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LANDMARKS PRESERVATION

# ASSESSMENT OF ARCHAEOLOGICAL RESOURCES

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IN THE PROPOSED

MILL BASIN WATERFRONT SPECIAL DISTRICT

BROOKLYN, NEW YORK

BACKGROUND STUDY

Arnold Pickman

Prepared for

Tippetts, Abbett, McCarthy, and Stratton New York, New York

May 1987

# TABLE OF CONTENTS

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I.	Introduction	1
II.	Prehistoric Archaeological Sites A. Potential for Unreported Sites in the Project Area	1 2
	B. Submerged Prehistoric Sites	5
III.	Historic Period A. Schenck House and Mill E. National Lead Company Plant C. Other Early 20th Century Structures D. Land Filling and Other Early 20th Century Industrial Activity	6 7 9 15
IV.	Preservation of Deposits	10
۷.	Summary and Analysis	11
VI.	Recommendations	12
VIÏ.	Area of Indirect Impact	12
Refe	prences Cited .	14
List	of Maps	17

## I. <u>Introduction</u>

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The objective of this study is to assess the possibility that the proposed Mill Basin Waterfront Special District contains significant archaeological resources. The study has been performed pursuant to the requirements of the National Historic Preservation Act, the National Environmental Policy Act, Executive Order 11593, the National Advisory Council on Historic Preservation guidelines, and the requirements set forth in 35 CFR 800 and 23 CFR 771.

This assessment is based on a review of the literature and an analysis of land modifications which may have resulted in the preservation or disturbance of archaeological resources. Research was conducted in the New York Public Library, Map and Local History Divisions; the Brooklyn Historical Society; and New York University's Elmer Holmes Bobst Library. Records of soil borings conducted in and near the project area were obtained from the Subsurface Exploration Section of the New York City Department of General Services. Dr. Bert Salwen served as Principal Investigator for this study. Arnold Pickman conducted the research and prepared the present report.

To simplify the following discussion, we have used the terms "north" and "south" to refer to the directions perpendicular to Avenue U, rather than the actual geographical directions. The terms "east" and "west" refer to the directions parallel to Avenue U.

## II. Prehistoric Archaeological Sites

Information pertaining to prehistoric sites in New York City derives in large part from accounts published before the large scale land modifications which have occurred during the twentieth These sites are shown on maps published by Bolton century. (1922), the relevant portion of which is included here as Figure 1. Bolton's map shows two extensive areas of prehistoric deposits located east and west of the project area. To the east, Bolton shows a large area of shell deposits (site #52) on Bergen Island. In addition to the shell deposits, Bolton (1922:154) notes that "scattered objects" were found on the Island. Shell deposits were still visible and artifacts were being collected at this location as late as 1950 (O'Halloran 1950). This site is located approximately 2200 feet east of the project area, and before the 20th century modifications, was separated from it by Mill Dam Creek (see Figure 2).

Bolton (1922) reports an extensive area of prehistoric deposits approximately 3800 feet west of the project area on the western side of Gerritsen Basin (site #50), also known as Ryders Pond. Bolton includes a map which indicates that the deposits















Figure 10: Industrial Structures in the Project Area Source: Atlantic, FGulf & Pacific Company 1916:16 ILL BASIN The New Industrial District on New York Hurbor

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MILL BASIN DISTRIBUTION STATION OF THE GUEF REFERENCE Co. An admirable base from which is supplied a rapidly-growing section of the 2,000,000 people of Brooklyn.

Figure 11 Industrial Structures in the Project ARea Source: Atlantic, Gulf & Pacific Company 1916:20 (lower photograph only)

Ø U<sup>H</sup> STRICKL 60' TSHO UP TO DATE SILK & YARN CORP SIDANGE 8470C (413) \*\*\*\*\*\*\*\*) NOT. USED Ū. Cotc. 7 \*\*\*\*\* Figure 12 Location of Original National LEad Company Structures on Present INdustrial Site Outline of 1907 Structures Structures Present in 1930





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### Mill Basin - Cultural Resources .2.

extended from Fillmore Avenue (Avenue R) to a point south of Avenue U. The site contained surface deposits of shell, animal and fish bone and artifacts. 'Burials were reported from the area of Avenue U. Although most of the deposits were located west of Gerritsen Basin, Bolton also shows shell deposits immediately east of the Basin, between Avenues T and U. Bolton (1934) refers to Ryders Pond as a villge site.

