

From: [Daniel Nitzsche](#)
To: [Czepiga, Page \(EEA\)](#)
Cc: [Louis Gilli](#)
Subject: MMWEC Structure Replacement Project
Date: Sunday, August 9, 2020 9:35:40 PM
Attachments: [image001.png](#)

Dear Ms. Czepiga,

On behalf of the Proponent, Massachusetts Municipal Wholesale Electric Company, GZA is requesting that you use the information submitted as part of the ENF to inform a determination as to whether the above referenced project can be classified as Routine Maintenance or a Replacement Project as defined at 301 CMR 11.02. Therefore, we are requesting an advisory opinion to determine the appropriate review status of the submitted ENF documents.

The project is truly a replace in-kind and no expansion of the facility use and the access road work will not expand beyond the roadway footprint.

Thank you for your consideration of this request, and if you have any questions, please don't hesitate to contact me.

Sincerely,
Dan

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Senior Consultant

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*** Please note: Our office is currently working remotely. I can be reached at 413-478-0946**

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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: MMWEC Structure Replacement		
Street Address: Between Randall Road and Center Street		
Municipality: Ludlow	Watershed: Chicopee and Connecticut	
Universal Transverse Mercator Coordinates: 293803.17N, 4675601.19W and 289284.30, 4675389.41	Latitude: 42.20539 to 42.20228 Longitude: 72.50226 to 72.44765	
Estimated commencement date: Sept 1, 2020	Estimated completion date: December 2020	
Project Type: Electric Utility	Status of project design: 100 %complete	
Proponent: Massachusetts Municipal Wholesale Electric Company		
Street Address: 327 Moody Street		
Municipality: Ludlow	State: MA	Zip Code: 01056
Name of Contact Person: Dan Nitzsche		
Firm/Agency: GZA	Street Address: 1350 Main St.	
Municipality: Springfield	State: MA	Zip Code: 01103
Phone: 413-726-2108	Fax:	E-mail: daniel.nitzsche@gza.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 301 CMR 11.09) Yes No
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)?
11.03 (3)(b)(1)(c) greater than 1,000 SF of ORW
11.03 (3)(b)(1)(d) greater than 5,000 SF of BVW or IVW
Which State Agency Permits will the project require?
401 Water Quality Certificate
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: **N/A**

Summary of Project Size & Environmental Impacts	Existing	Change	Total
LAND			
Total site acreage	137		
New acres of land altered			
Acres of impervious area	0	0	0
Square feet of new bordering vegetated wetlands alteration		12,600, all temporary for matting	
Square feet of new other wetland alteration		8,500, Riverfront Area	
Acres of new non-water dependent use of tidelands or waterways		0	
STRUCTURES			
Gross square footage	0		0
Number of housing units	0		0
Maximum height (feet)	0		0
TRANSPORTATION			
Vehicle trips per day	0		0
Parking spaces	0		0
WASTEWATER			
Water Use (Gallons per day)	0		0
Water withdrawal (GPD)	0		0
Wastewater generation/treatment (GPD)	0		0
Length of water mains (miles)	0		0
Length of sewer mains (miles)	0		0
<p>Has this project been filed with MEPA before? <input type="checkbox"/> Yes (EEA # _____) <input checked="" type="checkbox"/> No</p>			
<p>Has any project on this site been filed with MEPA before? <input type="checkbox"/> Yes (EEA # _____) <input checked="" type="checkbox"/> No</p>			

GENERAL PROJECT INFORMATION – all proponents must fill out this section

PROJECT DESCRIPTION: See attached NOI Project Description.

Describe the existing conditions and land uses on the project site: **The site is an active utility line right of way that has vegetation management activities and periodic replacement, repairs, and upgrades, as needed.**

Describe the proposed project and its programmatic and physical elements: **The replacement structures will be started and completed as one structure at a time within the ROW. Most structures will include work pads made of timber mats and access through wetlands will include mats to prevent unnecessary soil compaction or vegetation removal.**

NOTE: The project description should summarize both the project's direct and indirect impacts (including construction period impacts) in terms of their magnitude, geographic extent, duration and frequency, and reversibility, as applicable. It should also discuss the infrastructure requirements of the project and the capacity of the municipal and/or regional infrastructure to sustain these requirements into the future.

Describe the on-site project alternatives (and alternative off-site locations, if applicable), considered by the proponent, including at least one feasible alternative that is allowed under current zoning, and the reasons(s) that they were not selected as the preferred alternative: **No alternative exists for this project because the work is on existing structures that cannot be relocated or realigned to reduce work in wetlands.**

NOTE: The purpose of the alternatives analysis is to consider what effect changing the parameters and/or siting of a project, or components thereof, will have on the environment, keeping in mind that the objective of the MEPA review process is to avoid or minimize damage to the environment to the greatest extent feasible. Examples of alternative projects include alternative site locations, alternative site uses, and alternative site configurations.

Summarize the mitigation measures proposed to offset the impacts of the preferred alternative: Mitigation is not needed as the impacts are all temporary and the in-kind replacement of the utility structures and restoration will naturally occur when the mats are removed from wetland resources. **To avoid unnecessary soil compaction or loss of vegetation the project will use of timber mats. Mitigation is not necessary because the mats will be removed within the 30-day time frame required by regulation and agency guidance. Replacing the structure poles in the same location also avoids unnecessary impacts to wetlands.**

If the project is proposed to be constructed in phases, please describe each phase: The utility structure replacement is a mobile construction scenario that will work at one of two structures at a time and move to the next structures in a linear pattern. **Phasing is not needed to minimize environmental effects on wetlands. Each structure will be replaced one at a time and the wetlands will be protected during the work.**

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/nhosp/regulatory_review/priority_habitat/priority_habitat_home.htm)

Yes (Specify _____) 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 _____) No

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? Yes ___ No; if yes, identify the ORW and its location. **Springfield Reservoir, Center Street Ludlow, MA**

(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? Yes ___ No; if yes, identify the water body and pollutant(s) causing the impairment: **Stony Brook for E.coli and turbidity.**

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? ___ Yes 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: **The existing sheet flow patterns will be maintained and no concentration of stormwater is proposed. The project does not propose a point source discharge in a wetland or it's Buffer Zone; therefore, compliance with the stormwater standards is not required.**

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? No; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Remedial Action Outcome classification): **N/A**

Is there an Activity and Use Limitation (AUL) on any portion of the project site? Yes ___ No ; 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 ; if yes, please describe: _____

SOLID AND HAZARDOUS WASTE: N/A

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:

(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 ___; if yes, please consult state asbestos requirements at <http://mass.gov/MassDEP/air/asbhom01.htm>

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

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.
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.
- 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.
- 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.
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).
6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).
7. List of municipal and federal permits and reviews required by the project, as applicable.

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 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:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Footprint of buildings	<u>0</u>	<u> </u>	<u>0</u>
Internal roadways	<u>11</u>	<u> </u>	<u>11</u>
Parking and other paved areas	<u>0</u>	<u> </u>	<u>0</u>
Other altered areas	<u>108</u>	<u> </u>	<u>108</u>
Undeveloped areas	<u>18</u>	<u> </u>	<u>18</u>
Total: Project Site Acreage	<u>137</u>	<u> </u>	<u>137</u>

B. Has any part of the project site been in active agricultural use in the last five years?
 Yes No; 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; 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 ; 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; 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; 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 ; if yes, describe:

III. Consistency

A. Identify the current municipal comprehensive land use plan
Title: **The Town of Ludlow Master Plan** Date **December 2011**

B. Describe the project's consistency with that plan with regard to:
1) economic development **The project will support economic development by providing the needed electricity.**
2) adequacy of infrastructure **The project is to maintain electric transmission infrastructure.**
3) open space impacts **N/A, no loss of open space and the ROW is a source of local passive recreation use.**
4) compatibility with adjacent land uses **The ROW use is compatible with**

adjacent land uses as it does not reduce the use of adjacent land or adversely affect that land.

