TECHNICAL SUMMARY

UPPER LAKE DIADROMOUS FISHERIES RESTORATION
BROOKHAVEN, NEW YORK

MMI #4791-01-5

May 2013

Prepared for:

Town of Brookhaven
One Independence Hill
Farmingville, New York 11738

Prepared by:

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MILONE & MACBROOM®

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1.0 INTRODUCTION

Milone & MacBroom, Inc. (MMI) has been retained by the Town of Brookhaven to provide engineering design and permitting services for Upper Lake Dam.

The goal of the project is to restore and improve the ecosystem and fisheries of the Carmans River. The Carmans River is one of only four state-designated Wild, Scenic, and Recreational rivers within the state of New York. The river contains state-designated significant coastal fish and wildlife habitat, which includes Upper and Lower Lakes in Yaphank. It is one of a few streams on Long Island that supports concentrations of sea-run brown trout and wild brook trout.

The Upper Lake Dam is located at the downstream end of Upper Lake on the Carmans River. The dam blocks diadromous fish passage to three river miles of the upper reaches of the Carmans River. The dam has been in the current location since the 1740s. The last spillway improvements were conducted in 1932. The dam is rated low hazard according to the New York Department of Environmental Conservation (NYDEC) Inventory of Dams. Hydraulic analysis of the downstream culvert under Mill Road indicates that the culvert has the capacity to pass the 100-year flow.

The Town of Brookhaven proposes to perform spillway improvements and construct a fish passage facility to restore and improve the ecosystem and fisheries of the Carmans River in Brookhaven, New York.

In accordance with the South Shore Estuary Reserve Comprehensive Management Plan and based upon guidance from the Diadromous Fish Work Group (CMP, 2001), alewife and American eel have been identified as priority species due to their historic presence within the tributaries of the reserve including the Carmans River. This project will allow diadromous fish to use historic habitat of the Carmans River. Species that will additionally benefit from the increased habitat connectivity are alewife, blueback herring, brook trout, brown trout, and American eel.

2.0 EXISTING CONDITIONS

2.1 Carmans River Watercourse and Watershed

The Carmans River is well recognized as a significant resource on Long Island. At 10 miles, it is the second longest river on Long Island. The river is groundwater generated; it is freshwater for the first eight miles and becomes estuary for the last two. The lower reaches flow through the Wertheim National Wildlife Refuge, whose main purpose is to protect diverse species of waterfowl.

The Carmans River is a New York state-designated Wild and Scenic River. The river system is subdivided into five corridor sections designated under either a scenic river or recreational river category. Upper Lake is located within the recreational section of the Carmans River corridor. The Upper Lake Dam is located at the downstream end of Upper Lake within a municipal park with extensive public access and use.

The contributing watershed area to the Carmans River is a direct product of the geologic history of Long Island. As is well known, Long Island is comprised of two terminal end moraines interspersed with glacial deposits and glacial outwash plains. The unconsolidated and generally very porous materials that overlay the deep bedrock on Long Island determine the groundwater hydrologic units. The fresh groundwater table is supported by infiltration during normal flow events and fluctuates based on precipitation recharge.

Precipitation on Long Island Sound follows one of three primary paths – direct runoff (primarily as stream flow), evapotranspiration, and infiltration. Under normal conditions, less than 5% of stream flow is from runoff, with the remainder being base flow as seepage from the groundwater table. Thus, during normal flow conditions, the contributing watershed area is generally consistent with the contributing groundwater area. During high precipitation events, however, the contributing watershed area is determined by runoff from the topographic watershed, which

is considerably larger than the groundwater contributing area. For a given storm event, stream flow will be determined by a combination of direct surface runoff complemented by base flow from infiltration. The degree of each contributing element is determined by a complicated mixture of antecedent moisture condition with the watershed, location of the precipitation event, and intensity of precipitation, among others.

The Carmans River groundwater contributing watershed area was recently reassessed with the purpose of developing management options within the watershed for protection of water quality. The groundwater contributing area for the Carmans River watershed was determined to be 17.9 square miles. For comparison, the topographic watershed area was previously documented by the United States Geological Survey (USGS) as 73.1 square miles.

Upstream of the Upper Lake, the Carmans River is classified by the New York State Department of Environmental Conservation (NYS DEC) as B(T), meaning that the resource is best used for recreation and may support a trout population. Downstream of Upper Lake, the Carmans River is classified as C(TS), meaning that the resource is waters supporting fisheries and suitable for noncontact activities and may support a trout population and spawning.

The Upper Lake Dam is located in a Federal Emergency Management Agency (FEMA) designated Special Flood Hazard Zone A. Depths and base flood elevations are not defined for FEMA A zones as they have not been determined through detailed analyses.

