

Long Beach Water Pollution Control Plant Consolidation Project Environmental Assessment

August 27, 2020

Project Name: Long Beach Water Pollution Control Plant Consolidation Project

Project Location: City of Long Beach, Town of Hempstead and East Rockaway, Nassau County, New York

HTFC SHARS #: N/A

Federal Agency: U.S. Department of Housing and Urban Development
Responsible Entity: New York State Homes and Community Renewal

Responsible Agency's Certifying Officer: Matt Accardi, Assistant General Counsel
Governor's Office of Storm Recovery
25 Beaver Street, Fifth Floor, New York, New York 10004
matt.accardi@stormrecovery.ny.gov; (212) 480-6265

Project Sponsor: Nassau County
Primary Contact: Vincent Falkowski, Nassau County Department of Public Works
1194 Prospect Avenue
Westbury, New York 11590-2723
vfalkowski@nassaucountyny.gov; (516) 571-9607

Project NEPA Classification: 24 CFR 58.36 (Environmental Assessment)

Environmental Finding:	<input checked="" type="checkbox"/> Finding of No Significant Impact—The project will not result in a significant impact on the quality of the human environment. <input type="checkbox"/> Finding of Significant Impact—The project may significantly affect the quality of the human environment.
Certification	The undersigned hereby certifies that New York State Homes and Community Renewal has conducted an environmental review of the project identified above and prepared the attached environmental review record in compliance with all applicable provisions of the National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.) and its implementing regulations at 24 CFR 58.
Signature	 Matt Accardi

Environmental Assessment Prepared By: WSP USA, Inc.
96 Morton Street, 8th Floor
New York, NY 10014

CERTIFICATION OF NEPA CLASSIFICATION

It is the finding of the New York State Homes and Community Renewal’s Housing Trust Fund Corporation that the activity(ies) proposed in its 2020 NYS CDBG-DR project, Long Beach Water Pollution Control Plant are:

Check the applicable classification.

- Exempt as defined in 24 CFR 58.34 (a).
- Categorically Excluded as defined in 24 CFR 58.35(b).
- Categorically Excluded as defined in 24 CFR 58.35(a) and no activities are affected by federal environmental statues and executive orders [i.e., exempt under 58.34(a)(12)].
- Categorically Excluded as defined in 24 CFR 58.35(a) and some activities are affected by federal environmental statues and executive orders.
- "Other" neither exempt (24 CFR 58.34(a)) nor categorically excluded (24 CFR 58.35).
- Part or all of the project is located in an area identified as a floodplain or wetland. For projects located in a floodplain or wetland, evidence of compliance with Executive Orders 11988 and/or 11990 is required.

For activities excluding those classified as "Other," attached is the appropriate Classification Checklist (Exhibit 2-4) that identifies each activity and the corresponding citation.



Signature of Certifying Officer

8/27/2020

Date

Matt Accardi
Print Name

Assistant General Counsel
Title

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ACRONYMS AND ABBREVIATIONS

APE	area of potential effect
BFE	base flood elevation
BMP	best management practice
CC WPCP	Cedar Creek Water Pollution Control Plant
CDBG-HR	Community Development Block Grant-Disaster Recovery
CFR	Code of Federal Regulations
City	City of Long Beach
EA	environmental assessment
ECL	New York Consolidated Laws, Environmental Conservation Law
EFH	Essential Fish Habitat
ESA	Environmental Site Assessment
ESI	Environmental Site Investigation
FEMA	Federal Emergency Management Agency
FIRMS	flood insurance rate maps
FONSI	Finding of No Significant Impact
GOSR	(New York) Governor's Office of Storm Recovery
HDD	horizontal directional drilling
HDPE	high-density polyethylene
HTFC	Housing Trust Fund Corporation
HUD	United States Department of Housing and Urban Development
IMA	Intermunicipal Agreement
IPaC	Information, Planning, and Conservation System
lbs/day	pounds per day
LIRR	Long Island Rail Road
LOD	limits of disturbance
LWRP	local waterfront revitalization program
LWTB Project	Living with the Bay Project
mgd	million gallons per day
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NHP	Natural Heritage Program
NMFS	National Marine Fisheries Service

NOAA	National Oceanic and Atmospheric Administration
NWI	National Wetlands Inventory
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
RBD	Rebuild by Design
Seatuck	Seatuck Environmental Association
SHPO	State Historic Preservation Office
SPDES	State Pollutant Discharge Elimination System
STP	Sewage Treatment Plant
SWPPP	stormwater pollution prevention plan
TKN	Total Kjeldahl Nitrogen
TMDL	total maximum daily load
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Department of Environmental Protection
USFWS	United States Fish and Wildlife Service
USC	United States Code
WPCP	Water Pollution Control Plant

1 DESCRIPTION OF THE PROPOSED PROJECT [24 CFR 50.12 & 58.32; 40 CFR 1508.25]

1.1 REBUILD BY DESIGN

In June 2013, the United States Department of Housing and Urban Development (HUD) initiated Rebuild by Design (RBD), a competition to respond to Hurricane Sandy's devastation in the northeast region of the United States and promote a design-led approach to proactive planning for long-term resilience and climate change adaptation. The winning proposals would be implemented using Community Block Grant-Disaster Recovery (CDBG-DR) funding and other public and private-sector funding sources. In June 2014, following a year-long research and design process—during which the design teams met and collaborated with regional experts, government entities, elected officials, issue-based organizations, local community groups, and individuals—HUD announced that the Nassau County Living with the Bay Project (LWTB Project) was one of the selected projects. As a result, New York State has been allocated \$125 million of CDBG-DR program funds to implement the LWTB Project.

The goals of New York State's RBD implementation plan are to make communities more physically, economically, and socially resilient in the face of intense storm events. RBD is focused on promoting projects that strengthen resiliency throughout all aspects of the community, including ecological, economic, and social elements. The built environment helps maintain the natural ecosystem, which reduces vulnerability to disaster impacts and provides collateral benefits to the economy, public health, overall well-being, and quality of life in the community. RBD resiliency projects strive to implement innovative, flexible, and scalable interventions that could be replicated in other parts of the state, nation, and globally. Diversity, redundancy, networked connectivity, modularity, and adaptability are important features of resiliency projects promoted by RBD.

1.2 LIVING WITH THE BAY PROJECT AND THE RESILIENCY STRATEGY

The LWTB Project and Resiliency Strategy provides a comprehensive suite of thematically consistent and prioritized projects intended to provide long-term resilience and climate change adaptation for Nassau County communities in the Mill River Watershed. The LWTB Project and Resiliency Strategy includes a program of specific projects and potential project locations, consistent with the RBD principles outlined above, to address flooding caused by storm surge and rainfall (flood defense), improve coastal habitat and water quality (ecological restoration), ease public access to the waterfront (access and urban quality), and educate the public on stormwater and environmental management (social resiliency). The LWTB project area comprises approximately 10,000 acres of the Mill River Watershed throughout seven municipalities and jurisdictions: Nassau County, the Town of Hempstead, the Village of East Rockaway, the Village of Hempstead, the Village of Lynbrook, the Village of Malverne, and the Village of Rockville Centre. The LWTB Project and Resiliency Strategy identifies, analyzes, and prioritizes potential resiliency interventions that will best serve the community. The Resiliency Strategy is available at <https://stormrecovery.ny.gov/content/living-bay-resiliency-strategy>.

The Resiliency Strategy documented that flooding problems within the LWTB project area are caused by inadequate drainage collection and conveyance capacity, high tailwater conditions (the level of water downstream of hydraulic structures; i.e., dams, culverts, and outfalls) that make the existing stormwater systems inadequate for critical storms, and undersized flood control structures prone to overtopping during storm surge events. Other documented problems within the LWTB project area include degradation and loss of habitat and flora and fauna, shoreline degradation, and compromised water

quality. The LWTB Project and Resiliency Strategy considered and incorporated sea level rise projections throughout the development of resiliency interventions.

The LWTB Project and Resiliency Strategy identified and prioritized projects and project types with program-specific time frames and costs for planning, design, permitting, procurement, construction, and project closeout. Since completion of the Resiliency Strategy, the Governor's Office of Storm Recovery (GOSR) and the local communities have proposed to proceed with the following projects:

- **Hempstead Lake State Park:** The New York State Office of Parks, Recreation, and Historic Preservation manages the 521-acre park located in the northern portion of the LWTB project area. This project would repair dams to improve existing water management infrastructure in the park; restore and construct wetlands and install floatables catchers and sediment basins to improve water quality; and provide new educational and recreational amenities through trails and an environmental education and resiliency center. The environmental assessment (EA) for this project was finalized in January 2020, and the Finding of No Significant Impact (FONSI) was issued in February 2020.
- **Smith Pond Rehabilitation:** South of Hempstead Lake State Park, Smith Pond is a 22-acre freshwater pond located in the center of the LWTB project area, north of Sunrise Highway in the Village of Rockville Centre. The proposed improvements at Smith Pond would consist of resiliency interventions, such as habitat restoration, stormwater storage, and improved public access.
- **Lister Park Improvements:** South of Smith Pond, just north of East Rockaway High School, the Lister Park project would entail stormwater management improvements to Tighe Field, Centennial Field, and Bligh Field, as well as installation of living shorelines and stream bank stabilization along the Mill River to improve stormwater quality and increase retention, prevent streambank erosion, and provide recreational and pedestrian connectivity.
- **East Rockaway High School:** East Rockaway High School is situated along the west bank of the Mill River between Centre Avenue and Pearl Street. Design options under consideration would reduce the school's vulnerability to flooding by installing green infrastructure and stabilizing an eroding shoreline.
- **East-West-North Boulevards Stormwater Drainage Improvements:** This project would reduce stormwater and tidal inundation impacts by installing porous pavement, replacing catchment basins, and installing backflow preventers and bioretention basins.
- **Long Beach Water Pollution Control Plant (WPCP) Consolidation Project:** This project would entail the construction of a new force main connection from the existing Long Beach WPCP to the Bay Park Sewage Treatment Plant (STP), conversion of the existing Long Beach WPCP influent pump building into a new flow diversion pump station, and hardening of the new flow diversion pump station as well as the City's three existing satellite pump stations, to protect these facilities from storm surge and sea level rise. This project was not specifically included in the Resiliency Strategy, but its implementation would contribute to the restoration of the coastal marshes in Hewlett Bay, as identified in "Project V: Coastal Marsh Restoration" of the Resiliency Strategy.
- **Mill River Greenway:** The LWTB Project proposes to develop a continuous greenway from Hempstead Lake State Park and Tanglewood Preserve south to Bay Park and Hewlett Bay. The multiuse path would vary in width and, where practical, typically include 10-foot-wide permeable pavement with water storage and infiltration.

The LWTB Project and Resiliency Strategy are configured such that projects could advance independently, subject to availability of funding. Because the timelines for project development and construction vary, each project would consider the cumulative environmental impacts of the previous project(s). The Long Beach WPCP Consolidation Project (proposed project) is the subject of this EA.

On behalf of Grantee the State of New York, GOSR, acting under the auspices of the New York State Homes and Community Renewal's Housing Trust Fund Corporation (HTFC); acting and under the authority of the HUD regulations at 24 Code of Federal Regulations (CFR) § 58; and in cooperation with other involved, cooperating, and interested agencies, prepared this EA to analyze potential impacts of the proposed Long Beach WPCP Consolidation Project, which is a component of the larger LWTB Project and Resiliency Strategy. Pursuant to the HUD National Environmental Policy Act (NEPA) implementing procedures, GOSR, as responsible entity, must certify that it has complied with the related laws and authorities identified by 24 CFR § 58 and must consider the criteria, standards, policies, and regulations of these laws and authorities.

Because of the variety and geographic separation of the projects proposed by the LWTB Project and Resiliency Strategy, GOSR determined that a permissibly separate environmental review process for the Long Beach WPCP Consolidation Project would best inform decision makers and the public of potential environmental impacts presented by the proposed project. Therefore, this EA for the proposed Long Beach WPCP Consolidation Project has been completed with a rigorous assessment of cumulative impacts, provided in **Section 9**, to ensure that the review would be no less protective of the environment.

2 STATEMENT OF PURPOSE AND NEED FOR THE PROPOSAL [40 CFR § 1508.9(B)]

As stated in GOSR's Action Plan Amendment 16, approved by HUD on August 1, 2017, the purpose of the LWTB Project is to mitigate damage from tidal storm surge; manage stormwater to mitigate the damages from common rain events; and improve water quality throughout the Mill River, its watershed and tributaries, and the South Shore Back Bays of Nassau County, primarily the portion of the back bays known as Hewlett Bay. The LWTB Project is committed to addressing the core principles of the winning RBD proposal, which include (1) flood defense, (2) ecological restoration, (3) access and urban quality, and (4) social resiliency.

In 2012, Hurricane Sandy impacted the Mill River and Hewlett Bay communities. The storm's 18-foot storm surge damaged 3,000 homes. In addition, its damage to public and private facilities, including bridges, roads, parks, schools, and the Bay Park STP, created a dangerous environment for residents attempting to evacuate and challenged emergency management efforts by first responders and local officials.

With so much impermeable surface coverage throughout the LWTB project area, flooding along the Mill River is a common occurrence during rainfall events. The area's antiquated and undersized stormwater conveyance systems deliver stormwater runoff to the nearest surface waters. The runoff overwhelms the capacity of the upstream surface waters leading to the Mill River, carrying pollutants encountered along the way, and then floods waterbodies and the banks of the Mill River. Residences and community assets flood in locations where stormwater runoff volumes exceed the capacity of the existing stormwater conveyance systems. Likewise, as sea level rises, the southern portion of the LWTB project area experiences tidal flooding (also known as sunny day flooding) more frequently. During storm

events, the effects of stormwater flooding converge with the effects of tidal flooding to exacerbate flooding impacts throughout the project area.

GOSR prepared its Resiliency Strategy in September 2017 to pinpoint locations more susceptible to flooding and identify potential solutions that could be implemented as part of the LWTB Project. The LWTB Project and Resiliency Strategy developed a program of specific projects and potential project locations to address flooding caused by storm surge and rainfall (flood defense), improve coastal habitat and water quality (ecological restoration), ease public access to the waterfront (access and urban quality), and educate the public on stormwater and environmental management (social resiliency). The Resiliency Strategy initially identified the Coastal Marsh Restoration Project as an opportunity to implement interventions consistent with the four principles of HUD's original RBD proposal and that would achieve the purpose of the LWTB Project. This project would have involved implementation of marsh erosion protection measures, marsh enhancement, and in-Bay and upland protection measures to restore and preserve existing marshes in Hempstead Bay.

However, after further consideration of the Coastal Marsh Restoration Project, GOSR removed the Coastal Marsh Restoration Project from LWTB. Issues identified through the design and permitting process rendered this project infeasible and unable to meet an eligible end use, per HUD CDBG-DR requirements, within the time constraints of the State's Public Law 113-2 funding. A key challenge that the project faced involved the current levels of nitrogen pollution in the project area, which contributes to the degradation of tidal marshes and would not be addressed by the Coastal Marsh Restoration Project.

Through Action Plan Amendment 26, GOSR is proposing to invest LWTB funds to complement other federal and State funding to implement the Long Beach WPCP Consolidation Project (GOSR 2020). This project would convert the highly vulnerable Long Beach WPCP into a resilient pump station and construct a new force main to convey untreated effluent from the plant to the newly upgraded Bay Park STP. During Hurricane Sandy, storm surge overwhelmed the Long Beach WPCP, releasing untreated effluent into the Bay and resulting in ongoing operational issues affecting the quality of treatment that the plant provides, which, in turn, contributed to nitrogen pollution in the South Shore Back Bay. The Long Beach WPCP Consolidation Project is expected to address multiple LWTB objectives for residents of the Mill River Watershed who experience tidal inundation and storm surge from the Bay and other communities surrounding the South Shore Back Bay. These objectives would be achieved by mitigating the effects of, and increasing community resilience to, tidal inundation and storm surge by removing the potential for release of untreated effluent into the Bay during future storm events and improving water quality by ending the ongoing release of undertreated effluent. In the long term, water quality improvements associated with the project are expected to facilitate natural marsh regrowth and long-term marsh restoration projects in the Bay, contributing to further hazard mitigation through wave attenuation for residents of the Mill River Watershed and other communities around the South Shore Back Bay.

The purpose of the proposed Long Beach WPCP Consolidation Project, as a component of LWTB Project and Resiliency Strategy, is to harden the existing pump station at the WPCP and three satellite pump stations against storm impacts, improve water quality, enhance the natural resiliency functions of marshlands, reduce the risk of future direct physical damage and public health impacts in a flood event, and improve the quality of life in the residential communities surrounding the Western Bays. The Bay

Park STP was recently hardened to the 500-year flood level,² and as a result of recent and ongoing nitrogen-reducing and deammonification projects, is equipped with sustainable, state-of-art wastewater treatment technologies. Diverting wastewater from Long Beach to the improved Bay Park STP would reduce the concentrations of pollutants and nutrients, particularly ammonia and nitrogen, in the treated effluent discharged into Reynolds Channel. The County has proposed the Long Beach WPCP Consolidation Project pursuant to the Intermunicipal Agreement (IMA) with the City, as required by the City's Administrative Consent Order (CO) with New York State Department of Environmental Conservation (NYSDEC), CO1-20151020-142, and the County's Bay Park Agreement with NYSDEC, CO1-20170626-244.

The proposed project would also harden the City's three satellite pump stations to the 0.2 percent annual chance flood elevation (500-year flood), which would result in mitigation of the City's entire wastewater collection system to Federal Emergency Management Agency (FEMA) standards for critical infrastructure and ensure continuous wastewater treatment service to the current population served by the Long Beach WPCP.

The Long Beach WPCP Consolidation Project is part of a transformative environmental and water quality endeavor known as the Western Bays Resiliency Initiative. The overarching objectives of both the initiative and the proposed project include improving water quality, enhancing the natural resiliency functions of marshlands, reducing flood risk, and improving the quality of life in the residential communities surrounding the Western Bays. When combined with an ongoing project, the Bay Park STP Conveyance Project, the proposed project would eliminate a continuous wastewater discharge to Reynolds Channel by diverting Bay Park STP's treated effluent to the Atlantic Ocean via the Cedar Creek WPCP, thereby improving the water quality within the group of waterbody segments known as the Western Bays and allowing the marshlands to return to fulfill their natural and beneficial functions, including wave and flood attenuation.

A desktop study was undertaken to quantify the reduction in nitrogen expected as a result of the proposed project (CSA Group 2019). Based on that analysis, the Long Beach WPCP Consolidation Project is expected to significantly reduce the amount of nitrogen that is discharged into Reynolds Channel. The Bay Park STP has a treatment objective of reducing nitrogen concentrations in the effluent to 9 milligrams per liter.³ To accomplish this effluent concentration, it is estimated that the Bay Park STP biological nitrogen reduction process would need to remove 85 percent of the nitrogen that currently flows to the Long Beach WPCP. The detailed calculation tables are presented in **Appendix A**.

The decrease in nitrogen levels in the effluent expected as a result of the proposed project is significant, and the reduction would not only improve water quality, but it would also improve the overall health of the Western Bays' marsh ecosystem. Marsh grasses are critical to increased resiliency against waves and storm surges, and reduced levels of nitrogen would help to restore marshland and their natural resiliency function. With the treatment objectives implemented at the Bay Park STP, nitrogen reduction levels associated with the Long Beach WPCP influent could be as high as 85 percent.

Nitrogen-rich effluent has contributed to the widespread loss of natural storm buffers provided by marine vegetative habitats through the proliferation of macro-algae (specifically ulva, or sea lettuce) and by extensive damage to marsh grasses and their substructures. The loss of marsh grasses results in the

² Resiliency improvements included construction of a perimeter berm and flood wall.

³ Condition 24 in the 2017 Bay Park Agreement.

destruction of the natural marsh system that provides shoreline protection against coastal storm waves and surge.

High levels of nitrogen in the Western Bays have reduced storm attenuation benefits by changing the composition of marsh grasses (Kenney 2012). High nitrogen concentrations favor the growth of taller grasses with shallow root systems, as opposed to the diverse composition of marsh grasses that provide deeper roots to stabilize the soil of the marshlands. As a result, the soil-stabilization and storm surge benefit of a healthy marsh has been largely lost. This degradation and loss of storm attenuation capacity were exemplified during Hurricane Sandy.

Much of the excess nitrogen in the Western Bays is attributed to the wastewater treatment facilities that discharge directly into the system. Because the Western Bays have a low flushing rate, nitrogen is retained for prolonged periods of time and rapidly accumulates in the Western Bays. As a result, nitrogen concentrations have contributed to the degradation of the Western Bays marshlands which, in turn, has reduced the protection of the Western Bays' coastline communities against extreme weather events and flooding. Thus, because the proposed project would result in a substantial decrease in nitrogen levels in the Western Bays, it would also facilitate restoration of the inherent storm attenuation function of marsh grasses and would improve resiliency of coastal areas.

3 LONG BEACH WATER POLLUTION CONTROL PLANT CONSOLIDATION PROJECT

Nassau County (the County), pursuant to the IIMA with the City of Long Beach (the City), has proposed to design and construct a new sewage pipeline (force main) from the Long Beach WPCP to the Bay Park STP. The proposed project is an essential part of a series of projects to meet the goal of restoring and enriching the Western Bays as a recreational, economic, social, and environmental resource to Long Island and the State of New York. The project location is shown in **Figures 1 and 2**.

The proposed project would be implemented using CDBG-DR funding, as well as other public state and federal funding sources. GOSR, an office of New York State Homes and Community Renewal, in cooperation with HTFC, a public benefit corporation and subsidiary of the New York State Housing Finance Agency, is responsible for the direct administration of the HUD CDBG-DR program in New York State and is overseeing the environmental review for the project. GOSR implements the State's obligations under NEPA. FEMA funding is also being pursued to support implementation of the project in coordination with the New York State Division of Homeland Security and Emergency Services.⁴

⁴ A 406 hazard mitigation proposal has been submitted to FEMA for \$15 to \$20 million of funding to harden all the City's pump station facilities, including the three satellite pump stations located along Park Avenue (at Roosevelt Boulevard, New York Avenue, and Indiana Avenue) to the 0.2 percent annual chance flood elevation.

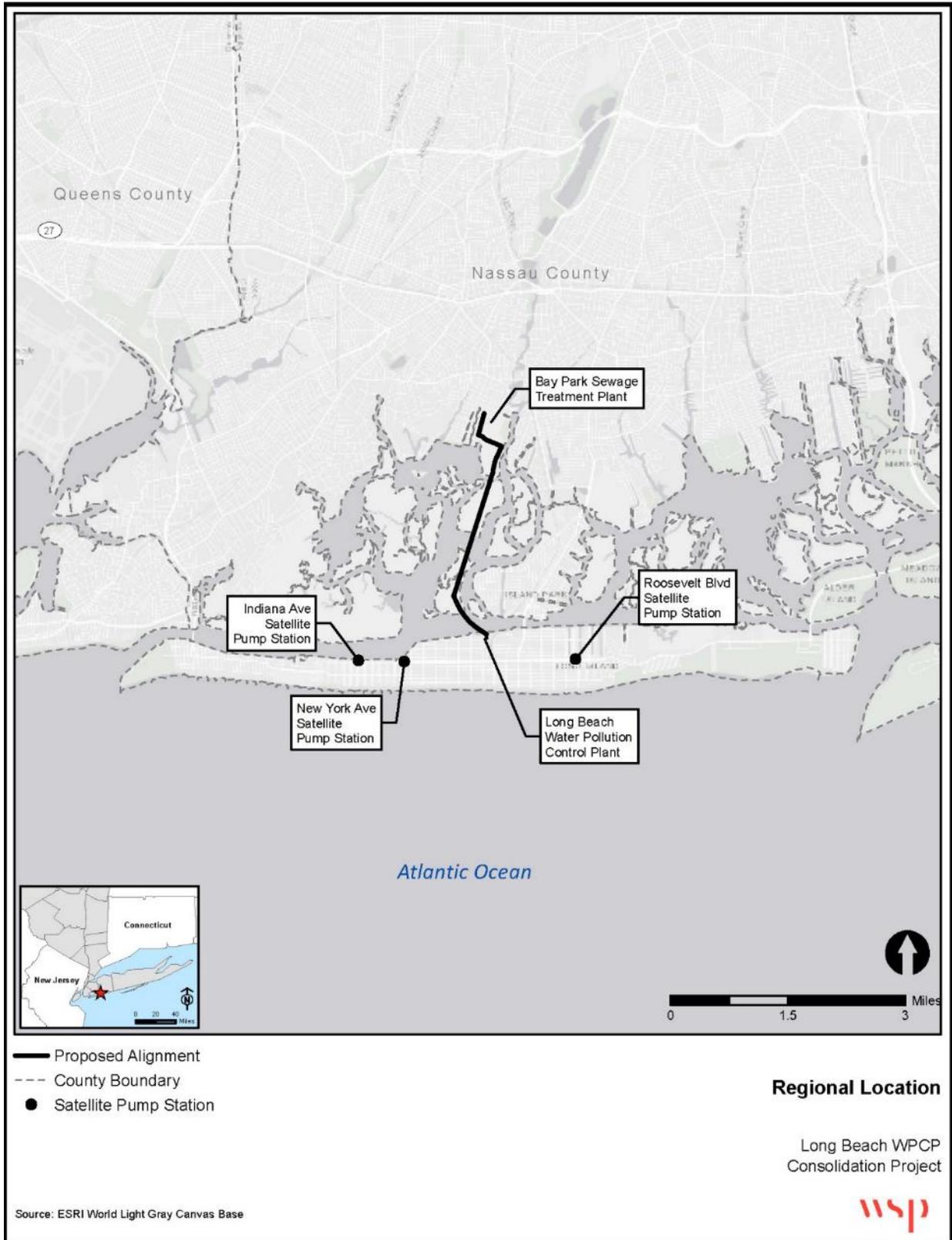


Figure 1: Regional Location

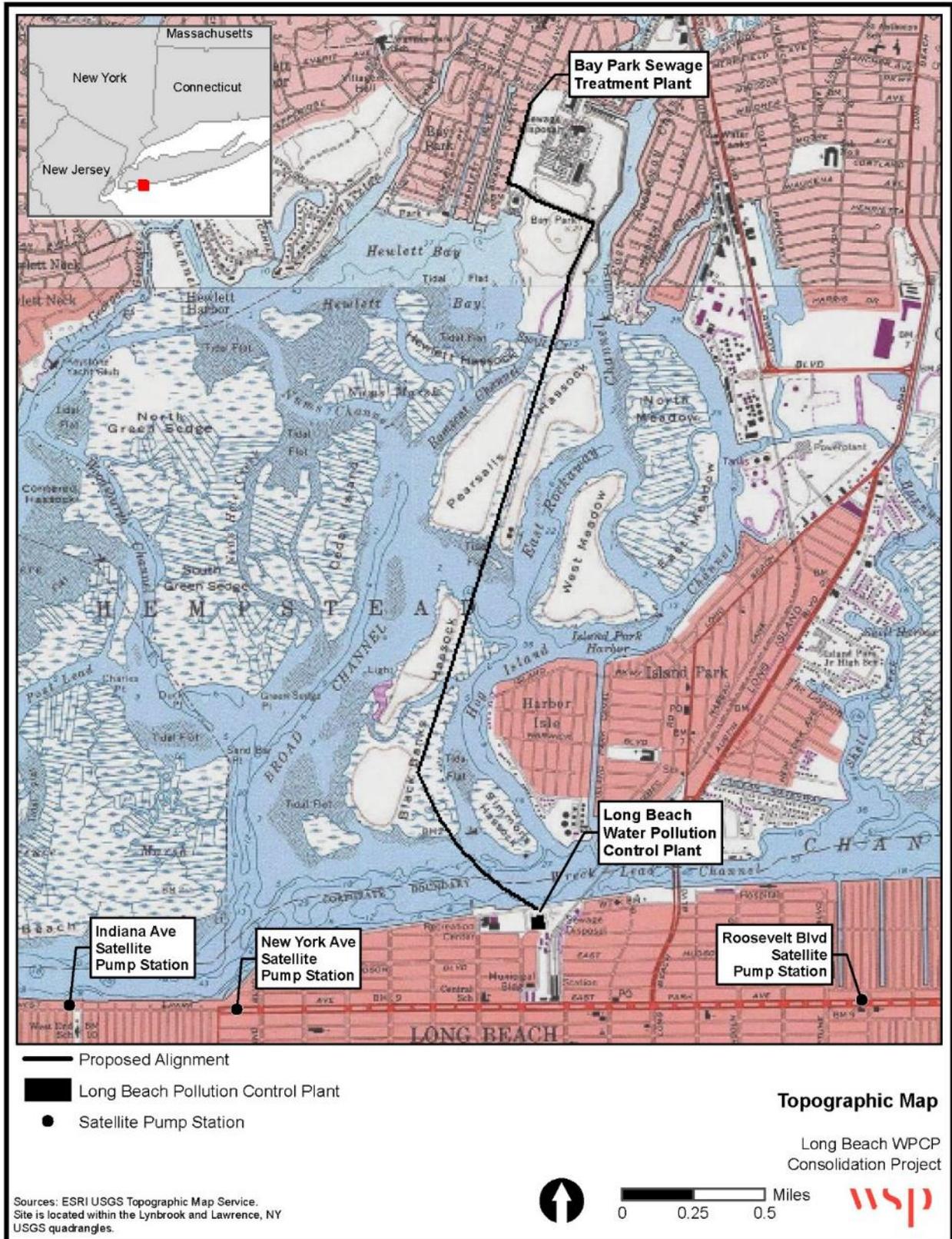


Figure 2: Topographic Map

The proposed project includes the following components: (1) conversion of the Long Beach WPCP's headworks and influent pump to a resilient diversion pump station; (2) installation of a 24-inch force main within a 32-inch-diameter steel casing, from the diversion pump station to the Bay Park STP; and (3) connection from the force main to the existing 66-inch sewer main located west of the Bay Park STP,⁵ which would result in diversion of 4.63 million gallons per day (mgd) of wastewater to the Bay Park STP. Force main installation would require a combination of construction techniques, including traditional cut-and-cover methods that entail trenching (on the landside), as well as a trenchless method that uses horizontal directional drilling (HDD). The alignment would be located primarily within the County's existing easement⁶ for the existing Bay Park STP discharge outfall, which would remain in place.

The proposed project also includes the flood mitigation of the three satellite pump stations to the 0.2 percent annual chance (500-year) flood elevation through a combination of elevation and floodproofing actions. As such, the proposed project would allow the City's entire wastewater collection system to be mitigated to FEMA standards for critical infrastructure, ensuring continuous wastewater treatment service to the current population served by the Long Beach WPCP system.

The decommissioning and demolition of the existing Long Beach WPCP facility and repurposing/ redevelopment of the WPCP property are not part of the project but would be part of future project(s) to be completed by others. Therefore, the future reuse of the property is evaluated as part of the cumulative impact assessment (see **Section 9**).

Construction of the proposed project is expected to require numerous permits and approvals, including those required under Article 15 Protection of Waters (NYSDEC); Article 25 of the Tidal Wetland Act (NYSDEC); Section 10 of the River and Harbors Act (U.S. Army Corps of Engineers [USACE]); and Sections 401 and 404 of the Clean Water Act (NYSDEC/USACE). Construction of the proposed project would last approximately three years and is expected to commence in early 2021 and end in late 2023.

The proposed project would leverage existing infrastructure and improve both water quality and the natural resiliency function of the Western Bays. Conveying wastewater from Long Beach to the Bay Park STP would improve the quality of treated effluent discharged into Reynolds Channel by reducing the concentrations of pollutants and nutrients, particularly ammonia and nitrogen, in the water. As a result of recent and ongoing improvements, including nitrogen-reducing and deammonification projects, the Bay Park STP will be equipped with sustainable, state-of-art wastewater treatment technologies. According to a desktop assessment, the Bay Park STP nitrogen-reducing and deammonification projects will need to reduce influent nitrogen (for influent diverted from the Long Beach WPCP) by 85 percent to achieve the 9 mg/L goal. Extensive hardening measures were undertaken to ensure that the Bay Park STP is protected from a 500-year flood event. As such, the Bay Park STP is more resilient to storm events and better suited to address water quality because of its superior treatment processes.

Beyond the water quality benefits of the diversion of wastewater from Long Beach to the Bay Park STP, further water quality and resiliency benefits are expected from the cumulative effects of the proposed project and the Bay Park STP Conveyance Project. As part of the Western Bays Resiliency Initiative, the Bay Park STP Conveyance Project would divert Bay Park STP's treated effluent from the current discharge point in Reynolds Channel to the existing ocean outfall at the Cedar Creek Water Pollution

⁵ The proposed force main would intercept the existing 66-inch reinforced concrete sanitary sewer pipe located west of the Bay Park STP, and the existing pipe would then carry the flow into the STP for treatment.

⁶ The County's existing easement is from the Town of Hempstead, the owner of the hassock islands and adjacent underwater lands.

Control Plant (CC WPCP). Construction of the Bay Park STP Conveyance Project, which is currently funded and under design, is expected to begin in 2021 and end in late 2024. Studies indicate that the Bay Park STP Conveyance Project would prevent the discharge of up to 19 billion gallons of treated effluent into the Western Bays, substantially reducing harmful nitrogen pollution, which in turn, would help rejuvenate vital marshlands that protect coastal communities from storm-induced waves. As a result of the proposed project and the related Bay Park STP Conveyance Project, water quality in the Western Bays is expected to improve substantially.

3.1 PROJECT BACKGROUND

The City of Long Beach owns and operates the 7.5 mgd secondary wastewater treatment plant (the Long Beach WPCP) located at the northern end of National Boulevard at West Pine Street. The City's wastewater system consists of the WPCP, three satellite pump stations, and approximately 51 miles of pipeline. The WPCP operates under New York State Pollutant Discharge Elimination (SPDES) permit #NY0020567, issued by NYSDEC. The WPCP services approximately 33,275 residents in the City and 2,897 residents of the neighboring community of Lido Beach in the Town of Hempstead.⁷ The WPCP was originally constructed in 1951 as a primary treatment facility to remove settleable solids and disinfect wastewater before discharging chlorinated effluent into Reynolds Channel. Secondary treatment via trickling filters was introduced in the mid-1960s. In the late 1980s, a major rehabilitation project expanded the WPCP's permitted flow from 6.36 to 7.5 mgd, improved screenings and grit facilities, upgraded the trickling filter and recirculation systems, and added an automatic sand filter system to enhance filtration of 50 percent of the plant's effluent. These upgrades did not include the capabilities to either reduce ammonia or reduce total residual chlorine (Cameron Engineering 2017).

The WPCP is adjacent to and discharges to Reynolds Channel, which is the bay area north of Long Beach Island. Reynolds Channel is adjacent to and comingles with other bodies of water that are collectively referred to as the Long Island Western Bays, and include Hempstead Bay, Middle Bay, East Bay, Hog Island Channel, East Rockaway Inlet, and Jones Inlet. Reynolds Channel is a connector channel between Jones Inlet to the east and East Rockaway Inlet to the west. In addition to receiving the Long Beach WPCP effluent discharge, Reynolds Channel receives the treated discharge from the Bay Park STP in East Rockaway, as well as discharge from the Greater Atlantic Beach Water Reclamation District in the Village of Atlantic Beach.

NYSDEC has classified Reynolds Channel as an SB receiving water that is suitable for primary and secondary contact recreation and fishing.⁸ The Western Bays are a critical intertidal waterbody that serve as a nursery for finfish and shellfish and provide for the natural reduction of pollutants via the marshlands. These marshlands have deteriorated over the past decade because of increased nutrient levels in the discharges of area wastewater treatment plants. The contribution of nitrogen to the mass proliferation of a species of macro-algae known as ulva in the back bay waters north of Long Beach Island caused Hempstead Bay to be placed on the New York List of Impaired Waters (Clean Water Act Section 303(d) List) in 2006. Nitrogen contained in the WPCP's effluent is discharged into receiving waters that circulate into the shallower back bay waters of Hempstead Bay, mixing with these waters

⁷ Service area population estimates are based on 2010 U.S. Census data.

⁸ NYSDEC classifies all waters in New York State for their best uses (e.g., fishing, source of drinking water) and standards (and guidance values) are set to protect those uses. Letter classes such as A, B, C, and D are assigned to fresh surface waters, and SA, SB, SC, I, and SD to saline (marine) surface waters. The best usages of Class SB waters are primary and secondary contact recreation and fishing; waters are suitable for fish, shellfish and wildlife propagation and survival (6 CRR-NY 701.11).

and influencing ulva growth. In turn, tides, prevailing winds, and currents push large mats of the macroalgae/ulva into adjacent waters from Atlantic Beach to Jones Inlet. Throughout the Western Bays, ulva mats cover surface waters for much of the summer. Eventually the ulva dies and sinks to the bottom of the bays where it consumes oxygen from the waters, or it washes up on shore where it rots, leaving beaches unsuitable for recreation. The loss of dissolved oxygen in the waters from excessive levels of plant growth and decay causes fish to leave the waters, and shellfish to perish. The Long Beach WPCP discharge is estimated to comprise approximately 5 percent of the nitrogen loading from point discharges.

The Bay Park STP discharge outfall is located approximately 3,300 linear feet northwest of the Long Beach WPCP's discharge outfall and represents the largest source of point discharge of nitrogen into the estuary. The Bay Park STP has a permitted capacity of 71 mgd, with flow that averages in excess of 50 mgd. In early 2008, NYSDEC enacted water quality-based standards for ammonia and dissolved oxygen for treatment facilities discharging into marine waters, including Reynolds Channel.

NYSDEC proceeded to modify SPDES permits for discharges into the Western Bays (Class SA/SB waterbody)⁹ including the discharge permits of the Greater Atlantic Beach Water Reclamation District, the Village of Lawrence, Jones Beach State Park STP, the County, and the City for both ammonia and dissolved oxygen. Subsequently, a new effluent limitation for total residual chlorine was added as an effluent limitation to all dischargers. Since 2008, discharges from the Village of Lawrence and Jones Beach State Park STP have been redirected out of the Western Bays. The Long Beach WPCP as configured in 2008 was not capable of meeting the new discharge limitations for ammonia and total residual chlorine.

The City produced an Engineering Report in January 2011 that provided a detailed analysis of the existing WPCP and the options available for achieving compliance for both ammonia reduction and total residual chlorine. (The 2011 report did not address hardening because Hurricane Sandy had not yet occurred.) The City submitted the report to NYSDEC, and it was subsequently approved, along with a compliance schedule, in September 2011. However, before the plan of action could be implemented, on October 29, 2012, Hurricane Sandy came ashore in southwestern Nassau County and caused significant damage to both the Long Beach WPCP and the Bay Park STP.

Hurricane Sandy resulted in flooding at and damage to the WPCP, including failure of influent pumps and inundation of primary and grit tanks with sand, which rendered the facility inoperable for an extended period. Pump failures in the collection system resulted in overflows and sewage backup into houses in Long Beach and Lido Beach, a bypass of the Lido Beach collection system, and caused a discharge of untreated sewage into the waters of New York State.

The City focused on the restoration of these critical facilities, expending approximately \$5 million on WPCP and pump station repairs. The ammonia reduction options identified in the 2011 Engineering Report were put on hold while these repair efforts were underway. In 2016, the City was able to allocate funds (\$1 million) to complete a dechlorination project that enabled the WPCP to comply with the new effluent limitation for total residual chlorine (0.5 milligrams per liter). In total, the City has recorded over \$6 million in repairs to date.

⁹ The best usages of Class SA waters are shellfishing for market purposes, primary and secondary contact recreation and fishing; waters are suitable for fish, shellfish and wildlife propagation and survival (6 CRR-NY 701.10). See preceding footnote for best/suitable uses of Class SB waters.

NYSDEC is responsible for enforcing the State's Environmental Conservation Law (ECL) Title 6 of the Official Compilation of the Codes, Rules and Regulations of the State of New York (CRR-NY), and for monitoring and enforcing SPDES permits, including SPDES permit # NY0020567, under which the Long Beach WPCP operates (**Appendix B**). NYSDEC and the City of Long Beach have executed an Order on Consent (DEC Case No. CO 1-20151020-142) for resolution of SPDES permit violations that includes effluent violations, water quality standards violations, and failure to comply with previously approved schedules of compliance. The Order on Consent (**Appendix C**) provides details of the violations associated with the discharge from the Long Beach WPCP.

The 2017 Order on Consent also identifies several structural equipment deficiencies at the WPCP that the Order requires to be addressed by its established completion date, and requires it to be noted in a Corrective Action Plan. While resolution of these deficiencies specified would bring the WPCP into a state of good repair, the Corrective Action Plan does not address the current and future discharge of excess nitrogen (ammonia) into Reynolds Channel. The 2017 Engineering Report (**Appendix C**), which the City prepared in response to the Order on Consent, estimated that the repair items would cost approximately \$1.5 to \$2 million to implement (Cameron Engineering 2017).

The Order on Consent discusses the impacts of Hurricane Sandy on the WPCP and resultant discharges of raw wastewater, the connection between the WPCP's discharge and increased growth of macro-algae (ulva) and its contribution to the deterioration of the Western Bays, and the overall negative impact of excess nitrogen on the marshlands leading to destabilization and degradation of these vital wetlands. The Order on Consent provides the City with two options for addressing the deficiencies of its WPCP: (1) implement improvements that can achieve nitrogen reduction to the limits of available technology, or (2) convert the existing plant into a pump station with an associated force main to the mainland (i.e., Bay Park) to divert wastewater to the Bay Park STP. The second option requires the execution of an IMA between Nassau County and the City of Long Beach.

As indicated in the Order on Consent, Option 2, the proposed diversion of wastewater flow from the Long Beach WPCP to the Bay Park STP for treatment and discharge would eliminate the need to repair and update the WPCP to comply with SPDES permit requirements and would limit significant costs that the City would incur to abate excess nitrogen discharges that cause and contribute to violations of water quality standards. The 2017 Engineering Report included an alternatives analysis that evaluated the two options, which confirmed that the proposed wastewater diversion/consolidation project would be the most cost-effective option and the preferred approach for the City. The preferred alternative entails redesigning the existing influent pump building into a new flow diversion pump station, installing a force main from the pump station to the mainland, and connecting the force main to Bay Park STP.¹⁰ The repurposing and hardening of the existing structure would cost less than the design and construction of a new treatment plant. The existing WPCP would remain in service during construction of the improvements to the existing structure and during the installation and connection of force main piping to the existing Bay Park STP.

