April 21, 2020

Town of Enfield
Inland Wetlands and Watercourses Agency
Enfield Town Hall
820 Enfield Street
Enfield, CT

**ATTN:** Chairman Donna Corbin-Sobinski

**RE:** Review of Wetland Boundaries, for IW Application#605:

    Proposed 58-unit, assisted living residential development:
    “All-American Assisted Living” at 118 Hazard Ave, Enfield, CT”

    *CARYA Job No.: 2020-ENF8*

Dear Chairman Corbin-Sobinski and Commissioners:

*CARYA ECOLOGICAL SERVICES* (“CARYA”) of Cheshire, CT, has reviewed the wetland boundaries at the above-referenced site in the field and on the 22-page Plan set prepared by Bohler Engineering. A second opinion was provided by REMA Ecological Sciences, LLC, of Manchester, CT. Sigrun Gadwa and George Logan conducted a joint wetland boundary inspection on April 19th, 2020. Both are soil scientists registered with the Society of Soil Scientists of Southern New England (SSS of SNE), and each have been working in the field of soil and wetland science for over 32 years.

We have been retained by abutting property owner, Richard Chmurra, who is currently renting the 19.435-acre property, which is the subject of the application before the Agency.
He grows corn on the large field in the southern portion of the property, south of the forested north central wetlands on the roughly 3.3-acre area to be disturbed for the proposed development, in the wooded mostly upland northwestern corner of the property. The northwestern development site was disturbed several decades ago by filling with waste shale. We do not know at this time whether wetlands were filled, but it is probable.

Table 1, below, shows the adjacent flag numbers and the estimated square footage of wetland area that was missed, and Figure A, the attached a sketch (annotations on Plan Sheet 15), shows the locations and estimated size of each missed wetland area, based on our field visit. Combined, our conservative estimate of missed area is 885 sf, which brings the total wetland impact area over 5,000 square feet. This would mean that a US Army Corps of Engineers (USACE) review will likely be needed, especially if any of the seasonally flooded areas on the site are vernal pool habitats.

We note that the site has a great deal of wetland area, and the vast majority of the boundaries delineated, adjacent or within the proposed development envelope, are substantially correct. The very gently undulating topography creates subtle depressions, a few of which were missed. The largest is about 445 sf in area. It is a shallow linear depression located southeast of the small man-made, +/-134 sf pool to be filled (including wetland flags #16X and #17x). Although there is no surface connection to another wetland area, there is an active subsurface connection via the groundwater table, due to the highly permeable sandy soil. Even though very shallow rooted princess pine (Paralycopodium obscurum) grows at a similar density in the shallow liner depression, as it grows in the clear-cut adjacent upland.

At this small isolated wetland, the mineral A horizon in the recorded profile hole #1 is 19” thick. Below a 1.5-inch duff horizon (O-horizon). The very dark A1 horizon is saturated to the surface with free water at 6”. It has a mucky fine sand texture and a (10YR 2/1) soil color, shown in Photos A1, and A2 (attached), which also shows the transition to the redder and sandier but still very dark A2 horizon (Munsell color 7.5YR 2.5/2). The B horizon, beginning at 19”, has a chroma of mixed 7.5Y 3/3 and 7.5 Y 3/2 and about 1% gravel, and is a loamy fine sand.
Profile hole #2 is about 15 feet further south, has a similar duff horizon, and has an even thicker A horizon; the color and texture are the same as in Hole #2. The B horizon begins at 22” below the soil surface, and free water begins at a depth of 4”.

By contrast less than 20 feet away to the southwest, the recorded soil profile is clearly from an upland soil (see Photo A4). Soil saturation is to the surface, and the B horizon begins at 7” and mottling begins at 20” from the mineral surface. Note that a change in the water budget and depth to water table can be expected following the loss of multiple mature trees in these transitional uplands with wetland inclusions. A linear parking area (2 rows) is proposed in this location. Trees include 2-foot diameter red oaks.

