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REPORT

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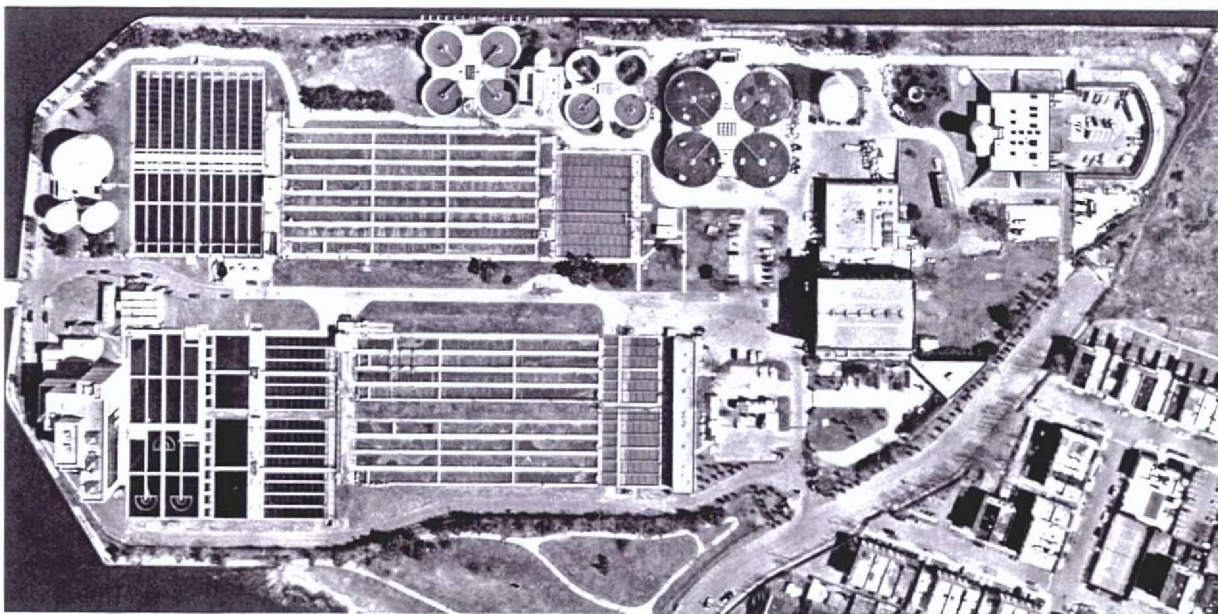
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ARCHAEOLOGICAL SENSITIVITY OF PLANNED CONSTRUCTION

TALLMAN ISLAND WPCP
CAPITAL PROJECT WP-249

CONTRACTS TI-2 & TI-3

JUNE 2006



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BBL
an ARCADIS company

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TAMS Consultants, Inc.

Introduction

The New York City Department of Environmental Protection (NYCDEP) is proposing a project known as Tallman Island TI-2 / TI-3 Water Pollution Control Plant (WPCP) Upgrade. The proposed action at the Tallman Island WPCP consists of two phases - Contract TI-2: Emergency Main Sewage Pumping System and Contract TI-3: Plant Upgrade Program (PUP). Proposed actions for the Tallman Island WPCP upgrade include replacement of a gas burner, replacement of roofs on all digester tanks, installation of underground piping, replacement of aeration tank equipment and construction of seven new buildings, including one temporary field office (Figure 1, Tallman Island WPCP Proposed Upgrades). The purpose of the Tallman Island PUP is to provide more efficient and reliable wastewater treatment and ensure compliance with the State Pollutant Discharge Elimination System permit criteria.

Tallman Island is located at 127-01 Powell Cove Road at the western edge of Powell's Cove in the College Point section of Queens, New York. The New York City Department of Public Works designed the original Tallman Island WPCP in the 1930s. Prior to construction of the WPCP, a small number of buildings servicing a resort were located on the northwestern portion of Tallman Island. At that time, the island was separated from College Point by a creek and surrounding marshland, and was accessible by a single road at the southwestern portion of the island. The files of the New York State Historic Preservation Office (NYSHPO) and the New York City Landmarks Preservation Commission (NYCLPC) note a previously identified prehistoric site on Tallman Island (recorded as Boesch site No. 67, Tallman's Island Site), as well as a number of sites in nearby College Point (NYCDEP, 2006). Previous researchers have also noted the potential for prehistoric and historic archaeological sensitivity on the island and along its shore line (Greenhouse Consultants, Inc., 1990; Panamerican Consultants Inc., 2003).

New York City agencies are required to comply with City Environmental Quality Review (CEQR) guidelines by identifying archaeological resources and State or National Register-listed or eligible historic resources (more than 50 years old) where impacts are proposed. In order to meet these guidelines, Blasland, Bouck & Lee, Inc. (BBL, an ARCADIS company) and TAMS Consultants, Inc. (an Earth Tech company) were contracted by the NYCDEP to prepare an Environmental Assessment Statement (EAS) for the proposed Tallman Island TI-2 / TI-3 WPCP upgrade program (NYCDEP, 2006). That report was submitted to city and state review agencies in February of 2006. Upon review of this report, the NYCLPC requested additional information about the archaeological sensitivity of the Tallman Island WPCP project area to determine the possible need for archaeological monitoring during construction (Amanda Sutphin, LPC, March 24th, 2006). The present report addresses these concerns through a characterization of site disturbances and an assessment of the potential for intact soils, concluding with a recommendation for archaeological monitoring in a localized area.