2.2 Upper Lake Dam

The Upper Lake Dam is an earthen embankment dam that consists of an earth embankment, spillway, and a low-level outlet. A detailed description of the dam can be found in the Dam Assessment Report, included as Attachment E. The following is a summary description of the dam.

The Upper Lake Dam is a 250-foot-long, 8.5-foot-high earthen embankment dam that consists of an earth embankment, spillway, and a low-level outlet. The earthen embankment is separated into two embankments by the spillway channel. The right embankment is a low earth berm reinforced with vertical concrete bulkheads that extend 30 feet to the west. The left embankment is earth reinforced with wooden bulkhead that extends 200 feet to the east.

The Upper Lake spillway is a 7.5-foot-wide concrete ogee crest spillway with a concrete apron. The crest elevation is 36.4 feet 88 (NAVD88). The concrete bulkhead crest elevation is irregular, generally at elevation 38.6 feet, while the wooden bulkhead is slightly lower at an average of 38.1 feet NAVD88. The adjacent Millhouse Inn restaurant parking lot is at elevation 38.0 feet NAVD88.

The downstream channel is boulder and cobble immediately downstream of the spillway, transitioning to gravel and sandy substrate. The normal pool surface area and impoundment volume of Upper Lake were estimated as 26 acres and 58 acre-feet, respectively.

The Upper Lake Dam has been previously classified as a Class A Low Hazard dam, as defined by 6 NYCRR Subpart 673.5(b). The most likely mode of failure of the Upper Lake Dam is failure of the spillway and subsequent embankment erosion.

A commercial area is located immediately downstream of the dam, across Yaphank Middle Island Road. Downstream of the commercial area, the potential inundation area consists mostly of undeveloped wooded areas extending to Lower Lake. The majority of the flood wave associated with failure of the Upper Lake Dam would be attenuated by the undeveloped area between the Upper Lake Dam and the Lower Lake Dam.

Under current conditions, flood flows travel through the adjacent Millhouse Inn parking lot before reentering the Carmans River channel downstream of the spillway. Failure of the dam due to spillway overtopping would cause nuisance flooding of the adjacent parking lot, the park, and Mill Road.

2.3 Hydrology

The USGS maintains stream gauge 01305000 on the Carmans River. The gauge is located at the railroad crossing in Southaven County Park and has a drainage area at the gauge of 17.9 square miles. This replaces the historically reported drainage area at the gauge of 73.1 square miles. The gauge has a 67-year period of record, from 1943-2010.

The 100-year frequency flood was calculated based on peak flow gauge data as 172 cubic feet per second (cfs) at the USGS gauge. The U.S. Army Corps of Engineers (USACE) *Statistical Software Package* (HEC-SSP) was used to perform a statistical analysis of gauge data. The method is based on Bulletin 17B, "Guidelines for Determining Flood Flow Frequency" (1982), which recommends a Log Pearson Type III distribution as a base method for flood flow frequency studies. Gauge data was scaled to the project site using a drainage area ratio transformation. Based on the contributing groundwater area, the watershed area at the gauge is 16.7 square miles; watershed area at Upper Lake is 6.8 square miles, for a ratio of 0.41. Based on the topographic watershed area, the watershed area at the gauge is 73.1 square miles; watershed area at Upper Lake is 69.3 square miles, for a ratio of 0.94.

Flow duration curves were developed for analysis of fish passage facilities based on gauged average daily flow records. On Long Island, the upstream migration of alewives typically begins in March when water temperatures reach 8°C and continues through the month of May. To bracket the full range of flows during the migration period, flow duration curves were developed for the combined months of March, April, and May. Flow duration data were scaled to the project site using a drainage area ratio transformation. The 100-year design flow based on a ratio of historically documented topographic watershed areas is 169 cfs. The 100-year design flow based on the ratio of groundwater contributing area is 70 cfs. The larger value of 169 cfs is listed as the design flow, with recognition that this value may be highly conservative.

Flow duration data are daily mean flow values measured over a specified time interval that have been exceeded various percentages of the time; they are commonly used to statistically characterize stream flow. For example, a 5% exceedance probability represents a high flow that has been exceeded only 5% of all days of the flow record. Fish passage concepts were analyzed over the range of the 5% to 95% flow. Table 2-1 provides design flows developed from the gauge data for Upper Lake.

