



WENTWORTH CIVIL
ENGINEERS LLC
177 West Town Street
Lebanon, Connecticut 06249
Tel. (860) 642-7255
Fax. (860) 642-4794
Email: Wes@WentworthCivil.com

June 26, 2020

Attorney Harry Heller
Heller, Heller & McCoy
763 Norwich New London Tpke.
Uncasville, CT 06382

Re. Wetland function and value / impact assessment report
87 Unit Multifamily development prepared for Lindo Construction,
LLC - 90 Maple Ave., Montville, CT

Dear Attorney Heller:

Per your request, I am writing to you in regards to the onsite wetland functions and values and provide an impact assessment based on the proposed 87 unit multifamily development proposed at the above referenced site. The purpose of this report is to assess the wetland functions and values and the potential impacts to the inland wetlands and watercourses relative to the proposed development.

Field work for this assessment was conducted by this office throughout April and May of 2020.

Existing Conditions

The site consists of approximately 20 acres of land located on the western side of Maple Avenue at the intersection of Pequot Road just northerly of Interstate 395. The site slopes westward, up from Maple Avenue. Site drains to the road frontage via an intermittent watercourse that dissipates at the toe of slope and infiltrates most storm events into Hinckley sand & gravel near Maple Avenue. Larger storm events discharge into an existing catch basin located in the west side of Maple Avenue.

The site is wooded with portions recently timbered and cleared. The majority of the uplands are vegetated with mixed hardwoods and softwoods. These species include tulip, red maple, red oak, black birch and shag bark hickory. The understory ranges from sparsely to moderately vegetated and consists of saplings, pole wood shrubs including iron wood, beech, high bush blueberry and mountain laurel. Herbaceous and vine species include raspberries, fox grape, greenbrier, princess pine and ferns.

Wetlands

Onsite wetlands consist two isolated wetlands on the on the southwestern upper terrace and an intermittent watercourse (also not connected to either wetland) that flows down the steeper slopes and dissipates near the property frontage along Maple Ave.

Wetland #1 -The western most wetland is a hemlock swamp that has formed on a gently to moderately sloped wooded side slope that is derived from a seasonal high groundwater table. This isolated wetland sits up slope from the proposed development. Over story species include hemlock, red maple, red oak, white oak & tulip. Understory is moderately thick with shrubs, herbaceous and vine species that include pole wood and saplings, iron wood, mountain laurel, beech, high bush blueberry, princess pine, greenbrier, sedges, ferns and sphagnum moss. Wildlife consists of typical woodland mammals, birds, reptiles, insects and amphibians.

Wetland #2 -The central wetland is a red maple swamp that has formed on a wooded depression that is long and somewhat narrow and derived from a seasonal high groundwater table. This isolated wetland sits up slope from the proposed development. A small potential vernal pool (approximately 10' x 25' in size) was observed to have wood frog and salamander egg mass present in early April of 2020. However, by the first week of May 2020, the pool had dried out prior to the developing amphibians being able to migrate into the surrounding uplands. Over story species include red maple, black birch, shagbark hickory & tulip. Understory is sparsely to moderately vegetated with shrubs, herbaceous and vine species that include pole wood and saplings, iron wood, mountain laurel, beech, black cherry, high bush blueberry, princess pine, greenbrier, sassafras, honey suckle, sedges, ferns and sphagnum moss. Wildlife consists of typical woodland mammals, birds, reptiles, insects and amphibians.

Intermittent Watercourse – An isolated intermittent watercourse starts and ends onsite without being connected to any other wetlands or watercourses. It begins at the top of the slope as a ground water bleed-out during wetter times of the year. It is a very stony, meandering watercourse that runs down the steeper slopes onsite and then dissipates into the sand and gravel soils located at the toe of the slope. There are no

signs of concentrated flow, erosion or scour downslope of the delineated watercourse. The intermittent watercourse is located along side and down slope of the proposed development. Upland vegetation surrounds the system including white ash, red maple, tulip trees. Moderately dense understory includes saplings of sugar maple, black cherry, beach and hickory, Japanese barberry, raspberry, greenbrier, spicebush and multiflora rose. Other species present include fox grape, sedges and grasses, Canada mayflower and ferns.

