WILDLIFE HABITAT EVALUATION

Proposed Single Family House
South Street (Map 180; Parcels 25 & 26)
Foxborough, Massachusetts

SUBMITTED TO:
Town of Foxborough
Conservation Commission
40 South Street
Foxborough, MA 02035

PREPARED FOR:
Florence Einis
33 Briar Hill Road
Sharon, MA 02067

PREPARED BY:
Lucas Environmental, LLC
500A Washington Street
Quincy, Massachusetts 02169

REPORT DATE: July 2, 2020

LUCAS ENVIRONMENTAL, LLC

LUCAS
ENVIRONMENTAL, LLC

500A Washington Street, Quincy, MA 02169

July 2, 2020

Foxborough Conservation Commission
40 South Street
Foxborough, MA 02035

Re: Wildlife Habitat Evaluation
Proposed Single Family House
South Street (Map 180; Parcels 25 & 26)
Foxborough, MA 02035

Members of the Foxborough Conservation Commission:

On behalf of the Applicant, Florence Einis, Lucas Environmental, LLC (LE) is pleased to submit this Wildlife Habitat Evaluation for the proposed single family house on South Street (Map 180; Parcels 25 & 26) in Foxborough, Massachusetts. A Professional Wetland Scientist (PWS) from LE conducted a Detailed Wildlife Habitat Evaluation (WHE) at the location where resource area impacts are proposed. The purpose of the WHE is to determine if the project would have an "adverse effect" on wildlife habitat in accordance with the Massachusetts Wetlands Protection Act (M.G.L Chapter 131 Section 40) and its implementing Regulations (310 CMR 10.00 and 10.60) as well as protect the interests of the Foxborough Wetlands Protection Bylaw (Chapter 267) and Regulations with respect to wildlife habitat. This investigation included both a field and office-based component.

Enclosed please find the WHE submittal, which includes a Wildlife Habitat Evaluation Narrative, Wildlife Habitat Protection Guidance Appendix A and B (the Simplified and Detailed Wildlife Habitat Evaluation Field Forms), Photographic Documentation, and Qualifications.

If you have any questions, please do not hesitate to contact me at 617.405.4140 or cml@lucasenvironmental.net. Thank you for your consideration in this matter.

Sincerely,
LUCAS ENVIRONMENTAL, LLC

Christopher M. Lucas, PWS, CWS, RPSS
Environmental Consultant/Soil Scientist

Enclosures: Simplified and Detailed Wildlife Habitat Evaluation Field Forms
Figure 1 – Habitat of Potential Regional or Statewide Importance
Photographic Documentation
Qualifications

LUCAS ENVIRONMENTAL, LLC

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SECTION I – NARRATIVE

1.0 INTRODUCTION

This Detailed Wildlife Habitat Evaluation (WHE) has been prepared by Lucas Environmental, LLC (LE) to accompany a Notice of Intent (NOI) for a proposed single family house located on South Street (Map 180; Parcels 25 & 26) in Foxborough, Massachusetts. This evaluation has been prepared in accordance with requirements of the Massachusetts Wetlands Protection Act (M.G.L Chapter 131 Section 40, the "WPA") and its implementing Regulations (310 CMR 10.00 and 310 CMR 10.60, the "Regulations"). The Wetlands Protection Act generally requires a WHE when a proposed project will alter Bordering Vegetated Wetlands (BVW), Inland Bank, Land Under Waterbodies and Waterways (LUWW), Bordering Land Subject to Flooding (BLSF), and/or Riverfront Area beyond established thresholds.

The only resource area proposed to be altered for this project is Riverfront Area (RFA). The Regulations generally allow for alteration of up to 5,000 square feet or 10% of the RFA on the lot, whichever is greater, and state that for work within an undeveloped RFA that exceeds 5,000 square feet, the issuing authority may require a wildlife habitat evaluation. However, at 310 CMR 10.58(4)(d)(3) the regulations also state that no wildlife evaluation is required in certain cases for a single family house lot:

"*Notwithstanding the provisions of 310 CMR10.58(4)(d)1. or 2., the issuing authority shall allow the construction of a single family house, a septic system if no sewer is available, and a driveway, on a lot recorded before August 7, 1996 where the size or shape of the lot within the riverfront area prevents the construction from meeting the requirements of 310 CMR 10.58(4)(d)1. or 2., provided that:*

a. The lot can be developed for such purposes under the applicable provisions of other municipal and state law; and

b. The performance standards of 310 CMR 10.58(4)(d) are met to the maximum extent feasible. In difficult siting situations, the maximum extent of yards around houses should be limited to the area necessary for construction. Except where the lot contains vernal pool habitat or specified habitat sites of rare species, a wildlife habitat evaluation study shall not be required."

Because this project proposes >5,000 square feet of RFA alteration, and because wildlife habitat is also a protected interest under the Foxborough Wetlands Protection Bylaw, a wildlife habitat evaluation was conducted at the site. The WHE has been prepared to analyze impacts to wildlife habitat within the Riverfront Area. For the purposes this evaluation, LE has relied on impact numbers and site plans prepared by Spink Design, which describe the limits of the impact area. Wetland resource areas are further described in the Notice of Intent narrative, accompanying this report. For the purposes of this WHE, LE has separated the overall impact area into two areas based on proposed activity and assigned each with a number that is used throughout this document. Table 1-1 summarizes the location and approximate size of each impact area.

TABLE 1-1
IMPACT AREA SUMMARY

Impact Area #	Impact Area Name	Riverfront Area Impact
1	House Development Area	Approximately 14,075 square feet
2	Riverfront Restoration Area	Approximately 6,277 square feet

2.0 METHODOLOGY

In accordance with 310 CMR 10.60(2)(a) regarding wildlife habitat characteristics (topography, wildlife usage, soil structure, plant community composition and structure), the impact areas were evaluated for their ability to provide important habitat function and value. This evaluation was also conducted following the guidelines established in the March 2006 MassDEP document *Massachusetts Wildlife Habitat Protection Guidelines for Inland Wetlands.* A Wildlife Habitat Evaluation was performed in specific areas where resource area alterations are proposed (i.e., the impact areas). For the purposes of this report, LE has analyzed two (2) contiguous but discreet impact areas within the project site. The RFA impact areas are listed in Table 1.

The MassDEP's Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands, June 2006, adopted an approach for assessing wildlife habitat impacts associated with work in wetland resource areas that utilizes maps developed at the University of Massachusetts Amherst using the Conservation Assessment and Prioritization System (CAPS). The maps depict "Habitat of Potential Regional or Statewide Importance" that may trigger more intensive levels of review. These maps, also known as "Important Habitat" maps, are available as high-resolution PDFs for each town and city. They are based on an integrated index of ecological integrity and depict all areas (not just regulated resource areas) that score in the top 40% for IEI-I. Areas so designated as "Habitat of Potential Regional and Statewide Importance" represent 40% of the undeveloped landscape as well as 40% of each ecological community (e.g. forest, shallow marsh, shrub swamp, forested wetland, salt marsh). Areas within the polygons that are also within Wetland Protection Act jurisdiction represent "Habitat of Potential Regional or Statewide Importance" and may trigger detailed review.

A LE Professional Wetland Scientist observed wildlife habitat present on the site and collected habitat feature data on May 11, 2020 and a Simplified Wildlife Habitat Evaluation (Appendix A) was completed for the site. Detailed Wildlife Habitat Evaluation Field Data Forms (Appendix B) were also completed for each of the two impact areas. Part 1 of the Summary Sheet of the Forms is provided and summarizes the impact area locations evaluated. Part 2 of the Field Data Forms notes several important habitat features which, if present, may provide habitat for specified wildlife. The habitat features noted on the Forms include, but are not limited to: the presence/type of food sources, standing dead trees (snags), tree cavities, cover/perches/basking habitat, rocks in stream bed, dens and nests, and emergent wetlands. The data obtained were also used to describe the physical characteristics of the impacted areas and relate them to the ability of the resource area to provide wildlife habitat as it relates to topography, soil composition and structure, and plant community composition and structure, as described in 310 CMR 10.00.

