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#26730

May 17, 2023

Boxford Conservation Commission
Boxford Town Hall
7A Spofford Road
Boxford, MA 01921

RE: 65 Lockwood Lane – Notice of Intent, DEP No. 114-1365, Revised resource areas and project impacts

Dear Members of the Conservation Commission,

The Commission requested that the resource areas be reflagged as the previous delineation was out of date. The resource areas were reflagged on Monday, May 8, 2023. The following is a summary of the revised resource areas, their buffer zones and project impacts to support the Notice of Intent associated with MADEP File #114-1365 for a proposed swimming pool and associated patio to a single-family home

Wetland Resource Areas

Bordering Vegetated Wetland (BVW) (310 CMR 10.55)

In May 2023, a Professional Wetland Scientist (PWS®) and a qualified wetland scientist field delineated the limit of two (2) separate resource areas identified as Bordering Vegetated Wetland (BVW) and Mean Annual High Water (MAHW) associated with an unnamed perennial tributary to Fish Brook. The reader should be aware that the MAHW series does coincide with bank on some portions of the delineated line.

The following flag series were delineated at the request of the Boxford Conservation Commission:

1. WF A100 through 150
2. WF A200 through 234
3. Mean Annual High Water (MAHW) Flags 100 through 143

In accordance with the MA WPA implementing regulations set forth under 310 CMR 10.55 and the utilization of the methodology described within (1) “BVW: Bordering Vegetated Wetlands Delineation Criteria and Methodology,” issued March 1, 1995; and (2) “Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A handbook,” produced by the Massachusetts Department of Environmental Protection, date March 1995., Hancock Associates staff delineated the existing shrub swamp and shallow marsh Bordering Vegetated Wetlands (BVW), which are defined under 310 CMR 10.55(2)(a) as, “freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps, and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants”. The limit of BVW is further defined as “the line within which

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50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist. Wetland indicator plants shall include but not necessarily be limited to those plant species identified in the Act. Wetland indicator plants are also those classified in the indicator categories of Facultative, Facultative+, Facultative Wetland-, Facultative Wetland, Facultative Wetland+, or Obligate Wetland in the National List of Plant Species That Occur in Wetlands: Massachusetts (Fish & Wildlife Services, U.S. Department of the Interior, 1988) or Plants Exhibiting Physiological or Morphological Adaptations to Life in the Saturated or Inundated Conditions”.

BVW was delineated to the extent that it would broadcast associated buffer zone toward the limits of completed work on the property. The delineation was based on observations of where vegetative species composition transitions from dominance of wetland indicator species to dominance of upland indicator species. Notable wetland hydrologic characteristics include standing water and surface hydrology within both the BVW complexes. Notable hydric soil indicators included saturated organic soils at the surface.

Riverfront Area (RFA) (310 CMR 10.58)

In accordance with the MA WPA implementing regulations 310 CMR 10.58(2)(a), RFA is defined as, *“the area of land between a river's mean annual high-water line and a parallel line measured horizontally. The riverfront area may include or overlap other resource areas or their buffer zones. The riverfront area does not have a buffer zone”.* The jurisdictional horizontal distance of RFA for this location in Boxford, Massachusetts is measured as 200-feet.

MAHW associated with an unnamed perennial stream was field delineated to the extent that it would broadcast associated 200-foot RFA toward the limits of proposed work on the single-family lot. The delineation was based on observations of field indicators of bank full condition and other riverine characteristics defined under 310 CMR 10.58(2)(a), see below:

“Mean Annual High-water Line of a river is the line that is apparent from visible markings or changes in the character of soils or vegetation due to the prolonged presence of water and that distinguishes between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions shall be used to determine the mean annual high-water line. Bankfull field indicators include but are not limited to: changes in slope, changes in vegetation, stain lines, top of pointbars, changes in bank materials, or bank undercuts.

a. In most rivers, the first observable break in slope is coincident with bankfull conditions and the mean annual high-water line.

b. In some river reaches, the mean annual high-water line is represented by bankfull field indicators that occur above the first observable break in slope, or if no observable break in slope exists, by other bankfull field indicators. These river reaches are characterized by at least two of the following features: low gradient, meanders, oxbows, histosols, a low-flow channel, or poorly-defined or nonexistent banks.”

All wetland flags were located via survey and plotted to the Existing Conditions Plan (revised May 12, 2023) herein by a Professional Land Surveyor (PLS) (refer to Revised Site Plan as Attachment A).