A small missed wetland area occurs near (north of) Wetland Flag #150 near a stormwater outfall in the southern portion of the site. The missed area is roughly 100 sf, but the major concern here is one of the few native, mature pin oaks observed on the site, and the only invasive Japanese knotweed and Phragmites patches (both young, new infestations). Both spread very readily vegetatively via rhizome and stem fragments. Trucks and heavy equipment are likely to track fragments to other site locations and degrade the currently remarkably uninfested forested wetlands.

Two other moderately small missed wetland areas are in the SE corner of the 4,743 square foot wetland area to be filled, according to the submitted plans, mostly seasonally flooded. The delineation of the wetland portion of the manmade swale parallel to the steep shale bank is approximately 15 feet too short, by wetland flags #141 and #142. A very large red oak is at the northern tip of this wetland. Its loss will raise the water table. In spring surface water is also in the southern part of this swale, which appears to receives overflow from the big field to the south. If it supports hydrophytic vegetation it may be a CT-jurisdictional watercourse. It could also include additional USACE wetland areas, with less stringent soils criteria than pursuant to the Connecticut State statutes. Our review did not include the southern portion of this swale.

Just west of the connection between the main wetland and the swale, the line between Flags #137 and #138 cuts off the rounded northern extension of this wetland area. An additional flag should have been placed between them. This missed wetland area is approximately 100 square feet.
METHODS

Our methods were as follows. Approximately 35 test borings were dug with a hand soil auger in the forested portion of the site, west of the shale fill, to depths of approximately 24-30 inches. We investigated upland areas near the delineated wetlands. We also dug several cores in the field, which had not been delineated, perhaps because no wetlands were found there. Seven cores, all delineated as upland, were documented with field notes and initially with Munsell color chart determinations (5 wetland cores and two upland cores). Munsell colors were consistent, so there was no need to determine them in the latter cores checked in a particular area. The portion of each core above the diagnostic depth (20 inches) from the soil surface, not counting 1-2 inches of duff (i.e., O-horizon) was scrutinized most closely.

Non-soil features were used to a minimal extent, as wetland vegetation is poorly developed this early in spring, and tree root buttressing and drainageways were present in many areas with upland soils, as well as in the wetland soils. Even in the upland areas, including the field to the south, the water table and redoximorphic features began within 20 to 26 inches from the soil surface, and there were signs of active fluctuation in the depth to the water table (bright, high-chroma “bathtub ring”). This is shallow enough to cause buttressing of tree roots.

Digging was straightforward, not hindered by rocks or a compact C-horizon; the soil was texture was fine sandy loam to loamy sand, with high organic matter content in a thickened, saturated A-horizon.

The functional value of the seasonally flooded to seasonally saturated forested wetlands to be filled, appears higher than other several other transitional wetland areas, without free water. Buttressed partly hollow den trees, and some areas may support breeding by spring peepers and toads (both heard calling). The boundaries were found to be correct around the potential vernal pool in the northern portion of the wooded wetland, where an outfall from the stormwater drainage system appears to be discharging. Its substrate has moderately deep organics, and is reported by Mr. Chmurra to retain water year-round during non-droughty summers. Although an investigation for vernal pool obligate amphibians (e.g., wood frogs, spotted salamanders) was not conducted at the time, average water depths ranged from 11 to 14 inches. Upland vegetation in the moist soils of the eastern buffer to
this PVP (potential vernal pool) was interesting, including several ericaceous blueberry/deerberry/huckleberry species and sheep laurel, much less common than mountain laurel with deep pink flowers. These flowering shrubs are important late spring and early summer pollinator species, but these observations relate to wetland function, not to wetland boundaries, which was the main purpose of our field investigations.

In summary, there were four locations where wetland soils extended outside the delineated boundary, as shown on the attached sketch (i.e. Figure A). Soils upgradient of most of the delineated wetland boundaries were substantially correct; with a yellow-brown B-horizon to 20 inches from the mineral surface.

We hope to able to answer any questions that you may have during the virtual commission meeting this evening. Please note that although Figure A is attached to this report, due to time constraints the annotated photos referred to herein will be submitted separately, prior to the start time of the meeting.

Respectfully submitted,

CARVA ECOLOGICAL SERVICES, LLC

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VIA E-MAIL

Attachments: Figure A