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April 6, 2016

Town of Mansfield
Inland Wetlands and Watercourses Commission
Mansfield, CT.

Re: Wetland function and value assessment report, Meadowbrook Gardens 91-93 Meadowbrook Lane , Mansfield Center, Connecticut 06250

Dear Commissioners:

At your request, I have reviewed the Meadowbrook Gardens development plan for the purposes of assessing the wetland functions and values and potential impacts to the wetlands associated with the development of four multiple unit buildings on approximately 4.6 acres.

Existing Conditions

The proposed development area consists of a relatively flat gravelly upland area located south of Meadowbrook Lane and west of the Whispering Glen – Phase 1 development.

Currently, the proposed development area consists of upland well drained soils. These soils are a Canton – Charlton series which consist of very deep soils formed is a loamy mantle underlain by sandy till. The Taxonomic Class is coarse loamy over sandy-skeletal, mixed semiactive, mesic Typic Dystrudepts. These soils are deep and well drained. They have moderately rapid permeability in the substratum. The runoff class is low, the depth to a spring water table is in excess of 80 inches and the frequency of flooding and ponding is none. The Canton – Charlton gravelly soils are very well suited for the proposed development.

The uplands adjacent to the proposed development are currently forested and will remain as such with the exception of the sparsely vegetated area located to the east between the proposed development and the Whispering Glen development which is under construction.

The central area of this lot, while fairly open, has a good number of early succession White Pine saplings and seedlings. The uplands adjacent to the wetlands is a mature forest containing well stocked White Pine, Hickory, White Oak with an understory of suppressed White Pine, Maple, Beech and Black Birch. The area between the proposed development and the Whispering Glen development contains a 50' to 75' sparsely wooded strip containing large diameter pasture type Maple and White Pine near Meadowbrook Lane transitioning to mature White and Black Oak toward the rear of the lot.

The development area is relatively level throughout while the areas adjacent to the south and west have steeper slopes which drop down to wetlands and an intermittent watercourse beyond the toe of the slopes. This intermittent watercourse leads to Conantville Brook which is a significant watercourse that originates south of Stearns Road and travels under Pleasant Valley as well as Mansfield City Road. Conantville Brook intersects Sawmill Brook, east of Conantville Road. Sawmill Brook empties into the Natchaug River at Lauter Park east of Route 195 and south of the Willimantic Reservoir which is well downstream of the Willimantic Water Works facility

The wetlands and watercourse has been field delineated in April of 2016. This delineation is in agreement of the prior delineation provided by Edward Pawlak. The wetlands were field delineated in accordance with the standards of the standards of the National Cooperative Soil Survey and the definition of wetlands as found in the Connecticut General Statutes, Chapter 440, Section 22A-38.
My delineation has been flagged with Fluorescent pink and blue flagging labeled with numbers WB1 to WB34.

This delineation is not intended to be used for soil mapping but to identify the wetland soils relative to the development and management of this parcel. The wetlands/ watercourse boundaries have been marked with florescent pink and blue flagging as shown on plan.

Wetlands

The predominant wetland area flagged is an intermittent watercourse, however, a few small areas of wetland soil exist adjacent to the watercourse between the edge of the watercourse and the upland soil leading to the area of proposed development. These wetland areas range in depth from 2 linear feet to approximately 20 linear feet south and west of some of the larger flatter areas along the toe of the slope. Additional forested wetland soils exist beyond the watercourse primarily to the west and southwest.

Soils in the wetland areas are primarily the Ridgebury Soil Series and Ridgebury Leicester complex. The Ridgebury Soil Series consists of deep, somewhat poorly and poorly drained soils formed in till derived from granite and schist. These soils are commonly shallow to a densic contact. They are nearly level and gently sloping in low areas within uplands.

TAXONOMIC CLASS: Loamy, mixed, active, acid, mesic shallow Areic Endoaquept

A palustrine scrub-shrub/forested wetland complex lies adjacent to the rear of the intermittent stream on the abutting property. This wetland is vegetated with mixed hardwoods in the sapling and/or small saw timber stages in the overstory, (red and sugar maple, scarlet oak and hickory) and the understory is made up of saplings and various wetland shrub species and vines.

Wetland Functions and Values

The wetland complex was inspected to determine wetland functions utilizing the Army Corps. Of Engineers methodology as outlined in "The Highway Methodology Workbook Supplement". These wetlands and Brook exhibited the following wetland functions with the corresponding rationale:

Ground water recharge and discharge: potential for and public or private wells occur downstream of the wetland, wetland is underlain by stratified drift and gravel or sandy soils present in or adjacent to the wetland, wetland is associated with a perennial watercourse, quality of water associated with the wetland is high and wetland shows signs of variable water levels.

Flood flow alteration: the area of this wetland is large relative to its watershed, effective flood storage is small or non-existent upslope of or above the wetland, wetland contains hydric soils which are able to absorb and detain water, wetland exists in a relatively flat area that has flood storage potential, wetland has ponded water, and signs are present of variable water level, wetland receives and retains overland or sheet flow runoff from surrounding uplands, in the event of a large storm, this wetland receives and detains excessive flood water from a watercourse, valuable properties, structures, or resources are located in or near the floodplain downstream from the wetland, this wetland watercourse is sinuous and diffuse and channel flow velocity is reduced by this wetland.

Fish habitat: forest land and open land are dominant in the watershed above and adjacent to this wetland, there are an abundance of cover objects present, the size of the ponded areas and Brook are able to support very limited small fish populations The wetland is part of a larger, contiguous downstream watercourse, the quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations in Conantville Brook well downstream of the site.

