



Notice of Intent-Supplemental Information  
The Cottages at Wandering Pond

March 12, 2024

Stow Conservation Commission  
Town Hall  
380 Great Road  
Stow, MA 01775

Re: Notice of Intent- Cottages at Wandering Pond  
Supplemental Information: Compliance Evaluation, Alternatives, and Wildlife Habitat Analysis  
DEP # 299-0739

Dear Conservation Commission,

Goddard Consulting, LLC is pleased to present this supplemental information regarding the Notice of Intent for The Cottages at Wandering Pond off Athens Street in Stow, MA (DEP #299-0739).

The titles of attached and enclosed documents are as follows:

- Riverfront Compliance Evaluation by Goddard Consulting dated March 12, 2024
- Alternatives Analysis by Goddard Consulting dated March 12, 2024
- Wildlife Habitat Evaluation by Goddard Consulting dated March 12, 2024

Goddard Consulting, LLC.

Nicole Hayes, PWS  
Senior Wetland Scientist

Cc: MassDEP Wetland Division, 8 New Bond St, Worcester, MA 01606  
Stamski and McNary 1000 Main St, Acton, MA 01720  
Bruce Wheeler, 148 Park St, North Reading, MA 01864

## **1.0 Introduction and Over Review of the Current Design**

During the Notice of Intent process, the Commission requested the applicant to treat the site as undeveloped. Under this premise, the project would need to adhere to the performance standards outlined in 310 CMR 10.58 (4) which correlates with new riverfront area development.

In order to achieve new development performance standards, the project must propose less than 10% impact to the total existing Riverfront Area on site. In order for this project to accomplish this, the first crossing would need to be counted as a limited project under 310 CMR 10.24 (7) c. This is allowable since the roadway crossing is necessary to access buildable upland in the northern portion of the site (see enclosed Limited Project Performance Analysis Evaluation).

The limited crossing area would include the roadway from Athens St up to the second river crossing. This limited project provision, allow this area (the road from Athens St up to the first crossing) not to be counted against the allowable 10% Riverfront Area impact threshold. Subtracting out stormwater management features (which are exempt) the total proposed impacts to the Riverfront Area (RA) would be the sum of the proposed lawn/landscaped area, plus the remaining of the roadway from the second crossing to the north, and the 2.5 houses proposed within the 100-200-ft Riverfront Area along Wildflower Way/Lily Pad Lane (see Figure 1 and plan set page 33 and 38). Figure 1 shows the area of the limited project (red hatched roadway), the lawn/landscaped areas (outlined in yellow) and the rest of the roadway (shown in red from the second crossing up to the 200-ft Riverfront Area line). It is these areas (minus the limit project roadway) that make up the proposed 34,525 sf of impact to the Riverfront Area.

In the most recently submitted “The Cottages at Wandering Pond” plan set by Stamski and McNary, dated Feb 16, 2024, the proposed new Riverfront Area impact is 34, 525 sq ft which is less than half (4%) of the allowable 10% impact of 84,358 sf.

Table 1. Current Proposed Riverfront Impacts

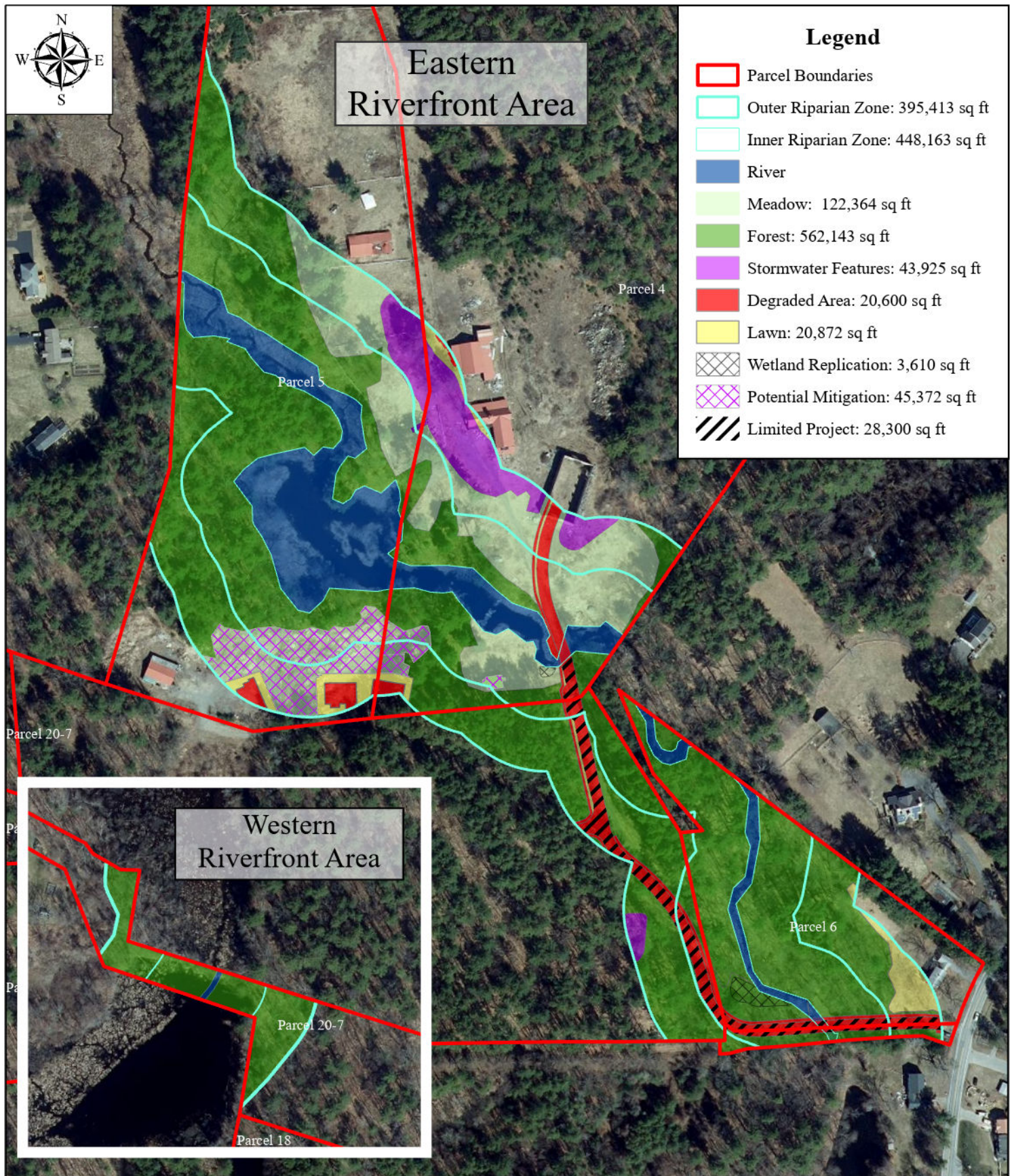
Current Proposed Riverfront Impact	
Total Riverfront Area Onsite	843,576 sq ft
10% of Onsite Riverfront Area	84,358 sq ft
Total Proposed RA Impact (4%)	34,525 sq ft

Table 1. Show the amount of total Riverfront Area onsite is 843,576 sf which is highlighted in the attached Figure 1. In Figure 1, the dark blue coloring is the river, the inner light blue line towards the river is the 0-100-ft riparian zone and the second light blue line is the outer 100-200-ft riparian zone.

The 84,358 sf of Riverfront Area proposed to be impacted is associated with the main development roadway from the second crossing to the north and the 2.5 houses outlined in red along with the yellow highlighted lawn areas shown in Figure 1.

This rendition of the plan set satisfies the new development standard of less than 10% of the total Riverfront Area impact and reduces impacts to approximately 4% of the total Riverfront Area.





Date: 03/08/2024

GC Job Number:  
286-007 & 007a

## Current Proposed Development Within Riverfront Area

Athens Street  
Stow, MA 01775

0 120 240  
Feet

1 inch = 250 feet

Map: R02

Figure 1





## **2.0 Riverfront Compliance Evaluation**

### **2.1 Limited Project**

According to 310 CMR 10.24 (7) c:

The following projects may be permitted as a limited project pursuant to 310 CMR 10.24(7) provided the project complies with all the applicable provision of 310 CMR 10.24 (1) through (6) and (9) and (10).

§ 10.24	Limited Project	
	Performance Standards	Compliance
10.24 (7)(c)1.	<i>Maintenance and improvement of existing public roadways, but limited to widening less than a single lane, adding shoulders, correcting substandard intersections and improving drainage systems.</i>	The proposed road is the utilization of an existing gravel driveway. Work proposed does include widening less than a single lane.
10.24 (7)(c)2.	<i>The maintenance, repair and improvement (but not substantial enlargement except when necessary to reduce or eliminated a tidal restriction) of structures, including buildings, piers, towers, headwalls, bridges and culverts which existed on November 1, 1987</i>	Not Applicable
10.24 (7)(c)3.	<i>Routine maintenance and repair of road drainage structures, including culverts and catch basins, drainage easements, ditches, watercourses and artificial water conveyances to insure flow capacities which existed on November 1, 1987.</i>	Not Applicable
10.24 (7)(c)4.	<i>The closure of landfills when undertaken to comply with the requirements of 310 CMR 19.000</i>	Not Applicable.
10.24 (7)(c)5.	<i>Airport vegetation removal project.</i>	Not Applicable
10.24 (7)(c)6.	<i>Assessment, monitoring, containment, mitigation, and remediation of, or other response to a release or threat of release of oil and/or hazardous material in accordance with the provisions of 310 CMR 40.00</i>	Not Applicable
10.24 (7)(c)9	<i>The Notice of Intent for any projects involving the construction, repair, replacement or expansion of public or private infrastructures shall include and operation and maintenance plan to ensure that the infrastructure will continue to function as designed. Implementation of the operation and maintenance plan as approved by the issuing authority shall be a continuing condition that shall be set forth in the Order of Conditions and the Certificate of Compliance</i>	An operation and maintenance plan was issued with the Notice of Intent by Stamski and McNary
10.24 (7)(c)10	<i>Any person proposing replacement of an existing stream crossing shall demonstrate to the issuing authority that the impacts of the crossing have been avoided where possible, and when not possible have been minimized and that mitigation measures have been provided to contribute to the protection of</i>	The stream crossing associated with this limited project roadway does not include Anadromous or Catadromous Fish Runs or waters with tidal flow.



	<p><i>the interests identified in M.G.L.c.131, §40. An applicant will be presumed to have made this showing if the project is designed as follows</i></p> <p>(a) <i>If the project includes replacement of an existing non-tidal crossing that is part of Anadromous/Catadromous Fish Run</i></p> <p>(b) <i>If the project includes the replacement of an existing non-tidal crossing that restricts tidal flow</i></p>	
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## 2.2 Riverfront Area Compliance Evaluation

According to 310 CMR 10.58 (4) for new development in Riverfront Area, work as proposed has no practicable or substantially equivalent economic alternatives with less adverse effects on the interests identified in the Act and that work including proposed mitigation will have no significant adverse impact on the riverfront area to protect the interests identified in M.G.L. c. 131&40.