The study examined the following wildlife characteristics as outlined in 310 CMR 10.60(2):

e) Riverfront Area: the topography, soil structure, plant community composition and structure, and hydrologic regime can provide the following important wildlife habitat functions:

1. *Food, shelter, overwintering and breeding areas for wildlife, including turtle nesting areas, nesting sites for birds which typically reuse specific nesting sites, cavity trees, and isolated depressions that function as vernal pools.*
2. *Migratory areas along the riparian corridor including the movement of wildlife unimpeded by barriers within the riverfront area.*

Section 310 CMR 10.60 does not establish wildlife habitat thresholds for Riverfront Area. Per the Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands:

D. Resource Areas without Thresholds

Important wildlife habitat functions may be protected for alterations of any size in Bordering Vegetated Wetlands and Riverfront Area or in Isolated Land Subject to Flooding if it is vernal pool habitat.

1. RIVERFRONT AREA

The entire Riverfront Area is presumed to be significant for wildlife habitat. However, different review requirements apply depending on whether the riverfront is undeveloped (310 CMR 10.58(4)), previously developed (310 CMR 10.58(5)) or if the activity is grandfathered or exempted from requirements for the riverfront area (310 CMR 10.58(6)). Review requirements are detailed below. In riverfront areas that contain coastal resource areas, this guidance would apply only to those portions of the riverfront area that are landward of coastal bank, salt marsh, dune and rocky intertidal shores. Riverfront area extends to the mouth of river line referenced in 310 CMR 10.58(2)(c).

ALTERATIONS TO UNDEVELOPED RIVERFRONT BELOW 5000 S.F.

The regulations allow alterations below 5000 s.f. if the proposed work does not impair the capacity of the riverfront area to provide important wildlife habitat functions. However, projects cannot have an adverse effect on a vernal pool certified prior to the filing of the application or a vernal pool (not yet certified) that is documented as such by evidence from a competent source during the application process. Thus, applicants must submit Appendix B for any size riverfront alterations that are certified or documented vernal pool habitat. In all cases where Appendix B is required the project shall not adversely affect (as defined in Section V) wildlife habitat.

ALTERATIONS TO UNDEVELOPED RIVERFRONT ABOVE 5000 S.F.

Applicants should submit a simplified wildlife habitat evaluation (Appendix A) and must demonstrate that the project will not adversely affect wildlife habitat (Section V) for all projects altering greater than 5000 s.f. of undeveloped riverfront area. Applicants must submit a detailed wildlife habitat evaluation (Appendix B) for all alterations that are greater than 5000 s.f. that alter any portion of Habitat of Potential Regional or Statewide Importance or for any size alteration to certified or documented vernal pool habitat.

The following sections are intended to assess the ability of the impact areas to function as important wildlife habitat in terms of topography, soil structure, plant community composition and structure, and hydrologic regime. Also provided is a summary of the characteristics of the impact areas and identified important habitat features.

The Existing Conditions for the site are detailed in the Notice of Intent application.

3.0 WILDLIFE HABITAT EVALUATION

This section is intended to assess and evaluate the ability of the impact areas to function as important wildlife habitat in terms of topography, soil composition and structure, and plant community composition and structure at each of the impact areas. *Appendix A: Simplified Wildlife Habitat Field Form* was completed for the site and is provided in Appendix A. *Appendix B: Detailed Wildlife Habitat Field Forms* have been completed for each impact area (See Appendix B – Detailed Wildlife Habitat Field Forms). Photographic documentation of each impact area is included (See Appendix C – Photographic Documentation).

The proposed project will impact approximately 20,352 square feet of upland Riverfront Area, of which 6,277 square feet is proposed restoration. No direct impacts to any other resource area are proposed. The impact numbers provided are inclusive of both temporary and permanent impacts. Impacts to the RFA will be mitigated through proposed restoration and enhancement of approximately 6,277 square feet of previously disturbed RFA. The restoration includes planting of native vegetation high in wildlife value, replacement of other impacted habitat features, and management of invasive vegetation at the site. Details of the proposed RFA mitigation are included in the NOI application.

The MassDEP CAPS map of Habitat of Potential Regional of Statewide Importance for the Town of Foxborough (Figure 1) indicates no area of potential important wildlife habitat present in close proximity to the site. The closest important habitat areas indicated on this map are located approximately 0.4 miles north and 0.4 miles northwest of the site. NHESP has not identified any long-eared bat roosting trees or winter hibernacula within the town of Foxborough (www.mass.gov/service-details/the-northern-long-eared-bat).

For the purposes of this evaluation, LE has reported important wildlife habitat features that will be temporarily or permanently disturbed by the proposed project within the impact areas, but has not included complete quantitative estimates of all habitat features on the entire site. It should be noted that at the time of the site inspections, herbaceous cover was present but limited due to the time of year. According to the WPA, within the Riverfront Area topography, soil structure, plant community composition and structure, and hydrologic regime may provide important food, shelter, breeding, overwintering and migratory areas along the riparian corridor. The following describes the habitat features within the impact areas and generally within the RFA.

3.1 Impact Area 1 – House Development Area

Impact Area 1 consists of approximately 14,075 square feet and includes the area of the proposed house, driveway, deck, and lawn. Approximately 10,551 square feet of this impact area is located within the inner 100-foot riparian zone of the RFA, with the remaining approximately 3,524 square feet located in the outer riparian zone. The limit of this impact area is the 25-foot No Activity Zone.

The impact area and RFA in general consist of wooded land with relatively high occurrence of several non-native and invasive species. Historic fill is evident over this entire impact area.

Topography

The topography within this impact area is relatively level.

Soil Composition and Structure

Soil structure is expected to play a role in determining the suitability for burrowing, hibernation, and other cover. Soils within the impact area consist of a sandy loam fill material that includes rocks, rubble, and debris. No animal burrows were observed in this impact area, although the potential exists to be used by a variety of small mammals, reptiles, and amphibians.

Plant Community Composition and Structure

The plant community within Impact Area 1 is wooded with a relatively closed canopy and patches of dense shrub cover. Herbaceous vegetation was relatively sparse; however, the herbaceous layer was not yet fully established at the time of the habitat evaluation. The tree layer within this impact area consists of approximately 60% aerial cover and is dominated by white ash (*Fraxinus americana*), with red maple (*Acer rubrum*), Norway maple (*Acer platanoides*), red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), box elder (*Acer negundo*), and black cherry (*Prunus serotina*) also present.

The shrub layer within this impact area consists of approximately 60% aerial cover dominated by multiflora rose (*Rosa multiflora*) and tatarian honeysuckle (*Lonicera tatarica*) and also includes scattered box elder, black cherry, common elderberry (*Sambucus canadensis*) and silky dogwood (*Cornus amomum*). Woody vines are relatively sparse (<5% aerial cover) in this impact area and include poison ivy (*Toxicodendron radicans*), Oriental bittersweet (*Celastrus orbiculatus*), Virginia creeper (*Parthenocissus quinquefolia*), and multiflora rose climbing in trees.

At the time of the evaluation, the herbaceous layer within this impact area contained approximately 40% aerial cover consisting primarily of small multiflora rose, garlic mustard (*Alliaria petiolata*), Canada mayflower (*Maianthemum canadense*), and common blue violet (*Viola sororia*). Site observations by LE personnel in October of 2018 recorded goldenrods (*Solidago spp.*), common mullein (*Verbascum thapsus*), and pokeweed (*Phytolacca americana*) within the RFA at the site and, although not recorded as specifically within this impact area, it is likely these plants are also present to some extent within this impact area later in the growing season.