The IMA between Nassau County and the City of Long Beach identifies the proposed project and establishes the collocative effort to implement the project. The IMA identifies the responsibilities of each party during each project phase (pre-construction, construction, interim operation, connection phase, transition, and consolidation) and was executed in July 2019.

¹⁰ The proposed force main would intercept the existing 66-inch reinforced concrete sanitary sewer pipe (located west of the Bay Park STP) that would carry the flow into the Bay Park STP for treatment.

Hurricane Sandy storm surge flooding also resulted in severe damage to the City's satellite pump station facilities that are located upland along Park Avenue at Roosevelt Boulevard, New York Avenue, and Indiana Avenue. To restore and maintain wastewater service to the service population, interim work was completed at each facility following the hurricane but largely did not include flood mitigation (Hazen ARCADIS Joint Venture 2020a). Because these facilities are susceptible to flooding, the proposed project incorporates hardening of the City's satellite pump station facilities to above the 0.2 percent annual chance (500-year) flood elevation.

3.2 PROJECT ELEMENTS

The proposed project comprises the following elements: (1) conversion of the Long Beach WPCP's headworks and influent pump to a resilient, diversion pump station; (2) installation of a 24-inch force main from the diversion pump station to the Bay Park STP; (3) connection from the force main to the existing sewer main located west of the Bay Park STP; and (4) hardening of the three satellite pump stations through a combination of elevation and floodproofing actions. The proposed force main would intercept the existing 66-inch reinforced concrete sanitary sewer pipe located west of the STP, and the existing pipe would then carry the flow into the STP for treatment. The County would maintain all features.

3.2.1 Long Beach Diversion Pump Station

Under the proposed project, the existing WPCP headworks and influent pump would be converted into a resilient, flow diversion pump station. A robust assessment of pumping system alternatives was conducted as part of the design process (Hazen ARCADIS Joint Venture 2019a, see **Appendix D**, pages 4-4 through 4-11). Alternatives that were evaluated included the construction of a new pump station and the hardening and repair of the existing pump station (i.e., build perimeter wall).

As indicated in the 100 percent design drawings (Hazen ARCADIS Joint Venture 2020b, see **Appendix E**), the existing influent pumping station would be repurposed by replacing the existing pumping units and all associated equipment and would protect critical equipment against 500-year flooding events. A new electrical building and a new generator with an enclosure would be constructed at the Design Flood Elevation to replace the existing structures. The existing pump station's belowground structures would be retrofitted with new equipment capable of pumping across Reynolds Channel, a length of approximately 18,400 feet, through a 24-inch force main.

The facility is being designed in accordance with the City of Long Beach Building Code, Nassau County Department of Public Works regulations, and NYSDEC-recommended standards for wastewater facilities. The diversion pump station would feature key pieces of equipment. The minimal new equipment would include:

- Influent screens
- Screenings dewatering and compaction unit
- Transfer conveyors
- Influent pumping units
- Pump controls
- New emergency standby generator
- Ancillary systems; hoists; lighting; HVAC; and electrical upgrades
- Flow metering (reuse existing meter)

According to the 10 percent design submission package, the proposed diversion pump station would have a design flow of 17 mgd with two large pumps (17 mgd) for peak (wet weather) water flow conditions (one operational, one back up) and two small pumps (6.6 mgd) for low/average (dry weather) flow conditions (one operational, one back up).

In terms of the electrical basis of design, a new commercial electric normal supply would be provided by PSE&G Long Island. A new electric standby supply (i.e., a diesel engine generator) would be installed. The existing electric PSE&G supply and emergency standby generator would remain operational until the existing WPCP is no longer needed. The existing lighting and receptacles would be demolished. The diversion pump station would have minimal exterior lighting (i.e., motion-activated lighting fixtures over each personnel door), and the area would be screened.

The Design Flood Elevation for the diversion pump station is 21.4 feet (12.1 feet above existing grade),¹¹ which would provide protection for a 500-year flood event.

Figure 3 presents the site plan for the overall facility and **Figure 4** presents demolition details. The proposed conversion would entail the following modifications to the existing structure:

- Modifications to the basement floor to house new pumps
- Modifications to existing openings at various floor levels in the building
- Reconstruction of roof slab for applicable loads (a live load of 250 pounds per square foot is assumed for the future roof slab)
 - Existing beams, columns and slabs were checked for the new loading conditions.
 - Concrete encased steel beams are proposed for use as structural framing for platform construction.

The development of the diversion pump station would require the temporary use of a bypass pumping station during the proposed project's estimated three-year construction period (i.e., from December 2020 to August 2023). **Figure 5** depicts the proposed location of the bypass pumping station and two additional temporary construction staging areas at the Long Beach WPCP site. The construction staging areas would occupy a combined total area of less than 0.5 acre at the existing Long Beach WPCP site.

Once the flow diversion pump station has demonstrated its reliability, the balance of the existing WPCP would be decommissioned in accordance with NYSDEC requirements, demolished, and the land would be made available for appropriate reuse. The expected decommissioning and demolition activities would occur as part of a separate future action. The potential future reuse of the remainder of the WPCP property is discussed in **Section 9**, Cumulative Impact Analysis.

¹¹ All design flood and base flood elevations are provided in North American Vertical Datum of 1988.

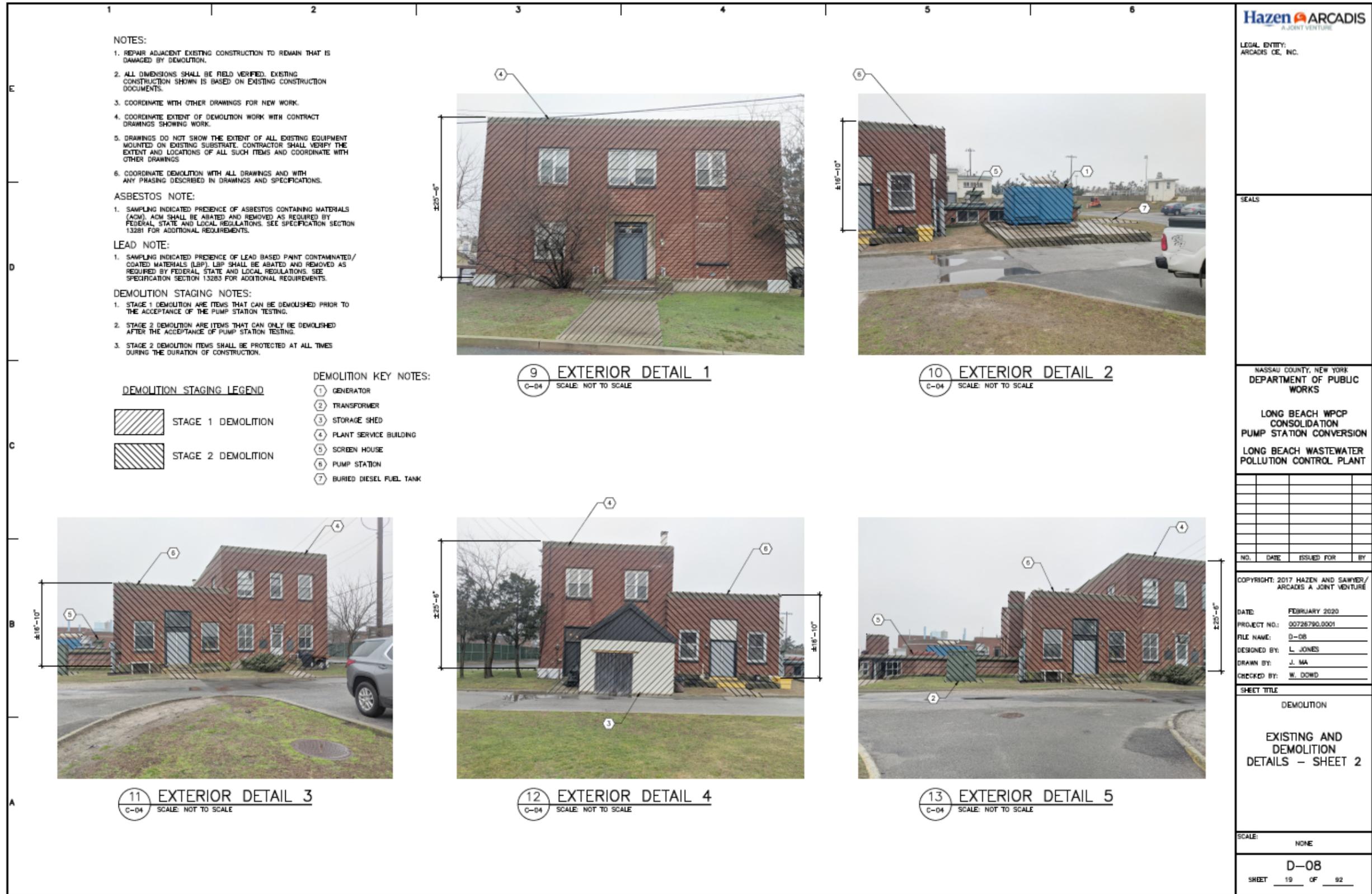


Figure 4: Existing Long Beach WPCP and Exterior Demolition Details

3.2.2 Force Main Installation

This project element involves the installation of a 24-inch force main in a 32-inch-diameter steel casing to transfer the City’s wastewater 18,400 feet (approximately 3.5 miles) to the mainland where it would tie into the Bay Park STP. The force main and open-cut sections would be constructed of a combination of high-density polyethylene (HDPE) pipe and ductile iron pipe that would initiate at the pump station at the Long Beach WPCP, travel northwest beneath and through the hassock islands, and connect to the existing 66-inch sewer main located along the park area immediately west of the Bay Park STP. **Figure 6** illustrates the proposed force main alignment. (See **Appendix E** for 30 percent design plans.)

The force main installation would be performed with HDD trenchless technology in three sections. Open cut trench construction methods would be used to connect the HDD segments at the ends of each section, as well as to connect the force main to the existing 66-inch interceptor sewer main west of the Bay Park STP and to the proposed diversion pump station at the existing Long Beach WPCP property. HDD would be used for the portion of the alignment that crosses under Reynolds Channel and the hassock islands to reach the mainland at Bay Park. Five aboveground air vents—one in the City of Long Beach, one on South Black Banks Hassock, one on Pearsalls Hassock and two in Bay Park—would be located along the force main where sections are connected to allow for ventilation.

Because of the total length of the force main pipe and the limitations of HDD technology, the casing and the pipe would need to be installed in three sections requiring three drilling operations at two locations. The three force main sections are depicted on **Figure 6** and described in **Table 1**.

Table 1: Pipeline Section, Construction Method, Length, and Route

Pipeline Section	Construction Method	Length (Linear Feet)	Route
1	Open Cut (upland)	730	Excavate from Long Beach WPCP, along West Pine Street, and through the access road to the parking lot by the boat ramp
1	HDD	3,660	Drill Segment 1 from the parking lot outside the Long Beach WPCP to the South Black Banks Hassock
2	HDD	4,760	Drill Segment 2 under South Black Banks Hassock north to Pearsalls Hassock
3	HDD	3,800	Drill Segment 3 below the surface of Pearsalls Hassock to the southern end of Bay Park
3	Open Cut (upland)	5,450	Excavate through Bay Park from the end of Drill Segment 3 to the connection with the 66-inch sewer at Bay Park STP

Notes:

Open cut sections would be constructed in upland areas and not wetlands.

HDD lengths include the open cut connection between drill segments.

Construction Activities and Elements

The HDD installation process consists of four stages: (1) drilling the pilot hole to establish the alignment, (2) enlarging the pilot hole to a diameter sufficient to accommodate the casing pipe (pre-reaming), (3) installing the steel casing by pulling it through the drilled hole (pullback), and (4) installing the force

main by pulling it through the installed casing (pullback). Construction activities and the elements associated with these stages are described below.

A temporary entry site and exit site would be associated with each pipeline segment installed. As illustrated in **Figure 6**, four HDD work sites would be required because some of the sites would serve as entry/exit points for pipeline segments installed in two directions. One such site on Pearsalls Hassock would serve as a drilling site for both south and north force main segments (Pipeline Sections 2 and 3). Similarly, a single site on South Black Banks Hassock would serve as the entry point for pullback of Pipeline Section 1 to the south and pullback of Pipeline Section 2 to the north. Temporary access paths would be required to get equipment and materials to the drill site on Pearsalls Hassock and pullback site on South Black Banks Hassock. A drilling site for Pipeline Section 1 would be located at the Long Beach WPCP, and a single pullback site for Pipeline Section 3 would be located at the County's Bay Park facility (near the golf course). Three pullback areas would be used as laydown areas for materials/equipment and pre-assembly of the pipe segments prior to installation. The construction elements are discussed further below.

- **Drill Sites**—Two HDD drill locations would be required: one north of the existing Long Beach WPCP (not within waters of the U.S.) and one on Pearsalls Hassock (within waters of the U.S.).
- **Access Paths**—Access paths would be needed to transport and place drilling equipment and materials (32-inch-diameter steel casing pipe, 24-inch-diameter force main pipe, marsh mats for the pipe laydown/assembly, pullback and drill site, and access path) to the pipe laydown/assembly and pullback site on South Black Banks Hassock and the drill site on Pearsalls Hassock.
- **Pipe Pullback Sites**—A pipe pullback site (i.e., HDD work site) would occur on South Black Banks Hassock (within waters of the U.S.) to facilitate pullback of the casing and force main pipe through the casing. A second pipe pullback site (i.e., HDD work site) would occur at Bay Park (not within waters of the U.S.).
- **Pipe and Casing Laydown/Assembly Areas**—The HDD method requires that pipe be assembled and laid out in a continuous line for pulling through the excavated borehole on South Black Banks Hassock. Assembly and laydown would also apply to the 32-inch-diameter steel casing within which the 24-inch-diameter force main pipe would be constructed. Two such areas would occur: one on South Black Banks Hassock and one on both North and South Black Banks Hassock, and a third casing laydown/ assembly area would occur (on uplands) along the eastern edge of Bay Park, east of the Bay Park STP. See discussion below (under Temporary Impacts) regarding options for the pipe pull back area spanning North and South Black Banks Hassocks.
- **Marsh Mats**—For construction laydown/assembly and access path, wetland (swamp or marsh) mats would be used to protect the ground. These mats would be used at the drill rig and pipe pullback sites, along the pipe pullback laydown corridors, and for the access paths on South Black Banks and Pearsalls Hassocks to provide access from the shore to the work site. Barges would be used to transport equipment and material on and off the hassock islands. Marsh mats would remain on site in all work areas until work in specific sections is complete and restored.

The existing 84-inch Bay Park STP outfall pipeline is buried underneath the hassock islands and Hempstead Bay seafloor, extending approximately 2.3 miles south of the Bay Park STP and ultimately discharging to an outfall in Reynolds Channel, roughly 3,300 feet northwest of the City's WPCP outfall. The proposed HDD and cut-and-cover construction activities would not disturb the existing outfall.

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Figure 6a: Proposed Project

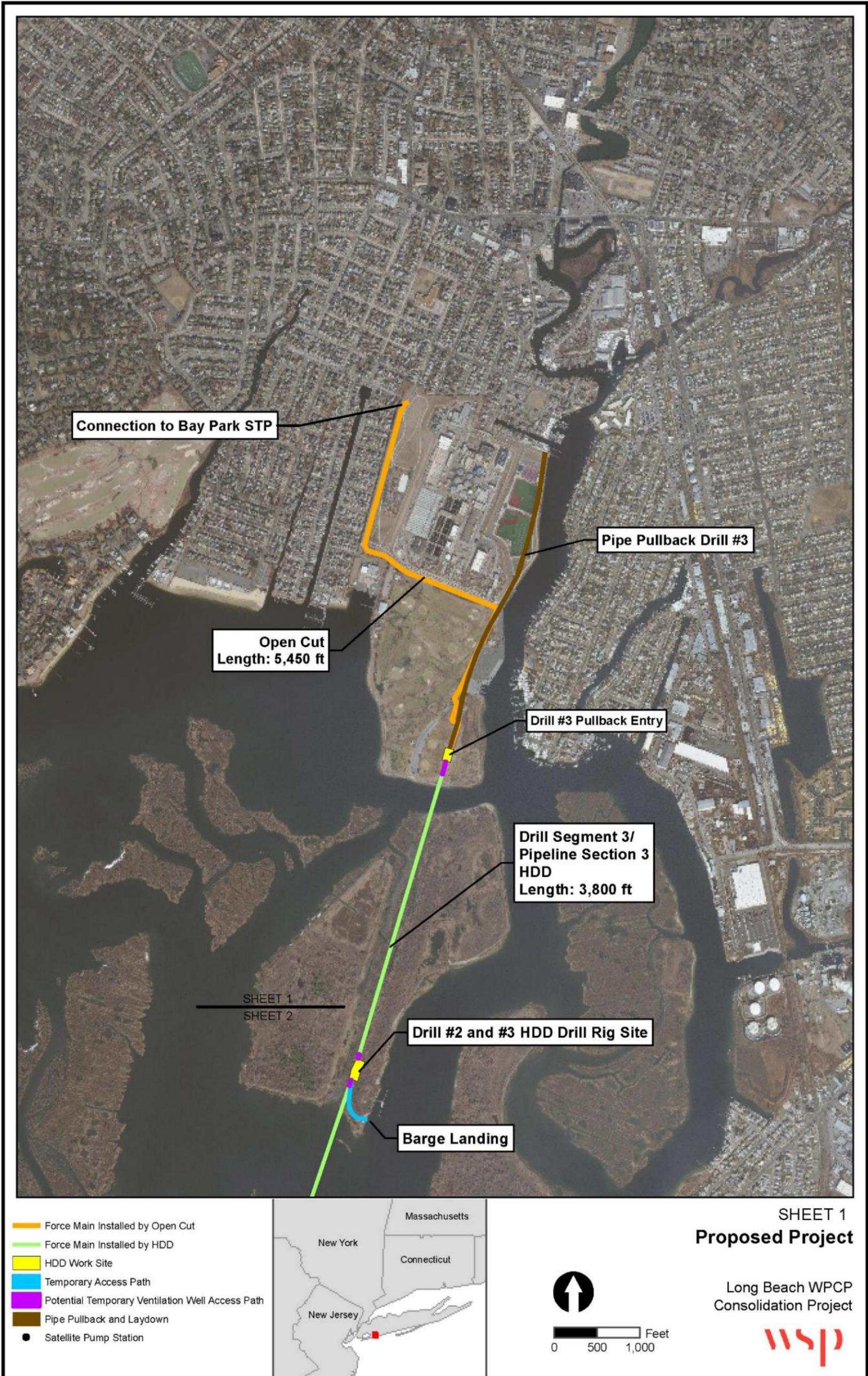


Figure 6b: Proposed Project



Figure 6c: Proposed Project

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Temporary Impacts

As detailed in the Work Window Justification for Work in Tidal Wetlands of Hassocks report provided in **Appendix F**, installation of the force main would have unavoidable, temporary impacts on state-regulated tidal wetlands on the hassock islands. The schedule for constructing the force main portion of the proposed project is anticipated to last approximately 1.5 years (17 to 18 months). **Table 2** indicates the estimated size and duration of temporary disturbance to tidal wetlands associated with each project element (Hazen ARCADIS Joint Venture 2020c, 2020d).

Table 2: Temporary Wetland Impacts and Duration of Construction Activity

Area	Element	Disturbance to Tidal Wetland (Acres)	Disturbance to Open Waters (Acres)	Disturbance to Upland Adjacent Area (Acres)	Duration (Months)
North and South Black Banks Hassocks	Access Path	0.217	>0.001	0.000	17
	Pullback Site (HDD Work Site)	0.700	0.000	0.000	17
	Laydown Area/ Assembly/Pullback for Pipeline Section 1	1.444	0.197	1.344	3
	Laydown Area/ Assembly/Pullback for Pipeline Section 2	1.300	0.009	0.000	7
	Channel Crossing (Barge or Trestle)	-	0.218	-	7
Pearsalls Hassock	Access Path	0.196	0.005	0.181	14
	HDD Drill Site	0.448	0.014	0.182	14
Total Disturbance		4.303	0.443	1.707	17-18

For each drill segment, the duration of installation includes the pilot drill and backreaming, casing pipe laydown and string-up, casing pipe pullback, carrier pipe laydown and string-up, and carrier pipe pullback. The process for Drill Segment 1 is estimated to take three months, Drill Segment 2 is estimated to take five months, and Drill Segment 3 is estimated to take three months. These durations are for drilling activities only and do not include site preparation (placing marsh mats), mobilization, demobilization, or the open cut connection between drill segments.¹²

The proposed project would require barges to transport construction materials and equipment to and from South Black Banks Hassock and Pearsalls Hassock. Proposed barge landing areas would be located

¹² The duration estimates consider the long lengths of these segments and the larger size of casing and carrier pipes and are appropriate for the scale of the proposed project. All the construction activities listed above must be performed in sequence, with no time lapse in between for successful installation.

along the eastern shorelines of the hassock islands as depicted in **Figure 6**. In addition, one barge may be temporarily anchored along the southern shoreline of South Black Banks Hassock to facilitate pipe laydown and would remain in place as long as necessary to complete project activities. Small crafts would make daily landings to allow transport of construction personnel between the hassock islands and the mainland.

To allow for continuous pullback of Pipeline Section 1, the construction contractor would select from three options to span the channel between North and South Black Banks Hassocks. One alternative would be to temporarily anchor a barge to the bottom of this channel. A second alternative would be to build a temporary trestle, whereby frame supports would be driven into the channel bottom to support the trestle. For both alternatives, the method of pipe support across the channel would remain in place for the duration of project activities in this area. A third alternative would be to float the pipe across the channel. In this option, buoys or other inflatables would be used to float the pipe on the surface of the water. The trestle option is anticipated to be selected because the depth of water and tidal fluctuation in this channel would make implementation of the barge and float options difficult. Additionally, trestle piles would affect a smaller area than the footprint of a barge or float options that would rest on the channel bottom at low tide. To span the channel, the trestle would be approximately 200 feet long and 50 feet wide and be supported by timber piles. Construction of the trestle would require the use of a vibratory hammer to install 120 timber piles, each 12 inches in diameter. During trestle removal, a vibratory driver would likely be used to disengage the pile from the substrate to facilitate pile removal. Whichever option is selected, the maximum area of temporary disturbance would be of 0.218 acre (9,500 square feet) in open waters.

The following activities associated with each project element are assumed to occur:

- **HDD Drill and Work Sites**—Disturbances would include vegetation removal and soil excavation to support HDD drilling. Ancillary support activities would also occur within drill locations.
- **Access Paths**—Disturbance would include placement of marsh mats on existing vegetation for durations of 14 to 17 months.
- **Laydown /Assembly/Pullback Areas**—Disturbance would include placement of marsh mats on existing vegetation for durations of three to seven months.

Woody vegetation clearing is not anticipated in tidal wetlands. Marsh mats and other temporary features to support construction would be placed between December 1 and March 15 to minimize impacts on wetland vegetation—which does not grow during this period—and sensitive species (i.e., nesting birds). Nesting surveys were completed in spring and late summer of 2020. The County would be responsible for ensuring that a final round of nesting surveys was completed prior to construction. If necessary, nesting deterrents would be installed prior to construction activities and the nesting season to avoid direct impacts on nesting birds.

Site restoration is assumed to include restoration of pre-existing grades (i.e., drill site location); removal of marsh mats (i.e., pullback sites and access paths); and planting of native plant species to specifications to be included in an NYSDEC-approved wetland restoration plan. As discussed further below, site restoration activities would begin as soon as possible during the following spring or early fall after specific project components are completed to minimize service loss to tidal wetlands and quickly restore temporarily disturbed areas. The installation phase of the proposed force main route has been designed to minimize the total acreage impacted over longer durations (i.e., 14 or 17 months). For example, the largest impact acreages identified in **Table 2** (i.e., to support laydown/assembly/pullback

areas of Pipeline Sections 1 and 2 on North and South Black Banks Hassocks) would be limited to three- and seven-month periods.

Wetland services lost during the short duration of the construction activities would be restored through on-site and in-kind restoration. Staged wetland restoration would commence during the work period to minimize and distribute losses of wetland functions and services across the hassock islands so that all losses are not realized simultaneously. All restored portions of these wetlands are expected to achieve their current function and services within three years of construction.

The footprints for access paths and drill sites would remain in place over the 14- to 17-month construction period. Tidal hydrology would be maintained throughout the project through project design; water quality (i.e., turbidity) would be addressed through sediment and erosion control practices to be installed and maintained throughout the construction period to prevent movement of disturbed soils and/or sediments; native plant communities would be restored immediately following construction completion specific to different project elements.

As demonstrated above in **Table 2**, the acreage and duration of the temporary wetland impacts would not be constant throughout the length of the project's construction period but would vary depending on the activity and timing of restoration. It is estimated that 0.916 acre of intertidal wetlands on South Black Banks Hassock would be impacted for the entire 17-month period of activity for Pipeline Sections 1 and 2, and 0.644 acre of intertidal wetland habitat on Pearsalls Hassock would be impacted for the entire 14-month period of construction activity for Pipeline Sections 2 and 3.

Wetland Restoration

After Pipeline Section 1 is installed on South Black Banks Hassock, 1.444 acres disturbed for pipe laydown/assembly and the pullback area would be restored, and after installation of Pipeline Section 2, 1.300 acres disturbed for pipe laydown/assembly and the pullback area would be restored. Similarly, after the connections of Pipeline Sections 1 and 2 are completed, 0.700 acre disturbed for the pipe pullback site and 0.217 acre disturbed for the access path would be restored (Hazen ARCADIS Joint Venture 2020c, 2020d).

On Pearsalls Hassock, 0.644 acre of tidal wetlands would be disturbed for approximately 14 months. To account for temporary impacts to wetlands, the proposed project would restore approximately 2.144 acres of tidal wetlands on Pearsalls Hassock (i.e., 0.644 acre on-site and in-kind restoration plus 1.5 acres of additional restoration, which is discussed below).

Multiple site-specific restoration efforts would be undertaken on South Black Banks Hassock to minimize the service loss associated with the construction project. Approximately 21 percent of the anticipated tidal wetland impacts (i.e., 0.916 acre) would be maintained throughout the 17-month construction period. The largest impact (i.e., 1.444 acres associated with laydown/assembly/pullback for Pipeline Section 1) would be restored after three months, with most of the work associated with this impact occurring within the period of December 1 to March 15 to minimize impacts. To account for temporary impacts on approximately 3.660 acres of tidal wetlands, the project would restore approximately 6.660 acres on South Black Banks Hassock (i.e., 3.660 acres on-site and in-kind restoration plus 3.0 acres of additional restoration, which is discussed below).

Additional Ecological Restoration

Nassau County has proposed two ecological restoration phases on the Hassock Islands to provide additional ecological benefits that specifically target restoration of native plant communities in addition to the expected benefits of reducing nitrogen loading in the Western Bays. These two phases would provide additional ecological benefits to the Western Bays to offset the temporary impacts associated with the required construction activities (Hazen ARCADIS Joint Venture 2020c).

- **Pearsalls Hassock**—To restore locations of significant bank erosion of intertidal channel on the north side of Pearsalls Hassock, work would focus on recreating a stable channel bank and then restoring historic grades suitable to support native low marsh habitats. This work would restore and enhance an additional 1.5 acres outside the project area. The restoration design is anticipated to follow similar living shoreline projects implemented in protected tidal inlets and shorelines along the north Atlantic coastline.
- **South Black Banks Hassock**—At a location of a large patch of common reed (*Phragmites australis*) occurring in both high marsh and adjacent upland transitional habitat, the project objective is to create elevations at a height compatible with tidal hydrology necessary to restore intertidal channel and low- and high-marsh habitat dominated by smooth cordgrass (*Spartina alterniflora*). Restoring tidal hydrology is expected to introduce salinities in which common reed is intolerant of and cannot survive. This would provide restoration and enhancement to an additional 1.99 acres outside the project area.

In January 2020, the U.S. Fish and Wildlife Service (USFWS) noted potential opportunities to strategically target suitable habitats to support the saltmarsh sharp-tailed sparrow (*Ammodramus caudacutus*). The proposed mitigation actions described above would result in an increase of 0.80 acre of native species-dominated high marsh habitat that may benefit this species of conservation concern. Opportunities for restoration of high marsh habitat were evaluated based upon ability to effectively control future establishment of common reed. A five-year compliance monitoring and adaptive management program would be implemented to ensure the restoration and mitigation actions are achieving intended objectives.

Permanent Impacts

Permanent impacts in NYSDEC-regulated tidal wetlands would be limited to two 10-foot by 10-foot vaults for air release pipes. These vaults and vertical standpipes would be located within each drill entry/drill rig site: one on Pearsalls Hassock at Drill 2 and Drill 3 Rig Site, and one on South Black Banks Hassock at Drill 1/2 Pipe Pullback Entry. The vaults would rise above the elevation of the existing ground, so they are not flooded at high water levels. These permanent impacts would total less than 0.005 acre (200 square feet).

The proposed project would include a 20-foot-wide permanent easement encompassing the HDD route. The County would be responsible for vent pipe maintenance and related activity.

3.2.3 Connection to Bay Park STP

The proposed force main would intercept the existing 66-inch reinforced concrete sanitary sewer pipe located west of the Bay Park STP. The existing pipe would then carry the flow into the Bay Park STP for treatment. A 24-inch-diameter force main was selected to accommodate the projected range of flows from the Long Beach WPCP to maintain suitable minimum and maximum flow velocities and pressures for the projected wastewater flow rates.

3.2.4 Satellite Pump Station Facilities Flood Mitigation

The proposed project would also include hardening the three satellite pump stations through a combination of elevation and floodproofing actions. The three satellite pump stations are the Roosevelt Boulevard pump station servicing the eastern portion of the island, and the New York Avenue pump station and the Indiana Avenue pump station servicing the western portion of the island. These satellite pump stations are located upland along Park Avenue, one of the City's major thoroughfares.

A thorough evaluation of flood mitigation alternatives was conducted for the satellite pump stations (Hazen ARCADIS Joint Venture 2020a, see **Appendix G**). A summary of the three main alternatives is provided below:

1. Pump station hardening: Dry floodproofing, also known as hardening, are the methods used to provide a protective seal around the pump station structure to keep the floodwater from entering the facility. Hardening involves engineering methods to ensure internal and external structural reinforcement and floodproofing penetrations such as doors and vents, and would involve intensive rehabilitation at each of the pump station's superstructures.
2. Elevating critical equipment: This option would include raising the critical equipment above the flood mitigation design elevation. A new separate concrete platform would be constructed, and a new electrical building housing the pump station's critical equipment would be installed on top of the concrete platform. The height of the platform would be designed to match the flood mitigation design elevation, and the structure would be designed to handle expected loads from debris that could be carried during storm events.
3. Installing a floodwall: This alternative would include building a steel-reinforced floodwall around the existing pump stations (with no further modifications to stations). The top of the floodwall would match the flood mitigation design elevation at elevation 21.4 feet North American Vertical Datum of 1988 (approximately) wrapping around the entire pump station area.

Engineering criteria used in the assessment of flood mitigation alternatives included technical feasibility, physical constraints, and architectural blending. The evaluation recommends raising the elevation of critical electrical equipment. For the Roosevelt Boulevard and New York Avenue pump stations, the recommended alternative is to build an elevated platform matching the design elevation to house the critical electrical equipment adjacent to the existing pump stations. The existing superstructures would be demolished while the below-grade wet wells will remain in their current condition. The lot allocated for both pumping stations would have enough open space for the platforms. An architectural review would be coordinated with the local authorities to ensure that the buildings blend with the neighboring environment. The Indiana Avenue pump station is located within the Long Beach Fire Station building, which was recently scheduled for floodproofing upgrades. Because the generator and the electrical room are located inside the building, they will be protected from future flooding events. However, the control panels are located outside and would need elevation. Coordination with the fire department would be needed to determine the best path to relocate this equipment.

The total costs for the satellite pump station flood mitigation work are estimated at approximately \$5 million. The proposed scope of work for each satellite pump station facility is discussed in detail below.

Figure 7 provides an overview of the flood mitigation plan for the Roosevelt Boulevard pump station facility located on the western side of Roosevelt Boulevard at Park Avenue. The flood mitigation design elevation for this pump station facility is 19.6 feet and the elevation at grade is 7.67 feet. The height of the base of the new platform would be 11.63 feet above ground (Hazen ARCADIS Joint Venture 2020a).



Figure 7: Proposed Mitigation Plan for Roosevelt Boulevard Pump Station

Figure 8 presents an overview of the proposed mitigation plan for the New York Avenue pump station facility located on the eastern side of New York Avenue at Park Avenue. The flood mitigation design elevation for this pump station facility is 19.5 feet and the elevation at grade is 8.15 feet. The height of the base of the new platform would be 11.35 feet above grade. As detailed below a new, light metal frame electrical building would be furnished on the new platform to house the pump station’s electrical critical equipment.

Installation of a temporary power system would be necessary during construction of the New York Avenue satellite pump station improvements. Once the temporary system is secured and ready to provide power to run the submersible pumps and all associated critical equipment, the pump station superstructure would be demolished. Based on an evaluation of the building and its age, modifications to make the building structurally sound to withstand flooding events are not expected to be feasible. Accordingly, a new platform would be installed in place of the existing building, within the existing footprint, and a new slab would be installed with access hatches to allow the removal of the submersible pumps. City permitting review would be required because of the visible location and height of the proposed structures. The relocation of the transformers feeding the pumping stations would be discussed with PSE&G Long Island. To protect this infrastructure, the transformers would likely be raised above the flood mitigation design elevation with the rest of the equipment.



Figure 8: Proposed Mitigation Plan for the New York Avenue Satellite Pump Station

Figure 9 presents an overview of the proposed mitigation plan for the Indiana Avenue pump station located on the property of the Long Beach Fire Department Station 2 at 1039 West Park Avenue. The generator and electrical room are located inside the fire station; the control panels are located outside. Floodproofing of the generator and electrical room would be provided as part of the planned fire station upgrades, which include hardening of the fire station building. The control panels would need to be relocated above the flood elevation. Some of the electrical equipment, currently located outside, would be relocated to the building's interior where the entire building will be flood protected as part of scheduled upgrades.

Additionally, the option of building an elevated platform to match the flood mitigation design elevation would be evaluated. The evaluation would require the coordination between the City of Long Beach and the fire department authority to secure real estate for the proposed facility. The flood mitigation design elevation for this facility is 19.5 feet and the elevation at grade is 5.9 feet. The height of the base of a new platform would be 13.34 feet above grade. The platform would house the generator that supports not only the pump station but also the fire department's critical equipment.

The relocation of the transformers that feed the pump station would be discussed with PSE&G Long Island. To protect this infrastructure, the transformers would likely be raised above the design elevation with the rest of the equipment (Hazen ARCADIS Joint Venture 2020a).

Construction of the satellite pump stations is anticipated to start in April 2022 and would be substantially complete by the end of September 2023, with final completion anticipated at the end of December 2023.



Figure 9: Proposed Mitigation Plan for the Indiana Avenue Satellite Pump Station

4 EXISTING CONDITIONS AND TRENDS [24 CFR § 58.40(A)]

4.1 LOCATION

The proposed project is in Nassau County, New York (see **Figure 1** and **Figure 2**). The proposed force main alignment begins at the proposed new pump station at the Long Beach WPCP in the City of Long Beach, New York; traverses Pearsalls Hassock and Black Banks Hassock (under the jurisdiction of the Town of Hempstead); and ends at the Bay Park STP in the Town of Hempstead, New York.

At the northern end of the alignment, Bay Park STP is located in the County’s Bay Park, an approximately 96-acre public park in Bay Park, a hamlet in the southwestern portion of the Town of Hempstead. The proposed project area at Bay Park STP is roughly bounded by North Boulevard to the north, First Avenue to the west, Marjorie Lane and the East Rockaway Channel to the east, and the Bay Park waterfront to the south. The central portion of the alignment is generally located beneath the Hempstead Bay seafloor and underwater lands, owned by the Town of Hempstead, and crosses under the hassock islands’ marshland and Reynolds Channel, which the Town also owns. At the southern end of the alignment, the Long Beach WPCP is located northeast of the intersection of National Boulevard and West Pine Street, adjacent to the City’s Veterans Memorial Park.

The satellite pump stations are located on the Long Beach barrier island to the south of the WPCP along Park Avenue, a major thoroughfare in the City. The Indiana Avenue satellite pump station is located approximately 1.7 miles southwest of the WPCP at the Long Beach Fire Department Station 2. The New York Avenue satellite pump station is a little over 1 mile southwest of the WPCP, in the median of Park Avenue roughly 300 feet east of New York Avenue. The Roosevelt Boulevard pump station is located in the median of Park Avenue, approximately 1.2 miles southeast of the WPCP immediately west of Roosevelt Boulevard.

According to U.S. Census data, the City of Long Beach has a population of 33,509 and a population density of approximately 15,110 people per square mile; the Hamlet of Bay Park has a population of 1,614 and a population density of approximately 3,215 people per square mile. The communities surrounding the project area represent a mix of incomes. Roughly 7 percent of the Long Beach population and 4 percent of the Bay Park population live below the poverty line (U.S. Census Bureau 2020). NYSDEC has identified the area surrounding the Long Beach WPCP as a potential environmental justice area (based on 2000 U.S. Census data).

4.2 LAND USE

At the northern portion of the project area in the Hamlet of Bay Park, existing land uses consist of the approximately 48-acre Bay Park STP and the community services and recreational and open space uses within Bay Park, a Nassau County park. The park comprises a variety of open space and recreational uses such as the Bay Park Golf Course, a dog park, playground, multi-use paths, tennis and basketball courts, athletic fields, and a boat launch. The surrounding land use to the north and west of the Bay Park STP and Bay Park consists of a residential neighborhood primarily composed of single-family residences. Hempstead Bay is located to the south, and East Rockaway Channel is to the east.

The central portion of the project area, covering the proposed force main alignment, comprises Hempstead Bay and the marsh islands: Pearsalls Hassock, North Black Banks Hassock, and South Black Banks Hassock. A few hunting/fishing shacks are located on the hassock islands that are used for recreational purposes.

At the southern portion of the project area in Long Beach, current land uses in the vicinity of the 6.5-acre WPCP include community services, with recreational and open space uses to the north and west, Long Island Rail Road (LIRR) tracks and industrial uses to the east, and Reynolds Channel farther north. Directly north of the WPCP, open space and recreational uses affiliated with Veterans Memorial Park include the municipal boat launch, dog run, and skate park. West of the WPCP are additional open space and recreational uses associated with the Long Beach Recreation Center campus that is located along the waterfront farther to the west. The Recreation Center is a City facility that includes athletic fields, basketball courts, a hockey rink, a municipal fishing pier, playground, and an indoor recreation center.

The satellite pump stations are situated along Park Avenue, one of the City's main roadways, generally within residential neighborhoods. The Indiana Avenue pump station is within a residential section of Long Beach primarily occupied by single family residences, while the New York and Roosevelt pump stations are located in residential areas that include single- and multi-family residences in addition to a mix of commercial uses. The New York and Roosevelt pump stations are adjacent to parking areas that are provided in the median of Park Avenue.

4.3 FLOODPLAIN MANAGEMENT

Most of the project area, including the Long Beach WPCP, three satellite pump stations, and Bay Park STP, is located in the FEMA-designated 1 percent annual chance floodplain (100-year floodplain). Other portions of the project area are located in the 0.2 percent annual chance flood hazard zone (500-year floodplain) (see **Figure 10**). Most of these floodplain lands were previously disturbed during construction of the Bay Park STP and outfall and the Long Beach WPCP and outfall.

The five FEMA Flood Insurance Rate Maps (FIRMs) that cover the project area are provided in **Appendix H**. Areas in the 100-year floodplain, Zone A, have a 1 percent annual chance of flooding. The AE designation indicates areas at high risk for flooding and provides the base flood elevations (BFEs) for such areas. VE zones, also known as coastal high hazard areas, are areas subject to high velocity water including waves; they are defined by the 1 percent annual chance flood limits and wave effects of 3 feet or greater.

According to the FEMA FIRM No. 36059C0308G (revised September 11, 2009), the Long Beach WPCP is within an AE flood zone with a BFE of 9 feet, and the New York Avenue pump station is within an AE flood zone with a BFE of 10 feet. According to the FEMA FIRM No. 36059C0304G, the Indiana Avenue pump station (located at the Long Beach Fire Department Station 2 at 1039 West Park Avenue) is within an AE flood zone with a BFE of 10 feet, and partially located within the limits of moderate wave action. According to the FEMA FIRM No. 36059C0309G, the Roosevelt Boulevard pump station is within an AE flood zone with a BFE of 10 feet. At the Bay Park STP site, areas that would be affected by construction are within an AE zone with BFEs ranging between 9 and 10 feet according to the FEMA FIRM No. 36059C0218G. According to the FEMA FIRM No. 36059C0306G, the force main alignment through the haddock islands and Hempstead Bay is in AE and VE zones with BFEs ranging between 9 and 11 feet. As discussed in **Sections 6.1.3 and 6.2.7**, respectively, elevation of the Roosevelt Boulevard and New York Avenue pump stations and the conversion of the Long Beach WPCP's headworks and influent pump to a resilient, diversion pump station would require flood insurance, and the proposed project is subject to the 8-Step Floodplain Process.

Estuarine and marine wetlands are present in the central portion of the project area. The force main alignment also crosses estuarine and marine deep-water habitats. This water drains into the Atlantic Ocean. According to the Nationwide Rivers Inventory and the NYSDEC Wild, Scenic, and Recreation Rivers list, the project area does not contain any Wild and Scenic Rivers (NYSDEC n.d.a; National Wild and Scenic Rivers n.d.).

4.4 COASTAL ZONE MANAGEMENT AND COASTAL BARRIERS

The 1972 Coastal Zone Management Act implements the federal Coastal Zone Management Program, which provides the basis for protecting, restoring, and responsibly developing the nation's important and diverse coastal communities and resources. New York State enacted its own Coastal Zone Management Program in 1982, administered by the New York State Department of State (NYSDOS). Local governments also have an opportunity to participate in the State's program on a voluntary basis and are encouraged to prepare and adopt local waterfront revitalization programs (LWRP), which in turn, would provide more detailed implementation of the State's program through use of existing broad powers such as those covering zoning and site plan review.