TABLE 2-1
Upper Lake Design Flows

Design Flow	Discharge (cfs)
100-year	169
5%	38
50%	26
95%	16

2.4 Wetlands Characterization

Wetland delineation and ecological field surveys were completed by MMI for the project reach in July 2012 by a certified soil and professional wetland scientist. No hydric wetlands were located within the proposed project limit. The ordinary high water (OHW) mark has been identified as the jurisdictional limit within the project boundary. The OHW mark is graphically depicted on the included Sheet EX-1 of the project plans. Refer to the attached Soil Scientist's Report included as Attachment F for a more detailed discussion of site wetlands.

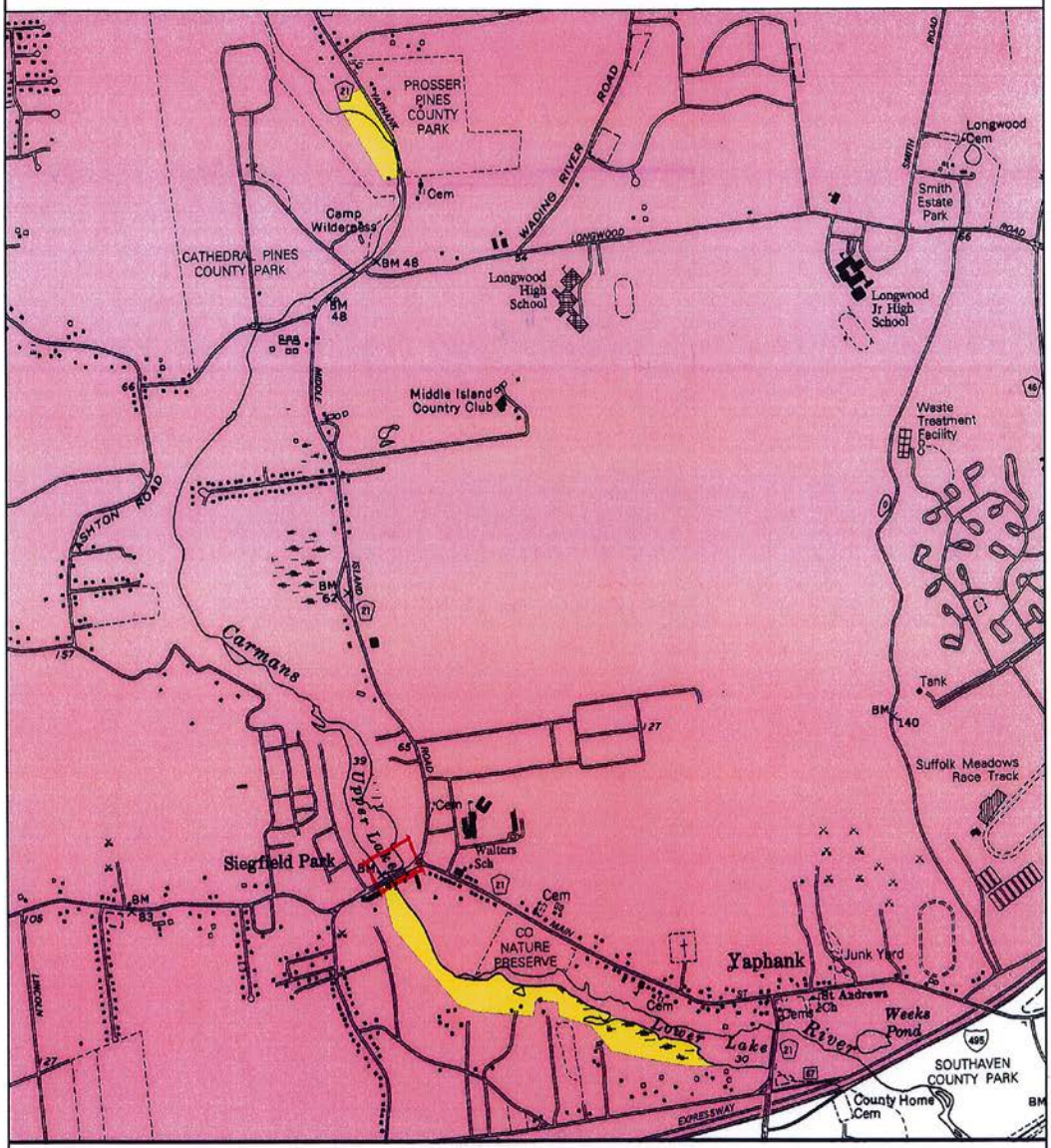
2.5 Areas of Critical Environmental Concern

The project reach is located in an area of New York state-designated coastal fish and wildlife habitat that extends from the mouth of Carmans River to its headwaters, graphically depicted on Figure 2-1. The Environmental Resource Mapper (ERM) was accessed at

Carmans River Addition Critical Environmental Area (CEA)

