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rec @ LPC 11/13/07 P ID- 6622

Phase 1A Archaeological Documentary Study

Rose Plaza on the River

470-490 Kent Avenue
Block 2134, Lots 1 and 150
Brooklyn, Kings County, New York

Prepared for:
Rose Plaza on the River, LP
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Brooklyn, New York 11211

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November 9, 2007

1010

Table of Contents

List of Tables

List of Figures

List of Photographs

Chapter I: Introduction

A. PROJECT OVERVIEW

AKRF, Inc. has been retained by Rose Plaza on the River LP to perform environmental review services for the Rose Plaza on the River project site, located at 470-490 Kent Avenue in Brooklyn (Figure 1). The project site is located on the west side of Kent Avenue between South 8th Street to the north and Division Avenue to the south (Block 2134, Lots 1 and 150). Because the proposed project would entail the rezoning of the project site, the proposed action is a discretionary one that requires review under City Environmental Quality Review (CEQR). In accordance with New York City Environmental Quality Review (CEQR), the New York City Landmarks Preservation Commission (LPC) has requested that a Phase 1A Archaeological Documentary Study be conducted for the project site (LPC December 29, 2005).

The proposed Rose Plaza on the River project would construct a mixed-use development on the East River waterfront in Williamsburg, Brooklyn. This approximately 165,000-square-foot site currently contains two low-rise commercial structures. The proposed project would involve the demolition of these structures and the construction of three residential towers separated by a vehicle and pedestrian circulation and private open space that would lead to the East River and the proposed waterfront esplanade. The waterfront esplanade would connect to Division Avenue on the south and the Schaefer Landing development on the north. There would also be below-grade parking and ground-level retail. In addition, there would be replacement of an existing sheet-pile bulkhead which extends approximately 317 feet between the southwest corner of the project site to a point midway along the shoreline within the project site. An existing timber pile-supported high-level platform measuring approximately 207 feet long by 25 feet wide that stretches from approximately midway along the shoreline to the northwest corner of the project site will also be demolished and replaced.

B. RESEARCH GOALS AND METHODOLOGY

The following Phase 1A Archaeological Documentary Study of the Rose Plaza on the River project site has been designed to satisfy the requirements of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) and the New York City Landmarks Preservation Commission (LPC) and it follows the guidelines of the New York Archaeological Council (NYAC). The study documents the history of the proposed project area as well as its potential to yield archaeological resources including both precontact and historic cultural remains, including potential human remains from prison ships anchored in Wallabout Bay during the Revolutionary War. In addition, it also documents the current conditions of the project area and previous cultural resource investigations which have taken place in the vicinity of the APE.

The goal of this archaeological documentary study is to determine the likelihood that potential archaeological resources have survived the destructive forces of time, including tidal disturbance, utility installation, and wharf, dock, pier, building and bulkhead construction and demolition.

The background research included a site inspection, analysis of historic maps and other primary sources, including deeds, tax assessment records, newspaper articles, historic directories, a hazardous materials site assessment, building records, and soil boring records. Personal conversations with Dr. Ted Burrows and Dr. Joan Geismar about the Vinegar Hill Site, Wallabout Bay, the Brooklyn Navy Yard, and the Prison Ships were also undertaken. Published and unpublished resources were consulted at various repositories of information, including the Main Research Branch of the New York Public Library (including the Local History and Map Divisions), the New York Historical Society, the Brooklyn Historical Society, the New York City Municipal Archives, the Long Island division of the Queens Public Library, the Borough Office of the Register of the City of New York, the Borough Office of the Register of the City of New York, New York City Department of Environmental Protection, Bureau of Water and Sewer Operations, the Kings County Clerk, and the Brooklyn Topographic Bureau. File searches were conducted at LPC and OPRHP. ✳

Chapter II: Environmental and Physical Settings

A. HYDROLOGY

The project site is located along Wallabout Channel within the East River. The East River is a tidal strait connecting New York Harbor with the western end of Long Island Sound. The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) classifies the majority of the Wallabout Channel/East River shoreline within the project site as estuarine subtidal unconsolidated bottom with a small area of excavated channel at the southwestern corner of the project area (AKRF 2006: H-4). The New York State Department of Environmental Conservation (NYSDEC) Tidal Wetlands Map categorizes the East River shoreline area along the western boundary of the project site as Tidal Wetland-Littoral Zone. Water depths along the shoreline range from approximately 1.0 foot at mean low water (MLW) at the southern portion of the sheetpile bulkhead to approximately 9 feet MLW at the northern portion of the existing high level platform. Maximum currents in the East River are approximately 5-6 knots and the shorelines are virtually entirely bulkheaded or riprapped. During the flood cycle of the East River, Hudson River water flows in via the Battery, and during the entire flood cycle, Hudson river water enters through the Harlem River and the East Rver also floods from Long Island Sound (AKRF 2006: H-10, 11). For this and other reasons, the East River has rapid tidal currents.

Geotechnical borings performed at the site in 2005 indicate that groundwater was located approximately 7-11 feet below surface grade. Groundwater most likely flows in a westerly direction toward the East River, which is west-adjacent to the project site. However, actual groundwater flow at the site is likely tidal and can be affected by many factors including past filling activities, underground utilities and other subsurface openings or obstructions (such as bulkheads) (AKRF 2005:1).

Harsh conditions in the East River, including its swift current, lack of shoal and protected habitat, are possible explanations for why the East River experiences only limited use by fish at various times of the year. The fast currents act to scour the river bottoms and prevent an accumulation of sediment, thus limiting the bottom community on which fish feed (Habib 2004: 10-22-23). This suggests that any archaeological resources or human remains in this context could also be severely disturbed, removed, or even carried away by the swift current.

B. GEOLOGY AND TOPOGRAPHY

The project area is situated within the Atlantic Coastal Lowland Physiographic province which is located in the extreme southeast portion of New York State on Long Island and Staten Island. Kings County, where Williamsburg and the project area are located, is situated on Long Island. In addition, bedrock in this region is located approximately 100 feet below the current ground surface (AKRF 2005).

Long Island is formed largely of two spines of glacial moraine, with a large, sandy outwash plain beyond. These moraines consist of gravel and loose rock left behind during the two most recent surges of the Wisconsin glacial period. The northern moraine, which directly abuts the North Shore of Long Island at points, is known as the Harbor Hill moraine. The project site is located north of the Harbor Hill terminal moraine which marks the extent of the second advance of the Ice Age glaciation which partly covered Long Island. Gardener's clay occurs in most of King's County and consists mainly of greenish-clay and silt and some interbedded sand. It was probably deposited in lagoons.

The more southerly moraine, known as the Ronkonkoma moraine, forms the "backbone" of Long Island running primarily through its very center and roughly coinciding with the length of the Long Island Expressway. Most of the more level land south of this moraine to the South Shore is the outwash plain.

United States Geological Survey maps of the area suggest that the project area is situated approximately 10 feet above mean sea level. The terrain slopes down to the west towards the East River. And the southwestern portion of the site is constructed on a platform over the river supported by piles.

C. CURRENT CONDITIONS

Field inspections were conducted by AKRF environmental inspectors in 2004 and 2005 and by AKRF archaeologists in 2006.

The Rose Plaza project site is bounded on the west by the East River/U.S. Bulkhead Line, on the east by Kent Avenue, on the north by South 10th Street, and on the south by Division Avenue. The western boundary of the project area lies along Wallabout Channel, which is a portion of the East River directly north of the Brooklyn Navy Yard industrial park. There are currently two structures situated on the project site as well as a paved area. The first structure, a three-story warehouse with a basement fronting Kent Avenue (Photographs 1 and 2), is primarily occupied by a shoe warehouse and is used for storage. The second structure, a two-story warehouse fronting the East River (Photographs 3 and 4), is occupied by Certified Lumber, a building materials wholesale and retail establishment. A corrugated metal roof covers a paved area between the two structures, which is used by Certified Lumber for building materials storage, and loading and unloading.

The three-story building has a basement and is constructed of brick, concrete and steel beams. Site visits revealed two garage bays with hydraulic lifts on the south side of the building and several small plates in the basement floor that could be associated with underground storage tanks (UGST). A review of State Regulatory and New York City Fire Department (heating oil only) records, however, did not cite UGSTs for the project area and Fire Department records for gasoline storage tanks and Brooklyn Building Department records were not reviewed as part of this, or subsequent environmental work. The building also contains an older freight elevator and a newer passenger elevator. The mechanism for the freight elevator is located on the roof of the building and the machine room for the new elevator is located in the basement.

The construction of the two-story brick and concrete warehouse facing the East River occurred in two phases. According to historic Sanborn Maps, the northern portion of the building was constructed in 1939 and a two-story addition was constructed prior to 1979. The northern (1939) portion of the building was constructed of brick and concrete with a concrete roof. The later, southern, portion of the building was constructed of brick and concrete with a corrugated metal

roof with steel beams (AKRF Inc. 2004). The southern portion of the building contains a freight elevator. As mentioned previously, contractor building materials are housed in this structure.

Two asphalt and concrete paved areas are located on the project site—a small narrow area to the north of the buildings (Photographs 5 and 6), and a larger area to the south used for truck loading and unloading and parking (Photograph 7).

The shoreline within the project site is approximately 525 feet long and is engineered with two distinct structures, a steel sheetpile bulkhead and a timber pile-supported high-level platform. The sheetpile bulkhead extends from the southern boundary of the project site for approximately 317 linear feet (Photograph 8). The bulkhead is in poor condition—corrosion holes have allowed the river water to enter behind the bulkhead and wash away fill and create large voids along the inshore face of the bulkhead. The remaining 207 feet of shoreline has a 25-foot-wide high-level platform (Photograph 9) adjacent to the foundation wall of the existing building. This platform is severely deteriorated and is in disrepair (Photograph 10). ✷

Chapter III: Precontact Period

A. INTRODUCTION

Archaeologists have divided the time between the arrival of the first humans in northeastern North America and the arrival of Europeans more than 10,000 years later into three precontact periods: Paleo-Indian (11,000-10,000 BP), Archaic (10,000-2,700 BP), and Woodland (2,700 BP–AD 1500). These divisions are based on certain changes in environmental conditions, technological advancements, and cultural adaptations, which are observable in the archaeological record.

B. PALEO-INDIAN PERIOD (11,000-10,000 BP)

As a result of the glacial period described in Chapter II, human populations did not inhabit the Northeast until the glaciers retreated some 11,000 years ago. These new occupants included Native American populations referred to as Paleo-Indians, the forbearers of the Delaware—also called the Lenape Indians—who would inhabit the land in later years.

The Paleo-Indians most likely exploited all the different resources provided by their environment. It has been suggested that they did not only actively hunt the large mammals that roamed about the region (mammoths, mastodons, etc.), but they also hunted and trapped smaller animals and supplemented their diet with fish and gathered plants (Cantwell and Wall 2001).

There was a very distinctive Paleo-Indian style of lithic technology, typified by fluted points. These were elaborately detailed stone projectile points that would have been used for a variety of functions, most notably for hunting. They were often made of high-quality imported chert, but were also known to have been crafted from local lithic materials. Other stone tools manufactured at this time included knives, scrapers, drills, and gravers. Wood, ivory, and other materials were also used for the manufacture of composite tools, such as hunting spears.

Archaeological evidence suggests that the Paleo-Indians were likely highly mobile hunters and gatherers who lived in small groups of fewer than 50 individuals (Dincauze 2000) and did not maintain permanent campsites. In addition, most of the Paleo-Indian sites that have been investigated were located near water sources.

It is because of the close proximity of Paleo-Indian sites to the coastline that so few of them have been preserved in the New York City area. As the glaciers continued to melt, sea levels rose and much of what was once adjacent to the water line became submerged. Of the few Paleo-Indian sites that have been discovered in the area, nearly all have been found on Staten Island, including the Port Mobile site. Like most precontact sites, this location is situated on high ground overlooking the water. Because of heavy disturbance in the area—it is currently an oil tank farm—the site has yielded nothing more than a collection of fluted points and other stone tools characteristic of the period (Ritchie 1980).

C. ARCHAIC PERIOD (10,000-2,700 BP)

The Archaic has been sub-divided into three chronological segments, based on trends identified in the archaeological record which reflect not only the ecological transformations that occurred during the Archaic, but the cultural changes as well. These have been termed the Early Archaic (10,000–8,000 BP), the Middle Archaic (8,000–6,000 BP) and the Late Archaic (6,000–2,700 BP) (Cantwell and Wall 2001). The Late Archaic is sometimes further divided to include the Terminal Archaic period (3,000-2,700 BP).

The aforementioned environmental transformations included the continued post-glacial warming trend, the extension of hardwood forests, and a decrease in glacial runoff which resulted in the creation of lakes and other small bodies of water. There was a subsequent migration of new animal and plant species into the area, while the herds of large mammals traveled north, eventually dying out. The new surroundings attracted smaller animals, such as rabbit, turkey, waterfowl, and white-tailed deer.

As the Archaic progressed and the number of plant and animal species inhabiting the area increased, the size of the human population did as well. In general, archaeologists have shown that Archaic Native American sites were most often located near water sources. The abundance of food resources which arose during this period allowed the Archaic Native Americans to occupy individual sites on a permanent or semi-permanent basis, unlike their nomadic Paleo-Indian predecessors. These individuals migrated on a seasonal basis within specific territories and consistently returned to and reoccupied the same sites.

The arrival of new food sources allowed the human population to expand their subsistence strategies, but at the same time forced them to develop different technologies that would allow such resources to be exploited. Perhaps the most important of these developments was the advent of fishing technology, which occurred during the Middle Archaic in response to an increasing dependence on the area's marine resources. The new technology included stone hooks and net sinkers. In addition, the influx of nut- and seed-bearing foliage resulted in the development of stone mortars and pestles as well as stone axes, used to process plant material.

In order to successfully hunt the smaller game animals that had established themselves in the region, narrower spear points and knives were manufactured, along with weighted spear throwers. Domestic technology was advanced as well, with the development of a wider variety of hide scrapers and, later in the period, the origin of bowls made from steatite or soapstone. Tools continued to be crafted in part from foreign lithic materials, indicating that there was consistent trade among Archaic Native American groups from various regions in North America throughout the Archaic.

Once again, due to rising sea levels and to the rapid development of the area, as well as the dominance of coniferous forests at that time which generated a habitat ill-fit for human habitation (Boesch 1994), few Early Archaic sites have been identified in New York City, and none have been identified in Brooklyn. Most of those that have been identified are located on Staten Island, including Ward's Point, Richmond Hill, the H. F. Hollowell site, and the Old Place site. Sites such as Ward's Point—a domestic habitation location which due to lowered sea levels was originally inland—tend to be deep and stratified and have yielded stone tools related to cooking, woodworking, and hide processing. The many years of constant occupation caused the artifacts to be deeply buried under more recent debris deposits (Cantwell and Wall 2001). However, at the Old Place Site, the only artifacts which were discovered—stone tool

assemblages—were found at relatively shallow depths of around 42 inches (3½ feet) (Ritchie 1980).

There are few Middle Archaic sites in the region as well. The majority of these tend to consist of large shell middens, which are often found near major water courses such as the Hudson River, although stone points have also been found in such locations. These sites were in great danger of obliteration because of their proximity to the shrinking coastlines.

Unlike the Early and Middle periods, many Late Archaic sites have been found throughout the New York City area including many in Staten Island. Late Archaic habitation sites are often found in areas of low elevation near water courses and temporary hunting sites are often located near sandy areas (Boesch 1994). Late Archaic sites identified in Staten Island include the Pottery Farm, Bowman's Brook, Smoking Point, Goodrich, Sandy Brook, Wort Farm, and Arlington Avenue sites, among others (Ibid). Two other notable sites, Tubby Hook and Inwood, are located at the northern end of the island of Manhattan. Both sites contain large shell middens, while the Inwood site also features rock shelters that were inhabited by Archaic populations. Both sites were continuously occupied for several thousand years (Cantwell and Wall 2001).

In addition, many Terminal Archaic sites from all across the city have provided examples of what archaeologists call the Orient culture, which is characterized by long fishtail stone points and soapstone bowls. There have been extremely elaborate Orient burial sites found on eastern Long Island, but none have been identified in Brooklyn. Orient-style fishtail points have been discovered along the shores of Staten Island, it is assumed that they fell from eroding cliffs located nearby (Boesch 1994).

D. WOODLAND PERIOD (2,700 BP-AD 1500)

The Woodland period represents a cultural revolution of sorts for the Northeast. During this time, Native Americans began to alter their way of life, focusing on a settled, agricultural lifestyle rather than one of nomadic hunting and gathering. Social rituals begin to become visible in the archaeological record at this time. There have been many elaborate human and canine burial sites identified from this period. The first evidence of smoking has also been found—stone pipes have been uncovered at Woodland sites—and it was at this time that pottery began to be produced.

In general, there was a greater emphasis placed on composite tools during the Woodland period. While stone scrapers, knives, and hammerstones were still in use, there was an increased use of bone, shell, and wood in tool making. Furthermore, the development of bows and arrows revolutionized hunting practices. Fishing continued to be important to the local economy and wooden boats and bone hooks were often utilized (Historical Perspectives, Inc. 2005). Many tools were still made from imported materials, indicating that the trade networks established earlier were still being maintained (Cantwell and Wall 2001).

Pottery was introduced into Native American society early in the Woodland period and by the time of European contact in the 1500s, well-crafted and elaborately decorated pottery was being manufactured. Like the Archaic period, the Woodland has been divided into Early, Middle, and Late sections, which differ mostly based on the style of pottery which was produced at that time. Woodland pottery had simple beginnings; the first examples were coil pots with pointed bases, which were made with grit temper. These were replaced during the Middle Woodland period by shell-tempered vessels bearing a variety of stamped and imprinted decorations. As the period

drew to a close, the decorative aspect of the pottery was further augmented with the addition of intricate ornamental rims (Louis Berger Group 2004).

Woodland-era sites across North America indicate that there was an overall shift toward full-time agriculture and permanently settled villages. Archaic sites in New York City indicate that the Native Americans there continued to hunt and forage on a part-time basis. This was most likely due to the incredibly diverse environmental niches that could be found across the region throughout the Woodland period (Cantwell and Wall 2001, Grumet 1995). Nevertheless, Woodland societies were considerably more sedentary than were their predecessors. There was, however, some farming of maize, beans, squash, and tobacco. The development of pottery, increasingly complex burial sites, and the presence of domesticated dogs are all consistent with sedentary societies, which have a close association with a particular territory or piece of land.

Woodland sites, like those of the Paleo-Indian and Archaic periods, are usually found alongside water courses. They were often occupied for long periods of time, although there was still some seasonal migration that may have left them unoccupied for brief periods throughout the year.

At least one Woodland period archaeological site has been identified in Brooklyn, located approximately one mile north of the project area (designated as site A in Figure 3 and Table 1), as have several others in the outer boroughs. The Brooklyn site was recorded in 1874 by Long Island historian Gabriel Furman, who noted evidence of precontact Native American "occupation...at Bridge Street, between Front and York and between Jay and Bridge Streets" (Greenhouse 1996:3). Furman reported that the artifacts had been found *in situ* at a depth of 3 to 4 feet on the crest of a 70 foot high hill which has since been razed. The site, which has since been destroyed, has also been referred to as *Rinnegakonck* (Bolton 1934).[1] Due to the fact that Furman reported finding "coarse pottery" and "rough clay pipes" in addition to projectile points, it is reasonable to surmise that the site was either a Contact period site or a hunting and/or camping site which would have been seasonally occupied for centuries (Geismar and Oberson 1993).

Table 1

Precontact Sites in the Vicinity of the Project Area

Site	Distance from APE	Relevant Site Numbers	Time Period	Site Type	Additional Reference
A	1 mile (5,280 feet)	NYSM: 9412	Contact; possibly Woodland	Traces of occupation	Furman (1865)
B" Marechawick"	1½ miles (7,920 feet)	Bolton: 117	Contact and Woodland?	Village	Grumet (1981)
C "Werpos"	1 mile (5,280 feet)	Bolton: 67	Contact	Unknown	Grumet (1981)
D	2.25 miles (11,880 feet)	NYSM: 3606 Parker: ACP-KNGS	Unknown	Camp	Parker (1922)
E	2.25 miles (11,880 feet)	NYSM: 3613 Parker: ACP-KNGS	Unknown	Traces of occupation	Parker (1922)

Sources: See Figure 3.

[1] This is the same name given by the Delaware to both the area bordering the Wallabout Bay and the small stream which ran through it (Grumet 1981).

Woodland sites, like those of the Paleo-Indian and Archaic periods, were usually found alongside water courses. They were constantly occupied, although there was still some seasonal migration that may have left them unoccupied for brief periods throughout the year.

E. CONTACT PERIOD (AD 1500-1700)

The Woodland period ended with the arrival of the first Europeans in the early 1500s. At that time, a division of the Delaware Indians known as the Canarsee—a local branch of the Matouack tribe—inhabited western Long Island, including what has since become the borough of Brooklyn. A subgroup of the Canarsee, the *Mareyckawick*, occupied the Wallabout Bay portion of Brooklyn at the time of European Contact and their territory appears to have covered the project area (Bolton 1975, Grumet 1981). A Native American village associated with this group is shown on the 1639 Manatus Map (Figure 5). The group's main village site was identified by Bolton (1934) as being located at Gallatin and Elm Place, approximately 1.5 miles south of the project area. Others, however, have suggested that the village was located near Lawrence and Jay Streets (Solecki 1977:7) or near Borough Hall (MacCleod in Grumet 1981:27). This final location, approximately 1½ miles from the project area, is marked 'B' in Figure 3 and Table 1.

The *Mareyckawick* sold their land to the Dutch West India Company in 1637 but maintained a presence in the area for the next few years. With the introduction of European culture into the indigenous society, the way of life once maintained by the Native Americans was thoroughly and rapidly altered. European guns, glass beads, and alcohol soon became incorporated into the Native American economy. The *Mareyckawick*, like all the Canarsee Indians, suffered a great deal from the side-effects of European colonization: disease, alcoholism, and warfare (Grumet 1981).

Immediately after European contact and settlement, Native Americans at first maintained the village sites they had established near water sources. As their trade with European settlers intensified, they became increasingly sedentary. However, as the European population grew and they required more land, the relationship between the two groups turned sour. Fierce wars broke out between the Dutch and the Indians. However, the Native Americans in this region did not surrender immediately. After years of intermittent periods of war and peace—during which both Native Americans and Europeans were killed—the *Mareyckawick* fled to join the Rockaway Indians to the south (Grumet 1981).

There are several Contact period archaeological sites that have been identified in New York City, including the Kaeser, Throgs Neck, and Old Ferry Point sites in the Bronx, and Ward's Point on Staten Island (Grumet 1995). The Ryder's Point site is a Contact period site located in southern Brooklyn. Ward's Point was a major Canarsee Indian village that was occupied continuously for thousands of years. Even though it is considered to be "the largest Native American site in Brooklyn," the site was poorly excavated and can therefore not be properly analyzed (Cantwell and Wall 2001: 130). In addition, Grumet (1981) notes that the project site was located less than a mile east of the intersection of two Native American trails which ran in the vicinity of modern Bedford Avenue and Fulton Street.

F. PREVIOUSLY IDENTIFIED NATIVE AMERICAN ARCHAEOLOGICAL SITES

The Brooklyn Navy Yard and Wallabout Bay area, which are to the southwest of the project site, have been identified in other cultural resources investigations as a location likely to have been

used by Native Americans for resource exploitation (Historical Perspectives, Inc. 2005, Geismar and Oberson 1995). While the "low-lying, salty and marshy character of the Wallabout Bay shore would not have been very attractive for Native American settlement," indigenous groups might have exploited food resources there (Geismar and Oberson 1995: 1).

A review of the files at the New York State Historic Preservation Office (SHPO), the New York State Museum Historical and Anthropological Surveys (NYSM), the New York City Landmarks Preservation Commission (LPC), and cultural resource surveys of projects in the immediate vicinity indicated that there are no known archaeological sites are located less than one mile from the project area. NYSM files showed, however, that five precontact sites were situated within 1 to 2 miles from the project site (Figure 3, Table 1). In some instances their exact locations are unknown and it is likely that intensive land transformation and construction which has taken place in recent centuries has obliterated any trace of their existence.

In addition to the two sites described above, another occupation site, called *Werpos*, was located "halfway between Marechawik and the Gowanus Creek" (Grumet 1981:58) but "references to Werpos do not provide a description of the type of site that existed at this location" (Greenhouse 1996: 3). It is interesting, therefore, that the testimony of Peter Stryker in the case of Horsefield vs. Heirs of Hans Bergen, (located in *Copy of an Original Paper in the Archives of the New York Historical Society*, see Appendix A in Stiles 1867: 420-424) mentions a "Worpus." The pertinent paragraph in the testimony is as follows:

> *Peter Stryker, aged 44, says that being on a jury of view about 6 or 7 years ago, Jacob Hanse, father of Hanse Bergen, said at his house on talking of Worpus, there's Worpus, pointing with his finger thro' his window to the head of the creek by his garden (in Stiles 1867:424).*

Stiles (1867) further notes that "The `Worpus' mentioned by Jacob Hanse may also have been the site of an Indian village, a large Indian burying ground being located in the vicinity, where remains were exhumed a few years ago in leveling the ground for City purposes; Indian maize lands being also, in that region, referred to in the early patents" (Ibid).

Site 'D,' was registered with the New York State Museum by Arthur Parker although it was never given a formal name. Parker's description of site D is rather vague and it could represent one of several unnumbered sites. There is an unnumbered camp site in this location in Parker's illustration of Kings County (Parker 1922: Plate 179). It is possible that the site number listed by the New York State Museum is in error (Greenhouse 1996:4).