Important Habitat Features

The seeds, flowers, bark, and twigs of the vegetation may provide a food source for birds and mammals. Within Impact Area 1, the highest value food habitat features are likely the soft mast provided primarily by multiflora rose and hard mast provided by a large red oak tree. Important vegetation structure and cover is also present.

Based on completion of the Appendix B form, LE has identified the following important wildlife habitat features within Impact Area 1:

- upland food plants (soft mast (berries) associated with fruiting shrubs);
- upland food plants (hard mast associated with one large red oak tree);

- shrub thicket (possible worms and potential veery (*Catharus fuscescens*) nesting habitat);
- standing dead trees (three 6-12 inch dbh and one 12-18 inch dbh);
- tree cavities (two cavities in 6-12 inch diameter trunk/branch);
- large woody debris on the ground (numerous 6-12 inch diameter); and,
- likely presence of small mammal burrows (although none were observed within this impact area).

The impact area contributes to a limited number of connectors to adjacent areas of habitat (i.e., nearby forested habitat blocks north and south of Cedar Street along the Wading River). Review of various maps indicates that the site is part of a likely important habitat connection within and between contiguous forested areas located north (approximately a 185 acre habitat block) and south (approximately a 370 acre habitat block) of Cedar Street. The Wading River is the sole aquatic connection between these habitat blocks and the adjacent undeveloped forested land provides important cover through this habitat corridor. The forested corridor is not contiguous however, since it is bisected by Cedar Street (Route 106) north of the site.

Although the impact area is within a riparian corridor that is part of a forested habitat greater than 50 acres in size, the corridor itself is likely too narrow at this location to provide suitable interior forest habitat required by area sensitive forest wildlife species.

Habitat degradation is apparent within the impact area, as well as the RFA in general. Impact Area 1 contains historic fill with rubble, debris, and trash present within the old fill. There is also a significant invasion of exotic vegetation as well as disturbance associated with the adjacent roadway (South Street).

3.2 Impact Area 2 – Riverfront Restoration Area

Impact Area 2 includes an area located within the 25-foot No Activity Zone where removal of fill debris (including concrete, asphalt, pavers, metal, old tires etc.) is proposed. This area consists of approximately 6,277 square feet of which approximately 4,120 square feet is within the inner 100-foot riparian zone and 2,157 square feet is within the outer riparian zone. This area is proposed to be utilized for restoration with clean soil and native vegetation to replace and enhance habitat features at the site. This area will not be developed and will be left in a natural state after restoration.

Topography

The topography within this impact area varies from level to somewhat sloped. The area generally slopes down to the north and west toward the adjacent BVW and Bank. There are several areas of topographic breaks present at the edge of rocky fill.

Soil Composition and Structure

Soils within this impact area consist of a sandy loam fill material that includes numerous rocks and debris. Three animal burrows approximately four to six inches in diameter were observed in close proximity to each other in this impact area. These could potentially be woodchuck (*Marmota monax*), eastern skunk (*Mephitis mephitis*), or mink (*Neovison vison*) burrows. No other evidence indicating which species may utilize these burrows was observed. There was no evidence of recently excavated soil material at the burrows.

Plant Community Composition and Structure

The plant community within Impact Area 2 is similar to Impact Area 1, wooded with a relatively closed canopy and generally dense shrub cover. Herbaceous vegetation in this impact area was also relatively sparse; however, the herbaceous layer was not yet fully established at the time of the habitat evaluation. The tree layer within this impact area consists of approximately 75% aerial cover and is dominated by white ash, with red maple and slippery elm also present.

The shrub layer within this impact area consists of approximately 40% aerial cover dominated by multiflora rose and also includes scattered black cherry and silky dogwood (*Cornus amomum*) plants. Woody vines are relatively sparse (<5% aerial cover) in this impact area and include poison ivy, Oriental bittersweet, and Virginia creeper.

At the time of the evaluation, the herbaceous layer within this impact area contained approximately 15% aerial cover consisting of small multiflora rose and Canada mayflower. Site observations by LE personnel in October of 2018 recorded goldenrods, common mullein, and pokeweed within the RFA at the site and, although not recorded as specifically within this impact area, it is likely these are also present to some extent within this impact area later in the growing season.

Important Habitat Features

The seeds, flowers, bark, and twigs of the vegetation may provide a food source for birds and mammals. Within Impact Area 2, the highest value habitat features are likely the soft mast and cover provided by the dense patches of shrubs, primarily multiflora rose.

Based on completion of the Appendix B form, LE has identified the following important wildlife habitat features within Impact Area 2:

- upland food plants (soft mast associated with fruiting shrubs);
- shrub thicket (possible worms and potential veery nesting habitat);
- standing dead trees (four 6-12 inch dbh and one 12-18 inch dbh);
- dead tree branches (two 6-12 inch diameter dead branches but no cavities);
- presence of small mammal burrows (three 4-6 inch diameter burrows); and
- large woody debris on the ground (numerous 6-12 inch diameter).

The impact area contributes to a limited number of connectors to adjacent areas of habitat (i.e., nearby forested habitat blocks north and south of Cedar Street along the Wading River). Review of various maps indicates that the site is part of a likely important habitat connection within and between contiguous forested areas located north (approximately a 185 acre habitat block) and south (approximately a 370 acre habitat block) of Cedar Street. The Wading River is the sole aquatic connection between these habitat blocks and the adjacent undeveloped forested land provides important cover through this habitat corridor. The forested corridor is not contiguous however, since it is bisected by Cedar Street (Route 106) north of the site.

Although the impact area is within a riparian corridor that is part of a forested habitat greater than 50 acres in size, the corridor itself is likely too narrow at this location to provide suitable interior forest habitat required by area sensitive forest wildlife species.

Habitat degradation is apparent within the impact area, as well as the RFA in general. Impact Area 2 contains historic fill with rubble, debris, and trash present within the old fill. There is also a significant invasion of exotic vegetation.

4.0 CONCLUSION

Each Impact Area was evaluated to determine if the topography, soil composition, plant communities, and/or additional habitat features are likely to provide important habitat value for wildlife. Section 310 CMR 10.60 of the Wetlands Protection Act states that "*adverse effects on wildlife habitat mean the alteration of any habitat characteristic listed in 310 CMR 10.60(2), insofar as such alteration will, following two growing seasons of project completion and thereafter (or, if a project would eliminate trees, upon the maturity of replanted saplings) substantially reduce its capacity to provide the important wildlife habitat functions listed in 310 CMR 10.60(2).*" This WHE evaluated the potential impacts to wildlife habitat characteristics for Riverfront Area per Section 310 CMR 10.60(2)(e).

Impact Area 1 consists of approximately 14,075 square feet and includes the area of the proposed house, driveway, deck, and lawn. This impact area includes approximately 10,551 square feet within the inner riparian zone and approximately 3,524 square feet in the outer riparian zone. The limit of this impact area is the 25-foot No Activity Zone.

Important wildlife habitat features identified within Impact Area 1 include upland food plants (soft and hard mast), shrub thicket (potential veery nesting habitat), standing dead trees, tree cavities, large woody debris on the ground and the likely presence of small mammal burrows (although none were observed within this impact area).

Proposed work within Impact Area 2 includes restoration of degraded habitat, including removal of fill debris (including concrete, asphalt, pavers, metal, old tires etc.) and restoration with clean soil and native vegetation to replace and enhance wildlife habitat features at the site. This impact area includes approximately 6,277 square feet of which approximately 4,120 square feet is within the inner riparian zone and 2,157 square feet is within the outer riparian zone.

