Appendix J

SHPO Consultation

June 23, 2017

Larry K. Moss, Historic Preservation Technical Specialist
Technical Assistance & Compliance Unit, Division for Historic Preservation
New York State Office of Parks, Recreation & Historic Preservation
Peebles Island, P.O. Box 189
Waterford, New York 12188-0189

RE: Nassau County Living with the Bay Project (LWTB)
Community Development Block Grant – Disaster Recovery (CDBG-DR)
Hempstead Lake State Park Project, Town of Hempstead, Nassau County, NY
SHPO Project Review No.: 17PR03487

Mr. Moss,

The current project has been expanded in scope since the last CRIS submission on May 26, 2017 (17PR03487). This letter is to inform you of the details of the new scope and request your Section 106 review of the overall project. The New York State Governor's Office of Storm Recovery is proposing to improve the Hempstead Lake Park's existing water management infrastructure, restore/construct approximately 8 acres of new emergent wetland, and provide new educational and recreational amenities (Figure 1). This project was developed as part of the overall LWTB project and Resiliency Strategy to develop a program of specific projects that will address flooding caused by storm surge and rainfall, improve coastal habitat and water quality, ease public access to the waterfront, and educate the public on stormwater and environmental management. The project is to be funded through an estimated $125 million in funding from the Community Development Block Grant – Disaster Recovery (CDBG-DR).

**Project Description**

The Proposed Project consists of four (4) components intended to improve stormwater management, enhance natural ecosystems, provide connectivity among diverse populations, enhance safety, and promote education programs at the Park. The Proposed Project components are as follows, a detailed description of each is provided below: "Dams, Gatehouse and Bridges;" "Northwest and Northeast Ponds;" "Environmental Education and Resiliency Center;" and "Greenways, Gateways and Waterfront Access." Technical drawings at 60% design completion for the project components are attached to this letter.

Dams, Gatehouse and Bridges

There are three dams within the Park. The Proposed Project would restore the operation of the dams and associated water flow control infrastructure within the Park to improve stormwater management. The design

and restoration of the dams at the Park would be completed in close coordination with the New York State Department of Environmental Conservation (NYSDEC) as permitted through the New York State Dam Safety Regulations.

*Northwest (NW) Pond Dam*

The NW Pond Dam is located north of the Southern State Parkway and east of Eagle Avenue at the southern end of the NW Pond (see Figure 2a). The dam consists of a 230-foot-long earthen berm with an 11-inch thick concrete top slab that also acts as an emergency overflow. The concrete slab meets the existing grade at either end. The earthen berm was constructed around a core of timber sheet pilings filled with a mixture of sand and gravel. The original low-level maintenance outlet is no longer functional. The dam failed sometime before January 2012. Currently, the breach in the embankment is more than 35 feet wide and expanding.

The Proposed Project would replace the existing earthen embankment with a dam anticipated to be 5 feet tall and 230 feet long, consisting of a steel sheet pile upstream face with an earthen embankment behind it. An outlet weir would be provided with the lowest step set at elevation 21.0 feet, which is slightly below the normal water level in the NW Pond. The top of the dam would be set at elevation 25.0 feet, which is below the existing dam crest elevation of 27.0 feet to avoid creating any backwater effects on the upstream drainage collection systems.

The open channel from the NW Pond Dam to Hempstead Lake passes under the Southern State Parkway in a 10-foot-high and 20-foot-wide culvert. Water then flows through twin 5-foot-diameter corrugated metal pipes before emptying into Hempstead Lake. The Proposed Project would improve the channel by removing the twin corrugated pipes and replacing them with an open bottom bridge. The bridge would improve flow and minimize the risk of the culverts failing during large storm events.

*Hempstead Lake Dam, Outlet Gatehouse, and Pipe Arch*

The Hempstead Lake Dam is located at the southern end of Hempstead Lake; a portion of Lakeside Drive located west of Peninsula Boulevard runs across the crest of the dam (see Figure 2b). The dam is a 1,500-foot-long and 17-foot-high earthen embankment with a clay core, and it was constructed in 1873 with five sluice gates and an adjacent outlet gatehouse containing outlet controls for the dam's sluice gates. The outlet gatehouse operates four (4) overflow weirs and the five (5) sluice gates that direct water flows through twin 36-inch diameter pipes inside an attached pipe arch running from the dam south along the west side of McDonald Pond to South Pond. Currently, the outlet controls within the gatehouse are not operable, and the five sluice gates are fixed shut, although two of the sluice gates have been permanently cut open and result in a typical 4- to 5-foot seasonal fluctuation in lake water levels.

The upstream face of Hempstead Lake Dam is protected by an approximately 18-inch thick layer of cut stones fit tightly together and held in place by gravity. In some areas, particularly near the gatehouse where the slope of the dam steepens from approximately 33 percent to 45 percent, the stones are grouted. The stones form an apron at the upstream toe of the dam and extend out into the lake. Much of the stone work is covered by

sediment, leaf litter, and vegetation, primarily in the form of vines and trees. The downstream face of the dam is an earthen embankment heavily vegetated with trees, shrubs, and vines.

The Proposed Project would restore the Hempstead Lake Dam's sluice gates, outlet gatehouse, and pipe arch to renew the functionality of the dam's sluice gates. The dam restoration would include replacing all five sluice gates on the dam, installing an inspection cat walk and water-level monitoring equipment, internal and exterior repairs to the outlet gatehouse (including floor restoration, window replacement, and masonry repointing), and repairing the floor and walls of the pipe arch. The work would require the removal of trees and vegetation from the face of the dam, and removal of approximately 1,500 cubic yards of sediment from the stone-lined upstream side of the dam. Approximately 350 cubic yards of fill is anticipated to fill root ball areas on the downstream side of the dam. As the dam comprises historic structures, all design and construction work would strive to maintain historic accuracy and would be completed in accordance with state and federal requirements. Aesthetic design would be balanced with security concerns and functionality. Interpretive signage would also be installed that informs patrons on the history and function of the Hempstead Lake Dam.

The proposed work at Hempstead Lake Dam is intended to be completed in concert with work at the NW Pond Dam (above) and the South Pond Dam and Outlet Weir (below), but is equally as important as a stand-alone project for overall protection of the watershed. Controlling the flow of water through the Hempstead Lake Dam is integral to flood protection as well as maintaining the water level of the Hempstead Lake to promote ecological improvements and provide recreational opportunities. The Proposed Project would also include the development of an operating plan for the dam to provide Park management operating procedures to actively manage water flow before, during and after storm events to prevent flooding in the communities surrounding the Park, both upstream and downstream of the Hempstead Lake Dam.

*South Pond Inlet Gatehouse, Dam, and Outlet Weir*

South Pond is located at the southern end of Hempstead Lake State Park. Water flows into the pond via the pipe arch from Hempstead Lake to the north, as well as from Schodack Brook to the west. The South Pond Dam is an earthen embankment located at the southern end of South Pond. The dam is approximately 750 feet long and 10 feet high, and is north of Lakeview Avenue. The upstream and downstream faces of the dam are covered with trees and shrubs, and portions of the dam crest have settled (sunken) over time.

The South Pond Outlet Weir is located along the dam, approximately 200 feet west of Peninsula Boulevard (see Figure 2b). The stone Outlet Weir is 25 feet long and set at an elevation of approximately 12.0 feet; the surrounding earthen embankment is set at an elevation of approximately 17.0 feet. Water drops over the spillway before entering a culvert under Lakeview Avenue.

There are two gatehouses at South Pond: an inlet gatehouse and an outlet gatehouse. The pipe arch from the Hempstead Lake Dam outlet gatehouse connects to the South Pond inlet gatehouse, which is located at the northeast edge of South Pond (see Figure 2b). The brick South Pond inlet gatehouse is similar in style to the building at Hempstead Lake but is smaller since it only extends slightly beyond the width of the pipe arch itself. The south end of the building is the pipe arch opening to South Pond. The door and windows have

been closed over and there is nothing remaining of the original wooden floor that would have extended from wall to wall and rested upon the brick shelf built into each side wall. Slots built into the brickwork indicate that wooden flashboards may have been used to adjust the flow coming out of the pipe arch into South Pond. The existing metal roof is poor condition.

The remains of the original South Pond outlet gatehouse are located at the west end of the South Pond dam (see Figure 2b). This outlet gatehouse ties into the pipe arch system that runs along the western side of South Pond. It was once connected to the main pipe arch between Hempstead Lake and South Pond at a point approximately 35 feet north of the South Pond inlet gatehouse. The back of the dilapidated South Pond outlet gatehouse ties into the brick pipe arch system that continues southward and is part of the original Ridgewood Reservoir water system. The outlet gatehouse has no roof and partial walls on three sides. A concrete barrier was built in front of the outlet at some more recent time preventing it from acting as an overflow for South Pond under most conditions.

The inlet gatehouse at the north end of South Pond would be restored in a manner similar to the Hempstead Lake gatehouse with a new door, roof, wooden floor, and windows to replicate the original style. The brickwork at the south end of the building would also be repaired to ensure the structural integrity of the building. The small interior room created by providing flooring may be used for storage and/or educational purposes.

At the south end of the Pond, the project would include the removal of trees and vegetation that have grown through the dam. Additional fill with native grass plantings would be applied to the dam crest to create a uniform slope, and the stonework on the historic outlet weir would be rehabilitated to address damage caused by vandalism. The existing 7-foot height and 750-foot length of the dam would be maintained.

The existing wall of the deteriorated outlet gatehouse would be removed to a structurally safe height and some of the bricks may be salvaged to repair the South Pond inlet gatehouse. The historic pipe arch that ties into the south wall of the building would be bulk-headed prior to placement of fill. The remains of the South Pond outlet gatehouse would be photographed prior to demolition.

*Bridges*

Three proposed pedestrian bridges would be installed at the following locations: over the Mill Creek near where it enters the NE Pond; over the open stream channel between the Southern State Parkway and Hempstead Lake which would replace two 5-foot-diameter culverts; and over Schodack Brook near where it enters South Pond. (see Figure 2a and Figure 2b). The bridges would be designed to fit into the Park aesthetic. The bridges would have a width of 1.25 times the bank full width and accommodate emergency and maintenance vehicles. The elevation of the bridges would be coordinated with the adjacent multi-use paths and would maintain stormwater flows for most rainfall events.