- C. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA)
RPA Unknown

Title: _____ Date _____

- D. Describe the project's consistency with that plan with regard to: **See above**
- 1) economic development _____
 - 2) adequacy of infrastructure _____
 - 3) open space impacts _____

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))? ___ 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**? ___ 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)? ___ 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)? ___ Yes ___ No. If yes,
1. Have you consulted with the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP)? ___Yes ___No; if yes, have you received a determination as to whether the project will result in the "take" of a rare species? ___ Yes ___ 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
 3. Which rare species are known to occur within the Priority or Estimated Habitat?
 4. Has the site been surveyed for rare species in accordance with the Massachusetts Endangered Species Act? ___ Yes ___ No
 4. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? ___ Yes ___ 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:

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))? **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**? **Yes** ___ No; if yes, specify which permit:

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)? **Yes** ___ No; if yes, has a Notice of Intent been filed? **Yes** ___ No; if yes, list the date and MassDEP file number: **6/27/20, No number yet**; 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: **The use of timber mats will be temporary, and the areas will return to pre-construction conditions following the work.**

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:

<u>Coastal Wetlands</u>	<u>Area (square feet) or Length (linear feet)</u>	<u>Temporary or Permanent Impact?</u>
Land Under the Ocean	0	
Designated Port Areas	0	
Coastal Beaches	0	
Coastal Dunes	0	
Barrier Beaches	0	
Coastal Banks	0	
Rocky Intertidal Shores	0	
Salt Marshes	0	
Land Under Salt Ponds	0	
Land Containing Shellfish	0	
Fish Runs	0	
Land Subject to Coastal Storm Flowage	0	
<u>Inland Wetlands</u>		
Bank (lf)	0	
Bordering Vegetated Wetlands	12,600	temp for mats
Isolated Vegetated Wetlands	0	
Land under Water	0	
Isolated Land Subject to Flooding	0	
Bordering Land Subject to Flooding	0	
Riverfront Area	8,500	temp. for mats

D. Is any part of the project:

1. proposed as a **limited project**? ___ Yes **No**; if yes, what is the area (in sf)? ___
2. the construction or alteration of a **dam**? ___ Yes **No**; if yes, describe:

3. fill or structure in a **velocity zone** or **regulatory floodway**? ___ Yes **No**
4. dredging or disposal of dredged material? ___ Yes **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)? **Yes** ___ No
6. subject to a wetlands restriction order? ___ Yes **No**; if yes, identify the area (in sf):
7. located in buffer zones? **Yes** ___ No; if yes, how much (in sf) **20,400**

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 **No**; if yes, what is the area (sf)?

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? ___ Yes **No**; if yes, is there a current Chapter 91 License or Permit affecting the project site? ___ 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:

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)?

C. For non-water-dependent use projects, indicate the following:

Area of filled tidelands on the site: _____

Area of filled tidelands covered by buildings: _____

For portions of site on filled tidelands, list ground floor uses and area of each use:

_____ Does the project include new non-water-dependent uses located over flowed tidelands?

Yes ___ No ___

Height of building on filled tidelands _____

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 ___ 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 ___ 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 ___ No;

(NOTE: If yes, then the project will be subject to Public Benefit Review and Determination.)

G. Does the project include dredging? ___ Yes ___ 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 **No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **water supply**? ___ Yes **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:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
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:

	<u>Permitted Flow</u>	<u>Existing Avg Daily Flow</u>	<u>Project Flow</u>	<u>Total</u>
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 **No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ___ Yes **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):

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Discharge of sanitary wastewater	_____	_____	_____
Discharge of industrial wastewater	_____	_____	_____
TOTAL	_____	_____	_____

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
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:

	<u>Permitted</u>	<u>Existing Avg Daily Flow</u>	<u>Project Flow</u>	<u>Total</u>
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):

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
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 **X** No; 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:

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:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
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?

	<u>Roadway</u>	<u>Existing</u>	<u>Change</u>	<u>Total</u>
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____

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

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; 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 ___ No; if yes, generally describe:

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:

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 **X No**; 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:

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:

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**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? ___ Yes **No**; 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:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
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**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? ___ Yes **No**; 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:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
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 **X** **No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**? ___ Yes **X** **No**; 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:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
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:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
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** ___ No; if yes, attach correspondence. **We submitted a PNF.** For project sites involving lands under water **N/A**, 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**; 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**; if yes, does the project involve the destruction of all or any part of such archaeological site? ___ Yes **No**; if yes, please describe:

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:

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:

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) The Register (Date) August 5, 2020

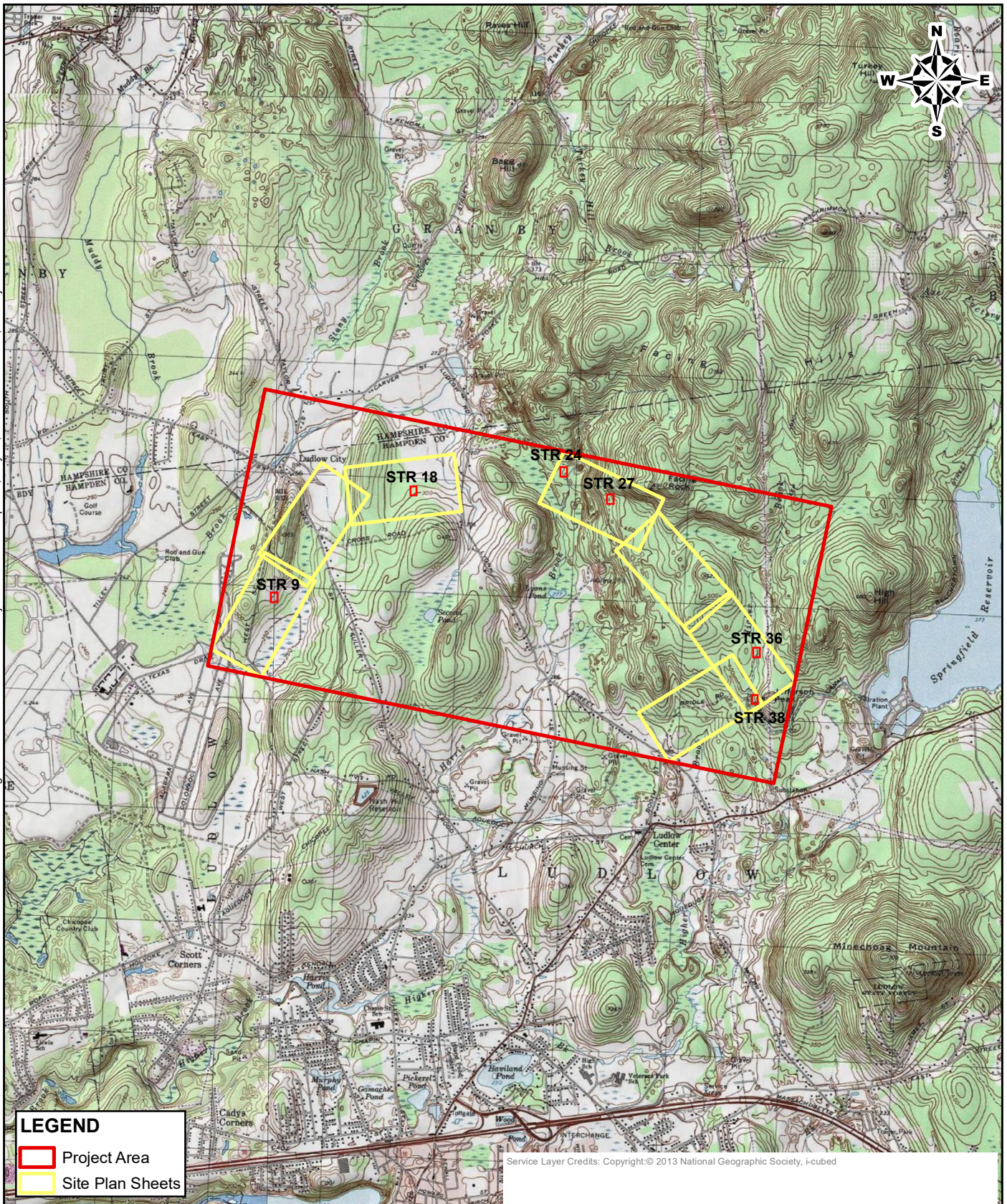
2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

Signatures:

<u>7/29/20</u>	<u>Daniel M. Nitzsche</u> for Louis Gilli	<u>7/29/2020</u>	<u>Daniel M. Nitzsche</u>
Date	Signature of Responsible Officer or Proponent	Date	Signature of person preparing ENF (if different from above)

<u>Louis Gilli</u>	<u>Daniel Nitzsche</u>
Name (print or type)	Name (print or type)
<u>MMWEC</u>	<u>GZA GeoEnvironmental, Inc.</u>
Firm/Agency	Firm/Agency
<u>356 Moody St</u>	<u>1350 Main St., STE 1400</u>
Street	Street
<u>Ludlow/MA/01056</u>	<u>Springfield/MA/ 01103</u>
Municipality/State/Zip	Municipality/State/Zip
<u>413-308-1259</u>	<u>413-726-2108</u>
Phone	Phone