Important wildlife habitat features identified within Impact Area 2 include upland food plants (soft mast), shrub thicket (potential veery nesting habitat), standing dead trees and dead tree branches, large woody debris on the ground and the presence of small mammal burrows (potential mink den).

The Riverfront Area at the site is part of a larger corridor of relatively undisturbed forested habitat connecting large blocks of undeveloped forest north and south of the site. The Riverfront's habitat value is intrinsically linked to its proximity to the permanent water source as well as its location within a habitat corridor between large blocks of undeveloped forested land.

Activities in the Riverfront Area in excess of 5,000 square feet "*may be permitted if they will have no adverse effects on wildlife habitat*", as determined by the procedures contained in 310 CMR 10.60. Proposed work would not severely impede the movement of wildlife within the RFA and restoration of degraded habitat closest to the river is proposed. There will be an overall decrease in the number of trees and shrubs that produce seasonal food sources and physical habitat structure for wildlife within the Riverfront Area, which will be mitigated.

Impacts to wildlife habitat will be mitigated through planting of native tree and shrub species high in food value and by including additional habitat features, such as coarse woody debris, in the Restoration Plan in order to provide attractive cover, nesting opportunities, and shelter for wildlife. The addition of nest boxes of various sizes can mitigate for the loss of snags and cavities while trees mature and other existing trees on site decline providing ongoing snag habitat. In addition, habitat mitigation and enhancement will be provided through management of invasive vegetation at the site. Habitat mitigation details are provided in the NOI accompanying this report.

LE does not anticipate that the impacts to the Riverfront Area will cause an impairment of the capacity of these wetland resource areas to provide important wildlife habitat functions. With mitigation, the work in the impact areas will not substantially reduce the site's overall capacity to provide important wildlife habitat functions (e.g. shelter, food, breeding areas). Furthermore, the impact areas do not contain any specified habitats of any rare, threatened, or endangered species of vertebrates, invertebrates, or plants.

SECTION II – FIGURES

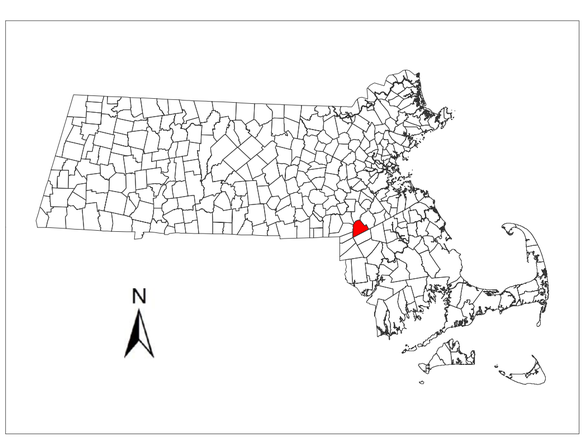
Habitat of Potential Regional or Statewide Importance
Town of FOXBOROUGH, MA

FIGURE 1

SITE LOCUS

0 0.5 1 2 Miles

Updated November 2011



Important Wildlife Habitat

The MassDEP's Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands, June 2006 adopted a new approach for assessing wildlife habitat impacts associated with work in wetlands. This approach utilizes maps developed at the University of Massachusetts Amherst using the Conservation Assessment and Prioritization System (CAPS). The maps depict "Habitat of Potential Regional or Statewide Importance" that may trigger more intensive levels of review. For more information on how to assess wildlife habitat impacts, see Section III of the Guidance document: http://www.mass.gov/dep/water/laws/wldhab.pdf.

The CAPS model assesses the ecological integrity of Massachusetts landscape features as influenced by environmental stressor metrics (e.g. pollution, fragmentation). CAPS relies on data that are broadly available across Massachusetts. Ecological features which are not consistently surveyed or uniformly available, such as certified vernal pools, rare species, and contamination sites are not included in CAPS. When available, this more specific ecological information may be used in conjunction with the CAPS outputs to better understand particular sites in Massachusetts and support informed conservation decision-making. For more information on the statewide maps produced by the CAPS model, see: http://www.masscaps.org.

These maps are funded in part by the Massachusetts Executive Office of Energy and Environmental Affairs, the Massachusetts Department of Environmental Protection and the U.S. Environmental Protection Agency under section 104 (b)(3) of the U.S. Clean Water Act. Environmental data sources include the Office of Geographic and Environmental Information (MassGIS).

MassDEP

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SECTION III – APPENDICIES

LUCAS
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APPENDIX A

SIMPLIFIED WILDLIFE HABITAT EVALUATION FORM

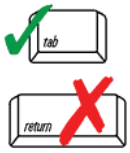
Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Wetlands program

Wildlife Habitat Protection Guidance

Appendix A: Simplified Wildlife Habitat Evaluation

Project Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Lot North of 473 South Street, Foxborough, MA
Project Location (from NOI)

Joseph H. Orzel
Name of Person Completing Form

May 11, 2020
Date

Important Habitat Features

Direct alterations to the following important habitat features in resource areas may be permitted only if they will have no adverse effect (refer to Section V).

NA ☐ Habitat for state-listed animal species (receipt of a positive opinion or permit from MNHESP shall be presumed to be correct. Do not refer to Section V).

NA ☐ Sphagnum hummocks and pools suitable to serve as nesting habitat for four-toed salamanders

NA ☐ Trees with large cavities (≥18" tree diameter at cavity entrance)

* ☒ Existing beaver, mink or otter dens ***Potential mink den.**

NA ☐ Areas within 100 feet of existing beaver, mink or otter dens (if significant disturbance)

NA ☐ Existing nest trees for birds that traditionally reuse nests (bald eagle, osprey, great blue heron)

NA ☐ Land containing freshwater mussel beds

NA ☐ Wetlands and waterbodies known to contain open water in winter with the capacity to serve as waterfowl winter habitat

NA ☐ Turtle nesting areas

NA ☐ Vertical sandy banks (bank swallows, rough-winged swallows or kingfishers)

The following habitat characteristics when not commonly encountered in the surrounding area:

NA ☐ Stream bed riffle zones (e.g. in eastern MA)

NA ☐ Springs

NA ☐ Gravel stream bottoms (trout and salmon nesting substrate)

NA ☐ Plunge pools (deep holes) in rivers or streams

NA ☐ Medium to large, flat rock substrates in streams

Wildlife Habitat Protection Guidance

Appendix A: Simplified Wildlife Habitat Evaluation

Activities

When any one of the following activities is proposed within resource areas, applicants should complete a Detailed Wildlife Habitat Evaluation (refer to Appendix B).

NA ☐ Activities located in mapped "Habitat of Potential Regional or Statewide Importance"

NA ☐ Activities affecting certified or documented vernal pool habitat, including habitat within 100' of a certified or documented vernal pool when within a resource area

NA ☐ Activities in bank, land under water, bordering land subject to flooding (presumed significant) where alterations are more than twice the size of thresholds

NA ☐ Activities affecting vegetated wetlands >5000 sq. ft. occurring in resource areas other than Bordering Vegetated Wetland

***** ☒ Activities affecting the sole connector between habitats >50 acres in size
***Not strictly a sole connector but likely a primary connector.**

NA ☐ Installation of structures that prevent animal movement

NA ☐ Activities for the purpose of bank stabilization using hard structure solutions that significantly affect ability of stream channel to shift and meander, or disrupt continuity in cover that would inhibit animal passage

NA ☐ Dredging (greater than 5,000 sf)

LUCAS ENVIRONMENTAL, LLC

APPENDIX B

DETAILED WILDLIFE HABITAT EVALUATION FORMS

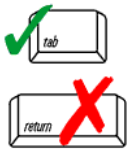
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 1. Summary Sheet

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Single Family House
Project Name

Lot North of 473 South Street, Foxborough, MA
Location

Approximately 20,352± sf (0.47 ac) of Riverfront Area
Size of Area Being Impacted

May 11, 2020
Date

Impact Areas (linear feet, square feet, or acres for each of the impact areas within the site)

Name	Waterbody/ Waterway	Wetland	Upland*	Total Area
1. House Development	0	0	14,075± sf	14,075± sf
2. Riverfront Restoration	0	0	6,277± sf	6,277± sf
3.				
4.				
5.				
6.				
7.				

