6382D
HP 2004

Silvercup Rezoning: Vernon Boulevard

Long Island City, Queens, NY

PHASE 1A
ARCHAEOLOGICAL ASSESSMENT

05DCP080Q

876

PHASE 1A ARCHAEOLOGICAL ASSESSMENT

Silvercup Rezoning: Vernon Boulevard

Long Island City, Queens, NY

Prepared for: Silvercup Studios
42-22 22nd Street
Long Island City, NY 11101

Prepared by: Historical Perspectives, Inc.
P. O. Box 3037
Westport, CT 06880

Primary Author:
Richard Schaefer, Ph.D.

February 2004

CONTENTS

I. INTRODUCTION 1

II. ENVIRONMENTAL SETTING 3

III. PREHISTORIC ERA 5

IV. HISTORICAL BACKGROUND 10

Construction History of the Project Site . . . 20

V. CONCLUSIONS AND RECOMMENDATIONS 25

Recommendations – Prehistoric Archaeological Sensitivity . . . 28

Recommendations – Historical Archaeological Sensitivity . . . 33

BIBLIOGRAPHY 34

Figures

Photographs

Appendix A: Environmental Remediation Location Maps and Surveys

Appendix B: Soil Boring Location Map and Logs

I. INTRODUCTION

According to environmental review requirements, a Phase 1A archaeological assessment is required for the proposed Silvercup Rezoning parcel in the Queensboro Bridge waterfront area of Long Island City, in the Borough and County of Queens, New York. (Fig. 1)

The Silvercup Rezoning property subject to this Phase 1A encompasses three lots, Lots 13, 15 and 20 on Block 477 extending a total of 257.31 feet along the west side of Vernon Boulevard, and running westward to the East River, in the Long Island City section of the Queens County. Immediately north of the parcel is the Queensboro Bridge, a stone footing of which lies just 30 feet north of the subject property. (Fig. 2)

Lot 13 is an irregularly-shaped parcel along Vernon Boulevard, extending westward approximately 275 feet along the north side of Lot 15, narrowing from 42.41 feet on the east (Vernon) to 20.08 feet on the west.

Lot 20 is a rectangular lot with an 87-foot frontage on Vernon Boulevard to the east, and extends 47 feet westward. It is bordered on the remaining three sides (west, north and south) by Lot 15. It is occupied by the 1892 Office Building built for the New York Architectural Terra Cotta Company, which building is now a New York City Landmark. According to current design plans, the Lot 20 will not be impacted by the proposed rezoning action, and will not be included in the archaeological assessment.

Lot 15 is the largest lot of the subject parcel, and is irregular in area, surrounding Lot 20 on three sides, with a Vernon Boulevard frontage of 21.4 feet south of Lot 20 and 106.5 feet north of Lot 20. From Vernon the Lot extends approximately 510 feet west to the U.S. Pierhead and Bulkhead Line. There, Lot 15 runs 215 feet along the East River.

The southern part of the Silvercup Rezoning site, approximately half of the total area, was previously surveyed and tested for archaeological resources by Historical Perspectives, Inc., and will not require further archaeological evaluation (HPI 2000; HPI 2001). Those reports are on file with the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP), and were also used in preparing the current study.

METHODOLOGY

This Phase 1A documentary study, prepared by Historical Perspectives, Inc., is designed to determine the presence, type, extent and significance of any archaeological resources which may have been present on the subject parcel, and the likelihood that these resources have survived post-depositional disturbances, including construction, regrading and other land use which may have accompanied subsequent development. If archaeological resources are present and have survived, their archaeological integrity must also be considered.

In order to address these concerns, various sources of data were researched. Primary source material on the project site was collected to determine the study lots' original topography, and to compile a building

history, filling and disturbance record. Historical maps and descriptions of the study area were sought at the Local History and Map Divisions of the New York Public Library, and the Long Island Division of the Queens Library. The logs from a series of four soil borings, performed in December 2002 (Langan 2002), and environmental site assessments and remediation reports (IVI Environmental 1999a and 1999b) were provided by Silvercup Studios. (For Boring logs, see Appendix)

To place the project parcel in its historical context, both local and regional histories and archival materials have been examined. Because the project parcel was once part of the New York Architectural Terra Cotta Company, which began production there in 1886, the archives of the company, stored in the Avery Architecture Library at Columbia University were systematically examined. Building records relating to the terra cotta manufactory were sought at the Queens Buildings Department, but unfortunately no files were available. A site inspection was made on November 21, 2003, to confirm existing conditions, and the Silvercup Rezoning site was photographed. (See Photos 1-12)

II. ENVIRONMENTAL SETTING

Long Island is the top of a Coastal Plain ridge formation that is covered with glacial drift, in reality an elevated sea bottom demonstrating low topographic relief and extensive marshy tracts. In the last million years, as glaciers advanced and receded three times, the surficial geology of the island, including the project site, was profoundly altered.

> *The glacier was an effective agent of erosion, altering the landscape wherever it passed. Tons of soil and stone were carried forward, carving and planing the land surface. At the margins of the ice sheet massive accumulations of glacial debris were deposited, forming a series of low hills or terminal moraines.*
> (Eisenberg 1978:19)

Circa 18,000 years ago, the last ice sheet reached its southern limit, creating the Harbor Hill moraine that traverses the length of Long Island. The complex rising and subsidence of the coastal plain, relieved of its glacial burden, and the rising sea level, caused by the volume of melting ice, created the coastline of embayed rivers and estuaries, with extensive tidal marsh and meadow tracts, which stabilized approximately 3,000 years ago (Schuberth 1968:195,199). These tidal marshlands are highly vegetated, relatively calm environments where fine-grained sediments and organic detritus accumulate, creating thick deposits.

The vicinity of Newtown Creek (1.25 miles south of the subject parcel) and its smaller tributaries, with their surrounding marshlands, is a good example of this sort of environment. Although the project lots themselves were in a dry, elevated position along the East River shore, an arm of marshland and the unnamed stream which drained it, once came as close as 1,200 feet to the southeast of the project lots. (Figs. 4, 5). Now filled in, this marsh and former stream are now only discernable by the presence of a bulkheaded canal outside the project site, 2,250 feet to the south, near present 45th Avenue.

According to historical maps, the project lots sloped gently downward toward the East River on the west, the shoreline consisting of a beach which varied in width from 30 to 80 feet (east/west). (Fig. 4) During the 19th century the project lots were extended by filling operations an additional c.90 feet into the East River. (Fig. 11)

CURRENT CONDITIONS

At present, only one building, the terra cotta factory's 1892 Office Building, still stands near the southeast corner of the site, on present Lot 20. (Photos 7-10) A topographic survey of the project site is provided in Appendix A. Proceeding from east to west, the project site slopes generally downward, with elevations highest north of the Office Building, reaching above 19 feet (above mean high water)on Lots 13 and 15 and below 16 feet adjacent to the building itself on Lot 20. with the downslope increasing closer to the shoreline. (Photo 3) The exception is the abrupt, upward slope bounded by the chainlink fence along the Vernon Avenue frontage, where elevations rise to as much as three feet above the adjacent sidewalk. (Photo 1)

A cracked and broken concrete slab covers most of the area behind (west of) the Office Building and Vernon Avenue. (Photos 2, 7) As a result this area is fairly level. The denseness of the brush and grasses, which at the time of the site inspection (November) were over seven feet tall, made it difficult to determine the boundaries of the concrete, but it appears to extend at least 160 feet west of Vernon Avenue. (Photo 3)

On the western half of the parcel the elevations decline more and more sharply as the shore (elevation 0) is approached. A number of excavated tanks, debris, and old tires have been piled dumped in this part of the site. At the northern edge of the site, adjacent to the Queensboro Bridge pier, the location of a 1997 excavation to remove tanks is still visible. (Photo 4)

At the East River shore is the remains of the timber bulkhead, and loose rocks and concrete piping are piled along the riverbank. Only sections of the bulkhead are still present, and the remaining sections have been undermined, with the landward sides of the remaining timbers and metal ties exposed. (Photo 5)

Soil Boring Logs

A log of four soil borings (Appendix B; Langan 2002) indicate the presence of a fill overmantle at all locations on the project parcel. The layer of fill was thickest (approximately 10 feet) on the eastern and most elevated portions of the site, and decreased (6 feet) toward the shoreline of the East River on the west. The fill contained various building and paving materials, i.e., brick, concrete, wood and cobbles, which is expected, considering a five-story brick factory building was demolished there. No terra cotta fragments were identified, although this does not mean they were not present. Ash was also reported in all the borings, also not unexpected given the presence of terra cotta kilns in operation for more than 50 years.

Although soil boring B-1 appears to have been drilled on the location of the terra cotta factory's massive and basemented Main Building, it is one of the locations which surprisingly has only 6 feet of fill. It is unlikely, however, that the extreme slope of the western half of the property, declining approximately 10 feet from east to west on the location of the old Main Building footprint, represents the topography of the property at the time of the plant's operation or immediately following the Main Building's demolition. Representations of the terra cotta plant always show the subject parcel as level. It is probable that the construction of the terra cotta factory involved a certain amount of regrading of the original sloping topography.

The present steep slope from east to west suggest the buildup of demolition debris (at least 10 feet) in the eastern part of the site, and the thin layer of fill in the western part of the site, as well as the deterioration of the shoreline and the bulkhead, give the strong probability that a great deal of erosion has taken place. Although masked by the growth of brush, it is most evident along the shoreline, which has eroded between 5 to as much as 25 feet behind the bulkhead.

III. PREHISTORIC ERA

PREHISTORIC CULTURE PERIODS

The prehistoric era on western Long Island can be divided into three time periods, based on prehistoric man's adaptations to changing environmental conditions. These are generally known as the Paleo-Indian (c.12,000 to c.10,000 years ago), the Archaic (c.10,000 to c.2,700 years ago) and the Woodland (c.2,700 to c.500 years ago). These prehistoric periods are followed by the proto-historic and historical European Contact period, (beginning c.500 years ago), which is distinguished from the prehistoric by the first Native American contacts with European trade goods, traders, trappers, fishermen, explorers and settlers. From these early contacts we derive much of our firsthand knowledge of Native American culture. In order to be able to assess the project site's potential for prehistoric exploitation, it is first necessary to review briefly these time periods and their associated settlement patterns.

Archaeologists generally believe that humans migrated from Siberia to Alaska across the Bering Land Bridge during the Late Pleistocene, more than 12,000 years ago. The **Paleo-Indian** period, c.12,000-10,000 B.P. (Before Present), encompasses the interval from the end of the Pleistocene glacial conditions in eastern North America to the appearance of more modern environments during the Holocene. A post glacial conifer cover, consisting mainly of spruce and pine, was gradually augmented by the appearance of hardwoods, such as oak and hickory, trees which provide greater food resources for humans compared to conifers. Another food source, oysters, occurred in great numbers on the southern Atlantic Shelf from c.12,000 B.P.

The Paleo-Indians also hunted the large Pleistocene herbivores, such as mammoth, mastodon, caribou and musk oxen. The diagnostic artifact of the Paleo-Indian period is the fluted projectile point, which was originally attached to a spear. Gravers, steep-edge scrapers, knives, drills and other unifacial tools were used as well. These nomadic people roamed widely in search of sustenance and their settlement pattern is characterized by small, temporary camps, shellfish- processing stations and lithic reduction stations (Lenik 1989:31; Ritchie 1980:7).

The **Archaic Period**, c.10,000 to 2,700 B.P., is characterized by a series of adaptations to the newly-emerged, full Holocene environments. As the period progressed, the dwindling meltwater from the disappearing glaciers, and the resultant reduced flow of streams and rivers, promoted the formation of swamps and mudflats, congenial environments for migratory waterfowl, edible plants and shellfish. The new mixed hardwood forests of oak, hickory, chestnut, beech and elm attracted white-tailed deer, wild turkey, moose and beaver. The large herbivores of the Pleistocene were rapidly becoming extinct, and Archaic Period humans became increasingly dependent on smaller game and the plants of the deciduous forest.

Tool kits were more generalized during the Archaic compared to the Paleo-Indian period, containing a wider array of plant processing equipment such as grinding stones, mortars and pestles. Animals were still hunted with spears or javelins, propelled by a spear throwing device called an atlatl. Notched stone sinkers provide the earliest evidence of net fishing (Lenik 1989:29,30). Toward the end of the Archaic, carved soapstone bowls were introduced.

Archaic hunters and gatherers were organized into small bands which occupied locations along the Atlantic coast and estuaries during the warmer months, and moved to the interior during the colder months. Archaic settlements usually consist of small, multi-component sites, and a number of functional site types such as spring fishing camps along major streams, fall open-air hunting camps, rockshelter habitations, shellfish collecting and processing stations, mortuary sites, quarry and workshop sites and semi-permanent villages (Boesch 1997:10).

From approximately 2,700 B.P. until the arrival of the first Europeans, c. 500 B.P., Native Americans of the **Woodland Period** on western Long Island and in the surrounding area shared many cultural attributes. The period saw the advent of horticulture, and with it the appearance of large, permanent or semi-permanent villages. Plant processing tools became increasingly common, suggesting the extensive harvesting of wild plant foods. Maize cultivation may have begun as early as 800 years ago. Replacing the spear and javelin, the bow and arrow were introduced at this time, as well as pottery vessels and pipe smoking. A semi-sedentary culture, the Woodland Indians moved seasonally between villages within palisaded enclosures and campsites, hunting deer, turkey, raccoon, muskrat, ducks and other game; and fishing with dugout boats, bone hooks, harpoons and nets with pebble sinkers. Their shellfish refuse heaps, called middens, sometimes reached immense proportions, covering as much as three acres (Ritchie 1980:80,267).

Following the earliest recorded visit of Europeans to the New York City area, the exploration of New York Bay by Giovanni da Verazzano in 1524, descriptions of Native Americans and their settlements were recorded, providing another source of data to buttress archaeological inferences about Indian lifeways in the **Contact Period**.

Daniel Denton, who lived in Jamaica and Hempstead on Long Island, published his observations of the local Indians in his *Description of New York* in 1670:

> They live principally by hunting, fowling and fishing, their wives being the husbandmen, to till the land and plant the corn. The meat they live most upon is fish, fowl and venison . . . They build small moveable tents, which they remove two or three times a year, having their principal quarters where they plant their corn; their hunting quarters and their fishing quarters (Thompson 1843:I 80).

The cultivation of maize, a previously unnecessary supplement to an already rich diet, and an increasingly sedentary lifestyle, became more widespread during the Contact Period, probably due to trade relations with Europeans. Shell bead and wampum production was increased, and furs were collected by Native Americans for exchange. Although there are many ethnohistorical accounts of trade, there is little archaeological evidence of this in the region (Kraft 1991:213). Shellfish remained an important food source. Isaac Jogues who visited New Netherland (present New York) in 1633-1634, observed the "great heaps" of oyster shells made by the "savages, who subsist in part by that fishery" (Jogues 1862:29).

Apparently, the larger villages developed into permanent settlements, whose populations expanded and contracted with the availability of various natural food resources, while agriculture provided a storable surplus to maintain a smaller population throughout the year. Part of the population still

migrated between food sources, inhabiting smaller seasonal campsites. Unfortunately, this period of growth was interrupted by epidemics of European diseases against which the Indians had no natural immunity, resulting in the decimation of their populations.

PREHISTORIC ARCHAEOLOGICAL POTENTIAL

The archaeological and historical investigation of northwestern Queens during the nineteenth and twentieth centuries has recorded a definite Native American presence in the general vicinity of the project area prior to, and at the time of, settlement of the region by the first European colonists. The site inventories of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) and the New York State Museum (NYSM) record seven prehistoric sites within approximately 1.5 miles of the subject lots. In an attempt to describe more accurately the generalized locations provided by the site inventories, the information provided was supplemented by other archaeological and historical sources, namely Bolton (1972; 1922), Parker (1920) and Grumet (1981). The sites are discussed in order of increasing distance from the project lots.

NYSM #3613, ACP Kings No # is a site in Greenpoint, Kings County, at the mouth of Newtown Creek. Archaeologist Arthur C. Parker1 reported "traces of occupation" there (Parker 1920). It lies approximately 2,500 feet southwest of the study area, on the opposite shore of Newtown Creek.

OPRHP #A081-01-0100 "Sunwick" was described by archaeologist Reginald Bolton who reported that Sunwick (also Sunwicks or Sunswicks) was a "native station" which yielded shell deposits and a few artifacts. (Fig. 3) Sunwick was in Ravenswood Park, and although the original Ravenswood Park lay roughly between 38th and 43rd Avenues from 11th to 21st Streets, roughly 80 feet east of the project site, the site description better conforms to the location pinpointed by the New York State Museum at present Rainey Park, along the East River Shore, about 1 mile to the north northeast of the study parcel (Bolton 1922; Grumet 1981). Sunswick Creek drained a marshy area beginning about 1.3 miles north northeast of the study area near 21st Street and extending southward. (Fig. 3).

NYSM#4538, ACP Queens No # refers to a village site in Long Island City, Queens. Parker's published map appears to show the village approximately centered on 35th Avenue and Crescent Street (Parker 1920), which would place it about 1 mile northeast of the study lots.

NYSM #4061, ACP-NYRK No # identifies "traces of occupation" across the East River in Manhattan, at approximately 74th Street and First Avenue, a little over 1 mile from the project site.

---

1 Parker's research into the known prehistoric sites of New York State identified a number of sites within New York City, which he describes, and often gives numbered designations (ACP#) in his 1920 publication, "The Archaeological History of New York." The NYSM locates these sites based on his maps.

NYSM #4535, ACP Queens 12 identifies a shell heap or midden found at Sanford's Point in Astoria, Queens. Parker writes that "early and modern relics" were recovered, and Bolton mentions "various Indian objects." Parker's map places the midden on the northern shore of Hallett's Cove, about 1.5 miles north northeast of the study area (Parker 1920; Bolton 1972). Also, **NYSM#8217 (ACP Queens No #)** is a camp site, north of the shell heap discussed above, at Sanford's Point, in Astoria, Queens (Parker 1920).

NYSM#4537, ACP Queens 14 identifies a burial site in Long Island City, Queens. Parker places this burial on Crescent Street, but does not provide the cross street. His map seems to put it northeast of the village site (NYSM#4538 decribed above) on or northeast of Broadway, which would mean that it was at least 1.3 miles northeast of the project site (Parker 1920). Bolton reports human burials (note the plural), "near Crescent Street," although his map siting is the same as Parker's (Bolton 1972). The locations and comments provided by the NYSM suggest two or more burials, giving two locations, both centered on Crescent Street.

In addition to archaeological evidence, recorded Native American place names, or *toponyms*, are also an indication of a Native American presence in the study area. Prior to canalling and filling during the 19th and 20th centuries, Dutch Kills, a stream which was a major drainage channel for the marshes along Newtown Creek, was called ***Canapaukah,*** possibly meaning "fenced water place," in reference to a fishing weir (Grumet 1981:5,71). Dutch Kills once ran generally southeastward, approximately 3,800 feet east of the study lots, and flowing into Newtown Creek, 1.25 miles to the south. (Fig. 3)

The third component in assessing a site's prehistoric archaeological potential is the physiographic profile of the project site, i..e., would the project lots have furnished Native Americans with the topographical features and environmental resources that would have been attractive to their settlement on, and/or exploitation of the project site. As described in the preceding paragraphs, Native American settlement patterns during the prehistoric period show a marked preference for sheltered, elevated sites close to wetland features, sources of fresh water as well as the confluences of major waterways.

As discussed in the Environmental Setting section, the Silvercup Rezoning project site is in a well-drained, elevated location along the shore of the East River. Salt marshes, which would have provided rich sources for hunting and gathering of animals and plants were as close as 1,200 feet to the south. The unnamed stream which drained this marshland, now only discernable by the presence of a bulkheaded canal just south of present 45th Avenue once crossed the Vernon Boulevard road bed near present 45th Avenue, also came as close as 1,200 feet to the southeaast of the project lots. (Figs. 4, 5)

If this stream were not infiltrated by the brackish water of the East River, which in reality is not a river but a tidal estuary, it may have been a valuable source of fresh water. On the other hand, the distance of 1,200 feet from a possible fresh water source would also suggest that the location was not optimal for a permanent settlement, and other superior locations were available in the area.

Based on these topographical features and environmental resources, as well as the documented presence of Native Americans in the vicinity of the study lots, the project site, although unlikely to have been the site of a village or other long term settlement, has a high potential for having been exploited by prehistoric man for such temporary uses as hunting, fishing and foraging camps as well as raw material processing stations.

IV. HISTORICAL BACKGROUND

The historical settlement of northwestern Queens, an outlying section of the Town of Newtown, was somewhat hampered by its relative isolation. Situated on the shores of the East River, the area's natural cultural and commercial focus was Manhattan Island, however, the bustling settlement of New York City was far distant until the massive expansion of its industry and population during the 19th century. The vicinity of the project area was also isolated by extensive marshes which prevented easy and direct overland connections with the town seat, Newtown village, which was quite distant, about four miles to the east.

Only two dwellings appear along the East River shoreline in 1781, and three by 1814 and into the 1820s. The nearest building to the project site can be identified on later maps as a residence of the Payntar family, which lay 500 feet to the south, at about present 43rd Road and Vernon Boulevard (Clinton 1781). The subject lots appear to part of the Payntar farm. The other two houses lay to the north of the project lots, and were owned by the Totten family and George Gibbs. It was Gibbs and his associates who conceived the idea of developing the area as one of New York City's first suburban residential "Gold Coasts," a village which they named Ravenswood (Cohen and Augustyn 1997:107,109).

LONG ISLAND FARMS

Prior to the residential development of Ravenswood, however, the project area vicinity was purchased by the Corporation of City of New York. The City viewed the vicinity of the project area as a suitable location for an orphan asylum and home for pauper children. This is somewhat curious, considering the fact that Manhattan Island itself was only sparsely developed in the areas opposite the Ravenswood shoreline. Although a City Almshouse already existed on Blackwell's (now Roosevelt) Island, the Almshouse Commissioners wanted to remove the children from the real and perceived negative influences of their adult counterparts. As was common practice in the 19th century, they also wanted to combine the children's asylum with a "junior farm" in order to generate some income toward the upkeep of the institution, as well as providing the denizens with useful employment.

In 1831, the City purchased, a part of the Joseph Totten tract for $10,000. According to local historian Vincent Seyfried, this land lay between present 38th and 41st Avenues. Four large wood frame structures were erected between 1834 and 1835, including two dormitories, identified as a "Boy's Nursery" and a "Girl's Nursery," the "School House," and the "Infant's Nursery." (Fig. 4) The Totten purchase must have been one of several land purchases made by the City of New York, since in 1845 when the institution closed, City-owned property extended south of 38th Avenue, as far as present 44th Drive, an area which included the project lots, land formerly owned by the Payntar family (Cohen and Augustyn 1997:109).

In fact, the 1845 auction map records all the Asylum structures as lying south of 41st Avenue (outside the "Totten" tract). The schoolhouse, a large building with a T-shaped footprint, about 175 by 110

feet, was on Lot 15 of the present project site, while the boys' dormitory stood about 200 feet to the north, the infants' nursery was approximately 200 feet to the south, and the girls' dormitory about 600 feet south, opposite present 43rd Road. (Fig. 4) At one point there were over 600 children living and working (Seyfried 1984:49) on what came to be known as the "Long Island Farms". Historical maps also record the name as "Corporation Farms" (Coast Survey 1844-45; Colton 1844).

According to the 1840 census, the total population of the institution, called by the census taker, "Long Island Nurseries," was 763. Including the superintendent, William H. [Guess] (name illegible) there were 15 men and 108 women (adults over the age of 20) who must have made up the staff. Of the juvenile population, 656 were children, 80% of whom were below the age of 10, and 72% were boys. The school run on the site was referred to as a "Primary and Common School," and one child was identified as "deaf and dumb," while 15 were classified as "insane and idiots" (U. S. Census 1840).

The City ran the institution until approximately 1845, when it temporarily moved the operation to present Roosevelt Island, in anticipation of the completion of a new facility on Randalls Island. The property in Queens, divided into 14 lots was sold at auction on April 15, 1845. Three of the lots, containing the project site schoolhouse, the "Infant's Nursery" and the "Boy's Nursery," were purchased by the Rev. William Niles. It does not appear that he had any particular plans for the properties.

In 1847, Niles leased his three vacant buildings to the New York State Commission on Immigration for use as temporary quarantine hospitals. This was a reaction to the alarming spread of a form of typhus that was known as "ship fever," which had made its way to New York, and was approaching epidemic levels. It was believed to have been brought to America by Irish refugees fleeing the potato famine, made still worse by the filthy and overcrowded ships on which they were forced to travel. Niles signed papers on May 26, 1847, and the first patients were expected to appear the very next day, May 27 (Sullivan n.d.; Seyfried 1984:50).[2]

Although the site was quite isolated, the residents of Astoria, approximately 1.5 miles to the north northeast, where frightened and outraged by the thought of having carriers of the deadly disease domiciled in their vicinity. The second of two public protest meetings was held in Astoria at 8 p.m.on May 26, and despite short notice, was attended by between 50 and 80 men. The meeting, attended by a number of substantial men of business and other "respectable" farmers and residents, continued until between 10 and 11 p.m., at which time the protesters, fearing that "the contagion would be among them" by the time daylight came, took matters into their own hands, and proceeded to the property in question to destroy the buildings, then valued at $40,000. According to the reports of the *Williamsburgh Post* and the *Brooklyn Eagle*, they were met by Niles' teenaged sons, armed with a loaded gun, and a night watchman, Thomas English (Sullivan n.d.; *Brooklyn Eagle* 5/29/1847:2).

[2] Seyfried mistakenly reports the year as 1845, when the fire actually took place in 1847 (*Brooklyn Eagle* 5/29/1847:2).

Almost every man in the mob had a wooden bludgeon, and only one had thought to bring an axe. Despite their lack of preparation and English's attempts to dissuade them, the men broke all the windows, and then cut up the doors for kindling, eventually starting fires in all three of Niles' buildings. By the time firemen had arrived from Williamsburgh, three miles away, the buildings had burned to the ground (Sullivan n.d.).

The southernmost building, the "Girl's Nursery" near 43rd Road, had been acquired by a Mr. Robinson of New York City. Since he did not contract with the authorities to turn his building into a "fever hospital," the dormitory survived the mob, and a James Robinson was still listed as the owner of the property in 1874 (Dripps 1874). According to an 1891 interview, a section of the girls' dormitory was converted into a hotel (Bushman's Hotel – 356 Vernon Boulevard at Bodine Street/43rd Road) (Seyfried 1984:50).

