Weston & Sampson SM

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Wildlife Habitat Assessment

January 2024

Littleton Well and Water Main Extension
Wildlife Habitat Assessment
Littleton, MA

PREPARED FOR:
TOWN OF LITTLETON

SUBMITTED TO:
LITTLETON CONSERVATION COMMISSION

55 Walkers Brook Drive, Suite 100, Reading, MA 01867
Tel: 978.532.1900

Littleton Well and Water Main Extension
WSE Project No. ENG23-0679

January 12, 2024

Littleton Conservation Commission
37 Shattuck Street
1st Floor, B100
Littleton, MA 01460

Re: Detailed Wildlife Habitat Evaluation
Littleton Well and Water Main Extension

Dear Members of the Commission:

On behalf of the Town of Littleton, Weston & Sampson Engineers, Inc. is hereby enclosing a copy of the Detailed Wildlife Habitat Evaluation performed for the Littleton Well and Water Main Extension Project (DEP File No. 204-0995), as requested by the Littleton Conservation Commission at the January 2, 2024 public hearing.

As part of the filing, we have attached the following:

Appendix A: WHE Narrative
Appendix B: Project Maps
Appendix C: Photographs
Appendix D: Detailed WHE Forms (Appendix B)

If you have any questions regarding this submittal, please contact me at (978) 548-6251.

Very truly yours,

WESTON & SAMPSON

Rhianna Sommers

Rhianna Sommers, PWS
Environmental Scientist

APPENDIX A
PROJECT NARRATIVE

PROJECT NARRATIVE

Site Description

The Littleton Well and Water Main Extension Project (the project) is located within an undeveloped parcel located at 153 Taylor Street in Littleton, MA, owned by the Town. Additionally, the project involves work south of the Route 2 highway corridor adjacent to the 153 Taylor Street parcel, including within Route 2 and along the roadway embankment. The project site within these areas includes undeveloped forested uplands and wetlands associated with Beaver Brook, a perennial stream. There is an existing walking path within the forest. Monarch Drive, Taylor Street and MA Route 2 border the parcel along the southeast, east, and north boundaries, respectively. Project mapping is provided in Appendix B. Site photographs are provided in Appendix C.

Background

As described in the Notice of Intent (NOI) submitted to the Littleton Conservation Commission on October 31, 2023, the proposed project involves the construction of a new water supply well for the Littleton Electric Light & Water Departments (LELWD), connection of the new water supply well to a water treatment plant (WTP) in Littleton via a raw water transmission main, construction of a finished water main from the LELWD system, and construction of a new access road to bring a treated water supply to the Town of Boxborough. The goal of this project is to provide a treated water supply to eleven public water supply systems in Boxborough that are currently impacted by PFAS, sodium, chloride, and/or perchlorate, and increase the redundancy for the water supply system in Littleton. The project will supply additional treated drinking water to existing customers in Littleton.

The new water supply well is proposed on the 153 Taylor Street property. Work within Littleton will include a new finished water main within the Whitcomb Avenue paved street right-of-way, extending from the newly constructed WTP (under a separate project) to the Harvard/Boxborough town lines. Within the cross-country area, proposed project activities include the construction of an approximately 1,200 foot access road (with approximately 800 feet constructed of gravel and 400 feet constructed of asphalt), a well building with emergency power equipment located nearby, a raw water main from the new well to the WTP, and associated stormwater management infrastructure. Other work will include grading, landscaping, and construction of utilities in support of the well building.

The new well located at 153 Taylor Street lies within a valley between higher elevation residential neighborhoods to the northwest and Route 495 to the southeast. Monarch Drive, Taylor Street and MA Route 2 border the parcel along the southeast, east, and north boundaries, respectively. Entrance to the site is located through a commercial access point at 151 Taylor Street. Within the property boundaries are wetlands and Beaver Brook, a small stream that runs the length of the northwestern portion of the parcel, flowing southwest to northeast.

Much of the Project will occur within existing paved roadways and within the adjacent shoulder.

The project is located within Natural Heritage and Endangered Species Program (NHESP) mapped rare species habitat for eastern meadowlark (*Sturnella magna*), Blanding's turtle (*Emydoidea blandingii*), and blue-spotted salamander (*Ambystoma laterale*). The NHESP issued a conditional "no take" authorization for the water main portion of the project on December 15, 2023 (NHESP File No. 23-4202). A Blanding's turtle protection plan will be submitted to NHESP for written review and approval prior to the start of construction. The LELWD is in consultation with NHESP regarding the well construction portion of the project.

Wildlife Habitat Evaluation Methodology

The WPA regulations require that wildlife habitat evaluations be conducted when a proposed project will alter Inland Bank, Land Under Water (LUW), Riverfront Area (RFA), or Land Subject to Flooding (BLSF or ILSF) beyond the thresholds permitted under 310 CMR 10.54(4)(a)5., 10.56(4)(a)3., 10.57(4)(a)3., and 10.58(4)(d)1. Under the WPA, the term wildlife habitat is defined under 310 CMR 10.04 as "Those areas, 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."

Thus, the presence of wildlife in a wetland resource area is not the sole factor in evaluating wildlife habitat value. Plant community composition and structure, hydrologic regime, or other characteristics providing "important" features for wildlife must be present. More specifically, it is wetland habitat value and not a particular wildlife species (with the exception of rare species) that is protected by the WPA. Inland wetland resource areas are presumed to be significant to the protection of wildlife habitat with only a few minor exceptions associated with Land Subject to Flooding.

A Wildlife Habitat Evaluation for the project was conducted by Weston & Sampson to:

- Document "important wildlife habitat" features in wetland resource areas and buffer zones within the study area, as such term is used in the Wetlands Protection Act regulations, and the Wildlife Habitat Assessment Policy (WHA);
- Identify potential adverse impacts to important wildlife habitat features that will result from construction of the project; and
- Provide a basis for mitigation design for unavoidable impacts or otherwise demonstrate that adverse effects to important wildlife habitat will be avoided because the project will not substantially reduce the capacity of the site to provide the important wildlife habitat functions identified under 310 CMR 10.60(2) or the WHA.

