

CULTURAL RESOURCE ASSESSMENT PROPOSED CROTON WATER TREATMENT PLANT JEROME PARK RESERVOIR KINGSBRIDGE, BRONX, NEW YORK

CEQR NO. 98DEP027 SEQR NO. 98PRO056

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EXECUTIVE SUMMARY

Introduction



The New York State Department of Health and the United States Environmental Protection Agency have mandated the filtration of the Croton Water Supply to comply with the standards set in state sanitary codes and the Federal Surface Water Treatment Rule. Therefore, the New York City Department of Environmental Protection Bureau of Water Supply (NYCDEP), proposes to design and construct a new water treatment plant at one of seven locations. One of these is the Jerome Park Reservoir (JPR), Borough of the Bronx, City of New York. The reservoir is an important element in New York City's water system and its construction in the early twentieth century reflects the evolution of the water system as the city expanded.

Jerome Park Reservoir is bounded by Reservoir Avenue to the south, Sedgwick Avenue to the west, and north, and Goulden Avenue to the east. The 92-acre Jerome Park Reservoir is an open concretebottom basin formed of vertical stone-masonry walls and earth embankment. The existing 1,500-foot long Dividing Wall forms two separate basins. The maximum water level in the Reservoir is at Elevation 135 feet above sea level (ASL) and the top of the Dividing Wall is at Elevation 140 feet ASL. The existing reservoir concrete floor varies between Elevations 109 and 110 ASL. The east perimeter wall of the Reservoir is made of stone and rubble masonry with top elevation of 139.5 feet ASL. Within the upper portions of this wall, there are two brick-lined aqueducts of horseshoe shape: the Old Croton Aqueduct, which is no longer in service, and the New Croton Branch Aqueduct which discharges into the southern end of the Reservoir through the South Portal. The two structures are approximately two feet apart with the Old Croton Aqueduct on the reservoir side. The New Croton Aqueduct passes under pressure approximately 100 feet below the floor of the Reservoir and is connected to Shaft No. 21 on the north side of the Dividing Wall.

Proposed Construction

The proposed alternatives include eight different project footprints for the Jerome Park Reservoir (JPR) site (Table 1). These range from a 14 acre footprint in the south basin if the Water Treatment Plant (WTP), Treated Water Reservoir (TWR), and Finished Water Pumping Station (FWPS) are built at JPR to some below-ground connections to existing piping if the WTP, TWR, and FWPS are built elsewhere. An intermediate impact would occur if the WTP is sited at another site and a 9.5 acre TWR, FWPS, and Low Lift Pump Station (LLPS) were built in the north basin of JPR.

The JPR site is on property owned by the City of New York and in use as a open finished water reservoir. Related facilities, including several gate houses around the site, would be architecturally stabilized but otherwise unimpacted by the proposed action. The existing demonstration plant on Goulden Avenue, a temporary structure, would be demolished and the area converted for park-like use.

All the alternative structures that are proposed would be built with flat roofs and covered with grass, and publicly accessible walkways. For the alternative of a TWR and FWPS the low-lying structure would provide a wide, grass-covered bridge that would link Fort Independence Park to Goulden Avenue across from Harris Park. Existing parking currently utilized by Lehman College along Goulden Avenue would be either restored after construction or replaced by a garage adjacent to the WTP facility. Any parking that would be taking during construction, would be replaced within the drained side of the reservoir. Truck access to the WTP or FWPS would be from a new driveway off Goulden Avenue which would drop down into the plant below grade.

If another alternative site is selected for the water treatment plant, the use of the Jerome Park Reservoir and some or all of its facilities may no longer be required for water supply purposes. The reservoir and these facilities may then be decommissioned as part of the project, and converted to other uses. However, the existing superstructures of gate houses (2, 3, 5, 6, and 7) associated with the JPR would be preserved by the NYCDEP. New subsurface pipe connections to the existing gate house substructures may be necessitated, but there would be no negative structural impacts to any of the existing gate houses superstructures.

Cultural Resource Assessment

Part of the required Environmental Impact Statement for the site, prepared by Metcalf & Eddy and Hazen and Sawyer and sponsored by the NYCDEP, includes identifying any potential cultural resources within each proposed WTP site, and assessing impacts which may be caused by the proposed construction. The following Stage 1A evaluation, prepared by Historical Perspectives, Inc. has assessed the existing, no build, and build conditions at the Jerome Park Reservoir site.

The project site includes the Jerome Park Reservoir complex, encompassing the basin and surrounding embankments, the subsurface Mosholu Pumping Station at the corner of Goulden and Sedgwick Avenues, the gate houses west of Goulden Avenue on Lots 1 and 2 of city Block 3246, and the Jerome Avenue Pump Station on Lots 401 and 9401 of Block 3251 at Jerome Avenue.

. The **impact area** is limited to those areas within the project site which will be directly disturbed by the proposed construction. Archaeological potential is assessed both for the project site and the impact area.

The study area, as per suggested New York City Environmental Quality Review (NYCEQR) Manual guidelines, included both the project site and areas within 400 feet of the DEP boundary fence. Architectural features are assessed for those on-site buildings and structures which will be directly impacted, and for those buildings and structures within the larger study area which may experience secondary impacts.

The cultural resource analysis assessed the potential for prehistoric and historical cultural resources, both archaeological and structural, to have initially been deposited or built on the project site, and whether there are any potentially significant resources remaining intact.

Existing Conditions

Although most of the project site probably once held archaeological deposits dating to the prehistoric era, the late colonial period, and the late nineteenth century, there is very little potential for these types of archaeological resources to still exist. Due to massive topographic changes required during

the ca. 1905 construction of the reservoir, which lowered the grade elevation between 15 and 50 feet, there are very limited possibilities for intact archaeological resources in the lands immediately surrounding the basin.

The Jerome Park Reservoir and extant gate houses surrounding the reservoir (2, 3, 5, 6, and 7) appear to be eligible for National Register Listing and/or New York City Landmark Designation (Gina Santucci, NYCLPC; Shaver 1994). At this time, National Register nomination has not been pursued. The major architectural feature of the reservoir structure itself is the low ring wall of massive rock-faced stone blocks. At the west and much of the north sides, the reservoir wall is built above the level of the street and the water is not visible. The brick gate house superstructures are located along the periphery of the basin walls. The National Register eligible Old Croton Aqueduct and New Croton Branch Aqueduct both run through the eastern reservoir wall. The National Register eligible New Croton Aqueduct runs beneath the reservoir, paralleling Goulden Avenue.

Not directly adjacent to the reservoir but associated with it historically is the Jerome Avenue Pump Station (a.k.a. "High Pumping Station"). It is a designated New York City Landmark and is listed on the National Register of Historic Places. Gate House 4 and the Mosholu Pump Station, both subsurface features associated with the Jerome Park Reservoir, fall far outside of the Study Area.

Impacts and Recommendations

The construction of the proposed structures within the JPR would represent a negative impact on the historically important JPR. A portion of the eastern reservoir wall would be destroyed, a section of the reservoir would be filled in, and a section of the historically significant Old and New Croton Aqueducts would be altered by the creation of a new connection.

The north and/or south basin of the JPR would be temporarily drained and used for worker parking for any of the proposed CWTP alternatives. In the event that this is realized, parking areas any construction necessary to create them may cause an adverse impact.

The adjacent Jerome Avenue Pump Station ("High Pumping Station") is a designated New York City Landmark and is listed on the National Register of Historic Places. Temporary visual impacts are anticipated to this structure by the construction of the proposed structures within JPR, however no negative impacts are anticipated with construction within the reservoir basin.

The existing superstructures of gate houses (2, 3, 5, 6, and 7) associated with the JPR would be preserved by the NYCDEP. Therefore, there would be no negative structural impacts to any of the existing gate house superstructures.

There are no anticipated impacts to any archaeologically sensitive areas, including subsurface gate house 4 or the Mosholu Pump Station.

It would be difficult to mitigate the impact of this significant addition to the reservoir. Should this proposal be selected, the portions of the reservoir wall and the two aqueducts should be carefully recorded and photographed. If possible, all pieces removed should be salvaged and stored in a secure

location so that these elements could be used for future restoration projects elsewhere along the reservoir's wall. In addition, the design should be as sensitive as possible, with efforts made to create a structure that would have minimal visual impact.

The proposal to landscape the roof tops of the new facilities would be a positive mitigation effort, but it would not fully mitigate the physical division of the reservoir and the significant visual impact of the buildings. The link between Fort Independence Park and Goulden Avenue might be an amenity appreciated by the neighborhood and the idea should be discussed with representatives of local community groups and the local Community Board, should this alternative be chosen.

If the north and/or south basins of the JPR are temporarily drained and used for worker parking for any of the proposed CWTP alternatives, impacts to this historically important resource can be mitigated by ensuring that it is returned to its pre-construction configuration. Pre-construction site documentation for the proposed parking area would aid in returning the site to its former state.

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INTRODUCTION

The New York State Department of Health and the United States Environmental Protection Agency have mandated the filtration of the Croton Water Supply to comply with the standards set in state sanitary codes and the Federal Surface Water Treatment Rule. Therefore, the New York City Department of Environmental Protection (NYCDEP) Bureau of Water Supply, proposes to design and construct a new water treatment plant (WTP) at one of seven locations. One of these is the Jerome Park Reservoir (JPR), Borough of the Bronx, City of New York. A Dividing Wall currently spans the reservoir, separating it into north and south basins (Figures 1, 2).

Jerome Park Reservoir is bounded by Reservoir Avenue to the south, Sedgwick Avenue to the west, and north, and Goulden Avenue to the east. The 92-acre Jerome Park Reservoir is an open concretebottom basin formed of vertical stone-masonry walls and earth embankment. The existing 1,500-foot long Dividing Wall forms two separate basins. The maximum water level in the Reservoir is at Elevation 135 feet above sea level (ASL) and the top of the Dividing Wall is at Elevation 140 feet ASL. The existing reservoir concrete floor varies between Elevations 109 and 110 ASL. The east perimeter wall of the Reservoir is made of stone and rubble masonry with top elevation of 139.5 feet ASL. Within the upper portions of this wall, there are two brick-lined aqueducts of horseshoe shape: the Old Croton Aqueduct, which is no longer in service, and the New Croton Branch Aqueduct which discharges into the southern end of the Reservoir through the South Portal. The two structures are approximately two feet apart with the Old Croton Aqueduct on the reservoir side. The invert elevation of the 11.4-foot by 12.5-foot New Croton Branch Aqueduct is 121.7 feet ASL and the invert elevation of the 7.4-foot by 8.5-foot Old Croton Aqueduct is 123.5 feet ASL. Both tunnels were laid on a grade of 0.7 foot per mile toward the south. The New Croton Aqueduct passes under pressure approximately 100 feet below the floor of the Reservoir and is connected to Shaft No. 21 on the north side of the Dividing Wall.

Proposed Construction

The proposed alternatives include eight different project footprints for the Jerome Park Reservoir (JPR) site (Table 1). These range from a 14 acre footprint in the south basin if the Water Treatment Plant (WTP), Treated Water Reservoir (TWR), and Finished Water Pumping Station (FWPS) are built at JPR to some below-ground connections to existing piping if the WTP, TWR, and FWPS are built elsewhere. An intermediate impact would occur if the WTP is sited at another site and a 9.5 acre TWR, FWPS, and Low Lift Pump Station (LLPS) were built in the north basin of JPR.

The JPR site is on property owned by the City of New York and in use as a open finished water reservoir. Related facilities, including several gate houses around the site, would be architecturally stabilized but otherwise unimpacted by the proposed action. The existing demonstration plant on Goulden Avenue, a temporary structure, would be demolished and the area converted for park-like use.

All the alternative structures that are proposed would be built with flat roofs and covered with grass, and publicly accessible walkways. For the alternative of a TWR and FWPS the low-lying structure

would provide a wide, grass-covered bridge that would link Fort Independence Park to Goulden Avenue across from Harris Park. Existing parking currently utilized by Lehman College along Goulden Avenue would be either restored after construction or replaced by a garage adjacent to the WTP facility. Any parking that would be taking during construction, would be replaced within the drained side of the reservoir. Truck access to the WTP or FWPS would be from a new driveway off Goulden Avenue which would drop down into the plant below grade.

If another alternative site is selected for the WTP, the use of the Jerome Park Reservoir and some or all of its facilities may no longer be required for water supply purposes. The reservoir and these facilities may then be decommissioned as part of the project, and converted to other uses.

In all proposed construction scenarios, the existing superstructures of gate houses associated with the JPR will be preserved by the NYCDEP. New pipe connections to the existing gate house substructures may be necessitated.

Cultural Resource Assessment

Part of the required Environmental Impact Statement for the site, prepared by Metcalf & Eddy and Hazen and Sawyer and sponsored by the NYCDEP, includes identifying any potential cultural resources within each proposed WTP site, and assessing impacts which may be caused by the proposed construction. In order to address the concerns of the New York City Landmarks Preservation Commission (NYCLPC) and the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP), Historical Perspectives, Inc., was contracted to perform a Stage 1A documentary analysis and supplemental field survey to determine existing, no build, and build conditions at each site. Archaeological potential is assessed both for the project site and the impact area, while the potential for historic resources to exist is assessed for the greater study area.

Project Site. The project site includes the Jerome Park Reservoir (JPR) complex, encompassing the north and south basins and surrounding embankments, the subsurface Mosholu Pumping Station at the corner of Goulden and Sedgwick Avenues, the gate houses west of Goulden Avenue on Lot 1 of city Block 3246, and the Jerome Avenue Pump Station on Lots 401 and 9401 of Block 3251 at Jerome Avenue. The project site also includes the Old and New Croton Aqueducts which run through the eastern reservoir wall. In the following discussion, the project site is defined to include all of the above listed features (Figure 2).

Impact Area. The impact area is confined to those places within the project site which will be physically impacted by proposed construction.

Study Area. The study area includes both the project site and structures bordering both sides of tangential Goulden and Sedgwick Avenues. The study area, as per suggested NYC CEQR Manual guidelines, included both the project site and areas within 400 feet of the DEP boundary fence. Potential historic resources were assessed within the greater study area.

This documentary assessment of cultural resources entailed evaluating the land use history of the site, both vertically and horizontally, through historical accounts, the cartographic record, and soil borings analysis. Potential impacts to any identified resources by the proposed facilities are then addressed and recommendations are made based on findings.

 TABLE 1

 SUMMARY OF PROPOSED FACILITIES AT THE JEROME PARK RESERVOIR SITE

Alternative	New Facilities at Jerome Park Reservoir	JPR Footprint/ Maximum Dimensions / Area / Location	Highest Elevation / Height Above Dividing Wall
Jerome Park Reservoir - A	WTP, TWR, FWPS	1,150 x 530 ft. 610,000 sq. ft. South Basin	152 ft. / 12 ft.
New Croton Reservoir - A Mt. Pleasant - A Greenburgh - A	Shaft 20 3/4, LLPS, TWR, FWPS	1,300 x 355 ft. 417,000 sq. ft. North Basin	152 ft. / 12 ft.
Croton Woods - A Shandler Rec. Area - A	Shaft 20 3/4, TWR, FWPS	1,300 x 315 ft. 410,000 sq. ft. North Basin	152 ft. / 12 ft.
Shandler Rec. Area - B Croton Woods - B	Shaft 20 3/4, connection to Harris Park TWR	No surface structures	N.A.
New Croton Reservoir - B Mt. Pleasant - B Greenburgh - B	Shaft 20 3/4, LLPS, connection to Harris Park TWR	120 x 120 ft. 14,000 sq. ft. North Basin	154 ft. / 14 ft.
Mt. Pleasant - C Greenburgh - C Yonkers Raceway - A	PRV and connections	No surface structures	N.A.
Shandler Rec. Area - C	Shaft 20 3/4, FWPS	250 x 300 ft. 75,000 sq. ft. North Basin	142 ft. / 2 ft.
Shandler Rec. Area - D	none	No surface structures	N.A.

Notes: Dividing Wall Height = 140 ft. MSL

WTP = Water Treatment Plant, TWR = Treated Water Reservoir, LLPS = Low Lift Pump Station, FWPS = Finished Water Pumping Station, PRV = Pressure Reducing Valve

METHODOLOGY

Background 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 previous subsurface disturbance. In order to accomplish the tasks, several phases of research were performed including documentary research, cartographic analysis, site files review, and field visits.