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Findings of current delineation

Isolated Land Subject to Flooding (ISLF) and BVW (WF A100-150)

This jurisdictional area is unchanged from the previous delineation. There is a channel starting at the existing bituminous driveway, which runs east into a mapped DEP shallow marsh area, which exhibits ponding during most times of the year. This BVW, also characterized as ILSF, is dominated with European buckthorn (*Rhamnus cathartica*, FAC), crabapple (*Malus floribunda*, NC), sensitive fern (*Onoclea sensibilis*, FACW), Eastern red cedar (*Juniperus virginiana*, FACU), red raspberry (*Rubus idaeus*, FACU), red maple (*Acer rubrum*, FAC), Canada mayflower (*Maianthemum canadense*, FACU), grey birch (*Betula populifolia*, FAC) and Jack-in-the-pulpit (*Arisaema triphyllum*, FAC). Wetland hydrologic indicators observed include buttressed root systems, inundation, and water-stained leaves.

BVW (WF A200-234)

This jurisdictional area borders Fish Brook and is unchanged from the previous delineation. The DEP mapped shrub swamp wetland begins at the culvert on Lockwood Lane running north to south and follows a perennial tributary to Fish Brook. This BVW is characterized by dominant jewelweed (*Impatiens capensis*, FACW), garlic mustard (*Alliaria petiolate*, FACU), poison ivy (*Toxicodendron radicans*, FAC), burning bush (*Euonymus alatus*, NC), red osier dogwood (*Swida sericea*, FACW), skunk cabbage (*Symplocarpus foetidus*, OBL), sensitive fern (*Onoclea sensibilis*, FACW), European buckthorn (*Rhamnus cathartica*, FAC), red maple (*Acer rubrum*, FAC), white pine (*Pinus strobus*, FACU), reed canary grass (*Phalaris arundinacea*, FACW) and cattails (*Typha latifolia*, OBL). Wetland hydrologic indicators mirrored those observed within the WFA100 series, which includes water-stained leaves, buttressed root systems, and saturated soils.

Riverfront Area (MAHW 100-143)

As previously mentioned, MAHW was delineated to the extent that it broadcasts associated 200-foot RFA onto the subject property. The MAHW 100-series runs parallel to the WFA200 series flags. The limit of MAHW associated with an unnamed tributary to Fish Brook at this location was demarcated with a series of forty-four labeled MAHW (100 through 143).

The previous delineation conducted over twenty-two (22) years ago was erroneous in its interpretation of MAHW. It is our opinion that the current delineation of MAHW is accurate based on the visible markings and changes in the character of soils or vegetation between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions were used to determine the MAHW. Bankfull field indicators include changes in slope, changes in vegetation, stain lines, and bank undercuts. The revised RFA is significantly further away from the edge of BVW causing a retraction of the 200-ft RFA on the single-family lot.

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Bordering Land Subject to Flooding (BLSF)

“Bordering Land Subject to Flooding is an area with low flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds, or lakes. It extends from the banks of these waterways and waterbodies; where a bordering vegetated wetland occurs, it extends from said wetland” [310 CMR 10.57(2)(a)]. “The boundary of Bordering Land Subject to Flooding is the estimated maximum lateral extent of flood water which will theoretically result from the statistical 100-year frequency storm... determined by reference to the most recently available flood profile data prepared for the community within which the work is proposed... under the Federal Emergency Mapping Agency...” [310 CMR 10.57(2)(c)].

A portion of the premises are located within the special flood hazard zone (Zone A), also Bordering Land Subject to Flooding (BLSF), which has a local buffer and associated subzones in accordance with the Boxford Wetlands Protection Bylaw. This existing 100-year floodplain is shown on the flood insurance rate map (FIRM) 25009C0263F, effective 07/03/2012 and the approximate limits were taken from MassGIS. According to FEMA Map, the limits of MAHW and Wetland flag A200 delineated resource areas are within the special flood hazard areas, A (no BFE). AE (el.47) and Fish Brook itself is a mapped regulatory floodway.

Estimated Habitat of Rare Wildlife and Priority Rare Species Habitat (EH 1282, PH 1999)

Portions of the property are located within mapped Estimated and Priority Habitats for Rare Species as administered through the Massachusetts Endangered Species Act (MESA). The area around the existing house has been excluded from the mapped NHESP Priority Habitat. A letter requesting confirmation of no take due to the 321 CMR 1.14(5) has been submitted to the Natural Heritage Endangered Species Program. The exception provides for:

“construction or removal of structures that are secondary to the primary residence and located within existing paved areas and lawfully developed and maintained lawns or landscaped areas on residential properties, provided there is no expansion of such existing paved, lawn and landscaped areas.”

All jurisdictional areas have been revised and are shown on the current site plan as Attachment A. This retraction does greatly reduce impact work proposed within the 100-foot Inner Riparian Zone (IRZ) but does not significantly reduce impact the proposed work within the outer 200-foot RFA.