This Project proposes alterations to Bordering Land Subject to Flooding (BLSF), the 200-foot Riverfront Area (RFA) to Beaver Brook, and the 100-foot buffer zone to Bordering Vegetated Wetland (BVW).

On January 11, 2024, a detailed wildlife habitat evaluation (WHE) was conducted within the proposed impact areas within BLSF, RFA, and the 100-foot buffer zone. Please note, wildlife habitat evaluations are not technically required for impacts to the 100-foot buffer zone, however, the applicant has also assessed this impact area for completeness. The locations of the three WHEs that were conducted are depicted on the plan provided in Appendix D.

There are thresholds associated with each resource area identified in the Wetlands Protection Act and in the Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands guidance document published by MassDEP. Alterations greater than these certain thresholds may be permitted if they will have no adverse effects on important wildlife habitat per 310 CMR 10.60. Please refer to the detailed WHE forms in Appendix D for additional information regarding the proposed impact numbers for each resource area.

Detailed Wildlife Habitat Evaluation

Per the Mass DEP Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands there are five main parts that make up the detailed wildlife habitat evaluation:

- Part 1 – Summary Sheet
- Part 2 – Field Data Forms
- Part 3 – Conceptual Wildlife Habitat Assessment Plan
- Part 4 – Reducing the Alteration
- Part 5 – Adverse Effects Analysis

Information regarding each "Part" of the habitat evaluation is provided in further detail, below.

Part 1 – Summary Sheet

These data forms are included in Appendix D.

Part 2 – Field Data Forms

As part of these data forms any important habitat features are identified within the proposed area of impact. Any habitat features that were identified on site have been described and quantified below. These data forms are included in Appendix D.

Wildlife Food – One important habitat feature to consider is a source of plants that can provide important food sources, including hard mast and fruit/berry producers. Sources of food identified on site at the time of evaluation included acorns from red oak (*Quercus rubra*) (present within the BLSF and 100-foot buffer zone impact areas), black oak (*Quercus velutina*) (present within the BLSF and 100-foot buffer zone impact areas), and highbush blueberry (*Vaccinium corymbosum*) (present adjacent to the BLSF impact area). Acorns and berries are consumed by numerous birds and small mammals.

These species, particularly the red oak and black oak, are dominant species both as saplings and in the overstory throughout the forested portions of the site. Thus, although some of the trees may be impacted as a result of the project, there will still be abundant food sources available from the oak trees throughout the site after construction of the project.

Trees with Cavities – One red oak tree (measuring 6-12" DBH) containing small cavities (from woodpecker activity) was observed within the 100-foot buffer zone impact area. This tree is proposed to be removed to construct the infiltration basin and access road leading to the proposed well. However, it is important to note that

no trees with cavities were observed within the BLSF and RFA impact areas. Additionally, both live and dead trees containing cavities were commonly observed throughout the site.

It is important to note that the RFA impact areas are limited to the existing roadway embankment to Route 2. The RFA impact areas along the highway shoulder consist of herbaceous vegetation dominated by grasses and mugwort (*Artemisia vulgaris*), with no shrubs or trees. This area is heavily disturbed from the adjacent highway, and contains invasive species including Asian bittersweet (*Celastrus orbiculatus*) and poison ivy (*Toxicodendron radicans*) that are not particularly conducive to wildlife.

The BLSF impact area consists primarily of an opening in the tree canopy that is already cleared within an existing footpath and where an existing well is present. There will be some tree removals in BLSF, as depicted on the plans, but the path itself is already relatively open.

Number of Standing Dead Trees – Four standing dead trees (snags) were observed within the 100-foot buffer zone impact area measuring 6-12" DBH. There were no larger snags observed within the impact area, and no snags were observed in the RFA or BLSF impact areas. Snags are a common wildlife habitat feature throughout the site, especially within the expansive emergent wetland system that borders Beaver Brook.

Cover/Perches/Basking/Denning/Nesting Habitat – A narrow band of dense herbaceous cover was present along the Route 2 corridor within the RFA impact area. However, the vegetation in this area is dominated by grasses and mugwort, a weedy and aggressive species, along with poison ivy, an invasive species, which reduces its wildlife habitat value.

The BLSF impact area contains some trees with visibility of the open water in the adjacent wetland system. The wetland itself will not be impacted by the project. Some of the trees surrounding the wetland provide visibility of open water habitat, and could serve as perches for birds such as kingfishers and flycatchers. The wetland is surrounded by trees around its perimeter that could serve as perching sources, and there will still be many perching areas post-construction, as the wetland is not being impacted by the project.

There was also a small log pile observed within the 100-foot buffer zone impact area on the ground. This could serve as cover for small mammals, snakes, and amphibians. Course woody debris on site will be preserved to the maximum extent practicable, and is a common feature throughout other portions of the site, which will remain undisturbed by the project.

Exposed Areas of Well Drained, Sandy Soil Suitable for Turtle Nesting – The Project site is located within NHESP-mapped habitat for Blanding's turtles. The existing cleared footpath leading to the proposed well location contains sandy soils that could potentially provide nesting habitat for turtles. However, this area receives little sunlight as it is surrounded by mature forest. There are open grassy areas that exist

around the perimeter of the parking lot upgradient of the Project site that likely provide more suitable nesting habitat.

Part 3 – Conceptual Wildlife Habitat Assessment Plan

This plan is included in Appendix D.

Part 4 – Reducing the Alteration

The following alternatives were considered during the proposed project design process:

New Source and Raw Water Main Alternatives

Alternative 1: No Build

Under this alternative, no construction would occur. While there would be no impacts to wetland resources, the impacted public water systems (PWSs) in Boxborough would not be provided with an alternative water supply and would continue to suffer serious water quality issues as the residents would not have access to drinking water that meets all MassDEP's Drinking Water Standards and Guidelines. In addition, the Town of Littleton would not gain the redundancy in its drinking water system necessary and provide residents with additional drinking water availability. This alternative does not meet the project goals.

