



## ***Ian T. Cole***

***Professional Registered Soil Scientist / Professional Wetland Scientist***

***PO BOX 619***

***Middletown, CT 06457***

***[Itcole@gmail.com](mailto:Itcole@gmail.com)***

***860-514-5642***

August 4, 2021

Town of East Lyme  
Inland Wetlands Agency  
Mr. Gary Geoschel II  
Wetlands Enforcement Officer  
108 Pennsylvania Ave  
Niantic, CT 06357

***RE: Wetland Application, Howard Hale, Construction of Two New Single-Family Homes at 99, 101 & 103 South Beechwood Road, Assessors Map 07.14, Lots 43, 42 and 41, Niantic, Connecticut.***

Dear Mr. Geoschel and Commission Members:

On behalf of the Applicant, I have completed the wetland delineation on the above referenced property and reviewed the wetland application and current subject site plans including the recent revisions since the July 2021 Inland Wetlands Agency (IWA) meeting. I coordinated efforts with Design Professionals Inc, during the design and layout of the enhancement plantings and overall design to avoid, minimize and mitigate wetland impacts. I offer the following comments relative to assessing impacts to the inland wetlands and watercourses due to the proposed regulated activities.

### **Proposed Activities**

The applicant is seeking permission from the Town of East Lyme to develop three lots of record with a total area of 14,961 SF± (0.34 acres) located at 99, 101 and 103 South Beechwood Road in East Lyme, Connecticut. The proposed work will disturb approximately 8,350 SF± (0.19 acre) of land on the combined parcels. The proposed development will include construction of two small (840 SF footprint) new single-family homes on lots 101 & 103 with associated paved driveways, subsurface utilities (municipal water and sewer connections), and landscaping. The project also includes drainage improvements, wetland mitigation and combination of two lots.

The development will require the permanent fill of 1,780 SF of a wetland that bisects the middle portion of the three lots. To mitigate this impact the proposal includes 1,792 SF of plantings and enhancements located on lot 99 which will remain undeveloped. A formal stormwater management system has been professionally engineered by Design

Professionals, Inc, to ensure stormwater leaving the site will not pose any detrimental impacts to the receiving environment. See Figure 1 and for more details; refer to the site plan drawings, entitled "99, 101 & 103 South Beechwood Road, Site Plan Application, East Lyme, Connecticut, prepared by Design Professionals, Inc, dated 7/6/2021, as amended, for information regarding the proposed property development.



Figure 1: Proposed Development Graphic

### **Existing Conditions**

The site can primarily be classified as vacant woodland adjacent to a developed residential neighborhood. I am the original soil scientist of record and completed the delineation of the inland wetlands in 2015. I returned to the site in July 2021 to re-flag the lot so the wetland boundary could be visually identified in the field and to conduct a formal wetland inventory and functional evaluation to assess the potential for adverse impacts to the wetland and to make any recommendation that may be necessary to minimize or eliminate direct and indirect impacts.

As detailed in my April 2015 wetland delineation report provided as part of this 2021 wetland application, there is a small remnant forested wetland that bisects the central portion of the three properties. This remnant wetland is embedded in a moderate to high-density single-family neighborhood. The property is relatively level and drains in a north to south direction. The wetland hydrology is exacerbated by the additional discharge from the neighboring property's 8-inch PVC drainpipe. The wetland was created in part by the construction of South Beechwood Road which raised the topographic relief point creating a low spot in the landscape where water collects. While there is no formalized channel / intermittent stream, the wetlands form a subtle low spot in the landscape that conveys overland flow south to downstream receiving wetlands.

At the time of my July 2021 site visit there was continuous flow discharging from the above mentioned 8-inch PVC drainpipe into the wetland, but interestingly there was no standing water or readily observed signs of recent surface flow within the interstitial space between the large surface stones. This observation demonstrates the wide seasonal variability of the wetland as during the dry summer months the wetland is nearly unrecognizable as such to the layperson.

The on-site wetland exhibits classic wooded swamp vegetation with red maple (*Acer rubrum*) dominating the forest overstory, a shrub stratum dominated by spicebush (*Lindera benzoin*), winterberry (*Ilex verticillata*) with patches of multiflora rose (*Rosa multiflora*) and green briar (*Smilax spp*). The wetland soils are classified as poorly drained Ridgebury and Leicester extremely stony fine sandy loam hydric soils.

As with most highly disturbed areas the upland are vegetated by a mixture of invasive and early successional wetland plants. The upland soils are classified belonging to the Sutton moderately well drained fine sandy loam soil series. Encroachments of brush, leaves, and lawn clipping debris of neighboring compost piles are intermittently encountered at the peripheral of the property. Photos of the existing conditions are attached as appendix A.



