3.1 LAND USE

3.1.1. INTRODUCTION

The section provides a brief description of the existing land use setting, any potentially significant adverse impacts to existing or currently planned land uses and the proposed analysis to be performed to evaluate the Project's compatibility with existing land uses in the vicinity of the proposed Project site. Also discussed is an overview of zoning in the area of the Project site as well as public policies that may impact the repowering project. Existing service districts and providers have also been identified.

3.1.2. EXISTING CONDITIONS

National Grid's approximately 127-acre E.F. Barrett Power Station property (the "station" or "site") is located at McCarthy Road in the Town of Hempstead, Nassau County, New York. Although the proposed Project site is not located in the incorporated Village of Island Park, the Village is immediately adjacent to National Grid's E.F. Barrett Power Station property and will be considered a "host community" for this Project.

A. LAND USE

Nassau County is mostly suburban communities whose primary land use is single-family residential. The land use patterns throughout the local areas around the general region of the Project site are largely residential, with pockets of commercial and industrial development especially along major transportation corridors as indicated in the aerial photograph of the area, Figure 2.1-1.

Predominant land uses surrounding the Project site include industrial, residential, and commercial. Industrial uses are the most prominent use within a half-mile from the project site, including the Town of Hempstead waste transfer station (a former landfill) to the northeast, and Stony Creek and Liotta Bros. Recycling Corporation to the northwest. Residential uses can be found to the north, east, and south of the facility, including the Oceanside Cove gated complex directly north of the site across Daly Boulevard, multiple residences adjacent to the site to the south which are in the Incorporated Village of Island Park, and single- and multi-family dwellings mixed with commercial uses found east of Long Beach Rd. Multiple commercial properties can be found along Long Beach Road to the southeast of the facility, including USA Petroleum, Hardscape Building Supply, Lane Air Conditioning & Heating Contractors, Macken Mortuary, Chardonas Locksmith, and Island Hopper Landscape Supplies, LTD. The Oceanside Shopping Center includes commercial uses such as Staples, Michaels, and Bed, Bath & Beyond, and is found northeast of the Project site across Daly Road at the intersection with Long Beach Road. Long Island Rail Road (LIRR) tracks transect the western portion of the site (east of the tank farm) in a north/south orientation.

Remaining major land uses within one mile from the Project site include marshlands (west of the site between Hog Island Channel and East Rockaway Channel, and Garretts Marsh,

southeast of the site), and community facilities. These community facilities include the Oceanside Fire District, YMCA Community Center, Full Gospel Church of Island Park, Lincoln Orens Middle School, Barnum Island Fire District, Panaghia of Island Park Green Orthodox Church, and the Island Park Fire Department, among others. The Waterford Road Playground is located adjacent to the Project site to the south, west of the LIRR tracks on Waterford Road. Multiple small parks are found along Long Beach Road, south west of the Project site.

A site-specific flood analysis commissioned by National Grid has resulted in a stillwater flood elevation at the plant site for key return periods, the results of which are more conservative than the current FEMA mapping. The proposed facility has been designed to withstand a storm based on the 500 year return period in order to achieve a high level of flood protection. This analysis considers the potential for future sea level rise.

B. ZONING

The Town of Hempstead Building Zoning Ordinance establishes specific land use requirements, such as minimum lot size, setback requirements, and other limitations. The Zoning Ordinance also establishes specific zones and use categories. The principal types of zoning districts in the Town of Hempstead are residential, business, and industrial. Zoning districts in the Village of Island Park are mainly residential, with some business and commercial districts. Figure 3.1-1 shows existing zoning districts within a one mile radius of the Project site, including both the Town of Hempstead and the incorporated Village of Island Park zoning jurisdictions.

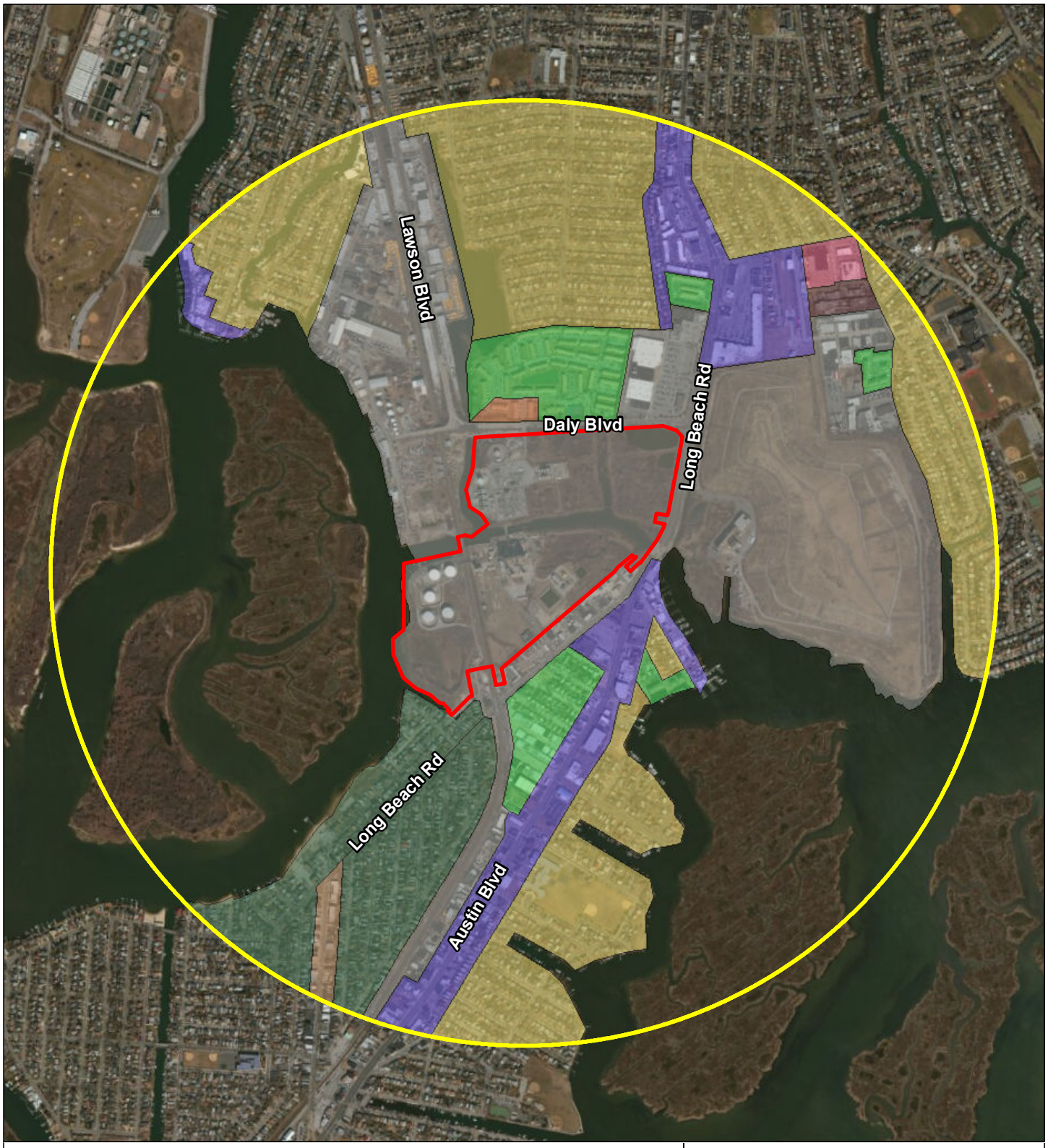
The proposed Project site is located on an existing National Grid electric generating site with lots currently zoned Y Industrial. The Village of Island Park, found southwest of the Project site, include residential and business zoning districts. All other properties surrounding the Project site are within Town of Hempstead zoning districts. Zoning districts immediately adjacent to the Project site include Y Industrial to the northeast, east, south and northwest. The GA Golden Age Residence and CA Residence zones are located to the north. The Village of Island Park Residence zone is located to the southwest.

Zones other than those listed above within a half-mile of the project site include the X Business, A Residence, B Residence and LM Light Manufacturing in the Town of Hempstead and the Business zone in the Village of Island Park.

Further discussion regarding the Town of Hempstead and Village of Island Park zoning regulations has been included in Section 6.2 of this Preliminary Scoping Statement.

C. POLICY

Neither the Town of Hempstead nor the Village of Island Park maintain a Master Plan. The Nassau County Master Plan (2008) has no particular recommendations that may be relevant to the Project or Project site. The County is in the process of updating its Master Plan, and new drafts and/or official plans will be reviewed if available for any information or recommendations that may be relevant to the Project or Project site.



Approximate Property Boundary
One-mile Radius

0 0.25 0.5 Miles

Zoning - Town of Hempstead
- Business - X
- Industrial - Y
- Light Manufacturing - LM
- Residential - A
- Residential - B
- Residential - CA
- Golden Age Residential - GA

Zoning - Village of Island Park
- Business
- Residential

Source Data: Town of Hempstead and Village of Island Park

Base Map: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX,

N

TRC
1200 Wall Street West, 5th Fl.
Lyndhurst, NJ 07071
201-933-5541

ZONING MAP

E.F. BARRETT STATION REPOWERING
ISLAND PARK ENERGY CENTER
MCCARTHY ROAD
TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.1-1	MARCH 2014

R:\Projects\GIS_2013\197446_NatGrid_Repowering\mxd\LandUse\Zoning_2014_02_18.mxd

The Project site is located within the New York State coastal zone. The federal Coastal Zone Management Act of 1972 passed to preserve, protect, develop, and restore or enhance coastal resources, and encouraged coastal states to maintain coastal zone management plans. In 1982, the New York Coastal Management Program was approved by the NOAA. The Coastal Management Program (CMP) is involved in initiatives that help to revitalize, promote, and protect New York's waterfronts. The CMP will assist in the implementation of municipal waterfront revitalization programs; however, the Town of Hempstead and the Village of Island Park do not maintain such a local program. See Section 6.1 for further information regarding the New York State Coastal Management Program.

The proposed repowering Project site is located in the Long Island South Shore Estuary Reserve (SSER), a 326 square mile watershed with shallow, interconnected bays and tidal tributaries. The SSER extends from the Queens/Nassau County border eastward approximately 75 miles to the Village of Southampton in Suffolk County, and from the mean high tide line on the ocean side of the barrier island to the inland limits of the estuaries watershed. The South Shore Estuary Reserve Comprehensive Management Plan (2001) recommends actions that citizens, local government, and others can take to maintain the long-term health of the SERR bays and tributaries, tidal wetlands and wildlife, and tourism and economy. Further information regarding the South Shore Estuary Comprehensive Management Plan is found in Section 6.1.

The Project site has two designated significant coastal fish and wildlife habitats (SCFWHs) within its vicinity, the West Hempstead and Middle Hempstead Bay SCFWHs. Aquatic Ecology is discussed in Section 3.8, 'Water Resources and Aquatic Ecology' and wildlife is discussed in Section 3.7, 'Terrestrial Ecology and Wetlands' of this Preliminary Scoping Statement.

Recreational resources near the Project area are both water and land based. Impacts to recreational resources are expected to be limited as the Project site is contained on land previously used for electrical generation. For more information regarding recreational resources, see Section 3.12, Recreation Resources.

D. DISTRICTS AND SERVICE PROVIDERS

An initial assessment of the service providers and districts associated with the Project site located in the Town of Hempstead, Nassau County, New York has been conducted. Mapping of these areas, as well as any potential impacts upon these providers/districts, will be addressed within the Article 10 application.

The list below includes both special purpose units of government as well as special districts. In New York, local municipal services are provided by general purpose municipal corporations (i.e. counties, cities, towns and villages) as well as by several types of special purpose units of government. These include school districts and fire districts. Additional services are provided by special districts. Special districts created under the Town Law are not units of local government, but instead are administered by the town board. These districts were created to provide a service in an area of need and are supported only by the property owners within the district. These include districts such as refuse and garbage, library, sewer, etc.

A review of available state, county and local mapping has resulted in the following list of service providers/districts in which the E.F. Barrett Power Station property is located:

Table 3.1-1
Districts and Service Providers

Service Provider	District
School Districts	North of cooling system discharge channel – Oceanside Union Free School District
	South of discharge channel – Island Park Union Free School District
Fire Districts	North of discharge channel – Oceanside Fire Department
	South of discharge channel – Island Park Fire Department
Police Provider	Nassau Police Precinct 4
Sanitary Sewer Provider	Nassau County Sewage District
Water Provider	New York American Water Company
Garbage Collection Provider	Town of Hempstead Refuse and Garbage – Sanitary District 7
Library Districts	North of discharge channel – Oceanside Library District
	South of discharge channel – Island Park Library District
Parks Provider	Town of Hempstead

3.1.3. POTENTIALLY SIGNIFICANT ADVERSE IMPACTS

The proposed Project site will be located on property previously used for energy production and the generation of electric power, and therefore the Project can be viewed as a continuation of the past land use of this area. Additionally, National Grid has selected portions of the site for development that have been previously disturbed as to limit impacts to natural resources onsite. As a consequence, land use would not change significantly as a result of this Project.

The maximum structure height permitted by the Y Industrial zoning designation is 75 feet. As the proposed stack height would exceed 75 feet, a height variance would be required from the Town of Hempstead. The Article 10 application will review the project for compliance with other zoning requirements. Further analysis related to zoning has been included in Section 6.0, 'State and Local Regulations' of this Preliminary Scoping Statement

Temporary construction impacts, such as increases in ambient noise and traffic levels from construction vehicles, may be experienced in the nearby neighborhoods. However, these potential impacts will be temporary in nature. All construction will be in accordance with applicable local and state construction standards and conditions of the regulatory approvals to be obtained for the Project.

The Island Park Energy Center is not expected to significantly adversely impact the districts and service providers identified above. Due to the limited number of operational employees, the proposed facility would not result in the placement of a significant number of additional students in local schools. National Grid will maintain its existing relationship

with local fire and police services to ensure the facility continues to operate in a safe manner. Potential impacts upon potable water and wastewater are discussed in Section 3.8, 'Water Resources and Aquatic Ecology'.

3.1.4. EXTENT AND QUALITY OF INFORMATION REQUIRED FOR EVALUATION

National Grid will review existing land use and local regulations as they relate to this Project. This review will assess the community character, new and proposed land uses, master plans, zoning districts and permitted land use within each zone. Service providers will be contacted and consulted with in order to eliminate and/or limit any potential adverse impacts.

Master plans, also referred to as comprehensive plans, are prepared by municipalities and counties to help guide decisions for the future and act as a long term strategy to help reach the goals of the community. Master plans often contain information about land use, development, business, and growth. The Nassau County Master Plan (2008) has no particular recommendations that may be relevant to the Project or Project site. The county is in the process of updating its Master Plan, and new drafts and/or official plans will be reviewed if available for any information or recommendations that may be relevant to the Project or Project site. Neither the Town of Hempstead nor the Incorporated Village of Island Park maintain a Master Plan.

The assessment of potential land use impacts will take into consideration existing land use and development plans in the vicinity of the site. Proposed studies to assess potential land use impacts in the Project vicinity will involve the documentation of existing and proposed land uses surrounding all elements of the proposed Project. Future land use plans for the surrounding communities, including any proposed large-scale developments will be determined through conversations with town/village planning officials, the review of published planning documents, and feedback/information obtained through public outreach efforts with potentially affected stakeholders. Sensitive receptors (e.g. local schools, hospitals, recreational areas) will be identified through consultation with local officials, and the significance of potential impacts to these receptors will be assessed.

The Article 10 application will discuss the proposed Project's consistency with local plans and land use policies, including an extensive review of documents including but not limited to:

- Citizens Energy Plan for Long Island
- Long Island South Shore Estuary Reserve Comprehensive Management Plan
- Nassau County Master Plan Updated (2008)
- 2010 DRAFT Nassau County Master Plan
- County Government Law of Nassau County: The Nassau County Charter
- Nassau County Miscellaneous Laws
- The Nassau County Administrative Code
- Town of Hempstead General Code
- Town of Hempstead Building Zone Ordinance
- Incorporated Village of Island Park Ordinances
- Local Laws of the Village of Island Park

The Article 10 application will provide the following maps with such scale and detail to enable discrimination and identification of all necessary features:

- Existing land uses within the study area;
- Existing overhead and underground major facilities for electric, gas, or telecommunications transmission within the study area;
- All properties upon which any component of the Project would be located, and all adjoining properties, that shows the current land use, tax parcel number, owner of record of each parcel, and any known proposed land use plans;
- Existing zoning districts and proposed zoning districts within the study area;
- Designated coastal areas, inland waterways and local waterfront revitalization program areas, groundwater management zones, designated agricultural districts, flood-prone areas, and other critical environmental areas;
- Recreational and other land uses within the study area that may be affected by the sight, sound, or odor of construction or operation practices of the Project; and
- Aerial photographs of all properties within the study area which include the photographer's name and the date the photographs were taken.

3.1.5. AVOIDANCE AND MINIMIZATION MEASURES TO ADVERSE IMPACTS

The proposed repowering was chosen with the intention of limiting or avoiding potential adverse impacts to existing land use development. The potential for significant land use impacts has been greatly reduced as the site has been utilized for electricity production in the past and the existing land use will continue into the future.

The Article 10 application will provide a description of design elements and any proposed mitigation measures. Through the Public Involvement Program, community input will be a key component of this design process.

3.1.6. PROPOSED MEASURES TO MITIGATE UNAVOIDABLE IMPACTS

Unavoidable indirect impacts to properties adjacent to the project site will be limited in nature and will be primarily of a visual aspect. The proposed facility would not be out of character with the industrial landscape of the area, and visibility of the facility should not adversely affect community character. More information on visual impacts can be found in Section 3.9, Visual Impacts. Unavoidable direct impacts should be minimal as the Project is sited on property that is currently being utilized for energy production and has been historically utilized for energy production.

3.2 PUBLIC HEALTH AND SAFETY

3.2.1. INTRODUCTION

Projects similar to the E.F. Barrett Station Repowering to be named the Island Park Energy Center have the potential to cause direct or indirect public health and safety effects and/or benefits. These effects and/or benefits can occur during construction as well as during operation. The safety of the surrounding community and existing E.F Barrett Station and its personnel is of the paramount importance to National Grid. The Island Park Energy Center will be designed, constructed and operated in accordance with all applicable codes and standards, including the National Ambient Air Quality Standards (NAAQS) or New York Ambient Air Quality Standards (NYAAQS), applicable state and local water quality standards, as well as conformance with applicable building code design standards and requirements, including the applicable New York State Building Codes and National Fire Protection Association (NFPA) requirements.

3.2.2. EXISTING PUBLIC HEALTH AND SAFETY CHARACTERISTICS

The proposed Project will be located at the current E.F. Barrett Power Station located in the Town of Hempstead, Nassau County, New York. The Project site is currently operating as an electric generation facility. The proposed Project will modernize the facility by installing new, state-of-the-art electric generators and removing all existing electric generating equipment. The new generators will provide a more environmentally friendly, efficient and cost effective facility to generate electricity while minimizing impacts on the surrounding communities and providing site tax benefits into the future.

As the facility is an existing electric generating station, National Grid holds a valid Title V operating air permit issued by the NYSDEC as well as other applicable federal, state and local approvals and licenses required to operate the facility including a State Pollutant Discharge Elimination System (SPDES) permit and a NYSDEC Major Oil Storage Facility (MOSF) License. Liquid wastes typical of power generation operations are found onsite and include used oils collected from oil/water separators, spent lubricating oils, oil filters from the combustion turbines and air filters. These wastes are transported off-site by an outside contractor and properly recycled or disposed. Solid waste generated at the facility is limited to small quantities of office waste, small amounts of wastewater treatment residues and general plant refuse. Solid waste is collected onsite and is removed from the Project site under a contract with a local private vendor.

Existing security measures have been developed to maintain a safe work environment for employees. The facility has emergency response plans and maintains contact with local police, fire and emergency service providers. Police services are provided to the site by the Nassau County Police Precinct 4. Fire and emergency medical services are provided to the northern portion of the Project site (north of the cooling system discharge canal that bisects the site) by the Oceanside Fire Department and to the southern portion of the site (south of the discharge canal) by the Island Park Fire Department.

Potable water is supplied by New York American Water Company and the property is located within the Nassau County Sewage District.

3.2.3. POTENTIALLY SIGNIFICANT ADVERSE IMPACTS

There will still be some hazardous materials such as ultra-low sulfur distillate fuel, lubrication oil, and natural gas required for construction and operation of the Island Park Energy Center. Release of these substances into the environment can pose a threat to public health and safety. Storage and handling of all hazardous materials will be done in accordance with all federal, state, county and local regulations. Liquid and solid wastes will be generated in the same manner as under the existing conditions of the site. Disposal of wastes will be done, at a minimum, in a manner consistent with that of the existing facility operations.

Temporary construction impacts, such as increases in ambient noise and traffic levels from construction vehicles, may be experienced in the nearby neighborhoods. However, these potential impacts will be temporary in nature. All construction will be in accordance with applicable local and state construction standards and conditions of the regulatory approvals to be obtained for the Project.

The potential beneficial adverse impacts on air and water resources that may result from the project are discussed within sections 3.3, 'Air Resources' and 3.8, 'Water Resources and Aquatic Ecology' respectively. As noted in Section 2.5, preliminary air quality analysis indicates that a new combined cycle plant would reduce overall air emission rates (i.e., lbs./MWhr) by approximately 95 percent when compared to emission rates from the older steam generating units (Units 1 and 2). Similarly, a new simple cycle plant would reduce overall peaking unit pollutant emission rates by over 90 percent when compared to the existing peaking units. Regarding water resources, as detailed in Section 3.8, repowering of the station will result in the elimination of once-through cooling at the site. The combined rated capacity of the once through cooling systems that support the operation of existing steam Units 1 and 2 is 294 million gallons per day (mgd).

No significant adverse impacts are anticipated upon local police, fire and emergency medical service providers as the existing use of the facility will be maintained into the future.

3.2.4. EXTENT AND QUALITY OF INFORMATION REQUIRED FOR EVALUATION

Information on the Project's impacts on health and safety in the work environment and surrounding community is required in order to protect the public health and safety. Following the requirements of Exhibit 15 of the Article 10 regulations, information on all anticipated gaseous, liquid, and solid waste produced by the Project in construction and operation will be acquired for evaluation. The anticipated volumes of each waste product and potential for emissions being released into the environment during construction and under any operating condition of the facility will also be acquired. Furthermore, information on treatment processes to eliminate and minimize waste being released into the environment is needed, as well as the manner of collection, handling, storage, transportation and disposal for waste retained and not released on site.

In accordance with USEPA and NYSDEC regulations a Prevention of Significant Deterioration/State Facility Air Permit Application (i.e., Part 201 Pre-Construction Air Permit) will be filed with the NYSDEC for review, comment, and approval.

In compliance with the Clean Water Act, a Spill Prevention, Control and Countermeasure ("SPCC") Plan will be prepared which will assess the amount of hazardous material associated with the Project both during construction and operation. During construction, this will primarily be diesel fuel oil; during operation this will be primarily be natural gas, back-up distillate fuel oil and lubricating oil for the electric generating equipment. In accordance with MOSF requirements and federal chemical storage requirements, a Spill Prevention Report (SPR) and Spill Prevention Control and Countermeasure (SPCC) Plan, (SPR/SPCC Plan) will be prepared for the repowered facility to meet the requirements for an SPR as defined in the New York Code of Rules and Regulations (NYCRR) 598.1 and to meet the requirements for a SPCC Plan as defined in Title 40 of the Code of Federal Regulations (40 CFR) at Part 112.

In accordance with Article 10 and other New York State and Federal requirements, National Grid will conduct an analysis of the effect of the proposed Island Park Energy Center on the following resources within the Project Study Area: air resources, public water supply resources; community emergency response resources and facilities including police, fire, and emergency medical response plans; emergency communications facilities; hospitals and emergency medical facilities; designated evacuation routes; existing know hazard risks including flood hazard zones, storm surge zones, areas of coastal erosion hazard; explosive or flammable materials transportation and storage facilities; contaminated sites; and other local risk factors. Beneficial impacts of the project will be identified and discussed; any potential adverse impacts on the environment will be studied related to short-term and long-term effects.

3.2.5. AVOIDANCE AND MINIMIZATION MEASURES TO ADVERSE IMPACTS

Significant attention to safety will be incorporated into the Facility design and operation, including matters such as security concerns, the handling and storage of materials, and impacts to the environment.

Prior to commencement of construction at Island Park Energy Center, a safety plan will be developed and implemented complying with applicable requirements. National Grid will coordinate the preparation and implementation of this plan with local officials and community members. Additionally, a comprehensive security plan would be developed and implemented during both construction and facility operation. The security plan would be communicated to the Nassau County Police Department and the Nassau County Fire Commission.

The Facility itself will include comprehensive safety and protection systems including: secondary containment around storage tanks; containment around transformers; fire detection and protection systems; automatic shutdown systems; emergency lighting with back-up power supply; and adequate firefighting access and supplies.

Impacts to the environment in terms of air quality will be assessed in terms of air pollutant concentrations at receptor points, which will be determined for the study area around the proposed Project. As indicated in Section 3.3, 'Air Resources', the proposed facility is required to demonstrate that the impact on air quality does not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS) or New York Ambient

Air Quality Standards (NYAAQS). The standards have been developed to protect the most sensitive population groups, which include young children, the elderly, asthmatics, and those members of the population that have other breathing difficulties. Operation of the proposed on-site interconnections would not result in any significant air quality impacts.

In addition to the air standards addressed above, the Facility design will be operated in accordance with all applicable codes and standards as to avoid or minimize impairments to the public health and safety, including adverse effects with regard to water resources, noise, traffic and transportation, visual resources, community facilities and natural resources.

3.2.6. PROPOSED MEASURES TO MITIGATE UNAVOIDABLE IMPACTS

It is anticipated that the measures outlines in Section 3.2.5 will be sufficient to protect public health and safety from any adverse impacts associated with the construction and operation of the Island Park Energy Center.

3.3 AIR RESOURCES

3.3.1. ARTICLE 10 REQUIREMENTS FOR AIR QUALITY

Exhibit 17 – Air Emissions of the NYSPSC Article 10 Regulations (Section 1001.17) identifies the air quality regulatory framework that will apply to the assessment of the Project and the general air resources which may be affected by the proposed action. Exhibit 17 includes the determination of the applicable air quality requirements and consequent actions required of the proposed Project (i.e. the regulatory framework for obtaining project approval, the need to apply pollution control, and the need to perform modeling impact assessments).

The Article 10 Application will examine the potential adverse impacts of criteria pollutants and other NYSDEC-regulated pollutants ("Criteria Pollutant Study") and non-criteria pollutants ("Non-Criteria Pollutant Study") from the Project on air quality. The components of the Criteria Pollutant Study will include identification of climate and air quality conditions, an inventory of proposed emission sources at the proposed Project, an assessment of project technology and design, emissions, impacts, and, where warranted, a cumulative impacts analysis with major combustion sources in the vicinity of the proposed site. The components of the Non-Criteria Pollutant Study will include identification of emission constituents and an assessment of Project impacts.

The methodologies, standards, and definitions for assessing air quality will follow procedures outlined, and use data contained, in the following documents:

For performing air quality dispersion modeling:

- NYSDEC, DAR-10, NYSDEC Guidelines on Modeling Procedures for Air Quality Impact Analysis (May 2006).
- Air Modeling Protocol to be established to the satisfaction of the U.S. EPA and NYSDEC specifically for this project (hereinafter Air Modeling Protocol).
- U.S. EPA, Draft New Source Review Workshop Manual (October 1990).
- U.S. EPA, Guidelines on Air Quality Models, Appendix W of 40 CFR Part 51 (November 2005).
- U.S. EPA, Draft Guidance for PM2.5 Permit Modeling (March 2013).

For determining stack height:

- U.S. EPA, Guidelines for Determination of Good Engineering Practice Stack Height (EPA Technical Support Document for the Stack Height Regulations), Document Number EPA-450/4-80-023R (June 1985).

For quantification and assessment of the Project's contribution to the New York State total deposition of sulfates and nitrates, in accordance with the State Acid Deposition Control Act:

- Memorandum from Leon Sedefian to IAM Staff (March 4, 1993).

For performing visibility modeling:

- U.S. EPA, Workbook for Plume Visual Impact Screening and Analysis. Document Number EPA-454/R-92-023 (October 1992).

For non-criteria pollutant ambient air guidelines and benchmarks:

- NYSDEC, DAR-1, AGC/SGC Tables, Division of Air Resources, Air Toxics Section, October 18, 2010.
- NYSDEC, DAR-1, Guidelines for the Control of Toxic Ambient Air Contaminants (November 1997).

For assessing fine particulate matter (PM-2.5) emissions:

- NYSDEC Policy, CP-33, Assessing and Mitigating Impacts of Fine Particulate Matter Emissions, December 29, 2003.
- NYSDEC Subpart 231-12.6, Significant Impact Levels.
- 78 Fed. Reg. 3086, January 15, 2013, PM-2.5 NAAQS.

A. CRITERIA POLLUTANTS

This study will include:

- An assessment of meteorological data sets from John F. Kennedy (JFK) International Airport and the National Weather Service Forecast Office in Upton, New York (Brookhaven National Laboratory). The project shall obtain NYSDEC and U.S. EPA approval for the meteorological data to be used in the Part 201 and Part 231 Prevention of Significant Deterioration (PSD) applications.
- An assessment of existing air quality levels and air quality trends for criteria pollutants in the region surrounding the project, including air quality levels and trends taken from regional air quality summaries and air quality trend reports. NYSDEC operated monitors in Regions I and II will be used to determine background ambient air pollutant levels.
- An assessment of the impacts from quantifiable criteria pollutant emissions, including those generated during construction of the project. A qualitative assessment of construction-related emissions and impacts and an analysis of fugitive dust and a discussion of fugitive dust control measures.
- A control technology assessment for pollutants subject to Non-attainment New Source Review (NSR) promulgated under 6 NYCRR 231 to determine the best available control technology (BACT) and lowest achievable emission rate (LAER) for the applicable pollutants.
- If the project's hazardous air pollutant (HAP) emissions exceed the regulatory thresholds, a case-by-case determination of the Maximum Achievable Control Technology (MACT) for major sources will be conducted to determine an emission limit or control technology.
- The requirements of New Source Performance Standards (NSPS) at 40 CFR Part 60 will be addressed.