The proposed project is located within the New York State Coastal Zone as shown in **Figure 11** (NYSDOS 2017). The City of Long Beach currently does not have a NYSDOS-approved LWRP.

The Coastal Barrier Resources Act was enacted in 1982, with the goal of removing historical federal incentives that subsidized and encouraged development of coastal barriers and resulted in the loss of natural resources. The Act and subsequent amendments designated relatively undeveloped coastal barriers along the Atlantic, Gulf of Mexico, Great Lakes, U.S. Virgin Islands, and Puerto Rico coasts as part of the Coastal Barrier Resources System and made these areas ineligible for most new federal expenditures and financial assistance. The project area is not included in a Coastal Barrier Resource System, as shown in **Figure 12**.

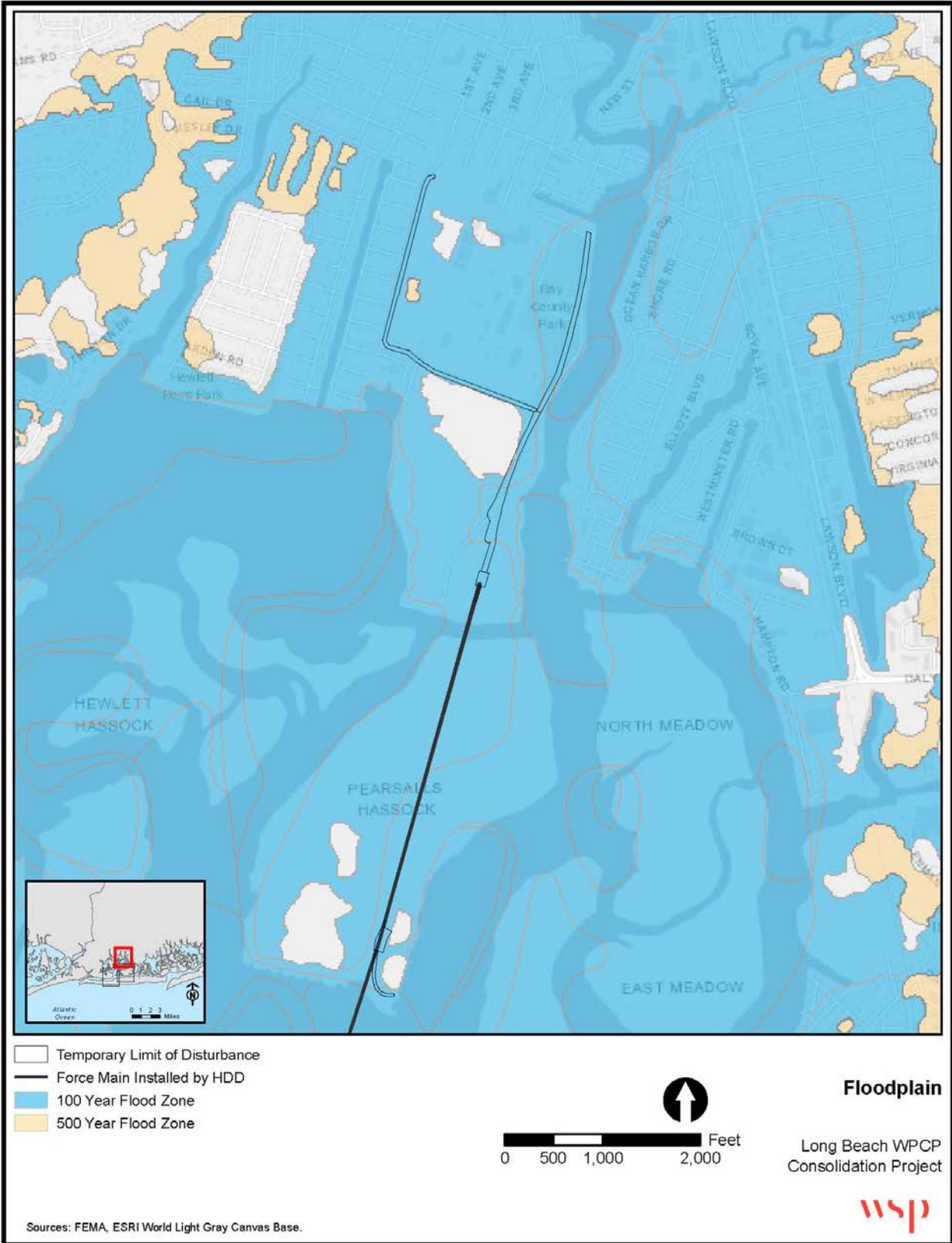


Figure 10a: Flood Hazard

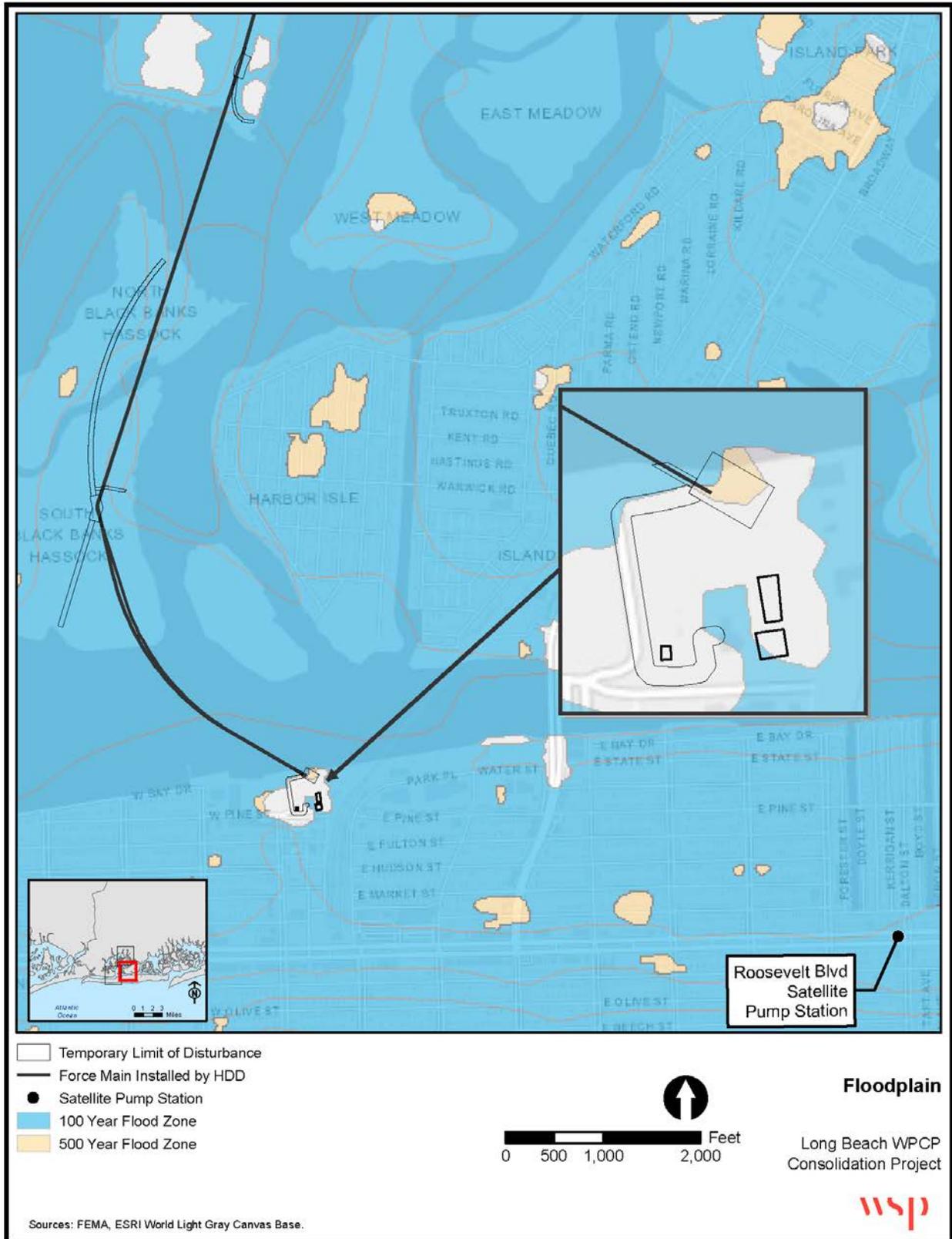


Figure 10b: Flood Hazard

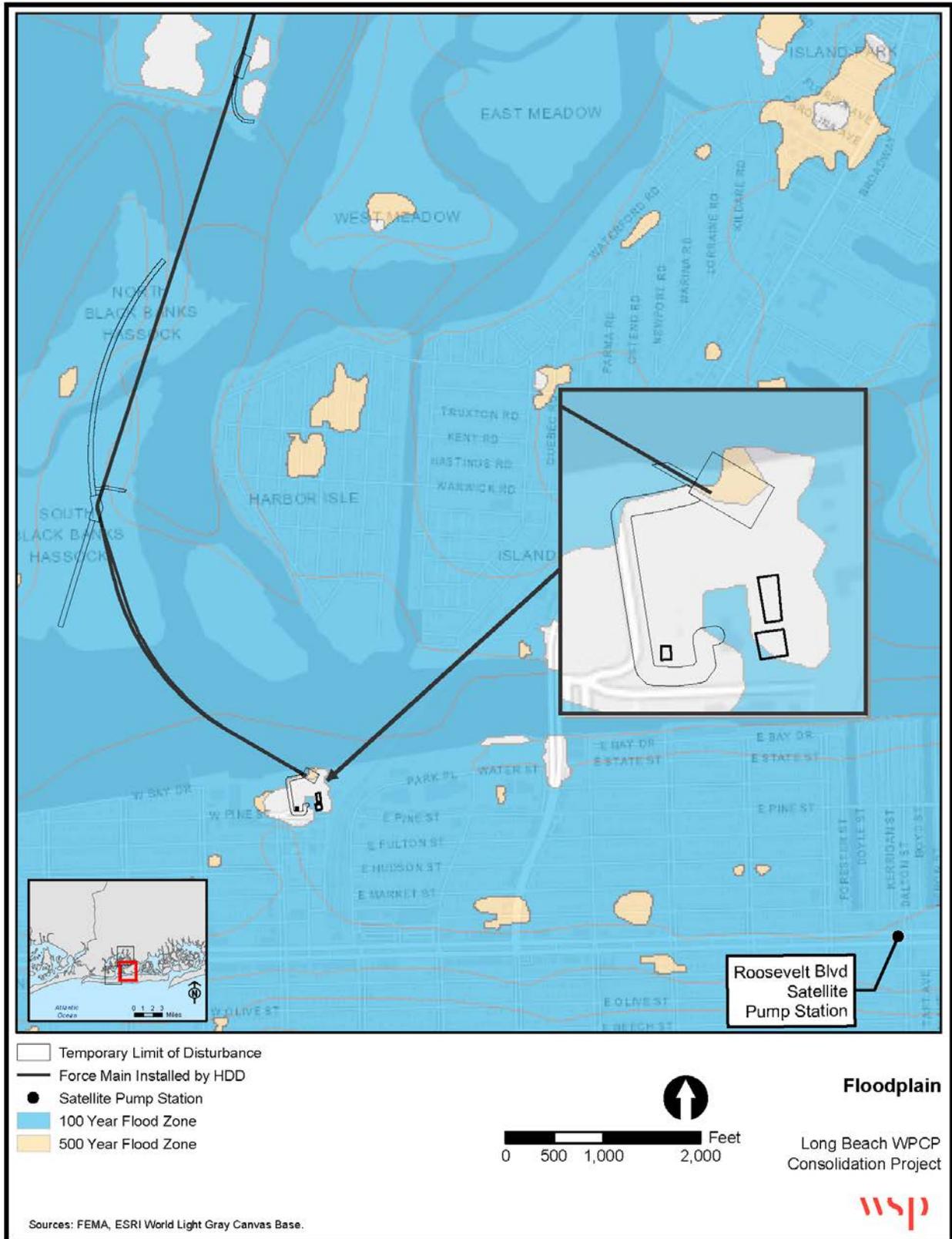


Figure 10c: Flood Hazard

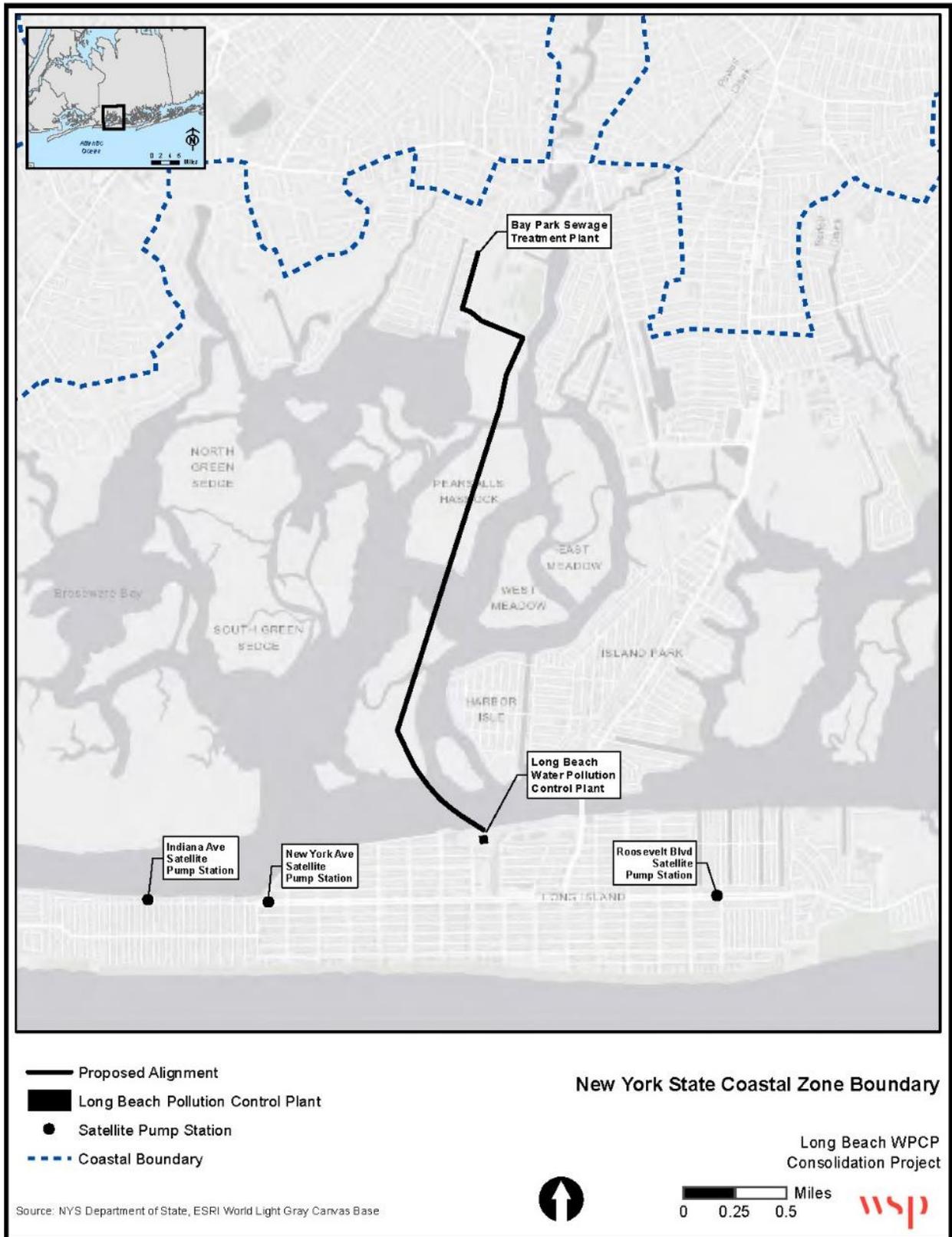


Figure 11: Coastal Boundary



Figure 12: Coastal Barrier Resource System

4.5 CULTURAL AND ECOLOGICAL RESOURCES

4.5.1 Cultural Resources

The cultural resources area of potential effect (APE) is coterminous with the project area and comprises four main areas of construction: the footprint of the Long Beach WPCP on the north shore of Long Beach barrier island, the footprint of the satellite pump station facilities on the Long Beach barrier island, the Hassock Islands and Hempstead Bay/Western Bays, and the Bay Park STP area.

The locations of the Long Beach WPCP and Bay Park STP are provided above in **Section 4.1**. South Black Banks Hassock is an approximately 79-acre island to the northwest of the Long Beach WPCP, across Reynolds Channel. Most of the island is marshy wetlands with a higher elevation upland portion at its southwest corner. North Black Banks Hassock is an approximately 44-acre island north of South Black Banks Hassock. It mostly consists of marshy wetlands with an upland portion in its west central area. The disturbed area created by the historic installation of the existing Bay Park STP outfall pipeline circa 1947 (buried below the surface of the sea floor) runs north-south through the center of the islands. The North and South Black Banks Hassocks are largely undeveloped. A few wooden docks constructed to service small fishing or recreational shacks are built on piles at the island exteriors. Many of these were damaged or destroyed by Hurricane Sandy in 2012.

Pearsalls Hassock is an approximately 147-acre island north-northeast of North Black Banks Hassock. It consists of two upland areas at its west and east sides; its shores, northwest portion, and a central corridor are all wetlands. The island, largely undeveloped, contains several circa 1950s tanks. Like North and South Black Banks Hassocks, a disturbed area associated with the installation of the existing Bay Park STP outfall pipeline runs north-south through the center of the island.

A review of reports and other historic information indicate that the APE remained undeveloped until the late nineteenth century, when the LIRR constructed support buildings at the site of the current Long Beach WPCP. These buildings were removed for construction of a mid-twentieth-century sewage treatment facility, an early form of the Long Beach WPCP. The New York Avenue pump station was constructed in 1955, and the Roosevelt Boulevard pump station was constructed in 1958. No structures are documented on the Hassock Islands until 1927, when coastal structures appear that were likely small bay shacks or support buildings for maintenance of the sewage facilities being constructed in Bay Park. By 1947, the Bay Park STP outfall had been constructed under and through the center of Pearsalls Hassock, North Black Banks Hassock, and South Black Banks Hassock. The subsurface installation of the sewer outfall resulted in an area of disturbance running through the center of the Hassock Islands that remains visible today. The Bay Park STP area was apparently undeveloped coastal marshlands until after 1896. There is no indication of National Register-eligible historic resources within the project APE (Chrysalis 2020).

The mainland shoreline was significantly modified by residential and commercial development during the twentieth century. The pre-twentieth century coastline and coastal regions were heavily modified with a substantial amount of fill brought in and deposited. In addition, the underwater topography of the area has been altered by large scale dredging and channel operations. Overall, both natural storm action and human activities have heavily modified the project area (Chrysalis 2020).

4.5.2 Ecological Resources

Wetlands

Wetlands within the proposed limits of disturbance (LOD) on the surface of the Hassock Islands are the focus of the analysis of impacts on wetlands because the underground portions of the force main would not affect wetlands. Wetlands in the project area have been mapped and classified as part of USFWS National Wetland Inventory (NWI) (**Figure 13**). NWI mapped approximately 4.49 acres of waterbodies and estuarine wetlands within the estimated 15.94-acre LOD as summarized in **Table 3**. The dominant wetland type mapped by NWI within the LOD is estuarine intertidal emergent persistent irregularly flooded (E2EM1P), followed by estuarine intertidal unconsolidated shore sand irregularly exposed (E2US2M), and estuarine subtidal unconsolidated bottom subtidal (E1UBL).

Table 3: NWI Mapped Wetlands Within the Limits of Disturbance

Location	NWI Classification	Acreage
Pearsalls Hassock	E1UBL	<0.001
Pearsalls Hassock	E2EM1P	0.58
Pearsalls Hassock	E2US2M	0.005
Pearsalls Hassock	E2US2P	0.04
North and South Black Banks Hassocks	E2EM1P	3.47
North and South Black Banks Hassocks	E2US2M	0.30
North and South Black Banks Hassocks	E2US2P	0.07
North and South Black Banks Hassocks	E1UBLx	0.02
Total		4.49

Sources: USFWS 2020; Cowardin et al. 1979

Key: E1UBL = Estuarine Subtidal Unconsolidated Bottom Subtidal; E2EM1P = Estuarine Intertidal Emergent Persistent Irregularly Flooded; E2US2M = Estuarine Intertidal Unconsolidated Shore Sand Irregularly Exposed; E2US2P = Estuarine Intertidal Unconsolidated Shore Sand Irregularly Flooded; E1UBLx = Estuarine Subtidal Unconsolidated Bottom Subtidal Excavated

NYSDEC has also mapped tidal wetlands within and adjacent the LOD, as depicted on **Figure 14**. Mapped NYSDEC-regulated tidal wetlands categories include intertidal marsh, high marsh, littoral zone, coastal shoals, bars and mudflats, and dredged spoil. Intertidal marsh is the vegetated tidal wetland zone generally between average high and low tide elevations in saline waters. High marsh is the normal upper-most tidal wetland zone that is periodically flooded by spring and storm tides. The littoral zone includes all lands under tidal waters that are not included in any other category, extending seaward from shore to a depth of 6 feet at mean low water. Coastal shoals, bars, and mudflats are unvegetated areas covered by saline or fresh tidal waters at high tide and exposed or covered at low tide by water to a maximum depth of approximately 1 foot. Dredged spoil areas are regulated areas of fill material, many of which have become revegetated with high marsh and/or upland plant species. No state-regulated freshwater wetlands are located in the project area.

Wetland scientists from Hazen-Arcadis completed a field delineation of wetlands in the project area in 2019 (Hazen ARCADIS Joint Venture 2019b, see **Appendix I**). Approximately 4.30 acres of tidal wetland were delineated within the LOD. Delineated wetland boundaries typically followed the Mean High

Water/Mean Higher-High Water elevation. Tidal wetland complexes within the Hassock Islands included shorelines characterized by shallow intertidal mudflats with little vegetative coverage, transitioning into low marsh dominated by smooth cordgrass, transitioning to emergent high marsh dominated by saltgrass (*Distichlis spicata*) or saltmeadow cordgrass (*Spartina patens*) or common reed monocultures, and transitioning into common reed monocultures or scrub/shrub high marsh dominated by Jesuit's bark (*Iva frutescans*). Isolated salt pannes and pools were also present throughout the Hassock Islands, which also contained an existing submerged outfall pipeline corridor and associated dredge disposal areas and engineered earthen berms.

Areas below the high-tide line and permanently flooded marine and estuarine habitats are considered jurisdictional waters of the United States and are subject to the USACE regulatory program under Section 404 of the Clean Water Act of 1972, as amended. Areas subject to jurisdiction under Section 10 of the Rivers and Harbors Act of 1899, as amended, include navigable waters, which begin at the mean high-tide line and extend to permanently flooded marine and estuarine habitats. Wetlands delineated with the project area are subject to twice-daily inundation or sub-surface saturation associated with the tidal influence of the surrounding Western Bays and are therefore hydrologically connected to a Traditional Navigable Water.

NYSDEC also regulates wetlands in the project area under ECL, Article 25, "Tidal Wetlands." NYSDEC has jurisdiction over the adjacent area that extends 300 feet inland from the wetland boundary.

Water Quality

The proposed project is located in the South Oyster Bay/Jones Inlet Watershed (HUC 02030202). The existing wetlands are associated with NYSDEC tidal wetlands that are influenced by the Atlantic Ocean. NYSDEC lists Hempstead Bay, Broad Channel (NYSDEC waterbody segment 1701-0032) where the proposed project is located, as an impaired waterbody for shell fishing, public bathing, and recreational uses that are known to be impaired by pathogens and nutrients, such as nitrogen. These uses have resulted in excessive macroalgae growth and restrictions due to impairment (NYSDEC 2014).

The primary sources of these nutrients include discharges from large municipal wastewater facilities, which include the Bay Park STP, Long Beach WWTP, and the Greater Atlantic Beach Water Reclamation District. Stormwater and urban nonpoint runoff are also sources of pathogens and pollutants.

Hempstead Bay is included on the 2018 NYS Section 303(d) List of Impaired Waters (NYSDEC 2018). The waterbody is included on Part 2c of the list as shell-fishing-restricted water due to pathogens. Public bathing and recreational uses are considered impaired because of the large amount of macroalgae in the water. Hempstead Bay is not currently used as a source of drinking water. This waterbody has been listed as impaired since the 1998 Section 303(d) List for pathogens and was included on the 2006 list because of nitrogen. To address the impairments, NYSDEC recommends establishing total maximum daily loads (TMDLs) or other strategies to address nutrients and pollutants. No such TMDLs have been established (NYSDEC 2014, 2018).

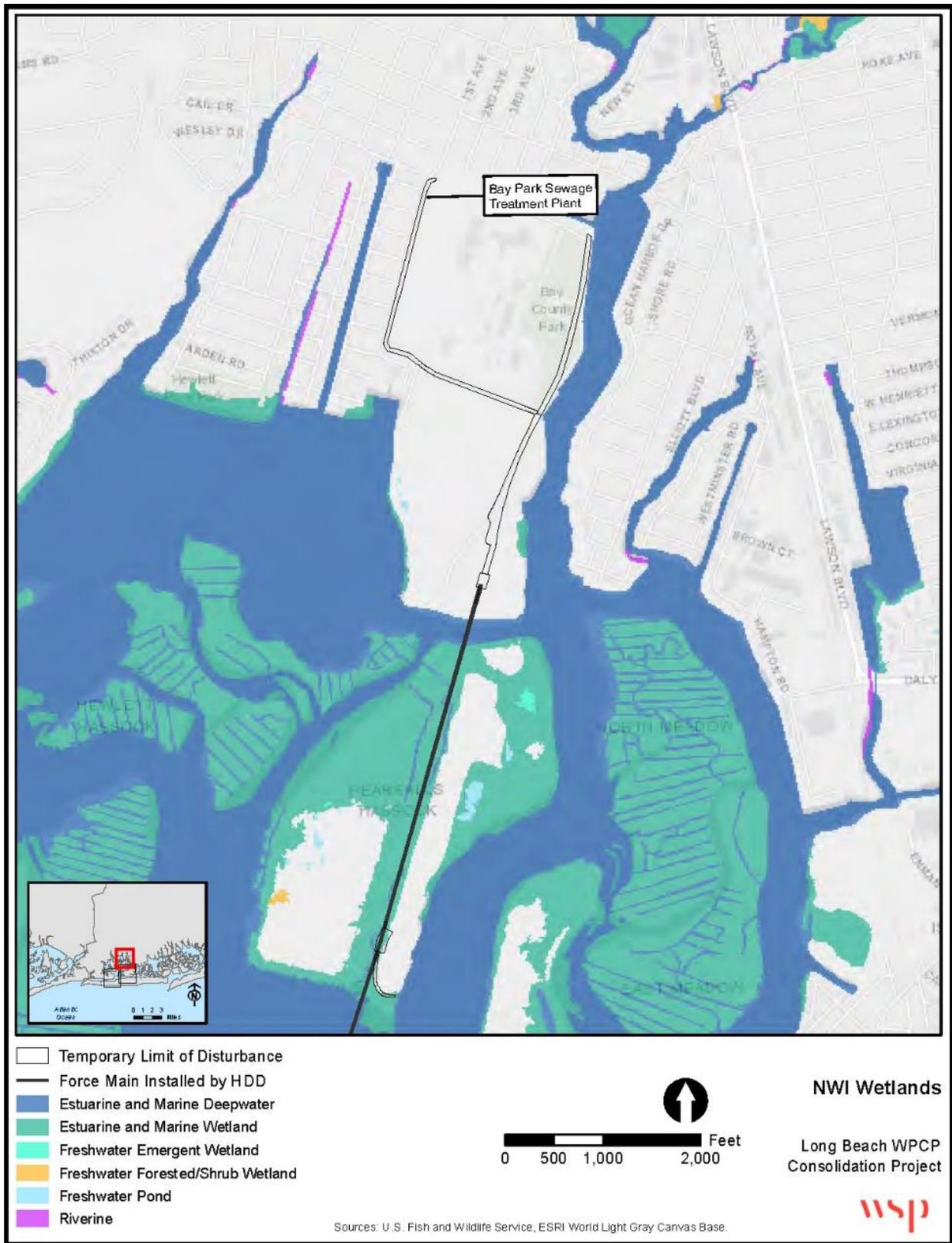


Figure 13a: NWI Wetlands

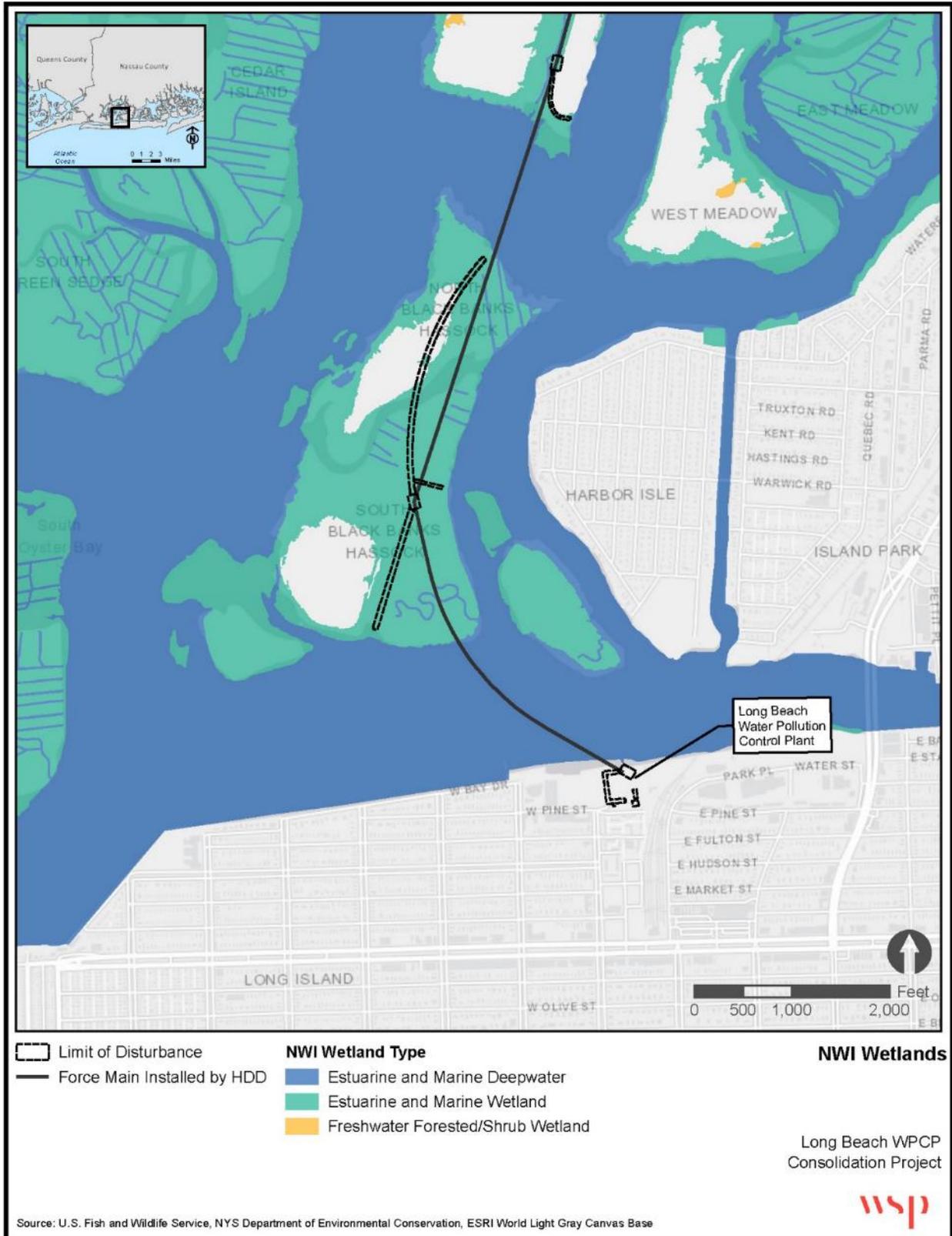


Figure 13b: NWI Wetlands

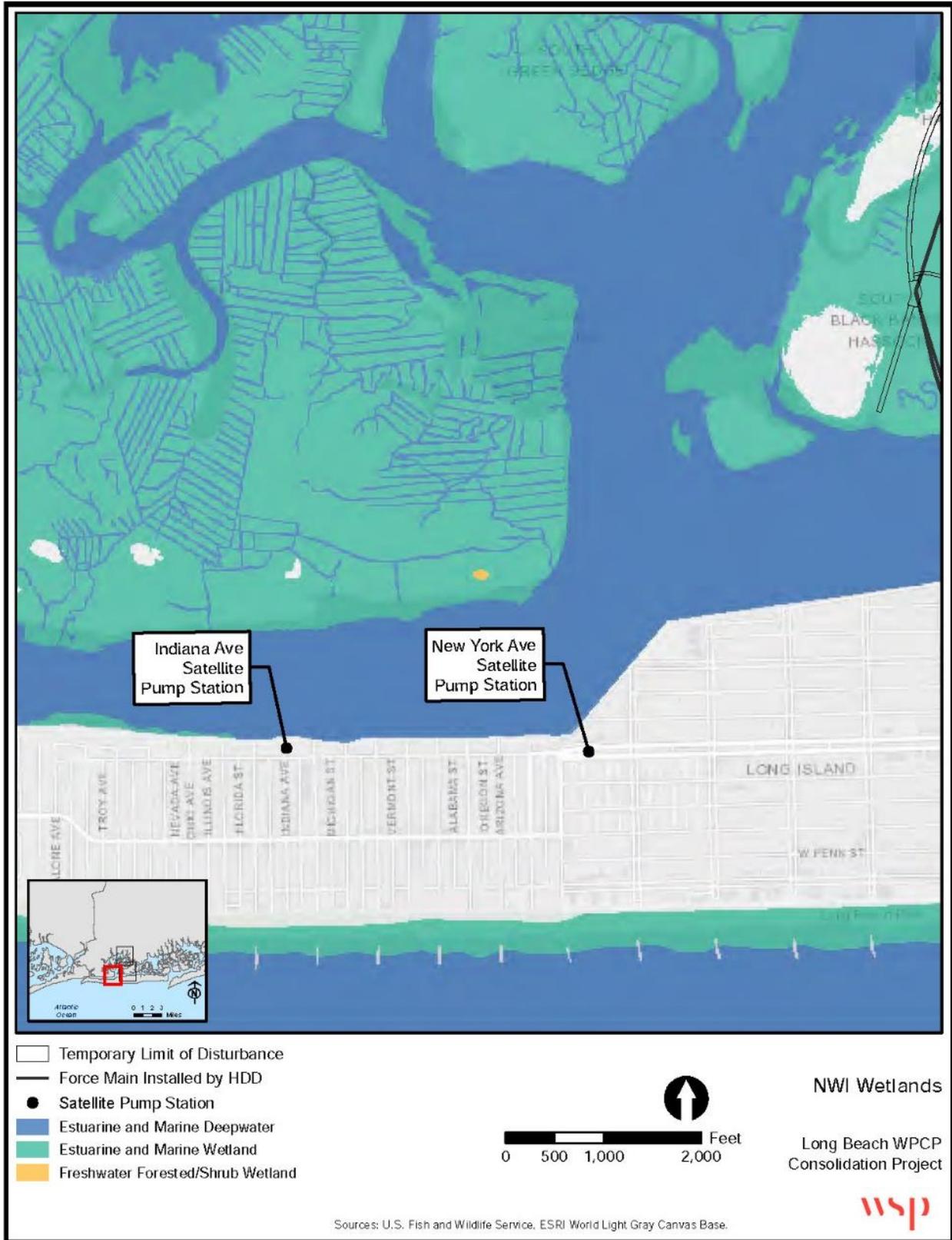


Figure 13c: NWI Wetlands

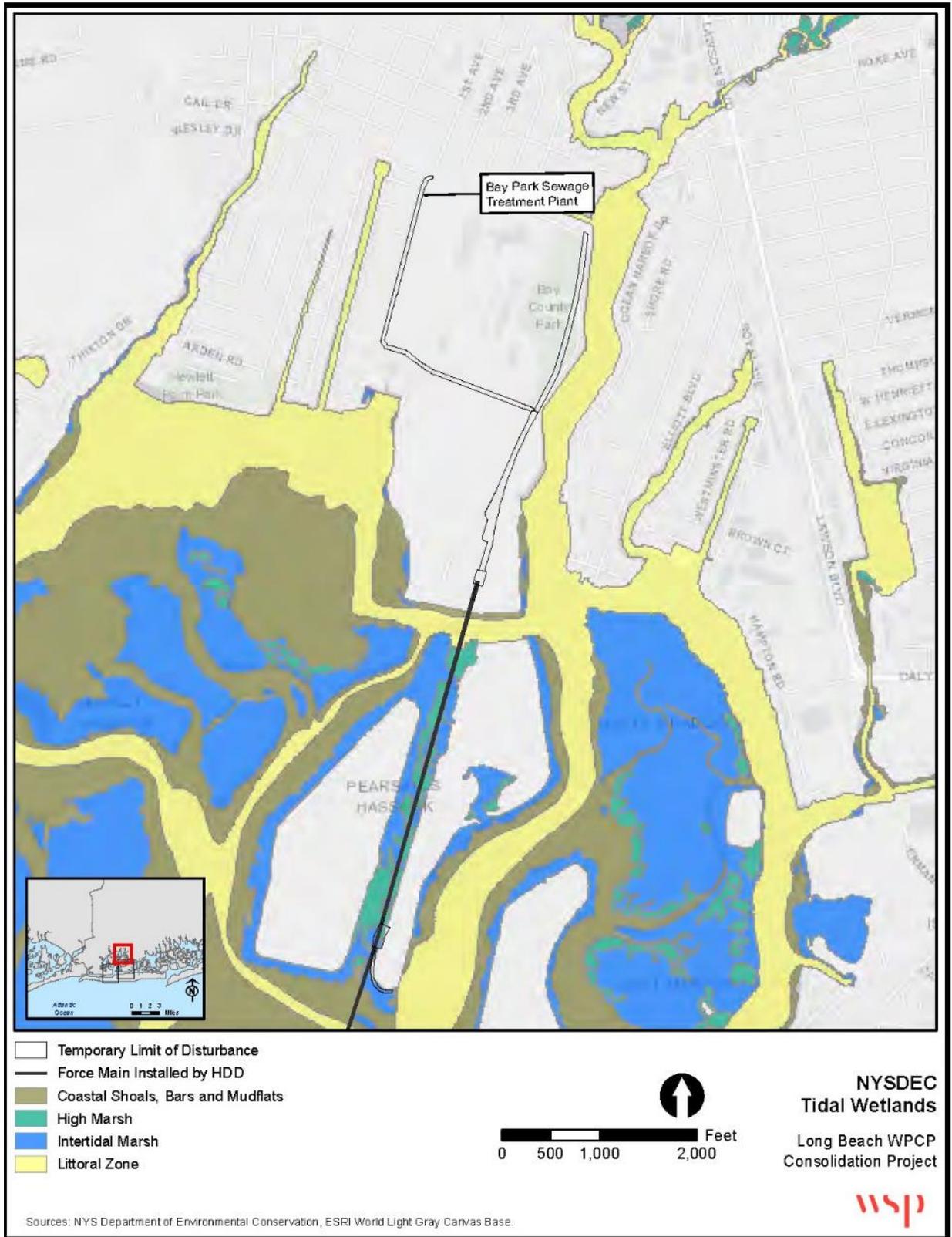


Figure 14a: NYSDEC Tidal Wetlands

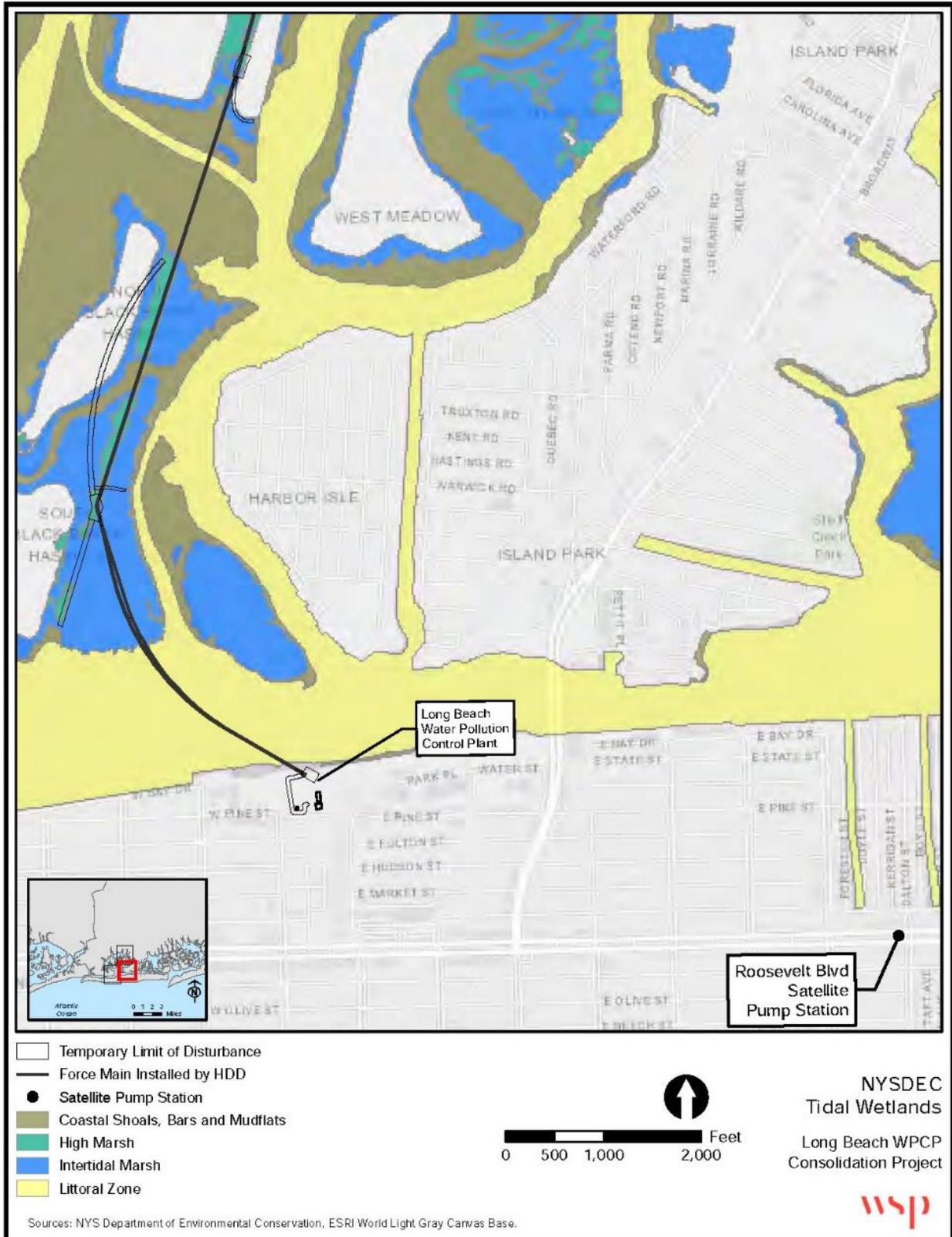


Figure 14b: NYSDEC Tidal Wetlands

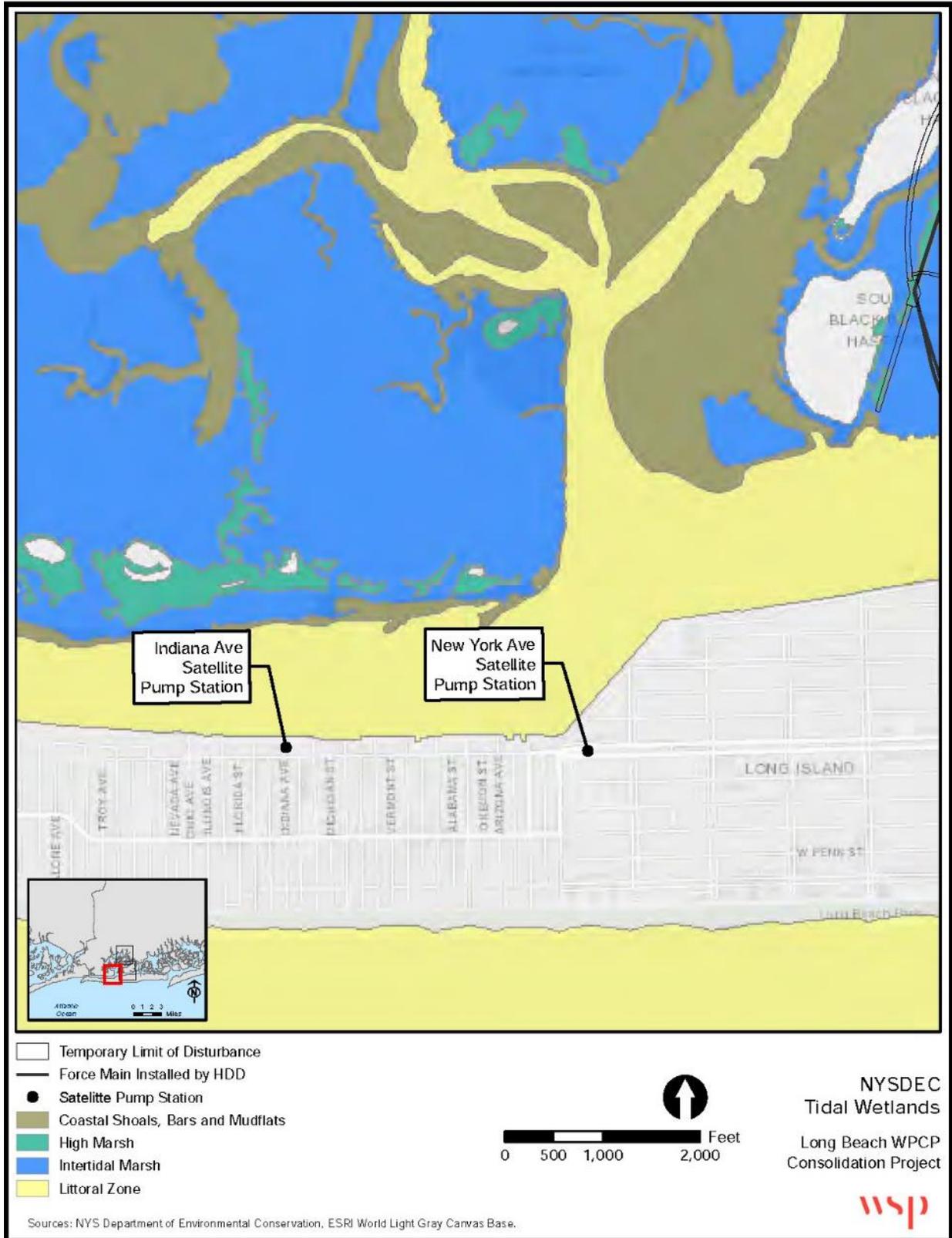


Figure 14c: NYSDEC Tidal Wetlands

4.5.3 Biological Resources

The project area includes vegetation, wildlife and fish, and threatened and endangered species that may occur within the LOD and immediate surrounding areas of the Hassock Islands and West Hempstead Bay.

