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November 15, 2018

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Subject: New England Power Company d/b/a National Grid and
NSTAR Electric Company d/b/a Eversource Energy
Bell Rock Substation Rebuild Project and Acushnet to Fall River Reliability Project
Expanded Environmental Notification Form
Acushnet, New Bedford, Dartmouth and Fall River, Massachusetts

Dear Secretary Beaton:

The New England Power Company d/b/a National Grid ("NEP") and NSTAR Electric Company d/b/a Eversource Energy ("Eversource") (collectively, the "Companies") are pleased to submit the enclosed Expanded Environmental Notification Form ("EENF") for the Bell Rock Substation Rebuild Project and Acushnet to Fall River Reliability Project ("AFRRP") located in the municipalities of Acushnet, New Bedford, Dartmouth and Fall River.

In December 2016, the Independent System Operator, New England ("ISO-NE") presented preliminary preferred solutions to the Planning Advisory Committee. The ISO-NE Southeastern Massachusetts and Rhode Island Area ("SEMA-RI") 2026 Solutions Study, Revision 1 was released in March 2017. The ISO-NE Second Addendum Analysis Report to the Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment was issued in July 2018. The AFRRP and the Bell Rock Substation Rebuild Project are among the projects identified in the Solutions Study as necessary to ensure the reliability of the transmission system serving SEMA-RI.

The Companies maintain that the Bell Rock Substation Rebuild Project and the AFRRP are independent projects that serve separate purposes and needs distinct from one another. Nevertheless, at the request of the MEPA Office, the Companies are including both projects in this filing. In accordance with 301 CMR 11.11, the Companies respectfully request the Secretary grant a phase one waiver to allow the Bell Rock Substation Rebuild Project to proceed in advance of filing an Environmental Impact Report ("EIR") for the AFRRP in order to ensure that the schedule for the Bell Rock Substation Rebuild Project, and the delivery of important reliability benefits from that project, is not delayed. In the alternative, if the Secretary does not grant the waiver, the Companies request that the Secretary provide the same relief by granting a special review procedure under 301 CMR 11.09.

The Bell Rock Substation Rebuild Project will accommodate transmission line connections from the existing 115 kV M13 Line into the substation. The existing M13 Line currently crosses over, but does not electrically connect into, the station. As determined by the ISO-NE, the Bell Rock Substation Rebuild Project is needed in order to split the M13 Line into the M13N and M13S Line, and terminate both lines at the substation. In order to accommodate the two new M13N and M13S transmission line terminations,

the existing 115 kV Bell Rock Substation needs to be rebuilt and expanded into a breaker and a half configuration.

The AFRRP involves the construction of approximately 12 miles of new 115 kV overhead transmission line within existing NEP and Eversource ROWs. The purpose and need for the AFRRP is to eliminate the potential widespread voltage collapse and loss of load across 17 municipalities following a single (N-1) transmission contingency by providing an additional transmission source into the load pocket and additional voltage support at the existing NEP Bell Rock Substation and several of Eversource's existing substations including the High Hill and Wing Lane Substations. In so doing, it ensures continued compliance with applicable federal and regional transmission reliability standards and criteria and maintains reliable electric service to the SEMA-RI area.

The Companies respectfully request that the Notice of Availability for this EENF be published in the November 21, 2018 issue of the Environmental Monitor to initiate the public review and comment period. We acknowledge that the review period for the EENF requesting a phase one waiver and Single EIR lasts for 37 Days. Copies of the EENF have been distributed to public agencies and town officials in accordance with 301 CMR 11.16 (see enclosed circulation list). The New Bedford Standard Times and the Fall River Herald News will each publish a Public Notice of Environmental Review on November 15, 2018.

Please do not hesitate to contact me at (781) 907-3598, or Erin.Whoriskey@nationalgrid.com, or Michael Zylich, 781-441-3804 or michael.zylich@eversource.com, if you have any questions or require additional information. Thank you for your consideration and review.

Sincerely,

Erin Whoriskey
Lead Environmental Scientist
National Grid

Michael Zylich, P.G., LSP
Sr. Environmental Engineer
Licensing & Permitting

Attachments

c: Circulation List (attached)
D. Beron, NEP
N. Dennis, Eversource
W. Levine, NEP
L. Peloquin Shea, NEP
K. Hanecak, POWER
J. Durand, POWER

Commonwealth of Massachusetts

Executive Office of Energy and Environmental Affairs
Massachusetts Environmental Policy Act (MEPA) Office

Environmental Notification Form

For Office Use Only

EEA#: _____

MEPA Analyst: _____

The information requested on this form must be completed in order to submit a document electronically for review under the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: Bell Rock Substation Rebuild Project and the Acushnet to Fall River Reliability Project (AFRRP)		
Street Address: 181 Bell Rock Road in Fall River (Bell Rock Substation) and existing overhead transmission rights-of-way in Acushnet, New Bedford, Dartmouth and Fall River (AFRRP)		
Municipality: Acushnet, New Bedford, Dartmouth and Fall River	Watershed: Mount Hope Bay/ Narragansett Bay/ Buzzards Bay	
Universal Transverse Mercator Coordinates: UTM 18N NAD83 (Meters) Start: 825,445.6 Easting, 4,628,034.3 Northing End: 842,725.3 Easting, 4,623,958.7 Northing	Latitude: Start: -71.086728 End: -70.881797 Longitude: Start: 41.737478 End: 41.693607	
Estimated commencement date: 1st Quarter 2020 (Bell Rock Substation) 1st Quarter 2021 (AFRRP)	Estimated completion date: 2nd Quarter 2021 (Bell Rock Substation) 4th Quarter 2021 (AFRRP)	
Project Type: Electric substation (Bell Rock) and new transmission line (AFRRP)	Status of project design: ~30% complete	
Proponent: New England Power Company d/b/a National Grid (NEP) and NSTAR Electric Company d/b/a Eversource Energy (Eversource)		
Street Address: NEP, 40 Sylvan Road, Waltham, MA 02451 Eversource, 247 Station Drive, Westwood, MA 02090		
Municipality:	State:	Zip Code:
Name of Contact Person: Jamie Durand		
Firm/Agency: POWER Engineers, Inc.	Street Address: 100 John L. Dietsch Square	
Municipality: North Attleboro	State: MA	Zip Code: 02763
Phone: 774-643-1829	Fax: 774-643-1899	E-mail: jamie.durand@powereng.com

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☒Yes ☐No

If this is an Expanded Environmental Notification Form (ENF) (see 301 CMR 11.05(7)) or a Notice of Project Change (NPC), are you requesting:

a Single EIR? (see 301 CMR 11.06(8)) ☒Yes ☐No
a Special Review Procedure? (see 301CMR 11.09) ☒Yes ☐No (this is an alternative to the phase one waiver request below)
a Waiver of mandatory EIR? (see 301 CMR 11.11) ☐Yes ☐No
a Phase I Waiver? (see 301 CMR 11.11) ☒Yes ☐No
(Note: Greenhouse Gas Emissions analysis must be included in the Expanded ENF.)

Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)?

BELL ROCK SUBSTATION REBUILD PROJECT MEPA ENVIRONMENTAL NOTIFICATION FORM (ENF) THRESHOLDS
Wetlands, Waterways and Tidelands: alteration of 5,000 or more square feet of bordering or isolated vegetated wetlands. (301 CMR 11.03(3)(b)(1)(d))
Wetlands, Waterways and Tidelands: alteration of 1,000 or more sf of outstanding resource waters. (301 CMR 11.03(3)(b)(1)(c))

ACUSHNET TO FALL RIVER RELIABILITY PROJECT MEPA ENVIRONMENTAL IMPACT REPORT (EIR) THRESHOLDS
Wetlands, Waterways and Tidelands: alteration of one or more acres of bordering vegetated wetlands. (301 CMR 11.03(3)(a)(1)(a))
ACUSHNET TO FALL RIVER RELIABILITY PROJECT MEPA ENVIRONMENTAL NOTIFICATION FORM (ENF) THRESHOLDS
State-listed Species under M.G.L c. 131A: greater than two acres of disturbance of designated priority habitat, as defined in 321 CMR 10.02, that results in a take of a state-listed endangered or threatened species or species of special concern. (301 CMR 11.03(2)(b)(2))
Wetlands, Waterways and Tidelands: alteration of 5,000 or more sf of bordering or isolated vegetated wetlands. (301 CMR 11.03(3)(b)(1)(d))

Which State Agency Permits will the project require?

PROJECT	AGENCY/ REGULATORY AUTHORITY	PERMIT AND/OR PURPOSE OF APPROVAL
Bell Rock Substation Rebuild Project	Massachusetts Department of Environmental Protection (MassDEP)	Individual Section 401 Water Quality Certification
	MassDEP	Massachusetts Wetlands Protection Act (WPA) – Superseding Order of Conditions (potential)
	MA Natural Heritage and Endangered Species Program (NHESP)	Massachusetts Endangered Species Act (MESA) Review
	Massachusetts Historical Commission (MHC)	Massachusetts Historical Commission and Protection of Properties Included in the State Register of Historic Places (950 CMR 70 and 71) – Project Notification Form (PNF)
	Massachusetts Department of Conservation and Recreation (MA DCR)	Construction and Access Permit (potential)
Acushnet to Fall River Reliability Project	Massachusetts Energy Facilities Siting Board (EFSB)	Approval to construct and operate the project pursuant to G.L. c. 164, § 69J
	Massachusetts Department of Public Utilities (DPU)	Approval to construct and operate the project pursuant to G.L. c. 164, § 72
	MassDEP	Individual Section 401 Water Quality Certification

	MassDEP	Massachusetts WPA – Superseding Order of Conditions (potential)
	NHESP	MESA Review and approval of a Conservation Management Permit
	MHC	MHC and Protection of Properties Included in the State Register of Historic Places (950 CMR 70 and 71) –PNF
	Massachusetts Department of Conservation and Recreation (MA DCR)	Construction and Access Permit (potential)
	Massachusetts Department of Transportation (MassDOT)	State and Interstate Highway Right-of-Way Encroachment Permit and Crossing Permit

Identify any financial assistance or land transfer from an Agency of the Commonwealth, including the Agency name and the amount of funding or land area in acres:

Not Applicable: No financial assistance or land transfer will be associated with this Project.

Summary of Cumulative Project Size & Environmental Impacts[1]	**Existing**	**Change**	**Total**
LAND			
Total site acreage	294.75		
New acres of land altered		28.62[2]	
Acres of impervious area	0.05[3]	0.3	0.35[4]
Square feet of new bordering vegetated wetlands alteration		40,952[5]	
Square feet of new other wetland alteration		0	
Acres of new non-water dependent use of tidelands or waterways		0	
STRUCTURES			
Gross square footage	704 sf[6]	+1,600 sf[7]	2,304 sf (64ft x 36ft) control building[7]
Number of housing units	N/A	N/A	N/A
Transmission Line Structures	2	122 (121 permanent and one temporary) 2 existing structures to be removed	120
Maximum height (feet)	65 ft	+45	110 ft
TRANSPORTATION			
Vehicle trips per day	N/A	N/A	N/A
Parking spaces	N/A	N/A	N/A
WASTEWATER			
Water Use (Gallons per day)	N/A	N/A	N/A

Water withdrawal (GPD)	N/A	N/A	N/A
Wastewater generation/treatment (GPD)	N/A	N/A	N/A
Length of water mains (miles)	N/A	N/A	N/A
Length of sewer mains (miles)	N/A	N/A	N/A
Has this project been filed with MEPA before? ☐ Yes (EEA #_____) ☒No			
Has any project on this site been filed with MEPA before? ☐ Yes (EEA #_____) ☒No			

Notes:
[1] Refer to the EENF narrative for a separate summary of impacts for the Bell Rock Substation Rebuild Project and AFRRP.
[2]Area of Bell Rock Substation upgrade (limits of site clearing) and tree clearing for the AFRRP.
[3]Acres of existing impervious surface at the Bell Rock Substation as determined by aerial interpretation.
[4] Proposed impervious area (pavement and building roof) for the Bell Rock Substation.
[5] Total permanent fill in BVW for the AFRRP and Bell Rock Substation Rebuild Project
[6]Control Building to be removed at Bell Rock Substation.
[7] Difference between Existing and Total.
[8]Total is the proposed building at Bell Rock Substation.

GENERAL PROJECT INFORMATION – all proponents must fill out this section

PROJECT DESCRIPTION:

The attached EENF contains a comprehensive Project Narrative for the two projects included in this filing:

- Bell Rock Substation Rebuild Project being proposed by NEP; and
- The Acushnet to Fall River Reliability Project being proposed jointly by Eversource and NEP

Section 1.0 of the narrative includes the Introduction. Section 2.0 includes a detailed description of the Projects. Section 3.0 provides a description of the Project alternatives. Existing and proposed Land Use is discussed in Section 4.0. Wetlands and wildlife and rare species are addressed in Sections 5.0 and 6.0. Section 7.0 addresses Outstanding Resource Waters. Section 8.0 includes Historic and Archaeological Resource discussions. Section 9 addresses Cumulative Impacts. Climate Change Adaptation and Resiliency Greenhouse Gas Analysis, Noise, and Air Quality are described in Sections 10.0 - 11.0, respectively. Construction-Period Considerations are included in Section 12.0. Section 13.0 describes the Project Regulatory Compliance. Mitigation measures are described throughout the EENF and are summarized in Section 14.0.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN:
Is the project within or adjacent to an Area of Critical Environmental Concern?
☐Yes (Specify_____)
☒No
if yes, does the ACEC have an approved Resource Management Plan? ___ Yes ___ No;
If yes, describe how the project complies with this plan.
_____
Will there be stormwater runoff or discharge to the designated ACEC? ___ Yes ___ No;
If yes, describe and assess the potential impacts of such stormwater runoff/discharge to the designated ACEC.
_____

RARE SPECIES:
Does the project site include Estimated and/or Priority Habitat of State-Listed Rare Species? (see http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/priority_habitat/priority_habitat_home.htm)
☒Yes [Specify: Eastern Whip-poor-will (*Caprimulgus vociferous*), Eastern Box Turtle (*Terrapene carolina*), Long-leaved Panic-grass (*Panicum rigidulum ssp. pubescens*), Rigid Flax (*Linum medium var texanum*), Weak Rush (*Juncus debilis*), Philadelphia Panic-Grass (*Panicum philadelphicum spp. Philadelphicum*), Marbled Salamander (*Ambystoma opacum*).
Refer to section 6.0 for more information.]
☐No

HISTORICAL /ARCHAEOLOGICAL RESOURCES:
Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?
☒Yes (Specify_See Below_) ☒No

Please refer to Section 8.0 in EENF for detailed information on historic/archaeological resources.

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources? ☐Yes (Specify_____) ☒No

WATER RESOURCES:
Is there an Outstanding Resource Water (ORW) on or within a half-mile radius of the project site?
_X_Yes ___No;
if yes, identify the ORW and its location.

North Watuppa Pond/Reservoir and Copicut Reservoir are identified as Class A public water supplies. Refer to Section 7.0 for more information.

(NOTE: Outstanding Resource Waters include Class A public water supplies, their tributaries, and bordering wetlands; active and inactive reservoirs approved by MassDEP; certain waters within Areas of Critical Environmental Concern, and certified vernal pools. Outstanding resource waters are listed in the Surface Water Quality Standards, 314 CMR 4.00.)

Are there any impaired water bodies on or within a half-mile radius of the project site? _X_Yes _No; if yes, identify the water body and pollutant(s) causing the impairment:_

North Watuppa Pond, Mercury in fish tissue (Category 4A), EPA TMDL No. 33880.
Acushnet River, Fecal Coliform, (Category 5) EPA TMDL No. 36170
Copicut Reservoir, Mercury in fish tissue (Category 5)
Copicut River, Mercury and PCB in fish tissue (Category 5)

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? ___Yes _X_No

STORMWATER MANAGEMENT:

Generally describe the project's stormwater impacts and measures that the project will take to comply with the standards found in MassDEP's Stormwater Management Regulations

According to the National Pollution Discharge Elimination System (NPDES) program in Massachusetts, Notices of Intent (NOI) will be submitted to the United States Environmental Protection Agency (USEPA) under the (NPDES) Stormwater Construction General Permit for Stormwater Discharge from Construction Activities. As required under this program, a site-specific Stormwater Pollution Prevention Plan (SWPPP) will be developed to ensure that the best management practices (BMPs) are implemented during construction to minimize pollutant discharges. Implementation of this plan will include extensive use of erosion and sediment control measures designed to minimize site disturbance and prevent opportunities for sedimentation to occur offsite or toward wetland resource areas.

NEP will also prepare a stormwater report for the Bell Rock Substation Rebuild Project for work associated with the increase in impervious area, which will submitted during the NOI process.

MASSACHUSETTS CONTINGENCY PLAN:

Has the project site been, or is it currently being, regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? Yes ___ No _X__ ; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification):_____

Is there an Activity and Use Limitation (AUL) on any portion of the project site? Yes ___ No X; if yes, describe which portion of the site and how the project will be consistent with the AUL: _____.

Are you aware of any Reportable Conditions at the property that have not yet been assigned an RTN? Yes ___ No X ; if yes, please describe:_____

SOLID AND HAZARDOUS WASTE:

If the project will generate solid waste during demolition or construction, describe alternatives considered for re-use, recycling, and disposal of, e.g., asphalt, brick, concrete, gypsum, metal, wood:

The Projects will comply with MassDEP's Solid Waste and Air Pollution control regulations, pursuant to M.G.L c40, s.54.

If contaminated soils are encountered during construction, the soils will be handled in accordance with the following policies:

- National Grid*'s Environmental Guidance Documents* regarding projects at existing substations and excess soil management from construction projects on ROWs.
- Eversource *Construction & Maintenance Environmental Requirements. Best Management Practices Manual for Massachusetts and Connecticut.*

(NOTE: Asphalt pavement, brick, concrete and metal are banned from disposal at Massachusetts landfills and waste combustion facilities and wood is banned from disposal at Massachusetts landfills. See 310 CMR 19.017 for the complete list of banned materials.)

Will your project disturb asbestos containing materials? Yes _ _ No __ ; See response below.
if yes, please consult state asbestos requirements at http://mass.gov/MassDEP/air/asbhom01.htm

Prior to construction, NEP will complete a pre-characterization and building materials assessment at the Bell Rock Substation site. If any potentially hazardous materials are encountered, any required remediation will be performed in consultation with the MassDEP.

Describe anti-idling and other measures to limit emissions from construction equipment:

Eversource and NEP shall take measures to limit vehicle idling times and to reduce air emissions, including the following:

- In Massachusetts, any diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of Project construction will either be USEPA Tier 4-compliant or will be retrofitted with USEPA-verified (or equivalent) emission control devices such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine.

- The use of ultra-low sulfur diesel fuel in its diesel-powered construction equipment and limits idling time to five minutes except when engine power is necessary for the delivery of materials or to operate accessories to the vehicle such as power lifts.

- Vehicle idling is to be minimized during the construction phase of the Project, in compliance with the following:

    - Massachusetts Anti-idling Law, G.L. c. 90 § 16A, c. 111 §§ 142A – 142M, and 310 CMR 7.11.

In addition, NEP contractors will adhere to National Grid's Environmental Guidance (EG-802MA) Vehicle Idling – Massachusetts.

DESIGNATED WILD AND SCENIC RIVER:

Is this project site located wholly or partially within a defined river corridor of a federally designated Wild and Scenic River or a state designated Scenic River? Yes ___ No _X__ ;
if yes, specify name of river and designation:

If yes, does the project have the potential to impact any of the "outstandingly remarkable" resources of a federally Wild and Scenic River or the stated purpose of a state designated Scenic River?
Yes ___ No ___ ; if yes, specify name of river and designation: _____;
if yes, will the project will result in any impacts to any of the designated "outstandingly remarkable" resources of the Wild and Scenic River or the stated purposes of a Scenic River.
Yes ___ No ___ ;
if yes,describe the potential impacts to one or more of the "outstandingly remarkable" resources or stated purposes and mitigation measures proposed.

ATTACHMENTS:

1. List of all attachments to this document.
   - **Cover Letter and Circulation List**
   - **Project Narrative**
   - **Appendices A through K**

2. U.S.G.S. map (good quality color copy, 8-½ x 11 inches or larger, at a scale of 1:24,000) indicating the project location and boundaries. **(See Appendix A)**

3.. Plan, at an appropriate scale, of existing conditions on the project site and its immediate environs, showing all known structures, roadways and parking lots, railroad rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities. **(See Appendix A)**

4 Plan, at an appropriate scale, depicting environmental constraints on or adjacent to the project site such as Priority and/or Estimated Habitat of state-listed rare species, Areas of Critical Environmental Concern, Chapter 91 jurisdictional areas, Article 97 lands, wetland resource area delineations, water supply protection areas, and historic resources and/or districts. **(See Appendix A)**

5. Plan, at an appropriate scale, of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase). **(See Appendix A)**

6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2). **(See Cover Letter and attached Circulation List)**

7. List of municipal and federal permits and reviews required by the project, as applicable. **(See Table 1-5: State Agency Permits, Reviews and Approvals)**

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)
___ Yes _X_ No; if yes, specify each threshold:

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

Bell Rock Substation*	Existing	Change	Total
Footprint of buildings	0.02[1]	0.04[2]	~0.06[3]
Internal roadways	N/A	N/A	N/A
Parking and other paved areas	0	0.3[4]	0.3[4]
Other altered areas	N/A	N/A	N/A
Undeveloped areas	N/A	N/A	N/A
Total: Project Site Acreage	2.75	0	2.75

Notes:
[1]Existing Building as Bell Rock Substation 704 square feet (32ft x 22ft).
[2]Difference between Existing and Total.
[3]Proposed building for Bell Rock Substation (64ft x 36ft).
[4]Proposed paved surfaces at Bell Rock Substation.
* Facilities described above pertain only to the Bell Rock Substation. No buildings or other paved areas are proposed for the AFRRP.

B. Has any part of the project site been in active agricultural use in the last five years?
Yes ___ No _X_; if yes, how many acres of land in agricultural use (with prime state or locally important agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use?
Yes __ No _X_; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a forest management plan approved by the Department of Conservation and Recreation:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? Yes ___ No _X_; if yes, describe:

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction? Yes ___ No _X_; if yes, does the project involve the release or modification of such restriction? ___ Yes ___ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? Yes ___ No _X_; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? Yes ___ No X_; if yes, describe:

III. Consistency

A. Identify the current municipal comprehensive land use plan
Title: City of Fall River Master Plan 2009-2030 Date_____12/11/2009_____

Title: City of Fall River Community Preservation Plan Date_____April 2014_____
Title: Town of Acushnet Master Plan Date_____January 2008_____
Title: City of New Bedford Preservation Plan Date_____June 2017_____
Title: City of New Bedford Master Plan 2020 Date_____2010_____
Title: Town of Dartmouth Master Plan 2007 Date_____2007 _____

B. Describe the project's consistency with that plan with regard to:
1) economic development __See Below_____
2) adequacy of infrastructure __See Below _____
3) open space impacts _See Below _____
4) compatibility with adjacent land uses___See Below_____

Since the both the Bell Rock Substation Rebuild Project and the AFRRP are located entirely within existing utility easements held by NEP or Eversource, permanent impacts to adjacent land uses will be minimized, despite tree clearing activities which are a component of the Project. Overall, the Bell Rock Substation Rebuild Project and the AFRRP are not expected to change or significantly impact land uses since no acquisition of additional land is required and there will be no change to the present use. Therefore, the Bell Rock Substation Rebuild Project and the AFRPP are consistent with the existing public utility presence in the area.

Community Preservation Plan
In terms of regional and local land use planning, the Bell Rock Substation Rebuild Project and the AFRRP are anticipated to remain consistent with the Community Preservation Plans of the area. These plans discuss community preservation goals and projects specific to preservation within each of the four designated purposes of the Community Preservation Act (these include open space, recreation, historic preservation, and community housing). These plans do not specifically address energy or electrical transmission lines.

Refer to Section 4 for more information.

C. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA)
RPA: Southeastern Regional Planning and Economic Development District

Title: _Regional Land Use: Role, Policies and Plan Outline for Southeastern Massachusetts_____ Date _June 1996_____

D. Describe the project's consistency with that plan with regard to:
1) economic development __See Below_____
2) adequacy of infrastructure ___See Below_____
3) open space impacts _____See Below_____

The Bell Rock Substation Rebuild Project and the AFRRP are located within the areas covered by the Southeastern Regional Planning and Economic Development District (SRPEDD). The SRPEDD's existing plans include the *Regional Land Use: Role, Policies and Plan Outline for Southeastern Massachusetts (1996), Southeastern Massachusetts: Vision 2020 - An Agenda for the Future (1999), and the Regional Transportation Plan (2012).* These documents review growth trends within the region, and outline the strategic goals and policies aimed at promoting sound land use planning. The policies discussed in these Plans are primarily concerned with preventing sprawl; reducing the loss of open space and farmland; and encouraging appropriate infill in more developed "growth" areas. Utility facilities or services are not explicitly addressed in these documents.

The purpose of the Bell Rock Substation Rebuild Project and the AFRRP are to improve

electric transmission reliability in the Southeastern Massachusetts area. The Bell Rock Substation Rebuild Project and the AFRRP will also maintain compliance with regional and national electric standards. The Bell Rock Substation Rebuild Project and the AFRRP are within existing utility easements. No new cross-country ROWs are proposed. As a result, the Bell Rock Substation Rebuild Project and the AFRRP are consistent with the policies contained in the planning documents.

RARE SPECIES SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? _X_ Yes ___ No; if yes, specify, in quantitative terms:

(NOTE: If you are uncertain, it is recommended that you consult with the Natural Heritage and Endangered Species Program (NHESP) prior to submitting the ENF.)

B. Does the project require any state permits related to **rare species or habitat**? _X_ Yes ___ No

C. Does the project site fall within mapped rare species habitat (Priority or Estimated Habitat?) in the current Massachusetts Natural Heritage Atlas (attach relevant page)? __X_ Yes ___ No.

D. If you answered "No" to all questions A, B and C, proceed to the **Wetlands, Waterways, and Tidelands Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Rare Species section below.

II. Impacts and Permits

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? _X _ Yes ___ No. Priority Habitat PH364 and PH517 and Estimated Habitat EH336 & EH449. If yes,
1. Have you consulted with the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP)? _X_Yes ___No; Refer to EENF, Appendix B. if yes, have you received a determination as to whether the project will result in the "take" of a rare species? ___ Yes _X_ No; if yes, attach the letter of determination to this submission.

2. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes __ No; if yes, provide a summary of proposed measures to minimize and mitigate rare species impacts

The Companies are actively coordinating with the NHESP regarding the state-listed species in the vicinity of the Bell Rock Substation Rebuild Project and AFRRP, and will continue with this consultation in order to minimize or avoid potential adverse effects on rare species during design, construction, and operation. At this time, no formal take determine has been made for the Bell Rock Substation Rebuild Project or AFRRP. Refer to Section 6 for more information.

3. Which rare species are known to occur within the Priority or Estimated Habitat?

SCIENTIFIC NAME	COMMON NAME	TAXONOMIC GROUP	STATE STATUS
Panicum rigidulum ssp *pubescens*	Long-leaved Panic-grass	Plant	Threatened
Caprimulgus vociferus	Eastern Whip-poor-will	Bird	Special Concern
Terrapene carolina	Eastern Box Turtle	Reptile	Special Concern
Linum medium var *texanum*	Rigid Flax	Plant	Threatened
Juncus debilis	Weak Rush	Plant	Endangered
Panicum philadelphicum	Philadelphia	Plant	Special Concern

ssp. *philadelphicum*	Panic-Grass		
Ambystoma opacum	Marbled Salamander	Amphibian	Threatened

4. Has the site been surveyed for rare species in accordance with the Massachusetts Endangered Species Act? _X_ Yes ___ No

5. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? __ Yes _X__ No; if yes, did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? __ Yes ___ No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes __ No; if yes, provide a summary of proposed measures to minimize and mitigate impacts to significant habitat:

The Companies are actively coordinating with the NHESP regarding the state-listed species in the vicinity of the Bell Rock Substation Rebuild Project and AFRRP, and will continue with this consultation in order to minimize or avoid potential adverse effects on rare species during design, construction, and operation. At this time, no formal take determine has been made for the Bell Rock Substation Rebuild Project or AFRRP. Refer to Section 6 for more information.

WETLANDS, WATERWAYS, AND TIDELANDS SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? _X_ Yes ___ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? _X_ Yes ___ No; if yes, specify which permit:

MassDEP / Local Conservation Commissions – Massachusetts Wetlands Protection Act (WPA)

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

II. Wetlands Impacts and Permits

A. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? _X_ Yes ___ No;
if yes, has a Notice of Intent been filed? ___ Yes _X_ No;
if yes, list the date and MassDEP file number: _____;
if yes, has a local Order of Conditions been issued? ___ Yes ___ No;
Was the Order of Conditions appealed? ___ Yes ___ No.
Will the project require a Variance from the Wetlands regulations? ___ Yes ___ No.

B. Describe any proposed permanent or temporary impacts to wetland resource areas located on the project site: **See Section 5.0**

C. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:

	Area (square feet) or Length (linear feet)	Temporary or Permanent Impact?
Coastal Wetlands		
Land Under the Ocean Designated Port Areas	___N/A___	_____
Coastal Beaches	___N/A___	_____
Coastal Dunes	___N/A___	_____
Barrier Beaches	___N/A___	_____
Costal Banks	___N/A___	_____
Rocky Intertidal Shores	___N/A___	_____
Salt Marshes	___N/A___	_____
Land Under Salt Ponds	___N/A___	_____
Land Containing Shellfish	___N/A___	_____
Fish Runs	___N/A___	_____
Land Subject to Costal Storm Flowage	___N/A___	_____

	Area (square feet) or Length (linear feet)	Temporary or Permanent Impact?
Inland Wetlands		
Bank (lf)	202 lf	Temporary Linear feet of construction mats where stream crossings could not be avoided.
	625 square feet	Permanent Square feet of impact associated with one culvert crossing in a stream.
Bordering Vegetated Wetlands (BVW)	449,089 sf	Temporary Approximately 313,427 sf (7.20 acres) for construction mats for access routes and work pads where BVW crossings could not be avoided.
		Permanent Approximately 40,952 sf (0.94 acres) of permanent fill for the Bell Rock Substation footprint and AFRRP structures. Approximately 94,710 sf (2.17 acres) of conversion of forested wetlands to scrub shrub wetlands due to tree clearing.
Land Under Water (LUW)	0	
Bordering Land Subject to Flooding (BLSF)	91,992 sf	Temporary Approximately 91,707 sf (2.11 acre) for temporary construction access for access routes and work pads where BLSF crossings could not be avoided.
		Permanent Approximately 285 sf (0.01 acre) of permanent fill for AFRRP Line Structures.

	Area (square feet) or Length (linear feet)	Temporary or Permanent Impact?
Riverfront Area (RFA)	56,535 sf	Temporary Approximately 49,309 sf (1.13 acre) for temporary construction access for access routes and work pads where RFA crossings could not be avoided. Permanent Approximately 7,226 sf (0.17 acre) of permanent fill for AFRRP Line Structures.

Notes: Impacts are based on preliminary design and represent a conservative estimate of Project-related disturbances. The EENF narrative provides a separate summary of impacts for the Bell Rock Substation and AFRRP impacts.

D. Is any part of the project:

1. proposed as a **limited project**? _X_ Yes ___ No; if yes, what is the area (in sf)?____ Each project is proposed as a limited project.
2. the construction or alteration of a **dam**? ___ Yes _X_ No; if yes, describe:
3. fill or structure in a **velocity zone** or **regulatory floodway**? ___ Yes _X_ No The AFRRP will result in impacts to the 100-year floodplain. No impacts are anticipated to regulatory floodways.
4. dredging or disposal of dredged material? ___ Yes _X_ No; if yes, describe the volume of dredged material and the proposed disposal site:
5. a discharge to an **Outstanding Resource Water (ORW)** or an **Area of Critical Environmental Concern (ACEC)**? _X_ Yes ___ No
6. subject to a wetlands restriction order? ___ Yes _X__ No; if yes, identify the area (in sf):
7. located in buffer zones? _X_Yes ___No; if yes, how much (in sf) _107,125 sf of permanent impacts to 100' buffer zones.

E. Will the project:

1. be subject to a local wetlands ordinance or bylaw? __ Yes ___ No
2. alter any federally-protected wetlands not regulated under state law? __ Yes _X_ No; if yes, what is the area (sf)? *No permanent impacts to IVW are proposed.

The Companies will consult with the MassDEP as the AFRRP design is finalized and anticipate that, if the work is not exempt, notices of minor modification will be sufficient to address crossings of waterways determined to be navigable and jurisdictional by the MassDEP.

III. Waterways and Tidelands Impacts and Permits

A. Does the project site contain waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? _X__ Yes __ No; if yes, is there a current Chapter 91 License or Permit affecting the project site? _X__ Yes ___ No; if yes, list the date and license or permit number and provide a copy of the historic map used to determine extent of filled tidelands: Acushnet River Crossing – License No. 4374, Recorded October 19, 1960

NEP and Eversource will coordinate with the MassDEP Waterways Program to review project plans as they relate to Chapter 91 jurisdiction and will obtain any necessary approval(s) under the Chapter 91 Waterways Program.

B. Does the project require a new or modified license or permit under M.G.L.c.91? ___ Yes __ No; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water-dependent

use? Current ___ Change ___ Total ___
If yes, how many square feet of solid fill or pile-supported structures (in sf)?

NEP and Eversource will coordinate with the MassDEP Waterways Program to review project plans as they relate to Chapter 91 jurisdiction and will obtain any necessary approval(s) under the Chapter 91 Waterways Program.

C. For non-water-dependent use projects, indicate the following:
Area of filled tidelands on the site:_____N/A_____
Area of filled tidelands covered by buildings:__N/A_____
For portions of site on filled tidelands, list ground floor uses and area of each use: ____N/A_____
Does the project include new non-water-dependent uses located over flowed tidelands? Yes ___ No ___
Height of building on filled tidelands____N/A_____

Also show the following on a site plan: Mean High Water, Mean Low Water, Water-dependent Use Zone, location of uses within buildings on tidelands, and interior and exterior areas and facilities dedicated for public use, and historic high and historic low water marks.

D. Is the project located on landlocked tidelands? ___ Yes _X_ No; if yes, describe the project's impact on the public's right to access, use and enjoy jurisdictional tidelands and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

E. Is the project located in an area where low groundwater levels have been identified by a municipality or by a state or federal agency as a threat to building foundations? ___Yes _X_ No; if yes, describe the project's impact on groundwater levels and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

F. Is the project non-water-dependent **and** located on landlocked tidelands **or** waterways or tidelands subject to the Waterways Act **and** subject to a mandatory EIR? ___ Yes _X_ No;
(NOTE: If yes, then the project will be subject to Public Benefit Review and Determination.)

G. Does the project include dredging? ___ Yes _X_ No; if yes, answer the following questions:
What type of dredging? Improvement ___ Maintenance ___ Both ____
What is the proposed dredge volume, in cubic yards (cys) _____
What is the proposed dredge footprint ____length (ft) ___width (ft)____depth (ft);
Will dredging impact the following resource areas?
Intertidal Yes__ No__; if yes, ___ sq ft
Outstanding Resource Waters Yes__ No__; if yes, ___ sq ft
Other resource area (i.e. shellfish beds, eel grass beds) Yes__ No__; if yes __ sq ft
If yes to any of the above, have you evaluated appropriate and practicable steps to: 1) avoidance; 2) if avoidance is not possible, minimization; 3) if either avoidance or minimize is not possible, mitigation?
If no to any of the above, what information or documentation was used to support this determination?
Provide a comprehensive analysis of practicable alternatives for improvement dredging in accordance with 314 CMR 9.07(1)(b). Physical and chemical data of the sediment shall be included in the comprehensive analysis.
Sediment Characterization
Existing gradation analysis results? __Yes ___No: if yes, provide results.

Existing chemical results for parameters listed in 314 CMR 9.07(2)(b)6? ___Yes
____No; if yes, provide results.

Do you have sufficient information to evaluate feasibility of the following management options for dredged sediment? If yes, check the appropriate option.

Beach Nourishment ___
Unconfined Ocean Disposal ___
Confined Disposal:
Confined Aquatic Disposal (CAD) ___
Confined Disposal Facility (CDF) ___
Landfill Reuse in accordance with COMM-97-001 ___
Shoreline Placement ___
Upland Material Reuse____
In-State landfill disposal____
Out-of-state landfill disposal ____
(NOTE: This information is required for a 401 Water Quality Certification.)

IV. Consistency:

A. Does the project have effects on the coastal resources or uses, and/or is the project located within the Coastal Zone? ___ Yes _X_ No; if yes, describe these effects and the projects consistency with the policies of the Office of Coastal Zone Management:

B. Is the project located within an area subject to a Municipal Harbor Plan? ___ Yes _X_ No; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

WATER SUPPLY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **water supply**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

II. Impacts and Permits

A. Describe, in gallons per day (gpd), the volume and source of water use for existing and proposed activities at the project site:

	Existing	Change	Total
Municipal or regional water supply	_____	_____	_____
Withdrawal from groundwater	_____	_____	_____
Withdrawal from surface water	_____	_____	_____
Interbasin transfer	_____	_____	_____

(NOTE: Interbasin Transfer approval will be required if the basin and community where the proposed water supply source is located is different from the basin and community where the wastewater from the source will be discharged.)

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? ___ Yes ___ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source, has a pumping test been conducted? ___ Yes ___ No; if yes, attach a map of the drilling sites and a summary of the alternatives considered and the results. _____

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons per day)? _____Will the project require an increase in that withdrawal? ___Yes ___No; if yes, then how much of an increase (gpd)? _____

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? ___ Yes ___No. If yes, describe existing and proposed water supply facilities at the project site:

	Permitted Flow	Existing Avg Daily Flow	Project Flow	Total
Capacity of water supply well(s) (gpd)	_____	_____	_____	_____
Capacity of water treatment plant (gpd)	_____	_____	_____	_____

F. If the project involves a new interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

G. Does the project involve:

1. new water service by the Massachusetts Water Resources Authority or other agency of the Commonwealth to a municipality or water district? ___ Yes ___ No
2. a Watershed Protection Act variance? ___ Yes ___ No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking

water supply for purpose of forest harvesting activities? ___ Yes ___ No

III. Consistency

Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

WASTEWATER SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

II. Impacts and Permits

A. Describe the volume (in gallons per day) and type of disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00 for septic systems or 314 CMR 7.00 for sewer systems):

	Existing	Change	Total
Discharge of sanitary wastewater	_____	_____	_____
Discharge of industrial wastewater	_____	_____	_____
TOTAL	_____	_____	_____

	Existing	Change	Total
Discharge to groundwater	_____	_____	_____
Discharge to outstanding resource water	_____	_____	_____
Discharge to surface water	_____	_____	_____
Discharge to municipal or regional wastewater facility	_____	_____	_____
TOTAL	_____	_____	_____

B. Is the existing collection system at or near its capacity? ___ Yes ___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

C. Is the existing wastewater disposal facility at or near its permitted capacity? ___ Yes___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? ___ Yes ___ No; if yes, describe as follows:

	Permitted	Existing Avg Daily Flow	Project Flow	Total
Wastewater treatment plant capacity (in gallons per day)	_____	_____	_____	_____

E. If the project requires an interbasin transfer of wastewater, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or new?

(NOTE: Interbasin Transfer approval may be needed if the basin and community where wastewater will be discharged is different from the basin and community where the source of water supply is located.)

F. Does the project involve new sewer service by the Massachusetts Water Resources Authority (MWRA) or other Agency of the Commonwealth to a municipality or sewer district? ___ Yes ___ No

G. Is there an existing facility, or is a new facility proposed at the project site for the storage, treatment, processing, combustion or disposal of sewage sludge, sludge ash, grit, screenings, wastewater reuse (gray water) or other sewage residual materials? ___ Yes ___ No; if yes, what is the capacity (tons per day):

	Existing	Change	Total
Storage	_____	_____	_____
Treatment	_____	_____	_____
Processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

H. Describe the water conservation measures to be undertaken by the project, and other wastewater mitigation, such as infiltration and inflow removal.

III. Consistency

A. Describe measures that the proponent will take to comply with applicable state, regional, and local plans and policies related to wastewater management:

B. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? ___ Yes ___ No; if yes, indicate the EEA number for the plan and whether the project site is within a sewer service area recommended or approved in that plan:

TRANSPORTATION SECTION (TRAFFIC GENERATION)

I. Thresholds / Permit

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? Yes ___ No _X_; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **state-controlled roadways**? Yes _X__ No __ ; if yes, specify which permit:

- State, Interstate Highway Right-of-Way Encroachment Permit
- State, Interstate Highway Crossing Permit (construction)

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	Existing	Change	Total
Number of parking spaces	_____	_____	_____
Number of vehicle trips per day	_____	_____	_____
ITE Land Use Code(s):	_____	_____	_____

B. What is the estimated average daily traffic on roadways serving the site?

Roadway	Existing	Change	Total
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

C. If applicable, describe proposed mitigation measures on state-controlled roadways that the project proponent will implement:

Intermittent construction-related traffic associated with construction will occur over the entire construction period. Typically, construction equipment will access the ROWs from public roadways, crossing the ROWs in various locations along the route. Because construction tasks will occur at different times and locations over the course of the construction, traffic will be intermittent at these entry roadways. Traffic will consist of vehicles ranging from pick-up trucks to heavy construction equipment to large trailers delivering poles.

MassDOT is responsible for the Permit to Access State Highway/Non-Municipal Utility for crossing over state roads with utility lines. The proposed AFRRP's impacts relative to MassDOT are associated with the installation of new overhead wires across state roadways by a non-municipal utility. The installation could temporarily affect traffic flow of the roadway, but does not involve physical modifications to the roadway or roadway ROW. Prior to the start of construction, a Traffic Management Plan with complete details of proposed work will be developed with MassDOT input and submitted for their review and approval. The Proponent will comply with all required measures to ensure a safe environment for traffic flow and construction crews in and around the roadways (refer to Section 12.0).

D. How will the project implement and/or promote the use of transit, pedestrian and bicycle facilities and services to provide access to and from the project site?

C. Is there a Transportation Management Association (TMA) that provides transportation demand management (TDM) services in the area of the project site? Yes _____ No __X__; if yes, describe if and how will the project will participate in the TMA:

D. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation facilities? Yes __X__ No ____; if yes, generally describe: The AFRRP ROW crosses a railroad corridor in the City of New Bedford. Eversource holds an existing easement with the New York, New Haven, and Hartford Railroad Co. for the existing transmission line crossing at this location.

E. If the project will penetrate approach airspace of a nearby airport, has the proponent filed a Massachusetts Aeronautics Commission Airspace Review Form (780 CMR 111.7) and a Notice of Proposed Construction or Alteration with the Federal Aviation Administration (FAA) (CFR Title 14 Part 77.13, forms 7460-1 and 7460-2)?

III. Consistency

Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

Construction of the Bell Rock Substation Rebuild Project and AFRRP will primarily occur on existing utility ROWs not designated for public use, and therefore will not affect transit, pedestrian, or bicycle transportation facilities. The Bell Rock Substation Rebuild Project and AFRRP are consistent with federal, state, regional and local plans and policies; minimal, if any, impacts related to roadways or other transportation facilities are anticipated.