The final site (site "E" in Figure 3 and Table 1) was originally reported by Parker as having "traces of occupation" (1922). The site is situated along the southern bank of Newtown Creek approximately 2¼ miles northeast of the project area. Although most of the project area was once beneath the East River, the part of the site closest to the west side of Kent Avenue was composed of fast land, or at least, sandy shore. Armbruster (1942: 2) described the waterfront of the early 19th century as follows:

> *The beach rose from the water's edge to the line of Kent Avenue where there was a small sandbluff, along which the shore road was established at an early date. Between the shore road and the large sandbluff along the line of Bedford Avenue the land rose so gradually that it appeared to be level.*

Bergoffen (2004: 7-3) interprets this description to mean that the land rose gradually from the sandy shore inland to about present day Kent Avenue where it formed a bluff up to

approximately forty-five feet about street level. "The extended slope" of the sandy bluff at the top of the village rose between twenty and fifty feet along the line of Bedford Avenue. This bluff was known as the Kijkuit or Keikout, meaning 'lookout' and was leveled in 1853. Between the two bluffs, the land was almost level. Indeed the gentle slopes here resulted in the formation of shallow tide pools and generally poor drainage (Bergoffen 2004: h-4)." ✱

A. INTRODUCTION—HISTORY OF WILLIAMSBURG, BROOKLYN

The western end of Long Island was settled as early as the second quarter of the 17th century by predominantly Dutch and Walloon[1] families. Six independent towns were established in the second and third quarters of the century. These included Flatlands (1636), Gravesend (1645), Brooklyn (1646), Flatbush (1652), ~~Brooklyn (1646),~~ New Utrecht (1657) and Bushwick (1660). Williamsburg was originally part of the Dutch Village of Boswijck chartered in 1660, later known as the Town of Bushwick.

Throughout Williamsburg's early history, it consisted of large plots of undeveloped farmland. Then, in 1792, New York merchant Richard M. Woodhull, had a vision. He longed to develop a suburb on Long Island, away from the hustle and bustle of New York City, which at that time included only Manhattan. In 1802 Woodhull purchased land in the vicinity of North Second (Bushwick) Street and had the land laid out in City lots. His surveyor was a United States Army Engineer and friend, Colonel Jonathan Williams, for whom Williamsburg was named (Stiles 1867 II: 380). Woodhull then established a ferry which traveled from the foot of North Second Street in Brooklyn to Corlear's Hook, at the foot of Grand Street, in Manhattan. Not many of Woodhull's lots were sold and he soon found himself in financial difficulty, declaring bankruptcy in 1806 (Jackson 1995).

Woodhull's rival, Thomas Morrell, also purchased land in the vicinity. He sold half to James Hazard and the men laid that land out in city lots, with Grand Street as a "dividing line" (Stiles 1869 II: 380). The territory between North Second (Metropolitan) Avenue and South 1st Street (one block south of Grand Street) was named Yorkton, while the larger territory between Bushwick Creek and Wallabout Bay, including the project area, was known as "Williamsburgh[2]" (Armbruster 1942). Morrell then obtained a grant from the Corporation of New York to run a ferry from Grand Street in Bushwick to Grand Street in New York. This meant that both the Woodhull and Morrell ferries were running to the same destination. A ferocious rivalry between the two men developed, to their detriment, and to the detriment of the development of Williamsburg since all of their energies and resources were expended during this contest.

In the early 1800s, General Jeremiah Johnson, a prominent Brooklyn citizen and, later, historian, was determined that a road should be built between Wallabout Bay in Brooklyn and Newtown in Queens. Johnson believed that once the road was built, it would encourage the establishment of businesses near the ferries and it would also allow people to live on suburban Long Island while working elsewhere. The construction of this road allowed the community to enter into a period

[1] Walloons were French Protestants who came to America to escape persecution

[2] By 1851, when Williamsburg became an official City, the "h" was dropped from its name.

of growth. In 1818, New York auctioneer and commission merchant, David Dunham[1] (who, along with Woodhull, is considered to be a "Father of Williamsburg"), purchased land in Williamsburg. He subsequently established the first steam ferry, donated land for the construction of a school, and lent money to fund the development of Williamsburg (Jackson 1995; Stiles 1869).

On April 14, 1827, the Village of Williamsburg was incorporated within the Town of Bushwick. At that time, it consisted of 23 farms, 10 of which extended to the East River shore. There were few buildings located within the village other than those associated with the farms. A shore road was opened in 1828 running between Division Avenue, (named such because it marked the original boundary between Bushwick and the City of Brooklyn), and Grand Street. This shore road was originally called 1st Street but later became known as Kent Avenue, named for Chancellor James Kent, an eminent NY jurist, who died in 1847. The following year, North 3rd and South 2nd Streets were constructed and the area between North 4th and Grand Streets became the center of the village (Bergoffen 2004). By that time, Williamsburg had established a post office and a fire company, wharves and docks had been built, new streets opened, and a new ferry established to Peck Slip in Manhattan. More than anything else, the new ferry contributed to Williamsburg's growth in both population and prosperity. Speculators were able to sell land far above its value and large tracts were purchased for improvement at a later date.

By the 1830s, Williamsburg had grown substantially. The *Plan of the Village of Williamsburgh Kings County*, drafted by D. Ewin and published in 1833 (Figure 7), depicts houses situated along North 2nd and North 3rd Streets, Kent Avenue south of Grand Street, and on the shore between Grand and South 2nd Streets. However, from this map it is clear that the project area had not yet been developed. In 1834, the 13th Ward, in which the project area was situated, was finally divided into lots.

The Great Fire of 1835, which destroyed hundreds of businesses in lower Manhattan and caused the financial crash of 1837 had a significant affect on Williamsburg because many of its residents owned property or worked in lower Manhattan. Recovery was slow to come: In 1840, shortly after the financial crisis, Williamsburg was reorganized as a township and between 1843 and 1845, the town and village of Williamsburg declared its independence from Bushwick. Economic improvement continued and by 1851, the Williamsburg Savings Bank, the Williamsburg Dispensary, the Division Avenue Ferry, and three new churches had been established. On January 1, 1852 a city charter was drawn up and approved by the Legislature. On January 1st, 1855, Williamsburg and Bushwick were annexed to the City of Brooklyn as the "Eastern District." The first ward of Williamsburg where the project area is located became Brooklyn's 13th Ward. By 1861, the 13th Ward, which spanned the area between Grand St. and Division Ave. from the East River to Union Avenue was nearly all developed.

As the economic recuperation continued, Williamsburg's waterfront began to attract heavy industry, including many sugar and oil refineries and iron and glass works (Bergoffen 2004). The location was ideal as the waterfront location allowed cargo to be loaded and unloaded

[1] It is interesting that privy fill associated with the 144 Pearl Street counting-house of David Dunham and deposited circa 1820, was recovered at the Barclay's Bank site located on Wall Street between Pearl and Water Streets in lower Manhattan (Louis Berger and Associates 1987). Objects included French and English wine bottles, stoneware beer or mineral water bottles, all of which he was presumably buying and selling, as well as more domestic items such as a washbasin, pitcher and chamber pot. These objects are now in the collections of the New York State Museum (Dallal October 11, 2007).

directly from factory docks and nearby railroads (Ibid). Some of the major industries which originated along the Williamsburg waterfront were Standard Oil, Domino Sugar, and Schaefer Beer and the jobs created by these new industries attracted many new residents to the area (Ibid).

Although a Williamsburg Bridge was first proposed in the New York State Senate in 1855 it did not open until 1903. This allowed greater interaction between Manhattan and Williamsburg, and contributed greatly to the neighborhood's growth and development throughout the 20th century.

B. THE PROJECT AREA IN THE 17TH AND 18TH CENTURIES

The first map to clearly show the project area is *Manatus op de Nort Rivier*, or the "Manatus Map," drawn by Johannes Vingboons circa 1665-70 but which depicts the New York City area in 1639 (Figure 5). Vingboons' map shows two structures constructed by European settlers just north of Wallabout Creek. The structure closest to the project area, labeled on the map as 36, represents one of two plantations owned by Wolfert Gerritsen and his partners. The structures labeled 37 represent the house and plantation of Joris Rapelje (Stokes 1916 II: 201).

On March 30th, 1647, Hans Hansen Bergen received a patent for approximately 400 acres of land on Long Island (Stiles 1867). This land was originally part of a larger purchase made by Governor Kieft on behalf of the Dutch West India Company in 1638. Kieft acquired the land from its original Native American occupants but it is debatable whether the Indians understood the European concept of "ownership" in perpetuity and this subsequently led to considerable conflict. The boundaries of Brooklyn's original plantations as granted by the Dutch are depicted in Figure 4 (Armbruster 1942).

Bergen's patent extended as far north as today's Division Avenue (Stiles 1867). To the north of this was a triangular parcel bounded by "the present Division Avenue, South Sixth Street, and the East River" which would have included the project area although much of it was still inundated by the East River at the time (Stiles 1869 II: 305). The patent was described as:

> *A certain piece of land lying on Long Island, on the East River of the New Netherland, near the Creek of Rinnegaconck, formerly occupied by Cornelis Jacobsen Still, containing 25 morgens,[1] bounded on the south in breadth by Jans Hansen,[2] the breadth of the said land appearing by the mark of the West India Company, cut in a tree, where it is bounded on the north by the East River* (Ibid).

The Dutch West India Co. granted this parcel to Lambert Huybertsen Moll on December 7, 1641. Moll had purchased it from Jacob Still (Stille) the previous month at which time it was described as a "house and plantation" (Ibid). The property passed to his son Reyer Lambertsen in 1646 (Bergoffen 2004: 7.6-7.7). The plantation Lambertsen inherited from his father was later known by the names of its various owners/occupants and has been called the Peter Miller Farm, the Berry Farm and Boerum's Woods.

The property, including the project area, was subsequently sold to Jacobus Kip circa 1667 and during his occupancy, a blockhouse was constructed "for the safety and defense of the Wallabout settlers, upon its high ground overlooking the East River, probably near its northerly

[1] Fifty acres.

[2] Jans Hansen (Bergen).

part, towards Kieke or Lookout Point" (Stiles 1869 II: 306)." The *Kieke*—also spelled *Kijkuit* or *Keikout*, meaning "lookout"—was a high bluff outside of the project area, along the line of present-day 4th Street. The blockhouse was erected here because the site commanded a wonderful view of the East River and surrounding lands from which to spot approaching danger. The bluff was leveled in the 19th century and used as landfill material to fill in swampy areas (Bergoffen 2004: 7.8).

After Kip's death, his heirs sold the property to James Jacobus (Jacob) Bobin who retained ownership until his death ca. 1741. It is not known how the land passed out of the Bobin family, however, a partition map drawn in 1769 by Englebert Lott[1] indicates that the property was in the hands of Abraham Kershow (Corson, Carson, Carshow, Cerchow) prior to 1761. Kershow subsequently passed the property on to his sons, Jacob and Martin, who were listed as the owners in 1786 (Stiles 1869). Martin Kershow took the southern half of the farm and Jacob the northern half. Jacob Kershow's portion was subsequently passed to Peter Miller in 1790.

The annotated 1766/67 Ratzer Map (Figure 6) shows the plowed fields, gardens, outbuildings and barns of 18th century Bushwick. The map also shows the land and small dock of Jacob Keepshow (sic) within or in the vicinity of the project area as well as Miller's farm which is located south of the "public landing" (probably South 7th Street).

C. PRISON SHIPS IN WALLABOUT BAY

A minimum of 16 prison ships were anchored in Wallabout Bay during the Revolutionary War. Records show that thousands of American, French, and Spanish prisoners of war were held by the British in these ships amidst abysmal conditions. The Bay's marshy surroundings made it an ideal place for anchorage because prisoners could not easily escape by swimming or wading. At the end of the war, the weathered bones of the dead, which had been shallowly buried along the Brooklyn shoreline of the Wallabout Bay, were exposed by the tides.

The first prison ship to be anchored in Wallabout Bay was the *Whitby*. She was anchored near Remsen's mill, on the western shore of the Wallabout Bay, in 1776 (*Brooklyn Daily Eagle* [*BDE*] 7/1/1886: 2). Remsen's Mill can be clearly seen on the annotated 1766/67 Ratzer Map (Figure 6). The *Jersey*, however, was the most infamous of the prison ships and she was also moored in the Wallabout, "nearly opposite the mouth of Remsen's Mill race" (Ibid). These ships and others can be seen on Johnson's Map of the Wallabout during the Revolution (Figure 19). Johnson, who lived near the eastern shore of Wallabout Bay, illustrates the *Whitby*, the *Jersey*, and three hospital ships; two were unnamed but the third is labeled as *Good Hope* and was shown to have been anchored closest to the project site. Hospital ships were little better than prison ships, although some provided better rations and a modicum of medical care. Other ships used to incarcerate prisoners-of-war during the war but not illustrated on Johnson's map were the *Stromboli*, *Prince of Wales*, *Scorpion*, *Hunter*, *John*, *Falmouth*, *Chatham*, *Kitty*, *Frederick*, *Glasgow*, *Woodlands*, *Schedt*, and *Clyde*.

Squalid living conditions, including contaminated water, lack of adequate rations, overcrowding, poor or non-existent sanitation measures, and disease led to many deaths—at least 8,000 prison-ship deaths were recorded. General Jeremiah Johnson in his *Recollections of Brooklyn and New York in 1776* said that it was common to see five or six corpses brought to shore for burial every morning. In describing the burials, he said:

[1] The section of the Lott map showing the project area was not available.

> *A small excavation would be dug at the foot of the hill, the bodies be cast in, and a man with a shovel would cover them, by shoveling sand down upon them. Many were buried in a ravine of the hill; some on the farm. The whole shore from Rennie's Point to Mr. Remsen's dooryard was a place of graves; as were also the slope of the hill, near the house (subsequently dug away by Mr. John Jackson, and whence he obtained the bones for the* 'Dry-bone Procession'[1]*); the shore from Mr. Remsen's barn along the mill-pond, to Rapelje's farm and the sandy island between the floodgates and the mill-dam* [see Figure 19], *while a few were buried on the shore on the east side of the Wallabout* (Stiles 1867: 350). *I saw the sand-beach, between the ravine (Little Street in 1867) in the hill and Mr. Remsen's dock, become filled with graves in the course of two months; and before the first of May, 1777, the ravine alluded to was itself occupied in the same way* (Stiles 1867: 334).

American poet, Phillip Freneau, himself a prisoner, described the horrific living conditions and the procedures used to dispose of the dead. According to Frenau, corpses were removed from the hold by the prisoners. As Freneau observed, "each day at least three carcasses we bore/and scratched them graves along the sandy shore" (Cray 2006: p.1). Many volunteered for these burial details so they could disembark, stretch their cramped bodies, and have exposure to fresh air and sunlight. While on shore they dug shallow graves; no prayers were said and there was no burial service. After the war, General Johnson recollected that the area was foul with the stench of the prison ships and corpses. He estimated that more than half the dead that had been buried on the "outer side of the mill-pond, were washed out by the waves at high tide, during northeasterly winds" (Stiles 1867: 350).

The exact location of these burials is somewhat difficult to determine. At least two maps depicting the Wallabout Bay area during the Revolutionary War period exist. The first is the aforementioned map drafted by General Jeremiah Johnson which depicts the Wallabout Bay from 1776 to 1783 (Figure 19), a copy of which was produced for publication within Stiles' 1867 *History of the City of Brooklyn, NY* (not pictured here). While Stiles' recreation of the map only depicts graves along the western shore of the Wallabout Bay, the original version may also depict graves[2] in three places along the northwestern and northeastern corners of the Bay, outside of the project area. The map also depicts the prison ships themselves as well as a "spring" where British ships watered on the opposite side of the Wallabout, opposite Abraham Remsen's farm and north of Wallabout Creek.

The other map of the area, entitled, *Map of Brooklyn at the Time of the Revolutionary War*, is also credited to General Jeremiah Johnson but was likely re-drawn by George Haywood and published in Valentine's 1858 *Manual of the Corporation of the City of New York*. This map is more of a sketch than a careful rendering of the map just discussed (Figure 20). It, too, depicts "prisoners (sic) graves" on the western side of the Bay in the vicinity of the mill pond but also on the eastern shore near "Bloom's House." The graves on the eastern side of Wallabout Creek near Bloom's House (which is south of Bloom's Point and south of what would later become Division Avenue) also suggest that human remains were also buried on the eastern side of Wallabout Bay, south of the project area.

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[1] The procession was a "parade" where the bones were taken for burial in a vault constructed for that purpose.

[2] The map's quality makes it somewhat hard to read, but it does appear to read "graves" in these locations.

In the years after the Revolutionary War, the remains of the prisoners who had been hastily and shallowly buried along the banks of the Wallabout could be seen scattered about the shore (Stiles 1867). The burials remained susceptible to the tidal erosion of the bay and "years later one minister described the site as being spewed with bones and skulls" (Cray 2006: 4). In 1785, a Connecticut Congressman, Joseph Cook, was attending a session of Congress — then held in New York — but had taken lodgings in Brooklyn near the Wallabout Bay. Upon taking a walk to the shore, he and others "were struck with horror at beholding a large number of human bones, *some fragments of flesh not quite consumed,* with many pieces of old blankets, lying upon the shore. In consequence of a representation made to Congress, they were soon after taken up and buried. But walking along the same place, not many days ago, we saw a number more which were washed out; and attempting to bury them ourselves, we found the bank full of them" (Stiles 1867: 363). During this period, several individuals attempted to bring "the exposed and neglected remains" to the attention of Congress and the general public (Ibid).

In 1791, nearly a decade after the War, John Jackson — a prominent politician and a Sachem of the Tammany Society — and his brothers purchased the Remsen estate on the western shore of Wallabout Bay for $17,000. The property at that time included a farm, dwelling house, and mill (known as Remsen's Mill).While making improvements to the property, large quantities of human remains were disinterred while "cutting away the high banks, which then formed the shore of the bay" (Stiles 1867: 363). The following year, the citizens of the town of Brooklyn resolved at their annual town meeting that the bones should be disinterred and collected by Jackson, after which they would be "buried in the graveyard of the Reformed Dutch Church and a monument erected over them" (Stiles 1867 I: 363-364). A committee was appointed to carry out this resolution, but Jackson instead offered a piece of land on his property for the construction of a burial vault to hold the remains (Ibid). Because of Jackson's political clout, the Tammany Society felt pressure to accept his offer. In 1803, the Society asked a Brooklyn litigator, Dr. Samuel L. Mitchell, to prepare a case for a memorial that would be presented to the U.S. House of Representatives, although nothing came of this effort. The reburial never took place, the memorial was not built and by 1808, there were "upwards of thirteen hogsheads[1]" of bones that had been collected and stored in Jackson's vault (Ibid).

In 1808, the Tammany Society "proceeded to take immediate steps towards effecting the long-talked-of and long-neglected sepulchre" (Stiles 1867 I: 364). In April of that year, the Wallabout Committee of the Tammany Society laid the cornerstone of the vault which was located on land donated by John Jackson, then called Jackson Street, adjoining the Navy Yard (Ibid). Although talk of a more permanent monument in a different location persisted, the bones remained where they were in the vault on Jackson's property. When regrading Jackson Street some time later, "the walls of the vault were infringed upon" and then "the very lot on which it stood was sold for taxes" (Stiles 1867 I: 371). Benjamin Romaine, a former prisoner of war who had been Treasurer of the prison martyrs fund of 1808 which had been established in an attempt to raise funds for a national monument, eventually purchased the lot. He "erected an ante-chamber over the vault "and added other appropriate adornments and inscriptions" (Ibid). Eventually, the human remains from Wallabout Bay were interred in the vault. In 1873, the bones were re-interred with great ceremony in Fort Greene Park.

[1] A hogshead is a large barrel or cask with a volume or capacity ranging from 63 to 140 gallons. A standardized hogshead measures 48 inches long and 30 inches in diameter.

In 1883, an additional shipment of human remains was brought to Fort Greene where they were placed in the "martyrs' tomb" (*BDE* 2/24/1883: 4). The remains had been "buried in the Navy Yard, where they were unearthed [In February 1883] while men were engaged in digging out a sewer. Most of the skulls were broken, and it would be hard to tell what part of the body the bones represented. Without any ceremony the box was again nailed up and placed in the vault, where it will lie undisturbed" (Ibid).

In January of 1900, at least a dozen more skeletons were unearthed at the Navy Yard by workmen digging a cellar for a storehouse extension to "the big building along the Navy Yard wall near the Wallabout channel" (*BDE* 1/24/1900: 1). The soil was sandy and the digging was easy, they proclaimed, and "in each case the bodies had been laid with the feet toward each other, parallel with the waterfront, and about three or four feet below the surface" (Ibid). In March of that same year, the remains of seven more prisoners-of-war were found by workers digging the foundation for a new storehouse at the Navy Yard. These "bones were found about fifty feet nearer the Wallabout channel waterfront than those unearthed a few months ago" reported the *Brooklyn Daily Eagle* (3/24/1900: 2).

On June 16, 1900, the National Guard, Army, Navy, and Marines were represented at the public interment of the remains of the "Martyrs of the Revolution" found at the Brooklyn Navy Yard. The Governor and the Secretary of the Navy were present as well. The remains were first taken to Plymouth Church where there was a memorial "service and then a procession consisting of the armed services and other organizations was organized to accompany the remains to Washington Park where the old tomb on Fort Greene where the bones of the other prison ship martyrs was located. The new bones were placed in the tomb with the old" (*BDE 6/5/1900: 20*).

Two years later to the day, a bill appropriating $100,000 for the erection of a monument to the prison ship martyrs in Fort Greene Park passed the House of Representatives. Captain P.F. Harrington, who was stationed at the Navy Yard, reported to Admiral Barker that "a lot of human bones were exposed" during excavations in the yard (*BDE* 6/19/1902: 5). Barker then wrote to General Horatio C. King, who asked that the bones "be carefully cared for pending a consultation with the officers of the association, who would doubtless provide a proper casket and have the bones deposited in the martyrs tomb" (Ibid). The bill awaited ratification by the Senate.

The monument to the Prison Ship Martyrs was designed by McKim, Mead and White, and erected in 1908 by the "Society of Old Brooklynites." The dedication was attended by President William Howard Taft. The monument, a 198 foot column, still towers above the tomb.

Nearly a century later, an excavation took place on a triangular lot at the corner of Hudson Avenue and Front Street in the Vinegar Hill section of Brooklyn. A group of preservationists believed that the remains of some of the prisoners from the prison ships might be buried beneath the ground. They also thought it was possible that remnants of the Tomb of the Martyrs, the "1808 monument that included an underground crypt" was still extant (O'Grady 2003: B1). The crypt once held 13 coffins which contained the remains of hundreds of prisoners of war who had died on the prison ships in Wallabout Bay.

Although the human remains had been removed to Fort Greene Park in 1873, archaeologist Joan Geismar, along with the preservationists, thought that it was possible that some of the human remains might have been left behind when the burial ground had been disturbed. When a developer applied for City permits to construct a three-family house on the site, New York City Landmarks Commission chairman Robert B. Tierney persuaded the developer, Saul Cheung of

the Vinegar Hill Group, to delay construction long enough for the concerned group to excavate the site. A $2,500 emergency grant from the J.M. Kaplan Fund, allowed the preservationists to hire a backhoe and operator and excavation began on Nov. 12, 2003 (O'Grady 2003). As part of the archaeological investigation of the property, the backhoe dug a trench eight feet deep and although no human remains were recovered, Dr. Geismar believed that they had found a remnant of the original wall of the crypt as well as "post holes for a decorative fence that once flanked a wooden antechamber built above the tomb in 1839" (Ibid).

D. THE PROJECT AREA IN THE 19TH CENTURY

The property that contained the project area was that parcel passed by Jacob Kershow to Peter Miller in 1790. Peter Miller died in 1816, and his estate was divided between his sons. The northern half was inherited by Miller's son David, who subsequently sold it to Daniel S. Griswold, and the southern half was inherited by Miller's other son, John. In 1823, John P. Miller sold his parcel to Abraham Meserole. What had been Martin Kershow's farm was sold in 1820 to Jacob Berry and the farm was thereafter known as the Berry Farm. This property was laid out in lots in 1828 (Stiles 1867).

Kent Avenue—originally called Shore Road and later 1st Street—was formally laid out along the shoreline of the East River in 1828. Ewin's 1833 map (Figure 7) shows that in addition to Kent Avenue, South 10th and South 11th Streets had also been laid out and extended beyond Kent Avenue into the project area. This suggests that that either some landfilling had taken place or that docks, piers, and/or wharves had been constructed there, possibly on piles. The map shows a dock jutting out at an angle from the foot of South 11th Street into the East River. This is probably a new dock and not the dock illustrated by Ratzer in 1766-1767 where it is noted as Jacob Kershow's dock south of the "public landing." The 1833 Ewin map also depicts a structure outside of the project area, at the corner of 1st and South 10th Streets. It is likely that this is the Jacob Berry residence, which was located between South 10th and South 11th Streets (Armbruster 1942). Unfortunately, the map does not depict the area to the south of South 11th Street and therefore does not show the southern portion of the project site.

A stone pier was constructed at the foot of South 10th Street and from that pier a rough wagon road extended along the line of Division Avenue and Broadway to the Jamaica Turnpike (Armbruster 1942). A U.S. Coastal Survey Map (not illustrated here) dating to 1844 is nearly identical to Ewin's 1833 map but indicates that Division Avenue (the southern boundary of the project area), had not yet been laid out. It also shows that the portion of the project area south of South 11th Street was composed of marshy ground. Similar to Ewin's map and probably more accurate, the coastal survey also depicts a dock jutting out into the river west of Kent Avenue and just south of South 11th Street. It is unclear if this is the same dock seen in Ewin's map or if a new dock had been constructed at the foot of what would become eventually become Division Avenue. The map notes that the water at the head of the dock was 20 feet deep at the time.