Effective Date of Designation: 2-10-88

Designating Agency: Suffolk County



Legend

Carmans River Addition

Adjacent CEAs

0 2,000 4,000 Feet

1 inch equals 2,000 feet

For Adjacent CEAs see map: SGPA Map #2 CEA

Base Map: DOT 1:24,000 Planimetric Images

Disclaimer: This map was prepared by the New York State Department of Environmental Conservation using the most current data available. It is deemed accurate but is not guaranteed. NYS DEC is not responsible for any inaccuracies in the data. Please contact the designating authority for additional information regarding legal boundary descriptions. SGPA Maps 1 through 9 represent a portion of the SGPA designated as a Critical Environmental Area.

http://www.dec.ny.gov/imsmaps/ERM/viewer.htm in March 2013. The ERM indicates Areas of Critical Environmental Concern, as graphically depicted on Figure 2-2. Relevant correspondence with NYS DEC is included in Attachment G.

2.6 Historic/Archaeological Resources

The Upper Lake Dam was originally constructed in the 1740s as a grist and saw mill. It was reconstructed in 1932 for recreational purposes. According to the Statewide National Register Listing, there are no historic or archaeological resources located at the site. A project notification letter has been sent to the New York State Office of Parks, Recreation, and Historic Preservation. Relevant correspondence is included in Attachment G.

3.0 PROPOSED PROJECT

3.1 Proposed Activities

The proposed project will restore and improve the ecosystem and function of the Carmans River, specifically through restoration of diadromous fish passage at the Upper Lake Dam. Target species include alewife, blueback herring, brook trout, American eel, and sea-run brook trout. The proposed project includes the construction of a concrete Denil fishway and improvements to the existing spillway and dam embankment.

The proposed Denil fishway consists of a 59-foot-long fish ladder at a slope of 12.5% (1V:8H). This includes a six-linear-foot entrance pool, a nine-linear-foot exit pool, a 10-linear-foot-long turn pool, and a total of 34 linear feet of baffling. The proposed fishway is generally flush with surrounding grade as graphically depicted on LA-1 and PR-1 of the included project plans. The upstream exit pool invert elevation is 34.25 feet; the downstream entrance pool invert elevation is 30 feet.

SOURCE(S): Bing Maps Hybrid NYS DEC Environmental Resource Mapper	**Figire 2-2: Environmental Resource Mapper (ERM) Site Map**	**LOCATION:** **Brookhaven, NY**
N MXD: H:\4791-01\GIS\Maps\Fig2-2.mxd	**Upper Lake** **Anadromous Fisheries Restoration**	**Map By:** JEP **MMI#:** 4791-01 **Original:** 3/6/2013 **Revision:** 5/24/2013 **Scale:** 1 inch = 100 feet
		MILONE & MACBROOM 99 Realty Drive Cheshire, CT 06410 (203) 271-1773 Fax: (203) 272-9733 www.miloneandmacbroom.com

The internal fishway dimension is 3.45 feet, making the external dimension 5.45 feet. The internal baffle dimension is two feet; baffles are spaced 2.58 feet apart. The fishway dimensions were designed to be optimally functional over the range of computed fish passage migration flows.

The proposed project includes spillway improvements to increase spillway capacity over existing. Under existing conditions, the spillway is able to pass 50 cfs before overtopping the Millhouse Inn restaurant parking lot. The proposed spillway improvements include widening the spillway (perpendicular to flow) to 15 feet from its current 7.5 feet and performing structural repairs including installation of two 20-linear-foot concrete training walls and eight linear feet of concrete apron and repair to six linear feet of concrete bulkhead and to 85 linear feet of existing timber bulkhead waterward of the OHW line.

The proposed spillway invert is increased to 36.75 feet from 36.4 feet to accommodate adequate flow through the proposed Denil fishway. Using the weir equation $Q=CLH^{3/2}$, with C=3.3, L=15, and varying H, a spillway rating curve was determined to reflect spillway capacity over a range of lake and water surface elevations, as graphically depicted in Figure 3-1. The proposed spillway has the capacity to pass 69 cfs with no freeboard, an increase of 40% over existing conditions.

Flow rates were computed for the Denil fish ladder based on the designed dimensions. A combined spillway rating curve was developed to determine the total capacity of the system to pass flood flows. This curve is graphically depicted in Figure 3-1.

