The City of New York

DEPARTMENT OF ENVIRONMENTAL PROTECTION
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DIAL 311 Government Information and Services for NYC

February 24, 2006

Lead Agency Declaration and
Notice of Intent to Conduct an Environmental Review

Project: Tallman Island TI-2/TI-3 Water Pollution Control Plant Upgrade Program CEQR No. 06DEP009Q

The New York City Department of Environmental Protection (NYCDEP) believes it is the appropriate lead agency and wishes to conduct a coordinated review of the above referenced project. An Environmental Assessment Statement (EAS) has been prepared by NYCDEP, acting as lead agency, in accordance with the State Environmental Quality Review Act, as set forth in 6NYCRR Part 617, authorized by Article 8 of the New York State Environmental Conservation Law, the City Environmental Quality Review process, as set forth in Executive Order 91 of 1977 and its amendments, and the State Environmental Review Process, as required by the State Revolving Fund Program. Attached for your review is a copy of the project's EAS form and attachments.

The Bureau of Environmental Planning and Assessment (BEPA), on behalf of NYCDEP, is reviewing the potential for significant impacts from the Tallman Island TI-2/ TI-3 Water Pollution Control Plant Upgrade Program at the Tallman Island Water Pollution Control Plant (Tallman Island WPCP and/or plant) 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 proposed action consists of two phases, Contract TI-2: Emergency Main Sewage (EMS) Pumping System Modification & Replacement, and Contract TI-3: Plant Upgrade Program (PUP). The PUP would provide for Biological Nutrient Removal (BNR) by improving the aeration system including the replacement of the diffusers, baffle walls, froth hoods, surface wasting system, and mixers for basic step feed BNR. The PUP will also include the replacement of the aged main sewage pumps, blowers and drive engines with electric motors. The facility requires upgrading to ensure continued compliance with wastewater permit limitations, to maintain a safe working environment for the future, and meet the recently mandated citywide nitrogen removal program. Accordingly, NYCDEP has instituted this action to provide more efficient and reliable wastewater treatment, which would ultimately benefit the quality of East River and Powell's Cove water bodies and associated aquatic habitats. The proposed action would remedy near-term and long-term plant deficiencies to allow the plant to continue to meet its State Pollutant Discharge Elimination System (SPDES) permit, improve operations, and maximize treatment plant flow rates. Equally important, the program would identify and remedy safety and health issues, and evaluate and upgrade the plant's infrastructure to support all systems and functions.

The proposed action would also include a set of mechanical (e.g., covers and stacks) and operational components (e.g., active carbon-based control technologies) that would control operational odors. At the present time, it is anticipated that at least two facilities within the plant would be involved – the grit building and preliminary settling weirs west. Studies are being conducted to determine the appropriate odor control system and the potential for other facilities within the plant for implementing odor control.

To satisfy the goals and objectives of the proposed action, the proposed action would be implemented as a three phased approach. The three phases are supported by two separate contracts (two phases under Contract TI-2 and the third phase under Contract TI-3) that address the near-term and long-term needs of the Tallman Island WPCP. Each of these contracts are described below:

Contract TI-2: Emergency Main Sewage (EMS) Pumping System Modification & Replacement (EMS Pumping System)

The EMS Pumping System Modification & Replacement consists of two stages. Stage I would provide sufficient pumping capacity for the facility to pump at least the average dry-weather flow (66 million gallons per day [mgd]) in the case of a complete main sewage pump and/or engine drive unit failure. Power for the Stage I Pumping System would be provided by the existing Consolidated Edison (Con Ed) service to the facility. In the actual event of a main sewage pump failure and the need to run the Stage I Pumping System, existing electrical loads at the facility would be disconnected (or de-loaded from the existing Con Ed service) so that sufficient power would be available.

Once the Stage I Pumping System is installed, installation of the Stage II Pumping System would take approximately six months. The Stage II Pumping System would provide dry-weather and wet-weather pumping capacity for the facility up to 120 mgd or 1.5 times the dry-weather flow (required for secondary treatment). It would be located in the existing Pump and Blower Building. Power for the Stage II Pumping System would be provided by two new on-site 1.6 megawatt (MW) diesel generators. The Stage II Pumping System would only be used in case of a complete failure of the existing main sewage pumps. The Stage II Pumping System would stay in place until February 2010.

Contract TI-3: Plant Upgrade Program (PUP)

The Plant Upgrade Program consists of the removal and replacement of the existing main sewage pumps, their associated engine drive units and the force mains to the east and west battery preliminary tanks. Power for the new equipment installed under the PUP would be provided by Con Ed's 27 kV service via a new substation that would be built on site. To provide pumping of sewage during the main sewage pump and forcemain replacement, pumps from TI -2 Stages I and II will be used to pump 160 mgd (required for primary treatement). This is known as the "pump around", which would be in service on a full-time basis for a period of about 1 year starting in January 2009. Once the 27 kV service is available, the two Stage II diesel generators would be relocated to the substation, and an additional new standby generator would be added, to serve as standby power. The EMS

Pumping System would then be removed once the new main sewage pumps were tested and accepted by NYCDEP.

Additional work within the boundaries of the facility would involve the replacement of the existing primary screen conveyor system and the modification of the Secondary Bypass System to reroute, measure the excess flow (above 120 MGD) from the East Battery and West Battery to the Bypass Channel and automatically adjust to meet the maximum required overflow during storm events. The replacement of the existing primary screen conveyor system includes the removal and replacement of frame, rollers, belt, motors, and electrical control. The Powell's Cove Pumping Station within the Tallman Island WPCP would also undergo modifications to replace pumps, motors, piping, associated valves, controls and associated electrical equipment, replace mechanical bar screen, install a removable grinder, install duplex sump pumps and associated piping, and install new lighting.

The proposed work may require the following permits and/or approvals:

- The New York State Department of Environmental Conservation Title V Permit Modification;
- The New York State Department of Environmental Conservation State Facility Permit;
- The New York State Department of Environmental Conservation Long Island Well Permit;
- The New York State Department of Environmental Conservation Fuel Oil Tank Registration;
- The New York State Revolving Fund program;
- The City of New York Department of Business Services Notice of Permit;
- The City of New York Fire Department Permit;
- The City of New York Local Waterfront Revitalization Program (Waterfront Program Consistency);
- Con Edison Gas Line Modifications;
- Con Edison Electrical Conduit/ Manholes; and,
- NYNEX Telephone Lines/ Manholes.

If you have any questions or comments please contact either myself or Julie Stein at (718) 595-4397.

Sincerely,

Angela Licata
Deputy Commissioner

cc: Helen Marshall, Queens Borough President
Rita Kessler, Community Board 7 District Manager
Eugene T. Kelty, Jr., Community Board 7 Chairperson
Robert Kulikowski, NYC Office of Environmental Coordination
Victor Robles, NYC City Clerk/City Record
John Cyran, NYS Department of Environmental Conservation (Region 2)
Timothy Burns, Environmental Facilities Corporation
Robert Dobruskin, NYC Department of City Planning
Amanda Burden, NYC Department of City Planning
Wilbur Woods, NYC Department of City Planning
Ruth Pierpont, NYS Office of Parks, Recreation and Historic Preservation
Gina Santucci, NYC Landmarks Preservation Commission
Naim Rasheed, NYC Department of Transportation

City Environmental Quality Review

ENVIRONMENTAL ASSESSMENT STATEMENT

PART I, GENERAL INFORMATION

Reference Numbers

1. 06DEP009Q
CEQR REFERENCE NUMBER (TO BE ASSIGNED BY LEAD AGENCY)

BSA REFERENCE NO. IF APPLICABLE

ULURP REFERENCE NO. IF APPLICABLE

OTHER REFERENCE NO.(S) IF APPLICABLE
(e.g. Legislative Intro, CAPA, etc)

Lead Agency & Applicant Information
PROVIDE APPLICABLE INFORMATION

2a. Lead Agency

NYC Department of Environmental Protection (DEP)
NAME OF LEAD AGENCY

Angela Licata, Deputy Commissioner
NAME OF LEAD AGENCY CONTACT PERSON

59-17 Junction Blvd, 11th Floor
ADDRESS

Flushing **NY** **11373**
CITY STATE ZIP

718-595-4399 **718-595-4479**
TELEPHONE FAX

alicata@dep.nyc.gov
EMAIL ADDRESS

2b. Applicant Information

NYCDEP, Bureau of Engineering Design and Construction
NAME OF APPLICANT

Mr. Matthew Osit, P.E.
NAME OF APPLICANT'S REPRESENTATIVE OR CONTACT PERSON

96-05 Horace Harding Expressway 5th Flr Low Rise
ADDRESS

Flushing **NY** **11368**
CITY STATE ZIP

718-595-6077 **718-595-5975**
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mosit@dep.nyc.gov
EMAIL ADDRESS

Action Description
SEE CEQR MANUAL SECTIONS 2A & 2B

3a. NAME OF PROPOSAL **Tallman Island TI-2/TI-3 WPCP Upgrade Program**

3b. DESCRIBE THE ACTION(S) AND APPROVAL(S) BEING SOUGHT FROM OR UNDERTAKEN BY CITY (AND IF APPLICABLE, STATE AND FEDERAL AGENCIES) AND, BRIEFLY, DESCRIBE THE DEVELOPMENT OR PROJECT THAT WOULD RESULT FROM THE PROPOSED ACTION(S) AND APPROVAL(S):

Implementation of proposed Upgrade Program for the Tallman Island Water Pollution Control Plant (WPCP); including Emergency Sewage Pumping System, an enchanced biological nutrient removal process (BNR), and a conversion to electric motors from oil/diesel engines. See Attachment A.

3c. DESCRIBE THE PURPOSE OF AND NEED FOR THE ACTION(S) AND APPROVAL(S):

To provide greater plant operating efficiencies and improve the BNR process, thereby benefiting the quality of East River and Powell's Cove water bodies and aquatic habitats. See Attachment A.

Required Action or Approvals

4. CITY PLANNING COMMISSION ☐ Yes ☒ No
☐ Change in City Map ☐ Zoning Certification ☐ Site Selection - Public Facility
☐ Zoning Map Amendment ☐ Zoning Authorization ☐ Disposition - Real Property ☐ Franchise
☐ Zoning Text Amendment ☐ Housing Plan & Project ☐ UDAAP ☐ Revocable Consent ☐ Concession
☐ Charter 197-a Plan
☐ Zoning Special Permit, specify type:
☐ Modification of
☐ Renewal of
☐ Other

5. UNIFORM LAND USE PROCEDURE (ULURP) ☐ Yes ☒ No

6. BOARD OF STANDARDS AND APPEALS ☐ Yes ☒ No
☐ Special Permit ☐ New ☐ Renewal ☐ Expiration Date
☐ Variance ☐ Use ☐ Bulk
Specify affected section(s) of Zoning Resolution

7. DEPARTMENT OF ENVIRONMENTAL PROTECTION ☒ Yes ☐ No
☒ Title V Facility* ☐ Power Generation Facility ☐ Medical Waste Treatment Facility
**Minor modification to Title V is required due to new emergency generator.*

PLEASE NOTE THAT MANY ACTIONS ARE NOT SUBJECT TO CEQR. SEE SECTION 110 OF TECHNICAL MANUAL

8. OTHER CITY APPROVALS ☒ Yes ☐ No

☐ Legislation ☐ Rulemaking; specify agency:

☐ Construction of Public Facilities ☐ Funding of Construction, Specify ☐ Funding of Programs, Specify

☐ Policy or plan ☒ Permits, Specify: NYC Dept of Building Services – Work Notice, Certificate of Completion, NYC Dept of Business Services Notice of Permit, Fire Dept Permit, NYC Local Waterfront Revitalization Program (NYC Waterfront Program Consistency), Title V Air Permit Modification.

9. STATE ACTIONS/APPROVALS/FUNDING ☒ Yes ☐ No

If "Yes," identify SRF; NYSDEC - Fuel Oil Storage Tank permit.

10. FEDERAL ACTIONS/APPROVALS/FUNDING ☐ Yes ☒ No

If "Yes," identify

Action Type

11a. Unlisted; or ☒ Type I; specify category (see 6 NYCRR 617.4 and NYC Executive Order 91 OF 1977, as amended):

This is a Type I action due to SRF funding, although it is an unlisted action under CEQR.

11b. ☒ Localized action, site specific ☐ Localized action, change in regulatory control for small area ☐ Generic action

Analysis Year

12. Identify the analysis year (or build year) for the proposed action: **2010**

Would the proposal be implemented in a single phase? ☐ Yes ☒ No ☐ NA.

Anticipated period of construction: **2006-2010**

Anticipated completion date: **2010**

Would the proposal be implemented in multiple phases? ☒ Yes ☐ No ☐ NA.

Number of phases: **Three**

Describe phases and construction schedule: **The Emergency Pumping System is implemented in two stages; other improvements to existing facilities and construction of new facilities are carried out in the next stage. See construction schedule listed on Table 1-1 of Attachment A.**

Directly Affected Area

INDICATE LOCATION OF PROJECT SITE FOR ACTIONS INVOLVING A SINGLE SITE ONLY (PROVIDE ATTACHMENTS AS NECESSARY FOR MULTIPLE SITES)

13a. LOCATION OF PROJECT SITE

Powell's Cove Boulevard and 127th Street, College Point, Queens

STREET ADDRESS

Site is situated at the western edge of Powell's Cove, in the College Point Section of Queens, west of Whitestone Bridge.

DESCRIPTION OF PROPERTY BY BOUNDING OR CROSS STREETS

M2-1 **7b**

EXISTING ZONING DISTRICT, INCLUDING SPECIAL ZONING DISTRICT DESIGNATION IF ANY — ZONING SECTIONAL MAP NO.

Block 3925 Lot 1 **Queens** **7**

TAX BLOCK AND LOT NUMBERS — BOROUGH — COMMUNITY DISTRICT NO.

13b. PHYSICAL DIMENSIONS AND SCALE OF PROJECT

TOTAL CONTIGUOUS SQUARE FEET OWNED OR CONTROLLED BY PROJECT SPONSOR: **1,306,800** SQ. FT.

PROJECT SQUARE FEET TO BE DEVELOPED: **33,360 (ground level)** SQ. FT.

GROSS FLOOR AREA OF PROJECT: **As above** SQ. FT.

IF THE ACTION IS AN EXPANSION, INDICATE PERCENT OF EXPANSION PROPOSED **2.6** % OF **1,306,800**

DIMENSIONS (IN FEET) OF LARGEST PROPOSED STRUCTURE: **23** HEIGH **40** WIDTH **400** LENGTH.

LINEAR FEET OF FRONTAGE ALONG A PUBLIC THOROUGHFARE: **150 (new 27kV Substation)**

13c. IF THE ACTION WOULD APPLY TO THE ENTIRE CITY OR TO AREAS THAT ARE SO EXTENSIVE THAT A SITE-SPECIFIC DESCRIPTION IS NOT APPROPRIATE OR PRACTICABLE, DESCRIBE THE AREA LIKELY TO BE AFFECTED BY THE ACTION:

N/A

13d. DOES THE PROPOSED ACTION INVOLVE CHANGES IN REGULATORY CONTROLS THAT WOULD AFFECT ONE OR MORE SITES NOT ASSOCIATED WITH A SPECIFIC DEVELOPMENT? ☐ Yes ☒ No

IF 'YES', IDENTIFY THE LOCATION OF THE SITES PROVIDING THE INFORMATION REQUESTED IN 13a & 13b ABOVE.

PART II, SITE AND ACTION DESCRIPTION

Site Description

EXCEPT WHERE OTHERWISE INDICATED, ANSWER THE FOLLOWING QUESTIONS WITH REGARD TO THE DIRECTLY AFFECTED AREA. THE DIRECTLY AFFECTED AREA CONSISTS OF THE PROJECT SITE AND THE AREA SUBJECT TO ANY CHANGE IN REGULATORY CONTROLS.

1. GRAPHICS Please attach: (1) a Sanborn or other land use map; (2) a zoning map; and (3) a tax map. On each map, clearly show the boundaries of the directly affected area or areas and indicate a 400-foot radius drawn from the outer boundaries of the project site. The maps should not exceed 8½ x 14 inches in size. **See Graphics 1, 2 and 3 attached.**

2. PHYSICAL SETTING (both developed and undeveloped areas)

Total directly affected area (sq. ft.): **1,306,800** Water surface area (sq. ft.): **N/A**

Roads, building and other paved surfaces (sq. ft.): **See Attachment B** Other, describe (sq. ft.): **See Attachment B**

3. PRESENT LAND USE

Residential

Total no. of dwelling units **0** No. of low-to-moderate income units **0**

No. of stories **0** Gross floor area (sq. ft.) **0**

Describe type of residential structures: **N/A**

Commercial

Retail: No. of bldgs **0** Gross floor area of each building (sq. ft.): **0**

Office: No. of bldgs **0** Gross floor area of each building (sq. ft.): **0**

Other: No. of bldgs **0** Gross floor area of each building (sq. ft.): **0**

Specify type(s): **N/A** No. of stories and height of each building: **0**

Manufacturing/Industrial

No. of bldgs **23 (main structures)** Gross floor area of each building (sq. ft.): **See Attachment A & B**

No. of stories and height of each building: **See Attachment A & B**

Type of use(s): **Wastewater Treatment** Open storage area (sq. ft.) **0**

If any unenclosed activities, specify: **N/A**

Community facility

Type of community facility:

No. of bldgs. **0** Gross floor area of each building (sq. ft.): **0**

No. of stories and height of each building: **0**

Vacant land

Is there any vacant land in the directly affected area? ☒ Yes ☐ No

If yes, describe briefly: **See response below.**

Publicly accessible open space

Is there any existing publicly accessible open space in the directly affected area? ☒ Yes ☐ No

If yes, describe briefly:

2.75 acres of DEP-owned publicly accessible open space is situated to the immediate west of the WPCP. Approximately 0.25 acres of this space will be eliminated for building the 27kV Substation.

Does the directly affected area include any mapped City, State or Federal parkland? ☐ Yes ☒ No

If yes, describe briefly:

Does the directly affected area include any mapped or otherwise known wetland? ☐ Yes ☒ No

If yes, describe briefly:

Other land use

No. of stories **0** Gross floor area (sq. ft.) **0**

Type of use: **N/A**

4. EXISTING PARKING

Garages

No. of public spaces: **0** No. of accessory spaces: **0**

Operating hours: **N/A** Attended or non-attended? **N/A**

Lots

No. of public spaces: **0** No. of accessory spaces: **70-100 for plant personnel**

Operating hours: **N/A** Attended or non-attended? **Non-attended. WPCP parking is within a secured area.**

Other (including street parking) - please specify and provide same data as for lots and garages, as appropriate.

N/A

5. EXISTING STORAGE TANKS

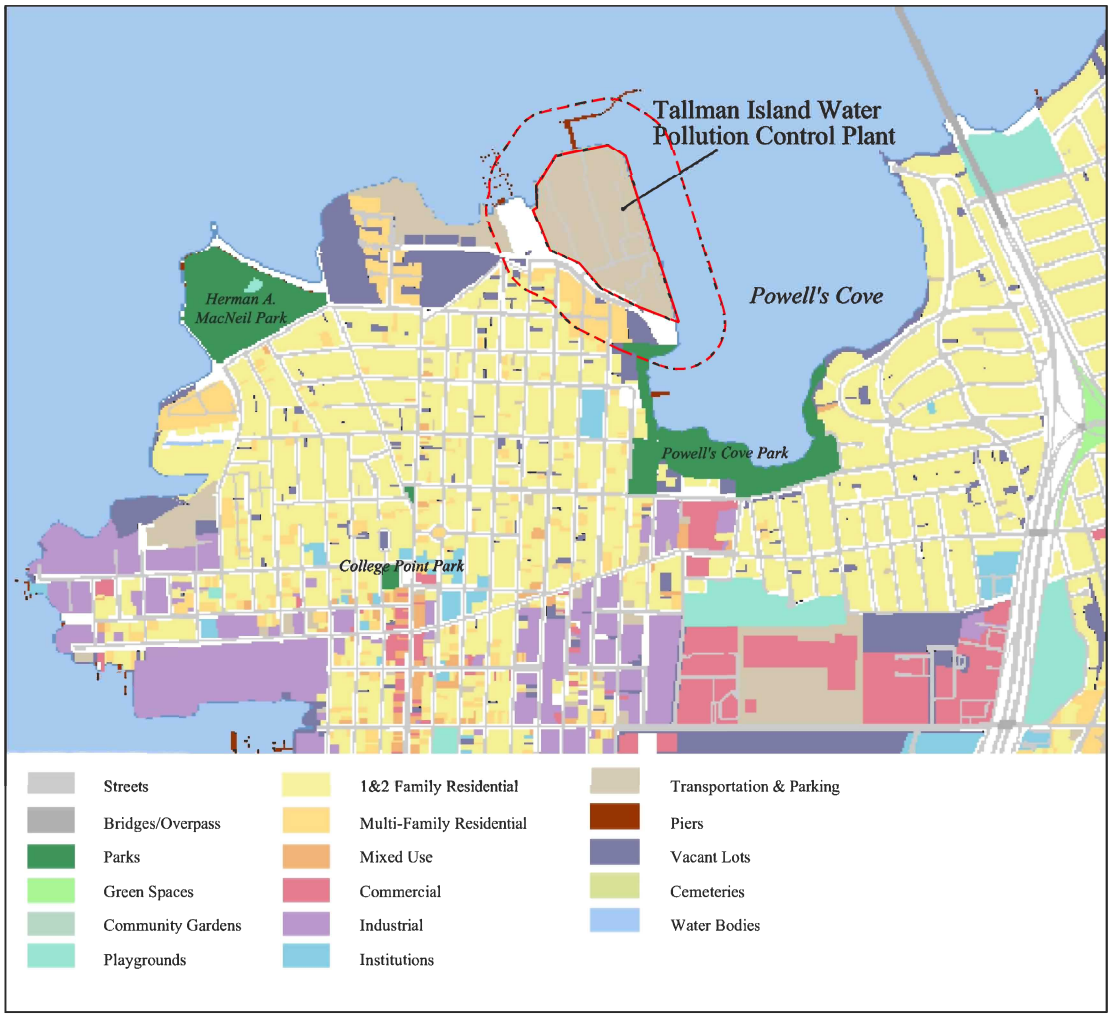
Gas or service stations? ☐ Yes ☒ No Oil storage facility? ☒ Yes ☐ No Other? ☒ Yes ☐ No

If yes, specify: **Refer to Attachment A – EAS Supplemental Document, Section 2J**

Number and size of tanks: Last NYFD inspection date:

Location and depth of tanks:

General Land Use



Project Site

400 Feet Buffer

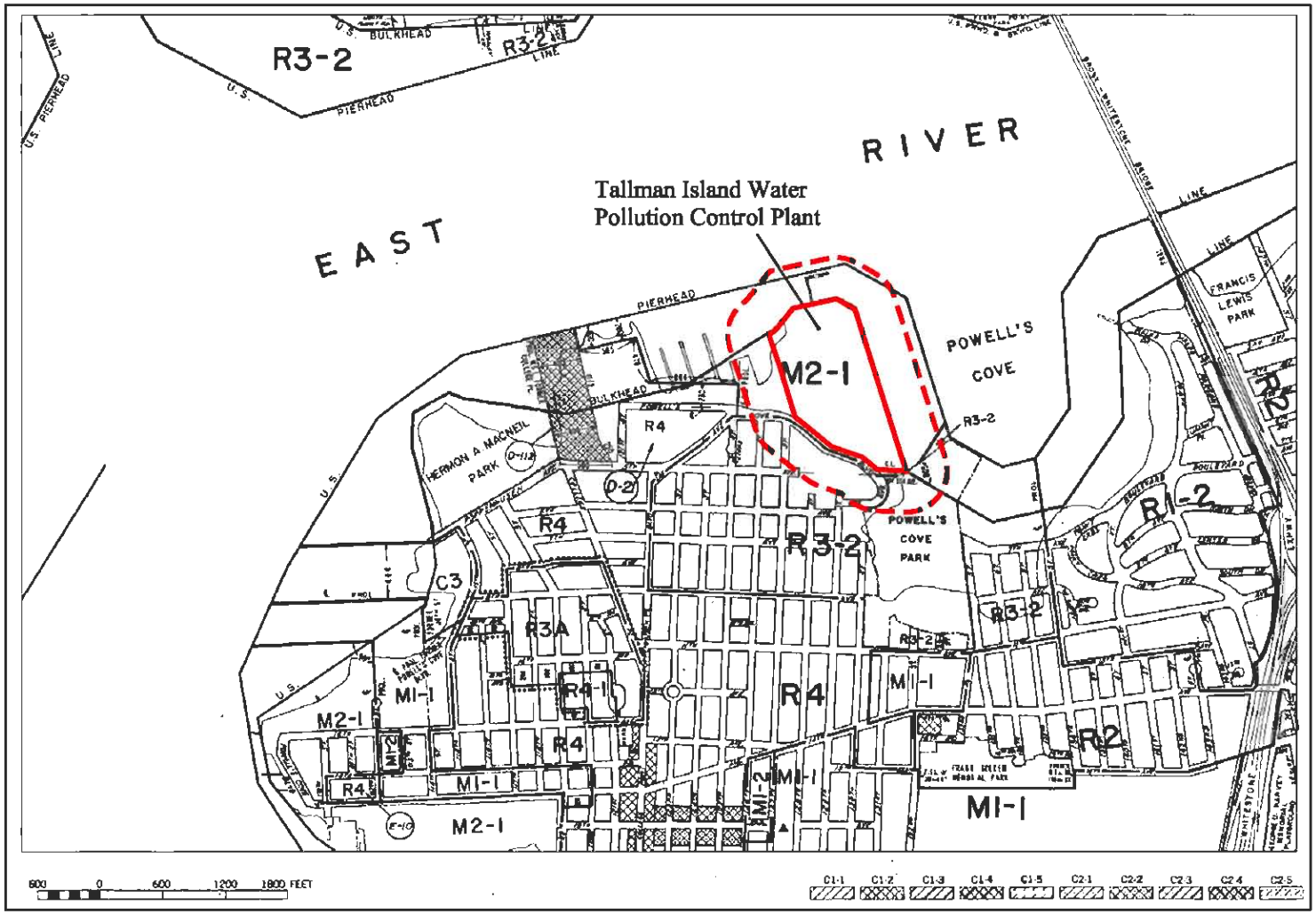
Not to Scale

N

Source: Oasis Map

Graphic 1

Zoning Map



Project Site

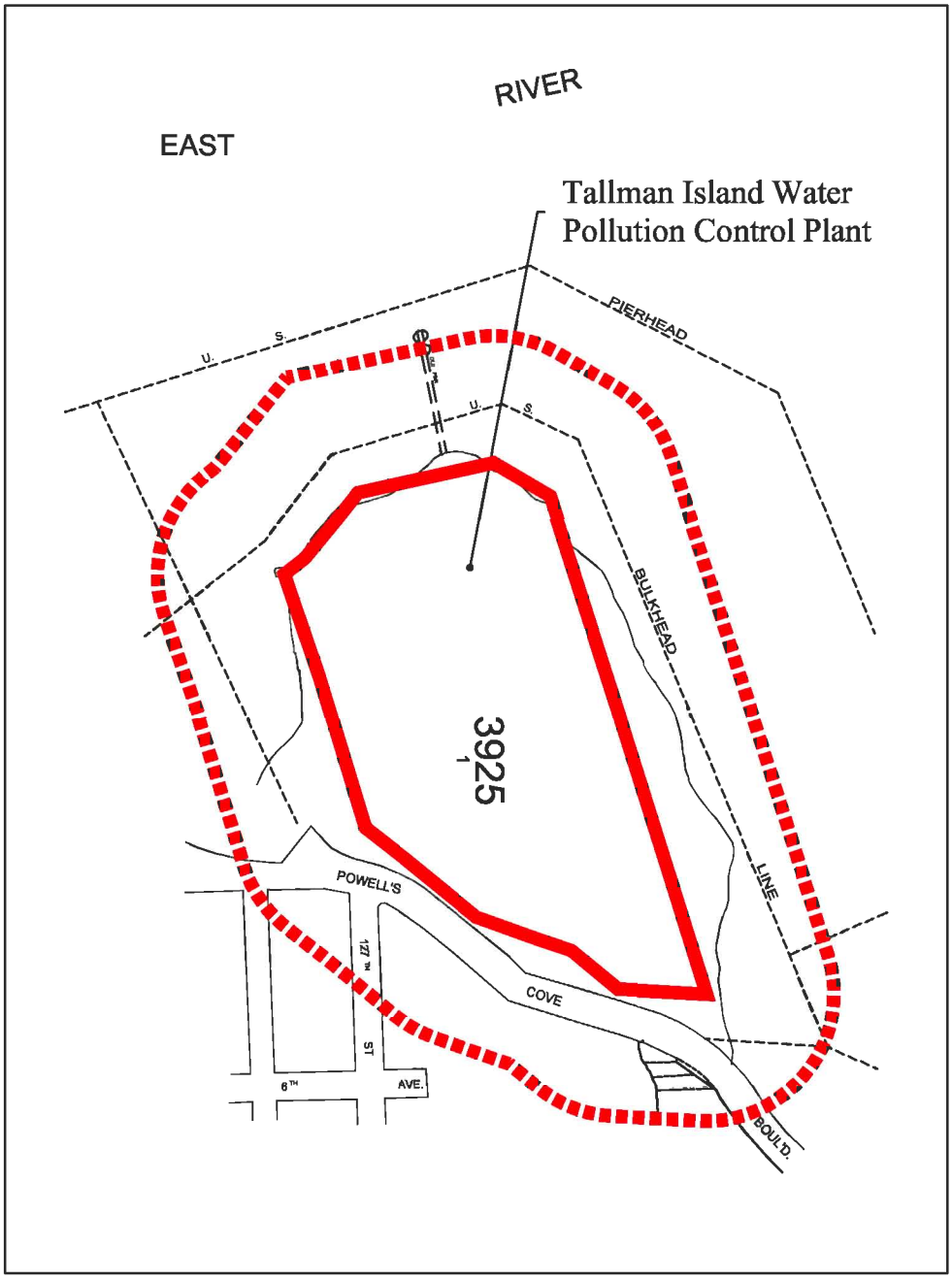
400 Feet Buffer

Not To Scale

Source: New York City Zoning Resolution

Graphic 2

Tax Map



Project Site
400 Feet Buffer

Not To Scale

N

Source:
New York City Department of Finance
Office of the Surveyor

Graphic 3

SEE CEQR TECHNICAL MANUAL CHAPTER III F., HISTORIC RESOURCES

6. CURRENT USERS

No. of residents: **0** No. and type of businesses: **0**

No. and type of workers by businesses: **See below** No. and type of non-residents who are not workers: **0**

Maximum 60 sewage treatment workers and supervisors in three shifts. 15 employees at a separate Collections Facility.

7. HISTORIC RESOURCES (ARCHITECTURAL AND ARCHAEOLOGICAL RESOURCES)

Answer the following two questions with regard to the directly affected area, lots abutting that area, lots along the same blockfront or directly across the street from the same blockfront, and, where the directly affected area includes a corner lot, lots which front on the same street intersection.

SEE CEQR TECHNICAL MANUAL CHAPTER III K., WATERFRONT REVITALIZATION PROGRAM

Do any of the areas listed above contain any improvement, interior landscape feature, aggregate of landscape features, or archaeological resource that:

(a) has been designated (or is calendared for consideration as) a New York City Landmark, Interior Landmark or Scenic Landmark; **No**
(b) is within a designated New York City Historic District; **No**
(c) has been listed on, or determined eligible for, the New York State or National Register of Historic Places; **Yes**
(d) is within a New York State or National Register Historic District; or **No**
(e) has been recommended by the New York State Board for listing on the New York State or National Register of Historic Places? **No**

Identify any resource:

Six on-site NYC Landmark & National Register-eligible historic resources.

Do any of the areas listed in the introductory paragraph above contain any historic or archaeological resource, other than those listed in response to the previous question? Identify any resource. **N/A**

Project Description

THIS SUBPART SHOULD GENERALLY BE COMPLETED ONLY IF YOUR ACTION INCLUDES A SPECIFIC OR KNOWN DEVELOPMENT AT PARTICULAR LOCATIONS

8. WATERFRONT REVITALIZATION PROGRAM

Is any part of the directly affected area within the City's Waterfront Revitalization Program boundaries? ☒ Yes ☐ No

(A map of the boundaries can be obtained at the Department of City Planning bookstore.)

If yes, append a map showing the directly affected area as it relates to such boundaries. A map requested in other parts of this form may be used. **See Attachment B.**

9. CONSTRUCTION

Will the action result in demolition of or significant physical alteration to any improvement? ☒ Yes ☐ No

If yes, describe briefly: **See Attachment A & B.**

Will the action involve either above-ground construction resulting in any ground disturbance or in-ground construction?

☒ Yes ☐ No If yes, describe briefly: **Subsurface excavation and structural foundation work for new buildings, tanks, structures and pipelines.**

10. PROPOSED LAND USE

Residential

Total no. of dwelling units **0** No. of low-to-moderate income units **0** Gross floor area (sq. ft.) **0**

No. of stories **0** Describe type of residential structures: **N/A**

Commercial

Retail: No. of bldgs **0** Gross floor area of each building (sq. ft.): **0**

Office: No. of bldgs **0** Gross floor area of each building (sq. ft.): **0**

Other: No. of bldgs **0** Gross floor area of each building (sq. ft.): **0**

Specify type(s): **N/A**

No. of stories and height of each building: **0**

Manufacturing/Industrial

No. of bldgs **6** Gross floor area of each building (sq. ft.): **See Attachment A, Section 2**

No. of stories and height of each building: **See Attachment A, Section 2**

Type of use(s): **See Attachment A, Section 2** Open storage area (sq. ft.) **0** If any unenclosed activities, specify: **N/A**

Community facility

Type of community facility: **N/A**

No. of bldgs: **0** Gross floor area of each building (sq. ft.): **0**

No. of stories and height of each building: **0**

Vacant land

Is there any vacant land in the directly affected area? ☒ Yes ☐ No

If yes, describe briefly:

2.75 acres of DEP-owned publicly accessible open space is situated to the immediate west of the WPCP. Approximately 0.25 acres of this space will be eliminated for building the 27kV Substation.

Publicly accessible open space

Is there any existing publicly accessible open space to be removed or altered? ☒ Yes ☐ No

If yes, describe briefly: **2.75 acres of DEP-owned publicly accessible open space is situated to the immediate west of the WPCP. Approximately 0.25 acres of this space will be eliminated for building the 27kV Substation.**

Does the directly affected area include any mapped City, State, or Federal parkland? ☐ Yes ☒ No

If yes, describe briefly: **N/A**

Does the directly affected area include any mapped or otherwise known wetland? ☐ Yes ☒ No

If yes, describe briefly: **N/A**

Other land use

Gross floor area (sq. ft.) **0** No. of stories **0** Type of use: **N/A**

11. PROPOSED PARKING

Garages

No. of public spaces: **N/A** No. of accessory spaces: **N/A**

Operating hours: **N/A** Attended or non-attended? **N/A**

Lots

No. of public spaces: **N/A** No. of accessory spaces: **N/A**

Operating hours: **N/A** Attended or non-attended? **N/A**

Other (including street parking) - please specify and provide same data as for lots and garages, as appropriate.

No. and location of proposed curb cuts: **N/A**

12. PROPOSED STORAGE TANKS

Gas or service stations? ☐ Yes ☒ No Oil storage facility? ☒ Yes ☐ No Other? ☒ Yes ☐ No

If yes, specify: **Waste Oil, Lube Oil, Chlorine, Sodium Hydroxide**

Size of tanks: **TBD** Location and depth of tanks: **TBD**

13. PROPOSED USERS

No. of residents: **N/A** No. and type of businesses: **N/A**

No. and type of workers by businesses: **N/A** No. and type of non-residents who are not workers: **N/A**

14. HISTORIC RESOURCES (ARCHITECTURAL AND ARCHAEOLOGICAL RESOURCES)

Will the action affect any architectural or archaeological resource identified in response to either of the two questions at number 7 in the Site Description section of the form? ☒ Yes ☐ No

If yes, describe briefly: **Action would result in permanent indirect visual impacts to the NYC Landmark and National Register-eligible resources in the East Battery and direct impacts to the aeration Tank Nos 1-2, Digester Tanks, all NYC Landmark and National Register-eligible resources.**

SEE CEQR TECHNICAL MANUAL CHAPTER III B., SOCIO-ECONOMIC CONDITIONS

15. DIRECT DISPLACEMENT

Will the action directly displace specific business or affordable and/or low income residential units? ☐ Yes ☒ No

If yes, describe briefly: **N/A**

SEE CEQR TECHNICAL MANUAL CHAPTER III C., COMMUNITY FACILITIES & SERVICES

16. COMMUNITY FACILITIES

Will the action directly eliminate, displace, or alter public or publicly funded community facilities such as educational facilities, libraries, hospitals and other health care facilities, day care centers, police stations, or fire stations? ☐ Yes ☒ No

If yes, describe briefly: **N/A**

Zoning Information

17. What is the zoning classification(s) of the directly affected area? **M2-1**

18. What is the maximum amount of floor area that can be developed in the directly affected area under the present zoning? Describe in terms of bulk for each use.

M2-1 allows a FAR of 2.0 – or 2,613,600 sq. ft.

19. What is the proposed zoning of the directly affected area?

The M2-1 zone would remain unchanged.

20. What is the maximum amount of floor area that could be developed in the directly affected area under the proposed zoning? Describe in terms of bulk for each use.

N/A

21. What are the predominant land uses and zoning classifications within a 1/4 mile radius of the proposed action?

M2-1 with industrial uses and R3-2 with 1 & 2 family residential and multi-family residential uses.

Additional Information

22. Attach any additional information as may be needed to describe the action. If your action involves changes in regulatory controls that affect one or more sites not associated with a specific development, it is generally appropriate to include here one or more reasonable development scenarios for such sites and, to the extent possible, to provide information about such scenario(s) similar to that requested in the Project Description questions 9 through 16.

Analyses

23. Attach analyses for each of the impact categories listed below (or indicate where an impact category is not applicable):

a. LAND USE, ZONING, AND PUBLIC POLICY	See Attachment A.
b. SOCIOECONOMIC CONDITIONS	See Attachment A.
c. COMMUNITY FACILITIES AND SERVICES	See Attachment A.
d. OPEN SPACE	See Attachment A.
e. SHADOWS	See Attachment A.
f. HISTORIC RESOURCES	See Attachment A.
g. URBAN DESIGN/VISUAL RESOURCES	See Attachment A.
h. NEIGHBORHOOD CHARACTER	See Attachment A.
i. NATURAL RESOURCES	See Attachment A.
j. HAZARDOUS MATERIALS	See Attachment A.
k. WATERFRONT REVITALIZATION PROGRAM	See Attachment A.
l. INFRASTRUCTURE	See Attachment A.
m SOLID WASTE AND SANITATION SERVICES	See Attachment A.
n. ENERGY	See Attachment A.
o. TRAFFIC AND PARKING	See Attachment A.
p. TRANSIT AND PEDESTRIANS	See Attachment A.
q. AIR QUALITY	Pending Review.
r. NOISE	See Attachment A.
s. CONSTRUCTION IMPACTS	See Attachment A.
t. PUBLIC HEALTH	See Attachment A.

The CEQR Technical Manual sets forth methodologies developed by the City to be used in analyses prepared for the above- listed categories. Other methodologies developed or approved by the lead agency may also be utilized. If a different methodology is contemplated, it may be advisable to consult with the Mayor's Office of Environmental Coordination. You should also attach any other necessary analyses or information relevant to the determination whether the action may have a significant impact on the environment, including, where appropriate, information on combined or cumulative impacts, as might occur, for example, where actions are interdependent or occur within a discrete geographical area or time frame.

See Attachment A - Environmental Assessment Supplemental Document.

Applicant Certification

24.

Ms. Julie Stein
PREPARER NAME

Project Manager
PREPARER TITLE

PREPARER SIGNATURE

2.24.06
DATE

Ms. Emily Lloyd, Commissioner
PRINCIPAL

Ms. Angela Licata
NAME OF PRINCIPAL REPRESENTATIVE

Deputy Commissioner
TITLE OF PRINCIPAL REPRESENTATIVE

SIGNATURE OF PRINCIPAL REPRESENTATIVE

Feb. 24, 2006
DATE

NOTE: Any person who knowingly makes a false statement or who knowingly falsifies any statement on this form or allows any such statement to be falsified shall be guilty of an offense punishable by fine or imprisonment or both, pursuant to Section 10-154 of the New York City Administrative Code, and may be liable under applicable laws.

ENVIRONMENTAL ASSESSMENT STATEMENT

Tallman Island TI-2/TI-3 Water Pollution Control Plant Plant Upgrade

FEBRUARY 2006

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists
TAMS TAMS Consultants, Inc.

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Attachment A

1. Project Description

A. Background

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 Upgrade. This project includes Contract TI-2: Emergency Main Sewage (EMS) Pumping System Modification & Replacement, and Contract TI-3: Plant Upgrade Program (PUP). 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 (SPDES) permit criteria.

The Project will also include the required elements of the Citywide Comprehensive Nitrogen Management Plan (CNMP) and the Consent Judgment, Index No. 04-402174 (Sup. Ct. New York County, Feinman, P.) for nitrogen which will ultimately benefit the water quality of the Long Island Sound, East River and Powell's Cove and the aquatic inhabitants that rely on these waters. Nitrogen discharges to the NY Harbor have been identified as a significant cause of hypoxia (decrease in oxygen) in the Western Long Island Sound and portions of Jamaica Bay. These conditions can create hypoxic events, especially during the summer months. In order to address this regional water quality issue, NYCDEP has initiated a comprehensive program to reduce nitrogen discharges and to collect performance and cost data concerning the implementation of biological nutrient removal technologies at the City's fourteen wastewater treatment plants.

Tallman Island Water Pollution Control Plant (WPCP) is located at 127-01 Powell's Cove Road in the College Point section of the Borough of Queens. The New York City Department of Public Works designed the original Tallman Island WPCP in the 1930s. The Tallman Island WPCP began operations in time to treat the flow from the 1939 World's Fair at Flushing Meadow Park. The original plant was designed to serve an estimated population of 300,000 with a flow capacity of 40 million gallons per day (mgd). With major expansions and upgrades completed in 1964 and 1979, the plant now consists of two parallel treatment batteries (East and West) and has a design flow capacity of 80 mgd. The plant serves the northeast portion of the Borough of Queens, approximately 17,400 acres (ac) of land with an estimated population of nearly 400,000 residents.

The plant operates under the provision of its State Pollutant Discharge Elimination System (SPDES) permit which is issued and enforced by the New York State Department of Environmental Conservation. Under the permit, the plant is required to provide secondary treatment, which for the Tallman Island facility, includes primary settling, aeration, final settling, and disinfection for a minimum of 1.5 times the design flow (120 mgd). In addition, the plant is required to provide primary treatment (primary settling) and disinfection for the wastewater in excess of 120 mgd up to two times the design flow (160 mgd).

Although the plant has not experienced any major difficulties in meeting its SPDES permit requirements during recent years, the facility requires upgrading to ensure continued compliance with permit limitations, to maintain a safe working environment for the future, and meet the recently mandated citywide nitrogen removal program. Accordingly, NYCDEP has instituted a PUP for the Tallman Island WPCP. The equipment within the plant exceeds the typical industry standard life expectancy. The plant has experienced multiple failures of major equipment such as the main sewage pumps, blowers, force main, thickeners and mixed flow pumps. The PUP would provide for Biological Nutrient Removal (BNR)

by improving the aeration system including the replacement of the diffusers, baffle walls, froth hoods, surface wasting system, and mixers for basic step feed BNR. The PUP will also include the replacement of the aged main sewage pumps, blowers and drive engines with electric motors.

B. Description of Existing Facility

The Tallman Island WPCP site is situated on an approximately 30-acre peninsula at the western edge of Powell's Cove in the College Point section of Queens, New York. The site extends into the waters of the East River, west of the Whitestone Bridge (Attachment B, Figure 1 - Site Location). The facility provides continuous wastewater treatment for the northeast portion of Queens. On-site facilities generally function for the treatment of wastewater and/or handling of sludge (biosolids). The current wastewater treatment unit processes include screening, preliminary settling, grit removal, activated sludge treatment by step aeration, final settling, and disinfection by chlorination. Sludge treatment includes gravity thickening, anaerobic digestion, and sludge dewatering with off-site disposal of the dewatered sludge. A site plan of the existing WPCP is shown in Attachment B, Figure 2 - Existing Tallman Island Water Pollution Control Plant.

The Tallman Island WPCP is staffed by NYCDEP personnel on a 24-hour per day, 7-day per week basis. Facility operations require three shifts of staff that extend from: 7am. - 3pm.; 3pm. - 11pm.; and 11pm. - 7am. The facility employs a maximum of 45 people for the 7am. - 3pm. day shift during the weekdays. Eight people work the evening and overnight shifts each on weekdays. All weekend shifts are staffed by eight employees. The NYCDEP also operates a separate facility adjacent to the WPCP, called the Collections Facility crew quarters; this serves as a central headquarters for servicing and maintaining wastewater collection facilities throughout the Tallman Island WPCP service area. Approximately 15 employees are employed at a separate Collections Facility.

On-site WPCP operations include routine maintenance of mechanical and electrical equipment, monitoring of treatment processes (including on-site laboratory analysis of wastewater and sludge), handling and transport of screenings, grit, scum, and sludge removed from the wastewater, maintenance and upkeep of WPCP grounds and structures, and administrative and clerical activities. All traffic enters and exits the Tallman Island WPCP onto Powell's Cove Boulevard. Other than regular employee trips, truck traffic includes: deliveries of fuel oils, chemicals used in wastewater treatment and general administrative supplies; removal of residuals (screenings, grit, scum, and sludge); and ingress and egress of outside contractors.

C. Proposed Action

The proposed action would remedy near-term and long-term plant deficiencies to allow the plant to continue to meet its SPDES permit, improve operations, and maximize treatment plant flow rates. Equally important, the program would identify and remedy safety and health issues, and evaluate and upgrade the plant's infrastructure to support all systems and functions. Furthermore, NYCDEP is mandated to meet Consent Judgment milestones such as BNR improvements construction completion by December 31, 2010.

The proposed action would also include a set of mechanical (e.g., covers and stacks) and operational components (e.g., active carbon-based control technologies) that would control operational odors. At the present time, it is anticipated that at least two facilities would be involved – the grit building and preliminary settling weirs west. Studies are being conducted to determine the need to incorporate odor control with other Tallman Island WPCP process facilities.

The proposed action would meet the following objectives:

- Ensure that the Tallman Island WPCP can treat incoming wastewater flow through primary treatment and disinfection during wet-weather at twice the design dry weather flow (160 mgd) while meeting the mandated treatment efficiencies.
- Ensure that at least 150 percent (120 mgd) of the mean design dry weather flow can be processed through the secondary treatment facilities.
- Prevent flooding nuisances to the adjoining neighborhood.
- Increase the reliability and efficiency of the various process systems.
- Improve the reliability and economics of sludge treatment system.
- Improve instrumentation and process control.
- Provide facilities and treatment modifications to provide step-feed BNR.

To satisfy the goals and objectives of the proposed action, the proposed action would be implemented as a phased approach. The three phases are supported by two separate contracts (two phases under Contract TI-2 and the third phase under Contract TI-3) that address the near-term and long-term needs of the Tallman Island WPCP. Each of these contracts are described below:

Contract TI-2: Emergency Main Sewage (EMS) Pumping System Modification & Replacement (EMS Pumping System)

The EMS Pumping System consists of two stages. Stage I would provide sufficient pumping capacity for the facility to pump at least the average peak dry-weather flow (66 million gallons per day [mgd]) in the case of a complete failure of the main sewage pumping system and/or engine drive units. Power for the Stage I Pumping System would be provided by the existing Consolidated Edison (Con Ed) service to the facility. In the actual event of a main sewage pump failure and the need to run the Stage I Pumping System, existing electrical loads at the facility would be disconnected (or de-loaded from the existing Con Ed service) so that sufficient power would be available.

Once the Stage I Pumping System is installed, procurement and installation of the Stage II Pumping System would take approximately six months. The Stage II Pumping System would provide dry-weather and wet-weather pumping capacity for the facility up to 120 mgd or 1.5 times the dry-weather flow. It would be located in the existing Pump and Blower Building see Attachment B, Figure 2 - Existing Tallman Island Water Pollution Control Plant.

Power for the Stage II Pumping System would initially be provided by two new on-site 1.6 megawatt (MW) diesel generators. The Stage II Pumping System would only be used in case of a complete failure of the existing main sewage pumps. Once the 27 kV electrical service is available from Con Ed under the Plant Upgrade Program, the Stage II Pumping System would be powered by that electrical service. The Stage II Pumping System would serve as the pump-around system for the Plant Upgrade System and stay in place until February 2010.

Contract TI-3: Plant Upgrade Program (PUP)

The Plant Upgrade Program consists of the removal and replacement of the existing main sewage pumps, their associated engine drive units and the force mains to the east and west battery preliminary tanks. Power for the new equipment installed under the PUP would be provided by Con Ed's 27 kV service via a new substation that would be built on site. To provide pumping of sewage during the main sewage pump and forcemain replacement, pumps from TI -2 Stages I and II will be used to pump 160 mgd. This is known as the "pump around", which would be in service on a full-time basis for a period of about 1 year

starting in January 2009. Once the 27 kV service is available, the two Stage II diesel generators would be relocated to the substation, and an additional new standby generator would be added, to serve as standby power. The EMS Pump System would then be removed once the new main sewage pumps were tested and accepted by NYCDEP.

A summary of the improvements are as follows:

- Return Activated Sludge (RAS) Pump Station (New Facility)
  - Provide a new RAS pumping station and Blower Building to replace existing RAS airlift pumps.

- Blower Building (New Facility)
  - Replace the existing five (5) process air blowers and five (5) dual-fuel engine drive units in the Pump and Blower Building with four (4) new motor-driven process air blowers in the new Blower Building.

- 27 kV Electrical Substation (New Facility)
  - Upgrade the power supply necessary for the WPCP. Includes the relocation of the Stage II electrical generators and the installation of a third to serve as plant standby power.

- Three Electrical Buildings (New Facilities)
  - Provide the necessary power supply to the East and West batteries of Aeration Tanks and to the Sludge Thickeners and Digesters.

- Mixed Flow Pumping Station Modifications
  - Replace the Mixed Flow Pumps, spray water pumps, piping and valves.

- Aeration System Improvements/Tank Modifications
  - Replace existing course bubble diffusers with fine bubble membrane-type diffusers, new air headers, control values and piping.
  - Modify tanks to provide for the step-feed BNR processes. Modifications to the Aeration Tanks include:
    - Replacement of the existing manual influent gates with new actuated influent gates. The operation of the influents will also be automated and controlled by a programmable logic controller (PLC) to provide automatic flow re-direction to Pass D of the Aeration Tanks under wet-weather conditions.
    - Replacement of the existing course bubble diffuser system with a full-floor tapered fine bubble diffuser system.
    - Replacement of the existing spray water system with a full coverage spray water system.
    - Additions of fiberglass baffle walls.
    - Addition of slow speed submersible mixers in the anoxic zones.
    - Addition of the new froth control hoods.
    - New automated dissolved oxygen control.
    - Increased Return Activated Sludge (RAS) capacity from 20 percent RAS to 60 percent RAS.
    - Redirection of the centrate from dewatering operations to Pass A.
    - Surface wasting system capable of providing 100 percent Waste Activated Sludge (WAS).

- Main Sewage Pumping Station
  - Replace the existing five (5) main sewage pumps, piping and valves with five (5) new 60 mgd main sewage pumps.
  - Replace the existing five (5) dual-fuel engine drive units with five (5) new 550 horsepower (hp) motors.
  - Replace the existing East and West Battery Force mains.

- Sludge Digesters Improvements
  - Replace existing covers with new fixed aluminum geodesic covers and associated piping.
  - Modify gas piping

- Sludge Thickeners Improvements
  - Replace south thickeners' mechanisms.
  - Replace existing sludge pumps with new pumps and grinders.

- Process Control System
  - Provide an updated process control/instrumentation/system for the new and modified systems.

- Centrate Pumping Station
  - A new Centrate Pumping Station would be constructed east of Chlorine Contact Tank No. 1 to convey centrate to the aeration tanks.

- Demolition and Replacement of Waste Gas Burner (Flare)

- New Supplemental Boilers
  - Installation of two new supplemental boilers for space and process heating

- Temporary Field Office Complex
  - A temporary field office complex would be erected north of the North Sludge Thickeners.

- Miscellaneous Site Work
  - Restoration of paved areas and redirection of stormwater.

Additional work within the boundaries of the facility would involve the replacement of the existing primary screen conveyor system and the modification of the Secondary Bypass System to reroute, measure the excess flow (above 120 mgd) from the East Battery and West Battery to the Bypass Channel and automatically adjust to meet the maximum required overflow during storm events. The replacement of the existing primary screen conveyor system includes the removal and replacement of frame, rollers, belt, motors, and electrical controls. The major items of work for the modification of the Secondary Bypass System would include:

- Provide temporary barriers, dewatering, cleaning and temporary means of overflow during construction.
- Demolish and remove the existing concrete wall, the 48" flowmeter, the most northern stop log, and sealing the 48" conduit.
- Replace stop logs with aluminum stop planks.
- Replace existing dual stem overflow gates with three (3) individual stainless steel overflow gates.
- Provide a new flowmeter in the bypass channel.

- Provide automatic controls of the overflow weir gates based on the new secondary bypass automatic control system.
- Provide a new isolation gate.
- Provide a partition gate, and a partition wall. The partition gate shall be automatically controlled during construction.
- Provide three (3) ultrasonic level sensors in each of the two preliminary effluent channels (East & West) and in the Equalization channel.
- Provide all associated concrete, electrical, instrumentation, and site work.
- Provide all structural work including the stainless steel grating.
- Replace the sodium hypochlorite solution piping in order to access the area of construction, as well as testing the line.

In addition, the Powell's Cove Pumping Station within the Tallman Island WPCP would undergo modifications to replace pumps, motors, piping, associated valves, controls and associated electrical equipment, replace mechanical bar screen, install a removable grinder, install duplex sump pumps and associated piping, and install new lighting. This work would include:

- Installation of an equal capacity temporary pumping system prior to start of construction.
- Replace the Powell's Cove pumps, motors, piping and associated valves within the Pump & Blower Building, controls and associated electrical equipment.
- Replace the seal water system including the pumps, tanks, pipe and fittings, appurtenances, controls and associated electrical equipment.
- Clean the influent channel, bypass channel, and wet well.
- Replace the mechanical bar screen with a new mechanical bar screen and all electrical and controls work.
- Install a removable grinder including all electrical and controls work.
- Wet well modifications including splitting of the wet well with a wall, sandblasting and painting, and stop plank guide installation.
- Replace temporary sump pumps with duplex sump pumps and associated aboveground piping.
- All instrumentation work, including the installation of a PLC Control System, level sensors and other equipment required to automatically control the pumps, climber screen and grinder.
- Install a gas detection system to detect high levels of hydrogen sulfide or low levels of Oxygen and provide and alarm system to evacuate the area.

D. Anticipated Construction Schedule

Table 1-1 lists the main activities of the proposed action and their scheduled timeframes.

All of the proposed action upgrades to the Tallman Island WPCP would be within the existing boundaries of the facility. The new 27 kV Substation would be located on DEP-owned property to the west of the Main Gate that is presently accessible to the public. The proposed site plan, following implementation of the proposed action, is shown in Attachment B (Figure 3A - Components of the Proposed Action). Following completion of the project, the Tallman Island WPCP would operate in a similar manner as under current conditions. The newer equipment and facilities provided by the proposed action would result in more efficient, safer, and less costly operation and maintenance of the WPCP. More details pertaining to specific environmental issues are provided in Section 4, Impact Analyses.

Table 1-1

Proposed Action General Schedule

Activity	Schedule
EMS Pumping System Stage I	April 2005 - March 2006
EMS Pumping System Stage II	March 2006 - August 2006
PUP Notice To Proceed	May 2006
27 kV Service/Generators	May 2006 - October 2008
Start "Pump Around"	January 2009
Complete "Pump Around"	January 2010
Remove EMS Stage I and II Pumps	February 2010
Project Consent Order Completion	December 2010

E. Anticipated Permit Applications

The following are the permit applications or modifications required as part of the construction and operation of the proposed action:

Table 1-2

Required Permits and/or Approvals

Agency	Description
NYSDEC	Title V Air Permit Modification
	State Facility Permit
	Long Island Well Permit
	Fuel Oil Tank Registration
NYSSHPO	Letter of Approval/No Adverse Impact
NYCDBS	Work Notice
	Certificate of Completion
NYCDEP	Backflow Preventer Application
	Groundwater Discharge to Sewer (Notification)
	Tree Protection
NYCLPC	Letter of Approval
Con Edison	Gas Line Modifications
	Electrical Conduit/ Manholes
NYNEX	Telephone Lines/ Manholes
FDNY	Fire Code Compliance

2. Impact Analyses

This section documents the technical analyses of the proposed action (EMS Pumping System and PUP) in relation to the CEQR environmental impact categories. For each impact category, the following elements are reviewed and assessed: existing conditions, anticipated future conditions without the proposed action and anticipated impacts of the proposed action. All technical analyses of environmental impacts were performed in accordance with procedures and recommendations contained in *CEQR Technical Manual*, October 2001 (hereafter denoted as CEQR).

A. Land Use, Zoning, and Public Policy

A.1 Existing Conditions

Land Use - On-Site

The Tallman Island WPCP site has been operated as a wastewater treatment facility by New York City since 1939. Topographically, the site is flat with elevations of about 7 ft to 14 ft above mean sea level (MSL); the site itself and its margins have been extensively filled and modified over time, taking on the existing shape. The majority of the site is covered with infrastructure, buildings, facilities or structures associated with the Tallman Island WPCP's operations. As described above and shown in Attachment B, Figure 2 - Existing Tallman Island WPCP, the primary site structures are:

- Pump and Blower Building
- Storage and Bar Screen Facility
- Gas Holder and Gas Burner
- Digesters
- Sludge Thickeners (North and South)
- Grit Building
- Preliminary Sludge Pumping Station
- Preliminary Settling Tanks
- Aeration Tanks (East and West Batteries)
- Final Settling Tanks
- Chlorine Contact Tanks
- Dewatering Building
- Sludge Storage Tanks.

The remaining limited open space is devoted primarily to the surface road network to access site facilities. Landscaped areas exist near the site entrance, adjacent to several of the on-site structures and along the site perimeter. An area to the west of an existing internal fence, which defines the active portion of the WPCP, has been landscaped using fill from earlier development of the site to create a passive, open space area that is owned and maintained by NYCDEP. Public access to this area is available at a gate opposite 127th Street, and paths provide access along Inlet Cove and along the bulkhead to the NYCDEP pier that extends into the East River. The Tallman Island site and structures reflect its long history as a WPCP with numerous facility modifications, multiple technology upgrades and various aged structures.

Land Use - Off-Site

College Point, Queens, is sharply defined by natural and man-made barriers: to the north and west by the East River and Flushing Bay; and to the south and east by the Whitestone Expressway (I-678). The

quarter-mile radius land use study area for the proposed action is the northernmost portion of the College Point community, part of Community Board 7 Queens (CB7). Attachment B, Figure 4 - General Land Use is derived from the New York City Department of City Planning (NYCDCP) land use map. This review was supplemented by field surveys in December 2004.

Aerial photographs of the site and the study area were reviewed, particularly with respect to identifying the waters edge; it is incorrectly shown on several maps (e.g., the NYCDCP land use and zoning maps), which depict mapped but unbuilt streets in areas that are underwater or are now in the Powell's Cove Park to the east and southeast of the site.

Land use in the surrounding study area is predominantly residential. The residential character reflects the prevailing residential zoning, the majority of which is R3-2 but also includes a small R4 district to the west (in which the Riverview condominium complex at 121st Street is located). The residential areas are generally low-rise with mostly detached or semi-detached single-family homes on the surrounding higher elevations (50 ft). Newer attached one- and two-family housing units are situated in the study area's lower elevations, closer to Powell's Cove Boulevard.

Adjacent to the Tallman Island site on the south is a gated residential development (Silverpointe) comprised of mixed two-family and walk-up multi-family units occupying the blocks north of 6th Avenue and east of 127th Street. A new, gated residential development of approximately 100 garden apartments (Malba Bay) has opened on 11th Avenue at 132nd Street, and other infill homes continue to be built at the periphery of the study area.

To the southeast of the Tallman Island facility, along the waterfront, is Powell's Cove Park (7.09 ac), a portion of which is being reestablished as a natural salt marsh by the New York City Department of Parks and Recreation (NYCDPR). This area is intended for limited public access and to function as a nature preserve. To the west of the WPCP is the private College Point Yacht Club, with a marina and boat storage area.

The only school in the study area is PS 129 (Patricia A. Larkin School), an elementary school with an enrollment of 772 in October of the 2002-2003 school year (NYC 2004). This school building occupies the block between 7th and 9th Avenues and 128th and 129th Streets.

Modest amounts of vacant and underutilized land exist in the study area, particularly to the west of the facility and north of Lax Avenue where a large waterfront parcel has the potential for R4 residential development (a NYCDCP Restrictive Declaration [D-21] applies to this lot). There are also several small vacant parcels interspersed among the existing developed residential areas.

