

Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Hudson, Massachusetts

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1

Introduction

Following the Massachusetts Department of Environmental Protection's ("MassDEP") "Wildlife Habitat Protection Guidance for Inland Wetlands ("the Guidance")¹, Appendix B: Detailed Wildlife Habitat Evaluations ("WHE") were completed in support of a Notice of Intent ("NOI") submission on behalf of the co-applicants, the Massachusetts Department of Conservation and Recreation ("DCR") and NSTAR Electric Company d/b/a Eversource Energy ("Eversource"). The "Project" includes completion of a portion of the regional Massachusetts Central Rail Trail ("MCRT") and construction of a new 115-kilovolt ("kV") underground electric transmission line ("the underground transmission line"). Both the underground transmission line and the MCRT qualify as limited projects according to the Wetlands Protection Act Regulations² ("the Regulations") at 310 CMR 10.53(3)(d) and 10.53(6), respectively.

The "Project Site" includes the entire width of the MBTA ROW, the entire width of the public roadway layout, and the entire Town of Hudson parcel that the MCRT will travel through and connect to the existing Assabet River Rail Trail ("ARRT"). The portion of the Project in Hudson is approximately 4.7 miles in total length, of which 3.3 miles is along the existing inactive MBTA ROW from the Hudson/Sudbury municipal border to Wilkins Street (see Attachment A). The MBTA ROW width is variable but averages 82 feet wide in most locations and travels past residential areas, commercial developments, agricultural fields, wooded areas, and roadways. At Wilkins Street, the MCRT and underground transmission line components of the Project diverge. The MCRT continues across Wilkins Street and within Town of Hudson-owned property for approximately 230 feet, to connect to the existing Assabet River Rail Trail ("ARRT"). The proposed MCRT Connection will travel alongside the existing parking lot for the ARRT. The underground transmission line continues south within Wilkins Street and Forest Avenue for approximately 1.4 miles within the existing roadway layout to its termination at the HLPD Substation. However, it is important to note that this WHE only evaluated Project related impacts to wetland resource areas within the MBTA ROW and MCRT Connection to the ARRT as the roadway does not contain natural habitat.

Boundaries of wetland resource areas on the Project Site were approved by the Hudson Conservation Commission with an Order of Resource Area Delineation ("ORAD") that was

¹ Massachusetts Department of Environmental Protection. Wildlife Habitat Protection Guidance for Inland Wetlands (2006). <http://umasscaps.org/pdf/wldhab.pdf>

² Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00). Effective October 24, 2014. <https://www.mass.gov/regulations/310-CMR-1000-wetlands-protection-act-regulations>

issued on February 5, 2018 (MassDEP File No. 190-0616). At the time the ORAD was issued, wetland resource areas on and near the segment of the MCRT that will connect with the ARRT had not been delineated. Since the issuance of the ORAD, those areas have been delineated and are illustrated on Sheet 1 in the figures provided in Attachment A and on Sheet C-01 in the plans in Attachment C for the Project NOI.

Project related impacts were minimized to the maximum extent practicable; however, certain impacts to Bordering Vegetated Wetlands (“BVW”) (310 CMR 10.55), Bordering Land Subject to Flooding (“BLSF”) (310 CMR 10.57 (1)(a)), Isolated Land Subject to Flooding (“ILSF”) (310 CMR 10.57 (1)(b)), and Riverfront Area (“RFA”) (310 CMR 10.58) are unavoidable, as described in the accompanying NOI filing. The Project will not impact Bank (310 CMR 10.54), Land Under Water Bodies or Waterways (“LUWW”) (310 CMR 10.56), or Vernal Pool Habitat (310 CMR 10.04) in Hudson.

1.1 Regulatory Background

In 1986, the Massachusetts Legislature established that wetlands can provide wildlife habitat and added “wildlife habitat” as an interest under the Massachusetts Wetlands Protection Act, M.G.L. c.131 § 40³, (“MWPA” or “the Act”), and the Regulations at 310 CMR 10.00. In the Act, wildlife habitat is defined as “those areas subject to M.G.L. c. 131 § 40 which due to their plant community composition and structure, hydrologic regime or other characteristics, provide important food, shelter, migratory or overwintering areas, or breeding areas for wildlife.”

In 1987, MassDEP revised the Regulations to incorporate protection of wildlife habitat as a wetlands interest protected by the Act. Accordingly, standards and procedures to protect important wildlife habitat functions in wetland resource areas were added to the Regulations at 310 CMR 10.60. MassDEP outlined the interpretation of the statutory language (especially the statutory definition of “wildlife habitat”) as well as the legislative intent in the Preface to the 1987 Regulatory Revisions related to the Protection of Wildlife Habitat (“the Preface”).⁴ Key elements of the Preface explain important premises that helped form the basis for the regulatory changes. A summary of the premises that are important to consider when identifying and assessing important wildlife habitat value and possible adverse effects as part of a planned project are as follows:

- › The mere presence of wildlife in a resource area is not enough to establish habitat value. Instead, it is the presence of plant community, hydrologic regime, or other characteristics that is determinative. The statute protects habitat value not wildlife per se.
- › The presence of basic characteristics that can provide wildlife habitat does not establish that a wetland resource area is significant to wildlife habitat. As per the regulatory guidance from MassDEP in the Preface, in order for a wetland resource area to be considered significant to wildlife habitat, certain features must be present and they must

³ Massachusetts Wetlands Protection Act (M.G.L. c. 131 §40). <https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXIX/Chapter131/Section40>

⁴ Preface to Wetlands Regulations Relative to the Protection of Wildlife Habitat 1987 Regulatory Revisions. Pages 14-22. <https://www.mass.gov/files/documents/2016/08/ri/310cmr10b.pdf>

“provide important food, shelter, migratory or overwintering areas or breeding areas for wildlife”.

- › Wildlife habitat means those resource areas which due to certain physical characteristics, provide “important wildlife habitat functions (i.e., “important food, shelter, of migratory or overwintering areas, or breeding areas for wildlife”).
- › The Department believes the Legislature meant to protect wetland habitat which is important to wildlife from a regional or statewide perspective.

In 2006, MassDEP developed a guidance document that details the process by which WHEs are completed. According to the Guidance, the objectives of a WHE are to document the presence of “important wildlife habitat features” within wetland resource areas that will be affected by a project and identify potential adverse impacts to these specific “important wildlife habitat features” that could result from the construction and maintenance of a proposed project.

1.1.1 No Adverse Effect Standard

According to 310 CMR 10.60(1), to the extent that a proposed project will alter wildlife habitat beyond established thresholds for each respective wetland resource area, such alterations may be permitted only if they will have no adverse effects on wildlife habitat. Adverse effects on wildlife habitat are 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)”.

1.1.2 Wildlife Habitat Evaluation Impact Thresholds

Typically, the Regulations require that a WHE be conducted when a proposed project will alter certain wetland resource areas (Bank, Land Under Water, or Bordering Land Subject to Flooding) beyond established thresholds identified in the Regulations [310 CMR 10.60(1)].

For Project related wetland resource impacts, Table 1 below lists the regulatory threshold values below which impacts are deemed not to impair wildlife habitat and do not require completion of WHE. Project wetland resource related impacts that would result from the proposed Project are also identified on Table 1.

Table 1 Wildlife Habitat Evaluation Thresholds per Resource Area

Resource Area	Regulation Threshold (below which deemed not to impair wildlife habitat)*	Proposed Project Impacts (Total)**
Bordering Land Subject to Flooding – 310 CMR 10.57(4)(a)3, (2)(a)5&6, (4)(a)3	10% or 5,000 square feet (whichever is less), except for work that would adversely affect vernal pool habitat	16,400 square feet (no vernal pool habitat present)
Isolated Land Subject to Flooding – 310 CMR 10.57(1)(b)1 &4, (2)(b)4&5, (4)(b)4	No threshold – No impairment of its capacity to provide wildlife habitat where said area is vernal pool habitat per 310 CMR 10.60	760 square feet (no vernal pool habitat)
Riverfront Area – 310 CMR 10.58(4)(b), (4)(d)1.c, (4)(d)2.c, (4)(d)3. b	No threshold - however, different review requirements apply depending on whether the riverfront is undisturbed (310 CMR 10.58(4)) (and the size of impact), 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)).	72,815 ¹ square feet
Bordering Vegetated Wetland 310 CMR 10.55(4)(b)	No threshold - impacts must be replicated in a manner that will function similar to the area that will be lost*	1,936 square feet

Sources:

* MassDEP's Wildlife Habitat Protection Guidance for Inland Wetlands, Table 1.

**VHB

1. The RFA total impacts includes 8,025 square feet of impacts within roadways. These RFA impacts were not evaluated or included in the WHE because they do not provide any wildlife habitat value.

The Guidance further details when and what type of WHE should be completed based on wetland resource impact. Table 2 below identifies resource types impacted by the Project, the alteration limits that determine which level of a WHE is required (i.e., Appendix A or Appendix B) and the impact levels at which the no adverse effect/no impairments standard applies.

Table 2 Wetland Resource Areas Impact by the Project and Level of WHE Required Based on Alteration

Resource Area	Simple WHE (Appendix A) Required	Detailed WHE (Appendix B) Required	No Adverse Effect/No Impairment Required
BLSF (presumed significant to wildlife habitat)	For alterations above thresholds	When triggered by Appendix A or for any impacts to certified or documented vernal pool habitat	For alterations above thresholds or for any impacts to certified/documented vernal pool habitat
ILSF	Not Applicable	When certified or documented vernal pool habitat present	When certified or documented vernal pool habitat present
RFA	For alterations to undisturbed riverfront greater than 5,000 square feet that are outside of Habitat of Potential Regional or Statewide Importance or outside of certified or documented vernal pool habitat	For alterations to undisturbed riverfront greater than 5,000 square feet. that alter any portion of Habitat of Potential Regional or Statewide Importance or for any alteration to certified or documented vernal pool habitat	For all alterations
BVW	For alterations less than 5,000 square feet	When triggered by Appendix A, for alterations greater than 5,000 square feet or for any size impact in Habitat of Potential Regional or Statewide Importance or certified or documented vernal pool habitat	For all alterations

Source: MassDEP’s Wildlife Habitat Protection Guidance for Inland Wetlands, Table 2

Based on the Regulations and the Guidance, for the level of Project related alterations that will occur within BLSF, ILSF, RFA, and BVW, a WHE would be required for BLSF, RFA, and BVW. As mentioned above, both the Eversource and DCR components of the Project qualify as “limited projects”. The Guidance indicates that the completion of a WHE for projects meeting the limited project criteria of the Regulations may or may not be required at the discretion of the issuing authority. Regardless, a detailed WHE (“Appendix B”) was completed for each Wetland Impact Area, which is the most detailed evaluation required by the Regulations and supporting Guidance.

1.2 Project Wildlife Habitat Evaluation Contents

Information provided in this WHE includes the following:

- › An overview of the Project;
- › A summary of the WHE methodology employed;
- › A description of the existing wetland resource areas found on the Project Site;
- › Descriptions of the types of impacts to Impact Areas that will result from the Project;
- › A summary of wildlife habitat conditions and important habitat features found within Impact Areas;
- › An analysis of potential adverse effects resulting from the Project; and
- › Proposed mitigation measures to offset unavoidable impacts to important habitat features, as necessary.



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Evaluation Methodology

The WHE for the Project was completed following the approach described in the Guidance and using Appendix B: Detailed Wildlife Habitat Evaluation Forms from that document. Important wildlife habitat features were evaluated at a total of 10 Wetland Impact Areas (“WIA”) occurring within BVW, BLSF, ILSF, or RFA on the Project Site. A combination of desktop review and field investigations were employed to complete a Detailed WHE at each proposed WIA. Appendix B: Detailed Wildlife Habitat Evaluation Forms, photographs, and vegetation lists for each WIA are in Attachment B. The resumes of field scientists responsible for completing the WHE are provided in Attachment C.

2.1 Prior to Initiation of WHE

Prior to initiating the WHE and as part of the design phase for the Project, the limits of the Project Site on the MBTA ROW were defined as the entire width of the ROW. It was determined that the WHE would only evaluate WIAs within the MBTA ROW and the MCRT Connection to the ARRT. Impacts within the roadway ROW were not evaluated because they do not contain natural habitat. Within the MBTA ROW and MCRT Connection, engineering design efforts identified the limits of disturbance using available site plans that included the limits of the Project Site and boundaries of wetland resource areas approved by the Hudson Conservation Commission in an ORAD. The limit of disturbance was established based on the need to accommodate Project elements including the underground electric transmission line and associated manhole structures, the MCRT, and work areas needed to install those Project elements. During this process, the limits of grading and associated disturbance were adjusted and refined to avoid and minimize wetland resource impacts as much possible within the confines of Project Site. WIAs were identified as areas where the limit of disturbance and wetland resource areas overlap within the MBTA ROW and MCRT Connection. In Hudson, 10 WIAs were identified. The location of those WIAs is shown on the figures provided in Attachment A.

Using the Project Site boundaries, limit of disturbance developed through the design process, and the wetland resource area boundaries approved by the Hudson Conservation Commission, GIS shapefiles were developed showing the individual WIAs. Those shapefiles were used during field and desktop evaluations of important wildlife habitat features in the ten WIAs in Hudson.

2.2 Field Evaluation

Field investigations were primarily used to complete the following components of the Appendix B Detailed WHE Form:

- › Part 2, I General Description;
- › Part 2, II Site Description (excluding soils);
- › Part 2, III Important Habitat Features; and
- › Part 2, V Habitat Degradation.

Field investigations for each WIA in Hudson were completed by field scientists on April 11 and 12, 2019. To accurately locate each WIA and to collect data (including photographs), a Trimble R1 GNSS receiver was employed in conjunction with cell phones, WIA shapefiles and Esri's ArcGIS Collector application.

Documented observations include wetland characteristics, important wildlife habitat features, vegetation including the presence of invasive species, biophysical characteristics, and habitat degradation. The diameter at breast height ("dbh") was evaluated by using a dbh measuring tape and the distance of nests (if present) and mammal dens was determined using a digital rangefinder. Photographs were taken at each WIA to document existing conditions.

Specific important wildlife habitat features and site contextual considerations that were evaluated at each WIA during the field investigations included the following:

- › Food Availability;
- › Shrub Thickets or Streambed with Abundant Earthworms;
- › Shrub and/or Herbaceous Vegetation Suitable for Veery Nesting;
- › Standing Dead Trees and Cavities;
- › Small Mammal Burrows;
- › Depressions that May Serve as Seasonal (Vernal/Autumnal) Pools;
- › Standing Water Present At least Part of the Growing Season;
- › Sphagnum Hummocks or Mats, Moss-Covered Logs or Saturated Logs, Overhanging or Directly Adjacent to Pools of Standing Water;
- › Cover, Perches, Basking, Denning, and Nesting Habitat;
- › Important Habitat Characteristics Associated with Streams;
- › Wildlife Dens and Nests;
- › Emergent Wetlands; and
- › Habitat Degradation.

The soil inventory on the Appendix B form (Part 2, II Site Description, C. Inventory (Soils)) was completed in part by reviewing the U.S. Department of Agriculture (USDA) Web Soil Survey⁵

⁵ USDA NRCS Web Soil Survey. <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

mapping for each WIA. Onsite observations were made to confirm, or update soil descriptors provided on the USDA web site.

2.3 Desktop Review and Evaluation

A desktop review of each WIA was undertaken to complete Part 2, Section IV, Landscape Context, of the Appendix B, Detailed WHE field form. In completing these reviews, available MassGIS data layers and WIA shapefiles were employed. Landscape Context includes Habitat Continuity which identifies whether an individual WIA is part of:

- › An emergent marsh, and if so, the size in acres;
- › A wetland complex, and if so, the size in acres;
- › Contiguous forested habitat that could serve as habitat for forest interior nesting birds, grassland nesting birds, or special habitat such as a gallery floodplain forest

Landscape Context also evaluates Habitat Connectivity. To characterize the connectivity relationship of the WIAs to surrounding habitats, five categories of habitat connectivity were considered based on the Guidance. These include:

1. No direct connections to adjacent areas of wildlife habitat (little connectivity function);
2. Connectors numerous or WIA is imbedded in a large area of natural habitat (limited connectivity function);
3. WIA contributes to a limited number of connectors to adjacent areas of habitat (somewhat important for connectivity function);
4. WIA serves as part of a sole connector to adjacent areas of habitat (important for connectivity function); and
5. WIA serves as the only connector to adjacent areas of habitat (very important for connectivity function).

In addition to information reviewed to complete Section IV for the field form, MassDEP's Important Habitat Map⁶ for the town of Hudson and MassGIS Natural Heritage and Endangered Species Program Priority and Estimated Habitat maps were reviewed to determine if any of the WIAs occurred within "Habitat of Potential Regional or Statewide Importance" or mapped rare species habitat respectively.

⁶ MassDEP Important Habitat Maps, http://umasscaps.org/data_maps/massdep-maps.html

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3

Wildlife Habitat Evaluation Results

The following information in this section includes detailed accounts for each of the 10 WIAs associated with the Project in Hudson. Details provided include important wildlife habitat features identified during the WHE, discussion of adverse impacts to wildlife habitat resulting from the Project (if any), and discussion of proposed mitigation measures to offset impacts (if any). Table 3 below provides a summary of important wildlife features documented in each of the WIAs. Figures depicting the location of each WIA are in Attachment A of this document. Completed Appendix B: Detailed Wildlife Habitat Forms, vegetation lists, and representative photographs for the WIAs are provided in Attachment B of this document. Tables summarizing all field observations including the presence or absence of individual wildlife habitat features within each WIA are provided in Attachment D of this document.

Sections 3.1 through 3.5 below provide a detailed discussion regarding the important wildlife habitat features and existing site conditions documented within each WIA.

The presence of Habitat of Potential Regional and Statewide Importance ("Important Wildlife Habitat") and mapped Priority and Estimated Habitat for State-listed Rare, Threatened, and Endangered Species ("rare species habitat") was evaluated as part of the WHE completed for the Project. Based on the latest Important Habitat Map for the Town of Hudson (MassGIS online version, August 2017), there is one area of mapped Important Wildlife Habitat that will be directly crossed by the Project Site. This area occurs approximately 850 feet west of White Pond Road; however, there will not be any wetland resource area impacts at this location (i.e., no WIAs).

According to the most recently published edition of the Massachusetts Natural Heritage Atlas (MassGIS online version, August 2017)⁷, the Project passes through mapped Priority and Estimated Habitat from White Pond Road east to the location where the Hudson, Sudbury, and Marlborough municipal boundaries meet. There are no WIAs within mapped Priority or Estimated Habitat. However, while the Project will not result in any wetland resource impacts in mapped habitat, the Project will result in disturbance in non-wetland areas within mapped Priority and Estimated Habitat.

To avoid a rare species "take" under the Massachusetts Endangered Species Act ("MESA") (321 CMR 10.00), the Natural Heritage and Endangered Species Program ("NHESP") was

⁷ Habitat of Potential Regional or Statewide Importance, Town of Hudson, MA.
http://www.umass.edu/landeco/research/caps/data/dep/maps/CAPS_DEP_HUDSON.pdf

consulted on a regular basis during the Project design phase. Based on those consultations, to avoid a state-listed species "take," protection plans were developed. Those protection plans along with other supporting information were submitted to NHESP in a MESA Checklist to obtain a "take / no take" determination from that agency. On October 19, 2018, and May 17, 2019, NHESP rendered conditional "no take" determinations for both the Eversource and DCR phases of the Project, respectively (see Attachment H in the NOI). Accordingly, based on the Regulations, the work proposed in Hudson will have no adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified in the procedures established under 310 CMR 10.59.

Table 3 Summary of Important Wildlife Habitat Features within Wetland Impact Areas within the Project in Hudson

Impact Area	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10
Stationing ¹	105+90- 124+90	146+45- 148+50	147+85- 148+40	142+30- 146+45	129+85- 132+20	151+10- 153+00	149+10- 151+10	149+20- 150+15	10+20- 10+80	131+10- 132+00
Total Area of Impact (square feet)	52,129	4,576	621	5,292	760	3,283	4,554	1,315	1,595	47
Wetland Resource Area Type (Area of Impact in Square Feet) ²	RFA (52,129)	RFA (4,576) BLSF (3,544)	BVW (621) RFA (621)	BLSF (5,292)	ILSF (760)	BLSF (3,283)	RFA (4,554) BLSF (4,234)	BVW (1,315) RFA (1,315)	RFA (1,595)	BLSF (47)
Associated BVW and/or Stream for Wetland Resource Area	UNT ⁴ to Assabet River	Fort Meadow Brook	Wetlands 6 and 7/Fort Meadow Brook	Wetland 4/UNT to Assabet River	Wetland 5	Fort Meadow Brook	Fort Meadow Brook	Wetlands 6 and 7/Fort Meadow Brook	UNT to Assabet River	UNT to Assabet River
Important Wildlife Habitat Features³										
Important Upland/Wetland Food Plants	X	X	X	X	X	X	X	X		
Standing Dead Trees (Snags)	X							X		
Small Mammal Burrows							X	X		
Dense Herbaceous Cover	X									
Large Woody Debris on the Ground ⁵	X	X			X			X		
Rocks, Crevices, Logs, Tree Roots, or Hummocks at or within 1 meter above Water's Surface								X		
Live or Dead Standing Vegetation Overhanging Water or Offering Good Visibility of Open Water		X	X	X		X	X	X		
Standing Water Present At least Part of the Growing Season Suitable for use by Breeding Amphibians, Non-Breeding Amphibians, Turtles, and/or Foraging Waterfowl			X					X		
Mudflats			X					X		
Otter, Mink, or Beaver Dens			X					X		
Project Area is Within:										
100' of Beaver, Mink, or Otter Den, Bank Swallow Colony, or Turtle Nesting Area ⁶		X				X	X			
Emergent Wetlands At least Seasonally Flooded During Growing Season								X		

1. Please refer to Attachments B and C in the NOI for Project plans and Attachment A of this WHE for the Wildlife Habitat Evaluation Impact Area figures for stationing

2. RFA overlaps with other wetland resource areas and some Impact Areas contain multiple wetland resource areas

3. Important Wildlife Habitat Features are those discussed in the Guidance and listed on the Appendix B: Detailed Wildlife Habitat Evaluation forms

4. UNT – Unnamed Tributary

5. For the purposes of this WHE, large woody debris was defined as anything that is equal to or greater than six inches in diameter.