Site Disturbance Characterization

A review of the files of the NYSHPO and NYCLPC along with other archaeological and historical documentary resources indicates that Tallman Island was the location of

prehistoric and historic activity (NYCDEP, 2006). However, construction and earth moving activities since the 1930s have significantly impacted archaeological remains once present at the site. Information on past site disturbance within the Tallman Island project area was collected from several resources previously reviewed for the February 2006 EAS (NYCDEP, 2006). These resources are:

- Topographic maps of the site from the late 19th through the late 20th centuries;
- Design and utility plans for the WPCP;
- Aerial and ground photographs from periods of construction in the 1960s and 1970s; and
- Previous archaeological and geotechnical studies conducted on Tallman Island.

Topographic maps show that grading activities have altered the surface elevations of the site and extended the pre-1937 coastline further into the East River and Powell's Cove (NYCDOS, 1937; CDM, 1970; NYCDEP, 2005). Design and utility plans show impacts from construction of the many aboveground tanks, buildings, roadways, and parking lots, numerous underground tanks, and bulkheads along the coastline. They also highlight impacts from landscaping activities and installation of underground utilities including gas, water, electric, and drainage lines (NYCDEP, 2005a, b, and c). Aerial and ground photographs further demonstrate disturbances to the surface and subsurface of the site during upgrade and expansion programs in the 1960s and 1970s (NYCDPW, 1963, 1964; Affiliate Photo Services, 1974; Skyviews Surveys Inc., 1975).

A review of an archaeological survey conducted in the northern and central portions of the site found that a number of fill layers extend as much as nine feet below ground surface in these areas (Greenhouse Consultants, Inc., 1990). A review of geotechnical boring logs and summaries from studies conducted at the site between 1936 and 2005 found disturbed soils in the top ten to 18 feet of soil within many parts of the site. However, these archaeological and geotechnical studies do not provide a clear understanding of subsurface conditions in all areas where impacts are currently proposed as part of the Tallman Island TI-2 / TI-3 WPCP upgrade program.

As noted earlier, the proposed work effort at the Tallman Island WPCP includes construction of seven new structures. In reviewing disturbances at the site, it is helpful to look at the project area in two sections: a) The fenced-in area within which are located the existing facility's structures (and where six of the new structures are proposed, including one temporary structure); b) The 27kV Substation area being the park-like open space located to the west of the site, where one new building, the 27kV substation, is proposed.

Fenced-in Area of Tallman Island WPCP Facility

The fenced-in portion of the Tallman Island WPCP facility has been impacted by the original construction of the WPCP facility, as well as subsequent major upgrades. The areas where the six structures are proposed have already been disturbed by cutting and

filling activities related to grading for construction of existing WPCP structures, landscaping, and the installation of utility lines.

A review of the island's topography prior to/at the time of initial grading activities for the WPCP in the 1930s shows extensive changes in elevation (Figure 2, Tallman Island Topography, ca. 1937). (The datum for these 1930s elevations is not known; however, based on the time period in which they were recorded they are likely from a datum at the same elevation or within a few feet of the Borough of Queens Highway Datum [2.725 feet above mean sea level at Sandy Hook], which is the datum for all other elevations in this report). A hillock with an elevation of just over 35 feet in the western portion of the site and the surrounding slope were removed by construction of aboveground and underground structures, first on the eastern half of the island in the 1930s and then on the western portion of the island in the 1960s. Between ten and 20 feet of the original ground surface was cut in order to level the central portion of the island for these structures (Figure 3, Tallman Island Topography, ca. 1998). An aerial photograph from 1975 shows the graded landscape of the WPCP facility (Figure 4, Tallman Island WPCP, July 1975).

Other portions of the island were disturbed by temporary dirt roads believed to be associated with the early WPCP construction period (Figure 2), as well as by subsequent construction of the various structures related to the facility. The coastline of the Tallman Island WPCP plant site was also expanded for the WPCP facility, as shown on Figure 2 and covered in about ten feet of fill (Figure 3). Construction maps from the 1970s also show extensive subsurface disturbance from utility installation at the site (NYCDEP, 2005a).

A topographic map from 1998 shows the topography in the fenced-in portion of the Tallman Island WPCP facility to be typically around 16 feet, sloping to about seven feet at the north end of the island and ten feet at the east end (Figure 3). The intensive land modification on the island shows that construction of the six proposed structures in this fenced-in portion of the WPCP facility would not have an impact on archaeological resources.

27kV Substation Area

The area just west of the fenced-in portion of the WPCP facility (noted as open space on Figure 1), where a single new structure is proposed (the 27kV substation), has been subject to numerous disturbances. However, following a review of topographic maps it is unclear whether grading activities have completely disturbed the original ground surface in this area or whether portions of it may be preserved under fill.