RAVENSWOOD

Colonel George Gibbs, a wealthy New York businessman, and a number of his associates came up with the idea of creating a beautiful private residential park along the East River with a view of Manhattan Island and the growing metropolis of New York. They chose the name "Ravenswood." The origin of the term has several versions, all of them probably fanciful. Gibbs' name and residence appears on maps in 1814 and 1821, about 4,000 feet northeast of the subject parcel (Cohen and Augustyn 1997:107,109). When he died in 1833, his widow sold the Ravenswood land to brothers Charles and Peter Roach, and Samuel Throckmorton. The three laid out nine riverfront estates accessible only by water, clustered north of 34th Avenue (Sidney 1849).

An access road, constructed in 1840 as Astoria Turnpike, evolved into Vernon Avenue and finally present Vernon Boulevard, (Seyfried 1984:50-51). This began development of the area in earnest. By August 19, 1852, the *Gazette* was able to report:

> *Buildings are going up in every direction and much taste is manifested by the owners in arranging and decorating their grounds. John H. Williams of the firm of Williams & Stevens, wholesale looking-glass manufacturers, has contracted with Mr. J. M. Whitney . . . for the construction of a sea wall 12 feet high on the shore of the East River fronting his grounds. A terrace is to run along the water front giving a beautiful promenade six feet wide. Mr. Williams has four houses in process of erection which, when completed, will command a beautiful prospect as the ground shelves off gradually to the river on one side and the Astoria Turnpike on the other. He has also contracted for the erection of three other buildings at a short distance from the embankment.* (Seyfried 1984:51)

As noted, this early construction was a number of blocks north of the subject parcel, but the closing of the Long Island Farms orphan asylum and the auctioning off of the property in 1845, and the subsequent burning of most of the buildings in 1847, freed the project site and the rest of the shoreline south of present 38th Avenue for residential use. John S. Harris joined John Williams in the development of the area, at first purchasing land between 38th and 41st Avenues, about 1,000 feet

north of the project site (Seyfried 1984:51-2). Harris' own residence appears to have been along Vernon Boulevard directly to the south of present 43rd Avenue, approximately 275 feet south of the project parcel, where two Harris family dwellings are recorded in 1849. A never-built "paper" street there was once called Harris Street in his honor (Sidney 1849). (Fig. 10)

Elegant mansions proliferated, each landscaped with immense trees and tastefully laid out gardens. The riverside promenade was stipulated in the ownership deeds and was a popular place for friends to gather and stroll. Some residents built boat houses and small docks, and others had bath houses for swimming in the unpolluted East River. Seven hundred and fifty feet east of the project site, Ravenswood Park, open to the public, was laid out east of what is now Tenth Street, between 38th and 43rd Avenues (Dripps 1874). Steamboats landed at the foot of 37th Avenue and carried residents back and forth to lower New York (Seyfried 1984:52), and a trolley line ran along Vernon Boulevard. (Fig. 10)

Even in the heyday of Ravenswood's incarnation as an wealthy residential enclave, the lands directly east of the waterfront were not completely residential, but hosted a number of commercial and industrial concerns. Most notable because of the grisly story of its destruction, was a small one-story building at 43rd Avenue and 10th Street, where was housed a business which assembled gun cartridges. Some thirty poor Irish girls and boys from Astoria, aged 10 to 18, were employed there, about 600 feet east of the subject parcel, where they filled metal cartridges with gunpowder. On a cold January day in 1854, their stove ignited some of the powder, and the *New York Tribune* reported that the resulting explosion blew out windows for a mile around. The immediate area was showered with the limbs and flesh of fifteen children (Seyfried 1984:53).

Curiously, the subject parcel seems to have remained empty for a number of years following the burning of the Long Island Farms Schoolhouse. The property was acquired by Willie or Willy Wallach at the end of the 1860's, when his residence is listed as "Long Island" in the New York City Directory (Trow's 1869) and his name appears on maps of the project lots by 1873. (Fig. 6) Willy Wallach (also Wallack) was born in 1820 in the Hesse-Cassel area of central Germany. He had emigrated to America in 1848 and made his fortune selling commercial stationery, establishing a business in New York City at the intersection of John Street and Broadway. He erected a house on the western half of the subject parcel (now Lot 15), and the value of his real estate holdings was estimated at $35,000 in 1870. According to the 1870 census he lived with his New-York born wife, Fanny, and their four children. The household was completed by four Irish girls in their 20's, who served as domestics (U.S. Census 1870). Wallach died at Ravenswood on February 12, 1882. Sold in March 1883 for $30,000, the estate became property of the newly-incorporated New York Architectural Terra Cotta Company (Seyfried 1984:51-52; Dripps 1874). The history of the New York Architectural Terra Cotta Company will be discussed in detail in the next section.

The location of Ravenswood, close to New York City, and with the transportation advantage of being on the East River, made it an ideal location for industry. The well-to-do gradually left, and like Wallach's property, mansions were converted into offices and factories. The Gottlieb Gunther estate, immediately south of the project lots, was also purchased by the New York Architectural Terra Cotta

Company, the Hinchmann estate to the south of that became a stoneyard, and south of the Hinchmanns the famous Bodine Castle and grounds became part of Young & Metzner's paper and jute bag factory in 1893 (Seyfried 1984:60).

By the beginning of the twentieth century, the project site and its surrounding area were entirely given over to commercial and industrial puroses. The promenade was no longer used by pedestrians, and in response to a 1904 lawsuit, the Supreme Court ruled that the original deed restrictions creating it were obsolete, since the neighborhood had lost its residential character. Thus owners could extend fences and other construction to the bulkhead line (Seyfried 1984:55).

The great expansion of Queens County's population began in earnest in 1909 and 1910, when respectively, the Queensboro Bridge opened, and the Pennsylvania Railroad tunneled under the East River. At the time there were 284,041 people living in Queens, and its real estate was valued at three hundred million dollars. In twenty years, the population had almost quadrupled and the assessed valuation had increased sixfold (WPA 1939:560). The boom continued as subway lines expanded and more bridges and tunnels opened, and today there is almost no open space left in Queens.

THE NEW YORK ARCHITECTURAL TERRA COTTA COMPANY

The history of the NYATCC is inescapably joined to the history of terra cotta use in the United States. James Renwick, the well-known architect of St. Patrick's Cathedral and Grace Church, both New York City Landmarks, was an advocate of terra cotta as an alternative to cut stone as early as 1853. Renwick used terra cotta ornament on a number of now-demolished buildings with success. His first source was a drainpipe manufacturer named Alexander Young, who had exhibited his wares in London at the Great Exhibition in the "Crystal Palace." As with any new material or technique, terra cotta had its detractors and sceptics. Stonecutters and masons, threatened by the potential loss of trade, vigorously protested the use of terra cotta, warning that it was not at durable as stone, and would not last. This turned out to be untrue, as proven by evidence both from northern Italy and New York City, where after 75 years, terra cotta has held up much better than brownstone (Tunick 1997:1).

Durability is one of terra cotta's advantages; terra cotta moldings hold their sharp detail better even than those of granite. It is stronger and lighter than stone, and even fireproof. Another great advantage is that architects are able to see their designs at full size before irreversibly set by firing. Walter Geer, who became President of the New York Architectural Terra Cotta Works and of necessity an enthusiastic admirer of the material, wrote "Terra-cotta may not compare with masonry in accuracy of lines, but with it you can produce the most beautiful surface, the most charming variety of tints, and the most brilliant effects of light and shade" (Geer 1891:29).

Despite these claims, terra cotta was not successful at first, and was used primarily for such items as chimney pots and decorative urns. Renwick, discouraged by the early lack of success, wrote in 1886: "we were ahead of the times, and could find no one who understood or would venture to use it. The buildings . . . in which it was used, belonged either to my family or friends who had confidence in my judgement." (Tunick 1997:1).

The recipient of Renwick's lament was Orlando Bronson Potter, a New York real estate developer. After ordering 540 tons of terra cotta from the Boston Terra Cotta Company for use in the Potter Building on Park Row in New York City, Potter wanted to be able to produce the terra cotta for future buildings himself. He was especially attracted to terra cotta because of its fire resistance; the previous building on the site of the Potter building had been destroyed in a tragic fire. That same year (1886), along with Asahel Clarke Geer, Potter founded the New York Architectural Terra-Cotta Company (NYATCC).

Potter was fortunate in securing the services of James Taylor, an Englishman often referred to as the "Father of American Architectural Terra Cotta." By the time he emigrated to the United States in 1870 at the age of 31, Taylor had already served five years as superintendent of the famed J. M. Blashfield & Company, the largest terra cotta works in England. He sought to begin his own firm in the vicinity of New York City, but the prevailing misconceptions about architectural terra cotta prevented him from attracting the needed investors. Although he had purchased a farm in Port Monmouth, New Jersey, Taylor left New York for Chicago, where he became superintendent of the Chicago Terra-Cotta Works. Between his expertise and the fact that Chicago was in the midst of rebuilding after the Great Fire of 1871, fireproof terra cotta was much in demand there. Taylor improved the quality of the molds, introduced more advanced English production techniques, and had the first muffle kiln in the United States built. The muffle kiln, was a double-walled kiln with an interior divider between the heat source and the product. It prevented damage to, and soiling of the terra cotta caused by direct exposure to flames (Tunick 1997:6-7). The muffle kiln eliminated the need for saggers, basically containers in which the product was placed to address the same problem. (See Fig. Muffle Kiln 1871)

Leaving Chicago in 1876, Taylor worked for several concerns before joining the Boston Terra Cotta Company in 1880. Although the firm was Boston-based, its market focus was New York and Philadelphia, and Taylor spent much of his time in New York City with clients, where he came into contact with Potter. According to the treasurer of the Boston company, it was Taylor who "induced" Potter and Geer to organize the NYATCC in 1886, of which Taylor became Superintendent (Tunick 1997:2-10). By that time, the tide of terra cotta's popularity had begun to turn. Americans got a taste of terra cotta's potential as early as 1876, when the work of European craftsmen was exhibited at the Centennial Exhibition in Philadelphia. American clay work was unartistic and unimaginative in comparison. In response, the Philadelphia School of Industrial Arts, and later other schools, formed ceramic departments to teach the artistic side of clayworking.

Excavations for the foundations of the new factory on the present study parcel began on February 1, 1886. It is likely that Taylor was instrumental in choosing a site so near the city. Most factories were established near their clay pits, but Taylor reasoned that it was cheaper to transport the clay than the finished product, and also that it was important to maintain close contacts with builders and architects. Another plus was that it was easier to find and keep the needed skilled workers in urban areas than out in the countryside. The first brick of the NYATCC plant was laid on February 15, and the first kiln load fired on May 10 (Tunick 1997:12; Geer 1891:21).

Less than three months after the factory had begun operation, a fire destroyed all but a portion of the walls on Saturday evening, July 17, 1886. However, the business initially showed so much promise that the structures were rebuilt. By October of the same year, with the addition of a sprinkler system and four kilns instead of the original three, the works was back in business (Florio 1982:2). As an interesting aside, the fire was not mentioned in a book about terra cotta architecture by Walter Geer, son of the co-founder and later President and Chairman, Ashael Geer. Walter Geer did, however, point with pride to the sprinkler system and other safety precautions, even though installed a little too late.

Until 1892, when the current building was completed, the company's Long Island City offices were in a former Ravenswood mansion, probably the Gunther residence immediately south of the project parcel(Ibid.). (Fig. 11) Taylor presided over production, serving as superintendent until leaving the company in 1893, ostensibly due to ill health. There were also conflicts and ill-feelings within the firm, however. Contrary to all other assessments of Taylor in the industry, where he was considered the last word in all things terra cotta, President Walter Geer later characterized Taylor as a man who refused to learn and was "unable to adapt himself to changed conditions and improved methods." For his own part, Taylor had already noted the jealousy of the company officers by 1888, but in the same correspondence in which he was offering advice and solace to NYATCC's competitors. After his retirement, when Taylor provided a chapter on local terra cotta manufacturers for a book,[3] he did not mention the NYATCC (Tunick 1997:14).

The still-extant NYATCC Office Building, standing on the Vernon Boulevard frontage of the project site, is both inside and out, a virtual three-dimensional company catalogue. (Photos 9, 10) In addition to his superintendency, Taylor obviously did terra cotta modelling for the NYATCC, since a panel on one of the still extant fireplace mantels in the new building bears his signature. (Photo 11) The building itself was designed by Francis H. Kimball, a pioneer in the use of ornamental terra cotta, and is a New York City Landmark. Kimball is perhaps more famous for his earlier Montauk Club (1889-91) in Park Slope, Brooklyn. The Venetian-inspired terra cotta on this building was also manufactured by the NYATCC (Geer 1929:XVI; White and Willensky 2000:713, 819). As one of the leading manufacturers of ornamental terra cotta, important buildings buildings around the country were embellished with NYATCC products. They include: the Ritz Carlton Hotel in Philadelphia; the Statler Hotel in Detroit; the Municipal Building in Dallas, Texas; the Valley National Bank in Des Moines, Iowa and the H. Birks & Son Building in Vancouver, British Columbia. Other important New York buildings include the Plaza Hotel and City Landmark buildings such as Carnegie Hall (1889-1891) and the Ansonia Hotel (1904) (Geer 1929:XVI).

As architectural styles evolved, becoming more streamlined and less ornate during the 1920's, carved stone as well as terra cotta was used less and less frequently. Although some companies survived, many merged or went out of business. One of the casualties was the NYATCC, which went bankrupt in 1932. In 1933, the Eastern Terra Cotta Company, with Richard Dalton, a former NYATCC

---

[3] *A History of Real Estate, Building and Architecture in New York City during the Last Quarter of a Century,* published in 1898.

director, as president, took over the NYATCC properties and continued to use the facility into the 1940s. The Eastern Terra Cotta Company manufactured the ornament for many of the construction projects directed by Robert Moses during this period. After the Eastern Terra Cotta Company closed, the equipment and materials were sold in 1944 to the Federal Seaboard Terra Cotta Corporation, whose plant was in New Jersey (Florio 1982:5; Tunick 1997:135-136).

The 1950 real estate atlas shows the NYATCC project lots being used partly for storage, partly for the manufacture of plastic products, and partly for the sorting and "balling" of waste paper. (Fig. 20). The NYATCC buildings, except for the surviving Office Building, were torn down in 1976 (Florio 1982:5).

THE TERRA COTTA MANUFACTURING PROCESS

The manufacturing process for terra cotta was carried out in multiple stages. As noted above, the organization and siting of the NYATCC, following James Taylor's vision, was somewhat unusual for terra cotta manufacturers, since it operated in an urban area to be near the builders, architects and other clients. This directly affected the plant organization and layout, since acreage was somewhat limited, and therefore the activities of manufacture were organized vertically in the Main Building rather than horizontally. The Main Building, the largest building on the site, was a brick structure of five stories with a basement,[4] approximately 175 by 190 feet. (See Fig. Geer)

The urban location also meant that the factory was far from the source of clay. Proper raw materials were important, since one of the advantages of terra cotta was the variety of colors possible. Each shade and tint of terra cotta called for the mixing of different clays from different localities. Most of the NYATCC clay came from northern and central New Jersey, although the company also imported some clays from other parts of the country. The location of the factory and Main Building, directly along the East River, made it possible for the clays to be transported by boat. Clays for manufacturing terra cotta were unloaded on the company docks on the subject parcel (and on lots adjacent to the current project site on the south, now the New York Power Authority property).

Clay Processing

Before molding and sculpting could begin, additional processing was necessary after the clay arrived on the NYATCC docks. First it was dumped into bins and allowed to weather. This increased plasticity, and also caused the clay to dry out and becom e crumbly. It was then washed to remove impurities, and mixed with ***grog*** (Veit 1999:7). All architectural terra cotta required a percentage of a grog (previously fired and ground terra cotta, and also ground fire brick, saggers, sanitary ware, hollow tile or special clays), which acted as a temper, minimizing shrinkage, giving strength, and reducing cracking and warping during firing.

Depending on the specific job and finished effect desired, there was a carefully formulated ratio of

---

[4]Geer counts the basement as a story, so according to his account the building had *six* stories, and for the use of this report, ***all*** of his locational comments will be corrected. See the 1915 Sanborn map.

different clays, known as the claybody. If a light-colored slip or glaze finish was desired, then the claybody could not contain metallic oxides such as iron or manganese, which would cause the clay to turn red or brown during firing. The proper level of vitrification, or hardness, and the proper texture, were other important considerations (Tunick 1997:38). To make the claybody, each type of clay was piled on top of the other, in up to twelve layers, and perpendicular slices were made through these layers (Florio 1982:2).

Grog was added in the appropriate amount for each formula, and the clays were either mixed in a trough using shovels or in a pugmill. A pug mill has been described as an "inverted cone . . . having a series of steel knives or blades fixed on the interior. Between those blades, similar blades were made to revolve on a vertical axis."[5] After being passed through the pug mill, the clay was cut into chunks and stored for about a year. The aging process contributed to its plasticity (Veit 1999:7; Tunick 1997:40; Florio 1982:2).

According to Walter Geer's 1891 account of the NYATCC, this process took place in the basement of the Main Building, which is labelled "MILL" in 1915, referring to the pugmill stage (Geer 1891:22-23). (Fig. 17) An illustration from Geer's 1891 book shows clay being transferred directly from the docks into the Main Building. (Fig. 8) The clay pits in the basement held about 1,500 tons of clay. According to notations on later Sanborn atlases, clay was also stored on lots to the south, outside the project site, until at least 1915. (Fig. 17)

Model and Mold Department

Meanwhile, the client had provided the NYATCC with a set of scale drawings, and plans for the steel framing. The company drafting department would create drawings showing full-size details, including the joints and construction details. These were submitted to the architect. Once approved, the drawings went to the model and mold department, which, in 1891 and 1915 was on the fifth floor of the Main Building, labelled "PLASTER SHOP" in 1915 (Geer 1891:23). (Fig. 17) Here the drawings were used to create full-sized clay or plaster models, which were then approved by the architect prior to the casting of plaster molds. Most factories also had photography departments, which not only documented the work, but also sent the pictures to the architect, for written approval, if he were too distant to view the models in person. Once the models were approved, the molds were prepared, dried and sent on to the pressing department (Tunick 1997:33-34,36).

Pressing and Finishing Departments

In the pressing and finishing departments clay was packed and pressed into the plaster molds so that all the design details were realized. Molded pieces were not solid terra cotta, but hollow, with interior clay partition walls for strength and holes in the interior walls, to provide for easier handling during subsequent production processes and attachments for metal anchors for installation. This part of the process took place on the third and fourth floors of the Main Building, labelled "PRESS R'M" in 1915. (Fig. 17)

---

[5]Harley J. McKee, *Introduction to Early American Masonry: Stone, Brick, Mortar, and Plaster* (Washington, DC: National Trust for Historic Preservation, 1973), 43. As quoted in Veit (1999:8).

Another method, extrusion, came into widespread use in the late 1920s and 1930s, creating simple, flat pieces of terra cotta, in line with the plainer, one-dimensional styles of the period, and also used for creating fireproof veneers. As the name suggests, the claybody was squeezed past a prepared steel die, analagous to the way icing is piped onto a cake through decorative metal nozzles.

Once the piece had hardened sufficiently, but not completely dry, it was removed from the mold, and sent to the finishing department. There edges and seam lines were smoothed, and any other changes could be made prior to allowing the piece to dry completely. Glazes and/or slips6 were sprayed or painted on the pieces depending on the finish desired. The "DRYING R'M" was on the second floor of the Main Building. (Fig. 17) Then the pieces were loaded onto carts and sent to the kiln for firing (Tunick 1997:40-42; Geer 1891:23).

"Burning" Department

The NYATCC kiln structures abutted the east side of the Main Building, providing access directly from the various deparments to the kilns. Geer (1891) mentions communicating rooms on the first floor of the main structure. At the company's founding there were 16 kilns (12 in the five-story section on the Main Building and four larger kilns in the one-story section, later called Kiln Bldg. No. 1), but between 1906 and 1915 three more connected kiln buildings were built to the east of the original, extending all the way to Vernon Boulevard (Kiln Bldg. Nos. 2-4), containing four more kilns. Twelve more small kilns appear in the Main Building in 1915, and an additional kiln appears to have stood in the open space between the Kiln Buildings and the Office Building (Figs. 15, 17). This exactly agrees with a 1916 NYATCC letter , which states that *twenty* kilns "with the necessary stacks" were being operated at the Long Island City plant by 1916 (NYATCC correspondence, 3/24/1916).[7]

Pieces to be fired were carefully stacked in the kiln to prevent warping and the fusing of individual units. A seemingly straightforward activity, firing was a multi-step process took ten to twelve *days,* and was fraught with multiple dangers which could render the entire kilnload useless. In the largest kilns this could mean about 40 *tons* of terra cotta. Another difficulty was in maintaining an even temperature throughout the kiln. This was no small task, since the NYATCC kilns appear to have ranged from approximately 15 to 30 feet in diameter, and were as high as a three-story building, without their smokestacks.

During the first three days the heat was gradually increased, until the temperature of about 2,300° to 2,400° F was reached. This temperature was maintained for three to four days, and then the kiln was gradually cooled for another three or four days, until the fired pieces were cool enough to be removed.

---

[6]Slip is clay mixed with water, applied by spraying or painting to give a piece an even color and texture.

[7] "We would call to your attention the fact that we utilize some twenty kilns, with the necessary stacks . . . and in addition have two high chimneys or stacks in connection with out boilers."

Fitting Department

The final step in producing terra cotta occurred in the fitting department, which was located in the first floor of the Main Building ("FITTING" following Fig. 17), adjacent to the original kilns. There work taken from the kilns was examined, laid out on the floor and assembled, measured, checked for proper fit, and then numbered according to plan in order to facilitate assembly on the building site. The fitting department employed steel "rubbing beds" to straighten joints that did not fit together properly.

Given the size of some of the pieces, a building cornice for example, the fitting department required a great deal of open space. Between 1891 and 1896, the NYATTC expanded the fitting department, providing an additional building, south of the project site. (Figs. 13, 14)

Storage and Shipping

Completed items were packed in hay and some were wedged into special crates to ensure safe transport and arrival. Photographs and drawings of the NYATCC plant dating from c.1896 to c.1908 clearly show finished terra cotta wares as well as pieces crated and ready for shipping. (Figs. 13, 15, 16, 19) Some of this open-air storage is on the project site, in the open area east of the Main Building and kilns, and north and west of the Office Building. This occurred until the area became the site of new kiln structures between 1906 and 1912. (Photo 1906, Hyde 1912)

The majority of the outdoor storage was south of the project site, south of the new fitting building. As can be seen in Figure 13, the movement of the wares within this storage/fitting yard was by handcarts on a series of east-west parallel tracks, with a linear switching pit, approximately three feet in depth on the east end, near Vernon Boulevard. The horse-drawn wagons shown in the 1906 picture probably transported some of the wares, but shipping via the East River would have been less jarring and may have been used frequently. (See Figure 10.) This supposition is corroborated by the enlargement of the docking area by up to 100 feet between 1893 and 1898. (Figs. 11, 12)

CONSTRUCTION HISTORY OF THE PROJECT SITE

The first structure erected on the project site lots was the schoolhouse for the Long Island Farms orphan asylum. This T-shaped wood frame building, approximately 175 feet by 110 feet, was erected c. 1834-1835, and burnt down in 1847. On the land auction map of 1845 (Fig. 4), the school is shown at the center of Lot 8, which has a 300 foot frontage on Vernon Boulevard (then called the "Turnpike Road"), and encompasses the present project lots. The schoolhouse location, 80 to 250 feet west of the turnpike, approximates the area where the Main Building and kilns of the NYATCC were erected (Lot 15).

Following the destruction of the schoolhouse in 1847, no structures are recorded on the lots of the present subject parcel (Lots 13, 15 and 20) until the late 1860's (Walling 1859), when historical documents record the W[illy]. Wallach residence and estate there (Dripps 1874). (Fig. 6) The Wallach property corresponds roughly to boundaries of the current project site. Wallach's residence, on current project Lot 15, will be discussed below.

The two never-built paper streets, Charles Street and Wallach Street appear only on historical maps, and are usually depicted as running along the north and south sides of the Wallach estate. the case of Charles and Wallach Streets. The private owners did not erect any structures in these areas, possibly in anticipation of future street construction. During the early 20th century, however, the streets were gradually incorporated into the lots along the west side Vernon Boulevard.

Charles Street

Charles Street, is drawn on maps in 1874, and was delineated in 1903 as a future 60-foot wide street leading westward from Vernon Boulevard to the East River shore. (Fig. 14) A comparison of the historical maps suggests that the streetbed, particularly the 1893 Hunerbein map, indicates that it was usually drawn as part of the C. H. Rogers estate to the north (Dripps 1874). (Figs. 6, 10, 11)

Wallach Street

According to the detailed Hunerbein map of 1893 (Fig. 11), Wallach Street, along the south side of the Wallach Estate, was equally divided between the Wallach estate and the Gunther estate to the south. The northern 34 feet (30 feet of the Wallach property and a four-foot strip of the Gunther estate) of the never-built 60-foot wide Wallach Street is now part of project Lots 15 and 20.

Lot 13

Lot 13, an irregularly-shaped lot extending approximately 275 feet west of Vernon Boulevard, and with a 42.4-foot frontage on the Boulevard is situated in what would have been the Charles Street roadbed. Although part of the C. H. Rogers estate, its distance from the Rogers Mansion (approximately 130 feet) and the fact that the location was a "paper street," seem to have precluded construction there, until the realignment of the streetbed at the time of the construction of the Queensboro Bridge. The 1903 map outlines Lot 13 for the first time. (Fig. 14)

By 1912 a one-story, woodframe shed appears on the Vernon Boulevard frontage of the lot. The dimensions were approximately 12 by 75 feet. The lot seems to be associated with the NYATCC plant, although the lot is outside the perimeter wall. A rotogravure dated to c.1915 presents a view of the NYATCC works from the north, showing a dilapidated, flat-roofed, 1-story shed on Lot 13. To the west of the shed on Lot 13 and also outside the project site, crates of completed terra cotta are visible. One pile rises above the level of the second flood windows of the adjacent Main Building on adjacent Lot 15. (Fig. 16) The shed remains on the site through the 1950's but was removed by the time that the Main Building on Lot 15 was demolished, in 1976.

Two additional sheds, almost identical to the one described in the previous paragraph, can be seen in the c.1915 rotogravure of the NYATCC. (Fig. 16) These two buildings do not appear on the maps, however. One is at the western end of Lot 13, while the other is farther west and outside the present project site. They were probably demolished at the same time the NYATCC plant was razed.