Isaac Vieth's 1845 *Map of the Village of Williamsburgh showing each lot of ground in said Village with Assessment numbers of each lot* (not illustrated) strongly suggests that a significant amount of development had occurred. The area along the shoreline west of Kent Avenue within the project area had been divided into lots. Although the map is somewhat illegible, it can be determined that there were eight lots within the project area between South 10th and South 11th Streets but only six lots between South 11th and modern Division Avenue. Similar to the 1833 Ewin map, however, the 1845 map ends at this point.

By the time the 1850 Dripps map (not illustrated) was issued, the project area had been extensively docked out and/or partially filled in, especially the southern half of the project area, south of the former line of South 11th Street (historically known as Block 2158). This new land, and/or docking area, stretched towards the East River from the original shoreline. The northern half of the project area (historically known as Block 2154), located between South 11th Street and South 10th Street was less developed. The 1850 map shows that horse car tracks had been laid along Kent Avenue to carry passengers to the ferries and the more populated areas of Brooklyn. Although not illustrated on any contemporaneous mid-19th century maps, at least two bath houses were located along the shore of the East River: Frederick Hoeft's Salt Water Baths at the foot of South 9th Street and Captain Cracke's Bath House within the project area along the beach near the foot of South 11th Street (Armbruster 1912, updated 1941).

Field's 1852 Map of Brooklyn (Figure 8) reveals that the project area between South 10th and South 11th Streets had been partially filled in and outfitted with slips and docks. The area along Kent Avenue between South 11th Street and Division Avenue—which was approximately half the length of the portion of the project area to the north of South 11th Street—had also been partially filled in but was not yet developed. The map labels the area between South Ninth and South Eleventh Streets, "Berry's Docks," in honor of the man who originally owned the land. In addition, a slip is also depicted at the foot of South 10th Street, just north of the project site.

By the time of the issuance of the 1855 Perris Atlas (Figure 9), the block between South 10th and South 11th Streets had been developed. That map indicates that the northern portion of the block was occupied by *Kaylor & Brothers Lime and Brickyard* and *Robert White's Coal Yard.* Wooden stables, lime and coal sheds were scattered throughout the lots within the APE. It is likely that these were one-story structures without basements. None of these businesses could be located in historic city directories, nor could tax assessments or building records for this year.

The 1855 Perris Atlas also revealed that there were several additional businesses operating within the southern portion of the block: a *Packing Box Manufactory, S.B. Terry's Lime & Brickyard,* and a *Lumber Yard.* Although Division Avenue was still not in existence, South 12th Street had been constructed south of the project area. Some development had also occurred along the waterfront and structures are depicted on the 1855 Perris map between South 11th and South 12th Streets in the vicinity of Division Avenue's eventual location, within the APE. It is possible that these structures represent the Moller, Sierck & Company Sugar Refinery, although the area is not identified as such in 1855. The 1869 Dripps map (not pictured here) suggests that the refinery was located in the area between Division Avenue and South 11th Street. This seems to confirm the earlier (1855) Perris data. However, Bromley's 1880 atlas (Figure 11) places the refinery south of Division Avenue. To confuse things further, the 1873 Brooklyn City Directory lists Moller, Sierck, Henken & Co., "steam sugar refiners," on Kent Avenue near South 9th Street, one block north of the project area.

Another Perris Atlas dating to 1858 (not illustrated here), shows that George Law's "10th Street Ferry" was operating from the foot of South 10th Street. Law had started the line between South 10th Street and James Slip in Manhattan in 1857 in an attempt to compete with the Peck Slip Ferry running from the foot of South 7th Street. To attract customers, Law reduced his ferry's fare from 4 cents to two cents. The owners of the Peck Slip Ferry took up the challenge and by the time the fare had been forced down to 1 cent for a round trip passage, the two ferries had consolidated. During the Civil War, Law's ferry boats were sold to the government after which they were clad with iron and armed. These vessels—the *Commodore Perry, Commodore*

Barney, and *Ethan Allen*—were sent south to patrol the southern rivers. When the war was over, the boats were put back into service ferrying passengers between Brooklyn and Manhattan.

Dripps' 1869 Map (not illustrated here) shows a slightly different configuration of the land within the project site. Dripps reveals that the northern half of the project area, between former South 10th and South 11th Streets, was occupied by a stave yard and a small building at the corner of Kent Avenue and South 10th Street. The block itself had been only partially filled in, taking the shape of an upside-down "T." At the foot of South 10th Street was a ferry with oval-shaped slips/docks on both sides of the street. Conveyance records show that up until this time the property had been owned by the New York and Brooklyn Ferry Company (Appendix A). A building, probably the ferry house, was also located at the foot of South 10th Street.

The 1869 map shows that the southern part of the project site, between South 11th and Division Avenue, is as wide as it was in 1855 and that South 12th Street had been removed and Division Avenue had been cut through in its place. This suggests that the structures shown between South 11th and South 12th Streets on the 1855 map which might have been associated with the sugar refinery (if it was ever there) might have been demolished with the installation of Division Avenue Street through to the East River.

Hopkin's 1880 Map (Figure 10) shows the existence of a gas works within the northern half of the project area, at that time called Block 2. Eight structures were located on the property including a gas holding tank, or gasometer. Although not labeled as such on Hopkins' map, this was the People's Gas Light Company, a manufactured gas plant. Bromley's 1880 atlas (Figure 11) provides a bit more detail and depicts three of the buildings in the southwest corner of the block as stables or sheds. However, a building illustrated in the middle of the block on the Hopkins Map is not depicted by Bromley.

Within the southern half of the project area, formerly known as Block 1, Hopkins illustrates a stave yard with a large shed. Bromley also depicts the stave yard, but also shows *Oscar King's Distillery* within the project area at the corner of Kent and Division Avenues. King was listed in historic directories dating to 1878 and 1879 which show that he owned a distillery on "Kent, [at the] corner of Division Street." In addition to the distillery, the southeastern portion of the block is depicted as having been lined with a number of structures identified as sheds or stables. With the exception of one large brick building clearly associated with the distillery, it is impossible to tell if the other sheds and stables belonged to the stave yard or the distillery. It is possible that the stave yard was used to hold the barrel staves which were used to make barrels for the products made at the distillery or the area's sugar refineries.

In 1885, 1st Street was made part of Kent Avenue in the vicinity of the project area (Armbruster 1942). At that time, the house numbers along Kent Avenue changed considerably (Ibid).

As seen on the 1887 Sanborn Map (Figure 12), the *Peoples (sic) Gas Light Co.* was still in operation but the map also clearly states that the property was "used for storage only." Buildings and other structures associated with the gas company included a retort house "used for storing oil" as well as a large "gasometer' for storing gas. There were also three separate tanks used for the storage of iron, coal, and oil on the west side of the block near the river, a two-story stable, a coal shed, a place for the storage of empty barrels, and a purifying house along South 11th Street. Offices were located at the corner of modern Kent Avenue.

The southern portion of the site, now bounded by Division and Kent Avenues, the East River and South 11th Street, is depicted on the 1887 Sanborn (Figure 12) as having been occupied by the Mollenhauer & Sons Storage Yard (used for storing molasses). At this time, Mollenhauer

was actually producing the Molasses in his manufactory along the waterfront south of Division Street and outside of the project area. Within the project area, a garbage dock was located along the riverfront and a large stable was located at the corner of Division and Kent Avenues. A large wagon shed filled with horse-drawn wagons was situated along Kent Avenue. A set of tracks in the center of the southern half of the project area that ran perpendicular to Kent Avenue may have functioned as some sort of transporting mechanism.

Tax assessment records (Appendix B) indicate that the northern portion of the project area (formerly Block 2) was owned by the Mollenhauer Sugar Refining Company and show that the property had been assessed for $150,000. The property consisted of one lot, Lot 1, and was 202.8 by 365 by 203 by 363 feet in size. The 1898 Belcher Hyde Map (not illustrated) shows a single brick building covering about a third of the property which tax assessment records indicate was a three-story brick building measuring 100 by 200 feet. Belcher Hyde also shows that South 11th Street had been landfilled to nearly its full extent, while the foot of modern-day South 10th Street is still under water.

On September 22, 1896, the *Brooklyn Daily Eagle* reported that the annual meeting of the Mollenhauer Sugar Refining Co. had taken place at its offices at Kent Avenue and South 10th Street. At the meeting, the reelected officers were John Mollenhauer, president and general manager, J. Adolph Mollenhauer, secretary and Frederick D. Mollenhauer, treasurer. More important, the paper also reported that ground had been broken the previous week for the construction "on the river front north of the present refinery," a two-story storage warehouse which would stretch "along the entire length of the dock, 200 feet" (*BDE* 9/22/1896: 3). Because Hyde's 1898 map shows the refinery on the southern portion of the project site, it can be assumed that the new construction was to take place in the northern portion of the site in the former location of the Peoples Gas Light Company. The paper reported that the fireproof building would be 100 feet deep and 45 feet high with iron columns surrounded by brick and steel beams and girders, as well as "arched floors" and "an arched roof" (Ibid). In front of the proposed warehouse would be a new 22 foot-wide "string piece and bulkhead" to be built by James D. Leary in order to replace outdated docks which were no longer sufficient for the sugar company's loading and unloading needs (Ibid). The new construction would result in an approximately 253 by 200 foot vacant space along Kent Area and the sugar company had no immediate plans for its development (Ibid). The paper further reported that "the property was bought about three months ago from the Brooklyn City Gaslight Company by the Mollenhauer Sugar Refining Company for $325,000" (Appendix A).

As mentioned previously, the southern portion of the project area between Division Avenue and South 11th Street was the location of the refinery and is so labeled by Hyde in 1898 as the Mollenhauer Sugar Refining Co. The brick refinery building occupied almost the entire block which at that time was composed of two lots, 1 and 2. Hyde shows that the original water line bisected the two lots suggesting that Lot 1 was constructed upon the original fast land which was undoubtedly leveled and filled, while Lot 2 was part formed of made land within the East River. Lot 1 is shown to have been 132 by 315 feet which corresponds to tax assessment records from 1899 (Appendix B). Lot 2 is depicted as being 115.5 by 184 feet, which also corresponds to 1899 tax records. The entire block was assessed at $250,000.

Although Hyde shows a single large building on the property, tax assessment records from 1899 suggest that Lot 1 known as Lot 132, contained two structures—one an 8-story building measuring 75 by 75 feet and the other an 8-story building measuring 75 by 60 feet. Lot 2, is described in those tax records as measuring 115.5 by 174 feet in size and containing two

structures—one a 4-story building measuring 46 by 46 feet and the other a 2-story building measuring 75 by 76 feet.

Although Hyde's 1898 map does not depict this configuration of four buildings on Lots 1 and 2 within the southern portion of the project area, as described in the 1899 tax assessment records, it is possible that the single large brick building illustrated on the 1898 Hyde map was demolished to accommodate four new structures by the time tax assessments were made in 1899.

E. THE PROJECT AREA IN THE 20TH CENTURY

A Belcher-Hyde map dating to 1904 (Figure 13a) depicts a three-story brick storage building that hugged the shoreline within the northern half of the project area. Located between South 10th and South 11th Streets, this building appears to be identical to that illustrated on the 1898 Hyde map. The block, formerly referred to as Block 2 is now referred to as Block 2154 (Figure 13a) in 1904, while the southern half of the project area, formerly Block 1, located between South 11th Street and Division Avenue had been renamed Block 2158 (Figure 13b). The 1904 Belcher-Hyde map (updated through 1912) provides details about the Mollenhauer refinery, now known as the American Sugar Refining Company. What appeared on the 1898 Hyde Map as a single structure, can now be seen as a group of predominantly multi-story brick structures of 1, 2, 3, 8, and 11 stories. Tax assessment records from 1899 indicate that Mollenhauer was assessed for only two buildings on the site: one 8-story structure measuring 75 by 75 feet and the other a 9-story structure measuring 75 by 60 feet (Appendix B). This suggests a period of intense development between 1899 and 1904.

By 1918, the National Sugar Refining Company of New Jersey owned/occupied the entire project area (Figure 14). The company began as a consortium of refineries that banded together at the turn of the century to offset the sugar trust controlled by Havemeyer, the largest refining company in Williamsburg. Havemeyer, whose refinery was situated along the waterfront a few blocks north of the project area, was purchasing small plants and closing them down, thus concentrating its forces in various cities. The National Sugar Refining Co. included the Mollenhauer Refining Co. at Kent Ave. and South 10th Street, the Arbuckle sugar refinery in Brooklyn, and Doscher's sugar refinery in Long Island City (*BDE* 12/10/1901). The *Brooklyn Daily Eagle* stated in 1901 that the Mollenhauer's Williamsburg plant had only been in operation for a few years and because of its modern machinery it required only a compact space; the refining factory covered about a block and the storage house another block (Ibid). That same year, Havemeyer reduced his prices for refined sugar which was a blow to the National Sugar Refining Co. Because of this, Mollenhauer shut down its Williamsburg plant but continued refining sugar in its Long Island City and Yonkers plants. It was the Williamsburg plant, however, that had furnished the bulk of the sugar traded within New York State.

The Sanborn insurance map from 1918 (Figure 14) depicts a 2 ½ to 3-story storage warehouse hugging the waterfront on the western side of the block within the northern portion of the project area (Block 2154) while the rest of the block is shown to have been vacant. One portion of the warehouse contained a "gallery" on the first floor while the other side of the building was used for storage. The slip/dock at the foot of 10th Street was still in use at that time.

The 1918 Sanborn map moreover shows that the southern half of the project area (Block 2158) also contained buildings and structures associated with the sugar refining business. Several 2-story workshops were located at the corner of Division and Kent Avenues and a 1-story shipping office with a basement and business offices were located along Kent Avenue. A building called

the *refinery* stood at the southwest corner of Kent Avenue and South 11th Street, while *monitor, bone black,*[1] *kiln* and *coal storage* structures were located along South 11 Street. There was also a four-story wash house in the middle of the block, a coal conveyor on posts along the river side leading to the coal storage areas, and finally, a *Molasses Tank* on the south side of the project area near Division Avenue. Furthermore, "the Sugar Refining Co. indicated [that] several horizontal steam tanks [are situated] on the property" (AKRF 2004: 7).

The 1929 Belcher-Hyde Map (not illustrated here) shows that the South 10th Street slip/dock had been filled in and extended almost to the official bulkhead line. At this time, the entirety of the southern half of the project site was occupied by the South 11th Street Warehouse Corporation. The block was filled with two and three-story brick and frame buildings, some marked 'M' for manufacturing. Another large warehouse was located on Division Avenue at the corner of Kent Avenue and a one-story brick building was situated along the waterfront.

In 1929, maps show that the northern half of the project area contained a single, one-story brick warehouse along the waterfront. It is possible that the warehouse belonged to the Warehouse Corporation which owned the block to the south or to the F. & M. Schaefer Brewing Company which occupied the block to the north.[2] A boat house once located on South 10th Street was no longer there in 1929; it was probably demolished as a result of the filling in the slip. Finally, a frame building on was situated on South 11th Street at the water's edge.

The 1935 Sanborn Map (Figure 15) shows that the northern half of the project area (Block 2154), bounded by South 10th Street on the north, the pier and bulkhead line on the west, South 11th Street on the south, and Kent Avenue on the east contained a single three-story warehouse owned by the South 11th Street Storage Warehouse Corporation and was at that time being used for storage. This building, located along the waterfront, appears to have the same dimensions as the building depicted on the 1929 Belcher Hyde map. The rest of the block was vacant at this time.

The 1935 Sanborn shows that the southern half of the project area (Block 2158) was also owned by the South 11th Street Storage Warehouse Corporation. Numerous interconnected storage areas, offices, shipping areas and workshops covered most of the block. The configuration of the building(s) is identical to that seen on the Sanborn map of 1918, although the refinery equipment is no longer depicted. The map also shows that South 10th and South 11th Streets were still through streets at this time and a slip was located at the foot of South 10th Street.

In the time between the publication of the Sanborn maps of 1935 (Figure 15) and 1950 (Figure 16), South 11th Street was de-mapped and the latter map shows that it no longer bisected the project area into northern and southern halves. The map also indicates that the project area was occupied by the F&M Schaefer Brewing Co., which also owned the brewery to the north and two contiguous blocks on the east side of Kent Avenue outside of the project area. Within the Rose Plaza project area was Schaefer's *South Garage* which featured a concrete ramp that had

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[1] The charring of bone was part of the sugar refining process and the 1877-78 Brooklyn City directory listed a "boneburner" named John Moller as living in the sugar refining district at 251 South 1st Street. It is probable that he is related to the Mollers, of Moller, Sierck, Hencken & Co. and was possibly an early occupant of the project area or at least its immediate vicinity. Moller & Sierck was located at 502 Kent Avenue in 1890, and in 1887 they were shown between Rush and Division Streets in the very area where Mollenhauer Refining Co. began.

[2] F&M Schaefer built a brewery at South 9th and Kent in 1915-1916.

been rebuilt to code in 1939 and was now of fire proof construction with concrete floors, concrete columns, steel trusses and 8 skylights. A concrete ramp for traffic to the second floor was attached to the east side of the building. Along Kent Avenue, north of the former line of South 11th Street, was a bottling house built in 1940. Adjoining the bottling house was a place for case storage built 1945. The map shows that the building was one long interconnected structure with a conveyor that transported cases to the bottling house to the north.

No changes are apparent within the project area—still occupied by the F&M Schaefer Brewing Co.—on the 1965 Sanborn Map (Figure 17) with one exception: the area depicted on the 1950 Sanborn as an open space between the two buildings was now used as a place for truck loading. In addition, a parking area is depicted to the south of the case storage warehouse. Two small additions had been constructed on the south side of the case storage warehouse, one of which is shown to be an open elevator, possibly for freight. The function of the other structure to the south east is unknown though it may have been a loading dock. In addition, an additional conveyor had been constructed across Kent Avenue to connect the bottling house to Schaefer's packaged goods warehouse. The brewery had expanded over much of the surrounding area and by 1965 covered not only the project site, but adjacent properties to the north and east as well.

By the time of the publication of the 1979 Sanborn map (Figure 18), former Blocks 2158 and 2154 had been combined into Block 2134. By that time, Schaefer's south garage was being used for manufacturing. As previously discussed, the original building, constructed in 1939, had been updated with an extension added in 1979. The 1979 Sanborn map has the phrase, 'Not in Operation' written across the middle of the block, and on the block directly to the north. This suggests that the Schaefer Brewery was no longer in operation by this time. The 1986 Sanborn is identical to the 1979 map and current Sanborn maps show a similar configuration of buildings, although some structures along the northern boundary of the project area appear to have been removed.

F. PREVIOUSLY CONDUCTED CULTURAL RESOURCES INVESTIGATIONS IN WALLABOUT BAY

Several archaeological studies took place within the boundaries of the Brooklyn Navy Yard, located west of the Rose Plaza site (Greenhouse 1990, Geismar and Oberon 1993, 1995, and 1996). Greenhouse Consultants conducted a sensitivity evaluation in 1990 for "water pollution control expansions including the Red Hook Water Pollution Control Plant's new dewatering facility on the northwest side of the Brooklyn Navy Yard." Their research indicated that the plant location was originally composed of swamp and mudflats under Wallabout Bay, and was subsequently covered by landfill. The area was further disturbed by construction activities. As such, no further archaeological work was recommended (HPI 2005:20; Greenhouse 1990). Several years later, Phase 1A and 1B studies were undertaken for a proposed cogeneration facility within the former Brooklyn Navy Yard (Geismar and Oberon 1993, 1995, 1996) "Although the Phase 1A archival research indicated the potential for recovery of cultural materials within the landfill, borings excavated as part of the Phase 1B study revealed only redeposited artifacts within the fill soil. Therefore, no further archaeological work was recommended" (HPI 2005:20; Geismar and Oberon 1995, 1996).

As part of the Brooklyn Navy Yard Base closure and disposal process for Naval Station (NAVSTA) Brooklyn, New York, the Department of the Navy conducted historical documentation of the Naval Hospital Cemetery which occupies approximately 1.7 acres in the eastern portion of the Naval Yard. The cemetery "served as the official burial ground for the

Naval Hospital from 1831 until the cemetery's closure in 1910" (U.S. Navy [TAMS and Geismar] 1999: S-1). The Navy disinterred burials from this cemetery in 1926 and re-interred them in Cypress Hills National Cemetery (Ibid). Three cultural resource evaluations of the cemetery were undertaken and resulted in the following:

- The first study provided an initial historic background and concluded that the cemetery had been disturbed and had a low potential for archaeological sensitivity (U.S. Navy 1994).
- The second determined that although there was no African burial ground present on the site, further studies should be performed to address issues such as discrepancies in burial records (U.S. Navy 1997a)
- The third evaluation, a field survey using ground-penetrating radar (GPR), was conducted in July 1997 and resulted in the discovery of a possibly intact burial" (TAMS and Geismar 1999: S1, U.S. Navy 1997b).

Subsequent to these studies, the Navy undertook another study, *State of the Research, Naval Hospital Cemetery Historical Documentation, Naval Station Brooklyn, New York* (TAMS and Geismar 1999) to determine the greatest extent possible, the number, name, and rank of any burials at the cemetery that were not documented as being removed. Although human remains have been found in the Navy Yard in recent years, none of these burials are believed to be "prison-ship martyrs." ✷

A. DATA DERIVED FROM PREVIOUS ENVIRONMENTAL ANALYSES

In January 2004, AKRF was retained by Certified Lumber to perform a Phase 1 Environmental Site Assessment of the project site, Block 2134, Lots 1 and 150. The objective of the assessment was to identify any potential environmental concerns resulting from past or current usage of the site. As discussed in the previous chapter, the project area had more than a 100-year old history of primarily industrial and manufacturing usage. Sanborn maps indicate that a manufactured gas plant (Brooklyn Union Gas, People's Gaslight Company) occupied the project area circa 1880 through at least 1887. *Hazardous Substance Waste Disposal Site Study* listings were identified within a one-mile radius of the project area, which included a listing for Brooklyn Union Gas, People's Works formerly on the project site. The listing indicated that a coal gasification plant was operational on the project site from ca. 1871 to 1895 and that when the plant was decommissioned in 1895, all remaining coal tars were removed and the facility was razed. Soil contaminated with hydrocarbon tar was noted as a potential threat to the environment.

Other historical manufacturing uses for the subject property included a stave or lumber yard, a molasses storage yard, a sugar refinery, a storage warehouse, and the F&M Schaefer Brewing Company Bottling and Case Storage House.

During a site inspection, several small metal plates were identified in the basements of several buildings currently situated on the project site. In addition, a metal plate was noted in the paved area to the south of the buildings. These may be associated with underground storage tanks (USTs). Several patched areas were visible in the pavement and these might be associated with present or past USTs in the project area. A Phase 1 Environmental Site Assessment Report prepared by Middleton Environmental, Inc. (Dec. 19, 2002), identified a fill cap on the south side of the three-four-story building on the project site. It was not observed during the site inspection by AKRF. A representative of the property owner had no knowledge of current or former tanks on the property and a review by AKRF of the State regulatory records in 2004 did not indicate the presence of any USTs on the subject property. As indicated in the 2004 Phase 1 report, no fuel (heating) oil or gasoline storage tanks were recorded in New York City Fire Department records for the address 430-480 Kent Avenue. The Brooklyn Department of Buildings records were not reviewed as part of the environmental assessment. It should be noted that a search for the building records for the purposes of this Phase 1A archaeological study found that all records, except those for elevators, were missing from the Department of Buildings files.

Hydraulic lifts associated with two garage bays on the southern side of a large structure located on the property and freight elevators located in several structures were also identified during the 2004 site inspection. There was also a utility-owned transformer vault on the Kent Avenue sidewalk outside of one of the structures.

B. SOIL BORINGS

Soil borings (Figure 21) were conducted to a depth of 20 feet unless there was refusal. Groundwater was typically encountered between approximately 7 feet and 11 feet below ground surface (bgs), but was variable throughout the project area. Gray organic silt (indicative of the original marshy areas) ranged in depth from approximately 10 to 15 feet bgs. Wood was found in several of the borings at approximately 8.5 to 11 feet bgs, with the exception of SB-4 (at the southern end of 3- to 4-story warehouse with basement), where it was located at 6 to 7 feet bgs. It is possible that the wood represents early pilings, docks or wharves.

The soil borings also indicated that most areas of the site had been disturbed to a depth of between 5 and 20 feet bgs with the exception of the following three areas:

- **Soil Boring #SB/MW9**: located at the westernmost boundary of the site near the location of a demolished coal shed. At this location there were 6 inches of concrete and then fine gravel, sand, and silt to 6.5 feet;
- **Soil Boring #SB 7/8**: located in the area of a demolished building attached to what was once a coal shed and is now near the present Truck Loading area. This boring indicated the presence of only two feet of fill (coal, slag, brick and concrete); and
- **Soil Boring #SB 4**: located within the southern portion of the 3- to 4-story warehouse that has a basement. This boring sample contained 6 inches of concrete followed by 30 inches of fine brown sand and silt, followed by 6 inches of landfill containing wood and dark brown sand and silt, followed by sand and silt to 20 feet bgs.

There are also areas where brown organic silt was identified (soil borings SB-14, SB-6, SB-4, possibly SB-1 and possibly SB 7/8) which suggests that foreign soil had been brought in for landfilling and/or leveling purposes.

C. SUBSURFACE UTILITIES

Adequate water supplies were always a problem for Brooklyn residents and the city attempted to solve this problem by constructing public cisterns in various locations in 1854-55 and 1857 (Bergoffen 2004: 19-20). In 1856, the Nassau Water Company "began the excavation of a reservoir in present-day Prospect Park" (Stiles 1869 II: 422 in Bergoffen 2004: 20). Two years later, water from the reservoir was "introduced into the city mains" (Stiles II: 429 in Bergoffen 2004: 20).