§ 10.58	<b>Riverfront Area</b> The area of land between a river's mean annual high-water line and a parallel line measured 200-ft horizontally.	
	<b>Performance Standards</b>	<b>Compliance</b>
10.58 (4)(a)	<i>Protection of Other Resource Areas. The work shall meet the performance standards for all other resource areas within the riverfront area, as identified in 310 CMR 10.30 (Coastal Bank), 10.32 (Salt Marsh), 10.55 (Bordering Vegetated Wetland), and 10.57 (Land Subject to Flooding). When work in the riverfront area is also within the buffer zone to another resource area, the performance standards for the riverfront area shall contribute to the protection of the interests of M.G.L. c. 131, § 40 in lieu of any additional requirements that might otherwise be imposed on work in the buffer zone within the riverfront area.</i>	Work as proposed within other resource areas such as Bordering Vegetated Wetland, Bordering Land Subject To Flooding, and Land Under a Water Way have meet the performance standards for each resource area (refer to original NOI submission documents). Work within all resource areas have been designed with all reasonable efforts to avoid, minimize and mitigate adverse impacts.
10.58 (4)(b)	<i>Protection of Rare Species. No project may be permitted within the riverfront area which will have any adverse effect on specified habitat sites of rare wetland or upland, vertebrate or invertebrate species, as identified by the procedures established under 310 CMR 10.59 or 10.37, or which will have any adverse effect on vernal pool habitat certified prior to the filing of the Notice of Intent.</i>	According to MassGIS, there are no NHESP estimated or priority habitats of rare species and no mapped potential or certified vernal pools on site.
10.58 (4)(c)	<i>Practicable and Substantially Equivalent Economic Alternatives. There must be no practicable and substantially equivalent economic alternative to the proposed project with less adverse effects on the interests identified in M.G.L. c. 131 § 40.</i>	Overall, site constraints with wetland resource areas and zoning requirements with relation to the proposed work has been avoided and minimized to the maximum extent practicable. Please see section 3.0 for a more detailed alternatives analysis.
10.58 (4)(d)(1)	<i>(d) No Significant Adverse Impact. The work, including proposed mitigation measures, must have no significant</i>	The total riverfront area on the project site is

	<p><i>adverse impact on the riverfront area to protect the interests identified in M.G.L. c. 131, § 40.</i></p> <p><i>1. Within 200 foot riverfront areas, the issuing authority may allow the alteration of up to 5000 square feet or 10% of the riverfront area within the lot, whichever is greater, on a lot recorded on or before October 6, 1997 or lots recorded after October 6, 1997 subject to the restrictions of 310 CMR 10.58(4)(c)2.b.vi., or up to 10% of the riverfront area within a lot recorded after October 6, 1997, provided that:</i></p>	<p>843,576 sf. According to this regulation, 10% of the riverfront area within the project site is allowed to be impacted (84,358 sf)</p> <p>The total proposed impacts to riverfront area is 34,525 sf which is 4% of the total riverfront area and therefore is far less than the 10% (84,358 sf) of the allowable impacts.</p>
10.58 (4)(d)(1)(a)	<p><i>At a minimum, a 100 foot wide area of undisturbed vegetation is provided. This area shall extend from mean annual high-water along the river unless another location would better protect the interests identified in M.G.L. c. 131 § 40. If there is not a 100 foot wide area of undisturbed vegetation within the riverfront area, existing vegetative cover shall be preserved or extended to the maximum extent feasible to approximate a 100 foot wide corridor of natural vegetation.</i></p>	<p>No work will occur within 0-100-ft Riverfront Area accept the un-avoidable impacts associated with the roadway crossing. All other areas of the 0-100-ft Riverfront Area will remain undisturbed to allow the 100-ft wide vegetation corridor.</p>
10.58 (4)(d)(1)(b)	<p><i>Stormwater is managed according to standards established by the Department in its Stormwater Policy</i></p>	<p>Stormwater has been designed to the standards established by the Department in its Stormwater Policy.</p>
10.58 (4)(d)(1)(c)	<p><i>Proposed work does not impair the capacity of the riverfront area to provide important wildlife habitat functions. Work shall not result in an impairment of the capacity to provide vernal pool habitat identified by evidence from a competent source, but not yet certified. For work within an undeveloped riverfront area which exceeds 5,000 square feet, the issuing authority may require a wildlife habitat evaluation study under 310 CMR 10.60.</i></p>	<p>The proposed project keeps the inner riparian zone undisturbed. The proposed riverfront area impact is less than 10% of the regulation threshold. A wildlife habitat analysis is attached which states no significant wildlife habitat shall be impacted by the project.</p>
10.58 (4)(d)(1)(d)	<p><i>Proposed work shall not impair groundwater or surface water quality by incorporating erosion and sedimentation controls and other measures to attenuate nonpoint source pollution.</i></p>	<p>Erosion controls and BMPs are proposed for this project.</p>
10.58 (4)(d)(2)	<p><i>Within 25 foot riverfront areas, any proposed work shall cause no significant adverse impact by:...</i></p>	<p>No work is proposed within the 25-Foot Riverfront area except for the unavoidable crossings.</p>

### 3.0 Alternatives Analysis

As a result of utilizing the limited project status and after many revisions to plan designs, the project as currently proposed, meets the new riverfront area development standard of impacting 4% of the existing riverfront area which is less than 10% of the total Riverfront Area on site. Several plan revisions have been presented to the Commission since the start of this NOI process which will serve as feasible alternatives. These alternatives are discussed and described herein.



### Alternative #1 Original NOI Plan Set

The first plan set presented in September of 2023 had impacts to the inner and outer riparian area with a total on site Riverfront Area impact of 125,903 sf. which could not meet the 10% threshold for new development Riverfront Area standards.

Original NOI Proposed Riverfront Impact	
Total Riverfront Area Onsite	843,576 sq ft
10% of Onsite Riverfront Area	84,358 sq ft
Total Proposed Impact	125,903 sq ft

Work proposed within the Riverfront Area in this design included roadway impacts, 6 houses, lawn/landscaped areas, pool house, playground, ball courts and club house within the 0-100-ft and 100-200-ft Riverfront Areas (see Figure 2). The red outline on Figure 2 shows the disturbance due to roadways and 6 houses along Wildflower/Lily Pad Lane. The yellow highlighted area shows lawn and landscaped area impacts and the orange shows paved paths and other impermeable surfaces for a total of 125,903 sf of impact. This proposed impact is greater than 10% of the total Riverfront Area on site.

Although mitigation was offered to off-set the impacts the Commission requested that the project be re-designed to impact less riverfront area within the 0-100 and 100-200-ft riparian areas and as a result Alternative 2 was presented.

### Alternative #2

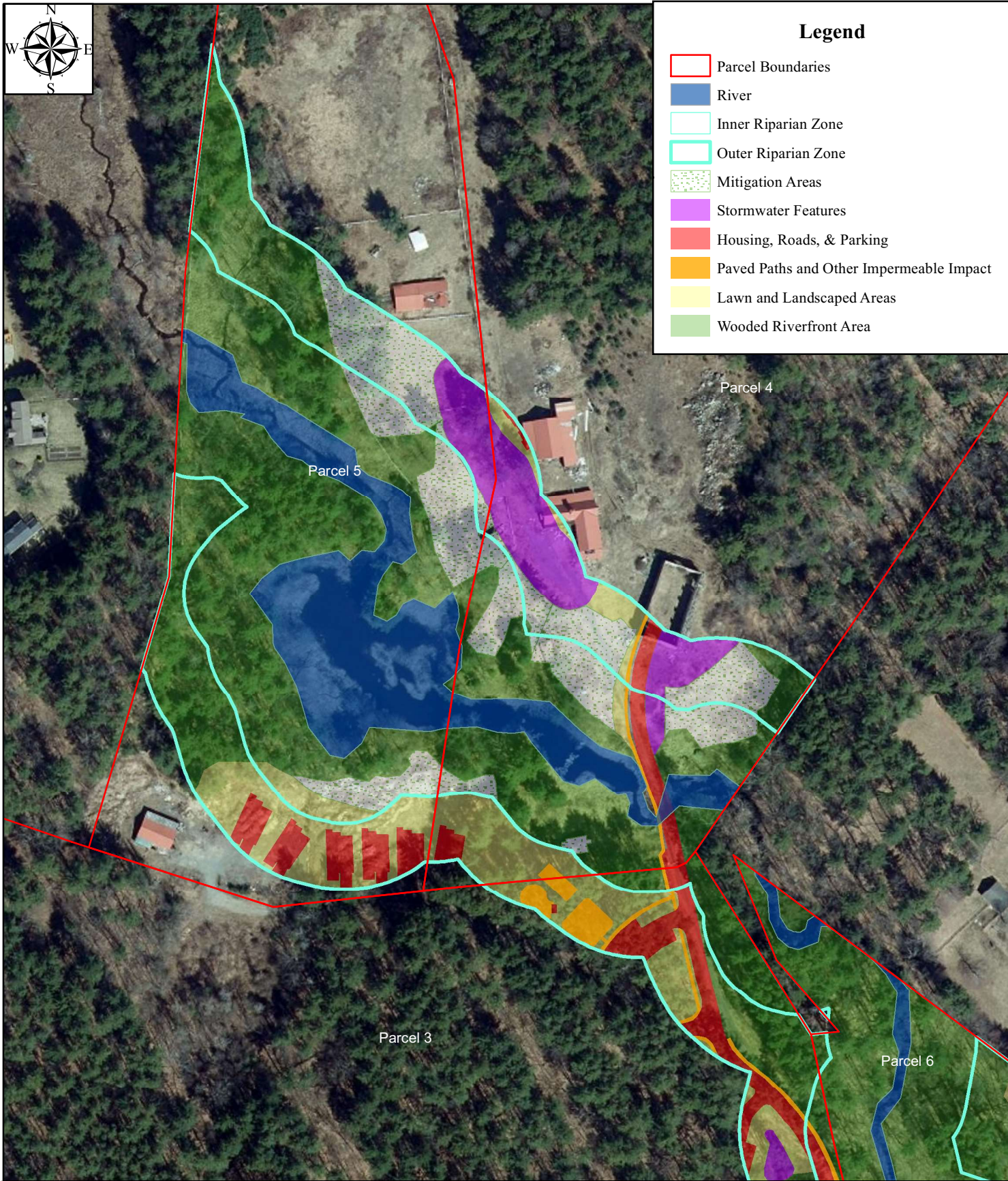
The second plan set revision submitted in December-January 2024 removed work outside of the 0-100-ft Riverfront Area except at unavoidable roadway crossings. Work was also greatly reduced in the 100-200-ft Riverfront Area by re-situating the club house, ball courts and pool outside the Riverfront Area located near Wildflower Way and Lily Pond Lane (refer to Figure 2 and Figure 3 enclosed).

As shown in Figure 2, the club house, ball courts and pool (highlighted in orange) are located within the 100-200-ft Riverfront Area. The improvement can be seen in Figure 3 which shows this Riverfront Area now highlighted in green which corresponds with non-impacted wooded Riverfront Area.

Even with this proposed reduction in Riverfront Area impact, six houses were still proposed within the 100-200-ft Riverfront Area along with all the associated impacts of the proposed main roadway (highlighted in red on Figure 2). These impacts consisted of 96,352 sf which is over the 10% threshold of 84,358 sf.

2 <sup>nd</sup> Alternative Riverfront Impact (Dec-Jan 2024)	
Total Riverfront Area Onsite	843,576 sq ft
10% of Onsite Riverfront Area	84,358 sq ft
Total Proposed Impact	96,352 sq ft





