



## **Critical Issues Analysis**

Ebbeling Parcel BESS Project,  
Charlton, Massachusetts

November 27, 2023

Prepared for:

SDG BESS, LLC  
2250 Lucien Way, Suite 305  
Maitland, Florida 32751

Prepared by:

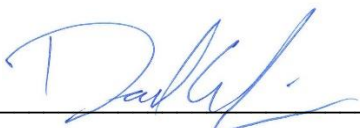
Stantec Consulting Services Inc.  
136 West Street, Suite 203  
Northampton, Massachusetts 01060

## Sign-off Sheet

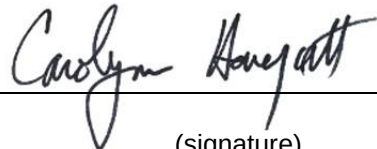
This document entitled Critical Issues Analysis was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of SDG BESS, LLC (the "Client"). The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others.

Prepared by   
(signature)

**RoseErin Moylan, Environmental Scientist**

Reviewed by   
(signature)

**Daniel Nein, Senior Associate / Biologist**

Approved by   
(signature)

**Carolynn Honeycutt, Project Manager**

## Table of Contents

|                                                                               |            |
|-------------------------------------------------------------------------------|------------|
| <b>ABBREVIATIONS .....</b>                                                    | <b>III</b> |
| <b>1.0 INTRODUCTION AND SITE DESCRIPTION .....</b>                            | <b>1.1</b> |
| <b>2.0 KEY FINDINGS.....</b>                                                  | <b>2.1</b> |
| <b>3.0 ENVIRONMENTAL EVALUATION .....</b>                                     | <b>3.1</b> |
| 3.1 CURRENT LAND USE .....                                                    | 3.1        |
| 3.2 SURROUNDING LAND USES .....                                               | 3.1        |
| 3.3 THREATENED AND ENDANGERED SPECIES AND PRIORITY HABITATS .....             | 3.2        |
| 3.3.1 Regulatory Background.....                                              | 3.2        |
| 3.3.2 Resource Evaluations and Considerations .....                           | 3.3        |
| 3.4 PARKS AND NATURAL AREAS .....                                             | 3.8        |
| 3.5 CULTURAL RESOURCES .....                                                  | 3.8        |
| 3.5.1 Regulatory Background.....                                              | 3.8        |
| 3.5.2 Resource Evaluations and Considerations .....                           | 3.9        |
| 3.6 FLOODPLAINS .....                                                         | 3.11       |
| 3.6.1 Regulatory Background.....                                              | 3.11       |
| 3.6.2 Resource Evaluations and Considerations .....                           | 3.12       |
| 3.7 WETLANDS AND WATERWAYS.....                                               | 3.12       |
| 3.7.1 Regulatory Background.....                                              | 3.12       |
| 3.7.2 Resource Evaluations and Considerations .....                           | 3.13       |
| 3.8 SOILS - STEEP SLOPES, HIGHLY ERODIBLE SOILS, CHEMICAL<br>PROPERTIES ..... | 3.13       |
| 3.9 GEOLOGIC OR SEISMIC HAZARDS.....                                          | 3.1        |
| 3.10 OTHER NOTABLE ENCUMBRANCES .....                                         | 3.1        |
| 3.10.1 Existing Oil, Gas and Electrical Transmission infrastructure .....     | 3.1        |
| 3.10.2 Department of Defense Interests.....                                   | 3.2        |
| 3.10.3 Tribal Lands .....                                                     | 3.2        |
| 3.11 KNOWN TOXIC OR HAZARDOUS WASTE.....                                      | 3.2        |
| 3.11.1 Regulatory Background.....                                             | 3.2        |
| 3.11.2 Resource Evaluations and Considerations .....                          | 3.3        |
| 3.12 OTHER ENVIRONMENTAL REGULATIONS .....                                    | 3.3        |
| 3.12.1 Regulatory Background.....                                             | 3.3        |
| 3.13 ZONING AND LOCAL PERMITTING.....                                         | 3.4        |
| 3.13.1 Regulatory Background.....                                             | 3.4        |
| <b>4.0 PERMITTING MATRIX.....</b>                                             | <b>4.5</b> |
| <b>5.0 REFERENCES.....</b>                                                    | <b>1</b>   |

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Table of Contents

November 27, 2023

## **LIST OF TABLES**

|           |                                                                                                |      |
|-----------|------------------------------------------------------------------------------------------------|------|
| Table 2-1 | Key Findings for the Project .....                                                             | 2.1  |
| Table 3-1 | Land Cover of the Project Site.....                                                            | 3.1  |
| Table 3-2 | Threatened and Endangered Species with the Potential to Occur<br>Within the Project.....       | 3.5  |
| Table 3-3 | Previously Recorded Cultural Resources within 1-Mile of the Project<br>Boundary .....          | 3.9  |
| Table 3-5 | Soil Types Within the Project.....                                                             | 3.14 |
| Table 4-1 | Federal, State, and Local Permitting and Consultations for<br>Construction and Operation ..... | 4.6  |

## **FIGURES**

- Figure 1 Project Location
- Figure 2 Project Location – Aerial Photograph
- Figure 3 USGS 2021 National Land Cover Database
- Figure 4 Natural Resources Mapping
- Figure 5 NRCS Soil Survey Mapping
- Figure 6 Local Land Use and Zoning

## **APPENDICES**

- Appendix A: IPaC Species Review
- Appendix B: NHESP Rare Species Viewer Review

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Abbreviations

November 27, 2023

## **Abbreviations**

|         |                                                                    |
|---------|--------------------------------------------------------------------|
| ACEC    | Area of Critical Environmental Concern                             |
| BESS    | Battery Energy Storage System                                      |
| BGEPA   | Bald and Golden Eagle Protection Act                               |
| BWSC    | Bureau of Waste Site Cleanup                                       |
| CERCLA  | Comprehensive Environmental Response, Compensation & Liability Act |
| CIA     | Critical Issues Analysis                                           |
| CFR     | Code of Federal Regulations                                        |
| CMR     | Code of Massachusetts Regulations                                  |
| CWA     | Clean Water Act                                                    |
| DPU     | Massachusetts Department of Public Utilities                       |
| EFSB    | Massachusetts Energy Facilities Siting Board                       |
| EIA     | U.S. Department of Energy, Energy Information Administration       |
| ESA     | Endangered Species Act                                             |
| FEMA    | Federal Emergency Management Agency                                |
| IPaC    | Information for Planning and Consultation                          |
| kV      | Kilovolt                                                           |
| MACRIS  | Massachusetts Cultural Resource Information System                 |
| MassDEP | Massachusetts Department of Environmental Protection               |
| MBTA    | Migratory Bird Treaty Act                                          |
| MEPA    | Massachusetts Environmental Policy Act                             |
| MESA    | Massachusetts Endangered Species Act                               |
| MHC     | Massachusetts Historical Commission                                |
| MW      | Megawatt                                                           |
| NCP     | National Contingency Plan                                          |

**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Abbreviations

November 27, 2023

|         |                                                             |
|---------|-------------------------------------------------------------|
| NHESP   | Massachusetts Natural Heritage & Endangered Species Program |
| NHPA    | National Historic Preservation Act                          |
| NOI     | Notice of Intent                                            |
| NPDES   | National Pollutant Discharge Elimination System             |
| NRCS    | Natural Resources Conservation Service                      |
| NRHP    | National Register of Historic Places                        |
| NWI     | National Wetland Inventory                                  |
| RCRA    | Resource Conservation and Recovery Act                      |
| ROW     | Right-of-way                                                |
| Stantec | Stantec Consulting Services Inc.                            |
| SWPPP   | Stormwater Pollution Prevention Plan                        |
| USACE   | United States Army Corps of Engineers                       |
| USEPA   | United States Environmental Protection Agency               |
| USFWS   | United States Fish and Wildlife Service                     |
| USGS    | United States Geological Survey                             |
| WPA     | Massachusetts Wetlands Protection Act                       |

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Introduction and Site Description

November 27, 2023

# **1.0 INTRODUCTION AND SITE DESCRIPTION**

Stantec Consulting Services Inc. (Stantec) performed a Critical Issues Analysis (CIA) for the proposed Battery Energy Storage System (BESS) Project (Project) on the Ebbeling parcel in Charlton, Worcester County, Massachusetts. This work was performed according to the proposal prepared by Stantec on October 3, 2023; and the Professional Services Agreement and Terms and Conditions accepted by SDG BESS, LLC on October 4, 2023.

This report identifies and evaluates critical permitting and development issues that would require special attention during surrounding the proposed project to support the project design process for the proposed BESS. Additionally, this CIA identified a permitting matrix of required discretionary approvals from local, state, federal and/or tribal authorities.

The findings and recommendations detailed in this CIA were developed based on desktop review of publicly available information completed for the CIA within the project boundary as provided by SDG BESS, LLC. Project specific design information was not provided by SDB BESS, LLC at the time of the CIA preparation.

SDG BESS, LLC is proposing to develop a BESS project on private land encompassing approximately 51 acres within Charlton, Massachusetts (Figures 1 and 2). The site is located approximately 1 mile west of the town center of Charlton and 1.5 miles south of the Massachusetts Turnpike. Carpenter Hill Road borders the northwest corner of the site.

## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Introduction and Site Description

November 27, 2023

## 2.0 KEY FINDINGS

A summary of the key findings of the CIA are provided in Table 2-1 and are color-coded to represent the potential level of the resource constraint, according to the following criteria.

- **No Constraints (Green)** – anticipated low risk for the resource area general coordination and documentation of resources will likely be minimal.
- **Potential Constraints (Yellow)** – anticipated medium risk for the resource area. Medium risk issues generally will require more complex coordination and documentation of resources for the project. Additional studies or permits may require up to or over a year for completion.
- **Significant Constraints (Red)** – anticipated high-risk items that potentially threaten the development of the project.

The findings and recommendations summarized reflect Stantec's professional judgement and are based on conditions and information existing at the time the CIA was prepared. Detailed evaluations of each resource area summarized in Table 2-1 are provided in the respective resource section of the CIA and are depicted on Figures 1-6 of the report. Figure 4 generally depicts the overall constraints and the potential buildable area on the Project.

**TABLE 2-1 KEY FINDINGS FOR THE PROJECT**

| Resource                                                | Finding                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Threatened and Endangered Species and Critical Habitats | Priority Habitat is mapped for state-listed wildlife and/or plants in the right-of-way along the northern site boundary. Activities located within Priority Habitat require filing a Massachusetts Endangered Species Act Review. One federally endangered species, one candidate species, two state threatened, and species of special concern may have potential habitat at the site. |
| Protected Open Space and Natural Areas                  | There are no open space or natural areas or public lands within 500 feet of the site.                                                                                                                                                                                                                                                                                                   |
| Cultural Resources                                      | There are no identified cultural resources within the site. Twenty-eight historic resources are within a 1-mile radius of the Project site, with the nearest one over 1,400 feet away.                                                                                                                                                                                                  |
| Floodplains                                             | The Project area does not overlap with mapped floodplains.                                                                                                                                                                                                                                                                                                                              |



**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Introduction and Site Description

November 27, 2023

| Resource                               | Finding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wetlands and Streams                   | <p>Jurisdictional wetlands or streams may be present on site. National Wetlands Inventory (NWI) identified an approximately 0.5 acre freshwater forested/shrub wetland on-site. MassMapper identified a hydrologic connection in the northwest portion of the site. A formal wetland delineation should be completed to determine the location, type, and extent of wetlands and streams, at the site. If work is proposed within 100 feet of a wetland, the project will require a Notice of Intent filing with the Charlton Conservation Commission.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Steep Slopes and Highly Erodible Soils | <p>Most soil types are classified as not prime farmland (98.9% of the site), with one soil type (1.1%) classified as prime farmland.</p> <p>The soils within 15.5% of the site are classified as predominantly hydric or water. The remaining 84.5% are listed as predominantly non-hydric or non-hydric. A formal wetland delineation should be completed to determine the location, type, and extent of wetlands and streams.</p> <p>Soils within 1.1% of the site have a water table depth of 61 centimeter, and 15.1% of soils have a water table depth of 8 centimeters.</p> <p>Soils within 24.9% of the site have a depth to restrictive feature of 0 centimeters.</p> <p>41.1% of soils within the site are rated as highly corrosive of steel, and 58.5% of the soils have a moderately corrosive rating. 24.9% of soils within the Project are rated as highly corrosive of concrete, and 74.7% have a moderately corrosive rating. Site specific geotechnical evaluations, including corrosion of steel, would be appropriate to guide facility and footing design.</p> <p>Steep slopes, represented by 7% or greater slopes, represent 44.9% of the Project.</p> |
| Geologic or Seismic Hazards            | <p>Nine earthquakes of magnitude 2.5 or greater have been recorded within the past 30 years within 50 miles of the site. The site is located in seismic design category B, indicating that it could experience shaking of moderate intensity.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Introduction and Site Description

November 27, 2023

| Resource                        | Finding                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Other Notable Encumbrances      | There are two connected active natural gas transmission pipelines and one electric substation within one mile of the site. One electrical power line right-of-way runs along the northern boundary of the site, and another is located within the site.                                                                                                                                      |
| Known Toxic and Hazardous Waste | This desktop review did not identify any reports of state emergency response incidents concerning oil and/or hazardous materials in close proximity to the site. There are no federal hazardous waste or remediation sites present.                                                                                                                                                          |
| Zoning and Permitting           | The Project site is zoned as Agriculture (A) and commercial energy storage with greater than 250 kilowatts, but less than 5 megawatts of output is considered a prohibited use. Consultation with Town Planning Board recommended. Alternatively, consider an exemption from local zoning bylaws request to the Massachusetts Department of Public Utilities if filing requirements are met. |

## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Environmental Evaluation

November 27, 2023

# 3.0 ENVIRONMENTAL EVALUATION

## 3.1 CURRENT LAND USE

Land use/land cover within the site was obtained from the National Land Cover Database. The majority consists of mixed forest (28.3 acres, 60.11%), evergreen forest (13.1 acres, 27.9%), and deciduous forest (3.6 acres, 7.6%). The remainder consists of hay/pasture, woody wetland, and low intensity development (2.1 acres, 4.4%). The land use cover mapping is depicted on Figure 3 and is summarized below in Table 3-1.

