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WP-103 WARDS ISLAND WPCP  
INTERIM PLANT EXPANSION/UPGRADING

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ARCHAEOLOGICAL EVALUATION OF THE  
INTERIM PLANT EXPANSION PROJECT AREA

---

January 28, 1994

Prepared for:

NEW YORK CITY  
LANDMARKS PRESERVATION COMMISSION

Eugene J. Boesch

MALCOLM PIRNIE, INC.  
Environmental Engineers, Scientists and Planners  
2 Corporate Park Drive  
White Plains, New York 10602

March 14, 1994

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ENVIRONMENTAL REVIEW

**MAR 17 1994**

LANDMARKS PRESERVATION  
COMMISSION

Ms. Gina Santucci c/o  
New York City Landmarks Preservation Commission  
100 Old Slip  
New York, NY 10005

Dear Gina:

Enclosed for New York City Landmarks Preservation Commission review is the report on the archaeological evaluation of the proposed Ward's Island Water Pollution Control Plant interim plant expansion project area located on Ward's Island, New York City, New York. Thank you for your attention in this matter.

Very truly yours,

MALCOLM PIRNIE, INC.

*Eugene J. Boesch* (JC)

Eugene J. Boesch

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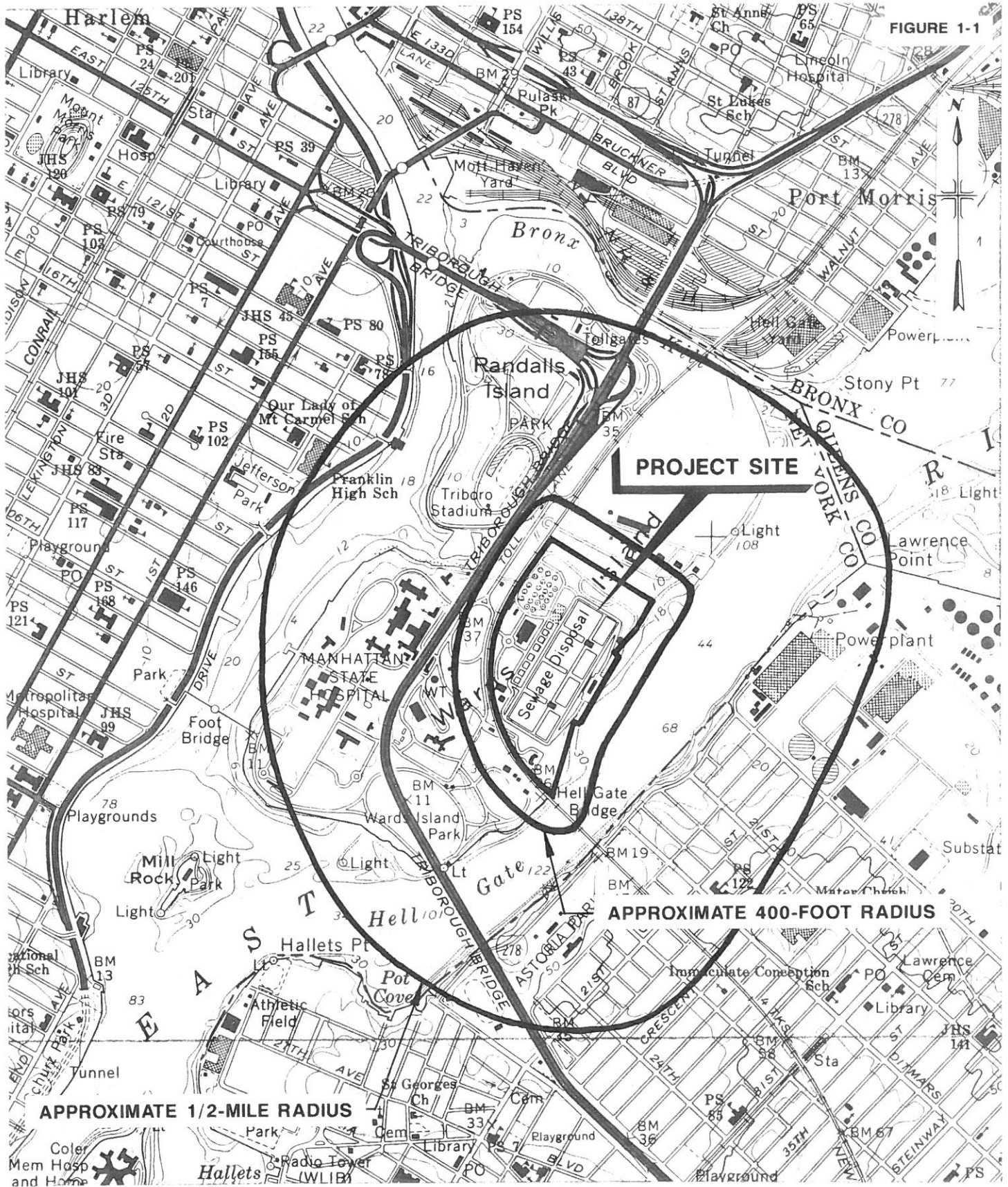
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## 1.0 INTRODUCTION

This report presents the results of an archaeological evaluation of the proposed Ward's Island Water Pollution Control Plant (WPCP) interim plant expansion (IPE) project area located on Ward's Island, New York City, New York (Figures 1-1 and 1-2). The project site was included within a larger study area that was the subject of a previously completed archaeological sensitivity evaluation conducted by Greenhouse Consultants of New York City (see Roberts, Farkas, Adams, Stone, and Davenport 1990:1-4).