Lot 15

Lot 15 occupies the bulk of the former Wallach estate, sold to the NYATCC in March 1883 for $30,000. This first land purchase for the NYATCC's plant was described as a "block of ground containing nearly two acres, with a water frontage of over 200 feet on the East River" (Geer 1891:21). Early maps place Wallach's home somewhere on the western half of Lot 15. (See e.g., Fig. 6) According to the NYC Landmarks Commission report, the old Wallach mansion was used for showrooms and private offices (Florio 1982:1). Although its exact location is unclear, since this location correlates with the site of the 1886 Main Building of the NYATCC, use of the mansion would be an impossibility. It is probable that this citation refers to the mansion on the adjacent Gunther estate, outside the project lots, land incorporated into the NYATCC property in 1886. The Gunther mansion was still standing as late as 1891. (Fig. 10).

The Main Building of the NYATCC, the five-story brick structure with basement (described in more detail in the previous section) was erected in 1886. A 1908 property appraisal describes the building dimensions as "about 175 x 190 [feet]" (John N. Golding 1/17/1908). The 1891 map has the main kiln section of the Main Building on the south of the east side of the building, instead of the north, as it is shown on all other maps and images of the plant. (Fig. 10) This projecting wing contained kilns, and was gradually expanded eastward. The 1893 map records a separate building east of the main structure, while an c.1896 illustration shows an attached 1-story wing with two large smokestacks. (Fig. 11) A later diagram of the plant gives dimensions of 29 by 102 feet, and refers to this one-story basemented wing as "Kiln Bldg. (No. 1)." (Fig. 18)

A rectangular, 1½-story, woodframe storage building, constructed in the southeast corner of Lot 15 (immediately west of Lot 20), was present on the site before 1891 (Fig. 10), and is shown in the illustrations of 1891 and c.1896. (Figs. 8, 13) It was razed between 1898 and 1903. (Figs. 12, 14)

A one-story woodframe structure with an irregular footprint is shown in the northeast corner of Lot 15 in both the 1891 and 1893 maps. (Figs. 10, 11) Its function is not clear, and it no longer appears at the time of the 1898 map (Fig. 12), when it is replaced by a one-story L-shaped building which runs along the perimeter of Lot 15, from the Main Building to the Office Building on Lot 20. It appears to be open where it opens on the interior open courtyard north of the Main Building.

The 1898 Sanborn is the first historical map to record the massive landfill operation which expanded the NYATCC site (Lot 15) along the East River shoreline. The property extended approximately 437 feet west of Vernon Boulevard in 1893, with the Main Building virtually on shore. (See e.g., Geer 1891) In 1898, the property extends about 160 feet west of the Main Building, about 530 feet west of Vernon Boulevard.[8] (Fig. 12) With the newly-available space, the NYATCC expanded the Main Building with a new 1-story, woodframe wing along the west/shore side of the structureThis wing, sometimes shown as a separate structure, is labelled "MILL ROOM" in 1915. (Fig. 17). A one-story brick extension was also built on the eastern side of the Main Building in the right angle formed by

[8]This is an estimate based on the 1898 Sanborn map. According to the most recent survey, the property extends to the U.S. Pierhead and Bulkhead Line, 510.7 feet west of Vernon Boulevard.

the two five-story sections. By 1915 this extension had been expanded to the north, and by the 1950s to the east and south as well. (Fig. 20) Also noted for the first time in 1898 was the placement of an oil tank northwest of the Main Building.

By the end of the 1890's a series of brick walls were constructed around the plant. Illustrations suggest that they were at least 10 feet high. One section of the wall enclosed the Lot 15 and 20 sections of the project site, from Vernon Boulevard as far as the western side of the Main Building, and effectively closing off the northern half of the Wallach Street roadbed. The wall also did not enclose the Vernon Boulevard frontage of the Lot 20 Office Building. (Fig. 13)

The 1903 atlas records the earlier removal of all the smaller buildings that appear on the earlier maps. In addition to the Main Building, three small woodframe sheds lie west of the Main Building, and two wooden sheds lie to the east of the Main Building. A line of brick and wooden structures have also been erected in the former Wallach Street roadbed. Three were constructed against the north side of the brick perimeter wall, (Fig. 14) and a plot plan from c.1915 identifies the easternmost building as a shed and the building to the west as a combination shed and oil house. (Fig. 18) Another wooden shed appears outside the perimeter wall at Vernon Boulevard (Fig. 14).
These buildings are not visible in the views of the NYATCC works dating from approximately 1906, apparently obscured by neighboring buildings. Aside from the Main Building, the Office Building and the brick perimeter wall, the remaining parts of the property are shown building-free, and utilized for storage of finished terra cotta. (Figs. 15, 19)

The next major building phase for the NYATCC occurs by 1912, when a brick extension of the kiln area of the Main Building was added at the northeastern corner of the Main Building, along the northern edge of Lot 15. A later plant plan c.1915, refers to this wing as "Kiln Bldg. (No. 2)," with dimensions of 75 by 50 feet, one story and a basement and two kilns (Hyde 1912). (Fig. 18)

The 1915 map records additional expansion to the Main Building, with the construction of "Kiln Bldg. (No. 3)" between Building No. 2 and Vernon Boulevard, and Kiln Bldg. (No. 4)" directly south of Building No. 2, and abutting Building No. 1. Building 3 is described as a one-story brick structure with a basement, 74 by 58 feet. Building 4 was also a one-story brick structure with a basement, 66 by 50 feet. Both contained one kiln each.

An additional kiln, with no apparent building surrounding it, seems to stand in the open area east of Building 4 and south of Building 3. (Figs. 17, 18) It is possible that this "free standing" kiln was enclosed shortly after the plan was completed, for a pre-1916 drawing of the plant shows this open space on Lot 15 occupied by a brick building (Hyde 1927). (Fig. 19)

The 1947 and 1950 maps, which show the plant no longer used for the manufacture of terra cotta (Sanborn 1947). (Fig. 20) The one-story eastern sections of the Main Building are labelled "Plastic Products Mfg, " and waste paper sorting and bailing, rag processing and warehousing in the five-story sections. All the earlier smaller sheds on the property have been removed. The map does not record the presence of the kilns, whose presence would have made it virtually impossible to convert the

building to a different use. According to the historical records, after the plant finally closed, the equipment and materials were sold in 1944 to the Federal Seaboard Terra Cotta Corporation, in New Jersey (Tunick 1997:135-136). The kilns were probably dismantled after the property was sold (Hyde 1955).

The 1980 Sanborn reflects Lot 15 as it appeared in the 1970s, just prior to the demolition of all buildings on the lot. At that time the Main Building was being utilized as a Pepsi Cola warehouse (Sanborn 1980).

Lot 20

Rectangular lot, 87 feet on east and west, and 47 feet on the north and south. It is bounded by Vernon Boulevard on the east, and by Lot 15 on the west, north and south. The southern side of Lot 20 extends approximately 12.5 feet into the former Wallach Street roadbed.

No structures are recorded on the lot until the construction of the NYATCC Office Building in 1892. (Figs. 10, 12) Later photographs and illustrations show the open areas of the NYATCC used as storage for completed terra cotta. (Figs. 13, 19). This still-standing brick structure, 20 feet by 71 feet, has two stories and an attic.

A brick wall approximately 10 feet high was erected around the NYATCC plant before 1896 (Figs. 13, 19), leaving the Vernon Avenue frontage of the Office Building open. A 1906 photograph shows a interior partition, later described as a fence effectively following the western boundary of Lot 20, dividing Lot 20 from present Lot 15. (Fig. 15)

Between 1896 and 1898 a one-story addition was added along the south side of the building. (Fig. 12). This was removed by 1903. (Fig. 14) A photograph from 1906 shows an awning or porch there, and it is labelled "Porch" in the c.1915 site plan. (Figs. 15, 18) A side entrance to the building at that location was noted during the field survey conducted for this report. The porch was removed by 1955 (Hyde 1955).

A narrow two-story el projecting from the rear (west wall) of the 1892 Office Building still stands. (Photos 7, 8) It appears in the earliest map footprints of the building, dating from May 1, 1893, within a year of its completion. (Fig. 11). It was possibly used for storage, since it is virtually windowless. During the site survey, it was noted that the decorative cornice of the main body of the building continues *behind* the walls of the addition, and the bricks of the added wing are not articulated with the bricks of the original part of the structure, but abut the rear wall. The addition also does not continue the terra cotta decoration of the rest of the structure, suggesting, despite the early date of its appearance, that it is not an original part of the building. (Photo 12)

Following the closing of the terra cotta plant, the 1950 map shows a one-story extension of the Main Building on Lot 15 abutting the Office Building on Lot 20 (Hyde 1955). (Fig. 20) This was removed by the time the other buildings on the project lots were torn down in 1976. The Office Building remains the only building standing on the project lots today. The open area of Lot 20 to the south and west still retains earlier concrete paving.

V. CONCLUSIONS AND RECOMMENDATIONS

PREHISTORIC POTENTIAL

Overwhelming evidence exists that Native Americans exploited the natural resources of western Queens for thousands of years before the arrival of the first Europeans. It is also clear that the stream and marshland which once existed within 1,200 feet of the project parcel would have been attractive and rich source of food and raw materials for prehistoric man.

As described in Section III, the settlement pattern data of the prehistoric culture periods reveal a strong correlation between habitation and processing sites and the confluence of two water courses, proximity to a major waterway, marsh resource and/or well-drained, elevated land. A review of the cartographic and historical evidence confirms that these criteria existed existed on or adjacent to the project site.

In addition to the topographic evidence from historical maps, there is also historical and documentary evidence. The research of a number of archaeologists, including Arthur C. Parker and Reginald P. Bolton, as well as historian Robert S. Grumet, into records of Indian settlements, trails, and toponyms, as well as site inventories of the NYSM and the OPRHP, indicate as many as three known prehistoric archaeological sites within one mile of the project parcel.

It seems unlikely that prehistoric or historical period Native Americans would have ignored the resources that were available in the vicinity of the project site. On the other hand, the project site itself, a dry, elevated area along the East River shore, with potential fresh water and a marsh approximately 1,200 feet distant would have been an unlikely location for a permanent or semi-permanent habitation site. Known "village" sites tend to be much nearer their water sources and hunting and foraging grounds. Based on this evaluation, the project lots were rated as having a high archaeilogical potential for temporary sites, such as hunting and fishing camps, kill and butchering sites, and raw material processing locations.

SUBSURFACE DISTURBANCE

Subsurface Disturbance – NYATCC

Although the project site has a high potential for having hosted prehistoric archaeological remains, at the same time it must be noted that such remains are extremely fragile. Due to the normally shallow nature of such deposits, usually three to four feet below the pre-development surface, they are extremely vulnerable to the ravages of historical period construction, utility installation, and regrading.

The construction of the NYATCC plant buildings, which occupied the vast majority of the project site, would have severely impacted any existing prehistoric cultural remains.

The Main Building (with kiln extensions) and the Office Building of the NYATCC plant were all built with basements, which would clearly have obliterated any surviving buried cultural materials from the

prehistoric period. Another substantial structure was the brick perimeter wall which ran along the border of the eastern half of the site. Given its height (approximately ten feet or more) and its bulk, it would have been a major negative impact on potential prehistoric archaeological resources.

The remaining "open" areas of the site are confined to the area west of the Main Building (Lot 15), which is the product of 19th-century filling activities, and was formerly submerged below the East River (discussed in the next section – Shoreline Fill), the area between the Main Building and the Office Building (Lot 15) and the open area between the two sheds on Lot 13. At the time of the construction of the NYATCC plant these parts of the project site would have been first subjected to a regrading to create a level area for the factory. Subsequently, the section on Lot 15 played host to a number of structures, mostly sheds and other storage buildings, less substantial than the Main Building and Office Building, yet these brick and woodframe buildings would have been expected to have standard four-foot foundations, also causing a substantial negative impact to any shallowly-buried archaeological deposits.

In addition, according to the plan of the NYATCC sprinkler system from c.1915, a series of underground 6- and 8-inch water lines passed through the Lot 15 open area, connecting all the buildings, as well as four buried pumps. (Fig. 18) Because water lines are subject to freezing, they are generally buried at least four feet below the surface. The trenches for these utilities would have also severely impacted any potential prehistoric archaeological remains.

Subsurface Disturbance – Tank Removal and Soil Remediation

Five fuel tanks were removed from the project site during the 1990s. Although the archaeological evaluation of Lot 20 is beyond the scope of this report, it is worth noting that two 550-gallon gasoline underground storage tanks (USTs) were excavated and removed from the southeast corner of Lot 20 by ERD Environmental, Inc. in 1997. It was concluded that further remediation beyond removal of the tanks was not warranted. It was also recorded that vent and fill pipes, suggesting additional buried tanks, are observable on Lot 20, to the north and east of the standing Office Building (IVI Environmental 1999a:26-27).

More relevant to the determination of archaeological sensitivity, is the group of three USTs which were excavated and removed in 1995, with soil remediation continuing through 1997. These three USTs for No. 6 Fuel ***each*** had a capacity of 10,000 gallons, and the earliest was installed by before 1898, when they first appear on maps, in the northwestern corner of the Lot 15, west of the Main Building of the NYATCC. (Fig. 12)

During removal the tanks were found to have leaked *in situ*, impacting both soil and groundwater. Ultimately, the amount of contaminated soil that was removed resulted in an excavation 60 by 60 feet and seven feet deep. This depth apparently reached below the elevation of the current low tide. This location is noted on the Tank/Soil Excavation Map in Appendix A (ERD 1997:1,3-4). (Photo 4)

An additional soil remediation project was carried out beginning in 1980 in response to contamination from cracked and leaking USTs from the property directly south of the project parcel, then occupied by the Royal Petroleum Corp. Approximately 2,400 gallons of No. 2 fuel oil were estimated to be in the ground on the Royal Petroleum parcel.

In addition, the oil had also migrated onto the current project parcel. In the course of the investigation, 41 "monitoring wells" and three "recovery wells" (36-inch diameter) were drilled on project Lot 15 (then owned by Citicorp), from which approximately 1,200 gallons of oil were pumped in late 1980. The location of the wells and the "Area of Hydrocarbon Concentration" are on the western half of the project site. (Appendix A: "Location Map for Monitor Wells & Recovery Wells") Periodic pumping from these wells continued through 1981. Ground water monitoring in 1986 noted the presence of only a film of oil in some of the wells, and most were reported to have "no free product." When Royal Petroleum ceased operations, tank removal and soil remediation took place on the property outside the project site, but no soil replacement was conducted on the present project lots, where residual soil contamination is still likely to exist. According to the ERD report, despite the fact that the project site has only been partially remediated, the New York Department of Environmental Conservation will not force Royal Petroleum to complete remediation, "as the site is considered to be a low priority" (ERD 1994:9-10, Fig. 1.7).

IVI Environmental also recommended a geophysical survey to attempt to locate a 15,000 gallon and 30,000 gallon fuel oil UST, which was listed in the CER, but not observable on site. No additional data was supplied to IVI (or to Historical Perspectives, Inc.) regarding the existence, location or remediation of these two potential USTs (IVI Environmental 1999a:22,30).

Shoreline Fill

Furthermore, the project parcel has been substantially extended westward into the East River during the second half of the 19th century. At present the crumbling bulkhead at the U.S. Pierhead and Bulkhead extends some 510 to 514 feet west of Vernon Boulevard. According to historical maps and other documents, this shoreline was created in three main filling episodes.

The closest depiction of what probably is the original, predevelopment shoreline is visible on the 1845 auction map. (Fig. 4) Although that map indicates that the southern property line extends 410 to 425 feet west of Vernon Boulevard, in reality this includes a wide, beach, that would have been inundated at high tide. Hence the real east/west length of the subject parcel is on the order of 355 to 380 feet. The beach would have been directly beneath the western frontage of the NYATCC Main Building.

The construction of the mid-nineteenth seawall during the Ravenswood residential period was followed by the construction the NYATCC main building. The 1893 map shows a new, straight, bulkheaded shoreline, extending between 427 and 437 feet west of Vernon Boulevard. (Figs. 9, 11)

The final major fill episode occurred between 1893 and before 1898, under the direction of the NYATCC. The shoreline was filled out to its limit at the pierhead and bulkhead, adding approximately 83 feet to the western end of the project parcel, and approximating the location of the present shoreline.

mately 83 feet to the western end of the project parcel, and approximating the location of the present shoreline.

This regrading and landfill activity has probably compromised the integrity of any prehistoric archaeological resources directly adjacent to the river, and in the western 150 feet of the site, as well as those which may be presently submerged beneath the waterline and covered with historical fill.

RECOMMENDATIONS – PREHISTORIC ARCHAEOLOGICAL SENSITIVITY

Although there is a high potential for both prehistoric archaeological resources on the project parcel, a determination of archaeological sensitivity also takes into account post-depositional disturbance to the potential remains. The above examination of the historical building and disturbance record indicates that a substantial amount of subsurface disturbance has occurred on all parts of the current project site which would have destroyed or severely impacted any potential prehistoric archaeological materials which may have been buried there. Based on that conclusion, Lots 13 and 15 of the Silvercup Rezoning parcel are not considered sensitive for prehistoric archaeological remains, and no further study, research or testing for such remains is recommended.

HISTORICAL ARCHAEOLOGICAL POTENTIAL

Historical archaeological potential can be divided into three discrete project site occupations, the Long Island Farms Schoolhouse (c.1835-1845), Wallach Estate (c.1869-1883) and the New York Architectural Terra Cotta Company plant (1886-c.1940). The archaeological potential of each occupation will be discussed in the following paragraphs, as well as the effect of subsurface disturbance on each of the categories of potential resources.

Long Island Farms Schoolhouse (c.1835-1845)

The "Primary and Common School" which was operated by the Long Island Farms orphan asylum occupied the project Lot 15 for approximately 10 years. The juvenile population of the asylum in 1840 was 656, some 525 of whom were under age 10. After the asylum moved from Ravenswood in 1845, the schoolhouse was burned to the ground by arsonists in 1847.

Potential archaeological resources related to the orphan asylum schoolhouse may have been preserved around and within school building foundations, as well as privies, cisterns and wells, which in the days before the construction of municipal services – namely sewers and a public water supply – were an inevitable part of daily life. Before these services were provided by the municipality, these shafts, in addition to their official functions, were convenient repositories for refuse, providing a valuable time capsule of stratified deposits for the modern archaeologist. Five or more feet deep, they usually survive all but the deepest post-depositional disturbance and frequently provide the best cultural remains recovered on historical sites, including animal bone, seeds, glass, metal, stone, ceramics, and sometimes leather, cloth, wood and even paper. By analyzing such artifacts, archaeologists can learn much about the activities of the students and staff.

Truncated portions of these "shaft features" are often encountered, because their deeper and therefore earlier layers remain undisturbed by subsequent construction, and in fact, this construction often preserves the lower sections of these features by sealing them beneath foundations and fill layers.

Given the location along the East River, a saltwater tidal estuary, it is unlikely that the Long Island Farms schoolhouse would have depended upon wells for its water supply. The most likely source of water would have been cisterns, which although also deeply-buried, would have been located very close to the house. The location of the schoolhouse, as supplied by the 1845 auction map (Fig. 4), places the building partially beneath the NYATCC's Main Building. That five-story factory building with a basement, would have effectively destroyed any trace of the schoolhouse's foundations and adjacent cisterns in the area beneath its footprint.

Secondly, it is also questionable whether privies would have been built in a location so close to a major body of water. The easiest method of disposal would have been to pipe or dump human waste directly into the East River. In addition, privies are generally placed to the ***rear*** of the schools and other buildings they serve, rather than the front. Practicality places them not too far from the building, but also not too close. Generally they are within 50 feet of a rear exit. According to the 1845 auction map, the entrance from Vernon Boulevard ("Turnpike") indicates that the "front" of the building was its east side, which would locate the area with a high potential for shaft features to the west of the schoolhouse. This area would be beneath the later NYATCC Main Building, which with its basement and foundations, would have effectively destroyed any shaft features there.

Part of the foundation of the schoolhouse would have been east of the Main Building foundations, in the "open area" between the NYATCC Main Building and Office Building. A one-story, woodframe schoolhouse with no basement, would be expected to have at most a standard four-foot foundation. Given the subsequent building activities, including regrading, shed construction and underground utility installation (as described earlier) that occurred during the NYATCC's occupation of the project lots, the shallowly-buried foundations of the schoolhouse, like shallowly-buried prehistoric remains, would have been unlikely to survive post-depositional disturbance.

Wallach Estate (c.1869-1883)

Willie Wallach, German immigrant, and successful New York stationer, acquired the project site in the late 1860s, and had built his riverside mansion there in affluent Ravenswood by 1869. There he resided with his wife and children until his death in 1883, when the property was then sold to the NYATCC, which demolished the mansion for the construction of the factory's Main Building, sompleted in 1886.

Privy and well shafts, a usually necessary component of the pre-municipal sewer and water main household, are often filled with contemporary refuse related to dwellings and their occupants, and provide important stratified cultural deposits for the archaeologist. Such shafts, five or more feet deep, usually survive all but the deepest post-depositional disturbance.

Given the location along the East River, a saltwater tidal estuary, it is unlikely that the Wallach household would have depended upon wells for its water supply. The most likely source of water would have been cisterns, which although also deeply-buried, would have been located very close to the house. The location of the Wallach mansion, as supplied by the 1873 Beers atlas (Fig. 6), appear to be adjacent to the East River shoreline, which would have placed the house directly beneath the NYATCC's Main Building. That five-story factory building with a basement, would have effectively destroyed any trace of the Wallach mansion's foundations and adjacent cisterns.

It is also questionable whether privies would have been built in an affluent community so close to a major body of water. The easiest method of disposal would have been to pipe or jettison human waste directly into the East River. In addition, although privies would not have been close to the dwelling due to their olefactory charms, for obvious reasons they could also not be constructed at too great a distance, generally within 50 feet of one of a dwelling's rear entrances. Even if we make the assumption that the east side of the Wallach mansion was the ***rear***, then given the destructive impact of the Main Building foundations, the potential locations for a surviving privy would be limited to a small area of project Lot 15 within the right angle formed by the two five-story sections of the Main Building. Most of this area was also built upon with one-story brick extensions. (Fig. 20). If a standard four-foot foundation is posited, any potential privy remains would have been severely impacted.

Given the above discussion, it would be unlikely that remains from shaft features relating to the 19th-century residential occupation of the project lots would have survived post-depositional disturbance.

New York Architectural Terra Cotta Company (NYATCC – 1886-c.1940)

Although there were numerous terra cotta factories in the New York City area during the period in which the project site plant was active (1886–c.1940) – 28 producers were identified in eastern and central New Jersey alone – few or none have been protected or preserved. Many have been demolished and redeveloped. As of 1999, only one, the Excelsior Terra Cotta Company, later the Atlantic Terra Cotta Company Factory No. 3, in Rocky Hill, New Jersey, has been subjected to limited archaeological testing, and no excavation. In addition, not only have the factories themselves been demolished, but company archives have also, for the most part, been lost, leaving their products as the only evidence of this industrial past (Veit 1999:6).

In several respects, the NYATCC and its plant are somewhat unusual. A good part of the company archives have been preserved, and are maintained in the Avery Library at Columbia University in New York. This archive was researched for this report, and although there are numerous records of contracts, and voluminous correspondence, providing important data on some facets of sales and marketing, the data sheds little light on the layout and day-to-day operations of the factory itself. In addition, given the urban setting of the NYATCC plant location, and despite the intensive use and reuse of such sites, the aboveground structures on the project parcel have been demolished, but the site has not yet been redeveloped. Therefore, there is a high potential for substantial intact archaeological deposits, such as the foundations of buildings, kilns and the remains of factory products, such as kiln wasters, kiln furniture, discarded plaster molds and associated equipment.

The urban location or at least compact situation of the plant has also had a strong effect on its layout and therefore upon archaeological visibility. Few of the factories of NYATCC's competitors had plants laid out in an efficient linear fashion, in which the raw clay entered at one end of the building and the finished terra cotta came out the other (Veit 1999:16). The limited size of project site, of course, did not allow for this. As noted earlier in this report, the idea for arrangement of the major components of the NYATCC factory was James Taylor's. Given space constraints, the factory was organized vertically in the five-story Main Building, rather than horizontally. This vertical organization would mean that the archaeologically visible steps of the manufacturing process would be limited to what took place on the ground floors of structures, which in the case of the Main Building means the basement.

Descriptions of the Main Building, the terra cotta manufacturing process, and the organizational layout of the plant give us a picture of the activities which would have occurred in the basement of the Main Building. As described in more detail earlier in this report, these activities appear to have been confined to clay preparation and storage. The 1915 Sanborn (Fig. 17) labels the basement as the location of the "mill," referring to the pug mills used for the final mixing of the clay. The storage capacity of the basement clay pits has also been recorded at 1,500 tons. It is likely that the components of the claybody were combined in the basement prior to "pugging," and that other materials used in the process, such as grog, used as a temper, were also on hand.

Although the equipment from these activities was certainly removed following the final closing of the terra cotta factory, the basement of the Main Building with its clay pits and the massive foundations needed for a five-story industrial structure, especially on that dealt with such weighty raw materials, may be unique.

In addition to the building foundations themselves, the kiln foundations would also be archaeologically visible. The c.1915 Sprinkler System Plan (Fig. 18) provides a cross section of the kiln buildings, clearly showing that loading of each of the kilns took place on the first floor, while the kiln furnaces themselves were in the basement beneath the loading floor, resting on concrete foundations. This is also in accord with Geer's 1891 statement that the kilns were loaded from the first or ground floor of the building.

The northern two-thirds of the original Main Building, as well as all one-story additions which extended the structure as far as the Vernon Boulevard frontage, contained the plant kilns. According to company correspondence, by 1916 twenty were in operation. The kilns can be divided into two broad types, based on their profiles – bottle and dome kilns. The original kilns, constructed under James Taylor's supervision, were bottle kilns, and they were almost certainly muffle kilns. English terra cotta manufacturers were more technologically and artistically advanced than the Americans, and Taylor had introduced this type of double-walled kiln to the United States, having the first one built at the Chicago Terra Cotta Company in 1871, while he was superintendent there. (Fig. 7) Only four of the 16 early kilns are ever visible, emerging from Kiln Building No. 1. The other 12 kilns were completely enclosed in the Main Building, and only the tips of their smokestacks can be seen. The tantalizing yet incomplete NYATCC plant plan from c.1915 supplies a cross section of the kilns and their buildings, but unfortunately is cut off at the edge of the five-story section of the Main

Building. There is however, a part of a kiln profile that does appear on the cross section, and that profile is a bottle-shaped kiln, although much taller than the others, since its stack must extend above the 5th floor roofline. (Fig. 18)

The newest additions to the Main Building were erected in two stages (between 1903 and 1912, and 1912 and 1915), and designated Kiln Buildings Nos. 2, 3 and 4 (Hyde 1912). (Figs. 14, 17) These brick structures house four dome kilns, likely a newer and more efficient design than the old bottle kilns. They are of much greater diameter than the previous kilns, with only the tops of the domes appearing above the one-story brick structures which otherwise surround them.