Northeast and Northwest Ponds

The Northeast Pond (NE Pond) and Northwest Pond (NW Pond) are located at the northern most end of the Park and are bordered to the north by Hempstead High School and Hempstead Golf and Country Club, to the west by the Lakeview residential neighborhood, and to the south and east by the Southern State Parkway and Peninsula Boulevard (see Figure 2a).

Runoff from an approximate 5.7-mile square area currently drains into the ponds through Mill Creek (see Figure 2a). Several outfalls along the Southern State Parkway discharge into the NE Pond, and one outfall discharges runoff from the parkway into the NW Pond. The Ponds are also fed by groundwater flows. There is significant erosion along the banks of the Mill Creek channel, which contributes to the sedimentation of the ponds. The erosion has also created unstable banks, apparent by the exposed soil and large trees that are falling across the channel.

*Northeast (NE) Pond*

The surface water level of NE Pond is approximately 25.9 feet above sea level. The pond has a depth of 6 feet. The muck layer in NE Pond ranges from 1 to 1.5 feet, and the pond has steep side slopes around its perimeter that descend to a flat bottom muck layer. There are 3.69 acres of existing emergent wetlands and 2.83 acres of Shrub Maple wetland at NE Pond. In NE Pond the predominant visible issues are the amount of floatables, sediment and debris along the shoreline and the creek channel and within the wetland and area north of the pond.

The Proposed Project would involve installation of a floatables catcher at the Mill Creek entrance to the NE Pond at a concrete channel designed to handle the depth of flow for a 100-year storm event. The floatables capture system would have a stationary double-netting system designed for a flow of 875 cubic feet per second (CFS). It would filter and capture the floatables carried in the flow from a 1-year storm event, and it would be sized to capture bottles but allow smaller-sized materials, such as leaves and organic matter, to pass through. The work in the NE Pond would also include bank stabilization and erosion control north of the concrete channel installation within the Park. From the floatables catcher, water would flow to a new sediment basin. The sediment basin would contain up to 10 percent of the 1.5-inch water quality volume in accordance with NYSDEC design parameters.

In total, approximately 69,000 cubic yards of material would be dredged or excavated from NE Pond . Approximately 16,000 CY of sediments would be dredged from the center of NE Pond. Based on these preliminary sediment sampling analyses, most of the 16,000 CY would be reused on-site within the NE Pond. Filtering wetlands would be constructed along the northwestern and southeastern edges of the NE Pond. The only materials removed from the site would be materials unsuitable for reuse within the pond, such as the waste materials screened from the dredge. Unsuitable materials would be hauled and disposed off-site in accordance with disposal requirements.

The remaining 53,000 CY of soil material would be excavated from the periphery of the pond and used to construct the sediment basin and channel. The dredged materials and upland excavation would be used to

raise the pond bottom elevation to create wetlands areas, which would then be planted with emergent wetland vegetation, as well as develop a low-flow channel to slowly filter the runoff directed to the wetlands. The wetlands would have constructed berm edges to hold the runoff and an overflow spillway to allow the filtered runoff to outfall into the NE Pond.

The existing bypass channels to NE Pond would be restored by excavating the sediment build up that is currently blocking the flow, reshaping the channel, and revegetating with emergent vegetation to filter the volume of flow directed to NW Pond. The wetland channels would have a piped overflow spillway to direct filtered runoff through the first channel to a second filtering wetland that discharges into NW Pond (see below). Slopes in excess of 1 in 3 would be stabilized with coir mats or fiber logs.

*Northwest (NW) Pond*

The water level in NW Pond is low due to the breach of the NW Pond dam and drought conditions, but, as stated above, also due in large part to sedimentation. The surface water level of NW Pond is approximately 23.0 feet above sea level. Water depth ranges from 0 to 1.5 feet. NW Pond increases in depth from the north to the south. The surface gradually slopes from wetland to pond open water areas, to the south, and the deepest pond section is adjacent to the dam. The muck layer in NW Pond is approximately 6 inches thick. There are 14.74 acres of emergent wetlands at NW Pond. In NW Pond, the predominant visible issues are the low water level and the breached dam.

Water predominantly enters NW Pond via a stream channel from NE Pond and from a 96-inch pipe outfall located on the west side of the NW Pond. Storm flow was also carried to NW Pond via a drainage bypass channel located north of NE Pond, but the large sediment deposits in the channels and at the north end of the site prevent storm runoff from reaching these bypass channels and flowing through them. As described above, the flow through these channels would be re-established by excavating the sediments, regrading and planting with emergent wetland vegetation to create additional filtering wetlands. Improvements would also include the installation of a floatables catcher and sediment basin at the 96-inch pipe outfall. The existing wetlands immediately north of the outfall would be re-graded to direct the initial flow to a channel through the wetlands that would provide additional filtering capacity of runoff.

Dredging would occur within the center of the surface water area of NW pond. The dredging is proposed to provide 6 feet of pond depth for additional pond volume and to improve aquatic habitat in this shallow pond. The project would remove approximately 12,000 CY of materials for the pond. The excavated sediments will be used to establish the sediment basin at the outfall and the wetland edge along the south shoreline. The only materials to be removed from the site are those waste materials screened from the dredge materials.

Based on preliminary sediment sampling, this material would be used in creation of wetland edges. Slopes in excess of 1 in 3 would be stabilized with coir mats or fiber logs. In total for the NW Pond, the project would remove 0.77 acres of emergent wetland and add 0.53 acres, for a net loss of 0.24 acres of emergent wetland. Total wetlands in NW Pond would decrease from 14.74 to 14.50.

Combined, the proposed wetland enhancement activities at NW Pond and NE Pond would require removal of approximately 1,805 trees.

Greenways, Gateways, and Waterfront Access

The Proposed Project would expand and improve the existing path system within the Park. The proposed greenway and trail system upgrades would enhance connectivity and provide direct access for the public to the natural resources within the Park. Connection points to the surrounding neighborhoods, as well as access to the Northern Ponds would be provided through new gateways and access points. Waterfront access would be enhanced through installation of piers, kayak launches, and fishing docks along Hempstead Lake. The greenway and trails would include the bridges over the open stream channel between the Southern State Parkway and Hempstead Lake, and over Schodack Brook near where it enters South Pond, as discussed above. Grading and removal of trees would be required for these features. The greenway and trail improvements would be designed and implemented in a manner that would allow for connection to, and replication for, the pedestrian and cycling pathways under consideration in the larger LWTB Project and Resiliency Strategy.

*Greenway and Trails*

A 12-foot-wide, crushed stone dust greenway would run through the west side of the Park, from Lakeview Avenue in the south to Peninsula Boulevard north of NE Pond (see Figure 2a and Figure 2b). This greenway would connect to a planned greenway running along the Mill River corridor from Hempstead High School in the north to Bay Park in the South. It would be open on a daily basis for public for recreational use. The proposed greenway would consist of improvements to the existing system of trails within the Park and would require the removal of approximately 100 trees. The greenway would be capable of facilitating access for emergency vehicles. The greenway would also include educational signage to convey to the public the positive benefits of the LWTB Project and Resiliency Strategy. Trees would be planted along the greenway to enhance the natural character of the Park.

*Trails*

A renovated hiking, cycling, and bridle path would be installed around the perimeter of Hempstead Lake (see Figure 2a and Figure 2b). On the west side of the lake, this pervious crushed stone trail would be located between the greenway and the lake. The hiking, cycling, and bridge path would include a spur crossing the Southern State Parkway and the planned greenway at Eagle Avenue, connecting to the Eagle Avenue gateway, new parking lot, and a loop spur running along the northwest side of the northern ponds, west of the proposed greenway. In addition, new wetland trails and minor dirt trails would be constructed to provide hiking access to the rehabilitated northern ponds (see Figure 2a).

*Gateways*

The Proposed Project would improve the existing informal dirt parking lot north of the Southern State Parkway at Eagle Avenue (see Figure 2a). A formalized parking lot with permeable pavement, 48 car spaces, and three bus spaces would be constructed. The entrances to the parking lot would also have direct access to/from the Long Island Railroad local stations and access from other public transportation.

New gateways into the park from surrounding neighborhoods would be created at Lakeview Avenue (at the new greenway southern end), Pershing Boulevard, Woodfield Road, Carol Street/Hillman Street, Elm Street, and Graham Avenue (at the new greenway northern end). These gateways would include signage and direct access to the greenway or trails. The gateways would provide direct pedestrian access from the adjoining neighborhoods, a significant portion of which are low to moderate income communities. These gateways would also open views and provide additional access points for emergency vehicles.

*Observation Areas/Piers/Kayak Launches*

The trails and greenway would also provide access to the ponds and lake. A new raised walkway would extend westward from Lakeside Drive, intersect the greenway, and run westward to a new observation pavilion along Hempstead Lake (see Figure 2a). The pavilion would be located approximately 23 feet above the Hempstead Lake surface. In addition, six new kayak launches/fishing piers/docks would be located along the Hempstead Lake shore, opening up views to the public and providing additional access points to the water (see Figure 2a).

Environmental Education and Resiliency Center

The Proposed Project includes construction of a new, single-story Environmental Education and Resiliency Center west of Lakeside Drive (see Figure 2b). The approximately 8,000-square-foot (approximately 52' x 96' (irregular) in footprint) Environmental Education and Resiliency Center would comprise a main education room, overlook deck, restrooms, and storage facilities. The facility would provide a centralized destination and connection for the residents to the Hempstead Lake corridor that would directly support environmental education and recreational opportunities. Specific spaces within the proposed Environmental Education and Resiliency Center are proposed to be designed flexibly, with spaces that would permit a resilient occupancy of the building that can adapt quickly to the varied uses to serve as an information, storage, and a gathering space, during and immediately following emergencies and natural disasters affecting the surrounding community. The building would include a full building load emergency generator to provide resiliency during power outages.

The proposed Environmental Education and Resiliency Center would demonstrate environmental sustainability, responsibility, and resilient building practices. Where appropriate passive design strategies would be implemented in the configuration of the building whereby solar heat loss and gain would be controlled to minimize the active HVAC requirements. The building would be provided with an automatic emergency diesel generator, which would be located outside the building's southwestern façade. The generator would have the capacity to provide energy to the entire building in the event of a power outage. The building would include roof-mounted solar (photovoltaic) panels providing up to 30 kilowatts of electricity, intended to provide adequate power for 100 percent of basic building systems during non-peak loading scenarios.