Prior to construction of the Tallman Island WPCP site, the topography in the area of the proposed substation sloped gently towards the former creek and marshland to the southwest, changing from 15 to less than five feet in elevation (USGS, 1891; NYSDOS, 1937). Once construction of the WPCP facility began, dirt roads crossed the area, likely disturbing the original ground surface (Figure 2). The elevation of this area was then raised through the deposit of several feet of fill and set aside as a park (CDM, 1970). The area was then landscaped and a pedestrian pathway established. The topography from this period is

shown on a plan for the 1970 Tallman Island WPCP upgrade and expansion program, which also shows the proposed landscaping for the area (Figure 5, Existing and Planned Topography, ca. 1970 in Proposed 27kV Substation Area). The parkland's new contours were created by cutting and filling in several areas, including the proposed substation location. Upon completion, the northern portion of the area received more fill than the southern portion, resulting in a gently undulating landscape (Figure 3). Because of the slight change in grade to portions of this area, the level of disturbance to any remaining underlying original ground surface remains ambiguous. It is therefore unclear whether intact soils may remain within the area of the proposed substation.

Other ground disturbances associated with the 1970 design plan included an eight-foot wide paved pedestrian pathway along a new alignment and a new perimeter fence that disturbed a ribbon of land around the area up to 3.5 feet below ground surface (Figure 5). Various utilities were also installed in the area. Figure 6 (Existing and Planned Utilities, ca. 2005 in Proposed 27kV Substation Area) shows eight inch gas and water lines installed across the area where the substation is proposed; an abandoned water line running northeast to southwest through the central portion of the proposed substation is not depicted on this graphic. New electrical lines installed at this time allowed the new pathways to be illuminated by street lights, while other subsurface utilities installed nearby included a 12 inch drainage line to the north and a 36 inch interceptor line to the south (CDM, 1970).

Aerial photographs also show varying levels of disturbance in this area. The proposed 27kV substation is located within the staging area for the 1970s period of construction, visible on the left side of the aerial photograph (Figure 4). A wide dirt roadway used for construction vehicles cut through the area where the substation is proposed, disturbing the area's ground surface. A large dirt pile, piles of unused utility pipes, and a temporary one-story structure were also located nearby the proposed substation site.

Recent studies within the area include a geotechnical boring program conducted in the proposed location of the substation. While the borings note varying layers of sand and silty sand, it is not clear if these layers represent intact buried ground surfaces or disturbed layers of fill.

Conclusions and Recommendations

Background research has found that the fenced-in portion of the Tallman Island WPCP facility where structures currently stand was heavily disturbed by 20th century construction activities related to the existing facility. Based on the extensive land modification in this area, the potential for intact soils to be present in areas where new impacts are proposed is low to none. Therefore, it is determined that construction of the six new structures in this area would not have an adverse affect on archaeological resources. In the park-like open area, however, the possibility that intact soils may exist below fill remains ambiguous. Therefore, further investigation of subsurface conditions in this area where the 27kV substation is proposed should be conducted to determine the presence or absence of intact soils in the area. Consultation with the NYCLPC has led to the conclusion that limited archaeological monitoring in this area should be undertaken (Amanda Sutphin, LPC, May 2006). The following archaeological monitoring effort is recommended.

Prior to construction of the proposed 27kV substation in the park area, new utility lines will be installed along the edges of the structure's footprint (Figure 6). Mechanical excavation of trenches for these new utility lines will expose subsurface conditions in the area of the proposed substation. An archaeologist will monitor this excavation activity in order to record subsurface conditions and identify the presence or absence of intact soils. The information recorded from these excavated pipe trenches will be used to extrapolate subsurface conditions of the adjacent footprint of the proposed 27kV substation.

Archaeological documentation will involve profile and plan drawings and photographs of representative sections of the exposed soils. The archaeologist will also watch soils being mechanically removed and periodically examine excavated dirt piles for artifacts.

A final technical report of this archaeological monitoring will be prepared and submitted to the NYCLPC for review. If evidence of intact soil are encountered, further discussion with the NYCLPC will determine the next course of action. If no evidence of intact soils are encountered no further archaeological work will be required.

References

Reports

Greenhouse Consultants, Inc. Stage 1B Archaeological Survey of the Tallman Island Water Pollution Control Plant Expansion Project - Borough of Queens, New York City, Queens County, New York. July 1990. Prepared for Stone and Webster Engineering Corporation.

New York City Department of Environmental Protection (NYCDEP). Environmental Assessment Statement - Tallman Island TI-2 / TI-3 Pollution Control Plant - Plant Upgrade. February 2006. Prepared by Blasland, Bouck & Lee, Inc. and TAMS Consultants, Inc. (BBL/TAMS).

NYCDEP. Geotechnical Investigation Package - Tallman Island Water Pollution Plant, College Point, Queens County, New York. March 1999. Prepared by BBL/TAMS.

Panamerican Consultants, Inc. Cultural Resources Baseline Study - Flushing Bay Ecosystem Restoration Project, Queens County, New York. February 2003. Prepared for US Army Corps of Engineers.

Plans and Maps

Camp, Dresser & McKee (CDM). Tallman Island Water Pollution Control Project - Upgrading and Expansion Contract No. 1 - Structures and Equipment. Sheets SW-R-2, SW-R-3, SW-R-5, and SW-Y-3. August 1970. Prepared for the City of New York Environmental Protection Administration, Department of Water Resources.

NYCDEP. Tallman Island Water Pollution Control Plant - Capital Project WP-249 - Plant Upgrade - Contract TI-3G - Structures and Equipment. August 2005a. Prepared by BBL/TAMS.

NYCDEP. Tallman Island Water Pollution Control Plant - Capital Project WP-249 - Plant Upgrade - Contract TI-3P - Plumbing. August 2005b. Prepared by BBL/TAMS.

