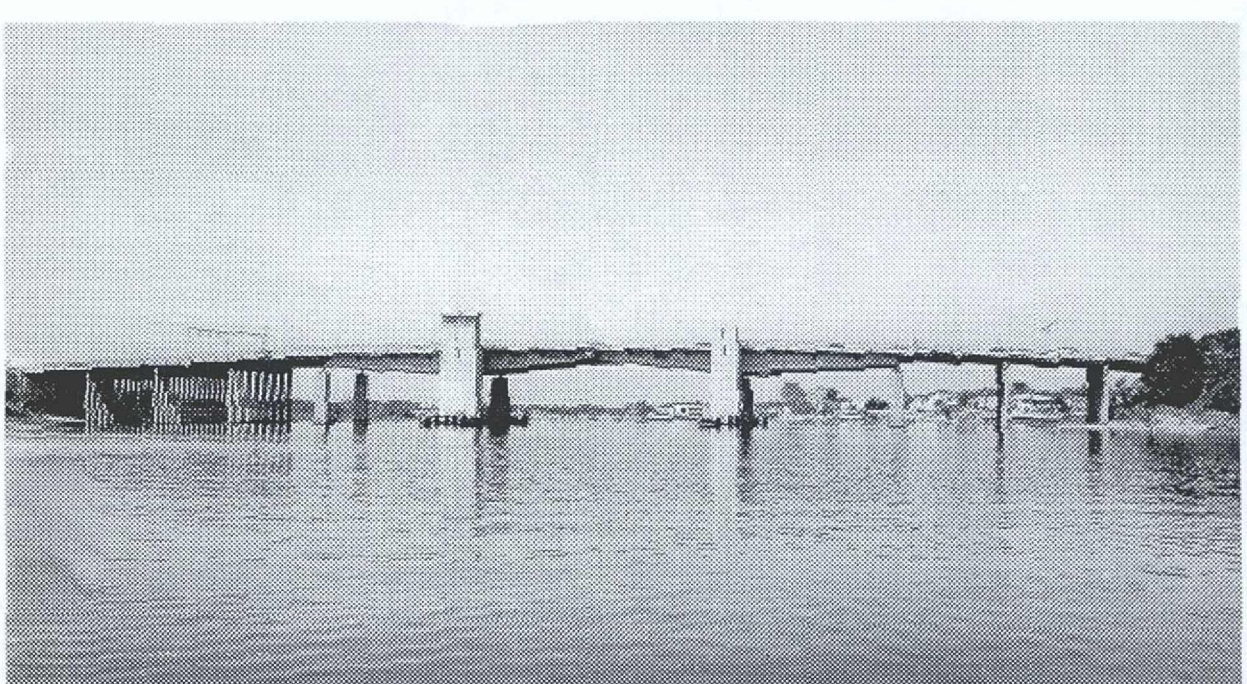
Present Owner: City of New York, New York.

Present Use: Carries the Belt Parkway (Circumferential Parkway), 3 lanes of vehicular traffic in each direction, over the Gerritsen Inlet, an estuary of Jamaica Bay.

Significance: The bridge is part of the Belt Parkway System, a high volume limited access arterial highway. Besides the vehicular lanes the bridge carries sidewalks on each side of the bridge and a six-foot wide central median. The designers specified eleven spans having pin-and-hanger connections. Engineering concerns over the safety of this design led to the modification of the pin and hanger connections in July 1986 with sling assemblies for back-up reinforcement. Concrete piers support the spans. The deck is a reinforced concrete slab with an asphaltic wearing surface. A navigational channel having a minimum vertical clearance of 34' - 6" at mean high water passes under the center span.

The Gerritsen Inlet Bridge does not meet the criteria for listing in the National Register of Historic Places. It is an ordinary structure similar to many other bridges in the United States. While it is an early constituent in the annals of highway development and contributed to the growth of urbanization on Long Island, its role in the broad pattern of history is modest. This bridge is a conventionally designed span. Its major distinguishing feature is a decorative series of shallow set-backs on the concrete supporting piers that confer an art-deco aspect to the structure. Financing for Gerritsen Inlet Bridge came primarily from a depression-era program to create employment through public works projects. Since these programs emphasized jobs and maximized payroll over aesthetic concerns, the materials and construction are common. The architects and engineers employed by The Department of Parks did commendable work under tight time and material constraints. It is simply and sturdily built but without great architectural or engineering significance.

Under the HABS/HAER categorization system the bridge would be classified as category 3. This division embraces structures of minor importance that contribute to the grouping of which they are a part. The proposed reconstruction would not have a significant impact on the disciplines of industrial archaeology or history of technology.