*Riverfront Area/BLSF

Attach Sketch map and/or photos of the Impact Areas

Narrative Description of Site (attach separate page if necessary)

See attached Narrative for site description and photos.

Certification

I hereby certify that this project has been designed to avoid, minimize, and mitigate adverse effects on wildlife habitat, and that it will not, following two growing seasons of project completion and thereafter, substantially reduce its capacity to provide important wildlife habitat functions.

Signature of Wildlife Specialist (per 310 CMR 10.60 (1) (b))

Joseph H. Orzel, PWS
Typed or Printed Name

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (for each wetland or non-wetland resource area)

I. General Information

Lot North of 473 South Street, Foxborough, MA
Project Location (from NOI page 1)

1) House Development Area
Impact Area (number/name)

May 11, 2020
Date(s) of Site Visit(s) and Data Collection

Overcast, intermittent light rain, approx. 60º F
Weather Conditions During Site Visit (if snow cover, include depth)

Joseph H. Orzel — May 11, 2020
Person completing form per 310 CMR 10.60(1)(b) — Date this form was completed

The information on this data sheet is based on my observations unless otherwise indicated

Signature

II. Site Description (complete A or B under Classification - see instructions for full description)

A. Classification

1. For Wetland Resource Areas, complete the following:

System: _____ Subsystem: _____

Class: _____ Subclass: _____

Hydrology/Water Regime

- ☐ Permanently flooded
- ☐ Saturated
- ☐ Intermittently exposed
- ☐ Temporarily flooded
- ☐ Semi-permanently flooded
- ☐ Intermittently flooded
- ☐ Seasonally flooded
- ☐ Artificially flooded

2. For Riverfront or Bordering Land Subject to Flooding Resource Areas, complete the following. Use a terrestrial classification system such as one of the two listed below:

   a. "Classification of the Natural Communities of Massachusetts (Draft)" by Patricia C. Swain and Jennifer B. Kearsley, MA DFW NHESP, Westborough, MA. July 2000. (Department of Fish & Game Website)

   b. "New England Wildlife: Habitat, Natural History, and Distribution" by Richard M. DeGraaf and Deborah D. Rudis, USDA Forest Service, Northeastern Forest Experiment Station. General Technical Report NE-108. August 1992. 491 pages.

The site is historically disturbed and does not conform to any particular described community type.
Community Name

Dominant trees are white ash with some elm, red maple and red oak present. Dominant shrubs are multiflora rose and honeysuckle. Herbaceous layer relatively sparse (not yet fully emerged).
Site is historically disturbed, evidence of trash and debris in fill material across most of site.
Physical Description

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

% Cover:	60	60	<5	0	40
	Trees (> 20')	Shrubs (< 20')	Woody vines	Mosses	Herbaceous

Plant Lists (species that comprise 10% or more of the vegetative cover in each strata; "*" designates a dominant plant species for the strata):

Strata	Plant Species	Strata	Plant Species
Tree	White ash* (60%)	Herbaceous	Garlic mustard* (20%)
	Slippery elm (10%)		Canada mayflower* (20%)
Shrub	Multiflora rose* (60%)		Multiflora rose* (20%)
	T. honeysuckle* (20%)		
Vine	None >10%		
Moss	None		

C. Inventory (Soils)

Merrimac fine sandy loam, 3-8% slopes (mapped) Historic fill present on site	Somewhat excessively drained (Merrimac)
	Drainage Class
Sandy loam / rocky fill	>65 inches (Merrimac)
Texture (upper part)	Depth
>80 inches (Merrimac)	
Depth to Water Table	

III. Important Habitat Features (complete for all resource areas)

If the following habitat characteristics are present, describe & quantify them on a separate sheet & attach.

Wildlife Food

Important Wetland/Aquatic Food Plants (smartweeds, pondweeds, wild rice, bulrush, wild celery)

☐ Abundant ☐ Present ☒ Absent

Important Upland/Wetland Food Plants (hard mast and fruit/berry producers)

☒ Abundant ***(*berries)*** ☒ Present ***(*hard mast)*** ☐ Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

☒ Present ☐ Absent

****Shrub thicket present at impact area but may not have abundant worms.***

Shrub and/or herbaceous vegetation suitable for veery nesting

☒ Present ☐ Absent

Veery will nest in multiflora rose thickets.

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Number of trees (live or dead) > 30" DBH: 0 in impact area (largest are 24" ash and 26" oak)

Number (or density) of Standing Dead Trees (potential for cavities and perches):

6-12" dbh	12-18" dbh	18-24" dbh	> 24" dbh
3	1	0	0

Number of Tree Cavities in trunks or limbs of:

2
6-12" diameter (e.g., tree swallow, saw whet owl, screech owl, bluebird, other songbirds)

0
12-18" diameter (e.g., hooded merganser, wood duck, common goldeneye, mink)

0
>18" diameter (e.g., hooded merganser, wood duck, common goldeneye, common merganser, barred owl, mink, raccoon, fisher)

Small mammal burrows

☐ Abundant ☒ Present ☐ Absent
***None observed but likely present.**

Cover/Perches/Basking/Denning/Nesting Habitat

☐ Dense herbaceous cover (voles, small mammals, amphibians & reptiles)

☒ Large woody debris on the ground (small mammals, mink, amphibians & reptiles)

☐ Rocks, crevices, logs, tree roots or hummocks under water's surface (turtles, snakes, frogs)

☐ Rocks, crevices, fallen logs, overhanging branches or hummocks at, or within 1m above the water's surface (turtles, snakes, frogs, wading birds, wood duck, mink, raccoon)

☐ Rock piles, crevices, or hollow logs suitable for:

☐ otter ☐ mink ☐ porcupine ☐ bear ☐ bobcat ☐ turkey vulture

☐ Live or dead standing vegetation overhanging water or offering good visibility of open water (e.g., osprey, kingfisher, flycatchers, cedar waxwings)

Depressions that may serve as seasonal (vernal/autumnal) pools

☐ Present ☒ Absent

Standing water present at least part of the growing season, suitable for use by

☐ Breeding amphibians ☐ Non-breeding amphibians (foraging, re-hydration)

☐ Turtles ☐ Foraging waterfowl

Sphagnum hummucks or mats, moss-covered logs or saturated logs, overhanging or directly adjacent to pools of standing water in spring (four-toed salamander)

☐ Present ☒ Absent

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Important habitat characteristics (if present, describe and quantify them on a separate sheet)

Medium to large (> 6"), flat rocks within a stream (cover for stream salamanders and nesting habitat for spring & two-lined salamanders)

☐ Present ☒ Absent

Flat rocks and logs on banks or within exposed portions of streambeds (cover for stream salamanders and nesting habitat for dusky salamanders)

☐ Present ☒ Absent

Underwater banks of fine silt and/or clay (beaver, muskrat, otter)

☐ Present ☒ Absent

Undercut or overhanging banks (small mammals, mink, weasels)

☐ Present ☒ Absent

Vertical sandy banks (bank swallow, kingfisher)

☐ Present ☒ Absent

Areas of ice-free open water in winter

☐ Present ☒ Absent

Mud flats

☐ Present ☒ Absent

Exposed areas of well-drained, sandy soil suitable for turtle nesting

☐ Present ☒ Absent

Wildlife dens/nests (if present, describe & quantify them on the back of this sheet)

Turtle nesting sites

☐ Present ☒ Absent

Bank swallow colony

☐ Present ☒ Absent

Nest(s) present of ☐ Bald Eagle ☐ Osprey ☐ Great Blue Heron

Den(s) present of ☐ Otter ☐ Mink ☐ Beaver

Part 2. Field Data Form (continued)

Project area is within:

☒ 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
__Potential mink burrow/den, not confirmed.__

☐ 200' of Great Blue Heron or osprey nest(s) ***None observed or known.***

☐ 1400' of a Bald Eagle nest[1] ***None observed or known.***

Emergent Wetlands (if present, describe & quantify them on a separate sheet)

Emergent wetland vegetation at least seasonally flooded during the growing season (wood duck, green heron, black-crowned night heron, king rail, Virginia rail, coot, etc.)