TRANSPORTATION SECTION (ROADWAYS AND OTHER TRANSPORTATION FACILITIES)

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? Yes ___ No _X_; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **roadways or other transportation facilities**? Yes _X__ No __; if yes, specify which permit:

MassDCR Construction and Access Permit (potential)
MassDOT State and Interstate Highway Right-of-Way Encroachment Permit and Crossing Permit

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities in the immediate vicinity of the project site:

The AFRRP impacts relative to MassDOT are associated with the installation of overhead wires across state roadways by a non-municipal utility. The Companies will comply with all required measures to ensure a safe environment for traffic flow and construction crews in and around the roadways.

B. Will the project involve any
1. Alteration of bank or terrain (in linear feet)? _____
2. Cutting of living public shade trees (number)? _____
3. Elimination of stone wall (in linear feet)? _____

III. Consistency -- Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan:

ENERGY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? Yes ___ No _X_; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? Yes ___ No _X_; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	_____	_____	_____
Length of fuel line (in miles)	_____	_____	_____
Length of transmission lines (in miles)	_____	_____	_____
Capacity of transmission lines (in kilovolts)	_____	_____	_____

B. If the project involves construction or expansion of an electric generating facility, what are:

1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way? Yes ___ No ___; if yes, please describe:

D. Describe the project's other impacts on energy facilities and services:

III. Consistency

Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

AIR QUALITY SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? Yes ___ No _X_; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? Yes ___ No _X_; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

II. Impacts and Permits

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)? Yes ___ No ___; if yes, describe existing and proposed emissions (in tons per day) of:

	Existing	Change	Total
Particulate matter	_____	_____	_____
Carbon monoxide	_____	_____	_____
Sulfur dioxide	_____	_____	_____
Volatile organic compounds	_____	_____	_____
Oxides of nitrogen	_____	_____	_____
Lead	_____	_____	_____
Any hazardous air pollutant	_____	_____	_____
Carbon dioxide	_____	_____	_____

B. Describe the project's other impacts on air resources and air quality, including noise impacts:

III. Consistency

A. Describe the project's consistency with the State Implementation Plan:

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:

SOLID AND HAZARDOUS WASTE SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? Yes ___ No _X_; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**?
Yes ___ No _X_; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

II. Impacts and Permits

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? Yes ___ No ___; if yes, what is the volume (in tons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? Yes ___ No ___; if yes, what is the volume (in tons or gallons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Recycling	_____	_____	_____
Treatment	_____	_____	_____
Disposal	_____	_____	_____

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

D. If the project involves demolition, do any buildings to be demolished contain asbestos?
Yes ___ No ___

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

III. Consistency

Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

I. Thresholds / Impacts

A. Have you consulted with the Massachusetts Historical Commission? Yes _X_ No ___; if yes, attach correspondence. For project sites involving lands under water, have you consulted with the Massachusetts Board of Underwater Archaeological Resources? ____Yes ____ No; if yes, attach correspondence

B. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? Yes ___ No _X_; if yes, does the project involve the demolition of all or any exterior part of such historic structure? Yes ___ No ___; if yes, please describe:

C. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? Yes __ No _X_; if yes, does the project involve the destruction of all or any part of such archaeological site? ___ Yes __ No; if yes, please describe:

Review of the Inventory of Historic and Archaeological Assets of the Commonwealth indicates that the AFRRP is in the vicinity of several previously-recorded archaeological sites. No destruction of any such site is anticipated at this time. Additional information regarding surveys to identify and evaluate historic and archaeological resources for the AFRRP can be found below.

D. If you answered "No" to all parts of both questions A, B and C, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

II. Impacts

Describe and assess the project's impacts, direct and indirect, on listed or inventoried historical and archaeological resources:

Bell Rock Substation

No direct effects to archaeological sites are expected as a result of ground disturbing activities during construction.

AFRRP

There are no historic (above-ground) resources within the APE for the AFRRP. The assessment of potential impacts to listed or inventoried archaeological resources is ongoing, but no impacts are anticipated at this time and, in the event there is a potential for impact, it will be addressed as part of the Section 106 consultation process.

III. Consistency

Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

Both the Bell Rock Substation Rebuild Project and the AFRRP are subject to review under Section 106 of the National Historic Preservation Act (36 CFR Part 800) (Section 106) as they require permits from the USACE. The projects are also subject to review by the MHC under G.L. c. 9 §§ 26–27C and the MHC's implementing regulations at 950 CMR 71.00 et seq. NEP and Eversource are coordinating with both the USACE and MHC to avoid adverse effects to historic and archaeological resources eligible for listing in the NRHP, to the extent required by law. As part of its Section 404 permit review, pursuant to Section 106, the USACE will also consult with Native American Tribes that express an interest in the historic resources that may be affected by portions of the projects within

USACE jurisdiction.

Bell Rock Substation

NEP has contracted archaeologists from POWER to carry out background research, MHC file review, and an archaeological survey in order to identify eligible properties and to make recommendations about potential effects and how to resolve those that are adverse.

AFRRP

NEP and Eversource have contracted PAL to address the Section 106 concerns of the USACE and seek the comments of the MHC and Native American Tribes. PAL conducted background research and a physical inspection of the AFRRP area. Background research involved a review of existing cultural resource reports on file at PAL and at MHC, correspondence, and previously-recorded historic and archaeological site files on file at MHC. PAL also conducted an intensive (locational) archaeological survey for the NEP portion of the AFRRP to identify archaeological resources along the AFRRP corridor. PAL conducted the survey in June/July 2018 and submitted a report to the MHC on October 10, 2018 for review. PAL plans to conduct an intensive (locational) archaeological survey for the Eversource portion of the AFRRP in October and November of 2018, and will report on the results of the investigations to the MHC. PAL will also conduct an historic architectural reconnaissance survey for both the NEP and Eversource portions of the AFRRP once design plans are further refined. NEP and Eversource will continue to consult with the MHC and Native American Tribes throughout the AFRRP permitting process.

CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):

   (Name) Fall River Herald News (Date) November 15
   (Name) The Standard Times (Date) November 15
   (South Coast Today)

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

Signatures:

11/14/18	11/14/18	11/14/18
Date Signature /Date	Signature /Date	Signature /Date
Erin Whoriskey	Michael Zylich	James Durand
Name (print or type)	Name (print or type)	Name (print or type)
New England Power Company	Eversource Energy	POWER Engineers, Inc.
Firm/Agency	Firm/Agency	Firm/Agency
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Fall River Board of Health One Government Center, Room 431 Fall River, MA 02722	**Fall River City Council** One Government Center, Room 221 Fall River, MA 02722	**Fall River Water Division** One Government Center, Room 308 Fall River, MA 02722
Acushnet Planning Board Acushnet Town Hall 122 Main Street Acushnet, MA 02743	**Acushnet Conservation Commission** Acushnet Town Hall 122 Main Street Acushnet, MA 02743	**Acushnet Board of Health** 130 Main Street Parting Ways Bldg Acushnet, MA 02743
Acushnet Board of Selectmen Acushnet Town Hall 122 Main Street Acushnet, MA 02743	**New Bedford Planning Department** 133 William Street, Room 303 New Bedford, MA 02740	**New Bedford Conservation Commission** 133 William Street, Room 304 New Bedford, MA 02740
New Bedford Board of Health 1213 Purchase Street New Bedford, MA 02740	**New Bedford City Council** 133 William Street, Room 215 New Bedford, MA 02740	**Dartmouth Planning Board** Town Hall 400 Slocum Road, Room 317 Dartmouth, MA 02747
Dartmouth Conservation Commission Town Hall 400 Slocum Road, Room 119 Dartmouth, MA 02747	**Dartmouth Board of Health** Town Hall 400 Slocum Road, Room 119 Dartmouth, MA 02747	**Dartmouth Select Board** Town Hall 400 Slocum Road Dartmouth, MA 02747
Coastal Zone Management Attn: Project Review Coordinator 251 Causeway Street, Suite 800 Boston, MA 02114	**Division of Marine Fisheries** Attn: Environmental Reviewer 836 South Rodney French Blvd. New Bedford, MA 02744	

November 15, 2018

NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY

AND NEW ENGLAND POWER COMPANY d/b/a NATIONAL GRID

Bell Rock Substation Rebuild Project and Acushnet to Fall River Reliability Project

Expanded Environmental Notification Form

Filed in Accordance with the Massachusetts Environmental Policy Act 301 CMR 11.00

PROJECT NUMBER:
146770, 146784 and 151783

PROJECT CONTACT:
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POWER ENGINEERS CONSULTING, PC

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Expanded Environmental Notification Form

PREPARED FOR:

NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY
AND NEW ENGLAND POWER COMPANY d/b/a NATIONAL GRID

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ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
AFRRP	Acushnet to Fall River Reliability Project
AIS	Air-Insulated Switchgear
APE	Area of Potential Effect
BLSF	Bordering Land Subject to Flooding
BMP	Best Management Practice
BMP Manual	Eversource's Construction & Maintenance Environmental Requirements: Best Management Practices Manual for Massachusetts and Connecticut.
BVW	Bordering Vegetated Wetland
CELT	2015 Capacity, Energy, Loads and Transmission Report
CFR	Code of Federal Regulations
cm	centimeter(s)
CMP	Conservation and Management Permit
CMR	Code of Massachusetts Regulations
Companies	Eversource and NEP
CVP	Certified Vernal Pool
CWA	Federal Clean Water Act
DCT	Double Circuit Transmission
dm	decimeter(s)
EENF	Expanded Environmental Notification Form
EIR	Environmental Impact Report
EFI	Environmental Field Issue
EFSB	Energy Facilities Siting Board
EG303NE	National Grid's Environmental Guidance on Access, Maintenance and Construction Best Management Practices
ENF	Environmental Notification Form
EOEEA	Executive Office of Energy and Environmental Affairs
Eversource	NSTAR Electric Company d/b/a Eversource Energy
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GCB	gas circuit breakers
GI	General Industrial District
GIS	Geographic Information System
HDD	horizontal direction drill
HUC	Hydrologic Unit Code
IB	Inland Bank
IC	Industrial District
ILSF	Isolated Land Subject to Flooding
ISO-NE	ISO New England Inc., the Independent System Operator for New England
IVM	Integrated Vegetation Management
IVW	Isolated Vegetated Wetland
kV	Kilovolt
lf	linear feet
LUB	Lacustrine Unconsolidated Bottom
LUW	Land Under Water
m	meter(s)
mm	millimeters(s)
M.G.L.	Massachusetts General Law
MA DCR	Massachusetts Department of Conservation Recreation

MassDEP	Massachusetts Department of Environmental Protection
MassDOT	Massachusetts Department of Transportation
MassGIS	Massachusetts Geographic Information System
MEPA	Massachusetts Environmental Policy Act
MESA	Massachusetts Endangered Species Act
MHC	Massachusetts Historical Commission
Montaup	Electric Company
MW	Megawatt
N-1	A first contingency; the largest impact on the system when a first power element (generation or transmission facility) of a system is lost.
N-1-1	A second contingency; the loss of the facility that would have the largest impact on the system after the first facility is lost.
NEP	New England Power Company d/b/a National Grid New England Power Company
NERC	North American Electric Reliability Corporation
NHD	National Hydrography Dataset
NHESP	Natural Heritage and Endangered Species Program
NHPA	National Historic Preservation Act
Non-IPT	non-individual pole tripping
NPCC	Northeast Power Coordinating Council
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O&M	Operation and Maintenance
OHWM	Ordinary High Water Mark
OPGW	Optical Ground Wire
ORW	Outstanding Resource Water
PAL	Public Archaeological Laboratory
PEM	Palustrine Emergent
PFO	Palustrine Forested
PNF	Project Notification Form
POWER	POWER Engineers, Inc.
PSS	Palustrine Scrub-Shrub
PUB	Palustrine Unconsolidated Bottom
PVP	Potential Vernal Pool
R-80	Single Family Residential District
RA	Residential Area
RAO	Response Action Outcome
RFA	Riverfront Area
RIDOT	Rhode Island Department of Transportation
ROW	Right-of-Way
SEMA-RI	Southeastern Massachusetts - Rhode Island
sf	square feet
SF_6	sulfur hexafluoride
SR-B	Single Residence B District
Study Area	300-foot study area buffer
SWPPP	Stormwater Pollution Prevention Plan
URAM	Utility Related Abatement Measure
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture

USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VMP	Vegetation Management Plan
WISCP	Wetland Invasive Species Control Plan
WPA	Wetlands Protection Act
WR	Water Resource
WWD	Watershed and Water Supply Protection District

1.0 INTRODUCTION

1.1 Brief Description of the Proposed Project and Massachusetts Environmental Policy Act Jurisdiction

1.1.1 Overview

The New England Power Company d/b/a National Grid ("NEP") and NSTAR Electric Company d/b/a Eversource Energy ("Eversource") (together, the "Companies") are proposing system upgrade projects to improve reliability in the southeastern Massachusetts area. The first project consists of an electric substation improvement project proposed by NEP at their existing Bell Rock Substation located at 181 Bell Rock Road in Fall River, Massachusetts (the "Bell Rock Substation Rebuild Project" or "Substation Project") (Figure 1-1 in Appendix A). The second project is a joint endeavor by the Companies and consists of the installation of a new electric transmission line extending from Eversource's Industrial Park Tap in Acushnet west to the Bell Rock Substation (the "Acushnet to Fall River Reliability Project" or "AFRRP"). The AFRRP includes the installation of approximately 12.1 miles of new overhead electric transmission line traversing the municipalities of Acushnet, New Bedford, Dartmouth, and Fall River in Bristol County, Massachusetts (Figure 1-2 in Appendix A). The AFRRP will be located within existing rights-of-way ("ROW") currently occupied by several other electric transmission lines. Of the 12.1 miles, approximately 7.9 miles are in Eversource service territory traversing Acushnet, New Bedford and Dartmouth, and approximately 4.2 miles are in NEP service territory traversing Fall River.

While the Companies believe that the two projects are independent undertakings addressing separate needs, with separate schedules and distinct, separable environmental impacts, the Massachusetts Environmental Policy Act ("MEPA") Office has requested that the Companies include both projects in this joint Expanded Environmental Notification Form ("EENF"). The Companies are concerned that combining the review of two different projects with two different schedules could result in delays for these critical reliability projects. To address this concern, while ensuring the full and appropriate review of both projects under MEPA, the Companies are requesting a phase one waiver under 301 CMR 11.11(4) or, in the alternative, a Special Review Procedure under 301 CMR 11.09. The specifics of this Request for Waiver or Special Review Procedure are set forth in Section 1.2.

1.1.2 Bell Rock Substation Rebuild Project

NEP is planning substation upgrades at the existing Bell Rock Substation. The Bell Rock Substation lies within NEP's existing 2.75-acre substation easement (the "Substation Site"). Eversource holds a 1.06-acre easement adjacent (south) to the NEP easement. All substation improvements will be made within the existing substation and adjacent transmission line ROW easements. The purpose of the Bell Rock Substation Rebuild Project is to improve the reliability and operability of the substation, and to rebuild and expand the substation to accommodate the termination of the existing M13 Line at the substation. The Bell Rock Substation Rebuild Project involves the rebuild and expansion of certain facilities at the substation, and will primarily include the following elements (refer to Figure 2-2 in Appendix A):

1) Expand the existing substation footprint by approximately 0.51 acre (22,000 square feet).
2) Expand the existing substation perimeter security fence line.
3) Install a new control building to replace the existing control building.
4) Install new substation-related equipment.

5) Upgrade the stormwater management system.
6) Temporarily reroute the existing M13 transmission line to bypass the existing substation to the south for the purposes of facilitating the rebuild of the substation.
7) Complete additional minor transmission line reconfigurations to connect the lines back into the rebuilt substation.

The Bell Rock Substation Rebuild Project and related M13 transmission line bypass is subject to review under the MEPA as it requires one or more state permits and exceeds the review thresholds listed in Table 1-1 below. A summary of the anticipated Substation Project impacts is included in Table 1-2 and discussed further in Sections 4 through 8.

TABLE 1-1 BELL ROCK SUBSTATION REBUILD PROJECT MEPA REVIEW THRESHOLDS

MEPA ENVIRONMENTAL NOTIFICATION FORM THRESHOLDS
Wetlands, Waterways and Tidelands: Alteration of 5,000 or more square feet of bordering or isolated vegetated wetlands. (301 CMR 11.03(3)(b)(1)(d))
Wetlands, Waterways and Tidelands: Alteration of 1,000 or more square feet of outstanding resource waters. (301 CMR 11.03(3)(b)(1)(c))

TABLE 1-2 BELL ROCK SUBSTATION REBUILD PROJECT ANTICIPATED PROJECT IMPACTS

RESOURCE AREA	TEMPORARY IMPACTS (IN SQUARE FEET)	PERMANENT IMPACTS (IN SQUARE FEET)
New Land Altered (Substation)	N/A[1]	42,898 (0.98 acre)
Bordering Vegetated Wetland (BVW) (Substation and Temporary M13 Line Bypass)[2]	6,611 sf (0.15 acre) – placement of temporary construction mats as a construction-phase mitigation measure	3,599 (0.08 acre) – substation expansion
Rare Species Impacts	Two Natural Heritage and Endangered Species Program (NHESP) state-listed species are located within the vicinity of the substation based on information received from the NHESP (Refer to redacted versions of the Agency Correspondence in Appendix B-2). NEP will implement the Operations and Maintenance (O&M) procedures outlined in *National Grid's 2018 Operation and Maintenance Plan* for Project activities located in designated habitat in addition to implementing any additional conditions that the NHESP recommends for the substation rebuild and expansion.	
Historical/Archaeological Impacts	There is very low potential for impacts of construction-related activities within the substation footprint, based on archaeological testing completed on the substation easements. The Massachusetts Historical Commission (MHC) concurred with the recommendation of no further testing of this site (letter dated May 12, 2017). Additional archaeological testing was completed along the alignment of the M13 Line Bypass. The results of the field testing indicated a very low potential for impacts and the MHC's anticipated concurrence is pending (refer to Agency Correspondence in Appendix B-1). No adverse effects are anticipated.	

Notes:
[1] Temporary impacts are not considered an alteration of land, but are included in the reported alterations to bordering vegetated wetlands. Area will be restored to pre-existing conditions after the construction activity is completed.
[2] All BVW impacts are located with Outstanding Resource Waters (ORW).

1.1.3 Acushnet to Fall River Reliability Project

The Companies are proposing to undertake the AFRRP to improve the electric transmission reliability in the southeastern Massachusetts area. The AFRRP is approximately 12.1 miles and traverses the municipalities of Acushnet, New Bedford, Dartmouth, and Fall River in Bristol County, Massachusetts (Figure 1-2 in Appendix A).[1] New transmission line structures and overhead conductors and wires will be installed along the southern portion of the ROWs parallel to the existing overhead transmission lines. Optical ground wire (OPGW) will be installed as part of the wire installation.

New capacitor banks will be installed at Eversource's Wing Lane and High Hill Substations in Acushnet and Dartmouth, respectively. The capacitor banks at Wing Lane will be located entirely within the existing fenced in substation site. A minor fence line expansion at High Hill Substation (approximately 2,285 square feet) within Eversource's existing transmission line ROW will be required to make room for the new capacitor bank. Since installation of the new capacitor banks at the Wing Lane and High Hill Substations will not impact resource areas as recognized by MEPA, they are not further discussed herein.

The AFRRP is subject to review under MEPA as it requires one or more state permits and exceeds the review thresholds listed in Table 1-3 below. A summary of the anticipated AFRRP impacts are included in Table 1-4.

TABLE 1-3 ACUSHNET TO FALL RIVER RELIABILITY PROJECT MEPA REVIEW THRESHOLDS

MEPA ENVIRONMENTAL IMPACT REPORT THRESHOLDS
Wetlands, Waterways and Tidelands: Alteration of one or more acres of bordering vegetated wetlands. (301 CMR 11.03(3)(a)(1)(a))
MEPA ENVIRONMENTAL NOTIFICATION FORM THRESHOLDS
State-listed Species under M.G.L c. 131A: Greater than two acres of disturbance of designated priority habitat, as defined in 321 CMR 10.02, that results in a take of a state-listed endangered or threatened species or species of special concern. (301 CMR 11.03(2)(b)(2))
Wetlands, Waterways and Tidelands: Alteration of 5,000 or more square feet of bordering or isolated vegetated wetlands. (301 CMR 11.03(3)(b)(1)(d))

[1] Two short sections of underground cable (limited to the installation of approximately 800 linear feet of underground cable) will be installed in upland areas to avoid utility congestion at High Hill Substation and the Industrial Park Tap.

TABLE 1-4 ACUSHNET TO FALL RIVER RELIABILITY PROJECT ANTICIPATED PROJECT IMPACTS

RESOURCE AREA	TEMPORARY IMPACTS (IN SQUARE FEET)	PERMANENT IMPACTS (IN SQUARE FEET)
New Land Altered	N/A[1]	1,108,861 (25.46 acres) of tree clearing in upland
Bordering Vegetated Wetland (BVW)	306,817 (7.04 acres) – placement of temporary construction mats as a construction-phase mitigation measure	37,352 (0.86 acre) of permanent fill 91,589 (2.10 acres) of tree clearing and conversion of forested wetland to scrub-shrub wetland
Other Wetland Resource Areas		
Riverfront Area (RFA)	49,309 (1.13 acre) of which 17,239 (0.40 acre) are accounted for in the BVW temporary impacts listed above.	7,226 (0.17 acre) of which 2,304 (0.05 acre) are accounted for in the BVW permanent impacts listed above. 4,362 (0.10 acre) of tree clearing.
Bordering Land Subject to Flooding (BLSF)	91,707 (2.11 acre) of which 28,208 (0.65 acre) are accounted for in the BVW temporary impacts listed above. The work involves placement of temporary construction mats as a construction-phase mitigation measure.	285 (0.01 acre) of which 47 square feet are accounted for in the BVW permanent impacts listed above. The work involves structure installation where BLSF could not be avoided.
Inland Bank (IB)	202 linear feet – placement of temporary construction mat bridge(s)	625 square feet for the installation of one culvert in a stream
Land Under Water (LUW)	0	0
Rare Species Impacts	Seven NHESP state-listed species area located within the vicinity of the Project based upon letters from NHESP dated April 9, 2018 (Refer to redacted versions of the Agency Correspondence in Appendix B-2). The Companies will adhere to Best Management Practices to avoid harm to state-listed species and their habitats. Project-specific mitigation measures will be determined through continued consultation with the NHESP Program.	
Historical/ Archaeological Impacts	The Companies are coordinating with both the USACE and MHC to avoid adverse effects to historic and archaeological resources eligible for listing in the National Register of Historic Places (NRHP). As part of its USACE Section 404 permit review, pursuant to Section 106, the USACE will also consult with Native American tribes and local municipal historical commissions that express an interest in the historic resources that may be affected by portions of the Project within USACE jurisdiction.	

Notes:
[1] Temporary impacts are not considered an alteration of land, but are included in the reported alterations to bordering vegetated wetlands. Area will be restored to pre-existing conditions after the construction activity is completed.

1.2 Request for a Phase One Waiver or Special Review Procedure

Pursuant to 301 CMR 11.11, *Waivers*, which allows the Secretary to, among other things, grant phasing of a project, the Companies respectfully request a phase one waiver to allow the Bell Rock Substation Rebuild Project to proceed in advance of filing an Environmental Impact Report ("EIR") for the AFRRP in order to avoid delaying the Bell Rock Substation Rebuild Project, a critical reliability project.

301 CMR 11.11 provides that the Secretary may grant a waiver of MEPA requirements and impose appropriate conditions or restrictions, if the Secretary finds that strict compliance with MEPA would: "(a) result in an undue hardship for the Proponent," and "(b) not serve to avoid or minimize Damage to the Environment." 301 CMR 11.11(1). Specifically, in the case of a partial waiver of a mandatory EIR review threshold that will allow a proponent to proceed with an initial phase of a project before preparing an EIR, (a "phase one" waiver) the Secretary should base the finding on a determination that:

(a) The potential environmental impacts of phase one, taken alone, are insignificant;
(b) ample and unconstrained infrastructure facilities and services exist to support phase one;
(c) the Project is severable, such that phase one does not require the implementation of any other future phase of the Project or restrict the means by which potential environmental impacts from any other phase of the Project may be avoided, minimized or mitigated; and
(d) the Agency Action on phase one will contain terms such as a condition or restriction in a Permit, contract or other relevant document approving or allowing the Agency Action, or other evidence satisfactory to the Secretary, so as to ensure due compliance with MEPA and 301 CMR 11.00 prior to Commencement of any other phase of the Project.

301 CMR 11.11(4). The following summarizes the Bell Rock Substation Rebuild Project's and AFRRP's distinct purposes and needs and why requiring them to be reviewed without a phase one waiver could create an undue hardship without serving to avoid or minimize Damage to the Environment. It then addresses each of the specific criteria for a phase one waiver.

In the event that the Secretary determines that the requirements for a phase one waiver are not met, the Companies request that the Secretary grant a Special Review Procedure under 301 CMR 11.09 and treat the two projects as an Area-Wide Review or Other Special Review that will allow the Bell Rock Substation Rebuild Project to proceed after the EENF Certificate is issued. Granting the special review would avoid the undue hardship described below without compromising the review of either project. Since these projects are undertaken by a Person, and not an Agency, and the potential environmental impacts are not complex or unusual for these types of projects, a Citizens Advisory Committee would not be necessary or appropriate.

Distinct Project Purposes and Needs

The Bell Rock Substation Rebuild Project has a separate purpose and need distinct from that of the AFRRP. The main purpose of the Bell Rock Substation Rebuild Project is to accommodate two line connections from the existing M13 Line into the substation. The existing M13 Line currently crosses over, but does not electrically connect into, the substation. As determined by the Independent System Operator, New England ISO New England Inc. ("ISO-NE") the Bell Rock Substation Rebuild Project is needed in order to split the M13 Line into the M13N and M13S Lines, and terminate both lines at the substation. In order to accommodate the two M13N and M13S transmission line terminations, the Bell Rock Substation needs to be rebuilt and expanded into a breaker and a half configuration.

The AFFRP addresses certain critical transmission system needs identified in the ISO-NE Southeastern Massachusetts and Rhode Island Area 2026 Solutions Study, Revision 1 - March 2017, including: 1) certain N-1 and N-1-1 contingencies which result in voltage collapse and the loss of service to regional customer; and 2) certain N-1-1 contingencies which have the potential to result in consequential loss of service. The AFRRP eliminates the potential widespread voltage collapse and loss of load across 17 municipalities following a single (N-1) transmission contingency by providing an additional transmission source into the load pocket and additional voltage support at the existing NEP Bell Rock Substation and several of Eversource's existing substations including the Wing Lane and High Hill Substations. The AFRRP ensures continued compliance with applicable federal and regional transmission reliability

standards and criteria and maintains reliable electric service to the Southeastern Massachusetts and Rhode Island ("SEMA-RI") area.

Undue Hardship: The Bell Rock Substation Work Must Be Completed Before the AFRRP

Proceeding with the Bell Rock Substation Rebuild Project before the construction of the AFRRP is necessary to maintain a project schedule that requires the Bell Rock Substation construction to commence in 2020 – a year before the construction start date for the AFRRP. Allowing environmental permitting for the Bell Rock Substation Rebuild Project to proceed after the EENF Certificate will help to ensure that this schedule is met. Because the potential environmental impacts of each project is entirely distinct from the other and the impacts from the Bell Rock Substation Rebuild Project alone trigger an ENF and not a mandatory EIR, denying the phase one waiver will not serve to avoid or minimize Damage to the Environment. However, it could serve to delay critical reliability improvements.

The ability to separate the substation from the transmission line construction will provide the necessary construction clearances and work areas required for each of the two construction activities to occur, as opposed to having both construction activities occurring simultaneously in the same area. Temporarily repositioning the existing M13 Line will allow construction personnel to construct within the substation without risk of potentially encountering or fouling the existing overhead M13 transmission line. This transmission relocation will provide a safer work environment for all personnel. The Bell Rock Substation Rebuild Project schedule is also driven by planned outages, which must be approved by the ISO-NE months in advance of planned construction. Missing a scheduled outage can severely impact the project schedule because a "contingency" outage is not easily granted nor is it necessarily granted in a timely fashion, if it is not already placed into the ISO-NE outage queue.

Further, a waiver will facilitate quicker resolution of the public infrastructure reliability issues identified by the ISO-NE. Construction of the AFRRP will not commence until the EFSB issues a Final Decision allowing the construction of the transmission line to proceed. Because the Bell Rock Substation Rebuild Project has a separate purpose and need distinct from that of the AFRRP, and because the Rebuild Project, by itself, does not trigger the jurisdiction of the EFSB, the Rebuild Project will not be included in the Companies' petition to the EFSB seeking approval to construct the AFRRP. Thus, for MEPA to require that MEPA review for the two projects remain combined could hinder the resolution of the reliability issues identified by the ISO-NE.

If the Bell Rock Substation Rebuild Project is not constructed before other system reliability upgrades (i.e., construction of the AFRRP), then the in-service date as identified by the ISO-NE is at risk of not being met and the 17 communities serviced by the existing facilities will continue to remain vulnerable to transmission contingency voltage collapse. In order to meet the in-service date identified by the ISO-NE, construction activities for the Bell Rock Substation Rebuild Project need to commence in the first quarter 2020, while construction activities related to the AFRRP do not need to begin until the first quarter 2021.

Consistency with the Phase One Waiver Standards

A phase one waiver is appropriate for this project, as all of the criteria enumerated in 301 CMR 11.11(4) are met.

301 CMR 11.11(4)(a): The potential impacts of the Substation Project, taken alone, are insignificant.[2]

The anticipated environmental impacts from the Bell Rock Substation Rebuild Project exceed two ENF review thresholds provided in 301 CMR 11.03(3)(b)(1): alteration of 1,000 or more square feet of ORW and alteration of 5,000 or more square feet of BVW. They do not, however, trigger a mandatory EIR. Therefore, the impacts can be adequately evaluated through the ENF. Several substation design configurations have been evaluated in an attempt to minimize wetland impacts and reduce overall environmental impacts to the maximum extent possible, as described in Section 3.0 below. The majority of the impacts are temporary due to the use of swamp mats – a best management practice – that is used to minimize disturbances to the wetlands. Moreover, by working with the relevant state, local and federal agencies with jurisdiction over wetlands, the impacts will be mitigated. Thus, allowing the Bell Rock Substation Rebuild Project to proceed after the EENF Certificate will not result in any significant impacts that will not be adequately reviewed under MEPA.

301 CMR 11.11(4)(b): Ample and unconstrained infrastructure facilities and services exist to support the Substation Project

Existing infrastructure can support the expansion of the Bell Rock Substation Rebuild Project before the AFRRP. The Bell Rock Substation is an existing two-breaker substation located at the junction of the existing D21, L14, N12 and M13 transmission lines. The existing substation has been in operation since the 1960s. The Bell Rock Substation houses equipment for NEP and Eversource, as both companies hold easement rights for the station. The station is accessed from a public road in Fall River. NEP and Eversource are able to plan and schedule line outages or non-re-closure assurances, as necessary, to de-energize certain equipment at the station to allow for construction to proceed within the station yard.

301 CMR 11.11(4)(c) The Bell Rock Substation Rebuild Project is severable from the AFRRP, such that the Bell Rock Substation Rebuild Project does not require the implementation of the AFRRP or restrict the means by which potential environmental impacts from the AFRRP may be avoided, minimized or mitigated.

The Companies understand that the reason that the MEPA Office has requested a single filing for both of these projects is because the AFRRP will ultimately terminate at the Bell Rock Substation, which creates a geographic nexus between the projects. However, the Bell Rock Substation Rebuild Project is entirely severable from the AFRRP. From construction and facilities perspectives, the Bell Rock Substation Rebuild Project does not require the implementation of the AFRRP. If the AFRRP is not constructed, the purpose and need of the Bell Rock Substation Rebuild Project will be entirely achieved. The Bell Rock Substation Rebuild Project will be completed by NEP's Substation Construction Group and its contractor that will be solely contracted to complete the work at the substation. Separate NEP and Eversource Transmission Line Services teams and their contractors will perform the AFRRP construction.

The anticipated environmental impacts of the Bell Rock Substation Rebuild Project are entirely separate from the impacts anticipated for the AFRRP. They are geographically distinct and the feasible alternatives between the two projects are also separate and independent: The selection of any feasible Bell Rock Substation Rebuild Project alternative will have no bearing on the feasible alternatives for the AFRRP or the environmental impacts of the AFRRP. Mitigation for the Bell Rock Substation Rebuild Project impacts can be implemented separate from the mitigation and ROW restoration for the AFRRP. As a

[2] Each project is discussed in much greater detail throughout this EENF. For the purposes of this phase one waiver request, the Companies have included a high level summary here.

result, moving forward with the Bell Rock Substation Rebuild Project will not restrict the means by which the potential environmental impacts from the AFRRP may be avoided, minimized or mitigated.

301 CMR 11.11(4)(d): The Agency Actions on the Bell Rock Substation Rebuild Project will contain terms such as a condition or restriction in a Permit, contract or other relevant document approving or allowing the Agency Action, or other evidence satisfactory to the Secretary, so as to ensure due compliance with MEPA and 301 CMR 11.00 prior to Commencement of the AFRRP.

The feedback received during the pre-application meetings that NEP held with the MassDEP, the Natural Heritage and Endangered Species Program ("NHESP"), the Massachusetts Department of Conservation and Recreation ("MA DCR"), the City of Fall River officials, and the United Sates Army Corps of Engineers ("USACE") indicate that the Bell Rock Substation Rebuild Project could be approved and separately permitted in advance of the review and approval of the AFRRP permits. Because the Companies will be seeking separate permits, there is no risk that the Companies would be able to start work on the AFRRP using permits issued for the Bell Rock Substation Rebuild Project prior to completing MEPA review for the AFRRP. Accordingly, NEP will accept conditions on permits issued for the Bell Rock Substation Rebuild Project stating that the permit cannot be used for any work on the AFRRP until MEPA review of the AFRRP is complete and the AFRRP is approved by the EFSB.

Conclusion

A phase one waiver for the Bell Rock Substation Rebuild Project is needed to avoid a hardship to NEP's customers, which could be negatively impacted if the Bell Rock Substation Rebuild Project is not advanced ahead of the review and construction of the new AFRRP. NEP's customers in the South Coast region could be faced with the continued risk of thermal overloading and transmission contingency voltage collapse affecting the reliable energy source on which many depend. As demonstrated above, the requirements for a waiver have been met. In the alternative, if the Secretary determines that the requirements for a waiver have not been met, the Secretary should grant the same relief under the special review procedures in 301 CMR 11.09, since allowing the Bell Rock Substation Rebuild Project to proceed to permitting after the issuance of the ENF is consistent with the scope of that project and its environmental impacts and it will have no impact on the review of the AFRRP. As noted above, for projects like these that do not have complex environmental issues, the use of a Citizens Advisory Committee in conjunction with the special review procedure would not be necessary.

1.3 Request for Single Environmental Impact Report (EIR)

This EENF is being filed in accordance with 301 CMR 11.05(7) in order to provide more extensive and detailed information as part of a request for approval for submission of a single EIR. As detailed in Table 1-3 above, the AFRRP exceeds the review thresholds provided in 301 CMR 11.03 requiring the filing of an EIR for the alteration of one or more acres of BVW.

The Companies respectfully request approval to prepare and submit a single EIR for the AFRRP. Based on the analysis of potential environmental impacts, the AFRRP will use all feasible means to avoid and minimize potential environmental impacts. Mitigation measures will address the remaining potential environmental impacts. Allowing a single EIR is considered appropriate for a number of reasons, including:

- The EENF meets all of the requirements in 301 CMR 11.06(8) to provide detailed information on the AFRRP, its environmental baseline, alternatives, and avoidance, minimization and mitigation measures.

- The Companies conducted an extensive alternatives analysis to review and compare environmental and human impacts, cost, and feasibility to determine the preferred Project.
- The AFRRP exceeds only one EIR threshold: alteration of one or more acres of BVW where a permit is required.
- The majority of wetland impacts are the result of the temporary placement of construction mats within existing transmission line ROWs. The construction mats will be removed after the Project is complete and the BVWs will be restored.
- The area converted from forested wetland to scrub-shrub wetland (approximately 2.10 acres) will remain BVW with no net loss of wetlands; and with a benefit to successional wildlife species from the habitat conversion.
- Permanent BVW impacts associated with the AFRRP, where they could not be avoided, are limited to approximately 0.86 acre.
- Mitigation will be implemented to address federal, state and local wetlands impacts.
- The AFRRP requires comprehensive federal, state, and local regulatory review by environmental agencies that will provide sufficient oversight and require implementation of appropriate mitigation measures (as described in Section 1.5 below).
- In addition to the extensive public review necessary for permitting, the Companies are also implementing a comprehensive public outreach program to establish and maintain communications with stakeholders.

The review period for the EENF requesting a phase one waiver and Single EIR lasts for 37 Days, and Notice of the Project will be published in the Environmental Monitor.

1.4 Purpose and Need

Background: SEMA-RI Needs Assessment and Solutions Study

In May 2016, the ISO-NE issued its final SEMA-RI 2026 Needs Assessment Report ("Needs Assessment"), which studied and identified transmission system needs across a broad geographic area encompassing those parts of Massachusetts located south of Boston as well as the entire state of Rhode Island. The Report's objective was to document identified reliability-based transmission needs in the SEMA-RI area for 2026 projected system conditions (10-year, 2026 planning horizon), based on the 2015 Capacity, Energy, Loads and Transmission ("CELT") Report[3] while considering the following:

- Future load growth in the SEMA-RI area through 2026.
- Reliability over a range of generation patterns and transfer levels.
- Limited short-circuit margin in the SEMA-RI area.
- Coordination with plans for Boston, Northeastern Massachusetts and Eastern Connecticut.

[3] Since the time of the 2016 Needs Assessment, additional CELT forecasts have been published, including, most recently, the 2018 CELT forecast. In general, the newer forecasts project lower load growth and greater energy efficiency and distributed generation than did the 2015 CELT Report. However, even in consideration of the 2018 CELT Report forecast, the need for the Project remains.

- Existing and Forward Capacity Market-cleared supply resources.
- All applicable North American Electric Reliability Corporation ("NERC"), Northeast Power Coordinating Council, Inc. ("NPCC") and ISO-NE transmission planning reliability standards.

The Needs Assessment included the evaluation of the long-term reliability of the transmission system serving the SEMA-RI study area for the projected system conditions in 2026. The system was tested under N-0 (all-facilities-in service), N-1[4] (all-facilities-in service, first contingency), and N-1-1[5] (first contingency after a facility is out-of-service) conditions for a number of possible operating scenarios with respect to related interface transfer levels and generating unit unavailability conditions.

The Needs Assessment identified numerous operating risks on the existing network in the SEMA-RI area, a number of which would result in thermal overloads and low voltage to potential voltage collapse and significant loss of customer load. Thermal overloads and low voltages could result in a power outage and/or loss of service for the Companies' customers. Other violations occurred due to lack of sufficient transmission capacity to serve load under multiple line and critical unit outage scenarios.

After the Needs Assessment was completed, ISO-NE formed a SEMA-RI solution study working group that included participating transmission owners, NEP, and Eversource, resulting in the March 2017 *Southeastern Massachusetts and Rhode Island Area 2026 Solutions Study Report* (Solutions Study). The purpose of the Solutions Study was to investigate system reinforcement options to determine feasible long-range transmission alternative solutions to remedy the time-sensitive SEMA-RI study area criteria violations. The study engaged in a variety of analyses and was based on 2026 system conditions that included planned system upgrades expected to be in-service by December 31, 2021. The Solutions Study was conducted in accordance with the AFRRP and the Bell Rock Substation Rebuild Project among the projects identified in the Solutions Study as necessary to ensure the reliability of the transmission system serving SEMA-RI. After the Solution Study, the ISO-NE Second Addendum Analysis Report to the Southeastern Massachusetts and Rhode Island Area 2026 Needs Assessment was issued in June 2018 and confirmed that the system needs, which prompted the need for the AFRRP and the Bell Rock Substation Rebuild Project remain.

Bell Rock Substation Rebuild Project

The Bell Rock Substation Rebuild Project addresses the load growth served by the substation by increasing the substation's operability and reliability. Under existing conditions, three transmission lines loop into and out of the substation, including the D21, L14 and N12 transmission lines. The M13 Line crosses over the Bell Rock Substation but does not electrically connect into the substation. To solve operability and reliability concerns at the substation, the existing M13 Line will be split and designated in the future as the M13N and M13S Lines and both lines will be electrically connected into the substation. Splitting the M13 Line into the M13N and M13S Lines and terminating both lines at the Bell Rock Substation results in increased reliability, adds redundancy to the system and eliminates loop flows between the existing Bell Rock and Tiverton Substations.

[4] N-1 Single Contingencies includes: Loss of one transmission circuit, transformer, generator, bus section or shunt device, opening of a line section without a fault, loss of two transmission components (circuit, transformer or generator) sharing a common circuit breaker, and loss of two transmission circuits on a multiple circuit transmission tower.
[5] N-1-1 Double Contingencies includes the loss of one major generating unit, transmission circuit or transformer followed by an N-1 contingency as defined above.

With the addition of these two elements (the M13N and M13S Lines) into the substation, the Bell Rock Substation needs to be reconfigured and expanded into breaker-and-a-half configuration.[6] This rebuild and expansion to the Bell Rock Substation on account of the M13 Line has the added benefit of partially preparing it to connect the new AFRRP transmission line. This is because some of the equipment installed for the M13 Line is also needed for the adjacent line position. Although one of the benefits of the rebuild of the Bell Rock Substation is to create space and install an underground duct bank that is also needed to connect the new AFRRP, the rebuild of the station addresses other separate and distinct needs within the system, as summarized above. It is identified in the SEMA-RI Solutions Study as a necessary project regardless of the choice of solution to the voltage collapse and consequential load loss needs.

Acushnet to Fall River Reliability Project

The AFRRP addresses certain critical transmission system needs identified in a subarea designated "Group 2" which includes portions of Industrial Park in Acushnet, the Somerset area and Newport, Rhode Island subareas, as defined in the ISO-NE Southeastern Massachusetts and Rhode Island Area 2026 Solutions Study, Revision 1 – March 2017.

Within this subarea:

- Certain N-1 and N-1-1 contingencies would result in voltage collapse and the loss of service to approximately 144,000 customers and more than 500 megawatt ("MW") of load in all or parts of Fall River, Assonet, Freetown, Westport, Dartmouth, New Bedford, Acushnet, Fairhaven, Mattapoisett, Marion, Rochester, and Wareham, Massachusetts, as well as Jamestown, Newport, Middletown, Portsmouth, Tiverton, and Little Compton, Rhode Island.
- Additionally, certain N-1-1 contingencies have the potential to result in consequential loss of service to approximately 102,000 customers and 360 MW of load in 12 Massachusetts and Rhode Island municipalities.

As part of the SEMA-RI Solutions Study, alternative solutions were developed to address these issues. A description of the alternative solutions is found in Section 3.0 *Alternatives Analysis* of this EENF. All of the alternative solutions were evaluated to ensure that the solution components resolve the identified time-sensitive criteria violations identified in the Needs Assessment, and compared based on cost, constructability, environmental impacts, delivery timeframe and several other system performance criteria.

The AFRRP eliminates the potential widespread voltage collapse and loss of load across 17 municipalities following a single (N-1) transmission contingency by providing an additional transmission source into the load pocket and additional voltage support at the existing NEP Bell Rock Substation and several of Eversource's existing substations including the Wing Lane and High Hill Substations. The AFRRP thereby ensures continued compliance with applicable federal and regional transmission reliability standards and criteria and maintains reliable electric service to the SEMA-RI area.