Vegetation

A desktop review of available resource mapping, previous reports, and species inventories was conducted to identify vegetation resources in the proposed project area, including significant natural communities and rare or endangered plants. Significant natural communities are rare or high-quality wetlands, forests, grasslands, ponds, streams, and other types of habitats considered significant from a statewide perspective by the NYSDEC Natural Heritage Program (NHP). The results of this review are summarized below.

Significant Natural Communities. A request for information regarding rare species and significant natural communities within the project area was sent to NHP during the preparation of permits for geotechnical studies. A response was received on August 1, 2019 (see **Appendix J**). According to NHP, three significant natural communities are documented within the project area: low salt marsh, high salt marsh, and salt pannes (see **Figure 15**). These communities are part of a larger salt marsh complex within a five-bay system and are all considered high-quality occurrences of uncommon community types. The number, aerial extent, and integrity of salt marsh complexes in New York are suspected to have declined substantially from their historical state. Primary threats include ditching and draining, dredging and filling, common reed invasion, poor water quality, diking and impoundment, inlet stabilization, shoreline hardening, wrack accumulation, altered sediment budget, subsidence, changes in water circulation patterns, restricted tidal connection, and altered tidal hydrodynamics (NYSDEC 2020).

NHP (NYSDEC 2020) describes low salt marsh, high salt marsh, and salt pannes as coastal marsh communities that occur in sheltered areas of the seacoast. Low salt marsh occurs in a zone extending from mean high tide down to mean sea level. It is regularly flooded by semidiurnal tides and occurs in a mosaic with several other communities. Low salt marsh grades into high salt marsh at slightly higher elevations and into intertidal mudflats at slightly lower elevations. High salt marsh occurs in a zone extending from mean high tide up to the limit of spring tide, with salt shrub and brackish meadow at the upland border of the high marsh. High marsh is periodically flooded by spring tides and incoming rising tides. Saltwater tidal creeks that drain the salt marsh flow in a winding pattern through the marsh and salt pannes may also occur in the low and high marsh. Salt pannes are shallow depressions where the marsh is poorly drained. Salt pannes can be formed by water ponding on the marsh surface, scouring of wrack or coverage by storm wrack, and possibly by ice scour.

Upland Vegetative Communities. Upland vegetative communities documented on the hassock islands during the wetland delineation conducted by Hazen-Arcadis wetland scientists in 2019 include maritime shrubland and successional maritime forest (Hazen ARCADIS Joint Venture 2019b).

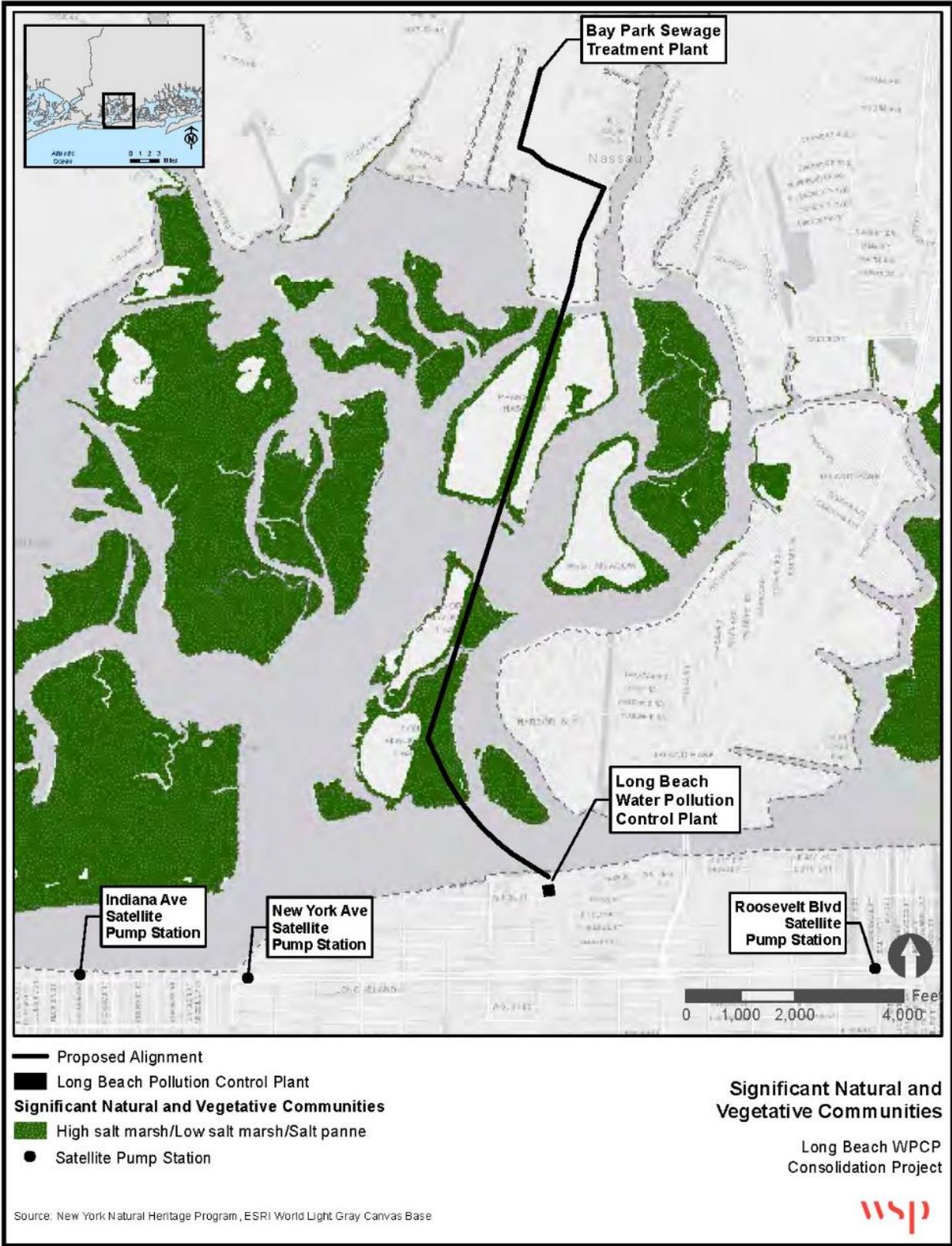


Figure 15: Significant Natural and Vegetative Communities

Maritime shrubland is a tall shrubland community that occurs on dry seaside bluffs and headlands that are exposed to onshore winds and salt spray; trees are usually sparse or absent. Characteristic shrubs and sapling trees include serviceberry (*Amelanchier canadensis*), bayberry (*Myrica pennsylvanica*), black cherry (*Prunus serotina*), southern arrowwood (*Viburnum dentatum*), shining sumac (*Rhus copallinum*), beach-plum (*Prunus maritima*), sand-rose (*Rosa rugosa*), eastern red cedar (*Juniperus virginiana*), and American holly (*Ilex opaca*) (NYSDEC 2020). Maritime shrublands occur on dredge spoils in the project area. Dominant species include bayberry, black cherry, white birch (*Betula papyrifera*) saplings, shining sumac, and poison ivy (*Toxicodendron radicans*).

Successional maritime forest is a hardwood forest that occurs in low areas near the seacoast. The forest may be dominated by a single species or there may be two or three codominants; trees may be somewhat stunted and flat-topped because the canopies are pruned by salt spray. Characteristic trees include black oak (*Quercus velutina*), post oak (*Quercus stellata*), serviceberry (*Amelanchier canadensis*), white oak (*Quercus alba*), black cherry, blackgum (*Nyssa sylvatica*), sassafras (*Sassafras albidum*), and red maple (*Acer rubrum*) (NYSDEC 2020). This habitat is found in the project area on portions of the dredge disposal areas in various stages of succession. Dominant tree species include black cherry, white birch, various species of oak (*Quercus* spp.), eastern cottonwood (*Populus deltoides*), eastern red cedar, and red maple. Shrubs species found in the maritime shrubland also occur throughout this habitat, and common vines in the understory include grape (*Vitis riparia*), poison ivy, and Virginia creeper (*Parthenocissus quinquefolia*).

The construction staging area in the WPCP and in the Drill 3 Pullback Area in Bay Park are currently maintained lawn.

Wetland and Aquatic Vegetative Communities. Vegetated wetland communities present in the project area, as classified by Ecological Communities of New York State (Edinger et al. 2014), include low salt marsh, high salt marsh, salt shrub, and salt pannes. The dominant species in low marsh communities is smooth cordgrass, while the dominant species in the high marsh communities are saltmeadow cordgrass, saltgrass, black grass (*Juncus gerardii*), the short form of smooth cordgrass, and glassworts (*Salicornia* spp.). Jesuit's bark and eastern baccharis (*Baccharis halimifolia*) often form the ecotone between the salt marsh and the upland communities; this ecotone is often invaded by common reed (Edinger et al. 2014).

Wetland vegetative communities on the hassock islands observed during the 2019 Arcadis U.S., Inc. and Hazen and Sawyer wetland delineation are described as low marsh dominated by smooth cordgrass (both tall and short form) transitioning to emergent high marsh dominated by saltgrass or saltmeadow cordgrass or common reed monocultures, transitioning into common reed monocultures or scrub/shrub high marsh dominated by Jesuit's bark.

Wildlife and Fish

The project area is within the National Audubon Society designated West Hempstead Bay/Jones Beach West "Important Birding Area" that supports large numbers of overwintering waterfowl, including brant (*Branta bernicla*) and American black duck (*Anas rubripes*). The Important Bird Area is an important migratory shorebird feeding area and a major spring and fall migration route for passerines, accipiters, and falcons. Colonial nesting bird species that use the Important Bird Area include great egret (*Ardea alba*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), black-crowned night-heron (*Nycticorax nycticorax*), yellow crowned night-heron (*Nyctanassa violacea*), glossy ibis (*Plegadis falcinellus*), piping plover (*Charadrius melodus*), American oystercatcher

(*Haematopus palliatus*), herring gull (*Larus argentatus*), great black-backed gull (*Larus marinus*), gull billed tern (*Gelochelidon nilotica*), common tern (*Sterna hirundo*), Forster's tern (*Sterna forsteri*), least tern (*Sternula antillarum*), and black skimmer (*Rynchops niger*). Salt marsh habitats in the Important Bird Area support brant, American black duck, common loon (*Gavia immer*), pied-billed grebe (*Podilymbus podiceps*), American bittern (*Botaurus lentiginosus*), osprey (*Pandion haliaetus*), northern harrier (*Circus hudsonius*), sharp-shinned hawk (*Accipiter striatus*), peregrine falcon (*Falco peregrinus*), piping plover, American oystercatcher, common tern, least tern, black skimmer, shorteared owl (*Asio flammeus*), willow flycatcher (*Empidonax traillii*), saltmarsh sharp-tailed sparrow, and seaside sparrow (*Ammospiza maritima*) (National Audubon Society 2007). Some of the species mentioned above are associated with the sandy beach systems of the Jones Beach barrier island, including piping plover and black skimmer. State and federal protected species of birds that may occur in the project area, such as osprey, common tern, and peregrine falcon, are discussed in further detail under Threatened and Endangered Species.

Bay Park is considered a "hot spot" by eBird, an online database of bird observations, with 120 species recorded as of May 2020 (eBird n.d.). Red-breasted merganser (*Mergus serrator*), various gulls (*Larus* spp.), brant, greater scaup (*Aythya marila*), semipalmated sandpiper (*Calidris pusilla*), and glossy ibis are the most frequently documented species by eBird in Bay Park.

On behalf of GOSR, Seatuck Environmental Association (Seatuck) conducted avian surveys along the Mill River corridor between 2016 and 2019 in support of the LWTB projects. Seatuck's surveys conducted in May, June, September, and October 2017 focused on the marsh islands of Hewlett Bay, including the hassock islands and the surrounding waters. The most frequently observed species during the marsh island surveys were brant, tree swallow (*Tachycineta bicolor*), American black duck, and Canada goose (*Branta canadensis*) (Seatuck 2017).

WSP conducted avian field surveys in the project area, including a breeding bird survey of the proposed LOD in spring and late summer 2020. Sixty-eight bird species were observed, including several state-protected species discussed under Threatened and Endangered Species. The most frequently observed species during the spring surveys were brant, red-winged blackbird (*Agelaius phoeniceus*), osprey, Forster's tern, and Canada goose. Nine osprey nests were observed in the project area, as discussed under Threatened and Endangered Species. One red-tailed hawk (*Buteo jamaicensis*) nest was observed near the southwest corner of Pearsalls Hassock, and one great horned owl (*Bubo virginianus*) nest was observed in the southwest wooded area of South Black Banks Hassock.

Fish likely to occur in the project area include those species associated with intertidal salt marsh habitats such as American eel (*Anguilla rostrata*), sheepshead minnow (*Cyprinodon variegatus*), mummichog (*Fundulus heteroclitus*), striped killifish (*Fundulus majalis*), Atlantic silverside (*Menidia menidia*), fourspine stickleback (*Apeltes quadracus*), threespine stickleback (*Gasterosteus aculeatus*), black sea bass (*Centropristis striata*), striped bass (*Morone saxatilis*), winter flounder (*Pseudopleuronectes americanus*), and bluefish (*Pomatomus saltatrix*) (Edinger et al. 2014). According to the National Oceanic and Atmospheric Administration (NOAA) Essential Fish Habitat (EFH) Mapper, the project is designated as EFH for various life stages of 24 species. The EFH mapper query results are included in **Appendix K**. Based on a review of habitat preferences, EFH for various life stages of eight species is expected to occur in the intertidal and shallow subtidal habitats in the project area: winter flounder, windowpane flounder (*Scophthalmus aquosus*), summer flounder (*Paralichthys dentatus*), Atlantic herring (*Clupea harengus*), bluefish, black sea bass, winter skate (*Leucoraja ocellata*), and little skate (*Leucoraja erinacea*).

Invertebrates documented during biological surveys on the Hassock Islands included horseshoe crabs (*Limulus polyphemus*), ribbed mussels (*Geukensia demissa*), fiddler crabs (*Uca* spp.), and periwinkle snails (*Littorina* spp.). An oyster reef, installed by the Town of Hempstead, is located on the north side of North Black Banks Hassock. Other invertebrates likely to occur include eastern mud snail (*Nassarius obsoletus*), grass shrimp (*Palaemonetes* spp.), blue crab (*Callinectes sapidus*), and polychaetes.

Marine mammals, including humpback whale (*Megaptera novaeangliae*) and several species of seals, can be found in New York waters. Two harbor seals (*Phoca vitulina*) were observed in Hewlett Bay during field surveys in April 2020. Marine mammals are not expected to regularly occur in the project area because their occurrence is tied to deeper, sub-tidal habitats of the Atlantic Ocean waters.

Threatened and Endangered Species

A request was made to USFWS for information regarding the potential presence of species under its jurisdiction in the proposed project area via the Information, Planning, and Conservation System (IPaC). The USFWS Official Species list is provided in **Appendix L**. This list indicates that the following six listed species may occur in the proposed project area and/or may be affected by the proposed project: sandplain gerardia (*Agalinis acuta*—endangered), seabeach amaranth (*Amaranthus pumilus*—threatened), piping plover (*Charadrius melodus*—threatened), red knot (*Calidris canutus rufa*—threatened), roseate tern (*Sterna dougallii*—endangered), and northern long-eared bat (*Myotis septentrionalis*—threatened). These species and their habitat requirements are summarized in **Table 4**.

Table 4: Federally Listed Species that may Occur in the Vicinity of the Proposed Project

Common Name	Scientific Name	Federal Listing	Habitat Requirements
Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	Summer: Abundant stands of trees with sufficient bark crevices and snags for roosting Winter: Caves and mines
Piping plover	<i>Charadrius melodus</i>	Threatened	Foraging: intertidal beach and dunes, mudflats Nesting: wide, flat, open, sandy beaches with limited vegetation and limited human disturbance
Red knot	<i>Calidris canutus rufa</i>	Threatened	Foraging: intertidal beach and shallow coastal waters; mudflats with abundant food such as horseshoe crab eggs Nesting: Canadian arctic region
Roseate tern	<i>Sterna dougallii dougalli</i>	Endangered	Foraging: shallow, open coastal waters Nesting: open sandy beaches; barrier-island nesting colony areas free of predators and human disturbance

Common Name	Scientific Name	Federal Listing	Habitat Requirements
Sandplain gerardia	<i>Agalinis acuta</i>	Endangered	Pine-barrens grasslands; remnant grasslands
Seabeach amaranth	<i>Amaranthus pumilus</i>	Threatened	Nearly pure sand substrate above the high tide line; open sand or sparsely vegetated base of foredunes

The project area does not contain any designated critical habitat for these or any other species. Based on the habitat requirements described in **Table 4**, sandplain gerardia, seabeach amaranth, and northern long-eared bat are not expected to occur in the project area. Sandplain gerardia only occurs in coastal grasslands, while seabeach amaranth only occurs in the upper beach zone of wide barrier island beaches. Neither of these plants were observed in the project area during the 2019 wetland delineation and habitat mapping field efforts nor the 2020 listed species surveys. Northern long-eared bats use mature, closed-canopy, upland and riparian forests that are not found in the project area. Additionally, no known northern long-eared bat maternity roosts or hibernacula are nearby.

Piping plover, red knot, and roseate tern are known to occur in the region during the spring and summer, using coastal beaches and waters, but they are only expected to occur as occasional transients in the project area. Roseate tern is not known to breed in the project area and would likely only occur foraging over open water areas. Red knot may forage on mudflats near the project area; however, the preferred wide sandy beaches or mudflats with abundant horseshoe crab egg food source are not present. Piping plover may forage on mudflats or sandy beach areas in the project area; however, the preferred wide, open expanses of unvegetated or sparsely vegetated sandy beach breeding habitat for piping plover is not present. NHP data (included in **Appendix J**) do not include any records of these or any other federally protected species in the vicinity of the project area, and neither eBird nor the Breeding Bird Atlas document any sightings of federally protected avian species in the project area (eBird 2019; NYSDEC 2008). There were no sightings of piping plover, red knot, roseate tern, or any other federally listed species during Seatuck’s 2017 surveys of the hassock islands or at any location surveyed along the Mill River corridor between 2016–2019 (Seatuck 2017, 2019). No federally listed species were observed during WSP’s spring and late summer 2020 field surveys in the project area.

The USFWS IPaC Migratory Bird Resource List for the project area contains 53 USFWS Birds of Conservation Concern and other species that may warrant special attention (see **Appendix L**). As mentioned previously, the project area is in an important migratory shorebird feeding area and a major spring and fall migration route for shorebirds, passerines, accipiters, and falcons. Migrating shorebirds observed during spring 2020 field surveys include ruddy turnstone (*Arenaria interpres*), semi-palmated plover (*Charadrius semipalmatus*), black-bellied plover (*Pluvialis squatarola*), willet (*Tringa semipalmata*), least sandpiper (*Calidris minutilla*), sanderling (*Calidris alba*), and short-billed dowitcher (*Limnodromus griseus*).

NHP data (included in **Appendix J**) indicates that several state-protected birds have been documented breeding or foraging near the project area. Protected birds include (1) species listed in New York as threatened or endangered; (2) Special Concern species that are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York; and (3) other species that are rare in New York and are of conservation concern. According to NHP, peregrine falcon (state endangered) and common tern (state threatened) have been documented

breeding within 0.5 mile of the project area. Eight species considered rare in New York and listed as Protected Birds, although not listed by New York State as endangered or threatened, were documented breeding in the project area on Black Banks Hassock between 1987 and 2000: yellow-crowned night-heron, cattle egret (*Bubulcus ibis*), snowy egret, little blue heron, glossy ibis, tricolored heron, and barn owl (*Tyto alba*). Glossy ibis was also documented breeding on Pearsalls Hassock in 1985. Forster's tern was documented breeding within 0.5 mile west of the project area on Hewlett Hassock in 2004. One state listed threatened species, a juvenile bald eagle (*Haliaeetus leucocephalus*) was observed on North Black Banks Hassock during field surveys in April 2020. There are no records of bald eagles nesting near the project area, and this species is expected to occur only as an occasional transient. State-threatened common tern was observed foraging in Hewlett Bay, west of the project area in April and August 2020, and state-threatened least tern was observed loafing on the sandy beach area on the north end of Black Banks Hassock in August 2020. The following state Special Concern species were observed in the project area during 2020 surveys: osprey, common loon, seaside sparrow, and black skimmer. State Protected Birds observed in spring 2020 include glossy ibis, yellow-crowned night-heron, and snowy egret. A saltmarsh sharp-tailed sparrow was observed on North Black Banks Hassock in May 2020 and numerous adults and juveniles were observed during August surveys on both North and South Black Banks Hassocks. While not currently a listed species, saltmarsh sharp-tailed sparrows are considered a High Priority Species of Greatest Conservation Need in New York. Marsh habitat on the hassock islands provides important breeding habitat for the saltmarsh sharp-tailed sparrow.

Only one state-protected species, osprey (Special Concern), was directly observed breeding in the project area. Two osprey nests were observed on Pearsalls Hassock, one on a concrete sewer block near the center of the island and one on an old pier along the eastern shoreline. Two osprey nests were located on North Black Banks Hassock: one on an osprey platform and one on a wooden box. Five osprey nests were located on South Black Banks Hassock: two on osprey platforms, one on a pile of wood behind a house, one on a concrete sewer block, and one in a tree. One seaside sparrow was observed on Black Banks Hassock doing a breeding song display along a channel that bisects the hassock, but no nest was observed. While great egrets, snowy egrets, great blue herons, black-crowned night herons, yellow-crowned night herons, and green herons (*Butorides virescens*) were observed foraging in the project area, there were no signs of rookeries on the hassock islands. Juvenile yellow-crowned night herons were observed on both hassock islands in August 2020.

According to correspondence from NOAA (included in **Appendix K**), four species of threatened or endangered sea turtles under NOAA jurisdiction are seasonally present in Atlantic Ocean and its adjacent tributaries and bays: the threatened Northwest Atlantic Ocean Distinct Population Segment (DPS) of loggerhead sea turtle (*Caretta caretta*), the threatened North Atlantic DPS of green sea turtle (*Chelonia mydas*), and the endangered Kemp's ridley (*Lepidochelys kempii*) and leatherback (*Dermochelys coriacea*) sea turtles. Sea turtles typically occur along the New York coast from May to mid-November, with the highest concentration of sea turtles present from June through October.

NOAA correspondence also states that five DPSs of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) are present in the waters of the Atlantic Ocean and its adjacent tributaries and bays. The New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPS of Atlantic sturgeon are listed as endangered; the Gulf of Maine DPS is listed as threatened. Adult and subadult Atlantic sturgeon originating from any of these distinct population segments could occur in the project area year-round. Because young remain in their natal river/estuary until approximately age two and early life stages are not tolerant of saline waters, no eggs, larvae, or juvenile Atlantic sturgeon would occur in the project area.

5 FUNDING INFORMATION

Estimated Total HUD Funded Amount: \$24,000,000.00

Estimated Total Project Cost (HUD and non-HUD funds) [24 CFR § 58.32(d)]: \$93,878,880

Funding identified would include the \$24 million in HUD CDBG-DR funding, \$15 to \$20 million in FEMA funding, and \$66.4 million bond issued by Nassau County. Nassau County and New York State are identifying gap funding for the remaining budget.

6 COMPLIANCE WITH 24 CFR 58.5, AND 58.6 LAWS AND AUTHORITIES

6.1 STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 58.6

This section details compliance requirements for the following:

- Airport Hazards as defined in 24 CFR Part 51 Subpart D
- Coastal Barrier Resources as defined in the Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 United States Code (USC) 3501]
- Flood Insurance as defined by the Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]

6.1.1 Airport Hazards

Citation: 24 CFR § 51, Subpart D

Based on guidance provided by HUD in Fact Sheet #D1, the National Plan of Integrated Airport Systems was reviewed for civilian, commercial service airports near the Long Beach WPCP Consolidation Project area because projects within 2,500 feet of a civil airport require consultation with the appropriate civil airport operator (Federal Aviation Administration 2017). John F. Kennedy Airport and LaGuardia Airport in Queens, New York, are the nearest airports to the project area, at approximately 4.5 and 15 miles away, respectively. The project area is not within 2,500 feet of either of these airports. No known military airports are within 15,000 feet of the project area, and the project area is not located in an Airport Runway Clear Zone. No additional action is needed.

6.1.2 Coastal Barrier Resources

Citation: Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 United States Code (USC) 3501]

The Coastal Barrier Resources Act of 1982 and its amendments limit federal expenditures and financial assistance that have the effect of encouraging development on designated coastal barriers. The proposed project is not located in a coastal barrier resource area or buffer zone (see **Figure 12**); therefore, no further analysis is required.

6.1.3 Flood Insurance

Citation: Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001–4128 and 42 USC 5154a]

According to the FEMA FIRM Nos. 36059C0304G, 36059C0306G, 36059C0308G, 36059C0309G, and 36059C0218G, dated September 11, 2009, the project area is located within the 1 percent annual-chance (or 100-year) flood hazard zone. Because the proposed project involves the construction of a new aboveground diversion pump station and elevated satellite pump stations in a Special Flood Hazard Area, flood insurance would be required prior to grant close-out.

6.2 STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 51, 55 AND 58.5

This section details compliance requirements for the following:

- Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93
- Coastal Zone Management sections 307(c) & (d)
- Contamination and Toxic Substances as defined at 24 CFR Part 50.3(i) & 58.5(i)(2)
- Endangered Species as defined by the Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402
- Explosive and Flammable Hazards as defined at 24 CFR Part 51 Subpart C
- Farmlands Protection as defined by the Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658
- Floodplain Management as defined in Executive Order 11988, particularly section 2(a); 24 CFR Part 55
- Historic Preservation as defined by the National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800
- Noise Abatement and Control as defined in the Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B
- Sole Source Aquifers as defined in the Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149
- Wetlands Protection as defined in Executive Order 11990, particularly sections 2 and 5
- Wild and Scenic Rivers as defined in the Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)

6.2.1 Clean Air Act

Citation: Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR §§ 6, 51, 93

An air-quality technical analysis was prepared for the project and is included in **Appendix M**. The results of the analysis are summarized below.

The U.S. Environmental Protection Agency (USEPA) identifies Nassau County as a nonattainment area for the 2008 8-hour ozone standard and a maintenance area for the 1971 maximum carbon monoxide and 2006 24-hour average PM_{2.5} standards (USEPA 2020).

Construction air-quality impacts would be short term and localized. Peak-year construction emissions (during 2021) would be less than the *de minimis* thresholds for all pollutants for which Nassau County is designated as a non-attainment or maintenance area. The proposed project would not substantively affect the New York State Implementation Plan because standard best management practices (BMPs) that control dust and other emissions during construction would be implemented.

Once operational, the consumption and use of electricity to power operation of the diversion pumps at the pump station would increase. Pursuant to 40 CFR 93 Subpart B, generator emissions are not subject to a conformity determination. However, to account for all project activities that would contribute to total direct or indirect emissions, generator emissions were included in the *de minimis* criteria analysis. One new generator would be installed at the Long Beach WPCP site to power the diversion pumps during power outages. Use of this generator for testing or during an emergency would not result in combined emissions of hazardous pollutants in excess of 25 tons per year; as such, the emergency generator would be exempt from air pollution permitting requirements pursuant to 6 CRR-NY 201-3.2(c)(6). Generator emissions would be well below the *de minimis* thresholds. Consequently, the project would not qualify as a major source, and the National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines would not apply. Nevertheless, the national emission standards would be met through the purchase and installation of new equipment.

As explained in **Section 7.3.9**, the proposed project would not result in substantial new vehicle trips or result in changes to traffic patterns. Therefore, a mobile-source air quality impact analysis of direct impacts of the proposed project is not necessary.

6.2.2 Coastal Zone Management

Citation: *Coastal Zone Management Act, sections 307(c) & (d)*

The project area is located within the NYSDOS-designated New York State Coastal Zone, and as such is within a Management Act area (under the Coastal Zone Management Act) (see **Figure 11**). A New York State Federal Consistency Assessment was completed and submitted to the NYSDOS Coastal Resources Consistency Review Unit on November 12, 2019, to determine the project's consistency with New York State's Coastal Management Program. As noted in the coastal zone management consistency assessment included in **Appendix M**, the proposed project is being designed and would be constructed in a manner that is consistent with all applicable NYSDOS Coastal Management Program State Coastal Policies. As such, the assessment finds that the proposed project would not result in significant adverse impacts related to the Coastal Zone Management Act. On December 23, 2019, NYSDOS provided a letter stating that there was no objection to the release of funding in support of the proposed project (see **Appendix N**).

Because the scope of the proposed project was subsequently expanded to include hardening the satellite pump station, an updated coastal zone management consistency assessment was provided to NYSDOS on July 20, 2020, confirming the project's continued consistency with the State's Coastal Zone policies. On July 21, 2020, NYSDOS acknowledged receipt of the updated project information (see **Appendix N**).

The City of Long Beach currently does not have an NYSDOS-approved LWRP; therefore, LWRP coastal zone management requirements are not applicable to the proposed project.¹³

6.2.3 Contamination and Toxic Substances

Citation: 24 CFR § 58.5(i)(2)

HUD policy requires that the proposed site and adjacent areas be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances where a hazard could affect the health and safety of occupants of the property or conflict with the intended use of the property. The responsible entity must use qualified professionals to undertake investigations deemed necessary. Because the proposed project involves soil excavation, an analysis of contamination and toxic substances was conducted.

The project area consists of the Bay Park STP, the Long Beach WPCP, the proposed force main alignment between the two; and the City's three satellite pump station facilities located along Park Avenue. The Long Beach WPCP has been developed as a wastewater treatment facility since approximately 1952, while the Bay Park STP was originally constructed in the late 1940s and was placed into operation in 1950 (FEMA 2017). The alignment of the buried outfall pipeline extending south from the Bay Park STP to the outfall in Reynolds Channel is delineated on the 1954 U.S. Geological Survey Topographic Quadrangle – Lawrence, New York.

This section of the EA provides summaries of the Phase I Environmental Site Assessment (ESA) conducted for the Long Beach WPCP site (First Environment, Inc. 2020); the desktop contamination screening conducted for the remainder of the project area (i.e., the Bay Park STP, force main alignment, and three satellite pump station facilities); the Phase II Environmental Site Investigation (ESI) (Precision Environmental, Inc. 2020) conducted for the Long Beach WPCP site; and the subsurface environmental investigation conducted for the proposed force main alignment (Hazen ARCADIS Joint Venture 2020e). The screening did not evaluate conditions within the City of Long Beach or on the barrier island on which it is located. The Phase I ESA, desktop contamination screening review, Phase II ESI letter report, and subsurface environmental investigation report are included as **Appendix O**.

Summary of Long Beach WPCP Phase I ESA

A Phase I ESA of the Long Beach WPCP conducted at the site of the Long Beach WPCP revealed evidence of one Recognized Environmental Condition: one 2,500-gallon No. 4 heating oil underground storage tank located on the property at the rear of the main plant building. At the time of the ESA, there had been no reported spills or releases to the environment from the tank; however, numerous tank tightness test failures have been associated with this underground storage tank. According to records, the most recent tank tightness test was performed in March 2010; however, site personnel stated the tank is tested yearly for tightness. The current integrity of the tank is unknown; therefore, the conditions of subsurface soils and groundwater are also unknown. No subsurface investigations or remediation have been conducted regarding the former tank tightness test failures. The Phase I ESA also noted that current wastewater treatment and historical LIRR rail lines on the property are considered a *de minimis* condition. Although there are no spill numbers associated with the current wastewater treatment operations or the former LIRR freight operations, there has been no environmental subsurface investigation (i.e., soil or groundwater) to determine if current and historical operations have affected

¹³ Note that the City has prepared a draft LWRP; however, the plan is currently under review and has not yet been adopted.

the subsurface. Any future construction plans for the site should consider potential effects of those operations.

Summary of Long Beach WPCP Desktop Contamination Screening

The primary focus of the screening is to identify the potential for hazardous substances or materials that may affect the health and safety of users of the property. No sites listed on USEPA Superfund National Priorities or Comprehensive Environmental Response, Compensation, and Liability Act list, or the New York State equivalent were identified for the project area. No underground storage tanks were identified in the project area.

A chemical bulk storage tank was identified in the NYSDEC database as located at the Bay Park STP. In addition, the Bay Park STP was built on former salt marsh that was drained and filled. Historical fill material has potential for contamination.

RECs were identified within 3,000 feet of the Bay Park STP and the proposed force main alignment. Five sites listed on the NYSDEC Environmental Remediation Sites (i.e., the state equivalent of the National Priorities List) involve contamination in soil, groundwater, and soil vapor. Two Brownfield Cleanup Program sites are located on the southwestern part of Island Park. The remediation sites are located more than 1,600 feet from the project area, and the Brownfield Cleanup Program sites are more than 1,200 feet away; all sites are separated from the project area by open water. One of the remediation sites is located approximately 200 feet from the satellite pump station at East Park Avenue and Roosevelt Boulevard. Construction at the Roosevelt Boulevard pump station would not include activities that would encounter contamination (if any remains) at the Fashion Cleaners remediation site.

The desktop screening revealed that the project area contains no sites listed on the NYSDEC Environmental Site Remediation Database, and the Phase I ESA identified no such sites on the Long Beach WPCP. An underground petroleum storage tank was identified on the Long Beach WPCP property; however, no leaks associated with the tank were reported, and site personnel have stated that the tank is tested yearly. Operations at the Long Beach WPCP site, including current wastewater treatment operations and historical LIRR freight operations, are considered a *de minimis* condition. The former operation of the sludge storage tanks on Pearsalls Hassock and the subsequent explosion and demolition of the tanks are also considered *de minimis* conditions. Therefore, contamination is not expected to be encountered during construction related to installation of the pipeline.

However, accidental discovery of contaminated soils cannot be entirely ruled out. As such, to ensure that humans and wildlife would not be exposed to contaminated soil and sediments during upland excavation, mitigation to address accidental discovery of contaminants would be addressed through the NYSDEC permitting process, as discussed in **Section 11.2**.

Summary of Long Beach WPCP Phase II ESI

A Phase II ESI was conducted within the anticipated limits of disturbance for construction of the new pump station and associated improvements at the Long Beach WPCP. The ESI included sampling and testing of soil and groundwater. Acetone, mercury, and pesticide were identified in soil samples from the area proposed for excavation associated with the project. Two polyaromatic hydrocarbons and sodium were detected at levels slightly exceeding standards in groundwater from the same area.

In general, the report makes the following conclusions and recommendations. While soils impacts are limited, they are present above the Unrestricted Use standards. All soil generated from the site should

be characterized for disposal, including additional sampling if required by the receiving facility, and disposed of in accordance with all applicable federal, state, and municipal regulations, including 6 New York Codes, Rules and Regulations (NYCRR) Parts 360 and 364. If dewatering is required during construction, groundwater should be disposed of in accordance with all applicable federal, state, and municipal regulations, including the NY SPDES program if discharging to surface water.

Summary of Subsurface Investigation

An environmental investigation was conducted for the alignment of the proposed sewage pipeline (force main) from the Long Beach WPCP to the Bay Park STP. As part of the geotechnical investigation, subsurface environmental sampling program collected 94 soil samples for laboratory analysis from 6 soil borings (2 in-water, 2 marsh, and 2 landward) along the proposed force main alignment. Analytical results from the samples showed low-level detections of volatile organic compounds, metals, polychlorinated biphenyls, and pesticides, and derived waste materials from construction at levels expected to be classified as non-hazardous.

In general, the report makes the following conclusions and recommendations:

- Additional testing of soils stockpiled on-site and proposed for disposal must be completed during construction.
- The level of contamination in some locations is such that if soils are proposed for re-use as backfill, a clean layer of soils 12-inches in thickness would need to be applied atop contaminated soils in areas that would be accessible to the public.
- During construction, measures should be taken to minimize the migration of waste material off-site (i.e. runoff from stockpiles, dust plumes). Such measures would include the capture of all drill cuttings from the HDD work in containers prior to off-site disposal, periodic water sprinkling to minimize airborne dust, and haybale perimeters to prevent inadvertent runoff.

6.2.4 Endangered Species

Citation: *Endangered Species Act of 1973, particularly section 7; 50 CFR § 402*

The USFWS IPaC Official Species List (see **Appendix L**) indicates that the following species protected under the Endangered Species Act may occur in the proposed project area: sandplain gerardia (endangered), seabeach amaranth (threatened), piping plover (threatened), red knot (threatened), roseate tern (endangered), and northern long-eared bat (threatened). As discussed in Section 4.5.3, only piping plover, red knot, and roseate tern have the potential to occur within the project area. No designated critical habitats occur within the project area. In January 2020, GOSR initiated consultation with USFWS under section 7(a)(2) regarding potential impacts on species protected under the Endangered Species Act, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act, and consultation is ongoing (see **Appendix L**).

NHP data, eBird, the Breeding Bird Atlas, and Seatuck data do not indicate records of piping plover, red knot, and roseate tern occurring in the project area. None of these species are known to breed in the project area, and they are only expected to occur as occasional transients because of lack of preferred habitat. However, the project area contains mudflat habitat that is not widely available in the region. Because piping plover and red knot may forage on mudflats in the project area, species-specific surveys were conducted in 2020 to determine if these species are currently using the project area. No federal species were observed during spring and late summer 2020 surveys (see **Appendix P**). A qualified

wildlife observer would also survey the project area for protected birds immediately prior to any construction activities that would occur during breeding and migration periods. If these species are found to use the project area, potential impacts may include disruption of feeding behavior during construction and the loss of foraging habitat from the conversion of mudflat to low marsh during mitigation, which may indirectly affect these species through the loss of potential foraging habitat.