Date: 03/10/2024

GC Job Number:  
286-007 & 007a

Alternative #1

0 100 200  
Feet



**GODDARD  
CONSULTING**  
Strategic Ecological Consulting

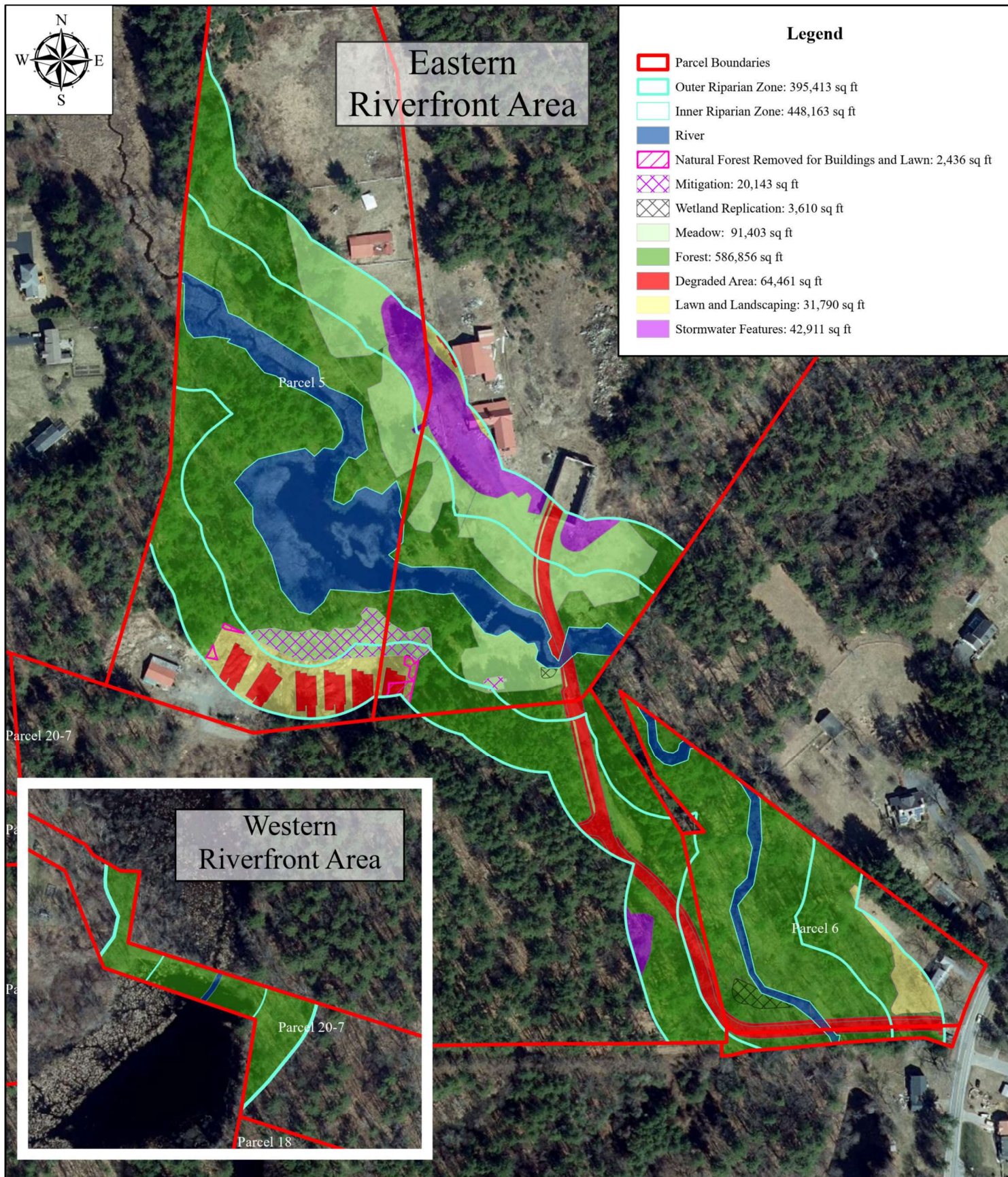
Athens Street  
Stow, MA 01775

1 in = 200 ft

Map: R02

Figure 2





Date: 12/19/2023

GC Job Number:  
286-007 & 007a

**Alternative #2**

0 120 240  
Feet

1 inch = 250 feet

Map: R02

**Figure 3**



**GODDARD  
CONSULTING**  
Strategic Ecological Consulting

Athens Street  
Stow, MA 01775



### Alternative #3 Current Design

The third plan set submitted in Feb of 2024 proposes 34,525 sq ft of Riverfront Area impact which is less than half of the allowable 10% impact of 84,358 sf. These impacts were again reduced by eliminating Sweet Pea Path and moving 3.5 houses out of the Riverfront Area.

The 34,525 sf of impact left is the result of 2.5 houses along with lawn and landscaped areas proposed within the 100-200-ft Riverfront Area (refer to Figure 1 which shows the houses and roadway in red and lawn in yellow).

In addition, this latest plan also takes into consideration the other requests offered by the Commission, town staff, and Places Associates, Inc (peer review) to reduce impacts (as outlined in a letter submitted by Stamski and McNary) and include:

1. Moving Cottage House Lane, the cottage house building and other associated amenities out of the 200-ft Riverfront Area along Lily Pad Lane (see page 33 of the plan set).
2. The wastewater treatment road is now located further from wetland resources (see page 35 of the plan set).
3. Sweet Pea Path has been removed off Lily Pad Lane (refer to prior plan set and page 34 of this plan set).
4. Units along Lily Pad Lane have been changed to further the distance to wetland resource area (see page 33, 34 and 38 of the plan set).
5. A unit from Lily Pad Lane was removed and a unit added to Lupine Circle removing disturbance from the Riverfront Area (see page 38, 40, 42 and 43 of the plan set).
6. Four single-family houses on Lupine Circle have been swapped by two duplexes (see pages 42 and 43).
7. The compensatory flood plain storage area proposed to impact wetland resources areas has been removed per the Commission's request (refer to page 17 of the plan set).
8. Private open space has been designated throughout the site and within the septic systems and wells (refer to landscape plan set).



#### **4.0 Proposed Mitigation**

In addition, the applicant is proposing the removal of debris and fill piles located within the 0-100 and 100-200-ft Riverfront Area near the 2.5 houses proposed along Lily Pad Lane (refer Figure 1 pink hatched area). This approximately 45,372 sf mitigation work area includes the removal of debris and fill piles and the loam and seeding of the Riverfront Area with a native conservation seed mix. This will improve the existing Riverfront Area conditions and will compensate for the proposed Riverfront Area impacts greater than 1:1 even though no mitigation is needed since the project is far below the 10% impact threshold.

#### **5.0 Conclusion**

In conclusion, the project has gone through many revisions to reduce wetland resource area impacts. The current design as proposed minimizes impacts to the greatest extent practicable. It meets the new development standards with 4% impact far less than 10% of the allowable impact. As a result, Goddard Consulting agrees that project meets all the Wetland Protection Act performance standards and respectfully asks for the Commission to issue an Orders of Conditions for this project.

March 12, 2024

## **WILDLIFE HABITAT ASSESSMENT**

The Cottages at Wandering Pond  
Athens Street – Stow, MA  
DEP File #299-0739

### **1.0 INTRODUCTION**

As part of this project, Goddard Consulting, LLC (Goddard) conducted a Wildlife Habitat Evaluation (WHE) for the proposed work that would alter Bank and Riverfront Area (RFA) at this site in Stow, MA. This evaluation has been developed in response to the requirements of 310 CMR 10.60.

The purpose of this document is to evaluate the potential for adverse effects to the wildlife habitat functions within the Resource areas associated with the proposed project and to determine what wildlife habitat functions will be impacted through the implementation of the proposed work.

### **2.0 METHODOLOGY**

In accordance with 310 CMR 10.60 (2) (a) regarding “Wildlife Habitat Characteristics of Inland Resource Areas”, study areas within the subject parcel were evaluated (topography, wildlife usage, soil structure, plant community composition and wetland structure) for their ability to provide important wildlife habitat function and value.

This evaluation was conducted following the guidelines established in the March 2006 DEP document *Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands*. Additionally, data was gathered on the plant community structure, habitat features and wildlife within the buffer zone within areas of proposed impact.

For impacts to RFA and Bank, the goal of this study was to determine if the proposed project will have a significant effect on the wildlife habitat of the community. Impact areas that exceed the WPA wildlife habitat assessment thresholds are RFA and Bank.

### **3.0 QUALIFICATIONS OF PREPARER**

As required by 310 CMR 10.60, a qualified biologist from Goddard was on-site in September 2023 to conduct this WHE, with supplemental data gathered from published soils maps and available GIS data.

The wildlife habitat assessment was conducted by Mr. Steven Riberdy assisted by Mr. Ryan Roseen. Mr. Riberdy is the Lead Biologist at Goddard and has 23 years of experience in wildlife ecology, rare species assessment and study, botany, and wetland ecology/restoration. He is a Certified Wildlife Biologist (“CWB”), Professional Wetland Scientist (“PWS”), Certified Ecologist (“CE”) and Certified Ecological Restoration Practitioner (“CERP”). He has extensive experience conducting wildlife habitat assessments as well as rare species studies, permitting and habitat management/conservation plans (resume attached).

### **4.0 STUDY AREA DESCRIPTION**

The study area is made up of seven parcels totaling approximately 119-acres, much of which is forested wetland and forested upland. Areas of upland field and herbaceous wetlands along the perennial stream are also found on site. The site is partially developed but mostly forested with residential properties located in the vicinity.

According to the Massachusetts Natural Heritage and Endangered Species Program (MA NHESP), no portion of the proposed work area is within areas mapped as either Priority or estimated habitat for rare species.



No certified or potential vernal pools are mapped; however, two potential vernal pools have been identified on site during the ANRAD process. As part of the ORAD, these potential vernal pools were to be evaluated and data gathered to have them certified. Goddard biologists will survey these two potential vernal pools in the Spring of 2024 to gather and submit the necessary data for certification.

## **5.0 NATURAL COMMUNITIES**

Goddard surveyed and developed a natural community assessment and identified several distinct natural community types across the study area, including:

- White Pine Forest
- Mixed Deciduous Forest
- Grass Forb Fields
- Scrub Shrubland
- Freshwater Emergent Wetland

**White Pine Forest:** White Pine Forest covers approximately 48 acres of the site. Eastern white pine dominates this community, with other notable vegetation including red maple and big toothed aspen. Eastern hay-scented fern and glossy buckthorn were common throughout the forest and young white pines were dense along the gravel roadways.

The white pine forests are a mix of young and mature (uneven aged), with around half of trees having a dbh between 8-16 inches, and a smaller but no less significant portion measuring between 5-7 inches with a few larger (20" +) specimens. Saplings make up the rest of the trees between 1-4 inches dbh. Canopy closure is dense and mostly closed, leading to a generally sparse understory and groundcover layer. Young deciduous trees (1-3" DBH) were found to make up a limited understory.

Available habitat for wildlife would be the sections of denser understory for foraging and cover which is limited. White-tailed deer and smaller mammals are some of the species that can make use of this habitat. Cover, forage, and nesting for common passerine species is also present within the tree canopy but is also available within the other habitat communities on-site and in areas adjacent to the developed portion of the parcel. The seed producing trees are also attractive to this wildlife as well.

**Mixed Deciduous Forest:** Found primarily in the very eastern, western, and northern sections of the site, there are approximately 47.8 acres of mixed deciduous forest. These are forested communities, generally outside of any wetland resource area jurisdiction, however, make up a large portion of the limit of work for the proposed development.

The vegetative composition of this community is similar throughout. The community is dominated by red and white oak, red maple, black birch, paper birch, American beech, and yellow birch, with inclusions of eastern white pine. A variety of ferns and grasses, partridge berry, dewberry, and poison ivy are found along the forest floor. Some areas contain a moderate to dense amount of glossy buckthorn in the shrub layer.

This forest type is primarily younger to middle aged trees from 3-18 inches dbh. Canopy closure is moderate across the forest allowing some areas to have a dense shrub and/or herbaceous layer while other areas have an open understory.

Similar in available habitat as the white pine forests, wildlife that favor sections of thicker shrubs and understory, and passerine birds that favor the present canopy conditions across the site. These areas have a higher plant species richness, and thus likely a higher wildlife richness from the variety of cover and forage opportunities.

**Grass/Forbs Field:** This herbaceous community, approximately 4 acres in size, is found mostly north of the second crossing adjacent to the existing dilapidated structures. These areas were previously managed fields that appeared to be used for housing livestock. They appear to have had 5+ years without active management.

Goldenrods, brambles, mugwort, and hairy aster are just some of the dominant vegetation in this community. Some areas of the fields had a moderate number of invasive species.

Trees as well as shrubs are generally not found in this community and only a few small saplings and shrubs were found along edge areas. White pine saplings and autumn olive were the dominant shrubs along edge habitat throughout the site.

This community is attractive to wildlife in the area, such as pollinators, deer, small mammals, and passerine birds.

**Shrub Scrubland:** This community is small ( $\pm 1.7$  acre) and exists due to apparent minor clearing that took place years prior. This area is found directly adjacent (northeast) to the existing buildings near the center of the site. This area is in the early-mid successional stage where shrubs dominate the area with some herbaceous vegetation located throughout. The dominant vegetation in this habitat were mostly white pine saplings, autumn olive, oak saplings, gray birch, brambles, goldenrods, and various grasses.

The dense areas of young saplings and shrubs likely provide cover for the passerine birds and small mammals that prefer dense cover.

**Freshwater Emergent Wetland:** This community is found adjacent to the stream that winds through the central portion of the site. It is fairly small at approximately 2.6 acres. Mostly containing herbaceous wetland species, is seasonally flooded and saturated. Provides habitat for small mammals, amphibians, reptiles, and foraging opportunities for passerine birds.

## 6.0 HABITAT CONTEXT

Overall, the forested site is part of a larger area of forested and undisturbed area located to the west and north. The area is somewhat fragmented between residential development mostly to the south and some to the east and north. There is potential for migration of terrestrial wildlife into the site, but the proposed work is unlikely to be too impactful post-construction. The permeability of wildlife through the general landscape context is moderate to high due to the limited development surrounding the site. This site is large and largely undeveloped with some development surrounding the site to varying degrees. Some connectivity is present; however, roads and development likely limit this to some extent. The stream corridor is likely an important corridor through the area for species. The size of the site is likely large enough to support resident populations of small and medium sized mammals, passerine birds and herptiles. Larger mammals, and mammals that prefer more forest interior areas or are less urban adapted, can also likely be found here. The presence of nearby developed areas favors urban adapted and tolerant wildlife as opposed to forest interior or more secretive or habitat specialist species.