NYCDEP. Tallman Island Water Pollution Control Plant - Capital Project WP-249 - Plant Upgrade - Contract TI-3E - Electrical. August 2005c. Prepared by BBL/TAMS.

New York City Department of Sanitation (NYCDOS). Tallman Island Sewage Treatment Works, - Pump and Blower House, Property Line, Fence, and Gates. September 1937.

US Geological Service (USGS). *Harlem, New York Quadrangle*. 15 Minute Series. 1891.

Photographs

Affiliated Photo Services. Aerial view of Tallman Island, March 20, 1974. On file at Tallman Island Water Pollution Control Plant, College Point, New York.

New York City Department of Public Works (NYCDPW), Division of Shops Photo Service. Aerial view and ground photos of Tallman Island, 1963 and 1964. On file at Tallman Island Water Pollution Control Plant, College Point, New York.

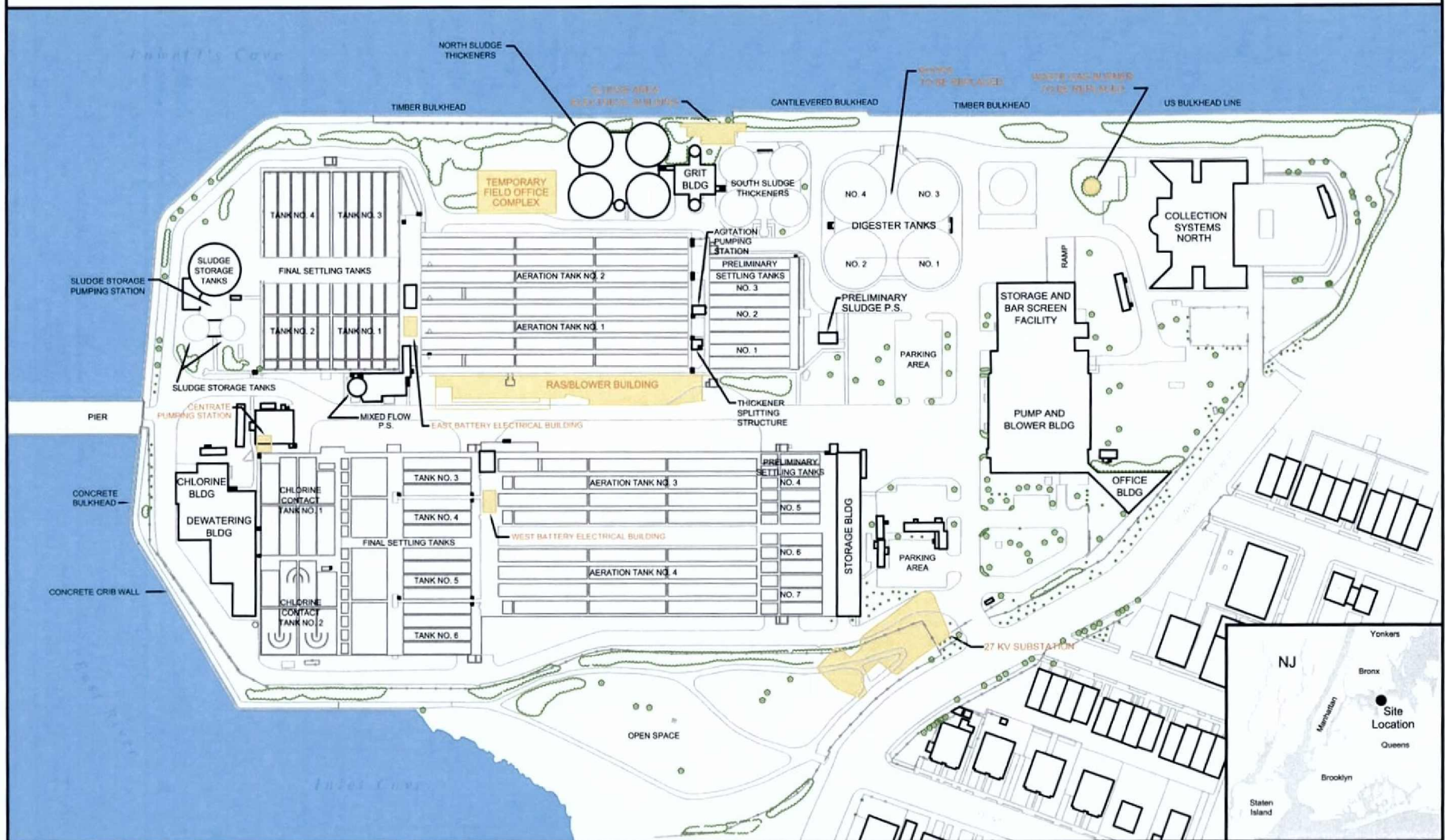
Skyviews Survey, Inc. Aerial view of Tallman Island - Photo No. 114709, July 1975. On file at Tallman Island Water Pollution Control Plant, College Point, New York.

Communications

Amanda Sutphin, Landmarks Preservation Commission (LPC), Environmental Review, March 24, 2006.

Amanda Sutphin, LPC, telephone consultation, May 2006.