6. The Project is within 100 feet of beaver dens (refer to Attachment B for the WHE forms and the narrative in the following sections for additional information)

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3.1 Wetland Impact Area H1

WIA H1 is Riverfront Area ("RFA") that is associated with an unnamed perennial tributary to the Assabet River. It is located from approximately Station 105+90 to 124+90, terminating at the Hudson/Stow town line (see Attachment A for figures). In this location there is a total of 52,129 square feet of impact. The unnamed tributary occurs mostly north of and parallel to the Project Site. Impacts at this location would result from vegetation removal, site grading, installation of the underground transmission line, and paving of the MCRT.

The WIA primarily encompasses an inactive railroad track, ballast that the track was built on, and vegetated strips growing on ballast and fill that parallel the track both north and south of it. In some locations along the length of this area, because of the placement of fill, the rail line is higher than the surrounding landscape.

From approximately Station 105+90 to 113+50, vegetation to the north and south of the tracks within WIA H1 primarily consists of trees, saplings, and shrubs with areas of interspersed herbaceous vegetation. In some of the area, recent tree cutting from the Planning/Design activities (geotechnical investigation) approved and completed for the Project is apparent. Some of the vegetation that is relatively abundant in these locations includes red maple (*Acer rubrum*), white ash (*Fraxinus americana*), white pine (*Pinus strobus*), oaks (*Quercus* spp.), honeysuckles (*Lonicera* spp.), cherries (*Prunus* spp.), glossy buckthorn (*Frangula alnus*) and Canada mayflower (*Maianthemum canadense*).

Within the central portion of the WIA (railroad track and ballast), shrubby and herbaceous vegetation has in part begun to regrow. This is also true of the southern portion of the WIA (south of the rail line) approximately between stations 113+50 and 124+90. In this location (between stations 113+50 and 124+90) the WIA is bordered to the south by an active agricultural area (i.e., Ferjulian's). Along this area, earth disturbance is apparent (some of it recent) and likely contributes to the weedy herbaceous and shrubby vegetation growth there. Some of the vegetation common in these locations includes bristlegrass (*Setaria* sp.), goldenrods (*Solidago* spp.), Virginia creeper (*Parthenocissus quinquefolia*), multiflora rose (*Rosa multiflora*), brambles (*Rubus* spp.), poison ivy (*Toxicodendron radicans*), gray dogwood (*Cornus racemosa*), and glossy buckthorn.

Also apparent in the WIA is the presence of several invasive plants that include Norway maple (*Acer platanoides*), garlic mustard (*Alliaria petiolata*), Japanese barberry (*Berberis thunbergii*), common barberry (*Berberis vulgaris*), oriental bittersweet (*Celastrus orbiculatus*), glossy buckthorn, Morrow's honeysuckle (*Lonicera morrowii*), Tartarian honeysuckle (*Lonicera tatarica*), and multiflora rose.

Forms of past and current human disturbance activities noted within and near this WIA include derelict railroad infrastructure (railroad ties and tracks), presence of invasive plant species, and soil disturbance.

Photographs of conditions and a listing of the vegetation encountered within WIA H1 are provided in Attachment B.

As detailed in the following sections, important wildlife habitat features documented in WIA H1 include the presence of some upland/wetland food plants, standing dead trees (snags), dense herbaceous cover, and large woody debris on the ground. In summary, the Project will not result in a substantial reduction of wildlife habitat for any of the important wildlife habitat features found in WIA H1. Mitigation measures were incorporated into the Project in this location where appropriate and include measures such as snag creation, brush pile creation, and revegetating all disturbed areas within the limits of work beyond the paved MCRT with a seed mix containing native plant species.

3.1.1 Important Wildlife Habitat Features Identified, Adverse Effects Analysis, and Proposed Mitigation

WIA H1 was evaluated to determine whether important wildlife habitat features were present and if so, whether the Project would result in adverse impacts to those features. Within WIA H1, four important wildlife habitat features were identified:

- › Upland/Wetland Food Plants;
- › Standing Dead Trees;
- › Dense Herbaceous Cover; and
- › Large Woody Debris on the Ground.

Below is a discussion of each feature that was identified and evaluated within the WIA followed by an adverse effect analysis and any proposed mitigation measures.

3.1.1.1 Upland/Wetland Food Plants

Within WIA H1, there are several upland plant species (hard mast and fruit/berry producers) that can provide food for wildlife. These species include tree oaks, brambles (black berries and raspberries), pin cherry and chokecherry, gray dogwood, and summer grape.

Adverse Effects Analysis and Proposed Mitigation

Individually, none of food plants noted within the WIA are particularly unique or abundant to the WIA. All these species can be found outside of the WIA on the Project Site and beyond. Because of the presence of similar food plants in areas near locations where loss of some food plants from the Project will occur, Project-related losses are not expected to reduce the capacity of the area to provide the important wildlife habitat value that this feature provides and as such, mitigation is not proposed at this location for this habitat feature.

3.1.1.2 Standing Dead Trees

Nine standing dead trees were identified within WIA H1. All of these had a dbh in the 6- to 12-inch range and none contained cavities suitable for either bird or mammal species use.

Beyond the WIA, some standing dead trees were noted on the Project Site but were not specifically quantified. Additionally, beyond the Project Site (north and south) other standing dead trees were also seen with some of these estimated at having a dbh greater than

18 inches. Some of those trees also contained cavities of various sizes suitable for wildlife use including nesting.

Adverse Effects Analysis and Proposed Mitigation

The removal of the nine standing dead trees from WIA H1 will remove some important wildlife habitat within the area. Overall the loss of those snags is not expected to result in an adverse effect to wildlife habitat either in the immediate area of the site and / or the region. This conclusion is based on observations of undeveloped forest and the presence of similar dead standing trees on the Project Site outside of the limits of disturbance and in the immediate area beyond the Project site. Accordingly, the loss of nine snags are not expected to have an adverse effect on the availability of important wildlife habitat either on a local or regional scale.

Regardless of the no adverse effect conclusion, mitigation for the loss will be implemented by replacing the loss of the standing dead trees with at least nine snags (standing dead trees) on the Project Site close to WIA H1. Based on Connecticut Department of Energy & Environmental Protection guidance, snags will be created by girdling trees near the base of the tree trunk and allowing the tree to die⁸. Information provided in Attachment L of the NOI for the Project describes the process of creating snags.

3.1.1.3 Dense Herbaceous Cover

Dense herbaceous vegetation potentially providing habitat cover for a variety of small mammals and some reptiles and amphibians was noted in two locations within WIA H1. Dense herbaceous vegetation, primarily consisting of Virginia creeper, was present during the evaluation within the vicinity of Station 110+00 within the railroad truck structure and ballast. The second location is located on the southern side of the Project roughly between Stations 122+00 to 124+90 and is dominated by a relatively thin strip of bristlegrass.

Adverse Effects Analysis and Mitigation

Dense herbaceous vegetation can provide cover, food, and nesting habitats for a variety of small mammals, amphibians, reptiles, and bird species. Construction activities associated with the Project will remove the dense herbaceous vegetation where it presently grows. As mitigation for this loss, all areas within the Project that will not be paved for the 10-foot-wide MCRT will be replanted with a seed mix consisting of native herbaceous species.

The two-foot-wide shoulders on either side of the MCRT will be mowed bi-weekly and the five-foot corridor over the duct bank will be mowed annually. No vegetation management will be implemented outside of this 19-foot corridor (10-foot-wide paved MCRT, two-foot shoulders on either side, and five-foot corridor over the duct bank), allowing dense vegetation to reestablish in areas where it is currently present and establish in areas that do not currently contain that wildlife habitat feature. Consequently, the seeding with a native herbaceous seed mix will greatly offset that which will be lost, thereby providing additional

⁸ CT DEEP, n.d. Snags for Wildlife. https://www.ct.gov/deep/cwp/view.asp?a=2723&q=326090&deepNav_GID=1655

habitat value for wildlife and will not reduce the capacity of the area to provide the important wildlife habitat value that this feature provides. The loss of dense herbaceous vegetation in this WIA with subsequent replacement by seeding disturbed areas with herbaceous seed mixes will not result in an adverse effect to wildlife habitat.

Information on Sheet 131 in the plans provided in Attachment B of the NOI for the Project describes the seed mixes that will be applied following the completion of the Project.

3.1.1.4 Large Woody Debris on the Ground

Scattered and abundant large woody debris was present within WIA H1 (mostly along the northern side of the construction corridor). For the purpose of this WHE, large woody debris was defined as logs and large tree branches equal to or greater than six inches in diameter. Material such as this provides habitat value for a variety of small mammals, reptiles, amphibians and invertebrates, including nesting, resting, and foraging. Some invertebrates may also use the dead wood as a source of food. A contributing factor to the abundance of this material seems to be recent storm related damage and tree cutting from the previously approved and completed Planning/Design Activities for the Project.

Adverse Effects Analysis and Mitigation

Although large woody debris was present throughout WIA H1, the wooded areas immediately surrounding the WIA on the Project Site, particularly to the north, also contained an abundant amount of this wildlife habitat feature. Overall, the loss of the large woody debris in the WIA is not expected to result in an adverse effect to wildlife habitat either in the immediate area of the Project Site and/or the region. This conclusion is based on observations of undeveloped forest and the presence of similar large wood on the Project Site outside of the limits of disturbance and in the immediate area beyond the Project Site. Accordingly, the loss of large wood in the WIA is not expected to have an adverse effect on the availability of important wildlife habitat either on a local or regional scale.

Regardless of the no adverse effect determination regarding the loss of large woody debris found in scattered locations along the WIA, brush piles will be created within the Project Site. Based on Natural Resources Conservation Service guidance for the creation of brush piles, brush piles will be created along the length of the WIA on the Project Site at a frequency of one per 200 to 300 feet⁹.

The brush piles will be created using appropriate salvaged woody debris presently on the ground within the area of impact and some of the logs and slash that will be generated during the tree clearing process. Based on the mitigation to create brush piles, and the presence of this feature in several locations near the area where woody debris will be lost, the loss of woody debris in WIA H1 will not reduce the capacity of the area to provide the important wildlife habitat value that this feature provides. Information provided in

⁹ NRCS, 2009. Creating Brush Piles for Upland Wildlife, New Hampshire Conservation Practice Job Sheet 645. 5pp.
https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1081685.pdf

Attachment L the NOI for the Project describes in detail the creation of brush pile as mitigation of the loss of this habitat feature.

3.2 Wetland Impact Areas H2, H3, H4, H6, H7, and H8

WIAs H2, H3, H4, H5, H6, H7, and H8 are discussed together because they are associated with the Fort Meadow Brook wetland complex located approximately from Station 142+30 at the western end and Station 153+00 at the eastern end (see Attachment A for figures). These WIAs are located within and in close proximity to a large wetland of emergent marsh. In this location the railroad track was built on fill and is higher than the adjacent wetland areas. The channel of Fort Meadow Brook crosses the Project from approximately Station 148+75 to 149+10 and flows in a northerly direction beneath a dilapidated railroad bridge.

The proposed Project footprint in this area averages 22 to 25 feet in width and is approximately 1,120 feet in length. Timber (crane) mats will be temporarily placed within a portion of WIA H2 and all of WIA H3 on the western side of Fort Meadow Brook from approximately Station 147+85 to 148+40. The Project limits within this crane mat area are approximately 40 feet wide (north to south) and 55 feet long (east to west). Timber mats will also be temporarily placed on the eastern side of Fort Meadow Brook within a portion of WIA H7 and all of WIA H8 from approximately Station 149+20 to 150+15. The Project limits within this crane mat area are approximately 40 feet wide (north to south) in this location and 95 feet long (east to west).

Most of the impacts in this area will occur along the elevated railroad bed that includes the inactive railroad track, fill material, and ballast. Work that will result in disturbance to wetland resource areas include vegetation removal, site grading, replacement of the Fort Meadow Brook bridge (Bridge 130), temporary placement of timber mats, installation of the underground transmission line and, paving the MCRT. In locations where the timber mats are proposed it will be necessary to remove all woody vegetation, and possibly including tree stumps, to ensure that the mats are installed properly to insure a safe, stable, and level work platform for the crane that will be used in this location. The timber mats are required to facilitate reconstruction of the Fort Meadow Brook bridge will result in temporary impacts to BVW, BLSF, and RFA, which will be restored once reconstruction of the bridge is complete and the timber mats are removed.

WIAs H2 and H7 are located immediately west and east of Fort Meadow Brook, respectively, and contain both RFA and BLSF. WIA H2 contains approximately 4,576 square feet of RFA and 3,544 square feet of BLSF and WIA H7 contains approximately 4,554 square feet of RFA and 4,234 square feet of BLSF. Within a portion of each area adjacent to Fort Meadow Brook, timber mats will be temporarily placed for use by the crane that will be used for replacement of the existing bridge. WIA H4 contains 5,292 square feet of BLSF and WIA H6 contains 3,282 square feet of BLSF, and similarly occur within the Project limits immediately west and east of the Fort Meadow Brook, respectively. WIA H3 and WIA H8 occur in areas where the Project has been expanded to accommodate the placement of timber mats. WIA H3 contains 621 square feet of BVW and RFA and WIA H8 contains 1,315 square feet of BVW and RFA.

In general, WIAs H2, H4, H7 and H6 are similar. Along both the north and south sides of these areas the vegetation is primarily woody consisting of trees, saplings and shrubs. Herbaceous vegetation is also present here in scattered locations including in the central portion of the Project where the railroad track is situated. Some of the vegetation that is relatively abundant in these locations includes red maple, gray birch (*Betula populifolia*), oaks, black cherry (*Prunus serotina*), white pine, multiflora rose, glossy buckthorn, Morrow's honeysuckle, arrowwood (*Viburnum dentatum*), Japanese barberry, oriental bittersweet, beaked hazelnut (*Corylus cornuta*), sedges (*Carex* spp.), Canada mayflower, hayscented fern (*Dennstaedtia punctilobula*) and poison ivy.

WIAs H3 and H8 are located at the base of the elevated railroad bed and the vegetation is indicative of wetter conditions (including seasonal inundation), consistent with emergent/shrub marshlands. Vegetation that is common in these areas include red maple, common button bush (*Cephalanthus occidentalis*), jewelweed (*Impatiens capensis*), arrowwood, crimson eyed rose mallow (*Hibiscus moscheutos*), Morrow's honeysuckle, oriental bittersweet, sedges, and marshpepper knotweed (*Polygonum hydropiper*).

Forms of past and current human disturbance activities noted within and near the WIAs here include derelict railroad infrastructure (railroad ties and tracks), discarded materials (construction debris, old row boat, and shotgun shells), evidence of presence of dogs (scat), presence of invasive plant species, and litter and refuse from human use.

Photographs of representative site conditions and a listing of the vegetation encountered within WIAs H2, H3, H4, H6, H7, and H8 is provided with in Attachment B.

As presented in detail in the following sections, important wildlife habitat features documented in WIAs H2, H3, H4, H6, H7 and H8 include:

- › Live or Dead Standing Vegetation Overhanging or Offering Good Visibility of Open Water and Overhanging Branches within One Meter Above the Water's Surface,
- › Mud Flats,
- › Upland/Wetland Food Plants,
- › Standing Dead Trees,
- › Large Woody Debris on the Ground,
- › Small Mammal Burrows, and
- › Beaver Dens.

In summary, the Project will not result in a substantial reduction of wildlife habitat for any of the important wildlife habitat features found in WIAs H2, H3, H4, H6, H7, and H8. Mitigation measures were incorporated into the Project in these locations where appropriate and include measures such as plantings to offset the loss of vegetation overhanging open water and providing good visibility of open water, supplemental plantings in disturbed mud flats, plantings to offset some loss of food plants, snag replacement of lost snags, and the development of brush piles to replace the loss of some large woody debris on the ground and to promote small mammal use in the area. Overall, following construction and the implementation of mitigating measures, the Project will not reduce the capacity of the area

to provide important wildlife habitat features or have an adverse effect on the availability of important wildlife habitat either on a local or regional scale.

3.2.1 Important Wildlife Habitat Features, Impacts, and Proposed Mitigation

WIAs H2, H3, H4, H6, H7 and H8 all occur in the Fort Meadow Brook area. WIAs H2, H3, and H4 occur west of the brook and WIAs H6, H7 and H8 east of it. Except for H3 and H8, which contain BVW that overlaps with RFA, all WIAs are located on upland areas. Based on field observations, wildlife habitat features on both sides of Fort Meadow Brook are similar and are discussed together.

3.2.1.1 Upland/Wetland Food Plants

Within WIAs H2, H3, H4, H6, H7, and H8 there is a variety of upland and wetland plant species that provide wildlife value as source of food for a variety of species. Some of these species include oaks, winterberry holly (*Ilex verticillata*), summer grape (*Vitis aestivalis*), black cherry, blueberries, arrowwood, and beaked hazelnut. While none of these plants are overly abundant individually in the areas where work is planned, when regarded as a group they provide value to wildlife that are in the area.

Adverse Effects Analysis and Mitigation

Although food plants will be removed within the WIAs, these same species are present in abundance on areas of the berm that will not be affected by the Project and around the perimeter of the marsh beyond the limits of the Project Site. In addition, as mitigation for the total loss of vegetation within the locations where timber mats will be placed, tree and shrub species will be planted in equivalent quantities to those being lost. These species will be native to New England and that are known to be valuable sources of wildlife food. Furthermore, all disturbed areas except for the 10-foot-wide paved MCRT will be seeded with herbaceous seed mixes that will provide additional value to wildlife as sources of food. Details regarding plantings and seed mixes are provided on the NOI plans. Because of the surrounding food plants that will not be disturbed and the supplemental woody plantings and seed mixes, the Project will not reduce the capacity of upland/wetland plants in the area of the Project to provide food for wildlife or result in an adverse effect to wildlife habitat either on a local or regional scale.

3.2.1.2 Standing Dead Trees

Two standing dead trees that range from six to eight inches in dbh will be removed within H8 to allow for the placement of timber mats. Neither tree contained cavities. These trees are also accounted for in Section 4.2.1.1, Live or Dead Standing Vegetation Overhanging Water.

Adverse Effects Analysis and Mitigation

Two standing dead trees with dbh values between six to eight inches will be lost in WIA H8 due to the placement of timber mats in this location. To offset this loss, at least two snags of

this size or greater will be created in appropriate locations outside of the proposed limits of work, within the Project Site in the Fort Meadow Brook area. Details for snag creation are provided in Attachment L of the NOI. Because of the mitigation that will be provided to offset the impact caused by removing two snags, the Project related losses described will not reduce the capacity of the area to provide the important wildlife habitat value that this feature provides or result in an adverse effect to wildlife.

3.2.1.3 Small Mammal Burrows

Small mammal burrows are currently present within the northern side slope H8, which will be impacted by grading and the temporary placement of timber mats. Generally speaking, small mammals are usually ubiquitous in large wetland systems such as the Fort Meadow Brook wetland complex.

Adverse Effects Analysis and Mitigation

Restoration of the area, including woody and herbaceous plantings and reestablishment of coarse woody debris on the ground by creating brush piles, will encourage the reestablishment of small mammal use in the area. It is not expected that impact to the limited amount of small mammal burrows in this area will reduce the capacity of the area to provide this important wildlife habitat feature or result in an adverse effect to wildlife following construction.

3.2.1.4 Large Woody Debris on the Ground

Scattered large woody debris on the ground is present within WIA H8. This material will be removed to accommodate the placement of timber mats in this location.

Adverse Effects Analysis and Mitigation

To offset this impact to wildlife habitat, brush piles will be created using appropriate salvaged woody debris presently on the ground within the area of impact and some of the logs and slash that are generated during the tree clearing process. Based on the mitigation to create brush piles and the presence of this feature in several locations in the Fort Meadow Brook area near the Project, the loss of woody debris in WIA H8 will not reduce the capacity of the area to provide the important wildlife habitat value that this feature provides or result in an adverse effect to wildlife. Information provided in Attachment L of the NOI for the Project describes in detail the creation of brush pile as mitigation of the loss of this habitat feature.

3.2.1.5 Live or Dead Standing Vegetation Overhanging or Offering Good Visibility of Open Water and Overhanging Branches within One Meter Above the Water's Surface

WIAs H2, H4, H6, and H7 contain live or dead standing vegetation that either overhangs or provides visibility of open water of the emergent marsh and Fort Meadow Brook that will be removed during construction. The vegetation that provides this habitat value is generally located in thin strips at the outer limits of Project disturbance and includes small trees,

saplings, and tall shrubs. The number of trees that will be removed or that which will remain were not specifically quantified. However, beyond the limits of disturbance (north and south), similar vegetation will remain in at least similar amounts to that which will be removed.

WIAs H3 and H8, which will be temporarily impacted from the placement of timber mats, also contain this wildlife habitat feature which will be removed up to the water's edge on both sides of the berm. Woody vegetation in these locations were quantified because of its total removal in these locations. H3 contains four live saplings and five dead standing tall shrubs along the south side of the berm and 23 saplings and seven trees on the north side that will be removed. H8 contains two trees and 17 tall shrubs and saplings (some dead) offering view to open water will be removed.

Adverse Effects Analysis and Mitigation

Excluding the areas where timber mats will be placed, beyond the limits of Project disturbance (outside of WIAs H2, H4, H6, and H7), undisturbed areas on the elevated railroad berm contain similar types of vegetation providing the same wildlife habitat feature and this vegetation will remain intact. Additionally, the perimeter of the marsh outside of the Project Site contains an abundance of trees and tall shrubs that provides the same habitat values for this feature as those that will be lost because of the Project.

Overall the loss of these features in WIAs H2, H4, H6, and H7, are not expected to result in an adverse effect to wildlife habitat either in the immediate area of the site or the region. This conclusion is based on the observation that similar features will remain on the Project Site in the immediate vicinity of WIAs. Accordingly, the loss of Live or Dead Standing Vegetation Overhanging or Offering Good Visibility of Open Water and Overhanging Branches within One Meter Above the Water's Surface in these WIAs are not expected to have an adverse effect on the availability of important wildlife habitat either on a local or regional scale.

To mitigate for the total loss of this wildlife habitat feature within WIAs H3 and H8, tree and shrub species will be planted in equivalent quantities to those being lost. Once mature, these woody species will offer views to and perches over open water in the adjacent marsh at a value that will, at a minimum, be equal to what will be lost. For details regarding specific species and densities that will be planted, please see Sheet 131 in the plans provided in Attachment B of the NOI. Based on proposed mitigation, removal of live or dead standing vegetation within these WIAs will not reduce the capacity of the area to provide this important wildlife habitat feature and not expected to have an adverse effect on the availability of important wildlife habitat either on a local or regional scale.