Project construction would temporarily affect potentially suitable habitat for the Endangered Species Act-listed piping plover, red knot, and roseate tern. Foraging individuals disturbed by construction noise and activity are expected to avoid the area and use similar nearby habitat until either they become accustomed to the construction activity or until the activity is completed (see **Appendix Q** for specific discussion on animal response to construction noise). This impact would be minimal because similar suitable habitat would be available to species during construction, and the project area would be restored to pre-existing conditions following completion of construction. GOSR has determined that the project would have no effect on sandplain gerardia, seabeach amaranth, or northern long-eared bat; the project may affect, but is not likely to adversely affect, piping plover, red knot, and roseate tern. USFWS correspondence indicated concurrence with the GOSR's determination as long as surveys were conducted for red knot during spring and fall migration, and if red knot is observed, a buffer is established to avoid disturbance during construction. A qualified wildlife observer would be on-site during construction throughout the spring (February 16 to June 1) and fall (July 2 to November 15) time frames that migrating red knot are known to occur along the Atlantic coast. Should a red knot be observed in the vicinity of the project area during construction, a 300-meter buffer would be established around all project-related construction activity to avoid red knot disturbance until the end of the migration period.

Proposed project mitigation may include conversion of approximately 1.5 acres of mudflat habitat to low marsh, which may indirectly affect potential foraging habitat for piping plover and red knot. However, these species have not been documented in the project area, and species-specific surveys would be conducted prior to construction to verify that these species are not using the project area. Additionally, many low marsh habitats have converted to mudflats from the loss of suitable elevation to support low marsh vegetation; in turn, likely creating more mudflats than were historically present in the area. For purposes of the proposed mitigation plan, the extent of mudflat habitat that would remain in the project area following implementation of the proposed project is anticipated to be suitable to support the numbers of potential transient listed bird species noted above. The restoration of low and high marsh tidal wetland habitat, which has been lost at extreme rates, would improve water quality and enhance ecosystems functions that support wildlife habitat in the area.

The NYSDEC NHP (see **Appendix J**) has records of two state-listed species breeding within 0.5 mile of the project area: peregrine falcon (endangered) and common tern (threatened). As mentioned previously, surveys were conducted in spring and late summer 2020 for federal and state listed species and breeding birds to inform planning for construction access planning (see **Appendix P**). During the survey, one state threatened juvenile bald eagle was observed on North Black Banks Hassock, threatened common tern were observed foraging in the waters west of the project area, and one least tern was observed on North Black Banks Hassock. No state threatened or endangered birds were observed breeding in the project area. No rookeries were observed in the project area. One seaside sparrow, a state Special Concern species, was observed doing a breeding song display, but no nest was observed. Adult and juvenile saltmarsh sharp-tailed sparrows, a High Priority Species of Greatest Conservation Need in New York, were observed on both North and South Black Banks Hassocks. Osprey, also a state Special Concern species, were observed breeding in the project area. Based on the presence of multiple

osprey nests within or near the proposed access path footprints, measures would be undertaken to discourage osprey nesting near the project area. Nesting deterrents would be installed on osprey platforms within 250 feet of the LOD and an equal number of replacement platforms would be located in other suitable habitat on the hassock islands. Because ospreys are also nesting on flat structures such as concrete blocks and wood boxes in the project area, deterrents would also be placed on flat structures near the proposed temporary access paths. For each deterrent installed, a raised replacement platform would be placed in an area of the island that would not be disturbed during construction. The replacement platform would be as tall or taller than the structure on which a deterrent has been installed, and if feasible, within view of the existing nest and not more than 300 feet away. To avoid crowding, replacement platforms would be spaced at least 300 feet apart, which is the minimum distance between active osprey nests documented on the hassock islands during 2020 field surveys. The replacement platforms would be erected before or at the time of nest removal, and all relocation and deterrent installation would occur between December 2020 and March 2021. Site clearing activities would only occur between December 1 and March 15, which would avoid disturbance of nests during the migratory bird breeding season that occurs between April 1 and September 30. A qualified wildlife observer would survey the project area for nests or protected birds immediately prior to drilling or other activities that may occur during the breeding season. If an active nest were encountered, it would be left in place and protected until young hatch and depart, if feasible. If not feasible, the USFWS Field Office and/or NYSDEC Regional Wildlife Office would be contacted for assistance to determine the appropriate plan of action.

Passerine birds are expected to temporarily leave the area during construction because of noise and disturbance and use similar habitat available throughout West Hempstead Bay (see **Appendix Q** for specific discussion on animal response to construction noise). The proposed clearing of approximately 1.3 acres of trees would not significantly affect migratory birds because approximately 145 acres of forested habitat on the marsh islands would remain undisturbed and available during construction, and disturbed areas would be restored following completion of construction. Areas where woody vegetation would be cleared (Drill 1 pipe pullback laydown on both North and South Black Banks Hassocks and Drill 2 and 3 HDD drill rig access path on Pearsalls Hassock) would be restored as maritime forest and shrubland. A qualified ecologist would survey trees prior to clearing to ensure restoration of equivalent stem density following project completion. Seasonal vegetation clearing restrictions, nesting deterrents, and platform replacements would minimize temporary impacts on breeding birds, and post-construction habitat restoration would avoid permanent loss of breeding and foraging habitat. The project is not likely to jeopardize the continued existence of vulnerable migratory birds, nor the destruction or adverse modification their designated critical habitat. Therefore, GOSR has determined that the project is not likely to jeopardize the continued existence of any migratory birds, and it would not result in the permanent loss of habitat or adverse modification of their behaviors.

There are no records of bald eagle nesting near the project area; therefore, no adverse impacts on breeding bald eagles are expected. This species is expected to occur only as an occasional transient. Like other migratory birds, foraging bald eagles may temporarily avoid the area during construction because of noise and disturbance. Golden eagles are not likely to occur near the project area and would not be affected by the project. GOSR has determined that the project would not result in “taking” bald or golden eagles. The project would not substantially interfere with normal bald eagle breeding, feeding, or sheltering behavior that may cause injury, a decrease in productivity, or nest abandonment.

The project has been reviewed in accordance with NMFS Greater Atlantic Region Section 7 Program Guidance. There is no critical habitat within the project area. While the project area is within the range

of occurrence of adult and subadult Atlantic sturgeon and sea turtles, the waters do not provide suitable breeding or overwintering habitat for these species. Proposed construction activities during the winter months would avoid the time frame that transient sea turtles and sub-adult and adult sturgeon may occur within the project area. If individuals of these species were present, it would be a transient presence with a limited temporal duration. Additionally, seasonal transients are highly mobile and could easily avoid the project area during construction. All project activities would occur above mean high water except work barge deployment and potential trestle installation. Should the trestle alternative be selected to span the channel between North and South Black Bank Hassocks, effects on Atlantic sturgeon due to noise disturbance from installation of support piles would not be able to be meaningfully measured or detected. Sea turtles are not expected to be exposed to noise levels above their injury and behavioral modification thresholds. On July 30, 2020, GOSR initiated consultation with NOAA NMFS pursuant to section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 USC 1531 et seq.) and the Marine Mammal Protection Act. In the section 7 consultation letter to NMFS, GOSR concluded that all potential effects of the project on listed species under NMFS jurisdiction would be insignificant and/or discountable; therefore, the project may affect but is not likely to adversely affect listed species under NMFS jurisdiction (see **Appendix K**). In their response letter dated August 24, 2020, NMFS stated that the minor combined impacts to habitat from in-water construction activities and shading from the optional trestle would not have a measurable or detectable impact on the foraging behavior or fitness of listed species, as ample unaffected foraging habitat occurs within the larger action area; therefore, effects are insignificant. Further, NMFS stated that they concurred with GOSR's conclusion that the project is not likely to adversely affect any NMFS ESA-listed species or designated critical habitat (see **Appendix K**).

6.2.5 Explosive and Flammable Hazards

Citation: 24 CFR § 51, Subpart C

24 CFR Part 51 Subpart C is applicable to HUD-assisted projects that involve new hazardous facilities, new residential construction, conversion of non-residential buildings to residential use, rehabilitation of residential properties that increase the number of units, or restoration of abandoned properties to habitable condition. The proposed improvements to satellite pump stations would not involve these activities. However, the proposed project includes the construction of a diversion pump station with fuel oil bulk storage and a back-up generator with an aboveground fuel storage tank; therefore, compliance with 24 CFR Part 51 Subpart C is warranted.

A search of the NYSDEC Bulk Storage Program Database identified the following chemical or petroleum storage tanks within a 1-mile radius of the project area. Note that some sites may have more than one tank, and some of the tanks listed may be buried underground.

Sites within 1,000 feet of the project area:

- Site 1-000236, Bay Park Sewer Treatment Plant: Chemical Bulk Storage (tank information withheld from public disclosure).
- Site 1-000151, Long Beach WPCP: Chemical Bulk Storage (tank information withheld from public disclosure).
- Site 1-000136, Park Place Water Treatment Plant: Chemical Bulk Storage. Tank information withheld from public disclosure. However, aerial imagery shows the presence of aboveground storage tank and the database indicates the permit is active and expires on July 5, 2021.

Sites located between 0.25 and 0.5 mile of the project area:

- Site 1-1100, Cibro South Shore Terminal Corporation: Major Oil Storage Facility in Island Park. Tank information is withheld from public disclosure. The site is listed as inactive, and no tanks were observed on aerial imagery.
- Site 1-000406, Hewlett Point Park Swimming Pool: Chemical Bulk Storage in Bay Park. The database indicates that the permit is active and expires on May 8, 2021.

Sites located between 0.5 and 1.0 mile of the project area:

- Site 1-000002, Bauman Bus Terminal: Petroleum Bulk Storage in Oceanside. The database indicates the presence of six unregistered tanks, two underground and four aboveground.
- Site 1-1060, Olympian Energy of New York: Major Oil Storage Facility. Tank information withheld from public disclosure. The site is listed as inactive; permit expired in 1993.
- Site 1-1180, Sprague Oceanside Terminal: Major Oil Storage Facility. Tank information withheld from public disclosure. The site is listed as inactive; permit expired 2014.
- Site 1-000357, Sprague Operating Resources: Chemical Bulk Storage. The database indicates eight aboveground tanks, seven of which have been closed and removed. One tank was closed and left in place. All tanks were unregulated.

The generator for the new diversion pump station at the Long Beach WPCP would have a dedicated aboveground, sub-based mounted diesel fuel tank. The tank would be heavy-gage steel and welded with secondary containment sized for 110 percent of the storage tank's capacity. The tank would meet Nassau County Fire Protection Ordinance Article III, which requires Fire Marshal permitting. It would also meet the requirements of National Fire Protection Association Flammable and Combustible Liquids Code (NFPA 30), Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines (NFPA 37), and Standard for Emergency and Standby Power Systems (NFPA 110).

6.2.6 Farmlands Protection

Citation: *Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR § 658*

The proposed project does not meet the criteria for further analysis under the Farmland Protection Policy Act of 1981 because the project area is not located within any agricultural districts and would not cause disturbance to farmland nor involve the conversion of farmland to non-agricultural use. Further, based on the soil classifications presented in the National Resources Conservation Service report obtained for the project area in January 2020, soils underlying the project site are composed of Ipswich and Pawcatuck mucky peats, Udipsamments, Urban Land and Water, none of which are classified as prime farmland soils (U.S. Department of Agriculture 2020). Therefore, the proposed project is in compliance with the Farmland Protection Policy Act.

6.2.7 Floodplain Management

Citation: *Executive Order 11988, particularly section 2(a); 24 CFR § 55*

The Long Beach WPCP pump station and hardening work, as well as the connection of the force main to the Bay Park STP, would primarily occur in areas classified as Zone AE with 9- to 10-foot BFEs (see **Appendix H**).

A Floodplain and Wetlands 8-Step Floodplain Process in Accordance with Executive Order 11988: Floodplain Management and Executive Order 11990: Wetlands was completed for the proposed project pursuant to 24 CFR 55.12(a)(4) and is provided in **Appendix R**. The 8-step process included both an Early and Final Notice to notify the public and agencies about the proposed project and its potential impacts on wetlands and floodplains. Project activities involve an insurable structure (i.e., the new/converted diversion pump station) that would be included in substantial improvement calculations as defined by 24 CFR 55.2(b)(10).

The estimated LOD required to construct the proposed project, as shown in **Figure 10**, would temporarily affect an estimated 14.99 acres of land in the 100-year (Zone AE) floodplain. Temporary floodplain impacts would result from the establishment of temporary drillings sites for the force main installation, the connection of the force main to the Bay Park STP, and the conversion of the Long Beach WPCP pump station to a diversion pump station. The proposed project, specifically the installation of air vents necessary for maintenance, would result in permanent impacts on approximately 0.009 acre of acre of 100-year floodplain. At the New York Avenue and Roosevelt Boulevard pump stations, the elevated platform footings may require a negligible amount of permanent ground disturbance. However, because these areas were previously disturbed by construction of the existing facilities, any effects to the 100-year floodplain would be considered *de minimis*.

The proposed project would permanently impact an estimated 400 square feet (0.009 acre of land located in the 100-year floodplain. The impacts would occur in three separate areas that have already been disturbed, affecting no more than 100 square feet in any one location. Furthermore, as explained in the 8-Step Floodplain Process documentation (**Appendix R**), the proposed project's public benefits to human health, safety, and welfare outweigh the potential adverse effects of the risk to the proposed federal investment in a facility located in the floodplain. The proposed project would protect all wastewater facilities to FEMA's 500-year flood event critical infrastructure standard. As such, the proposed project is not expected to result in permanent adverse impacts on floodplains, and mitigation to address such impacts is not necessary.

Adherence to BMPs during construction would serve to avoid or minimize potential temporary impacts on floodplains. Such measures could include the use of silt fences and hay bales to reduce the potential for erosion and sedimentation and the use of turbidity curtains around in-water work areas. The containerization and disposal of drilling fluids would prevent any discharge of water or sediment to adjacent waters and wetlands.

6.2.8 Historic Preservation

Citation: National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR § 800; Tribal notification for new ground disturbance.

To determine potential impacts on cultural resources, a Phase IA Cultural Resources Survey Report was prepared (Chrysalis 2020). The purpose of the Phase IA survey was to document the history of the project area and assess potential impacts of the proposed project on the APE. The APE includes any area in which activities related to the project have the potential to disturb the ground and, in turn, potential cultural resources.

The APE that was evaluated in the Phase IA includes the footprint of the Long Beach WPCP on the north shore of Long Beach extending north approximately 2.65 miles through the Western Bays between Long Island and the southern barrier islands to the Bay Park STP in the Town of Hempstead. The APE

encompassed three marshy islands situated between the Long Beach WPCP and Bay Park STP: South Black Banks Hassock, North Black Banks Hassock, and Pearsalls Hassock.

The Phase IA survey revealed a low potential for the recovery of in situ, significant, prehistoric or historic stratigraphic and/or physical remains from in the APE. Overall, the project area has been heavily modified by both natural storm action and human activities. Further, the proposed HDD drilling method would limit surface disturbance. Therefore, it was determined that a Phase IB archaeological field testing was not warranted.

The Phase IA Cultural Resources Survey Report was prepared and submitted to the New York State Historic Preservation Office (SHPO). In a letter dated February 4, 2020, the SHPO noted it had determined that implementation of the proposed project requires no additional archaeological work, and that no historic properties, including archaeological and/or historic resources, would be affected (**Appendix S**).

The APE for the proposed project also includes the satellite pump stations along Park Avenue in Long Beach. These portions of the APE were evaluated subsequent to the completion of the Phase IA survey. Both the Roosevelt Boulevard and New York Avenue pump stations are more than 50 years old, and their aboveground structures would be demolished as part of the proposed undertaking. Based on the subsequent evaluation, GOSR determined that the satellite pump stations are not historically significant or eligible for the National Register of Historic Places. In addition, given the properties of both buildings are already developed and ground disturbance would be limited to elevated platform installation, archaeological resources would not be affected. In a letter dated July 9, 2020, the SHPO concurred with the determination that no historic properties, including archaeological and/or historic resources, would be affected by the proposed project (**Appendix S**).

The Shinnecock Nation, Stockbridge-Munsee Community Band of Mohicans, Delaware Tribe of Indians, Delaware Nation and Unkechaug were notified of the project on March 2, 2020. GOSR received one comment from the Delaware Tribe, requesting copies of the Phase IA survey and the EA, and inquiring about any agreements to address potential spills. In response, the Tribe was informed that a copy of the Phase IA survey has been made available to them; that they will receive notice when the EA is available for public review; and that the design team is finalizing the contingency plans for the project as part of the permitting process and as design is advanced towards 100 percent (**Appendix T**).

6.2.9 Noise Abatement and Control

Citation: Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR § 51, Subpart B

Construction of the proposed project would result in temporary increases in noise levels, which would be mitigated by complying with local noise ordinances. The City of Long Beach ordinance prohibits construction noise between 8:00 p.m. and 8:00 a.m. the following day, or any time on Sunday or legal holidays prior to noon (except for emergency work). The Town of Hempstead prohibits noise from construction activity except that which occurs between 7:00 a.m. and 6:00 p.m. on weekdays, except in a case of urgent necessity in the interest of public safety, and then only with a permit from the Department of Buildings. Construction activities would be dispersed over an alignment of approximately 1 mile in Bay Park and in four discrete locations between Bay Park and Long Beach, including activity at the Long Beach WPCP. Three of the discrete construction locations comprise vacant, undeveloped property on the hassock islands between Long Beach and the mainland. In addition, the satellite pump station hardening would require construction activity at three discrete locations along Park Avenue, all

in primarily residential neighborhoods. Construction activities at any one location would also be temporally limited; a specific locale would not experience elevated noise levels for the duration of the total construction period. As detailed in the noise evaluation provided in **Appendix Q**, noise receptors are located on the mainland and in Long Beach, while noise receptors on the hassock islands are wildlife.

Implementation of the proposed project would involve the construction of the new diversion pump station at the Long Beach WPCP and connection of the new force main to the 66-inch sewer main located west of the Bay Park STP. When operational, the diversion pump station and three satellite pump stations would not generate substantial new noise at the individual facilities or in the surrounding areas. The proposed project would not result in new facilities that would generate a substantial amount of noise at either the Long Beach WPCP or Bay Park STP, nor would they introduce any new existing noise sensitive uses.

Generally, vehicular traffic, as measured in passenger car equivalents, must double to result in a perceptible increase in mobile source noise. As indicated in **Section 7.3.9**, Transportation and Accessibility, the proposed project would not substantially increase vehicular trips. As such, it would not generate substantial new mobile-source noise. During construction, trucks would deliver construction material and equipment to the work sites and dock facilities for transport to the work sites located on the hassock islands. These delivery trips would not increase traffic to the level sufficient to significantly raise noise levels. Therefore, no significant noise impacts are expected to occur as a result of the proposed project.

Given that the operation of the proposed project would not generate noise, that construction of the proposed project proximate to human receptors would comply with local noise ordinance, and that animals in the vicinity of construction activity could avoid disrupting noise by migrating to similar habitat nearby, no adverse noise impacts are expected. See **Appendix Q** for an in-depth noise evaluation.

6.2.10 Sole Source Aquifers

Citation: Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR § 149

The proposed project is located within the Nassau-Suffolk Sole Source Aquifer system (see **Figure 16**) and would not result in new water demand or increased groundwater pumping. Use of BMPs would ensure that the proposed project would not introduce new contaminants into the aquifer. The proposed project would improve water quality by eliminating the current discharge from the antiquated WPCP and connecting the sewer system serving Long Beach to the newly rebuilt Bay Park STP for enhanced treatment.

An Initial Screen/Preliminary Review was submitted to USEPA on November 12, 2019, according to the Memorandum of Understanding between USEPA and HUD dated August 24, 1990, requesting an Initial Screen/Preliminary Review (**Appendix U**). On December 16, 2019, USEPA responded that the proposed project complies with Section 1424(e) of the Safe Drinking Water Act and would not pose a significant threat to public health or groundwater resources.

An updated Initial Screen/Preliminary Review was submitted to USEPA on July 20, 2020, to inform the USEPA of the proposed projected expanded scope of work (to include hardening of the satellite pump stations) and confirming the continued determination that it would not adversely affect the sole source aquifer (see **Appendix U**).

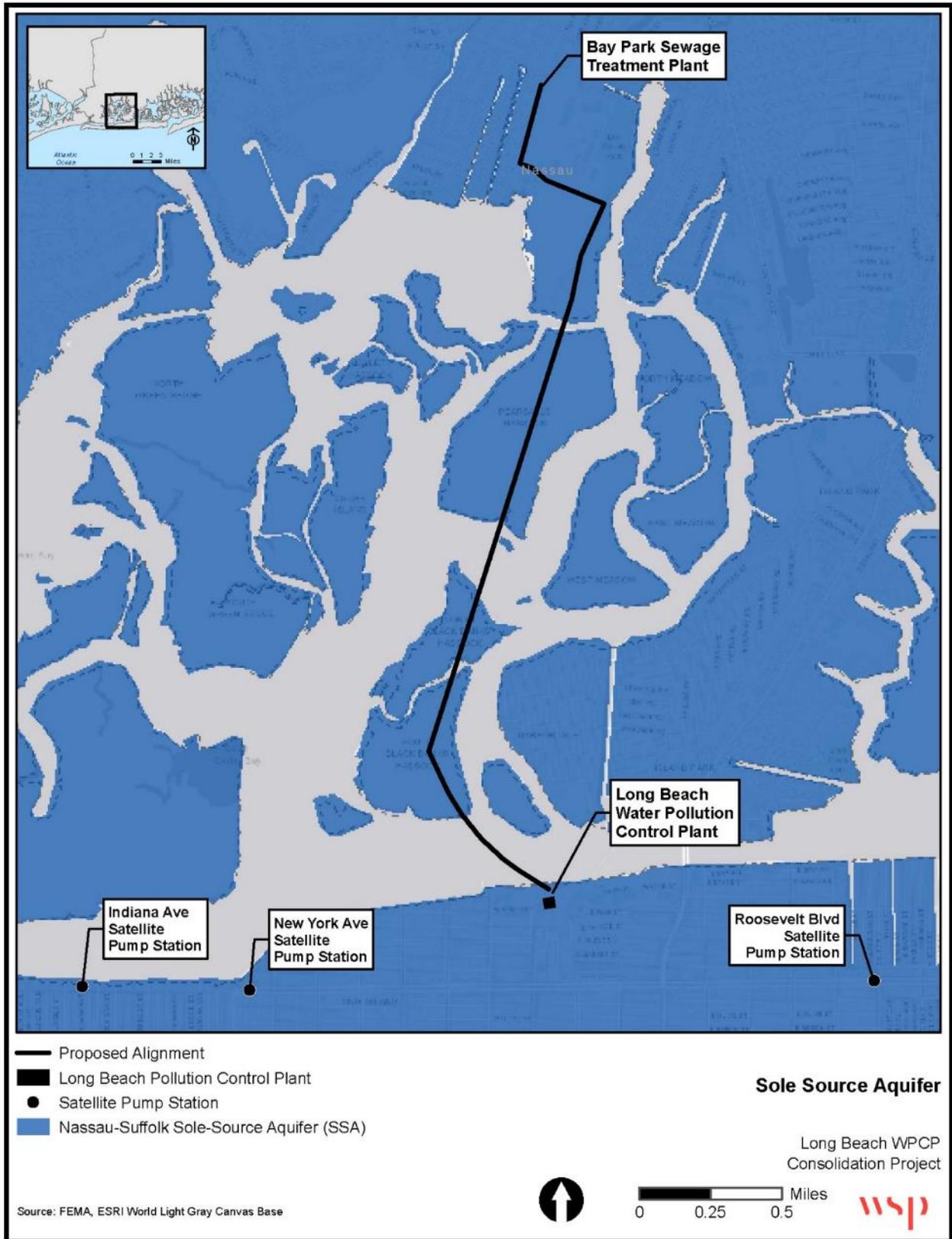


Figure 16: Sole Source Aquifer

6.2.11 Wetlands Protection

Citation: Executive Order 11990, particularly sections 1, 2 and 5

The force main installation component of the project would temporarily disturb 4.303 acres of tidal wetlands on the hassock islands. Installation of the force main across the hassock islands would be performed using HDD in three sections and is anticipated to last approximately 17–18 months. A small area (0.917 acre) of intertidal wetlands on South Black Banks Hassock would be temporarily impacted for the entire 17-month duration of activity for the installation of Pipeline Sections 1 and 2, and 0.644 acre of intertidal wetland habitat on Pearsalls Hassock would be temporarily impacted for the entire 14-month duration of activity for installation of Pipeline Sections 2 and 3. To span the channel between North and South Black Banks Hassock, the contractor would select either a barge or trestle option. Whichever option is selected, the maximum area of temporary disturbance would be 0.218 acre for approximately seven months. The timing and duration of disturbance of wetland habitats on the hassock islands for force main construction are summarized in **Table 5**.

Table 5: Temporary Wetland Disturbance at South Black Banks and Pearsalls Hassocks

Area	Project Component	Disturbance to Tidal Wetlands (acres)	Disturbance to Open Waters (acres)	Disturbance to Upland Adjacent Area (acres)	Duration (months)
North and South Black Banks Hassocks	Access Path	0.217	>0.01	0.000	17
	Pullback Site	0.700	0.000	0.000	17
	Laydown Area/Assembly/Pullback for Pipeline Section 1	1.444	0.197	1.344	3
	Laydown Area/Assembly/Pullback for Pipeline Section 2	1.300	0.009	0.000	7
	Channel Crossing (Barge or Trestle)	0.000	0.218	0.000	7
Pearsalls Hassock	Access Path	0.196	0.005	0.181	14
	Drill Site	0.448	0.014	0.182	14
Total Disturbance		4.303	0.443	1.707	17-18

The three satellite pump stations are located on non-regulated upland areas and the proposed flood mitigation work would not affect wetlands.

Permanent impacts on wetlands would result from the installation of two permanent air vents, one on Pearsalls Hassock and the other on South Black Banks Hassock, totaling approximately 200 square feet. Issuance of an USACE Section 404 Permit and NYSDEC Tidal Wetlands Permit, SPDES (if dewatering is required) and Water Quality Certification would be required prior to construction. USACE has indicated that no compensatory mitigation would be required for this minimal permanent impact and that the USACE would accept mitigation as required by the NYSDEC. The USACE is currently reviewing the

request for Jurisdictional Determination of delineated wetlands and waters that the County had submitted on behalf of the proposed project (see **Appendix I**).

On-site and in-kind restoration of all disturbed wetlands and adjacent areas is proposed (see **Section 11.5**). In addition, mitigation is proposed outside the LOD to offset the temporary impacts associated with project construction (see **Section 11.3.1**). Following completion of construction and associated habitat restoration, there would be no adverse operational impacts on wetlands.

The project may minimize future wetland loss by reducing the nitrogen loads to the Western Bays that have contributed to the loss of wetlands. Water quality improvements may also help to preserve and enhance the beneficial functions of existing wetlands and lead to an increase in the distribution of intertidal wetland and submerged aquatic vegetation. Overall, the project would have long-term benefits on water quality and wetland sustainability within Hempstead Bay. Therefore, the proposed project complies with Executive Order 11990.

6.2.12 Wild and Scenic Rivers

Citation: Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)

The proposed WPCP Consolidation Project is not situated near any designated wild, scenic, or recreational rivers or scenic areas of statewide significance as designated by the U.S. Department of the Interior and NYSDEC. Therefore, the proposed project would not violate the Wild and Scenic Rivers Act.

6.2.13 Environmental Justice

Citation: Executive Order 12898

The Long Beach WPCP portion of the project site is located partially within a potential environmental justice area (**Figure 17**). However, the proposed project has been sited and designed in a manner that safeguards the economic, social, and environmental interests of the surrounding communities. No population changes would result from the proposed project, and no demographic, character, or displacement impacts would occur. Moreover, the proposed project would enhance water quality in the bay areas adjacent to these communities. Environmental justice communities in the immediate vicinity of the Long Beach WPCP would also benefit from improved air quality resulting from the removal of wastewater treatment processing at the site and associated noxious odors. Therefore, the proposed project complies with Executive Order 12898.

6.2.14 Fish and Wildlife Coordination Act

Citation: Fish and Wildlife Coordination Act of 1934, as amended, particularly sections 661–667(e)

Existing fish and wildlife habitat present within the project area includes salt marsh, salt shrub, salt panne, maritime shrubland, successional maritime forest, sandy beach, intertidal mudflats, and the open waters of Hempstead Bay. Implementation of the project would not result in the modification to waters, such as impoundment, diversion, channel deepening, or any other control or modification to natural streams or bodies of water. Fish and wildlife habitat that would be temporarily impacted during project construction would be restored to pre-existing conditions and proposed mitigation would remove invasive vegetation and enhance existing habitat. Therefore, the proposed project complies with the Fish and Wildlife Coordination Act.

6.2.15 Magnuson-Stevens Fishery Conservation and Management Act

Citation: 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act

The proposed project would have minimal impacts on designated EFH in the project area. Permanent impacts on EFH would be limited to the loss of approximately 200 square feet of intertidal salt marsh from the installation of two vaults for permanent air vents on Pearsalls Hassock and South Black Banks Hassock. Temporary impacts on intertidal salt marsh, mudflat, and subtidal habitat would be limited to the immediate area of disturbance, and temporarily disturbed areas would be restored to pre-construction conditions following completion of construction. Disturbance resulting from barge and/or trestle deployment would be temporary and considered negligible. Sediment is expected to quickly fill in depressions from barge spuds, jacks, or trestle piles to restore natural gradients, and recolonization of benthic infauna prey organisms would occur relatively quickly. In areas where the work barge may be temporarily grounded on intertidal mudflat and wetland, the area would be restored following barge removal, and no long-term impacts are anticipated. Turbidity increases during construction would be temporary and localized, and activity in intertidal habitats would be conducted at low tide, avoiding in-water disturbance.

An EFH assessment for the project was submitted to the National Marine Fisheries Service (NMFS); correspondence dated March 23, 2020, stated that the NMFS agrees with the conclusion that the adverse effects of this project on EFH will not be substantial. The design requirements to span the channel between North and South Black Banks Hassocks and the additional barge along the south shoreline of South Black Banks Hassock were added to the project subsequent to that correspondence. An updated EFH assessment was submitted to NMFS on July 20, 2020, to address these updated design components. The updated EFH assessment concluded that the adverse effects of the project on EFH would not be substantial (**Appendix K**). The NMFS response letter, dated August 24, 2020, agreed with GOSR's conclusion that the adverse effects of the project on EFH will not be substantial. NMFS also provided conservation measures to minimize or offset adverse impacts to EFH, including the avoidance of pile-driving and other sediment and noise-generating activities between January 1 and May 31 to minimize impacts to winter flounder early life stage EFH (**Appendix K**). The seasonal window imposed by NYSDEC to avoid disturbing wetland vegetation during the growing season would not allow construction of the trestle to start until the latter part of January 2021 with completion by March 15, 2020; therefore, GOSR requested a waiver of the January 1 through May 31 in-water work restriction and provided a justification for the waiver and proposed avoidance and minimization measures to minimize impacts to winter flounder early life stage EFH. NMFS correspondence indicated concurrence with the justification and proposed avoidance and minimization measures; therefore, construction of the trestle may occur after January 1. The proposed project complies with the Magnuson-Stevens Fishery Conservation and Management Act.

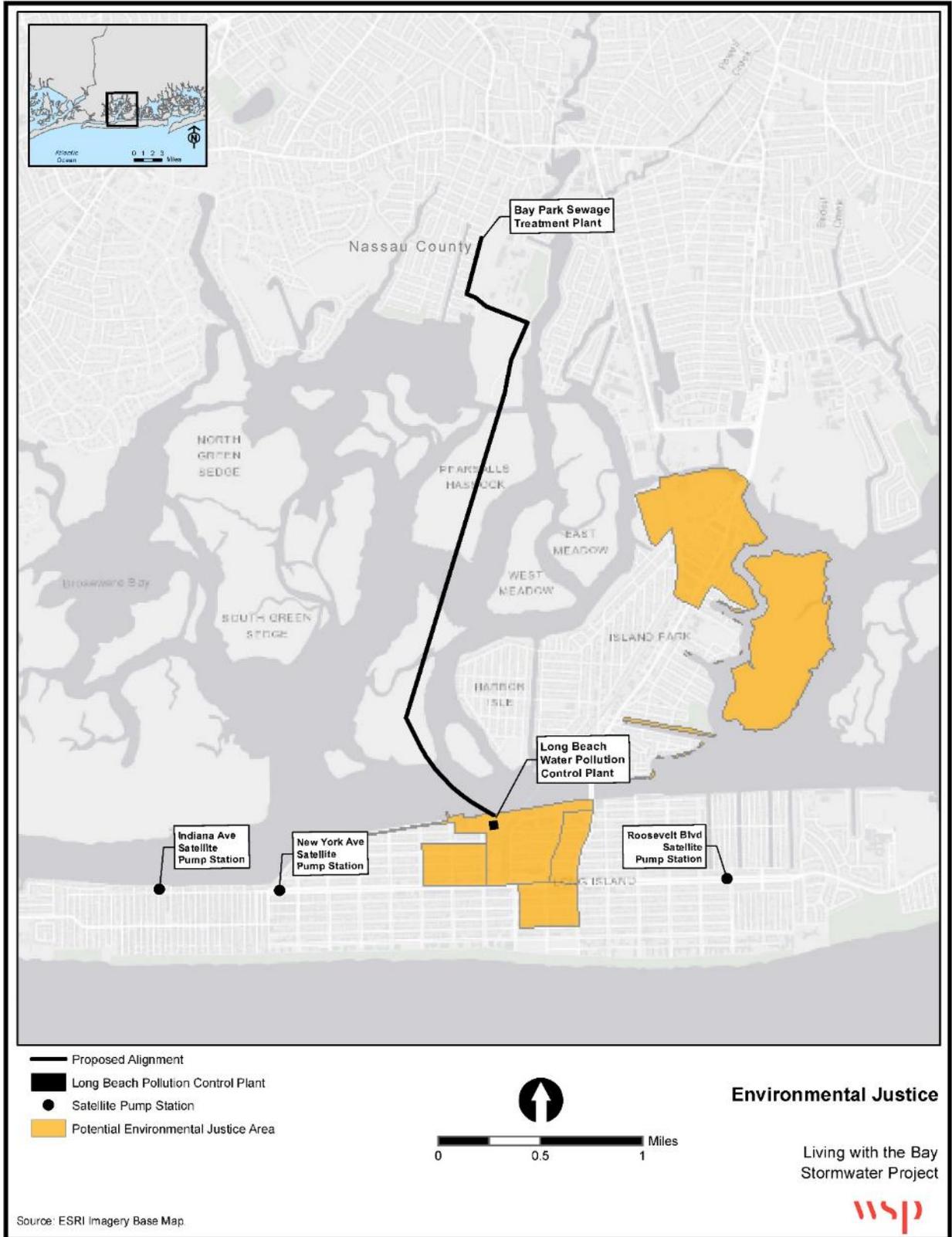


Figure 17: Potential Environmental Justice Area

7 ENVIRONMENTAL ASSESSMENT FACTORS [24 CFR 58.40; REF. 40 CFR 1508.8 & 1508. 27]

The qualitative and quantitative significance of the effects of the proposal on the character, features, and resources of the project area are described below. Each factor has been evaluated and documented, as appropriate, and in proportion to its relevance to the proposed project. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable, and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed, and applicable permits and approvals have been obtained or noted.

7.1 LAND DEVELOPMENT

7.1.1 Conformance with Plans, Compatible Land Use and Zoning, Scale and Urban Design

The City of Long Beach is currently updating its master plan. The City's "Comprehensive Plan Update - Creating Resilience: A Planning Initiative" (January 2018) provides short, mid- and long-term recommendations for the protection, enhancement, growth, and development of Long Beach. In addition, an LWRP was developed for the City in concert with the Comprehensive Plan so that both plans have a consistent set of visions, goals, objectives, policies, and actions. Once the LWRP is adopted, federal and state permitting, funding, and direct actions must be consistent, to the maximum extent practicable, with the LWRP. The comprehensive plan identifies the WPCP site as one of the most significant sites in the City in terms of potential bayfront redevelopment (City of Long Beach 2018).

Another goal specified in the City's Comprehensive Plan is to "contribute to the health of the bay by reducing non-point source pollution through improved stormwater management. In terms of point source pollution, the most significant measure that Long Beach can implement to improve the water quality of the bay is the consolidation of the City's sewage treatment plant with Nassau County's Bay Park Sewage Treatment Plant." The proposed project is consistent with and directly supportive of the City's Plan.

Nassau County's draft 2010 Master Plan also addresses the need to improve water quality in the surrounding bays by preventing pollution from municipal operations and following the required BMPs for stormwater runoff. According to the plan, Nassau's County's Department of Public Works completed a Feasibility Study in 2007 to determine the benefits, both environmental and financial, associated with consolidating smaller wastewater treatment facilities into larger, more efficient facilities. The findings of the report indicated that there is a significant benefit to consolidating facilities that have not already undertaken recent permit requirements associated with nutrient discharge and disinfection (Nassau County 2010).

The proposed project would not change current land uses or uses of the existing project areas, nor would it result in changes to local plans or zoning. The proposed project would not be inconsistent with the Nassau County Master Plan, the City of Long Beach Comprehensive Plan, or any other local plans and policies applicable to Long Beach or the County's Bay Park. Rather, the proposed project would directly support and help achieve several objectives identified in relevant planning documents. The decommissioning and demolition of the existing Long Beach WPCP facility and the repurposing/ redevelopment of the WPCP property are not part of the proposed project but would likely be part of future project(s). Accordingly, the future redevelopment of the remainder of the WPCP site has been considered in the cumulative impact analysis (see **Section 9**). The proposed project would mitigate the

flood risk for the City's wastewater system to above the 0.2 percent annual chance (500-year) flood elevation and protect the system from storm surge and sea level rise. As such, it would be compatible with the City and County plans.

7.1.2 Soil Suitability, Slope, Erosion, Drainage, Stormwater Runoff

Soil Suitability/Slope

The proposed project would be constructed in areas with negligible slope, at both the Long Beach WPCP and at the satellite pump stations. At the Bay Park STP, installation of the force main would require excavation of an approximately 5-foot-wide trench. This excavation would adhere to design requirements for slope safety, and areas with steeper slopes would be shored as necessary during force main installation. Upon completion of installation, the trench would be backfilled. For the force main installation on the hassock islands, it is anticipated that pipe pullback sites would be supported by waterproof shoring or piles to a depth of approximately 6 to 8 feet. Alternatively, pipe casing at site pullback sites could rest on wetland mats.

Erosion/Drainage/Stormwater Runoff

Vegetation removal, excavation, and grading activities could increase erosion. The proposed project would disturb more than 1 acre of land and as such must obtain coverage under the SPDES General Permit for Stormwater Discharges from Construction Activity. The SPDES General Permit requires the use of New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, as well as preparation of a Stormwater Pollution Prevention Plan (SWPPP) to incorporate appropriate BMPs during construction activities.

On the hassock islands, construction site access and pullback areas, shown in **Figure 6**, would occur on specific, pre-designated locations approved by NYSDEC. The locations were selected to avoid, to the extent practicable, soft channels and wetlands. Marsh mats would be used to move construction equipment to minimize soils disturbance. If dewatering were necessary, disposed water would be filtered before discharge into the Bay. Restoration of Pearsalls Hassock would entail restoration of areas to pre-construction elevations. Compensatory mitigation proposed by Nassau County on South Black Banks Hassock would entail lowering the elevation of the marsh platform to encourage low marsh plant growth. The rehabilitated wetlands would improve water quality.

Excavation activities associated with construction activities would yield organic material, which could be beneficially reused on the hassock islands. NYSDEC would review and approve the quantity and location of such reuse during the permitting process.

The proposed project would result in a net increase of an estimated 0.04 acre of impervious surfaces; this incremental increase would not contribute to substantial new stormwater runoff.

7.1.3 Hazards and Nuisances (Including Site Safety and Noise)

Flood Risk and Site Safety

Impacts and mitigation relative to the location of the project in a Special Flood Hazard Area are identified in **Section 6.2.7**. No other known natural hazards, including earthquake fault zones, landslide zones, or hazardous terrain, occur at or near the project area. Further, the project area does not occur near any human-made hazard areas such as quarries, landfills, oil or gas wells, or near significant air pollution generators such as cement plants, incinerators, or power plants.

Noise

The installation and operation of air vents and the proposed pump station are not anticipated to increase noise levels beyond these facilities. Most of the construction of the force main would occur underground in areas that are sparsely populated. Impacts from increased noise levels from construction of the diversion pump station and force main in developed areas around the Long Beach WPCP and Bay Park STP would be minimized through compliance with local noise ordinances, including time-of-day work limitations, as indicated in **Section 6.2.9**. Similarly, construction activities involved in hardening the three satellite pump stations would occur during normal working hours as stipulated in the local noise code.

Additionally, areas within Bay Park in the immediate vicinity of the pipe pullback site and force main construction corridor and the drill site in the City of Long Beach that are presently used for passive and active recreation would not be accessible during construction; therefore, indirect impacts, in the form of increased noise levels from construction activities, on users of outdoor recreation and open space areas, would be avoided or minimized. Construction activities would occur during normal working hours and employ commonly accepted engineering and administrative controls that would minimize noise impacts. Operation of the new diversion pump station and the hardened satellite pump stations in Long Beach and the Bay Park STP with consolidated flow from Long Beach would not result in a substantial increase in vehicular trips or visitors to the area and would not generate new nuisance noise.

7.1.4 Energy Consumption

A new commercial electric supply would be provided by PSE&G Long Island, and a new diesel engine generator would be installed to run the diversion pump station in Long Beach. The existing electric PSE&G supply and emergency standby generator would remain operational until the existing WPCP is no longer needed. The diversion pump station would not have any permanent lighting or receptacles, and the area would be screened. At the satellite pump stations, the relocation (elevation) of the transformers feeding the pumping stations would be coordinated with PSE&G. The operation of the hardened satellite pump stations would not result in a substantial increase in energy consumption relative to existing conditions. The proposed project would not require an appreciable amount of energy. The project would be developed using energy-efficient construction methodologies, including directional drilling. Therefore, the proposed project would not result in a significant increase in energy production for the local energy provider.