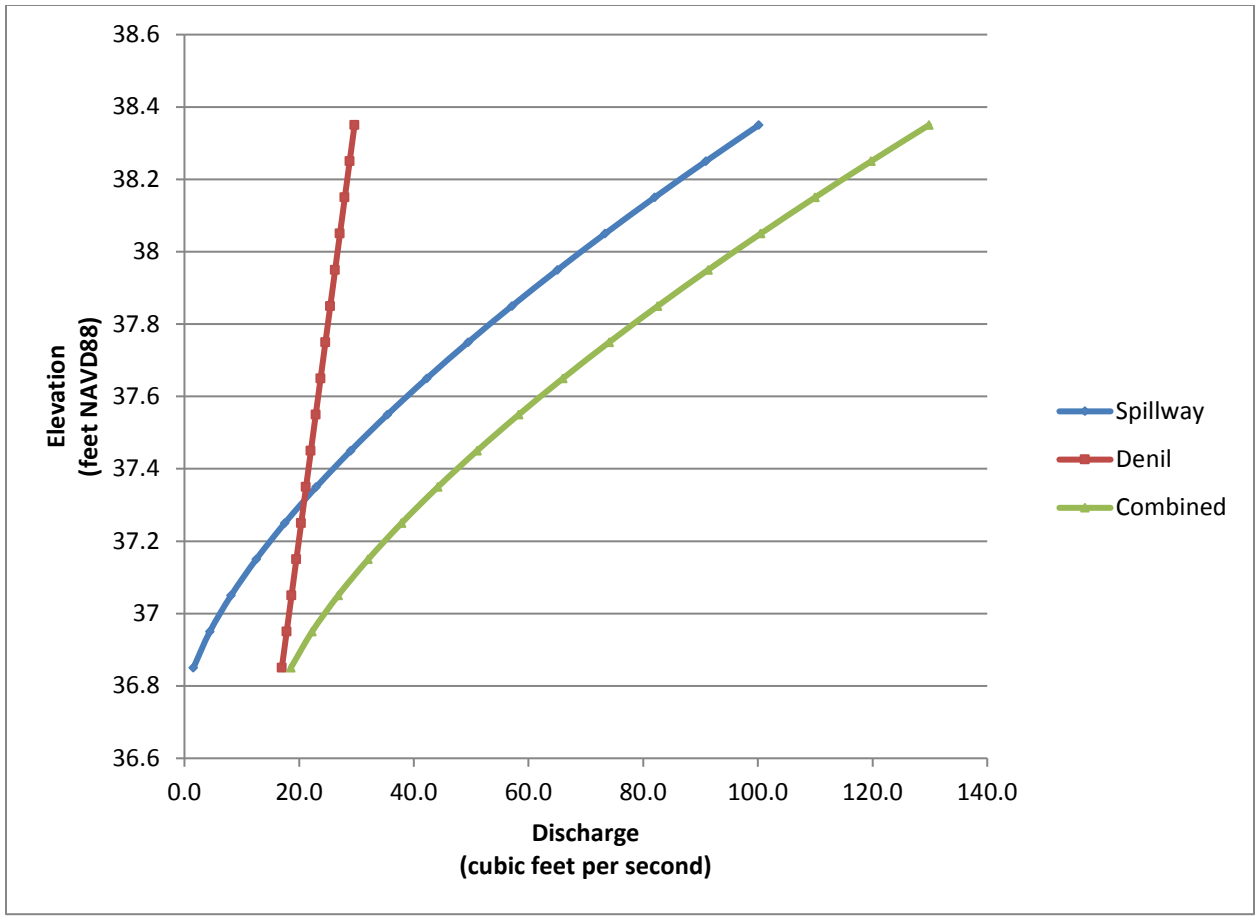


Figure 3-1: Hydraulic Rating Curves

Alternatives to increase spillway capacity by either lowering or widening the spillway were considered. Lowering the spillway invert would lower water levels in the lake, which is already very shallow and colonized by extensive emergent marsh vegetation. Lowering the spillway invert would favor the transition from open water to an emergent marsh system within Upper Lake. Widening the spillway was determined to be the most viable option for the site. The proposed spillway width was chosen to accommodate a pedestrian footbridge at the highly trafficked site, as well as to remain in scale with the downstream channel.

3.2 Alternatives Analysis

The Carmans River is locally channelized at the project site between the earthen embankment dam and adjacent timber bulkhead downstream of the spillway. No hydric wetlands were

located within the proposed project limit. The OHW mark has been identified as the jurisdictional limit within the project boundary.

The proposed project increases ecological connectivity through the Carmans River. As such, the project will have a net ecological benefit that will outweigh temporary adverse impacts associated with construction activities. A number of fishway alternatives were considered to assess relative impacts to site wetlands, as discussed in the following sections.