The potential remains of these kiln foundations could provide valuable information on 19th- and early 20th-century terra cotta kilns, as well as illustrating technological changes over approximately three decades. (Fig. 21: "New York Architectural Terra Cotta Company (NYATCC) Main Building/Kilns")

Dumping and Landfill

In addition to constraining the area to be set aside for structures, the limited acreage available also placed constraints on the dumping of kiln wasters, unwanted production, and used or damaged molds and kiln furniture, which could be discarded in a more rural location. Views of the plant in operation show open areas used for the storage of completed terra cotta, leaving little room for a mold or waster dump. On the other hand, it would have been inevitable in the course of operation of a complex of 20 kilns, that a mixture of all of the above, at least in fragmentary form, would have formed a thick surface scatter in the open parts of the project lots. In fact, if such a scatter did not obstruct operation of the plant, it would be a cheap and beneficial alternative to paving, providing a clean, well-drained and therefore dry outdoor surface. (Fig. 21: "NYATCC Storage 'Open Areas'")

There were opportunities for more concentrated dumping on the project lots. The mostly ruined bulkhead now at the U.S. Pierhead and Bulkhead line, has only been the actual shoreline since the early part of the 20th century. According to historical accounts, the final fill episode occurred between 1893 and before 1898 (Figs. 11, 12), under the direction of the NYATCC. The shoreline was filled out to its limit at the pierhead and bulkhead, adding approximately 83 feet to the western end of the project parcel, and approximating the location of the present shoreline. (Fig. 21: "NYATCC Landfill")

The final major fill episode occurred between 1893 and before 1898, under the direction of the NYATCC. The shoreline was filled out to its limit at the pierhead and bulkhead, adding approximately 83 feet to the western end of the project parcel, and approximating the location of the present shoreline.

RECOMMENDATIONS – HISTORICAL SENSITIVITY

Based on the data collected and interpreted for this report, the archaeological potential of the site for intact subsurface remains related to the Long Island Farms Schoolhouse (c.1835-1845) and the Wallach Mansion (c.1869-1883) is considered extremely low. This evaluation is based on the documentation of widespread post-depositional disturbance, mainly caused by the construction of the NYATCC plant.

Therefore, further research, study or testing of the project lots for archaeological remains from either the Long Island Farms Schoolhouse or Wallach Mansion occupations is NOT RECOMMENDED.

However, substantial underground remains from the NYATCC factory must certainly still exist on the subject Lots 13 and 15.[9] The previous discussion divided the project parcel into three distinct areas of resources, i.e., the Main Building/kiln foundations; "Open Areas," locations between the major structures were dumping or surface scatter would be expected; and the location of the shoreline filling during the 1890s. These different resource types are delineated on the Archaeological Sensitivity Map. (Fig. 21)

It is recommended that a testing protocol be developed under the supervision of the review agency to retrieve data from each of these resource categories. Such a protocol will establish a testing program to sample a limited percentage of the sensitive areas. Most likely, this will involve machine-aided subsurface testing to be performed on selected loci of the potentially sensitive sections of the project site, with particular focus on locating the surviving foundations of the Main Building and the multiple kiln foundations. If these features are present, then hand excavation to determine the nature, extent, and significance of the existing deposits should be performed. Recordation of the kilns and building foundations is also recommended.

One important concern is the soil and water contamination resulting from the fuel oil spill on the site directly to the south of the project parcel. The majority of the monitoring wells, and the presence of the concentration of hydrocarbons were all located in the area of the project lots sensitive for NYATCC fill from the 1890s. (Compare Fig. 21 and Appendix A: Location Map for Monitor Wells & Recovery Wells) Before subsurface testing could be carried out in that area, some evaluation or assurance of safety should be given by the environmental agency in charge of inspecting and assessing such environmental concerns.

---

[9]It should be iterated that Lot 20, which hosts the landmarked 1892 Office Building is not included in this archaeological evaluation.

BIBLIOGRAPHY

Beers, F. W.
1873 *Atlas of Long Island, New York.* Beers, Comstock & Clive, New York.

Boesch, Eugene J.
1997 *Archaeological Evaluation of the Prehistoric and Contact Period Aboriginal History of Queens, New York.* Prepared for the New York City Landmarks Preservation Commission, June 15, 1997.

Bolton, Reginald P.
1922 "Indian Paths in the Great Metropolis." *Indian Notes and Monographs,* Miscellaneous Papers 23. Museum of the American Indian, New York.

1972 *Indian Life of Long Ago in the City of New York.* Enlarged edition. Harmony Books, New York.

Brooklyn Eagle
1847 "The Infamous Affair at the Long Island Farms, and the Conduct of the People at Ravenswood." *Brooklyn Eagle.* Saturday, May 29, p.2.

Clay-Worker
1905 "Up the East River with a Kodak." *The Clay-Worker.* Vol. 44, no. 3 (September), pp.230,241.

Cohen, Paul E. and Robert T. Augustyn
1997 *Manhattan in Maps 1527-1995.* Rizzoli, New York.

Dripps, Matthew
1874 "Map of Long Island City, Queens Co. N.Y., Showing Farm Lines, &c., &c." Reduced from the Commissioners New City Map.

Eisenberg, Leonard
1978 "Paleo-Indian Settlement Pattern in the Hudson and Delaware River Drainages," *Occasional Publications in Northeastern Anthropology, Vo. 4.*

ERD Environmental
1997 "Underground Storage Tank Closure Additional Soil Removal Report: Citibank Terra Cotta Facility." Prepared for Mark Annitto, Citicorp. Prepared by ERD Environmental, Inc., Pipersville, PA. September 4.

Florio, Patricia
1982 *New York Architectural Terra Cotta Works Building, 42-10 · 42-16 Vernon Boulevard, Borough of Queens.* Prepared for the Landmarks Preservation Commission, August 24, 1982; Designation List 158, LP 1304.

Geer, Walter
1891 *Terra-Cotta in Architecture.* Gazlay Bros., New York.

1920 *The Story of Terra Cotta.* Tobias A. Wright, New York.

Grumet, Steven Robert
1981 *Native American Place Names in New York City.* Museum of the City of New York, New York.

Historical Perspectives, Inc. (HPI)
2000 "Stage 1A Archaeological Assessment: New York Power Authority, Vernon Boulevard Site, Queens NY." Prepared for Allee King Rosen & Fleming, Inc., New York. Prepared by Historical Perspectives, Inc., Wesport, CT. November 24.

2001 "Stage 1B Archaeological Assessment: New York Power Authority, Vernon Boulevard Site, Queens NY." Prepared for Allee King Rosen & Fleming, Inc., New York. Prepared by Historical Perspectives, Inc., Wesport, CT. June.

Hunerbein, Julius von
1893 "Official Map of Long Island City, Queens Co., N.Y." Published by Julius von Hunerbein, City Surveyor, May 1. Queens Library, Long Island Division.

Hyde, E. Belcher
1903 *Atlas of the Borough of Queens, City of New York.*
1912
1923
1927
1928
1955
1973

IVI Environmental
1999a "Phase I Environmental Site Assessment: Former Terra Cotta Company." Prepared for Suna Equities, Ltd. Prepared by IVI Environmental, Inc., White Plains, NY. Project number E8123936. January 11.

1999b "Phase II Environmental Site Assessment: Former Terra Cotta Company." Prepared for Suna Equities, Ltd. Prepared by IVI Environmental, Inc., White Plains, NY. Project number E9024027. August 9.

Jogues, Isaac
1862 *Novum Belgium: an Account of New Netherland 1633-1634.* Privately printed, Collection of the New York Public Library.

Kraft, Herbert C.
1991 "The Indians of the Lower Hudson Valley at the Time of European Contact." *The Archaeology and Ethnohistory of the Lower Hudson Valley and Neighboring Regions: Essays in Honor of Louis A. Brennan.* Herbert C. Kraft, ed. Occasional Publications in Northeastern Anthropology, No. 11:193-222. Archaeological Services, Bethlehem, CT.

Langan Engineering and Environmental Services (Langan)
2002 "Preliminary Geotechnical Report Silvercup Studios West." Prepared for Silvercup Studios, Long Island City, New York. Prepared by Langan Engineering and Environmental Services, P.C. New York, NY. December 19.

Lenik, Edward J.
1989 "Cultural Contact and Trade in Prehistoric Staten Island." *Proceedings,* Staten Island Institute of Arts and Sciences, vol. 34, no.1.

New York Architectural Terra Cotta Company (NYATCC) Correspondence
1908 Letter from John N. Golding, Appraiser. January 17. Box 154, Folder 1, BA-BE, NYATCC Archives, Avery Library, Columbia University, New York.

1908 Letter from John J.Pulleyn, Appraiser of Real Estate. August 26. Box 154, Folder 7, BA-BE, NYATCC Archives, Avery Library, Columbia University, New York.

1916 Letter to Mr. John H. Barry, M.D., Assistant Sanitary Superintendent, City of New York, from the Treasurer, NYATCC. March 24. Box 154, Folder 1, BA-BE, NYATCC Archives, Avery Library, Columbia University, New York.

Parker, Arthur C.
1920 "The Archaeological History of New York," Part 2. *New York State Museum Bulletin,* Nos. 237 & 238, September/October.

Randel, John Jr.
1814 "The City of New York as laid out by the Commissioners with the surrounding country." From *Manhattan in Maps,* by Paul E. Cohen and Robert T. Augustyn. Rizzoli International Publications, Inc. New York, 1997.

Ritchie, William A.
1980 *The Archaeology of New York State.* Revised edition. Harbor Hill Books, Harrison, New York.

Sanborn Insurance Maps
1898 *The Borough of Queens.* Sanborn Map Company, New York.
1915
1936
1947
1950
1980
1992

Schuberth, C.J.
1968 *The Geology of the City of New York.* The Natural History Press, New York, New York.

Seyfried, Vincent F.
1984 *300 Years of Long Island City: 1630-1930.* Queens Community Series, Edgian Press, Inc.

Sidney
1849 *Sidney's Map of Twelve Miles Around New-York with the Names of Property Holders &c.* H. Camp, printer, Philadelphia.

Solecki, Ralph
1941 "The Indians Lived Here," in *So This is Flushing,* Newsletter of the Flushing Historical Society, October.

Sullivan, Larry
n.d. "The Long Island Farms." Online article at bklyn-genealogy-info.com/Orphan/LIFarm.html

Thompson, B. F.
1843 *History of Long Island.* Vol. 1. New York.

Trow's
1869 *Trow's New York City Directory for 1868-1869.* Trow's, New York.

Tunick, Susan
1997 *Terra-Cotta Skyline.* Princeton Architectural Press, New York.

United States Coast & Geodetic Survey (USC&GS)
1844 "Map of New-York Bay & Harbor & the Environs." F. R. Hassler, Superintendent,
-1845 Coast Survey (Coast Survey #369).

1858 *New York Harbor from Flushing Bay to Hunters Point.* H.L. Whiting.

United States Geological Survey (USGS)
1891 Central Park Quadrangle.

1899 Central Park Quadrangle.

1979 Central Park Quadrangle. Photorevised 1979.

Valuable Real Estate
1845 "Map of Valuable Real Estate known as the Long Island Farms belonging to the Mayor, Alderman and the Commonalty of the City of New York situate in Queens County, Long Island . . . to be sold at auction on the 15th April 1845." Queens Library, Long Island Division.

Veit, Richard
1999 "Moving Beyond the Factory Gates: The Industrial Archaeology of New Jersey's Terra Cotta Industry." *The Journal of the Society of Industrial Archeology 25(2):5-28).*

Walling, H. F.
1859 "Topographical Map of the Counties of Kings and Queens" (New York Public Library).

Roy F. Weston, Inc. (Weston)
1994 "Environmental Liabilities Assessment for 41-98 and 42-02 through 41-16 Vernon Boulevard, Long Island City, New York." Prepared for Mr. Kanak Bhattacharya, Citibank, N.A. Prepared by Roy F. Weston, Inc. Rocky Hill, CT. WO# 10533-001-001-0001. May 1994.

White, Norval and Elliot Willensky
2000 *AIA Guide to New* York *City.* Fourth edition. Three Rivers Press, New York.

Willensky, Elliot and Norval White
1988 *AIA Guide to New* York *City.* Harcourt Brace Jovanovich, New York.

Wisniewski, Stanley
1986 "General Notes on the History and Archaeology of Maspeth." Unpublished ms.

Wolverton, C.
1891 *Atlas of Queens County, Long Island, New York.* Chester Wolverton, New York.

Works Progress Administration (WPA)
1939 *WPA Guide to New York.* Pantheon, New York.

FIGURES

1. Project Site Location: USGS Central Park Quadrangle, 1979.

2. Project Site: Sanborn, Borough of Queens, 1992 updated to 2004

3. Grumet, Map of Native Trails, Planting Areas and Habitation Sites

4. Map of Valuable Real Estate known as the Long Island Farms, 1845

5. Map of Long Island City, 1858

6. Beers, Atlas of Long Island, 1873

7. Front View & Section of Our Terra Cotta Kilns, c.1875

8. Illustration: New York Architectural Terra Cotta Company, 1891

9. Illustrations from the New York Architectural Terra Cotta Company Catalog, 1891

10. Wolverton, Atlas of Queens County, Long Island, NY, 1891

11. Hunerbein, Official Map of Long Island City, 1893

12. Sanborn, The Borough of Queens, 1898

13. Illustration: New York Architectural Terra Cotta Company Works, c.1896

14. Hyde, Atlas of the Borough of Queens, 1903

15. Photograph: New York Architectural Terra Cotta Company Works, 1906

16. Photograph: Queensboro Bridge, c.1915

17. Sanborn, The Borough of Queens, 1915

18. Plan and Cross Section: New York Architectural Terra Cotta Company Sprinkler System, c. 1915

19. Letterhead: New York Architectural Terra Cotta Company plant, dated 1913 and 1916

20. Sanborn, The Borough of Queens, 1950

21. Map of Potential Archaeological Sensitivity

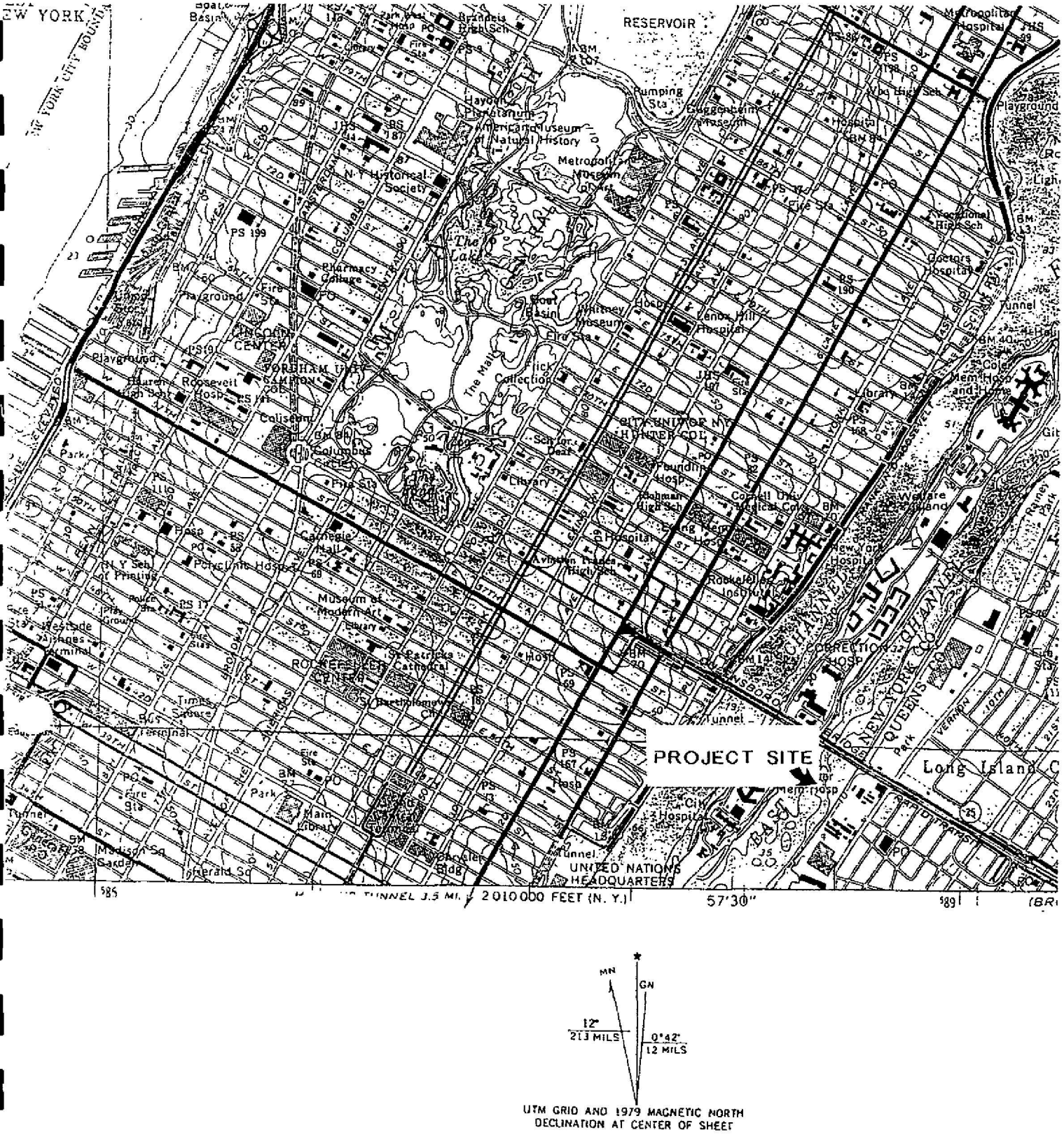


Figure 1. U.S.G.S. Topographic Map, photorevised 1979. Scale 1:24,000. Central Park Quadrangle, New York. 7.5 Minute Series (Topographic).

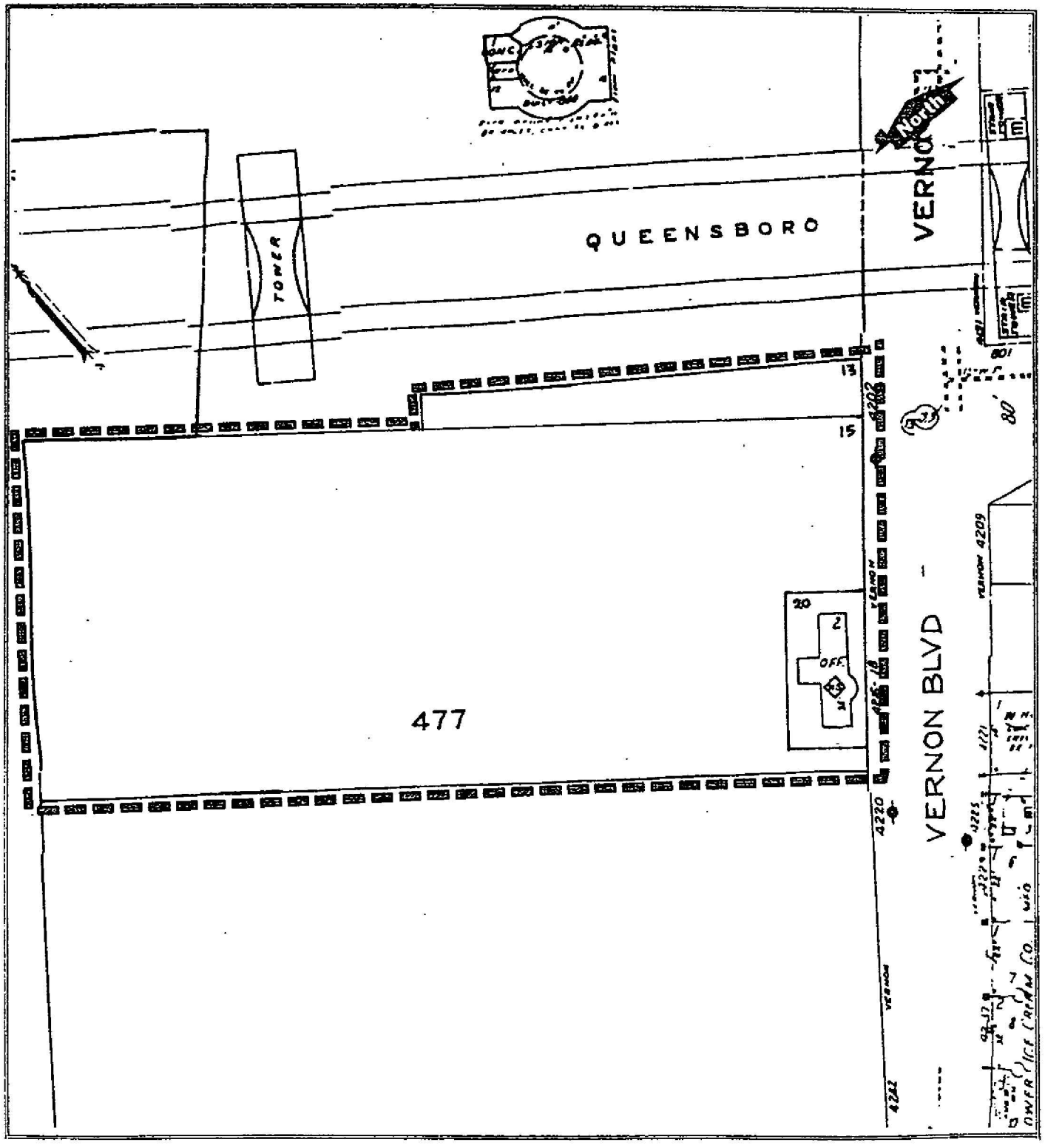


Figure 2. Project Site: Sanborn, The Borough of Queens, 1992.
(Project site updated to 2004 and lot boundaries added)

Project site boundaries

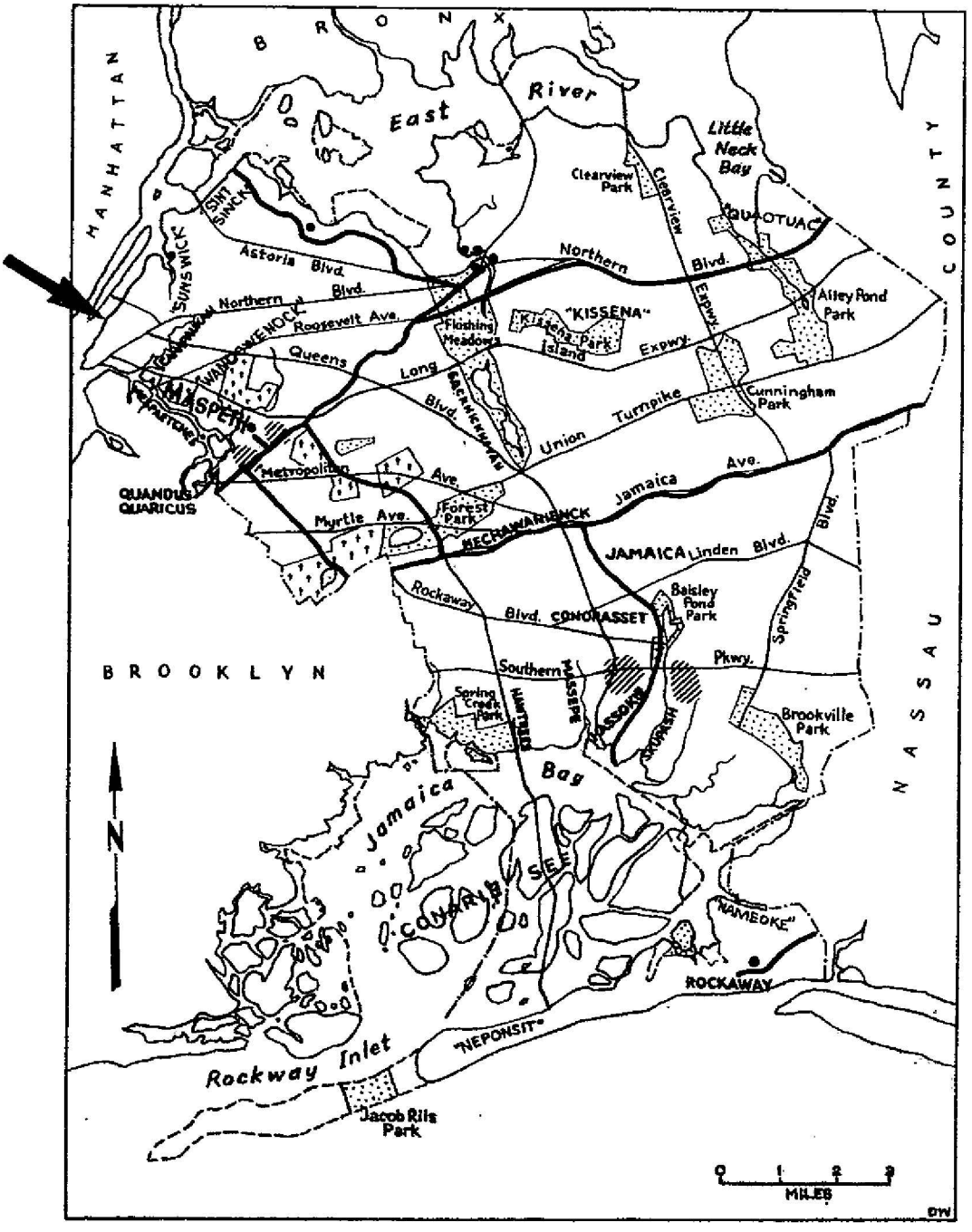


Figure 3. Grumet, Map of Native Trails (_), Planting Areas (////) and Habitation Sites (•) in Queens (1981:71)