**NY-CRIS Site File Review**

The Hempstead Lake State Park Project Area encompasses the entirety of the park. Hempstead Lake State Park has a long history of development that began in the 1870s when the Mill River was dammed to build the Hempstead Lake Reservoir. An old mill built by Isaac DeMott was demolished and the area flooded for the

reservoir (Van Liew 1967:6). The newly constructed reservoir, which was designed to hold one billion gallons of water, was part of a larger acquisition of streams, swamp lands and adjacent areas by the City of Brooklyn to develop a water supply for that city (Bailey 1949:274). These reservoirs were connected to the city's water system through an underground water main and pumping stations. The excavation of the reservoir was never completed, leaving an island in the north section. Once it was complete, it was the second largest body of fresh water on Long Island (Bailey 1949:276). In 1925, the City of New York dedicated the 2,200 acres of water supply reservoirs in Nassau County for state park and parkways (Bailey 1949:274). While the lakes were still used as a water supply and thus protected from certain uses, the surrounding areas were developed into parklands. By 1949, Hempstead Lake State Park had picnic areas, bridle paths, tennis courts, playgrounds, an archery range, baseball and softball fields and a children's carousel donated by August Heckscher (5901.000078) (Bailey 1949:278).

Examination of the project area in CRIS indicates that Hempstead Lake State Park was determined eligible as a historic district by OPRHP on June 5, 2017, and ten individual resources have been determined to be contributing or eligible within that district (Table 1). Prior to this determination the Carousel at the park was determined to be National Register eligible (5901.000078). No other previously surveyed sites are located within the project area. The project area is not within an archaeological sensitive area as depicted in NY-CRIS.

**Table 1. Known Architectural Resources in the Project Area.**

| USN | Resource | National Register Status |
|---|---|---|
| 05930.000133 | Hempstead Lake State Park (Building District) | Eligible |
| 5901.000073 | Hempstead Lake State Park - Southern State Pkwy | Eligible |
| 5901.000074 | Hempstead Lake State Park: Comfort Station #3 (Field 3) - Southern State Pkwy | Eligible |
| 5901.000075 | Hempstead Lake State Park: Superintendent's Quarters - Southern State Pkwy | Eligible |
| 5901.000076 | Hempstead Lake State Park: Superintendent's Garage - Southern State Pkwy | Eligible |
| 5901.000077 | Hempstead Lake State Park: Office (Tennis, Police & Supt.) - Southern State Pkwy | Eligible |
| 5901.000078 | Hempstead Lake State Park: Carousel - Southern State Pkwy | Eligible |
| 5901.000697 | Private Residence, 1934 | Eligible |
| 5901.000955 | Private Residence, 1931 | Eligible |
| 5901.002540 | Hempstead Lake Dam gatehouse | Eligible |
| 5901.000034 | South Pond gatehouse | Eligible |

**Archaeology**

A review of NY-CRIS records indicate that no archaeological surveys have been conducted and no sites have been previously identified within Hempstead Lake State Park. Within a 1-mile radius of the park, only one site has been previously recorded. Site A059-47-0004, Smith's Pond Pump Station, is located approximately 720 meters south of the project area. Masonry remains of the structure were recorded in 1983 during investigations associated with the Nassau Expressway project. Archaeological sensitivity as mapped in NY-CRIS around the project area is limited to area around Smith's Pond Pump Station and coastal area of the southern shore of Long Island, approximately 2.4 kilometers south Hempstead State Park. The surficial geology of the area is outwash sands and gravels from proglacial fluvial deposits underlain by Cretaceous sedimentary rock. Soils formed from those materials mapped within Hempstead State Park include Plymouth loamy sand and Enfield silt loam. These series do not typically contain deeply buried deposits, which are more likely to be overlain by alluvium on floodplains or terraces. The only evidence of Historic-period habitation prior to the reservoir's construction is a saw mill and residence depicted on an 1873 atlas of New Bridge near what is now the area between Smith's Pond and South Pond at the southern end of the project area.

**Summary and Recommendations**

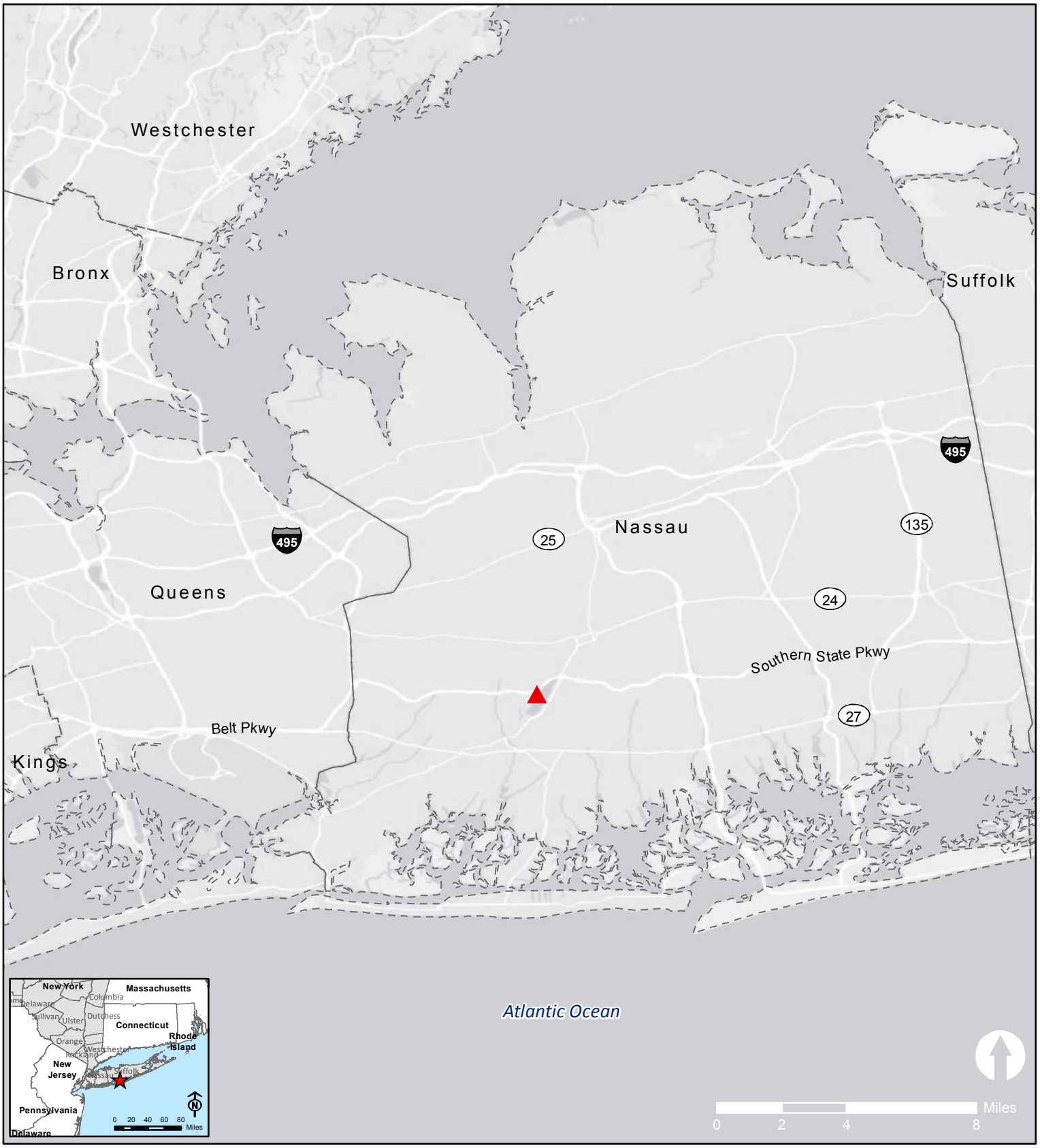
The gatehouses and associated dams that are slated for improvement at Hempstead Lake State Park have not been evaluated with respect to National Register criteria. The South Pond outlet gatehouse, which is to be demolished for the project, has diminished integrity due to the collapse of three walls and the roof. The potential for the project to affect architectural resources is limited as rehabilitation of the existing gatehouses and dams will be completed according to the Secretary of the Interior's Standards.

Ground disturbing activities for the project are associated with dredging in the lakes, excavations for wetlands and sediment basins, removal of trees, construction of bridges, installation of trails, and construction of the proposed Education Resiliency Center. The project area is not within an archaeologically sensitive area as mapped in CRIS.

Sincerely,

Camilla R Deiber

Camilla Deiber
Senior Architectural Historian




Project Location

County Boundary

Figure 1

**Regional Location**

Hempstead Lake State Park

Source: U.S. Fish and Wildlife Service; Suffolk County GIS Data;
NYS Department of Environmental Conservation; ESRI World Imagery; ESRI Street Map