Flooded > 5 cm	☐ Present	☒ Absent
Flooded > 25 cm (pied-billed grebe)	☐ Present	☒ Absent

Persistent emergent wetland vegetation at least seasonally flooded during the growing season (mallard, American bittern, sora, common snipe, red-winged blackbird, swamp sparrow, marsh wren)

Flooded > 5 cm	☐ Present	☒ Absent
Flooded > 25 cm (least bittern, common moorhen)	☐ Present	☒ Absent

Cattail emergent wetland vegetation at least seasonally flooded during the growing season

Flooded > 5 cm (marsh wren)	☐ Present	☒ Absent
Flooded > 25 cm (least bittern, common moorhen)	☐ Present	☒ Absent

Fine-leafed emergent vegetation (grasses and sedges) at least seasonally flooded during the growing season (common snipe, spotted sandpiper, sedge wren)

Flooded > 5 cm	☐ Present	☒ Absent
Flooded > 25 cm (least bittern, common moorhen)	☐ Present	☒ Absent

IV. Landscape Context

A. **Habitat Continuity** (if present, describe the landscape context on a separate sheet and its importance for area-sensitive species)

Is the impact area part of an emergent marsh at least	1.0 acre in size?	☐ Yes	☒ No
(marsh and waterbirds)	2.0 acres in size?	☐ Yes	☒ No
	5.0 acres in size?	☐ Yes	☒ No
	10.0 acres in size?	☐ Yes	☒ No

[1] 1400 feet is the distance used by NHESP for evaluating potential disturbance impacts on eagle nests under MESA. Keep in mind, however, that this doesn't give jurisdiction within 1400' of an eagle's nest; it only identifies it on the checklist so that adverse effects can be avoided if work in a resource area is within 1400 feet.

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Is the impact area part of a wetland complex at least	2.5 acres in size?	☐ Yes	☒ No
(turtles, frogs, waterfowl, mammals)	5.0 acres in size?	☐ Yes	☒ No
	10.0 acres in size?	☐ Yes	☒ No
	25.0 acres in size?	☐ Yes	☒ No

For upland resource areas is the impact area part of contiguous forested habitat at least

(forest interior nesting birds)	50 acres in size?	☒ Yes	☐ No

Impact area is part of contiguous forest to south, not contiguous with forested area to north.

	100 acres in size?	☒ Yes	☐ No
	250 acres in size?	☒ Yes	☐ No
	500 acres in size?	☐ Yes	☒ No
(grassland nesting birds)	> 1.0 acre in size?	☐ Yes	☒ No
(special habitat such as gallery floodplain forest, alder thicket, etc.)	> 1.0 acre in size?	☐ Yes	☒ No

B. **Connectivity with adjoining natural habitats**

☐ No direct connections to adjacent areas of wildlife habitat (little connectivity function)

☐ Connectors numerous or impact area is embedded in a large area of natural habitat (limited connectivity function)

☒ Impact area contributes to a limited number of connectors to adjacent areas of habitat (somewhat important for connectivity function)

☒ Impact area serves as *part of* a sole connector to adjacent areas of habitat (important for connectivity function) ***not part of a sole connector but likely part of a primary connector.***

☐ Impact area serves as *only* connector to adjacent areas of habitat (very important for connectivity function)

V. Habitat Degradation (describe degradation and wildlife impacts on the back of the sheet)

☐ Evidence of significant chemical contamination

☒ Evidence of significant levels of dumping

☐ Evidence of significant erosion or sedimentation problems

☒ Significant invasion of exotic plants (e.g., purple loosestrife, *Phragmites*, glossy buckthorn)

☒ Disturbance from roads or highways ☒ Other human disturbance ***historic fill***

☐ Is the site the only resource area in the vicinity of an otherwise developed area

Note: These are not the only important habitat features that may be observed on a site. If the wildlife specialist identifies other features they should be noted in the application.

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

VI. Quantification Table for Important Habitat Characteristics

Habitat Characteristic	Amount Impacted in Impact Area	Current (entire site)	Post-Construction (entire site)
Upland food plants	Berries (abundant) Hard mast (1 red oak)	Abundant Present	Abundant but reduced Present but reduced
Shrub thicket	With abundant worms (?) for woodcock	Present closer to river outside of impact area	Present on site closer to river
Shrub thicket	For veery nesting (thicket common in impact area)	Thicket common on site	Common but reduced
Standing dead trees	3 (6-12” dbh) 1 (12-18” dbh)	Similar density	Present but reduced
Tree cavities	2 (6-12” trunk/branch)	Similar density	Present but reduced
Large woody debris on ground	Common 6-12” diameter	Common	Present but reduced

Post construction conditions do not reflect any proposed mitigation.

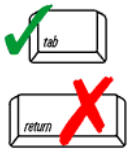
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 1. Summary Sheet

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Single Family House
Project Name

Lot North of 473 South Street, Foxborough, MA
Location

Approximately 20,352± sf (0.47 ac) of Riverfront Area
Size of Area Being Impacted

May 11, 2020
Date

Impact Areas (linear feet, square feet, or acres for each of the impact areas within the site)

Name	Waterbody/ Waterway	Wetland	Upland*	Total Area
1. House Development	0	0	14,075± sf	14,075± sf
2. Riverfront Restoration	0	0	6,277± sf	6,277± sf
3.				
4.				
5.				
6.				
7.				

*Riverfront Area/BLSF

Attach Sketch map and/or photos of the Impact Areas

Narrative Description of Site (attach separate page if necessary)

See attached Narrative for site description and photos.

Certification

I hereby certify that this project has been designed to avoid, minimize, and mitigate adverse effects on wildlife habitat, and that it will not, following two growing seasons of project completion and thereafter, substantially reduce its capacity to provide important wildlife habitat functions.

Signature of Wildlife Specialist (per 310 CMR 10.60 (1) (b))

Joseph H. Orzel, PWS
Typed or Printed Name

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (for each wetland or non-wetland resource area)

I. General Information

Lot North of 473 South Street, Foxborough, MA
Project Location (from NOI page 1)

2) Riverfront Restoration Area
Impact Area (number/name)

May 11, 2020
Date(s) of Site Visit(s) and Data Collection

Overcast, intermittent light rain, approx. 60º F
Weather Conditions During Site Visit (if snow cover, include depth)

Joseph H. Orzel — May 11, 2020
Person completing form per 310 CMR 10.60(1)(b) — Date this form was completed

The information on this data sheet is based on my observations unless otherwise indicated

Joseph H. Orzel
Signature

II. Site Description (complete A or B under Classification - see instructions for full description)

A. Classification

1. For Wetland Resource Areas, complete the following:

System: _____ Subsystem: _____

Class: _____ Subclass: _____

Hydrology/Water Regime

- ☐ Permanently flooded
- ☐ Saturated
- ☐ Intermittently exposed
- ☐ Temporarily flooded
- ☐ Semi-permanently flooded
- ☐ Intermittently flooded
- ☐ Seasonally flooded
- ☐ Artificially flooded

2. For Riverfront or Bordering Land Subject to Flooding Resource Areas, complete the following. Use a terrestrial classification system such as one of the two listed below:

   a. "Classification of the Natural Communities of Massachusetts (Draft)" by Patricia C. Swain and Jennifer B. Kearsley, MA DFW NHESP, Westborough, MA. July 2000. (Department of Fish & Game Website)

   b. "New England Wildlife: Habitat, Natural History, and Distribution" by Richard M. DeGraaf and Deborah D. Rudis, USDA Forest Service, Northeastern Forest Experiment Station. General Technical Report NE-108. August 1992. 491 pages.