**TABLE 3-1 LAND COVER OF THE PROJECT SITE**

| Cover Type               | Acres       | %           |
|--------------------------|-------------|-------------|
| Deciduous Forest         | 3.6         | 7.6%        |
| Developed, Low Intensity | 0.5         | 1.1%        |
| Evergreen Forest         | 13.1        | 27.9%       |
| Hay/Pasture              | 1.0         | 2.2%        |
| Mixed Forest             | 28.3        | 60.1%       |
| Woody Wetlands           | 0.5         | 1.1%        |
| <b>Total</b>             | <b>47.1</b> | <b>4.4%</b> |

## 3.2 SURROUNDING LAND USES

Based on a review of the aerial imagery, surrounding properties primarily consist of forested areas with scattered residences, small industrial areas, and a solar facility. The site is associated with two electrical power line right-of-ways (ROW). Multiple residential homes are adjacent to the west, with one residence inside the Project site. Low density housing, multi-family homes, a senior living facility, and the town center are located within one mile of the site. Prindle Lake is located approximately 0.5 miles to the south, and Heritage Country Club is located greater than 5 miles to the west. Light industrial operations occur to the north and west, including a medical supply manufacturer, a power substation, and a property owned by a gas pipeline.

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Environmental Evaluation

November 27, 2023

# **3.3 THREATENED AND ENDANGERED SPECIES AND PRIORITY HABITATS**

## **3.3.1 Regulatory Background**

### **3.3.1.1 Federal**

#### **Endangered Species Act**

Pursuant to the Federal Endangered Species Act (ESA) of 1973, the United States Fish and Wildlife Service (USFWS) has authority over projects that may result in take of a species listed as threatened or endangered under the Act. Under the ESA, the definition of “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct”. Under federal regulations, take is further defined to include habitat modification or degradation that results, or is reasonably expected to result, in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. If any likelihood exists that a non-federal project would result in take of a federally listed species, an incidental take permit, under Section 10(a) of the ESA must be obtained from the appropriate federal agency before the project may proceed. Under the ESA, the USFWS oversees the listing and protection of all terrestrial animals and plants as well as freshwater fish.

In general, persons subject to the ESA (including private parties) are prohibited from “taking” endangered or threatened fish and wildlife species on private property, and from “taking” endangered or threatened plants in areas under Federal jurisdiction or in violation of state law.

If there is a federal nexus for the Project (i.e., United States Army Corps of Engineers [USACE] Section 401 or 404 permitting), SDG BESS, LLC may need to consult with the USFWS regarding potential impacts to protected species under Section 7 of the ESA. If impacts to waters of the United States (U.S.) (federally jurisdictional wetlands or waterbodies) are avoided and no other federal nexus exists for the Project, a formal consultation under Section 7 of the ESA is not required (United States 1983). Instead, Section 10 consultation would be required if incidental take of federal endangered or threatened species is likely to occur. The USFWS Ecological Services Field Office in Concord, New Hampshire is the regional office responsible for project reviews for impacts to federally protected species in New England.

#### **Migratory Bird Treaty Act**

On October 4, 2021, a final rule revoking the January 7, 2021, regulation that limited the scope of the Migratory Bird Treaty Act (MBTA) was published (86 FR 54642). With this revocation, the MBTA will again prohibit incidental take and USFWS will have enforcement discretion. The rule went into effect on December 3, 2021. USFWS simultaneously published an advance notice of proposed rulemaking to authorize the incidental take of migratory birds, including determining when, to what extent, and by what means it is consistent with the MBTA (86 FR 54667).

#### **The Bald and Golden Eagle Protection Act**

## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

The Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668) prohibits take and disturbance of individuals and nests. Take permits for birds or body parts are limited to religious, scientific, or falconry pursuits. With the 2007 removal of bald eagle from the ESA list of threatened and endangered species, USFWS issued new regulations to authorize the limited take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) under the BGEPA, where the take to be authorized is associated with otherwise lawful activities. A final Eagle Permit Rule was published on September 11, 2009 (74 FR 46836–46879; 50 Code of Federal Regulations (CFR) 22.26).

USFWS issued the Eagle Conservation Plan Guidance (Eagle Guidance) intended to assist parties to avoid, minimize, and mitigate adverse effects on bald and golden eagles. The Eagle Guidance calls for scientifically rigorous surveys, monitoring, assessment, and research designs proportionate to the risk to eagles. The Eagle Guidance describes a process by which developers can collect and analyze information that could lead to a programmatic permit to authorize unintentional take of eagles.

### 3.3.1.2 State

The Massachusetts Division of Fisheries and Wildlife's Natural Heritage & Endangered Species Program (NHESP) designates species for the state's lists of endangered, threatened, and special concern species and their habitat under the Massachusetts Endangered Species Act (MESA) regulations (321 Code of Massachusetts Regulations [CMR] 10.00). There are over 400 state-listed species in Massachusetts, which includes those species listed as Special Concern, Threatened or Endangered. MESA prohibits the take<sup>1</sup> of plants and animals listed as endangered, threatened, or special concern. The NHESP maps Priority Habitat based on the known geographical extent and biological requirements for verified observations of state-listed species within the last 25 years (observations older than 25 years are not subject to MESA). Priority Habitat mapping is published in the Massachusetts Natural Heritage Atlas and is reevaluated every four years by the NHESP. Proposed projects within mapped Priority Habitat must prepare a MESA Project Review Checklist to file with the NHESP for review and approval to ensure compliance with MESA. A filing fee of \$300 to \$4000 is required based on area of disturbance, and determinations are made within 90 days. Project proposals which are found to result in take and cannot be redesigned to avoid a take will require filing an application for a Conservation & Management Permit. To be eligible for a Permit, the project as proposed must avoid, minimize, and mitigate impacts to state-listed species through additional performance standards. Projects that must be reviewed under both MESA and the Massachusetts Wetlands Protection Act (WPA) may file a Streamlined Notice of Intent to address each set of regulations.

### 3.3.2 Resource Evaluations and Considerations

To evaluate the potential for federally listed species presence on-site, Stantec used the USFWS Information for Planning and Construction (IPaC) tool to request an official species list for the site (USFWS 2023a). The

---

<sup>1</sup> "Take" as defined by MESA (321 CMR 10.02) in reference to animals, means to harass, harm, pursue, hunt, shoot, hound, kill, trap, capture, collect, process, disrupt the nesting, breeding, feeding or migratory activity or attempt to engage in any such conduct, or to assist such conduct, and in reference to plants, means to collect, pick, kill, transplant, cut or process or attempt to engage or to assist in any such conduct. Disruption of nesting, breeding, feeding or migratory activity may result from, but is not limited to, the modification, degradation or destruction of Habitat. Available at: <https://www.mass.gov/law-library/321-cmr>.

## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

official species list reported the federally endangered species northern long-ear bat (*Myotis septentrionalis*) and candidate for federal listing monarch butterfly (*Danaus plexippus*). A copy of the USFWS official species list is provided in Appendix A.

One NHESP Priority Habitat is mapped within the site, associated with the electrical ROW on the northern boundary (Figure 4). To evaluate the potential for state-listed species presence within Priority Habitat mapped on-site, Stantec reviewed the NHESP Rare Species Viewer which lists current and historical observations of state-listed species per town (NHESP 2023b). In Charlton there are observations within the last 25 years for two threatened species (American bittersweet, marbled salamander) and two species of special concern (sand violet, wood turtle). The Rare Species Viewer results (Appendix B) include Adder's tongue fern (*Ophioglossum pusillum*) is state-listed as Threatened and documented in Charlton, but was last observed in 1933 and older than 25 years; therefore, this observation is subject to MESA unless rediscovered in the future and confirmed by the NHESP. Based on NHESP data, the nearest known northern long-eared bat hibernacula is located eight miles to the southwest of the Project (NHESP 2019).

Table 3-2 includes a summary of the species identified, their habitat preferences, and a determination on the likelihood that each of the identified species' habitat will be present within the site. Of the twelve species reported in the IPaC and MESA lists, nine species may have potential suitable habitat present within the Project site.

**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Environmental Evaluation

November 27, 2023

**TABLE 3-2 THREATENED AND ENDANGERED SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE PROJECT**

| Species                 | Scientific Name               | Federal/<br>State<br>Status | Preferred Habitat                                                                                                                                                                                            | Potential Occurrence within the Project                                                                                                                                                                                                                      |
|-------------------------|-------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mammals</b>          |                               |                             |                                                                                                                                                                                                              |                                                                                                                                                                                                                                                              |
| Northern Long-eared Bat | <i>Myotis septentrionalis</i> | FE/SE                       | Roosts in trees during summer; forages in forest interiors and forest edges near grasslands and agricultural fields, and over wetlands; hibernates in caves and abandoned mines during winter                | <b>Potential suitable habitat present.</b><br>The Project contains trees that may serve as summer roosting habitat. The closest observed northern long-eared bat hibernacula is located eight miles to the southwest.                                        |
| Tricolored Bat          | <i>Perimyotis subflavus</i>   | PE/SE                       | During non-winter months, primarily roost in dead leaf clusters of deciduous trees, although they have also been observed roosting amongst the foliage of evergreen trees, artificial structures, and caves. | <b>Potential suitable habitat present.</b><br>The Project contains trees that may serve as summer roosting habitat. The Project contains trees that may serve as summer roosting habitat. Worcester County is located with the current range of the species. |
| <b>Reptiles</b>         |                               |                             |                                                                                                                                                                                                              |                                                                                                                                                                                                                                                              |
| Wood Turtle             | <i>Gleptemys insculpta</i>    | --/SSC                      | Slow moving mid-sized streams with sandy bottoms and heavily vegetated banks, and mixed or deciduous forests, fields, and wetlands.                                                                          | <b>Potential suitable habitat present.</b><br>There is a hydrologic connection in the northwest and Priority Habitat associated with the ROW in the north which could potentially meet the habitat requirements of wood turtles.                             |
| <b>Amphibians</b>       |                               |                             |                                                                                                                                                                                                              |                                                                                                                                                                                                                                                              |
| Marbled Salamander      | <i>Ambystoma opacum</i>       | --/ST                       | Adults inhabit relatively mature deciduous and mixed forests. Breeding occurs in vernal pools, woodland pools, and swamps.                                                                                   | <b>Potential suitable habitat present.</b><br>The wooded area within the Project site could potentially contain suitable breeding and non-breeding habitat.                                                                                                  |

### CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Environmental Evaluation

November 27, 2023

| Insects              |                           |        |                                                                                  |                                                                                                                                                  |
|----------------------|---------------------------|--------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Monarch Butterfly    | <i>Danaus plexippus</i>   | C/--   | Breeds in patches of milkweed in North America and migrates to Mexico in winter. | <b>Potential suitable habitat present.</b><br>Milkweed can grow in a variety of habitats, including along ROWs and road edges.                   |
| Flowering Plants     |                           |        |                                                                                  |                                                                                                                                                  |
| American bittersweet | <i>Celastrus scandens</i> | --/ST  | Open to patchy light conditions in woodland edges, thickets, and roadsides.      | <b>Potential suitable habitat present.</b><br>The ROWs and/or Priority Habitat associated with this site could potentially contain this species. |
| Sand Violet          | <i>Viola adunca</i>       | --/SSC | Areas with a history of vegetation disruption and soil exposure.                 | <b>Potential suitable habitat present.</b><br>The ROWs and/or Priority Habitat associated with this site could potentially contain this species. |

FE = federally endangered, PE = proposed federally endangered, FT = federally threatened, PT = proposed federally threatened, C = candidate for federal listing, SE = state endangered, ST = state threatened, SSC = state species of special concern,



## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

**Implications:** Based on a review of publicly available data, the northern long-eared bat, wood turtle, marbled salamander, monarch butterfly, American bittersweet, and sand violet have potential suitable habitat present within the Project site. Three of these species (monarch butterfly, American bittersweet, and sand violet) are primarily associated with the potentially open, scrubby habitat and forest edges of the ROWs in the Project site. The majority of the site is forested, which could potentially provide habitat for northern long-eared bats, wood thrush, and marbled salamander. If vernal pools or ephemeral wetlands are present on-site, this could provide breeding habitat for the marbled salamander. According to MassMapper, there is a hydrologic connection in the northwest portion of the site which could potentially be suitable habitat for wood turtles, and along with the forest edges, may potentially create foraging habitat for the northern long-eared bat.