7.2 SOCIOECONOMICS

7.2.1 Employment and Income Patterns

According to the 2018 U.S. Census, American Community Survey five-year averages, the median household income in Nassau County was \$111,240 compared to the median income in the State of New York of \$65,323. In 2018, the estimated median value of owner-occupied housing units in Nassau County was \$474,800, compared to \$302,200 for the State of New York.

Employment in Nassau County is distributed among several key industries and occupations. For the civilian employed population 16 years and older, approximately 28.7 percent of the population is employed in educational services including health care and social services, 13 percent in professional, scientific and administration, 10.3 percent in finance and insurance, 10 percent in retail trade, and 7 percent in arts and entertainment.

During construction, the proposed project would result in beneficial economic impacts, including increased local employment and associated indirect economic benefits, such as patronage at local food establishments, retail, and hotels. In the long term, the proposed project would improve water quality in the bay areas surrounding Long Beach and Bay Park. The proposed project would not result in any population changes, nor would it alter employment or income patterns. The proposed project would likely create temporary construction jobs; however, no permanent employment positions would be created. Therefore, changes to employment and income patterns are not expected.

7.2.2 Demographic Character Changes, Displacement

According to American Community Survey estimates, the population of Nassau County in 2018 was 1,356,564. This represents a population increase of 1.3 percent since 2010. In 2010, approximately 68.6 percent of the population identified as Caucasian, 11.7 percent identified as Black or African American, 9.3 percent identified as Asian, 3.0 percent identified as two or more races, and 0.3 percent identified as American Indian or Alaskan Native. Approximately 16.6 percent of the population identified as Hispanic or Latino (of any race). Approximately 28.1 percent of the population was under 18 years of age, while 17.1 percent of residents were over 65.

The project site includes the existing Long Beach WPCP, the three satellite pump stations, the Bay Park STP, and the STP's existing discharge outfall easement property, which is primarily underwater. During construction, workers may temporarily resettle in the region, whether in short- or long-stay hotels, rentals, or even purchasing property. These temporary residents would be disbursed among the City of Long Beach and Town of Hempstead (and possibly other locations in Nassau County). They would not displace existing residents or substantially alter the character of the region. In the long term, no changes to the existing demographic characteristics are expected; no residents would be displaced as a result of the proposed project.

7.3 COMMUNITY FACILITIES AND SERVICES

7.3.1 Educational and Cultural Facilities

Using CDBG-DR funding for the proposed project would have no adverse effects on local schools in the Long Beach or East Rockaway School districts. There would be no adverse effects to educational or cultural facilities because the project areas consist of properties currently in use by utilities and are uninhabited. Construction of a new diversion pump station, hardening of satellite pump stations, and connection of the new force main to the Bay Park STP would not change the population in the area.

7.3.2 Commercial Facilities

The proposed project would have minor beneficial effects on the demand for existing commercial establishments. Day workers, as well as workers temporarily relocated to the region, would patronize local food establishments, retail, and hotels. Increased patronage of local businesses is not expected in the long term.

7.3.3 Health Care and Social Services

No long-term population changes would be associated with the proposed project; therefore, there would not be a significant increase in demand for health care and social services. There would be no adverse effects on the nearby Magnolia Child Care Center or Long Beach Head Start facility in Long Beach or on the Kidz being Kidz Group Family Day Care near the Bay Park STP. The satellite pump stations are located

more than 0.25 miles from existing day care facilities. The closest elder care center to the project area is in Long Beach, more than 0.5-mile away from the project site. The proposed project would not affect the elder care facility or medical-care providers in the vicinity of the project area.

7.3.4 Solid Waste Disposal and Recycling

Most of the new force main would be installed underground using HDD. The containerization and disposal of drilling fluids would prevent any discharge of water or sediment to adjacent waters and wetlands during the installation phase. The design team is currently developing a frac-out contingency plan, outlining the measures to be taken if there is an accidental release of drilling muds during the HDD process.

Traditional cut-and-cover methods that entail trenching would be used in Bay Park and in a relatively small section of force main on the Long Beach WPCP property. Excavated materials would largely be composed of sediment that would be used as backfill. Excavated material would be tested and reused on-site or for other purposes to the maximum extent feasible. Soils that could not be reused on-site would be disposed in a solid waste landfill. Solid waste resulting from the construction of the diversion pump station and from the hardening of the satellite pump stations would be collected, transported, and disposed of in compliance with all applicable local, state, and federal policies and permitted facilities. Upon completion of construction, the proposed project would not result in substantial increases of solid waste. Litter and trash removal would continue pursuant to existing protocols.

7.3.5 Wastewater and Sanitary Sewers

Construction and operation of the proposed project would not generate any additional demand for wastewater treatment or have any adverse effects on existing wastewater or sanitary sewer systems. A temporary bypass pumping station would be installed and used at the existing Long Beach WPCP site during construction of the proposed project. Thus, there would be no disruption to wastewater treatment services during the construction period.

The City of Long Beach owns and operates the existing Long Beach WPCP that serves the City and a portion of the neighboring Lido Beach community (approximately 36,200 people). It has a permitted design flow of 7.5 mgd, and over last five years, the average flow was recorded at 4.63 mgd. The Nassau County Department of Public Works operates the Bay Park STP, which has an approximately 70-square-mile service area that encompasses roughly 43 percent of the County's population (more than 500,000 people). Bay Park STP is designed to treat up to 70 mgd and currently discharges an average of 50 mgd of treated effluent into Reynolds Channel (Nassau County n.d.). These design flows are established through the NYSDEC wastewater treatment plan permitting processes. See **Section 4.5.2** for a description of existing water quality in Hempstead Bay and **Section 7.4.1** for a discussion of the proposed project's impacts on water resources.

Wastewater is collected and treated at the Long Beach WPCP, and treated effluent is discharged via the existing outfall into Reynolds Channel. Similarly, once water is collected and treated at the Bay Park STP, the treated effluent is discharged into Reynolds Channel via the existing outfall located roughly 3,300 feet northwest of the City's WPCP outfall. The proposed project would convert the WPCP's headworks and influent pump to a diversion pump station and install a new force main from the diversion pump station to intercept the sewer main located west of the Bay Park STP, resulting in the enhanced treatment of Long Beach WPCP wastewater at the Bay Park STP. The proposed project would not produce additional sewage; it would consolidate wastewater treatment by diverting flow to a state-of-

the-art facility with superior treatment technologies, thus improving the quality of effluent discharged into Reynolds Channel. Because the proposed project also includes flood mitigation of the diversion pump station and all three satellite pump stations, it would result in protection of all of the City's wastewater facilities to FEMA's 500-year flood event critical infrastructure standard.

Even with implementation of the proposed project, the Bay Park STP would have excess capacity available to accommodate additional flow. Therefore, the Bay Park STP could accommodate potential future expansion of the service area (by allowing for additional properties to be connected to system).

7.3.6 Water Supply

Construction and operation of the proposed project would not generate any additional demand for water or have any adverse effects on existing water supply facilities.

7.3.7 Public Safety (Police, Fire, and Emergency Medical)

The project area at the Long Beach WPCP is served by the City of Long Beach Police and Fire Departments. The project area at Bay Park is served by the Fourth Precinct of the Nassau County Police Department, East Rockaway Auxiliary Police Department, Town of Hempstead Public Safety, and the Village of East Rockaway Fire District. The Nassau County Police Department Marine Bureau patrols the south shore bays, islands, channels, rivers, canals and inlets in Nassau County to a distance of 3 nautical miles offshore. Nassau County waterways fall under the federal jurisdiction of Coast Guard Sector New York and Coast Guard Sector Long Island Sound. The proposed project involves the construction of a new sewage pipeline from the Long Beach WPCP to the Bay Park STP, which would not result in an increase in demand for emergency service providers.

To facilitate installation of Pipeline Section 1, a temporary trestle would be constructed across the channel dividing North from South Black Banks Hassock or a barge would be placed in the channel. The presence of either a trestle or a barge may interfere with some recreational boaters during tide stages where there is enough water in the channel for boating. This impact is not expected to be significant because the channel is often non-navigable due to low or no water; and during higher water, the channel is accessible from the west or east side.

Neither the trestle nor the barge would interfere with normal U.S. Coast Guard operations because the Coast Guard does not regularly use the channel (a mud flat at low tide). The proposed project would coordinate with the Coast Guard as appropriate prior to any work in the channel.

The three satellite pump stations are located along Park Avenue, one of the City's major thoroughfares. The Indiana Avenue pump station is co-located at the Long Beach Fire Department Station 2. Flood mitigation work would be coordinated with the Long Beach Fire Department to ensure that it would not interfere with fire department operations. Construction activities at the other pump stations would not interfere with any police, fire, or emergency medical service.

7.3.8 Parks, Open Space, and Recreation

The project area at the existing Long Beach WPCP site is not publicly accessible, and the land does not currently provide any recreational opportunities. However, because the WPCP site is adjacent to (south of) the City's Veterans Memorial Park, construction activities would temporarily affect a portion of this park. Installation of the force main (Pipeline Sections 1 and 2) would affect a few recreational uses, including the dog run, skate park, and boat launch. These areas would be inaccessible for a minimum of

12 months because of construction activities; however, other sections of the City's recreational campus, which extends westward of the WPCP site along the waterfront, would not be affected. The Long Beach Department of Recreation Campus facilities that would remain accessible to residents would be the swimming pool/ fitness center, ice arena, fishing pier, playground, basketball courts, athletic fields, bayfront promenade, and fitness trail. In addition, because of the lack of odor control at the WPCP and malodorous conditions that are generally associated with the site and surrounding environs (Long Island News 12.com 2019), the dog run and particularly the skate park, are not well-used. An alternative dog run and skate park are located nearby in the County's Nickerson Beach Park at 880 Lido Beach Boulevard, roughly 3 miles east of Memorial Park. Furthermore, the City and County are coordinating with the Town of Hempstead to explore alternative boat launch areas that could be made available to Long Beach residents during installation of Drill Segment 1. Areas temporarily disturbed during construction would be restored to existing conditions.

In the long-term, the force main alignment would cross underneath a portion of Veterans Memorial Park and would not affect use of the park. Permanent impacts would be limited to no more than 100 square feet, or approximately 0.002 acre, for the vault that would be constructed at the edge of the parking lot for the boat ramp. The air release pipe/vertical standpipe would rise above the ground surface at the connection of the HDD-installed portion of the force main with the section that would be installed via open trench methods. This would result in the permanent alienation of a 20-foot-wide corridor beneath the skate park within Veterans Memorial Park

In the long-term, air quality conditions at the WPCP site and surrounding areas (including Memorial Park) would benefit from the removal of wastewater treatment processing at the WPCP site and associated noxious odors that adversely affect the site and environs (which can affect a greater area due to wind conditions) (Long Island News 12.com 2019).

Most of the work proposed north of Long Beach would occur under the hassock islands and under Reynolds Channel and the waters of West Hempstead Bay and would not affect recreational opportunities such as fishing.

The northern section of the proposed force main would be installed within Bay Park, which comprises approximately 96 acres in the Hamlet of Bay Park. The park offers several recreational opportunities, including tennis, basketball, bicycle and walking paths, roller rink and a spray pool. A nine-hole, par 3 golf course with a putting green and clubhouse is situated near the southern section of the park. The project area at Bay Park STP is roughly bounded by North Boulevard to the north; First Avenue to the west, Marjorie Lane and the East Rockaway Channel to the east, and the Bay Park waterfront to the south.

Access to portions of Bay Park would be temporarily affected by construction activities. Other temporary short-term impacts at Bay Park would include increased noise levels and traffic from construction worker vehicle trips, delivery of materials, and removal of excavated soils during development and use of the Drill 3 pullback entry site and the pipe laydown and assembly. The areas that would be impacted would extend from the pipe pullback site to the north to the southern boundary of the Bay Park STP. Additionally, Bay Park recreation and open space activities would be temporarily disrupted or affected by construction activities along the portion of Pipeline Section 3 that would be installed along Harbor Road, on First Avenue, and at the Bay Park STP existing 66-inch sewer main. Along this portion of the force main, traditional cut-and-cover construction methods would be used to install the pipe and casing. The approximately-5-foot-wide open cut excavation area would extend 5,450 linear feet, temporarily

affecting previously disturbed property along existing roadways. The area to be disturbed and excavated at any one time for installation of the pipe and casing using open-cut methods would be less than 5,450 linear feet. An additional estimated 0.05-acre temporary area of disturbance would be used for construction staging. This staging area would be within the Bay Park STP site in the same general area used as construction staging for other recent STP improvement projects.

As noted above, most of the impacts in Bay Park would be temporary and would not result in any permanent changes to Bay Park recreational facilities or open space. Similar to Veterans Memorial Park, permanent aboveground impacts would be limited to an air release pipe/vertical standpipe located at a point where the portion of the force main installed via HDD methods is connected to the portion of the force main installed by open cut methods. This connection point is at the southern end of Bay Park (southeast of the golf course). An underground vault would be installed at the air release vents and would occupy a maximum area of 100 square feet below the existing grade. A second air vent and underground vault would be installed in Bay Park near the existing police station. Siting the force main below a portion of Bay Park would result in the permanent alienation of a 20-foot wide corridor along the entire length of the force main in Bay Park, and the alienation of an area to the west of the Bay Park STP where the force main would connect to the existing 66-inch sewer main.

No parks or recreational facilities are located near the New York Avenue pump station. The Roosevelt Boulevard satellite pump station is located across from a landscaped seating area that is provided in the median of the Park Avenue (on the east side of Roosevelt Boulevard), and the Indiana Avenue satellite pump station is near the West Elementary School playground located at the southern side of Park Avenue between Louisiana Street and Maryland Avenue. As such, these resources could be temporarily affected by construction activities associated with the satellite pump stations. However, these potential effects would be short term and limited to the construction phase. The proposed project would not result in long-term effects to either resource.

7.3.9 Transportation and Accessibility

Traffic

The Long Beach WPCP is located at the northern end of National Boulevard at West Pine Street, and the satellite pump stations are located along Park Avenue at Roosevelt Boulevard, New York Avenue, and Indiana Avenue in the City of Long Beach. The Bay Park STP can be accessed from Althouse Avenue to First Avenue in East Rockaway.

The proposed project would not permanently alter the layout or routing of existing roadways, nor would it cause any long-term traffic impacts. During construction, temporary increases in traffic levels would occur along area roads as a result of worker access, deliveries of construction equipment/supplies, and hauling of excavated material to/from the Long Beach WPCP and Bay Park construction sites. A construction traffic management plan would be prepared for both the City of Long Beach and the Town of Hempstead (Bay Park) sites. Construction activities at the satellite pump stations may result in short-term traffic impacts but would not have any long-term traffic impacts.

In the long-term, a minor number of trips would be added by the operation and maintenance of the diversion pump station at the Long Beach WPCP site, which would be offset by the decrease in trips associated with the cessation of wastewater treatment operations at the site. In addition, the number of truck trips to the Bay Park STP could increase slightly with the delivery of water treatment chemicals associated with the increased volume of wastewater treated at the STP. The number of trips generated

by the proposed project would be relatively minor and would not result in a significant increase in traffic levels. Therefore, the operation of the consolidated wastewater treatment system would not have a permanent impact on traffic.

Pedestrians

The proposed project would have minor, temporary impacts on pedestrians in the Long Beach and Bay Park portions of the project area during construction. As discussed above in **Section 7.3.8**, in Long Beach pedestrians would not have access to the dog run, skate park, and boat launch recreational uses associated with Memorial Park for at least 12 months due to installation of Pipeline Section 1. The pipe laydown and pullback area in the vicinity of Marjorie Lane would likely affect pedestrian activity in the easternmost section of Bay Park for approximately four months. Additional minor pedestrian impacts may also occur in the western section of Bay Park in the vicinity of the open cut for approximately one to two months.

The remaining portions of the project areas are either underwater or not accessible to the public. No long-term impacts on pedestrians would result from the proposed project once operational.

Parking

Permanent impacts on parking are not expected as a result of the proposed project. Construction activities associated with the open cut installation of the force main at the southern end of the alignment and force main drilling operations would temporarily affect the parking lot just north of the Long Beach WPCP that is used for the boat launch, skate park, and dog park. The parking lot is part of the area that would be fenced off and inaccessible for a minimum of 12 months due to construction of Pipeline Sections 1. In Bay Park, parking areas likely to be temporarily affected during construction include the Bay Park Playground parking lot on the eastern side of First Avenue, the parking lot on the southern side of Harbor Road (west of the golf course), and the parking lots along the east side of Marjorie Lane. At the New York Avenue and Roosevelt Boulevard pump stations, the adjacent parking areas located in the Park Avenue medians, may be temporarily affected by construction activities. Impacts to parking areas would be short term; access to parking areas would be restored following completion of construction.

7.4 NATURAL FEATURES

7.4.1 Unique Natural Features, Water Resources

Unique Natural Features

Hempstead Bay is a part of the Long Island back barrier system that is characterized by sheltered shallow bays and salt marsh islands (USFWS 1997). The salt marsh islands are connected by channels and tidal creeks. No sizable tributaries enter the bay. Most of the mainland tidal creeks have been bulkheaded, and the mainland watershed has been densely developed for residential and commercial use. The Bay is not currently used as a water source and is a 303(d) listed water because of wastewater runoff (NYSDEC 2014). Excessive macroalgae growth significantly affect both the habitat and aesthetic condition of the waterbody and surrounding waterbodies. The area is also significantly affected by erosion due to shoreline storm damage and impacted coastal marshlands.

No other unique natural features are on or adjacent to the project area (NYSDEC n.d.b). The project area is a previously developed location, and the proposed project would not preclude access to any such features. This project area is not designated as a NYSDEC Critical Environmental Area (NYSDEC 1990).

As detailed below, the proposed project would improve the quality of treated effluent discharged into Reynolds Channel and the Western Bays, which improve the habitat and aesthetic conditions of the Western Bays. Mitigation for wetland impacts as a result of project construction would include marshland restoration efforts, which would facilitate restoring and enriching the Western Bays as a recreational, economic, social, and environmental resource.

Water Resources

The proposed project would have a beneficial effect on surface water resources because it would eliminate the current discharge from the antiquated Long Beach WPCP and connect the sewer system to the newly rebuilt Bay Park STP for enhanced treatment. The project would not increase demand for groundwater, and as such, would have no effect on groundwater supply.

Hempstead Bay is included on the 2018 NYS Section 303(d) List of Impaired Waters (NYSDEC 2018). To address the impairments, NYSDEC recommends establishing TMDLs or other strategies to address nutrients and pollutants. No such TMDLs have been established (NYSDEC 2014, 2018). Regardless, diverting wastewater from Long Beach to the improved Bay Park STP would reduce the concentration of pollutants, particularly ammonia and nitrogen, in the treated effluent discharged into Reynolds Channel. This conclusion is supported by the previously noted desktop study that was completed to quantify the proposed project's reduction in nitrogen (see **Appendix A**). Two conditions were evaluated to enable a direct comparison and estimate the impact of the proposed project: Without Project Conditions and With Project Conditions. The Without Project Conditions calculations reflect the existing conditions (July 2019); the With Project calculations reflect the future diversion of all wastewater from Long Beach to the Bay Park STP for full treatment and effluent discharge to Reynolds Channel via its existing outfall.

The Without Project Conditions reflect low levels of nitrogen reduction (less than 50 percent) from the Long Beach WPCP and Bay Park STP, validating the observed adverse impact on Reynolds Channel. The effluent loadings of ammonia from the Long Beach WPCP and the Bay Park STP are 725 and 8,871 pounds per day (lbs/day), respectively. The effluent loadings of Total Kjeldahl Nitrogen (TKN) to Reynolds Channel from the same sources are 1,538 and 10,546 lbs/day. When both effluents are combined, 9,596 lbs/day of ammonia and 11,387 lbs/day of TKN are discharged to Reynolds Channel. On an annual basis, these discharges represent 3.5 million pounds of ammonia and 4.2 million pounds of TKN.

The With Project Conditions would improve nitrogen reduction significantly because of the treatment objective to reduce nitrogen concentrations in the effluent to 9 milligrams per liter.¹⁴ To accomplish this effluent concentration from the proposed WPCP consolidation via treatment at Bay Park, it is estimated that the biological nitrogen reduction process would need to reduce the influent nitrogen by 85 percent. The effluent loading to Reynolds Channel of ammonia and TKN from the treated combined effluents (Long Beach and Bay Park) is 2,112 and 3,578 lbs/day, respectively. These values represent a reduction in ammonia and TKN effluent loadings of 7,484 and 7,809 lbs/day, or 78 and 69 percent reductions, respectively. On an annual basis, these discharges represent 0.8 million pounds of ammonia and 1.3 million pounds of TKN, a reduction of 2.7 million pounds of ammonia and 2.9 million pounds of TKN. The detailed calculation tables are presented in **Appendix A**.

During construction, adherence to the SPDES and wetland permit conditions would limit construction impacts. The SWPPP would specify the BMPs to be incorporated into the proposed project, such as silt

¹⁴ Condition 24 in the 2017 Bay Park Agreement.

fences, to effectively manage temporary impacts on water quality throughout construction of the proposed project.

7.4.2 Vegetation, Wildlife

The use of the trenchless HDD methods would minimize impacts on vegetation and wildlife habitat along the alignment. Overall, approximately 6.2 acres of the approximately 327 acres of habitat on the hassock islands would be disturbed during construction. The project would result in temporary disturbance to approximately 4.30 acres of intertidal habitat and 0.44 acre of open water habitat, and 1.71 acres of upland habitats, including maritime shrubland and successional maritime forest on the hassock islands. Temporary impacts on vegetation and habitat would result from the placement of marsh mats on the surface of the hassock islands for construction access paths, work platforms at pipe pullback sites, elevated supports at pipe laydown areas, work barge landing, and temporary construction staging. Approximately 4.12 acres of maintained lawn, including 0.83 acre of recreational field, within Bay County Park and the Long Beach WPCP would be temporarily affected by construction access/easements and construction staging. Permanent impacts on vegetation and wildlife habitat would result from the installation of two permanent air vents, one located on Pearsalls Hassock and the other on South Black Banks Hassock, totaling a maximum of 200 square feet of permanent impacts to intertidal salt marsh.

Construction would result in approximately 1.3 acres of tree removal during installation of access paths and work areas. Tree clearing activities would only occur between December 1 and March 15 to minimize disturbance during the migratory bird breeding season that occurs between April 1 and September 30. To avoid impacts on breeding birds, a qualified wildlife observer would survey the project area for nests and protected birds prior to any clearing activities. If an active nest were encountered, it would be left in place and protected until young hatch and depart, if feasible. If not feasible, the USFWS Field Office and/or NYSDEC Regional Wildlife Office would be contacted for assistance to determine the appropriate plan of action. As discussed above in **Section 6.2.4**, nesting deterrents would be deployed to avoid osprey nesting within and adjacent to the LOD, and replacement platforms would be installed in other suitable habitat on the hassock islands. Approximately 145 acres of successional forested habitat on the hassock islands would remain undisturbed during construction. Tree removal would be mitigated by tree replanting once construction is completed.

The proposed project requires mobilization of floating work barges to allow transport of construction materials and equipment to and from South Black Banks Hassock and Pearsalls Hassock. Barge landings are proposed at two locations along the eastern shorelines of South Black Banks Hassock and Pearsalls Hassock. Temporary impacts on subtidal habitat include approximately 6.32 square feet from placement of spuds to stabilize these two floating work barges. If the use of a floating barge is not feasible because of shallow water depths at South Black Banks Hassock, a jack-up barge may be used as a secondary option at the island. The preference would be to use the jack-up barge so that disturbance is limited to the footprint of the jacks, resulting in a minimal temporary impact (approximately 4 square feet) to intertidal mudflat and wetlands along the southwest shoreline of South Black Banks Hassock. If the entire barge needs to rest on the surface of the shoreline, it is estimated that approximately 3,200 square feet of intertidal habitat would be temporarily affected for the duration of barge deployment. In addition, one barge would be temporarily anchored along the southern shoreline of South Black Banks Hassock to facilitate pipe laydown, resulting in 2,100 square feet of temporary impact to subtidal habitat. The maximum area of temporary disturbance as a result of a temporary channel crossing between North and South Black Banks Hassock would be 9,500 square feet for approximately seven months.

Any adverse impacts on vegetation and wildlife are anticipated to be no more than minimal and temporary, and minimization and mitigation measures are planned. All temporarily disturbed vegetated areas would be reseeded or replanted with appropriate native vegetation. Deployment of nesting deterrents and pre-construction surveys of nesting and foraging bird species would minimize impacts on wildlife. Additional mitigation measures may be implemented as identified during the permitting process by federal and state agencies. Wildlife disturbed by construction noise and activity are expected to avoid the area and use similar nearby habitat until either they become accustomed to the construction activity or until the activity is complete (see **Appendix Q** for specific discussion on animal response to construction noise).

Following completion of construction and associated habitat restoration, there would be no adverse operational impacts on vegetation and wildlife. Construction-related invasive vegetation clearing and proposed mitigation actions that aim to remove invasive species would decrease cover of invasive species in the project area and encourage the establishment of native wetland vegetation. The project would improve water quality and existing wetland and aquatic habitat. Fish, benthic invertebrates, and waterfowl and waterbirds that use the project area and surrounding habitat in the Western Bays would benefit from invasive species removal and reduced levels of nitrogen that are expected to improve water quality and help restore marsh habitats.

8 ADDITIONAL STUDIES PERFORMED:

The design and environmental review teams prepared several additional studies, including impact analysis and assessments of existing conditions and impacts.

The design team (Hazen ARCADIS Joint Venture) prepared a Design Feasibility Memorandum and Purpose and Need and Alternatives Evaluation for the proposed project. The same team also prepared an Engineering Report in support of NYSDEC Water Quality Improvement Program Application for the Long Beach WPCP Consolidation Project. The design team completed a delineation of wetlands on the hassock islands in West Hempstead Bay and submitted a Jurisdictional Determination to NYSDEC and USACE. To support the design effort, the design team also completed a geotechnical investigation, which included a boring program and sediment sampling component. The design team completed a 404(b)(1) Alternatives Analysis and prepared the Draft Conceptual Wetland Mitigation Plan as part of the Joint Application for the proposed project that was submitted by Nassau County submitted for the proposed project.

Chrysalis Archaeological Consultants, Inc., prepared the Phase IA Historical Documentary Report and Archaeological Assessment for the proposed project, and First Environment, Inc., completed a Phase I Environmental Site Assessment of the Long Beach WPCP.

WSP biologists conducted breeding bird and listed species surveys of the hassock islands in spring and late summer 2020.

8.1 FIELD INSPECTION (DATE AND COMPLETED BY)

The design team and the GOSR environmental review team completed visits to the hassock islands and other portions of the project area, beginning in early 2019 and continuing to the present.

8.2 LIST OF SOURCES, AGENCIES AND PERSONS CONSULTED [40 CFR § 1508.9(B)]

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- 2019b Long Beach WPCP Consolidation Project, Waters and Wetlands Delineation Report, November 2019.
- 2019c Long Beach WPCP Consolidation Project, Purpose and Need and Alternatives Evaluation, August 26, 2019.
- 2020a Draft 406 Hazard Mitigation Proposal for the Long Beach WPCP, June 2020.
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- 2020c Western Bays Resiliency Initiative: Long Beach WPCP Consolidation Project, Work Window Justification for Work in Tidal Wetlands of Hassocks, February 2020.
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8.3 LIST OF PERMITS OBTAINED OR REQUIRED

The proposed force main alignment is located in environmentally sensitive areas, including aquatic habitats that are protected by state and federal statutes. Construction of the proposed project is expected to require permits from federal and/or state regulatory agencies, as well as permits and approvals at the local level. An outline of construction activities and anticipated permits and approvals is provided below.

- Construction of Structures in or under Navigable Waters
 - Section 10 of the Rivers and Harbors Act (USACE)
 - Article 15 Protection of Waters (NYSDEC)
 - Notice to Mariners (U.S. Coast Guard)
- Regulated activities in waters of the United States/wetlands
 - Individual Permit under Section 404 of the Clean Water Act (USACE)
 - Executive Order 11990, Protection of Wetlands (USEPA)
 - Article 25 Tidal Wetlands Permit (NYSDEC)
 - Article 15 Protection of Waters (NYSDEC)
 - Section 401 Water Quality Certification (NYSDEC)
- Discharges to Surface Waters
 - SPDES General Permit for Stormwater Discharges from Construction Activity Notice of Intent (NYSDEC)
 - Stormwater Pollution Prevention Plan Acceptance (City of Long Beach, Town of Hempstead)
- Activity within Nassau County Parkland
 - Nassau County Parks Department
- Structures in Waterways
 - Structure Permit Application (Town of Hempstead)
- Force Main Installation
 - Home Rule Resolutions (Nassau County Legislature, City of Long Beach)
 - Parkland Alienation Legislation (NYS Legislature)
 - Temporary Easement for Access and Construction (Long Beach, Town of Hempstead)

- Permanent Easement from Long Beach to Outfall (Town of Hempstead)
- Permanent Easement on Long Beach Island (City of Long Beach)
- Construction and Operation of Diversion Pump Station
 - Subdivision of Long Beach WPCP Property for Pump Station Lot
 - Floodplain permit (City of Long Beach)
 - Building, Electrical and Plumbing Permits (City of Long Beach)

8.4 PUBLIC OUTREACH [24 CFR § 58.43]

GOSR published and distributed an Early Notice of a Proposed Activity in a 100-Year Floodplain and Wetland (Executive Orders 11988 and 11990) on February 14, 2020. The Early Notice was published on GOSR’s website; distributed to local, state, and federal agencies; and published in four multi-language local newspapers. The Early Notice solicited comments on the project to be submitted to GOSR by March 2, 2020. A copy of the of Early Notice and responses to the comments received are included in **Appendix V**.

9 CUMULATIVE IMPACT ANALYSIS [24 CFR § 58.32]

Hempstead Bay and the Mill River Watershed are the general geographic area considered in the cumulative impact analysis. The Town of Hempstead regularly undertakes roadway maintenance and improvement projects. As of February 2020, no such projects were located near the project area such that they would combine with the proposed project to result in cumulative impacts (Town of Hempstead 2017). Similarly, the City of Long Beach has no roadway improvement projects near the WPCP site that would have the potential for cumulative impacts (City of Long Beach 2020). The neighborhoods surrounding the proposed project are built out and primarily residential; projects in these locations would generally involve rehabilitation or minor expansion of these existing uses. Because of the distance of these uses from proposed construction activities, projects in these locations would not combine with the proposed project to result in cumulative effects.

As indicated in **Section 1**, the LWTB Project and Resiliency Strategy identified and prioritized projects and project types with program-specific time frames and costs for planning, design, permitting, procurement, construction, and project closeout. Since completion of the Resiliency Strategy, GOSR and the local communities have determined to proceed with the following projects: Long Beach WPCP Consolidation Project, Hempstead Lake State Park, Smith Pond Rehabilitation, Lister Park Improvements, East Rockaway High School, East-West-North Boulevards Stormwater Drainage Improvements, and Mill River Greenway. The Hempstead Lake State Park project is the northernmost and farthest upstream of all the projects, followed by Smith Pond, Lister Park, East Rockaway High School, East-West-North Boulevards, and the Long Beach WPCP (see **Figure 18**). The Mill River Greenway would run north-south near or through portions of each project site.

Additional projects that share similar study areas and development timelines are being undertaken in the immediate vicinity of the proposed project. Therefore, these projects are also considered in the cumulative impact analysis. **Figure 18** illustrates all the projects that have been considered in the cumulative impact analysis. The LWTB cumulative projects are further described first, followed by the additional cumulative projects that are outside the LWTB Program.

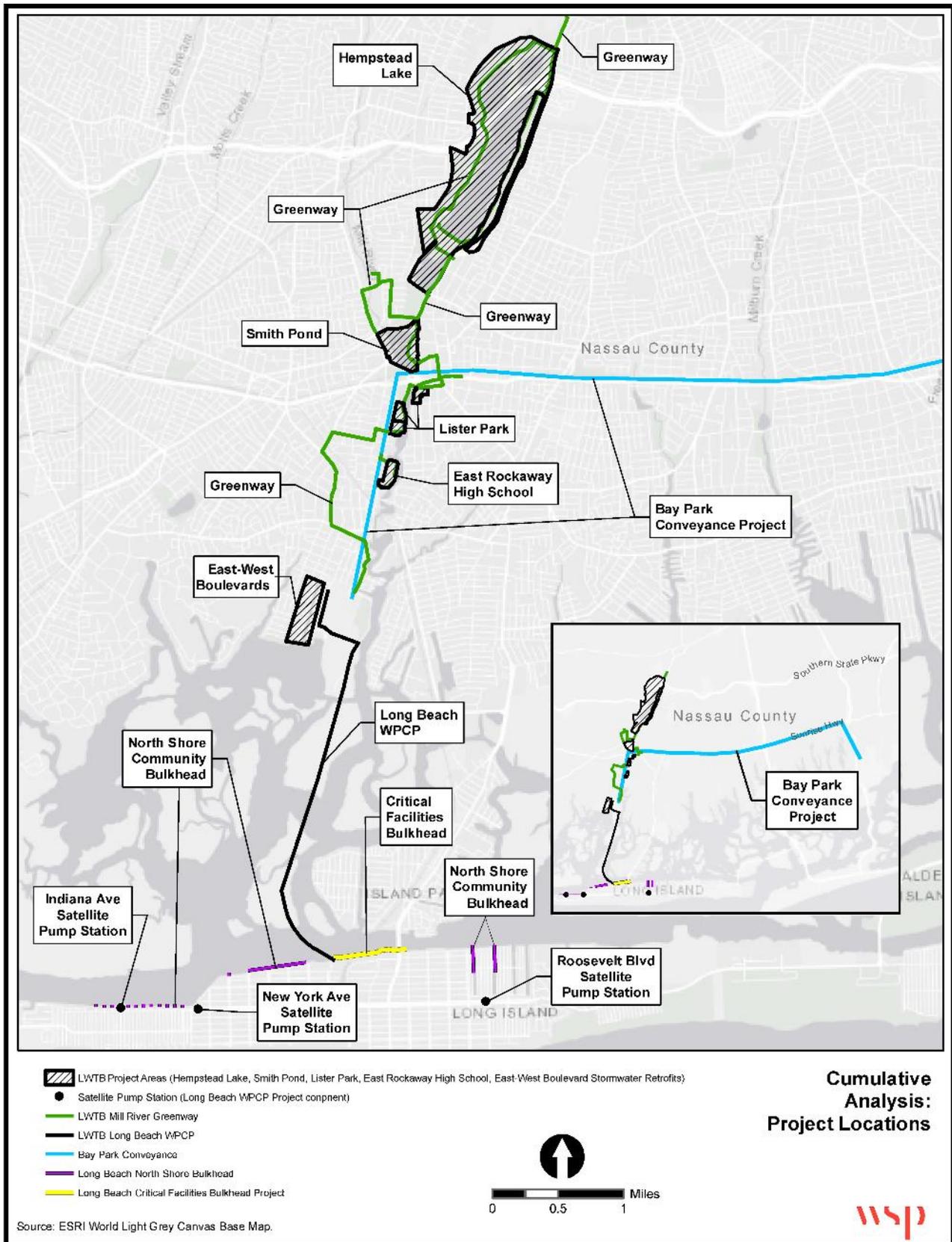


Figure 18: All Projects Considered in the Cumulative Analysis

9.1 LWTB PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

The LWTB Project and Resiliency Strategy are configured such that projects can advance independently. Except for Hempstead Lake State Park, the remainder of the projects have yet to advance. Although, the Long Beach WPCP Consolidation Project is the subject of this EA, each of the other six LWTB projects are described below and considered as part of this cumulative impact analysis. The cumulative impact analysis presented in this EA evaluates these projects based on currently available information. Upon submittal of formal funding applications to GOSR for each of these remaining projects, environmental review—inclusive of a cumulative impact analysis that considers the Long Beach WPCP Consolidation Project and other past, present, and reasonably foreseeable projects—will be undertaken.

9.1.1 Hempstead Lake State Park

Hempstead Lake State Park is a 521-acre, multiuse park located in the Town of Hempstead, New York. The park falls within the upper portion of the Mill River Watershed and includes the largest body of fresh water in Nassau County, namely Hempstead Lake, as well as several smaller ponds. Improvements to the resilience of the park and its infrastructure are necessitated by the increased development of the watershed since its original establishment as a water reservoir and as exacerbated during major storm events, which are expected to increase in severity and frequency over time. The objectives of the project are to improve flood management, enhance the natural ecosystems, provide connectivity between diverse populations, enhance safety, provide emergency response facilities, promote environmental education, and increase park usage (Berger 2019).

The project encompasses several elements in and around the park, as shown in **Figure 19**. As summarized below, project elements include dams, gatehouses, ponds, bridges, an education and resiliency center, and greenway waterfront improvements.

- The dams component would make the flow control structures operable, include dam improvements to meet current regulatory standards, and implement gatehouse renovations.
- The ponds component would install floatables catchers and sediment basins at pond inlets, create stormwater filtering wetlands, and clear the ponds to remove debris and improve water quality.
- The stormwater wetland component would reestablish flow patterns through the ponds and wetlands that have been impacted by the floatables debris and sediments that have blocked flow patterns.
- Trails through the new wetland areas and along paths near the sediment basin and floatables collection would offer the opportunity to provide additional educational messages about the interrelationship between the runoff from downtown Hempstead and the tidal bays to the south. The project would also involve installation of an improved greenway and trail system throughout the park, as well as new bridge connections to allow pedestrian and bicyclist access and connectivity.
- The new education and resiliency center would focus on environmental stewardship and climate change adaptation resiliency.
- The project would improve emergency response, vehicle access, and coordination of incident command.

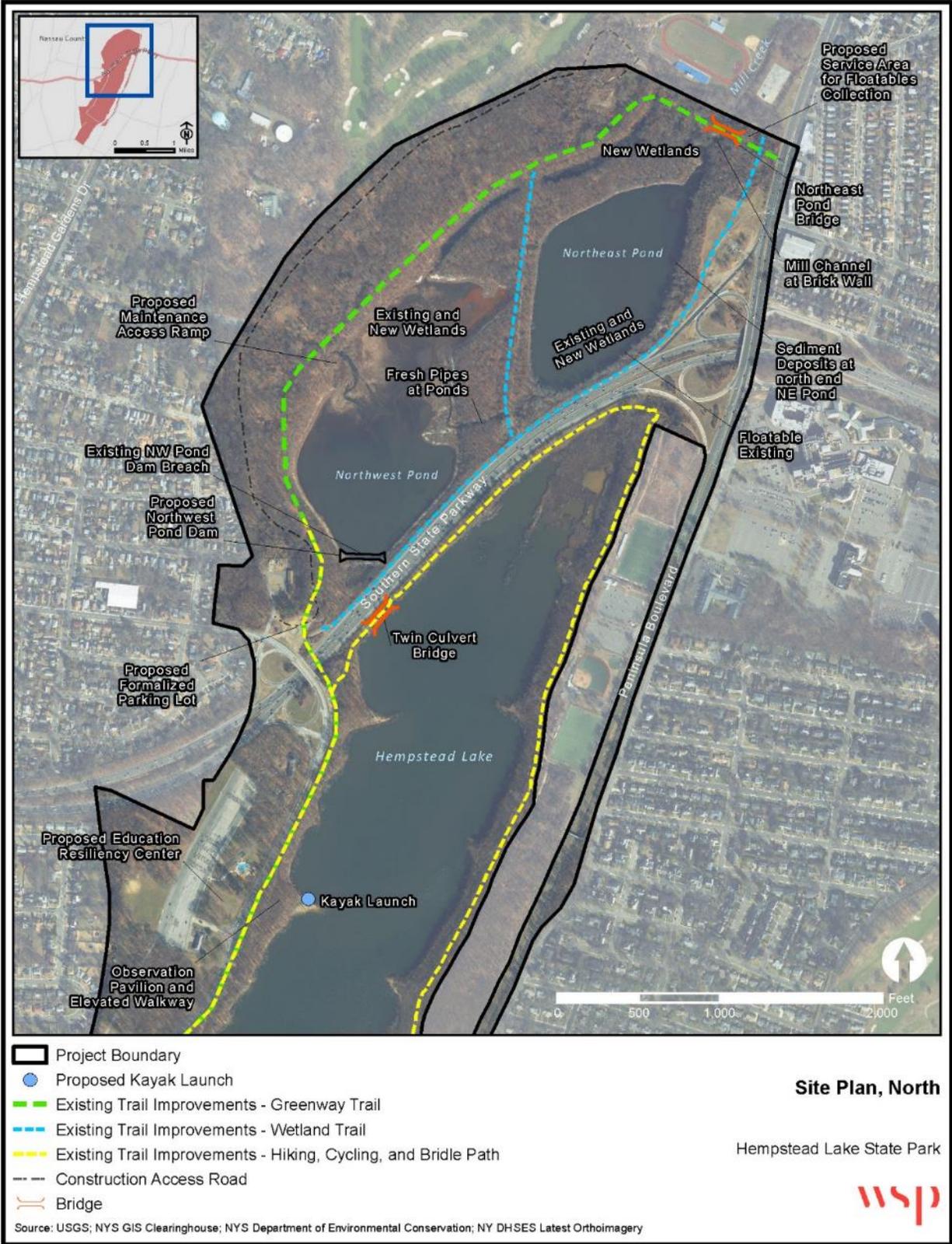


Figure 19a: Hempstead Lake State Park Project - Site Plan, North



Figure 19b: Hempstead Lake State Park Project - Site Plan, South

9.1.2 Smith Pond Rehabilitation

Smith Pond is a 22-acre freshwater pond located in the Village of Rockville Centre, New York, south of Peninsula Boulevard and north of Merrick Road. The pond is the confluence point of the two primary drainage branches (Pines Brook and Mill River), conveying water from the north end of the Mill River Watershed. As a result, it receives both the flow (water quantity) and the nutrient loads (water quality) for the entire watershed. Smith Pond is also a unique location as the connecting waterbody between the upper freshwater system and the lower tidal and saltwater system. There is a historical account of invasive plants in the pond that inhibit sunlight from penetrating the water column and create anoxic conditions when the plants perish and decompose.

