

February 23, 2018

Town of Hingham
Zoning Board of Appeals
210 Central Street
Hingham, MA 02043

Re: Wetland Delineation Review
River Stone Development
Off Ward Street & Viking Way

Dear Board Members:

Per your request, I have reviewed the existing site conditions to determine the accuracy of the bordering vegetated wetland delineation within the 6.67-acre property located off Ward Street and Viking Way (Assessor's Map 134, Lots 70-75 and 26) in Hingham, Massachusetts. A Comprehensive Permit application has been submitted to the Town of Hingham Zoning Board of Appeals for the proposed River Stone residential development. The site investigation was conducted in accordance with the Massachusetts Wetlands Protection Act ("Act") (M.G.L. Chapter 131 Section 40) and its implementing regulations (310 CMR 10.00) as well as the Town of Hingham Wetlands Protection Regulations ("Bylaw"). In addition, I also reviewed site plans and application materials submitted for the Project and conducted a field review of the property on February 16, 2018.

Jurisdiction

Section 404 – Clean Water Act

Wetlands, springs, and other waters of the U.S. are regulated under Section 404 of the Clean Water Act ("CWA") by the U.S. Army Corps of Engineers ("USACE"). Federally jurisdictional wetlands include interstate wetlands, wetlands adjacent to waters of the U.S. and intrastate wetlands whose degradation or destruction could affect interstate or foreign commerce as per the application of the CWA. According to the 1987 Wetland Delineation Manual (USACE 1987), areas must exhibit three distinct characteristics to be considered wetlands:

1. The prevalent vegetation must consist of plants adapted to life in hydric soil conditions. These species, due to morphological, physiological, and/or reproductive adaptations, can and do persist in anaerobic soil conditions;
2. Soils in wetlands must be classified as hydric or they must possess characteristics that are associated with reducing soil conditions; and
3. The area must be inundated either permanently or periodically at mean water depths less than 6.6 feet (2 meters) or the soil saturated at the surface for some time during the growing season of the prevalent vegetation.

Massachusetts Wetland Protection Act

The Act defines freshwater wetlands as: wet meadows, marshes, swamps, bogs, areas where groundwater, flowing or standing surface water or ice provide a significant part of the supporting substrate for a plant community for at least five months of the year; emergent and submergent plant communities in inland waters; that portion of any bank which touches any inland waters.

Bordering Vegetated Wetland

Bordering Vegetated Wetlands ("BVWs") are defined in the Act regulations as "freshwater wetlands which border on creeks, rivers, streams ponds and lakes...Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants." The boundary of a BVW is defined as

“the line within which 50 percent or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist” (310 CMR 10.55(2)).

Town of Hingham Wetlands Protection By-Law, Rules and Regulations

Per Section 2.0 of the Town of Hingham Wetlands Regulations (“HWR”), the Bylaw and Regulations provide protection for Resource Areas and their wetland values. Resource Areas protected under the Bylaw are ANY of the following: “freshwater or coastal wetland, isolated wetland, beach, dune, flat, marsh, wet meadow, bog, swamp, vernal pool, creek, river, stream, pond, lake, estuary, or ocean”. In addition, the Bylaw and HWR also provide protection for “land subject to flooding or inundation by groundwater or surface water, including but not limited to, fresh water wetlands, isolated wetlands, beaches, wet meadows, marsh, swamps, bogs, vernal pools, streams, rivers, ponds, lakes, or reservoirs”. Isolated wetlands, excepting those that classify as Isolated Land Subject to Flooding, are not protected under the Act, but are subject to the jurisdiction of the USACE, MA DEP 401 Water Quality Regulations (314 CMR 9.00) and the By-Law.

The boundary of vegetated wetlands is defined as the line within which 50% or more of the vegetation community consists of wetland indicator plants and saturated or inundated conditions exist. The boundary of vegetated wetlands may be further refined by the submission of indicators of saturated or inundated conditions including one or more of the following:

1. Groundwater, including the capillary fringe, within a major portion of the root zone;
2. Observation of prolonged or frequent flowing or standing surface water;
3. Characteristics of hydric soils.

Existing Conditions

The property is currently undeveloped although there is an existing cul-de-sac access road (Viking Way) that is constructed and provides access to the site from Ward Street. The site is located to the east of Ward Street approximately 0.16 mile south of the intersection with High Street. Ward Street and existing single-family residential development abuts the property to the west, residential and undeveloped land to the north and east and the Kingdom Hall of Jehovah’s Witnesses to the south. The property extends to the south and east from Ward Street with upland forest comprising the majority of the land not previously disturbed by construction of Viking Way. There is a small BVW located along the eastern property boundary.