In addition to the species listed above, the tricolored bat has been added to the Table 3-2, although it was not included on the IPac or MESA lists. With Stantec's extensive experience with this bat, and closely following the proposed listing as an endangered species under the ESA that could be finalized in the near future, we have evaluated this species habitat presence in the likelihood that the proposed tricolored bat listing is finalized prior to the construction of the Project. The forested land cover discussed above is also suitable habitat for the tricolored bat.

An on-site habitat assessment is necessary to confirm if suitable habitat for threatened and endangered species within the Project site. Coordination with USFWS and MESA is recommended to better understand the occurrence records for federal or state-listed threatened or endangered species and the suitability of the habitat present within the Project area for those species. Site-specific presence/absence surveys may be warranted if agency consultation efforts indicate the potential presence of threatened and endangered species and if Project impacts are anticipated. If there is a federal nexus for the project (i.e., USACE Section 401 permitting), a consultation with the USFWS regarding potential impacts to protected species as per Section 7 of the ESA may occur as part of the federal permitting process. If federally listed wildlife species are determined to be present on the site and impacts cannot be avoided, SDG BESS, LLC will be required to apply for an incidental take permit through the USFWS, and/or develop a Habitat Conservation Plan to minimize and mitigate harm to the impacted species during the proposed Project as per Section 10 of the ESA. Regardless of whether a federal nexus is avoided or not, it is illegal under the ESA to take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) a federally listed species during the construction or operation of an infrastructure project.

An approximately 3.1-acre area in the northeast section of the site which overlaps with a powerline ROW is mapped as Priority Habitat subject to MESA (Figure 4). If non-exempt activities are proposed within this area, a MESA Project Review Checklist must be filed with the NHESP prior to on-site activities. If, during the course of regulatory review it is determined the Project would result in take, the project would need to be redesigned to avoid a take or be conditioned by NHESP to avoid a take in compliance with state and/or federal regulations (e.g., timing restrictions, habitat protection/management, etc.). Projects that result in a take may move forward if they that meet the performance standards to be eligible for a Conservation and Management Permit (CMP, 321 CMR 10.23). Performance standards for eligibility to receive a CMP include:

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

1. The applicant has adequately assessed alternatives to both temporary and permanent impacts to state-listed species;
2. An insignificant portion of the local population would be impacted by the project or activity, and;
3. The applicant agrees to carry out a conservation and management plan that provides a long-term Net Benefit to the conservation of the state-listed species. The applicant may propose various options for "Net Benefit" which may include, but are not limited to, one or more of the following:
  - on or off-site permanent habitat protection
  - management or restoration of state-listed species habitat
  - conservation research designed to benefit the species affected by a given project.

### **3.4 PARKS AND NATURAL AREAS**

Protected public lands, including parks and natural areas, owned, or managed by federal, state, or local agencies, or under additional protection, were researched within a 1-mile buffer of the site using publicly available GIS layers. There are no natural areas, parks, or public lands within the Project site. The Heritage Country Club, Gay West Farm, and three town parks are located within one mile of the Project site. Gay West Farm is located approximately 1,000 feet to the north within active agricultural lands.

**Implications:** There are no anticipated restrictions based on protected public lands relative to the site.

### **3.5 CULTURAL RESOURCES**

#### **3.5.1 Regulatory Background**

##### **3.5.1.1 Federal**

The National Historic Preservation Act of 1966 (NHPA), as amended, established the National Register of Historic Places (NRHP), which contains an inventory of the nation's significant prehistoric and historic properties. Under 36 CFR 60, a property is recommended for possible inclusion on the NRHP if it is at least 50 years old, has integrity, and meets one of the following criteria:

- It is associated with significant events in history, or broad patterns of events.
- It is associated with significant people in the past.
- It embodies the distinctive characteristics of an architectural type, period, or method of construction; or it is the work of a master or possesses high artistic value; or it represents a significant and distinguishable entity whose components may lack individual distinction.
- It has yielded, or may yield, information important in history or prehistory.

Certain types of properties are usually excluded from consideration for listing in the NRHP, but they can be considered if they meet special requirements in addition to meeting the criteria listed above. Such properties include religious sites, relocated properties, graves and cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Environmental Evaluation

November 27, 2023

### 3.5.1.2 State

The Massachusetts Historical Commission (MHC) maintains the Massachusetts Cultural Resource Information System (MACRIS). MACRIS includes records compiled from the Inventory of Historic Assets of the Commonwealth, National Register of Historic Places nominations, State Register of Historic Places listings, and study reports of local historic districts (MHC 2023). Section 106 of the NHPA requires that projects with federal involvement, such as receiving a federal permit, consider historic preservation. As per Massachusetts General Laws Chapter 9, sections 26-27C, all new construction projects must be reviewed by MHC for impact to historic and archeological sites if the project requires funding, licenses, or permits from any state or federal governmental agencies. MHC reviews are guided by the regulations published in 950 CMR 71. These regulations mirror the federal Section 106 regulations; identifying historic properties, assessing effects, and consulting interested parties to avoid, minimize, or mitigate any adverse effects. Initiating an MHC review requires submittal of a Project Notification Form by mail or courier, and response will be given in writing within 30 days of receipt. There is no fee for MHC review. If a project is found to have an adverse effect on a historic property or archeological site, the proponent may be required to submit an analysis of alternatives in order to determine if there are feasible alternatives that would avoid, minimize, or mitigate the adverse effect.

### 3.5.2 Resource Evaluations and Considerations

Stantec reviewed the National Park Service's (NPS) National Register of Historic Places (NRHP) and the MHC's Massachusetts Cultural Resource Information System (MACRIS) databases to identify significant cultural or historic resources that occur within the Project site or within a 1-mile radius. There are no NRHP or MACRIS-listed resources within the Project site.

The NHRP review identified two historic resources within the 1-mile radius of the Project site, the Spur, John, House and the Charlton Center Historic District. The MACRIS review identified 28 historic resources within the 1-mile radius of the Project site including 20 buildings, one cemetery, two plaques, one water tower, one pond, one path, and two fields. Twenty of these resources are located within the Charlton Center Historic District which was inventoried by NRDS in 1995 and are listed on MACRIS as National Register Historic Places. Within the next half mile beyond the 1-mile buffer there are an additional 69 features, 39 of which are also within the Charlton Center Historic District and are listed on MACRIS as National Register Historic Places.

**TABLE 3-3 PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT BOUNDARY**

| Demolished? | MHC #  | Historic Name; Common Name                                               | Address                   | Designations |
|-------------|--------|--------------------------------------------------------------------------|---------------------------|--------------|
|             | CRT.23 | Weld Tavern                                                              | 46 Main St Charlton       | NRDIS (1995) |
|             | CRT.55 | Overlook Hotel - Masonic Home; Massachusetts Grand Lodge<br>Old Age Home | 88 Composite Cir Charlton |              |

**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Environmental Evaluation

November 27, 2023

| Demolished? | MHC #   | Historic Name; Common Name                                          | Address                                                                  | Designations |
|-------------|---------|---------------------------------------------------------------------|--------------------------------------------------------------------------|--------------|
|             | CRT.85  | Charlton District Schoolhouse No. 9                                 | 210 Carpenter Hill Rd Charlton                                           |              |
|             | CRT.96  | Weld, William Tavern - Craig, David House; Craig, David Tailor Shop | 71 Prindle Hill Rd South of 68 Prindle Hill Rd Charlton                  |              |
| Yes         | CRT.101 | Putney, Isiah House                                                 | Tinker Hall Rd Charlton                                                  |              |
|             | CRT.117 | Dexter, William Henry Memorial Town Hall; Charlton Town Hall        | 40 Main St Charlton                                                      | NRDIS (1995) |
|             | CRT.140 | Civil Defense Air Patrol Hut                                        | Dresser Hill Rd Bay Path Cemetery - North of 19 Dresser Hill Rd Charlton | NRDIS (1995) |
|             | CRT.141 | King - Blood Farm House;                                            | 4 Dresser Hill Rd Charlton                                               | NRDIS (1995) |
|             | CRT.142 | Blood, Ernest - Ewing, Bob House                                    | 72 Main St Charlton                                                      | NRDIS (1995) |
|             | CRT.143 | King, Capt. - Blood, Alice House                                    | 68 Main St Charlton                                                      | NRDIS (1995) |
|             | CRT.145 | Federated Church of Charlton Parsonage                              | 62 Main St Charlton                                                      | NRDIS (1995) |
|             | CRT.146 | Federated Church of Charlton                                        | 62 Main St Charlton                                                      | NRDIS (1995) |
| Yes         | CRT.147 | Oliver, Elliot House; Federated Church of Charlton Parking Lot      | Burlingame Rd Charlton                                                   | NRDIS (1995) |
|             | CRT.148 | Weld House                                                          | 58 Main St Charlton                                                      | NRDIS (1995) |
|             | CRT.149 | Touchette, A. House                                                 | 52 Main St Charlton                                                      | NRDIS (1995) |
|             | CRT.167 | Weld House - Garage                                                 | 58 Main St Charlton                                                      | NRDIS (1995) |
|             | CRT.168 | Charlton Little League Field House                                  | Westridge Rd Charlton                                                    | NRDIS (1995) |
|             | CRT.169 | Masonic Home - Barn                                                 | Composite Cir Charlton                                                   |              |
| Yes         | CRT.170 | Masonic Home - Trolley Station                                      | 88 Masonic Home Rd Charlton                                              |              |
|             | CRT.804 | Westridge Cemetery                                                  | Westridge Rd Charlton                                                    | NRDIS (1995) |
|             | CRT.905 | Memorial Field                                                      | Main St Charlton                                                         | NRDIS (1995) |

## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

| Demolished? | MHC #   | Historic Name; Common Name                | Address                  | Designations |
|-------------|---------|-------------------------------------------|--------------------------|--------------|
|             | CRT.906 | Charlton Little League Field              | Main St Charlton         | NRDIS (1995) |
|             | CRT.909 | Charlton Vietnam War Plaque               | 40 Main St Charlton      | NRDIS (1995) |
|             | CRT.910 | Charlton Korean War Plaque                | 40 Main St Charlton      | NRDIS (1995) |
|             | CRT.911 | Charlton Hearse House                     | Dresser Hill Rd Charlton | NRDIS (1995) |
|             | CRT.912 | Masonic Home - Water Tower                | Composite Cir Charlton   |              |
|             | CRT.913 | Charlton Fire Pond                        | Westridge Rd Charlton    | NRDIS (1995) |
|             | CRT.916 | Bay Path - Quaboag Lane - Brookfield Path | Harrington Rd Charlton   |              |

Based on a review of publicly available historical aerial imagery, the Project site and surrounding area is primarily forested with some agricultural land and numerous residential buildings along roads. The Charlton Center Historic District is located approximately 1 mile from the Project site boundary, and contains many historic buildings. The one building which is located within the site appears to have been built between 1997 and 2001, and the two ROWs associated with the Project site were constructed between 1938 and 1966. No other structures were observed in the historical images from 1938 to the present.

**Implications:** The trigger for MHC review is if a project requires funding, licenses, or permits from any state or federal agency. If a federal or state permitting trigger is identified, an MHC review would be required. There are no BESS-specific local or state regulations requiring consideration for historic resources. However, consultation and permitting through the state and federal regulations may trigger the need for MHC review.

## 3.6 FLOODPLAINS

### 3.6.1 Regulatory Background

Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 in response to increasing costs of disaster relief. These acts reduce the need for large publicly funded flood control structures and disaster relief by providing flood insurance and restricting development on floodplains, respectively. The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program, which was created by the National Flood Insurance Act of 1968, to provide subsidized flood insurance for those communities that comply with FEMA regulations. FEMA issues flood insurance rate maps (FIRMs) that delineate flood hazard zones in the community and show which areas

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

are prone to flooding. FEMA established the design standard for flood protection, with the minimum level of flood protection for new development determined to be the 1-in-100 annual exceedance probability event (i.e., the 100-year flood event).

### **3.6.2 Resource Evaluations and Considerations**

Stantec reviewed Federal Emergency Management Agency (FEMA) data to assess if floodplain boundaries or flood hazard areas are within the Project site (FEMA 2023a). There are no mapped FEMA flood zones.

**Implications:** The Project site does not overlap with a FEMA flood zone; therefore, applicable local, state, and federal permit applications are not expected to be required to address FEMA flood zones.

## **3.7 WETLANDS AND WATERWAYS**

### **3.7.1 Regulatory Background**

#### **3.7.1.1 Federal**

##### **Clean Water Act**

Wetlands and other waters of the United States are protected under Section 404 of the Clean Water Act (CWA). Any activity that involves any discharge of dredged or fill material into Waters of the United States (WOTUS), including wetlands, is subject to regulation by the USACE. The USACE has issued General Permits (GP) for Massachusetts that authorizes many activities provided the conditions of the GP can be met. Project activities that result in minor or insignificant wetland or stream impacts may be authorized through the submittal of a Self-Verification Notification Form to the USACE. GP-authorized projects with more substantial wetland or stream impacts require a Pre-Construction Notification to be submitted to the USACE to obtain written approval for the project to proceed. Projects that do not meet the conditions of the GP require an Individual Permit from the USACE. If a permit from USACE is required and certain thresholds are exceeded, then a Water Quality Certification under Section 401 of the CWA will be required from the Massachusetts Department of Environmental Protection (MassDEP) as further described below.