The objectives of the Smith Pond Rehabilitation Project are to improve flood control and increase water and habitat quality. The project would also improve water and debris management to avoid negative water quantity and quality impacts downstream on receiving waterbodies. Smith Pond has been identified as a key site for restoration and intervention (Berger 2019).

Several resiliency interventions have been proposed at Smith Pond, including the following:

- **Floodwall and Floodgate:** Vinyl sheet pile floodwalls with a timber cap would be installed along Merrick Road and Claude and Nassau Streets to prevent off-site flooding. A 35-foot-wide passive floodgate would be incorporated into the wall at the southern parking lot on Nassau Street.
- **Weir Enhancements and Access Road:** The deteriorated timber sheeting and swale on the downstream face of the weir would receive a new concrete-block face. The adjacent timber bulkheads and piles would be removed and replaced with a new concrete bulkhead that would be tied into the weir and receiving-channel concrete slab. The receiving concrete slab would also be repaired. Along the access road to the weir from Merrick Road, a 15-foot-wide compacted dense graded aggregate would be placed with a 2 percent cross slope for drainage.
- **Fish Ladder:** This pool and chute fish ladder would operate at a range of streamflows that occur during the spring at Smith Pond. Each pool would be 6-feet-long by 6-feet-wide with a minimum depth of 2.5 feet and a drop per pool of 0.5 feet.
- **Porous Pavement:** The surfaces of the existing parking lots would be stripped and replaced with porous pavement systems designed to manage the 10-year storm event and would be pitched toward Smith Pond such that events that exceed the 10-year storm capacity of the porous pavement system would drain toward Smith Pond.
- **Inlet Headwall and Wing Walls:** Structural repair of the northeast culvert head wall and wing walls would include tuck-pointing all exposed mortar joints, stone repair, replacing the deteriorated wall cap, cleaning and sealing all stone surfaces, and final cleaning.
- **Greenway and Pedestrian Outlook Enhancements:** A new 6-foot-wide greenway would be constructed using the alignments of existing pathways. The northern outlook at the northeast outfall and the new southern outlook at the weir would be connected to the greenway. Electrical conduits and wiring would be installed along the proposed greenway for low-level bollard lighting.
- **Invasive Vegetation Removal:** Upland/wetland invasive vegetation removal would occur along the north, east, and west shorelines of Smith Pond with supplemental plantings of native species. Aquatic vegetation removal of overgrown lily pads in Smith Pond would occur via

mechanical methods. A targeted 30 percent of the total lily pads in the pond would be removed in deeper portions of Smith Pond. No herbicide treatment would occur in the pond.

The site plan for the Smith Pond project is shown in **Figure 20**. Work at Smith Pond would largely focus on improving fish habitat by refurbishing the existing weir and installing a fish ladder, both of which would improve habitat for local species. The scenic overlook would also be available to recreational fishers. Removal of existing and invasive plant material would support fish habitat. High nutrient loads, silt, sedimentation, and excessive weed growth have adversely affected recreational uses and have had negative effects on aquatic life. The new portion of greenway trail, which would connect to the overall Mill River Greenway, would expand along the eastern bank of the pond and allow for better recreational access (see **Section 9.1.6**).

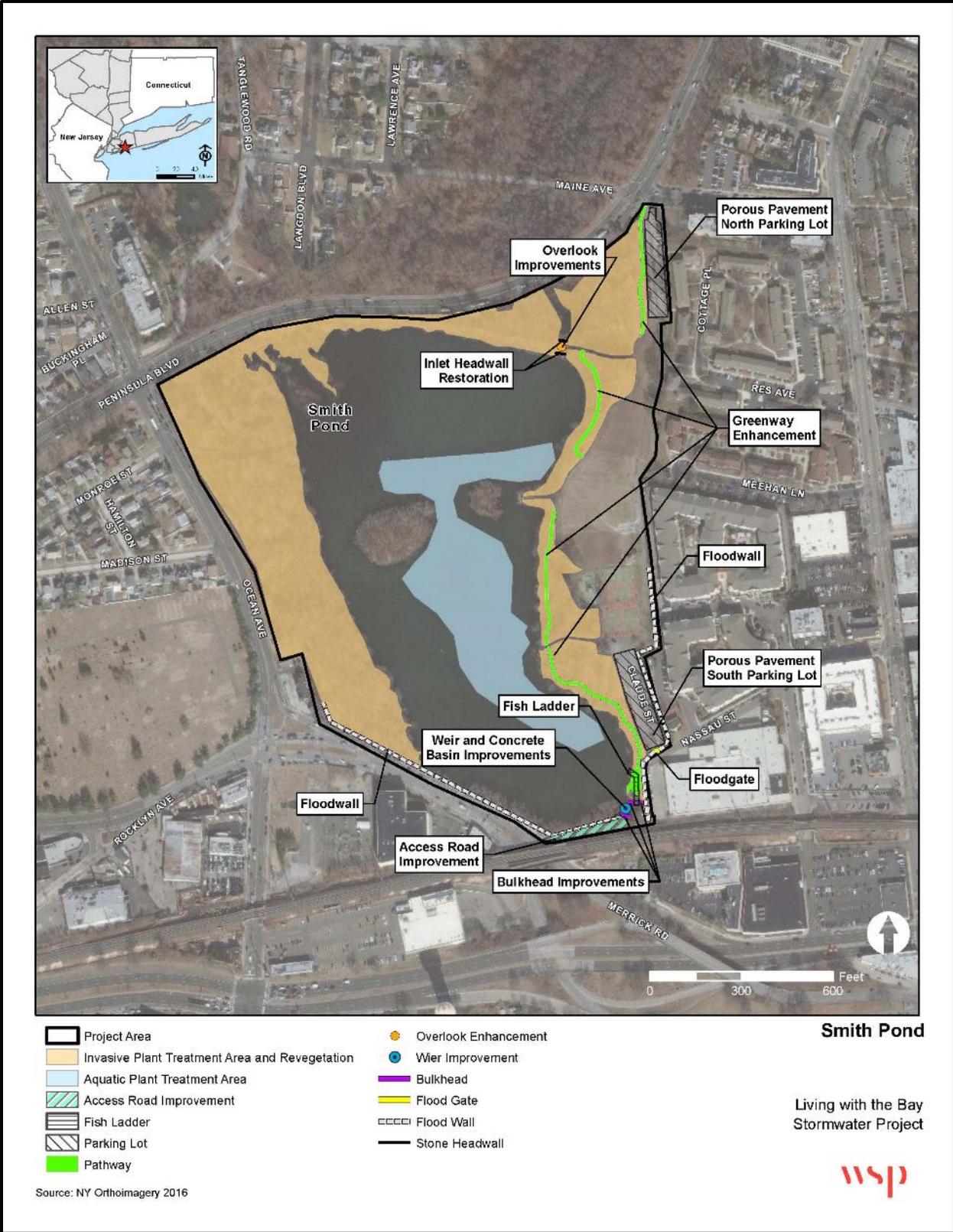


Figure 20: Smith Pond Proposed Improvements Site Plan

9.1.3 Lister Park Improvements

The objective of the Lister Park Project is to provide flood protection to the surrounding Mill River community, enhance waterfront access, mitigate shoreline erosion, enhance habitat, and provide recreational and pedestrian connectivity along the existing pathways of the Mill River waterfront. The project would help to restore the environmental health and water quality of Mill River south of Smith Pond. Planting native vegetation would have a net benefit on wetland function and values.

The project site is primarily residential and includes several public parks (Tighe Field, Centennial Field, and Bligh Field). As shown in **Figure 21**, the project would consist of the following elements:

- Tighe Field: Construction of a bioretention basin and introduction of vegetation at the northwest corner of the Tighe Field parking lot; improvement to the parking lot and walkways by removing the curb on the north and west sides of the parking lot and replacing it with pre-cast concrete bumpers, and a new 4-foot sidewalk with curbs that comply with the Americans with Disabilities Act and detectable warning surface from the parking lot; installation of a drainage system leading to the bioretention basin.
- Centennial Field: Construction of a bioretention basin, introduction of vegetation immediately north of the Centennial Field parking lot, and a full-depth pavement reclamation of the parking lot.
- Bligh Field: Construction of a 670-linear-foot, 10-foot wide porous, asphalt greenway adjacent to the river with drainage relief pipes installed at low points; installation and rehabilitation of four crosswalks; removal of the sidewalk on the southern side of South Park Avenue between Oceanview and Riverside Roads and the curb along South Park Avenue; installation of a knee wall; installation of a concrete sidewalk on the opposite side of Riverside Road; a full-depth pavement reclamation process of the parking lot to install porous asphalt; construction of an earthen berm along the eastern side of Bligh Field; construction of an access ramp to the existing Mill River Overlook on the east side of parking lot, and the replacement of the existing overlook.
- Living Shoreline: Installation of living shoreline and bank stabilization along the Mill River, adjacent to Tighe, Centennial, and Bligh Fields.

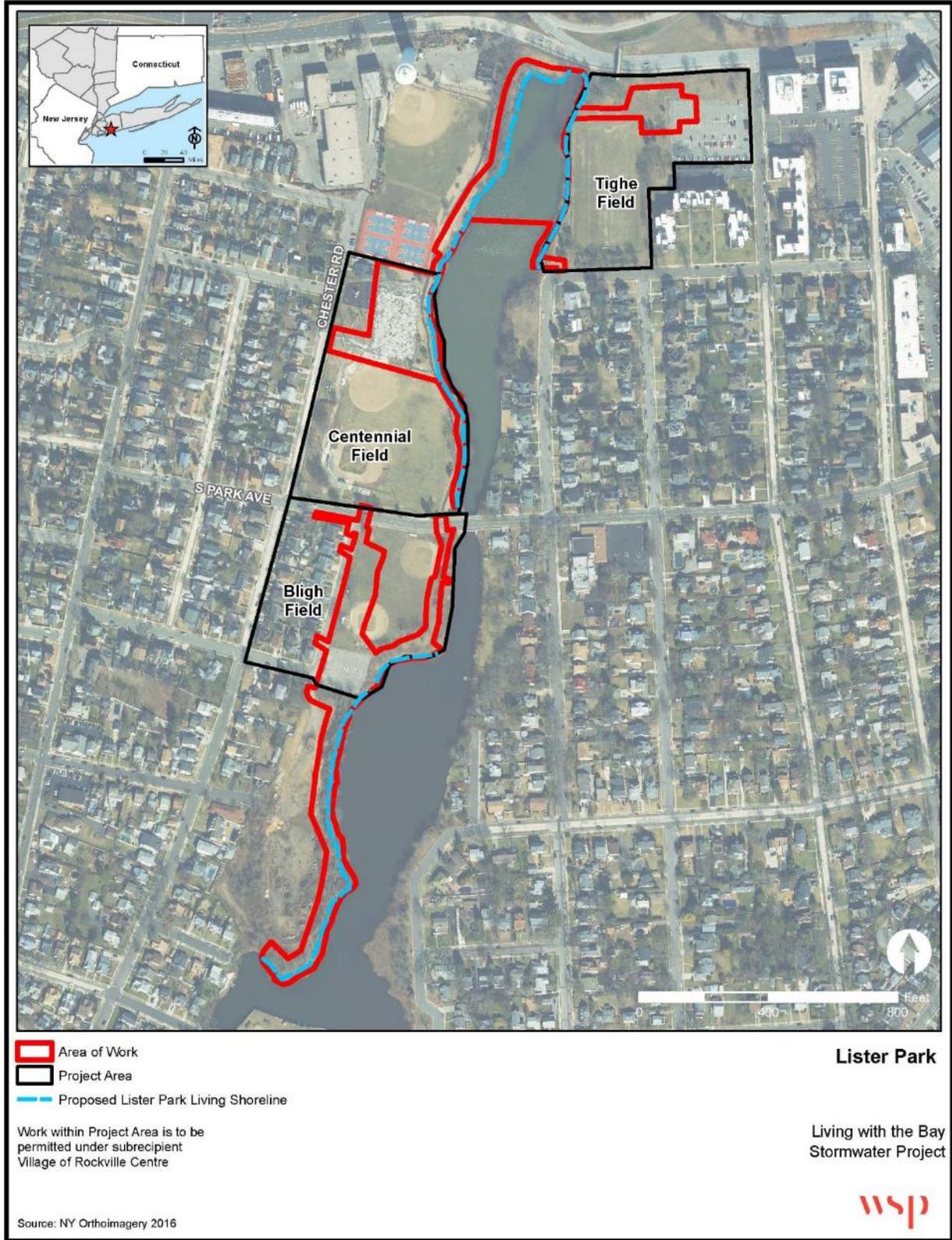


Figure 21: Lister Park Proposed Improvements Site Plan

9.1.4 East Rockaway High School

Just south of the Lister Park project discussed in **Section 9.3.1**, East Rockaway High School is located on the west bank of Mill River just north of Pearl Street in East Rockaway. Hurricane Sandy severely damaged the school and its grounds, and the faculty parking lot routinely floods. Given the limited pervious surfaces and inadequate pitch, excess stormwater is likely to run off untreated into the river. The school building and grounds were repaired after Hurricane Sandy. The school's fields remain vulnerable to frequent tidal flooding and shoreline erosion. Because of ongoing shoreline erosion, the grandstand and two-story storage and press box at the sports field are on the verge of failing as a result of foundation subsidence, creating a hazard to the general public and adjacent Mill River. If left unmitigated, continued erosion could threaten the use of the entire field for both sporting and other school activities.

The following improvements would be implemented in the proposed project and are shown in **Figure 22**.

- **Bulkhead and Shoreline Improvements:** The existing bulkhead would be elevated by 2 feet above the current grade, and approximately 705 linear feet of proposed bulkhead would be installed landward of the mean high-water line along the eastern side of the existing athletic field.
- **Green Infrastructure and Emergency Generator:** A rain garden and a hydrodynamic separator would be installed by the faculty parking lot. An emergency generator would be installed in an existing alcove area on the rear property of the East Rockaway High School near the existing interior electrical room and adjacent to an existing generator that provides power to the school sump pump system.
- **Parking Lot Enhancements:** The entire parking lot would be replaced with new asphalt pavement and graded to direct stormwater runoff to the proposed green infrastructure to the east.
- **Improved Drainage:** A 3-foot-wide French drain with 12-inch perforated HDPE pipe is proposed on the eastern side of the sports field, which would be preserved and maintained. At two locations, additional piping would connect the perforated HDPE pipe invert to the bulkhead.
- **Proposed Greenway:** A porous asphalt greenway, ranging from 4 to 10 feet in width, would be created beginning at the end of Centre Avenue in the north and ending at Ocean Avenue in the south.

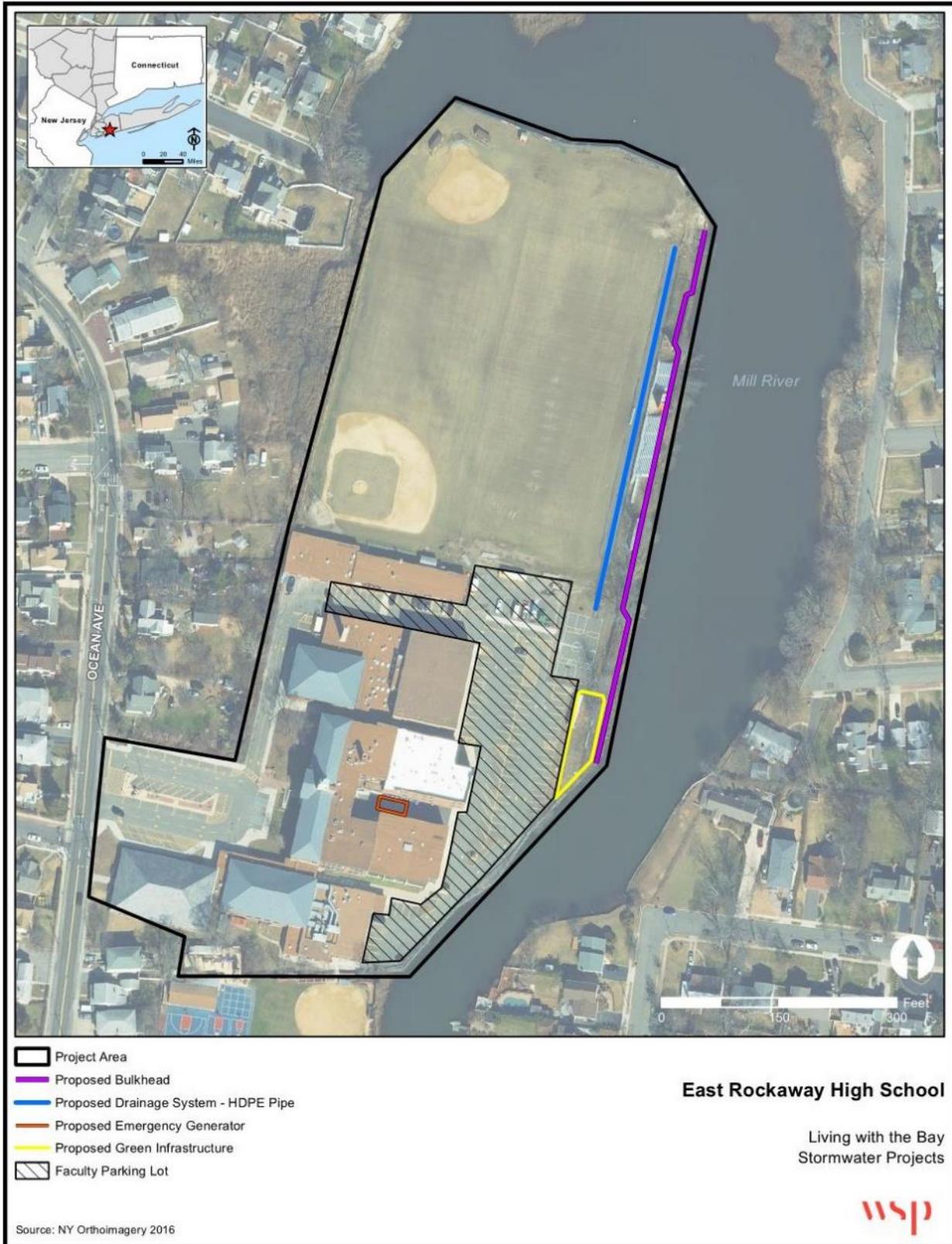


Figure 22: East Rockaway High School Proposed Improvements Site Plan

9.1.5 East-West-North Boulevards Stormwater Drainage Improvements

During large storm events, water from Hewlett Bay can back up into the stormwater system and cause flooding along the East, West, and North Boulevards, in Bay Park, New York, north of Hewlett Bay. Flooding can occur during non-storm events because of high tides or during storm events when high tides fill the stormwater system and prevent the evacuation of stormwater from the project area (see **Figure 23**). The project would prevent tidal waters from entering the stormwater system but allow stormwater to exit the system during low tides. The project would also install bioretention basins to treat stormwater before it enters the bay, thereby improving water quality in the bay (Berger 2019).

The project site is primarily residential and includes residences along or adjacent to the boulevards. The project would consist of the following elements that would reduce stormwater and tidal inundation impacts on the project site:

- **Drainage Improvements:** Installation of conventional storm sewer structures, such as catch basins, manholes, and storm drainpipes. All improvements would be constructed within existing roadway rights-of-way.
- **Roadway Enhancements:** Minor paving and surface enhancements would occur at the East, North, and West Boulevards within their rights-of-way.
- **Bioretention Basins:** Two bioretention basins would be installed at the ends of West Evans Street and Court West Street. Each basin would cover an area of approximately 3,200 square feet.



Figure 23: East-West-North Boulevards Proposed Improvements Site Plan

9.1.6 Mill River Greenway

Continuous safe pedestrian pathways from the residential areas to the waterfront in the Mill River area are limited, and if they exist, are fragmented with little connectivity for significant lengths. The overall scale and existing land use of the project area make it ideal for biking, walking, and boating, but existing routes toward or along the river and bay are ad-hoc and discontinuous, and the adjacent neighborhoods' access to the river is poor. Combining this fact with the potential degradation of stormwater management and environmental habitat has created a concern for the sustainable resilience of the community.

The RBD LWTB design calls for the landscapes along Mill River to be interconnected into a strong “blue-green” framework to improve public accessibility and visibility of the Mill River to increase safety and enhance the ecological and landscape value of this historical water course. The design would also increase recreational opportunities for the densely populated communities around the river. The development of a continuous greenway is intended to be a strong feature for the suburban layout along and adjacent to the Mill River, thus transforming it into an attractive public amenity. The intent is to take the currently disconnected recreational and open resources in the LWTB project area, as well as schools, and link them into a coherent system of pedestrian and bike paths to create a new blue-green identity. Another goal of the greenway, trails, gateways, and waterfront access component of the project is to adopt and develop new sites along the Mill River that are currently underused and/or not accessible and make these sites productive towards the LWTB objectives (Berger 2019).

The Mill River Greenway would comprise four proposed sections:

- The northern portion would run alongside the northern edge of Peninsula Boulevard, adjacent to Hempstead High School.
- The middle northern portion would run parallel to South Pond, cross Maine Avenue, and include the community just north of there.
- The middle southern portion would reside entirely within the Village of Rockville Centre and connect Smith Pond from Nassau Street to the surrounding community.
- The southern portion would begin at Compton Street in East Rockaway, and travel through the Village of East Rockaway, and end at Bligh Field.

The location of each section in relation to the continuous Greenway is shown in **Figure 24**.

The greenway would extend approximately 5.1 miles from Hempstead Lake State Park and Tanglewood Preserve south to Bay Park and Hewlett Bay. The multiuse path would vary in width and, where practical, would typically include 10-foot-wide permeable pavement with water storage and infiltration.

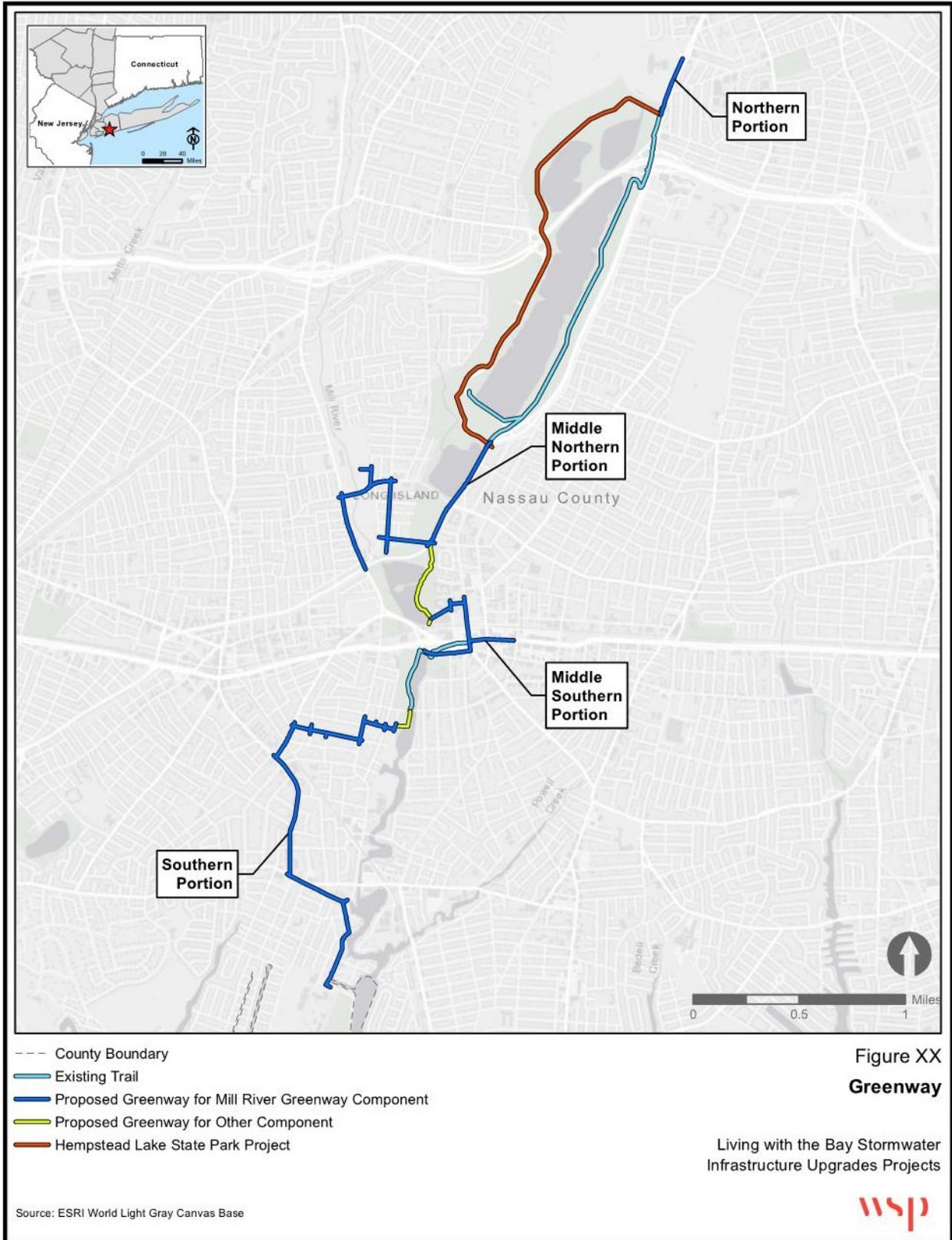


Figure 24: Mill River Greenway Proposed and Existing Greenway

9.2 ADDITIONAL CUMULATIVE PROJECTS OUTSIDE OF THE LWTB PROGRAM

As discussed further below, the cumulative impact assessment also considers three resiliency projects in the immediate vicinity of the project area that are not part of the LWTB program—the Bay Park STP Conveyance Project, the Long Beach Critical Facilities Project and the Long Beach North Shore Community Bulkhead Project.

In addition, as previously noted in **Section 3**, the cumulative impact assessment also considers the potential future redevelopment of the remainder of the WPCP property. Following construction of the proposed project, the balance of the existing WPCP would be decommissioned and demolished, and the land would be made available for appropriate reuse by the City. The City has identified the 7-acre WPCP property as of the most significant sites in terms of potential bayfront redevelopment. In accordance with the City’s Comprehensive Plan, the remainder of the property could be reused to establish a pilot waste-to-energy program for the City’s various waste streams with additional waterfront land available for redevelopment. The freed-up land would be large enough to house a series of waste digesters while also accommodating the City’s economic development goals for the parcel. Such a program would complement the City’s recent switch to single-stream recycling by maximizing its use of available resources. An initial program with three waste-to energy systems could include commercial grease deposits, organic waste, and wastewater (City of Long Beach 2018).

9.2.1 The Long Beach Critical Facilities Bulkhead Project

To protect critical infrastructure that was damaged during Hurricane Sandy, the City of Long Beach is constructing approximately 2,500 linear feet of new steel bulkhead along the southern shoreline of Reynolds Channel between the waterfront recreation campus and the tennis courts west of Monroe Boulevard (see **Figure 25**). To stabilize the shoreline and provide flood protection from a 100-year storm event, the elevation of the bulkhead is proposed at a BFE of 9.0 feet. In addition to stabilizing the shoreline, this elevation will provide flood protection (City of Long Beach 2020).

The bulkhead is located seaward of the existing shoreline riprap to avoid driving steel sheeting near the subsurface utilities (i.e., water, sewer, electric, and gas lines) located near the shoreline. The bulkhead construction will fill approximately 0.32-acre seaward of mean high water in tidal wetland areas designated as littoral zone and coastal shoals, bars, and flats with 1,500 cubic yards of clean, upland fill.

The project is located on Reynolds Channel between the Veterans Memorial Park and Monroe Boulevard. Construction of the project began in 2019 and will be completed in fall 2021.



Figure 25: Long Beach Critical Facilities Bulkhead Project

9.2.2 The Bay Park STP Conveyance Project

Nassau County is undertaking the Bay Park STP Conveyance Project to divert effluent, which is currently treated at the Bay Park STP and discharged via an outfall into Reynolds Channel, to the existing ocean outfall at the CC WPCP (see **Figure 26**). The innovative project entails constructing a dedicated pump station at the Bay Park STP, a new force main between the Bay Park STP and the CC WPCP, a receiving connection at the CC WPCP effluent pump station, and all related control systems and appurtenances. Effluent would be conveyed via a 2-mile-long force main to be constructed from the Bay Park STP to an existing aqueduct under the Sunrise Highway, a rehabilitated 8-mile stretch of the aqueduct, and a 2-mile long force main to be constructed to connect the rehabilitated aqueduct to the existing CC WPCP outfall, which diffuses treated water 3 miles offshore into the Atlantic Ocean.

The diversion of treated water from Bay Park STP to CC WPCP would remove between 74 to 90 percent of the nitrogen currently discharged into the Western Bays. The project is estimated to take four years to complete using design-build, with construction start anticipated for fall 2021.

The Bay Park STP Conveyance Project, which is also part of Western Bays Resiliency Initiative, would help jump-start the rejuvenation of vital marshlands and grasses that protect communities from wave action and coastal surge. In addition to increasing the resiliency of areas along the Western Bays to coastal flooding, this project would give the local ecosystem a chance to regenerate, bringing back cleaner, healthier bays for wildlife, shellfish, fish, visitors, and residents.

After completing the Bay Park STP Conveyance Project, the existing Bay Park STP outfall to Reynolds Channel would remain in place and may continue to be used periodically (e.g., during large wet-weather events or required maintenance, or to discharge any surplus volume of treated flow that would exceed the capacity of the CC WPCP).



Source: Nassau County DPW

Figure 26: Bay Park STP Conveyance Project

9.2.3 Long Beach North Shore Community Bulkhead Project

The City of Long Beach proposes to use CDBG-DR funding from the NY Rising Community Reconstruction Program to implement the City of Long Beach North Shore Community Bulkhead Project. The project would improve bulkhead in three different areas on the north shore of Long Beach (see **Figure 27**). The first area would include the ends of the following 12 public street rights-of-way (referred to as West Street Ends): Ohio, Connecticut, Georgia, Indiana, Maryland, Minnesota, Tennessee, Virginia, Wyoming, Delaware, Arizona, and Pennsylvania Avenues. The second area would include bulkhead improvements (recapping and height extension) along approximately 2,350 feet of West Bay Drive, while the third area would include improvements along approximately 1,800 feet on the east sides of both the Sarazen Canal and Ouimet Canal (referred to as Eastern Canals).

Based on the results of field inspections conducted for the City in 2013 and 2018, Fiberglass Reinforced Plastic bulkheads (otherwise known as re-facing) with wooden bulkhead caps were determined to be the most cost-effective improvement for the West Street Ends and Eastern Canals. Based on the existing conditions, tie backs with anchor piles (i.e., deadmen) in the public rights-of-way would be required for much of the proposed Fiberglass Reinforced Plastic bulkheads at both the West Street Ends and the Eastern Canals. A new concrete cap with a top elevation at the FEMA BFE would also be installed.

The West Bay Drive bulkheads are also generally 1 to 2 feet below the FEMA BFE. Therefore, the proposed project would exclude the installation of new bulkheads along West Bay Drive and would replace this scope with re-coating the existing bulkhead to limit corrosion and recapping the bulkhead with a taller concrete cap, up to the design BFE. Construction of the project is expected to begin in 2020 and be completed in 2021.

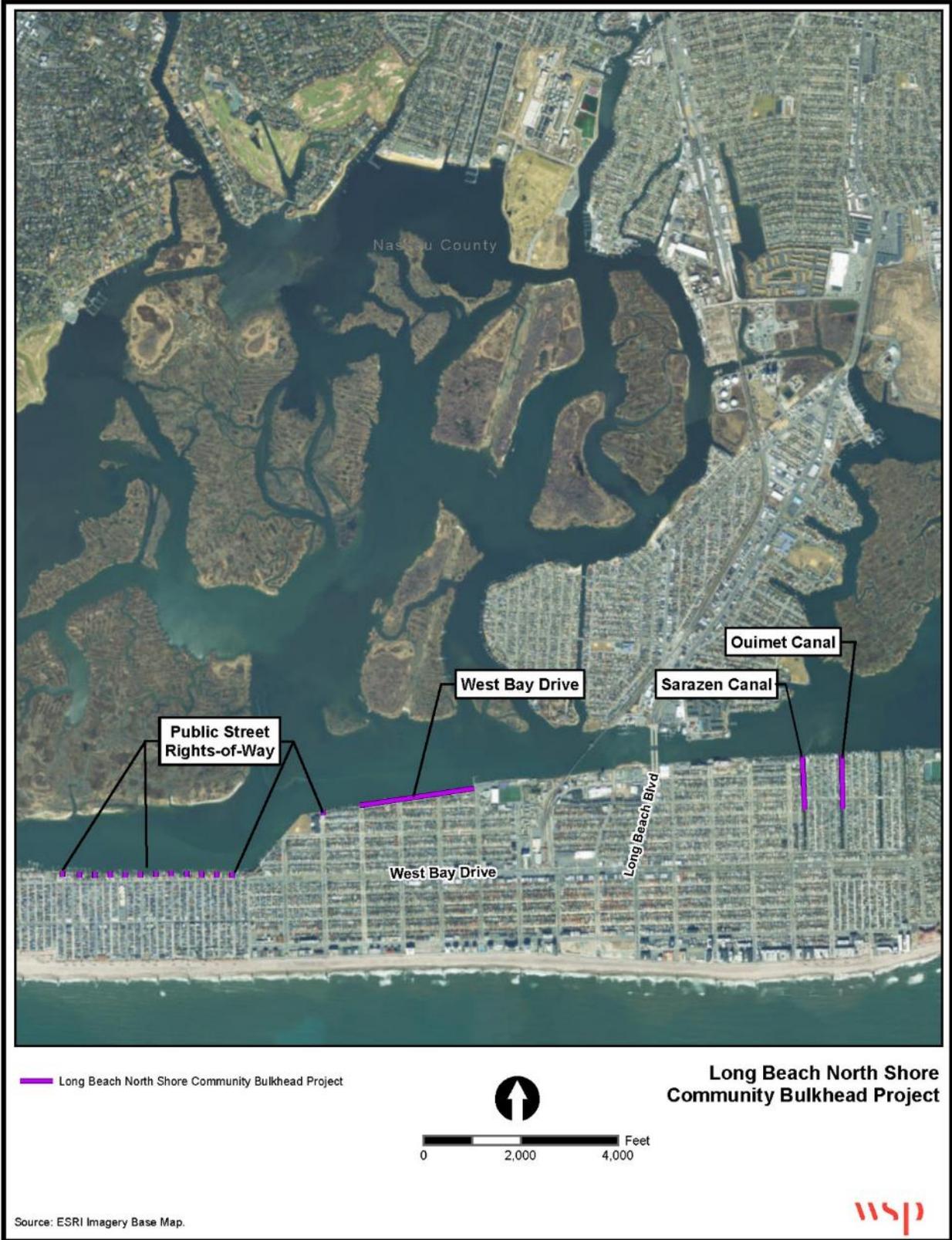


Figure 27: Long Beach North Shore Community Bulkhead Project

9.3 CUMULATIVE IMPACT ANALYSIS

The Town of Hempstead and the City of Long Beach regularly undertake roadway maintenance and improvement projects. As of February 2020, no such projects were located near the project area such that they would combine with the proposed project to result in cumulative impacts. The neighborhoods surrounding the Bay Park STP site are built out and primarily residential; projects in these locations would generally involve rehabilitation or minor expansion of these existing uses. Recreational, community services, and residential and industrial uses are adjacent to the Long Beach WPCP site; however, no substantive projects have been identified in the immediate vicinity. Because of the scale and nature of residential projects and the distance of residential uses from the proposed project's construction activities, projects in these locations would not combine with the proposed project to result in cumulative effects.

9.3.1 Land Development

Conformance with Plans, Compatible Land Use and Zoning, Scale and Urban Design

The cumulative projects are not anticipated to result in cumulative inconsistencies with the City of Long Beach Comprehensive Plan, the Nassau County Master Plan, or other relevant local plans and policies. The projects predominantly involve flood protection, water quality enhancement, and stormwater management improvements. Except for the proposed project's conversion of the WPCP pump station to a divergent pump station and the addition of light metal frame buildings (atop new elevated platforms) at the New York Avenue and Roosevelt Boulevard satellite pump stations, no new buildings are expected to be added by the other cumulative projects.¹⁵ However, any new buildings or structures that may be developed under the cumulative projects would be consistent with applicable existing zoning and land use controls. Improvements would be designed to be compatible with the existing topography and built character of the Mill River and Western Bays system (which includes Hewlett Bay).

Soil Suitability/Slope/Erosion/Drainage/Stormwater Runoff

Increased erosion could occur during the construction of the proposed project and the multiple cumulative projects. However, the potential for cumulative impacts from project activities occurring in the same period would be minimized through adherence to construction BMPs. As noted above, the proposed project and cumulative projects would entail minimal construction of new structures. The cumulative projects predominantly comprise flood protection and stormwater or sewer management improvements. No new buildings would be constructed in areas with steep slopes. Slopes would be designed to conform to engineering standards.

Each project would be subject to permitting review by applicable regulatory agencies, including NYSDEC and USACE. The design teams for each project have consulted or would consult with these regulatory agencies during the design development process to address agency concerns regarding grading plans, erosion controls, dewatering (if necessary), and other construction methodologies and specifications.

The Hempstead Lake State Park project would benefit downstream locations of the Mill River. This benefit would combine with the benefits from stormwater retention and treatment features proposed at Lister Park and East Rockaway High School. As a net cumulative benefit, overall flows to the Mill River

¹⁵ The Hempstead Lake State Park project includes the construction of one building and potential ancillary structures (e.g., utility sheds, vent shafts, or restroom structures); however, the park is not subject to local plans or zoning requirements.

would be slowed and reduced, and flows would have less sediment and other pollutants, resulting in decreased erosion and improved water quality in the Mill River and Hewlett Bay. The reduction in nitrogen loadings resulting from the proposed project and ultimately from the Bay Park STP Conveyance Project would substantially reduce nitrogen loadings in the Western Bays, further improving water quality.

Hazards and Nuisances, Including Site Safety and Noise

FEMA interactive flood maps for the watershed area indicate that the Mill River is a special flood hazard area subject to inundation by the 100-year storm event from Smith Pond southward to Hewlett Bay. The inundation area covers the water, vegetated areas, and nearby public and private properties along the river, south to approximately Atlantic Avenue. South of Atlantic Avenue, the inundation area expands to the east and west, encompassing most of the proposed project and other cumulative project sites.

LWTB program improvements—such as the stormwater retrofits throughout the watershed—would attenuate stormwater flows in the Mill River system during major rainfall events. The removal of trees from Hempstead Lake Dam would allow complete inspection of the dam to meet NYSDEC dam safety requirements.

The proposed project includes hardening of the City’s satellite pump stations and the new diversion pump station to the 500-year-flood level; the two cumulative projects that entail bulkhead improvements in Long Beach would stabilize the shoreline and provide flood protection from a 100-year flood. These projects would reconstruct portions of the bulkhead to provide base flood protection and cumulatively would improve storm surge protection in Long Beach, which is predominantly located in a flood hazard area.

Under the permitting process, NYSDEC would review and approve any dredging and excavation activities for cumulative projects, and these activities would be conducted in accordance with the NYSDEC Technical & Operational Guidance Series, Section 5.1.9. BMPs would include construction methods for removing sediments and soils; handling and movement of sediments and soils to a temporary dewatering location in the project area to be determined during the permitting process; and methods to minimize transport of sediments during excavation.

Energy Consumption

Construction of cumulative projects would result in typical consumption of fuels and electrical energy. Operation of stormwater retrofits and other projects may require fuels or electrical energy for pumps or other features. Operation of the new diversion pump station would increase energy consumption, but the increase would be negligible compared to the energy demands of communities in the Mill River Watershed.

9.3.2 Socioeconomic

Employment and Income Patterns

Construction of the proposed project, in combination with the cumulative projects, would result in temporary increases in construction-related employment. Upon completion of construction, projects are not anticipated to result in substantial changes in employment, population, or income patterns.

Demographic Character Changes, Displacement

Cumulative projects would not result in physical barriers or create access difficulties that would isolate or concentrate any particular population group. The proposed improvements would enhance connections along the Mill River system and among adjacent communities. No residents would be displaced.

9.3.3 Community Facilities and Services

Educational and Cultural Facilities

No adverse cumulative impacts on educational or cultural facilities would occur. No population changes would occur as the result of the cumulative projects. The LWTB cumulative projects would provide cumulative educational benefits related to park infrastructure, stormwater quality and quantity, biological resources, and recreation.

Commercial Facilities

Projects would not result in adverse impacts on or significantly increase the demand for existing commercial establishments. No new commercial facilities would be provided.

Health Care and Social Services

No population changes would be associated with the projects; therefore, there would not be a significant increase in demand for health care and social services.

Solid Waste Disposal/Recycling

Each cumulative project would generate some amount of construction and demolition debris. Debris would be disposed in accordance with existing regulations. Once the projects are completed, they would generate a negligible increase in solid waste. The projects would not result in cumulatively adverse impacts on solid waste disposal or recycling.

Wastewater/Sanitary Sewers

Once the LWTB cumulative projects are completed, they are expected to result in a negligible increase in sanitary wastewater. No wastewater would be generated by operation of the proposed project or the other cumulative projects; therefore, no adverse cumulative impacts would occur.

Water Supply

Once the cumulative projects are completed, they would generate a negligible increase in water demand. Most of the cumulative projects would be designed to increase stormwater infiltration, which would contribute to the groundwater supply. No cumulative impacts would occur.

Public Safety - Police, Fire, and Emergency Medical

The past, present, and reasonably foreseeable future projects, such as the LWTB projects located downstream of Hempstead Lake State Park, would not result in increased population or a substantial increase in employment. As such, they would not result in a substantial increase in local police, fire, or emergency medical service demand. The planned greenway could attract visitors. In addition, in the long term, the reduction in sediments, nitrogen, and other pollutant loads to Hewlett Bay would improve water quality and local ecosystems, which could attract recreational visitors. Combined with the

Hempstead Lake State Park Project, these improvements could increase the number of visitors to the Mill River corridor but not to an extent that would impede or overwhelm local public safety services.

Parks, Open Space, and Recreation

In combination with the proposed project, the cumulative projects would increase opportunities for active and passive recreation by providing new open spaces and a greenway along the river and improving water quality and ecosystems in the river and Hewlett Bay. These projects would also increase opportunities for use of alternative transportation modes, such as cycling and walking, by increasing the safety of such modes. Cumulative impacts would be beneficial.