Movement of reptiles and amphibians into the site is expected to be limited as the permeability of the surrounding landscape is average for these taxa. Aquatic connectivity to and through the site is high, as an unnamed stream runs through a portion of the site and another stream runs along the property in the very western part of the site. The main unnamed stream that runs from the northwest to the southeast of the site is a cold-water fishery as determined by MA Division of Fisheries and Wildlife.

## **7.0 IMPACT ASSESSMENT**

### ***Impact Area (Bank)***

The proposed crossing will impact more than 50 linear feet of bank. Habitat impacts include the limited loss of existing undisturbed banks due to the need to widen the access road. The banks to be impacted do not contain any important features and are similar in size, structure, and plant makeup as other portions of bank not proposed to be impacted. The crossing is proposed to meet stream crossing standards and stream banks will be replicated within the open bottom culverts. The new culverts will continue to allow for aquatic connectivity throughout the site.

### ***Crossing 1***

Crossing 1 is located near the entrance to the site off Hudson Street. The stream is approximately 3-4 feet wide and heavily vegetated with herbaceous vegetation and vines such as grape, multiflora rose, Japanese knotweed, mugwort, and Asiatic bittersweet with red maple in the immediate vicinity. The existing crossing structure is made up of boulders and large timbers that span the roadway.

The dense herbaceous vegetation on the upstream side of the crossing may provide cover and food sources for small mammals, amphibians, and reptiles. The proposed crossing has been designed to meet stream crossing standards and will re-establish a more natural bank in this section of the stream. The boulders that currently make up the crossing structure could be used in other parts of the stream or BVW replication areas to create additional habitat features for wildlife.

### ***Crossing 2***

Crossing 2 is located in the east central portion of the site just before reaching the existing buildings that are on site. The existing culvert is a 36" concrete culvert with no natural bottom. The banks in the immediate vicinity are dominated by grape, jewelweed, glossy buckthorn, Asiatic bittersweet, cinnamon fern, and a variety of grasses. Substantial scour and erosion of the bank on the upstream side exists but appears to be recent.

This area is proposed to have two open bottom box culverts installed with weirs on the upstream sides. The project will end up creating more banks on site than currently exists due to the additional box culvert being proposed at this crossing.

### ***Impact Area (Riverfront Area)***

The project is proposing to impact 34,525 square feet of riverfront area or 4% of the total riverfront area on site. All impacts to RFA are proposed within the outer riparian area. A substantial portion of the existing RFA is currently disturbed with dilapidated structures, gravel drives, fill piles, invasives, and general trash. Overall, the impact from the removal of trees is negligible in the overall context of the larger area. Most of the proposed work in the RFA is in areas that are not forested. North of the second crossing, the vast majority of the proposed work in the RFA is for the stormwater management basin and this area is currently poor habitat. This area consists of the old pasture area, small portions of the dilapidated buildings on site, and the surrounding disturbed areas. On the south side of the stream, portions of three duplexes are proposed in the outer riparian zone. Portions of this area contain old fill piles and invasives with a minor amount of forest cutting.

Localized loss of cover and foraging, mainly for common passerine birds, and small to medium common mammals, would result from the localized area. No special or unique habitat areas were found on site, particularly within the areas of proposed work. Work appears to be mainly affecting the white pine forest and shrub/herbaceous areas as well, which have a lesser habitat value as compared to the mixed forest and red maple forested areas on site.



Impacts to Bordering Vegetated Wetlands (BVW) are proposed to be replicated and will likely improve species diversity within the BVW.

The following is an overview of the likely effect across the entire site on the different taxa and groups of wildlife expected.

**Passerine Birds:** The overall effect to this group of taxa includes a loss of forage, shelter, and breeding sites (mature trees) for forest and cavity nesting species.

**Raptors:** Perching locations for hawks and owls would be negligibly reduced.

**Waterfowl:** There would be no expected effect on waterfowl.

**Small Mammals:** In the short term, some of the tree and shrub removal would reduce cover and forage. Meso-predators and those adapted to the human use of the site (raccoons, opossums, fox) would be affected initially, but would quickly adapt and use surrounding areas.

**Aquatic and Semi-Aquatic Mammals:** There is likely no effect to these species. Beaver activity was noted throughout the site; however, the project will likely have a minimal impact on them post project.

**Large Mammals:** Large mammal use of the site is likely average due to the areas of largely intact forested and open habitats. The project will likely have some impact on this taxa through the reduction of overall habitat, however, large areas of open space will continue to be available for them on site and in the surrounding area.

**Amphibians:** Overall, effects on amphibians are negligible.

**Reptiles:** Overall reptile use of the site would be limited. Garter, milk, brown snakes are likely inhabitants of the site, and they will continue to use the ample similar habitat that remains on site. The forested white pine uplands are the least useful habitats on site for this taxa. There would be no expected effect on aquatic reptiles (water snakes, turtles).

## **8.0 MITIGATION OPPORTUNITIES**

Several enhancements or mitigation opportunities could be implemented to restore affected areas more quickly and provide mitigation for the temporary change of some habitat features and increase the overall usefulness of the site for wildlife post cutting. These potential wildlife habitat enhancement opportunities are summarized below.

- Re-planting of native shrubs and trees in areas of upland forest to speed the regeneration to shrub habitats.
- Cleanup of degraded/disturbed areas by removing fill piles and dilapidated structures within riverfront.
- Removal of culvert and cart path/historic fill in wetlands at the third crossing in the very western part of the site. Restore the wetland in this area to enhance the connection of habitats.
- Remove weirs from stream crossing to improve fish passage/connectivity.
- Install bird boxes and bat boxes in appropriate areas around the site.
- Targeted removal of invasive plant species, and replacement with native vegetation.
- Increasing coarse woody debris within the RFA and BVW areas to increase forest floor structural diversity and create microhabitats from ground dwelling fossorial species.
- Establish pollinator habitats where applicable and manage areas conducive to pollinators (reduced mowing). These would effectively be wildflower meadow habitats, lightly managed, which attract a variety of insects and songbirds.

## 9.0 SUMMARY

In general, impacts are minor in the general landscape context. Some significant tree clearing (mostly outside jurisdiction) will happen, but a majority of the trees within the jurisdictional resource areas are younger trees that offer less value to wildlife. The proposed basins will be seeded with a conservation mix, adding a different type of habitat to the site. In addition, much of the disturbed RFA will be rehabbed to a native herbaceous dominant field community. The use of the site would not preclude wildlife use of the site and the site would likely be utilized by local wildlife. Wildlife connectivity will continue to be available in the western and northern part of the site as well as along the stream corridor. The impacts of this work are generally minor in nature, and in the long term do not affect the function of the entire site and wetlands within. Species affected short-term include passerine birds, small mammals, and white-tailed deer that favor the current habitat. Based on our findings that no unique, important, or special habitats were identified or will be affected by the proposed project, we believe this project meets the standard of no adverse impact.

## References

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Sincerely,



Steven Riberdy, MS, PWS, CWB, CERP, CE, PSS  
Lead Biologist / Senior Manager



Ryan Roseen  
Wildlife Biologist & Wetland Scientist

## Attachments

*Site Locs & Natural Communities Maps*  
*Site Photos Exhibit*  
*MA DEP Detailed WHE Form*  
*Qualifications of Preparers*



**Site Photos**



**Mixed forest**



**White pine dominated area.**





**Shrub/herbaceous dominant area**



**Stream and freshwater emergent wetland**





**Mixed forest**



**Mixed forest**





**Existing crossing #2**



**Existing crossing #2**





**Existing crossing #1**



**Existing structure**





**Existing structure in old pasture**




**Wetland area and crossing #3.**



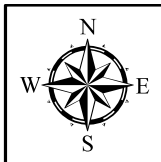


**Legend**

Parcel Boundaries

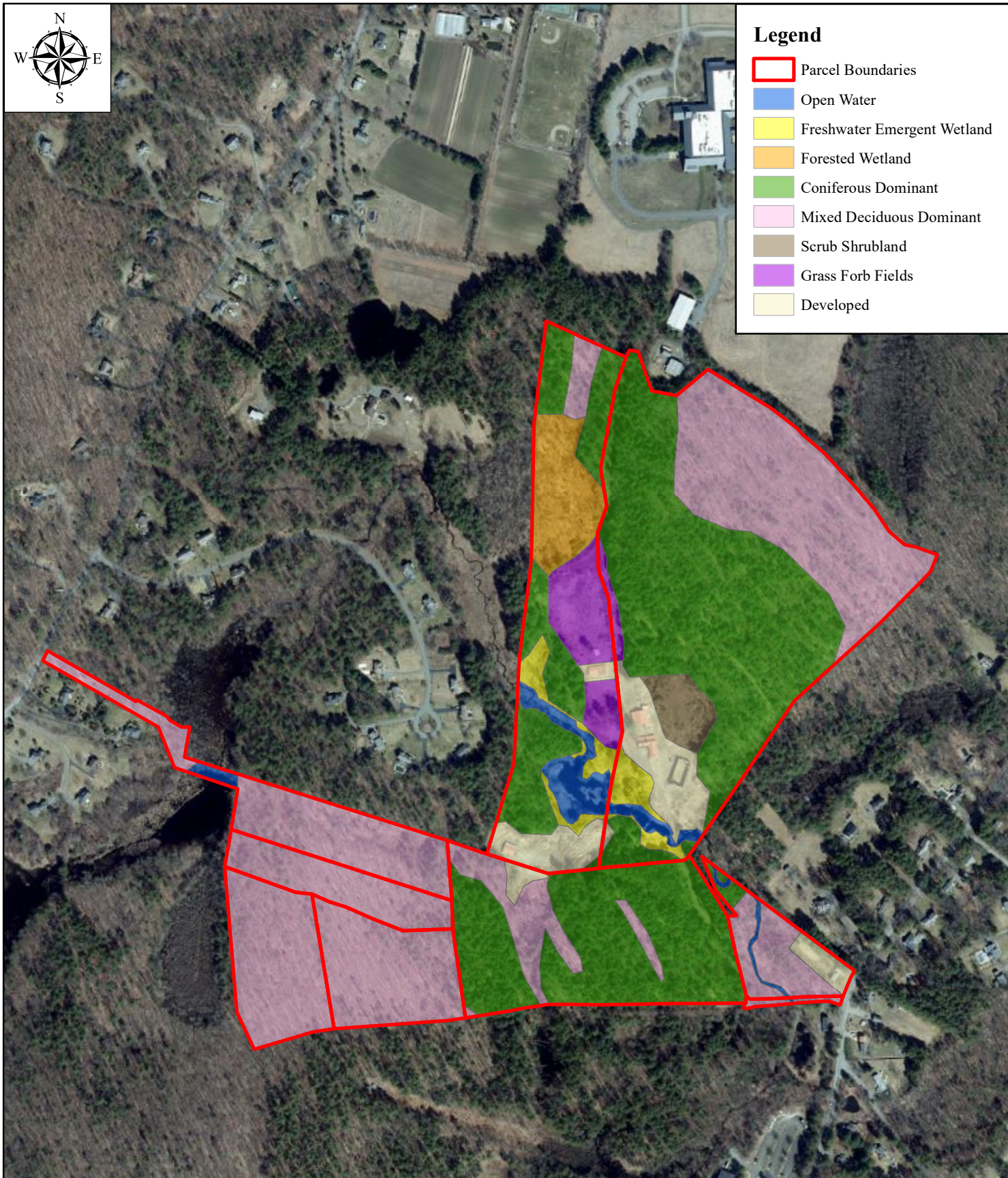
Date: 10/2/2023	GC Job Number: 286-007 & 007a	Site Locus	0 300 600 Feet	
 <b>GODDARD CONSULTING</b> Strategic Ecological Consulting			1 in = 600 ft	
			Athens Street Stow, MA 01775	





### Legend

- Parcel Boundaries
- Open Water
- Freshwater Emergent Wetland
- Forested Wetland
- Coniferous Dominant
- Mixed Deciduous Dominant
- Scrub Shrubland
- Grass Forb Fields
- Developed