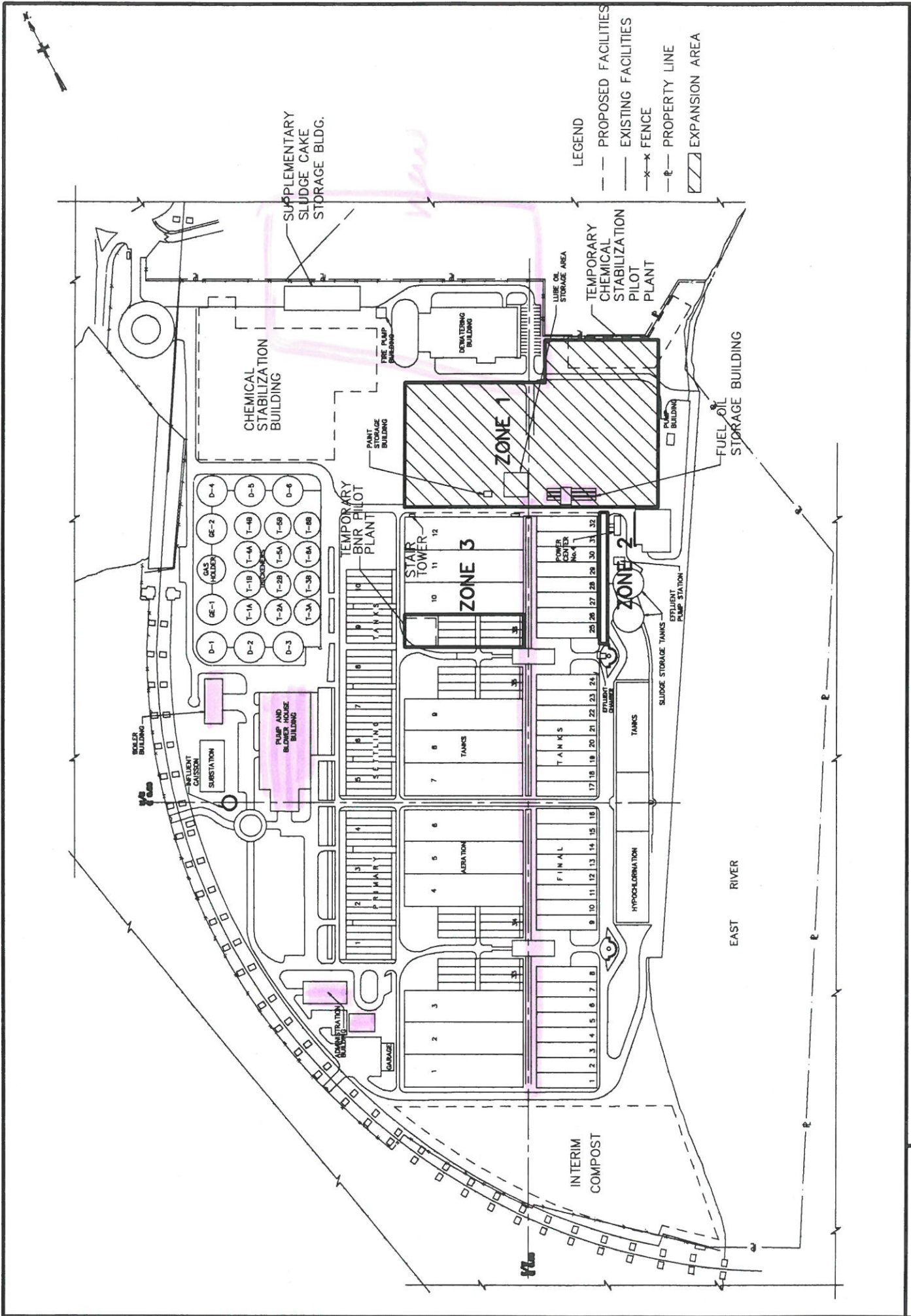
The purpose of the evaluation is to determine if cultural resources potentially eligible for listing on the New York State and Federal Registers of Historic Places are likely to be located within the project area and to make recommendations for any additional investigation considered necessary. The archaeological sensitivity evaluation has been produced primarily on the basis of the data presented in the Greenhouse report. No additional documentary research was conducted as part of the study.



SOURCE: USGS CENTRAL PARK QUAD.

**MALCOLM  
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**WARDS ISLAND WPCP EXPANSION  
ENVIRONMENTAL ASSESSMENT STATEMENT  
SITE LOCATION MAP  
SCALE: 1"=1550'**





## 2.0 BACKGROUND TO THE PROJECT

The New York City Department of Environmental Protection (NYCDEP) is responsible for operating New York City's wastewater treatment plants in support of the overall environmental goals to maintain and improve water quality and to protect public health and the environment. The purpose of the Ward's Island Water Pollution Control Plant is to convert raw wastewater, with its inherent characteristics, into a treated final effluent for discharge into the East River. The current level of treatment is specified by the existing State Pollutant Discharge Elimination System (SPDES) permit and applicable water quality criteria of the receiving waters.