Alternative 2: Drill Individual Replacement Wells for each PWS

Under this alternative, each individual PWS in Boxborough would have a new source of supply drilled and the contaminated wells could be abandoned. This alternative is not feasible due to the extent of the contamination in the local aquifers. Replacement wells would likely need to be drilled in different geological formations, which may require thousands of additional feet of water main to be constructed for each system. In addition, there is no guarantee of water quality in the short or long term at the replacement wells and no redundancy of supply provided. After extensive analysis it was determined that there is no viable alternative well location on the subject property in Littleton. This alternative does not meet the project goals.

Alternative 3: Add Treatment to each PWS

Under this alternative, each individual PWS would be updated to include treatment for the contaminants of concern and the new well would not be constructed in Littleton. Treatment systems for the contaminants of concern require significant infrastructure, operations and maintenance, and produce individual waste streams that may negatively impact the environment. Reverse Osmosis (RO) would be the only feasible treatment for treatment of sodium and chloride contamination. This treatment process produces a concentrated waste stream that would ultimately be disposed of through underground injection. The discovery of the PFAS contamination in the area groundwater complicates the viability of this treatment alternative, as the concentrations of PFAS within the waste streams of each individual system

will limit disposal options. This alternative also does not provide redundancy for Littleton's water system. This alternative does not meet the project goals.

Alternative 4: Municipal Interconnection

Under this alternative, the contaminated PWSs would be connected to a nearby municipal water system. Systems within 1 mile of the contaminated PWSs were considered due to feasibility of design and construction of the project. There is no centralized PWS in Boxborough.

The Town of Harvard operates a small system with approximately 98 service connections that is served by two wells and has a third well for emergency supply. This system has no treatment and does not have capacity to connect the contaminated PWSs. This system was not considered further for an interconnection.

The Littleton Electric Light & Water Departments (LELWD) operates a water system serving residents in Littleton, MA. LELWD recently constructed a Water Treatment Plant (WTP) at Whitcomb Avenue with a capacity of 3 million gallons per day (MGD) to treat water from its groundwater wells for PFAS as well as other contaminants. LELWD has also been conducting hydrogeological testing and investigation over the past 35+ years to locate a new well source to provide additional redundancy within their system. The well site is located at the parcel at 153 Taylor Street in Littleton. With the addition of this well to the system, and the treatment capacity at the Whitcomb Avenue WTP, LELWD will not impact existing customers by providing the additional treated water to the PWSs in Boxborough.

This alternative supports the project goal and was further refined below.

Alternative 5a & 5b: Municipal Interconnection to LELWD - Alternative Routes

To connect the new well to the Whitcomb Avenue WTP, two alternative routes (Option 1 and Option 2) were explored. These alternatives are documented in the memorandum "Raw Water Main Alternatives Analysis" dated December 21, 2021. Both routes include work in close proximity to the wetland areas.

- Option 1: Raw water main (approximately 6,250 linear feet) installed from the well to the WTP by directional drilling under Beaver Brook and the surrounding wetlands.
- Option 2: Raw water main (approximately 10,800 linear feet) installed from the well along Taylor Street, Porter Road, and Whitcomb Avenue.

Option 1 was further refined to limit the distance required for directional drilling from 1,850 feet to approximately 170 feet and the path of the raw water main was brought as close to the existing right of way and previously disturbed areas as much as possible to reduce environmental impacts.

This alternative supports the project goal and is the preferred alternative.

Finished Water Main Alternatives

For the finished water main connecting from the WTP at 15 Whitcomb Avenue to 330 Codman Hill Road, the following alternatives were considered.

Alternative 1: No Build

Under this alternative, no construction would occur. While there would be no impacts to environmental resources, the impacted PWSs would not be provided with an alternative water supply and would continue to suffer serious water quality issues as the residents would not have access to drinking water that meets all MassDEP's Drinking Water Standards and Guidelines. This alternative does not meet the project goals.

Alternative 2: Construct Water Main in Existing Roadway

This alternative includes construction of a finished water main within the existing right of ways for Whitcomb Avenue, Littleton County Road, Beaver Brook Road, Swanson Road, Codman Hill Road, for an approximate length of 23,200 linear feet. This option limits construction to the pre-existing roadway and will have limited environmental impact while achieving the project goal of providing safe drinking water to impacted residents.