##### **National Pollution Discharge Elimination System**

The National Pollution Discharge Elimination System (NPDES) is a permit program created through the CWA which requires filing a Notice of Intent (NOI) with the U.S. Environmental Protection Agency (EPA) for projects resulting in one or more acres of earth disturbance. When filing an NOI, a Stormwater Pollution Prevention Plan (SWPPP) must also be filed to detail the steps planned to control erosion and sedimentation during project construction. Upon approval of the NOI, the EPA will issue a Construction General Permit which will remain in effect until a Notice of Termination is filed at the close of construction. During the lifespan of the permit, regular SWPPP inspections must be conducted by a trained environmental monitor.

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

### **3.7.1.2 State**

The Commonwealth of Massachusetts regulates impacts to waters of the state through the Massachusetts Wetlands Protection Act regulations (310 CMR 10.00). The MassDEP oversees administration at the state level and local conservation commission at the local level.

As per the WPA, work is regulated within jurisdictional wetlands, the 100-foot buffer zone, and 200-foot Riverfront Area of a perennial stream. Any work to occur in such an area requires the filing a Notice of Intent (NOI) with the local conservation commission and MassDEP. Filing a NOI includes payment of a fee and a public hearing, and results in the issuance of an Order of Conditions which impose conditions on the Project to meet regulatory performance standards.

### **3.7.1.3 Local**

The Charlton Conservation Commission also administers the WPA and locally oversees work involving the altering, filling, or dredging within jurisdiction wetlands and the 100-foot buffer of wetlands and 200-foot Riverfront Area. Charlton does not have a local wetland bylaw or ordinance.

## **3.7.2 Resource Evaluations and Considerations**

MassDEP wetland-related data and National Wetlands Inventory (NWI) wetlands within the Project site are shown in Figure 4. Within the site, NWI data identified one approximately 0.5 acre freshwater forested/shrub wetland and MassMapper identified approximately 50 linear feet of hydrologic connection. Note that the mapping presented in the NWI and MassMapper provides useful context and can be used as a guideline to determine the extent and potential location of streams and wetland resources with the Project but can be an inaccurate depiction of current conditions in the Project.

**Implications:** A formal wetland delineation, including a seasonally appropriate vernal pool survey should be completed to determine the location, type, and extent of wetlands, streams and vernal pools within the Project site. The timing for a vernal pool survey in New England occurs when vernal pool dependent wildlife are present for breeding (typically April or May) to coincide with NHESP vernal pool survey guidelines (NHESP 2020).

Impacts to jurisdictional wetlands and their associated 100-foot buffer zones, streams or Riverfront Area may be avoided during siting of Project infrastructure. If these resources cannot be avoided, the Project would be required to file a NOI with the Charlton Conservation Commission and MassDEP.

## **3.8 SOILS - STEEP SLOPES, HIGHLY ERODIBLE SOILS, CHEMICAL PROPERTIES**

Soils within the Project were assessed using data obtained from the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) and are depicted in (USDA NRCS 2023). The dominant soil types within the Project are Charlton fine sandy loam (56.3%), Chatfield-Hollis-Rock outcrop complex (24.9%), and Ridgebury fine sandy loam (15.1%). Table 3-5 provides a list of the soil types and Figure 5 provides soil mapping within the Project site.

**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Environmental Evaluation

November 27, 2023

**TABLE 3-5 SOIL TYPES WITHIN THE PROJECT**

| Soil Type                                                          | Map Unit Symbol | Acres Within Project Boundary | % of Project | Depth to Water Table (cm) | Hydric Rating | Depth to Restrictive feature (cm) | Prime Farmland               | Soil Drainage  |
|--------------------------------------------------------------------|-----------------|-------------------------------|--------------|---------------------------|---------------|-----------------------------------|------------------------------|----------------|
| Charlton fine sandy loam, 3 to 8 percent slopes, extremely stony   | 407B            | 18.1                          | 38.5%        | > 200 cm                  | No            | > 200 cm                          | Not prime farmland           | Well drained   |
| Charlton fine sandy loam, 8 to 15 percent slopes, extremely stony  | 407C            | 8.4                           | 17.8%        | > 200 cm                  | No            | > 200 cm                          | Not prime farmland           | Well drained   |
| Charlton fine sandy loam, 15 to 35 percent slopes, extremely stony | 407E            | 1.1                           | 2.2%         | > 200 cm                  | No            | > 200 cm                          | Not prime farmland           | Well drained   |
| Chatfield-Hollis-Rock outcrop complex, 0 to 15 percent slopes      | 102C            | 11.7                          | 24.9%        | > 200 cm                  | No            | > 50 cm                           | Not prime farmland           | Well drained   |
| Paxton fine sandy loam, 3 to 8 percent slopes                      | 305B            | 0.5                           | 1.1%         | > 45 cm                   | No            | > 45 cm                           | All areas are prime farmland | Well drained   |
| Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony  | 71B             | 7.1                           | 15.1%        | > 15 cm                   | Yes           | > 38 cm                           | Not prime farmland           | Poorly drained |
| Water                                                              | 1               | 0.2                           | 0.4%         | 0 cm                      | Yes           | 0 cm                              | Not prime farmland           | Water          |



## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

**Implications:** Most soil types are classified as not prime farmland (98.9%), with 1.1% classified as prime farmland.

There are 7.3 acres of the Project site (15.5%) classified as predominantly hydric or water. Hydric soils are an indicator of potential jurisdictional wetlands. The remaining 39.8 acres (84.5%) are listed as predominantly non-hydric or non-hydric. A formal wetland delineation is required to verify the location, type, and extent, of the jurisdictional wetlands on-site.

Approximately 7.6 acres (16.2% of the Project site) of soils have a water table depth of greater than 45 centimeters (cm), with 7.1 acres of that (15.1% of the Project site) reporting a water table depth of greater than 15 cm. The depth of restrictive features, such as bedrock, cemented layers, and dense layers, may also impact Project design. Based on information available regarding site soils from the NRCS, 11.7 acres of the Project site (24.9%) have a depth to restrictive feature of 0 cm. Steep slopes, represented by 7% or greater slopes, represent 44.9% of the Project site.

### **3.9 GEOLOGIC OR SEISMIC HAZARDS**

Based on information available in the United States Geological Survey (USGS) Earthquake Catalog, there have been 9 earthquakes of magnitude 2.5 or greater recorded within the past 30 years within 50 miles of the Project (USGS 2023b). The Project site is located in seismic design category B according to the FEMA Earthquake Hazard Map, indicating that it could experience shaking of moderate intensity (FEMA 2023b). According to FEMA's Earthquake Hazard program, shaking could lead to slight damage with potential for few instances of fallen plaster, and some movement of heavy furniture.

**Implications:** The Project site is not located in an area that experiences measurable geologic or seismic hazards.

### **3.10 OTHER NOTABLE ENCUMBRANCES**

#### **3.10.1 Existing Oil, Gas and Electrical Transmission infrastructure**

There are two connected active natural gas transmission pipelines and one permanently abandoned pipeline within one mile of the Project. According to MassMapper there is no natural gas service provided within the town of Charlton. An electric substation is located approximately 400-feet from the western boundary of the Project site. Two colinear overhead electric transmission lines owned by Fitchburg Gas and Electric Light Company (345-Kilvolt [kV] and 115-kV) run from this substation along the northern boundary of the Project site. An additional 69-kV overhead electric power line owned by Fitchburg Gas and Electric Light Company which does not connect to the substation runs diagonally though through the southern portion of the site (Figure 2).

**Implications:** These power lines would likely have to be avoided. The utility owner would need to be contacted for any potential impact to these structures or the associated overhead electric lines.

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

### **3.10.2 Department of Defense Interests**

There are no Department of Defense Interests within 10 miles of the Project.

### **3.10.3 Tribal Lands**

There are no Tribal lands within one mile of the Project.

## **3.11 KNOWN TOXIC OR HAZARDOUS WASTE**

Stantec reviewed the following federal and state environmental databases documenting potentially hazardous conditions at, or near the Project: United States Environmental Protection Agency (USEPA) Superfund List, USEPA Resource Conservation and Recovery Act (RCRA) List, MassDEP Brownfield Sites, USEPA Cleanup Responses, USEPA Federal Facilities Docket, and MassMapper databases. The information obtained from these sources was reviewed and summarized to establish existing conditions and to identify potential environmental constraints at the site.

### **3.11.1 Regulatory Background**

#### **3.11.1.1 Federal**

##### **Resources Conservation and Recovery Act**

The RCRA established the federal regulatory program for hazardous substances. The USEPA has the authority to regulate the generation, transport, treatment, and disposal of hazardous substances in a “cradle to grave” system. This regulatory system includes tracking all generators of hazardous waste (USEPA 2023a).

##### **Comprehensive Environmental Response, Compensation, and Liability Act**

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 U.S.C. Chapter 103) and associated Superfund Amendments provide the USEPA with the authority to identify hazardous sites, to require site remediation, and to recover the costs of site remediation from polluters (USEPA 2023d). CERCLA also enabled the revision of the National Oil and Hazardous Substances Pollution Contingency Plan, also known as the National Contingency Plan (NCP). The NCP provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants.

##### **1984 Hazardous and Solid Waste Amendment Act**

RCRA was amended by the 1984 Hazardous and Solid Waste Amendment Act, which prohibited the use of certain techniques for the disposal of certain hazardous wastes (USEPA 2023b). The Emergency Planning and Community Right-to-Know Act of 1986 imposes safety requirements to protect local communities in the event of accidental release of hazardous substances. The requirements provide measures so that the risks from interaction with hazardous materials, such as handling, storage, and

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

disposal, are mitigated or prevented. This law protects human health and the environment if the unintended release of hazardous materials was to occur (USEPA 2023e).

### **Hazardous Materials Transportation Act**

The transport of hazardous materials is regulated by the United States Department of Transportation under Hazardous Materials Transportation Act. To accomplish this, the Federal Aviation Administration, Federal Motor Carrier Safety Administration, Federal Railway Administration, Pipeline and Hazardous Materials Safety Administration, and the U.S. Coast Guard have been given authority to enforce hazardous material transport regulations.

#### **3.11.1.2 State**

##### **Massachusetts Waste Site Cleanup Program**

The Bureau of Waste Site Cleanup (BWSC) is a division of MassDEP which regulates when and how contaminated sites must be assessed and cleaned up as per the Massachusetts Contingency Plan (310 CMR 40.00). Releases of oil and hazardous materials must be reported to the BWSC, and are categorized in a tiered system which determines the level of MassDEP oversight. All sites which have been tier classified are mapped on the MassMapper database.

#### **3.11.2 Resource Evaluations and Considerations**

Based on review of the above federal and state databases, there have been no documented oil or hazardous materials releases within the Project site.

**Implications:** This desktop review did not identify any reports of state emergency response incidents concerning toxic and hazardous waste in close proximity to the site. There are no federal hazardous waste or remediation sites present. A more robust assessment of potential hazardous material concerns on the Project or in the surrounding area via a Phase I Environmental Site Assessment is recommended.

## **3.12 OTHER ENVIRONMENTAL REGULATIONS**

### **3.12.1 Regulatory Background**

#### **3.12.1.1 State**

##### **Massachusetts Environmental Policy Act**

The Massachusetts Executive Office of Energy and Environmental Affairs is responsible for the review of projects subject to the Massachusetts Environmental Policy Act regulations (MEPA; 301 CMR 11.00) when a project requires state permitting, financial assistance, or land disposition and which meet or exceed certain thresholds as outlined in 301 CMR 11.03. MEPA thresholds include proposed impacts to land, state-listed species, wetlands (including waterways and tidal wetlands), water, wastewater,

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

transportation, energy, air, solid and hazardous waste, historical and archaeological resources, and Areas of Critical Environmental Concern (ACEC). The site is not located within an ACEC. Those projects subject to MEPA review undergo a public review and disclosure of the potential environmental impacts whereby the resource agencies with jurisdiction identify potential resource area concerns and permitting guidance.

**Implications:** A determination of MEPA jurisdiction relative to the Project cannot be completed at this time. As Project planning and design advances, a review of the MEPA review thresholds (301 CMR 11.03) relative to the proposed Project is recommended to determine if the Project is subject to the MEPA regulations.

### **Massachusetts Energy Facilities Siting Board and Department of Public Utilities**

The Massachusetts Energy Facilities Siting Board (EFSB) is an independent state board located administratively within the Massachusetts Department of Public Utilities (DPU) that reviews proposed certain large energy facilities including power plants, electric transmission lines, intra-state natural gas pipelines, and natural gas storage tanks. To obtain EFSB approval, a proposed facility must demonstrate that it would provide a reliable energy supply, with a minimum impact on the environment, at the lowest possible cost. Recent reviews of BESS projects by the EFSB have determined that the EFSB does not have jurisdiction over BESS facilities (EFSB 2023).

**Implications:** Two recent decisions in 2023 by the EFSB have determined their jurisdiction does not include BESS facilities when other EFSB review thresholds are triggered. As Project planning and design advances, recent Generating Facility Decisions by the EFSB (EFSB 2023) and EFSB review thresholds should be reviewed to determine if BESS facilities are subject to EFSB review.

