

USF
4676X
HP 1993

STAGE 1A ARCHAEOLOGICAL ASSESSMENT
THE NEW YORK BOTANICAL GARDEN
BRONX, NEW YORK

Prepared for:

Vollmer Associates
50 West 23rd Street
New York, NY 10010

and

The City of New York Department
of Cultural Affairs

Prepared by:

Historical Perspectives, Inc.
P.O. Box 331
Riverside, CT 06878

Date:

March, 1993

67

ACKNOWLEDGEMENTS

Historical Perspectives, Inc., would personally like to extend their gratitude to Ted Kazimiroff, Jr.; Dr. Alan Gilbert, Fordham University; Dr. Robert Wines, Fordham University; Reverend T. Gerald Connolly, Fordham University; Ed Roy, NYBG; Susan Fraser, NYBG; the staff of the NYBG; and Mary Dieter and Martha Cobbs who were most helpful with documentary research.

CoAuthors:

Betsy Kearns, S.O.P.A.
Cece Kirkorian, S.O.P.A.
Faline Schneiderman-Fox, S.O.P.A.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

I. INTRODUCTION.....1
II. RESEARCH METHODS.....2
III. ENVIRONMENTAL SETTING.....4
IV. PREHISTORIC ERA.....6
V. HISTORICAL ERA.....11
VI. DISTURBANCE RECORD.....25
VII. ARCHAEOLOGICAL POTENTIAL.....31
VIII. IMPACTS OF PROPOSED PROJECT.....48
IX. CONCLUSIONS AND RECOMMENDATIONS.....53

BIBLIOGRAPHY.....56

MAPS AND ATLASES.....60

ILLUSTRATIONS

FIGURES

PHOTOGRAPHS

APPENDIX

FIGURES

1. U.S.G.S. TOPOGRAPHIC MAP
2. PROJECT AREA BOUNDARIES
3. INDIAN TRAILS AND PLACE NAMES
4. NYCLPC ARCHAEOLOGICAL SENSITIVITY MAP
5. VIELE 1869 MAP OF LORILLARD ESTATE
6. BROMLEY 1879 ATLAS OF THE CITY OF NEW YORK
7. SURVEY OF LORILLARD ESTATE 1884
8. IDENTIFIED ARCHAEOLOGICAL FEATURES
9. PROPOSED CONSTRUCTION
10. ARCHAEOLOGICAL SENSITIVITY

ILLUSTRATIONS

1. EXAMPLE OF CONSTRUCTION IMPACTS, 1917
2. CONSTRUCTION OF SUBWAY FROM POWERHOUSE TO CONSERVATION RANGE, 1915
3. QUARRYING NORTH OF MUSEUM, 1911
4. EXTANT SNUFF MILL
5. OLD HEMLOCK SNUFF MILL
6. LORILLARD MANSION, ROSEDALE, 1915
7. WATERFALL, BACK OF ROSEDALE, 1906
8. LORILLARD STUDIO, 1906

EXECUTIVE SUMMARY

The New York City Department of General Services is directing the preparation of a Comprehensive Facilities and Infrastructure Plan for the New York Botanical Garden (NYBG). The Botanical Garden, located in the Bronx, New York, covers 250 acres and is one of the world's foremost botanic and research institutions. The NYBG initiated a long range planning process in 1989. The object of the comprehensive study is to serve as a guide for future planning by the NYBG. Part of this study included the preparation of a Stage 1A Archaeological Assessment designed to locate and identify any potentially important archaeological resources from the property, and to determine potential impacts, if any.

The Conceptual Master Plan includes constructing a permanent herbarium, restaurant, water garden, visitor center, children's discovery center, and establishing new poly houses and green houses. A parking lot would also be created near what is now the Kennedy Gate. Most of the construction would take place between the Enid A. Haupt Conservatory and the Visitor Information Center.

Prehistoric Sensitivity

An archaeological survey of the NYBG property conducted by the New York City Landmarks Preservation Commission (NYCLPC) in 1991 identified two prehistoric features. The first, an Indian cave or rockshelter, was reported on the west side of the Bronx River near the Magnolia Road Bridge. The site contained lithic artifacts and pottery, and the NYCLPC believes that it may be a significant site.

The second feature, a turtle petroglyph, was reported on a trail on the east side of the Bronx River by Solecki in 1986. The turtle design, 5 1/4 by 3", is carved into the top of a small granite boulder that lies in the middle of the trail twenty feet above and thirty-six feet east of the river, and about 386 feet north of the waterfall. The petroglyph has since been removed from its original site, and is now in the Watson Building.

In addition to the above two features, several "zones" of prehistoric sensitivity were identified along the Bronx River in the NYCLPC assessment. All other land areas within the NYBG property were considered to have zero or minimal sensitivity due to undesirable topographic features or extensive historical disturbance. These sensitivity zones lie within the New York Botanical Garden Forest and do not extend into the area of proposed construction and thus will not be impacted as the plans currently exist. If, however, the project is altered in such a fashion that either of these zones will be impacted, then further research in the form of field testing would be necessitated. Future impacts would include, but are not limited to, building construction, utility line installation, grading, and equipment lay-down. Any type of activity that would compromise the integrity of the ground would be considered potentially destructive and should be avoided

if possible. If avoidance is not possible, appropriate mitigation measures should be undertaken.

Historical Sensitivity

The NYBG property was farmland from the seventeenth century until the 1790s when Pierre Lorillard, snuff manufacturer, purchased large tracts of the property to establish his snuff works on site. By the 1850s, the Lorillards maintained three mills on the banks of the Bronx River. A raceway paralleled the east side of the Bronx River. One mill stood at the head of the race, the other two - one wooden and one stone - stood further south. The extant stone Snuff Mill is a New York City Landmark and a National Historic Landmark. The Lorillards also built support structures on the property, primarily east of the Bronx River, including a mansion, worker housing, and a storage building.

In 1884 the city bought 661 acres from the Lorillard family. Part of this tract now forms a portion of the botanical garden. The remainder of the NYBG property was acquired from the Jesuits at St. John's University, now Fordham University. In 1967 the New York Botanical Garden was designated as a National Historic Site.

Cartographic research was designed to inventory all potentially important historical archaeological features, and then to determine which, if any, would be impacted by the proposed construction. A total of 46 structures or features were identified from the property dating to the Lorillard and early NYBG occupation. However, extensive episodes of construction, planting, grading, utility installation, and the like by the NYBG have disturbed the original soil matrix and many of the historical features were impacted. Of all of the potential historical resources identified, 19 are considered archaeologically sensitive, having remained, at least in part, undisturbed by later historical development. Of these 19, only five stand to be impacted by proposed construction:

- (6) Lorillard Cross-Shaped structure, Second Stone Cottage
- (8) Lorillard Lodge
- (14) Lorillard Factory Complex Building
- (28) Jesuit Cemetery
- (34) Small building South of Second Stone Cottage

Of these sites which may be potentially impacted, the Jesuit Cemetery (28) at Daffodil Hill is considered a high priority for avoidance or Stage IB research in the form of fieldwork. Documentary evidence is conflicting regarding the actual removal of burials, and it is possible that burials were left unintentionally. The boundaries of this potentially important resource are unclear given that early maps did not use universal surveying techniques.

Further documentary research regarding the specific function of the four structures may provide additional insight into their use. Since little will probably be gained by performing additional

documentary research, HPI recommends that field testing, which may include shovel test pits and non-invasive procedures, be performed in those areas identified prior to proposed development.

I. INTRODUCTION

The New York City Department of Cultural Affairs is directing the preparation of a Comprehensive Facilities and Infrastructure Plan for the New York Botanical Garden (NYBG). The Botanical Garden, located in the Bronx, New York, covers 250 acres (Figures 1 & 2), and is one of the world's foremost botanic and research institutions. The NYBG initiated a long range planning process in 1989. The object of the comprehensive study is to serve as a guide for future planning by the NYBG.

As part of the Vollmer Associates team that is preparing the Plan, Historical Perspectives, Inc. has completed the following archaeological inventory, survey, analysis, and impacts assessment based on documentary material. This report is commonly referred to as a Phase 1A Archaeological Assessment. Its aim is to inventory and assess the archaeological potential of the entire site, which can be used as a future planning tool. Another purpose of the study is to analyze potential impacts, including a mitigation plan, based on the proposed development project. The Conceptual Master Plan includes constructing a permanent herbarium, restaurant, water garden, visitor center, children's discovery center, and new poly houses and green houses. A parking lot would also be created near what is now the Kennedy Gate. Most of the construction would take place in the area referred to as the Garden within the Garden, which is located between the Pratt Library/Watson Building and the Visitor Information Center at Kennedy Gate.

II. RESEARCH METHODS

The documentary study must address two major questions. What is the specific level of potential in each section of the grounds for prehistoric and historical resources of significance; and, what is the likelihood that such resources have survived the subsurface disturbances concomitant with construction episodes, infrastructure systems, landscaping activities, and, even earlier, agricultural practices. Sufficient information must be gathered to compare, both horizontally and vertically, the prehistoric past, the historical past, and the subsurface disturbance record. In order to answer these questions background research was conducted.

This research entailed a number of tasks, each contributing to an understanding of prehistoric and historic land use within and surrounding the project site. The goal of the research was to provide information on the type and scope of potential cultural resources, and the degree and nature of subsurface disturbance. In order to accomplish these tasks, several phases of research were performed including documentary research, cartographic analysis, site files review, informant interviews, and field visits.

Documentary Research

Primary and secondary source material was researched in order to document the prior usage of the NYBG project site. These resources included pertinent archaeological reports as well as local and regional source material for data on prehistoric and historical settlements. Particularly valuable were ethnographic accounts, prehistoric archaeological works by authors such as Reginald Bolton and Robert Grumet, and books by Bronx historians Stephen Jenkins and John McNamara. Also researched were the New York City Municipal Archives, NYBG Archives, and literature at the New York Public Library, Fordham University's Archives, the Westchester County Historical Society Library and the Bronx County Historical Society.

Cartographic Analysis

Historical maps were obtained from the New York Public Library in Manhattan, the Westchester County Historical Society, and the Bronx County Historical Society. These were studied for early land use, topography, and historical events; atlases were studied for more modern land use, topography, and subsurface disturbance episodes. Historical maps maintained by the NYBG archives provided a detailed account of land-use modifications and episodes of construction through the last century. Recently compiled utility maps were also used to identify subsurface disturbance.

Site Files Review

Site file reviews were conducted at the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) and the New York State Museum Education Department (NYSM), to determine if prehistoric or historic materials had previously been reported in the vicinity of the project site. The State Museum provided an assessment of archaeological sensitivity based on previously developed models (See Appendix A).

Informant Interviews

Long-term employees and volunteers of the NYBG were sought and questioned regarding personal knowledge of land-use history. Employees were able to provide information regarding planting episodes which may have impacted archaeologically sensitive areas, and also reported areas where cultural resources had been previously identified and/or collected. Local historians and archaeologists were also interviewed, providing valuable information regarding historical accounts and archaeological sensitivity of the park.

Field Visit

A field visit was conducted in December, 1992, and January, 1993, at which time photographs were taken of the current conditions of the project parcel and obvious signs of disturbance were recorded. A trench-cut directly south of the extant Snuff Mill provided an opportunity to determine the stratigraphic profile in this area.

III. ENVIRONMENTAL SETTING

The project area lies in the Hudson Valley region, which is described in geological terms as lying in the New England Upland Physiographic Province, a northern extension of the Great Appalachian Valley (Schuberth 1968:74). Situated on the northern end of the Crotona Park Ridge, a wide area of moderately high land which extends northward from the South Bronx, the project site is underlaid by volcanic rock called the Manhattan Formation, a fairly sturdy compound which resists erosion and, therefore, underlies higher ground. This formation is composed mostly of quartz, mica, feldspar, and hornblend, and possesses a wide variety of minerals (Glenn 1978:2). Much of the exposed bedrock within the site is this coarse-grained schist, with veins of pegmatite interbedded with other rock types. Historical quarrying of blue-stone for building construction at Fordham University has occurred north of the Museum, and south of the Conservatory.

Glaciers advanced and receded over the area at least three times during the last million years. During the most recent period of glacial activity, the Wisconsin episode, the Bronx was covered by ice, the terminal moraine of which formed Long Island. The advancing and retreating ice sheets left discrete grooves and striations on the exposed bedrock within the site. Glacial activity is also responsible for the potholes, morainal heaps, and alluvial coverings which hide or bury the gneissic contours, as well as glacial erratics which can currently be observed within the NYBG property. Some of the glacial erratics observed on the grounds originated west of the Hudson River, as glaciers moved from the northwest to the southeast (Ed Frankel, volunteer guide, NYBG, personal communication to Cece Kirkorian, January 15, 1993). Roches Moutonnees, rounded ridges of bare rock scoured and polished by the ice on one side, can also be found on the grounds (Glenn 1978:3).

Following deglaciation, postglacial Lake Hudson covered much of the Hudson Valley below the Highlands. At one time this lake may have risen and inundated the site. When the water level receded, the site and surrounding area became colonized by arctic and tundra-like plants which eventually gave way to a forest composed of conifers and more deciduous trees. During the last 12,000 years, the fluctuating floral and faunal communities eventually stabilized resulting in the Bronx being covered with oak, hemlock, beech, and chestnut trees characterized as the climax forest. Within the NYBG property, the "Hemlock forest is the last remaining part of a stand of trees that once covered much of New York City" (Willensky 1988:506). The forest covers about 35 to 40 acres, west and east of the Bronx River, north and south of the waterfall (NYBG 1904:188).

The Bronx River is the major river conduit draining this section of the Bronx, running north-south through the NYBG

property. The river originates to the north in Westchester County and empties at the East River to the south. "Before the arrival of the Wisconsin Ice Sheet the Bronx River emptied into the Hudson, but, on the retreat of the ice, glacial till blocked up the old channel and the Bronx River, whose ordinary flow was much increased by water pouring from the melting face of the retreating ice sheet, had to dig itself a new channel in its rush toward salt water. It now empties into Long Island Sound, and if you visit the New York Botanical Garden in the Bronx you will see a beautiful little gorge it cut on its way there" (Kieran 1982:27). It is here at the gorge that the river passes over a manmade waterfall, and then continues to meander south. Either side of the gorge is a vertical rock-face, nearly 75' high (NYBG 1904:189).

An early topographic map of the Bronx, west of the Bronx River, depicts the NYBG parcel as characterized by level woodland interspersed with small hills. A rise to the west parallels the Bronx River, with one area surrounding the river shown as fairly inundated (Viele 1874). Many small lanes and paths traversed the property, with several terminating at the river's edge (Figure 5). The northern end of the NYBG is formed "of the flood plain of the Bronx River, consisting largely of grassy meadows and marshes which at average flow of the stream, are several feet above its surface, but which at flood time are occasionally submerged for short periods" (NYBG 1909:84).

The property is now comprised of low rolling hills, ridges and bedrock outcrops with a steep slope along both sides of the Bronx River. "The highest elevations occur to the west of the Bronx river where they reach a height of 180 feet above mean sea level. The lowest elevations occur along the banks of the river where they are about twenty feet above mean sea level" (NYCLPC 1991:32). Floral communities include both naturally occurring species, such as the forty acre NYBG Forest, together with many introduced species of trees, shrubs, grasses and flowers. Much of the property has been landscaped.

IV. PREHISTORIC ERA

In order to understand fully the use of the project site through time, it is necessary to develop a historical context for the New York Botanical Garden project site. As defined by the National Park Service, "historic contexts provide a framework for the identification, evaluation, designation, and treatment of cultural resources associated with particular themes, areas, and time periods. Historic context-based planning permits recognition of individual properties as parts of larger systems. Historic contexts also help managers and others evaluate properties within their proper levels of significance. As such, they provide both a systematized basis for comparison and a comprehensive frame of reference. In so doing, historic contexts provide cultural resource managers with a guide for rational decision-making" (Grumet 1990:18).

The present knowledge and understanding of the Native Americans in the lower Hudson Valley and Greater New York area is derived from three sources: historical accounts, ethnographic reports, Native American artifact collections, and archaeological investigations. The prehistoric period in the northeastern United States is traditionally divided into the Paleo-Indian, Archaic, Transitional, and Woodland stages, the Archaic and Woodland usually being subdivided into Early, Middle, and Late substages. Settlement, subsistence and cultural systems changed through time resulting in the designations of these periods. At the time of European contact, Native American groups known as the Siwanoy occupied the northern coastline of Long Island Sound from Norwalk, Connecticut to what is now known as the south Bronx. However the Bronx River, which flows through the NYBG property, may have been the dividing line between the Siwanoy and another Upper Delaware Munsee speaking cultural group, the Wiechquaesqueak (Grumet 1981:1,59-60).

It is generally accepted that the proto-historic cultural groups that inhabited the area practiced a settlement and subsistence pattern of seasonal rounds exploiting a diverse array of resources. Fresh water and coastal resources would have been abundant and accessible in the NYBG area, as would have upland resources. The types of sites found in the surrounding region, as reported by archaeologists, ethnographers, and amateur collectors, reflect the seasonal use of a diverse resource base and include villages, burials, and small campsites.

Archaeological research in the Northeast has demonstrated a prehistoric preference for settlement on well-drained upland soils in proximity to fresh water (Ritchie and Funk 1973:333-369). In their assessment of prehistoric sensitivity for the nearby Bronx Zoo property, the New York City Landmarks Preservation Commission (NYCLPC) flagged two areas as potentially sensitive that were each characterized as "an elevated terrace that is undisturbed, well

drained, and has easy access to potable water..." (NYCLPC 1991:26), all attributes considered conducive for prehistoric settlement.

In addition to the Bronx River which would have provided fresh water, there were at least two known springs previously on the property. The first was located near the Magnolia grove just east of a turn in the river, and the second was located about 400' south of this near the Lorillard mansion, now the Children's garden (Figure 8). Both springs were covered with wooden structures in the late nineteenth century (NYBG Historic Date Files). The parcel had scattered wetlands, and a lake once sprawled north-south just east of the Lorillard's stable, now the operations center. Drained land surrounding these water sources may have been attractive for Native American habitation.

Reported Sites in the Region

Evidence of prehistoric occupation within the vicinity has been provided by the New York State Museum from the site file search, through the documentary record, and through informant interviews. No sites were inventoried by the New York State Office of Parks, Recreation and Historic Preservation. Reported sites include an extensive village north of Bedford Park, and north of the site, in Van Courtlandt Park. Bolton reported food pits, human burials, dog burials, ceramics, and lithic artifacts found near the Van Courtlandt Mansion and scattered over the playing field adjoining the old building (Bolton 1972:141). Further evidence of Native American occupation has been observed to the west in Kingsbridge, Spuyten Duyvil, and Inwood Hill Park, and east at Pelham Bay Park (Appendix A). Six prehistoric sites were reported by Arthur C. Parker, on file at the New York State Museum, from the Kingsbridge Vicinity. More recently, a prehistoric quartz quarrying station was identified to the west on a rise in Riverdale (Historical Perspectives, Inc., in press, 1992).

Reginald Bolton's "Indian Paths in the Great Metropolis" mentions an east-west Indian trail called Sachkerah that traversed the northern Bronx through Norwood at Gun Hill Road at the northern boundary of the NYBG (Bolton 1972:48). This trail, first recorded in c.1669, appeared to traverse a site called "Cowangough," a "boundary place" or a "wading place" where the trail crossed the Bronx River (Grumet 1981:9-10; Figure 3). Grumet also placed an unnamed Indian trail approximately on the route of what is now Southern Boulevard (Ibid.:69). The Bronx River itself was known by Native Americans as Aquahung or "a place of high bluffs or banks" (Kazimiroff 1954:250 as quoted in NYCLPC 1991:32).

Southeast of the NYBG property, Bronxdale Avenue was the former route of an Indian Trail that skirted the Bear Swamp and lead to Castle Hill Point (McNamara 1984:39). The former Bear Swamp Road was reported to have derived its name "from a swamp to

the east of Bronxdale, where the Siwanoy had an important village near the site of Morris Park race-track" (Jenkins 1912:214).

At least one source referred to an "Indian Settlement" once located near the junction of Fordham Road and the Bronx River, placing it within the Bronx Zoological Garden just south of the project site (Hermalyne 1972:3). The Westchester County Historical Society's "Map of Westchester County Showing Indian Occupation" (1933, New York Public Library) has a camp site, 113X, pinpointed in an area that appears to be directly south of the NYBG on the banks of the Bronx River. The legend and notes to explain Site #113X were not available but the site is clearly south of the NYBG property. The Westchester Heritage map depicts shell heaps south of DeLancey's mills, on the east bank of the Bronx River, possibly in or just south of the New York Zoological Garden property (Westchester County Historical Society 1978).

An inventory of archaeological resources for the NYBG and the adjacent Bronx Zoological Garden, prepared by NYCLPC in 1991, reported that "numerous prehistoric sites, dating from the Early Archaic through Woodland Periods (c.8000 B.C. - 1600 A.D.), were once located to the northwest, east, and south. However these documented sites are directly outside the Botanical Garden property" (NYCLPC 1991:33).

A Jesuit cemetery once on Fordham University property, formerly St. Johns College, is rumored to be the half-way stopping point for Native Americans traveling from Spuyten Duyvil southwest to Long Island Sound. One author stated that "this seems plausible because of the extraordinary number of oyster shells and arrowheads which have been discovered on that spot (Caviston 1952:3). The original cemetery was east of southern Boulevard within the NYBG property, but has since been moved (Butler 1977:25). Unfortunately, Caviston is unclear as to whether prehistoric material came from the original cemetery site on the NYBG property or the new site now on Fordham University's campus. Since she did not provide a citation to the source of this information, it remains unclear.

Known Prehistoric Sites Within the NYBG Property

A survey of the NYBG property conducted by the NYCLPC in 1991 identified two prehistoric features. The first, an Indian cave or rockshelter, was reported on the west side of the Bronx River near the Magnolia Road Bridge (Figure 4). The shelter "consists of a large slab of fallen rock that is leaning against the bedrock ledge and forms a small enclosed area" (NYCLPC 1991:36). Although the site containing lithic artifacts and pottery was investigated many years ago by past Bronx historian Dr. Theodore Kazimiroff, the NYCLPC "believes that it may be a significant site and...it has the potential for yielding information on the prehistory of the area" (Ibid.). Kazimiroff was an active archaeologist in the region for

many years, acting as the official borough historian, and spent much of his time seeking prehistoric sites in city parks (Anonymous 1953:94). According to Kazimiroff's son, Ted Jr., recovery of in situ artifacts from the rockshelter site was "problematic" (personal communication to Cece Kirkorian, January 22, 1993).

The second feature, a turtle petroglyph, was reported on a trail on the east side of the Bronx River by Solecki in 1986 (NYCLPC 1991:38; Figure 4). "The turtle design is incised or carved into the top of a small granite boulder that lies in the middle of the trail some twenty feet above and thirty-six feet east of the river, and about 386 feet north of the waterfall. This boulder is a glacial erratic that was dropped here by the retreating ice sheet about 13,000 years ago...The design is well executed and is about 5 1/4 inches in length by 3 inches wide. The head of the turtle is oriented to the north while the face is turned to the west or toward the river" (Ibid.). The petroglyph has since been removed from its original resting place, and is now protected under glass in the Watson Building.

A third possible feature, alleged "fish" petroglyphs, was also reported from the property. Investigations by the NYCLPC concluded that the symbols were not Native American rock carvings, but rather were land survey markers of an unknown time, probably cut with metal tools (NYCLPC 1991:38).