Bolton's map (Figure 1) also shows a smaller shell heap located in the area approximately bounded by Avenue O, Fillmore Avenue, Utica Avenue and East 52nd Street, approximately 2200 feet north of the project area. Elevations shown on the 1899 Hyde atlas indicate that the ground sloped upward from the tidal marsh to the north and west. The area of this shell heap was at an approximate elevation of 12-14 feet, apparently at or near a local height-of-land.

References to the sites in this area of Brooklyn, including Ryders Pond, Bergen Beach and the Canarsie site further to the east (Bolton's site #51 - see Figure 1) usually associate them with the Canarsie group which inhabited this area at the time of European contact. Unfortunately, the only published material about these sites (Lopez and Wisniewski 1971, 1972) is the analysis of material from the Ryders Pond site collected from the surface by D.B. Austin in the late 1890s and early 1900s. The majority of projectile points from the Ryders Pond collection are Late Woodland types and Lopez and Wisniewski assign the site to the terminal Late Woodland Classons Point focus. However, the ceramic evidence suggests that the site may also have been occupied during the earlier Bowman's Brook focus. It also yielded Middle Woodland ceramic sherds, and lithic artifacts datable to the Late Archaic and Transitional periods.

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Ceci (1977) states that Ryder's Pond "is an historic site dating to the seventeeth and eighteenth centuries" (cited in Department of the Navy 1985:3-31). However, the collection contained a relatively small amount of contact period material, including an iron axe and iron projectile point, a copper projectile point and two beads. Four kaolin pipes and a few metal spoon bowls could also date to the contact period. In sum, the available evidence suggests that the Ryders Pond site contained material which may have accumulated over a long time span, and that the occupation was not restricted to the contact period.

# A. <u>Potential for Unreported Prehistoric Sites in the Project</u> Area

The possibility that unreported prehistoric archaeological deposits may have been present in the project area can be assessed by comparing its physiography and topography prior to 20th century land modifications with that of the reported site locations.

## Mill Basin - Cultural Resources .3.

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Several 19th century maps show the Jamaica Bay shoreline in detail. One of these (Beers 1873) is included here as Figure 2. Later maps (e.g. Hyde 1899) show this shoreline superimposed on the later street grid. We have used data from these maps to show the shoreline and areas of tidal marsh on the project area map (Figure 3).

The area which is now Mill Basin was the location of Mill Island, which was separated from the shore by Mill Creek. Most of Mill Island consisted of tidal marsh. According to a 1903 soils report cited by Van Wyck (1924:339-341) the Mill Island salt meadow consisted of what was called Galveston Clay. The surface of this deposit was described as black muck and a matted mass of eel grass roots, with a bluish or lead-colored silty clay beginning at a depth of approximately two feet. The surface of the Galveston Clay lay only a few inches above the limit of high tide.

There were two areas of higher land on Mill Island, the major portions of which were east and south of the project area. However, it is likely that the edge of the larger area of high ground intersected the eastern portions of lots 1120, 1150, and 1140, while the northwestern end of the southernmost, "boomerangshaped," area may have intersected the southern portions of lots 1085, 1100, and 1091 (see Figure 3).

The shore line north of Mill Creek consisted of an area of tidal marsh bordering the dryer ground located north of the project area. East of the approximate present location of East 58th Street, the northern shoreline of Mill Creek was at or north of the present location of Avenue U. However, a hook-shaped area of marsh extended south of Avenue U between 55th and 58th Streets. This area is now occupied by lots 130, 143 and the eastern part of lot 114. Between the present location of East 58th and East 60th Streets, another small area of marsh extended just south of Avenue U.

A small tidal creek, bordered by a narrow band of tidal marsh extended to the northwest from the approximate location of Avenue U and East 58th Street. The shell heap noted above between Utica Avenue and East 52nd Street was located just north of this tidal creek.

Prehistoric sites have been reported at the heads of and adjacent to many of the tidal creeks running inland from Jamaica Bay (Bolton 1920, 1922, 1934; Lopez and Wisniewski 1971; Pickman 1980a, 1980b). These sites are usually located on dry land near the edge of the tidal marsh. The Ryders Pond site, for example, is located on dryer ground west of Gerritsen Basin near the tidal marsh. Bolton (1922) also notes a site at Flatlands, at the head of Bedford Creek (which connected with what is now Paerdegat . Basin).