Tallman Island WPCP Planned Upgrade Program



- Proposed Action
- Existing Building

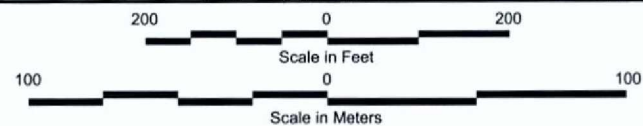


Figure 1

Tallman Island Topography, ca. 1937

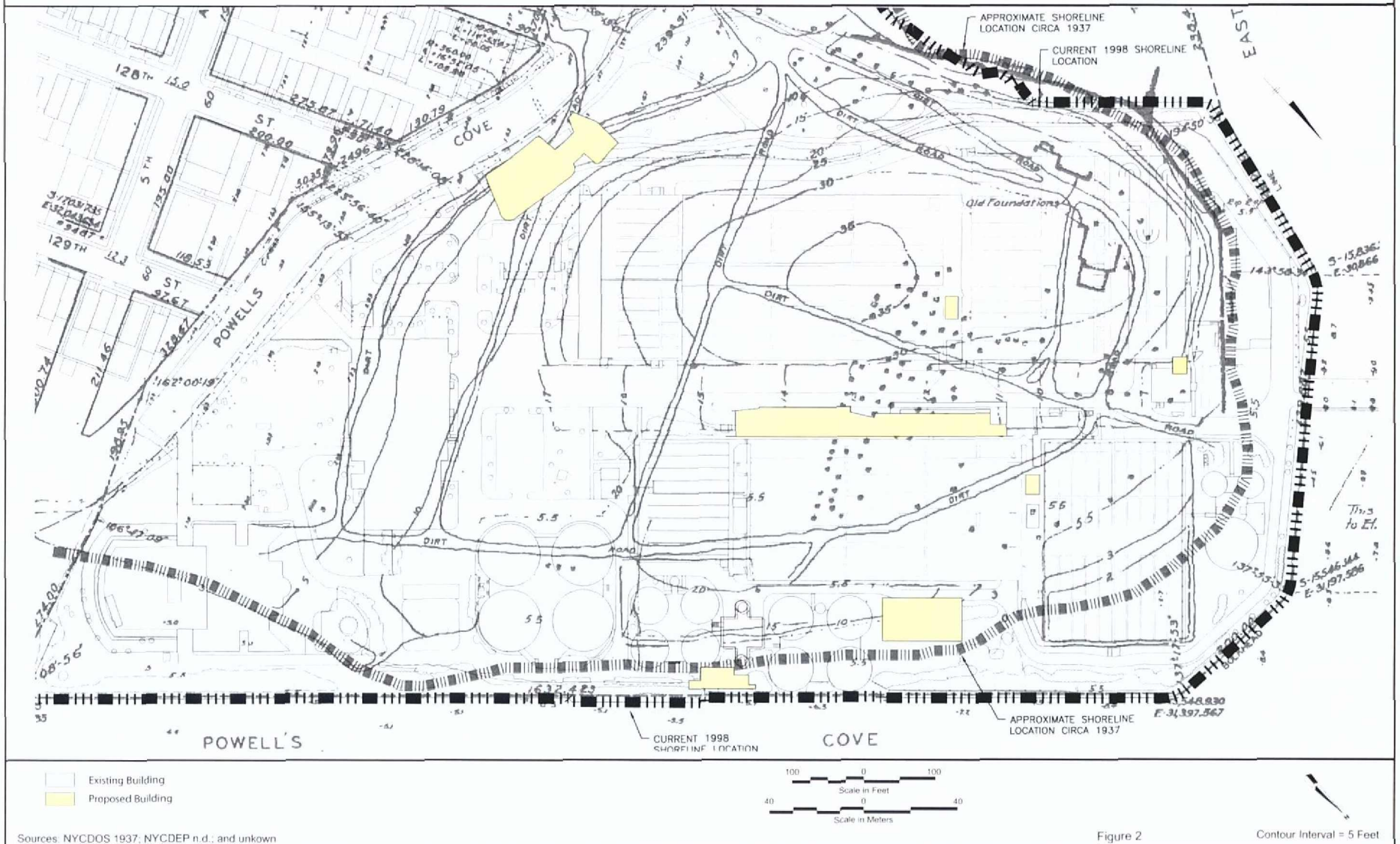
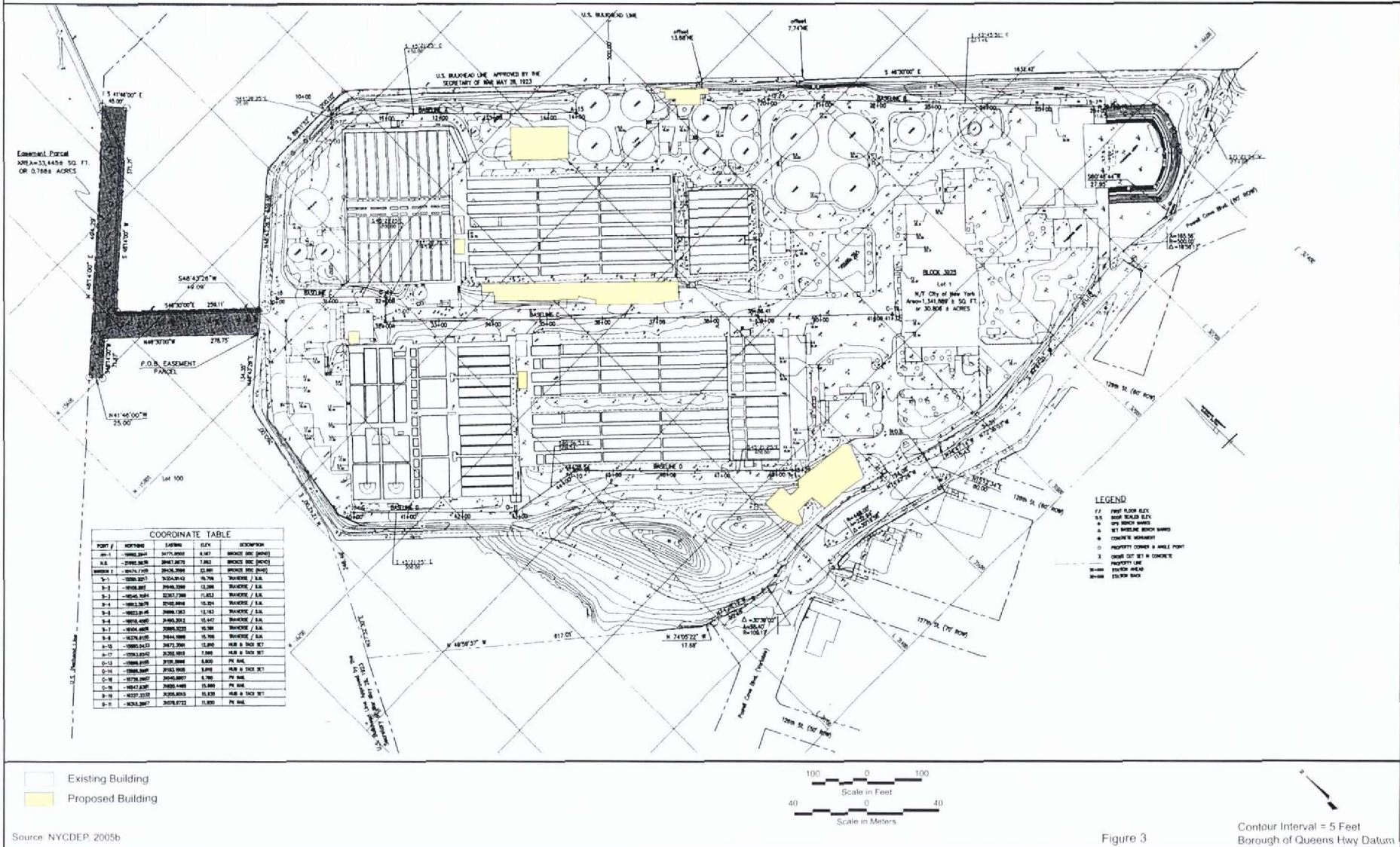