Zoning - On-Site

The NYC Zoning Resolution is the City's official land use code. The relevant zoning map for the study area is shown in Attachment B, Figure 5 - Zoning Map. The Tallman Island WPCP site is entirely within an M2-1 district that covers the waterfront north of Powell's Cove Boulevard from 125th Street to 6th Avenue. M2-1 districts permit a wide range of industrial uses, occupying the level of performance standards between light industry (M1) and heavy industry (M3). M2-1 districts require off-street parking and have bulk regulations (floor area ratios [FAR] of 2.0). A maximum permitted height of 60 ft, before sky exposure plane setbacks, is permitted. Use Groups 6 through 14 and 16 through 17 are permitted as-of-right; community facilities and residences are prohibited. The existing use of the site is Use Group 18 (sewage treatment), which is permitted as a non-conforming use predating the existing zoning.

The site also falls within the Waterfront Area designations of the Zoning Resolution (ZR Article VI Ch 2); however, as a Use Group 18 in a manufacturing district, the site is exempt from: waterfront public access provisions (ZR VI.2.62-41); visual corridor provisions (ZR VI.2.62-42); screening requirements for parking and loading facilities (ZR VI.2.62-554 and 62-561); special yard regulations (ZR VI.2.62-34); and, related City Planning certification (ZR VI.2.62-71). However, access is provided to the waterfront by and through NYDEP property.

Zoning - Off-Site

Most of the off-site study area is zoned R3-2, although part of a R4 district exists at its western edge. R3-2 districts are the least dense residential zones in which multiple dwellings are allowed, permitting garden apartments and row houses. The R3-2 is extensive in Queens and provides a flexible development envelope with a maximum FAR of 0.5, although this can be increased 20 percent under certain conditions (ZR II.3.23-141(b)). Off-street parking is required. All community facilities are permitted in this zone. R4 districts are similar to R3-2 but with a 50 percent increase in permitted bulk, with densities of about 35 units per acre. R4 districts are present elsewhere in College Point and the adjacent neighborhood of Whitestone.

Public Policy – Waterfront Revitalization Program

The Tallman Island site is located within the coastal zone boundary of New York City where the Local Waterfront Revitalization Program (LWRP) applies. This program includes a set of policy statements that address the waterfront's important resources. For details, see Subsection K and Attachment C (see also Figure 14 of Attachment B).

Public Policy - Community District Needs Statements

In the Queens Community District Needs Statements for Fiscal Years (FY) 1997-2000, there is no specific discussion of the site and the study area (NYCDCP 1996, 1997, 1998). The FY2005 Statement (p.161) notes the need to implement the recommendations of the College Point Traffic Study and the Urban Renewal Area (associated with the College Point Industrial Park and former Flushing Airport, about one mile south of the site), in particular, citing needed improvements to the southbound service road of the Whitestone Expressway. An initial interview conducted with the District Manager of CB7 (Bitterman, 2000) elicited a concern to keep truck traffic from the recently reopened 11th Avenue, and a general concern regarding the prospective volume of trucks that would be using 127th Street to access the site. Subsequent to that meeting, a telephone follow up (Bitterman, 2004) reported that there have been no recent issues associated with the WPCP. A detailed discussion of potential traffic impacts during construction of the proposed action is provided in Subsection O, Traffic and Parking.

A.2 Future Without the Proposed Action

On-Site

If the proposed action is not undertaken, NYCDEP would continue to operate the Tallman Island WPCP at the current permitted daily dry weather capacity of 80 MGD. The Tallman Island site would remain much as it presently exists, with all existing operations continuing. Because no on-site work would be undertaken, there would be no changes to existing land use, zoning, or public policy planning. However, there would be a risk of suspended facility operation should a failure in the main sewage pumps and/or engine drive unit occur a failure to meet permit wastewater discharge requirements, SPDES, could possibly occur should the proposed action not be implemented.

Off-Site - Future Development Projects

NYCDCP has a comprehensive rezoning study for College Point that may have the potential for adoption in 2006. (J. LeChance, December 2004). The proposed rezoning is generally directed to slightly lowering potential development to a more contextual character (i.e., from R4 to R4A and R3 to R3A), however, there is also the likelihood that the portion of the manufacturing district (M2-1) to the west of the WPCP (College Point Yacht Club) may be amended to a C-3A or R4 district, permitting residential or mixed commercial/residential uses. Further to the west at 121st Street, an existing residential project, Riverview condominiums, has a certified proposal to construct an additional 225 units and is beginning its ULURP review (F. Lee, January 2005). Given that the great majority of the study area has little open space remaining for new development, land use conditions in the study area (and the surrounding vicinity) are expected to remain essentially as described under existing conditions.

A.3 Future With the Proposed Action

The first contract of the proposed action – the EMS Pumping Systems - would be installed within the present boundary of the WPCP. The actions are consistent with present on-site uses, and therefore no impacts on land use and zoning would occur. The subsequent activities of the proposed action would involve the upgrading of the above-ground water pollution control technology and provision for a temporary office for the Resident Engineer. These primary above ground elements would include:

- A new RAS Pumping Station and Blower Building.
- A new 27 kV transformer/substation.
- A new Centrate Pumping Station.
- Three small electric substations to serve east, west and northern sections of the plant.
- A reconfiguration of parking, roadways and new landscaping near the main gate and along the central roadway.

The new 27 kV transformer/substation would be located near existing Con Edison lines on Powell's Cove Boulevard. This building is proposed for construction to the west of the existing entrance, in the area that serves as NYCDEP-maintained open space. Approximately 0.25 acres of the 2.75 total acres would be needed. Public access to the waterfront along the western perimeter of the site and to the pier would remain and the new facilities would not encumber views to the water.

The land use characteristics of the surrounding area would be unaffected by the proposed action. The basic land use classification of the site would remain unchanged and the site would not be perceived as significantly different from the public view. The design of the new substation near the plant's entrance would be contextual with the WPCP footprint and would require approval from the New York City Municipal Art Commission. It would not obstruct nearby residents' views (along Powell's Cove Boulevard) of the East River. The continued use of the site's waterfront potential for water pollution control purposes is also consistent with NYS and NYC Waterfront Revitalization Policies. Therefore, there is no potential for significant adverse land use, zoning or public policy impacts.

B. Socioeconomic Conditions

B.1 Existing Conditions

The Tallman Island WPCP site is part of Queens Census Tract 939, which covers much of the surrounding study area. Tract 945, adjacent to the site on the south, extends to the east side of Powell's Cove to the Whitestone Bridge. In addition, a portion of Tract 947 is part of the quarter-mile land use

study area. These three tracts are the study area for potential impacts on socioeconomic characteristics associated with the proposed action. Data from these census tracts are also compared to the larger socioeconomic contexts of Queens County and the City of New York. Attachment B, Figure 6 - Census Tracts presents the boundaries of the census tracts. Detailed demographic and economic data are provided in Attachment F of this EAS.

B.2 Future Without the Proposed Action

Under the future no action condition, the existing socioeconomic conditions within the study area are not anticipated to change in any substantial way. The number of employees and the site operations would remain the same as under the existing condition. No off-site developments would be expected to significantly alter socioeconomic conditions.

B.3 Future With the Proposed Action

Construction of the proposed action would create some local positive economic effects. The value of the proposed action contract is approximately $207 million. This work would be conducted over approximately four years. The maximum number of construction workers at the site would be about 160. Suppliers of materials and contractors would benefit financially from the sale of goods and services. Local businesses would also likely see short-term economic benefits during construction.

The proposed action would not promote or induce population changes of the WPCP's service area that would result in additional use of the existing infrastructure. The cost of the proposed action would not result in an increase in water/sewer rates for ratepayers in the Tallman Island WPCP service area since rates are determined on a city-wide basis. The proposed action would not displace any residents, businesses, add substantial new development, or change socioeconomic conditions in the neighborhood. When fully operable, the proposed action would not require additional on-site personnel. The workers currently working at the site would continue to be employed there while the new facilities are being constructed. Thus, the action would not have a long-term measurable effect on employment, earnings, and tax revenues. Therefore, based on the CEQR thresholds, a detailed socioeconomic analysis of the proposed action is not warranted. Therefore, there is no potential for significant adverse socioeconomic impacts.

C. Community Facilities

Under CEQR protocols, the typical study area for review of community facilities and services is a one-quarter mile radius of the project site. However, aside from the Tallman Island WPCP itself, few other community facilities are located within the study area; therefore, other selected facilities located outside of the study area are also identified.

C.1 Existing Conditions

The Tallman Island WPCP is located within Queens Community Board (CB) 7. The office for CB 7 is located on 45-35 Kissena Boulevard, approximately three miles south of the site.

Schools and Libraries

One public school is located within the study area - PS 129 (Patricia A. Larkin School), an elementary school with an enrollment of 772 in October of the 2002-03 school year, (NYC 2004). The school

occupies the blocks between 7th and 9th Avenues and 128th and 129th streets, about three blocks south of the site, as shown in Attachment B- Figure 4 General Land Use Map.

Two public middle schools are located to the east of the Whitestone Expressway outside the study area:

- Junior High School 185 (E. Bleeker), about 1.5 miles to the southeast of the Tallman Island WPCP at 147-26 25 Drive (enrollment of 875 students).
- Junior High School 194 (W.H. Carr) at 154-60 17th Avenue, about two miles southeast of the Tallman Island WPCP (enrollment of 896 students).

The public high school serving residents in the vicinity of the Tallman Island WPCP is Flushing High School with 2,713 students. It is located at 35-01 Union Street, about two miles south of the Tallman Island WPCP site.

There are no private or parochial schools within the study area; however, there are several in the wider College Point community:

- St. Paul's Episcopal School, located at 1321 College Point Boulevard, approximately 0.3 miles west of the Tallman Island WPCP site (approximate enrollment of 80 elementary students).
- St. Agnes Academy High School, located at 13-20 124th Street, approximately 0.5 miles south of the site (enrollment of 432 students).
- Holy Trinity School, located at 14-51 143rd Street, approximately 0.7 miles southeast of the site (enrollment of approximately 175 elementary students).
- St. Fidelis School, located at 124-06 14th Avenue, approximately 0.75 miles southwest of the site (enrollment of 423 elementary students).
- St. John Lutheran School at 123-07 22nd Avenue located approximately one mile south of the site (enrollment of 66 elementary students).

The library in the College Point neighborhood is the Queensborough Public Library, Poppenhausen Branch, located at 121-23 14th Avenue, about 0.6 miles southwest of the Tallman Island WPCP site. This library has an annual circulation of 109,280 (NYC, 1999).

Health Care and Day Care Facilities

There are no hospitals within the study area or the College Point neighborhood. The nearest hospitals are located approximately three miles south of the Tallman Island WPCP, and include the New York Hospital Medical Center of Queens (457 beds); Flushing Hospital and Medical Center (250 beds); and, Flushing Hospital North Division (100 beds).

There are no known day care facilities within the study area.

Police and Fire

The Tallman Island WPCP site is within the jurisdiction of the New York City Police Department's (NYPD) 109th Precinct. The precinct police station is located at 37-05 Union Street in Flushing, approximately two miles south of the site. Harbor "George," a NYPD harbor unit facility, is located at 14th Avenue and College Point Boulevard, about 0.9 miles southwest of the Tallman Island WPCP site.

No fire stations are located within the study area. The nearest City fire department facility is Engine Company 297 and Ladder 130, located at 119-11 14th Road, about 0.75 miles southwest of the site.

Parks and Recreational Facilities

There is one NYCDPR park within the study area. Powell's Cove Park, located about three blocks south of the Tallman Island WPCP, is approximately seven acres in size and includes a playground. Powell's Cove Park is undergoing enhancement at the water's edge to create a salt marsh along the southern and western edge of Powell's Cove. An open space area, approximately 2.75 acres in size, exists immediately west of the operating Tallman Island WPCP, with an access gate opposite 127th Street. This land is owned and maintained by NYCDEP and provides public access to the waterfront of Inlet Cove and around the WPCP to the pier that extends into the East River.

Other parks and recreational facilities in the College Point area include:

- Herman A. MacNeil Park (28.87 acres) located about 0.5 miles west of the site.
- Poppenhausen Park (0.05 acres) located at 122nd Street and College Place, about 0.5 miles southwest of the site.
- Poppenhausen Playground (1.14 acres) located at 20th Avenue and 123rd Street, about 0.9 miles south-southwest of the site.
- Frank Golden Memorial Park (11.12 acres) located at 132nd Street and 14th Road, about 0.5 miles south-southeast of the site.

C.2 Future Without the Proposed Action

No impacts to community facilities would occur under the future without the proposed action. The site and the study area would continue to be served in the same manner by the local hospitals, police, and fire facilities. Park and recreational facilities would continue to be used and enjoyed in the same way by the public.

C.3 Future With the Proposed Action

The proposed action would have no significant adverse impacts on community facilities within the study area. As a non-residential facility, there would be no impacts on schools, libraries, and parks and it is anticipated that there would be no increase in personnel at the Tallman Island WPCP. Thus, there would be no increased demand placed on other community facilities and services, such as police, fire, and health care.

The implementation of the proposed action would result in the permanent removal of approximately 0.25 acres from the NYCDEP-owned open space to the west of the Tallman Island WPCP. The removal of this land from public access to construct the electric substation would have minimal impact on the public's current enjoyment of this property. The use of this NYCDEP-owned property for infrastructure improvements would not have a potential for significant adverse impact on the community's open space resources. This issue is further discussed in Subsection D, Open Space.

According to the *CEQR Technical Manual*, actions that add more than 100 residential units to an area generally require detailed analysis for impacts on community facilities; moreover, the demand for community services generally stems from the introduction of new residents to an area as typically associated with residential projects. The proposed action being non-residential, and with no anticipated long-term increase in site workers does not approach the CEQR threshold for a detailed analysis. Therefore, there is no potential for significant adverse impacts on community facilities.

D. Open Space

Open space, as defined under CEQR, includes all publicly or privately owned land that is publicly accessible and has been designated for leisure, play or recreation, or has been set aside for enhancement of the natural environment. Analysis of the potential impacts of a proposed action on existing open spaces is intended to identify whether the proposed action would have an adverse effect on such area, either through direct impact (elimination or alteration of the open space) or indirect impact (overuse of the open space).

D.1 Existing Conditions

A majority of the land in the immediate vicinity of the site is fully developed residential housing, with some small commercial properties. The study area for the review of potential impacts on existing open space resources includes all open spaces within a one-half mile radius of the Tallman Island WPCP. A review of existing United States Geologic Service (USGS) mapping and field reconnaissance within the study area identified six open space areas, including the 2.75 acre lawn turf area on site. Figure 7 - Open Space (Attachment B) presents the study area and the locations of the open space areas in relation to the Tallman Island WPCP. Table 2-1 presents a tabulation of the pertinent characteristics of these existing open spaces, including location, approximate acreage, observed uses, and existing facilities.

Table 2-1

Open Spaces
Within Study Area [1]

Key[2]	Location [2]	Approximate Total Acreage	Observed Usage	Existing Facilities
1	Open Space West of WPCP Site	2.75 acres owned by NYCDEP	Passive (Strolling, Fishing, Picnicking, etc.)	Lawn/turf with paved walking trails, lighting along walkways, benches, bulkhead along East River waterfront
2	Waterfront Bulkhead and Pier Adjacent to WPCP Site	less than 1 acre	Passive (Strolling, Fishing)	Paved walkway along East River waterfront and decked pier
3	Private Marina (College Point Yacht Club) West of WPCP Site	4 acres	Passive (Strolling, Fishing) Marina-Related Activities	Dry land and dock storage for approximately 100 recreational boats
4	Powell's Cove Park	7 acres above water (plus 17.3 acres of marshland)	Passive (Strolling, Fishing, Picnicking, etc.) and Active (Playground)	Lawn/turf with walkways along Powell's Cove, playground equipment, enhancement of saltmarsh along shore (planned)
5	Herman A. MacNeil Park	29 acres	Passive (Strolling, Fishing, Picnicking, etc.) and Active (Jogging, Skating, Ball-Playing, etc.)	Lawn/turf with paved walking trails, lighting along walkways, benches, bulkhead along East River waterfront, maintained athletic fields and playground
6	Grounds of Public School 129	2 acres	Active (Ball-Playing, Skating)	Fully paved playground and athletic courts

Notes:
(1) Study Area includes all areas within ½ miles of Tallman Island WPCP site and/or adjacent to anticipated construction traffic route (Attachment B, Figure 12).
(2) Attachment B, Figure 7 - Open Space.

D.2 Future Without the Proposed Action

It is anticipated that the existing open spaces described in Subsection D.1 would continue to be maintained in their current condition, with the exception of Powell's Cove Park, where the NYCDPR is implementing enhancements to create a salt marsh along the southern and western edge of Powell's Cove, and the Waterfront Bulkhead and Pier adjacent to the Tallman Island WPCP, where NYCDEP is currently reconstructing dock sections 1 and 2 (estimated completion date is July 31, 2006). Public use and enjoyment of the existing open spaces would continue in a similar manner as presently occurs, under the future without the proposed action condition.

D.3 Future With the Proposed Action

The implementation of the proposed project would result in the permanent removal of approximately 0.25 acres from the NYCDEP-owned open space to the west of the Tallman Island WPCP. No other existing open space resource in the study area would be affected. This area is close to the preliminary settling tanks and furthest from the water's edge, and has little in the way of amenity other than grass and an asphalt path. The removal of this land from public access to construct the electric substation would have minimal impact on the public's enjoyment of this property: it would not affect the earth mound (further to the northwest) and its vantage point for viewing, nor would it affect the public access to the waterfront and the pier.

The loss of access to this 0.25-acre parcel would represent about 0.5 percent of the existing open space in the area (45.75 acres) within one-half mile of the site. The three census tracts comprising the socioeconomic study area (tracts 939, 947 and 945) had a combined 2000 population of 10,042 (Figure 6 of Attachment B). Nonetheless, the ratio of open space to this population is 4.6 acres per 1,000 people, well in excess of the city's planning goal of 2.5 acres per 1,000 people. At this time, the use of this NYCDEP property for infrastructure improvements would not have a significant adverse impact on local open space resources.

The proposed project would not induce population growth within the study area that could overtax existing open spaces. The open space-related impacts of the completed project would not be significant or require additional and detailed open space assessment of long-term impacts. Therefore, there is no potential for significant adverse open space impacts.

E. Shadows

E.1 Existing Conditions

The Tallman Island WPCP is located on the southern shoreline of the eastern portion of the East River. Most existing on-site structures are less than 50 feet tall, and therefore, shadows from these existing buildings fall predominantly within the site (based on a maximum shadow distance equal to 4.3 times the structure height, excluding periods within 1-½ hours of sunrise or sunset). The shadows from the largest on-site structure, the Pump and Blower Building, generally fall within the boundaries of the existing site. Shadows from the Dewatering Building fall along the adjacent northern shoreline of the East River; however, the extent of these shadows is very limited in relation to the area size of the adjacent water body.

E.2 Future Without the Proposed Action

Without the proposed action, no other substantive modifications to existing on-site buildings would occur, and existing shadow conditions would not change.

E.3 Future With the Proposed Action

The EMS Pumping System Project would include the construction of a ground-level platform on which the pumps would be installed; aboveground at-grade piping would also be installed. Equipment would also be installed within the Pump and Blower Building – a structure that already exists on the site. Two new diesel generators to provide power for the EMS Pumping System would reach a height of approximately 15 ft. Given the relatively low height and bulk of these new generators, the shadows cast would be short and fall on existing built-up area. Therefore, there would no significant shadow impacts from this part of the proposed action.

The proposed action also includes the replacement of the existing digester and gasholder roofs. However, the replacement structures would generally match the heights of the existing structures and therefore, not cast any new or additional shadows.

The major above-grade new structures to be constructed as part of the proposed action include the new RAS/Blower Building, the new 27 kV Substation building near the main gate, and three new substations around the Tallman Island WPCP. These proposed structures are approximately three stories or less and therefore, their shadow impacts would be minimal. The entrance to the new Centrate Pump Building would be seven ft above grade and would have minimal shadow impacts.

Figure 8A - Proposed Action New Shadows (Attachment B) depicts the estimated maximum shadow length of the proposed new structures, based on CEQR methodology indicating shadows 1.5 hours after sunrise and 1.5 hours before sunset, and excluding areas south of the structures on which shadows do not occur due to the sun's inclination. As shown on Figure 8A, the new structures would result in new morning shadows falling on a portion of the open space area to the west of the Tallman Island WPCP and on Powell's Cove Boulevard. Figures 8B, 8C, 8D and 8E show the potential for morning shadows on this affected open space on March 21, May 6, June 21 and December 21, respectively. The western elevation of the 27 kV Substation reaches approximately 23 feet and the early-morning winter shadow could extend as much as 93 feet from the structure into the open space area. The affected area would be east of the access gate to the open space opposite 127th Street, in a grassy area of this open space. The shadows would not affect the earth mound to the west that offers a view of the East River and Inlet Cove, or the waterfront of Inlet Cove and the East River. Shadows would exit the area by 11:45 am (duration 2 hours, 54 minutes) during the worst-case December 21 period.

As noted, new shadows are anticipated on the open space to the west of the WPCP. These shadows are associated with the new 27 kV Substation, which must be located in immediate proximity to the Con Edison power lines feeding the plant from Powell's Cove Boulevard. The shadow impacts would be of relatively short duration during the morning and affect only a small portion of the publicly accessible open space. Such short-term and limited impacts are not considered significantly adverse on this resource or on the usability of this open space, the major features of which would be unaffected. Therefore, there is no potential for significant adverse impacts related to shadows.

F. Historic Resources

CEQR requires New York City agencies to identify archaeological resources and designated or eligible New York City Landmarks and districts (more than 30 years old) and State or National Register-listed or eligible historic resources (more than 50 years old) within the project area established for the EAS. In 2000, the New York State Historic Preservation Office (NYSHPO) and New York City Landmarks Preservation Commission (NYCLPC) requested information on potential archaeological and historic architectural resources at Tallman Island WPCP in response to notification about the proposed action from TAMS Consultants, Inc. in March of 2000 (Attachment D - New York City and National Register Eligibility Assessment). New York City Landmarks Law Criteria, National Register Criteria for Historic Significance, and the seven aspects of historic integrity as defined by the National Register are reviewed as part of this EAS. A complete New York City and National Register Eligibility Assessment of the Tallman Island WPCP for the Tallman Island PUP is contained in Attachment D and has been submitted to NYCLPC and NYSHPO for review.

F.1 Existing Conditions

Prehistoric and Historic Background

Prehistoric and Early Historic Period

The coastline of Queens first attracted settlement several thousand years ago, as warming temperatures and rising sea levels following the retreat of the Wisconsin glacier gradually transformed the area's environment. Since the late 1800s and early 1900s, collectors, avocational archaeologists, and professional archaeologists have documented numerous prehistoric sites along Queens' coastline. The presence of large quantities of shellfish remains and hunting tools attest to the range of food resources available in the area. These sites likely date to the Archaic (ca. 10,000-3,000 years before present [BP]) and Woodland (ca. 3,000-500 BP) Periods, although possible Contact Period (500-200 BP) sites have also been reported (Panamerican Consultants, Inc., 2003). Prior to European settlement, the Matinecock Indians inhabited the general area and occupied a village in Flushing.

In 1645, Dutch New Netherlands Governor Willem Kieft 'purchased' 17,000 wooded acres of Long Island from the Matinecock, including the area around Flushing Bay in the town of Flushing, one of the five towns established by the Dutch in Queens. The purchase included Tallman Island, most likely named for the Tallman family, who relocated from Rhode Island to the town of Flushing in the mid-1600s (www.skep.com/genealogy/PDFs/vtallman.pdf, accessed January 13, 2005).

William Lawrence, whose family hailed from England, was among the Dutch and English settlers to whom Kieft granted parcels to in the Town of Flushing. Lawrence obtained 900 acres in the area that was then known as Tues Neck, near Tallman Island. During the American Revolution, the Lawrence family, like other Queens inhabitants, was subjected to depredations by occupying British and Hessian troops. Furthermore, Hessian soldiers were quartered on Tallman Island "where they could be in a good position to intercept supplies being ferried out of Powell's Cove to George Washington's army at White Plains" (Panamerican Consultants, Inc., 2003; Hecht, 1976). According to a 1777 British map, three brigades were situated along the north shore of Queens, east of present-day College Point. The westernmost location was south of Powell's Cove, the body of water east of Tallman Island (Panamerican Consultants, Inc., 2003).

Because of losses suffered during the Revolutionary War, the Lawrences sold a 320-acre tract of land to Eliphalet Stratton in 1789. The tract was located at Tues Neck, south of Tallman Island, and eventually

came to be known as Strattonport (www.Newsday.com accessed December 30, 2004). Stewart's 1795 map of Flushing illustrates the Strattonport area, and depicts a building and flag in a position corresponding to either Tallman Island or the northern tip of College Point, the community described below. These symbols could represent the Lawrence house or a military installation on Tallman Island, but research could not confirm the exact location of the building and flag (Panamerican Consultants, Inc., 2003).

Establishment of College Point, 19th Century

In 1835, Reverend William Augustus Muhlenberg established Saint Paul's College, an Episcopal seminary, on a point of coastal land immediately west of Tallman Island. Although the seminary was open for little more than a decade, the area came to be known as College Point. During the early 19th century, College Point was dotted with farms, orchards, and undeveloped salt marsh. The location was touted as "one of great beauty," valued "for health, convenience, prospect, and seclusion." (Muhlenberg, 1838).

College Point was transformed in the 1850s when a German immigrant named Conrad Poppenhusen settled in the area and established a factory for vulcanized rubber products, an innovation that replaced whalebone in a growing number of applications. Capitalizing on the decline of the whaling industry, Poppenhusen's factory in College Point was successful and attracted hundreds of immigrant workers. He created a model community with schools, a library, roads, water and sewage systems, and a railroad. Rubber factories proliferated in College Point, which became the "rubber capital of the Northeast" (www.Newsday.com accessed December 30, 2004).

During the 19th century, historic maps indicate that Tallman Island was a landmass separated from the mainland by a marsh with a narrow creek running through it. According to the 1853 Harrison atlas, the landmass was named "Tallmans Island." A road and causeway lead to the island, which was improved with a small wharf, a masonry structure and two smaller frame structures on its northwest tip (Harrison, 1853). The map depicts a large swath of marsh between the island and the mainland, with a narrow creek, known as Morris Creek, running through it (Panamerican Consultants, Inc., 2003). The marsh area partially coincides with the present-day park area located on the west side of WPCP.

An 1859 Walling map of College Point depicts the same structures, northwest wharf and roads on Tallman Island, and shows the island as still separated from the mainland by a marsh area. On the 1859 map, island improvements are attributed to Mrs. Van Wyck, a possible relation to the Dutch family who settled in Brooklyn during the mid-1600s (www.carman.net/van_wyck_family.htm accessed January 13, 2005). In 1859, the island was still accessed via the causeway depicted in the 1853 map (Walling, 1859).

An 1873 Beers map shows structures in roughly the same locations as the earlier maps, now attributed to "A. Morris." The island shape conforms to proportions reflected on 1930s maps of the island, reflecting a roughly triangular shape with the landmass separated from the mainland by Morris Creek. The 1873 map also depicts a proposed road network on the island, including an east-west alignment at the southern end of the island labeled 'Avenue H,' and a north-south alignment forming a horseshoe curve at the northern end of the island (Beers, 1873). No evidence has been recovered to indicate that these roads were constructed.

Tallman Island as a Summer Resort, Late 1800s-1920s

Topographical maps produced in the 1890s by the US Geological Survey (USGS) and Wolverton depict Tallman Island similar in shape and size to the 1873 map with marshland fed by Morris Creek still

separating the island from the mainland. Buildings and structures on the map are attributed to H. Funke, and a structure labeled "Point View," a resort most likely established in the 1880s, is also documented on the island. Furthermore, a pier has been constructed on the north side of the island, north of the structures depicted on earlier maps. Access to island was gained via causeway depicted in the 1853 map. A portion of present-day Lax Avenue appears to be in the former location of this 19th century causeway (Wolverton, 1891; USGS, 1891).

At the turn of the 20th century, Tallman Island became a resort for summer excursionists, known as Witzel's Point or Point View Island, owned by Joseph Witzel (Panamerican Consultants, Inc., 2003). The 1891 USGS map shows structures associated with the resort, including a new pier at the northern tip of the island. A 1916 Sanborn map depicts the resort in detail, indicating that the causeway over the creek still remained in the same location as the 1850s. The resort structures were clustered in the northwest portion of the island in roughly the same location as those depicted on 19th century maps. The 1916 map depicts a jetty-type structure in the former location of the wharf shown on the northwest corner of the island in 19th century maps. Structures depicted on the 1850s maps were apparently demolished when the resort was established. On the 1916 map, multiple structures were located east of the causeway on the northern portion of the island. These included a large dining pavilion with a water tank on a trestle at the northwest corner of the structure, an ice house, and a kitchen with pantry attached on its east facade. East of the dining pavilion was a bowling alley. To the north, there was a dwelling and bar rooms, a dance pavilion, a rifle range, and a small photo studio. Several smaller service buildings were located west of the causeway, including two wagon houses, a shed, and a coop. A pier and bathhouse were located at the northern tip of the island (Sanborn, 1916).

Around 1920, a breakwater was constructed immediately south of the eastern outlet of Morris Creek where it flowed into Powell's Cove, east of Tallman Island. This feature was probably associated with a boat club located east of 129th Street in the vicinity of present day 6th Avenue (Panamerican Consultants, Inc., 2003). A 1924 aerial view also shows the breakwater, as well as a small area of landfill just west of it, along the eastern edge of the marsh south of Morris Creek. A strip of fill also appears to connect the western side of Tallman Island with the mainland west of the causeway by 1924, suggesting that the western outlet of Morris Creek was blocked or relegated to a small channel or culvert. The landfill blocking the western outlet of Morris Creek, coupled with the construction of the breakwater near the eastern outlet, resulted in the stagnation of the southern portion of the marsh between Tallman Island and the mainland and may have induced growth of phragmites. The area between Tallman Island and Morris Creek appears to have evolved in a different manner than its southern counterpart. The 1924 aerial photograph indicates that the marsh area was divided by channels, and may have been used for salt hay farming (Panamerican Consultants, Inc., 2003; Fairchild, 1924).

Tallman Island Converted to Sewage Treatment Plant, 1930s

By the 1930s, the rubber industry in College Point was on the decline and many rubber factories closed because of the advent of the plastics industry, impact of the economic downturn caused by the Stock Market crash of 1929, and ensuing Great Depression (www.Newsday.com accessed December 30, 2004). However, development did not flag in College Point. During the 1930s, the New York City government, under the leadership of Mayor Fiorello LaGuardia, embarked on a wastewater treatment plant construction program to build a system of facilities City-wide that would provide biological treatment of sewage.

The Tallman Island WPCP was constructed between 1937-39 according to designs prepared by the New York City Department of Sanitation (NYCDOS), Bureau of Sewage Disposal and Intercepting Sewers. It was built on the sparsely developed island in College Point, Queens, and was the first sewage treatment

plant in Queens and the third sewage treatment plant erected in New York City (NYCDEP, c. 1998). Plant construction required filling of the island on its north and east sides, and construction of an access road atop former marshland on its south side. As initially conceived, the plant had the capacity to treat 40 MGD of sewage. It was also designed to facilitate future expansion as the population along the north shore of Queens grew throughout the 20th century (Anonymous, April 23, 1939).

The Tallman Island plant was completed and dedicated by Mayor Fiorello LaGuardia in April 1939, in time to treat the sewage flow from the 1939 World's Fair located southwest of the site in Flushing Meadows Park (Anonymous, April 23, 1939).

The $3.8 million plant originally consisted of ten major facilities (known as the East Battery) (New York Times, April 23, 1939). Sanborn maps (1943) indicate that the complex originally included:

- Pump and Blower Building.
- Pumping Station.
- Preliminary Settling Tank Nos. 1-3.
- Aeration Tank Nos. 1-2.
- Final Settling Tank Nos. 1-4.
- Four Digester Tanks.
- Two Sludge Thickener Tanks.
- Two Sludge Storage Tanks.
- Grit Tank House.
- Pier.

The principal building on the site, the Pump and Blower Building, was a buff-colored brick building with Art Modern details. The high-bay building was originally pierced by industrial steel casement windows and contained eight gas-powered engines that powered the machinery for the sewage treatment process. Other original features included the Pumping Station and various tanks including Art Deco-style Sludge Digestion Tanks, Preliminary Settling Tank Nos. 1-3, Aeration Tank Nos. 1-2, Final Settling Tank Nos. 1-4, Sludge Thickener Tanks, Sludge Storage Tanks and a Grit Tank House. A wood pier on wood piles was located at the northwestern edge of the property in the original location of the recreational pier from the island's prior recreational use. The pier facilitated removal of sludge from the plant via scows.

The Tallman Island complex processed sewage via the activated sludge process and was the first plant in New York City and the US to apply the step aeration process rather than plug flow (Sawyer, 1965). In the activated sludge process, microorganisms break down sludge by using it as a food source in an aeration tank. Oxygen and nutrients are required by microorganisms to break down the sludge. The conventional activated sludge process - plug flow - is where fluid particles pass through the aeration tanks and are discharged in the same order they enter.

At Tallman Island WPCP, New York City sanitary engineer Richard H. Gould developed the step aeration process to overcome some of the problems inherent in the conventional activated sludge process and conserve aeration tank capacity. Gould's design is based on a system of multi-pass aeration tanks with four channels (such as Aeration Tank Nos. 1-2). The first pass is reserved for reaeration of returned sludge to regenerate its absorptive properties. Sewage is then added in incremental steps to the aeration tanks along the course of flow of the returned sludge to keep the oxygen demand at uniform levels. Step aeration capitalizes on the absorptive power of rejuvenated activated sludge to remove organic pollutants, with stabilization occurring in the sludge reaeration tank. The primary advantages of step aeration are that it allows for more flexibility in operation, produces well-settled sludge and saves tank volume (Sawyer, 1965).

Plant Upgrades, 1950s-90s

From the 1950s to the 1990s, the Tallman Island WPCP was upgraded multiple times. In 1959, the South Sludge Thickeners were placed in service, and in the early 1960s, chlorination facilities were constructed at the northern tip of the complex to disinfect the treated effluent during bathing season. In 1964, the West Battery was placed in service. The battery consisted of two preliminary, one aeration, and two final settling final tanks. Other major work included revising the flow pattern for the East Battery and upgrading the plant to allow it to treat sewage via modified aeration during emergencies (NYCDEP, 1978).

In 1969, Tallman Island underwent a second major upgrade (NYCDEP, 1978). Completed in 1970, the upgrade increased the capacity of the plant to 80 MGD, capable of treating sewage of 17,400 acres of the northeast section of Queens. The upgrade consisted of constructing additions to the Pump and Blower Building and Storage Building; building a grit facility, North Sludge Thickeners, pumping station and sludge storage tank in the East Battery; and preliminary settling, aeration, final settling, and chlorine tanks in the West Battery. During this improvement campaign, major changes were made to the Pump and Blower Building and Storage Building that compromised their historic character, including installation of modern glazing and additions. Within the past twenty years, the original Grit Tank House in the East Battery has also been altered by the conversion of the facility into Collections Systems North.

Upgrade plans indicate that the park on the west side of the island, documented on the 1943 Sanborn map, was also slated for improvement as part of construction campaign. According to landscape plans, the park would be reduced in size to accommodate new West Battery structures that were to be built west of those constructed in the early 1960s. Asphalt-paved paths were constructed for pedestrians. In addition, a concrete bulkhead was constructed along the northwest portion of Tallman Island that eliminated some of the irregular coastline on the west side of the island. A jetty that extended from the northwest corner of the island was compromised, but remained slightly intact outside, or west of, the newly bulkheaded area. A small portion of the park's coastline was unimproved and retained its irregular shape. A paved path that extended northwest from northernmost tip of the figure-eight-shaped park path provided access to the bulkheaded north and west perimeter of the island (CDM, August 1970).

According to plans and construction photos, topography within the reconfigured park was formed from excavated construction spoils. (Affiliated Photo Services, March 20, 1974; NYCDEP, February 1976). Upon completion, the northern portion of the park received more fill than the southern portion, resulting in a gently undulating landscape. In addition, electrical systems and water pipes were laid in the park area, resulting in the installation of lampposts and hydrants in the park. Furthermore, rip-rap and chunks of concrete remained in the unimproved portion of the park along the cove.

In 1991, a large concrete-panel and glass Dewatering Building was added to the facility, southwest of the pier in the West Battery. At that time, the pier was deactivated and dewatered sludge, or sludge cake, began to be transported from the site via truck. Chlorinated effluent continues to be discharged into the East River.

During the mid-1990s, the NYCDEP began to retrofit many of its water pollution control plants for biological nutrient removal (BNR) in an effort to mitigate degradation of surface waters and protect aquatic resources in compliance with federal water pollution control standards. In NYC, Tallman Island was one of the first plants to be retrofitted for step feed BNR. At that time, baffles, mixers and a froth control system was installed in Aeration Tank Nos. 3 and 4 with minor upgrades to Aeration Tank Nos. 1 and 2 (NYCDEP, 1998).

Currently, the Tallman Island WPCP is one of fourteen water pollution control plants in New York City constructed between 1935-87. Of the 14 plants, Tallman Island was the first to incorporate the step aeration process for treating wastewater. With the exception of Newtown Creek, which is currently being upgraded for step aeration, the remaining 13, including Tallman Island, process wastewater via step aeration (Olivieri, June 19, 2000).

As noted in Chapters 1 and 2, the purpose of the project is to provide more efficient and reliable wastewater treatment for this area of New York City. The proposed action would remedy major plant deficiencies to allow the plant to continue to meet its SPDES permit, to improve operations, and to maximize treatment plant flow rates. Equally important, the program would identify and remedy safety and health issues, and evaluate and upgrade the plant's infrastructure to support all systems and functions. Therefore, although the proposed Project would have effects on architectural resources, these actions are essential to meet the project's critical objectives.

Historic Resources

Portions of the 1939 East Battery at the Tallman Island WPCP appear to be New York City Landmark and National Register-eligible resources under Criteria A and C for their historic and engineering importance. As previously noted, Tallman Island was the first plant in the US designed by New York City sanitary engineer Richard H. Gould to treat sewage using the step aeration process.

Nine of the ten structures originally within the East Battery survived from 1939 and are over 50 years old. The Sludge Thickening Tanks have been removed and were replaced by the Mixed Flow Pumping Station in 1970. Five of the nine surviving structures have been upgraded but retain adequate architectural integrity to contribute to the significance of the Tallman Island WPCP:

- Preliminary Settling Tank Nos. 1-3.
- Aeration Tank Nos. 1 and 2.
- Final Settling Tank Nos. 1-4.
- Four Digester Tanks.
- Two Sludge Storage Tanks.

Together, these resources were integral to the original operation of the Tallman Island WPCP, the first plant in New York City and the US to process sewage via the step feed aeration process.

Four resources constructed in 1938-39 have been altered and no longer retain adequate integrity to qualify for listing in the National Register of Historic Places:

- Preliminary Sludge Pumping Station.
- Pump and Blower Building.
- Pier.
- Former Grit Tank House.

All the remaining structures at the facility, constructed between 1957 and 1991, are less than fifty years old, and with one exception (the South Sludge Thickeners) do not possess exceptional significance to qualify for listing in the National Register. Although some of these structures are over 30 years old (New York City Landmarks Law criterion), they do not appear to be New York City Landmark-eligible because they are commonplace structures, representing the expansion of the Tallman Island facility over time.

The South Sludge Thickeners, constructed in 1957, appear to be New York City Landmark and National Register-eligible resources because of their Modern design as expressed through the brick and glass-block enclosed spiral staircase leading from the ground to the top of the four sludge thickening tanks. Figure 9 - New York City Landmark and National Register-Eligible Resources (Attachment B), shows the location of these on-site resources.

Archaeological Resources

A review of the site files of the NYCLPC and NYSHPO reveals that a number of previously identified archaeological resources are located in the vicinity of Tallman Island, one of which is located on Tallman Island. These sites are described below and indicated by site numbers corresponding to Boesch (1997) on Figure 10 (Attachment B), Known Archaeological Sites in Study Area Vicinity.

- Boesch Site No. 67 (NYSM Site No. 128) is known as the Tallman's Island Site. Reported by Schneider (1961), the exact location of the excavation on Tallman Island is not known. Material recovered from the site dated to the Archaic through Woodland periods.
- Boesch Site No. 68, also known the Powell's Cove Site, and filed with the Nassau County Museum (NCM) as Site No. 101, is located on the high ground near the western shore of Powell's Cove in the vicinity of 130th Street between 7th and 9th Avenues. The shoreline in this location consisted of marshland until it was filled in the 20th century. The site is categorized as a Contact-Period site in the NCM files.
- Boesch Site No. 31 (NCM Site No. 100, NYSHPO Site No. A08101.007355), also known as the Wilkins Site, is located in the vicinity of 142nd Street and 14th Avenue. Harrington (1909) noted a shell heap in this location. The Flushing Historical Society first excavated the site in 1939-40. During a 1950 excavation human burials and refuse pits were identified. The site dates to the Archaic through Woodland periods.
- Boesch Site No. 1 (NYSM Site No. 4527), known as the College Point Site, was described by Parker (1922) as "village and burial site at College Point on the E. Platt Stratton estate." Human skeletons were reportedly found at this location in 1861 when excavating for the foundations of Knickerbocker Hall (Panamerican Consultants, Inc., 2003).
- Boesch Site No. 30 (NCM Site No. 79, NYSHPO Site No. A081-01-0133), known as the Grantville Site, was excavated by M.C. Schreiner in the 1930s and later by Ralph Solecki. The site yielded more than 300 projectile points and other material. Solecki excavated at least one refuse pit containing Archaic and Woodland-period material. In the 1950s, artifacts were recovered on the beach below the Grantville bluffs, including stone tools and possibly a human skull (Panamerican Consultants, Inc., 2003).
- Boesch Site No. 18 (NYSM Site No. 4541) was noted by Parker in 1922 as containing "traces of occupation." Also noted by Beauchamp (1900) and Bolton (1934) as containing "frequent shell heaps and fishing camps" (Boesch, 1997).

A review of the site files also revealed that four archaeological studies have been conducted on or in the vicinity of Tallman Island. The earliest of these excavations was conducted by Ralph Solecki somewhere on Tallman Island in the late 1930s or early 1940s. Although the report has not been found and the location of the excavation is not known, a number of prehistoric artifacts were recovered that are now in the collections of the Poppenhusen Institute in College Point (Susan Brustman, pers. comm., January 12, 2005). In 1994, a study was completed entitled Supplemental Phase 1A Archaeological Documentary Research in Advance of Dockwork at Six NYC Water Pollution Control Plants. This assessment found that there were no archaeological concerns within the Tallman Island study area for the project due to extensive ground disturbance and landfill in the project location (Stone, 1994). Greenhouse Consultants completed an archaeological survey in the central and northern portions of Tallman Island in 1990 in

connection with water pollution control plant expansions. The excavation yielded no significant archaeological remains (Greenhouse Consultants, Inc., 1990).

In February 2003, Panamerican Consultants, under subcontract to the US Army Corps of Engineers, prepared Cultural Resources Baseline Study: Flushing Bay Ecosystem Restoration Project, Queens County, New York. This survey reviews previously identified archaeological sites and known site disturbances to create a sensitivity assessment for several locations in Queens County. The "Tallman's Island/Powell's Cove" area was found to have moderate subsurface potential for yielding prehistoric materials, and high potential for yielding historic materials. The report also notes that in addition to the archaeological sites catalogued in the area, Hecht characterized College Point as being sensitive for prehistoric remains, and reported generally that much prehistoric material had been recovered along the shoreline in the vicinity, including burial mounds found on Tallmans Island (Panamerican Consultants, Inc., 2003).

Although the Tallman Island WPCP site was clearly the location of extensive prehistoric and historic activity, intensive construction and earth moving activities since the 1930s have significantly impacted any archaeological remains once present at the site. These disturbances are documented in a series of aerial photographs taken both prior to and during the site's two major upgrades and expansions, in 1964 and 1979. These disturbances include construction of the many aboveground tanks, buildings, roadways, and parking lots, land grading and filling, construction of a bulkhead along the coastline, and the construction of numerous underground utility lines and storage tanks. These photographs and a review of detailed infrastructure maps indicate that currently undeveloped portions of the site such as the parkland located on the southwest portion of the site have also been extensively disturbed. Underground utilities crossing this parkland area include electrical lines, gas lines, and water lines ranging from eight to 36 inches in diameter. The previous cultural resource investigation involving subsurface testing conducted on Tallman Island also documented extensive subsurface disturbance (Greenhouse Consultants, Inc., 1990).

F.2 Future Without the Proposed Action

CEQR provides specific criteria for assessing the effects of undertakings on historic properties and identifying significant adverse impacts. The effects of an undertaking on New York City Landmark and National Register-listed/eligible resources are predicted by evaluating the significant characteristics of the resource and the anticipated consequences of the undertaking on the resource, as described in Chapter 3, Section F of the *CEQR Technical Manual* (October 2001).

The future no action condition would have no impact on the six New York City Landmark and National Register-eligible historic resources at Tallman Island WPCP. New construction would not take place at the facility, and the historic feeling and character of these components of the complex would remain intact.

F.3 Future With the Proposed Action

Historic Resources

Under the proposed action, the facility would be altered by construction or reconstruction of the following elements, described in Subsection 2:

- Stage I and II Pumping Systems.
- Two 1.6 MW Diesel Generators (as part of the Pumping Systems Improvements).

- Mixed Flow Pumping Station Upgrade.
- Return Activated Sludge (RAS) Pump Station (New Facility).
- Blower Building appended to RAS Pump Station (New Facility).
- 27 kV Electrical Substation (New Facility).
- Relocation of the two 1.6 MW Diesel Generators (from the EMS Pumping System) and addition of a third Plant Standby Power.
- Three Electrical Buildings (New Facility).
- Aeration System Improvements/Tank Modifications.
- Main Sewage Pump Replacement.
- Sludge Digesters Improvements.
- Sludge Thickeners Improvements.
- Process Control System.
- Temporary Field Office Complex.
- New Centrate Pumping Station.
- Demolition and Replacement of Waste Gas Burner Tank (Flare).
- Two new Supplemental Boilers.
- Secondary Bypass System Improvement
- Powell's Cove Pumping Station Modifications.

Indirect and direct effects would result from implementation of some of the above actions as described below.

Indirect Effects

The following actions would result in permanent indirect visual effects to New York City Landmark and National Register-eligible resources in the East Battery.

- **RAS/Blower Building**: The RAS and Blower Building would be a rectangular plan building capped by a flat roof. It would be constructed of poured-in-place concrete, pre-cast concrete, white metal siding, glass block, and metal panels, range between two and three stories high. The structure, approximately 400 ft long and 40 ft wide, would extend the entire length of the west side of Aeration Tank Nos. 1-2, and occupy a grassy median that flanks the west side of Aeration Tank Nos. 1-2 and Preliminary Settling Tank Nos. 1-3. The RAS and Blower Building would have an indirect visual effect on the Aeration Tank Nos. 1-2 and Preliminary Settling Tank Nos.1-3 because the layout and setting of the tanks would be compromised by the introduction of new adjacent structures where none previously existed. Within the functional portion of Tallman Island WPCP, the view east toward the tanks would be blocked. However, the view east from the publicly accessible park would not be compromised because trees currently screen the view from the park toward the tanks. Although the RAS and Blower Building may cast new shadows on the aeration tanks and preliminary settling tanks, the significance of the tanks are not related to sunlight, and introduction of shadows would not obscure the tanks. The introduction of the RAS and Blower Building would not be incompatible with other sewage treatment-related structures within the Tallman Island WPCP, including the aeration tanks and preliminary settling tanks.

- **27 kV Electrical Substation**: The 27 kV Electrical Substation would consist of a rounded rectangular form and a V-shaped form that are joined by a hyphen section. Flat roofs cap the rectangular, V, and hyphen forms. The building would be constructed of white metal panels and siding (stem of the T plan) and poured-in-place concrete (cross-bar of the T-plan). The building would be approximately 150 ft long, 70 ft wide and one to two stories (20 ft) high. The substation

may have an indirect visual effect on NYC Landmark and National Register-eligible resources at Tallman Island WPCP because the setting of the plant would be compromised by the introduction of new adjacent structures where none existed before. However, the view toward the eligible resources in the East Battery from the proposed location of the substation would not be severely compromised because the view is currently screened by trees within the park and by sloping topography. Introduction of the substation would not be incompatible with other sewage treatment-related structures within the Tallman Island WPCP, including electrical buildings that are slated for construction as part of this plant upgrade project. While the substation may screen views of the West Battery from Powell's Cove Boulevard and the park, it would provide power to the WPCP, a non-publicly accessible facility. Although the substation may cast new shadows within the open space park, the West Battery and Powell's Cove Boulevard, the shadows would not adversely affect eligible resources that are far-removed from the substation and whose significance is not linked to unobstructed sunlight.

- **Sludge Area Electrical Building**: The Sludge Area Electrical Building (EB-201) would be a rectangular-plan building capped by a flat roof. It would be constructed of metal siding and pre-cast panels, and range between one to three stories high. The structure, approximately 90 ft long and 30 ft wide, would occupy a waterfront area on the east side of Tallman Island WPCP between the South Sludge Thickeners and the North Sludge Thickeners, where no structures previously existed. EB-201, with surface-mounted conduit associated with Process Control System, would have an indirect visual effect on the South Sludge Thickeners because the setting of the structure would be compromised by the introduction of new adjacent structures where none existed before. Nevertheless, introduction of EB-201 would not be incompatible with other sewage treatment-related structures within the Tallman Island WPCP, including the South Sludge Thickeners. Furthermore, the North Sludge Thickeners, located north of the south thickeners, were constructed in 1970 and have already slightly comprised the setting of the South Sludge Thickeners. While EB-201 may screen views of the South Sludge Thickeners from Powell's Cove, EB-201 would form an integral part of the WPCP, a non-public facility. Although EB-201 may cast new shadows on the South Sludge Thickeners, the significance of the thickener tanks are not related to sunlight, and introduction of shadows would not obscure the tanks.

To minimize the indirect visual effects on New York City Landmark and National Register-eligible resources, designers would strive to choose building materials for new structures that conform as much as practicable to the existing materials at the plant, including concrete, buff and painted brick, metal, and glass.

Direct Effects

The following actions would result in a direct effect to New York City Landmark and National Register-eligible resources in the East Battery:

- **Aeration System Improvements/Tank Modifications**: The four aeration tanks at Tallman Island WPCP would be upgraded by the replacement of existing diffusers with submerged fine bubble membrane type diffusers and new air header piping. In addition, the following tank modifications would also be required to accommodate the step-feed BNR process. Modifications include the construction of two wet wells that would be situated above water level, multiple floating weirs that would be situated above water level, multiple submerged baffle walls, eight froth hoods that would span tank passes above water level, and 42 platform mixers. The platform mixers would extend from the sides of tank passes above water level and consist of an electric

motor atop a platform. The motor would provide power to an underwater shaft propeller that would mix the contents of the tank pass. These actions would directly affect New York City Landmark and National Register-eligible Aeration Tank Nos. 1-2 in the East Battery.

- **Sludge Digesters Improvements**: New roofs would replace the roofs of the four Digester Tanks. The four tanks are New York City Landmark and National Register-eligible, and are presently capped by dome-shaped roofs sheathed in rolled asphalt panels that were most likely erected atop the tanks in the 1960s. The roofs are pierced by numerous structures including pipelines and other metal fixtures. Proposed designs for the new roofs consist of geodesic domes that would be clad in milled-finish aluminum panels similar in texture and color to an aircraft fuselage. The aluminum would become darker and duller over time as the panels are exposed to the elements. The roof would retain its spheroid dome shape, but its surface would be faceted in a manner consistent with geodesic domes constructed of triangular fragments. Furthermore, pipes may pierce the roof and walkways adjacent to the domes would provide maintenance access. The proposed action would directly affect the New York City Landmark and National Register-eligible Digester Tanks.

Implementation of the improvement scheme and upgrade of Aeration Tank Nos. 1-2 and Digester Tanks would directly affect these New York City Landmark and National Register-eligible tanks. Since initial construction in the 1930s, these features have been modified over time to keep pace with sewage treatment technology. The significance of these features is related to their historic function, which would be preserved. To avoid significant adverse effects that implementation of the proposed action would have on the physical appearance of these historic resources, the Aeration Tank Nos. 1-2 and Digester Tanks, and surrounding New York City Landmark and National Register-eligible resources, would be documented according to the NYCLPC/NYSHPO documentation standards for historic structures. At a minimum, this would include coordination with a professional photographer hired by the contractor responsible for implementing the project to photo-document Aeration Tank Nos. 1-2 and Digester Tanks prior to project implementation. In addition, preparation of a detailed physical description and historic narrative describing the tanks and how they fit into the overall operation of Tallman Island WPCP from its opening in the 1930s through present time would also be completed. The report would be deposited at the NYCLPC, NYSHPO and NYCDEP and other repositories designated by the lead agency, NYCDEP, and NYCLPC/NYSHPO. NYCDEP will follow NYCLPC's procedures for archaeological and historic resources to ensure that no potential significant adverse impacts would occur to these resources.

While temporary and permanent structures may have effects on the historic resources as indicated, the work is necessary in order to provide more efficient and reliable wastewater treatment and remedy plant deficiencies.

Archaeological Resources

As past development has already adversely affected any archaeological resources once present on Tallman Island, the proposed action would have no effect on archaeological resources meeting the eligibility criteria of the National Register. Therefore, there is no potential for significant adverse archaeological resources impacts.

G. Urban Design/Visual Resources

The purpose of evaluating urban design and visual resources is to assess the impact of the proposed action on the "look" of the neighborhood. Factors such as size and shapes of existing buildings, street and block

arrangement patterns, and noteworthy views that may give a neighborhood a distinctive character are considered.

G.1 Existing Conditions

The Tallman Island WPCP is located on a peninsula extending into the East River on the Queens northern shoreline. The WPCP is partially visible from the residential neighborhood along Powell's Cove Boulevard south of the site, and the publicly accessible DEP-land immediately west of the site. The residential areas along Powell's Cove Boulevard are one- and two-family, one- and two-story, well kept residences. In the immediate vicinity of the Tallman Island WPCP residences are neatly kept, but without consistent or defined architectural styles.

The WPCP is relatively well screened from the vantage points to the south of the site (along Powell's Cove Boulevard) by site grading (including earthen berms and knolls), wrought iron fencing, and vegetation. The primary WPCP structure visible from locations to the west is the Pump and Blower Building, which has a modern glazing-type facade installed in the late 1960s, consistent with architectural treatments employed at New York City WPCPs during that period.

G.2 Future Without the Proposed Action

No significant changes to either off-site residential buildings or WPCP structures are planned under this condition. While contrasting visually, the historical co-existence of the residential neighborhood and the WPCP would continue, with existing grading, fencing, and vegetation along the west and south boundaries of the WPCP screening and differentiating the WPCP from the surrounding residential neighborhood and open space.

G.3 Future With the Proposed Action

Under the proposed action, the following primary above-grade structures would be constructed on the site:

- Three new 1.6 MW diesel generators.
- New RAS/Blower Building.
- New 27 kV substation.
- Three new electric substations.
- Centrate Pumping Station.
- New roofs to the four digesters.

In addition, a temporary field office would be built and occupied during construction, and the existing gas holder and waste gas burner would be demolished. Figure 3A - Components of the Proposed Action (Attachment B) shows the location of these proposed improvements within the WPCP. The RAS/Blower Building would be approximately 23 feet high and be located in the north central area of the existing site. The overall bulk of this structure is consistent with existing site buildings, and is not anticipated to be readily visible from off-site locations or from the water.

The new 27 kV Substation would be a relatively substantial structure: up to 26 feet tall with a building footprint of 70 feet by 150 feet. The building lies immediately to the west of the WPCP main gate with its length parallel to Powell's Cove Boulevard. This structure would be visible from Powell's Cove Boulevard and those residences that front Powell's Cove Boulevard opposite the WPCP. Residences beyond the boulevard frontage would be unlikely to see the structure because of its height and the

obstruction of the other residences along the boulevard. The structure would be in the Modernist Tradition style and reflect its utilitarian function. The structure would also serve, in part, to screen less aesthetically pleasing existing structures, such as the preliminary settling tanks, from off-site observers. A wall would extend north from the substation to help screen the rear of the structure from the public open space to the west. A vegetative screen would be planted within the open space to replace the vegetation removed for the structure.

Three new smaller substations would be located in the eastern, northern and western sections of the WPCP. These structures would have various configurations and designs but would all be relatively low and distant from Powell's Cove Boulevard or the DEP-owned property to the west. The East and West Battery both have a height of 16 feet and the northern electrical substation would have a height of 34 feet. Consequently, they would be hardly visible from publicly accessible areas. Similarly, the new Centrate Pumping Station would be located near the northern end of the plant; its above ground element would have a height of 7 feet and dimensions of 20 by 23 feet. Thus, it too would have minimal visual effects from any publicly accessible locations. The two new diesel generators would have a height of 15 feet. Given the small bulk and low heights of the new diesel engines, they would not be readily visible from off-site locations or from the water.

The temporary field office for construction personnel would be on an existing undeveloped area on the east side of the plant, well away from any publicly accessible locations. The demolition of the waste gas burner, also on the east aside of the plant, would not significantly or adversely alter the visual appearance of the plant from those areas on the east side of Powell's Cove, which view this side of the plant from about 0.5 miles away.

The architectural style of the new substations and blower building would be modern interpretations of the art deco/industrial aesthetic. The volume of the substation has been scaled to make it appropriate to the residential character of the surrounding neighborhood. It is the intent of the NYCDEP to select architectural styles for these structures that are aesthetically pleasing from their primary off-site vantage points: Powell's Cove Boulevard and the open space west of the WPCP. It is anticipated that these structures could also visually screen less aesthetically pleasing existing structures from off-site observers. Therefore, there is no potential for significant adverse urban design/visual resources impacts.

H. Neighborhood Character

Neighborhood character, according to the *CEQR Technical Manual*, "is an amalgam of the various elements that give neighborhoods their distinct personality. These can include land use, urban design, visual resources, historic resources, socioeconomics, traffic, and noise." CEQR requires the consideration of how these elements combine to create the context and feeling of a neighborhood, and how an action could affect that neighborhood. As details on existing conditions for most of the defining components of neighborhood character are described elsewhere in this EAS (e.g., land use/zoning, socioeconomics, etc), they are not repeated here.

The study area used to evaluate potential impacts on neighborhood character is a one-quarter mile radius, conforming to the study area used to evaluate potential impacts on land use, zoning and public policy, and on community facilities and services.

H.1 Existing Conditions

The project site, on the Queens northern shore, is in a primarily residential neighborhood. This reflects the area's historical usage and zoning, which is predominantly residential except for the Tallman Island

WPCP site which is zoned M2-1. Most of the residential area is zoned R3-2 with an area of R4 on the waterfront to the west of the site. Most structures are one and two stories, and the area has an overall low-density character. The College Point area of Queens is relatively distinct geographically due to the presence of the natural and man-made barriers, including the Whitestone Expressway to the east and the East River and Flushing Bay to the north and west.

The Tallman Island WPCP site is the sole land use on a peninsula extending into the East River and isolating it substantially from the adjacent residential community to the south. The site is accessed by vehicle from Powell's Cove Boulevard. Graded and planted open space at the waterfront largely removes the facility from public view on the west; the complexes of buildings on the site screen the aeration tanks from public view along Powell's Cove Boulevard (see Attachment D for photographs of selected on-site structures). Powell's Cove Boulevard ends at the southwest corner of the site where NYCDPR is enhancing the waterfront as a natural park area.

Offsite to the west, a mostly undeveloped area extends between Lax Avenue and the waterfront, occupied in part by the College Point Yacht Club. Further to the west, is the multi-story Riverview condominium complex at 121st Street in the R4 district. To the south of the Tallman Island WPCP, is a low density residential neighborhood comprised of mostly single-family detached homes, but with some two-family, attached, and walk-up multiple-family dwellings; the latter includes the gated Silverpointe development immediately across Powell's Cove Boulevard from the WPCP. The street pattern here is primarily a gridiron with avenues running east-west, and streets north-south. As the roadways approach the waterfront, the pattern is modified, with Powell's Cove Boulevard and Lax Avenue paralleling the curving waterfront. The only community facility in the study area is the Patricia A. Larkin elementary school (PS 129), occupying a city block about three blocks south of the site and one block east of 127th Street, which serves as the primary transportation route to the site.

With the exception of the open space alongside the Tallman Island WPCP and some vistas from the end of streets towards the water in Powell's Cove, the study area's visual resources are generally of modest quality. Little exists in the way of public views of the boat basin given the configuration of the street network; moreover, the boat storage area of the yacht club further limits potential views of the water. The redevelopment of Powell's Cove Park by NYCDPR was completed in October 2000 and promotes a high visual quality element on the waterfront.

Much of the residential area is comprised of neatly kept homes, but for the most part the study area is lacking in any consistent or definable architectural style.