Date: 10/2/2023

GC Job Number:  
286-007 & 007a

## Existing Natural Communities Map

Athens Street  
Stow, MA 01775

0 300 600  
Feet

1 in = 600 ft

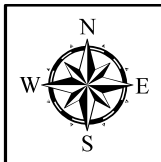
Map: R02

Figure 1



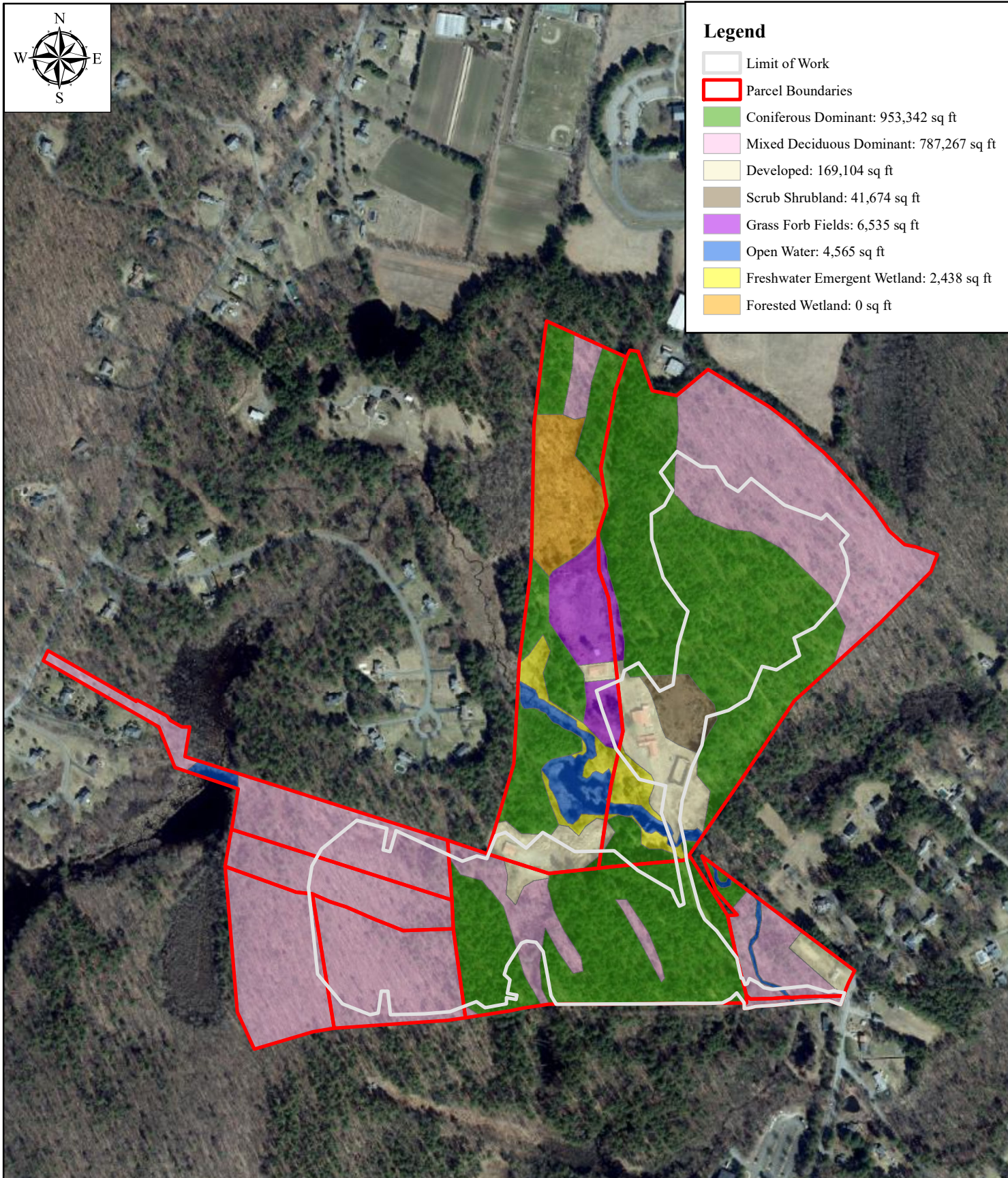
**GODDARD  
CONSULTING**  
Strategic Ecological Consulting





### Legend

- Limit of Work
- Parcel Boundaries
- Coniferous Dominant: 953,342 sq ft
- Mixed Deciduous Dominant: 787,267 sq ft
- Developed: 169,104 sq ft
- Scrub Shrubland: 41,674 sq ft
- Grass Forb Fields: 6,535 sq ft
- Open Water: 4,565 sq ft
- Freshwater Emergent Wetland: 2,438 sq ft
- Forested Wetland: 0 sq ft



Date: 10/2/2023

GC Job Number:  
286-007 & 007a

## Natural Communities Impact Map

Athens Street  
Stow, MA 01775

0 300 600  
Feet

1 in = 600 ft

Map: R02

Figure 2



**GODDARD  
CONSULTING**  
Strategic Ecological Consulting

**Appendix B: Detailed Wildlife Habitat Evaluation**  
**Part 2: Field Data Form**  
*(For each wetland or non-wetland resource area)*

**I. GENERAL INFORMATION**

Project Location (from NOI page 1): off Athens St, Stow, MA

Impact Area (number/name): **Bank**

Date(s) of site visit(s) and data collection: September 7, 2023

Weather conditions during site visit (if snow cover, include depth): Sunny, 85°F

Date this form was completed: 11/15/2023

Person completing form per 310 CMR 10.60(1)(b): Steve Riberdy

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	Riverine	Subsystem	Lower Perennial	Class	Unconsolidated Bottom	Subclass	
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***Hydrology/Water Regime:***

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Permanently flooded            | <input type="checkbox"/> Saturated (BVW Areas) |
| <input type="checkbox"/> Intermittently exposed                    | <input type="checkbox"/> Temporarily flooded   |
| <input type="checkbox"/> Semi-permanently flooded                  | <input type="checkbox"/> Seasonally flooded    |
| <input checked="" type="checkbox"/> Intermittently flooded (Banks) | <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. ([www.mass.gov/dfwele/dfw/nhsep/nhclass.htm](http://www.mass.gov/dfwele/dfw/nhsep/nhclass.htm))
- 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.

**Community Name:**

**Vegetation Description:**

**Physical Description:**



<b>% Cover:</b>	<b>Trees: 5%</b>	<b>Shrub: 5%</b>	<b>Vine: 10%</b>	<b>Moss:</b>
	<b>Grass: 40%</b>	<b>Forbs: 20%</b>	<b>Sub Aquatic:</b>	<b>Emerg Aquatic:</b>
				<b>5%</b>

Description: \_\_\_\_\_

**Litter Layer:**      ☐ Exposed Soil      ☐ Litter/Moss      ☐ Rocky      ☒ Organic

Other: \_\_\_\_\_

Strata	Plant Species	Strata	Plant Species
Tree	Red maple*	Herb	Jewelweed*
			Cinnamon fern
			Grape
			Yellow foxtail (INV)
			Barnyard grass (INV)
Shrub	Glossy buckthorn* (INV)		
	Japanese barberry (INV)		
	Asiatic bittersweet (INV)		

**Notes:**

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### C. Inventory (Soils, Topography, and Geology)

Soil Survey Unit(s):

51A

Drainage Class: Very  
poorly drained

Texture (upper):  
muck

Depth to bedrock:  
>80"

Duff/Leaf Litter Depth: 0-2"

Surface stones/boulders:

Hydrology: ☐ Xeric ☐ Mesic, Dry ☐ Mesic ☐ Mesic Wet  
☒ Hydric ☐ Peat/Muck ☐ Innumdated/Aquatic

Soil Fertility: ☐ Rich-Calcifitic ☒ Rich-Alluvial ☐ Circumneutral ☐ Acidic ☐ Agricultural

Average Site Elevation:

Slope Aspect: ☐ N ☐ NE ☐ E ☐ SE ☐ S ☐ SW ☐ W ☐ NW ☐ Flat

Slope: ☐ Flat <5% ☒ Gentle (5-10%) ☒ Average(10-20%) ☐ Rather Steep(20-30%)  
☐ Steep (30-45%) ☐ Very Steep (45-60%) ☐ Abrupt (>60%)

Surficial Geology:

Check all landforms that apply:

☐ Summit ☐ Upper Slope ☐ Mid Slope ☐ Lower Slope  
☐ Rolling Terrain ☒ Floodplain ☒ Wetland ☐ Shore/Bank  
☐ Drumlin ☐ Ground Moraine ☐ Ridge ☐ Floodplain  
☐ Outwash ☐ Kame Terrace ☐ Esker ☐ Kettle Pond  
☐ Talus ☐ Till ☐ Exposed Bedrock ☐ Floodplain Alluvium  
☐ Sorted Outwash ☒ Coarse Outwash

### 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**) – Red Oak, Beech

☐ Abundant ☒ Present ☐ Absent

Important Upland/Wetland Food Plants (**fruit/berry/seed**)

☐ 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

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

Number of trees (live or dead) **impacted** > 30"DBH: 0



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

Impacted	Total	
0	5	6-12" DBH
0	2	12-18" DBH
0	1	18 - 24" DBH
0	0	>24" DBH

Number of tree cavities in trunks or limbs of:

Impacted	Total	
0	0	6-12" diameter (e.g., tree swallow, saw whet owl, screech owl, bluebird, other songbirds)
0	0	12-18" diameter (e.g., hooded merganser, wood duck, common goldeneye, mink)
0	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)

IMPORTANT HABITAT CHARACTERISTICS (if present, describe & 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

Verticle sandy banks (bank swallow, kingfisher) ☐ present ☒ absent

Areas of ice-free open water in winter ☒ present ☐ absent

Groundwater seeps/springs present ☐ present ☒ absent

Mud flats ☐ present ☒ absent

Exposed areas of well-drained, sandy soil suitable for turtle nesting ☐ present ☒ absent

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

Estimated percent of viable upland habitat within 400' of nesting areas: \_\_\_\_\_%

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

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  
☐ Trees suitable as Bald Eagle Habitat (~>30"DBH/supercanopy) Number: \_\_\_\_\_

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 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 wetland 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

**Notes:**

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VERNAL POOLS (if present, describe & quantify them on a separate sheet)

Depressions that may serve as seasonal pools: ☐ present ☐ absent (if absent skip to next section)

Evidence of Inlet or Outlet: ☐ Absent ☐ Present

Evidence of Fishlessness ☐ Absent ☐ Present

Evidence of Breeding activity: ☐ Absent ☐ Present

Vernal pool part of larger complex: ☐ Yes ☐ No

Evidence of Pool Dry: ☐ Absent ☐ Present

Vertical Stratification of Pool Habitat: ☐ None ☐ Poor ☐ Good

Adjacent hummocks, saturated/moss logs: ☐ Absent ☐ Present

Obligate Species Present:

<input type="checkbox"/> Wood Frog	<input type="checkbox"/> Spotted Salamander
<input type="checkbox"/> Marbled Salamander	<input type="checkbox"/> Blue-spotted Salamander
<input type="checkbox"/> Jefferson Salamander	<input type="checkbox"/> Eastern Spadefoot Toad
<input type="checkbox"/> Fairy Shrimp	

☐ Egg masses present Describe: \_\_\_\_\_

☐ Facultative Species Describe: \_\_\_\_\_

Vernal Pool vegetation: ☐ None ☐ Aquatic/emergent ☐ Forb ☐ Shrub ☐ Tree

Estimated Hydroperiod: ☐ Ephemeral ( <2 mo) ☐ Short cycle (2-4 mo) ☐ Long cycle (4-8 mo)

☐ Semi-permanent pond (1-3 years) ☐ Pond

Upland Habitat Viability (w/in 500' of pool):

<input type="checkbox"/> Compromised (<25% remains)
<input type="checkbox"/> Degraded (26-50% remains)
<input type="checkbox"/> Disturbed (51-75% remains)
<input type="checkbox"/> Good (76-99% remains)
<input type="checkbox"/> Undisturbed (100% remains)

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

<input type="checkbox"/> breeding amphibians	<input type="checkbox"/> non-breeding amphibians (foraging, rehydration)
<input type="checkbox"/> turtles	<input type="checkbox"/> foraging waterfowl

**Notes:**

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LACUSTRINE HABITATS (If present, describe & quantify them on a separate sheet)

Bank stability: ☐ Stable <5% eroded ☐ Mod. Stab. 5-30% ☐ Mod. Unstab. 30-60% ☐ Unstab >60%

Bank composition: ☐ Vegetation \_\_\_\_% ☐ Soil/mud \_\_\_\_% ☐ Rocky \_\_\_\_% ☐ Other \_\_\_\_%

Vegetative protection (bank): ☐ >90% native ☐ 70-90% native ☐ 50-70% native ☐ <50% native

Riparian zone width (natural): ☐ >60 feet ☐ 60-40 feet ☐ 40-20 feet ☐ <20 feet

Bordering habitats: ☐ Emergent wetland ☐ Forested wetland ☐ Upland forest ☐ Developed  
☐ Grassland ☐ Wet meadow ☐ Early success. ☐ Other

Trophic classification: ☐ Oligotrophic ☐ Mesotrophic ☐ Eutrophic

Estimated average width of littoral zone: \_\_\_\_\_ ft.