Wetland Functions and Values

The onsite wetlands and intermittent watercourse were inspected to determine wetland functions and values utilizing the Army Corps of Engineers methodology as outlined in 'The Highway Methodology Workbook Supplement'. This methodology utilizes eight wetland functions:

- Groundwater recharge and discharge
- Flood flow alteration and storage
- Fish and shellfish habitat
- Sediment, toxicant and pathogen retention
- Nutrient removal, retention and transformation
- Production export
- Sediment and shoreline stabilization
- Wildlife habitat

The methodology recognizes four wetland values:

- Recreational value
- Educational and scientific value
- Uniqueness and heritage value
- Threatened and endangered species habitat

Wetland #1 – Hemlock swamp

This wetland exhibited the following wetland functions:

- Groundwater recharge and discharge – exhibits both depending on seasonal groundwater conditions. Discharge during wetter months and recharge of precipitation during drier times
- Flood flow alteration and storage – minimal function – wetland topography matches that of surrounding uplands
- Fish and shellfish habitat - none
- Sediment, toxicant and pathogen retention – minimal function - there is no upslope source to treat. Overland runoff is primarily sheet flow and shallow concentrated flow through upslope woodlands
- Nutrient removal, retention and transformation– minimal function - there is no upslope source to treat. Overland runoff is primarily

sheet flow and shallow concentrated flow through upslope woodlands

- Production export –numerous tree, shrub and herbaceous species present as food source for wildlife. Berries, seeds and small animals provide for larger birds and mammals
- Sediment and shoreline stabilization - minimal – no shoreline present
- Wildlife habitat – good for many reptile, birds, mammals and amphibian species

Wetlands values include:

- Potential recreational value – aesthetics and easy access due to moderate level of understory
- Potential scientific and educational value – moderate as the area is undisturbed. However there will be no public access on this property
- Uniqueness and heritage value – somewhat low – though this wetland is an important part of the ecosystem, it does not possess highly unique features or known heritage
- Threatened and endangered species habitat – potential habitat for threatened and endangered species, but area is not shaded on the CT DEEP Natural Diversity Database mapping.

Wetland #2 – Red maple swamp

This wetland exhibited the following wetland functions:

- Groundwater recharge and discharge – exhibits both depending on seasonal groundwater conditions. Discharge during wetter months and recharge of precipitation during drier times. Depression topography serves as excellent recharge area
- Flood flow alteration and storage – wetland sits in a narrow depression and is linear in shape. Serves to slow down and detain flows. However, minimal concentrated flows enter the wetlands as the area upslope is primarily undeveloped woodlands
- Fish and shellfish habitat - none
- Sediment, toxicant and pathogen retention – minimal function - there is no upslope source to treat. Overland runoff is primarily sheet flow and shallow concentrated flow through upslope woodlands
- Nutrient removal, retention and transformation– minimal function - there is no upslope source to treat. Overland runoff is primarily sheet flow and shallow concentrated flow through upslope woodlands
- Production export –numerous tree, shrub and herbaceous species present as food source for wildlife. Berries, seeds and small animals provide for larger birds and mammals. Amphibian egg

mass and tadpoles present in early spring serve as food source, although these do not appear to mature in a typical year.

- Sediment and shoreline stabilization - minimal – no shoreline present
- Wildlife habitat – good for many reptile, birds, mammals and amphibian species

Wetlands values include:

- Potential recreational value – aesthetics and easy access due to sparse level of understory – excellent for abutting hiking and trail potential
- Potential scientific and educational value – excellent as the area is undisturbed and easily accessible. However there will be no public access on this property
- Uniqueness and heritage value – average– though this wetland is an important part of the ecosystem, it does not possess highly unique features or known heritage
- Threatened and endangered species habitat – potential habitat for threatened and endangered species, but area is not shaded on the CT DEEP Natural Diversity Database mapping.