- Pursuant to DAR-10, an assessment of an optimal stack height taking into consideration Good Engineering Practice (GEP) stack height for the Project and air-quality-related values, visual impacts, and other considerations. The U.S. EPA Building Profile Input Program for PRIME (BPIPPRM) will be used to determine directionally dependent-building dimensions for use in air quality modeling.
- An assessment of stack emissions of criteria pollutants, stack emissions being provided in hourly and annual estimates based on manufacturer's data, available emission factors, design control efficiencies, and other data or regulatory specifications related to the design of the Project.
- A calculation of the number of NO_x and volatile organic compounds (VOCs) emission offsets (if required) to be obtained at a 1.3 to 1.0 ratio and how those offsets will be obtained in accordance with 6 NYCRR 231. The project's compliance with the NO_x Reasonable Available Control Technology (RACT) provisions of 6 NYCRR Part 227-2 will be addressed. In addition, prior to commencing operation, the facility will submit to the Department complete CAIR NO_x Ozone Season and CAIR NO_x Annual Trading Program permit applications as required under Subparts 243-3.3 and 244-3.1. Further, the Project is subject to the Acid Rain Program as well as the CAIR SO_2 Trading Program and will submit a complete application to the Department prior to commencing operation in accordance with 6 NYCRR Part 245.
- Pursuant to "Draft Guidance for PM-2.5 Permit Modeling", NO_2 and SO_2 emissions will be used to include precursors to PM-2.5 formation.
- Criteria pollutant modeling will be done in accordance with the NYSDEC's DAR-10 and U.S. EPA Guideline on Air Quality Models (Revised). Computer input (including meteorological data) and output files of the dispersion modeling results will be provided to NYSDEC and U.S. EPA. The maximum criteria pollutant specific impacts of the project will be displayed in graphical format on a map of the surrounding community. A wind rose of the meteorological data will be provided.
- A comparison of the predicted air quality impacts from the dispersion modeling analysis to the Significant Impact Levels (SILs) identified in Subpart 231-12, to the New York Ambient Air Quality Standards (NYAAQS) as identified in Part 257, and the National Ambient Air Quality Standards (NAAQS).
- In accordance with the State Acid Deposition Control Act, an assessment of the project's contribution to the New York State total deposition of sulfates and nitrates at 18 NYSDEC-defined sensitive receptors in New York State, New England, and Canada.
- The Article 10 Application will include a large combustion source cumulative impact analysis, including the Project and any large combustion sources located in the vicinity (i.e., no more than 10 kilometers from the proposed project site) for those pollutants and averaging periods that have shown modeled Project concentrations greater than their respective SILs. The cumulative source impacts

plus a representative background will be compared to and ensure compliance with the applicable NAAQS and/or NYAAQS.

- A cumulative source impact analysis as required by the Part 231/PSD rules will be performed for any criteria pollutant for which the project has impacts above SILs pursuant to Subpart 231-8. The additional sources to be analyzed to determine whether the project, in conjunction with existing and proposed major sources, will cause or contribute to exceedances of applicable NAAQS and/or NYAAQS, will include those identified as "nearby" existing sources, as defined in the U.S. EPA Modeling Guidelines and NSR Workshop Manual, and by the DAR-10 procedures. The inventory of existing major sources will be developed using data obtained from the NYSDEC, as well as New Jersey and Connecticut (if necessary). The inventory, if necessary, will be included as an appendix to the air permit application and will be verified by the source state or per DAR-10 requirements. All information submitted in support of the inventory of nearby sources, including verification worksheets, will become public information.
- Start-up and shut-down conditions will be addressed by the project's air quality modeling. Ancillary emission sources and aqueous ammonia accidental release scenarios will be included and specified in the air modeling analysis.

B. NON-CRITERIA POLLUTANTS

The Non-Criteria Pollutant Study will include:

- A review of pertinent available data provided in U.S. EPA AP-42 on non-criteria pollutants that may be emitted by combustion sources at the project and identification of emission factors for those pollutants. The specific source, including publication date, of each emission factor will be clearly identified and referenced in the Article 10 Application.
- An assessment of the emission rates for non-criteria pollutants that may be emitted from the combustion sources at the project. All emission rate calculation methodologies will be described in detail, with appropriate equations and examples provided. These descriptions either will accompany or specifically be cited in, any corresponding tabulated emissions data presented in the application.
- An estimation of the maximum potential ground level air concentrations (short-term and annual averages) of non-criteria pollutants due to the project, quantified using the models and approach as approved by the U.S. EPA and NYSDEC.
- A comparison of the maximum predicted air concentrations of non-criteria pollutants to NYSDEC Short-term and Annual Guideline Concentrations (SGCs and AGCs).

C. OTHER ANALYSES

Visibility

The Article 10 Application will provide a general visibility impairment analysis for scenic vistas using VISCREEN or another appropriate model and a stack plume visibility analysis to assess the extent and frequency of any visible condensed water vapor plumes created by the proposed Project.

Offsite Consequence Analysis

The Article 10 Application will include an analysis of an accidental release scenario for aqueous ammonia for the project alone, following U.S. EPA's procedures for off-site consequence analyses, irrespective of applicability under section 112(r) of the Clean Air Act.

D. GREENHOUSE GAS EMISSIONS

On July 15, 2009 the NYSDEC issued its Draft Commissioner's Policy "Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements". The purpose of this Policy is to assist DEC staff in reviewing how energy use and GHG emissions are identified and analyzed in the SEQRA DEIS process, in order for staff to meet DEC's obligation under SEQR, as well as to maximize energy efficiency and minimize potential climate change of the proposed action. The NYSPSC Article 10 rule does not specifically require the applicant to address Greenhouse Gas Emissions, except requiring the applicant to evaluate the alternatives to the project in terms of environmental impacts including climate change (Section 1001.9 Exhibit 9: Alternatives). Therefore, the project's potential impact on climate change will be addressed using procedures outlined in the July 15, 2009 Draft Commissioner's Policy.

The Article 10 Application will:

- quantify direct and indirect carbon dioxide (CO2) emissions from the project during construction and operation of the new generating station;
- provide a comparison of annual and total project lifetime CO2 emissions to other sources of power generation, including both fossil fuel fired and feasible proposed Long Island alternative energy projects utilizing green energy technologies (for example, the Long Island Power Authority (LIPA) Clean Solar Initiative-II (CSI-II) which seeks to bring another 100-MW of solar generated power to Long Island); and,
- provide a menu of possible mitigation options.

Furthermore, the project's compliance with Title 6 NYCRR Part 251 "CO2 Performance Standards for Major Electric Generating Facilities" and the Regional Greenhouse Gas Initiative also will be addressed.

3.3.2. AMBIENT AIR QUALITY AND METEOROLOGY

A. EXISTING AIR QUALITY

The proposed Project site is located in Nassau County, NYSDEC Region 1, Metropolitan Air Quality Control Region (AQCR). The NYSDEC Bureau of Air Surveillance operates various air quality monitors for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), inhalable particulates (PM-10; particulate matter with a mean diameter less than 10 micrometers), inhalable particulates (PM-2.5; particulate matter with a mean diameter less than 2.5 micrometers), ozone (O_3), and nitrogen oxides (NO_x).

According to 40 CFR 81.333, Nassau County is "attainment" or "unclassified" for all criteria pollutants except for ozone, which is designated as non-attainment. Note that for PM-2.5, a clean data determination was issued by U.S. EPA for Nassau County, indicating that the County has attained compliance with the PM-2.5 standards. On June 27, 2013, the NYSDEC submitted a request to redesignate the New York portion of the New York-N. New Jersey-Long Island, NY-NJ-CT nonattainment area from nonattainment to attainment for the 1997 annual and the 2006 24-hour PM-2.5 NAAQS.

The U.S. EPA also submitted a maintenance plan to be added to the New York State State Implementation Plan (SIP) to ensure continued attainment through 2025. The U.S. EPA has evaluated New York's redesignation request and concluded that it met all of the necessary requirements. On February 11, 2014, the U.S. EPA issued a proposed rule for redesignation to attainment. The U.S. EPA is currently holding a comment period for public review and commenting which ends March 13, 2014. National Grid anticipates the U.S. EPA will redesignate Nassau County as attainment for PM-2.5 by second quarter 2014, which is before the Article 10 certificate will be issued and well before an air permit will be issued and construction of the Project would commence.

Table 3.3-1 presents 2010-2012 background concentration data for O_3, SO_2, PM-10, PM-2.5, NO_2, and CO. The ambient air quality data presented herein has been converted from parts per million (ppm) or parts per billion (ppb) values, as reported by NYSDEC, to micrograms per cubic meter ($\mu g/m^3$) concentration values to coincide with the modeling output (except for PM-10 and PM-2.5, which are reported by NYSDEC in $\mu g/m^3$). The highest second-highest short-term (1-, 3-, 8-, 24-hour) and maximum annual average concentrations are presented, except for 24-hour PM-2.5 (98^{th} percentile concentration), 8-hour O_3 (4^{th} highest concentration), annual PM-2.5 (3-year average), 1-hour SO_2 (99^{th} percentile concentration), and 1-hour NO_2 (98^{th} percentile concentration). The following text provides more detailed information for these pollutants, including trends and concentrations specific to air quality standards.

Table 3.3-1
2010-2012 Background Concentrations of Criteria Pollutants

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$)	Background Concentration[1] ($\mu g/m^3$)			Monitor Location
			2010	2011	2012	
CO	1-hour	40,000	3,910	2,185	1,955	Queens College 2, Queens County
	8-hour	10,000	1,955	1,610	1,265	
SO_2[6]	1-hour[3]	196	47.2	72.3	43.0	Eisenhower Park, Nassau County
	3-hour	1,300	44.5	95.6	72.8	
	24-hour	365	27.0	34.6	13.9	
	Annual	80	5.5	5.2	3.0	
PM-10	24-hour	150	50	40	32	Queens College 2, Queens County
PM-2.5[5]	24-hour	35	25.5	24.7	20.5	Queens College 2, Queens County
	Annual	12	9.4	9.4	8.5	
NO_2	1-hour[4]	188	129.7	124.6	106.4	Queens College 2, Queens County
	Annual	100	36.3	40.7	32.9	
O_3	8-hour	147	166.6[2]	174.4[2]	162.7[2]	Babylon, Suffolk County

Notes:
[1] Highest second-highest short-term (1-, 3-, 8- & 24-hour) and maximum annual average concentrations presented, except for 24-hour PM-2.5, which is the 98th percentile concentration, 8-hour O_3, which is the fourth highest concentration, annual PM-2.5, which is the 3-year average, 1-hour SO_2, which is the 99th percentile concentration, and 1-hour NO_2, which is the 98th percentile concentration.
[2] Denotes a contravention of the federal 8-hour AAQS.
[3] 1-hour 3-year average 99th percentile value for SO_2 is 45.3 ug/m^3.
[4] 1-hour 3-year average 98th percentile value for NO_2 is 118.4 ug/m^3.
[5] 24-hour 3-year average 98th percentile value for PM-2.5 is 24.0 ug/m^3; Annual 3-year average value for PM-2.5 is 9.1 ug/m^3.
[6] On June 2, 2010 the 1-hour standard was established and the existing 24-hour and annual standards were revoked. The 3-hour Secondary Standard was retained.
Sources: NYSDEC 2010, 2011, 2012

Ozone (O_3)

The closest representative ozone monitor to the Project site is the Babylon Station (Farmingdale Water District, 72 Gazza Boulevard) in Suffolk County. This station is located in a suburban/industrial area. The Babylon monitor is located approximately 24.1 kilometers northeast of the Project site.

The concentrations for each of the three (3) years exceed the 8-hour federal standard of 0.075 ppm (147 $\mu g/m^3$). It is difficult to infer pollution trends from ozone data since the occurrence of this pollutant depends not only on a source of the precursor pollutants (NO_x and VOC), but also the driving mechanism (sunlight) that accelerates ozone formation. Relative consistency in regional NO_x and VOC concentrations may result in different resultant ozone concentrations depending on the particular meteorological pattern that was established during the May 1 through September 30 ozone season. In addition, long range

transport of ozone and ozone precursors from upwind power plants in the Ohio Valley and Midwest likely contribute to an increased background concentration in the Northeast.

Sulfur Dioxide (SO_2)

The closest representative NYSDEC monitor for SO_2 is located at Eisenhower Park (Nassau County Park, Recreation and Museums, 740 Merrick Avenue) in Nassau County. This station is located in a suburban/residential/commercial area, approximately 11.3 kilometers northeast from the Project site. Data collected from 2010 through 2012 shows a trend of the short term averaging period concentrations (1-hour, 3-hour and 24-hour) peaking in 2011, while the annual SO_2 concentrations decreased year over year.

The maximum ambient SO_2 concentrations recorded between 2010 and 2012 show the 3-year average 99th percentile 1-hour SO_2 value to be 28 percent of the NAAQS of 0.075 ppm (196 $\mu g/m^3$), the highest second-highest 3-hour concentration at 8 percent of the Secondary NAAQS of 0.5 ppm (1,300 $\mu g/m^3$).

Inhalable Particulates (PM-10)

PM-10 was recorded at the Queens College 2 monitor at 65-30 Kissena Boulevard in Flushing Queens. This monitor is located approximately 19.6 kilometers northwest of the Project site. High second-high background 24-hour PM-10 concentrations at the Queens College 2 monitor have decreased 18 ug/m^3 since 2010 and are 21 percent of the NAAQS. In 2010, the highest second-highest background 24-hour PM-10 concentration was 33 percent of the NAAQS.

Nitrogen Dioxide (NO_2)

Like PM-10, the monitor in Flushing, Queens (Queens College 2) is the nearest representative NO_2 monitor to the site. Between 2010 and 2012, 1-hour NO_2 concentrations have decreased approximately 18 percent. The maximum ambient NO_2 concentrations recorded between 2010 and 2012 show the 3-year average 98th percentile 1-hour NO_2 value to be 64 percent of the NAAQS of 0.1 ppm (188 $\mu g/m^3$). Maximum annual NO_2 concentrations increased from 2010 to 2011 (approximately 12 percent) and then decreased from 2011 to 2012 (approximately 19 percent). The maximum annual concentration of 40.7 $\mu g/m^3$ recorded in 2011 is 40.7 percent of the 0.053 ppm (100 $\mu g/m^3$) ambient air quality standard.

Carbon Monoxide (CO)

Like PM-10 and NO_2, the monitor in Flushing, Queens (Queens College 2) is the nearest representative CO monitor to the site. CO is more of a concern from mobile sources than from stationary combustion sources, and, as such, monitors are often located at busy traffic intersections (known as CO "hot-spots"). CO concentrations are monitored for comparison against a 1-hour and an 8-hour standard. The highest-second highest 1-hour concentration in 2010 was recorded to be 3,910 $\mu g/m^3$, which is well under the standard of 35 ppm (40,000 $\mu g/m^3$). The highest-second highest 8-hour concentration in 2010 was 1,955 $\mu g/m^3$, also well under the 9 ppm (10,000 $\mu g/m^3$) standard.

Inhalable Particulates (PM-2.5)

Like PM-10, the monitor in Flushing, Queens (Queens College 2) is the nearest representative PM-2.5 monitor to the site. The U.S. EPA has set the annual PM-2.5 NAAQS at 12 $\mu g/m^3$, based on the three year average of annual mean concentrations, and the 24-hour PM-2.5 NAAQS at 35 $\mu g/m^3$, based on the three year average of the 98th percentile of the 24-hour concentrations. Using the latest three years of PM-2.5 monitoring data (2010-2012) from the Babylon monitor, the three-year average annual PM-2.5 concentration was 9.1 $\mu g/m^3$, while the three-year average 98th percentile 24-hour PM-2.5 concentration was 24.0 $\mu g/m^3$. Both of these values are less than their respective PM-2.5 NAAQS.

B. METEOROLOGY

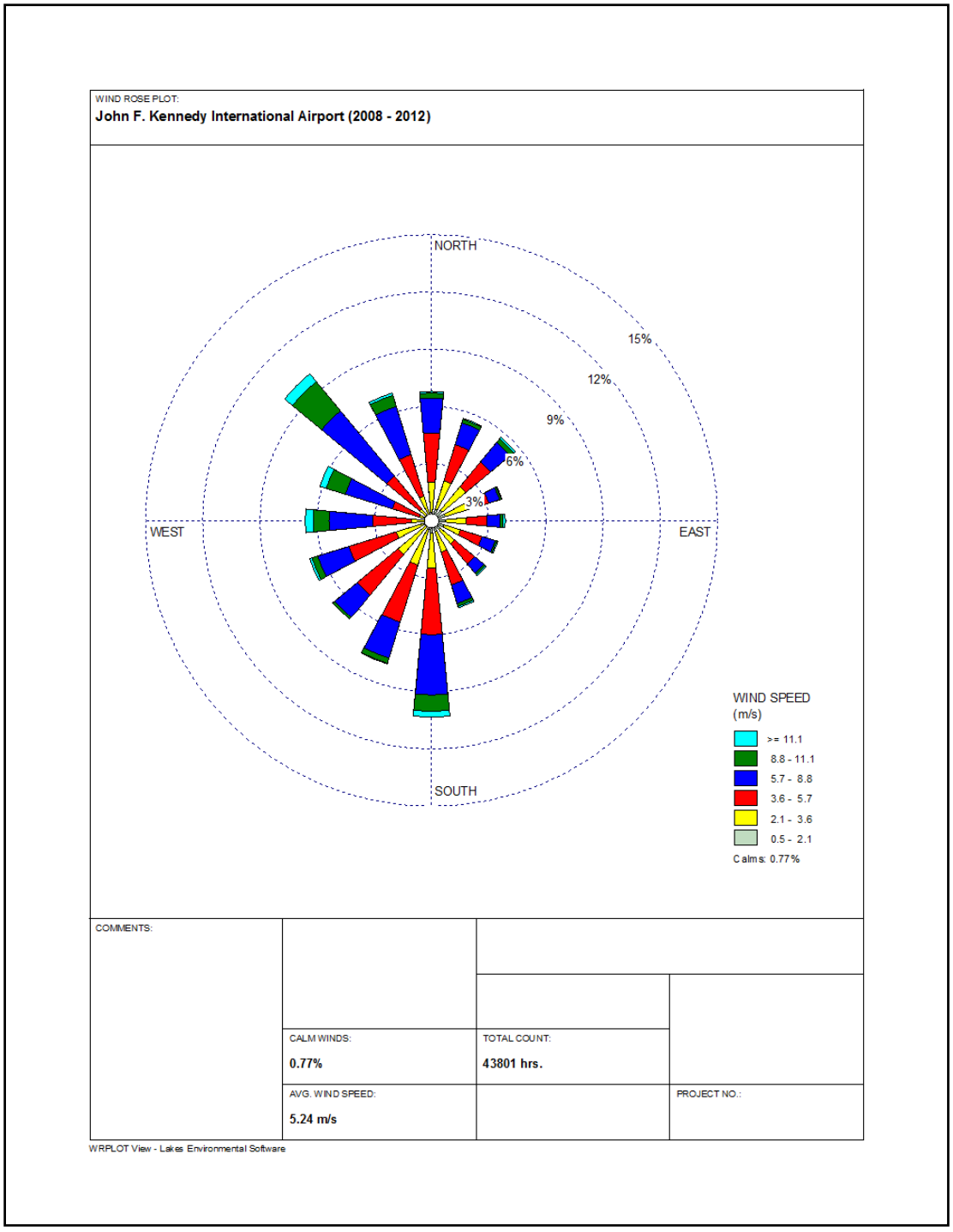
The climate at the Project site is similar to that of the other coastal Northeastern regions of the United States, with warm, humid summers and cool, wet winters. Nassau County is considered a humid subtropical climate by definition (Köppen climate classification *Cfa* or *Cwa*). However, the term *subtropical* can be misleading due to Nassau County's latitude being well north of the tropics. Due to its proximity to the Atlantic Ocean, afternoon sea breezes mitigate the heat during the warmer months and limit the likelihood of severe thunderstorms.

The nearest meteorological monitoring station is located at John F. Kennedy (JFK) International Airport, approximately 10 kilometers west-northwest from the Project site. Of the various parameters collected, several are important in assessing the proposed Project impacts. Specifically, wind speed and direction are necessary for the prediction of the location and magnitude of facility emission impacts (a third parameter, atmospheric stability, is calculated from several other parameters). Since combustion turbine performance is affected by inlet air temperature, average maximum and minimum ambient temperature must also be considered.

The JFK International Airport meteorological tower location is such that the recorded data are free of interferences caused by nearby natural or manmade structures and provide an excellent representation of dispersion characteristics within the local area. A wind rose displaying wind speed and direction data for all five years (2008-2012) is shown in Figure 3.3-1. Over the five (5) year period, predominant winds varied from south and northwest. The average wind speed over the five years was 5.24 meters per second. Calm winds during the five years had an average frequency of 0.77 percent.

The 30-year annual average recorded dry bulb temperature at JFK International Airport is 54.4°F (12.4°C). The minimum and maximum mean daily temperatures are 47.0°F (8.3°C) and 61.3°F (16.3°C), respectively. The lowest temperature ever recorded at JFK International Airport was -2.0°F (-18.9°C) and the highest temperature ever recorded was 104°F (40.0°C). The NYSDEC Bureau of Technical Services has formulated guidance specific to the selection of appropriate maximum, minimum and average annual temperatures for modeling turbine performance. For the Project, a minimum temperature of 0°F (-17.8°C), a maximum temperature of 100°F (37.8°C), and the previously mentioned normal dry bulb value, 54.4°F (12.4°C), will be used.

Figure 3.3-1: Wind Rose



3.3.3. REGULATORY FRAMEWORK FOR PROJECT APPROVAL

The following sections present a summary of the applicability of federal and state air quality regulations to the proposed Project. The specific regulations included in this review are the Federal New Source Performance Standards (NSPS), the NYSDEC regulations and policy, non-attainment New Source Review (NSR) requirements, the Prevention of Significant Deterioration (PSD) requirements, the Air Quality Impacts Analysis requirements, the Federal Acid Rain Program requirements, and the NO_x Budget Program requirements.

A. STANDARDS

New Source Performance Standards

The New Source Performance Standards (NSPS) are technology-based standards applicable to new and modified stationary sources. The NSPS requirements have been established for approximately 70 source categories. One subpart is applicable to the proposed Project: the Standards of Performance for Stationary Combustion Turbines (40 CFR Part 60, Subpart KKKK which replaces Subpart GG for turbines constructed after February 18, 2005).

The combustion turbines are subject to the provisions of 40 CFR Part 60 Subpart KKKK effective July 6, 2006 by virtue of the maximum firing capacity of each turbine and date of installation (which will be after February 18, 2005). The air pollution emission standards (TABLE 1.—TO SUBPART KKKK OF PART 60.—NITROGEN OXIDE EMISSION LIMITS FOR NEW STATIONARY COMBUSTION TURBINES) limit flue gas concentrations of NO_x to 15 ppm at 15 percent O_2 or 54 ng/J of useful output (0.43 lb/MWh). Additionally, the provisions of this subpart require the installation of a Continuous Emission Monitoring System (CEMS) to monitor fuel consumption and water to fuel ratio. Continuous emission monitors will be employed to indicate compliance with NO_x limits, and Part 75, Appendix D methods will be used to demonstrate compliance with SO_2 limits.

National and New York State Air Quality Standards

The location of the proposed Project is an area currently designated as attainment for SO_2, NO_2, CO and PM-10. Therefore, for these pollutants the facility is required to demonstrate that the impact on air quality does not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS) or the New York Ambient Air Quality Standards (NYAAQS). The NAAQS and NYAAQS for the criteria pollutants are shown in Table 3.3-2.

Under 6 NYCRR, Subpart 257, the NYSDEC has promulgated ambient air quality standards (AAQS) for the NAAQS criteria pollutants, as well as certain other contaminants. It will be necessary to demonstrate through air quality dispersion modeling that the facility will comply with all applicable ambient limits for the criteria pollutants, as well as for potentially emitted trace constituents such as fluorides, beryllium, and hydrogen sulfide. Standards for these pollutants are also listed in Table 3.3-2. In addition, the

proposed facility air quality impact in terms of other non-criteria pollutants will be evaluated for compliance with health risk criteria, per DAR-1.

The Project site is designated as moderate non-attainment for the 1997 8-hour ozone standard, marginal non-attainment for the 2008 8-hour ozone standard, and recently proposed to be redesignated as attainment for PM-2.5 (1997 and 2006 standards) (79 FR 8133, February 11, 2014). Under the marginal non-attainment designation for 8-hour ozone, modifications at existing major facilities emitting more than 25 tons per year of NO_x and/or VOC are subject to non-attainment NSR for these pollutants and require the application of LAER controls and emission offset requirements. As stated previously in Section 3.1.1, it is expected that Nassau County will be redesignated as attainment for PM-2.5 before the Article 10 is issued. As such, for the preparation of the Article 10, the proposed Project's air quality modeling analyses will assess the Project's compliance assuming that the area the Project is to be located in is designated attainment for PM-2.5, pending issuance of the final rule designating attainment by U.S. EPA.

Table 3.3-2
National and New York Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$)	NYAAQS ($\mu g/m^3$)
Sulfur Dioxide (SO_2)	1-hour	196[14]	N/A
	3-hour	N/A	1,300[1]
	24-hour	N/A	365[1]
	Annual	80	80[2]
Nitrogen Dioxide (NO_2)	1-hour	188[15]	N/A
	Annual	100[2]	100[2]
Particulate (PM-10)[3]	24-hour	150[4]	N/A
	Annual	N/A	N/A
Total Suspended Particulate	24-hour	N/A	250[6]
(TSP)	Annual	N/A	75[7]
Carbon Monoxide (CO)	1-hour	40,000[1]	40,000[1]
	8-hour	10,000[1]	10,000[1]
Ozone (O_3)	8-hour	150	N/A
Lead (Pb)[3]	Quarterly	0.15[2]	N/A
Fine Particulate (PM-2.5)[3]	24-hour	35[8]	N/A
	Annual	12[9]	N/A
Gaseous Fluorides (as F)[10]	12-hour	N/A	3.70[2]
	24-hour	N/A	2.85[2]
	1-Week	N/A	1.65[2]
	1-Month	N/A	0.80[2]
Beryllium[10]	1-Month	N/A	0.01[2]
Hydrogen Sulfide[10]	1-hour	N/A	14[2]
Settleable Particulates[10,11]	Annual	N/A	0.30[12]
	Annual	N/A	0.45[13]

[1] Not to be exceeded more than once per year.
[2] Not to be exceeded.
[3] Federal standard not yet officially adopted by NYS, but is currently being applied to determine compliance status.
[4] Fourth highest concentration over a three-year period.
[5] Average of three annual coverage concentrations.
[6] Not to be exceeded more than once per year on average.
[7] Geometric mean of the 24-hour average concentrations over 12-month period. Based on project site being located in the Level II air quality area of Nassau County.
[8] Average 98th percentage over a three-year period.
[9] Average annual mean concentration over a three-year period.
[10] Pollutant would not be emitted from the project.
[11] Based on the project site being located in the Level II air quality area in Nassau County.
[12] Units of milligrams per centimeter squared per month ($mg/cm^2/mo$). Fifty percent of the monthly values shall not exceed.
[13] Units of $mg/cm^2/mo$. Eighty-four percent of the monthly values shall not exceed.
[14] Based on 3-year average 99th percentile value.
[15] Based on 3-year average 98th percentile value.
Source: 40 CFR 50, 6 NYCRR 257, 40 CFR 52.

Maximum Achievable Control Technologies (MACT)

On April 20, 2000, an interpretive rule was published in the Federal Register (78 Fed. Reg. 21363-21365 (April 20,2000)) stating that new combustion turbines are subject to case-by-case MACT, if they are a "major source" of hazardous air pollutants (HAP) pursuant to 40 CFR 63. Any new source with potential emissions greater than 10 tons per year (tpy) for any single HAP, or 25 tpy for all HAPs combined, is considered a major source.

B. PART 231/PREVENTION OF SIGNIFICANT DETERIORATION PERMIT

The PSD program in New York State is the administration of the federal rule by direct delegation from the U.S. EPA through the New York State Air Regulations under 6 NYCRR Part 231. Any fossil fuel fired steam electric plant with a heat input capacity greater than 250 mmBTU/hr with potential emissions greater than 100 tons per year of any regulated criteria pollutant (or 100,000 tons per year of greenhouse gases, or 75,000 tons per year for a major modification to an existing major source) is considered a "major" source and is subject to the PSD regulations. The existing E.F. Barrett Power Station is an existing major PSD source.

Facilities subject to PSD must perform an air quality analysis (which includes atmospheric dispersion modeling) and a best available control technology (BACT) demonstration for those pollutants that exceed the pollutant specific Significant Project Thresholds identified in the regulations. The PSD SERs (significant emission rates), as defined in the PSD Regulation, are provided in Table 3.3-3.

Table 3.3-3
PSD Significant Emission Rates

Pollutant	PSD Significant Modification Thresholds (tons per year)	Non-attainment NSR Major Modification Thresholds (tons per year)
Carbon Monoxide	100	NA
Sulfur Dioxide	40	40[a]
Particulate Matter (PM)	25	NA
Particulate Matter less than 10 microns (PM-10)	15	NA
Particulate Matter less than 2.5 microns (PM-2.5)	10	10[a]
Nitrogen Oxides	40	25[c]/40[a]
Ozone (VOC)	40	25[c]
Greenhouse Gases (GHG)	75,000[b]	NA
Lead	0.6	NA
Fluorides	3	NA
Sulfuric Acid Mist	7	NA
Hydrogen Sulfide	10	NA
Total Reduced Sulfur (including H_2S)	10	NA
Reduced Sulfur Compounds (including H_2S)	10	NA

Note: Pursuant to 40 CFR 52.21 (b) (23) (i).
[a]Under 6 NYCRR Part 231, new sources with potential emissions greater than or equal to 100 tons per year and modifications to existing major sources with emissions greater than or equal to 40 tons per year of SO_2, 40 tons per year of NO_x, or 10 tons per year of PM-2.5 are subject to NNSR for PM-2.5. In as much as NYSDEC has demonstrated attainment and has filed a PM 2.5 redesignation request, National Grid anticipates Nassau County to be designated attainment only for PM2.5 by U.S. EPA Region II before the final air permit is granted.
[b]CO_2 NSR threshold for a major modification to an existing major source.
[c]As precursors to ozone.

Compliance with NAAQS

Compliance with the NAAQS will be demonstrated for each PSD-affected pollutant. A key element in this demonstration will be the determination of whether any of the PSD-affected pollutants has significant impacts. For any pollutants with significant impacts, multi-source and increment consumption modeling will be performed. Impacts will then be added to background air quality levels to assess whether compliance with the NAAQS is maintained. These steps are discussed in further detail below.

Impact Area Determination

The first step of the ambient air quality analysis is to perform atmospheric dispersion modeling to determine if the facility will have significant impacts for one or more pollutants that exceed the U.S. EPA Significant Impact Levels (SILs). These concentrations are presented in Table 3.3-4.

Multi-Source Modeling

Facilities for which predicted significant impact levels are below the levels shown in Table 3.3-4 need not be evaluated further. However, for those pollutants with concentrations greater than the SILs, a NAAQS/NYAAQS analysis will need to be performed. The first step is to determine an area of impact for each individual pollutant, which is defined as the distance at which the model calculated pollutant concentrations fall below the SILs. The second step is to obtain off-site major source inventories within the area of impact plus a distance to be determined based upon a decision made with the NYSDEC. The resultant concentrations will then be added to the background for comparison with the NAAQS/NYAAQS. If the modeled concentration plus the background concentration is less than the NAAQS/NYAAQS, then the proposed facility is considered acceptable relative to these standards. These compliance analyses will be performed using NYSDEC-recommended U.S. EPA guideline dispersion models and modeling methodologies. The technical guidance for the Project's NAAQS compliance demonstration will be the "NYSDEC Guidelines on Dispersion Modeling Procedures for Air Quality Impact Analyses - DAR 10" (NYSDEC, 2006, formerly Air Guide-26). Each of these guidelines were developed consistent with the U.S. EPA New Source Review Workshop Manual (U.S. EPA, 1990), and the U.S. EPA Guidelines on Air Quality Models (Revised) (U.S. EPA, 2005), and incorporated in Appendix W of 40 CFR Part 51.