© 2020 - GZA GeoEnvironmental, Inc. J:\0 166800 - 0 166899\15.0166832.00 MMWEC Welland Delineation and Permitting - Seven Structures\GIS\mxd\Project\USGS\LocusMap.mxd, July 02, 2020 - 11:58:48 AM, walter.jaslanek

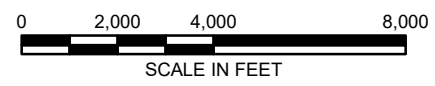


LEGEND

- Project Area
- Site Plan Sheets

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<p>MMWEC STRUCTURE REPLACEMENT PROJECT</p>		<p>PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com </p>		<p>PREPARED FOR: </p>	
<p>USGS TOPO LOCUS MAP</p>		<p>PROJ MGR: DMN</p>	<p>REVIEWED BY: DMN</p>	<p>CHECKED BY: SLL</p>	<p>FIG. 1</p>
		<p>DESIGNED BY: WJ</p>	<p>DRAWN BY: DMN</p>	<p>SCALE: 1 in = 4,000 ft</p>	
		<p>DATE: 07/29/2020</p>	<p>PROJECT NO: 15.0166832.00</p>	<p>REVISION NO:</p>	

Environmental Notification Form

Submitted to the Massachusetts Environmental Policy Act Unit
for

MMWEC Structure Replacement Project

Ludlow, Massachusetts

(Note that due to COVID-19, MEPA Office and State Agencies will receive electronic submittals, per MEPA's instruction – Email address for contact person for each agency provided herein for electronic submitted copies)
(Paper copies as noted in bold)

DISTRIBUTION LIST

Secretary Kathleen Theoharides
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114
MEPA@mass.gov

Department of Environmental Protection
Attention: MEPA Coordinator
One Winter Street
Boston, MA 02108
Helena.boccardo@mass.gov

Department of Environmental Protection
Western Regional Office
Attention: MEPA Coordinator
State House West
436 Dwight Street, 4th Floor
Springfield, MA 01103
Kathleen.fournier@mass.gov

Mass. Department of Transportation
Public/Private Development Unit
10 Park Plaza, Suite 4150
Boston, MA 02116
Lionel.lucien@dot.state.ma.us

Mass. Department of Transportation-District #2
Attn: MEPA Coordinator
811 North King Street
Northampton, MA 01060
Bao.lang@dot.state.ma.us

Massachusetts Historical Commission (**paper copy**)
Attn: Brona Simon
The MA Archives Building
220 Morrissey Boulevard
Boston, MA 02125

Department of Public Health
Director of Environmental Health
250 Washington Street
Boston, MA 02115
DPHtoxicology@state.ma.us

Department of Energy Resources
Attn: MEPA Coordinator
100 Cambridge Street, 10th floor
Boston, MA 02114
Paul.ormond@mass.gov
Brendan.place@mass.gov

Pioneer Valley Planning Commission
60 Congress Street, Floor 1
Springfield, MA 01104-3419
Attn: Kimberly Robinson
krobinson@pvpc.org

Town of Ludlow (**paper copy**)
Board of Selectman
Town Hall, 3rd Floor
488 Chapin Street
Ludlow, MA 01056

Town of Ludlow (**paper copy**)
Planning Board
Town Hall

488 Chapin Street
Ludlow, MA 01056

Town of Ludlow (**paper copy**)
Conservation Commission
Town Hall, 3rd Floor
488 Chapin Street
Ludlow, MA 01056

Town of Ludlow (**paper copy**)
Board of Health
Town Hall, 1st Floor
488 Chapin Street
Ludlow, MA 01056

Town of Ludlow (**paper copy**)
Public Library
24 Center Street
Ludlow, MA 01056

Massachusetts Water Resources Authority (**paper copy**)
Charlestown Navy Yard
100 First Avenue
Boston, MA 02129



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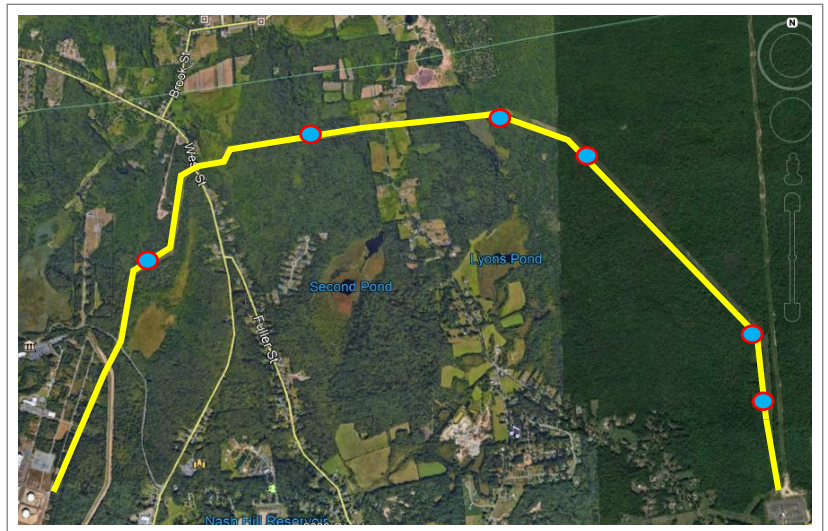


Notice of Intent Application

MMWEC Structure Replacement Project Ludlow, Massachusetts

July 2020

File No. 15.0166832.00



PREPARED FOR:

Massachusetts Municipal Wholesale Electric Company
327 Moody Street
Ludlow, MA 01056

GZA GeoEnvironmental, Inc.

1350 Main Street, Suite 1400 | Springfield, MA 01103
413-726-2100

Offices Nationwide
www.gza.com

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July 17, 2020
GZA File No. 15.0166832.00

Ludlow Conservation Commission
Ludlow Town Hall
488 Chapin Street
Ludlow, MA 01056

**RE: Notice of Intent Application
Massachusetts Municipal Wholesale Electric Company
Structure Replacement Project
Ludlow, MA**

Dear Conservation Commission Members:

On behalf of Massachusetts Municipal Wholesale Electric Company (MMWEC), GZA GeoEnvironmental, Inc. (GZA) is pleased to submit the enclosed Notice of Intent Application for the MMWEC Structure Replacement Project in Ludlow, MA.

MMWEC is proposing to replace six (6) existing electrical transmission structures located within a 5.2-mile electric transmission line right-of-way (ROW) in Ludlow. Work associated with four (4) of the transmission structures is located within wetland jurisdiction under the Massachusetts Wetlands Protection Act (WPA), its companion Regulations (310 CMR 10.00), and the Town of Ludlow Wetlands Protection Bylaw, Chapter XV.

Enclosed is a WPA Form 3-Notice of Intent application and supporting documentation for your review. If you have any questions, please feel free to contact Dan Nitzsche at (413) 726-2108.

Very truly yours,
GZA GeoEnvironmental, Inc.

Daniel Nitzsche, CPESC, CESSWI, SE
Senior Project Manager

Steven Riberdy, MS. PWS, CE, CWB, CERP
Consultant/Reviewer

CC: Louis Gilli, MMWEC
MassDEP – Western Regional Office

Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1194002
City/Town:LUDLOW

A.General Information

1. Project Location:

a. Street Address MMWEC ELECTRIC TRANSMISSION LINE
b. City/Town LUDLOW c. Zip Code 01056
d. Latitude 42.21877N e. Longitude 72.48408W
f. Map/Plat # 8 g.Parcel/Lot # 59

2. Applicant:

Individual Organization

a. First Name LOUIS b.Last Name GILLI
c. Organization MASSACHUSETTS MUNICIPAL WHOLESALE ELECTRIC COMPANY
d. Mailing Address 327 MOODY STREET
e. City/Town LUDLOW f. State MA g. Zip Code 01056
h. Phone Number 413-308-1259 i. Fax j. Email lgilli@mmwec.org

3.Property Owner:

more than one owner

a. First Name b. Last Name
c. Organization MASSACHUSETTS MUNICIPAL WHOLESALE ELECTRIC COMPANY
d. Mailing Address 327 MOODY STREET
e. City/Town LUDLOW f.State MA g. Zip Code 01056
h. Phone Number 413-308-1259 i. Fax j.Email lgilli@mmwec.org

4.Representative:

a. First Name DANIEL b. Last Name NITZSCHE
c. Organization GZA GEOENVIRONMENTAL, INC.
d. Mailing Address 1350 MAIN STREET, SUITE 1400
e. City/Town SPRINGFIELD f. State MA g. Zip Code 01103
h.Phone Number 413-726-2108 i.Fax j.Email daniel.nitzsche@gza.com

5.Total WPA Fee Paid (Automatically inserted from NOI Wetland Fee Transmittal Form):

a.Total Fee Paid 0.00 b.State Fee Paid 0.00 c.City/Town Fee Paid 0.00

6.General Project Description:

MMWEC IS PROPOSING TO REPLACE SIX (6) TRANSMISSION STRUCTURES ALONG A 5.2 MILE RIGHT-OF-WAY (ROW) TRANSMISSION LINE. WORK INCLUDES PLACEMENT OF TIMBER MATS IN WETLANDS AND BUFFER ZONES TO PROVIDE ACCESS AND STABLE WORK AREAS FOR FOUR (4) OF THE SIX STRUCTURES.