H.2 Future Without the Proposed Action

In general, there would be little difference in neighborhood character between the existing conditions in the study area and the future without the proposed action. The redeveloped Powell's Cove Park would be completed, providing a natural area waterfront, as well as more upland recreational amenities. The NYCDCP zoning study may result in some zoning changes in the broader College Point area, but for the most part proposed changes are likely to enhance existing character and provide for more contextual infilling on the few remaining vacant parcels. Thus, there would be no significant changes to neighborhood character under the future without the proposed action.

H.3 Future With the Proposed Action

The proposed action would have no significant impact on the neighborhood character of the study area for the following reasons:

- Land Use/Zoning/Public Policy – The proposed action would have no effect on, and is compatible with, the industrial zoning for the site. The site is relatively removed from public view by its location and configuration. The use of the site's waterfront potential for a WPCP is consistent with coastal zone policy and NYC's Local Waterfront Revitalization Program. Refer to Subsection A of this EAS for additional details on land use, zoning, and public policy.

- Socioeconomics – Operations under the proposed action would remain essentially unchanged and thus would not affect existing socioeconomic conditions in the study area. See Subsection B for additional details on socioeconomics.

- Historic Resources – The EMS Pumping Systems are to be installed adjacent to and in the existing screening channels located in the Pump & Blower Building, and would not cause physical change to any historic resources or its setting. Implementation of the other elements of the proposed action would result in direct effects on New York City Landmark and National Register-eligible Aeration Tanks Nos. 1-2 and Digester Tanks. To avoid significant adverse impacts, a NYCLPC/NYSHPO historic structure documentation would be undertaken to record the eligible tanks and surrounding features prior to project implementation. The project would have no impacts on archaeological resources because Tallman Island WPCP has been highly disturbed over time. (See Subsection F for additional details on historic resources).

- Urban Design/Visual Resources – The proposed action would introduce new, functionally designed structures that are in keeping with the utilitarian character of the site. The new RAS/Blower Building, to be located in the center of the plant, would reach an elevation for its main roof of about 23 feet (with three small mechanical structures on the roof reaching 33 feet). Three new electrical structures ranging in height from 34 feet (Electrical Building) to 15 feet (East and West Battery Electrical Buildings) and two new 1.6 MW diesel generators (15 feet) would be located within the existing plant. Their location within the existing WPCP would be obscured to viewers off-site by existing structures and vegetation, although the new Electrical Building on the east side of the plant's waterfront would be visible from the east side of Powell's Cove and Whitestone Bridge. This would have a minor visual impact. The new 27 kV Substation, to be located west of the existing main gate of the WPCP and parallel to Powell's Cove Boulevard, would eliminate approximately 0.25 acres of the 2.75 acres of DEP-owned, publicly-accessible open space to the west of the WPCP. This substation is still to be fully designed and has been preliminarily approved by the NYC Arts Commission, pending the development of an associated landscaping plan. Preliminary designs show the structure would reach a height of about 26 feet on its eastern end, and about 23 feet on its western end, which is immediately adjacent to the open space area. This new structure would be visible from Powell's Cove Boulevard and those several residences that front the boulevard for two blocks east of 127th Street. As noted in Subsection E (Shadows), this new structure would introduce morning shadows into the portion of this open space area east of 127th Street (extended). This grassy area of the park would be minimally affected by the shadows, while the remaining more significant areas of the park that provide waterfront access and a high point for viewing, would be unaffected. Thus, the construction of the substation would not create significant adverse impacts on the existing built environment, and visual resources within the study area would remain relatively unchanged

compared to the future without the proposed action. (See Subsection E for a discussion of shadow impacts and G for additional details on urban design and visual resources).

- Transportation – The proposed action is not anticipated to increase daily automobile or truck trips after construction. Consequently, the proposed action would have no adverse impacts on the existing traffic network or transit and pedestrian flows. See Subsection O and P for additional details on traffic, parking, transit and pedestrians.

- Noise – There would be no increases of noise greater than the CEQR threshold of 3 dBA from either off-site mobile sources or on-site stationary sources after construction. See Subsection R for additional details on noise.

In summary, there is no potential for significant adverse neighborhood character impacts.

I. Natural Resources

I.1 Existing Conditions

Aquatic Environment

The Tallman Island WPCP is bordered to the north by the East River and to the east by Powell's Cove. Powell's Cove is a small bay that measures approximately 0.4 mi (0.6 km) in width and opens to meet the East River. A review of the National Oceanic and Atmospheric Administration (NOAA) nautical chart for the project area shows that immediately waterward of Tallman Island's bulkheads there are tidal mudflats exposed during lower portions of the tidal cycle. Tidal mudflats are also present in Powell's Cove during lower portions of the tidal cycle (NOAA, 2000). Based on data obtained from the National Ocean Service's tidal benchmark, located in Willets Point (NOS, 2003), and the NOAA nautical chart, the mean tidal range for this area of the East River is approximately 7.1 ft (2.2 m). Depths within Powell's Cove range between 0-5 ft. The East River and Powell Cove shorelines adjacent to the WPCP have previously been extensively filled, with man-made bulkheads existing along these shorelines adjacent to the WPCP (New York City, Winter 1993).

Adjoining shorelines along Powell's Cove have natural shorelines, with small pockets of tidal wetlands. Review of the United States Fish and Wildlife's (USFWS) Wetland Mapping Website shows that a mapped wetland is located at the southern end of Powell's Cove, approximately 0.3 mi (0.5 km) south of the WPCP (USFWS, 2005). The wetland is labeled as E2FLN (Estuarine, Intertidal, Flat, Regular). NYCDPR indicated that Powell's Cove Park contains 17.3 ac (7 ha) of submerged marshlands (NYCDPR, 2005). The waters of the East River around Tallman Island and within Powell's Cove are classified as E1UBL (Estuarine, Subtidal, Unconsolidated, Subtidal) (USFWS, 2005).

The NYCDEP performs bi-annual sampling of the water quality within New York Harbor. The NYCDEP identified the portion of the East River from Roosevelt Island to the Throgs Neck Bridge as the Upper East River. As per the information presented in the 2002 New York Harbor Water Quality Report, the Upper East River is classified as "I". Waters classified as I are suitable for boating and fishing, but not swimming and shellfishing (NYCDEP, 2003).

The NYCDEP also monitors the waters from the Throgs Neck Bridge east to Hart Island. These waters are identified as the western Long Island Sound and are classified as suitable for swimming and primary contact (NYCDEP, 2003).

Water quality in the Upper East River and Western Long Island Sound has been improving over the last 30 years, with a dramatic decrease in fecal coliform levels (NYSDEC, 2003). The 2002 New York Harbor Water Quality Report identified "low dissolved oxygen levels as the most significant water quality issues in the region (Western Long Island Sound)". Nitrogen has been identified as the primary cause of low DO levels; however, nitrogen has been declining from both point and non-point sources since 1992 (NYCDEP, 2003).

Terrestrial Environment

Within the WPCP, terrestrial natural resources are limited and consist of maintained lawns with ornamental trees and shrubs. These areas are often located along interior roadways and around buildings.

West of the plant, there is a NYCDEP-owned open space area that is approximately 2.75-acres. The open space area is also comprised of maintained lawns, with a line of planted evergreen and deciduous trees along the western fence line of the WPCP. The terrestrial habitats of the WPCP are of limited ecological value. These habitats would be utilized by fauna typically found in urban environments (e.g. crows and squirrels).

Review of the USFWS' Wetland Mapping Website indicated that no mapped freshwater wetlands are located within and/or immediately adjacent to the WPCP (USFWS, 2005).

Threatened and Endangered Species

In 2000, as part of the initial investigations for this project, federal and state agencies were contacted and requested to provide information on the known occurrence(s) of threatened or endangered species of habitats of concern at or near the Tallman Island WPCP.

In order to update these findings, in January 2005, letters requesting information on the presence of threatened and endangered species or habitats of concern were sent to the USFWS, NYSDEC, and NOAA – Fisheries. The responses indicate that there are no threatened and endangered species within proximity of the project site (See response letters in Attachment E).

The National Marine Fisheries Service indicated that the waters around the site are designated as Essential Fish Habitat. This project will not require disturbance to aquatic habitat, nor cause an increase in the water volume discharge, nor a decline in water quality; in fact, the BNR process improvements are intended to improve the quality of the water discharged into the East River.

The shoreline adjacent to the WPCP and within Powell's Cove is included within the New York City Comprehensive Waterfront Revitalization Program's Special Natural Waterfront Area. Refer to Subsection K for additional details.

I.2 Future Without the Proposed Action

The continued operation of the Tallman Island WPCP facilities in its present state could inhibit the ability of the facility to meet its water-quality based SPDES discharge limitations for sewage pollutants treated. Thus, implementation of this alternative could lead to a decrease in the quality of wastewater discharge and have a negative affect on local water quality and natural resources.

I.3 Future With the Proposed Action

The key objective of the proposed action is the improvement of the Tallman Island WPCP facilities to ensure continued compliance with current water-quality based, SPDES, permit limitations. The installation of the EMS Pumping System Project would ensure continued functioning of the WPCP in times of a main sewage pump and/or engine unit failure, and in turn, ensure no degradation to water quality. The BNR would not change the effluent's temperature discharged to the East River. The BNR process is designed to remove nitrogen from the wastewater only. The current nitrogen levels in the western Long Island Sound are attributed to the cause low dissolved oxygen (DO) readings. Thus, the implementation of the project would be expected to indirectly improve the quality of the East River and Long Island Sound.

Total residual chlorine (TRC) is discharged in the effluent leaving a WPCP as the result of a disinfection process prior to discharge. For the last two years, NYCDEP has been making various operation changes at all fourteen WPCPs to lower TRC in their discharge effluent in anticipation of forthcoming TRC limits being lowered in the future. The average TRC level at Tallman Island WPCP for the last year has been 0.77 milligram per liter (mg/L). The proposed action when completed would increase the level of TRC currently found in the effluent at Tallman Island WPCP as that the BNR process would lower the concentration of ammonia available in the effluent being sent to the disinfection process. It is estimated that with the proposed action TRC levels at Tallman Island would increase to approximately 1.0 mg/L. However, this increase in TRC would not exceed its historic levels that were discharged prior to the last two years which were 1.5 mg/L. Therefore, there would is no potential for significant adverse impacts to water quality.

Prior to beginning construction all necessary approvals and plans (e.g., Erosion and Sediment Control Plan, etc.) would be obtained. During construction best management practices (BMPs) would be implemented to reduce the potential for impacts to natural resources. No construction activities are planned to occur waterward and/or along the bulkhead line. Thus, it is anticipated that no physical direct or indirect impacts would occur to the marine environment and/or tidal wetlands.

The terrestrial resources that would be lost through the proposed upgrades would consist of vegetated areas (trees, grass, shrubs, etc.) of limited ecological value. Based on historical photographs of the Tallman Island Water Pollution Control Plant it is believed that none of the trees on site pre-date the major expansion of the plant that was done in 1965. This construction included the construction of the West Battery and included the creation of the current form of the green space west of the plant and the construction of the west fence line. During this construction almost all of the plant area was either under construction or used for construction staging.

A landscaping plan, currently under development, would replace the lost trees; shrubs would also be planted to replace the ones lost from construction of the proposed action. Grass would be established where necessary. The plan will be reviewed with NYCDEP to insure that it adequately replaces the trees and shrubs lost from construction of the proposed action. Details of the plan are provided in the following discussion:

New trees will be a mixture of evergreen and deciduous material. Trees will be installed in sizes ranging from 5-8 foot height for the evergreens and 2-3 inch caliper for deciduous. Species may include but not limited to the following: birch, hawthorn, ash, honeylocust, pine, and elms. A total of approximately 110 new trees will be planted on site.

Shrub plantings shall include; cotoneaster, sweet-fern, scotch broom, junipers, bayberry, and shrubby rose. Shrub plantings shall be used chiefly as dense ground cover and will be planted 3-5 feet on center according to species and growth rates. Plant containers shall be a mixture of 15-18" and 18-24" sizes.

Additional plantings of perennials and ornamental grasses will also be installed providing seasonal interest and masses of color and texture. These plants will be installed as mostly quart and 2-3 gallon size.

In general, all plants shall be tolerant of seaside and windy locations.

- 27KV Substation
  - Six mature deciduous trees will be removed along the existing fence line.
  - Two evergreen trees will be removed along the existing fence line.
  - An additional eight wild scrub trees will be removed along the fence line. These trees appear to be of secondary succession and are growing wild in an uncontrolled manner.
  - Approximately 25 new trees and low woody and non-woody ground covers will be planted around the new Substation building.

- Central Area of Plant:
  - Three mature deciduous trees will be removed in the area of the RAS/Blower building.
  - Three additional deciduous trees will be removed in the central area as part of the utility work and construction staging.
  - Approximately 25 new trees, shrubs, low woody and non-woody ground covers will be planted in this area.

- Field Office Complex:
  - Four mature evergreen trees and three small deciduous trees will be removed to allow for the construction of the Field Office Complex.
  - At the end of the construction period a similar number of trees will be installed to replace the original vegetation.

- Electrical Building at East Side of Property:
  - Two mature pine trees and three small deciduous trees will be removed in this area.
  - Five new trees will be planted in this area.

- Existing Substation Building
  - Eight unhealthy wild scrub trees will be removed to allow for the construction of the new aboveground fuel storage area.
  - 8-9 new trees and low woody and non-woody ground covers will be planted in this area.

- Landscaping in NYCDEP-owned Open Space west of plant:
  - All of the existing wild scrub trees that are currently growing along the fence line and through the fence will be removed.
  - Low wild shrubs will also be removed.
  - Approximately twelve existing evergreen trees in this location will remain and will be pruned to shape.
  - Grassed areas that are damaged by construction will be restored.
  - 35 new trees will be planted along a new fence. Low native woody and non-woody ground covers will be planted under the trees.

The proposed action would be directly beneficial to East River water quality, and, in turn, indirectly beneficial to the biota of the surrounding waters. It is the intent of the NYCDEP to continue coordination with state and federal agencies regarding the protection of identified natural resources to the extent possible. Continued coordination with the agencies regarding the peregrine falcon may identify specific mitigation measures to be implemented. Therefore, there is no potential for significant adverse natural resources impacts.

J. Hazardous Materials

For hazardous materials, the objective of CEQR review is to determine whether the proposed action could lead to increased exposure of people or the environment to hazardous materials. A hazardous material is any substance that poses a threat to human (public) health or the environment. Substances of concern could, but are not limited to, include heavy metals; volatile and semi volatile organic compounds; methane; polychlorinated biphenyls (PCBs); and chemical reactive, ignitable, corrosive, or toxic substances.

J.1 Existing Conditions

As part of standard operations, relatively large quantities of hazardous materials are utilized on a regular basis at the Tallman Island WPCP. The Hazardous Material Investigation and Preliminary Site Assessment (BBL/TAMS, March 2000) included a tabulation of existing materials at the site. Materials handled, stored, and/or utilized include a variety of petroleum products (fuel oils, lubricant oils, hydraulic oils, diesel fuel), solvents (thinners, cleaners), ferric chloride (used in sludge dewatering processes), and sodium hypochlorite (used for wastewater disinfection and control of wastewater foaming). The more substantial storage facilities include the following:

Petroleum Products
- Three (3) 25,000-gallon fuel oil underground storage tanks (UST).
- Two (2) 900-gallon, two (2) 800-gallon, and one (1) 50-gallon waste oil aboveground storage tanks (AST).
- One (1) 775-gallon and one (1) 550-gallon hydraulic oil systems.
- Eleven (11) 250-gallon engine oil totes.
- Approximately 300 (300) 55-gallon containers.
- Numerous miscellaneous containers smaller than 10 gallons.

Solvents
- Ten (10) to twenty (20) 55-gallon containers.
- Numerous miscellaneous containers smaller than 10 gallons.

Ferric chloride
- One (1) 6,200-gallon Aboveground Storage Tank (AST).

Sodium hypochlorite
- Three (3) 6,800-gallon AST.
- One (1) 1,500-gallon AST.
- One (1) 4,000-gallon Sodium Hydroxide AST.

Also present at the site are various other materials including welding gas cylinders, non-incandescent lighting fixtures, batteries, and construction materials. In general, the types and quantities of materials

stored, handled, and used at the Tallman Island WPCP are appropriate for the size and type of mechanical equipment and facilities operated and maintained for wastewater treatment processes. No significant impacts due to the presence of these materials are anticipated since appropriate measures would be employed to handle potential hazardous material issues.
Based on the results of a Preliminary Site Assessment, lead-based paints and asbestos or presumed asbestos-containing materials were found to exist on or within existing building structures and equipment at most buildings on the site.

J.2 Future Without the Proposed Action

Under the future without the proposed action, the amount of petroleum hazardous materials stored, handled, or used at the Tallman Island WPCP would remain the same or decrease due to increased waste minimization practices and the conversion to electric motors. Use and handling practices for other chemicals would be anticipated to remain the same as existing conditions.

Lead-based paint and asbestos or presumed asbestos-containing materials would continue to exist on or within existing building structures and equipment. If undisturbed and intact, such materials would not present a significant public health hazard. However, if disturbed, or otherwise provided a pathway for human exposure, such materials are generally considered to be hazardous. Further, constituents of concern in site soils would continue to exist.

J.3 Future With the Proposed Action

The proposed action would not result in significant new, increased influx or generation of any hazardous materials to the site or surrounding neighborhood. All soil removed from the site would be properly disposed of in accordance with all applicable regulations. Excavated soils would be temporarily stockpiled and covered with polyethylene prior to disposal. Stockpiled soils from the EMS Pumping System Project would be used as fill to restore that area of the site. During grading activities, dust suppression would be maintained.

The use of fuel oils would decline significantly with the conversion of the main engine drive units from oil burning/digester gas to electric motors.

The proposed action is not anticipated to result in any additional hazardous material and public health-related adverse impacts. However, the hazardous material survey identified miscellaneous debris, containerized chemicals, lead-containing paint, and ACM associated with site structures. These materials have the potential to impact construction workers, and would be removed from the work area prior to start of construction or effectively managed to protect site workers and avoid adverse impact to the environment. Lead based paints and/or ACM removal/disposal activities undertaken at this site would be completed in accordance with all applicable federal, state and local regulations.

During September/October 1998 field investigations, a total of 8 test pits (depths from 7 to 15 vertical feet below grade) and 20 soil borings (depths ranging from 5 to 25 vertical feet below grade) were completed in areas of proposed construction. Composite soil samples were collected and analyzed for Resource Conservation and Recovery Act (RCRA) hazardous waste characteristics and total petroleum hydrocarbons (TPH) by the United States Environmental Protection Agency's (USEPA) Method 418.1. Individual soil samples collected from each test pit were analyzed for Target Compound List/Target Analyte List (TCL/TAL) organics and inorganic constituents, PCBs, and pesticides. In addition, nine monitoring wells were installed in the site, with groundwater from five of the wells sampled for TCL/TAP parameters and NYCDEP sewer discharge criteria. No groundwater sampling was conducted

for the remaining groundwater wells due to low groundwater yields at these locations. Key results of this testing are as follows:

- Soil samples from soil boring CB-1 (0 to 5 feet below grade) indicated lead amounts in excess of the NYSDEC Hazardous Waste Level. The soil in this area would be excavated six (6) feet radially and six (6) feet deep, and properly disposed of at a facility permitted to accept hazardous waste.

- Elevated levels of Semi-Volatile Organic Compounds (SVOCs) and heavy metals exceeding NYSDEC Technical and Administrative Guidance Memorandum (TAGM 4046) Guidance Levels were detected in the soil samples. A site specific HASP would be prepared on the basis of worker exposure to these contaminants during construction of the plant upgrade.

Two test boring samples evaluated in the April 2000 report were obtained in the vicinity of the Stage I pump pit, CR-1, within 50 feet of the pit and S-3, within 90 feet of the pit. Neither sample exhibited characteristics of hazardous waste as defined by RCRA or New York State. As such, the tested materials may meet the chemical criteria for use as daily landfill cover under New York City Department of Sanitation Inter-Agency Cover Program (IACP).

Additional environmental work has been proposed at the Tallman Island WPCP in areas where soils had not previously been investigated to establish disposal and/or occupational safety characteristics. There are four areas of additional work to be performed under the proposed action. These areas are located:

- Along the bulkhead adjacent to the south sludge thickeners (Proposed Sludge Area Electrical Building).
- North of the chlorine contact tank (Proposed Centrate Pumping Station).
- Along the sewer line west of the thickener splitting structure (Proposed Blower Building).
- Between the new storage building and Powell's Cove Boulevard (Proposed 27 kV Substation).

This program will use similar protocols and procedures as the prior studies documented in the year 2000 at the Tallman Island WPCP site, modified per the October 2005 addendum. The October 2005 addendum, which includes a sampling protocol and sample location plan, was reviewed and approved by BEPA with the addition of the following provisions:

- Prior to starting the subsurface investigation, the Contractor shall mark-out the utilities for both overhead and subsurface structures in the area..

- For the four boring samples indicated on Figure 1 of the Boring Plan, two samples will be taken: one sample at the surface and one at the highest PID reading or groundwater interface. Borings shall be completed using the hollow-stem auger per Technical Provision T-06 c. with the procedures per Technical Provision T-10 to a depth of about 35 feet. In addition, for the TI-2 excavated soil, two soil samples (hand augured to collect composite samples) will be taken from the interior portion of the stockpile as shown in Figure 1. Sampling shall be performed per Technical Provision T-06 with the procedures per Technical Provision T-11.

- Soil and groundwater samples shall be submitted to a NYSDOH ELAP-certified laboratory for a full analysis of volatile organic compounds (VOCs) by Method 8260, (SVOCs) (base neutrals and acid extractable) by Method 8270, Pesticides/PCBs by Method 8081/8082, and TAL metals.

Upon completion of sampling, NYCDEP will review the results report and implement a Remedial Action Plan and Construction Health and Safety Plan. NYCDEP will conduct an additional Phase II Environmental Site Assessment prior to construction activities. With the implementation of a NYCDEP Phase II Environmental Site Assessment, Remediation Action Plan, and Construction Health and Safety Plan prior to the commencement of construction, and the proper handling of materials related to plant operations, there will be no potential for significant hazardous materials impacts as a result of the proposed action.

K. Waterfront Revitalization Program

K.1 Existing Conditions

The Tallman Island WPCP is located within the coastal zone boundary of New York City. New York City's Local Waterfront Revitalization Program (LWRP) aims to establish coastal zone boundaries and provide for consistency review with city, state, and federal policies. The LWRP includes a set of policy statements that address the waterfront's important resources.

In the NYCDCP study entitled New York City Comprehensive Waterfront Plan, Reclaiming the Water's Edge (1993) the location of the Tallman Island WPCP is designated under the public waterfront category in the map accompanying the plan. It is shown as an area providing public access, namely the bulkhead walkway area and the existing pier.

In the Plan for the Queens Waterfront published by NYCDCP in 1994 the Tallman Island WPCP is located in Reach 10 (Queens North Shore). The plan identifies the site as a municipal WPCP, an industrial facility. The plan notes the facility's design capacity of 80 million gallons per day (mgd) and average treatment capacity of 67 mgd. The plan recommends that NYCDEP pursue the removal of dewatered sludge by barge, rather than by truck. The Plan also notes the significance of this reach as a "natural waterfront" and notes plans for Powell's Cove Park, that would include an existing two-acre mapped park plus a 31.7ac "Powell's Cove Site", private property to be acquired, and a number of unbuilt streets to be demapped. Attachment B, Figure 11 - Coastal Zone shows a reproduction of the plan's Figure 10.8, Reach 10/Queens North Shore Recommendations: Powell's Cove (NYC, 1994).

The City's Waterfront Revitalization Program was revised in 1999 and the new map for the East River - Long Island Sound shows Powell's Cove as being designated as a "Special Natural Waterfront Area" (Figure 14 of Attachment B).

K.2 Future Without The Proposed Action

The continued operation of the Tallman Island WPCP could inhibit the ability of the facility to meet its water-quality based SPDES discharge limitations. This could lead to a decrease in the quality of wastewater discharge and have a negative affect on local water quality. In turn, this could hinder the intentions of certain policies of the Waterfront Revitalization Program.

K.3 Future With the Proposed Action

The continued use of the site's waterfront potential for water pollution control purposes is consistent with and would advance the NYS and NYC Waterfront Revitalization Policies. The Tallman Island WPCP is well situated for its continuing operation. It is located along the East River allowing for the effective and economical discharge of its treated wastewaters, and has been in operation since 1939. The proposed action is an upgrade to the existing facilities and to ensure continuous functioning of the WPCP in event

of breakdowns of main sewage pumps and/or engine units. This would improve the facility's operations, ensuring reliable and effective treatment of wastewater. This would improve East River water quality and, in turn, protect and restore East River ecology as well as indirectly promotes waterway for commercial and recreational uses. Therefore, there is no anticipated significant adverse impact with regard to the policies outlined in the city's Waterfront Revitalization Program. Attachment C presents the detailed New York City Waterfront Revitalization Program Consistency Assessment Form.

L. Infrastructure

The purpose of the CEQR water-related infrastructure review is to identify the potential for the action to directly or indirectly eliminate, alter, or overstress existing infrastructure facilities including wastewater treatment, water supply, and stormwater management systems.

L.1 Existing Conditions

Wastewater Treatment

The Tallman Island WPCP provides wastewater treatment for a service area encompassing the northeast portion of the Borough of Queens, including approximately 17,400 acres of land with nearly 400,000 residents. The existing facility is designed to provide wastewater treatment for up to 80 mgd and 160 mgd during wet weather.

Sanitary sewage generated at the Tallman Island WPCP itself by staff or visitors (typically a total of 60 to 80 persons per day) is treated in conjunction with the significantly larger volume of sewage from the WPCP's tributary service area.

Water Supply

Potable water service to the Tallman Island WPCP is provided by the New York City Water Supply System via a 24-inch diameter service main from Powell's Cove Boulevard. Existing valving on this main allows the isolation and shutoff of this supply to the WPCP without interruption to neighboring properties. Typical water usage for the facility is approximately 450,000 gallons per day, which was obtained from actual plant city water billing records since flows of these sources are not metered. Uses of City water at the facility currently include pump ring flush, pump seal water systems, once through engine cooling water, odor control scrubber system, compressor cooling, miscellaneous process uses; as well as employee/visitor sanitary facilities (toilets, washbasins, and showers), potable water for employee/visitor kitchen and drinking, and fire protection systems.

Stormwater Control

No regional stormwater control facilities are known to be located on or in the immediate vicinity of the Tallman Island WPCP. Local stormwater facilities on the Tallman Island WPCP site consist of on-site permitted catch basins and storm sewers discharging directly to the East River.

L.2 Future Without the Proposed Action

In the event of main sewage pump/engine drive units failure, effective wastewater treatment for the service area could be at risk if the EMS Pumping Systems were not installed. The ability of the Tallman Island WPCP to provide treatment to levels required by the current SPDES and water quality goals for the

East River could also be jeopardized without the proposed action due to increased potential for improper treatment due to mechanical and process failures associated with older equipment and facilities.

L.3 Future With the Proposed Action

Sewage Treatment

The proposed action is an upgrade to the existing facilities and would improve the facility's operations, ensuring a reliable and effective treatment of wastewater for the Tallman Island WPCP's service area. Upgrades include providing EMS Pumping Systems to pump the dry-weather and wet-weather flows (up to 120 mgd); step-feed BNR process; and upgrades and replacements of various facilities and infrastructure such as sewage pumps, piping and valves. Based on these improvements and no discernible increase in wastewater generation at the facility with the proposed action, no significant, adverse infrastructure impacts would occur.

Water Supply

The plumbing modifications and improvements included in the proposed project are intended to update facility water plumbing to current codes and would result in beneficial reductions in water loss and overall usage at the facility.

Stormwater Management

In general, the proposed project is not anticipated to result in discernible increases in stormwater runoff from the site, as a majority of the site affected by the proposed project is currently paved or otherwise impervious. Most of the plant's storm water system is currently directed to the headworks of the facility where it is treated in conjunction with influent sewage, thereby providing increased protection for the East River from stormwater-transported pollutants generated at the Tallman Island WPCP site.

Two catch basins would be re-directed as part of the proposed action. These catch basins are located in the area of the mixed flow pump station and the proposed RAS/Blower Building. The new catch basins would be connected to the plant drain and would not affect the existing wastewater operations due to the small contributing impervious area. The proposed redirection of stormwater for treatment through the plant processes would not be a significant increase in volume and no modifications to the SPDES permit would be necessary for this work.

Adequate infrastructure exists to support the proposed action. In the event that severely deteriorated existing infrastructure facilities, such as water mains and/or sewage and drainage piping are encountered or discovered during project construction, such facilities would be repaired, rehabilitated, or replaced as appropriate to ensure their continued long-term operation.

M. Solid Waste and Sanitation Services

M.1 Existing Conditions

Under current operations, the largest amount of solid waste at the Tallman Island WPCP is screenings (debris) removed from the wastewater at the Powell's Cove Boulevard and the Main Influent Screens. Screenings are generally stored in plastic-wrapped six-cubic yard containers and removed weekly from these two locations. The typical volume of screenings disposed is approximately 15-25 cubic yards per day, depending on the volume of sewage flows processed through the WPCP.

NYCDEP policy requires that screenings removed from its wastewater treatment facilities be stored in 30-cubic yard containers prior to off-site disposal for efficiency purposes. Under current operations, the Tallman Island WPCP does not have facilities to accommodate the requirements.

Additional solid waste is generated by employees and visitors at the facility (typically a total of 60 to 80 persons per day). These solid wastes are collected from various receptacles around the WPCP and consolidated for NYCDOS collection and disposal. Recycling and waste management/prevention policies, in conformity with the City's Comprehensive Solid Waste Management Plan, are practiced by WPCP employees and visitors. The volumes produced by WPCP employees and visitors are assumed to be typical for commercial office employees (less than 60 pounds per week per person) and do not burden existing NYCDOS services.

M.2 Future Without the Proposed Action

Future conditions without proposed action would remain similar to the existing conditions. Volumes of solid wastes produced from screening processes would remain constant, with modest fluctuations based on sewage flow received and processed. Solid waste generated by employees and visitors would also remain the same without the proposed action.

M.3 Future With the Proposed Action

The overall volume of screenings removed from the wastewater at the Tallman Island WPCP would not increase or decrease as a result of the proposed action. There would be no increase of staff at the WPCP, and therefore no change in solid waste volumes generated on the site.

There would be no adverse impacts associated with the proposed action on solid waste and sanitation services. It is anticipated that the WPCP staff, in conformance with NYCDEP policy, would continue to employ sound recycling, waste minimization, and proper solid waste disposal practices in daily operations at the facility.

N. Energy

N.1 Existing Conditions

Energy usage at the plant consists of electricity, and fuel oil serving engines and boilers; digester gas and natural gas can also be used, as economically appropriate. Consolidated Edison supplies power supply to the Tallman Island WPCP through two 4 kilovolt (kV), three-phase four-wire, and 60 Hertz (Hz) service feeders. Two (2) 500 kilovolt-amps (kVA) transformers in vaults in the Pump and Blower Building distribute 208 volt service throughout the WPCP.

N.2 Future Without the Proposed Action

If the proposed action is not implemented, power and energy usage at the facility would continue at existing levels.

N.3 Future With the Proposed Action

The proposed project would include additional buildings, facilities, equipment replacement, modification, and/or upgrade of equipment and processes.

Power for the EMS Pumping System would be provided by the existing Con Ed service to the plant. In the event of a Main Sewage Pump failure and the need to run the EMS Pumping System, existing electrical loads at the facility, such as the dewatering building, would be disconnected (or de-loaded from the existing Con Ed Service) so that sufficient power would be available for the operation of the EMS Pumping System.

Power for the latter part of the EMS Pumping System Project (Stage II) would be provided by two new on-site 1.6 MW diesel generators, located adjacent to the Pump & Blower Building. This Stage II Pumping System would only be used in case of a complete failure of the existing Main Sewage Pumps. In this case, the diesel-fueled electric generators, instead of the dual fuel engines would power the Pumping System.

The operation of the Pumping System can be accommodated by Con Edison with operation adjustments in times of main sewage pump and/or engine drive units failure emergencies. These conditions would not overtax or otherwise disrupt or impact energy supplies in the vicinity of the proposed action.

Other than the operation of EMS Pumping System, a shift from oil- and gas- driven engines to electric motors is proposed, resulting in a decrease in the consumption of oil and gas (and related on-site emissions) but an increased reliance on electrical power provided by Con Edison. Con Edison has indicated that to serve the proposed project, it would have to extend four new 27 kV below ground feeders from its existing service, about one mile from the Tallman Island WPCP along a route yet to be determined. (Chow, Spencer, Customer Project Manager, Con Ed.)

Energy use by the engine-driven pumps and blowers would be replaced by electric-driven pumps and blowers as part of the proposed action. This conversion would result in a more efficient use of energy and a decrease in its use at the site for this purpose. However, loss of reusable recovered heat from the pump and blower engines (that would be removed) would be replaced by two 350-horsepower boilers. These boilers would be gas-fired and would only be used during the heating season.

The shift to electric motors and the other upgrades to equipment and facilities would enhance energy resource conservation. The proposed action would not overtax or otherwise disrupt or impact energy supplies in the vicinity of the proposed action. It is expected that the proposed action would, overall, result in a net decrease in energy use (on- and off-site). Therefore, there would be no significant adverse effects on energy use as a result of the proposed action.

O. Traffic and Parking

O.1 Existing Conditions

Transportation Network

The entrance to the Tallman Island WPCP is located at the intersection of Powell's Cove Boulevard and 127th Street in Queens, NY. Regional access to the facility is provided by the Whitestone Expressway (I-678) which serves as the main travel corridor for the nearby Whitestone Bridge (to the Bronx and New England), Van Wyck Expressway (to JFK International Airport), Grand Central Parkway (to LaGuardia Airport and Triborough Bridge), and Long Island Expressway (I-495). The main local access route from the Whitestone Expressway (I-678) to the site is 20th Avenue, which provides full interchange access to both the eastbound and westbound Whitestone Expressway. From 20th Avenue direct access is provided to the facility via 127th Street. Figure 12 - Transportation Network (Attachment B), shows the existing local transportation network.

The existing local New York City Department of Transportation (NYCDOT) designated truck routes are 14th Avenue, 15th Avenue, and College Point Boulevard. Truck traffic is prohibited east of the Whitestone Expressway along 20th Avenue, but is permitted west of the Whitestone Expressway.
A general description of the local street network is provided below:

- 20th Avenue - 20th Avenue is a four-lane (two in each direction) arterial providing east/west movement between the Whitestone Expressway and 130th Street. Parking is not permitted and the speed limit is posted as 40 mph along this segment (between I-678 and 130th Street). Ingress and egress to a shopping plaza on the north side of 20th Avenue is controlled by traffic signals with exclusive left-turn and right-turn lanes on 20th Avenue. The roadway configuration of 20th Avenue changes west of 130th Street where it narrows to a two-lane roadway with a posted speed limit of 30 mph. Curbside parking is not permitted along 20th Avenue west of 130th Street. Land use along this segment of 20th Street is primarily residential, including walk-up multiple-family, two-family, and single family attached housing.

- 127th Street - From 20th Avenue access to the Tallman Island WPCP is provided via 127th Street. 127th Street is a two-lane local road with curbside parking permitted along its west side between 20th Avenue and 14th Avenue. The area between 20th Avenue and 14th Avenue, and between 126th Street and 132nd Street is predominately industrial with some limited retail/commercial uses. North of 14th Avenue, 127th Street widens to afford parking on both sides. Due to low traffic volumes, intersections north of 14th Avenue are primarily stop-controlled. An elementary school (PS 129) is located on 128th Street between 7th and 9th Avenue.

- Powell's Cove Boulevard - Powell's Cove Boulevard, an east-west road between 7th Avenue and 121st Street, is four lanes wide along most of its length and runs along the waterfront. The Tallman Island WPCP and a marina are located on its north side, and residential uses on the south side. Curbside parking is available along the entire length of the roadway.

Existing Tallman Island WPCP Traffic Characteristics

Employee Trips

Facility operations require three shifts of staff, which extend from: 7 am - 3 pm; 3 pm - 11 pm; and 11 pm - 7 am. The facility employs a maximum of 45 people for the 7 am - 3 pm day shift during the weekdays. Eight people work the evening and overnight shift each on weekdays. All weekend shifts are staffed by eight employees. Due to the timing of the shift changes, employee trips take place at hours outside the typical peak hours in the study area.

Facility Operations Trips

In addition to the employee trips, the facility also generates a small number of truck and automobile trips necessary for its operations. These trips, the types of vehicles and their frequency, are described below:

- Fuel Oil Delivery - Fuel oil delivery trips occur four to eight trips per week (i.e., each round-trip equals two trips) and are made by two-axle, 7,000 gallon capacity trucks. These trips typically take place only on weekdays.

- Chemical Delivery - Chemical delivery trips occur with an average of six (6) or fewer trips per week. These trips are usually made by two-axle trucks and occur on both weekdays and weekends. On a monthly basis, the chemical delivery trips usually include:
    - 14 trips (seven trips in and seven trips out) for sodium hypochloride
    - 2 trips for polymer.
    - 2 trips for ferric chloride.
    - 2 trips for lube oil.

- Residuals Removal - Residuals are carried out daily (six (6) truck trips), including weekends, usually with a two-axle truck.

- Collection Facilities - The collection facilities trips take place both by trucks and cars and are associated with primarily off-site facilities such as pump stations and sewer lines. These trips, which are limited to weekdays, average 50 car trips and 20 truck trips per day.

- Contractor Trips - A daily average of two car trips are made by outside contractors.

O.2 Future Without the Proposed Action

If the proposed action is not implemented, facility operations would remain as they presently are. There would be no change in facility-generated traffic.

O.3 Future With the Proposed Action

Construction Trips

Temporary increases in traffic resulting from truck trips and construction workers are expected. Refer to Subsection S for a discussion of construction-related impacts.

Employee Trips

The proposed changes at the Tallman WPCP would not significantly alter operations and traffic conditions in the study area. Under the proposed action, facility operations would continue to require the three shifts of staff working the same hours on weekdays and weekends, generating the same number of trips.

Similar to existing conditions, as a result of the times of the shift changes, employee trips would continue to take place at hours outside the typical peak hours in the study area.

Facility Operations Trips

Besides the employee trips, the number of truck and car trips associated with facility operations would differ only slightly from existing conditions. These trips, the types of vehicles and their frequency, are described below:

- Fuel Oil Delivery Trips: Fuel oil delivery trips would be reduced from four to eight trips per week at present, to two trips per week under the proposed action. This is a result of the conversion from oil-fired engines to electric motors. The remaining trips would continue to be made by two-axle, 7,000 gallon capacity trucks.

- Chemical Delivery Trips: Under the proposed action, chemical delivery trips would increase slightly, from approximately six truck trips per week to approximately seven truck trips per week. Deliveries would continue to be made by two-axle trucks on both weekdays and weekends. Chemical delivery trips, on a monthly basis, would include:
    - 20 trips (10 trips in and 10 trips out) for sodium hypochloride.
    - 4 trips for sodium hydroxide.
    - 2.2 trips for polymer for dewatering*.
    - 2.2 trips for ferric chloride*.

  (* Ferric chloride and polymer usage would increase by approximately 20 percent)

- Residuals Removal Trips: Residual trips would remain unchanged under the proposed action.

- Collection Facilities Trips: The collection facilities trips would not change under the proposed action.

- Contractor Trips: Compared to the future without the proposed action, the number of trips would increase by two.

Table 2-2 compares the number of vehicle trips of the proposed action to the future without the proposed action condition.

Table 2-2

Number of Facility Vehicle Trips

	Future Without the Proposed Action	Proposed Action
Employees	Weekday Daily: 90 automobile trips (7am - 3pm) 16 automobile trips (3pm - 11pm) 16 automobile trips (11pm - 7 am) Weekend Daily: 16 automobile trips (all shifts)	Weekday Daily: 90 automobile trips (7am - 3pm) 16 automobile trips (3pm - 11pm) 16 automobile trips (11pm - 7 am) Weekend Daily: 16 automobile trips (all shifts)
Fuel Oil Delivery	Weekly: four - eight truck trips	Weekly: two truck trips
Chemical Delivery	Weekly: four - six truck trips	Weekly: six to eight truck trips
Residuals Removal (dewatered sludge)	Daily: six truck trips	Daily: six truck trips
Screenings Removal	Weekly: six truck trips	Weekly: six truck trips
Grit Removal	Daily: two truck trips	Daily: two truck trips
Collection Facilities	Daily: 50 automobile trips 20 truck trips	Daily: 50 automobile trips 20 truck trips
Contractors (Includes TI-2 Contract	Daily: two automobile trips	Daily: four automobile trips
Note: Number of trips represents round trips (into and out of the facility).		

Therefore, the proposed action would see an increase of two daily automobile trips into and out of the Tallman Island WPCP. Truck trips would be comparable to or less than the future without the proposed action. According to the *CEQR Technical Manual* a detailed traffic and parking analysis is not warranted if the proposed action would generate 50 peak hour trip ends (a round trip is two trip ends). Therefore, the proposed action does not warrant a detailed traffic analysis, and would not create significant traffic impacts.

P. Transit and Pedestrians

P.1 Existing Conditions

Public Transportation and Pedestrians

The Q25 bus provides transportation from Herman A. MacNeil Park on Poppenhausen Avenue to 160th Street/Jamaica Avenue. The bus travels along 127th Street from 7th Avenue to 23rd Avenue in College Point. The Q25 operates between the hours of 4:45 am and 12:45 am with a scheduled frequency of 12 minutes during the morning and evening rush hours. Headways decrease to 20 minutes during the non-peak hours and are 30 minutes at nights on weekdays. On weekends, the bus has a daily headway of 30 minutes. The Q20B bus provides service along 14th Avenue between 123rd Street/14th Avenue and Union Street in Flushing and along Main Street to Jamaica. This bus operates between the hours of 5:00 am and 11:00 pm with headways of 15 minutes in the morning rush hour, 23 minutes during the evening rush hour, and 30 minutes at all other times of the day. The Q76 bus operates from 15th Avenue and 132nd Street in College Point to Jamaica via Francis Lewis Boulevard. This bus operates from 5am to 11pm with headway of 7 minutes in the morning peak, 15 minutes in the evening peak and 20 minutes at other times.

The primary pedestrian activity in the study area is walking in the open space area adjacent to the facility. Although numbers are not available, this space gets regular use from people, primarily residents of the neighborhood, walking their dogs or accessing the waterfront.

P.2 Future Without the Proposed Action

There would be no change in transit and pedestrian flows under the future without the proposed action condition as facility operations would remain as they presently are.

P.3 Future With the Proposed Action

When fully operable, the proposed action would not require additional personnel above the existing total of 60 workers. The proposed changes at the Tallman WPCP would not significantly alter the volume of transit and pedestrian trips in the study area. Under the proposed action, facility operations would continue to require the three shifts of staff working the same hours on weekdays and weekends, generating the same number of trips. Similar to existing conditions, as a result of the times of the shift changes, employee trips would continue to take place at hours outside the typical peak hours in the study area. Therefore, the proposed action does not warrant a detailed transit and pedestrian analysis, and would not create significant impacts.

Q. Air Quality

Q.1 Criteria Pollutants

The USEPA, under the requirements of the 1970 Clean Air Act (CAA) as amended in 1977 and 1990, has established National Ambient Air Quality Standards (NAAQS) for six contaminants, referred to as criteria pollutants (40 CFR 50). These are: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), lead (Pb), and sulfur dioxide (SO_2). Areas that meet the NAAQS standard for a criteria pollutant are designated as being "in attainment." Areas where a criteria pollutant level exceeds the NAAQS are designated as being "in non-attainment." O_3 non-attainment areas are categorized based on the severity of their pollution problem--marginal, moderate, serious, severe, or extreme. CO and PM_{10} non-attainment areas are categorized as moderate or serious. When a nonattainment area is redesignated as an attainment area, the CAA requires that a maintenance plan be in place to ensure continued compliance of the corresponding NAAQS. Therefore, a former nonattainment area is also defined as a maintenance area. Where insufficient data exist to determine an area's attainment status, an area is designated unclassifiable (or in attainment).

Existing Conditions

The project study area is located in Queens County, which is currently designated as:

- Moderate nonattainment area for the 8-hour O_3.
- Nonattainment area for $PM_{2.5}$.
- CO maintenance area.
- Attainment area for all other criteria pollutants.

Future Without The Proposed Action

Under the no action condition, the facility will continue to operate under the conditions specified in the Title V permit. No changes are expected in either mobile or stationary source operations within the facility. Therefore, the future without the proposed action would be similar to the existing condition.

Impacts of The Proposed Action

TI-2 Contract: EMS Pumping System Modification & Replacement

Contract TI-2 consists of Stage I and Stage II. In both stages, the proposed pumping system would operate under emergency conditions or when three or more of the existing pump engines are inoperable. The capacity of the Stage I Pumping System would be 66 MGD. The Stage I Pumping System would be electrically powered by Con Ed through the existing transmission network. Therefore, there would be no new air emissions from the Stage I EMS Pumping System, and no detailed air quality impact analysis is warranted under the Stage I conditions.

Under Contract TI-2 Stage II condition, another pumping system with increased capacity of 120 MGD would be installed. Two temporary generators (one is standby) would be installed to provide power to handle the new Stage II EMS Pumping System. During the "pump-around" when both pump systems from Stage I and II would be operating to provide 160 MGD capacity, the Pumping Systems would be powered by the newly constructed 27 kV Con Ed substation.

A State Facility Permit is required to operate the two new temporary generators until the proposed 27 kV substation is online. An air quality analysis was performed for a reasonable worst case condition (RWCC) to support the State Facility Permit. The RWCC consists of the following:

1. All five existing pump engines failed;
2. The proposed Stage II Pumping System kicks in to provide 120 MGD flow; and,
3. All other existing combustion units are operating at capacity.

The proposed generators would be more efficient than the existing pump engines, and a selective catalytic reduction (SCR) post-combustion treatment system would be installed with the proposed generators. Their emissions would meet the Part 227 RACT requirement for NO_x emissions, and would be much lower than the existing pump engines. Consequently, there would be a net reduction in NO_x emissions and an overall improvement on NO_2 impacts when the proposed generators are operated instead of the existing pump engines.

The results of the dispersion modeling for the criteria pollutants for TI-2 contract are presented in Table 2-3. The total concentrations are below the applicable NAAQS except for the annual NO_2 concentration. As shown in the table, the proposed temporary generators would contribute a maximum of 5.7 ug/m3 to the ambient concentrations of NO_2. The potential exceedance is not attributable to the proposed temporary generators; therefore, the generators do not cause a significant impact.

Table 2-3

Proposed Action Predicted Highest Ambient Concentrations for Criteria Pollutants

Averaging Time	Monitored Background	Highest From Proposed Generators	Highest From Other Combustion Units	Highest Total	NAAQS
PM_{10}					
Annual (ug/m^3)	21	0.36	2.56	24	50
24-hour 2nd Highest (ug/m^3)	46	7.6	59.9	106	150
CO					
8-hour Highest (ug/m^3)	2,889	155	6,642	9,531	10,000
1-hour Highest (ug/m^3)	4,229	282	13,267	17,496	40,000
SO_2					
Annual (ug/m^3)	18	2.4	5.6	24	80
24-hour 2nd Highest (ug/m^3)	86	93.2	111.0	197	365
3-hour 2nd Highest (ug/m^3)	165	216.3	224.9	390	1,300
NO_2					
Annual (ug/m^3)	56	5.7[1]	79.8	136	100

[1] The proposed generators do not contribute to the total highest concentration of 136 ug/m^3.

In order to determine potential $PM_{2.5}$ impacts based on the NYCDEP-established incremental impact thresholds from the proposed action, ambient $PM_{2.5}$ concentration levels under baseline and the future with the proposed action conditions were predicted. The predicted incremental $PM_{2.5}$ concentration levels are summarized in Table 2-4 The $PM_{2.5}$ incremental changes from TI-2 contract would not exceed the NYSDEC and NYCDEP significant microscale impact thresholds compared to the baseline condition. The dispersion modeling analysis is described in detail in Attachment G.

Table 2-4

Proposed Action (TI-2) Predicted Microscale Maximum $PM_{2.5}$ Concentrations and Increments

Averaging Time	Baseline Level	Proposed Action	Proposed Action Increment
Annual (ug/m^3)[1]	3.79	2.55	-1.24
24-hour 1st Highest (ug/m^3)	59.1	59.8	0.7
[1] Since the TI-2 Contract would reduce annual $PM^{2.5}$ emission and impact concentrations, a comparison to the annual neighborhood scale impact threshold of 0.1 ug/m^3 is not necessary.			

TI-3 Contract: PUP

CEQR provides air quality assessment guidelines and establishes screening criteria in terms of the change in future condition with the proposed action. The proposed Contract TI-3 would not result in any substantive change in mobile travel patterns or volumes (i.e., two additional automobile trips), no mobile source air quality impacts would occur under the proposed TI-3 contract.

The ambient air quality conditions with respect to the criteria pollutant concentration levels were modeled for all the stationary combustion sources under the TI-3 proposed action. The emission rate estimates and dispersion modeling re described in detail in Attachment G. The modeling results are summarized in Table 2-5.

Table 2-5

Proposed Action (TI-3) Predicted Total Ambient Concentrations for Criteria Pollutants

Averaging Time	Monitored Background	Facility Contributions	Total	NAAQS
PM_{10}				
Annual (ug/m^3)	21	0.31	21	50
24-hour 2^{nd} Highest (ug/m^3)	46	12.7	59	150
CO				
8-hour Highest (ug/m^3)	2,889	195.1	3,084	10,000
1-hour Highest (ug/m^3)	4,229	340.4	4,569	40,000
SO_2				
Annual (ug/m^3)	18	0.56	19	80
24-hour 2^{nd} Highest (ug/m^3)	86	85.9	172	365
3-hour 2^{nd} Highest (ug/m^3)	165	189.1	354	1,300
NO_2				
Annual (ug/m^3)	56	4.7	61	100

The modeling results indicate that no exceedances of the NAAQS are predicted for each criteria pollutant with the proposed action (Table 2-5). In order to determine potential $PM_{2.5}$ impacts based on the NYCDEP-established incremental impact thresholds from the proposed action, ambient $PM_{2.5}$ concentration levels under both baseline and the future with the proposed action conditions were predicted. The predicted incremental $PM_{2.5}$ concentration levels are summarized in Table 2-6. The dispersion modeling analysis is described in detail in Attachment G. The modeling results under the proposed action (TI-3) condition shown in Tables 2-5 and 2-6 conclude:

- No exceedances of the NAAQS were predicted for any of the criteria pollutants.
- $PM_{2.5}$ impacts from the Tallman Island WPCP would be reduced substantially under the proposed project. $PM_{2.5}$ incremental changes would not exceed the NYSDEC and NYCDEP significant microscale impact thresholds compared to the baseline condition. Therefore, no significant microscale $PM_{2.5}$ impacts would result from the proposed action.

Table 2-6

Proposed Action (TI-3) Predicted Microscale Maximum $PM_{2.5}$ Concentrations and Increments

Averaging Time	Baseline Level	Proposed Action	Proposed Action Increment
Annual (ug/m^3)[1]	3.79	0.31	-3.5
24-hour 1st Highest (ug/m^3)	59.1	12.7	-46.4
[1] Since the TI-2 Contract would reduce annual $PM^{2.5}$ emission and impact concentrations, a comparison to the annual neighborhood scale impact threshold of 0.1 ug/m^3 is not necessary.			

Q.2 Non-criteria Pollutants

In addition to the criteria pollutants, there are certain non-criteria pollutants, such as volatile organic compounds (VOCs)-related air toxics, which are considered in this document. NYSDEC has published both Annual and Short-term Guideline Concentrations (AGCs and SGCs) to regulate non-criteria pollutants. Attachment G provides detailed modeling discussions and results.

Facility-wide emissions of air toxics are limited to wastewater process sources and are assessed using the TOXCHEM+ Model. The major-source emissions threshold analysis for hazardous air pollutants (HAP) was performed first. The individual and total annual HAP emissions for the facility are compiled and compared to threshold emission rates for the future without the proposed action and the proposed action conditions. The calculation showed that the facility is not a major source for HAPs. These compiled emission rates associated with each identified air toxic emission source were modeled using the ISCST3 dispersion model to assess both short-term (hourly) and annual average off-site concentrations for each applicable pollutant. A total of 18 compounds are evaluated, as shown in Table H-3 in Attachment H. Dispersion modeling results show that the facility would comply with the applicable SGCs and AGCs except for the following three compounds that exceed their respective AGCs although by less than ten times: Chloroform, 1-4-dichlorobenzene, and Tetrachloroethene. The annual maximum predicted impacts of concentrations for Chloroform, 1-4-dichlorobenzene, and Tetrachloroethene were 7.76, 3.16, and 1.79 times each respective AGC at the WPCP fenceline. A best available control technology (BACT) analysis was performed for these three compounds pursuant to NYSDEC AirGuide 1 (DAR-1). The analysis

assessed the economical and technological feasibility of various emission controls for the compounds. Results of this BACT analysis demonstrated the economic infeasibility of the best available control technologies. Attachment H details air toxic pollutants impact analysis and the BACT analysis.

Q.3 Odor

NYSDEC has published a one-hour nuisance standard of 10 parts per billion (ppb) (14 $\mu g/m^3$) for hydrogen sulfide (H_2S). Additionally, NYCDEP considers a 1 ppb increase of H_2S an indicator of significant odor impacts from wastewater related processes. This 1 ppb guidance level uses H_2S as a surrogate for malodorous compounds at sensitive receptors (e.g., residences, playgrounds, etc.).

The proposed action would involve a BNR upgrade and modification to the water treatment process. It may affect the emissions of odorous compounds. A modeling analysis on H_2S impacts is underway to predict future odor concentrations with the proposed action.

R. Noise

Noise Fundamentals

Noise impacts may occur from numerous sources. Some noise is caused by activities essential to the health, safety, and welfare of a community, such as emergency vehicle sirens, garbage collection operations, and construction and maintenance equipment. Other sources of noise, such as traffic and aircraft, stem from the movement of people and goods, activities essential to the viability of a community as a place to live and do business. Although these and other noise-producing activities are necessary to modern life, the noise they produce is sometimes undesirable and may detract from the quality of the living environment. Noise levels of common sounds are presented in Table 2-7.

Table 2-7

Noise Levels of Common Sources

Noise Source	Level (dBA)
Air Raid Siren at 50 Feet	120
On Platform by Passing Subway	100
On Sidewalk by Passing Heavy Truck or Bus	90
On Sidewalk by Typical Highway	80
On Sidewalk by Passing Automobiles with Mufflers	70
Typical Urban Area	60-70
Typical Suburban Area Background	50-60
Quiet Suburban Area at Night	40-50
Typical Rural Area at Night	30-40
Source: City of New York Environmental Quality Review Technical Manual. October 2001.	

A number of factors affect sound, as it is perceived by the human ear. These include the actual level of the sound (or noise), the frequencies involved, the period of exposure, and changes or fluctuations in the noise levels during exposure. Levels of noise are measured in units called decibels (dB). Since the human

ear cannot perceive all pitches or frequencies equally well, these measures are adjusted or weighted to compensate for the human lack of sensitivity to low-pitched and high-pitched sounds. This adjusted unit is known as the A-weighted decibel, or dBA. The A-weighted network de-emphasizes both very low- and very high-pitched sounds, so the measured levels correlate well with the human perception of loudness.

Human response to changes in noise levels depends on a number of factors, including the quality of the sound, the magnitude of the changes, the time of day at which the changes take place, whether the noise is continuous or intermittent, and the individual's ability to perceive the changes. Human ability to perceive changes in noise levels varies widely with the individual, as does response to the perceived changes. Generally, changes in noise level less than three dBA will barely be perceptible to most listeners, whereas a ten dBA change normally is perceived as a doubling (or halving) of a noise level. These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

Noise Impact Criteria and Methodology

According to the noise impact assessment guideline provided in the *CEQR Technical Manual*, a three (3) dBA L_{eq} increase over the no action condition, although just noticeable to most listeners, is considered an indicator of noise impact significance when the daytime levels is at or above 62 dBA and for all nighttime levels as well. This is the criterion used in the noise analysis for the proposed action.

The CEQR screening methodology for predicting future noise levels is based on the assumption that existing noise levels are dominated by, and are a function of, existing traffic volumes adjacent to individual receptors, and that future noise levels can be determined based on the proportional increase in hourly traffic associated with a project. For example, if the existing volume on a street is 100 vehicles per hour (vph), and the future volume were increased by 50 vph for a total of 150 vph, the noise levels would increase by approximately 1.8 dBA. If future traffic were increased by 100 vph to a total of 200 vph, noise levels would increase by 3 dBA. However, given different emission levels from different vehicle mix, CEQR recommends using Passenger Car Equivalents (PCEs) to conservatively estimate noise from traffic. The PCEs conversions are summarized below:

- One automobile or one light truck = 1 PCE.
- One medium truck = 13 PCEs.
- One heavy truck = 47 PCEs.

R.1 Existing Conditions

Existing noise levels in the vicinity of the facility are typical of those normally associated with the nearby land uses and the overall level of development in the area, which can be classified as an area somewhat between urbanized and suburban residential area. The primary source of noise near the site is vehicular traffic and on-site stationary sources such as direct drive engine drive units for the Main Sewage Pumps and Process Air Blowers.

For a typical urban area with associated traffic conditions, noise levels are normally about 60 decibels (dBA) of background noise and about 70 dBA near sidewalks adjacent to traffic routes. For a typical suburban area, background noise is between 50 and 60 dBA.

R.2 Future Without The Proposed Action

According to the traffic analysis (Subsection O), traffic conditions would be unchanged under this condition. Therefore, a detailed analysis of mobile source noise is unnecessary and no significant mobile

source noise impacts would result from the proposed action. Furthermore, increased noise levels from the no action condition would not be anticipated from stationary source operations since no change in their operations would occur.

R.3 Future With the Proposed Action

Mobile Sources

According to the traffic analysis (Subsection O), proposed action traffic conditions would not double the PCE values. Therefore, a detailed analysis of mobile source noise is not necessary, and no significant mobile source noise impacts would result.

Stationary Sources

After the construction of the EMS Pumping System Project, increased noise levels would not occur because:

- The existing Main Sewage Pumps and Process Air Blowers engine drive units (e.g., engines and exhaust stacks located within the Pump and Blower building) would be replaced with new electric motors. The new Main Sewage Pump motors would be located in the same locations and would be enclosed within facility buildings. The motors for the new Process Air Blowers would be located in the new RAS/Blower Building. Since electric motors are much quieter than engines, the operation of the new motors is anticipated to result in a noticeable reduction of ambient noise levels.

- The generators that would be installed would only be operated under an emergency condition when all the pump engines fail. These newly installed generators would be located west of the Pump and Blower building at a greater distance from residences compared to the noisier, existing pump engines that are being replaced. Therefore, potential noise effects from the new generators are not considered significant.

Increased noise levels from the operation of the plant upgrades would not be occur due to the following:

- The existing Main Sewage Pumps and Process Air Blowers engine drive units (e.g., engines and exhaust stacks located within the Pump and Blower building) would be replaced with new electric motors (this is the same advantage achieved through EMS Pumping System Project).

- The existing emergency generators currently enclosed in a temporary trailer building would be upgraded and relocated to the new, permanent 27 kV Substation. The new substation building would be designed with: 1) interior acoustical treatments on both wall and roof materials with a Noise Reduction Coefficient of at least 0.90 to dampen generator noise levels; and 2) exhaust fans equipped with silencers (an average of 30 dBA reduction) to be located in the back of the building diverting generator noise away from the residential area (Attachment H provides these noise abatement design backups). These building design considerations would result in a noise reduction of ambient noise levels from the existing generator house, even though the new building would be closer to some noise sensitive sites (such as the adjacent open space area to the west and residences near Powell's Cove Blvd. and 127th Street). It should be further noted that the new generators would be used for emergency purposes (other than for monthly testing of about 8

to 10 hours), with a 500-hour cap on annual operating hours[1]. Therefore, they are considered temporary noise sources with minimal ambient noise impacts.

In summary, compared to the future without the proposed action, the ambient noise conditions around the facility would likely be improved under the proposed action (EMS Pumping System Project and PUP). Therefore, no significant noise impacts would result.

S. Construction Impact

S.1 Construction Impacts of the Proposed Action

Socioeconomics

A maximum number of 10-15 construction workers would be employed during construction of the EMS Pumping System (present – August 2006). Up to 160 construction workers would be on-site for 12 months during construction of the PUP. A majority of these jobs are expected to be pre-existing positions within contractor companies selected for the construction contracts. Approximately 40 percent of the jobs could be new or added positions. While these longer duration construction positions are beneficial to the socioeconomic conditions within the local study area, the study area-wide impact of these positions is not significant because the relative impact compared to the Queens and New York City economies would be minimal.

Suppliers of construction materials and equipment within the College Point and Queens areas would realize minor economic benefits from increased supply orders associated with the project construction. Again, this impact is locally beneficial, but not significant because compared to the Queens and New York City economies, the effect would be minimal.

Open Spaces

Construction of the EMS Pumping System would not affect any neighboring open space area including the open space area west of the WPCP, the bulkhead/pier area or any other nearby open space.