A Board of Sewer Commissioners was instituted in 1857 to develop and institute "a plan of drainage and sewerage for the whole city" (Stiles 1869 II: 428). Actually, by the early 1850s, "the city council had ...authorized construction of sewers on main thoroughfares" but these sewers were "meant exclusively to carry storm water" (Bergoffen 2004: 20). Once the water system was completed, a sewer plan was adopted and sewer construction in the 1st, 3rd, 13th, and 14th wards was underway. Because some of the early books in which sewer permits were recorded are missing, one can only say that sewer connections were probably made after 1859 and prior to 1867. This latter date is the earliest date in the earliest extant volume of Brooklyn permits.

Water and sewer lines are first depicted running through Kent Avenue and the streets to the east, outside of the project area, on Hopkins' 1880 map (Figure 10) although their installation had occurred much earlier. A 6-inch water main was likely installed within Kent Avenue circa 1858, it passed inspection in 1860 (Greenhouse Consultants 1994) although it was replaced by a larger,

12-inch water main by 1867 (Greenhouse Consultants 1996). Sewer service was also operational by ca. 1860, although the majority of sewer connections date to the late 1860s Bergoffen (2004). However, houses and other buildings were not always connected to the water and sewer lines because it was not mandatory and property owners were required to pay for the hook-ups themselves.

In 1894, the *Brooklyn Daily Eagle* (*BDE*) reported that the largest sewer in the Eastern District ran under Division Avenue and emptied into the Wallabout Channel, immediately south of the project area (*BDE* 4/29/1894). There is currently a Solid Waste Facility at the foot of Division Avenue, just outside of the project area. Construction demolition debris landfill was identified in the listing at that location in one of the environmental reports (AKRF 2004). ✳

A. CONCLUSIONS

The archaeological potential of the Rose Plaza on the River project area was evaluated through a review of documentary and cartographic resources, relevant cultural resource studies, and contact with professionals knowledgeable of the region. Except for its eastern edge along Kent Avenue, the project area consists of landfill constructed into the East River. As summarized in greater detail below, the project area was found to possess low sensitivity for prehistoric resources and medium potential for the presence of historic resources, specifically, landfilling features associated with the transformation of this property into an industrial area during the mid-19th century. Landfilling began sometime between 1833 and 1852 and was completed by 1880 when the project area had essentially achieved its current form. From the 1850s until the present day, the Rose Plaza on the River project area has been the site of a series of industrial facilities and warehouses. Although more recent intensive development would have thoroughly destroyed the archaeological integrity of earlier industrial resources, the subsurface landfilling features that were used to create this industrial site are still present and are of potential archaeological value.

PRECONTACT SENSITIVITY ASSESSMENT

The project area's sensitivity was evaluated by determining its proximity to previously identified precontact sites and fresh water drainage courses—particularly river or stream confluences where two or more drainages might come together, providing access to both water and food supplies. At least 5 previously identified Native American archaeological sites have been recorded within a 2.25 mile radius of the project area. None were identified within a half-mile of the Rose Plaza on the River project site or within the project area itself.

The East River, which is the western boundary of the project site, is a tidal estuary with brackish water and was probably not attractive to Native Americans as a place for habitation. However, the East River could have provided Native American with food resources including fish and shellfish. It is possible that temporary campsites were located in the vicinity of the project area for use during marine resource exploitation.

While the East River shoreline and the salt marsh areas near Division Street might once have had the potential to yield traces of precontact activities or occupation, there is little likelihood that these traces could have survived the site's subsequent landfilling and industrial development as well as the strong currents and erosive action of the East River. Therefore, this study concludes that the project area has low potential for the recovery of precontact archaeological resources.

HISTORIC SENSITIVITY ASSESSMENT

This summary has been organized according to the project area vicinity's four primary periods of historic activity: 18th and early 19th century occupation, Revolutionary War period burials, 19th century landfilling and coastal use, and 19th and 20th century industrial development.

18TH AND EARLY 19TH CENTURY OCCUPATION

Except for a narrow strip of land adjacent to Kent Avenue, the Rose Plaza on the River site was underwater during the 18th century. Although there were farms and houses east of present day Kent Avenue during the 18th century, the Rose Plaza on the River site was not occupied at this time. The first evidence of any type of development on the property is from an 1833 map (Figure 7) that depicts a wharf or pier accessed by a road immediately to the west of Kent Avenue, near the foot of South 11th Street. Today this area is occupied by a 3- to 4-story warehouse (with basement) that was constructed in 1940. The basement's depth is unknown, although its depth increases to the east and it is more than 6 feet deep near Kent Avenue. As discussed in Chapter V, soil boring data indicate disturbance in this area to a depth 7.5 below the basement floor.

Therefore, based on documented 20th century development, the project area is considered to possess no sensitivity for 18th or early 19th century resources.

REVOLUTIONARY WAR PERIOD BURIALS

A number of studies have been conducted with respect to the Revolutionary War period prison ships that were moored off Wallabout Bay, south of the current project area, during the war years. The original Johnson map (Figure 19) illustrates three areas where "Graves" were purported to be found. Geismar and Oberon reported that prison ship burials could be located "throughout the filled portions of the former Navy Yard, mainly in areas that once included the tidal mud flats of Wallabout Bay, west of the Navy Yard Annex site" southwest of the project area (1996: 10). They further stated that the Johnson/Haywood map (Figure 20) indicates that "the graves of Americans who died on prison ships during the Revolutionary War could be found in what are now industrial areas outside the former Navy Yard and Navy Yard Annex" (Ibid).

Despite this possibility, no historic documents, including newspapers, appear to have reported the discovery of human remains associated with the prison ships along the East River waterfront in any place other than Wallabout Bay and the Brooklyn Navy Yard. No human remains have been reported along the eastern shore of the Bay as far north as project area .

Given the strong current of the East River, it is likely that even if prisoners had been buried along the shore of the project site, they would have been "washed out by the waves at high tide" (Stiles 1867 I: 350), swept away by the currents, or dislodged by erosion. In addition, the narrow area of original shoreline within the project area was subsequently filled, graded, and impacted by the construction of the aforementioned 3- to 4-story story warehouse (with basement) and by the construction of the Mollenhauer Sugar Refinery in the late 19th century. Early 20th Century maps indicate that the refinery had buildings which were up to eight stories high in the area that would have once been the original East River shore. Furthermore, Sanborn Insurance maps dating to 1918 indicate that not only was there a refinery located in the area, but also a bone charring plant, a kiln, several horizontal steam tanks, a wash house, and a large tank for the storage of molasses.

Therefore, this study concludes that the project site has low potential for the recovery of undisturbed Revolutionary War-era burials.

LANDFILL AND LANDFILLING DEVICES, 19TH CENTURY WHARVES AND PIERS

Landfilling began sometime between 1833 and 1852 and was completed by 1880 when the project area had essentially achieved its current form. As the landfill in the project area cannot be traced to a particular source, it has minimal archaeological significance.

However, land-filling devices and/or piers/wharves predating or dating to the use of the block for mid-19th century industries and storage might be present on this block and might be archaeologically significant. The bottoms of such landfilling devices are generally located at ca. 20 to 25 feet below grade (Historical Perspectives, Inc. 2005).

Early landfill-retaining devices such as bulkheads, piers or wharves may survive several feet above former river elevations and below the depths of later 19th century warehouse walls. The water table, which is roughly equivalent to the former river elevation, has been measured at ca. 7 to 11 feet below grade at the site, suggesting that former piers could be located several feet above this depth. Several soil borings (Figure 21 and Appendix D) showed evidence of wood: SB-2 located along the southeast boundary of the site, near Division Avenue, encountered intermittent wood deposits at approximately 5 to 6 feet, 10 to 12 feet, and 15 to 17 feet where schist was encountered. Interspersed between the wood were layers of coal and slag, as well as weathered rock fragments. This suggests that the area was substantially disturbed. It is known that a large sewer was present at the foot of Division Avenue in 1894 and a Solid Waste Facility is presently in place at that location. The construction of the sewer and sewerage plant could also have caused the disturbance noted in SB-2. Ground water was encountered at 8.5 feet below ground surface and the wood, coal and slag above it might represent fill. The 1887 Sanborn map (Figure 12) shows what might have been a dock in that area. Soil boring SB-2 is located in what was formerly Mollenhauer's Storage Yard which is not considered to be archaeologically significant for the reasons mentioned above. Since the "southwestern portion of the site is constructed on a platform over the river supported by piles" (AKRF 2005:1), the wood in the borings could also represent earlier pilings.

Wood was also encountered in boring SB/MW-11 located in the present day Certified Lumber truck loading area between the 2-story and 3 to 4-story warehouses. The 1880 Hopkins and 1887 Sanborn maps indicate that a small 1-story building associated with the gasworks was once located here. An 1893 Bromley map (not illustrated) shows that the building was constructed of brick. The building had been razed by 1904 (Figure 13). The boring logs note wood and the smell of creosote at 8 to10 feet below grade while groundwater was present at 9.5 feet below grade. The smell of creosote is often an indicator of wood that has been treated for use as pilings, wharves, and piers and cribbing. It is possible that the wood represents remains of the Berry Docks present on the mid-19th century Field map.

Another soil boring sample which contained wood was SB-13, located in the northeast portion of the site in an area where there was a "gas holder" in 1880. The boring shows disturbance to a depth of 5 feet (concrete and brick fill) and then sand, silt and gravel. Wood (labeled "fill" in the logs) was encountered at 7.9 feet and groundwater at approximately 8.5 feet below grade. This area was probably disturbed when the tank and the soils associated with the remains of the gas company were removed.

The final boring that contained wood was SB-4, located in the southwestern area of the project site in the southern portion of the present 3 to 4-story building with a basement. This boring was located in the basement itself. Boring logs indicated that wood was recovered at 6 to 7 feet and extended to approximately 10 feet. Since groundwater was identified at 7 feet, this suggests that the wood deposit extended another 3 to 4 feet into the river bottom. It is possible that this the wood represents 19th century landfilling devices.

This study concludes that there is medium potential for 19th century landfilling devices in some areas of the project area.

19TH AND 20TH CENTURY RESOURCES

It appears that the 1850s marked the beginning of the industrial use of the project area. An 1852 map (Figure 8) indicates that a substantial dock or pier had been constructed in the northern portion of the project area. By 1855 (Figure 9), the pier had been expanded further into the East River and a number of coal yards and a lumber yard, as well as associated wooden structures were present. By 1880, a gas works, the People's Gas Light Co, was present within this location. The gas works was comprised of eight structures, including a gas holding tank or gasometer and three buildings used as stables or sheds. Maps show that additional structures including a retort house, purifying house and storage tanks for iron, coal and oil were situated on the block by 1887. All of this was replaced before 1904, when a 3-story brick storage building owned by the Mollenhauer Sugar Refining Company is first depicted on maps (Figure 13). The structure may have been replaced by a 1-story structure in the 1920s, however, because an identical 3-story brick warehouse appears again on maps dating to the 1930s, such construction might not have occurred and may instead represent a cartographic error.

The remainder of the northern portion of the project area was left vacant after Mollenhauer purchased the property from People's Gas Light Co. circa 1904. However, in 1939, F & M Schaefer Brewing Company built a new garage on the property, which still stands today (an addition was built in 1979) and is presently occupied by Certified Lumber. In 1940, the Brewing Company constructed a bottling house to the east of the garage, on the vacant portion of the site. This building could be the northeastern part of the 3- to 4-story warehouse with basement presently on the site. In approximately 1945, South 11th St. was demapped west of Kent Avenue and no longer divided the project area into two distinct blocks. That same year, Schaefer constructed a case storage warehouse as an addition to the Bottling House present on the project site, which has also been incorporated into the 3- to 4-story warehouse.

The southern half of the project area was developed later than the northern part. Hopkins' 1880 map (Figure 9) illustrates a stave yard with a large shed on the property. Bromley's 1880 map (Figure 11) depicts the stave yard, but also shows *Oscar King's Distillery* within the project area at the corner of Kent and Division Avenues. King was listed in historic directories dating to 1878 and 1879 at "Kent, [at the] corner of Division Street." In addition to the distillery, the southeastern portion of the block is depicted as having been lined with a number of structures identified as sheds or stables. With the exception of one large brick building clearly associated with the distillery, it is impossible to determine if the other sheds and stables on the property were associated with the stave yard or the distillery. It is possible that the stave yard was used to store wooden barrel staves that were used to make barrels for the products made at the distillery or the area's sugar refineries.

By 1898, the distillery had been razed and a single 3-story brick building owned by the Mollenhauer Sugar Refining Co. had been erected on the southern half of the project area, and

covered approximately one-third of the property. Tax assessment records indicate that there were 4 buildings on the property rather than three by 1899. Two were eight-stories tall, one four-stories and one two-stories high.

By 1904, a multi-story brick complex had replaced the four Mollenhauer buildings. This interconnected complex consisted of multi-story brick structures 1-, 2-, 3-, 8-, and 11-stories. By 1918, maps show that the sugar refining company had expanded to include a refinery, a wash house, a coal conveyor belt on posts, a molasses tanks, and "monitor," "bone black," "kiln," and coal storage" structures and several of the site's buildings featured horizontal steam tanks.

The property was purchased by 1929 by the South 11th Street Warehouse Corporation. Maps from that year show that the footprints of the buildings located on the site had not changed, suggesting that the sugar refining structures may have been adapted for new uses.

This study concludes that the project site has low potential for the recovery of intact archaeological deposits dating to the 19th century and that 20th century resources have little archaeological research potential.

B. RECOMMENDATIONS

The Rose Plaza on the River site has low potential for precontact archaeological resources and moderate potential for historic resources, specifically landfilling devices associated with the industrial development of the project area. Resources such as these have received increased attention over the past two decades as development in New York City has focused increasingly on the city's coastlines. Studies such as that completed for the Brooklyn Bridge Park development (HPI and Raber Associates 2005), located a few miles to the southwest, have concluded that landfilling features dating to the early 19th century have the potential to yield significant archaeological data concerning the construction of these features. Given the logistical challenges of archaeologically evaluating resources extending below the depth of ground water, some of these studies have recommended monitoring during construction.

In accordance with accepted strategies of documenting landfilling resources in New York City, it is recommended that an archaeologist be present during excavation in the area indicated on Figure 21. Resources may be encountered at a depth of below 3 feet below the basement in the area of the 3 to 4-story warehouse along Kent Avenue and at a depth of five feet below grade in the area between this 3-4 story warehouse and Division Avenue (see Figure 21). Through monitoring, the archaeologist will be able to both document and mitigate potentially adverse effects to archaeological resources, if present, in accordance with the provisions of CEQR. ✱

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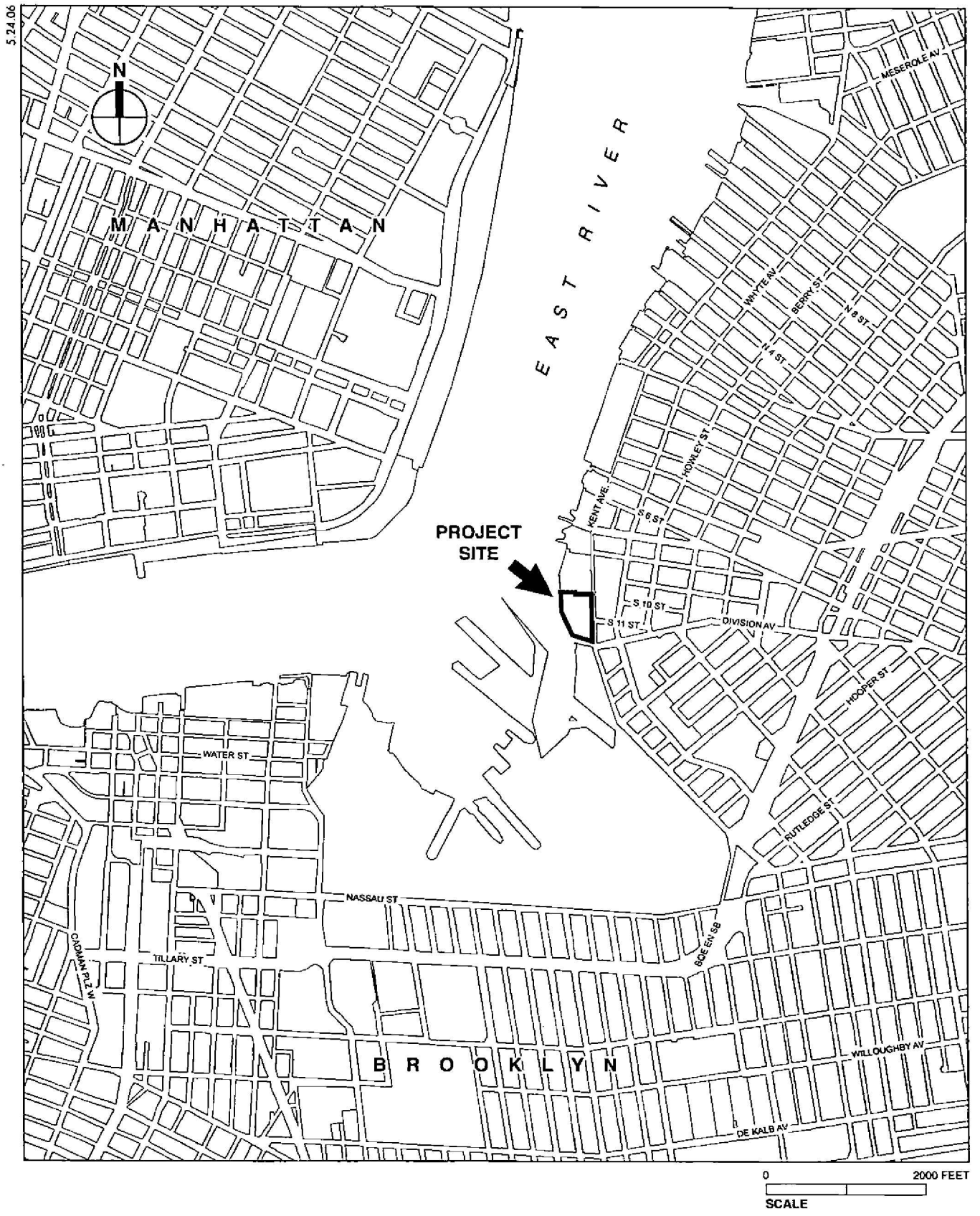
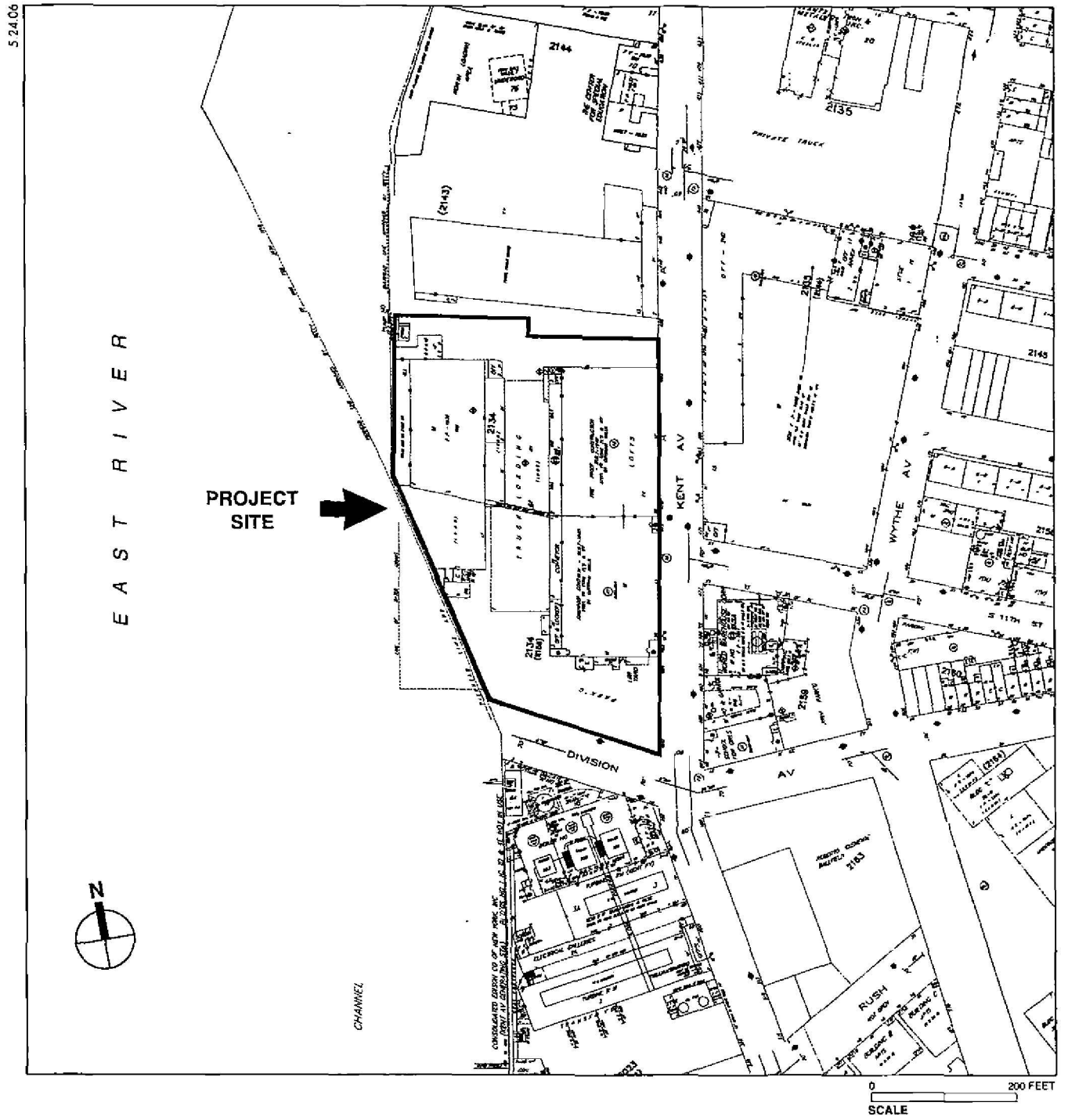
Figures