3.2.1.6 Standing Water Present At least Part of the Growing Season Suitable for use by Breeding Amphibians, Non-Breeding Amphibians, Turtles, and/or Foraging Waterfowl

Water levels in the Fort Meadow Brook wetland complex immediately adjacent to the Project fluctuate seasonally. Consequently, there are periods of time within WIAs H3 and H8 especially during the early part of the growing season when standing water is present.

During these times narrow areas that parallel the berm on both the north and south sides that are flooded offer value to amphibians for foraging, breeding, and hydrating. These areas are also suitable for bird foraging.

Adverse Effects Analysis and Mitigation

Shallow standing water was noted at the outer limits of H3 and H8. These areas will be temporarily disturbed by the placement of timber mats in these locations. Following removal of the timber mats, these areas will be restored, and supplemental plantings of aquatic plants will be installed. Changes in the periodicity of shallow water in these areas are not expected to change as part of this Project. Specific details regarding restoration activities in these areas are provided on Sheet 131 in the plans in Attachment B of the NOI. Based on the restoration to these areas following construction, and the presence of these features along the entire length of the railroad embankment in the Fort Meadow Brook area near the Project, the temporary disturbance of this wildlife feature will not reduce the capacity of the area to provide the important wildlife habitat value that these features provide or have an adverse effect on wildlife habitat in WIAs H3 and H8.

3.2.1.7 Mud Flats

Water levels in the Fort Meadow Brook wetland complex immediately adjacent to the Project fluctuate seasonally. Consequently, there are periods of time within WIAs H3 and H8 when the bottom of the marsh is exposed and functions as a mudflat. These are narrow areas that parallel the berm on both the north and south sides and offer value to amphibians for foraging and hydrating and foraging for birds.

Adverse Effects Analysis and Mitigation

Shallow standing water and mud flats were noted at the outer limits of H3 and H8. These areas will be temporarily disturbed by the placement of timber mats in these locations. Following removal of the timber mats, these areas will be restored, and supplemental plantings of aquatic plants will be installed. Changes in the periodicity of shallow water in these areas are not expected to change as part of this Project. Specific details regarding restoration activities in these areas are provided on Sheet 131 in the plans located in Attachment B of the NOI. Based on the restoration to these areas following construction, and the presence of these feature along the entire length of the railroad embankment in the Fort Meadow Brook area near the Project, the temporary disturbance of this wildlife feature will not reduce the capacity of the area to provide the important wildlife habitat value that these features provide or have an adverse effect on wildlife habitat in WIAs H3 and H8.

3.2.1.8 Beaver Dens

WIAs H3 and H8 contain beaver dens within the south side of the railroad berm. One is located within H8 and three are located with WIA H3. WIA H8 also contains what appears to be the remnant of an old beaver lodge on the south face of the berm. In addition, two additional beaver dens appear to be located within 60 feet of H6, on an island within the

marsh south of the Project Site. The dens in areas H3 and H8 will be affected by placement of timber mats in these locations for crane use.

Adverse Effects Analysis and Mitigation

Beaver are known to be active in this area and have been a threat to public water supply in the area. Plans to eradicate beaver from this site are independent of this Project. Consequently, there are no plans to mitigate for this impact.

3.3 Wetland Impact Area H5

WIA H5 is associated with an isolated basin that was determined to be ILSF. A small portion of the basin is located within a portion of the southern side of the Project Site west of Chestnut Street approximately between stations 129+95 and 132+20. The basin consists of an isolated vegetation wetland at its lowest area, which is located beyond the limits of the Project at the toe of the steep southern slope of the MBTA ROW. The upper portion of the basin that surrounds the wetland area is upland. It is the upper portion of the basin where WIA 5 resides. In this location WIA H5 is at the top of the elevated railroad berm, which consists of fill, railroad ballast, and a narrow strip of vegetation.

Based on observation during the past three field seasons this ILSF does not appear to function as a vernal pool. Additionally, the isolated basin has not been mapped as a Certified or Potential Vernal Pool based on a review of the latest available mapping from MassGIS.

The northernmost edge of the ILSF intersects the southern limit of disturbance of the Project in this location. Consequently, 760 square feet of ILSF that is approximately 220 feet long by a width that varies between approximately one to eight feet will be disturbed by the Project. Work within WIA H5 includes vegetation removal, site grading, and installation of the underground transmission line. The location where impacts will occur is upland and is vegetated primarily with trees, saplings, shrubs, and some limited herbaceous growth. Plants observed growing include red maple, red oak, white pine, black cherry, Morrow's honeysuckle, Virginia creeper, poison ivy, Japanese barberry, oriental bittersweet, and spotted jewelweed.

Human disturbance was evident within and immediately surrounding this WIA and included miscellaneous scattered debris, soil disturbance, noise from Chestnut Street, an adjacent fruit orchard (i.e., Ferjulian's), and the remnant railroad track structure. In addition, an invasion of invasive species was noted in the area, which includes oriental bittersweet, Japanese barberry, and Morrow's honeysuckle.

Photographs of representative site conditions and a listing of the vegetation observed within WIA H5 is provided with in Attachment B.

3.3.1 Important Wildlife Habitat Features, Impacts, and Proposed Mitigation

According to the Regulations and the Guidance, an area of ILSF that does not contain Vernal Pool Habitat is afforded a presumption that it is not significant to the protection of wildlife

habitat. Consequently, a WHE is not specifically required; regardless, WIA H5 was evaluated to determine whether important wildlife habitat features were present and if so, whether the Project would result in adverse impacts to said features. Within WIA H5 two wildlife habitat features were identified:

- › Upland/Wetland Food Plants; and
- › Large Woody Debris on the Ground.

Below is a discussion of each feature that was identified and evaluated within the WIA followed by an adverse effect's analysis and proposed mitigation, if any.

3.3.1.1 Upland/Wetland Food Plants

There are a few scattered oaks within the narrow WIA that could be of value to wildlife as a source of food. These trees will be removed to accommodate construction of the Project.

Adverse Effects Analysis and Mitigation

There are additional upland/wetland food plants, including oaks, cherries, and blueberries, outside of the WIA within the Project Site and beyond in more relative abundance that will continue to provide this important habitat feature to wildlife in the general area. In addition, nannyberry (*Ilex lentago*), a native shrub, will be planted along the edge of the ILSF which will provide a food source for local wildlife (see Attachment C in the NOI for shrub planting locations). Based on the proposed shrub plantings and the presence of food plants in higher relative abundance outside of the WIA but within the immediate vicinity, the loss of the minimal food plants within H5 will not reduce the capacity of the area or region to provide the important wildlife habitat value that this feature provides. Additionally, the loss of the few food plants in WIA H5 will not have an adverse effect on wildlife habitat.

3.3.1.2 Large Woody Debris on the Ground

There was limited, scattered large woody debris ranging from six to eight inches in diameter observed within the WIA during the site visit. This woody debris will be removed to facilitate construction of the Project.

Adverse Effects Analysis and Mitigation

The amount of scattered woody debris within WIA 5 was not specifically quantified but in general it is very limited and overall likely provides minimal value to wildlife in the area. In contrast, there is scattered large woody debris on the ground outside of the WIA on the Project Site and beyond the Project Site within the immediate vicinity of the WIA in greater abundance. This woody debris overall provides greater habitat value relative to that which will be lost as a result of Project activities.

Accordingly, the proposed work in this area will not reduce the capacity of the area or region to provide the important wildlife habitat value that this feature provides. Additionally, the loss of the limited amount of large woody debris in the WIA will not have an adverse effect on wildlife habitat.

3.4 Wetland Impact Area H9

WIA H9 is located immediately north of Wilkins Street, south of the Assabet River Rail Trail terminus, and west of a parking lot associated with the Assabet River Rail Trail from approximately Station 10+20 to 10+80. WIA H9 will be part of a connection between DCR's MCRT and the Assabet River Trail and consists of 1,595 square feet of RFA that is associated with an unnamed perennial tributary to the Assabet River. Proposed work within the WIA includes grading and paving the MCRT. The area is presently maintained as lawn.

Photographs of representative site conditions within WIA H9 are provided within Attachment B.

3.4.1 Important Wildlife Habitat Features, Impacts, and Proposed Mitigation

WIA H9 is currently maintained as a managed lawn area. Consequently, no important wildlife habitat features were identified in this WIA.

3.5 Wetland Impact Area H10

WIA H10 is BLSF associated with an unnamed tributary to the Assabet River. It is located along the northern boundary of the Project, west of Chestnut Street approximately between Stations 131+10 and 132+00. WIA H10 is approximately 47 square feet of upland BLSF impact and is located at the top of the elevated railroad berm, which consists of fill, railroad ballast, and a narrow strip of vegetation. Proposed work that will occur within this WIA includes minimal grading and placement of sediment and erosion control measures. The WIA is linear and is approximately 1.25 feet wide at its widest point.

Because the WIA is very small, long, and very narrow, no features that could be of value to wildlife are present. In addition, no vegetation was present within this very narrow, linear WIA. Vegetation that is growing in the immediately surrounding area includes red maple, red oak, white pine, black cherry, Virginia creeper, poison ivy, and spotted jewelweed. Invasive species found in this general area include Morrow's honeysuckle, glossy buckthorn, Japanese barberry, and oriental bittersweet. This vegetation will not be removed or impacted during construction of the Project.

Forms of past and current human disturbance activities noted within and near this WIA includes derelict railroad infrastructure (railroad ties and tracks), presence of invasive plant species, and soil disturbance.

Photographs of representative site conditions and a listing of the vegetation encountered near WIA H10 is provided within Attachment B.

3.5.1 Important Wildlife Habitat Features, Impacts, and Proposed Mitigation

Because of its small size and linear nature, no important wildlife habitat features were identified in WIA 10.

3.6 Landscape Context and Habitat Connectivity

Habitat connectivity within a landscape is an important feature that takes into consideration wildlife migratory behavior and requirements. To characterize the connectivity relationship of the WIAs to surrounding habitats, five categories of habitat connectivity were considered based on the Guidance. These include:

1. No direct connections to adjacent areas of wildlife habitat (little connectivity function);
2. Connectors numerous or WIA is imbedded in a large area of natural habitat (limited connectivity function);
3. WIA contributes to a limited number of connectors to adjacent areas of habitat (somewhat important for connectivity function);
4. WIA serves as part of a sole connector to adjacent areas of habitat (important for connectivity function); and
5. WIA serves as the only connector to adjacent areas of habitat (very important for connectivity function).

From a topographic perspective, the railroad line corridor may be used by some wildlife as a corridor along its length. Across its width, there are few apparent wildlife corridors with possibly the exception of corridors that include areas where streams cross the Project Site. The most apparent of these include the stream crossings within the Project Site of an unnamed tributary of the Assabet River at approximately Station 107+93 and the crossing of Fort Meadow Brook from approximately Station 148+50 to 149+00. Animal movements across the Project Site are likely scattered across its length by species common within adjacent areas. Because of the presence of the railroad track and ties, movements by some reptile and amphibian species may be partially restricted. The Project will remove the railroad track and ties, which will remove the barrier for these species and improve existing conditions.

All of the WIAs reside in locations parallel to and at the outer limits of grading. Additionally, they are typically within the periphery of natural habitat areas where those areas border on the Project Site. There are also no special features present within each of these WIAs different from adjacent areas that would provide wildlife a distinct corridor, especially favorable for wildlife use or passage. From that perspective, wildlife would be as likely to pass through any of the WIAs as they would through other areas not impacted along the Project. For this reason, all of the WIAs are regarded as having limited connectivity function.



4

Summary and Conclusions

The Project Site includes the entire width of the MBTA ROW, the entire width of the public roadway layout, and the entire Town of Hudson parcel that the MCRT will travel through to connect to the existing ARRT. The portion of the Project in Hudson is approximately 4.7 miles in total length, of which 3.3 miles is along the existing inactive MBTA ROW from the Hudson/Sudbury municipal border to Wilkins Street (see Attachment A). The MBTA ROW width is variable but averages 82 feet wide in most locations and travels past residential areas, commercial developments, agricultural fields, wooded areas, and roadways. At Wilkins Street, the MCRT and underground transmission line components of the Project diverge. The MCRT continues across Wilkins Street and within Town of Hudson–owned property for approximately 230 feet, to connect to the existing ARRT. The proposed MCRT Connection will travel alongside the existing parking lot for the ARRT. The underground transmission line continues south within Wilkins Street and Forest Avenue for approximately 1.4 miles within the existing roadway layout to its termination at the HLPD Substation. However, it is important to note that this WHE only evaluated Project related impacts to wetland resource areas within the MBTA ROW and MCRT Connection to the ARRT as the roadway does not contain natural habitat.

Along the length of the Project in Hudson, 10 locations identified as WIAs. These impacts will occur in BLSF (16,400 square feet), ILSF (760 square feet), RFA (64,790 square feet) and BVW (1,936 square feet). The Project qualifies as a limited project according to the Regulations at 310 CMR 10.43(3)(d) and 10.53(6), respectively. Based on the Guidance, the completion of a WHE for projects meeting the limited project criteria of the Regulations may or may not be required at the discretion of the issuing authority. Regardless, a Detailed WHE (“Appendix B”) was completed at each WIA, which is the most comprehensive type of WHE in the Guidance.

Each of the ten WIAs in Hudson was visited in 2019 to make field observations and document the presence of important wildlife habitat features that would be impacted by Project activities. Based on those observations and the completion of a Detailed WHE at each of the WIAs, it was identified that some important wildlife habitat features will be affected in WIAs H1, H2, H3, H4, H5, H6, H7, and H8. No important wildlife habitat features were identified in WIA H9 or H10. Table 3 in Section 3 provides a summary of important wildlife habitat features that will be affected by Project.

As described in Section 3, there is an abundance of important wildlife habitat features on the remainder of the Project Site beyond the actual construction footprint of the Project. These features are also present within areas beyond the Project Site in quantities such that the

minor losses attributed to the Project will not have an adverse effect on wildlife habitat in the local area or region. Regardless of these findings, the Project incorporates mitigation measures on the Project Site to replace some of the lost important wildlife habitat features within the construction footprint and to supplement important wildlife habitat features in the area. Mitigation measures proposed for important wildlife habitat features within the construction footprint for the Project include:

- › Creation snags to replace standing dead trees that will be lost;
- › Creation of brush piles to replace coarse dead wood on the ground;
- › Promoting growth of herbaceous vegetation by seeding with native plant species; and
- › Planting tree, shrub, and aquatic species within the Fort Meadow Brook area to replace those that will be removed in the crane mat location.

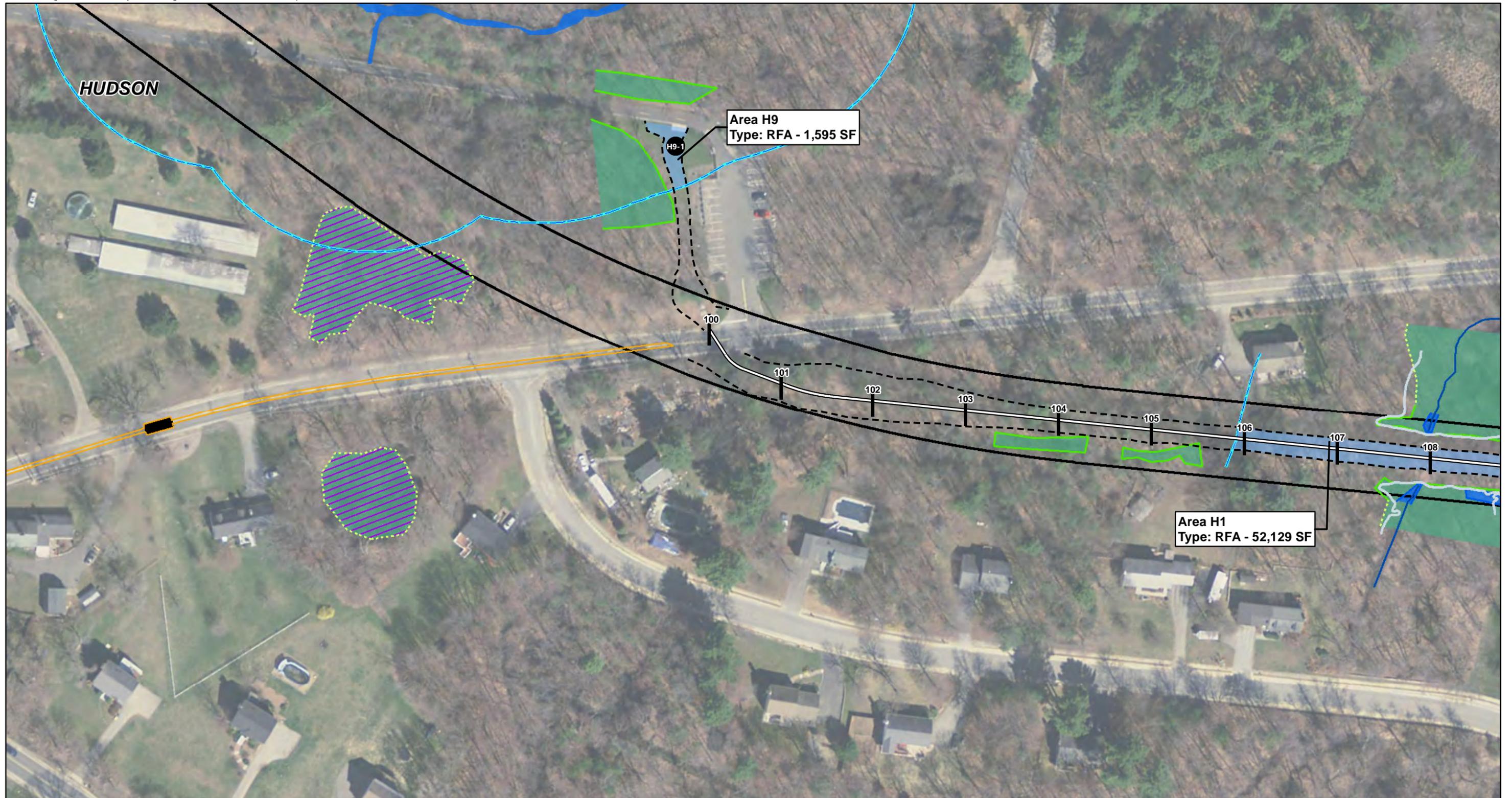
For all proposed plantings, species have been selected to provide sources of food for wildlife and to promote replacement of trees and shrubs overhanging water and offering good views of open water in the area.

As demonstrated in Section 3, the Project will have no adverse effects on important wildlife habitat, as determined by procedures contained in 310 CMR 10.60. The completed WHE demonstrates that while important habitat features exist on the Project Site and within the WIAs, adverse effects will be avoided because the Project will not substantially reduce the capacity of the Project Site or the affected resource areas to provide the important wildlife habitat functions (i.e., those listed in 310 CMR 10.60(2) including food, shelter, migratory and breeding areas). As described in the Preface to the 1987 Revisions to the Massachusetts Wetlands Regulations, this “no substantial reduction” standard is met where “important wildlife habitat functions are substantially restored” during Project construction, or it is otherwise demonstrated that “the proposed alterations will have no adverse effects on wildlife habitat” because the important features identified in a particular study area (e.g., snags, food sources, large woody debris, etc.) are common to the site, so that the number of habitat features lost, as a result of construction of the Project, are insignificant when compared to the amount of similar habitat that will remain on the Project Site.

In conclusion, within the proposed limits of work associated with the Project, important wildlife habitat features have been identified and evaluated consistent with the approach detailed in the Regulations and Guidance. Mitigation for important wildlife habitat features identified from the evaluation is also being provided to supplement remaining habitat on the Project Site and to replace features that will be lost. In the Guidance, it is explained that by ensuring that important habitat features are identified and adverse impacts are avoided or minimized and mitigated, the goal of no adverse effect will be met. Accordingly, the Project has been designed to meet the requirements described in the Guidance and will not have an adverse effect on important wildlife habitat either locally or in the region.

