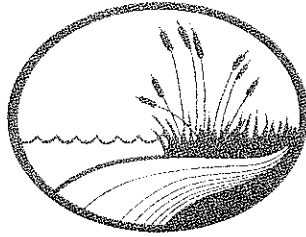


NEW ENGLAND
ENVIRONMENTAL
SERVICES



BLACKLEDGE
RIVER
NURSERY

The Village at Mill Pond

Located at:
11 Killingworth Turnpike
Clinton, Connecticut

Wetland Report

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Prepared by

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Introduction

The wetland boundary was delineated on the land in April 2015 by Richard Snarski, Registered Soil Scientist. The wetland boundary was delineated with pink flags which were numbered 1-114. The Indian River flows through the eastern section of the land and enters the Upper Mill Pond. The Upper Mill Pond water surface elevation is controlled by a stone dam. A variety of wetland types occur on the subject land including the following:

1. Forested wooded swamp
2. Sapling & shrub wetland
3. Upper Mill Pond
4. Alluvial forested wetland

Wetland Vegetation Inventory

The wetland vegetation was inventoried on December 28, 2015. Due to the time of year, not all of the herbaceous plant species growing in the wetland could be found or identified.

The wetland below the Mill Pond Dam is a wooded wetland which is on the floodplain of the Indian River. The tree species in the wetland are Red Maple, Red Oak, Ash, Tulip and American Beech. The shrub species include Pepperbush, Highbush Blueberry, Spicebush, Winterberry, Silky Dogwood, Burning Bush and Multiflora Rose. The herbaceous plants include Skunk Cabbage, Violet, Wineberry and sedges. The vines include Fox Grape, Asiatic Bittersweet and Japanese Honeysuckle.

Above the dam is Upper Mill Pond. Upper Mill Pond is delineated with wetland flag numbers 18-50. The majority of the upland area adjacent to Mill Pond is wooded. The dominant vegetation in the woodland along Mill Pond includes Red Oak, White Oak, Red Maple, Swamp Azalea, Winterberry, Pepperbush, Greenbriar and Christmas Fern. Button Bush is growing in the Mill Pond from wetland flags 38-46. A wooded wetland occurs northeasterly from wetland flags 46-50. The trees are saplings. The dominant species growing in the wooded wetland area, which extends into Upper Mill Pond, includes Red Maple, Ash, Speckled Alder, Silky Dogwood, Winterberry, Pepperbush, Spicebush, Black Gum, Swamp Rose and Elderberry. A shrub wetland occurs from wetland flags 51-65. Buttonbush is the dominant shrub species. Other shrub species include Silky Dogwood, Speckled Alder and Winterberry. Open water occurs from wetland flags 63-81. The open water area is approximately 190 feet long by 40 feet wide.

The upland side slope along the open water area is vegetated with Multiflora Rose, Blackberry and Asiatic Bittersweet. North of the open water area, the wetland is wooded with shrub and sapling size woody plants including Red Maple, Silky Dogwood, Winterberry, Speckled Alder, Arrowwood and Buttonbush. From wetland flags 81-115 to the wetland is a wooded swamp. The Indian River has a defined channel in this portion of the wetland. The tree species in the wetland is Red Maple. The shrub species include Pepperbush, Arrowwood, Winterberry, Silky Dogwood and Highbush Blueberry. The herbaceous plants include Skunk Cabbage, Violet and sedges.

Wetland Functions and Values

The Highway Methodology uses a descriptive approach and identifies thirteen potential wetland functions and values that may or may not be present within the wetland being studied. Wetland functions are intrinsic properties of a wetland ecosystem and wetland values are benefits derived from one or more wetland functions and the physical characteristics associated with the wetlands.

The functions and values are listed below:

Groundwater Recharge/Discharge

This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands aquifers, regardless of the size or importance of either.

The wetlands and watercourses on the site are primarily groundwater recharge wetlands in that they are underlain by glacial outwash (stratified sand and gravel deposits).

Floodflow Alteration

This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or floodprone areas.

The wetlands and Upper Mill Pond have the potential to be highly efficient with regard to floodwater storage. The water storage capacity of the wetlands and pond is controlled by the Upper Mill Pond Dam.

Fish and Shellfish Habitat

This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

The Indian River is a perennial watercourse which supports a cold water fishery. Trout have been observed in the Indian River at the new Morgan School site. Freshwater mussel (*Eastern Elliptio*) have been observed in the Indian River. The Upper Mill Pond provides habitat for fish such as Bass, Perch, Bluegill, Pickerel and Shiners.

Sediment/Toxicant Retention

This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

The wetlands and Upper Mill Pond provide a trap for sediments that enter them, in that water slows upon entering the northern wetlands and Upper Mill Pond allowing for sediments to settle.

There is a high capacity for toxicant retention in the Red Maple Swamp and sapling/shrub wetland upper gradient of Upper Mill Pond due to the dense woody vegetation and organic soils.

Nutrient Removal/Retention/Transformation

This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands, and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, river or estuaries.

The Red Maple Swamp and sapling/shrub wetland upgradient of Upper Mill Pond is highly effective in trapping nutrients which are carried in the Indian River from pollutant source in the Indian River watershed.

Production Export

This function evaluates the effectiveness of the wetland to produce food or usable products for man or other living organisms.

All of the wetlands contain vegetation that supplies food for different wildlife species. Many of the berry-bearing shrubs such as Spicebush, Pepperbush, Winterberry, Arrowwood, Speckled Alder and Buttonbush are important species for wildlife. Birds and small mammals use the seeds, buds and flowers of Red Maples for food and the bark and twigs provide browse for deer and food for beavers.