Fish Passage Alternatives

No Action – The existing dam impedes upstream migration of diadromous fish. Doing nothing at the dam would not address the main goal of the project, to improve diadromous fish migration. This alternative is therefore not prudent.

Action of the Same Nature in a Different Location – The intention of the proposed project is to provide for upstream diadromous fish migration past the existing Upper Lake Dam. The project cannot be moved to a different location.

Rock Ramp Fishway or Nature-like Fishway – Both a rock ramp fishway and a nature-like fishway were considered for this location. Rock ramp fishways are cascade-type channels at fairly steep channel slopes, generally in the range of 4% to 5%. Nature-like fishways, or bypass channels, are earthen or rocky channels that mimic the structure of natural streams while maintaining velocities and flow depths appropriate for fish passage. Both of these alternatives are able to provide upstream and downstream passage while providing habitat and aesthetic value.

Based on site conditions and the required channel slopes, either alternative would have a ravine type of local valley morphology, with a narrow channel and steep channel side slopes. The fringe communities along the channel would tend toward upland forested bank slope community as opposed to hydric palustrine wetlands.

However, both would also require significant excavation at the site. A rock ramp at 5% slope would need to be 116 feet long; a nature-like fishway at 3.5% slope would require 166 feet of length. Given the limited land area at the Upper Lake Park, it was determined through early design efforts that the required excavation would be too extensive and would potentially destabilize the existing earthen embankment dam.

Denil Fishway – A fish ladder is an engineered structure that is designed to allow fish to migrate upstream. Fish ladders are often classified in categories based upon their hydraulic design and function. Denil fish ladders are rectangular chutes or flumes with baffles that extend from the sides and bottoms. This type of ladder can accommodate a variety of fish species and has had a great deal of success in passing anadromous and riverine fish. They have been used extensively in the east on small streams. They are typically two to four feet wide and four to eight feet deep. The Denil fish ladder typically operates at a slope of 10% to 15%. Conventional Denil ladders are made of concrete with cast slots and wood baffles and are covered with aluminum grating.

The Denil fishway consists of a 59-foot-long fish ladder at a slope of 12.5% (1V:8H). This includes a six-linear-foot entrance pool, a nine-linear-foot exit pool, a 10-linear-foot-long turn pool, and a total of 34 linear feet of baffling. The proposed fishway is generally flush with surrounding grade. Refer to Sheets LA-1 and PR-1 of the included project plans.

Given the vertical walls of the fish ladder, this alternative requires less site excavation than either a rock ramp or nature-like fishway and would therefore have less of a structural impact to the existing earthen embankment dam. As compared to a rock ramp or nature-like fishway, a Denil fish ladder will have a greater direct and permanent impact waterward of the OHW line. As designed, the concrete entrance pool to the fish ladder extends 15 feet waterward of the delineated wetland limit.

The Denil fish ladder is the most viable and prudent alternative for the project site based on ability to pass a wide range of species while limiting structural impact to the existing earthen embankment dam.

Spillway Alternatives

Alternatives were explored to increase spillway capacity over existing. A number of alternatives were explored to increase spillway capacity. The relative effects of these alternatives on site wetlands are discussed in the following sections.

No Action – The spillway is in poor condition and has limited capacity. If nothing is done to address the condition of the spillway, it could become a hazard to public safety. The No Action alternative is, therefore, not a prudent alternative.

Lower Spillway Elevation – Lowering the spillway elevation would increase spillway capacity. The spillway would require over 3.5 feet of head to pass the spillway design flood (SDF), meaning that the spillway would need to be lowered by over two feet from its current crest elevation to pass the full SDF.

This alternative would have temporary impact to adjacent wetlands associated with construction but would essentially be constructed within the footprint of the existing structure. There would be very limited permanent encroachment to site wetlands.

However, lowering the spillway would also lower water levels in the lake. Upper Lake is a very shallow lake with extensive emergent marsh vegetation. The lake is aggrading and becoming shallower. It is not prudent to lower the spillway to this level; it would effectively dry up the lake and could potentially mobilize large volumes of sediment.

Increase Spillway Width – Under this alternative, the crest elevation would essentially remain the same, and the spillway structure would be widened perpendicular to flow. This alternative

would require a permanent encroachment to site wetlands to accommodate the wider structure. There would also be temporary impacts to adjacent wetlands associated with construction activities.

This alternative would maintain the existing lake water surface elevations while increasing spillway capacity.

Install Berm in Parking Lot – Under existing conditions, the dam overtops first to the Millhouse Inn parking lot before overtopping the embankment. Installation of a gradual berm in the Millhouse Inn parking lot to an elevation greater than elevation 39.0 would force flow over the dam embankment during flood events. It would additionally increase the freeboard to 2.2 feet in reference to a bulkhead crest elevation of 38.6. This would increase the capacity of the existing structure to 80 cfs, approximately 46% of the SDF.