Attachment A – Wildlife Habitat Evaluation Figures

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|--------------------------------------|-------------------------------|------------------------|------------------------|
| — MBTA ROW Boundary | — Delineated Wetland Edge | — 200' Riverfront Area | ■ BLSF Impact Area |
| — Project Alignment | — Approximate Wetland Edge | ■ Wetland Area | ■ ILSF Impact Area |
| — Crane Pad Location | — Delineated Top of Bank | ■ Land Under Water | ■ RFA Impact Area |
| - - - Limit of Grading | — Delineated Vernal Pool Edge | ■ Vernal Pool Area | ■ RFA/BLSF Impact Area |
| □ Town Boundaries | — Intermittent Stream | — Perennial Stream | ■ BVW/RFA Impact Area |
| — Bordering Land Subject to Flooding | — 10-year Floodplain | ● # Photo Location | |

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Sudbury-Hudson Transmission Reliability Project

Wildlife Habitat Evaluation Impact Areas
Hudson, Massachusetts

Source:
MassGIS, 2015
Orthoimagery, VHB

12/2/2019





Area H1
Type: RFA - 52,129 SF

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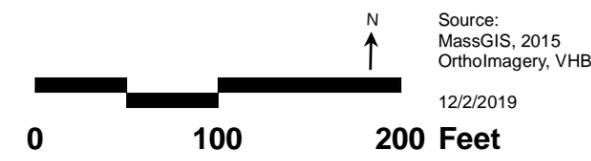
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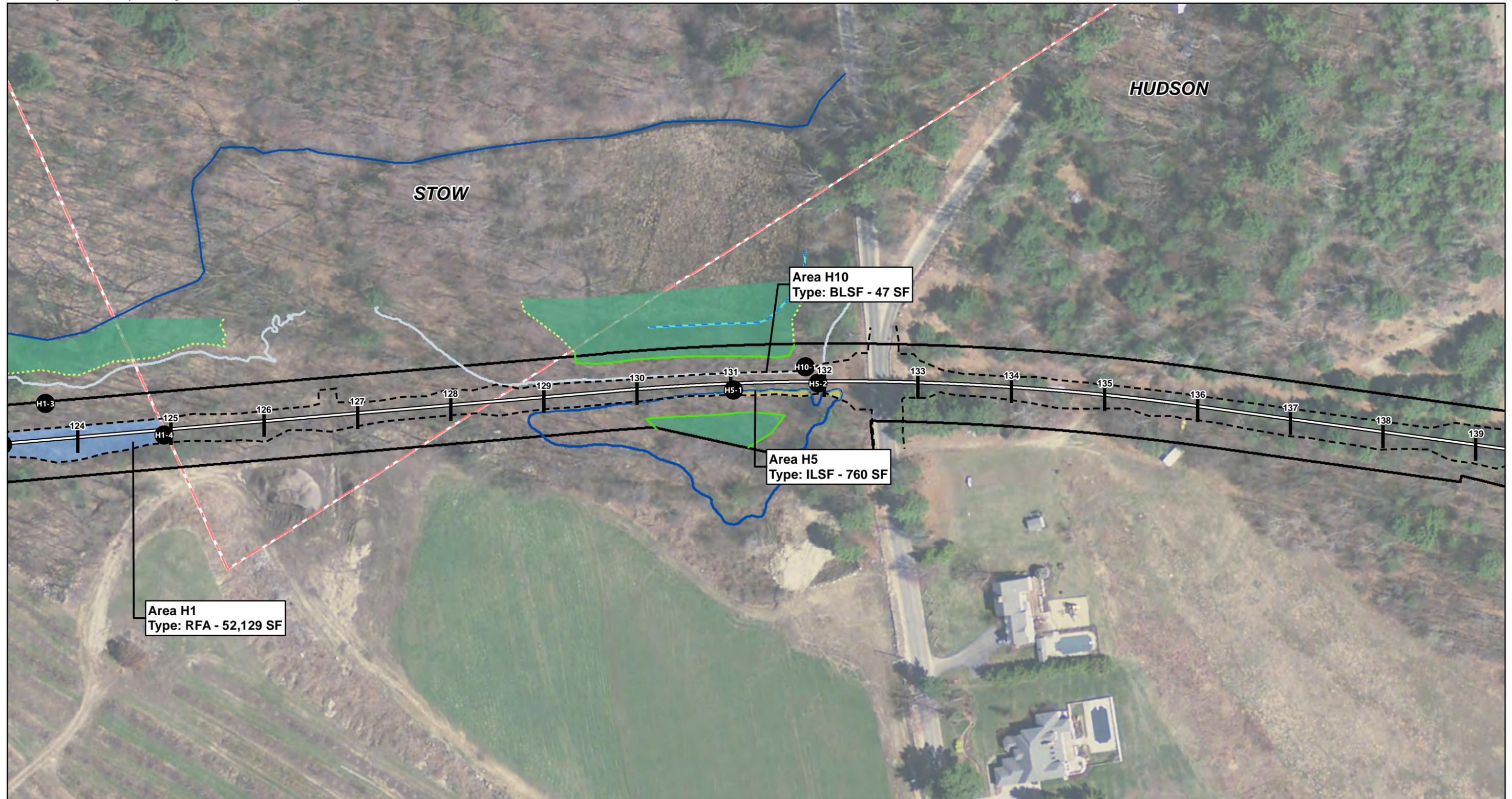
Sudbury-Hudson Transmission Reliability Project

**Wildlife Habitat Evaluation Impact Areas
Hudson, Massachusetts**

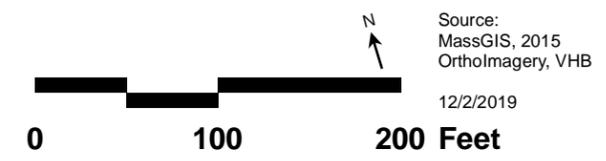
Source:
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Orthomagery, VHB
12/2/2019

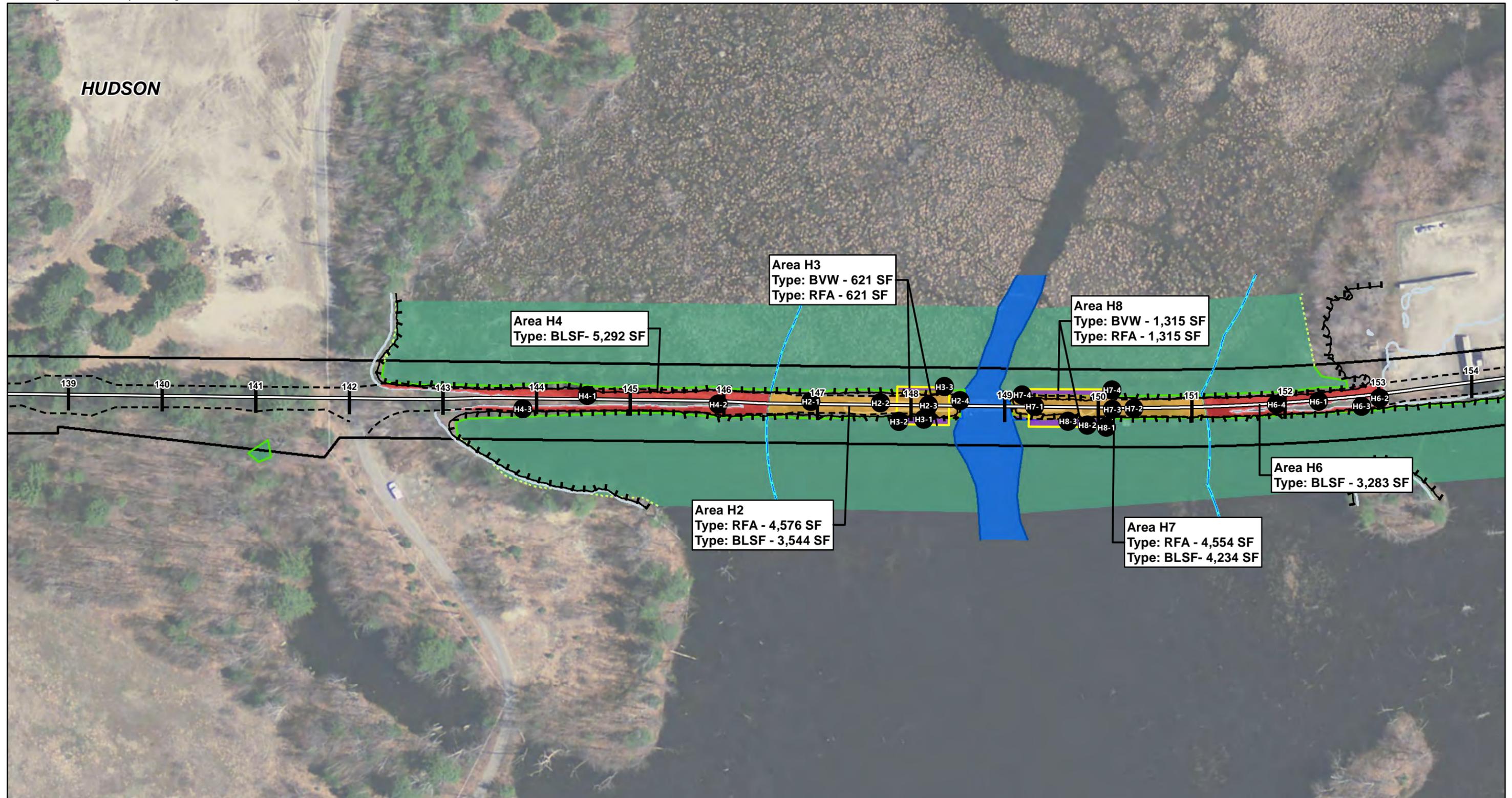
Sheet 2 of 12





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Sudbury-Hudson Transmission Reliability Project

**Wildlife Habitat Evaluation Impact Areas
Hudson, Massachusetts**





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Sudbury-Hudson Transmission Reliability Project

**Wildlife Habitat Evaluation Impact Areas
Hudson, Massachusetts**

Source:
MassGIS, 2015
Orthomagery, VHB

12/2/2019





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Sudbury-Hudson Transmission Reliability Project

**Wildlife Habitat Evaluation Impact Areas
Hudson, Massachusetts**

Source:
MassGIS, 2015
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12/2/2019





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Sudbury-Hudson Transmission Reliability Project

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Hudson, Massachusetts**

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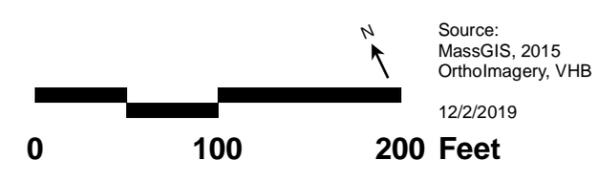


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Sudbury-Hudson Transmission Reliability Project

**Wildlife Habitat Evaluation Impact Areas
Hudson, Massachusetts**





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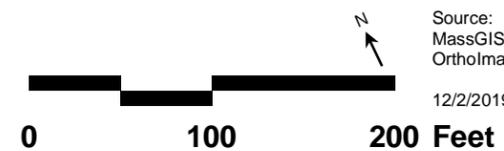


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Sudbury-Hudson Transmission Reliability Project

**Wildlife Habitat Evaluation Impact Areas
Hudson, Massachusetts**

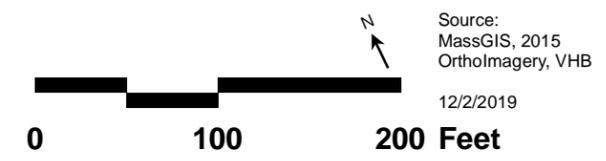


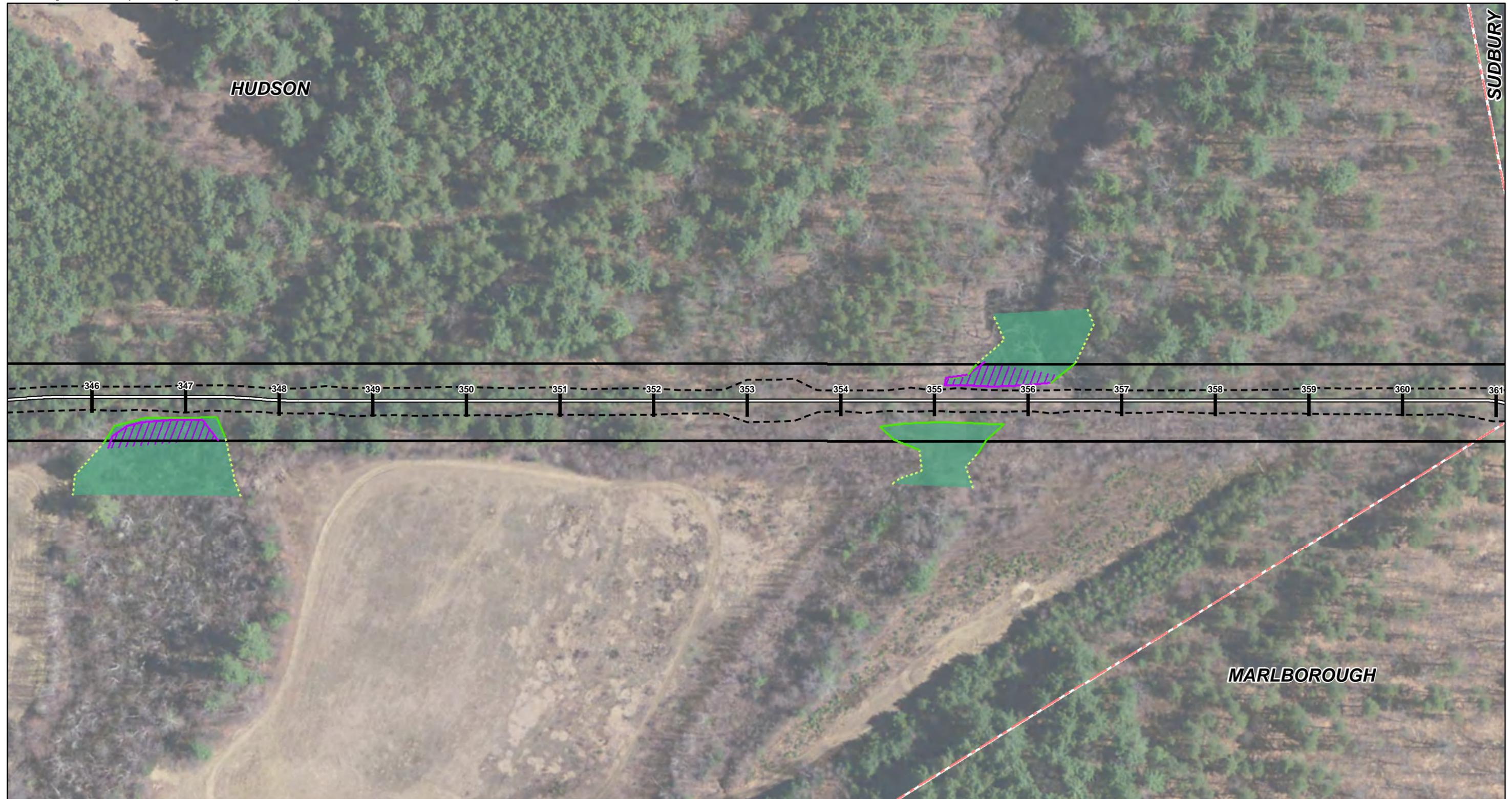
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Attachment B – WHE Forms, Vegetation Lists, and Photos

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Wetland Impact Area H1

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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.



Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Project Name

Sudbury, Stow, Marlborough, Hudson

Location

52,129 sf

4/11/2019

Size of Area Being Impacted

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. H1 - RFA Impact Area	0	0	52,129 sf	52,129 sf
2.				
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)

Impact Area (H1) occurs within RFA and is along the inactive MBTA rail line ROW that travels through residential and agricultural areas. It is approximately 52,129 square feet in area and runs from approximately Station 105+90 to 124+90 (west to east) terminating at the Hudson/Stow town line. H1 is located within areas that were previously disturbed from the historic construction and operation of the rail line and is mostly 22 feet wide. The railroad tracks and ties are still present. H1 contains a mix of vegetation some of which are successional in nature. Between Stations 105+90 to approximately 113+50 (western portion) the northern and southern edges (embankments) of H1 is primarily vegetated with trees and saplings. These consist of mixed oaks, white pine and red maple. Along the western portion, tree canopy north and south of H1 overhang portions of the Impact Area resulting in a closed to moderately open canopy. From Station 113+50 to 124+95 (eastern portion) (north of Ferjulian's Orchard), the northern edge of H1 is mostly vegetated with trees and saplings consisting of mixed oaks, white pine and red maple. The southern edge is vegetated with a weedy mix of herbs, grasses, vines, shrubs and saplings. Some of the common species found there included Virginia creeper, oriental bitter sweet, bristlegrass, glossy buckthorn, and Allegheny blackberry. The eastern portion of H1 is generally open. Rubbish/debris, soil and vegetation disturbance and invasive species were noted within H1 at the time of the evaluation. Invasive species noted within H1 include multiflora rose, glossy buckthorn, Norway maple, garlic mustard, Japanese barberry, Morrow's honeysuckle, and Tartarian honeysuckle. A list of species noted in H1 during the evaluation is attached.

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))

Typed or Printed Name



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

Hudson, Massachusetts

Project Location (from NOI page 1)

H1 (RFA impact, from approximately Station 105+90 - 124+90)

Impact Area (number/name)

John Vieira, April 11, 2019

Date(s) of Site Visit(s) and Data Collection

Sunny 50s

Weather Conditions During Site Visit (if snow cover, include depth)

John Vieira

April 15, 2019

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: N/A - Upland Area

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.

N/A - Impact Area is mostly railroad track bed/disturbed so neither upland classification system applies

Community Name

See Narrative description above

Vegetation Description

See narrative description above and attached plant list

Physical Description



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

Along the western segment mostly trees and saplings occur both on the north and south side of H1. Along the eastern segment mostly trees and saplings occur on the north side of H1. On the south side mostly herbs, grasses, vines, shrubs and saplings occur. Percent cover stated as Daubemire Cover Class midpoints. Percent cover estimated for western and eastern segments of H1.

% Cover:	W 63.0 E 20.5	W 20.5 E 20.5	W 3.0 E 3.0	0	W 10.5 E 63
	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	
Vegetation list attached	_____		_____	_____	
See side note	_____		_____	_____	
_____	_____		_____	_____	
_____	_____		_____	_____	
_____	_____		_____	_____	
_____	_____		_____	_____	

C. Inventory (Soils)

Note: Soils historically disturbed and filled from construction and operation of the rail line and therefore differ from the mapped soil unit

Mapped as Paxton Fine Sandy Loam (305E) ; Hinckley Loamy Sand (253B) ; Scarboro Mucky Fine Sandy Loam (6A)	_____
Soil Survey Unit	Drainage Class
_____	_____
Texture (upper part)	Depth
_____	_____
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

Upland food mixed oaks present

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

Abundant Present Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

Present Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

Present Absent



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

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

9 0 0 0
6-12" dbh 12-18" dbh 18-24" dbh > 24" dbh

Number of Tree Cavities in trunks or limbs of:

0
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

Cover/Perches/Basking/Denning/Nesting Habitat

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

Weedy strip along the eastern segment south of the rail line - has been recently disturbed. Estimated 5' x 500'

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

Scattered along impact area

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 hummocks 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



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Project area is within:

- 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
- 200' of Great Blue Heron or osprey nest(s)
- 1400' of a Bald Eagle nest¹

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-leaved 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? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (marsh and waterbirds) | 2.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> 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? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (turtles, frogs, waterfowl, mammals) | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 25.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| For upland resource areas is the impact area part of contiguous forested habitat at least | | | |
| (forest interior nesting birds) | 50 acres in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| | 100 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 250 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 500 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (grassland nesting birds) | > 1.0 acre in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (special habitat such as gallery floodplain forest, alder thicket, etc.) | > 1.0 acre in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> 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)
- 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
- 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

Large coarse woody debris (> 6" dia) common and scattered throughout H1 on north side or ROW. Some recently cut trees roughly placed near and within the impact area. Difficult to quantify. Some locations are discrete locations with few pieces of coarse wood (9 locations estimated). Other locations are extended areas with recently cut wood scattered along the length (5 of these areas were identified).

Habitat Characteristic	Amount Impacted in Impact Area	Current (entire site)	Post-Construction (entire site)
Example: standing dead trees 6-12" dbh	4	12	8
Standing Dead Trees	9	numerous on site and in area	Min. of 9 snags created
Large woody (coarse) debris	SEE SIDE NOTE	numerous on site and in area	14 / log brush piles created
Dense herbaceous veg	Strip E seg.(est 5' x 500')	limited to this area	Disturbed areas outside of access road and paved trail to be revegetated with herbaceous vegetation
Upland/Wetland Food Plants	Present	Some present beyond impact area	Supplemental plantings planned for mitigation

Note: Standing dead trees and larger woody debris outside of the Impact Area were not enumerated but these features are present and more abundant of similar in quantity to the Impact Area.



Photo 1 - Looking east down the ROW with areas of dense herbaceous cover near Station 110+00

	<p><u>Impact Area H1 (RFA) in Hudson, MA</u></p> <p>Wildlife Habitat Evaluations Photographs</p>	<p>EVERSOURCE ENERGY</p> 
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Photo 2 – Representative picture of large woody debris on the ground within the Impact Area near Station 123+10



Photo 3 – Representative picture of large woody debris on the ground outside the Impact Area near Station 123+80

Impact Area H1 (RFA) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

vhb



Photo 4 – Looking west down Impact Area behind Ferjulian’s Orchard near Station 124+90

Impact Area H1 (RFA) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

 vhb

Impact Area/ID: H1
Survey Date: 4/11/19

Study Completed By: VHB
Field Investigators: John Vieira & Katie Kinsella

Scientific Name ¹	Common Name	Family	Stratum				Dominant in Strata (*)	Wetland Indicator Status ²	NHESP Status ³
			Tree	Sapling-Shrub	Herb	Vine			
Acer rubrum	red maple	Aceraceae	x	x	x		*	FAC	N/A
Acer platanoides	Norway maple*	Aceraceae		x				UPL	N/A
Acer saccharum	sugar maple	Aceraceae	x	x				FACU	N/A
Achillea millefolium	common yarrow	Asteraceae			x			FACU	N/A
Alliaria petiolata	garlic mustard*	Brassicaceae			x			FACU	N/A
Ambrosia artemisiifolia	annual ragweed	Asteraceae			x			FACU	N/A
Asclepias syriaca	common milkweed	Asclepiadaceae			x			UPL	N/A
Berberis thunbergii	Japanese barberry**	Berberidaceae		x	x			FACU	N/A
Berberis vulgaris	Common barberry**	Berberidaceae		x				FACU	N/A
Daucus carota	Queen Anne's lace	Apiaceae			x			UPL	N/A
Dennstaedtia punctilobula	eastern hayscented fern	Dennstaedtiaceae			x		*	UPL	N/A
Lonicera morrowii	Morrow's honeysuckle*	Caprifoliaceae		x	x			FACU	N/A
Lonicera tatarica	Tatarian honeysuckle*	Caprifoliaceae		x	x			FACU	N/A
Parthenocissus quinquefolia	Virginia creeper	Vitaceae			x		*	FACU	N/A
Pinus strobus	eastern white pine	Pinaceae	x	x	x		*	FACU	N/A
Rosa multiflora	multiflora rose**	Rosaceae		x				FACU	N/A
Rubus allegheniensis	Allegheny blackberry	Rosaceae		x		*		FACU	N/A
Rubus flagellaris	northern dewberry	Rosaceae			x	*		FACU	N/A
Rubus idaeus	American red raspberry	Rosaceae		x				FACU	N/A
Rubus occidentalis	black raspberry	Rosaceae		x				FACU	N/A
Rumex obtusifolius	bitter dock*	Polygonaceae			x			FAC	N/A
Setaria	bristlegrass	Poaceae			x			FACU	N/A
Taraxacum officinale	common dandelion	Asteraceae			x			FACU	N/A
Trifolium pratense	red clover*	Fabaceae			x			FACU	
Vaccinium angustifolium	lowbush blueberry	Ericaceae			x	*		FACU	N/A
Verbascum thapsus	common mullein*	Scrophulariaceae			x			UPL	N/A
Vicia cracca	bird vetch*	Fabaceae			x			FACU	N/A
Vitis aestivalis	summer grape	Vitaceae			x			FACU	N/A

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov/) (2017).
² Massachusetts 2012 Final State Wetland Plant List (https://www.townofnewbury.org/sites/newburyma/files/uploads/massachusetts_wetland_plant_list_revised_2012.pdf)
OBL: Obligate FACW: Facultative Wetland FAC: Facultative FACU: Facultative Upland UPL: Upland
³ The Vascular Plants of Massachusetts: A County Checklist
E - Endangered T - Threatened SC - Special Concern WL - Watch List H - Historic N/A - No designation
* Introduced
** Invasive

Wetland Impact Area H2

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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.



Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Project Name

Sudbury, Stow, Marlborough, Hudson

Location

4,583 square feet

4/11/2019

Size of Area Being Impacted

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. H2 - RFA	0	0	4,576 sf	4,576 sf
2. H2 - BLSF	0	0	3,544 sf	3,544 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)

This RFA/BLSF Impact Area (H2) is approximately 200 feet long by 21 feet wide. Within and roughly central to this area is the remaining railroad track structure (track and ties) that is roughly 9' wide. H2 is located on the western side of a dilapidated railroad bridge that crosses Fort Meadow Brook. It consists entirely of uplands, and is approximately 4,576 square feet of RFA and 3,544 square feet of BLSF. West to east, H2 runs from approximately Station 146+45 to 148+50. H2 is on the elevated railroad embankment that was constructed for the rail line and extends into a large wetland complex and is not consistent with much of the surrounding conditions. Conditions within H2 are dissimilar to the adjacent wetland and are not expected to provide the same habitat value of the adjacent wetland. The northern and southern edges of H2 (Approximately 4-5' x 200' each side) are vegetated with scattered trees, shrubs and saplings that extend beyond the limits of the Impact Area down the slopes of the embankment to the edge of BVW. Limited herbaceous vegetation grows throughout. There is evidence of human use there, including the presence of a moderately defined foot path and scattered miscellaneous trash/debris. Shotgun shells on the ground indicate that the area is used for hunting.

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))

Typed or Printed Name



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

Hudson, Massachusetts

Project Location (from NOI page 1)

H2 (RFA impact area with BLSF overlap, from approximately Station 146+45 through 148+50)

Impact Area (number/name)

John Vieira, April 11, 2019

Date(s) of Site Visit(s) and Data Collection

Sunny 50s

Weather Conditions During Site Visit (if snow cover, include depth)

John Vieira

April 22, 2019

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: N/A - Upland Area

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.

N/A - Impact Area is mostly railroad track bed/disturbed so neither upland classification system applies

Community Name

See Narrative description above

Vegetation Description

See narrative description above and attached plant list

Physical Description



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

% Cover:	37.5	37.5	2.5	0	37.5
	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
Vegetation list attached	_____	_____	_____
See side note	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Along both north and south sides of H2 the impact area is vegetated mostly with small trees, shrubs and saplings. Herbs are scattered in these areas. The RR track is central to the area. Percent cover stated as Daubenmire Cover Class midpoints.

C. Inventory (Soils)

Note: Soils historically disturbed and filled from construction and operation of the rail line and therefore differ from the mapped soil unit.

Mapped as Freetown Muck (52A)	N/A
Soil Survey Unit	Drainage Class
N/A - disturbed/railroad ballast and fill material	N/A
Texture (upper part)	Depth
N/A	
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 Present Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

Present Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

Present Absent

Some small oaks



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

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

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

Number of Tree Cavities in trunks or limbs of:

0
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

Much of soils in Impact Area consist of railroad ballast that is not readily burrowable by small mammals

Cover/Perches/Basking/Denning/Nesting Habitat

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

One discrete location

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 hummocks 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



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Two larger dens and one smaller den in H3, which is within 100' of H2 - presumed to be beaver

Project area is within:

- 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
- 200' of Great Blue Heron or osprey nest(s)
- 1400' of a Bald Eagle nest¹

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-leaved 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)

Impact Area is on manmade peninsula/elevated railroad bed

- 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
- 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)
- 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)

Scattered
miscellaneous trash, but
not significant levels

- Evidence of significant chemical contamination
- Evidence of significant levels of dumping
- Evidence of significant erosion or sedimentation problems

Footpath access
indicates at least
semi-regular access;
dog scat, and signs of
hunting and fishing use

- Significant invasion of exotic plants (e.g., purple loosestrife, *Phragmites*, glossy buckthorn)
- Disturbance from roads or highways Other human disturbance
- 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)
Example: standing dead trees 6-12" dbh	4	12	8
Upland / Wetland Food Plants*	Present- Scattered oaks along N & S edges of H2	Some present beyond impact area	Beyond impact area similar quantity will remain on site
100' of Mammal Burrow	3	See comments for Impact area H3	See comments for Impact area H3
Live standing veg offering views of open water	Present scattered along N & S edges of H2	Some present beyond impact area	Beyond impact area similar quantity will remain on site
Coarse wood (>6") on ground	1 discrete location	Limited east of Fort Meadow Brook	1 brush pile to be created

Note: Upland food plants (small oak trees) and live standing vegetation (small trees) outside of the Impact Area were not enumerated but these features are present and similar in quantity to the Impact Area.



Photo 1 – Looking west at Impact Area towards H4 near Station 146+80

Impact Area H2 (RFA/BLSF) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

 **vhb**



Photo 2 - Looking east within the Impact Area near Station 147+60

Impact Area H2 (RFA/BLSF) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

 **vhb**



Photo 3 – Shotguns shells within the Impact Area near Station 148+20



Photo 4 – Small brush pile near the edge of the Impact Area near Station 148+60

Impact Area H2 (RFA/BLSF) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

vhb

Impact Area/ID: H2
Survey Date: 4/11/19

Study Completed By: VHB
Field Investigators: John Vieira & Katie Kinsella

Scientific Name ¹	Common Name	Family	Stratum				Dominant in Strata (*)	Wetland Indicator Status ²	NHESP Status ³
			Tree	Sapling-Shrub	Herb	Vine			
Acer rubrum	red maple	Aceraceae	x	x			*	FAC	N/A
Achillea millefolium	Common Yarrow*	Asteraceae			x			FACU	N/A
Betula populifolia	gray birch	Betulaceae	x					FAC	N/A
Frangula alnus	glossy buckthorn**	Rhamnaceae		x				FAC	N/A
Lonicera morrowii	Morrow's honeysuckle**	Caprifoliaceae		x				FACU	N/A
Pinus strobus	eastern white pine	Pinaceae		x				FACU	N/A
Quercus velutina	black oak	Fagaceae	x	x			shrub only	UPL	N/A
Taraxacum officinale	common dandelion	Asteraceae			x			FACU	N/A
Vaccinium corymbosum	highbush blueberry	Ericaceae		x				FACW	N/A
Vaccinium stamineum	deerberry	Ericaceae		x				FACU	N/A

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov/) (2017).

² **Massachusetts 2012 Final State Wetland Plant List** (https://www.townofnewbury.org/sites/newburyma/files/uploads/massachusetts_wetland_plant_list_revised_2012.pdf)

OBL: Obligate
FACW: Facultative Wetland
FAC: Facultative
FACU: Facultative Upland
UPL: Upland

³ **The Vascular Plants of Massachusetts: A County Checklist**

E - Endangered
T - Threatened
SC - Special Concern
WL - Watch List
H - Historic
N/A - No designation

³ **The Vascular Plants of Massachusetts: A County Checklist**

* Introduced

** Invasive

Wetland Impact Area H3

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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.



Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Project Name

Sudbury, Stow, Marlborough, Hudson

Location

621 square feet

4/11/2019

Size of Area Being Impacted

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. H3 - BVW/RFA	0	621 sf	621 sf	621 sf
2.				
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)

Impact Area (H3) includes thin strips of vegetation that parallel the north and south sides of the railroad tracks. The northern section is approximately 55 feet long by 4 feet wide and the southern section is approximately 55 feet long by 8 feet wide. H3 is associated with the Fort Meadow Brook wetland complex. Impact will result from the placement of temporary crane mats necessary for the installation of a new bridge that will cross Fort Meadow Brook. In this area a total of approximately 621 square feet of BVW and RFA overlap between Stations 147+85 to 148+40. The impact area is vegetated with scattered small tree, shrubs and saplings. Herbaceous vegetation is scattered in limited amounts. The impacts will be temporary and the area will be restored in-situ once reconstruction of the Fort Meadow Brook bridge is complete.

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))

Typed or Printed Name



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

Hudson, Massachusetts

Project Location (from NOI page 1)

H3 (BVW/RFA, from approximately Station 147+85 to 148+40)

Impact Area (number/name)

John Vieira, April 11, 2019

Date(s) of Site Visit(s) and Data Collection

Sunny 50s

Weather Conditions During Site Visit (if snow cover, include depth)

John Vieira

April 22, 2019

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: P-Palustrine

Subsystem: N/A

Class: EM-Emergent/SS - Scrub Shrub

Subclass: EM-Persistent/SS-Broad-leaved Deciduous

Hydrology/Water Regime

Some of Impact Area is seasonally flooded at the tow of the slope of the railroad embankment

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.

RFA overlaps BVW so it follows the Cowardin classification

Community Name

See Narrative description above

Vegetation Description

See narrative description above and attached plant list

Physical Description



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

	62.5	37.5	0	0	37.5
% Cover:	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):

Percent cover stated as Daubenmire Cover Class midpoints.

Strata	Plant Species	Strata	Plant Species
Vegetation list attached	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Note: Soils historically disturbed and filled from construction and operation of the rail line and only partially exhibit typical characteristics of soil survey unit

C. Inventory (Soils)

Freetown Muck (53A) (In part)	Very poorly drained
Soil Survey Unit	Drainage Class
Mucky Peat	More Than 80 Inches
Texture (upper part)	Depth
0 to 6"	
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 Present Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

Present Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

Present Absent



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

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

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

Number of Tree Cavities in trunks or limbs of:

0
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 readily apparent - area mostly contains old railroad ballast/fill

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

Present Absent

Small diameter woody debris limited presence

Generally small trees/saplings. All will need to be removed to accommodate the placement of crane mats

Limited area at the base of the slope within the Impact Area that is seasonally flooded



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 during times of low water

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

Two larger dens and one smaller den in southern bank-presumed to be beaver but also possibly muskrat

Nest(s) present of

Bald Eagle Osprey Great Blue Heron

Den(s) present of

Otter Mink Beaver



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Project area is within:

- 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
- 200' of Great Blue Heron or osprey nest(s)
- 1400' of a Bald Eagle nest¹

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-leaved 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? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (marsh and waterbirds) | 2.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> 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? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (turtles, frogs, waterfowl, mammals) | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 25.0 acres in size? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| For upland resource areas is the impact area part of contiguous forested habitat at least | | | |
| (forest interior nesting birds) | 50 acres in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| | 100 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 250 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 500 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (grassland nesting birds) | > 1.0 acre in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (special habitat such as gallery floodplain forest, alder thicket, etc.) | > 1.0 acre in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> 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)
- 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 Area mostly on railroad ballast
- 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)
Example: standing dead trees 6-12" dbh	4	12	8
Animal Dens (beaver)	3	6	See note below
Upland/Wetland Food Plants	Present	Some present beyond impact area	Supplemental plantings planned for mitigation
Live / dead standing veg offering views of open water	See Side Note	Some present beyond impact area	Supplemental plantings planned for mitigation
Mud Flats	Present - thin strip, present seasonally	Some present beyond impact area	Impact areas to be restored as needed
Shallow standing water for amphibian foraging and hydr	Present seasonally	Some present beyond impact area	Impact areas to be restored as needed

Live /dead standing vegetation offering open water views -
 South side of impact area (4 red maple saplings, 5 dead standing shrubs)
 North side of impact area (saplings 1 black oak, 4 red maples, gray birch 18; trees 7 black oak)

Animal dens - Beaver have been active in this wetland complex and have been a threat to a public water supply in the area. Plans are to eradicate beaver from this site are independent of this Project. Consequently, there are no current plans to mitigate this impact.



Photo 1 – Looking east at the edge of BVW within the southern side of the Impact Area near Station 148+20



Photo 2 - Looking at an animal burrow within the Impact Area near Station 147+90

Impact Area H3 (BVW/RFA) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY





Photo 3 – View of the northern side of the edge of the Impact Area near Station 148+30

Impact Area H3 (BVW/RFA) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

 **vhb**

Impact Area/ID: H3
Survey Date: 4/11/19

Study Completed By: VHB
Field Investigators: John Vieira & Katie Kinsella

Scientific Name ¹	Common Name	Family	Stratum				Dominant in Strata (*)	Wetland Indicator Status ²	NHESP Status ³
			Tree	Sapling-Shrub	Herb	Vine			
Acer rubrum	red maple	Aceraceae	x	x			*	FAC	N/A
Carex	sedge	Cyperaceae						-	N/A
Carex scoparia	broom sedge	Cyperaceae						FACW	N/A
Celastrus orbiculatus	Oriental bittersweet**	Celastraceae			x	x	*	UPL	N/A
Corylus cornuta	beaked hazelnut	Betulaceae		x				FACU	N/A
Hibiscus moscheutos	Crimson-Eyed Rose-Mallow	Malvaceae			x			OBL	N/A
Hieracium pilosella	mouseear hawkweed*	Asteraceae			x			-	N/A
Impatiens capensis	jewelweed	Balsaminaceae			x		*	FACW	N/A
Lonicera morrowii	Morrow's honeysuckle **	Caprifoliaceae		x				FACU	N/A
Oenothera biennis	king's-cureall, Common Evening Primrose	Onagraceae			x			FACU	N/A
Polygonum hydropiper	marshpepper knotweed*	Polygonaceae			x			-	N/A
Taraxacum officinale	common dandelion	Asteraceae			x			FACU	N/A
Viburnum dentatum	Arrowwood	Caprifoliaceae		x				FAC	N/A

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov/) (2017).
² Massachusetts 2012 Final State Wetland Plant List (https://www.townofnewbury.org/sites/newburyma/files/uploads/massachusetts_wetland_plant_list_revised_2012.pdf)
OBL: Obligate
FACW: Facultative Wetland
FAC: Facultative
FACU: Facultative Upland
UPL: Upland
³ The Vascular Plants of Massachusetts: A County Checklist
E - Endangered
T - Threatened
SC - Special Concern
WL - Watch List
H - Historic
N/A - No designation
³ The Vascular Plants of Massachusetts: A County Checklist
* Introduced
** Invasive

Wetland Impact Area H4

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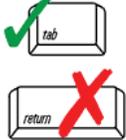


Wildlife Habitat Protection Guidance

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.



Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Project Name

Sudbury, Stow, Marlborough, Hudson

Location

5,292 square feet

4/11/2019

Size of Area Being Impacted

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. H4 - BLSF Impact Area	0	0	5,292 sf	5,292 sf
2.				
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)

This BLSF Impact Area is associated with Fort Meadow Brook and is located on the western side of the bridge. It consists entirely of uplands, is approximately 5,292 square feet, and runs from approximately Station 142+30 to 146+40. Similar to Impact Area H2, it is on the elevated railroad embankment that was constructed for the rail line and the tracks and ties are still present. It extends into a large wetland complex, so H4 is not consistent with much of the surrounding conditions, and would not be expected to provide similar habitat(s) as adjacent areas. The northern and southern edges of H4 are vegetated with scattered trees, shrubs and saplings that extend beyond the limits of the Impact Area down the slopes of the embankment to the edge of BVW. Limited herbaceous vegetation grows throughout. There is evidence of human use there, including the presence of a moderately defined foot path and scattered miscellaneous trash/debris. Shotgun shells on the ground indicate that the area is used for hunting.

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))

Typed or Printed Name



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

Hudson, Massachusetts

Project Location (from NOI page 1)

H4 (portion of BLSF impact area extending west of RFA from approximately Station 142+30 to 146+45)

Impact Area (number/name)

John Vieira, April 11, 2019

Date(s) of Site Visit(s) and Data Collection

Sunny 50s

Weather Conditions During Site Visit (if snow cover, include depth)

John Vieira

April 22, 2019

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: N/A - Upland Area

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.

N/A - Impact Area is mostly railroad track bed/disturbed so neither upland classification system applies

Community Name

See Narrative description above

Vegetation Description

See narrative description above and attached plant list

Physical Description



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

No sphagnum present

% Cover:	37	37	0	3	63
	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
<p>Along both north and south sides of H1 the impact area is vegetated mostly with small trees, shrubs and saplings. Herbs are scattered in these areas. The RR track is central to the area. Percent cover stated as Daubemire Cover Class midpoints.</p>	Vegetation list attached			

C. Inventory (Soils)

Note: Soils historically disturbed and filled from construction and operation of the rail line and do note exhibit typical characteristics of soil survey unit

Mapped as Freetown Muck (52A)	N/A
Soil Survey Unit	Drainage Class
N/A - disturbed/railroad ballast and fill material	N/A
Texture (upper part)	Depth
N/A	
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 Present Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

Present Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

Present Absent

Small oaks, hazelnut, elderberry, deerberry, and dewberry present



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

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

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

Number of Tree Cavities in trunks or limbs of:

0
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 readily apparent - area mostly old railroad ballast/fill

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

Present Absent

Generally small trees/saplings. Trees/saplings will remain beyond the Impact Area, providing the same wildlife value.



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



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Project area is within:

- 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
- 200' of Great Blue Heron or osprey nest(s)
- 1400' of a Bald Eagle nest¹

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-leaved 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? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (marsh and waterbirds) | 2.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> 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
- 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)
- 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
- 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.

Japanese barberry,
oriental bittersweet,
buckthorn, multiflora
rose



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)
Example: standing dead trees 6-12" dbh	4	12	8
Upland/Wetland Food Plants	Present, scattered oaks and other food plants	Some present beyond impact area	Beyond impact area similar quantity will remain on site
Living Veg Offering View of Open Water	Present Scattered along N & S edges	Some present beyond impact area	Beyond impact area similar quantity will remain on site



Photo 1 - Looking west at the Impact Area near Station 144+50



Photo 2 – Looking west at the edge of the Impact Area near Station 145+90

Impact Area H4 (BLSF) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

vhb



Photo 3 – Looking east within Impact Area and a piece of woody debris near Station 143+90

Impact Area H4 (BLSF) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

 **vhb**

Impact Area/ID: H4
Survey Date: 4/11/19

Study Completed By: VHB
Field Investigators: John Vieira & Katie Kinsella

Scientific Name ¹	Common Name	Family	Stratum				Dominant in Strata (*)	Wetland Indicator Status ²	NHESP Status ³
			Tree	Sapling-Shrub	Herb	Vine			
Acer rubrum	red maple	Aceraceae	x					FAC	N/A
Amelanchier canadensis	Canada serviceberry, tricket blackhaw	Rosaceae		x				FAC	N/A
Apocynum cannabinum	Indian-hemp	Apocynaceae			x			FAC	N/A
Aralia nudicaulis	wild sarsaparilla	Araliaceae			x			FACU	N/A
Berberis thunbergii	Japanese barberry**	Berberidaceae		x				FACU	N/A
Betula populifolia	gray birch	Betulaceae	x	x				FAC	N/A
Carex	sedge	Cyperaceae						-	N/A
Celastrus orbiculatus	Oriental bittersweet**	Celastraceae				x		UPL	N/A
Chimaphila maculata	striped prince's pine	Pyrolaceae			x			N/A	N/A
Cornus amomum	silky dogwood	Cornaceae		x				FACW	N/A
Corylus cornuta	beaked hazelnut	Betulaceae		x				FACU	N/A
Dennstaedtia punctilobula	eastern hayscented fern	Dennstaedtiaceae			x			UPL	N/A
Equisetum arvense	field horsetail	Equisetaceae			x			FAC	N/A
Frangula alnus	glossy buckthorn**	Rhamnaceae		x			*	FAC	N/A
Maianthemum canadense	Canada mayflower	Liliaceae			x			FACU	N/A
Pinus strobus	eastern white pine			x				FACU	N/A
Prunus serotina	black cherry	Rosaceae		x				FACU	N/A
Quercus velutina	black oak	Fagaceae	x	x				UPL	N/A
Rosa carolina	Carolina rose	Rosaceae		x				FACU	N/A
Rosa multiflora	multiflora rose**	Rosaceae		x				FACU	N/A
Rubus flagellaris	northern dewberry	Rosaceae			x		*	FACU	N/A
Solanum dulcamara	climbing nightshade	Solanaceae			x		*	FAC	N/A
Toxicodendron radicans	eastern poison ivy	Anacardiaceae			x		*	FAC	N/A
Vaccinium stamineum	deerberry	Ericaceae		x			*	FACU	N/A

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov/) (2017).
² Massachusetts 2012 Final State Wetland Plant List (https://www.townofnewbury.org/sites/newburyma/files/uploads/massachusetts_wetland_plant_list_revised_2012)
OBL: Obligate FACW: Facultative Wetland FAC: Facultative FACU: Facultative Upland UPL: Upland
³ <u>The Vascular Plants of Massachusetts: A County Checklist</u>
E - Endangered T - Threatened SC - Special Concern WL - Watch List H - Historic N/A - No designation
³ <u>The Vascular Plants of Massachusetts: A County Checklist</u>
* Introduced
** Invasive

Wetland Impact Area H5

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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.



Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Project Name

Sudbury, Stow, Marlborough, Hudson

Location

760 square feet

4/11/2019

Size of Area Being Impacted

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. H5 - ILSF Impact Area	0	760 sf	0	760 sf
2.				
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)

This ILSF Impact Area is entirely uplands and associated with an isolated wetland that is located to the south of the tracks. It is a linear Impact Area that is approximately 220 feet long and varies in width from 1 to 8 feet. It is located west of Chestnut Street and consists entirely of uplands. H5 is approximately 760 square feet, and extends from approximately 129+95 to 132+20. It is primarily on top of the elevated railroad embankment and in some areas slopes downward to the south. Invasive plants present include oriental bittersweet, Japanese barberry, and Morrow's honeysuckle. H5 is close to Chestnut Street and experiences noise associated with the roadway. Ferjulian's Orchard is located to the south and contributes to ongoing disturbance in the vicinity of H5. Overall the site is small and while some limited wildlife habitat features are present, it does not appear to provide habitat that is significant.

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))

Typed or Printed Name



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

Hudson, Massachusetts

Project Location (from NOI page 1)

H5 (ILSF from approximately Station 129+95 to 132+20)

Impact Area (number/name)

John Vieira, April 11, 2019

Date(s) of Site Visit(s) and Data Collection

Sunny 50s

Weather Conditions During Site Visit (if snow cover, include depth)

John Vieira

April 22, 2019

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: N/A - Uplands

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.