[6] As configured, any new substation bay will contain at least three breakers and two lines. The name originates from how the breakers are associated within the bay. Each line has its own breaker (between the line tap and the bus) and each line shares a breaker with the other line. Thusly, the configuration allows a line to have a breaker and a half of a breaker to perform any necessary switching.

1.5 Permitting and Regulatory Approvals

Table 1-5 below provides a listing of anticipated state agency environmental permits and approvals for both the Bell Rock Substation Rebuild Project and the AFRRP.

TABLE 1-5 STATE AGENCY PERMITS, REVIEWS, AND APPROVALS

PROJECT	AGENCY/ REGULATORY AUTHORITY	PERMIT AND/OR PURPOSE OF APPROVAL
Bell Rock Substation Rebuild Project	Massachusetts Department of Environmental Protection (MassDEP)	Individual Section 401 Water Quality Certification
	MassDEP	Massachusetts Wetlands Protection Act (WPA) – Superseding Order of Conditions (potential)
	MA Natural Heritage and Endangered Species Program (NHESP)	Massachusetts Endangered Species Act (MESA) Review
	Massachusetts Historical Commission (MHC)	Massachusetts Historical Commission and Protection of Properties Included in the State Register of Historic Places (950 CMR 70 and 71) – Project Notification Form (PNF)
	Massachusetts Department of Conservation and Recreation (MA DCR)	Construction and Access Permit (potential)
Acushnet to Fall River Reliability Project	Massachusetts Energy Facilities Siting Board (EFSB)	Approval to construct and operate the project pursuant to G.L. c. 164, § 69J
	Massachusetts Department of Public Utilities (DPU)	Approval to construct and operate the project pursuant to G.L. c. 164, § 72
	MassDEP	Individual Section 401 Water Quality Certification
	MassDEP	Massachusetts WPA – Superseding Order of Conditions (potential)
	NHESP	MESA Review and approval of a Conservation Management Plan
	MHC	MHC and Protection of Properties Included in the State Register of Historic Places (950 CMR 70 and 71) –PNF
	MA DCR	Construction and Access Permit (potential)
	Massachusetts Department of Transportation (MassDOT)	State and Interstate Highway Right-of-Way Encroachment Permit and Crossing Permit

1.6 Outreach

The Companies have established community and public outreach processes for both the Bell Rock Substation Rebuild Project and the AFRRP to maintain communications with stakeholders (e.g., abutting property owners, residents, community groups and local and state officials). This process includes opportunities for public education and input regarding the need for the projects, the permitting process, the dissemination of construction updates and outreach during construction, and follow-up outreach after project completion. The process is designed to engage the communities, facilitate transparency throughout the projects, foster public participation, and solicit feedback from stakeholders.

2.0 PROJECT DESCRIPTION

The major components of the proposed Bell Rock Substation Rebuild Project and AFRRP are provided separately below.

2.1 Bell Rock Substation Rebuild Project

The proposed Bell Rock Substation Rebuild Project involves the rebuild and expansion of the existing Bell Rock Substation located in Fall River, Massachusetts, the bifurcation of the existing M13 line, and the termination of the resulting M13N and M13S Lines. The major components of the Project are described in more detail below.

2.1.1 Existing Conditions

The Bell Rock Substation is an existing two-breaker substation located on a 2.75-acre NEP easement on the east side of Bell Rock Road in Fall River. The substation is located at the junction of the existing N12 and M13; M13 and L14 Lines; and the D21 transmission line ROWs to the west, south, and east, respectively (refer to Figure 2-1 in Appendix A).

2.1.2 Proposed Conditions

The proposed rebuild/expansion of the Bell Rock Substation will provide 11 breakers in a breaker-and-a-half configuration that will continue to connect the N12, L14 and D21 Lines and provide new line positions in order to connect M13N and M13S Lines. Since some of the M13S equipment is shared with the adjacent line positions, this expansion will also partially equip a future line position for the AFRRP (Line 114) from Eversource territory.

The Bell Rock Substation Rebuild Project involves improvements and upgrades to certain equipment and facilities at the substation, and will primarily involve the following work:

- Approximately 0.51-acre (22,000 square feet) expansion of the perimeter security fence line.
- Installation of a replacement control building with the dimensions of approximately 64-feet by 36-feet.
- Installation of various substation-related equipment, including, but not limited to, a standby generator, a substation service transformer, disconnect switches, gas circuit breakers, switches and buses.
- Installation of two A-frame structures.
- Installation of lightning masts.
- Installation of various underground systems, including ground grid, conduits and cable trenches.
- Installation of associated foundations and supports.
- Replacement and expansion of the existing 6-foot fence with an 8-foot-tall perimeter security fence plus 1-foot of barbed wire, including swing gates.
- Installation of new lighting on existing and new structures.
- Reconfiguration of certain transmission line facilities that loop into and out of the substation.

- Upgrades to the stormwater management system.

The layout of the existing and expanded substation facilities is shown in Figures 2-1 through 2-3 in Appendix A.

The temporary bypass of the existing M13 transmission line will involve shifting the line to the immediate south of the substation fence line to facilitate the substation rebuild and temporarily remove an energized overhead line from the work footprint. The work involved in the M13 Line temporary bypass generally involves the following work activities:

- Establish a corridor for the temporary overhead lines to include a cleared width of approximately 50 feet.
- Construction of an approximately 20-foot-wide gravel access road along the south side of the substation fence line to provide access to the temporary M13 Line bypass structures.
- Installation of two permanent steel, single pole dead-end structures on concrete foundations. One structure will be located to the west of the substation fence, and the second structure will be located to the southeast.
- Installation of one temporary-guyed single dead-end wood pole structure that will be a direct-embed structure located to the south of the substation fence.
- Replacement of one existing wood H-frame dead-end structure with a new permanent steel H-frame, dead-end structure on concrete foundations south of the substation site within the existing M13 and L14 transmission ROW easement.

All work associated with the M13 bypass will occur within the existing substation and transmission line easements established for the Bell Rock Substation.

2.1.3 Construction Methods, Schedule, and Estimated Cost

The proposed Bell Rock Substation Rebuild Project was designed to avoid and/or minimize adverse environmental impacts to the extent practicable. Mitigation techniques are employed where these impacts are unavoidable. NEP's policies and procedures for construction methods are summarized in Section 12: Construction-Period Considerations. For additional information, please refer to Appendix C: *National Grid's Environmental Guidance - Access, Maintenance and Construction Best Management Practices (EG-303NE)*, which contains the general procedures and policies implemented during construction to identify, avoid, minimize and mitigate environmental impacts.

The conceptual grade (-25% / +50%) cost estimate for the Bell Rock Substation Project is $16 million. A detailed discussion of the natural and social environmental impacts associated with the Bell Rock Substation Project is included in Sections 4.0 through 11.0 of this document. The development and planning of the Bell Rock Substation Rebuild Project required coordination of planners, Project managers, engineers and consultants and ISO-NE. NEP anticipates starting construction of the Substation Project in the first quarter 2020 and anticipates the station to be commissioned by the second quarter of 2021.

2.2 Acushnet to Fall River Reliability Project

The proposed AFRRP involves the installation of a new overhead electric 115 kV transmission line. The major components of the proposed Project are described in detail below.

2.2.1 Existing Conditions

The existing transmission line ROW within which the new AFRRP will be installed extends from the Industrial Park Tap to the existing Bell Rock Substation (approximately 12.1 miles) traversing the towns of Acushnet, New Bedford, Dartmouth, and Fall River (refer to Figure 2-4 in Appendix A). From the Industrial Park Tap to the Industrial Park Substation (approximately 4.2 miles), the existing transmission line is located on single circuit H-frame structures and co-located with an existing distribution line within an approximately 150- to 210-foot-wide ROW. The transmission line continues from the Industrial Park Substation to the High Hill Substation (approximately 2.4 miles) on single circuit H-frame structures and co-located with an existing distribution line within an approximately 150-foot-wide ROW. From the High Hill Substation to the Bell Rock Substation (approximately 5.4 miles), the existing transmission line is located on single circuit H-frame structures within an approximately 150-foot-wide ROW.

2.2.2 Proposed Conditions

The addition of the new AFRRP transmission line will be consistent with the current use of the existing utility ROW. Based on preliminary engineering, of the 118 new structures required for the overhead transmission line, 79 will be direct embed steel pole H frame structures, four will be steel pole H frame structures on concrete foundations, 25 will be direct embed steel single-pole (also referred to as monopole), supplemented by seven monopole and three triple-pole (dead-end and angle) structures requiring reinforced concrete foundations to support heavy loads (refer to Figure 2-5 in Appendix A).

The new structures will range in height from approximately 55 to 110 feet. The structures will support aluminum steel reinforced conductors both in horizontal and vertical configurations. One 3/8-inch extra high strength steel shield wire and one optical ground wire ("OPGW") will be installed to support high speed relaying and communications requirements. Typical cross-sections of the ROW showing existing and proposed structure size and placement are provided in the Figure 2-6 in Appendix A.

Clearing will be required within the NEP ROW for a distance of approximately 4.2 miles to expand the cleared ROW width approximately 60 feet to the south side of the ROW, and within one span (between Structures 7-8) on the Eversource ROW in order to accommodate the new line. All tree clearing and vegetation removal is to occur within the boundaries of the existing ROWs.

2.2.3 Construction Methods, Schedule and Estimated Cost

The proposed AFRRP was designed to avoid and/or minimize adverse environmental impacts to the extent practicable. Mitigation techniques are employed where these impacts are unavoidable. Additional detail regarding the Companies policies and procedures for construction methods are summarized in Section 12 and provided in the following documents:

- *National Grid's Environmental Guidance - Access, Maintenance and Construction Best Management Practices (EG-303NE)* (Appendix C).
- *Eversource's Construction & Maintenance Environmental Requirements. Best Management Practices Manual for Massachusetts & Connecticut* (Appendix D).

The conceptual grade (-25% / +50%) cost estimate for the AFRRP is $33.8 million. A detailed discussion of the natural and social environmental impacts associated with the AFRRP is included in Sections 4.0 through 11.0 of this document. The development and planning of the AFRRP required coordination of planners, Project managers, engineers and consultants and the ISO-NE. The Companies anticipate starting construction of the AFRRP in the first quarter 2021 to facilitate the facilities being in-service by the fourth quarter of 2021.

3.0 ALTERNATIVES ANALYSIS

This section describes alternatives to the proposed Bell Rock Substation Rebuild Project and the AFRRP and identifies why the Companies did not select those alternatives. This section also describes the process used to evaluate alternative means of addressing Group 2 needs in the SEMA-RI region. The Companies evaluated a "No-Action Alternative," and assessed substation alternatives, transmission alternatives and routing alternatives. The Companies' assessment demonstrates that the Bell Rock Substation Rebuild Project and the AFRRP are the alternatives that best meet the identified system needs; and that best address the various reliability, regulatory and permitting objectives, including minimizing environmental impacts and providing a cost-effective solution to customers.

The potential Project alternatives discussed below include:

- The No-Action Alternative
- Bell Rock Substation Rebuild Project Alternatives:
    - Construction of a New Substation at a Different Location
    - Substation Configuration and Equipment Alternatives
- Acushnet to Fall River Reliability Project Alternatives:
    - Transmission Line Project Alternatives
    - Routing Alternatives

3.1 No-Action Alternative

The No-Action Alternative would not address the reliability and operability concerns at the substation and would not resolve the regional electric reliability problems that ISO-NE has identified on the transmission system, as discussed above in Section 1.4, *Purpose and Need*. If no action is taken, the existing electric system reliability issues will remain unresolved and components of the existing system will remain at risk for failure under certain contingencies studied by ISO-NE.

Because it does not meet the need identified in Section 1.4 of this Report and would not satisfy applicable transmission planning reliability criteria, the No-Action Alternative was not considered a feasible option for either the Bell Rock Substation Rebuild Project or the AFRRP.

3.2 Bell Rock Substation Rebuild Project

3.2.1 Construction of a New Substation at a Different Location

NEP evaluated the feasibility of constructing a new substation at a different location, as opposed to rebuilding and expanding the existing Bell Rock Substation. The new substation would need to be sited to accommodate transmission line connections of the existing D21, L14, N12 and M13 transmission lines, in order to continue to serve the load in the area. If a new site were selected for a new substation, all of the existing transmission lines would need to be significantly extended to connect into and out of the substation, requiring expanded and/or new property rights and easements, and the development of a new cleared ROW. NEP did not identify any company-owned land or other available corridors in the general vicinity of the interconnection with the existing transmission lines.

The Bell Rock Substation is largely surrounded by open space and conservation land held by the City of Fall River and the MA DCR. These properties consist of lands under a conservation restriction within the Watuppa Reservation and the Southeastern Massachusetts Bioreserve. Proposing a new substation within the limits of these conservation lands would require approval of the Massachusetts Legislature and the MA DCR under the Article 97 process, which would significantly impact the schedule and in-service date for addressing the reliability needs of the Bell Rock Substation Rebuild Project and the public need identified by ISO-NE. Constructing a new substation on a new parcel of land and installing new and/or expanded transmission lines would result in increased impacts to the natural and built environments. For these reasons, construction of a new substation at a new location was determined to be an infeasible alternative.

3.2.2 Substation Configuration and Equipment Alternatives

Substation Equipment Alternatives

NEP evaluated different substation configurations and equipment alternatives to reduce the footprint of the substation rebuild and expansion, as follows:

Air Insulated Switchgear - Non-Individual Pole Tripping Breakers Alternative (Preferred Alternative)

This alternative uses air-insulated switchgear ("AIS") and non-individual pole tripping ("Non-IPT") gas circuit breakers ("GCBs"). Stability studies confirmed that individual pole tripping ("IPT") breakers would not be necessary now or in the future planning timeframe. This option also uses gas rather than oil; therefore, there will be no change in the oil quantity on site. Building the Bell Rock Station with Non-IPT breakers is the preferred alternative.

AIS - IPT Breakers Alternative

This alternative uses a standard equipment layout to construct three breaker-and-a-half arrangement bays utilizing six new IPT GCBs and two existing Non-IPT GCBs. Stability studies confirmed IPT breakers are not necessary now or in the future. Therefore, rebuilding the Bell Rock Station with AIS IPT breakers is not the recommended alternative.

Substation Configuration Alternatives

Three alternative layouts for the rebuild of the Bell Rock Substation were considered during the design phase of the Project. These layouts are depicted in Figures 3-1, 3-2 and 3-3 in Appendix A. For each of the alternative substation configurations, maintaining a clear zone of 10 feet along the perimeter security fence is required to: 1) protect the perimeter fence from downed trees or falling limbs; and 2) maintain a clear security zone around the perimeter of the substation for visual monitoring. Each layout was considered based on the engineering requirements for the substation as well as reliability considerations, environmental impacts, and costs. The Bell Rock Substation is located on an easement granted by the City of Fall River in the 1960s. NEP became the successor-in-interest to the substation easement in May 2000. The substation abuts the following land designations: City of Fall River Water Resource, and Watershed and Water Supply Districts; Watuppa Reservation; within the headwaters of the North Watuppa Pond, a Class A public water supply with contributing wetlands designated as ORW; Southeastern Massachusetts Bioreserve; and Massachusetts NHESP Priority Habitats for state-listed rare species.

Alternative Number 1 (Preferred Layout)

Alternative Number 1 applies the AIS - Non-IPT breakers alternative into the design and incorporates additional measures to reduce the substation expansion. NEP incorporated the following design measures into the station design to minimize impacts to the surrounding wetlands:

- The new control building was shifted closer to Bell Rock Road to reduce the amount of grading required to construct the building.
- The northern fence line expansion was reduced to the minimum distance to maintain vehicular access within the substation.
- The proposed capacitor bank was sited at the western end of the existing yard toward Bell Rock Road.
- An underground conduit/cable connection will be used to connect the bus to the capacitor bank. The underground conduit/cable system reduces the number of above-ground structures thereby reducing overhead clearance constraints and allowing the substation footprint to be slightly reduced.

The new control building will require NEP to obtain a dimensional variance from the Fall River Zoning Board of Appeals because the building will not comply with the 75-foot-minimum front yard setback requirements (as measured from the unimproved Bell Rock Road).

Alternative Number 2

Alternative Number 2 incorporates the AIS - Non-IPT breakers alternative into a typical substation engineering design.

This alternative design sites the new control building and all equipment within the yard, in accordance with the City's zoning setback requirements. Meeting the setback distance for the control building also results in increased wetland and ORW impacts. The proposed access drive on the north side of the substation includes an improved 20-foot-wide corridor to provide greater clearance between the substation equipment and the fence line. The proposed capacitor bank is located in the northeastern corner of the yard resulting in increased impacts to wetlands and ORW.

Alternative Number 2 was dismissed from further consideration because the layout results in greater wetland and ORW impacts and would require additional tree clearing.

Alternative Number 3

Alternative Number 3 incorporates the AIS - Non-IPT breakers alternative into a typical substation design. Alternative Number 3 applies some of the same mitigation and footprint reduction measures as Alternative Number 1, with the exception of siting the proposed capacitor bank within one of the existing transmission line corridors located to the east of the substation. Constructing the capacitor bank in this location would result in impacts to a field-identified vernal pool, adjacent wetlands, and ORW. For these reasons Alternative Number 3 was dismissed from further consideration.

3.2.3 Conclusion

After consideration of the alternatives discussed above, NEP determined that the preferred design for the Bell Rock Substation Rebuild Project was the utilization of AIS Non-IPT Breakers and the substation configuration Alternative Number 1. This determination was based on consideration of engineering requirements, facility reliability and security, minimization of environmental impacts, and overall project costs, all while addressing the ISO-NE identified need.

3.3 Acushnet to Fall River Reliability Project

This section of the Report describes the alternatives evaluated by the Companies to avoid, minimize and mitigate impacts to those resources listed in the MEPA regulations at 301 CMR 11.03. The AFRRP is subject to review by the EFSB under G.L c. 164 § 69J because the AFRRP involves the construction of a "new electric transmission line having a design rating of 115 kilovolts or more which is 10 miles or more in length on an existing transmission corridor…" G.L c. 164 § 69G. For purposes of the EFSB's review of the AFRRP, the Companies will provide an extensive analysis of potential alternatives to assess potential candidate routes, select a Preferred Route, and identify a Noticed Alternative Route.

The alternatives analysis for the AFRRP was conducted in two consecutive phases. The first phase of the alternatives analysis determined the necessary improvements to the existing transmission network to address the system needs identified above in Section 1.4, *Purpose and Need*. Under this phase, transmission line alternatives were evaluated by ISO-NE and the SEMA-RI solution study working group, as further described below. The next phase was undertaken by the Companies, as the transmission line owners, and involved evaluating various routes to determine the selected preferred alternative. The Companies' overriding goal throughout the planning and design phases of the AFRRP was to select the alternative that best meets the identified need for transmission reliability; addresses the various regulatory and permitting requirements, including minimizing environmental impacts; and provides a cost-effective solution to customers. This process served to identify feasible alternatives in accordance with 301 CMR 11.07(6)(f).

3.3.1 Transmission Line Project Alternatives

As discussed above in Section 1.4, *Purpose and Need*, solutions to meet the identified need were studied for many years by ISO-NE. Part of ISO-NE's responsibility is to conduct regional planning and to direct transmission owners to operate their facilities in a manner that improves system reliability, including the requirement to upgrade existing transmission lines or build new ones to assure reliability. The 2016 SEMA-RI solution study identifies four transmission line solutions to address the N-1 voltage collapse contingency and the N-1-1 consequential load loss and voltage collapse contingencies identified in the Needs Assessment.The ISO-NE study identified the need to bring two new sources of transmission into the load pocket to avoid voltage collapse and consequential load loss. The Companies compared the four potential transmission alternatives outlined below on the basis of cost, reliability, potential environmental impacts and delivery timeframes. This comparison is described below and seeks to provide a solution for one of the two new transmission sources needed.

These alternatives include:

- Alternative 1: The installation of a new underground cable extending approximately five miles from Bristol Substation in Bristol, Rhode Island to a new proposed switching station (Boyd's Lane Switching Station) in Portsmouth, Rhode Island. This alternative would require the installation of an undersea cable via a horizontal directional drill ("HDD") beneath Mount Hope

Bay adjacent to the Mount Hope Bridge. There is currently no transmission circuit between these two locations. This alternative would also require reconductoring of 5.1 miles of the existing F-184 Line and replacement of transmission line structures from the Merriman Junction Tap to the Warren Substation to Bristol Substation.

- Alternative 2: Separation of the N12 and M13 double circuit transmission ("DCT") lines between the Somerset Substation and the Sykes Road Switching Station (approximately 1.75 miles) via construction of a new primarily underground M13 Line. The existing M13 Line crossing over the Taunton River would be replaced with a new overhead crossing adjacent to the existing N12 and M13 DCT Lines Taunton River crossing beginning at NEP's Somerset Substation.[7] From its new landing point on the east side of the Taunton River, the new M13 line would travel overhead or underground across private property, and then within city streets to NEP's Sykes Road Switching Station. New permanent land rights would be required both for access and for the line itself. Additionally, the existing N12 and M13 Lines would be reconductored between the Sykes Road Switching Station and the Bell Rock Substation.

- Alternative 3: Install a new line extending approximately 3.5 miles (underground for 1.7 miles and overhead for 1.8 miles) from the Somerset Substation in Somerset, Massachusetts to the Bell Rock Substation in Fall River, Massachusetts. This transmission line alignment would predominantly be constructed underground due to the lack of available space and real estate along the existing N12 and M13 Lines ROW.

- Alternative 4 (the AFRRP): Install a new line (approximately 12 miles long) to extend the Line 114 from the Industrial Park Tap in Acushnet, Massachusetts to the existing Bell Rock Substation in Fall River, Massachusetts. Capacitor banks would need to be installed at the Bell Rock, High Hill and Wing Lane Substations to support voltages under contingency conditions.

Cost

Conceptual grade cost estimates (-25% / +50%) for each of the four alternatives were developed and are presented in Table 3-1 below.

TABLE 3-1 ACUSHNET TO FALL RIVER RELIABILITY PROJECT TRANSMISSION LINE ALTERNATIVES CONCEPTUAL GRADE ESTIMATES

	CONCEPTUAL GRADE ESTIMATE (IN $M AT -25 / +50% ACCURACY)
Alternative 1	$102.3M
Alternative 2	$39.0M
Alternative 3	$47.0M
Alternative 4	$33.8M

[7] NEP is in the process of constructing a new substation to replace the existing, aging Somerset Substation. The new replacement substation, which is named the "Pottersville Substation," will be located across the street from the existing Somerset Substation. For consistency with the 2016 Solutions Study, the term "Somerset Substation" will be used throughout this EENF.

When comparing the costs of all four alternatives identified above, Alternative 4 is the lowest cost of the four transmission line alternatives.

Reliability

Each of the four transmission line alternatives has the ability to address the N-1 contingency voltage collapse need. In addition, each of the four transmission line alternatives, when combined with a second transmission line alternative, meaning the construction of a separate project, would resolve the remaining N-1-1 contingencies.

However, Alternative 4 is the least complex from siting and engineering design perspectives of the four transmission line alternatives, and could be permitted and constructed relatively quickly to address the N-1 contingency of concern. Alternative 4 can be constructed entirely within an open position in an existing and maintained transmission line ROW. The Companies possess all the property rights needed to construct the proposed overhead transmission line, with two short sections of an underground cable (approximately 800 linear feet) that will be installed to avoid utility congestion at High Hill Substation and the Industrial Park Tap. In contrast:

- Alternative 1 requires the permitting and construction of 4.4 miles of underground cable through relatively densely developed roadways, installation of approximately 0.6 mile of undersea cable, construction of a new switching station, and reconductoring of approximately 5 miles of existing overhead transmission lines.

- Alternative 2 requires the acquisition of new property rights, construction of a new major overhead crossing of the Taunton River, and construction of a new underground cable within city roadways.

- Alternative 3 requires both the construction of approximately 3.5 miles of predominantly underground cable within city streets, and if feasible, the reconfiguration and reconstruction of two existing overhead transmission lines and structures from the Sykes Road Switching Station to the Bell Rock Substation, in an attempt to accommodate a third overhead transmission line within the same congested ROW.

Alternative 4 is preferable to the other three alternatives with respect to its ability to meet the ISO-NE identified need with less risk in terms of engineering feasibility, constructability and reducing the amount of construction required on existing infrastructure.

Delivery Timeframe

The Companies' gauged the transmission line alternatives on their ability to meet the Project delivery timeframe and in-service date identified by ISO-NE to reinforce the reliability of the transmission system, including addressing the N-1 contingency.

- Alternative 1 – The major constraint with this alternative is the need to cross Mount Hope Bay. Preliminary engineering studies were performed to determine if a new cable could either be attached to the underside of the Mount Hope Bridge or laid as a submarine cable along the bottom of the bay. Both alternatives were deemed infeasible and therefore HDD would be required. To complete an HDD, permanent and temporary easements would be required as well as extensive geophysical and marine surveys. A successful HDD would also add to the duration of

construction. For these reasons the Companies' deemed that Alternative 1 could not feasibly meet the Project delivery timeframe.

- Alternative 2 – The need to acquire permanent and temporary easements to support the proposed aerial crossing of the Taunton River was viewed as a major constraint in terms of the timeframe needed to negotiate and acquire rights. Further, this route alternative presents multiple difficulties with overhead and underground crossings of a rail corridor, state highway and congested city streets. For these reasons, the Companies' deemed that Alternative 2 could not feasibly meet the Project delivery timeframe.

- Alternative 3 – Construction of a predominantly underground cable within the congested city streets of Fall River was considered to require significantly more time than installing an overhead line within an established electric transmission ROW. Additionally, the preliminary engineering design performed on Alternative 3 concluded that installing a third overhead line within the existing N12 and M13 Lines ROW between the Sykes Road Switching Station and Bell Rock Substation would require that both circuits be entirely reconfigured and rebuilt in vertical configurations. The majority of the new conductors and transmission line structures would need to be in a vertical configuration constructed on steel monopoles with concrete caisson foundations or require significant anchoring and guying. The existing ROW is 150 feet wide and further engineering would need to be performed to confirm whether all three circuits could be accommodated within the same ROW, and if the construction of three parallel circuits in this area introduced another potential contingency. The need to rebuild and reconfigure two existing transmission line circuits combined with constructing a third transmission line was viewed as not favorable to meeting the Project delivery timeframe.

- Alternative 4 (the AFRRP) – This route alternative makes use of existing and maintained transmission line ROWs that are wide enough to support the construction of a new parallel transmission line. No new easements or land rights are required to install the new facilities. The existing transmission lines can remain energized throughout much of the duration of construction, as the new line would be constructed along an open position in the ROW. Reconfiguration and reconstruction of existing facilities is minimized. For these reasons, Alternative 4 was selected as the alternative that best meets the Project delivery timeframe and in-service date of 4th Quarter 2021.

Constructability, Natural and Human Environmental Criteria

A set of consistent constructability assumptions, and, natural and social environmental criteria were applied to assess the merits of each of the four alternatives. These criteria have been applied to previous transmission line projects and they incorporate lessons learned from past construction activities. Table 3-2 summarizes the characteristics and potential impacts of the four alternatives. The initial criteria applied to the four transmission alternatives consists of the following:

- Engineering, construction feasibility and safety considerations.

- Real estate and easement acquisition requirements.

- Access constraints and availability of existing access.

- Potential impacts to the social / built environment.

- Potential impacts to the natural environment.
- Delivery timeframe and schedule conflicts.
- Cost implications.

TABLE 3-2 ACUSHNET TO FALL RIVER RELIABILITY PROJECT ENVIRONMENTAL IMPACT ASSESSMENT TRANSMISSION LINE ALTERNATIVES

SOLUTIONS	TYPE AND APPROXIMATE LENGTH	DESCRIPTION OF ROUTE	ENGINEERING / CONSTRUCTION FEASIBILITY & SAFETY CONSIDERATIONS	REAL ESTATE/ EASEMENT ACQUISITION REQUIREMENTS	ACCESS CONSTRAINTS	POTENTIAL IMPACTS TO SOCIAL/ BUILT ENVIRONMENT	POTENTIAL IMPACTS TO NATURAL ENVIRONMENT	DELIVERY TIMEFRAME / SCHEDULE CONFLICTS	COST IMPLICATIONS
Alternative 1	Mixed (underground and overhead) 5 miles	Bristol Substation to Dexter Substation/ Old Boyd's Lane Switching Station	Requires construction easements for HDD entry and exit pits. Requires geotechnical surveys, HDD contingency plan, frac-out plan. Length of HDD crossing requires special oversized and overweight reel handling.	Requires new easement. Requires temporary easements from Roger Williams University and Rhode Island Department of Transportation (RIDOT) for HDD entry and exit pits.	Underground transmission line installed in local streets, requiring traffic management plans and possible construction detours.	Underground line to be installed in medium density residential area.	Requires HDD crossing under 80-foot deep navigation channel of Mount Hope Bay. Requires development of a new substation on currently undeveloped land.	Seasonal restrictions on construction likely due to proximity to Roger Williams University and high traffic areas during the tourist season. Work hour restrictions likely to be imposed by the RIDOT for construction on state roadways. HDD construction may be lengthy in duration depending on soil conditions Cable length limits suppliers to Asian factories. Negotiations with private property owners can lead to schedule implications and delays.	Increased costs for HDD installation beneath Mount Hope Bay. Increased costs for underground utility installation.
Alternative 2	Mixed (underground and overhead) 1.75 miles	Somerset Substation to Sykes Road Switching Station	Underground line to be installed under railroad, oil pipeline, communication line, sewer line, and two state roadways.	Requires new easement from Massachusetts Department of Transportation (MassDOT) for railroad crossing, and easement from private landowner for river crossing tower foundation/footings	Construction access would be required from MassDOT. Agreement with MassDOT would be required for emergency access across the tracks. Underground transmission line installed in local streets, requiring traffic management plans and possible construction detours.	Underground line to be installed in medium density residential area.	Crossing of the Taunton River.	Negotiations with private property owners can lead to schedule implications and delays.	Increased costs for underground utility installation.
Alternative 3	Mixed (underground and overhead) 3.5 miles	Somerset Substation to Bell Rock Substation	Underground line to be installed under railroad, oil pipeline, communication line, sewer line, and two state roadways. Installing a third overhead line within the route corridor is possible however two existing circuits (N12 and M13) would need to be entirely reconfigured and rebuilt in vertical configurations.	Requires new easement from MassDOT for railroad crossing, and easement from private landowner for river crossing tower foundation/footing.	Construction access would be required from MassDOT. Agreement with MassDOT would be required for emergency access across the tracks.	Underground line to be installed in medium density residential area.	Would require steel monopoles in a vertical configuration would on concrete caisson foundations or require significant anchoring and guying for the new structures. Potential for greater impacts to state-listed rare species and outstanding resource waters. Larger diameter foundations, increased work space requirements.	Negotiations with private property owners can lead to schedule implications and delays. Greater safety concerns involved in reconfiguring the existing transmission lines and drilling and concrete pours under energized lines; and more extensive scheduling of outage and limitations on available outages.	Increased costs for underground utility installation. Increased cost for material and construction for steel monopole with caisson foundations.
Alternative 4	Overhead 12 miles	Industrial Park Tap to Bell Rock Substation	Use of available space on an existing electric transmission line ROW simplifies construction.	No new easements or land rights required.	Access rights are established along an existing overhead transmission corridor.	Route is located predominantly in undeveloped or low density residential areas.	Entirely overhead construction which can span existing natural resources to the greatest extent practicable. Through tree clearing is required, it will be completed within an existing overhead transmission line easement.	Construction entirely within an open position in an existing transmission line ROW minimizes schedule constraints.	Most cost-effective solution aligning with the Companies standards installation practices within existing utility easements.

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Engineering / Construction Feasibility and Safety Considerations

In evaluating potential alternative routes, preference was given to routes that would minimize constructability constraints. For example, road crossings or working within other utility corridors can result in access restrictions, working space constraints, safety concerns, traffic disruptions, and restrictive work hours. Alternatives 1 and 2 require underground utility installation within existing roadway ROWs; while Alternative 3 requires underground utility installation within existing overhead transmission line ROW traversing former industrial properties. Alternative 1 requires a long HDD beneath Mount Hope Bay requiring special oversized and overweight reel handling and construction equipment. Alternatives 2 and 3 would require underground installation traversing railroad, oil pipeline, communication and sewer lines, and two state roadways. During underground construction, the potential to encounter subsurface soil and groundwater contamination is greater than with a purely overhead route.

In addition, the overhead portion of Alternative 3 would require two existing transmission lines to be reconfigured and rebuilt in a vertical configuration to accommodate a new overhead transmission line within the existing ROW.

Due to these factors, Alternative 4 is the preferred solution in terms of engineering / construction feasibility and safety considerations.

Real Estate / Easement Acquisition Requirements

Acquiring land or easements for transmission purposes, either by condemnation or by voluntary agreement, is a lengthy and costly process. Accordingly, identifying alternatives with manageable land acquisition requirements, and to minimize the need to expand existing ROW is a key consideration. The potential to upgrade an existing transmission line or substation, or to co-locate a new transmission line within an existing ROW is typically a primary routing consideration because it often minimizes environmental impacts and costs, and reduces delays caused by the need to acquire property/access rights, among other benefits. Alternative 4 is the only solution where additional land rights are not required and is therefore more preferable than the other solutions.

Access Constraints

Alternatives 1, 2, and 3 would require new access rights to be negotiated for portions of the transmission line not located within existing easements. Since Alternative 4 is located entirely within an existing overhead transmission ROW where access rights currently exist, Alternative 4 is preferable over the others.

Impacts to the Natural and Human Environment

Preference was given to the alternatives that would minimize impacts to the natural and human environment. Alternatives 1 through 3 include a combination of underground and overhead transmission installation. Construction techniques for underground transmission lines create different environmental impacts than overhead transmission line construction. In the case of Alternatives 1 and 2, the underground transmission installation along existing roadways would result in impacts mostly to the manmade environment and would primarily occur during the construction of the line. These would include temporary impacts to traffic and construction noise impacts to homes and businesses. The underground routes associated with Alternatives 1 and 2 are primarily located within two-lane roadways where lane closures and alternating traffic patterns would be required during construction. Alternative 3 requires underground utility installation within existing overhead transmission line ROW where avoidance of

natural resource areas would not be possible. A continuous permanent access road and an open cut trench would need to be established along the entire length of the underground portion of the route to facilitate installation of the underground cable. This continuous access and trench would result in more significant impacts to natural resource areas than a purely overhead installation that could span these areas to the greatest extent practicable.

In addition to these impacts, an underground line would also require a transition station where the proposed facilities transition from overhead to underground and/or equipment installed above-ground at the terminal station. This additional above-ground equipment could potentially increase the environmental impact of an underground project as additional space would be needed for these facilities. Alternative 1 also includes construction of a new substation on a currently undeveloped site resulting in permanent land use impacts.

Due to its location entirely within an existing overhead transmission line ROW, Alternative 4 was considered preferable in terms of minimizing impacts to the natural and human environment. With overhead construction, it is frequently possible to span wetlands and other sensitive resource areas. This has been demonstrated along the existing transmission lines located within the Alternative 4 ROW and is proposed for installation of a new overhead transmission line within this corridor.

3.3.2 Routing Alternatives

Since a connection between the Industrial Tap and Bell Rock Substation was identified by ISO-NE as the preferred solution to provide a transmission source to the Fall River area, the Companies also examined the general vicinity of the Project and orientation of potential west-to-east Routing Alternatives to the proposed transmission line focusing on existing utility and transportation corridors. Each of the routes was evaluated to determine their feasibility and potential for environmental impact for the installation and operation of a transmission line using the following siting criteria:

1. **Maximize use of existing linear corridors.** Locating the proposed transmission line along existing ROWs (e.g., transmission lines, highways, railroads, and pipelines) where linear uses are already established, was a primary routing consideration.
2. **Minimize the need to acquire land or land rights.** Acquiring additional land or land rights to construct the line will impact project cost and schedule, especially if the land rights need to be acquired along the length of the entire line. Acquisition of these rights from unwilling landowners by condemnation or even by voluntary agreement, can be a lengthy and costly process.
3. **Minimize impacts to densely developed areas.** The placement of transmission facilities in densely developed areas typically creates additional complexity both during initial construction and when maintenance is required. The potential for construction and maintenance work hour restrictions, need for additional ROW, temporary work space, and limited access availability are more prevalent in densely populated areas.
4. **Minimize impacts to environmental resources.** The Companies sought to identify route alternatives that would minimize impacts to environmental resources such as wetlands, wildlife habitats, watercourses, conservation lands, historic sites, archaeologically sensitive areas, and other designated resources.
5. **Limit construction feasibility constraints.** In evaluating potential alternative routes, preference was given to routes that would minimize constructability constraints. For example, highway crossings or working within other utility corridors can result in access restrictions, working space constraints, safety concerns, traffic disruptions, and restrictive work hours.

6. **Maintain system operability.** Route alternatives must allow general accessibility for future maintenance or repair.
7. **Minimize cost.** The Companies sought to develop route alternatives that would avoid costly remediation or construction requirements or, alternatively, that would provide some opportunity for securing cost reductions.

As a result of this analysis, the Companies identified seven route alternatives connecting the Industrial Park Tap and Bell Rock Substation as shown on Figure 3-4. These routes were evaluated to determine their feasibility and potential for environmental impact for installation and operation of a transmission line.

Alternative Routes Evaluated for the AFRRP

ISO Route

The ISO Route (the proposed Project) follows an existing transmission corridor from Industrial Park Tap to the Bell Rock Substation. This route is approximately 12.1 miles in length passing through the towns of Acushnet, New Bedford, Dartmouth, and Fall River. The new transmission line would be located within ROW that varies in width from 210 to 150 feet wide and is currently occupied by existing transmission lines. This route is the most direct route between the Industrial Park Tap and Bell Rock Substation, and is the route selected by the ISO-NE SEMA-RI Solution Study working group.

Central Underground Route

The Central Underground Route runs for 18.4 miles along existing transmission ROW and roadway ROWs. For 0.4 mile, the route would consist of an overhead installation within existing electric transmission ROW. At Mendall Road, the line would transition to an underground installation following Mendall Road, Perry Hill Road, Main Street, Lake Street, Peckham Road, Acushnet Avenue, Braley Road, Phillips Road, Chippaway Road, Bullock Road, Slab Ridge Road, Hathaway Road, Bent Rim Trail, Makepeace Road, Cedar Swamp Road, Copicut Road, Gated Fire Lane, Grinnell Path, Gated Fire Lane, and Bell Rock Road for a total distance of 18 miles.

Southern Underground Route

The Southern Underground Route runs for 14.1 miles along existing transmission ROW and roadway ROWs. For 0.7 mile, the route would consist of an overhead installation within existing electric transmission ROW. At Hathaway Road, the line would transition to an underground installation following Hathaway Road, Wing Road, Main Street, Tarklin Hill Road, New Plainville Road, Old Plainville Road, Old Fall River Road, North Hixville Road, Yellow Hill Road, Blossom Road, and Bell Rock Road for a total distance of 13.4 miles.

North – South Underground Crossover

The North – South Underground Crossover Route runs for 15.7 miles along existing electric transmission ROW and roadway ROWs. For 0.7 mile, the route would consist of an overhead installation within existing electric transmission ROW. At Hathaway Road, the line would transition to an underground installation following Hathaway Road, Wing Road, Main Street, Tarklin Hill Road, New Plainville Road, Shawmut Avenue, High Hill Road, Pine Island Road, Flag Swamp Road, Quanapoag Road, Copicut

Road, Gated Fire Lane, Grinnell Path, Gate Fire Lane, and Bell Rock Road for a total distance of 14.9 miles.

Hybrid Route 1

Hybrid Route 1 runs for approximately 15.1 miles along existing electric transmission ROW and roadway ROWs. For 6.5 miles, the route would consist of an overhead installation within the same electric transmission ROW as the proposed Project, through the towns of Acushnet, New Bedford, and Dartmouth. At the High Hill Substation in Dartmouth, the route would transition to an underground installation following High Hill Road, Bullock Road, Quanapoag Road, Copicut Road Gated Fire Lane, Grinnell Path, Gate Fire Lane, and Bell Rock Road for a total distance of 8.6 miles.

Hybrid Route 2

Hybrid Route 2 runs for approximately 15.5 miles along existing electric transmission ROW and roadway ROWs. For 7.5 miles, the route would consist of an overhead installation within the same electric transmission ROW as the proposed Project, through the towns of Acushnet, New Bedford, and Dartmouth. At Collins Corner Road, the route would transition to an underground installation following Collins Corner Road, Old Fall River Road, North Hixville Road, Yellow Hill Road, Blossom Road, and Bell Rock Road for a total distance of 8.0 miles.

Hybrid Route 3

Hybrid Route 3 runs for approximately 12.8 miles along existing electric transmission ROW and roadway ROWs. For approximately 0.7 mile, the route would consist of an overhead installation within the same electric transmission ROW as the proposed Project in Acushnet. At Hathaway Road, the route would transition to an underground installation following, Hathaway Road, Wing Road, Main Street, Tarklin Hill Road, New Plainville Road, Shawmut Avenue, and High Hill Road for a total distance of 6.6 miles. At the High Hill Substation, the route would transition to an overhead configuration and follow the same electric transmission ROW as the proposed Project, through the towns of Dartmouth and Fall River for approximately 5.5 miles.

Criteria Evaluated

The seven routing alternatives were evaluated against natural and social environmental criteria listed in Table 3-3. Table 3-4 summarizes natural and social environmental characteristics, and potential impacts of the route options based on a desktop assessment of GIS data.

TABLE 3-3 ENVIRONMENTAL SCORING CRITERIA AND WEIGHTING

	CRITERION	DESCRIPTION
Natural Environment	MA DCR Conservation Land	Length of route in miles requiring Article 97 approval
	Archaeological Sensitivity	Percentage of ROW
	Wetlands	Acres within 25 feet of ROW
	Chapter 91 Jurisdictional Waterway Crossings	Number within ROW
	Outstanding Resource Waters / Areas of Critical Environmental Concern	Number of crossings
	Rare Species Habitats (Priority Habitat)	Acres within ROW
	Tree Clearing Requirements	Acres of forested land within ROW
Social/ Developed Environment	Commercial Buildings	Number directly abutting ROW
	Residences and Dwellings	Number directly abutting ROW
	Sensitive Receptors	Number directly abutting ROW
	Potential Traffic Congestion	Length of route in miles within roadway ROW
	Potential for Land Acquisition	Acres of additional land required
	Historic Sites	Number directly abutting ROW
	Potential Encounters w/Contamination	Number within ROW
Constructability Features	Complex Crossings (trenchless technology, overhead crossings of other transmission lines, and railroads)	Number within ROW
	Congestion w/ existing infrastructure (overhead and underground utilities)	Length of significant utility congestion within ROW
	Hard Angles (>30 degrees) along the route alignment	Number within ROW

DCR Conservation Land

This criterion involved reviewing the Massachusetts Geographic Information System ("MassGIS") Protected and Recreational Open Space data to determine the length of each route (in miles) located along unimproved DCR roads and trails or along improved DCR roads subject to a Conservation Restriction.

Archaeological Sensitivity

Areas identified as sensitive in terms of archaeological resources potentially could be affected by project construction with impacts due to earth movement, construction traffic, tree removal operations and the placement of transmission facilities in or near cultural resources. Archaeological sensitivity was assessed to determine the percentage of archaeological sensitive areas along each route.

Wetlands

Project construction could directly impact wetland resource areas located along a route either temporarily or permanently. This criterion involved reviewing the MassGIS MassDEP Wetlands Original (1:12,000) data to determine the number of wetland acres within 25 feet of each route.