Figure 3

Project Area Showing Late-19th Century Shorelines and Tidal Marsh

Image: Showing Late-19th Century Showing Late-19th Centu

### Mill Basin - Cultural Resources

Such environments would have offered several attractions to Native American social groups. The marshes provided a source of shell fish and waterfowl, while the tidal creeks provided access to open water for fishing. The dry land/marsh edge habitat would have attracted deer, providing hunting opportunities.

The Aqueduct site at Hawtree Creek in Queens county was located in such an environment - on higher ground adjacent to a tidal Creek and the tidal marsh bordering Jamaica Bay. Archaeological borings taken at the edge of the former marsh encountered shell midden deposits beneath overlying fill, in some locations overlying the marsh deposits. Apparently, the inhabitants of the site located on the higher ground disposed of trash in the lower lying area bordering the marsh (Pickman 1980a).

Immediately north of Avenue U, a tongue of dry land projected into the marsh between Pearson and 57th Streets just west of the small tidal creek noted above. The marsh area immediately south of this point could have been the locus of trash deposits associated with any sites located on the higher ground.

The reported site on Bergen Island may have represented a different functional type than those discusses above. The site was located on an area of higher ground in the middle of the Island, which was surrounded by marsh. This is an environment similar to the upland areas surrounded by marsh which existed on Mill Island. The Bergen Island deposits may have been associated with a shellfish collecting station rather than a longer term occupation which would have required a source of water. It should be noted, however, that Van Wyck's map (1924, frontispiece) shows what is labeled as an "Indian Well" on Bergen Island.

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Neither shell deposits nor other indicatons of prehistoric utilization have been reported on Mill Island. However, the prehistoric inhabitants of this area may have utilized the higher ground on Mill Island as they did on Bergen Island. The presence of a historic period Euroamerican occupation on Mill Island (see below) suggests that water may have been available. It is possible that the early historic period occupation on Mill Island resulted in the obliteration of any prehistoric surface deposits on the small areas of higher ground prior to the reporting of locations of prehistoric deposits in New York City by late 19th and early 20th century writers.

In 1664, the Indians sold a tract of land near Flatlands named Mashanscomacoke, which Bolton (1922:1959) translates as "a much-enclosed place," to the Europeans. Bolton (1922) associates the name Shanscomacocke with the Ryder's Pond site. However, Tooker (1901:51) translates Shanscomacoke as "'the stepping place, '<u>i</u>.<u>e</u>., 'landing-place'" and Van Wyck (1924:103) speculates that this name may have actually been restricted to the two upland areas on Mill Island. If Wan Wyck is correct, it is possible that the Indians may have utilized this land.

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# B. Submerged Prehistoric Sites

Consideration of the processes of tidal marsh formation raises the possibility that prehistoric archaeological sites may remain protected beneath tidal marsh deposits. During the Wisconsin glaciation, a large amount of water was tied up in the continental ice sheets. This resulted in sea levels being much lower than at present. Therefore, during the generally accepted period of the first prehistoric occupation of the northeastern United States, some 10,000-12,000 years ago, the Atlantic shoreline was located on what is now the continental shelf and the present coastal area was well inland (Emery and Edwards 1966; Emery and Garrison 1967; Emery, Wigley <u>et. al</u>. 1967).

With the retreat of the Wisconsin ice, water which had been tied up in the ice sheets was released back into the sea, leading to a rise in sea levels, inundation of the land, and resulting changes in the shoreline. The actual rate of inundation was a function both of the release of water from the ice mass, and an uplifting of the land surface as the weight of the glacial ice was removed (isostatic rebound). The accepted rise in sea level in relation to the land surface which resulted from these factors includes a period of fairly rapid rise which lasted until 2000-4000 years ago, with a continuing rise at a slower rate from this period to the present (Emery and Edwards 1966; Emery and Garrison 1967).

Because the shoreline environment of western Long Island consists of gently sloping Wisconsin glacial outwash plains, the inundation of the land led to the development of extensive areas of salt marsh.

The marshes begin to form wherever the water is shallow enough for eel grass to obtain a foothold, usually a foot or two below low-water mark, and where no strong currents are flowing. The dead grass and the fine silt entangled with it gradually accumulate until the ground rises well above low water mark and marsh grass takes root upon it. The upbuilding continues until the marsh reaches a level covered only by occasional high tides (Fuller 1914:185).