N/A - Impact Area is mostly railroad track bed/disturbed so neither upland classification system applies

Community Name

See Narrative description above

Vegetation Description

See narrative description above and attached plant list

Physical Description



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

85	37.5	0	0	62.5
% Cover:	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
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

See attached vegetation list. Percent cover stated as Daubenmire Cover Class midpoints.

Note: Soils historically disturbed and filled from construction and operation of the rail line and do not exhibit typical characteristics of soil survey unit

C. Inventory (Soils)

Mapped as Hinckley Loamy Sand (253B)	N/A
Soil Survey Unit	Drainage Class
N/A - disturbed/railroad ballast and fill material	N/A
Texture (upper part)	Depth
N/A	
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 Present Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

Present Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

Present Absent

Oaks, hickories, black cherry



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

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

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

Number of Tree Cavities in trunks or limbs of:

0
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

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

Present Absent

Limited woody debris, scattered, 6-8 inches max in diameter



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



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Project area is within:

- 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
- 200' of Great Blue Heron or osprey nest(s)
- 1400' of a Bald Eagle nest¹

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-leaved 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? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (marsh and waterbirds) | 2.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> 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
- 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)
- 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
- Is the site the only resource area in the vicinity of an otherwise developed area

Oriental bittersweet,
Japanese barberry and
Morrow's honeysuckle
noted, bittersweet
dominant.

Misc. garbage
scattered, noise from
Chestnut Street

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)
Example: standing dead trees 6-12" dbh	4	12	8
Upland/Wetland Food Plants	Present not abundant	Abundant throughout Site	Abundant throughout Site
Large woody debris	Present not abundant	Abundant throughout Site	Abundant throughout Site

1. The Project involves planting 28 nannyberry shrubs within the ILSF Impact Area. Nannyberry is a native shrub that is a food source for various wildlife.



Photo 1 - Looking east at the Impact Area near Station 131+00



Photo 2 - Looking east at the Impact Area near Station 132+10

Impact Area H5 (ILSF) in Hudson, MA

Wildlife Habitat Evaluations Photographs

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Impact Area/ID: H5
Survey Date: 4/11/19

Study Completed By: VHB
Field Investigators: John Vieira & Katie Kinsella

Scientific Name ¹	Common Name	Family	Stratum				Dominant in Strata (*)	Wetland Indicator Status ²	NHESP Status ³
			Tree	Sapling-Shrub	Herb	Vine			
<i>Acer rubrum</i>	red maple	Aceraceae	x	x			*	FAC	N/A
<i>Berberis thunbergii</i>	Japanese barberry**	Berberidaceae			x			FACU	N/A
<i>Celastrus orbiculatus</i>	Oriental bittersweet**	Celastraceae				x	*	UPL	N/A
<i>Crataegus</i>	hawthorn	Rosaceae						FAC	N/A
<i>Diervilla lonicera</i>	northern bush	Caprifoliaceae		x				FACU	N/A
<i>Galium aparine</i>	stickywilly	Rubiaceae			x			FACU	N/A
<i>Lonicera morrowii</i>	Morrow's honeysuckle**	Caprifoliaceae		x				FACU	N/A
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Vitaceae			x			FACU	N/A
<i>Pinus strobus</i>	eastern white pine	Pinaceae	x					FACU	N/A
<i>Polygonatum biflorum</i>	smooth Solomon's seal	Liliaceae			x			FACU	N/A
<i>Prunus serotina</i>	black cherry	Rosaceae	x	x				FACU	N/A
<i>Quercus rubra</i>	red oak	Fagaceae	x					FACU	N/A
<i>Toxicodendron radicans</i>	eastern poison ivy	Anacardiaceae			x		*	FAC	N/A
<i>Vaccinium angustifolium</i>	lowbush blueberry	Ericaceae			x		*	FACU	N/A

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov/) (2017).

² Massachusetts 2012 Final State Wetland Plant List (https://www.townofnewbury.org/sites/newburyma/files/uploads/massachusetts_wetland_plant_list_revised_2012)

OBL: Obligate

FACW: Facultative Wetland

FAC: Facultative

FACU: Facultative Upland

UPL: Upland

³ **The Vascular Plants of Massachusetts: A County Checklist**

E - Endangered

T - Threatened

SC - Special Concern

WL - Watch List

H - Historic

N/A - No designation

* Introduced

** Invasive Species

Wetland Impact Area H6

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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.



Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Project Name

Sudbury, Stow, Marlborough, Hudson

Location

3,283 square feet

4/12/2019

Size of Area Being Impacted

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. H6 - BLSF Impact Area	0	0	3,283 sf	3,283 sf
2.				
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)

This BLSF Impact Area is associated with Fort Meadow Brook and is located on the eastern side of the bridge that crosses the brook. It consists entirely of uplands and occurs between Stations 151+10 to 153+00. H6 is approximately 190 feet long up to 20 feet wide and approximately 3,283 square feet, Similar to Impact Areas H2 and H4, it occurs on an elevated railroad embankment; the tracks and ties are still present. H6 extends into a large wetland complex associated with Fort Meadow Brook. Accordingly, the habitat provided by the Impact Area is not consistent with much of the surrounding wetland complex. H6 contains trees and saplings growing along the periphery of the Impact Area. There is evidence of human use, including a moderately defined foot path, scattered miscellaneous trash/debris, and shotgun shells on the ground, indicating that the area is used for hunting. The Impact Area is also very close to E.H. Perkins Construction, Inc. (i.e., Kane Perkins), an asphalt, concrete, and aggregate plant that contributes to noise from large trucks entering and exiting that site.

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))

Typed or Printed Name



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

Hudson, Massachusetts

Project Location (from NOI page 1)

H6 (BLSF Impact Area from approximately Station 151+10 to 153+00)

Impact Area (number/name)

John Vieira April 12, 2019

Date(s) of Site Visit(s) and Data Collection

50's and partly cloudy

Weather Conditions During Site Visit (if snow cover, include depth)

John Vieira

April 22, 2019

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: N/A - Upland Subsystem: _____

Class: _____ Subclass: _____

Hydrology/Water Regime

- | | |
|---|---|
| <input type="checkbox"/> Permanently flooded | <input type="checkbox"/> Saturated |
| <input type="checkbox"/> Intermittently exposed | <input type="checkbox"/> Temporarily flooded |
| <input type="checkbox"/> Semi-permanently flooded | <input type="checkbox"/> Intermittently flooded |
| <input type="checkbox"/> Seasonally flooded | <input type="checkbox"/> 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:

- "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](#))
- "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.

N/A - Impact Area is mostly railroad track bed/disturbed so neither upland classification system applies

Community Name

See Narrative description above

Vegetation Description

See narrative description above and attached plant list

Physical Description



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

	37.5	37.5	0	0	37.5
% Cover:	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
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

See attached vegetation list. Percent cover stated as Daubenmire Cover Class midpoints.

C. Inventory (Soils)

Note: Soils historically disturbed and filled from construction and operation of the rail line and do not exhibit typical characteristics of soil survey unit

Mapped as Freetown Muck - (53A)	N/A
Soil Survey Unit	Drainage Class
N/A - disturbed/railroad ballast and fill material	N/A
Texture (upper part)	Depth
N/A	
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 Present Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

Present Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

Present Absent

Oaks, blueberries, cherries, and raspberry. Present but not especially abundant in part because of limited location where vegetation grows.



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

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

<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
6-12" dbh	12-18" dbh	18-24" dbh	> 24" dbh

Number of Tree Cavities in trunks or limbs of:

<u>0</u>
6-12" diameter (e.g., tree swallow, saw whet owl, screech owl, bluebird, other songbirds)
<u>0</u>
12-18" diameter (e.g., hooded merganser, wood duck, common goldeneye, mink)
<u>0</u>
>18" diameter (e.g., hooded merganser, wood duck, common goldeneye, common merganser, barred owl, mink, raccoon, fisher)

Small mammal burrows

Abundant Present Absent

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 hummocks 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



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Den on island
approximately 60'
south of Impact Area

Project area is within:

- 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
- 200' of Great Blue Heron or osprey nest(s)
- 1400' of a Bald Eagle nest¹

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-leaved 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
- 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)
- 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
- Is the site the only resource area in the vicinity of an otherwise developed area

Nearby noise disturbance from Kane Perkins. Fencing present along the edge of the Impact Area and old railroad ties and tracks are present.

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)
Example: standing dead trees 6-12" dbh	4	12	8
Upland/Wetland Food Plants	Present, scattered oaks and other food plants	Some present beyond impact area	Beyond impact area similar quantity will remain on site
Den within 100' of Impact Area	2 - Likely beaver	Likely more in the large wetland complex	See note below
Live standing veg offering views of open water	Present scattered along N & S edges	Some present beyond impact area	Beyond impact area similar quantity will remain on site

Animal dens - Beaver have been active in this wetland complex and have been a threat to a public water supply in the area. Plans are to eridicate beaver from this site independent of this Project.



Photo 1 – Looking east at the Impact Area near Station 152+30. The beginning of the Kane Perkins facility is visible in the northwestern corner of the photo.



Photo 2 – Looking west at the Impact with some trees and shrubs overhanging the water (left portion of photo) Area near Station 153+00

	<p><u>Impact Area H6 (BLSF) in Hudson, MA</u></p> <p>Wildlife Habitat Evaluations Photographs</p>	<p>EVERSOURCE ENERGY</p> <p></p>
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Photo 3 - Looking south at a large mammal den (presumed beaver) within 100 feet of the Impact Area near Station 152+90



Photo 4 – Looking west at the Impact Area towards the Fort Meadow Brook bridge near Station 151+90

Impact Area H6 (BLSF) in Hudson, MA

Wildlife Habitat Evaluations Photographs

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vhb

Impact Area/ID: H6
Survey Date: 4/12/19

Study Completed By: VHB
Field Investigators: John Vieira & Katie Kinsella

Scientific Name ¹	Common Name	Family	Stratum				Dominant in Strata (*)	Wetland Indicator Status ²	NHESP Status ³
			Tree	Sapling-Shrub	Herb	Vine			
Acer rubrum	red maple	Aceraceae	x				*	FAC	N/A
Apocynum cannabinum	Indian-hemp	Apocynaceae			x			FAC	N/A
Betula populifolia	gray birch	Betulaceae	x	x				FAC	N/A
Celastrus orbiculatus	Oriental bittersweet**	Celastraceae				x		FAC	N/A
Equisetum arvense	field horsetail	Equisetaceae						FAC	N/A
Fragaria virginiana	Virginia strawberry	Rosaceae			x			FACU	N/A
Frangula alnus	glossy buckthorn**	Rhamnaceae		x			*	FAC	N/A
Fraxinus americana	white ash	Oleaceae	x					FACU	N/A
Galium circaezans	licorice bedstraw	Rubiaceae			x			FACU	N/A
Maianthemum canadense	Canada mayflower	Liliaceae			x		*	FACU	N/A
Parthenocissus quinquefolia	Virginia creeper	Vitaceae			x		*	FACU	N/A
Pinus strobus	eastern white pine	Pinaceae	x	x			*	FACU	N/A
Polygonum hydropiper	marshpepper knotweed	Polygonaceae			x			FAC	N/A
Prunus pensylvanica	pin cherry	Rosaceae		x				FACU	N/A
Prunus virginiana	chokecherry	Rosaceae		x				FACU	N/A
Quercus alba	white oak	Fagaceae	x					FACU	N/A
Quercus rubra	northern red oak	Fagaceae	x				*	FACU	N/A
Quercus velutina	black oak	Fagaceae	x	x			*	UPL	N/A
Rosa multiflora	multiflora rose**	Rosaceae		x				FACU	N/A
Rubus flagellaris	northern dewberry	Rosaceae			x		*	FACU	N/A
Salix	willow	Salicaceae		x				FACW	N/A
Solidago canadensis	Canada goldenrod	Asteraceae			x			FACU	N/A
Toxicodendron radicans	eastern poison ivy	Anacardiaceae			x			FAC	N/A
Vaccinium angustifolium	lowbush blueberry	Ericaceae			x			FACU	N/A
Vaccinium stamineum	deerberry	Ericaceae			x		*	FACU	N/A

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov/) (2017).
² Massachusetts 2012 Final State Wetland Plant List (https://www.townofnewbury.org/sites/newburyma/files/uploads/massachusetts_wetland_plant_list_revised_2012)
OBL: Obligate FACW: Facultative Wetland FAC: Facultative FACU: Facultative Upland UPL: Upland
³ The Vascular Plants of Massachusetts: A County Checklist
E - Endangered T - Threatened SC - Special Concern WL - Watch List H - Historic N/A - No designation
* Introduced
** Invasives

Wetland Impact Area H7

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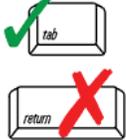


Wildlife Habitat Protection Guidance

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.



Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Project Name

Sudbury, Stow, Marlborough, Hudson

Location

4,554 square feet

4/11/2019

Size of Area Being Impacted

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. H7 - RFA	0	0	4,554 sf	4,554 sf
2. H7 - BLSF	0	0	4,234 sf	4,234 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)

H7 is an Impact Area that is associated with the large Fort Meadow Brook wetland complex. It consists of overlapping RFA and BLSF and is located on the eastern side of the bridge. The Impact Area consists entirely of uplands and contains approximately 4,554 square feet of RFA and 4,234 square feet of BLSF. It is approximately 90 feet long by 22 feet wide, and runs approximately from Station 149+10 to 151+10. H7 is on the elevated railroad embankment that was constructed for the rail line; the tracks and ties are still present. The Impact Area extends into the large Fort Meadow Brook wetland complex, and is dissimilar from much of the surrounding wetland. The remaining railroad track resides within the central area of H7 with tree, saplings, shrubs and herbs growing along narrow strips along the northern and southern periphery of the Impact Area. Beyond the northern and southern edges of the Impact Area the embankments slopes down to the wetland edge. Invasive species growing here include glossy buckthorn, honeysuckle, and multiflora rose. There is evidence of human use, including a moderately defined foot path, scattered miscellaneous trash/debris, an old rowboat that appears to be used for hunting, and scattered shotgun shells.

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))

Typed or Printed Name



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

Hudson, Massachusetts

Project Location (from NOI page 1)

H7 (RFA impact area with BLSF overlap, from approximately Station 149+10 to 151+10)

Impact Area (number/name)

John Vieira April 12, 2019

Date(s) of Site Visit(s) and Data Collection

50's, partly cloudy

Weather Conditions During Site Visit (if snow cover, include depth)

John Vieira

April 22, 2019

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: N/A - Upland

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.

N/A - Impact Area is mostly railroad track bed/disturbed so neither upland classification system applies

Community Name

See Narrative description above

Vegetation Description

See narrative description above and attached plant list

Physical Description



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

	37.5	37.5	0	0	37.5
% Cover:	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
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

See attached vegetation list. Percent cover stated as Daubenmire Cover Class midpoints.

C. Inventory (Soils)

Note: Soils historically disturbed and filled from construction and operation of the rail line and do not exhibit typical characteristics of the soil survey map unit.

Mapped as Freetown Muck (53A)	N/A
Soil Survey Unit	Drainage Class
N/A - disturbed/railroad ballast and fill	N/A
Texture (upper part)	Depth
N/A	
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 Present Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

Present Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

Present Absent

Oaks, strawberry, cherry, blueberry, and deerberry.



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

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

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

Number of Tree Cavities in trunks or limbs of:

0
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 One small burrow observed within the railroad tracks

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)

Fine wood debris observed but not large

Limited within Impact Area - majority are beyond Impact Area

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 hummocks 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



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

See WHE form for H8
for beaver den

Project area is within:

- 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
- 200' of Great Blue Heron or osprey nest(s)
- 1400' of a Bald Eagle nest¹

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-leaved 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? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (marsh and waterbirds) | 2.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> 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
- 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

Railroad embankment serves as a potential corridor.

- 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)
- 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

See vegetation list

- Significant invasion of exotic plants (e.g., purple loosestrife, *Phragmites*, glossy buckthorn)
- Disturbance from roads or highways Other human disturbance
- 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)
Example: standing dead trees 6-12" dbh	4	12	8
Upland/Wetland Food Plants	Cleared ROW	Some noted in areas adjacent to impact area.	Some noted in areas adjacent to impact area to remain
Small Mammal Burrow	1	Some noted in areas adjacent to impact area.	Some noted in areas adjacent to the Impact area to remain.
Live standing veg offering views of open water	See side note	Some noted in areas adjacent to the Impact area.	Some noted in areas adjacent to the Impact area to remain.
Beaver Den within 100'	See H8 field sheet	See H8 field sheet	See note below

Live standing vegetation offering views
North side - 6 trees, 13 tall shrubs and saplings.
South side - 1 tree, 4 dead shrubs, and 9 tall shrubs and saplings.

Animal dens - Beaver have been active in this wetland complex and have been a threat to a public water supply in the area. Plans are to eradicate beaver from this site independent of this Project. Consequently, there are no current plans to mitigate this impact.



Photo 1 – Looking east at the Impact Area near Station 149+30. A small boat can be seen in the right of the photo, which is likely used for hunting. Other signs of hunting in this area include empty shotgun shells on the ground and an assumed duck blind (see Photo 2).



Photo 2 – Presumed duck blind outside of the Impact Area near Station 150+30

Impact Area H7 (RFA/BLSF) in Hudson, MA

Wildlife Habitat Evaluations Photographs

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Photo 3 - Looking west at Impact Area towards the Fort Meadow Brook bridge near Station 150+10



Photo 4 – View of a small mammal burrow within the Impact Area near Station 149+10

Impact Area H7 (RFA/BLSF) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

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Impact Area/ID: H7
Survey Date: 4/11/19

Study Completed By: VHB
Field Investigators: John Vieira & Katie Kinsella

Scientific Name ¹	Common Name	Family	Stratum				Dominant in Strata (*)	Wetland Indicator Status ²	NHESP Status ³
			Tree	Sapling-Shrub	Herb	Vine			
<i>Acer rubrum</i>	red maple	Aceraceae	x				*	FAC	N/A
<i>Amelanchier canadensis</i>	Canadian Service-berry			x				FAC	N/A
<i>Betula populifolia</i>	gray birch	Betulaceae	x	x				FAC	N/A
<i>Celastrus orbiculatus</i>	Oriental bittersweet**	Celastraceae			x	x	*	UPL	N/A
<i>Fragaria vesca</i>	woodland strawberry	Rosaceae			x			UPL	N/A
<i>Frangula alnus</i>	glossy buckthorn**	Rhamnaceae		x			*	FAC	N/A
<i>Galium circaezans</i>	licorice bedstraw	Rubiaceae			x			FACU	N/A
<i>Lonicera morrowii</i>	Morrow's honeysuckle**	Caprifoliaceae		x				FACU	N/A
<i>Oenothera biennis</i>	common evening primrose	Onagraceae			x			FACU	N/A
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Vitaceae			x			FACU	N/A
<i>Pinus strobus</i>	eastern white pine	Pinaceae	x	x	x			FACU	N/A
<i>Prunus serotina</i>	black cherry	Rosaceae	x	x				FACU	N/A
<i>Quercus alba</i>	white oak	Fagaceae	x					FACU	N/A
<i>Quercus rubra</i>	northern red oak	Fagaceae	x				*	FACU	N/A
<i>Quercus velutina</i>	black oak	Fagaceae	x	x			*	UPL	N/A
<i>Rosa multiflora</i>	multiflora rose**	Rosaceae		x				FACU	N/A
<i>Rubus flagellaris</i>	northern dewberry	Rosaceae			x		*	FACU	N/A
<i>Rubus occidentalis</i>	black raspberry	Rosaceae		x				N/A	N/A
<i>Solidago canadensis</i>	Canada goldenrod	Asteraceae			x			FACU	N/A
<i>Toxicodendron radicans</i>	eastern poison ivy	Anacardiaceae			x			FAC	N/A
<i>Vaccinium angustifolium</i>	lowbush blueberry	Ericaceae			x		*	FACU	N/A
<i>Vaccinium stamineum</i>	deerberry	Ericaceae		x				FACU	N/A
<i>Veronica officinalis</i>	common gypsyweed*	Scrophulariaceae			x			FACU	N/A

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov/) (2017).

² Massachusetts 2012 Final State Wetland Plant List (https://www.townofnewbury.org/sites/newburyma/files/uploads/massachusetts_wetland_plant_list_revised_2012)

OBL: Obligate
FACW: Facultative Wetland
FAC: Facultative
FACU: Facultative Upland
UPL: Upland

³ The Vascular Plants of Massachusetts: A County Checklist

E - Endangered
T - Threatened
SC - Special Concern
WL - Watch List
H - Historic
N/A - No designation

* Introduced

** Invasive Species

Wetland Impact Area H8

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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.



Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Project Name

Sudbury, Stow, Marlborough, Hudson

Location

1,315 square feet

4/12/2019

Size of Area Being Impacted

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. H8 - BVW/RFA	0	1,315	1,315 sf	1,315 sf
2.				
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)

The Impact Area (H8) is associated with Fort Meadow Brook and is located on the east side of the brook. Impacts here will result from the placement of temporary crane mats needed for construction to replace the existing bridge. The impact area occurs along the north and south side of the elevated rail line embankment that extends across the Fort Meadow Brook wetland complex. The Impact Area is approximately 1,315 square feet and runs from approximately Station 149+20 to 150+15. The northern section is approximately 90 feet long by 5 feet wide and the southern section is approximately 90 feet long by 9 feet wide. H8 resides along the side slopes of the railroad embankment running downward to the toe of the slopes. The impacts are temporary and will be restored in-situ once reconstruction of the Fort Meadow Brook bridge is complete.

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))

Typed or Printed Name



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

Hudson, Massachusetts

Project Location (from NOI page 1)

H8 (BVW/RFA/BLSF, from approximately Station 149+20 to 150+15)

Impact Area (number/name)

April 12, 2019

Date(s) of Site Visit(s) and Data Collection

50's partly cloudy

Weather Conditions During Site Visit (if snow cover, include depth)

John Vieira

April 11, 2019

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: P - Palustrine

Subsystem: N/A

Class: EM - Emergent /Scrub-shrub

Subclass: EM-Persistent/SS-Broad-leaved Deciduous

Hydrology/Water Regime

Permanently flooded

Saturated

Intermittently exposed

Temporarily flooded

Semi-permanently flooded

Intermittently flooded

Seasonally flooded

Artificially flooded

The lower portion of the Impact Area at the toe of the railroad embankment is seasonally 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.