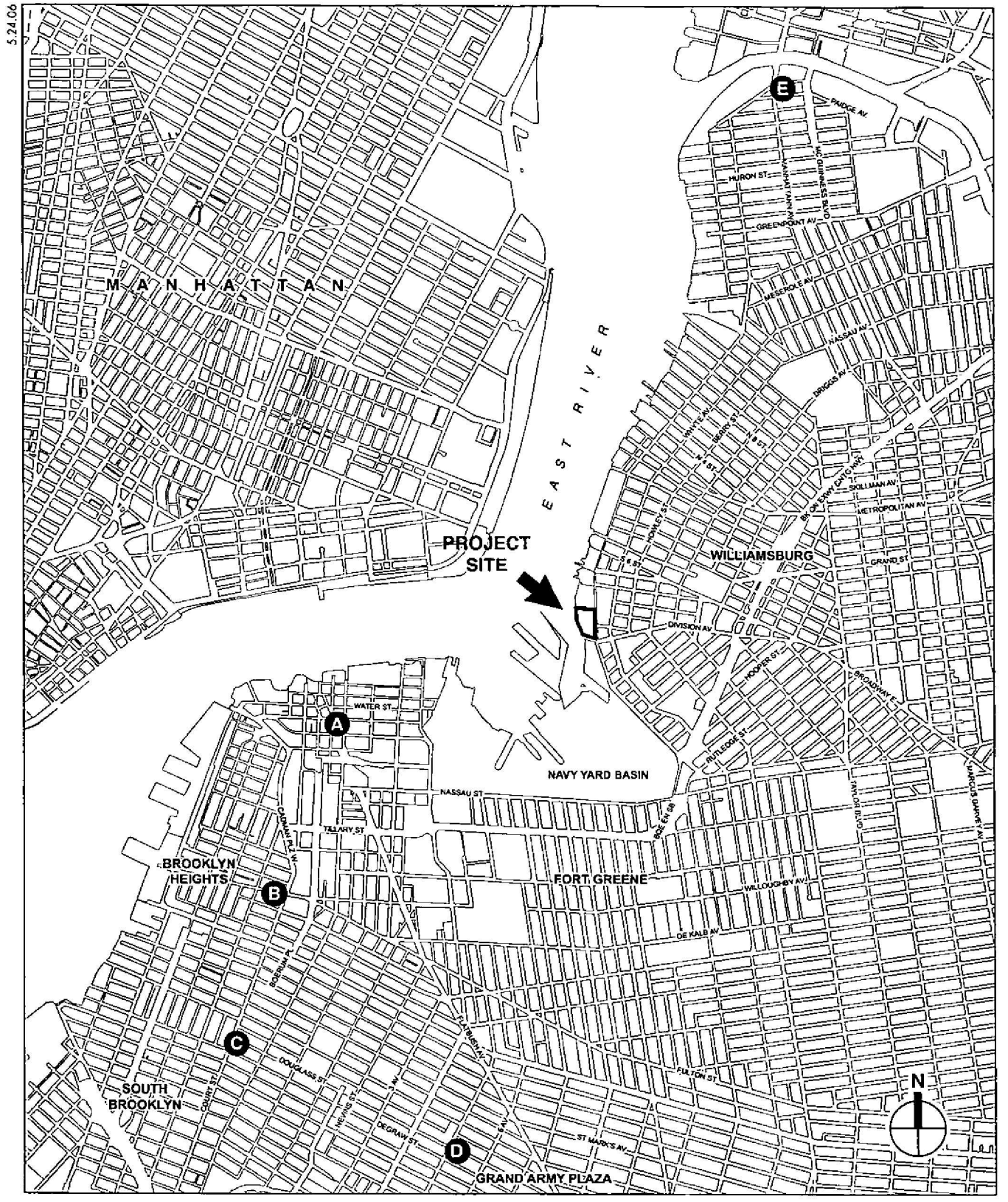
Project Location
Figure 1

Rose Plaza on the River



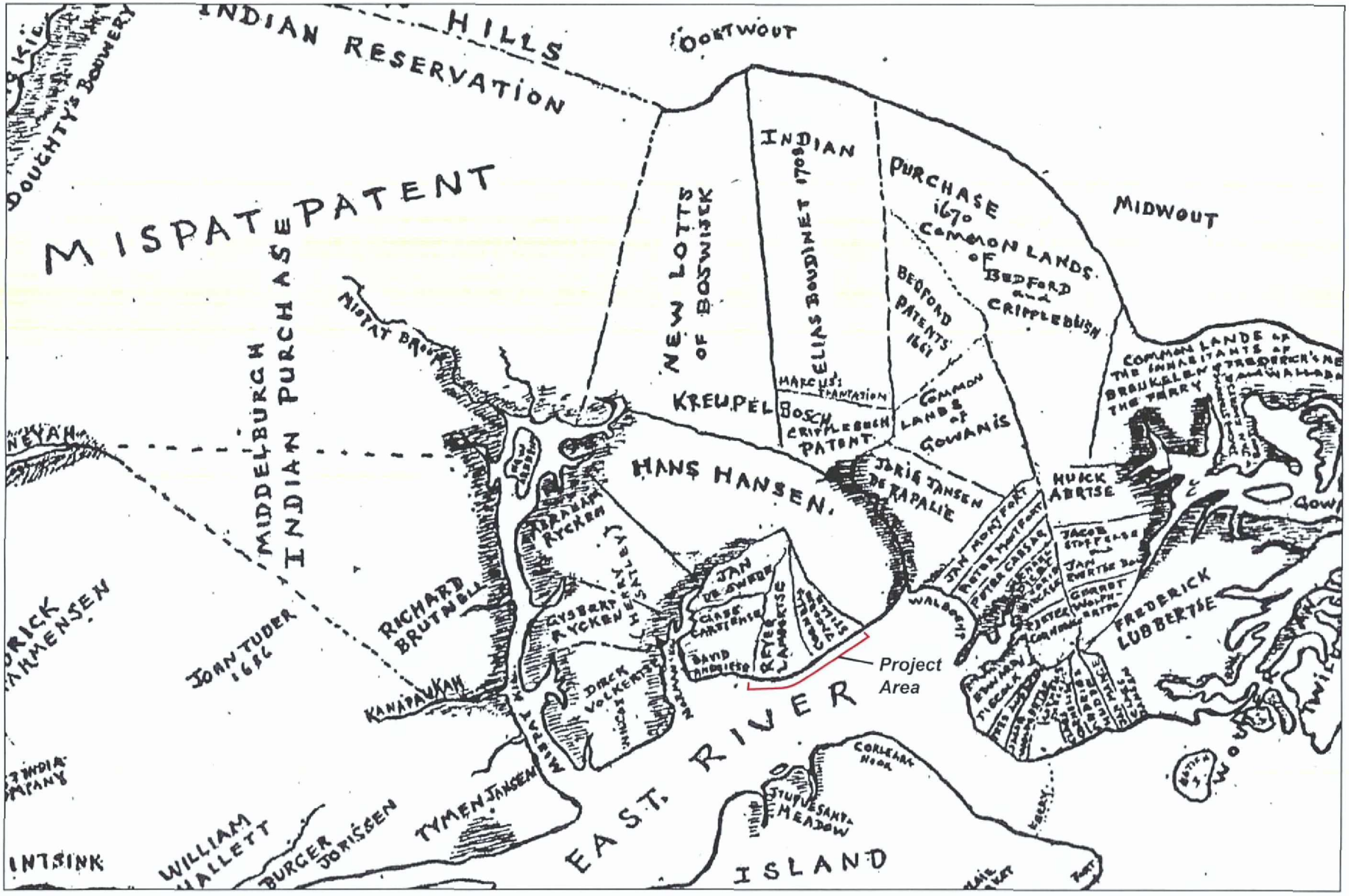
Project Site Boundary
Figure 2

Rose Plaza on the River



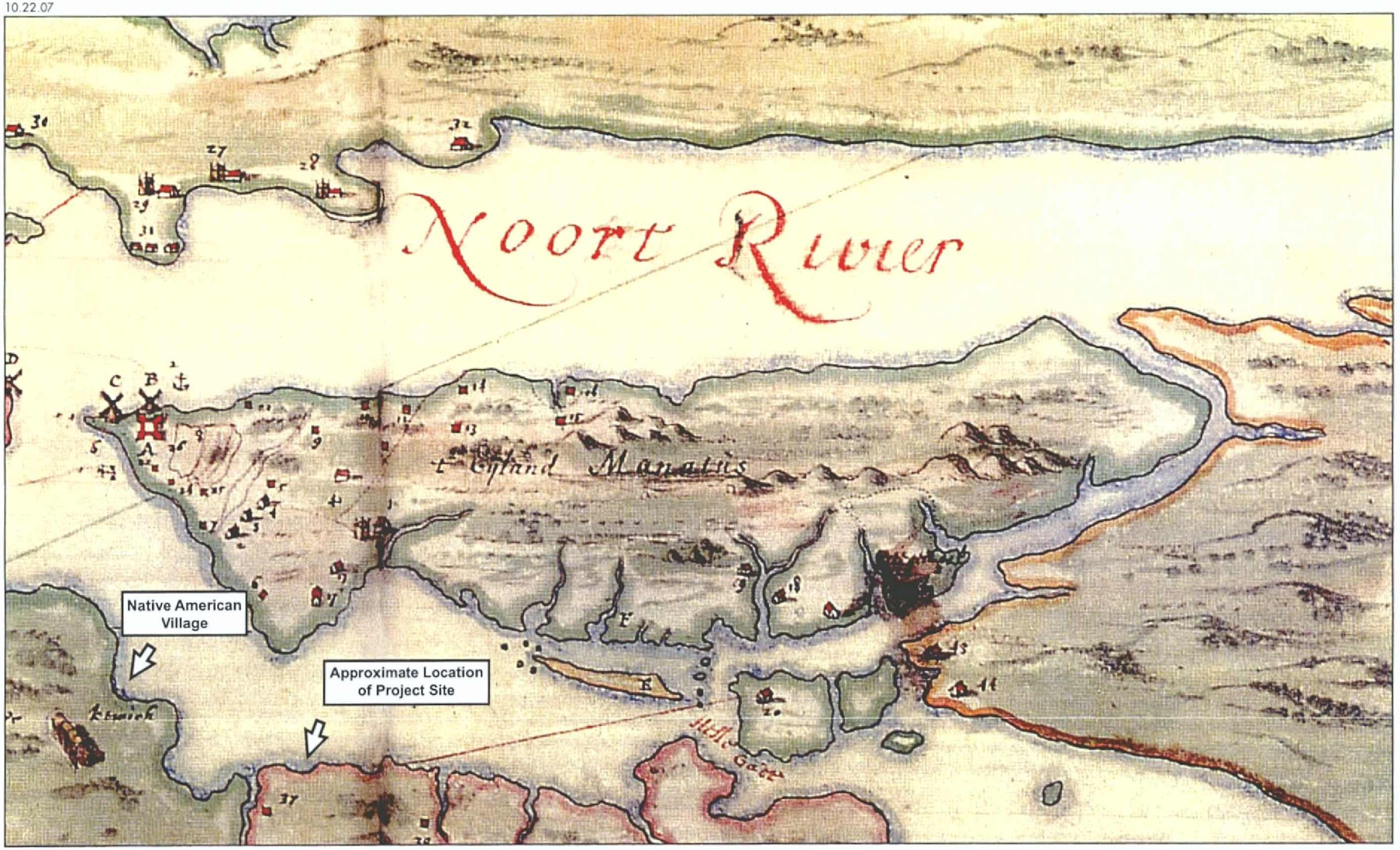
Prehistoric Brooklyn sites within 1 - 2 1/4 miles of project area A-E

10.19.07



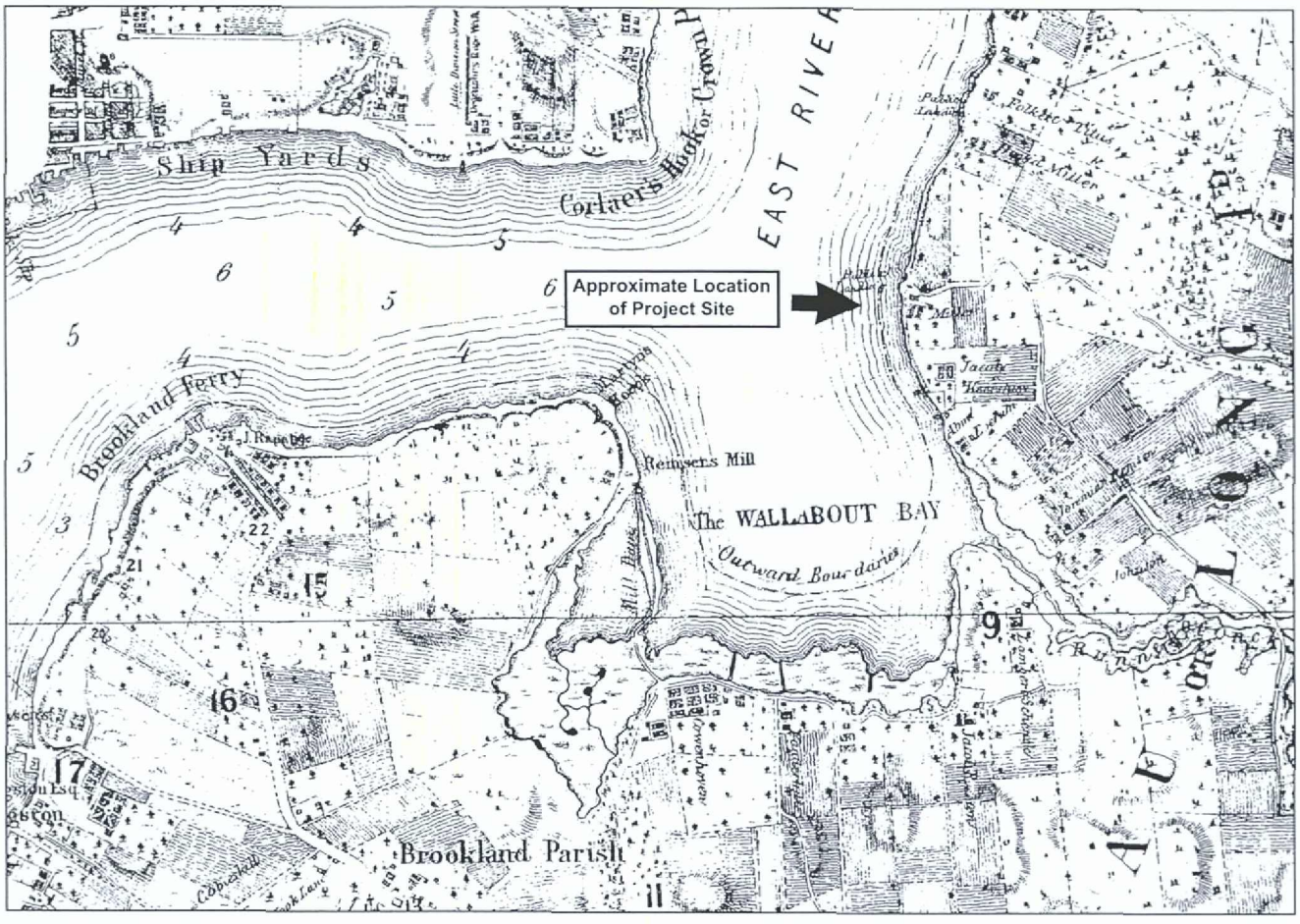
Map of the original plantations showing Hansen, Lambertse and Stille Plantations (Armbruster 1942)

10.22.07



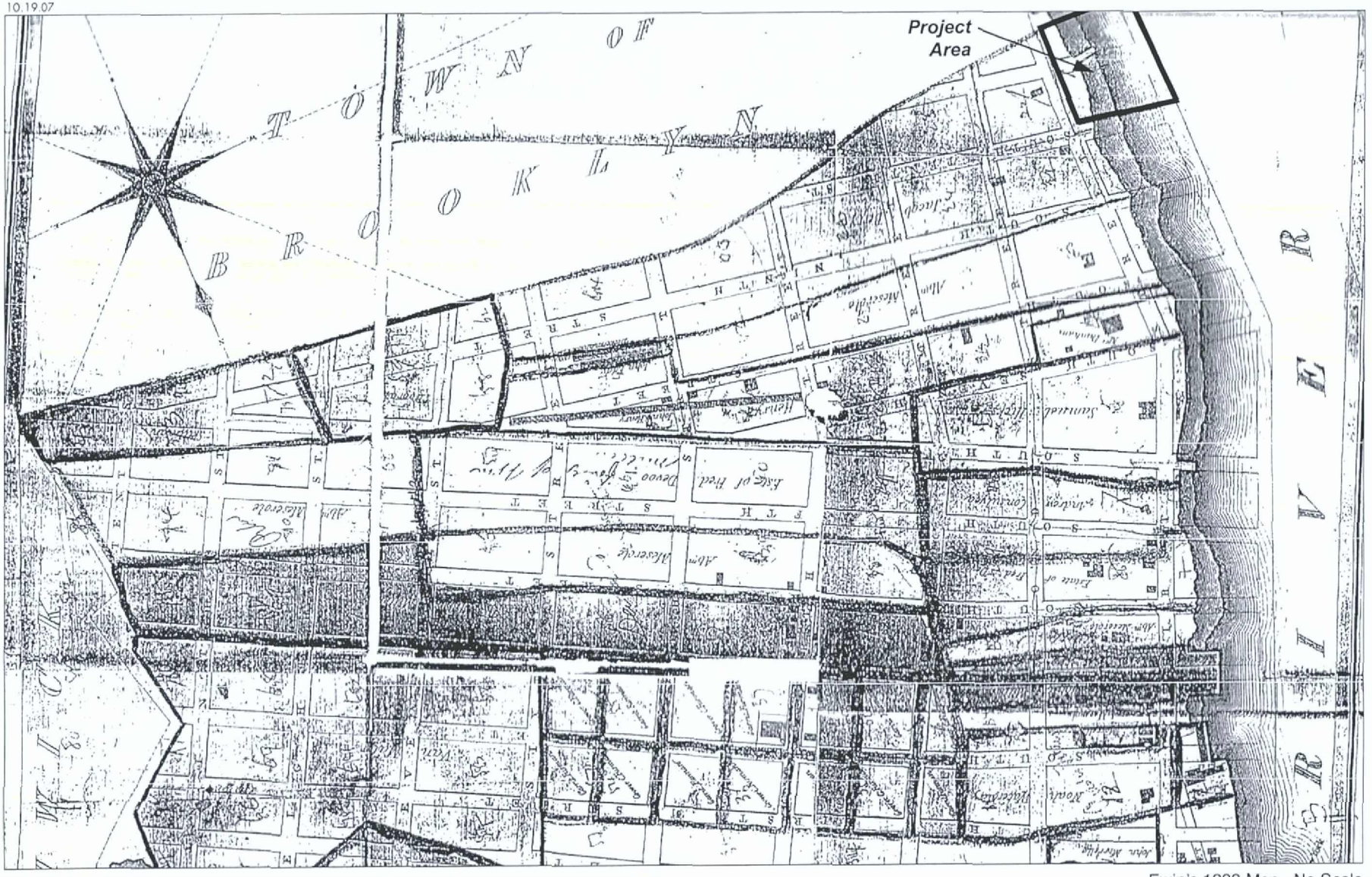
Manatus Gelegen op de Noort Rivier in 1639, (Johannes Vingboom, 1665)

10.19.07



Ratzer Map 1766/67 showing approximate location of project area and farms owned by Keershow and Miller