Summary of Alternatives Analysis

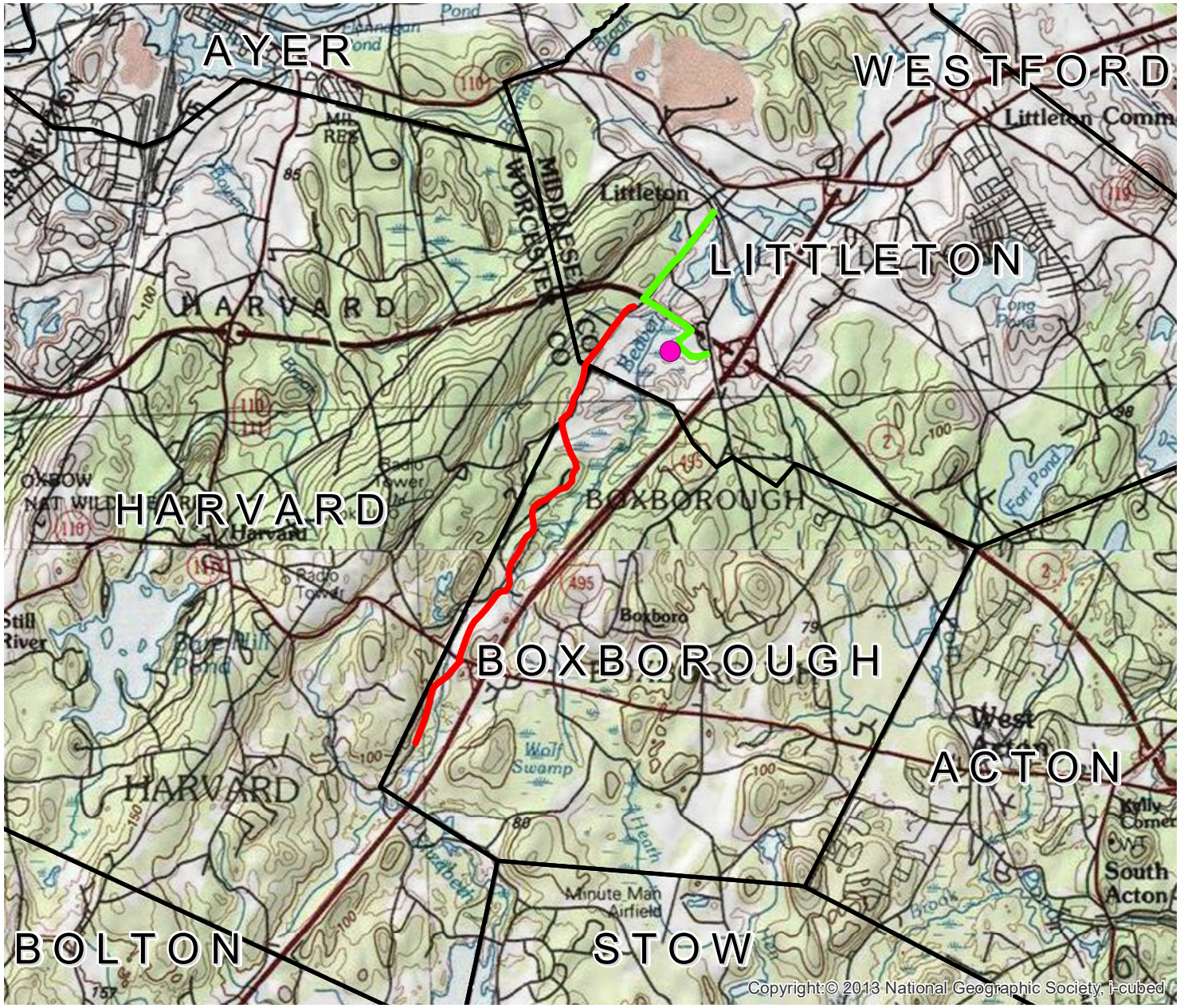
The combination of a refined Alternative 5a for the New Source and Raw Water Main and Alternative 2 for the Finished Water Main is recommended as the preferred alternative for implementation. Even though impacts to wetland resources are proposed, an overall improvement of current conditions will be achieved with this proposed project. Residents and businesses will be provided with a safe source of drinking water that when treated meets all MassDEP's Drinking Water Standards and Guidelines, and redundancy in existing water supplies will be improved.

Conclusions

It is Weston & Sampson's opinion that alteration to the wildlife habitat located within the Littleton Well and Water Main Extension project site will not substantially reduce its capacity to provide the important wildlife habitat functions listed in 310 CMR 10.60(2). Important wildlife habitat features that were observed within the impact areas are generally common throughout the overall project site. The project proposes no impacts to Bordering Vegetated Wetlands, impacts to resource areas are limited to BLSF and RFA. The RFA impact areas along the highway shoulder exhibit heavy disturbance and provide limited wildlife habitat value. Additionally, the applicant is coordinating with NHESP to ensure there will be no adverse impacts to rare species habitat, and a turtle protection plan will be provided and implemented for the project.

APPENDIX B
PROJECT MAPS

Path: \\wse03.local\WSE\Depts\Water\Water Resources Group\GIS - Constraints Mapping\Littleton\Pipeline Ext\Environmental Receptor - new source raw main only.mxd **User:** GasparA **Saved:** 6/28/2023 2:05:05 PM **Opened:** 6/29/2023 11:42:00 AM