From this description of the marsh formation process, it can be seen that, in a period of continuously rising sea levels, the formation of the marsh will continue, with the marsh surface at any period being at, or slightly above, the level of high water.

Prehistoric archaeological sites dating prior to the Late Archaic period are rare in coastal New York. If we assume that throughout prehistory populations have availed themselves of the food resources available in the shoreline environment, it can be assumed that sites dating to this earlier prehistoric period would be associated with the shorelines of these periods. Thus these sites would be located either underwater, or protected be-

Prehistoric deposits and/or artifacts have, in fact, been found beneath or in association with peat deposits during dredging activities and in archaeological excavations at a number of locations in coastal New York and New England (e.g. Salwen 1965, 1968; Bourn 1972; Glynn 1953; Powell 1965).

Data from available soil borings indicate that the elevations of the base of the deposits of peat and organic silt in the vicinity of the project area range from approximately 9.5 to 13 feet. Curves have been developed, based on carbon-14 dating of the basal peat and organic silt deposits, which indicate sea level elevations in the New York City area at various times in the past. According to one such curve (Historic Conservation and Interpretation, Inc. 1983: Figure 3), inundation of the project area would have occurred between approximately 2500 and 3800 years ago. Before that time it may have provided suitable habitat for prehistoric Native American peoples.

#### III. <u>Historic Period</u>

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### A. Schenck House and Mill

On May 13, 1664, John Tilton Sr. and Samuel Spicer of Gravesend obtained an Indian deed to a tract of land known as Equendito, or the Broken Lands, which included Mill Island. This Indian deed was assigned to Elbert Elbertse in 1681. Bailey (1936) speculates that Elbertse was actually in possession of the land before this date and that Tilton and Spicer may have been acting as agents for him.

The Hubbard map of 1666 shows that by this date a mill "no doubt built by Elbertse in the two years since the Indian deed" had been constructed on Mill Island (Bailey 1936:66).

In 1675 Jan Martense Schenck purchased a one-half interest in Mill Island and the mill. Schenck's will, dated 1688, mentions the mill, the island, and an "old house" (Black 1981:16). Bailey (1936) contends that Schenck probably built this house shortly after he purchased the property in 1675.

The house and mill remained in the Schenck family until the latter part of the 18th century when it was purchased by Joris Martense. In the early 19th century the property was owned by the Caton family, and after Mary Caton married General Phillip S. Crooke, the mill and house came into the possession of the Crooke family (Black 1981; Bailey 1936).

This house, labeled "P.S. Crooke," is shown on the 1873 Beers atlas map (Figure 2). The 1852 Dripps map shows a structure labeled "Crooke's grist mill" on Mill Island as well as two

# Mill Basin - Cultural Resources .7.

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other nearby structures, presumably the house and an outbuilding, while the 1859 Walling map shows only a single structure labeled "Grist Mill". Both the mill and the house stood on the northernmost of the two upland areas noted above, the mill being situated on the bank of Mill Creek. According to Van Wyck (1924), Mill Island was connected to the mainland by a road which ran across the mill dam. Van Wyck (1924, facing pp. 610; 614) shows two drawings which supposedly represent the mill and the Schenck house in 1833. The drawings show the mill standing on the west side of the road with the house on the east side and slightly farther from Mill Creek. The caption to one of these drawings indicates that the mill was torn down slightly before 1870, and it is not shown in the Beers atlas of 1873 (Figure 2).

Atlases dating to the late 19th and early 20th century show the Schenck house with repect to the modern street grid. The 1907 Sanborn Atlas (Figure 4) shows the house and two outbuildings, with the planned streets superimposed. The 1950 Sanborn atlas (Figure 5) shows the house still standing in the block bounded by East 63rd and East 64th Streets and Avenues U and Y. This location is one block east of the project area. The house included 11 rooms and a cellar, with a stone root cellar in the rear (New York Herald Tribune 1950). The "L-shaped" rear extension shown on Figures 4 and 5 was added during the 18th century (Brooklyn Daily Eagle 1946). The Schenck house was acquired by the Brooklyn Museum in 1950 and it was subsequently disassembled and partially reconstructed on the fourth floor of the museum (New York Herald Tribune 1950; Schwartz 1964).