Transportation and Accessibility

LWTB projects located downstream of Hempstead Lake State Park would not result in new population or substantial new employment, and as such they would not generate substantial new trips or parking demand. Traffic operations at each improvement would be evaluated, if necessary, when detailed proposals are presented to GOSR for review.

9.3.4 Natural Features

Unique Natural Features, Water Resources

The proposed project and cumulative LWTB projects would improve water quality in the Mill River Watershed and the Western Bays. The Hempstead Lake State Park Project's stormwater improvements at Hempstead Lake would combine with the benefits from stormwater retention and treatment features proposed downstream at Lister Park and East Rockaway High School. As a net cumulative benefit, overall flows to the Mill River would be slowed and reduced, and flows would have less sediment and other pollutants, resulting in improved water quality in the Mill River and Hewlett Bay. However, the most profound improvement to the Western Bays water quality would be the cumulative effect from the proposed project combined with the Bay Park STP Conveyance Project.

The proposed project's diversion of 4.63 mgd of wastewater from the Long Beach diversion pump station to the improved Bay Park STP would reduce the concentrations of pollutants, particularly ammonia and nitrogen, in the treated effluent discharged into Reynolds Channel and the Western Bays. During dry weather, the Bay Park STP Conveyance Project's diversion of treated water from the Bay Park STP to the CC WPCP would remove between 74 to 90 percent of the nitrogen currently discharged into the channel and prevent the discharge of up to 19 billion gallons of treated effluent into the Western Bays, substantially reducing harmful nitrogen pollution. While the existing Bay Park STP outfall would remain available for service, it would only be used for required maintenance or during the infrequent events that cause treated water to exceed the 75 mgd diversion limit (FEMA 2020).

Because excess nitrogen is a significant driver of loss of tidal marsh, the removal of nearly all nitrogen loading caused by sewage treatment plants in the Western Bays would help rejuvenate vital marshlands that protect coastal communities from storm-induced waves, ultimately increasing the area's natural resiliency. Further, the proposed project's marshland restoration component (i.e., proposed wetland mitigation) includes restoration of wetland areas that were adversely affected by prior construction of the existing Bay Park STP outfall through the middle of the haddock islands. As such, the proposed project would further contribute to the net cumulative benefits to the Western Bays' ecosystem and marine life habitat.

Combined with the Bay Park STP Conveyance Project, the Long Beach WPCP Consolidation Project would increase discharge of treated wastewater to the Cedar Creek deep ocean outfall (FEMA 2020). NYSDEC would set the SPDES permit limits for the Cedar Creek WPCP and Bay Park STP effluent streams so that the combined discharges meet applicable water quality standards. As indicated in the Bay Park Conveyance Project EA, "Ongoing studies by the State University of New York School of Marine and Atmospheric Sciences (SoMAS) indicate that the current discharge at the Cedar Creek WPCP diffuser has a negligible and localized impact on water quality (Schweitzer 2019). The added discharge of treated water from the Bay Park STP with the planned facility improvements in nutrient reduction technology would not be expected to result in a measurable change in water quality." Therefore, the Long Beach WPCP Consolidation Project, combined with the Bay Park STP Conveyance Project, would have negligible long-term impacts on water quality in the Atlantic Ocean.

Vegetation, Wildlife

The cumulative projects would result in beneficial cumulative impacts on vegetation and wildlife in the Mill River and Western Bays' systems. Implementation of the Hempstead Lake State Park Project, in combination with the proposed project, would rehabilitate freshwater wetlands and coastal marshes, and the associated habitat values would be improved. Water quality would be improved through the wetland and marsh enhancements and from reductions in nitrogen loadings through improved wastewater treatment that would further improve habitat. Wetland creation and rehabilitation would also remove invasive species and increase biological connectivity along the river that would benefit native vegetation and wildlife populations. Construction of individual projects would result in temporary adverse effects, which would be mitigated through implementation of BMPs.

As indicated above under "Unique Natural Features, Water Resources," the Long Beach WPCP Consolidation Project, combined with the Bay Park STP Conveyance Project, would result in negligible, long-term impacts on water quality in the Atlantic Ocean. As such, cumulative impacts on marine species would not be adverse.

10 ALTERNATIVES [24 CFR § 58.40(E); 40 CFR § 1508.9]

Alternative courses of action were evaluated for the Long Beach WPCP Consolidation Project. Analysis of these alternatives considered the following factors: constructability, community impacts, and ecological impacts. Cost were considered but were not the controlling factor.

Guidance provided in 40 CFR 1502.14 regarding the NEPA provision of an alternative analysis states that an agency must rigorously explore and objectively evaluate all reasonable alternatives and, for alternatives that were eliminated from detailed study, briefly discuss the reasons for their elimination. Additionally, a No Action Alternative must be included. This section discusses the No Action Alternative, the feasible alternatives that would provide for the purpose and need of the proposed project, and the alternatives that were initially considered but eliminated from full analysis.

10.1 NO ACTION ALTERNATIVE [24 CFR § 58.40(E)]

Under the No Action Alternative, plant operations at the Long Beach WPCP would continue similar to existing conditions. No consolidation of wastewater services would occur, and the Long Beach WPCP would continue to discharge to Reynolds Channel via its existing outfall. Because the WPCP would not be able to comply with its SPDES permit requirements that regulate the discharge of effluent to

Hempstead Bay, the water quality, resiliency, and long-term ecological benefits associated with the proposed project would not be realized under the No Action Alternative.

10.2 ALTERNATIVES CONSIDERED AND DISMISSED

As detailed in the design team's Purpose and Need and Alternatives Evaluation (see **Appendix W**), numerous alternatives to the proposed project were considered but subsequently dismissed for a variety of reasons. The two main alternatives were the Austin Boulevard Upland Route, which would entail diverting wastewater from the existing Long Beach WPCP to Bay Park STP for treatment and discharge; and an option to upgrade and harden the existing Long Beach WPCP with improved wastewater treatment processing so that it meets current effluent standards. Under the latter alternative, no diversion would occur, and the existing Long Beach WPCP would be replaced or upgraded with an improved plant that would meet current effluent standards (including nitrogen effluent limits identified in the SPDES permit) and be hardened to protect from future storm events (i.e., FEMA 500-year flood elevation)(Hazen ARCADIS Joint Venture 2019c, see **Appendix W**).

The alternatives evaluation was comparative in nature and focused on three main alternatives:

- Alternative A, Hassocks In-Water Route (HDD)
- Alternative B, Austin Boulevard Upland Route (HDD)
- Alternative C, Upgrade and Harden the Existing Long Beach WPCP

The first two alternatives would consolidate wastewater treatment services by diverting flow from the Long Beach WPCP to the Bay Park STP. The evaluation focused on the anticipated impacts of each option relative to Alternative A, the Hassocks In-Water Route, from which the proposed project has been derived. Variants of Alternatives A and B were also considered, which looked at alternative construction means and/or slightly modified routes, including a hybrid (upland/in-water) option. However, because practicable alternatives are generally limited to Alternatives A through C, they were the focus of the comparative evaluation.

The following criteria were used for the evaluation of Alternatives A and B: total construction cost; total project cost; construction duration; length of alignment by construction method; primary construction method; land acquisition; utility conflicts; community disruption: local business impacts; community disruption: traffic impacts; structural damage; Clean Water Act open waters and New York State tidal wetlands; adjacent areas impacts; threatened and endangered species impacts; ecological benefits; archeological and cultural resources; and permitting requirements. The results of the comparative evaluation are summarized in **Table 6**.¹⁶

Based on the evaluation, Alternative A was recommended as the preferred project alignment.

Based on the conceptual cost estimate, the total cost of Alternative C would be more than twice that of the other alternatives. Further, because one of the Long Beach WPCP's trickling filters would be lost under Alternative C, this option may result in the discharge of effluent in exceedance of ammonia limits and in violation of SPDES requirements. Finally, this alternative would preclude the potential for flow from the Long Beach WPCP to be ultimately diverted from Reynolds Channel to the existing ocean outfall at the CC WPCP; a diversion that would prevent the discharge of up to 19 billion gallons of

¹⁶ Projections and estimates presented in the table are from the alternatives evaluation that was completed in mid to late 2019.

treated effluent into the Western Bays, which would substantially reduce nitrogen pollution and help to restore the natural resiliency function of these vital marshlands.

Relative to Alternative A, the construction of Alternative B would be more disruptive to the community, with more traffic and roadway impacts and greater potential for significant adverse impacts on businesses. The development of an upland alignment under Austin Boulevard, where multiple structures would be located within the construction zone of influence, may also result in adverse effects with respect to structural damage. Tunneling and drilling activities, vibration from vibratory hammers for sheet pile installation, and/or dewatering activities could result in surface settlement and damage to existing structures. Furthermore, Alternative B would not provide an opportunity for wetland restoration, and the total project cost estimate is \$7 million higher than Alternative A.

In addition to having the lowest cost, the alignment under Alternative A (beneath Hempstead Bay) would have limited community impacts and minimal constructability concerns. Although Alternative A would have more complex permitting requirements and a greater temporary environmental impact footprint than Alternative B or other upland variants, it would also provide an opportunity for wetland restoration.

Section 3.2.4 discusses the flood mitigation alternatives that were considered for the satellite pump station hardening component of the proposed project.

Table 6: Alternatives Evaluation Summary Table

Evaluation Criteria	Alternative A: Hassocks In-Water Route	Alternative B: Austin Boulevard Upland Route	Alternative C: Upgrade and Harden Long Beach WPCP
Total Construction Cost	\$64,000,000	\$70,000,000	\$152,500,000
Total Project Cost Estimate*	\$76,000,000	\$83,000,000	\$177,000,000
Construction Duration	30 months	30 months	42 months
Length of Alignment by Construction Method*	Open Cut: 2,750 feet HDD: 12,250 feet Suspension: 0 feet Micro tunnel: 0 feet	Open Cut: 900 feet HDD: 15,863 feet Suspension: 430 feet Micro tunnel: 200 feet	Not applicable (WPCP to be upgraded to meet required nitrogen effluent limits)
Primary Construction Method	HDD	HDD and/or direct pipe	Conventional construction methods and open trench technology
Land Acquisition	In total, 9 impacted parcels due to HDD staging requirements. These 9 properties are owned by a mix of public, private, and currently unknown entities.	In total, 13 impacted parcels due to HDD staging requirements. Of these 13 properties, 4 are privately owned, 3 are publicly owned, and 6 are of unknown ownership.	In total, 2 impacted parcels based on the proposed WPCP upgrades. Of these 2 properties, 1 is privately owned and 1 is publicly owned.

Evaluation Criteria	Alternative A: Hassocks In-Water Route	Alternative B: Austin Boulevard Upland Route	Alternative C: Upgrade and Harden Long Beach WPCP
Utility Conflicts	<p>Minor utility conflicts and/or relocation expected during construction on the hassock islands.</p> <p>Minimal utility coordination expected during open trench construction from HDD termination on Bay Park to the connection point at the sanitary sewer tying point west of the Bay Park STP.</p>	<p>Localized utility relocations and service disruptions expected at HDD entry and exit points.</p>	<p>No utility conflicts and/or relocation expected during construction of the WPCP upgrades.</p>
Community Disruption: Local Business Impacts	<p>Low, adverse impact:</p> <ul style="list-style-type: none"> - No direct impacts on homes and businesses during construction. - Impacts to Bay Park STP, dog park and boat ramp near Long Beach WPCP expected, including increased noise from construction activities. 	<p>Moderate, adverse impact:</p> <ul style="list-style-type: none"> - Moderate, adverse impact on certain businesses expected at HDD entry and exit locations. - Long-term impacts at the HDD entry (4-5 months) and exit locations (2 months) separated by 1,500 to 4,000 feet. HDD drill rig location footprints are 200 feet x 30 feet, and pullback location footprints are 150 feet x 30 feet for staging. - Short-term impacts expected during pipe string up and pullback at a footprint 30 feet x HDD length (1-2 weeks). - Impacts expected due to increased noise from construction activities. - Minimal road restoration expected. 	<p>Moderate, adverse impact:</p> <ul style="list-style-type: none"> - The acquisition of new land, specifically the skate park and the boat launching pad, may have negative repercussions on the community of Long Beach.

Evaluation Criteria	Alternative A: Hassocks In-Water Route	Alternative B: Austin Boulevard Upland Route	Alternative C: Upgrade and Harden Long Beach WPCP
Community Disruption: Traffic Impacts	<p>Low, adverse impact:</p> <ul style="list-style-type: none"> - None or limited lane closures. - Relatively minor increase in traffic to Long Beach WPCP site and Bay Park from deliveries of equipment/supplies and worker access during construction. 	<p>Significant, adverse impact:</p> <ul style="list-style-type: none"> - Anticipated road closure on Park Place to complete the micro tunneling operation beneath the railroad. - Single lane traffic is expected along Park Place during open cut construction. - Multi-lane closures with two-way traffic at HDD entry/exit locations. HDD drill rig location footprints are 200 feet x 30 feet. HDD pullback location footprints are 150 feet x 30 feet for staging and 30 feet x HDD length for pipe string up and pullback. - In locations where detours are set up on parallel streets, potential for significant, adverse impacts on local roads, adjacent residents, and public safety. 	<p>Low to moderate, adverse impact:</p> <ul style="list-style-type: none"> - Community implications are expected to be minimal because all activities are anticipated to occur within the footprint of the existing WPCP. Construction trucks would circulate back and forth between the construction site, and a (quantified) traffic impact analysis should be undertaken to determine the effect of construction vehicles on the community.
Structural Damage (due to surface settlement)	<p>Low, adverse impact:</p> <ul style="list-style-type: none"> - No structures within zone of influence of construction. 	<p>Significant, adverse impact:</p> <ul style="list-style-type: none"> - Roads, railroads, homes, and businesses within zone of influence of construction would be adversely impacted. - Structural damage possible due to surface settlement from tunneling/drilling, vibration from vibratory hammers for sheet pile installation, or dewatering activities. 	<p>No adverse impact:</p> <ul style="list-style-type: none"> - None expected because construction activities would be limited to the footprint of the existing WPCP.

Evaluation Criteria	Alternative A: Hassocks In-Water Route	Alternative B: Austin Boulevard Upland Route	Alternative C: Upgrade and Harden Long Beach WPCP
Clean Water Act Open Waters & NYS Tidal Wetlands	<p>Moderate, adverse impact:</p> <ul style="list-style-type: none"> - Route runs under open waters and two hassock islands, including intertidal wetlands. - HDD launching/receiving pits situated in wetland area, which would have temporary impacts on waters and wetlands of a maximum of 5.5 acres. Temporary impacts would be addressed through comprehensive restoration plan. - Potential minor permanent impacts from air vents or manholes, which would be mitigated at a 3:1 ratio. 	<p>Minimal to no adverse impact:</p> <ul style="list-style-type: none"> - Route primarily runs through heavily urbanized uplands. - Route crosses over Barnums Channel and is adjacent to freshwater wetlands. - Route crosses under open waters in Hempstead Bay utilizing HDD. - Associated pits and construction areas expected to occur in previously developed upland areas. 	<p>The alternative would have positive and negative impacts. Although nitrification and denitrification would limit nitrogen levels in Reynolds Channel, nitrogen would continue to be discharged to the channel. The best alternative would be to discharge nitrogen in another location that is less sensitive to nutrients and able to provide higher dilution.</p> <p>Loss of one of the trickling filters for maintenance or repairs could mean loss of nitrification and exceedance of effluent limitation for ammonia and assessment of fines and penalties. This would result in violations and enforcement actions.</p>
Adjacent Areas Impacts	<p>Low, adverse impact:</p> <ul style="list-style-type: none"> - Most of the route occurs below the hassock islands' adjacent areas; impacts would be limited to previously developed areas near Long Beach WPCP and Bay Park STP. - Minimal impacts expected to previously disturbed dredge disposal areas to support HDD construction. - Temporary impacts on natural habitats would be addressed with full restoration of native habitats providing ecological benefits to Hempstead Bay. 	<p>No adverse impact:</p> <ul style="list-style-type: none"> - This route occurs in adjacent area in highly urbanized areas that have been previously developed for residential and commercial uses. - No impacts to native habitats are expected. 	<p>Low to moderate adverse impact:</p> <ul style="list-style-type: none"> - Construction of the flood wall, particularly along the north side of the property, would require disruption of the coastline and protection against runoff. - Would require soil investigation (including testing for contamination). - Loss of one of the trickling filters for maintenance or repairs could mean loss of nitrification and exceedance of effluent limitation for ammonia.

Evaluation Criteria	Alternative A: Hassocks In-Water Route	Alternative B: Austin Boulevard Upland Route	Alternative C: Upgrade and Harden Long Beach WPCP
<p>Threatened and Endangered Species Impacts (conservatively assumed the same for all routes due to proximity)</p>	<p>Low, adverse impact on species:</p> <p>Federal Terrestrial Species: 1 mammal, 3 birds, 2 plants, and 53 migratory bird species</p> <p>Federal Aquatics Species: 26 EFH species in project vicinity</p> <p>State Species: 2 T&E bird species and 8 protected bird species</p> <p>BMPs, including project scheduling, are expected to be required to minimize impacts on federal and state species. Potential work restrictions may be required around bird breeding season within the hassock islands. Tree clearing only allowed during winter months.</p>	<p>No adverse impact on species:</p> <p>Federal Terrestrial Species: 1 mammal, 3 birds, 2 plants, and 53 migratory bird species</p> <p>Federal Aquatics Species: 26 EFH species in project vicinity</p> <p>State Species: 2 T&E bird species and 8 protected bird species</p> <p>BMPs, including project scheduling, may be required as it relates to migratory birds. Expected to avoid essential fish habitat.</p>	<p>Low, adverse impact on species:</p> <ul style="list-style-type: none"> - Although nitrification and denitrification would limit nitrogen levels in Reynolds Channel, nitrogen would continue to be discharged to the channel. The best alternative would be to discharge nitrogen in another location that is less sensitive to nutrients and able to provide higher dilution.
<p>Ecological Benefits</p>	<p>Expected Benefits:</p> <ul style="list-style-type: none"> - Improved water quality in Hempstead Bay and associated natural improvement of aquatic habitat. - Restoration of temporarily impacted wetlands area in-kind at 1:1 ratio with native vegetation of greater quality than existing cover. - Restoration of minimal permanent impacts (i.e., air vents or manholes) at 3:1 ratio in adjacent degraded wetland area with native vegetation similar to existing community. - Impact limited to low marsh and high marsh habitats that are highly restorable with appropriate planning and monitoring. 	<p>Expected Benefits:</p> <ul style="list-style-type: none"> - Improved water quality in Hempstead Bay and associated natural improvement of aquatic habitat. 	<p>Expected Benefits:</p> <ul style="list-style-type: none"> - Conversion of ammonia-nitrogen to nitrate-nitrogen and the subsequent reduction of nitrate-nitrogen would reduce overall total nitrogen loading to Reynolds Channel. The improvement to the receiving water would be significant. - Improvement to marine waters by the reduction of oxygen demand due to oxidation of ammonia to nitrate.

Evaluation Criteria	Alternative A: Hassocks In-Water Route	Alternative B: Austin Boulevard Upland Route	Alternative C: Upgrade and Harden Long Beach WPCP
Archeological and Cultural Resources	<p>Low, adverse impact:</p> <p>A portion of the project area is within a New York SHPO-designated archaeologically sensitive area; Phase IA survey would be necessary; potential need for a Phase IB survey.</p>	<p>Low, adverse impact:</p> <p>A portion of the project area is within a New York SHPO-designated archaeologically sensitive area; Phase IA survey would be likely with potential for a Phase IB survey.</p>	<p>No adverse impact:</p> <p>None expected as ground disturbance would be limited to the footprint of the existing WPCP.</p>
Permitting Requirements	<p>Potential permit requirements for this route:</p> <ul style="list-style-type: none"> - NOAA NMFS EFH Assessment and Endangered Species Act Consultation - US Coast Guard Notice to Mariners - USACE Department of the Army Permit - USFWS Consultation (section 7 of the Endangered Species Act) - Funding Compliance for NEPA - Executive Order 11990, "Protection of Wetlands" - USEPA Funding Compliance with Section 1424(e) of the Safe Drinking Water Act (Sole Source Aquifer) - USFWS- Biological Assessment and Incidental Take Permit (potential) - NYSDEC Article 15 Protection of Waters Permit - NYSDEC SPDES Permit (Dewatering/Hydrostatic Test) - NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity - NYSDEC Article 25 Tidal Wetlands Permit 	<p>Potential permit requirements for this route:</p> <ul style="list-style-type: none"> - NOAA NMFS EFH Assessment and Endangered Species Act Consultation - US Coast Guard Notice to Mariners - USACE Department of the Army Permit - USFWS Consultation (section 7 of the Endangered Species Act) - Funding Compliance for NEPA - Executive Order 11990, "Protection of Wetlands" - Funding Compliance with Section 1424(e) of the Safe Drinking Water Act (Sole Source Aquifer) - NYSDEC Article 15 Protection of Waters Permit - NYSDEC SPDES Permit (Dewatering/Hydrostatic Test) - NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity 	<p>Potential permit requirements for this alternative:</p> <ul style="list-style-type: none"> - Land acquisition and any associated permits. - Loss of one of the trickling filters for maintenance or repairs could result in loss of nitrification and exceedance of effluent limitation for ammonia and assessment of fines and penalties – this would result in SPDES violations and enforcement actions. - Interim SPDES effluent limitations would need to be requested to cover loss of plant efficiency during the construction period.

Evaluation Criteria	Alternative A: Hassocks In-Water Route	Alternative B: Austin Boulevard Upland Route	Alternative C: Upgrade and Harden Long Beach WPCP
	<ul style="list-style-type: none"> - SHPO Consultation: Section 106 of the National Historic Preservation Act of 1966 	<ul style="list-style-type: none"> - NYSDEC Article 25 Tidal Wetlands Permit - SHPO Consultation: Section 106 of the National Historic Preservation Act of 1966 - There are 4 private owners and 6 that are currently unknown. Due to this limitation, not all permit requirements can be identified. 	

*Total project cost estimates and length of alignment by construction method are based on projections from mid- to late-2019.

10.3 SUMMARY OF FINDINGS AND CONCLUSIONS

The proposed project would temporarily impact wetlands, vegetation, and wildlife habitat; these impacts will be mitigated through compliance with state and federal permitting agency requirements. With implementation of identified mitigation measures and adherence to regulatory requirements and permit conditions, the proposed project will not have a significant impact on the quality of the human environment or result in other direct, indirect, or cumulative impacts. The proposed project will comply with all relevant regulations listed in 24 CFR Part 58.

The proposed project would protect the City’s wastewater facilities to FEMA’s 500-year flood event critical infrastructure standard, in addition to benefitting West Hempstead Bay and the surrounding communities. It would build resiliency through a reduction in the concentrations of pollutants (i.e., nitrogen and ammonia) in the treated effluent discharged into West Hempstead Bay, wetland restoration, and related enhancement of natural ecosystems. The proposed project would help rejuvenate vital marshlands that protect coastal communities from storm-induced waves, ultimately increasing the area’s natural resiliency.

11 MITIGATION MEASURES AND CONDITIONS [40 CFR § 1505.2(C)]

11.1 CLEAN AIR ACT

All project activities will comply with applicable federal, state, and local laws and regulations regarding construction emissions, including but not limited to NYCRR, NYSDEC Air Quality Management Plan, and the New York State Implementation Plan. All necessary measures will be used to minimize fugitive dust emissions. The preferred method for dust suppression is water sprinkling. To demonstrate compliance, the following specifications will be incorporated into the contract documents:

- Idling Restriction. On-site vehicle idle time will be restricted to 5 minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or otherwise required for the proper operation of the engine.

- Utilization of Newer Equipment. USEPA’s Tier 1 through 4 standards for nonroad engines regulate the emission of criteria pollutants from new engines, including particulate matter, carbon monoxide, nitrogen oxides, and hydrocarbons. All nonroad construction equipment with a power rating of 50 horsepower or greater will meet at least the Tier 2 emissions standard to the extent practicable.
- Best Available Tailpipe Reduction Technologies. Nonroad diesel engines with a power rating of 50 horsepower or greater and controlled truck fleets (i.e., truck fleets under long-term contract with the project) including but not limited to concrete mixing and pumping trucks will use the best available tailpipe (or BAT) technology for reducing diesel particulate matter emissions. Diesel particulate filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Construction contracts will specify that all diesel nonroad engines rated at 50 horsepower or greater will use DPFs, either installed by the original equipment manufacturer or retrofitted. Retrofitted DPFs must be verified by USEPA. Active DPFs or other technologies proven to achieve an equivalent reduction may also be used.

11.2 CONTAMINATION AND TOXIC SUBSTANCES

To mitigate the potential impacts that could be caused by the disturbance of potentially contaminated sediments, soils, and groundwater through excavation, the approval of all excavation activities is conditioned upon issuance of a permit from NYSDEC in accordance with a NYSDEC Use and Protection of Waters Permit (6 NYCRR Part 608); SPDES Permit (6 NYCRR Part 751.3(a)(6)); and Clean Water Act § 401 Water Quality Certification.

Under the permitting process, NYSDEC will review and approve excavation activities, and these activities will be conducted in accordance with the NYSDEC Technical & Operational Guidance Series, Section 5.1.9. BMPs will include construction methods for removing sediments and soils; handling and movement of sediments and soils to a temporary dewatering location in the project area to be determined during the permitting process; and methods to minimize transport of sediments during excavation.

11.3 CONFORMANCE WITH NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION STATE POLLUTION DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY GP-0-15-002

A SWPPP and notice of intent will be prepared for the project because the amount of ground disturbance in the project area will be greater than 1 acre. The project will adhere to the conditions in the SWPPP. BMPs such as silt fences and erosion prevention, will be implemented, as required by permits or agency direction.

11.3.1 Wetlands Protection (Executive Order 11990, Particularly Sections 2 and 5)

Where feasible, work will occur in previously disturbed uplands, and HDD will be used to minimize duration of disturbance within wetlands. Site clearing activities will only occur between December 1 and March 15 to minimize wetland disturbance during the growing season. Marsh mats will be placed on the vegetated marsh surface for construction access. One drill site and one pullback site will be used to support construction of two pipeline segments. Casing and pipe assembled for pullback will be elevated above the marsh surface (resting on rollers) to minimize short-term wetland impacts.

Containerization and disposal of drilling fluids will prevent any discharge of water or sediment to adjacent waters and wetlands. Silt socks or silt fencing will be used to prevent sediment run-off into wetlands or adjacent waters. For work in upland areas, hay bales or silt fencing will be used to control soil runoff and prevent soils from entering adjacent surface waters.

Impacted wetlands would be restored immediately following construction. Mitigation is also proposed outside the LOD to offset the temporary impacts associated with project construction. On the north side of Pearsalls Hassock, clean sand would be placed on existing mudflats on the north and east banks of the existing tidal channel to create a living shoreline. Grades would be established to create suitable elevations to support native low marsh habitats to restore and enhance approximately 1.5 acres of shoreline outside the limit of disturbance. Coir logs would be placed and secured to protect the restored shoreline banks from erosive forces. Areas landward of the coir logs would be planted with smooth cordgrass plugs on 1.5-foot centers. On South Black Banks Hassock, a large patch of common reed occurring in both high marsh and adjacent upland transitional habitat would be restored to approximately 0.22 acre of intertidal channel, 0.97 acre of low marsh, and 0.80 acre of high marsh outside the limit of disturbance. Restored areas would be planted with appropriate low marsh (smooth cordgrass) and high marsh (saltmeadow cordgrass and saltgrass) species plugs at a density of at least 2.0 feet on center spacing. Plant stock for all mitigation activities would be cultivated natural stock obtained from a nursery that specializes in plants native to New York.

Additional mitigation measures will be implemented as identified during the permitting process by federal and state agencies. Anticipated mitigation measures include monitoring throughout the project to control invasive species, such as common reed in that area that is known to colonize disturbed tidal wetlands; conducting restoration plantings in the spring or fall following project completion; not stockpiling excess material from drilling on the marsh surface during the growing season; and adhering to the project schedule to minimize marsh disturbance.

11.3.2 Drainage/Erosion/Runoff

The proposed project would disturb more than 1 acre of land and as such will obtain coverage under the SPDES General Permit for Stormwater Discharges from Construction Activity. The SPDES General Permit requires the use of New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, as well as preparation of a SWPPP to incorporate appropriate BMPs during construction activities.

11.4 ENDANGERED SPECIES ACT AND MIGRATORY BIRD TREATY ACT

Site clearing activities will occur between December 1 and March 15 to minimize disturbance during the migratory bird breeding season. Nesting deterrents will be installed in early spring to prevent nest establishment where osprey breeding behavior may be disturbed by project activities, and an equal number of replacement platforms will be installed in other suitable habitat on the hassock islands. A qualified wildlife observer will be on-site during construction throughout the spring and fall time frames that migrating red knot are known occur in New York. Should a red knot be observed in the vicinity of the project area, a 300-meter buffer would be established around all project-related construction activity to avoid red knot disturbance until the end of the spring migration period.

If sea turtles or Atlantic sturgeon are present in the vicinity of the project area during construction, project activities would not render the surrounding water of West Hempstead Bay unsuitable for these mobile species. Turbidity increases during construction would be temporary and localized, and activity in

intertidal habitats will be conducted at low tide to minimize in-water disturbance. Turbidity curtains are not anticipated to be used because of the small area of disturbance and short duration of drilling. Turbidity resulting from spudding of the barge or work platform and installation of drill casing is expected to be highly localized, and disturbed sediment would settle quickly following completion of those activities. Piling driving operations for the optional trestle support will occur during the winter months and are anticipated to produce temporary noise and vibration effects that would be localized and temporary in nature. Sea turtles are not expected to be exposed to noise levels above their injury and behavioral modification thresholds, and effects of noise disturbance on Atlantic sturgeon would not be able to be meaningfully measured or detected. No noise or vibration dampening/mitigation measures are anticipated to be used.

Additional mitigation measures will be implemented as identified during the permitting process by federal and state agencies.

11.5 VEGETATION AND WILDLIFE

HDD methods will be used to minimize the extent and duration of disturbance to vegetation and wildlife habitat during project construction. Site clearing activities will only occur between December 1 and March 15 to minimize disturbance to vegetation during the growing season. Marsh mats will be placed on the vegetated marsh surface to provide equipment access with minimal temporary disturbance. Where feasible, work will occur in previously disturbed uplands. The oyster reef on the north side of North Black Banks Hassock will be avoided. To minimize disturbance, one drill site and one pullback site will be used to support construction of two pipeline segments, and the pullback area will be routed in common reed-dominated areas. Casing and pipe assembled for pullback will be elevated above the marsh surface (resting on rollers) to minimize impacts on vegetation.

Disturbed vegetation will be restored in spring or early fall immediately following construction. On-site and in-kind restoration of all disturbed vegetated areas is proposed. Native plant materials will be used for wetland and upland revegetation. In temporarily disturbed emergent areas on the hassock islands, 2-inch plugs from a native plant nursery will be planted at a density of at least 2.0 feet on center spacing, depending on the site conditions. Areas where woody vegetation will be cleared will be restored as maritime forest and shrubland, planted at a density equivalent to pre-construction conditions. Mitigation planning is ongoing and will consist of restoration opportunities to remove invasive vegetation and increase and improve tidal wetland habitat on the hassock islands.

Vegetation clearing will be kept to the minimum area required to meet the design objectives, and construction fencing or flagging will be used to demarcate the limit of disturbance to avoid unnecessary clearing. Additional mitigation measures will be implemented as identified during the permitting process by federal and state agencies.

11.6 ESSENTIAL FISH HABITAT

Pursuant to Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act, NMFS correspondence dated March 23, 2020 and August 19, 2020, provided the following conservation measures to minimize or offset impacts on EFH:

- Develop a frac-out plan outlining the measures to be taken if there is an accidental release of drilling muds during the HDD process.

- Develop the proposed compensatory mitigation plan in accordance with the 2008 federal mitigation rule (33 CFR Section 332.3(b)(1)) and coordinate the development of this plan with NMFS.
- Do not temporarily anchor a barge to the bottom of the channel for continuous pullback of the pipeline segment because water depths do not allow the barge to float at all stages of the tide.
- Use buoys or other inflatables to float the pipe across the channel provided the floats and pipe float at all stages of the tide.
- If buoys and floats would rest on the bottom at some stages of the tide, and temporary trestle alternative is selected instead, avoid pile driving and removal and other sediment and noise generating activities between January 1 and May 31 to minimize impacts to winter flounder early life stage EFH.

Development of the frac-out plan and the conceptual compensatory mitigation plan are underway, and coordination with NMFS will continue during the permitting phase. The contract for construction of the project will specify that the contractor use a trestle, rather than a barge(s) or floatation devices, to span the channel between South and North Black Banks hassock. As discussed Section 6.2.15, NMFS concurred with the justification and avoidance and minimization measures provided to allow construction of trestle after January 1.

11.7 NOISE

Construction noise mitigation measures will be implemented, including outfitting equipment with mufflers and complying with relevant (e.g., City of Long Beach and Town of Hempstead) noise ordinances/ regulations (i.e., time-of-day work limitations).

11.8 TRANSPORTATION

To address the short-term traffic impacts to the Long Beach and Town of Hempstead (Bay Park) portions of the project area, a construction traffic management plan will be prepared in coordination with the City and Town.

11.9 PARKS, OPEN SPACE, AND RECREATION

To mitigate for the temporary loss of access to recreational uses at the City's Veterans Park during construction, the County will coordinate with the City and Town of Hempstead regarding an alternative boat launch site and the use of Nickerson Park by City residents.

11.10 FLOOD INSURANCE

Flood insurance under the National Flood Insurance Program will be required for the new diversion pumps station and satellite pump stations because these structures are located within the Special Flood Hazard Area.

12 COMPLIANCE WITH 24 CFR §§ 58.5 AND 58.6 LAWS AND AUTHORITIES

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where

applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR § 58.5 and § 58.6	Are formal compliance steps or mitigation required?	Compliance determinations
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR §§ 50.4 and 58.6		
Airport Hazards 24 CFR § 51, Subpart D	Yes No <input type="checkbox"/> <input checked="" type="checkbox"/>	In compliance with 58.6(d), the proposed project is not located in an Airport Runway Clear Zone. Refer to Section 6.1.1 for analysis of impacts.
Coastal Barrier Resources Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 United States Code (USC) 3501]	Yes No <input type="checkbox"/> <input checked="" type="checkbox"/>	In compliance with 58.6(c), the proposed project is not in located in the Coastal Barrier Zone. Refer to Section 6.1.2 for analysis of impacts.
Flood Insurance Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001–4128 and 42 USC 5154a]	Yes No <input type="checkbox"/> <input checked="" type="checkbox"/>	To comply with 58.6(a) and (b), flood insurance under the National Flood Insurance Program will be provided for the proposed project. Refer to Section 6.1.3 for analysis of impacts. See Section 11.10 for mitigation measures.
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR §§ 50.4 & 58.5		
Clean Air Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR §§ 6, 51, 93	Yes No <input checked="" type="checkbox"/> <input type="checkbox"/>	To comply with 58.5(g), specifications will be incorporated into the proposed project’s contract documents. Refer to Section 6.2.1 and Appendix M for analysis of impacts. See Section 11.1 for mitigation measures.
Coastal Zone Management Coastal Zone Management Act, sections 307(c) & (d)	Yes No <input checked="" type="checkbox"/> <input type="checkbox"/>	As demonstrated in the coastal zone management consistency assessment included in Appendix N, the proposed project complies with 58.5(c). Refer to Section 6.2.2 for analysis of impacts.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR § 58.5 and § 58.6	Are formal compliance steps or mitigation required?	Compliance determinations
Contamination and Toxic Substances 24 CFR §§ 50.3(i) & 58.5(i)(2)	Yes No <input checked="" type="checkbox"/> <input type="checkbox"/>	To comply with 58.5(i), the approval of excavation activities associated with construction of the proposed project will be conditioned upon the issuance of permits from NYSDEC. Refer to Section 6.2.3 and Appendix O for analysis of impacts. See Section 11.2 for mitigation measures.
Endangered Species Endangered Species Act of 1973, particularly section 7; 50 CFR § 402	Yes No <input checked="" type="checkbox"/> <input type="checkbox"/>	The proposed project will incorporate a variety of mitigation measures to comply with 58.5(e). Refer to Section 6.2.4 for analysis of impacts. See Section 11.4 for mitigation measures.
Explosive and Flammable Hazards 24 CFR § 51, Subpart C	Yes No <input type="checkbox"/> <input checked="" type="checkbox"/>	The proposed project complies with 58.5(i). Refer to Section 6.2.5 for analysis of impacts.
Farmlands Protection Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR § 658	Yes No <input type="checkbox"/> <input checked="" type="checkbox"/>	In compliance with 58.5(h), the project area is not located in an agricultural district and does not contain prime farmland soils. Refer to Section 6.2.6 for analysis of impacts.
Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR § 55	Yes No <input checked="" type="checkbox"/> <input type="checkbox"/>	As demonstrated by the 8-Step Floodplain Process (see Appendix R), the proposed project complies with 58.5(b). Refer to Section 6.2.7 for analysis of impacts.
Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR § 800; Tribal notification for new ground disturbance.	Yes No <input type="checkbox"/> <input checked="" type="checkbox"/>	Compliance with 58.5(a) is demonstrated by SHPO's concurrence with the determination that no archaeological and/or historic resources would be affected by the proposed project (see Appendix S). Refer to Section 6.2.8 for analysis of impacts.
Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities	Yes No <input type="checkbox"/> <input checked="" type="checkbox"/>	The proposed project will incorporate construction noise mitigation measures to comply with 58.5(i). Refer to Section 6.2.9 and Appendix Q for analysis of impacts. See Section 11.7 for mitigation measures.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR § 58.5 and § 58.6	Are formal compliance steps or mitigation required?	Compliance determinations
Act of 1978; 24 CFR § 51, Subpart B		
Sole Source Aquifers Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR § 149	Yes No <input checked="" type="checkbox"/> <input type="checkbox"/>	As demonstrated by the SSA Initial Screen/Preliminary Review included in Appendix U, the project complies with 58.5(d). Refer to Section 6.2.10 for analysis of impacts.
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	Yes No <input checked="" type="checkbox"/> <input type="checkbox"/>	As demonstrated by the 8-Step Wetland Process (see Appendix R), the proposed project will incorporate mitigation to comply with 58.5(b). Refer to Section 6.2.11 for analysis of impacts. See Section 11.3.1 for mitigation measures.
Wild and Scenic Rivers Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	Yes No <input type="checkbox"/> <input checked="" type="checkbox"/>	In compliance with 58.5(f), no designated wild, scenic, or recreational rivers or scenic areas of statewide significance are located within or proximate to the project area. Refer to Section 6.2.12 for analysis of impacts.
ENVIRONMENTAL JUSTICE		
Environmental Justice Executive Order 12898	Yes No <input type="checkbox"/> <input checked="" type="checkbox"/>	The proposed project complies with 58.5(j). Refer to Section 6.2.13 for analysis of impacts.

13 ENVIRONMENTAL ASSESSMENT FACTORS [24 CFR § 58.40; REF. 40 CFR §§ 1508.8 & 1508.27]

Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed project. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. All conditions, attenuation or mitigation measures have been clearly identified.

Impact Codes: Use an impact code from the following list to make the determination of impact for each factor.

- (1) Minor beneficial impact
- (2) No impact anticipated

(3) Minor Adverse Impact – May require mitigation

(4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement

Environmental Assessment Factor	Impact Code	Impact Evaluation
LAND DEVELOPMENT		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	1	Refer to Section 7.1.1 for analysis of impacts.
Soil Suitability/ Slope/ Erosion/ Drainage/ Stormwater Runoff	2	Refer to Section 7.1.2 for analysis of impacts. See Section 11.3.2 for mitigation measures.
Hazards and Nuisances including Site Safety and Noise	2	Refer to Section 7.1.3 for analysis of impacts.
Energy Consumption	2	Refer to Section 7.1.4 for analysis of impacts.

Environmental Assessment Factor	Impact Code	Impact Evaluation
SOCIOECONOMIC		
Employment and Income Patterns	2	Refer to Section 7.2.1 for analysis of impacts.
Demographic Character Changes, Displacement	2	Refer to Section 7.2.2 for analysis of impacts.

Environmental Assessment Factor	Impact Code	Impact Evaluation
COMMUNITY FACILITIES AND SERVICES		
Educational and Cultural Facilities	2	Refer to Section 7.3.1 for analysis of impacts.
Commercial Facilities	2	Refer to Section 7.3.2 for analysis of impacts.
Health Care and Social Services	2	Refer to Section 7.3.3 for analysis of impacts.
Solid Waste Disposal / Recycling	2	Refer to Section 7.3.4 for analysis of impacts.
Wastewater / Sanitary Sewers	1	Refer to Section 7.3.5 for analysis of impacts.
Water Supply	2	Refer to Section 7.3.6 for analysis of impacts.

Environmental Assessment Factor	Impact Code	Impact Evaluation
Public Safety - Police, Fire and Emergency Medical	2	Refer to Section 7.3.7 for analysis of impacts.
Parks, Open Space and Recreation	2	Refer to Section 7.3.8 for analysis of impacts. See Section 11.9 for mitigation measures.
Transportation and Accessibility	2	Refer to Section 7.3.9 for analysis of impacts. See Section 11.8 for mitigation measures.

Environmental Assessment Factor	Impact Code	Impact Evaluation
NATURAL FEATURES		
Unique Natural Features, Water Resources	1	Refer to Section 7.4.1 for analysis of impacts.
Vegetation, Wildlife	1	Refer to Section 7.4.2 for analysis of impacts. See Section 11.5 for mitigation measures.
Other Factors		The proposed project would not affect other factors.

Determination:

Finding of No Significant Impact [24 CFR § 58.40(g)(1); 40 CFR § 1508.27]
The project will not result in a significant impact on the quality of the human environment.

Finding of Significant Impact [24 CFR § 58.40(g)(2); 40 CFR § 1508.27]
The project may significantly affect the quality of the human environment.

Preparer Signature:  Date: 8/27/2020

Name/Title/Organization: Jonathan Carey, Planning Manager, WSP USA

Certifying Officer Signature:  Date: 8/27/2020

Name/Title: Matt Accardi, GOSR, Assistant General Counsel

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR § 58.38) and in accordance with recordkeeping requirements for the HUD program(s).