## **3.13 ZONING AND LOCAL PERMITTING**

### **3.13.1 Regulatory Background**

The Charlton, Massachusetts Bylaws (Bylaws) were reviewed relative to proposed BESS facilities. The Bylaws define “energy storage” as the capture of energy produced at one time for use at a later time. A device that stores energy is generally called an accumulator or battery. Energy comes in multiple forms, including radiation, chemical, gravitational potential, electrical potential, electricity, elevated temperature, latent head and kinetic.” The Bylaws also include requirements for large solar facilities (5 megawatts or less) and any supporting equipment and structures (Chapter 200-5.21).

Per Chapter 200, the Project site is not within an Overlay district and is zoned as Agriculture (A). Any development in the Agricultural zone must follow the following dimensional requirements:

- A minimum lot width and contiguous street frontage of 175 feet,
- A minimum lot area of 60,000 square feet,
- Minimum front and rear yard of 30 feet, and minimum side yard of 15 feet,
- maximum building coverage of 25% of lot, and

## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts  
Environmental Evaluation  
November 27, 2023

- maximum building height of 36 feet.

Commercial energy storage with more than 250 kilowatts but less than five megawatts of power output is considered a prohibited use in the Agriculture (A) zone. According to the Zoning by-law, “no variance shall be granted which would authorize a use or activity not otherwise permitted in the district in which the land or structure is located.” Commercial energy storage is allowed by special permit and town approval in the Commercial Business, Industrial – General, and Business Enterprise Park Zones.

Under M.G.L Chapter 40A Section 3 and Chapter 665 Section 6 of the Acts of 1956 (as amended) an application can be filed with the DPU to obtain exemption from local zoning laws related to the siting of public utility uses. The process requires a noticed public hearing, and the applicant must demonstrate that the use is reasonably necessary for the convenience or welfare of the public and additional DPU filing requirements. The exemption process does not apply to other non-zoning approvals (e.g., local Conservation Commission or stormwater approvals).

**Implications:** Two possible paths forward are possible for Battery Energy Storage at the site at the local or state level. Petition the Town to re-zone the site to either Community Business (CB), Industrial -General (IG), or Business Enterprise Park (BEP) which allow the energy storage use via a special permit. However, this permitting path may be difficult since there are no abutting lands that are also zoned CB, IG, or BEP. The only energy related uses that are permitted in the A zone are “Wind Energy Conversion Systems” and “Electric Distribution Stations or Substations” which are allowed by special permit. Alternatively, file an exemption request from local zoning bylaw with associated filing requirements with the DPU.

## 4.0 PERMITTING MATRIX

Federal, state, and local permits or certificates potentially applicable to the Project are listed in Table 4-1. The information provided in the permit table is based on preliminary information on natural resources identified in the Project through a review of publicly available maps, applicable regulations, and agency information. This permit matrix represents resources addressed in this report and is not a full representation of all permits that may be required for construction or operation of the Project. Consultation with the federal, state, and local agencies identified in the table may be necessary to further determine which permits may be applicable.

**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Permitting Matrix

November 27, 2023

**TABLE 4-1 FEDERAL, STATE, AND LOCAL PERMITTING AND CONSULTATIONS FOR CONSTRUCTION AND OPERATION**

| Permit Or Approval                                                                                                              | Responsible Agency                                                 | Regulated Activity                                                                                                                                                                                                                                                                                                                                                                                                              | Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Permit Prep Time (incl. studies) | Expected Review Time                                                      | Status      | Constraints Identified                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FEDERAL</b>                                                                                                                  |                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                  |                                                                           |             |                                                                                                                                                                                       |
| Department of Energy - EIA 860 (and extension form 860-M)                                                                       | U.S. Department of Energy, Energy Information Administration (EIA) | The required respondents for all existing plants and proposed (10-year plans) plants that have a total generator nameplate capacity (sum for generators at a single site) of 1 Megawatt (MW) or greater; and where the generator(s), or the facility in which the generator(s) resides, is connected to the local or regional electric power grid and has the ability to draw power from the grid or deliver power to the grid. | Pursuant to 15 U.S.C. 772, all electric generating plants that have or will have a nameplate rating of 1 MW or more, and that are operating or plan to be operating within 5 years must complete and submit Form EIA 860 (and by extension, form 860- M) to the EIA within 18 months of the generator beginning commercial operations                                                                                                                                                        | 1-3 months                       | Varies                                                                    | Not Started | Further coordination with EIA needed. Submit Form EIA-860 directly to EIA annually between the first business day in January and the last business day in February                    |
| Clean Water Act (CWA) Section 404 and/or Section 10 of the Rivers and Harbors Act<br><br>Massachusetts General Permits (MA GPs) | USACE –New England District                                        | Projects involving impacts to waters of the U.S (WOTUS), including wetlands connected by surface waters. If impacts to non-tidal wetlands are greater than 0.5 acres. Regional General Conditions apply.                                                                                                                                                                                                                        | Conduct wetland delineation and prepare a delineation report. If desired, request USACE to make jurisdictional determination.<br><br>If WOUS are present on-site and will be impacted by the Project, then a filing under MA GP 8 and/or GP 9.<br><br>Once permanent and temporary impacts to WOTUS are calculated the type of filing can be identified under MA GPs. A Self Verification Notification (SVN), Pre-Construction Notification (PCN, or Individual Permit (IP) may be required. | 1-3 months                       | 6-12 months for PCN or IP once a complete application has been submitted. | Not started | Design Project to avoid and minimize potential impacts to Waters of the U.S.<br><br>Formal Wetland and Waterbody Delineation needed with Jurisdictional Determination from the USACE. |
| Notice of Intent (NOI) and Stormwater Pollution Prevention Plan (SWPPP)                                                         | USEPA - National Pollution Discharge Elimination System (NPDES)    | Projects resulting in one or more acres of earth disturbance.                                                                                                                                                                                                                                                                                                                                                                   | NOIs may be filed online through the EPA's online, Central Data Exchange                                                                                                                                                                                                                                                                                                                                                                                                                     | 1 month                          | 1 month                                                                   | Not started | Dependent on extent of proposed land disturbance                                                                                                                                      |

**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Permitting Matrix

November 27, 2023

| Permit Or Approval                                    | Responsible Agency                                   | Regulated Activity                                                                                                                                                              | Requirements                                                                                                                                                                      | Permit Prep Time (incl. studies)  | Expected Review Time | Status      | Constraints Identified                                                                                                                                                                                                                              |
|-------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Notification Form (PNF)                       | Massachusetts Historical Commission (MHC)            | Projects requiring any state or federal permit or approval including an NPDES permit.                                                                                           | A completed PNF must be submitted by mail or courier. MHC review is conducted in compliance with state and federal statutes and regulations.                                      | 1 month                           | 1 month              | Not started | Dependent on requirement of other state or federal permits.                                                                                                                                                                                         |
| ESA Section 7 Federal Endangered Species Consultation | USFWS – New England Ecological Services Field Office | Projects with a federal nexus, Federal Endangered Species Act-Listed Species and/or Habitat presence.                                                                           | Project may be cleared with informal consultation with the USFWS. However, if not, must conduct biological surveys and prepare a Biological Assessment/Biological Opinion (BA/BO) | Species Dependent (1 to 3 months) | 4-6 months           | Not started | Informal consultation with USFWS New England Ecological Services Field Office is recommended. USFWS's Information for Planning and Consulting (IPaC) system indicates the possible presence of federally listed species. BA/BO may not be required. |
| MBTA                                                  | USFWS – New England Ecological Services Field Office | Prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests.                                                    | No permit or approval is available. Consultation with USFWS to document avoidance and minimization of impacts is recommended.                                                     | Completed prior to construction   | 3-6 months           | Not started | Informal consultation with USFWS New England Ecological Services Field Office is recommended. USFWS's Information for Planning and Consulting (IPaC) system indicates the possible presence of migratory birds.                                     |
| Stormwater Pollution Prevention Plan (SWPPP)          | USEPA                                                | Any project disturbing 1 acre or more during construction will require the filing of a Notice of Intent (NOI). A Stormwater Pollution Prevention Plan (SWPPP) will be required. | These plans help projects avoid and minimize erosion and mobilization of sediment into sensitive resource areas during construction.                                              | 1-2 months                        | N/A                  | Not Started | Either environmental consultant or construction contractor recommended to prepare. Typically                                                                                                                                                        |

**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Permitting Matrix

November 27, 2023

| Permit Or Approval                                | Responsible Agency                                                               | Regulated Activity                                                                                                                                                         | Requirements                                                                                                                                                                                                                                                                                            | Permit Prep Time (incl. studies) | Expected Review Time                                                           | Status      | Constraints Identified                                                                                                                      |
|---------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------|
|                                                   |                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                         |                                  |                                                                                |             | submitted after other permit applications.                                                                                                  |
| STATE                                             |                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                         |                                  |                                                                                |             |                                                                                                                                             |
| Massachusetts Environmental Protection Act (MEPA) | Massachusetts Executive Office of Energy and Environmental Affairs – MEPA Office | Any project that involves a state action or funding and exceeds a MEPA threshold listed in 301 CMR 11.03.                                                                  | Prepare and submit appropriate MEPA document prior to filing other state permits if subject to MEPA jurisdiction.                                                                                                                                                                                       | 2-3 months                       | 3-12 months dependent on the type(s) of MEPA documents filed                   | Not Started | Dependent on requirement of state permits, and if one or more MEPA review thresholds are met.                                               |
| CWA Section 401 Water Quality Certification (WQC) | Massachusetts Department of Environmental Protection (MassDEP)                   | Project resulting in the loss of more than 5,000 square feet of WOTUS. Additionally, any projects requiring an Individual Permit (IP) under Section 404 require a 401 WQC. | If CWA 401 WQC from MassDEP is required, MassDEP reviews permit application under §401 of the CWA in order to make a determination relative to certify that the project will cause or contribute to a violation of Massachusetts water quality standards. Permit coverage concurrent with USACE permit. | 1-2 months                       | 3-6 months                                                                     | Not Started | Wetland delineation required. Design Project to avoid and minimize potential impacts to WOTUS.                                              |
| Massachusetts Wetlands Protection Act             | Charlton Conservation Commission and MassDEP                                     | Activities proposed within jurisdictional wetlands or their 100-foot Buffer Zone and/or waterways (e.g., 200-foot Riverfront Area).                                        | File a Notice of Intent with Charlton Conservation Commission and attend at least one public hearing to present NOI.                                                                                                                                                                                    | 1-2 months                       | 1-2 months                                                                     | Not Started | Wetland delineation and vernal pool survey required (recommend during spring for efficiency and methodology requirements).                  |
| Massachusetts Endangered Species Act              | Massachusetts Natural Heritage and Endangered Species Program (NHESP)            | Activities proposed within Priority Habitat for state-listed species as mapped by the NHESP                                                                                | Consider a pre-filing consultation if proposed activities are subject to MESA and file a MESA Project Review Checklist. If Project design can avoid a take and not required to file for a Conservation and Management Permit (CMP) then MESA review timeline and requirements are dramatically reduced. | 1-month                          | 1-2 months. Up to additional 3-6 months if site surveys and/or CMP is required | Not Started | Design Project to avoid and minimize activities to Priority Habitat. NHESP may require state-listed species survey if MESA filing required. |



**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Permitting Matrix

November 27, 2023

| Permit Or Approval                                                                                 | Responsible Agency      | Regulated Activity                                                                                                                                    | Requirements                                                                                                                                                                                   | Permit Prep Time (incl. studies) | Expected Review Time | Status      | Constraints Identified                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Massachusetts Energy Facility Siting Board (EFSB)<br>Department of Public Utilities (DPU) petition | EFSB                    | Generation of more than 100 MW of electricity                                                                                                         | Recent EFSB decisions have indicated that EFSB does not have jurisdiction over BESS projects with a nameplate capacity that would normally trigger their jurisdiction in energy projects.      | 2-4 months                       | 12 months or more    | Not Started | Re-evaluate EFSB jurisdiction as planning and design advance.                                                                                                                                          |
|                                                                                                    | DPU                     | Exemption from local zoning bylaw                                                                                                                     | Petition the DPU, public hearing, demonstrated public benefit and associated requirements                                                                                                      | 2-4 months                       | 10 months or more    | Not Started | Applicant must demonstrate public service provider, project purpose, use provides public benefit, and associated DPU requirements                                                                      |
| <b>LOCAL</b>                                                                                       |                         |                                                                                                                                                       |                                                                                                                                                                                                |                                  |                      |             |                                                                                                                                                                                                        |
| Special Permit & Site Plan Review                                                                  | Charlton Planning Board | Commercial energy storage with more than 250 kilowatts and less than 5 MW of power output is considered a prohibited use in the Agriculture (A) zone. | According to the town Zoning by-law, "no variance shall be granted which would authorize a use or activity not otherwise permitted in the district in which the land or structure is located." | TBD                              | TBD                  | Not started | Consult with Charlton Planning Board regarding zoning requirements. Town appears unable to approve BESS on-site or rezone the Project site. Alternatively, see DUP local zoning bylaw exemption above. |

Notes:

Assumptions:

This table may not be inclusive of all applicable environmental permits necessary for construction and operation of the Project.