MILL BASIN BRIDGE
BIN 2-23147-9

Location:	City of New York, spanning Fresh Creek Basin on Belt (formerly Circumferential) Parkway, Kings County, New York. USGS Brooklyn, N.Y. quadrangle, 1:24000 UTM Coordinates: 18.594820.4499040
Consultants:	Waddell & Hardesty/Robinson & Steinman
Engineers:	Madigan-Hyland Engineers: Emil H. Praeger
Architect:	Aymar Embury, II
Construction Dates:	1939
Builders:	New York City Department of Parks, Triborough Bridge Authority and the New York State Department of Public Works.

Present Owner: City of New York, New York.

Present Use: Carries the Belt Parkway (Circumferential Parkway), 3 lanes of vehicular traffic in each direction, over Mill Basin, an estuary of Jamaica Bay.

Significance: The bridge is part of the Belt Parkway System, a high volume limited access arterial highway which was partially opened and dedicated on December 10, 1938. Originally Mill Basin was to be included in New York's plan to create a huge new seaport in Jamaica Bay. Construction of maritime facilities started here in the early 1920s, prior to The Park Department's implementation of recreational development and parkway construction. Consequently an opening bridge, offering sufficient clearance for ocean going traffic, was required to take advantage of existing facilities that were built around the basin. The bascule design was chosen, probably for reasons of cost and reliability. The bridge superstructure is designed with two spans that flank the bascule and eleven approach spans. There are two houses on the east side of the span. A house on the south pier accommodates the control station. The house on the north pier shelters the gate tender.

Design of the bascule section provides a 131' clear channel between pier fenders, ample for ocean going vessels. (For comparison, the Panama canal is 110' wide.) The bascule trunion bearings are supported on two shafts. The west shaft and the east shaft are 52' apart and rest on a common reinforced concrete base which in turn rests on a pile cap. The bascule piers are supported by timber pile clusters.

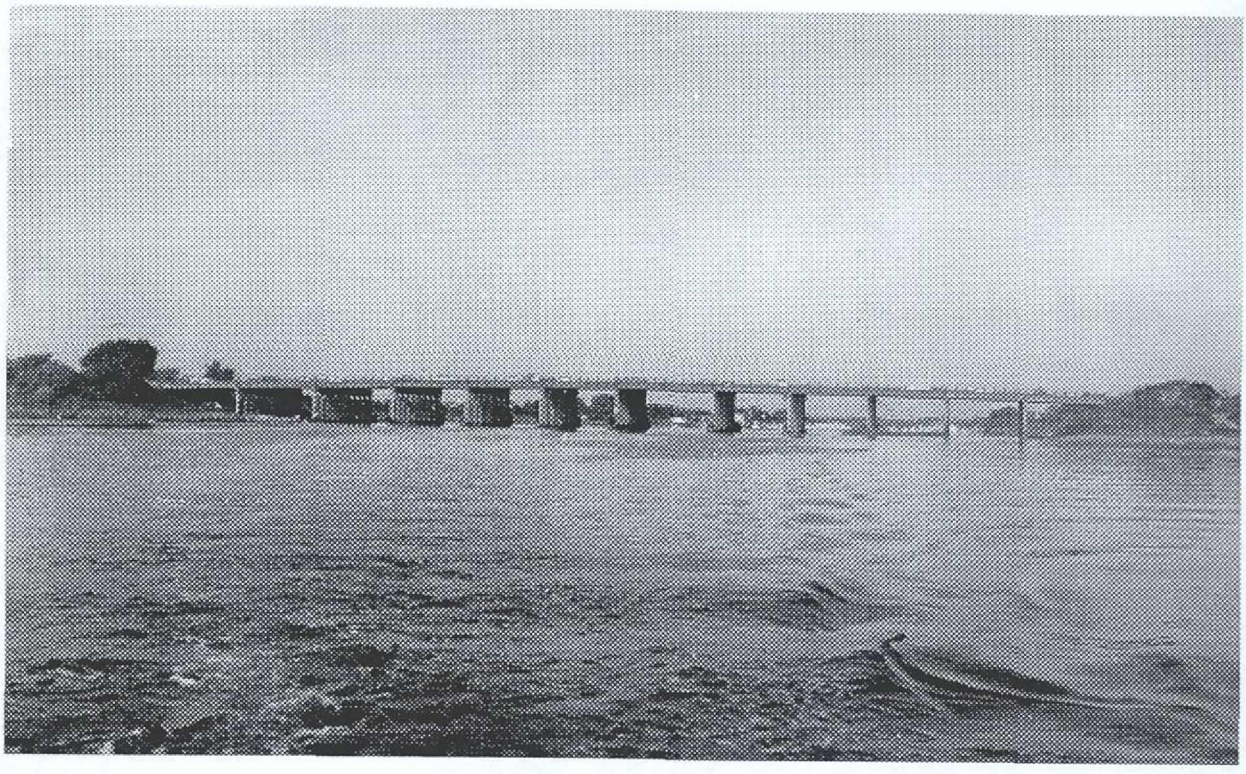
Preliminary analysis shows that the Mill Basin Bridge is a simple trunion, double leaf bascule design also known as the "Chicago" type. In this design the entire weight of the leaf and counterweight is carried by trunions located at the approximate center of gravity of the mass. In motion the weight is transferred through the trunions to the bascule piers. When the bridge is pivoted into a closed position its rear end rests against a transverse anchor girder. This girder resists the upward thrust of the leaf's rear end as traffic crosses. The weight of the leaf is transferred to a pedestal mounted directly in front of the trunion. To insure rigidity under traffic, the two leaves are tied together by a locking mechanism at their front ends.