7a.Project Type:

- 1. Single Family Home 2. Residential Subdivision
3. Limited Project Driveway Crossing 4. Commercial/Industrial
5. Dock/Pier 6. Utilities
7. Coastal Engineering Structure 8. Agriculture (eg., cranberries, forestry)
9. Transportation 10. Other

Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 MassDEP File #:
 eDEP Transaction #:1194002
 City/Town:LUDLOW

7b. Is any portion of the proposed activity eligible to be treated as a limited project subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. Yes No If yes, describe which limited project applies to this project:

2. Limited 310 CMR 10.53(3)(D): CONSTRUCTION, RECONSTRUCTION, OPERATION AND MAINTENANCE OF Project OVERHEAD UTILITIES. HOWEVER, SINCE WE MEET THE PERFORMANCE STANDARDS, WE ARE NOT REQUESTING THIS PROJECT TO BE REVIEWED AS A LIMITED PROJECT.

8. Property recorded at the Registry of Deeds for:

a. County: b. Certificate: c. Book: d. Page:

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. Buffer Zone & Resource Area Impacts (temporary & permanent):

This is a Buffer Zone only project - Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.

2. Inland Resource Areas: (See 310 CMR 10.54 - 10.58, if not applicable, go to Section B.3. Coastal Resource Areas)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
---------------	-----------------------------	-------------------------------

a. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input checked="" type="checkbox"/> Bordering Vegetated Wetland	12600 1. square feet	12600 2. square feet
c. <input type="checkbox"/> Land under Waterbodies and Waterways	1. Square feet	2. square feet
	3. cubic yards dredged	
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input checked="" type="checkbox"/> Riverfront Area	Higher Brook 1. Name of Waterway (if any)	
2. Width of Riverfront Area (check one)	<input type="checkbox"/> 25 ft. - Designated Densely Developed Areas only <input type="checkbox"/> 100 ft. - New agricultural projects only <input checked="" type="checkbox"/> 200 ft. - All other projects	
3. Total area of Riverfront Area on the site of the proposed project		129680 square feet
4. Proposed Alteration of the Riverfront Area:		

Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 MassDEP File #:
 eDEP Transaction #:1194002
 City/Town:LUDLOW

5300	2100	3200
a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.

5. Has an alternatives analysis been done and is it attached to this NOI? Yes No
6. Was the lot where the activity is proposed created prior to August 1, 1996? Yes No

3.Coastal Resource Areas: (See 310 CMR 10.25 - 10.35)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
---------------	-----------------------------	-------------------------------

a. <input type="checkbox"/> Designated Port Areas	Indicate size under	Land under the ocean below,
b. <input type="checkbox"/> Land Under the Ocean	1. square feet	
	2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes, below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment
f. <input type="checkbox"/> Coastal Banks	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab, crea.
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet	
	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet	

4.Restoration/Enhancement

Restoration/Replacement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please entered the additional amount here.

□ **Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File #:

eDEP Transaction #:1194002

City/Town:LUDLOW

a. square feet of BVW

b. square feet of Salt Marsh

5. Projects Involves Stream Crossings

Project Involves Streams Crossings

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

a. number of new stream crossings

b. number of replacement stream crossings

C. Other Applicable Standards and Requirements

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage of Endangered Species program (NHESP)?

a. Yes No

If yes, include proof of mailing or hand delivery of NOI to:
Natural Heritage and Endangered Species
Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

b. Date of map:AUGUST 2017

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18)...

c. Submit Supplemental Information for Endangered Species Review * (Check boxes as they apply)

1. Percentage/acreage of property to be altered:

(a) within Wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. Assessor's Map or right-of-way plan of site

3. Project plans for entire project site, including wetland resource areas and areas outside of wetland jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

a. Project description (including description of impacts outside of wetland resource area & buffer zone)

b. Photographs representative of the site

c. MESA filing fee (fee information available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/mass-endangered-species-act-mesa/mesa-fee-schedule.html>)

Make check payable to "Natural Heritage & Endangered Species Fund" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

d. Vegetation cover type map of site

e. Project plans showing Priority & Estimated Habitat boundaries

d. OR Check One of the following

1. Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <http://www.mass.gov/eea/agencies/dfg/dfw/laws-regulations/cmr/321-cmr-1000-massachusetts-endangered-species-act.html#10.14>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

□ **Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1194002
City/Town:LUDLOW

2. Separate MESA review ongoing.

a. NHESP Tracking Number

b. Date submitted to NHESP

3. Separate MESA review completed.

Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review...

2. For coastal projects only, is any portion of the proposed project located below the mean high waterline or in a fish run?

a. Not applicable - project is in inland resource area only

b. Yes No

If yes, include proof of mailing or hand delivery of NOI to either:

South Shore - Cohasset to Rhode Island, and the Cape & Islands:

North Shore - Hull to New Hampshire:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 S. Rodney French Blvd
New Bedford, MA 02744

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930

If yes, it may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional office.

3. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

a. Yes No

If yes, provide name of ACEC (see instructions to WPA Form 3 or DEP Website for ACEC locations). **Note:** electronic filers click on Website.

b. ACEC Name

4. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

a. Yes No

5. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L.c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L.c. 130, § 105)?

a. Yes No

6. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

a. Yes, Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol.2, Chapter 3)

2. A portion of the site constitutes redevelopment

3. Proprietary BMPs are included in the Stormwater Management System

Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
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b. No, Explain why the project is exempt:

- 1. Single Family Home
2. Emergency Road Repair
3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department by regular mail delivery.

- 1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site.
2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.
3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s)).
4. Determination of Applicability, Order of Resource Area Delineation, etc., and attach documentation of the methodology.
5. List the titles and dates for all plans and other materials submitted with this NOI.

a. Plan Title: MMWEC STRUCTURE REPLACEMENT PROJECT
b. Plan Prepared By: GZA GEOENVIRONMENTAL
c. Plan Signed/Stamped By:
c. Revised Final Date: 06/18/2020 / 1:200
e. Scale:

- 5. If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. Attach NOI Wetland Fee Transmittal Form.
9. Attach Stormwater Report, if needed.

Massachusetts Department of Environmental Protection
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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #: 1194002
City/Town: LUDLOW

E. Fees

1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

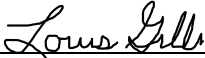

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

1573	7/15/2020
2. Municipal Check Number 1574	3. Check date 7/15/2020
4. State Check Number Daniel	5. Check date Nitzsche
6. Payer name on check: First Name	7. Payer name on check: Last Name

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

 1. Signature of Applicant	7/13/2020 2. Date
3. Signature of Property Owner (if different)	4. Date
 5. Signature of Representative (if any)	7/15/2020 6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a copy of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in Section C, Items 1-3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 3 - Notice of Wetland Fee Transmittal
Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 MassDEP File #:
 eDEP Transaction #:1194002
 City/Town:LUDLOW

A. Applicant Information

1. Applicant:

a. First Name	LOUIS	b. Last Name	GILLI
c. Organization	MASSACHUSETTS MUNICIPAL WHOLESAL E ELECTRIC COMPANY		
d. Mailing Address	327 MOODY STREET		
e. City/Town	LUDLOW	f. State	MA
		g. Zip Code	01056
h. Phone Number	4133081259	i. Fax	
		j. Email	lgilli@mmwec.org

2. Property Owner:(if different)

a. First Name		b. Last Name	
c. Organization	MASSACHUSETTS MUNICIPAL WHOLESAL E ELECTRIC COMPANY		
d. Mailing Address	327 MOODY STREET		
e. City/Town	LUDLOW	f. State	MA
		g. Zip Code	01056
h. Phone Number	4133081259	i. Fax	
		j. Email	lgilli@mmwec.org

3. Project Location:

a. Street Address	MMWEC ELECTRIC TRANSMISSION LINE	b. City/Town	LUDLOW
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Are you exempted from Fee? (YOU HAVE SELECTED 'NO')

Note: Fee will be exempted if you are one of the following:

- City/Town/County/District
- Municipal Housing Authority
- Indian Tribe Housing Authority
- MBTA

State agencies are only exempt if the fee is less than \$100

B. Fees

Activity Type	Activity Number	Activity Fee	RF Multiplier	Sub Total
D.) ELECTRIC GENERATION FACILITY ACTIVITIES;	2	500.00	RFA MULTIPLIER 1.5	1500.00
D.) ELECTRIC GENERATION FACILITY ACTIVITIES;	2	500.00		1000.00
		City/Town share of filing fee	State share of filing fee	Total Project Fee
		\$1,262.50	\$1,237.50	\$2,500.00



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1.0 INTRODUCTION

On behalf of MMWEC, GZA is submitting this Notice of Intent (NOI) application for the replacement of six (6) electric transmission structures located within a 5.2 mile electric transmission line right-of-way (ROW) in Ludlow, MA (Site) including access improvements; however, only four (4) structures are subject to review pursuant to the Massachusetts Wetlands Protection Act (WPA; M.G.L. c. 131 § 40) and its companion regulations (310 CMR 10.00) because either the existing STR is in a wetland, the proposed work pad is in a wetland or a wetland needs to be crossed to gain access to the STR. In addition, the Ludlow Conservation Commission (Commission) has a Wetlands Protection Bylaw (Bylaw) that would also be applicable to the four (4) structures within wetland jurisdiction.

The proposed replacement structures include STR 9, 18, 24, 27, 36, and 38. As a result of MMWEC field inspections, each of the proposed STR replacements have been identified as being a high priority due to deficiencies or damage caused by wildlife and general aging of the components. At this time, the work is not considered an emergency but MMWEC wishes to be proactive and address the replacement/maintenance of these structures as soon as possible. Therefore, work is being planned to begin soon after permits can be issued and within calendar year 2020.

The enclosed NOI application includes a description of the existing site conditions with specific emphasis on the wetland resources present within the work area or within 100 feet of the work area. The enclosed Site Plan sheets 1-7 show the location of the STR work and the limits of wetland jurisdiction on an aerial image base map.

Specifically, work proposed at or as part of the access to four (4) (STRs 9, 18, 24, and 36) of the six (6) STRs being replaced are subject to this NOI application as the replacement of and access to STRs 27 and 38 does not alter land within WPA or Bylaw jurisdiction. Work proposed on STR 36 and 38 is also subject to the MassDEP Water Quality regulations, 314 CMR 9.00, 401 Water Quality Certification because those work areas are within an Outstanding Resource Water (ORW). The Applicant is filing a 401 WQC application separately with MassDEP, although you will receive a copy of that application as well.

2.0 EXISTING CONDITIONS

The Site is a maintained utility ROW that has early successional vegetation and areas of predominantly herbaceous species that are typically managed through a vegetation management plan as may be needed to maintain the ROW. Outside and adjacent to the ROW, the areas are generally forested land, and in some places, residential development is near the ROW. The access roadway within the ROW is typically gravel packed surface that is periodically maintained by the addition of gravel to fill in displaced material.

The ROW also contains regulated wetland resources as defined under the WPA Regulations. Wetlands Scientist from GZA conducted wetland assessments and delineations within the ROW on April 23 and April 24, 2020 under wet, but normal conditions for the time of year. A description of each delineated resource area is provided to support the Commission's understanding of the Site conditions.

2.1 WETLAND RESOURCE AREAS

Our wetland assessment and delineation methodology are consistent with the 1995 Massachusetts Department of Environmental Protection (MassDEP) Handbook titled, *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetland Protection Act*. In addition, GZA reviewed the wetland areas based upon the federal criteria as



outlined by the U.S. Army Corps of Engineers (ACOE) Wetland Delineation Manual (Environmental Laboratory 1987) and the regional supplement for the Northcentral and Northeast regions (ACOE 2012).

The wetland resources observed within the ROW appeared to meet the definitions of Bank, 310 CMR 10.54(2); Bordering Vegetated Wetlands (BVW), 310 CMR 10.55(2); and Riverfront Area (RA), 310 CMR 10.58(2); and Land Under Water Bodies and Waterways (LUWW), 310 CMR 10.56(2). The LUWW resource, although present, was not separately delineated as that resource is under the water below the low water mark. Additionally, we observed four isolated wetlands as defined in the Bylaw. The size of the isolated wetlands that contained water to varying depths between 6-15". The isolated wetland do not have a surface hydraulic connection to other wetlands and based upon a visual estimate these wetlands are not 10,000 square feet in area; therefore, they would not meet the definition of a Pond, 310 CMR 10.04 and they do not hold enough water to qualify as an Isolated Land Subject to Flooding resource, 310 CMR 10.57(2)(b). Table 1 shows the wetland resource areas within the ROW that are associated within the proposed STR replacement work or may be necessary to place mats within or cross a portion of the wetland to access the work areas.

Table 1: Wetland Resources Associated with STR Replacements

STR ID	Wetland ID	Flag Nos	Resource Name(s)	Jurisdiction
9	L, M	L-1 to L-13 and M-1 to M-11	BVW, isolated wetland	MassDEP, Corps, Bylaw
18	F, G, H, I, J	F-1 to F-7; F-50 to F-56; G-1 to G-5; H-1 to H-6; I-1 to I-6; and J-1 to J-5	BVW, isolated wetland	MassDEP, Corps, Bylaw
24	B, C, D, RA	B-1 to B-35; C-1 to C-6; D-1 to D-4; E-1 to E-5; RA-20 to RA-24; RA-30 to RA-33	BVW, Bank, RA, LUWW	MassDEP, Corps, Bylaw
36	A	A-1 to A-13 and A-20 to A-31	BVW, Bank, RA, LUWW	MassDEP, Corps, Bylaw
38	RA	RA-1 to RA-7	RA	MassDEP, Bylaw

2.2 WETLAND DESCRIPTIONS

Wetland A: Flags A-1 through A-13 and A-20 through A-31

These wetland flags bound a portion of a wetland complex associated with Higher Brook, a perennial stream. The demarcated wetland boundary was limited to the wetland boundary within closest proximity of the proposed work for STR 36. The demarcated boundary was the eastern margin of the BVW complex. Contained within the BVW is a Bank and LUWW resource associated with Higher Brook. The limits of the Bank resource appeared to be coincident with the mean annual high water (MAHW) mark of Higher Brook. The MAHW mark begins a 200-foot Riverfront Area that extends landward and parallel to the Bank. The limits of the Bank were estimated based on a review of several aerial images that clearly show the Higher Brook channel.

This wetland is a predominantly an emergent marsh complex with a fringe scrub/shrub community. The predominant wetland vegetation includes tussock sedge (*Carex stricta*), wool grass (*Scirpus cyperinus*), lurid sedge (*Carex lurida*), black elderberry (*Sambucus nigra*), silky dogwood (*Cornus amomum*), and jewelweed (*Impatiens capensis*).



Wetland B: Flags B-1 through B-35

These flags demarcate the boundary of a scrub/shrub BVW complex located eastern south of STR 24. This wetland is on the northern side of the existing access road within the ROW, which is immediately adjacent to the BVW in some section due to the BVW boundary meandering away from and close to the access road.

This wetland is a predominantly a scrub/shrub wetland complex that also has a perennial stream, Harris Brook that intersects the ROW approximately 100 feet east of STR 24. The predominant wetland vegetation includes silky dogwood, black elderberry, glossy buckthorn (*Frangula alnus*), soft rush (*Juncus effuses*), sensitive fern (*Onoclea sensibilis*), and winterberry (*Ilex verticillata*).

Wetland C: Flags C-1 through C-6

These flags demarcate the boundary of an isolated wetland with no surface hydraulic connection to another regulated wetland. The area that has evidence of standing water on tree trunks and an area of limited vegetation indicating periodic ponding indicates the area would not meet the WPA definition of an ILSF resource. However, the isolated wetland would be regulated under the Bylaw. Therefore, this wetland would also include a 25-foot no disturb zone and a 100-foot Buffer Zone.

The predominant but sparsely arranged vegetation includes red maple (*Acer rubrum*) trees and saplings along the margin of the ILSF, jewelweed, and highbush blueberry (*Vaccinium corymbosum*).

Wetland D: Flags D-1 through D-4

These flags demarcate the boundary of a BVW located west of STR 24 and is characterized as a scrub/shrub wetland that has emergent wetland areas complex between STR 23 and 24.

The predominant wetland vegetation includes silky dogwood, highbush blueberry, tussock sedge, winterberry, cinnamon fern (*Osmundastrum cinnamomeum*), and soft rush.