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Proposed Work

The following section provides revised details on the proposed project within the 200-foot RFA of a tributary to Fish Brook and Fish Brook, impacts within buffer zone and buffer zone to the existing floodplain associated with BLSF onsite. The work includes a 20 ft x 50 ft swimming pool with surrounding patio, pool house and grading.

Table 1 below provides details on the impacts associated with proposed work.

Table 1 Impacts to Resource Areas and Buffer Zones

IMPERVIOUS AREA	EXISTING	ORIGINAL DELINEATION	PROPOSED/NEW DELINEATION
100' Buffer Zone to BVW	9,480 SF	+64 SF (9,476 SF)	+813 SF (10,293 SF)
100' Buffer to Floodplain (Zone A)	1,345 SF	N/A	+1002 SF (2,347 SF)
75' No Build Zone to BVW	0	0	0
75' No Build Zone to Floodplain (Zone A)	34 SF	N/A	+53 SF (87 SF)
25' No Disturb Zone to BVW	0	0	0

Table 2 below provides Riverfront Area impacts for the proposed work.

Table 2: Proposed Riverfront Area Impact

TOTAL RIVERFRONT AREA ON SITE (158,708 SF)	EXISTING	ORIGINAL DELINEATION	PROPOSED/NEW DELINEATION
0-100'	120 SF	+20 SF (20 SF)	+10 (130 SF)
100-200'	8,537 SF	+5,182 SF (13,518 SF)	+4,432 SF (12,969 SF)
TOTAL RIVERFRONT AREA IMPACTS	8,657 SF	13, 538 SF OR 9.1%	13,099 SF OR 8.3%

Performance Standards

Bordering Vegetated Wetland (BVW)

No work is proposed within BVW; however work is proposed within the 100-foot buffer zone to BVW. There are no regulatory performance standards for the 100-foot Buffer Zone to BVW under 310 CMR 10.00. There has been no adverse impact to BVW.

Bordering Land Subject to Flooding (BLSF)

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No work is proposed within the mapped 100-year floodplain (Zone A), also BLSF, however work is proposed within the 100-foot buffer zone and local subzone under the Boxford Wetlands Protection Bylaw. There are no regulatory performance standards for the 100-foot Buffer Zone to BLSF/ILSF under 310 CMR 10.00. There has been no adverse impact to these resource areas.

Riverfront Area

The proposed work within the RFA is anticipated to not cause any adverse impact to the protection of the private or public water supply; protection of groundwater; impairment of flood control; prevention of storm damage; prevention of pollution; protection of land containing shellfish; protection of wildlife habitat; and protection to fisheries. Please refer to the revised alternatives analysis below for further information of RFA within previously developed RFAs.

Redevelopment Within Previously Developed Riverfront Areas; Restoration and Mitigation.

The following section provides demonstration with compliance under the Redevelopment Standards.

Per 10.58 (5), “Notwithstanding the provisions of 310 CMR 10.58(4)(c) and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation or expansion of existing structures, improvement of existing roads, or reuse of degraded or previously developed areas. A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds. Work to redevelop previously developed riverfront areas shall conform to the following criteria:”

- a) 310 CMR 10.58(5)(a) states, “*At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40*”.

The project had been designed to avoid, minimize, and mitigate potential adverse impacts to wetlands and RFA to the maximum extent practicable. However, the entirety of the proposed swimming pool is located over what exists as maintained turf lawn, thus the project will not entail the removal of any native vegetation providing wildlife habitat or vegetated buffer to the river, thus minimizing impact.

- b) 310 CMR 10.58(5)(b) states, “*Stormwater management is provided according to standards established by the Department*”.

As a single-family home, the project is exempt from the MassDEP Stormwater Management Standards.

- c) 310 CMR 10.58(5)(c) states, “*Within 200-foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer*

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than existing conditions within 25-foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g)".

Previous response: The corner of the retaining wall of pool patio is proposed closer to the river than existing conditions and it extends into the 100-ft Inner Riparian Zone by ±20 square feet on its westerly corner.

Revised response: The corner of the retaining wall of the pool patio has been clipped to comply with the setback zone/will remain as the revised delineation retracts the RFA beyond the area of the pool patio.

- d) 310 CMR 10.58(5)(d) states, *"Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g)".*

As detailed under our Alternatives Analysis, there is no permissible opportunity to locate the pool further away from the river. The pool will be located adjacent to the existing home. The proponent emphasizes that the features would be located over what exists as turf lawn, which is considered prior "altered" surface area, though it does not necessarily meet the "devoid of topsoil and vegetation" criteria necessary to be considered prior "developed" area.