Chapter 91 Jurisdictional Crossings

Project construction could directly impact resources protected under the Massachusetts Public Waterfront Act, Chapter 91, which is the primary tool for protecting and promoting public use and interests in tidelands and other waterways. This criterion involved reviewing the MassGIS Tidelands Jurisdiction (G.L. c. 91) data to determine the number of jurisdictional crossings along each route. Areas that may be subject to Chapter 91 jurisdiction include Flowed Tidelands, Filled Tidelands, Great Ponds and Non-Tidal Rivers and Streams.

Outstanding Resource Waters (ORW) / Areas of Critical Environmental Concern

Project construction could directly impact ORW and/or Areas of Critical Environmental Concern ("ACECs"). This criterion evaluated the number of crossings of Certified Vernal Pools and ACECs based on MassGIS datalayers, and the number of crossings of surface waterbody resources that are listed in the State of Massachusetts Surface Water Quality Standards as ORW (314 CMR 4.00) within each route ROW. Additionally, public drinking water supplies were reviewed to determine whether they constituted ORW.

Rare Species Habitat (Priority Habitat)

Project construction could directly impact areas protected as habitat for state-listed rare species. This criterion was based on a review of the MassGIS NHESP Priority Habitats of Rare Species data to determine the acres of priority habitat within each route ROW.

Tree Clearing

To accommodate the construction, reliability and safe operation of transmission lines, tree clearing is often required to meet clearance requirements. This criterion was evaluated using the MassGIS Land Use data to identify the total acreage of forested land within each route ROW. Both forested upland and forested wetland categories were included in this analysis.

Commercial Buildings

Businesses along a route could be subject to temporary traffic disruption, street closings, construction noise, dust, and/or other temporary construction impacts, as well as the potential for visual impacts from the permanent removal of trees and the placement of structures along certain routes. The number of commercial buildings was counted based on aerial photographic interpretation and Google street imagery to determine the number of commercial buildings directly abutting each route.

Residences and Dwellings

Residents along a route could be subject to temporary traffic disruption, street closings, construction noise, dust, and/or other temporary impacts due to project construction, as well as the potential for visual impacts from the permanent removal of trees along certain routes. The routes analyzed pass through areas with varying degrees of residential land uses (high, medium, low and very low density and multi-family residential). Residences were counted based on aerial photographic interpretation and Google street imagery to determine the number of homes directly abutting each route.

Sensitive Receptors

Sensitive receptor land uses include hospitals, elder care facilities, public and private schools, cemeteries, licensed daycares, district courts, nursing homes, police stations, fire stations, and churches. Sensitive receptors could be subject to temporary traffic disruption, street closings, construction noise, and/or other temporary impacts due to project construction. The number of sensitive receptors was counted based on MassGIS, United States Geologic Survey ("USGS") Geographic Names Information System ("GNIS"), and the Massachusetts Department of Early Education and Care location data to determine the number of sensitive receptors directly abutting each route.

Potential Traffic Congestion

The installation of a new transmission line within public roadways could result in temporary increased traffic density and congestion, traffic disruption, street closings, construction noise, and/or other temporary impacts due to project construction. This criterion was evaluated by determine the length (in miles) that each route would be installed within a public roadway ROW.

Potential for Land Acquisition

The installation of a new transmission line along routes where additional land or easement rights are necessary would result in increased time to successfully acquire and will increase cost. The routes were analyzed for potential land acquisition requirements that would be needed outside of existing company-owned land and easements.

Historic Architectural Properties and Districts/Areas

Historic architectural properties and districts/areas (historic architectural resources) potentially could be affected by construction impacts due to earth movement, traffic disruptions, the permanent removal of trees and the placement of transmission facilities in or near cultural resources. Historic architectural resources were assessed using MHC data from the Massachusetts Cultural Resources Information System ("MACRIS"). The number of historic resources directly abutting each route was counted based on the number of buildings, local historic districts, and National Register of Historic Places ("NRHP)" -listed individual buildings and districts included in the Inventory of Historic and Archaeological Assets of the Commonwealth or listed in the State and National Registers of Historic Places.

Potential Encounters with Contamination

The presence of subsurface contamination adds complexities to project construction. Underground excavation and/or other construction activities in urban areas may expose contaminated soil that can affect worker safety and require special soil management procedures and disposal requirements under federal and state hazardous material and/ or other regulations. This adds complexities and costs and may significantly affect schedule. The potential to encounter subsurface contamination was assessed based on the number of sites within the route ROW including Active Tier I and Tier II sites, Activity and Use Limitation ("AUL") sites closed with ongoing maintenance conditions, Utility Related Abatement Measure ("URAM") sites, and those sites with a Response Action Outcome ("RAO") Class C. This criterion was evaluated using the MassGIS MassDEP Tier Classified Oil and/or Hazardous Material Sites datalayer and the MassDEP Oil and/or Hazardous Material Sites with AULs to determine the number of sites within the ROW.

Complex Crossings (Trenchless Crossings, Overhead Transmission Line Crossings, and Railroads)

All of the routes evaluated require the crossing of certain features (e.g., railroad ROWs, highways, etc.) that require additional consideration and effort to design, permit and/or construct. Crossings included in this category include trenchless crossings, crossings of existing overhead transmission lines; and railroad crossings. These crossings are generally more complex and require logistical coordination, additional expense (design and material) and may have schedule implications due to longer permitting or easement approval timelines. This criterion involved: (1) a preliminary review of where trenchless installations would be required along the underground route locations; (2) reviewing the MassGIS existing infrastructure (transmission line and railroad) datalayers; and (3) aerial photographic interpretation to determine the number of complex crossings along the routes.

Congestion with Existing Utility Infrastructure

The number of existing utilities located along and within a ROW corridor can affect the available space above and below grade to physically construct transmission lines. Overhead and underground electric facilities (both transmission and distribution), underground pipelines, municipal water, sewer, and gas facilities, and features such as manholes and catch basins can significantly constrain available space. Such constraints complicate the construction process, and increase construction duration, traffic disruption, and costs. The utility density along each route was assessed using aerial photographic interpretation, available subsurface utility records, known facility locations obtained from the municipalities traversed by the routes, and existing ROW configuration mapping provided by the Companies. The length of significant utility congestion was evaluated for each route. Congestion was determined to be significant if existing utilities would need to be rebuilt and/or reconfigured to accommodate the installation of a new transmission line, or if the presence of existing utilities would appreciably complicate the construction process. Generally, the areas of significant utility congestion are located in the more densely populated areas along the routes including Somerset, Swansea, Fall River, New Bedford, and Acushnet. This is expected due to the amount of heavy commercial and industrial uses in these areas.

Hard Angles (>30 degrees) and Implications on Overhead and Underground Designs

For above-ground transmission lines, sharp angles may require specialized structures and additional material and design costs. For underground cables, sharp bends may also increase construction difficulty and the risk of cable damage during installation and operation; sharp turns also necessitate installation of additional manholes to minimize side wall pressure on the cables. This criterion was evaluated in ArcGIS to determine the number of bends greater than 30 degrees along each route ROW. For overhead transmission routes the ROW centerline was reviewed; for underground transmission routes the center of each road was reviewed.

TABLE 3-4 ACUSHNET TO FALL RIVER RELIABILITY PROJECT ROUTING ALTERNATIVES

ROUTE NAME	LENGTH (MILES)	ROUTE SCREENING CRITERIA																	
		NATURAL ENVIRONMENT							DEVELOPED ENVIRONMENT						CONSTRUCTABILITY				
		MA DCR CONSERVATION LAND (LENGTH IN MILES REQUIRING ARTICLE 97 APPROVAL)[1]	ARCHAEOLOGICAL SENSITIVITY (PERCENTAGE OF ROW)	WETLANDS (ACRES WITHIN 25 FT BUFFER)	CHAPTER 91 JURISDICTIONAL CROSSINGS (NO. WITHIN ROW)	ORW OR ACEC CROSSINGS (NO. OF CROSSINGS)	RARE SPECIES HABITAT (ACRES PRIORITY HABITAT WITHIN ROW)	TREE CLEARING (ACRES OF FORESTED LAND WITHIN ROW)	COMMERCIAL (NO. OF COMMERCIAL BUILDINGS DIRECTLY ABUTTING ROW)[2]	RESIDENCES (NO. DIRECTLY ABUTTING ROW)[2]	SENSITIVE RECEPTORS (NO. DIRECTLY ABUTTING ROW)[2,3]	POTENTIAL FOR LAND ACQUISITION (ACRES)[4]	HISTORIC ARCHITECTURAL PROPERTIES/DISTRICTS (NO. DIRECTLY ABUTTING ROW)[2]	POTENTIAL FOR SUBSURFACE CONTAMINATION (NO. OF SITES WITHIN ROW)	COMPLEX CROSSINGS (TRENCHLESS TECHNOLOGY, OVERHEAD TRANSMISSION LINE CROSSINGS, AND RAILROAD CROSSINGS)	CONGESTION WITH EXISTING UTILITY INFRASTRUCTURE (LENGTH OF SIGNIFICANT UTILITY CONGESTION WITHIN ROW)	POTENTIAL TRAFFIC CONGESTION IMPACTS (LENGTH WITHIN ROADWAY ROW)	HARD ANGLES (>30 DEGREES) (NO. WITHIN ROW)	COST (SCREENING LEVEL ESTIMATE)[5]
ISO Route (Project)	12 miles (OH)	0	50	44	0	1	106	100	2	36	0	0	0	0	3	0	0	3	$28M
Central Underground	18.4 miles 0.4 (OH) 18.0 (UG)	5	50	4	0	0	22	27	26	483	5	0.06	49	0	1	1	18	25	$307M
Southern Underground	14.1 miles 0.7 (OH) 13.4 (UG)	3	80	6	1	0	36	22	69	360	5	0.06	90	0	3	1	13.4	7	$229M
North South Underground Cross over	15.7 miles 0.7 (OH) 14.9 (UG)	6	77	7	1	0	38	27	67	340	5	0.06	77	0	4	1	14.9	18	$255M
Hybrid Route 1	15.1 miles 6.5 (OH) 8.5 (UG)	6	66	32	0	1	39	57	5	95	0	0.06	4	0	2	0	8.5	13	$160M
Hybrid Route 2	15.5 miles 7.5 (OH) 8.0 (UG)	3	65	39	0	0	40	60	2	148	0	0.06	17	0	3	0	8	7	$153M
Hybrid Route 3	12.8 miles 6.2 (OH) 6.6 (UG)	0	51	18	2	1	105	55	67	285	4	0.12	73	0	5	1	6.6	8	$126M

Notes: OH = Overhead; UG = Underground; ORW = Outstanding Resource Water; ACEC = Area of Critical Environmental Concern.
1 - This category includes length of route along unimproved MA DCR roads and trails and along improved MA DCR roads subject to a Conservation Restriction.
2 - This category includes resources identified within 150 feet of the edge of ROW.
3 - This category includes hospitals, elder care facilities, public and private schools, cemeteries, licensed daycares, district courts, nursing homes, police stations, fire stations, and churches.
4 - This category identifies needs for potential land acquisition requirements outside of existing company owned land and easements.
5 - The ISO Route cost is presented at the -25/+50%, estimate. All other route cost estimates are -50%/+100% and are based on a generic per mile cost for overhead versus underground construction (overhead $2.3M per mile / underground $17M per mile).

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Based on an evaluation using the 17 criteria described in Table 3-3, the ISO Route was found to have less potential for environmental impact while balancing system reliability, cost and delivery timeframe considerations, as compared to those impacts anticipated from the other route alternatives evaluated.

Due to the geographic setting of the Bell Rock Substation, all routing alternatives outside of the proposed AFRRP would consist of underground cable installation within roads and trails listed as MA DCR roads, necessitating Article 97 legislative approval, and MA DCR review and approval. In addition, all the routes outside of the proposed AFRRP would require land acquisition and/or new negotiated easement rights to accommodate the installation of an overhead to underground transition station which would need to be located outside of roadway ROW and overhead transmission ROW to avoid conflicts with the existing infrastructure. The substantial additional cost of underground utility installation would most likely be borne by Massachusetts ratepayers, and it is unlikely that ISO-NE would agree given the availability of a much more cost-effective alternative.

3.4 Conclusion

The Companies' alternatives analyses demonstrate that the AFRRP as proposed will best address the identified need and will improve transmission system reliability. Relative to the other transmission line alternatives and route alternatives studied, the AFRRP is the best solution when balancing considerations of system reliability, costs to customers, potential environmental impacts, and delivery timeframe to meet the forecasted in-service date. Following an evaluation of the relative merits and disadvantages of the various alternatives, the overhead alternative (Alternative 4) as proposed is superior to the other alternatives considered because the preferred alternative offers the following advantages:

- Uses existing ROWs dedicated to overhead transmission lines where wetlands and other sensitive resource areas will be spanned to the greatest extent practicable.
- Uses a network of existing access roads and access routes.
- Avoids acquisition of new ROW and/or easements.
- Provides the lowest reasonable Project cost and is substantially less expensive than any of the other alternatives considered.
- Meets the identified energy needs by providing a new source into the load pocket to meet the Project delivery timeframe and in-service date of the 4th Quarter 2021.

4.0 LAND USE

This section describes existing land use within the vicinity of the Bell Rock Substation Rebuild Project and the AFRRP and presents potential project-related impacts during construction and operation. Existing land use conditions in the area were assessed based on publicly available MassGIS land use data layers.[8] A 300-foot study area buffer ("Study Area") was established for both the Bell Rock Substation Rebuild Project and the AFRRP to document dominant land uses in the area. Table 4-1 identifies the land uses within the 300-foot Study Area buffer for each project.

TABLE 4-1 LAND USE WITHIN THE (300-FOOT RADIUS) STUDY AREA (BELL ROCK SUBSTATION REBUILD PROJECT AND AFRRP)

PROJECT	LAND USE DESCRIPTION	PERCENTAGE WITHIN 300-FOOT STUDY AREA
Bell Rock Substation Rebuild Project	Forest	69.4%
	Forested Wetland	11.9%
	Non-Forested Wetland	0.14%
	Water	0.13%
	Powerline/Utility	18.2%
Acushnet to Fall River Reliability Project	Pasture	1.9%
	Forest	61.5%
	Non-Forested Wetland	2.6%
	Open Land	0.2%
	Multi-Family Residential	0.1%
	High Density Residential	0.9%
	Medium Density Residential	0.7%
	Low Density Residential	2.4%
	Industrial	1.3%
	Transportation	0.5%
	Water	1.2%
	Cranberry Bog	0.4%
	Powerline/Utility	14.5%
	Urban Public/Institutional	0.1%
	Nursery	0.8%
	Forested Wetland	10.6%
	Very Low Density Residential	0.4%

[8] Sanborn. 2005. MassGIS Data – Land Use. Retrieved May 3, 2018 from http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/lus2005.html.

4.1 Bell Rock Substation Project

4.1.1 Existing Conditions

The existing Bell Rock No. 118 Substation is located on an approximately 2.75-acre portion of property by virtue of an easement originally granted by the current owner of the property, the City of Fall River. NEP's existing adjacent N12 and M13, L14 and M13, and D21 transmission line ROWs are located on easements similarly granted by the City of Fall River.

Land use was assessed within the Study Area buffer established on all sides of the Bell Rock Substation. As identified in Table 4-1, several dominant land uses are evident surrounding the Study Area. These general land uses, which essentially are all undeveloped, include forest, wetlands, trails, and transmission line ROWs associated with the existing Bell Rock Substation and associated maintained utility ROWs. Field surveys were also performed to confirm and map the natural resources around the substation.

Open Space and Recreational Resources

The Bell Rock Substation is located on a parcel of land adjacent to lands that comprise the Watuppa Reservation. The Watuppa Reservation is the public portion of approximately 8,500 acres of land located within the watersheds of the North Watuppa Reservoir (Fall River's primary source of public water supply) and the Copicut Reservoir (a secondary public water supply for the City of Fall River).

The Southeastern Massachusetts Bioreserve is located to the north and east of the substation property and consists of approximately 13,600 acres of protected open space. The 5,150-acre Freetown-Fall River State Forest is part of the Bioreserve. The Bioreserve is jointly managed by the City of Fall River Water Division, the MA DCR, the Massachusetts Division of Fisheries and Wildlife, and the Trustees of Reservations. For background informational purposes, the Montaup Electric Company (Montaup) obtained property rights, in the form of an easement, from the City of Fall River by deed in June 1960. NEP is the successor in interest to Montaup pursuant to Articles of Merger filed with the Massachusetts Secretary of State's office in May 2000. NEP is now the legal holder of the property easement granted by the City of Fall River.

In March 2009, the City of Fall River granted a conservation restriction to the MA DCR and the Massachusetts Department of Fish and Game (prior to transferring their rights to the MA DCR) by way of a conservation easement. The substation easement predates the conservation restriction and therefore NEP maintains the rights "…to construct, maintain, renew, replace and operate a switching station on that portion of said easement heretofore described bounded westerly on Bell Rock Road…"

4.1.2 Potential Impacts

Permanent Impacts

Construction of the Bell Rock Substation Rebuild Project will result in permanent impacts to land within NEP's existing utility easements as identified in Table 4-2. This is a result of grading and alterations to accommodate the expansion of the Bell Rock Substation. In addition to the expanded substation footprint, a new paved access driveway will be installed from Bell Rock Road into the substation. The slopes surrounding the substation will be graded and stabilized to match the existing topography.

TABLE 4-2 BELL ROCK SUBSTATION REBUILD PROJECT ANTICIPATED LAND USE IMPACTS

RESOURCE AREA	PERMANENT IMPACTS
New Land Altered	Approximately 42,898 sf (0.98 acre) • Grading and alterations required for the Bell Rock Substation and M13 Temporary Bypass.

Vegetation Maintenance

Once tree clearing has been performed to expand the substation site, vegetation maintenance will continue to occur in this area and along the adjacent transmission line ROWs in accordance to NEP's Vegetation Management Plan ("VMP"). NEP's VMP is prepared in compliance with the Massachusetts Rights-of-Way Management regulations (333 CMR 11.00) administered by the Massachusetts Department of Agricultural Resources.[9]

Potential Land Use Impacts

Land use impacts can be separated into short-term and long-term impacts. Short-term land use impacts lasting little more than a year may occur during the construction phase of the Substation Project. Impacts associated with the construction phase of the Bell Rock Substation Rebuild Project will be temporary, and a majority of the existing land uses will resume following construction. NEP will provide notification of the intended construction plan and schedule to any affected abutters so that the effect of any temporary disruptions may be minimized.

The Bell Rock Substation Rebuild Project is located on land occupied by the existing substation and related transmission line facilities. Construction will occur within NEP's existing easements and will be consistent with the surrounding utility infrastructure. Mostly existing upland access roads will be used to gain access to the work locations and will not cause additional long-term impacts. NEP will also construct a temporary construction road to facilitate access to the M13 bypass and to provide future access to the existing D21, L14 and M13 Lines. Where these access roads traverse wetland resource areas, construction matting will be installed. The mats will be removed after construction and affected areas will be restored to preconstruction conditions. Vegetation on the existing ROW is currently managed in accordance with the NEP VMP; accordingly, vegetation is routinely cleared within the ROW and trees along the edges are periodically pruned or cleared. Vegetation will be maintained as low-growth shrubs, grasses and herbs. Minimal and localized tree removal will be required for the station expansion; however, it will not interfere with wildlife around the Project.

The Bell Rock Substation Rebuild Project is not anticipated to interfere with any residential, business or other public facilities. Normal operation at all facilities will continue and existing land uses will be allowed to continue following construction.

[9] National Grid. 2013. Five Year Vegetation Management Plan 2014-2018. Retrieved November 28, 2016 from https://www.nationalgridus.com/transmission/c3-8_standocs.asp.

Consistency with Local Planning

Since the Project is located entirely within existing substation and transmission line easements, permanent impacts to adjacent land uses will be minimized, despite minimal/localized tree clearing activities that are a component of the Bell Rock Substation Rebuild Project. Overall, the Substation Project is not expected to change or significantly affect land uses because no acquisition of additional land or easements is required and there will be no changes to the present use of the site. Therefore, the Substation Project is consistent with the existing public utility presence in the area.

Fall River Community Preservation Plan

In terms of regional and local land use planning, the Bell Rock Substation Rebuild Project is anticipated to remain consistent with the *City of Fall River Draft Community Preservation Plan* (2014).[10] The plan discusses community preservation goals and projects specific to preservation within each of the four designated purposes of the Community Preservation Act (these include open space, recreation, historic preservation, and community housing). These plans do not specifically address energy or electrical transmission lines.

The goals of the *City of Fall River Community Preservation Plan* are to provide affordable housing and recreational facilities, and preserve historic and open space resources. The Bell Rock Substation Rebuild Project is consistent with implementation of Fall River's Historic Preservation goals. There are few historical records for East Fall River, but prior inhabitants' knowledge suggests that there is the potential for significant historic sites in East Fall River. While the Bell Rock Substation Rebuild Project location is considered previously disturbed, NEP will ensure that if ground disturbance (such as small-scale improvements to access routes or placement of new work pads) is required for previously undisturbed areas, NEP will consult with the Massachusetts Historical Commission ("MHC:) and other interested parties to avoid impacts to known or unknown archaeological resources in Fall River, as required by the National Historic Preservation Act ("NHPA") Section 106 process. Any archaeological survey brought to a data recovery level will involve a public outreach and education component.

Fall River Master Plan

The purpose of the *Fall River Master Plan* is to summarize the vision and goals developed for the future of Fall River, and then outline steps, responsible parties, and recommended timing in order to achieve that desired vision of the future. While the *Master Plan* does address utilities and infrastructure, the focus of the plan and recommendations centers on water, sewer, road, and gas infrastructure projects. Transmission line utilities are not explicitly addressed in the *Master Plan*.

The Bell Rock Substation Rebuild Project is proposed to be constructed on land held by NEP in easement and is not expected to have any impact on existing and future land uses. Local permits will be obtained to the extent required in order to comply with the local zoning code.

The Bell Rock Substation Rebuild Project is not anticipated to have any impacts on Land Use, Housing and Neighborhoods; Economic Development, Historic and Cultural Resources; Natural Resources, Open Space, and Recreation; Circulation and Transportation; Utilities and Infrastructure; or Public Facilities and Services within the meaning of the *Master Plan*.

[10] The City of Fall River is currently working on revising the Community Preservation Plan and an updated version will be publicly available in Fall of 2018.

Open Space and Recreation Plan

The purpose of the Fall River Open Space and Recreation Plan is to provide strategies to protect and maintain natural resources, expand and maintain recreational facilities, create greenways and the Bioreserve to encircle the City, and to develop tools to make the City's vision achievable.

The Bell Rock Substation Rebuild Project is not anticipated to have any impact on Open Space or Recreation. The Bell Rock Substation Rebuild Project is proposed to be constructed within existing NEP utility easements and is not expected to have any impact on existing and future land uses. Temporary impacts may occur during construction; however, NEP will implement mitigation measures to minimize any impacts on recreational use of the surrounding lands, maintain signage about the ongoing construction, and otherwise maintain a safe work zone to protect the general public.

4.1.3 Land Use Mitigation Measures

NEP has located the Bell Rock Substation Rebuild Project entirely within existing easements containing the existing Bell Rock Substation and associated transmission lines. The surrounding area is predominantly forested and uninhabited and, as a result, no visual impacts are anticipated as a result of tree clearing for the Substation Project.

Construction generated noise will be limited by the use of mufflers on all construction equipment. Dust will be controlled by wetting and stabilizing access road surfaces, as necessary, and by maintaining crushed stone aprons at the intersections of access roads with paved public roadways.

NEP will develop a construction communication plan for the Bell Rock Substation Rebuild Project that will provide a consistent point of contact with Fall River residents and officials. NEP's communication plan includes outreach during construction to inform residents, fire, police, other emergency personnel, and municipal officials about work schedules, work locations, and construction activities.

Some improvements to existing public roads may be required to provide a level and safe access route to the Substation. Sections of Bell Rock Road for example are unimproved gravel road. To gain access to the Substation, NEP or its contractor may need to make minor improvements to the road such as surface grading and adding material to fill in deep potholes. No work or associated impacts are anticipated outside of the existing roadway footprint. NEP would coordinate with the City of Fall River and notify the MA DCR of any proposed roadway improvement.

Construction will generally take place during normal working hours from Monday to Saturday during daylight hours (7:00 a.m. to 5:00 p.m.). Certain work activities, including work requiring scheduled transmission line outages, may need to be performed on a limited basis outside of normal working hours. Prior to the start of construction, NEP will notify any landowners, municipal officials, the Fall River Department of Public Works, and Fall River Police and Fire Chiefs of the details of planned construction including the normal work hours and extended work hours and will obtain written approval from relevant municipal officials for extended work hours.

4.2 Acushnet to Fall River Reliability Project

4.2.1 Existing Conditions

The AFRRP ROW consists of approximately 292 acres along approximately 12.1 miles of existing transmission line corridor traversing the towns of Acushnet, New Bedford, Dartmouth, and Fall River.

The existing corridor crosses State Routes 18 and 140 in the City of New Bedford, a New Bedford Water Board water supply conduit ROW in the town of Dartmouth, and an existing Algonquin Gas Transmission Pipeline ROW in the City of Fall River. Land Use has been evaluated within a 300-foot-wide study area buffer ("Study Area") established on all sides of the AFRRP ROW. As identified in Table 4-1, above, and depicted on Figure 2-4 in Appendix A, several dominant land uses are evident surrounding the AFRRP ROW. These general land uses include forest, forested wetland and power utility. The existing ROW is routinely managed by the Companies to be consistent with mandatory vegetation standards for overhead electric transmission lines.

Open Space and Recreational Resources

The AFRRP traverses areas identified as public open space and recreational areas including:

- Wheldon Woods Conservation Area;
- Acushnet Cedar Swamp State Reservation;
- Southeastern Massachusetts Bioreserve; and
- Watuppa Reservation.

The Weldon Woods Conservation Area is crossed by the AFRRP east of Middle Road in Acushnet. The Weldon Woods Conservation Area consists of approximately 25.6 acres of protected open space owned and managed by the Fairhaven-Acushnet Land Preservation Trust.

The Acushnet Cedar Swamp State Reservation is crossed by the AFRRP in Dartmouth between the Dartmouth/New Bedford municipal boundary and High Hill Road. The Cedar Swamp State Reservation consists of approximately 1,800 acres of protected open space owned by the Commonwealth of Massachusetts and managed by the MA DCR.

The AFRRP traverses portions of the Southeastern Massachusetts Bioreserve and areas where the adjacent lands comprise the Watuppa Reservation (both described in detail above).

4.2.2 Potential Impacts

Permanent Impacts

Construction of the AFRRP will result in permanent impacts to land within the Companies' existing transmission line corridor and easements, as identified in Table 4-3. This is a result of tree removal along the NEP portion of the ROW, and within one span (between proposed Structures 7-8) along the Eversource portion of the ROW, to open up a position for the new overhead transmission line.

TABLE 4-3 ACUSHNET TO FALL RIVER RELIABILITY PROJECT ANTICIPATED LAND USE IMPACTS

RESOURCE AREA	PERMANENT IMPACTS
New Land Altered	1,108,861 (25.46 acres) of tree clearing in upland

Vegetation Maintenance

The Companies have long followed established plans and procedures for applying an Integrated Vegetation Management ("IVM") approach to manage vegetation within existing utility corridors in accordance with transmission line clearance standards. The vegetation maintenance cycle follows a five-year timeline and encourages the growth of low-growing shrubs and other vegetation which provide a degree of natural vegetation control. Vegetation management is necessary to ensure the reliable and safe delivery of electric services to the Companies' customers. This is accomplished by allowing for the proper clearance between vegetation and electrical conductors. Once tree clearing has been performed in order to expand the cleared width of the NEP portion of the existing ROW, vegetation maintenance will continue to occur in this area and along the remainder of the transmission line ROW in accordance with the Companies' respective VMPs (National Grid's 2014-2018 VMP; Eversource's 2018-2022 VMP for Central, Eastern, and Southeastern Massachusetts). The Companies' VMPs are prepared in compliance with the Massachusetts Rights-of-Way Management regulations (333 CMR 11.00) administered by the Massachusetts Department of Agricultural Resources.

Potential Land Use Impacts

As mentioned above, land use impacts can be separated into short-term and long-term impacts. Short-term land use impacts are anticipated to last a little less than a year and will be temporary in nature. The majority of the existing land uses will resume following construction. The Companies will provide notification of the intended construction plan and schedule to any affected abutters so that the effect of any temporary disruptions may be minimized.

The AFRRP is located within existing transmission line ROW corridor held in fee or easement by the Companies. The AFRRP will be consistent with the surrounding utility infrastructure and is not anticipated to interfere with any residential, business or other public facilities. Normal operation at all facilities will continue and existing land uses will be allowed to continue following construction.

Existing upland access roads will be used to gain access to the work locations, to the extent practicable. Additional temporary and permanent access will be installed along portions of the AFRRP during construction.

4.2.3 Consistency with Local Planning

Since the AFRRP is located entirely within existing transmission line ROW, permanent impacts to adjacent land uses will be minimized, despite tree clearing activities which are required to expand the cleared width of the existing ROW. Overall, the AFRRP is not expected to change or significantly impact land uses within the ROW or the adjacent lands since no acquisition of additional ROW is required. Therefore, the AFRRP is consistent with the existing public utility presence within and around the existing ROW.

Community Preservation Plans

In terms of regional and local land use planning, the AFRRP is anticipated to remain consistent with the Community Preservation Plans or guidelines for the affected jurisdictions (see the Table 4-4 below for the list of plans reviewed). Consistent with the Community Needs Assessment Act, the goals of these plans and guidelines are to provide affordable housing and recreational facilities, and preserve historic and open space resources. These plans do not specifically address energy or electrical transmission lines. The AFRRP is consistent with these goals because it minimizes impacts to existing resources and uses in the area.

TABLE 4-4 ACUSHNET TO FALL RIVER RELIABILITY PROJECT COMMUNITY PRESERVATION PLANS

COMMUNITY	PLAN OR GUIDELINE REFERENCE
City of New Bedford	Community Preservation Plan (2017)
City of Fall River	City of Fall River Draft Community Preservation Plan (2014)

The AFRRP is consistent with community preservation activities, as there will be little to no change to open space, recreation, and historic resources.

Master Plans

In all the affected jurisdictions, the AFRRP is proposed to be constructed on existing transmission line ROWs and is not expected to have any impact on existing and future land uses described in the Master Plans.

The purpose of local Master Plans generally is to summarize the vision and goals developed for the future and then outline steps, responsible parties, and/or recommended timing in order to achieve it (see Table 4-5 below for the list of plans reviewed). The Master Plans for the affected jurisdictions do address utilities and infrastructure in that the focus of the plans center on land use and infrastructure-type or development projects, however they do not explicitly address transmission line utilities.

TABLE 4-5 ACUSHNET TO FALL RIVER RELIABILITY PROJECT MASTER PLANS

COMMUNITY	PLAN OR GUIDELINE REFERENCE
Town of Acushnet	Master Plan 2010
City of New Bedford	Master Plan New Bedford 2020 (2010)
Town of Dartmouth	Master Plan 2007
City of Fall River	Master Plan 2009-2030

Open Space and Recreation Plans

The AFRRP is not anticipated to have any impact on affected jurisdictions' existing Open Space or Recreation, given that it is proposed to be constructed within existing transmission line ROW and it is not expected have any impact on existing and future land uses.

Local Open Space and Recreation Plans help jurisdictions to protect, preserve and increase its open space and recreation assets and resources, and to provide citizens with a plan regarding future policies and

actions necessary to meet the needs of the town's changing physical, cultural, and social needs. The Plans reviewed are listed in the Table 4-6 below.

TABLE 4-6 ACUSHNET TO FALL RIVER RELIABILITY PROJECT OPEN SPACE AND RECREATION PLANS

COMMUNITY	PLAN OR GUIDELINE REFERENCE
City of New Bedford	City of New Bedford Open Space and Recreation Plan (2014)
Town of Dartmouth	Town of Dartmouth Open Space and Recreation Plan (2009)
City of Fall River	Fall River Open Space and Recreation Plan (2010)

4.2.4 Mitigation Measures

The Companies have located the AFRRP entirely within existing transmission line ROW. New pole structures are proposed to be located adjacent to existing structures, where feasible, to minimize the potential for visual impact. Where new tree clearing is required, minimal visual impact to abutting property owners is anticipated due to the remote nature of the ROW.

Construction-generated noise will be limited by the use of mufflers on all construction equipment. Dust will be controlled by wetting and stabilizing access road surfaces, as necessary, and by maintaining crushed stone aprons at the intersections of access roads with paved public roadways. A construction communication plan will be developed for the AFRRP that will provide outreach during construction and will provide a consistent point of contact for the public. Recognizing the varying needs of its stakeholders, the Companies are developing various communication methods to inform stakeholders throughout construction, including as needed: work area signage; advance notification of scheduled construction; personal contact with residents, community groups and businesses; and regular e-mail updates to residents (upon request) and local officials that will include information on upcoming construction activity.

Traffic control and/or management plans will also be prepared, where required, which will minimize impacts associated with increased construction traffic on local roadways.

5.0 WETLANDS AND WILDLIFE

This section describes wetlands and wildlife resources within the vicinity of the Bell Rock Substation Rebuild Project and the AFRRP and presents potential project-related impacts during construction and operation. Field investigations were conducted for each project, detailed results of these investigations are provided in the following Appendices:

- Appendix E – Bell Rock Substation Rebuild Project Wetland and Stream Delineation Report
- Appendix F – Bell Rock Substation Rebuild Project Wildlife Habitat Evaluation
- Appendix G – Bell Rock Substation Rebuild Project Wetland Invasive Species Control Plan
- Appendix H – Acushnet to Fall River Reliability Project Wetland and Stream Delineation Report
- Appendix I – Acushnet to Fall River Reliability Project Vernal Pool Inventory (NEP)
- Appendix J – Acushnet to Fall River Reliability Project Wildlife Habitat Evaluation (NEP)
- Appendix K – Acushnet to Fall River Reliability Project Wetland Invasive Species Control Plan

5.1 Analysis of Existing Data

Before beginning the wetland field investigation/delineation, existing information was reviewed to determine the potential extent of wetlands within the limit of work activities associated with each project. These source materials included:

- USGS 7.5-minute Topographic Quadrangle Map - Fall River, Massachusetts[11] and New Bedford, Massachusetts [12]
- MassDEP Wetland Data[13]
- NHESP Certified Vernal Pool Maps[14]
- NHESP Potential Vernal Pool Maps[15]
- United States Department of Agriculture ("USDA") Natural Resources Conservation Service ("NRCS") 2015 - 2016 Web Soil Survey[16]
- USDA NRCS Hydrologic Unit Code ("HUC") Basins (8,10,12) [17]

[11] United States Geologic Survey (USGS). 1985. 7.5-minute Topographic Quadrangle Map, Fall River, MA.
[12] United States Geologic Survey (USGS). 1979. 7.5-minute Topographic Quadrangle Map, New Bedford North, MA.
[13] Massachusetts Department of Environmental Protection (MassDEP). 2009. MADEP Wetland Data. Retrieved April 20, 2015–July 09, 2018 from https://docs.digital.mass.gov/dataset/massgis-data-massdep-wetlands-original-112000.
[14] Natural Heritage and Endangered Species Program (NHESP). 2015-2018. MassGIS Data – Certified Vernal Pools. Retrieved July 09, 2018 from http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/cvp.html.
[15] Natural Heritage and Endangered Species Program (NHESP). 2000. MassGIS Data – Potential Vernal Pools. Retrieved July 09, 2018 from http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/pvp.html.
[16] United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2015-2016. Web Soil Survey. Retrieved April 20, 2015-July 09, 2018 from http://websoilsurvey.nrcs.usda.gov/.

- USGS National Agriculture Imagery Program[18]
- United States Fish and Wildlife Service ("USFWS") National Wetland Inventory ("NWI") Wetlands Mapper[19]
- USGS National Hydrography Dataset ("NHD") Viewer[20]
- Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") Bristol County, Massachusetts Map No. 25005C[21]
- MassDEP ORW[22]

The information was compiled and synthesized into a geographic information system ("GIS") geo-referenced database and used in the field to assist wetland scientists in the location and identification of wetland systems in the Bell Rock Substation Rebuild Project and the AFRRP Survey Areas, respectively.

5.2 Wetland Delineation Methodology

During the field surveys, wetlands were identified and delineated in accordance with requirements of the following jurisdictions:

- Clean Water Act ("CWA") (33 U.S.C. §§ 1251 et seq., Section 404 and Section 401)
- Massachusetts Wetland Protection Act ("WPA") (M.G.L. c. 131, § 40) and associated Regulations (310 CMR 10.00)

Most wetlands, including isolated wetlands and waterbodies are considered "waters of the United States" and are subject to the federal CWA. Evidence indicative of wetland from three parameters – predominance of wetland vegetation, hydric soils, and hydrology – was used to identify and delineate the wetlands in accordance with the 1987 *United States Army Corps of Engineers Wetland Delineation Manual*[23] and the subsequent *Regional Supplement to the United States Army Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE 2012).[24] With the exception of unusual or atypical situations, evidence of wetland must be exhibited by all three parameters for an area or position to be designated as wetland.

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[17] United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2005. NRCS Hydrologic Unit Code (HUC) Basins (8,10,12). Retrieved April 20, 2015-July 09, 2018 from https://docs.digital.mass.gov/dataset/massgis-data-nrcs-huc-basins-81012.
[18] United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2016. National Agriculture Imagery Program. Retrieved April 20, 2015-July 09, 2018 from https://viewer.nationalmap.gov/basic/#productSearch.
[19] United States Fish and Wildlife Service (USFWS). 2017. National Wetland Inventory (NWI) Wetlands Mapper. Retrieved April 20, 2015-July 09, 2018 from http://www.fws.gov/wetlands/data/mapper.HTML.
[20] United States Geologic Survey (USGS). 2016. National Hydrography Dataset (NHD) Viewer. Retrieved April 20, 2015-July 09, 2018 from https://nhd.usgs.gov/NHD_High_Resolution.html.
[21] Federal Emergency Management Agency (FEMA). 2009. Flood Insurance Rate Map Bristol County, Massachusetts Map Nos. 25005C_2493, 25005C_2135, and 25005C_1339.
[22] Massachusetts Department of Environmental Protection (MassDEP). 2010. MassGIS Data – Outstanding Resource Waters. Available at: https://docs.digital.mass.gov/dataset/massgis-data-outstanding-resource-waters. Accessed April 20, 2015-July 09, 2018.
[23] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station.
[24] United States Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Each wetland was numbered and classified by USFWS NWI codes[25] that make use of the *Classification of Wetlands and Deepwater Habitats of the United States* to differentiate wetland cover types.[26] Five wetland community types were identified in the Survey Area: Palustrine Emergent (PEM), Palustrine Scrub-Shrub ("PSS"), Palustrine Forested ("PFO"), Palustrine Unconsolidated Bottom ("PUB"), and Lacustrine Unconsolidated Bottom ("LUB"). The wetland cover types are described below.

- **Palustrine Forested, Broad-leaved Deciduous (PFO)** wetlands are forested wetlands dominated by broad-leaved deciduous trees. Red maple (*Acer rubrum*) was the dominant tree species encountered. The red maple forests had an understory commonly comprised of highbush blueberry (*Vaccinium corymbosum*) and sweet pepperbush (*Clethra alnifolia*).
- **Palustrine Scrub-Shrub (PSS)** wetlands are dominated by woody deciduous vegetation (shrubs and small trees) less than six meters (20 feet) tall. Wetland vegetation common to the PSS wetlands included highbush blueberry, sweet pepperbush, maleberry (*Lyonia ligustrina*) white meadowsweet (*Spiraea alba*), and steeplebush (*Spiraea tomentosa*).
- **Palustrine Emergent, Persistent (PEM)** wetlands are dominated by non-woody herbaceous vegetation. Common emergent vegetation includes bluejoint (*Calamagrostis canadensis*), sensitive fern (*Onoclea sensibilis*), soft rush (*Juncus effusus*), a variety of sedges (*Carex* spp.), and the invasive common reed (*Phragmites australis*).
- **Palustrine Unconsolidated Bottom (PUB)** areas are deepwater habitats less than 20 acres in size with less than an eight-foot water depth. PUBs are inundated by water for most of the year and have less than 30 percent plant cover. These areas are commonly referred to as ponds.
- **Lacustrine Unconsolidated Bottom (LUB)** is a deepwater habitat which is at least 20 acres in size. These areas are commonly referred to as lakes.

The field teams also used established delineation procedures as outlined in MassDEP's *Handbook on Delineating Bordering Vegetated Wetlands.* [27] Five Resource Areas subject to the WPA were identified and delineated in the field, including: Inland Bank ("IB"), Bordering Vegetated Wetlands ("BVW"), Land Under Water Bodies and Waterways ("LUW"), Bordering Land Subject to Flooding ("BLSF"), and Riverfront Area ("RFA"). An additional Resource Area, Isolated Subject to Flooding ("ILSF"), was evaluated but was not identified in the Survey Area. Each type of wetland has an associated set of regulatory performance standards and the Project's approach to meeting these standards is addressed in Section 13.0, Regulatory Compliance. The five Resource Areas subject to the WPA are further defined below.

- **Inland Bank (IB)** is defined as the portion of the land surface which normally abuts and confines a water body (310 CMR 10.54(2)(a)(c)). IB occurs between a water body and a vegetated bordering wetland and adjacent flood plain, or, in the absence of these, the IB occurs between a water body and upland. An IB may be partially or totally vegetated, or it may be comprised of exposed soil, gravel, or stone. The upper boundary of an IB is the first observable break in the slope or the mean annual flood level, whichever is lower. The lower boundary of an IB is the mean annual low flow level. A 100-foot-wide buffer zone extends from the upper boundary of an IB and therefore is typically encompassed within RFA as described below.

[25] https://www.fws.gov/wetlands/data/wetland-codes.html
[26] Cowardin, L M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. United States Fish and Wildlife Service. Biological Services Program. Washington, D.C. FWS/OBS-79/31.
[27] Jackson, S. 1995. Delineating Bordering Vegetated Wetlands under the Massachusetts Wetlands Protection Act. Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways.

- **Bordering Vegetated Wetlands (BVW)** are defined as freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes (310 CMR 10.55(2)(a)). BVWs are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground and surface water regime and the vegetation community which occur in each type of freshwater wetland (wet meadows, marshes, swamps and bogs) area are specified in the WPA.
- **Land Under Water Bodies and Waterways (LUW)** are defined as the land beneath any creek, river, stream, pond, or lake and the boundary of an LUW is the mean annual low water level. LUW may be composed of muck or peat, fine sediments, rocks, or bedrock (310 CMR 10.56(2)). LUW does not have a buffer zone.
- **Bordering Land Subject to Flooding (BLSF)** is defined as an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds, or lakes (310 CMR 10.57(2)(a)). BLSF extends from the banks (IB) of these waterways and water bodies; where a BVW occurs, it extends from said wetland. Flood profile data displayed on FIRMs prepared by FEMA identifies the boundary of BLSF which represents the estimated maximum lateral extent of flood water to theoretically result from the statistical 100-year frequency storm. BLSF does not have a buffer zone.
- **Riverfront Area (RFA)** is defined as the area of land between a river's mean annual high-water line and a parallel line measured horizontally (310 CMR 10.58(2)). "Rivers" are any natural flowing body of water that empty to any ocean, lake, pond, or other river and which flows throughout the year (310 CMR 10.58(1)). Rivers include streams that are perennial because surface water flows within them throughout the year. Intermittent streams are therefore not rivers because surface water does not flow throughout the year. The RFA may include or overlap other resource areas or their buffer zones. The RFA does not have a buffer zone.