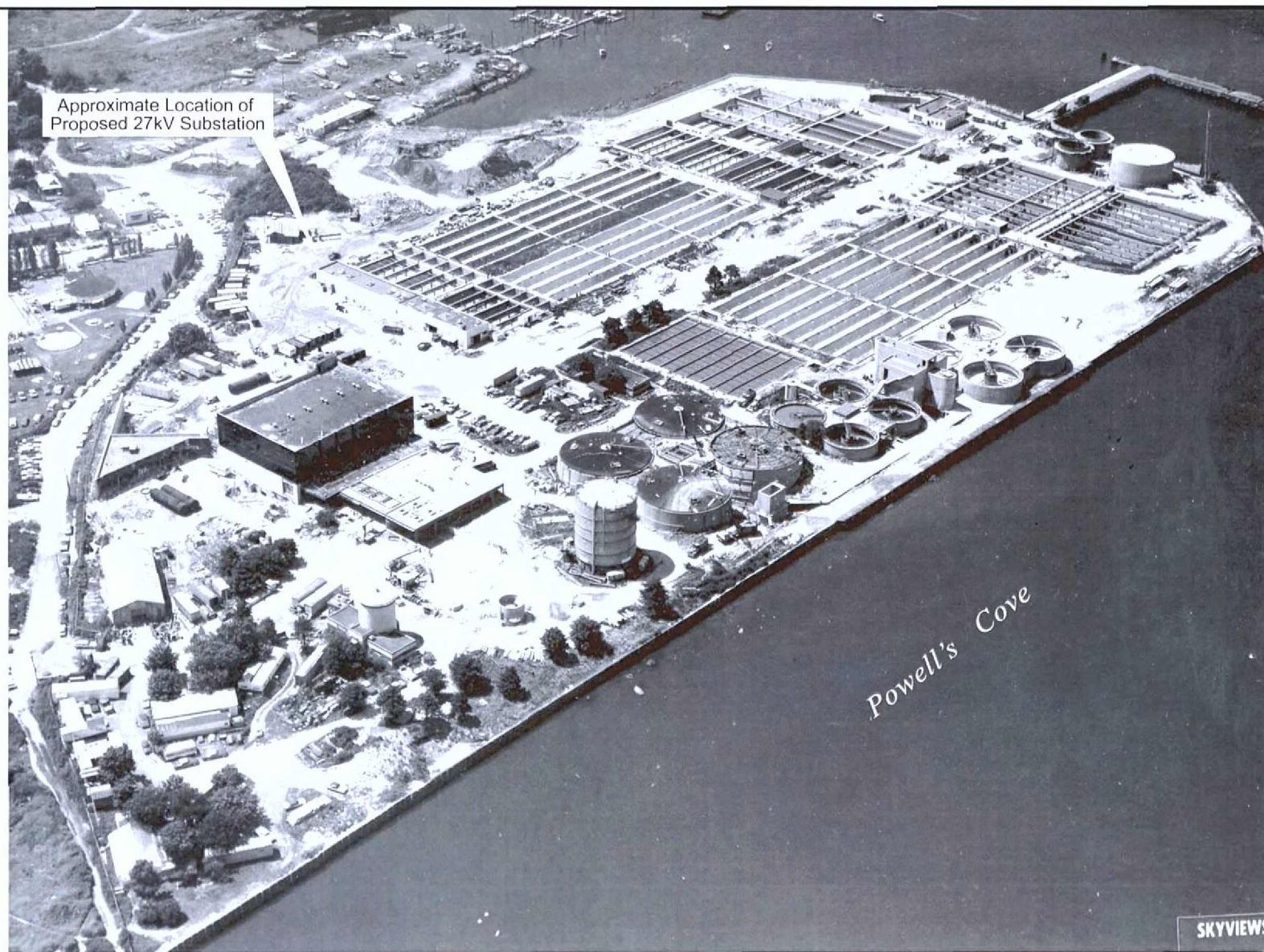
Figure 2

Contour Interval = 5 Feet

Tallman Island Topography, ca. 1998