This alternative would not impact site wetlands. However, it could reduce space in the parking lot and might not be acceptable to the land owners. Discussions with the owners of the Millhouse Inn parking lot are ongoing at this time.

Install Auxiliary Spillway and Spillway Channel – A final alternative would be to maintain the existing spillway as a service spillway and to construct an auxiliary spillway with the capacity to carry the SDF at an alternate location at the site. The crest of the auxiliary spillway would be at a higher elevation than the existing spillway, such that it would become active during flood events. The existing spillway would pass normal flows and would still require significant repair to remain functional.

Under this alternative, a section of the embankment or impoundment shoreline would be excavated, and a new spillway and channel structure would be installed. This alternative has the greatest initial capital cost as it requires both repair of an existing structure and construction of a new structure. This alternative would also have the greatest wetland impact as both the repair of

the existing structure and the construction of an auxiliary spillway would have temporary and permanent impacts to site wetlands.

3.3 Sequence of Construction

It is anticipated that construction of the proposed activities will take three to four months to complete. The Town of Brookhaven would like to initiate construction in summer 2014.

Construction will generally proceed as follows:

1. Lower impoundment water surface using low-level outlet.
2. Clear and grub site as necessary.
3. Install staging/stockpiling area and sediment and erosion controls.
4. Construct Denil fishway in the dry once water level has lowered.
5. Install upstream cofferdam.
6. Construct exit pool and weir board system. Repair and/or replace existing bulkhead. Remove upstream cofferdam.
7. Install downstream cofferdam.
8. Construct fishway entrance pool. Remove downstream cofferdam.
9. Divert flow to fishway.
10. Remove existing bridge and spillway.
11. Construct new spillway and training walls.
12. Install new pedestrian bridge.
13. Close low-level outlet and allow impoundment to fill.
14. Remove sediment and erosion controls and restore site.

3.4 Stormwater Management

The proposed project will not result in an increase in impervious area and, therefore, does not include the construction of any new stormwater facilities. Measures will be taken during

construction to comply with the standards found in NYS DEC Stormwater Management Regulatory Requirements as follows.

Existing stormwater outfalls will be protected at the point of discharge to mitigate erosion. Sediment and erosion controls will be implemented during construction according to best management practices put forth by the New York Standards and Specifications for Erosion and Sediment Control. This includes use of the appropriate pumps and sediment filters. Refer to the attached project plans, Sheet CP-1 Construction Plan.

3.5 Anticipated Permits

The project requires the following federal, state, and local permits related to wetlands, waterways, and tidelands:

Federal

- Section 404 Clean Water Act

New York State

- Stream Disturbance
- Dams and Impoundment Structures
- 401 Water Quality Certification
- Freshwater Wetlands
- Wild, Scenic, and Recreational Rivers

Local

- Town of Brookhaven Wetlands Permit
- Town of Brookhaven Highway Work Permit

4.0 IMPACTS TO REGULATED RESOURCE AREAS

4.1 Federal

Section 404 of the Clean Water Act

The proposed project is covered under New York State Nationwide Permit #27, Aquatic Habitat Restoration, Establishment, and Enhancement Activities.

Section 404 of the Clean Water Act defines the landward limit of jurisdiction as the OHW mark in nontidal waters. When adjacent wetlands are present, the limit of jurisdiction extends to the landward limit of wetlands. No hydric wetlands were identified on site; therefore, the jurisdictional limit through the project reach is the OHW limit as depicted on Sheet EX-1 of the attached project plans. Proposed impacts within the jurisdiction limits are given in Table 4-1.

TABLE 4-1
Impacts Within USACE Jurisdictional Limits

Resource Area	Volume of Cut (cubic yards)	Volume of Fill (cubic yards)	Impact Area (acres)	
			Temporary	Permanent
100-Year Floodplain	N/A	N/A	0.40	0.06
Ordinary High Water (OHW)	18	13 (concrete) 5 (stone)	0.08	0.03
100-foot OHW Offset	N/A	N/A	0.27	0.06

The proposed project includes the installation of a Denil fishway and improves the existing spillway. Removal of three cubic yards of material within jurisdictional wetlands will be required to increase spillway capacity. Installation of the fishway will require placement of 14 cubic yards of concrete and rock and removal of 15 cubic yards of earth within jurisdictional wetlands. In total, 1,030 square feet of direct and 3,520 square feet of secondary impacts are proposed.