Table 3.3-4
U.S. EPA Significant Impact Levels

Pollutant	Averaging Period	Significant Impact Levels ($\mu g/m^3$)
Sulfur Dioxide (SO2)	1-hour	7.8[a]
	3-hour	25
	24-hour	5
	Annual	1
Nitrogen Dioxide (NO2)	1-hour	7.5[b]
	Annual	1
Carbon Monoxide (CO)	1-hour	2,000
	8-hour	500
Coarse Particulate Matter (PM-10)	24-hour	5
	Annual	1
Fine Particulate Matter (PM-2.5)	24-hour	1.2
	Annual	0.3

[a]Interim SIL per August 12, 2010 memorandum "Guidance Concerning the Implementation of the 1-hour SO_2 NAAQS for the Prevention of Significant Deterioration Program" for Steven Page (Director of U.S. EPA OAQPS).

[b]Per guidance from NYSDEC

Source: U.S. EPA, 1990, Table C-4

Increment Analysis

Facilities for which predicted impacts exceed the SILs shown in Table 3.3-4 will also require additional modeling with other PSD sources within 50 kilometers of the proposed source's area of impact to evaluate compliance with PSD increments. PSD increments define the maximum allowed incremental air quality impacts for all existing and proposed PSD sources. There are three (3) classes of PSD increments, with the most stringent, identified as Class I, for pristine areas and the most lenient, Class III, reserved for the most polluted areas. For purposes of the Article 10 Air Quality Assessment, only the PSD Class II increments are relevant due to the fact that the majority of the country, including the site area, are Class II areas. Also, there are currently no Class III areas present in the United States and the closest Class I areas are in Vermont and southern New Jersey. The PSD Class II increments are presented in Table 3.3-5.

Table 3.3-5
PSD Class II Increments (µg/m^3)

Pollutant	Class II Increment (ug/m^3)
SO_2	
Annual	20[2]
24-hour	91[1]
3-hour	512[1]
PM-2.5	
Annual	4[1]
24-hour	9[1]
PM-10	
Annual	17[1]
24-hour	30[1]
NO_2	
Annual	25[2]

[1]Not to be exceeded more than once per year

[2]Not to be exceeded

Source: 40 CFR 50; 6 NYCRR 257; 40 CFR 52

Ambient Air Quality Monitoring

Proposed facilities subject to PSD review may have to perform up to one year of preconstruction ambient air quality monitoring for those pollutants emitted in amounts exceeding the significant emission rates shown in Table 3.3-3, unless granted an exemption by the reviewing agency. The U.S. EPA can grant an exemption from the monitoring if there exists representative and quality assured air quality data that can be used to adequately fulfill the requirement for establishing the background air quality. National Grid will submit a request for exemption from preconstruction ambient air quality monitoring to the U.S. EPA based on the existing quality assured ambient air quality data being available from an alternate location(s) (i.e., NYSDEC monitoring stations) that are representative of, or conservative, as compared to conditions at the proposed Project site.

Additional Impact Analyses

The major source status of the proposed Project means that certain additional analyses are required as part of the modeling assessment. These include modeling to assess potential for impacts to soils, vegetation, and visibility in the area surrounding the proposed E.F. Barrett Station Repowering – Island Park Energy Center.

Class I Area Impacts

According to the Federal Land Managers' Air Quality Related Values Work Group, (FLAG) guidance document of 2010, proposed major sources within 50 kilometers of a Class I area must perform an assessment of potential impacts in this area. This includes the additional impact analyses described above as well as impacts on PSD increments, regional haze, and deposition (i.e., Air Quality Related Values – AQRV). The 2010 guidance allows the applicant major source to perform an emissions over distance (Q/D) screening test to determine if a refined impact analysis is required for "nearby" (i.e., within approximately 300 kilometers) Class I areas. The Agencies will consider a source locating at a distance greater than 50 km from a Class I area to have negligible impacts with respect to Class I AQRVs if its total SO_2, NO_x, PM-10, and H_2SO_4 annual emissions (in tons per year, based on 24-hour maximum allowable emissions), divided by the distance (in km) from the Class I area (Q/D) is 10 or less. The Agencies would not request any further Class I AQRV impact analyses from such sources.

There are two (2) Class I areas within 300 kilometers of the proposed facility: the Brigantine Wilderness Area and the Lye Brook Wilderness Area. The Brigantine Wilderness Area is located in the Edwin B. Forsythe National Wildlife Refuge in New Jersey, approximately 140 kilometers south-southwest of the proposed facility. The Lye Brook Wilderness Area is located in Vermont and is approximately 282 kilometers north of the proposed facility. The project is expected to have total emissions of SO_2, NO_x, PM-10, and H_2SO_4 less than 1,400 tons/year, which is the minimum threshold for requiring a Class I analysis at the nearest Class I area.

Best Available Control Technology (BACT) Demonstration

A PSD "Netting Analysis" will be performed to establish the difference in emissions from the new units displacing the emissions from the older units that are being retired. The netting analysis may demonstrate that some pollutants may actually have a less than major source net emission rate or even negative emission rate when compared to the existing emissions. Facilities subject to PSD must perform a BACT demonstration for those pollutants for which emissions are expected to exceed the significant emission rates presented in Table 3.3-3. A BACT demonstration consists of identifying all technically feasible emission control measures for each pollutant for the proposed size and type of combustion source (i.e., large, stationary combustion turbines). These control technologies are then rated according to their effectiveness from the most to least effective (top-down approach) and then evaluated for their economic, environmental, and energy impacts. Environmental benefits are then related to cost-effectiveness on a dollars (cost) per ton (of pollutant removed) basis and the technology with the optimal, incremental cost-effectiveness selected as BACT for each pollutant.

C. NON-ATTAINMENT NEW SOURCE REVIEW REQUIREMENTS

In areas classified as non-attainment of the NAAQS for a given pollutant, the NSR permitting requirements of 6 NYCRR Subpart 231-2 are applicable to major new emission sources of that pollutant. Nassau County is designated as "marginal non-attainment" for 2008 8-hour ozone standard. NSR requirements include the need to achieve LAER levels

and obtain emission offsets. Non-attainment NSR Major Modification Thresholds can be found in Table 3.3-3.

For any given source, LAER is defined as the more stringent of the following criteria:

- The most stringent emission limitation contained in any state implementation plan for the subject class or category of source, unless the owner or operator of the proposed source demonstrates that such limitations are not achievable; or
- The most stringent emission limitation which is achieved in practice.

Additional requirements specific to non-attainment NSR are as follows:

1. The certification that all emission sources which are part of any major facility located in New York State and under the applicant's ownership or control (or under the ownership or control of any entity which controls, is controlled by, or has common control with the applicant) are in compliance, or are on a schedule for compliance, with all applicable emission limitations and standards under NYSDEC's regulations (from 6 NYCRR 231-6.3(a)).

2. The submission of an analysis of alternative sites, sizes and production processes, and environmental control techniques which demonstrates that benefits of the proposed project or proposed major facility significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification within New York State (from 6 NYCRR 231-6.3(b)).

3. The submission of a list which identifies the source(s) of approved or proposed ERCs of VOC or NOx that will be used. The list must include the name and location of the facility, NYSDEC identification number, if applicable, and the emission reduction mechanism. All of the proposed ERCs must be submitted and certified prior to final permit issuance (from 6 NYCRR 231-6.3(d)).

Ozone (O_3)

The area of the proposed facility is designated as moderate non-attainment for the 1997 eight (8)-hour ozone standard and marginal non-attainment for the 2008 eight (8)-hour ozone standard. If potential annual emissions of NO_x and/or VOC, precursors to ozone formation, exceed 25 tons per year, the facility will be required to meet LAER levels for the applicable pollutant(s) and obtain emission offsets from other existing sources of VOC and NO_x, if applicable.

It is anticipated that the proposed Project will have the potential to emit 25 tons per year or more of NO_x. As a result, LAER and offsets will be required for NO_x emissions. It is possible, although less likely, that the proposed Project will also exceed 25 tons per year of VOC and trigger LAER requirements. A demonstration for the facility will be made to establish the proposed LAER for NO_x and possibly VOC emissions. The U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC) database will be reviewed to identify the approved LAER and supporting justification for recently permitted combustion turbine

installations. Other information sources (e.g., state agency permit files) will also be reviewed to identify applicable case information to be incorporated into the LAER analysis. This analysis will entail a "top-down" approach similar to the BACT demonstration, but will be based on the above LAER criteria. It must be shown that any methods of potentially greater control than the proposed LAER are not appropriate or have not been adequately demonstrated.

Emission offsets for the potential annual NO_x and/or VOC emissions of the facility will be acquired at the ratio of 1.3:1 (i.e., 1.3 tons per year offset for every ton per year of potential facility emissions). These offsets, identified as NYSDEC-certified emission reduction credits (ERC), will be secured in conformance with 6 NYCRR Subpart 231-2.6 and the NYSDEC DAR -10 / NYSDEC Guidelines on Dispersion Modeling Procedures for Air Quality Impact Analysis: Appendix E: Interpretation of Part 231 Provisions on Emission Offset Source Location and Net Air Quality Benefit Analysis.

D. OTHER REGULATORY REQUIREMENTS

U.S. EPA NO_x Budget Program

The NO_x Budget Trading Program (NBP) is a cap and trade program created in 1998 to reduce the transport of NO_x emissions from power plants and other large combustion sources that contribute to ozone nonattainment. While the EPA administered the program, states shared the responsibility by allocating allowances, inspecting and auditing sources, and enforcing the program. In 2009, CAIR's NO_x ozone season program began, effectively replacing the NBP in the East and further reducing NO_x emissions in the hopes of helping states move into attainment with the ozone NAAQS. This program applies to electric generating units (EGUs) as well as, in some states, large industrial units that produce electricity or steam primarily for internal use and were carried over from the NBP. The program is managed by NYSDEC as Part 243 CAIR NO_x Ozone Season Trading Program and Part 244 CAIR NO_x Annual Trading Program.

Part 243: CAIR NO_x Ozone Season Trading Program

This part establishes the New York State component of the Clean Air Interstate Rule (CAIR) NO_x Ozone Season Trading Program, which is designed to mitigate interstate transport of ozone and nitrogen oxides, an ozone precursor. For each CAIR NO_x Ozone Season source, a designated representative will be authorized by the owners and operators to represent and legally bind each owner and operator in matters relating to the program. In order to open an account, an application must be submitted to the department, complete with information about the unit and the account representative. Once the application is approved, it is the representative's job to keep track of all deductions and transfers of allowances within the account in order to ensure compliance with the program. The facility will have its own account in order to keep track of all NO_x allowances and transfers for the covered units

For each control period, the department will determine the number of allowances to be distributed to each NO_x budget unit. These allowances grant the source permission to emit one ton of NO_x for a specified year. They may be transferred to budget units for no more than four control periods, starting with the period in which the unit commenced operation.

For new sources, the authorized account representative may submit a written request in order to reserve a number of allowances no greater than the unit's control period potential to emit (CPPTE), which is the maximum amount of NO_x a unit is capable of emitting based on its physical and operational design. Once this request is approved, the department will set aside the desired amount of allowances for that particular unit. If the number of requested allowances exceeds the number of allocations that are available in the system, the allocations will be distributed on a first come, first served basis. Future NO_x allowances may be used for compliance purposes in situations involving electric grid reliability emergencies. In order to do this, the account representative must send a statement to the department detailing why the future allowances are being used and how many tons will be emitted during the grid emergency.

If a source exceeds their emissions limitation, they must surrender their allowances and may be subject to additional fines or penalties. In regards to these fines and penalties, each day in a control period for which a unit exceeded their limit will be considered a separation violation, as well as each ton of excess emissions. Owners and operators are responsible for maintaining all documentation, including emissions and compliance reports, associated with their particular CAIR NO_x Ozone Season source.

An account representative may decide to close a budget account by submitting a statement to the department requesting that the account for a particular unit be deleted from the NO_x Allowance Tracking System. If an account shows no activity for one year or more, the department will notify the account representative and give them twenty days to transfer allowances into their account, otherwise their account will be removed from the system.

Acid Rain Program/CAIR SO_2

Title IV of the CAAA required U.S. EPA to establish a program to reduce emissions of acid rain forming pollutants, called the Acid Rain Program. The overall goal of the Acid Rain Program is to achieve significant environmental benefits through reductions in SO_2 and NO_x emissions (the NO_x element of the program is only applicable to coal-fired utility units and will not be considered further in discussion since the proposed Project will not fire solid fuels). To achieve this goal, the program employs both traditional and market-based approaches for controlling air pollution. Under the program, existing units are allocated SO_2 allowances by the U.S. EPA. Once allowances are allocated, affected facilities may use their allowances to cover emissions, or may trade their allowances to other units under a market allowance program. In addition, applicable facilities are required to install and operate a CEM system for affected units. The CEM requirements (Part 75) of the Acid Rain Program include: an SO_2 concentration monitor or alternative surrogate method; a NO_x concentration monitor; a volumetric flow monitor; an opacity monitor; a diluent gas (O_2 or CO_2) monitor; and a computer-based data acquisition and handling system for recording and performing calculations.

Implementation of the Acid Rain Program by the U.S. EPA has been broken into two phases. Phase I of the program required 110 sources identified in the CAAA to operate in compliance by January 1, 1995. Facilities identified in Phase II of the program are required to operate in compliance by January 1, 2000. Additionally, existing Phase II facilities were required to install and operate a certified CEM system after January 1, 1995. The proposed

Project is subject to the Acid Rain Program based upon the provisions of 40 CFR 72.6(a)(3) since the turbines are considered utility units under the program definition and do not meet the exemptions listed under paragraph (b) of this Section. The proposed facility will be subject to Phase II Acid Rain requirements and will be required to submit an acid rain permit application 24 months prior to the date on which the unit expects to begin service as a generator. NYSDEC implements the CAIR SO_2 program under 6 NYCRR Part 245.

CO_2 Performance Standards

On June 12, 2012 NYSDEC promulgated Part 251: CO_2 Performance Standards for Major Electric Generating Facilities. The regulations in Part 251 establish CO_2 emission limits for proposed new major electric generating facilities that have a generating capacity of at least 25 megawatts, and for increases in capacity of at least 25 megawatts at existing electric generating facilities.

The Part 251 regulations:

- set a CO_2 emission limit of 925 lbs/MWh (output-based limit) or 120 lbs/mmBtu (input-based limit) for most new or expanded base load fossil fuel-fired plants;
- set a CO_2 emission limit of 1450 lbs/ MWh (output-based limit) or 160 lbs/mmBtu (input-based limit) for simple cycle combustion turbines;
- allow each facility's owner or operator to choose whether to comply with the relevant output-based or input-based emission limits;
- provide for DEC to set case-specific CO_2 emission limits for certain power plants that fire non-fossil fuels; and
- require recordkeeping, monitoring and reporting consistent with existing state and federal regulations.

Following DEC's proposal of this regulation in January 2012, the U.S. EPA in April 2012 proposed a CO_2 New Source Performance Standard (NSPS) under the federal Clean Air Act. Subsequently on Sept. 20, 2013 EPA issued its new CO_2 rule replacing the April 2012 rule. The new proposal sets separate standards for new coal boilers, IGCC units and new gas combustion units. The standard for natural gas units (1,000 lb CO_2/MWh) is the same as the prior proposal, except that combustion turbines are no longer exempt, but would rather be subject to a new standard set for smaller gas units (1,100 lb CO_2/MWh) to account for cycling and efficiency issues. Note that the Part 251 CO_2 emissions requirements for the output based limit for fossil fuel-fired units is more restrictive at 925 lbs CO_2/MWh than the EPA limit of 1,100 lb CO_2/MWh for combustion turbines.

Regional Carbon Dioxide Budget Trading Program

The Regional Greenhouse Gas Initiative (RGGI) is the first market-based regulatory program in the United States to reduce greenhouse gas emissions. RGGI is a cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont to cap and reduce CO2 emissions from the power sector.

The administrative arm of RGGI provides administrative and technical services to support the development and implementation of each RGGI State's CO_2 Budget Trading Program. These activities include:

- Development and maintenance of a system to report data from emissions sources subject to RGGI, and to track CO_2 allowances
- Implementation of a platform to auction CO_2 allowances
- Monitoring the market related to the auction and trading of CO_2 allowances
- Providing technical assistance to the participating states in reviewing applications for emissions offset projects
- Providing technical assistance to the participating states to evaluate proposed changes to the States' RGGI programs

In the most recent auction (#23), held in March 2014, the clearing price for CO_2 allowances was $4.00 with a total of 18,491,350 allowances plus the 5 million allowances in the cost containment reserve for a total of 23,491,350 allowances sold.

New York State has amended state regulations found in 6 NYCRR Parts 242 (CO_2 Budget Trading Regulations) and 200 (General Provisions).

State Emission Limits

The sulfur content of the fuel is limited under 6 NYCRR, Subpart 225-1.2. Under this subpart, the facility is currently subject to a 0.37% sulfur content limit for distillate oil. However, beginning in 2016, the use of ultra-low sulfur distillate fuel (15 ppm sulfur) will be required for use at the facility as a backup (secondary) fuel source.

The particulate emissions for a stationary combustion installation firing oil, and with maximum heat input exceeding 250 mmBtu/hr, such as the proposed facility, is limited by 6 NYCRR Subpart 227-1.2 to 0.10 lb/mmBtu heat input. The PSD BACT requirement may result in a more stringent limitation.

Subpart 211-3 of 6 NYCRR limits the opacity of facility stack emissions to no greater than 20% (6-minute average), except for one continuous 6-minute period per hour of not more than 57%. Opacity is also regulated by 6 NYCRR, Subpart 227-1.3 which limits opacity to no greater than 20% (6-minute average), except for one 6-minute period per hour of not more than 27%.

State Reasonably Available Control Technology Requirements

Pursuant to 6 NYCRR Subpart 227-2, "Reasonably Available Control Technology" (RACT) requirements have been imposed on all stationary sources of NO_x. Although the facility will be subject to the requirements of Subpart 227-2, proposed use of SCR for NO_x control in conjunction with evolving low-NO_x turbine technology will result in NO_x emissions that will be below those required under RACT. In addition, specific Part 227-2 requirements related to record keeping and reporting will apply.

Risk Management Program

Accident and risk management regulations pursuant to Title III of the CAAA (40 CFR Part 68, Section 112(r)) require a subject facility to develop a risk management program (RMP).

The RMP requirement is triggered for each regulated toxic and flammable substance present on-site in greater quantity than its specified regulatory threshold. Each regulated toxic substance anticipated to be present at the facility will be accounted for and quantified with respect to its respective threshold.

The facility may be designed to accommodate a dedicated aqueous ammonia storage tank, minimizing any consequence of accidental releases. If technically feasible, the facility design and maintenance plan will ensure that the risk of potential impacts on the public is de minimis, triggering no more than minimal requirements under 40 CFR Part 68.

Good Engineering Practice Stack Height

Section 123 of the CAAA required U.S. EPA to promulgate regulations to assure that the control of any air pollutant under an applicable State Implementation Plan (SIP) was not affected by: 1) stack heights that exceed Good Engineering Practice (GEP), or 2) any other dispersion technique. The U.S. EPA provides specific guidance for determining GEP stack height and for determining whether building downwash will occur in the Guidance for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations), (U.S. EPA, 1985). GEP is defined as "the height necessary to ensure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies, and wakes that may be created by the source itself, nearby structures, or nearby terrain obstacles".

The GEP definition is based on the observed phenomenon of atmospheric flow in the immediate vicinity of a structure. It identifies the minimum stack height at which significant adverse aerodynamics (downwash) is avoided.

The U.S. EPA GEP stack height regulations specify that the GEP stack height is calculated in the following manner:

$$GEP = H_B + 1.5L$$

where: H_B = the height of adjacent or nearby structures, and

L = the lesser dimension (height or projected width of the adjacent or nearby structures)

A GEP stack height analysis will be conducted using the U.S. EPA approved Building Profile Input Program with PRIME (BPIPPRM, version 04274). Controlling structures will include the combustion turbine building, steam turbine generation building, the air cooled condenser, and the heat recovery steam generators (HRSGs) for the new combined cycle units. In addition, the air quality analysis will examine the impact of the existing steam boiler building, as it will not be razed until after the E.F. Barrett Station Repowering – Island Park Energy Center is operational.

3.3.4. POTENTIAL EMISSIONS AND AIR QUALITY IMPACTS

Potential Impacts on Air Quality

The proposed combustion turbines will be required to employ a very efficient emission control technology and will primarily operate on clean burning natural gas. Ultra low sulfur distillate oil will be used only as a backup fuel. A full air quality modeling analysis will be used to demonstrate the proposed Project meets the applicable air quality standards. The models and procedures to be used in the full analysis are discussed in Section 3.1.4.

Proposed Site-Wide Plant Emissions

The E.F. Barrett Station Repowering – Island Park Energy Center will result in emissions of several regulated air pollutants. Specifically, these pollutants include NO_x, SO_2, inhalable PM-10 and PM-2.5, total suspended PM, CO and VOCs. Minute quantities of trace elements are in distillate oil (ULSD), and these elements, specifically lead, will also be emitted. Selective Catalytic Reduction (SCR) using an aqueous ammonia injection will be employed to reduce emissions of NO_x. A small quantity of un-reacted ammonia may also be emitted. This amount will not exceed a 5 ppm average in-stack concentration for the combined cycle units, and not exceed 10 ppm average in-stack concentration for the simple cycle units.

The change in site-wide annual emissions will be based on the emissions from the future generating equipment minus the actual historical emissions from the existing generating units. Due to much more efficient equipment and emissions controls, National Grid anticipates that the new equipment will have less emissions on a power output basis. Overall, and depending upon the actual operation of the new units once completed, National Grid anticipates a reduction in net emissions, providing for improved air quality within the adjacent community. The following discusses the specific emissions expected from the proposed Project. Table 3.3-6 presents a summary of the anticipated permitted emissions rates for the Island Park Energy Center.

Nitrogen Oxides

NO_x forms as a result of fuel bound nitrogen and as a by-product of the combustion process itself. Typically, higher peak combustion temperatures result in higher NO_x emissions. The combustion gas turbines proposed for the project will use dry low-NO_x technology in which the peak flame temperature is reduced by increasing the size and duration of the flame front in the combustion chamber when firing natural gas. During distillate oil firing, steam or water is injected into the combustion chamber to act as a heat sink to lower the peak flame temperature. NO_x emissions are further reduced using SCR in which aqueous ammonia reacts with NO_x to form nitrogen (elemental) and water vapor. This process will significantly reduce NO_x emissions. Since the project is located in an area that is designated as marginal non-attainment for ozone, NO_x emissions will be required to meet LAER levels. SCR control technology will be employed to control NO_x emissions during natural gas firing to 2.0 ppm for the combined cycle units, which has been established as LAER for projects in New York State, and 2.5 ppm for the simple cycle units. Additionally, the facility will be required to obtain and purchase NO_x offsets at a 1.3 to 1 ratio.

Sulfur Dioxide

SO_2 is formed by the reaction of sulfur in the fuel and oxygen. Sulfur is present in trace amounts in natural gas as an odorant (methyl/ethyl mercaptan) and in distillate fuel oil.

The proposed combustion turbine will use ultra-low sulfur distillate oil (ULSD) with a sulfur content not to exceed 15 ppm as a back-up fuel.

Particulate Matter (PM-10 and PM-2.5)

Very small amounts of particulate matter are present in exhaust gas as both unburned fuel carbon compounds and from trace mineral matter in distillate fuel oil. Additionally, the PM-10 component (that is, particulate matter with a mean diameter less than 10 micrometers) also includes those compounds that are considered to condense from the hot exhaust gas to form small particles. This fraction is called condensable particulates and may represent the majority of the particulate emission during natural gas firing. Additionally, the condensable fraction may include trace ammonia compounds resulting from a reaction with sulfur trioxide and ammonia from the SCR used to control NO_x emissions. The PM-10/PM-2.5 emissions from the Project will include and account for both forms of particulate emissions, providing a conservative emission rate.

Carbon Monoxide

CO formation is typically the result of incomplete combustion of fuel within the combustion turbine. Incomplete combustion typically occurs under start-up and low-load operating conditions. It is anticipated that potential annual emissions of CO will exceed the PSD significant emission rate threshold of 100 tons per year. Therefore, CO emissions become subject to PSD regulations, including the requirement to perform a BACT analysis for CO emissions. BACT for CO emissions is anticipated to include an oxidation catalyst for both the combined cycle and simple cycle units.

Volatile Organic Compounds

VOC emissions occur under the same conditions that form carbon monoxide. The combination of high efficiency turbine combustors, clean fuels and good operational practices will serve to minimize emissions of VOC. Since the Project is located in an area that is designated as marginal non-attainment for ozone, VOC emissions will be required to meet LAER levels if potential annual VOC emissions exceed 25 tons per year. Additionally, the Project would be required to obtain and purchase VOC offsets at a 1.3 to 1 ratio, per §231-13.1 Table 1 - Major facility thresholds and offset ratios for ozone nonattainment areas and the ozone transport region.

Ammonia

As previously discussed, ammonia is injected into the exhaust gas stream in order to react with nitrogen oxides to reduce the NO_x emissions. A small quantity of ammonia may remain un-reacted in the exhaust stream resulting in emissions of less than 5 ppm for the combined cycle units and less than 10 ppm for the simple cycle units.

Hazardous Air Pollutants

The use of ULSD as a back-up fuel may result in the release of trace elements. However, ULSD is a highly refined fuel and is the cleanest of the liquid distillates, with a sulfur content of 15 ppm by mass. Therefore, Hazardous Air Pollutant (HAP) emissions are expected to be minimal.

Table 3.3-6
Anticipated Permitted Emission Rates[1]

Pollutant	Combined Cycle		Simple Cycle	
	Natural Gas	ULSD	Natural Gas	ULSD
NO_x	2	6	2.5	6
CO	2	2	5	6
VOC	1	3	1.2	3
NH_3	5	5	10	10

[1] ppmdv @ 15% O_2

Fugitive Dust

The construction of the Project may result in short-term and temporary fugitive dust emissions. While clearing and grading activities will be limited since the proposed site is barren and relatively level, the transport and staging of the construction components on the site may generate fugitive particulate emissions. Best management practices (BMP), such as dust screens and water sprays, will be used to minimize fugitive particulate emissions. The construction process will be staged where the simple cycle units will be constructed followed by the construction of the combined cycle units. The overall construction period is anticipated to last approximately 50 months, after which time all construction access roads will be paved or restored and open soil areas will be covered with grass and plantings. Ultimately, the existing generating units will be decommissioned and dismantled. Fugitive particulate emissions after construction are expected to be negligible.

3.3.5. PROPOSED AIR QUALITY MODELING

Meteorological Data

A five (5) year surface and upper air meteorological database (2008-2012) will be used in the atmospheric modeling assessment. Meteorological data sets from the John F. Kennedy (JFK) International Airport, located 10 kilometers west-northwest of the Project site, and the National Weather Service Forecast Office in Upton (Brookhaven National Laboratory), located 71 kilometers east-northeast of the Project site, were evaluated to determine the availability and data quality of meteorological data for air quality modeling purposes.

An Automated Surface Observing System (ASOS) station at the JFK International Airport (WBAN 94789) was installed on May 1, 1996 with a height of 33 feet (10 meters). The data recovery rates for wind direction, wind speed, temperature, ceiling height, and opaque sky cover were determined. The data was examined for modeling completeness, and the

percent recovery exceeded the minimum criterion of 90% for all five years. Concurrent upper air sounding data from Brookhaven National Labs (WBAN 94703) at Upton, NY was used with the hourly surface dataset to create the meteorological dataset required for the modeling analysis. Based on an examination of the spatial distribution of seasonal and annual mixing heights using *Holzworth's Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States* (U.S. EPA, 1972), upper air meteorological conditions in the Upton area are considered representative of the air regime at the Project site.

Atmospheric Dispersion Modeling

Standard U.S. EPA dispersion models will be utilized for the dispersion modeling studies. The U.S. EPA AERMOD model is proposed to be used. The AERMOD model was designed for assessing pollutant concentrations from a wide variety of sources (point, area, and volume). AERMOD is currently recommended for modeling studies in rural or urban areas, flat or complex terrain, and transport diseases less than 50 kilometers, with one hour to annual averaging times. AERMOD (version 13350 with PRIME) will be used for the preliminary modeling of the proposed facility's potential emissions to determine the maximum ambient air concentrations.

Distillate Fuel HAPs

As was previously noted, the use of distillate fuel may result in the emission of HAPs. Using mass balance or AP-42 emission factors, HAP emission rates will be estimated for distillate fuel firing. Acceptable air concentration levels developed by NYSDOH or listed in NYSDEC's "Guidelines for the Control of Toxic Ambient Air Contaminants – DAR 1" (NYSDEC, 1997) will be used in assessing impacts from these HAPs as required. Specific analytical procedures to be followed will be detailed in the Air Quality Modeling Protocol to be submitted to the NYSDEC.

Modeling Protocol

The air quality assessment that will be reflected in the Article 10 Application will be performed in accordance with a modeling protocol developed for and approved by the NYSDEC and the U.S. EPA. The modeling protocol will identify the modeling procedures and applicable models proposed for use in assessing the air quality impacts from the proposed facility. The protocol will establish the methodology to be used for the new source modeling study. Should the results of the single source modeling study indicate air quality impacts greater than the Significant Impact Levels, a multi-source modeling study will be required. If this occurs, a separate protocol for the multi-source modeling approach and source inventory verification procedure will be developed and submitted to the NYSDEC for their review and approval.

3.4 NOISE AND VIBRATION

3.4.1. INTRODUCTION

The proposed E.F. Barrett Station Repowering – Island Park Energy Center project site is located on an existing energy production site in an industrial area at McCarthy Road in the Town of Hempstead, New York, immediately adjacent to the incorporated Village of Island Park. The proposed Project will consist of a combined cycle facility (2 GE Frame 7 FA combustion turbines) and a simple cycle facility (6 GE LM6000 combustion turbines). The combined cycle portion of the Project will be on land currently occupied by the existing industrial wastewater treatment plant (WWTP). The simple cycle portion of the Project will be located in the southern western portion of the existing station site on land currently occupied by a portion of the existing tank farm.

The area immediately surrounding the Project site consists of a combination of industrial, commercial and residential uses. The nearest residential area to the combined cycle facility is located to the south across Long Beach Road, approximately 400 feet away, while the nearest residential area to the simple cycle facility is located approximately 900 feet to the south on Waterford Road. A single residence is located at the north end of MacDonald Road, in an industrial/commercial setting.