Louis Berger

Project Boundary

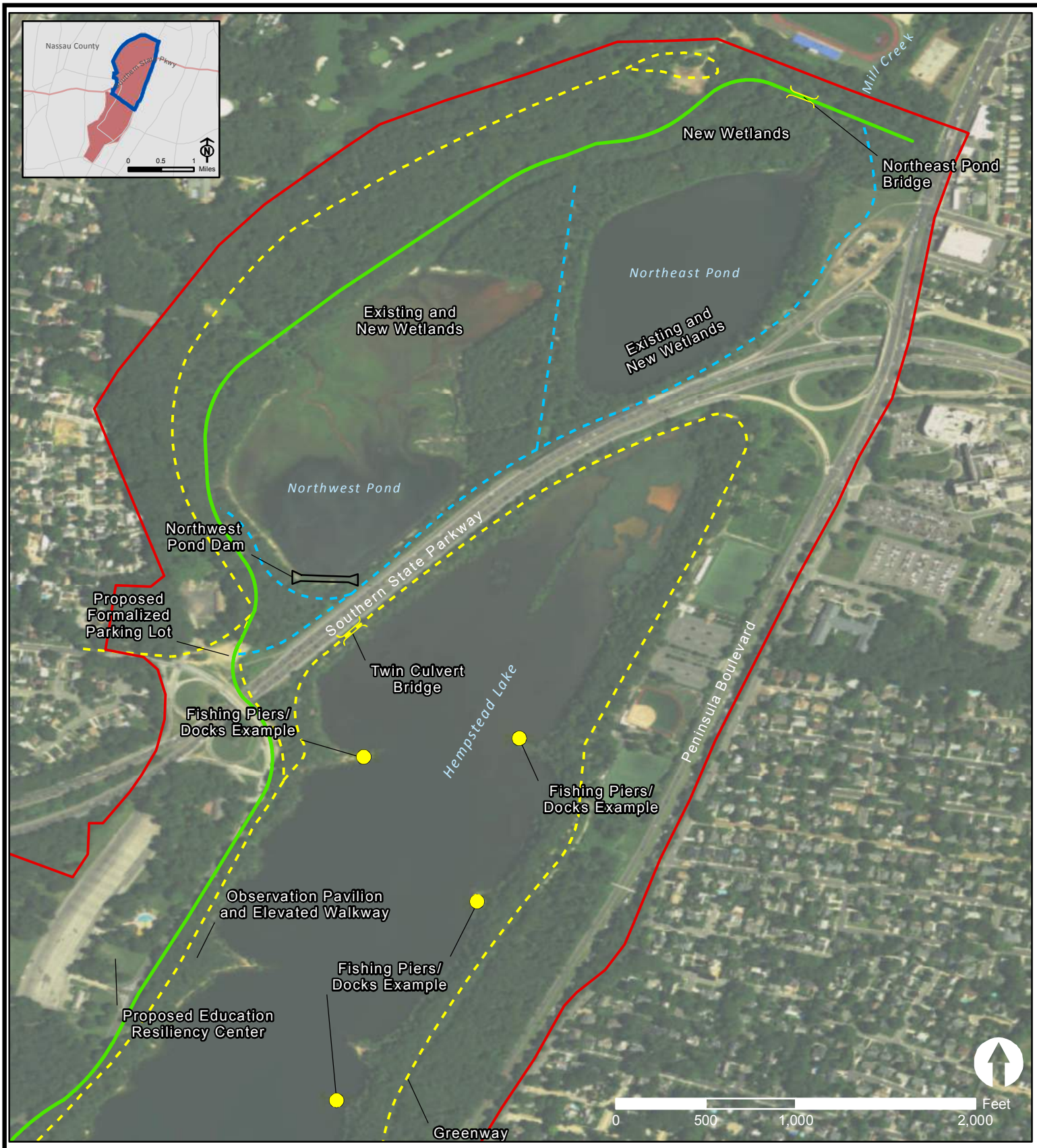
Figure 2

**Project Area**

Hempstead Lake State Park

Source: USGS; NYS GIS Clearinghouse; NYS Department of Environmental Conservation; ESRI World Imagery; ESRI Street Map

Louis Berger




Bridge

Proposed Dock/Fishing Pier/Kayak Launch Walkway

Proposed Greenway

Proposed Wetland/Minor Trail

Proposed Hiking, Cycling, and Bridle Path

Project Boundary

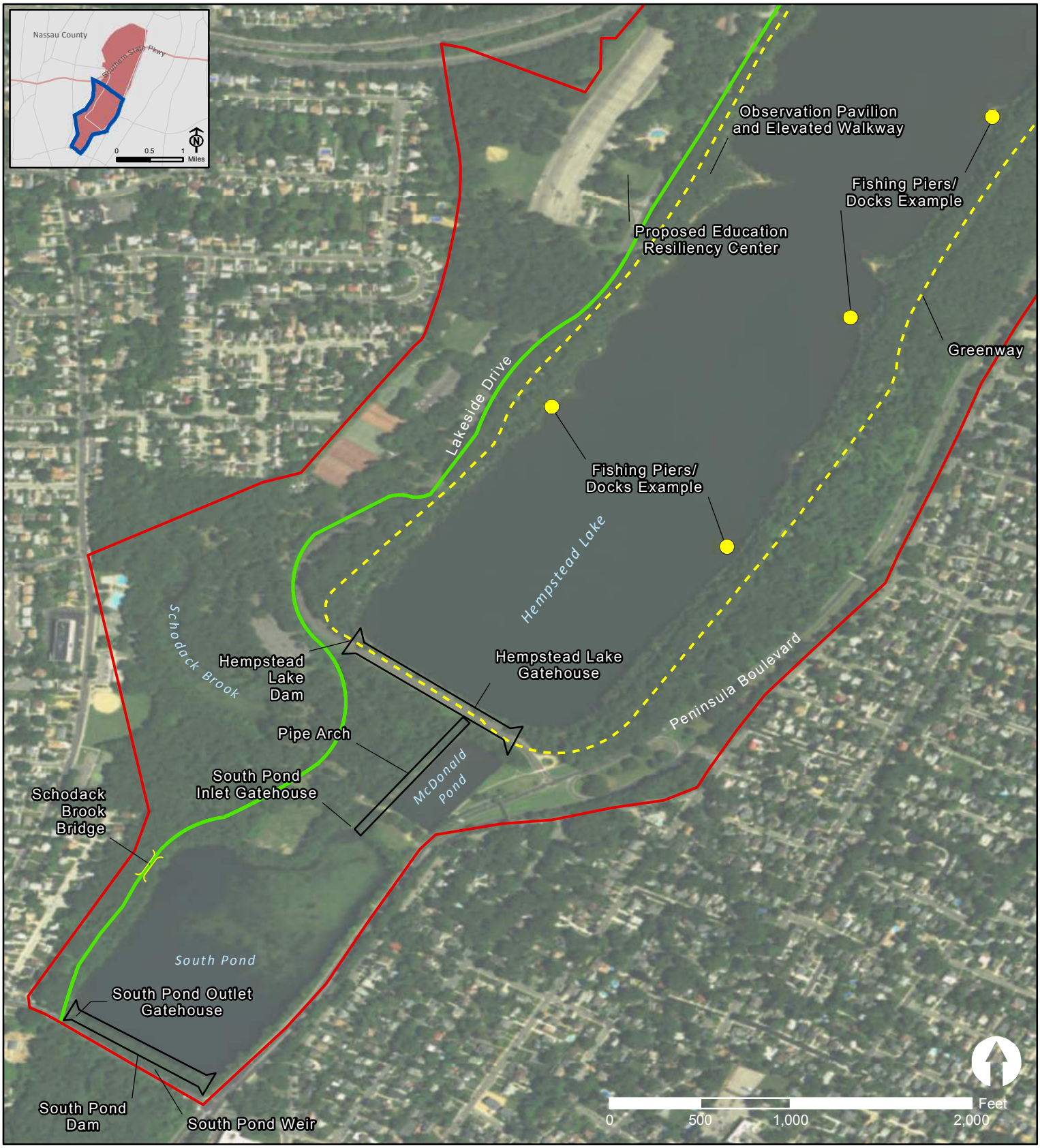
Figure 2a

**Site Plan, North**

Hempstead Lake State Park

Source: USGS; NYS GIS Clearinghouse; NYS Department of Environmental Conservation; ESRI World Imagery; ESRI Street Map

Louis Berger




Bridge

Proposed Dock/Fishing Pier/Kayak Launch Walkway

Proposed Greenway

Proposed Wetland/Minor Trail

Proposed Hiking, Cycling, and Bridle Path

Project Boundary

Figure 2b

**Site Plan, South**

Hempstead Lake State Park

Source: USGS; NYS GIS Clearinghouse; NYS Department of Environmental Conservation; ESRI World Imagery; ESRI Street Map

Louis Berger

## Bonafide, John (PARKS)

| | |
|---|---|
| **From:** | Bonafide, John (PARKS) |
| **Sent:** | Wednesday, March 29, 2017 12:52 PM |
| **To:** | CebadaMora, Gabriella (PARKS) |
| **Subject:** | FW: Hempstead Lake State Park - Dam rehabilitation and Brooklyn Water Works Structures |
| **Attachments:** | Draft Attachment C. Hempstead Lake State Project Proposed Project Areas.pdf; Hempstead Lake SP_30 Percent Collaborative Design Narrative.pdf |

**Tracking:**

| Recipient | Delivery | Read |
|---|---|---|
| CebadaMora, Gabriella (PARKS) | Delivered: 3/29/2017 12:55 PM | Read: 3/29/2017 1:31 PM |

Gaby this should all come in as part of the CRIS submission. Thanks


**John A. Bonafide**
Director, Technical Preservation Services Bureau
Division for Historic Preservation
Agency Historic Preservation Officer

**New York State Parks, Recreation & Historic Preservation**
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www.nysparks.com/shpo


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**From:** Weiss, Lorraine (PARKS)
**Sent:** Wednesday, March 29, 2017 12:27 PM
**To:** Howe, Kathy (PARKS)
**Subject:** Hempstead Lake State Park - Dam rehabilitation and Brooklyn Water Works Structures

**From:** CebadaMora, Gabriella (PARKS)
**Sent:** Wednesday, March 29, 2017 9:48 AM
**To:** Bonafide, John (PARKS); Weiss, Lorraine (PARKS)
**Cc:** Chicatelli, Nita (PARKS)
**Subject:** Hempstead Lake SP - Dam rehabilitation and Brooklyn Water Works Structures

Hi John, Lorraine

We are working on a project at Hempstead Lake State Park that involves rehabilitation work to the dams and gatehouses, as well as removal of some of the structures in the park related to the Brooklyn Water Works infrastructure. Some of these structures are old foundations in the woods, others are pipes and connecting boxes that are non-operational that have become uncovered.

I’ve attached a general project map and project description. Can you let us know your general thoughts on this project.

Much thanks!
Gaby

**Gabriella M. Cebada Mora**
Environmental Analyst 1

**New York State Parks, Recreation & Historic Preservation**
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## COLLABORATIVE DESIGN NARRATIVE

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The REBUILD BY DESIGN (RBD) program is focused on promoting projects that strengthen resilience throughout all aspects of the community including ecological, economic, and social elements. Ideally the built environment helps maintain the natural ecosystem which lessens vulnerability to disaster impacts and also provides collateral benefits for the community of which a significant portion is low to moderate income; the economy, public health, overall wellbeing and quality of life. Resilient projects feature diversity, redundancy, network connectivity, modularity, and adaptability. The work covered in this report is part of the larger "Living with The Bay (LWTB) project which is intended to provide resiliency throughout the Mill River Watershed and enhance the other aspects as outlined above.

The focus of this narrative is Hempstead Lake State Park and the variety of unique environments contained within. The following will outline the proposed improvements and amenities that reinforce the park as the main gateway for the greenway, anchor on which the entire greenway design relies, and how these improvements are aligned with the principals of Rebuild By Design and how critical they are to the overall success of the Living with The Bay (LWTB) project.