Intermittent watercourse:

This watercourse exhibited the following wetland functions:

- Groundwater recharge and discharge – exhibits discharge at the upper reaches and recharge at and below the lower reaches.
- Flood flow alteration and storage – minimal function – watercourse is narrow and moderate to steep in slope. Therefore there is minimal storage area for floodflows
- Fish and shellfish habitat - none
- Sediment, toxicant and pathogen retention – minimal function - there is no existing or proposed upslope source to treat.
- Nutrient removal, retention and transformation–minimal function - there is no existing or proposed upslope source to treat.
- Production export –tree, shrub and herbaceous species present as food source for wildlife. Berries, seeds and small animals provide for larger birds and mammals
- Sediment and shoreline stabilization - minimal – no shoreline present
- Wildlife habitat – good for many reptile, birds, mammals and amphibian species

Wetlands values include:

- Potential recreational value – moderate to thick understory with steep and stony slopes make this area not very accessible.

- Potential scientific and educational value – moderate as the area is undisturbed. However there will be no public access on this property
- Uniqueness and heritage value – somewhat low – though this wetland is an important part of the ecosystem, it does not possess highly unique features or known heritage
- Threatened and endangered species habitat – potential habitat for threatened and endangered species, but area is not shaded on the CT DEEP Natural Diversity Database mapping.

Potential Impacts to Wetlands and Watercourse

The majority of required site clearing has occurred as part of a timber harvest for the site. Erosion and sediment controls are in place and being maintained.

Wetlands and intermittent watercourse direct impacts -No direct impacts are proposed as part of the proposed development.

Impacts to uplands review areas -

Intermittent Watercourse-Minimal incursions into the 50 foot upland review area for site access, underground utilities, grading and drainage facilities. Other than the site entrance drive, which is within the 50' upland review area of the intermittent watercourse due to intersection geometry and sightline requirements, no other roadways, parking, sidewalks or buildings are located within the upland review areas.

The gravel recharge area below the intermittent watercourse is being retained as part of the development. The infiltration basin serving the site is also located downslope from the intermittent watercourse. All site drainage from roof drains, sidewalks, parking areas and roadways is being collected into a subsurface storm drainage system that bypasses the onsite intermittent watercourse.

Wetland # 1 – Hemlock swamp – all activities are proposed downslope and outside of 50' buffer to this wetland area.

Wetland #2 – Red maple swamp – all activities proposed onsite are downslope from this wetland. Minimal grading within 50' upland review area that is downslope from this wetland.

Erosion and Sedimentation Control Measures:

Site specific erosion and sedimentation control plans have been prepared for this project. The project is proposed to be constructed in two phases to minimize the amount of area and time of exposure during construction. All onsite controls have been designed in accordance with the 2002 CT Guidelines for Soil Erosion and Sediment Control handbook and CT DEEP guidelines.

Potential Short Term Impacts:

All plans and best management practices should be adhered to during construction to minimize short term impacts to wetlands and watercourses. This will ensure protection of the wetlands and watercourses throughout the construction project. All plans have been designed to minimize short term impacts to wetlands and watercourses.

Both Wetland #1 and Wetland # 2 are located up gradient from the proposed development, which minimizes the potential for erosion and sediment issues to those resources during construction.

The intermittent watercourse is located beside and below the site and has a higher potential for concern. The main focus during construction for this resource should be to direct flows away from this area during construction, minimize exposure time of exposed soils, inspect and maintain all control measures daily and establish vegetative cover or heavy mulch as quickly as possible. However, it should be noted that the intermittent watercourse does not directly connect to any downstream wetland or watercourse. It is also important that the existing gravel recharge area below the intermittent watercourse be preserved during construction.

Potential Long Term Impacts:

The proposed residential use is low impact by nature relative to other more intense land uses. The proposed plans have been designed to minimize long term impacts to wetlands and watercourses. All development is located down gradient of the two onsite wetland bodies. All drainage runoff from onsite impervious surfaces will be collected and directed around the intermittent watercourse to ensure that no deposits of sediments or scouring of the resource will occur.

It is my opinion that the plans as presented are adequate to protect the onsite wetlands and watercourses.

Please do not hesitate to contact me if you have any comments or questions.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Wesley J. Wentworth', with a long horizontal flourish extending to the right.

Wesley J. Wentworth
P.E., Soil Scientist