The Barrett Station site is bordered to the north by the Stony Creek Facility (a concrete recycling and material storage facility), Daly Boulevard, a gated residential complex (Oceanside Cove), and a one-story commercial retail building. The Oceanside Transfer Facility, the Town of Hempstead Department of Sanitation, and undeveloped land are located to the east. One-story commercial buildings followed by Long Beach Road and residential uses are located to the south on Long Beach Road. The Hog Island Channel and a tributary of the channel followed by the Stony Creek Facility and Hampton Road are located to the west. Long Island Rail Road (LIRR) tracks transect the western portion of the site (east of the tank farm) in a north/south orientation. Additionally, McCarthy Road, running in a north/south direction, is present on the southern portion of the property and terminates at the guard shed/main site entrance.

3.4.2. EXISTING CONDITIONS

The existing sound environment surrounding the proposed Facility has been characterized through ambient sound monitoring at selected sound sensitive areas (residences), which were identified through the use of topographic maps, and later confirmed during the sound monitoring program. These locations are provided below and are illustrated in Figure 3.4-1.

- South Cove Park;
- McDonald Road;
- Jamaica Avenue;
- Florida Avenue; and,
- Waterford Road.

Approximate Property Boundary

Noise Monitoring Locations

0 500 1,000 Feet

Base Map: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

N

TRC
1200 Wall Street West, 5th Fl.
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NOISE MONITORING LOCATIONS

E.F. BARRETT STATION REPOWERING
ISLAND PARK ENERGY CENTER

MCCARTHY ROAD
TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.4-1	MARCH 2014

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One ambient sound monitoring program, that included short-term and continuous 24-hour monitoring, has been conducted during the leaf-on season (September 2013). Additional sound monitoring is proposed for the leaf-off season to further characterize ambient sound conditions.

Existing sound sources in the area consist of vehicular traffic sound on local streets, the existing Barrett station, insect sounds, and commercial facilities. Other natural sounds (dogs, birds) and aircraft were additional contributing sound sources. Meteorological conditions during the monitoring program consisted of clear to cloudy skies, winds less than 10 mph, and temperatures ranging from 58° to 72° F.

Short-term monitoring (15 minutes in duration at each location) was conducted during the day (11:00 am to 5:00 pm) and late at night (12:00 am to 3:00 am) on September 25-26, 2013. Monitoring was conducted with a RION NL-52 precision Type 1 octave band analyzer. The instrument was configured to measure and store the Leq and L90 one-third octave band levels. The Leq is a single value of sound that includes all of the varying sound energy in a given duration. The L90 is the sound level exceeded 90 percent of the time. The L90 is considered to represent the background or residual sound level. A summary of the measured overall A-weighted Leq and L90 data collected to date is presented in Table 3.4-1 below.

Table 3.4-1
Measured Ambient Sound Levels (dBA) – Leaf-On Season

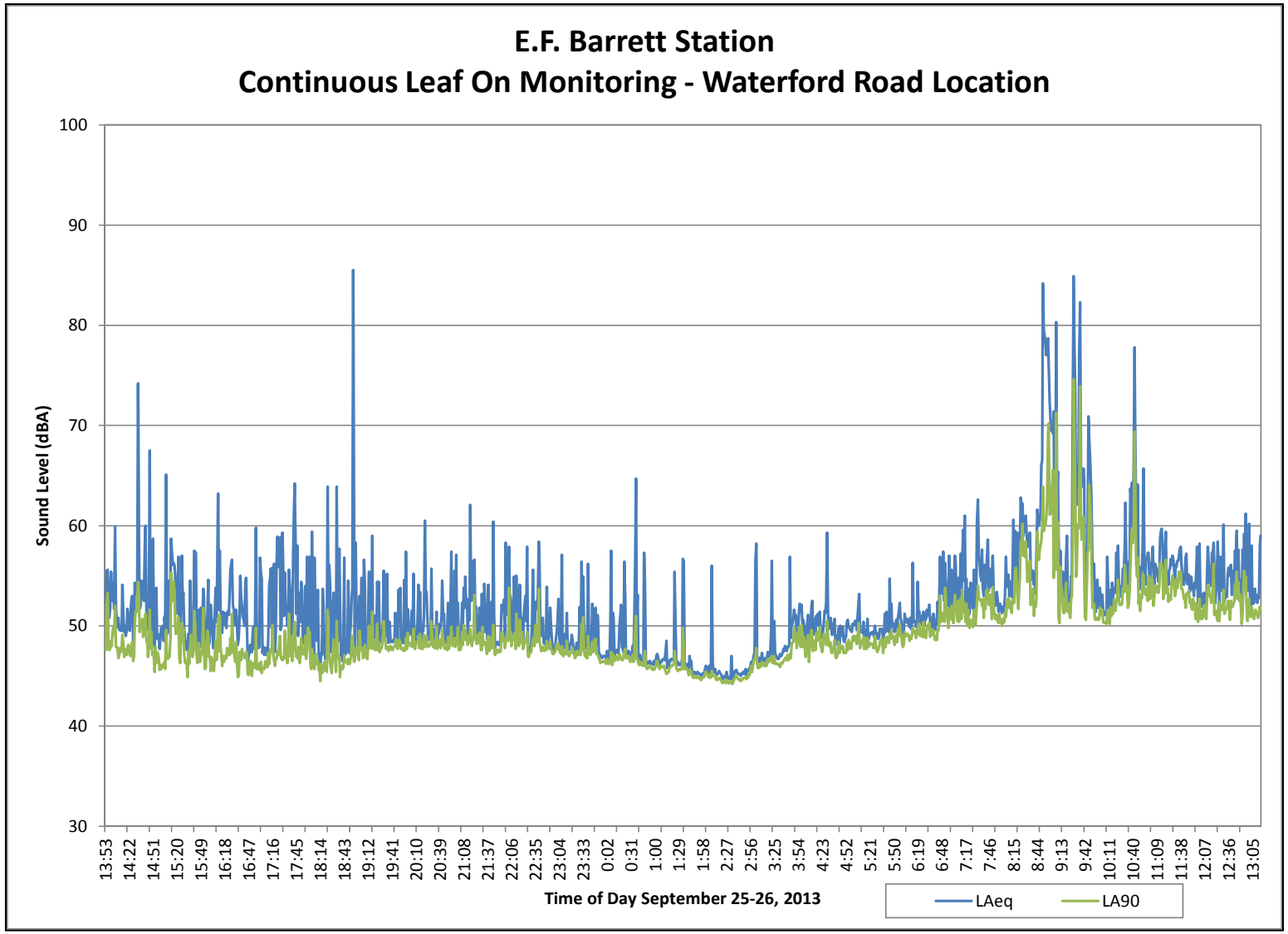
Receptor Location	September 25-26, 2013 L_{eq}		September 25-26, 2013 L_{90}	
	Daytime	Late night	Daytime	Late night
South Cove Park	59	50	52	43
McDonald Road	63	55	56	49
Jamaica Avenue	49	55	44	44
Florida Avenue	63	49	49	47
Waterford Road	52	47	46	44

Continuous monitoring was conducted at the Waterford Road location over a 24-hour period, utilizing a RION NL-21 integrating sound level meter with an integral data logger. The meter meets ANSI S1.4-1983 requirements for Type 2 sound level meters. The continuous instrument was programmed to measure and log the A-weighted Leq and L90 levels every 10 minutes over the duration of the 24-hour daytime and nighttime survey period. At the end of the period, the data were downloaded to computer for storage and analysis. A summary of the continuous Leq and L90 monitoring data from the leaf on monitoring is presented graphically in Figure 3.4-2.

3.4.3. POTENTIALLY SIGNIFICANT ADVERSE IMPACTS

Construction of the proposed Project may result in short-term, temporary sound impacts for the most proximate residential locations. Actual sound levels during construction will vary with the construction activity and distance to the receptors.

Figure 3.4-2. Continuous Leaf On Monitoring



During operation of the proposed Project, sound will be generated by a variety of sources. These include the combustion and steam turbines (casing, air inlet and exhaust), HRSGs, ancillary skids and equipment, transformers, gas compressors, air cooled condenser and cooling fans. Offsite sound levels produced by these sources will be a function of the control measures used and the distance to the sound sensitive receptors.

A detailed sound modeling and mitigation analysis will be conducted such that Project related operational sound levels are reduced to the extent practical to meet local noise ordinance limits and noise impact thresholds (the project acoustic design goals).

3.4.4. EXTENT AND QUALITY OF INFORMATION REQUIRED FOR EVALUATION

As discussed earlier, existing ambient sound levels have been quantified through a leaf-on monitoring program, and additional leaf-off programs are being planned. The full set of ambient sound level data will be used in the impact assessment for the Project.

A. OPERATIONAL SOUND

Computer sound modeling of the major Project sources will be performed utilizing a commercially available sound propagation model. The modeling will consider hemispherical spreading and atmospheric absorption for this analysis. The existing and proposed topographic features of the site and surrounding area will be built into the model. Standard conditions of 59° F and 70% relative humidity will be assumed. Modeling receptors will be chosen in the same residential locations as where background monitoring was performed. Additional locations may be added as receptor locations, as needed. Receptor locations will also be added along the facility property line in order to determine compliance with the Town noise ordinance.

The Project has obtained vendor sound estimates of sound power level for many of the major sound generating components including the combustion turbines (casings, inlets, exhausts), the steam turbine/generator, and the air cooled condenser. Sound emission data for other sound generating sources, including but not limited to transformers, gas compressors, cooling fans, and large pumps, will be requested from potential vendors. Where these data are not readily available from vendors, the Project will calculate sound level data using accepted industry procedures such as those found in Edison Electric Institute's "Electric Power Plant Environmental Noise Guide."

The sound modeling will be used as a design tool in order to determine the degree of abatement or mitigation required on individual sound sources. Modeling runs will be made, with sound control added as required, to work toward meeting the acoustic design goals for the Project.

B. CONSTRUCTION SOUND

Similar to the operational sound analysis, a commercially available sound propagation model will be used to calculate expected sound levels during Project construction. The same modeling receptors will also be utilized. Modeling will be conducted for the month with the expected greatest number of construction sources that will be in use in order to represent a worst case month.

Maximum sound emission data for the proposed construction equipment will be obtained from the Federal Highway Administration's Roadway Construction Noise Model (RCNM 1.1) or from other sources if not available from the RCNM. Usage factors for the equipment will also be obtained from the RCNM. Usage factors account for the fact that equipment are not always operated at maximum throttle, and are not used for an entire workday.

3.4.5. AVOIDANCE AND MINIMIZATION MEASURES TO ADVERSE IMPACTS

Short-term, temporary sound impacts may occur during construction activities. These impacts may occur when activities, such as excavating, take place. Impacts could also occur during plant operation if the proper sound control measures are not implemented. Several mitigation measures are available to minimize these potential impacts. Potential sound mitigation measures during construction include:

- Requiring functional mufflers on all equipment; and/or,
- Staggering the noisiest construction activities such that they do not occur simultaneously.

Preliminary sound modeling of potential operational sound levels indicates that sound control measures may be required for the Project. These measures may include silencing of inlets/exhausts, building enclosures, or low noise fans.

The final recommended sound mitigation measures for the Project will be determined following completion of the sound modeling and sound impact assessment. The actual measures implemented, which could differ from those specified during the impact assessment due to changes in plant layout or final equipment vendors, will be determined during final Project design.

In order to assess the potential for community noise impacts, the Project will utilize the New York State Department of Environmental Protection's (NYSDEC) Noise Policy. This program guidance document, entitled "Assessing and Mitigating Noise Impacts" was issued by NYSDEC in October 2000. The guidance discusses various aspects of noise and suggested steps for performing noise assessments (DEC Policy DEP-001). Further, it provides suggestions on evaluating significant increases in noise levels.

The guidance notes that an increase in ambient noise of 10 dBA is perceived by the majority of people to be a doubling of the loudness of a sound. For example, if the ambient sound level is 50 dBA, and is then increased to 60 dBA, most people would perceive the new noise level as twice as loud. The guidance recommends that for non-industrial settings, the SPL (Sound Pressure Level) should probably not exceed ambient noise levels by more than 6 dBA at a given receptor. The addition of any noise source, in a non-industrial setting, should not raise the total future ambient noise level above a maximum of 65 dBA. This would be considered the "upper end" limit since 65 dBA allows for undisturbed speech at a distance of approximately three feet. Noise levels in industrial or commercial areas should not exceed 79 dBA.

The NYSDEC guidance explicitly states that the 6 dBA increase is to be used as a general guideline. There are other factors which should also be considered. For example, in settings with very low ambient sound levels, a greater increase may be acceptable since

sound levels are so low. For purposes of evaluating impacts for the E.F. Barrett Station Repowering – Island Park Energy Center, the NYSDEC guidance of an increase in noise levels of 6 dBA or more over existing ambient Leq noise levels will be considered to be a significant adverse noise impact.

3.4.6. APPLICABLE NOISE ORDINANCES AND REGULATIONS AND ACOUSTIC DESIGN GOAL

There are no State or Federal noise standards that are applicable to the proposed Project. The Town of Hempstead, however, has a numerical noise ordinance that is applicable.

A. TOWN OF HEMPSTEAD NOISE ORDINANCE

The Town of Hempstead has a noise ordinance which is applicable to this Project (Chapter 144 of the Town Code). The standard limits allowable sound levels from a facility by octave band levels. The standard is applicable at the property line of the sound generating use. The standard also has sound limits for sounds which are transient in nature. As the proposed Facility sound emissions will be steady in nature, the Facility must meet the steady sound pressure level limit.

The allowable decibel levels for the Facility for both steady sounds and transient sounds are presented in Table 3.4-3. For reference purposes, the combined octave band center frequencies for the steady sound pressure level limit equate to an overall dBA level of 56 dBA.

Table 3.4-2
Town of Hempstead Noise Standard

Octave Band Center Frequency (Hz)	Steady Sound Pressure Level (dB)	Transient Sound Pressure Level (dB)
63	72	92
125	67	87
250	59	79
500	52	72
1000	46	66
2000	40	60
4000	34	54
8000	32	52

The Town of Hempstead noise ordinance and the aforementioned NYSDEC noise impact criterion will form the basis for determining the acoustic design goal for the repowering of the E.F. Barrett Power Station.

3.5 CULTURAL RESOURCES

3.5.1. INTRODUCTION

The National Historic Preservation Act (NHPA) (Public Law 89-665, as amended by Public Law 96-515; 16 USC 470 et seq.) Section 106 requires that federal agencies with jurisdiction over a proposed federal project take into account the effect of the undertaking on cultural resources listed, or eligible for listing on the NRHP, and afford the State Historic Preservation Offices (SHPOs) and the Advisory Council on Historic Preservation an opportunity to comment with regard to the undertaking.

The New York Historic Preservation Act (NYHPA) of 1980 (Chapter 354 of Parks, Recreation and Historic Preservation Law) established a review process for state agency activities affecting historic or cultural properties, requiring state agencies to consult with the Commissioner of the Office of Parks, Recreation, and Historic Preservation (OPRHP).

The NYHPA requires project sponsors to consult with OPRHP if it appears that a project which is being planned may cause any change, beneficial or adverse, in the quality of any historic, architectural, archeological, or cultural property that is listed on the NRHP or property listed on the State Register of Historic Places (SRHP), or that is determined by the Commissioner to be eligible for listing on NRHP or SRHP. It requires that project sponsors, to the fullest extent practicable, be consistent with other provisions of the law, avoid or mitigate adverse impacts to such properties, fully explore all feasible and prudent alternatives, and give due consideration to feasible and prudent plans that will avoid or mitigate adverse impacts. Identification of cultural resources can consist of two phases: Phase IA Literature Review and Sensitivity Assessment and, if deemed required, Phase IB Archeological Identification Survey.

3.5.2. EXISTING SETTING

A. HISTORIC ARCHITECTURAL RESOURCES/PROPERTIES

A preliminary review of State Register and NRHP files maintained by OPRHP and the National Park Service was conducted. As shown on Table 3.5-1, three NRHP and SRHP historic properties have been previously recorded within a two-mile radius of the study area (see Figure 3.5-1).

While there are no federal- or state-registered historic places on or within one mile of the Project site, there are three listed historic places within the Secondary Study Area, which extends to a two mile radius around the Project site. All three of these properties are near the edge of the two-mile Study Area, meaning they are approximately two miles away from the Project site. These properties include: Granada Towers and the US Post Office in Long Beach located to the south, and the Haviland-Davison Grist Mill to the north.

Table 3.5-1
NRHP and SRHP Eligible and Listed Properties

Site Name	Register Classification	Address
Listed Historic Properties within Primary Study Area (1-mile)		
None		
Listed Historic Properties within Secondary Study Area (2-miles)		
Granada Towers	NRHP, SRHP	310 Riverside Blvd.
Haviland-Davison Grist Mill	NRHP, SRHP	Woods Avenue; Memorial Park
US Post Office--Long Beach	NRHP, SRHP	101 E. Park Ave.

As illustrated by Figure 3.5-1, an additional three historic properties are located just beyond the two-mile Secondary Study Area. Two of these properties listed on both the state and Federal historic registers (Vaisberg Samuel House and Felix, Pauline House); the third property, the 226 West Penn Street House, is only included on the State Register.

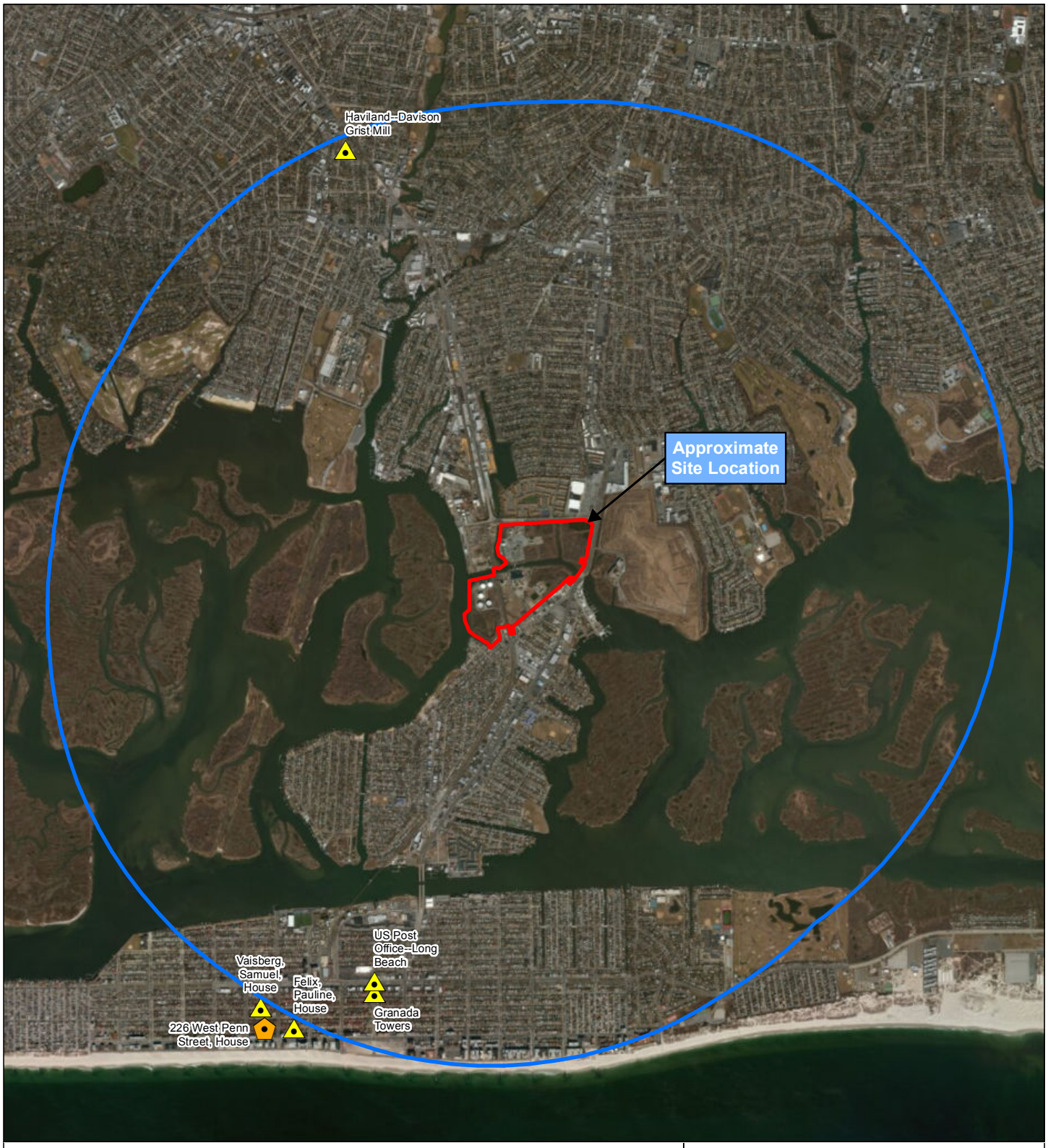
B. ARCHAEOLOGICAL RESOURCES

A review of GIS data available from the OPRHP website indicates that the Project site, as well as the greater surrounding area, is located within an archeologically sensitive area (see Figure 3.5-2). The Archeological Sensitivity Maps for New York State define areas within the state where the discovery of archeological sites is predicted. These areas also contain the locations of all known sites that are included in the OPRHP Archeological Site files and the New York State Museum Archeological Site files. The exact locations are not displayed on the maps since they are protected from disclosure by the National Historic Preservation Act of 1966 and the State Historic Preservation Act of 1980. The site information depicted on the maps reflects known sites protected by randomly placed buffer zones, as indicated in gray on Figure 3.5-2. These defined sites with their buffer zones are used by the OPRHP to provide recommendations to state and federal agencies regarding the need for archeological surveys.

Considering the extent of prior disturbance at the existing electric generating site and the fact that much of the proposed improvements are in areas of the site that have already been developed, it is unlikely that significant historic or prehistoric archeological resources exist on the Project site.

3.5.3. POTENTIALLY SIGNIFICANT ADVERSE IMPACTS

Due to the distance of the nearest registered historic places, it is anticipated that the Project will have no impacts on historic architectural resources in the area. As shown on Figure 3.5-2 and discussed above, the site is located within an archaeological sensitive area. However, due to the extent of prior disturbance at the existing electric generating site and the fact that much of the proposed improvements are in areas of the site that have already been developed, the proposed repowering is not anticipated to adversely affect archaeological resources. As outlined in detail in Section 3.5.4 below, National Grid, in coordination with the OPRHP, anticipates completing a Phase IA literature review to further investigate potential affects to archeological resources.



Approximate Property Boundary

Two-mile Radius

Site Listed on both the National Register of Historic Properties and the New York State Register of Historic Properties

Site Listed on New York State Register of Historic

0 0.25 0.5 Miles

Source Data: National Register of Historic Places, 2013; New York Office of Parks, Recreation & Historic Preservation, 2013.

Base Map: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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HISTORIC RESOURCES MAP

E.F. BARRETT STATION REPOWERING
ISLAND PARK ENERGY CENTER
MCCARTHY ROAD
TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.5-1	MARCH 2014

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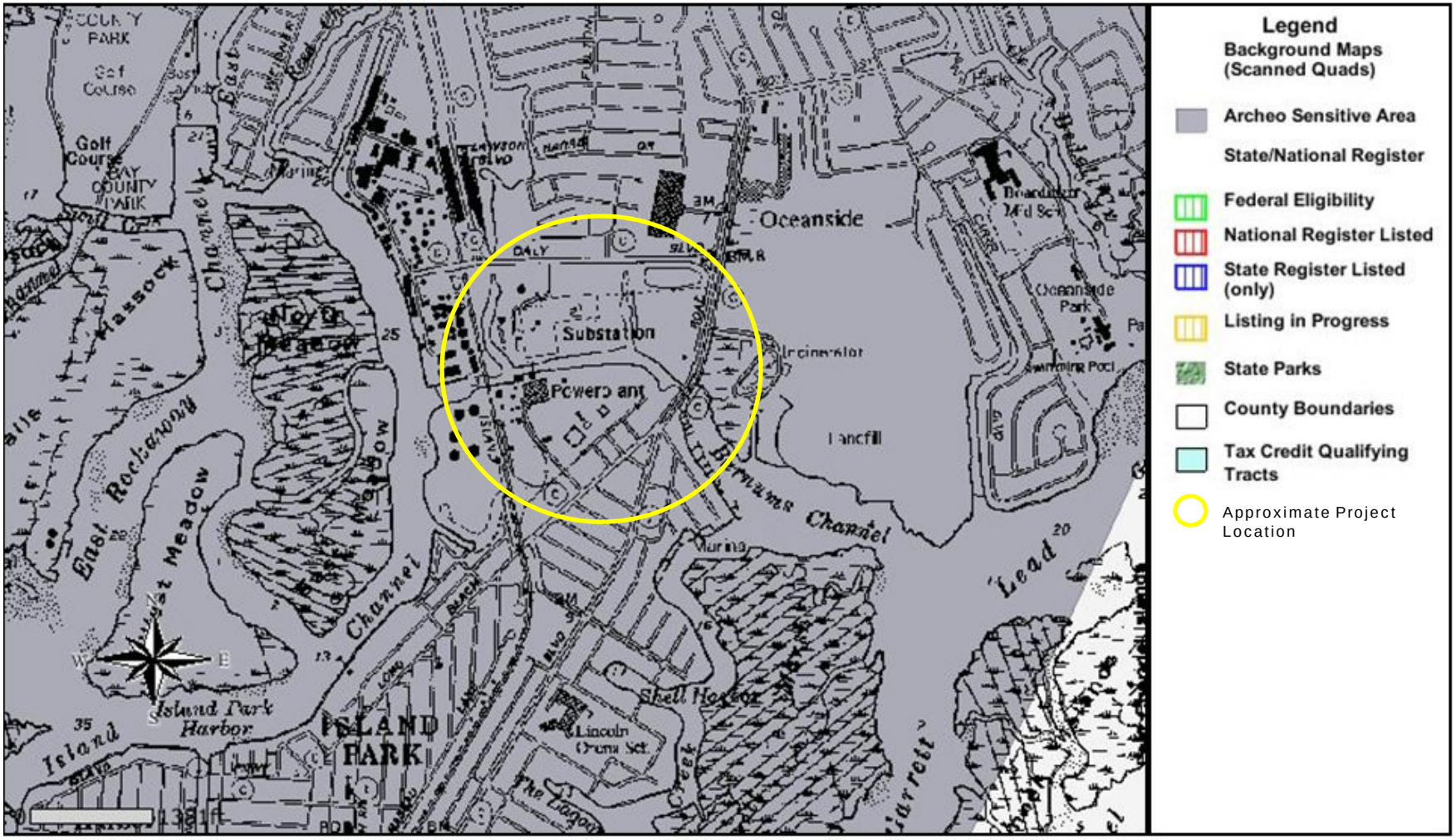
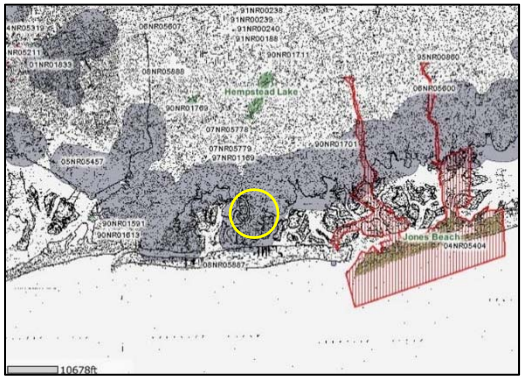


February 21, 2014

Disclaimer: This map was prepared by the New York State Parks, Recreation and Historic Preservation National Register Listing Internet Application. The information was compiled using the most current data available. It is deemed accurate, but is not guaranteed.



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OPRHP ARCHAEOLOGICAL SENSITIVITY MAP

E.F. BARRETT POWER STATION REPOWERING – ISLAND PARK ENERGY CENTER

TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.5-2	MARCH 2014

3.5.4. EXTENT AND QUALITY OF INFORMATION REQUIRED FOR EVALUATION

National Grid initiated consultation with the OPRHP with the submittal of a project review request under letter dated January 24, 2014. As of the date of the filing of this PSS, National Grid has not received a response from the OPRHP.

National Grid, in coordination with the OPRHP, anticipates completing a Phase IA literature review. All proposed reviews will adhere to the New York Archaeological Council's Standards for Cultural Resource Investigations and the Curation of Archaeological Collections (1994), which are endorsed by OPRHP. The proposed studies will cover an area of direct potential effect (APE) that encompasses the Project Site as well as any known laydown areas and other locations where construction activities associated with the Project may result in ground disturbance that has the potential to affect archeological resources. In addition, the APE will include an area of indirect potential effect, which is the area of visual effect on above-ground architectural properties listed or eligible for listing on the NRHP and SRHP. This APE will center around the proposed Energy Center and will be determined in consultation with OPRHP and based on the engineering design of the Project.

A. PHASE IA LITERATURE REVIEW AND SENSITIVITY ASSESSMENT

The Phase IA report will contain the following information:

- Project information including the project size, location, and plans. The Project area will be identified on the most recent USGS quadrangle(s) and, if available, maps of Project plans will be included.
- Environmental information including a description of mapped soils, bedrock geology, physiography and hydrology in the vicinity of the Project area.
- A description of previously reported archeological and historical resources. This information will be obtained during research at the OPRHP and will include:
    - National Register listed and eligible structures and districts within two miles of the Project area;
    - Archaeological sites within two miles of the Project area;
    - Previous archeological surveys which intersect with the Project area; and,
    - Structure inventory forms for properties for which no NRHP eligibility determination has been made or which have been determined to be not eligible.
- Historical maps and an interpretation of potential historic resources within the Project area.
- A general discussion of existing conditions within the Project area including present land use and evidence of prior disturbance.
- An assessment of the archaeological sensitivity and potential of the Project area.

The Phase 1A Survey Report would be submitted to the OPRHP for review, comment, and concurrence for any Phase 1B Survey, if required. Should it be determined through the review of the Phase 1A report that a Phase 1B study is warranted, National Grid will consult with the OPRHP regarding the areas to be surveyed and testing protocols to be used.

3.5.5. AVOIDANCE AND MINIMIZATION MEASURES TO ADVERSE IMPACTS

Because no negative impact is anticipated as a result of the proposed Project, no avoidance or minimization measures are anticipated to be needed with regard to cultural resources.

3.5.6. PROPOSED MEASURES TO MITIGATE UNAVOIDABLE IMPACTS

Because no unavoidable impacts are anticipated as a result of the proposed Project, no mitigation measures are anticipated to be needed with regard to cultural resources.

3.6 GEOLOGY, SEISMOLOGY, AND SOILS

3.6.1. INTRODUCTION

This section addresses the technical aspects of construction relative to the geological conditions at the proposed site including the soil type, depth to bedrock, and seismic potential as documented in existing literature in addition to a discussion of the applicable regulations, mitigation measures to be implemented and required studies.