Data Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs

Legend

- Well Site
- Finish Extension
- Raw Extension

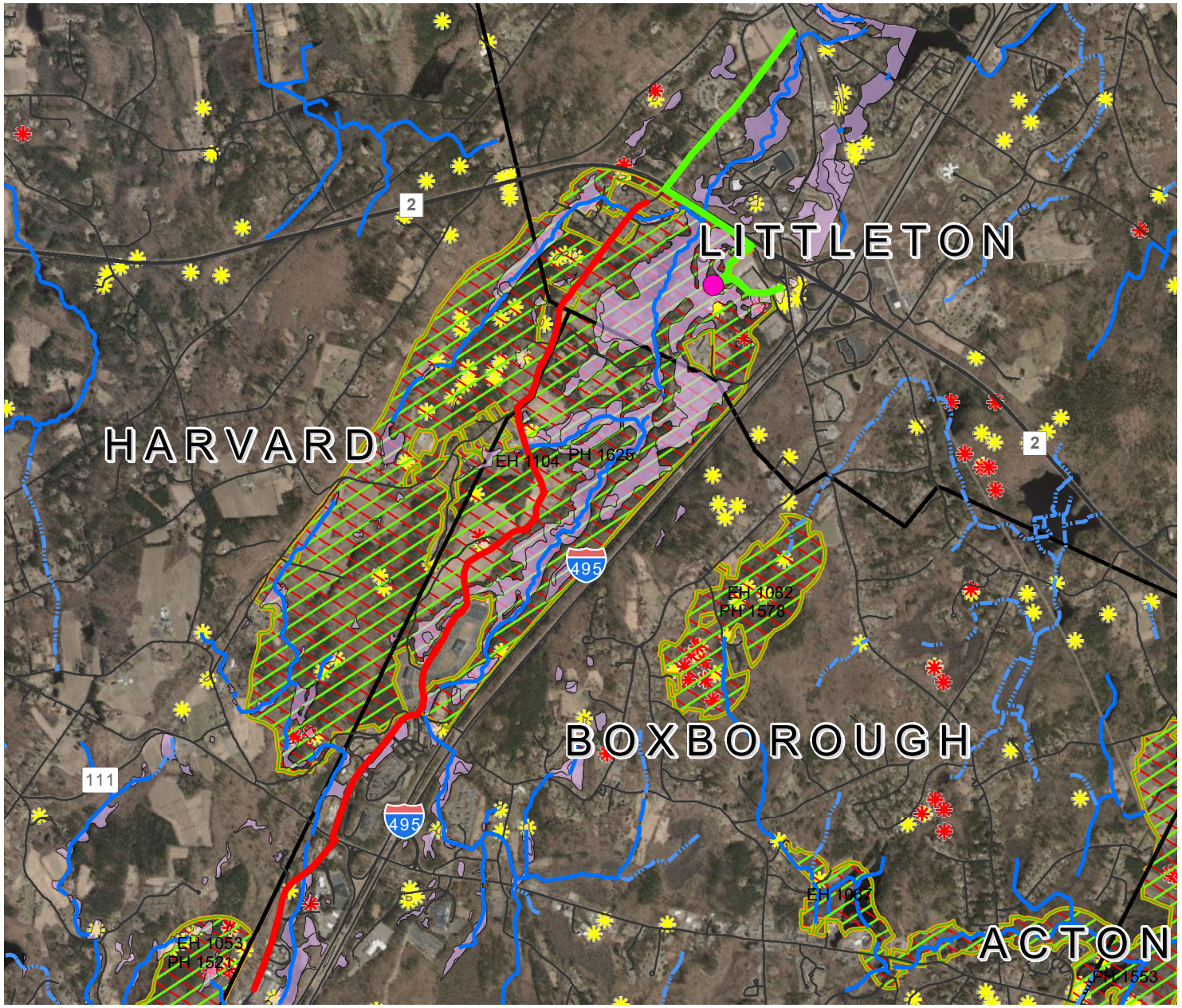
FIGURE 1

New Source & Raw Water Main
Finished Water Ext.

Littleton & Boxborough, MA

Weston & Sampson

Path: \\wse03.local\WSE\Depts\Water\Water Resources Group\GIS - Constraints Mapping\Littleton\Pipeline Ext\Environmental Receptor - new source raw main only.mxd **User:** GasparA **Saved:** 6/28/2023 2:05:05 PM **Opened:** 6/29/2023 11:37:36 AM



Legend

- Well_Site
- Finish Extension
- Raw Extension
- Perennial Stream
- Intermittent Stream
- Wetland

ACECs

- ACECs

NHESP Habitats

- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species
- NHESP Certified Vernal Pools
- NHESP Potential Vernal Pools

Data Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs

FIGURE 2

New Source & Raw Water Main
Finished Water Ext.

Littleton & Boxborough, MA

Weston & Sampson

Data Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs

Legend

- Well Site
- Finish Extension
- Raw Extension

100-Year Flood Zone

- 100-Year Flood Zone

FIGURE 3

New Source & Raw Water Main
Finished Water Ext.

Littleton & Boxborough, MA

Weston & Sampson

Map Scale: 1:8,070 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 23, Sep 12, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	2.6	0.8%
6A	Scarboro mucky fine sandy loam, 0 to 3 percent slopes	0.7	0.2%
32B	Wareham loamy fine sand, 0 to 5 percent slopes	7.5	2.4%
51A	Swansea muck, 0 to 1 percent slopes	12.3	3.9%
52A	Freetown muck, 0 to 1 percent slopes	106.3	33.6%
53A	Freetown muck, ponded, 0 to 1 percent slopes	7.3	2.3%
103B	Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes	0.3	0.1%
103C	Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes	16.9	5.3%
103D	Charlton-Hollis-Rock outcrop complex, 15 to 25 percent slopes	0.1	0.0%
104C	Hollis-Rock outcrop-Charlton complex, 0 to 15 percent slopes	6.6	2.1%
104D	Hollis-Rock outcrop-Charlton complex, 15 to 25 percent slopes	0.7	0.2%
253B	Hinckley loamy sand, 3 to 8 percent slopes	1.4	0.4%
253D	Hinckley loamy sand, 15 to 25 percent slopes	4.6	1.5%
255B	Windsor loamy sand, 3 to 8 percent slopes	3.1	1.0%
255C	Windsor loamy sand, 8 to 15 percent slopes	5.4	1.7%
262B	Quonset sandy loam, 3 to 8 percent slopes	16.1	5.1%
262C	Quonset sandy loam, 8 to 15 percent slopes	2.8	0.9%
262D	Quonset sandy loam, 15 to 25 percent slopes	8.4	2.7%
602	Urban land	0.4	0.1%
653	Udorthents, sandy	62.1	19.7%
655	Udorthents, wet substratum	11.5	3.6%
656	Udorthents-Urban land complex	39.1	12.4%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Totals for Area of Interest		**316.0**	**100.0%**

APPENDIX C
PHOTOGRAPHS

Photo 1: View of the proposed new water supply well impact area within BLSF.

Photo 2: Soils within the BLSF impact area where the new well is proposed.

Photo 3: View of the roadway embankment along Route 2 where temporary disturbance is proposed in RFA to install the new raw water main within the road.

Photo 4: Another view of the RFA impact area.