The Wards Island Plant WPCP has been operating above the plant's average daily flow capacity as defined in the SPDES discharge permit. The New York State Department of Environmental Conservation (NYSDEC) required the NYCDEP to expand the plant's capacity under a court ordered Consent Decree. This consent order requires expansion of the plant by December 31st, 1996.

The NYCDEP proposed the Ward's Island WPCP IPE in order to meet the requirements for processing an increased quantity of sewage generated within the plant's service area. The WPCP IPE will require the construction of additional facilities at Ward's Island. Without the proposed expansion, sewage flow increases will create unacceptable conditions at the Ward's Island WPCP by overworking the existing system, increasing maintenance costs, and leading to failure of important plants systems. The additional sewage flows could also lead to violation of SPDES permit limits.

### 3.0 PROPOSED CONSTRUCTION AND PROJECT AREA DESCRIPTION

The Ward's Island WPCP is situated on a 52 acre site located on the northwestern corner of Ward's Island. North of the plant is Randall's Island which has been joined with Ward's Island by the filling-in of the East River channel (Little Hell Gate) that formerly separated the two holms. The proposed IPE project area is located north of the existing WPCP facilities with the majority of it being located within the former area of Little Hell Gate channel.

Proposed construction for the IPE project will occur in two or three areas. For the purpose of this report, these areas have been designated as Zones 1, 2, and 3. The largest area (Zone 1) is approximately 800 feet (east to west) by 400 to 500 feet (north to south) in size located immediately north of existing Aeration Tank Number 12 and Final Settling Tank Number 32 (see Figure 1-2). The area is relatively level and partially covered by construction related boulder piles (Photo 1). Grass and small scrub vegetation, interspersed by unvegetated areas, cover other portions of the site (Photos 2 and 3). A small access road traverses the area.



Photo 1 - Zone 1 - Boulder Area  
View Is To The West





Photo 2 - Zone 1 - Grass And Scrub Vegetation  
View Is To The North



Photo 3 - Zone 1 - Unvegetated Area  
View Is To The East



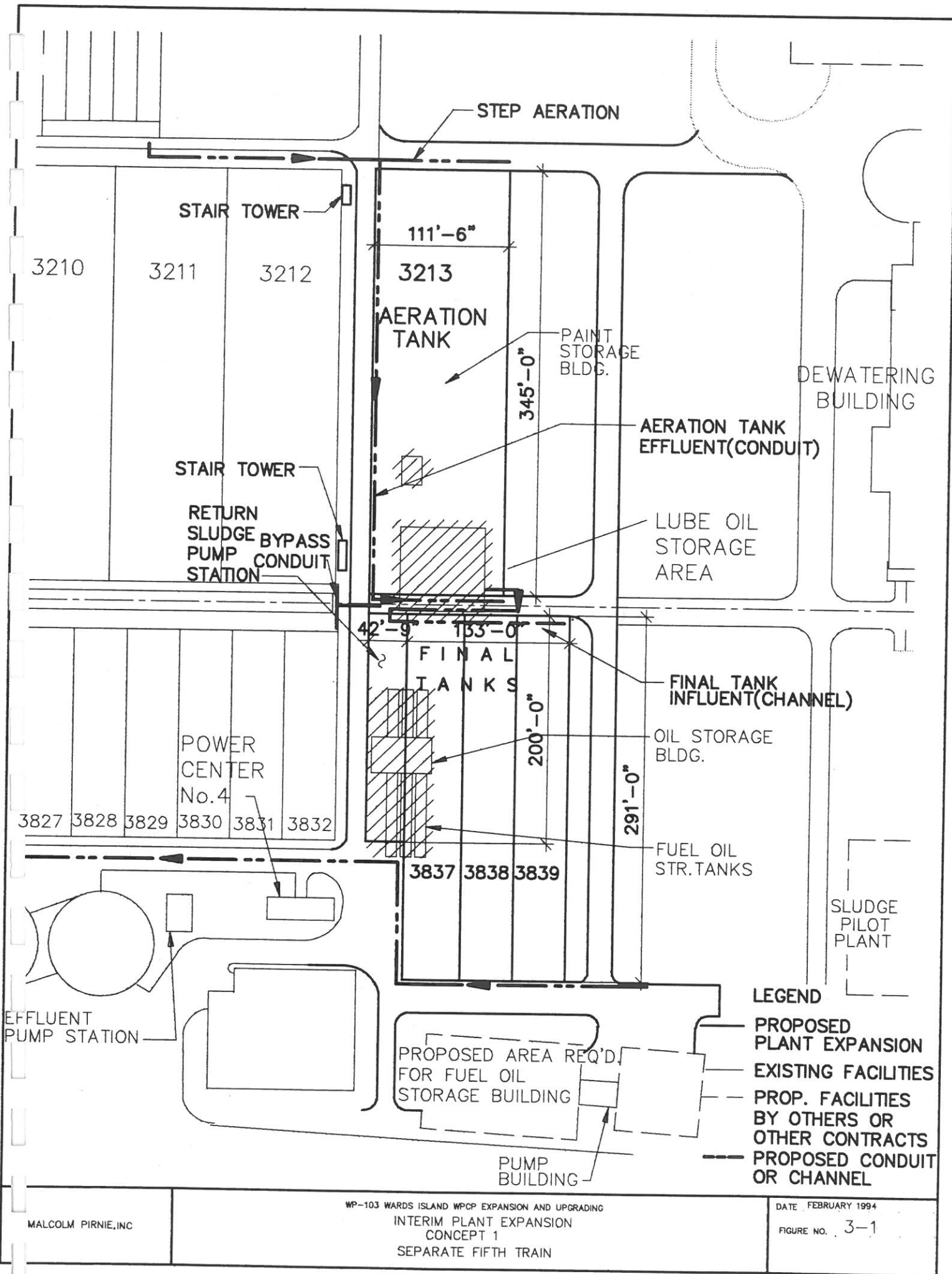
Zone 1 is the proposed location of additional final settling tanks, return sludge pipes, a return sludge pump station and possibly, aeration tanks (see Figure 1-2). The exact locations of these facilities within the area has not been finalized. Figures 3-1, 3-2, and 3-3 show the three options (Concept No. 1, Concept No. 2A, and Concept No.2B) that have been proposed for the location of these facilities.