Vegetation within the forested and undeveloped portions of the site are comprised of a well-developed overstory dominated by red oak (*Quercus rubra*), white oak (*Quercus alba*), white pine (*Pinus strobus*), white ash (*Fraxinus americana*) and black cherry (*Prunus serotina*) in the overstory. The sapling and shrub layers within upland portions of the site are relatively sparse and consist of the same species as the overstory along with a number of remnant apple (*Malus* sp.) and staghorn sumac (*Rhus typhina*) trees. The shrub and herbaceous layers are well-developed and contain species including blackberry (*Rubus* sp.), Canada goldenrod (*Solidago canadensis*), multiflora rose (*Rosa multiflora*), common greenbriar (*Smilax rotundifolia*), poison ivy (*Toxicodendron radicans*) and glossy buckthorn (*Rhamnus frangula*). Soils within the property are classified as Warwick fine sandy loam in the northern and western portions of the site and Sudbury fine sandy loam in the western and southern portions.

In June 2015, Environmental Consulting & Restoration (“ECR”) delineated the BVW within the property with a series of pink and black flags numbered A1 (start) through A-31 (end). The wetland commences in the eastern portion of the subject parcel just east of the existing cul-de-sac and extends east and south adjacent and into Lot 124-14 (#18 Autumn Circle) before extending off site to the east into Lot 124-27. The BVW is associated with an intermittent stream located further off property to the east within Lot 124-27. The BVW contains a predominance (greater than 50%) of hydrophytic vegetation within all strata, and prevalent species include red maple, glossy buckthorn, northern arrowwood (*Viburnum dentatum*), highbush blueberry (*Vaccinium corymbosum*) and American elm (*Ulmus americana*). Soils within the BVW were hydric and contained redoximorphic features such as mottles and oxidized rhizospheres. Standing water to a depth of approximately 8 inches was present within the eastern portion of the wetland in the vicinity of wetland flags A1 through A11 (See attached photos).

The site has been subject to previous / historic disturbance as evidence by the presence of fill piles and debris within the BVW. Based on the presence of mature vegetation and lack of indication of recent activity, this disturbance does not appear to be associated with construction of Viking Way. Review of the Massachusetts Natural Heritage and Endangered Species datalayers (MAGIS 2018) indicates that the property is not located within an Estimated or Priority Habitat of Rare Species, and there are no certified vernal pools within 100 feet of the parcel boundary.

Wetland Boundary Review Methodology

The wetland delineation methodologies outlined in the ACOE Wetlands Delineation Manual (Environmental Laboratory 1987), the MADEP publication *Delineating Bordering Vegetated Wetlands 1987* and the By-Law were used to review the delineated BVW boundary within the property. A review of existing mapping provided by the Conservation Commission was conducted prior to the field survey. Vegetation, soils, and hydrology data were assessed during the review to determine whether the three wetland parameters were satisfied for delineated wetland areas and whether additional areas of BVW were present within the site.

The specific methods for characterizing and evaluating vegetation, hydrology, and soils for the wetland determination were performed as follows:

Vegetation: Species abundance in both upland and wetland communities were visually estimated. Dominant trees and shrubs/saplings were recorded within a 30-foot and 15-foot radius, respectively, of the documentation plot. Dominant herbaceous vegetation was recorded within a 5-foot radius of the plot. SRE identified plant species using appropriate botanical reference material for the region. The indicator status of each species was identified using the *National List of Plant Species That Occur in Wetlands, Region 1-Northeast* (Resource Management Group 1999). A predominance of hydrophytic vegetation was determined to be present where greater than 50 percent of the dominant species within the observation plot were classified as facultative ("FAC+" or "FAC"), facultative wetland ("FACW"), or obligate ("OBL").

Soils: SRE characterized the soil profile to determine the presence or absence of hydric soil indicators. Soil borings were taken with a hand-held auger to depths of approximately 18-24 inches to observe the soil profile and evaluate redoximorphic features, if present. Information collected for each soil profile included horizon depth, texture, color and the presence or absence of redoximorphic features ("mottles"). Colors of the soil matrix and mottles were identified using Munsell Soil Color Charts. SRE based all hydric soil determinations on criteria established in the USACE Wetland Delineation Manual (Environmental Laboratory 1987), in association with *Field Indicators of Hydric Soils in the United States* (NRCS 2006) and *Field Indicators for Identifying Hydric Soils in New England* (NEIWPCC 2004). Additionally, SRE noted the presence of any saturation and/or standing water encountered during the soil profile description.

Hydrology: Site hydrology was evaluated during field surveys by noting whether the soil at the surface was inundated or saturated. If the ground surface was dry, the depth to freestanding groundwater or saturated soil was measured, and the presence or absence of other field evidence of wetland hydrology (e.g., drift lines, water-stained leaves, etc.) was noted. The wetland hydrology criterion was met if one or more primary or two or more secondary field indicators were present (Environmental Laboratory 1987).

Results

The focus of the field review was to (1) determine the accuracy of the wetland boundary as delineated by ECR and (2) determine whether there are any additional wetland resource areas within 100 feet of the subject property.