Timeline estimates are based on past experience and professional judgement and may vary depending on location and size of project, requirement for seasonal surveys, and species type.

Prep time estimates are assumed to start when notice to proceed is provided.

## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts

References

November 27, 2023

## 5.0 REFERENCES

Charlton, Massachusetts Bylaws. 2023. Accessed November 2023. <https://ecode360.com/CH3120>.

Federal Emergency Management Agency (FEMA). 2023a. Flood Map Service Center. Accessed November 2023. <https://msc.fema.gov/portal/home>.

Federal Emergency Management Agency (FEMA). 2023b. Earthquake Hazard Maps. Accessed November 2023. <https://www.fema.gov/emergency-managers/risk-management/earthquake/hazard-maps>.

Massachusetts Bureau of Geographic Information. 2023. MassMapper. Accessed November 2023. <https://www.mass.gov/info-details/massmapper-interactive-map>.

Massachusetts Department of Environmental Protection (MassDEP). 2023. 310 CMR 10.00: Wetlands Protection Act Regulations. Accessed November 2023. <https://www.mass.gov/regulations/310-CMR-1000-wetlands-protection-act-regulations>.

MassDEP. 2023a. Find Brownfields Sites. Accessed November 2023. <https://www.mass.gov/info-details/find-brownfields-sites>.

MassDEP. 2023b. The Waste Site Cleanup Program. Accessed November 2023. <https://www.mass.gov/guides/the-waste-site-cleanup-program>.

Massachusetts Endangered Species Act. 2023. 321 CMR 10.00: MESA Regulations. Accessed November 2023. <https://www.mass.gov/regulations/321-CMR-1000-massachusetts-endangered-species-act>.

Massachusetts Energy Facilities Siting Board. 2023. EFSB Generating Facility Decisions. Accessed November 2023.

Massachusetts Environmental Policy Act Office. 2023. 301 CMR 11.00: MEPA Regulations. Accessed November 2023. <https://www.mass.gov/regulations/301-CMR-1100-mepa-regulations#11-03-review-thresholds>.

Massachusetts Historical Commission (MHC). 2023. Massachusetts Cultural Resource Information System. Accessed November 2023. <https://mhc-macris.net/>.

Massachusetts General Laws. 1956 (amended). Chapters 40A and 665. Accessed November 2023. <https://archive.org/details/actsresolvespass1956mass/page/614/mode/2up>

Natural Heritage & Endangered Species Program (NHESP). 2023a. Species Information and Conservation. <https://www.mass.gov/species-information-and-conservation>.

NHESP. 2023b. Rare species viewer. Accessed November 2023. <https://www.mass.gov/info-details/rare-species-viewer#contact>.

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

### References

November 27, 2023

NHESP. 2020. Vernal Pool Certification Guidelines. Accessed November 2023.

<https://www.mass.gov/info-details/vernal-pool-certification>.

NHESP. 2019. NHESP Northern Long-eared Bat Locations. Accessed October 2023. [https://mass-](https://mass-eoeaa.maps.arcgis.com/apps/Viewer/index.html?appid=de59364ebbb348a9b0de55f6febdf52)

[eoeaa.maps.arcgis.com/apps/Viewer/index.html?appid=de59364ebbb348a9b0de55f6febdf52](https://mass-eoeaa.maps.arcgis.com/apps/Viewer/index.html?appid=de59364ebbb348a9b0de55f6febdf52).

National Park Service. 2023. National Register of Historic Properties – Web Map. Accessed November

2023. <https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466>.

US Department of Transportation. 2023. National Pipeline Mapping System. Accessed November 2023.

<https://pvnpm.phmsa.dot.gov/PublicViewer/>.

United States. 1983. The Endangered Species Act Amendments of 1982.

<https://www.fws.gov/sites/default/files/documents/endangered-species-act-accessible.pdf>.

US Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). 2023. Soil Survey Geographic (SSURGO) Database. Accessed November 2023.

<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.

US Environmental Protection Agency (USEPA). 2023a. Accessed November 2023.

<https://www3.epa.gov/enviro/facts/rcrainfo/search.html>.

USEPA. 2023b. Accessed September 2023. <https://www.epa.gov/hw>.

USEPA. 2023c. Accessed November 2023. <https://echo.epa.gov/facilities/facility-search/results>.

USEPA. 2023d. Accessed November 2023. <https://www.epa.gov/superfund/search-superfund-sites-where-you-live>.

US Fish and Wildlife Service (USFWS). 2023a. Information for Planning and Consultation (IPaC).

Accessed October 2023. <https://ecos.fws.gov/ipac/>.

USFWS. 2023b. National Wetlands Inventory – Wetlands Mapper. Accessed November 2023.

<https://www.fws.gov/wetlands/data/mapper.html>.

USGS. 2023b. Earthquake Catalog. Accessed November 2023.

<https://earthquake.usgs.gov/earthquakes/search/>.

USGS. 2023c. Historical Topographic Map Explorer. Accessed November 2023.

<https://livingatlas.arcgis.com/topoexplorer/index.html>.

## **CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Appendices

November 27, 2023

# **FIGURES**

**Figure 1 Project Location**

**Figure 2 Project Location – Aerial Photograph**

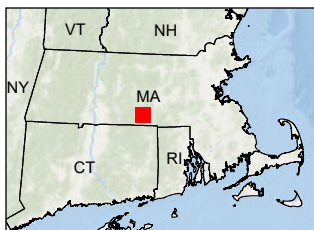
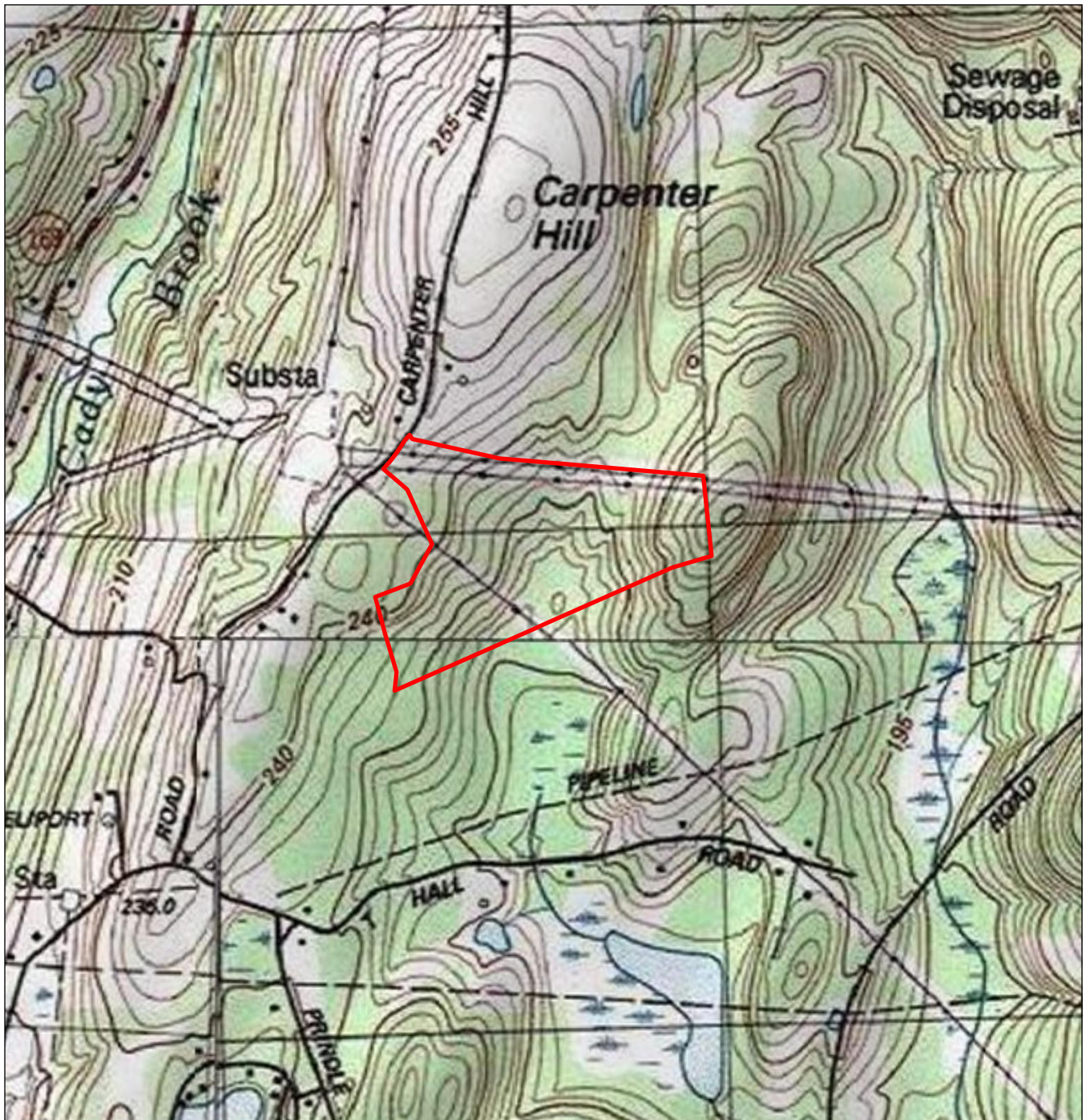
**Figure 3 USGS 2021 National Land Cover Database**

**Figure 4 Natural Resources Mapping**

**Figure 5 NRCS Soil Survey Mapping**

**Figure 6 Local Land Use and Zoning**

U:\17260\17260288\03\_data\gis\_cad\gis\WXd\172608288\_Ebelling\_BatteryStorage\_CIA\172608288\_01\_LocationTopo.aprx Revised: 2023-11-27 By: gcarpentier



- Notes**
1. Coordinate System: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001 Feet
  2. Data Sources: SDG BESS
  3. Background: USGS 1:24,000 Topographic Map

Legend  
 Project Area

0 1,000 Feet  
(At original document size of 8.5x11)  
1:12,000



Project Location  
Charlton  
Massachusetts

Prepared by GC on 2023-11-01  
Review by DN on 2023-11-02

Client/Project  
SDG BESS, LLC  
Proposed Ebelling BESS Project  
Desktop Critical Issues Analysis

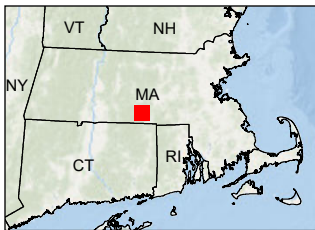
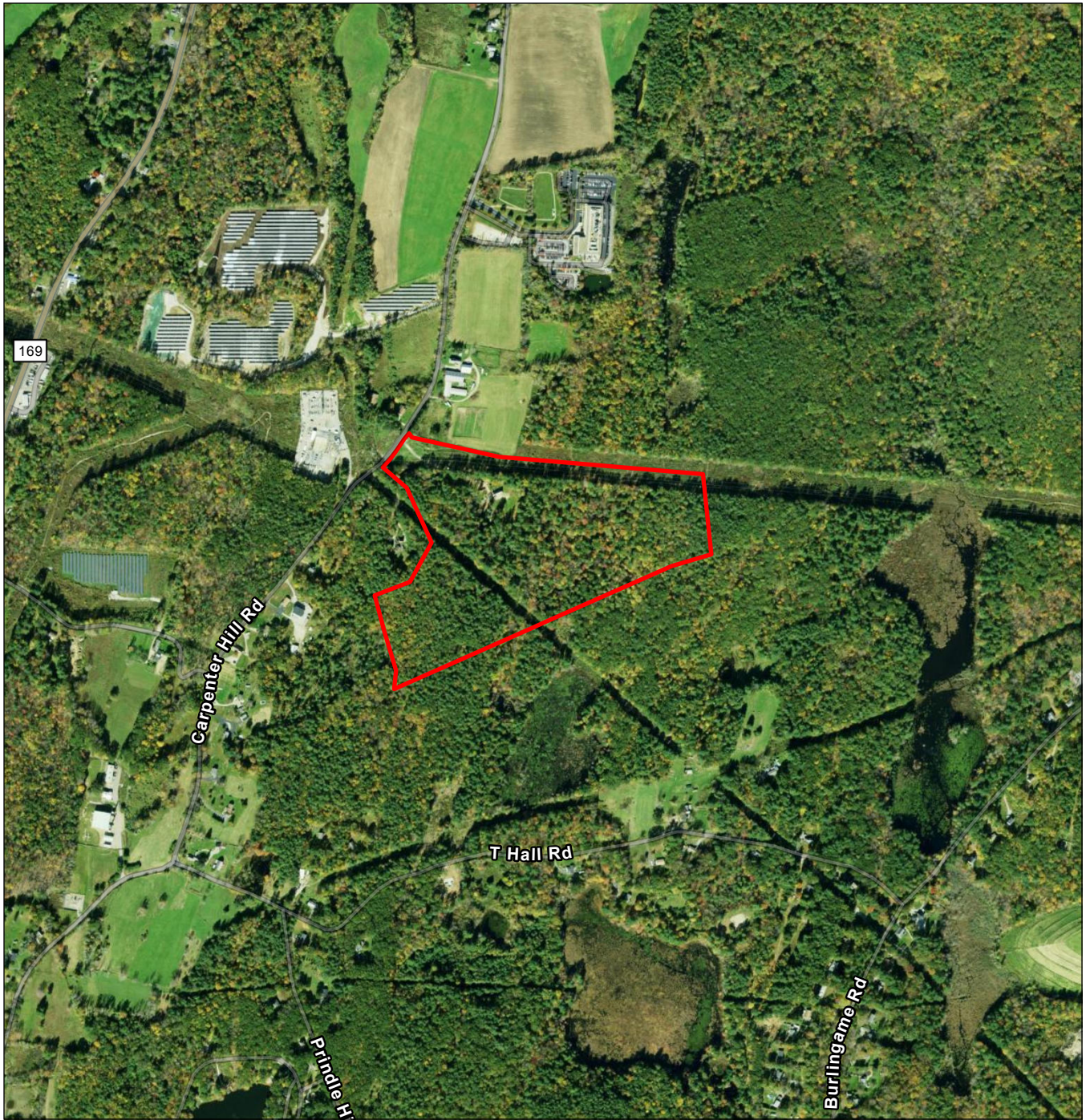
172608288

Figure No.  
**1**

Title  
**Project Location**

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.