In addition to state wetland regulations, wetlands are subject to local regulations. The specific city or town Conservation Commission(s) that the project area lies within regulate activities in and adjacent to wetlands under the provisions of the WPA administered by MassDEP. Locally, Acushnet and Fall River have not adopted local wetland protection bylaws and therefore local jurisdiction of activities in or adjacent to wetlands in these municipalities is limited to the WPA. The Town of Dartmouth and City of New Bedford have adopted local wetland protection bylaws/ordinances regulating activities within wetland resource areas and the 100-foot buffer zone.[28,29]

Photographs were taken of each wetland, with other additional observations and descriptive information recorded from representative wetlands including: location, wetland classification, vegetative community, wetland functions and values, and general wildlife use. Detailed information was collected at paired data plots in the wetland and upland along each side of the boundary from representative wetlands to document the vegetation, soils and hydrology criteria used to establish wetland boundaries. This information appears on USACE Wetland data sheets and MassDEP Bordering Vegetated Wetlands field data forms completed for delineated wetlands and watercourses. Consecutively numbered pink flagging hung on vegetation at approximately 15- to 30-foot intervals was used to mark the wetland boundaries.

[28] Town of Dartmouth Conservation Commission Wetlands Protection Bylaw and Wetland Protection Regulations. April 1990 and Revised August 25, 2015. Retrieved October 4, 2018 from https://www.town.dartmouth.ma.us/sites/dartmouthma/files/uploads/wetlands_protection_bylaw_and_wetlands_protection_regulations_revised_august_25_2015.pdf.
[29] City of New Bedford Wetlands Ordinance. April 20, 2011. Retrieved October 4, 2018 from http://newbedford.wpengine.netdna-cdn.com/environmental-stewardship/wp-content/uploads/sites/39/City-of-New-Bedford-Wetlands-Ordinance.pdf.

Streams and drainage ways were examined for the presence/absence of an Ordinary High Water Mark ("OHWM") and defined bed (refer to "LUW" above) and bank (refer to "IB" above). Generally, if these characteristics were observed along a waterway, it was determined to be a regulated stream but if absent, or atypical circumstances existed, these areas were determined to be a drainage way, swale, ditch, or other erosional feature, and likely not a CWA-regulated feature (i.e., not a "water of the United States"). Any streams encountered were classified based on the observed flow and channel characteristics at the time of the field review. Watercourses were delineated with blue flagging.

5.3 Vernal Pool Survey Methodology

The WPA defines vernal pool habitat as confined basin depressions that typically hold water for two continuous months during the spring and are free of adult fish populations. These areas provide essential breeding habitat for a variety of amphibian species such as wood frogs (*Lithobates sylvatica*) and spotted salamanders (*Ambystoma maculatum*). Certified vernal pools ("CVPs") are those that have been certified by NHESP according to the Guidelines for Certification of Vernal Pool Habitat[30] and are protected if they fall under the jurisdiction of the WPA. CVPs are also afforded protection under Section 401 of the federal CWA, the Massachusetts Surface Water Quality Standards that relate to Section 401, and the Massachusetts Forest Cutting Practices Act. Potential vernal pools ("PVPs") have also been mapped by NHESP but do not receive protection under the WPA or under any other state or federal wetlands protection laws.[31] The identification of PVPs by the NHESP is to be used as a tool to guide the field investigations in determining the presence of a vernal pool.

Vernal pool habitat is defined in 310 CMR 10.04 as confined basin depressions that, at least in most years, holds water for a minimum of two continuous months during the spring and/or summer, and that are free of adult fish populations. These areas provide essential breeding habitat for a variety of amphibian species such as wood frogs and spotted salamanders. The USACE, New England District, Vernal Pool Assessment Draft (2013)[32] defines vernal pools as the following:

> "Vernal pools are depressional aquatic resource basins that typically go dry in most years and may contain inlets or outlets, typically of intermittent flow. Vernal pools range in both size and depth depending upon landscape position and parent material(s). Pools usually support one or more indicator species, including: wood frog, spotted salamander, blue-spotted salamander (*Ambystoma laterale*), marbled salamander, Jefferson salamander (*Ambystoma jeffersonianum*), and species of fairy shrimp (*Eubranchipus* spp.*)*; however, they should preclude sustainable populations of predatory fish."

Vernal pool surveys were conducted during the breeding season from spring 2015 to spring 2018 for the NEP portion of the AFRRP. To satisfy both the USACE and the state of Massachusetts requirements for the identification of vernal pools and for the purpose of the NEP vernal pool investigations, a field identified vernal pool is defined as: an area that held standing water and exhibited obligate breeding species during the breeding season and met the state and federal vernal pool criteria discussed above.

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[30] 2018. MassGIS Data – Certified Vernal Pools. Available at: http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/cvp.html. Accessed April 06, 2018.
[31] Massachusetts Natural History and Endangered Species Program. 2013. MassGIS Data – NHESP Potential Vernal Pools. Retrieved April 6, 2016 from http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/pvp.html.
[32] US Army Corps of Engineers (USACE). 2013. US Army Corps of Engineers – New England District Vernal Pool Assessment Draft. Available at: http://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/NEGP/VPAssessmentDRAFT.pdf. Accessed August 22, 2018.

Tables 5-1 through 5-3 document the wetlands, watercourses, and vernal pools identified during the field investigations, respectively.

TABLE 5-1 WETLANDS WITHIN THE PROJECT AREA

PROJECT	WETLAND ID	WETLAND CLASS[1]		JURISDICTIONAL STATUS[2]	WETLAND BUFFER AREA
		NWI	STATE		
Bell Rock Substation Rebuild Project	M1	PFO/PSS	BVW	Federal and State	100 feet
	M2	PSS	BVW	Federal and State	100 feet
	L1	PFO/PSS	BVW	Federal and State	100 feet
	L1A	PFO/PSS	BVW	Federal and State	100 feet
	L2	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	L3	PSS/PEM/ PFO	BVW	Federal and State	100 feet
Acushnet to Fall River Reliability Project	Wetlands within the Eversource ROW				
	D66	PSS	IVW	Federal	NA
	D65	PEM	IVW	Federal	NA
	D64	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D63	PSS	IVW	Federal	NA
	D62	PSS/PFO	BVW	Federal and State	100 feet
	D61	PSS	BVW	Federal and State	100 feet
	D60	PSS/PFO	BVW	Federal and State	100 feet
	D59	PSS/PEM/ PUB	BVW	Federal and State	100 feet
	D58	PEM/PSS/ PFO	BVW	Federal and State	100 feet
	D57	PEM	BVW	Federal and State	100 feet
	D56	PEM	BVW	Federal and State	100 feet
	D55	PSS/PEM	BVW	Federal and State	100 feet
	D54	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D53	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D52	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D51	PSS/PFO	BVW	Federal and State	100 feet
	D50	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D49	PSS/PEM	BVW	Federal and State	100 feet
	D48	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D47	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D46	PSS	BVW	Federal and State	100 feet
	D45	PSS/PEM	BVW	Federal and State	100 feet
	D44	PSS/PEM	BVW	Federal and State	100 feet

PROJECT	WETLAND ID	WETLAND CLASS[1]		JURISDICTIONAL STATUS[2]	WETLAND BUFFER AREA
		NWI	STATE		
	D43	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D42	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D41	PSS/PFO	BVW	Federal and State	100 feet
	D40	PSS	BVW	Federal and State	100 feet
	D39	PSS	BVW	Federal and State	100 feet
	D38	PSS/PFO	BVW	Federal and State	100 feet
	D37	PSS/PFO	BVW	Federal and State	100 feet
	D36	PSS	BVW	Federal and State	100 feet
	D35	PSS/PFO	BVW	Federal and State	100 feet
	D34	PSS/PFO	BVW	Federal and State	100 feet
	D33	PSS	BVW	Federal and State	100 feet
	D32	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D31	PSS/PEM	BVW	Federal and State	100 feet
	D30	PSS/PFO	BVW	Federal and State	100 feet
	D29	PSS	BVW	Federal and State	100 feet
	D28	PSS	BVW	Federal and State	100 feet
	D27	PSS	BVW	Federal and State	100 feet
	D26	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D25	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D24	PEM/PSS/ PUB	BVW	Federal and State	100 feet
	D23	PSS/PFO	BVW	Federal and State	100 feet
	D22	PSS/PEM/ PFO	BVW	Federal and State	100 feet
	D21	PSS/PEM/ PUB	BVW	Federal and State	100 feet
	D20*	PSS/PFO/ PEM	BVW	Federal and State	100 feet
	Wetlands within the NEP ROW				
	D19A	PFO	BVW	Federal and State	100 feet
	D19	PSS	BVW	Federal and State	100 feet
	D18	PFO	BVW	Federal and State	100 feet
	D17	PSS	BVW	Federal and State	100 feet
	D16A	PFO	BVW	Federal and State	100 feet
	D16	PSS	BVW	Federal and State	100 feet
	D15	PFO	BVW	Federal and State	100 feet
	D14	PSS/PFO	BVW	Federal and State	100 feet
	D13	PEM	IVW	Federal	NA
	D12	PSS/PEM/ PFO	BVW	Federal and State	100 feet

PROJECT	WETLAND ID	WETLAND CLASS[1]		JURISDICTIONAL STATUS[2]	WETLAND BUFFER AREA
		NWI	STATE		
	D11	PSS/PFO/ PEM	BVW	Federal and State	100 feet
	D10	PSS	IVW	Federal	NA
	D9	PSS	IVW	Federal	NA
	D8	PFO	BVW	Federal and State	100 feet
	D7A	PSS	IVW	Federal	NA
	D7	PFO/PSS	BVW	Federal and State	100 feet
	D6	PFO	BVW	Federal and State	100 feet
	D5	PSS	BVW	Federal and State	100 feet
	D4	PSS	BVW	Federal and State	100 feet
	D3	PSS	BVW	Federal and State	100 feet
	D2	PFO/PSS	BVW	Federal and State	100 feet
	D1	PSS/PFO	BVW	Federal and State	100 feet
	M1	PFO/PSS	BVW	Federal and State	100 feet
	L1	PFO/PSS	BVW	Federal and State	100 feet

[1]Wetlands were classified according to Cowardin et al. (1979). PSS = palustrine scrub-shrub wetland; PFO = palustrine forested wetland. https://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf

[2] Please note that the determination of each wetland's isolated or connected status represents the professional opinion of POWER Engineers, Inc. Final determination of jurisdictional status is under the purview of the USACE.

***** Wetland D20 is located in both the Eversource and NEP Survey Areas.

TABLE 5-2 WATERCOURSES WITHIN PROJECT AREA

PROJECT	STREAM ID	WATERCOURSE HYDRO-PERIOD	RIVERFRONT AREA (200 FT)	100-YR FLOODPLAIN (BLSF)
Bell Rock Substation Rebuild Project	SL3	Intermittent	NA	No
Acushnet to Fall River Reliability Project	**Watercourses within the Eversource ROW**			
	SD62	Intermittent	NA	No
	SD59	Intermittent	NA	No
	SD56	Intermittent	NA	No
	SD54 (Acushnet River)	Perennial	Yes	Associated with the Acushnet River
	SD53	Perennial	Yes	No
	SD38	Intermittent	NA	No
	SD38A	Perennial	Yes	No
	SD35	Perennial	Yes	No
	SD27	Intermittent	NA	No
	SD25A	Perennial	Yes	Associated with Shingle Island Swamp
	SD25	Perennial	Yes	Associated with Shingle Island Swamp
	SD23	Intermittent	NA	No
	SD23A	Perennial	Yes	No

PROJECT	STREAM ID	WATERCOURSE HYDRO-PERIOD	RIVERFRONT AREA (200 FT)	100-YR FLOODPLAIN (BLSF)
	SD22 (Shingle Island River)	Perennial	Yes	No
	SD21	Perennial	Yes	No
	SD20*	Intermittent	NA	No
	Watercourses within the NEP ROW			
	SD19A	Intermittent	NA	No
	SD11 (Copicut River)	Perennial	Yes	Associated with the Copicut Reservoir
	SD8	Intermittent	NA	No
	SD5	Intermittent	NA	No

* Stream SD20 is located in both the Eversource and NEP Survey Areas.

TABLE 5-3 VERNAL POOL HABITAT WITHIN THE NEP PROJECT AREA

PROJECT	POOL ID NUMBER	OBLIGATE SPECIES OBSERVED	FACULTATIVE SPECIES OBSERVED	ADDITIONAL SPECIES OBSERVED	TOWN
Bell Rock Substation Rebuild Project	LP-1	2 wood frog egg masses (one hatching) (2016) ~50 wood frog tadpoles (2018) 2 old wood frog egg masses (2018)			Fall River
Acushnet to Fall River Reliability Project	**Vernal Pools Identified in NEP ROW**				
	DP-12	2 wood frog egg masses (2018) ~50 wood frog tadpoles (2018)			Fall River
	DP-7	~50 fairy shrimp (2018)	1 American toad (2018)		Fall River
	DP-6	8 wood frog egg masses (2018) ~100 wood frog tadpoles (2018) 12 spotted salamander egg masses (2018) ~1,000 fairy shrimp (2018)			Fall River
	DP-5	3 wood frog egg masses (2018) ~hundreds of wood frog tadpoles (2018) ~55 spotted salamander egg masses (2018)			Fall River
	DP-4	~30 spotted salamander egg masses (2017) 2 wood frog egg masses (2018) 8 spotted salamander egg masses (2018)			Fall River
	DP-2	5 spotted salamander egg masses (2017) ~20 spotted salamander larvae (2017) 2 wood frog egg masses (2018) 7 spotted salamander egg masses (2018) ~100 fairy shrimp (2018)	American toad calling (2018)		Fall River
	DP-1	20 wood frog tadpoles (2017) 1 spotted salamander egg mass (2017) 10 spotted salamander larvae (2017) 3 spotted salamander egg masses (2018)			Fall River

PROJECT	POOL ID NUMBER	OBLIGATE SPECIES OBSERVED	FACULTATIVE SPECIES OBSERVED	ADDITIONAL SPECIES OBSERVED	TOWN
	LP-1	2 wood frog egg masses (one hatching) (2016) ~50 wood frog tadpoles (2018) 2 old wood frog egg masses (2018)			Fall River

TABLE 5-4 GENERAL LIST OF SUBURBAN WILDLIFE SPECIES WITHIN THE PROJECT AREA[33]

WETLAND TYPE	COMMON BIRDS	SMALL MAMMALS	LARGE SIZE WILDLIFE	AMPHIBIANS
PSS Wetlands	Yellow Warbler *(Dendroica petechia)* Common Yellowthroat *(Dendroica dominica)* American Goldfinch *(Carduelis tristis)* Song Sparrow *(Melospiza melodia)* Common Grackle *(Quiscalus quiscula)*	Meadow Vole *(Microtus pennsylvanicus)* White-Footed Mouse *(Peromyscus leucopus)* Eastern Cottontail *(Sylvilagus floridanus)*	Racoon *(Procyon lotor)* Virginia Opossum *(Didelphis virginiana)* Eastern Skunk *(Mephitis mephitis)* White-Tailed Deer *(Odocoileus virginianus)* Eastern Coyote *(Canis latrans)*	
PFO Wetlands	Red-Tailed Hawk *(Buteo jamaicensis)* Downy Woodpecker *(Dryobates pubescens)* Hairy Woodpecker *(Picoides villosus*) Eastern Towhee *(Pipilo erythrophthalmus)*		White-Tailed Deer Virginia Opossum Racoon	
PEM Wetlands	Marsh Wren *(Cistothorus palustris)* Red-Winged Blackbird *(Agelaius phoeniceus)* Tree Swallow *(Tachycineta bicolor)*			Wood Frog *(Lithobates sylvatica)* American Toad *(Anaxyrus americanus)* Northern Spring Peeper *(Pseudacris crucifer)*

[33] DeGraaf, R.M. and M. Yamasaki. 2001. New England Wildlife: Habitat, Natural History, and Distribution. 2nd Edition. Hanover, NH: University Press of New England. 482 p.

WETLAND TYPE	COMMON BIRDS	SMALL MAMMALS	LARGE SIZE WILDLIFE	AMPHIBIANS
PUB Wetlands	Mallard *(Anas platyrhynchos)* Canada Goose *(Branta canadensis)* Great Blue Heron *(Ardea herodias)* Great Egret *(Ardea alba)*			Green Frog *(Lithobates clamitans melanota)* Bullfrog *(Lithobatescatesbeianus)* Northern Leopard Frog *(Lithobates pipens)* Painted Turtle *(Chrysemys picta)* Snapping Turtle *(Chelydra serpentina)*
LUB Wetlands	Common Loon *(Gavia immer)* Common Merganser *(Mergus Merganser)* Canada goose			

5.4 Bell Rock Substation Rebuild Project

5.4.1 Existing Conditions

The Bell Rock Substation Rebuild Project is located within the major basin of Buzzards Bay.[34] Watersheds within the Buzzards Bay basin are further delineated into smaller watersheds identified by a unique six level, HUC. The Bell Rock Substation Rebuild Project is located within the Quequechan River (HUC 12 #010900040803) sub watershed.

The Bell Rock Substation Rebuild Project is also located in an area designated as Class A public water supply associated with North Watuppa Pond/Reservoir and the wetlands and streams that are tributary to the reservoir are classified as ORW (refer to Appendix A Figure 2-2).[35] The six wetlands identified in the Bell Rock Substation Rebuild Project area (Table 5-1) continue off the NEP ROW and are associated with Queen Gutter Brook or North Watuppa Pond, thereby establishing the "bordering" connection requirement of BVWs. No portion of the Bell Rock Substation Rebuild Project will occur within or adjacent to Queen Gutter Brook or North Watuppa Pond and therefore, no impacts to these resources are anticipated.

One intermittent stream was identified in the Bell Rock Substation Rebuild Project area (Table 5-2). This intermittent stream flows through wetland system L3 which crosses the historical access road to the

[34] United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). NRCS Hydrologic Unit Code (HUC) Basins (8,10,12). Retrieved April 20, 2015-July 09, 2018 from https://docs.digital.mass.gov/dataset/massgis-data-nrcs-huc-basins-81012.
[35] Massachusetts Department of Environmental Protection (MassDEP). 2010. MassGIS Data – Outstanding Resource Waters. Retrieved April 20, 2015-July 09, 2018 from https://docs.digital.mass.gov/dataset/massgis-data-outstanding-resource-waters.

transmission line facilities off Blossom Road. The stream flows to the south through a culvert beneath the historical access route to North Watuppa Pond. The culverted, shallow, narrow, and intermittent channel, and dense vegetation prevent the stream from being navigable by canoes, kayaks, or other watercraft.

Vernal Pool Habitat

One pool (LP-1) in Wetland L1 met the specific vernal pool criteria during the spring 2016 and 2018 surveys (Table 5-3). LP-1 is located in a depression around a steel pylon associated with D21 Structure #29 to the east of Bell Rock Substation. Refer to Table 5-3 above for LP-1 details.

Wildlife

The predominant wetland habitat in the Bell Rock Substation area is scrub-shrub wetland within the existing transmission line ROWs and deciduous wetland forest communities adjacent to the line. A variety of rural wetland wildlife species uses these habitats including an assemblage of large and small mammals, songbirds, reptiles, amphibians, and invertebrates. These wetland habitats provide feeding, nesting, breeding, and cover opportunities for wildlife which otherwise in Fall River are surrounded by highly residential areas with sections of commercial and industrial zones. Characteristics of the forest and shrub wetlands which provide wildlife necessary resources include: berry-producing shrubs for food sources, dense shrubs and emergent plants for cover, and localized areas of surface water in the form of depressions. Table 5-4 provides a general list of suburban wildlife species expected to occur in wetlands identified in the Bell Rock Substation Rebuild Project area. The wildlife assemblages present within the Bell Rock Substation Rebuild Project ROW vary according to habitat characteristics. For more site-specific information on wildlife and habitat please refer to the Bell Rock Substation Rebuild Project Wildlife Habitat Evaluation in Appendix F.

5.4.2 Potential Impacts

Throughout the planning and design process for the Bell Rock Substation Rebuild Project, wetland impacts have been minimized to the greatest extent practicable by using an existing substation site (Bell Rock Substation) and existing access roads. However, given the landscape setting of the Bell Rock Substation Rebuild Project, certain wetland impacts associated with the expansion of the existing substation cannot be avoided. Construction of the Bell Rock Substation Rebuild Project will result in temporary, permanent, and secondary impacts to wetland resources. Secondary impacts generally involve the conversion of forested wetland habitat to scrub-shrub or emergent wetland habitat, whereby the cover type changes but results in no net-loss of wetlands and with a benefit to successional wildlife species from the habitat conversion. There are no anticipated impacts to vernal pools due to the construction of the Bell Rock Substation Rebuild Project.

The following section describes the impacts associated with construction of the Bell Rock Substation Rebuild Project. Table 5-5 summarizes the potential impacts of the Bell Rock Substation Rebuild Project on wetlands based upon preliminary design data. Impacts have been calculated in square feet and acres.

TABLE 5-5 BELL ROCK SUBSTATION REBUILD PROJECT SUMMARY OF WETLAND IMPACTS

RESOURCE AREA	TEMPORARY IMPACTS	PERMANENT IMPACTS
Bordering Vegetated Wetland (BVW)	6,611 sf (0.15 acre) – placement of temporary construction mats as a construction-phase mitigation measure	Approximately 3,599 sf (0.08 acre) – substation expansion

Temporary Wetland Impacts

Bordering Vegetated Wetlands

Temporary impacts to BVWs are anticipated due to the placement of temporary construction mats used for temporary equipment access for construction areas. Refer to Appendix C for construction mat details. Construction mats will be used in areas where permanent access is not required, and access is only needed for such activities as tree clearing, vegetation removal, and for upgrades or maintenance. After work has been completed, the mats will be removed and the temporarily impacted areas restored to their pre-existing conditions. Additional restorative measures may be used (e.g., seeding, mulching, restoration of soil compaction) depending on the condition of the site once the construction mats are removed.

Access Roads

Access roads were designed to avoid BVWs, where feasible. Existing access roads will be improved to allow for construction vehicle access; a new temporary construction road will be constructed to the immediate south of the Bell Rock Substation to facilitate access to the M13 bypass. This area will be left to restore upon completion of construction. A new upland access road will be required on the M13 ROW for access to Structure 31. Where access routes traverse wetland resource areas, temporary construction matting will be installed. The disturbance area within wetlands for the use of temporary matting has been conservatively estimated to be 20 feet wide for construction mats, with the actual mat having a 16-foot width. The mats will be removed after construction and any impacted areas will be restored, stabilized and revegetated.

Construction Areas

Construction mats will be used for temporary work pad areas needed for structure installation along the M13 temporary bypass. Work pads generally have a footprint of 100 feet by 150 feet, while pull pad areas, used for wire installation, generally have a footprint of 150 feet by 50 feet. However, several work pads have smaller impact areas depending upon the type of activity which will be conducted and additional environmental constraints in the vicinity of the work pad. The actual area required will be determined by the type of equipment and site-specific activities required. Refer to Figure 2-2 and Figure 2-3 in Appendix A.

BVW L1A is the only wetland that will be temporarily impacted by construction work pads and pull pad areas. A description and photo of BVW L1A is provided in Appendix E.

Permanent Wetland Impacts

The following section describes the anticipated permanent wetland impacts of the Project including vegetation removal, and the expansion of the proposed Bell Rock Substation including stormwater management and grading. Table 5-6 summarizes the impacts numbers.

TABLE 5-6 BELL ROCK SUBSTATION REBUILD PROJECT SUMMARY OF PERMANENT WETLAND IMPACTS

RESOURCE AREA	WETLAND/STREAM ID	AREA PERMANENTLY AFFECTED (IN SQUARE FEET)	AREA PERMANENTLY AFFECTED (IN ACRES)
Bordering Vegetated Wetlands	**Grading and Alterations for the Bell Rock Substation Expansion**		
	M1	2,554	0.06
	L1A	1,045	0.02
	Total	**3,599**	**0.08**
	Tree Removal[1]		
	M1	2,559	0.06
	L1A	562	0.01
	Total	**3,121**	**0.07**

[1] Approximately 2,906 square feet of tree removal impacts overlap with the grading and alterations required for the Bell Rock Substation expansion.

Bordering Vegetated Wetlands

A limited amount of permanent fill in BVW will be required for the expansion of the Bell Rock Substation. The Bell Rock Substation permanent impacts to BVW include the actual footprint of the Station including required grading resulting in permanent contour changes.

Secondary Impacts

Tree removal will result in the conversion of forested wetlands to either scrub-shrub or emergent BVW in several locations. Areas of tree removal are indicated on Figure 2-2 in Appendix A and in Table 5-6 above. Forested area in Wetland M1 and L1A will be cleared to accommodate the expansion of Bell Rock Substation and the temporary M13 bypass.

Wildlife Impacts

Wildlife currently using forested areas adjacent to the substation will be temporarily impacted by construction of the Bell Rock Substation Rebuild Project, but large blocks of intact woodland will continue to remain along both sides of the substation easement. Larger, more mobile and ubiquitous species such as white-tailed deer and Eastern coyote are expected to temporarily relocate from the construction area, but are unlikely to be permanently impacted by the displacement. Small mammals such as gray squirrels (*Sciurus carolinensis*), woodchucks (*Marmota monax*), skunks, and raccoons, as well as herpetofauna are also likely to move away from areas of construction activity. Depending upon the time of year, some avifauna may also be temporarily displaced, possibly impacting breeding and nesting activities, but are otherwise likely to return after construction and in subsequent years. In wetlands that will have temporary work pads or temporary construction access, the disturbed areas will be restored to pre-existing grade where necessary and allowed to revegetate and/or supplemental seeding with an approved "WetMix" seed mixture will be applied.

The removal of mature trees in forested areas as a result of the Bell Rock Substation Rebuild Project is unlikely to impact local wildlife populations utilizing these mature trees due to the availability and

abundant extent of forest habitats in the area. Vegetation on the existing ROW is managed in accordance with the NEP VMP.[36] Accordingly, trees that could interfere with the operation of the substation or associated transmission lines are routinely cleared from the ROW and trees along the edges are periodically pruned or cleared. Vegetation will be maintained as low-growth shrubs or grasses and herbs. NEP designed the Bell Rock Substation Rebuild Project to first avoid and then minimize permanent impacts to wetlands to the extent practicable, but unavoidable permanent fill will be required for the substation expansion. With respect to the surrounding available wetland wildlife habitat resources associated with the transmission line ROWs and the Bioreserve, it is not expected that this small area of permanent fill would result in a long-term negative impact on the ability of the area to provide valuable wildlife habitat for the existing assemblage of wetland-dependent species.

In areas where trees will be cleared there are several mitigation activities which can be performed to enhance wildlife habitat resulting from tree loss. Such activities may include: seeding disturbed areas with a conservation seed mix, leaving woody debris to create cover for wildlife, and leaving snag trees as potential wildlife habitat.

5.4.3 Wetland Mitigation Measures

Mitigation plans are currently in the preliminary phases of development, NEP is committed to working with the USACE, MassDEP, and the City of Fall River Conservation Commission to develop an appropriate mitigation package so there is no net loss of wetland functions and values as a result of the Bell Rock Substation Rebuild Project. Examples of possible wetland mitigation strategies include wetland restoration, targeted property acquisition for land preservation and participation in the USACE Massachusetts in-lieu fee program.

The 401 Water Quality Certification Regulations at 314 CMR 9.06(2)(a) requires "For discharges to bordering or isolated vegetated wetlands, such steps shall include a minimum of 1:1 restoration or replication." NEP and its representatives have had preliminary discussions with representatives of the Watuppa Reservation to identify and inventory potential wetland restoration and enhancement opportunities. Mitigation for impacts to wetlands and ORW will be finalized through permitting with the Fall River Conservation Commission, the Superintendent of the Watuppa Reservation and MassDEP.

Best Management Practices

Throughout all phases of construction, NEP and their contractors will follow the policies and procedures as outlined in National Grid's *EG-303NE* to identify, avoid, minimize and mitigate environmental impacts. For additional information refer to Appendix C.

The boundaries of the wetlands and watercourses will be clearly demarcated by a qualified wetland scientist prior to the commencement of work. Any federal-listed or Massachusetts state-listed, and/or proposed, endangered, or threatened species or critical habitats will be flagged or fenced-off. In addition, boundaries of other sensitive environmental resources such as vernal pool or cultural resources sites will also be flagged, or fenced-off, as necessary. Measures will be implemented on a site-specific basis as necessary to facilitate unencumbered amphibian access to and from vernal pools. These measures will be identified after taking into consideration site specific conditions, including the type of construction

[36] National Grid. 2013. Five Year Vegetation Management Plan 2014-2018. Retrieved April 16, 2018 from https://www9nationalgridus.com/transmission/c3-8_standocs.asp.

activity in proximity to a vernal pool, the amphibian species known to occur in the vernal pool, and season conditions. NEP will implement a Wetland Invasive Species Control Plan ("WISCP") during the construction of the Bell Rock Substation Rebuild Project to minimize the spread of invasive plan species in wetland resource areas (Appendix G).

NEP will comply with all applicable wetland regulatory permit requirements and conditions, as well as the associated Bell Rock Substation Rebuild Project plans and specifications submitted in support of these permit applications.

Typical BMPs during construction include:

- Installation of sediment control barriers in all work areas adjacent to wetlands which will be routinely inspected to insure they are functioning properly.
- Temporary placement of construction mats for access and work pads where wetlands cannot be avoided.
- Upon removal of construction mats wetlands will be allowed to revegetate naturally or will be seed as needed.
- Equipment refueling and equipment/material storage will not be permitted within 100 feet of any wetland or waterbody, with the exception of equipment that cannot be feasibly moved from its working location (e.g., drilling equipment, dewatering pumps). Secondary containment will be used at these refueling locations.
- Contractor staging areas and contractor yards typically will be located at existing developed areas (parking lots, existing yards).
- Dewatering discharge water will be pumped into an approved basin or filter bag which will be located in approved areas outside of biological wetland resource areas.
- Excavated soil which will not be reused on site will be properly contained until it can be transported to an approved disposal location or spread into an approved upland area.
- Along the M13 temporary bypass, woody species with a mature height greater than 10 feet will be cleared; low-growing tree species, shrubs, and grasses will only be removed/mowed along access roads and at pole locations.
- An Environmental Field Issue ("EFI") will be developed for the project. At a minimum, the EFI will include the location of sensitive areas to be avoided, a summary of all permit requirements, detailed erosion and sediment control plans, and training requirements/documentation. All contractors and environmental monitors will be required to participate in EFI training before beginning work on site. Regular construction progress meetings will provide the opportunity to reinforce the contractor's awareness of these matters.
- Throughout the entire construction process, NEP will retain the services of an environmental monitor. The primary responsibility of the monitor will be to oversee construction activities including the installation and maintenance of soil erosion and sediment controls on a routine basis to ensure compliance with all federal, state, and local permit commitments.
- When work within the breeding season cannot be avoided in the vicinity of amphibian breeding habitats, the NEP-designated Environmental Monitor will perform daily sweeps of the area to remove amphibian species from the work area. Any amphibians encountered during these sweeps will be removed and additional sweeps will be conducted throughout the day as needed.

5.5 Acushnet to Fall River Reliability Project

5.5.1 Existing Conditions

The AFRRP is located within the major basin of Buzzards Bay.[37] Watersheds within the Buzzards Bay basin are further delineated into smaller watersheds identified by a unique, six level HUC. The AFRRP is located within the following sub watersheds:

- Buzzards Bay-Point Connett to Sconticut Neck (HUC 12 #010900020306).
- Buzzards Bay-Sconticut Neck to Mishaum Point (HUC 12 #010900020401).
- Buzzards Bay-Mishaum Point to Gooseberry Neck (HUC12 #010900020402).
- Noquochoke Lake (HUC 12 #010900020501).
- Assonet River (HUC 12 #010900040802).
- Quequechan River (HUC 12 #010900040803) watershed.

As discussed further in Section 7.2, within the City of Fall River, the AFRRP traverses wetlands and streams that are designated as tributaries to Class A Public Water Supplies (North Watuppa Pond and Copicut Reservoir) and as a result, the wetland and stream tributaries to these public water supplies are classified as ORW.[38] The AFRRP ROW traverses open water areas along the northern boundary of Copicut Reservoir. North Watuppa Pond is located 2,000 feet west of the Project ROW and is not traversed directly by the AFRRP.

As summarized in Tables 5-1 and 5-2, 71 wetlands and 20 watercourses were identified in the AFRRP ROW. The predominant wetland habitat in the AFRRP area is scrub-shrub wetland within the existing transmission line ROW and deciduous wetland forest communities adjacent to the line. The watercourses identified include 10 perennial and 10 intermittent streams. Perennial streams crossed by the AFRRP ROW include the Acushnet River (SD54), Shingle Island River (SD22), and the Copicut River (SD11).

Vernal Pool Habitat

Eight field-identified vernal pools are located in the NEP ROW. Refer to Table 5-3 above and Appendix I for details of species identified within each pool. No NHESP CVPs or PVPs were inventoried or mapped to occur within the NEP ROW portion of the AFRRP.

Within the Eversource ROW portion of the AFRRP, one NHESP CVP was inventoried and mapped within approximately 30 feet to the south of the AFRRP ROW, in the vicinity of the New Bedford Industrial Park. Due to its proximity to the ROW, the CVP habitat may extend into the AFRRP ROW within the boundaries of BVW Wetland No. D37. One NHESP PVP is cataloged and mapped west of Collins Corner Road in Dartmouth. Based on field investigations, this PVP does not meet the

[37] United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2005. NRCS Hydrologic Unit Code (HUC) Basins (8,10,12). Retrieved April 20, 2015-July 09, 2018 from https://docs.digital.mass.gov/dataset/massgis-data-nrcs-huc-basins-81012.
[38] Massachusetts Department of Environmental Protection (MassDEP). 2010. MassGIS Data – Outstanding Resource Waters. Retrieved April 20, 2015-July 09, 2018 from https://docs.digital.mass.gov/dataset/massgis-data-outstanding-resource-waters.

requirements of vernal pool habitat because it is a permanently inundated pond associated with a perennial watercourse (SD21).

Wildlife

A variety of rural wetland wildlife species use these habitats including an assemblage of large and small mammals, songbirds, reptiles, amphibians, and invertebrates. These wetland habitats provide feeding, nesting, breeding, and cover opportunities for wildlife which otherwise are surrounded by highly residential areas with sections of commercial and industrial zones. Characteristics of the forest and shrub wetlands which provide wildlife necessary resources include: berry-producing shrubs for food sources, dense shrubs and emergent plants for cover, and localized areas of surface water in the form of depressions.

Table 5-4 provides a general list of suburban wildlife species expected to occur in wetlands identified in the AFRRP area. This information is based on geographical distribution and habitat preferences as described in *New England Wildlife: Habitat, Natural History and Distribution*.[39] The wildlife assemblages present within the AFRRP ROW vary according to habitat characteristics. Due to the amount of tree clearing required along the 4.2 miles of the AFRRP within NEP's service territory, NEP has elected to proactively undertake a detailed Wildlife Habitat Evaluation for those areas of the AFRRP. Site specific information on wildlife and habitat within the NEP corridor are contained in the AFRRP Wildlife Habitat Evaluation in Appendix J. A Wildlife Habitat Evaluation for the Eversource ROW will be completed in fall 2018.

5.5.2 Potential Impacts

Throughout the planning and design process for the AFRRP, wetland impacts have been minimized to the greatest extent practicable by utilizing existing transmission line corridors and existing access roads. However, given the scale and landscape setting of the AFRRP, certain wetland impacts associated with the development of the AFRRP cannot be avoided. Construction will result in temporary, permanent, and secondary impacts to wetland resources. Secondary impacts generally involve the conversion of forested wetland habitat to scrub-shrub or emergent wetland habitat, whereby the cover type changes but results in a no net-loss of wetlands. The following section describes the impacts associated with construction of the AFRRP including vegetation removal, excavation for pole structures, work pads and access road construction. Table 5-7 summarizes the potential impacts of the AFRRP on wetlands based upon preliminary design data. Impacts have been calculated in square feet (sf) or linear feet (lf) and acres.

[39] DeGraaf, R.M. and M. Yamasaki. 2001. New England Wildlife: Habitat, Natural History, and Distribution. 2nd Edition. Hanover, NH: University Press of New England. 482 p.

TABLE 5-7 ACUSHNET TO FALL RIVER RELIABILITY PROJECT SUMMARY OF ANTICIPATED WETLAND IMPACTS

RESOURCE AREA	TEMPORARY IMPACTS	PERMANENT IMPACTS
Bordering Vegetated Wetland (BVW)	Approximately 306,817 square feet (sf) (7.04 acres) • Construction mats for access routes where BVW crossings could not be avoided. • Construction mats where work pads for construction and pull pads overlap with BVW.	Approximately 128,941 sf (2.96) • Structure foundations and access roads where BVW could not be avoided (37,352 sf (0.86 acre)). • Conversion of forested wetlands to scrub-shrub wetlands due to tree removal (91,589 sf (2.10 acres)).
Inland Bank (IB)	Approximately 202 lf • Construction mats where access roads cross IB.	625 square feet for the installation of one culvert in a stream
Riverfront Area (RFA)	Approximately 49,309 sf (1.13 acre), where approximately 0.31 acre of these impacts are accounted for as BVW impacts above. • Temporary routes for access routes where RFA crossings could not be avoided. • Temporary work space where work pads for construction and pull pads overlap with RFA.	Approximately 7,226 sf (0.17 acre), where approximately 0.05 acre of these impacts are accounted for as BVW impacts above.
Bordering Land Subject to Flooding (BLSF)	Approximately 91,707 sf (2.11 acre) where approximately 0.65 acre of these impacts are accounted for as BVW impacts above. • Construction mats for access routes where BLSF could not be avoided. • Construction mats where work pads for construction and pull pads overlap with BLSF	Approximately 285 sf (0.01 acre) where approximately 47 square feet of these impacts are accounted for as BVW impacts above. • Structure foundations where BLSF could not be avoided.

Description of Temporary Wetland and Watercourse Impacts

Temporary impacts are anticipated for the placement of construction mats used for equipment access and staging during construction. Construction mats will be used in areas where permanent access is not required and access is only needed for such activities as tree clearing, vegetation removal, and for structure installation and wire pulling. After work has been completed, the mats will be removed and the temporarily impacted areas will be restored to their pre-existing conditions, where necessary, and allowed to revegetate and/or supplemental seeding with an approved "WetMix" seed mixture will be applied. Refer to Appendix C (NEP) and Appendix D (Eversource) for construction map details.

Access Roads

Temporary access roads through wetlands will be accomplished by the installation of construction matting. The disturbance area for the temporary matting has been conservatively estimated to be 20 feet wide, with the actual mat travel surface having a 16-foot width. As shown in Appendix A, Figure 2-5, 10 BVWs will be temporarily impacted for construction access. Descriptions and photos of each BVW are provided in Appendix H.

Temporary impacts to upland BLSF and RFA will occur as a result of the AFRRP from the installation of construction mats associated with temporary access roads. Temporary construction mat roads will also span the IB of two intermittent streams (SD-5 and SD-8). However, no in-stream impacts are anticipated since construction mats will span bank to bank across the stream. Temporary impacts to upland BLSF are anticipated due to construction mats that will be used for temporary access to mobilize construction equipment onto the ROWs.

All mats will be removed after construction and impacted areas will be restored to pre-existing conditions.

Construction Areas

In wetland areas, construction mats will be used for temporary work pad areas needed for structure installation and wire pulling activities. Work pad dimensions for the AFRRP vary by structure type with monopole and H-frame structure work pads generally having a footprint of 100 feet by 100 feet, and 3-pole structure work pads generally having a footprint of 150 feet by 100 feet. Pull pad areas, used for wire installation, generally have a footprint of 150 feet by 50 feet. However, several work pads have smaller impact areas depending upon the type of activity which will be conducted and additional environmental constraints in the vicinity of the work pad. The actual area required will be determined by the type of equipment and site-specific activities as well as depending on any Company safety requirements. Temporary impacts for the installation of ground wire (counterpoise) will also occur at each structure location with the impacts anticipated to be contained within the limits of the structure work pad. As shown in Appendix A, Figure 2-5, 34 wetlands will be temporarily impacted by construction work pads and pull pad areas. Descriptions of each wetland and photos of each wetland are provided in Appendix H.

Description of Permanent Wetland and Watercourse Impacts

Permanent impacts are anticipated for the installation of new permanent access roads, proposed new transmission line structures, and the removal of trees (secondary impacts).

Access roads

Where feasible and available, existing access roads will be upgraded and used for access to the proposed structure locations. Where existing access roads are not available, new access roads traversing wetland areas will be installed. To the extent possible, new access roads have been carefully sited outside wetlands and other sensitive areas. However, in certain locations along the AFRRP, permanent access across wetland resource areas will be required to perform the necessary structure installations and for future reliable maintenance of the transmission line facilities. The permanent access roads will be constructed with trap rock underlain by geotextile fabric. In general, the access roads will not cross larger watercourses, except with the use of temporary timber bridges, however crossing of smaller streams and drainage-ways will be accomplished by installing rock fords or culverts. These crossing methods will be installed to cross streams so as not to impede or interrupt the ambient flow(s). The width of the travelled way on the access roads will be approximately 14 feet to accommodate the size of construction vehicles

and equipment deliveries including pole deliveries. Rock fords, and new or replacement culverts will be installed to maintain a hydraulic connection and will be engineered and sized to accommodate the 10-year storm flows, to the extent feasible.

Construction of new access routes through wetlands will entail removal of the underlying organic soil and importing suitable material, such as stone and gravel, to safely support construction vehicles and equipment. Rock fords or appropriately-sized culverts will be installed to maintain a hydrologic connection to the bisected wetland and to avoid adversely impacting the water level within the wetland(s). Where necessary, the new access routes will be slightly elevated to avoid being routinely flooded and unpassable.

Where permanent access roads will be installed in upland floodplain, the roads will be over excavated and installed to match the existing grade and excess soils will be removed from the floodplain, resulting in no net loss.

Structures

Proposed structures have been sited outside wetlands and other sensitive areas to the maximum extent practicable. However, unavoidable, permanent fill in wetland areas will be required for the installation of some new structures. Depending on the structure type, the pole diameter can range from 5.5 feet per pole (direct embed H-frame structure) to a 10-foot-diameter (monopole with concrete caisson foundation) with a total of 48 to 150 square foot impact area. Refer to Table 5-7 for permanent impacts in BVW.

Structure installation will result in permanent fill in upland BLSF associated with the Acushnet River, Hathaway Swamp, Shingle Island Swamp, and the Copicut Reservoir. The filling of BLSF will be mitigated by providing compensatory flood storage, as discussed in Section 5.5.3.

No permanent impacts for the installation of structures are proposed within streams, streambanks or vernal pools.

Tree Removal

A majority of the Eversource portion of the ROW has already been cleared of trees. However, new tree clearing will be required along the NEP ROW in Fall River and within one span (between proposed Structures 7-8) on the Eversource ROW in Dartmouth. Tree removal will result in the conversion of forested wetlands to either scrub-shrub or emergent BVW in these locations. Once the trees are removed, these once forested sections will be maintained as scrub-shrub or emergent wetlands.

Areas of tree removal are indicated on Figure 2-5 in Appendix A. Tree trimming and “danger” tree removal will be performed, as necessary, as well as mowing of low-growth vegetation along the ROW, in conjunction with the AFRRP.