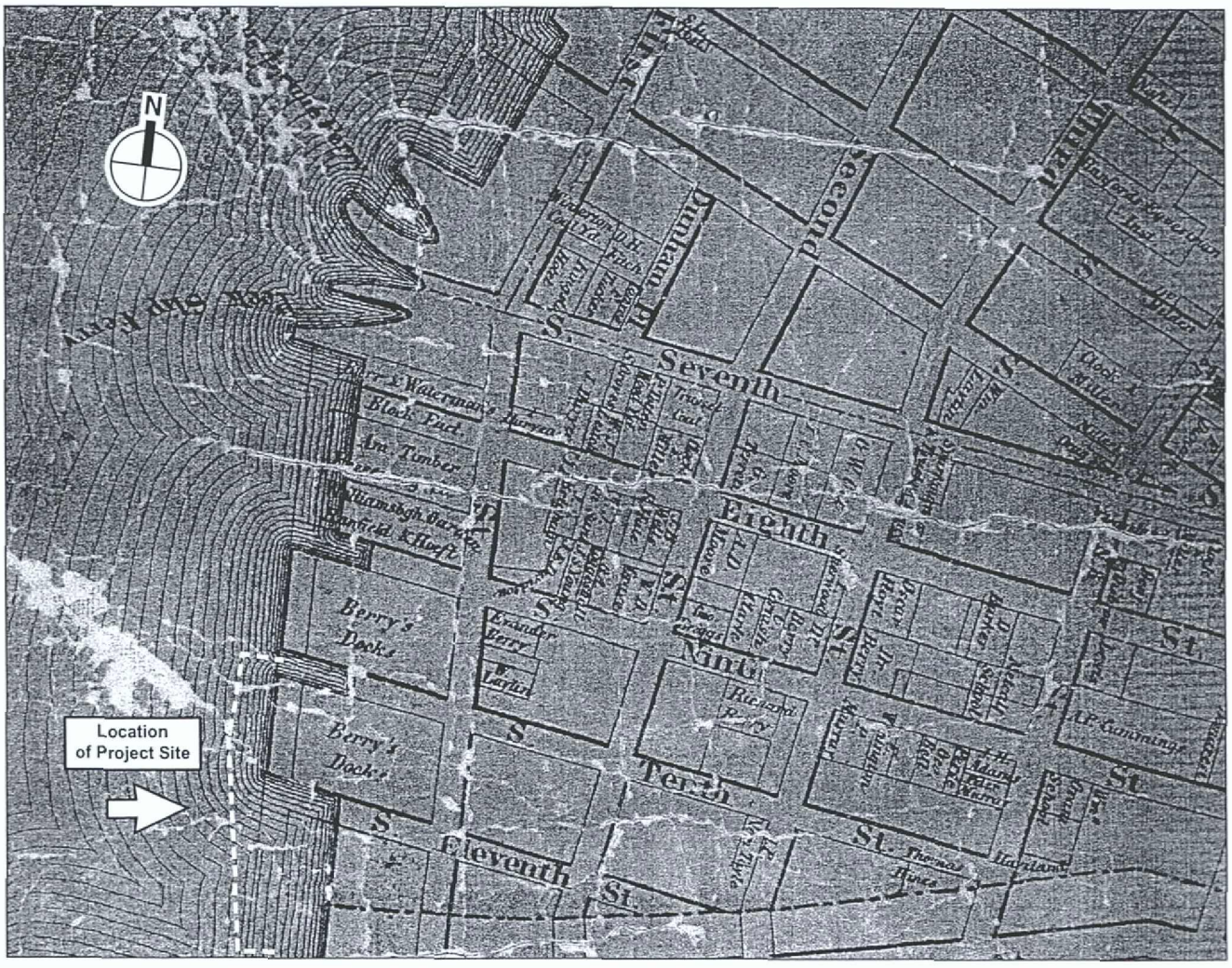
10.19.07



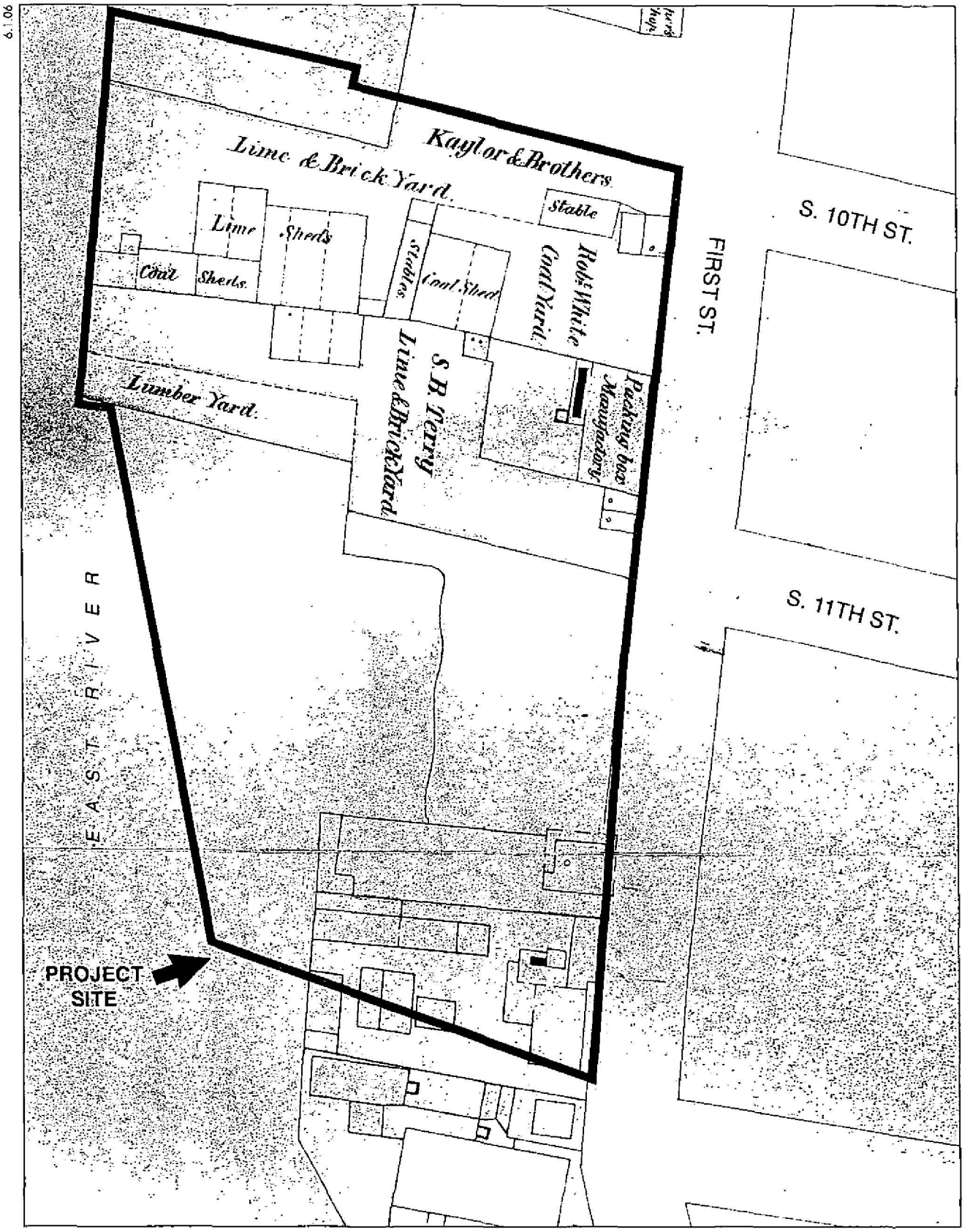
Ewin's 1833 Map. No Scale

Approximate Location of the Rose Plaza Site
Figure 7

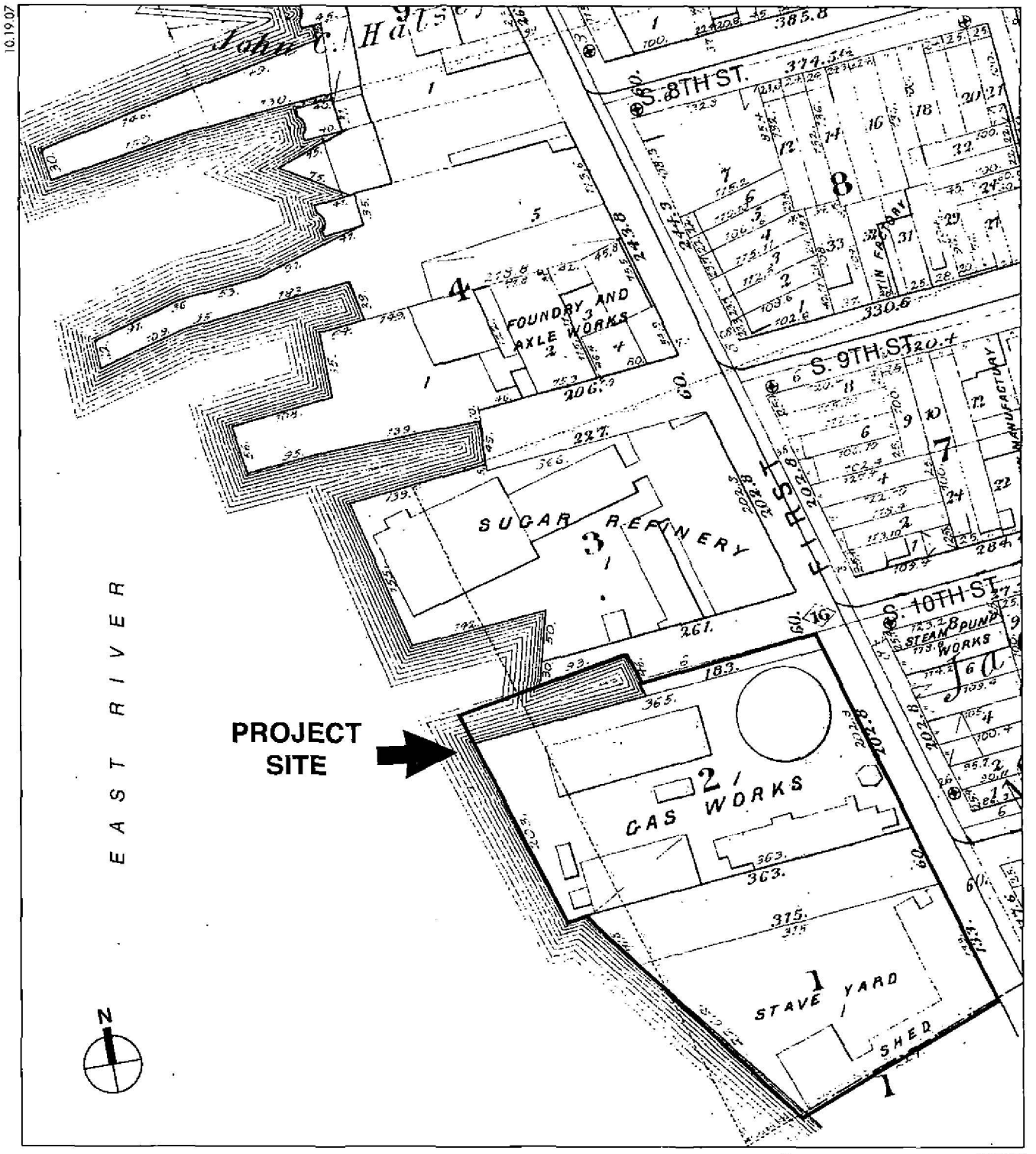
5.25.06



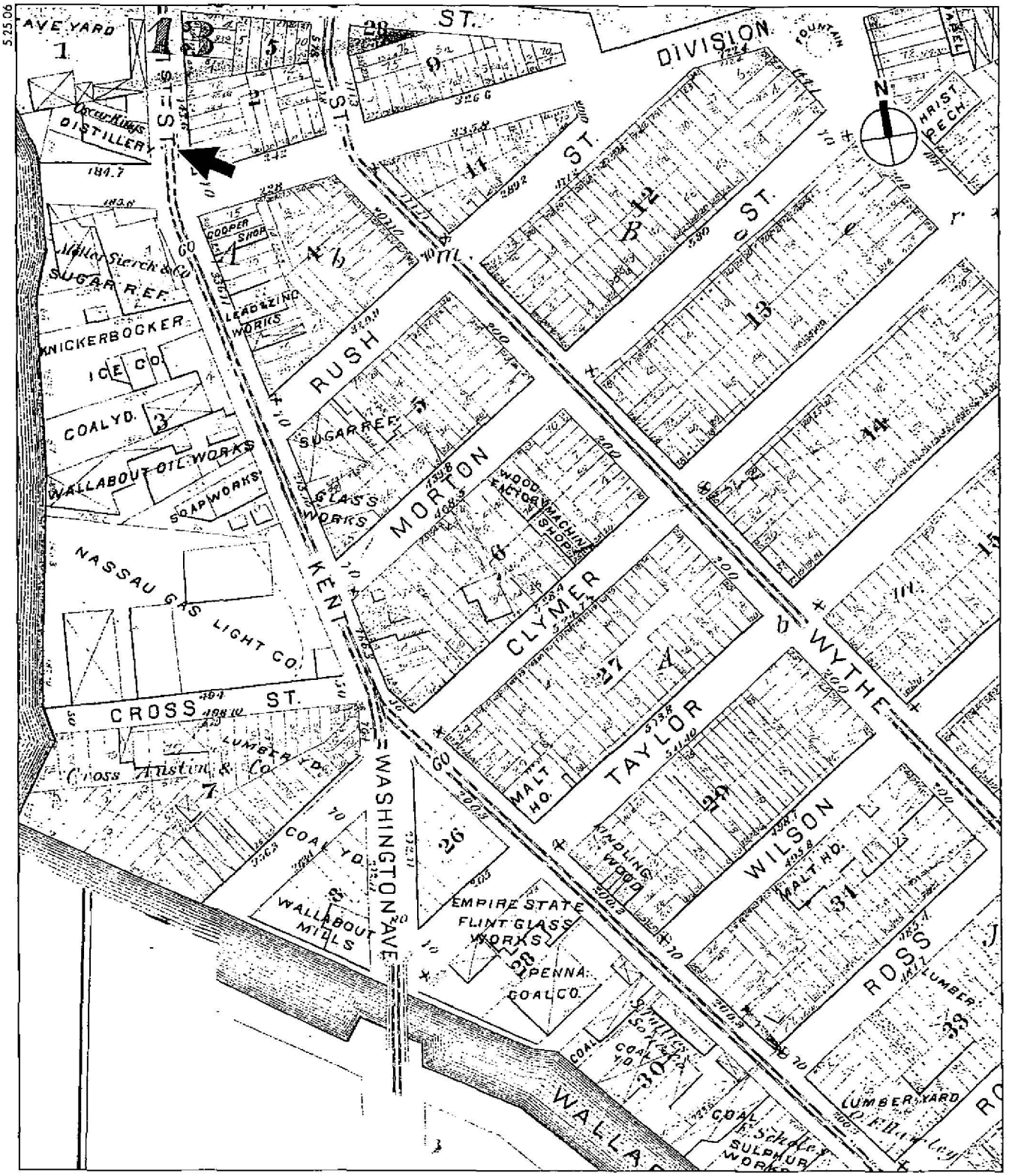
1852 Field map showing Berry's docks



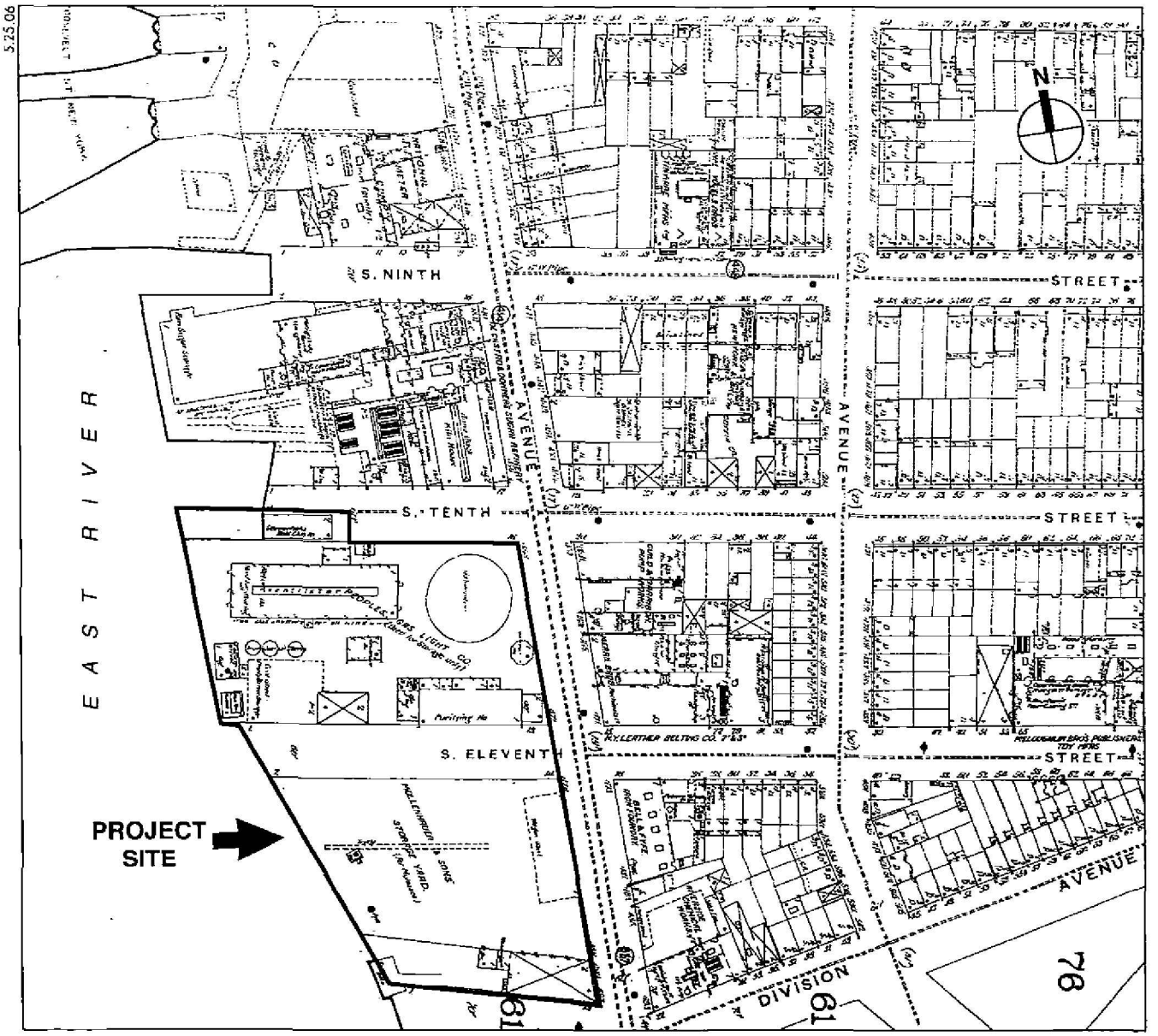
1855 Perris Atlas



1880 Hopkins map. The portion near Division Street is missing from map details

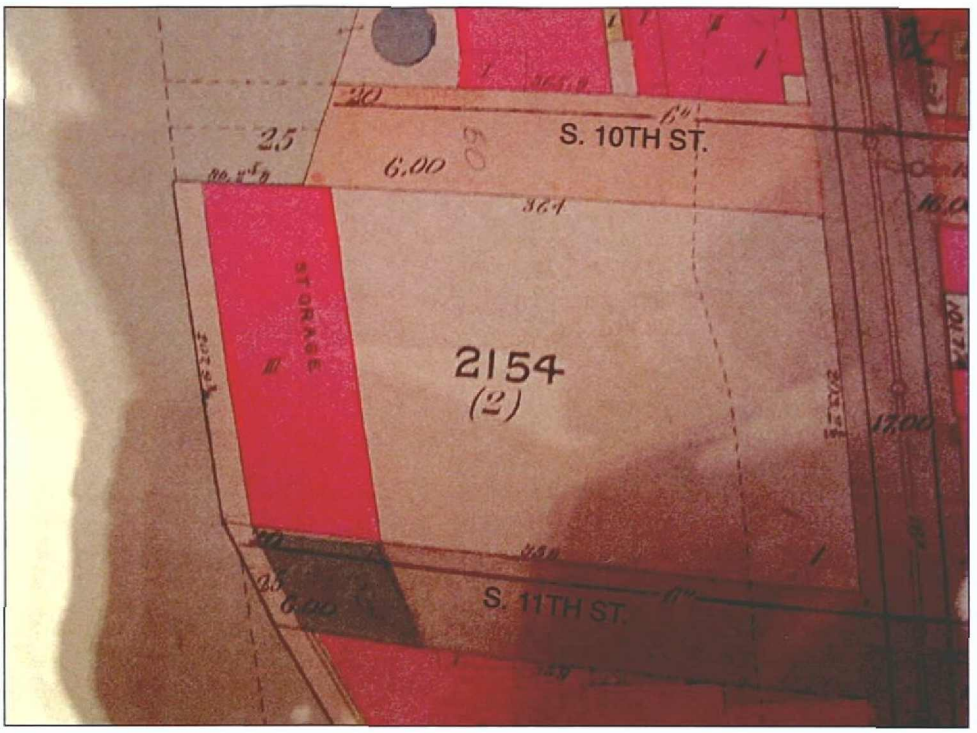


Bromley 1880 map showing Oscar King's Distillery corner of Division Street

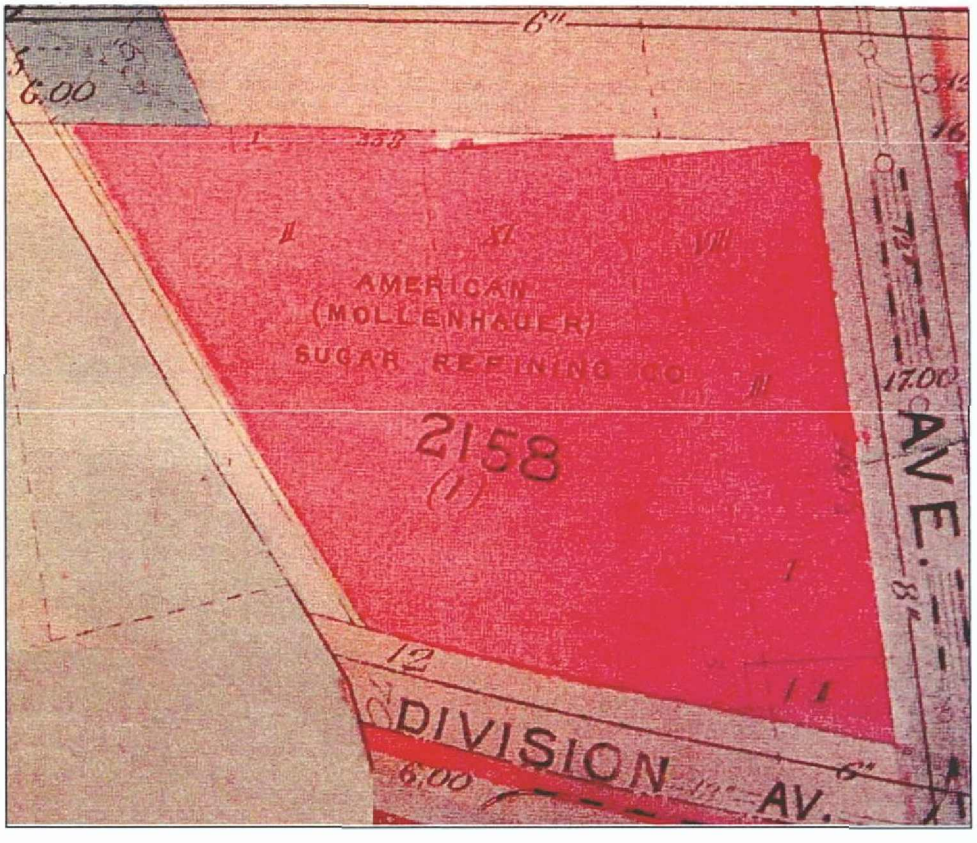


1887 Sanborn

5.25.06



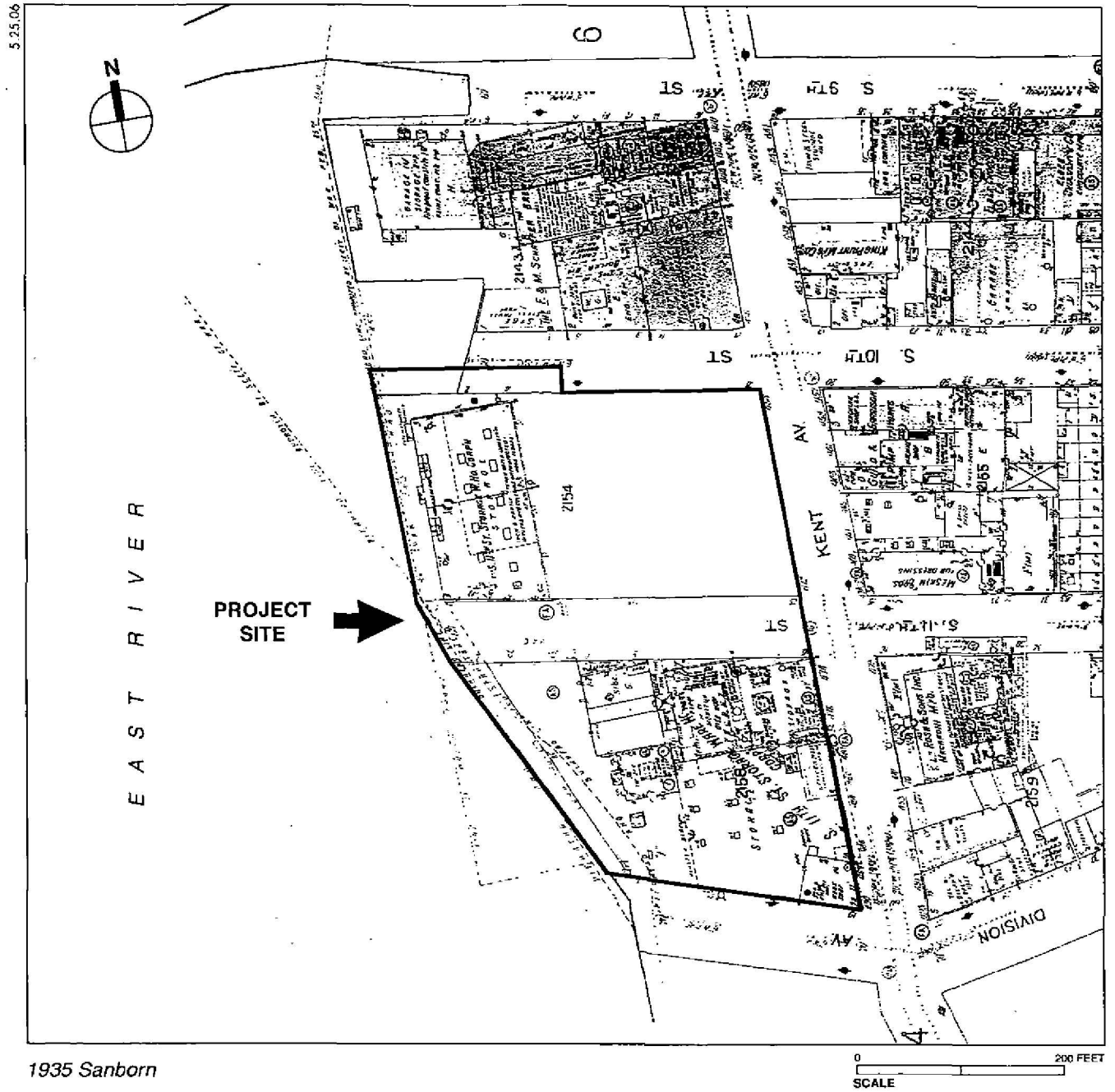
13a



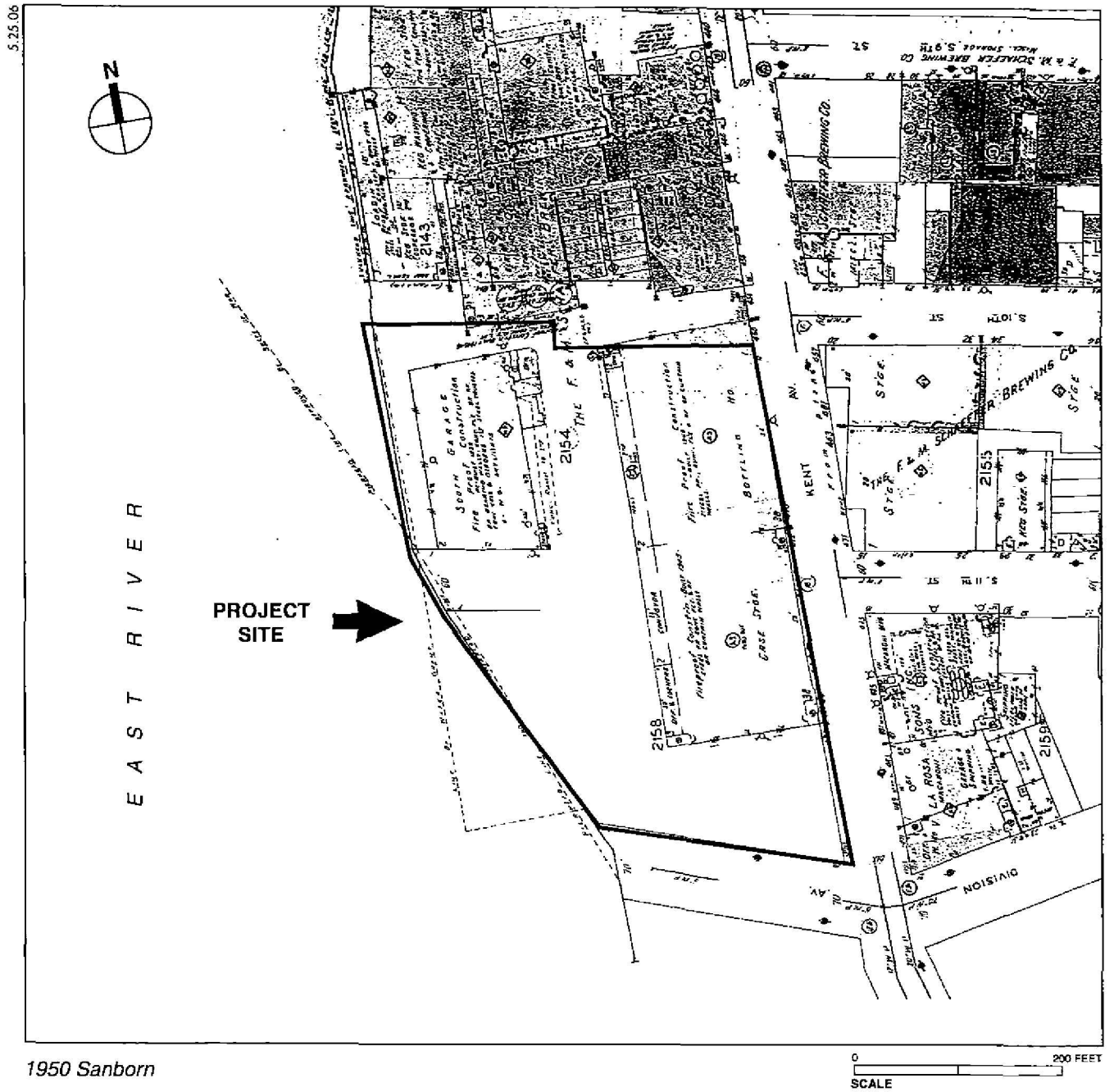
13b

1904 Belcher-Hyde Map showing details of old blocks 2154 and 2158.
Roman numerals represent stories

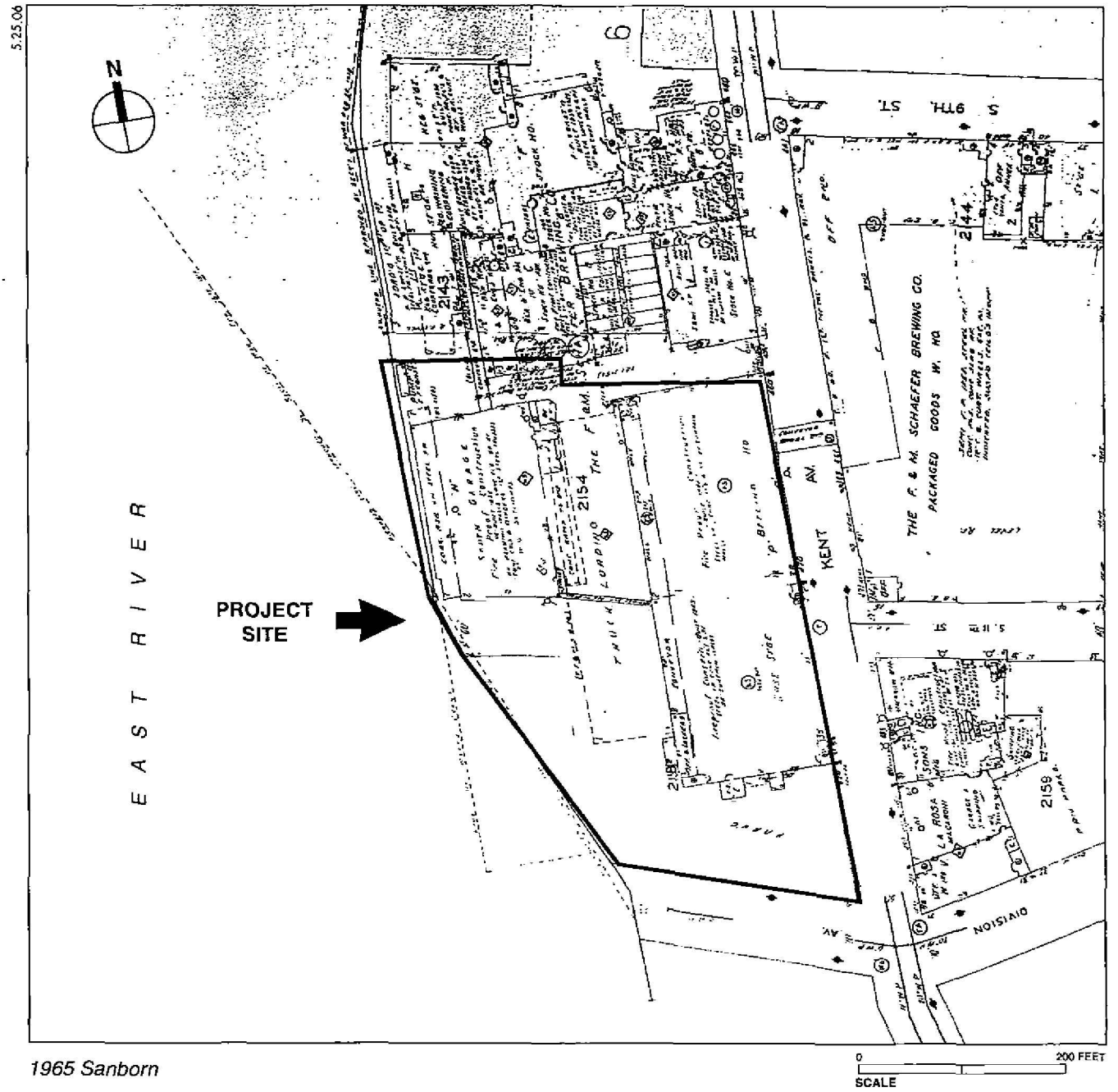
1918 Sanborn



1935 Sanborn



1950 Sanborn



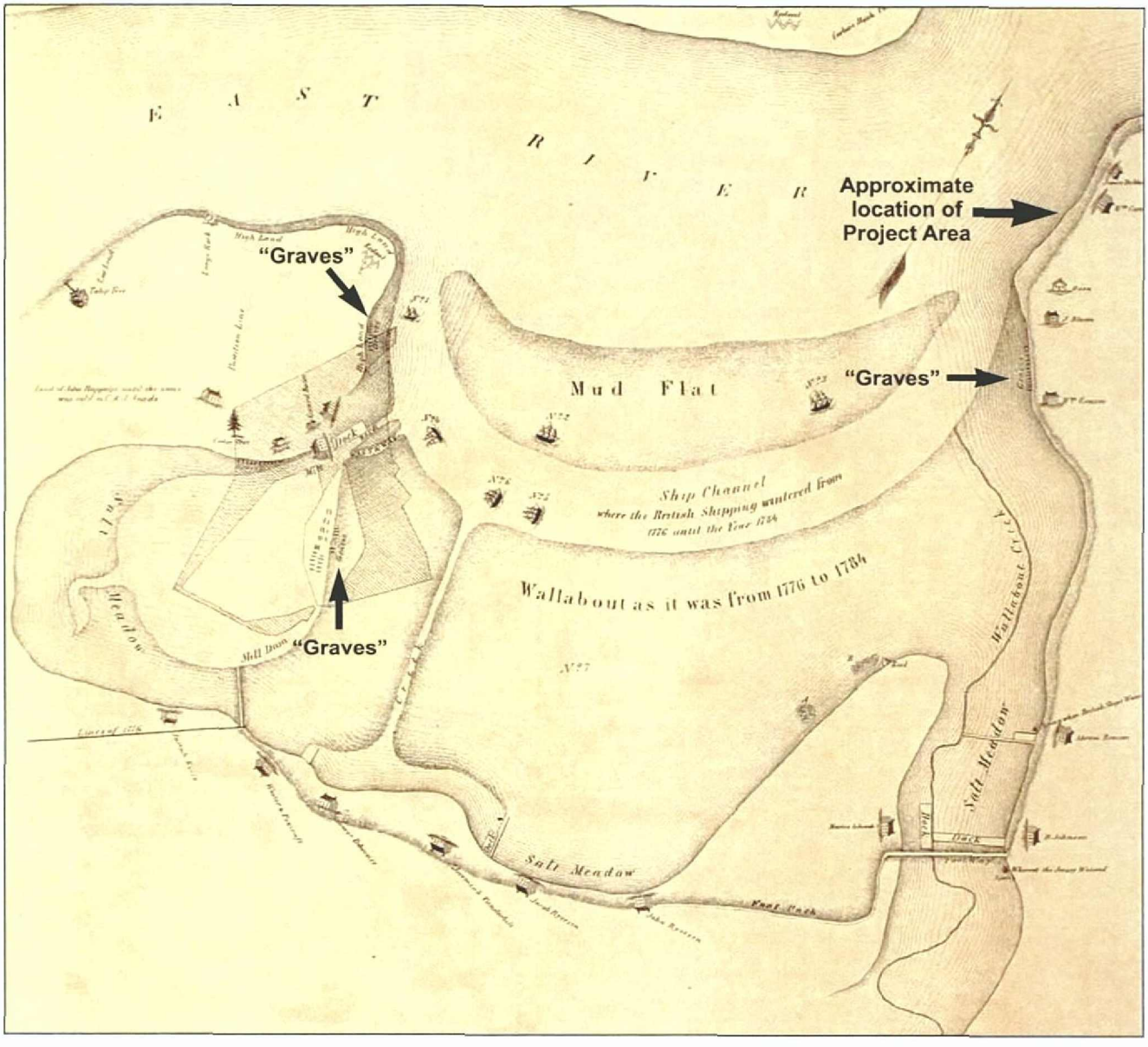
1965 Sanborn

Rose Plaza on the River

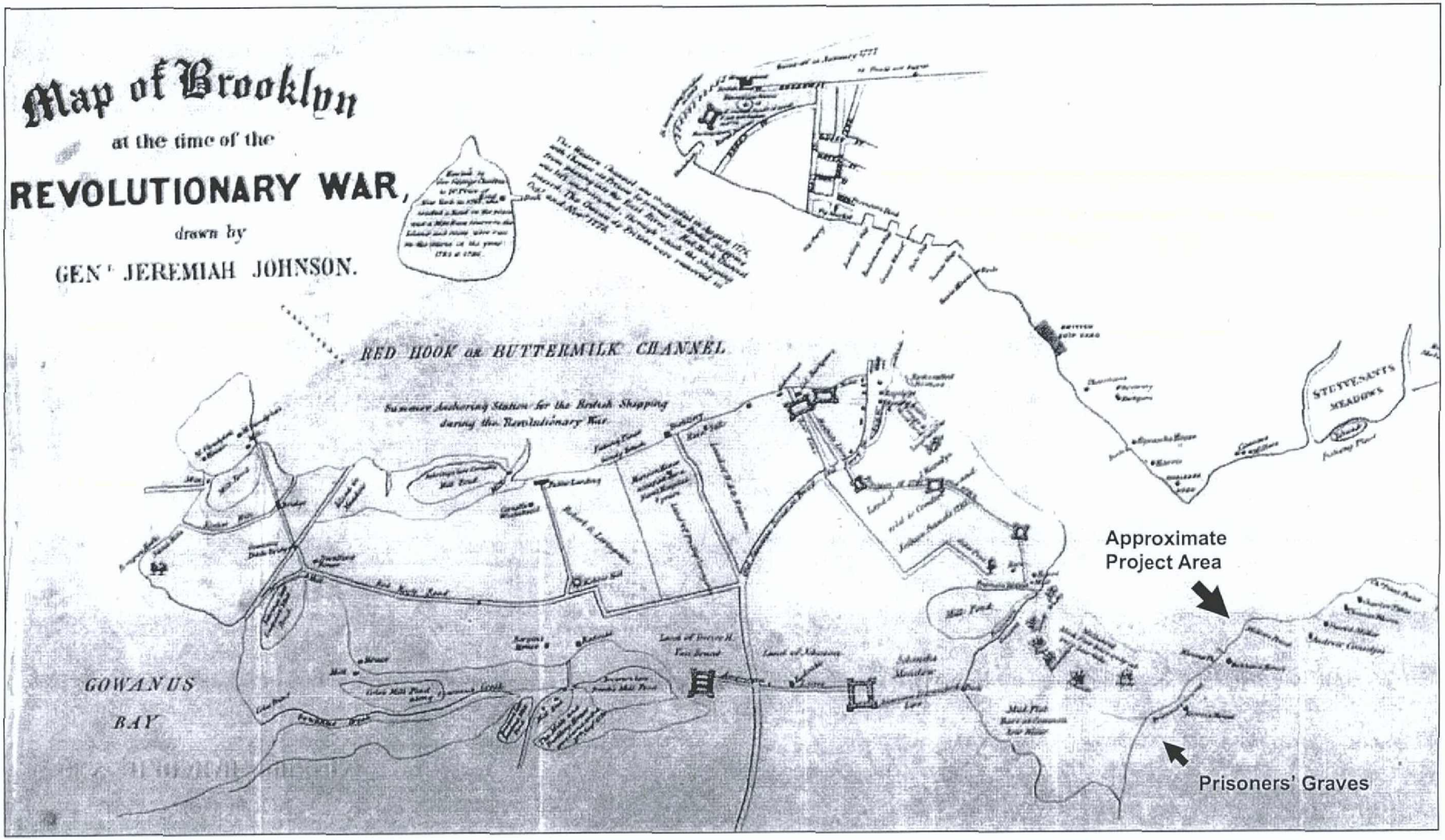
Figure 17

1979 Sanborn

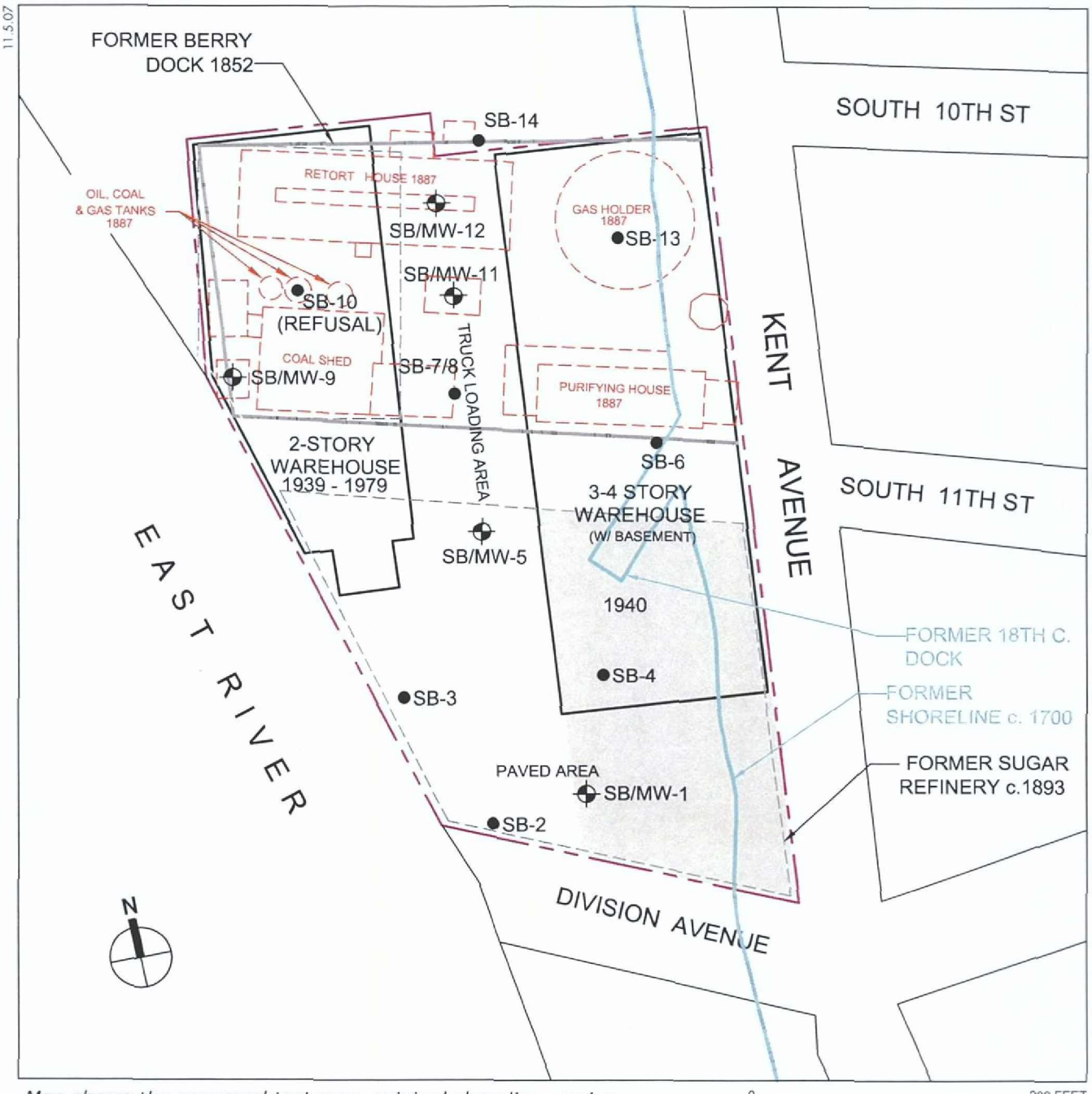
10.15.07



Johnson map of Wallabout Bay from 1776 to 1783



Johnson-Haywood map showing prisoners' "graves" on east side of Wallabout Bay



Map shows the proposed test area, original shoreline, major buildings, docks, and processing plants in the project area

- *Property Boundary*
- *Existing Building Line*
- *Former Building Lines*
- *Former Shoreline*
- *Soil Boring Location*
- *Groundwater Monitoring Well Location*
- *Proposed Testing Area*

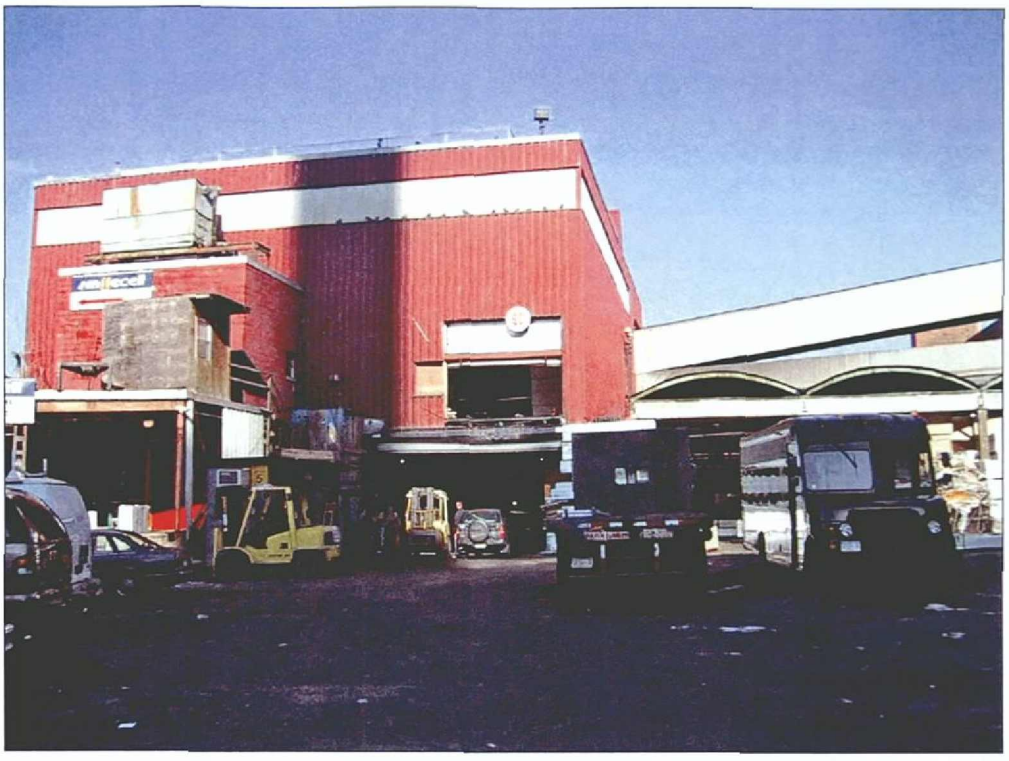
Rose Plaza on the River

Sensitivity Map
Figure 21

Photographs

Three/four story building with basement along Kent Avenue, looking north **1**

South side of three/four story building, looking north **2**



Two-story building, looking north **3**

Rear of two-story building showing covered storage area **4**

Looking west from Kent Avenue at driveway/loading area at about South 10th Street. Shows change in grade **5**

Looking east towards Kent Avenue from driveway on north of property **6**

Looking southeast into parking/loading area **7**

General view of sheet pile bulkhead and two-story building. Courtesy HPA Engineers **8**

General view of high level platform. Courtesy HPA Engineers **9**

High level platform in disrepair. Courtesy HPA Engineers **10**

Appendices

Appendix A: Conveyances

Appendix A
Conveyances

Date	Grantor	Grantee	Liber/Page
Modern Block:2134/Historic Block:2154[1]			
2/15/1694/5	Kipps, J. & J.	Baben, J.	2/26
10/7/1695	Van Brevort, H.J., Brevort, J.H. Jochems, D., & Miserole, J., Sr.	Declaration	2/68
11/21/1695	Stevense, J.; Jochem, D. & Miserole, J., Sr.	Declaration	2/75
?	Town of Bushwick	Praa, P.	4/38
1/31/1789	Kershow (Carshow), M.	Tunis, J., Rapelye, & Nostrant	6/410
9/1/1798	Rappelyea, J.	Cashow, M.	7/136
5/11/1805	Kershows, M. & M.	Thompson, J.	8/178
7/21/1806	Sharpe, P., & Sands, L. & C.	Thompson, J.	8/376
9/7/1820	Drake, J.	Berry, J.	12/594
10/25/1845	Sharpe heirs	Berry, J.	138/26
1/5/1849	Berry heirs	Fowler, C.H.	189/34
5/7/1849	Berry heirs	Van Scoy, C.H.	195/205
5/7/1849	Van Scoy, C.H.	Berry, R.	195/209
4/1/1850	Fowler, C.H.	Berry, R.	214/194
7/7/1864	Berry, R.	Harbeck, J.H. & W.H.	636/451
5/1/1873	Harbeck, J.H. & W.H.	Cullen, E.M.	1104/145
5/1873	Cullen, E.M.	Peoples Gas Light Co.	1104/149
11/6/1895	Peoples Gas Light Co.	Brooklyn Union Gas Co.	3/297
7/1/1896	Brooklyn Union Gas Co.	Mollenhauer Sugar Refining Co.	5/168
7/5/1896	Guaranty Trust Co. of New York City & New York Guaranty & Indemnity Co.	Mollenhauer Sugar Refining Co.	5/170
7/5/1896	Metropolitan Trust Co.	Mollenhauer Sugar Refining Co.	5/173
7/31/1899	Ford, W.H., Frothingham, J.H., Kings Co. Elevated RR Co., & Mercantile Trust Co.	Belmont, A.	11/326
7/31/1899	Ford, W.H., Frothingham, J.H., Fulton Elevated RR Co, & Central Trust Co.[2]	Belmont, A.	11/339
8/13/1937	Mollenhauer Sugar Refining Co. of New York	National Sugar Refining Co.	5592/432
10/20/1937	New York State Tax Commission	Mollenhauer Sugar	55923/93
10/6/1938	National Sugar Refining Co. of New Jersey	F & M Schaefer Brewing Co.	5658/86
1/13/1939	New York State	F & M Schaefer Brewing Co.	5670/63
10/7/1939	F & M Schaefer Brewing Co., & Edison Co., Inc.	Agreement	5923/351
11/26/1939	New York City	F & M Schaefer Brewing Co.	5945/162

[1] Block 2154 closed 12/31/1940, see 2134a after.

[2] No entry until 1937.

Appendix A
Conveyances (cont'd)

Date	Grantor	Grantee	Liber/Page
Modern Block:2134a[1]			
2/7/1941	F & M Schaefer Brewing Co.	Brooklyn Edison Co., Inc.	5977/376
4/24/1941	New York State	F & M Schaefer Brewing Co.	6012/4
10/2/1942	*New York State*	*Declaration*	6237/54
7/28/1943	Brooklyn Edison Co., Inc.	F & M Schaefer Brewing Co.	6362/196
7/28/1945	City of New York	F & M Schaefer Brewing Co.	6732/393
3/22/1946	City of New York	F & M Schaefer Brewing Co.	6874/517
5/28/1946	New York State	F & M Schaefer Brewing Co.	6921/276
5/5/1947	City of New York	F & M Schaefer Brewing Co.	7120/664
Modern Block:2134/Historic Block:2158[2]			
2/5/1694/5	Estate of J. &. J. Kipp	Boben, J.	2/26
10/7/1895 [sic]	Van Brevort, H., Brevort, J.H., Jochems, D. & Miserole, J., Sr.	Declaration	2/68
11/21/1695	Stevens, J., Jochems, D., & Miserole, J., Sr.	Declaration	2/75
5/9/1699	Town of Breucklyn	Minutes of Town Meeting	2/191