Documentary Research. Primary and secondary source material was researched in order to document the prior usage of the parcels. 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, William Tieck, and John McNamara. Also researched were soil boring maps produced by Warren George Inc., Subsurface Exploration. Documents were also sought regarding the construction of the JPR and associated gate houses at the NYC Municipal Archives and Reference Library, the National Archives, and the NYCDEP Archives.

Cartographic Analysis. Historic maps were obtained from the New York Public Library in Manhattan and the Bronx and studied for early land use, topography, and historical events; atlases were studied for more modern land use, topography, and subsurface disturbance episodes.

Site Files Review. Site file reviews were conducted at the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP), the New York City Landmarks Preservation Commission (NYCLPC), and the New York State Museum Education Department (NYSM), to determine if prehistoric or historic materials had previously been reported within or in the vicinity of the project area. The State Museum provided an assessment of archaeological sensitivity based on previously developed models (See Appendix I to this report). The National Register designation form for the Jerome Avenue Pump Station and the Old Croton Aqueduct (Westchester County) were reviewed.

Field Visits. Field visits were conducted in December 1993, January 1994, and March 1998 at which time photographs were taken of the current conditions of the project parcel (see Photographs). The architectural historian (Andrew Dolkart) surveyed the study area in February and April 1994, and in March 1998, and in May 1994 an inspection was completed of the interior of the Jerome Avenue Pump Station (a.k.a. "High Pumping Station") by an industrial archaeologist (Robert C. Stewart).

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 Fordham Ridge, the project site is underlaid by volcanic rock including Fordham gneiss which exhibits a dark gray to black banded appearance. 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 left discrete marks that can be seen in the nearby Bronx Zoo. Glacial activity is also responsible for the moraine heaps and alluvial coverings which hide or bury the gneissic contours as well as glacial erratics which occur in the Bronx.

Following deglaciation, postglacial Lake Hudson covered much of the Hudson Valley below the Highlands west of the site. 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 became relatively stable leaving the Bronx covered with oak, hemlock, beech, and chestnut trees characterized as the climax forest.

The Bronx River is the major river drainage characterizing this section of the Bronx, and runs northsouth within a mile to the east of the project site. The river originates to the north in Westchester County and empties to the south in the East River. The Harlem River runs within a half mile south and west of the site draining into the Hudson River. The Harlem River, separating Manhattan from the Bronx and connecting the Hudson and East Rivers, runs within a half mile to the south of the reservoir. The project site is closest to a bend in the river which demarcates the northeastern-most corner of Manhattan Island.

Historically, Tibbetts (or Tippets) Brook, a fairly large creek, ran north-south through what is now Van Cortlandt Park, where it formed Van Cortlandt lake, eventually emptying into the Harlem River at Kingsbridge. A small unnamed stream originated from within the Jerome Park Reservoir site, joining a second stream just north of it and eventually draining west into Tibbetts Brook. Several small knolls were once located between and adjacent to the low lying land surrounding the streams (Viele 1874; Figure 3).

HISTORICAL CONTEXT

In order to fully understand use of the project site through time it is necessary to develop a historical context for the Kingsbridge Heights neighborhood and the Jerome Park Reservoir site specifically. 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 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 following discussions establish a contextual framework for both the prehistoric and historic eras pertinent to the project site.

Prehistoric Era

The present knowledge and understanding of Native Americans in the lower Hudson Valley and Greater New York area is derived from three sources: 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 Kingsbridge Heights neighborhood is west of the Bronx River which may have been the dividing line between the Siwanoy and another Upper Delaware Munsee speaking cultural group called the Wiechquaesqueak (Grumet 1981:59-60).

It is generally accepted that the pre-European 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 easily accessed in the surrounding 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 smaller campsites. Well drained soils in proximity to fresh water sources were the ideal choice for prehistoric use rendering areas with these characteristics more likely to have been occupied. Nearby aboriginal trails, lithic quarries, and the availability of other economic and ecological resources were also conducive for settlement.

Known Aboriginal Prehistoric and Historical Sites. Reginald Bolton's "Indian Paths in the Great Metropolis" reported the east-west Indian trail named Sachkerah running through the Jerome Park Reservoir parcel. The trail originated at the Harlem River and terminated in Norwood at the intersection of Gun Hill Road and the Bronx River, at a place named Cowangough for "Boundary" or "Wading" Place (Grumet 1981:9-10; Figure 4). Grumet also placed an Indian trail about four blocks south of Fordham Road, just about a mile south of the Jerome Park Reservoir (Ibid.). The

nearby Bronx River was known by Native Americans as Aquahung or "a place of high bluffs or banks" (Kazimiroff 1954:250 as quoted in NYCLPC 1991:32).

The earliest cartographic source reviewed depicting aboriginal habitation in the vicinity was the Hendricks Map of 1616, which shows the Wikagyl (Wiechquaesgeek) Indians inhabiting the southern New York mainland just north of the Manhattes Indians on Manhattan Island. The Wiechquaesgeek are identified as the group of Indians living in northern Manhattan, Bronx County, and southern Westchester County in a number of seventeenth century Dutch and English manuscripts, deeds, treaties, and maps (Bolton 1934:128; Grumet 1981:59-60). Documented nearby settlements include:

- Shorakapkock: near 230th Street and Broadway, just east of the Jerome Park Reservoir (Tieck 1968:58; Bolton 1920:307; Fluhr 1960:10; Jenkins 1912:21; McNamara 1984:497).
- (2) Nipinichsen: a palisaded fort variously located in Riverdale near 230th Street, west of the project site (Bolton 1934:140; Fluhr 1960:10; Jenkins 1912:21; Skinner 1915:56)
- (3) Gowahasuasing: several blocks southwest of the project site on Tibbett's Neck (Grumet 1981:69; Kearns and Kirkorian 1986:np).
- (4) Keskeskick: in Van Cortlandt Park north of the project site. A prehistoric village site (Bolton 1934:141).
- (5) Saperewack: located on the Harlem River in the Marble Hill area west of the project site (Grumet 1981:49, 68).

More recently published literature supports the ethnohistoric reports of aboriginal occupation. Some of these more recently discovered sites are probably part of the same camps and/or villages reported in the earlier sources.

- (1) Kingsbridge Post Office, 5517 Broadway near 230th Street: several blocks west of the project site. The site yielded projectile points, pottery, shell, and a Native American burial. Tieck suggests that this may represent the village of Shorakapkock (Tieck 1968:56).
- (2) 231st Street, Kingsbridge: west of the project site. A prehistoric hearth containing a clay pot was found (Bolton 1934:12).
- (3) Ewen Park at 231st Street: west of the project site. Shell and ashes were reported, and near the Henry Hudson monument, a food storage pit was uncovered (Bolton 1934:140).

- (4) Marble Hill, Broadway and 230th Street: just west of the project site. Shell and prehistoric artifacts were found at "the Wading Place" (Bolton 1934:135).
- (5) Paparinemin Island: a large site was found on high ground that was originally Paparinemin Island near 231st Street west of the project site. Smaller prehistoric temporary encampments were also reported for the Island area, but their exact location was not given (Bolton 1934:134, 139).
- (6) Tibbett's Neck: several blocks southwest of the project site. "Very extensive shell middens" were located below the bluffs (Jenkins 1912:329).
- (7) Spuyten Duyvil Hill: about a mile southwest of the project site. Several small shell deposits were found here (Skinner 1915:56).
- (8) Van Cortlandt Park: directly north of the project site. Several sites were located including an extensive two to three foot thick shell midden and several burials covering fourteen acres in the southwestern section of the park, and shell pockets near the mansion. The parade ground had once been used as Indian planting fields. Storage pits, pottery, and stone tools were reported (Bolton 1934:141; Tieck 1968:3; Skinner 1915:55).
- (9) Chapel Farm Site: just northwest of the project site in Riverdale. A possible prehistoric quartz quarry site was identified on the highest knoll in the Bronx (Historical Perspectives 1990: np).

In addition to the above described sites, a 1991 inventory of archaeological resources in the nearby Bronx Botanical and Zoological Garden by the NYCLPC reported that their literature search revealed 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...outside the Botanical Garden property" (NYCLPC 1991:33). Within the Botanical Garden property itself, an Indian cave or rockshelter was reported on the west side of the Bronx River near the Magnolia Road Bridge, excavated many years ago by Theodore Kazimiroff. The site yielded pottery and lithic artifacts (Ibid.).

Evidence of Native American occupation has been observed to the west in Kingsbridge, Spuyten Duyvil, and Inwood Hill Park, north in Van Cortlandt Park, south in Fordham, and east in the New York Botanical Gardens and at Pelham Bay Park (Kearns and Kirkorian 1986: np). The extensive documentation of aboriginal occupation throughout the area suggests that the Jerome Park Reservoir parcel was, at the very least, used in a limited capacity prehistorically. Knolls which rose above streams which formerly ran through the site would have been sought for temporary encampments and possibly longer-term occupations.

Site File Searches: The SHPO site file search reported site number A061-01-0114, the Harlem River Shellheaps, about a half mile south of the project site adjacent to the Harlem River. The

midden site included the remains of dog burials. Just south of this, site A061-01-0538, another shell midden of unknown age was exposed during the grading of Tenth Avenue (See Appendix I).

A site files search conducted at the NYSM, which inventories only prehistoric sites, reported fourteen sites either directly adjacent to or within a mile of the Jerome Park Reservoir. NYSM site numbers 709, 711, 2823, 2838, 2839, 4052, 4053, 4054, 4055, 4056, 5320, 5321, 5322 and 7727 are all located nearby (See Appendix I). Some of these sites are duplicates of the sites described above. The Museum's site file search concluded that there is a high probability of prehistoric archaeological data in the Jerome Park Reservoir site because: recorded sites are in the vicinity of the project site; the terrain in the site is similar to terrain in the general vicinity where recorded archaeological sites are indicated; the physiographic characteristics of the site suggest a high probability of prehistoric use. However, the NYSM assessment was made without knowledge of prior disturbances and would only be applicable if the site had remained undisturbed throughout the historical period. The pursuant disturbance record indicates that this is not the case.

Historical Era

The first official purchase of lands from the Native Americans of the Bronx area took place in 1639 by the Dutch West India Company. Two years later Jonas Bronk became the first white settler of the region when he bought 500 acres between the Harlem and Bronx Rivers. As with the rest of the borough, Kingsbridge was rural farmland until the time of intensified residential and commercial development in the mid-to-late nineteenth century. Historically, the project site was in the township of West Farms (Fordham) which was incorporated into the township of Westchester in 1788, and then established as a separate township in 1846. The Bronx then became the Annexed District of New York City in 1874 and was chartered as a Borough in 1898 (Jenkins 1912:7).

Kingsbridge was laid out in the township of West Farms just north of Papirinemen Hill, an Indian name meaning "a place parceled out." Kingsbridge is not far from Marble Hill - named for old marble quarries. The community was named for the first bridge built across the Harlem River in 1693 by Frederick Philipse, linking Manhattan to what is now the Bronx. Local farmers resented paying toll to Philipse, a wealthy Dutch Colonial landholder, and reacted by erecting the free Farmers' Bridge for their own use.

By 1673 the Albany Post Road had been laid out through the Bronx, crossing the Harlem River at Kingsbridge near its intersection with the Boston Post Road. This early route connected Manhattan with the vast trading post at Fort Orange, now Albany. Stage coach service was established on it in 1785. The north-south route of the Albany Post Road ran just west of the Jerome Park Reservoir in the approximate location of what is now Bailey Avenue. It nearly paralleled the Boston Post Road which ran along the route of Kingsbridge Road and through the Jerome Park Reservoir site (Jenkins 1912:215).

American Revolution. During the American Revolution the strategic importance of safe passage over the Harlem River at Kingsbridge was recognized by both British and American militia. As a result, Kingsbridge witnessed extensive Revolutionary War activity with several fortifications built

nearby. Under the command of Major-General Charles Lee, a total of seven sites were selected for redoubts, two on the northern end of Manhattan, and five in the Kingsbridge area of the Bronx. Three forts were built on Spuyten Duyvil Neck and Tippett's Hill, west of the project site. These were captured by the English in November of 1776, and were subsequently abandoned by 1779.

Fort Independence (a.k.a. Fort No. 4), and Fort No. 5 were the two forts closest to the Jerome Park Reservoir site (Figure 5). The extant Fort Independence Park at the north end of the reservoir and Old Fort Park at the south end of the reservoir approximate the two forts' eighteenth century locations (Photographs A,B).

Fort Independence. In 1772, Captain (later Major-General) Richard Montgomery purchased a 75 acre farm on the Boston Post Road in Kingsbridge at what is now the Jerome Park Reservoir site. After resigning from the British army, Montgomery came to America and married Janet Livingston, joined the patriots, and was commissioned to survey the Kingsbridge neighborhood for defensibility (Jenkins 1912:338). Following his survey and his purchase of the farm, Fort Independence was established on his acreage by Colonel Rufus Putnam.

Built between the Boston and Albany Post Roads, Fort Independence was the largest of all the forts in the region, with bastioned earthwork and ravelins on its east and southeast sides (Jenkins 1912:127). Under the approach of Hessians from New Rochelle, the American commander, Colonel Lasher, destroyed and abandoned the barracks leaving behind the cannon and three hundred stand of arms. British General Knyphausen and his troops took possession of the fort and held it until 1779 when it was abandoned once more (Ibid.).

Following Montgomery's death, his farm was left to his sister Sarah, Viscountess Ranelagh. One historian claims that the original Montgomery house that occupied the site was burned and completely destroyed during the American Revolution (Jenkins 1912:340). However, a later occupant of the site, William Giles, who bought Montgomery's property and erected his own house within the ramparts of Fort Independence, claimed the extant Montgomery House on nearby Fort Independence Street was the original structure, citing its hand hewn beams as a sign of age and authenticity (Ibid.).

When Giles built his house in the second half of the nineteenth century, excavations for his cellar encountered remnants of Fort Independence including eleven cannons, several cannonballs, a "culthorn" and "other military relics" (Jenkins 1912:127). During the late 1950s an archaeological salvage investigation was conducted on the grounds of the then recently demolished Giles House. The archaeologists uncovered much evidence of the army occupation, including the foundations of two buildings identified as quarters, a stone platform, campfire hearths, and a refuse dump. The archaeological report goes into great detail concerning the inventoried military-related artifacts inventoried as well as miscellaneous camp equipment.

Archaeologists concluded that the features and foundation walls of Fort Independence had been preserved underneath the approximately 3.5 feet of backdirt excavated for the cellar of the adjacent Giles mansion (Lopez 1978:8-10). The dry-laid building foundation walls, 18 - 22 inches thick, were built of local stone roughly dressed in rectangular slabs and blocks. "All the stones were carefully

aligned and leveled. The soldier masons who worked on the structure evidently knew their business" (Ibid.:9). The walls of an earthen-floored smaller building $(14'9" \times 13'5")$ consisted of 5 tiers of stone and stood 2 feet high from the base line while the larger building with inner partitions $(31'9" \times 10'1")$ consisted of only two and three tiers of stone blocks. Perhaps because of the haste of wartime construction, the base stones rested directly on the native soil and the archaeologists related only one instance where the "original sod line was detected a few inches above the level of the bottom stone tier. Apparently, part of the sod had been removed before laying the stones" (Ibid). In addition, there are recorded features/structures of Fort Independence, e.g., the magazine, that were not located during the excavation.

Fort No. 5. Fort No. 5 was a redoubt of about seventy square feet situated due south of Fort Independence at the southwest end of the Jerome Park Reservoir. Established on Dominie Tetard's farm of sixty acres, it was confiscated and occupied by the British in 1777 and abandoned in 1779. The site, within 100 feet east of Sedgwick Avenue, was excavated in the early twentieth century by Bronx Historian Reginald Bolton and others (Jenkins 1912:129). Excavations detected the remains of brick fireplaces and other military relics including regimental buttons.

Archaeological evidence of both Fort Independence and Fort No. 5 were encountered when the Jerome Park Reservoir was created.

...when the excavations began, the workmen turned up with their tools several cannon-balls, bayonets, swords, buttons, and other military relics, one man throwing out a shovelful of earth which gave up an English sovereign. All through this section, from time to time, similar relics have been unearthed, including several skeletons, one of which by means of the regimental buttons and shreds of uniform that remained, was identified as that of a British officer (Jenkins 1912:338).