Wildlife Impacts

Temporary impacts to wildlife are anticipated in association with the clearing of forested areas for the new transmission line. However, large blocks of intact woodland will continue to remain along both sides of the ROW corridor which is contiguous to the Bioreserve. Larger, more mobile species such as large mammals (white-tailed deer) are expected to temporarily relocate from the construction area, but are unlikely to be permanently impacted by the displacement. Small mammals such as gray squirrels (*Sciurus carolinensis*), woodchucks (*Marmota monax*), and possibly a few furbearers (skunks and raccoons), as

well as herpetofauna are also likely to be temporarily displaced however, upon the recovery of the habitat the increased availability of maintained, early seral stage habitat will enhance habitat diversity for herptiles and other cold-blooded fauna (insects and other invertebrates). Depending upon the time of year, some avifauna may also be temporarily displaced, possibly impacting breeding and nesting activities, but are otherwise likely to return after construction and in subsequent years. The removal of mature trees in forested areas as a result of AFRRP construction is unlikely to impact local wildlife populations utilizing these mature trees due to the availability and abundant extent of forest habitats in the AFRRP area.

The AFRRP was designed to first avoid and then minimize permanent impacts to wetlands to the extent practicable, however, unavoidable permanent fill will be required as a result of the Project. With respect to the surrounding available wetland wildlife habitat resources it is not expected that this small area of permanent fill would result in a long-term negative impact on the ability of the area to provide valuable wildlife habitat for the existing assemblage of wetland-dependent species. In wetlands which will have temporary work pads or temporary construction access, the disturbed areas will be restored to pre-existing grade where necessary and allowed to revegetate and/or supplemental seeding with an approved "WetMix" seed mixture will be applied.

Vegetation on the existing ROW is managed in accordance with the Companies' VMP.[40,41] Accordingly, trees that could interfere with the operation of the transmission lines are routinely cleared from the ROW and trees along the edges are periodically pruned or cleared. Vegetation will be maintained as low-growth shrubs or grasses and herbs.

Vernal Pool Impacts

Depending upon the time of construction, the amphibian migration to the vernal pools may be hindered and interrupted by construction vehicles, noise, and work personnel. Removal of the canopy over some of the vernal pools could influence the hydroperiod of the pool and some of the plant community composition surrounding the pools. No permanent impacts to vernal pools are proposed.

5.5.3 Wetland and Watercourses Mitigation Measures

To reduce the impacts associated with the construction and operation of the AFRRP, the Companies incorporated design measures to minimize impacts. These measures, which include using an existing ROW, utilizing existing access roads, and avoiding the placement and construction of structures and access roads in wetlands and watercourses wherever possible, have resulted in the avoidance and minimization of impacts to wetlands and wildlife to the greatest extent practicable.

For those wetlands having permanent impacts, the Companies will provide appropriate mitigation. While mitigation plans are currently in the preliminary phases of development, the Companies are committed to working with the USACE, MassDEP, NHESP, and the Acushnet, New Bedford, Dartmouth, and Fall River Conservation Commissions, and the Superintendent of the Watuppa Reservation to develop appropriate mitigation package so there is no net loss of wetland functions and values as a result of the AFRRP. Examples of possible wetland mitigation strategies include wetland restoration, targeted property

[40] Eversource 2017. Eversource Energy, Eastern MA Five Year Vegetation Management Plan for Central, Eastern, and Southeastern Massachusetts 2018-2022.Retrieved August 22, 2018 from https://www.eversource.com/content/docs/default-source/tranmission/veg-mgmt-5year-ema.pdf?sfvrsn=7a4cf562_5.
[41] National Grid. 2013. Five Year Vegetation Management Plan 2014-2018. Retrieved August 22, 2018 from https://www9nationalgridus.com/transmission/c3-8_standocs.asp.

acquisition for land preservation and participation in the USACE Massachusetts in-lieu fee program. To offset environmental impacts associated with the AFRRP, appropriate compensatory mitigation (in collaborative consultation with local, state, and federal resource agencies and other stakeholders) will be provided, as a component of the final AFRRP design.

Best Management Practices

Throughout all phases of construction, the Companies and their contractors will follow the policies and procedures as outlined in National Grid's *EG-303NE* and Eversource's Massachusetts Best Management Practices Manual to identify, avoid, minimize and mitigate environmental impacts. For additional information refer to Appendix C and Appendix D for these documents, respectively.

The boundaries of the wetlands and watercourses along the ROW will be clearly demarcated by a qualified wetland scientist prior to the commencement of work. Any federal-listed or Massachusetts state-listed, and/or proposed, endangered, or threatened species or critical habitats will be flagged or fenced-off. In addition, boundaries of other sensitive environmental resources such as vernal pool or cultural resources sites will also be flagged, or fenced-off, as necessary. Measures will be implemented on a site-specific basis as necessary to facilitate unencumbered amphibian access to and from vernal pools, or to exclude them from active work areas, as situationally appropriate. These measures will be identified after taking into consideration site specific conditions, including the type of construction activity in proximity to a vernal pool, the amphibian species known to occur in the vernal pool, and seasonal conditions. The Companies will implement a WISCP during the construction of the AFRRP to minimize the spread of invasive plan species in wetland resource areas (Appendix K).

The Companies will comply with all applicable wetland regulatory permit requirements and conditions, as well as the associated AFRRP plans and specifications submitted in support of these permit applications.

Typical BMPs during construction include:

- Sediment control barriers in all work areas adjacent to wetlands and will be routinely inspected to insure they are functioning properly.
- Grading in wetlands will be limited for structure foundations and access roads. Temporary construction mats will be used for access and works pads in areas where wetlands cannot be avoided.
- Upon removal of construction mats wetlands will be allowed to revegetate naturally or will be seeded as needed.
- Equipment refueling and equipment/material storage will not be permitted within 100 feet of any wetland or waterbody, with the exception of equipment that cannot be feasibly moved from its working location (e.g., drilling equipment, dewatering pumps). Secondary containment will be used at these refueling locations.
- Contractor staging areas and contractor yards typically will be located at existing developed areas (parking lots, existing yards).
- Dewatering discharge water will be pumped into an approved basin or filter bag which will be located in approved areas outside of biological wetland resource areas.
- Excavated soil which will not be reused on site will be properly contained until it can be transported to an approved disposal location or spread into an approved upland area.

- The Companies will develop and distribute Environmental Compliance Documents to all Project personnel on the project. At a minimum, these documents will include the location of sensitive areas to be avoided, a summary of all permit requirements, detailed erosion and sediment control plans, and training requirements/documentation. All contractors and environmental monitors will be required to participate in environmental training before beginning work on site. Regular construction progress meetings will provide the opportunity to reinforce the contractor's awareness of these matters.
- Throughout the entire construction process, the Companies will retain the services of an environmental monitor. The primary responsibility of the monitor will be to oversee construction activities including the installation and maintenance of soil erosion and sediment controls on a routine basis to ensure compliance with all federal, state, and local permit commitments.

Access Roads

Existing access roads will be used to the extent practicable during the construction phase of the AFRRP to minimize access through wetlands. Where access roads must be improved or developed in certain sections, the roads will be designed (where practical) so as not to interfere with surface water flow or the functions of the wetland. Temporary construction matting for access roads across wetlands will be installed to avoid safe passage through the wetlands. All temporary access roads through wetlands will be restored following the completion of installation activities by removing the construction mats, re-grading the area to pre-construction elevations to the extent practicable and allowing the wetlands to re-vegetate.

5.5.4 Wildlife Habitat Assessment and Wildlife Mitigation Measures

In areas where trees will be cleared there are several wildlife habitat mitigation activities which can be performed to enhance wildlife habitat. Such activities may include: planting native shrub species for cover and food, the seeding of wildlife food sources, placing woody debris, tree logs, and stone piles to create cover for wildlife, and leaving snag trees as potential wildlife habitat.

5.5.5 Vernal Pool Mitigation Measures

Measures will be implemented on a site-specific basis as necessary to facilitate unencumbered amphibian access to and from vernal pools. These measures will be implemented for the identified vernal pools along the NEP portion of the AFRRP and for any NHESP CVP or PVP cataloged along the Eversource portion of the AFRRP.

The placement of construction mats during active vernal pool season will be avoided to the extent practicable. If required, an environmental monitor will be onsite during the placement of construction mats to sweep the area for amphibians and egg masses. The Companies will implement general BMPs during construction to minimize potential impacts to amphibian species, including:

- Except in areas where access roads and work pads must be installed, existing scrub-shrub or emergent vegetation within 25 feet of wetlands will be maintained.
- If low growth (scrub-shrub) vegetation must be removed adjacent to wetlands, the cut vegetation (slash) will be left in place to serve as recruitment for leaf litter and coarse woody debris.
- Soil erosion and sediment controls will be installed and maintained along construction access roads and around work pads as necessary to protect water quality and to limit the potential for soil deposition into wetlands. Sediment built up behind these devices will periodically be removed

and placed in upland areas, in a manner that will preclude the potential for subsequent deposition into wetlands.

- Where proposed on-ROW access roads adjacent to or through wetlands must be installed, construction mats or clean materials will be used (e.g., clean riprap, gravel, stone or equivalent).

Specific measures will be identified after taking into consideration site specific conditions, including the type of construction activity in proximity to a vernal pool, the amphibian species known to occur in the vernal pool, and seasonal conditions.

6.0 RARE SPECIES

State agency data was evaluated to determine whether any Massachusetts state-listed, and/or proposed, endangered, or threatened species or critical habitats are known to occur within the vicinity of the Bell Rock Substation Rebuild Project or the AFRRP. The species identified in the vicinity of the Bell Rock Substation Rebuild Project and the AFRRP are listed in Table 6-1. These species are protected under the MESA (M.G.L. c. 131A) and it's implementing regulations (321 CMR 10.00). State-listed wildlife is also protected under the state's WPA (M.G.L. c. 131, s. 40) and it's implementing regulations (310 CMR 10.00). Projects and activities located within Priority and/or Estimated Habitat must be reviewed by the Massachusetts Division of Fisheries and Wildlife for compliance with the state-listed rare species protection provisions of MESA (321 CMR 10.00) and/or the WPA (310 CMR 10.00).

This section addresses the consultation process with the Massachusetts NHESP, which is part of the Massachusetts Division of Fisheries and Wildlife. The discussions provided below are based on a review of the NHESP data, as well as consultation meetings with NHESP staff. Potential mitigation measures are also discussed.

TABLE 6-1 STATE-LISTED SPECIES IN THE VICINITY OF THE SUBSTATION REBUILD PROJECT AND AFRRP

PROJECT	SCIENTIFIC NAME	COMMON NAME	TAXONOMIC GROUP	STATE STATUS
Bell Rock Substation Rebuild Project	*Caprimulgus vociferus*	Eastern Whip-poor-will	Bird	Special Concern
	Terrapene carolina	Eastern Box Turtle	Reptile	Special Concern
Acushnet to Fall River Reliability Project	*Panicum rigidulum* ssp *pubescens*	Long-leaved Panic-grass	Plant	Threatened
	Caprimulgus vociferus	Eastern Whip-poor-will	Bird	Special Concern
	Terrapene carolina	Eastern Box Turtle	Reptile	Special Concern
	Linum medium var.*texanum*	Rigid Flax	Plant	Threatened
	Juncus debilis	Weak Rush	Plant	Endangered
	Panicum philadelphicum ssp. *philadelphicum*	Philadelphia Panic-Grass	Plant	Special Concern
	Ambystoma opacum	Marbled Salamander	Amphibian	Threatened

6.1 Bell Rock Substation Rebuild Project

6.1.1 State-Listed Species

Two NHESP state-listed species and priority habitats of rare species are located within the vicinity of the Bell Rock Substation Rebuild Project. The eastern whip-poor-will and eastern box turtle are the state-listed species of special concern (refer to Appendix B for Agency Consultation.) Based on the information

provided by NHESP, the Bell Rock Substation Rebuild Project site, or a portion thereof, is located within Priority Habitat 517 and Estimated Habitat 449 as indicated in the *Massachusetts Natural Heritage Atlas (14th Edition)*.

According to a March 27, 2018 meeting with the NHESP, the designated source for northern long-eared bat (*Myotis septentrionalis*) data for Massachusetts, there are no known roost trees or hibernacula for the northern long-eared bat located in the Project area.

Eastern Whip-poor-will

The eastern whip-poor-will is a medium-sized nocturnal bird in the *Caprimulgidae* family. They measure from 22 to 26 centimeters and weigh between 43 and 64 grams with a life expectancy of about four years. Their body shape is distinct, with small bodies, flat heads, large, dark eyes and a very small bill with a large mouth. The habitat needs of the whip-poor-will are complex and in general, they tend to seek dry, open woodlands adjacent to meadows and shrublands. They use the open woodlands for nesting and meadows and shrublands for foraging. They have been recorded arriving in Massachusetts from their wintering grounds as early as mid-April, with their mating pairs formed and their eggs laid directly on forested floors by mid-May. The whip-poor-wills primary diet consists of large moths and night-flying beetles and they will typically hunt during the night when there is adequate moonlight, apparently timing their broods to benefit from increased prey success during preferable moon phases. Threats to whip-poor-wills include a variety of factors including habitat loss both from development and habitat succession with the succession away from fire-adapted natural communities towards a more generalist species structure. Due to the declining populations, they are seen in few places in Massachusetts including: the Greater Myles Standish Pine Barrens, the Montague Plains Pine Barrens, the Fort Devens/Bolton Flats WMA complex, the Massachusetts Military Reservation/ Frances Crane WMA complex, Correllus State Forest and vicinity, and the eastern half of Nantucket.[42] The eastern whip-poor-will is a state listed species of "Special Concern" under MESA.

Eastern Box Turtle

The eastern box turtle is a small terrestrial turtle ranging in size from 11.4 to 16.5 centimeters with a life span of an average of 50 or more years. The adult box turtle has an oval, high-domed shell with a variation of colors and markings including a range of brown and black markings with numerous irregular yellow, orange or reddish blotches. The eastern box turtle is a terrestrial turtle with diverse habitat preferences. They can be found in both dry and moist woodlands, brushy fields, bogs, swales, fens, thickets, marsh edges, stream banks and well-drained bottomland. The range of eastern box turtle is from southeastern Maine; south to northern Florida; and Michigan, Tennessee and Illinois. They can occur throughout Massachusetts, excepting the Berkshire region, but are more heavily concentrated in the southeastern section of the state and the Connecticut Valley. They typically hibernate in the northern parts of the range from late October until mid-March/April depending on the weather. Hibernation is virtually exclusively within forested habitat where they tend to burrow under several layers of leaf litter or woody debris and burrow into the soft ground as the temperature drops. Some individuals use opportunistic features such as stump holes and abandoned animal burrows to avoid ground frost. In the summer, eastern box turtles are most active in the morning and early evening, particularly after rainfall. During the heat of the day they typically seek shelter "forms" within leaf litter and duff. The eastern box turtle is

[42] Massachusetts Division of Fisheries and Wildlife. Natural Heritage Endangered Species Program. 2012. Eastern Whip-poor-will. *Caprimulgus vociferus*. Retrieved May 14, 2018 from https://www.mass.gov/files/documents/2016/08/rx/caprimulgus-vociferus.pdf

omnivorous, feeding on animal matter such as slugs, insects, earthworms and snails and opportunistic carrion; also feeding on mushrooms, berries, fruits and leaves and shoots. The biggest threats to the eastern box turtle in Massachusetts include the following- habitat destruction from residential and industrial development; road mortality; collection by individuals for pets; mowing of fields during the active seasons; release of non-native turtles (pet store turtles) and related diseases from those species.[43] The eastern box turtle is also a state-listed species of "Special Concern."

6.1.2 Proposed Mitigation Measures and Conclusions

Specific mitigation measures recommended by the NHESP are still being evaluated through the consultation process. However, NEP is committed to minimizing impacts where possible and has committed to the measures discussed below.

Grassland and shrub land birds (the eastern whip-poor-will) are very sensitive to disturbance throughout their breeding season from the 1st of May through the 15th of August. All tree clearing for the Bell Rock Substation Rebuild Project will be completed outside of the breeding season. Work within the substation yard expansion area is expected to be ongoing from fall 2020 through April of 2021. Any work within the substation expansion area during the breeding season will be within limits of the perimeter sediment controls around the cleared and grubbed expansion area.

Before construction, work crews will receive turtle training to be educated on the visual characteristics of the eastern box turtle and reminded of the mitigation measures. Extra care will be used when using heavy machinery or traveling in vehicles through mapped areas, especially from the 1st of April through the 1st of November. NEP has an on-going radio telemetry program for the eastern box turtle. In advance of tree clearing and earth disturbance at the substation, the Bell Rock Substation Rebuild Project area will be monitored for turtles outfitted with a transmitter and any remaining turtles will be identified through turtle sweeps by trained biologists and removed from the proposed construction area. Silt fencing / turtle exclusion fencing will be installed, monitored and maintained throughout construction to reduce the risk of turtles entering into the active work site. Any silt fencing used in these areas will be removed as soon as site stabilization has occurred, as such fencing could be a barrier to turtle movements. Siltation control materials will not be mesh backed (fence) or enclosed in plastic/vinyl mesh (wattles). If turtles are encountered, they will be removed from the work zone and reported to the NHESP (with photos, locational information and documentation).

6.2 Acushnet to Fall River Reliability Project

6.2.1 State-Listed Species

Seven NHESP state-listed species and priority habitats of rare species are located within the vicinity of the AFRRP. Based on the information provided by NHESP, the AFRRP ROW, or a portion thereof, are located within Priority Habitat PH364 and PH517 and Estimated Habitat EH336 and EH449 as indicated in the *Massachusetts Natural Heritage Atlas (14th Edition)*. Table 6-1 identifies the state-listed species located in the vicinity of the Project. NHESP correspondence letters dated April 9, 2018 are included in Appendix B.

[43] Massachusetts Division of Fisheries and Wildlife. Natural Heritage Endangered Species Program. 2015. Eastern Box Turtle. *Terrapene carolina*. Retrieved May 14, 2018 from https://www.mass.gov/files/documents/2016/08/uw/terrapene-carolina.pdf

As stated above, according to a March 27, 2018 meeting with the NHESP, there are no known roost trees or hibernacula for the northern long-eared bat located in the Project area.

Species descriptions and habitat requirements for the NHESP are further described below. The eastern whip-poor-will and eastern box turtle species descriptions and habitat preferences are included in Section 6.1.1 above and have not been repeated herein.

Long-leaved Panic grass

Long-leaved panic-grass is a coarse, tufted perennial in the Grass family (*Poaceae*) that grows in clumps up to 1.5 meters (m) tall, with a pyramidal or narrow panicle 10 to 30 centimeters (cm) in height. It blooms from summer to fall and has distinctive dark red inflorescences that may be slightly branched or clumped (ascending). The lance-ovoid spikelets are 1.8 to 3.5 millimeters (mm) long and narrow leaf blades measuring 20 to 40 cm grow primarily from the base of the plant. Long-leaved panic-grass habitat is moist, sandy or peaty soil in full sun and includes coastal plain pond shores, bog edges, border of basin marshes, vernal pools, and in utility rights of way in moist or wet depressions. It flowers typically from July through September. Known populations exist in locations from Maine to Florida, west to Michigan, Illinois and Texas. In Massachusetts it is known to occur only in the southeastern portion of the state, in Bristol and Plymouth Counties; historically it is known to have occurred in Dukes County. Threats to this species include natural succession, especially where it occurs in isolated patches surrounded by woody vegetation and also activities which result in severe disturbance and soil compaction. The long-leaved panic grass is a state-listed "Threatened" species under the MESA.[44]

Rigid Flax

Rigid flax is a perennial herb of the flax family (*Linaceae*) growing 2 to 7 decimeters (dm) in height, with yellow five-petaled flowers 4 to 8 mm long on stiff ascending branches. The styles are distinct and the sepals are imbricate; leaves are entire, lance-shaped with the largest leaves (up to 2.5 cm) long towards the base of the plant. The upper leaves are alternate and usually have pointed tips, however the lowest nodes opposite and blunt-tipped. It flowers typically from mid-July through August, and fruits from mid-August through November; it is most often found growing in barren, disturbed areas on sterile soil. Known populations exist in all states east of the Mississippi except New Hampshire, and the western limit of its range extends from Texas and Oklahoma north to Iowa and Wisconsin. In Massachusetts the distribution is primarily eastern (Bristol and Plymouth counties) with a single outlier in Berkshire County; historically it is known to have occurred from Barnstable, Middlesex, Norfolk and Suffolk Counties. Rigid flax requires periodic disturbance (including anthropogenic disturbances such as mowing and cutting) to reduce competition and shading by woody plants for habitat creation and maintenance. Threats to this species include lack of periodic disturbance and activities that damage plants or compact soil such as recreational use of off-highway vehicle use. Rigid flax is a state-listed "Threatened" species under MESA.[45]

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[44] Excerpted from Massachusetts Division of Fisheries and Wildlife. Natural Heritage Endangered Species Program. 2012. Long-leaved Panic-grass (*Panicum rigidulum* ssp. *Pubescens*).

[45] Excerpted from Massachusetts Division of Fisheries and Wildlife. Natural Heritage Endangered Species Program. 2010. Rigid Flax (*Linum medium* Birtt.var. *texami,*). Retrieved May 14, 2018 from https://www.mass.gov/files/documents/2016/08/rx/caprimulgus-vociferus.pdf

Weak Rush

The weak rush (*Juncus debilis*) is a small, inconspicuous perennial herb that grows from about 10 to 25 cm tall. It produces tufts of round steams and dark green leaves, with small brownish flowers at the top in clusters or "glomerules" near the tops of the stems. Fruit is present from July through September. Weak rush habitat is open, unshaded areas in seasonally wet, sand, peaty or mucky substrates along the coastal plain, especially in boggy depressions that are wet in the spring but dry later in the season. The weak rush is an early-successional species and so is adapted to compete well after disturbance. Known populations are primarily found in southeastern North American, with a range extending from Massachusetts west to Missouri and south to Texas and Florida. Threats to this species include being overcrowded and shaded out by surrounding vegetation, alteration of site hydrology/loss of wet conditions, and out-competition by invasive exotic species. The weak rush is a state-listed "Endangered" species under MESA.[46]

Philadelphia Panic-grass

Philadelphia panic-grass is a slender, hairy, herbaceous annual grass in the family Poaceae that grows typically from 80 to 100 cm tall from a bundle of fibrous roots; it also can be found as tiny plants on receding pond shores. Philadelphia panic-grass consists of three subspecies, two of which occur in Massachusetts, however based on data from NHESP it is *Panicum philadelphicum* ssp. *philadelphicum* that is in the project area. Philadelphia panic-grass flowers from June through August, and fruits form from late August to October. It grows primarily on sandy shores of acidic streams, lakes and wetlands in open, full sun. Known populations exist in locations from Nova Scotia west to Ontario and south to Georgia, Alabama and Texas, and it is rare in Rhode Island, Ohio and Iowa. Threats to this species include activities that alter hydrologic regimes or promote overgrowth or shading by other plants through succession. The Philadelphia Panicgrass is a species of Special Concern under MESA.[47]

Marbled Salamander

The marbled salamander (*Ambystoma opacum*) is a stout 3- to 5-inch-long salamander with a stocky body, short limbs and a broad rounded snout. Dorsal coloration is black with bold, variably shaped grayish to whitish crossbands that create a "marbled" pattern from head to tail. Lateral and ventral coloration is uniformly dark gray to black. Banding on the mid- to upper-dorsum tends to be bright white in mature males and dull gray in mature females. Banding on the tail can be white in both sexes or gray in females. Marbled salamander habitat is variable. Adult and juvenile marbled salamanders inhabit relatively mature deciduous and mixed deciduous-coniferous forest and woodlands, with dry sites apparently preferred. Breeding/larval habitat consists of vernal pools, woodland ponds, shrub swamps, and forested swamps with three consistent characteristics: they almost always are fishless, occur within or adjacent to forests, and hold water continuously during a minimum period of January to May (often October to June). They spend the winters below ground, preferring conditions with an insulating layer of litter and duff within mature forest where ground frost is less pervasive. Food for adult and juvenile

[46] Excerpted from Massachusetts Division of Fisheries and Wildlife. Natural Heritage Endangered Species Program. 2015. Weak Rush (*Juncus debilis*). Retrieved May 14, 2018 from https://www.mass.gov/files/documents/2016/08/rx/caprimulgus-vociferus.pdf

[47] Excerpted from Massachusetts Division of Fisheries and Wildlife. Natural Heritage Endangered Species Program. 2015. Gattinger's and Philadelphia Panic-grasses (*Panicum philadelphicum* ssp. *Gattingeri, Panicum philadelphicum* ssp. *philadelphicum*). Retrieved May 14, 2018 from https://www.mass.gov/files/documents/2016/08/rx/caprimulgus-vociferus.pdf

marbled salamanders includes snails, earthworms, beetles, slugs and other small invertebrates. The marbled salamander is listed as "Threatened" under MESA.[48]

Based upon further coordination with the NHESP on June 21, 2018, the marbled salamander is documented from sites north and south of the AFRRP area. Nonetheless, the species typically avoids non-forested habitats such as found within the existing ROW. No species-specific surveys are required by the NHESP for the marbled salamander.[49] Prospective breeding areas already identified during wetland delineations adjacent to the ROW are being evaluated for potential to support breeding by the species in the vicinity of site work.

6.2.2 Potential Impacts

Impacts to rare species and rare species habitats could occur during the construction of the AFRRP from vegetation removal during critical breeding/nesting periods, installation of new and improvement to existing access roads, use of heavy machinery on access roads during critical breeding/nesting periods, improper or inadequate use of sediment and erosion controls, and/or through the temporary use of construction matting if not timed and implemented appropriately.

Botanical Species

Botanical surveys, under approved NHESP survey protocols, have recently been conducted for the AFRRP. The plant species associated with the ROW are inhabitants of open canopy early-successional environments. Work associated with widening of the NEP ROW will not impact any of the associated plant species. In that regard, the access and acute work associated with structure installation will be configured so as to avoid impacts to the areas of mapped (2018) plant occurrences to the extent possible. In the event that conflicts are not wholly avoidable, NEP will implement alternative measures that may include air-matting during dormant periods, temporary matting for short duration, translocation/ transplantation, or other measures as appropriate.

Eastern Whip-poor-will

The eastern whip-poor-will was found to have breeding territories established at two localities on the NEP ROW during the 2018 breeding season. Additional territorial calling from areas at considerable distance off the ROW were noted, in habitat where woodland succession is in progress. Based upon further coordination with the NHESP, the widening of the NEP ROW will ultimately expand and enhance the open canopy feeding habitat for eastern whip-poor-will. Measures to avoid disruption of breeding by established pairs will be implemented to avoid any acute conflicts during construction. Ultimately, the AFRRP will result in an area of greater suitability for the species.

Eastern Box Turtle

Surveys for eastern box turtle were initiated in the spring of 2018 and animals encountered have been affixed with two-stage micro-transmitters to allow both evaluation of habitat utilization and ultimately to

[48] Excerpted from Massachusetts Division of Fisheries and Wildlife. Natural Heritage Endangered Species Program. 2015. Marbled Salamander (*Ambystoma opacum*). Retrieved May 14, 2018 from https://www.mass.gov/files/documents/2016/08/rx/caprimulgus-vociferus.pdf

[49] Representatives from Eversource and NEP participated in an agency consultation meeting with NHESP representatives on June 21, 2018.

assure mortality avoidance during construction. This effort will be continued in 2019 to maximize the percentage of extant animals that can be accounted for on demand, preceding and during construction.

The creation of additional open canopy habitat by the widening of the NEP ROW will ultimately diversify the habitat for eastern box turtle. The most critical element is the avoidance of mortality to this extremely long-lived species since loss of even a *de minimis* component of the adult population can have ramifications toward population status and stability in the long term. In general, with a suitable mortality avoidance plan in place, the activities, particularly in the NEP ROW will ultimately diversify the habitat for eastern box turtle within the context of vast areas of intact and protected forest lands that provide hibernation and feeding habitats. The Companies anticipate a program in which the performance standards will be met or exceeded, and which will provide the local population a compelling long-term net benefit.

Long-term operation and maintenance of the AFRRP following its completion is not anticipated to have adverse impacts on eastern box turtle or other rare species, as long as the work is conducted in accordance with the Companies' Operation and Maintenance ("O&M") Plans as approved by the NHESP.

Marbled Salamander

Marbled salamanders are affiliated with mature forests and discrete breeding areas therein. The forest clearing proposed for the AFRRP is remote from documented breeding habitat. Impacts to marbled salamander are anticipated to be *de minimis* in nature and will not require special or elaborate measures beyond those implemented for eastern box turtle and other species to comply with applicable performance standards.

6.2.3 Proposed Mitigation Measures and Conclusions

The Companies are actively coordinating with the NHESP regarding the species listed above and will continue with this consultation in order to minimize or avoid potential adverse effects on rare species during design, construction, and operation of the AFRRP. As noted above, species specific surveys are being conducted for all state-listed species noted above with the exception of the marbled salamander which is located outside of the limits of the AFRRP ROW.

Due to the extent of tree clearing along the NEP ROW, the Companies anticipate that a Conservation Management Permit ("CMP") will be required under MESA for the eastern box turtle. Mortality avoidance measures will be implemented in other parts of the alignment. Pursuant to 321 CMR 10.23, the application for the CMP will need to demonstrate measures to avoid and minimize impacts to the eastern box turtles and habitat and provide for a "net benefit" for this species. In general, with a suitable mortality avoidance plan in place the activities, particularly in the NEP ROW, will ultimately diversify the habitat for eastern box turtle within the context of vast areas of intact and protected forest lands adjacent resulting in a compelling net benefit for this species.

In addition to avoiding and minimizing species habitat impacts to the maximum extent feasible, the Companies will continue to work closely with NHESP to develop mitigation measures for each species associated with the AFRRP ROW. At this time, proposed mitigation includes, but is not limited to, the following:

- Developing a mitigation program in consultation with the NHESP to allow for the issuance of a CMP.
- Training will be required for all construction personnel.

- Adhering to seasonal restrictions that may be placed by the NHESP for the tree clearing activities.
- Installing signage along the ROW alerting work crews to rare species habitats.
- Installing protective enclosures and exclusion fencing.
- Performing extensive sweeps prior to construction and monitoring during construction.
- Monitoring of animals in the vicinity of active construction via radio-telemetry.
- Implementing Species-specific protection plans.
- Conducting habitat restoration post-construction.

Long-term operation and maintenance of the AFRRP is not anticipated to have adverse impacts on rare species, as long as the work is completed in compliance with the CMP, and future activities on the ROWs are conducted in accordance with the Companies' O&M Plans as approved by the NHESP.

7.0 OUTSTANDING RESOURCE WATERS (ORW)

This section describes ORW within the vicinity of the Bell Rock Substation and the AFRRP and presents potential impacts associated with the Projects during construction and operation.

ORW are waters are designated as excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation, even if not allowed. According to the Massachusetts Surface Water Quality Standards (314 C.M.R. 4.00), wetlands bordering Class A ORW are designated Class A ORW and Certified Vernal pools are designated Class B ORW. There is a MassDEP prohibition to filling of ORW and wetlands within 400 feet of the ORW unless a variance is sought and obtained from the MassDEP (see Section 13.3.1 for more details). According to the 401 Water Quality Certification Regulations at 314 CMR 9.06(3), the discharge of dredged or fill material to a ROW may be permitted in association with activities listed in 314 CMR 9.06(3)(f) ("Construction of utilities….and facilities directly related to their operation"). Approval under this provision requires an alternatives analysis that demonstrates that another alternative is not practicable, would not have less adverse impact on the aquatic ecosystem, or would have other significant adverse environmental consequences.

7.1 Bell Rock Substation Rebuild Project

7.1.1 Existing Conditions

The Bell Rock Substation Rebuild Project area and adjacent transmission line ROWs are located adjacent to Queen Gutter Brook and associated wetlands that are designated as tributaries to a Class A public water supply (North Watuppa Pond/ Reservoir) and the wetlands and streams that are bordering the reservoir are classified as ORW (refer to Appendix A Figure 2-2). The substation is not located within 400 feet of the high-water mark of a Class A surface water (exclusive of tributaries).

7.1.2 Potential Impacts to ORW

The Bell Rock Substation Rebuild Project construction is anticipated to result in unavoidable temporary and permanent impacts to vegetated wetland resources within the North Watuppa Pond/Reservoir watershed. There are no streams within the Project area and the reservoir itself is not located within 400 feet of the Project.

7.1.3 Stormwater Management Design

The Bell Rock Substation Project post-construction stormwater management system has been designed for a low-use site incorporating the Stormwater Management Standards outlined in the Massachusetts Stormwater Handbook and in consultation with the City of Fall River Engineering Department. The substation drains to an ORW and NEP has taken into account this critical resource area in the substation design. The Substation yard will largely consist of a crushed stone surface underlain with structural fill. This surface treatment allows infiltration and greatly reduces site runoff. The only impervious surfaces within the substation yard include the roof area of the control building and the paved sections of the access drive. The extent of the paved access drive within the substation yard have been purposefully limited to only the area from the entrance of the substation to the control building and will see very low use after construction is complete. The access into the substation will be limited to routine inspections, and maintenance and repair, as necessary. This substation will be an unmanned substation and will be operated and monitored remotely by NEP with routine visual and operational inspections performed by

O&M personnel. The stormwater design will include the removal of total suspended solids from runoff, but as described above, the substation will not encounter the amount of vehicular oils, salt and sediment that a typical public road or large-scale development would encounter.

7.2 Acushnet to Fall River Reliability Project

7.2.1 Existing Conditions

The AFRRP ROW traverses wetlands that are designated as tributaries to Class A Public Water Supplies of the North Watuppa Pond and Copicut Reservoir, and as a result the wetland and streams tributary to these public water supplies are classified as ORW. The Copicut Reservoir is located in the City of Fall River. The Project ROW traverses open water areas along the northern boundary of Copicut Reservoir. North Watuppa Pond is located 2,000 feet west of the AFRRP ROW and is not traversed directly by the Project. One Certified Vernal Pools is located within in the Project ROWs.

7.2.2 Potential Impacts to ORW

Construction of the AFRRP is anticipated to result in unavoidable temporary impacts to vegetated wetland resources within the Copicut Reservoir and North Watuppa Pond watersheds. Temporary wetland impacts within 400 feet of the Copicut Reservoir are also unavoidable due to the proximity of the AFRRP ROW to the northern end of the reservoir. Although the placement of temporary construction mats is currently proposed within 400 feet of the Copicut Reservoir, the Companies are not currently anticipating that a variance will be required based on preliminary coordination with the MassDEP Office of Water Resources. The Companies will continue discussions with the MassDEP regarding the Project.

7.2.3 ORW Mitigation Measures

The proposed structures and work pads have been sited and will be constructed to avoid permanent impacts to ORW. In locations where ORW cannot be avoided, the work activities will consist of the placement of temporary construction mats to for access routes of temporary work space. The use of sediment and erosion controls will be implemented to minimize sediment migration outside of the limits of disturbance. The temporary construction matting will be removed immediately after the construction activities are complete. Any required restoration or stabilization, after the mat removal, will be completed as the equipment and vehicles de-mobilize from the ROW. All tree clearing and vegetation removal will be done mechanically or by hand, and no herbicides will be applied during the construction phase of the Project. The Project will comply with the National Pollutant Discharge Elimination System (“NPDES”) General Permit and Stormwater Pollution Prevention Plan (“SWPPP”) requirements, requirements of the WPA and implementing regulations, and other restrictions as may be applied by the local conservation commissions in accordance with the WPA. Appropriate sediment and erosion control and spill prevention and response measures will be implemented, and these controls will be closely monitored and managed as described in Section 5.5.3.

The Companies are currently in the preliminary phases of coordinating with the MassDEP and will incorporate design recommendations and mitigation measures, as set forth in permitting conditions, to protect the surface water resources.. The Companies have participated in meetings with the Superintendent of the Watuppa Reservation and will continue this collaboration to identify and implement the appropriate mitigation measures to address potential impacts to ORW.

8.0 HISTORIC AND ARCHAEOLOGICAL RESOURCES

The Bell Rock Substation Rebuild Project and the AFRRP are subject to review under Section 106 of the National Historic Preservation Act (36 CFR Part 800) (Section 106) as both projects require permits from the USACE. The Bell Rock Substation Rebuild Project and the AFRRP are also subject to review by the MHC under G.L. c. 9 §§ 26–27C and the MHC's implementing regulations at 950 CMR 71.00 et seq. Both NEP and Eversource will continue coordination efforts with the USACE and MHC to avoid adverse effects to historic and archaeological resources eligible for listing in the NRHP, to the extent required by law. As part of its Section 404 permit review, pursuant to Section 106, the USACE will also consult with Native American tribes that express an interest in the historic resources that may be affected by portions of the Bell Rock Substation Rebuild Project or the AFRRP within USACE jurisdiction.

8.1 Bell Rock Substation Rebuild Project

NEP has contracted archaeologists from POWER Engineers, Inc. ("POWER") to perform background research, MHC file review, and an archaeological field survey for the substation site and M13 Line bypass, in order to identify eligible properties and to make recommendations about potential effects and how to potential adverse effects.

8.1.1 Existing Conditions

Architectural Resources

The Area of Potential Effect ("APE") is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR Part 800.16[d]). An area extending one-half mile from the substation parcel was used to define the Bell Rock Substation Rebuild Project APE within which to identify NRHP-listed properties or Massachusetts above-ground historic inventory points that may be subject to direct or indirect effects from the Bell Rock Substation Rebuild Project. No known NRHP-listed or state-inventoried historic above-ground properties or districts are within the Bell Rock Substation Rebuild Project APE. Use of the area surrounding the substation parcel during the historical period was limited to peripheral agricultural activity. Stone walls associated with property lines and/or field clearing are extant within the Bell Rock Substation Rebuild Project APE. For more than two centuries, from the late 1600s to the early 1900s, the majority of the land east of the Watuppa Ponds complex in Fall River was designated as a Wampanoag Reservation. When the area was taken by the City of Fall River in 1907, protection of water resources was given as the reason, and thus no new development occurred. Some minor historic use of the area around the northern margin of the Copicut Reservoir adjacent to the Bell Rock Substation Rebuild Project APE has been documented, and mainly consists of small-scale damming and milling activity, as well as the development of a small campground area (MHC sites FLR.6-10).

Archaeological Resources

Site file searches at the MHC identified no archaeological sites within the Bell Rock Substation Rebuild Project APE, which for archaeological sites is limited to the areas of potential ground disturbance. Intensive (Locational) survey was carried out on the upland portion of the Substation Rebuild Project footprint in March of 2017, yielding no cultural materials of either an ancient or historical period origin. Significant levels of relatively modern land modification, such as filing and leveling, were observed in the soil profiles of every archaeological test pit. No further testing was recommended by POWER archaeologists. MHC concurred with this recommendation on May 12, 2017. POWER archaeologists

recommended to MHC in February 2018, that no testing be required in advance of a geotechnical boring program in and around the previously tested portion of the parcel. POWER archaeologists conducted additional subsurface survey in September, 2018, along a new access route proposed south of the substation footprint, at the locations of the temporary M13 bypass along the perimeter of the security fence, and along an extension of upland that will be used for stormwater management, within the substation and transmission line easements. No cultural materials other than modern refuse were recovered during this additional survey. POWER archaeologists submitted a report with a recommendation of no further testing to the MHC and are awaiting concurrence.

8.1.2 Potential Project-Related Impacts

Architectural Resources

No architectural above-ground resources have been identified within the Bell Rock Substation Rebuild Project APE.

Archaeological Resources

The ancient Eg and G5 site (19-BR-248) will not be impacted by the Bell Rock Substation Rebuild Project. No other direct effects to archaeological sites are likely to occur as a result of ground disturbing activities during construction. Intensive (Locational) testing has been carried out in upland portions of the Bell Rock Substation Rebuild Project area and yielded no cultural materials. The soils observed suggest significant modern land modification. That, combined with the historically peripheral location of the site and the generally poorly-drained nature of the setting, suggests a very low archaeological potential. A small area of higher archaeological potential is located along a proposed access road south of the substation. POWER archaeologists are in consultation with the MHC to subject this area to archaeological survey to seek NRHP eligible materials prior to construction ground impacts.

8.2 Acushnet to Fall River Reliability Project

The Companies have contracted The Public Archaeology Laboratory (“PAL”) to address the Section 106 concerns of the USACE and seek the comments of the MHC and Native American Tribes. PAL staff conducted background research and a physical inspection of the AFRRP area. Background research involved a review of existing cultural resource reports on file at PAL and the MHC, correspondence, and previously-recorded historic and archaeological site files on file at MHC.

8.2.1 Area of Potential Effects

For the NEP portion of the AFRRP, the APE includes the 60-foot-wide forested portion of the 150-foot-wide ROW immediately adjacent to, and south of, the cleared portion of the ROW and the existing D21 Line. Areas of vegetative clearing, laydown and staging areas, new pole and guywire locations, and any other temporary or permanent workspaces could also occur within the 60-foot workspace corridor. The APE may include all areas where ground disturbances are proposed, where land use may change, or any locations from which the undertaking may be visible.

For the Eversource portion of the AFRRP, the APE will be established once Project plans are further refined.

8.2.2 MHC and Tribal Communications

On behalf of the Companies, PAL submitted a project information package to the MHC on April 5, 2018, consisting of an initial outreach letter and Project Notification Form for the entire AFRRP, along with a cultural resources due diligence report and a technical proposal for an intensive (locational) archaeological survey for the NEP portion of the AFRRP in Fall River. The PAL letter to MHC indicated that the Eversource portion of the AFRRP was still in development and additional information would be submitted under separate cover. On May 5, 2018, the MHC issued Permit #3827 to PAL to conduct the archaeological survey. On May 5, 2018, the MHC also commented to the USACE, indicating that the AFRRP requires review by the USACE and is subject to Section 106; MHC requested scaled existing and proposed conditions plans for the complete AFRRP, showing proposed impact areas, including access routes, vehicle and equipment storage, staging/laydown areas, and work pull pads. MHC also recognized that the Eversource portion of the AFRRP in Acushnet, New Bedford, and Dartmouth are in development. PAL conducted the archaeological survey in June and July and submitted a technical report to the MHC on October 10, 2018 along with a State Archaeologist's permit application and technical proposal to conduct archaeological site examinations at 9 sites identified during the survey. On September 28, 2018, PAL submitted a cultural resources due diligence report and technical proposal for an intensive archaeological survey (if necessary) to the MHC for the Eversource portion of the Project; PAL will conduct fieldwork for the Eversource portion in October and November 2018.

PAL submitted the above-referenced documentation to the Mashpee Wampanoag Tribe and the Wampanoag Tribe of Gay Head (Aquinnah). Tribal Cultural Resource Monitors ("CRMs") from both Tribes accompanied the PAL field crew during the archaeological survey of the NEP portion of the AFRRP. PAL will continue to provide additional information to the Tribes as it becomes available. The USACE initiated the Section 106 consultation process for the AFRRP on October 17, 2018. On October 24, 2018, the Mashpee Wampanoag Tribe and that they will participate in the Section 106 consultation process.

The Companies will continue to communicate with the MHC and Native American Tribes during the Section 106 process to identify potentially significant historic and archaeological resources and avoid, minimize, or mitigate any potential Project impacts on those resources.