Construction of the PUP involves potential short-term/construction-related impacts to existing open spaces including:

- Temporary or short-term restricted use or closure of open space for construction activities, including staging or access.
- Reduced use or enjoyment of open spaces due to construction-related disturbances such as increased noise levels, dust generation, and increased construction-related traffic.

Based on a review of the distances between the Tallman Island WPCP and the identified existing open spaces (Table 2-1), and scope of construction activities associated with the proposed project, the following impacts on open space could occur:

[1] The 500 hours cap is based on the current testing program and DEP's voluntary participation in Con Edison's load sharing program during peak demand periods. The estimated run time hours cap is considered conservative since DEP may no longer participate in the load sharing program.

1. No discernible impacts on the current use and public enjoyment of Herman A. MacNeil Park, Powell's Cove, or the PS 129 grounds would be expected due to their distance from the WPCP site and construction traffic route.

2. Temporary minor noise and dust impacts would be expected at the NYCDEP-owned open space area west of the WPCP, bulkhead/pier area, and the private marina west of WPCP site. To minimize the extent and duration of such minor impacts, the following measures would be incorporated into Contract Documents:

    - Restriction of construction traffic routing, and off-site storage of construction materials and equipment.
    - Installation of temporary construction barriers around the work site to reduce fugitive dust, noise, and visual impacts to nearby public open space areas.
    - Dust suppression as necessary.

These short-term, minor impacts would not significantly reduce the opportunity for public use or enjoyment of these open spaces. Construction activities would occur primarily during weekday working hours and cease during evenings and weekends when the greatest use of these areas would typically occur.

As noted in Subsection D.3, the new 27 kV Substation located next to the WPCP Main Gate in this area of open space would permanently remove approximately 0.25 acres of NYCDEP-owned open space.

Urban Design/Visual Resources

The construction of the proposed project would result in the presence of varying construction equipment and materials at varying locations around the site, some of which may be visible from off-site areas. However, the presence of this equipment would be temporary and their height would not be substantially different than the existing site structures. Therefore, no adverse visual impacts are anticipated as a result of the construction of the proposed action.

Shadows

Shadows cast by construction equipment and materials would be temporary and no significant adverse impacts would result.

Traffic

Construction of the proposed action would last about 4 years. Figure 13 presents the manpower requirements over the construction period. There would be a peak of 160 workers for a 12-month period in the middle of the schedule. On either side of that peak, for a total time of about 21 months, there would be 80 – 100 workers (or 37 – 50 percent less than the peak). For the remaining 12 months or so, there would be 30 – 80 workers on site.

It is estimated that a maximum of 10 to 15 contractor personnel would be needed for the EMS Pumping System work. Typically, there would be 7 to 10 construction workers at the site. Several trucks per day would also be expected. The limited number of personnel and the temporary nature of this work would not create adverse transportation impacts during any hour of the day.

The peak number of vehicular trips associated with the proposed action would occur during construction of the PUP. For a period of 12 months during the PUP it is estimated that the following hourly travel and trips would take place:

- 160 construction workers would arrive between the hours of 6 and 7 am; departure would occur between 3:30 – 4:30 pm.

- 15 – 30 heavy trucks daily for earthwork/demolition; none of these vehicles would arrive or depart in the hours of 6 am – 7 am and 3:30 – 4:30 pm; spaced evenly throughout the remainder of the day, there would be a maximum of 5 heavy trucks in any of the hours between 7 am and 3:30 pm. These vehicles would not depart within the same hour as arriving.

- 25 – 50 trucks daily for material delivery (50 percent light trucks; 50 percent heavy trucks); none of these vehicles will arrive and depart between 6 am and 7 am. These trucks will be spaced evenly throughout the day between 7 am and 3:30 pm; there would be a maximum of 6 trucks (3 light and 3 heavy) in any hour of the construction day. Two trucks (one light and one heavy truck) would depart within the same hour as arrival.

For the purpose of traffic assessment, and based on previous studies, a vehicle occupancy rate of 1.5 is assumed for this project. Also since there are two public bus lines (Q25 and Q20) in the study area, it was assumed that only 75 percent of the workers would use private automobiles and 25 percent would use public transportation. (The assumptions are based on similar previous studies and statistical research completed for the Newtown Creek WPCP Environmental Impact Statement (EIS), 2004.) Therefore, the total number of vehicles arriving at the site between the hours of 6 am and 7 am would be 80 cars.

These trips are assumed to approach the site from North and South Whitestone expressway, and East evenly. Arterials such as 20th Avenue, 11th Avenue, and 14th Avenue would provide access to the site connecting to local streets such as 127th Street, 130th Street, etc. which lead to the site. Traffic volumes along these roadways and the general neighborhood are low. Capacities of the local road network are sufficient to handle the induced construction traffic volumes. It should be noted that assigning the 80 auto trips evenly from north, South, and east would be 27 trips which is below the CEQR threshold of 50. Therefore, no detailed traffic analysis is required.

Air Quality

Anticipated construction activities at the site would require operation of fossil-fuel powered equipment. These would result in temporary emissions from the exhausts of the construction-related equipment, primarily on-site. The operation of the equipment would occur primarily during working hours (weekdays, 7 am to 6 pm). All equipment would be operated in accordance with the manufacturer's specifications and be kept in good working condition.

Other potential impacts would include fugitive dust generated by excavation and earth moving activities.

The following measures are proposed to minimize the effect on air quality during the construction of the proposed project:

- Excessive and long-term idling of construction equipment would not be allowed; all delivery/loading trucks will be limited to 3 minutes of idling on-site (except for concrete trucks).
- All construction equipment operated at the site should have properly functioning exhausts and mufflers.

- Requirement for the watering of on-site construction activities to control fugitive dust, as needed.

All construction equipment would comply with New York City's Local Law 77 which requires the use of ultra low sulfur diesel fuel and best available technology for reducing pollutant emissions of non-road equipment.

Noise

Potential noise impacts that might occur at residences facing the Tallman Island WPCP due to the construction of the proposed work are assessed here. These residences are located in front of the plant's entrance along Powell's Cove Boulevard and are zoned R3-2 and R4.

Stationary Sources

Construction will last 4 years and it will occur from 7 am to 3:30 pm during weekdays. Existing (baseline) noise levels were recorded on February 8th, at 11:00 am on the south side of Powell's Cove Boulevard. A 20 minute measurement showed that baseline noise has an L10 of 65.5 dBA and a Leq of 64.5 dBA.

During the 48 months of construction, different activities and different equipment will be used. The analysis modeled the peak construction month defined as the month in which the highest pieces of equipment will be present on site. Under these conditions, the peak month will occur on the 4th month of construction of Contract TI-3 when 16 pieces of equipment will be present on site. The equipment considered in the analysis includes: 2 concrete vibrators, 3 concrete mixers, 1 backhoe, 3 concrete pumps, 2 dump trucks, 1 saw, 2 compactors and 2 drills.

Noise levels with the project were determined based upon operations of construction equipment. The following equation was used to calculate noise levels due to operation of a single piece of construction equipment:

$$Leq(1) = E.L. + 10 \log (U.F.) - 20 \log (D/50) - Shielding$$

where:
Leq(1) is the noise level at a peak hour time period;
E.L. is the noise emission level of the equipment at a reference distance of 50 feet;
U.F. is a usage factor that accounts for the fraction of time that the equipment is in use over the specified time period.
D is the distance from the receiver to the piece of equipment; and
Shielding is the noise attenuation by structures.

Noise emission levels (E.L.) were obtained from other studies reviewed and approved by OTA. The usage factors were set conservatively at 75 percent for all the equipment. In addition, the equipment was considered to be located at the center of the plant and that no shielding from existing plant's buildings occurred. The distance between the center of the plant and the closest sensitive receptor (residence) is about 660 feet.

Under these conditions the analysis predicted that construction activities will increase the noise levels at the residences by a maximum of 8 dBA during the 8-hour construction shift for the whole duration of the construction activities. This increase in noise is considered to be significant by the *CEQR Technical Manual*. However, this impact will be readily and efficiently reduced by

noise barriers around the construction areas, especially on the plant's side facing Powell's Cove Boulevard. Noise barriers are able to attenuate noise levels by 10 dBA. Therefore, the increase in noise levels at the residences will be 2 dBA with the institution of noise barriers during construction, therefore the increase in noise levels will not result in a potential for significant noise impact during construction.

Mobile Sources

During the peak of construction activities 160 construction workers are expected to arrive at the site between 6 a.m. and 7 a.m. The traffic analysis showed that this number of workers translates into 80 cars which are equivalent to 80 PCEs. As stated in *CEQR Technical Manual*, if PCE values are increased by 100 percent or more due to a proposed action (which would be equivalent to an increase of 3 dBA or more), a detailed analysis is necessary.

Based on the traffic analysis, passenger cars will arrive at the site at a rate of 1.3 cars per minute. This rate will not double the existing PCE in the area, as observed in the field, therefore a detailed analysis is not considered necessary. In addition, this high volume of workers is expected to last only for a year, therefore any potential noise impact can be considered temporary and not significant.

Infrastructure

Sewage Treatment

The construction of the proposed project would result in temporary increases in the construction personnel present at the facility (up to 160 persons for 12 – 18 months at peak). This increased number of working personnel at the site during working hours would not result in significant increases in sewage volume treated at the Tallman Island WPCP in comparison to the overall volume of sewage treated at the facility. Construction contractors would be required to coordinate with Tallman Island WPCP staff to implement maintenance of flow plans.

Water Supply

The following construction activities could reasonably be anticipated to temporarily impact water usage at the site:

- Some construction activities, specifically site excavation in the vicinity of underground facility water services and the installation of new and modified plumbing, would result in short-term disruptions of water service to portions of the Tallman Island WPCP. These disruptions would result in short-term minor inconveniences to WPCP operations and staff, but no impacts to off-site, neighboring properties are anticipated.

- Some construction activities, such as existing structure cleaning (for example, prior to recoating), would require increased water use. The water demand for such activities is anticipated to be minor. If the water requirements for such activities are determined to be excessively large in relation to typical WPCP usage or result in off-site water pressure reductions, the construction contractor would be required to provide alternate water sources, such as tanker trucks.

It is expected that existing water supply facilities could accommodate the personal needs of the on-site construction workers without any adverse impact. There would be early notification and close coordination with New York City Water Supply System officials during construction activities requiring the isolation of water supplies to the Tallman Island WPCP as well as excavation work in the vicinity of existing water supply facilities on Powell's Cove Boulevard.

Stormwater Management

The current scope of the proposed action does not include any modifications to existing storm sewer system, site grading or drainage. Stormwater runoff from the new 27KV Substation would be directed to the existing stormwater system. Therefore, with normal measures employed to protect the existing storm sewer system from increased sedimentation during construction, no impacts to existing stormwater management facilities would occur. Construction contractors would be required to provide appropriate erosion and sediment control measures, including silt fencing or hay bale barriers, to protect and maintain existing on-site and off-site storm-water management systems that could be impacted by construction.

Energy

The construction of the EMS Pumping System is of a relatively small scale and consists of short-term construction activities that do not require substantial amounts of energy. Larger scale or longer-term construction activities associated with the PUP component of the Project have the potential to require increased amounts of energy. The prime energy uses anticipated for the construction of the proposed action would include fossil fuel power consumed by the following:

- Construction equipment and vehicles during construction activities or transport of materials.
- Fossil fuels used in pumping activities such as the removal of groundwater from excavations, dewatering of existing WPCP process tanks, or the pumping around of wastewater flows around equipment or processes to be modified.
- Heating of new structures or facilities prior to and up to project completion.

The power consumed by construction of the proposed action would not have any significant impact on power or fossil fuel supplies. For the plant upgrade construction, the contractor is required to obtain service from Con Edison via a temporary service distribution facility. Should supplemental energy supplies be needed during construction, the contractor would be responsible for their acquisition and approval for use (e.g., registration of generators or boilers).

The air quality related impacts of the proposed action (EMS Pumping System and PUP) are presented in Subsection Q.

Solid Waste and Sanitation Services

Based on the anticipated scope of the proposed project, construction activities would produce construction debris, including, but not limited to, earthwork spoils, concrete, masonry, piping, metallic debris, and decommissioned equipment. This volume, when managed in accordance with the city's Comprehensive Solid Waste Management Plan (including material reuse/recycling) would not be significant in relation to solid waste generation within the city as a whole. In addition, it is anticipated that construction debris would be handled and disposed of by the construction contractors, no impacts to the City Department of Sanitation operations would result.

Archaeological and Historic Resources

As noted in Subsection F, the construction of the proposed action would not be out of character with the current appearance of overall plant because it has been successively altered and upgraded since 1939; moreover, the need for additions, upgrades and alterations were envisioned and provided for in the original plans for the complex. A review of detailed infrastructure maps of the Tallman Island WPCP also show that all proposed construction activities would take place on previously disturbed ground, and therefore, no pre-existing archeological resources are present.

The six eligible resources (Subsection F.1) would be protected from construction impacts such as falling objects, vibrations and dewatering. NYCDEP will follow NYCLPC's procedures for archaeological and historic resources to ensure that no potential significant adverse impacts would occur to these resources during construction.

Natural Resources

The small area of open space that would be eliminated by the proposed 27 kV Substation consists mostly of a grassy area and several trees along the existing facility fence line. This NYCDEP-owned 0.25 acre area provides minimal habitat potential and its ecological loss would not be significant.

To ensure that project construction is completed in a manner that is protective of the East River and Powell's Cove water bodies in the vicinity of the site, it is the intent of the NYCDEP to complete these measures related to the project:

- Completion of a federal consistency assessment form and compliance with conditions and requirements for construction work within areas in a defined Coastal Zone Management Program (Attachment C).

- Requiring construction contractors to provide appropriate erosion and sediment control and all necessary measures to prevent the discharge of construction related sediments and/or materials into the East River or Powell's Cove water bodies. Prior to beginning construction all necessary approvals and plans (e.g., Erosion and Sediment Control Plan, etc.) would be obtained.

- Replacement of vegetative screening material along the fence line of the WPCP where the new 27 kV Substation would eliminate the existing vegetation.

- During construction best management practices would be adhered to reduce the potential for impacts to natural resources.

Hazardous Material/Public Health

Additional environmental work has been proposed at the Tallman Island WPCP in areas where soils had not previously been investigated to establish disposal and/or occupational safety characteristics. There are four areas of additional work to be performed under the proposed action. These areas are located:

- Along the bulkhead adjacent to the south sludge thickeners (Proposed Sludge Area Electrical Building).
- North of the chlorine contact tank (Proposed Centrate Pumping Station).
- Along the sewer line west of the thickener splitting structure (Proposed Blower Building).
- Between the new storage building and Powell's Cove Boulevard (Proposed 27kV Substation).

This program will use similar protocols and procedures as the prior studies documented in the year 2000 at the Tallman Island WPCP site, modified per the October 2005 addendum. The October 2005 addendum, which includes a sampling protocol and sample location plan, was reviewed and approved by BEPA with the addition of the following provisions:

- Prior to starting the subsurface investigation, the Contractor shall mark-out the utilities for both overhead and subsurface structures in the area..

- For the four boring samples indicated on the Boring Plan, two samples will be taken: one sample at the surface and one at the highest PID reading or groundwater interface. Borings shall be completed using the hollow-stem auger per Technical Provision T-06 c. with the procedures per Technical Provision T-10 to a depth of about 35 feet. In addition, for the TI-2 excavated soil, two soil samples (hand augured to collect composite samples) will be taken from the interior portion of the stockpile. Sampling shall be performed per Technical Provision T-06 with the procedures per Technical Provision T-11.

- Soil and groundwater samples shall be submitted to a NYSDOH ELAP-certified laboratory for a full analysis of volatile organic compounds (VOCs) by Method 8260, (SVOCs) (base neutrals and acid extractable) by Method 8270, Pesticides/PCBs by Method 8081/8082, and TAL metals.

Upon completion of sampling, NYCDEP will review the results report and implement a Remedial Action Plan and Construction Health and Safety Plan . NYCDEP will conduct an additional Phase II Environmental Site Assessment prior to construction activities. With the implementation of a NYCDEP Phase II Environmental Site Assessment, Remediation Action Plan, and Construction Health and Safety Plan prior to the commencement of construction, and the proper handling of materials related to plant operations, there will be no potential for significant hazardous materials impacts as a result of the proposed action.

T. Public Health

The purpose of the CEQR assessment of public health is to examine potential impacts citywide or on the health of a community or certain group of individuals. Public health concerns are closely related to air quality, hazardous materials, construction, natural resources and infrastructure. As details on existing conditions for most of the defining components of public health are described elsewhere in this EAS (e.g., air quality, hazardous materials) they are not repeated here.

T.1 Existing Conditions

The Tallman Island WPCP is located in the College Point neighborhood, part of North Queens, together with Auburndale, Bay Terrace, Clearview, Flushing and Whitestone. The Community Health Profiles (2003) published by the New York City Department of Health and Mental Hygiene highlights important health issues facing the residents of North Queens. In general, people living in North Queens are healthier than residents of other New York City neighborhoods, but large numbers of people have poor access to health care and preventive services. Table 2-8 shows selected representative health indicators, comparing North Queens with New York City.

Table 2-8

Public Health Status of North Queens

Health Indicators	North Queens	New York City
Percent Reporting Health as "Good", "Very Good" or "Excellent"	86%	81%
Death Rate (per 100,000 people)	566	736
Hospitalization Admission Rates (per 100,000 people)	9,375	14,140
Infant Mortality Rate (Number of Deaths per 1,000 live births)	4.4	6.2
Asthma Hospitalization Rate for Children 14 Years and Younger, 2001 (Rate per 1,000 children)	2	6
Lead Poisoning Rate for Children 14 Years and Younger, 2001 (Rate per 1,000 children)	6	15
Source: Community Health Profile, New York City Department of Health and Mental Hygiene, 2003		

T.2 Future Without the Proposed Action

The continued operation of the Tallman Island WPCP facilities without the proposed action upgrades could hinder the ability of the facility to treat sewage pollutants. Without building the EMS Pumping System, in the case of a complete main sewage pump and/or engine drive unit failure, the WPCP facilities would not be able to continue its wastewater treatment operations. Thus, implementation of this alternative—future without the proposed action—could lead to a decrease in the quality of wastewater discharge and have a negative effect on local water quality, and thereby negatively affect public health.

Lead-based paint and asbestos or presumed asbestos-containing materials would continue to exist on or within existing building structures and equipment. If undisturbed and intact, such materials would not present a significant health hazard. However, if disturbed, or otherwise provided a pathway for human exposure, such materials are generally considered to be hazardous. Further, constituents of concern in site soils would continue to exist.

Other than the possible deterioration of water quality and continued presence of hazardous materials on site, there would be little difference in public health between the existing conditions and the future without the proposed action.

T.3 Future With the Proposed Action

No significant adverse impacts are anticipated on public health as described in the following text:

Air Quality

Implementation of the proposed action would not result in adverse impacts on air quality (criteria pollutants, non-criteria pollutants, and odors). Air quality conditions would be improved under the proposed action (Subsection Q) and, in turn, influence public health positively.

Hazardous Materials

The proposed action would not result in significant new or increased influx or generation of any hazardous materials to the site or surrounding neighborhood (Subsection J). The proposed action is not anticipated to result in any additional hazardous material and public health-related adverse impacts.

Construction

Construction activities would result in short term disturbances such as increased noise levels, dust generation, increased load on water-related infrastructure and increased construction-related traffic. Details and measures to minimize such impact and in turn reduce the effects on public health are addressed in Subsection S. These impacts are however temporary and with proper measures, adverse impacts are not anticipated in the long term.

Natural Resources

The project would be beneficial to East River water quality, and, in turn, to the flora and fauna inhabiting the surrounding waters (Subsection I). Therefore no adverse impacts would occur.

Infrastructure/Solid Waste and Sanitation Services

The proposed action would provide more effective and reliable wastewater treatment for the Tallman Island WPCP's service area. The plumbing modifications and improvements included in the proposed project are intended to update facility water plumbing to current codes and would result in beneficial reductions in water loss and overall usage at the facility (Subsection L). The amount of solid waste produced at the facility would remain constant (Subsection M).

The proposed action would not overburden the waste treatment infrastructure. Effective sewage treatment and waste disposal would be maintained. Therefore, public health would not be adversely impacted.

Attachment B

Site Location

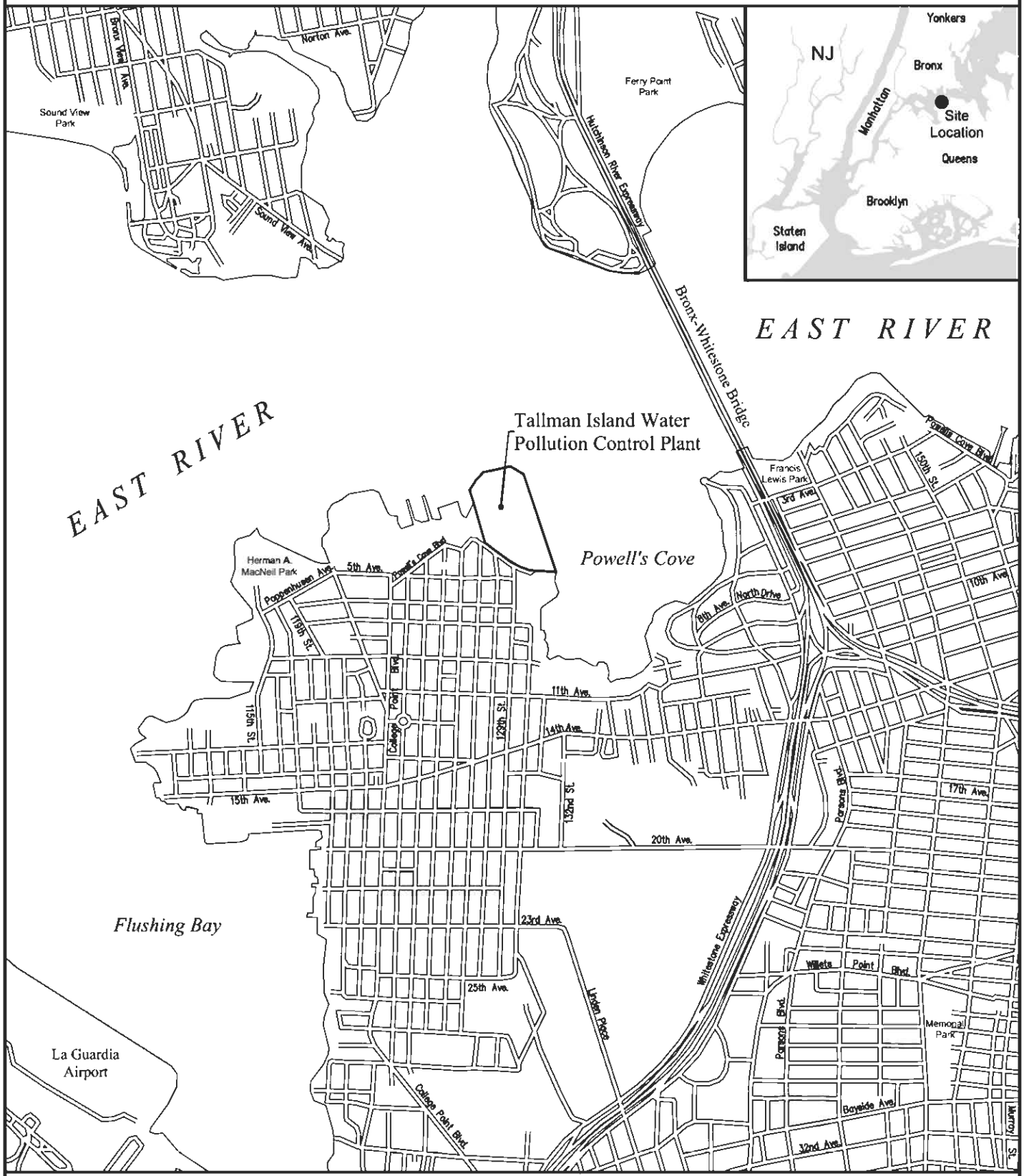


Figure 1

Existing Tallman Island Water Pollution Control Plant

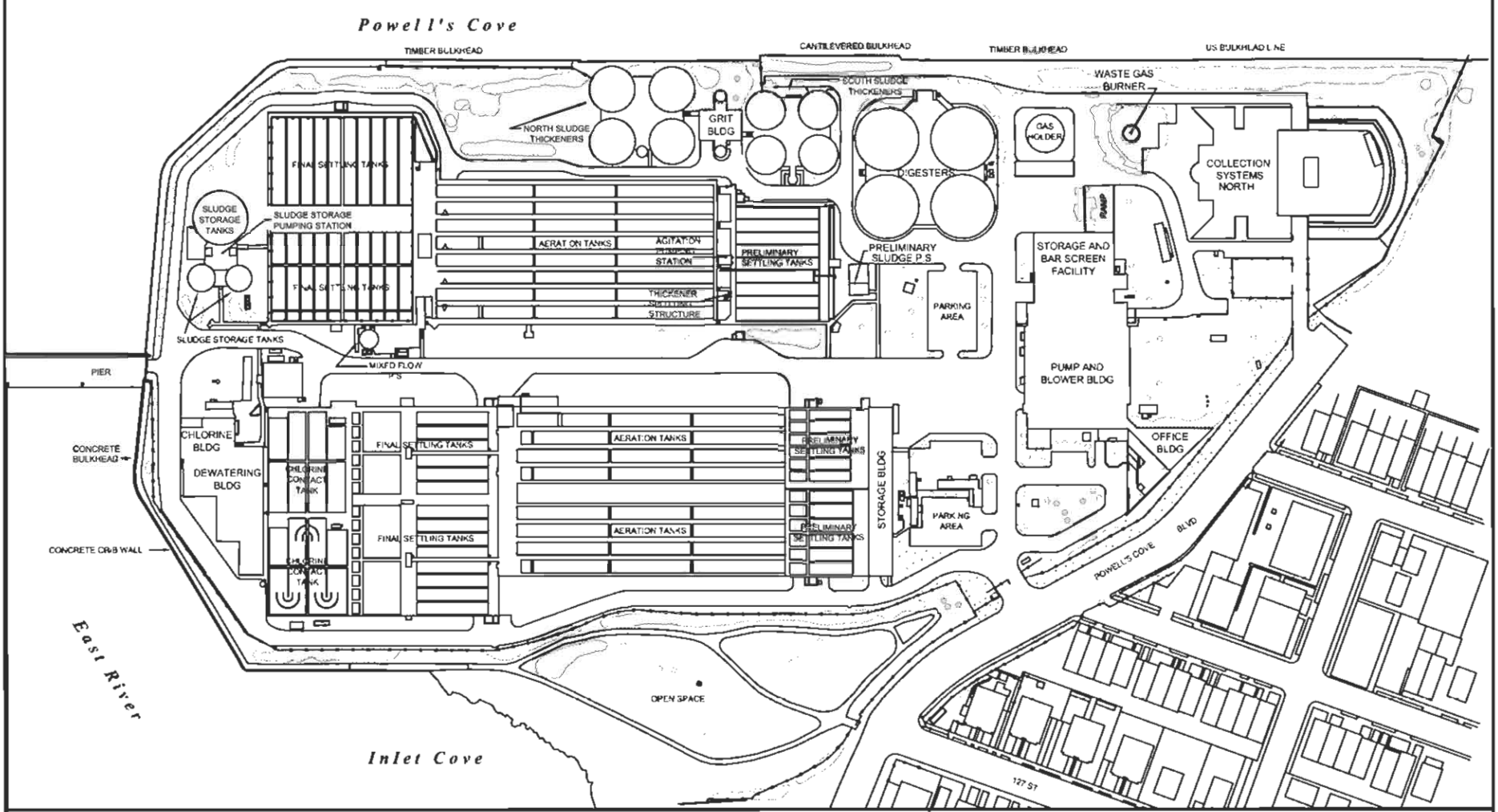


Figure 2

Components of the Proposed Action

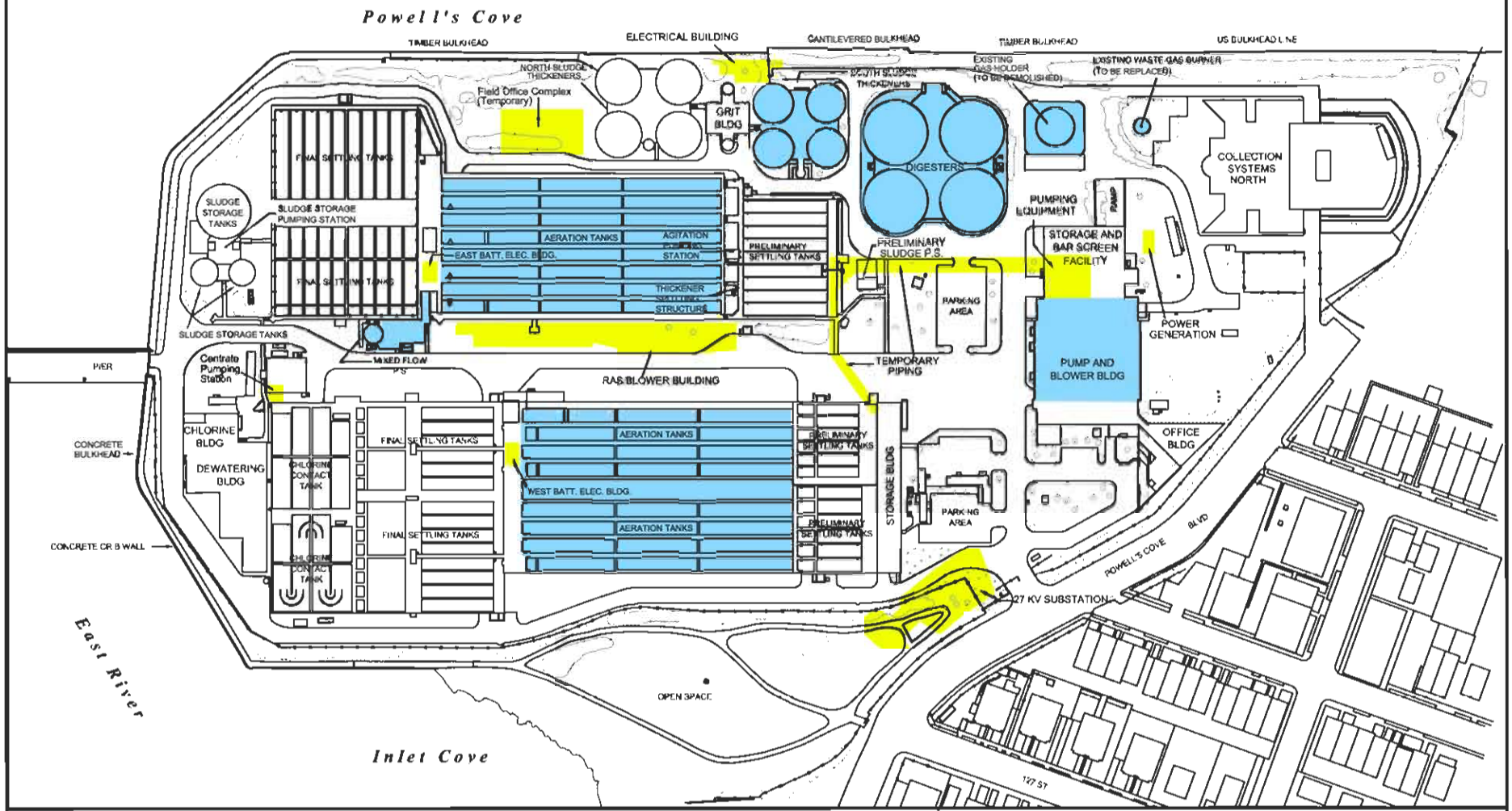


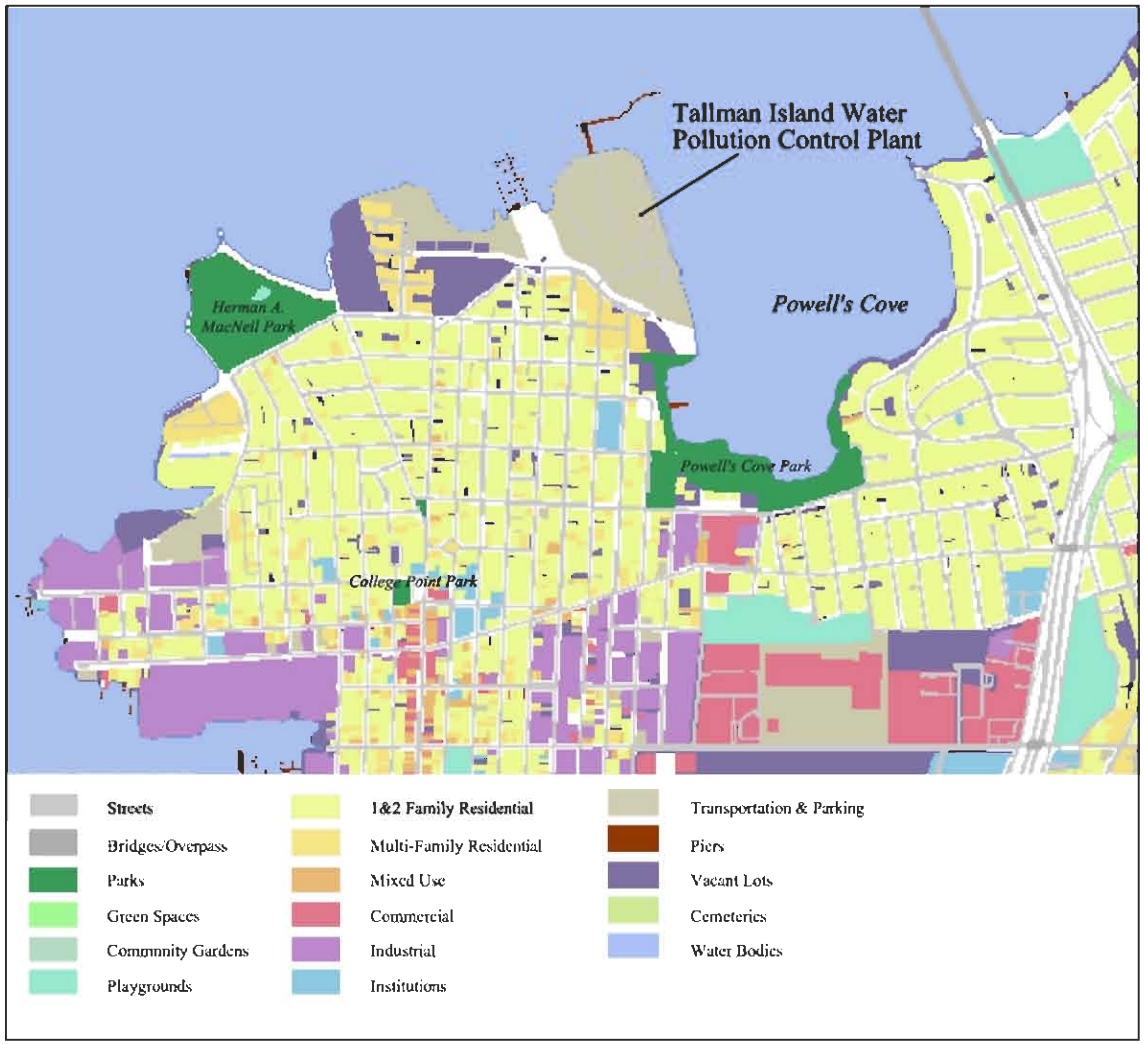
Figure 3.A

Physical Attributes of Proposed Action Facilities

New Facility	Gross Floor Area (sq ft)	Height (ft)
RAS/Blower Building	16,000	23
27kV Electrical Substation	10,500	26
Sludge Area Electrical Building	2,700	34
Centrate Pumping Station	460	7
East Battery Electrical Building	540	16
West Battery Electrical Building	560	16

Figure 3.B

General Land Use



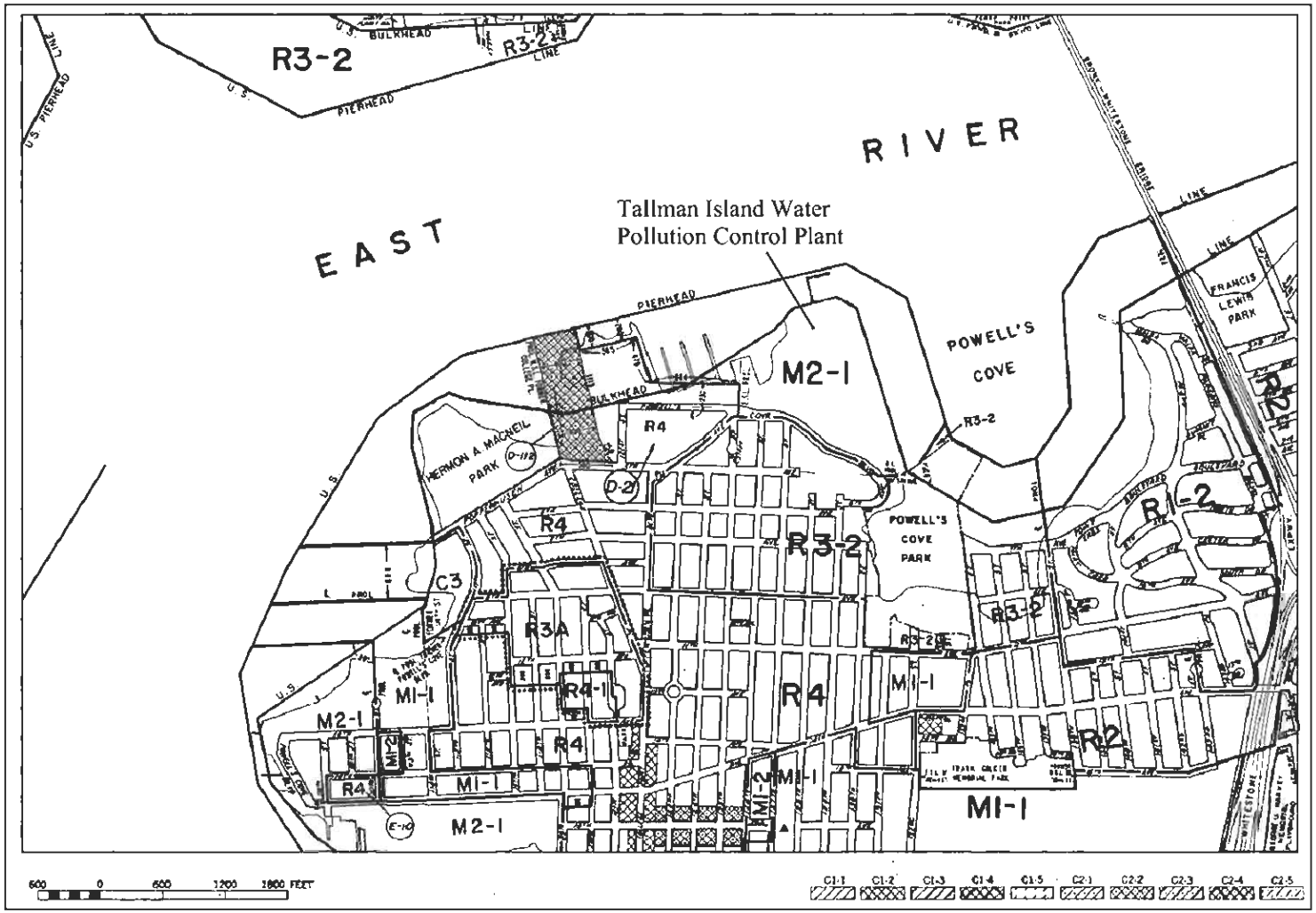
Not to Scale

N

Source: Oasis Map

Figure 4

Zoning Map

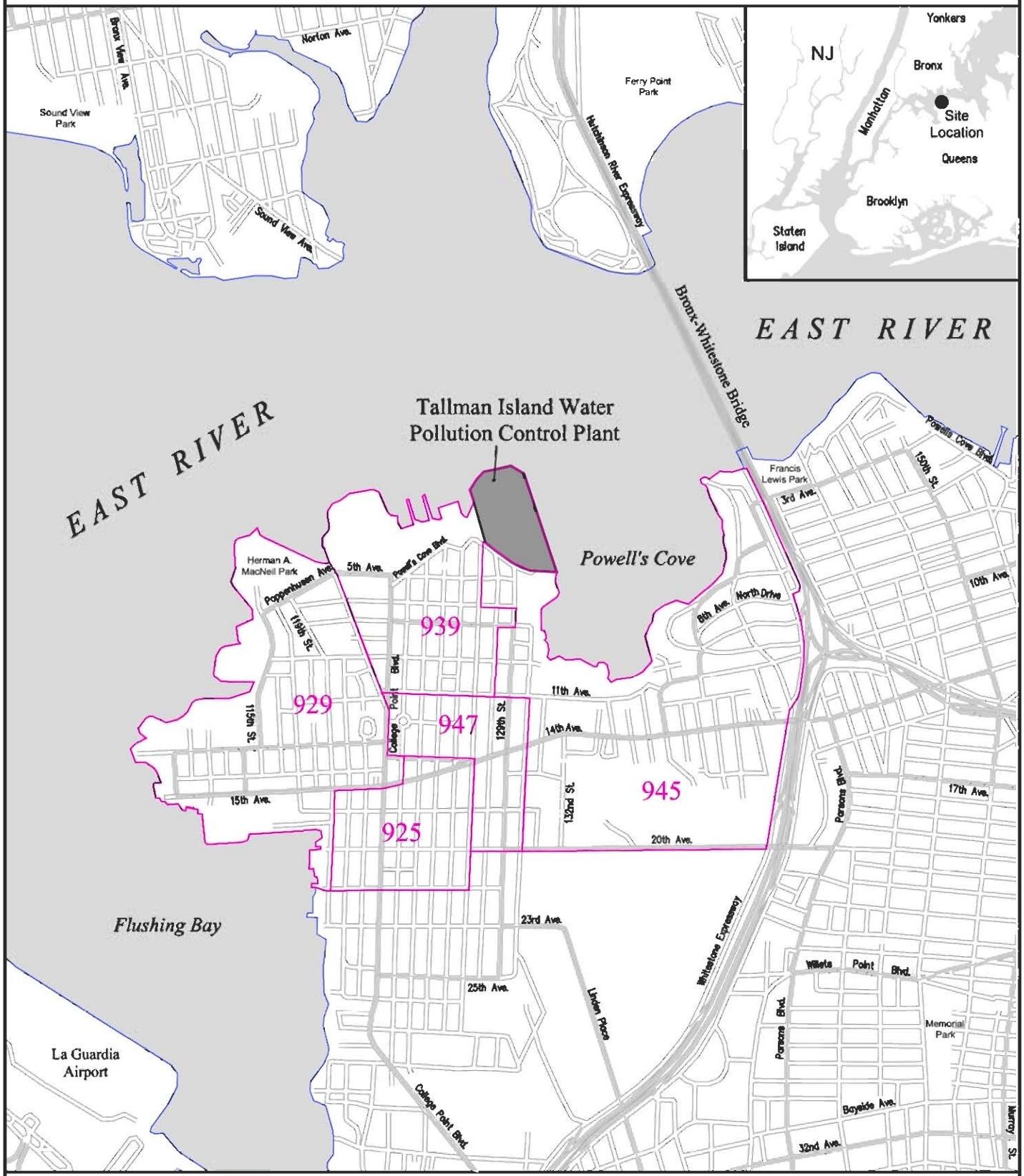


Not To Scale

Source: New York City Zoning Resolution

Figure 5

Census Tracts



Site Location
Roads
Shoreline
Open Water
925 Census Tract No.

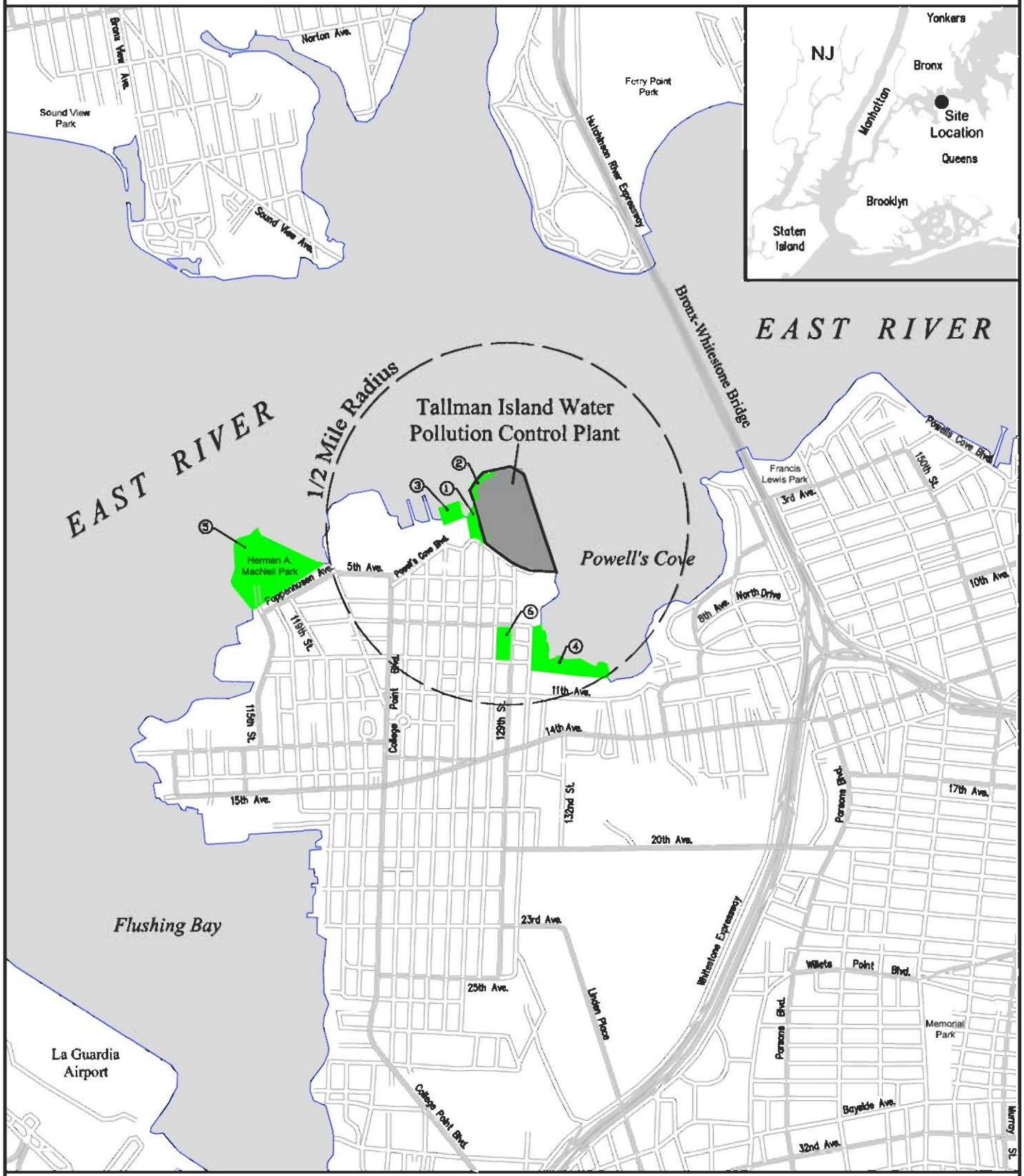
Source: USGS

2000 0 2000
Scale in Feet
600 0 600
Scale in Meters

N

Figure 6

Open Space



Source: USGS

Figure 7

Proposed Action New Shadows

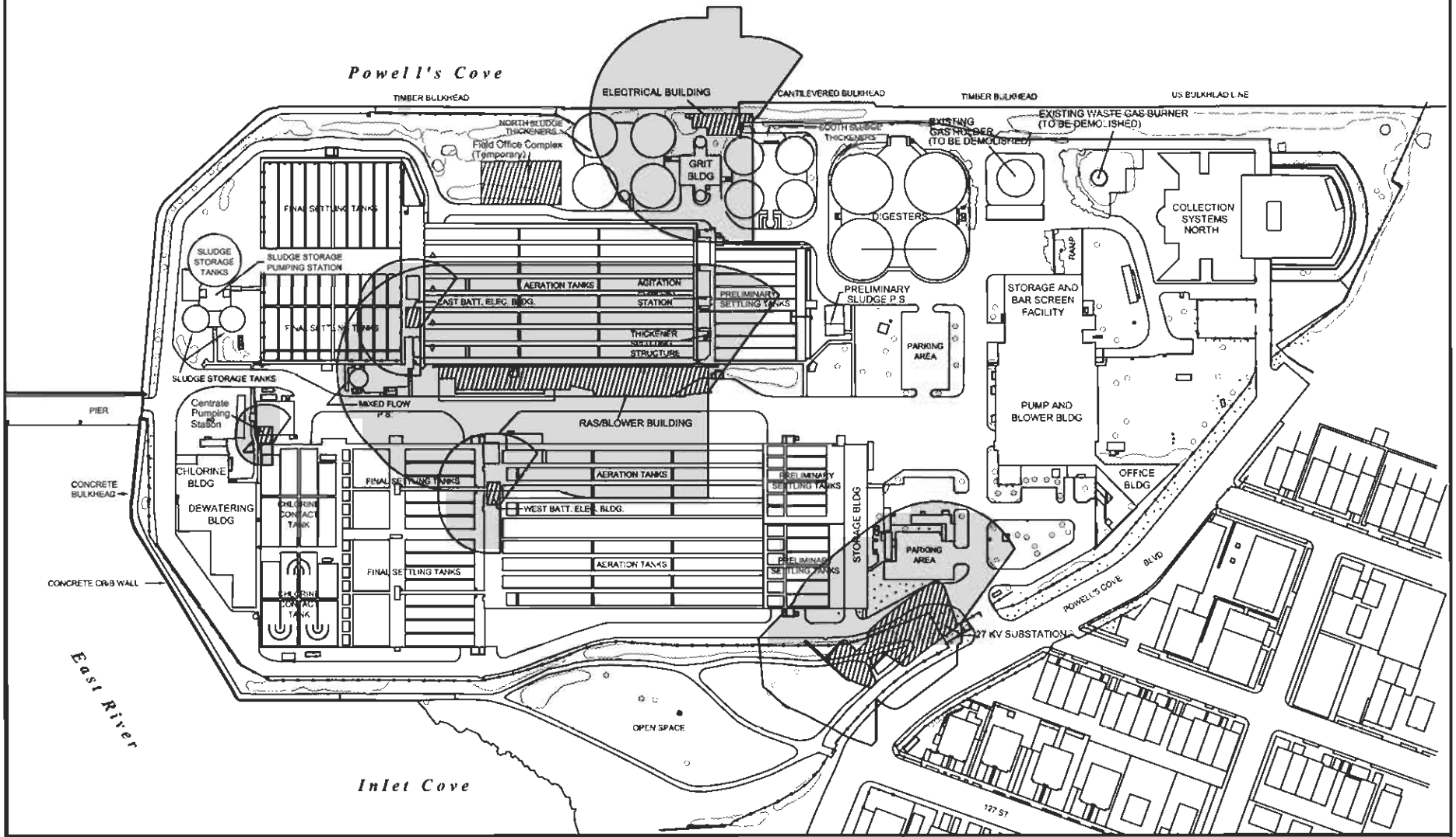
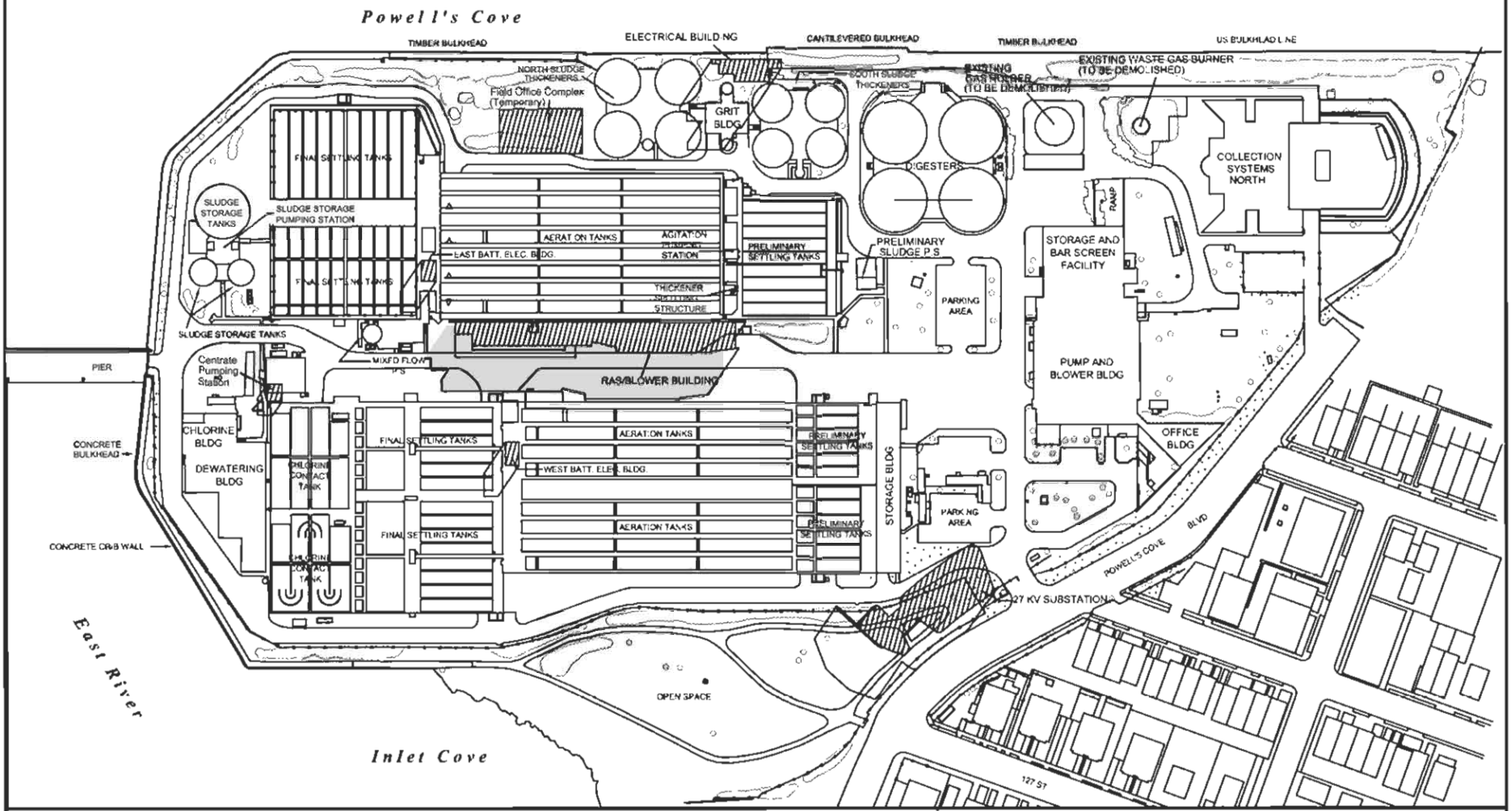


Figure 8A

Proposed Action New Shadows - March 21



Proposed PUP Components

Predicted Shadow on March 21, 7:36am
Entering Angle -74 deg, Exiting Angle -2 deg
Exits Park Area at 11:57am (Duration: 4hr 21min)
Sunrise 5:57 Sunset 18:09

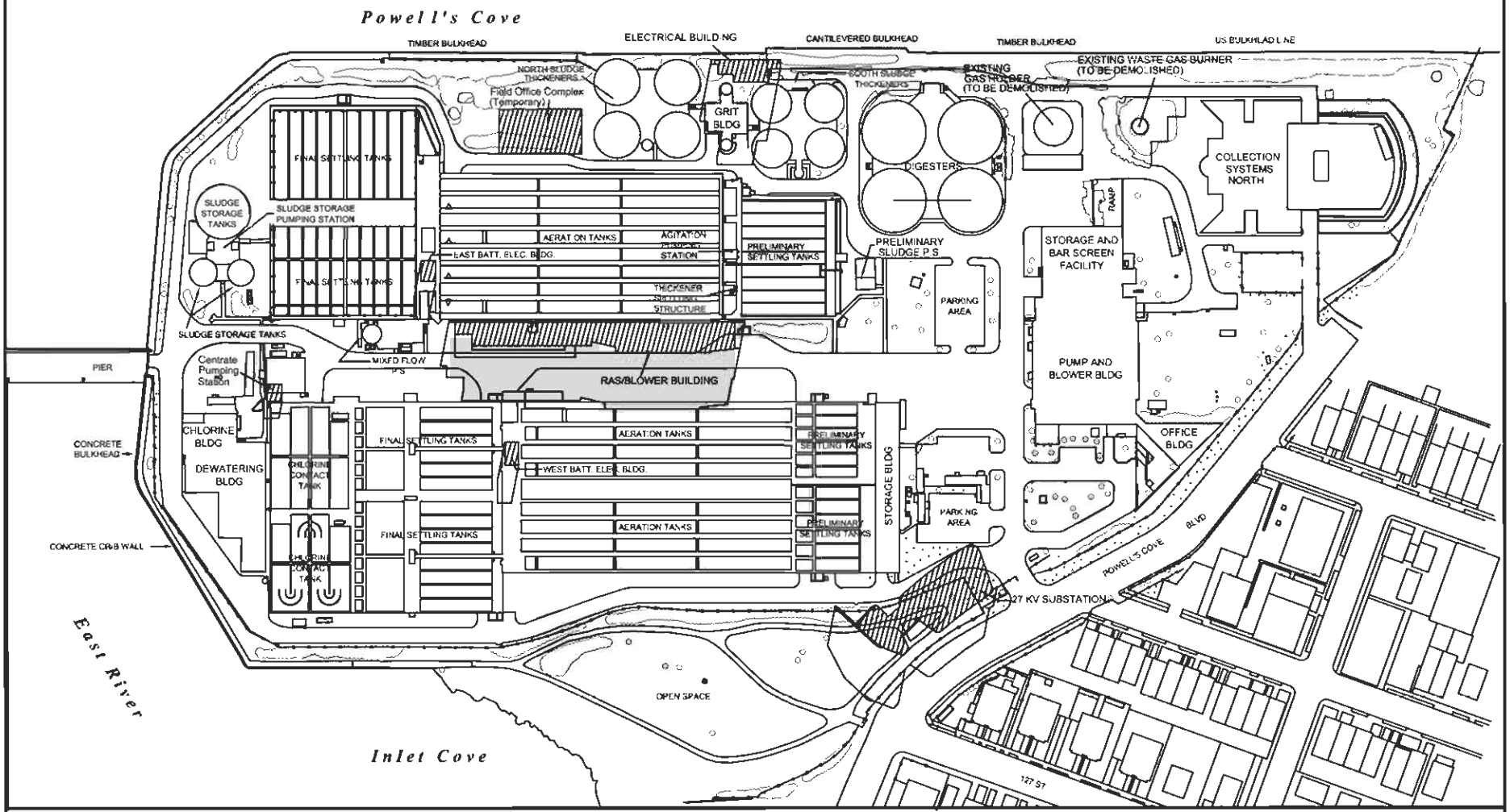
200 0 200
Scale in Feet

100 0 100
Scale in Meters

N

Figure 8B

Proposed Action New Shadows - May 6



Proposed PUP Components

Predicted Shadow on May 6, 6:27am
Entering Angle -97 deg, Exiting Angle -2 deg
Exits Park Area at 11:49am (Duration: 5hr 22min)
Sunrise 4:48 Sunset 18:58