The site of the mill was apparently "where the school handball courts are now" (Brooklyn Daily Eagle 1946). This statement undoubtedly refers to the schoolyard area shown on Figure 5 immediately south of the school building.

## B. National Lead Company Plant

The first structures to be erected within the project area were a group of industrial buildings operated by the National Lead Company. This factory complex was apparently established by Robert L. Crooke prior to 1906. One source dates the establishment of "the National Lead Works" to about 1891 (Brooklyn Daily Eagle 1921). The 1899 Hyde atlas indicates that the site was owned by the National Lead Company. However, no structures are shown on the property. It should be noted that the 1912 Hyde atlas also does not show the factory structures, though it was definitely in operation before this date. This raises a question as to the accuracy of the 1899 Hyde atlas: it is possible that the plant began operations during the 1890s.

The factory complex is first shown on the 1907 Sanborn map, labeled "National Lead Company Crooke Works." It was located on the property which now comprises lots 1090, 1091, and 1100.

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# Mill Basin - Cultural Resources ...

The National Lead Company was formed in 1890 and began operations on January 1, 1892 (National Lead Company 1901, 1925). The company was formed through a merger of three manufacturers of white lead. One of these, the Brooklyn White Lead Company, was formed in 1825 and operated one of the first white lead factories in the United States on Front Street in Brooklyn (National Lead Company 1925). The National Lead Company's one-hundredth anniversary booklet (1925) lists the "Crooke Smelting and Refining Works" under the company's Atlantic Division properties. However, neither this booklet nor the annual reports of the company for the years 1893-1924 make any further mention of the Crooke Works or its date of acquisition, nor is Robert Crooke listed as a corporate officer. Thus the exact date of construction of the plant is uncertain. It was certainly in operation by 1905, since in 1906 the annual shipment of ore to Mill Island was reported to be 4000 tons, and 3800 tons of solder, tin and lead were reportedly shipped from Mill Island (Law 1906).

By comparing the National Lead company plant layout as shown on the 1907 Sanborn map (Figure 5) with that shown on Sanborn maps dating to 1930 and 1950 (Figures 7 and 8), it is apparent that the structures shown on the later maps are not the original ones. Comparison of the 1930 and 1950 maps with the project map (Figure 9) indicates that the later structures are still standing.

The present buildings were apparently constructed in 1913 and 1915, and are shown in a photograph published in 1916 (Atlantic, Gulf & Pacific Company 1916. See Figure 10a). According to the 1907 Sanborn map (Figure 6), the original buildings at the Crooke works were mostly one and two story frame structures. Several brick based chimneys stood apart from the structures. The map also shows a well located west of the main factory building and a blacksmith shop located between the two largest buildings.

Comparison of the layout of the plant structures of 1907 with those of 1930 and 1950 suggests that there are several areas of the original plant site which would not have been substantially disturbed by the later construction. In 1930 the site of the well was occupied by a small one story "oil cooking" structure which had been removed by 1950. It is likely that the construction of this small building would not have involved substantial excavation, and the well shaft probably remains at this location. The western portion of the blacksmith shop location was occupied by a small one-story brick structure built between 1930 and 1950, and it is possible that remains associated with the blacksmith shop are preserved beneath and to the east of Remains associated\_with a portion of the main factory buildít. ing and various subsidiary structures and outbuildings should be present in the southern portion of the property, since there was no subsequent construction in this area. The extreme northern portion of the main building also would have been unaffected.

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Figure 12 shows the locations of the original buildings superimposed on the 1950 Sanborn map.

## C. Other Early 20th Century Structures

During the first decade of the 20th century the only other structures present in the project area were two boat houses shown on the 1907 Sanborn map (Figure 13) at the tip of the "tongue" of marsh land which projected south of Avenue U between East 59th and Street and Ralph Avenue (East 60th Street).

# D. Land-filling and Other Early 20th Century Industrial Activity

The Crocke Smelting Works property was the first tract of marsh land within the project area to be filled-in. This would have occurred prior to construction of the plant. The remainder of the project area was apparently filled by the end of the first decade of the 20th century. The land north of Mill Creek between East 52nd Street and East 56th Street was filled beginning in 1905 by John R. Corbin. The fill material was dredged from in front of the bulkhead and deposited behind it (Department of Docks and Ferries 1905). Corbin must also have filled additional land to the east, since the 1912 Hyde atlas shows his lumber yard south of Avenue U between East 56th and East 57th Streets. This is the land included in the present lot 130. (It should be noted that the planned street grid as shown on the early 20th century maps was subsequently modified. The widths of some blocks were reduced and an additional street, Pearson Street, was added).