Water source: ☐ Streams ☐ Groundwater ☐ Surface runoff ☐ Artificial

Discharge: ☐ Streams ☐ Groundwater ☐ Artificial

Basin status: ☐ Water fills basin ☐ >75% full ☐ 75-25% full ☐ <25% full

Algae cover: ☐ <25% ☐ 25-50% ☐ 50-75% ☐ >75%

Emergent plant cover: ☐ <25% ☐ 25-50% ☐ 50-75% ☐ >75%

SAV cover: ☐ <25% ☐ 25-50% ☐ 50-75% ☐ >75%

Evidence of wildlife: ☐ Fish ☐ Turtles ☐ Waterfowl ☐ Mammals

Human disturbance: ☐ In-lake structures ☐ Beaches ☐ Bank disturbance ☐ Recreation

**Notes:**

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RIVERINE HABITATS (If present, describe & quantify them on a separate sheet)

Duration: ☒ Perennial ☐ Intermittent

Gradient: ☒ Low ☐ Moderate ☐ High

Epifaunal substrate/cover (woody debris, undercut banks, etc.): ☐ >70% ☐ 70-40% ☐ 40-20% ☒ <20%

Substrate: ☒ Boulders \_\_3\_\_% ☐ Cobbles \_\_\_\_% ☒ Gravel \_\_10\_\_% ☒ Sand \_\_5\_\_%  
☐ Woody Deb. \_\_\_\_% ☒ Organics \_\_85\_\_%

Embeddedness (extent to which gravel, cobbles, etc are embedded in sediment:

☒ 0-25% ☐ 25-50% ☐ 50-75% ☐ >75%

Velocity depth regime: ☐ All four present ☐ 3 present ☐ 2 present ☒ dominated by 1

In-Stream Habitats: ☐ Riffle \_\_\_\_% ☒ Pool \_\_5\_\_% ☐ Shallow Run \_\_\_\_% ☐ Deep Run \_\_\_\_%

Sediment deposition: ☐ <5% ☐ 5 - 30% ☐ 30 - 50% ☐ >50%

Channel flow status: ☐ Water fills channel ☒ >75% full ☐ 75-25% full ☐ <25% full

Channel alteration: ☐ None ☒ Some (crossings) ☐ Extensive (40-80%) ☐ Majority (>80%)

Frequency of riffles: ☐ Frequent ☐ Infrequent ☐ Occasional ☒ None

Pool substrate: ☐ Mix of gravel, firm sand, roots, SAV ☒ Mix of mud, some roots & SAV ☐ All mud or sand ☐ Bedrock or clay

Pool variability: ☐ Mix of depths & sizes ☐ Large, deep ☐ Shallow ☒ Small, shallow or absent

Channel sinuosity: ☐ Bends increase stream length 3-4 times ☒ Bends increase stream length 1-2 times ☐ Channel straight

Bank stability: ☒ Stable <5% eroded ☐ Mod. Stab. 5-30% ☐ Mod. Unstab. 30-60% ☐ Unstab >60%

Vegetative protection (bank): ☐ >90% native ☐ 70-90% native ☐ 50-70% native ☒ <50% native

Riparian zone width (natural): ☐ >60 feet ☒ 60-40 feet ☐ 40-20 feet ☐ <20 feet

**Notes:**

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#### 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 checked="" type="checkbox"/> yes	<input type="checkbox"/> no
(marsh and waterbirds)	2.0 acres in size?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
	5.0 acres in size?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
	10.0 acres in size?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
Is the impact area part of a wetland complex at least	2.5 acres in size?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
(turtles, frogs, waterfowl, mammals)	5.0 acres in size?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
	10.0 acres in size?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
	25.0 acres in size?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no

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

(forest interior nesting birds, large mammals)	50 acres in size?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
	100 acres in size?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
	250 acres in size?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
	500 acres in size?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
(grassland nesting birds)	> 1 acre in size?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
(special habitat such as gallery floodplain forest, alder thicket, etc.)	> 1 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 area of habitat (somewhat important for connectivity function)
- ☐ Impact area serves as *part of* a sole connector to adjacent area 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 habitat impacts on 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
- ☒ Disturbance from roads or highways
- ☐ Is the site the only resource area in the vicinity of an otherwise developed area
- ☒ Other human disturbance: development in close proximity



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

## V. Habitat Suitability Checklist (Buffer Zone Areas)

### Forage:

Reptiles	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Amphibians	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Avifauna	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Mammals	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Fish	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent

Notes: \_\_\_\_\_

### Overwintering

Reptiles	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Amphibians	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Avifauna	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Mammals	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Fish	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent

Notes: \_\_\_\_\_

### Breeding/Nesting:

Reptiles	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Amphibians	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Avifauna	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Mammals	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Fish	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent

Notes: \_

### Cover/Shelter

Reptiles	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Amphibians	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Avifauna	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Mammals	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Fish	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent

Notes: \_\_\_\_\_

### Travel/Migratory

Reptiles	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Amphibians	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Avifauna	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Mammals	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Fish	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent

Notes: \_\_\_\_\_

## Observed and Potential Wildlife

## Herpetiles

<input type="checkbox"/> O	<input type="checkbox"/> P	Woodfrog ( <i>Rana sylvatica</i> )
<input type="checkbox"/> O	<input type="checkbox"/> P	Spring Peeper
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Green Frog
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Bullfrog
<input type="checkbox"/> O	<input type="checkbox"/> P	Pickerel Frog
<input type="checkbox"/> O	<input type="checkbox"/> P	Grey Treefrog
<input type="checkbox"/> O	<input type="checkbox"/> P	American Toad
<input type="checkbox"/> O	<input type="checkbox"/> P	Mole Salamander ( <i>Ambystoma spp.</i> )
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Red backed Salamander
<input type="checkbox"/> O	<input type="checkbox"/> P	Spring Salamander
<input type="checkbox"/> O	<input type="checkbox"/> P	Red Spotted Newt
<input type="checkbox"/> O	<input type="checkbox"/> P	Dusky Salamander
<input type="checkbox"/> O	<input type="checkbox"/> P	Painted Turtle
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Snapping Turtle
<input type="checkbox"/> O	<input type="checkbox"/> P	Spotted Turtle
<input type="checkbox"/> O	<input type="checkbox"/> P	Wood Turtle
<input type="checkbox"/> O	<input type="checkbox"/> P	Box Turtle
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Garter Snake
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Brown Snake
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Milk Snake
<input type="checkbox"/> O	<input type="checkbox"/> P	Green Snake
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Water Snake
<input type="checkbox"/> O	<input type="checkbox"/> P	Eastern Hognose Snake
<input type="checkbox"/> O	<input type="checkbox"/> P	Black Racer

## Mammals

<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Virginia Opossum
<input type="checkbox"/>	<input type="checkbox"/>	P	Short Tailed Shrew
<input type="checkbox"/>	<input type="checkbox"/>	P	Eastern Mole
<input type="checkbox"/>	<input type="checkbox"/>	P	Star Nosed Mole
<input type="checkbox"/>	<input type="checkbox"/>	P	Little Brown Bat
<input type="checkbox"/>	<input type="checkbox"/>	P	Long Eared Bat
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Big Brown Bat
<input type="checkbox"/>	<input type="checkbox"/>	P	Eastern Cottontail
<input type="checkbox"/>	<input type="checkbox"/>	P	Snowshoe Hare
<input checked="" type="checkbox"/>	<input type="checkbox"/>	P	Eastern Chipmunk
<input type="checkbox"/>	<input type="checkbox"/>	P	Red Squirrel
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Grey Squirrel
<input type="checkbox"/>	<input type="checkbox"/>	P	Woodchuck
<input type="checkbox"/>	<input type="checkbox"/>	P	Flying Squirrel
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Beaver
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Deer Mouse
<input type="checkbox"/>	<input type="checkbox"/>	P	White Footed Mouse
<input type="checkbox"/>	<input type="checkbox"/>	P	Meadow Vole
<input type="checkbox"/>	<input type="checkbox"/>	P	Redbacked Vole
<input type="checkbox"/>	<input type="checkbox"/>	P	Woodland Vole
<input type="checkbox"/>	<input type="checkbox"/>	P	Muskrat
<input type="checkbox"/>	<input type="checkbox"/>	P	Meadow Jumping Mouse
<input type="checkbox"/>	<input type="checkbox"/>	P	Porcupine
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Coyote
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Red Fox
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Grey Fox
<input type="checkbox"/>	<input type="checkbox"/>	P	Black Bear
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Raccoon
<input type="checkbox"/>	<input type="checkbox"/>	P	Fisher
<input type="checkbox"/>	<input type="checkbox"/>	P	Ermine
<input type="checkbox"/>	<input type="checkbox"/>	P	Mink
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Striped Skunk
<input type="checkbox"/>	<input type="checkbox"/>	P	River Otter
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	Bobcat
<input type="checkbox"/>	<input checked="" type="checkbox"/>	P	White Tailed Deer
<input type="checkbox"/>	<input type="checkbox"/>	P	Moose

## Avifauna

<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Great blue heron
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Turkey vulture
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Canada goose
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Mallard
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Osprey
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Bald eagle
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Sharp-shinned hawk
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Copper's hawk
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Red-tailed hawk
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Wild turkey
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Killdeer
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Ring-billed gull
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Herring gull
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Rock dove
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Morning dove
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Barred owl
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Common nighthawk
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Belted kingfisher
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Red-bellied woodpecker
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Downy woodpecker
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Hairy Woodpecker
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Northern flicker
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Pileated woodpecker
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Eastern wood-peewee
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Eastern phoebe
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Red-eyed vireo
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Blue jay
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	American crow
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Barn swallow
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Tree swallow
<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Black-capped chickadee
<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Tufted titmouse
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	White-breasted nuthatch
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	House wren
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Eastern bluebird
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Wood thrush
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	American robin
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Gray catbird
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Northern mockingbird
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	European starling
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Chestnut-sided warbler
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Black-throated blue warbler
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	American redstart
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Ovenbird
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	Song sparrow
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Northern cardinal
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Red-winged blackbird
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	Common grackle
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	House finch
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	P	American goldfinch
<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	P	House sparrow

## Other

[illegible]

**Appendix B: Detailed Wildlife Habitat Evaluation**  
**Part 2: Field Data Form**  
*(For each wetland or non-wetland resource area)*

**I. GENERAL INFORMATION**

Project Location (from NOI page 1): off Athens St, Stow, MA

Impact Area (number/name): **Riverfront Area**

Date(s) of site visit(s) and data collection: September 7, 2023

Weather conditions during site visit (if snow cover, include depth): Sunny, 85°F

Date this form was completed: 11/15/2023

Person completing form per 310 CMR 10.60(1)(b): Steve Riberdy

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	Riverine	Subsystem	Forested	Class	Mixed deciduous/coniferous	Subclass	
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***Hydrology/Water Regime:***

- |  |   |
|--|---|
| <input type="checkbox"/> Permanently flooded                       | <input checked="" type="checkbox"/> Saturated (BVW Areas) |
| <input type="checkbox"/> Intermittently exposed                    | <input type="checkbox"/> Temporarily flooded              |
| <input type="checkbox"/> Semi-permanently flooded                  | <input type="checkbox"/> Seasonally flooded               |
| <input checked="" type="checkbox"/> Intermittently flooded (Banks) | <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. ([www.mass.gov/dfwele/dfw/nhsep/nhclass.htm](http://www.mass.gov/dfwele/dfw/nhsep/nhclass.htm))
- 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.