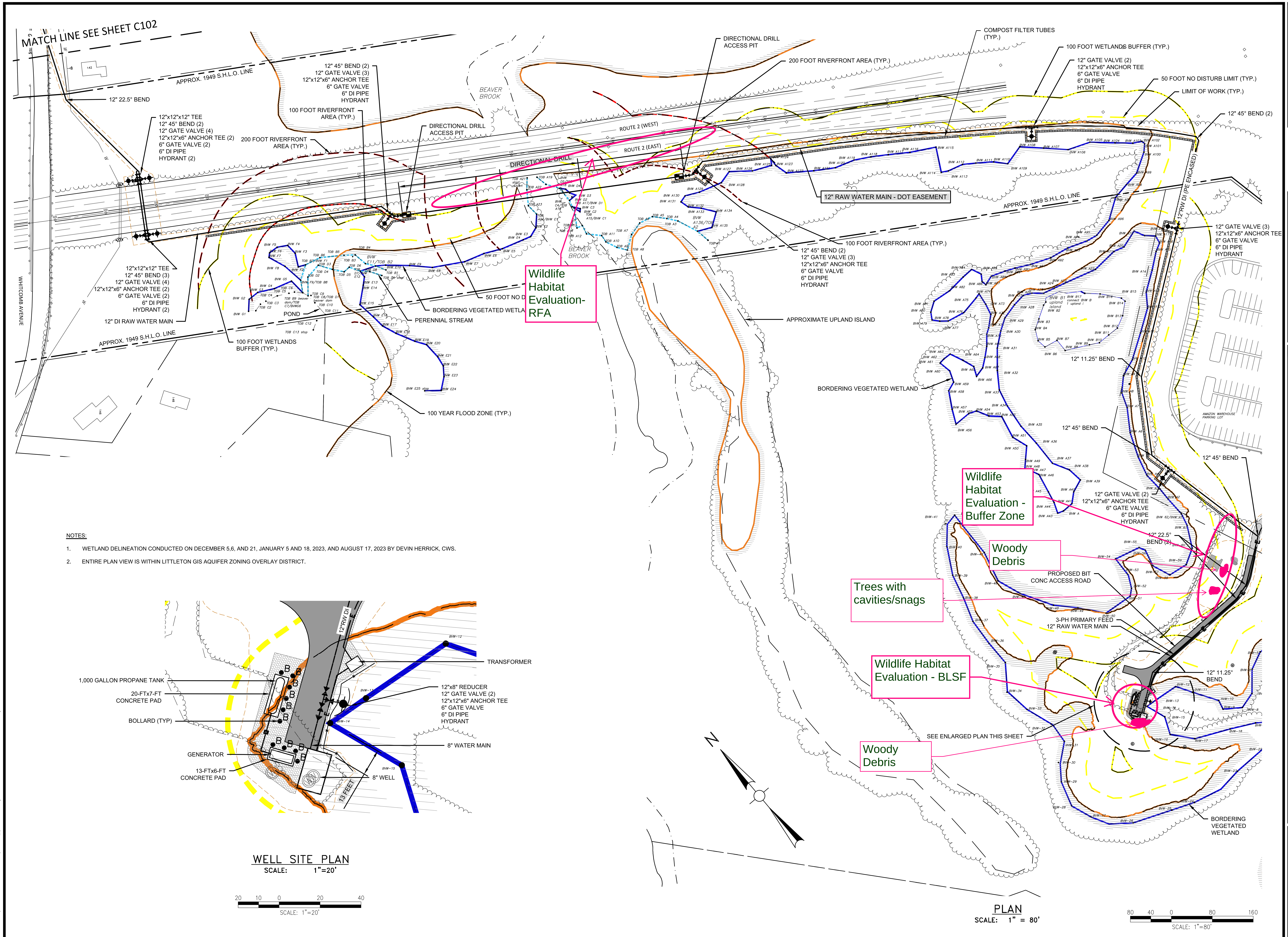
Photo 5: View of soils within the RFA temporary impact area along the shoulder of Route 2.

Photo 6: View of Beaver Brook, which flows under Route 2.

Photo 7: View of the proposed infiltration basin location, located within the 100-foot buffer zone. A WHE was conducted in this area. Some coarse woody debris (log piles) were observed.

Photo 8: View of tree canopy and some snags within the proposed buffer zone impact area associated with construction of the new access road.

APPENDIX D
DETAILED WHE (APPENDIX B) FORMS


MATCH LINE SEE SHEET C102
APPROX. 1949 S.H.L.O. LINE
12" 22.5° BEND
12"x12"x12" TEE
12" 45° BEND (2)
12" GATE VALVE (4)
12"x12"x6" ANCHOR TEE (2)
6" GATE VALVE (2)
6" DI PIPE
HYDRANT (2)
12" 45° BEND (2)
12" GATE VALVE (3)
12"x12"x6" ANCHOR TEE
6" GATE VALVE
6" DI PIPE
HYDRANT
100 FOOT RIVERFRONT AREA (TYP.)
200 FOOT RIVERFRONT AREA (TYP.)
BEAVER BROOK
DIRECTIONAL DRILL ACCESS PIT
ROUTE 2 (WEST)
ROUTE 2 (EAST)
DIRECTIONAL DRILL
COMPOST FILTER TUBES (TYP.)
100 FOOT WETLANDS BUFFER (TYP.)
12" GATE VALVE (2)
12"x12"x6" ANCHOR TEE
6" GATE VALVE
6" DI PIPE
HYDRANT
50 FOOT NO DISTURB LIMIT (TYP.)
LIMIT OF WORK (TYP.)
12" 45° BEND (2)
12" RAW WATER MAIN - DOT EASEMENT
12" RW DI (PE ENCASED)
12" GATE VALVE (3)
12"x12"x6" ANCHOR TEE
6" GATE VALVE
6" DI PIPE
HYDRANT
100 FOOT RIVERFRONT AREA (TYP.)
12" 45° BEND (2)
12" GATE VALVE (3)
12"x12"x6" ANCHOR TEE
6" GATE VALVE
6" DI PIPE
HYDRANT
12"x12"x12" TEE
12" 45° BEND (3)
12" GATE VALVE (4)
12"x12"x6" ANCHOR TEE (2)
6" GATE VALVE (2)
6" DI PIPE
HYDRANT (2)
12" DI RAW WATER MAIN
WHITCOMB AVENUE
POND
100 FOOT WETLANDS BUFFER (TYP.)
50 FOOT NO D
BORDERING VEGETATED WETLA
PERENNIAL STREAM
Wildlife Habitat Evaluation- RFA
APPROXIMATE UPLAND ISLAND
100 YEAR FLOOD ZONE (TYP.)
BORDERING VEGETATED WETLAND
12" 11.25° BEND
12" 45° BEND
12" 45° BEND
Wildlife Habitat Evaluation - Buffer Zone
12" GATE VALVE (2)
12"x12"x6" ANCHOR TEE
6" GATE VALVE
6" DI PIPE
HYDRANT
12" 22.5° BEND (2)
Woody Debris
PROPOSED BIT CONC ACCESS ROAD
Trees with cavities/snags
3-PH PRIMARY FEED
12" RAW WATER MAIN
Wildlife Habitat Evaluation - BLSF
12" 11.25° BEND
SEE ENLARGED PLAN THIS SHEET
Woody Debris
BORDERING VEGETATED WETLAND
AMAZON WAREHOUSE PARKING LOT
1,000 GALLON PROPANE TANK
20-FTx7-FT CONCRETE PAD
BOLLARD (TYP)
GENERATOR
13-FTx6-FT CONCRETE PAD
TRANSFORMER
12"x8" REDUCER
12" GATE VALVE (2)
12"x12"x6" ANCHOR TEE
6" GATE VALVE
6" DI PIPE
HYDRANT
8" WATER MAIN
8" WELL
12"RW DI
13 FEET
WELL SITE PLAN
SCALE: 1"=20'
20 10 0 20 40
SCALE: 1"=20'
N
PLAN
SCALE: 1" = 80'
80 40 0 80 160
SCALE: 1"=80'

NOTES:

1. WETLAND DELINEATION CONDUCTED ON DECEMBER 5,6, AND 21, JANUARY 5 AND 18, 2023, AND AUGUST 17, 2023 BY DEVIN HERRICK, CWS.
2. ENTIRE PLAN VIEW IS WITHIN LITTLETON GIS AQUIFER ZONING OVERLAY DISTRICT.