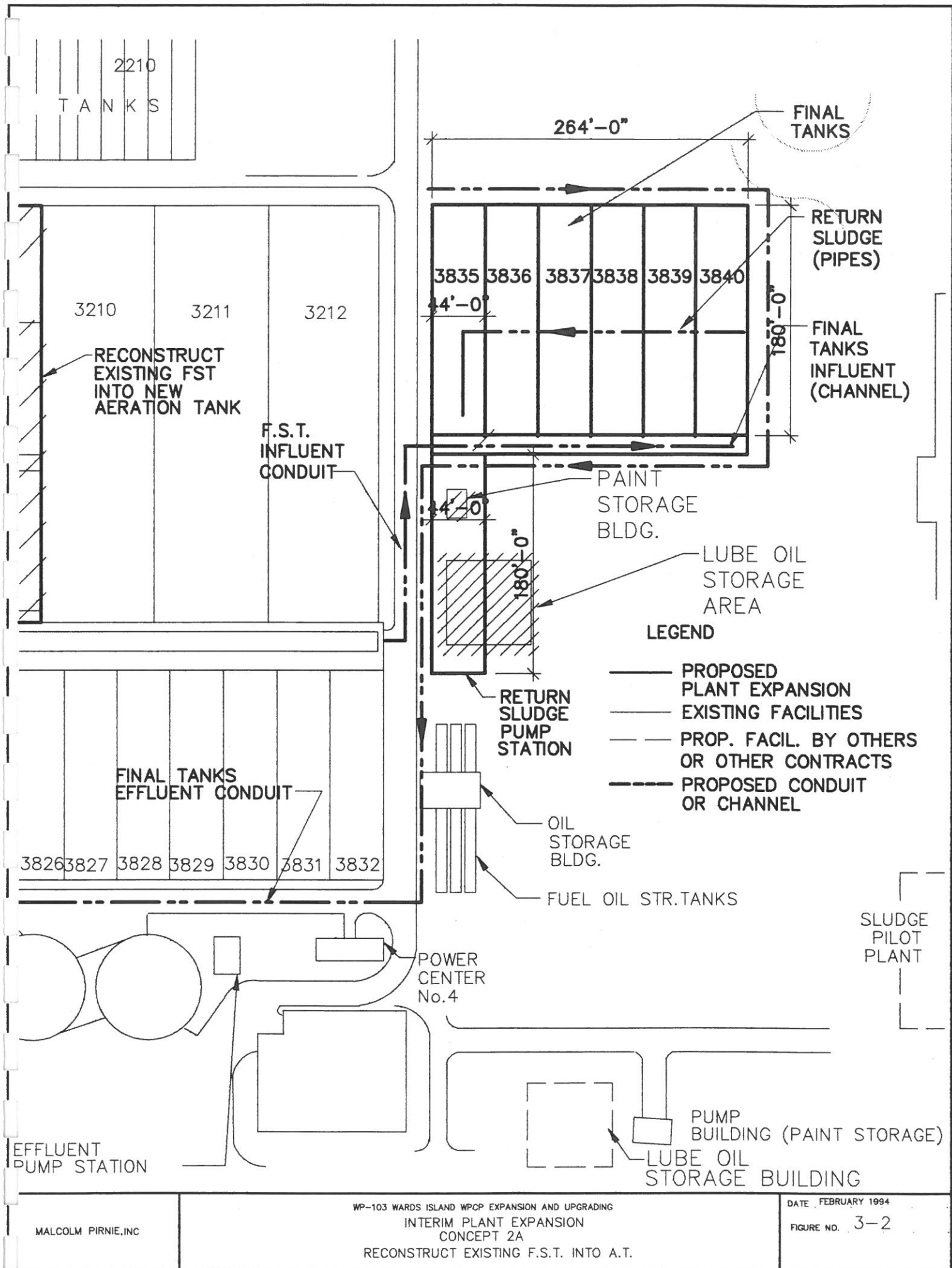
The second area (Zone 2; see Figure 1-2 and Photo 4) where proposed construction will occur is the route of a "return sludge pipe" that will connect the new final tanks in Zone 1 with the "North Effluent Chamber" (see Figures 3-1, 3-2 and 3-3). The proposed route follows the course of an existing access road.