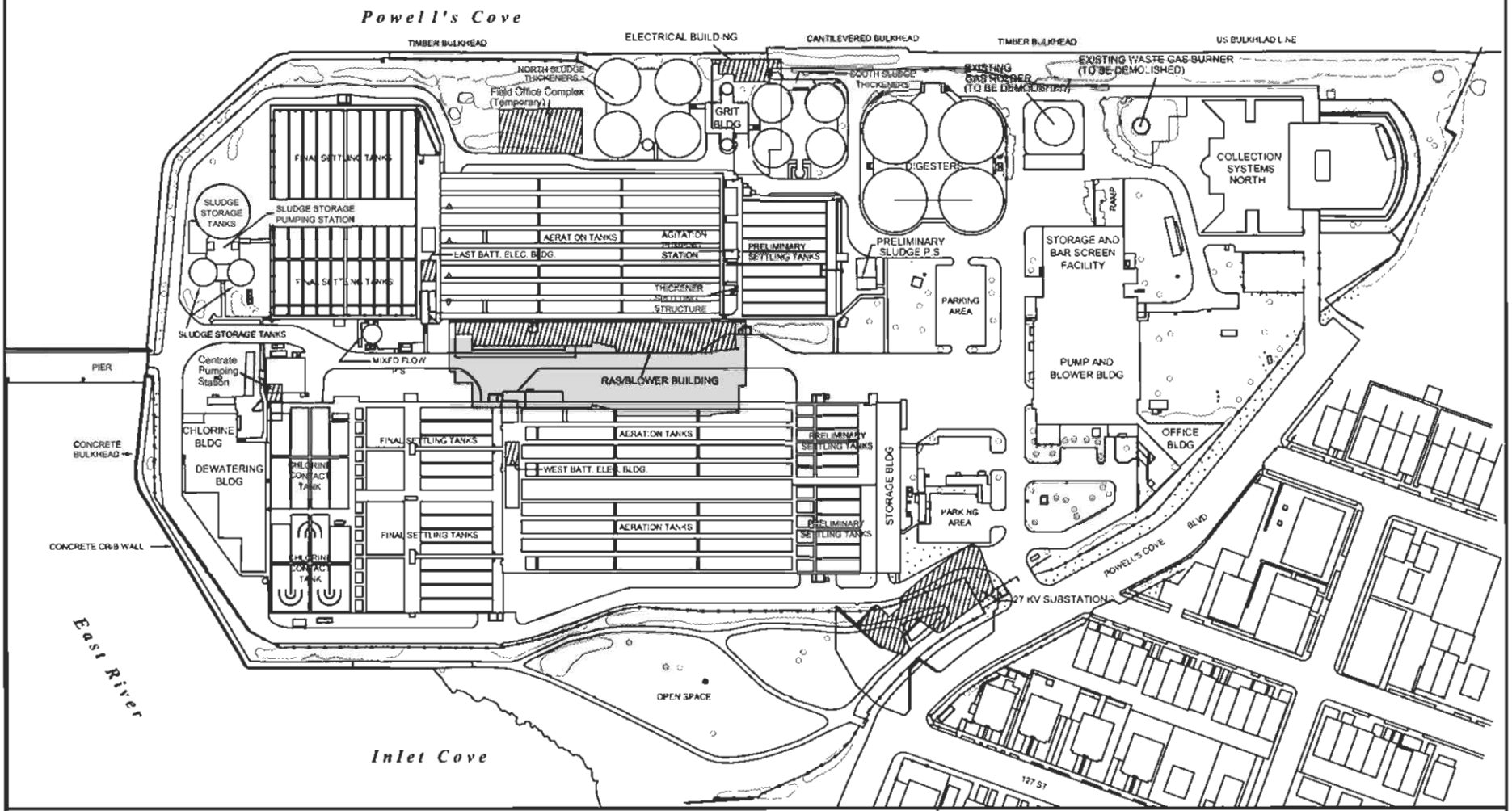
200 0 200
Scale in Feet

100 0 100
Scale in Meters

N

Figure 8C

Proposed Action New Shadows - June 21



Proposed PUP Components

Predicted Shadow on June 21, 5:57am
Entering Angle -108 deg, Exiting Angle -2 deg
Exits Park Area at 11:53am (Duration: 5hr 56min)
Sunrise 4:25 Sunset 19:31

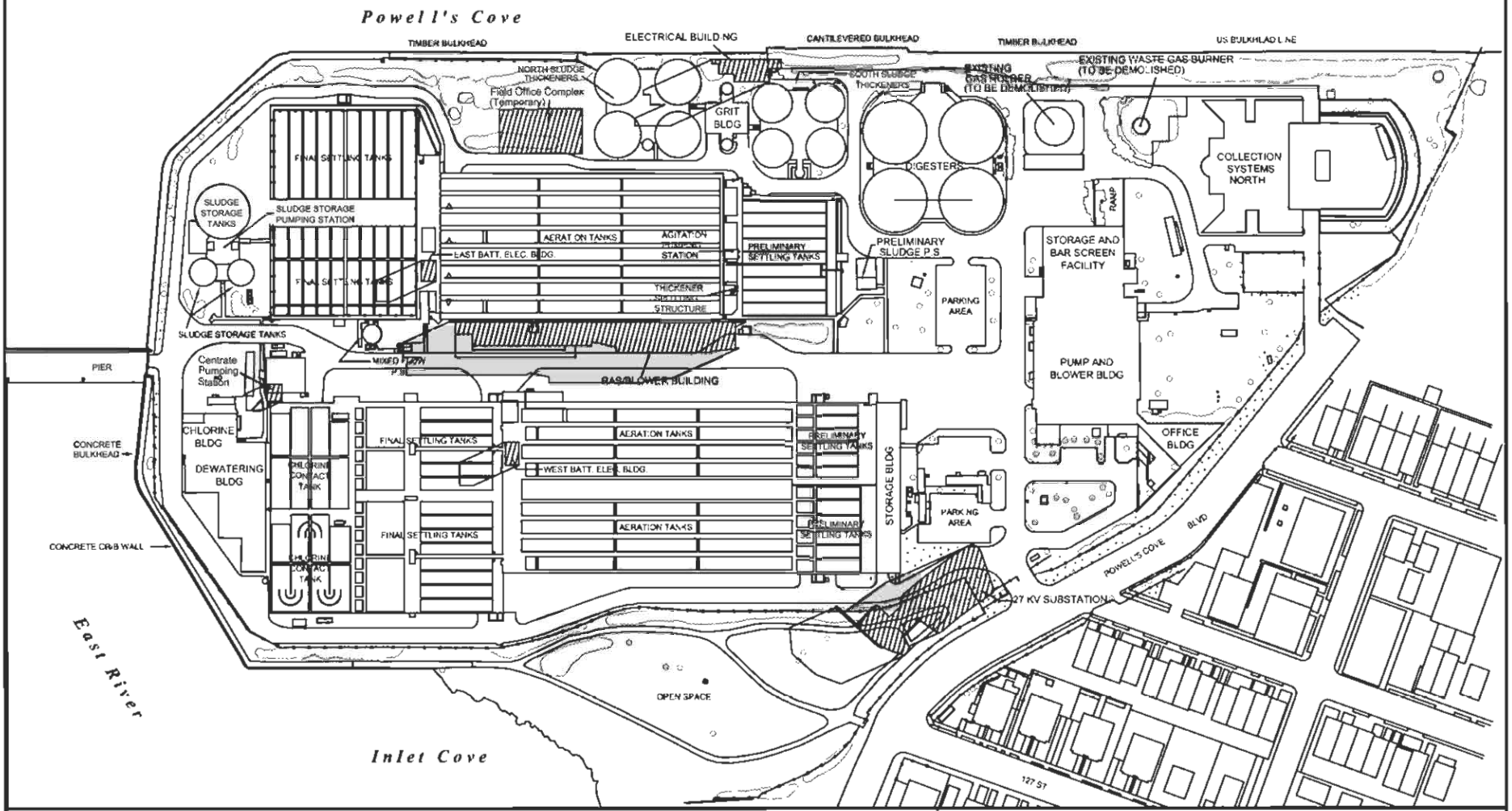
200 0 200
Scale in Feet

100 0 100
Scale in Meters

N

Figure 8D

Proposed Action New Shadows - December 21



Proposed PUP Components

Predicted Shadow on December 21, 8:51am
Entering Angle -42 deg, Exiting Angle -2 deg
Exits Park Area at 11:45am (Duration: 2hr 54min)
Sunrise 7:17 Sunset 16:32

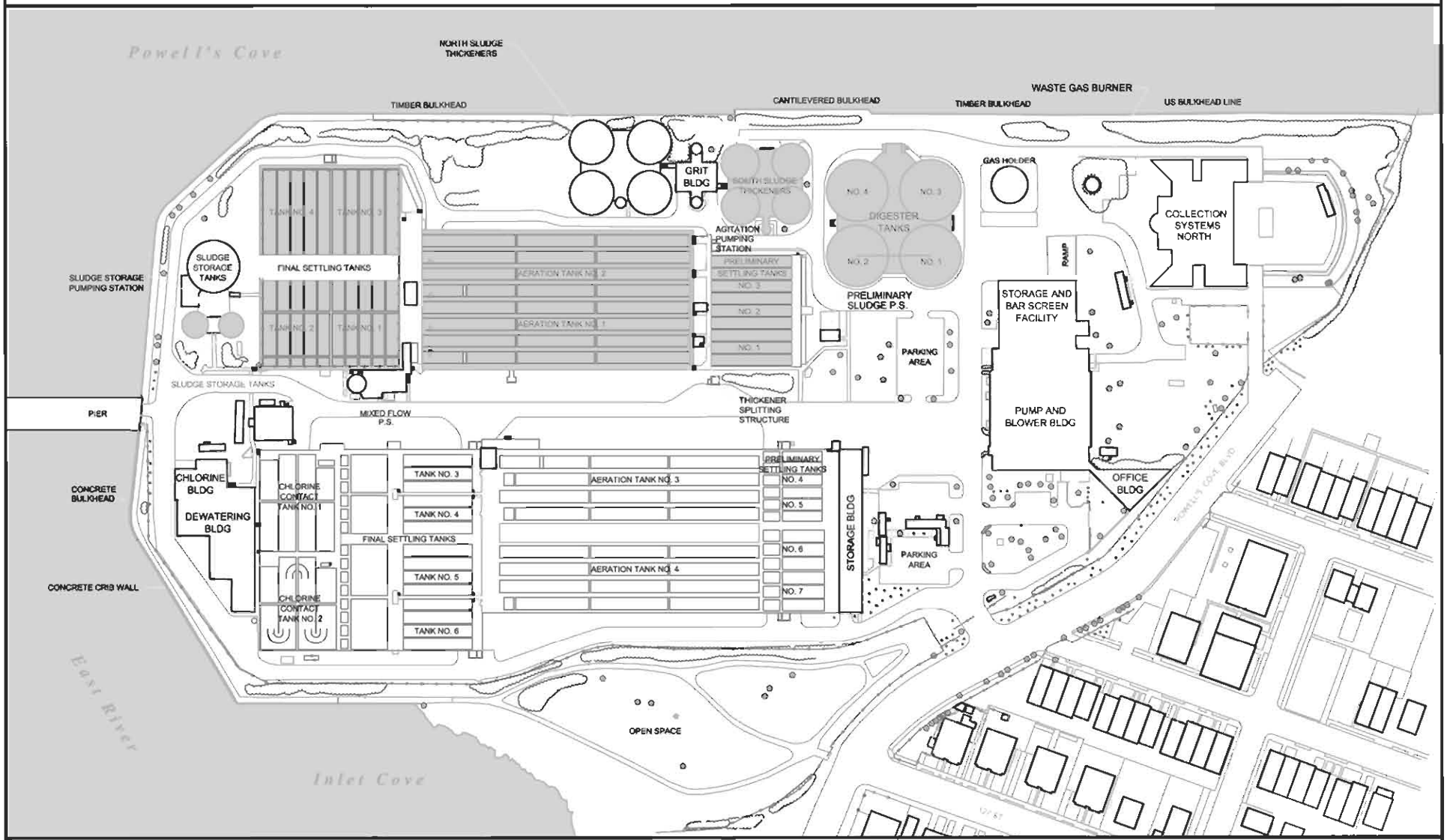
200 0 200
Scale in Feet

100 0 100
Scale in Meters

N

Figure 8E

New York City Landmark and National Register - Eligible Resources



New York City Landmark and National Register - Eligible Resource

Existing Building

200 0 200

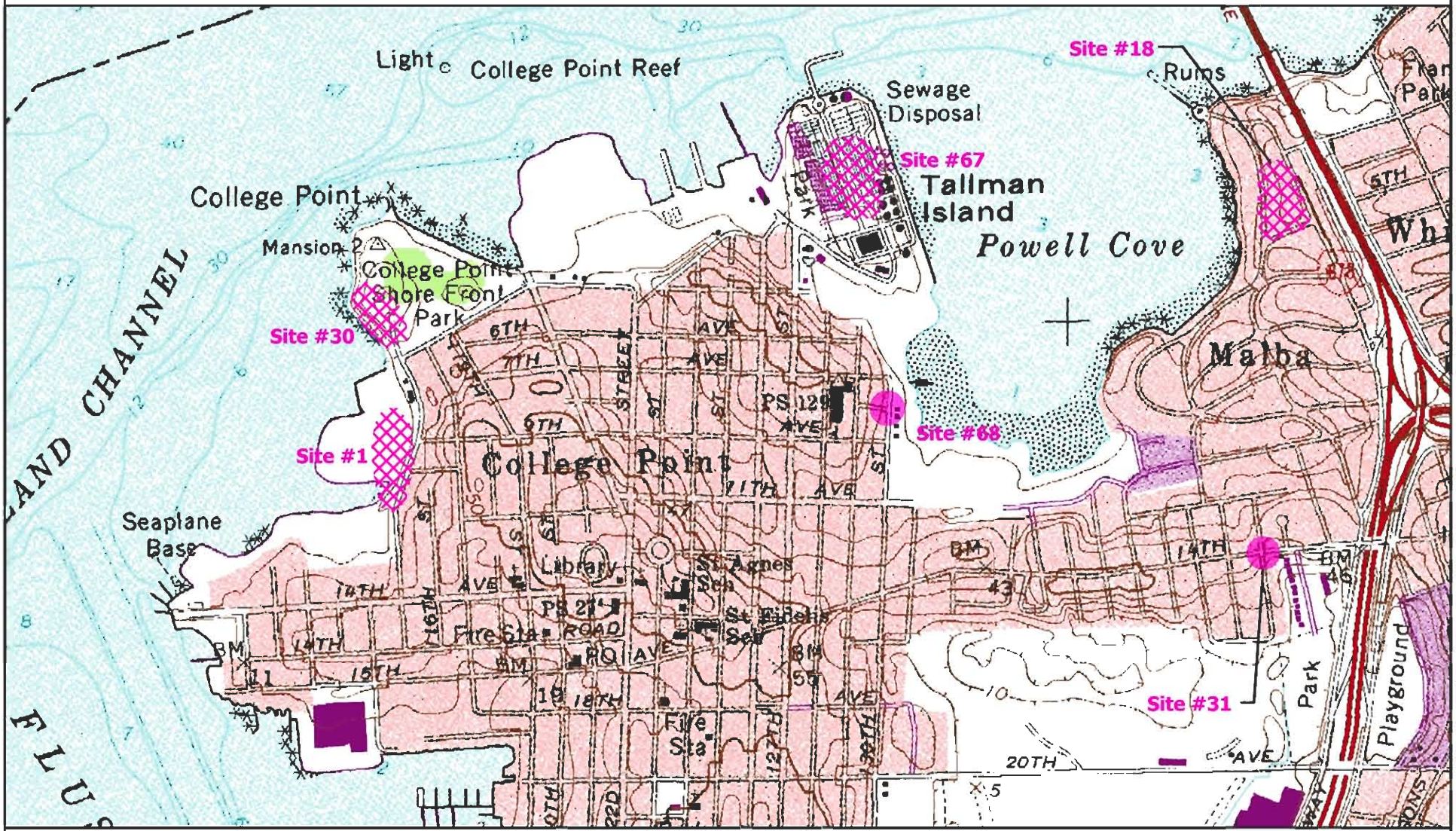
Scale in Feet

100 0 100

Scale in Meters

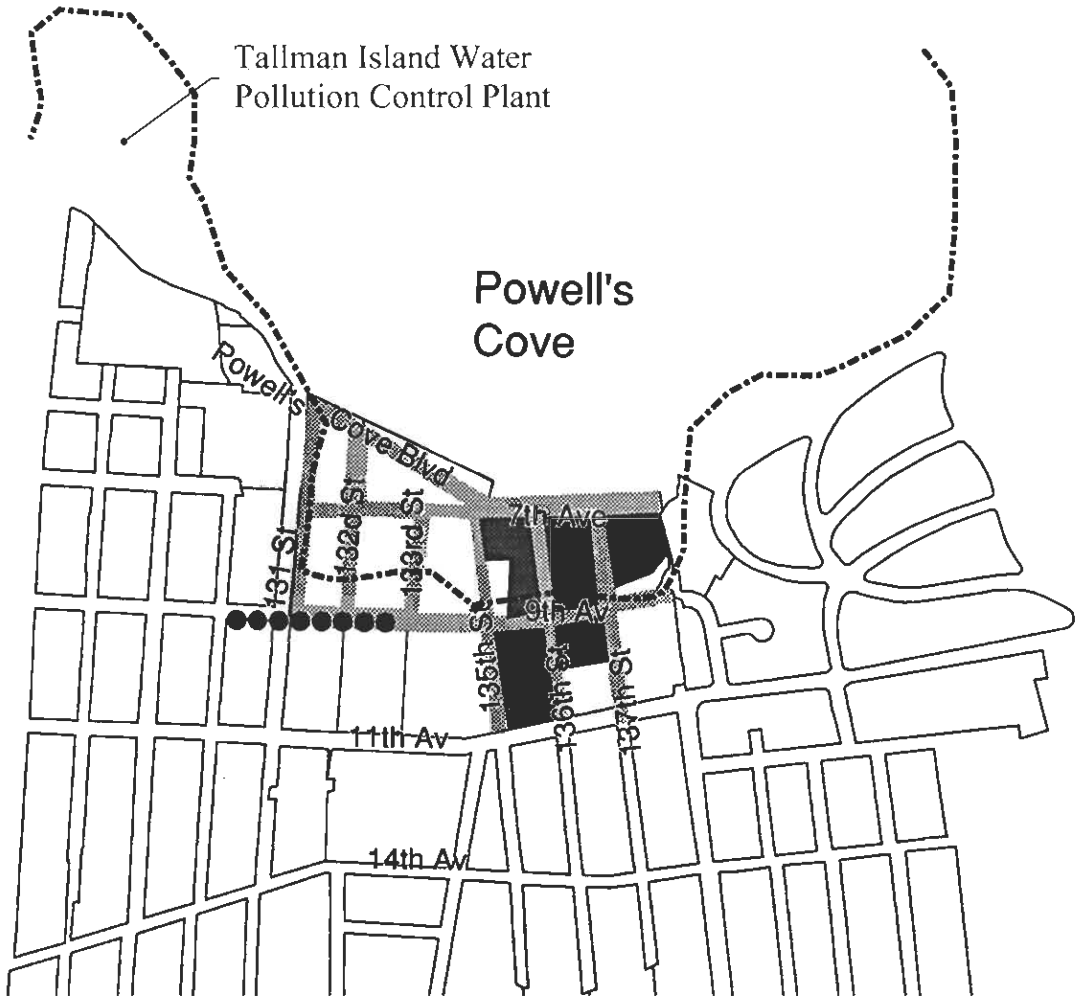
Figure 9

Known Archaeological Sites in Study Area Vicinity



Note: Site numbers correspond with Boesch, 1997.

Figure 10



REACH 10 /QUEENS NORTH SHORE

Recommendations: Powell's Cove

- Shoreline
- Street to be Demapped
- Land to be Acquired
- Pedestrian Easement

Not To Scale

N

Source:
New York City Department of City Planning
Comprehensive Waterfront Plan 1992

Figure 11

Transportation Network

Site Location
Roads
Shoreline
Open Water

Primary Access Route to Tallman Island WPCP
NYCDOT Designated Local Truck Route

Source: USGS

2000 0 2000
Scale in Feet

600 0 600
Scale in Meters

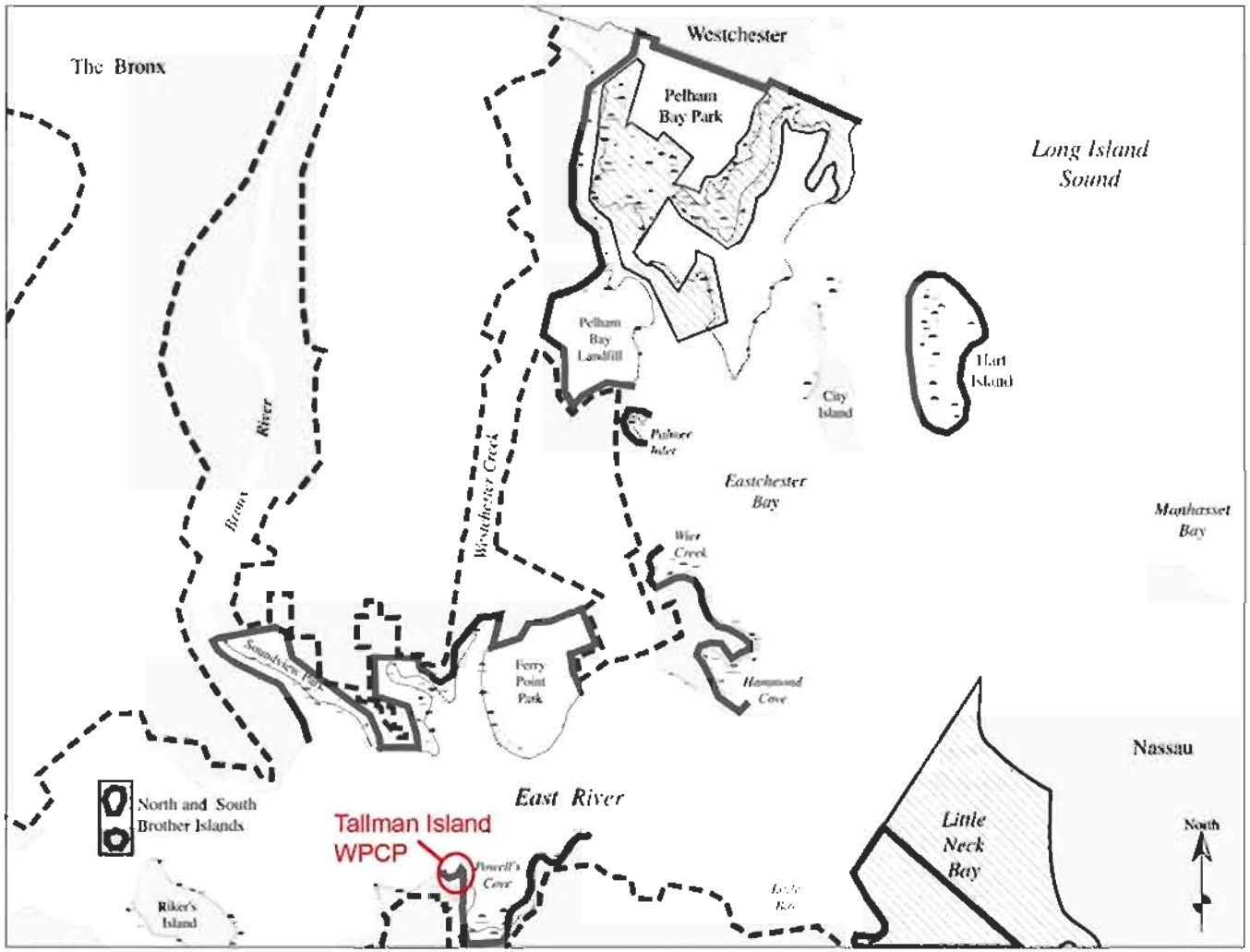
N

Figure 12

Proposed Action Construction Manpower

Figure 13

Waterfront Revitalization Program Map



Special Natural Waterfront Area
Coastal Zone Boundary
Tidal Wetlands Habitats
Freshwater Wetlands Habitats
Significant Coastal Fish and Wildlife Habitats

Figure 14

Source : NYC Department of City Planning Waterfront Revitalization Program

Attachment C

THE NEW WATERFRONT REVITALIZATION PROGRAM

A PROPOSED 197a PLAN

THE POLICIES

POLICY 1 SUPPORT AND FACILITATE COMMERCIAL AND RESIDENTIAL REDEVELOPMENT IN AREAS WELL-SUITED TO SUCH DEVELOPMENT.

POLICY 1.1 ENCOURAGE COMMERCIAL AND RESIDENTIAL REDEVELOPMENT IN APPROPRIATE COASTAL ZONE AREAS.

The proposed project would be an upgrade to the facilities of the Tallman Island Water Pollution Control Plant (WPCP). The site is zoned M-2. This policy is not applicable.

POLICY 1.2 ENCOURAGE NON-INDUSTRIAL DEVELOPMENT THAT ENLIVENS THE WATERFRONT AND ATTRACTS THE PUBLIC.

This policy is not applicable (refer to 1.1 above.)

POLICY 1.3 ENCOURAGE REDEVELOPMENT IN THE COASTAL AREA WHERE PUBLIC FACILITIES AND INFRASTRUCTURE ARE ADEQUATE OR WILL BE DEVELOPED.

Adequate infrastructure exists on the site and in the area to complete the proposed plant upgrade.

POLICY 2 SUPPORT WATER-DEPENDENT USES AND INDUSTRIAL USES IN NEW YORK CITY COASTAL AREAS THAT ARE WELL-SUITED TO THEIR CONTINUED OPERATION.

The Tallman Island WPCP is well situated for its continuing operation. It is located along the East River allowing for the effective and economical discharge of its treated wastewaters. The site has been operated as a WPCP since 1939.

POLICY 2.1 PROMOTE WATER-DEPENDENT USES AND INDUSTRIAL USES IN SIGNIFICANT MARITIME AND INDUSTRIAL AREAS.

This area is not a designated Significant Maritime and Industrial Area. This policy is not applicable.

POLICY 2.2 ENCOURAGE WORKING WATERFRONT USES AT APPROPRIATE SITES OUTSIDE THE SIGNIFICANT MARITIME AND INDUSTRIAL AREAS.

The site is not within a Significant Maritime and Industrial Area, but as noted in Policy 2.1, the facility is a water-dependent use, requiring the East River for effective and economical discharge of treated wastewater.

POLICY 2.3 PROVIDE INFRASTRUCTURE IMPROVEMENTS NECESSARY TO SUPPORT WORKING WATERFRONT USES.

The proposed action is an upgrade to the existing Tallman Island WPCP facilities. This work would improve the facility's operations, which is an integral component of the public wastewater infrastructure system of New York City. The site is not within a designated Working Waterfront Area.

POLICY 3 PROMOTE USE OF NEW YORK CITY'S WATERWAYS FOR COMMERCIAL AND RECREATIONAL BOATING AND WATER-DEPENDENT TRANSPORTATION CENTERS.

The proposed action would ensure a reliable and effective treatment of wastewater thereby indirectly promoting waterway use for commercial and recreational boating.

POLICY 3.1 SUPPORT AND ENCOURAGE RECREATIONAL AND COMMERCIAL BOATING IN NEW YORK CITY'S MARITIME CENTERS.

Refer to Policy 3 response.

POLICY 3.2 MINIMIZE CONFLICTS BETWEEN RECREATIONAL, COMMERCIAL, AND OCEAN-GOING FREIGHT VESSELS.

This policy is not applicable.

POLICY 3.3 MINIMIZE IMPACT OF COMMERCIAL AND RECREATIONAL BOATING ACTIVITIES ON THE AQUATIC ENVIRONMENT AND SURRONGDING LAND AND WATER USES.

This policy is not applicable.

POLICY 4 PROTECT AND RESTORE THE QUALITY AND FUNCTION OF ECOLOGICAL SYSTEMS WITHIN THE NEW YORK CITY COASTAL AREA.

The proposed upgrade to the Tallman Island WPCP would increase the reliability of effective wastewater treatment resulting in the improvement of East River water quality, which, in turn, protects and restores the East River ecology.

POLICY 4.1 PROTECT AND RESTORE THE ECOLOGICAL QUALITY AND COMPONENT HABITATS AND RESOURCES WITHIN THE SPECIAL NATURAL WATERFRONT AREAS, RECOGNIZED ECOLOGICAL COMPLEXES, AND SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS.

The proposed action would assist in the maintenance of adequately treated wastewater to the East River. This, in turn, would protect and restore ecological quality.

POLICY 4.2 PROTECT AND RESTORE TIDAL AND FRESHWATER WETLANDS.

This policy is not applicable.

POLICY 4.3 PROTECT VULNERABLE PLANT, FISH AND WILDLIFE SPECIES, AND RARE ECOLOGICAL COMMUNITIES. DESIGN AND DEVELOP LAND AND WATER USES TO MAXIMIZE THEIR INTEGRATION OR COMPATIBILITY WITH THE IDENTIFIED ECOLOGICAL COMMUNITY.

This policy is not applicable.

POLICY 4.4 MAINTAIN AND PROTECT LIVING AQUATIC RESOURCES.

The proposed upgrade to the Tallman Island WPCP would increase the reliability of effective wastewater treatment resulting in the improvement of East River water quality, which, in turn, will protect and protect the East River living aquatic resources.

POLICY 5 PROTECT AND IMPROVE WATER QUALITY IN THE NEW YORK COASTAL AREA.

Refer to Policy 4 response.

POLICY 5.1 MANAGE DIRECT OR INDIRECT DISCHARGES TO WATERBODIES.

Refer to Policy 4 response. The proposed action also includes the redirection of stormwater collected on the Tallman Island WPCP site to the headwork of the facility where it would be treated along with influent sewage.

POLICY 5.2 PROTECT THE QUALITY OF NEW YORK CITY'S WATERS BY MANAGING ACTIVITIES THAT GENERATE NONPOINT SOURCE POLLUTION.

Refer to Policy 4 and 5.1 responses.

POLICY 5.3 PROTECT WATER QUALITY WHEN EXCAVATING OR PLACING FILL IN NAVIGABLE WATERS AND IN OR NEAR MARSHES, ESTUARIES, TIDAL MARSHES, AND WETLANDS.

This policy is not applicable.

POLICY 5.4 PROTECT THE QUALITY AND QUANTITY OF GROUNDWATER, STREAMS, AND THE SOURCES OF WATER FOR WETLANDS.

There would be no disturbance to streams, including their beds and banks. Similarly, groundwater and sources of water for wetlands would not be affected.

POLICY 6 MINIMIZE LOSS OF LIFE, STRUCTURES AND NATURAL RESOURCES CAUSED BY FLOODING AND EROSION.

The existing site has a 1,200-ft long bulkhead along the East River but would not be affected by the proposed action. A majority of the site lies above the 100-year floodplain.

POLICY 6.1 MINIMIZE LOSSES FROM FLOODING AND EROSION BY EMPLOYING NON-STRUCTURAL AND STRUCTURAL MANAGEMENT MEASURES APPROPRIATE TO THE CONDITION AND USE OF THE PROPERTY TO BE PROTECTED AND THE SURROUNDGING AREA.

Refer to Policy 6 response.

POLICY 6.2 DIRECT PUBLIC FUNDING FOR FLOOD PREVENTION OR EROSION CONTROL MEASURES TO THOSE LOCATIONS WHERE THE INVESTMENT WILL YIELD SIGNIFICANT PUBLIC BENEFIT.

This policy is not applicable.

POLICY 6.3 PROTECT AND PRESERVE NON-RENEWABLE SOURCES OF SAND FOR BEACH NORISHMENT.

This policy is not applicable.

POLICY 7 MINIMIZE ENVIRONMENTAL DEGRADATION FROM SOLID WASTE AND HAZARDOUS SUBSTANCES.

This policy is not applicable.

POLICY 7.1 MANAGE SOLID WASTE MATERIAL, HAZARDOUS WASTES, TOXIC POLLUTANTS, AND SUBSTANCES HAZARDOUS TO THE ENVIRONMENT TO PROTECT PUBLIC HEALTH, CONTROL POLLUTION AND PREVENT DEGRADATION OF COASTAL ECOSYSTEMS.

This policy is not applicable.

POLICY 7.2 PREVENT AND REMEDIATE DISCHARGE OF PETROLEUM PRODUCTS.

This policy is not applicable.

POLICY 7.3 TRANSPORT SOLID WASTE AND HAZARDOUS SUBSTANCES AND SITE SOLID AND HAZARDOUS WASTE FACILITIES IN A MANNER THAT MINIMIZES POTENTIAL DEGRADATION OF COASTAL RESOURCES.

This policy is not applicable.

POLICY 8 PROVIDE PUBLIC ACCESS TO AND ALONG NEW YORK CITY'S COASTAL WATERS.

The existing public access around much of the site perimeter would be maintained as part of the proposed action.

POLICY 8.1 PRESERVE, PROTECT AND MAINTAIN EXISTING PHYSICAL, VISUAL AND RECREATIONAL ACCESS TO THE WATERFRONT.

Refer to Policy 8 response.

POLICY 8.2 INCORPORATE PUBLIC ACCESS INTO NEW PUBLIC AND PRIVATE DEVELOPMENT WHERE COMPATIBLE WITH PROPOSED LAND USES AND COASTAL LOCATION.

Refer to Policy 8 response.

POLICY 8.3 PROVIDE VISUAL ACCESS TO COASTAL LANDS, WATERS AND OPEN SPACE WHERE PHYSICALLY PRACTICAL.

Refer to Policy 8 response.

POLICY 8.4 PRESERVE AND DEVELOP WATERFRONT OPEN SPACE AND RECREATION ON PUBLICLY OWNED LAND AT SUITABLE LOCATIONS.

Refer to Policy 8 response.

POLICY 8.5 PRESERVE THE PUBLIC INTEREST IN THE USE OF LANDS AND WATERS HELD IN PUBLIC TRUST BY THE STATE AND CITY.

Refer to Policy 8 response.

POLICY 9 PROTECT SCENIC RESOURCES THAT CONTRIBUTE TO THE VISUAL QUALITY OF THE NEW YORK CITY COASTAL AREA.

Applicable sub-policies are addressed in the following responses.

POLICY 9.1 PROTECT AND IMPROVE VISUAL QUALITY ASSOCIATED WITH NEW YORK CITY'S URBAN CONTEXT AND HISTORIC AND WORKING WATERFRONT.

The site improvements would be designed in accordance with the applicable requirements of M2 zoning requirements and the facility needs of the WPCP.

POLICY 9.2 PROTECT SCENIC VALUES ASSOCIATED WITH NATURAL RESOURCES.

The Tallman Island WPCP site is practically devoid of any vegetation and the site is essentially covered with buildings, structures or paved with asphalt. As noted in the EAS, the proposed action would include the construction of a 27 KV electrical substation. The facility would be sited on NYCDEP property on existing open space. The facility would blend in with the general architecture of the WPCP.

POLICY 10 PROTECT, PRESERVE AND ENHANCE RESOURCES SIGNIFICANT TO THE HISTORICAL, ARCHAEOLOGICAL AND CULTURAL LEGACY OF THE NEW YORK CITY COASTAL AREA.

The proposed action would not affect five structures determined to be eligible as NYC landmarks and one potentially eligible as a NYC and National Register landmark. An Eligibility Assessment Report had been submitted to New York State Historic Preservation Officer and the New York City Landmarks Preservation Commission. There would be no impact on archeological resources as the site has been extensively filled, excavated and modified since the 1930's.

POLICY 10.1 RETAIN AND PRESERVE DESIGNATED HISTORIC RESOURCES AND ENHANCE RESOURCES SIGNIFICANT TO THE COASTAL CULTURE OF NEW YORK CITY.

Refer to Policy 10 response.

POLICY 10.2 PROTECT AND PRESERVE ARCHAEOLOGICAL RESOURCES AND ARTIFACTS.

Refer to Policy 10 response.

For Internal Use Only: WRP no._____
Date Received: _____ DOS no._____

NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM
Consistency Assessment Form

Proposed actions that are subject to CEQR, ULURP or other local, state or federal discretionary review procedures, and that are within New York City's designated coastal zone, must be reviewed and assessed for their consistency with the *New York City Waterfront Revitalization Program (WRP)*. The WRP was adopted as a 197-a Plan by the Council of the City of New York on October 13, 1999, and subsequently approved by the New York State Department of State with the concurrence of the United States Department of Commerce pursuant to applicable state and federal law, including the Waterfront Revitalization of Coastal Areas and Inland Waterways Act. As a result of these approvals, state and federal discretionary actions within the city's coastal zone must be consistent to the maximum extent practicable with the WRP policies and the city must be given the opportunity to comment on all state and federal projects within its coastal zone.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, other state agencies or the New York City Department of City Planning in their review of the applicant's certification of consistency.

A. APPLICANT

1. Name: NYC Department of Environmental Protection (DEP), Angela Licata
2. Address: 59-17 Junction Blvd, 11th Floor, Flushing, NY 11373
3. Telephone: 718 595-4399 Fax: 718 595-4479 E-mail: alicata@dep.nyc.gov
4. Project site owner: DEP

B. PROPOSED ACTIVITY

1. Brief description of activity:

   The Proposed Action (Contract WP-249) includes two contracts that address the short-term and long-term needs of the Tallman Island WPCP. Contract TI-2, called the Emergency Main Sewage (EMS) Pumping System Project, would be implemented first and would allow for the later implementation of Contract TI-3, the Planned Upgrade Program (PUP). The EMS Pumping System Project would initially provide sufficient pumping capacity for the facility to pump at least the average dry-weather flow (66 million gallons per day [mgd]) in the case of a complete main sewage pump and/or engine drive unit failure. Ultimately, the EMS Pumping System would provide dry-weather and wet-weather pumping capacity for the facility up to 120 mgd or 1.5 times the dry-weather flow. The PUP would provide a host of facility and safety improvements including Biological Nutrient Removal (BNR) and the replacement of diesel-powered pumps and blowers and drive engines with electric motors.

2. Purpose of activity:

   To provide greater plant operating efficiencies and improve the BNR process, thereby benefitting the quality of East River and Powell's Cove water bodies and aquatic habitats.

3. Location of activity: (street address/borough or site description):

   Powell's Cove Boulevard and 127th Street, College Point, Queens N.Y.

Proposed Activity Cont'd

4. If a federal or state permit or license was issued or is required for the proposed activity, identify the permit type(s), the authorizing agency and provide the application or permit number(s), if known:

   SPDES Permit # NY-0026239

5. Is federal or state funding being used to finance the project? If so, please identify the funding source(s).

   Yes - State Revolving Fund (SRF).

6. Will the proposed project require the preparation of an environmental impact statement?
   Yes _____ No ___✔___ If yes, identify Lead Agency:

7. Identify **city** discretionary actions, such as a zoning amendment or adoption of an urban renewal plan, required for the proposed project.

   None

C. COASTAL ASSESSMENT

Location Questions:	**Yes**	**No**
1. Is the project site on the waterfront or at the water's edge?	✔	
2. Does the proposed project require a waterfront site?	✔	
3. Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land underwater, or coastal waters?		✔

Policy Questions	**Yes**	**No**

The following questions represent, in a broad sense, the policies of the WRP. Numbers in parentheses after each question indicate the policy or policies addressed by the question. The new Waterfront Revitalization Program offers detailed explanations of the policies, including criteria for consistency determinations.

Check either "Yes" or "No" for each of the following questions. For all "yes" responses, provide an attachment assessing the effects of the proposed activity on the relevant policies or standards. Explain how the action would be consistent with the goals of those policies and standards.

4. Will the proposed project result in revitalization or redevelopment of a deteriorated or under-used waterfront site? (1)		✔
5. Is the project site appropriate for residential or commercial redevelopment? (1.1)		✔
6. Will the action result in a change in scale or character of a neighborhood? (1.2)		✔

Policy Questions cont'd	Yes	No
7. Will the proposed activity require provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (1.3)		✔
8. Is the action located in one of the designated Significant Maritime and Industrial Areas (SMIA): South Bronx, Newtown Creek, Brooklyn Navy Yard, Red Hook, Sunset Park, or Staten Island? (2)		✔
9. Are there any waterfront structures, such as piers, docks, bulkheads or wharves, located on the project sites? (2)	✔	
10. Would the action involve the siting or construction of a facility essential to the generation or transmission of energy, or a natural gas facility, or would it develop new energy resources? (2.1)		✔
11. Does the action involve the siting of a working waterfront use outside of a SMIA? (2.2)		✔
12. Does the proposed project involve infrastructure improvement, such as construction or repair of piers, docks, or bulkheads? (2.3, 3.2)		✔
13. Would the action involve mining, dredging, or dredge disposal, or placement of dredged or fill materials in coastal waters? (2.3, 3.1, 4, 5.3, 6.3)		✔
14. Would the action be located in a commercial or recreational boating center, such as City Island, Sheepshead Bay or Great Kills or an area devoted to water-dependent transportation? (3)		✔
15. Would the proposed project have an adverse effect upon the land or water uses within a commercial or recreation boating center or water-dependent transportation center? (3.1)		✔
16. Would the proposed project create any conflicts between commercial and recreational boating? (3.2)		✔
17. Does the proposed project involve any boating activity that would have an impact on the aquatic environment or surrounding land and water uses? (3.3)		✔
18. Is the action located in one of the designated Special Natural Waterfront Areas (SNWA): Long Island Sound- East River, Jamaica Bay, or Northwest Staten Island? (4 and 9.2)	✔	
19. Is the project site in or adjacent to a Significant Coastal Fish and Wildlife Habitat? (4.1)		✔
20. Is the site located within or adjacent to a Recognized Ecological Complex: South Shore of Staten Island or Riverdale Natural Area District? (4.1and 9.2)		✔
21. Would the action involve any activity in or near a tidal or freshwater wetland? (4.2)		✔
22. Does the project site contain a rare ecological community or would the proposed project affect a vulnerable plant, fish, or wildlife species? (4.3)		✔
23. Would the action have any effects on commercial or recreational use of fish resources? (4.4)		✔
24. Would the proposed project in any way affect the water quality classification of nearby waters or be unable to be consistent with that classification? (5)		✔
25. Would the action result in any direct or indirect discharges, including toxins, hazardous substances, or other pollutants, effluent, or waste, into any waterbody? (5.1)	✔	
26. Would the action result in the draining of stormwater runoff or sewer overflows into coastal waters? (5.1)		✔
27. Will any activity associated with the project generate nonpoint source pollution? (5.2)		✔
28. Would the action cause violations of the National or State air quality standards? (5.2)		✔

Policy Questions cont'd	Yes	No
29. Would the action result in significant amounts of acid rain precursors (nitrates and sulfates)? (5.2C)		✔
30. Will the project involve the excavation or placing of fill in or near navigable waters, marshes, estuaries, tidal marshes or other wetlands? (5.3)		✔
31. Would the proposed action have any effects on surface or ground water supplies? (5.4)		✔
32. Would the action result in any activities within a federally designated flood hazard area or state-designated erosion hazards area? (6)	✔	
33. Would the action result in any construction activities that would lead to erosion? (6)		✔
34. Would the action involve construction or reconstruction of a flood or erosion control structure? (6.1)		✔
35. Would the action involve any new or increased activity on or near any beach, dune, barrier island, or bluff? (6.1)		✔
36. Does the proposed project involve use of public funds for flood prevention or erosion control? (6.2)		✔
37. Would the proposed project affect a non-renewable source of sand ? (6.3)		✔
38. Would the action result in shipping, handling, or storing of solid wastes, hazardous materials, or other pollutants? (7)	✔	
39. Would the action affect any sites that have been used as landfills? (7.1)		✔
40. Would the action result in development of a site that may contain contamination or that has a history of underground fuel tanks, oil spills, or other form or petroleum product use or storage? (7.2)	✔	
41. Will the proposed activity result in any transport, storage, treatment, or disposal of solid wastes or hazardous materials, or the siting of a solid or hazardous waste facility? (7.3)	✔	
42. Would the action result in a reduction of existing or required access to or along coastal waters, public access areas, or public parks or open spaces? (8)	✔	
43. Will the proposed project affect or be located in, on, or adjacent to any federal, state, or city park or other land in public ownership protected for open space preservation? (8)		✔
44. Would the action result in the provision of open space without provision for its maintenance? (8.1)		✔
45. Would the action result in any development along the shoreline but NOT include new water-enhanced or water-dependent recreational space? (8.2)		✔
46. Will the proposed project impede visual access to coastal lands, waters and open space? (8.3)		✔
47. Does the proposed project involve publicly owned or acquired land that could accommodate waterfront open space or recreation? (8.4)	✔	
48. Does the project site involve lands or waters held in public trust by the state or city? (8.5)		✔
49. Would the action affect natural or built resources that contribute to the scenic quality of a coastal area? (9)		✔
50. Does the site currently include elements that degrade the area's scenic quality or block views to the water? (9.1)	✔	

Policy Questions cont'd	Yes	No
51. Would the proposed action have a significant adverse impact on historic, archeological, or cultural resources? (10)		✓
52. Will the proposed activity affect or be located in, on, or adjacent to an historic resource listed on the National or State Register of Historic Places, or designated as a landmark by the City of New York? (10)		✓

D. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with New York City's Waterfront Revitalization Program, pursuant to the New York State Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If the certification can be made, complete this section.

"The proposed activity complies with New York State's Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

Applicant/Agent Name: NYCDEP Ms. Angela Licata

Address: 59-17 Junction Blvd, 11th Floor, Flushing, NY 11373

Telephone 718-5954399

Applicant/Agent Signature: Angela Licata Date: Feb 24, 2006

ATTACHMENT TO
WATERFRONT REVITALIZATION PROGRAM
Consistency Assessment Form
Tallman Island Water Pollution Control Plant Upgrade

The accompanying Consistency Assessment Form has a number of questions answered "Yes". This attachment identifies and addresses these questions. The reader is also referred to the accompanying Environmental Assessment Statement (EAS) for more detailed descriptions of the proposed action and potential impacts.

Q.9 The Tallman Island Water Pollution Control Plant (WPCP) is situated on an approximately 30 acre peninsular at the western edge of Powell's Cove in the College Point section of Queens, New York. The site extends into the waters of the East River, west of the Whitestone Bridge. The peninsular is mostly bulkheaded and includes a pier that extends north into the East River. (See Section 1 of the EAS).

Q.18 Powell's Cove is designated a Special Natural Waterfront Area and is the waterbody to the east of the WPCP that extends to the Whitestone Bridge. (See Sections 2.1, 2.3, 2.4 and 2.14 of the EAS).

Q. 25 The Tallman Island WPCP has operated here since the 1930's and serves the northeast portion of the Borough of Queens, approximately 17,400 acres of land with an estimated population of nearly 400,000 residents. Over the intervening years the plant has been expanded and upgraded several times. The proposed upgrades to the WPCP would increase the reliability of effective wastewater treatment and include an enhanced biological nutrients removal process (BNR). This enhanced BNR process would remove more of the biological nutrients in the wastewater and thereby would benefit the water quality and ecology of the East River and adjacent Powell's Cove. (See Section 1 of the EAS).

Q. 32 The great majority of the site lies above the 100-year flood elevation, however, portions of the northern and eastern waterfront are identified as within the 100-year flood zone: a sliver paralleling the waterfront along the eastern side of the plant is designated in the VE zone, associated with wave action; and small portion of the northern part of the plant is in the AE zone where BFEs have been established. One new electrical substation is proposed near the eastern waterfront but would be elevated above the flood zone.

Q. 38 As part of standard operations, hazardous materials are utilized on a regular basis at the Tallman Island WPCP. Hazardous materials handled, stored, and/or utilized include a variety of petroleum products (fuel oils, lubricant oils, hydraulic oils, diesel fuel), solvents (thinners, cleaners), ferric chloride (used in sludge dewatering processes), and sodium hypochlorite (used for wastewater disinfection and control of wastewater foaming). The proposed action includes a shift from oil/diesel engines to electric motors, thereby reducing the need for these materials on site. (See Section 2.16 of the EAS).

Q. 40 See response to Q. 38.

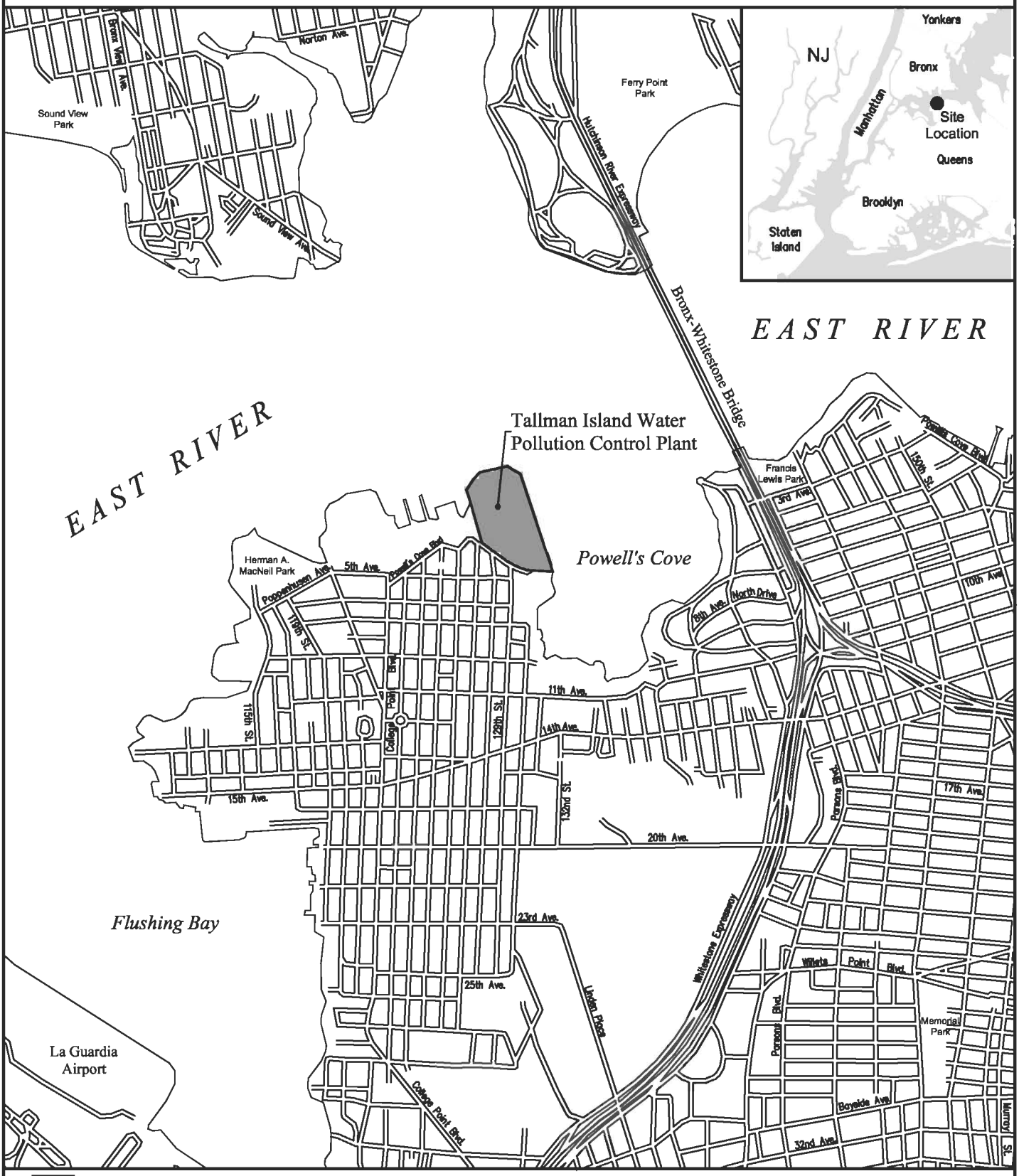
Q. 41 See response to Q. 38.

Q.42 The proposed action includes construction of a new 27KV Substation adjacent to the main gate of the WPCP along Powell's Cove Boulevard. The substation would be located on DEP property that is presently accessible to the public in a 2.75 acre area of open space to the west of the main WPCP. The new substation would require 0.25 acres of this grassy area but would not affect the public's access the remainder of this area, including its principal features of a mound providing views of the East River and the walkway along the bulkhead and out to the pier in the East River. (See Sections 2.3, 2.4, 2.5, 2.6, 2.14 and 2.15 of the EAS).

Q. 47 See response to Q. 42.

Q. 50 The WPCP is a utilitarian complex with a variety of facilities that would not be considered as contributing to the area's scenic quality, including sludge aeration batteries, sludge thickener tanks, digester tanks, etc. The complex obscures most views of the East River from nearby residences south of Powell's Cove Boulevard, however, the DEP-owned open space to the west of the plant permits public access and provides scenic views of the East River from an elevated area and from a walkway along the western bulkhead to a pier extending into the East River. These vantage points would not be affected by the proposed action. (See response to Q.42).

Site Location



Site Location
Roads
Shoreline
Open Water

Source: USGS

2000 0 2000
Scale in Feet

600 0 600
Scale in Meters

N

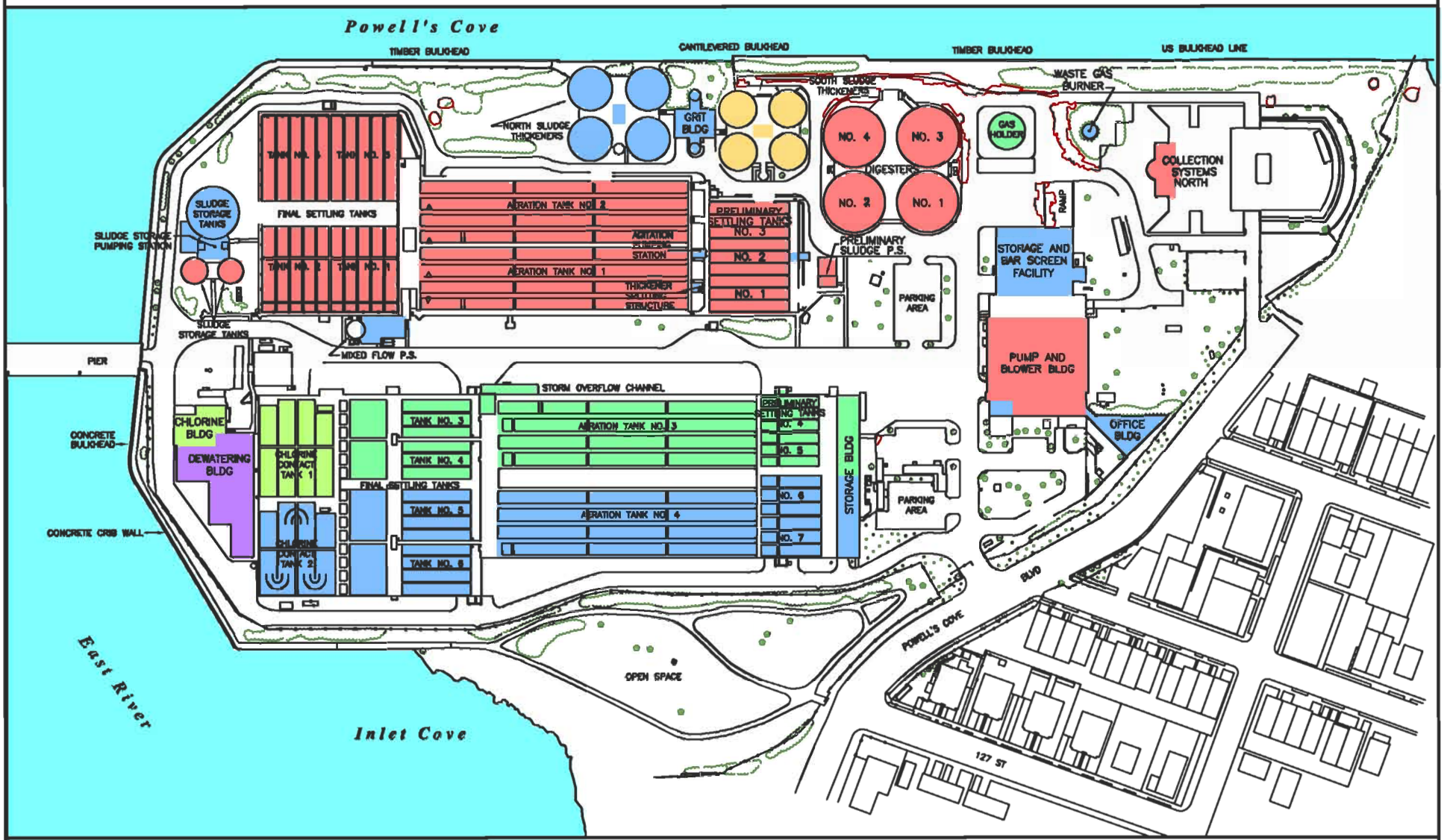
Figure 1

Tallman Island Water Pollution Control Plant

Source: Sanborn Map Company, 1943.

Figure 2

Tallman Island Water Pollution Control Plant Construction Phases



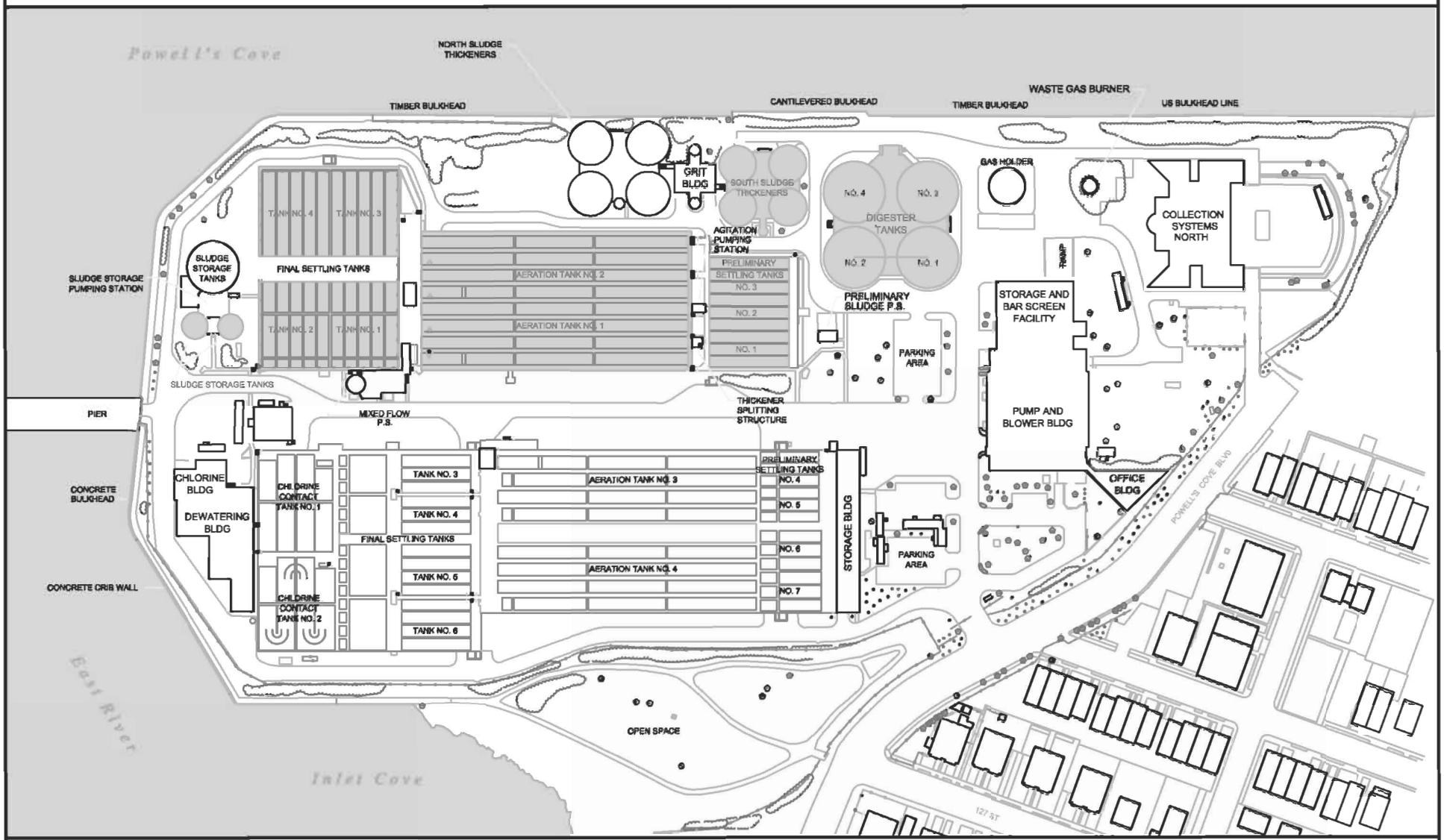
1937-1939 - NYC Dept. of Sanitation
1957
1959
1961 - Hazen & Sawyer
1970 - CDM
1991

200 0 200
Scale in Feet
50 0 50
Scale in Meters

N

Figure 3

New York City Landmark and National Register - Eligible Resources



New York City Landmark and National Register - Eligible Resource

Existing Building

200 0 200

Scale in Feet

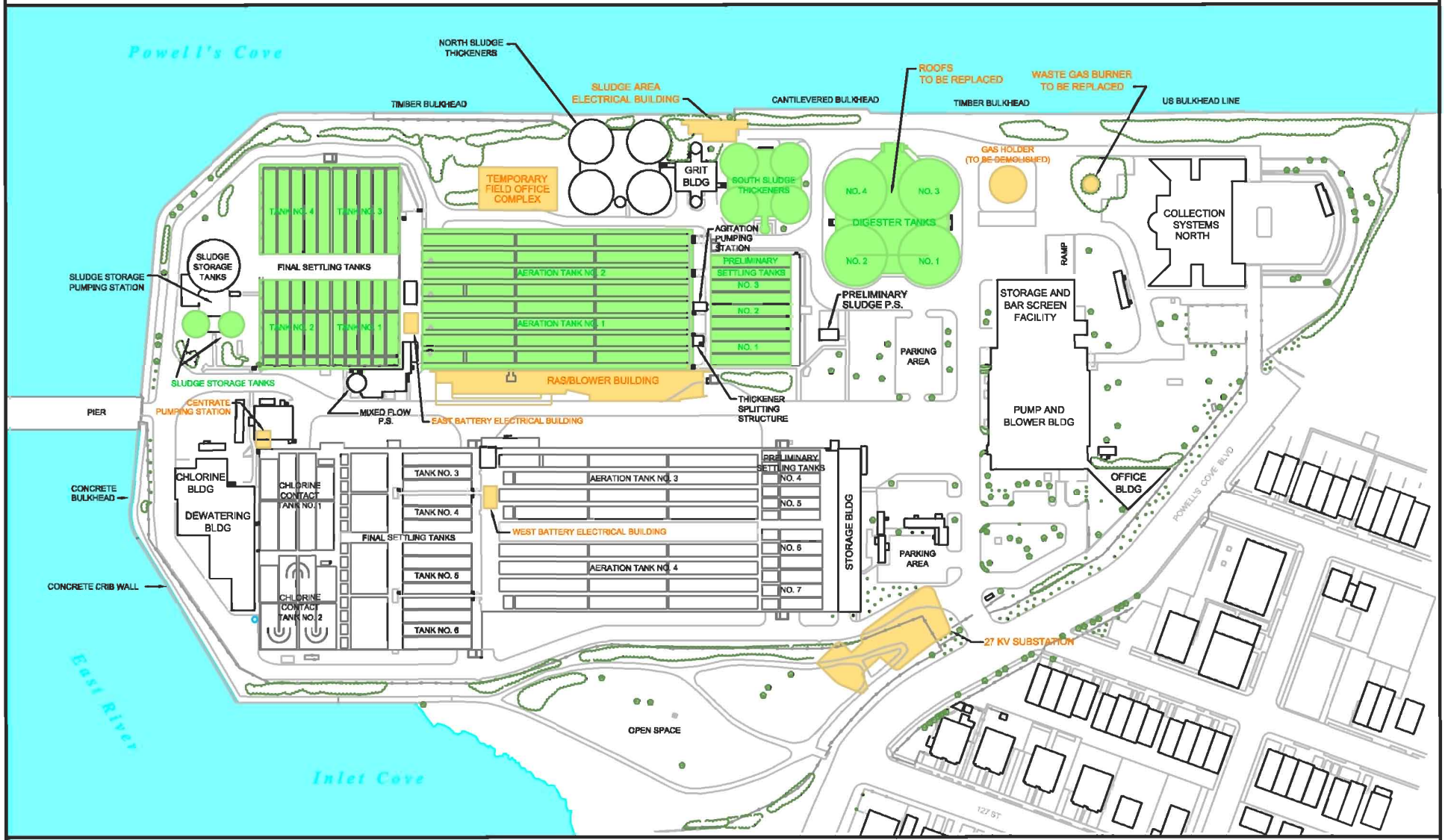
100 0 100

Scale in Meters

N

Figure 4

Tallman Island WPCP Planned Upgrade Program



New York City and National Register - Eligible Resource

Proposed Action

Existing Building

200 0 200

Scale in Feet

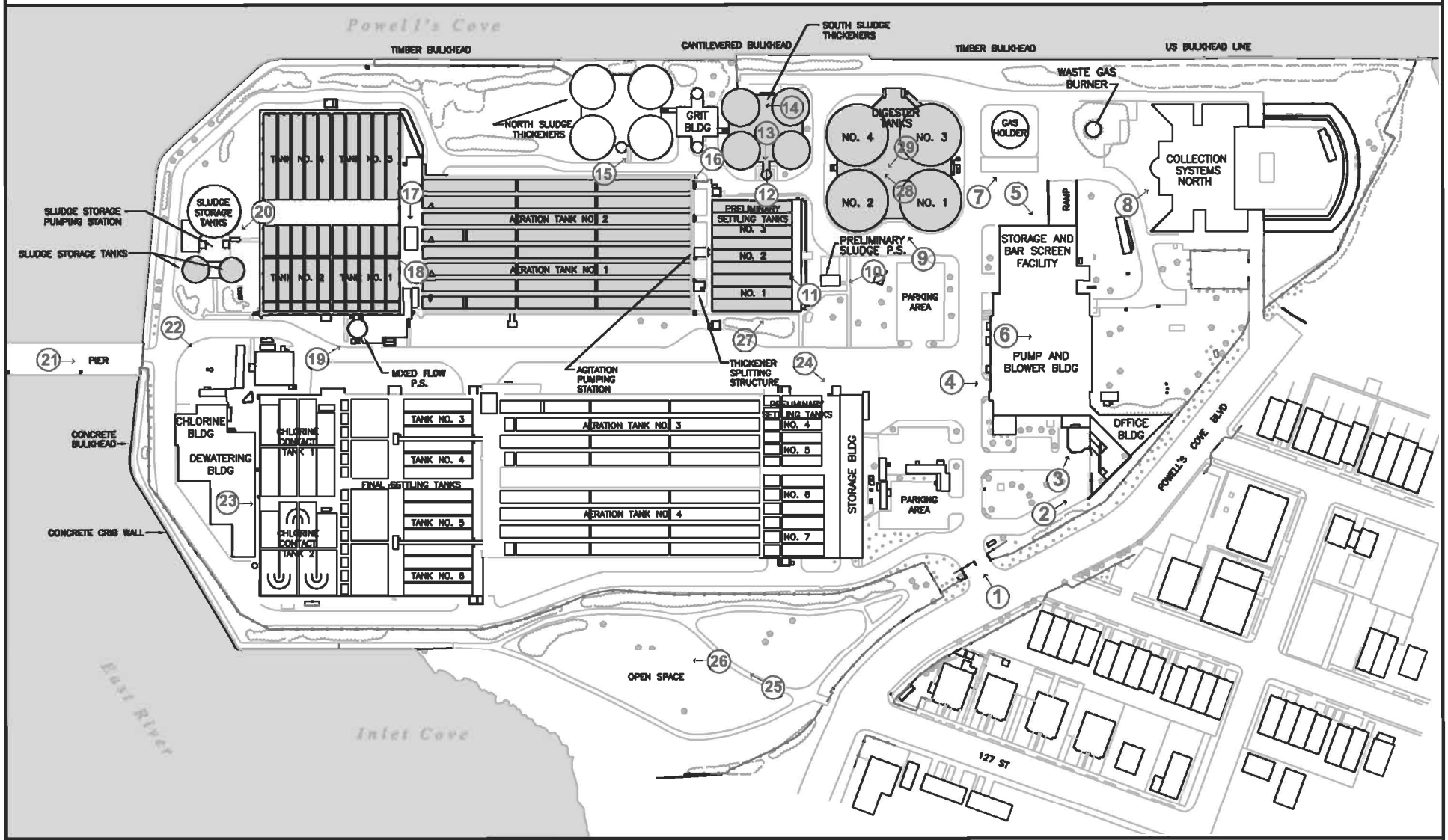
100 0 100

Scale in Meters

N

Figure 5

Photo Location



26→ Photo Location and Direction

Existing Building

NYC and National Register-Eligible Resource

200 0 200
Scale in Feet

100 0 100
Scale in Meters

N

Figure 6

Photo 1: View north toward entry to Tallman Island Water Pollution Control Plant from Powell's Cove Boulevard.