In addition to the above two features, several "zones" of prehistoric sensitivity were identified along the Bronx River in the NYCLPC assessment (1991:39). All other land areas within the NYBG property are considered to have zero or minimal sensitivity (Figure 4). The following is a synopsis of those areas considered to be potential sites of prehistoric occupation:

The west side of the Bronx river, between Lincoln rock on the north and the waterfall on the south...This area is an elevated terrace that is generally flat, well-drained, and has easy access to potable water and other food and material resources. Except for the walking trails, this zone is largely undisturbed and is within the NYBG Forest which is an uncut woodland in New York City. A second potentially sensitive zone is located along the east side of the Bronx River between Snuff Mill Road on the north and the edge of the Montgomery Conifer Collection on the south...A third...is located along the west side of the Bronx River to the south of Snuff Mill Road (NYCLPC 1991:39).

Part of one of the sensitivity zones, south of Snuff Mill Road and east of the Bronx River, has experienced recent disturbance with the construction of the Snuff Mill septic system (Figure 4).

The two known springs on the property which would have been attractive for prehistoric use, both east of the Bronx River within the Magnolia Grove, fall within one of the NYCLPC sensitivity zones.

According to Ted Kazimiroff Jr., his father used to walk over the NYBG property after a rainstorm and would often find projectile point fragments where the soil was eroding, although he never conducted a formal excavation on the property (personal communication to Cece Kirkorian, January 22, 1993). He recalls that most of the collection, now in storage, represents the period back to the Bowman's Brook phase, and possibly extending back another 1,000 years (the late Archaic through early Woodland periods). Although this was an area of settlement prior to historical use, he feels that there is too much ground disturbance to the property to yield intact sites, with the possible exception of the NYBG Forest.

The New York State Museum provided an evaluation of potential archaeological sensitivity for prehistoric sites within the NYBG property. According to their correspondence, there is a high probability of producing prehistoric data from the site, as the terrain is similar to terrain in the vicinity where recorded archaeological sites are indicated, and that the physiographic characteristics suggest a high probability of prehistoric occupation or use (Appendix A).

V. HISTORICAL ERA

A. Colonial/Revolutionary Era

The first official purchase of lands from the Native Americans in the Bronx area took place in 1639 by the Dutch West India Company when three Indian Sachems, Fecquemeck, Rechgawac, and Packanarieus, sold the lands of "Kekesheik" which included all the acreage between the Bronx and Harlem Rivers (Taaffee 1891:18). Two years later Jonas Bronck became the first white settler of the region when he bought 500 acres between the Harlem and Bronx Rivers. The topographical features of the Bronx dictated, to a large extent, the original political divisions within its area. The north-south running rivers (e.g. the Bronx River aka West Farms Creek) and streams acted as natural boundaries in the establishment of distinct towns within the borough.

In 1663 "Edward Jessup and John Richardson brought from nine Indians a tract of land west of the Bronx River...the tract was subdivided into twelve farms" and included the NYBG property west of the Bronx River (Jenkins 1912:42). One of these farms later became the Fordham manor when it was granted in 1671 by Governor Lovelace to Jan Archer, a Dutchman (Jenkins 1912:5). Further subdivision led to the establishment of farms throughout the tract, with all of the land within the NYBG property west of the river falling into possession of the Corsa family by the late seventeenth century. Their farm, Rose Hill, was established in 1692.

In 1683 the County of Westchester was formed, extending from Putnam County to the north, south to the Harlem and East Rivers. What is now the Borough of the Bronx, including the NYBG property, was included in this tract (Jenkins 1912:1). In 1788 Westchester County was further divided into townships, with the NYBG property falling partly into the ancient manor of Fordham within the township of Westchester. The Westchester township was further subdivided in 1846 when West Farms was formed from all the land west of the Bronx River, encompassing part of the NYBG property.

Two dams on the Bronx River, south of the NYBG property, formed lakes used as headwaters to power mills. The Bronx Lake was a 25-acre, one-mile-long lake in what is now the Zoological Park, extending from the Boston Post Road south to the Lower Falls, which were also known as Delancey's Falls and Lydig's Falls in the 18th and 19th centuries respectively (McNamara 1984:39). The middle of the lower lake marked the corner of patent and manor lines for Fordham, West Farms, and Westchester (Jenkins 1912:305).

Just south of what is now the Bronx Zoological Park, West Farms marks the site of DeLancey's Mills. "It is believed that Jonas Bronck established mills here, and it is known that the patentees of the West Farms did have mills here...The site of the

ancient mills is now within the limits of Bronx Park [south of the NYBG property], at the old Kingsbridge Road" (Jenkins 1912:389).

The old Boston Post Road once ran parallel to the west side of the Bronx River, possibly within the NYBG property. Portions of this historically important road, which connected New York City with Boston as early as 1672, are still extant within the nearby Bronx Zoological park. The road "was an important transportation route that linked people and communities in the region and influenced commerce, industry, and settlement patterns" (NYCLPC 1991:25). The road passed between the two lakes formed by damming of the Bronx River, where Bolton's bleacheries had been established at Bronxdale (Jenkins 1912:305).

As with the rest of the borough, the NYBG property was farmland from the seventeenth century on until the time of residential and commercial development in the early-to-mid nineteenth century. Part of the NYBG parcel west of the Bronx River was once owned by the Corsa family, while the parcel to the east was probably owned by the DeLancey's, both local landowners known for their large holdings. Deed and historical accounts refer to this area as the "great plain" since it was open and farmed (personal communication, Dr. Robert Wines, Historian, Fordham University, to Cece Kirkorian, January 12, 1993). There are no indicators from the atlases, histories, or land records that the project site ever served as more than pasture/farm land throughout the seventeenth and early eighteenth centuries. However, we were only able to locate eighteenth century maps, not seventeenth century evidence. In contrast to New York City proper, few early maps seem to have been drawn of this rural area.

During the Revolutionary War, the Bronx was periodically occupied by the British. Andrew Corsa acted as a guide to Westchester County troops battling against the British (Jenkins 1912:171). Several skirmishes took place along the Bronx River, but none were reported from within the project site. "In the winter of 1779, Colonel Aaron Burr led patriot troops in an attack on a British blockhouse in West Farms [south of the project site] overlooking DeLancey's Mills on the Bronx River. The DeLanceys, some of whom were Tories while others fought on the American side, owned all of the NYBG property at that time" (McNamara 1984:39). The blockhouse stood on what is today 179th Street, and was destroyed by Burr and his troops (NYCLPC 1991:20). Also in 1779, an American force of 140 men under Lt. Col. White raided Tories at DeLancey's Mills, taking prisoners (Westchester County Historical Society 1978:6). In 1782 Captain Honeywell's cavalry attacked DeLancey's camp at West Farms [south of the project site] took 20 prisoners, and was pursued to Mount Vernon (Ibid.:8).

A map of British Fortifications in the Bronx suggests that the closest British Fort, Number 5, stood near the intersection of Kingsbridge Road and Sedgewick Avenue, about 1.5 miles west of the

project site (Jenkins 1912:n.p. Map Showing the British Fortifications). Another map placed the King's Army under Colonel Howe marching down what is now Webster Avenue, just west of the project site (Sauthier 1777). It is possible that given the considerable amount of Revolutionary War period activity in the immediate vicinity, that the NYBG property was traversed during one of these many events.

B. Late Eighteenth and Nineteenth Century Development and Lorillard Ownership

At the beginning of the nineteenth century, the "Bronx River was a clear, murmuring stream with watermills and farmlands along its length" (Hermalyne 1982:7). In 1820, Robert Bolton established a bleachery near the Boston Post Road's crossing over the Bronx River, south of the NYBG property. Many of Bolton's employees, Yorkshire men, settled in Bronxdale, a small milling village on the Boston Post Road just east of the Bronx River near the NYBG property (Jenkins 1912:417). Much of the NYBG property fell into the township of Bronxdale and was probably owned by the DeLanceys during the eighteenth century. In 1825 DeLancey sold the southern part of his tract to David Lydig who continued to operate the mills for some time. "Lydig's Woods," the nineteenth century name of Bronx Park excluding and south of the NYBG property, was bequeathed to David's son Philip, and eventually sold to the City of New York in 1884 (McNamara 1984:433).

In 1841 St. John's University, where priests received training for the Catholic Archdiocese of New York, was established in Fordham on Southern Boulevard at "Rose Hill," a section of the former Corsa farm. Rose Hill Manor, the oldest structure on the property at the time of St John's acquisition, was built in the 1690s by the Corsas (Gannon 1967:26). At that time, the area was relatively undeveloped with only a few isolated farm houses in the vicinity (Taaffe 1891:50). Part of the land originally owned by the University, east of Southern Boulevard and west of the Bronx River, now falls within the NYBG. St. John's tract was not farmed, although students swam in the Bronx River near the dam by the Lorillard mill. In 1872 a stone wall was built to enclose a "private" riverbank area to be used by St John's swimmers (Father Connolly, personal communication to Cece Kirkorian, February 11, 1993). St John's also quarried blue-stone, for building construction, from land now within the NYBG property (personal communication, Dr. Robert Wines, Historian, Fordham University, to Cece Kirkorian, January 12, 1993).

In the nineteenth century, St. John's maintained a Jesuit cemetery on what is now NYBG property. By one account, the cemetery "was moved in 1899 from a wooded grove on what is today Southern Boulevard to the present day property, at the time when Fordham University (then St. John's College) sold their property beyond Southern Boulevard to the New York City Parks Department...

the last reinterment [took place] in 1904" (Butler 1977:25). By another account regarding the cemetery now on Fordham's campus, "In 1890 the cemetery was opened for the reception of the bodies which, until then, had lain in the land sold by the college to the city for the Bronx Park" (Taaffe 1891:15). It is unclear when the cemetery was moved or if all the burials were taken, however, the original cemetery was never viewed as a sacred spot. The current cemetery on Fordham's grounds holds some 150 buried men, mostly Jesuit priests who were instructors at St. John's College (Firestein 1976:64).

In the 1790s, the Lorillard family acquired much of what is now the NYBG property east of the Bronx River. Pierre Lorillard, father of Peter and George, had established his snuff business in lower New York City. In 1780 the Frenchman brought his two sons into the rapidly growing business. Pierre Lorillard had revolutionized the snuff business by replacing hand graters with revolving mill stones, first operated by man- or horse-power, and later by water (Downey 1951:18). He further enhanced his snuff by adding "secret" ingredients. Lorillard was also first to use dried animal bladders to store the snuff, later replaced by attractive snuff bottles.

There is some confusion as to the precise chronology of the development of the parcel and the use of mills by the Lorillards. There were at least three separate mills on the property by the mid-nineteenth century. By one account, by 1790 the Lorillards had purchased a "wooden grist mill and dam ten miles up the Bronx River in what was then part of Westchester" (Caviston 1952:6). They spent the following year rebuilding and outfitting the mill for grinding snuff and smoking tobacco. According to NYBG historian Ruth Caviston:

"By 1793 the mill was operating at full speed. Then gradually, other improvements were made. A large warehouse was built, and homes were constructed for the mill workers. Then, in 1840, the wooden mill, which had laid the foundation for the Lorillard fortune, was replaced by a stone mill." (Caviston 1952:7).

This location on the Bronx River was ideal for operating a mill. The gorge formed by rock walls, provided "a fine, swift flow of water...even in the dry summer of 1798, there was no water shortage, but eleven and one-half million gallons raced by every twelve hours, nearly forty times the amount then required for New York's daily needs" (Downey 1951:18).

"The Snuff Mill harnessed the water-power of the Bronx River to grind tobacco with millstones instead of rubbing it over a grater, an innovation, devised by their father Pierre Lorillard which in part accounted for the success of the family business. When Peter died (1843),

diarist Philip Hone remarked: 'He led people by the nose for the best part of a century and made his enormous fortune giving them to chew that which they could not swallow'" (Wright 1983:501).

The New York City Landmarks Preservation Commission nomination form for the extant Lorillard Snuff Mill states that in 1792 the Lorillards bought a "grist mill, dam, water rights, buildings and fifty acres" (NYCLPC 1966:np). The report goes on to say that they used this mill until about 1800 when they replaced it with a larger one built of native fieldstone (Ibid.). While there is some confusion as to the construction date of the extant stone mill on the property, the National Register of Historic Places Inventory Nomination form seems to clarify this. It states that in "about 1800 they added more acreage and replaced the frame mill with a new one of native fieldstone. It in turn was replaced with the present mill structure about 1840" (United States Department of the Interior 1976:np). The 1840 date for the extant mill coincides with the one quoted by Caviston above (Caviston 1952:7). Map research confirmed that the Lorillard's maintained three mills on the property in 1854 (Map of Property Belonging to the Heirs of Andrew Corsa 1854:Plate 31; Figure 8).

According to Alan Gilbert, a professor of Archaeology at Fordham University, there was indeed a grist mill on the property at the time the Lorillards purchased the property in the 1790s. The Lorillards used the existing mill for some time, eventually building the current stone mill. When the new stone mill was built and a raceway was established, the raceway went around the stone mill on the east side, essentially placing the mill on an island between the raceway and the river (personal communication to Cece Kirkorian, January 12, 1993).

Cartographic research, presented in the following section, confirms the placement of the extant stone mill on an island by 1851, with a second mill just south of it at the juncture of the race and the river (Neff 1851). In 1854, a third mill was portrayed at the head of the raceway adjacent to the manmade waterfall (Map of Property Belonging to the Heirs of Andrew Corsa 1854:Plate 31). The sluiceway for the mills paralleled the east side of the Bronx River, originating near the mill on the waterfall, south to a wheel on the north side of the extant mill, and further south to join the river by the southernmost mill (Ibid.) Presently a trail follows this route south from the falls at the Lucy Moses overlook terminating by the extant snuff mill (Figure 8).

In 1794 an advertisement by the Lorillards offered for sale "a situation for a mill, with or without a few acres of land, on that never failing stream, Bronx River" (Downey 1952:20). The mill or mill site was probably not the one that had been acquired for

conversion for snuff, but another in an unknown place elsewhere on the river, possibly further south.

By 1854 the Lorillards owned most of the NYBG property excluding the St. Johns tract. In 1856 the family built a great stone mansion with 45 rooms and a basement on a high bluff above the dam on the Bronx River (this is now the site of the NYBG Children's Garden; Figure 2). A well was dug nearby, and a rampway or stairway extended down the slope east from the mansion to the river below (Alan Gilbert, personal communication to Cece Kirkorian, January 12, 1993). The slope behind the house down to the river was also used as a dumping ground by the Lorillards, with collected material reflecting this (See Appendix B). The family continued to add hundreds of acres to their existing holdings. On the property they maintained an extensive rose garden, adding the petals to snuff for perfume, and thus named their home "Rosedale."

The tobacco company was taken over by Peter Lorillard Jr. upon the death of his father (Bolton 1881:432). The company subsequently moved to a new giant factory in Jersey City in 1870, and the Lorillards abandoned milling at the NYBG site in the 1880s. The property was sold to the City of New York in 1884.

Outbuildings on the estate during the Lorillard ownership included a "studio" built adjacent to the falls (Caviston 1952:8), as well as servants' quarters (Figures 7, 8). A private stone stable with Gothic windows was built southeast of the mansion, now occupied by the service division of the NYBG. The Lorillards also built worker housing, launching a policy of good employee relations, along with a facility for packing smoking tobacco, and a warehouse (Downey 1952:19). During the Lorillard's occupation, several small unpaved roads and riding trails traversed the estate, now closed or refurbished as paths within the park. Early maps show some of the following roads (Figure 5):

Beaver Swamp Road - This was a road through the former Lorillard estate, now the Botanical Garden, leading west from the Bronx River, above Lorillard Falls. It also appears on maps as Bear Swamp Road.

Lorillard Terrace - This was a street on Pierre Lorillard's land, now incorporated in the "Bronx Botanical Garden" west of the Bronx River.

Newell Street - This was an important thoroughfare of the early 1900's when it led south from Gun Hill Road east of the Bronx River to such famous resorts as "French Charley's." This tree-lined lane, and the establishments mentioned, were wiped out by the Bronx River Parkway. Later, a short ramp leading to the Parkway was given the name of Newell Street.

Richard Street - This former street is now incorporated into the Botanical Garden west of the Bronx River. It is alleged to have been named for a son-in-law of Daniel Allerton, who was named Ricardo. He changed it to Richard.

Tillotson Avenue - This short street is now incorporated into the Botanical Garden west of the Bronx River.

Egbert Street - This street in the vicinity of East 205th Street is now incorporated into the Botanical Garden.

Laurel Street - This street was mapped in 1888, but is now incorporated into the NYBG west of the Bronx River.

Fir Street - This short street, now incorporated in the NYBG was west of the Bronx River near the Snuff Mill

Ridge Street - Once extending into the NYBG next to the Lorillard mansion, it has since disappeared.

(McNamara 1984:363,375,425,432,452,481,516).

In addition to these, many roads were created "on paper" but were never actually laid out (Viele 1869; Figure 5). Southern Boulevard, built in 1868, originally ran north of what is now the Conservatory within the NYBG, parallel to its current route.

The railroad demarcating the western boundary of the NYBG property was formed in 1838 when the New York and Harlem Railroad Companies merged and planned to extend north into Putnam County. "The first portion of the road above the Harlem River was to extend to White Plains. The easiest route was found to be by way of the valley of the Mill Brook to Williamsbridge, whence the valley of the Bronx River...by this route not much grading was necessary, nor was there required much blasting through rock" (Wells 1927:733). By 1842 the route passed by the western boundary of the project site. "The Harlem Railroad was a single-track road originally, but its business increased to so great an extent that, in 1852, it was double-tracked for the first seventeen miles of its length. The enormously increasing business...below Woodlawn compelled the Harlem road to quadruple its tracks from that station to the Harlem River" (Jenkins 1912:232). During the twentieth century, the railroad constructed a new station at Bedford Park south of its current location, then within the park, and now just outside the NYBG property.

In 1874 the lands west of the Bronx River were formed into the Twenty-third and Twenty-fourth Wards of the City of New York. One year later, the whole section east of the Bronx River also became part of the Twenty-fourth Ward (Ibid.:7). In 1898 the two Wards were officially designated as the Borough of the Bronx. During this period, improved transportation and an influx of European immigrants pushed the metropolis north to the central portion of the Bronx and a systematic laying out of roads encouraged the development of previously inaccessible areas. In 1883 the New York, Fordham, and Bronx Railway Company was incorporated to establish an elevated railway from Manhattan to the Bronx. The "El" was finally extended to Fordham in 1900, and further extended to Bronx Park, now the NYBG, and Fordham University in 1902.

D. Establishment of Bronx Park and the Botanical Garden

In 1885 the City of New York acquired all of St. John's land east of Southern Boulevard through condemnation proceedings (Gannon 1967:89). This tract included the river bank where the students swam, and the Jesuit cemetery, which then enclosed fifteen graves (Ibid.). This 26 acre tract was incorporated into Bronx Park.

As the City of New York purchased large tracts of land for future use as a park, the milling industries vanished and Bronxdale was annexed to New York. Many of the shops and homes that once stood in Bronx Valley were removed (Hermalyn 1982:12). What became the NYBG and the Bronx Zoological Park was first Bronx Park. The Park was originally about two miles long, lying between Morris Street on the north, the Harlem Railroad, Fordham University, and Southern Boulevard on the West, East 182nd Street on the south, and Bronx Boulevard on the east (Jenkins 1912:304). The northern part of the original Bronx Park has since been deeded to the town of Norwood.

"In 1884 the city bought 661 acres from the Lorillard family, tobacco dynasts, of which 250 became the site of the botanical garden. Urged by Nathaniel Lord Britton, a Columbia University botanist, the state legislature founded the garden (1891) and was happy to see such eminences as Andrew Carnegie, J.P.Morgan, and Cornelius Vanderbilt sit on the board of directors" (Wright 1983:500). In 1895 the Commissioners of Public Parks approved the site in Bronx Park for the garden, appropriating 250 acres. The years to follow witnessed many episodes of construction and improvements. Some of these improvements included the installation of utility lines throughout the park, paving roads, and building new bridges over the river. Southern Boulevard, now demarcating portions of the south and western property bounds, was rerouted from its original location running east-west north of the Conservatory, to its current location running east-west south of the Conservatory.

In 1915 the Board of Estimate and Apportionment of the City of New York separated the portion of the Bronx Park between the "southern boundary of the land appropriated for the use of the Garden by the Commissioners of Public Parks in 1895, and the northern side of Pelham Avenue, with the exception of three small areas retained for the use of the Park Department" (Britton 1915:10). This added over 140 acres to the park, which then totaled 400 acres. In 1920 the Bronx River Parkway was completed, cutting off a portion of the eastern side of the NYBG (Hermalyn 1982:16). A parcel north of the Mosholu Parkway once within the NYBG property which included the "Fruticetum," Conservatory Range 2, and a power house, was deeded to the town of Norwood between 1936 and 1953 and is not within the current project site (NYBG Record Map 1936; NYBG Map 1953).

Years after the Lorillard occupation, the mansion became public property and was used for a short period as a police station (Jenkins 1912:307). The structure burned down in 1923, with stone and brick from the walls reused for boundary fences and catch basins. The charred remains of the mansion were removed, and the site was cleared and prepared for planting (NYBG Board of Managers 1923). In 1937 the city transferred use of the remaining buildings from the estate to the Botanical Garden, including the Snuff Mill, then a carpentry shop; the carriage house (now a maintenance center); and a stone cottage (used for private functions) (Ibid.; Figure 8).

In the 1950s the Snuff Mill was restored and opened as a public restaurant. Currently the Snuff Mill, "together with a later gatehouse and stables, is the only improvement that remains from the extensive local landholdings of the Lorillards, a family whose name is still associated with the tobacco industry. Built of local fieldstone, the mill once used the adjacent waters as power to grind snuff, a more popular tobacco product in the 19th century than it is today. Fortunately the mill building, a fine example of local industrial architecture, was adapted into a public snack bar and its new terrace is a lovely place to nibble to the bubbly sounds of the adjacent river" (Willensky and White 1981:506). Lorillard's "Acre of Roses" became the Old Fashioned Flower Garden (Downey 1952:20).

In 1967 the New York Botanical Garden was designated as a National Historic Landmark (Cherry 1967:99). At that time the property was described as follows:

For over 70 years the New York Botanical Garden has been striving to discover more about our plant life and to convey its meaning to us. As a pioneer in botanical research and collection, its influence has been international. It is today recognized as one of the outstanding botanical gardens of the world" (Cherry 1967:99).

The 1976 National Register of Historic Places Inventory nomination form places the landmark boundary for the NYBG as coterminous with the present site boundaries (United States Department of the Interior 1976a:np). The Conservatory was also given landmark status by the New York City Landmarks Preservation Commission in 1973 (NYCLPC 1973:1). In 1967 the Snuff Mill was designated as a New York City Landmark, and in 1976 it was designated as a National Historic Landmark (United States Department of the Interior 1976:np). The mill itself, and approximately eight surrounding acres, were designated as a historically significant site apart from the greater NYBG since it was originally associated with the Lorillard's snuff business, rather than the development of the NYBG.

E. Cartographic Review

The following cartographic review traces the historical development of the NYBG property through the Lorillard years and beyond. All noted structures were enumerated and inventoried within the text and an approximate placement shown on Figure 8. The following numbered buildings eg. (1), correspond to the numbers on Figures 5-8, with Figure 8 being a current locational map of all identified resources.

The earliest maps showing the project site that were found date to the Revolutionary War period. However, it was not until the mid-nineteenth century that development is depicted on the project site. For the Revolutionary period, the only structure in the vicinity depicted was DeLancey's Mills, south of the project site (Des Barres 1777; Erskine 1778, 1780; Sauthier 1777). The 1839 Burr map showed only Bolton's Bleacheries, also south of the project site (Burr 1839).