Wetland E: Flags E-1 through E-5

These flags demarcate the boundary of a BVW located northwest of STR 24 and the flagging demarcates the leading portion of the wetland that is barely within the ROW but continues off the ROW as a forested wetland complex. The portion in the ROW is a scrub/shrub wetland. The predominant wetland vegetation includes silky dogwood and highbush blueberry.

Wetland F: Flags F-1 through F-7 and F-50 through F-56

These flags demarcate the western and eastern boundary of a BVW complex located between STRs 17 and 18. This wetland is predominantly a scrub/shrub wetland that has portions that are a forested wetland, but the trees are outside of the ROW. Within the ROW is an emergent marsh that is bordered by a shrub species.

The predominant wetland species includes tussock sedge, lurid sedge, fringes sedge (*Carex crinita*), marsh marigold (*Caltha palustris*), soft rush, jewelweed, silky dogwood, and winterberry.

Wetland G: Flags G-1 through G-5; I-1 through I-6; and J-1 through J-5



These flags demarcate the three separate isolated wetlands located west of STR 17 and these wetlands are small in size but contained 6-15" of water at the time of the observations. These wetlands would be too small to qualify as an ILSF resource, but they are potentially regulated under the Bylaw.

Wetland H: Flags H-1 through H-6

These flags demarcate the portion of a forested wetland that is located south of the ROW. The portion of the wetland within the ROW is a mix of shrub and emergent wetland species. The predominant wetland vegetation includes winterberry, silky dogwood, shadblow (*Amelachier canadensis*), swamp dewberry (*Rubus hispida*), sensitive fern, and interrupted fern.

Wetland L: Flags L-1 through L-13

These flags demarcate a BVW complex that is situated in the middle of the ROW and the topography indicates a hydraulic gradient in a southerly direction towards a forested wetland complex located outside of the ROW. Within the ROW the wetland is a shrub and emergent vegetation complex that appears to be managed as part of the ROW vegetation management.

The predominant wetland vegetation includes winterberry, silky dogwood, sensitive fern, soft rush, jewelweed, and Canada rush (*Juncus canadensis*).

Wetland M: Flags M-1 through M-11

These flags demarcate an isolated wetland that is located east of STR 8 and appears to be generally confined to the access road in a section that appeared relatively level in grade. The compressed soil conditions of the access road may impeded infiltration resulting in surface ponding. We observed a water depth of approximately 2-3" following a period of heavy rain over the previous 72 hours.

This isolated wetland does not have a surface hydraulic connection to other regulated wetlands, although down gradient of this wetland and outside of the ROW it appeared that be a forested wetland complex. The size of this wetland is too small to meet the definition of an ILSF resource. This wetland is expected to be regulated under the Bylaw, but only the Commission can make that determination.

Wetland Functions per 310 CMR 10.01(2)

The wetlands that were demarcated within the ROW share similar functional values and listed in the WPA regulations as "interests" at 310 CMR 10.01(2). There are eight interests of the WPA and the wetland systems in the ROW appear to provide most of those interests including Protection of Wildlife Habitat, Storm Damage Prevention, Groundwater Protection, Protection of Fisheries, Pollution Prevention, Flood Control, and Public Water Supply.

2.3 OTHER RESOURCE AREAS

A review of the MassGIS data layers for other water resources indicates that a portion of the ROW between STRs 36 and 38 is identified as an Outstanding Resource Waters (ORW). An ORW includes Class A public water supplies, their tributaries, and bordering vegetated wetlands; active and inactive reservoirs approved by MassDEP; certain waters within Areas of Critical Environmental Concern (ACEC); and Certified Vernal Pools (CVPs). ORWs are listed in the Surface Water



Quality Standards, 314 CMR 4.00 and require protection. There are no ACECs within the ROW and there are no NHESP-identified CVPs.

A recent review of the MassGIS data layer regarding the FEMA floodplain mapping indicates that a 100-year floodplain is not present where work is proposed.

2.4 RARE SPECIES

A recent review of the MassGIS data layer regarding the Natural Heritage and Endangered Species Program (NHESP) indicates there is no State-listed species within the proposed work areas in the ROW.

2.5 100-YEAR FLOODPLAIN, BORDERING LAND SUBJECT TO FLOODING RESOURCE

A recent review of the MassGIS data layer regarding the FEMA floodplain mapping indicates that a 100-year floodplain is not present where work is proposed.

3.0 PROPOSED WORK

The proposed replacement of five (5) STRs (e.g., 9, 18, 24, 36, and 38) are located within wetland jurisdiction or, at a minimum, the access to the STR is within jurisdiction but the STR replacement itself may be jurisdictional. The work within wetlands is limited to the placement of temporary timber construction mats for access and work pad installation. These work pads provide a safe and stable working platform while replacing the STRs. The use of mats is intended to be temporary and is expected to greatly reduce the potential for long-term impacts in wetlands. The proposed wetland impacts are summarized in Table 2. The following work descriptions outline activities at each STR including access related impacts and estimated E&S controls measures.

3.1 WORK DESCRIPTIONS FOR SIX (6) TRANSMISSION STRUCTURES

1. Work for STR 9: Access to STR 9 is east from Randall St. The existing access road is partially grass covered and section have exposed earth. During field observations in May 2020, we observed several wet areas and two (2) of which are regulated wetlands Wetland L and M. The access road traverses through both wetlands currently, so matting is proposed in these two locations to protect the wetland from equipment impacts.

The access road within Wetland L, located west of STR 6, is approximately 75 feet long and will require mats through a narrow portion of the wetland. A 9" diameter straw wattle is proposed to be placed along both edges of the mats (i.e., 150± LF) to prevent the potential for soil migrating from the mats to the adjacent wetland area during a rain event.

The second wetland crossing to access STR 9 is a small isolated wetland under the Bylaw jurisdiction only and if the conditions are dry the wetland is within a firm section of the access road and matting may not be needed. However, 30 LF of mats may be needed depending on the site conditions when the work occurs. If matting is selected, a 9" diameter straw wattle shall be placed along both edges of the mats (i.e., 60± LF total).

2. Work for STR 18: Access to STR 18 is east from West Street. The existing access road is an off-ROW gravel woods road that begins to traverse a wetland at approximately 370 feet east of West Street. The wetland crossing is interrupted by upland "islands" within the wetland complex. The wetland segments will be matted (4,500 SF). If the site is experiencing wet conditions a review of the access roadway prior to mobilization will be conducted to select the appropriate materials for crossing the upland areas that were observed to be saturated during the spring season.



Each side of the matted wetland crossing in proximity of Cross Brook (400 LF) will have a triangular sediment barrier similar to that made by Triangular Silt Dike™ and placed on top of and along the edge of the mats in the wettest location of the access road or roughly 250 LF.

In addition, the access road to STR 18 must traverse another wetland (Wetland F) located between STRs 17 and 18, which will require approximately 450 LF of mats to traverse the wetland system. The section of mats will include a triangular silt barrier placed on top of the mats for approximately 900 LF.

3. Work for STR 24: Access to this STR from Bridal Road and is an existing maintained gravel road. The access roadway section from STR 27 to STR 24 is planned to be improved with new gravel and grading of eroded areas in the road. The road section planned for additional gravel material is predominantly outside of wetland jurisdiction. However, the section of the access road within 900 feet east of STR 24 is located within wetland jurisdiction (Wetland J). The access road has a gravelly mix on the surface and there are areas of erosion in the road. The access road between STRs 27 and 24 will be maintained with additional gravel placed on the road.

If wet conditions are expected during construction, a pre-mobilization review will be conducted to assess the proper means of crossing the wetland upland complex. Mats will be used if conditions are too wet to avoid rutting, soil displacement or compaction, and potentially erosion concerns.

Located east of STR 24 a stream (e.g., Harris Brook) traverses the hard surface of the access road. The crossing did not have a defined channel or bank as the stream crosses the road. At the stream crossing, the width of the MAHW appeared to be 35 feet based on the maximum lateral extent of water observed on April 23, 2020, which may be more of a function of the road use causing the stream bed to spread out wider than the upstream and downstream reaches of the channel. The bank full width observed in the undisturbed and adjacent forested area was estimated to be 15-22 feet wide. Harris Brook will be crossed using a timber mat bridge over the channel to prevent an interruption or impediment to regular flow in the channel.

With an elevated mat bridge at this crossing, we do not anticipate that sedimentation controls will be needed on either side of this stream crossing unless work is conducted under wet conditions that could track sediment onto the mat bridge. The use of a triangular sediment dike device will be implemented if wet conditions exist during the work in this area. The device will be placed on top of and along the north and south edges of the mat bridge. Additional straw wattles are proposed along the access to the work pad between the mat bridge and STR 24.