### Dams

This section focuses on improvements to the Mill River system located within Hempstead Lake State Park and bringing the flow control structures (dams) into compliance with current regulatory requirements. This work also includes design of pedestrian bridges that are part of the adjacent shared-use path system that increase access and connectivity throughout the Park. Hempstead Lake State Park falls within the upper portion of the Mill River Watershed and provides key opportunities to improve flood management, enhance the natural ecosystems, provide connectivity between diverse populations, enhance safety and provide emergency response facilities, while promoting environmental education and increased usage of the Park.

<u>Northwest Pond Dam/ Open Channels/ Bridges</u>

The NW Pond and dam were constructed in the 1960's around the same time as a large (96" diameter) drainage pipeline was installed through Hempstead to discharge stormwater runoff from the surrounding community into the NW Pond. The dam provided attenuation of peak stormwater flows from the 96" pipe, allowed sediments to settle out of the runoff, and also prevented floatables from reaching downstream into Hempstead Lake. As a result of the dam breach, flow through the NW Pond is uncontrolled bringing sediment and floatables into Hempstead Lake. Because of the breach, the ponds also lost their holding capacity.

As part of the dam investigations, hydrological modeling of this section of the Mill River was performed for both the existing dam breach condition and for the proposed replacement dam condition. The modeling indicated that having a dam in place at the NW Pond lessened the impacts to the larger Hempstead Lake Dam during a major storm event and would be desirable. Replacement of the NW Pond dam will maintain more water within the pond limits encouraging the growth of wetlands which in turn will provide filtering and enhanced water quality. The replacement of the dam will help attenuate peak flows from the upstream drainage collection systems allowing for better control of the overall watershed and flood mitigation. By reestablishing the depth in the pond area, the dam will allow sediment to be filtered out before reaching the downstream waters (especially after the "first flush"), thus enhancing and improving water quality downstream.

With the replacement of the dam, flows can be directed downstream of the dam through an open channel and culvert under the Southern State Parkway and into Hempstead Lake. A timber pedestrian bridge will be provided to carry a shared use path that encircles Hempstead Lake over this channel. Installation of the bridge will allow removal of existing twin 60" diameter pipes that currently limit flow through the channel (and also create the potential for an unplanned impoundment if blocked) while providing for uninterrupted access to the pedestrian pathway. Modeling indicated that the removal of the twin pipes would enhance the flow between the NW Pond and Hempstead Lake, which is an important aspect of the program goals. The pedestrian bridge will be designed to accommodate pedestrians, horses, maintenance vehicles, as well as other emergency vehicles thereby improving emergency access and response times.

A second pedestrian bridge will be constructed over the existing open channel located immediately upstream of the NE Pond and adjacent to Hempstead High School providing access (along with the proposed multi-use paths designed by others) to wetland areas and other portions of the Park that are currently underutilized, and difficult to access during emergencies. The bridge will be close to other wetland improvements (designed by others) in this area and will provide new opportunities to partner with schools and will provide students with new opportunities for environmental education and/or ecological stewardship. This bridge and (coupled with a second bridge to be located downstream over Schodack Brook) will be designed to the same standards noted above and will improve pedestrian connectivity, safety, emergency response and access while also protecting and enhancing the natural environment around it.

<u>Hempstead Lake Dam/ Gatehouses/ Pipe Arch</u>

The Hempstead Lake Dam, gatehouse and pipe arch were constructed in 1873 and are not in compliance with current NYSDEC regulations that require the spillway to pass the ½ Probable Maximum Flood (PMF) event. The dam's outlet-controls (currently not

functional) are housing in the gatehouse structure, that directs water flows through an attached brick pipe arch that extends from the dam into South Pond. This plan will replace all five of the sluice gates at the dam and provide new gate controls in the gatehouse. An operating plan will be developed to actively manage regular water flow in small and large storms events. The impacts of proper management will be realized both upstream on the entire Mill Hill River corridor and down to the bay. Additional repair work will be done to the interior of the brick pipe arch to improve flow conditions and structural defects. We are coordinating closely with the NYSDEC to achieve dam safety compliance related to the outlet capacity which is effected by the upstream and downstream conditions at the NW Pond Dam, South Pond Dam, and Smith Pond. Trees and vegetation will be removed from the dam as per NYSDEC requirements to ensure the dams integrity and to allow for proper ongoing inspections as required. Removal of the vegetation will also have a positive influence on the public, but opening up spectacular views of the park, lake and of the historic dam structure, as well as providing for a safe, open, and inviting environment and interpretive opportunities of these historic structures.

Installation of new outlet gates, inspection catwalk and water level monitoring equipment at the dam gatehouse will allow for better control of flows through the dam and Park. Flow-control is key to flood protection as well as maintenance of lake levels for recreational and ecological purposes. The proposed work at Hempstead Lake Dam is intended to be completed in concert with work at the NW/NE Ponds and South Pond, but is equally as important as a stand-alone project for overall protection of the watershed.

As historic structures, the gatehouse at Hempstead Lake dam and the inlet gatehouse at South Pond will both be restored with historical accuracy as much as possible. Aesthetic design will be balanced with security concerns and functionality as necessary. Interpretive signage about the history of the area will also be provided as appropriate

<u>South Pond Dam/ Outlet Weir</u>

The South Pond dam is not currently in compliance with NYSDEC dam safety requirements as there are numerous naturally growing trees located along both the upstream and downstream faces of the earthen embankment dam. As part of the project, trees and other vegetation will be removed, and additional fill may be applied to the crest to address settlement issues and to provide for a uniform slope. These areas will be seeded with native grasses that can be mowed seasonally to facilitate required safety inspections. In addition, vandalized stonework at the historic outlet weir will be restored to ensure the integrity of the outlet structure. Tree removals will open up views of South Pond from the adjacent roadway and Parklands.

In summary, the dam compliance work proposed throughout Hempstead Lake State Park is being progressed in accordance with NYSDEC requirements and in coordination with the overall Living with The Bay project to help improve flood management, water quality and ecological conditions throughout the Mill River Watershed. This project will also provide connections to the adjacent communities, encourage usage of the natural facilities in the Park, provide environmental education and interpretation opportunities, and enhance public safety and resiliency.

## Ponds

North Ponds

The North Ponds area contains two ponds referred to as the Northeast Pond and the Northwest Pond. The ponds are fed by flow from Mill Creek, groundwater, and from the stormwater drainage systems that outfall into the ponds and Mill Creek.

Pond Restoration and Stormwater Mitigation

Over time the watershed for the North Ponds has become more impervious and the flow into the pond more polluted. There is significant floatables deposits, sediment load and oil residue apparent near many of the outfalls. Water sampling showed levels of pollutants in the first flush volume. The high sediment load has filled the creek channel and the high velocity of the runoff entering the Mill Creek channel has resulted in significant erosion of the channel that is deposited into the ponds and surrounding area. This project seeks to mitigate the pollutant levels that enter the ponds and create wetlands to filter other pollutants from the runoff to improve the water quality entering Hempstead Lake and being carried further downstream into the bay.

RBD and LWTB Goals and Objectives

Following Hurricane Irene, when the Northwest Pond dam was breached, and Hurricane Sandy when the Mill Creek watershed saw significant flooding, the need to address the Mill Creek drainage system and other flood prone areas throughout the region was identified.

NYS developed the Hurricane Sandy Rebuilding Task Force and launched REBUILD BY DESIGN (RBD) a design competition that identified projects that promote resilience in the region with the goal to promote innovation in locally contextual solutions and implement selected proposals with funds dedicated to the effort. The RBD principles include: Coastal Environment- Cultural Resources, Coastal Environment-Environmental Concerns, Coastal Environment- Natural Resources, Demographic Trends, Economic Trends, Hazards-Climate Trends, Hazards – Flood Risk and Vulnerability, Hazards – Sea Level Rise, Hazards – Storm Risk, Infrastructure – Critical Infrastructure, Infrastructure – Housing, Land Surface – Land Cover, Land Surface – Topography, and Public Health.

The Mill Creek project that won the design competition is titled Living with the Bay (LWTB). LWTB identified work within the North Ponds to improve the removal of pollutants from the upper watersheds resulting in cleaner water entering Hempstead Lake and being carried through the Mill River system to the bay. NYSOPRHP is working to development an integrated design that meets the principles of the RBD, the concepts within the LWTB design and addresses the needs of the Park patrons now and into the future.

The following RBD principals and goals that will be achieved by implementation of the North Ponds Restoration and Stormwater Filtering aspects of the project include:

- Coastal Environment - Cultural Resources. The North Ponds project environmental and stormwater mitigation improvements will improve public open space in a high-density urban environment and adjacent to a public high school. These improvements will result in increased access to natural areas, educational opportunities and recreational facilities. and increase access to natural areas and recreational opportunities
- Coastal Environment - Environmental Concerns. The North Ponds project environmental and stormwater mitigation improvements will reduce the spread of contamination and waste products, promote a clean urban environment through cleaner storm runoff, and remove the accumulation of debris trash and floatable waste products from the park. These improvements will result in allowing for broader use of a public park area that is currently unusable by the community.
- Coastal Environment - Natural Resources. The North Ponds project environmental and stormwater mitigation improvements will improve degraded wetlands and upland areas by the removal of sediments and trash and debris, provide additional wetlands for stormwater filtering for pollutant removal of bacteria, nutrients and metals, improve operation of the storm drainage system that has been altered over time to reduce the sediment and trash collections aspects. The modifications to the drainage system will result in increased visibility in the north ponds area, additional trails and improved aesthetics. These improvements will result in an improved habitat for local wildlife and improved ecosystem function by increases pond depths and increasing wetland areas. Improvements will result in additional use space within the park which will provide increased opportunities for local business that are related to the park, contribute to the local economy and the area's quality of life, increase tourism through increased use of the park and provide additional outdoor recreation opportunities within the park.
- Hazards – Flood Risk and Vulnerability. The North Ponds project environmental and stormwater mitigation improvements will remove the heavy sediment and debris deposits in the North Ponds area and result in an improved system to capture debris and sediment in new components of the drainage system where they can be monitored, cleaned and removed on a regular basis. These

improvements will allow for the maintaining and operating of mitigation components at the entrance to the park, reducing in the buildup of materials throughout the site, and maintaining the pond and wetland environments.

- Hazards – Storm Risk. The North Ponds project environmental and stormwater mitigation improvements will stabilize the channel within the park resulting in a reduction in erosion and capture of sediments that are built-up and have reduced the system capacity.
- Land Surface – Land Cover. The North Ponds project environmental and stormwater mitigation improvements will result in the improvement of ecological processes by filtering stormwater through wetlands. These improvements will result in the reduction of pollutant migration as runoff passes through the system and will address a portion of the runoff from a high density residential area that currently provides little treatment of the runoff from the areas surfaces.