Photo 2: Looking toward west facade of 1970s office addtion incorporating polished granite blocks from original 1938 Pump and Blower Building.

Photo 3: Looking north toward office addition and 1938 date block from original Pump and Blower Building.

Photo 4: Looking southeast toward altered Pump and Blower Building. Note upper story re-clad in smoky glass, obscuring original appearance of facade.

Photo 5: Looking south toward 1970 Storage and Bar Screen Facility addtion to Pump and Blower Building.

Photo 6: Interior of Pump and Blower Building featuring engines and blowers that power the Tallman Island facility.

Photo 7: Looking east toward Gas Holder Tank erected in the 1960s.

Photo 8: Looking east toward former Grit Tank House (1939) which has been converted into Collection Systems North facility. Note replacement windows, doors and addition with round windows.

Photo 9: Looking north toward Digesters (1939) in East Battery. Note sunk fillet moldings along the base of the tanks and rounded, Art Deco-style stair rails.

Photo 10: Looking west toward Preliminary Sludge Pumping Station on the site of 1939 Pumping Station.

Photo 11: Looking north toward reliminary Settling Tanks (1939) in East Battery.

Photo 12: Interior of South Sludge Thickner (1957) staircase illuminated by glass-block window.

Photo 13: Looking southwest toward exterior of staircase atop South Sludge Thickener in East Battery.

Photo 14: Looking northwest from South Sludge Thickener to Grit Building (1970) in East Battery.

Photo 15: Looking northeast toward Noth Sludge Thickener (1970) and Grit Building (background) in East Battery.

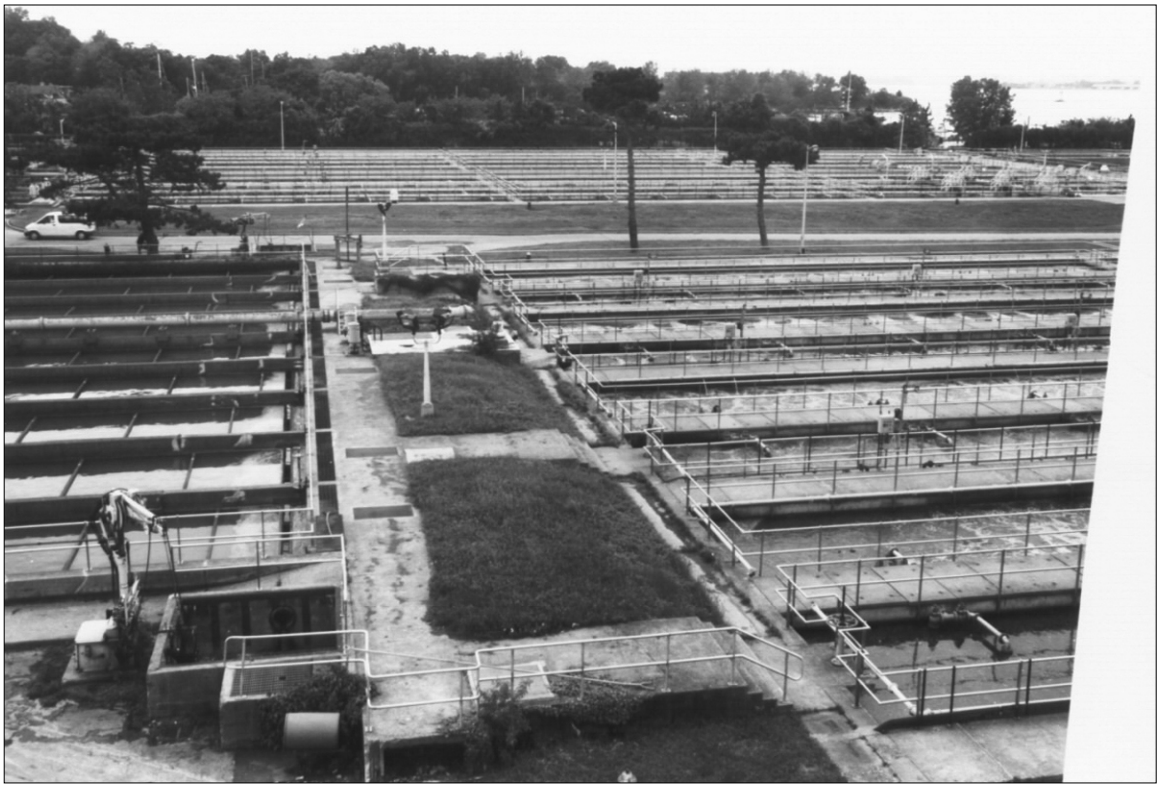


Photo 16: Looking west toward Preliminary Settling Tanks (1939; left side of photo) and Aeration Tanks (1939: right side of photo) in East Battery.

Photo 17: Looking southwest toward Meter House between Aeration Tanks (1939) and Final Settling Tanks (1939) in East Battery.

Photo 18: Looking north toward Final Settling Tank No. 1 (1939) in East Battery.

Photo 19: Looking east toward Mixed Flow Pumping Station (1959) erected on original site of Sludge Thickening Tanks in East Battery.

Photo 20: Looking west toward two Sludge Storage Tanks (1939). Sludge Storage Pump Station and Tank (1970) are also shown at center and right edge of photo, respectively.

Photo 21: Looking southeast toward Tallman Island from Pier (1939).

Photo 22: Looking south toward the single-story Chlorine Building (1959: re-clad in 1991) and high-bay Dewatering Building (1991).

Photo 23: Looking southeast toward West Battery from upper story of Dewatering Building. Tanks on the left installed in 1964; Tanks on the right installed in 1970, thereby increasing the capacity of the Tallman Island plant to 80 MGD.

Photo 24: Looking south toward Storage Building (1961) which was clad in white bridk in 1970, obscuring original facade arrangement.

Photo 25: View north along path toward relocated black granite columns in park area, southwest of West Battery.

Photo 26: Close-up of black granite columns which originally flanked main entry to Pump and Blower Building (1938). Columns were relocated to park following renovation of Pump and Blower Building in the 1970s.

Photo 27: Looking east toward Digesters from Preliminary Settling Tanks in East Battery. Note dome-shaped roofs pierced by multiple pipes.

Photo 28: Looking north toward Digester Tank No. 4. Asphalt-clad roof is in poor condition.

Photo 29: Looking west toward Digester Tank No. 2. Note Plexiglas roof light situated between four tanks.

Attachment D

New York City Landmark and National Register Eligibility Assessment of the Tallman Island Water Pollution Control Plant for the Tallman Island Plant Upgrade Project

D.1 Historic Context

Introduction

The Tallman Island Water Pollution Control Plant (WPCP) was constructed between 1937-39 according to designs prepared by the New York City Department of Sanitation (NYCDOS), Bureau of Sewage Disposal and Intercepting Sewers. The facility, originally known as the Tallmans Island Sewage Treatment Works, was built on a sparsely developed island situated in the East River, west of Powell's Cove, in the College Point neighborhood of Queens (Figure 1).

Historic maps indicate that during the late 19th and early 20th century, the island was developed with a small hotel, including dancing and dining pavilions and sleeping quarters (USGS, 1891; Sanborn, 1916). The south side of the island consisted of marshland, fed by a creek. Access to the island was gained via a causeway that extended from the mainland via an alignment similar to present-day Lax Avenue (USGS, 1891). By the mid-1930s, the hotel buildings no longer survived; the site had only scattered building foundations and dirt roads (NYCDOS, 1937).

During the 1930s, the New York City government, under the leadership of Mayor Fiorello LaGuardia, embarked on a wastewater treatment plant construction program to build a system of facilities citywide that would provide biological treatment of sewage. Under his leadership, plants at Coney Island (1935) and Wards Island (1937) were completed; 28 additional plants were projected to be built throughout New York City, but only 14 were eventually constructed (NYCDEP, c. 1998).

In September 1937, the Borough of Queens began installation of collecting sewer lines, a necessary prelude to the construction of a sewage treatment plant in Queens. That same year, NYCDOS began preparing plans for the design and construction of the Tallmans Island Sewage Treatment Works, the first sewage treatment plant in Queens. The facility was to be constructed with city funds, with no assistance from New York State or the federal government. As initially conceived, the plant would have the capacity to treat 40 million gallons per day (MGD) of sewage. Encompassing over 30 ac (12.2 ha), the plant was also designed for future expansion as the population along the north shore of Queens grew throughout the 20th century (Anonymous, April 23, 1939).

Dedication of the Tallman Island Plant

The Tallman Island plant was completed and dedicated by Mayor Fiorello LaGuardia in April 1939, in time to treat the sewage flow from the 1939 World's Fair located southwest of the site in Flushing Meadows Park. Newspaper accounts of the dedication ceremony cite that the plant was designed along "modified modernistic lines" similar in style to many of the Art Moderne buildings at the World's Fair exposition grounds (Anonymous, April 23, 1939). A landscaped, rectangular fountain, similar to the World's Fair structures, was located on the site northwest of the Pump and Blower Building, but was removed during the 1940s or 1950s.

As constructed, the $3.8 million Tallmans Island Sewage Treatment Works consisted of ten major facilities that worked as a unit to process and treat raw sewage (*The New York Times*, April 23, 1939). To accommodate the structures, the island was filled on its north, east, and northwest corner, and bulkheads were erected in these areas to stabilize the fill. At the time of opening, the west side of the island remained intact, forming a U-shaped cove, and the south side of the island remained marshland, but plans were in place to fill the marsh and construct a road atop it.

Sanborn maps (1943), as shown in Figure 2, indicate that the complex originally included:

- Pump and Blower Building;
- Pumping Station;
- Preliminary Settling Tank Nos. 1-3;
- Aeration Tank Nos. 1 and 2;
- Final Settling Tank Nos. 1-4;
- Four Digester Tanks;
- Two Sludge Thickener Tanks;
- Two Sludge Storage Tanks;
- Grit Tank House; and
- Pier.

The principal building on the site, the Pump and Blower Building, was a buff-colored brick building with Air Moderne details. The high-bay building was originally pierced by industrial steel casement windows. The principal entry had double bronze doors flanked by black granite columns and polished pink granite blocks indicating "City of New York" and "Department of Public Works." The building had a "1938" pink granite date block and nickel bronze New York City seal set in granite, affixed above the entry. The Pump and Blower Building originally contained eight gas-powered engines that powered the machinery for the sewage treatment process. The building has been reconstructed over time.

Other original features included the Pumping Station and various tanks. The Pumping Station, no longer extant, was a small rectangular fireproof building located north of the Pump and Blower Building. Four attached, round, concrete sludge Digester Tank Nos. 1-4 were constructed north of the Pump and Blower Building, and are still extant. The tanks rest atop a rectangular plan structure that provides access to them. The base of the tanks is embellished with Art Deco detail consisting of three continuous, parallel sunk-fillet moldings along their bottom edge. Preliminary Settling Tank Nos. 1-3, were constructed northwest of the Digester Tanks, are still extant and consist of large, rectangular open-air tanks with reinforced concrete ramps dividing the tanks into three sections. The two, large rectangular Aeration Tank Nos. 1-2 were constructed northwest of the Preliminary Settling Tank Nos. 1-3, and are still extant. They consist of open-air, multi-pass concrete tanks, each divided into four channels. The tanks are further subdivided into three rectangular sections by two concrete ramps that span the width of the tanks.

Four Final Settling Tank Nos. 1-4 were constructed northwest of the Aeration Tanks, are still extant, and consist of four open-air tanks. The two northwestern-most tanks are subdivided into five rectangular sections by four concrete ramps. The tanks are further subdivided by two longitudinal concrete ramps. The two northeastern-most tanks are similar to the two northwestern tanks but lack the longitudinal ramps.

Two open-air Sludge Thickener tanks were constructed west of the Final Settling Tanks, and are still extant. Two concrete Sludge Storage Tanks were constructed northwest of the Final Settling Tanks and are still extant.

A Grit Tank House was constructed at the southeastern edge of the complex, southeast of the Pump and Blower Building. The tank house consisted of a rectangular-plan, brick garage pierced by a concrete-frame brick silo. The Grit House had rounded, streamlined corners typical of Art Deco-style buildings, and has been highly altered over time. A wood pier on wood piles was located at the northwestern edge of the property in the original location of the recreational pier from the island's prior recreational use. The pier facilitated removal of sludge from the plant via scows.

Innovations in Sewage Treatment at Tallman Island

The Tallman Island complex processed sewage via the activated sludge process, a ca. 1914 British technology, and was the first plant in New York City and the US to apply the step aeration process. (Sawyer, 1965). In the activated sludge process, microorganisms break down sludge by using it as a food source in an aeration tank. Oxygen and nutrients are required by microorganisms to break down the sludge. The conventional activated sludge process is known as plug flow, where fluid particles pass through the aeration tanks and are discharged in the same order they enter.

At Tallman Island, New York City sanitary engineer Richard H. Gould developed the step aeration process to overcome some of the problems inherent in the conventional activated sludge process and conserve aeration tank capacity. Gould's design, which was first implemented at Tallman Island, is based on a system of multi-pass aeration tanks with four channels. The first pass is reserved for reaeration of returned sludge to regenerate its absorptive properties. Sewage is then added in incremental steps to the aeration tanks along the course of flow of the returned sludge to keep the oxygen demand at uniform levels. Step aeration capitalizes on the absorptive power of rejuvenated activated sludge to remove organic pollutants, with stabilization occurring in the sludge reaeration tank. The primary advantages of step aeration is that it allows for more flexibility in operation, produces well-settled sludge and saves tank volume (Sawyer, 1965; Carrio, June 12, 2000; Reardon, June 12, 2000).

Plant Operations

The Tallman Island plant originally operated as follows:

Raw sewage, or influent, would enter the plant at the underground screen chamber at the southwest corner of the Pump and Blower Building. Sewage would then be pumped to Preliminary Settling Tanks via eight gas-powered engines in the Pump and Blower Building. In the Preliminary Settling Tank Nos. 1-3, the sewage would separate into solids and grit, with the grit pumped to an underground grit chamber east of the Pump and Blower Building. Grit would be removed form the Grit Tank House silo via truck. Degritted primary sludge would be pumped to the plant's sludge handling facilities for further processing.

Settled sewage in the Preliminary Settling Tank Nos. 1-3 would flow to the aeration tanks where it would be distributed and mixed with return sludge in all four passes of each tank using the step aeration process. Aeration effluent would then be clarified in the Final Settling Tank Nos. 1-4 and be discharged into the East River via above-ground pipes affixed along the pier.

Settled sludge would be returned to the aeration tanks or flow by gravity to the two Sludge Thickener Tanks. Thickened sludge would be pumped to Sludge Digester Tank Nos. 1-4. Digested sludge would be pumped to Sludge Storage Tanks where it would then be pumped into a sludge vessel for disposal at sea.

Access to Tallman Island

Maps from the 1930s-40s indicate that sometime between the opening of the plant in 1939 and the World War II/post-World War II-era, Powell's Cove Boulevard was created on fill over the creek that ran along the south side of Tallman Island. The boulevard provided access to the plant and joined the island to mainland Queens (NYCDOS, 1937; Sanborn 1941; 1943). The Sanborn map of 1943 indicates that Powell's Cove Boulevard was constructed along the south side of the Tallman Island, west of 127th Street, the principal access route to the plant at that time. During this period, Powell's Cove Boulevard was slated for construction atop the creek that still existed along the south side of the island, east of 127th Street, but had not yet been built in 1943 (Sanborn, 1943). Most likely, Powell's Cove Boulevard was extended eastward sometime after World War II.

Other Features

The 1943 Sanborn map also reveals that a portion of land on the west side of the plant was designated "Tallman Island Park." The park consisted of a swath of green space situated between the East Battery and a U-shaped cove. Because bulkheads did not retain the west side of the island, the park provided direct, unimpeded access to the cove, including a truncated jetty at the northwest corner of the island. Park users shared the cove with a privately owned boat storage yard, improved with a wood pier on wood piles.

Tallman Island, 1950s-60s

During the 1950s, operations at the Tallman Island facility were improved through the addition of the South Sludge Thickeners in 1957 (NYCDEP, 1978). The South Sludge Thickeners, were constructed west of the Preliminary Settling Tank Nos. 1-3, and are still extant. They consist of four round open tanks set upon a rectangular base. The surface of the tanks is embellished with a sunken fillet design. A brick-enclosed Art-Deco-style spiral staircase on the west façade provides access to the upper deck of the tanks. The staircase is illuminated by rectangular-shaped, glass-block windows that span the length of the staircase. The walkway from the staircase to the tank deck is protected by a reinforced concrete overhang, supported by metal poles. The South Sludge Thickener tanks increased the sludge-thickening capacity at Tallman Island from two to six tanks, thereby enabling the facility to process sludge from the waste sludge sump where waste sludge from Preliminary Settling Tank Nos. 1-3 was collected.

In 1959, Tallman Island was further improved through the addition of a Chlorine Building and Chlorine Contact Tank No. 1 (NYCDEP, 1978). The Chlorine Building was originally a rectangular-shaped building constructed of buff-colored brick south of the main pier, and has been highly altered over time. The contact tank, which remains extant and relatively unchanged, is an open-air, rectangular tank divided into four sections by concrete ramps. The tank is bisected in the center by a single concrete ramp. The chlorination facilities were added to disinfect treated effluent from Final Settling Tank Nos. 1-4 during the bathing season.

In 1961, further improvements were made to Tallman Island when the engineering firms Havens & Emerson and Hazen & Sawyer were engaged to prepare designs for the first major expansion of the facility. Completed in 1964, the expansion increased the capacity of the plant to 60 MGD and resulted in the construction of a West Battery to complement the 1939 section, which became known as the East Battery. In addition, other major work included revising the flow pattern for Final Settling Tank Nos. 1-4; converting one sludge Digester Tank to a storage tank and changing the remaining three digesters to fixed

cover-type tanks; and replacing a pump and engine and adding a pump and engine to accommodate the new 60 MGD flow.

The improvement initiative also upgraded the plant, allowing it to run a modified aeration process during emergencies (NYCDEP, 1978). Modified aeration is similar to the conventional activated sludge process, but with a high rate of wasting of return sludge to keep the solids concentrations of the aeration tanks low. Air requirements are only three to four tenths of that required by the activated sludge process, with sufficient oxygen required to maintain aerobic conditions (NYCDEP, 1978).

The expansion included the addition of the following buildings and structures located west of the central plant road:

- Preliminary Settling Tank Nos. 4-5;
- Aeration Tank No. 3;
- Final Settling Tank Nos. 3-4;
- Storage Building; and
- One Gas Holder Tank.

The Preliminary Settling Tank Nos. 4-5, Final Settling Tank Nos. 3-4, and Aeration Tank No. 3 were similar in design to the East Battery structures, with the Aeration Tank equipped with four passes. These facilities remain relatively unaltered today.

The Storage Building was originally a rectangular-plan, buff-colored brick building located northwest of the Pump and Blower Building. It was pierced by glass-block and industrial window bands, and has been altered over time.

The Gas Holder Tank, which has remained intact since the 1960s, was a large metal tank located south of the Digester Tanks in the East Battery. It was erected to store methane gas, a by-product of the sludge digestion process, which is burned by the plant for energy.

According to aerial photographs, other changes were also implemented during the 1960s, including extension of the pier northward to augment vessel access (NYC Department of Public Works, 1964).

Tallman Island, 1970s-90s

In 1969, the engineering firm of Camp, Dresser & McKee was hired to design the second major upgrade to the Tallman Island facility (NYCDEP, 1978). Competed in the mid-1970s, the upgrade increased the capacity of the plant to 80 MGD, capable of treating sewage of 16,860 ac (6,823 ha) in the northeast section of Queens. The second major upgrade included the construction of the following facilities:

- Office Building, Boiler Room, and Storage and Bar Screen Facility additions to the Pump and Blower Building;
- Grit Building (located north of the South Sludge Thickeners);
- Four North Sludge Thickeners (located north of the Grit Building);
- Mix Flow Pumping Station (located west of Final Settling Tank Nos. 1-4 in the East Battery);
- Sludge Storage Tank (located east of the 1939 Sludge Storage Tanks);
- Chlorine Contact Tank No. 2 (located west of the 1959 Chlorine Contact Tank);
- Final Settling Tank Nos. 5-6 (located west of the Final Settling Tank Nos. 3-4);
- Aeration Tank No. 4 (located west of Aeration Tank No. 3);

- Preliminary Settling Tank Nos. 6-7 (located west of Preliminary Settling Tank Nos. 4-5);
- Storage Building addition; and
- Reconfigured park.

New mechanical additions to the plant included the Bar Screen Facility, Grit Building, and Mix Flow Pumping Station. The addition of a Bar Screen Facility enabled the plant to remove screenings from the sewage with raked bar screens via a belt conveyor in the screenings room. Screenings would then be transported by truck for disposal at sanitary landfills. The remaining sewage would be processed at the facility.

The Grit Building received sewage solids from the Preliminary Settling Tanks where it was then pumped to cyclone degritters to improve the grit removal process. The Mixed Flow Pumping Station received settled sludge from the waste sludge sump and enhanced the sludge removal process.

Buildings and structures erected during the 1970 expansion had a commonplace, utilitarian design, with the primary building material either reinforced concrete or brick. During this improvement campaign, major changes were made to the Pump and Blower Building, originally the most architecturally elaborate edifice on the site. The upper story was sheathed in black glass obscuring the 1930s windows. A modern triangular-shaped office building and rectangular-shaped Storage and Bar Screen Facility were also added to the south corner and northeastern facade of the Pump and Blower Building, respectively. These additions further compromised the historic character of the building. In addition, the Pump and Blower Building's original double bronze doors, granite columns, date block, "New York City" block, "Department of Public Works" block, and "New York City" seal were also removed. The building elements were relocated to the entry on the west facade of the office building and the granite columns were installed off-site in the park located northwest of the West Battery.

During this period, the Storage Building was also altered. Fenestration was bricked-in and a white brick addition was appended to its west facade, thereby compromising the historic feel of the building.

Upgrade plans prepared by consulting engineers Camp, Dresser & McKee in 1970 indicate that the park was also slated for improvement as part of construction campaign. According to landscape plans, the park would be reduced in size to accommodate new West Battery structures that were to be built west of those constructed in the early 1960s. Asphalt-paved paths that formed an elongated figure-eight shape were constructed for pedestrians. In addition, a concrete bulkhead was constructed along the northwest portion of Tallman Island that eliminated some of the irregular coastline on the west side of the island. The jetty that extended from the northwest corner of the island was further compromised, but remained slightly intact outside, or west of, the newly bulkheaded area. A small portion of the park's coastline was unimproved and retained its irregular shape. A paved path that extended northwest from northernmost tip of the figure-eight-shaped park path provided access to the bulkheaded north and west perimeter of the island (CDM, August 1970).

According to plans and construction photos, topography within the reconfigured park was formed from excavated construction spoils. (Affiliated Photo Services, March 20, 1974; NYCDEP, February 1976). Upon completion, the northern portion of the park received more fill than the southern portion, resulting in a gently undulating landscape. In addition, electrical systems and water pipes were laid in the park area, resulting in the installation of lampposts and hydrants in the park. Furthermore, rip-rap and chunks of concrete remained in the unimproved portion of the park along the cove.

Within the past twenty years, the original Grit Tank House has also been altered by the conversion of the facility for use as Collections Systems North. The conversion resulted in the installation of modern

fenestration at the Grit Tank House and silo, and construction of a rectangular-plan office addition and enclosed parking space. These alterations compromise the historic feeling and character of the building.

In 1991, a large concrete-panel and glass Dewatering Building was added to the facility, southwest of the pier. The Dewatering Building enables Tallman Island to reduce the liquid volume of sludge by 90% in preparation for transport, as sludge cake, to landfills. During the 1990s, the pier was deactivated and sludge cake began to be transported form Tallman Island to landfills via truck. Chlorinated effluent continues to be discharged into the East River.

During the mid-1990s, the NYCDEP began to retrofit many of its water pollution control plants for biological nutrient removal (BNR). The BNR process was implemented in an effort to mitigate degradation of surface waters and protect aquatic resources in compliance with federal water pollution control standards. In New York City, Tallman Island was one of the first plants slated to be retrofitted for step feed BNR At that time, baffles, mixers and a froth control system was installed in Aeration Tank Nos. 3 and 4, with minor upgrades to Aeration Tank Nos. 1 and 2 (NYCDEP, 1998). Figure 3 depicts the development phases at the plant between the 1930s-90s.

As noted previously, of the 14 New York City WPCPs, Tallman Island was the first to incorporate the step aeration process for treating wastewater. With the exception of Newtown Creek in Brooklyn, which is currently being upgraded for step aeration, the remaining 13, including Tallman Island, process wastewater via step aeration (Olivieri, June 19, 2000).

D.2 New York City Landmark and National Register Eligibility Assessment

Portions of the 1939 East Battery at the Tallman Island WPCP appear to be New York City Landmark and National Register-eligible resources under Criteria A and C for their historic and engineering importance. Portions of the original plant appear to be eligible under Criterion A for its association with biological treatment of sewage in New York City in the late 1930s. Dedicated in 1939, the plant was completed in time to treat sewage flowing from the site of the New York World's Fair of 1939, and continues to treat the sewage of northern Queens today.

Portions of the plant are also eligible under Criterion C for its engineering design. Tallman Island was the first plant in the US designed by New York City sanitary engineer Richard H. Gould to treat sewage with the step aeration process. Under this process, air pumped into large aeration tanks mixes wastewater and sludge, stimulating the growth of oxygen-using bacteria and other tiny organisms that are naturally present in sewage. These beneficial microorganisms consume most of the remaining organic materials that pollute water, and this produces heavier particles that will settle later in the treatment process. Since its introduction at Tallman Island, step aeration has become the standard method for treating wastewater in New York City.

Nine of the ten structures originally constructed within the East Battery survive form 1939 and are over 50 years old. One structure, the Sludge Thickening Tanks, have been removed and replaced by the Mixed Flow Pumping Station in 1970. Five of the nine surviving structures have been upgraded, but retain adequate architectural integrity to contribute to the significance of the Tallman Island WPCP as shown in Figure 4 and noted below.

- Preliminary Settling Tank Nos. 1-3;

- Aeration Tank Nos. 1 and 2;
- Final Settling Tans Nos. 1-4;
- Four Digester Tanks; and
- Two Sludge Storage Tanks;

Together, these resources were integral to the original operation of the Tallman Island WPCP, the first plant in New York City and the US to process sewage via the step feed aeration process.

The four resources listed below were constructed in 1938-39; however, they have been altered and no longer retain adequate integrity to qualify as New York City Landmarks or National Register-eligible resources:

- Preliminary Sludge Pumping Station;
- Pump and Blower Building;
- Pier; and
- Former Grit Tank House.

The remaining structures Tallman Island WPCP, constructed between 1957-91, are less than fifty years old, and with the exception of one structure, the South Sludge Thickeners, do not possess exceptional significance to qualify for listing in the National Register. Although some of these structures are over 30 years old (New York City Landmarks Law criterion), they do not appear to be New York City Landmarks. In general, these structures are characterized as utilitarian construction, representing the historical expansion of the Tallman Island facility over time to meet the public need for wastewater treatment.

The South Sludge Thickeners, constructed in 1957, appear to be New York City Landmark and National Register-eligible because of their Modern design as expressed through the sunken fillets on the surface of the tanks, and the brick and glass-block enclosed spiral staircase leading from the ground surface to the top of the four tanks.

Photos of all buildings and structures at the Tallman Island WPCP keyed to a photo location map are included at the end of this document.

D.3 Future Without the Proposed Action

New York City Environmental Quality Review (CEQR) provides specific criteria for assessing the effects of undertakings on historic properties and identifying significant adverse impacts. The effects of an undertaking on New York City Landmark-listed/eligible resources and National Register-listed/eligible resources and are predicted by evaluating the significant characteristics of the resource and the anticipated consequences of the undertaking on the resource, as described in Table D-1.

The proposed action includes implementation of the Tallman Island Plant Upgrade Program (PUP) described under the Impacts of Proposed Action section. The future no action condition would have no impact on six New York City Landmark and National Register-eligible features at Tallman Island WPCP. New construction would not take place at the facility, and the historic feeling and character of these components of the complex would remain intact.

Table D-1

Significant Adverse Impacts Criteria

Significant Adverse Impacts
CEQR impact assessments are directly related to the proposed action and how it will affect the distinguishing characteristics of identified State/National Register-listed/eligible resources and NYC-designated/eligible resources. The assessment asks two major questions: Will there be a physical change to the property or its setting as a result of the proposed action and is the change likely to diminish the qualities of the resource that make it important?
Examples of Significant Adverse Impacts to Architectural Resources
1. Physical destruction of or damage to all or part of the property; 2. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that cause it to become a different visual entity; 3. Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features; 4. Replication of aspects of the resource so as to create a false historical appearance; 5. Elimination or screening of publicly accessible views of the resource; 6. Construction-related impacts, such as falling objects, vibration, dewatering, flooding, subsidence or collapse; and 7. Introduction of significant new shadows or significant lengthening of the duration of existing shadows on historically important resources.
Source: Chapter 3, Section F, CEQR Technical Manual (October 2001).

D.4 Impacts of the Proposed Action

The impacts of the Tallman Island WPCP PUP are described below and featured in Figure 5.

Mixed Flow Pumping Station Modifications

The Mixed Flow Pumping Station is situated west of the New York City Landmark and National Register-eligible Final Settling Tank Nos. 1-4 in the East Battery. The Mixed Flow Pumping Station was constructed in the 1970s and is not recommended to be New York City Landmark or National Register eligible. Under the PUP, the mixed flow pumps, spray water pumps, piping and valves would be replaced.

Modifications to the pumping station are slated to occur inside the structure and therefore, would have no impact on nearby eligible resources, including the Final Settling Tank Nos. 1-4 in the East Battery. Thus, alterations to the Mixed Flow Pumping Station would have no effect on New York City Landmark and National Register-eligible resources at Tallman Island WPCP.

RAS and Blower Building

The RAS and Blower Building would be constructed adjacent to and west of New York City Landmark and National Register-eligible Aeration Tank Nos. 1-2 and northwest of Preliminary Settling Tank Nos. 1-3.

The RAS and Blower Building would be a rectangular plan building capped by a flat roof. It would be constructed of poured-in-place concrete, pre-cast concrete, metal siding, glass block, and metal panels, range between two and three stories high. The structure, approximately 400 ft long and 40 ft wide, would extend the entire length of the west side of Aeration Tank Nos. 1-2, and occupy a grassy median that flanks the west side of Aeration Tank Nos. 1-2 and Preliminary Settling Tank Nos. 1-3, where no structures previously existed.

The RAS and Blower Building would have no direct impacts on New York City Landmark and National Register-eligible aeration tanks and preliminary settling tanks because the design and function of the tanks would not be altered.

However, the RAS and Blower Building would have an indirect visual impact on the aeration tanks and preliminary settling tanks because the layout and setting of the tanks would be compromised by the introduction of new adjacent structures where none previously existed. Within the functional portion of Tallman Island WPCP, the view east toward the tanks would be blocked. However, the view east from the publicly accessible park space would not be compromised because the view from the park toward the tanks is currently screened by trees. Although the RAS and Blower Building may cast new shadows on the aeration tanks and preliminary settling tanks, the significance of the tanks are not related to sunlight, and introduction of shadows would not obscure the tanks. The introduction of the RAS and Blower Building would not be incompatible with other sewage treatment-related structures within the Tallman Island WPCP, including the aeration tanks and preliminary settling tanks.

To minimize the impacts of the indirect visual effects on New York City Landmark and National Register-eligible resources, designers should strive to choose building materials for new structures that conform as much as practicable to the existing materials and at the plant, including concrete, buff and painted brick, metal and glass.

27 KV Substation

The 27 KV Substation would be constructed partially in an open park space owned by NYCDEP located on the north side of Powell's Cove Boulevard, west of the principal entrance to the facility and partially atop the interior road network flanking the West Battery within Tallman Island WPCP. The Transformer would not be constructed adjacent to New York City Landmark or National Register-eligible resources at Tallman Island WPCP.

The substation would consist of a rounded rectangular form and a V-shaped form that are joined by a hyphen section. Flat roofs cap the rectangular, V and hyphen forms. The building would be constructed of metal panels and siding (stem of the T plan) and poured-in-place concrete (cross-bar of the T-plan). The building would be approximately 150 ft long, 70 ft wide and one to two stories (20 ft) high.

Construction of the substation would result in no direct impact on New York City Landmark and National Register-eligible resources at Tallman Island WPCP because it would be built within or adjacent to eligible resources.

However, the substation may have an indirect visual impact on New York City Landmark and National Register-eligible resources at the facility because the setting of the plant would be compromised by the introduction of new adjacent structures where none existed before. However, the view toward the eligible resources in the East Battery from the proposed location of the substation would not be severely compromised because the view is currently screened by trees within the park and sloping topography. Introduction of the substation would not be incompatible with other sewage treatment-related structures within the Tallman Island WPCP, including electrical buildings that are slated for construction as part of this plant upgrade project.

While the substation may screen views of West Battery from Powell's Cove Boulevard and the NYCDEP-owned park, it would provide power to the WPCP, a non-publicly accessible facility. Although the substation may cast new shadows within the open space park, the West Battery and Powell's Cove Boulevard, the shadows would not adversely impact eligible resources that are far-removed from the substation and whose significance is not linked to unobstructed sunlight.

Furthermore, the substation may have an indirect impact on a portion the adjacent residential College Point neighborhood. The area was largely developed between the 1930s-present but residences closest to Tallman Island WPCP appear to have been within the past decade. For example, residences flanking 128th and 129th streets between Fifth Avenue and Powell's Cove Boulevard have been constructed within the past five years, and access to these streets has been blocked from Fifth Avenue and Powell's Cove Boulevard. The street leading to the plant, 127th Street, is flanked by a combination of modern brick and frame residences that do not possess historic significance. Furthermore, Powell's Cove Boulevard itself is flanked by residences constructed within the past decade. In general, the area does not qualify as a New York City Landmark or National Register-eligible historic district because it has been highly altered over time, and is typical of many World War II-era neighborhoods in Queens.

Nevertheless, to ensure that the historic integrity of New York City Landmark and National Register-eligible resources in the East Battery of Tallman Island WPCP is preserved, designers should strive to ensure that the materials of the transformer conform to existing structures at Tallman Island WPCP as much as practicable, including concrete, buff and painted brick, metal and glass.

Three Electrical Buildings

Sludge Area Electrical Building (Electrical Building [EB]-201)

The Sludge Area Electrical Building (EB-201) would be constructed northeast of the New York City Landmark and National Register-eligible South Sludge Thickeners, at the northeast corner of the thickener structure.

EB-201 would be a rectangular plan building capped by a flat roof. It would be constructed of metal siding and pre-cast panels, and range between one to three stories high. The structure, approximately 90 ft long and 30 ft wide, would occupy a waterfront area on the east side of Tallman Island WPCP between the South Sludge Thickeners and the North Sludge Thickeners, where no structures previously existed.

Construction of EB-201 would have no direct impacts on the New York City Landmark and National Register-eligible South Sludge Thickeners because the design and function of the four thickener tanks and enclosed spiral staircase would not be altered.

However, EB-201 would have an indirect visual impact on the South Sludge Thickeners because the setting of the structure would be compromised by the introduction of new adjacent structures where none

existed before. Nevertheless, introduction of EB-201 would not be incompatible with other sewage treatment-related structures within the Tallman Island WPCP, including the South Sludge Thickeners. Furthermore, the North Sludge Thickeners located north of the south thickeners were constructed in 1970 and have already slightly comprised the setting of the South Sludge Thickeners. While EB-201 may screen views of the South Sludge Thickeners from Powell's Cove, EB-201 would form an integral part of the WPCP, a non-public facility. Although EB-201 may cast new shadows on the South Sludge Thickeners, the significance of the thickener tanks are not related to sunlight, and introduction of shadows would not obscure the tanks.

To ensure that the historic integrity of the South Sludge Thickeners is preserved, designers should strive to ensure that the materials of the EB-201 conform to existing structures at Tallman Island WPCP as much as practicable, including concrete, buff and painted brick, metal and glass.

East Battery Electrical Building

The East Battery Electrical Building would be constructed west of an existing meter house between the New York City Landmark and National Register-eligible Aeration Tank Nos. 1-2 and Final Settling Tank Nos. 1-4. The new building would be situated on the site of a temporary structure. The building would be a rectangular plan structure capped by a flat roof. It would be constructed of cast-in-place concrete on a poured-in-place concrete slab, and be 15 feet high. The structure, approximately 28 ft long and 19.5 ft wide, would sit atop a concrete pad west of the existing meter house.

Construction of the building would have no direct impacts on the New York City Landmark and National Register-eligible Aeration Tank Nos. 1-2 and Final Settling Tank Nos. 1-4 because the design and function of the tanks would not be altered.

The building would not have an indirect visual impact on the aeration and final settling tanks because it would replace an existing temporary structure and a meter house already exists east of the proposed electrical building. Construction of the building would be compatible with other sewage treatment-related structures within Tallman Island WPCP. The building would not screen views of the aeration tanks and final settling tanks, and would cast approximately the same shadows that the mater house currently casts on the tanks.

West Battery Electrical Building

The West Battery Electrical Building would be constructed in the West Battery between the aeration tanks and final settling tanks. The building would not be constructed adjacent to New York City Landmark-eligible or National Register-eligible resources at Tallman Island WPCP. The building would have a rectangular plan and be capped by a flat roof. It would be constructed of cast-in-place concrete on a poured-in-place concrete slab and would be approximately 31 ft long, 18 ft wide and 15 feet high.

Construction of the building would have no direct or indirect effect on significant architectural resources at the facility because it would be built adjacent to eligible resources, would not obstruct sight lines to and from resources, or cast new shadows on resources.

Aeration System Improvements/Tank Modifications

Aeration Tanks at Tallman Island WPCP would be upgraded by the replacement of existing course bubble diffusers with submerged fine bubble membrane-type diffusers, air headers, control valves and piping. In addition, the following tank modifications would also be required to accommodate the step-feed BNR

process. Modifications include the construction of two wet wells that would be situated above water level, multiple floating weirs that would be situated above water level, multiple submerged baffle walls, eight froth hoods that would span tank passes above water level, and 42 platform mixers. The platform mixers would extend from the sides of tank passes above water level and consist of an electric motor atop a platform. The motor would provide power to an underwater shaft propeller that would mix the contents of the tank pass.

These actions would directly impact New York City Landmark and National Register-eligible Aeration Tank Nos. 1-2 in the East Battery. The tanks are significant because they were integral to the original operation of Tallman Island WPCP, the first plant in New York City and the US to process sewage via the step feed aeration process. While the proposed alterations would facilitate step-feed BNR operation of the tanks, the upgrades would alter the appearance of the tanks. For example, new structures such as wet wells, floating weirs, baffle walls, froth hoods and platform mixers would be visible from the ground surface and therefore change the historic configuration of the tanks.

Implementation of tank improvements within Aeration Tank Nos. 1-2 would directly affect the New York City Landmark and National Register-eligible the tanks. Since initial construction in the 1930s, these features have been modified over time to keep pace with sewage treatment technology. The significance of these features is related to their historic function, which would be preserved. However, to avoid significant adverse impacts that implementation of the PUP would have on the physical appearance of these historic resources, it is recommended that Aeration Tank Nos. 1-2 (along with Digester Tanks described below), and surrounding New York City Landmark and National Register-eligible resources, be documented according to NYCLPC/NYSHPO standards for historic structures documentation.

At a minimum, this would include photo-documentation of the Aeration Tank Nos. 1-2 provided by the professional photographer hired by the contractor responsible for implementing PUP. The photographer will coordinate with project cultural resources consultants to take photographs of Aeration Tank Nos. 1-2 (and Digester Tanks described below), in addition to contextual views and aerial views of the treatment plant prior to commencement of PUP. In addition to photographs, a detailed physical description and historic narrative describing the aeration and digester tanks and how they fit into the overall operation of Tallman Island WPCP from its opening in the 1930s through present time will also be prepared. The report would be deposited at the NYCLPC, NYSHPO and NYCDEP and other repositories designated by lead agency, NYCDEP, and NYCLPC/NYSHPO.

Main Sewage Pumping Station

The upgrade project also entails replacement of the five main sewage lift pumps, piping and valves with five new 60 MGD main sewage pumps; replacement of five existing dual-fuel engine drive units with five (5) new 550 hp motors and replacement of the existing underground East and West batteries force mains. These actions would occur in the Pump and Blower Building and underground in the area where the force mains are located between the Pump and Blower Building and East and West batteries. The Pump and Blower Building has been highly altered over time and does not qualify for New York City Landmark or National Register-eligibility. Futhermore, replacement of force mains will occur underground and would not visually impact New York City Landmark and National Register-eligible resources in the East Battery. Therefore, alterations to the Pump and Blower Building would have no effect on New York City Landmark or National Register-eligible resources at Tallman Island WPCP.

Sludge Digesters Improvements

New roofs would replace the roofs of the Digester Tanks. The current roofs are leaking and in poor condition. The four tanks are New York City Landmark and National Register-eligible resources and are presently capped by dome-shaped roofs sheathed in rolled asphalt panels that were most likely erected atop the tanks in the 1960s. The roofs are pierced by numerous structures including pipes and other metal fixtures. Furthermore, a modern plexiglas roof light pierces the roof area between the four tanks.

Proposed designs for the new roofs consist of geodesic domes that would be clad in milled-finish aluminum panels similar in texture and color to an aircraft fuselage. The aluminum would become darker and duller over time as the panels are exposed to the elements. The roof would retain its spheroid dome shape, but its surface would be faceted in a manner consistent with geodesic domes constructed of triangular fragments. Furthermore, pipes may pierce the roof and walkways adjacent to the domes would provide maintenance access.

Implementation of the Sludge Digesters Improvement scheme would directly affect the New York City Landmark and National Register-eligible Digester Tanks. Since initial construction in the 1930s, these features have been modified over time to keep pace with sewage treatment technology. The significance of these features is related to their historic function, which would be preserved. However, to avoid significant adverse impacts that implementation of the PUP would have on the physical appearance of these historic resources, it is recommended that the Digester Tanks, along with Aeration Tank Nos. 1-2, and surrounding New York City Landmark and National Register-eligible resources, be documented according to the NYCLPC/NYSHPO standards for historic structures documentation.

At a minimum, this would include photo-documentation of the Digester Tanks provided by the professional photographer hired by the contractor responsible for implementing PUP. The photographer will coordinate with the project cultural resources consultant to take photographs of the tanks, in addition to contextual views and aerial views of the treatment plant prior to commencement of PUP. In addition to photographs, a detailed physical description and historic narrative describing the tanks, combined with the documentation of Aeration Tank Nos. 1-2, will be prepared. The document will describe how the aeration and digester tanks fit into the overall operation of Tallman Island WPCP from its opening in the 1930s through present time. The report would be deposited at the NYCLPC, NYSHPO, NYCDEP and other repositories designated by lead agency, NYCDEP, and NYCLPC/NYSHPO.

Sludge Thickeners Improvements

The upgrade project also entails replacement of the South Sludge Thickener mechanisms, and replacement of the south sludge pumps with new pumps and grinders. The South Sludge Thickeners are New York City Landmark and National Register-eligible because of their Modern design as expressed through sunken fillets that embellish the tanks' surfaces and the brick and glass-block enclosed spiral staircase leading from the ground to the top of the four tanks.

Replacement of mechanisms would occur within the tank interiors, and therefore, not impact the historic feeling and association of the South Sludge Thickener tanks. As a result, improvement of the South Sludge Thickeners would have no effect these New York City Landmark and National Register-eligible resources, provided the historic appearance of the tanks remain intact.

Process Control System

The upgrade project requires provision of a process control/instrumentation system for new and modified systems at Tallman Island WPCP. The system would consist of surface-mounted conduits on the Sludge Area Electrical Building, East Battery Electrical Building and West Battery Electrical Building that would be linked to system of underground ducts that would carry signals to the Pump & Blower Building. Like the impacts described under the Three Electrical Buildings section, surface mounted conduits on the Sludge Area Electrical Building would result in an indirect visual impact because construction of the building adjacent to the New York City Landmark and National Register-eligible South Sludge Thickeners would visually alter the layout and setting of the East Battery. To ensure that the historic integrity of the South Sludge Thickeners is preserved, design of the conduit should strive to blend into the existing historic environment of the East Battery as much as practicable.

Temporary Field Office Complex

A temporary field office complex would be erected north of the North Sludge Thickeners. The office would be a pre-fabricated metal trailer that would measure 110 ft long and 60 ft wide and one story high. The temporary office would have a temporary indirect visual impact on New York City Landmark and National Register-eligible resources, including Aeration Tank Nos. 1-2 and Preliminary Settling Tank Nos. 1-4 because views of these tanks may be blocked by the structure. However, because it is a temporary structure, the indirect visual impact would be removed and the layout and configuration restored at the completion of the PUP action.

Centrate Pumping Station

A new Centrate Pumping Station, measuring 20 ft by 23 ft, would be erected east of Chlorine Contact Tank No. 1 in the West Battery to convey centrate to the aeration tanks in the East and West batteries. Approximately 7 ft of the structure would be visible above ground. An underground PVC pipe would convey centrate to the Aeration Tank Nos. 1-4, and would not alter the visual appearance of New York City Landmark and National Register-eligible Aeration Tank Nos. 1-2 in the East Battery. Therefore, this action would have no effect on New York City Landmark and National Register-eligible resources at Tallman Island WPCP because the Centrate Pumping Station is far removed from eligible resources in the East Battery, and the historic appearance and setting of eligible aeration tanks would not be compromised by the underground piping system.

Demolition of Gas Tanks

The Gas Holder Tank and Waste Gas Burner Tanks would be demolished in the East Battery. The Waste Gas Burner would be replaced. These tanks are not New York City Landmark or National Register-eligible resources. Therefore, removal of the tanks would have no effect on eligible resources at Tallman Island WPCP.

D.5 Conclusion

In conclusion, selected elements of the proposed action would result in an indirect effect on New York City Landmark and National Register-eligible resources at Tallman Island WPCP. Specifically, construction of the RAS/Blower Building, 27 KV Electrical Substation, Sludge Area Electrical Building with surface-mounted conduit, and temporary Pump Around System would indirectly impact selected significant resources in the East Battery. To minimize indirect visual impacts, designers should strive to

design and erect structures that conform to the existing materials at the plant as much as practicable, including concrete, buff and painted brick, metal, and glass.

In addition, implementation of the aeration tanks upgrades and digester tanks improvements would directly affect Aeration Tank Nos. 1-2 and the Digester Tanks. To avoid significant adverse impacts, it is recommended that Aeration Tank Nos. 1-2 and Digester Tanks, and surrounding New York City Landmark and National Register-eligible resources be documented according to the NYCLPC/NYSHPO standards for historic structures documentation prior to project implementation. The report would be deposited at the NYCLPC, NYSHPO and NYCDEP and other repositories designated by lead agency, NYCDEP, and NYCLPC/NYSHPO.

D.6 References Cited

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Olivieri, Bridget. Public Participation Coordinator, Biosolids Management Section, NYCDEP, telephone interview, June 19, 2000.

Reardon, Roderick, D. Vice President, CDM, telephone interview, June 12, 2000

Attachment E

One World Financial Center, New York, NY 10281

Telephone
212.798.8500

Facsimile
212.798.8501

January 18, 2005

Mr. David A. Stilwell
US Fish & Wildlife Service
3817 Luker Road
Cortland, NY 13045

Dear Mr. Stilwell:

Re: Request for Information on Protected Species and Habitats of Concern Within A One-mile Radius of the Tallman Island Water Pollution Control Plant in Queens, New York.

TAMS Consultants, Inc., *an Earth Tech Company*, is preparing an Environmental Assessment Statement (EAS) for the proposed upgrade to the Tallman Island Water Pollution Control Plant in Queens, New York. The plant is currently owned and operated by the New York City Department of Environmental Protection.

As part of the EAS process, we hereby request all available information on protected species and habitats of concern within a one-mile distance of the plant. The plant is bordered by Long Island Sound to the north and Powell Cove to the east. Enclosed please find a copy of the Flushing USGS quadrangle that identifies the plant's location.

If you have any questions, please do not hesitate to call. Thank you for your assistance.

Very truly yours,

John Rollino
Ecologist

enclosures

United States Department of the Interior

FISH AND WILDLIFE SERVICE

3817 Luker Road
Cortland, NY 13045

January 27, 2005

Mr. John Rollino
Ecologist
Earth Tech
One World Financial Center
New York, NY 10281

Dear Mr. Rollino:

This responds to your correspondence of January 18, 2005, requesting information on the presence of endangered or threatened species and significant habitats in the vicinity of the proposed upgrade of the Tallman Island Water Pollution Control Plant, Queens County, New York.

Except for occasional transient individuals, no Federally-listed or proposed endangered or threatened species under our jurisdiction are known to exist in the project impact area. In addition, no habitat in the project impact area is currently designated or proposed "critical habitat" in accordance with provisions of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). Therefore, no further ESA coordination or consultation with the U.S. Fish and Wildlife Service (Service) is required. Should project plans change, or additional information on listed species or critical habitat becomes available, this determination may be reconsidered. The most recent compilation of Federally-listed and proposed endangered and threatened species in New York* is available for your information. If your project is not completed within one year from the date of this determination, we recommend that you contact us to ensure that the listed species presence/absence information for your proposed project is current.

The above comments pertaining to endangered or threatened species under our jurisdiction are provided pursuant to the ESA. This response does not preclude additional Service comments under other legislation.

Federally-listed endangered and threatened marine species may be found near the project area. These species are under the jurisdiction of the National Oceanic and Atmospheric Administration/Fisheries (NOAA/F). You should contact Mr. Stanley Gorski, Habitat Conservation Division, Field Offices Supervisor, NOAA/F, James J. Howard Marine Sciences Laboratory, 74 Magruder Road, Highlands, NJ 07732, for additional information (telephone: [732] 872-3037).

For additional information on fish and wildlife resources or State-listed species, we suggest you contact the appropriate New York State Department of Environmental Conservation regional office(s), * and:

New York State Department of Environmental Conservation
New York Natural Heritage Program Information Services
625 Broadway
Albany, NY 12233-4757
(518) 402-8935

Work in certain waters of the United States, including wetlands, may require a permit from the U.S. Army Corps of Engineers (Corps). If a permit is required, in reviewing the application pursuant to the Fish and Wildlife Coordination Act, the Service may concur, with or without recommending additional permit conditions, or recommend denial of the permit depending upon potential adverse impacts on fish and wildlife resources associated with project construction or implementation. The need for a Corps permit may be determined by contacting Mr. Michael Vissichelli, Eastern Permits Section, U.S. Army Corps of Engineers, New York District, Jacob K. Javits Federal Building, New York, NY 10278-0090, for additional information (telephone: [212] 264-3564).

If you require additional information or assistance please contact Jill Olin of our Long Island Field Office at (631) 581-2941.

Sincerely,

David A. Stilwell
Field Supervisor

* Additional information referred to above may be found at our website at: http://nyfo.fws.gov/es/esdesc.htm.

cc: NYSDEC, Long Island City, NY (Environmental Permits)
NYSDEC, Albany, NY (Natural Heritage Program)
COE, New York, NY
NOAA/F, Highlands, NJ (Attn: S. Gorski)
NOAA/F, Milford, CT (Attn: M. Ludwig)

One World Financial Center, New York, NY 10281

January 18, 2005

Diane Rusanowsky
NOAA Fisheries
Northeast Fisheries Science Center
Milford Laboratory
212 Rogers Avenue
Milford, CT 06460-6499

Telephone
212.798.8500
Facsimile
212.798.8501

Dear Ms. Rusanowsky:

Re: Request for Information on Protected Species and Habitats of Concern Within A One-mile Radius of the Tallman Island Water Pollution Control Plant in Queens, New York.

TAMS Consultants, Inc., *an Earth Tech Company*, is preparing an Environmental Assessment Statement (EAS) for the proposed upgrade to the Tallman Island Water Pollution Control Plant in Queens, New York. The plant is currently owned and operated by the New York City Department of Environmental Protection.

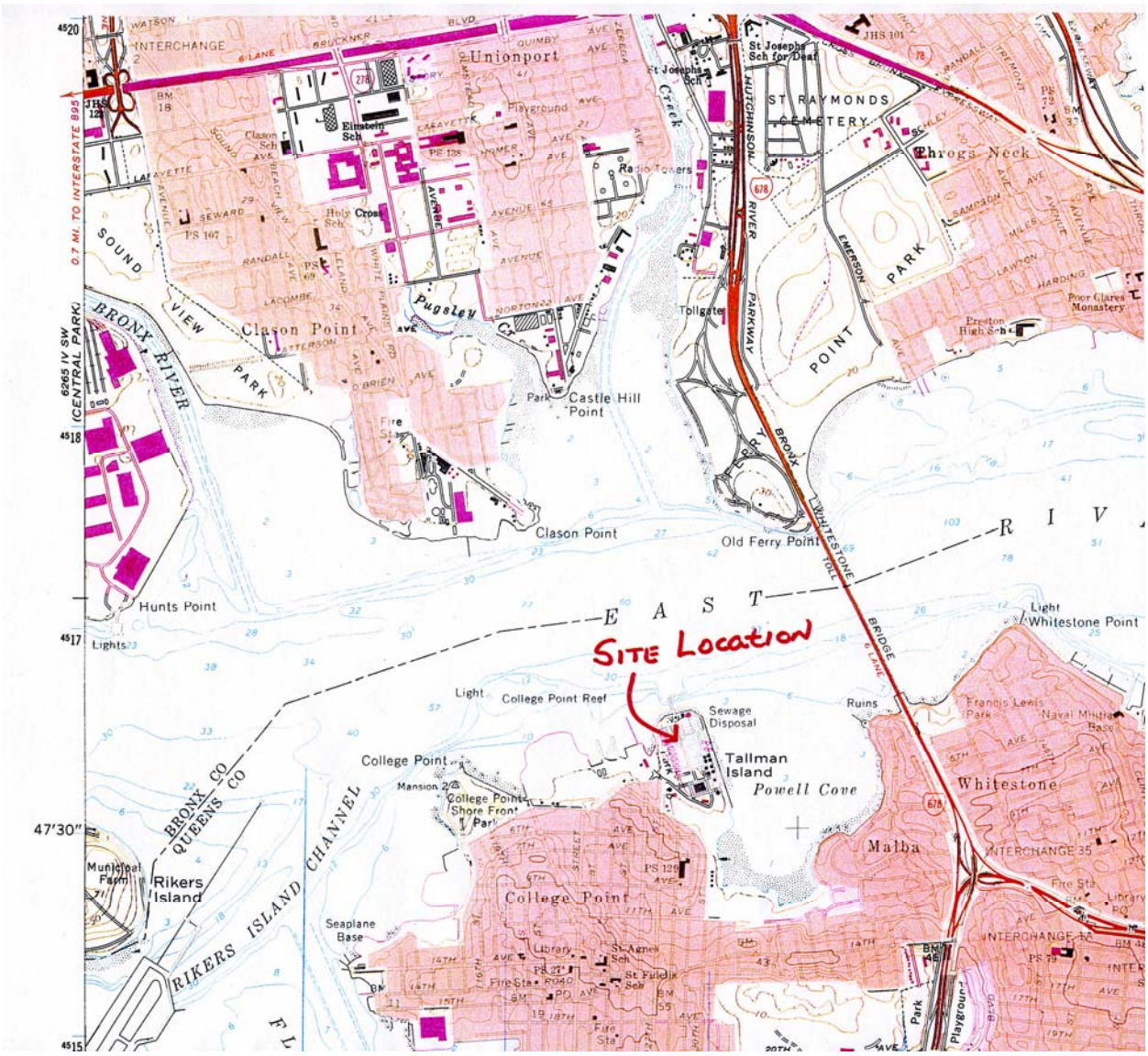
As part of the EAS process, we hereby request all available information on protected species and habitats of concern within a one-mile distance of the plant. The plant is bordered by Long Island Sound to the north and Powell Cove to the east. Enclosed please find a copy of the Flushing USGS quadrangle that identifies the plant's location.