Arrow indicates the approximate location of the project site

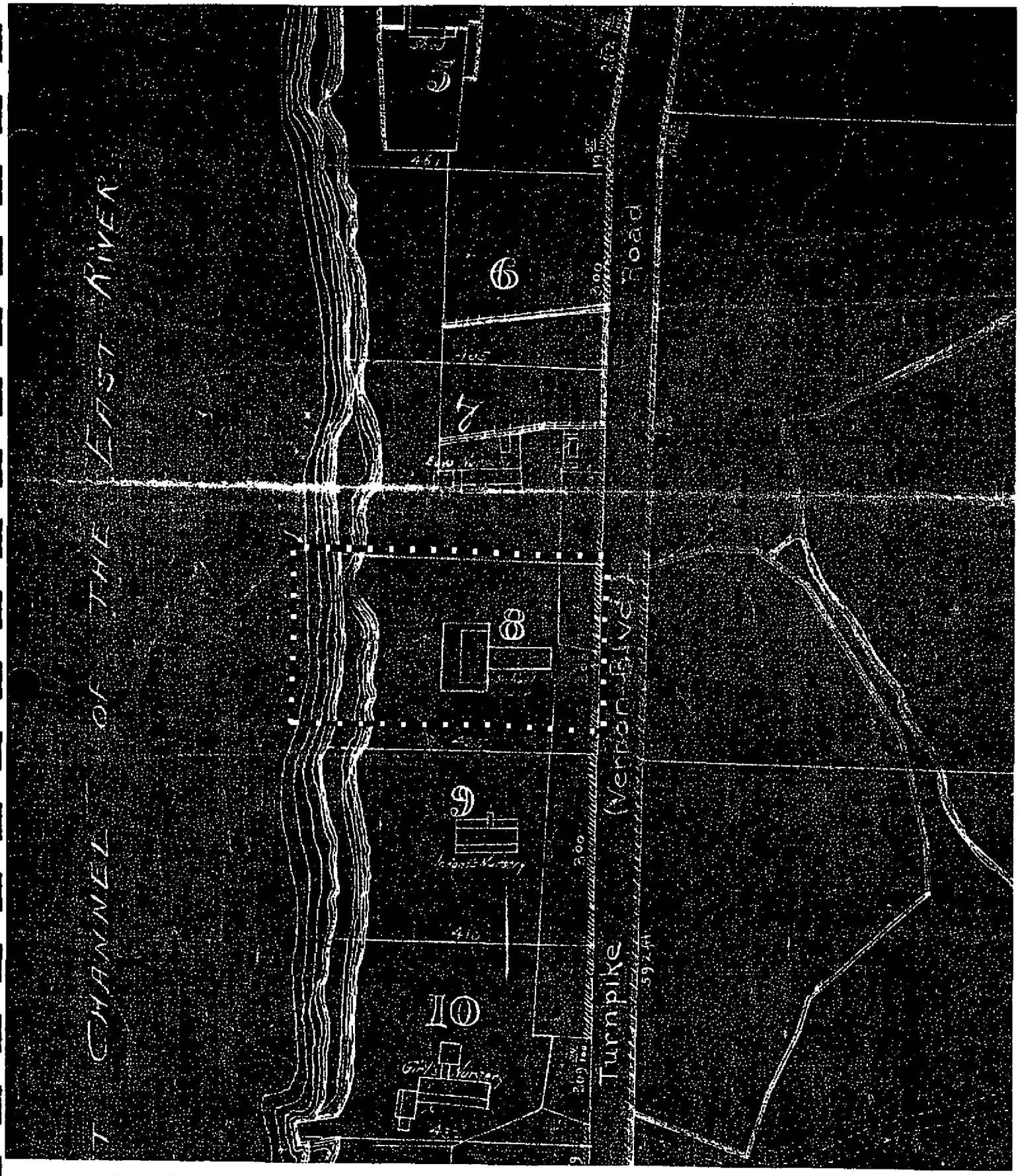


Figure 4. Map of Valuable Real Estate known as the Long Island Farms, 1845
(Collection of the Queens Library, Long Island Division)
Scale: 1cm = approx. 79 feet

Project site boundaries

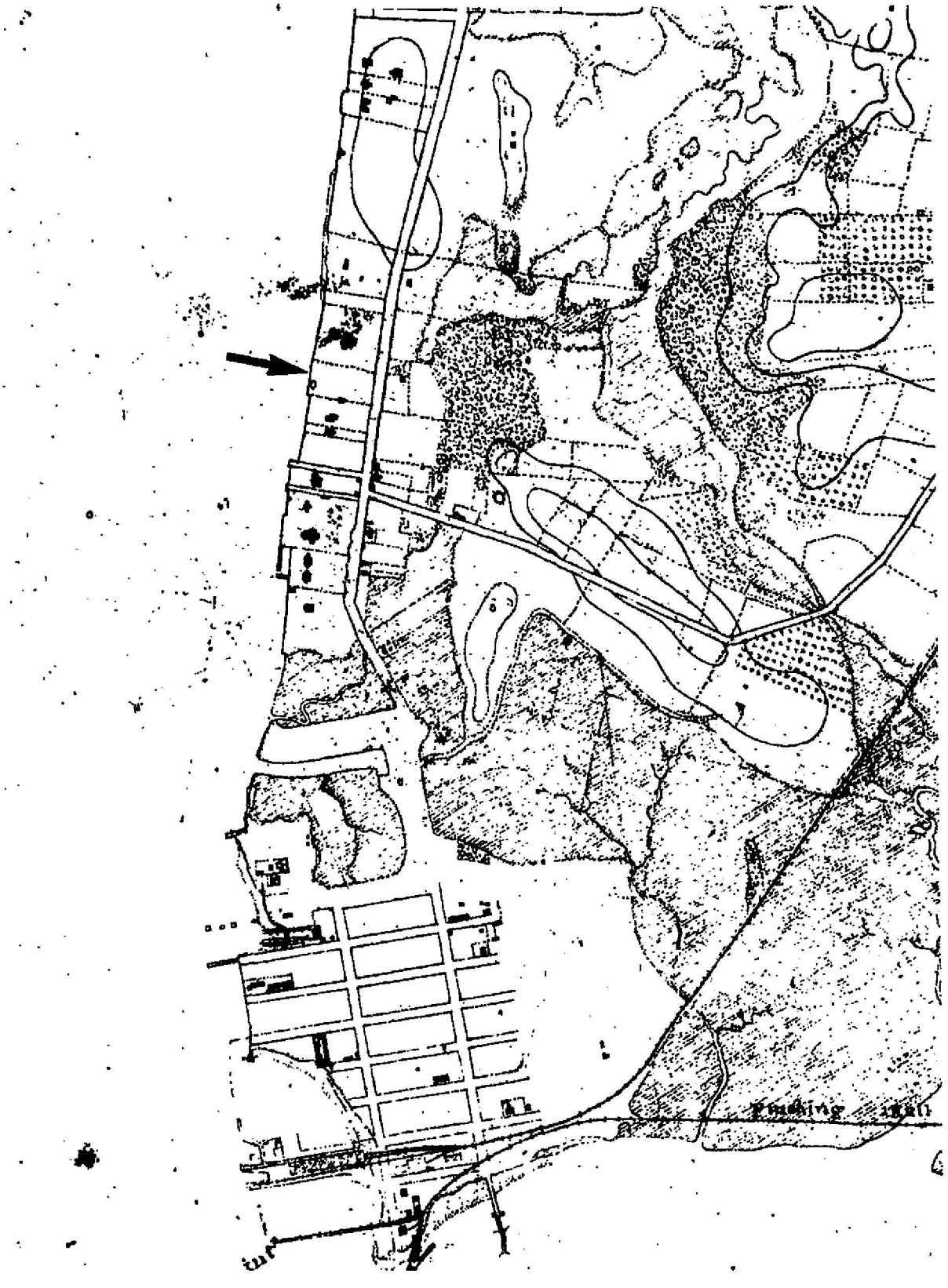


Figure 5. Map of Long Island City, 1858 (published in Seyfried 1984:opposite page 9).
Scale: 1cm = approx. 400 feet

Arrow indicates location of project site

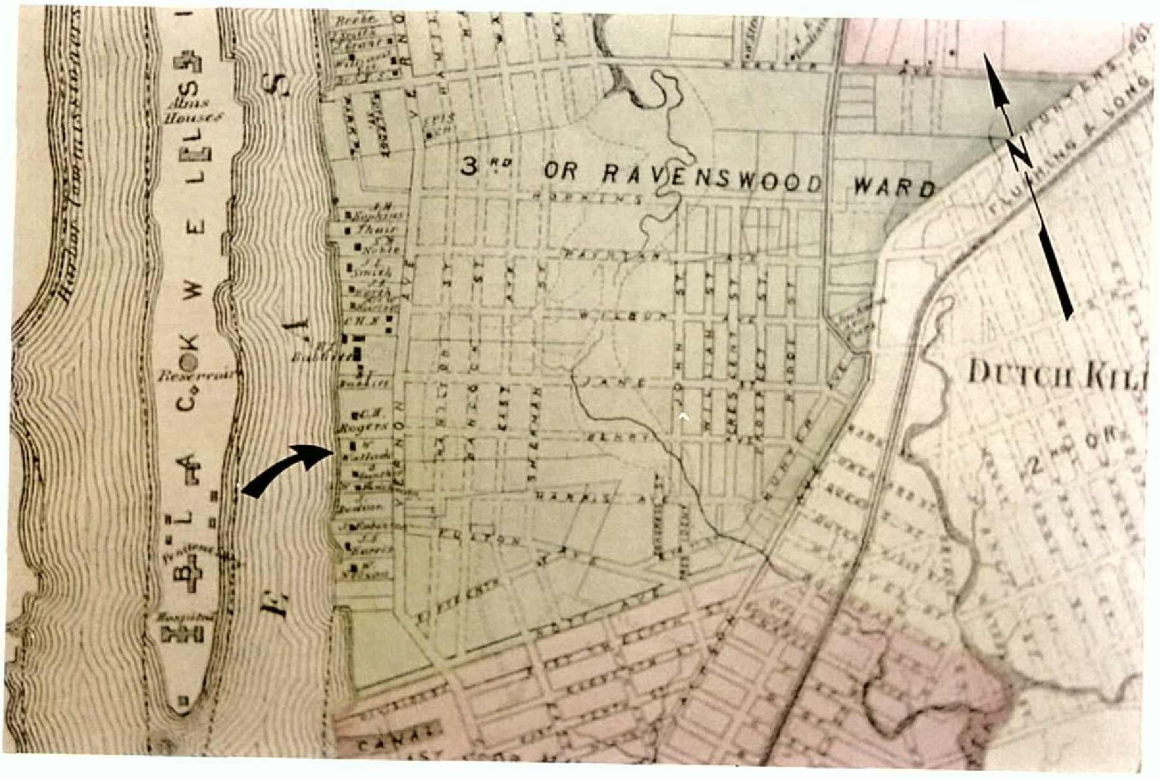


Figure 6. Beers, Atlas of Long Island, New York, 1873

Arrow indicates project site location

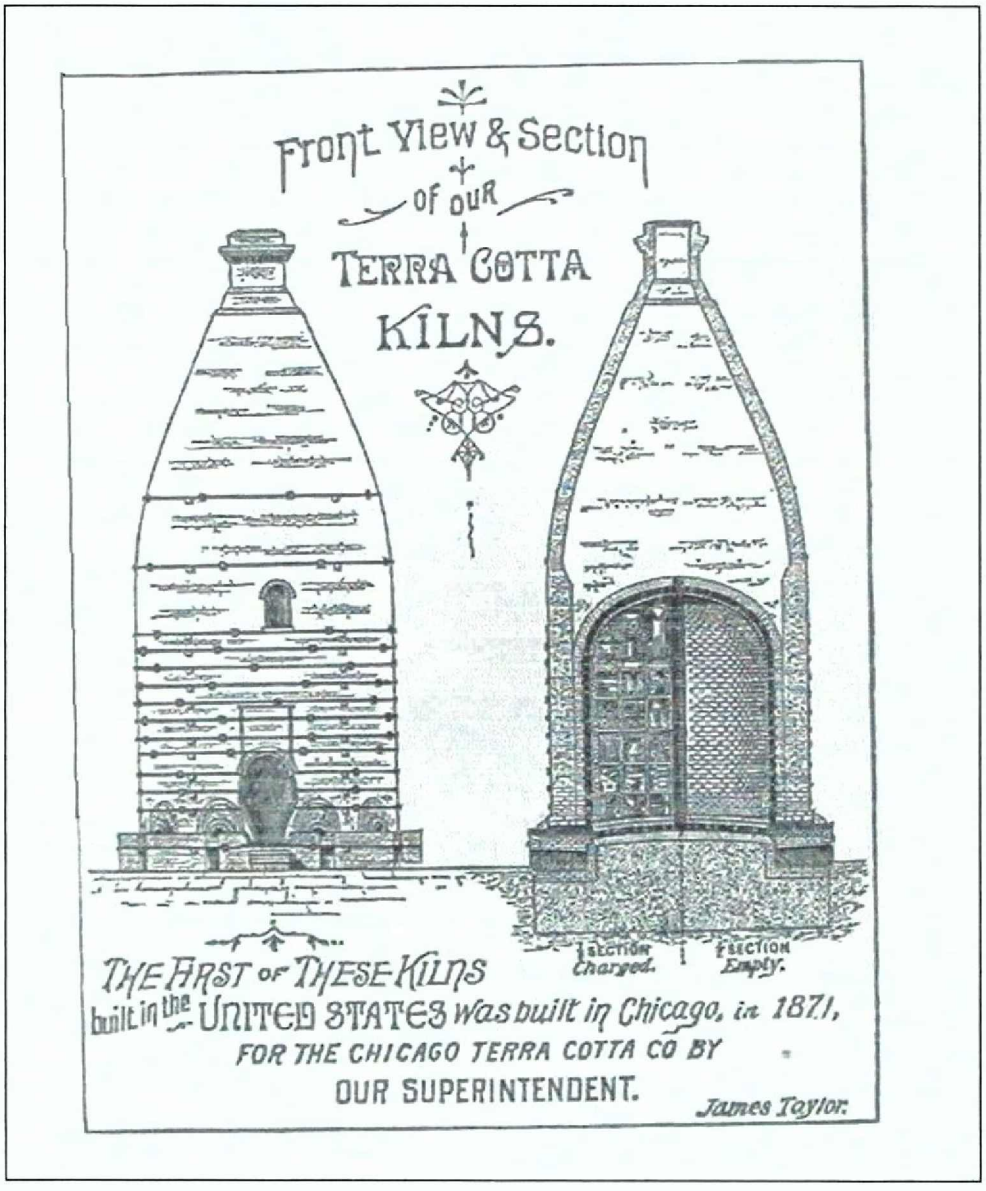


Figure 7. Front View & Section of Our Terra Cotta Kilns, c.1875
(Source: Avery Library, Columbia University)
First muffle kiln was introduced to the United States by James Taylor, later the Superintendent of the New York Architectural Terra Cotta Company.

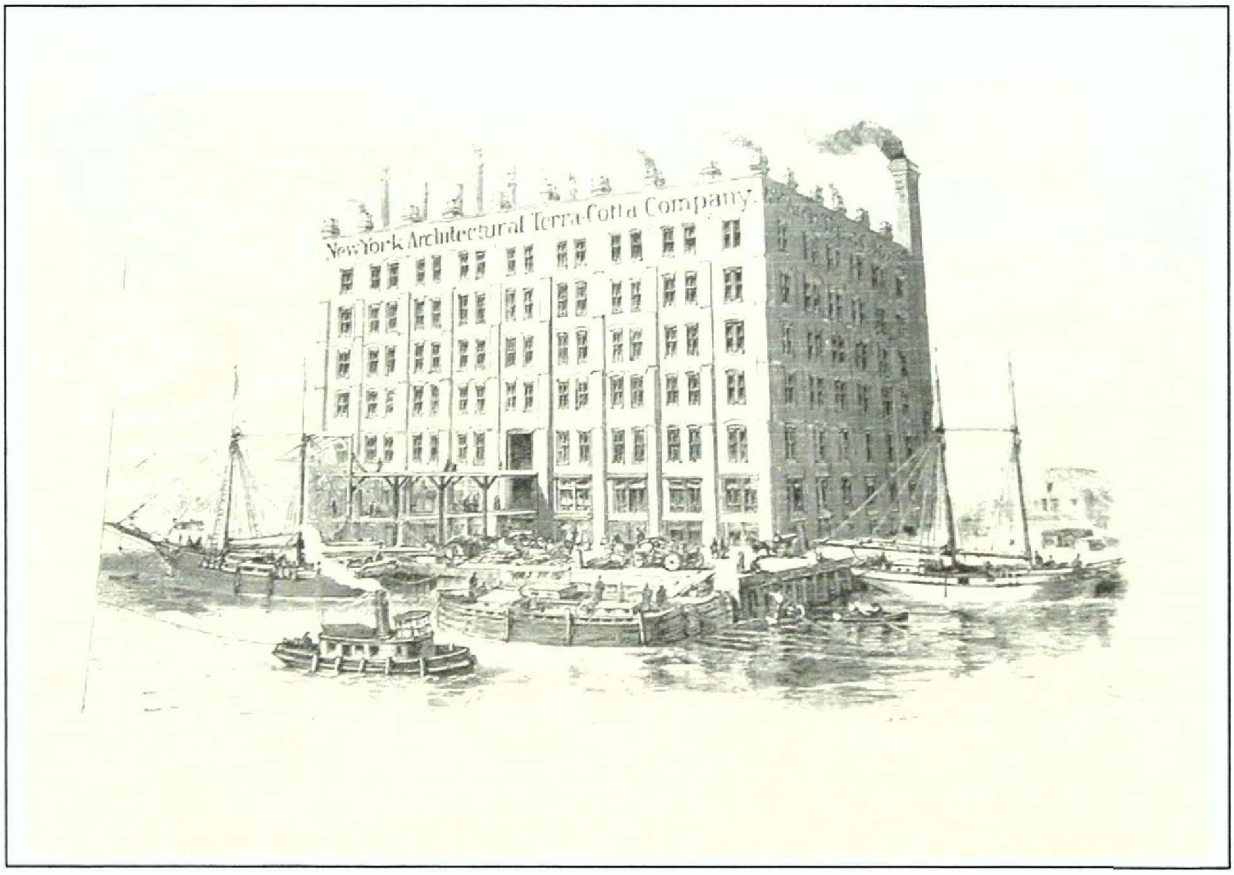
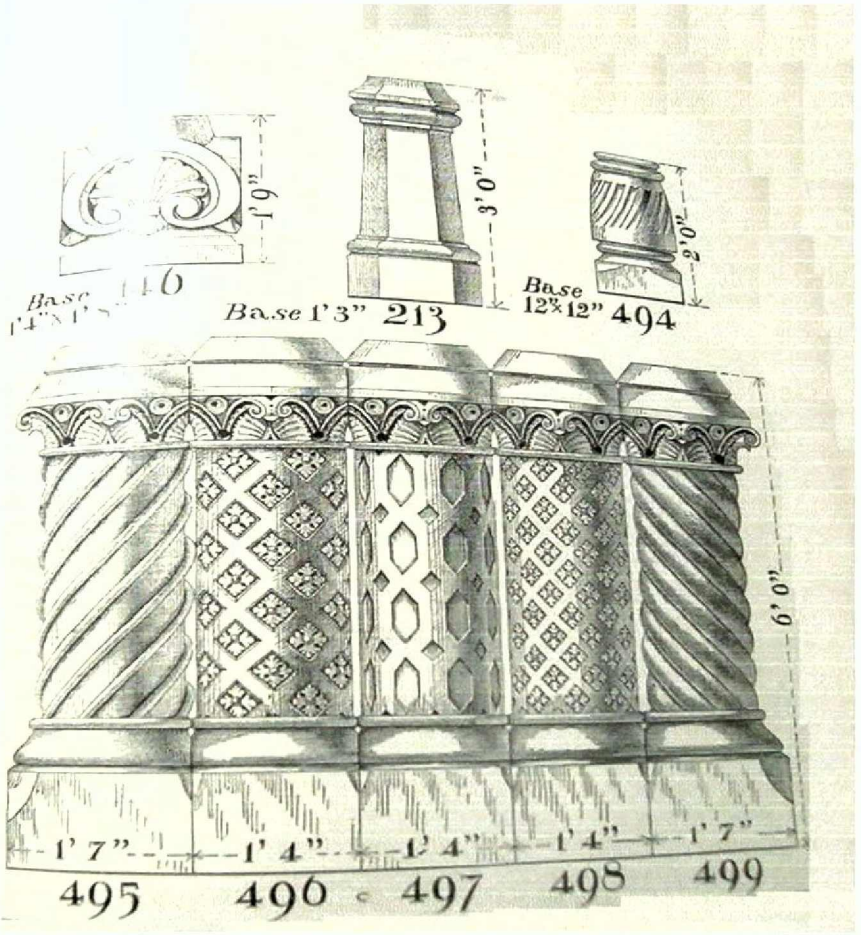


Figure 8. Illustration: New York Architectural Terra Cotta Company
View of Main Building from the East River, 1891
(from Geer: *Terra Cotta in Architecture,* 1891)



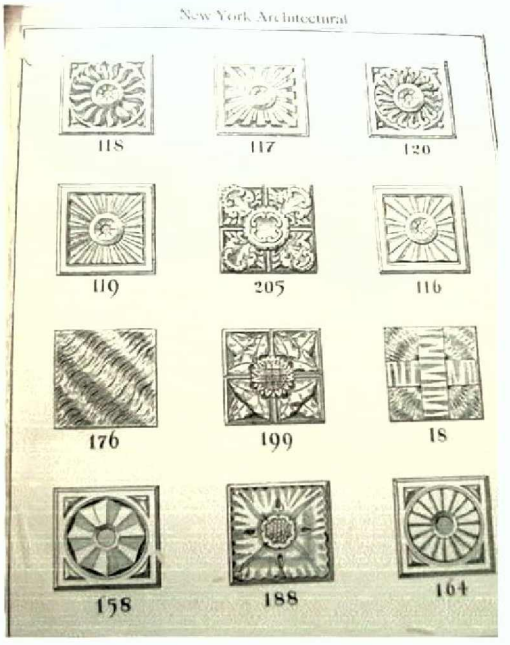


Figure 9. Illustrations from the New York Architectural Terra Cotta Company promotional catalog – chimneys, medallions, gargoyles, etc. (Geer: *Terra-Cotta in Architecture,* 1891)

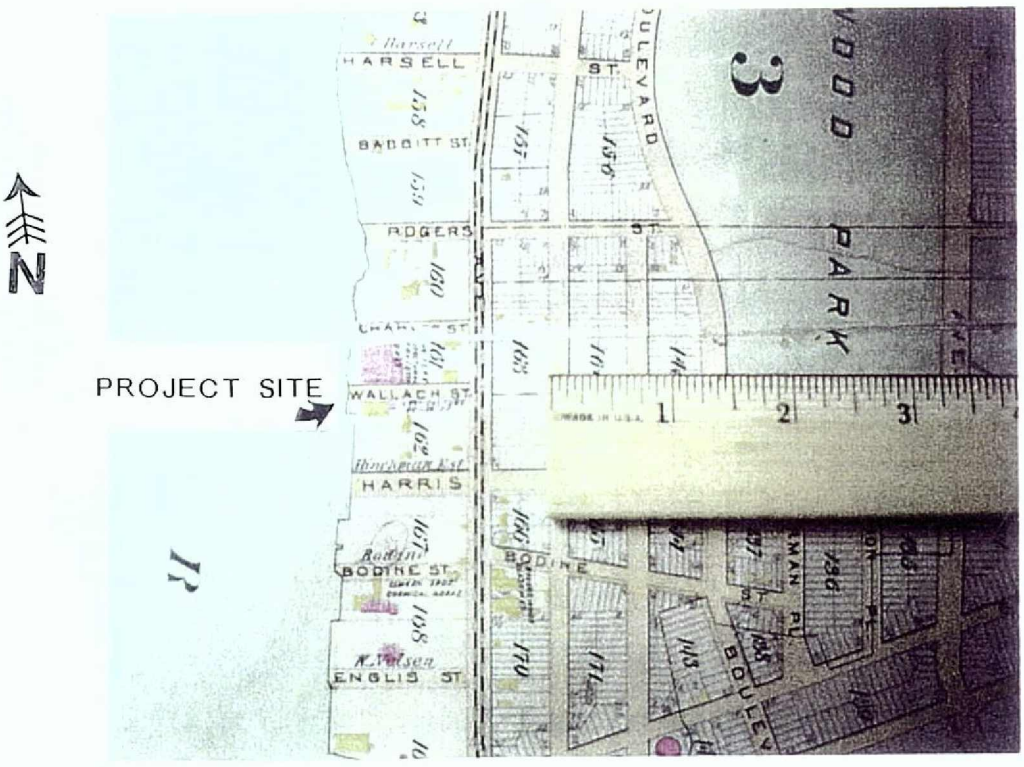


Figure 10. Wolverton, Atlas of Queens County, Long Island, New York, 1891
Original scale: 1inch = 400 feet

Arrow indicates project site location (Block 161)