Photo 4 - Zone 2 - Is In The Distance  
View Is To The South

The third location (Zone 3; see Figure 1-2 and Photo 5) where proposed construction may occur is an approximately 700 feet (east to west) by 100 feet (north to south) area that is currently the site of Final Tank Number 36. This portion of the proposed construction is part of Concept No. 2A only and consists of the reconstruction of Final Tank Number 36 into a new aeration tank (Aeration Tank Number 9A; see Figure 3-2).





WP-103 WARDS ISLAND WPCP EXPANSION AND UPGRADING

INTERIM PLANT EXPANSION  
CONCEPT 2A

RECONSTRUCT EXISTING F.S.T. INTO A.T.

DATE FEBRUARY 1994

FIGURE NO. 3-2

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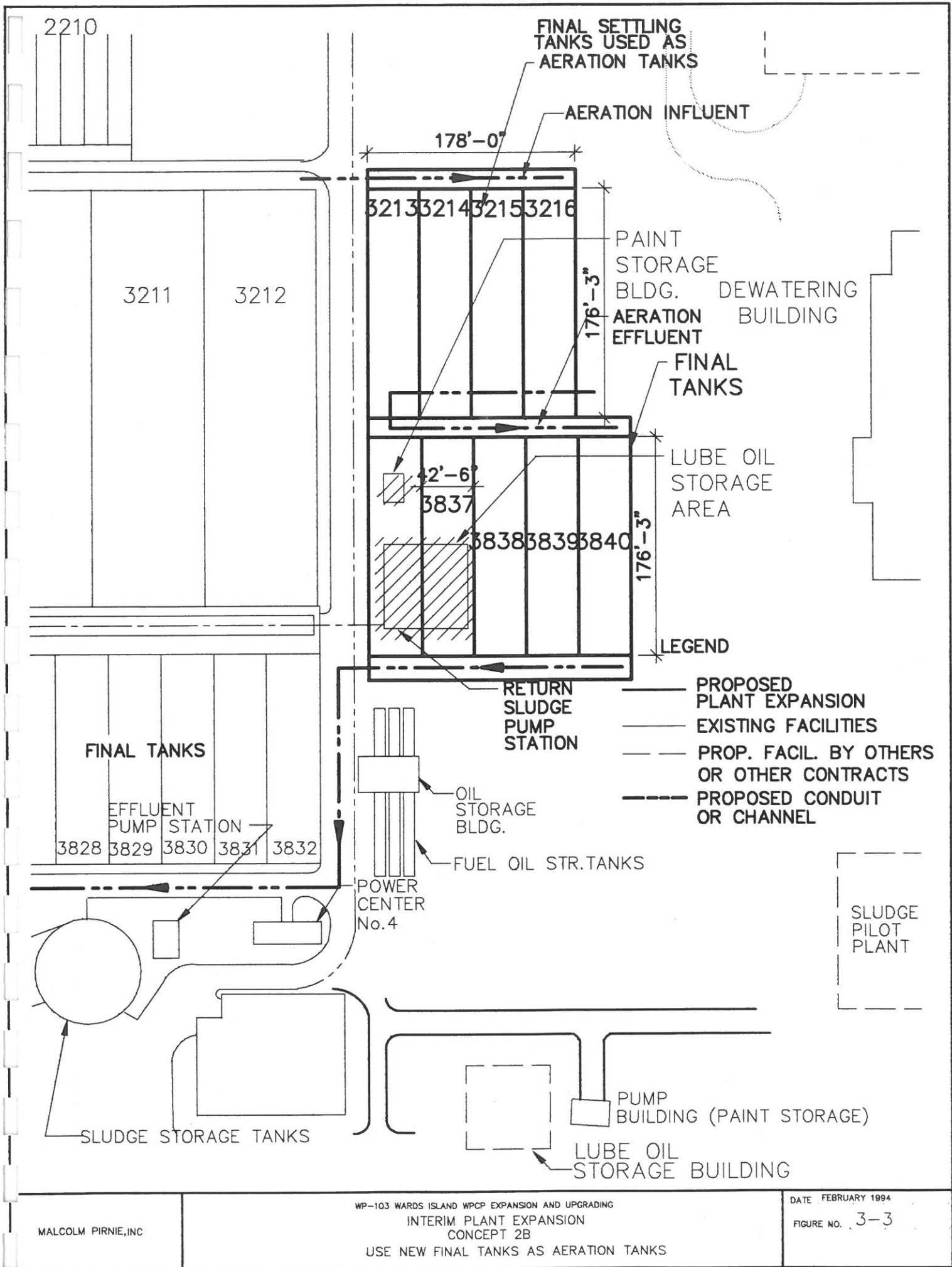






Photo 5 - Zone 3 - Vicinity  
View Is To The South

Ground disturbance caused by the construction of these facilities in Zones 1-3 will range in depth from approximately eight to 22 feet. Previous construction associated with the building of WPCP facilities in or adjacent to Zones 2 and 3 have probably disturbed those locations to comparable depths.

