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Hayduk Engineering has been listed by Engineering News Record as one of the top 100 Design Firms in NY/NJ for the second year in a row.

Coming to Fruition: BA Smith Pond Rehabilitation, Rockville Centre, NY (Part 3 and Final)

► This is the final piece in our brief series about our involvement in the Living with the Bay Program.

Smith Pond is a 22-acre freshwater pond located just north of Sunrise Highway in the Village of Rockville Centre, NY. The pond is associated with Morgan Days Park and is owned and managed by the Village of Rockville Centre. The pond has two inlets, one to the northeast coming from Hempstead Lake State Park and the other on the northwestern side which originates in Garden City.









Coming to Fruition continued

Fun Fact:

Smith Pond was originally named "DeMott's Pond" after the local DeMott's Mill that was located on the pond. Demott's Pond is reportedly the first location where blood was shed as part of the American Revolutionary War on Long Island. A loyalist was reportedly hit with a musket ball at this location in June 1776.

The pond receives both flow and nutrient loads for the entire watershed. It is also a unique location as it is the connecting water body between the upper freshwater system and lower tidal and saltwater system.

The existing pond water surface elevation is controlled by a weir which discharges downstream flow into a channel and a series of culverts that run underneath Merrick Road and NY Route 27 Sunrise Highway which feed the Mill River. This entire region was heavily impacted by Superstorm Sandy in 2012.

In an effort to address flood/storm resiliency issues, improve the ecology of this ecosystem, and improve user access to the pond for recreation, several improvements were specified as part of this \$12 million GOSR project, including:

• Removal of invasive species and replacement with native plants on the shores of the pond.

- Improvements to existing pathways and overlooks and construction of a new greenway paralleling the pond.
- Connection to the Mill River Greenway.
- Construction of a fish ladder.
- Construction of 2 new flood walls, one along the eastern shore and one on the western shore of the pond.
- Construction of improvements to the weir.
- Drainage improvements, including the replacement of existing asphalt pavement parking lots with porous pavement and flood gates.

Hayduk Engineering has been working closely with the team at WSP (formerly Louis Berger) on this project and has been involved in several facets of both the engineering design and construction supervision. In the initial design stages, HE retained the services of Mid-Atlantic Engineering Partners and Island Structures Engineering (ISE) to perform diving inspections and analysis of the existing timber sheet pile weir and concrete weir cap. The evaluation resulted in the recommendation of improvements to the timber sheet piling. The HE/ISE team designed a reinforced concrete encasement system that is expected to extend the lifespan of the weir for decades. Hayduk Engineering evaluated the condition of the existing timber bulkheads surrounding the weir and provided the engineering design of the replacement of the failing bulkheads with new Cast-in-Place (CIP) concrete bulkheads. The new CIP bulkheads include the installation of steel H-piles and steel reinforcing, expansion joints and water stops. The new bulkheads serve to retain the soil behind the walls and tie into the weir, the existing culvert headwalls, and the new fish ladder.

Hayduk Engineering was also responsible for the electrical engineering design of the new trailway bollard-style lighting system and various other electrical improvements, as well as the conduits and pullboxes for a future closed circuit television security system to be installed at a later date by the Village of Rockville Centre.

The project is currently in the construction phase and is projected to be completed this year. HE is performing engineering during construction services, including review of submittals/shop drawings, and periodic site visits/inspections for the duration of construction.





PRESERVING OUR INFRASTRUCTURE: *BIENNIAL INSPECTION SERVICES*

► The national bridge inspection program started over 50 years ago, in 1971. The program was developed in response to the collapse of the Silver Bridge over the Ohio River between West Virginia and Ohio in 1967 which killed 46 people. The Silver Bridge was a steel suspension bridge built in 1928, only 39 years old at the time of collapse. The bridge was constructed using steel eyebar suspension chains, which were common for the time. This technology has since been replaced by the more modern suspension cables that we see today on bridges like the Robert F. Kennedy Bridge and the Throgs Neck Bridge.

Analysis showed that the collapse was caused by a confluence of issues, including deterioration of a single steel eyebar in the suspension chain combined with the increased vehicular live loads applied





Preserving Our Infrastructure continued

to the bridge which were not anticipated by the original design engineer, and poor maintenance of the bridge. The weight of the vehicles driving on the bridge and the volume of traffic traveling over the bridge in 1928 was far less than what was experienced in 1967 at the time of collapse.

Prior to this tragic event, the exact number of highway bridges in the United States was unknown and there was no systematic bridge inspection program in place to monitor the condition of existing bridges. In the Federal-aid Highway Act of 1968, Congress directed the Secretary of Transportation to establish a national standard for the proper safety inspection of bridges in conjunction with a program to train employees to carry out the program. As a result, the National Bridge Inspection Standard (NBIS) was developed, along with a guidance document and training program.

The NBIS requires safety inspections to occur at least once every 2 years (biennial) for highway bridges that exceed 20 feet in total length located on public roads. However, with the express approval of the Federal Highway Administration (FHWA), some bridges can inspected at intervals be greater than 24 months. Newly constructed bridges may be inspected more frequently, however. Approximately 83% of bridges are inspected every 24 months, 12% are inspected annually, and 5% are inspected on a 48 month basis.

biennial inspection The program work includes the field assessment and inventory of superstructures, substructures, and foundations of bridges and tunnels utilizing the NBIS regulations and preparing final reports providing commentary, photographs, and American Association of State Highway and Transportation Officials (AASHTO) element ratings for each structural member. Prior

Preserving Our Infrastructure continued

to the field inspection task, the teammustreview pastinspection reports, obtain permits from contiguous agencies, prepare site specific Health and Safety Plans (HASPs) and schedule specialized personnel and equipment to perform the work.

Hayduk Engineering has been involved in the biennial inspection of several bridges and tunnels in the New York City metro area over the past few years as part of teams with other consultants, including the Robert F. Kennedy Bridge, Gov. Mario M. Cuomo Bridge, Henry Hudson Bridge, Bronx-Whitestone Bridge, Marine Parkway Bridge, Park Avenue Viaduct, Cross Bay Veterans Memorial Bridge, Queens-Midtown Tunnel, and the Hugh L. Carey Tunnel. This year we will be performing inspections of the Verrazano-Narrows Bridge, the Gov. Mario M. Cuomo Bridge (for the second time), Grand Central Terminal Tunnel, and several bridges on the New York State Thruway in the New York Division. In addition, we will be performing structural inspections of retaining walls throughout Region 11 for the New York State Department of Transportation along with HNTB.

OTHER COMPANY NEWS

► WE'RE HIRING!

Hayduk Engineering is seeking to fill a limited number of key management-level and senior engineer positions in our Transportation and Wastewater Engineering Divisions, as well as mid-level civil engineering positions and bridge inspection positions. Please contact Stephen A. Hayduk, P.E. at sah@haydukengineering.com for more information.

NEW HIRES



Megan Richards Assistant Office Engineer



Nicole Kaiser, I.E. Wastewater Staff Engineer

RECENT CONTRACT DESIGNATIONS

PRIME

Suffolk Regional Off Track Betting (OTB) Jake's 58 Expansion – Site/civil engineering services

PRIME

La Quinta Hotel Bohemia, Sewage Treatment Plant Engineer of Record Services – Engineer of record services, wastewater engineering services.

PRIME

Autozone Store, Coram – Site/civil engineering services.

SUB

PANYNJ Overhead Sign Structure Design – Highway engineering services.

SUВ

NYSOGS Nathan Kline Imaging Bay Renovation – Site/civil engineering services.

S U B

NYSDOT R11 When and Where Steel Bridge Repairs – Construction inspection services.