Each fort's foot print and occupants clearly left an impact on the landscape.

Jerome Park Raceway. In 1869 a portion of the Van Cortlandt estate, lying between Fort Independence Hill and Van Cortlandt Lake north of the reservoir site, was bought and subdivided for building lots. The tract, named "Oloff Park" after Oloff Stevensen Van Cortlandt, contained about 100 acres including part of the Jerome Park Reservoir site (Jenkins 1912;340). The remainder of the reservoir site was situated on Bathgate farm, formerly belonging to the Montgomery family. James Bathgate, brother of Alexander the overseer of the Morris Manorlands, farmed the site until the 1860s (McNamara 1984;310). Through the 1870s the project site remained as vacant farm land, with the Bathgate's farm buildings located south of the project site (Beers 1872).

After the Civil War the Bathgate farm and part of Oloff Park were acquired by the Jerome Park Villa Site Improvement Company. The American Jockey Club leased the land and laid out a track for racing. The track was launched by Leonard W. Jerome and other entrepreneurs for the purpose of "lifting American racing from the disrepute into which it had fallen on account of the trickery and rowdyism which had hitherto accompanied it" (Jenkins 1912:290). The race track proved to be successful and flourished.

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In 1874 the study area was shown possessing several hills and knolls bordering two small streams, while the racetrack and associated structures were shown west of what is now Goulden Avenue (Viele 1874; Figure 3). By the 1880s William Dunn had established his small farmstead where the north reservoir basin is now located (Bromley 1882).

The project site continued to be used in part as a racetrack, and in part for farming until 1894 when the City of New York acquired the property for the purpose of erecting the Jerome Park Reservoir (McNamara 1984:416).

By the late-nineteenth century new streets and avenues had been laid out in the project site area. Stevenson Place was created down the hill from what is now Sedgwick Avenue, connecting the prerevolutionary Boston and Albany Post-roads. While this road was laid out over the original Van Cortlandt patent overlooking the Jerome Park Racetrack, it also encroached slightly upon the ramparts of old Fort Independence (Jenkins 1912:128; McNamara 1984:237). The adjacent Sedgwick Avenue was named after Major General John Sedgwick of the Civil war, while Goulden Avenue was named for Congressman Joseph A. Goulden who lived on nearby Creston Avenue (McNamara 1984:108, 117).

History of New York's Water Supply. The Croton Water Supply System is the oldest municipal system in the United States to employ a system of aqueducts for transporting water from afar. The original Croton Aqueduct was constructed in 1842 after years of failed attempts to deal with New York City's impoverished and unsanitary water conditions. Through the early nineteenth century a lack of potable water resulted in epidemics and an overall water shortage allowed many fires to rage unchecked.

In an attempt to address these problems, the City built a series of pumps over underground springs through the eighteenth and early nineteenth centuries. The most famous of these, the Tea Water Pump, opened in the 1740s at what is now Park Row in Manhattan, and operated for 80 years until it too was declared unsanitary (Koeppel 1994:21). However, these measures failed to meet the needs of the city's growing population. A number of other failed attempts to supply the city with water resulted in the creation of the New York Water-Works company in 1825, and by 1833 plans for the Croton Aqueduct were created.

The aqueduct, designed by the engineer John B. Jervis, consisted of iron pipes protected by brick masonry. Built by Irish immigrants over a period of five years it covered a distance of 41 miles, running from the Croton Dam in Westchester County south to a receiving reservoir at what is now the Great Lawn in Central Park. Water was then piped to a distributing reservoir at 42nd Street, where the New York City Public Library now stands (Jackson 1995: 301). When it was completed in 1842, it was the main source of water for the city until its capacity proved inadequate. By 1861 an enlarged main was constructed, and the need for a greater supply was still recognized. In the 1890s the construction of the New Croton Aqueduct was planned in conjunction with the creation of the Jerome Park Reservoir, and the original aqueduct system was renamed the "Old Croton Aqueduct."

The New Croton Aqueduct is mostly a tunnel laid through rock. It is at least three times larger than the Old Croton Aqueduct and is situated further inland, emptying into the Jerome Park Reservoir. Both the old and new aqueducts ended at the 135th Street gate house, where cast-iron pipes carried water into the current Central Park reservoir. With the inception of the New Croton Aqueduct, portions of the old aqueduct were closed down while others were drastically altered and demolished. Regardless, it continued to carry a diminished capacity of water to New York through 1955. While portions of it are still in use in northern Westchester County, it no longer brings water to New York City (Cooper nd.: 5-7).

Jerome Park Reservoir. The construction of the JPR basin, as we see it today, was completed in 1906. Critical to understanding the placement of gate house chambers, a major component of the reservoir, and the following discussion of changes over time, is an understanding of the original design of the Jerome Park Reservoir. First proposed in ca.1884 as a part of the construction plans for the New Croton Aqueduct, the "reservoir" was to function as a receiving and distributing reservoir (based in the 24th Ward) to insure the city of at least a ten day consumption source. The design flow was 50,000,000 gallons a day. The location of the reservoir, on the grounds of the Jerome Park Racetrack, was selected (1885) due to its elevation. The plans specified construction of the reservoir bottom at an elevation to guarantee gravity flow into the reservoirs in Central Park. "A study of the available topographical maps showed that Jerome Park and vicinity contained the only site in the Annexed District [24th Ward] at the proper elevation for the construction of such reservoir" (New York City 1907:122). Construction plans did not move forward for many years.

When the contract for the proposed reservoir was first circulated in 1894, the planned capacity was 1,500,000,000 gallons, corresponding nominally to seven and one-half days' drinking water supply (Duane 1895:93). However, by 1895 the plans and specifications were amended to increase the capacity to 2,000,000,000 gallons. As envisioned at that time, the reservoir was to be comprised of an easterly and westerly basin with a massive stone dividing wall running the north-south length of the entire reservoir. The division wall would support a new conduit to replace the old aqueduct, and a new aqueduct was to pass approximately 100 feet beneath the reservoir. A series of shafts and tunnels would connect the flow of water between the basin and aqueducts (New York City 1907:1212).

The reservoir construction, under the supervision of John B. McDonald, of McDonald & Onderdonk, was not completed in 1902 as originally scheduled. By that year the contract was amended again, however, to the following reduced capacity: easterly basin, 1,130,000,000 gallons and the westerly basin, 773,400,000 gallons (New York City 1907:123). When the reservoir was officially opened in 1906 only the smaller westerly basin was completed and functioning (Figure 6).

The east perimeter wall, which was to be the dividing wall between the planned east and west reservoir basins, is made of stone and rubble masonry. Within the upper portions of this wall there are two brick-lined aqueducts: the Old Croton Aqueduct, which is no longer in service, and the New Croton Aqueduct, which discharges into the southern end of the reservoir through a portal. The two systems are situated side by side, with the Old Croton Aqueduct located on the reservoir side.

The second basin, east of the division wall, was still planned in 1902 and land was cleared and partially excavated for the proposed construction (Figures 7-9). Plans for the second basin east of Goulden Avenue were for it to have twice the capacity of the first basin. In preparation for its construction, excavations took place east of the present reservoir between West Kingsbridge Road and the Mosholu Parkway to Jerome Avenue (Bromley 1911). During reservoir construction, previous ca 1880 farm structures were removed, and encompassing terrain was excavated to a depth of more than 15 feet. Excavations of earth and rock removed from the entire complex, both east and west of Goulden Avenue, totaled approximately 4,000,000 cubic yards (Duane 1895:79). Some of the material excavated was used to raise the street system throughout Kingsbridge (Tieck 1968:99), while "the millions of cubic yards of materials removed by excavation have [also] been used in filling in the valley of Cromwell's Creek and the meadows at Westchester, the refuse having been carried by rail across Bronx Park to the neighborhood of Westchester Creek and the Bronx and Pelham Bay Parkway" (Jenkins 1912:337).

In 1912 the two-basin plan was officially abandoned. In 1913 the possibility of erecting a filtration plant in the east basin area was studied and funds (\$8,690,000) were tentatively appropriated for construction. However, the funding was rescinded and the city did not act on the proposal (DWSG&E 1913:7). The excavated area of the east basin was eventually filled and graded. The east basin site was turned over to the City for other uses. It was later developed into Lehman College, a subway yard for two subway lines, three high schools, a park and several public housing developments.

Prior to the completion of the Reservoir, Chapter 724 of the Laws of 1905, an important law concerning the management of New York City's water supply, went into effect. In great part, this law was a reaction to the realization that, even with the imminent completion of the Jerome Park Reservoir, an additional water supply was of vital consequence. As eventually realized, the Board of Water Supply became the city's agency for constructing additions to its water supply system. "As each addition or a portion thereof is completed, the physical structures are turned over to the Department of Water Supply, Gas and Electricity [hereinafter DWSG&E] for operation and maintenance" (Board of Water Supply 1939:1-2). It was the DWSG&E that assumed the maintenance of the Reservoir and associated appurtenances.

Occasionally, the New Croton Reservoir water that is piped into the Jerome Park Reservoir exceeds maximum allowable levels for turbidity, color, taste, odor, iron, and manganese. In addition, algae or insect larvae have been observed. Currently, water health and safety testing is performed at New Croton Reservoir and then again at the gate house superstructures prior to discharging the water to the distribution system. There is a new Demonstration Water Treatment Plant, a temporary facility, immediately south of Gate House 5 on Goulden Avenue where a test program has been carried out to determine the design criteria to be used for the New Croton Water Treatment Plant. At present, the only treatment provided to water from the Croton Aqueduct is chlorination and this treatment is not sufficient to resolve the range of problems. It is incumbent upon the city to initiate improvements to the quality of the water flowing out of the Jerome Park Reservoir.

JPR Gate Houses. One of the major architectural features of the Jerome Park Reservoir are the brick gate houses located along the periphery of the structure (see Gate House Photographs). Two of these, gate house No. 5 on Goulden Avenue at West 205th Street and gate house No. 7 at the corner of Goulden Avenue and Sedgwick Avenue are substantial structures, while the others are small buildings. Gate houses were built for the proper distribution and handling of water.

The following discussion relies heavily on the original Aqueduct Commissioners' contract drawings of the Reservoir and the subsequent annual reports, plans, and records available from the DWSG&E. There are, however, gaps in the information on the gate houses. Both the NYCDEP archives and the City's Municipal Reference Library are missing critical drawings, plans, and plates of the gate houses.

Gate house substructures, buried below grade, host the vital piping and pumps necessary to maintain the required water flow. The figures that accompany the following text amply illustrate the scale and complexity of the below-grade plants. It is a system that demands constant maintenance. A public utility that operates under a mandate to supply plentiful and safe water to millions must be vigilant to maintain equipment and introduce, as indicated, new and modern advances in technology and health.

Visible to the public on today's landscape are the gate house superstructures which serve as abovegrade access structures for the piping and pump mechanisms. Although the Jerome Park Reservoir was completed in 1906, no gate house superstructures were erected at that time. NYCDEP archives provided plans and elevations of a number of gate house superstructure proposals.

Over the past ninety years the Reservoir gate houses, both above and below grade, have experienced episodes of repair and renovations. There are numerous entries in city annual reports of these actions. Each alteration, rehabilitation, and introduction of new equipment has involved some loss, to varying degrees, of the original design of the gate houses. The introduction of pumping equipment in locations outside the gate houses (such as the subterranean Mosholu Pumping Station under Sedgwick Avenue) has changed the use of the gate houses. In addition, the expansion of the city's watershed and the construction of mammoth gravity-fed city water tunnel Nos. 1 and 2 have decreased reliance on the Jerome Park Reservoir.

Gate House Construction. Two gate houses, numbers 4 and 6, were first constructed well east of what is now the eastern ring wall of the Reservoir, on the assumption that the proposed two-basin reservoir would be completed. These two gate houses - which were only subterranean systems in 1906 - never functioned. Gate house 4 was eventually abandoned and the gate house 6 was rebuilt and the control chambers and valves moved to the southern tip of the south basin where it stands today.

The following discussion treats each gate house separately. Gate House 1, a subterranean chamber which controls water flow at an upstream location, is not in the study area and is discussed only briefly. The following description of the below grade systems in gate houses 2 through 7 is taken from the 1907 Report of the Aqueduct Commissioners, on file at NYC Municipal Reference Library. It is important to note that at the completion of the reservoir, or, the west basin, construction in 1906

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there were no gate house superstructures. An illustration of the completed reservoir without gate house superstructures is included as Figure 9. The 1907 Report concluded with the note that the plan to erect gate house superstructures had been temporarily suspended at the request of the city's water department (p. 128). The reason for this suspension is not stated but it appears to have been a funding and priority issue and may be directly related to the recent creation of the Board of Water Supply.

In 1906, designs were prepared for at least five gate house superstructures (Nos. 2,3,4,6, and 7). Designs for bold rock-faced stone gate houses with copper cornices and Spanish tile roofs were completed by the prominent architectural firm of Trowbridge & Livingston (NYCDEP Archives, Jerome Park Reservoir Folder). These gate houses were never built. In 1909 designs were prepared under the auspices of chief engineer F. S. Cook for gate house No. 1. In 1920, another design was prepared for this gate house. Apparently, no construction was undertaken. A design was prepared for gate house No. 2 in 1925; again, no construction was undertaken (Ibid.). There may have been other aborted gate house design projects as well.

The WPA funded a significant number of New York City projects relating to the water system, including the installation of water mains, surveys, and the alteration, repair, and construction of buildings. In 1938, superstructure designs were prepared for gate houses 2, 5, and 7 by the Design Unit, Project Planning Section, Division of Operations, Works Progress Administration (WPA). No architect's name is associated with these designs since they were prepared by the staff of the WPA. Gate houses 6 and, particularly, 3 appear to be WPA designed as well. The superstructure designs for gate houses 2, 5, and 7 are nearly identical to the completed buildings. This work was prepared for the New York City Department of Water Supply, Gas and Electricity (Board of Water Supply 1939:1-2). There is no evidence that the construction of these superstructures entailed any changes to the mechanical systems of the reservoir. It is apparent that there had been interest in building gate house superstructures from the time that the Jerome Park Reservoir opened in 1906, but it was not until 1938 that funds were available for this work.

The following descriptions, figures, and specifications are, for the most part, based on the construction plans. The indented passages are direct quotes from the 1907 Report. Actual, as-built conditions were not always located. Available information on subsequent substantive alterations to the gate houses, mechanisms and eventual superstructures, is presented after the description of original construction. In the following discussion details of each repair/alteration are not given but examples of these changes and problems include:

- > repairs to scaling concrete
- > wall block falling into the reservoir
- > rubble accumulation in the Blow-off Line
- > chambers sealed to provide flooring for chlorinator
- > installation of chlorine control equipment
- > the introduction of Venturi Meters
- > leaking plug valves replaced
- > improved filtration systems for the Croton water

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- > improved circulation of stagnant water
- > water main intake repairs
- > infestation of gulls

Gate House 1. A gate house of small dimensions was built at the origin of the new section of the Aqueduct at the point where it branched from the main structures. This is now gate house No. 1, located below ground to the north near Van Cortland Park, outside of the study area. This gate house originally consisted of an underground concrete vault accessed through an at-grade stairway and manhole, built over the intersection of New Croton Aqueduct and the branch conduit (Figure 10). Apparently sometime after 1909, the year a city specifications contract was printed, a superstructure was built at gate house 1 (Minutes 1909: Vol. 25, 10/19/09; Aqueduct Commission, Drawing No. 10031-Y, 4/19/14). There is, however, no extant evidence of a superstructure at this time. Over the last ninety years the gate house mechanisms, which originally controlled the flow through the aqueduct by a combination of two drop-gates and simple stop-planks, has undergone some technological changes and improvements. Gate house 1 is located a considerable distance upstream of the Reservoir and well outside the project impact and study area.