Existing Conditions

A. SURFACE CONDITIONS

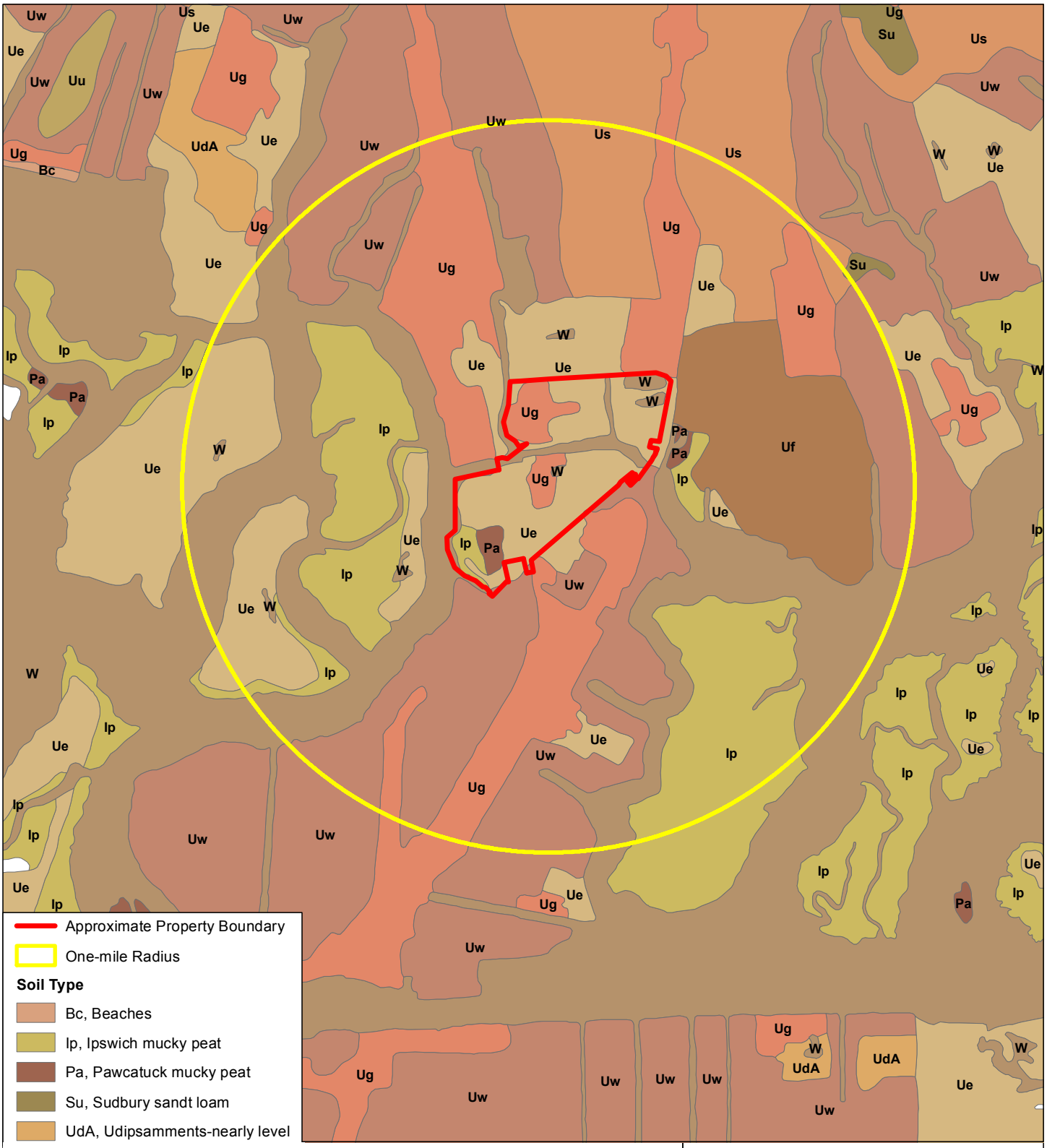
The surficial deposits on Long Island are of glacial origin, deposited approximately 10,000 years ago. During the last ice age, glaciers advanced, then retreated across the Northeast, terminating at Long Island, Block Island, and Cape Cod. As a result, two terminal moraines parallel the northern coastline of Long Island: the Harbor Hill Moraine and the Ronkonkoma Moraine. Surficial deposits consist of glacial till to the north and glacial outwash to the south. Glacial outwash deposits consist primarily of sand and gravel. Along the south shore of Long Island, shallow brackish-water lagoons and barrier islands are the dominant landforms.

Underlying the surficial deposits are coastal plain sediments, which formed nearly 100 million years ago. They include the following formations: Gardiners Clay, Magothy Formation, Raritan Formation (i.e., Raritan Clay), and the Lloyd Formation. Crystalline bedrock is found at varying depths along the south shore of Long Island. The depth to bedrock in Nassau County varies from approximately 400 feet below sea level at the north shore near Kings Point to approximately 1,600 feet below sea level in the southeastern corner near Massapequa, and is approximately 1,400 feet below sea level in the vicinity of the Site. (Ground Water Atlas of the United States, HA 730 M, http://capp.water.usgs.gov/gwa/ch_m/index.html).

As shown in Figure 3.6-1, the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), identifies the site as having two dominant soil types: Urban Land (designated Ug) and Udipsamments, wet substratum (designated Ue). Urban land is defined as soil that has been altered by human activity, such as prior development.

In June 2013, seven test borings were drilled and three Cone Penetration Test (CPT) probes were performed within the site redevelopment area by Craig Test Boring of Mays Landing, New Jersey. The boring depths ranged from 52 to 102 feet bgs and the CPT probes were advanced to depths of 75 and 100 feet bgs in accordance with ASTM D5778.

Continuous split spoon samples were obtained from depths between 7 and 32 feet and at five-foot depth intervals thereafter. Thin-walled Shelby tube samples were taken at selected depths in cohesive strata of interest in accordance with ASTM D1587. Split spoon samples were obtained in general conformance with ASTM D1586, the Standard Penetration Test (SPT). Seismic Piezocone Penetrometer Soundings were performed at each CPT probe location at approximately 3 foot intervals. Boring logs will be presented in the Article 10



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SOILS MAP

E.F. BARRETT STATION REPOWERING
ISLAND PARK ENERGY CENTER
MCCARTHY ROAD
TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.6-1	MARCH 2014

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Application. The surface cover at the site consisted of grassy areas, gravel, and paved roadways. The various strata observed are briefly described below:

Stratum F - Fill: Fill composed of very loose to loose, gray, fine to coarse Sand with some silt and was encountered in each test boring to depths between 8 and 14 feet below the existing ground surface (bgs). The recorded SPT N-values in Stratum F ranged from weight of hammer ("WH") to over 9 blows per foot (bpf).

Stratum O – Organic Silt &Clay: Organic Silt & Clay was encountered below the Fill in all of the test borings except for B-06. This stratum consists of dark brown to dark gray, very soft Silt and Clay with Peat, trace of fine Sand, Organic Root material and shell fragments and it extended to depths ranging from 17 to 23 feet bgs. When encountered, the thickness of this stratum ranged from 4 feet to 15 feet. The recorded SPT N-value for this stratum ranged from weight of hammer (WH) to 5 bpf, indicating a consistency of very soft to medium stiff. The Unified Soil Classification System (USCS) symbols for this stratum are OH, OL, CH and Pt.

Stratum US – Upper Sand: The Upper Sand consists of loose to medium dense SAND with trace to some silt. This stratum was encountered to a depth of approximately 39 feet bgs. The observed blow counts in Upper Sand generally ranged from 7 to 35 bpf with an average of about 20 bpf.

Stratum SS – Silty Sand: The Silty Sand consists of very loose to medium dense, fine to medium grained SAND with Silt and Clay. It was encountered between approximate depths of 39 feet and 54 feet bgs. The thickness of the stratum varied between approximately 8 feet and 15 feet. The recorded SPT N-values in this stratum ranged from 2 to 18 bpf.

Stratum LS – Lower Sand: The Lower Sand was encountered between approximate depths of 48 and 54 feet bgs, and consisted primarily of dense to very dense SAND with trace Silt with SPT N-values ranging from 12 to 87 bpf.

Stratum CS – Clayey Sand & Silt: The Clayey Sand and Silt consists of loose to medium dense, fine to medium grained SAND and Silt with Clay. Stratum CS was encountered between approximate depths of 39 feet to 99 feet bgs. This stratum was not encountered in borings B-06 and B-10. When encountered, the thickness of the stratum varied between approximately 5 feet and 20 feet. The recorded SPT N-values for this stratum ranged from 5 to 16 bpf. The USCS symbols for this stratum are SC and SM.

B. PHASE I SITE ASSESSMENT

In July, 2013, TRC conducted a Phase I Environmental Site Assessment (ESA) of the E.F. Barrett Power Station property to support development of decommissioning plans and specifications in support of the proposed site repowering and the removal of all existing electric generating equipment currently on the site.

The structures identified for decommissioning/demolition included: the Steam Plant (Units 1 and 2) and service building, house boiler, chlorine house, a water tank, hazardous material storage areas, cylinder storage areas, Maintenance Services Division (MSD) trailer, various storage sheds, circulating water systems, and intake and discharge separation bulkhead; the former coal structures including the shake house, coal tower, coal

tunnel and crush house; a wastewater treatment facility and MSD trailer, insulation services group (ISG) trailer, and gas house; a tank farm consisting of five (5) ASTs and associated pump houses; and the structures on the GT site including the General Electric and Pratt & Whitney turbines, the fuel unloading station, the demineralized water tank, the 20,000-gallon waste oil AST, storage sheds, and office trailers. Structures located on the E.F. Barrett Power Station property which are not scheduled for abatement, decommissioning, and/or demolition, include the Long Island Power Authority (LIPA) substation and associated transmission towers and power lines, the 1,000,000-gallon No. 2 fuel oil storage tank located on the GT site, and the communication building, guard shacks and Long Island Rail Road (LIRR) tracks.

The primary objective of the Phase I ESA was to identify recognized environmental conditions (RECs) and environmental concerns that may affect the decommissioning and demolition of portions of the E.F. Barrett Power Station. RECs are defined in ASTM International (ASTM) Standard Practice E 1527-05 as the presence or likely presence, use, or release of hazardous substances or petroleum products. Other environmental issues and conditions that are not RECs may include historical recognized environmental conditions, de minimis conditions, or non-scope considerations. These issues include asbestos-containing materials (ACM), polychlorinated biphenyl- (PCB-) containing light ballasts and window caulk, lead-based paint (LBP), chemical storage, wetlands, mold and moisture intrusion, biological agents, and methane. The Phase I ESA included a review of federal, state, and local records, previous reports, and historical documents; visual observation of the Site and adjoining properties; and interviews with selected Site representatives.

Prior to major site work, a Phase II Environmental Site Investigation (ESI) would be performed to further evaluate identified RECs and any other potential environmental concerns. Prior to demolition activities, an asbestos and regulated materials survey (e.g., lead coatings, PCB-containing materials, mercury-containing equipment, etc.) would be conducted. The results of the Phase II ESI and asbestos and regulated materials survey would be used to prepare plans and specifications for construction, decommissioning and demolition activities. Methods for properly managing demolition and decommissioning waste products will be presented in the Article 10 Application.

3.6.2. SEISMIC POTENTIAL

Long Island is located in the middle of a tectonic plate. Earthquakes at plate boundaries are more frequent than those in the middle of a tectonic plate. However, moderate energy earthquakes are remotely possible in mid-plate regions such as where the proposed site is located.

The 2014 New York State Standard Multi-Hazard Mitigation Plan includes a Seismic Hazard Map for the State of New York, also known as a Percent Peak Ground Acceleration (%PGA) map, which shows the %PGA values for New York State with a 10% chance of being exceeded within 50 years. The %PGA mapping identifies the geographic area affected, the probability of an earthquake of each given level of severity (10% chance in 50 years), and the strength of ground movement (severity) expressed in terms of percent of the acceleration force of gravity (%g) or 32 feet per second squared.

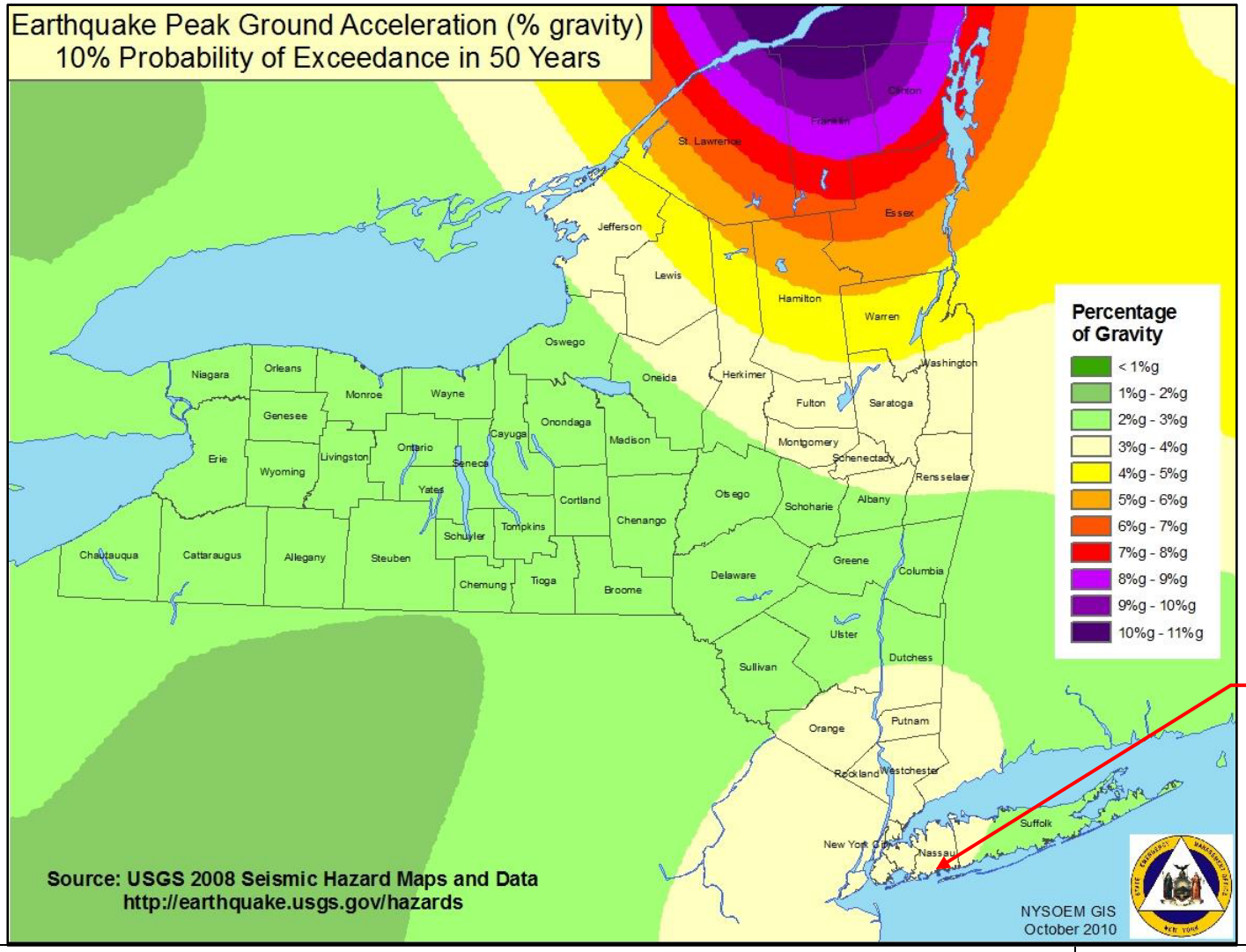
As shown in Figure 3.6-2, the NYS Seismic Hazard Mapping indicates that the site vicinity has a PGA of 3% to 4% g for earthquakes with a 10-percent probability of occurring within 50 years. The 2007 Nassau County Hazard Mitigation Plan states that earthquakes are possible within any of Nassau County's communities, and that Nassau County is located within one of three main regions in New York State that have a seismic risk that tends to be higher than in the rest of the state. For Nassau County and its participating jurisdictions, the earthquake hazard is uniform across Nassau County and its communities. Moderate shaking and very light damage is generally associated with a %3 to %4 g earthquake.

The Building Code of New York State (BCNYS) indicates that every structure is to be designed and constructed to resist the effects of earthquake motions. The seismic site class is a classification assigned to a site based on the types of soils present in the upper 100 feet of soil and rock from the base of a building and their engineering properties. This classification is utilized in the design of structure's foundations. The geotechnical subsurface investigation report prepared by GZA indicated that a 2010 BCNYS Seismic Site Classification of "E" is appropriate for the proposed site. When deep foundations are required on sites consisting predominately of soils, the applicable site class is generally Site Class "E". The GZA site class determination was based on field test results from Standard Penetration Test (SPT) values as well as shear wave velocity data obtained from Seismic Piezocone Penetrometer Soundings, and the properties of the subsurface Organic Silt & Clay stratum (Stratum "O") as determined by laboratory analysis. GZA also evaluated the site soils for susceptibility to liquefaction, based on an evaluation of the SPT data, soil size and moisture content properties, and Cone Penetration Test (CPT) probe data. The evaluation determined that the site soils are not generally susceptible to liquefaction, other than the potential presence of small pockets of liquefiable soils, limited in extent in vertical and horizontal directions, in the soil strata below the Organic Silt & Clay Stratum. The GZA Report indicated that any such isolated pockets of potentially liquefiable soils would not impact the performance of pile foundations for the proposed site structures.

Even though the proposed site is located within an area of higher seismic risk, the seismic design for the proposed facility would be based on the requirements of the International Building Code and the New York State Building Code. Adherence to these requirements would minimize potential risks associated with seismic events.

3.6.3. EXCAVATION AND FILL

A detailed topographic survey has been prepared for the Project site and has been incorporated into the site's design. This topographic information will be included within the preliminary design drawings for the Article 10 application. A description and preliminary calculations of the quantity of fill necessary to construct the site will be included as well, as National Grid intends to elevate the Project site as a means of flood prevention. This will include an analysis of how this fill will be delivered onsite and a preliminary volume of what is required. Soil erosion and sediment control drawings will be developed. Additionally, a description of excavation techniques will be developed.



Earthquake Peak Ground Acceleration (PGA) maps indicate general regions that have a seismic risk that tends to be higher. Those regions include; The North and Northeast third (1/3) of NYS (The North Country/Adirondack Region including a portion of the Greater Albany-Saratoga region), the Southeast corner (including the greater NYC area and western Long Island), and the Northwest corner (including the City of Buffalo and vicinity) of NY State, in that order from higher to lower. A NYS Geological Survey (NYSGS) report entitled "Earthquake Hazard in New York State" supports the indications of the PGA map by identifying and characterizing these regions in NYS as "more active" (seismically).

Source is Figure 3-7a of the 2014 New York State Standard Multi-Hazard Mitigation Plan (State Mitigation Plan) from the NYS Division of Homeland Security and Emergency Services website.

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SEISMIC HAZARD MAP

E.F. BARRETT POWER STATION REPOWERING

ISLAND PARK ENERGY CENTER

TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.6-2	MARCH 2014

The potential for adverse impacts associated with these activities may be avoided by adhering to the following protocols:

- Based on the proposed subsurface disturbance associated with the construction of the new facility, a subsurface (Phase II) investigation for soil would be conducted in order to determine whether soil contamination is present.
- Excavated soil requiring off-site disposal, if any, would be managed in accordance with applicable laws and regulations, and, as necessary, tested in accordance with the requirements of the intended receiving facility. Transportation of all material leaving the site would be in accordance with applicable requirements covering licensing of haulers and trucks, placarding, truck routes, manifesting, etc.
- Areas where contamination, if any, is discovered during excavation activities would be delineated and remediated in accordance with all applicable federal, state and local regulations.
- Any petroleum storage tanks encountered during construction activities would be properly closed and removed in accordance with all applicable regulations. Any associated soil contamination would be remediated as required by the NYSDEC Petroleum Spill Program.
- To minimize the potential for impacts to construction workers, Barrett personnel, and the surrounding community, all excavation and construction work involving soil disturbance would be performed under a Construction Health and Safety Plan (HASP). The HASP would be prepared by the construction contractor, conforming to National Grid's environmental policies, and modified for the specific site conditions. The HASP would outline measures for managing any contaminated on-site soil in accordance with applicable federal, state, and local regulations, including temporary on-site stockpiling and off-site transportation and disposal.

With these measures, construction activities would not result in any significant adverse impacts with regard to soil and hazardous materials.

3.7 TERRESTRIAL ECOLOGY AND WETLANDS

3.7.1. INTRODUCTION

This section describes the existing ecological conditions at the Project site, regulatory agencies contacted, potential impacts, and proposed studies. Existing ecological conditions under evaluation within the Project site are: vegetation, wetlands and wildlife. A brief overview of the Project area is provided below followed by more detailed discussions.

The Project site is approximately 127 acres in size and includes areas of terrestrial uplands, wetlands and open water. The Project area is bounded by Hog Island Channel and Simpson Channel to the west, Daly Boulevard to the north, and Long Beach Road to the east and south (see Figure 1-1). The Project site is bisected east to west by the cooling system discharge canal while the Long Island Railroad has an active line running north and south along the western portion of the site. Most of the Project area has been extensively altered due to prior development activities associated with the existing Barrett Station electric generating facility. Currently, the site consists primarily of developed areas associated with the existing facility, maintained grass and other landscaped areas, and an area of early successional vegetation. In addition, upland areas of woody vegetation and tidal/freshwater wetlands occur adjacent to the existing facility and are generally separated from the existing developed areas by a chainlink fence.

The electrical interconnection to the Long Island Power Authority (LIPA) substation is proposed to be located within the Project area and will span the existing discharge canal in order to connect with the proposed LIPA substation.

TRC wetland scientists identified and delineated the location of wetland resources located within the Project Area in March 2013 while TRC ecologists conducted a site visit during January 2014 in order to provide a general overview of terrestrial ecological resources at the site. Results of these site inspections are briefly discussed in the following sections. Additional field visits will be performed during the growing season in support of the Article 10 application. Based on the existing conditions and the proposed Project, a discussion of potentially significant adverse effects, additional information needs, as well as avoidance, minimization and mitigation measures is presented.

3.7.2. EXISTING CONDITIONS

A. ECOLOGICAL COMMUNITIES

Terrestrial Communities

Several upland plant communities as defined by Edinger et al. (2002) were identified on the Project site during the site reconnaissance conducted by the TRC ecologists. These communities include developed areas (paved and unpaved areas containing little vegetation), mowed lawn, successional old field/shrubland, and successional forested uplands. None of the identified terrestrial communities are considered significant or unusual within New York State. In general, each of the habitats identified on the site including the forested uplands are representative of plant communities that have developed

from an extensively altered environment and which contains a high frequency of non-native, invasive plant species typically associated with previously disturbed sites. Brief descriptions of these cover types are provided below.

Developed Area

This cover type is found throughout the site, typically surrounding the existing electric generating facilities, the wastewater treatment area, the fuel storage areas, and the electric interconnection route. This highly disturbed upland environment contains fill material (either paved with asphalt or unpaved and consisting of gravel/sand/stone) with little to no vegetation present. If any vegetation is present, it generally consists of sparse and non-native herbaceous plant species.

Mowed Lawn

This upland cover type is located between the developed areas of the Project site adjacent to the electric generating facility, the water treatment area, the fuel storage areas, and roadways. Vegetation is maintained at a short height due to periodic mowing and consists primarily of various grasses. This cover type is generally associated with maintained areas adjacent to buildings and roadways and includes some ornamental trees and shrubs that have been planted adjacent to facility structures. London plane (*Platanus x acerifolia*) and small red cedar (*Juniperus virginiana*) trees were observed. This community is demonstrably secure in New York State (S5 rank in Edinger et al., 2002).

Successional Old Field/Shrubland

These early successional plant communities have developed in areas of fill material present on the Project site that have limited maintenance, especially within the southwest and north central portions of the Project site. Due to the extensive disturbance associated with the Project site, several of the shrub and sapling species observed are considered non-native and potentially invasive plant species. Plant species within this community that were observed include various grasses such as little bluestem (*Schizachyrium scoparium*), and other herbaceous species including common mugwort (Artemisia vulgaris), Japanese honeysuckle (*Lonicera japonica*) and goldenrods (*Solidago spp.*). Saplings of black locust (*Robina psuedoacacia*), red cedar and gray birch (*Betula populifolia*), shrubs consisting of autumn olive (*Elaeagnus umbellata*), smooth sumac (*Rhus glabra*) and northern bayberry (*Morella pensylvanica*) and vines comprised of Asiatic bittersweet (*Celastrus orbiculatus*), grape (*Vitis sp.*) and poison ivy (*Toxicodendron radicans*) are also present within this cover type. The successional old field and successional shrubland communities are apparently secure in New York State (S4 rank in Edinger et al., 2002).

Successional Forested Uplands

Patches of successional upland woodlands on the Project site are located south of the existing tank farm as well as in-between the existing steam generators and the wastewater treatment facility. The areas of this community type developed from previously deposited fill material and include some species that are considered as non-native/invasive plant species. Species within this community that were observed include cottonwood (*Populus deltoids*), tree-of-heaven (*Ailanthus altissima*), black locust, gray birch, Russian olive, and

common reed (*Phragmites australis*). Some of the overstory trees are large (generally larger than 12 inches diameter). This community most closely resembles the successional southern hardwoods (with the addition of cottonwood that has become established on the fill material) and is demonstrably secure in New York State (S5 rank in Edinger et al., 2002).

B. WETLAND COMMUNITIES

Several estuarine intertidal and palustrine wetland communities as defined by Edinger et al. (2002) were identified on the Project site during the site inspections conducted by the TRC wetland scientists and ecologists. These include high and low salt marsh as well as freshwater wetlands that have developed on fill material. Brief descriptions of these cover types are provided below.

Low Salt Marsh

This intertidal marsh community occurs in areas located between the mean high tide down to mean sea level and are typically flooded by semidiurnal tides. This estuarine community was observed along the tidal waterways of Hog Island Channel, the cooling system discharge canal and the tributary of Hog Island Channel sometimes referred to as Simpson Channel. Vegetation is dominated by cordgrass (*Spartina alterniflora*). The low salt marsh community has limited acreage but is apparently secure in New York State (S3/S4 rank in Edinger et al., 2002).

High Salt Marsh

This estuarine intertidal community is generally located at slightly higher elevations than the low salt marsh community. It is typically associated with the zone located from the mean high tide up to the spring tide limits where it is periodically inundated by salt water during flood tides and spring tides. This community is limited to a relatively small area within the eastern portion of the Project site in the vicinity of the discharge canal. This community consists of more diverse vegetation than the low salt marsh community and includes predominately saltmeadow grass (*Spartina patens*), black-grass rush (*Juncus gerardii*), glassworts (*Salicornia spp.*) as well as dwarf forms of *Spartina alterniflora*. Common reed will invade the upper reaches of the high salt marsh because of the limited tidal influence of salt or brackish water. The high salt marsh community has limited acreage but is apparently secure in New York State (S3/S4 rank in Edinger et al., 2002).

Common Reed Marsh

This palustrine wetland community is typically associated with extensively disturbed areas including areas where fill material has been placed. This community is generally dominated by common reed or purple loosestrife (*Lythrum salicaria*). At the Project site, several freshwater wetlands dominated by common reed have been identified within the eastern and western portions of the site and are generally present upgradient of identified tidal wetlands. The soils within these wetlands are comprised primarily of Udipsamments (wet substratum) which may be associated with sandy fill material. This community is demonstrably secure in New York State (S5 rank in Edinger et al., 2002).

C. WETLAND RESOURCES

The proposed Project site is located in close proximity to several tidal waters including Hog Island Channel and a tributary to Hog Island Channel (Simpson Channel). The site also contains a cooling system discharge canal, which bisects the station property with the facility's peaking operations and LIPA's existing Barrett Substation located to the north of the canal and the existing steam generating units, wastewater treatment facility and tank farm located to the south. The discharge canal connects to the western end of Barnum's Channel, which begins east of Long Beach Road.

The Project site was investigated for the presence of aquatic habitats and wetlands as defined by the New York State Department of Environmental Conservation (NYSDEC) under both the Freshwater Wetlands and Tidal Wetlands Acts and the U.S. Army Corps of Engineers (ACOE) as "Waters of the United States" and wetlands as defined by the 1987 Corps of Engineers Wetlands Delineation Manual.

NYSDEC Freshwater Wetlands

Per the 1975 Freshwater Wetlands Act, the NYSDEC regulates wetlands that are depicted on NYSDEC freshwater wetland maps as well as those wetlands identified in the field that have a hydrological connection to a mapped freshwater wetland. Areas adjacent to these wetlands within 150 feet are also regulated. Generally, NYSDEC freshwater wetland jurisdiction only extends to wetlands greater than 12.4 acres in extent. No NYSDEC-regulated freshwater wetlands are present on the site or within the vicinity of the site based on the NYSDEC map of the Project site (Figure 3.7-1).

NYSDEC Tidal Wetlands

The 1973 Tidal Wetlands Act regulates all tidally influenced wetlands as well as adjacent uplands potentially up to 300 feet from the boundaries of tidal wetlands. The limits of tidal wetlands are depicted on NYSDEC maps (Figure 3.7-2).

Several tidal wetland resources are present within and adjacent to the Project site. "Coastal Shoals, Bars, and Mudflats", "Intertidal Marsh", "High Marsh", and "Littoral Zone" are identified on the official NYSDEC Tidal Wetlands Map of the Project site. The locations of these tidal wetland resource areas are depicted in Figure 3.7-2. Hog Island Channel, Simpsons Channel, and the cooling system discharge canal are identified as Littoral Zone while areas of Intertidal Marsh and High Marsh are identified along the shorelines of these channels as well as a larger area of Intertidal Marsh in the southwestern portion of the Project site.