Sediment/toxicant retention: potential sources of sediment are in the watershed above the wetland, opportunity for sediment trapping by slow moving water and deep water habitat are present in this wetland, fine grained mineral or organic soils are present, long duration water retention time is present in this wetland, public or private water sources occur downstream, effective floodwater storage in wetland is occurring, areas of impounded open water are present, channelized flows have visible velocity decreases in the wetland, diffuse water flows are present in the wetland, wetland has a high degree of water and vegetation interspersion, and dense vegetation provides opportunity for sediment trapping and/or signs of sediment accumulation by dense vegetation is present.

Nutrient removal: Shallow water and limited open water habitat exists within the complex beyond the intermittent watercourse. Overall potential for sediment trapping exists in the same areas. Saturated soils exist for most of the season, ponded water may be present in the wetland, organic/sediment deposits are present, dense vegetation is present with emergent vegetation and/or dense woody stems

dominant, water retention/detention time in this wetland is increased by thick vegetation and other dense herbaceous and shrub vegetation in wetlands utilize and immobilize excess nutrients transported/deposited by developed areas upstream.

Production export: Wildlife food sources grow within the wetland beyond the watercourse, evidence of limited wildlife use found within this wetland, higher trophic level consumers may be utilizing this wetland, a few high vegetation density are present, wetland exhibits moderate degree of plant community structure/species diversity, wetland contains flowering plants that are used by nectar-gathering insects.

Sediment/shoreline stabilization: indications of limited siltation is present, topographical gradient exist in wetland, potential sediment sources are present upstream, a wide wetland (>10') borders the backside of the Brook , some moderate flow velocities can occur in the Brook during and after significant storm events , dense vegetation and energy-absorbing emergents and/or shrubs border the Brook to protect water quality.

Wildlife habitat: Wetland is fragmented by significant development both upstream and downstream, however, upland immediately surrounding this wetland is undeveloped and will remain so after completion of this project. No significant animal signs observed (tracks, scats, nesting areas, etc.), wetland contains a population of insects and amphibian populations

A review of the Natural Diversity Data Base maps and files for this area show records of Glyptemys insculpta (Wood Turtle) in the vicinity of this property. While no indication of this turtle was observed during my investigation, best management practices for this state special concern turtle are recommended.

Disturbances to the stream and riparian habitats as well as activities that change the hydrology of the stream (watercourse) could threaten the wood turtle. Although Wood Turtle can be found in forested areas, they always prefer areas that do not have full tree canopy cover similar to the areas observed on the streamside opposite the proposed development. The greatest concern during projects within Wood Turtle habitat are for turtles being run over and crushed by mechanized equipment.

Work within the wetlands and the riparian area between April 1st and September 30th should follow the recommended strategies to protect the Wood Turtle:

- Silt fencing should be installed around the work area prior to construction. This fencing should consist of a full row of natural hay bales well outside of a standard row of silt fence. The use of plastic embedded netting should not be used within direct contact of this type of wildlife.

- Where possible, avoid installing sediment and erosion control materials from late August through September and from March through mid-May. These two time periods are when amphibians and reptiles are most active.

- After silt fencing is installed and prior to construction, a thorough sweep of the work area should be conducted by a qualified individual to look for turtles.

- Workers should be apprised of the possible presence of Wood Turtles , and provided with a description of the species.

- If turtles are discovered, they should be moved, unharmed, to an area immediately outside of the fenced area, and positioned in the same direction that it was moving.
- No vehicles of machinery should be parked in the area outside the installed fence.
- Work conducted during early morning and evening hours should occur with special care not to harm basking or foraging turtles.
- All silt fencing should be removed after work is completed and soils are stable so that reptile and amphibian movement is not restricted.
- Stockpiles of soil should be well cordoned off with silt fence to prevent any native species from nesting in them.

If these protective strategies are followed, it is my opinion that no significant risk to the Wood Turtles will be imparted to this area.

The wetlands were also examined for wetland values (recreational, educational/scientific, visual/aesthetic, or uniqueness/heritage values) and the following values were noted with their rationale:

Recreational value: The wetlands and brook have a limited trail along the abutting sewer line accessible for hiking and photography.

Educational/scientific value: There are a diversity of wetland classes present, any wetland is considered valuable wildlife habitat, there is potential direct access to a perennial stream, if the trail was utilized, it could serve as a educational site a short distance from public schools.

Visual/aesthetic value: There are more than 3 acres of wetlands, an intermittent watercourse and a diversity of vegetative species in view from primary viewing locations, wetland is also easily accessed and considered to be valuable wildlife habitat.

Endangered species habitat: A review of the Natural Diversity Database and a thorough inspection of the wetlands and uplands surrounding the site revealed no specific endangered species habitat was present.

Conclusions:

In summary, it is my opinion that the wetland area, which includes the palustrine scrub-shrub/forested wetlands and floodplain beyond the watercourse / property boundary, are a highly functioning wetland ecosystem which exhibits 8 wetland functions and 3 out wetland values.

Design Plan Review

The extensive use of the seven T-type catch basins combined with storm sewer piping to two storm water recharge basins and three ground water infiltration units consisting of twenty seven individual concrete 4x4 HD Galleries should provide adequate control of precipitation and subsequent impermeable surface runoff generated by this site. It is my opinion that given the permeable type of soils that this project is proposed upon, this proposed construction will have no adverse impact on the surrounding areas including the wetlands.

If you have any questions concerning the wetland function assessment or this report, please feel free to contact me.

Sincerely,

Richard Zulick
Certified Forester and Soil Scientist
Member SSSSNE