Gate House 2. Gate house No. 2 is a small "outlet structure" on the edge of the reservoir on Sedgwick Avenue. It was originally designed to contain 48-inch pipes connected directly to the distribution system of the city. This gate house was constructed

on the northwest side of the reservoir to control the flow into two 48-inch mains, running northwesterly through Van Cortlandt Avenue, into the City's distributing system. The substructure as originally designed, has two inlet chambers, one admitting the water from the West Basin of the reservoir through a bottom, middle, and surface inlet, and the other drawing water from the central gate house, No. 5, by two lines of 48-inch pipe, laid on the bottom of the reservoir (Figure 11). Each inlet is provided with two sets of grooves, cut in the masonry, which are ordinarily used for wire screens, but, in case of necessity, for stop planks. The two inlet chambers are joined by a passage which can be closed by stop-planks. Back of the inlet chambers two chambers are constructed, in which 48-inch gate valves are placed for controlling the flow into the two lines of 48-inch mains, running northwesterly into Van Cortlandt Avenue and into the City's mains.

The two 48-inch mains running northwest into Van Courtlandt Avenue are laid through the north embankment of the reservoir in a brick culvert, provided with suitable manholes and vault entrance. This vault was built to prevent any leakage from coming in contact with the earthen embankment, and to divert it into the sewer built therein (The 1899 construction of the gate house 2 pipe vault is shown in Figure 12). This culvert covers, also, a waste and drainage sewer which is constructed from Gate-house No. 2. The overflow from the reservoir falls into a waste-chamber built on the east side of the gate house, as shown on Plate 98 (missing from the report). It has three waste-weirs, each 5 feet 3 inches wide (New York City 1907:124).

A 20-inch drain pipe is laid from gate-houses Nos. 7 and 5 to Gate-house No. 2, and is carried under the substructure of Gate-house No. 2 to a 4 x 6-foot culvert which conveys the drainage water from the Gate-houses Nos. 5, 7, and 2 to a line of 36-inch blow-off pipes laid to the Broadway sewer as described hereafter. The 4-foot pipe from the waste-well and a masonry drain from an overflow chamber built between Gate-houses Nos. 2 and 3 are also connected with the drainage culvert mentioned above. (New York City 1907:124) [Gate House 2 Plates referenced in the 1907 report are not appended to the report.]

In 1909 the Acting Chief Engineer submitted plans and specifications (Report No. 1778) for the construction of a superstructure at Gate House 2, along with Gate houses 3, 4, 6, and 7 (Minutes 1909:52). Two months later the Corporation Counsel had approved the contracts and the four Aqueduct Commissioners again reviewed the contracts for the five superstructures and voted the printing of the contracts. However, the proposed 1906 and 1909 elaborate superstructure planned at this gate house was never built.

According to plans and elevations on file with the NYCDEP (Job No. 254), the extant gate house 2 superstructure was built as part of the 1937-38 WPA effort for the DWSG&E. The gate house 2 superstructure is irregularly-shaped, one story, flat roofed, and the projecting brick piers, with limestone lintels, divide the walls into bays. On the Reservoir facade, or south elevation, there are three windows set into the bays. The massive ashlar foundation is visible from the reservoir. A limestone cornice is on all sides. On the street facade, or north elevation, is a concrete rectangular plaque over the door opening and a series of smaller square plaques ornament all elevations.

Currently the windows are boarded up, the entry is covered by a corrugated metal overhead door [originally it was fitted with a wood paneled door], and there is considerable deterioration of a portion of the facade and cornice.

Gate House 3. Gate house No. 3 is also a small "outlet structure" on the edge of the reservoir on Sedgwick Avenue. It was originally designed to contain 48-inch pipes connected directly to the distribution system of the city.

Gate house 3 is constructed, on the west side of the reservoir, on the same general plan as Gate-house No. 2, with the exception, however, that it contains no waste chamber (Figures 13, 14). Instead of this a special waste-weir is built, about half way between Gate-houses Nos. 2 and 3, being joined with the drainage culvert of the former by a masonry drain. The wast-weir was built in a tunnel [4' wide x 7' high], which was constructed outside the reservoir wall by Clark & Company. This gate house controls the flow into two lines of 48-inch mains running westerly along the Boston Road (New York City 1907:124. Note: Gate House 3 Plates referenced in the 1907 report are missing).

In 1909 the Acting Chief Engineer submitted plans and specifications (Report No. 1778) for the construction of a superstructure at gate house 2, 3, 4, 6, and 7 (Minutes 1909:52). Two months later

the Corporation Counsel had approved the contracts and the four Aqueduct Commissioners again reviewed the contracts for the five superstructures and voted the printing of the contracts. This elaborate superstructure planned at this gate house was never built, but a simple frame structure may have been.

Over several years, WPA workers built at least three and possibly five of the brick superstructures over Jerome Park Reservoir gate houses. DWSG&E annual reports do not always identify the actual gate house superstructure that was completed by the WPA in any one year; but the uniform design and materials indicate that gate house 3 was completed at approximately the same time as gate houses 2, 5, 6 and 7. The massive ashlar foundation is visible from the Reservoir. It is one story, flat roofed with a limestone cornice and the projecting brick piers, with concrete lintels, which divide the walls into bays. On the Reservoir side there are three windows set into the bays. On the street facade, or west elevation, is a limestone rectangular plaque over the door opening and smaller square plaques ornament all elevations. The side wall fenestration originally consisted of three narrow single-stacked pane windows. The gate house 3 superstructure, approximately 27.5' x 32', has an iron-railing balcony projecting over the Reservoir.

Gate house 3 is boarded up and considered a maintenance liability by the Department of Environmental Protection.

Gate House 4. East of Goulden Avenue, gate house No. 4 (substructure only) was built just south of West 205th Street on what is now the Transit Yard. The gate house was built at the time of original reservoir construction, ca. 1900 when the original plans called for the reservoir to be twice as large, with Goulden Avenue planned as a dividing wall between two large basins. Although the gate house has since been removed, remnant foundation walls can still be seen in the Transit Yard. The gate house is outside the impact area, but is part of the study area.

Gate house 4 (substructure only) is constructed on the easterly side of the [two-basin] reservoir, on the same general plan as gate houses Nos. 2 and 3. The difference, however, is that it was arranged for three lines of 48-inch mains: one supplying the high-service pumping station built by the DWSG&E on Jerome Avenue [a.k.a, the "High Pumping Station," a National Register property described in detail below]; and the other two being connected with the distribution system (Figures 14, 15). This gate house has an overflow and waste-chamber like gate house No. 2. A 48-inch pipe conveys the waste water to the blow-off sewer constructed in Jerome Avenue and in 204th Street (New York City 1907:124. Note: Gate House 4 Plates (#102-105) referred to in the 1907 report were not appended to the report.)

Because this gate house was constructed on the "same general plan" as 2 and 3, we can assume that the below-grade construction of extant Gate houses 2 and 3 is similar.

As with the discussion above regarding gate house 3, it is assumed that some form of simple frame structure was erected at gate house 4 shortly after Aqueduct construction when the Aqueduct Commissioners reviewed and approved the contracts for five gate house superstructures (Minutes

1909:52). It is assumed that sometime after abandoning the plan to construct an east basin and the transfer of the property to another city agency, any temporary gate house 4 superstructure was then demolished.

Gate House 5. Gate house No. 5, the main gate house, is a large structure built near Shaft 21 (the shaft which linked the New Aqueduct at 115 feet below grade to the surface). This gate house, located near the intersection of Goulden Avenue and West 205th Street, was designed to: allow the "Old Aqueduct" to carry water directly to the city or be emptied into the new reservoir; establish a connection between the two aqueducts; take water back from the reservoir after circulation and empty it through Shaft 21; keep up the supply if one or both reservoirs were empty by means of pipes connected with three outlet gate houses

Gate House 5 is constructed in the division wall, in a central position on Goulden Avenue, directly opposite West 205th Street (Figure 16). When originally constructed it was to serve the following purposes:

- 1. It was to receive water from the Old Croton Aqueduct and from the branch conduit leading from the New Croton Aqueduct, and discharge this water into the east or west basin of the reservoir or into both; or let the water pass to the City in the new or old aqueduct without entering the reservoir.
- 2. It would provide a connection between the two basins of the reservoir.
- 3. It would control the inlet into the 48-inch pipes laid on the bottom of the reservoir from this gate house to Gate houses 2, 3, and 4 and insure a supply of water to the gate houses when one or both basins of the reservoir are empty.
- 4. It would provide a connection to Shaft No. 21 of the new aqueduct, which is located in a tunnel, about 100 feet directly below the bottom of the West Basin of the reservoir.

The original plan for the gate house was as follows:

The water flowing in the branch conduit from the new aqueduct passes through three inlets, each 5 feet 3 inches wide, into an inlet chamber and thence, through four pairs of 2 x 8-foot sluice-gates, into a main chamber. The inlets are arched over and each is provided with a double set of grooves for stop-planks. The water from the old aqueduct can either pass through two arched inlets 5 feet 3 inches wide, controlled by sluice-gates, into the inlet chamber mentioned above, or it can flow in a conduit built around the gate-house and in the top of the division wall to the southerly end of the reservoir where it enters the old aqueduct structure leading to New York.

When the water is to enter the gate-house, stop-planks are placed in a double set of grooves constructed, at the gate-house, in the conduit built for the old aqueduct.

Each of the inlets from the old aqueduct is controlled by a double 2×8 foot sluicegate, on each side of which a double set of grooves for stop-planks is provided. This makes it possible to enclose the gates by coffer-dams of stop-planks when repairs may be needed.

All the inlets, outlets, and other gate openings in Gate-house No. 5 are made uniformly 5 feet 3 inches wide, and, with the exception of the three inlets from the new aqueduct mentioned above, each gate opening (sluiceway) is controlled by a double 2x8-foot sluice-gate, having on each side a double set of grooves for stopplanks.

From the inlet chamber the water passes through four double 2x8-foot sluice-gate openings into a main or central chamber, 34 feet by 50 feet 3 ½ inches in plan, having its bottom at Elevation 107*. A masonry viaduct, 17 feet wide, is constructed over the central part of this chamber, resting on two arches, each 14 feet wide, through which the water can pass from one side of the chamber to the other. Above these openings, and at right angles to them, there is an arched passage 9 feet wide, through the viaduct, leading from the inlet to the southerly end of the outlet chamber.

The water may be discharged into the reservoir at the gate-house at different levels, viz., through two bottom and one upper sluiceways into the East Basin and through one bottom and one upper similar sluiceways into the West Basin. Instead of discharging the water at the gate-house, it may be made to pass southerly [through] conduits...constructed in the division wall. One discharges into the East Basin and the other into the West Basin, about 2,025 feet south of the center of the gate-house.

Four waste-weirs, each 5 feet 3 inches side, are constructed in the gate-house. Each of the waste-weirs is provided with a double set of grooves for stop-planks.

The main water chamber is, also, connected with Shaft No. 21 of the new aqueduct by a circular conduit, 11 feet in diameter and about 185 feet long, constructed below the bottom of the reservoir. This conduit discharges in the gate-house into a small arched chamber from which the water passes through four 2×8 -foot sluice gateways into the main water chamber. On top of the conduit six arches support a viaduct with a roadway 13 feet wide, constructed to reach the top of Shaft No. 21 for maintenance.

Any one or all the water chambers of the gate-house may be emptied by a system of drainage pipes, from which the water is taken by a 20-inch iron drain pipe, laid under the bottom of the reservoir to Gate-house No. 2, where this 20-inch pipe discharges into the drainage culvert. (New York City 1907:125-6) [Gate House 5 Plates, 105-108, referred to in the 1907 report are not appended to the report.]

The pipes (48-inch cast iron) connecting gate house 5 with gate houses 2, 3, and 4 were not constructed as originally designed. The pipes were to be simply laid along the bottom of the reservoir

but that proved impossible - they floated when empty. It was decided to lay the pipes for gate houses Nos. 2 and 3 on concrete piers, which were to be carried up 12 inches above the pipes with a view to loading down or anchoring them. Each pier contains 2 cubic yards of concrete, mixed 1-2-5, reinforced with two ¹/₂-inch expanded metal rods. The rods were placed within the concrete to prevent cracking or breading apart (New York City 1907:126). This concrete pier system can be seen in Figure 17.

The 1907 report states that the pipe connection between gate houses 4 and 5 was laid in a trench below the bottom of the reservoir. This pipe connection, consisting of two 48 inch pipes, does show on a survey of the construction project (Figure 6) but it is unclear as to the date of completion of this connection and when and how this connection was later altered when gate house 4 was decommissioned. An elevation of gate house 5, ca.1906, clearly shows conduits to both basins (Figure 18). Elevations of gate house 5, dated 1965, depict both a "West Basin outlet" and a "plugged outlet" that obviously once directed water to gate house 4 (Board of Water Supply, Acc. XC-208).

According to 1909 Minutes of the Aqueduct Commissioners, contract specifications for a gate house 5 superstructure were approved and filed with the Corporation Counsel. It is assumed that a simple, frame superstructure was erected fairly soon after this October 1909 action. A new one story, frame "field office" was built at gate house 5 in 1936. This field office may have not functioned as a superstructure but may have been in direct response to the increased activity along Goulden Avenue as a WPA work force moved into the area to complete many reservoir repairs and new construction. The gate house 5 superstructure was replaced three years later by the extant one-story fireproof building. The superstructure - at 205th Street and Goulden Avenue - measures roughly 91'x131'. This same year the two 48-inch mains leading from what had become Goulden Avenue into gate house 5 were encased in concrete and that section of the Croton Aqueduct between gate houses 5 and 7 was waterproofed (DWSG&E 1939:38). By 1965 gate house 5's superstructure chamber was subdivided to accommodate a chlorinator room and two chlorine storage rooms and an employee locker room (Board of Water Supply 1965: Acc XC-213).

The flat roofed, single story structure has small recessed side, one bay, projecting walls connected to the front facade by narrow 45 degree angled walls. The red brick structure rests on a raised ashlar block foundation which is defined by a projecting beltcourse of polished stone blocks. The tall, slender windows are topped by limestone lintels. Additional light reaches the sluice gate operator chamber through two overhead skylights. There is a limestone beltcourse above the windows and a limestone (block) cornice. The building's seven bay facade, with the wide center block steps, makes a strong 1930s statement of a public facility as it faces Goulden Avenue. The opposite west elevation, leading to the Shaft 21 service road, is seven bays but is unornamented. The north and south facades are five bays wide. The east elevation's dominant central double doors are set within a limestone architrave surround and multi-paned light transoms (now covered over). This entry bay is framed by rectangular, stepped parapeted, projecting blocks of stone and concrete (Photographs y to x).

Over the years gate house 5 has absorbed an array of extra duties. Today the large main room is dominated by a series of 17 upright hand wheels that control water flow through sluice gates. Currently it also houses the Reservoir rescue skiff, an office, and an employee lounge. It is considered obsolete by the Department of Environmental Protection.

Gate House 6. Gate house No. 6 was originally constructed at what was to be the eastern end of the larger reservoir, east of Goulden Avenue near what is now the Kingsbridge Armory, but was later moved to its present location at the southern edge of the south basin. In 1939 a new superstructure was built over gate house No. 6.

The original plans for gate house 6 were as follows:

Gate House 6 is constructed at the southerly end of the easterly reservoir to control the flow into two lines of 48-inch mains, which are to be laid by the Water Supply Department, from this gate-house to 125th Street and 7th Avenue, where they are to be connected with the City distributing system of pipes (Figure 19). This gate-house controls, also, the inlet into a short brick conduit which makes a connection with the Old Croton Aqueduct. By this arrangement the old aqueduct can draw water from the southerly end of the easterly basin of the reservoir.

The gate-house draws water from the reservoir through two upper and two lower inlet openings, which can be closed by means of the standard stop-planks for which grooves are provided. The water passes into a principal water chamber, from which it flows through reducers to the two lines of 48-inch mains, each of which has a gatevalve placed in a chamber in the gate house.

Two 2'6"x 5.' sluice-gates are placed in front of the reducers and grooves for standard stop-planks are provided in front of the sluice-gates (New York City 1906:124).

Detailed information on the construction of the relocated gate house 6 at the southern tip of the western basin has not been located. It is assumed that a subterranean foundation plan similar to those already functioning as part of the complex was executed sometime just prior to 1939. In 1939 the city paid the A.W.B. Contracting Corporation (Department Contract No. 6917) for laying 1,483.8 linear feet of 48-inch pipe in Reservoir Avenue - the roadway that connects the sites of the old and new gate house 6. The Annual Report of that year further states that the original gate house No. 6 was eliminated and the property it occupied adjacent to the [Kingsbridge] Armory [Kingsbridge Road] was released to the Armory Board (Ibid.:38).