The tidal wetland resource areas are defined by the NYSDEC as follows:

> **Coastal Shoals, Bars and Flats:** "The tidal wetland zone, designated SM on an inventory map, that (i) at high tide is covered by water, (ii) at low tide is exposed or is covered by water to a maximum depth of approximately one foot, and (iii) is not vegetated by low marsh *cordgrass, Spartina alterniflora*..."
>
> **Intertidal Marsh:** "The vegetated tidal wetland zone, designated IM on an inventory map, lying generally between average high and low tidal elevation. The

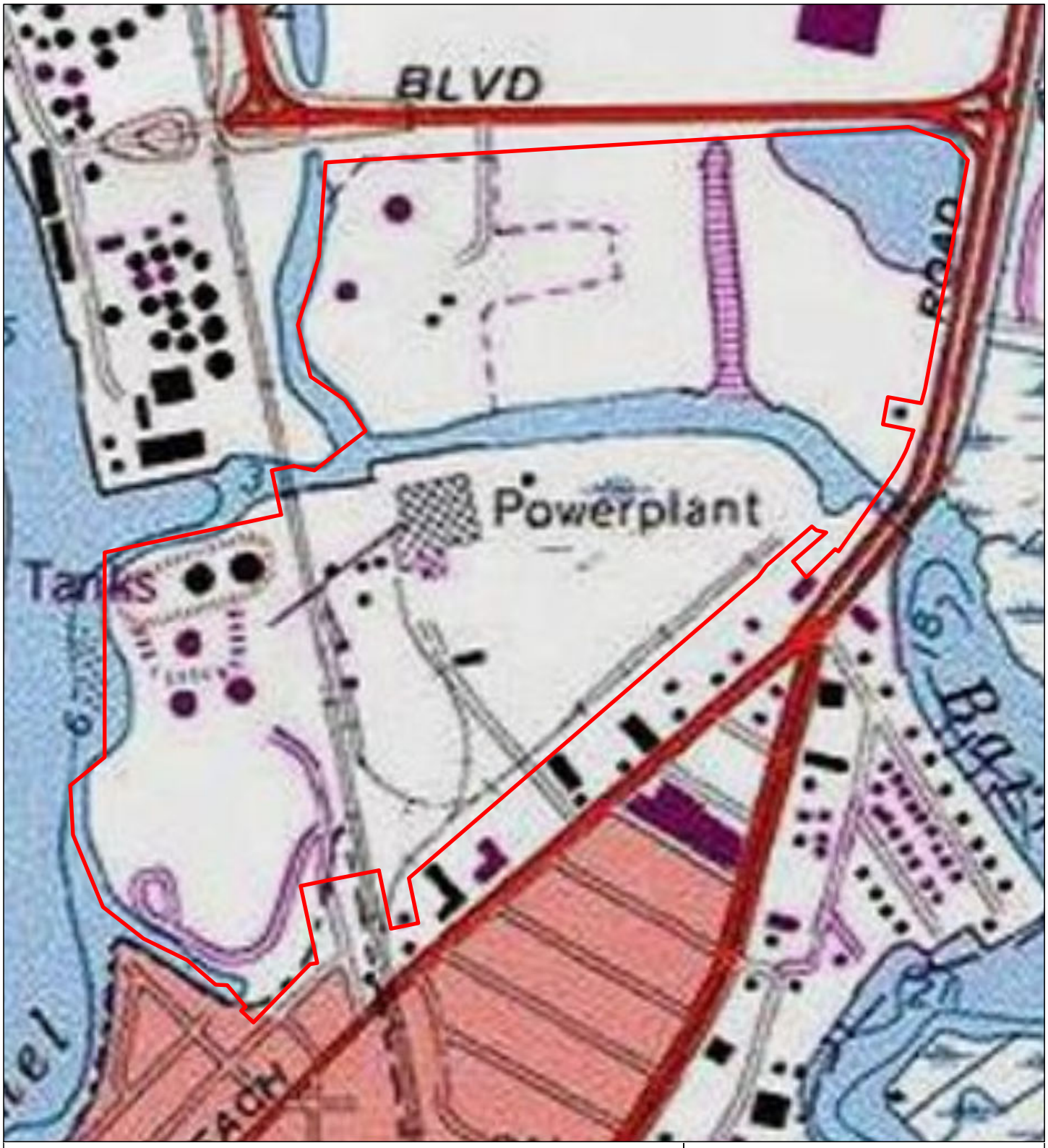
predominant vegetation is this zone is low marsh *cordgrass, Spartina alterniflora*." This area corresponds to the Low Salt Marsh community previously discussed.

High Marsh or Salt Meadow: The normal uppermost tidal wetland zone, designated HM on an inventory map, usually dominated by salt meadow grass, *Spartina patens*; and spike grass, *Distichlis spicata.* This zone is periodically flooded by spring and storm tides and is often vegetated by low vigor, *Spartina alterniflora* and Seaside lavender, *Limonium carolinianum*. Upper limits of this zone often include black grass, *Juncus gerardi*; chairmaker's rush, *Scirpus sp.*; marsh elder, *Iva frutescens*; and groundsel bush, *Baccharis halimifolia*.

Littoral Zone: "The tidal wetlands zone, designated LZ on an inventory map, that includes all lands under tidal waters which are not included in any other category... Provided, there shall be no littoral zone under waters deeper than six feet at mean low water. Pending determination by the commissioner in a particular case, the most recent, as of the effective date of this Part, national ocean survey maps published by the national ocean survey, national oceanic and atmospheric administration shall be rebuttable presumptive evidence of such six foot depth."

In addition to the tidal wetland resource areas identified in the vicinity of the site, the NYSDEC also regulates the buffer area adjacent to these wetland resource areas. This buffer is classified as Adjacent Area and is defined by the NYSDEC as:

Adjacent Area: "...any land immediately adjacent to a tidal wetland within whichever of the following limits is closest to the most landward tidal wetlands boundary, or such most landward tidal wetlands boundary is shown on an inventory map: (i) 300 feet landward of said most landward boundary of a tidal wetland, provided, however, that within the boundaries of the city of New York this distance shall be 150 feet; or (ii) to the seaward edge of the closest lawfully and presently existing (i.e., as of August 20, 1977), functional and substantial man-made structure (including, but not limited to, paved streets and highways, railroads, bulkheads and sea walls, and rip-rap walls) which lies generally parallel to said most landward tidal wetland boundary and which is a minimum of 100 feet in length as measured generally parallel to such most landward boundary, but not including individual buildings; or (iii) to the elevation contour of 10 feet above mean sea level, except when such contour crosses the seaward face of a bluff or cliff, or crosses a hill on which the slope equals or exceeds the natural angle of repose of the soil, then to the topographic crest of such bluff, cliff, or hill."



Approximate Property Boundary

NYSDEC Freshwater Wetlands

NOTE: No NYSDEC Freshwater Wetlands mapped on property.

Source Data: New York Department of Environmental Conservation Regualtory Freshwater Wetlands, 2002.

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NYSDEC FRESHWATER WETLANDS MAP

E.F. BARRETT STATION REPOWERING ISLAND PARK ENERGY CENTER

MCCARTHY ROAD
TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.7-1	MARCH 2014

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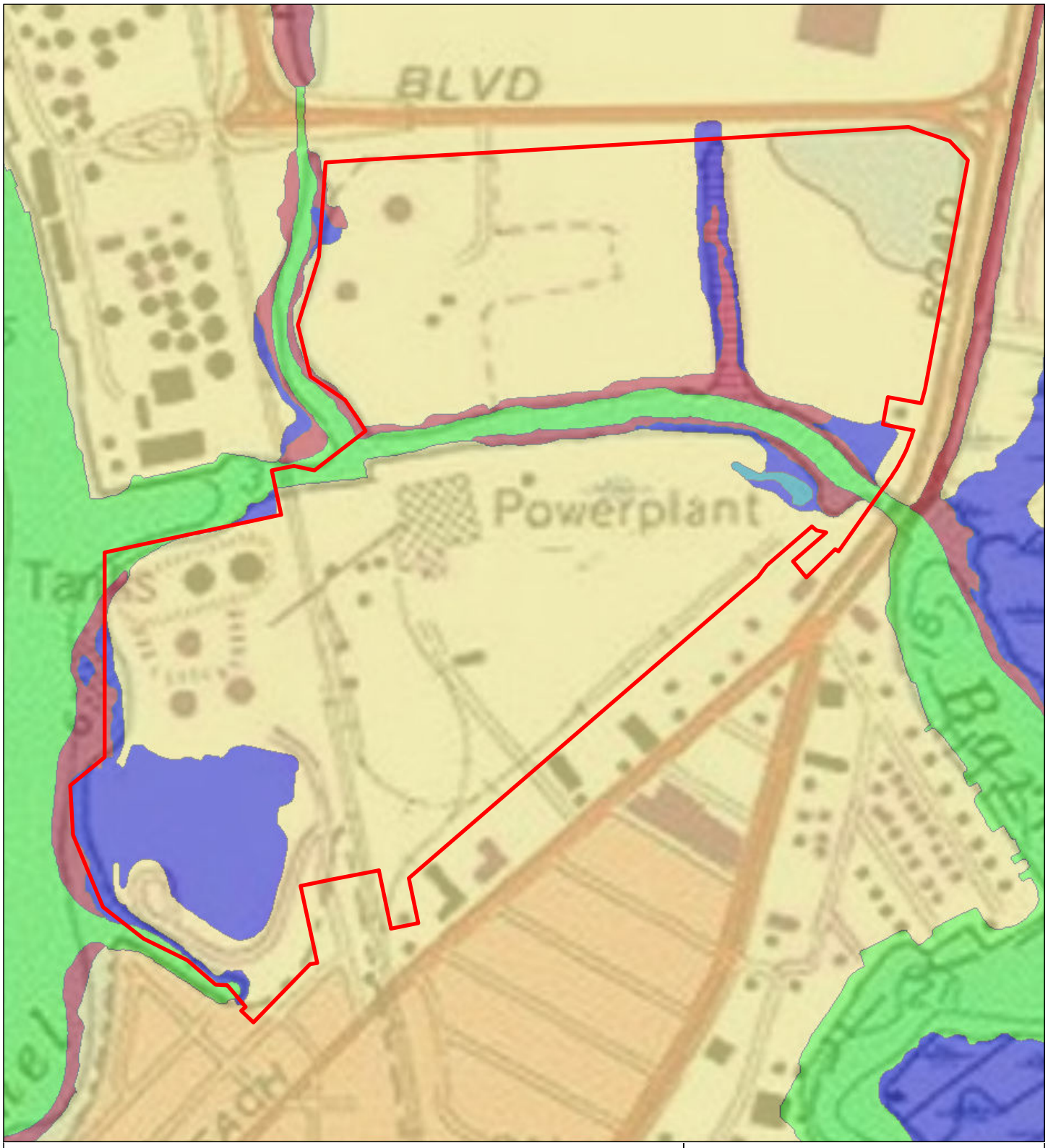

- Approximate Property Boundary
- Coastal Shoals, Bars and Mudflats
- Littoral Zone
- Intertidal Marsh
- High Marsh
- Adjacent Area

Source Data: New York Department of Environmental Conservation Regualtory Tidal Wetlands, 1974.

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NYSDEC TIDAL WETLANDS MAP

E.F. BARRETT STATION REPOWERING
ISLAND PARK ENERGY CENTER
MCCARTHY ROAD
TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.7-2	MARCH 2014

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ACOE Waters and Wetlands

The U.S. Army Corps of Engineers (ACOE) regulates certain work activities proposed within navigable waters under Section 10 of the Rivers and Harbors Act of 1899. In addition, the ACOE regulates the discharge of dredged or fill material into wetlands under Section 404 of the Clean Water Act. The ACOE defines these areas as:

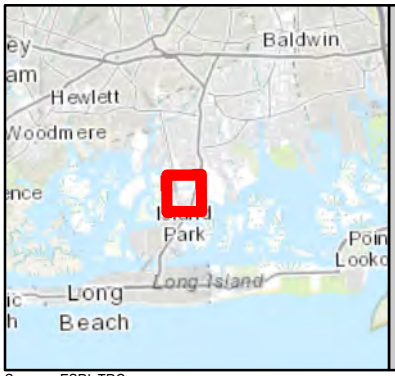
> **Navigable Waters:** "...those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past or may be susceptible to use to transport interstate or foreign commerce."
>
> **Wetlands:** "...areas that are periodically or permanently inundated or saturated by surface or ground water and support vegetation adapted for life in saturated soil. Wetlands include swamps, marshes, bogs, and similar areas...."

Hog Island Channel and its tributary located adjacent to the site are regulated as navigable waters under Section 10 of the Rivers and Harbor Act of 1899. It is also anticipated that the ACOE would regulate the existing station discharge canal as a navigable water.

Wetland boundaries regulated by the ACOE are determined using a three parameter approach described in the 1987 Corps of Engineers Wetlands Delineation Manual for identifying and delineating jurisdictional wetlands. The manual uses three parameters to identify and delineate wetland boundaries: (1) evidence of wetland hydrology, (2) presence of hydric soils, and (3) predominance of hydrophytic vegetation (as defined by the National Plant List Panel).

In March 2013, TRC wetland scientists identified and delineated the extent of ACOE regulated freshwater wetlands present within the Project site. A Wetland Delineation Report is provided in Appendix C. The site inspection concluded that seven freshwater wetlands (as defined by the ACOE) are present on the Project site and the boundaries of these wetlands were subsequently delineated by the TRC wetland scientists. The limits of these delineated freshwater wetlands are depicted on Figure 3.7-3. Each of the seven delineated wetlands is dominated by common reed and also contained other plant species including sensitive fern (*Onoclea sensibilis*), northern bayberry, poison ivy, gray birch, and blackberry (*Rubus allegheniensis*).

Soils within the identified wetlands within the Project site had a Munsell color of 10YR and typically consisted of a gravelly sand texture to an organic mucky based soil. Soil types within the delineated wetlands are primarily Udipsamments (wet substratum) with areas of Urban Land/Udipsamments, Pawcatuck mucky peat, and Ipswich mucky peat also present. Observed hydrology within the identified wetlands included presence of surface water, a high water table, and saturation within the upper 18 inches of the soil surface.



Legend

- Property Boundary
- Freshwater Wetlands
- Tidal Wetlands

N

0 250 500

Feet

nationalgrid

Barrett Power Station

Project Site and Surveyed Wetlands

Island Park, Town of Hempstead, NY

Prepared by: TRC 3/22/2013

Sources: ESRI, TRC

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Figure 3.7-3 TRC Wetland Delineation Map

D. RARE SPECIES AND OTHER WILDLIFE

Federal and State agencies were contacted regarding the potential presence of federal or state listed endangered/threatened species within the Project site and vicinity. In addition, wildlife noted during the January 24, 2014 site visit as well as earlier observations are discussed. Additional site visits will be performed during the growing season in support of the Article 10 application.

State-Listed Endangered and Threatened Species

The NYSDEC Natural Heritage Program (NHP) was contacted in January 2014 regarding the potential presence of state-listed endangered or threatened species previously recorded on the Project site or in the vicinity of the site. A copy of this request is presented in Appendix B. A response was received from NYSDEC NHP in February 2014 concerning state-listed species (Appendix B). The NYSDEC NHP indicated that two state-listed endangered/threatened species may potentially occur at or near the Project site based on their database records. The common tern (*Sterna hirundo*) and retrorse flatsedge (*Cyperus retrorsus var. retrorsus*) were identified as currently present or formerly present at or in the vicinity of the Project area. Each of these species is discussed below.

Common Tern

The breeding populations of the common tern are listed as threatened in New York State indicating that it is likely to become endangered in the foreseeable future. Currently, there are approximately 50 breeding colonies of common terns present on Long Island with scattered inland populations also present (Perkins, 2013a). Habitat for breeding common terns includes coastal beaches or islands where they nest in unvegetated or sparsely vegetated areas although nesting has also been reported in salt marshes on Long Island (Perkins, 2013a). Common terns typically forage within aquatic habitats where they prey on small fish although crustaceans and insects are also consumed.

Retrorse Flatsedge

This state-listed endangered plant species was last documented in the vicinity of the Project site in 1899 to 1909. Retrorse flatsedge is critically imperiled in New York State with fewer than five populations or only a few individuals present. This species has been noted in New York State at sandy coastal habitats including dunes and upper edges of salt marshes where it may be displaced by common reed (Perkins, 2013b). It has also been reported to occur within dry sandy barrens, woodland openings as well as fields and roadsides (Magee and Ahles, 2007).

Federal-Listed Endangered and Threatened Species

The United States Fish and Wildlife Service (USFWS) was contacted in January 2014 regarding the potential presence of federally listed endangered or threatened species previously recorded on the Project site or in the vicinity of the site. A copy of this request is presented in Appendix B. A response has not yet been received from USFWS. However, the USFWS's Information Planning and Conservation System (IPAC) online resource was consulted to determine if any federally listed species are potentially present within the

Project site. As indicated in the IPAC report (provided in Appendix B), sandplain gerardia (*Agaliris acuta*), seabeach amaranth (*Amaranthus pumilius*), piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), roseate tern (*Sterna dougallii dougallii*), and northern long-eared bat (*Myotis septentrionalis*), are potentially present within the Project site vicinity. Each of these species is discussed further below.

Sandplain Gerardia

Sandplain gerardia is endangered both federally and in New York State. There are four known occurrences on Long Island although no sites are located in the vicinity of the Project site. This plant requires disturbed habitat in maritime grasslands that are maintained by fire or grazing; otherwise it can be threatened by natural succession and invasive plant species.

Seabeach Amaranth

Seabeach amaranth is threatened both federally and in New York State. This plant is found on barrier island beaches between the foredune and the wrack line as well as open overwash areas behind the foredune (Ring, 2013). It is typically found on beaches over 60 feet wide that are protected both from foot traffic and vehicles (Ring, 2013).

Piping Plover

This bird is listed as a federally threatened species and an endangered species in New York State. A coastal species that migrates south in the winter months, it nests on open beaches containing little vegetation; typically between the primary dune and high tide line. In the warmer months, piping plovers are commonly found along the south shore of Long Island (NYSDEC 2013). Foraging habitat for the species consists of sandy shores and mud flats where they feed upon worms, insects, and the occasional mollusk or crustacean.

Red Knot

A coastal avian species that migrates north into the arctic tundra in the warmer months and migrates as far south as Argentina in the colder months, the red knot is proposed to be federally listed as a threatened species. Red knots utilize Long Island as a foraging stop-over during migrations. Foraging habitat for the species consists of sandy shores and mud flats, where they feed upon worms, insects, mollusks, and crustaceans.

Roseate Tern

This avian species is listed as endangered both federally (northeast population) and in New York State. Roseate terns typically breed on barrier beaches or rocky or salt marsh islands that are located close to shallow water areas necessary as foraging areas. Foraging habitat for this "plunge-diving" species consists of open water that receives consistent tidal fluctuations, where they feed upon fish and rarely small crustaceans, insects, or squid.

Northern Long-Eared Bat

This species is proposed to be federally listed as a threatened species. This bat inhabits forested areas where they typically roost underneath bark, in cavities or crevices in live or dead trees that are not far from ponds, wetlands, streams, and other aquatic habitats. They

eat a variety of nocturnal flying insects that commonly breed around water, such as caddisflies, other assorted flies as well as moths and beetles. In the colder months the northern long-eared bat return to hibernacula which include caves or mines.

Other Wildlife

Wildlife species that are adaptive of highly disturbed and early successional plant communities will generally predominate within the upland portions of the Project site. Wildlife usage in the disturbed and early successional areas is expected to primarily include ground foraging species as there is little vertical diversity provided by these cover types. Avian species such as rock pigeon (*Columba livia*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and American robin (*Turdus migratorius*) would typically utilize portions of the Project site for breeding and foraging habitat. Mammals inhabiting these communities may include various small mammals such as white-footed mouse (*Peromyscus leucopus*).

The successional hardwood forested areas and adjacent freshwater wetland communities provide potential wildlife habitat for a variety of species. Some nests were observed within the successional woodland communities during the January 2014 site visit. Most of the nests were stick built and could potentially hold an avian species of a moderate size, such as a small heron or egret. No rookeries which are inhabited by colonial nesting birds were noted in the January 2014 site inspection. However, several black-crowned night-herons were observed within one of the freshwater wetlands. Although large portions of the freshwater wetland communities contain a monoculture of the invasive common reed, these communities could provide habitat for a variety of wildlife species, especially when located in close proximity to the successional woodlands found within the Project site.

Aquatic and tidal wetland community types that are present within and adjacent to the Project site may provide more wildlife diversity, particularly as foraging habitat. The tidal wetland communities provide feeding opportunities for a variety of wildlife species (primarily avian species) that depend on tidal fluctuations of the adjacent waterways. As observed during the January 2014 site inspection, high avian diversity was observed foraging within Hog Island Channel and the discharge canal. Due to the warmer water associated with the existing outfall at the discharge canal, an increased density of aquatic fish and invertebrates is likely present which provides preferred foraging habitat for wildlife species that overwinter in the vicinity. Avian species noted during the January 2014 site inspection at the Project site and vicinity are listed in Table 3.7-1.

Table 3.7-1
Observed Bird Species – January 2014 Site Visit

Common Name	Scientific Name
Rock Pigeon	*Columba livia*
Ring-billed Gull	*Larus delawarensis*
Canada Goose	*Branta canadensis*
Greater Black-back Gull	*Larus marinus*
Double-crested Cormorant	*Phalacrocorax auritus*
Mallard	*Anas platyrhynchos*
European Starling	*Sturnus vulgaris*
Great Blue Heron	*Ardea herodias*
Common Merganser	*Mergus merganser*
Brant	*Branta bernicla*
American Black Duck	*Anas rubripes*
Hooded Merganser	*Lophodytes cucullatus*
American Wigeon	*Anas americana*
Lesser Scaup	*Aythya affinis*
Black-crowned Night-heron	*Nycticorax nycticorax*

3.7.3. POTENTIALLY SIGNIFICANT ADVERSE EFFECTS

The potential impacts of the Project on the existing ecological communities, wetlands and rare species and wildlife are each discussed in the following sections.

A. IMPACTS TO TERRESTRIAL ECOLOGICAL COMMUNITIES

The proposed Project will primarily result in impacts to developed areas and early successional habitats. Additional impacts to successional southern hardwood forested areas may occur due to a proposed parking area during the Project construction. However, as the terrestrial upland communities present at the site are representative of vegetation that is generally associated with a previously disturbed site and are demonstrably or apparently secure in New York State, no significant impacts to terrestrial communities are anticipated from the Project.

B. IMPACTS TO WETLANDS

The project has been sited on the existing property to avoid, to the greatest extent practicable, impacts on existing coastal and freshwater wetlands and their adjacent areas and to develop on previously disturbed portions of the site. The following indicates potential impacts to wetlands and the regulatory agencies that National Grid will work with to minimize any potential impacts as feasible.

NYSDEC Regulated Wetlands

The proposed construction of the electrical generation plant and associated facilities will not result in any direct impact to NYSDEC regulated freshwater wetlands as these resource areas are not present in the vicinity of the Project site. Direct impacts to NYSDEC regulated tidal wetlands may result from the Project due to the proposed barge unloading area in the western portion of the Project site. In addition, there will be some disturbance of Adjacent Area. The extent (if any) of disturbance to tidal wetlands and Adjacent Area has not yet been quantified.

ACOE Regulated Wetlands

The proposed construction of the electrical generation plant and associated facilities by National Grid is also not anticipated to result in any significant direct impact to ACOE regulated freshwater or tidal wetlands. The facility has been proposed on areas of the site that have been previously developed and the preliminary site plan drawings have been prepared as to limit wetland impacts by proposing retaining walls as indicated in Figures 2.4-2 and 2.4-5. Indirect impacts to wetlands are also not anticipated provided that appropriate erosion and sedimentation controls are implemented during the construction of the Project.

LIPA has previously planned to upgrade the existing on-site substation and re-enforce a transmission line from the Barrett Substation to its Valley Stream Substation to protect the system from extreme weather events including flooding. LIPA will design and license both projects through Article VII of the NYS Public Service Law. The repowered facility would interconnect with LIPA's 138 kV transmission system through the expanded Barrett Substation. The proposed expansion of the substation by LIPA will likely result in impacts to the existing freshwater wetland (Wetland A6) present to the east of the existing substation. LIPA will evaluate these potential wetland impacts as part of the Article VII licensing.

C. IMPACTS TO RARE SPECIES/WILDLIFE

New York State Listed Endangered/Threatened Species

Habitat for breeding common terns primarily includes coastal beaches or islands where they nest in unvegetated or sparsely vegetated areas although nesting has also been reported in salt marshes. Common terns typically forage within aquatic habitats. During the breeding season, common terns may be adversely affected by human activities which disturb the birds and leaves the chicks vulnerable to predation. The salt marsh habitat present at the Project site may potentially provide nesting habitat for common terns while the open water provided by Hog Island Channel, Simpson Channel and the cooling system discharge canal may potentially provide foraging habitat. It is unknown if the Project may result in indirect impacts to nesting or foraging common terns.

Retrorse flatsedge is unlikely to be impacted as it has not been documented to occur at the Project site in over 100 years. In addition, areas that may potentially provide habitat for this species (upper margins of salt marshes) will not be direct impacted during the

construction of the Project. Therefore, no impacts are likely to result to this species from the Project.

Federal Listed Endangered/Threatened Species

The Project site does not contain suitable habitat for either sandplain gerardia or seabeach amaranth. In addition, both of these species are state-listed and NYSDEC NHP did not indicate either of these plant species is likely to be present in the vicinity of the Project site. Similarly, the piping plover and roseate tern are both state-listed species and NYSDEC NHP did not have a concern that these species are present in the vicinity of the Project site or that these species could potentially be adversely affected by the Project. Habitat for both of these avian species is not present within the Project site. Habitat for the northern long-eared bat is not present within the Project site. Foraging habitat for the migrating red knot could potentially be present within the tidal mud flats associated with the Hog Island Channel and associated tributaries and the cooling system discharge channel. However, no potential impacts to the tidal mud flat shores of the Project site are anticipated, therefore, no impacts are anticipated to this avian species.

Other Wildlife

Wildlife inhabiting areas proposed for development will be displaced during the Project construction and operation. The species of wildlife potentially impacted by the Project is unknown pending further studies, as discussed below.

3.7.4. EXTENT AND QUALITY OF INFORMATION REQUIRED FOR EVALUATION

Additional information pertaining to ecological communities, wetlands and rare species/wildlife are proposed to be collected in order to further evaluate the potential impacts associated with the Project. These additional studies are discussed in the following sections.

A. ECOLOGICAL COMMUNITIES

A vegetative cover type survey will be required to depict the locations of all identified plant communities present on the site. A map visualizing all of the identified communities including wetlands will also be provided to represent the overall dominance of each identified community type within the Project site. In addition, plant species lists will be prepared for each of the ecological communities noted during the survey. This species survey will note, in particular, whether any protected native plant species listed as endangered, threatened, rare, or exploitably vulnerable (6 NYCRR Part 193.3) and also include any NYSDEC NHP rare plant communities that may exist on the proposed Project site.

B. WETLANDS

No additional wetland delineation surveys will be required as the wetland delineation performed by TRC wetland scientists in March 2013 is considered complete. A copy of this report is provided in Appendix C and no further delineation studies regarding wetlands are proposed other than to identify the limits of Adjacent Area which is a NYSDEC regulated tidal wetland resource area. In addition, the limits of permanent and temporary

wetland impacts associated with the Project, if any, will be identified as well as construction activities within Adjacent Area and tidal wetland resource areas.

Descriptions of all proposed impact areas in terms of vegetation, wildlife and other important characteristics will be provided.

C. RARE SPECIES AND OTHER WILDLIFE

The studies to be performed will include an impact assessment of the proposed work activities and facility operations on potentially present state and/or federally listed endangered or threatened species. Based on the information provided in this scoping session, further studies will be conducted regarding Project site use by the common tern. Based on this additional information, potential direct and indirect impacts will be discussed.

In addition, a list of wildlife noted on the site will be developed as part of the future ecological studies proposed for the site. This list will be developed based on direct observations of wildlife and their signs during the proposed field investigations associated with the ecological communities at the Project site.

3.7.5. AVOIDANCE, MINIMIZATION AND MITIGATION MEASURES FOR ADVERSE IMPACTS

Discussions on those measures to be taken to avoid and minimize to the extent possible, potential impacts to important ecological communities, wetlands, rare species and other wildlife will be provided. If adverse impacts are unavoidable, potential mitigation such as wetlands restoration or creation will be presented to offset impacts. Mitigation will be designed, as appropriate, to address the concerns of NYSDEC and other stakeholders/agencies regarding identified impacts to state-listed endangered and threatened species on the site or in the vicinity of the site.

3.8 WATER RESOURCES AND AQUATIC ECOLOGY

3.8.1. INTRODUCTION

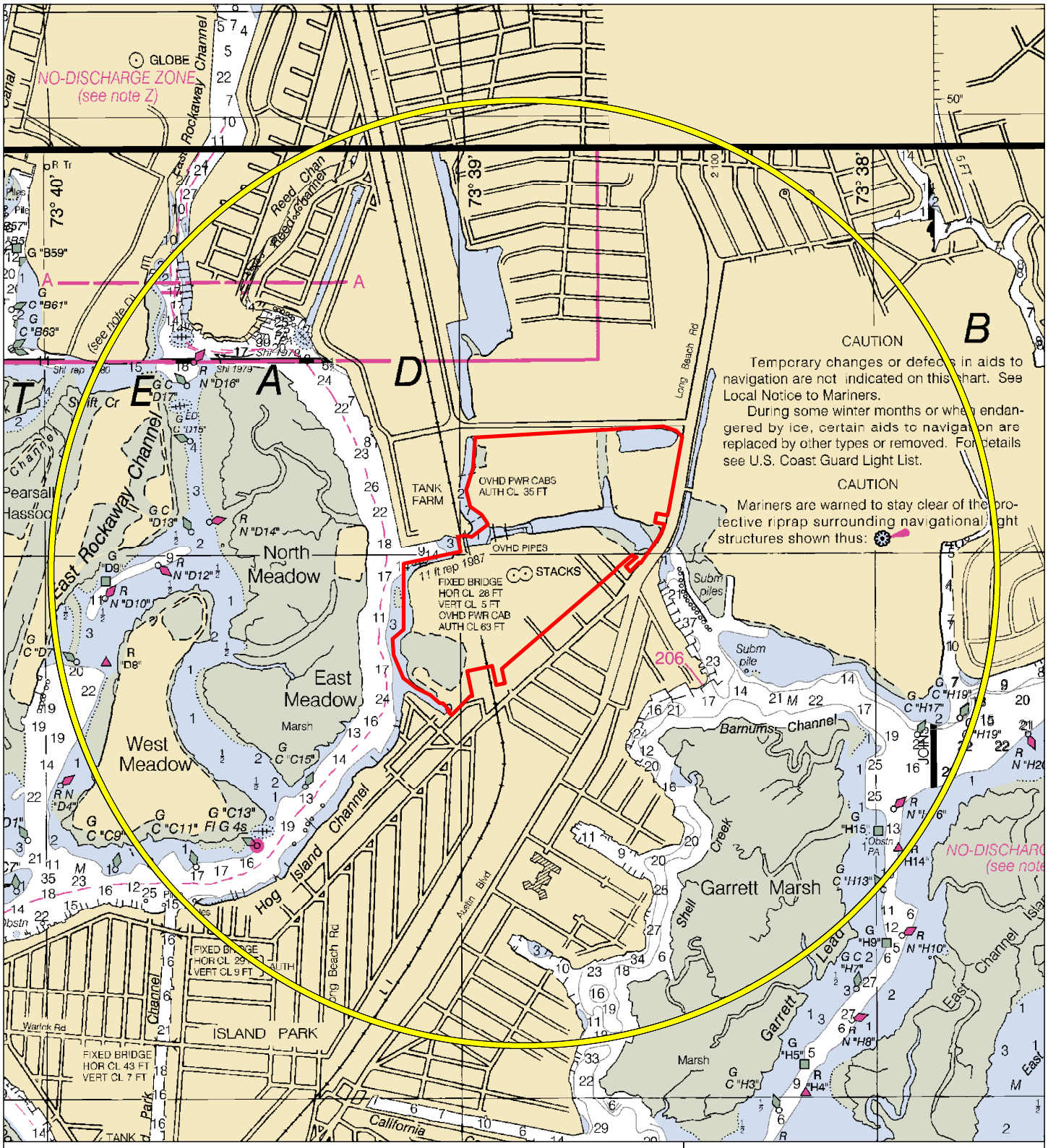
Exhibit 23 of the Article 10 Application will address groundwater and surface water resources in the project vicinity as they relate to the proposed repowering project. It also will address potential impacts and improvements, if any, on aquatic ecology during construction and operation of the proposed project. Water supply interconnections and wastewater discharge interconnections will be addressed in Exhibits 38 and 39, respectively, of the Article 10 Application. This section presents background data and information pertaining to water resources and aquatic ecology and identifies the issues that will be addressed in Exhibits 23, 38 and 39 of the Article 10 Application.