The design is simple and minimizes the number of moving parts. This particular design, with its almost constant center of gravity, is well suited to conditions in the Mill Basin. Unlike a rolling lift type of bascule, which shifts its center of gravity back and forth over the abutments, the simple trunion design creates less stress on abutments. If piers are placed on bedrock this characteristic is of little consequence. However, an unyielding foundation in Mill Basin would be difficult and expensive to achieve. Considering the bridge was largely financed through a depression-era program to create employment through public works projects which attempted to minimize material costs, the selection of this design over the rolling lift type can be understood.

The Mill Basin Bridge embodies the distinctive characteristics of the "Chicago" type of bascule bridge. There are many examples of this type around the country, particularly in Milwaukee, Wisconsin and Chicago, Illinois, but they have been replaced in recent years by fixed bridges.

The Mill Basin Bridge meets some of the criteria for the National Register of Historic Places. It was designed by the firm of Waddell & Hardesty which had a long history as prominent consultants and bridgebuilders. John Waddell was granted four patents for bascule bridges which may be embodied in this design. Examples of this type of bascule are increasingly hard to find as moveable bridges are replaced with high clearance fixed bridges. Most of the historic materials are present. The essential features of its design are intact except for a modified roof configuration on the operator's house. Some modifications have been made in the control circuits and a traffic signal system with roadway gates was added. The original lighting was modernized. The structure fits into a HABS/HAER Category 2 classification. That is "a structure of importance to which modifications resulting in some loss of integrity have been made." Consideration for some form of recordation is warranted.

In conclusion, the Mill Basin Bridge might be considered potentially eligible for nomination to the National Register of Historic Places. Guidance for applying criteria which determine eligibility can be found in "How to Apply the National Register Criteria for Evaluation" (National Park Service, Department of the Interior, Washington, D.C., 1991).



PAERDEGAT BASIN BRIDGE
BIN 2-23148-8

Location:	City of New York, spanning Paerdegat Basin on Belt (formerly Circumferential) Parkway, Kings County, New York. USGS Brooklyn, N.Y. quadrangle, 1:24000 UTM Coordinates: 18.593280.4497200
Consultants:	Waddell & Hardesty/Robinson & Steinman
Engineers:	Madigan-Hyland Engineers: Emil H. Praeger
Architect:	Aymar Embury, II
Construction Dates:	1939
Builders:	New York City Department of Parks, Triborough Bridge Authority and the New York State Department of Public Works.

Present Owner: City of New York, New York.

Present Use: Carries the Belt Parkway (Circumferential Parkway), 3 lanes of vehicular traffic in each direction, over Paerdegat Basin, an estuary of Jamaica Bay.

Significance: The bridge is part of the Belt Parkway System, a high volume limited access arterial highway which was partially opened and dedicated on December 10, 1938. In addition to the vehicular lanes the bridge carries sidewalks on both sides and a central median strip. The bridge superstructure is designed with thirteen spans carried on twelve concrete pile bents and two modified bent abutments. The eleven concrete piles in each bent are protected at the water line with timber lagging. The piles are topped with reinforced concrete capbeams. Concrete piles support the concrete pier capbeams. The deck is a reinforced concrete slab supported on steel girders with an asphaltic wearing surface. A navigational channel 60 feet wide passes under the center span of the bridge.

The Paerdegat Inlet Bridge does not meet the criteria for listing in the National Register of Historic Places. While it is a component in the history of transformation from public to private transportation, its role in the broad pattern of history is slight. This bridge is a conventionally designed bent supported span without distinguishing characteristics. It was largely financed as part of a depression-era program to create employment through public works projects. Since these programs emphasized jobs over aesthetic concerns, the materials and construction are undistinguished. It is simply and sturdily built but without vital architectural or engineering significance.

While the men who were associated with this bridge, Fiorello H. LaGuardia, Mayor of New York, Robert Moses, Commissioner of Parks and Emil H. Prager, Chief Engineer, were well-known and distinguished professionals, their greatness rests on other projects.

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Under the HABS/HAER categorization system the bridge would be classified as category 3. This division embraces structures of minor importance that contribute to the grouping of which they are a part. The proposed reconstruction would not have a significant adverse impact on the discipline of industrial archaeology or on our knowledge of bridge building technology.

Industrial Historian: Robert C. Stewart
Historical Perspectives, Inc.
Westport, Connecticut, December 1996