Figure 2: Existing Conditions

*Wetland Delineations*

*Wetland Evaluations*

*Soil Evaluations*

### **Wetland Function and Value**

The principal functions of this wetland remnant are groundwater interchange and flow conveyance. During the late fall, winter, and spring, ground water discharges to the wetland and local runoff is conveyed to downstream receiving wetlands. Due to the small size of this wetland, these functions are not provided at a significant level. Other wetland functions such as wildlife habitat or water quality renovation, sediment trapping and production export are not provided to any appreciable degree because of the small size of the system, lack of channelized flow path, landscape position and its low ecological integrity further degraded by existing human disturbances, refuge dumping, receiving untreated drainage from the surrounding development, and as is common along the shoreline a prolific medley of invasive vegetation in the adjacent uplands.

Due to the wetland's small size, shallow depth, dominance of neighboring invasive species, landscape position, juxtaposition to other resources and historic impacts from adjacent land uses the wetland is largely devoid of functions and values that are typically associated with unfragmented, undisturbed naturally occurring wetlands. This degraded wetland does provide some minor, although highly localized, stormwater storage and attenuation. The proposed site improvements provide an opportunity to enhance these wetland functions.

### **Impact Assessment**

There is good potential to enhance the water quality functions of this wetland. The beneficial function of the wetland is the conveyance of seasonal flow, which the project will be enhanced by renovating water as it flows through the engineered water quality features prior to leaving the site.

The development activities provide a permitting nexus to improve the water quality properties by the installation of engineered water quality bio-basins seeded with dense herbaceous vegetation via seed mixture, installing 47 new native shrubs, and eradication of targeted invasive plants (*Multiflora rose*), which collectively will enhance the function and value of the wetland.

The planned enhancements to the sites drainage and plantings will improve the wetland's function to better filter, intercept and absorb nutrients, sediment and other pollutants potentially carried in stormwater runoff that flows across the site. The constructed water quality basins herbaceous vegetation will slow the flow of runoff which both reduces erosion and allows suspended solids to settle out as water slowly drains into the underlying soil or discharges as non-erosive overland sheet flow thereby a contributing factor in reducing the volume of surface runoff.

Following a recent site visit with the Town's Engineering department, several drainage revisions per the Town's suggestion have been included in the current design. The two new homes proposed will increase the impervious coverage on the total area. To control the increase in stormwater volume due to increased impervious coverage, Town staff requested we replace the bioretention swale / depression that was originally proposed with the revised design (as of 8/2/21) that conveys water through a series of 8-inch HDPE

drainpipes that run north to south in the backyard of the proposed houses. At the inlet and mid-point between the two proposed residences are where the water quality basins will be located. The drainage will daylight just south of property line to lot 101 as non-erosive sheet-flow before reaching the wetland. As with the previous stormwater design, the basins were sized to provide a total storage volume equal to the projected increase in stormwater volume for both new homes during a 10-year storm.

To minimize potential impacts the design incorporates industry standard best management practices (BMPs) and guidelines for residential developments. A construction sequence is provided on the site plans notes. Additional construction notes include details on the proposed earthwork and grading, site stabilization, and best management practices (BMPs) for protecting the environment. All construction activities will be completed in compliance with the standards and guidelines provided by the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, the 2004 Connecticut Stormwater Quality Manual and conformance with the Inland Wetland and Watercourses regulations for the Town of East Lyme.

Short-term impacts during construction will be reduced through measures to control sedimentation and erosion and adherence to BMPs. These controls as well as compliance with permit approvals will assure that no permanent adverse effects will impact the receiving wetlands. Lastly, daily E&S control inspections will further ensure continued maintenance of the sediment controls placed at the limit of disturbance.

Long term impacts will be abated through 1792 SF of wetland creation to offset the proposed wetland fill. This 1:1 ratio provides a meaningful enhancement to the property, the wetland resources, and the surrounding environment. Given the limited functions and values of the existing wetlands, limited space available and other site constraints such as extremely stony armored ground conditions, increasing the ratio of mitigation will create a much larger temporary disturbance and would also take away from adjacent upland habitat which is important to keep as a buffer to the wetlands.

The preferred proposal has kept clearing to a reasonable limit and balances the need for construction and preserving a buffer to the neighboring properties and wetland resources. Post clearing and development of the property, the woodlands and wetlands will continue to favor wildlife generalist species tolerant of human presence and edge habitat species. The proposed mitigation and water quality swales provides adequate compensation and results in no net loss of wetlands and focuses on improves to the overall function of the otherwise limited wetland.

## Alternatives Considered

Due to the needs of the proposed development and the location and proximity of the wetland resources the location of the homes and support features will unavoidably require wetland fill. The development has been reduced to the extent practical to both provide a minimalist beach bungalow with a structure footprint of only 840 SF and maintains a vegetated buffer to the wetland resources.

The alternative concept of a full build out of all three lots of record was considered (see figure 3). A full build out would require nearly completely filling in all the of the wetlands on the project site as well as nearly using nearly all available upland making mitigation potential and water quality renovation features extremely limited. The preferred plan, developing only two of the three lots provides allowances for mitigation and water quality features while still achieving the project needs of the applicant.