**Notes**  
1. Coordinate System: NAD 1983 StatePlane  
Massachusetts Mainland FIPS 2001 Feet  
2. Data Sources: SDG BESS  
3. Background: NAIP Aerial Photo (10/19/2021)

**Legend**  
 Project Area

0 1,000 Feet  
(At original document size of 8.5x11)  
1:12,000



**Project Location**  
Charlton  
Massachusetts

Prepared by GC on 2023-11-01  
Review by DN on 2023-11-02

**Client/Project**  
SDG BESS, LLC  
Proposed Ebelling BESS Project  
Desktop Critical Issues Analysis

172608288

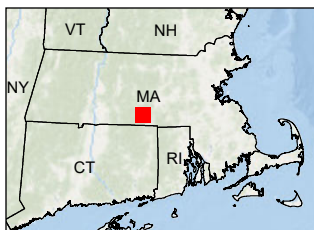
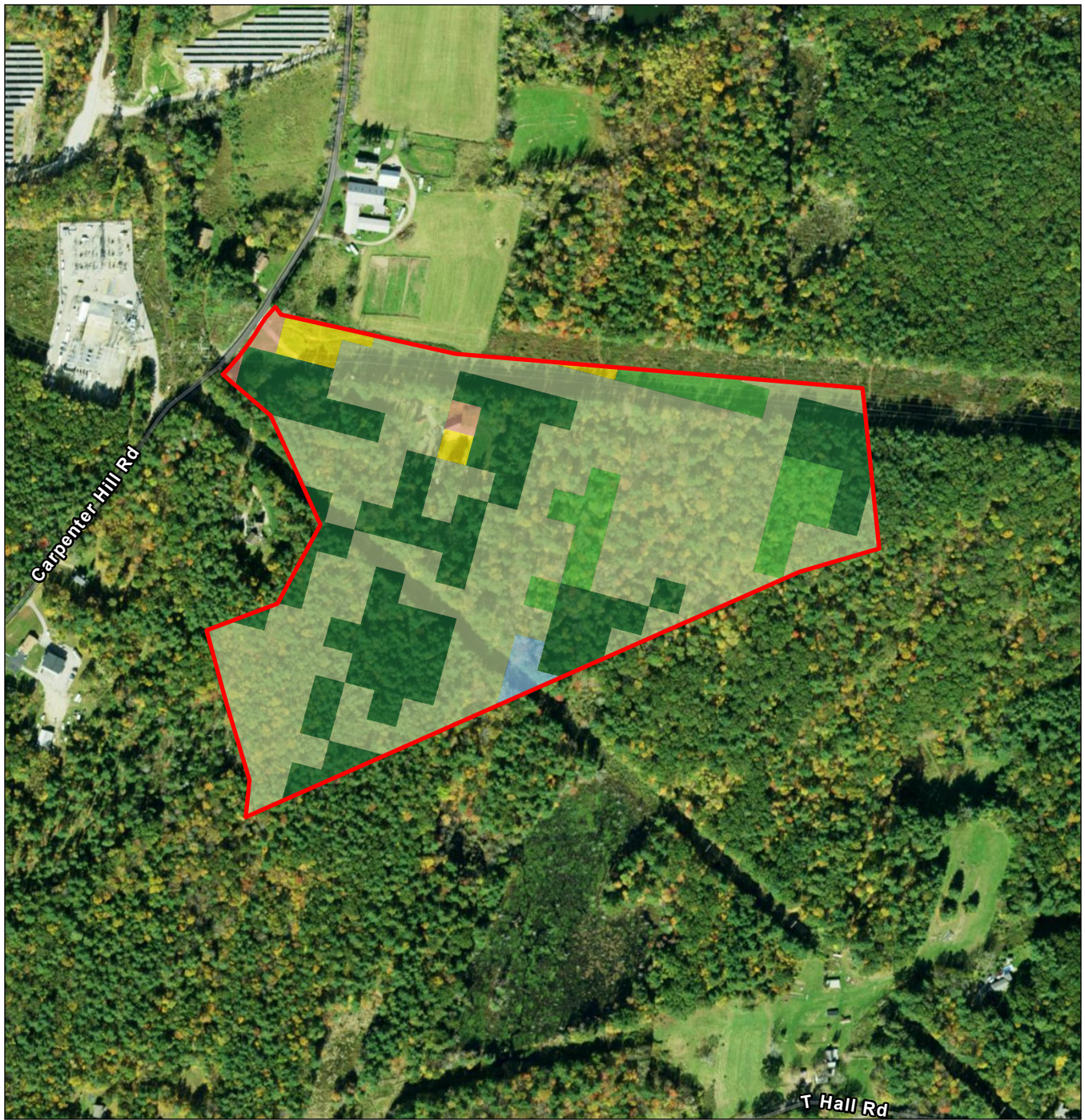
**Figure No.**

**2**

**Title**

**Project Location – Aerial Photo**





**Notes**  
1. Coordinate System: NAD 1983 StatePlane  
Massachusetts Mainland FIPS 2001 Feet  
2. Data Sources: SDG BESS, USGS  
3. Background: NAIP Aerial Photo (10/19/2021)

**Legend**  
Project Area  
USGS 2021 National Landcover Database  
Developed, Low Intensity  
Deciduous Forest  
Evergreen Forest  
Mixed Forest  
Hay/Pasture  
Woody Wetlands

0 500 Feet  
(At original document size of 8.5x11)  
1:6,000



Project Location  
Charlton  
Massachusetts

Prepared by GC on 2023-11-01  
Review by DN on 2023-11-02

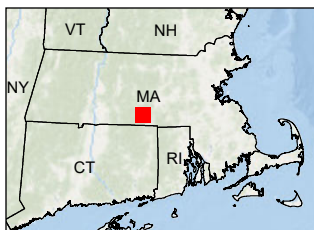
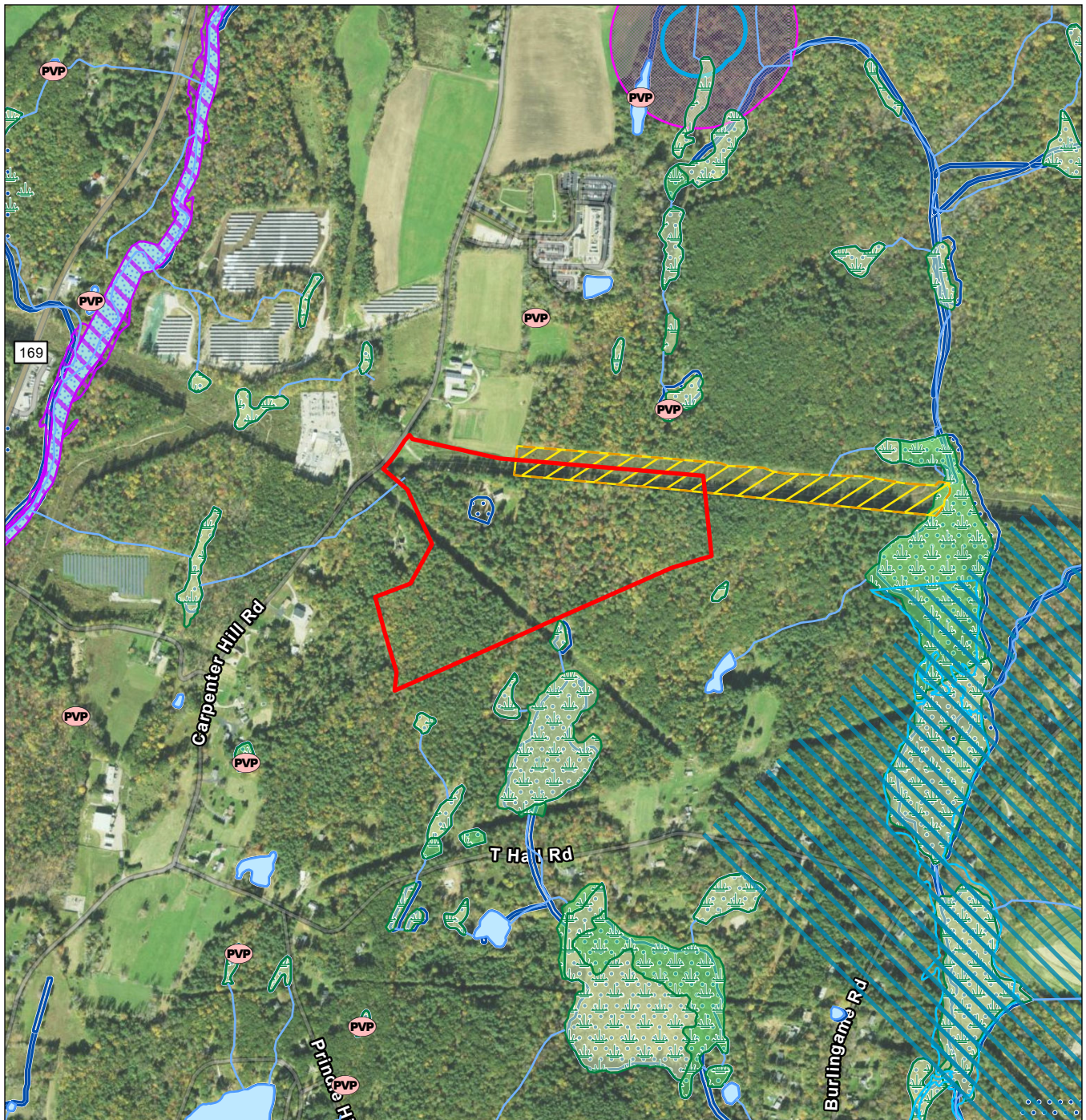
Client/Project  
SDG BESS, LLC  
Proposed Ebelling BESS Project  
Desktop Critical Issues Analysis

172608288

Figure No.  
3

Title  
**USGS 2021 National  
Land Cover Database**





**Notes**  
 1. Coordinate System: NAD 1983 StatePlane  
 Massachusetts Mainland FIPS 2001 Feet  
 2. Data Sources: SDG BESS, MassGIS  
 3. Background: NAIP Aerial Photo (10/19/2021)

**Legend**

- Project Area
- Wellhead Protection Area
- DEP Approved Zone I
- IWPA
- DEP Wetlands Hydrologic Connections
- DEP Wetlands Outlines Only
- Marsh/Bog
- Wooded Swamp
- Open Water
- PVP Potential Vernal Pools
- NW National Wetland Inventory
- NHESP Priority Habitats of Rare Species
- FEMA National Flood Hazard Layer
- Regulatory Floodway
- FEMA National Flood Hazard Layer
- A
- AE

**Features reviewed and not present**

Areas of Critical Environmental Concern  
 AUL Sites  
 DEP Tier Classified 21E Sites  
 EPA Sole Source Aquifers  
 NHESP Estimated Habitats of Rare Wildlife

NHESP Certified Vernal Pools  
 Open Space Article 97  
 Outstanding Resource Waters  
 Surface Water Protection Area Zones  
 A, B, C  
 Wellhead Protection Area Zone II