It is assumed that the extant, one story, flat roofed/parapeted superstructure was probably built under the same subterranean chamber contract since it is somewhat similar in style to the other gate houses of this vintage but does not have the same ornamental detail. Approximately 30 'x 22', the gate house is relieved by projecting brick bays on three facades, a limestone beltcourse and cornice but there are no windows, plaques, or balconies. Vertical brick stretchers form a string course between the foundation and the superstructure. On the east elevation is an at-grade service door that pierces the string course. The single bay front facade, or south elevation, focuses on the single door set within a slender limestone architrave surround. There are no transoms above the door as in gate house 5 but the header bonding does make the "transom area" distinctive (Photographs x - y).

Gate House 7. According to the DWSG&E 1907 report, gate house 7 (Figure 20) was situated at the north end of the division wall for the following purposes:

- 1. To admit water from the new aqueducts that will, in all probability, be built in the near future.
- 2. To discharge the water of the old and new aqueduct at the northerly end of the reservoir with a view or producing circulation.
- 3. To control the outlet from the reservoir at this point through eight lines of 48-inch mains.

The gate house consists of two substructures - one on each side of the division wall - which are connected by two concrete conduits. The substructure on one side of the division wall is the exact counterpart of the one on the other side. Each substructure has an inlet of a horseshoe shape to which a branch conduit from one of the proposed new aqueducts may be attached.

The gate house was designed to have, in all, nine double sluice-gates 2×8 feet and twelve sluice-gates $2 \frac{1}{2} \times 5$. feet. A system of drain pipes provided for emptying the different water chambers and the water was conveyed by a 20-inch iron pipe laid on the bottom of the reservoir to Gate-house No. 2, where it was discharged into the blow-off culvert (New York City 1907:127. Gate House Plates, #110-113, referenced in the 1907 report were missing).

In 1939 the extant superstructure at the intersection of Sedgwick and Goulden Avenues was built as part of the WPA work effort. The superstructure, measuring roughly 97' x 124', is really two separate structures that are joined by one roof (Quilty 1939:106; Board of Water Supply 1965: Acc XC-212). The gates and portals originally installed to conduct water into the east basin of the Reservoir were bricked up. By 1965 gate house 7's superstructure chamber had undergone some changes, being subdivided to accommodate a chlorinating room in the east building and a transformer room in the west building. It is unclear if the "switch room" and "office" in the east building were original to the 1939 plan or were added later (Ibid.).

Dominating the Sedgwick and Goulden Avenues intersection, gate house 7 is a combination of design elements from the smaller outlet gate houses (2, 3, and 6) and the larger central gate house (5). The at-grade, front facade maintains a seven bay rhythm defined by projecting brick piers with limestone lintels. Attention is focused on the central bay, or 14'11" drive-through entrance, that mimics, minus the ashlar blocks, the gate house 5 stepped parapet entrance. It should be noted that the at-grade driveway corresponds to the below-grade routing of the two aqueduct conduits feeding the Reservoir. There is a limestone cornice encircling the entire irregularly shaped building. On the south, east, and west elevations, the seven bays are defined by tall slender windows (now boarded) without

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pronounced lintels. The central bay in the south elevation, or drive through, is recessed. On the south elevation the projecting brick piers are limited to forming limestone-capped quoins.

Currently, the gate house 7 superstructure, in addition to housing a series of sluice gate floorstands for flow control and chlorinating equipment, serves as an occasional manned office when work is being conducted on the nearby subterranean Mosholu Pumping Station. It is considered a maintenance liability by the Department of Environmental Protection.

Jerome Avenue Pump Station. The Jerome Avenue Pump Station (a.k.a. "High Pumping Station") is located on the west side of Jerome Avenue between Mosholu Avenue and 205th Street, about 1600 feet east of the reservoir itself. Construction was started in 1901 and completed in 1906. The pump below grade station is a component of the Jerome Reservoir system which receives its water from the Croton Aqueduct network. The superstructure is no longer actively used for day to day NYCDEP operations (see Photographs).

The building is an elongated, narrow red brick building capped by a ½ pitch roof (in a ½ pitch roof, the vertical height from the plate on which the bottoms of the rafters rest, to the ridge, equals ½ the span or width of the building). The facade is divided into a series of bays, each containing two arched windows bordered by shallow brick buttresses. A semi-circular corbeled brick arch tops each window. The bottom of each window is at current grade. The building is surrounded by a shallow catch basin which extends out 125 inches from its base. A square smokestack rises midway along the northwest facade of the building as a remnant of the original coal-fired steam generation system used for powering the pumps. The southwest end of the building has a large grade-level vault with hatch-like openings in the roof and an entry from a stairway at street level. This may have been a coal bunker.

The main operational function of the facility, pumping potable water, is performed in and controlled from the station's pump room (Figure 21). The pump room is 45 feet wide by 78 feet long. It has three levels; the basement level where the machinery is located, a 12 foot by 17.5 foot switchboard platform located midway along the southeast wall, 8 feet above the floor and a balcony or mezzanine at grade level. The mezzanine is about 18 feet above the basement machinery level.

The mezzanine surrounds an opening about 25 feet by 68 feet directly over the pumping machinery. A steel gridwork over the opening supports 32 removable wire-glass panels which cover it and allow light from the grade level windows to penetrate down to the pump room. The glass panels can be removed to allow heavy machinery to be extracted or installed on the floor below. A 5 ton hoist, manufactured by Chisholm-Moore of Tonawanda, New York is provided to lift machinery from the basement level to the mezzanine level. The ceiling over the pump room is plaster over a partially dropped false ceiling. The walls of the mezzanine level are glazed in white tile 8 inches by 2 1/4 inches in size. The mezzanine floor is laid with hexagonal terra cotta tile with a maximum dimension of about 4 inches.

At the turn of the century the growing urban population of New York City needed pure water in quantity and at adequate pressure. Improvements in rapid transit enabled development of the outer boroughs. The invention of elevator had made living in high-rise apartment houses feasible and

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existing pumping systems were not capable of delivering sufficient water to the upper floors of these multi-storied buildings. The "High Pumping Station" was designed to pump water from the reservoir to consumers throughout the Bronx. The <u>Annual Report of the Department of Water Supply, Gas</u> and <u>Electricity, 1903</u> recognized the Jerome Park pumping facility as an effective mechanism from which "...a much needed supply can be delivered to a territory where the pressure is at present totally insufficient."

From its start-up in 1906 until 1938 the water was pumped with three steam powered centrifugal pumps manufactured by the Warren Steam Pump Company of Warren, Massachusetts. Each pump and its steam engine were bolted to a substantial cast-iron base which was 50 inches wide by 149 inches long. The base was about 18 inches high and was circumscribed by a lip which served to prevent lubricating oil and condensate from leaking on to the floor.

In 1938 the steam boilers were removed and the engines powering each pump replaced with electric motors (DWSG&E 1939:34) which were mounted on the existing cast-iron bases and joined to the pumps with a flexible coupling. The current pump battery consists of three identical machines. The pumps are Warren centrifugal pumps model 20DL22. These are capable of pumping 13,194 gallons per minute at 100 feet of head pressure when run at 875 revolutions per minute (rpm). They are fed with a 20 inch pipe. Gate valves placed on either side of each pump allow the pump to be isolated from the system for maintenance, repair or removal without shutting down the station. A check valve prevents backflow of water through the pump when is shut down.

The pumps are coupled to General Electric induction motors, model No. 96E634GI on a 568S frame. These motors draw 1000 amps when operated on 208 volts, 3 phase, 60 cycle alternating current. Secondary amps are 300 at 600 volts. Motor speed under full load is 885 (rpm). The motors are rated with a service factor of 1.15 and will output 400 HP continuously at a temperature rise of 40 degrees centigrade. The motors are started and controlled with General Electric alternating current cam switch equipment model CR#3208. Behind each cam switch control is located a rack containing resistance grids for limiting current when the motor is started.

The main power control panel is located on a raised platform against the southeast wall of the pump room. The switchboard has a plaque which reads *City of New York - Department of Water Supply*, *Gas and Electricity - Joseph Goodman, Commissioner.* The panel was manufactured by The Standard switchboard Corporation of Brooklyn, New York and installed by The Edward Zwicker Corporation.

The switchboard consists of five full size 27-inch wide panels and two 12- inch wide panels to control two separate electrical services into the pump room. The main switch panel has a kilowatt hour meter to record the total power used by the pumping facility. There are two Esterline-Angus recording kilowatt-hour meters which record power usage against the time of day on paper strip charts. The two smaller side panels house manually reset circuit breakers for each of the two services to the facility. Pilot lights on the front of these panels indicate which is in use. There is an auxiliary panel which controls power to the room lights, condensate pump, machine shop lights, air compressors and the exterior yard lights.

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The three central panels control power to the pumps. Each panel has pilot lights and a 1500-amp ammeter which indicates the current being drawn by its pump when operating. There is a switch to enable pump power to be drawn from either of the building electrical services. There is also a hour totalizing meter which indicates the total time each pump is in operation.

In addition to the change to electric power in 1938, extensive alterations were commenced in 1939. Renovations included construction of a new mezzanine floor and new concrete floors were poured to form a garage and record storage room in some of the areas formerly occupied by the steam generation system (Quilty 1939:106, DWSG&E 1939:38). Six buildings, including a machine shop, office, garage and storehouse were built just to the northwest of the Jerome Avenue Pump Station. A Works Projects Administration undertaking involved laying 2,000 square yards of reinforced concrete pavement in the Jerome Avenue Pump Station yard.

The design of the "High Pumping Station" is a good example of function dictating form. The building had to supply space for coal bunkers, fuel transport systems, boilers, boiler water treatment, ash disposal, in-house utilities and steam engines. Electrification in 1938 eliminated the need for all of these functions. Consequently the building has considerable space that was associated with its steam powered past that is not required for electric operation. This space has been utilized for storage of soil borings and public works records.

The architect adapted the Romanesque Revival style to industrial use. He kept the general form temperate but used an abundance of detail which contributes artistic appeal to a handsome building. The building clearly serves an industrial purpose yet blends into a residential or commercial neighborhood.

The design is attributed to George W. Birdsall. His name customarily appears on engineering documents for the Department of Water Supply, Gas and Electricity for the City of New York. Eventually, he was named Chief Engineer of the Croton Aqueduct. In this position he would have been the authority over the "High Pumping Station".

The Jerome Avenue Pump Station was listed as a city Landmark in 1981 and two years later was listed on the National Register of Historic Places. The National Register nomination form describes the structure as "a significant example of late nineteenth century utilitarian civic architecture in the Bronx which retains its original form and decorative details...The structure is significant for the unusually high quality of its architectural details and workmanship, features rarely encountered in such late utilitarian design." Current NYCDEP plans to stabilize the building are focused on the roof and the windows. The building will be refurbished and used for NYCDEP activities.

Mosholu Pump Station. The Mosholu Pump Station is an underground pump facility located at the corner of Goulden and Sedgwick Avenues. No above-ground features are associated with this facility. The station consists of a shaft which houses pipes and pumping equipment. The inner workings of this facility have been repeatedly updated through the years. None of the original workings are still in place. Although this facility may have once been potentially National Register
eligible as a component to the Aqueduct system, it has not retained its integrity and thus no longer meets the necessary criteria.

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EXISTING CONDITIONS

Archaeological Resources

Archaeological resources were assessed for the project site which includes the Jerome Park Reservoir (JPR) complex, encompassing the north and south basins and surrounding embankments, the subsurface Mosholu Pumping Station at the corner of Goulden and Sedgwick Avenues, the gate houses west of Goulden Avenue on Lot 1 of city Block 3246, and the Jerome Avenue Pump Station on Lots 401 and 9401 of Block 3251 at Jerome Avenue (Figure 2).

Potential Prehistoric Archaeological Resources. There is strong evidence of an extensive Native American presence in the surrounding neighborhood as indicated by the many habitation sites and trails documented historically and through recent archaeological investigations. The known Indian trail "Sachkerah," which once passed through the north basin of the reservoir but has since been obliterated, strongly supports the prehistoric Native American presence in the immediate area. Prehistoric campsites were frequently situated on well-drained knolls in proximity to fresh water sources, similar to those that existed within the project site prior to reservoir construction (Viele 1874; Figure 3). However, the creation of the reservoir obliterated all of these potentially sensitive landforms within the JPR, and almost certainly destroyed any which may have once existed directly outside of the basin.

Potential Historical Archaeological Resources. Historically, the project area was heavily utilized during the American Revolution which may have resulted in the deposition of potentially important archaeological materials within the project site. Fort Independence, ca.1776, was located directly north of the north basin, and Fort No. 5 was located just south of the south basin. During reservoir construction workmen reportedly encountered several cannon-balls, bayonets, swords, buttons, and other military relics, including burials. Following the war, the project area remained undeveloped and used as farm land through the late nineteenth century. A small farm complex was situated in what is now the north reservoir basin between the 1880s and 1890s.

Well-drained knolls and upland once within the project site probably hosted historically important revolutionary war period and late nineteenth century farmstead archaeological deposits. However, the creation of the reservoir obliterated all of these potentially sensitive landforms within the basin, and almost certainly any which may have existed outside its perimeter. Other historical archaeological resources which exist within the project site are associated with the reservoir and/or earlier water management facilities.

Archaeological Sensitivity Within Reservoir Basin. The documentary and cartographic records clearly indicate that the reservoir basin and land east to Jerome Avenue has experienced tremendous subsurface disturbance to its prehistoric and historical topography resulting in the destruction of any subsurface cultural deposits which may have once existed within its perimeter. The construction of the reservoir necessitated the removal of millions of cubic feet of soil from the site, enough so that Cromwells Creek and Westchester Creek could be filled, and streets throughout the borough could be raised.

The pre-reservoir topography of the reservoir site ranged in elevation from 123 feet to 158 feet above sea level (The Aqueduct Commissioners map: 1895). Soil borings conducted in 1991 (Warren George Inc. 1991) show that the pre-reservoir elevations were drastically reduced with extensive excavations, with the basin floor now laying between 108 feet and 109 feet above mean sea level. The knolls which may have once hosted prehistoric and historical period archaeological deposits were leveled, with between fourteen and forty-nine feet of earth removed for the creation of the reservoir. Even the lowlands and streams around the knolls, also in the reservoir basin and once depicted as about 123 feet above mean sea level (Viele 1874; Figure 3; The Aqueduct Commissioners map: 1895), have been removed and the land lowered by at least fourteen feet to 109 feet above mean sea level.

To create the reservoir basin floor, rock and soil were blasted out, and layers of soil, gravel, and cement were added, as reflected in the boring logs. Within both the north and south reservoir basins, boring logs generally depict 0-6" of concrete, underlain by several feet of sand and decomposed gneiss, underlain by 30-35 feet of weathered or unweathered gneiss (Warren George Inc.:1991). No evidence of topsoil or a B-Horizons were reported on the logs.

Archaeological Sensitivity South, North and West of Reservoir Basin. The excavations for the reservoir literally razed and removed archaeologically sensitive land as far east as Jerome Avenue, obliterating the top 14'+ of the prehistoric and historical landscape. However, to the south, north, and west of the reservoir, undisturbed "pockets" of land now under fill may still be moderately sensitive for prehistoric and revolutionary war related archaeological resources. As recently as 1958 an archaeological excavation at the Giles home lot on Giles Place, west of the reservoir complex, found stone foundations from Fort Independence's living quarters, as well as evidence of campfire hearths, a refuse dump, and miscellaneous camp and military equipment. These Revolutionary War features and artifacts had been preserved underneath the backdirt from the excavation of the Giles' basement (Lopez 1978:1). Similar small pockets of undisturbed land may exist outside of the reservoir basin.

Outside of the JPR basin walls there is an embankment surrounding the entire reservoir. Portions of the embankment were artificially created while other areas incorporated the natural topography. Borings indicate that the embankment is typically fill containing sand, gravel, cobbles, and concrete to 15 feet deep, followed by sand to 20 feet, and gneiss to 35 feet (Warren George Inc. 1991: Borings 159, 238, 300).