The site is historically disturbed and does not conform to any particular described community type.
Community Name

Dominant trees are white ash with some elm, red maple and red oak present. Dominant shrubs are multiflora rose and honeysuckle. Herbaceous layer relatively sparse (not yet fully emerged).
Site is historically disturbed, evidence of trash and debris in fill material across most of site.
Physical Description

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

% Cover:	75	40	<5	0	15
	Trees (> 20')	Shrubs (< 20')	Woody vines	Mosses	Herbaceous

Plant Lists (species that comprise 10% or more of the vegetative cover in each strata; "*" designates a dominant plant species for the strata):

Strata	Plant Species	Strata	Plant Species
Tree	White ash* (65%)		
	Red maple* (25%)		
Shrub	Multiflora rose* (40%)		
Vine	None >10%		
Moss	None		
Herbaceous	Multiflora rose* (15%)		

C. Inventory (Soils)

Merrimac fine sandy loam, 3-8% slopes (mapped) Historic fill present on site	Somewhat excessively drained (Merrimac)
	Drainage Class
Sandy loam / rocky fill	>65 inches (Merrimac)
Texture (upper part)	Depth
>80 inches (Merrimac)	
Depth to Water Table	

III. Important Habitat Features (complete for all resource areas)

If the following habitat characteristics are present, describe & quantify them on a separate sheet & attach.

Wildlife Food

Important Wetland/Aquatic Food Plants (smartweeds, pondweeds, wild rice, bulrush, wild celery)

☐ Abundant ☐ Present ☒ Absent

Important Upland/Wetland Food Plants (hard mast and fruit/berry producers)

☒ Abundant ***(*berries)*** ☐ Present ☐ Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

☒ Present ☐ Absent

****Shrub thicket present at impact area but may not have abundant worms.***

Shrub and/or herbaceous vegetation suitable for veery nesting

☒ Present ☐ Absent

Veery will nest in multiflora rose thickets.

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Number of trees (live or dead) > 30" DBH: 0 in impact area

Number (or density) of Standing Dead Trees (potential for cavities and perches):

4	1	0	0
6-12" dbh	12-18" dbh	18-24" dbh	> 24" dbh

Number of Tree Cavities in trunks or limbs of:

2 dead branches (approx. 6") but with no cavities
6-12" diameter (e.g., tree swallow, saw whet owl, screech owl, bluebird, other songbirds)

0
12-18" diameter (e.g., hooded merganser, wood duck, common goldeneye, mink)

0
>18" diameter (e.g., hooded merganser, wood duck, common goldeneye, common merganser, barred owl, mink, raccoon, fisher)

Small mammal burrows

☐ Abundant ☒ Present ☐ Absent
3 observed, 4-6" diameter holes.

Cover/Perches/Basking/Denning/Nesting Habitat

☐ Dense herbaceous cover (voles, small mammals, amphibians & reptiles)

☒ Large woody debris on the ground (small mammals, mink, amphibians & reptiles)

☐ Rocks, crevices, logs, tree roots or hummocks under water's surface (turtles, snakes, frogs)

☐ Rocks, crevices, fallen logs, overhanging branches or hummocks at, or within 1m above the water's surface (turtles, snakes, frogs, wading birds, wood duck, mink, raccoon)

☒ Rock piles, crevices, or hollow logs suitable for:

☐ otter ☒ mink ☐ porcupine ☐ bear ☐ bobcat ☐ turkey vulture

☐ Live or dead standing vegetation overhanging water or offering good visibility of open water (e.g., osprey, kingfisher, flycatchers, cedar waxwings)

Depressions that may serve as seasonal (vernal/autumnal) pools

☐ Present ☒ Absent

Standing water present at least part of the growing season, suitable for use by

☐ Breeding amphibians ☐ Non-breeding amphibians (foraging, re-hydration)

☐ Turtles ☐ Foraging waterfowl

Sphagnum hummucks or mats, moss-covered logs or saturated logs, overhanging or directly adjacent to pools of standing water in spring (four-toed salamander)

☐ Present ☒ Absent

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Important habitat characteristics (if present, describe and quantify them on a separate sheet)

Medium to large (> 6"), flat rocks within a stream (cover for stream salamanders and nesting habitat for spring & two-lined salamanders)

☐ Present ☒ Absent

Flat rocks and logs on banks or within exposed portions of streambeds (cover for stream salamanders and nesting habitat for dusky salamanders)

☐ Present ☒ Absent

Underwater banks of fine silt and/or clay (beaver, muskrat, otter)

☐ Present ☒ Absent

Undercut or overhanging banks (small mammals, mink, weasels)

☐ Present ☒ Absent

Vertical sandy banks (bank swallow, kingfisher)

☐ Present ☒ Absent

Areas of ice-free open water in winter

☐ Present ☒ Absent

Mud flats

☐ Present ☒ Absent

Exposed areas of well-drained, sandy soil suitable for turtle nesting

☐ Present ☒ Absent

Wildlife dens/nests (if present, describe & quantify them on the back of this sheet)

Turtle nesting sites

☐ Present ☒ Absent

Bank swallow colony

☐ Present ☒ Absent

Nest(s) present of ☐ Bald Eagle ☐ Osprey ☐ Great Blue Heron

Den(s) present of ☐ Otter ☐ Mink ☐ Beaver

Part 2. Field Data Form (continued)

Project area is within:

☒ 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
__Potential mink burrow/den, not confirmed.__

☐ 200' of Great Blue Heron or osprey nest(s) ***None observed or known.***

☐ 1400' of a Bald Eagle nest[1] ***None observed or known.***

Emergent Wetlands (if present, describe & quantify them on a separate sheet)

Emergent wetland vegetation at least seasonally flooded during the growing season (wood duck, green heron, black-crowned night heron, king rail, Virginia rail, coot, etc.)

Flooded > 5 cm	☐ Present	☒ Absent
Flooded > 25 cm (pied-billed grebe)	☐ Present	☒ Absent

Persistent emergent wetland vegetation at least seasonally flooded during the growing season (mallard, American bittern, sora, common snipe, red-winged blackbird, swamp sparrow, marsh wren)

Flooded > 5 cm	☐ Present	☒ Absent
Flooded > 25 cm (least bittern, common moorhen)	☐ Present	☒ Absent

Cattail emergent wetland vegetation at least seasonally flooded during the growing season

Flooded > 5 cm (marsh wren)	☐ Present	☒ Absent
Flooded > 25 cm (least bittern, common moorhen)	☐ Present	☒ Absent

Fine-leafed emergent vegetation (grasses and sedges) at least seasonally flooded during the growing season (common snipe, spotted sandpiper, sedge wren)

Flooded > 5 cm	☐ Present	☒ Absent
Flooded > 25 cm (least bittern, common moorhen)	☐ Present	☒ Absent

IV. Landscape Context

A. **Habitat Continuity** (if present, describe the landscape context on a separate sheet and its importance for area-sensitive species)

Is the impact area part of an emergent marsh at least	1.0 acre in size?	☐ Yes	☒ No
(marsh and waterbirds)	2.0 acres in size?	☐ Yes	☒ No
	5.0 acres in size?	☐ Yes	☒ No
	10.0 acres in size?	☐ Yes	☒ No

[1] 1400 feet is the distance used by NHESP for evaluating potential disturbance impacts on eagle nests under MESA. Keep in mind, however, that this doesn't give jurisdiction within 1400' of an eagle's nest; it only identifies it on the checklist so that adverse effects can be avoided if work in a resource area is within 1400 feet.