0 1,000 Feet  
 (At original document size of 8.5x11)  
 1:12,000



**Project Location**  
 Charlton  
 Massachusetts

Prepared by GC on 2023-11-01  
 Review by DN on 2023-11-02

**Client/Project**  
 SDG BESS, LLC

172602288

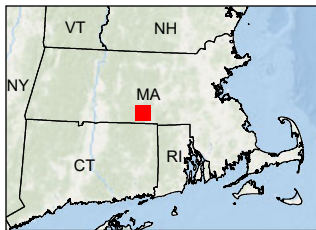
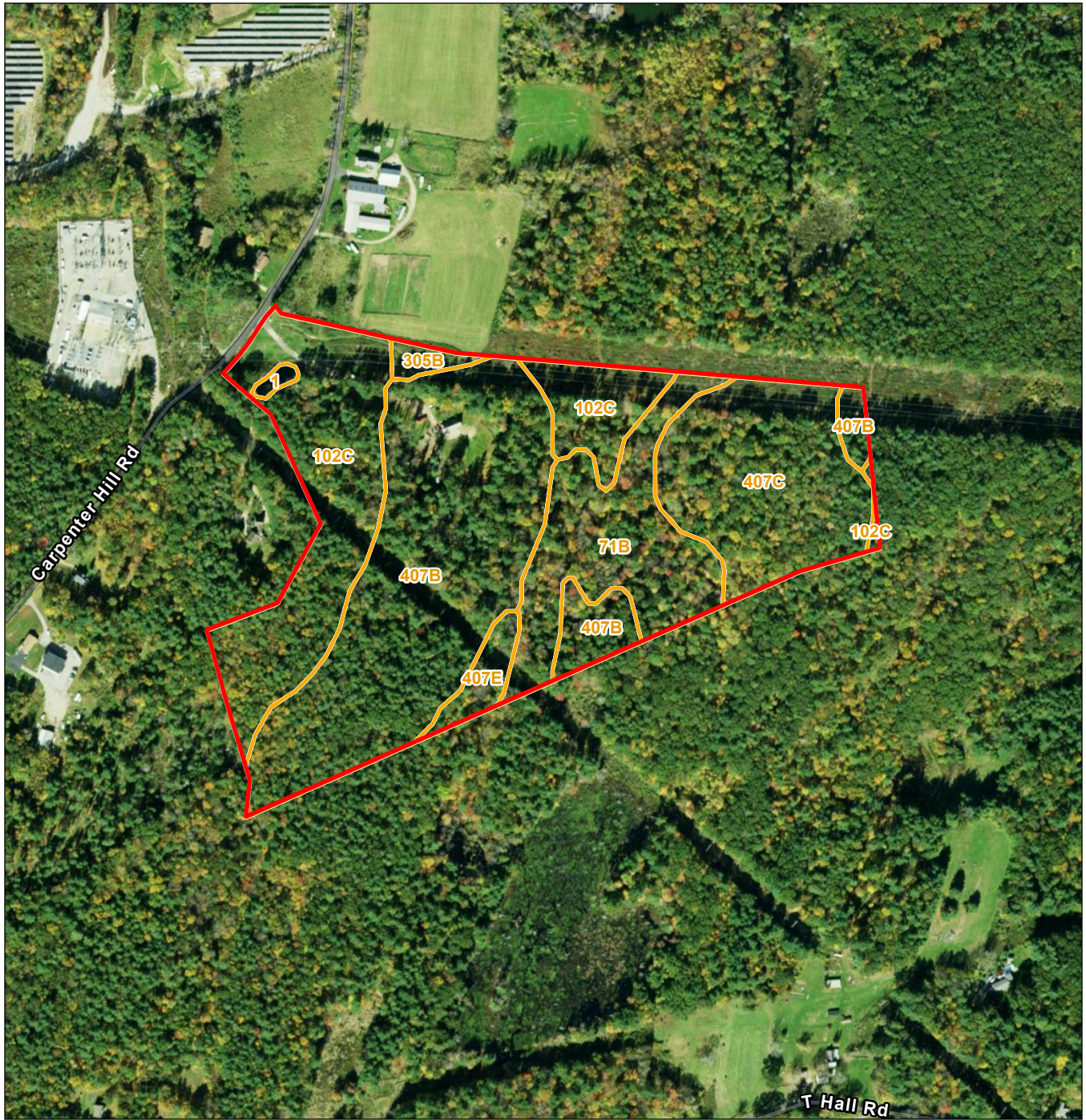
Proposed Ebbeling BESS Project  
 Desktop Critical Issues Analysis

**Figure No.**  
 4

**Title**  
 Natural Resources Mapping



U:\1726\17260288\03\_data\gis\_cad\gis\WXDs\172608288\_Ebelling\_BatteryStorage\_CIA\172608288\_05\_Soils.aprx Revised: 2023-10-31 By: gcarpenter



- Legend**
- Project Area
  - NRCS Soil Survey

0 500 Feet  
(At original document size of 8.5x11)  
1:6,000



**Project Location**  
Charlton  
Massachusetts

Prepared by GC on 2023-11-01  
Review by DN on 2023-11-02

**Client/Project**  
SDG BESS, LLC

Proposed Ebelling BESS Project  
Desktop Critical Issues Analysis

**Figure No.**  
5

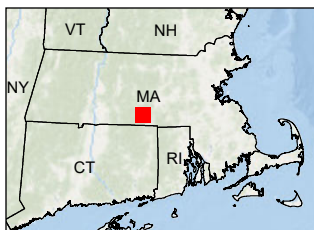
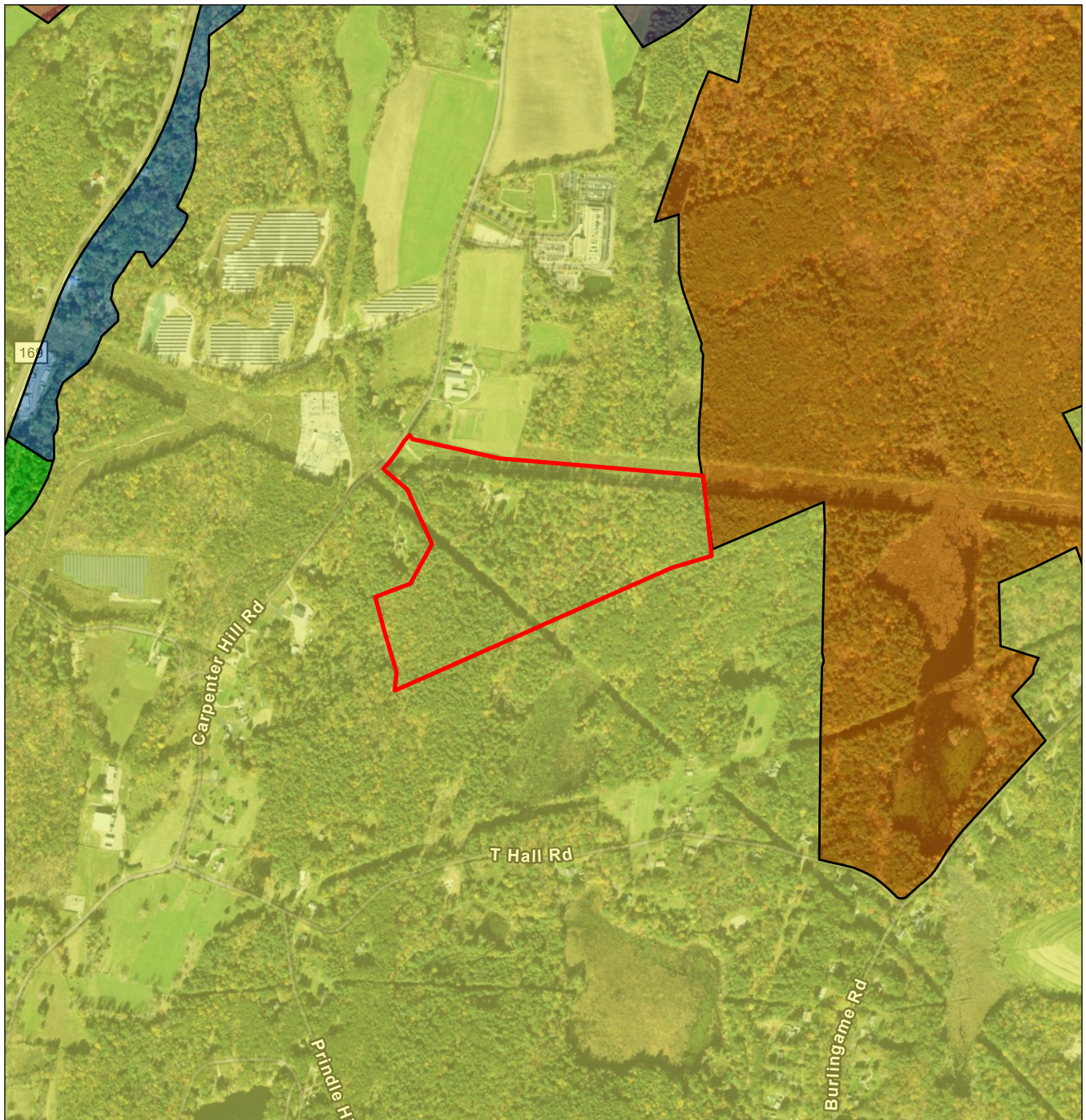
**Title**  
NRCS Soil Survey Mapping

- Notes**
1. Coordinate System: NAD 1983 StatePlane  
Massachusetts Mainland FIPS 2001 Feet
  2. Data Sources: SDG BESS, USGS
  3. Background: NAIP Aerial Photo (10/19/2021)

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.



U:\17260\17260288\03\_data\gis\_cad\gis\WXDs\172608288\_Ebelling\_BatteryStorage\_CIA\172608288\_06\_Zoning.aprx Revised: 2023-11-01 By: gcarpentier



**Notes**  
1. Coordinate System: NAD 1983 StatePlane  
Massachusetts Mainland FIPS 2001 Feet  
2. Data Sources: SDG BESS, USGS, Charlton  
Planning Department  
3. Background: NAIP Aerial Photo (10/19/2021)

**Legend**  
  Project Area  
**Zoning Districts**  
  Agriculture  
  Community Business  
  Industrial - General  
  Business Enterprise Park  
  Village District  
  Residential - Low Density

0 1,000 Feet  
(At original document size of 8.5x11)  
1:12,000



Project Location  
Charlton  
Massachusetts

Prepared by GC on 2023-11-01  
Review by DN on 2023-11-02

Client/Project  
SDG BESS, LLC  
Proposed Ebelling BESS Project  
Desktop Critical Issues Analysis

172608288

Figure No.  
**6**

Title  
**Local Land Use & Zoning**

**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Appendices

November 27, 2023

## **APPENDIX A: IPAC SPECIES REVIEW**

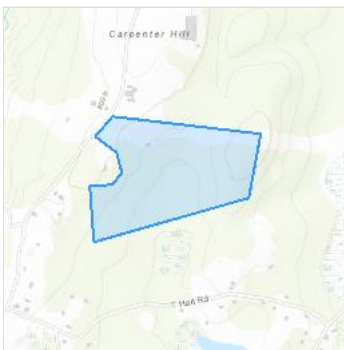
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Worcester County, Massachusetts



## Local office

New England Ecological Services Field Office

☎ (603) 223-2541

📅 (603) 223-0104

70 Commercial Street, Suite 300  
Concord, NH 03301-5094



# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Mammals

| NAME                                                                                                                                                                                                                              | STATUS     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Northern Long-eared Bat <i>Myotis septentrionalis</i><br>Wherever found<br>No critical habitat has been designated for this species.<br><a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a> | Endangered |

## Insects

| NAME                                                                                                                                                                                                                  | STATUS    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Monarch Butterfly <i>Danaus plexippus</i><br>Wherever found<br>No critical habitat has been designated for this species.<br><a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a> | Candidate |

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

# Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act<sup>1</sup> and the Migratory Bird Treaty Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats<sup>3</sup>, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME                                                                                                                                                                                                                                                                     | BREEDING SEASON         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i><br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds Oct 15 to Aug 31 |

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

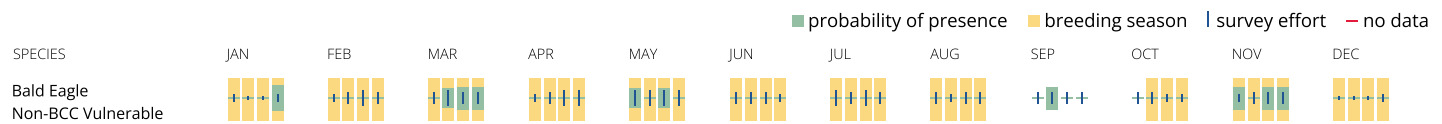
### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe



Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently more sparse.



#### What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

#### What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

#### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats<sup>3</sup> should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON

**Bald Eagle** *Haliaeetus leucocephalus*

Breeds Oct 15 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

**Blue-winged Warbler** *Vermivora pinus*

Breeds May 1 to Jun 30

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

**Bobolink** *Dolichonyx oryzivorus*

Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

**Chimney Swift** *Chaetura pelagica*

Breeds Mar 15 to Aug 25

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

**Prairie Warbler** *Dendroica discolor*

Breeds May 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

**Wood Thrush** *Hylocichla mustelina*

Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort — no data

SPECIES

JAN

FEB

MAR

APR

MAY

JUN

JUL

AUG

SEP

OCT

NOV

DEC

|                                        |  |
|----------------------------------------|--|
| Bald Eagle<br>Non-BCC Vulnerable       |  |
| Blue-winged Warbler<br>BCC - BCR       |  |
| Bobolink<br>BCC Rangewide (CON)        |  |
| Chimney Swift<br>BCC Rangewide (CON)   |  |
| Prairie Warbler<br>BCC Rangewide (CON) |  |
| Wood Thrush<br>BCC Rangewide (CON)     |  |

**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#), and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

**What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

**Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

### Fish hatcheries

There are no fish hatcheries at this location.

## Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

[PFO1E](#)

[PSS1E](#)

[PFO1/4E](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

**NOTE:** This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

#### **Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

#### **Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION



**CRITICAL ISSUES ANALYSIS**

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Appendices

November 27, 2023

# **APPENDIX B: NHESP RARE SPECIES VIEWER REVIEW**

## CRITICAL ISSUES ANALYSIS

Ebbeling Parcel BESS Project, Charlton, Massachusetts

Appendices

November 27, 2023