As part of the proposed construction, two small structures will be demolished and a lube oil storage area removed. All three facilities are currently located within Zone 1 (see Figure 1-2).

The westernmost of these structures is a paint storage building (Photo 6) that is apparently of relatively recent construction. The second structure is a fuel oil storage building that probably dates to the ca. 1937 period when the Ward's Island WPCP was initially constructed (Photos 7 and 8). This structure was designed in neo-classical style exhibiting simple classical forms and is constructed of beige brick above a base of granite and limestone. It is similar in style to other existing WPCP structures. The lube oil storage area is a fenced location, approximately sixty by sixty feet in size. Oil storage drums are located there as well as in the immediately surrounding area (Photo 9).



Photo 6 - Paint Storage Building  
View Is To The West



Photo 7 - Fuel Oil Storage Building  
View Is To The West



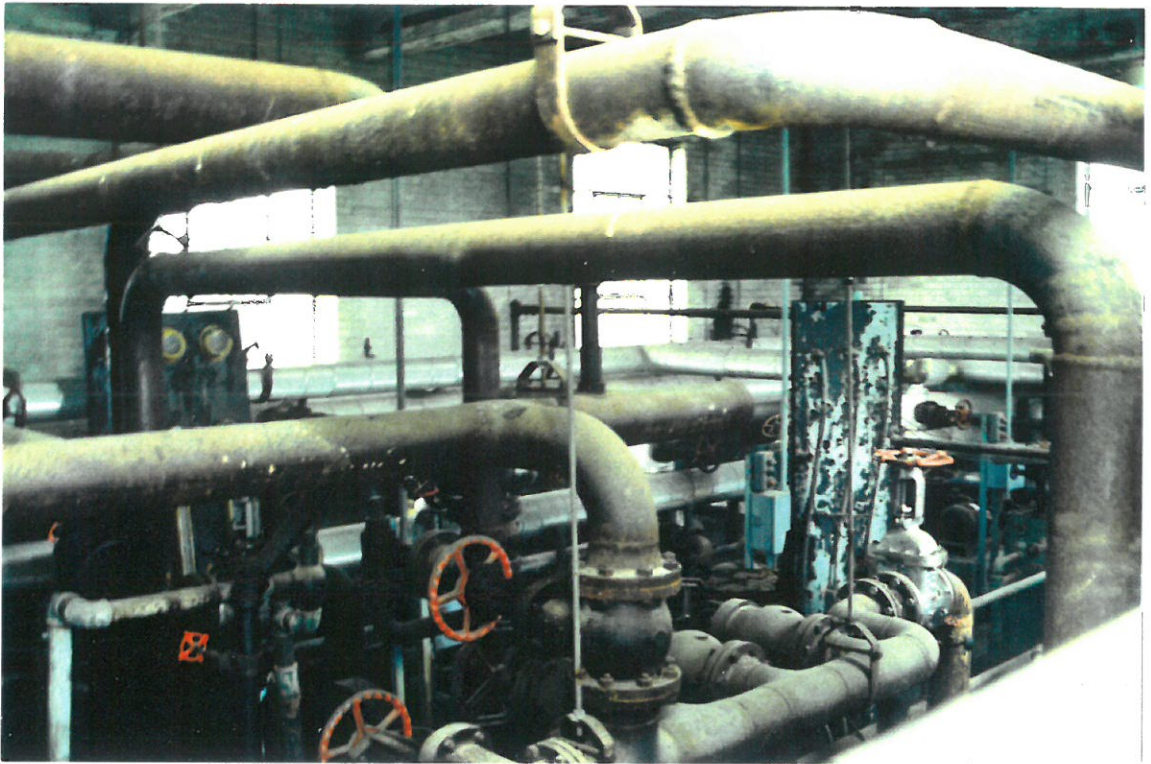


Photo 8 - Interior Of Fuel Oil  
Storage Building



Photo 9 - Lube Oil Storage Facility  
View Is To The West



#### **4.0 PREVIOUS CULTURAL RESOURCE EVALUATION AT WARD'S ISLAND WPCP**

Greenhouse Consultants have previously conducted an archaeological sensitivity evaluation of the proposed location of the dewatering facility and associated areas at the Ward's Island WPCP (Roberts, et al. 1990:1-4). The "Emergency Curing Area" portion of that project corresponds to Zone 1 of the IPE project area (see Roberts 1990). On the basis of their research and analysis, Roberts, et al. (1990:4) concluded that "the construction of the proposed Dewatering Facility at the Ward's Island Water Pollution Plant will not impact any prehistoric or historic cultural resources."

The Greenhouse report was the basis of the Historic and Archaeological Resources Section of a Final Generic Environmental Impact Statement (Stone and Webster 1992) studying long range sludge management in New York City prepared for NYCDEP. The New York City Landmarks Preservation Commission reviewed the historic and archaeological resources text included in that report and stated that "the DEIS archaeology text is accepted. No further archaeology work is needed" (New York City Landmarks Preservation Commission 1992a).

The dewatering facility project area consisted of an approximately 1,300 feet (east to west) by 800 hundred feet (north to south) parcel located north of the existing WPCP tank facilities and the proposed route of sludge and sanitary lines extending southward for approximately 200 feet along the east shore of Ward's Island from the above described location (see Roberts, et al. 1990).