Between the reservoir and Sedgwick Avenue to the north current elevations range between 130 feet and 146 feet above mean sea level, with pre-reservoir construction elevations ranging between 138 feet and 150 feet. Here borings indicate there is typically half to one foot of topsoil underlain by between three and 32 feet of sand, silt, gravel, and boulders, underlain by gneiss (Warren George Inc. 1991: Borings 282, 299, and 311). There is no evidence of subsoil or a B-horizon. Two small extant knolls, one about 300 feet west of gate house No. 2, and the second about 600 feet west of gate house No. 2, all within the chain-link fence surrounding the site, appear unchanged from their prereservoir construction elevations and, where subsurface utility lines are not present, may possess archaeological deposits from either the prehistoric or historical periods.

Similarly, the project site south of the basin may also have small pockets of undisturbed subsoil containing potentially important prehistoric and historical archaeological deposits. However, the limited indicators for such sensitive zones along the southern embankment of the existing reservoir basin are not at all definitive. Given the extent of reservoir construction impacts, the likelihood that they have remained undisturbed is minimal.

Archaeological Sensitivity East of Reservoir Basin. Since all land east of the extant reservoir was excavated for the construction of a second basin in the early twentieth century, and was then filled in, there is no potential for pre-twentieth century cultural resources to exist as far east as Jerome Avenue. However, some buried water-related features associated with the JPR are considered significant resources (Note: The ca.1840 croton aqueduct, although considered a buried resources, will be discussed below as a Historic Resource.)

Piping. Two existing 48 inch water pipes and other utility lines run the length of Goulden Avenue, and connect to gate house No. 5 at West 205th Street.

Gate House No. 4. East of Goulden Avenue, gate house No. 4 was built just south of West 205th Street on what is now the Transit Yard. The gate house was built at the time of original reservoir construction, ca. 1900 when the original plans called for the reservoir to be twice as large, with Goulden Avenue planned as a dividing wall between two large basins. Although the gate house has since been removed, remnant foundation walls can apparently still be seen in the Transit Yard. (Note: Gate house 4 is outside the project site, but falls within the greater study area).

Mosholu Pump Station. The Mosholu Pump Station is an underground pump facility located at the corner of Goulden and Sedgwick Avenues. No above-ground features are associated with this facility, thus it is considered an archaeological feature. The station consists of a shaft which houses pipes and pumping equipment. The inner workings of this facility have been repeatedly updated through the years. None of the original workings are still in place. Although this facility may have once been potentially National Register eligible as a component to the Aqueduct system, it has not retained its integrity and thus no longer meets the necessary criteria. Currently, the pump station is being upgraded with construction to provide a better support system for existing pumps.

Historic Resources

Historic Resources were assessed for both the Project Site and the greater Study Area.

Project Site. The project site includes the extant Jerome Park Reservoir and associated gate houses No. 2, 3, 5, 6, and 7, the Jerome Avenue Pumping Station, and the subsurface Mosholu Pumping Station located at the corner of Goulden and Sedgewick Avenues.

Jerome Park Reservoir. The reservoir is an important element in New York City's water system and its construction in the early twentieth century reflects the evolution of the water system as the city expanded. The Jerome Park Reservoir is the oldest system supplying water to New York City and is the one closest to the City. According to the NYCLPC Environmental Review (January 4, 1994), the Jerome Park Reservoir and extant gate houses surrounding the reservoir (2, 3, 5, 6, and 7) appear to be eligible for National Register Listing and/or New York City Landmark Designation (Gina Santucci, NYCLPC; Shaver 1994). At this time, National Register nomination has not been pursued.

The major architectural feature of the reservoir structure itself is the low ring wall of massive rockfaced stone blocks (see Photographs). At the west and much of the north sides, the reservoir wall is built above the level of the street and the water is not visible. Physically the reservoir is set apart from its surroundings. Much of it is raised above eye level and its use and design are different from that of the neighborhood. It is, however, a structure that, by dint of its scale and placement in the area, is a defining element of the neighborhood.

Jerome Park Reservoir Gate Houses. The other major architectural features of the Jerome Park Reservoir are the brick gate houses located along the periphery of the structure (see Gate House Photographs). Two of these, gate house No. 5 on Goulden Avenue at West 205th Street and gate house No. 7 at the corner of Goulden Avenue and Sedgwick Avenue, are substantial structures while the others are small buildings. Gate house superstructures of some sort were erected within a few years of the reservoir's original construction. The gate house superstructures now extant were all apparently built in the 1930s with money provided by the Federal government as part of its Depression-era public works projects. Gate house No. 1 is below ground to the north near Van Cortland Park, outside of the project site. Gate house No. 6 was originally constructed at what was to be the eastern end of the larger reservoir near what is now the Kingsbridge Armory, but was later moved to its present location (see preceding section for an extensive discussion of the history of each gate house).

Jerome Avenue Pump Station. Currently, the Jerome Avenue Pump Station (a.k.a. "High Pumping Station") is listed on the National Register of Historic Places, and is a designated New York City Landmark. The Jerome Avenue Pump Station is located on the west side of Jerome Avenue between Mosholu Avenue and 205th Street, several blocks west of the reservoir itself. The structure, built between 1901 and 1906, was designed by George W. Birdsall. Built by the Department of Water Supply, Gas and Electricity, it was constructed as part of the Jerome Reservoir complex, an adjunct to the Croton Aqueduct system. The station was designed to pump water from the reservoir to consumers throughout the borough. From its start-up in 1906 until 1938 the water was pumped with three steam powered centrifugal pumps manufactured by the Warren Steam Pump Company. In 1938 the steam boilers were removed and the engines powering each pump replaced with electric motors. Consequently, the building has considerable space that was associated with its steam powered past that is not required for electric operation.

In 1981 the structure received Landmark status from the NYCLPC, and in 1983 it was listed on the National Register of Historic Places (NR). The National Register nomination form describes the structure as "a significant example of late nineteenth century utilitarian civic architecture in the Bronx which retains its original form and decorative details...The structure is significant for the unusually

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high quality of its architectural details and workmanship, features rarely encountered in such late utilitarian design" (United States Department of the Interior 1983: Statement of Significance). Currently (April, 1998) contracting is in process to rehabilitate the Jerome Avenue Pump Station by replacing the roof and windows

Old and New Croton Aqueducts. The Old Croton Aqueduct, dating to the 1840s and rebuilt in the 1890s within the project site, runs within the upper portions of the eastern perimeter wall of the reservoir. The New Croton Branch Aqueduct also runs within this wall. The two systems are situated side by side, with the Old Croton Aqueduct located on the reservoir side. The New Croton Aqueduct runs beneath the reservoir floor, paralleling Goulden Avenue.

The Old Croton Aqueduct north of New York City is currently listed on the National Register of Historic Places. Both this system and the New Croton Aqueduct (1887-1893), which runs through the Jerome Park Reservoir, are potentially eligible for inclusion on the National Register. At this time, the NYCLPC does not intend to pursue granting these structure Landmark status. However, the NYSOPRHP has confirmed their potential significance (Shaver 1994).

Study Area. The study area includes both the project site and structures bordering both sides of tangential Goulden and Sedgwick Avenues. The study area, as per suggested New York City Environmental Quality Review (NYCEQR) Manual guidelines, included both the project site and areas within 400 feet of the DEP boundary fence.

To the east of the extant reservoir, where a second basin of the reservoir was originally to be built, there are a series of public buildings, including Lehman College, the Bronx High School of Science, DeWitt Clinton High School, Walton High School, and the Kingsbridge Armory which is a New York City Landmark and is listed on the National Register. Nearby the Amalgamated Houses, to the north of the reservoir, and the Sholom Aleichem Houses, immediately west of the reservoir, are both National Register eligible apartment houses.

The Kingsbridge Armory. The Kingsbridge Armory (originally the Eighth Coastal Artillery Armory/Later the Eighth Regiment Armory), located on the full block bounded by Kingsbridge Road, Reservoir Avenue, West 195th Street, and Jerome Avenue, is one of the largest and most impressive structures in the Bronx. In recognition of the importance of the armory, it was designated a New York City Landmark on September 24, 1974 and was listed on the National Register of Historic Places on December 21, 1992.

The early history of the Kingsbridge Armory is closely related to that of the Jerome Park Reservoir. The site of the armory was initially part of the area designated for the eastern basin of the reservoir. This basin was never completed and the land was eventually converted for use by the armory, Hunter College (now Lehman College), DeWitt Clinton High School, Bronx High School of Science, and other public facilities.

The New York State Legislature authorized use of the site for a National Guard armory in 1911. The armory was assigned to the Eighth Coastal Artillery which was then located in an armory on Madison

Avenue and East 94th Street. The regiment traces its history back to 1786 with the establishment of a peace-time militia in New York State. The Eighth Coastal Artillery moved from its Manhattan location to a considerably larger home in the Bronx upon the completion of the new armory on Kingsbridge Road in 1917.

The Kingsbridge Armory (as it is now generally known) was designed in 1912 by the firm of Pilcher & Tachau, a local firm that had experience in armory design, having been acclaimed for its design of the Troop C armory in Crown Heights, Brooklyn. The Kingsbridge Armory is a massive neomedieval structure erected with brick street facades set in front of an enormous drill shed. The design of the building resembles a medieval French fortress, complete with round towers capped, conical roof slopes, crenelated walls, and bartizan towers. The design clearly reflects the influence of the great French architect Eugène Emmanuel Violette-le-Duc's mid-nineteenth-century reconstruction of the medieval castle at Pierrefonds, just outside of Paris. At the time of its completion, the armory had the world's largest drill hall, measuring 300 by 600 feet. It is set beneath a vaulted roof supported by a double-truss steel frame. The building also contains regimental offices and other spaces popular in early twentieth-century armories.

40th Police Precinct Station House. The 40th Police Precinct Station House (now a community center), located at 3101 Kingsbridge Terrace, is currently a New York City Landmark.

Sholom Aleichem Houses. The Shalom Aleichem Houses, located at Giles Place at Sedgwick Avenue are eligible for listing on the National Register of Historic Places.

Amalgamated Houses. The Amalgamated Houses, located at Sedgwick Avenue, Hillman Avenue, Van Cortlandt Park South, Gouverneur Avenue, and Saxon Avenue, are eligible for listing on the National Register of Historic Places.

DeWitt Clinton High School. The DeWitt Clinton High School, located at Mosholu Parkway South between Goulden and Paul avenues, is eligible for listing on the National Register of Historic Places.

Hunter College (now Lehman College). Hunter College, now Lehman College has four original buildings (Main Gym, Davis, and Gillet) which are eligible for listing on the National Register of Historic Places.

2860 Webb Avenue. A Queen Anne House at 2860 Webb Avenue, located on the southeast corner Reservoir Avenue (now Our Lady of Angels Rectory) is eligible for listing on the National Register of Historic Places

THE FUTURE WITHOUT THE PROJECT

In the event that the proposed WTP/TWR/FWPS is not constructed on the Jerome Park Reservoir site, and no other CWTP alternative development occurs at this site or in the immediate vicinity, then there will be no anticipated visual or structural impact to any identified historic resources in the area. Each identified historic site will remain in its continued use. The Jerome Avenue Pump Station will be repaired and refurbished for continued use by the DEP. Furthermore, any archaeological resources located outside of the reservoir boundaries will most likely remain undisturbed in situ.

In addition, the Demonstration Plant would be demolished. This temporary structure has no potential historic and/or archaeological value, thus this action would have no impact to cultural resources. The Urban Ecology Center would remain in use, and increased perimeter access and/or public events would continue. This would also have no anticipated effect on cultural resources.

It is anticipated that even without the proposed construction project that the existing Jerome Avenue Pump Station will be repaired and the interior refurbished for possible storage and office use by the DEP. This will have a positive effect on this National Register site, staving off possible structural deterioration and ensuring its use through rehabilitation.

PROBABLE IMPACTS OF THE PROPOSED PROJECT

The proposed alternatives include eight different project footprints for the Jerome Park Reservoir (JPR) site (Table 1). These range from a 14 acre footprint in the south basin if the Water Treatment Plant (WTP), Treated Water Reservoir (TWR), and Finished Water Pumping Station (FWPS) are built at JPR to some below-ground connections to existing piping if the WTP, TWR, and FWPS are built elsewhere. An intermediate impact would occur if the WTP is sited at another site and a 9.5 acre TWR, FWPS, and Low Lift Pump Station (LLPS) were built in the north basin of JPR (Figure 22).

The JPR site is on property owned by the City of New York and in use as a open finished water reservoir. Related facilities, including several gate houses around the site, would be architecturally stabilized but otherwise unimpacted by the proposed action. The existing demonstration plant on Goulden Avenue, a temporary structure, would be demolished and the area converted for park-like use.

All the alternative structures that are proposed would be built with flat roofs and covered with grass, and publicly accessible walkways. For the alternative of a TWR and FWPS the low-lying structure would provide a wide, grass-covered bridge that would link Fort Independence Park to Goulden Avenue across from Harris Park. Existing parking currently utilized by Lehman College along Goulden Avenue would be either restored after construction or replaced by a garage adjacent to the WTP facility. Any parking that would be taking during construction, would be replaced within the drained side of the reservoir. Truck access to the WTP or FWPS would be from a new driveway off Goulden Avenue which would drop down into the plant below grade.

If another alternative site is selected for the water treatment plant, the use of the Jerome Park Reservoir and some or all of its facilities may no longer be required for water supply purposes. The reservoir and these facilities may then be decommissioned as part of the project, and converted to other uses.

Archaeological Resources

Documented disturbance clearly indicates that within the Jerome Park Reservoir basin there is no potential for archaeological deposits to have withstood, intact, the effects of original reservoir construction. Therefore, construction over or within the basin will not impact any potential archaeological resources. All land east of the extant reservoir basin is also considered too disturbed to possess pre-twentieth century cultural resources since this area was excavated in the early twentieth century for the second basin, and was later filled in to accommodate Goulden Avenue and structures east of it. Therefore, pipe laying and construction impacts east of the basin, as far east as Jerome Avenue, will not disturb any archaeologically sensitive areas.

Historic Resources.

The Jerome Park Reservoir complex is a historically important feature. According to the NYSOPRHP the Jerome Park Reservoir and extant gate houses (2, 3, 5, 6, and 7) surrounding the reservoir are eligible for National Register status as a major component of the Croton Aqueduct system. Both the Old and New Croton Aqueducts are also NR eligible structures. The Old Croton Aqueduct and New Croton Branch Aqueduct run through the east wall of the reservoir, while the New Croton Aqueduct runs beneath the reservoir basin paralleling Goulden Avenue.

The construction of the proposed structures within the south basin of the JPR would represent a negative impact on this historic resource. A portion of the eastern reservoir wall would be destroyed, which may disturb the historically important Old Croton Aqueduct and New Croton Branch Aqueduct. A section of the reservoir would be filled in, and a section of the historically significant New Croton Aqueduct would be altered by the creation of a new connection.

In this scenario, the proposed WTP would rise about two feet above the existing perimeter of the reservoir, the TWR would rise, at most, about twelve feet above the existing perimeter of the reservoir, and the FWPS would rise about two feet above it, visually disrupting the existing view scape. However, the roof tops of buildings would be covered with earth and grass to create a park-like environment.

If the proposed WTP is built off-site, then the proposed TWR would be constructed within the north basin of the reservoir, just north of the existing dividing wall and would extend almost to the north side of the reservoir at Fort Independence Park. The structure would rise about twelve feet above the water line, and the roof would be planted as a lawn. As part of this alternative, a proposal has been made to extend the built portion in a northwesterly direction so that it would connect with Fort Independence Park and the rooftop lawn would be open to the public, permitting people to walk from Fort Independence Park to Goulden Avenue. The FWPS would also be built in the southeast corner of the north basin just west and north of gate house 5, and it would physically abut the east wall and the existing dividing wall. It would also be covered with a rooftop lawn.

The construction of the proposed structures within the north basin of the JPR would also represent a negative impact on this historic resource. A portion of the eastern reservoir wall would be destroyed, which may disturb the historically important Old Croton Aqueduct and New Croton Branch Aqueduct. A section of the reservoir would be filled in, and a section of the historically significant New Croton Aqueduct would be altered by the creation of a new connection.