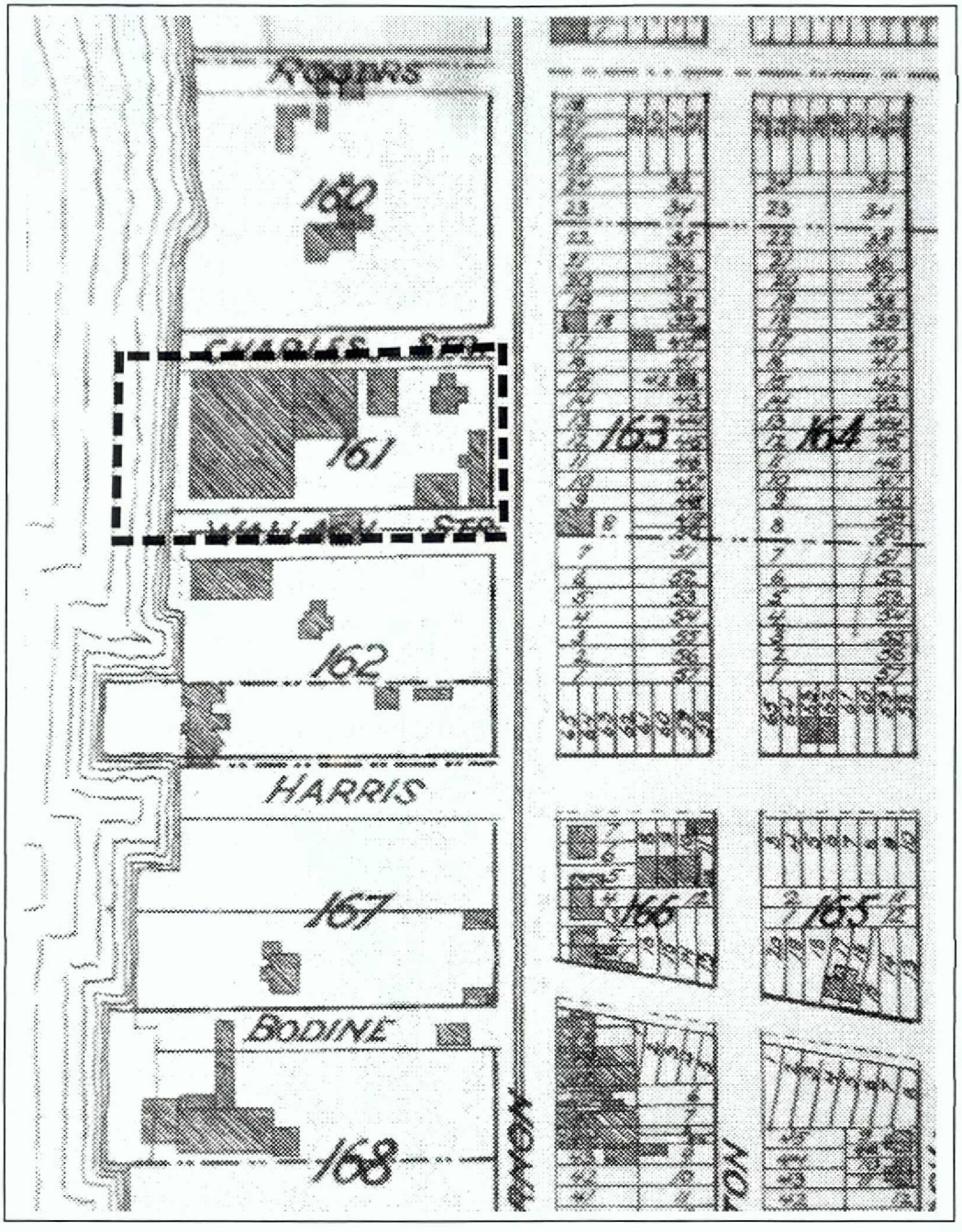
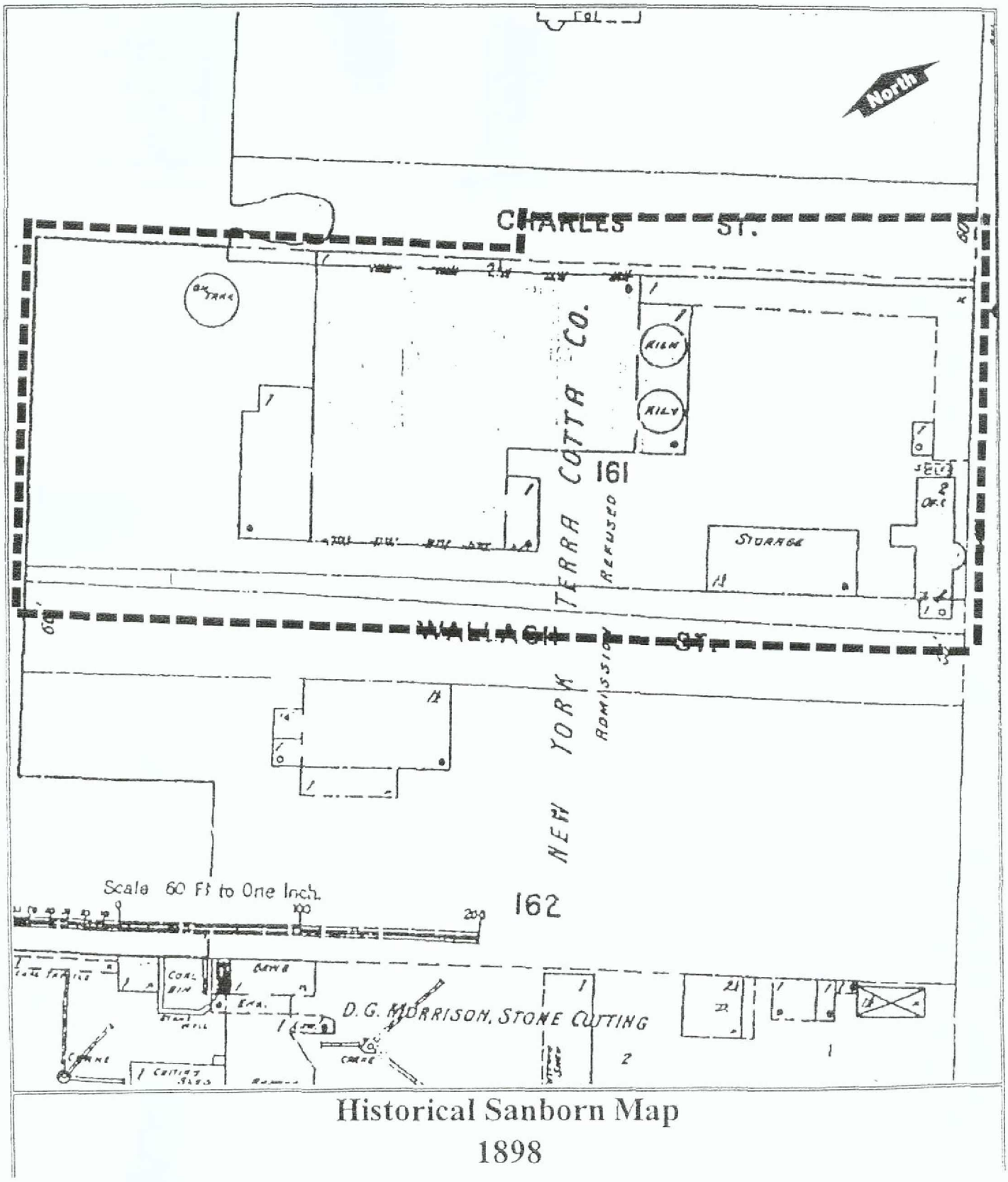


Figure 11. Hunerbein, Official Map of Long Island City, Queens Co., N.Y., 1893
Scale: 1cm = approx. 88 feet
(Source: Queens Library, Long Island Division)

▬ ▬ ▬ Project site boundaries



Historical Sanborn Map
1898

Figure 12. Sanborn, Borough of Queens, 1898
Scale: 1cm = 30 feet

▬ ▬ ▬ Project site boundaries

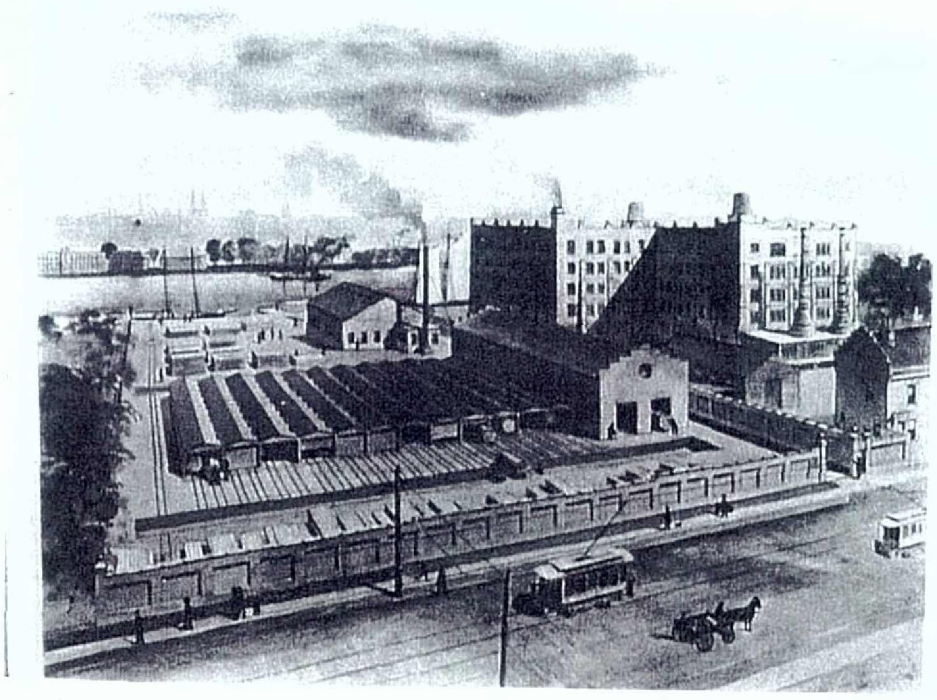


Figure 13. Illustration: New York Architectural Terra Cotta Company Works, c.1896
(View northeast across Vernon Boulevard – Project site at mid-ground on right)

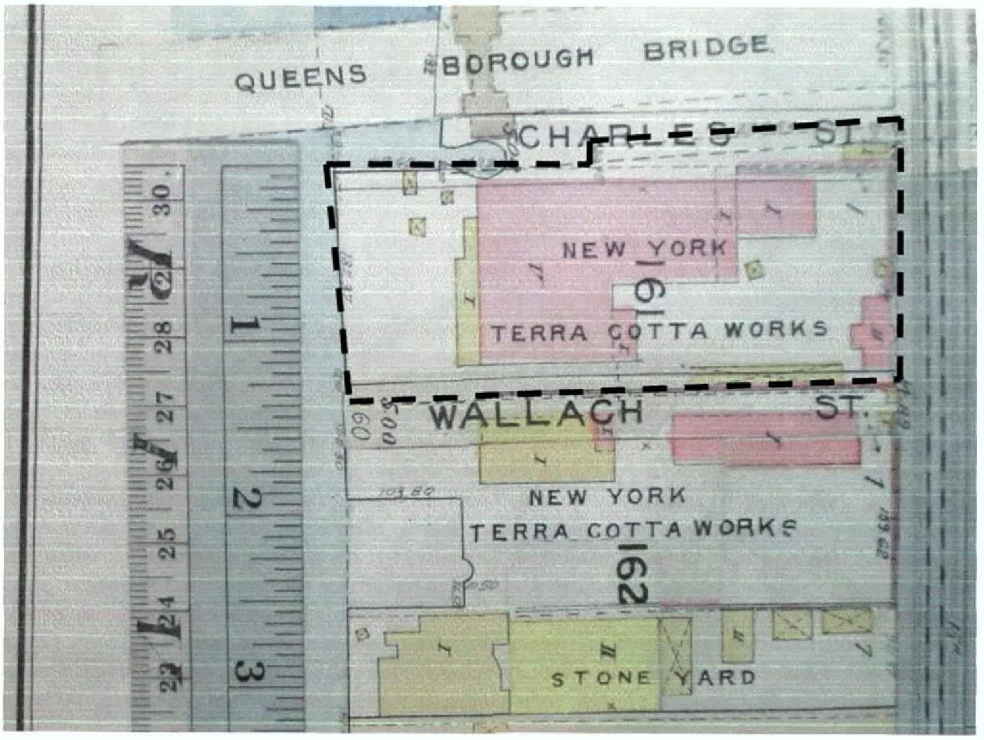


Figure 14. Hyde, Atlas of the Borough of Queens, vol. 2, pl. 2, 1903
(Original scale: 1 inch = 160 feet)

– – – Project site boundaries

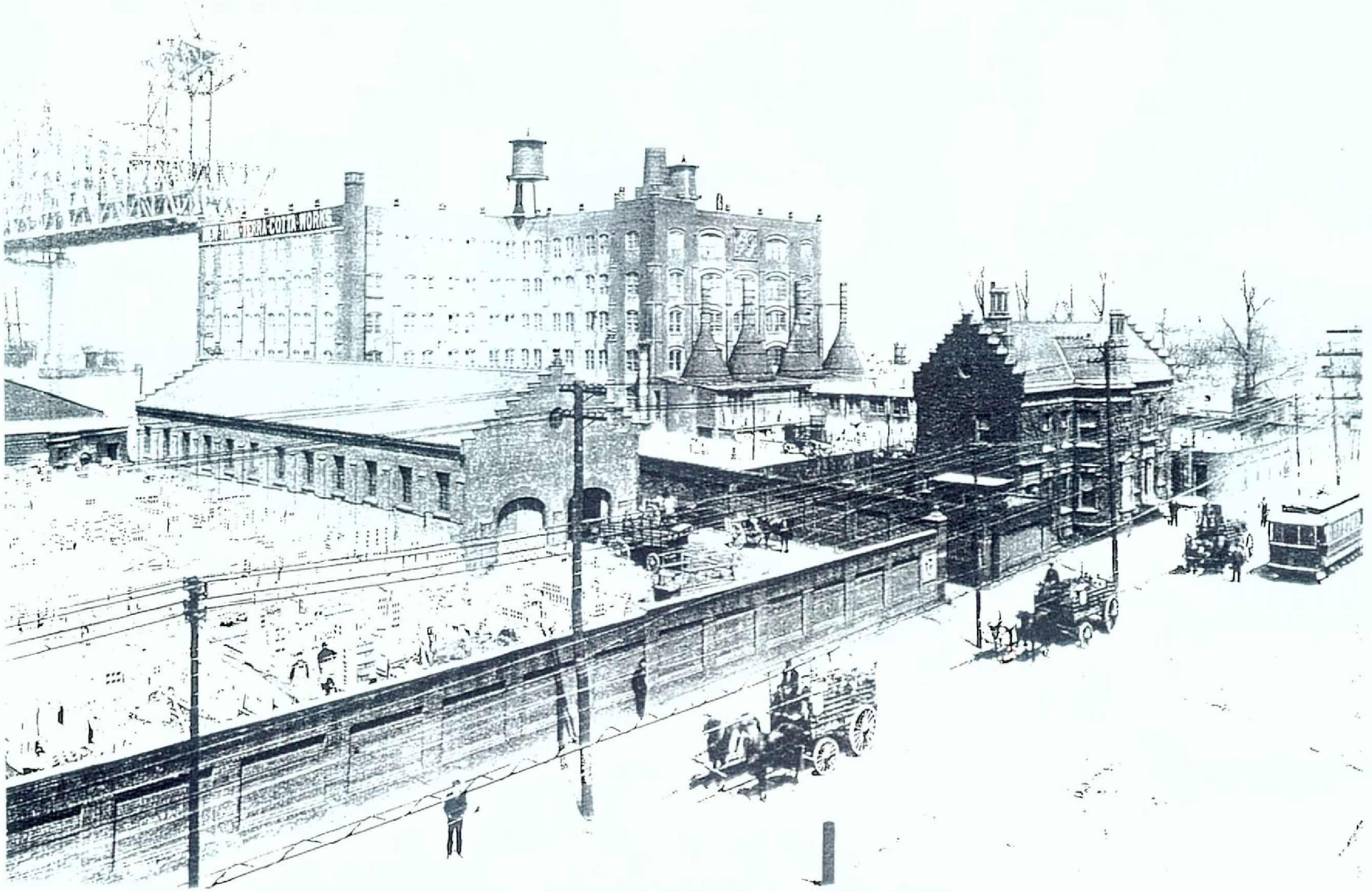


Figure 15. Photograph: New York Architectural Terra Cotta Company Works, 1906
Vernon Boulevard in foreground, NYATCC Office Building at right, Main Building at center background.
(Seyfried 1984)

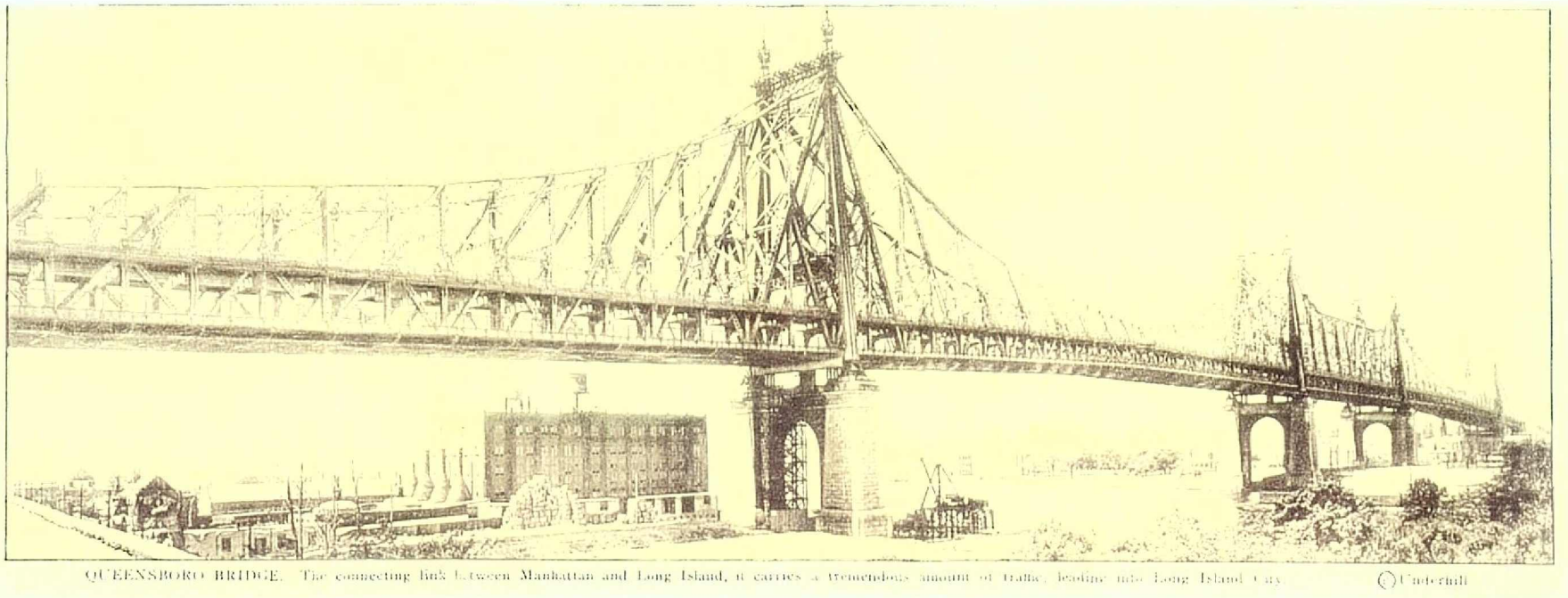


Figure 16. Photograph: Queensboro Bridge, c.1915
(from "Rotogravure Album of New York" courtesy of Susan Tunick, Friends of Terra Cotta)
View of the New York Architectural Terra Cotta Company plant from the northeast.

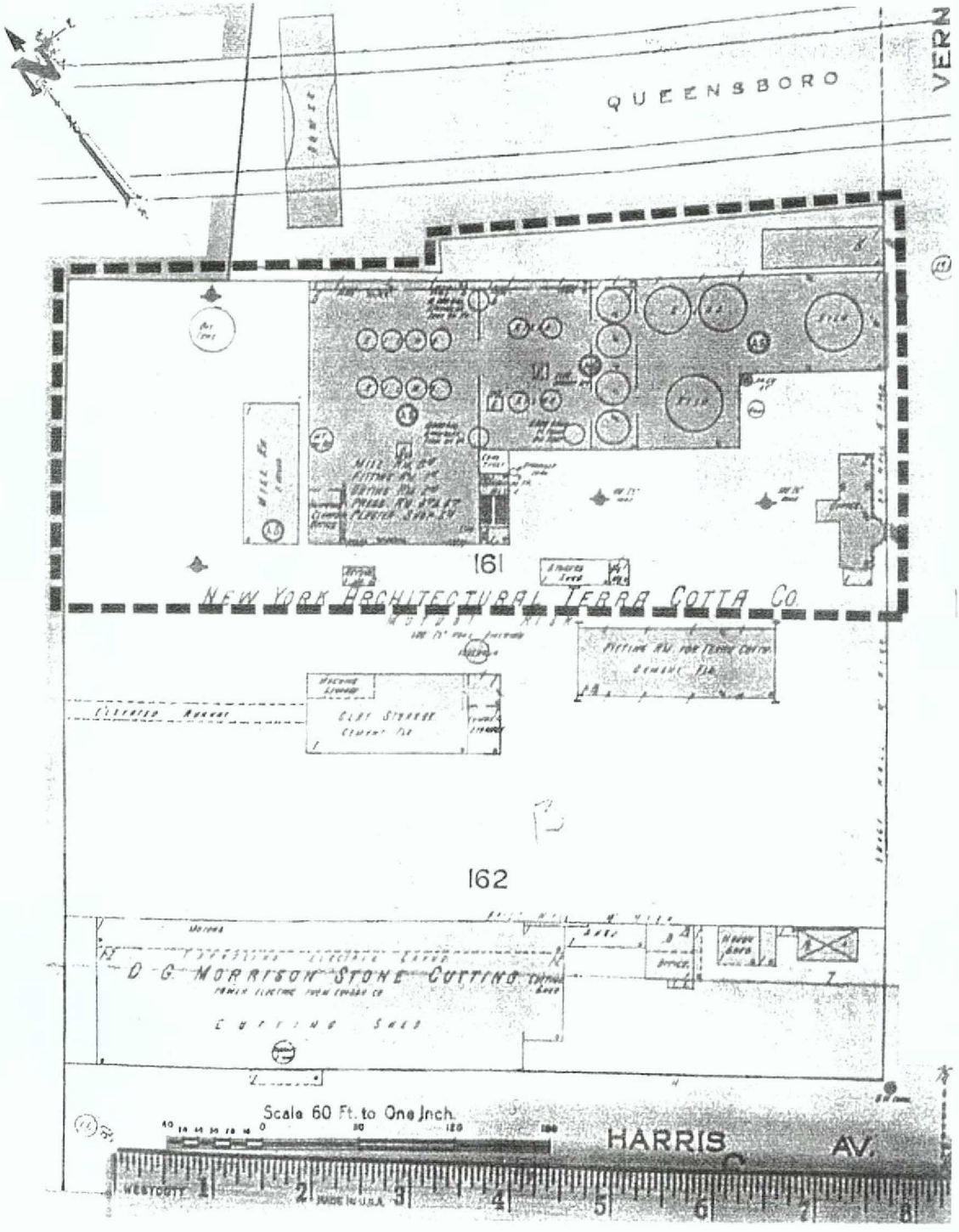


Figure 17. Sanborn, The Borough of Queens, 1915

▬ ▬ ▬ Project site boundaries

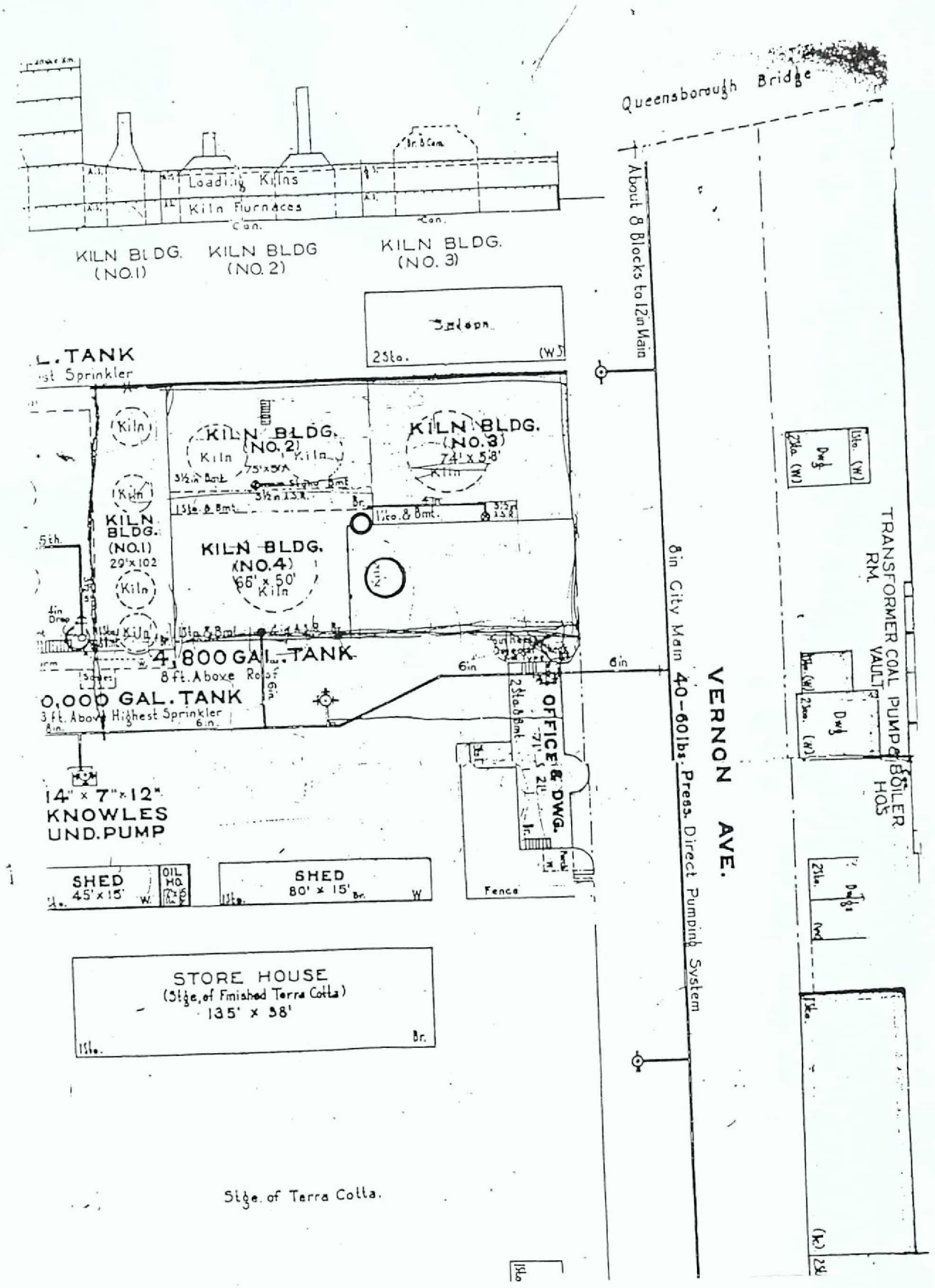
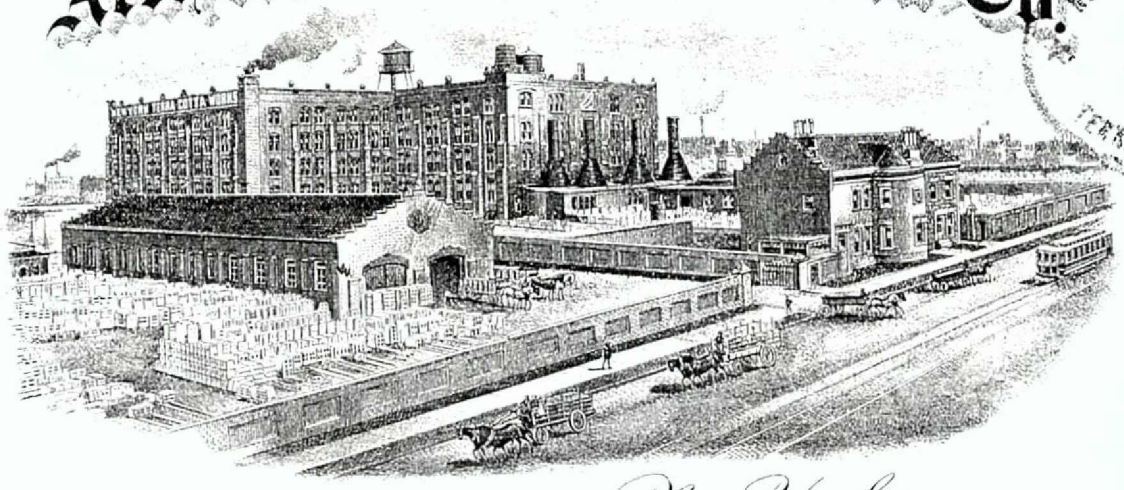


Figure 18. Plan and Cross Section: New York Architectural Terra Cotta Company, Sprinkler System, c. 1915
(Source unknown)

WALTER GEER, PRESIDENT.
F. C. TOWNSEND, VICE PRES'T. AND TREAS.
R. F. DALTON, ASS'T. TREASURER.
C. R TEN EYCK, SECRETARY.
J. P. GEIB, ASS'T. SECRETARY.