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Is the impact area part of a wetland complex at least	2.5 acres in size?	☐ Yes	☒ No
(turtles, frogs, waterfowl, mammals)	5.0 acres in size?	☐ Yes	☒ No
	10.0 acres in size?	☐ Yes	☒ No
	25.0 acres in size?	☐ Yes	☒ No

For upland resource areas is the impact area part of contiguous forested habitat at least

(forest interior nesting birds)	50 acres in size?	☒ Yes	☐ No

Impact area is part of contiguous forest to south, not contiguous with forested area to north.

	100 acres in size?	☒ Yes	☐ No
	250 acres in size?	☒ Yes	☐ No
	500 acres in size?	☐ Yes	☒ No
(grassland nesting birds)	> 1.0 acre in size?	☐ Yes	☒ No
(special habitat such as gallery floodplain forest, alder thicket, etc.)	> 1.0 acre in size?	☐ Yes	☒ No

B. **Connectivity with adjoining natural habitats**

☐ No direct connections to adjacent areas of wildlife habitat (little connectivity function)

☐ Connectors numerous or impact area is embedded in a large area of natural habitat (limited connectivity function)

☒ Impact area contributes to a limited number of connectors to adjacent areas of habitat (somewhat important for connectivity function)

☒ Impact area serves as *part of* a sole connector to adjacent areas of habitat (important for connectivity function) ***not part of a sole connector but likely part of a primary connector.***

☐ Impact area serves as *only* connector to adjacent areas of habitat (very important for connectivity function)

V. Habitat Degradation (describe degradation and wildlife impacts on the back of the sheet)

☐ Evidence of significant chemical contamination

☒ Evidence of significant levels of dumping

☐ Evidence of significant erosion or sedimentation problems

☒ Significant invasion of exotic plants (e.g., purple loosestrife, *Phragmites*, glossy buckthorn)

☒ Disturbance from roads or highways ☒ Other human disturbance ***historic fill***

☐ Is the site the only resource area in the vicinity of an otherwise developed area

Note: These are not the only important habitat features that may be observed on a site. If the wildlife specialist identifies other features they should be noted in the application.

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

VI. Quantification Table for Important Habitat Characteristics

Habitat Characteristic	Amount Impacted in Impact Area	Current (entire site)	Post-Construction (entire site)
Upland food plants	Berries (abundant)	Abundant	Abundant but reduced
Shrub thicket	With abundant worms (?) for woodcock	Present closer to river outside of impact area	Present on site closer to river
Shrub thicket	For veery nesting (thicket common in impact area)	Thicket common on site	Common but reduced
Standing dead trees	4 (6-12” dbh) 1 (12-18” dbh)	Similar density	Present but reduced
Tree cavities	2 (6-12” trunk/branch, with no cavities)	Similar density	Present but reduced
Small mammal burrows	3 (4-6” diameter)	3 observed but others likely	Unknown, but others likely
Large woody debris on ground	Common 6-12” diameter	Common	Present but reduced

Post construction conditions do not reflect any proposed mitigation.

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APPENDIX C

PHOTOGRAPHIC DOCUMENTATION

PHOTOGRAPHIC DOCUMENTATION

DATE: May 11, 2020

Photograph 1: Impact Area 1 – Typical habitat at proposed single family house location.

Photograph 2: Impact Area 1 – Existing vegetation at proposed driveway location.

Photograph 3: Impact Area 2 – Edge of proposed restoration (orange flag).

Photograph 4: Impact Area 2 – Typical habitat within proposed restoration area.

Photograph 5: Impact Area 2 - Small mammal burrow.

Photograph 6: Impact Area 2 – Another nearby small mammal burrow.

Photograph 7: Impact Area 2 – Buried tire in old fill.

Photograph 8: Impact Area 2 – Buried plastic in old fill, tree cavity in background.

Photograph 9: Coarse woody debris common within the Impact Areas and RFA.

Photograph 10: Snag within the Impact Area.

APPENDIX D

QUALIFICATIONS

Joseph H. Orzel, PWS

Project Manager | Professional Wetland Scientist
Land Development & Permitting

Biography

Joseph Orzel is a Professional Wetland Scientist (PWS) and has assisted clients with environmental permit issuance at the federal, state, and local levels since 1994. He routinely conducts wetland delineations and identification of regulated wetland resource areas, as well as natural resource site assessments, wildlife habitat assessments, and has conducted fisheries research and radio-telemetry. Joe's project experience ranges from construction, planting, and monitoring of wetland restoration/replication areas to environmental and construction monitoring. Joe is also experienced in vernal pool evaluations, and performs peer reviews of permit applications for various municipalities. His technical expertise includes wetland delineation, wildlife habitat evaluations, vernal pool surveys, and rare species work.

Joe has knowledge in a variety of ecological disciplines including wetland ecology, biology, Geographic Information Systems (GIS), and wildlife biology. He is experienced in regulatory disciplines, specifically the Massachusetts Wetlands Protection Act (WPA), Massachusetts Environmental Policy Act (MEPA), Massachusetts Endangered Species Act (MESA), Section 401 and 404 of the Clean Water Act, National Pollution Discharge Elimination System (NPDES) program, and the Natural Heritage & Endangered Species Program (NHESP).

Education

University of New Hampshire
Masters of Science Program, Wildlife Ecology

State University of New York College at Fredonia
Bachelors of Science, Biology

Certifications

Professional Wetland Scientist #3194
Society of Wetland Scientists

Professional Affiliations

Society of Wetland Scientists

Massachusetts Association of Conservation Commissions

Association of Massachusetts Wetland Scientists

New Hampshire Association of Natural Resource Scientists

Professional Experience

Wetland Delineation and Permitting

Joe has routinely worked on projects that included wetland delineation and permitting under local, state, and federal regulations for commercial, residential, and industrial projects. Site development issues have included rare species work, wetland restoration and mitigation plans, vernal pool assessments, and balancing the needs and concerns of local, state, and federal agencies.

Wetland Replication and Restoration

Over the course of his career Joe has been involved in a variety of projects requiring wetland compensatory mitigation, and has designed and supervised the construction of a number of wetland restoration and replication areas. This includes one of the first wetland replication areas (possibly the first) to be certified as a vernal pool by the Massachusetts Natural Heritage and Endangered Species Program.

Wildlife Habitat Evaluation

Joe has conducted numerous wildlife habitat evaluations in wetlands as well as in uplands and regularly conducts both Simplified and Detailed Wildlife Habitat Evaluations as specified under the Massachusetts DEP Wildlife Habitat Protection Guidance. Often these evaluations are associated with conducting alternatives analyses in order to characterize, quantify and ultimately minimize wetland impacts, and to establish habitat replication or restoration goals when designing mitigation areas.

Peer Review – Massachusetts

Joe has assisted municipalities with review of Notice of Intent (NOI) and Abbreviated Notice of Resource Area Delineation (ANRAD) applications for compliance with the Wetlands Protection Act. Tasks often include review of resource area identification and delineation and intermittent versus perennial stream determinations. Municipalities include Beverly, Salem, Andover, Gloucester, and Wellesley, Massachusetts.

Publications

Miller, D., L. Gradischer, J. Orzel, W. Leak, and E. Miller. 1987. Changes in vegetation and breeding bird use of an Atlantic white cedar swamp from 1951 to 1984. Pages 229-231 in A.D. Laderman, ed. Atlantic white cedar wetlands. Westview Press, Boulder, CO

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