**Community Name:** Mixed wetland/upland forest

**Vegetation Description:** Semi-mature to mature forest

**Physical Description:** White pine, red maple, red oak dominant



**B. Inventory (Plant community)**

**% Cover:**    **Trees: 70**                      **Shrub: 40**                      **Vine: 10**                      **Moss:**  
                 **Grass: 10**                      **Forbs: 20**                      **Sub Aquatic:**                      **Emerg Aquatic: 0**

**Forest Age:**    ☐ 1-4" dbh    ☒ 4-10" dbh    ☒ 10-20" dbh    ☒ 20"+ dbh    ☒ Uneven Age  
                 0%                      30%                      50%                      20%

Description: \_\_\_\_\_

**Canopy Closure:**    ☐ Very Open    ☐ Open    ☒ Intermediate    ☐ Closed  
                                 (<15%)                      (15-30%)                      (31-70%)                      (70%+)

**Litter Layer:**            ☐ Exposed Soil    ☒ Litter/Moss    ☐ Rocky    ☐ Organic

Other: \_\_\_\_\_

**Plant Lists** (species that comprise 10% or more of the vegetative cover in each strata; "\*" designates a dominant plant species for the strata "INV" denotes invasive species "R" denotes a state/federally protected species):  
Strata = Trees, Shrubs, Herb, and Vines

Strata	Plant Species	Strata	Plant Species
<b>Tree</b>	Red maple*	<b>Herb</b>	Jewelweed*
	White pine*		Eastern hay scented fern*
	Red oak*		Grape
	Black birch		Poison ivy*
	Yellow birch		Partridge berry
			Dewberry
			Canada mayflower
			Goldenrod
<b>Shrub</b>	Glossy buckthorn* (INV)		
	Asiatic bittersweet (INV)		
	Highbush blueberry		

**Notes:**

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### C. Inventory (Soils, Topography, and Geology)

Soil Survey Unit(s):  
52A/253C/254B

Drainage Class: Very  
poorly  
drained/excessively  
drained/somewhat  
excessively drained

Texture (upper):  
mucky peat/loamy  
sand/fine sandy  
loam

Depth to bedrock:  
>80"

Duff/Leaf Litter Depth: 0-2"

Surface stones/boulders:

Hydrology: ☐ Xeric ☐ Mesic, Dry ☐ Mesic ☐ Mesic Wet  
☐ Hydric ☐ Peat/Muck ☐ Inundated/Aquatic

Soil Fertility: ☐ Rich-Calcifitric ☒ Rich-Alluvial ☐ Circumneutral ☒ Acidic ☐ Agricultural

Slope Aspect: ☐ N ☐ NE ☐ E ☐ SE ☐ S ☐ SW ☐ W ☐ NW ☐ Flat

Slope: ☐ Flat <5% ☒ Gentle (5-10%) ☒ Average(10-20%) ☐ Rather Steep(20-30%)  
☐ Steep (30-45%) ☐ Very Steep (45-60%) ☐ Abrupt (>60%)

Surficial Geology:

Check all landforms that apply:

☐ Summit ☐ Upper Slope ☐ Mid Slope ☐ Lower Slope  
☐ Rolling Terrain ☒ Floodplain ☒ Wetland ☐ Shore/Bank  
☐ Drumlin ☐ Ground Moraine ☐ Ridge ☐ Floodplain  
☐ Outwash ☐ Kame Terrace ☐ Esker ☐ Kettle Pond  
☐ Talus ☐ Till ☐ Exposed Bedrock ☐ Floodplain Alluvium  
☐ Sorted Outwash ☒ Coarse Outwash

### 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**) – Red Oak, Beech

☒ Abundant ☐ Present ☐ Absent

Important Upland/Wetland Food Plants (**fruit/berry/seed**)

☐ 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

Number of trees (live or dead) > 30"DBH: 1

Number of trees (live or dead) **impacted** > 30"DBH: 0



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

Impacted	Total	
0	5	6-12" DBH
0	2	12-18" DBH
0	1	18 - 24" DBH
0	0	>24" DBH

Number of tree cavities in trunks or limbs of:

Impacted	Total	
0	0	6-12" diameter (e.g., tree swallow, saw whet owl, screech owl, bluebird, other songbirds)
0	0	12-18" diameter (e.g., hooded merganser, wood duck, common goldeneye, mink)
0	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)

IMPORTANT HABITAT CHARACTERISTICS (if present, describe & 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

Verticle sandy banks (bank swallow, kingfisher) ☐ present ☒ absent

Areas of ice-free open water in winter ☒ present ☐ absent

Groundwater seeps/springs present ☐ present ☒ absent

Mud flats ☐ present ☒ absent

Exposed areas of well-drained, sandy soil suitable for turtle nesting ☐ present ☒ absent

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

Estimated percent of viable upland habitat within 400' of nesting areas: \_\_\_\_\_%

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

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  
☐ Trees suitable as Bald Eagle Habitat (~>30"DBH/supercanopy) Number: \_\_\_\_\_

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 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 wetland 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

**Notes:**

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VERNAL POOLS (if present, describe & quantify them on a separate sheet)

Depressions that may serve as seasonal pools: ☐ present ☐ absent (if absent skip to next section)

Evidence of Inlet or Outlet: ☐ Absent ☐ Present

Evidence of Fishlessness ☐ Absent ☐ Present

Evidence of Breeding activity: ☐ Absent ☐ Present

Vernal pool part of larger complex: ☐ Yes ☐ No

Evidence of Pool Dry: ☐ Absent ☐ Present

Vertical Stratification of Pool Habitat: ☐ None ☐ Poor ☐ Good

Adjacent hummocks, saturated/moss logs: ☐ Absent ☐ Present

Obligate Species Present:

<input type="checkbox"/> Wood Frog	<input type="checkbox"/> Spotted Salamander
<input type="checkbox"/> Marbled Salamander	<input type="checkbox"/> Blue-spotted Salamander
<input type="checkbox"/> Jefferson Salamander	<input type="checkbox"/> Eastern Spadefoot Toad
<input type="checkbox"/> Fairy Shrimp	

☐ Egg masses present Describe: \_\_\_\_\_

☐ Facultative Species Describe: \_\_\_\_\_

Vernal Pool vegetation: ☐ None ☐ Aquatic/emergent ☐ Forb ☐ Shrub ☐ Tree

Estimated Hydroperiod: ☐ Ephemeral ( <2 mo) ☐ Short cycle (2-4 mo) ☐ Long cycle (4-8 mo)

☐ Semi-permanent pond (1-3 years) ☐ Pond

Upland Habitat Viability (w/in 500' of pool):

<input type="checkbox"/> Compromised (<25% remains)
<input type="checkbox"/> Degraded (26-50% remains)
<input type="checkbox"/> Disturbed (51-75% remains)
<input type="checkbox"/> Good (76-99% remains)
<input type="checkbox"/> Undisturbed (100% remains)

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

<input type="checkbox"/> breeding amphibians	<input type="checkbox"/> non-breeding amphibians (foraging, rehydration)
<input type="checkbox"/> turtles	<input type="checkbox"/> foraging waterfowl

**Notes:**

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LACUSTRINE HABITATS (If present, describe & quantify them on a separate sheet)

Bank stability: ☐ Stable <5% eroded ☐ Mod. Stab. 5-30% ☐ Mod. Unstab. 30-60% ☐ Unstab >60%

Bank composition: ☐ Vegetation \_\_\_\_% ☐ Soil/mud \_\_\_\_% ☐ Rocky \_\_\_\_% ☐ Other \_\_\_\_%

Vegetative protection (bank): ☐ >90% native ☐ 70-90% native ☐ 50-70% native ☐ <50% native

Riparian zone width (natural): ☐ >60 feet ☐ 60-40 feet ☐ 40-20 feet ☐ <20 feet

Bordering habitats: ☐ Emergent wetland ☐ Forested wetland ☐ Upland forest ☐ Developed  
☐ Grassland ☐ Wet meadow ☐ Early success. ☐ Other

Trophic classification: ☐ Oligotrophic ☐ Mesotrophic ☐ Eutrophic

Estimated average width of littoral zone: \_\_\_\_\_ ft.

Water source: ☐ Streams ☐ Groundwater ☐ Surface runoff ☐ Artificial

Discharge: ☐ Streams ☐ Groundwater ☐ Artificial

Basin status: ☐ Water fills basin ☐ >75% full ☐ 75-25% full ☐ <25% full

Algae cover: ☐ <25% ☐ 25-50% ☐ 50-75% ☐ >75%

Emergent plant cover: ☐ <25% ☐ 25-50% ☐ 50-75% ☐ >75%

SAV cover: ☐ <25% ☐ 25-50% ☐ 50-75% ☐ >75%

Evidence of wildlife: ☐ Fish ☐ Turtles ☐ Waterfowl ☐ Mammals

Human disturbance: ☐ In-lake structures ☐ Beaches ☐ Bank disturbance ☐ Recreation

**Notes:**

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RIVERINE HABITATS (If present, describe & quantify them on a separate sheet)

Duration: ☒ Perennial ☐ Intermittent

Gradient: ☒ Low ☐ Moderate ☐ High

Epifaunal substrate/cover (woody debris, undercut banks, etc.): ☐ >70% ☐ 70-40% ☐ 40-20% ☒ <20%

Substrate: ☒ Boulders \_\_3\_\_% ☐ Cobbles \_\_\_\_% ☒ Gravel \_\_10\_\_% ☒ Sand \_\_5\_\_%  
☐ Woody Deb. \_\_\_\_% ☒ Organics \_\_85\_\_%

Embeddedness (extent to which gravel, cobbles, etc are embedded in sediment):  
☒ 0-25% ☐ 25-50% ☐ 50-75% ☐ >75%

Velocity depth regime: ☐ All four present ☐ 3 present ☐ 2 present ☒ dominated by 1

In-Stream Habitats: ☐ Riffle \_\_\_\_% ☒ Pool \_\_5\_\_% ☐ Shallow Run \_\_\_\_% ☐ Deep Run \_\_\_\_%

Sediment deposition: ☐ <5% ☐ 5 - 30% ☐ 30 - 50% ☐ >50%

Channel flow status: ☐ Water fills channel ☒ >75% full ☐ 75-25% full ☐ <25% full

Channel alteration: ☐ None ☒ Some (crossings) ☐ Extensive (40-80%) ☐ Majority (>80%)

Frequency of riffles: ☐ Frequent ☐ Infrequent ☐ Occasional ☒ None

Pool substrate: ☐ Mix of gravel, firm sand, roots, SAV ☒ Mix of mud, some roots & SAV ☐ All mud or sand ☐ Bedrock or clay

Pool variability: ☐ Mix of depths & sizes ☐ Large, deep ☐ Shallow ☒ Small, shallow or absent

Channel sinuosity: ☐ Bends increase stream length 3-4 times ☒ Bends increase stream length 1-2 times ☐ Channel straight

Bank stability: ☒ Stable <5% eroded ☐ Mod. Stab. 5-30% ☐ Mod. Unstab. 30-60% ☐ Unstab >60%

Vegetative protection (bank): ☐ >90% native ☐ 70-90% native ☐ 50-70% native ☒ <50% native

Riparian zone width (natural): ☐ >60 feet ☒ 60-40 feet ☐ 40-20 feet ☐ <20 feet

**Notes:**

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#### 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 checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |
| (marsh and waterbirds)                                | 2.0 acres in size?  | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |
|   | 5.0 acres in size?  | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
|   | 10.0 acres in size? | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
| Is the impact area part of a wetland complex at least | 2.5 acres in size?  | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |
| (turtles, frogs, waterfowl, mammals)                  | 5.0 acres in size?  | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |
|   | 10.0 acres in size? | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
|   | 25.0 acres in size? | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |

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

- |  |                    |   |  |
|--|--------------------|---|--|
| (forest interior nesting birds, large mammals)                           | 50 acres in size?  | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |
|  | 100 acres in size? | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |
|  | 250 acres in size? | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
|  | 500 acres in size? | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
| (grassland nesting birds)  | > 1 acre in size?  | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
| (special habitat such as gallery floodplain forest, alder thicket, etc.) | > 1 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 area of habitat (somewhat important for connectivity function)
- ☐ Impact area serves as *part of* a sole connector to adjacent area 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 habitat impacts on 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
- ☒ Disturbance from roads or highways
- ☐ Is the site the only resource area in the vicinity of an otherwise developed area
- ☒ Other human disturbance: development in close proximity



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

## V. Habitat Suitability Checklist (Buffer Zone Areas)

### Forage:

Reptiles	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Amphibians	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Avifauna	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Mammals	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Fish	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent

Notes: \_\_\_\_\_

### Overwintering

Reptiles	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Amphibians	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Avifauna	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Mammals	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Fish	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent

Notes: \_\_\_\_\_

### Breeding/Nesting:

Reptiles	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Amphibians	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Avifauna	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Mammals	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Fish	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent

Notes: \_

### Cover/Shelter

Reptiles	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Amphibians	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Avifauna	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Mammals	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Fish	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent

Notes: \_\_\_\_\_

### Travel/Migratory

Reptiles	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Amphibians	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent
Avifauna	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Mammals	<input type="checkbox"/> None	<input type="checkbox"/> Poor	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Excellent
Fish	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Good	<input type="checkbox"/> Excellent