In 1851 two mills were shown within the project site, one at the site of the extant Snuff Mill (1), and a second just south of it (2). East of the Snuff Mill was one structure labeled P. Lorillard, now known as the stone cottage (3), with an additional unlabeled structure standing just to the south (4). This may have been a warehouse, but it is unlabeled so this is uncertain. No other structures were present at that time. Several roads, all east of the Bronx River, linked the four structures (Neff 1851).

In addition to the above structures, by 1853 the Lorillards had added several more buildings to their estate (Dripps 1853). They had built their massive stone house named "Rosedale" (5). A cross-shaped building, possibly a second stone cottage, had been constructed east of the Snuff Mills and south of the road heading east from the mills - now Snuff Mill Road (6). In the northeastern most corner of the property, there were four small and one large buildings (7).

An 1854 map of the tract of land conveyed by the Corsas to the Lorillards, west of the Bronx river and north of St. John's landhold, showed three mills present on the Lorillard property (Map of the Property Belonging to the Heirs of Andrew Corsa 1854:Plate 31). The extant mill (1) was labeled "New Snuff Mill." The mill just south of this (2) was labeled "Old Hemlock Snuff Mill." A third, north of these and built almost directly on the falls (15), was labeled "Snuff Mill." The remainder of the Corsa tract was undeveloped but clearly extensively wooded. Other than the mills, additional Lorillard property was not portrayed.

The 1868 Beers atlas showed only the two Snuff Mills (1 & 2), an expanded cross-shaped building where (3) had been, Rosedale (5), and the second cross-shaped building (6). The structure south of Newell Road (4) was not depicted, and none of the northern property

was portrayed on the map. A lodge (8) had been added south of the original cross shaped structure (6) near what are now the rose gardens (Beers 1868, Bronxdale Inset).

By 1869, the Lorillard's portion of the property had been surveyed and lotted, with an extensive network of roads laid out on paper (Viele 1869; Figure 5). Most of these roads were little more than dirt paths, and through the years they were reconfigured, removed, or replaced. In addition to the above structures, the 1869 survey showed the unlabeled structure (4) present (Figure 5). Lorillard's stables, now a maintenance building, had been constructed (9), and a small building just west of the stables had also been built (10). Between the Snuff Mills and the stables, the Lorillard's had established two window-pane shaped gardens, possibly the rose beds described in historical accounts. Just south of the garden area another building had been erected, east of the extant Snuff Mill (11). Also east of the Snuff Mills, but south of Snuff Mill Road, three additional buildings had been constructed on what was laid out on paper as Perry Street (12, 13, 14; Figure 5). Two of the structures actually fell within the roadbed. These may have been the workers' housing also described in historical accounts.

Further north of the Snuff Mills, on the banks of the Bronx River near the waterfall, two additional structures had been built near the site of the earlier Snuff Mill, on what is now the Lucy Moses overlook (15, 16; Figure 5). The southernmost of these two buildings (15) was just south of Bronx Avenue and was clearly not the same mill seen at an earlier time (1854), as it was somewhat south of the earlier mill's location and square, not rectangular. The second structure (16), closer to the falls, was depicted as a circle and was possibly a well or other unknown feature. A studio had been built several feet away from the northwest corner of Rosedale, overlooking the falls (17). The complex of buildings on the northeastern part of the property had been reduced to one remaining structure (7).

Also by this time, several structures had been built west of the Bronx River (Figure 5). None of these were present when the land was conveyed to Lorillard by Andrew Corsa in 1854 (Map of Property Belonging to the Heirs of Andrew Corsa 1854). Near the current site of the rock garden, four buildings had been erected. The first (18) was another cross-shaped building near what was then New Street. The second (19) was a small square building fronting what was then labeled St. John Avenue (however this portion of the road was never actually laid out). The third and fourth buildings (20 and 21) were a pair of long rectangular buildings directly in the path of St. John Avenue (Figure 5).

The 1872 Beers atlas portrayed only a portion of the project site, west of the Bronx River. At that time only the cross-shaped building west of the river was shown (18). In addition, south of

the original route of Southern Boulevard near the present location of the main conservatory, cross roads had been laid out and the land was lotted. Near the western boundary of the NYBG, east of the railroad, four dwellings had been constructed. Just south of the old route of Southern Boulevard, a house was labeled "Mrs. A. R. Nieleuhr" (22). Directly south of this, another house was labeled "Mrs. C. E. Westfall" (23). South of what was previously Oliver Avenue, one house labeled "P. Duffy" (24), and a second to the east was labeled "M. Dunn" (25).

In 1873 a topographic survey showed the Snuff Mill (1) unchanged. The second mill to the south (2) had been enlarged with an addition, and is clearly shown east of the raceway. The structure east of the mill, possibly the warehouse (4), was still present. The mill to the north (15) was still present, but the circular structure north of this on the river (16) was gone. A sluice gate or similar water-control device was shown directly east of the northern mill (15) on the raceway just south of the waterfalls (15a). The rest of the tract east of the river was not mapped. West of the Bronx River, the two rectangular buildings (20 and 21) were present, and two additional structures were built south of Southern Boulevard (26 and 27). The first (26) was a shed just south of the Dunn house (25), and the second (27) was a shed east of the Nieleuhr house (22). East of Southern Boulevard, south and tangential to the original St. Johns property line, a rectangular plot of land was outlined between two knolls, which, on later maps, is labeled as a cemetery (28) (1873 Department of Public Parks). The cemetery was once on St. Johns University's grounds, now owned by the NYBG, and was used for the burial of Jesuit priests.

The 1874 Viele topographic map showed only two structures west of the Bronx River. The cross shaped building (18) was present, and a new structure was built north of what is now the conservatory near what is currently the Erpf Compass Garden Spruces (29) (Viele 1874). The 1879 Bromley atlas again showed only the parcel west of the Bronx River. The cross shaped building (18) was labeled as part of the Peter Lorillard Estate. The only other structures shown were the Nieleuhr and Westfall houses (22 and 23), and the Duffy house, now owned by the Browns (24). The rectangular plot of land east of Southern Boulevard was then labeled as a cemetery (28) (Figure 6).

The 1881 Bromley atlas portrayed only land east of the Bronx River. The Bronxdale inset showed only the two Snuff Mills (1 and 2), the stone cottage north of Snuff Mill Road (3), Rosedale (5), and the lodge (8). The 1882 Bromley depicted the property west of the river. The Nieleuhr and Westfall houses (22 and 23) were present, and the shed (27) was still present. The Duffy/Brown house was also still present (24), as was the Dunn house (25), and the associated shed (26). A new building appeared just east of Southern Boulevard and north of Oliver Avenue (30).

An 1884 survey of the Lorillard Estate, at the time it was sold to the City of New York to become Bronx Park, showed many of the earlier structures extant (Map Showing Details of the Lorillard Estate 1884; Figure 7). The map only covered the parcel east of the river and did not include the northernmost part of the property. Within the illustrated area, buildings 1-12 were still present, but 13, possible worker housing, had been removed. Buildings 14-17 were also still present. In addition, a rectangular building was erected just north of structure 11, and south of what had been the rose beds (31) (Figure 7). This structure was previously seen on an 1869 map as just an outline and part of the rose garden (Viele 1869; Figure 5). North of (31) another rectangular east-west building was placed west of the stables near the raceway (32). North of Rosedale another small square building was erected, possibly used as servants' quarters (33). South of the stone cottage, and south of Snuff Mill Road, another structure stood at what was then the intersection of Perry and Butler Streets (34).

Another 1884 map, The Index Map of Detailed Surveys for Bronx Park, shows the entire estate but not in the same detail. On the west side of the river, buildings 18, 20 and 21 were still present, but 19, the small square structure south of the two rectangular ones on St. John Avenue, was not. West of the river no other structures were shown. In the northeastern corner of the property, near what is now Magnolia Road, three small additional structures were shown (35) (The Index Map of Detailed Surveys for Bronx Park 1884).

With the termination of Lorillard ownership, many of the structures on the previous estate were slowly removed. Both of the Snuff Mills (1 & 2) were still present in 1893, but little else was shown (Bromley 1893). An 1895 map of sewers in the Bronx Valley showed no structures but did depict a water main running out of the Jerome Park Reservoir and through the western half of the NYBG property near what is now the conservatory (40) (Bronx Valley Sewer Commissioners 1895).

An 1895 survey of the NYBG property showed the extant Snuff Mill (1) present, with a new square structure built between it and the river (36) (Board of Commissioners of Public Parks 1895). The second mill to the south (2) had been removed. The stone cottage (3) was extant, but the possible warehouse (4) was gone. Rosedale (5) and the studio (17) were present, but the cross-shaped building south of Snuff Mill Road (6) had been removed, and an octagonal bandstand (43) had been built near its previous location. The lodge (8) was also gone, but what may have been worker housing (12, 13, 14) was present. An additional building had been added to the complex in the northeastern corner of the property (36) to total four. Greenhouses had been built (45), and a long rectangular propagating house had been built north of them (44). Directly west of this, a small square building had been built near the river

(46). Where the water mains were shown (40) is now labeled "Croton Aqueduct."

An 1897 plan of the NYBG showed the Museum Building at its present location, although it was not completed until 1900 (37). In addition, a power house was built southeast of this near the current site of Rhododendron Valley (38). Structure 18, a small building west of the Bronx river, may have become the first gardener's house shown in 1897 (NYBG 1897). Public "closets" were built on the northwestern corner of the property (39). The 1897 map also showed a Director's house in the northeastern section of the property (42). Two years later in 1899 the Conservatory, still present, was completed (41). By this time, many of the Lorillard complex structures had been removed.

Not much had changed by 1914 with the exception of the small building east of the stables (10) which had been enlarged with the addition of shops and sheds (NYBG 1914). On an undated topographic map of the NYBG, predating 1923, the above mentioned structures are all present. The buildings all appeared the same in 1924 (NYBG 1924) with the exception of the studio (17), and octagonal bandstand (43), which had been removed.

By the 1930s the site had experienced a tremendous degree of upgrading and alterations (City of New York Department of Parks 1937-38). Shelters were scattered throughout the park, gardens had been created, and compost piles had been established northeast of the maintenance building. All of the previous structures were still present with the exception of the Lorillard Mansion (5), the servant's quarters (34), and the small square structure (46) west of the propagating building. A temporary lumber shed had been built north of the Snuff Mill near the river.

By the 1950s the Harding Laboratory had been added. The Lorillard stable outbuilding (10) was removed and replaced between 1947 and 1952, and the propagating house and greenhouse (44 & 45) were also replaced during the same period (NYBG 1952). During the following decades, the Museum Building was expanded and several other park structures were erected. Since these structures are considered recent from an archaeological perspective, they have not been inventoried. Since that time, changes have included rerouting paths and roads, and upgrading gardens.

VI. DISTURBANCE RECORD

There have been many episodes of subsurface disturbance to the original, prehistoric NYBG landscape. The Lorillards themselves impacted the original topography with the reconstruction and expansion of the Snuff Mill, the construction of a mansion and numerous outbuildings, the creation of a rose garden, and as previously cited, the establishment of numerous gravel roads throughout the property. Since that time, NYBG episodes of construction, planting, grading, utility installation, and the like have also impacted the original soil matrix. Prehistoric resources in southern New York tend to exist in shallow deposits, unless located within a flood zone. Within this region, disturbance to the upper few feet of soil may impact these shallow deposits.

The following is a discussion of the types of impacts which occurred during the NYBG occupation of the property. To document every ground disturbance episode is difficult given that there are dozens of entries in the Index to the Minutes of the NYBG that are indicative of such. It is also unnecessary given that cartographic sources provide specific depictions of disturbance. Thus a sample of different types of disturbance is provided below.

During NYBG development, the first planting on the property which caused subsurface disturbance was a temporary nursery established near the eastern side of the grounds just west of the present propagating houses (Britton 1915:4). Subsequent plantings throughout the grounds caused similar impacts.

The late-nineteenth and twentieth century construction of each structure on the NYBG property impacted not only the precise footprint of the building, but also disturbed the perimeter around each foundation. Builders trenches, utility lines, drainage pipes, and similar infrastructure features, all associated with building construction, caused impacts to the original topography (Illustration 1) (New York City Department of Parks 1952). Although care was taken to avoid disturbing natural slopes, those in the "immediate neighborhood of the large buildings" were considerably graded (NYBG 1904:191). Construction for the museum commenced in 1897, and the first horticultural houses were built the following year. A conservatory with a basement, covering one acre, was built between 1899 and 1902. Extensive landscaping occurred around each of these structures, and the area between the museum and the railroad station was graded to an unknown depth (Caviston 1952:26). Early photographs document the total destruction of the original surface topography around these large scale buildings, as hillocks were removed and deep cut trenching was employed (NYBG Photograph Album 1, Conservatory Range 1-2, Negatives 568-570, 724, 674).

In 1896, both a sewer and a temporary railway were built across the northern grounds. The railway ran along an elevated

trestle for the purpose of moving fill from Jerome Park to the meadows near Pelham Bay (Britton 1915:4-5).

"In 1896 we had reluctantly granted permission to John B. MacDonald to construct a temporary railway across the Garden...The earth and rock from this excavation had to be hauled to a point east of the Garden. To facilitate disposal, MacDonald, after receiving permission, built a temporary rail-way across a section of the Garden property. The tracks were mainly on an elevated trestlework, and a dirt embankment several hundred feet long stretched from the eastern end of the trestle nearly to the Garden barn. When the railway was abandoned in 1904 we used the embankment for filling and at the same time restored the valley to its original form."
(Caviston 1952:45)

While much of the route of this railway is now north of NYBG property, "traces of its position still remain in a cut between the propagating houses and the stable on the eastern side of the grounds, and also in another cut east of the long lake" (Ibid.:5). Long Lake, once just southeast of the stables, has since been drained and is currently the site of extensive rose beds (Figures 2,7,8).

Other episodes of grading and filling within the NYBG property were also documented. Fill was often obtained from building excavations in the surrounding vicinity which provided "load after load of topsoil for grading" (Caviston 1952:45). In 1904 alone "we hauled 1,160 team loads of topsoil from vacant lots west of Webster Avenue and along Moshulu Parkway" (Ibid.). In the 1940s extensive grading was done adjacent to the greenhouse and the rose garden (NYBG 1949).

The natural wetlands and floodplain at the northern end of the NYBG property have been "reclaimed by filling, and by the lowering of the dam forming the water-fall at the Lorillard mansion" (NYBG 1904:190). A further reduction in the wetland area was accomplished by lowering and deepening the river by dredging (Ibid.). Much of this filled wetland is now north of the Moshulu Parkway and is not part of the NYBG study area.

By 1898 the NYBG had constructed a power house, and an additional stable. According to a NYBG historian, underground steam pipes were installed at the turn of the century between "the museum, the conservatories, and the power house, telephone wires were also laid connecting the three buildings (Illustration 2). Then in the summer of 1901, telephone wires were laid to the stable and propagating houses" (Cavistan 1952:23). The power house was located near the New York Central Railroad just south of the 200th Street entrance and was connected with the Conservatory by a subway about 600' long and to the museum building by another subway about

12,000' long (Illustration 2). A boiler house also stood just north of the power house (NYBG 1909:19). In 1935, excavations were conducted for the reconstruction of the power line from the power house to the Museum Building, and an additional 76' drain was installed to remove excess water in this trench (Merrill 1935:80). Another steam line, 715' long, ran from the power house to what was previously designated Range I (Ibid.).

The creation of driveways and trails also necessitated grading. In 1905:

"The main driveways from the museum building and the Bronx Park Station...north to the Williamsbridge end of the Garden have been entirely completed and thrown open for use; the portion from the plaza just north of the lakes easterly across the Bronx River to the plaza near the stable have been completely graded and the telford foundation of more than one half of it laid down; the portion from the Williamsbridge entrance southerly along the east side of the Bronx River has been completely graded and about one half of the telford foundation laid...The rubble stone masonry retaining walls at the Mosholu Parkway approach have been completed under the Park Department contract, and part of the early filling has been put in; we can therefore apparently look forward to the completion during the year 1906 of the entire driveway system" (Caviston 1952:46).

Ornamental masonry retaining walls were necessitated by the grading of most roadways (NYBG 1909:86). Shade trees were planted along many of the drives. Paths and trails were established, rerouted, and erased from the landscape over the course of the parks development (Britton 1915:9). Preparation of a path bed often included cutting and leveling between 10-12" and layering rocks and pebbles (NYBG Photograph Album 1, Border 4:Negatives 9495, 9496, and 9497).

In 1908 a stone and iron fence was built along the southwestern boundary, and along the property line adjacent to Fordham University. Eventually a similar fence was built along the western boundary of the park, and in 1913 2,000 feet of fencing was built along Bronx Boulevard (Caviston 1952:56). Later in 1935, a 1,050' iron fence, averaging 12' high, was built along the boundary of Bronx Park East (Merrill 1935:81). Along most of the boundaries border screens, comprised of trees, shrubs, and flower beds, were planted to shield visitors from the surrounding traffic (NYBG 1909:87).

During the twentieth century, the NYBG improved the property to boast a diverse floral community. Alterations included draining, filling and grading a former lake in the North Meadow [however it should be noted that the north meadow is now north of

the site boundaries] (Merrill 1935:80). In 1904-1905 marshes east of the museum building were flooded to create Twin Lakes. This was accomplished by constructing three low dams and regulating and grading the banks of the valley (Britton 1915:9). Two former swamps were established as rhododendron beds, and "modern" conveniences were added. The establishment of non-native plant communities necessitated extensive drainage and watering systems.

In 1898 a 36" city water main in front of the museum building was tapped to supply the site. This was probably the water main which appeared on the 1895 sewer map (Bronx Valley Sewer Commission 1895). Drainage pipes were laid throughout the grounds including the herbaceous garden and the rose garden, which had a 125' long drain cut into rock to a maximum depth of 12 feet. Surface drainage, including catch basins and culverts, provided for outlets into either the previously existing Long Lake or the river, with only a small portion diverted into the sewers (NYBG 1909:87). Most of the originally designed drainage plan was installed by 1920 (NYBG 1920:209).

To enhance pedestrians vistas, in 1904 a steel and stone bridge was built across the Bronx River near the Newell Avenue entrance, and in 1907 a five-arched fieldstone bridge was also built across the river near the NYBG Forest replacing an earlier wooden bridge (Caviston 1952:43). The "boulder bridge," built to replace the previous wooden "blue bridge," was constructed of stones either collected from early stone walls or unearthed during grading operations (Britton 1907:247). Land was excavated under the eastern of the three larger arches to permit the river to flow beneath it, creating a long narrow island about 200' long, just south of the bridge (Ibid.:249). Rebuilding the bridge in the 1940s caused a second episode of disturbance to the surrounding terrain (NYBG Photograph Album 1, Bridge 2:Negative 1895).

Plans for the NYBG called for a total of six bridges crossing the Bronx river. These were as follows; the Lake Bridge, c.1905, crossed the valley of the lakes, now Twin Lakes, near the museum building; the second was the Long Bridge which carried drivers across the river north of the NYBG Forest, the third, described above, crossed the river near the northern end of the garden; the fourth, the boulder bridge described above, was built in the NYBG Forest; the fifth, a concrete and steel bridge, spanned the gorge below the waterfall; and a sixth was a wooden bridge replaced by concrete in the north meadows, now north of site boundaries (NYBG 1916:111).

The creation of a rock garden by Dr. Southwick commenced on a ledge where hundreds of boulders were imported and set, and an artificial waterfall was created. Large quantities of top-soil, gravel, and sand were used to fill the crevices. It was said that "the garden contained soils representative of nearly all the counties in New York State" (Caviston 1952:87). The garden was

complete by 1922. In 1934 a nearby stone wall, 500' long and about three feet high, was completed and a 475' path through the garden was constructed (Merrill. 1934:79).

By 1896, within the City of New York there were already 7.5 miles of piping, both old and new gas lines, electric, steam, sewer, and water, for each mile of paved street in Manhattan (City of New York 1896:94). The Bronx, including the NYBG, experienced similar infrastructure installations. Adequately lighting the garden was an early priority. By 1905 the site maintained 101 naphtha lights, and 9 gas lights. Twenty-two more naphtha lights were added bringing the total to 132 lights. These were replaced by electric lights in 1915 (Caviston 1952:94). Planning cable placement to power the lights was a painstaking task as administrators were extremely concerned with avoiding existing plantings.

In 1911 the "substantial stone cottages and houses [of the Lorillard estate]...were all removed out of Bronx Park, being either demolished or taken to other sites" (Jenkins 1912:417). Only one stone cottage remained and is extant (Figure 8). The continual upgrading of the site included establishing new planting areas which caused further disturbance to the original subsurface strata. One such example is the extensive grading and wall construction which was required for establishing propagation beds and frames at what was previously designated Range 2 (Merrill 1935:80). Comfort stations, water fountains, decorative fountains, pergolas and shelters were established throughout the grounds (NYBG 1920:209-210).

In addition to improvements, in the early twentieth century "AICP Men" did major tree removal and quarrying on the property (NYBG Photograph Album 1, Negatives 2971, 2972, 2974:1915; Illustration 3). Quarrying also took place just north of the museum within the NYBG property, and also near Bronx Boulevard by Conservatory 2 which is now north of the project site, for the construction of buildings on St. John's campus (Taaffe 1891:56). Prior to NYBG ownership, Fordham University operated a quarry on the site, south of what is now Daffodil Hill, for the construction of their Science Building in 1887. West of this was another quarry in an open field closer to the Bronx River (Father Connolly, personal communication to Cece Kirkorian, February 11, 1993).

Numerous episodes of infrastructure upgrading, planting, construction, and the like have occurred on the property besides those discussed above. Currently, an expanded septic field is being constructed just south of Snuff Mill Road, east of the Bronx River.

The above described episodes of construction, reconstruction, upgrading, and the like, provide examples of the types of negative impacts to potential prehistoric and historical sites that once

existed on the property. While it is clear that these ground disturbing episodes were prolific throughout the site, a few areas remained relatively undisturbed. The NYBG Forest is one such example. This virtually pristine forest has experienced little, if any, alterations. In the southern part of the site along the Bronx River there has also been a minimal amount of development and disturbance. Within these undisturbed areas, and in areas of the original Lorillard estate left intact through the development of the NYBG, archaeologically important deposits may still remain untouched.

VII. ARCHAEOLOGICAL POTENTIAL

A. Prehistoric Resources

The potential for prehistoric resources to have once existed within the NYBG is high, and at least one known site together with the turtle petroglyph represent the early Native American presence. The likelihood that intact prehistoric sites have survived the many episodes of land manipulation, first by farmers, then by the Lorillards, and more recently by the establishment of the NYBG, is minimal. For most of the property, extensive draining and filling of wetlands, together with construction and grading episodes have substantially disturbed the natural stratigraphy including any potential deposits. Those areas which experienced minimal land alteration have the best chance of retaining intact archaeological deposits.

not
w.c. -
fill marsh
forever
also

In addition to the two prehistoric features identified during the NYCLPC study of archaeological sensitivity, several zones of prehistoric sensitivity were also recognized and placed on a sensitivity map (Figure 4). These "Bronx River Prehistoric Zones" exist in relatively undisturbed areas, where prehistoric habitation or short term use would have been feasible. This current survey supports that these areas are in fact sensitive and experienced minimal disturbance. Therefore, the potential to encounter intact, in situ prehistoric resources is highest in those areas previously identified by the NYCLPC. No new areas of potential sensitivity have been identified (Figures 4, 8, 10; Photograph K).