Project:
LITTLETON WATER DEPARTMENT

LITTLETON LELWD ELECTRIC LIGHT & WATER DEPARTMENTS

TAYLOR STREET WELL AND RAW WATER MAIN
TOWN CONTRACT NO. IFB-2024
DWSRF NO. 12397
CONTRACT NO.1

Weston & Sampson
Weston & Sampson Engineers, Inc.
55 Walkers Brook Drive, Suite 100
Reading, MA 01867
978.532.1900 800.SAMPSON
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

COA:

Seal: COMMONWEALTH OF MASSACHUSETTS TARA E MCMANUS No. 57127 REGISTERED PROFESSIONAL ENGINEER

Issued For:
FOR PERMIT REVIEW ONLY

Scale:	AS NOTED
Date:	OCTOBER 2023
Drawn By:	GJK/RWS
Reviewed By:	SBR
Approved By:	TEM
W&S Project No.:	ENG23-0679
W&S File No.:	

Drawing Title:
RAW WATER PLAN CROSS COUNTRY

Sheet Number:
C103

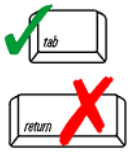
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 1. Summary Sheet

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



Littleton Well and Water Main Extension Project
Project Name

153 Taylor Street, Littleton, MA
Location

10,094 square feet of BLSF
Size of Area Being Impacted

1/11/24
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. BLSF	Beaver Brook		10,094 SF	10,094 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 BLSF impact area consists of a forested upland dominated by white pine, red oak, and black oak. Within the impact area, there is an existing cleared path within the forest and an existing well is located at the site. The site is also located within the 100-foot buffer zone to a forested wetland, as well as within the Commission's 50-foot No Disturb Zone. See attached photos and the attached map for more information.

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.

Rhianna Sommers

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

Rhianna Sommers, PWS
Typed or Printed Name

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

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

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

I. General Information

Taylor Street, Littleton, MA
Project Location (from NOI page 1)

10,094 square feet of BLSF
Impact Area (number/name)

1/11/24
Date(s) of Site Visit(s) and Data Collection

36°F, limited patchy snow cover (1-2")
Weather Conditions During Site Visit (if snow cover, include depth)

Rhianna Sommers, PWS — 1/11/24
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

Rhianna Sommers
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 (BLSF) 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.

Terrestrial
Community Name

White Pine - Oak Forest
Vegetation Description

Forested upland dominated by red oak, black oak, and white pine with sandy soils
Physical Description

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

% Cover:	15	15	0	0	10
	Trees (> 20')	Shrubs (< 20')	Woody vines	Mosses	Herbaceous

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

Strata	Plant Species	Strata	Plant Species
Tree	Pinus strobus	Herb	Quercus rubra
Sapling	Pinus strobus		
Tree	Quercus velutina		
Tree	Betula papyrifera		
Shrub	Vaccinium corymbosum		
Herb	Pinus strobus		

C. Inventory (Soils)

Udorthents, sandy	Well-drained
Soil Survey Unit	Drainage Class
Loamy sand	20"
Texture (upper part)	Depth
N/A (not observed)	
Depth to Water Table	

Observed Soil Profile:
0-6" 10YR 2/2 LS
6-12" 10YR 3/2 LS
12-20" 2.5Y 5/4 FS

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 Red oak, black oak, highbush blueberry

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):

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

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) Small woody debris, branches on ground

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

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

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

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

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

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

☐ Present ☒ Absent

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

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

☐ Turtles ☐ Foraging waterfowl

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

☐ Present ☒ Absent

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

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

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

☐ Present ☒ Absent

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

☐ Present ☒ Absent

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

☐ Present ☒ Absent

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

☐ Present ☒ Absent

Vertical sandy banks (bank swallow, kingfisher)

☐ Present ☒ Absent

Areas of ice-free open water in winter

☐ Present ☒ Absent

Mud flats

☐ Present ☒ Absent

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

☒ Present ☐ Absent

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

Turtle nesting sites

☐ Present ☒ Absent

Bank swallow colony

☐ Present ☒ Absent

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

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

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 nest[1]

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

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

Flooded > 5 cm ☐ Present ☐ Absent

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

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

Flooded > 5 cm ☐ Present ☐ Absent

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

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

Flooded > 5 cm (marsh wren) ☐ Present ☐ Absent

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

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

Flooded > 5 cm ☐ Present ☐ Absent

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

IV. Landscape Context

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

Is the impact area part of an emergent marsh at least 1.0 acre in size? ☐ Yes ☒ No

(marsh and waterbirds) 2.0 acres in size? ☐ Yes ☒ No

5.0 acres in size? ☐ Yes ☒ No

10.0 acres in size? ☐ Yes ☒ No

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

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

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

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

(forest interior nesting birds)	50 acres in size?	☒ Yes	☐ No
	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 Existing footpath
- ☐ 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	few	many	many
Standing vegetation w/ visibility of open	few	many	many
Exposed areas of well-drained soil	impact area	several areas	several areas

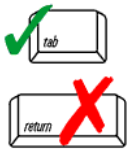
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 1. Summary Sheet

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



Littleton Well and Water Main Extension Project
Project Name

Route 2 East roadway embankment
Location

8,947 square feet of RFA
Size of Area Being Impacted

1/11/24
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. 200-foot RFA	Beaver Brook		8.947 SF	8.947 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 RFA impact area consists of the roadway embankment along Route 2 (East). The RFA impact area does not include any trees or shrubs and consists solely of herbaceous vegetation, primarily mugwort and grasses. See attached photos and the attached map for more information.