4.2 State

Stream Disturbance

A Use and Protection of Waters Permit is required for disturbing the bed or banks of a stream with a classification and standard of C(T) or higher. Disturbance may be either temporary or permanent in nature. Banks mean the land area immediately adjacent to and which slopes toward the bed of a watercourse and which is necessary to maintain the integrity of the watercourse.

The proposed project is considered a major project as the proposed activities include disturbances of more than 100 linear feet along any 1,000 feet of watercourse. The proposed project will permanently impact 112 linear feet of bed or banks. Temporary impacts consisting of construction earthwork and concrete installation activities will impact 380 linear feet of banks.

Dams and Impoundment Structures

This permit is required for constructing, reconstructing, repairing, or modifying dams and water impounding structures that permanently or temporarily impound water as a result of a structure placed across a watercourse or overland drainage way, or which receive water from an external source such as drainage diversion or pumping of groundwater.

The project site is considered a major project. Minor projects are those that strictly repair existing structures contained in DEC's inventory of dams. A Dam Assessment Report has been completed in support of this permit and is included as Attachment E.

401 Water Quality Certification

The 401 Water Quality Certification indicates that the proposed activity will not violate water quality standards. This permit is required for placing fill or undertaking activities resulting in a discharge to waters of the United States where a permit is required from the USACE under Section 404 of the Clean Water Act.

The NYS DEC has issued a Water Quality Certification (WQC) with special and/or general conditions for NWP #27. These conditions are as follows:

- This certification authorizes only restoration projects conducted with oversight by a federal or state natural resource agency, or a County Soil and Water Conservation District.

- This certification does not authorize demonstration projects larger than one acre of waters of the United States.

- This certification does not authorize filling done for shellfish restoration, which results in an alteration of existing substrate and benthic habitat.

- This certification does not authorize the conversion of one wetland type to another or the conversion of lotic communities to wetland or lentic communities.

Freshwater Wetlands

The State Legislature passed The Freshwater Wetlands Act in 1975 with the intent to preserve, protect, and conserve freshwater wetlands and their benefits, consistent with the general welfare and beneficial economic, social, and agricultural development of the state.

New York state protects wetlands that are 12.4 acres in size or larger, including a 100-foot-wide buffer surrounding these areas. Smaller wetland areas may be protected under the state law if the DEC determines that they are of "unusual local importance." A wetland meets this test if it provides habitat for a threatened or endangered species, provides flood control that protects a neighboring development area, or is hydrologically connected to a source of public drinking water.

The proposed project is considered a major project due to the construction of a fishway within 100 feet of wetlands.

At the project site, 4,020 square feet waterward of the OHW mark and 11,500 square feet within the 100-foot buffer are located within the proposed project limit.

Wild, Scenic, and Recreational Rivers

The state's Wild, Scenic, and Recreational Rivers Act protects those rivers of the state that possess outstanding scenic, ecological, recreational, historic, and scientific values. These attributes may include value derived from fish and wildlife and botanical resources, aesthetic quality, archaeological significance, and other cultural and historic features. State policy is to preserve designated rivers in a free-flowing condition, protecting them from improvident development and use.

The Carmans River is both a scenic and recreational river at different locations along the length of the river. The boundaries of its scenic designation are as follows:

- Approximately 2-1/4 miles from its headwaters at the north boundary of Cathedral Pines Park (formerly Camp Wilderness), Suffolk County, southerly to its intersection with the southern boundary of Camp Sobaco (Girl Scout Camp)
- Approximately 2-1/2 miles from Yaphank Avenue, Suffolk County, southerly to the Concrete Wing Dam in Southaven Park

- Approximately 2-1/2 miles from the south side of Sunrise Highway, Suffolk County, southerly to the mouth of the river (a line between Long Point and Sandy Point) at its confluence with Great South Bay

The boundaries of its scenic designation are as follows:

- Approximately two miles from its intersection with the southern boundary of Camp Sobaco (Girl Scout Camp), southerly to Yaphank Avenue, Suffolk County
- Approximately one mile southerly from the Concrete Wing Dam in Southaven Park, Suffolk County, to Sunrise Highway

The project site is located within a reach designated as recreational. The proposed project is considered a major project, which needs to meet public notice requirements found in the Uniform Procedures Act. The proposed activities are consistent with the purposes and policies of the act and with the provisions of 6NYCRR Part 666. The proposed activities maintain the recreational value at the project site. The resources specified in Section 666.2(e) will be protected, and the proposed activity will not have an undue adverse environmental impact. No reasonable alternative exists for modifying or locating the proposed activity outside of the designated river area. Actions proposed to be undertaken by state agencies are designed to preserve, protect, or enhance the resources and values of designated rivers.