B. Historical Resources (* = extant)

(1) * Stone Snuff Mill c.1840

Originally dating to the 1840s, the mill is extant and is used by the NYBG as a cafe (Figures 5, 8; Illustration 4). According to the National Register of Historic Places Inventory Nomination form, "the mill is outstandingly symbolic of an important American industry founded largely on the cultivation of a major staple...The P. Lorillard Company is the oldest tobacco manufacturing firm" (United States Department of the Interior 1976:np).¹ The mill and an area of eight acres surrounding the site are considered historically significant.

¹ Since the mill itself is already a New York City Landmark and a National Historic Landmark, further descriptions of the structure's historical significance can be found on the original nomination forms, and will not be discussed at length in this report (NYCLPC 1966; United States Department of the Interior 1976).

Although there has been filling and reconstruction around the site, fill has probably served to seal and protect any potentially important deposits. In the 1950s, a contractor uncovered the original millstones from the Snuff Mill at a depth of 15' below surface, near the northwest corner of the mill. "Several were removed with a derrick and preserved" (Kazimiroff 1954:26). One of the stones removed was of local material, the other appeared to be of foreign volcanic origin, encased in a band of wrought iron, probably from Germany or Italy (Ibid.). Heavy wrought iron shackles and flanges held the axles and gears in place.

Documented disturbance is minimal at the mill site, and is predominantly limited to episodes involved with upgrading the site. A recent trench cut just south of the Snuff Mill for the construction of a pump station (Photographs A1 and A2), revealed the soil matrix to a depth of 108" below the current surface. Stratigraphy was as follows:

0-11"	Dark Brown Fine Sandy Loam
11-43"	Orange Brown Mottled Fine Sandy Loam (Fill)
43-46"	Dark Brown Fine Sandy Loam with Bricks and Glass
46-51"	Ash
51-80"	Orange Brown Mottled Fine Sandy Loam
80-108"	Mottled/Black Charred Fill
93"	Circular Metal Band
95"	Flower Pot Base
97"	Charred Board
100"	Charred Beam

The observed charred material and historical artifacts in the bottom of the trench cut may have been fill from the house fire, although it is unclear why the fill would have been taken far from the original house site. No reference to a fire at this location was encountered. The depth of fill suggests that archaeologically important deposits may exist under, and possibly within, these protective layers.

The mill and surrounding site is considered archaeologically sensitive for cultural remains. According to the NYCLPC report, "the land on the north and west sides of the Snuff Mill undoubtedly contains the buried remains of the raceway, wheel pit, and foundations that were once part of the mill" (NYCLPC 1991:39; Figure 4). The site immediately surrounding the Snuff Mill is sensitive for deposits of cultural material associated with its use (Figure 8).

(2) Mill Site south of Snuff Mill c.1800

The second mill site on the Bronx River, just south of the Stone Snuff Mill, first appeared on maps by 1851 (Neff 1851), but probably dates to around 1800 when the Lorillards replaced the

original c.1790 frame grist mill. The c.1800 mill was made with "native fieldstone" ((United States Department of the Interior 1976:np). A photograph of the Old Hemlock Snuff Mill, which stood just south of the extant Stone Snuff Mill, shows a distinct fieldstone base with a framed second floor (Illustration 5). Thus this is probably the c.1800 mill that the Lorillards themselves built, while the earliest mill on the site stood adjacent to the dam further north (see 15). The Old Hemlock Snuff Mill appeared on maps as late as 1893 (Bromley 1893), but was gone by 1895 (Board of Commissioners of Public Parks 1895). The mill had a tall brick chimney rising up above the river and a water wheel on its west side (Comfort 1906:47; Illustration 5).

The mill stood on the east bank of the Bronx River, north of and probably partially within the route of Snuff Mill Road (Figures 7, 8). It is highly probable that at least the southern portion of the site was impacted by the construction of Snuff Mill Road, but the northern section may not have been disturbed. A line of fieldstone bordering the river may mark its location (Photographs B1, B2). The mill site is sensitive for early twentieth century remains from the Lorillard's use. Potential resources may provide some additional insight into the Lorillard's adaptive milling techniques which proved to be their success.

(3) * Lorillard Stone Cottage c.1851

The stone cottage is extant and is currently privately occupied (Figure 8). The earliest appearances on maps, c.1851, portrayed a different configuration (Neff 1851). It was not until 1868 when the current configuration as cross shaped was depicted (Beers 1868). According to NYBG employee Mike Ruggerio, the building was once used for snuff storage by the Lorillards (personal communication to Martha Cobbs, January 27, 1993).

There may be a dry-well associated with the cottage, as one NYBG employee has reported a pipe sticking up out of the ground with an unknown origin (Ed Roy, NYBG, personal communication to Faline Schneiderman-Fox, December 1, 1992). This could be a potentially important feature as wells were often filled with debris when they were no longer used. Although the building is now connected to a septic field, there is the possibility that a privy was once associated with this structure, another potentially important resource. The topography around the cottage does not appear to have changed substantially during the twentieth century, and thus the site is sensitive for archaeological deposits which may provide clues as to its original function (NYBG 1896; City of New York Department of General Services 1991; NYCLPC 1991:41).

(4) Unlabeled Lorillard structure c.1851

This may have been the warehouse reported in historical accounts, although the structure was never labeled. It was built

by the 1850s and remained on the site through the 1880s as part of the Lorillard manufacturing complex (Map Showing Details of the Lorillard Estate 1884; Figure 7). The structure was originally just south of Newell Avenue (Figure 5), which would now be just south of Snuff Mill Road (Figure 8). The site is currently experiencing construction for an expanded septic field and has undergone substantial disturbance (Photographs D1, D2). There is no sensitivity for the footprint of this building or any possible associated features.

(5) Lorillard Mansion, Rosedale, and dump c.1853

Rosedale was built c.1853 and burned down in 1923, with the Lorillards occupying the dwelling until the 1880s (Illustrations 6, 7). The building site is now occupied by the Children's Garden (Figures 7, 8). When the Children's Garden was being constructed, the foundation was encountered and covered over, leaving it largely intact beneath the garden (NYCLPC 1991:40). The site is considered archaeologically sensitive and "has potential for yielding important information associated with the Lorillard family" (Ibid.).

The household "dump" on the slope by the river just west of the Lorillard mansion was surface collected by amateur and professional archaeologists. Just north of the Children's Garden, Knickerbocker beer bottles, probably associated with later occupation of the house, were also found (Mike Ruggerio, NYBG employee, personal communication to Martha Cobbs, January 27, 1993). Artifacts collected from the slope included a sash-weight probably from the house, ceramics, glass, and building materials (Alan Gilbert, personal communication to Cece Kirkorian, January 12, 1993; See Appendix B). A field visit by the NYCLPC observed coal, ash, bottle glass fragments, cut and dressed stone, and other artifacts scattered along the hillside (NYCLPC 1991:40; Figure 4).

Coring on the slope revealed evidence that the former ramp or stairway between the house and the river was made of tamped earth (Alan Gilbert, personal communication to Cece Kirkorian, January 12, 1993). The slope may contain both additional dump material and further evidence of the stairway or ramp. The area just south of the bluff on which Rosedale stood has been greatly filled. Apparently, a depression between the house lot and the mill lot was filled with demolition debris following the burning of Rosedale (Ibid.). The entire site is considered archaeologically sensitive.

(6) Lorillard Cross-Shaped Structure, second stone cottage c.1853

This structure, similar in configuration to the stone cottage, first appeared on historical maps c.1853 (Dripps 1853) and was located south of what is now Snuff Mill Road (Figure 7). According to the NYCLPC study "In the course of our field reconnaissance of this area, we located the buried foundation of this structure on a

flat elevated area some 185 feet south of the extant Stone Cottage...The site of the second stone cottage has the potential for yielding information pertaining to the nature and function of the building. Therefore, this area is an archaeologically sensitive zone" (NYCLPC 1991:41; Figure 4). The site does not appear to have been altered to a great extent during the nineteenth century, and thus is considered potentially sensitive (NYBG nd; City of New York Department of General Services 1991; Figure 8; Photograph C).

(7) Lorillard Complex, northeast corner of estate c.1853

A complex of four buildings appeared on maps in c.1853 near the northeast corner of the NYBG property (Dripps 1853). By 1869, only one structure remained (Viele 1869; Figure 5). The function of the structures is unknown. The location of the complex of structures is now within the route of the Mosholu Parkway and Bronx River Parkway interchange and experienced tremendous disturbance with the construction of this highway system (Figure 8). The site has no archaeological sensitivity.

(8) Lorillard Lodge c.1868

The Lodge first appeared on maps in c.1868 (Beers 1868), and was present as late as 1884 (Map Showing Details of the Lorillard Estate 1884; Figure 7). According to the NYCLPC study, "in our field reconnaissance of this area, we found a flat, slightly depressed area, and what appears to be the remains of a driveway located between the present paved road and the edge of the bank to the east. This area is probably the site of the Lodge and is considered archaeologically sensitive as well" (NYCLPC 1991:42). The Lodge site does not appear to have undergone extensive alterations and is considered archaeologically sensitive (Figure 8).

(9) * Lorillard Stable c.1869

The Lorillard Stable, built c.1869 (Viele 1869; Figure 5) is extant and is presently used as a maintenance building by the NYBG (Figure 8). The NYCLPC study determined that this structure is a potentially sensitive archaeological site (NYCLPC 1991; Figure 4). Although the stable has not been moved from its original location, Long Lake, once just southeast of the stable, has been drained and filled. Fragmities growing just southeast of the stable attest to the disturbed status as this reed tends to grow in disturbed and wet soils. A car dump is also located east of the barn. The extensive use of the surrounding terrain by the NYBG for equipment storage has probably disturbed part of the site. While the barn itself may be architecturally important, the land southeast of it is probably too disturbed to yield intact archaeological deposits.

(10) * Lorillard Stable outbuilding c.1869, replaced 1947-1952

The original unlabeled building at this site was built about the same time as the barn, and stood directly east of it (Figures 5, 8). However, the structure was replaced between 1947 and 1952 (NYBG 1952). A field visit to the east of the barn determined that much of the land surrounding the barn has been disturbed over the years with maintenance activities, but the depth of disturbance is unknown. The structure is not considered historically important since it was replaced in the mid-twentieth century, and the surrounding area was disturbed with this episode of reconstruction. Therefore the immediate site is not considered archaeologically sensitive.

(11) Lorillard Factory Complex building c.1869

This structure of unknown function was part of the Lorillard complex by 1869 (Viele 1869; Figure 5), and stood through at least the 1880s (Map Showing Details of the Lorillard Estate 1884; Figure 7). The building site is now within the parking lot for the greenhouses (Figure 8), which underwent extensive grading in the 1940s (NYBG 1949). In addition, in the early part of the twentieth century the site was labeled "Plantations," indicating it was probably heavily cultivated (NYBG 1914). The site is probably too disturbed to yield potentially important archaeological deposits.

(12) Lorillard Factory Complex building c.1869

This building may have been worker housing associated with the Lorillard complex although its exact function is unknown. The structure first appeared on maps in 1869 (Viele 1869; Figure 5), and was still present in 1884 (Map Showing Details of the Lorillard Estate 1884; Figure 7). The building would have been located just south of what is now Snuff Mill Road, at the site of the current septic fields (Figure 8). Any remnants of this structure have undoubtedly been destroyed by the septic field construction (Photographs D1, D2). Thus there the site has been too disturbed to yield intact deposits.

(13) Lorillard Factory Complex building on east side of river c.1869

This unlabeled structure may have been worker housing, but its precise function is unknown. Although the building was present in 1869 (Viele 1869, Figure 5), it had been removed by 1884 (Map Showing Details of the Lorillard Estate 1884; Figure 7). The building would have been almost within the route of what is now Snuff Mill Road, east of the Bronx River (Figure 8). Any potential features associated with the site may have remained undisturbed south of Snuff Mill Road, and may yield information on the function of the structure. However, this site is not considered potentially archaeologically sensitive because it has recently experienced

tremendous disturbance with the construction of an extensive septic field (Photographs D1 and D2).

(14) Lorillard Factory Complex building on east side of river c.1869

This unlabeled structure may have also been worker housing, but its precise function remains unknown. The building was present in both 1869 (Viele 1869, Figure 5), and 1884 (Map Showing Details of the Lorillard Estate 1884; Figure 7). The building would have been almost within the route of what is now Snuff Mill Road, east of the Bronx River, and west of (13) described above (Figure 8). This site considered potentially archaeologically sensitive since it has experienced little known disturbance and has the potential to yield information on site function and, if it was indeed used for worker housing, knowledge about occupants' lifeways.

(15) Mill or building near waterfall c.1854, 1869

A mill was first clearly depicted at this site near the waterfall on an 1854 map (Map of Property Belonging to the Heirs of Andrew Corsa 1854; Illustration 7). This may have been the original, c.1790, mill purchased by the Lorillards, although it was not present on an 1851 map (Neff 1851). The mill was removed by 1868, and a smaller square structure, too small to be a mill, appeared just south of it by 1869 (Viele 1869; Figure 5). The area was vacant by 1884 (Map Showing Details of the Lorillard Estate 1884; Figure 7). The 1869 structure was probably not a mill as it was quite small and was located on an island between the raceway and the river, with no clear connection to either waterway (Figure 7, 8). The site has been upgraded as Lucy Moses Overlook. During this upgrading, no features associated with either the original mill or the second structure were observed by the construction crew.² The site is potentially sensitive for archaeological resources since it has been filled, and traces of both building footprints and possible associated features may have been buried and preserved (Photograph E).

(15a) Raceway and Water Control Device on Raceway c.1840, c.1873

The raceway was probably constructed either in 1800 when the first stone Snuff Mill was built, or in 1840 when the extant Snuff Mill was constructed. Regardless, the route of the raceway ran on the east side paralleling the Bronx River by the 1850s (Neff 1851; Figures 5-8). The raceway was filled in at the turn of the century

²The construction crew for this project was not aware of the possibility of encountering historical features and were probably not familiar with the subtle variations in subsurface stratigraphy which a professionally trained archaeologists would seek when monitoring for such resources.

shortly after the mill and property were purchased by the City of New York. According to Ed Roy of the NYBG, there was no cutting or grading done at Lucy Moses overlook, and two to three feet of fill were actually added to the existing roadway over the raceway. The only digging associated with upgrading the site for the overlook was a three foot trench for pipes, and the planting of trees between the mansion and the Snuff Mill. During this excavation little if any cultural material was encountered, and no stone work or cut timbers, possible remnants of the raceway, were found (personal communication to Cece Kirkorian, January 19, 1993). The raceway is considered a potentially important archaeological resource (Figure 8; Photograph E).

A water-control device near the junction of the raceway and the river was first depicted on maps by 1873 (Department of Public Parks 1873; Sheet 6). A historical photograph of the waterfall shows what appear to be upright cut planks just south and west of the falls, with ponded water standing east of the planks (NYBG Photograph Album 1, Bronx River 1, Negative 553:1896). The sluiceway is associated with the Snuff Mill, now a New York City Landmark, and could contribute to the general understanding of the Lorillard's use of water power. This evidence of a sluiceway or gate may now be buried beneath mud, sediment, and fill, and is considered archaeologically sensitive.

(16) Possible structure or well near waterfall c.1869

The circular feature shown on early maps (Viele 1869; Figures 5, 7) is possibly a well or some other similar feature (Figure 8). If it was in fact a well, it has the potential to yield deeply buried deposits, as these types of features were often filled with "trash" when they were no longer in use. If it was another type of water-control device, as opposed to a well, it also has the potential to address issues regarding the Lorillard's use of water power. As described above, the general area of Lucy Moses overlook has experienced more filling than any other type of potentially destructive land manipulation. Evidence of the well or structure may be deeply buried beneath fill and is considered archaeologically sensitive (Figure 8; Photograph E).

(17) Lorillard Studio c.1869

A structure was built off of the northwest corner of Rosedale by 1869 (Viele 1869; Figure 5). The small square structure was reported to be a studio built overlooking the river (Cavistan 1952:8; Illustration 8). The building was still present in 1884 (Map Showing Details of the Lorillard Estate 1884; Figure 7), but has since been razed or removed. The studio stood adjacent to the river (Figure 8), just north of the falls, and was described as a "romantic little building with Gothic windows, set in diamond-shaped panes. A studio it might indeed have been, and none could have been more delightfully located, but from the large tanks

contained in its basement and from its vicinity to the water, it has always seemed to me to have more likely been a picturesque laundry" (Comfort 1906:47). There has been no known disturbance to the site which is considered archaeologically sensitive (Figure 8; Photograph E).

(18) Cross Shaped Building west of river c.1869

The structure first appeared on maps by 1869 (Viele 1869; Figure 5). Although its configuration matched the two stone cottages on the Lorillard estate east of the Bronx River, it is not clear if it was actually part of the Lorillard estate at that time, although by 1879 it was clearly part of the estate (Bromley 1879; Figure 6). The structure would have been located in what is now the rock garden (Figure 8), which has undergone extensive transformation. Boulders were added, land was filled and graded, and drainage pipes were added, all prior to planting. Due to the high degree of disturbance, the site of the structure is not potentially sensitive.

(19) Small building west of river c.1869

This small square unlabeled structure first appeared on maps in 1869 (Viele 1869; Figure 5). It stood just east of structure (18) on what was designated on paper as St. John Avenue. As with the above structure, this building would now be located in the middle of the rock garden (Figure 8), which has experienced tremendous disturbance, and is not considered sensitive for archaeological deposits.

(20 & 21) Pair of parallel rectangular buildings, west of river c.1869

The two rectangular structures first observed on maps in 1869 (Viele 1869; Figure 5) stood near above structures (18) and (19). The parallel rectangular buildings stood in what is now the rock garden (Figure 8), and as with the previous structures have no archaeological sensitivity due to the high degree of disturbance.

(22) A.R. Nieleuhr house c.1872

The Nieleuhr house stood on a lot off of what was previously the route of Southern Boulevard (Beers 1872). The dwelling stood through at least the 1880s, but few maps dating to the 1890s depict this area so it is not possible to determine when it was razed. The structure would have been located in what are now the Demonstration Gardens, just northwest of the Conservatory (Figure 8). This area has undergone tremendous ground disturbance with the construction of the Conservatory and the establishment of the gardens, and thus the site has no archaeological sensitivity.

(23) C.E. Westfall house c.1872

The Westfall house stood on a lot off of what was previously Webster Avenue (Beers 1872). The dwelling, with a history similar to the Nieleuhr house, was once situated just west of what is now the Kenroman Gazebo in the gardens west of the Conservatory (Figure 8). Like the Nieleuhr house, the site is not archaeologically sensitive due to the high degree of disturbance caused by the construction of the Conservatory and the establishment of the garden. A fan-shaped garden has been planted directly on top of the house site, causing further disturbance.

(24) P. Duffy house c.1872

The Duffy house stood just south of Oliver Avenue which once ran through the NYBG property (Beers 1872). The building site is now bisected by the southern boundary fence of the NYBG property, rendering the north half of the dwelling's location in Conservatory Drive, and the south half in Southern Boulevard out of the project site (Figure 8). Conservatory drive and the area surrounding the Conservatory experienced extensive grading and disturbance during their creation, and thus the site is not considered archaeologically sensitive.

(25) M. Dunn house c.1872

The Dunn house also stood just south of Oliver Avenue, east of the Duffy house (Beers 1872). As with the above structure (24), the building's location falls partially in the route of Conservatory Drive, and partially within Southern Boulevard (Figure 8). The portion of the dwelling's location that falls onto NYBG property in Conservatory Drive is not considered archaeologically sensitive since this area experienced extensive disturbance with the construction of the Conservatory.

(26) Shed Associated with Dunn house c.1873

The shed associated with the Dunn house also stood just south of Oliver Avenue, east of the Duffy house (Beers 1872). As with the above structure (25), the building's location falls partially in the route of Conservatory Drive, and partially within Southern Boulevard (Figure 8). The portion of the dwelling site that falls onto NYBG property in Conservatory Drive is not considered archaeologically sensitive since this area experienced extensive disturbance with the construction of the Conservatory.

(27) Shed East of Nieleuhr House c.1873

The shed east of the Nieleuhr house stood on a lot just south of the original route of Southern Boulevard within the NYBG property (Bromley 1882). The shed would have stood in what is now the Demonstration Gardens adjacent to the Vietorwalk (Figure 8).

Since this whole area was extremely disturbed by the construction of the Conservatory and the surrounding gardens, the site is not sensitive for archaeological remains.

(28) Jesuit Cemetery c.1873

The first cartographic indication found for a cemetery plot was on an 1873 map (Department of Parks 1873); however the first time the cemetery was actually labeled as such was in 1879 (1879 Bromley; Figure 6). The cemetery plot was originally east of Southern Boulevard within the NYBG property (Figure 8). According to a c.1893 ledger found by Reverend T. Gerald Connolly, Fordham University's Archivist, the cemetery was just off Southern Boulevard near a rock outcropping, with rock outcroppings on either side, "until 1890." A stone wall ran adjacent to the cemetery, east-west from Southern Boulevard to the Bronx River. The location of the cemetery described in the ledger coincided with the location shown on an undated map on Father Connolly's wall (personal communication to Cece Kirkorian, February 11, 1993). Both of these descriptions concur with the 1879 Bromley (Figure 6).

Reportedly, all of the bodies had been removed and reinterred on Fordham University's campus at the turn of this century, but there is the possibility that not all graves were adequately marked and there may be human remains left. There is some skepticism regarding the actual removal of the burials from the NYBG property. Reverend Connolly questioned whether the current cemetery on Fordham's campus is "simulated" and if the bodies were actually removed from the NYBG property (personal communication to Martha Cobbs, January 28, 1993). Reverend Theodore Cunnion, a Loyola Reference Librarian, believes that the bodies were removed and placed in a common grave in a new "fake" cemetery on Fordham's campus near the Faber building. According to one account, "the headstones were moved to the present location in 1890; the bodies were left behind" (Fordham University 1991:np). In contrast, there are a number of official reports stating the bodies were reinterred (Butler 1977:25; Taaffe 1891:15).

The original cemetery site within the NYBG was located near what is now Daffodil Hill, although the boundary is ambiguous (Figures 6, 8). Given that burials would have been several feet below the surface, and that disturbance for Daffodil planting would have been only one foot deep at the most, the site is considered potentially sensitive for archaeological resources (Photograph F). A comparison of topographic maps dating to the 1890s and 1990s shows little change in the land formation in this area (Topographical Bureau 1895; City of New York Department of General Services 1991).

(29) Small building off Southern Boulevard c.1874

The small square building first appeared on the 1874 Viele map, but did not show up on later maps. The building was located near what is now the Harding Laboratory (Figure 8). Given the extensive ground disturbance caused by the construction of the laboratory, and the lack of association for the building, the site is not sensitive for archaeological deposits.

(30) Small building near bend in Southern Boulevard c.1882

By 1882 a small building had been constructed off of what was previously Southern Boulevard (Bromley 1882). The unlabeled building was once located where a storage shed has since been constructed (Figure 8). Given the lack of association for the building, and the subsequent disturbance caused by construction of the storage shed, the site has no archaeological sensitivity.

(31) Building south end of rose beds c.1884

The building associated with the Lorillard complex once stood just to the south of what were probably the rose beds (Map Showing Details of the Lorillard Estate 1884; Figure 7). Currently, the site is occupied by the Propagation Range, a series of greenhouses (Figure 8). The site of the greenhouses and the adjacent parking area to the south, which would have been where the building was located, have undergone grading and drainage and are substantially disturbed (NYBG 1949). Given the extensive grading and subsequent episodes of construction, the site is not considered sensitive for archaeological remains.