Because of the proximity of the wetland along the northern side of the access road, a 12" diameter straw wattle, staked on the northern edge of the road where the wetland is closest to the road in three (3) locations; totaling approximately 240 LF. Although the work is also within the Buffer Zone to an isolated wetland regulated under the Bylaw, the land is higher between the road and the isolated wetland, thus topographically protecting the wetland, so sedimentation controls are not proposed in this area.

4. Work for STR 27: Access to this STR is from Bridal Road and no wetlands are in the vicinity of this STR; therefore, no erosion or sediment controls are needed. The existing gravel access will be used to access STR 27 and the work area will be a gravel base and generally within the existing access road.

5. Work for STR 36: Access to this structure is from an existing gravel access that begins at the northern end of Bridal Road. The access from Bridal Road to the ROW is a gravel covered surface and although wetlands are in a few discreet places along the road and the gravel road surface is expected to remain stable during construction. Therefore, sediment controls are not proposed on this section of the access road.



The working area for STR 36 is partially located within a wetland resources (i.e., BVW and RA) and mats will be used to reduce wetland impacts and provide a safe working platform. The mats will be placed in such a way as to minimize the area of impact within the wetland. The channel of Higher Brook is outside of the proposed mat configuration and no impacts are expected to that resource (i.e., Bank and LUWW).

After installation of the mats a silt dike device will be placed along the top edge of the mats that are within the BVW to reduce inadvertent sediment migration from the mats towards the wetland during construction. The access road in the vicinity of STR 36 is gravel covered and should act as a construction entrance to reduce the transportation of sediment from the site onto the mats. The portion of the mats that lies outside of the BVW is located within the RA (partially degraded) and the Buffer Zone to the BVW.

Based on the configuration of the mats approximately 150 LF of silt dike will be placed along the top edge of the mats and 260 LF of 12" diameter straw wattle staked on the ground in the upland area where the mats are placed including along the access road west of STR 36. These larger wattles are proposed to demonstrate the Applicant's commitment to preventing inadvertent impacts within the ORW in this area. The site is generally stabilized with a gravel surface, outside of the BVW complex. The work being conducted on mats eliminates permanent wetland impacts and the STR poles will be replaced in the same holes as the existing poles because of load dynamics and engineering protocols, this replacement is required to within the same footprint as the existing three-pole STR.

The work at this STR will not result in the displacement of soil other than the removal of the poles because the rest of the work area will be covered by mats and the work access is on an existing gravel surfaces.

6. Work for STR 38: Access to this structure is from Bridal Road near STR 37. A small isolated wetland is located immediately south of STR 37 where the access road turns south towards STR 38. The existing access road is gravel covered and no work is proposed within wetland jurisdiction near STR 37; therefore, no erosion or sediment controls are proposed.

The access road to STR is gravel covered and no improvements are proposed. The work at STR 38 is located outside of the 200-foot RA associated with Higher Brook. Sediment controls are proposed around the mat platform and are proposed to be 9" diameter straw wattles, which should be adequate for the scope of work in this area, the relatively level grade and firm stable soils. The Applicant is committed to preventing erosion or sedimentation within the ORW zone that encompasses this work area.

Table 2 summarizes the unavoidable and temporary impacts to wetlands that are the result of matting that is proposed to comply with regulatory standards, which support wetland resource protection.

Table 2: Wetland Resource Impact Summary

STR ID	Wetland Resource	Temporary Impact Area (SF)	Activity	Duration
9	BVW, isolated wetland	1,100	Matting for access to STR and for work pad	Less than 30 days
18	BVW	9,900	Matting for wetland crossing to replace STR	Less than 30 days
24	RA	5,300	Matting for work pad and stream crossing	Less than 30 days



36	BVW	1,200	Matting for work pad to replace STR Matting for work pad on degraded RA	Less than 30 days
	RA	<u>3,200</u>		
	ORW	4,800, combined		
38	ORW	2,500	Matting for work pad	Less than 30 days

4.0 REGULATORY COMPLIANCE SUMMARY

4.1 WETLANDS PROTECTION ACT REGULATIONS

This proposed work in resource areas and their adjacent Buffer Zone is unavoidable and to the extent practicable the impacts have been minimized by use of timber mats placed in configurations that prevents unnecessary work in resource areas. The overall project is needed to maintain aging infrastructure and provide reliable power over the transmission lines and prevent the potential for disruptions to the system.

The proposed structure replacement work is designed in accordance with the provisions of the WPA and its implementing regulations, which provide an exemption for utility maintenance activities within a maintained electric ROW under 310 CMR 10.02(2)(a)(2):

"activities conducted to maintain, repair or replace, but not substantially change or enlarge an existing and lawfully located structure or facility used in the service of the public and used to provide electric, gas, water, sewer, telephone, telegraph and other communication services, provided said work utilizes the best practical measures to avoid or minimize impacts to wetland resource areas outside the footprint of said structure or facility."

In accordance with 310 CMR 10.02(2)(a)(2), the work should be considered exempt because the project is for the maintenance of the existing transmission STRs and access roads. MMWEC considers its existing electric transmission structures and its appurtenant hardware (foundation, caissons, counterpoise, gradient rings, etc.) and its existing roads, where the limit/width of its historic access road where evidence of local and/or imported fill has been observed, as a part of its "existing facility". Any activity conducted to maintain, repair and/or replace, but not substantially enlarge this facility, is not subject to jurisdiction under the WPA. The temporary placement of construction mats in Buffer Zone, RA and BLSF to access structures and provide safe work pads is not a substantial change or enlargement of the transmission line facility and therefore exempt.

The wetlands identified throughout the ROW will be further protected from inadvertent impacts due to erosion or sedimentation by installing sediment control measures near work areas to prevent the migration of soil towards the resource areas. The measure will remain in place until the project is complete and the site is deemed stable.

MMWEC is committed to minimizing wetland impacts on any project, so for STR 36 the new STR poles will be placed within the same holes as the existing poles; therefore, new BVW impacts are avoided.

Work within the Buffer Zone is unavoidable due to the location of the proposed replacement structures. However, the work-related ground impacts are minimized using temporary construction matting where practicable to avoid soil compaction, eliminate rutting, and damage to existing vegetation.



4.2 TOWN OF LUDLOW, WETLANDS PROTECTION BYLAW, CHAPTER XV

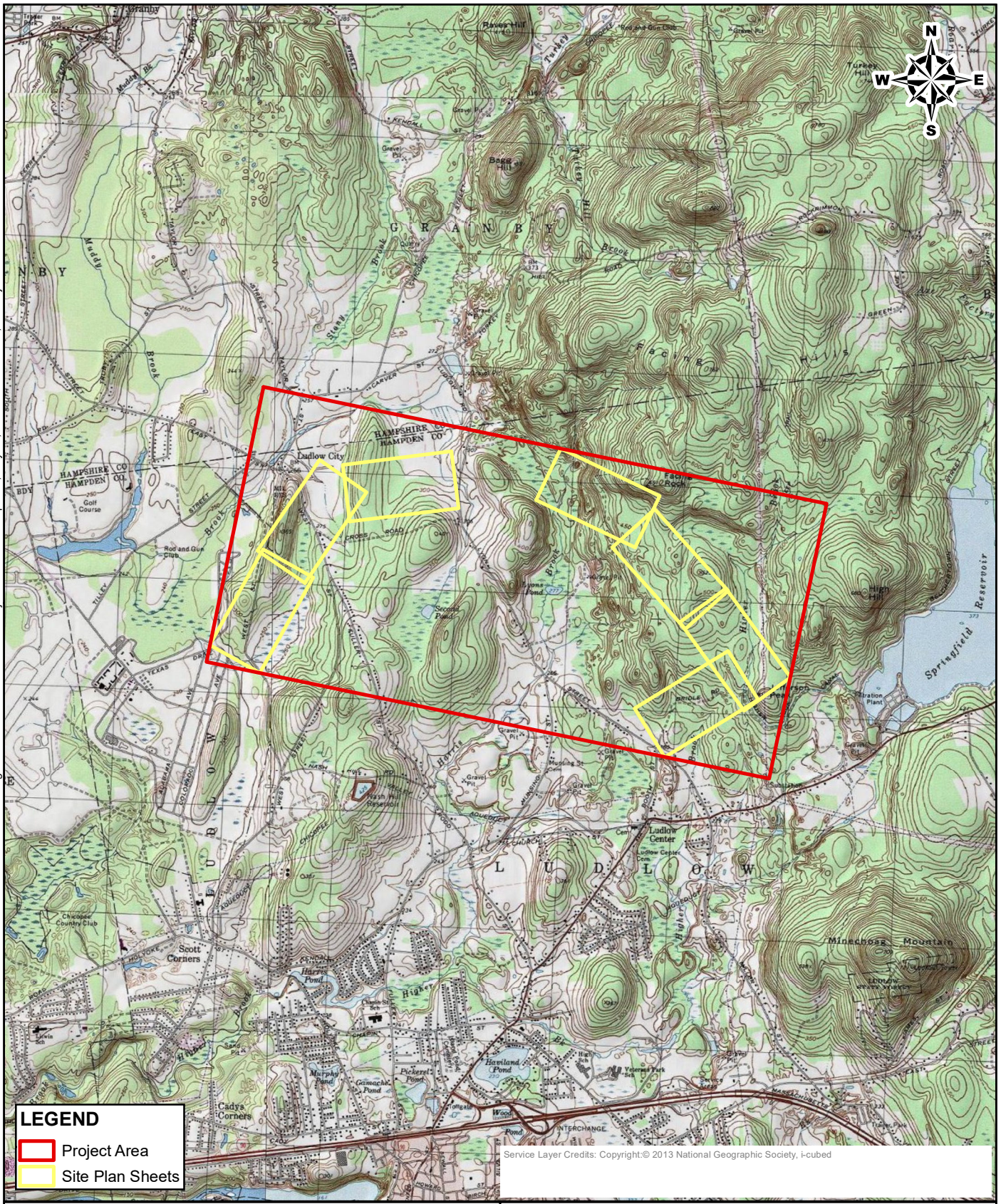
The Bylaw includes similar jurisdiction as the WPA Regulations and, in addition, the Bylaw prohibits work within the 25-foot no disturb zone. However, it is stated in the Bylaw that, “In a case of Public Utilities, where no feasible alternatives exist and no permanent damage will occur to the wetland, the Conservation Commission may at its discretion grant a variance to the 25 foot no disturb zone.”