This proposal for the north basin would also have a serious negative impact on a historic resource since the landscaped park would bisect the reservoir, dividing it into two distinct water basins. In addition, the proposed structures would rise to twelve feet above the water line in some places. Thus its presence would constitute a major visual impact especially when viewed from Fort Independence Park or elsewhere near the northern portion of the reservoir. The new proposed structures would also visually compete with gate house 5. Furthermore, impacts to the east wall may disturb the historically important Old Croton Aqueduct and New Croton Branch Aqueduct.

The adjacent Jerome Avenue Pump Station ("High Pumping Station") is a designated New York City Landmark and is listed on the National Register of Historic Places. No impacts are anticipated to this structure by the presence of the proposed structures within the JPR.

The existing superstructures of gate houses (2, 3, 5, 6, and 7) associated with the JPR would be preserved by the NYCDEP, although new subsurface pipe connections to the existing gate house substructures may be necessitated. However, there would be no negative structural impacts to any of the existing gate houses' superstructures.

In addition to these construction scenarios, the north and/or south basin of the JPR would be temporarily drained and used for worker parking for any of the proposed CWTP alternatives. In the event that this is realized, creating parking areas may cause a temporary adverse impact to this historically important resource since the water that defines its character would be removed. The floor of the basin was not designed for automobile parking and might be damaged by vehicular parking and/or construction needed to create parking areas.

CONCLUSIONS AND RECOMMENDATIONS

The Jerome Park Reservoir complex is a historically important feature. According to the NYSOPRHP the Jerome Park Reservoir and extant gate houses (2, 3, 5, 6, and 7) surrounding the reservoir are eligible for National Register status as a major component of the Croton Aqueduct system (Shaver 1994). Also NR eligible, the Old Croton Aqueduct and New Croton Branch Aqueduct run through the east wall of the reservoir, while the New Croton Aqueduct runs beneath the reservoir basin paralleling Goulden Avenue.

Construction of any of the proposed structures (Water Treatment Plant - WTP, Treated Water Reservoir - TWR, and Finished Water Pumping Station - FWPS) would create a negative impact to these historic resources. Some impacts would be caused during the actual construction of structures, while others would result from the presence of structures which would compromise the existing view scape and historical context. While the WTP/TWR/FWPS south basin proposal would cause the greatest horizontal area of impact, the TWR/FWPS north basin proposal may cause the greatest visual impacts since the JPR will be visually bisected.

Mitigation

Historic Resources. It would be difficult to mitigate the impact of these significant additions to the reservoir. If structures are built within the reservoir, then the portions of the reservoir wall and the two aqueducts which will be physically impacted should be carefully recorded and photographed. If possible, all pieces removed should be salvaged and stored in a secure location so that these elements could be used for future restoration projects elsewhere along the reservoir's wall. In addition, the design should be as sensitive as possible, with efforts made to create a structure that would have minimal visual impact. In addition, it is important that connections to the New Croton Aqueduct be undertaken as carefully as possible so that little of the historic construction is disturbed or damaged.

For all alternatives, the proposal to landscape the roof tops of the new facilities would be a positive mitigation effort, but it would not fully mitigate the physical division of the reservoir and the significant visual impact of the proposed buildings. For the TWR/FWPS alternative, the link between Fort Independence Park and Goulden Avenue might be an amenity appreciated by the neighborhood and the idea should be discussed with representatives of local community groups and the local Community Board, should this alternative be chosen.

If the north and/or south basins of the JPR are temporarily drained and used for worker parking for any of the proposed CWTP alternatives, impacts to this historically important resource can be mitigated by ensuring that it is returned to its pre-construction configuration. Pre-construction site documentation for the proposed parking area would aid in returning the site to its former state.

Archaeological Resources. Since no archaeological resources will be impacted, no mitigation is required

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NO SCALE PROJECT AREA BOUNDARY

FIGURE 3 1874 VIELE TOPOGRAPHICAL ATLAS OF THE CITY OF NEW YORK INCLUDING ANNEXED TERRITORY



FIGURE 4 - 17TH CENTURY INDIAN TRAILS AND PLACE NAMES SOURCE: GRUMET 1981:69

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FIGURE 5 HISTORICAL SKETCH MAP OF KINGS BRIDGE 1645-1783 SOURCE: SCHARF 1886 VOL. 1:746



NOTE: 3.01 feet must be added to each contour number to compare with currently used elevations

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FIGURE 7 DISTURBANCE FROM CONSTRUCTION OF JEROME PARK RESERVOIR, 1905 SOURCE: ULTAN & HEMALYN 1985

After the demise of the Jerome Park racetrack, most of its site was used for the Jerome Park reservoir, whose excavation is seen in 1905 from the pumping station. Most of the laborers constructing the reservoir were Itlian immigrants. The Van Cortlandt Park parade ground is in the open area in the center background. Van Cortlandt Lake is to the right of the parade ground, below Vault Hill, The Palisades of New Jersey are on the horizon. (Ultan & Hemalyn)

Figure 8



New York City Aqueduct Commissioners 1907 "Report to the Aqueduct Commissioners, by The President"





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New York City Aqueduct Commissioners 1907 "Report to the Aqueduct Commissioners, by The President" Plate 42



PIPE VAULT OF CATE-HOUSE NO. 2, JEROME PARK RESERVOIR. NOVEMBER 18, 1899.

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New York City Board of Water Supply, Research and Development Dept. 1965 "Croton Rehabilitation Studies, Plan: Jerome Park Reservoir Gate House No. 3," Acc. XC-216/8/10/65. [reduced for reproduction]



DRAWN BY: A. Chen



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New York City Aqueduct Commissioners 1907 "Report to the Aqueduct Commissioners, by The President, John F. Cowan." Plate 51



BUILDING GATE-HOUSE NO. 4. JEROME PARK RESERVOIR. APRIL 13. 1906.

New York City Aqueduct Commissioners 1907 "Report to the Aqueduct Commissioners, by The President, John F. Cowan." Plate 46



BUILDING GATE-HOUSE NO. 5, JEROME PARK RESERVOIR, MAY 6, 1901,



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New York City Aqueduct Commissioners 1907 "Report to the Aqueduct Commissioners, by The President, John F. Cowan." Plate 50



PIPE-LINE BETWEEN CATE-HOUSES NOS. 3 AND 5. JEROME PARK RESERVOIR. OCTOBER 21, 1905.



SHEET 50



New York City Aqueduct Commissioners 1907 "Report to the Aqueduct Com

"Report to the Aqueduct Commissioners, by The President, John F. Cowan." Plate 37



CONDUIT FROM OLD AQUEDUCT TO CATE HOUSE NO. 6. JEROME PARK RESERVOIR. MAY 14. 1898.


Figure 20

New York City Aqueduct Commissioners 1907 "Report to the Aqueduct Commissioners, by The President, John F. Cowan." Plate 51



CATE-HOUSE NO. 7. JEROME PARK RESERVOIR. JANUARY 30, 1906.

Figure 21



SCALE IN FEET

JEROME AVENUE - THE BRONX

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Figure 22a

Proposed Water Treatment Plant, Treated Water Reservoir, and Finished Water Pump Station at Jerome Park Reservoir Bronx, N.Y.





A) Location of Fort #5. The park on the raised outcrop is at the intersection of University and Reservoir Avenues at the south end of Jerome Park Reservoir. Facing northwest.



B) Fort Independence Park. This is the location of Fort Independence or Fort #4 at the north end of the reservoir. Facing north.



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C) Gate house No. 2 on the north edge of the reservoir. Facing south from Sedgwick Avenue.



D) Northern section of the reservoir. Gate house No. 2 is at left. Facing north from the dividing wall.



E) Gate house No. 3 on the west side of the reservoir. Facing east from Sedgwick Avenue.



F) Gate house No. 3. Facing southwest from the dividing wall.



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G) Gate house No. 5 on the east side of the reservoir. Facing west from Goulden Avenue.



H) Interior of Gate house No. 5 showing the valve mechanisms and support columns. This gate house abuts Shaft 21 linking the "New Aqueduct," 115' underground, to the surface.



Key to Photographs of Jerome Park Reservoir Gate Houses 2-3-5-6-7







2. Gate House 5 -View of south elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses



3. Gate House 5 -View of west elevation of Gate House.



4. Gate House 5 -View of north elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses







6. Gate House 7 -View of west elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses







8. Gate House 7 -View of north elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses







12. Gate House 2 -View of south elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses



9. Gate House 2 -View of north elevation of Gate House.

10. Gate House 2 -View of west elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses





14. Gate House 3 -View of west elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses







16. Gate House 3 -View of north elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses







18. Gate House 6 -View of north elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses







20. Gate House 6 -View of east elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses



21. Gate House 6 -View of north and east elevation of Gate House.

Photographs of Jerome Park Reservoir Gate Houses

1994 Photograph

Jerome Avenue Pump Station/High Pumping Station

view: southwest to northeast



APPENDIX

- A. Correspondence with the New York State Museum
- B. Site File Search New York State Office of Parks, Recreation and Historic Preservation

NEW YORK STATE MUSEUM

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

Anthropological Survey

Page 1 of 2

DATE: 12/10/93

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

Proposed Project: JEROME PARK RESERVOIR 7.5' U.S.G.S. Quad: YONKERS+

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

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

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

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

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

RESULTS OF THE FILE SEARCH:

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

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

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

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

12/10/93 To: CECE KIRKORIAN, HISTORICAL PERSPECTIVES

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(S) IS(ARE) INDICATED IN, ADJACENT TO, OR IN THE VICINITY OF THE LOCATION AND WE HAVE REASON TO BELIEVE IT(THEY) COULD BE IMPACTED BY THE PROPOSED ACTIVITY.
- A RECORDED SITE IS INDICATED IN THE GENERAL VICINITY OR SOME DISTANCE AWAY. DUE TO THE MARGIN OF ERROR IN THE LOCATION DATA IT IS POSSIBLE THE SITE ACTUALLY EXISTS IN OR IMMEDIATELY ADJACENT TO THE LOCATION.
- [1] 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:



N.Y.S.M. SITE FILES ROOM 3122 CULTURAL EDUCATION CENTER ALBANY, NEW YORK 12230	PHONE: (518) 474-5813 FAX: (518) 473-8496
NEW YORK STATE MUSEUM: OF PREIIISTORIC SITE PROJECT SC Screening file site locations	FICE OF THE STATE ARCHEOLOGIST REENING FILE: USE REQUEST FORM are by generalized .5 mile circle.
NAME Cece Kurksman	
AGENCY/COMPANY/INSTITUTION REPRESENTED	storical perspectives
ADDRESS PO BOX 331	
- RIVELLICE PT 268	78 Phone # (203) 1991- 0734
RESUBMIT THIS REQUEST IF ACTION IS TAKEN MOR	E THAN ONE YEAR AFTER RESPONSE DATE.
PURPOSE OF REQUEST: Identify the proposed project, Project identifier <u>kromu pair Reserve</u>	contractor, and nature of the work.
EVENTUAL DISTRIBUTION OF DATA: (Specify range	of data use and distribution, publication, reproduction, etc.).
client, nurreyality	+ raven agency
REQUESTED APPOINTMENT: Appointments are on th	e hour between 9 a.m. and 12 noon on Wednesdays.
1st Choice 2nd Cho	ice time (or any)
Appointments may be made by phone on Tuesday mornings 2 weeks in advance of appointment date. You will be not	i or may be requested by mail. Requests should be mailed at least ified of your appointment date by mail.
U.S.G.S. 7.5' MAPS REQUESTED: (indicate if 15' maps)	
Yoncus Central Park	
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	
SITE #. 7.5' MAP	I understand that the information provided is to be used solely for the preparation
2831 (antral Park Reservoir-	of an environmental impact statement as required by State or Federal law and must
5322 " do marked 300	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. $\frac{12-7-93}{(Date)}$
Further listings on back	(Signature) (Date)
Please provide a sensitivity Ind rating for the attached project area	icate which you prefer Mail my response (addressed envelope attached) Hold my response for pick-up on (give date & time)

SITE FILE SEARCH RESULTS

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conducted by Blair + Pene date 12/3 + 12/7/93 Project Jerone Park Reservor Village Town County BANY Kings Bridg HRS Jerome Park Bedford park Prehistoric archeological sites (12) (list on back) New York State Museum Site sensitivity requested

Office of Parks, Recreation and Historic Preservation Archeological sites Building/Structure forms National Register listing Previous Surveys

NYSM	1# Other#		time pert type	Source of differ	1.0		0
2839	<u>3KNX-17</u>		villi+0 { ->		VAREER		C. Fack
5322	ACR	1	TRALES		PAREAL		
4056	ACP NYRK-1.		ND. TRAILY		PARLER		۰.
4052	ACP NYPE-2		SHELL	"SHELL HEAP"	PARKER		1.
1053	ALP NVICK-3		SHELL MIDD	"VILL. SITE +	, BHUKER		67
4055	HCP HCP		VILLAGE,	"POTT. VESSEL	-1204 + 22161.91	 ز	. 1
- 321	AW		TRACES		OBACLAN		VILLEVEL
- C-20	HCD HCD				n Lat Vica		10
× 0 <u>20</u> 200	<u>BRNX-IL</u> HAR			1588010,	PRICEIL		
÷01	1-1	KANDUCK		(QUADS)			
Buildi	ng/Structur	re Forms:					
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ARCHEOLOGICAL SITE INVENTORY FORM	FOR OFFICE USE ONLY
DIVISION FOR HISTORIC PRESERVATION NEW YORK STATE PARKS AND RECREATION ALBANY, NEW YORK	UNIQUE SITE NO. <u>Aco.5-01-00.56</u> QUAD. <u>Central Acor</u> SERIES
518 474-0479	NEG. NO
REPORTED BY: Michael Cohn	
YOUR ADDRESS: 179 Bennett Auc	<u>NYC</u> TELEPHONE: <u>h 942 - 725</u>
ORGANIZATION (if any): Brocklyn Ck	ildrens Museum (For ident, F.
DATE: Feb 18 1977	
	* * * * * * * * * * * * * * * *
1. SITE NAME: FORT # 4	
2. COUNTY: Bronx TOWN/CITY: L	1/Y C
3. LOCATION: SW/ CERAR AF JAR	and Resevoir +
Lew rodg east	of Sedgwick Ave
4. PRESENT OWNER:	
5. OWNER'S ADDRESS:	
6. DESCRIPTION, CONDITION, EVIDENCE OF SITE:	
STANDING RUINS	CELLAR HOLE WITH WALLS
SURFACE TRACES VISIBLE	WALLS WITHOUT CELLAR HOLE
□ UNDER CULTIVATION □ EROSION	UNDERWATER
NO VISIBLE EVIDENCE	
7. COLLECTION OF MATERIAL FROM SITE:	
□ SURFACE HUNTING BY WHOM <u>Calve</u>	27 2 Bollon DATE 1910
TESTING BY WHOM	DATE
DE EXCAVATION BY WHOM	DATE
NONE	
	(HS

9. HISTORICAL DOCUMENTATION OF SITE:

Bolton, Relics of the Revolution p206.