8.2.3 Cultural Resource Investigations

PAL conducted a cultural resources due diligence and archaeological sensitivity assessment of the NEP portion of the AFRRP ROW in February 2018. The cultural resources due diligence included a file review of previously recorded cultural resources in the AFRRP vicinity, a walkover survey, and an archaeological sensitivity assessment of the ROW to provide information about cultural resources that could be affected by the proposed AFRRP. The file review identified previous archaeological surveys conducted within a half-mile of the AFRRP ROW. The previous surveys identified five archaeological sites recorded near the NEP D21 Line and one previously unrecorded site was identified during the due diligence walkover survey. Portions of the AFRRP ROW were assessed with high, moderate, and low archaeological sensitivity.

Based on the results of cultural resources due diligence, PAL recommended consultation with the MHC on the potential for the AFRRP to affect potentially significant archaeological and historic architectural resources that may be potentially eligible, eligible for listing in, or previously listed in the State Register or NRHP. At Companies' request, PAL prepared a technical proposal and State Archaeologist's Permit Application to conduct an intensive (locational) archaeological intensive survey of the NEP portion of the AFRRP ROW in Fall River; PAL conducted the archaeological survey for the NEP portion of the AFRRP

in June and July 2018, resulting in the identification of 15 newly identified archaeological resources, 9 of which PAL recommended are potentially eligible for listing in the NRHP. PAL submitted a technical report to the MHC on October 10, 2018, presenting the results of the archaeological survey; the package also included a State Archaeologist's permit application to conduct archaeological site examinations of the 9 sites that are potentially eligible for listing in the National Register. On September 28, 2018, PAL also submitted a separate cultural resources due diligence report and archaeological permit application to the MHC to conduct an intensive archaeological survey along the Eversource portion of the Project; on October 11, 2018, the MHC issued a permit for PAL to conduct the survey along the Eversource portion. PAL will also conduct an historic architectural reconnaissance survey for the entire AFRRP once plans are further refined.

9.0 CUMULATIVE IMPACTS

Table 9-1 below provides a summary of the estimated cumulative impacts inclusive of the Bell Rock Substation Rebuild Project and the AFRRP. The cumulative impacts are presented to apprise MEPA of the resource area impacts associated with the proposed system reliability project(s). As discussed throughout this Expanded ENF, the Companies are committed to avoiding, minimizing and mitigating resource area impacts to the greatest extent practicable.

TABLE 9-1 CUMULATIVE IMPACT SUMMARY OF ANTICIPATED WETLAND EFFECTS BELL ROCK SUBSTATION REBUILD PROJECT AND ACUSHNET TO FALL RIVER RELIABILITY PROJECT

RESOURCE AREA	TOTAL SQUARE FEET OR LINEAR FEET OF IMPACT	IMPACT TYPE
Bank (lf)	202 lf 625 sf	Temporary Linear feet of construction mats where stream crossings could not be avoided. Permanent Square feet of impact associated with one culvert crossing in a stream.
Bordering Vegetated Wetlands (BVW)	449,089 sf	Temporary Approximately 313,427 sf (7.20 acres) for construction mats for access routes and work pads where BVW crossings could not be avoided. Permanent Approximately 40,952 sf (0.94 acres) of permanent fill for the Bell Rock Substation footprint and AFRRP structures. Approximately 94,710 sf (2.17 acres) of conversion of forested wetlands to scrub shrub wetlands due to tree clearing.
Land Under Water (LUW)	0	
Bordering Land Subject to Flooding (BLSF)	91,992 sf	Temporary Approximately 91,707 sf (2.11 acre) for temporary construction access for access routes and work pads where BLSF crossings could not be avoided. Permanent Approximately 285 sf (0.01 acre) of permanent fill for AFRRP Structures.
Riverfront Area (RFA)	56,535 sf	Temporary Approximately 49,309 sf (1.13 acre) for temporary construction access for access routes and work pads where RFA crossings could not be avoided. Permanent Approximately 7,226 sf (0.17 acre) of permanent fill for AFRRP Structures.

Notes: Impacts are based on preliminary design and represent a conservative estimate of Project-related disturbances.

10.0 CLIMATE CHANGE ADAPTATION AND RESILIENCY

The Executive Office of Energy and Environmental Affairs' ("EOEEA") Climate Change and Adaptation Report[50] documents that with increasing temperatures as a result of climate change, electricity demand in the Commonwealth could increase by 40 percent in 2030. A concern stated in the report in regard to energy service reliability is that without reliable energy service, the basic needs of residents, visitors, businesses, and governments cannot be met. The energy sector's three primary climate change concerns are flooding, extreme weather events, and increased temperature.

NEP and Eversource reviewed the Massachusetts Sea Level Rise and Coastal Flooding Viewer for the Bell Rock Substation Rebuild Project and AFRRP areas. The map viewer displays the National Ocean and Atmospheric Administration's January 2013 sea level rise data. The data indicates that both the Bell Rock Substation Rebuild Project and the AFRRP are located outside the inland extent of inundation projected from a 0 to 6 foot rise in sea level above current mean higher high water mark. The proposed Bell Rock Substation Rebuild Project and AFRRP will reinforce the system reliability in the SEMA-RI region and provide a more robust transmission system in the area of need. The new transmission line conductors are designed to operate at higher temperatures at a higher carrying capacity. The transmission line structures and substation equipment are designed to operate under extreme weather conditions and fluctuations in air temperatures.

An overarching theme of the EOEAA *Adaption Report* is the challenge, and potentially profound effects, climate change presents to resources including existing infrastructure and energy demand. The report documents the vulnerability of existing aging infrastructure with key strategies to alleviate these vulnerabilities being repair and upgrades, and reuse and timely maintenance, among others. The Bell Rock Substation Rebuild Project and the installation of the AFRRP transmission line are consistent with these reliability strategies in the following ways:

- Provides a new 115 kV source into the load pocket.
- Incorporates new design standards and the latest in design materials.
- Provides needed upgrades to existing electric transmission infrastructure.
- Provides the shortest project delivery time to meet the identified need.
- Minimizes impacts to the natural and social environments because the proposed improvements are located within existing utility substation sites and ROWs.
- Provides a stronger electrical transmission system that is vital to the area's safety, security and economic prosperity.
- Meets growing transmission needs identified by the ISO-NE and supports future growth and forecasted demand within the SEMA-RI area.
- Improves the capability of the existing transmission system to move power more reliably into load centers.
- Improves the efficiency of the transmission system by eliminating loop flows between the Bell Rock and Tiverton Substations.

[50] The Executive Office of Energy and Environmental Affairs. Climate Change and Adaptation Report. 2011. Retrieved May 14, 2018 from http://www.adaptationclearinghouse.org/resources/massachusetts-climate-change-adaptation-report.html

11.0 GREENHOUSE GAS ANALYSIS, NOISE AND AIR QUALITY

11.1 Greenhouse Gas Analysis

The Companies believe that the May 5, 2010 MEPA Greenhouse Gas Emission Policy and Protocol do not apply to the Bell Rock Substation Rebuild Project or the AFRRP as the projects will have little or no greenhouse gas emissions and thus falls within the Policy's *de minimis* exemption. There are no significant direct or indirect emissions associated with either of the projects. The MEPA regulations define *Damage to the Environment* as: "Any destruction or impairment (*not including insignificant damage or impairment*), actual or probable, to any of the natural resources of the Commonwealth including, but not limited to, air pollution…. " It is NEP and Eversource's opinion that neither the Bell Rock Substation Rebuild Project nor the AFRRP will be considered a damage to the environment with regards to air pollution, including greenhouse gas emissions. A detailed discussion on SF_6 associated with the Bell Rock Substation Rebuild Project is included in 11.2.2 below.

Typical construction equipment will be used for construction of the Bell Rock Substation Rebuild Project and the AFRRP. During both projects, the Companies will comply with state laws regulating the use of diesel powered equipment and vehicle idling times during construction. The Companies will also take measures to limit vehicle idling times and to reduce air emissions, including the following:

- In Massachusetts, any diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of construction will either be United States Environmental Protection Agency (USEPA) Tier 4-compliant or will be retrofitted with USEPA-verified (or equivalent) emission control devices such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine.
- The Companies require the use of ultra-low sulfur diesel fuel in its diesel-powered construction equipment and limits idling time to five minutes except when engine power is necessary for the delivery of materials or to operate accessories to the vehicle such as power lifts.
- Vehicle idling is to be minimized during construction activities, in compliance with the following:
    - Massachusetts Anti-idling Law, G.L. c. 90 § 16A, c. 111 §§ 142A – 142M, and 310 CMR 7.11.
- Exposed soils on access roads will be wetted and stabilized as necessary to suppress dust generation during construction (see Sections 11.2.2 and 11.3.2).

Construction activities for both the Bell Rock Substation Rebuild Project and the AFRRP will generally take place Monday to Saturday during daylight hours (7:00 a.m. to 5:00 p.m.). Certain work activities for each project, including work requiring scheduled transmission line outages, may need to be performed on a limited basis outside of normal working hours. Prior to the start of construction activities, notification will be provided to landowners, abutting property owners, municipal officials, the municipal Departments of Public Works and Police and Fire Chiefs in Acushnet, New Bedford, Dartmouth, and Fall River of the details of planned construction including the normal work hours and extended work hours and will obtain written approval from relevant municipal officials for extended work hours.

11.2 Bell Rock Substation Rebuild Project

11.2.1 Noise

NEP expects that the Bell Rock Substation Rebuild Project will not result in noise levels of concern to area residents, town officials, or other regulatory entities, either during construction or during operation. Construction will take place within a heavily forested area and within existing substation and transmission line easements and along public roads. NEP expects the Bell Rock Substation Rebuild Project construction to occur over a period of approximately 18 months, depending upon available outage windows. Noise generated by construction equipment, such as generators or air compressors, will be temporary and generally intermittent. All construction equipment will be kept in good working condition with appropriate mufflers to minimize noise impacts.

Noise associated with electric substations generally results from power transformers located within substations. No new power transformers are being added at the site as part of the Bell Rock Substation Rebuild Project. A new standby generator is proposed to replace an existing standby generator at the Bell Rock Substation site and will be used, as needed. An air permit associated with this generator will be filed in coordination with MassDEP. The site, however, is located in a densely forested area and the closest neighboring receptor is over 3,000 feet to the northeast.

11.2.2 Air Quality

Nine new circuit breakers and the replacement of the two existing circuit breakers will be installed during the Bell Rock Substation Rebuild Project. The new circuit breakers, which will contain SF_6, gas will be installed and maintained by trained technical staff and will be checked for integrity during regular inspections by NEP personnel. The new circuit breakers are expected to leak less SF_6 that the approximately 25-year old existing circuit breakers. NEP's procurement specifications require that all circuit breakers that it purchases have an SF_6 gas leak rate of less than 0.5 percent per year. NEP entered into an SF_6 Emissions Reduction Partnership Memorandum of Understanding with the USEPA in December 2003. NEP determines estimated SF_6 system emissions (SF_6 gas leakage) from its system based on a mass balance approach as required and specified in 40 CFR Part 98.303 (December 1, 2010) (USEPA Mandatory Greenhouse Gases Reporting, Electrical Transmission and Distribution Equipment Use). An emergency generator will also be installed at the Bell Rock Substation. As use of this generator will be limited to emergency situations, air emissions are anticipated to be negligible.

There are no anticipated long-term impacts on air quality from dust or vehicle emissions associated with the construction or operation of the Bell Rock Substation Rebuild Project.

11.3 Acushnet to Fall River Reliability Project

11.3.1 Noise

The Companies anticipate that the AFRRP will not result in noise levels of concern to area residents, town officials, or other regulatory entities, either during construction or during operation. AFRRP construction will take place along existing transmission line ROWs and along public roads. The Companies expect transmission line construction to occur over a period of approximately 15 months, depending upon outage windows. Noise generated by construction equipment, such as generators or air compressors, will be temporary and generally intermittent. All construction equipment will be kept in

good working condition with appropriate mufflers to minimize noise impacts. Appreciable noise will not be generated by the new transmission line during normal operations.

11.3.2 Air Quality

As described in Section 11.1, the Companies will take measures to limit vehicle idling times and to reduce air emissions during construction. The Companies will also implement construction best management practices to suppress dust generation and fugitive dust emissions. Due to the transitory nature of construction activities, air quality in the AFRRP area will not be significantly affected by construction along the ROW. Emissions produced by the operation of construction machinery (nitrogen-oxides [NOx], sulfur oxides [SOx], carbon monoxide [CO], Volatile Organic Compounds [VOCs], and particulate matter [PM]) are short-term and not generally considered significant.

There are no anticipated long-term impacts on air quality associated with the operation of the transmission line.

12.0 CONSTRUCTION-PERIOD CONSIDERATIONS

12.1 Construction Environmental Standards

The Companies have long established policies and procedures for minimizing construction related disturbances throughout all phases of construction. The Companies and their respective contractors will follow these procedures for the Bell Rock Substation Rebuild Project and the AFRRP. These policies and procedures are described below.

12.1.1 National Grid Environmental Standards

- National Grid's *ROW Access, Maintenance and Construction Best Management Practices* (EG-303NE).
- National Grid's *Right-of-Way Vegetation Management Plan* and subsequent updates.
- National Grid's *Excess Soil Management from Construction Projects on Rights-of-*Way (EG-1707).
- National Grid's *Projects at Existing Substations* (EG-1701).

12.1.2 Eversource Environmental Standards

- Eversource's *Construction & Maintenance Environmental Requirements: Best Management Practices Manual for Massachusetts and Connecticut*.
- Eversource's *Five Year Vegetation Management Plan for Central, Eastern, and Southeastern Massachusetts (2108-2022)*.

12.1.3 Construction Environmental Compliance Monitors

Throughout the entire construction process, the Companies will retain the services of environmental compliance monitors. The primary responsibility of the monitors will be to oversee construction activities including the installation and maintenance of soil erosion and sediment controls on a routine basis to ensure compliance with all federal, state, and local permit commitments. The environmental compliance monitors will be trained environmental scientists responsible for supervising construction activities relative to environmental issues. The environmental monitors will be experienced in soil erosion control techniques and will have an understanding of wetland resources to be protected.

During periods of prolonged precipitation, the monitors will inspect all locations to confirm that the environmental controls are functioning properly. In addition, the Companies will require the contractors to designate an individual to be responsible for the daily inspection and upkeep of environmental controls. This person will be responsible for providing direction to the other members of the construction crew regarding matters such as wetland access, appropriate work methods, and good house-keeping practices in the area. These construction supervisors also have "stop work" authority if there is an environmental or safety non-compliance issue. Additionally, all construction personnel will be briefed on environmental compliance issues and obligations prior to the start of construction on the Bell Rock Substation Rebuild Project and the AFRRP. Regular construction progress/environmental training meetings will provide the opportunity to reinforce the contractor's awareness of these environmental issues.

In addition, all personnel will be required to participate in environmental and safety training prior to the start of construction. Training topics will include environmental, stormwater management, cultural resources, and safety considerations. Refresher training will be conducted as necessary or as new crew members join the work force. The Companies will conduct regular construction progress meetings to reinforce contractors' awareness of these issues. Pre-construction meetings will take place in the field with appropriate personnel. The Companies' environmental monitors will attend these meetings to provide feedback on environmental compliance to construction personnel.

12.2 Safety and Public Health Considerations

Both projects will be designed, built, and maintained so that the health and safety of the public are protected. This will be accomplished through adherence to all federal, state and local regulations, and industry standards and guidelines established for protection of the public. Specifically, the Bell Rock Substation Rebuild Project and the AFRRP will be designed, built, and maintained in accordance with the National Electrical Safety Code and other applicable electrical safety codes. The facilities will be designed in accordance with sound engineering practices using established design codes and guides published by, among others, the Institute of Electrical and Electronic Engineers, the American Society of Civil Engineers, the American Concrete Institute, and the American National Standards Institute.

Practices that will be used to protect the public during construction will include, but not be limited to, contractor safety training, establishing traffic control plans for construction traffic to maintain safe driving conditions, restricting public access to potentially hazardous work areas, and using temporary guard structures at road and electric line crossings to prevent accidental contact with the conductor during installation.

Following construction, all transmission structures will be clearly marked with warning signs to alert the public to potential hazards if climbed. Trespassing on the ROWs will be inhibited by the installation of gates and/or barriers at entrances from public roads where approved by owners of properties upon which easements are located.

12.3 Bell Rock Substation Rebuild Project

12.3.1 Construction Sequencing

The Substation Project involves the maintenance, repair and upgrading of certain equipment and facilities at the Substation. The Bell Rock Substation expansion will occur in stages over an approximately 18-month period. The work will generally follow the order listed below.

- Site preparation;
- M13 Line Bypass;
- Yard construction;
- Yard equipment; and
- Site restoration.

Site Preparation

The limit of disturbance will be surveyed and staked in the field, and the wetland flagging will be refreshed. Tree removal will be required within the expanded substation yard area and for the temporary bypass of the M13 line to the south of the substation. Generally, trees to be removed will be cut close to the ground, leaving the stumps and roots in place, which will reduce soil disturbance and erosion potential. In locations where grading is required for access road improvements and at structure sites, stumps will be removed. Small trees and shrubs within the transmission line and substation easements will be mowed as necessary with the intent of preserving root systems and low-growing vegetation to the extent practical. Brush, limbs, and cleared trees will be chipped and removed from the site, or applied to upland areas as an erosion control measure, with prior approval. In certain environmentally sensitive areas such as wetlands, it may be necessary and desirable to leave felled trees and snags, and allow them to decompose in place rather than to disturb soft organic substrates while removing them.

The use of temporary mats will be required to gain access to and across forested wetlands, to minimize wetland disturbance, and to provide a stable platform for safe equipment operation. Construction mats distribute equipment loads and minimize impacts to the wetland and soil substrates. Temporary construction mat roads placed in wetlands for vegetation removal will be installed, used for vegetation removal, and then removed by the clearing contractor. Temporary corduroy (log) roads may be used on a limited basis to facilitate tree removal.

Once the vegetation removal is complete, soil erosion and sediment controls will be installed along the proposed limit of disturbance. Soil erosion control and other engineered stabilization measures will be provided along the down-gradient side of stockpiles created during grading operations to prevent sediment migration. The soil erosion and sediment control program for the Bell Rock Substation Rebuild Project will follow the procedures identified in the *Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials* (2003), the *Massachusetts Stormwater Handbook,* and *EG-303NE*.

The installation of sediment control devices will be supervised by NEP's environmental monitor. During construction, these devices will be periodically inspected and monitored by the environmental monitor, and the findings will be reported regularly to NEP's Construction Supervisor. The soil erosion and sediment controls will be installed between the work site and environmentally sensitive areas such as wetlands, streams, drainage courses, roads and adjacent properties when work activities will disturb soils and result in the potential for soil erosion and sedimentation. The devices will function to mitigate construction-related soil erosion and sedimentation and will also serve as a physical boundary to delineate resource areas and to contain construction activities within approved areas.

Excavation and processing of on-site material for use as structural fill and to establish sub-grade elevations will occur. Clean structural fill materials will be imported onto the site to establish the desired site grades and backfill for underground utilities, foundations and above-ground structures within the substation. Where dewatering is necessary during excavations within or adjacent to wetland areas, water will be pumped into appropriate dewatering basins or filter bags. At all times, dewatering will be performed in compliance with *EG-303NE*. The basin or filter bag and all accumulated sediment will be removed following dewatering operations and the area will be seeded and mulched if necessary. Soil erosion and sediment controls will be used to contain excess soils.

Staging areas and equipment storage, where feasible, will be situated outside environmentally sensitive areas. Equipment refueling (except for fixed equipment such as drill rigs) will occur outside of environmentally sensitive areas (such as waterways, wetlands, and drinking water sources). Where

transmission structures requiring concrete foundations at the substation are located near wetlands, proper soil erosion and sediment controls will be installed to prevent impacts to these areas.

In accordance with BMPs, construction mats, soil erosion and sediment controls, and other measures will be implemented, as appropriate, in resource areas temporarily disturbed by construction. Herbaceous vegetation in disturbed areas will be restored using a native wetland or conservation seed mix. Access roads are required to provide the ability to construct, inspect, and maintain the existing transmission line facilities and Bell Rock Substation. To get to the Bell Rock area, the existing access roads may require some improvements in certain locations to facilitate construction vehicular access. Any access road improvements and/or maintenance will be carried out in coordination with the City of Fall River.

M13 Line Bypass

The M13 Line Bypass scope of work involves the temporary relocation of the existing M13 transmission line to provide safe and adequate vertical and horizontal clearances to allow construction to proceed at the Bell Rock Substation away from the energized M13 Line. The overhead M13 Line will be temporarily re-routed to the immediate south of the substation, which will involve the installation of one temporary transmission line structure and two permanent transmission line structures within the limits of the substation easement. The work activities will consist of some vegetation removal on the south side of the substation to open up a position for the temporary overhead conductor; and the installation of temporary construction mats to provide construction access and work space to install the transmission line structures. The wetland impacts associated with the M13 Line Bypass are all temporary impacts within the existing substation easement and ROWs, and the impacts are due to the placement of temporary construction mats. There are no permanent wetland impacts associated with the M13 Line Bypass. Upon completion of the substation rebuild, the M13 Line will be terminated at the substation, the temporary re-routed conductor will be removed, and restoration and stabilization of the temporarily disturbed areas will be performed.

Yard Construction

An area of approximately 0.3 acre will be graded for the expansion of the substation. The grading and sloping along the perimeter of the substation yard will extend just beyond the limits of the proposed fence line. Earth work and grading will be necessary to create a level surface for equipment installation. Excavation, drilling, or pneumatic hammering would be the preferred methods to remove rock that may be encountered at the site.

The new area will be surfaced with crushed stone to a depth of six inches and to five feet outside the substation fence. The existing 6-foot-tall perimeter fence will be replaced with an 8-foot-tall perimeter fence plus one foot of barbed wire, including swing gates.

Yard Equipment

Within both the existing yard and the new expansion area, concrete foundations, ground grid, conduits and cable trenches will be installed to support the electrical equipment. The installation of various substation-related equipment, including, but not limited to, a pad mount standby (emergency) generator, a pad mount substation service transformer, battery racks within the control house, disconnect switches, gas circuit breakers and buses are proposed. Equipment containing mineral oil and diesel fuel (pad mount transformer and pad mount standby generator) will be equipped with primary and secondary containment. This containment will be designed in compliance with regulatory mandates. The Spill Control and Countermeasure Plan for the substation will be updated to reflect the specifications for the new equipment.

Additionally, the installation of a new approximately 64-foot by 36-foot control house is being proposed. The existing control building will be demolished and the control building will be installed in a new location in the northwest corner of the yard. Run-off from the building roof will be infiltrated into the stone surface of the substation yard. Upgrades to the stormwater management system will be made to include the additional impervious surfaces proposed for the Bell Rock Substation Rebuild Project.

Construction Staging Areas

Construction staging areas for the Bell Rock Substation Rebuild Project will be established on-site and within the limits of disturbance shown on the Project plans. All construction staging areas will be sited and designed in an effort to avoid additional tree removal and impacts to environmentally sensitive areas and cultural resource areas.

Upland work pads will be constructed at structure locations by grading or adding gravel or crushed stone to provide a level work surface for construction equipment and crews. Once construction is complete, the work pads in uplands will remain in place, and will be stabilized with topsoil and mulched to allow vegetation to re-establish. Stone work pads within the 100-foot buffer will be removed on a case by case basis in consultation with the conservation commission. If temporary work pads are required in wetlands, these work pads will be constructed with temporary mats and will be removed after the completion of construction activities.

Site Restoration

All areas affected by construction of the Bell Rock Substation Rebuild Project will be covered with crushed stone, seeded with grass, landscaped, mulched, or paved as appropriate. Topsoil stripped from initial site work activities will be stockpiled on the site and used appropriately in areas where vegetation is to be established. Impacted upland areas will be stabilized with a New England conservation/wildlife seed mixture, or equivalent. Areas temporarily impacted within wetlands will be re-graded to establish pre-construction contours if necessary and allowed to re-vegetate. If necessary, disturbed wetland areas will be treated with a New England “Wetmix” or equivalent.

12.3.2 Construction Details

The following sections describe logistics and protocols which NEP will require their contractors to adhere to during construction of the Project.

Construction Traffic

Improvements to sections of unimproved, gravel roads under the jurisdiction of the City of Fall River, such as sections of Bell Rock Road, may need to be made to provide level and safe access to the substation. These improvements would be coordinated with the City of Fall River with notification provided to the MA DCR. The Superintendent of the Watuppa Reservation and representatives of the MA DCR have requested NEP to assist them with implementing measures to reduce unwarranted access onto the Watuppa Reservation and Southeastern Massachusetts Bioreserve. NEP has committed to working with these two parties to implement a gates and guardrails program, in attempts to stop or reduce unauthorized access onto these lands.

Intermittent traffic associated with the Bell Rock Substation Rebuild Project construction will occur over the entire construction period. Construction equipment typically will gain access to the area from Bell Rock Road. Because each of the construction tasks will occur at different times and locations over the course of the construction, traffic will be intermittent at these entry roadways. Traffic will consist of vehicles ranging from pick-up trucks to heavy construction equipment to large trailers delivering materials and equipment.

NEP will coordinate with local authorities in Fall River for work on local streets and roads.

Construction Work Hours

NEP will coordinate with local authorities on approved work hours in advance of construction; however construction will generally take place Monday to Saturday during daylight hours (7:00 a.m. to 5:00 p.m.). Certain work activities, including work requiring scheduled transmission line outages, may need to be performed on a limited basis outside of normal working hours.

The nature of the Project construction requires line outages for certain procedures such as transmission line connections, equipment cutovers, or stringing under or over other transmission lines. These outages are dictated by the ISO-NE and can be very limited based on regional system load and weather conditions. Work requiring scheduled outages and crossings of certain transportation and utility corridors may need to be performed on a limited basis outside of normal work hours, including Sundays and holidays.

Prior to the start of construction, NEP will notify (via updates to the project website and emails), municipal officials, MA DCR, the Fall River City Public Works, and the Fall River Police and Fire Chiefs of the details of planned construction including the normal work hours and extended work hours and will obtain written approval from relevant municipal officials for extended work hours, if needed.

12.4 Acushnet to Fall River Reliability Project

The sections that follow describe the general construction stages related to the installation of a new overhead transmission line. Minor substation improvements are also proposed at Eversource's Wing Lane and High Hill Substations. The general sequencing of this substation work will follow those described in Section 12.3.1.

12.4.1 Construction Stages for Transmission Lines

Conventional overhead electric transmission line construction techniques will be used to construct the new transmission line. The work will be completed in a progression of activities that will generally proceed as follows:

1. Removal of vegetation and ROW mowing in advance of construction.
2. Installation of soil erosion and sediment controls.
3. Construction of access roads and access road improvements.
4. Construction of work pads and staging areas.
5. Installation of foundation and structures.

6. Installation of conductor, optical ground wire, and shield wire.
7. Restoration and stabilization of the ROWs.

Each stage of construction is further described below.

Removal of Vegetation and ROW Mowing in Advance of Construction

Mowing and maintenance of the ROW will take place prior to construction by using BMPs outlined in the Companies' VMPs. Along the NEP ROW in Fall River, approximately 60 feet of clearing will be required within NEP's existing easement in order to expand the cleared width of the ROW and accommodate the new transmission line. Clearing will also be required in one span (between proposed Structures 7-8) along the Eversource ROW. The locations of tree removal are shown in the plans provided in Appendix A. The most substantial contiguous area to be cleared is located between the Fall River / Dartmouth town line along the southern portion of the NEP ROW. There are no residential abutters in this area.

Prior to tree removal and mowing, the boundaries of wetlands will be clearly marked to prevent unauthorized vehicular encroachment into wetland areas. Appropriate forestry techniques will be implemented within wetlands to minimize ground disturbance. Other sensitive resources, such as cultural resource features and NHESP state-listed species or priority habitats of rare species, will be flagged and encompassed with protective fencing prior to removal of vegetation on the ROW. Construction mats may be used to gain access to and across forested wetlands, to minimize wetland disturbance, and to provide stable platforms for safe equipment operation.

Tree removal operations, where required, will include the removal of all tall-growing woody species within the targeted areas of the ROW. A danger tree is a tree located either on or off the ROW, which may contact electric lines if it failed or were cut. Hazard trees are danger trees that are structurally weak, broken, damaged, decaying or infested and that could contact the structures or conductors (or violate the conductor clearance zones) if they were to fail and fall towards the ROW. Tall growing trees just outside the maintained ROW edges will be assessed for their potential to damage the transmission lines. To ensure reliability, these "danger and hazard trees" may have to be pruned or removed.

Generally, trees to be removed will be cut close to the ground, leaving the stumps and roots in place, which will reduce soil disturbance and erosion. In locations where grading is required for access road improvements and at structure sites, stumps will be removed. Small trees and shrubs within the ROW will be mowed as necessary with the intent of preserving root systems and low-growing vegetation to the extent practical. Where the ROW crosses streams and brooks, vegetation along the stream bank will be selectively cut to minimize the disturbance of bank soils and the potential for construction-related erosion. Wood chips may be applied to the ground in certain upland areas to serve as a means for soil erosion and sediment control.

Brush, limbs, and cleared trees will be chipped and removed from the site or applied to upland areas as an erosion control measure, with prior approval. Temporary "landing areas" will be established along the ROW to serve as locations to load timber, temporarily stage a wood chipper, and to park tree clearing vehicles and equipment.

In certain environmentally sensitive areas such as wetlands, it may be necessary and desirable to leave felled trees and snags and allow them to decompose in place rather than to disturb soft organic substrates while removing them. Where appropriate, enhancements will be proposed as mitigation for important wildlife features that may be lost as a result of tree removal and construction activities. Potential

enhancement activities may include seeding, planting of native shrub species, and provision of snags, woody debris, and stone piles to create wildlife cover.

Installation of Soil Erosion and Sediment Controls

Following vegetation removal activities, erosion and sediment control devices such as straw bales, straw wattles, siltation fencing, and/or chip bales will be installed in accordance with the Companies' BMP Manuals, and with approved plans and permit requirements. The installation of these sediment control devices will be supervised by the Companies' contractors and will be reviewed by the Companies' respective Construction Supervisors and/or designated environmental monitors. The soil erosion and sediment controls will be installed between the work site and environmentally sensitive areas such as wetlands, streams, drainage courses, roads and adjacent properties when work activities will disturb soils and result in the potential for soil erosion and sedimentation. The devices will function to mitigate construction-related soil erosion and sedimentation and will also serve as a physical boundary to delineate resource areas and to contain construction activities within approved areas.

Construction of Access Roads and Access Road Improvements

Access roads are required along the ROWs to provide the ability to construct, inspect, and maintain the existing transmission line facilities. The Companies are planning to use the existing network of access roads to the greatest extent practicable. In some areas, new access roads are necessary. These roads will be located to avoid or minimize disturbance to water resources to the extent feasible, to follow the existing contours of the land as closely as possible, and where practicable, avoid severe slopes. In addition, access roads will be constructed to avoid significantly altering existing drainage patterns.

Along the ROW, the existing access roads may require some improvements in certain locations to facilitate construction. For example, clean gravel or trap rock may be necessary to stabilize and level the roads for construction vehicles; and stabilized construction entrances may need to be refreshed where the ROW crosses public roadways. Any access road improvements and/or maintenance will be carried out in compliance with the conditions and approvals of the appropriate federal and state regulatory agencies. Exposed soils on access roads will be wetted and stabilized as necessary to suppress dust generation during construction. Crushed stone aprons/tracking pads will be used at all access road entrances to public roadways to clean the tires of construction vehicles and minimize the migration of soils off-site.

To the extent possible, new access roads have been carefully sited outside wetlands and other sensitive areas. However, in certain locations along the AFRRP, permanent access across wetland resource areas will be required to perform the necessary structure installations and for future reliable maintenance of the transmission line facilities. New access roads will be established over native soils if practicable; unstable soils may be removed and replaced with imported clean fill material. The permanent access roads will be constructed with gravel or stone underlain by geotextile fabric.

Typical access roads vary in width from 20 to 16 feet wide with a travel lane approximately 16 to 12 feet wide to accommodate the vehicles and equipment needed for construction on the transmission lines. New access roads that are proposed within wetland areas will be reduced in width to 14-feet wide to minimize permanent fill.

Construction of Work Pads and Staging Areas

Work pads will be constructed to provide a safe and level work area for construction equipment to undertake foundation work and structure assembly. Removal of lower growing shrubs and minor grading

may be necessary to create a work pad of approximately 100 feet by 100 feet to 100 feet by 150 feet at each proposed structure location. The work pads may be slightly smaller or larger depending on terrain, equipment, and overall site conditions at each structure location. Upland work pads will be constructed by grading or adding gravel or crushed stone. Once construction is complete, upland work pads (except those located in floodplain and RFA) will remain in place and will be stabilized with topsoil and mulched to allow vegetation to re-establish. In wetlands, these work pads will be constructed with temporary construction mats and will be removed after the completion of construction activities.

Installation of Foundations and Structures

The proposed transmission line structures include a combination of structure types including steel H-frame and monopole structures. Excavation for direct embedment structures will be performed using a soil auger or standard excavation equipment depending on field conditions. Excavations will range from approximately 10 to 20 feet in depth, with diameters typically between five and a half and eight feet. A steel casing will be placed vertically into the hole and backfilled. The poles will be field assembled and inserted by cranes into the embedded steel casings. The annular space between the pole and the steel casing will then be backfilled with crushed stone.

Steep structures on concrete foundations will typically be drilled piers (also known as drilled caissons), 10 feet in diameter and 15 to 30 feet in depth, depending on the height and load conditions for the structure. Caissons will be constructed by drilling a vertical shaft, installing a steel reinforcing cage, placing steel anchor bolts, pouring concrete, and backfilling as needed. Structures will be lifted by a crane and placed onto the anchor bolts.

Excavated material will be temporarily stockpiled next to the excavation; however, this material will not be placed directly into resource areas. If the stockpile is in close proximity to wetlands, the excavated material will be enclosed by staked straw bales or other sediment controls. Additional controls, such as watertight mud boxes, will be used for saturated stockpile management in work areas in wetlands (i.e., construction mat platforms) where sediment-laden runoff would pose an issue for the surrounding wetland. Following the backfilling operations, excess soil will be spread over unregulated upland areas or removed from the site in accordance with the Companies' policies and procedures.

Dewatering may be required during the foundation installation. Groundwater pumped from an excavation would be discharged to an upland area if there is adequate vegetation to function as a filter medium. Where conditions are not adequate for infiltration, the dewatering waters would be pumped into a sediment filter bag within a straw bale/silt fence corral (basin) located within an upland area or a construction mat. The basin and all accumulated sediment would be removed following dewatering operations and the area would be restored, as needed.

Rock that is encountered during foundation excavation will generally be removed by means of drilling with rock coring augers rather than a standard soil auger. This method allows the same drill rig to be used and maintains a constant diameter hole. However, in some cases, rock hammering and excavation may be used to break up the rock.

Installation of Conductor, Optical Ground Wire, and Shield Wire

Following the construction of transmission line structures, insulators will be installed on the structures. The insulators isolate the energized power conductors from the structure. OPGW, shield wire, and power conductors will then be installed using stringing blocks and wire stringing equipment. The wire stringing equipment is used to pull the conductors from a wire reel on the ground through stringing blocks attached

to the structures to achieve the desired sag and tension condition. During the stringing operation, temporary guard structures or boom trucks will be placed at road and highway crossings and at crossings of existing utility lines. These guard structures are used to ensure public safety and uninterrupted operation of other utility equipment by keeping the wire away from other utility wires and clear of the traveled way at these crossing locations.

Construction of temporary wire stringing and pulling sites will be required to provide a level work space for equipment and personnel or to establish remote wire stringing set-up sites at angle points in the transmission line and at dead-end structures.

Restoration and Stabilization of the ROWs

Restoration efforts, including removal of construction debris, final grading, stabilization of disturbed soil, and installation of permanent sediment control devices (water bar/diversion channel/rock ford), will be completed following construction. All disturbed areas around structures and other graded locations will be seeded with an appropriate conservation seed mixture and/or mulched to stabilize the soils in accordance with applicable regulations. Temporary sediment control devices will be removed following the stabilization of disturbed areas. Existing walls and fences will be restored. Where authorized by property owners, permanent gates and access road blocks will be installed at key locations to restrict access onto the ROWs by unauthorized persons or vehicles. Regulated environmental resource areas that are temporarily disturbed by construction will be restored in accordance with applicable permit conditions to pre-construction conditions.

12.4.2 Construction Details

Details are described in the sections below about logistics that the Companies will require their contractors to adhere to during construction of the AFRRP.

Construction Traffic

Intermittent traffic associated with AFRRP construction will occur over the entire construction period. Construction equipment typically will gain access to the ROWs from public roadways crossing the ROWs in various locations along the route. Because each of the construction tasks will occur at different times and locations over the course of the construction, traffic will be intermittent at these entry roadways. Traffic will consist of vehicles ranging from pick-up trucks to heavy construction equipment to large trailers delivering poles.

The work over Route 140 will require a MassDOT access permit to work within the state highway roadways for the crossing of the state highway with utility lines. The Companies and their contractors will coordinate closely with MassDOT to develop acceptable traffic management plans for work within the state highway layout. The AFRRP's impacts relative to MassDOT are associated with the installation of overhead wires across state roadways. The installation could temporarily affect traffic flow of the roadway but does not involve physical modifications to the roadway or roadway ROW. Traffic Management Plans will be developed and submitted to MassDOT for review and approval prior to the start of construction. The Companies will comply with all required measures to ensure a safe environment for traffic flow and construction crews in and around the roadways.

The Companies will also coordinate with local authorities in the municipalities of Acushnet, New Bedford, Dartmouth and Fall River for work on local streets and roads and will file with the towns to the extent necessary for required grand of location applications for wire crossings across the town-owned

roads. At locations where construction equipment must be staged in a public way, the contractors will follow a pre-approved work zone traffic control plan with appropriate police details.

Construction Work Hours

Typical construction work hours for the AFRRP are proposed to be from 7:00 a.m. to 5:00 p.m. Monday through Friday and from 9:00 a.m. to 5:00 p.m. on Saturdays, when daylight and weather conditions allow. Some work tasks such as concrete pours and transmission line stringing, once started, must be continued through to completion and may go beyond normal work hours. If blasting is required for foundation construction, the hours for that operation are generally limited as dictated by the local Fire Marshall or other local officials. In addition, the nature of transmission line construction requires line outages for certain procedures such as transmission line connections, equipment cutovers, or stringing under or over other transmission lines. These outages are dictated by the system operator, ISO-NE, and can be very limited based on regional system load and weather conditions. Work requiring scheduled outages and crossings of certain transportation and utility corridors may need to be performed on a limited basis outside of normal work hours, including Sundays and holidays.

12.5 Typical Construction Equipment

Typical construction equipment that will be used for the Bell Rock Substation Rebuild Project and the AFRRP are identified in Table 12-1 by construction phase.

TABLE 12-1 TYPICAL CONSTRUCTION EQUIPMENT

CONSTRUCTION PHASE	TYPICAL EQUIPMENT REQUIRED	
Vegetation Removal and ROW Mowing	• Grapple trucks • Track-mounted mowers • Chippers • Log forwarders • Brush hogs, skidders • Bucket trucks	• Motorized tree shears • Chain saws • Box trailers • Low-bed trailers, flatbed trucks • Bulldozers, excavators • Pickup trucks
Soil Erosion/Sediment Controls	• Stake body trucks • Pickup and other small trucks	• Small excavators • Trencher
Access Roads Improvement and Maintenance	• Dump trucks • Bulldozers • Excavators • Backhoes • Front end loaders • Graders	• 10-wheel trucks with grapples • Cranes • Pick-up trucks • Low-bed trailers • Stake body trucks
Removal and Disposal of Existing Components	• Cranes • Flatbed trucks • Pullers with take-up reels • Excavators • Vacuum trucks	• Backhoes • Trucks with welding equipment • Dump truck • Storage containers

CONSTRUCTION PHASE	TYPICAL EQUIPMENT REQUIRED	
Installation of Structures and Foundations	• Backhoes • Bulldozers • Front-end loaders • ATVs • Tracked carriers or skidders • Concrete trucks • Excavators • Rock drills mounted on excavators or tracked equipment • Cranes	• Cluster drills with truck mounted compressors • Aerial lift equipment • Tractor trailers • Bucket trucks • Large-bore foundation drill rigs • Hand-held equipment such as shovels, pumps, and vibratory tampers • Dump trucks • Generators, air compressors
Conductor and Shield Wire Installation	• Bucket trucks • Puller-tensioners • Conductor reel stands	• Cranes • Flatbed trucks • Pickup trucks • Tracked carriers or skidders
Restoration	• Pickup and other small trucks • Excavators • Backhoes • Bulldozers	• Dump trucks • Tractor-mounted York rakes • Straw blowers • Hydro-seeders

13.0 REGULATORY COMPLIANCE

13.1 Introduction

Sections 13 and 14 describe the measures that have been incorporated into the Bell Rock Substation Rebuild Project and AFRRP design to avoid and minimize environmental impacts to the greatest extent practicable. Where impacts cannot be avoided, appropriate mitigation measures will be implemented. This section provides an overview of the approach to complying with the jurisdictional regulations of state regulatory review agencies. Specific impacts and mitigation measures are presented in previous Sections 4 through 12.

13.2 Bell Rock Substation Rebuild

13.2.1 State Regulations

Section 401 Water Quality Certification

In accordance with the provisions stated in the federal CWA (33 U.S.C. §1341), and the Massachusetts Clean Water Act (M.G.L. c. 21, §26-53) and its implementing regulations (314 CMR 9.00), the Bell Rock Substation Rebuild Project will require an Individual Section 401 Water Quality Certification, primarily due to impacts to wetland resource areas which are tributary to a Class A Public Water Supply and are therefore classified as ORW. An application will be filed with MassDEP for Water Quality Certification review under 314 CMR 9.00. The regulations require the incorporation of all practicable measures for avoiding and minimizing impacts to wetland resource areas. The design of the Bell Rock Substation Rebuild Project meets this standard by avoiding or minimizing adverse impacts as described in this section and Section 5.0. The Bell Rock Substation Rebuild Project's compensatory mitigation package will comply with the mitigation requirements in the Massachusetts CWA.

Massachusetts Wetlands Protection Act

The Bell Rock Substation Rebuild Project will require approvals under the WPA and the implementing regulations at 310 CMR 10.00. This regulatory statute asserts jurisdiction over state-wetland resource areas that include BVW. The Bell Rock Substation Rebuild Project impacts to BVW resource areas require the issuance of an Order of Conditions approving the Substation Project by the Fall River Conservation Commission. A Notice of Intent application will be filed with the Conservation Commission detailing the proposed work, the short-term and long-term impacts, and the proposed mitigation for those impacts. The wetlands review process is focused on how the Bell Rock Substation Rebuild Project and proposed mitigation conform to the performance standards for each affected resource area.

Under the WPA, construction, reconstruction, operation and maintenance of underground and overhead public utilities, the Bell Rock Substation Rebuild Project is permitted as a Limited Project (310 CMR 10.24). The Bell rock Substation Rebuild Project fits this description and will be permitted in accordance with the following conditions as well as any additional conditions deemed necessary by the issuing authoring:

- The issuing authority may require a reasonable alternative route with fewer adverse effects for a local distribution or connecting line not reviewed by the Energy Facilities Siting Council.

- Best available measures shall be used to minimize adverse effects during construction.
- The surface vegetation and contours of the area shall be substantially restored.

The Bell Rock Substation Rebuild Project alternatives are described in Section 3.0; Sections 4.0 through 12.0 address minimization and avoidance measures NEP will use to reduce overall impacts. NEP is committed to working with federal, state and local regulatory agencies and providing an appropriate range of mitigation measures, as discussed further in Section 14.0.