The LWTB program identified primary goals for the Mill River watershed and identified potential projects within the North Ponds that would result in the removal of pollutants from the upper watersheds resulting in cleaner water entering Hempstead Lake and being carried through the Mill River system to the bay. The Proposed North ponds projects that address the primary goals of the LWTB project include:

- Blueway – Create a clean and continuous water system. The North Ponds project environmental and stormwater mitigation improvements meets this objective by including components that collects the floatables and sediments entering the parks property to be collected using methods that will allow for future removal in a cost efficient manner, constructing new filtering wetlands to remove bacteria and nutrients and dredge the ponds to increase storage times for runoff.
- Greenway – Create a continuous route connected to neighborhoods. The North Ponds project environmental and stormwater mitigation improvements meets this objective by including components that provide additional trails and paths that increase circulation through the North Ponds area and increases the ability of residents to the north of the park to access the park and the trails.
- Park Quality – create a lively park with different atmospheres. The North Ponds project environmental and stormwater mitigation improvements meets this objective by including components that when implemented will increase visibility through the project area, enhance the natural environment and improve the aesthetics and views through the North Ponds site
- Social Connectivity – Develop projects that are linked to the community. The North Ponds project environmental and stormwater mitigation improvements meets this objective by including components allowing park user greater access to the area, the ability to view the improvements, and offer opportunities for education on the importance of the water system and the filtering components of the natural environment.

The North Ponds project environmental and stormwater mitigation improvements will address the following North Ponds objectives of the LWTB project including:

- Purifying – Improve the water quality of the runoff that enters surface waters and to support ecosystem restoration.
- Buffering - Increase buffering capacity of the precipitation runoff and slow down the surface drainage rate through increased filtering.
- Ecological Biotope – Create diverse habitats and restore the environmental characteristics and quality of the area.
- Attractive Landscape - Provide improvements that increase the aesthetic of the place.

**Education Center**

As the importance of global climate change increasingly impacts people around the world, it is more and more important to prepare everyday citizens and develop effective response strategies to more common extreme weather conditions. Education is an impactful way to increase community engagement and the ability of a community to prepare for, react and respond to extreme weather events. The Education Center and Greenway at Hempstead Lake State Park will be a new and unique hands on learning center about storm resiliency, environmental management and will provide education opportunities for the immediate community as well as the region regarding the principals of Rebuild By Design, the Mill River Corridor and the impacts of climate change and how the natural ecosystem plays a critical role in the environmental resiliency of the surrounding area. The greenway and trails will provide a physical connection linking the ecological network and the communities along the Mill River Corridor.

On a daily basis, the trails and greenway will be open to the public for recreational use (walking, jogging, biking, horseback riding, bird watching, etc.) providing connection points to the surrounding neighborhoods and an economical way for people to exercise, increasing health and well-being of its users, with attention to developing physical environmental connections to nearby underserved communities. The trails and greenway will also provide access to the ponds and lake for other types of recreation such as fishing and kayaking. The Education Center will provide a central focal point and core for the park with connections to the greenway, providing educational and community spaces connected to an overlook deck with views of Hempstead Lake, a point where permits and services can be administered, and park information explaining the critical messages of climate change impacts, community resiliency processes, environmental preservation, and local relevance. The Education Center will also provide essential facilities to help with building partnerships with local school districts to utilize the education space and wet lab for hands-on learning and activities, engaging young minds through activities that reflect their local surroundings and fosters stewardship. The education center will be focused primarily around the importance of parks and wetlands, specifically during extreme weather conditions. There will also be information about the Mill River Corridor system as a whole, local wildlife and history of the area.

Additionally, Hempstead Lake State Park has adopted the National Park Service's "Every-Kid-in-a Park" program which provides free entry for 4th grade students and their families to the park. The program encourages children at a critical development age to learn and explore about the importance of local and national parks and waters. Hempstead Lake State Park also participates in larger State Parks program that provides grants to Title 1 schools to reimburse them for bussing costs for field trips to State Park facilities.

The Education Center is also being designed to include space to provide for additional partnerships for organizations such as the Nassau County Law Enforcement Explorer Program that will use the Education Center for training space to promote and deliver their programs within the park. This volunteer program provides an opportunity for at risk young adults and many from low to moderate income areas to receive basic law enforcement training and to learn about career opportunities within law enforcement. In addition to training and education, volunteers participate in community service events throughout the year to encourage volunteerism and build stronger communities. The space necessary for this program also will serve as a center for local community outreach by the police, educating and positively engaging young people with officers through mentoring and education; further strengthening the connection to the community.

The Education Center building itself will be designed to reduce environmental demands, both in initial cost and lifecycle cost in a responsible fashion. Aside from the obvious benefits of lower operating costs of an environmentally conscious building, the building will be used to educate users about sustainable building practices and construction. The building will be designed with the following key features:

- Robust and sustainable exterior envelope optimized to suit local climate demands.
- Awareness of solar impacts (i.e. siting) and control (i.e. glazing) to reduce heating and cooling loads.
- LED lighting with occupancy sensing and daylight harvesting to reduce electrical usage.
- Photovoltaic roof panels to offset electricity energy usage.
- High-efficiency, low/no water plumbing fixtures.

In addition to these functions, the Education Center is also being designed to act as a "coordination center" during times of emergency, if necessary, and can be used for the following purposes:

- "Command Post" for local disaster response coordination either for agency staff or other agencies such as the NYS Park Police. The existing parking area (field 1) is also utilized by PSE&G for emergency response staging of equipment in advance of severe weather events. The Education Center will provide a location for PSE&G staff to coordinate equipment staging, enhancing their

emergency response to restore critical utilities and thereby help to promote economic resiliency in the community and region.

- The Education Center may also serve as an information center if needed, for local residents after an emergency  Parking is available in field 2 or access via the greenway that provides connection points to the surrounding neighborhoods and communities. The building will include a full building load emergency generator to provide resiliency and continued functionality during power outages.

In summary, the Education Center and Greenway will connect the adjacent neighborhoods and communities with the natural environment and promote environmental awareness, ecological and public health as well as promote the overall wellbeing and quality of life of the region by providing opportunities for recreation, education, interpretation and improved community relations related to preparedness for future storms as well as the environmental, social and economic resiliency and emergency services.

## Greenway and Waterfront Improvements

Hempstead Lake along the old Mill River corridor is a key component in the strategy needed to improve the water quality, decrease stormwater flooding, while incorporating environmental co-benefits such as water quality improvements, ecological restoration, and aquifer recharge, community and social, resiliency, education, recreation (Greenway Corridor) and quality of life.

The park enhancements and improvements will include new amenities; pedestrian lake interaction and accessibility; a new education and visitors to welcome the community and to educate the people on the history of the place and the important role it plays in the economy, health, and safety of the community; Schodack Brook Bridge crossing to allow users to now be able to traverse the entire park from north to south; bridle trail improvements; a new 50 car space area for regional commuters to park and enjoy the park and the Mill River Corridor; enhanced bird watching opportunities, through a newly designed and developed wetland that will also improve the water quality and storm water events;  interpretive and educational signage; connectivity to the high school, as well as gateways that will allow the public easy pedestrian access to and from all surrounding neighborhoods.

<u>Piers/Kayak Launch</u>

Floating piers and kayak launches will allow the public to have direct access to the middle of the River Corridor.  The Piers allow the user to be placed directly over the water to experience and see and feel the place. Kayak launch gives the public one more layer of interaction by allowing the use to float on top or the water and be physically connected.  In addition to the piers and launches, docks will be included for

the local community use for fishing, education piers, bird watching areas for locals (Audubon).

Gateways

The gateways will provide a direct, pedestrian access from the adjoining neighborhoods, a significant portion of which are low to moderate income communities into the Mill River Corridor and HSLP, where currently there are none. The gateways will open access into the neighborhoods providing more opportunities for adjoining neighbors to freely access the park. These gateways will also provide a sense of security within the park, by opening up views, providing additional access points for pedestrians as well as emergency vehicles.

Greenway

The greenway provides a unique opportunity to connect the public to an ecologically significant watershed corridor allows the public to walk the corridor and learn along the way about the river system through *educational* signage. Some of the positive impacts and results include:

- Environmental Benefits - Reduces environmental impacts- Ped access and Bikes, no cars mean, no fossil fuels mined, no air pollutants are generated, less maintenance is needed on roads,
- Improved Public Health (Collateral Benefit) - breathe cleaner air; walking and exercise improves the immune system and circulation, which means less lost workdays, increased productivity and less money spent on healthcare costs.
- Experience - People experience and learn about *nature through direct contact* and interpretative signage
- physiologically improvements - nature relaxes the body and reduce toxins
- improves the immune system - Walking through the corridor
- Mental health - improves with connecting with nature through exercise, experience, site, and sounds

Greenway Parking Lot

Upgrades to the parking lot will provides visitors, both locally and from the larger region additional parking so they can access the greenway and the existing and proposed park amenities. Resulting from the Greenway Trail, environmental interpretation and programming as well as other future community enhancement programs that may develop by providing a multi-purpose Education Center, the park anticipates an increase in visitation which necessitates this improvement. In addition, the entrances to the parking lot will also have direct access to/from the Long Island Railroad local stations and access from other public transportation.