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

Destroyed

11. REMARKS:

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME: _____

15 MINUTE SERIES QUAD. NAME: _____

U.S.G.S. COORDINATES:

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

ATTACH SKETCH, TRACING OR COPY OF MAP

1.44

(ATTACH)

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SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

Verify and state

ARCHEOLOGICAL SITE INVENTORY FORM	FOR OFFICE USE ONLY
DIVISION FOR HISTORIC PRESERVATION	UNIQUE SITE NO. Aco. 5 -01 - 0054
NEW YORK STATE PARKS AND RECREATION	SERIES
518 474-0479	NEG. NO
REPORTED BY: Michael Cohn	
YOUR ADDRESS: 179 Beinett A	$\frac{(6)}{9} = \frac{7}{9} = \frac{7}{2}$ TELEPHONE: $\frac{(6)}{6} = \frac{9}{9} = \frac{7}{2}$
ORGANIZATION (if any): NY Chapt.	NYSAS
DATE: Fr.b 18, 1977	
***********	* * * * * * * * * * * * * * * * * * * *
I SITE NAME: FORT #6	
2. COUNTY: Bron TOWN/CITY:	New York VILLAGE:
3. LOCATION: Kingsbridge Rd	+ Sedquick Ave-
3. LOCATION: Kingsbridge Rd	+ Sedquick Ave
3. LOCATION: Kings bridge Rd	+ Sedquick Ave.
3. LOCATION: Kings bridge Rd 4. PRESENT OWNER:	+ Sedgwick Ave.
3. LOCATION: <u>Kings bridge</u> Rd 4. PRESENT OWNER: <u></u> 5. OWNER'S ADDRESS: <u></u> 6. DESCRIPTION, CONDITION, EVIDENCE OF SIT	E:
 a. LOCATION: Kings bridge Rd 4. PRESENT OWNER:	E: Cellar Hole with Walls
 a. LOCATION: Kings bridge Rd 4. PRESENT OWNER:	E: Cellar Hole with Walls Walls Without Cellar Hole
3. LOCATION: Kings bridge: Rd 4. PRESENT OWNER:	E: Cellar Hole with Walls Walls Without Cellar Hole ON
3. LOCATION: Kings bridge: Rd 4. PRESENT OWNER:	E: Cellar Hole with Walls Walls Without Cellar Hole ON UNDERWATER
3. LOCATION: Kingsbridger Rd 4. PRESENT OWNER:	E: Cellar Hole with Walls Walls Without Cellar Hole ON UNDERWATER
 3. LOCATION: Kings bridge Rd 4. PRESENT OWNER:	E: Cellar Hole with Walls Walls without cellar Hole $ON \square UNDERWATER$ $C_phan A_{sy} / UmDATE 1999$
3. LOCATION: Kings bridges Rd 4. PRESENT OWNER:	E: Cellar Hole with Walls Walls without cellar Hole ON UNDERWATER Comphan Asy Iwa DATE 1999 DATE
3. LOCATION: Kings bridge: Rd 4. PRESENT OWNER:	E: Cellar Hole with Walls Walls Without Cellar Hole ON UNDERWATER Comphan Asy low Date 1999 Date
3. LOCATION: Kings bridge: Rd 4. PRESENT OWNER:	E: Sedywick Ave

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9. HISTORICAL DOCUMENTATION OF SITE:

Jenkins History of the Brown P 344

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

Destroyed

11. REMARKS:

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME: _____

15 MINUTE SERIES QUAD. NAME: _____

U.S.G.S. COORDINATES:

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

ATTACH SKETCH, TRACING OR COPY OF MAP

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

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ARCHEOLOGICAL SITE INVENTORY FORM DIVISION FOR HISTORIC PRESERVATION NEW YORK STATE PARKS AND RECREATION	I FOR OFFICE USE ONLY
DIVISION FOR HISTORIC PRESERVATION NEW YORK STATE PARKS AND RECREATION	UNIQUE SITE NO. A COS-c/-0053
ALBANY, NEW YORK	SERIES
518 474-0479	
REPORTED BY: Michael Cohr	6 735-44
YOUR ADDRESS: 179 Branett	AVE NIC TELEPHONE: 6 742 -72
ORGANIZATION (if any): Met Chapter	- NYSAS
DATE: Feb 18, 1977	
	* * * * * * * * * * * * * * * * * *
1. SITE NAME: Kingsterity & King	g's Redoubt
2. COUNTY: Brow TOWN/CITY:	NYC
3. LOCATION: 195 St + Kingsh	ridge Rol
	· · · · · · · · · · · · · · · · · · ·
4. PRESENT OWNER:	
5. OWNER'S ADDRESS:	
6. DESCRIPTION, CONDITION, EVIDENCE OF SIT	E:
□ STANDING RUINS	CELLAR HOLE WITH WALLS
SURFACE TRACES VISIBLE] WALLS WITHOUT CELLAR HOLE
□ UNDER CULTIVATION □ EROSE	ON 🗌 UNDERWATER
NO VISIBLE EVIDENCE	R
7. COLLECTION OF MATERIAL FROM SITE:	~
SURFACE HUNTING BY WHOM CA	1Ver DATE 19.20 (2)
□ TESTING BY WHOM	DATE
EXCAVATION BY WHOM	DATE
□ NONE	
	IV Higt Ser

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9. HISTORICAL DOCUMENTATION OF SITE:

Calver Ms NYHS Clinton Map 151

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

Presumably Destroyed

11. REMARKS:

12. MAP LOCATION

ATTACH SKETCH, TRACING OR COPY OF MAP

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

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ARCHEOLOGICAL SITE INVENTORY FORM

DIVISION FOR HISTORIC PRESERVATION NEW YORK STATE PARKS AND RECREATION ALBANY, NEW YORK

518 474-0479

FOR OFFICE USE ONLY

UNIQUE SITE NO. <u>A co.5- 01 - 005</u>5 QUAD.______ SERIES______ NEG. NO._____

REPORTED BY: Michael Cohn	
YOUR ADDRESS: 179 BEGINE AVE TELEPHONE: 6 942-7235	
ORGANIZATION (if any): Brockly: Childrens Museum Gar- identificat.	'n
DATE: F=18, 1977	/
• • • • • • • • • • • • • • • • • • •	
1. SITE NAME: FF # 8	
2. COUNTY: Brank TOWN/CITY: New York VILLAGE:	
3. LOCATION: Hall of Family yrad - Physical Fed Blog NYU	
4. PRESENT OWNER: BX Community College	
5. OWNER'S ADDRESS:	
6. DESCRIPTION, CONDITION, EVIDENCE OF SITE:	
□ STANDING RUINS □ CELLAR HOLE WITH WALLS	
SURFACE TRACES VISIBLE UNALLS WITHOUT CELLAR HOLE	
UNDER CULTIVATION EROSION UNDERWATER	
NO VISIBLE EVIDENCE	
7. COLLECTION OF MATERIAL FROM SITE:	
SURFACE HUNTING BY WHOM Schwich Mansien DATE 1857	
TESTING BY WHOM Pr Theodore Kazi DATE 1960	
X EXCAVATION BY WHOM DATE	
□ NONE	
PRESENT REPOSITORY OF MATERIALS: BX Hist Society	
- private	
8. PREHISTORIC CULTURAL AFFILIATION OR DATE: 1777-1782-	

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Kemble Diary Kemble Orderly Bock Washington Diary Vol II Von Kroft

ARCHEOLOGICAL SITE INVENTORY FORM	FOR OFFICE USE ONLY
DIVISION FOR HISTORIC PRESERVATION NEW YORK STATE PARKS AND RECREATION ALBANY, NEW YORK 0518 474-0479	UNIQUE SITE NO. <u>AUG</u> -01-011 QUAD SERIES NEG. NO
No ORTBORT BY: Michael Coma	
YOUR ADDRESS: 179 Bennett Avenue NYC	10040 TELEPHONE: (b) 735-440
ORGANIZATION (if any): Brooklyn Childrens	Museum (for identification on
November 1, 1976	
DATE:	
Negro Graveyard	
I. SITE NAME:	NYC .
2. COUNTY: TOWN/CITY:	
3. LOCATION:	
· · · · · · · · · · · · · · · · · · ·	
4. PRESENT OWNER:	
5. OWNER'S ADDRESS:	
6. DESCRIPTION, CONDITION, EVIDENCE OF SITE:	
□ STANDING RUINS □ 0	CELLAR HOLE WITH WALLS
□ SURFACE TRACES VISIBLE □ V	VALLS WITHOUT CELLAR HOLE
UNDER CULTIVATION EROSION	UNDERWATER
\square NO VISIBLE EVIDENCE \square OTHER $_$	<u>_</u>
7 COLLECTION OF MATERIAL FROM SITE:	
	DATE
	DATC
CX SUCCESSING BY WHOM	development March, 1903
EFEXCAVATION BY WHOM	DATE
LI NONE Phot	ographs at NY Hist. Society
PRESENT REPOSITORY OF MATERIALS:	
8 BECHICTORIC OUT THEAT A CELLIATION OF DATE	COLONIBL

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Evening Telegram March 14,1903 Finch, ABORIGINAL REMAINS ON MANHAT TAN ISLAND Bolton WASHINGTON HEIGHTS -ITS HISTORIC PAST

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

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11. REMARKS: At border of proposed "Sherman Creek District"

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME: _____

15 MINUTE SERIES QUAD. NAME: _____

U.S.G.S. COORDINATES: ______

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

ATTACH SKETCH, TRACING OR COPY OF MAP

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

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at NYHS library

(ATTACH)

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Jacob MOV 13 MAL

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ARCHEOLOGICAL SITE INVENTORY	FORM FOR OFFICE USE ONLY
DIVISION FOR HISTORIC PRESERVATION NEW YORK STATE PARKS AND RECREATI ALBANY, NEW YORK	ION UNIQUE SITE NO. A Obt-01-012
518 474-0479	NEG. NO
REPORTED BY: Michael Cohn	
YOUR ADDRESS: 179 Bennett Ave	mue NYC 10040TELEPHONE: (b) 735-4400
ORGANIZATION (if any): Brooklyn Ch	ildrens Museum (for identification only)
DATE: 11/16/76	
* * * * * * * * * * * *	
I SITE NAME Nagle House (Centu	ary House)
2 COUNTY: New York	NYC VILLAGE:
213 St & Harlem Riv	Jer
3. LOCATION:	
4. PRESENT OWNER:	
5. OWNER'S ADDRESS:	
6. DESCRIPTION, CONDITION, EVIDENCE	OF SITE:
STANDING RUINS	CELLAR HOLE WITH WALLS
□ SURFACE TRACES VISIBLE	WALLS WITHOUT CELLAR HOLE
□ UNDER CULTIVATION □	EROSION UNDERWATER
🖞 NO VISIBLE EVIDENCE	OTHER
7. COLLECTION OF MATERIAL FROM SIT	re:
SURFACE HUNTING BY WHOM	1 DATE
TESTING BY WHOM	1 DATE
	Calver, Bolton etc 1903-1913
EXCAVATION BY WHOM	
EXCAVATION BY WHON	
 EXCAVATION BY WHON NONE PRESENT REPOSITORY OF MATERI 	ALS:

Bolton Washington Heights, Its Historic Past Davies print (attached)

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

11. REMARKS: Part of the proposed Sherman Creek District

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME: _____

15 MINUTE SERIES QUAD. NAME: ______

U.S.G.S. COORDINATES:_____

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

ATTACH SKETCH, TRACING OR COPY OF MAP

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)



Alex. McMillan Weich THE NAGEL FARMHOUSE. Built 1736, and known as the Century House, with the ancient sycamore shading its porch. Its story is told on page 195.

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FFILE OF WITH	
ARCHEOLOGICAL SITE INVENTORY FORM	FOR OFFICE USE ONLY
POPULATION FOR HISTORIC PRESERVATION	UNIQUE SITE NO. AOGI-01-0114
NOW YORK SPATE PARES AND RECREATION	QUAD
ALBANY, NEW YORK,	NEG. NO
5 8 474-0479	
REPORTED BY: Michael Cohn	(h) 942-7280-
YOUR ADDRESS: 179 Bennett Avenue NYC	100 40 TELEPHONE: (b) 735-4400
ORGANIZATION (if any):Brooklyn Children	ns Museum (for identification onl
DATE. October 29, 1976	
**************	(dog burials)
I. SITE NAME:	
2. COUNTY: TOWN/CITY: _	NYCVILLAGE:
209 -211 street east of 10t	h Ave nr. Harlem River
3. LOCATION:	
, <u></u> , <u></u> ,	
4. PRESENT OWNER:	
4. PRESENT OWNER:	
4. PRESENT OWNER:	
 PRESENT OWNER:	
 4. PRESENT OWNER:	CELLAR HOLE WITH WALLS
 4. PRESENT OWNER:	CELLAR HOLE WITH WALLS WALLS WITHOUT CELLAR HOLE
 4. PRESENT OWNER:	CELLAR HOLE WITH WALLS WALLS WITHOUT CELLAR HOLE
 4. PRESENT OWNER:	CELLAR HOLE WITH WALLS WALLS WITHOUT CELLAR HOLE
 4. PRESENT OWNER:	CELLAR HOLE WITH WALLS WALLS WITHOUT CELLAR HOLE
 4. PRESENT OWNER:	CELLAR HOLE WITH WALLS WALLS WITHOUT CELLAR HOLE
 4. PRESENT OWNER:	CELLAR HOLE WITH WALLS WALLS WITHOUT CELLAR HOLE
4. PRESENT OWNER:	CELLAR HOLE WITH WALLS WALLS WITHOUT CELLAR HOLE UNDERWATER DATE DATE Bolton, Hall 1895,1904
 4. PRESENT OWNER:	CELLAR HOLE WITH WALLS WALLS WITHOUT CELLAR HOLE UNDERWATER DATE DATE Bolton, Hall 1895,1904 DATE
 4. PRESENT OWNER:	CELLAR HOLE WITH WALLS WALLS WITHOUT CELLAR HOLE UNDERWATER DATE DATE Bolton, Hall 1895,1904 DATE
 4. PRESENT OWNER:	CELLAR HOLE WITH WALLS WALLS WITHOUT CELLAR HOLE UNDERWATER DATE DATE Bolton, Hall 1895,1904 DATE

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Finch, James K. ABORIGINAL REMAINS ON MANHAT TAN ISLAND AMNH Anth Papers Vol III

10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:

 II. REMARKS: This is part of the proposed "Sherman Creek Development Area" with proposed major construction. The same general area also contains the Afro-American cemetery and the site of the Nagle House

12. MAP LOCATION

7 ½ MINUTE SERIES QUAD. NAME:

15 MINUTE SERIES QUAD. NAME: _____

U.S.G.S. COORDINATES:

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

ATTACH SKETCH, TRACING OR COPY OF MAP

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UNCOVERING AN INDIAN POT AT 214TH STREET AND TENTH AVENUE.

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)

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	ARCHFOLOGICAL SITE INVE	NTORY FORM	FOR OFFICE USE ONLY
		VATION	UNIQUE SITE NO. 4061-01-0538
	NEW YORK STATE PARKS AND R ALBANY, NEW YORK	ECREATION	QUAD SERIES NEC. NO
-	518 474-0479		
	REPORTED BY:	- Karbas	
	YOUR ADDRESS:		TELEPHONE:
Ļ	ORGANIZATION (if any):	Ly Ac	
	DATE:	V	
	· · ·		* * * * * * * * * * * * * *
	1. SITE NAME: Hoslern	fiver Defo	sit
I	2. COUNTY: N.C. Jozk	TOWN/CITY:	NTCVILLAGE:
	3. LOCATION: 209 th - 0	11th St or	West bank of Harlem Ku
		·····	<i>D</i>
•	4. PRESENT OWNER:		
	5. OWNER'S ADDRESS:		
	6. DESCRIPTION, CONDITION, E	VIDENCE OF SITE	
	STANDING RUINS	Ę	CELLAR HOLE WITH WALLS
ĺ	SURFACE TRACES VISIBI	.e C	WALLS WITHOUT CELLAR HOLE
	UNDER CULTIVATION	EROSIC	DN UNDERWATER
	NO VISIBLE EVIDENCE	OTHER	Shell Midden, cemetely (historic, overlying) (Indianshell
ľ	7. COLLECTION OF MATERIAL	FROM SITE:	midden)
	SURFACE HUNTING	BY WHOM	DATE
Ì	TESTING	BY WHOM	DATE
	EXCAVATION	BY WHOM Cal	NPA DATE 1895, 1903-04
	□ NONE		
ľ	PRESENT REPOSITORY O	F MATERIALS:	American museum
	of natural	Hostory	······
	U 8. PREHISTORIC CULTURAL A	FFILIATION OR D	ATE: Leukenown
I			artifaction

- 9. HISTORICAL DOCUMENTATION OF SITE: Finch, James K. 1909 "Algoriginal Femain on Manhatlan Jaland" Anth Pap of Alm NH Vol III, Pp 66-73. Parker 1922: 629 Skinner, 1915 "Inchain of Manhattan Island & Vicinity"
- 10. POSSIBILITY OF SITE DESTRUCTION OR DISTURBANCE:
- 11. REMARKS:

Exposed during grading of 10th Ave

12. MAP LOCATION

15 MINUTE SERIES QUAD. NAME: Harley (SW/4)
U.S.G.S. COORDINATES: 18T & 91250 N 24300
D.O.T. COORDINATES: (if known)

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ATTACH SKETCH, TRACING OR COPY OF MAP

SOURCE OF MAP:

13. PHOTOGRAPHS (optional)