3.8.2. SURFACE WATER RESOURCES

The E.F. Barrett Power Station site area consists of a mixture of urbanized land, wetlands (both tidal and freshwater) and upland area. Additionally, the cooling system discharge canal for the station's existing steam Units 1 and 2 bisects the property. Hog Island Channel and a related tributary are coastal waterways located immediately west of the facility. The station's discharge canal is tidally influenced and connects to the western end of Barnum's Channel, which is located to the east of Long Beach Road within Hempstead Bay (see Figure 3.8-1 NOAA Chart). Hempstead Bay consists of tidally inundated areas including open waters, tidal channels, dredge spoil islands, various backwaters, and extensive tidal marshes. Other water bodies in the site vicinity include Hog Island Channel, which borders the site to the west, and Reynolds Channel, which parallels the northern shoreline of Long Beach. Tides in Hempstead Bay typically range from 2 feet to 6 feet. The Bays open up to the Atlantic Ocean on two ends; East Rockaway Inlet (to the west) and Jones Inlet (to the east).

The site is also located within the boundaries of the South Shore Estuary Reserve. The South Shore Estuary Reserve is comprised of tidal waters and watersheds between the Nassau-Queens county line and the eastern boundary of Shinnecock Bay. Waters within the reserve extend from the mean high tide line on the ocean side of the barrier islands to the inland limits of the mainland watersheds that drain into Hempstead Bay, South Oyster Bay, Great South Bay, Moriches Bay, and Shinnecock Bay. Within Hempstead Bay, the Reserve contains the greatest concentration of salt marsh islands, most of which have been ditched through mosquito control programs. These islands are frequently subject to erosion due to the relatively high tidal range and proximity to heavy commercial and recreational boat traffic. Dredged material islands, over both wetland and shallow water habitats, are also prominent in the Hempstead Bay area.

There are no major freshwater streams, lakes or ponds in the immediate site vicinity. However, undeveloped sections of the site contain both tidal and freshwater wetlands, although portions of these areas also show evidence of prior disturbance.



Approximate Property Boundary

One-mile Radius

0 0.25 0.5 Miles

Base Map: NOAA Navigational Chart, 12352

N

TRC
1200 Wall Street West, 5th Fl.
Lyndhurst, NJ 07071
201-933-5541

NOAA NAVIGATIONAL CHART

E.F. BARRETT STATION REPOWERING
ISLAND PARK ENERGY CENTER
MCCARTHY ROAD
TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.8-1	MARCH 2014

R:\Projects\GIS_2013\197446_NatGrid_Repowering\mxd\Coastal\NOAA_2014_02_07.mxd

3.8.3. SURFACE WATER QUALITY

Barnum's Channel has a water quality classification of SC (saline surface waters). Class SC surface waters must be suitable for fish, shellfish, and wildlife propagation, and survival, and must be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. Hog Island Channel has a water quality classification of SB (saline surface water). These waters have a higher designated best use for primary and secondary contact recreation and fishing.

Nonpoint source pollution presently degrades the quality of ground and surface waters in the South Shore Estuary Reserve. Nonpoint source pollution generally results from stormwater runoff, precipitation, atmospheric deposition, drainage, seepage and modifications to waterways. Urban runoff has been characterized as the most significant source of pollution reaching Hempstead Bay. Specifically, elevated levels of coliform bacteria, responsible for the closure of shellfish beds and some swimming beaches, is the principal pollutant carried by the runoff, but discharges from vessels, excrement from waterfowl, and discharges from municipal wastewater treatment plant outfalls in the western bays are also contributing sources. Nutrients from these same point and nonpoint sources promote the development of algal blooms and seaweed mats. Petroleum products are also documented pollutants at some locations. Thus water quality in the western bays is affected by both nonpoint and point sources of pollution.

Hempstead Bay is listed in the 2012 New York State 303(d) list as impaired and requiring a total maximum daily load (TMDL) for nitrogen. The primary causes for nitrogen impairment are believed to be related to municipal wastewater treatment plant discharges and urban/stormwater runoff. Data from a report on the Western Bays Water Quality Monitoring System suggests that the Bay Park Sewage Treatment Plant contributes to the elevated nitrogen concentrations reported in Hempstead Bay. The report also indicates that the existing E.F. Barrett Power Station is not contributing to the nitrogen impairment.

3.8.4. GROUNDWATER RESOURCES

In 1978, the U.S. EPA identified the aquifer system underlying all of Long Island as the Nassau-Suffolk Aquifer System and characterized it as a sole source aquifer. A sole source aquifer is defined by the U.S. EPA as an aquifer that is the sole or principal drinking water source for the area, which, if contaminated, would create a significant hazard to public health. Water in the Nassau-Suffolk Aquifer System originates as precipitation, which slowly percolates down through the soil. Along the north shore of Long Island the aquifer has a thickness of approximately 600 feet. The deepest section of the aquifer, located along the south shore, has a thickness of approximately 2000 feet. The three primary water bearing formations that comprise the Nassau-Suffolk Aquifer System are:

- Upper Glacial – This is the surficial aquifer in most locations and contains the youngest or newest water in the groundwater system. Virtually all private wells on Long Island draw from the Upper Glacial aquifer.
- Magothy Formation – This is the thickest of the three formations and holds the most water, much of which is hundreds of years old. The Magothy Formation is the source of water for many municipal distribution systems.

- Lloyd – This is the deepest aquifer and contains the oldest water, some of which has been held in the aquifer system for more than 5,000 years. The Lloyd Formation is tapped as a public water supply source along the south shore of Long Island (i.e., primarily along the barrier islands).

The Long Island Ground Water Management Plan (developed pursuant to Section 208 of the Clean Water Act) subdivides Nassau County into groundwater management zones. Deep recharge zones are characterized as areas that contribute water to deep groundwater systems, thus replenishing the quantity and affecting the quality of the sole source aquifer system. The proposed site is located in an area which is not identified as a deep recharge area. In addition, the site is not located within a special groundwater protection area (SPGA) or within the zone of contribution to a public or community water supply well.

Although the proposed site is not located within a deep recharge area or special groundwater protection area, the proposed facility would be designed and operated using both structural and non-structural controls (i.e., Best Management Practices), to properly manage, handle and store oils, such as transformer oil, fuel oil, lubricating oil and waste oil, as well as any chemicals needed for facility construction or operation. The proposed methods for properly managing oil and chemicals on site will be described in the Article 10 Application.

The project site is located south of the regional groundwater divide, in an area where groundwater discharges into Hempstead Bay. Existing plant area elevations range from 6.5 feet to 10.0 feet above mean sea level (NAVD88), and depth to groundwater in the project area typically ranges from 2 feet to 6 feet below grade. Although existing grades within the development area would need to be raised to the final design flood elevation through placement of fill or via raised foundations, limited dewatering is anticipated during construction and decommissioning activities for installation or removal of buried utilities. Limited dewatering also may be required for installation of deep foundations. However, because plant grades would be raised, extensive dewatering requirements are not anticipated. The proposed methods for properly managing groundwater dewatering effluent will be described in the Article 10 Application.

3.8.5. EXISTING OPERATIONS

National Grid's E.F. Barrett Power Station is a natural gas/oil fired steam electric generating facility. The Station's main power block is located south of the cooling system discharge canal. It consists of two (2) steam electric generating units (Units 1 and 2) having a combined generating capacity of approximately 370 MW. Twelve (12) combustion turbine "peaking units" are located on the property north of the discharge canal. Potable and process makeup water for the Station are currently obtained from the New York American Water (NYAW) municipal distribution system. South of the discharge canal, process makeup water is provided through two (2) 8-inch diameter water supply lines equipped with backflow prevention devices. A separate interconnection to the municipal distribution system off Daly Boulevard serves the facility on the northern side of the cooling system discharge canal. Existing process makeup requirements typically range from approximately 75 gpm to 170 gpm, and typically average roughly 125 gpm.

Currently, the Station uses a once-through cooling system, where cooling water is withdrawn from a tributary of Hog Island Channel via two shoreline intake structures. After passing through the Station's condensers, heated water is subsequently returned via a discharge canal into Barnum's Channel located to the east of Long Beach Road. To limit the potential for recirculation to occur, the cooling water intake and discharge structures are separated by a sheet pile wall effectively bisecting the discharge canal.

Each cooling water intake structure (CWIS) is screened by trash racks, a curtain "skimmer" wall, and ¼" x 1" mesh traveling screens. Over the past few years, three of the travelling screens have been upgraded to 'fish friendly' designs. Any fish or debris washed off the traveling screens is returned to Barnum's Channel through the facility's discharge canal. The combined rated capacity of the once through cooling systems is 294 million gallons per day (mgd).

In addition to once-through cooling water, the Station is authorized to discharge both low volume waste streams and site stormwater runoff into the discharge canal and ultimately Barnum's Channel in accordance with the terms and conditions of a State Pollutant Discharge Elimination System (SPDES) permit issued by the NYSDEC (Permit No. NY 0005908). Low volume waste streams include demineralization reject water, traveling screen backwash water and treated effluent from the Station's on-site wastewater treatment facility.

Under the proposed repowering project, average monthly process makeup water requirements would increase modestly, but the need for once-through cooling water would be eliminated, as the proposed project would use an air cooled condenser (ACC) for Station cooling. Consequently, all existing cooling water related aquatic impacts would be eliminated. Overall, the proposed facility would require substantially less water to operate than the existing generation equipment. In addition, the discharge of heated cooling water to Barnum's Channel via the discharge canal also would be eliminated.

3.8.6. PROPOSED WATER USE

As indicated above, potable and process makeup water is currently supplied to the project site and surrounding community by NYAW. NYAW's Lynbrook Operations Division currently operates 162 wells that draw from the aquifer system under southwestern Nassau County. Wells are located in the Upper Glacial, Magothy, Jameco, and Lloyd aquifers. The depth of the wells range from 30 feet to over 1,100 feet, with an average depth of approximately 500 feet. In 2012, NYAW served a population of approximately 220,000 within a 43 square-mile service territory, and delivered approximately 10.1 billion gallons of water.

A schematic water balance diagram for the proposed facilities was previously provided in Figure 2-6.1. The water balance diagram conceptually illustrates the primary water supply and wastewater collection pathways through the facility. The combined cycle facility would minimize both water supply needs and wastewater discharge requirements through use of an ACC for steam system cooling, a fin-fan cooler for auxiliary cooling and internal recycle/reuse of process wastewater, when feasible. Consistent with existing Station water use, the proposed combined cycle facility's water supply demand typically would range

from approximately 50 gallons per minute (gpm) to 135 gpm when firing natural gas as the fuel. For the simple cycle units, the average daily water supply needs would typically range from approximately 230 gpm to 300 gpm when operated under estimated peak summer operating conditions. Water for the simple cycle units is primarily used for emission control purposes (i.e., water injection for NOx control). Maximum day water needs would occur when the facilities are operated using liquid fuel, because additional water is required for emission control purposes. Under these conditions, maximum water use could approach 1300 gpm. However, it is anticipated that use of ULSD as a fuel would typically occur during the winter, if natural gas supplies are needed for other purposes.

As with the existing steam units, water to support the proposed facility would be obtained from the NYAW distribution system. However, the existing 8-inch interconnections would likely be upgraded to larger metered connections. National Grid is working with NYAW representatives to discuss facility water supply needs and to confirm the availability of water in sufficient volumes to meet water supply and facility fire flow requirements. Based on hydrant flow test data, the existing distribution system is capable of meeting the projected water supply needs of the facilities. National Grid will continue to work closely with NYAW to ensure that optimal interconnection locations are determined. A backflow prevention system that conforms to the NYAW backflow cross-connection program would be installed. In addition, on-site demineralized water storage is incorporated into the facility design to dampen day-to-day variations in facility water supply needs.

NYAW routinely monitors its system by testing water quality at both the wellhead and within the distribution system for a wide range of parameters. They include: bacteria, inorganic chemicals such as nitrate, chloride, and lead and volatile organic compounds, including benzene and trichloroethylene. Water quality characteristics from the NYAW distribution system will be summarized in the Article 10 Application.

Based on existing site use, the quality of the water from the NYAW distribution system is adequate for use as process makeup water for the repowered facilities, following pretreatment and demineralization. The proposed water pretreatment facilities and demineralization system will be described in the Article 10 Application. The Article 10 Application will also provide documentation demonstrating that adequate water supply capacity is available to meet the projected water supply needs for the repowered facility.

3.8.7. PROCESS AND SANITARY WASTEWATER

As shown in Figure 2.6-1, the facilities would produce a limited amount of process wastewater consisting of pretreatment system/demineralizer waste streams, evaporative cooler blowdown, combustion turbine wash water, plant maintenance water (i.e., collected in building floor drains), and steam system sample drains. Process waste streams which cannot be reused would be collected for subsequent off site treatment and disposal by a licensed waste hauler (i.e., compressor wash water) or discharged to an outfall in accordance with the terms and conditions of a State Pollutant Discharge Elimination System permit (i.e., RO reject water, evaporative cooler blowdown, etc.).

A SPDES permit modification request will be prepared and included in the Article 10 Application for elimination of the once-through cooling system and for all low volume

process waste streams proposed for discharge to surface waters. The application materials also will demonstrate compliance with categorical effluent limitations, guidelines and standards (ELGs) for the steam electric power generating point source category (40 CFR 423). The Article 10 Application also will demonstrate compliance with applicable local and state standards.

As with the existing Station, sanitary wastewater would be directed to the site's existing sanitary collection system. Based on operating experience, adequate capacity is available to properly manage sanitary wastewater from the Station.

3.8.8. STORMWATER MANAGEMENT

The site's existing drainage system collects and conveys stormwater runoff to outfalls emptying into the cooling system discharge canal. These outfalls are authorized under the site's existing SPDES permit.

Prior to site disturbance, the construction contractor would be responsible for the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would be developed in accordance with requirements contained in the facilities SPDES permit, and submitted for review and approval by the NYSDEC's Regional Water Manager. Copies of the SWPPP also would be provided to local agencies responsible for erosion and sediment control.

The SWPPP would conform to the New York Standards and Specifications for Erosion and Sediment Control. The SWPPP also would address the need for construction dewatering, as well as contingencies for properly managing potentially contaminated groundwater, if encountered.

The construction contractor would be required to design and construct drainage facilities in a manner that minimizes erosion, and coordinate temporary and permanent control features to assure effective and continuous erosion and sedimentation control throughout construction and post construction periods. Specifically, the erosion and sedimentation control plan would be prepared to address the following requirements:

- Implement best management practices (BMPs) that are designed to minimize soil erosion and sediment transport during construction. Design appropriate erosion and sediment controls for slopes, catch basins, culverts, drainage channels, and other areas prone to erosion.
- Design and implement BMPs to prevent or control potential pollutants associated with facility operation from entering the stormwater collection network.
- Perform refueling and maintenance of mobile construction equipment only in designated lined and/or bermed areas located away from drainage channels.
- Prepare and implement spill contingency plans in areas where they are appropriate.
- Collect and route post construction stormwater to on-site treatment systems sized to effectively manage the NYSDEC's water quality design storm.

Post-construction stormwater management practices would be designed in accordance with the New York State Stormwater Management Design Manual (SMDM). Infrastructure for

the post construction stormwater management system would be in compliance with the following state and local requirements:

- Permitting in compliance with the Station's SPDES permit (Permit No. NY 0005908)
- Nassau County Stormwater Management Program
- Town of Hempstead Stormwater Management and Erosion Control requirements

3.8.9. CHEMICAL AND PETROLEUM BULK STORAGE

The existing facility maintains both chemical and petroleum bulk storage tanks, which include No. 6 fuel oil tanks, station transformers, lubricating oil tanks and waste oil tanks. The federal SPCC rule provides requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires covered facilities to prepare, amend, and implement SPCC Plans. Accordingly, the Station has developed and implemented a Spill Prevention Control and Countermeasures Plan (SPCC Plan) as well as a Facility Response Plan (FRP). In addition, existing tanks are properly registered with Nassau County and the NYSDEC. In addition, existing Station is currently permitted as a Major Oil Storage Facility (MOSF) by the NYSDEC.

ECL 17-1009 requires owners to register petroleum bulk storage (PBS) facilities with the NYSDEC. The regulatory requirements governing the registration of PBS facilities are contained in 6 NYCRR §612.2. Under this program, information regarding the tank(s), location, type, installation date, product(s) stored, type of internal and external corrosion protection, type of secondary containment, type of leak detection, and type of overfill protection must be provided to the NYSDEC. The owner must also provide similar information with respect to piping. In addition to the registration obligation, a new facility also must comply with the requirements of Part 614 ("Standards for New and Substantially Modified Petroleum Storage Facilities").

ECL Article 40 establishes a program to regulate the storage and handling of hazardous substances, which are contained in 6 NYCRR Parts 595-599. The regulatory requirements governing the registration of chemical bulk storage (CBS) facilities are contained in 6 NYCRR §596.2. Registration requirements are similar to those of PBS facilities, outlined above. In addition to the registration obligation, a facility also must comply with the requirements of Part 598 ("Handling and Storage of Hazardous Substances") and Part 599 ("Standards for New and Substantially Modified Hazardous Substance Storage Facilities").

National Grid will comply with local state and federal registration requirements and modify, as necessary, existing spill prevention, control and countermeasure plan(s) for the new equipment. Key elements of the plans will be presented in the Article 10 Application. Summaries of typical chemical usage, quantity and storage methods needed during construction and operation of the facilities also will be provided in the Article 10 Application.

3.8.10. AQUATIC SPECIES AND INVASIVE SPECIES

Finfish common in the site vicinity include striped bass, bluefish, winter flounder, bay anchovy, Atlantic menhaden, tautog, gobies, scup, and pipefish. Shellfish in the site vicinity include American lobster and blue crabs. Hard clams, soft clams, ribbed mussels, and blue crabs are some of the common invertebrates. There is little submerged aquatic vegetation in the immediate site vicinity, but eelgrass does occur.

Under the proposed repowering project, the existing once-through cooling system would be replaced by an ACC. Similarly, the existing discharge of heated cooling water to Barnum's Channel via the discharge canal would be eliminated. As such, existing cooling water related aquatic organism impacts would be eliminated. Potential construction related impacts to aquatic species are expected to be minimal.

3.8.11. WORK IN NAVIGABLE WATERS

Limited dredging or other work in navigable waters may be required to support the delivery of new equipment or materials to the site or for the removal of demolition debris during decommissioning of existing Station equipment and facilities. This may also include refurbishment of existing docking facilities along Hog Island Channel currently used for fuel offloading. All proposed work in navigable waters will be described in the Article 10 Application. Since these work activities would be limited in duration, significant adverse impacts are not anticipated.

3.9 VISUAL RESOURCES

3.9.1. INTRODUCTION

This section provides a brief description of the existing land uses contributing to visual patterns of a two-mile study area, in addition to studies and GIS/3D methodologies for evaluating potential adverse visual impacts resulting from the proposed vertical footprint of the project.

3.9.2. EXISTING CONDITIONS

The proposed Project site is located on an existing National Grid electric generating station with lots currently zoned as Industrial. As such, the project will be consistent with development and visual patterns that currently exist in the area.

The two-mile study area includes a number of villages and hamlets within the Town of Hempstead. Areas immediately to the west and east of the project site are dominated by the marshlands and the waters of Hempstead Bay and Middle Bay, respectively.

The Long Island Rail Road (LIRR) Long Beach branch runs north-south through the study area and the project site. Major roads in the area include Atlantic Avenue running west-east, and Long Beach Road and Lawson Boulevard running largely north-south.

Predominant land uses contributing to the visual setting in the immediate vicinity of the project site are industrial and low-rise residential with commercial corridors along major roadways. The City of Long Beach, located on a barrier island to the south, is a largely residential beach-front community.

Industrial uses are the most prominent use within a half-mile from the project site, including the Town of Hempstead waster transfer station (a former landfill) to the northeast, and Stony Creek Industries and Liotta Bros. Recycling Corporation to the northwest. Residential uses can be found to the north, east, and south of the facility, including the Oceanside Cove gated complex directly north of the site across Daly Boulevard, multiple residences adjacent to the site to the southwest which are in the Incorporated Village of Island Park, and single- and multi-family dwellings mixed with commercial uses found south and east of Long Beach Rd. Multiple commercial properties can be found along Long Beach Road to the southeast of the facility. The Oceanside Shopping Center is a commercial use area located northeast of the Project site across Daly Road at the intersection with Long Beach Road.

There are several recreational resources, and thus areas of public access with potential visibility of the project that are both water and land based. Recreational lands and facilities are noted and mapped in Section 3.12.

There are no federal or state-registered historic places that will be visually impacted within one mile of the Project. There are three listed National Register Historic Places between one and two miles of the site and are generally located toward the outer extent of the two-mile study area. Historic sites are noted and mapped in Section 3.5.

3.9.3. POTENTIALLY SIGNIFICANT ADVERSE IMPACTS

The proposed Project site will be located on property previously used for energy production and the generation of electric power, and therefore the project can be viewed as a continuation of the past land use of this area. Stack heights for existing east and west stacks are 350 feet and 250 feet above grade, respectively. Stacks associated with existing peaking units are also located north of the cooling system discharge canal. Proposed new infrastructure includes 8 exhaust stacks; 2 belonging to the combined-cycle facility and six belonging to six simple cycle units. Proposed stack heights are anticipated to be lower than the existing stacks. The station's existing exhaust stacks as well as the boiler buildings and other existing structures on the site will be demolished as per the development schedule outlined in Chapter 1.0 of this PSS. However, the introduction of new vertical elements and structures associated with the new power equipment will change the horizon line.

3.9.4. EXTENT AND QUALITY OF INFORMATION REQUIRED FOR EVALUATION

To assess potential visual impacts from the project, a Visual Impact Assessment will be performed to determine the extent and assess the significance of project visibility. The components of the VIA will include identification of visually sensitive resources, confirmatory visual assessment fieldwork, visual simulations (photographic overlays), and proposed visual impact mitigation. The methodologies, standards and definitions for assessing visual resources of state concern will follow procedures outlined in the NYSDEC Program Policy, NYSDEC, Assessing and Mitigating Visual Impacts, DEP-00-2, 7/31/2000 (Visual Policy).

The VIA will address the following issues:

- A description of visual resources listed in the NYSDEC Visual Resources Policy that would be impacted by the project. Locally significant resources will be addressed as well;
- The character and visual quality of the existing landscape;
- Visibility of the project including visibility of operational characteristics;
- Appearance of the project upon completion, including building/structure size, architectural design, facade and roofing colors and texture;
- Exterior lighting and similar features;
- Representative views (photographic simulations);
- Nature and degree of visual change resulting from construction of the project and on-site, aboveground interconnections; and,
- Proposed mitigation and mitigation alternatives based on an assessment of mitigation strategies listed in NYSDEC's program policy noted above, including landscaping, architectural design, visual offsets, relocation or rearranging facility components, reduction of project component profiles, project color and design, cooling system alternatives, lighting options for work areas and safety requirements, and lighting or marking options for the stacks, if required by the Federal Aviation Administration (FAA).

The VIA will be based on the major physical features of the plant (i.e., turbine structures/building and stack). Since visibility alone does not constitute an adverse visual or aesthetic impact, the assessment will rely on the results of a field investigation. The VIA will be conducted as follows:

- A visual resources inventory as outlined in the NYSDEC's policy will be performed for a 2-mile radius of the proposed project site using available GIS data other published sources and online websites. Sensitive viewing areas and locations of viewer groups will include (but is not limited to) such areas as golf courses, state parks, residences, businesses, historic sites, and travelers (major corridors and local roadway users).
- Identified visually sensitive resources will be evaluated in the field to assess the relative importance of views that may include the proposed plant. The field investigations will make note of viewer context, existing landscape quality, and the extent of potential project visibility (i.e., partial or full view). Photographs will be taken to document existing views toward the proposed project for use in developing photosimulations of the proposed facility.
- Photographic simulations (photographic overlays) of the project will be prepared from representative viewpoints, selected as part of the field investigation evaluation described above, to demonstrate the post-construction appearance of the project. The photographic overlays from each of the viewpoints selected will be limited to the project, as it would appear under typical operating conditions.
- Each set of existing and simulated views of the project will be compared and the change, if any, in visual character will be identified. Based upon the likely viewers, and their likely visual sensitivity, the potential impact will be discussed.
- The VIA will include a discussion of the project's conformance with applicable guidance and requirements.

3.9.5. AVOIDANCE AND MINIMIZATION MEASURES TO ADVERSE IMPACTS

The proposed re-powering was chosen with the intention of limiting or avoiding potential overall adverse impacts to the area. The potential for cumulative visual impacts as a result from choosing a location other than the existing site has been greatly reduced, as the current site has been utilized for electricity production in the past.

The Article 10 application will provide a description of design elements and any proposed mitigation measures.

3.9.6. PROPOSED MEASURES TO MITIGATE UNAVOIDABLE IMPACTS

Unavoidable visual impacts will occur due to heights of facility components such as exhaust stacks, air-cooled condensers, and large building profiles. Concerted efforts will be made during the project design effort to minimize the visibility of proposed generating facilities including, minimizing the facility's profile and size, to the maximum extent practicable and in consideration of engineering constraints to ensure safe and efficient operation of the proposed facilities. This is typically determined by air quality analysis. The facility's stack is the most visually prominent feature, and a primary way of

minimizing stack height is to limit the height of nearby controlling structures that determine the stack height in accordance with Good Engineering Practice (GEP) guidelines.

3.10 TRAFFIC AND TRANSPORTATION

3.10.1. INTRODUCTION

This section provides a preliminary identification of existing traffic and transportation related conditions at the Project site and surrounding areas. A summary of available traffic data has been provided, along with an analysis of the existing roadway network that is utilized to access the site. Potential impacts on traffic and transportation have been provided, both during construction and operation of the facility. Additionally, avoidance measures and potential mitigation measures, if necessary, have been outlined. Finally, a summary of the extent and quality of the information required to address the requirements of Exhibit 25: Effect on Transportation of the Article 10 application has been prepared.

3.10.2. EXISTING CONDITIONS

The site consists of approximately 127 acres in the Town of Hempstead and is located at McCarthy Road. McCarthy Road, which intersects Long Beach Road, serves as the main entrance and contains a guard booth. The site currently has a dock facility located on Hog Island Channel that allows barges to unload fuel oil to an on-site fuel tank farm. The Long Island Rail Road (LIRR) tracks transect the western portion of the site, east of the tank farm.

The local roadway network in the vicinity of Barrett Station is illustrated in Figure 3.10-1. The entrance to the site is located on McCarthy Road, just off of Long Beach Road. McCarthy Road consists of one lane per direction. The intersection of McCarthy Road and Long Beach Road is unsignalized, with McCarthy Road being the minor approach into the existing site. Long Beach Road consists of 1-2 lanes per direction, with some turning lanes, in the vicinity of the site. North of its split with Austin Boulevard, Long Beach Road consists of three lanes per direction.

There are other uses in the area that generate truck traffic, including a concrete recycling and material storage facility (Stony Creek Facility) located to the north of the site as well as the Oceanside Transfer Facility and the Town of Hempstead Department of Sanitation. There are also residential uses including Oceanside Cove and commercial space in the area.

TRC reviewed traffic volume data provided by the New York State Department of Transportation and Nassau County as well as performed observations of the traffic operating conditions. While there are the standard Peak AM and PM commuting periods of approximately 7:00 AM to 9:00 AM and 4:00 PM to 7:00 PM, respectively, there are relatively consistent traffic volumes throughout the day on some of the roads such as Long Beach Road.

The following Table summarized the Annual Average Daily Traffic (AADT) for various sections along Long Beach Road as well as for some of the other key roadways in the area:

Table 3.10-1
Traffic Volumes
Annual Average Daily Traffic (AADT)

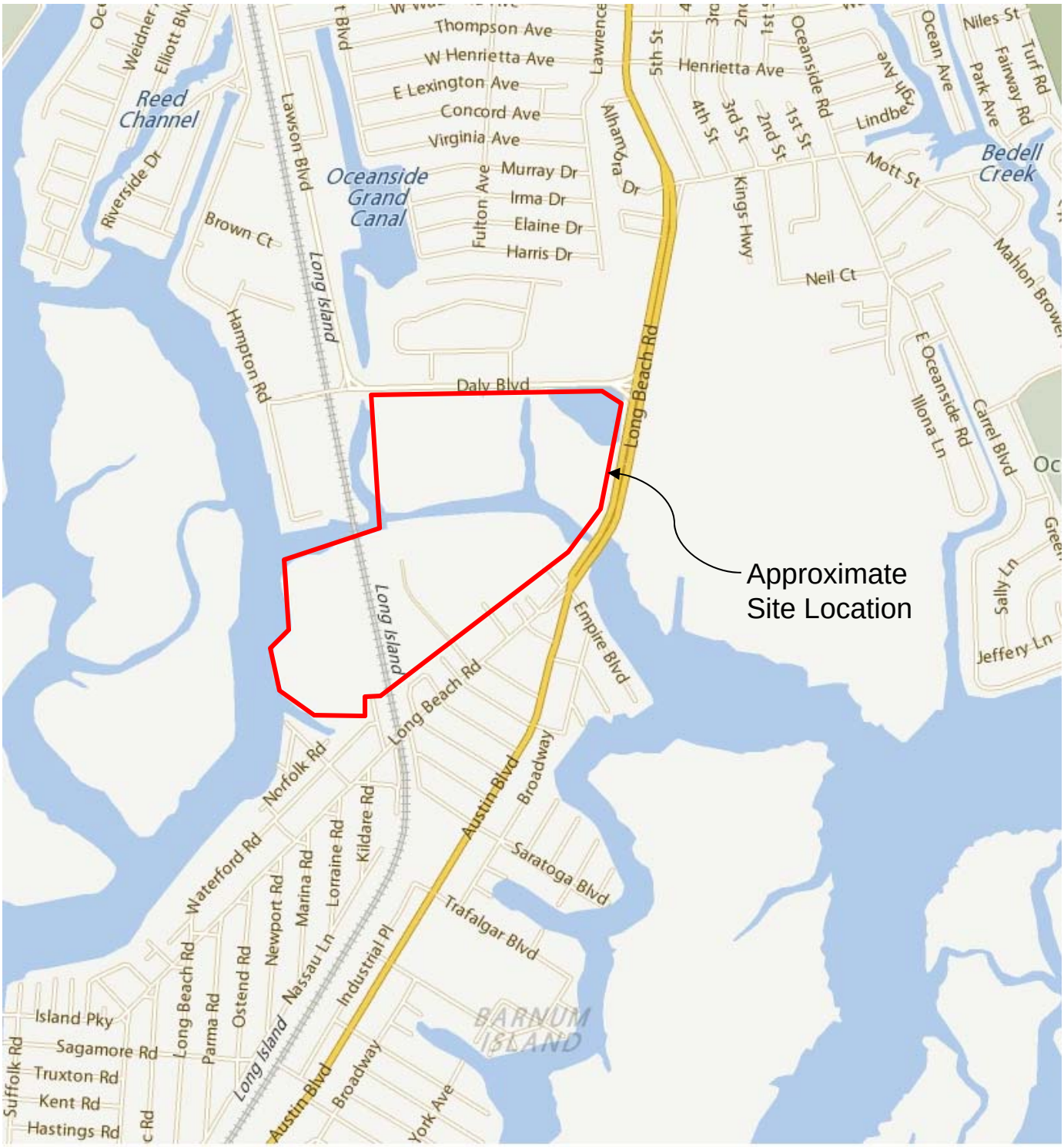
Roadway	AADT (Vehicles per Day)
Long Beach Road:	
North of McCarthy Road	11,778
North of Daly Boulevard	40,046
North of Mott Street	33,237
North of Atlantic Avenue	32,815
North of Lincoln Avenue	16,767
North of Merrick Road	14,475
Other Roadways:	
Lawson Blvd.	26,591
Mott Street	17,923
Oceanside Road	12,313
Atlantic Avenue	15,327
Lincoln Avenue	18,346
Merrick Road	25,488
Sunrise Highway	46,349
Source: NYSDOT	

As illustrated in the above Table, a portion of Long Beach Road is a heavily-travelled road, as is Sunrise Highway. Long Beach Road in the vicinity of the site is not that busy. Many of the other roads in the area are also relatively heavily travelled.