(32) Building north of rose beds, east of raceway c.1884

This building was once part of the Lorillard complex (Map Showing Details of the Lorillard Estate 1884; Figure 7). The southern half of the building's location is now beneath a structure associated with the propagation range, while the northern half of the structure would have not been impacted by the new structure (Figure 8). Although the function of the building is unknown, it is possible that remnants of the northern half are intact and may yield information regarding this. Therefore, the northern portion of this building is considered archaeologically sensitive since deposits may clarify site function and contribute to the overall knowledge of late nineteenth century land use.

(33) Building north of Rosedale, possible servants quarters c.1884

This small structure north of Rosedale was first seen on maps by 1884 (Map Showing Details of the Lorillard Estate 1884; Figure 7). The small rectangular building stood through at least 1924 (NYBG 1924), but had been removed by the 1930s (NYBG 1937-38). This may have been the servants quarters described by Cavistan

(Cavistan 1952:8). The site is north of the Children's Garden complex near an undisturbed wooded area (Figure 8). The site has the potential to yield more information regarding the building's function, and is considered archaeologically sensitive.

(34) Building south of second stone cottage c.1884

A small building was built as part of the Lorillard complex by 1884 at what was the intersection of Perry and Butler Streets (Map Showing Details of the Lorillard Estate 1884; Figure 7). The building's site has not been disturbed to any great degree and has the potential to yield information regarding its function (Figure 8). Thus the site is considered potentially archaeologically sensitive.

(35) Four small buildings, near Mosholu and Bronx River c.1884, c.1895

Three small square buildings appeared on the northeast corner of the Lorillard estate in 1884 (Index Map of Detailed Surveys for Bronx Park 1884). A fourth appeared on the 1895 Board of Commissioners of Public Parks map. The two western most buildings were quite small and stood adjacent to a small path near the Boulder Bridge. The third was larger and stood slightly east of the first two. The fourth was on a knoll west of the first three. They now fall within the Magnolia Grove near the Legume Trees (Figure 8). A comparison of topographic maps in the 1930s and 1990s (City of New York Department of Parks 1937-38; City of New York Department of General Services 1991) suggests that this area has not experienced a high degree of grading or land manipulation and is thus sensitive for archaeological deposits from each of these three structures which may provide insight into their function. A field visit located at least one possible foundation wall or stone walkway that may have been associated with the structures (Photograph G).

(36) Square Building West of Extant Snuff Mill c.1895

A small square structure was built west of the Snuff Mill between it and the river by 1895. This area experienced little disturbance, probably mostly resulting from filling to create the terrace for the Snuff Mill Cafe, and is considered archaeologically sensitive since it has the potential to reveal information regarding site function (Photograph A1).

(37) * NYBG Museum building 1900

Construction for the NYBG Museum building began in 1897 and was complete in 1900 (NYBG 1897; NYBG Index to Minutes, Board of Managers 1891-1938:96). The extant building (Figure 8) is architecturally important and is on the National Register of

Historic Places.³ Although the building is considered architecturally valuable, there are no potentially important archaeological deposits associated with it which would contribute to the historical record (Photograph H). The construction of the building actually impacted not only the building site itself, but at least several feet around the building's perimeter. Excavating such a site would only yield evidence of the original builder's trench. Because of the building's late date, the extensive construction records, and the lack of any potentially important archaeological deposits, the site is not considered archaeologically sensitive.

(38) NYBG Power House c.1897

A power house was built east of the Museum Building by 1897 (NYBG 1897). Although there were several other power houses once located in the garden, boundary changes have rendered this the only one that actually stood within the current NYBG property (Figure 8). The power house has since been removed, and the site upgraded as part of the rock garden. This type of resource is better researched through the documentary record than by archaeological investigations. Subsurface remains from such a feature would be limited to a possible foundation and abandoned wires. The actual workings of the power house are gone, and are surely documented in the original engineering plans. In addition, given the extensive disturbance caused by the creation of the rock garden now at the site of the power house, there is no archaeological sensitivity for this site.

(39) NYBG Public Closet c.1897

The public closets, or privies, were once located on the northwestern corner of the property (NYBG 1897; Figure 8). The site has since been flooded by the creation of Twin Lakes, and is not sensitive for archaeological deposits.

(40) 36" and 48" Water Mains c.1896

There is some ambiguity as to the material used for the construction of both the 36" and 48" water mains running through the property, and whether they were part of the Croton Aqueduct system (Figure 8). Only one map showed part of the "croton aqueduct" running through the parcel north and east of the Conservatory (Board of Commissioners of Public Parks 1895). However, the 1895 sewer map showed the Croton Aqueduct west of the

³Since this structure is already on the National Register of Historic Places, a detailed description of its significance is not presented. Further information can be obtained from the National Register Nomination Form, 1978.

site with water mains running through the NYBG where the aqueduct had been depicted (Bronx Valley Sewer Commission 1895).

According to documentary research, the City of New York constructed the Williamsburg and Bronx Park sewer through the northern part of the grounds, north of the current NYBG boundary, in 1896. In April, 1898 the construction of the water supply system was commenced by tapping a "36-inch city water main" previously constructed through the grounds, in front of the museum building (Britton 1915:4, 6). There was no reference to an aqueduct on the property.

The Croton Aqueduct, while dating to the 1840s, was upgraded and expanded in the 1890s with cast-iron pipes (White 1987:43). The Board of Commissioners 1895 map shows the aqueduct existing within the NYBG only in part, following a rise for a short distance. It is possible that during the 1890s when plans were made to expand the aqueduct system they were considering placing the route through the NYBG, but eventually abandoned the idea. Regardless of whether the line is a water main or part of the aqueduct, the 1936 NYBG Record Map of Drains, Sewers, Steam, Water, and Utilities (NYBG 1936) depicted only two parallel water lines where the aqueduct had been, one 36", the other 48", both cast iron.

Although wooden pipes were popular at the beginning of the nineteenth century, by the 1820s the advantages of iron over wood were clear, and iron pipes were soon the material of choice (Parrington 1983:26). Early wooden pipes, considered archaeologically valuable, were often removed when replaced by iron and are seldom seen in the archaeological record (Ibid.). Since the extant water mains are clearly cast iron, and no evidence of an earlier wooden aqueduct system has been encountered, this resource is not considered archaeologically sensitive.

(41) * NYBG Conservatory 1902

The conservatory, built between 1899 and 1902, is currently on the NYCLPC register as a city landmark. The structure comprises a "central rotunda or Palm House and ten connecting greenhouses, which together form a C-shaped plan" (NYCLPC 1973:1).⁴ The structure itself is considered significant based on architectural features, special historical interest, and aesthetic value. However, there are no potentially important archaeological deposits associated with it which would contribute to the historical record. Like the NYBG Museum Building, the construction of the building impacted not only the building site, but at least several feet

⁴For an extensive description of the conservatory and its status as a New York City landmark, consult bibliographic reference NYCLPC 1973.

around the building's perimeter. Excavating such a site would only yield evidence of the original builder's trench. Because of the building's late date, the extensive construction records, and the lack of any potentially important archaeological deposits, the site is not considered archaeologically sensitive.

(42) Director's House c.1897

This building was only present for a short period of time, as it first appeared on maps in 1897 (NYBG 1897), and was removed by 1909 (NYBG 1909). The building stood east of the Bronx River in what is now the Magnolia Grove (Figure 8). The site does not appear to have been impacted through the years. A comparison of topographic maps in the 1930s and 1990s (City of New York Department of Parks 1937-38; City of New York Department of General Services 1991) suggests this area has undergone little twentieth century disturbance. Therefore, the site is sensitive for archaeological resources associated with the occupation of the Director of the NYBG at the turn of the century (Photograph I).

(43) Octagonal Bandstand c.1895

The Octagonal Bandstand first appeared on maps by 1895 (Board of Commissioner of Public Parks 1895). The structure was located on a knoll south of Snuff Mill Road (Figure 8), not far from the second stone cottage (6). The site of this early NYBG feature has not been disturbed (Photograph C). Recently the Appellate Division of the New York State Supreme Court upheld a lower-court decision to halt the demolition of a 1923 bandshell in New York's Central Park, citing its historic importance (New York Times, February 19, 1993). Although the NYBG bandstand may have been an important architectural feature while it was still standing, archaeological deposits associated with its use would be limited to discard from the audience and picnickers. Any accumulation represents years of public use, with no clear association between deposits and a specific event. Cultural material from the turn of this century would have little value without contextual information, and thus this site is not considered archaeologically sensitive.

(44) * Propagating House c.1895, replaced 1947-1952

This propagating house still stands just north of the greenhouses (Figure 8). The structure first appeared on maps in 1895, but was replaced between 1947 and 1952 (Board of Commissioner of Public Parks 1895; NYBG 1952). Although the building itself may be important, there is little that could have been deposited at the site that would be considered archaeologically valuable. Documentary reports of horticultural practices undertaken at the site would be more informative than archaeological research into the site. Although the structure itself may be important from an historical view, it has little archaeological value.

(45) * Greenhouses c.1895, replaced 1947-1952

These structures first appeared on maps in 1895 (Board of Commissioner of Public Parks 1895), and have remained in their present location (Figure 8). Although the greenhouse building itself may be important, as with the propagating house, it has little archaeological value. Information regarding its history, use, and role in the establishment of the NYBG can be better documented through historical research. Therefore, while the greenhouses may have been important in the development of the site, there is no potentially important archaeological information associated with them.

(46) Square building west of propagating house c.1895

The small square building west of the main propagating house was built by the turn of the century and appeared to function as another propagating house (Board of Commissioner of Public Parks 1895). The structure, whose function is unknown, only stood for a brief period of time and had been removed by the 1930s (Figure 8; City of New York Parks Department 1937). The site has since experienced only minimal disturbance associated with creating a picnic area. Since its function was known, and little potentially important information could be gained through archaeological research because of the extensive documentation associated with the NYBG's propagation methods, the structure is not considered potentially sensitive.

Later buildings, including the Harding Laboratory (Photograph J), are not considered archaeologically sensitive since these buildings post-date the period of time that would make them eligible for nomination to the National Register of Historic Places.

VIII. IMPACTS OF PROPOSED PROJECT

Prehistoric Resources

The identified zones of prehistoric sensitivity are limited to several small areas adjacent to either side of the Bronx River (Figures 4, 8). These zones do not extend into the area of proposed construction and thus will not be impacted as the plans currently exist (Figures 8, 9).

Historical Resources outside the "Garden Within the Garden"

(* = extant)

(1) * **Stone Snuff Mill c.1840**

National Register Site-potentially sensitive-relatively undisturbed. No impact by proposed project.

(2) **Mill Site south of Snuff Mill c.1800**

Potentially Sensitive-only partially disturbed. No impact by proposed project.

(3) * **Lorillard Stone Cottage c.1851**

Potentially Sensitive-undisturbed. No impact by proposed project.

(4) **Unlabeled Lorillard structure c.1851**

Not Sensitive-disturbed. Site to be impacted by proposed building of small structures south of Snuff Mill Road. Since this is not sensitive, there is no negative impact.

(5) **Lorillard Mansion, Rosedale, and dump c.1853**

Potentially Sensitive-undisturbed. No impact by proposed project.

(6) **Lorillard Cross-Shaped Structure south of Snuff Mill Road c.1853**

Potentially Sensitive-undisturbed. Will be negatively impacted by proposed construction of small structures south of Snuff Mill Road.

(7) **Lorillard Complex, northeast corner of estate c.1853**

No Sensitivity-disturbed. No impacts by proposed project.

(8) **Lorillard Lodge c.1868**

Potentially sensitive-undisturbed. Will be negatively impacted by proposed construction of new poly and green houses.

(9) * **Lorillard Stable c.1869**

Potentially sensitive-undisturbed. Will not be impacted by proposed construction.

(10) * **Lorillard Stable outbuilding c.1869, replaced 1947-1952**
Not potentially sensitive-disturbed. Will not be impacted by proposed construction.

(11) **Lorillard Factory Complex building c.1869**
No sensitivity-disturbed. Site to be impacted by proposed building of small structure north of Snuff Mill Road. Since this is not sensitive, there is no negative impact.

(12) **Lorillard Factory Complex building c.1869**
No sensitivity-disturbed. Will not be impacted by proposed construction.

(13) **Lorillard Factory Complex building on east side of river c.1869**
Not Sensitive-disturbed. Site to be impacted by proposed construction of small building south of Snuff Mill Road. Since this is not sensitive, there is no negative impact.

(14) **Lorillard Factory Complex building on east side of river c.1869**
Potentially Sensitive-undisturbed. Site to be impacted by proposed construction of small building south of Snuff Mill Road.

(15) **Mill and building near waterfall c. 1854, c.1869**
Potentially Sensitive-undisturbed. Will not be impacted by proposed construction.

(15a) **Raceway and Water Control Device on Raceway c.1840, c.1873**
Potentially Sensitive-undisturbed. Will not be impacted by proposed construction.

(16) **Possible structure or well near waterfall c.1869**
Potentially Sensitive-undisturbed. Will not be impacted by proposed construction.

(17) **Lorillard Studio c.1869**
Potentially Sensitive-undisturbed. Will not be impacted by proposed construction.

(31) **Building south end of rose beds c.1884**
No sensitivity-disturbed. Site to be impacted by proposed construction of new greenhouses. Since this is not sensitive, there is no negative impact.

(32) **Building north of rose beds, east of raceway c.1884**
Potentially sensitive-north portion undisturbed. Will not be impacted by proposed construction.

(33) **Building north of Rosedale c.1884**
Potentially sensitive-undisturbed. Will not be impacted by proposed construction.

- (34) **Building south of second stone cottage c.1884**
Potentially sensitive-undisturbed. Will be negatively impacted by proposed creation of new planting beds north of the new polyhouses.
- (35) **Four small buildings, near Mosholu and Bronx River c.1884**
Potentially sensitive-undisturbed. Will not be impacted by proposed construction.
- (36) **Square Building West of Extant Snuff Mill c.1895**
Potentially sensitive-undisturbed. Will not be impacted by proposed construction.
- (39) **NYBG Public Closet c.1897**
Not sensitive-flooded. Will not be impacted by proposed construction.
- (42) **Director's House c.1897**
Potentially sensitive-undisturbed. Will not be impacted by proposed construction.
- (43) **Octagonal Bandstand c.1895**
Not potentially sensitive-undisturbed. While the site of the bandstand may be negatively impacted by proposed construction, it has little archaeological value and thus impacts will not destroy a potentially valuable resource.
- (44) * **Propagating House c.1895, replaced 1947-1952**
Not potentially sensitive-undisturbed. While the building will be negatively impacted by its proposed removal, it has little archaeological value and thus impacts will not destroy a potentially valuable resource.
- (45) * **Greenhouses c.1895, replaced 1947-1952**
Not potentially sensitive-undisturbed. While the building will be negatively impacted by its proposed removal, it has little archaeological value and thus impacts will not destroy a potentially valuable resource.
- (46) **Square building west of propagating house c.1895**
Not potentially sensitive-undisturbed. While the building will be negatively impacted by its proposed removal, it has little archaeological value and thus impacts will not destroy a potentially valuable resource.

Historical Resources within the "Garden within the garden"

(* = extant)

- (18) **Cross Shaped Building west of river c.1869**
No Sensitivity-disturbed. Will not be impacted by proposed construction.
- (19) **Small building west of river c.1869**
No Sensitivity-disturbed. Will not be impacted by proposed construction.
- (20 & 21) **Pair of parallel rectangular buildings, west of river c.1869**
No Sensitivity-disturbed. Will not be impacted by proposed construction.
- (22) **A.R. Nieleuhr house c.1872**
No Sensitivity-disturbed. Will not be impacted by proposed construction.
- (23) **C.E. Westfall house c.1872**
No Sensitivity-disturbed. Will not be impacted by proposed construction.
- (24) **P. Duffy house c.1872**
No Sensitivity-disturbed. Will not be impacted by proposed construction.
- (25) **M. Dunn house c.1872**
No Sensitivity-disturbed. Will not be impacted by proposed construction.
- (26) **Shed Associated with Dunn House c.1873**
No Sensitivity-disturbed. Will not be impacted by proposed construction.
- (27) **Shed East of Nieleuhr house c.1873**
No Sensitivity-disturbed. Will not be impacted by proposed construction.
- (28) **Jesuit Cemetery c.1873**
Potentially Sensitive-undisturbed. May be negatively impacted by the proposed Children's Discovery Center/Adventure Garden or the expansion of parking at Kennedy Gate.
- (29) **Building off Southern Boulevard c.1874**
No sensitivity-disturbed. Site to be impacted by proposed construction of a Research/Science Exhibit Building. Since this is not sensitive, there is no negative impact.

(30) Building near bend in Southern Boulevard c.1882
No Sensitivity-disturbed. Will not be impacted by proposed construction.

(37) * NYBG Museum building 1900
Not potentially sensitive-undisturbed. Will not be impacted by proposed construction.

(38) NYBG Power House c.1897
Not sensitive-disturbed. Will not be impacted by proposed construction.

(40) 36" and 48" Water Mains c.1896
Not sensitive-metal pipes. A parking area will be created over the pipes, which should not cause negative impacts.

(41) * NYBG Conservatory 1902
Not potentially sensitive-undisturbed. Will not be impacted by proposed construction.

IX. CONCLUSIONS AND RECOMMENDATIONS

Prehistoric Resources

The actual acreage sensitive for prehistoric cultural resources within the site is minimal, and is predominantly limited to undeveloped areas within the NYBG Forest and Magnolia Grove (Figures 4, 8). Further south, south of Snuff Mill Road, there are two additional sensitive areas on either side of the Bronx River. Since the proposed project, as it stands, does not impact any of these zones, further research is not necessary at this time (Compare Figures 8, 9). If, however, the project is altered in such a fashion that either of these zones will be impacted, then further research in the form of field testing would be necessitated. Impacts include building construction, utility line installation, grading, or even equipment lay-down. Any type of activity that would compromise the integrity of the ground would be considered potentially destructive and should be avoided.

Historical Resources

Of all of the potential resources identified, only the following are considered sensitive for archaeological remains, having remained, at least in part, undisturbed by later historical development (Figure 8):

- (1) * Extant Snuff Mill
- (2) Old Hemlock Snuff Mill
- (3) * Lorillard Stone Cottage
- (5) Lorillard Mansion Rosedale, Dump, and Ramp
- (6) Lorillard Cross-Shaped structure, Second Stone Cottage
- (8) Lorillard Lodge
- (9) * Lorillard Stable
- (14) Lorillard Factory Complex Building
- (15) Mill and Building Near Waterfall
- (15a) Raceway and Water Control Device
- (16) Structure or Well Near Waterfall
- (17) Lorillard Studio
- (28) Jesuit Cemetery
- (32) Building North of Rose beds
- (33) Building North of Rosedale, possible servants quarters
- (34) Building South of Second Stone Cottage
- (35) Four Buildings near Mosholu Parkway and Bronx River
- (36) Square Building West of Extant Snuff Mill
- (42) Director's House

(* = extant)

Of these, only five will be impacted by construction as currently (3/93) planned:

- (6) Lorillard Cross-Shaped structure, Second Stone Cottage
- (8) Lorillard Lodge
- (14) Lorillard Factory Complex Building
- (28) Jesuit Cemetery
- (34) Small building South of Second Stone Cottage

Only the Jesuit Cemetery (28) is within the bounds of the "Garden Within the Garden." The second stone cottage (6) south of Snuff Mill Road will be impacted by the construction of a small structure in this location. The Lorillard lodge (8) is also south of Snuff Mill Road and stands to be impacted by the proposed construction of new poly and green houses. The factory complex building (14), which may have been worker housing, will be impacted by the proposed construction of a small building just south of Snuff Mill Road. The Jesuit Cemetery (28) may be impacted by the construction of the Children's Discovery Center and Adventure Garden or the expansion of parking at Kennedy Gate. A small building which stood south of the second stone cottage (34) will be impacted by the proposed construction of new planting beds and polyhouses (Figures 8, 9, 10).

Of these sites which may be potentially impacted, the Jesuit Cemetery (28) is considered a high priority for avoidance or further research. Documentary evidence is conflicting regarding the actual removal of burials, and it is always possible that burials were left unintentionally. The boundaries of this potentially important resource, a Jesuit cemetery dating to the mid-to-late nineteenth century, are unclear given that early maps did not use universal surveying techniques. Thus the general vicinity of Daffodil Hill (Figure 10) is considered sensitive and requires further research prior to the commencement of any possible destructive impacts. Pre-construction inspection, or monitoring by a SOPA certified archaeologist at the time of construction, would be designed to ascertain the presence or absence of burials. A further research design must be approved by the New York City Landmarks Preservation Commission.

no!
yes!

The four structures south of Snuff Mill Road, (6), (8), (14) and (34) were once part of the Lorillard estate. The stone cottage (6) may have been a residence, as may be the case with the lodge (8). Both the third and fourth buildings, (14) and (34), served an unknown function with potential archaeological deposits addressing this issue. Each of these buildings may have features associated with their use (ex. privies, cisterns, and wells) which have the potential to yield deeply buried, protected resources from the period of occupation. Data could potentially be retrieved regarding the occupants of the building, the structure's function, and lifestyles of those involved with the Snuff industry. The development of the industry itself may be addressed with such

resources. Each of these resources may be impacted by the construction of proposed buildings and new poly and green houses (Figures 9, 10).

Further documentary research regarding the specific function of these structures may provide additional insight, although the Lorillard documents were never found to contain an inventory of each buildings' use. Since little will probably be gained by performing additional documentary research, HPI recommends that field testing be performed in those areas presented on Figure 10 prior to proposed development. Field testing may include shovel test pits, and non-invasive methods of identifying subsurface features such as foundation walls. Upon completion of reviewing this report, negotiations should be initiated regarding further research or avoidance.

BIBLIOGRAPHY

- Anonymous
1953 "The Amateur Scientist." SCIENTIFIC AMERICAN July
1953:94-96.
- Bolton, Robert
1881 A HISTORY OF THE COUNTY OF WESTCHESTER FROM ITS FIRST
SETTLEMENT TO THE PRESENT TIME. 2 vols. New York:
Charles F. Roper. Revised edition.
- 1848 A HISTORY OF THE COUNTY OF WESTCHESTER FROM ITS FIRST
SETTLEMENT TO THE PRESENT TIME. 2 vols. New York: A.S.
Gould.
- Britton, Nathan
1915 "History of the New York Botanical Garden." Ms. on file
at NYBG Library.
- 1907 "The Boulder Bridge." JOURNAL OF THE NEW YORK BOTANICAL
GARDEN Vol. VIII (95):247-250.
- Bronx County Historical Society Journals
1964-1988
- Butler, Janet
1974 BIBLIOGRAPHY OF THE BRONX. Bronx County Historical
Society.
- Butler, Janet, Compiler, and Gary Hermalyn, Editor
1977 GENEALOGY IN THE BRONX: AN ANNOTATED RESOURCE GUIDE TO
SOURCES OF INFORMATION. Bronx, N.Y.: The Bronx County
Historical Society.
- Caviston, Ruth
1952 "A History of the New York Botanical Garden." Ms. on file
at NYBG Library.
- Cherry, Elaine C.
1967 "The New York Botanical Garden: A Registered National
Historic Landmark." THE GARDEN JOURNAL. May/June and
July/August, 1967:98-99.
- City of New York, Department of Public Works
1896 REPORT OF THE DEPARTMENT OF PUBLIC WORKS. Martin B.
Brown, Printer.
- 1895 REPORT OF THE DEPARTMENT OF PUBLIC WORKS. Martin B.
Brown, Printer.