The 1907 Sanborn map (Figure 14) shows two "old barges" within the bulkhead line at East 57th Street. It is possible that derelict vessels such as these were incorporated into the fill.

Between 1906 and 1909, ownership of Mill Island was transferred in a series of real estate transactions to the Atlantic, Gulf & Pacific Company. The Company bulkheaded and filled-in Mill Island, apparently using dredged fill material, creating 332 acres of upland (Brooklyn Daily Eagle 1921; Bailey 1936). The Atlantic, Gulf & Pacific Company planned to divide the land for industrial sites. Photographs and a map published by the Company (Figures 10, 11 and 15) show that by 1916, in addition to the National Lead Company plant, the Atlantic, Gulf & Pacific Company had established a drydock on lots 1096 and 1195 and the Gulf Refining Company had constructed storage tanks and several onestory brick structures on lots 1060, 1064, 1076, 1080, 1085. By 1919, there were apparently "five or six manufacturing establishments and commercial concerns" located at Mill Basin (Black 1981:42). In the 1920's New York City dredged the creeks surrounding Mill Island, creating Mill Basin (Black 1981:79).



### IV. Preservation of Deposits

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Deposition of landfill would have led to the preservation of any archaeological deposits present at the surface of the marshes or in the two areas of higher ground on Mill Island. Furthermore, any additional fill which may have been deposited at the National Lead Company site at the time of the construction of the second set of buildings after 1910 could have preserved deposits associated with the early years of the plant's operation.

Data about the depths of fill in the project area can be obtained by analyzing street corner elevations shown on various maps and atlases as well as the results of soil borings in and adjacent to the project area.

The 1899 Hyde atlas does not show elevations of the undeveloped land on Mill Island. However, as noted previously, the areas of tidal marsh can be considered to be approximately at the high water elevation. This atlas does show elevations along the line of Avenue U, ranging from 4.70 feet at East 55th Street to 3.71 feet at East 58th Street. Since these streets had not yet been opened it is possible that these figures represent elevations to which the streets were to be graded when established rather than actual elevations. However, because the locations of these elevations were near the northern limit of the marsh (see Figure 3), it is possible that this land was actually higher than the marsh further to the south.

Elevations after land-filling had taken place have been obtained from the 1929 Hyde and the 1930 and 1950 Sanborn atlases and from a 1936 W.P.A. map. Elevations along Avenue U between East 56th and East 58th Street range from 9.0 to 10.2 feet above the high water mark. Surface elevations indicated at boring locations south of Avenue U between East 54th and East 55th Streets are between '7.5 and 10 feet. The records of these borings, taken prior to 1936, do not indicate depths of fill. However, assuming that the marsh elevation prior to filling was approximately zero, 7.5 to 10 feet of fill overly the former marsh surface in this area.

At the former location of Mill Island, south of Mill Creek, elevations indicated along Strickland Avenue are 8.57, 9.8 and 7.57 feet at Mill Avenue, East 63rd and East 64th Streets, respectively. Since these locations are in the former upland area in the vicinity of the Schenck house and mill, the pre-fill elevations must have been above the zero elevation. The amounts of fill deposited here were therefore less than indicated by these map elevations. The one available boring record from this ' upland area, near the intersection of Mill and Strickland Avenues, shows a surface elevation-of 5.0 feet. It is possible that this U.S.G.S boring was done before fill was deposited in this area. The difference between this elevation and that at the

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## Mill Basin - Cultural Resources .11.

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intersection as noted above (8.6 feet) would suggest the presence of some 3.5 feet of fill. Map elevations shown along Strickland Avenue between Mill Avenue and 56th Drive range from 7.7 to 10.5 feet, with elevations of 8.5 and 8.6 feet in the vicinity of the former National Lead Company plant. As discussed above, these figures also represent depths of landfill, since the elevation of this former tidal marsh area must have been approximately zero prior to filling. Slightly less land-fill was deposited at the end of Strickland Avenue, west of the 56th Drive intersection, where the indicated elevations are between 5.7 and 6.9 feet.