If you have any questions, please do not hesitate to call. Thank you for your assistance.

Very truly yours,

John Rollino
Ecologist

enclosures



Source: USGS Maps - Flushing Quadrangle

National Marine Fisheries Service
Habitat Conservation Division
Milford Field Office, 212 Rogers Avenue
Milford, Connecticut 06460

TO: Mr. John Rollino, Ecologist
Earth Tech
One World Financial Center
New York, New York 10281

DATE:25 January 2005

SUBJECT: **Tallman Island Water Pollution Control Plant at Powell Cove, East River, Long Island Sound in Queens, New York**

Diane Rusanowsky
(Reviewing Biologist)

This communication is in response to an information request addressed to Michael Ludwig of NOAA/Fisheries on February 6, 2004. We have reviewed the information provided to us regarding the above subject project and offer the following preliminary comments pursuant to the Endangered Species Act, the Marine Mammals Protection Act, the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act:

Endangered and Threatened Species

_____ There are no endangered or threatened species under NOAA/Fisheries' jurisdiction in the project area.

__XX__ The following endangered or threatened species may be present in the project area:

_____ shortnose sturgeon (*Acipenser brevirostrum*) as *possible* (likely rare) transients

sea turtles:
__XX__ loggerhead (*Caretta caretta*)
__XX__ green (*Chelonia mydas*)
__XX__ Kemp's ridley (*Lepidochelys kempii*)
__XX__ leatherback (*Dermochelys coriacea*)

Candidate Species: _____ Atlantic sturgeon (*Acipenser oxyrhynchus*)

Fish and Wildlife Coordination Act Species

__XX__ The following may be present in the project area: Anadromous and resident fish, forage and benthic species

Please contact the appropriate Regional Office of the New York State Department of Environmental Conservation to confirm the presence of anadromous or resident aquatic populations. Habitat use may be seasonal.

Essential Fish Habitat

__XX__ The project area has been designated as Essential Fish Habitat (EFH) for one or more species. A full EFH assessment will be necessary. When details of the project are made available and permit applications have been made, conservation recommendations may be given. For a listing of EFH and further information, please go to our website at: http://www.nero.nmfs.gov/ro/doc/webintro.html .

_____ No EFH presently designated in the project area.

World Financial Center New York, NY 10281

May 27, 2005

Ms. Diane Rusanowsky
National Marine Fisheries Service
Habitat Conservation Division
Milford Field Office
212 Rogers Avenue
Milford, CT 06460

Dear Ms Rusanowsky:

Re: Tallman Island Water Pollution Control Plant at Powell Cove, Queens, NY

Thank you for your letter dated January 25, 2005 that provided information regarding endangered and threatened species and other protected species that may be present in the project area.

Telephone
212.798.8500

Facsimile
212.798.8501

We note from your letter that the project area has been designated as Essential Fish Habitat (EFH) for one or more species and that a full EFH assessment will be necessary. Regarding this issue, we would like to provide to you information concerning this project in the enclosed document.

Because the Plant Upgrade Program for the Tallman Island Water Pollution Control Plant would not require a federal action (i.e., no federal permits are required for the proposed work) and the plant upgrade would result in an improvement in the water quality of the discharge, the preparation of a full EFH assessment is not warranted since the work would not have an adverse affect on EFH. There would be no physical alteration to the outfall and there would be no other changes in the water or on the waterfront.

If you have any questions concerning the information presented in this letter or the attached document, please contact me.

Very truly yours,

Earth Tech

James Mansky
Principal Ecologist

Enclosure

Plant Upgrade Program for the Tallman Island Water Pollution Control Plant

Introduction

The New York City Department of Environmental Protection (NYCDEP) owns and operates the Tallman Island Water Pollution Control Plant (WPCP) in the College Point section of the Borough of Queens. The facility serves the northeast portion of the Borough of Queens, approximately 17,400 acres of land with an estimated population of nearly 400,000 residents.

The facility requires upgrading to ensure continued compliance with permit limitations and to maintain a safe working environment. Accordingly, NYCDEP has instituted a Plant Upgrade Program (PUP) for the Tallman Island WPCP. The PUP Program has identified and would remedy major plant deficiencies to allow the plant to improve operations and continue to meet its SPDES permit. Equally important, the program would identify and remedy safety and health issues, and evaluate and upgrade the plant's infrastructure to support all systems and functions.

Plant Upgrade Program

A summary of the improvements is as follows:

- *Mixed Flow Pumping Station Modifications*
  - Replace the Mixed Flow Pumps, spray water pumps, piping and values.

- *Return Activated Sludge (RAS) Pump Station (New Facility)*
  - Provide a new RAS pumping station and Blower Building to replace existing RAS airlift pumps.

- *Blower Building (New Facility)*
  - Replace the existing five (5) process air blowers and five (5) dual-fuel engine drive units in the Pump and Blower Building with four (4) new motor-driven process air blowers in the new Blower Building.

- *27 KV Electrical Substation (New Facility)*
  - Upgrade the power supply necessary for the WPCP.

- *Three Electrical Buildings (New Facilities)*
  - Provide the necessary power supply to the East and West batteries of Aeration Tanks and to the Sludge Thickeners and Digesters.

- *Aeration System Improvements/Tank Modifications*
  - Replace existing course bubble diffusers with fine bubble membrane-type diffusers, new air headers, control values and piping.
  - Modify tanks to provide for the step-feed biological nutrient removal (BNR) processes.

- *Main Sewage Pumping Station*
  ~Replace the existing five (5) main sewage pumps, piping and valves with five (5) new 60 mgd main sewage pumps.
  - Replace the existing five (5) dual-fuel engine drive units with five (5) new 550 horsepower motors.
  - Replace the existing East and West Battery Force mains.

- *Sludge Digesters Improvements*
  ~Replace existing covers with new fixed aluminum geodesic covers and associated piping.

- *Sludge Thickeners Improvements*
  ~Replace south thickeners' mechanisms.
  ~Replace existing sludge pumps with new pumps and grinders.

- *Process Control System*
  ~Provide an updated process control/instrumentation/system for the new and modified systems.

- *Centrate Pumping Station*
  - A new Centrate Pumping Station would be constructed east of Chlorine Contact Tank No. 1 to convey centrate to the aeration tanks.

- *Demolition of Gas Holder Tank*

- *Demolition and Replacement of Waste Gas Burner*

- *Temporary Field Office Complex*
  - A temporary field office complex would be erected north of the North Sludge Thickeners.

Benefits to the Environment

The key objective of the proposed project is the improvement of the Tallman Island WPCP facilities to ensure continued compliance with current water-quality based permit limitations. During construction, best management practices would be adhered to reduce the potential for impacts to natural resources. No construction activities are proposed to occur waterward and/or along the bulkhead line. It is anticipated that this project will not increase in the water volumes or change the effluent's temperature discharged to the East River. Indeed, the PUP improvements are intended to improve the quality of the water discharged into the East River. Thus, it is anticipated that the project would result in no direct or indirect adverse impacts to the aquatic environment or and/or tidal wetlands.

One World Financial Center, New York, NY 10281

Telephone
212.798.8500
Facsimile
212.798.8501

January 18, 2005

Mr. David VanLuven
Information Services
New York Natural Heritage Program
625 Broadway, 5th Floor
Albany, NY 12233-4757

Dear Mr. VanLuven:

Re: Request for Information on Protected Species and Habitats of Concern Within A One-mile Radius of the Tallman Island Water Pollution Control Plant in Queens, New York.

TAMS Consultants, Inc., *an Earth Tech Company*, is preparing an Environmental Assessment Statement (EAS) for the proposed upgrade to the Tallman Island Water Pollution Control Plant in Queens, New York. The plant is currently owned and operated by the New York City Department of Environmental Protection.

As part of the EAS process, we hereby request all available information on protected species and habitats of concern within a one-mile distance of the plant. The plant is bordered by Long Island Sound to the north and Powell Cove to the east. Enclosed please find a copy of the Flushing USGS quadrangle that identifies the plant's location.

If you have any questions, please do not hesitate to call. Thank you for your assistance.

Very truly yours,

John Rollino
Ecologist

enclosures

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

February 14, 2005

John Rollino
Earth Tech
One World Financial Center
New York, NY 10281

Dear Mr. Rollino:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to an Environmental Assessment for the proposed Upgrade to the Tallman Island Water Pollution Control Plant, site as indicated on the map you provided, located in Queens, New York.

We have no records of known occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain any information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of rare or state-listed species, or of significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Data bases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

Sincerely,

Betty Ketcham Jp

Betty A. Ketcham, Information Services
New York Natural Heritage Program

Enc.
cc: Reg. 2, Wildlife Mgr.

Attachment F

Demography

Table F-1 presents population information for the census tracts within the study area. In 1990, the population of the study area was 9,089 increasing to 10,042 by 2000, a growth of 10.5 percent. Much of this growth was in tract 945, which experienced an increase of 13 percent. By comparison, the population of Queens increased by 14.2 percent and New York City by 9.4 percent over the same period. The study area has been an area of substantial population growth over the past decades, particularly as vacant land has been developed with new residences.

In 2000, the racial make-up of the study area was primarily white (non-Hispanic), accounting for 63.1 percent of the study area population. Blacks (non-Hispanic) made up only 1.3 percent; Hispanics accounted for 17 percent; and, Asians (non-Hispanic) comprised 16.2 percent of the total study area population. The percent of non-Hispanic whites in the study area was much greater than in Queens or New York City, respectively at 33 and 35 percent.

The proportion of young people (under 18) in the study area was 21.7 percent, less than Queens (22.8 percent) or the city as a whole (24.1 percent). The proportion of elderly persons (65 and over) in the study area was 14.7 percent, higher than Queens (12.7 percent) and the city (11.7 percent).

Table F-1
Demographic and Economic Characteristics (Census 2000)

Socioeconomic Characteristic		Tract 939	Tract 945	Tract 947	Study Area	Queens	New York City
Total Population		3,741	4,191	2,110	10,042	2,229,379	8,008,278
Percent of population below 18 years of age		22.6	19.1	25.1	21.7	22.8	24.1
Percent of population above 65 years of age		12.0	17.5	14.2	14.7	12.7	11.7
Race/Ethnicity Composition of Population (In percent)	Whites (Non-Hispanic)	70.9	72.2	76.6	80.3	48.0	43.2
	Blacks (Non-Hispanic)	0.8	2.5	0	1.4	19.8	26.4
	Hispanic	19.3	11.4	23.9	17.0	25.0	27.0
	American Indian, Eskimo (Non-Hispanic)	0	0.2	0	0.1	0.3	0.2
	Asian or Pacific Islander (Non-Hispanic)	18.0	15.8	13.7	16.2	17.6	9.8
	Other Race or Two or More Races (Non-Hispanic)	2.1	2.5	1.2	2.1	4.3	2.9
Total Households		1,354	1,452	753	3,559	782,646	3,022,477
Median Household Income (in dollars, 1999)		45,893	62,870	50,929	n/a	42,439	38,293
Total Families		1,000	1,166	540	2,706	542,804	1,869,809
Median Family Income (in dollars, 1999)		54,936	73,750	61,875	n/a	48,608	41,887
Per Capita Income (in dollars)		20,799	27,281	22,303	n/a	19,222	22,402
Percent of Persons below the Poverty Level		6.2	3.6	12.3	6.4	14.6	21.2
Median Home Value (in dollars)		217,200	341,900	218,900	n/a	212,600	211,900
Median Gross Rent (in dollars)		928	968	747	n/a	775	705
Source: US Census, 2000 SF3.							

Income

Table F-1 presents median family and per capita income information as available for the census tracts included in the study area. In general, incomes in the study area are higher than both the city and Queens County. The range of median household incomes in the study area was $45,893 to $62,870 (1999 dollars) compared to $42,439 for Queens and $38,293 for the city. Median family and per capita incomes show similar relative distributions (Table F-1). In the 2000 Census, the number of persons for whom poverty status was determined in the study area was 639, or 6.4 percent. This compares to rates of 14.6 percent forthe County of Queens and 21.2 percent for New York City. The study area is one of above average incomes with smaller proportions of poverty than in Queens or the city.

Housing

In 1990, there were 3,457 housing units in the study area. By 2000, the total number of housing units increased by 5.5 percent to 3,649. This increase was less than the 8.6 percent increase in housing units for Queens and the 7 percent increase for the city during the same decade. These data reflect the gradual infill of housing during the 1990s in the study area, compared to much higher rates of growth in the study area during the 1980s when more vacant land was available.

In 2000, the percentage of owner-occupied housing in the study area was 66.2 percent; this percentage substantially exceeded that for Queens (42.8 percent) and New York City (30.2 percent). In 2000, the overall housing vacancy rate for the study area was 2.8 percent, compared to the vacancy rates of Queens (4.2 percent) and New York City (5.6 percent).

In 2000, of all housing units in the study area, 90 percent were one or two-family units. Table F-1 presents median housing values and monthly gross rent information for the census tracts included in the study area. The median housing value (2000) ranged from $217,200 to $341,900 among the three tracts; this was higher than for Queens ($212,600) or the city ($211,900). Median monthly gross rent for the study area ranged from $747 to $968, while the median for Queens was $775, and for New York City it was $705.

Employment and Earnings

2000 Census data on the employment characteristics of the resident labor force in the study area, Queens County and New York City are shown in Table F-2. The total number of employed persons in the study area was 4,422, accounting for 44 percent of the resident population. The industry with the greatest number of employees was Services - comprising 39.7 percent of the workforce; this represented a smaller proportion than for Queens (46.1 percent) and about the same as New York City (39.9 percent). In the study area, relatively higher proportions of the workforce are found in Transportation/Utilities (10.7 percent), Retail Trade (11.1 percent) and Finance, Insurance and Real Estate (12.8 percent).

The unemployment rate for Queens in November 2004 (not-seasonally adjusted) was 5.4 percent (down from 6.6 percent November 2003), and for New York City was 5.4 percent (down from 8.1 percent the prior year). Comparable unemployment figures are not available for the census tracts comprising the study area.

Table F-2
Employment by Industry (2000 Census)

Industry	Persons Employed (16 Years or older)					
	Study Area[1]	% of Study Area	Queens County	% of Queens County	New York City	% of New York City
Agriculture, Forestry, Fisheries and Mining	7	0.2	552	0.1	2,101	0.1
Construction	303	6.9	51,610	5.4	139,385	7.4
Manufacturing	316	7.1	75,346	7.9	217,602	7.1
Transportation, Warehousing & Utilities	471	10.7	79,700	8.3	211,506	9.7
Wholesale Trade	172	3.9	34,670	3.6	101,812	3.9
Retail Trade	489	11.1	96,859	10.1	295,803	9.9
Information	160	3.6	37,281	3.9	173,594	5.3
Finance, Insurance, Real Estate (FIRE)	566	12.8	97,854	10.2	372,809	12.0
Services	1,755	39.7	441,540	46.1	1,616,406	39.9
Public Administration	183	4.1	41,372	4.3	146,807	4.6
Total	4,422	100	956,784	100.0	3,277,825	100.0

Note: [1] Study area includes Census Tracts 938, 945 and 947.
Source: 2000 US Census SF3

Attachment G

1. TI-2 Contract Criteria Pollutant Dispersion Modeling

1.1 Stage I and Stage II Operations

Contract TI-2 consists of Stage I and Stage II. In both stages, the proposed pumping system would operate under emergency conditions or when three or more of the existing pump engines are inoperable. The capacity of the Stage I Pumping System would be 66 MGD and would be electrically powered by Con Ed through the existing transmission network. Therefore, here would be no new air emissions from the Stage I EMS Pumping System, and no detailed air quality impact analysis is warranted.

Under Contract TI-2 Stage II condition, another pumping system with increased capacity of 120 MGD would be installed. Two temporary generators (one standby) would be installed to provide power to handle the new Stage II EMS Pumping System. During the "pump-around", when both pump systems from Stage I and II would be operating to provide 160 MGD capacity, the pumping systems would be powered by the newly constructed 27 kV Con Ed substation.

A State Facility Permit is required to operate the two new temporary generators until the proposed 27 kV substation is online. The air quality analysis discussed herein was performed for a reasonable worst case condition to support the State Facility Permit. This reasonable worst case condition consists of the following operating assumptions:

1. All five existing pump engines fail.
2. The proposed Stage II Pumping System kicks in to provide 120 MGD flow.
3. All other existing combustion units operate at capacity.

As noted above, during the Stage II condition it is expected that the existing pump engines would be utilized all the time, except if they fail to operate at the same time and are required to be repaired. Therefore, the air quality conditions from TI-2 Stage II action remain essentially the same as existing conditions. However, potential operation of the new generator for a short period of time does exist when three or more existing pump engines would require repairs.

In order to provide power for 120 MGD capacity, the new diesel generator will only need to run at 70 percent of its nameplate rated load. Furthermore, based on the historical daily MGD data (i.e., an average of 60 MGD on an annual average basis), outside of rain events, the generator would likely run at the high end of the load range in the daytime and evening (when throughput is high) and at the low load in the nighttime period (e.g., 1 am - 5 am) when a throughput is low. Under the high load condition, the generator is expected to run at a range of 50 to 70 percent of the nameplate load. Under the very low throughput condition during the overnight period (typically 1 to 5 am duration), the generator is expected to run in a 30 to 40 load range with the resistor load bank being automatically turned on to maintain the minimal load for the generator to run. Therefore, given the time weight factor over an average daily condition, it is assumed that the generator would likely operate at an average of 50 percent of nameplate load on an annual average basis.

The modeling analysis addresses the following pollutant contributions conservatively from TI-2 Stage II operations. It assumes that one new generator will operate continuously to handle the facility for a maximum of 50 percent of the time over an entire year when the existing pump engines are not in service (the remainder of the year is assumed to be the same as the existing conditions):

- NO_2, SO_2, CO and PM_{10} ambient concentration contributions from on-site facility combustion sources plus the appropriate background levels. These are compared to the applicable NAAQS.

- $PM_{2.5}$ ambient concentration contributions from on-site facility combustion sources. Potential future increases associated with TI-2 Stage II of the proposed action will be discussed in subsequent analyses and compared to the incremental de minimis thresholds established by the New York City Department of Environmental Protection (NYCDEP) in its $PM_{2.5}$ analysis interim guidance (June 2004).

1.2 Emission Sources Modeled

The combustion sources emitting criteria pollutants in the facility for the operational scenario include:

- Five blower engines in the pump and blower building (3 of 5 operate concurrently running at a maximum of 90 percent load conditions).
- Five existing pump engines in the pump and blower building are not in service for 50 percent of time within a year when the new TI-2 generator is operating. For the remainder of the time (50 percent), existing pump engines will operate under the same condition.
- Three boilers (Boilers #3, #4 and #5) in the pump and blower building (one of the Boilers #3 and #4 is a standby).
- One hot water heater in the pump and blower building.
- Two boilers (Boilers #1 and #2) in the dewatering building (one of two is a standby).
- One emergency diesel generator in a trailer.
- Two new generators (#1 and #2; one is a standby).
- NYCDEP collection building heating and hot water heat boiler stacks.

These source locations are shown in Figure 1 and each one is modeled as a point source. Their respective physical parameters are summarized in Table 1-1.

Proposed TI-2 Source Location

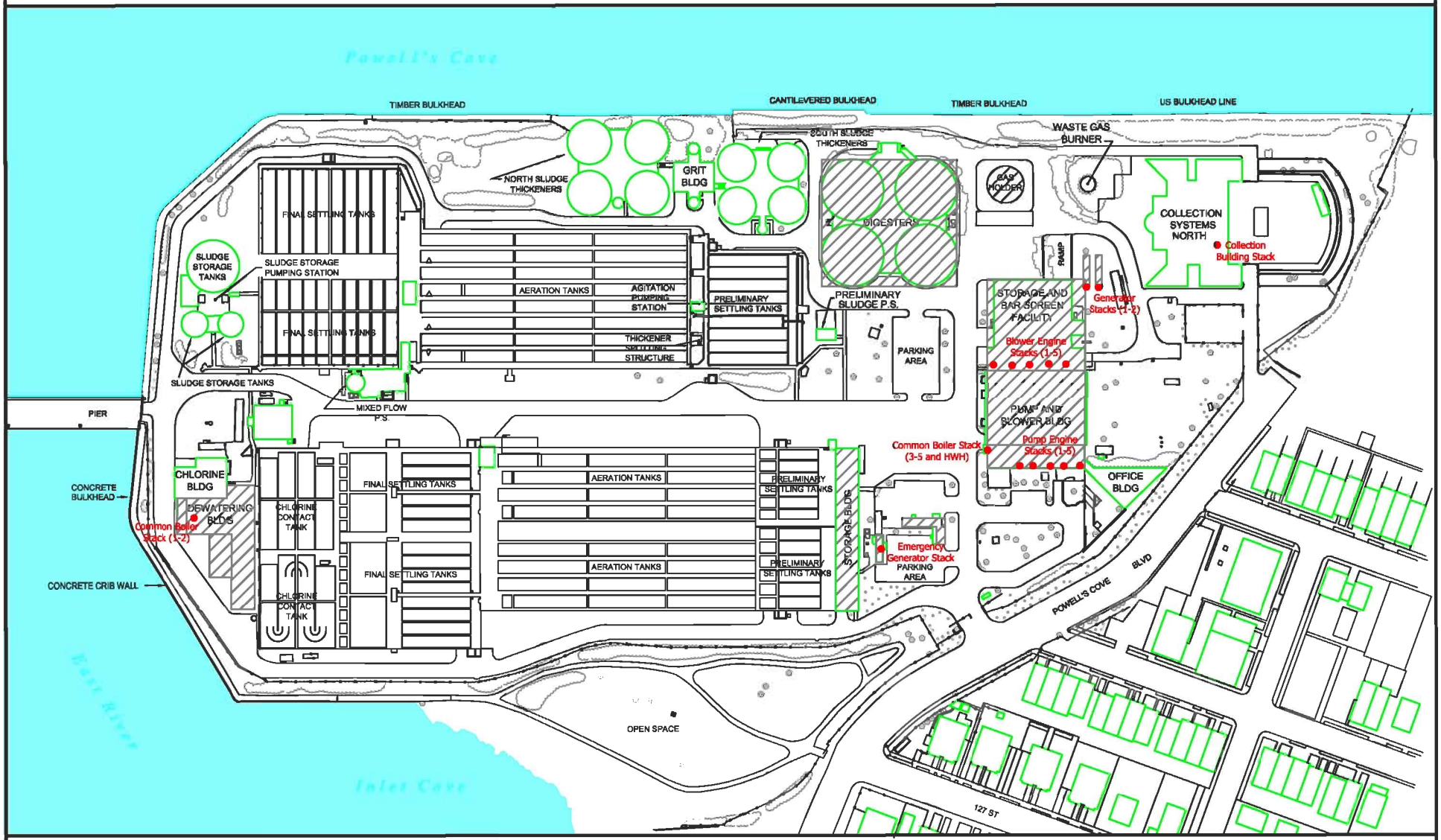


Figure 1

Table 1-1

Summary of TI-2 Stage II Source Parameters for Modeling

Source	Blower Engine[1] (#1-#5)	Pump Engine[1] (#1-#5)	New Generator (#1or #2)	Emergency Diesel Generator	Boiler (#1 or #2 with a common stack)	Boiler (#3 or #4, #5 and HWH with a common stack operating from October to March)	Boiler (#5 and HWH with a common stack operating from April to September)	Collection Building Heating Boiler (operating from October to March)	Collection Building Hot Water Heater Boiler
Source Base Elevation (m)	5.18	5.18	5.18	5.18	2.88	5.18	5.18	4.72	4.72
Source Height (m)	15.24	7.09	4.62	4.57	24.43	19.93	19.93	7.47	7.47
Source Temperature (degrees F)	400	400	835	650	250	250	250	330	330
Source Diameter (m)	0.36	0.25	0.61	0.20	0.38	1.22	1.22	0.46	0.46
Source Exit Velocity (m/s)	19.31	8.42	4.97 (PM short-term) 13.93 (CO and SO_2 short-term) 9.95 (long-term)	145.52	4.14	1.21	0.81	0.85	0.48

Note [1]: In the short-term, four of five engines run. On an annual average, only three out of five engines run at the same time at an average of 40 percent load condition; each engine has its own stack. Pump engines are assumed to run 50 percent of the year for annual impact estimates.

1.3 Emission Rate Estimates

Criteria pollutant emission rates for pump engines and blower engines were estimated based on the emission factors contained in the existing Title V facility permit. Emission rates of other combustion sources were estimated using EPA AP-42 emission factor report, except the new TI-2 generator, for which manufacturer-provided data were used.

The manufacturer-provided emission factors at 50 percent load condition were used in predicting annual average concentration levels for the TI-2 generator (Table 1-2). The short-term emission rates for the TI-2 generator were based on the worst-case condition that results in the maximum short-term emission rates at various load conditions (25, 50 and 75%). These load conditions correlate different emission factors as established by the manufacturer for each criteria pollutant (Table 1-2).

The proposed TI-2 generators would be more efficient than the existing pump engines, and a selective catalytic reduction (SCR) post-combustion treatment system would be installed with the proposed generators. Their emissions would meet the Part 227 RACT requirement for NOx emissions, and would be much lower than the existing pump engines. Consequently, there would be a net reduction in NOx emissions and an overall improvement on NO_2 impacts when the proposed generators are operated instead of the existing pump engines.

The fuel oil to be used for applicable combustion sources under the TI-2 Contract condition would be low sulfur fuel oil (<500 ppm sulfur).

The estimated short-term and annual average emission rates used in the dispersion modeling for each source are presented in detail in Appendix A to this attachment. Source fuel type and horsepower or fuel consumption rate are the main input parameters to determine short-term emission rates in the unit of grams per second (g/s). The annual emission rates are based on the annual throughput requirement established from the historical processing data for those sources, such as the TI-2 generator and existing pump engines. For the emergency diesel generator, the 192 annual operational hours are used in determining annual emission rates. Appendix A also provides backup worksheets used for deriving emission rates for each typical combustion source, including oil or gas-fired boilers and diesel engines.

Table 1-2

TI-2 Diesel Generator Worst-case Emission Rates

Pollutant	Emission Factor [1] (grams/hp-hr)	Average Load Condition (%)	Horsepower (hp)	Emission Rate (grams/second) [2]
NO_x (annual)	2.3	50	1072.8	**0.6854**
PM (PM_{10}/$PM_{2.5}$) Annual	0.09	50	1072.8	**0.02682**
Short-term	0.21	25	536.4	**0.03129**
	0.09	50	1072.8	0.02682
	0.05	75	1501.9	0.02086
CO (short-term)	0.7	25	536.4	0.1043
	0.7	50	1072.8	0.2086
	0.8	75	1501.9	**0.3338**
SO_2 Annual	0.61	50	1072.8	**0.1818**
Short-term	0.71	25	536.4	0.1058
	0.61	50	1072.8	0.1818
	0.58	75	1501.9	**0.2420**

Note [1]: Manufacturer-provided emission factors.
[2]: Bold numbers were used in the modeling. Annual rates are levels prior to applying the annual run time ratio.

1.4 Dispersion Modeling

Model

The USEPA-approved refined air quality dispersion model for simple terrain - Industrial Source Complex Model (ISC3, Version No. 02035) - was used to analyze the impacts of emissions from the facility. All combustion emissions emitted from each identified source were modeled as point sources in ISC3. The modeling parameters used are summarized in Table 1-3.

For each potential source (Figure 1), the USEPA Building Profile Input Program (BPIP) was used to perform the Good Engineering Practice (GEP) stack height analysis and determine the applicable directional control building dimensions. The BPIP program determines: 1) GEP stack height, 2) the area of influence for each nearby building, 3) the area of influence for directionally dependent building downwash, and 4) the specific building directional dimensions required for model input. Since some of source release heights are below the GEP height, impacts caused by building cavities must also be evaluated. Generally, building cavities are limited to within three times the building height or projected building width from the source (whichever is smaller) of any given building. Based on this definition, the applicable facility building cavities would not extend to the closest sensitive receptor location (approximately 60 meters from the nearest edge of the pump and blower building due southwest). Therefore, estimates of pollutant concentrations within building cavity re-circulation regions are not

considered.

Since Boilers #3 and #4 (one is standby) in the pump and blower building operate from October 1 through March 31 (a total of six months per year), the ambient annual contributions predicted by using ISC3 reflect only those six months of operations.

The DEP-provided city-wide 3-year maximum default conversion factor of 0.62 (Matic, September 20, 2005) was used to convert predicted NO_x concentration levels using the ISC3 model to NO_2 concentration levels.

Table 1-3

ISC3 (Version 02035) Model Options

Operation	Selected Parameter
Concentration Calculation	Short-term and Annual Average
Receptor	Fenceline receptors, neighborhood sensitive receptors and a 2-km by 2-km grid receptors in 25-m spacing of the facility including water surface
Dispersion Coefficient	Urban
Wind Speed Profile	Default
Temperature Gradient	Default
Plume Rise Calculation	Gradual Plume Rise
Stack Tip Downwash	Yes
Building Downwash	Yes
Buoyancy Dispersion	Yes
Calm Hours	Default - omitted from calculation
Meteorological Conditions	Year: 2000-2004 Surface Station: LaGuardia Airport, NY Upper Air Station: Brookhaven, NY

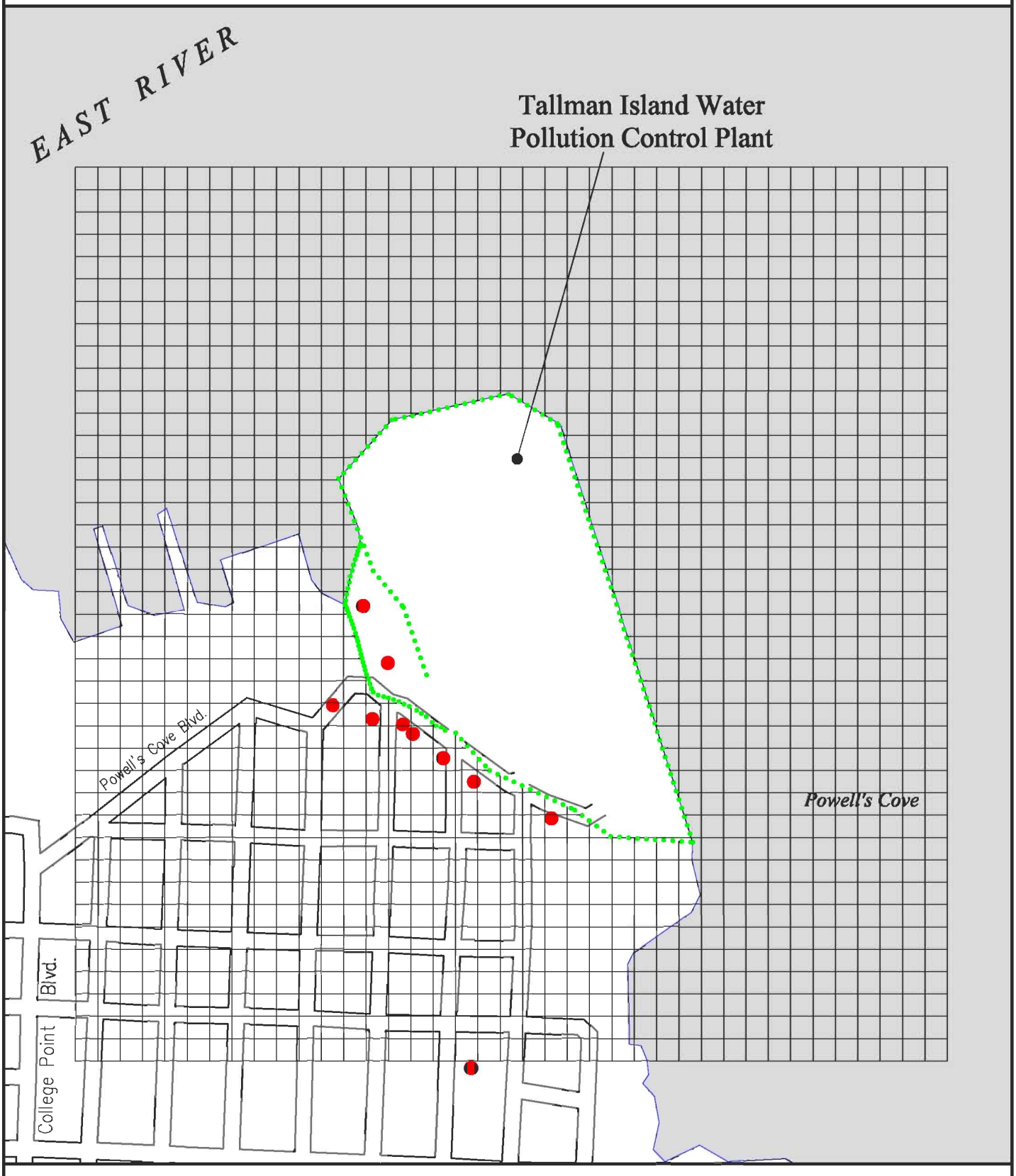
Meteorology

Five years (2000 - 2004) of the most recent available meteorological data consisting of (1) surface observations from the National Weather Service (NWS) station at LaGuardia Airport in New York and (2) the coincident mixing height data from the NWS station at Brookhaven, New York were used.

Receptors

The ISC3 modeling analysis utilized a total of 2,762 receptor points (Figure 2) including a 2 x 2 (km) inner Cartesian receptor grid with 25-meter spacing. According to CEQR guidance, the discrete sensitive receptors identified and located within 1-km radius of the facility include those residences immediately across the street where the facility is located, several schools, one library, one park and an open space area adjacent to the facility to which the public has access. Elevated receptors were also modeled at each school. Additionally, fenceline receptors were also modeled.

Partial Modeled Receptor Locations



Source: USGS

Figure 2

Background Air Quality Data

The average ambient background data used to determine the total concentration levels were obtained from NYCDEP (August 4, 2005) for NO_2, SO_2, and PM_{10} and from NYSDEC (June 2004) for CO. The SO_2 background levels were obtained from Queensboro Community College and NO_2 level was from College Point Post Office. The PM_{10} background levels were from data collected from IS 52 in Bronx. The CO background levels were obtained from Queens College.

The available background levels for existing conditions and their applicable NAAQS are summarized in Table 1-4.

Table 1-4

Background Levels

Averaging Time	Monitored Background	NAAQS
PM_{10}		
Annual (ug/m^3)	21	50
24-hour 2nd Highest (ug/m^3)	46	150
CO		
1-hour Highest (ug/m^3)	4,229	40,000
8-hour Highest (ug/m^3)	2,889	10,000
SO_2		
Annual (ug/m^3)	18	80
24-hour 2nd Highest (ug/m^3)	86	365
3-hour 2nd Highest (ug/m^3)	165	1,300
NO_2		
Annual (ug/m^3)	56	100

Impact Modeling Results

The results of the dispersion modeling TI-2 contract are presented in Table 1-5. The total concentrations are below the applicable NAAQS, except for the annual NO_2 concentration. As shown in the table, the proposed temporary generators would contribute a maximum of 5.7 ug/m^3 to the ambient concentrations of NO_2. The potential exceedance is not attributable to the proposed temporary generators. Therefore, the generators do not cause a significant impact and the TI-2 condition results in overall improved air quality because of the use of these generators.

In order to determine potential $PM_{2.5}$ impacts based on the NYCDEP-established incremental impact thresholds from the proposed action, ambient $PM_{2.5}$ concentration levels under existing/no action condition and the future with the proposed action conditions were predicted. The predicted incremental $PM_{2.5}$ concentration levels are summarized in Table 1-6. The $PM_{2.5}$ incremental changes from TI-2 contract

would not exceed the NYSDEC and NYCDEP significant microscale impact thresholds compared to the existing/ no action condition.

Table 1-6

Proposed Action (TI-2) Predicted Highest Ambient Concentrations for Criteria Pollutants

Averaging Time	Monitored Background	Highest from Proposed Generators	Highest from All Combustion Units	Highest Total	NAAQS
PM_{10}					
Annual (ug/m^3)	21	0.36	2.56	24	50
24-hour 2nd Highest (ug/m^3)	46	7.6	59.9	106	150
CO					
8-hour Highest (ug/m^3)	2,889	155	6,642	9,531	10,000
1-hour Highest (ug/m^3)	4,229	282	13,267	17,496	40,000
SO_2					
Annual (ug/m^3)	18	2.4	5.6	24	80
24-hour 2nd Highest (ug/m^3)	86	93.2	111.0	197	365
3-hour 2nd Highest (ug/m^3)	165	216.3	224.9	390	1,300
NO_2					
Annual (ug/m^3)	56	5.7	79.8	136	100

Table 1-7

Proposed Action (TI-2) Predicted Microscale Maximum $PM_{2.5}$ Concentrations and Increments

Averaging Time	Existing/No Action Level	Proposed Action	Proposed Action Increment	Interim Guidance Criteria
Annual (ug/m^3)	3.79	2.55	-1.24	0.3
24-hour 1st Highest (ug/m^3)	59.1	59.8	0.7	5

2. TI-3 Contract Criteria Pollutant Dispersion Modeling

2.1 Introduction

The modeling analysis for the criteria pollutant contributions from Tallman Island WPCP operations under the proposed TI-3 contract condition was conducted using the same approach for the TI-2 Contract conditions.

2.2 Emission Sources Modeled

The emission sources modeled are shown in Figure 3. Their respective physical parameters are summarized in Table 2-1. Under the TI-3 condition, the combustion sources emitting criteria pollutants at the facility include:

- Two new supplemental boilers in pump and blower building. These two boilers will run in full capacity from October to March (a six-month duration). One of these two boilers will run the rest of year at a 70 percent load condition.
- Two boilers (Boilers #3 and #4) in the pump and blower building as standby boilers for the two new supplemental boilers.
- One boiler (Boiler #5) in the pump and blower building running from October to March for a total of six months per year.
- One hot water heater in the pump and blower building.
- Two boilers (Boilers #1 and #2) in the dewatering building (one of two is a standby).
- Three new emergency diesel generators in the new substation and generator building (one of three is a standby generator) running a maximum of 500 hours per year at a maximum of 69 percent load condition.
- One new flare exhaust stack.
- NYCDEP collection building heating and hot water heat boiler stacks.

2.3 Emission Rate Estimates

The fuel oil to be used for applicable combustion sources under the TI-3 Contract condition would be low sulfur fuel oil (<500 ppm sulfur).

For the three new emergency diesel generators (one standby), 500 annual operational hours are used in determining annual emission rates. Given the maximum facility energy consumption level, the two new emergency generators would not operate together at full capacity at anytime. It was determined that the maximum power to be generated by these two generators would be approximately 69 percent of the total load capacity. Therefore both short- and long-term emission rates for both of the two operating generators were developed using a 69 percent load condition. It should be noted that the NOx emission factor used for the TI-3 emergency generators does not consider the SCR post-combustion treatment system that will be operated with the TI-2 generators. Therefore, the manufacturer-provided uncontrolled NOx emission factor was used in determining the NOx emission rate modeled (Table 2-2).

The two new supplemental boilers are designed to operate from October to March. From May through September, only one boiler will operate at a 70 percent load condition. These annual operational factors were considered in the annual average modeling.

Proposed TI-3 Source Location

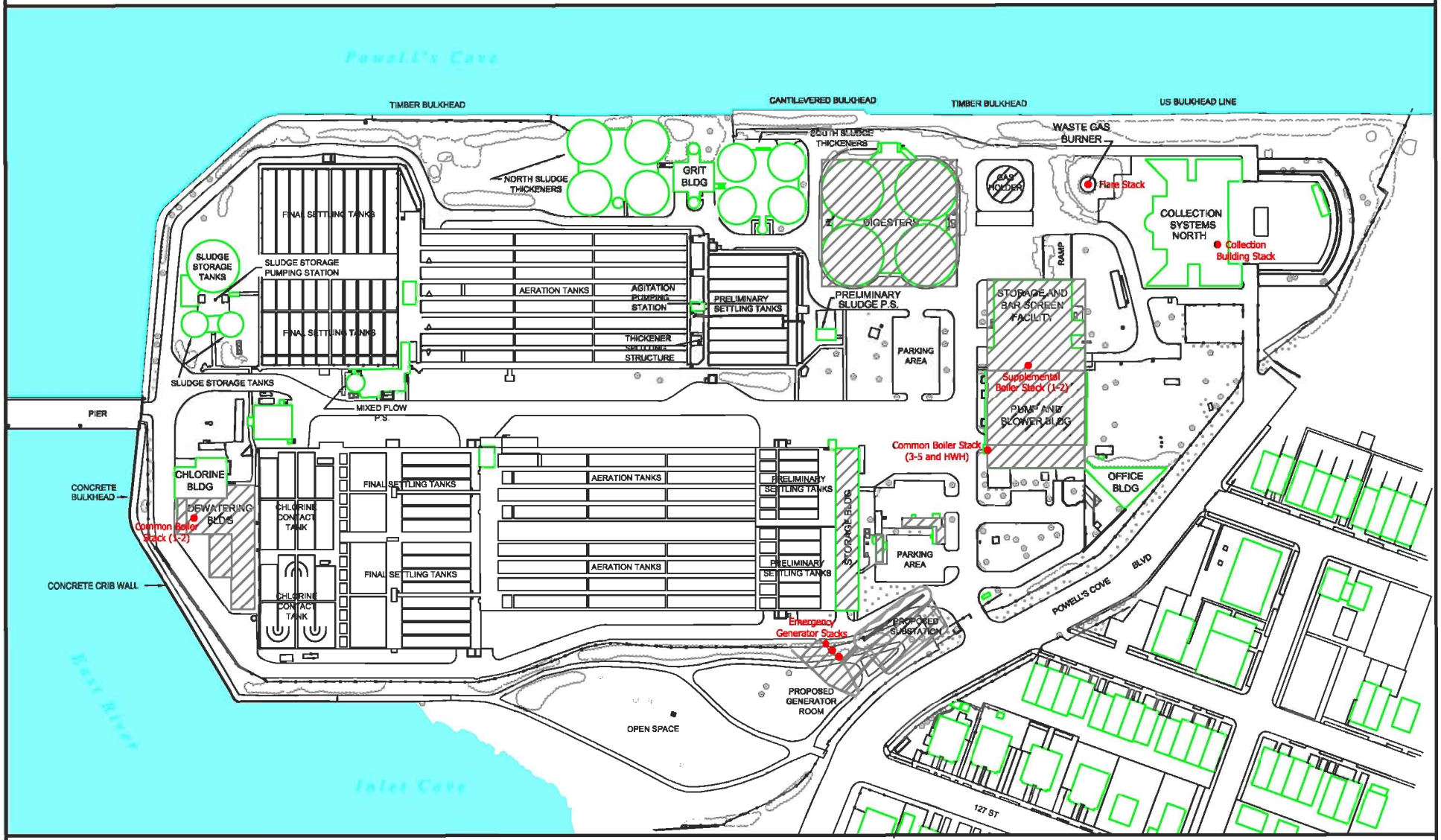


Figure 3

Table 2-1

Summary of TI-3 Source Parameters for Modeling

Source	Supplemental Boiler (#1 and #2 from October to March)[1]	Supplemental Boiler (#1 or #2 from April to September)[2]	Emergency Diesel Generator (1)	Emergency Diesel Generator (2)	Boiler (#1 or #2 with a common stack)	Boiler (#5 and HWH with a common stack)	Collection Building Heating Boiler (operating from October to March)	Collection Building Hot Water Heater Boiler	Digested Gas Burner (flare)
Source Base Elevation (m)	5.18	5.18	5.18	5.18	2.88	5.18	4.72	4.72	4.57
Source Height (m)	18.29	18.29	10.3	10.3	24.43	19.93	7.47	7.47	13.84
Source Temperature (degrees F)	320	320	835	835	250	250	330	330	1600
Source Diameter (m)	0.71	0.71	0.61	0.61	0.38	1.22	0.46	0.46	1.83
Source Exit Velocity (m/s)	5.14	3.60	13.68	13.68	4.14	0.81	0.85	0.48	1.00[3]

Note [1]: Two new boilers use a common stack and run concurrently.
[2]: Only one of two boilers will run at 70 percent load.
[3]: A conservative one-meter per second exit velocity was assumed.

Table 2-2

TI-3 Diesel Generator Emission Rates

Pollutant	Emission Factor [1] (grams/hp-hr)	Maximum Load Condition (%)	Horsepower (hp)	Emission Rate (grams/second) [2]
NO_x (annual)	6.4	69	1475.1	2.6224
PM (PM_{10}/$PM_{2.5}$) Short-term and Annual	0.09	69	1475.1	0.03688
CO (short-term)	0.8	69	1475.1	0.3278
SO_2 Short-term and Annual	0.61	69	1475.1	0.2499

Note [1] : Manufacturer-provided emission factors.
[2]: Annual rates are levels prior to applying the annual run time ratio of 500 hours/8760 hours.

The applicable nonsmoking flare emission rates were estimated based on AP-42 Section 13.5 and the heating value of the flare gases from the stack. Only the pollutants CO, NO_x and VOC are emitted from this source according to AP-42.

Appendix A provides a worksheet used to derive emission rates for each typical combustion source, including oil or gas-fired boilers and diesel engines.

2.4 Microscale Dispersion Modeling

The same modeling methodologies used for the TI-2 condition were used for the TI-3 condition including dispersion model and model options, meteorological conditions, receptor locations and background levels.

The ambient criteria pollutant concentration levels were modeled for all the stationary combustion sources under the TI-3 condition of the proposed action. The modeling results are summarized in Table 2-3.

The modeling results show that no exceedances of the NAAQS are predicted for any criteria pollutant (Table 2-3). To determine potential $PM_{2.5}$ impacts based on the NYCDEP-established incremental impact thresholds from the proposed action, ambient $PM_{2.5}$ concentration levels under both existing/no action and the proposed action conditions were predicted. The predicted incremental $PM_{2.5}$ concentration levels are summarized in Table 2-4. The proposed action modeling results shown in Tables 2-3 and 2-4 conclude:

- No exceedances of the NAAQS were predicted for any of the criteria pollutants.

- $PM_{2.5}$ impacts from the Tallman Island WPCP would be substantially reduced under the proposed action. $PM_{2.5}$ incremental changes would not exceed the NYSDEC and NYCDEP significant microscale impact thresholds compared to the existing/no action condition. Therefore, no significant microscale $PM_{2.5}$ impacts would result from the proposed action.

Moreover, a more conservative analysis was performed using ISC model assuming:

- Two new emergency diesel generators run at full capacity for 500 hours.

- Two new supplemental boilers run at full capacity for the entire year.

The modeling results indicate that the maximum annual average increases of NO_x, PM_{10} and $PM_{2.5}$ facility contributions would be below 40 percent as compared to the results (Tables 2-3 and 2-4) reflecting actual operational TI-3 Contract conditions. Therefore, no exceedances of NAAQS of any criteria pollutants would occur under TI-3 Contract condition even if using the emission rates based on potential to emit from the proposed new combustion sources.

Table 2-3

Proposed Action (TI-3) Predicted Total Ambient Concentrations for Criteria Pollutants

Averaging Time	Monitored Background	Facility Contributions	Total	NAAQS
PM_{10}				
Annual (ug/m^3)	21	0.31	21	50
24-hour 2nd Highest (ug/m^3)	46	12.7	59	150
CO				
8-hour Highest (ug/m^3)	2,889	195.1	3,084	10,000
1-hour Highest (ug/m^3)	4,229	340.4	4,569	40,000
SO_2				
Annual (ug/m^3)	18	0.56	19	80
24-hour 2nd Highest (ug/m^3)	86	85.9	172	365
3-hour 2nd Highest (ug/m^3)	165	189.1	354	1,300
NO_2				
Annual (ug/m^3)	56	4.7	61	100

Table 2-4

Proposed Action (TI-3) Predicted Microscale Maximum $PM_{2.5}$ Concentrations and Increments

Averaging Time	Existing/No Build Level	Proposed Action	Proposed Action Increment	Interim Guidance Criteria
Annual (ug/m^3)	3.79	0.31	-3.5	0.3
24-hour 1st Highest (ug/m^3)	59.1	12.7	-46.4	5

Appendix A (of Attachment G)

Emission Rate Worksheets

Air Dispersion Modeling Input Data
Tallman Island Water Pollution Control Plant
Queens, New York

General Combustion Source Data

Existing Conditions and TI2 Generator Short-term Emissions Rates Worksheet

	EG 1	EG 2	EG 2 at 25%	EG 2 at 70%	Sm. Blr.1	Sm. Blr.2	Sm. Blr.3	Sm. Blr.4	Sm. Blr. 5	HWH 1	DG Burn	Pump Eng. 1-3	Pump Eng. 1-3	Pump Eng. 4-5	Blower Eng. 1-5	Heat Boiler	HW Boiler
Type	Point, Existing	Point, New	Point, New	Point, New	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing
Load (%)		100%	25%	70%								100%	40%	-	90%		
		1600	-	-													
Capacity (HP)	2168	2145.6	536.4	1501.9	125	125	250	250	-	-	-	546	218.4	520	911.7		
Capacity (MMBTU/hr)	-	-	-	-	-	-	-	-	-	-	15.264	-	-	-	-	1.5	0.42
Fuel Types	#2 FO	#2 FO	#2 FO	#2 FO	NG	NG	#2 FO	#2 FO	DG	NG	NG/DG	NG/DG	NG/DG	NG/DG	NG/DG	NG	NG
In/Nearest Bldg	S of Storage	S of Storage	S of Storage	S of Storage	Dewater	Dewater	Pump & Blower	Pump & Blower	Pump & Blower	Pump & Blower	E of Pump & Blower	Pump & Blower	Pump & Blower	Pump & Blower	Pump & Blower	Col Fac N Crew Qtrs	Col Fac N Crew Qtrs
Stack Base El (ft)	17	17	17	17	9.45	9.45	17	17	17	17	15	17	17	17	17		
Stack Elevation (ft)	32	32.1476	32.1476	32.1476	89.6	89.6	82.4	82.4	82.4	82.4	60.42	40.25	40.25	40.25	70		
Stack Height (ft)	15	15.1476	15.1476	15.1476	80.15	80.15	65.4	65.4	65.4	65.4	45.42	23.25	23.25	23.25	53		
Stack Diameter (in)	8	24	24	24	15	15	48	48	48	48	72	10	10	10	14	18	18
Exhaust Temp (^{o} F)	650	835	835	835	250	250	250	250	250	250	1600	400	400	400	400		
Exhaust Velocity (ft/s)	-	65.28	16.32	45.70	-	-	-	-	-	-	3.28	-	-	-	-		
Exhaust Flow (cfm)	10000	12305	3076.25	8613.5	1000	1000	1000	1000	1000	1000	-	1734	693.6	1734	4789.8		
Alt. Capacity (MMBTU/hr)	14.46	-	-	-	5.23	5.23	10.46	10.46	2	0.54	-	3.9312	1.57248	3.744	6.56424		
Alt. Capacity (Gal/hr)	104	108	27	75.6	-	-	-	-	-	-	-	-	-	-	-		
Comments	Removed in Future Conditions	New for TI2, short term	New for TI2, long term	New for TI2, long term	Common stack with Sm. Blr. 2	Common stack with Sm. Blr. 1	Common stack with Sm. Blr. 4	Common stack with Sm. Blr. 3	Common stack with Sm. Blr. 3/4	Common stack with Sm. Blr. 3/4	Removed in Future Conditions	Removed in Future Conditions	Removed in Future Conditions	Removed in Future Conditions	Removed in Future Conditions		

Existing Conditions
(Revised 01/04/2006)

Air Dispersion Modeling Input Data
Existing Short-term Emission Rate (CO, SO2, PM10, and PM2.5)

Tallman Island Water Pollution Control Plant

Queens, New York

			EG 1 (emergency generator)				Sm. Blr.1 & 2		Sm. Blr.3 & 4				Sm. Blr. 5		HWH 1		Pump Eng. 1-3					Pump Eng. 4-5					Blower Eng. 1-5					Collection Facilities			
			Emission Rate	New SO2 Emission Rate		Notes	Emission Rate	Notes	Emission Rate	New SO2 Emission Rate		Notes	Emission Rate	Notes	Emission Rate	Notes	Emission Rate	Title V Permit Emission Factor			Notes	Emission Rate	Title V Permit Emission Factor			Notes	Emission Rate	Title V Permit Emission Factor			Notes	Heat Boiler		HW Boiler	
Pollutant		Units	Fuel Oil	Low Sulfur	Ultra Low Sulfur		Natural Gas		Fuel Oil	Low Sulfur	Ultra Low Sulfur		Natural Gas		Natural Gas			Dual Fuel	Fuel Oil	Ultra Low Sulfur Diesel			Dual Fuel	Fuel Oil	a Low Sulfur Diesel			Dual Fuel	Fuel Oil	Ultra Low Sulfur		Natural Gas		Natural Gas	
				500 ppm	15 ppm					500 ppm	15 ppm									15 ppm					15 ppm					15 ppm					
CO		lb/MMCF	-	-	-	Emergency Generator	84	Dewatering Building	-	-	-	Pump Building	84	Pump Building	84	Pump Building	-	-	-	-	Pump Engines 1 through 3	-	-	-	Pump Engines 4 and 5	-	-	-	Blower Engine 1 through 5	84	Heat Boiler	84	Hot Water Boiler
		lb/MMBTU	-	-	-		0.08235294	Small Boilers 1 and 2-	-	-	-	Small Boilers 3 and 4	0.08235294	Small Boiler 5	0.08235941	Hot Water Heater	-	Highest emission factor of two fuel				-	Highest emission factor of two fuel				-	Highest emission factor of two fuel				0.08235941	-	0.08235941	-
		lb/1000 gal	-	-	-		-	One boiler running	5	-	-	both running from the	-		-	-	-	types will be used for short-term			all three engines running	-	types will be used for short-term			One engine running	-	types will be used for short-term			Three (3) engines running at 90%	-	-	-	-
	Capacity	MMBTU/hr	-	-	-		5.23	-	10.46	-	-	same stack October	2	-	0.54	-	-	impact modeling			-	-	impact modeling			-	-	impact modeling			-	1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-		-	-	-	-	-	through March (6 months)	-	-	-	-	-				-	-				-	-				-	-	-	-
		HP	2168	-	-		-		-	-	-		-		-		-	546	546		Emission Rate Source is from the	-	520	520		Emission Rate Source is from the	-	911.7	911.7			-	-	-	-
		lb/HP-hr	0.0055	-	-		-		-	-	-		-		-		-	0.03257	0.00214		NYS DEP Title V Air Quality Permit	-	0.03257	0.00214		NYS DEP Title V Air Quality Permit	-	0.00516	0.00066			-	-	-	-
		lb/hr	11.924	-	-		0.43070588	-	0.37357143	-	-	-	0.16470588	-	0.044470588	-	1.78E+01	17.78322	1.16844		-	1.69E+01	16.9364	1.1128		-	4.70E+00	4.704372	0.601722			0.123529412	-	0.034588235	-
		Hourly Emission Rate	**g/s**	**1.50239088**	-	-	**0.05438206**	-	**0.04716811**	-	-	-	**0.0207962**	-	**0.005614973**	-	**2.25E+00**	-	-		-	**2.14E+00**	-	-		-	**5.94E-01**	-	-		-	**0.015597148**	-	**0.004367201**	-
SO_2		lb/MMCF	-	-	-	Sulfur percentages of	0.6	Natural Gas Sulfur	-	-	-	Low and Ultra Low Sulfur	0.6	Natural Gas	0.6	Natural Gas Sulfur	-	-	-	-		-	-	-		-	-	-		Title V Permit is assumed to include	0.6	Natural Gas	0.6	Natural Gas
		lb/MMBTU	-	-	-	500 and 15 ppm are	0.00058824	content data not	-	-	-	Emission Factors are	0.00058824	Sulfur content	0.00058235	content data not	-	Highest emission factor of two fuel				-	Highest emission factor of two fuel				-	Highest emission factor of two fuel			low sulfur emissions. Ultra low sulfur	0.00058235	Sulfur content	0.00058235	Sulfur content
		lb/1000 gal	-	-	-	EPA Fuel Sulfur	-	available	26.6	7.1	0.213	based on AP-42 Table 1.3-	-	data not available	-	available	-	types will be used for short-term			Title V Permit is assumed to include	-	types will be used for short-term			low sulfur emissions. Ultra low sulfur	-	types will be used for short-term			sulfur emission rate is based on low	-	data not available	-	data not available
	Capacity	MMBTU/hr	-	-	-	Standards.	5.23	-	10.46	10.46	10.46	1 for Distillate oil	2	-	0.54	-	-	impact modeling			emission rate is based on low (500	-	impact modeling			emission rate is based on low (500	-	impact modeling			(500 ppm) to ultra low (15 ppm)	1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-		-	-	-	-	-		-	-	-	-	-				ppm) to ultra low (15 ppm) sulfur ratio.	-				ppm) to ultra low (15 ppm) sulfur ratio.	-				sulfur ratio.	-	-	-	-
		HP	2168	2168	2168		-		-	-	-		-		-		-	546	546			-	520	520			-	911.7	911.7			-	-	-	-
		lb/HP-hr	0.0004045	0.0004045	0.000012135		-		-	-	-	Sulfur percentages of 500	-		-		-	0.00084	0.00087		-	-	0.00084	0.00087		-	-	0.00042	0.00042			-	-	-	-
		lb/hr	0.876956	0.876956	0.02630868		0.00307647	-	1.9874	0.53047143	0.015914143	and 15 ppm are EPA Fuel	0.00117647	-	0.000317647	-	4.75E-01	0.45864	0.47502		-	4.52E-01	0.4368	0.4524		-	3.83E-01	0.382914	0.382914			0.000882353	-	0.000247059	-
		Hourly Emission Rate	**g/s**	**0.11049402**	**0.11049402**	**0.003314821**	**0.00038844**	-	**0.25093434**	**0.06697872**	**0.002009361**	Sulfur Standards.	**0.0001485**	-	**4.0107E-05**	-	**6.00E-02**	-	-	**0.001799318**	-	**5.71E-02**	-	-	**0.001713636**	-	**4.83E-02**	-	**0.001450432**	-	-	**0.000111408**	-	**3.11943E-05**	-
PM10		lb/MMCF	-	-	-		7.6	-	-	-	-		7.6	-	7.6	-	-	-	-	-		-	-	-		-	-	-	-			7.6	-	7.6	-
		lb/MMBTU	-	-	-		0.00745098	-	-	-	-		0.00745098	-	0.00745098	-	-	Highest emission factor of two fuel				-	Highest emission factor of two fuel				-	Highest emission factor of two fuel				0.00745098	-	0.00745098	-
		lb/1000 gal	-	-	-		-	-	2.38	-	-	lb/10^3 gal for PM include	-	-	-	-	-	types will be used for short-term				-	types will be used for short-term				-	types will be used for short-term				-	-	-	-
	Capacity	MMBTU/hr	-	-	-		5.23	-	10.46	-	-	condensable and filterable	2	-	0.54	-	-	impact modeling				-	impact modeling				-	impact modeling				1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-		-	-	-	-	-	PM from AP-42 tables 1.3-	-	-	-	-	-					-					-					-	-	-	-
		HP	2168	-	-		-		-	-	-	2 and 1.3-7, respectively.	-		-		-	546	546			-	520	520			-	911.7	911.7			-	-	-	-
		lb/HP-hr	0.0007	-	-		-		-	-	-		-		-		-	0.00049	0.00052			-	0.00049	0.00052			-	0.00014	0.00024			-	-	-	-
		lb/hr	1.5176	-	-		0.03896863	-	0.17782	-	-	-	0.01490196	-	0.004023529	-	2.84E-01	0.26754	0.28392		-	2.70E-01	0.2548	0.2704		-	2.19E-01	0.127638	0.218808			0.011176471	-	0.003129412	-
		Hourly Emission Rate	**g/s**	**0.19121338**	-	-	**0.00492028**	-	**0.02245202**	-	-	-	**0.00188156**	-	**0.000508021**	-	**3.58E-02**	-	-		-	**3.41E-02**	-	-		-	**2.76E-02**	-	-		-	**0.001411171**	-	**0.000395128**	-
PM2.5		lb/MMCF	-	-	-		7.6	-	-	-	-		7.6	-	7.6	-	-	-	-	-		-	-	-		-	-	-	-			7.6	-	7.6	-
		lb/MMBTU	-	-	-		0.00745098	-	-	-	-		0.00745098	-	0.00745098	-	-	Highest emission factor of two fuel				-	Highest emission factor of two fuel				-	Highest emission factor of two fuel				0.00745098	-	0.00745098	-
		lb/1000 gal	-	-	-		-	-	2.13	-	-	-	-	-	-	-	-	types will be used for short-term				-	types will be used for short-term				-	types will be used for short-term				-	-	-	-
	Capacity	MMBTU/hr	-	-	-		5.23	-	10.46	-	-	-	2	-	0.54	-	-	impact modeling				-	impact modeling				-	impact modeling				1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-		-	-	-	-	-	-	-	-	-	-	-					-					-					-	-	-	-
		HP	2168	-	-		-		-	-	-		-		-		-	546	546			-	520	520			-	911.7	911.7			-	-	-	-
		lb/HP-hr	0.0007	-	-		-		-	-	-		-		-		-	0.00049	0.00052			-	0.00049	0.00052			-	0.00014	0.00024			-	-	-	-
		lb/hr	1.5176	-	-		0.03896863	-	0.15914143	-	-	-	0.01490196	-	0.004023529	-	2.84E-01	0.26754	0.28392		-	2.70E-01	0.2548	0.2704		-	2.19E-01	0.127638	0.218808			0.011176471	-	0.003129412	-
		Hourly Emission Rate	**g/s**	**0.19121338**	-	-	**0.00492028**	-	**0.02009361**	-	-	-	**0.00188156**	-	**0.000508021**	-	**3.58E-02**	-	-		-	**3.41E-02**	-	-		-	**2.76E-02**	-	-		-	**0.001411171**	-	**0.000395128**	-