The investigation by Greenhouse Consultants consisted of documentary research and analysis of the logs and records of 28 soil borings and 21 mechanically excavated test pits conducted within the dewatering facility project area (Roberts, Farkas, Adams, Stone, and Davenport 1990:3). According to the Greenhouse report, "The 28 soil borings were sampled every five feet using a two inch diameter split spoon two feet in length. All were drilled to bedrock. The test pits were excavated with a backhoe and ranged in depth from eight to over twenty feet" (Roberts, et al. 1990:3).

#### **4.1 Comparison of the Locations of the Dewatering Facility and IPE Project Areas**

A comparison of Figures 1-2 and Roberts, et al. (1990:1-4) shows that Zone 1 of the present IPE project area is situated within the bounds of the dewatering facility project area. Zones 2 and 3 of the IPE project (the route of the "return sludge pipe" and the location of Final Tank Number 36) are outside of the area evaluated by Roberts, et al. (1990).

## 5.0 PREHISTORIC/HISTORIC PERIOD BACKGROUND DATA

The following section presents a summary of the data presented in the Greenhouse report that is pertinent to an archaeological evaluation of the interim plant expansion project area.

### 5.1 Prehistoric Period

A limited review of the archaeological literature by Roberts, et al. (1990:1) did not encounter any mention of the presence of Native American sites on Ward's Island. Furthermore, analysis of the physiographic and topographic characteristics of the island did not detect any fresh water sources or other features that would have provided an attraction for Native Americans. Therefore, they conclude that "the proposed location of the Ward's Island W.C.P.C. dewatering facility [and, accordingly, of Zone 1] is probably not potentially sensitive to the presence of prehistoric archaeological resources" (Roberts, et al. 1990:1).

### 5.2 Historic Period

The earliest historic period reference to the IPE project vicinity was by the Dutch explorer Adriaen Block who sailed up the East River to Long Island Sound in 1614 (van der Zee and van der Zee 1978). Block christened the stretch of water between what are now referred to as Ward's and Randall's Island on the west and Astoria, Queens on the east as "Hellgate" due to the presence there of dangerous shoals and treacherous tidal currents (Roberts, et al. 1990:1).

In 1637, Ward's Island was sold by local Native Americans to Wouter Van Twiller, Director of Nieu Netherlands (Roberts, et al. 1990:1). For the next two centuries, the island remained primarily agricultural in nature. During the American Revolution, British troops occupied the island. The first industrial enterprise located there was a cotton mill that operated between 1812 and ca. 1815 (Roberts, et al. 1990:1). Structures associated with these activities were apparently restricted to the western end of the island.

Towards the middle of the nineteenth century, the agricultural character of Ward's Island began to change. According to Roberts, et al. (1990:1) in 1840, 100,000 bodies were removed from the site of Bryant Park to a new potter's field on Ward's Island. In 1847 a State Emigration Refuge of the "sick and destitute aliens from the Old World" was established there, and after 1860 the island was used as a secondary immigration station until the Ellis Island Station was opened in 1892. By 1872 the City owned the entire island and, by 1885 had established two asylums for the insane

there. After 1892 the Old Emigrant Refuge was converted and taken over by the New York City asylum for the Insane (Kelley 1909:137).

The potter's field, emigration refuge, and asylums were all located on the western and southern portions of Ward's Island.

### 5.3 Interim Plant Expansion Project Area History

Most of Zone 1 of the IPE project site is apparently located in an area that was formerly part of Little Hell Gate channel, the portion of the East River which formerly separated Ward's and Randall's Islands. This area was filled between 1937 and 1941 (see Roberts, et al. 1990:Figure # 2.3.1.8-5 and #2.3.1.8-6).

The southern portion of Zone 1 was apparently part of the original island. Both the 1851 United States Coastal Survey map and the 1909 United States Coastal and Geological Survey map indicate that this area was formerly a low-lying tidal marsh (Roberts, et al. 1990:Figure #2.3.1.8-1 and #2.3.1.8-3. The marsh would have been unsuitable for habitation.

In addition to the southern portion of Zone 1, Zones 2 and 3 are apparently located within a portion of the northwest corner of the original island. Roberts, et al. (1990:2) report that the maps that they examined indicate that the entire northwestern portion of Ward's Island remained undeveloped until construction of the WPCP facility in 1935-1937. At that time, construction of the aeration and settling tanks would have extensively disturbed the area of Zone 2. Likewise, the 1935-1937 construction of the final settling tanks and north effluent chamber, and the subsequent construction of the sludge storage tanks and power center number four would have disturbed the area of Zone 3 (see Figure 1-2).

### 5.4 Docks/Wharfs and Ship Wrecks

A review of the mid-nineteenth to early twentieth century maps included in the Greenhouse report indicates the absence of any docks or wharfs formerly extending from Ward's Island into Little Hell Gate channel in the vicinity of the IPE project area. It is therefore unlikely that such structures would be located within the present project area.