## V. <u>Summary and Analysis</u>

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The presence of a substantial number of prehistoric sites on the shoreline of Jamaica Say prior to 20th century land modifications demonstrates the archaeological sensitivity of the general area in which the project is located.

Although there are no documented prehistoric deposits within the project area, such deposits could be present, protected beneath marsh deposits and later landfill. Early prehistoric occupations of the project area would have occurred prior to the deposition of tidal marsh deposits caused by rising sea levels. Although the available data from soil borings is not extensive enough to permit reconstruction of the pre-inundation landform, it can be assumed that the tongue of land bordering the former tidal creek immediately north of Avenue U between Pearson and East 57th Streets would have extended south of Avenue U, into the project area. In addition, we can assume that the two upland areas on Mill Island were larger and extended farther into the project area.

During the latter part of the prehistoric period most of the project area consisted of tidal marsh which would have been unsuited for human habitation. However, waste materials resulting from utilization of adjacent upland areas could have been disposed of in the marsh. Such deposits would be located immediately above the marsh surface and would probably have been preserved beneath the later landfill.

The segments of the project area most likely to contain prehistoric deposits are shown on Figure 16. Examination of the 1930 and 1950 Sanborn maps and the project map indicate that only portions of these lots would have been affected by construction after land-filling had taken place. Furthermore, it is likely that much of the construction did not result in disturbance below the landfill. Most of the structures did not have basements and, except for one small underground tank in the northern part of lot 114, the gasoline storage tanks are above ground.

Th<u>e data</u> indicate that remains-associated with the early period of operation of the National Lead Company smelting plant, dating to the last decade of the 19th century and the first



Figure 16 Areas of Recommended Archaeological Testing



Approximate Area to be Tested for Remains of National Lead Company Plant

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Approximate Area to be Tested by Archaeolgical Borings

#### Mill Basin - Cultural Resources .12.

decade of the 20th century, might be located on lots 1090, 1091 and 1100. These remains could include foundations and floors associated with the main factory building and outbuildings, any artifactual deposits located in the well and other sub-surface features which may be present, and other deposits which may remain in the open yard area. Such resources are the subject matter of industrial archaeology, and may be important in illuminating otherwise undocumented aspects of American industrial development.

# VI. <u>Recommendations</u>

In order to determine the presence or absence of prehistoric archaeological deposits in the areas noted above and shown on Figure 18, archaeological borings should be undertaken. Continuous sampling should be undertaken so that the portions of the stratigraphic column immediately beneath the fill deposits and immediately below the marsh deposits are fully sampled. An archaeologist should be present during the boring program, to evaluate the results of these tests.

Additional documentary research and a program of archaeological testing should be undertaken prior to any construction on lots 1091 and 1100. Testing should also be undertaken on lot 1090 at the location of the National Lead Company blacksmith shop.

## VII. Area of Indirect Impact

Three of the recorded prehistoric sites discussed previously are located within the area of indirect impact. These are the sites located at Bergen Beach and Ryders Pond, and the shell heap located between Fillmore Avenue, Avenue O, Utica Avenue and East 52nd Streets (see Figure 1). The major early historic period sites within the area of indirect impact are the former locations of the Schenck house and mill, located immediately east of the project area, the former site of the Stoothof-Bergen house, located south of Avenue V betweeen East 72nd and East 73rd Streets in Bergen Beach (Bailey 1936), and the site of Gerritsen's mill, located on the west side of Gerritsen basin betwen Avenues V and W (see Bolton 1922). By 1873, a number of other structures were present within the indirect impact area (see Figure 2).

A 330-acre segment of Floyd Bennett Field, including pre-1941 buildings and runways, comprises a historic district included on the National Register of Historic Places (Department of the Navy 1985:3-31).

Of the above locations, the only ones on city-owned land are the Ryders Pond prehistoric site and the site of Gerritsen mill and associated house, which are located within Marine Park.

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### Mill Basin - Cultural Resources .13.

It is possible that population increase in the area, stimulated by the proposed rezoning, might lead to the need for Park improvements. Should such improvements be undertaken, they could adversely affect any intact archaeological deposits that might be present in this area.

If the proposed rezoning leads to the need for new utilities connections in the block bounded by East 63rd and East 64th Streets and Avenues U and V, east of the project area, it is possible that trenching required for this work could affect any intact archaeological resources associated with the Schenck house and mill.

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Mill Basin - Cultural Resources .14.

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