- e) In accordance with 310 CMR 10.58(5)(e), *"The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g)".*

Previous response: The total RF) on the lot is approximately ±148,911 square feet. In the existing condition, there was a total of ±8,336 square feet of development within the RFA, representing about 4.5% of the total RFA on the lot. In accordance with this standard, with the constructed ±5,182 square feet of swimming pool construction the total post-construction development within RFA would total ±13,538 square feet, representing roughly 9.1% of the total RFA on the lot. The additional degraded area would be within the 100-200-foot Outer Riparian Zone and over previously manicured lawn. The completed work does not exceed the 10% threshold and therefore mitigation is not necessary.

Revised response: Based on the revised delineation of MAHW, the 200-ft RFA limits have been determined to be further away from the proposed project. The new calculation of Riverfront Area is 158,708 square feet with the proposed project impacting 8.3% of the Riverfront Area. The proposed work does not exceed the 10% threshold and therefore mitigation is not necessary.

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- f) In accordance with 310 CMR 10.58(5)(h), “When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary”.

Restoration is not proposed because the proposed work does not exceed the 10% threshold.

- g) When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58 (5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under MGL c.184, §§ 31 through 33 to preserve undisturbed riverfront areas that could be otherwise altered under 310 CMR 10.000, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interest identified in MGL c.131m §40 for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall be given to potential mitigation project, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office Energy and Environmental Affairs.

No mitigation is required or proposed.

- h) The issuing authority shall include a continuing condition in the Certificate of Compliance for projects under 310 CMR 10.58(5)(f) or (g) prohibiting further alteration within restored or mitigation area, except as may be permitted to maintain the area in its restored or mitigated condition. Prior to requesting the issuance of a Certificate of Compliance, the applicant shall demonstrate the restoration or mitigation has been successfully completed for at least two growing seasons.

Noted.

Practical and sustainably equivalent economic alternatives (Fish Brook)

Per 310 CMR 10.58, the definition of practicable is an alternative that is substantially equivalent to economically if it is available and capable of being done after taking into consideration costs, existing technology, proposed use and logistics, in light of the overall project purpose. Available and capable of being done means the alternative is obtainable and feasible.

The four factors to be considered are:

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1. Costs [10.58(4)(c)(1)(a)]

Costs can include expenditures for the project within the riverfront area, such as land acquisition, site preparation, design, construction, landscaping and transactional expenses.

Costs have a significant impact on the subject parcel and its redevelopment potential. The existing home was constructed in 2008 under a previous Order of Conditions. The proposed pool is designed to be accessory to the existing home.

There are three representative physical alternatives that demonstrate that alternative designs are not “Practicable and Substantially equivalent Economic Alternatives”: **Alternative 1**- the “no build” scenario, **Alternative 2**- Relocation of the proposed pool, **Alternative 3**- Reduction in size?

Alternative 1 – The No Build Scenario - The no-build alternative is not practical as it would not achieve the project purpose.

Alternative 2 – Relocation – Relocation of the pool would not result in a more compliant location. The locations for relocation considered are:

- a. Northeasterly side (front) of the house: This would be within the existing driveway and the 75’ No Build Area.
- b. North of the proposed location/adjacent to the driveway: This would still be within the same resource areas as the proposed location.
- c. Southeast of the house: This is not practical as the septic system leaching field is located here.

None of these locations are compatible with the layout of the house.

Alternative 3 – The project as designed and proposed. Impacts have been minimized to the extent practicable.

2. Existing technology [10.58(4)(c)(1)(b)]

There are no existing technologies that would affect the proposed work.

3. Proposed use [10.58(4)(c)(1)(c)]

The site is developed as a single-family house lot. Residential use is a low impact use. The proposed use is accessory to the existing single-family house. The swimming pool is situated in the rear yard, immediately adjacent to and aligned with the floorplan of the house. This is keeping within the use of the site and current use as a single-family house. No change in use is intended.

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4. Logistics [10.58(4)(c)(1)(d)]

Logistics refers to the presence or absence of physical characteristics that may influence development. There are no logistical constraints that inhibited the placement of pool aside from zoning.

As this lot was in existence prior to August 1, 1996, the scope of alternatives is limited to the lot. Due to the existing location of the house within the 200-foot Riverfront Area, aside from the “no build” alternative, there is no practicable alternative placement of the accessory structures which would entirely avoid disturbance within the Riverfront Area.

Conclusion

The physical activity of construction will not result in any significant impacts to the wetland resource areas. As such, we request that the Commission consider issuance of an Order of Conditions to permit to work described herein. Thank you for your consideration in this matter.

Regards,
Hancock Associates on behalf of Mr. Audai Cote



Kristan Farr
Project Wetland Scientist

cc: MassDEP Northeast Regional Office (NERO)

Attachments:
A – Revised Site Plan