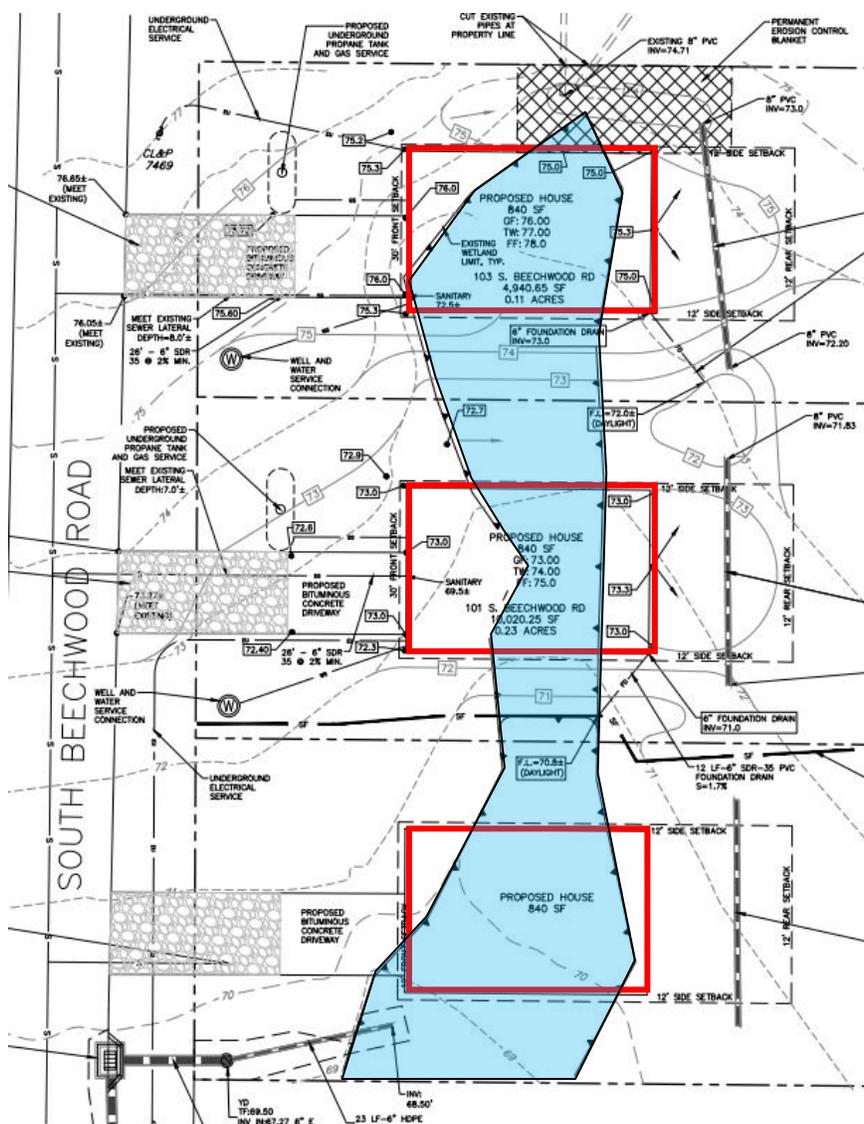


Figure 3: Alternative 3-Lot Build

**Conclusion**

The proposed development is consistent with the Giant's Neck Neighborhood. The proposed layout makes reasonable use of the buildable space on the parcels while providing design features to improve upon the function of the natural resources and provides an engineered system to renovate stormwater that leaves the site.

The activities will not result in any loss of wetland function, value, unique or significant wetland habitat. Post development the wetland will still have the same ability to perform its existing functions. As a result, long term environmental effects will be minor and highly localized. The applicant will mitigate such impacts through the proposed mitigation plantings, implementing standard construction BMPs and conforming to permit conditions.

It is my professional judgement that regulated activities and mitigation can be provide a better functioning wetland than pre-disturbance conditions and will not have a long-term negative or adverse effect on the natural capacity of the wetlands or the functions and services it provides.

Please do not hesitate to contact me at; (860) 514-5642 or itcole@gmail.com if you have any questions or need any additional information.

Respectfully Submitted.



Ian T. Cole  
Professional Registered Soil Scientist  
Professional Wetland Scientist #2006

# APPENDIX A

## SITE PHOTOS



Photo 1: Road Frontage



Photo 2: 8" Drainpipe that discharges to wetlands from neighboring property to the north.

*Wetland Delineations*

*Wetland Evaluations*

*Soil Evaluations*



Photo 3: Existing Wetland on Lot 101 & 103, note during dry summer months wetland is nearly unrecognizable as such when hydrology is lacking



Photo 4: Example of one of the leaf, lawn clippings and brush compost piles that encroach on the property



Photo 5: Example of Uplands on property in vicinity of proposed homes