- Comfort, Randall
1906 HISTORY OF THE BRONX BOROUGH, CITY OF NEW YORK. New York: North Side Press.
- Cook, Harry T.
1913 THE BOROUGH OF THE BRONX. Published by the author at 1660 Boone Ave., New York.
- Downey, Fairfax
1951 LORILLARD AND TOBACCO. P. Lorillard Company.
- Firestein, Cecily Barth
1976 "Rubbing History." THE BRONX COUNTY HISTORICAL SOCIETY JOURNAL Vol. XIII (2):61-66).
- Fordham University
1991 THE SESQUICENTENNIAL: A LOOK BACK. A LOOK AHEAD. Fordham University. Repository: Fordham University Library.
- French, Alvah P.
1925 HISTORY OF WESTCHESTER COUNTY. New York: Lewis Historical Publishing Company, Inc.
- Gannon, Robert I
1967 THE STORY OF FORDHAM UP TO THE PRESENT. New York: Doubleday and Company, Inc.
- Glenn, William H.
1978 GUIDE TO GEOLOGY: THE NEW YORK BOTANICAL GARDEN. Bronx. N.Y. The New York Botanical Garden.
- Grumet, Robert S.
1990 HISTORIC CONTACT: INDIANS AND COLONISTS IN NORTHEASTERN NORTH AMERICA, 1497-1783. National Historic Landmark Theme Study, United States Department of the Interior, National Park Service.
- 1981 NATIVE AMERICAN PLACE NAMES IN NEW YORK CITY. Museum of the City of New York, New York.
- Hermalyn, Gary
1982 "A History of the Bronx River." BRONX COUNTY HISTORICAL SOCIETY JOURNAL Vol. XIX (1):1-22.
- Huefland, Otto
1929 A CHECKLIST OF BOOKS, MAPS, PICTURES AND OTHER PRINTED MATTER RELATING TO THE COUNTIES OF WESTCHESTER AND BRONX. New York: The Knickerbocker Press.
- Jenkins, Stephen
1912 THE STORY OF THE BRONX. New York: G.P Putnam's Sons

- Kazimiroff, Theodore L.
 1983 "Nature Trail." Ms. on file at NYBG Library.
- 1954 "Millstones from the Lorillard Snuff Mill." THE GARDEN JOURNAL. January-February, 1954:25-26.
- Kieran, John
 1982 A NATURAL HISTORY OF NEW YORK CITY. New York: Fordham University Press.
- McNamara, John
 1984 HISTORY IN ASPHALT. Bronx, N.Y.: The Bronx County Historical Society.
- Mellick, Harry C.
 1950 THE MANOR OF FORDHAM AND ITS FOUNDER. Bronx: Fordham University Press.
- NYCLPC
 4/19/66 Designation Report of Lorillard Snuff Mill.
 10/16/73 Designation Report for NYBG Conservatory
- NYBG
 nd. HISTORIC DATA FILES
 1904 Descriptive Guide to the Grounds.
 1909 Descriptive Guide to the Grounds.
 1891-1938 INDEX TO MINUTES: BOARD OF MANAGERS.
 1939-1983 INDEX TO MINUTES: BOARD OF MANAGERS.
 1916 Descriptive Guide to the Grounds.
 1920 Descriptive Guide to the Grounds.
 1934 Journal of the New York Botanical Garden.
- NYBG Board of Managers
 1923 Memorandum
- Olmstead Brothers
 1924 "Report of the New York Botanical Garden." Ms. on file at NYBG.
- Parrington, Michael
 1983 "The History and Archaeology of Philadelphia Roads, Streets, and Utility Lines." PENNSYLVANIA ARCHAEOLOGIST. 53 (3):19-31.
- Scharf, J. Thomas
 1886 HISTORY OF WESTCHESTER COUNTY. 2 vols. Philadelphia: L.E. Preston and Company.

- Taaffe, Thomas Gaffney
1891 A HISTORY OF ST. JOHN'S COLLEGE, FORDHAM, N.Y. New York:
The Catholic Publication Society.
- Ultan, Lloyd and Gary Hermalyn
1985 THE BRONX IN THE INNOCENT YEARS 1890-1925. New York:
Harper & Row, Publishers.
- United States Department of the Interior
1976 National Register of Historic Places Inventory-Nomination
Form: Lorillard Snuff Mill
- 1976a National Register of Historic Places Inventory-Nomination
Form: New York Botanical Garden.
- Wells
1927 THE BRONX AND ITS PEOPLE: A HISTORY 1609-1927. New
York: The Lewis Historical Publishing Co., Inc.
- Westchester County Historical Society
1978 A CHRONOLOGICAL OUTLINE FOR THE WESTCHESTER HERITAGE
MAP. Compiled by the Heritage Task Force, Junior League
of Westchester-On-Hudson. Westchester County Historical
Society.
- White, Norval
1987 NEW YORK: A PHYSICAL HISTORY. New York: Atheneum.
- Willensky, Elliot and Norval White
1988 AIA GUIDE TO NEW YORK CITY. New York: Harcourt Brace
Jovanovich, Publishers
- Wray, Stephen
1942 THE OLD VILLAGE OF WEST FARMS NOW IN NEW YORK CITY. Ms.
presented to the New York Historical Society.
- Wright, Carol von Pressentin
1983 BLUE GUIDE TO NEW YORK. New York: W.W.Norton & Company,
Inc.

MAPS AND ATLASES

- Adams, Randolph G.
1928 BRITISH HEADQUARTER MAPS AND SKETCHES. Ann Arbor: The University of Michigan.
- Beers, Frederick
1872 COUNTY ATLAS OF WESTCHESTER. Plate 17-18.
New York: F.W. Beers and Co.
- 1868 COUNTY ATLAS OF WESTCHESTER. Plate 15.
New York: F.W. Beers and Co.
- Board of Commissioners of Public Parks
1895 TOPOGRAPHICAL SURVEY OF LAND APPROPRIATED FOR THE NEW YORK BOTANICAL GARDEN IN BRONX PARK, NEW YORK CITY. New York.
- Bromley, George W. and Walter S.
1900 ATLAS OF THE CITY OF NEW YORK BOROUGH OF THE BRONX, 23RD AND 24TH WARDS. George W. and Walter S. Bromley, Philadelphia. Plate 28.
- 1893 ATLAS OF THE CITY OF NEW YORK, 23RD AND 24TH WARDS. G.W. Bromley and Company, Philadelphia. Plate 31.
- 1881 ATLAS OF WESTCHESTER COUNTY, NEW YORK. George W. and Walter S. Bromley, Philadelphia. Plate 41.
- 1879 ATLAS OF THE CITY OF NEW YORK, 24TH WARD. George W. and Walter S. Bromley, Philadelphia.
- 1872 ATLAS OF THE CITY OF NEW YORK, 24TH WARD. George W. and Walter S. Bromley and Company, Philadelphia.
- Bronx Valley Sewer Commissioners
1895 MAP OF THE VALLEY, BRONX RIVER, COUNTIES OF NEW YORK AND WESTCHESTER. Bronx Valley Sewer Commissioners.
- Burr, David H.
1839 MAP OF THE COUNTY OF WESTCHESTER. Stone and Clark, Ithaca, New York.
- City of New York, Department of General Services
1991 AERIAL TOPOGRAPHIC SURVEY OF BRONX PARK. Department of General Services, Division of General Structures.
- City of New York, Department of Parks
1937- TOPOGRAPHICAL MAP, PORTION OF BRONX PARK. City of
1938 New York, Department of Parks.

- Colles, Christopher
1789 A SURVEY OF THE ROADS OF THE US OF A. Reprinted by:
Belknap Press of Harvard University Press, Cambridge MA,
1961.
- Colton, G.W. and C.B.
1877 COLTONS MAP OF THE COUNTY OF WESTCHESTER. G.W. and C.B.
Colton, New York.
- Department of Public Parks
1873 TOPOGRAPHICAL MAP MADE FROM SURVEYS BY THE COMMISSIONER
OF PUBLIC PARKS. City of New York. Sheet 6.
- Des Barres, J.F.W.
1777 A SKETCH OF THE OPERATIONS OF HIS MAJESTY'S FLEET AND
ARMY UNDER THE COMMAND OF VICE ADMIRAL THE KNIGHT
HONORABLE LORD VISCOUNT HOWE AND GENERAL SIR WILLIAM
HOWE, K.B. Des Barres. Repository: New York Public
Library.
- Dripps, Matthew
1853 MAPS OF THE SOUTHERN PART OF WESTCHESTER COUNTY, NEW
YORK. M. Dripps, New York.
- Erskine, Robert
1780 MS. SURVEY OF WESTCHESTER COUNTY. R. Erskine, 1778-
1780. Repository: New York Public Library.
- 1778 ROUTE OF ANDRE MS. SURVEY. R. Erskine. Repository:
New York Public Library.
- Index Map of Detailed Surveys
1884 INDEX MAP OF DETAILED SURVEYS FOR BRONX PARK,
WESTCHESTER COUNTY, NEW YORK. Repository: New York
Public Library.
- Map of Property belonging to the Heirs of Andrew Corsa
1854 MAP OF PROPERTY BELONGING TO THE HEIRS OF ANDREW
CORSA. SITUATED AT FORDHAM IN THE TOWN OF WEST FARMS,
COUNTY OF WESTCHESTER, NEW YORK. Plate 31, Map 317.
Repository: New York Public Library.
- Map Showing Details of the Lorillard Estate
1884 MAP SHOWING DETAILS OF THE LORILLARD ESTATE. Repository:
New York Public Library.
- Neff, Sydney
1851 MAP OF WESTCHESTER COUNTY, NEW YORK. Newell S. Brown,
White Plains, New York.

- NYBG
1991 THE NEW YORK BOTANICAL GARDEN MASTER PLAN, PHASE I,
1993-1999. New York Botanical Garden.
- 1977 NYBG DESIGN DEVELOPMENT PHASE OF ROADS/PARKING,
CIRCULATION AND MAIN GATE PROJECTS. New York Botanical
Garden.
- 1952 GENERAL PLAN. New York Botanical Garden.
- 1949 ROADS, PATHS, AND WATER MAINS, NYBG BOROUGH OF THE
BRONX. New York Botanical Garden.
- 1946 GENERAL PLAN. New York Botanical Garden.
- 1936 NEW YORK BOTANICAL GARDEN RECORD MAP OF DRAINS, SEWERS,
STEAM, WATER, AND UTILITIES. New York Botanical Garden.
- 1914 PART OF PLAN OF BRONX PARK. New York Botanical Garden.
- 1903 PLAN OF WIDE FLIGHT OF STEPS APPROACH TO HORTICULTURAL
HOUSE. Brinkely Consulting Engineers, Drawing 52B. New
York Botanical Garden.
- 1899 REVISED PLAN OF WALKS, DRIVES IN THE VICINITY OF THE
HORTICULTURAL HOUSES. New York Botanical Garden.
- 1897 GENERAL KEY PLAN OF THE LOCATIONS OF BUILDINGS. New
York Botanical Garden.
- 1896 GENERAL PLAN. New York Botanical Garden.
- New York City Department of Parks
1952 PAVING WITH ASPHALTIC CONCRETE ROADS IN THE VICINITY OF
ADMINISTRATION BUILDINGS AND PATHS NORTH OF WARING AVENUE,
PEDESTRIAN BRIDGE IN NYBG. New York City Department of
Parks.
- Robinson, Edward
1897 CERTIFIED COPIES OF MAPS OF THE ANNEXED DISTRICT.
County of Westchester. New York: E. Robinson.
- 1890 CERTIFIED COPIES OF IMPORTANT MAPS APPERTAINING TO
THE 23RD AND 24TH WARDS, CITY OF NEW YORK. Volume 2,
Plate 16. New York: E. Robinson.
- 1888 CERTIFIED COPIES OF IMPORTANT MAPS APPERTAINING TO
THE 23RD AND 24TH WARDS, CITY OF NEW YORK. Volume 1,
New York: E. Robinson.

Sanborn
1901 INSURANCE MAPS OF THE CITY OF NEW YORK. Sanborn-Perris,
New York.

Sauthier/Faden
1777 PLAN OF THE OPERATIONS OF THE KING'S ARMY UNDER THE
COMMAND OF GENERAL SR. WILLIAM HOWE, K.B. Repository:
Cooper Hewitt Museum, New York.

Sheil, Dennis
1891 MAP OF THE TOWN OF WESTCHESTER, WESTCHESTER COUNTY, NEW
YORK. Under Supervision of Ambrose Lee, Williamsbridge.

Topographical Bureau
1895 SECTION 28 OF FINAL MAPS AND PROFILES OF THE 23RD AND
24TH WARDS. Topographical Bureau, New York.

Viele, Egbert
1874 TOPOGRAPHICAL ATLAS OF THE CITY OF NEW YORK INCLUDING
ANNEXED TERRITORY. New York: Egbert L. Viele.

1869 MAP OF PROPERTY BELONGING TO THE ESTATE OF PETER
LORILLARD, DECEASED, SITUATED IN WESTCHESTER COUNTY,
NEW YORK. Egbert L. Viele, New York.

Westchester County Historical Society
1978 WESTCHESTER HERITAGE MAP: INDIAN OCCUPATION, COLONIAL
AND REVOLUTIONARY NAMES, STRUCTURES AND EVENTS. Roads
Originally Surveyed by Robert Erskine in 1778-1780.
The Junior League of Westchester-On-Hudson, Westchester
County Historical Society.

ILLUSTRATIONS



ILLUSTRATION 1: Example of New York Botanical Garden building impacts. NYBG Negative 4306, 1917



ILLUSTRATION 2: Trench for power line connection, powerhouse to conservatory. NYBG Negative N2969, 1915.

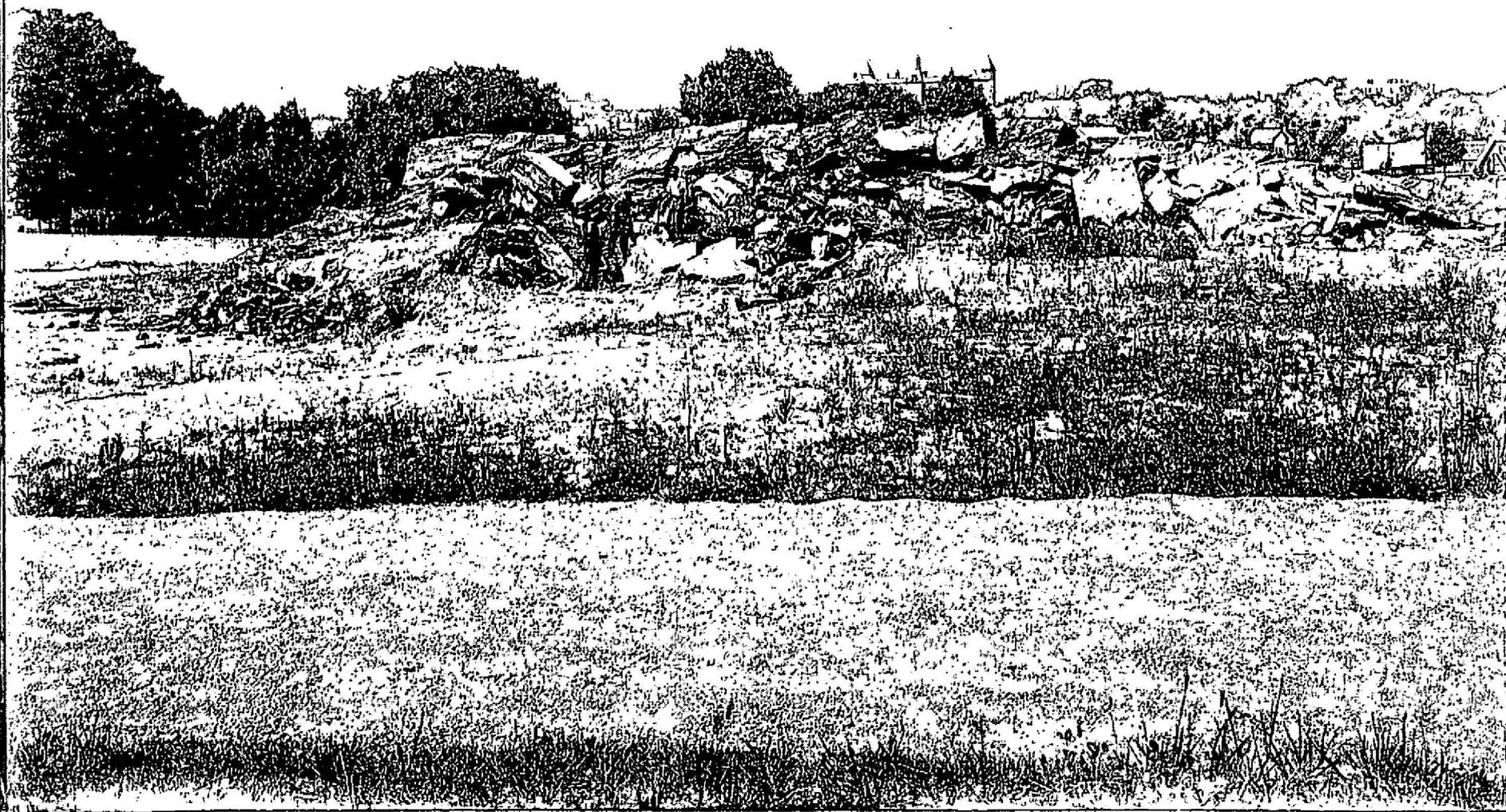


ILLUSTRATION 3: Quarrying in back of the Museum.
NYBG Negative N812-C14, 1911.



ILLUSTRATION 4: Extant Snuff Mill

A. With wooden addition on west side



B. The Snuff Mill as it currently appears
New York Botanical Garden Newsletter, April 1967



ILLUSTRATION 5: Old Hemlock Snuff Mill,
south of extant Snuff Mill. NYBG Negative 10527, nd.



ILLUSTRATION 6: Lorillard's Mansion "Rosedale" on rise over Bronx River. NYBG Negative N3824-U2175, 1915.

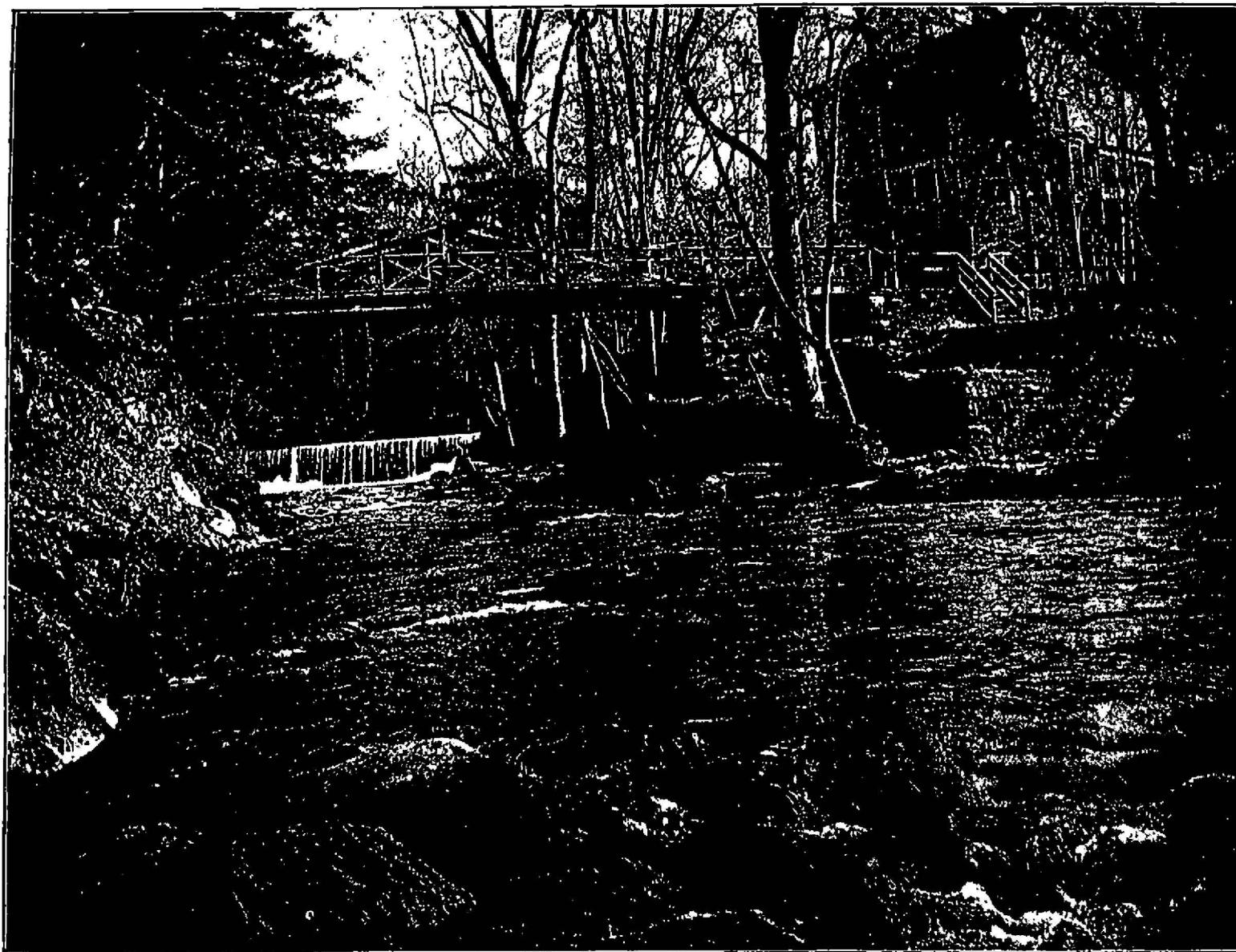


ILLUSTRATION 7: Back of Lorillard Mansion "Rosedale," waterfall,
and site of historical Snuff Mill. Source: Comfort 1906:67.



ILLUSTRATION 8: Lorillard Studio overlooking Bronx River.
Source: Comfort 1906:47.