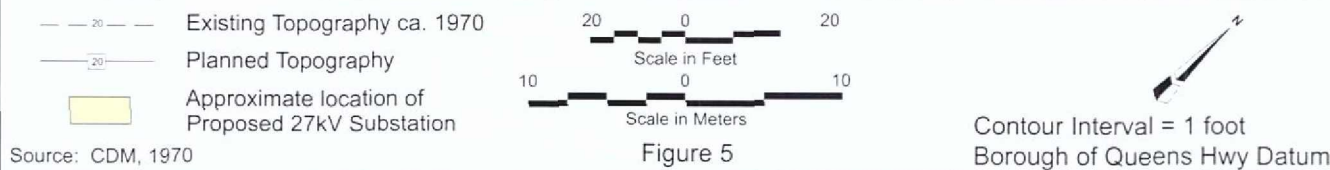
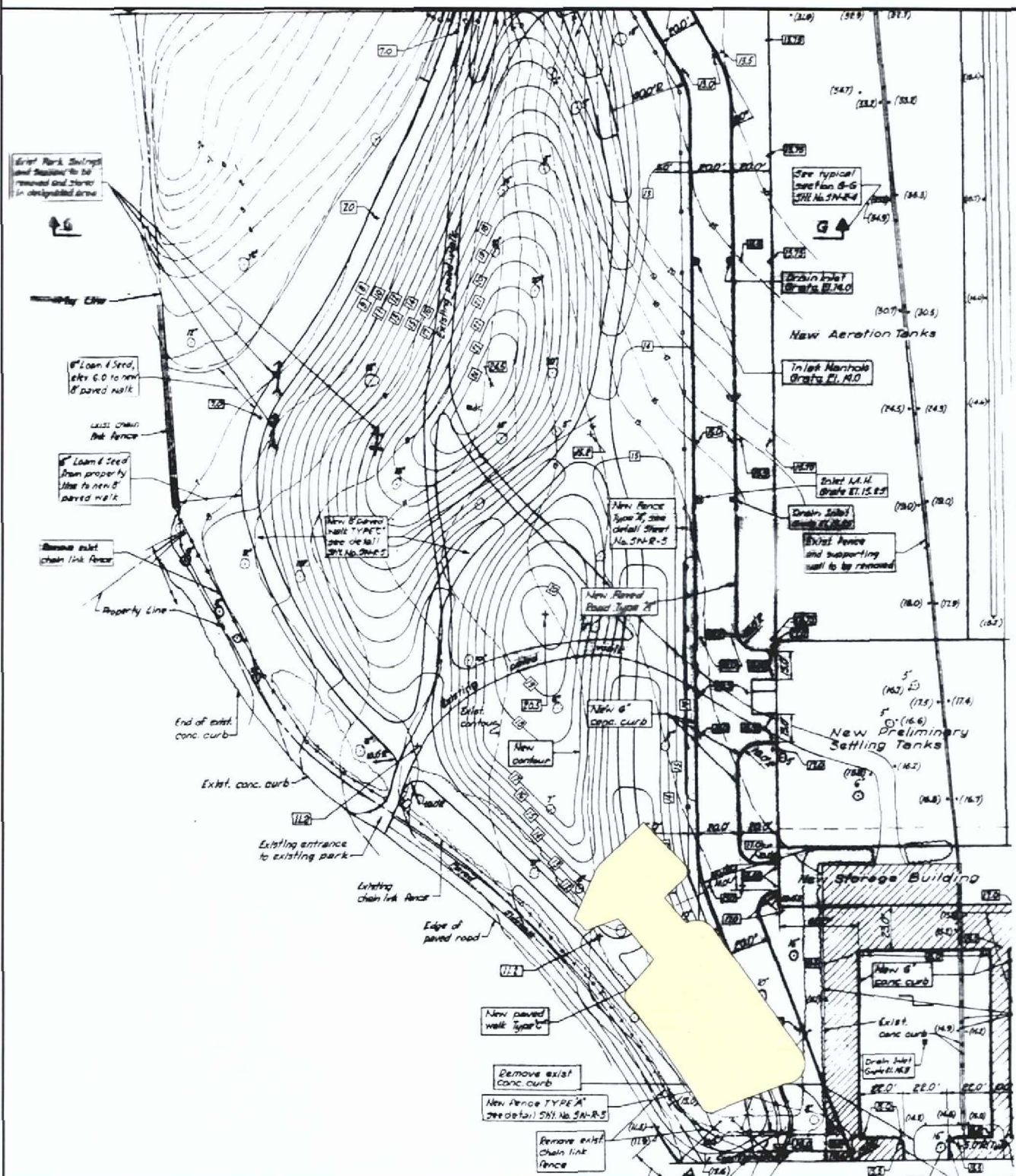
Tallman Island WPCP, July 1975