5/9/1699	Town of Breucklyn	Minutes of Town Meeting	2/191a
5/13/1702	Freeholders of Brooklyn	Hanssen, J. & J., & Van Dwyn, C. as Trustees of Freeholders of Brooklyn	2/225
5/13/1702	Freeholders of Brooklyn	Minutes of Town Meeting	2/225a
5/13/1702	Freeholders of Brooklyn	Minutes of Town Meeting	2/226
?	Town of Bushwick	Praa, P.	4/38
5/8/1739	Patentees of Town of Brooklyn	Freeholders of Brooklyn	5/96
1/31/1789	Kershow (Carshow), M.	Nostrant, J., & Rapelye, J.	6/410
9/1/1798	Rappelyea, J.	Cashow, M.	7/136
5/11/1805	Kershow, M. & M.	Thompson, J.	8/178
7/21/1806	Sharpe, P., & Sands, L. & C.	Thompson, J.	8/376
3/5/1816	Bloom, B.	Bloom, Boerum, & Ousterman	11/454
3/5/1816	Bloom, Boerum, & Osterman [sic]	Remsen, A.A.	11/458
3/9/1816	Remsen	Boerum, A.	11/461
9/7/1820	Drake, J.J.	Berry, J	12/564
10/25/1845	Sharpe heirs	Berry, J.	138/26
11/20/1846	Boerum & Hanfield	City of Brooklyn	156/61
1/8/1849	*Berry heirs*	Lethridge, R.	189/82
5/29/1849	Lethridge, R.	Berry, A.J.	196/335
12/4/1849	Berry heirs	Berry, J.	206/153
9/8/1852	DeBevoise, M	Boerum, B.B.	293/274
5/13/1853	Lovell, G.	Berry, J.	323/93

[1] Block closed 12/21/1950, see 2134b.

[2] Block 2158 closed 12/31/1950, see 2134b after.

Appendix A
Conveyances (cont'd)

Date	Grantor	Grantee	Liber/Page
Modern Block:2134/Historic Block:2158[1] (cont'd)			
1/31/1854	Berry, J.	Charlick, O.	350/153
4/3/1855	Charlick, O.	Brooklyn Ferry Co	390/421
12/27/1856	Boerum, B.B.	Boerum, M.	438/428
1/24/1857	Boerum, B.B.	Maurice, J. (assignee for B.B. Boerum)	440/218
1/30/1857	Austin, S. & Boerum B.B.	Maurice, J. (assignee for Austin & Boerum)	440/439
4/18/1862	Campbell, A. (sheriff)	Waterbury, J.M.	572/377
?	Brooklyn Ferry Co.	New York & Brooklyn Ferry Co.	652/84
5/4/1868	Campbell, A. (sheriff)	Waterbury, J.M.	821/159
4/15/1869	Berry heirs	Berry, J.	881/269
7/24/1879	New York & Brooklyn Ferry Co.	New York Ferry Co.	1362/32
1/3/1880	Estate of Berry, J.	New York Ferry Co.	1375/327
3/11/1884	New York Ferry Co.	Mollenhauer, J.	1545/226
2/2/1885	Campbell, A. (sheriff)	Waterbury, J.M.	1591/45
2/25/1885	Estate of Waterbury, J.M.	Mollenhauer, J.	1595/106
2/25/1885	Schenck, M. (formerly M.DeBeviose)	Boerum, B.B.	1594/115
6/24/1885	New York Ferry Co.	Mollenhauer, J.	1616/15
12/5/1890	Brooklyn & New York Ferry Co.[2]	Mollenhauer, J.	2017/19
11/11/1891	Mollenhauer, J.	Mollenhauer Sugar Refining Co.	2076/487
9/3/1898	Brooklyn & New York Ferry Co.	Brooklyn Ferry Co.	10/3
7/31/1899	Ford, W.H., Frothingham, J.H., Kings Co. Elevated RR Co., & Mercantile Trust Co.	Belmont, A.	11/326
7/31/1899	Ford, W.H., Frothingham, J.H., Fulton Elevated RR Co, & Central Trust Co.	Belmont, A.	11/339
7/25/1908	Quinn, J.	New York Terminal Co.	3092/80
5/1/1911	O'Donohue, J.J., Jr. & Husted, S.L., Jr. (trustees)	New York Terminal Co.	3296/159
5/1/1911	Knickerbocker Trust Co.[3]	New York Terminal Co.[4]	3296/167

[1] Block 2158 closed 12/31/1950, see 2134b after.

[2] Formerly New York Ferry Co.

[3] Following this are similar transactions between O'Donohue, Husted, Knickerbocker Trust Co., Columbia Trust Co., and the Brooklyn & New York Ferry Co. to the NY Terminal Co. from c.1911-1916. Liber and page numbers are: 3353/251; 3341/349,396; 3334/352; 3356/128; 3360/202, 3376/4973576/494; 3638/183, 186,193,189. Many deal with the release of ferry and steamboats: *Colorado, Harry B. Hollins, John Englis, New York,* and *Texa.s*

[4] No entry until 1937.

Appendix A
Conveyances (cont'd)

Date	Grantor	Grantee	Liber/Page
Modern Block:2134/Historic Block:2158[1] (cont'd)			
8/13/1937	Mollenhauer Sugar Refining Co.	National Sugar Refining Co.	5572/432
10/20/1937	New York State Tax Commission	Mollenhauer Sugar Refining Co.	5594/93
7/16/1940	National Sugar Refining Co.	F & M Schaefer Brewing Co.[2]	5585/515
Modern Block:2134b[3]			
2/22/1955	State of New York	City of New York	8403/191
11/7/1958	F & M Schaefer Brewing Co.	Consolidated Edison of New York, Inc.	8676/243

[1] Block 2158 closed 12/31/1950, see 2134b after.

[2] Following this record are various transactions between F& M Schaefer Brewing Co., NY State, and NYC between 1942-1947: 6161/110; 6261/256; 6732/393; 6874/517; 6921/276; 7120/664.

Appendix B: Tax Assessment Records

Appendix B
Tax Assessment Records

Year	Owner	Location	Lot Size	House Size	No. Stories	Houses on Lot	No. on Ward Map	Real Estate Value
Modern Block 2134/Historic Block 2154 ***(Block 2)***								
1868	Harbeck & Co.	Ist St. west side				"one on each lot"	1-11	$100,000[1]
1869-71	"	"				"	"	$160,000
1871	Peoples Gas Co.	"					6-11[2]	$160,000
1872-75	"	"				"	"	$200.00
1875	"	"Bounded by S. 10th St., S. 11th St., First St. & East River"				"Gas Houses"	1	$200,000
1876-78	"	"				"	1	$441,000
1878-82	Gas Light Co.	"					1	$441,000
1886-94	People's Gas Light Co.	"Bounded by S. 10th, 11th St., Kent Ave. & East River"						$400,000
1899	Mollenhauer Sugar Refining Co.	"Between East River, Kent Ave., S. 11th St., S. 10th Sts.	202X360[3]	100X200	3		1	$150,000
Modern Block 2134/Historic Block 2158 ***(Block 1)***								
1868	Brooklyn Ferry Co.	1st. St. west side					1-6	$50,000
1869	"	"					"	$62,000
1870-72	"	"					"	$63,000
1873-75	"	"					"	$53,000
1875-77	NY & Brooklyn Ferry Co.	"Bounded by S. 11th St., First St., Boundary line 13th & 19th wards & East River"					1	$53,000

[1] Numbers 1-8 are at 1st Ave. west side; 9 is at S. 10th St. south side and 10-11 are at S. 11th St. north side.