FIGURES



Figure 1: NYBG Site Location
U.S.G.S. Topographic Quads: Central
Park and Flushing, 7.5' series

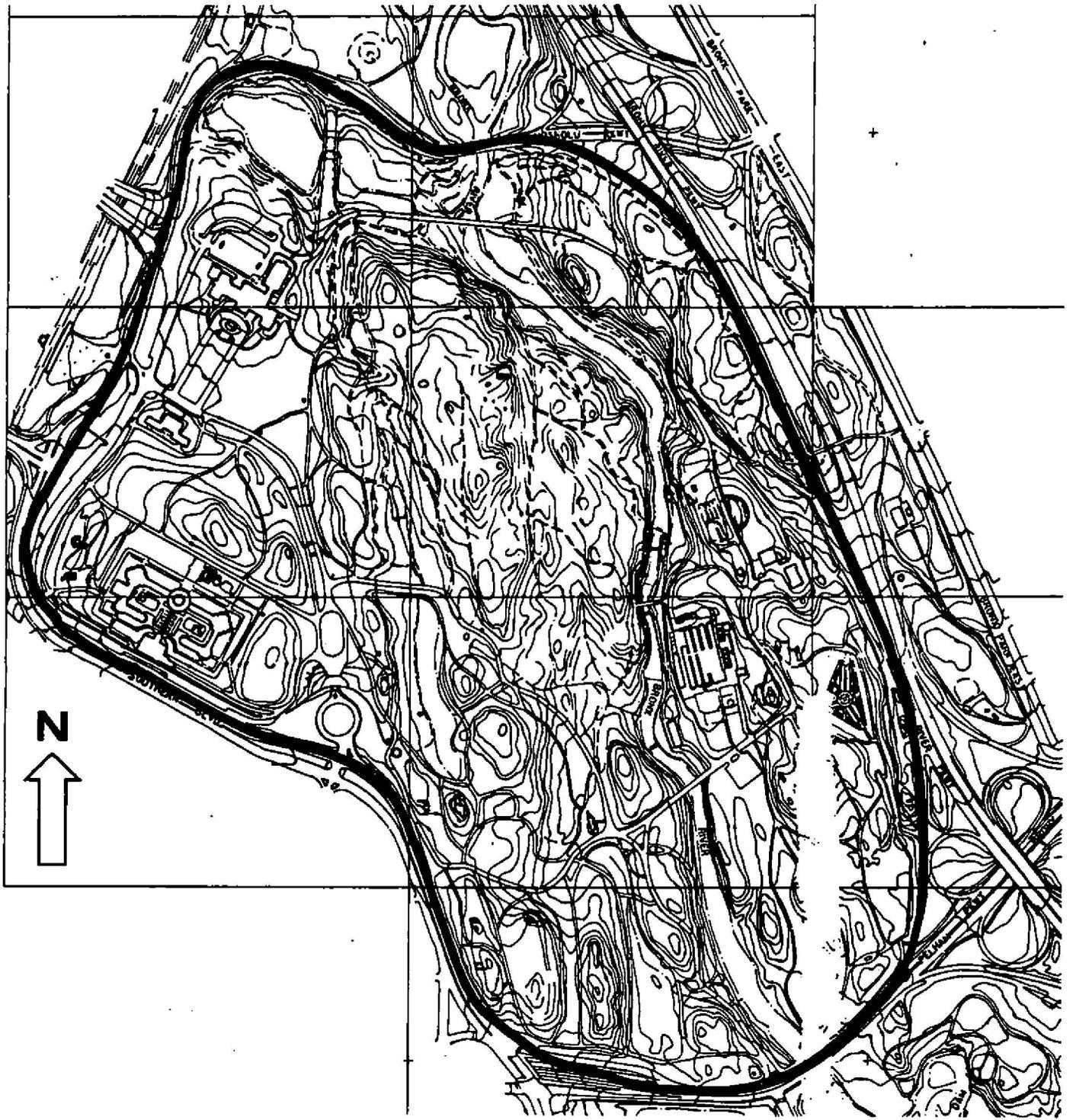
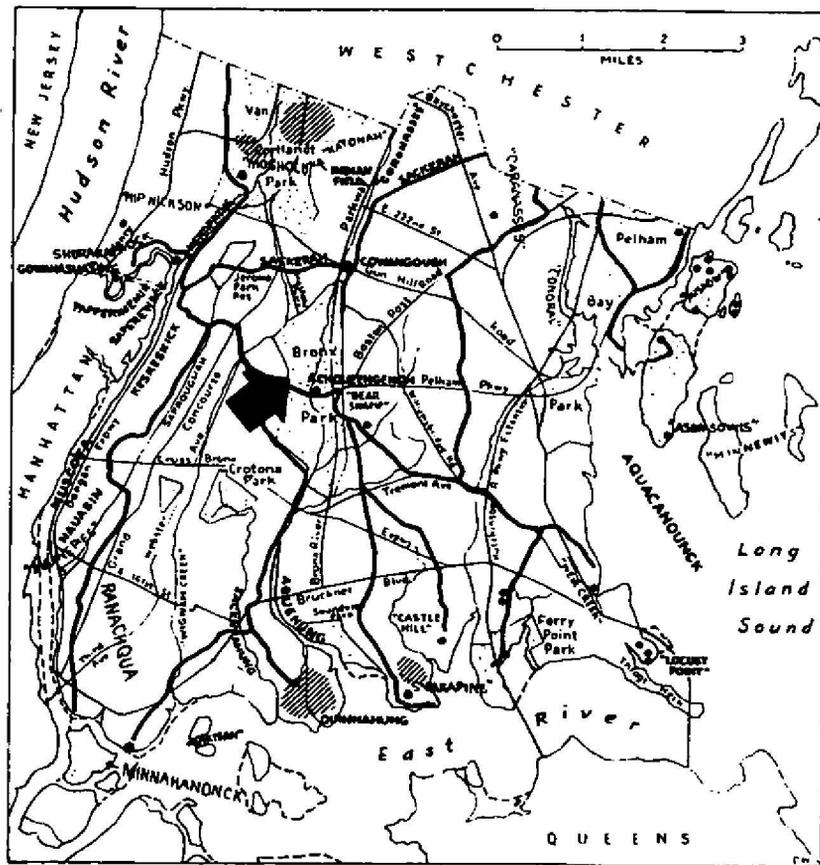


Figure 2: NYBG project site boundaries.

No scale.

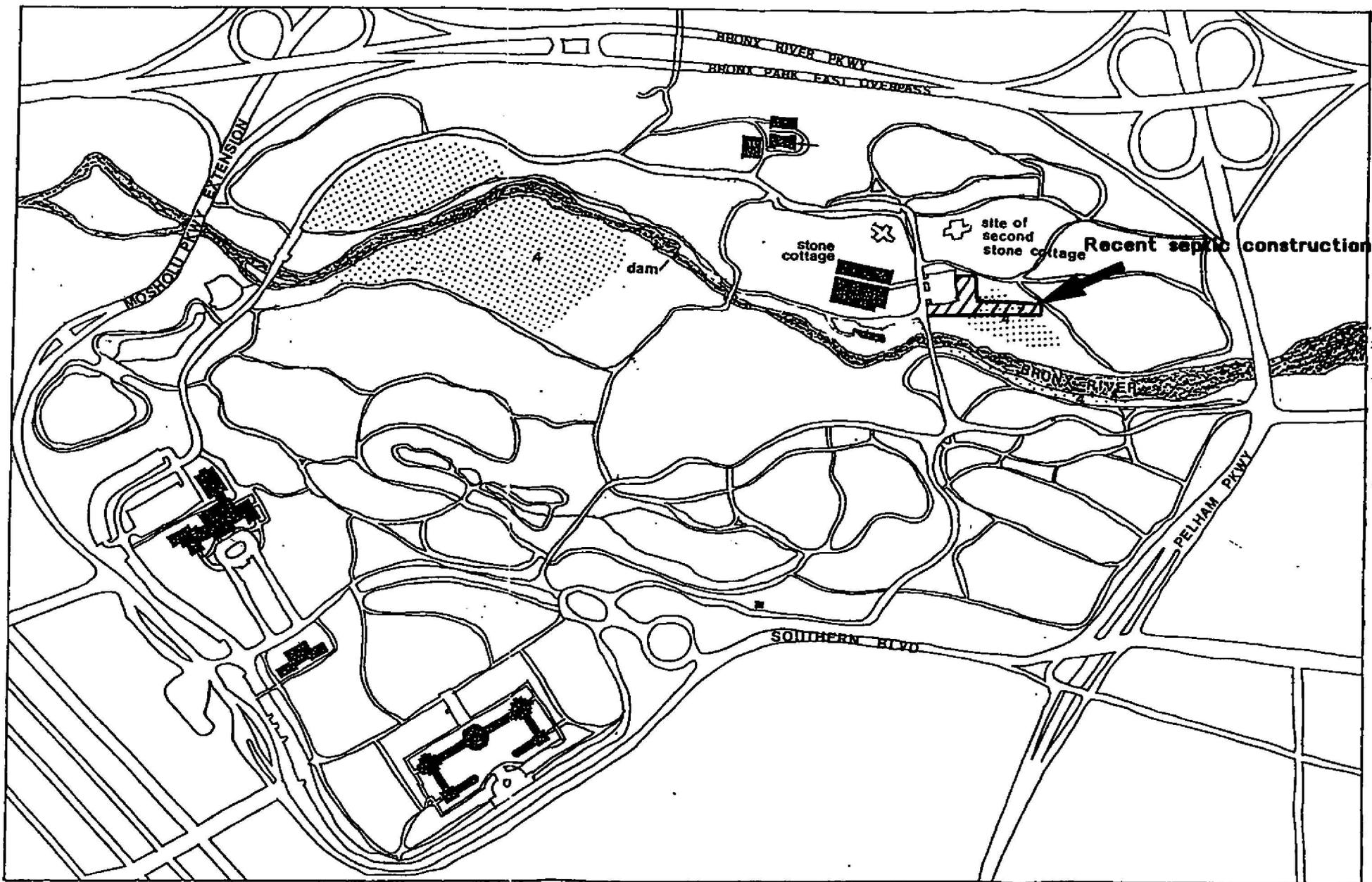


LEGEND FOR FIVE BOROUGH MAPS

-  TRAIL (AFTER BOLTON 1922)
-  PLANTING AREAS AND OLD FIELDS
- TRINEMAS INDIAN NAMES OF LOCAL ORIGIN
- 'ABIK' NAMES NOT OF LOCAL ORIGIN
-  HABITATION SITE
-  PRESENT-DAY CITY PARKS
-  MODERN SHORELINE
-  CEMETERY

Figure 3: Indian place names in the Bronx.

Source: Grumet 1981:69.



Prehistoric sensitivity zones.

no scale

N

Figure 4: NYCLPC archaeological sensitivity map.

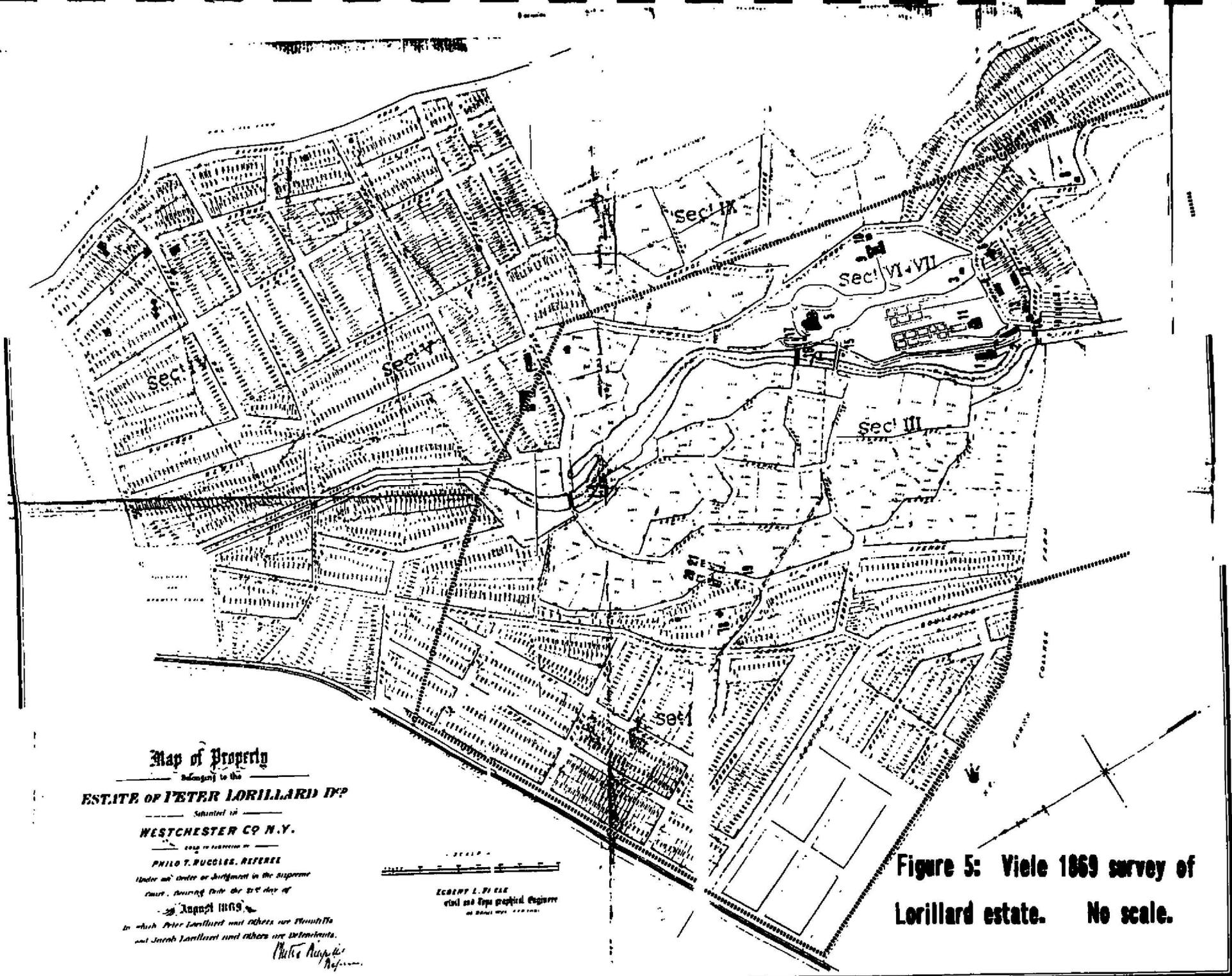
Source: NYCLPC 1991.

INVENTORY LIST FOR FIGURES 5-10

(* = extant)

- (1) * Stone Snuff Mill c.1840
National Register Site-potentially sensitive-minimal disturbance.
- (2) Mill Site south of Snuff Mill c.1800
Potentially sensitive-south half disturbed.
- (3) * Lorillard Stone Cottage c.1851
Potentially sensitive-extant.
- (4) Unlabeled Lorillard structure c.1851
No sensitivity-completely disturbed.
- (5) Lorillard Mansion, Rosedale, and dump c.1853
Potentially sensitive-buried beneath Children's Garden.
- (6) Lorillard Cross-Shaped Structure, second Stone Cottage c.1853
Potentially sensitive-undisturbed.
- (7) Lorillard Complex, northeast corner of estate c.1853
No sensitivity-disturbed.
- (8) Lorillard Lodge c.1868
Potentially Sensitive-undisturbed.
- (9) * Lorillard Stable c.1869
Potentially Sensitive-east of stable disturbed.
- (10) * Lorillard Stable outbuilding c.1869, replaced 1947-1952
No sensitivity-disturbed.
- (11) Lorillard Factory Complex building c.1869
No Sensitivity-disturbed.
- (12) Lorillard Factory Complex building c.1869
No Sensitivity-disturbed.
- (13) Lorillard Factory Complex building on east side of river
c.1869
No Sensitivity-disturbed.
- (14) Lorillard Factory Complex building on east side of river
c.1869
Potentially Sensitive-undisturbed
- (15) Mill and Building Near Waterfall c.1854, c.1869
Potentially Sensitive-undisturbed.
- (15a) Raceway and Water Control Device on Raceway c.1840, c.1873
Potentially Sensitive-undisturbed.
- (16) Possible structure or well near waterfall c.1869
Potentially Sensitive-undisturbed.
- (17) Lorillard Studio c.1869
Potentially Sensitive-undisturbed.
- (18) Cross Shaped Building west of river c.1869
No Sensitivity-disturbed.
- (19) Small building west of river c.1869
No sensitivity-disturbed.
- (20 & 21) Pair of parallel rectangular buildings, west of river
c.1869
No sensitivity-disturbed.
- (22) A.R. Nieleuhr house c.1872
No sensitivity-disturbed.
- (23) C.E. Westfall house c.1872
No sensitivity-disturbed.

- (24) **P. Duffy house c.1872**
No sensitivity-disturbed.
- (25) **Dunn house c.1872**
No sensitivity-disturbed.
- (26) **Shed Associated with Dunn house c.1873**
No sensitivity-disturbed.
- (27) **Shed East of Nieleuhr house c.1873**
No sensitivity-disturbed.
- (28) **Jesuit Cemetery c.1873**
Potentially Sensitive-undisturbed.
- (29) **Building off Southern Boulevard c.1874**
No sensitivity-disturbed.
- (30) **Building near bend in Southern Boulevard c.1882**
No sensitivity-disturbed.
- (31) **Building south end of rose beds c.1884**
No sensitivity-disturbed.
- (32) **Building north of rose beds, east of raceway c.1884**
Potentially sensitive-north half undisturbed.
- (33) **Building north of Rosedale, possible servants quarters c.1884**
Potentially sensitive-undisturbed.
- (34) **Building south of second stone cottage c.1884**
Potentially sensitive-undisturbed.
- (35) **Three small buildings, near Mosholu and Bronx River c.1884**
Potentially sensitive-undisturbed.
- (36) **Square Building West of Extant Snuff Mill c.1895**
Potentially sensitive-undisturbed.
- (37) *** NYBG Museum building 1900**
No sensitivity-not archaeologically important.
- (38) **NYBG Power House c.1897**
No sensitivity-disturbed.
- (39) **NYBG Public Closet c.1897**
No sensitivity-flooded.
- (40) **36" and 48" Water Mains c.1896**
No sensitivity-extant cast iron pipes.
- (41) *** NYBG Conservatory 1902**
No sensitivity-not archaeologically important.
- (42) **Director's House c.1897**
Potentially Sensitive-undisturbed.
- (43) **Octagonal Bandstand c.1914**
No Sensitivity-not archaeologically important.
- (44) *** Propagating House c.1914, replaced 1947-1952**
No sensitivity-not archaeologically important.
- (45) *** Greenhouses c.1914, replaced 1947-1952**
No sensitivity-not archaeologically important.
- (46) **Square building west of propagating house c.1914**
No sensitivity-not archaeologically important.



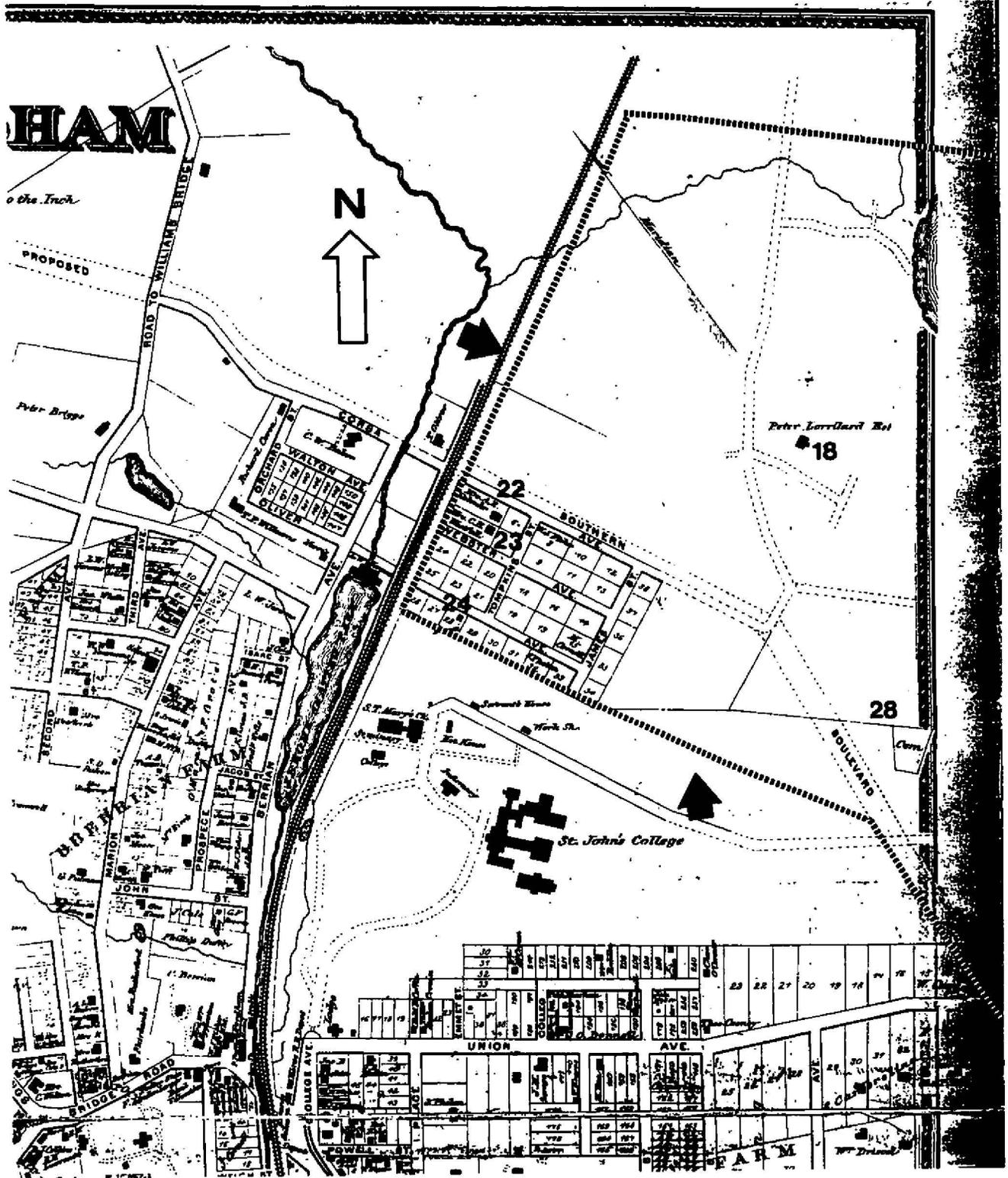


Figure 6: Bromley 1879 atlas.

Note cemetery (28) to right.

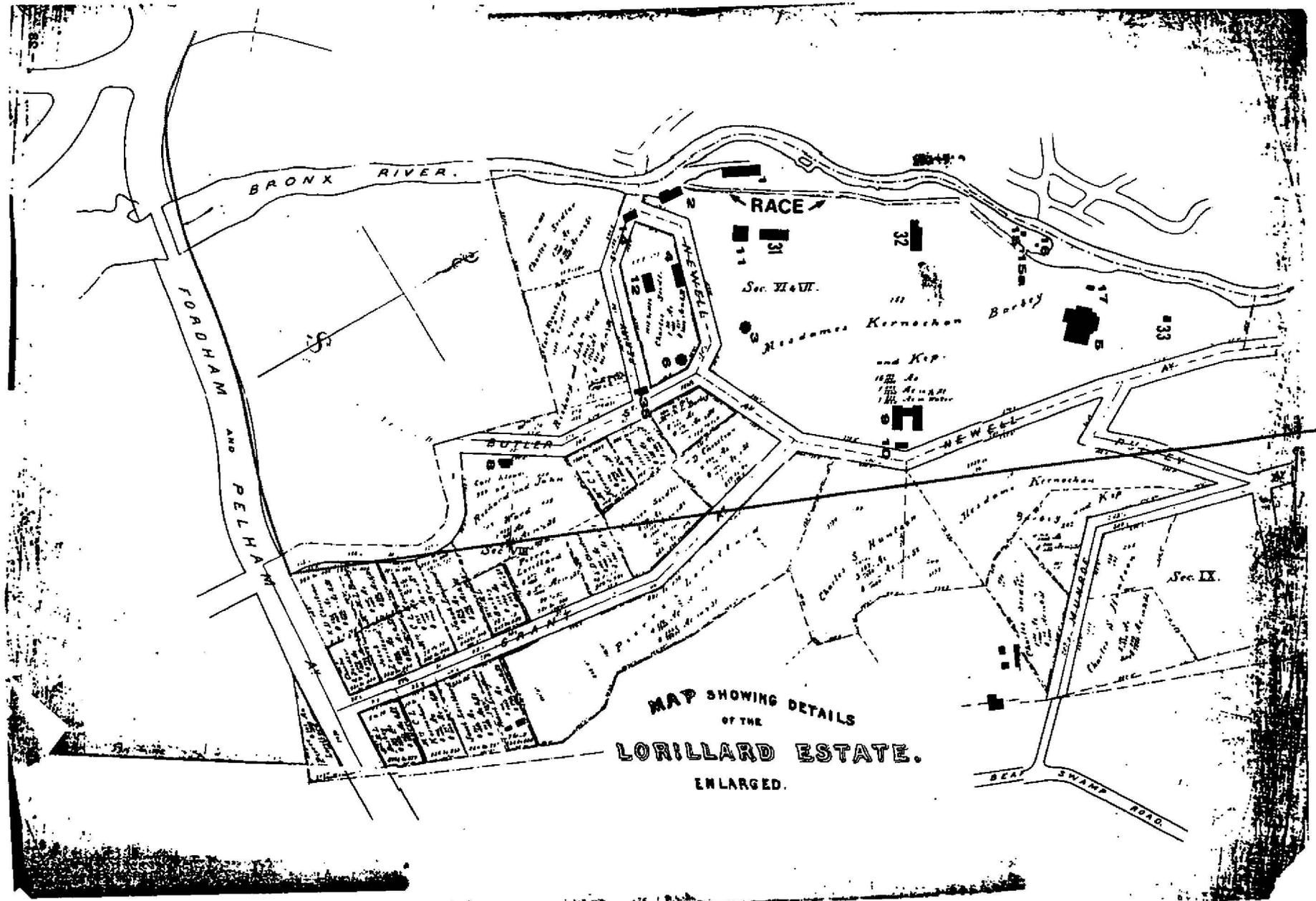


Figure 7: 1884 Map showing details of the Lorillard Estate. No scale.