The section below summarizes the Bell Rock Substation Rebuild Project's compliance with the WPA's general performance standards for resource areas impacted by the Project.

Bordering Vegetated Wetland (310 CMR 10.55)

BVW is found throughout the Bell Rock Substation Rebuild Project area. Where BVW occurs, the following WPA general performance standards apply:

- *Where the presumption set forth in 310 CMR 10.55(3) is not overcome, any proposed work in a BVW shall not destroy or otherwise impair any portion of said area.*
- *Notwithstanding the provisions of 310 CMR 10.55(4) (a), the issuing authority may issue an Order of Conditions permitting work which results in the loss of up to 5,000 square feet/ [0.11 acres] of BVW when said area is replaced in accordance with the following general conditions and any additional, specific conditions the issuing authority deems necessary to ensure that the replacement area will function in a manner similar to the area that will be lost:*
    - *the surface of the replacement area to be created ("the replacement area") shall be equal to that of the area that will be lost ("the lost area");*
    - *the ground water and surface elevation of the replacement area shall be approximately equal to that of the lost area;*
    - *the overall horizontal configuration and location of the replacement area with respect to the bank shall be similar to that of the lost area;*
    - *the replacement area shall have an unrestricted hydraulic connection to the same water body or waterway associated with the lost area;*
    - *the replacement area shall be located within the same general area of the water body or reach of the waterway as the lost area;*
    - *at least 75% of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons, and prior to said vegetative reestablishment any exposed soil in the replacement area shall be temporarily stabilized to prevent erosion in accordance with standard U.S. Soil Conservation Service methods; and*
    - *the replacement area shall be provided in a manner which is consistent with all other General Performance Standards for each resource area in Part III of 310 CMR 10.00.*

The Bell Rock Substation Rebuild Project was designed to avoid or minimize adverse impacts as much as possible. However, temporary and permanent impacts to BVW will occur. Unavoidable temporary impacts to BVW will occur in work areas and along access routes during construction. These impacts are primarily associated with the use of stabilization techniques (e.g., construction mats, stabilizing material) which minimize impacts while allowing necessary work within resource areas to occur. Unavoidable

permanent impacts to BVW from the construction of the proposed Bell Rock Substation Rebuild Project will be offset through compensatory mitigation determined in consultation with the City of Fall River Conservation Commission, MassDEP and the USACE.

Wildlife Habitat Evaluation (310 CMR 10.60)

A wildlife habitat evaluation was completed pursuant to 310 CMR 10.60 and the procedures and methods detailed in MassDEP's *Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands*. Requirements for completing wildlife habitat evaluations depend on the type of wetland resource area impacted and the magnitude of impact. As part of the MassDEP Guidance document, two forms are typically used for Wildlife Habitat Evaluations – Attachment A and Attachment B. Attachment A is a "simplified" evaluation generally used for projects with limited resource area impacts. Attachment B is a more detailed evaluation generally used for evaluating projects with larger impacts, project locations within vernal pool habitat, mapped "Habitat of Potential or Statewide Importance" and/or other activities as specified on the Attachment A form. Attachment B evaluations were conducted for the Bell Rock Substation Rebuild Project due to the nature of the Project and the cumulative impacts to jurisdictional resource areas. The wildlife habitat evaluation is presented in Appendix F. The wildlife habitat evaluation acknowledges rare species are found within the Bell Rock Substation Rebuild Project Study Area but there are no adverse effects on wildlife habitat since resource areas will not be substantially reduced in their function to serve as valuable sources of wildlife habitat in an area. Some habitat functions associated with forested wetlands will be permanently altered (trees removed) as a result of the proposed Bell Rock Substation Rebuild Project, but they will be replaced by scrub-shrub habitat.

Massachusetts Stormwater Standards

The Massachusetts Stormwater Management Standards will be applied to the Bell Rock Substation Rebuild Project pursuant to the wetlands regulations (310 CMR 10.00) and the water quality regulations (314 CMR 9.00) relating to stormwater. The Stormwater Standards define performance management standards for development and redevelopment projects. Although minimized to the fullest extent possible, some impervious surfaces are proposed for the Bell Rock Substation Rebuild Project. The stormwater design will be performed in accordance with MassDEP stormwater regulations to accommodate the expanded substation yard, new paved access road within the substation, and new control building.

As discussed in Section 7.0, a post-construction stormwater management system has been designed for a low-use site incorporating the *Stormwater Management Standards* outlined in the *Massachusetts Stormwater Handbook*. Stormwater within the substation drains to an ORW and NEP has taken into account this critical resource area in the substation design. The access into the substation will be limited to routine inspections, and maintenance and repair, as necessary. This substation will be an unmanned substation and will be operated and monitored remotely by NEP with routine visual and operational inspections performed by O&M personnel. The stormwater design will include the removal of total suspended solids from runoff, but as described above the substation will not encounter the amount of vehicular oils, salt and sediment that a typical public road or large-scale development would encounter.

Massachusetts Endangered Species Act

NEP has held several pre-application meetings with representatives of the NHESP to review the Bell Rock Substation Rebuild Project. Discussions to date with the NHESP indicate that the Bell Rock Substation can be permitted under the MESA, M.G.L. c. 131A § 3, and 321 CMR 10.18 conditionally upon NEP complying with the mitigation measures established to avoid an incidental take of Eastern box turtles. The NHESP was informed that NEP is seeking approval to rebuild and expand the existing station

in advance of constructing the AFRRP. NEP and the NHESP discussed specific mitigation measures to avoid and minimize impacts to state-listed rare species. The primary mitigation measure is to develop a turtle protection plan to be reviewed and accepted by the NHESP. The preliminary turtle protection plan for the Bell Rock Substation includes: 1) seasonal restriction on tree clearing; 2) turtle training for all construction personnel; 3) radio-telemetry tracking; 3) routine turtle sweeps of the work zone; 4) installation of perimeter exclusion fencing; and 5) regularly scheduled environmental compliance monitoring. A completed MESA Checklist has been filed with the NHESP and is currently being reviewed by the NHESP Project Reviewer. NEP anticipates that the NHESP's approval of the Bell Rock Substation Rebuild Project will include a stipulation that a CMP application be developed for the AFRRP, as outlined in the MESA Checklist filed with the NHESP for that project.

Massachusetts Historical Commission

Any projects that require funding, licenses, or permits from any state agency must be reviewed by MHC in compliance with M.G.L. c. 9, §26-27C. This law provides for MHC review of state projects, State Archaeologist's Permits, the protection of archaeological sites on public land from unauthorized digging, and the protection of unmarked burials. The regulations that guide MHC review of state funded, licensed or permitted projects are contained at 950 CMR 70-71. As noted in 950 CMR 71.04, project review under Section 106 shall ordinarily fulfill the requirements of compliance with the Massachusetts project review requirements.

NEP provided project notification and consulted with the MHC related to potential adverse effects to historic resources, as outlined in M.G.L. c. 9, §26-27C. POWER archaeologists obtained a State Archaeologist's permit prior to conducting field surveys and notified the MHC and State Archaeologist of the results of those investigations. MHC's scope included the entire project APE as described in M.G.L Chapter 9 Section 27C. NEP recognizes the MHC's sole capacity (as stated in M.G.L c. 9 §27B) within the Commonwealth for the administration of the Federal Historic Preservation Act (Title 16, U.S.C., §§470-470N).

13.3 Acushnet to Fall River Reliability Project

13.3.1 State Regulations

Section 401 Water Quality Certification

In accordance with the provisions stated in the federal CWA (33 U.S.C. §1341) and the Massachusetts Clean Water Act (M.G.L. c. 21, §26-53) and its implementing regulations (314 CMR 9.00), the AFRRP will require an Individual Section 401 Water Quality Certification due to impacts to wetland resource areas which are tributary to a Class A Public Water Supply (Copicut Reservoir) and are therefore classified as ORW. Although the placement of temporary construction mats is currently proposed within 400 feet of the Copicut Reservoir, the Companies are not currently anticipating a variance will be required based on preliminary coordination with the MassDEP Office of Water Resources. The Companies will continue discussions with the MassDEP regarding the Project.

An application will be filed with MassDEP for Water Quality Certification review under 314 CMR 9.00. MassDEP evaluation criteria for applications are the incorporation of all practicable measures for avoiding and minimizing impacts to wetland resource areas. The design of the AFRRP avoids or minimizes adverse impacts, as described in this section and Section 5.5. The AFRRP's compensatory mitigation package will comply with the mitigation requirements in the Massachusetts CWA.

Chapter 91 Waterways

As identified above, the Project crosses 20 watercourses, 10 perennial and 10 intermittent. The Companies have evaluated each watercourse to determine suitability for navigation by a kayak or canoe.[51] Based on this evaluation, three watercourses (SD54 (Acushnet River), SD25, and SD25A) were identified as being potentially suitable for navigation.

The Companies performed a file review at the MassDEP Office of Water Resources to obtain any applicable Chapter 91 Licenses for the watercourses traversed by the AFRRP. Eversource has a Chapter 91 License for the existing transmission line (Line 112) crossing of the Acushnet River (License No. 4374, dated October 3, 1960). No other existing Chapter 91 Licenses were found. The Companies will consult with the MassDEP as the transmission line design is finalized and anticipate that, if the work is not exempt, notices of minor modifications will be sufficient to address the new Acushnet River crossing, and other waterways as determined to be navigable and jurisdictional by the MassDEP.

Massachusetts Wetlands Protection Act

The AFRRP will require approvals under the WPA and the implementing regulations at 310 CMR 10.00. This regulatory statute asserts jurisdiction over state-wetland resource areas that have been identified in the AFRRP area, including BVW, RFA, IB, LUW, and BLSF. Project-related impacts to these resource areas require the issuance of an Order of Conditions approving the AFRRP by the Acushnet, New Bedford, Dartmouth, and Fall River Conservation Commissions.. Notices of Intent will be filed with each Conservation Commission detailing the proposed work, the short-term and long-term impacts, and the proposed mitigation for those impacts. The wetlands review process is focused on how the Project and proposed mitigation conform to the performance standards for each affected resource area. In the communities with local wetland bylaws, New Bedford and Dartmouth, the application and hearing process will also address how the AFRRP elements and proposed mitigation measures conform to the requirements of those town bylaws.

In accordance with the limited project provisions of the WPA, as described above, the AFRRP alternatives are described in Section 3.0; Sections 4.0 through 12.0 address minimization and avoidance measures the Companies will use to reduce overall impacts. The Companies are committed to working with federal, state and local regulatory agencies and providing an appropriate range of mitigation measures, as discussed further in Section 14.0.

The sections below summarize the AFRRP's compliance with the WPA's general performance standards for resource areas impacted by the Project.

Inland Bank (310 CMR 10.54)

Where IB is encountered within the Project area, the following applicable WPA general performance standards apply:

- *Where the presumption set forth in 310 CMR 10.54(3) is not overcome, any proposed work on an IB shall not impair the following:*

[51] The determination of suitability for navigation is based rivers/streams meeting the criteria of 1 foot wide and 3 feet deep with a discernable bank, regardless of frequency.

- *the physical stability of the IB;*
- *the water carrying capacity of the existing channel within the IB;*
- *groundwater and surface water quality;*
- *the capacity of the IB to provide breeding habitat, escape cover and food for fisheries; and*
- *the capacity of the IB to provide important wildlife habitat functions.*

Temporary alteration of a small amount of IB will result from the placement of construction mats across stream banks in construction work areas. Using construction mats for this purpose is intended to minimize stream bank impacts by avoiding compaction, bank erosion, and loss of vegetation and will not result in permanent impact to the physical ability of the banks or the water carrying capacity of the existing channels. The use of construction mats will not impact groundwater or surface water or the capacity of the IBs to provide long-term breeding habitat, escape cover, and food for fisheries following construction. Construction mat use will not reduce the capacity of the IBs to provide important wildlife habitat functions, as these areas will be restored after construction is complete.

Bordering Vegetated Wetland (310 CMR 10.55)

BVW is found throughout the Project area. The BVW general performance standards are defined in Section 13.2.1, above.

The AFRRP was designed to avoid or minimize adverse impacts as much as possible. However, permanent fill of BVW will occur as a result of the AFRRP. Unavoidable temporary impacts to BVW will occur in work areas and along access routes during construction. These impacts are primarily associated with the use of stabilization techniques (e.g., construction mats, stabilizing material) which minimize impacts while allowing necessary work within resource areas to occur. Unavoidable impacts to BVW from the construction of the AFRRP will be offset through compensatory mitigation determined in consultation with the municipal Conservation Commissions and other applicable regulatory agencies.

Land Under Water Bodies and Waterways (310 CMR 10.56)

The Project crosses jurisdictional LUW at four locations along its length. LUW is associated with one perennial and two intermittent streams, and one pond within the Project area. Where LUW is encountered, the following applicable WPA general performance standards apply:

- *Where the presumption set forth in 310 CMR 10.56(3) is not overcome, any proposed work within LUW shall not impair the following:*
  - *The water carrying capacity within the defined channel, which is provided by said land in conjunction with the banks;*
  - *Ground and surface water quality;*
  - *The capacity of said land to provide breeding habitat, escape cover and food for fisheries; and*
  - *The capacity of said land to provide important wildlife habitat functions.*

Temporary impacts to LUW have been avoided through the use of construction mats designed to span smaller streams during construction. Therefore, no impacts to LUW are proposed for this Project.

Bordering Land Subject to Flooding (310 CMR 10.57)

Where BLSF is encountered, the following WPA general performance standards apply:

- *Compensatory storage shall be provided for all flood storage volume that will be lost as the result of a proposed project within BLSF, when in the judgment of the issuing authority said loss will cause an increase or will contribute incrementally to an increase in the horizontal extent and level of flood waters during peak flows.*
- *Work within BLSF, including that work required to provide the above-specified compensatory storage, shall not restrict flows so as to cause an increase in flood stage or velocity.*
- *Work in those portions of BLSF found to be significant to the protection of wildlife habitat shall not impair its capacity to provide important wildlife habitat functions. Except for work which would adversely affect vernal pool habitat, a project or projects on a single lot, for which Notice(s) of Intent is filed or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 sf/ [0.11 acres] (whichever is less) or land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat function. Additional alternations beyond the above threshold, or altering vernal pool habitat, may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures contained in 310 CMR 10.60.*

Permanent impacts to BLSF are anticipated as a result of structure installation associated with the AFRRP. As stated above, the Companies will provide compensatory storage for all flood storage volume that will be lost as a result of the permanent fill within BLSF. Temporary impacts to BLSF will be removed at the end of the Project.

Riverfront Area (310 CMR 10.58)

As noted in *Section 5: Wetlands and Wildlife*, ten perennial streams were identified in the AFRRP area. These streams have a jurisdictional 200-foot RFA. Pursuant to 310 CMR 10.58(4), where this 200-foot RFA occurs within the Project area, the following WPA general performance standards apply:

- *Protection of Other Resource Area: The work shall meet the performance standards for all other resource areas within the riverfront area as identified in 310 CMR 10.30 (coastal bank), 10.32 (salt marsh), 10.55 (BVW), and 10.57 (Land Subject to Flooding).*
- *When work in riverfront area is also within the buffer zone to another resource area, the performance standards for the riverfront area shall contribute to the protection of the interests of G.L. c. 131, s. 40 in lieu of any additional requirements that might otherwise be imposed on work in the buffer zone within riverfront area (310 CMR 10.58(4)(a)).*
- *Protection of Rare Species: No project may be permitted within the riverfront area which will have any adverse effect on specified habitat sites of rare wetland or upland, vertebrate or invertebrate species, as identified by the procedures established under 310 CMR 10.59 or 10.37, or which will have any adverse effect on vernal pool habitat certified prior to the filing of the Notice of Intent (310 CMR 10.58(4)(b)).*
- *Practicable and Substantially Equivalent Economic Alternatives: There must be no practicable and substantially equivalent economic alternative to the proposed project with less adverse effects on the interests identified in G.L. c. 131, s. 40. 310 CMR 10.58(4)(c)).*

The AFRRP will result in temporary and approximately permanent impacts to RFA. Permanent impacts in RFA will result from the installation of structures and access roads. Temporary disturbance in RFA

will result from the placement of construction mats to establish stable work and access areas. Stone work pads within the construction work pad footprint will be removed within the RFA and will be loamed and seeded to allow vegetative cover to become reestablished. In this manner, impacts to the functions of the RFA will be minimal. The Companies recognize that maintaining/reestablishing the natural vegetation within the RFA is critical to protecting water supplies, providing flood control, preventing pollution, and protecting wildlife and fisheries habitat.

Portions of the existing Copicut River RFA is currently maintained as a working ROW, with vegetation management conducted routinely and in accordance with an approved Vegetation Management Plan and local, state, and federal law and regulation. However, a portion of the Copicut River RFA along the southern portion of the ROW in Fall River will need to be cleared to accommodate the new transmission line. Once the new line is installed, this area will be maintained in accordance an approved Vegetation Management Plan and local, state, and federal law and regulation.

The AFRRP has considered the RFA performance standards in the following ways:

Protection of Other Resource Areas within RFA: The Project has been designed to minimize impacts to all resource areas on the ROW. Temporary construction mats will be used for access and work space within wetland resource areas. These areas will be restored by removing the construction mats and allowing the area to revegetate.

Protection of Rare Species: Specific mitigation measures recommended by the NHESP are still being evaluated through the consultation process. However, the Companies are committed to minimizing impacts where possible and have committed to the measures discussed in Section 6.2.3.

Due to the extent of tree clearing along the NEP ROW, the Companies anticipate that a CMP will be required under MESA for the eastern box turtle. Mortality avoidance measures will be implemented in other parts of the alignment. Pursuant to 321 CMR 10.23, the application for the CMP will need to demonstrate measures to avoid and minimize impacts to the eastern box turtles and habitat and provide for a “net benefit” for this species. In general, with a suitable mortality avoidance plan in place the activities, particularly in the NEP ROW, will ultimately diversify the habitat for eastern box turtle within the context of vast areas of intact and protected forest lands adjacent resulting in a compelling net benefit for this species.

In addition to avoiding and minimizing species habitat impacts to the maximum extent feasible, the Companies will continue to work closely with NHESP to develop mitigation measures for each species associated with the AFRRP ROW. At this time, proposed mitigation includes, but is not limited to, the following:

- Developing a mitigation program in consultation with the NHESP to allow for the issuance of a CMP.
- Training will be required for all construction personnel.
- Adhering to seasonal restrictions that may be placed by the NHESP for the tree clearing activities.
- Installing signage along the ROW alerting work crews to rare species habitats.
- Installing protective enclosures and exclusion fencing.
- Performing extensive sweeps prior to construction, and monitoring during construction.
- Monitoring of certain species during construction via radio-telemetry.

- Implementing Species-specific protection plans.
- Conducting habitat restoration post-construction.

Long-term operation and maintenance of the AFRRP is not anticipated to have adverse impacts on rare species, as long as the work is completed in compliance with the CMP, and future activities on the ROWs are conducted in accordance with the Companies' Operation and Maintenance Plan as approved by the NHESP.

The plant species associated with the ROW are inhabitants of open canopy, early-successional environments. Work associated with widening of the NEP ROW will not impact any of the associated plant species. In that regard, the access and acute work associated with structure installation will be configured so as to avoid impacts to the areas of mapped (2018) plant occurrences to the extent possible. In the event conflicts are not wholly avoidable, NEP will implement alternative measures that may include air-matting during dormant periods, temporary matting for short duration, translocation/transplantation, or other measures as appropriate.

Practicable and Substantially Equivalent Economic Alternatives: As discussed in Section 3.0, the Companies considered multiple alternatives for the Project, and developed the preferred alternative, which has been designed to avoid and minimize impacts to sensitive resource areas. Unavoidable impacts to the RFA from the construction of the AFRRP will be offset through compensatory mitigation determined in consultation with the municipal Conservation Commissions and other applicable regulatory agencies.

No Significant Adverse Impact: The existing vegetative cover will be preserved to the maximum extent feasible. In accordance with 301 CMR 10.58(4)(d)1.a, temporary impacts where necessary for installation of linear site-related utilities are allowed, provided the area is restored to its natural conditions. The temporary disturbance to the RFA from the placement of construction mats to establish work areas and access routes will be removed and restored back to vegetated areas. Stone work pads within the RFA will also be removed upon completion of construction.

In accordance with 301 CMR 10.58(4)(d)1.b, stormwater will be managed according to standards established by MassDEP in its Stormwater Policy. All dewatering and stormwater management will be conducted in accordance with the Companies dewatering and stormwater policies regarding protected waters as well as site inspections and monitoring reports. Discharge and/or disposal of groundwater encountered during installation of structure supports will be in accordance with applicable local and state requirements, as necessary, and the USEPA Dewatering General Permit, as applicable. The Companies will submit SWPPPs for the Project for compliance with USEPA's NPDES program under the Stormwater Construction General Permit. The SWPPPs will establish construction contact lists, descriptions of the proposed work, and will identify stormwater controls, spill prevention, and inspection practices to be implemented for the management of construction-related stormwater discharges from the Project.

Wildlife Habitat Evaluation (310 CMR 10.60)

Wildlife habitat evaluation was completed pursuant to 310 CMR 10.60 and the procedures and methods detailed in MassDEP's *Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands* for the Fall River portion of the AFRRP. Pursuant to the requirements for completing wildlife habitat evaluations depending on the type of wetland resource area impacted and the magnitude of impact, Attachment B evaluations were conducted for the Project due to the nature of the Project and the cumulative impacts to jurisdictional resource areas. The wildlife habitat evaluation is presented in Appendix J. Some habitat

functions associated with forested wetlands will be permanently altered as a result of tree clearing associated with the Project; however, they will be replaced by the increasingly scarce scrub-shrub habitat. Consequently, the proposed Project will not result in a significant adverse impact or impairment, or reduce the capacity of the RFA to provide important wildlife habitat functions.

Massachusetts Department of Transportation

The Companies will need to acquire an access Permit from MassDOT for the crossing over Route 140 with utility lines. The AFRRP impacts relative to MassDOT are associated with the installation of overhead wires across state roadways by a non-municipal utility. The installation could temporarily affect traffic flow of the roadway but does not involve physical modifications to the roadway or state highway layout. The Companies will work with MassDOT and develop a Traffic Management Plan with complete details of scope of work prior to the start of AFRRP construction. The Companies will comply with all required measures to ensure a safe environment for traffic flow and construction crews in and around the roadways.

Massachusetts Endangered Species Act

Eversource and NEP have attended multiple pre-application meetings with representatives of the NHESP to review the AFRRP. A completed MESA Checklist has been filed with the NHESP and is currently being reviewed by the NHESP Project Reviewer. The NHESP's preliminary determination is that this Project would result in a "take" of the Eastern Box Turtle and a potential "incidental take" of the Eastern Whip-Poor-Will primarily due to the extent of tree clearing and habitat conversion from forested habitat to scrub-shrub habitat; although it has been acknowledged that this type of habitat conversion can also provide habitat benefits for these two species. The Companies anticipate that the NHESP will be provided with the appropriate documentation to use their discretion to issue their approval in accordance with M.G.L. c. 131A § 3 and 321 CMR 10.23. whereby the Director may permit the taking of a state-listed species provided that there is a long-term Net Benefit to the conservation of the impacted species. Eversource and NEP will consult with the NHESP with respect to the development of a CMP that outlines the avoidance, minimization and mitigation measures taken to reduce impacts to state-listed species consistent with the CMP performance standards.

Massachusetts Historical Commission

Any projects that require funding, licenses, or permits from any state agency must be reviewed by MHC in compliance with G.L. c. 9, §26-27C. This law provides for MHC review of state projects, State Archaeologist's Permits, the protection of archaeological sites on public land from unauthorized digging, and the protection of unmarked burials. The regulations that guide MHC review of state funded, licensed or permitted projects are contained at 950 CMR 70-71. As noted in 950 CMR 71.04, project review under Section 106 shall ordinarily fulfill the requirements of compliance with the Massachusetts project review requirements.

The Companies provided project notification and consulted with the MHC related to potential adverse effects to historic resources, as outlined in M.G.L. c. 9, §26-27C. PAL obtained a State Archaeologist's permit prior to conducting field surveys and have, or will, notify the MHC and State Archaeologist of the results of those investigations. MHC's scope included the entire project APE as described in M.G.L Chapter 9 Section 27C. The Companies recognize the MHC's sole capacity (as stated in M.G.L c. 9 §27B) within the Commonwealth for the administration of the Federal Historic Preservation Act (Title 16, U.S.C., §§470-470N).

14.0 MITIGATION OVERVIEW

In accordance with G.L. c. 30, Section 61 and 301 CMR 11.12(5), any State Agency that takes Action on a project for which the Secretary requires an EIR shall determine whether the project is likely, directly or indirectly, to cause damage to the environment and shall make a finding describing these effects and confirming that all feasible measures have been taken to avoid or minimize the adverse effects of human activity on the environment.

The development of mitigation measures has become an integral part of the regulatory process and of conservation planning efforts. In general, most state regulations that require mitigation measures do not prescribe the specific mitigation activity that must take place, and mitigation can take many forms. The subsequent sections contain the Companies' proposed mitigation measures. See also the Summary of Impacts and Mitigation Measures for National Grid's portion of the projects including Bell Rock Substation Rebuild and the Fall River portion of AFRRP in Table 14-1 and Eversource's portion of AFRRP are outlined in Table 14-2.

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TABLE 14-1 SUMMARY OF NATIONAL GRID'S PROPOSED MITIGATION MEASURES FOR THE BELL ROCK SUBSTATION REBUILD PROJECT AND THE AFRRP (EXCEPT WHERE OTHERWISE NOTED)

ENVIRONMENTAL PARAMETER / ACTIVITY	SUMMARY OF MITIGATION MEASURES	IMPLEMENTA-TION SCHEDULE / PHASE	RESPONSIBLE PARTY
General	NEP will hire qualified professional as an Environmental Compliance Monitors and require that the contractor designate Construction Supervisors. The Construction Supervisor(s) will supervise construction and operations and will be responsible for site compliance with permit conditions; monitoring on-site conditions; and maintenance of mitigation measures. The Environmental Monitor(s) will observe work within wetlands, rare species habitat and conduct restoration/replication monitoring. Per existing NEP Policy, Environmental Field Issue (EFI) guidelines are developed for all complex construction and maintenance projects. At a minimum, the EFI will include the locations of sensitive areas to be avoided, a summary of all permit requirements, detailed erosion and sediment control plans, and training requirements/documentation. All contractors and environmental monitors are required to participate in EFI training before beginning work on the Project. In accordance with a schedule specified in the EFI, regular construction progress meetings will provide the opportunity to reinforce the contractor's awareness of these matters.	Construction, Long-term	NEP
Vegetation Removal	NEP will implement standard industry forestry practices during tree clearing and vegetation removal. Site-specific forestry means and methods will be implemented where needed to minimize environmental impact. NEP will follow its approved Five-Year Vegetation Management Plan (2014-2018), and its policies for ROW access, maintenance and construction BMPs outlined in *EG-303NE.* Vegetation is maintained around the substation to ensure that it does not impede access or security, or have the potential to fall onto any substation equipment.	Construction, Long-term	NEP
	Creation of additional scrub-shrub wetland habitat along the maintained ROW will represent a long-term positive effect for an assemblage of native wildlife.	Long-Term	NEP

ENVIRONMENTAL PARAMETER / ACTIVITY	SUMMARY OF MITIGATION MEASURES	IMPLEMENTATION SCHEDULE / PHASE	RESPONSIBLE PARTY
Grading, Excavation and Soil Erosion Control	Ground disturbance and site grading will occur in accordance with *Massachusetts Erosion Sediment Control Guidelines for Urban and Suburban Areas.*[1]	Construction	NEP / Contractor
	Prior to construction, a detailed erosion and sediment control plan will be developed and implemented in the field based on site-specific conditions with input from NEP, the designated contractor(s), and environmental consultants. Appropriate erosion and sediment controls will be installed according to the mutually agreed upon plan. All controls will be installed in accordance with *EG-303NE,* which contains guidance policies regarding ROW access, maintenance and construction best management practices. Examples of erosion and sediment controls commonly used for utility work include silt fence, straw bales, straw wattles, filter socks, mulch, water bars, temporary and/or permanent reseeding. Refer to *Appendix C.*	Construction	NEP / Contractor / POWER Engineers
Access Road Improvements	Contractors to comply with *EG-303NE*.	Construction	Contractor
	Install erosion controls, as identified in the erosion and sediment control plan and specified in *EG-303NE*.	Construction	Contractor
	Install stabilized construction entrances on the ROW at public road crossings. Place suitable crushed stone aprons/ramps on geotextile fabric at road entrances to minimize tracking soil onto public streets.	Construction	Contractor
	Use construction mats for access through BVW, across intermittent or small streams (if bridge spans are not viable) and other sensitive areas to minimize compression of soils, rutting, and disturbance of vegetation. Remove construction mats and restore areas, as appropriate, upon work completion.	Construction	Contractor
	Maintain adequate drainage patterns, if required, by installing temporary culverts and riprap lined drainage swales to accommodate equipment crossings of wetlands and watercourses. Remove and restore to previous conditions upon work completion.	Construction	Contractor
Soils Handling/ Management	If necessary, preparation of a plan for handling potentially contaminated soils in accordance with National Grid's *Environmental Guidance Documents (EG-1707 and 1701)* regarding projects at existing substations and excess soil management from construction projects on ROWs.	Construction	NEP
Dewatering/ Stormwater	Discharge and/or dispose of groundwater encountered during construction in accordance with EG303NE, applicable local and state requirements, as necessary, and the USEPA Dewatering General Permit, as applicable.	Construction	Contractor

ENVIRONMENTAL PARAMETER / ACTIVITY	SUMMARY OF MITIGATION MEASURES	IMPLEMENTA-TION SCHEDULE / PHASE	RESPONSIBLE PARTY
	NEP will submit a Stormwater Pollution Prevention Plan (SWPPP) in compliance with USEPA's NPDES program under the Stormwater Construction General Permit. The SWPPP establishes a construction contact list, presents a description of the proposed work, and identifies stormwater controls, spill prevention, and inspection practices to be implemented for the management of construction-related stormwater discharges from the Project. The Bell Rock Substation Rebuild Project post-construction stormwater management system has been designed for a low-use site incorporating the Stormwater Management Standards outlined in the Massachusetts Stormwater Handbook. The substation drains to an ORW and NEP has taken into account this critical resource area in the substation design.	Construction	NEP/ POWER Engineers
Spill Prevention	If a spill occurs, control and minimize the potential effects in accordance with National Grid Environmental Guidance Documents (EG-501MA and EG-502MA) regarding release notification requirements and spill response procedures and notifications.	Construction	Contractor
Air Quality	Deploy dust mitigation measures as described in National Grid's *Environmental Guidance Document EG-303NE* (see *Appendix C),* (e.g., track pads at access points and controls during dry periods).	Construction	Contractor
	NEP requires the use of ultra-low sulfur diesel fuel exclusively in its diesel-powered construction equipment. Any diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of Project construction will either be USEPA Tier 4-compliant or will be retrofitted with USEPA-verified (or equivalent) emission control devices such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine. The Project will comply with MassDEP's Solid Waste and Air Pollution control regulations, pursuant to M.G.L. c.40, s.54.	Construction	Contractor
Streams and Rivers	Use of washed stone where existing access roads crossing stream beds must be improved, (e.g., clean rip-rap or equivalent, rock fords).	Construction	Contractor
	Bridge/span watercourses with temporary construction mats, as necessary, to allow equipment to cross without constraining water flow.	Construction	Contractor
	Maintain adequate separation from watercourses while mixing concrete for structure foundations to avoid impacts to waterbodies.	Construction	Contractor
Wetland Resource Areas	Contractors to comply with National Grid's *Environmental Guidance Document EG-303NE* for all work in or adjacent to wetland resource areas.	Construction	Contractor
	Install temporary construction mats on top of existing vegetation within BVW to establish safe and stable construction work areas/crane pads where necessary.	Construction	Contractor

ENVIRONMENTAL PARAMETER / ACTIVITY	SUMMARY OF MITIGATION MEASURES	IMPLEMENTA-TION SCHEDULE / PHASE	RESPONSIBLE PARTY
	Restore temporarily impacted wetland resource areas to pre-construction configurations and contours to the extent practicable.	Construction	Contractor
	Compensatory mitigation for permanent BVW fill associated with the Project Final plans to be developed in consultation with local conservation commissions and USACE.	Construction, Long-Term	NEP
	Compensatory mitigation which will be determined in consultation with agencies to offset conversion of forested wetlands associated with tree removal.	Long-Term	NEP
Floodplain	Over-excavate with BLSF to maintain existing elevations, or provide compensatory flood storage as mitigation for fill within BLSF. Final plans to be developed in consultation with local conservation commission.	Permitting/Construction	NEP
Rare Species	Implement NHESP-accepted state-listed species mitigation plans to avoid and minimize impacts on rare species. Develop and implement species specific protection plans to be approved by the NHESP. File a Conservation and Management Permit Application with the NHESP seeking an approved Conservation and Management Permit. NEP is committed to minimizing impacts where possible and has committed to the measures discussed in Section 6.	Construction	NEP
	All tree clearing will be completed outside of the breeding season for NHESP identified species for the Bell Rock Substation Project.	Construction	NEP/Contractor
	Vegetation maintenance will be undertaken in accordance with the provisions of NEP's NHESP- approved long-term Operation and Maintenance Plan and National Grid's *Environmental Guidance Document EG-305.*	Construction/Long - Term	NEP
Cultural Resources	Mitigation to be determined in consultation with MHC and USACE, as appropriate.	Pre-Construction	NEP
Traffic	Consult with MassDOT to review proposed plans for overhead crossings (including the use of guard structures). Develop a Transportation Management Plan that addresses impacts and MassDOT concerns to ensure a safe working environment as well as safe passage for highway traffic.	Construction	NEP/POWER Engineers
Public Outreach	Continue to update Project website, submit news releases to local media and local public access channel, as available; establish a toll-free Project hotline; email construction updates; establish email inquiry process; direct mail and "leave behinds" (e.g., fliers, brochures, CDs).	Design & Construction	NEP/ POWER Engineers
	Municipal briefings, project website, toll-free project hotline and dedicated project email.	Design & Construction	NEP/ POWER Engineers
	Implement Construction Communication Plan.	Construction	NEP/ POWER Engineers

Note:
[1] MassDEP. 2003. Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials. Retrieved August 2, 2018 from http://www.mass.gov/eea/docs/dep/water/essec1.pdf.

TABLE 14-2 SUMMARY OF EVERSOURCES'S PROPOSED MITIGATION MEASURES

ENVIRONMENTAL PARAMETER / ACTIVITY	SUMMARY OF MITIGATION MEASURES	IMPLEMENTATION SCHEDULE / PHASE	RESPONSIBLE PARTY
General	Eversource will hire qualified professionals as Environmental Compliance Monitors which will be conducted either internally or by consultants as well as require that the contractor(s) designate a Construction Supervisor. The Construction Supervisor will supervise construction and operations and will be responsible for site compliance with permit conditions; monitoring on-site conditions; and maintenance of mitigation measures. If work occurs in a wetland resource area or an area mapped or otherwise designated as a rare or endangered species habitat, permit conditions may dictate that construction be monitored by a qualified wetland or wildlife specialist. Construction permit documents and guidelines will be developed for the Project. These documents will include the locations of sensitive areas to be avoided, a summary of all permit requirements, detailed erosion and sediment control plans, and training requirements/documentation. All contractors and environmental monitors are required to participate in environmental training before beginning work on the Project. Regular construction progress meetings will be held and provide the opportunity to reinforce the contractor's awareness of these matters.	Construction, Long-term	Eversource
Vegetation Removal	Eversource will follow their approved Five-Year Vegetation Management Plan, current Operation and Maintenance Plan, and construction and maintenance BMPs as outlined in Eversource's *Best Management Practices Manual for Massachusetts and Connecticut (BMP Manual)*.	Construction, Long-term	Eversource
Soil Erosion Controls	Stabilization of ground disturbance and site grading activities will occur in accordance with *Massachusetts Erosion Sediment Control Guidelines for Urban and Suburban Areas.*[1]	Construction	Eversource/ Contractor
	The proper selection of BMPs should take into consideration the project goals, permit requirements, and site-specific information. Once the assessment of the area is made and requirements of the project have been established, all BMPs should be considered and implemented, as applicable. Appropriate erosion and sediment controls will be installed according to the mutually agreed upon plan and Eversource's *BMP Manual* regarding ROW access, maintenance and construction best management practices, examples of erosion and sediment controls commonly used for utility work include preserving existing vegetation, silt fence, straw wattles, hay/straw bales, filter socks, mulch, check dams, temporary and/or permanent reseeding/trench breakers/diversions. Any damage observed must be repaired in a timely matter, at least within 48 hours of observation.	Construction	Eversource/ Contractor/ POWER Engineers
Access Road Improvements	Contractors to comply with Eversource's *BMP Manual*.	Construction	Contractor
	Install erosion controls, as identified in the erosion and sediment control plan and specified in Eversource's *BMP Manual*.	Construction	Contractor

ENVIRONMENTAL PARAMETER / ACTIVITY	SUMMARY OF MITIGATION MEASURES	IMPLEMENTATION SCHEDULE / PHASE	RESPONSIBLE PARTY
	Install stabilized construction entrances on the ROW at public road crossings. Place suitable crushed stone aprons/ramps on geotextile fabric at ROW road entrances to minimize tracking soil onto public streets.	Construction	Contractor
	Where permanent access is not required, use construction mats for access through wetlands, across intermittent or small streams (if bridge spans are not viable) and other sensitive areas to minimize compression of soils, rutting, and disturbance of vegetation (generally no wider than 16 feet when using construction mats). Install elevated construction mat road crossings or "bridges" in locations where the access road is greater than one mat thick. Gaps and/or bridges are to be placed along the access road at intervals no less than 50 feet. Remove construction mats and restore areas, as appropriate, upon work completion.	Construction	Contractor
	Maintain adequate drainage patterns, if required, by installing water bars and riprap lined drainage swales to accommodate equipment crossings of wetlands and watercourses. Remove and restore to previous conditions upon work completion.	Construction	Contractor
Soils Handling/ Management	When polluted/contaminated soil is encountered, it must be handled in accordance with the appropriate regulatory requirements. In addition to the measures discussed above, contaminated soils should be stockpiled on and covered by polyethylene sheeting. Sheeting used to cover the stockpile should be weighted down to prevent the wind migration of contaminated dust.	Construction	Contractor
Dewatering/ Stormwater	In accordance with dewatering and stormwater policies defined in Eversource's *BMP Manual* regarding protected waters as well as site inspections and monitoring reports.	Construction	Contractor
	Discharge and/or dispose of groundwater encountered during installation of structure supports in accordance with applicable local and state requirements, as necessary, and the USEPA Dewatering General Permit, as applicable.	Construction	Contractor
	Eversource will submit Stormwater Pollution Prevention Plan (SWPPP) in compliance with USEPA's NPDES program under the Stormwater Construction General Permit. The SWPPP will establish a construction contact list, present a description of the proposed work, and identify stormwater controls, spill prevention, and inspection practices to be implemented for the management of construction-related stormwater discharges from the Project.	Construction	Eversource/POWER Engineers
Spill Prevention	If a spill occurs, control and minimize the potential effects in accordance with Eversource's *BMP Manual* and Eversource Energy Contractor Rules regarding release notification requirements and spill response procedures and notifications.	Construction	Contractor
Air Quality	Deploy dust mitigation measures as described in Eversource's *BMP Manual,* (e.g., stone to cover soil surface and controls during dry periods).	Construction	Contractor

ENVIRONMENTAL PARAMETER / ACTIVITY	SUMMARY OF MITIGATION MEASURES	IMPLEMENTATION SCHEDULE / PHASE	RESPONSIBLE PARTY
	Eversource will use ultra-low sulfur diesel fuel exclusively in its diesel-powered construction equipment. Any diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of Project construction will either be USEPA Tier 4-compliant or will be retrofitted with USEPA-verified (or equivalent) emission control devices such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine.	Construction	Eversource/Contractor
Streams and Rivers	Coordinate the timing of work to cause the least impacts during the regulatory low flow period under normal conditions or when water/ground is frozen. The United States Army Corps of Engineers defines the low-flow periods for streams which are outlined in Eversource's *BMP Manual.*	Construction	Contractor
	Use of washed stone where existing access roads crossing stream beds (for intermittent streams less than 2-feet wide or braided) must be improved, (e.g., 6-8-inch clean angular stone and clean rip-rap).	Construction	Contractor
	Bridge/span watercourses with temporary construction mats, as necessary, to allow equipment to cross without constraining water flow.	Construction	Contractor
Wetland Resource Areas	Contractors to comply with Eversource's *BMP Manual* for all work in or adjacent to wetland resource areas. Construction within and across wetlands and in proximity to vernal pools should be limited to the extent practicable to avoid working in the periods between April 1st and June 1st.	Construction	Contractor
	Install temporary construction mats on top of existing vegetation within wetlands to establish safe and stable construction work areas/crane pads where necessary and should be inspected daily to ensure that controls are in working order and repairs can occur in a timely manner. Restrict vegetation clearing to the extent possible especially in Vernal Pool areas and eastern box turtle habitats to that required for construction.	Construction	Eversource/Contractor
	Restore wetland resource areas to pre-construction configurations and contours to the extent practicable.	Construction	Contractor
	Compensatory mitigation for permanent BVW fill associated with the construction of the proposed Project and the installation of transmission line structures. Final plans to be developed in consultation with local conservation commissions and USACE.	Construction, Long-Term	Eversource

ENVIRONMENTAL PARAMETER / ACTIVITY	SUMMARY OF MITIGATION MEASURES	IMPLEMENTATION SCHEDULE / PHASE	RESPONSIBLE PARTY
Floodplain	Over-excavate with BLSF to maintain existing elevations, or provide compensatory flood storage as mitigation for fill within BLSF. Final plans to be developed in consultation with local conservation commission.	Permitting/Construction	Eversource
Rare Species	Implement NHESP-accepted state-listed species mitigation plans to avoid and minimize impacts on rare species. Develop and implement species specific protection plans to be approved by the NHESP. File a Conservation and Management Permit Application with the NHESP seeking an approved Conservation and Management Permit. Eversource is committed to minimizing impacts where possible and has committed to the measures discussed in Section 6.	Construction	Eversource
	Vegetation maintenance will be undertaken in accordance with the provisions of Eversource's approved long-term Operation and Maintenance Plan and Five-Year Vegetation Management Plan.	Construction/Long-Term	Eversource
Cultural Resources	Mitigation to be determined in consultation with MHC, Tribal Historic Preservation Officers, and Advisory Council on Historic Preservation, and USACE, as appropriate.	Pre-Construction	Eversource
Traffic	Consult with MassDOT to review proposed plans for overhead crossings (including the use of guard structures). Develop a Transportation Management Plan that addresses impacts and MassDOT concerns to ensure a safe working environment as well as safe passage for highway traffic.	Construction	Eversource
Public Outreach	Continue to update Project websites, submit news releases to local media and local public access channels, as available; establish toll-free Project hotlines; email construction updates; establish email inquiry process; direct mail and "leave behinds" (e.g., fliers, brochures, CDs).	Design & Construction	Eversource
	Abutter contact; Open House events; and municipal briefings.	Design	Eversource
	Implement Construction Communication Plan.	Construction	Eversource

Note:
[1] MassDEP. 2003. Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials. Retrieved August 2, 2018 from http://www.mass.gov/eea/docs/dep/water/essec1.pdf.