New York Architectural Terra-Cotta Co.

INCORPORATED 1886
OFFICE AND WORKS
401 VERNON AVENUE
BOROUGH OF QUEENS
NEW YORK CITY.
TELEPHONE 700 ASTORIA.

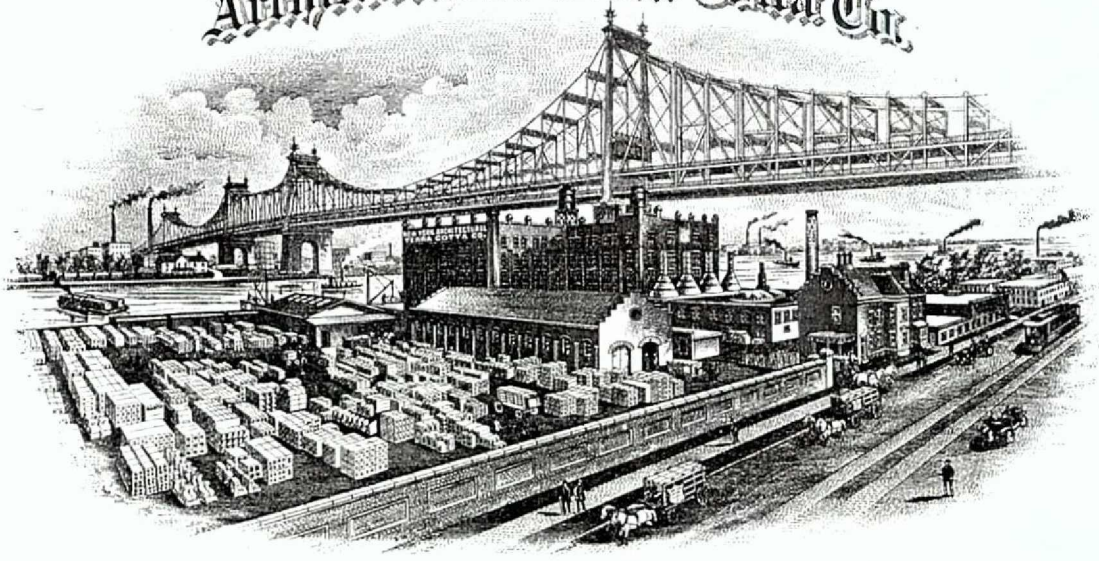


New York, April 30th, 1913.

WALTER GEER, President
F. C. TOWNSEND, Vice President
WALTER GEER, JR., Vice President
R. F. DALTON, Treasurer
J. R. OWENS, Ass't. Treasurer
C. R. TEN EYCK, Secretary
J. P. GEIB, Ass't. Secretary

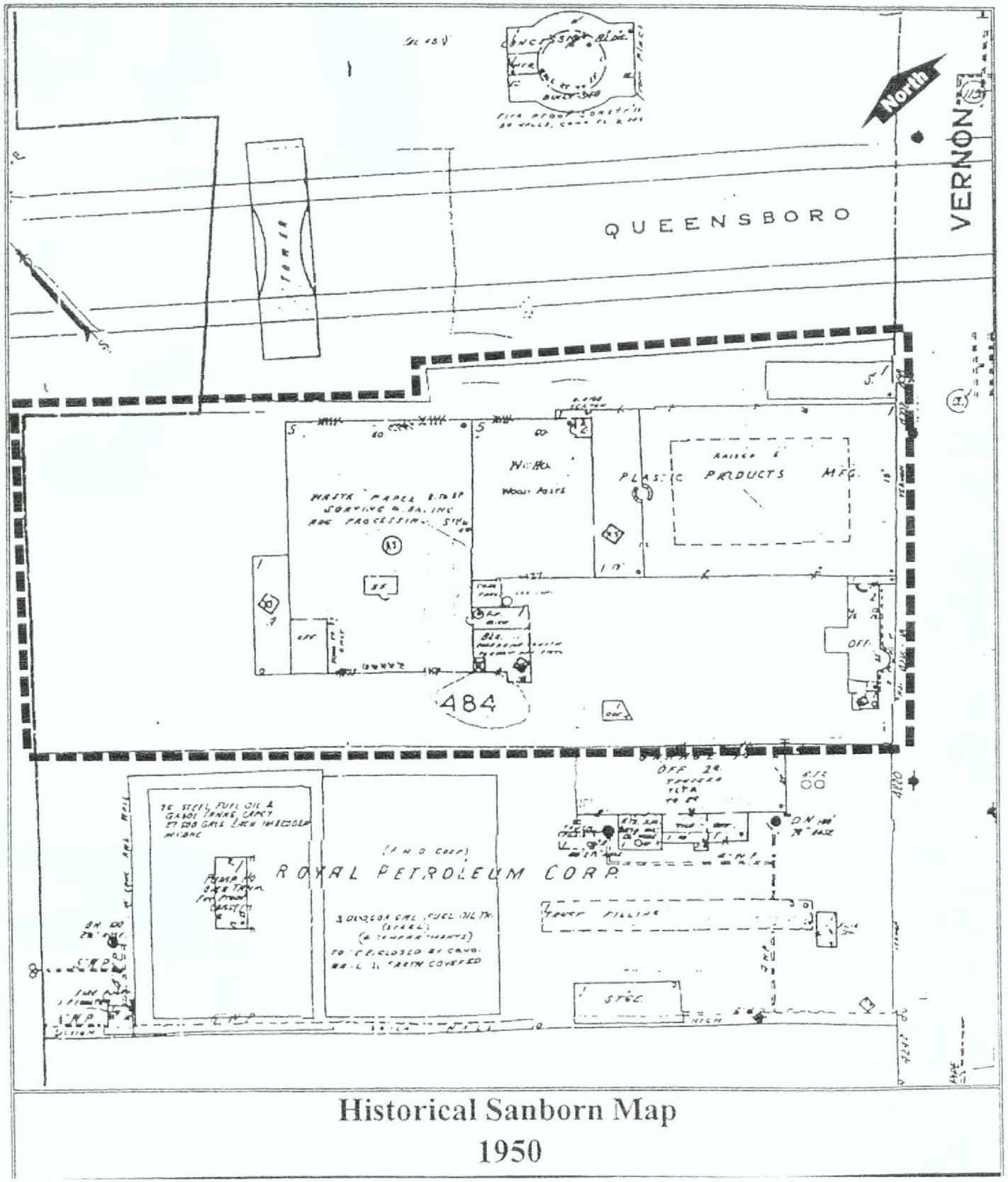
New York Architectural Terra-Cotta Co.

INCORPORATED 1886
OFFICE AND WORKS
401 VERNON AVENUE
BOROUGH OF QUEENS
NEW YORK CITY.
TELEPHONE 700 ASTORIA.



May 17th, 1916.

Figure 19. Letterhead: New York Architectural Terra Cotta Company, showing plant on Vernon Boulevard, dated 1913 (top) and 1916 (bottom). (Source: Avery Library, Columbia University)



Historical Sanborn Map
1950

Figure 20. Sanborn, The Borough of Queens, 1950

▬ ▬ ▬ Project site boundaries

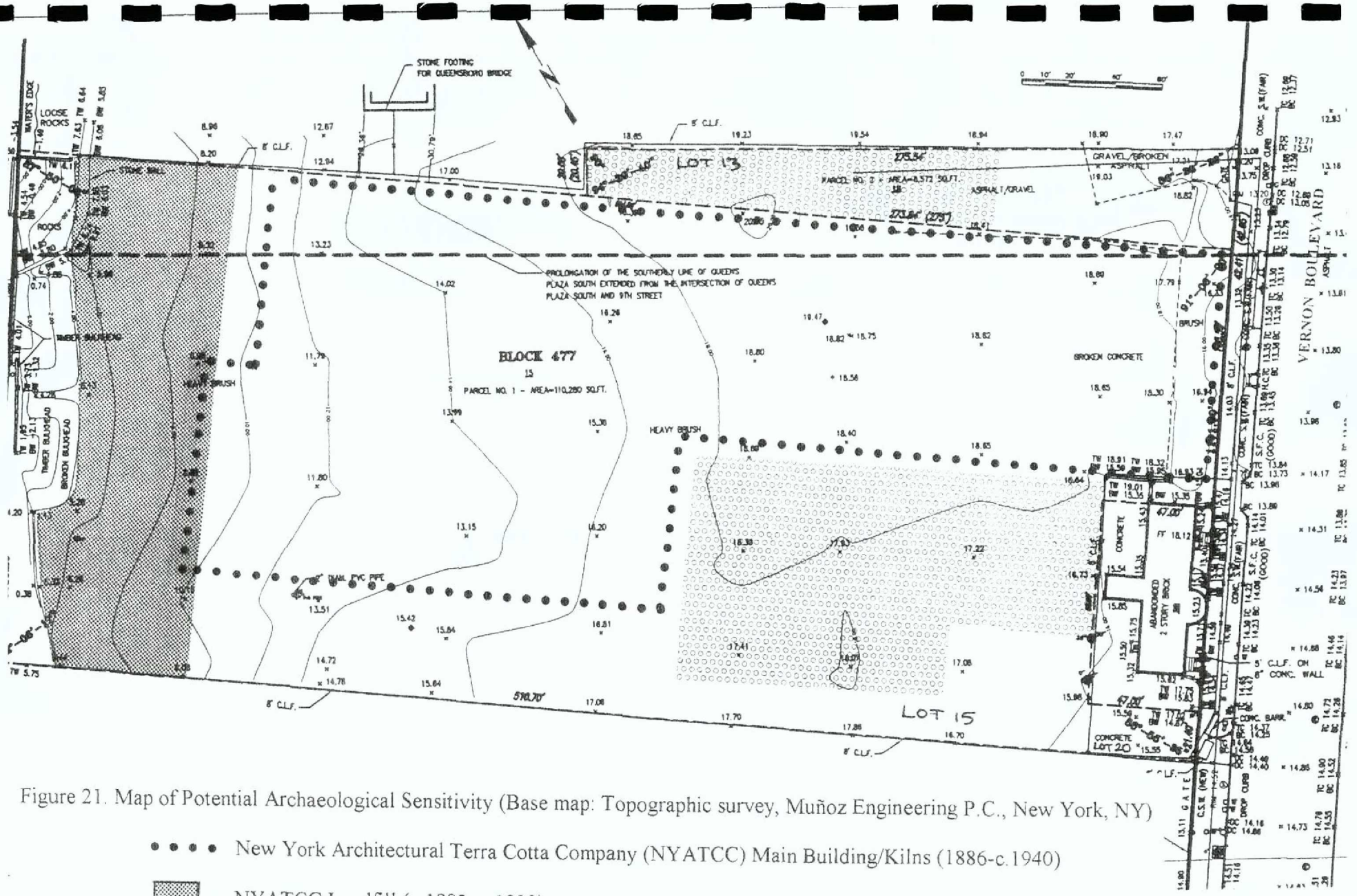


Figure 21. Map of Potential Archaeological Sensitivity (Base map: Topographic survey, Muñoz Engineering P.C., New York, NY)

• • • • New York Architectural Terra Cotta Company (NYATCC) Main Building/Kilns (1886-c.1940)

– NYATCC Landfill (c.1893–c.1898)

– NYATCC Storage "Open Areas" (1886–c.1940)

Photo 1: View from Lot 20 northward along Vernon Boulevard toward Lot 15, with Lot 13 in distance. Note the slope up from sidewalk. Northeast corner of the NYATCC Office Building on left.

Photo 2: Looking west on Lot 15 (approx. 20 feet west of Vernon Avenue) along the northern border of the project site toward the East River. Lot 13 and Queensboro Bridge to the right (north). Note cracked concrete slab which extends westward from this point

Photo 3: View westward on Lot 15 toward the East River from midway between River and Vernon Boulevard. Former location of the NYATCC Main Building.

Photo 4: Looking northeast at former oil tank location (See Fig. 12 and Appendix A) on Lot 15, the former west side of the Main Building of the NYATCC plant. Oil tanks and contaminated soil removed in 60' by 60' area during remediation in 1995-97.

Photo 5 (left): Western edge of Lot 15, looking northward along East River bulkhead. Note exposed timber and metal ties.

Photo 6 (bottom): View east from shoreline. Note high brush, and steep rise in elevation. Roof crest of NYATCC Office Building is visible in distance. New York Power Authority plant is visible at right (south), Queensboro Bridge at left (north).

Photo 7: View of Lot 20 and NYATCC Office Building from Lot 15. Lot 15 extends to Vernon Boulevard to the right (south) of the building. Note remains of concrete slab in foreground.

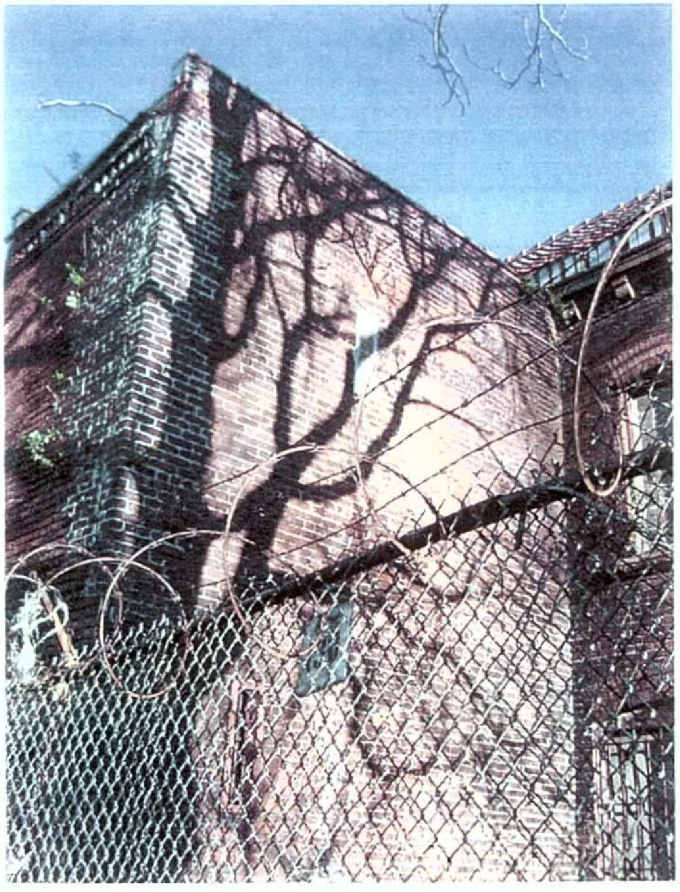


Photo 8: Extension wing on rear (western) side of NYATCC Office Building (Lot 20). Note lack of windows, decoration, and the disappearance of the terra cotta cornice of main section of building behind extension wall.

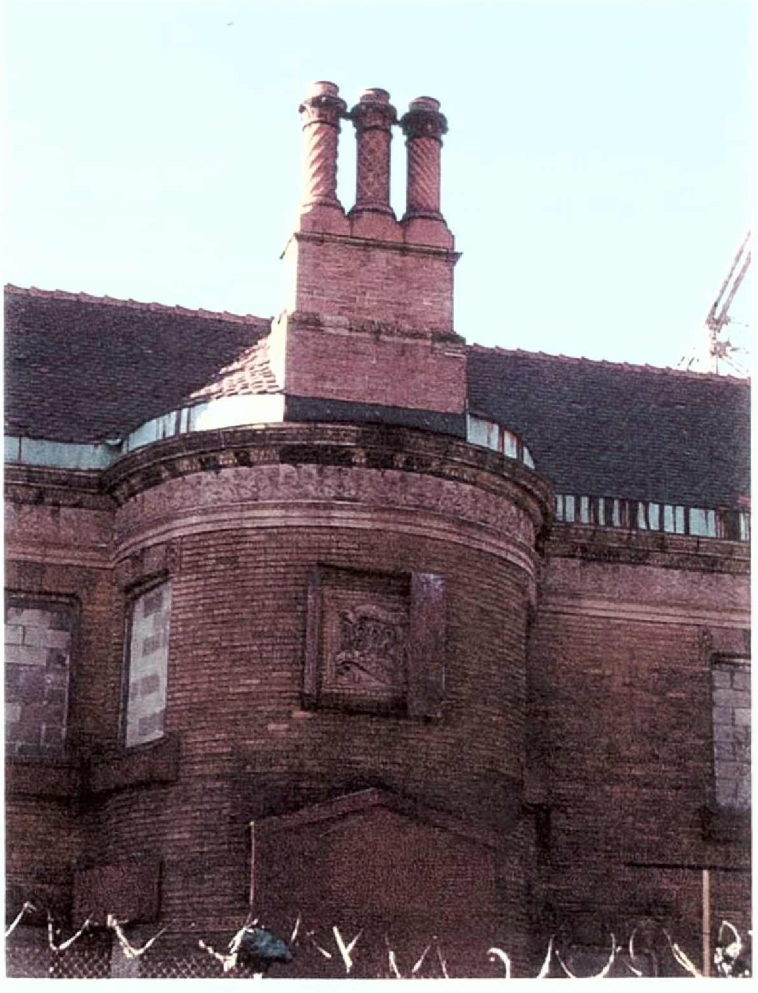


Photo 9 (top): NYATCC Office Building (1892) on Lot 20, a New York City Landmark. View westward from the east side of Vernon Boulevard.

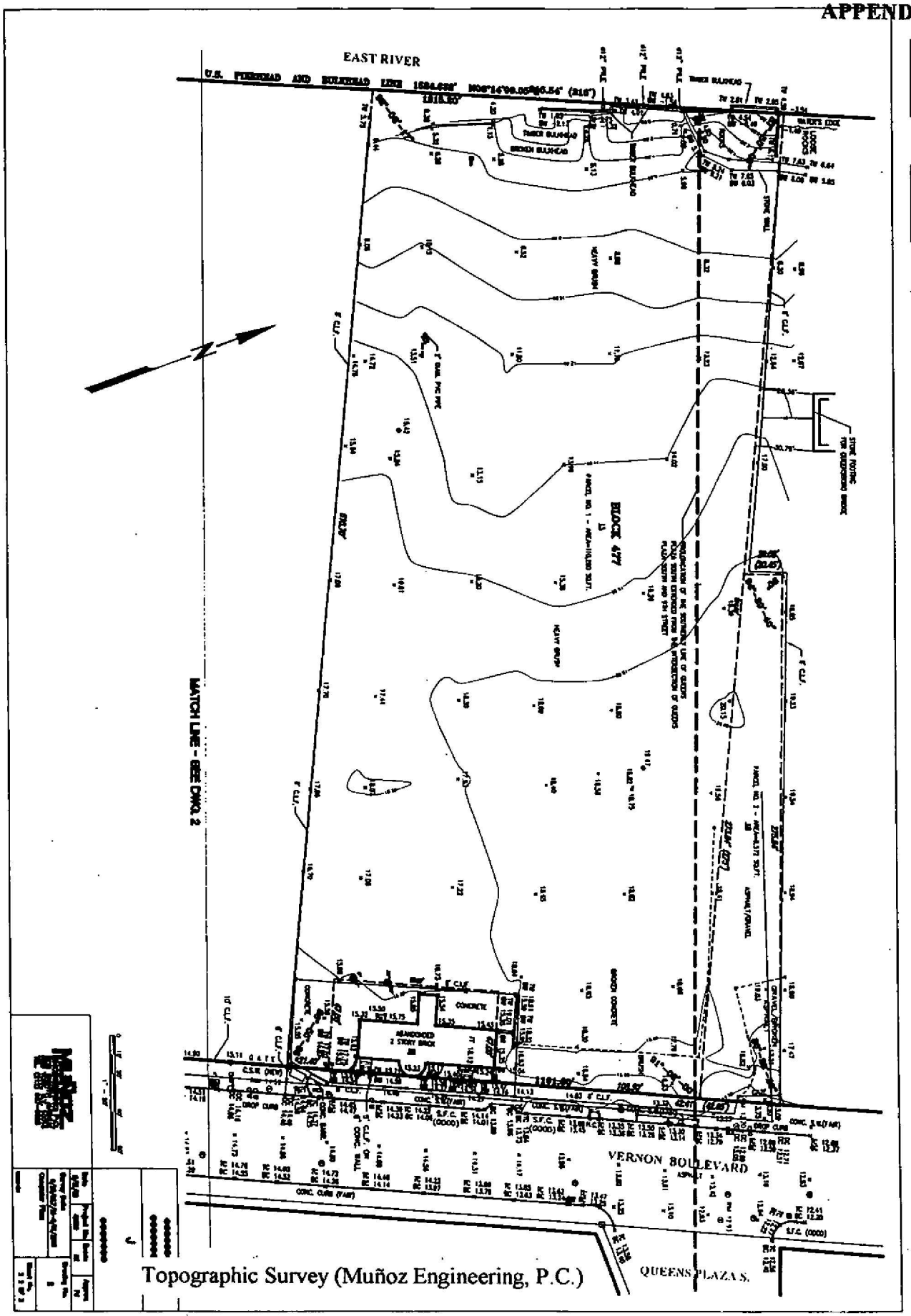
Photo 10 (left): Detail of entrance, NYATCC Office Building, looking west from Vernon Boulevard. Note terra cotta cornice, date plaque and chimneys. Compare chimney pots with the NYATCC catalog designs shown on Fig, 9.

Photo 11 (left): Interior of NYATCC Office Building (1892) on Lot 20. This terra cotta mantle- and chimney-piece is the only known signed work of James Taylor, Superintendent.

Photo 12 (bottom): Interior of rear extension on the second floor of the NYATCC Office Building. Note the terra cotta cornice on the exterior wall of the main section of the building.

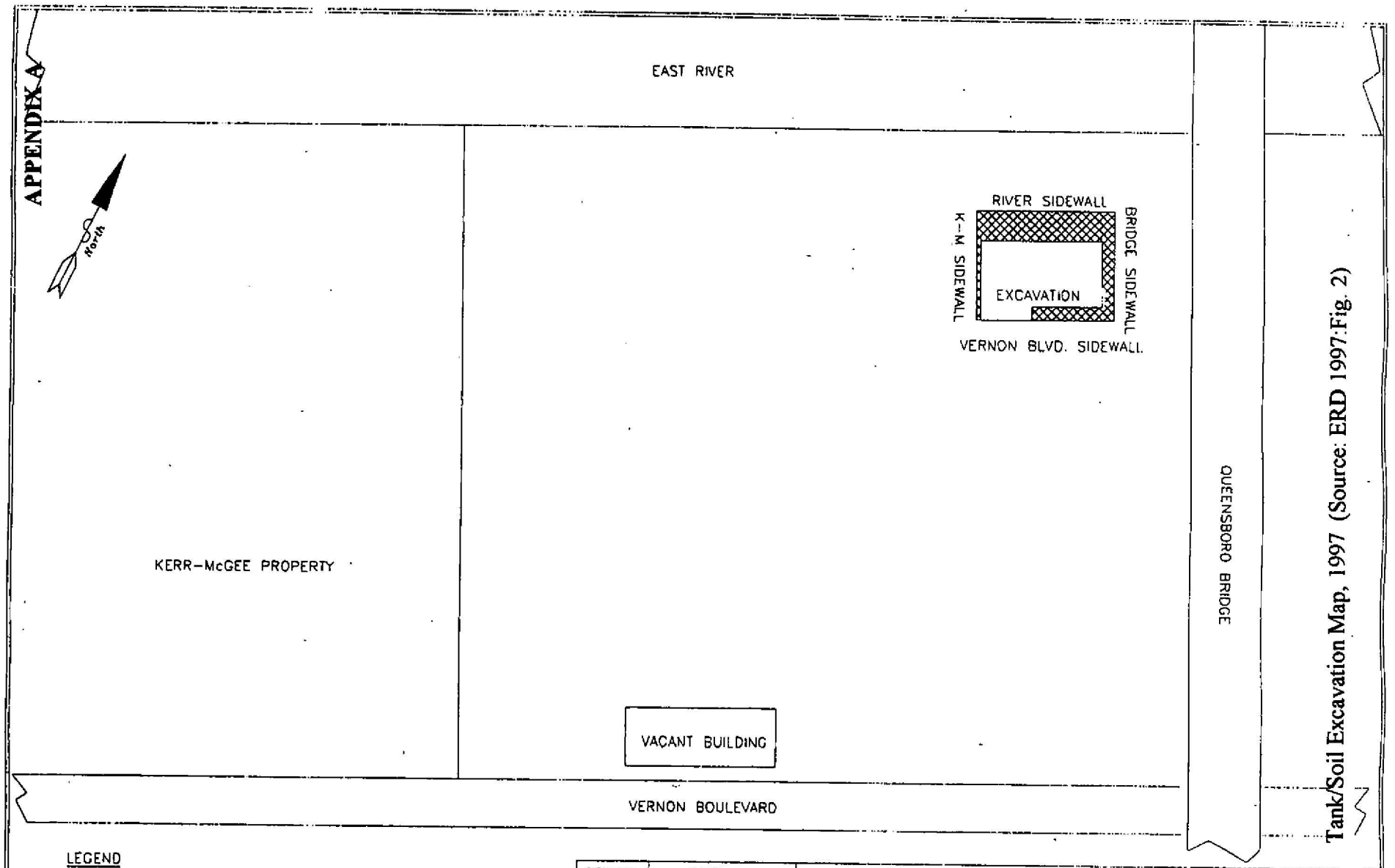
APPENDIX A

ENVIRONMENTAL REMEDIATION LOCATION MAPS AND SURVEYS



Topographic Survey (Muñoz Engineering, P.C.)

APPENDIX A



DRAWN JCS	DATE 7/7/97
CHECK	DATE
APPR	DATE
COMPUTER GRAPHICS MANUAL CHANGES RESTRICTED	

ERD
ENVIRONMENTAL, INC.