N/A - RFA is within BVW so Cowardin classification applies

Community Name

See Narrative description above

Vegetation Description

See narrative description above and attached plant list

Physical Description



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

Tree and most of shrub canopy is overhanging into impact area

% Cover:	62.5	37.5	0	0	37.5
	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
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

See attached vegetation list. Percent cover stated as Daubenmire Cover Class midpoints

C. Inventory (Soils)

Note: Soils historically disturbed and filled from construction and operation of the rail line and only partially exhibit typical characteristics of soil survey unit

Freetown Muck (53A)	Very Poorly Drained
Soil Survey Unit Mucky Peat	Drainage Class More than 80 inches
Texture (upper part) 0 to 6 inches	Depth
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 Present Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

Present Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

Present Absent

Winterberry, grape, and oak



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

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

2 0 0 0
6-12" dbh 12-18" dbh 18-24" dbh > 24" dbh

Number of Tree Cavities in trunks or limbs of:

0
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

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 hummocks 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 during times of low water

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

Old beaver lodge and one large den on embankment.

Den(s) present of

Otter Mink Beaver



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Project area is within:

- 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
- 200' of Great Blue Heron or osprey nest(s)
- 1400' of a Bald Eagle nest¹

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-leaved 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? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (marsh and waterbirds) | 2.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> 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
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)
 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

Bittersweet

- Significant invasion of exotic plants (e.g., purple loosestrife, *Phragmites*, glossy buckthorn)
 Disturbance from roads or highways Other human disturbance
 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)
Example: standing dead trees 6-12" dbh	4	12	8
Upland/Wetland Food Plants	Present	Some present beyond impact area	Supplemental plantings planned for mitigation
Standing Dead Trees	2 (6"-8")	Some present beyond impact area	Mitigation planned closeby out side of impact area
Live or Dead Vegetation over Water	Vegetation within temporary crane mat	Some present beyond impact area	Supplemental plantings planned for mitigation
Mud flats	Present seasonally	Some present beyond impact area	Impact areas to be restored as needed
Small mammal burrows	Present	Some present beyond impact area	Difficult to mitigate, some present beyond impact area
Large woody debris	Present	Some present beyond impact area	Brush piles to be created following construction
Standing veg offering view of water	See side note	Some present beyond impact area	Supplemental plantings planned for mitigation
Shallow standing water for amphibian foraging and hydr	Present seasonally	Some present beyond impact area	Impact areas to be restored as needed

Standing live and dead veg offering view of water.

North side - trees 18, shrubs and saplings 12

South side - trees 2, shrubs and saplings including those dead 17

Beaver lodge and den - Beaver have been active in this wetland complex and have been a threat to a public water supply in the area. Plans are to eradicate beaver from this site independent of this Project. Consequently, there are no current plans to mitigate this impact.



Photo 1 – Looking east at the edge of BVW within the southern side of the Impact Area near Station 150+00



Photo 2 – Old beaver lodge within the southern portion of the Impact Area near Station 149+80

Impact Area H8 (BVW/RFA) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

 **vhb**



Photo 3 Small mammal burrow in southern portion of the Impact Area near Station 149+60

Impact Area H8 (BVW/RFA) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

The logo for vhb, featuring a stylized green and blue graphic of a globe or a cluster of points to the left of the lowercase letters "vhb" in a bold, sans-serif font.



Photo 4 Looking west at vegetation within Impact Area near Station 150+05

Impact Area H8 (BVW/RFA) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

 **vhb**

Impact Area/ID: H8
Survey Date: 4/12/19

Study Completed By: VHB
Field Investigators: John Vieira & Katie Kinsella

Scientific Name ¹	Common Name	Family	Stratum				Dominant in Strata (*)	Wetland Indicator Status ²	NHESP Status ³
			Tree	Sapling-Shrub	Herb	Vine			
Acer rubrum	red maple	Aceraceae	x	x			*	FAC	N/A
Celastrus orbiculatus	Oriental bittersweet**	Celastraceae			x	x	*	UPL	N/A
Hibiscus moscheutos	Crimson-Eyed Rose-Mallow	Malvaceae			x			OBL	N/A
Ilex verticillata	Winterberry holly	Aquifoliaceae		x				FACW	N/A
Polygonum hydropiper	marshpepper knotweed	Polygonaceae			x		*	FAC	N/A
Taraxacum officinale	common dandelion	Asteraceae			x			FACU	N/A
Toxicodendron radicans	eastern poison ivy	Anacardiaceae			x			FAC	N/A
Quercus velutina	black oak	Fagaceae	x					UPL	N/A
Vitis aestivalis	summer grape	Vitaceae				x		FACU	N/A

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov/) (2017).

² **Massachusetts 2012 Final State Wetland Plant List** (https://www.townofnewbury.org/sites/newburyma/files/uploads/massachusetts_wetland_plant_list_revised.pdf)

OBL: Obligate
FACW: Facultative Wetland
FAC: Facultative
FACU: Facultative Upland
UPL: Upland

³ **The Vascular Plants of Massachusetts: A County Checklist**

E - Endangered
T - Threatened
SC - Special Concern
WL - Watch List
H - Historic
N/A - No designation

* Introduced

** Invasive Species

Wetland Impact Area H9

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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.



Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Project Name

Sudbury, Stow, Marlborough, Hudson

Location

1,595 square feet

4/11/2019

Size of Area Being Impacted

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. H9 - RFA	0	0	1,595 sf	1,595 sf
2.				
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)

Impact Area 9 is immediately north of Wilkins Street, south of the Assabet River Rail Trail terminus and west of a parking area associated with the trail. The Impact area is part of DCR's connection of the proposed MCRT to the existing Rail Trail. RFA extends from an unnamed tributary to the Assabet River north of the rail trail from approximately Station 10+20 to 10+80. The Impact Area is currently maintained lawn that is regularly mowed during the growing season. The close proximity of Wilkins Street contributes to noise from vehicular traffic.

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))

Typed or Printed Name



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

Hudson, Massachusetts

Project Location (from NOI page 1)

H9 (RFA Impact Area, from approximately Station 10+20 to 10+80)

Impact Area (number/name)

April 11, 2019 John Vieira Katie Kinsella and John Vieira January 16, 2019

Date(s) of Site Visit(s) and Data Collection

April 11, 2019 upper 40's and cloudy January 16, 2019 mid 30's, cloudy

Weather Conditions During Site Visit (if snow cover, include depth)

John Vieira

April 23, 2019

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: N/A - Upland 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.

N/A - Impact Area is a human altered landscape

Community Name

See Narrative above

Vegetation Description

See Narrative above

Physical Description



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

% Cover:	0	0	0	0	97.5
	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
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

See attached vegetation list. Percent cover stated as Daubenmire Cover Class midpoints.

Note: Soils likely disturbed from construction of the parking lot and do not exhibit typical characteristics of mapped soil unit

C. Inventory (Soils)

Mapped as Merrimack fine sandy loam (254A)	N/A
Soil Survey Unit	Drainage Class
N/A	N/A
Texture (upper part)	Depth
N/A	
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 Present Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

Present Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

Present Absent



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

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

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

Number of Tree Cavities in trunks or limbs of:

0
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

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

Present Absent

Manicured lawn -
regularly mowed /
managed.



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



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Project area is within:

- 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
- 200' of Great Blue Heron or osprey nest(s)
- 1400' of a Bald Eagle nest¹

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-leaved 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? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (marsh and waterbirds) | 2.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> 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? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (turtles, frogs, waterfowl, mammals) | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 25.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| For upland resource areas is the impact area part of contiguous forested habitat at least | | | |
| (forest interior nesting birds) | 50 acres in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| | 100 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 250 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 500 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (grassland nesting birds) | > 1.0 acre in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (special habitat such as gallery floodplain forest, alder thicket, etc.) | > 1.0 acre in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> 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)
- 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
- Is the site the only resource area in the vicinity of an otherwise developed area

The Impact Area is manicured lawn that is regularly maintained and is immediately adjacent to the Assabet River Rail Trail parking lot

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)
Example: standing dead trees 6-12" dbh	4	12	8
None present			



Photo 1 - Looking south at the Impact Area near Station 10+25. The RFA Impact Area is within the maintained lawn area.

Impact Area H9 (RFA) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

 **vhb**

Impact Area/ID: H9
Survey Date: 4/11/19

Study Completed By: VHB
Field Investigators: John Vieira & Katie Kinsella

Scientific Name ¹	Common Name	Family	Stratum				Dominant in Strata (*)	Wetland Indicator Status ²	NHESP Status ³
			Tree	Sapling-Shrub	Herb	Vine			
N/A	Manicured Lawn	Poaceae			x		*		

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov) (2017).
² Massachusetts 2012 Final State Wetland Plant List (https://www.townofnewbury.org/sites/newburyma/files/uploads/massachusetts_wetland_plant_list_revised_2012.pdf)
OBL: Obligate FACW: Facultative Wetland FAC: Facultative FACU: Facultative Upland UPL: Upland
³ The Vascular Plants of Massachusetts: A County Checklist
E - Endangered T - Threatened SC - Special Concern WL - Watch List H - Historic N/A - No designation
³ The Vascular Plants of Massachusetts: A County Checklist
* Introduced
** Invasive

Wetland Impact Area H10

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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.



Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Project Name

Sudbury, Stow, Marlborough, Hudson

Location

47 square feet

4/11/2019

Size of Area Being Impacted

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. H10 - BLSF	0	0	47 sf	47 sf
2.				
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)

This area is a very small Impact Area that is approximately 100 feet from Chestnut Street, runs from approximately Station 131+10 to 132+00, and is approximately 75 feet long and less than 1 foot wide. No important wildlife habitat feature were present during the evaluation.

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))

Typed or Printed Name



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

Hudson, Massachusetts
 Project Location (from NOI page 1)
 H10 (BLSF, station 131)
 Impact Area (number/name)
 April 11, 2019
 Date(s) of Site Visit(s) and Data Collection
 50s partly cloudy
 Weather Conditions During Site Visit (if snow cover, include depth)
 John Vieira
 Person completing form per 310 CMR 10.60(1)(b) April 22, 2019
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: N/A - Upland Subsystem: _____
 Class: _____ Subclass: _____

Hydrology/Water Regime

- | | |
|---|---|
| <input type="checkbox"/> Permanently flooded | <input type="checkbox"/> Saturated |
| <input type="checkbox"/> Intermittently exposed | <input type="checkbox"/> Temporarily flooded |
| <input type="checkbox"/> Semi-permanently flooded | <input type="checkbox"/> Intermittently flooded |
| <input type="checkbox"/> Seasonally flooded | <input type="checkbox"/> 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.

Not applicable to human altered landscape

Community Name

See Narrative

Vegetation Description

See narrative

Physical Description



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

85	2.5	0	0	2.5
% Cover:	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
Because the area is long and very narrow it is not practical to identify vegetation within the impact area. Cover noted was for the area that is immediately adjacent to the impact area.	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	+			

Note: Soils historically disturbed and filled from construction and operation of the rail line and do not exhibit typical characteristics of this soil survey unit

C. Inventory (Soils)

Mapped as Hinckley Loamy Sand(253B)	N/A
Soil Survey Unit	Drainage Class
N/A - disturbed/railroad ballast and fill	N/A
Texture (upper part)	Depth
N/A	
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 Present Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

Present Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

Present Absent



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

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

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

Number of Tree Cavities in trunks or limbs of:

0
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

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 hummocks 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



Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Project area is within:

- 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area
- 200' of Great Blue Heron or osprey nest(s)
- 1400' of a Bald Eagle nest¹

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-leaved 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? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (marsh and waterbirds) | 2.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> 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? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (turtles, frogs, waterfowl, mammals) | 5.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 10.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 25.0 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| For upland resource areas is the impact area part of contiguous forested habitat at least | | | |
| (forest interior nesting birds) | 50 acres in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| | 100 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 250 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| | 500 acres in size? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (grassland nesting birds) | > 1.0 acre in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| (special habitat such as gallery floodplain forest, alder thicket, etc.) | > 1.0 acre in size? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> 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)
- 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
- 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)
Example: standing dead trees 6-12" dbh	4	12	8
None present			

Plants growing in the immediate vicinity of the impact area are sporadic and all provide < 10% cover.
Plants in the general area include; eastern white pine, black cherry, stripped winter green, Canada mayflower, Japanese barberry, glossy buck thorn and Morrow's honeysuckle.



Photo 1 - Looking west at the Impact Area near Station 132+00. This Impact Area is a very narrow, linear feature (approximately one foot wide).

Impact Area H10 (BLSF) in Hudson, MA

Wildlife Habitat Evaluations Photographs

EVERSOURCE
ENERGY

 **vhb**

Impact Area/ID: H10
Survey Date: 4/11/19

Study Completed By: VHB
Field Investigators: John Vieira & Katie Kinsella

Scientific Name ¹	Common Name	Family	Stratum				Dominant in Strata (*)	Wetland Indicator Status ²	NHESP Status ³
			Tree	Sapling-Shrub	Herb	Vine			
Not practical to identify plants within the impact area because the area is a long and very narrow area									

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov) (2017).
² Massachusetts 2012 Final State Wetland Plant List (https://www.townofnewbury.org/sites/newburyma/files/uploads/massachusetts_wetland_plant_list_revised_2012.pdf)
OBL: Obligate FACW: Facultative Wetland FAC: Facultative FACU: Facultative Upland UPL: Upland
³ The Vascular Plants of Massachusetts: A County Checklist
E - Endangered T - Threatened SC - Special Concern WL - Watch List H - Historic N/A - No designation
³ The Vascular Plants of Massachusetts: A County Checklist
* Introduced
** Invasive

Attachment C - Resumes

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Katie Kinsella

Senior Environmental Scientist

Education

MS, Resource Management and Conservation, Antioch University New England, 2016

BS, Environmental Studies, Stockton University, 2004

Registrations/Certifications

Professional Wetland Scientist (reg. #2477)

Affiliations/Memberships

Association of State Wetland Managers

New Hampshire Association of Natural Resource Scientists

Katie is a Senior Environmental Scientist working in the Massachusetts Energy Group. She is a professional wetland scientist and has experience with wetlands delineation, mitigation, and permitting; rare, threatened and endangered species habitat evaluations and directed species surveys; and environmental permitting and evaluation on the state and federal level. She is also experienced in GPS and GIS and integrates both into projects for data collection and analysis.

14 years of professional experience

Employment History

- VHB, Senior Environmental Scientist, 2017-Present
- Sovereign Consulting, Inc, Senior Environmental Scientist/Project Manager, 2013-2017
- T&M Associates, Senior Environmental Scientist / Task Manager, 2010-2013
- Michael Baker Jr. Corp., Environmental Scientist, 2010
- Trident Environmental Consultants, Senior Environmental Scientist/Biologist/Project Manager, 2004-2010

Grawtown Road Bridge Replacement, Ocean County, New Jersey

As Supervisory Environmental Scientist, Katie identified all environmental constraints and conducted a rare, threatened, and endangered species habitat. She worked with both NJDEP and Pinelands Commission to prepare, submit and receive all required permit authorizations. This work was performed prior to joining VHB. (2016-2017)

Commercial Development, New Jersey

As Project Manager and Supervisory Environmental Scientist, Katie provided lead and backup support for threatened and endangered species surveys performed on an approximately 1,200-acre site in New Jersey. The project involved coordination with the U.S. Fish and Wildlife Service (USFWS), Pinelands Commission, and New Jersey Endangered and Nongame Species Program. Katie was responsible for preparing and submitting all survey protocols and reports to the applicable agencies, as well as obtaining all necessary scientific collecting permits. In addition, she performed the initial habitat assessment to identify the targeted species and performed subsequent field surveys for various species. This work was performed prior to joining VHB. (2007-2009)

Habitat Surveys, Commercial Development, Pennsylvania

As Project Manager and Supervisory Environmental Scientist, Katie provided lead and backup support for Indiana bat (*Myotis sodalis*) and bog turtle (*Glyptemys mühlenbergii*) surveys performed on an approximately 280-acre former vacation property in Pennsylvania. The project involved coordination with the U.S. Fish and Wildlife Service (USFWS), Pennsylvania Game Commission, and the Pennsylvania Fish and Boat Commission. Katie was responsible for preparing and submitting all survey protocols and final survey reports to the applicable agencies, as well as obtaining the necessary scientific collecting permits. In addition, she performed field survey for various species and collected habitat data and detailed inventory lists for the site. This work was performed prior to joining VHB. (2009)

Hurricane Irene Emergency Repairs, Union County, NJ

As Task Manager and Supervisory Environmental Scientist, Katie delineated the extent of freshwater wetlands, riparian corridors, and waterways in an area surrounding a stream where a roadway and bridge had failed due to flooding from Hurricane Irene. The stream had undermined and scoured the roadway, and it had eroded the footings of the bridge causing it to become structurally unsound and lose its bearing capacity. Katie coordinated detailed information with the NJDEP to obtain emergency permit authorizations to allow for the immediate stabilization and repair of the roadway and bridge, which included placing grout beneath the footings to restore load bearing capacity. This prevented further damage and collapse of the roadway and allowed vehicles to utilize the structure. Katie also prepared and submitted follow-up permit applications and planting plans to restore and stabilize the area from future erosion and scouring. This work was performed prior to joining VHB. (2011)

Indiana Bat Survey for a Proposed Runway Expansion at a County Airport

As Environmental Scientist, Katie provided threatened and endangered species support by conducting mist net surveys with areas surrounding a proposed runway expansion and sight line clearing for a county airport. The project was successful in capturing, identifying, and banding an Indiana Bat. This work was performed prior to joining VHB. (2009)

Large-Scale Improvements to a County College, New Jersey

As Task Manager and Supervisory Environmental Scientist, Katie evaluated environmental impacts and regulatory requirements associated with large-scale improvements to a county college in New Jersey. Various permit applications and supplemental documents including a Freshwater Wetlands Individual Permit, Flood Hazard Individual Permit, Functional Value Analysis for Impacts to A Special Water Resource Protection Area Buffer, alternative analysis, and a mitigation proposal were submitted to the NJDEP. This work was performed prior to joining VHB. (2010-2013)

Large-Scale Wind Turbine Development, Carbon County, PA

As Task Manager and Supervisory Environmental Scientist, Katie delineated the extent of freshwater wetlands, riparian corridors, and waterways on an approximately 4,500-acre site in support of a large-scale wind turbine development on a mountain in Pennsylvania. In addition to being the sole delineator, Katie trained interns and junior staff while on site, coordinated with subconsultants for various services, reviewed and provided guidance to design engineers, consulted with regulatory agencies, and prepared permit documentation. This work was performed prior to joining VHB. (2012)

Master Service Agreement, Utility Company, MD, DE, PA, VA and NJ

Katie served as Project Manager and Senior Environmental Scientist in support of a Master Service Agreement for a major utility company throughout New Jersey, Delaware, Maryland, Pennsylvania, and Virginia. Her responsibilities included developing proposals, delineating wetlands, supervising junior staff, coordinating subconsultant work, agency consultation, and submitting and preparing various permit applications to regulatory agencies. This work was performed prior to joining VHB. (2013-2017)

New Truck Bypass Construction, Middlesex County, NJ

As Task Manager and Supervisory Environmental Scientist Katie delineated the extent of freshwater wetlands, riparian corridors, and waterways for a new truck bypass through environmentally sensitive habitat. She worked closely with design engineers and

provided direction and support to ensure that the project remained in compliance with various regulations. Permit applications were prepared and submitted to NJDEP for approval. The truck bypass route was a plan that the municipality had in place since 1981 and had various consultants working on it but failed to obtain approvals due to the complexity of the project and level of environmentally sensitive habitat. The project was approved and will divert heavy traffic from an industrial area onto a major highway to alleviate traffic queuing and safety hazards on local roads. This work was performed prior to joining VHB. (2012-2013)

Superstorm Sandy Restoration and Construction Projects

Prior to joining VHB, as Task Manager and Supervisory Environmental Scientist, Katie led several restoration and emergency construction projects following the coastal destruction in New Jersey that resulted from Superstorm Sandy. (2012-2013) A representative sample includes:

- An evaluation of the beach and dune systems following Superstorm Sandy in a coastal-lying municipality was conducted to identify damage. A borough-wide permit application was submitted to NJDEP to remove debris from the oceanfront, restore the dune system, stabilize the dunes by planting vegetation. Katie also coordinated with the U.S. Fish and Wildlife Service (USFWS) to ensure that the restoration activities would not adversely impact seabeach amaranth (*Amaranthus pumilus*).
- Katie coordinated with the design engineers and NJDEP to facilitate reconstruction of the Point Pleasant Boardwalk.
- Katie prepared various permit applications for several roadways, bulkhead, and pump stations that were destroyed during Superstorm Sandy.
- Katie coordinated all efforts to identify temporary debris management areas for several municipalities in Ocean and Monmouth Counties to secure NJDEP Solid Waste Permits. Permitting efforts included identifying suitable sites outside of environmentally sensitive areas; coordinating with local sheriff offices, municipal officials, engineers, and offices of emergency management; preparation of site mapping; determination of storage capacities; and closing out sites with state and local government agencies.
- Katie coordinated all emergency permitting with NJDEP, U.S. Army Corps of Engineers, National Marine Fisheries Service, and U.S. Fish and Wildlife Service to expedite the complete reconstruction of the Atlantic Highlands Municipal marina. She also coordinated with the design engineers to expedite preparation of construction plans while minimizing environmental impacts and maintaining regulatory compliance.
- Katie prepared several Superstorm Sandy inventory submissions for various municipalities throughout Ocean and Monmouth Counties in accordance with the Administrative Order released by Governor Christie. The Administrative Order allowed government agencies to submit a detailed inventory for in-kind replacement of damaged infrastructure to expedite the approval process and obtain FEMA funding. Katie coordinated with municipalities and NJDEP to submit and expedite the approval process.