Notes: \_\_\_\_\_

## Observed and Potential Wildlife

## Herpetiles

<input type="checkbox"/> O	<input type="checkbox"/> P	Woodfrog ( <i>Rana sylvatica</i> )
<input type="checkbox"/> O	<input type="checkbox"/> P	Spring Peeper
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Green Frog
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Bullfrog
<input type="checkbox"/> O	<input type="checkbox"/> P	Pickereel Frog
<input type="checkbox"/> O	<input type="checkbox"/> P	Grey Treefrog
<input type="checkbox"/> O	<input type="checkbox"/> P	American Toad
<input type="checkbox"/> O	<input type="checkbox"/> P	Mole Salamander ( <i>Ambystoma spp.</i> )
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Red backed Salamander
<input type="checkbox"/> O	<input type="checkbox"/> P	Spring Salamander
<input type="checkbox"/> O	<input type="checkbox"/> P	Red Spotted Newt
<input type="checkbox"/> O	<input type="checkbox"/> P	Dusky Salamander
<input type="checkbox"/> O	<input type="checkbox"/> P	Painted Turtle
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Snapping Turtle
<input type="checkbox"/> O	<input type="checkbox"/> P	Spotted Turtle
<input type="checkbox"/> O	<input type="checkbox"/> P	Wood Turtle
<input type="checkbox"/> O	<input type="checkbox"/> P	Box Turtle
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Garter Snake
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Brown Snake
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Milk Snake
<input type="checkbox"/> O	<input type="checkbox"/> P	Green Snake
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Water Snake
<input type="checkbox"/> O	<input type="checkbox"/> P	Eastern Hognose Snake
<input type="checkbox"/> O	<input type="checkbox"/> P	Black Racer

## Mammals

<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Virginia Opossum
<input type="checkbox"/> O	<input type="checkbox"/> P	Short Tailed Shrew
<input type="checkbox"/> O	<input type="checkbox"/> P	Eastern Mole
<input type="checkbox"/> O	<input type="checkbox"/> P	Star Nosed Mole
<input type="checkbox"/> O	<input type="checkbox"/> P	Little Brown Bat
<input type="checkbox"/> O	<input type="checkbox"/> P	Long Eared Bat
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Big Brown Bat
<input type="checkbox"/> O	<input type="checkbox"/> P	Eastern Cottontail
<input type="checkbox"/> O	<input type="checkbox"/> P	Snowshoe Hare
<input checked="" type="checkbox"/> O	<input type="checkbox"/> P	Eastern Chipmunk
<input type="checkbox"/> O	<input type="checkbox"/> P	Red Squirrel
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Grey Squirrel
<input type="checkbox"/> O	<input type="checkbox"/> P	Woodchuck
<input type="checkbox"/> O	<input type="checkbox"/> P	Flying Squirrel
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Beaver
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Deer Mouse
<input type="checkbox"/> O	<input type="checkbox"/> P	White Footed Mouse
<input type="checkbox"/> O	<input type="checkbox"/> P	Meadow Vole
<input type="checkbox"/> O	<input type="checkbox"/> P	Redbacked Vole
<input type="checkbox"/> O	<input type="checkbox"/> P	Woodland Vole
<input type="checkbox"/> O	<input type="checkbox"/> P	Muskrat
<input type="checkbox"/> O	<input type="checkbox"/> P	Meadow Jumping Mouse
<input type="checkbox"/> O	<input type="checkbox"/> P	Porcupine
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Coyote
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Red Fox
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Grey Fox
<input type="checkbox"/> O	<input type="checkbox"/> P	Black Bear
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Raccoon
<input type="checkbox"/> O	<input type="checkbox"/> P	Fisher
<input type="checkbox"/> O	<input type="checkbox"/> P	Ermine
<input type="checkbox"/> O	<input type="checkbox"/> P	Mink
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Striped Skunk
<input type="checkbox"/> O	<input type="checkbox"/> P	River Otter
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	Bobcat
<input type="checkbox"/> O	<input checked="" type="checkbox"/> P	White Tailed Deer
<input type="checkbox"/> O	<input type="checkbox"/> P	Moose

## Avifauna

<input type="checkbox"/>	<input type="radio"/>	P	Great blue heron
<input type="checkbox"/>	<input type="radio"/>	P	Turkey vulture
<input type="checkbox"/>	<input type="radio"/>	P	Canada goose
<input type="checkbox"/>	<input type="radio"/>	P	Mallard
<input type="checkbox"/>	<input type="radio"/>	P	Osprey
<input type="checkbox"/>	<input type="radio"/>	P	Bald eagle
<input type="checkbox"/>	<input type="radio"/>	P	Sharp-shinned hawk
<input type="checkbox"/>	<input type="radio"/>	P	Copper's hawk
<input type="checkbox"/>	<input type="radio"/>	P	Red-tailed hawk
<input type="checkbox"/>	<input type="radio"/>	P	Wild turkey
<input type="checkbox"/>	<input type="radio"/>	P	Killdeer
<input type="checkbox"/>	<input type="radio"/>	P	Ring-billed gull
<input type="checkbox"/>	<input type="radio"/>	P	Herring gull
<input type="checkbox"/>	<input type="radio"/>	P	Rock dove
<input type="checkbox"/>	<input type="radio"/>	P	Morning dove
<input type="checkbox"/>	<input type="radio"/>	P	Barred owl
<input type="checkbox"/>	<input type="radio"/>	P	Common nighthawk
<input type="checkbox"/>	<input type="radio"/>	P	Belted kingfisher
<input type="checkbox"/>	<input type="radio"/>	P	Red-bellied woodpecker
<input type="checkbox"/>	<input type="radio"/>	P	Downy woodpecker
<input type="checkbox"/>	<input type="radio"/>	P	Hairy Woodpecker
<input type="checkbox"/>	<input type="radio"/>	P	Northern flicker
<input type="checkbox"/>	<input type="radio"/>	P	Pileated woodpecker
<input type="checkbox"/>	<input type="radio"/>	P	Eastern wood-peewee
<input type="checkbox"/>	<input type="radio"/>	P	Eastern phoebe
<input type="checkbox"/>	<input type="radio"/>	P	Red-eyed vireo
<input type="checkbox"/>	<input type="radio"/>	P	Blue jay
<input type="checkbox"/>	<input type="radio"/>	P	American crow
<input type="checkbox"/>	<input type="radio"/>	P	Barn swallow
<input type="checkbox"/>	<input type="radio"/>	P	Tree swallow
<input checked="" type="checkbox"/>	<input type="radio"/>	P	Black-capped chickadee
<input checked="" type="checkbox"/>	<input type="radio"/>	P	Tufted titmouse
<input type="checkbox"/>	<input type="radio"/>	P	White-breasted nuthatch
<input type="checkbox"/>	<input type="radio"/>	P	House wren
<input type="checkbox"/>	<input type="radio"/>	P	Eastern bluebird
<input type="checkbox"/>	<input type="radio"/>	P	Wood thrush
<input type="checkbox"/>	<input type="radio"/>	P	American robin
<input type="checkbox"/>	<input type="radio"/>	P	Gray catbird
<input type="checkbox"/>	<input type="radio"/>	P	Northern mockingbird
<input type="checkbox"/>	<input type="radio"/>	P	European starling
<input type="checkbox"/>	<input type="radio"/>	P	Chestnut-sided warbler
<input type="checkbox"/>	<input type="radio"/>	P	Black-throated blue warbler
<input type="checkbox"/>	<input type="radio"/>	P	American redstart
<input type="checkbox"/>	<input type="radio"/>	P	Ovenbird
<input type="checkbox"/>	<input type="radio"/>	P	Song sparrow
<input type="checkbox"/>	<input type="radio"/>	P	Northern cardinal
<input type="checkbox"/>	<input type="radio"/>	P	Red-winged blackbird
<input type="checkbox"/>	<input type="radio"/>	P	Common grackle
<input type="checkbox"/>	<input type="radio"/>	P	House finch
<input type="checkbox"/>	<input type="radio"/>	P	American goldfinch
<input type="checkbox"/>	<input type="radio"/>	P	House sparrow

**Other**

[illegible]



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413-237-6860 Steven@GoddardConsultingLLC.com

## **Steven Riberdy, MS, PWS, CWB, CE, CERP, PSS**

### **Principal Ecologist - Palmer Office Manager**

Mr. Steven Riberdy, has a Masters Degree (M.S.) in Wetland Conservation and Wildlife from UMASS-Amherst and over 24 years' experience in performing wetland, wildlife and rare species work throughout New England for a variety of clients and projects ranging from single family home lots to large parcels over 1,000 acres in size and corridor projects over 30 miles in length. He is a registered Professional Wetland Scientist (PWS), Certified Wildlife Biologist (CWB), Certified Ecologist (CE) and Certified Ecological Restoration Practitioner (CERP), in addition to being an accomplished soil scientist and Professional Soil Scientist (PSS) in Connecticut.

Mr. Riberdy is particularly familiar with rare species and has extensive experience in providing rare species surveys, assessments, habitat management planning, permitting, mitigation and restoration, and is well suited to navigate the complex Massachusetts Endangered Species Act (MESA) regulations and permitting processes. He is familiar with all federal, state and local laws and regulations relative to wetlands and natural resource permitting, having executed hundreds of successful projects over his career.

In 2022, he joined Goddard Consulting after successful careers at Baystate Environmental Consultants, GZA GeoEnvironmental, Inc. and his running his own company (Boghunter Ecological Services, LLC.). Mr. Riberdy's current work at Goddard includes a variety of natural resource projects throughout New England, specifically focusing on rare species and wetlands. Mr. Riberdy manages many of his natural resource projects directly or works as part of a larger team of scientists on larger or multi-phase projects. Mr. Riberdy has designed and conducted numerous endangered species surveys, (both flora and fauna), permitting, planning, and monitoring. Mr. Riberdy has also conducted hundreds of wetland evaluations and permitting efforts throughout the area and has also authored many general wildlife habitat assessments. Mr. Riberdy has attended bat training courses and has conducted many Phase I habitat assessments for federally and locally rare bat species in New England in addition to Phase II acoustic work. Mr. Riberdy is also adept at conducting aquatic surveys and restoration plans for streams and ponds, with skills in identification of aquatic macrophytes, invertebrates and habitats. As a Certified Ecological Restoration Practitioner (CERP), Mr. Riberdy has also designed and oversaw construction of many wetland replication, ecological replication, invasive species management and restoration projects over his career.

Representative project and clients that Mr. Riberdy has worked on in the past and present include:





**Airports:** Numerous locations (Chatham, Bradley, Barnes ANG, Mansfield, Marshfield, Orange, Turners, Sikorsky) conducting wetland and rare species assessments, permitting, Vegetation Management Planning and compliance construction oversight.

**Transmission:** Numerous locations (Eversource, National grid rights of way) conducting wetland and rare species assessments, permitting and construction compliance oversight.

**Transportation:** Numerous locations (CT DOT, MA DOT, Local DPW's) conducting wetland and rare species assessments, mitigation design rare species permitting and construction compliance oversight for many roadway construction projects.

**Solar:** Numerous clients and locations, conducting wetland delineation, permitting, rare species surveys and permitting for solar sites from 5 acres to 50 acres.

**Municipal/State:** Mr. Riberdy has worked for many conservation commissions, DPW's for a variety of projects include dam rehabilitations, culvert replacement, roadway work, state and municipal development, trail planning, land re-use planning.

**Developers:** Mr. Riberdy has worked with many developers on hundreds of development sites across New England on projects ranging from single family homes to residential subdivisions to commercial/industrial sites. Mr. Riberdy has conducted the initial assessment and wetland delineation to permitting and following up with construction oversight and long-term monitoring when required.

**Rare Species:** Mr. Riberdy has extensive experience with most "common" rare species encountered on projects and is well versed in all rare species at the habitat assessment level. Notable rare species which Mr. Riberdy has extensive experience includes wood turtle, box turtle, spotted turtle, Blanding's turtle, hog nose snake, eastern rat snake, worm snake, spadefoot toad, blue spotted / Jefferson salamanders, marbled salamanders, grassland birds, tiger beetles, lepidoptera (moths and butterflies) and many of the region's rare plants.

Education: Masters Degree, Wetland and Wildlife Conservation – UMASS Amherst – 2010  
Bachelors Degree, Environmental Science – Westfield State University – 2000

Certifications: Professional Wetland Scientist (PWS)  
Certified Wildlife Biologist (CWB)  
Certified Ecologist (CE)  
Certified Ecological Restoration Practitioner (CERP)  
Professional Soil Scientist (PSS)  
OSHA 10-HR construction training