[2] 6-8; 9 (S. 10th St. south side); 10-11 (South 11th St. north side).

[3] Possibly 260 feet.

Appendix B
Tax Assessment Records (cont'd)

Year	Owner	Location	Lot Size	House Size	No. Stories	Houses on Lot	No. on Ward Map	Real Estate Value
Modern Block 2134/Historic Block 2158 *(Block 1)* (cont'd)								
1878	"	"					1	$45,000
1878-82	NY Ferry Co.	"Bounded by S. 11th St., East River, 19th ward"		"Sheds & Stables" dimensions: mostly illegible			1	$45,000
1882	NY Ferry	"Bounded by S. 11th St. (Kent St.), East River, & 19th ward"					1	$45,000
1883	"	"		"			1	$50,000 ("B&H)
1884-85	"						1	$60,000
1886-88	John Mollenhauer	"Bounded by S. 11th St., Kent Ave., East River & 19th ward"					1	$60,000
1889	John Mollenhauer	"Bounded by S. 11th St., Kent Ave., East River & 19th ward"					1	$65,000
1890-91	"	"					"	$65,000 ("new 1890")
1892	"			75X75 75X60 45X45 75X75	8 9 4 2		1	$125,000
1892	Mollenhauer	"		"new sugar house"	2		2	$30,000 (new sugar house)
1893-94	"	"					1	$250,000[1]

[1] Sum is probably for Ward Nos. 1 and 2.

Appendix B
Tax Assessment Records (cont'd)

Year	Owner	Location	Lot Size	House Size	No. Stories	Houses on Lot	No. on Ward Map	Real Estate Value
Modern Block 2134/Historic Block 2158 *(Block 1)* (cont'd)								
1893-95	"	"					1&2	$250,000
1899	Mollenhauer Sugar	"Between Division Ave. & S. 11th St."	132X315	75X75 75X60	8 9		1	$250,000
1899	Mollenhauer Sugar Refining Co.	"	115.5X174	45X45 75X75	4 2		2	$250,000[1]

[1] Includes Ward No. 1 above.

Appendix C: Water

Appendix C: Water Supply

The information listed below is from Index Cards from:

The City of New York Dept. of Water Supply, Gas and Electricity

(Bureau of Water Supply)

Borough of Brooklyn

Section 8, Block 2154, Lot 1

Permit #	Date	Work Done	Location	Measurements	Other
25282	9/5/1918	Tap installed	North side of S. 10th St. 180' west of Kent Ave.	4"; depth of 6'	Special orders from the Governor
10349	12/6/1938	Tap installed	S. 11th St. south 225' west of Kent Ave.	4' x 4"	Street opened 184' west of west curbline of Kent Ave. but no connection was installed; instead an old connection to a power house on the north side of S. 10th St. was used.
16392	7/10/1940	Tap installed	West side of Kent Ave. 50' south of S. 10th St.	20' x 6"	Sidewalk and street were opened.
		Corporation pipe installed	59' south of south curbline	8"; length of 41'	"20x6 Branch new service from between corner to cellar"
16393	7/10/1940	Tap installed	62' south of south curbline of S. 10th St.	28 x 8	Sidewalk and street were opened.
		service pipe installed		8"; new service length=41'	"20 x 8 Branch new service from between corner to cellar"

Section 8, Block 2158, Lot 1

Permit #	Date	Work Done	Location	Measurements	Other
27339	7/18/1919	tap with plug installed	West side of Kent Ave. [?] feet south of S. 11th St.	20' x 8"; depth of 4'	Sidewalk and street were opened.
27619	No date	Plug installed	North side of Division Ave. 16' east of Kent Ave.	Size 4; inserted on 20' pipe	
15307a*	7/2/1940	Pipe destroyed	65' south of curbline of S. 11th St.	12 x 4	Street was opened.
		Service destroyed	West side of Kent Ave.	n/a	
15307b*	7/4/1940	Pipe destroyed	12' south of south curbline of S. 11th St., east of Kent Ave.	Unreadable amount	Street was opened.
15307c*	7/9/1940	Pipe installed	100' south of the south curbline of S. 11th St.	8"	Street was opened.
		Pipe destroyed	Corner of the east side of Kent Ave.	20 x 8	
Notes:	* Three permit cards under one permit number.				

Block 2134, Lot 1

Permit #	Date	Work Done	Location	Measurements	Other
47897	5/24/1966	Pipe installed	430 Kent Ave., west side, 520' north of S. 11th St.	20 x 8	Street and sidewalk were opened.
		Tap replaced	5' south of the north side of S. 10th St. side	New service length=30' x 8" (originally 20 x 8)	
47898	5/24/1966	Tap installed	430 Kent Ave., west side, 500' north of S. 11th St., 15' south of north building line of S. 10th St. side	20 x 8; new service length=25'	Street and sidewalk were opened.
49503	11/23/1966	Tap [w/c?] destroyed	430 Kent Ave., 25' south of south building line of S. 10th St.	20 x 6	Destroyed by a plumber.
[4]9540	12/2/1966	Tap installed	430 Kent Ave., 17' south of south building line of S. 11th St.	20' x 8"; new service length=12'	Street and sidewalk were opened.
6856	6/29/1987	Pipe installed	470 Kent Ave., 3' south of north building line and 6' from east/west curbline.	20' x 1.5"; depth of 3'; new service length=30'	Street and/or sidewalk were opened.
402438	3/17/2006	Copper service pipe installed	460 Kent Ave, 26' south of south building line	20' x 1.5"; depth of 4'; new service length=40'	

*

Appendix D: Soil Borings

AKRF, Inc.

Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-490 Kent Avenue, Brooklyn, NY

AKRF Project Number : 10441

Boring No. SB/MW-1

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller:	ADT
Weather:	80F, Overcast
Sampler:	AKRF/Steve Grone

Start	Finish
Time: 21:05	Time: 21:30
Date: 7/29/05	Date: 7/29/05

Depth (feet)	Recovery (inches)	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	40"	Top 4": ASPHALT. Middle 34": BRICK, some brown fine Sand, trace Silt, Asphalt (FILL). Bottom 2": BRICK (FILL).	ND	No Odor	Dry	SB-1 (1'-2')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4			ND	No Odor	Dry	
5						
6	48"	Top 46": Brown fine SAND and SILT, some Brick (FILL), trace fine Gravel. Bottom 2": Brown SILT.	ND	No Odor	Dry	
7			ND	No Odor	Dry	
8			ND	No Odor	Dry	
9			ND	No Odor	Dry	
10						
11	36"	Brown/gray SILT.	ND	No Odor	Dry	SB-1 (10'-11')
12			ND	No Odor	Wet	
13			ND	No Odor	Wet	
14						
15						
16	48"	Gray SILT, trace fine Gravel.	ND	No Odor	Wet	
17			ND	No Odor	Wet	
18			ND	No Odor	Wet	
19			ND	No Odor	Wet	
20						
21		End of boring at 20 feet below grade.				
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil samples were analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9012).
Groundwater was encountered at approximately 11 feet below grade.

AKRF, Inc.

Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-490 Kent Avenue, Brooklyn, NY

AKRF Project Number : 10441

Boring No. SB-2

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller :	ADT
Weather:	75F, Clear
Sampler:	AKRF/Steve Grene

Start	Finish
Time: 09:00	Time: 08:05
Date: 7/31/08	Date: 7/31/08

Depth (feet)	Recovery (inches)	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	33"	Top 3": ASPHALT. Middle 3": Fine GRAVEL (FILL). Lower 4": Gray fine SAND, some Silt, trace Coal (FILL). Bottom 26": Light brown fine SAND.	ND	No Odor	Dry	SB-2 (1'-3')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4			ND	No Odor	Dry	
5						
6	42"	Top 16": WOOD (FILL). Bottom 26": COAL, COAL SLAG (FILL), some fine Gravel, weathered Rock fragments, trace orange/brown fine micaceous Sand.	ND	Slight Creosote-like odor	Dry	SB-2 (6'-9')
7			ND	Slight Creosote-like odor	Dry	
8			ND	Slight Creosote-like odor	Dry	
9			ND	Slight Creosote-like odor	Wet	
10						
11	30"	Top 24": WOOD (FILL). Bottom 6": Weathered ROCK (Schist), trace fine Sand.	ND	Slight Creosote-like odor	Wet	
12			ND	Slight Creosote-like odor	Wet	
13			ND	Slight Creosote-like odor	Wet	
14						
15						
16	10"	WOOD (FILL), some Rock fragments, fine Sand, Silt.	ND	Marsh Gas-like odor	Wet	
17						
18		End of boring at 17 feet below grade due to refusal.				
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil samples were analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9012).
Groundwater was encountered at approximately 9 feet below grade.

AKRF, Inc.

Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-490 Kent Avenue, Brooklyn, NY

AKRF Project Number: 10441

Boring No. SB-3

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller:	ADT
Weather:	78F, Clear
Sampler:	AKRF/Steve Grone

Start	Finish
Time: 10:00	Time: 10:30
Date: 7/31/05	Date: 7/31/05

Depth (feet)	Recovery (inches)	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	28"	Top 3": ASPHALT. Middle 3": CONCRETE. Bottom 20": Brown fine SAND and SILT, trace fine Gravel.	ND	No Odor	Dry	SB-3 (1'-3')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4						
5						
6	30"	Brown fine SAND and SILT, trace fine Gravel.	ND	No Odor	Dry	SB-3 (6'-7')
7			ND	No Odor	Dry	
8			ND	No Odor	Wet	
9						
10						
11	28"	GLASS and fine GRAVEL (FILL), some gray fine Sand.	ND	No Odor	Wet	
12			ND	No Odor	Wet	
13			ND	No Odor	Wet	
14						
15						
16	32"	GLASS, fine GRAVEL, CONCRETE (FILL), some gray fine Sand.	ND	Marsh Gas-like odor	Wet	
17			ND	Marsh Gas-like odor	Wet	
18			ND	Marsh Gas-like odor	Wet	
19						
20						
21		End of boring at 20 feet below grade.				
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil samples were analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9012).
Groundwater was encountered at approximately 7.5 feet below grade.

AKRF, Inc.

Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-480 Kent Avenue, Brooklyn, NY

AKRF Project Number : 10441

Boring No. SB-4

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller :	ADT
Weather:	85F, Clear
Sampler:	AKRF/Steve Grens

Start	Finish
Time: 13:00	Time: 13:40
Date: 8/5/05	Date: 8/5/05

Depth (feet)	Recovery (inches)	Surface Condition: Concrete	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	36"	Top 6": CONCRETE. Bottom 30": Brown fine SAND and SILT.	ND	No Odor	Dry	SB-4 (1'-3')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4						
5						
6	6"	WOOD (FILL), trace dark brown fine Sand and Silt.	ND	Slight Creosote-like odor on wood	Dry Wet at 7" on liner	SB-4 (6'-7')
7						
8						
9						
10						
11	60"	Top 30": Brown fine to medium SAND, some Silt. Bottom 30": Brown organic SILT.	ND	No Odor	Wet	
12			ND	No Odor	Wet	
13			ND	No Odor	Wet	
14			ND	No Odor	Wet	
15			ND	No Odor	Wet	
16	60"	Brown fine to medium SAND, some Silt.	ND	No Odor	Wet	
17			ND	No Odor	Wet	
18			ND	No Odor	Wet	
19			ND	No Odor	Wet	
20			ND	No Odor	Wet	
21		End of boring at 20 feet below grade.				
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil sample SB-4 (1'-3') was analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9

Soil sample SB-4 (6'-7') was analyzed for VOCs (Method 8260) only.

Groundwater was encountered at approximately 7 feet below grade.

AKRF, Inc.

Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-490 Kent Avenue, Brooklyn, NY

AKRF Project Number : 10441

Boring No. SB/MW-5

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller :	ADT
Weather:	80F, Clear
Sampler:	AKRF/Steve Grens

Start	Finish
Time: 10:15	Time: 13:40
Date: 7/29/05	Date: 7/29/05

Depth (feet)	Recovery (inches)	Surface Conditions Concrete	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	36"	Top 12": CONCRETE; Bottom 24": Dark brown fine SAND and SILT, some Coal Slag, Brick (FILL).	ND	No Odor	Dry	SB-5 (1'-3')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4						
5						
6	42"	Top 12": Dark brown fine SAND and SILT, some Coal Slag, trace Ash (FILL). Bottom 30": Gray/ brown fine SAND and SILT, some Coal Slag, Coal Ash (FILL), trace fine Gravel.	ND	No Odor	Dry	SB-5 (8'-9')/MW-5 (8'-9')
7			ND	No Odor	Dry	
8			ND	No Odor	Dry	
9			ND	No Odor	Dry	
10						
11	18"	WOOD fragments, some brown/gray organic Silt.	ND	No Odor	Wet	
12			ND	No Odor	Wet	
13						
14						
15						
16	40"	Fine GRAVEL, some gray organic Silt.	ND	Marsh Gas-like odor	Wet	
17			ND	Marsh Gas-like odor	Wet	
18			ND	Marsh Gas-like odor	Wet	
19			ND	Marsh Gas-like odor	Wet	
20						
21		End of boring at 20 feet below grade.				
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil samples were analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9012).
Groundwater was encountered at approximately 10 feet below grade.

AKRF, Inc.

Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-490 Kent Avenue, Brooklyn, NY

AKRF Project Number : 10441

Boring No. SB-6

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller :	ADT
Weather:	95F, Clear
Sampler:	AKRF/Steve Grens

Start:	Finish:
Time: 11:10	Time: 12:30
Date: 8/5/05	Date: 8/5/05

Depth (feet)	Recovery (inches)	Surface Condition: Concrete	PID Reading (ppm)	Odor:	Moisture	Soil Samples Collected for Lab Analysis
1	48"	Top 6": CONCRETE. Middle 2": COAL, some gray fine Sand,Silt (FILL). Bottom 40": Brown fine SAND and SILT, some Fine Gravel, trace Brick (FILL).	ND	No Odor	Dry	SB-6 (1'-2')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4			ND	No Odor	Dry	
5						
6	54"	Top 8": Brown fine SAND and SILT, some fine Gravel. Middle 3": ROCK fragments (SCHIST), trace Silt. Bottom 43": Brown fine to medium SAND, some Silt, trace fine Gravel.	ND	No Odor	Dry	SB-6 (6'-7')
7			ND	No Odor	Dry	
8			ND	No Odor	Wet	
9			ND	No Odor	Wet	
10			ND	No Odor	Wet	
11	60"	Top 24": Brown fine to medium SAND and SILT. Bottom 36": Brown organic SILT.	ND	No Odor	Wet	
12			ND	No Odor	Wet	
13			ND	No Odor	Wet	
14			ND	No Odor	Wet	
15			ND	No Odor	Wet	
16	00"	Brown organic SILT, some fine Sand.	ND	No Odor	Wet	
17			ND	No Odor	Wet	
18			ND	No Odor	Wet	
19			ND	No Odor	Wet	
20			ND	No Odor	Wet	
21		End of boring at 20 feet below grade.				
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil samples were analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9012).
Groundwater was encountered at approximately 7 feet below grade.

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Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-490 Kent Avenue, Brooklyn, NY

AKRF Project Number: 10441

Boring No. SB-7/8

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller:	ADT
Weather:	76F, Clear
Sampler:	AKRF/Steve Greis

Start	Finish
Time: 11:00	Time: 11:30
Date: 7/31/08	Date: 7/31/08

Depth (feet)	Recovery (inches)	Surface Condition: Concrete	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	48"	Top 4": CONCRETE. Middle 8": BRICK, COAL, COAL SLAG, some black fine Sand, trace Silt (FILL). Bottom 36": Brown SILT, trace fine Gravel.	ND	No Odor	Dry	SB-7/8 (1'-3')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4			ND	No Odor	Dry	
5						
6	60"	Brown SILT, trace fine Gravel.	ND	No Odor	Dry	SB-7/8 (8'-9')
7			ND	No Odor	Dry	
8			ND	No Odor	Dry	
9			ND	No Odor	Dry	
10			ND	No Odor	Dry	
11	37"	Brown SILT, trace fine Gravel.	ND	No Odor	Wet	
12			ND	No Odor	Wet	
13			ND	No Odor	Wet	
14			ND	No Odor	Wet	
15						
16	28"	Top 24": Brown SILT, trace fine Gravel. Bottom 24": Fine GRAVEL, some gray Silt.	ND	Marsh Gas-like odor	Wet	
17			ND	Marsh Gas-like odor	Wet	
18			ND	Marsh Gas-like odor	Wet	
19						
20						
21		End of boring at 20 feet below grade.				
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil samples were analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9012).
Groundwater was encountered at approximately 9.5 feet below grade.

AKRF, Inc.

Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-400 Kent Avenue, Brooklyn, NY

AKRF Project Number : 10441

Boring No. SB/MW-9

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller:	ADT
Weather:	80F, Clear
Sampler:	AKRF/Steve Grella

Start	Finish
Time: 17:20	Time: 17:55
Date: 7/29/05	Date: 7/29/05

Depth (feet)	Recovery (inches)	Surface Condition: Concrete	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	28"	Top 8": CONCRETE. Bottom 20": Fine GRAVEL, some brown fine Sand, Silt.	ND	No Odor	Dry	SB-9 (0.5'-2')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4						
5						
6	8"	Top 6": Fine GRAVEL, some brown fine Sand, Silt. Bottom 2": Fine GRAVEL.	ND	No Odor	Dry	SB-9 (6.5'-7')
7						
8					Wet at 8' on liner	
9						
10						
11	30"	Gray organic SILT, some fine Gravel.	ND	Marsh Gas-like odor	Wet	
12			ND	Marsh Gas-like odor	Wet	
13			ND	Marsh Gas-like odor	Wet	
14						
15						
16	10"	Fine GRAVEL, some gray organic Silt.	ND	Marsh Gas-like odor	Wet	
17			ND	Marsh Gas-like odor	Wet	
18						
19						
20						
21		End of boring at 20 feet below grade.				
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil sample SB-9 (0.5'-2') was analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 90

Soil sample SB-9 (6.5'-7') was analyzed for VOCs (Method 8260) only.

Groundwater was encountered at approximately 8 feet below grade.

AKRF, Inc.

Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-490 Kent Avenue, Brooklyn, NY

AKRF Project Number : 10441

Boring No. SB/MW-11

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller :	ADT
Weather:	80F, Clear
Sampler:	AKRF/Steve Grena

Start	Finish
Time: 10:05	Time: 10:45
Date: 7/20/05	Date: 7/20/05

Depth (feet)	Recovery (inches)	Surface Condition: Concrete	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	36"	Top 12": CONCRETE. Middle 10": Dark gray SILT and fine SAND. Bottom 17": BRICK (FILL), some brown fine Sand, Silt, trace fine Gravel.	ND	No Odor	Dry	SB-11 (1'-3')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4						
5						
6	60"	Top 42": Fine GRAVEL, some brown fine Sand, Silt. Middle 10": Black fine SAND and SILT. Slight sheen noted on soil. Bottom 8": WOOD (FILL), trace gray Silt.	ND	No Odor	Dry	SB-11 (8'-9')
7			ND	No Odor	Dry	
8			1.3	Creosote-like odor	Dry	
9			3.1	Creosote-like odor	Dry	
10			ND	Creosote-like odor	Wet	
11	36"	Grey organic SILT.	ND	Marsh Gas-like odor	Wet	
12			ND	Marsh Gas-like odor	Wet	
13			ND	Marsh Gas-like odor	Wet	
14						
15						
16	48"	Gray organic SILT.	ND	Marsh Gas-like odor	Wet	
17			ND	Marsh Gas-like odor	Wet	
18			ND	Marsh Gas-like odor	Wet	
19			ND	Marsh Gas-like odor	Wet	
20						
21		End of boring at 20 feet below grade.				
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil samples were analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9012).
Groundwater was encountered at approximately 9.5 feet below grade.

AKRF, Inc.

Environmental Consultants
440 Park Avenue South, 7th Floor
New York, NY 10016

470-490 Kent Avenue, Brooklyn, NY

AKRF Project Number : 10441

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller :	ADT
Weather:	90F, Clear
Sampler:	AKRF/Steve Grone

Boring No. SB/MW-12

Sheet 1 of 1

Start	Finish
Time: 20:05	Time: 20:30
Date: 7/29/05	Date: 7/29/05

Depth (feet)	Recovery (inches)	Surface Condition: Concrete	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	48"	Top 12": CONCRETE. Middle 18": Gray/brown fine SAND, some Coal Slag, Brick (FILL). Bottom 18": Brown SILT, trace fine Sand.	ND	No Odor	Dry	SB-12 (1'-3')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4			ND	No Odor	Dry	
5						
6	52"	Top 4": SLOUGH (gray/brown fine SAND, some Coal Slag, Brick). Bottom 48": Gray SILT.	ND	No Odor	Dry	SB-12 (8'-9')
7			ND	No Odor	Dry	
8			0.6	Creosote-like odor	Dry	
9			20.9	Petroleum-like odor	Dry	
10			14.3	Petroleum-like odor	Wet	
11	36"	Gray SILT.	9.2	Petroleum-like odor	Wet	
12			0.8	Petroleum-like odor	Wet	
13			0.4	Petroleum-like odor	Wet	
14						
15						
16	24"	Gray SILT, some fine Gravel.	0.1	Petroleum-like odor	Wet	
17			ND	Petroleum-like odor	Wet	
18						
19						
20						
21		End of boring at 20 feet below grade.				
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected
Soil samples were analyzed for VOCs (Method 8260); SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9012).
Groundwater was encountered at approximately 9.5 feet below grade.

AKRF, Inc.

Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-490 Kent Avenue, Brooklyn, NY

AKRF Project Number : 10441

Boring No. SB-13

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller :	ADT
Weather:	80F, Clear
Supplier:	AKRF/Steve Grohs

Start	Finish
Time: 12:35	Time: 13:25
Date: 7/20/05	Date: 7/20/05

Depth (feet)	Recovery (inches)	Surface Condition: Concrete	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	36"	Top 4": CONCRETE. Middle 6": Gray fine SAND, some Silt, trace fine Gravel. Bottom 27": Brown fine SAND, some Silt, trace fine Gravel, Brick (FILL).	ND	No Odor	Dry	SB-13 (0.5'-2')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4			ND	No Odor	Dry	
5						
6	56"	Top 28": Brown fine to medium SAND, some Silt, trace fine Gravel. Bottom 11": Brown medium to coarse SAND and fine GRAVEL, trace Silt, Wood (FILL).	ND	No Odor	Dry	SB-13 (7'-9')
7			ND	No Odor	Dry	
8			ND	No Odor	Dry	
9			ND	No Odor	Wet	
10						
11	54"	Top 4": Fine GRAVEL, trace brown medium Sand. Bottom 50": Brown medium to coarse SAND, trace fine Gravel, Silt.	ND	No Odor	Wet	
12			ND	No Odor	Wet	
13			ND	No Odor	Wet	
14			ND	No Odor	Wet	
15			ND	No Odor	Wet	
16	55"	Brown medium to coarse SAND, trace fine Gravel, Silt.	ND	No Odor	Wet	
17			ND	No Odor	Wet	
18			ND	No Odor	Wet	
19			ND	No Odor	Wet	
20			ND	No Odor	Wet	
21		End of boring at 20 feet below grade.				
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil samples were analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9012).
Groundwater was encountered at approximately 8.6 feet below grade.

AKRF, Inc.

Environmental Consultants

440 Park Avenue South, 7th Floor
New York, NY 10016

470-490 Kent Avenue, Brooklyn, NY

AKRF Project Number : 10441

Boring No. SB-14

Sheet 1 of 1

Drilling Method:	Direct Push
Sampling Method:	Macro Core
Driller:	ADT
Weather:	80F, Clear
Sampler:	AKRF/Steve Grens
Start:	Finish:
Time: 11:30	Time: 12:30
Date: 7/31/06	Date: 7/31/06

Depth (feet)	Recovery (inches)	Surface Condition: Asphalt	PID Reading (ppm)	Odor	Moisture	Soil Samples Collected for Lab Analysis
1	40"	0-3": Asphalt. 3"-12": CONCRETE. 12"-42": Black fine SAND, some Brick, Coal (FILL), trace Silt, fine Gravel. 42"-44": Light brown fine SAND and GRAVEL, 44"-48": Black fine SAND, some Brick, Coal (FILL), trace Silt, fine Gravel.	ND	No Odor	Dry	SB-14 (1'-3')
2			ND	No Odor	Dry	
3			ND	No Odor	Dry	
4			ND	No Odor	Dry	
5						
6	60"	Top 48": Brown organic SILT, trace fine Gravel. Bottom 2": Gray organic SILT, trace fine Gravel.	ND	No Odor	Dry	SB-14 (5'-7')
7			ND	No Odor	Dry	
8			ND	No Odor	Dry	
9			ND	Petroleum-like odor	Wet	
10						
11	20"	Fine GRAVEL, some gray Silt, fine gray Sand.	ND	Petroleum-like odor	Wet	
12			ND	No Odor	Wet	
13			ND	No Odor	Wet	
14			ND	No Odor	Wet	
15			ND	No Odor	Wet	
16		End of boring at 15 feet below grade.				
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

Notes: PID - Photoionization detector ND - Not Detected

Soil samples were analyzed for VOCs (Method 8260), SVOCs (Method 8270), Pesticides (Method 8081), PCBs (Method 8082), TAL Metals and Cyanide (Method 9012).
Groundwater was encountered at approximately 7.5 feet below grade.