Field observations of the roadway network, potential truck routes, and traffic operating conditions in the vicinity of the site have been performed. Traffic generally flows sufficiently, but there are some delays experienced at some of the signalized locations, especially during the peak roadway hours.

There are different ways to get to the site and the actual routes for trucks will be dependent upon where the trucks are coming from. Since trucks are not permitted on the Parkways, the trucks will most likely utilize Sunrise Highway. There are different options that could be utilized to get from Sunrise Highway to reach Long Beach Road. Some of these, such as Lawson Boulevard and Daly Boulevard, already have truck traffic.

The main roadways can all support trucks. However, there are some limitations as described below and there are sensitive land uses along them. The majority of the roadways have two lanes per direction and many have turn lanes at major intersections. Long Beach Road generally has multiple lanes and turn lanes with some intersections signalized. In the vicinity of Sunrise Highway, Long Beach Road narrows to one lane per direction, but is still wide enough to handle trucks. Long Beach Road also narrows near the site, but still can handle trucks in this area. Some of the side streets along Long Beach Road have truck limitations such as "No Trucks Over 30 Feet". The pavement along Long Beach Avenue varies between concrete and asphalt. The asphalt pavement is in generally good shape, while the concrete pavement is in decent shape in some areas, but old and cracking in other areas.



Source: Rand McNally

TRC
1200 Wall Street West, 5th Fl.
Lyndhurst, NJ 07071
201-933-5541

ROAD MAP
E.F. BARRETT STATION REPOWERING
ISLAND PARK ENERGY CENTER

TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.10-1	MARCH 2014

The intersection of Long Beach Road with Austin Boulevard and Empire Boulevard is a signalized intersection, but is non-standard due to the approach angles of some of the roadways. The intersection of Long Beach Road and Daly Boulevard is also signalized, with double left turns on northbound Long Beach Road and double right-turn lanes on Daly Boulevard. There are various other traffic signals along Long Beach Road. Trucks utilize Long Beach Road and the lane widths are sufficient to support them. The speed limit on Long Beach Road varies between 30 and 40 mph. The majority of uses along Long Beach Road are commercial, with various uses of the type that would provide services to customers utilizing trucks. Tractor trailers were observed on Long Beach Road. However, there are also residential uses in the vicinity of Long Beach Road.

There is a bridge along Long Beach Road that is posted for a maximum of 20 tons which could affect the size of truck deliveries. The bridge goes over Barnum Island Creek, just north of the intersection of Long Beach Road and Austin Boulevard/Empire Boulevard. Fully loaded 12 cubic yard trucks could weigh 50,000 pounds (25 tons) and thus would exceed the posted weight limit. All trucks destined to or from the Project site would likely go over this bridge.

Along Sunrise Highway, there are a significant number of traffic signals and traffic can move slowly at times.

McCarthy Road serves as the main access point. There is a guard booth at the end. Some pavement along McCarthy Road is cracking. On street parking may need to be temporarily eliminated for the period of the truck deliveries. The intersection of McCarthy Road and Long Beach Road is unsignalized. For vehicles exiting McCarthy Road onto Long Beach Road, sight distance is generally good. However, it can be partially blocked by vehicles parked along the shoulder/curb of southbound Long Beach Road.

There are some Truck Route signs in the area. There are multiple ways toward the site, but all trucks will eventually need to take Long Beach Road to McCarthy Road. As noted earlier, trucks are not permitted on the Parkways, which will limit their travel routes. The likely routes may be Sunrise Highway to Long Beach Road, or Sunrise Highway to Atlantic Avenue to Lawson Boulevard to Daly Boulevard to Long Beach Road, depending upon the original location. Sunrise Highway is under the jurisdiction of the New York State Department of Transportation (NYSDOT). Atlantic Avenue, Lawson Boulevard, Daly Boulevard, and Long Beach Road are all under the jurisdiction of Nassau County, while McCarthy Boulevard is under local jurisdiction. The bridge along Long Beach Road could limit the size and load of each truck.

3.10.3. POTENTIALLY SIGNIFICANT ADVERSE IMPACTS

A. DURING CONSTRUCTION

Access to the site will be from Long Beach Road onto McCarthy Road. McCarthy Road essentially serves as the site driveway.

An approximate Project timeline has been provided in Section 1.7.5 of the Project Information portion of this PSS. Depending upon the repowering options ultimately developed, the Project could have a construction period of approximately 50 months.

During this possible 50-month construction period of the project, there will be increased traffic along the adjacent roadway network due to the ingress and egress from the project site of construction equipment and workmen vehicles and deliveries of materials and fill. It is estimated that project generated traffic during construction would use regional roadways to access to the project area.

As indicated in earlier sections of this PSS, the site proposed facility has been designed to withstand a storm based on the 500 year return period in order to achieve a high level of flood protection. The project will need to incorporate design features (e.g., existing grades for proposed facility equipment could be raised to the final design flood elevation through placement of fill or raised foundations) to protect the new facilities. If it is determined during design of the site to raise the grade elevation, it is anticipated that fill will need to be imported to the Project site. One means of importing fill could be by the use of trucks. Therefore, there is the possibility of additional truck traffic in the area resulting from the site elevation being raised in the area of the proposed facility. National Grid is also exploring other means of importing fill, and potentially construction materials, such as barge deliveries at the site and/or possibly other locations to the south of the Project site. A detailed description of the method of delivery will be included in the Article 10 application.

B. DURING OPERATION

No significant impacts to the local roadway network as a result of the operation of the proposed Project are anticipated. During operations, project related traffic will involve a limited number of service vehicles, tank trucks, and employee vehicles. Parking for Project employees will be provided on the site.

As indicated on Figure 1.2-4, 'Overall Composite Plan', the Project site is bisected by the LIRR, which runs in a north-south direction through the site. The planned simple cycle facility, if selected, is proposed in the area of the existing tank farm. Under the present conditions of the property, there is no direct access at grade to the tank farm area from the remainder of the site. Access to this area is obtained via Nassau Lane in the Village of Island Park. In order to eliminate the need for vehicles to exit the proposed combined cycle and common facilities portion of the site in order to access the proposed simple cycle facility during operations, an at grade crossing of the LIRR is proposed. National Grid has requested a proposal from the LIRR for the design, construction and maintenance of an automated permanent grade crossing. All LIRR construction and operational safety requirements and standards would be adhered to and no significant adverse impacts are anticipated from the crossing.

3.10.4. EXTENT AND QUALITY OF INFORMATION REQUIRED FOR EVALUATION

A Traffic Study will be conducted to evaluate existing traffic volumes and assess roadway operating conditions in the vicinity of the Project. The Study will include a description of the pre-construction characteristics of the major roadways in the vicinity of the project, including Long Beach Road. Existing data on traffic volumes will be obtained from the appropriate sources including the NYSDOT and the County. Traffic data collection efforts will include peak turning movement counts for a typical weekday morning and weekday

afternoon at key intersections. Twenty-four hour traffic volume counts will be conducted in the vicinity of the site.

The key intersections are:

- Atlantic Avenue and Rockaway Avenue/Lawson Boulevard (signalized)
- Long Beach Road and Daly Boulevard (signalized)
- Long Beach Road and McCarthy Road (unsignalized)

For each of the intersections identified above, and possibly others, a description of intersection geometry and traffic control devices by approach will be provided, along with a calculation of the Level of Service (LOS), giving detail for each turning movement. To assess future traffic conditions, an estimate of the annual rate of traffic growth in the vicinity of the Project will be developed, incorporating general growth as well as growth from planned land use changes.

Trip generation estimates will be developed for both future construction and operation conditions. These will include estimates for both peak trip generation during construction and times of normal operation. The likely hours of travel to and from the project site and the number and type of equipment deliveries will also be presented. The potential project-related impacts will then be assessed by evaluating estimated project generated vehicle trips and likely routes of travel in light of existing traffic conditions within the Project area.

3.10.5. AVOIDANCE AND MINIMIZATION MEASURES TO ADVERSE IMPACTS

Significant impacts to the local roadway network are not anticipated as a result of the operation of the proposed Project. Several mitigation measures, however, are available to minimize potential transportation impacts during construction of the proposed project which include, but are not limited to the following:

- Scheduling of construction shifts so that the majority of construction related project traffic occurs outside of peak commuting hours.
- Staggering of construction shifts start and finish times by trade.
- Scheduling, to the maximum extent possible, delivery of construction materials outside of the peak commuting hours.
- Delivery of large project components/equipment during off-peak periods, should this be determined to be necessary.
- Development of carpooling programs, if determined to be feasible.
- Encouragement of utilizing public transportation to the Project site.
- Consideration of feasibility of utilizing barge or railroad to transport fill and other heavy materials.

3.10.6. PROPOSED MEASURES TO MITIGATE UNAVOIDABLE IMPACTS

There will be an increase in traffic on the local roadways during construction of the proposed Project. Potential mitigation measures to reduce impacts are described above in 3.10.5. These measures will be utilized where possible to mitigate any unavoidable impacts. Additional mitigation measures, if required, will be identified and analyzed within the Article 10 application.

3.11 COMMUNICATIONS

3.11.1. INTRODUCTION

This section provides an overview of the methodology that will be employed to assess the impact that the Project may have on various types of communications systems as listed within Exhibit 26 of the Article 10 regulations. The results from the investigation performed will be used to develop a plan to address any potentially significant adverse impacts.

3.11.2. EXISTING CONDITIONS

The proposed Project will be located entirely on the existing 127-acre National Grid Barrett Station property. The proposed Project site is located at McCarthy Road in the Town of Hempstead, New York, immediately adjacent to the incorporated Village of Island Park. There are several large industrial buildings and structures at the site including a steam plant, combustion turbines, fuel oil storage tanks, and a wastewater treatment facility. The surrounding area is low-lying marshland. There are no tall stands of forest. The facility's Communications Building, located off McCarthy Road, houses most of the facility's control systems. Wireless systems, phone, cable, AM and FM radio are currently present on site.

A review of the Federal Communications Commission (FCC) Antenna Structure Registration database indicated that there are 18 registered towers located within 5 miles of the Project. These towers are utilized for a variety of communications uses including AM/FM radio, municipal communications and cellular phone services among others.

Table 3.11-1
FCC Registered Towers within 5 Miles of Project Site:

FCC Registration Number	Owner Name	Structure City
1005758	Connoisseur Media of Long Island, LLC	Hempstead
1056732	Connoisseur Media of Long Island, LLC	Hempstead
1056733	Connoisseur Media of Long Island, LLC	Hempstead
1064894	WGBB-AM, Inc.	Freeport
1201145	AT&T Wireless Services, Inc.	Baldwin
1202502	AT&T Wireless Services, Inc.	Baldwin
1203505	SBA Properties, LLC	Oceanside
1223803	SpectraSite Communications LLC. through American Towers, LLC.	Inwood
1225329	STC Five, LLC	Valley Stream
1232007	Laidlaw Transportation	Freeport
1239219	SBA Properties, LLC	Oceanside
1253927	American Towers, LLC.	Malverne
1260258	SBA Monarch Towers II, LLC	Oceanside

1270033	Incorporated Village of Malverne	Malverne
1270035	Incorporated Village of Malverne	Malverne
1270072	Incorporated Village of Rockville Centre	Rockville
1279769	T-Mobile Northeast LLC	Hempstead
1283190	New Cingular Wireless PCS, LLC	Rosedale

Cable, phone and internet providers in the area of the Project site include Verizon, Cablevision, Time Warner Cable, Earthlink, and Comcast. With the Project site being located in the service areas of such providers, the potential exists for existing underground cable and fiber optic major transmission telecommunication lines to be present in the immediate vicinity of the Barrett Station site.

3.11.3. POTENTIALLY SIGNIFICANT ADVERSE IMPACTS

Due to the fact that proposed structures will be built wholly within the existing Barrett Generating Station property, the proposed facility repowering is not expected to interfere with existing wireless communication systems located within the Project area. No off-site improvements to communication lines are anticipated to be necessary as it is expected that the proposed facility will interconnect to existing communication facilities that presently service the site. Thus, potentially significant adverse impacts are not anticipated. Confirmation will be sought from applicable communication system providers to verify that existing facilities that service the site have capacity for the additional usage from the new facilities during the period of overlap when the existing and new units will all be in place prior to the decommissioning of the existing units.

3.11.4. EXTENT AND QUALITY OF INFORMATION REQUIRED FOR EVALUATION

To fully assess the impact of construction of the Project to communications within a two-mile radius, National Grid will identify all major communication infrastructure and receptors in close proximity to the proposed Project. These include AM/FM radio, television, telephone, microwave transmission, emergency services, municipal/school district services, public utility services, Doppler/weather radar, air traffic control, armed forces, GPS, LORAN, and amateur radio licenses. National Grid will analyze effects of the proposed Project, if any, to surrounding infrastructure.

To address potential impacts on federal government communication systems, a notification letter would be sent to the National Telecommunications and Information Administration (NTIA).

In addition, databases would be consulted and local utility providers will be contacted. Relevant databases are managed by the Federal Communications Commission (FCC) and the NTIA. Local utility providers in the area, including AT&T, Cablevision, T-Mobile, and Verizon, would also be contacted.

Geo-spatial information is also provided on the NYGIS clearinghouse website regarding NYS Broadband Mapping. The data available includes high speed Internet service

availability by provider company and internet technology service areas (DSL, cable modem).

3.11.5. AVOIDANCE AND MINIMIZATION MEASURES TO ADVERSE IMPACTS

The repowered facility would interconnect with LIPA's 138 kV transmission system through an expansion of the existing LIPA Barrett Substation that is present on the Barrett Station property. LIPA will design and license this expansion through Article VII of the NYS Public Service Law. The LIPA Substation Expansion also would be located completely within the Station property. In addition, the repowered facility would use the existing natural gas transmission system for the delivery of natural gas. As such, no offsite interconnection will be required in support of the facility repowering.

An evaluation will be completed of the design configuration of the proposed facility and its required natural gas and electric interconnections demonstrating that there shall be no adverse effects on the communications systems required. However, as the proposed Project and its electrical and natural gas interconnections will be constructed entirely within the existing electric generation facility property, it is anticipated that the potential for impacts to communications facilities surrounding the property will be avoided to the maximum extent practicable.

3.11.6. PROPOSED MEASURES TO MITIGATE UNAVOIDABLE IMPACTS

There are no unavoidable impacts anticipated. Regardless, a description of post-construction activities shall be undertaken to identify and mitigate any adverse effects on communications systems identified in this section.

3.12 RECREATIONAL RESOURCES

3.12.1. INTRODUCTION

This section describes the existing parks and recreational facilities within three miles of the Project site and potential impacts to these resources as a result of the proposed construction and operation of the proposed Facility. It is anticipated that impacts identified overlap the concerns and studies discussed in Section 3.3, 'Air Resources', Section 3.9, 'Visual Resources', and Section 3.4, 'Noise and Vibration'.

3.12.2. EXISTING RECREATIONAL RESOURCES

Nassau County offers state, county and local parkland opportunities with a multiplicity of recreational opportunities. The Big Island Channel and the Atlantic Ocean, which borders the county to the west and to the south are a scenic and recreational resource. Several state, county and local recreational areas are located within a 3-mile radius of the Project site, including Lido Beach Tidal Wetlands, Bay County Park, and Baldwin Park and local parks located within Nassau County and the Town of Hempstead. Each level within the parks system is operated under a separate jurisdiction. Recreational areas within a 2-mile radius of the Project site are illustrated on Figure 3.12-1. The following parks and recreation areas are within a distance of three miles of the proposed Project site.

A. NEW YORK STATE PARKS

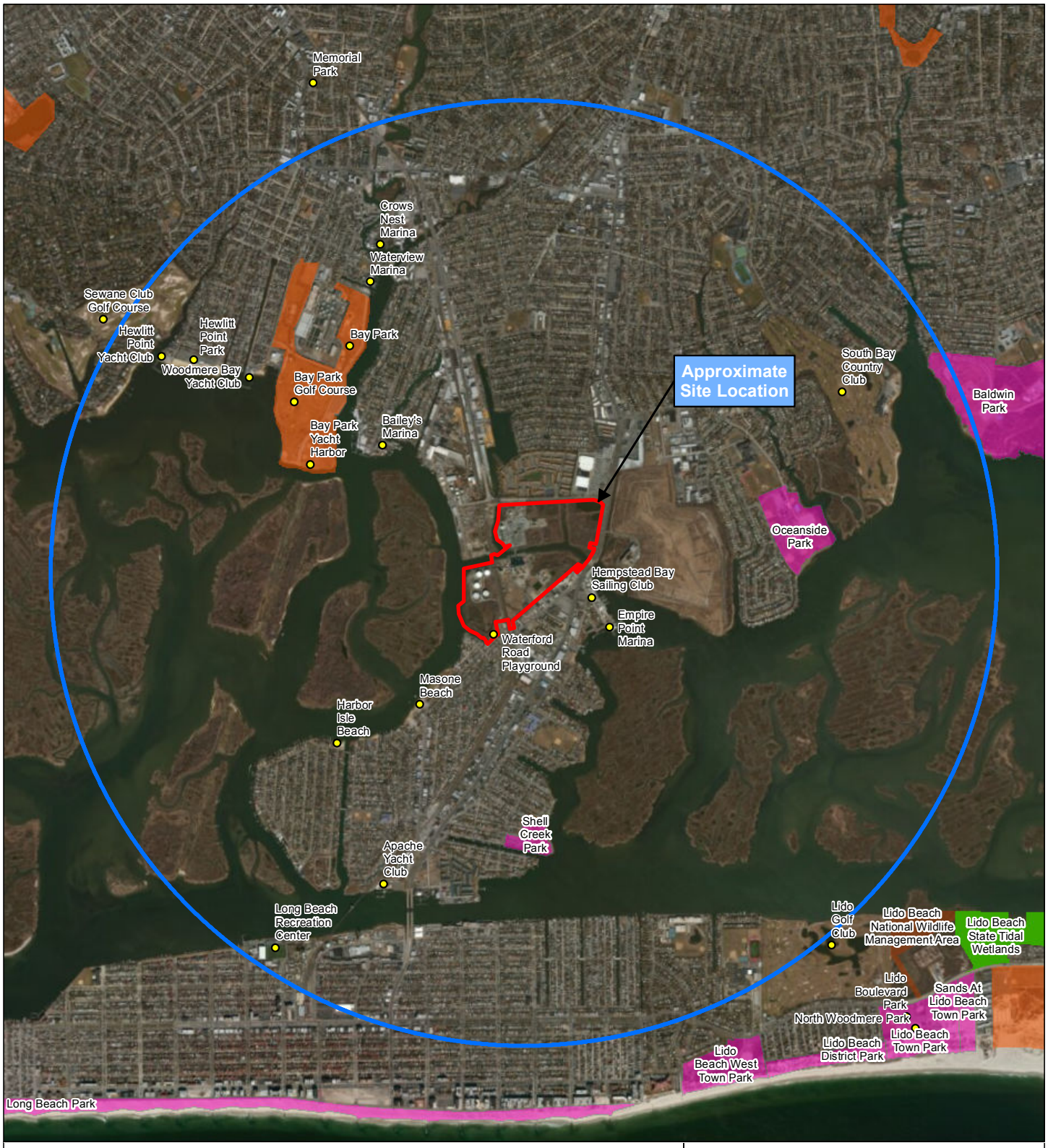
The Lido Beach Tidal Wetlands is under the jurisdiction of New York State and consists of a 22 acre tidal wetland that consists of saltmarsh and shrub thickets (US Fish and Wildlife Service). The Lido Beach Tidal Wetlands is a part of The Long Island National Wildlife Refuge Complex that consists of seven national wildlife refuges, two refuge sub-units and one wildlife management area that in total consist of 6,500 acres.

Recreational activates available in this park are limited to biological research and environmental education via special use permit. The Lido Beach Tidal Wetlands are not open to the public.

B. NASSAU COUNTY PARKS

The Nassau County Park System includes over 70 parks covering approximately 6,000 acres. County parkland facilities range from active parks, museums, historical properties, preserves, and athletic facilities. The county recreational properties located in the vicinity of the Project are Bay County Park, Grant Park, Lofts Pond Park, Milburn Pond Park/Milburn Creek Park, Nassau Beach County Park, North Woodmere County Park, and Silver Lake Park.

Bay County Park is the approximately 0.81 miles northwest of the site on Harbor Road. This Park encompasses 96 acres. Many activities are offered here including tennis and basketball courts, sports fields (such as softball, baseball, soccer, football, lacrosse and rugby), bicycle/running paths, 9-hole golf course, outdoor roller rink, fishing, boating, bocci court, and horseshoe pit.



Approximate Property Boundary
Two-mile Radius
County Recreation Area
MunicipalRecreation
State Recreation
Additional Recreation

0 0.25 0.5 Miles

Source Data: New York Office of Parks, Recreation and Historic Preservation, 2013

Base Map: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid,

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RECREATION RESOURCES MAP

E.F. BARRETT STATION REPOWERING
ISLAND PARK ENERGY CENTER
MCCARTHY ROAD
TOWN OF HEMPSTEAD, NEW YORK

FIGURE 3.12-1	MARCH 2014

R:\Projects\GIS_2013\197446_NatGrid_Repowering\mxd\LandUse\Recreation_2014_02_07.mxd

Grant Park is approximately 2.48 miles northwest of the site on Sheridan Avenue. This Park encompasses approximately 35 acres in Hewlett, Long Island. Many activities are offered here including three basketball courts, four tennis courts, four handball/paddleball courts, three baseball fields, jogger/bicycle path, a skating rink, and fishing.

Lofts Pond Park is approximately 2.38 miles northeast of the Site on Merrick Road between Windsor and Surrey Lanes. This Park encompasses approximately14 acres in Baldwin, Long Island. This park is considered a passive park with activities including walking trail, gazebo, and fishing.

Milburn Pond Park/Milburn Creek Park is approximately 2.76 miles north of the Site on West Merrick Road and South Brookside Avenue. This Park encompasses approximately 32 acres in Freeport, Long Island. This park is considered a passive park with activities including walking trail and a boat launch.

Nassau Beach County Park is approximately 2.85 miles south of the Site on Lido Boulevard. This Park encompasses approximately 66 acres in Lido Beach, Long Island. This park is considered a passive park with beach activities.

North Woodmere County Park is approximately 2.45 miles southeast of the Site on Lido Boulevard. This Park encompasses approximately 29 acres in Lido Beach, Long Island. Many activities are offered here including tennis courts, handball/paddleball courts, basketball courts, athletic fields, football/soccer fields, 9-hole golf course, indoor pool, and fishing.

Silver Lake Park is approximately 2.27 miles north of the Site on Foxhurst Road. This Park encompasses approximately 9 acres in Baldwin, Long Island. This park is considered a passive park with activities that include a walking trail.

C. LOCAL PARKS AND RECREATIONAL AREAS

Town of Hempstead

Baldwin Park is approximately 1.51 miles east of the Site on Grand Avenue. This Park encompasses approximately 122 acres in Hempstead, Long Island. Many activities are offered here including basketball, handball, paddleball, tennis, volleyball, spray pool, soccer, softball, baseball, playground, game tables, play equipment, shuffleboard, bike paths, roller rink, and skate park.

Hewlett Point Park is approximately 1.36 miles northwest of the Site on Hewlett Point Avenue. This Park encompasses approximately 5.8 acres in Hempstead, Long Island. Many activities are offered here including tennis, volleyball, bay beach, outdoor pool, wading pool, playground, sitting area, and picnic tables.

Lido Beach District Park is approximately 2.17 miles southeast of the Site on Lido Boulevard. This Park encompasses approximately 63 acres in Hempstead, Long Island. This park is considered a passive park with beach activities.

Lido Beach Town Park is approximately 2.35 miles southeast of the Site on Lido Boulevard. This Park encompasses approximately 90 acres in Hempstead, Long Island. Many activities are offered here including ocean beach, picnic areas, tennis, playground,

anchor pool, horseshoes, softball, shuffleboard, paddleball, basketball, vita course, bocci, and volleyball.

Lido Beach West Town Park is approximately 2.43 miles southeast of the Site on Lido Boulevard. This Park encompasses approximately 29 acres in Hempstead, Long Island. This park is considered a passive park with walking trails.

Lido Boulevard Park is approximately 2.42 miles southeast of the Site on Lido Boulevard. This Park encompasses approximately 11 acres in Hempstead, Long Island. This park is considered a passive park with walking trails.

Malibu Town Park is approximately 2.41 miles southeast of the Site on Lido Boulevard. This Park encompasses approximately 5 acres in Hempstead, Long Island. This park is considered a passive park.

Oceanside Park is approximately 0.73 miles east of the Site on Mahlon Brower Drive. This Park encompasses approximately 38 acres in Hempstead, Long Island. Many activities are offered here including basketball, handball, paddleball, tennis, volleyball, roller rink, outdoor pools, diving, wading pool, softball, baseball, multi-purpose fields, playground, game tables, and play equipment.

Sands at Lido Beach Town Park is approximately 2.37 miles southeast of the Site on Lido Boulevard. This Park encompasses approximately 22 acres in Hempstead, Long Island. This park is considered a passive park.

Shell Creek Park is approximately 0.87 miles south of the Site on Vanderbilt Avenue and Traymore Boulevard in Hempstead, Long Island. This Park encompasses approximately 12 acres in Hempstead, Long Island. Many activities are offered here including basketball, paddleball, tennis, spray pool, multi-purpose field, playground, play equipment, sitting area, shuffleboard, and fishing.

Village of Island Park

Masone Beach is approximately 0.59 miles south of the Site on Waterford Road. This Park encompasses approximately 1.5 acres in Island Park. This park is considered a passive park.

Harbor Isle Beach is approximately 0.54 miles south of the Site on Waterford Road. This Park encompasses approximately 1.8 acres in Island Park. This park is considered a passive park with beach activities.

Waterford Road Playground is approximately 0.14 miles south of the Site on Waterford Road. This park encompasses approximately 0.91 acres in Island Park. The activities at this park include playground equipment.

Village of Rockville Center

Blight Park is approximately 2.26 miles north of the Site on Riverside Road. This Park encompasses approximately 3.53 acres in Rockville Center. This park is considered a passive park with walking trails.

Fireman's Memorial Park is approximately 2.79 miles north of the Site on Forest Avenue. This Park encompasses approximately 0.24 acres in Rockville Center. This park is considered a passive park with walking trails.

Hickey Field is approximately 2.61 miles north of the Site on Forest Avenue. This Park encompasses approximately 3.7 acres in Rockville Center. Many activities are offered here including basketball courts, tennis courts, and a baseball field.

Veterans Memorial Park is approximately 2.67 miles north of the Site on North Oceanside Road. This Park encompasses approximately 8 acres in Rockville Center. This park is considered a passive park with walking trails and picnic areas.

Village Green is approximately 2.69 miles north of the Site on Maple Avenue. This Park encompasses approximately 1.1 acres in Rockville Center. This park is considered a passive park.

Village of Long Beach

Long Beach Park is approximately 2.18 miles south of the Site on Lido Beach Road. This Park encompasses approximately 97 acres in Long Beach. This park is considered a passive park with beach activities.

Long Beach Recreation Center is approximately 1.9 miles south of the Site on Magnolia Boulevard. This Park facility encompasses approximately 26 acres in Long Beach. This park facility consists of fitness center, ice rink, fishing pier, basketball courts, sports fields, boat launch, skate park, fitness trail, and café.

Village of East Rockaway

Memorial Park is approximately 1.99 miles northwest of the Site on Atlantic Avenue. This Park encompasses approximately 1.97 acres in East Rockaway. This park is considered a passive park.

D. PRIVATE RECREATIONAL AREAS

There are several marinas within three miles of the Project Site. The three closest marinas are within a mile of the Project site. These marinas are Empire Pointe Marina in Hempstead on Empire Boulevard 0.30 miles east of the site, K & K Outboard in Hempstead on Long Beach Road 0.10 miles east of the site, and Hempstead Bay Sailing Club in Hempstead on Empire Boulevard 0.18 miles east of the site. Other marinas include: Apache yacht Club (1.28 miles), Bailey's Marina (0.56 miles), Baldwin Harbor Marine Center (2.53 miles), Bay Park Yacht Harbor (0.62 miles), Crows Nest Marina (1.20 miles), Harbor Performance Marina (2.55 miles), Hewlett Point Yacht Club (1.53 miles), Keystone Yacht Club (2.61 miles), South Bay Country Club (1.17 miles), Waterview Marina (1.10 miles), and Woodmere Bay Yacht Club (1.19 miles).

Bay Park Golf Course is approximately 0.89 miles northwest of the Site on Harbor Road. This area encompasses approximately 0.40 acres in Hempstead, Long Island. The golf course offers a 9-hole course.

Lido Golf Course is approximately 1.98 miles southeast of the Site on Lido Boulevard. This area encompasses approximately 1.4 acres in Hempstead, Long Island. The golf

course offers an 18-hole course with driving range, two practice putting greens, restaurant, and pro shop.

Seawane Golf Course is approximately 1.8 miles northwest of the Site on Harbor Road, Long Island. The area encompasses approximately 54 acres. The golf course offers 18-hole course.

3.12.3. POTENTIAL RECREATIONAL IMPACTS

Most of the parks and other recreational areas in the vicinity of the project are located such that impacts from the construction and operation of the proposed Facility and interconnection will be negligible. Direct impacts to recreation areas, such as limiting access to or creating additional demand for recreational areas are not likely to occur. Potential limited indirect impacts (i.e., increases in ambient sound levels, visual presence of construction workers and machinery) may be noticeable to visitors using Oceanside Park, Bay County Park, and Shell Creek Park.

3.12.4. PROPOSED STUDIES

The Facility's Article 10 application will identify the effect of the sound of the construction or operation of the Project or the propose interconnection on land uses with one mile of the Project site; the effect of the sight of the construction or operation of the Project on recreational land uses within the Project viewshed; and provide a description of any temporary access limitations to existing recreation areas as a result of construction at the Project site.