FIGURE 2

TITLE
Terra Colla Facility
Vernon Boulevard
Long Island City, NY

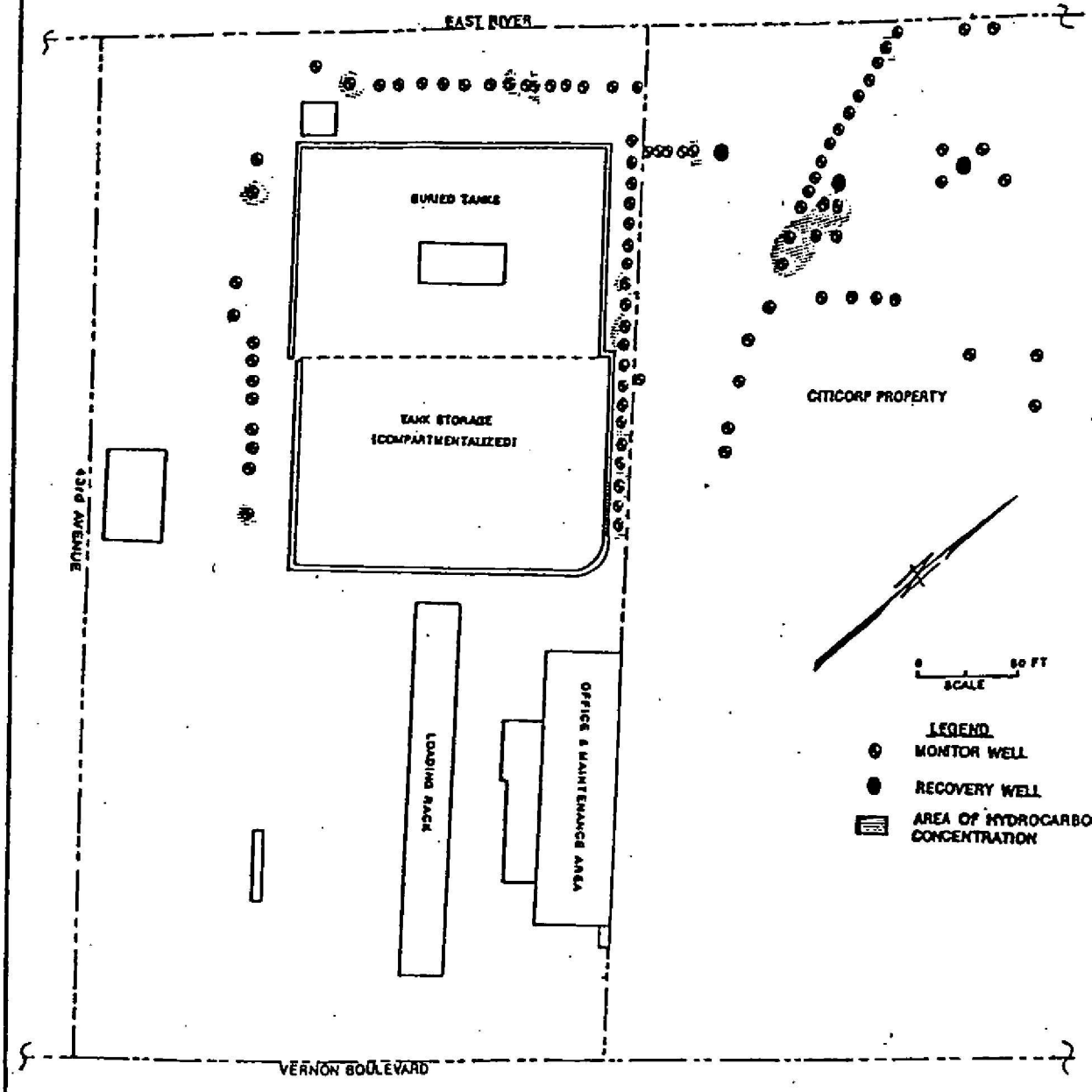
FILE NAME	SCALE	SHEET OF	DRAWING NO.
TERRACOTA.DWG			

Tank/Soil Excavation Map, 1997 (Source: ERD 1997:Fig. 2)

REIEC

APPENDIX A

Source: Roy F. Weston, Inc. (1994:Appendix G)



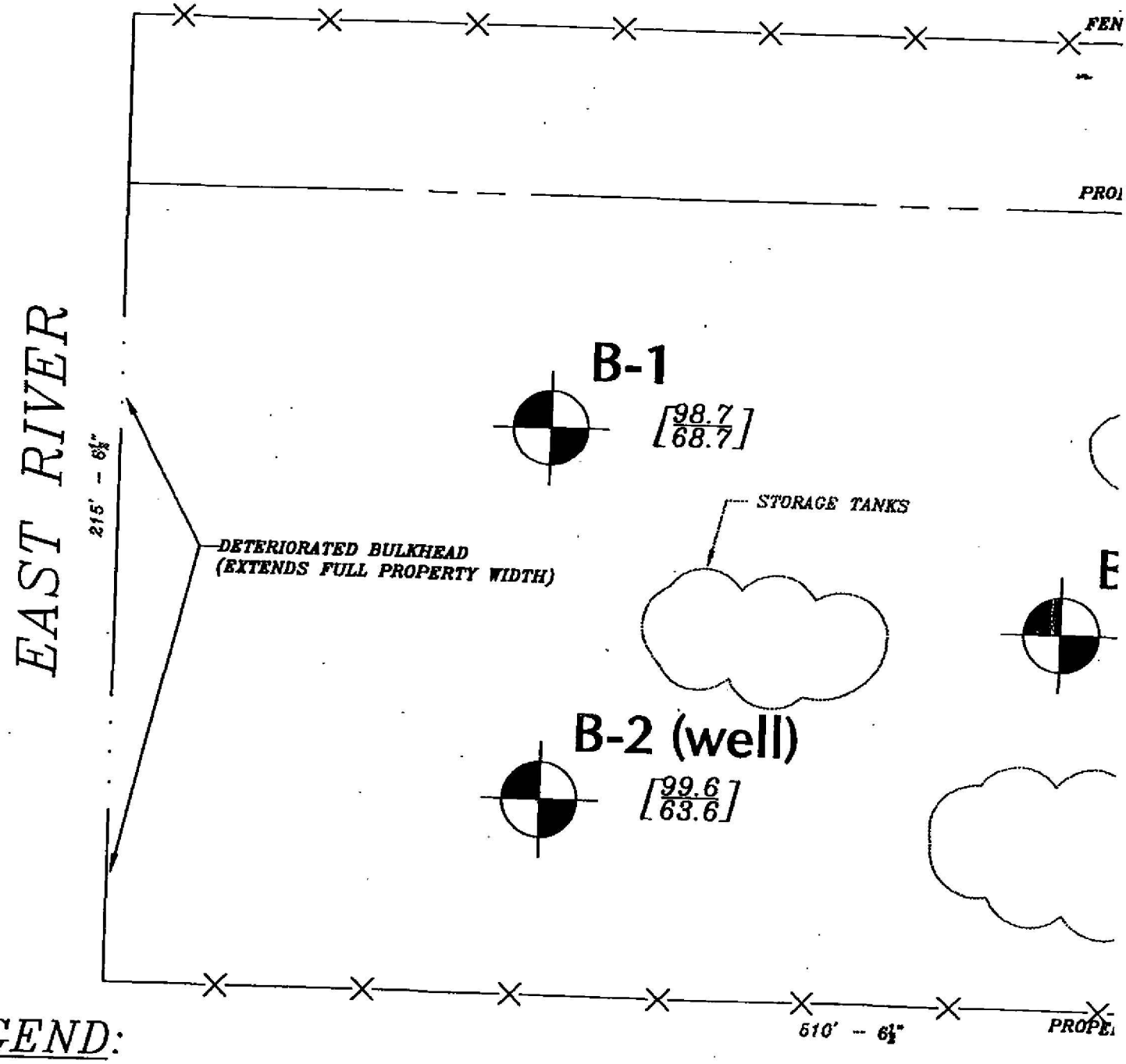
LOCATION MAP FOR MONITOR WELLS & RECOVERY WELLS
LONG ISLAND CITY TERMINAL

SOURCE: KERR McGEE CORP

FIGURE 1.7

APPENDIX B

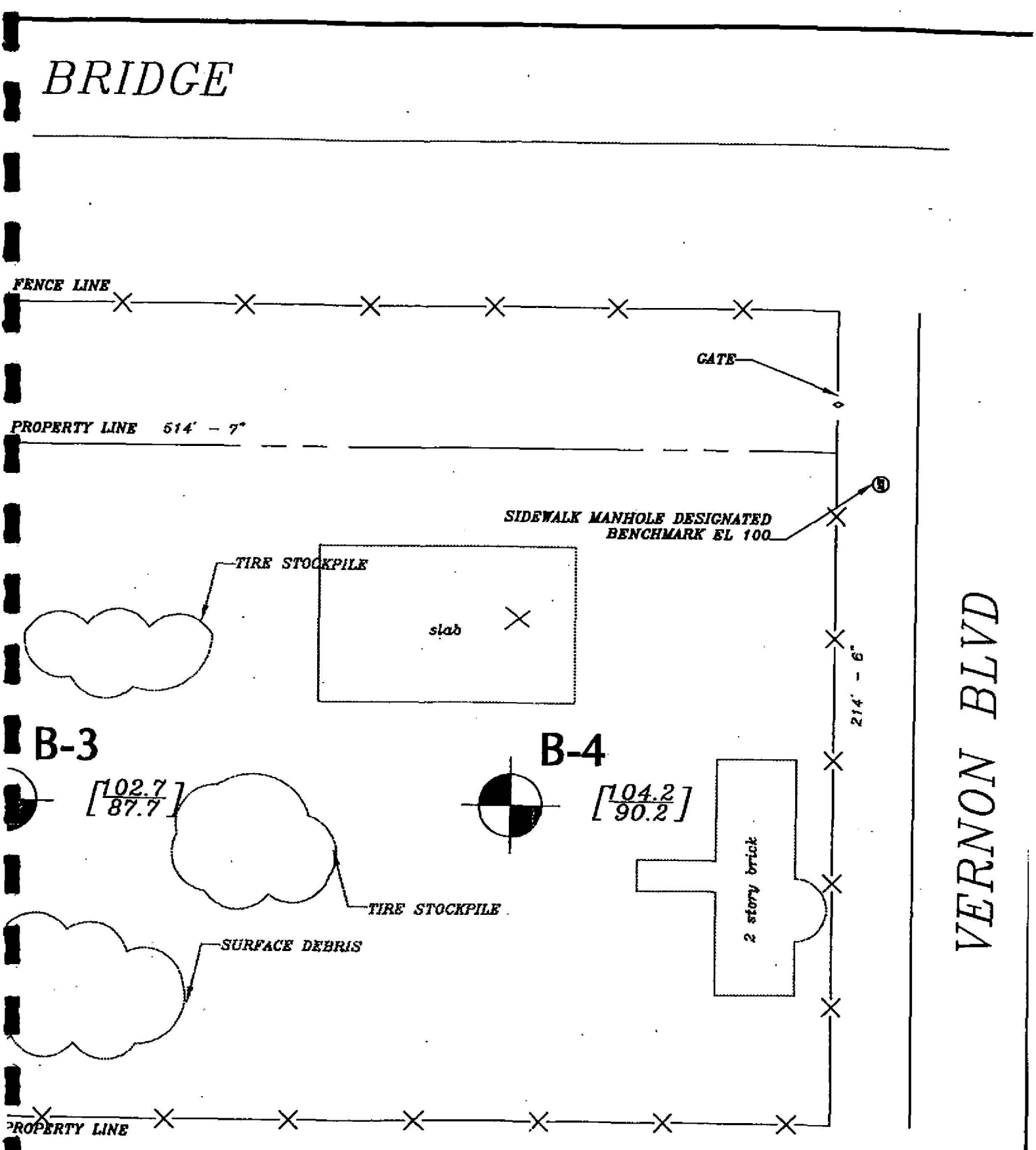
SOIL BORING LOCATION MAP AND LOGS



LEGEND:

B-1 [GS/TOR] -- GROUND SURFACE ELEVATION
-- TOP OF ROCK ELEVATION

NOTE:
Elevations are referenced to the sidewalk manhole, benchmark el 100



Langan Engineering and Environmental Services

(212) 479-5400 (212) 479-5444

Elmwood Park,NJ Doylestown,PA. New York,NY

SILVERCUP STUDIOS

BORING LOCATION PLAN

QUEENS NY

Job No.	Date	Scale	Dwg. No.
5565001	12/05/02	1" = 40'	2

Langan
Engineering and Environmental Services, Inc.

LOG OF BORING B-1 **SHEET** 1 **OF** 3

PROJECT: Silvercup Studios	PROJECT NO.: 5565001
LOCATION: Vernon Blvd, Queens, NY	ELEVATION AND DATUM: ≈ 98.7
DRILLING AGENCY: CMI	DATE STARTED: 12/4/02 — DATE FINISHED: 12/4/02
DRILLING EQUIPMENT: CME 75 Truck Mounted Rig	COMPLETION DEPTH: 35' — ROCK DEPTH: 30'
SIZE AND TYPE OF BIT: 3 7/8" Tri-Cone	NO. SAMPLES: DIST. 6 — UNDIST. — — CORE 5'
CASING: 4"	WATER LEVEL: FIRST — COMPL. — 24 HR. —
CASING HAMMER: Donut — WEIGHT: 300 lb — DROP: 30"	FOREMAN: Vinny Gondalfo
SAMPLER: 2" O.D Splitspoon / NX Core	INSPECTOR: Clay Patterson
SAMPLER HAMMER: Donut — WEIGHT: 140 lb — DROP: 30"	

NYLBC CLASS	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES NO./LOC.	TYPE	RECOV. FT.	PENETR. RESIST BLWS/IN.	REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
FILL	Topsoil: Br m-f SAND, so silt, w/roots, tr m-f gravel + construction debris (Brick, etc)	1	S-1	SS	9"	1 11 11 13	
FILL	Top 4": Gray c-f silty SAND,	2					- Advance casing to 5' - Drill to 5'
FILL / SAND	Br m-f SAND, so silt, tr f gravel	5	S-2	SS	11"	10 8 7 5	
		7					- Advance casing to 10' - Drill to 10'
SAND		10					- Drill resistance @ 10' suspected cobble - Drill to 12' and continue sampling
SAND	Gray m-f SAND, so silt, tr wood	12	S-3	SS	2"	16 14 15 10	- Sample has slight chemical odor
		14					

Langan
Engineering and Environmental Services, Inc.

JOB NO. 5565001
DATE 12/4/02

LOG OF BORING NO. B-1

SHEET 2 OF 3

NYCDEP CLASS	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES NO./LOC.	TYPE	RECOV. FT.	PENETR. RESIST BLWS/6in.	REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
		15					- Drill to 15' - Advance casing to 15'
SOIL	Gray m-f silty SAND, tr organics	16	S-4	SS	16"	5 5 6 7	- sample has strong chemical odor
		17					
		18					- Advance casing to 20'
		19					- Drill to 20'
		20					
	Gray m-f SAND, so silt, tr f-gravel, tr organics	21	S-5	SS	18"	14 17 22 44	- sample has slight chemical odor
		22					
		23					- Drill to 25' - Drill chatter at 22-23'
		24					
		25					
	Brown-Gray c-f SAND, so silt, tr f-gravel	26	S-6	SS	18"	28 44 31 41	
		27					
		28					- Drill to 30' - Heavy drill chatter 29'-30' - Drill resistance 30' -> Begin core
		29					
		30					
BEDROCK		31	R-1	CORE	REC=32"	4 5	

3-65

Langan
Engineering and Environmental Services, Inc.

JOB NO. 5565001
DATE 12/4/02

LOG OF BORING NO. B-1

SHEET 3 OF 3

NYCBC CLASS	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES NO./LOC.	SAMPLES TYPE	SAMPLES RECOV. FT.	SAMPLES PENETR. RESIST BLWS/in.	REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
3-65 ROCK	Granitic GNEISS, highly fractured, highly weathered	32 33 34 35	R-1	NX CORE REC = 32"/60"		6 4 4	— REC = 32"/60" = 53% — RQD = 29"/60" = 48%
							E.O.B. 35'

Langan
Engineering and Environmental Services, Inc.

LOG OF BORING B-2 (ow) **SHEET** 1 **OF** 3

PROJECT Silvercup Studios		**PROJECT NO.** 5565001	
LOCATION Vernon Blvd, Queens, NY		**ELEVATION AND DATUM** el 99.6	
DRILLING AGENCY CMI		**DATE STARTED** 12/3/02	**DATE FINISHED** 12/3/02
DRILLING EQUIPMENT CME 75 Truck Mounted Rig		**COMPLETION DEPTH** 46'	**ROCK DEPTH** 36'
SIZE AND TYPE OF BIT 3 7/8" Tri-Cone		**NO. SAMPLES**	**DIST.** 8 **UNDIST.** — **CORE** 10'
CASING 4"		**WATER LEVEL**	**FIRST** **COMPL.** 12.75' **24 HR.** 12.75'
CASING HAMMER Donut **WEIGHT** 300 lb **DROP** 30"		**FOREMAN** Vinny Gandolfo	
SAMPLER 2" O.D. Splitspoon / NX Core		**INSPECTOR** Clay Patterson	
SAMPLER HAMMER Donut **WEIGHT** 140 lb **DROP** 30"			

NYC BC CLASS	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES NO. LOC.	TYPE	RECOV. FT.	PENETR. RESIST BLWS/6"	REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
GS - 1 1 1 1	3" Topsoil: Br m-f SAND + SILT w/ root matter Br m-f SAND, so silt + construction debris (Brick, wood) tr f gravel	1	S-1	SS	12"	PUSH 21 13	
		2					- Advance casing to 5' - Drill to 5'
		3					
		4					
	Gray - Brown - Black m-f SAND, so const. debris (Ash, Brick)	5				16	
		6	S-2	SS	18"	13 8	
GS - 1 SAND	Bottom 8": Br m-f SAND, lt silt, tr f gravel	7				9	
		8					- Advance casing to 10' - Drill to 10'
		9					
		10				4	
	Br m-f SAND, lt silt, tr f gravel	11	S-3	SS	18"	6 7 11	
		12					- Advance casing 15' - Drill to 15'
		13					
		14					

Langan
Engineering and Environmental Services, Inc.

JOB NO. 55650001
DATE 12/3/02

LOG OF BORING NO. B-2 (ow)
SHEET 2 OF 3

UNIFIED CLASS	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES NO./LOC.	SAMPLES TYPE	SAMPLES RECOV. FT.	SAMPLES PENETR. RESIST BLS/6in.	REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
SP	Br-Gray m-f SAND, so silt, tr m-f gravel	15	S-4	SS	20"	1 1 10 11	- Sample has a chemical odor
		16					
		17					- Advance casing 20'
		18					- Drill to 20'
		19					
		20					
SP	Gray m-f SAND, so silt, tr f gravel	21	S-5	SS	21"	14 12 15 23	- Sample has a chemical odor
		22					
		23					- Drill to 25'
		24					- Drill chatter 23'-25'
		25					
SP	Br-Gray m-f SAND, so silt, lt m-f gravel	26	S-6	SS	7"	32 27 33 39	
		27					
		28					
		29					
		30					
SP	Gray-Br c-f SAND, so m-f gravel, lt silt	31	S-7	SS	4"	22 100/2"	- Excess recovery from wash - SS refusal 31' - Begin core

Langan
Engineering and Environmental Services, Inc.

JOB NO. 5565001
DATE 12/3/02

LOG OF BORING NO. B-2 (Low)
SHEET 3 OF 3

NYCBC CLASS	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES NO./LOC.	SAMPLES TYPE	SAMPLES RECOV. FT.	SAMPLES PENETR. RESIST BLWS/IN.	REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
4-6 SOFT ROCK	Gray COBBLES (Rock fragments) so c-f gravel lt m-f silty Sand seams	32				3	
		33	R-1	NX CORE	1	5	
		34				4	
		35				7	
		36				6	
			S-8	SS	NR	100/3"	- Drill to 36' & take sample S-8 @ 36' - SS refusal
		37				5	- continue core
5-6 HARD ROCK	Granitic GNEISS, partially weathered, highly fractured	38	R-2	NX CORE	REC= 49"	3	- REC= 49"/60" = 82%
		39				2	- RQD = 38"/60" = 64%
		40				5	
		41				4	
1-2 ROCK	Granitic GNEISS, Slightly weathered, Slightly fractured	42				6	
		43	R-3	NX CORE	REC= 42"	8	- REC= 42"/60" = 70%
		44				7	- RQD = 42"/60" = 70%
		45				6	- Suspected piece of core lost in hole
		46				6	
		47					E.O.B. 46'
		48					Note: 1.25" monitoring well was installed to a depth of 39' w/ 10' slotted screen & 29' riser

Langan
Engineering and Environmental Services, Inc.

LOG OF BORING B-3 **SHEET** 1 **OF** 2

PROJECT	Silvercup Studios	PROJECT NO.	5565001
LOCATION	Vernon Blvd, Queens, NY	ELEVATION AND DATUM	El 102.7
DRILLING AGENCY	CMI	DATE STARTED 12/2/02	DATE FINISHED 12/2/02
DRILLING EQUIPMENT	CME Truck Mounted Rig	COMPLETION DEPTH 20'	ROCK DEPTH 15'
SIZE AND TYPE OF BIT	3 7/8" Tri-Cone	NO. SAMPLES	DIST. 4 / UNDIST. — / CORE 5'
CASING	4"	WATER LEVEL	FIRST / COMPL. / 24 HR.
CASING HAMMER Donut	WEIGHT 300 lb / DROP 30"	FOREMAN	Vinny Gondolfo
SAMPLER	2" O.D. Splitspoon / NX core	INSPECTOR	Clay Patterson
SAMPLER HAMMER Donut	WEIGHT 140 lb / DROP 30"		

USCS CLASS	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES NO./LOC.	TYPE	RECOV. FT.	PENETR. RESIST BLS/6"	REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
FILL	3" Topsoil: Br m-f SAND + SILT, w/ root matter + const debris (Brick, etc)	1	S-1	SS	5"	PUSH	
		2					- Advance casing to 5'
		3					- Drill to 5'
		4					
FILL	Light Br - Br m-f SAND, so m-f gravel, tr const debris	5	S-2	SS	6"	7 10 18 38	
		6					
		7					- Advance casing to 10'
		8					- Drill to 10'
		9					- Drill chatter 9'-10'
SAND	Br m-f SAND, so silt, tr f gravel	10					
		11	S-3	SS	14"	17 15 17 100/5"	- sample has a chemical odor
SOFT ROCK	Bottom 3": Decomposed Rock	12					
		13					
		14					

Langan
Engineering and Environmental Services, Inc.

JOB NO. 5565001
DATE 12/2/02

LOG OF BORING NO. B-3

SHEET 2 OF 2

NYCBC GLASS	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES NO./LOC.	TYPE	RECOV. FT.	PENETR. RESIST BLOWS/FT.	REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
4-6S SOFT ROCK		15	S-3	SS	1	50/0"	- 55 refusal @ 15'
2.6S ROCK	Granitic GNEISS, Slightly weathered, partially fractured	16				3	- Begin core
		17		NX CORE	REC = 54"	2	- REC = 54"/60" = 90%
		18	R 1			3	- RQD = 36"/60" = 60%
		19				2	
		20				3	
							E.O.B. 20'
		21					
		22					
		23					
		24					
		25					
		26					
		27					
		28					
		29					
		30					
		31					

Langan
Engineering and Environmental Services, Inc.

LOG OF BORING B-4 **SHEET** 1 **OF** 2

PROJECT: Silvercup Studios	PROJECT NO.: 5565001
LOCATION: Vernon Blvd, Queens, NY	ELEVATION AND DATUM: el 104.2
DRILLING AGENCY: CMI	DATE STARTED: 12/2/02 — DATE FINISHED: 12/2/02
DRILLING EQUIPMENT: CME 75 Truck Mounted Rig	COMPLETION DEPTH: 24' — ROCK DEPTH: 14'
SIZE AND TYPE OF BIT: 3 7/8" Tri-Cone	NO. SAMPLES: DIST. 4 — UNDIST. — CORE 10'
CASING: 4"	WATER LEVEL: FIRST — COMPL. — 24 HR.
CASING HAMMER: Donut — WEIGHT: 300 lb — DROP: 30"	FOREMAN: Vinny Gondalfo
SAMPLER: 2" O.D. Split spoon / NX core	INSPECTOR: Clay Patterson
SAMPLER HAMMER: Donut — WEIGHT: 140 lb — DROP: 30"	

NYLBC CLASS	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES NO./LOC.	TYPE	RECOV. FT.	PENETR. RESIST BLWS/6"	REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
	3" Asphalt						- Drill to 1'
GS - FILL	Br m-f SAND + SILT, w/ root matter (topsoil)	1	S-1	SS	3"	100/1"	- overdrove sample w/ 300 lb hammer + 100/3" - suspected cobble - Drill to 2' and continue sampling
	Br c-m SAND, so clayey silt, lt const debris (Brick, etc)	2	S-2	SS	11"	5 2 3 4	
		3					
		4					- Advance casing to 5'
		5					- Drill to 5'
	Br clayey SILT, lt f sand	6	S-3	SS	18"	3 4 5 10	
		7					
		8					- Advance casing to 10'
		9					- Drill to 10'
7-GS SAND	Br c-f SAND, so silt, lt m-f gravel Tip: Decomposed Rock	10	S-4	SS	15"	18 24 32 100/4"	
4-GS SOFT Rock		11					
		12					
		13					
		14					

Langan
Engineering and Environmental Services, Inc.

JOB NO. 5565001
DATE 12/2/02

LOG OF BORING NO. B-4

SHEET 2 OF 2

UNIFIED CLASS	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES NO./LOC.	SAMPLES TYPE	SAMPLES RECOV. FT.	SAMPLES PENETR. RESIST BLAS/in.	REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
		15				2	- SS refusal @ 12'
							- Advance Roller bit to 14'
							- Begin core
	Granitic GNEISS Slightly weathered, Slightly fractured	16	R-1	NX CORE	REC = 53"	2	
		17				3	- REC = 53"/60" = 88%
						2	- RQD = 48"/60" = 80%
		18				3	- water loss 18.5'
		19					
	Granitic GNEISS, None - slightly weathered, partially fractured	20	R-2	NX CORE	REC = 60"	3	
		21				3	- REC = 60"/60" = 100%
		22				2	- RQD = 32"/60" = 53%
						4	
		23				3	
		24					E.O.B. 24'
		25					
		26					
		27					
		28					
		29					
		30					
		31					