TI_2 Diesel Generators

Short-term Rates

Pollutant		Units	EG 2 Emission Rate Fuel Oil Short term	New SO2 Emission Rate Low Sulfur 500 ppm	New SO2 Emission Rate Ultra Low Sulfur 15 ppm	Notes
CO		lb/MMCF	-	-	-	New TI-2 Emergency Generator
		lb/MMBTU	-	-	-	-
		lb/1000 gal	-	-	-	One EG2 running at 70% load for
	Capacity	MMBTU/hr	-	-	-	CO & SO_2
	Capacity	Gal/hr	-	-	-	-
		HP	1501.92	-	-	-
		g/bHP-hr	0.8	-	-	-
		lb/hr	-	-	-	-
	Hourly Emission Rate	**g/s**	**0.33376**	-	-	-
SO_2		lb/MMCF	-	-	-	Low and Ultra Low Sulfur Emission
		lb/MMBTU	-	0.0505	0.001515	Factors are based on AP-42 Table
		lb/1000 gal	-	7.07	0.2121	3.4-1 for Distillate oil
	Capacity	MMBTU/hr	-	-	-	
	Capacity	Gal/hr	-	75.6	75.6	ppm are EPA Fuel Sulfur
		HP	1501.92	-	-	Standards.
		g/bHP-hr	0.71	-	-	
		lb/hr	-	0.534492	0.01603476	
	Hourly Emission Rate	**g/s**	**0.296212**	**0.0674864**	**0.002024591**	
PM10		lb/MMCF	-	-	-	-
		lb/MMBTU	-	-	-	One EG2 running at 25% load for
		lb/1000 gal	-	-	-	PM10 & PM2.5
	Capacity	MMBTU/hr	-	-	-	-
	Capacity	Gal/hr	-	-	-	-
		HP	536.4	-	-	-
		g/bHP-hr	0.21	-	-	-
		lb/hr	-	-	-	-
	Hourly Emission Rate	**g/s**	**0.03129**	-	-	-
PM2.5		lb/MMCF	-	-	-	-
		lb/MMBTU	-	-	-	-
		lb/1000 gal	-	-	-	-
	Capacity	MMBTU/hr	-	-	-	-
	Capacity	Gal/hr	-	-	-	-
		HP	536.4	-	-	-
		g/bHP-hr	0.21	-	-	-
		lb/hr	-	-	-	-
	Hourly Emission Rate	**g/s**	**0.03129**	-	-	-

Air Dispersion Modeling Input Data
Tallman Island Water Pollution Control Plant
Queens, New York

General Combustion Source Data
Existing Long-term Emission Rate Worksheet

	EG 1	EG 2	EG 2 at 50%	Sm. Blr.1	Sm. Blr.2	Sm. Blr.3	Sm. Blr.4	Sm. Blr. 5	HWH 1	DG Burn	Pump Eng. 1 3	Pump Eng. 1-3	Pump Eng. 4-5	Blower Eng. 1-5	Heat Boiler	HW Boiler
Type	Point, Existing	Point, New	Point, New	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing
Load (%)		100%	50%								100%	40%	-	90%		
		1600	-													
Capacity (HP)	2168	2145.6	1072.8	125	125	250	250	-	-	-	546	218.4	520	911.7		
Capacity (MMBTU/hr)	-	-	-	-	-	-	-	-	-	15.264	-	-	-	-	1.5	0.42
Fuel Types	#2 FO	#2 FO	#2 FO	NG	NG	#2 FO	#2 FO	DG	NG	NG/DG	NG/DG	NG/DG	NG/DG	NG/DG	NG	NG
In/Nearest Bldg	S of Storage	S of Storage	S of Storage	Dewater	Dewater	Pump & Blower	Pump & Blower	Pump & Blower	Pump & Blower	E of Pump & Blower	Pump & Blower	Pump & Blower	Pump & Blower	Pump & Blower	Col Fac N Crew Qtrs	Col Fac N Crew Qtrs
Stack Base El (ft)	17	17	17	9.45	9.45	17	17	17	17	15	17	17	17	17		
Stack Elevation (ft)	32	32.1476	32.1476	89.6	89.6	82.4	82.4	82.4	82.4	60.42	40.25	40.25	40.25	70		
Stack Height (ft)	15	15.1476	15.1476	80.15	80.15	65.4	65.4	65.4	65.4	45.42	23.25	23.25	23.25	53		
Stack Diameter (in)	8	24	24	15	15	48	48	48	48	72	10	10	10	14	18	18
Exhaust Temp (^{o} F)	650	835	835	250	250	250	250	250	250	1600	400	400	400	400		
Exhaust Velocity (ft/s)	-	65.28	32.64	-	-	-	-	-	-	3.28	-	-	-	-		
Exhaust Flow (cfm)	10000	12305	6152.5	1000	1000	1000	1000	1000	1000	-	1734	693.6	1734	4789.8		
Alt. Capacity (MMBTU/hr)	14.46	-	-	5.23	5.23	10.46	10.46	2	0.54	-	3.9312	1.57248	3.744	6.56424		
Alt. Capacity (Gal/hr)	104	108	54	-	-	-	-	-	-	-	-	-	-	-		
Comments	Removed in Future Conditions	New for TI2, short term	New for TI2, long term	Common stack with Sm. Blr. 2	Common stack with Sm. Blr. 1	Common stack with Sm. Blr. 4	Common stack with Sm. Blr. 3	stack with Sm. Blr. 3/4	Common stack with Sm. Blr. 3/4	Removed in Future Conditions	Removed in Future Conditions	Removed in Future Conditions	Removed in Future Conditions	Removed in Future Conditions		

Existing Condition
(Revised 01/05/2006)

Air Dispersion Modeling Input Data
Existing Condition Long-term Emission Rate (NOx, SO2, PM10, and PM2.5)

Tallman Island Water Pollution Control Plant

Queens, New York

			EG 1 (existing emergency generator)				Pump Eng. 1-3					Sm. Blr.1 & 2		Sm. Blr.3 & 4				Sm. Blr. 5		HWH 1		Blower Eng. 1-5					Collection Building			
			Emission Rate	New SO2 Emission Rate		Notes	Emission Rate	Title V Permit Emission Factor			Notes	Emission Rate	Notes	Emission Rate	New SO2 Emission Rate		Notes	Emission Rate	Notes	Emission Rate	Notes	Emission Rate	Title V Permit Emission Factor			Notes	Heat Boiler Emission Rate	Heat Boiler Notes	HW Boiler Emission Rate	HW Boiler Notes
Pollutant		Units	Fuel Oil	Low Sulfur	Ultra Low Sulfur		40% Load	Dual Fuel	Fuel Oil	Ultra Low Sulfur		Natural Gas		Fuel Oil	Low Sulfur	Ultra Low Sulfur		Natural Gas		Natural Gas		90% Load	Dual Fuel	Fuel Oil	Ultra Low Sulfur		Natural Gas		Natural Gas	
				500 ppm	15 ppm				30%	70%	15 ppm				500 ppm	15 ppm								30%	70%	15 ppm					
NOx		lb/MMCF	-	-	-	Emergency	-	-	-	-		100	Small Boilers 1	-	-	-	Small Boilers 3 and 4	100	Small Boiler 5	100	Hot Water Heater	-	-	-	-	Blower Engine 1 through 5	100	Heat Boiler	100	Hot water boiler
		lb/MMBTU	-	-	-	Generator	-	-	-	-		0.09803922	and 2	-	-	-		0.09803922	-	0.098039216	-	-	-	-	-		0.09803922	-	0.09803922	-
		lb/1000 gal	-	-	-		-	-	-	-	All three engines running under	-		20	-	-	One boiler running from	-	Boiler runs	-	Heater runs all	-	-	-	-	Assume three blower engines	-	Boiler runs	-	Boiler runs all
	Capacity	MMBTU/hr	-	-	-		-	-	-	-	40% load condition for the whole	5.23	One boiler	10.46	-	-	the same stack October	2	October through	0.54	year	-	-	-	-	running under 90% load for the	1.5	October through	0.42	year
	Capacity	Gal/hr	-	-	-		-	-	-	-	year	-	running all year	-	-	-	through March	-	March	-	-	-	-	-	-	whole year.	-	March (6 months)	-	-
		HP	2168	-	-		-	218.4	218.4	-		-		-	-	-		-		-	-	-	911.7	911.7	-		-	-	-	-
		lb/HP-hr	0.024	-	-		-	0.01246	0.01788	-	Emission Rate Source is from the	-	-	-	-	-	-	-	-	-	-	-	0.012	0.01951	-	Emission Rate Source is from the	-	-	-	-
		lb/hr	52.032	-	-		3.5498736	2.721264	3.904992	-	NYS DEP Title V Air Quality	0.5127451	-	1.49428571	-	-	-	0.19607843	-	0.052941176	-	15.7332069	10.9404	17.787267	-	NYS DEP Title V Air Quality	0.14705882	-	0.04117647	-
		g/s (hourly)	6.55588747	-	-		4.48E-01	-	-	-	Permit	0.06474054	-	0.18867244	-	-	-	0.02475738	-	0.006684492	-	1.99E+00	-	-	-	Permit	0.01856803	-	0.00519905	-
	Annual Operating Time	hours	197	-	-		8760	-	-	-	-	8760	-	8760	-	-	-	8760	-	8760	-	8760	-	-	-		8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.14743263**	-	-		**0.4482164**	-	-	-	-	**0.06474054**	-	**0.18867244**	-	-	-	**0.02475738**	-	**0.006684492**	-	**1.986516023**	-	-	-		**0.01856803**	-	**0.00519905**	-
SO_2		lb/MMCF	-	-	-		-	-	-	-		0.6	Natural Gas	-	-	-	Low and Ultra Low Sulfur	0.6	Natural Gas	0.6	Natural Gas	-	-	-	-		0.6	Natural Gas	0.6	Natural Gas
		lb/MMBTU	-	-	-	Sulfur percentages	-	-	-	-	Title V Permit is assumed to	0.00058824	Sulfur content	-	-	-	Emission Factors are	0.00058824	Sulfur content	0.000583235	Sulfur content	-	-	-	-	Title V Permit is assumed to	0.00058824	Sulfur content	0.00058824	Sulfur content
		lb/1000 gal	-	-	-	of 500 and 15 ppm	-	-	-	-	include low sulfur emissions.	-	data not	26.6	7.1	0.213	based on AP-42 Table	-	data not	-	data not	-	-	-	-	include low sulfur emissions.	-	data not available	-	data not available
	Capacity	MMBTU/hr	-	-	-	are EPA Fuel	-	-	-	-	Ultra low sulfur emission rate is	5.23		10.46	10.46	10.46	1.3-1 for Distillate oil	2		0.54		-	-	-	-	Ultra low sulfur emission rate is	1.5		0.42	
	Capacity	Gal/hr	-	-	-	Sulfur Standards.	-	-	-	-	based on low (500 ppm) to ultra	-		-	-	-		-		-		-	-	-	-	based on low (500 ppm) to ultra	-		-	
		HP	2168	2168	2168		-	218.4	218.4	-	low (15 ppm) sulfur ratio.	-		-	-	-		-		-		-	911.7	911.7	-	low (15 ppm) sulfur ratio.	-		-	
		lb/HP-hr	0.0004045	0.0004045	0.000012135		-	0.00084	0.00087	-		-		-	-	-		-		-		-	0.00042	0.00042	-		-		-	
		lb/hr	0.876956	0.876956	0.02630868		0.1880424	0.183456	0.190008	-		0.00307647	-	1.9874	0.53047143	0.015914143	Sulfur percentages of	0.00117647	-	0.000317647	-	0.382914	0.382914	0.382914	-		0.00088235	-	0.00024706	-
	Hourly Emission Rate	g/s	0.11049402	0.11049402	0.003314821		2.37E-02	-	-	-		0.00038844	-	0.25093434	0.06697872	0.002009361	500 and 15 ppm are EPA	0.00014854	-	4.0107E-05	-	4.83E-02	-	-	-		0.00011141	-	3.1194E-05	-
	Annual Operating Time	hours	197	197	197		8670	-	-	-		8760	-	8760	8760	8760	Fuel Sulfur Standards.	8760	-	8760	-	8670	-	-	-		8760	-	9760	-
	Annual Avg Emission Rate	**g/s**	**0.00248485**	**0.00248485**	**7.45456E-05**		**0.0234988**	-	-	**0.000704964**	-	**0.00038844**	-	**0.25093434**	**0.06697872**	**0.002009361**	-	**0.00014854**	-	**4.0107E-05**	-	**0.047851004**	-	-	**0.00143553**	-	**0.00011141**	-	**3.1194E-05**	-
PM10		lb/MMCF	-	-	-		-	-	-	-		7.6	-	-	-	-	$lb/10^7$ gal for PM include	7.6	-	7.6	-	-	-	-	-		7.6	-	7.6	-
		lb/MMBTU	-	-	-		-	-	-	-		0.00745098	-	-	-	-	condensable and	0.00745098	-	0.00745098	-	-	-	-	-		0.00745098	-	0.00745098	-
		lb/1000 gal	-	-	-		-	-	-	-		-	-	2.38	-	-	filterable PM from AP-42	-	-	-	-	-	-	-	-		-	-	-	-
	Capacity	MMBTU/hr	-	-	-		-	-	-	-		5.23	-	10.46	-	-	tables 1.3-2 and 1.3-7,	2	-	0.54	-	-	-	-	-		1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-		-	-	-	-		-	-	-	-	-	respectively.	-	-	-	-	-	-	-	-		-	-	-	-
		HP	2168	-	-		-	218.4	218.4	-		-	-	-	-	-		-	-	-	-	-	911.7	911.7	-		-	-	-	-
		lb/HP-hr	0.0007	-	-		-	0.00049	0.00052	-		-	-	-	-	-		-	-	-	-	-	0.00014	0.00024	-		-	-	-	-
		lb/hr	1.5176	-	-		0.1116024	0.107016	0.113568	-		0.03896863	-	0.17782	-	-	-	0.01490196	-	0.004023529	-	0.191457	0.127638	0.218808	-		0.01117647	-	0.00312941	-
	Hourly Emission Rate	g/s	0.19121338	-	-		1.41E-02	-	-	-		0.00492028	-	0.02245202	-	-	-	0.00188156	-	0.000508021	-	2.42E-02	-	-	-		0.00141117	-	0.00039513	-
	Annual Operating Time	hours	197	-	-		8760	-	-	-		8760	-	8760	-	-	-	8760	-	8760	-	8760	-	-	-		8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.00430012**	-	-		**0.0140912**	-	-	-	-	**0.00492028**	-	**0.02245202**	-	-	-	**0.00188156**	-	**0.000508021**	-	**0.024173864**	-	-	-		**0.00141117**	-	**0.00039513**	-
PM2.5		lb/MMCF	-	-	-		-	-	-	-		7.6	-	-	-	-		7.6	-	7.6	-	-	-	-	-		7.6	-	7.6	-
		lb/MMBTU	-	-	-		-	-	-	-		0.00745098	-	-	-	-		0.00745098	-	0.00745098	-	-	-	-	-		0.00745098	-	0.00745098	-
		lb/1000 gal	-	-	-		-	-	-	-		-	-	2.13	-	-		-	-	-	-	-	-	-	-		-	-	-	-
	Capacity	MMBTU/hr	-	-	-		-	-	-	-		5.23	-	10.46	-	-		2	-	0.54	-	-	-	-	-		1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-		-	-	-	-		-	-	-	-	-		-	-	-	-	-	-	-	-		-	-	-	-
		HP	2168	-	-		-	218.4	218.4	-		-	-	-	-	-		-	-	-	-	-	911.7	911.7	-		-	-	-	-
		lb/HP-hr	0.0007	-	-		-	0.00049	0.00052	-		-	-	-	-	-		-	-	-	-	-	0.00014	0.00024	-		-	-	-	-
		lb/hr	1.5176	-	-		0.1116024	0.107016	0.113568	-		0.03896863	-	0.15914143	-	-	-	0.01490196	-	0.004023529	-	0.191457	0.127638	0.218808	-		0.01117647	-	0.00312941	-
	Hourly Emission Rate	g/s	0.19121338	-	-		1.41E-02	-	-	-		0.00492028	-	0.02009361	-	-	-	0.00188156	-	0.000508021	-	2.42E-02	-	-	-		0.00141117	-	0.00039513	-
	Annual Operating Time	hours	197	-	-		8760	-	-	-		8760	-	8760	-	-	-	8760	-	8760	-	8760	-	-	-		8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.00430012**	-	-		**0.0140912**	-	-	-	-	**0.00492028**	-	**0.02009361**	-	-	-	**0.00188156**	-	**0.000508021**	-	**0.024173864**	-	-	-		**0.00141117**	-	**0.00039513**	-

Air Dispersion Modeling Input Data
Tallman Island Water Pollution Control Plant
Queens, New York

General Combustion Source Data
TI2 Long-term Emission Rate Worksheet

	EG 1	EG 2	EG 2 at 50%	Sm. Blr.1	Sm. Blr.2	Sm. Blr.3	Sm. Blr.4	Sm. Blr. 5	HWH 1	DG Burn	Pump Eng. 1 3	Pump Eng. 1-3	Pump Eng. 4-5	Blower Eng. 1-5	Heat Boiler	HW Boiler
Type	Point, Existing	Point, New	Point, New	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing
Load (%)		100%	50%								100%	40%	-	90%		
		1600	-													
Capacity (HP)	2168	2145.6	1072.8	125	125	250	250	-	-	-	546	218.4	520	911.7		
Capacity (MMBTU/hr)	-	-	-	-	-	-	-	-	-	15.264	-	-	-	-	1.5	0.42
Fuel Types	#2 FO	#2 FO	#2 FO	NG	NG	#2 FO	#2 FO	DG	NG	NG/DG	NG/DG	NG/DG	NG/DG	NG/DG	NG	NG
In/Nearest Bldg	S of Storage	S of Storage	S of Storage	Dewater	Dewater	Pump & Blower	Pump & Blower	Pump & Blower	Pump & Blower	E of Pump & Blower	Pump & Blower	Pump & Blower	Pump & Blower	Pump & Blower	Col Fac N Crew Qtrs	Col Fac N Crew Qtrs
Stack Base El (ft)	17	17	17	9.45	9.45	17	17	17	17	15	17	17	17	17		
Stack Elevation (ft)	32	32.1476	32.1476	89.6	89.6	82.4	82.4	82.4	82.4	60.42	40.25	40.25	40.25	70		
Stack Height (ft)	15	15.1476	15.1476	80.15	80.15	65.4	65.4	65.4	65.4	45.42	23.25	23.25	23.25	53		
Stack Diameter (in)	8	24	24	15	15	48	48	48	48	72	10	10	10	14	18	18
Exhaust Temp (^{o} F)	650	835	835	250	250	250	250	250	250	1600	400	400	400	400		
Exhaust Velocity (ft/s)	-	65.28	32.64	-	-	-	-	-	-	3.28	-	-	-	-		
Exhaust Flow (cfm)	10000	12305	6152.5	1000	1000	1000	1000	1000	1000	-	1734	693.6	1734	4789.8		
Alt. Capacity (MMBTU/hr)	14.46	-	-	5.23	5.23	10.46	10.46	2	0.54	-	3.9312	1.57248	3.744	6.56424		
Alt. Capacity (Gal/hr)	104	108	54	-	-	-	-	-	-	-	-	-	-	-		
Comments	Removed in Future Conditions	New for TI2, short term	New for TI2, long term	Common stack with Sm. Blr. 2	Common stack with Sm. Blr. 1	Common stack with Sm. Blr. 4	Common stack with Sm. Blr. 3	stack with Sm. Blr. 3/4	Common stack with Sm. Blr. 3/4	Removed in Future Conditions	Removed in Future Conditions	Removed in Future Conditions	Removed in Future Conditions	Removed in Future Conditions		

TI-2 Conditions
(Revised 01/05/2006)

Air Dispersion Modeling Input Data
TI2 Emission Rate (NOx, SO2, PM10, and PM2.5)

Annual Usage
50%

Annual Usage
50%

Tallman Island Water Pollution Control Plant

Queens, New York

			EG 1 (existing emergency generator)				EG 2 (TI2 Diesel Generators - one will operate)				Pump Eng. 1-3					Sm. Blr.1 & 2		Sm. Blr.3 & 4			Sm. Blr. 5		HWH 1		Blower Eng. 1-5					Collection Building			
			Emission Rate	New SO2 Emission Rate		Notes	Emission Rate	New SO2 Emission Rate		Notes	Emission Rate	Title V Permit Emission Rate			Notes	Emission Rate	Notes	Emission Rate	New SO2 Emission Rate	Notes	Emission Rate	Notes	Emission Rate	Notes	Emission Rate	Title V Permit Emission Rate			Notes	Heat Boiler Emission Rate	Notes	HW Boiler Emission Rate	Notes
Pollutant		Units	Fuel Oil	Low Sulfur	Ultra Low Sulfur		Fuel Oil	Low Sulfur	Ultra Low Sulfur		40% Load	Dual Fuel		Fuel Oil		Natural Gas		Fuel Oil	Low Sulfur	Ultra Low Sulfur		Natural Gas		Natural Gas		90% Load	Dual Fuel		Fuel Oil		Natural Gas		Natural Gas	
				500 ppm	15 ppm			500 ppm	15 ppm				30%	70%	15 ppm				500 ppm	15 ppm								30%	70%	15 ppm					
NOx		lb/MMCF	-	-	-	Emergency	-	-	-	New TI-2 Emergency Generator	-	-	-	-	-	100	Small Boilers 1	-	-	-	Small Boilers 3 and 4	100	Small Boiler 5	100	Hot Water Heater	-	-	-	-	Blower Engine 1 through 5	100	Heat Boiler	100	Hot water boiler
		lb/MMBTU	-	-	-	Generator	-	-	-		-	-	-	-	-	0.09803922	and 2	-	-	-	-	0.09803922	-	0.098039216	-	-	-	-	-	-	0.09803922	-	0.09803922	-
		lb/1000 gal	-	-	-	-	-	-	-	EG2 running at 50% load	-	-	-	-	-	-	-	20	-	-	One boiler running from	-	Boiler runs	-	Heater runs all	-	-	-	-	Assume three blower engines	-	Boiler runs	-	Boiler runs all
	Capacity	MMBTU/hr	-	-	-	-	-	-	-	for half year	-	-	-	-	All three engines running under	5.23	One boiler	10.46	-	-	the same stack October	2	October through	0.54	year	-	-	-	-	running under 90% load for the	1.5	October through	0.42	year
	Capacity	Gal/hr	-	-	-	-	-	-	-	-	-	-	-	-	40% load condition for half a year	-	running all year	-	-	-	through March	-	March	-	-	-	-	-	-	whole year.	-	March (6 months)	-	-
		HP	2168	-	-	-	1072.8	-	-	-	-	218.4		218.4	-	-	-	-	-	-	-	-	-	-	-	-	911.7		911.7	-	-	-	-	-
		lb/HP-hr	0.024	-	-	-	2.3	-	-	EG2 EF unit is g/HP-hr	-	0.01246		0.01788	-	-	-	-	-	-	-	-	-	-	-	-	0.012		0.01951	-	Emission Rate Source is from the	-	-	-	-
		lb/hr	52.032	-	-	-	-	-	-	-	3.5498736	2.721264		3.904992	-	-	-	1.4942857	-	-	-	-	-	0.052941176	-	15.7332069	10.9404		17.787267	-	NYS DEP Title V Air Quality	0.14705882	-	0.04117647	-
		g/s (hourly)	6.55588747	-	-	-	0.6854	-	-	-	4.48E-01	-		-	-	0.06474054	-	0.18867244	-	-	-	0.02475738	-	0.006684492	-	1.99E+00	-		-	-	Permit	0.01856803	-	0.00519905	-
	Annual Operating Time	hours	197	-	-	-	4380	-	-	-	4380	-		-	-	8760	-	8760	-	-	-	8760	-	8760	-	8760	-		-	-	-	8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.14743263**	-	-	-	**0.3427**	-	-	-	**0.224108182**	-		-	-	**0.06474054**	-	**0.18867244**	-	-	-	**0.02475738**	-	**0.006684492**	-	**1.986516023**	-		-	-	-	**0.01856803**	-	**0.00519905**	-
SO_2		lb/MMCF	-	-	-	Sulfur percentages	-	-	-	Low and Ultra Low Sulfur	-	-	-	-	Title V Permit is assumed to	0.6	Natural Gas	-	-	-	Low and Ultra Low Sulfur	0.6	Natural Gas	0.6	Natural Gas	-	-	-	-	Title V Permit is assumed to	0.6	Natural Gas	0.6	Natural Gas
		lb/MMBTU	-	-	-	of 500 and 15 ppm	-	0.0505	0.001515	Emission Factors are based on	-	-	-	-	include low sulfur emissions.	0.00058824	Sulfur content	-	-	-	Emission Factors are	0.00058824	Sulfur content	0.000588235	Sulfur content	-	-	-	-	include low sulfur emissions.	0.00058824	Sulfur content	0.00058824	Sulfur content
		lb/1000 gal	-	-	-	are EPA Fuel	-	7.07	0.2121	AP-42 Table 3.4-1 for Distillate oil	-	-	-	-	Ultra low sulfur emission rate is	-	data not	26.6	7.1	0.213	based on AP-42 Table	-	data not	-	data not	-	-	-	-	Ultra low sulfur emission rate is	-	data not available	-	data not available
	Capacity	MMBTU/hr	-	-	-	Sulfur Standards.	-	-	-		-	-	-	-	based on low (500 ppm) to ultra	5.23	-	10.46	10.46	10.46	1.3-1 for Distillate oil	2	-	0.54	-	-	-	-	-	based on low (500 ppm) to ultra	1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-	-	-	54	54	Sulfur percentages of 500 and 15	-	-	-	-	low (15 ppm) sulfur ratio.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	low (15 ppm) sulfur ratio.	-	-	-	-
		HP	2168	2168	2168	-	1072.8	-	-	ppm are EPA Fuel Sulfur	-	218.4		218.4	-	-	-	-	-	-	-	-	-	-	-	-	911.7		911.7	-	-	-	-	-
		lb/HP-hr	0.0004045	0.0004045	0.000012135	-	0.61	-	-	EG2 EF unit is g/HP-hr	-	0.00084		0.00087	-	-	-	-	-	-	-	-	-	-	-	-	0.00042		0.00042	-	-	-	-	-
		lb/hr	0.876956	0.876956	0.02630868	-	-	0.38178	0.0114534	-	0.1880424	0.183456		0.190008	-	0.00307647	-	1.9874	0.53047143	0.015914143	Sulfur percentages of	0.00117647	-	0.000317647	-	-	0.382914	0.382914	0.382914	-	-	0.00088235	-	0.00024706	-
	Hourly Emission Rate	g/s	0.11049402	0.11049402	0.003314821	-	0.18178	**0.0482045**	**0.001446136**	-	2.37E-02	-		-	-	0.00038844	-	0.25093434	0.06697872	0.002009361	500 and 15 ppm are EPA	0.00014854	-	4.0107E-05	-	-	4.83E-02	-	-	-	-	0.00011141	-	3.1194E-05	-
	Annual Operating Time	hours	197	197	197	-	4380	4380	4380	-	4380	-		-	-	8760	-	8760	8760	8760	Fuel Sulfur Standards.	8760	-	8760	-	-	8670	-	-	-	-	8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.00248485**	**0.00248485**	**7.45456E-05**	-	**0.09089**	**0.0241023**	**0.000723068**	-	**0.011871364**	-		-	**0.000356141**	**0.00038844**	-	**0.25093434**	**0.06697872**	**0.002009361**	-	**0.00014854**	-	**4.0107E-05**	-	-	**0.047851004**	-	-	**0.00143553**	-	**0.00011141**	-	**3.1194E-05**	-
PM10		lb/MMCF	-	-	-	-	-	-	-	-	-	-	-	-	-	7.6	-	-	-	-	lb/10^3 gal for PM include	7.6	-	7.6	-	-	-	-	-	-	-	7.6	-	7.6	-
		lb/MMBTU	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00745098	-	-	-	-	condensable and	0.00745098	-	0.00745098	-	-	-	-	-	-	-	0.00745098	-	0.00745098	-
		lb/1000 gal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.38	-	-	filterable PM from AP-42	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Capacity	MMBTU/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	5.23	-	10.46	-	-	tables 1.3-2 and 1.3-7,	2	-	0.54	-	-	-	-	-	-	1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	respectively.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		HP	2168	-	-	-	1072.8	-	-	-	-	218.4		218.4	-	-	-	-	-	-	-	-	-	-	-	-	911.7		911.7	-	-	-	-	-
		lb/HP-hr	0.0007	-	-	-	0.09	-	-	EG2 EF unit is g/HP-hr	-	0.00049		0.00052	-	-	-	-	-	-	-	-	-	-	-	-	0.00014		0.00024	-	-	-	-	-
		lb/hr	1.5176	-	-	-	-	-	-	-	0.1116024	0.107016		0.113568	-	0.03896863	-	0.17782	-	-	-	0.01490196	-	0.004023529	-	-	0.191457	0.127638	0.218808	-	-	0.01117647	-	0.00312941	-
	Hourly Emission Rate	g/s	0.19121338	-	-	-	0.02682	-	-	-	1.41E-02	-		-	-	0.00492028	-	0.02245202	-	-	-	0.00188156	-	0.000508021	-	-	2.42E-02	-	-	-	-	0.00141117	-	0.00039513	-
	Annual Operating Time	hours	197	-	-	-	4380	-	-	-	4380	-		-	-	8760	-	8760	-	-	-	8760	-	8760	-	-	8760	-	-	-	-	8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.00430012**	-	-	-	**0.01341**	-	-	-	**0.007045606**	-		-	-	**0.00492028**	-	**0.02245202**	-	-	-	**0.00188156**	-	**0.000508021**	-	-	**0.024173864**	-	-	-	-	**0.00141117**	-	**0.00039513**	-
PM2.5		lb/MMCF	-	-	-	-	-	-	-	-	-	-	-	-	-	7.6	-	-	-	-	-	7.6	-	7.6	-	-	-	-	-	-	-	7.6	-	7.6	-
		lb/MMBTU	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00745098	-	-	-	-	-	0.00745098	-	0.00745098	-	-	-	-	-	-	-	0.00745098	-	0.00745098	-
		lb/1000 gal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Capacity	MMBTU/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	5.23	-	10.46	-	-	-	2	-	0.54	-	-	-	-	-	-	-	1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		HP	2168	-	-	-	1072.8	-	-	-	-	218.4		218.4	-	-	-	-	-	-	-	-	-	-	-	-	911.7		911.7	-	-	-	-	-
		lb/HP-hr	0.0007	-	-	-	0.09	-	-	EG2 EF unit is g/HP-hr	-	0.00049		0.00052	-	-	-	-	-	-	-	-	-	-	-	-	0.00014		0.00024	-	-	-	-	-
		lb/hr	1.5176	-	-	-	-	-	-	-	0.1116024	0.107016		0.113568	-	0.03896863	-	0.15914143	-	-	-	0.01490196	-	0.004023529	-	-	0.191457	0.127638	0.218808	-	-	0.01117647	-	0.00312941	-
	Hourly Emission Rate	g/s	0.19121338	-	-	-	0.02682	-	-	-	1.41E-02	-		-	-	0.00492028	-	0.02009361	-	-	-	0.00188156	-	0.000508021	-	-	2.42E-02	-	-	-	-	0.00141117	-	0.00039513	-
	Annual Operating Time	hours	197	-	-	-	4380	-	-	-	4380	-		-	-	8760	-	8760	-	-	-	8760	-	8760	-	-	8760	-	-	-	-	8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.00430012**	-	-	-	**0.01341**	-	-	-	**0.007045606**	-		-	-	**0.00492028**	-	**0.02009361**	-	-	-	**0.00188156**	-	**0.000508021**	-	-	**0.024173864**	-	-	-	-	**0.00141117**	-	**0.00039513**	-

TABLE GEN-1
Air Dispersion Modeling Input Data
Tallman Island Water Pollution Control Plant
Queens, New York

TI 3 General Combustion Source Data

TI_3 Conditions

	Supp. Blr.1	Supp. Blr. at 70% Load	Supp. Blr.2	EG1, 2 & 3	[illegible] at 69% load *	DG Burn New	Sm. Blr.1	Sm. Blr.2	Sm. Blr.3	Sm. Blr.4	Sm. Blr. 5	HWH 1	Heat Boiler	HW Boiler
Type	Point, New	Point, New	Point, New	Point, New	Point, New	Point, New	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing	Point, Existing
Load (%)				100%	69%									
				1600	-									
Capacity (HP)				2145.6	1475.1									
Capacity (MMBTU/hr)	14.65	10.255	14.65			15.264	5.23	5.23	10.46	10.46	2	0.54	1.5	0.42
Capacity (Gal/hr)				108	74.25									
Fuels	NG/DG	NG/DG	NG/DG	#2 FO	#2 FO	NG/DG	NG	NG	#2 FO	#2 FO	DG	NG	NG	NG
In/Nearest Bldg	Pump & Blower	Pump & Blower	Pump & Blower	W of Main Gate	W of Main Gate	E of Pump & Blower	Dewater	Dewater	Pump & Blower	Pump & Blower	Pump & Blower	Pump & Blower	Col Fac N Crew Qtrs	Col Fac N Crew Qtrs
Stack Base El (ft)	17	17	17	15.67	15.67	15	9.45	9.45	17	17	17	17	15.5	15.5
Stack Elevation (ft)	77	77	77	49.46	49.46	60.42	89.6	89.6	82.4	82.4	82.4	82.4	40	40
Stack Height (ft)	60	60	60	33.79	33.79	45.42	80.15	80.15	65.4	65.4	65.4	65.4	24.5	24.5
Stack Diameter (in)	28	28	28	24	24	72	15	15	48	48	48	48	18	18
Exhaust Temp (^{o} F)	320	320	320	835	835	1600	250	250	250	250	250	250	330	350
Exhaust Velocity (ft/s)	16.86	11.80	16.86	65.28	44.88	3.28	13.58	13.58	1.33	1.33	1.33	1.33	2.78	1.57
Exhaust Flow (cfm)	4326	3028	4326	12305.00	8459.69	5565.8	1000	1000	1000	1000	1000	1000		
Comments	Common stack with Supp. Blr. 2	One Supp. Blr.running at 70% Load	Common stack with Supp. Blr. 1	Replaces exisiting EG1	Replaces exisiting EG1	Replaces exisiting DG Burner	Common stack with Sm. Blr. 2	Common stack with Sm. Blr. 1	Common stack with Sm. Blr. 4	Common stack with Sm. Blr. 3	Common stack with Sm. Blr. 3/4	Common stack with Sm. Blr. 3/4		

TI_3 Conditions (Revised 2/2/06)

Air Dispersion Modeling Input Data
TI 3 Emission Rate (NOx, CO, SO2, PM10, and PM2.5)

Tallman Island Water Pollution Control Plant

Queens, New York

			Supp. Blr. 1 & 2			Sm. Blr.3 & 4				EG1, 2 & 3				DG Burn		Sm. Blr.1 & 2		Sm. Blr. 5		HWH 1		Collection Building: Heat Boiler		Collection Building: HW Boiler	
			Emission Rate		Notes	Emission Rate	New SO2 Emission Rate		Notes	Emission Rate	New SO2 Emission Rate		Notes	Emission Rate	Notes		Notes		Notes		Notes	Emission Rate	Notes	Emission Rate	Notes
Pollutant		Units	Natural Gas	Natural Gas		Fuel Oil	Low Sulfur	Ultra Low Sulfur		Fuel Oil	Low Sulfur	Ultra Low Sulfur		Natural Gas		Natural Gas		Natural Gas		Natural Gas		Natural Gas		Natural Gas	
			100%	70%			500 ppm	15 ppm			500 ppm	15 ppm													
NOx		lb/MMCF	100	100	Supplemental Boilers	-	-	-	Small Boilers 3 and 4	-	-	-	Emergency	-	Flare	100	Small Boilers	100	Small Boiler 5	100	Hot Water Heater	100	Heat Boiler	100	Hot water boiler
		lb/MMBTU	0.09803922	0.09803922	1 &2	-	-	-	are standby boilers	-	-	-	Generator	0.068	Removed	0.09803922	1 and 2	0.09803922	-	0.09803922	-	0.09803922	-	0.09803922	-
		lb/1000 gal	-	-	-	20	-	-	for two new	-	-	-	-	-	-	-	-	-	-	-	Heater runs all	-	-	-	Boiler runs all
	Capacity	MMBTU/hr	14.65	10.26	Two boilers running	10.46	-	-	Supplemental Boilers	-	-	-	Two Generators	15.264	-	5.23	One boiler	2	-	0.54	year	1.5	-	0.42	year
	Capacity	Gal/hr	-	-	October through	-	-	-	1&2. Therefore they	-	-	-	running a	-	-	-	running all	-	Boiler runs	-	-	-	Boiler runs	-	-
		HP	-	-	March at 100% load;	-	-	-	will be used for short-	1475.1	-	-	maximum of 500	-	-	-	year	-	October	-	-	-	October	-	-
		g/HP-hr	-	-	One boiler running	-	-	-	term impact modeling	6.4	-	-	hrs per year at	-	-	-	-	-	through	-	-	-	through March	-	-
		lb/hr	1.43627451	1.00539216	April through	1.49428571	-	-	if their emission rates	-	-	-	69% load. NOx	1.037952	-	0.5127451	-	0.19607843	March	0.05294118	-	0.14705882	(6 months)	0.04117647	-
		g/s (hourly)	0.18134779	0.12694345	September at 70%.	0.18867244	-	-	are greater than two	2.6224	-	-	EF is baesed on	0.13105455	-	0.06474054	-	0.02475738	-	0.00668449	-	0.01856803	-	0.00519905	-
	Annual Operating Time	hours	8760	8760		8760	-	-	new boilers (i.e., for	500	-	-	manufacturer's	8760	-	8760	-	8760	-	8760	-	8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.18134779**	**0.12694345**	These are new sources	0.18867244	-	-	SO2).	**0.14968037**	-	-	uncontrolled data.	**0.13105455**	-	**0.06474054**	-	**0.02475738**	-	**0.00668449**	-	**0.01856803**	-	**0.00519905**	-
CO		lb/MMCF	84	-	-	-	-	-	-	-	-	-		-	-	84	-	84	-	84	-	84		84	
		lb/MMBTU	0.08235294	-	-	-	-	-	-	-	-	-	g/HP-hr rates for	0.37	-	0.08235294	-	0.08235294	-	0.08235294	-	0.08235294	-	0.08235294	-
		lb/1000 gal	-	-	-	5	-	-	-	-	-	-	CO and SO2 are	-	-	-	-	-	-	-	-	-	-	-	-
	Capacity	MMBTU/hr	14.65	-	-	10.46	-	-	-	-	-	-	based on	15.264	-	5.23	-	2	-	0.54	-	1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-	-	-	-	-	-	-	-	manufacturer data	-	-	-	-	-	-	-	-	-	-	-	-
		HP	-	-	-	-	-	-	-	1475.1	-	-	under 75% load	-	-	-	-	-	-	-	-	-	-	-	-
		g/HP-hr	-	-	-	-	-	-	-	0.8	-	-	condition.	-	-	-	-	-	-	-	-	-	-	-	-
		lb/hr	1.20647059	-	-	0.37357143	-	-	-	-	-	-	-	5.64768	-	0.43070588	-	0.16470588	-	0.04447059	-	0.12352941	-	0.03458824	-
	Hourly Emission Rate	**g/s**	**0.15233214**	-	-	0.04716811	-	-	-	**0.3278**	-	-	-	**0.71309091**	-	**0.05438206**	-	**0.0207962**	-	**0.00561497**	-	**0.01559715**	-	**0.0043672**	-
SO_2		lb/MMCF	0.6	0.6	-	-	-	-	Low and Ultra Low	-	-	-	Sulfur	-	-	0.6	Natural Gas	0.6	Natural Gas	0.6	Natural Gas	0.6	Natural Gas	0.6	Natural Gas
		lb/MMBTU	0.00058824	0.00058824	-	-	-	-	Sulfur Emission	-	0.0505	0.001515	percentages of	-	-	0.00058824	Sulfur	0.00058824	Sulfur content	0.00058824	Sulfur content	0.00058824	Sulfur content	0.00058824	Sulfur content
		lb/1000 gal	-	-	-	26.6	7.1	0.213	Factors are based on	-	7.07	0.2121	500 and 15 ppm	-	-	-	content data	-	data not	-	data not available	-	data not	-	data not
	Capacity	MMBTU/hr	14.65	10.26	-	10.46	10.46	10.46	AP-42 Table 1.3-1 for	-	-	-	are EPA Fuel	-	-	5.23	not available	2	available	0.54		1.5	available	0.42	available
	Capacity	Gal/hr	-	-	-	-	-	-	Distillate oil	-	74.25	74.25	Sulfur Standards.	-	-	-	-	-	-	-	-	-	-	-	-
		HP	-	-	-	-	-	-	-	1475.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		g/HP-hr	-	-	-	-	-	-	-	0.61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		lb/hr	0.00861765	0.00603235	-	1.9874	0.53047143	0.01591414	Sulfur percentages of	-	0.5249475	0.015748425	-	-	-	0.00307647	-	0.00117647	-	0.00031765	-	0.00088235	-	0.00024706	-
	Hourly Emission Rate	**g/s**	**0.00108809**	0.00076166	-	**0.25093434**	0.06697872	0.00200936	500 and 15 ppm are	**0.2499475**	0.06628125	0.001988438	-	-	-	**0.00038844**	-	**0.00014854**	-	**4.0107E-05**	-	**0.00011141**	-	**3.1194E-05**	-
	Annual Operating Time	hours	8760	8760	-	8760	8760	8760	EPA Fuel Sulfur	500	500	500	-	-	-	8760	-	8760	-	8760	-	8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.00108809**	**0.00076166**	-	0.25093434	0.06697872	0.00200936	-	**0.01426641**	0.00378318	0.000113495	-	-	-	**0.00038844**	-	**0.00014854**	-	**4.0107E-05**	-	**0.00011141**	-	**3.1194E-05**	-
PM10		lb/MMCF	7.6	7.6	-	-	-	-	-	-	-	-	-	-	-	7.6	-	7.6	-	7.6	-	7.6	-	7.6	-
		lb/MMBTU	0.00745098	0.00745098	-	-	-	-	-	-	-	-	g/HP-hr rates for	-	-	0.00745098	-	0.00745098	-	0.00745098	-	0.00745098	-	0.00745098	-
		lb/1000 gal	-	-	-	1.08	-	-	-	-	-	-	PM10/PM2.5 are	-	-	-	-	-	-	-	-	-	-	-	-
	Capacity	MMBTU/hr	14.65	10.26	-	10.46	-	-	-	-	-	-	based on	-	-	5.23	-	2	-	0.54	-	1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-	-	-	-	-	-	-	-	conservative	-	-	-	-	-	-	-	-	-	-	-	-
		HP	-	-	-	-	-	-	-	1475.1	-	-	manufacturer data	-	-	-	-	-	-	-	-	-	-	-	-
		g/HP-hr	-	-	-	-	-	-	-	0.09	-	-	for 50% load	-	-	-	-	-	-	-	-	-	-	-	-
		lb/hr	0.10915686	0.0764098	-	0.08069143	-	-	-	-	-	-	condition.	-	-	0.03896863	-	0.01490196	-	0.00402353	-	0.01117647	-	0.00312941	-
	Hourly Emission Rate	**g/s**	**0.01378243**	0.0096477	-	0.01018831	-	-	-	**0.0368775**	-	-	-	-	-	**0.00492028**	-	**0.00188156**	-	**0.00050802**	-	**0.00141117**	-	**0.00039513**	-
	Annual Operating Time	hours	8760	8760	-	8760	-	-	-	500	-	-	-	-	-	8760	-	8760	-	8760	-	8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.01378243**	**0.0096477**	-	0.01018831	-	-	-	**0.00210488**	-	-	-	-	-	**0.00492028**	-	**0.00188156**	-	**0.00050802**	-	**0.00141117**	-	**0.00039513**	-
PM2.5		lb/MMCF	7.6	7.6	-	-	-	-	-	-	-	-	-	-	-	7.6	-	7.6	-	7.6	-	7.6	-	7.6	-
		lb/MMBTU	0.00745098	0.00745098	-	-	-	-	-	-	-	-	-	-	-	0.00745098	-	0.00745098	-	0.00745098	-	0.00745098	-	0.00745098	-
		lb/1000 gal	-	-	-	0.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Capacity	MMBTU/hr	14.65	10.26	-	10.46	-	-	-	-	-	-	-	-	-	5.23	-	2	-	0.54	-	1.5	-	0.42	-
	Capacity	Gal/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		HP	-	-	-	-	-	-	-	1475.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		g/HP-hr	-	-	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		lb/hr	0.10915686	0.0764098	-	0.06201286	-	-	-	-	-	-	-	-	-	0.03896863	-	0.01490196	-	0.00402353	-	0.01117647	-	0.00312941	-
	Hourly Emission Rate	**g/s**	**0.01378243**	0.0096477	-	0.00782991	-	-	-	**0.0368775**	-	-	-	-	-	**0.00492028**	-	**0.00188156**	-	**0.00050802**	-	**0.00141117**	-	**0.00039513**	-
	Annual Operating Time	hours	8760	8760	-	8760	-	-	-	500	-	-	-	-	-	8760	-	8760	-	8760	-	8760	-	8760	-
	Annual Avg Emission Rate	**g/s**	**0.01378243**	**0.0096477**	-	0.00782991	-	-	-	**0.00210488**	-	-	-	-	-	**0.00492028**	-	**0.00188156**	-	**0.00050802**	-	**0.00141117**	-	**0.00039513**	-

Attachment H

ATTACHMENT H
AIR TOXICS ANALYSIS TO SUPPORT THE PHASE 1A UPGRADE TALLMAN ISLAND WPCP

The Phase 1A upgrade of the Tallman Island WPCP has two air-affecting components. The first is the accommodation of a biological nitrogen removal (BNR) step-feed process which requires creation of oxic and anoxic zones within each aeration tank pass, an increase in aeration tank air flows, and improvement of the return activated sludge (RAS) distribution and pumping system. The second air-affecting component is the re-routing of the centrate from the sludge dewatering to the aeration tanks (Pass A) for subsequent treatment.

Facility-wide emissions of air toxics were limited to wastewater process sources and were assessed using *TOXCHEM+*, Enviromega's environmental fate model for wastewater collection and treatment systems (www.enviromega.com). Air toxics considered in the emissions assessment were based on the three most recent years of DEP aqueous influent analysis. Operating conditions and model input parameters representative of the no-build and build scenarios were conservatively assigned based on data contained in the DEP Fiscal Year summary tables for the plant.

From the emissions assessment, two analyses were performed. The first was a "major-source threshold analysis" for a total of 14 hazardous air pollutants (HAP), in which both the individual and total annual HAP emissions for the facility were compiled and compared to threshold emission rates. The second analysis involved the application of an air dispersion model (USEPA's Industrial Source Complex Short-Term Model or ISCST3) to all air toxics emissions for assessing both short-term (hourly) and annual off-site impacts (both scenarios). A total of 10 air toxics were evaluated with respect to their Short-Term Guideline Concentrations (SGCs), and 18 with respect to their Annual Guideline Concentrations (AGCs), as promulgated by the New York State Department of Environmental Conservation (NYSDEC). All dispersion modeling was performed consistent with applicable USEPA and DEP policies and procedures.

Table H-1 presents results of the major-source analysis for HAP (no-build and build scenarios). Neither any individual HAP threshold (10 tons per year) nor the aggregate HAP threshold (25 tons per year) was exceeded under either scenario. Based on results of this analysis, the facility is not considered "major" in terms of its HAP emissions and, as such, is not required to implement "maximum available control technology" (MACT) as part of the upgrade.

Table H-2 presents the maximum predicted hourly site-perimeter air toxics impacts (no-build and build scenarios) based on the ISCST3 dispersion modeling. There were no predicted exceedances of any SGC under either scenario.

Table H-3 presents the maximum predicted annual site-perimeter air toxics impacts (no-build and build scenarios) based on the ISCST3 dispersion modeling. AGC exceedances were predicted for chloroform and 1,4-dichlorobenzene under the no-build scenario, and for chloroform, 1,4-dichlorobenzene, and tetrachloroethene under the build scenario.

Limited exemptions for complying with AGC exceedances (build scenario) are provided by the NYSDEC under certain conditions, thus obviating the need for emissions control, but only when the AGC exceedance factor is less than 10. Section IV.C.2 of the DEC's Air Guide-1 (1991 edition) states that if an AGC is based on a one-in-a-million risk level (as is the case for the three air toxics of concern), the source, "if it has BACT [best available control technology] installed, may be permitted if the risk associated with the total ambient impact is less than 10^{-5} (one-in-a-hundred-thousand). In this particular case, a 10^{-5} level of risk is associated with a predicted ambient concentration of 10 times the AGC."

"For some sources," as stated in Section III.C.3.a of Appendix A to Air Guide-1, "BACT may be determined to be 'no control' if it is not technically or economically feasible." However, in no case, regardless of whether BACT exists, can a source exceed the 10^{-5} level of risk.

The objective of the DEC's BACT policy is "to achieve the greatest possible emissions reduction to protect public health and the environment without placing an unreasonable financial or technical burden on a source owner." Typically, this evaluation is based on the calculated cost of each ton of pollutant removed, and must be performed separately for each compound of concern.

For this project, a comprehensive BACT analysis was performed in accordance with applicable NYSDEC policies and procedures. This analysis involved performance of a regulatory feasibility study to determine the selection or elimination of control options for each air pollution source based on consideration of technical feasibility, energy requirements, the environment, and economic impact. The sources identified in this analysis were the preliminary settling tanks, the aeration tanks, the final settling tanks, and the effluent drops. Control alternatives considered included covering, thermal and catalytic incineration, carbon adsorption, absorption, and bio-oxidation.

A summary of the BACT analysis results is provided in the following tables. Details of this analysis are provided in the report, "CEQR Air Quality Analysis for Air Toxics for the Tallman Island Water Pollution Control Plant, Phase 1A Upgrade," Revised March 2006.

Table H-4 presents the maximum predicted sole-source annual off-site impact for chloroform, 1,4-dichlorobenzene, and tetrachloroethene -- the regulated compounds which exceeded their AGCs (Table H-3). This dispersion modeling was necessary in order to identify which sources needed to be controlled within the context of the BACT analysis. From this analysis, it was evident that controls for the preliminary settling tanks, the aeration tanks, the final settling tanks, and the effluent drops needed to be considered with respect to chloroform. For 1,4-dichlorobenzene and tetrachloroethene, controls needed to be considered only for the aeration tanks.

Table H-5 presents the evaluated cost per ton of air toxic removed for the selected control technologies. For each source of concern, as discussed above, selection was based on consideration of a full range of potentially viable control options with respect to technology, energy, and the environment. The selected control technologies were: (a) covering, with treatment of the resultant air flow via carbon adsorption, for the aeration tanks; and (b) covering, without any treatment, for the preliminary settling tanks, the final settling tanks, and the effluent drops. For chloroform, the total annualized cost to achieve AGC compliance was determined to be $3.1 million, and the cost per ton removed was $17.2 million. For 1,4-dichlorobenzene, the total annualized cost was $2.4 million, and the cost per ton removed was $24.0 million. For tetrachloroethene, the total annualized cost was $2.4 million, and the cost per ton removed was $3.8 million.

Regardless of whether the annualized cost or the cost per ton removed is considered, the cost to control any of the three air toxics to the levels necessary to achieve AGC compliance would clearly place an unreasonable financial burden on the DEP and the City of New York. Therefore, in accordance with the above NYSDEC guidance, BACT may be defined for this plant as "no control," and further control of air toxics is not required.

TABLE H-1

MAJOR-SOURCE THRESHOLD ANALYSIS FOR HAP

Hazardous Air Pollutant	CAS No.	Facility Emissions			
		No-Build Scenario		Build Scenario	
		lb/yr	TPY	lb/yr	TPY
chloroform (trichloromethane)	00067-66-3	255.31	0.13	664.76	0.33
1,4-dichlorobenzene (p-dichlorobenzene)	00106-46-7	191.37	0.10	574.35	0.29
ethyl benzene	00100-41-4	13.32	0.01	24.48	0.01
methylene chloride (dichloromethane)	00075-09-2	978.26	0.49	2,381.25	1.19
tetrachloroethene (tetrachloroethylene)	00127-18-4	755.58	0.38	2,081.27	1.04
toluene	00108-88-3	80.26	0.04	196.81	0.10
trichloroethene (trichloroethylene)	00079-01-6	30.47	0.02	97.03	0.05
1,2-xylene (o-xylene)	00095-47-6	13.55	0.01	20.79	0.01
1,3-xylene (m-xylene)	00108-38-3	47.60	0.02	151.99	0.08
1,4-xylene (p-xylene)	00106-42-3	37.00	0.02	59.60	0.03
gamma-BHC (hexachlorocyclohexane) (lindane)	00058-89-9	0.00	0.00	0.01	0.00
chlordane	00057-74-9	0.03	0.00	0.09	0.00
bis(2-ethylhexyl)phthalate (dioctyl phthalate)	00117-81-7	4.72	0.00	42.05	0.02
di-n-butylphthalate (dibutyl phthalate)	00084-74-2	0.03	0.00	0.18	0.00
	Total	**2,407.50**	**1.20**	**6,294.66**	**3.15**

TABLE H-2

MAXIMUM PREDICTED HOURLY SITE-PERIMETER AIR TOXICS IMPACTS

Regulated Compound	CAS No.	Predicted Concentration (ug/m^3)		SGC (ug/m^3)	SGC Exceedance Factor	
		No-Build	Build		No-Build	Build
chloroform (trichloromethane)	00067-66-3	9.24966	20.65581	150.0	0.06	0.14
1,2-dichlorobenzene (o-dichlorobenzene)	00095-50-1	0.56570	1.03221	30000.0	0.00	0.00
ethyl benzene	00100-41-4	2.03695	2.68093	54000.0	0.00	0.00
methylene chloride (dichloromethane)	00075-09-2	96.68836	178.73745	14000.0	0.01	0.01
tetrachloroethene (tetrachloroethylene)	00127-18-4	37.50456	146.02895	1000.0	0.04	0.15
toluene	00108-88-3	6.08972	8.65051	37000.0	0.00	0.00
trichloroethene (trichloroethylene)	00079-01-6	1.35836	4.61241	54000.0	0.00	0.00
1,2-xylene (o-xylene)	00095-47-6	2.65631	3.94508	4300.0	0.00	0.00
1,3-xylene (m-xylene)	00108-38-3	8.91481	12.20985	4300.0	0.00	0.00
1,4-xylene (p-xylene)	00106-42-3	8.84802	12.56276	4300.0	0.00	0.00

TABLE H-3

MAXIMUM PREDICTED ANNUAL SITE-PERIMETER AIR TOXICS IMPACTS [a]

Regulated Compound	CAS No.	Predicted Concentration (ug/m^3)		AGC (ug/m^3)	AGC Exceedance Factor	
		No-Build	Build [b]		No-Build	Build
bromodichloromethane	00075-27-4	0.00550	0.00731	0.020	0.28	0.37
chloroform (trichloromethane)	00067-66-3	0.18909	0.33349	0.043	**4.40**	**7.76**
1,2-dichlorobenzene (o-dichlorobenzene)	00095-50-1	0.00561	0.03354	360.0	0.00	0.00
1,4-dichlorobenzene (p-dichlorobenzene)	00106-46-7	0.12317	0.28409	0.090	**1.37**	**3.16**
ethyl benzene	00100-41-4	0.00762	0.02078	1,000.0	0.00	0.00
methylene chloride (dichloromethane)	00075-09-2	0.75522	0.99356	2.1	0.36	0.47
tetrachloroethene (tetrachloroethylene)	00127-18-4	0.46707	1.78529	1.0	0.47	**1.79**
toluene	00108-88-3	0.04551	0.18561	400.0	0.00	0.00
trichloroethene (trichloroethylene)	00079-01-6	0.01936	0.11897	0.50	0.04	0.24
1,2-xylene (o-xylene)	00095-47-6	0.00854	0.01446	100.0	0.00	0.00
1,3-xylene (m-xylene)	00108-38-3	0.02510	0.14837	100.0	0.00	0.00
1,4-xylene (p-xylene)	00106-42-3	0.02099	0.04192	100.0	0.00	0.00
gamma-BHC (lindane)	00058-89-9	0.00000	0.00002	1.2	0.00	0.00
chlordane	00057-74-9	0.00003	0.00012	1.2	0.00	0.00
benzyl butyl phthalate	00085-68-7	0.00008	0.00041	12.0	0.00	0.00
bis(2-ethylhexyl)phthalate	00117-81-7	0.00418	0.04498	0.42	0.01	0.11
di-n-butylphthalate (dibutyl phthalate)	00084-74-2	0.00003	0.00023	12.0	0.00	0.00
diethyl phthalate	00084-66-2	0.00012	0.00031	12.0	0.00	0.00

Notes:

(a) Shaded, bolded entry indicates exceedance of respective AGC.

(b) Conservative, process air-flow and emission-source representations were employed in the TOXCHEM+ modeling. However, more accurate, less-conservative representations of these input parameters were employed for the limiting compounds of bromodichloro-methane, chloroform, 1,4-dichlorobenzene, methylene chloride, and tetrachloroethene (build scenario only).

TABLE H-4

MAXIMUM PREDICTED SOLE-SOURCE ANNUAL OFF-SITE IMPACT FOR THE REGULATED COMPOUNDS OF CONCERN

Chloroform				1,4-Dichlorobenzene				Tetrachloroethene			
Predicted Conc. (ug/m^3)	AGC (ug/m^3)	AGC Exceedance Factor [(a)]	Minimum Emissions Reduction for AGC Compliance (%)	Predicted Conc. (ug/m^3)	AGC (ug/m^3)	AGC Exceedance Factor [(a)]	Minimum Emissions Reduction for AGC Compliance (%)	Predicted Conc. (ug/m^3)	AGC (ug/m^3)	AGC Exceedance Factor [(a)]	Minimum Emissions Reduction for AGC Compliance (%)
Preliminary Settling Tanks											
0.07770	0.043	**1.81**	44.7	0.06216	0.090	0.69	NA	0.15658	1.0	0.16	NA
Aeration Tanks											
0.30976	0.043	**7.20**	86.1	0.26411	0.090	**2.93**	65.9	1.73994	1.0	**1.74**	42.5
Final Settling Tanks											
0.05489	0.043	**1.28**	21.7	0.04550	0.090	0.51	NA	0.07295	1.0	0.07	NA
Effluent Drops											
0.07169	0.043	**1.67**	40.0	0.05984	0.090	0.66	NA	0.18604	1.0	0.19	NA

TABLE H-5

EVALUATED COST PER TON OF AIR TOXIC REMOVED FOR THE SELECTED CONTROL TECHNOLOGIES

Cost Element	Preliminary Settling Tanks	Aeration Tanks	Final Settling Tanks	Effluent Drops	Total
annualized capital cost ($)	159,237	1,295,695	387,815	572	1,843,319
annualized recurring cost ($)	56,083	1,054,588	120,050	1,240	1,231,961
total annualized cost ($)	**215,320**	**2,350,283**	**507,865**	**1,812**	**3,075,280**
Chloroform					
emissions (TPY)	0.027	0.118	0.018	0.022	0.185
removal efficiency (%)	99	95	99	99	
removal (TPY)	0.027	0.112	0.018	0.022	0.178
cost per ton removed ($/ton)	**8,100,000**	**21,000,000**	**28,500,000**	**100,000**	**17,200,000**
1,4-Dichlorobenzene					
emissions (TPY)		0.103			0.103
removal efficiency (%)		95			
removal (TPY)		0.098			0.098
cost per ton removed ($/ton)		**24,000,000**			**24,000,000**
Tetrachloroethene					
emissions (TPY)		0.654			0.654
removal efficiency (%)		95			
removal (TPY)		0.621			0.621
cost per ton removed ($/ton)		**3,800,000**			**3,800,000**