Bordering Vegetated Wetland

While many of the wetland flags were either missing or torn, sufficient evidence was identified in the field to follow the delineated wetland boundary. The majority of the wetland boundary is well-defined by slope as well as a

change in dominant vegetation from predominantly hydrophytic to predominantly upland indicator species. There is a small, narrow channel between the western and eastern lobes of the wetland and appears to function as an overflow and hydrologic connection within the BVW. There was no water present within the channel at the time of the field review. Based on the review methodology above, the BVW boundary as delineated by flags A1 through A31 is accurate. No modifications to the wetland boundary are proposed.

Vernal Pool

The term “vernal pool” is defined under the HWR is defined as any confined basin or depression not occurring in existing lawns, gardens, landscaped areas, or driveways which, at least in most years, holds water for a minimum of two continuous months during the spring and/or summer, is free of adult fish populations, and provides essential breeding and rearing habitat functions for amphibian, reptile, or vernal pool community species, regardless of whether the wetland site has been certified as a vernal pool by the Massachusetts Division of Fisheries and Wildlife and Fisheries. The western lobe of the BVW is a confined depression that could potentially function as a vernal pool per HWR. No information was provided by the applicant within the Comprehensive Permit application with respect to whether or not the portion of the BVW between flags A1 and A11 functions to provide breeding habitat for obligate vernal pool species. Therefore, SRE could not determine the vernal pool status of the area.

Off-Site Bordering Vegetated Wetland

Review of DEP wetland mapping on MAGIS (2018) indicates that there is an additional bordering vegetated wetland located to the south of Ward Street that is within 100 feet of the subject property (See attached figure). For reference with respect to the project site plans submitted with the Comprehensive Permit application, the BVW is located south of Ward Street where the subject parcel abuts Ward Street between #s 64 and 70 Ward Street. This BVW was not delineated in the field since the applicant does not have survey access permission for the property (which is not owned or under agreement by the applicant).

Comprehensive Permit Waiver Request – Hingham Wetlands Bylaw and Regulations

Based on the review of the site conditions and materials submitted by the proponent, the extent of existing and potential wetland resource areas has not been accurately identified. While the BVW boundary within the site has been delineated accurately, a portion of the BVW may function to provide vernal pool habitat. In addition, the 100-foot buffer zone associated with a second BVW located south of Ward Street may extend into the subject property. Without a complete delineation and identification of the areas subject to jurisdiction of the Act and Bylaw, a comprehensive review of the proposed waiver request cannot be completed. For example, should the portion of the BVW function to provide vernal pool habitat, the associated 100-foot buffer zone would provide significant upland habitat for obligate breeding vernal pool species such as wood frogs (*Rana sylvatica*) and spotted salamanders (*Ambystoma maculatum*). The subsequent analysis of Project-related impacts on the BVW and vernal pool and its ability to provide wildlife habitat under the HWR with respect to the waiver request would focus on different performance standards under the HWR.

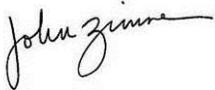
As part of the Comprehensive Permit application, the project proponent has requested multiple waivers from the Bylaw and the performance standards within the HWR (most recently updated on 2/12/18). The waiver request consisted of a table identifying the sections of the Bylaw and HWR from which the proponent is seeking relief. The proponent provided a blanket statement that “without the requested waivers, the Project could not be constructed” but did not provide any supporting documentation and/or analysis as to why the performance standards could not be met. The HWR provides substantive analysis with respect to the function and value of the various wetland resource areas and associated buffer zones. SRE recommends that the ZBA request that the proponent accurately identify all of the wetland resource areas within 100 feet of the subject property including vernal pools and also provide an analysis demonstrate that there are no other substantially equivalent project design alternatives that would demonstrate a greater degree of compliance with the HWR regulations prior to issuance of a waiver.

Conclusion

Upon completion of a thorough analysis of the vegetation, soil and hydrology, it is my opinion that the BVW boundary as delineated in the field and depicted on the site plan with a revision date of February 2, 2018 is accurate. SRE recommends that the additional wetland boundary to the south of Ward Street be delineated to establish the limit of the 100-foot buffer zone since it may extend into the subject parcel. Finally, the vernal pool status of the western lobe of the wetland between flags A1 and A11 should be determined as a positive vernal pool determination would result in additional resource area protections under the HWR and potentially Section 404 of the Clean Water Act. The full extent of areas subject to jurisdiction under the Act and the Bylaw cannot be determined until these additional surveys have been completed.

SRE appreciates the opportunity to provide this information. Should you have any questions regarding this report, please do not hesitate to contact me at 978-697-0854 or via email at southriverenvironmental@gmail.com.

Sincerely,
South River Environmental



John Zimmer
Wetland Scientist

SITE PHOTOGRAPHS



View of BVW in vicinity of flags A1 through A11. Potential vernal pool habitat.



View of interior of BVW in vicinity of wetland flags A18 and A19.



View of upland buffer zone between western and eastern sides of BVW.