Figure 8 continued



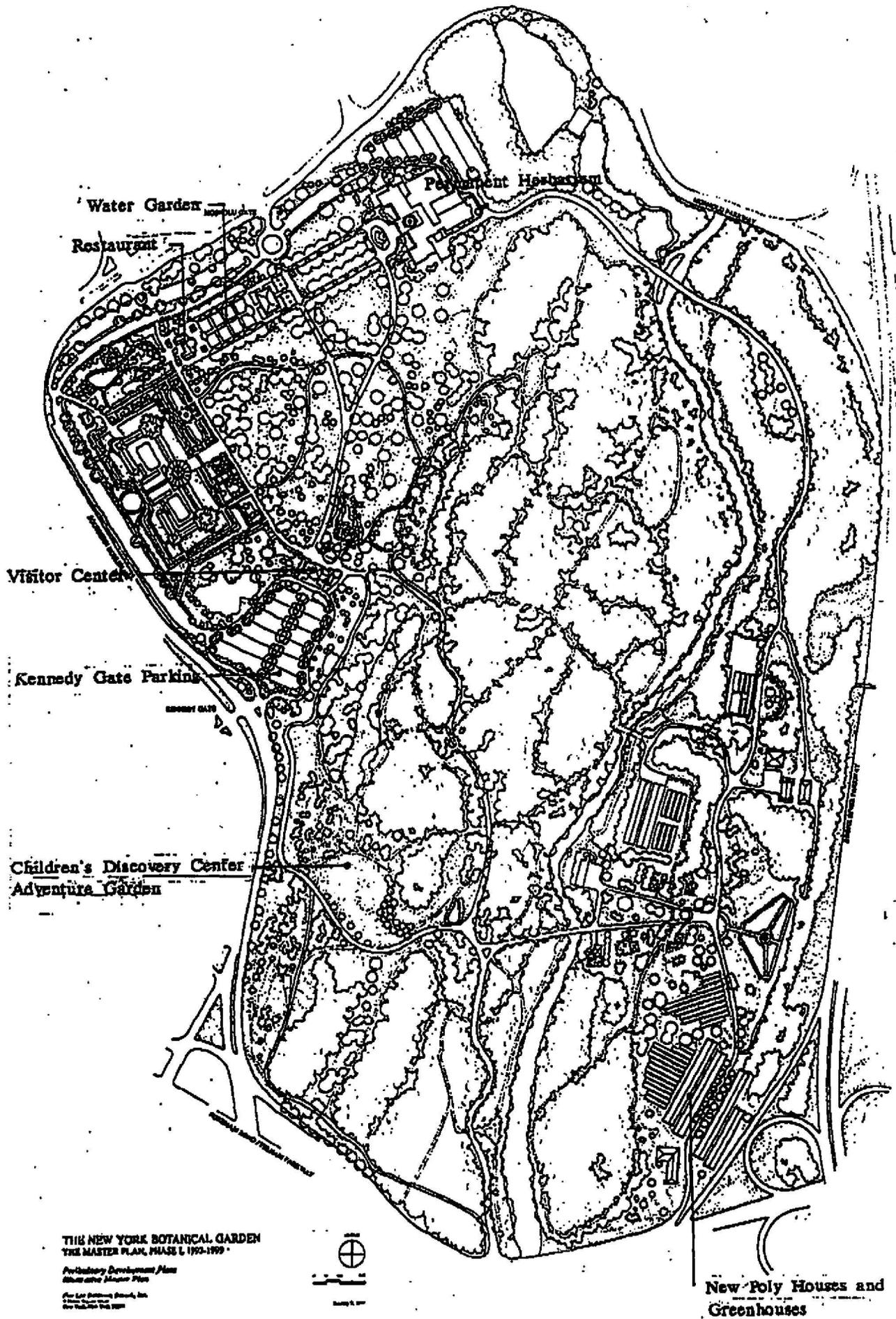


Figure 9: Proposed construction.

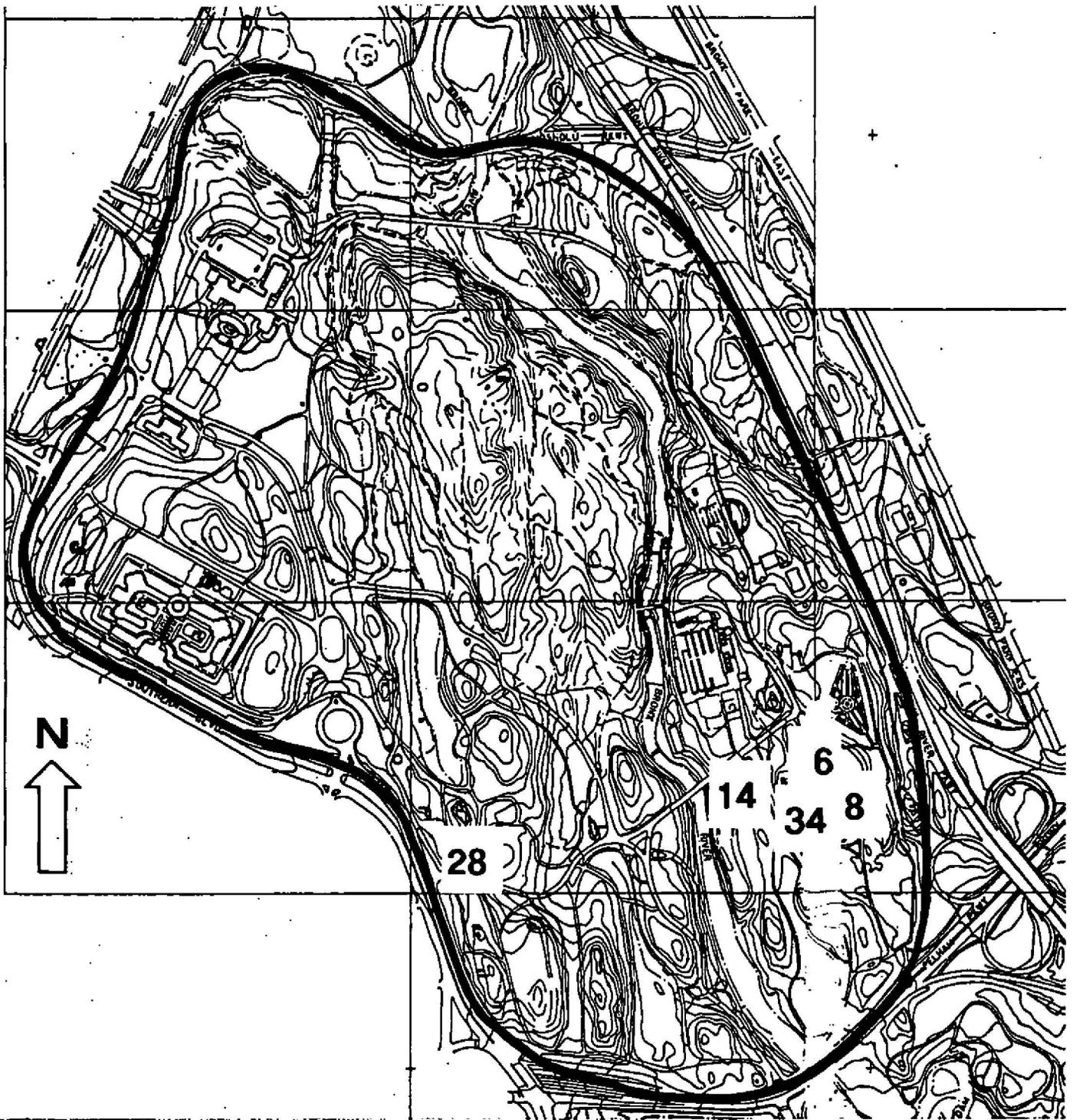
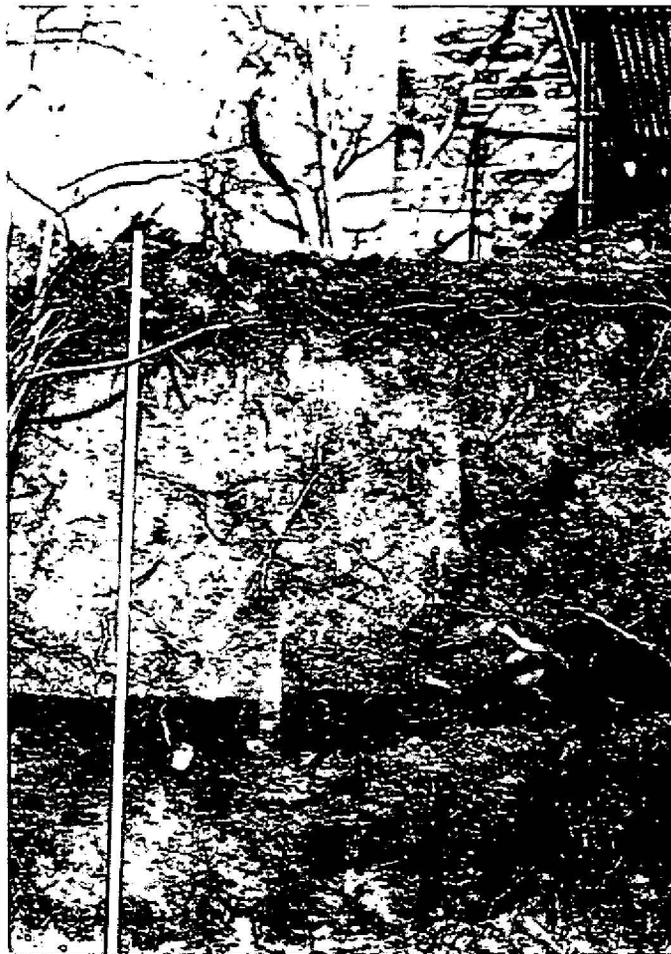


FIGURE 10: Archaeological features which may be impacted by proposed development.
No scale.

PHOTOGRAPHS



PHOTOGRAPH A1: Trench cut by south end of Snuff Mill, facing north.



PHOTOGRAPH A2: Trench cut profile, north wall.



PHOTOGRAPH B1: Lined fieldstone bordering east bank of Bronx River at site of Old Hemlock Snuff Mill. Facing northeast.



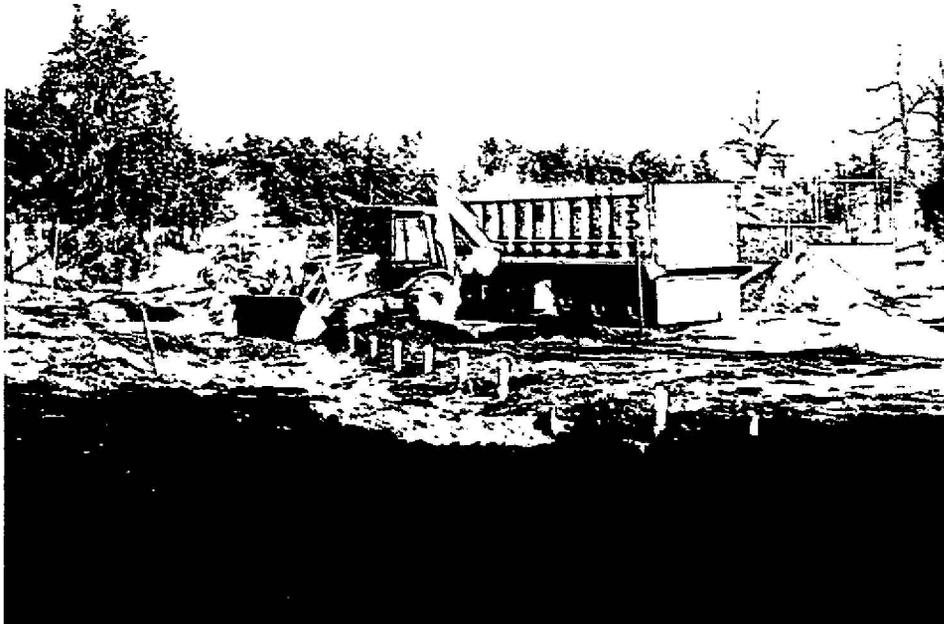
PHOTOGRAPH B2: Site of former Old Hemlock Snuff Mill partially obliterated by bridge. Facing south.



PHOTOGRAPH C: Approximate site of second stone cottage and possible octagonal bandstand, south of Snuff Mill Road. Facing south.



PHOTOGRAPH D1: Septic field construction south of Snuff Mill Road in approximate location of possible worker housing. Facing south.



PHOTOGRAPH D2: Backhoeing for septic field construction at approximate site of possible worker housing. Facing south.



PHOTOGRAPH E: Lucy Moses overlook and waterfall on Bronx River. Former site of old Snuff Mill, studio, raceway, and sluiceway. Facing south.



PHOTOGRAPH F: Approximate location of former Jesuit Cemetery between two knolls on Daffodil Hill. Facing south.



PHOTOGRAPH G: Site of former structures on northeast corner of Lorillard Estate. Remnants of fieldstone foundation or wall to right. Facing north.



PHOTOGRAPH H: New York Botanical Garden Museum. Facing northeast.



PHOTOGRAPH I: Site of former Director's House near northeast part of NYBG. Facing east.



PHOTOGRAPH J: Harding Laboratory. Facing southeast.

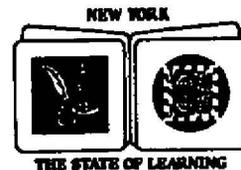


PHOTOGRAPH K: Hemlock Forest prehistoric sensitivity zone. Facing southwest towards previously investigated rockshelter site.

APPENDICES

- A. New York State Museum Correspondence
- B. Inventory of Artifacts From Slope Near Lorillard Mansion Site

A



THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, N.Y. 12230

NEW YORK STATE MUSEUM
HISTORICAL AND ANTHROPOLOGICAL SURVEYS

NEW YORK STATE MUSEUM
Prehistoric Site File
RM 3122
Cultural Education Center
Albany, N.Y. 12230
Page 1 of 2

DATE: 12/8/92

To:
CECE KIRKORIAN
HISTORICAL PERSPECTIVES
P.O. BOX 331
RIVERSIDE, CT 06878

Proposed Project: BEDFORD PARK PROJECT
7.5' U.S.G.S. Quad: CENTRAL PARK+

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

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

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

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

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

RESULTS OF THE FILE SEARCH:

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

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

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

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

12/8/92 To: CECE KIRKORIAN, HISTORICAL PERSPECTIVES

Project: BEDFORD PARK PROJECT Topo. Maps: CENTRAL PARK +
BIA (initials) Anthropological Survey, NYSM

New York State Museum Prehistoric Archaeological Site Files
EVALUATION OF ARCHAEOLOGICAL SENSITIVITY FOR PREHISTORIC (NATIVE AMERICAN) SITES
Examination of the data suggests that the location indicated has the following sensitivity rating:

HIGH PROBABILITY OF PRODUCING PREHISTORIC ARCHAEOLOGICAL DATA.

The reasons for this finding are given below:

- A RECORDED SITE IS INDICATED IN OR IMMEDIATELY ADJACENT TO THE LOCATION AND WE HAVE REASON TO BELIEVE IT COULD BE IMPACTED BY CONSTRUCTION.
- A RECORDED SITE IS INDICATED SOME DISTANCE AWAY BUT DUE TO THE MARGIN OF ERROR IN THE LOCATION DATA IT IS POSSIBLE THE SITE ACTUALLY EXISTS IN OR IMMEDIATELY ADJACENT TO THE LOCATION.
- THE TERRAIN IN THE LOCATION IS SIMILAR TO TERRAIN IN THE GENERAL VICINITY WHERE RECORDED ARCHAEOLOGICAL SITES ARE INDICATED.
- THE PHYSIOGRAPHIC CHARACTERISTICS OF THE LOCATION SUGGEST A HIGH PROBABILITY OF PREHISTORIC OCCUPATION OR USE.
- THE PHYSIOGRAPHIC CHARACTERISTICS OF THE LOCATION SUGGEST A MEDIUM PROBABILITY OF PREHISTORIC OCCUPATION OR USE.
- THE PHYSIOGRAPHIC CHARACTERISTICS OF THE LOCATION SUGGEST A LOW PROBABILITY OF PREHISTORIC OCCUPATION OR USE.
- EVIDENCE OF CULTURAL OR NATURAL DESTRUCTIVE IMPACTS SUGGESTS A LOSS OF ORIGINAL CULTURAL DEPOSITS IN THIS LOCATION.
- THE PHYSIOGRAPHIC CHARACTERISTICS OF THE LOCATION ARE MIXED, A HIGHER THAN AVERAGE PROBABILITY OF PREHISTORIC OCCUPATION OR USE IS SUGGESTED FOR AREAS IN THE VICINITY OF EITHER PRESENT OR PREEXISTING BODIES OF WATER, WATERWAYS, OR SWAMPS. A HIGHER THAN AVERAGE PROBABILITY IS SUGGESTED FOR ROCK FACES WHICH AFFORD SHELTER OR FOR AREAS SHELTERED BY BLUFFS OR HILLS. AREAS IN THE VICINITY OF CHERT DEPOSITS HAVE A HIGHER THAN AVERAGE PROBABILITY OF USE. DISTINCTIVE HILLS OR LOW RIDGES HAVE AN AVERAGE PROBABILITY OF USE AS A BURYING GROUND. LOW PROBABILITY IS SUGGESTED FOR AREAS OF EROSIONAL STEEP SLOPE.
- PROBABILITY RATING IS BASED ON THE ASSUMED PRESENCE OF INTACT ORIGINAL DEPOSITS, POSSIBILITY UNDER FILL, IN THE AREA. IF NEAR WATER OR IF DEEPLY BURIED, MATERIALS MAY OCCUR SUBMERGED BELOW THE WATER TABLE.
- INFORMATION ON OTHER SITES MAY BE AVAILABLE IN A REGIONAL INVENTORY MAINTAINED AT THE FOLLOWING LOCATION(S).

COMMENTS:

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



DIXIE'S

CROTONA

FROSTING

Map labels include: Van Cortlandt Lake, Moshulu Park Golf Course, Kings Bridge, Jerome Reservoir, University Heights, Fordham University, East Tremont, Crotona Park, Van Nest, West Farms, and Parkchester. Street names such as Deegan Ave, Webster Ave, and the FDR Expressway are also visible.

JES

CULDEWEN EDUCATION CENTER
ALBANY, NEW YORK 12230

NEW YORK STATE MUSEUM: OFFICE OF THE STATE ARCHEOLOGIST
PREHISTORIC SITE PROJECT SCREENING FILE: USE REQUEST FORM

Screening file site locations are by generalized .5 mile circle.

NAME Cece Kirkorian

BUSINESS ADDRESS P.O. Box 331 Riverside, CT 06878

AGENCY/COMPANY/INSTITUTION REPRESENTED Historical Perspectives PHONE # (203) 688-1147

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

EVENTUAL DISTRIBUTION OF DATA: (Specify range of data use and distribution, publication, reproduction, etc.)
client, municipality & review agency

REQUESTED APPOINTMENT: Appointments are on the hour between 9 a.m. and 12 noon on Wednesdays.

1st Choice _____ date _____ time (or any) 2nd Choice _____ date _____ time (or any)

Appointments may be made by phone on Tuesday mornings or may be requested by mail. Requests should be mailed at least 2 weeks in advance of appointment date. You will be notified of your appointment date by mail.

U.S.G.S. 7.5' MAPS REQUESTED: (indicate if 15' maps)

Central Park Flushing Mount Vernon Yonkers

FOR THE FOLLOWING PLEASE ATTACH
a copy of: 1. The project map
2. Site data list

The following site(s) may be within
or adjacent to the project area.
If so, please provide the
location of:

SITE #.	7.5' MAP
<u>none</u>	_____
_____	_____
_____	_____
_____	_____

Further listings on back

I understand that the information provided is to be used solely for the preparation of an environmental impact statement as required by State or Federal law and must be marked and maintained as 'Confidential': for use only as required by State or Federal Law or with the written permission of the State Archeologist.

Teri Blain 11/17/92
(Signature) (Date)

Please provide a sensitivity rating for the attached project area

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

File No. 1
011/90

ARCHAEOLOGICAL SITE FILE SEARCH
NEW YORK STATE MUSEUM
CULTURAL EDUCATION CENTER
ALBANY, NEW YORK

YSM SITE #	OTHER SITE #	SITE NAME	TIME PERIOD	SITE TYPE	SOURCE OF DATA	15' QD NAME	7.5 QUAD NAME	REPORTER NAME	PROJECT NAME OR #
39	ACP Brnx-17				village				
42	ACP NYRK-3				village/shell midden				
55	ACP NYRK-65				village/undefined				
56	ACP NYRK-6				Indian trails/rockshelters				
521	ACP Brnx				traces of occup.				
522	ACP Brnx				traces of occup.				

B

A SAMPLING OF MATERIAL FOUND BY DR. ALAN GILBERT
(location: the slope to the rear of the Lorillard Mansion site
between the mansion and the river.)

BUILDING MATERIALS

Nail, wrought
Sash weight, iron
Slate, roof

CERAMICS

Earthenware, white
Earthenware, red, lead glazed, slip decorated
Ironstone, transfer printed
Jug marked the "Tappit Hen"
Pearlware, shell-edged
Stoneware, what appears to be a graduation day celebration mug
Stoneware, blue decorated, salt glazed

GLASS

Medicine bottles, including:
- Mrs. Winslow's Soothing Syrup
The Anglo-American Drug Co., successor to
Curtis & Perkins Proprietors*
Milk glass
Pontil bases of dark green bottles
Pressed glass tableware, possible lamp base
Solarized bottle glass

FAUNAL REMAINS

Butchered bone
Oyster Shell

MISCELLANEOUS

Button, Mother-of-Pearl

*Ketchum, William C. Jr., Collecting Bottles for Fun and Profit.
HP Books, Tucson AZ. 1985. Page 22. A "great pacifier for
crying children", no doubt because opium was the main
ingredient. Probably discontinued by 1907, with passage of
the Pure Food and Drug Act that required listing of ingredients.
Kovel, Ralph and Terry, Kovels' Bottles Price List. Crown
Publishers, Inc., N.Y. 1987. Page 101. Prices range from \$12-
15, neither very low nor very high as bottles prices go.
Tom Baptist, bottle collector (203) 622-7700. Personal
communication to Martha Cobbs, 1/26/93. This was a very
popular medicine, with tens of thousands of bottles made. It
was available from about 1860 to the turn of the century, but
exact dating is impossible without either a base or neck,
because there were such drastic changes in manufacturing during
that 40 year span.