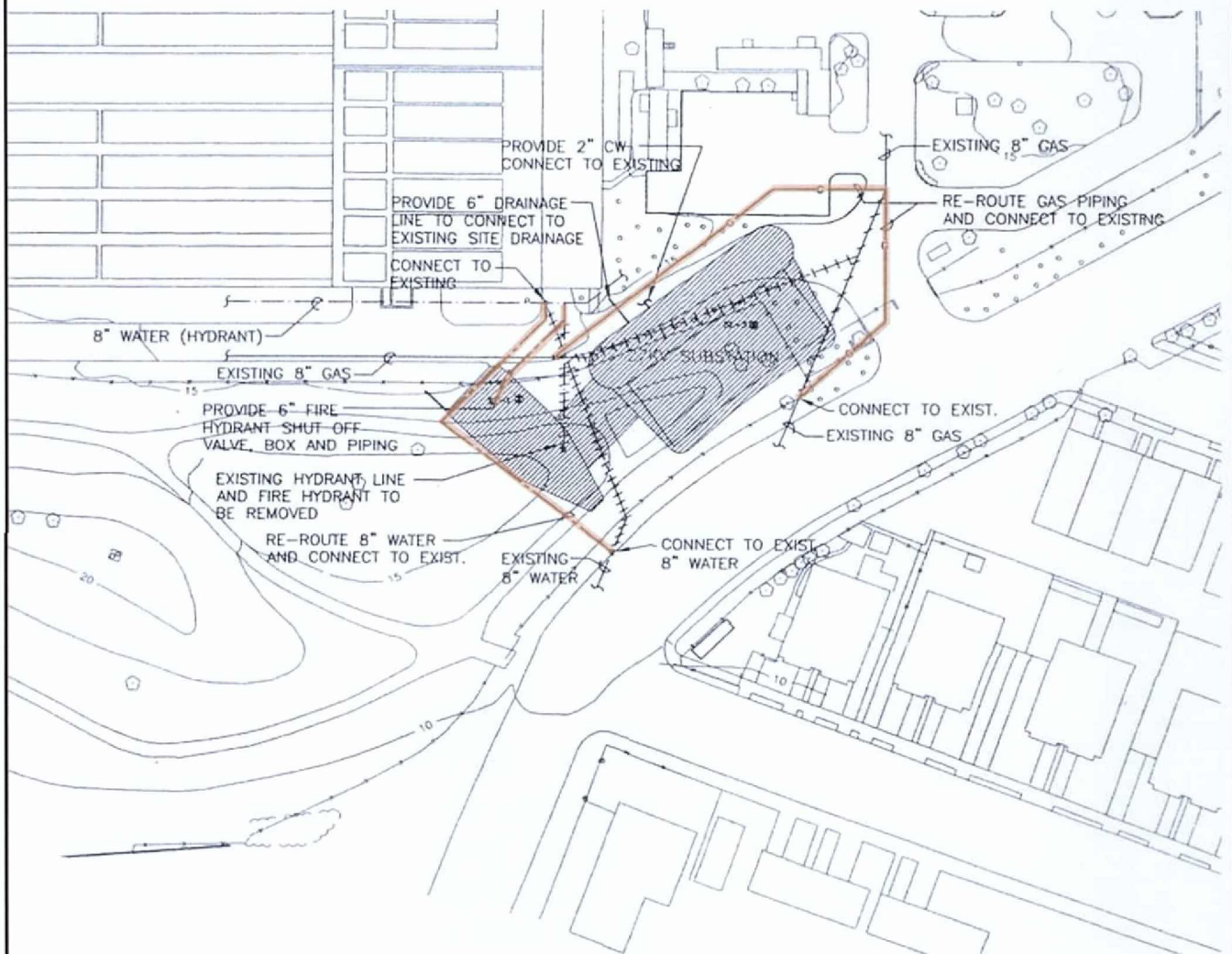
Source: Skyviews Survey, Inc., 1975

Figure 4

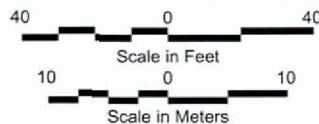
Existing and Planned Topography, ca. 1970 in Proposed 27kV Substation Area



Existing and Planned Utilities, ca. 2005 in Proposed 27kV Substation Area



- Existing Utility Lines to be Removed
- Planned Utility Lines
- Proposed 27kV Substation



Source: NYCDEP, 2005b

Figure 6

Contour Interval = 5 Feet
Borough of Queens Hwy Datum