Threatened and Endangered Species Surveys for Federally and State Protected Species at a Former Vacation Resort – Resort/Commercial Development, Monroe County, PA

As Environmental Scientist, Katie provided lead and backup support for threatened and endangered species surveys, including the bog turtle (*Glyptemys muhlenbergii*) and Indiana bat (*Myotis sodalis*) throughout an approximately 280-acre former vacation resort. The project involved coordination with the U.S. Fish and Wildlife Service (USFWS), Pennsylvania Game Commission, and the Pennsylvania Fish and Boat Commission. Katie was responsible for preparing and submitting all survey protocols and final survey reports to the applicable agencies, as well as obtaining the necessary scientific collecting permits. In addition, she performed field survey for various species and collected habitat data and detailed inventory lists for the site. This work was performed prior to joining VHB. (2008)

Wetland Delineation, Coordination of Permitting Compliance and Submission of Applications for a Large-Scale Solar Array Development

Katie delineated an approximately 700-acre site for a solar array facility. She identified all environmental constraints and provided consultation support to the design engineers to avoid or minimize environmental impacts. She also prepared and submitted various permit applications to the NJDEP. In addition, Katie coordinated efforts for a Threatened and Endangered Species Habitat Suitability Assessment for various species throughout the project limits. This work was performed prior to joining VHB. (2010-2011)

Professional Development Activities

Wetland Delineation and Jurisdiction in Agricultural Settings, NH Association of Natural Resource Scientists, 2016

Evaluating Wetland Condition Using the Ecological Integrity Assessment Method, NH Natural Heritage Bureau, 2015

Pinelands Short Courses, Pinelands Preservation Alliance, 2015

Bog Turtle Phase I Habitat Assessment Training, Pennsylvania Department of Transportation, 2014

Hydrology of Wetlands, Rutgers Continuing Education Program, 2012

NEPA and Transportation Decision-Making, National Highway Institute, 2012

Regional Supplement Training–Atlantic and Gulf Coastal Plain, U.S. Army Corps of Engineers, 2010

Advanced Wetlands Delineation, Rutgers Continuing Education Program, 2006

Threatened/Endangered Plants of the New Jersey Pineland, Pinelands Preservation Alliance, 2005

John Vieira Jr., PWS, NHCWS

Senior Project Manager/Senior Ecologist

Mr. Vieira is a senior scientist and project manager with more than 39 years of experience who joined VHB/Vanasse Hangen Brustlin, Inc., in February 2009. His experience includes wetland ecology, conservation biology, natural resource planning, impact statement preparation, and environmental regulatory analysis. He has worked both in the public and private sectors. In the public sector, he worked as a biologist with the US Army Corps of Engineers managing ecological field studies on federal flood control projects throughout New England. In the private sector, he has worked for a variety of clients throughout the Northeast designing and implementing scientific investigations. Special areas of expertise include wetland delineation and functional assessment, wildlife habitat evaluation, rare species surveys, vegetation community mapping, vernal pool identification, and reptile and amphibian ecology. Environmental permitting experience includes the full range of federal, state, and local environmental regulations. This includes projects involving the Federal Energy Regulatory Commission, the US Army Corps of Engineers (USACE), the US Environmental Protection Agency (EPA), and a variety of state and local regulatory agencies.

A representative sample of Mr. Vieira's experience includes the following:

Eversource / Sudbury to Hudson

Mr. Vieira acts as senior scientist for the project and has been involved with many aspects of this complicated and contentious project. He has been responsible for managing and leading numerous field studies that included mapping wetlands, mapping and documenting vernal pools (over 3 years), completing wildlife habitat studies, and completing comprehensive rare turtle telemetry studies. As part of his responsibilities he regularly contributed to various permitting efforts that include submissions to the Energy Facility Siting Board (EFSB), Local Conservation Commissions (Sudbury, Hudson, and Stow), the Massachusetts Environmental Policy Act (MEPA), and the Natural Heritage and Endangered Species Program (NHESP). During the EFSB evidentiary hearings, John provided guidance to Eversource witnesses on technical and regulatory matters. He was also instrumental in regularly coordinating rare species studies with NHESP and obtaining a "no-take" determination from that agency. Presently he continues to track and monitor the presence of rare reptile species on and adjacent to Project site using radio telemetry techniques.

National Grid / Scobie to Tewksbury

John acted as Project Manager for the project. His responsibilities included managing and leading wetland delineation and wildlife habitat and rare species field studies along the Project in Massachusetts and New Hampshire. He also contributed to EFSB, MEPA, Massachusetts Endangered Species Act (MESA), and Local Conservation (Tewksbury, Andover, and Dracut) permitting efforts. John was also responsible for regularly providing environmental training to Project contractors and managing a team of environmental monitors.

Mr. Vieira is wetland scientist and senior project manager/ecologist with more than 39 years of experience. His experience includes facility siting, planning, permit work, and compliance inspection services for a wide variety of energy, land development, and transportation clients.

Eversource / Line 125 Realignment

Mr. Vieira was the lead ecologist for the project and was responsible for managing and leading numerous field studies to identify and map a variety of rare plant and animal species on the Project right-of-way (ROW) in Orleans, Eastham, and Wellfleet, Massachusetts. His expertise with rare species and excellent working relationship with NHESP allowed for smooth coordination with that agency allowing the Project to move forward without extensive permitting. He also worked to develop site-specific constraint mapping for on-site use by Project contractors. To further ensure smooth completion of the Project, John provided regular "rare species" training to contractors and worked with on-site environmental monitors overseeing the project. He was also responsible for implementing and completing wetland field studies that delineated and mapped freshwater and coastal wetlands on the Project site.

National Grid / East Main Street Substation Expansion & Supply Line Project

John was Project Manager for implementing environmental field studies and permitting of a substation expansion and new 0.3-mile, 115 kV electric transmission line project in Westborough, Massachusetts. Key environmental reviews and permits for the project included a MEPA Environmental Notification Form, wetland permits subject to the Massachusetts Wetland Protection Act (MWPA) from the Westborough Conservation Commission, Federal Clean Water Act individual permits (Sections 401 and 404) from the USACE and Massachusetts Department of Environmental Protection (MassDEP), Massachusetts Department of Public Utilities (DPU) Section 72 Certificate, and EPA Construction General Permit. Responsibilities also included public hearing presentations, expert witness testimony, wetland mitigation negotiations, preparation of the project Storm Water Pollution Prevention Plan (SWPPP), and management of environmental permit compliance inspections during active construction.

National Grid / Z126 115 kV Transmission Line and A127/B128 Reconductoring

John was Project Manager for implementing environmental field studies, wildlife habitat evaluations, and permitting of a new 7-mile, 115 kV electric transmission line project in Millbury, Auburn, Leicester, and Worcester, Massachusetts. Key environmental reviews and permits for the project included a MEPA Environmental Notification Form and Environmental Impact Report, wetland permits subject to the MWPA from the Auburn and Millbury Conservation Commissions, Federal Clean Water Act individual permits (Sections 401 and 404) from the USACE and MassDEP, Massachusetts DPU Section 72 Certificate, and EPA Construction General Permit. Responsibilities also included public hearing presentations, expert witness testimony, wetland mitigation negotiations, preparation of the project SWPPP, and management of environmental permit compliance inspections during active construction.

National Grid / A127/B128 and Webster Street Tap 115 kV Reconductoring Project

John was Project Manager for implementing field studies and permitting for a 9-mile, 115 kV electric transmission line project located in Millbury, Auburn, Leicester, and Worcester, Massachusetts. Key environmental reviews and permits for the project included individual wetland permits subject to the Federal Clean Water Act (Sections 401 and 404) from the USACE and MassDEP and EPA Construction General Permit. Responsibilities also included public hearing presentations, preparation of the project SWPPP, and management of environmental permit compliance inspections during active construction.

NSTAR / ROW 13 Tree Clearing Project

Mr. Vieira was the Project Manager responsible for permitting and implementing field studies for NSTAR's ROW 13 Tree Clearing Project located in Uxbridge, Mendon, and Bellingham, Massachusetts. Work associated with this project occurred within mapped habitats of 4 NHESP listed species that include eastern box turtle (*Terrapene carolina*), wood turtle (*Glyptemys insculpta*), marbled salamander (*Ambystoma opacum*), and American brook lamprey (*Lamptera appendix*). NHESP determined the project would result in a "take" of eastern box turtle requiring a Conservation and Management Permit (CMP) and MEPA review. Mr. Vieira identified a marble salamander breeding pool, completed habitat evaluations for each of the listed species and obtained a CMP. One condition of the CMP required capture and telemetric tracking of eastern box turtle (wood turtle subsequently included) and determination of hibernacula prior to work activities during the winter of 2014. Upon completion of this project 18 eastern box turtles and 6 wood turtles were successfully recaptured and transmitters removed.

Massachusetts Municipal Wholesale Electric Company

Mr. Vieira assisted MMWEC in identifying a site for a new electric generating plant on their Stony Brook Facility in Ludlow, Massachusetts. Specific concerns on the site included vernal pool and wetland impacts and the known occurrence of two state-protected species, blue-spotted salamander (*Ambystoma laterale*) and climbing fern (*Lygodium palmatum*). Responsibilities included the design and implementation of surveys for protected species including a trapping program for blue-spotted salamanders, wetland delineation, vegetation community mapping, development of mitigation strategies, permitting and expert testimony before the EFSB.

National Grid / New England East-West Solutions (NEEWS) Project

Mr. Vieira was responsible for coordinating and implementing ongoing protected species studies and coordinating project review with MA NHESP for a 15.2-mile, 345-kv electric transmission line project in Millbury, Massachusetts, and West Farnum (North Smithfield), Rhode Island. As part of these responsibilities he also participated in preliminary surveys for two MA-protected plant species, papilliose

nut-sedge (*Scleria pauciflora*) and tall nut sedge (*Scleria triglomera*), and completed a habitat assessment for wood turtle (*Glyptemys insculpta*).

Noble Environmental Energy / Wethersfield Windpark, 230 kV Transmission Line Project

Mr. Vieira was responsible for managing and implementing environmental field studies for a 5.5-mile, 230 kV electric transmission line in Wethersfield and Orangeville, New York, for Noble's 84-turbine, 126 MW Windpark. Field studies included identification of project route alternatives, wetland delineation, vernal pool identification, rare species surveys for vernal pool-dependent species such as Jefferson salamander (*Ambystoma jeffersonianum*), and identification and mapping of ROW access roads. Mr. Vieira was also responsible for developing NY Public Service Commission (PSC) application documents for the facility under Article VII of the New York State Public Service Law and USACE section 404 permit process. Mr. Vieira was also responsible for providing expert testimony during the PSC evidentiary hearings and developed a mitigation strategy to offset potential impacts to Jefferson salamander and vernal pool habitat, and developed a long term vegetation management plan and major elements of the Environmental Management and Construction Plan (EM&CP) for the project.

DCR / Myles Standish State Forest, Trails and Resource Management Plan and Natural Resource Inventory

Mr. Vieira was the Project manager for the development of a Trails and Resource Management Plan for Myles Standish State Forest. Responsibilities included research of existing natural resource information to identify information and site data gaps; implementation of field surveys to map vegetation communities, identify vernal pools, and locate rare species and their habitats; development of a zoning map designed to identify and protect sensitive habitats; and development of Trails and Resource Management Plan that also provided recommendations for changes to the existing trail network in the forest.

Block Island Airport Master Plan Revision Project

Mr. Vieira acted as Project Manager assisting the airport engineer in updating the airport master plan and developing the Environmental Assessment for the plan. Responsibilities included identification and assessment of wetlands and natural plant communities, sensitive habitats including globally ranked morainal grasslands, and rare species habitat at the Airport. Rare species of concern at the airport included New England blazing star (*Liatris scariosa* var. *novae-angliae*) and the federally endangered American burying beetle (*Nicrophorus americanus*). Other responsibilities included discussions and consultations with the local environmental groups, attendance of Technical Advisory Committee meetings, and assessment of potential impacts.

Nantucket Memorial Airport Improvement Project

Mr. Vieira was responsible for the coordination and implementation of rare species surveys. Rare species included sandplain flax (*Linum intercursum*), lion's foot (*Nabalus serpentarius*), sandplain blue-eyed grass (*Sisyrinchium fuscatum*), Nantucket shadbush (*Amelanchier nantucketensis*), purple needlegrass (*Aristida purpurascens*), broom crowberry (*Corema conradii*), and bushy rockrose (*Crocantemum dumosum*). He also developed a vegetation community map for the airport and prepared a Rare Species Conservation Permit Application for rare species impacts potentially caused by proposed airport improvements.

Barnstable County Jail and House of Correction

Mr. Vieira prepared sections in the Draft and Final Environmental Impact Reports for a new County Jail and House of Corrections on the Massachusetts Military Reservation. Rare species of concern included eastern box turtle and several moth species endemic to pine barren communities. As part of the Environmental Impact Reports, Mr. Vieira developed a conservation plan to offset potential impacts to eastern box turtle (*Terrapene carolina*). In support of the Environmental Impact Reports Mr. Vieira conducted on-site field studies to locate eastern box turtle and to characterize site vegetation for potential suitability for rare moth species.

Swansea Desalination Project

Mr. Vieira was responsible for wetland delineation and the development and implementation of a rare plant survey designed to locate the presence of 5 state-protected freshwater tidal plant species. These species included Long's bitter-cress (*Cardamine longii*), river arrowhead (*Sagittaria subulata*), salt reedgrass (*Spartina cynosuroides*), and pygmyweed (*Tillaea aquatica*). Based on a report that Mr. Vieira developed describing rare plant survey results, NHESP determined that the project would not result in a "take" of rare plant species.

Williams College

Mr. Vieira was the Project Manager responsible for designing and implementing rare plant surveys on two sites where Williams College planned construction activities. Rare plants that were searched for and located included hairy-fruited sedge (*Carex trichocarpa*) and crooked-stem aster (*Symphyotrichum prenanthoide*). Mr. Vieira prepared reports describing survey results documenting the location of rare plant species for submission to NHESP.

Worcester County Horticultural Society

Mr. Vieira was the Project Manager for the development of a half-acre wildlife pond at the Tower Hill Botanic Garden. He had many responsibilities, including regulatory reconnaissance, wetland delineation, project feasibility evaluation, and environmental permitting. As part of this project Mr. Vieira completed a survey for adder's-tongue fern (*Ophioglossum pusillum*) and helped to resolve a project conflict caused by inaccuracies in NHESP's Priority Habitat map of the project site.

**Former
Employment**

BSC, Worcester, MA
Epsilon Associates, Maynard, MA
Earth Tech, Concord, MA
Associated Environmental Scientists, West Springfield, MA
US Army Corps of Engineers, Water Quality Laboratory, Hubbardston, MA

Education

Graduate Studies, Wildlife Biology and Landscape Architecture, University of
Massachusetts
BS, Biology, University of Massachusetts, Dartmouth

Affiliations

Conservation Commission, Princeton, MA
Society of Wetland Scientists
Association of Massachusetts Wetland Scientists (Charter Member)
New Hampshire Association of Natural Resource Scientists

**Registrations
and
Certifications**

New Hampshire Certified Wetland Scientist, NH Joint Board of Licensure and
Certification, 2000, NHCWS 143
Professional Wetland Scientist, Society of Wetland Scientists, 1995, PWS 000858
Certified in Habitat Evaluation Procedures (HEP), U.S. Fish and Wildlife Service, 1984

Attachment D – Wildlife Habitat Evaluation Tables

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Food Availability

Habitat Impact Area	Wetland/ Aquatic Food	Upland/Wetland Food	Shrubs/Thickets with Abundant Earthworms
1	A	P	A
2	A	P	A
3	A	P	A
4	A	P	A
5	A	P	A
6	A	P	A
7	A	P	A
8	A	P	A
9	A	A	A
10	A	A	A

Legend:

A = Absent

P = Present

Nests, Perches, Basking, Cover, and Foraging

Habitat Impact Area	Veery Nesting Habitat	Number of Dead/Live Trees Over 3"-DBH	Number/ Density of Standing Dead Trees				Number of tree cavities in trunks of limbs			Small Mammal Burrows	Dense Herbaceous Cover	Large Woody Debris on the Ground	Rocks Crevaces Logs Roots and/or Hummocks Under Water	Rocks Crevaces Logs Roots and/or Hummocks 1m Above Water	Rock Piles, Crevaces, Hollow Logs as Dens for*						Live/Dead Standing Vegetation Overhanging Water	Depression with Potential to be Vernal Pools*	Standing Water During Part of Growing Season for Breeding Amphibians	Standing Water During Part of Growing Season for Non-Breeding Amphibian	Standing Water During Part of Growing Season for Turtles	Standing Water During Part of Growing Season for Foraging Waterfowl	Sphagnum Hummocks/Mats and/or Moss Covered Logs Overhanging/Adjacent to Standing Water			
			6-12" dbh	12-18" dbh	18-24" dbh	>24" dbh	6-12" dbh	12-18" dbh	>18" dbh						Otter	Mink	Porcupine	Bear	Bobcat	Turkey Vulture										
1	A	0	9	0	0	0	0	0	0	A	P	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	A	0	0	0	0	0	0	0	0	A	A	P	A	A	A	A	A	A	A	A	P	A	A	A	A	A	A	A	A	A
3	A	0	0	0	0	0	0	0	0	A	A	A	A	A	A	A	A	A	A	A	P	A	A	P	A	A	A	A	A	A
4	A	0	0	0	0	0	0	0	0	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A	A	A	A	A	A
5	A	0	0	0	0	0	0	0	0	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
6	A	0	0	0	0	0	0	0	0	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A	A	A	A	A	A
7	A	0	0	0	0	0	0	0	0	P	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A	A	A	A	A	A
8	A	0	2	0	0	0	0	0	0	P	A	P	A	P	A	A	A	A	A	A	P	A	A	P	A	A	A	A	A	A
9	A	0	0	0	0	0	0	0	0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
10	A	0	0	0	0	0	0	0	0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

Legend:
A = Absent
P = Present

Important Habitat Characteristics Associated with Streams

Habitat Impact Area	Medium/Large flat rocks within stream	Flat rocks and logs on Bank or within exposed portion of streambed	Fine Silt/Clay Under Water Banks	Undercut or Overhanging Banks	Vertical Sandy Banks	Areas of Ice-free Water in Winter	Mudflats	Exposed Areas of Well-Drained Soils
1	A	A	A	A	A	A	A	A
2	A	A	A	A	A	A	A	A
3	A	A	A	A	A	A	P	A
4	A	A	A	A	A	A	A	A
5	A	A	A	A	A	A	A	A
6	A	A	A	A	A	A	A	A
7	A	A	A	A	A	A	A	A
8	A	A	A	A	A	A	P	A
9	A	A	A	A	A	A	A	A
10	A	A	A	A	A	A	A	A

Legend:
 A = Absent
 P = Present

Wildlife Dens and Nests

Habitat Impact Area	Turtle Nesting Sites	Bank Swallow Colony*	Nests Within Impact Area			Dens Within Impact Area			Project Area is within 100 feet of Beaver, Mink, Otter Dens, Bank Swallow Colony, or Turtle Nesting Site	Project Area is within 200 feet of a Great Blue Heron or Osprey Nests	Project Area is within 1,400 feet of Bald Eagle Nest
			Bald Eagle	Osprey	Great Blue Heron	Otter	Mink	Beaver			
1	A	A	A	A	A	A	A	A	No	No	No
2	A	A	A	A	A	A	A	A	Yes	No	No
3	A	A	A	A	A	A	A	P	No	No	No
4	A	A	A	A	A	A	A	A	No	No	No
5	A	A	A	A	A	A	A	A	No	No	No
6	A	A	A	A	A	A	A	A	Yes	No	No
7	A	A	A	A	A	A	A	A	Yes	No	No
8	A	A	A	A	A	A	A	P	No	No	No
9	A	A	A	A	A	A	A	A	No	No	No
10	A	A	A	A	A	A	A	A	No	No	No

Legend:

A = Absent

P = Present

Emergent Wetlands

Habitat Impact Area	Seasonally Flooded During Growing Season		Persistent Emergent Vegetation Seasonally Flooded During Growing Season		Cattail Emergent Wetland Seasonally Flooded During Growing Season		Fine-leaved Emergent Wetland Vegetation Seasonally Flooded During Growing Season	
	5cm	25cm	5cm	25cm	5cm	25cm	5cm	25cm
1	A	A	A	A	A	A	A	A
2	A	A	A	A	A	A	A	A
3	A	A	A	A	A	A	A	A
4	A	A	A	A	A	A	A	A
5	A	A	A	A	A	A	A	A
6	A	A	A	A	A	A	A	A
7	A	A	A	A	A	A	A	A
8	P	A	A	A	A	A	A	A
9	A	A	A	A	A	A	A	A
10	A	A	A	A	A	A	A	A

Legend:

A = Absent

P = Present

Landscape Context and Habitat Continuity

Habitat Impact Area	Portion of Impact Area Emergent Marsh				Portion of Impact Area Part of Wetland Complex				Portion of Impact Area Part of Contiguous Forest				Includes Grassland Habitat > 1 acre	Special Habitat
	1.0 acre	2.0 acres	5.0 acres	10.0 acres	2.5 acres	5.0 acres	10.0 acres	25.0 acres	50 acres	100 acres	250 acres	500 acres		
1	N	N	N	N	N	N	N	N	N	N	N	N	N	N
2	N	N	N	N	N	N	N	N	N	N	N	N	N	N
3	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5	N	N	N	N	N	N	N	N	N	N	N	N	N	N
6	N	N	N	N	N	N	N	N	N	N	N	N	N	N
7	N	N	N	N	N	N	N	N	N	N	N	N	N	N
8	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
9	N	N	N	N	N	N	N	N	N	N	N	N	N	N
10	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Y = Yes

N = No

Connectivity with Adjacent Habitats

Habitat Impact Area	Little Connectivity Function to Adjacent Habitat	Limited Connectivity to Adjacent Habitat	Somewhat Important for Connectivity to Adjacent Habitat	Important for Connectivity to Adjacent Habitat	Very Important for Connectivity
1	N	Y	N	N	N
2	N	Y	N	N	N
3	N	Y	N	N	N
4	N	Y	N	N	N
5	N	Y	N	N	N
6	N	Y	N	N	N
7	N	Y	N	N	N
8	N	Y	N	N	N
9	N	Y	N	N	N
10	N	Y	N	N	N

Legend:

Y = Yes

N = No

Habitat Degredation

Habitat Impact Area	Significant Chemical Contamination	Significant Dumping	Significant Erosion / Sedimentation	Significant Invasives	Highway / Road Disturb.	Only Resource Area In Vacinity	Other Human Disturbance
1	A	A	A	P	P	A	P
2	A	A	A	A	A	A	P
3	A	A	A	P	A	A	P
4	A	A	A	P	A	A	P
5	A	A	A	P	P	A	P
6	A	A	A	P	P	A	P
7	A	A	A	P	A	A	P
8	A	A	A	P	A	A	P
9	A	A	A	A	P	A	P
10	A	A	A	A	P	A	P

Legend:

A = Absent

P = Present