Sediment/Shoreline Stabilization

This function considers the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.

The wetlands associated with the Indian River function to stabilize the streambanks and guard against erosion. The stream side vegetation helps to anchor the soil and prevent washouts from occurring.

Wildlife Habitat

This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species are considered.

The wetlands on site are diverse habitats that form important corridors for wildlife species. Because of the large expansive wetlands and Upper Mill Pond, the habitat is likely to support a wide variety of wildlife species, both wetland dependent and non-wetland dependent. Mink tracks and muskrat scat was observed along the Indian River in the northern section of the land. Old beaver cuttings were observed in the north side of Upper Mill Pond.

Deer trails appear in the wooded swamp in the northern section of the land. Upper Mill Pond is suited for wading birds such as the Great Blue Heron and Little Green Heron. Ducks and geese will also be attracted to the pond. Reptiles and amphibians such as the Eastern Watersnake,

Painted Turtle, Snapping Turtle, Musk Turtle, Green Frog and Bull Frog probably occur in Upper Mill Pond.

Recreation (Consumptive and Non-Consumptive)

This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting and other active and passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland. Non-consumptive opportunities do not consume or diminish these resources of the wetland.

The wetlands and Upper Mill Pond are best suited for passive recreational pursuits such as nature study and bird watching. However, the pond may lend itself to more active forms of recreation, such as canoeing and fishing. A viewing platform presently exists along the Upper Mill Pond which is probably used by students.

Educational Scientific Value

This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

There are several areas that could be utilized for wetland research or as an outdoor classroom for the study of different wetland cover types.

Uniqueness/Heritage

This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearances, its role in the ecological system of the area and its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

During the course of the wetland delineations and field studies of the property, no endangered, threatened or special concern species were observed. The wetlands may be considered unique in the sense that they are large diverse systems in good overall ecological condition.

Visual Quality/Aesthetics

This value considers the visual and aesthetic quality or usefulness of the wetland.

The aesthetic values of wetlands are difficult to determine and are frequently subjective. However, it is likely that most reviewers would find the Indian River, Upper Mill Pond and the shrub/sampling wetland to be aesthetic features of the property.

Endangered Species Habitat

This value considers the suitability of the wetland to support threatened or endangered species.

The presence of endangered, threatened or special concern species has not been documented at this site by either the Natural Diversity Data Base of the Connecticut Department of Energy and Environmental Protection or by the extensive field investigations conducted at the site.

Wetland Assessment Summary

<u>Function</u>	<u>Value</u>
Groundwater Recharge/Discharge	High
Flood Flow Alteration	High
Fish and Shellfish Habitat	High
Sediment/Toxicant Retention	High
Nutrient Removal/Retention/Transformation	High
Production Export	High
Sediment/Shoreline Stabilization	High
Wildlife Habitat	High
Recreation	Moderate
Educational Scientific Value	Moderate
Uniqueness/Heritage	Moderate
Visual Quality/Aesthetics	High
Endangered Species Habitat	Moderate

Proposed Development and Potential Wetlands Impacts

The proposed project entails eleven buildings mixed use development on thirty-seven acres. The development consists of a five story hotel, three retail buildings and four restaurants on a six story residential building and two mixed use buildings consisting of first floor retail with residential above. All of the structures associated with the development will be constructed on the upland portions of the site. There is no permanent or temporary disturbance or filling of wetlands or watercourses.

According to the Stormwater Management Report

Stormwater management for the proposed development was designed using Best Management Practices. Runoff from the new imperious areas is collected by catch basins with sumps and hooded outlets. Stormwater is then conveyed to a number of water quality measures including rain gardens, underground storage/infiltration and hydrodynamic separators. In an effort to reduce the concentrated discharge of stormwater from the development, the drainage system has been split into multiple smaller systems rather than collecting the entire development and discharging in one location. The five discharge points all employ scour holes (plunge pools) to reduce erosive stormwater velocities. The stormwater management system will achieve at least 80% TSS removal guidelines. All stormwater runoff from paved surfaces such as driveways and parking areas will be pretreated before discharging from the site. The report does not address the subsurface sewage disposal system which has not been designed.

Exotic Invasive Plant Removal, Wetland Buffer Restoration and Wetland Preservation

An aggressive exotic invasive removal plan has been outlined for the project which involves the eradication of exotic invasive plants for a three-year period. A similar exotic invasive removal plan is being carried out on the new Morgan School in the wetlands and along the Indian River. The removal of the exotic invasive plants will enhance the wetlands and wetland buffer by allowing native plant species to thrive.

1. Exotic Invasive Plants

The dominant exotic invasive plants, which occur on the land, includes the following:

1. Multiflora Rose
2. Asiatic Bittersweet
3. Japanese Honeysuckle
4. Winged Euonymous
5. Wineberry

2. A detailed Wetland Buffer Enhancement Restoration Plan has been developed. The Wetland Buffer Enhancement Restoration Plan involves applying a custom made native plant species seed mix and planting native shrubs and trees to restore wooded areas in the wetland buffer which have been disturbed during construction.

3. 12.5 acres of the thirty-seven-acre site is proposed to be developed. All of the 17.3 acres of wetlands and watercourses on the site will be placed in conservation.

Conclusion

The project design involves no filling of wetlands and protects the critical wetland and watercourse of this site. I believe these will be no loss or impairment to wetland functions and values.