Mill River Corridor Resiliency Program (GOSR):

# Hempstead Lake State Park

New York State Parks, Recreations and Historic Preservation

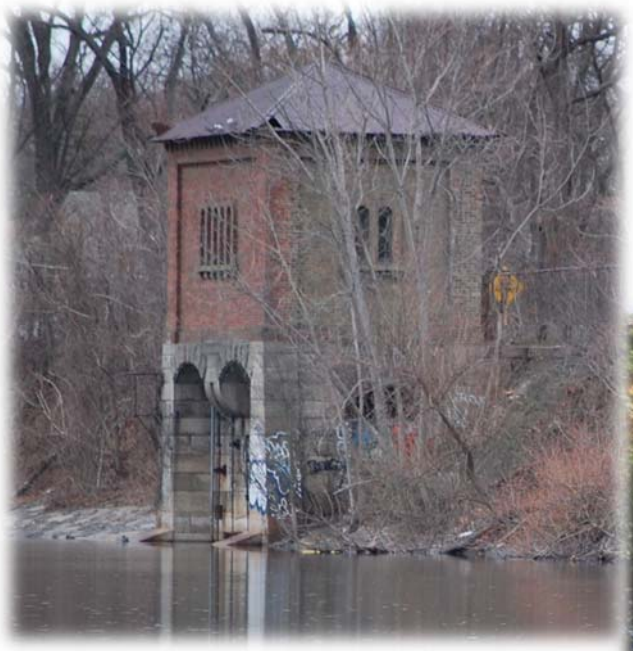
FEBRUARY 2017

H2M · LKB Consulting Engineers · Cashin Associates, P.C. Engineering · Planning · Construction Management · Gibney Design LA PC Landscape Architecture PC · Stantec

# HEMPSTEAD LAKE DAM & SOUTH POND INLET GATEHOUSES

# HEMPSTEAD LAKE STATE PARK

# EXISTING CONDITIONS AND PROPOSED ARCHITECTURAL CHANGES



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## 1. History of the Gatehouses

The Hempstead Lake Dam outlet gatehouse and South Pond inlet gatehouse are located in Hempstead Lake State Park in southwestern Nassau County. The Hempstead Lake Dam gatehouse serves as the outlet structure for Hempstead Lake, a manmade reservoir constructed in the 1870s as part of the backup water supply system for the City of Brooklyn. The reservoir was in service for about 20 years during which water volume supply issues were encountered. When the City of Brooklyn became a borough of New York City, the NYC water supply system was then used and the Hempstead Lake reservoir was no longer needed. In the early 1900s the abandoned reservoir and surrounding ponds were sold to New York State.

The South Pond inlet gatehouse is located at the downstream end of the 820ft brick pipe arch connecting Hempstead Lake with South Pond. The gatehouse building is similar in style but smaller than the upstream Hempstead Lake Dam outlet gatehouse.

As part of the Governor's Office of Storm Recover project, "Living with the Bay," the two gatehouses are to be rehabilitated. The gatehouses are in need of roof, window, door, and brick repairs.

**Photo 1: Location Map Historic Gatehouses**

## 2. Existing Conditions

The following photos represent the existing conditions of the Hempstead Lake Dam outlet gatehouse and the inlet gatehouse to South Pond, both located in Hempstead Lake State Park.

**Photo 2: East and North elevation Hempstead Lake gatehouse with gates on the north elevation**

**Photo 3: South elevation Hempstead Lake Dam gatehouse with bricked up windows**

**Photo 4: Hempstead Lake Dam gatehouse existing gates**

**Photos 5 and 6: Hempstead Lake Dam gatehouse windows**

**Photo 7: Interior of Hempstead Lake Dam gatehouse**

**Photo 8: Hempstead Lake Dam gatehouse non-functioning gate operators**

**Photo 9: Hempstead Lake Dam gatehouse interior wood door**

**Photo 10: Hempstead Lake Dam gatehouse exterior steel door**

**Photo 11: Exterior of Hempstead Lake Dam gatehouse roof**

**Photo 12: Interior of Hempstead Lake Dam gatehouse roof**

**Photo 13: Interior framing and roof of Hempstead Lake Dam gatehouse**

**Photo 14: Remnants of Hempstead Lake dam gatehouse exterior catwalk**

**Photo 15: Remnants of Hempstead Lake dam gatehouse exterior catwalk**

**Photo 16: South Pond inlet gatehouse exterior**

**Photo 17: South Pond inlet gatehouse roof**

**Photo 18: South Pond inlet gatehouse door opening with wood door slab remnants**

## 3. Proposed options of rehabilitaton for the gatehouses.

**Windows**

The Hempstead Lake Dam gatehouse has windows on all four elevations of the building. Currently the windows on the south elevation of the building facing Lakeside Drive have been closed with brick (see photos 3 & 6). The window openings on the remaining three elevations of the buildings are currently open with remnants of wood framing and bird mesh present at some of the locations (see photos 5 & 7). Treatments for the windows are necessary to prevent future vandalism and unauthorized access to the gatehouse once new sluice gates and gate operators are installed in the building. The window treatments must also prevent birds from entering the gatehouse, as nesting and droppings become a health hazard.

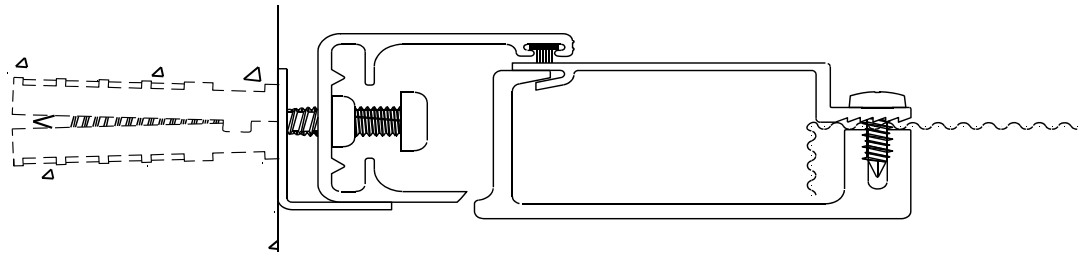
Two options are being considered for treatment of the existing window locations of the Hempstead Lake Gatehouse. Option 1 is to restore all window openings by first removing brick work and/or wooden framing and mesh. Then new glazed panel windows (powder or vinyl coated,) would be installed at existing window locations along with exterior vandal proof mesh to keep the gatehouse and new gate controls secure as well as prevent damage to the new glazed windows. Option 2 would be to use a heavy duty mesh/bar grid within a steel frame without glazing to keep the building secure but allow more ventilation. The glazed window frame or mesh/bar combination would require anchoring to the existing brick walls and potentially the stone sill below each window. A detail of the anchoring is shown on the next page.

The South Pond inlet gatehouse currently has two window openings, one on the south elevation and one on the west elevation (see photo 16). There are no treatments proposed for these window openings. There is nothing to secure in this building as the only function of the gatehouse is to serve as the outlet of the pipe arch. The outlet of the gatehouse will remain open, so preventing birds from entering through the windows will not prevent them from gaining access.

**Option 1: Exterior Mesh/Interior Glazing**

**Option 2: Mesh and Bars**

**Potential applications for Hempstead Lake Dam gatehouse window locations**



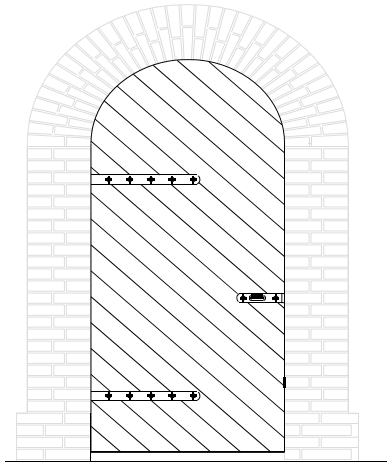
Drawing not to scale

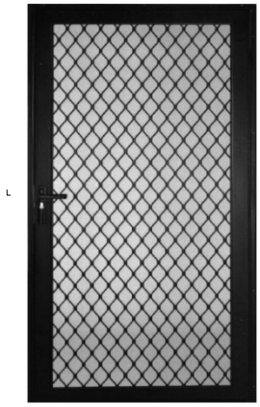
**Potential anchoring system for window frame installations**

**Door(s)**

The Hempstead Lake Dam gatehouse currently has two doors at the entrance. The interior wood door (see photo 9,) and the exterior steel door (see photo 10,) are both in poor condition. There are three options for the Hempstead Lake Dam gatehouse door, all of which would involve removing the two existing doors and replacing the existing stone threshold. The preferred option is to install a new steel door and frame anchored to the brick doorway opening of the building. This new etched steel door would be similar in appearance to the existing interior wood door (see sketch below). The door would open-out instead of the current open-in configuration. This would increase the security of the door and lessen the likelihood of unauthorized persons pushing in the door. If not permissible to anchor a new frame to the brick walls of the gatehouse, option 2 would be to reuse the existing interior hinges, replace the interior wood door with an etched steel door similar in appearance to the existing wood door. The door would open-in same as the current interior door configuration. Option 3 for the Hempstead Lake Dam gatehouse door is to replace the existing interior wood door with a new wood door which would require also installing a new metal security door (see sketch below).

The South Pond inlet gatehouse currently has the remnants of a wood door on the east elevation of the building (see photo 18). There is currently no use for this entrance. The proposed plan is to replace the deteriorated wood door with an etched steel door fixed in the opening (see sketch below). The door would not be operational as there is no need to gain access to this building. The fixed door would be in place as a deterrent for unauthorized persons attempting to climb into the building. The door location poses a safety issue as the opening is approximately 3ft above the interior and exterior ground elevations of the building.





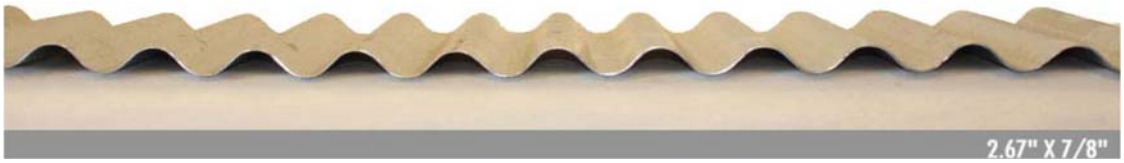
**Proposed Etched Steel Door** **Security door if wood door is required**

**Roof**

The existing roof at the Hempstead Lake Dam gatehouse is deteriorated with several openings allowing rain water to enter the building (see photos 11-13). The existing iron framing is in remarkable condition for a structure over 140 years old.

The existing roof at the South Pond inlet gatehouse has more deterioration than the Hempstead Lake Dam gatehouse roof (see photo 17). There are several large areas of deterioration which have created large openings in the roof and if the roof panels are allowed to continue to deteriorate and finally separate from the building, a potentially very hazardous condition would be created. As with the Hempstead Lake Dam gatehouse the iron framing is in good condition.

A new steel roof is proposed at both the Hempstead Lake Dam outlet gatehouse and the South Pond inlet gatehouse, similar in appearance to the existing roofs. The existing iron framing will be maintained and supplemented by additional steel members. The existing framing will be cleaned and painted to protect against future corrosion. New galvanized steel purlins will be installed to attach the new sinewave shaped roof panels maintaining the look of the existing roofs. The color of the new roofs would be similar to the existing color. A detail of the sinewave style roof panel is provided below.