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.

Rhianna Sommers

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

Rhianna Sommers
Typed or Printed Name

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

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

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

I. General Information

Route 2 Roadway Embankment
Project Location (from NOI page 1)

8,947 square feet of RFA
Impact Area (number/name)

1/11/24
Date(s) of Site Visit(s) and Data Collection

36°F, limited patchy snow cover (1-2")
Weather Conditions During Site Visit (if snow cover, include depth)

Rhianna Sommers, PWS — Person completing form per 310 CMR 10.60(1)(b)

1/11/24 — Date this form was completed

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

Rhianna Sommers
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 (RFA) 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.

Terrestrial
Community Name

Sandplain Grasslands - Inland Variant
Vegetation Description

Highway embankment dominated by grasses and mugwort
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	5	0	90
	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
Herb	Artemisia vulgaris		
Herb	Poa sp.		
Vine	Celastrus orbiculatus		
Herb	Toxicodendron radicans		

C. Inventory (Soils)

Mapped as Freetown muck, 0-1% slopes
Soil Survey Unit

Well-drained (based on observed texture in the field)

Observed texture: loamy sand
Texture (upper part)

16"
Depth

N/A (not observed)
Depth to Water Table

Observed Soil Profile:
0-10" 10YR 2/2 LS
10-16" 2.5Y 5/4 FS

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):

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

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

☐ Present ☒ Absent

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

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

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

☐ Present ☒ Absent

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

☐ Present ☒ Absent

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

☐ Present ☒ Absent

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

☐ Present ☒ Absent

Vertical sandy banks (bank swallow, kingfisher)

☐ Present ☒ Absent

Areas of ice-free open water in winter

☐ Present ☒ Absent

Mud flats

☐ Present ☒ Absent

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

☐ Present ☒ Absent

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

Turtle nesting sites

☐ Present ☒ Absent

Bank swallow colony

☐ Present ☒ Absent

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

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

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 nest[1]

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

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

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

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

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

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

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

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

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

IV. Landscape Context

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

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

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

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

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

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

(forest interior nesting birds)	50 acres in size?	☐ Yes	☒ No
	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)
Poison ivy, Asian bittersweet

☒ Disturbance from roads or highways ☐ Other human disturbance
Impact area is located along roadway embankment adjacent to Route 2

☐ 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
Small mammal burrows	few	several	several
Dense herbaceous cover	few	abundant	abundant

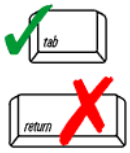
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 1. Summary Sheet

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



Littleton Well and Water Main Extension Project
Project Name

153 Taylor Street, Littleton, MA
Location

58,931 square feet (100-foot buffer zone) — Size of Area Being Impacted
1/11/24 — 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. 100-foot Buffer Zone			58,931 SF	58,931 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 100-foot buffer zone impact area where this WHE was conducted is located south of the maintained field adjacent to the Amazon facility parking lot at 151 Taylor Street, within the forested and adjacent to an existing, maintained footpath within the woods. The impact area consists of upland forest dominated by white pine, red oak, black oak, sugar maple, and partridgeberry. Topography varies in this area. The area contains some snags and a few trees with cavities. Refer to the attached photos and the attached map for more information.

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.

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

Rhianna Sommers, PWS — Typed or Printed Name

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

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

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

I. General Information

Taylor Street, Littleton, MA
Project Location (from NOI page 1)

58,931 square feet of 100-foot buffer zone
Impact Area (number/name)

1/11/24
Date(s) of Site Visit(s) and Data Collection

36°F, limited patchy snow cover (1-2")
Weather Conditions During Site Visit (if snow cover, include depth)

Rhianna Sommers, PWS — Person completing form per 310 CMR 10.60(1)(b)

1/11/24 — Date this form was completed

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

Rhianna Sommers
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 (100-foot buffer zone only) 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.

Terrestrial
Community Name

White Pine - Oak Forest
Vegetation Description

Forested upland dominated by red oak, black oak, and white pine with sandy soils
Physical Description

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

B. Inventory (Plant community)

% Cover:	70	20	0	0	35
	Trees (> 20')	Shrubs (< 20')	Woody vines	Mosses	Herbaceous

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

Strata	Plant Species	Strata	Plant Species
Tree	Pinus strobus	Tree	Populus tremuloides
Sapling	Pinus strobus	Sapling	Quercus rubra
Herb	Mitchella repens		
Tree	Quercus rubra		
Tree	Quercus velutina		
Tree	Acer saccharum		

C. Inventory (Soils)

Udorthents, sandy	Well-drained
Soil Survey Unit	Drainage Class
Loamy sand	16"
Texture (upper part)	Depth
N/A (not observed)	
Depth to Water Table	

Observed Soil Profile:
0-5" 10YR 2/2 LS
5-16" 2.5Y 5/4 FS with rocks/gravel

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 Red oak, black oak

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):

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

Number of Tree Cavities in trunks or limbs of:

1
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 hummucks or mats, moss-covered logs or saturated logs, overhanging or directly adjacent to pools of standing water in spring (four-toed salamander)

☐ Present ☒ Absent

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

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

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

☐ Present ☒ Absent

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

☐ Present ☒ Absent

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

☐ Present ☒ Absent

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

☐ Present ☒ Absent

Vertical sandy banks (bank swallow, kingfisher)

☐ Present ☒ Absent

Areas of ice-free open water in winter

☐ Present ☒ Absent

Mud flats

☐ Present ☒ Absent

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

☐ Present ☒ Absent

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

Turtle nesting sites

☐ Present ☒ Absent

Bank swallow colony

☐ Present ☒ Absent

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

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

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 nest[1]

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

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

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

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

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

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

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

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

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

IV. Landscape Context

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

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

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

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

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

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

(forest interior nesting birds)	50 acres in size?	☒ Yes	☐ No
	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 Adjacent parking lot
- ☐ 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	few	many	many
Standing dead trees 6-12" dbh	4	many	many
Trees (6-12" dbh) with cavities	1	many	many
Woody debris on ground (log piles)	1 log pile	several	several