Roberts, et al. (1990:3) reviewed the possibility that shipwrecks may have been located within Little Hell Gate channel in the vicinity of the dewatering facility project area; they intimate that the presence of such cultural resources within the filled-in Little Hell Gate channel are unlikely stating that although the [Historic period shipwrecks] inventory lists the recording of several historic

shipwrecks in Hell Gate, it does not include Little Hell Gate as the site of any shipwrecks (Mulholland 1985). Due to Hell Gates's navigational hazards large-scale operations were undertaken by the government between 1869 and 1885 to explode and remove the reefs which had caused many shipwrecks (Kelley 1909:136). There is no evidence that any such clearing took place within Little Hell Gate as well.

## 6.0 SUB-SURFACE DATA

All of the 28 soil borings and 21 mechanically excavated test pits conducted in the dewatering facility project area encountered fill deposits that were subsequently determined to range between 26 and 37 feet in thickness (Roberts, et al. 1990:3). The fill encountered by the borings is described as "sand, silt, gravel, brick, concrete, wood, steel, cinders, slag, paper, asphalt, and glass (Warren George, Inc. 1989 quoted in Roberts, et al. 1990:3); whereas the fill encountered by the mechanically excavated test pits was described as consisting of "silty sands with brick, concrete, broken stone, boulders, rocks, cobbles, and other hard durable construction debris" (Ruggiero 1980:1 quoted in Roberts, et al. 1990:3). Below the fill was encountered a layer of black organic silty clay that probably represents river bottom deposits. According to Roberts, et al. (1990:3), "all this information is consistent with our interpretation of the location of the proposed dewatering building [and, accordingly, most of Zone 1] being within the former Little Hell Gate Channel."

Based on the results of the soil borings (see Roberts, et al. 1990:3 and Roberts 1990), the New York City Landmarks Preservation Commission (1990) determined that they "agree with the conclusion that no further work is required at the following sites on Ward's Island: Indoor Curing Bank; the Process Area; the Sludge Area; and the Emergency Curing Area." As noted above, Zone 1 of the IPE project area includes the emergency curing area (see Roberts 1990).

## **7.0 EXISTING STRUCTURES WITHIN THE IPE PROJECT AREA**

The New York City Landmarks Preservation Commission has previously determined the WPCP plant "as a whole appears to be National/State Register eligible on engineering grounds" and that a number of buildings at the WPCP may be individually eligible for listing on the State and Federal Registers of Historic Places on architectural grounds (New York City Landmarks Preservation Commission 1989, 1992b; Stone and Webster 1992). These buildings are the Pump and Blower House, the Operating Gallery, the Central Heating Plant, and the Laboratory and Administration Building (Stone and Webster 1992). None of these structures are located within the IPE project area.

The two structures that are located within the project area are the fuel oil storage facility and the paint storage building. The fuel oil storage facility (Photo 7), the easternmost of the two structures, possibly dates to the period of construction of Ward's Island WPCP. The interior of the building has apparently been modified over time and currently contains modern piping, valves, and monitoring instruments that appear to post-date construction of the building (Photo 8). The second structure is a small building, used for paint storage, that appears to be of relatively recent construction (Photo 6).

## 8.0 SUMMARY AND CONCLUSIONS

The northwestern corner of Ward's Island was not developed until the fourth decade of the 20th century when the WPCP was constructed. As part of this construction, Little Hell Gate channel, which formerly separated Ward's Island from its neighbor to the north, Randall's Island, was filled.

Documentary evidence supported by data recovered from soil borings and mechanically excavated test pits indicates that the major part of the project area (most of Zone 1) is located in a portion of the former channel; the remainder of Zone 1 was probably a tidal marsh.

Since Zone 1 was formerly either a marsh or part of Little Hell Gate channel, it is unlikely that historic period building remains or associated deposits would be located there.

Cultural material associated with historic period activity occurring at other locations on Ward's Island that may have been disposed of in Little Hell Gate channel would not have remained in situ given the notorious tidal currents of the area.

The documentary evidence indicates that no ships were sunk in Little Hell Gate channel and that no wharfs or docks extended into that waterway from Ward's Island during the historic period.

Zones 2 and 3 of the IPE project area are apparently located within the boundaries of the original island. However, disturbance associated with WPCP construction would have affected most of this area to the approximate extent of impact of the proposed work (ca. 8-22 feet), destroying any cultural resources that may have been present.

Native American archaeological sites are not known to be located on Ward's Island and the topography and physiography of the area are not similar to locations where Native American sites have been previously found. Even if Native Americans did formerly camp along the northwestern shore of Ward's Island, they would most likely have been located away from the marsh that formerly bordered Little Hell Gate channel in areas disturbed by construction of the WPCP. Any Native American material discarded into the channel would not have remained in situ due to the action of local water currents.

Two existing structures are located within Zone 1 of the IPE project area. The fuel oil storage structure possibly dates to ca. 1936. Alone, this structure does not appear to possess any of the criteria of National Register eligibility although it may possibly be considered a contributing structure if the WPCP site was determined to constitute a historic district.

The paint storage building is of relatively recent construction and its demolition would not constitute an adverse impact.



## **9.0 RECOMMENDATIONS**

It is unlikely that cultural resources possibly eligible for listing on the State and Federal Register of Historic Places are located within the Ward's Island WPCP IPE project area. Therefore, no additional archaeological investigations are recommended for the area.

Neither of the existing structures within the IPE project area meet any of the eligibility criteria for inclusion on the State or Federal Registers of Historic Places.

## 10.0 REFERENCES CITED

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