**Proposed steel roof material sinewave shape**

**Lighting/Electric**

There is no existing electric service at either the Hempstead Lake Dam gatehouse or the South Pond inlet gatehouse. Electric service will be added to the Hempstead Lake gatehouse for an indoor light and outdoor security lighting. The new electric service would also be used to power the proposed water level monitoring equipment as well as a closed circuit television system for the gates which would be viewable from the new Hempstead Lake Education and Resiliency Center. The service would be trenched to the gatehouse from the highway lighting located in the vicinity of the gatehouse. The service would then enter the gatehouse through a hole drilled in the brick wall. The conduit runs inside the gatehouse would then be attached with brackets to the brick walls of the gatehouse, similar to the photo below.

No electric service for the South Pond inlet gatehouse is proposed in this project.

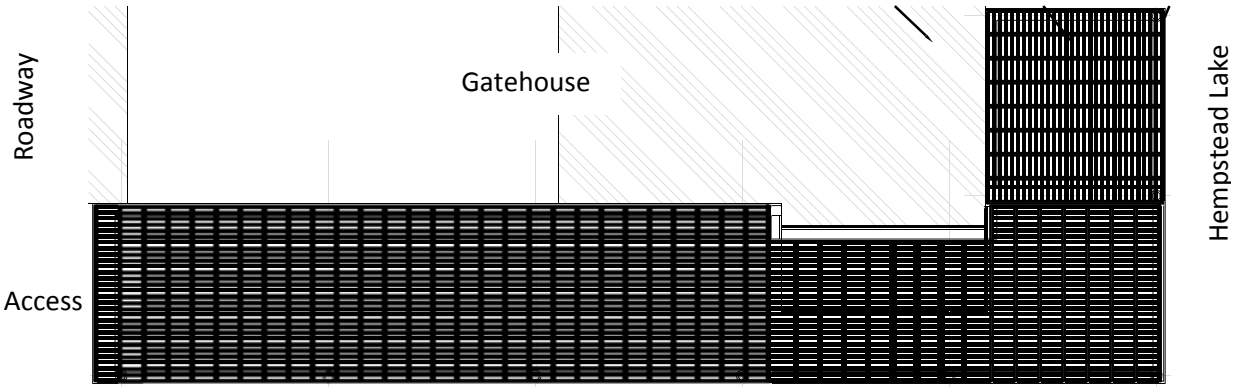
**Proposed method of running conduit in the gatehouse**

**Catwalk**

The remnants of the exterior catwalk is visible on the east and north sides of the Hempstead Lake Dam gatehouse (see photos 14-15). The hangers and railings are iron and it is believed the no longer present floor of the catwalk was wood planking. The catwalk served the purpose of viewing the exterior components of the gatehouse sluice gates which will also be replaced as part of this rehabilitation project.

The proposal for the catwalk is to reuse the existing hangers if structurally sound, replace the existing deteriorated railings with steel railings designed to comply with current safety standards, and install an open steel grate floor for the catwalk. If the existing steel hangers are found to be insufficient, an entirely new support system will be installed. The new support system would be anchored to the exterior of the brick and stone gatehouse wall. The catwalk will be accessed from the exterior of the gatehouse near the roadway, with a fold up ladder system to deter unauthorized persons from accessing the catwalk. The grating and proposed catwalk configuration are shown below.

**Proposed open grating for exterior catwalk**




**Proposed exterior catwalk east side of Hempstead Lake dam gatehouse**

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation and Historic Preservation

**ANDREW M. CUOMO**
Governor

**ROSE HARVEY**
Commissioner

June 21, 2017

Nicole Garofolo
Environmental Analyst
Belmont Lake State Park
P.O. Box 247
Babylon, NY 11702
(via email)

Re: GOSR/OPRHP
Hempstead Lake State Park/Rehabilitations
Hempstead Lake State Park, Hempstead & Rockville Center, Nassau County
17PR03587

Dear Ms. Garofolo:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources.

Based on the submitted materials the SHPO has determined that Hempstead Lake State Park is eligible for inclusion in the New York State and National Registers of Historic Places (see attachment). This eligibility notes the importance of the various 19th and 20th century water system engineering features as contributing to the significance of the park.

We have found that the proposed work, as described and outlined in the project submission materials, will have No Adverse Impact on the National Register eligible park.

If you should have questing regarding these comments or if I can be of any further assistance I can be reached at john.bonafide@parks.ny.gov or (518) 268-2166.

Sincerely,

John A. Bonafide
Director,
Technical Preservation Services Bureau
Agency Historic Preservation Officer

cc: Ron Rausch
Gabriella CebadaMora

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

# Resource Evaluation

**Date:** 06/05/2017

**Staff:** Kathy Howe

**USN Number:** 05930.000133

**Name:** Hempstead Lake State Park

**Location:**

## Resource Status:

1. **Determination:** Eligible
2. **Contributing:**

## Criteria for Inclusion in the National Register:

**A.** [X] Associated with events that have made a significant contribution to the broad patterns in our history.

**B.** [ ] Associated with the lives of persons significant in our past.

**C.** [X] Embodies the distinctive characteristics of a type, period or method of construction; or represents the work of a master; or posses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.

**D.** [ ] Have yielded, or may be likely to yield information important in prehistory or history.

## Summary Statement:

Hempstead Lake State Park is a 900-acre tract in the Town of West Hempstead in southwestern Nassau County. The Southern State Parkway bisects the park with Hempstead Lake and South Pond to the south and Northwest and Northeast Ponds to the north of the parkway. Since its opening in 1925, the park was developed with tennis courts; playgrounds; playing fields; bridle trails; hiking and biking trails; shaded picnic areas with pavilions and comfort stations; a superintendent's house; a park police headquarters building; and a carousel. One of Long Island's oldest state parks, Hempstead Lake meets Criterion A in the areas of recreation, conservation, and park planning. The park's primary significance derives from its relation to the overall state park system on Long Island. The Long Island State Park Region was established in 1924 as part of New York's comprehensive state park and parkway plan. Developed on property once held by the City of Brooklyn as a backup water supply, the park includes the largest body of freshwater on Long Island. The establishment of this park played a crucial role in the history of the Long Island state park system because it helped to determine the route of the Southern State Parkway. Its early development and proximity to the New York metropolitan area also demonstrated both the need for state parks and their benefits, helping to justify the extensive island-wide system proposed by Robert Moses.

While the historic park architecture has not been fully evaluated, the carousel meets Criterion C in the area of design for its high quality artistry and craftsmanship while the Hempstead Lake Dam and South Pond Inlet Gatehouses (ca. 1874) are significant under this same criterion as examples of Romanesque Revival public works architecture. The property has two distinct periods of significance. The first period represents the Brooklyn City Water Works era when the "Hempstead Storage Reservoir" (today's Hempstead Lake) was created ca. 1874 and extends to the annexation of Brooklyn by the City of New York in 1898. After the consolidation of NYC this reservoir was abandoned. The second period represents the establishment of the park in 1925 up to its development into the mid-1960s.

A comprehensive plan for a Long Island park region first appeared in the revised and expanded state park plan of 1924, and a full description of the plan was submitted to the State Council of Parks (SCP) in May 1925. After the park plan was approved in 1924 Robert Moses was elected chair of the State Council of Parks and appointed president of the Long Island State Park Commission (LISPC). (Kathleen LaFrank, 2009)

The Long Island park plan was ambitious in scope. It was based on the specific geography of the region, a long narrow island with water on three sides, and designed to provide the most efficient public access to its specific scenic attractions. Like the rest of the New York State park system, the Long Island plan was premised on the belief that most twentieth-century patrons would travel to parks in their own cars, and it was conceived as a linear system connecting one great urban population at the west end with a series of parks at graduated distances from the metropolis. The major components of the system were two parallel parkways (Northern and Southern State Parkways) running east-west though the center of the island. (LaFrank, 2009)

Moses's discovery of an east-west line of unused New York City watershed properties fixed the route of the Southern State Parkway. These large parcels, a total of 3,500 acres dispersed north and south of Merrick Road and the Long Island Railroad, had been purchased by the then city of Brooklyn in 1872 as a potential water supply. By the early twentieth century, the Long Island property was no longer needed for its original purpose. The water supply tracts were generally swampy in character, characterized by streams, swamps, waterways, lakes, and reservoirs, and acquiring these parcels provided excellent opportunities to create parks with facilities for water recreation. (LaFrank, 2009)

The central feature of Hempstead Lake State Park is Hempstead Lake, first proposed in early 1870s to supply water to the City of Brooklyn. The Mill River, also known as Hempstead Creek was dammed to form the 167-acre reservoir. Following the annexation of Brooklyn by New York City in 1898, the reservoir's use as a source of water declined. The Hempstead Lake Dam gatehouse serves as the outlet structure for the manmade reservoir. The brick structure rests on a stone ashlar base with segmental arch gates; round-arched window openings above; and a pyramidal roof. The South Pond inlet gatehouse is a square-plan brick structure with a segmental arched opening at the base; single round-arched windows above; brick corbelling; and a pyramidal roof.

In 1925, the route of Southern State Parkway was laid through the reservoir's grounds, and the property was designated as a state park. The highway originally looped around Hempstead Lake's southern shore between exits 18 and 19. In 1947, an earthen dam was laid across the northern third of Lake Hempstead, straightening the route of the parkway across the lake. A decade later, Peninsula Boulevard was extended along the eastern side of the park partially reusing the parkway's old route.
The reconfiguration of Southern State Parkway created two lakes from the reservoir's northern third: Northeast Pond and Northwest Pond. Excess water exiting Hempstead Lake continues into McDonald Pond and South Pond before leaving the park.

Of special note in the park is hard-carved wooden carousel donated by August Heckscher (1848-1941), an industrialist, philanthropist, and park benefactor with a special interest in playgrounds. Although the Long Island State Park Commission's annual report for 1929 noted that the carousel had been erected in the spring of that year, research to date has not revealed the carousel's original location or how it came into Heckscher's possession. This masterpiece of hand-carved artistry was made by M.C. Illions and Sons, among the most talented and innovative carousel makers working during America's "golden age of carousels." The Hempstead Lake carousel is a "Portable Monarch II," a smaller model designed to be easily moved. It carries thirty-six horses, arranged three abreast, and two chariots.

Some of the ca. 1930s era park buildings were designed in the Colonial Revival style including the frame superintendent's residence; a frame building for offices and park police near the tennis courts; and a frame comfort station. NOTE: An updated historic resources survey of the buildings, structures, and landscape features is needed as the park was last surveyed nearly 40 years ago.