The proposed work will not result in permanent damage to the wetland and there is no feasible alternative to conducting the work outside of wetlands. The STR replacements have been identified to pose a potential service interruption if the identified STR are not replaced. In addition, if the STR were to become damaged to the point of collapse, the uprooting of the STR could result in avoidable impacts to wetlands.



APPENDIX A
LOCUS MAPS

© 2020 - GZA GeoEnvironmental, Inc. J:\0 166800 - 0 166899\15.0166832.00 MMWEC Welland Delineation and Permitting - Seven Structures\GIS\mxd\Project\USGS\LocusMap.mxd, July 02, 2020 - 11:58:48 AM, walter.jaslanek

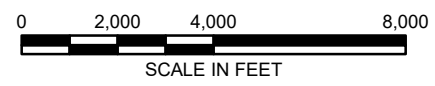


LEGEND

- Project Area
- Site Plan Sheets

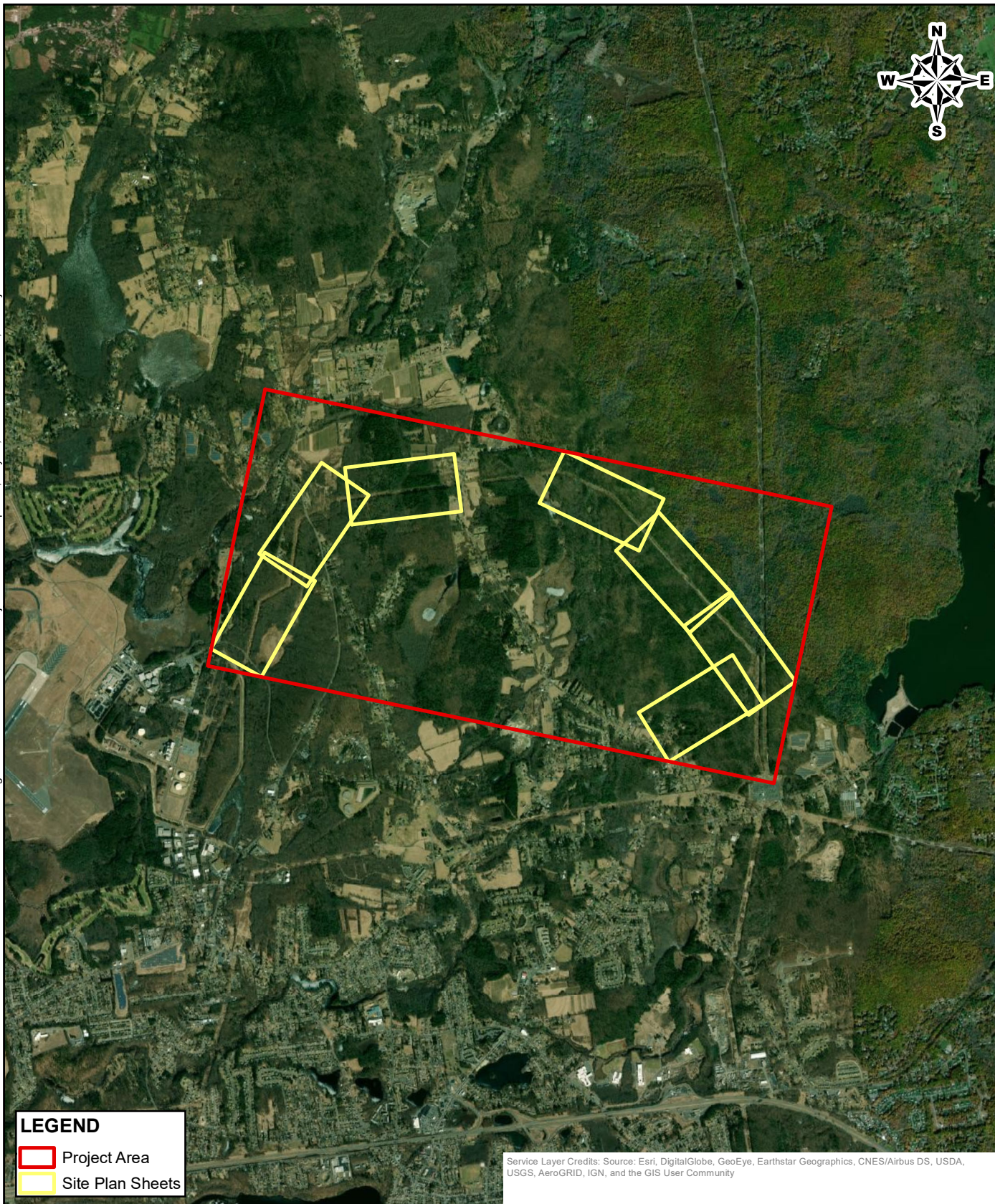
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<p>MMWEC STRUCTURE REPLACEMENT PROJECT</p>		<p>PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com</p>		<p>PREPARED FOR: </p>	
<p>USGS TOPO LOCUS MAP</p>		<p>PROJ MGR: DMN</p> <p>DESIGNED BY: WJ</p> <p>DATE: 07/02/2020</p>	<p>REVIEWED BY: DMN</p> <p>DRAWN BY: WJ</p> <p>PROJECT NO: 15.0166832.00</p>	<p>CHECKED BY: SLL</p> <p>SCALE: 1 in = 4,000 ft</p> <p>REVISION NO:</p>	<p>FIG. 1</p>

© 2020 - GZA GeoEnvironmental, Inc. J:\0 166800 - 0 166899\15.0166832.00 MMWEC Welland Delineation and Permitting - Seven Structures\GIS\mxd\ProjectAerialLocusMap.mxd, July 02, 2020 - 11:58:03 AM, walter.jaslanek

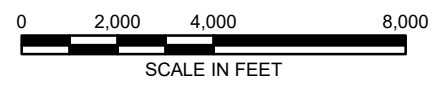


LEGEND

- Project Area
- Site Plan Sheets

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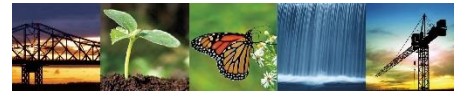


<p>MMWEC STRUCTURE REPLACEMENT PROJECT</p>	<p>PREPARED BY:</p> <p>GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com</p>	<p>PREPARED FOR:</p>
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<p>AERIAL LOCUS MAP</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">PROJ MGR: DMN</td> <td style="width: 50%;">REVIEWED BY: DMN</td> </tr> <tr> <td>DESIGNED BY: WJ</td> <td>DRAWN BY: WJ</td> </tr> <tr> <td>DATE: 07/02/2020</td> <td>PROJECT NO: 15.0166832.00</td> </tr> </table>	PROJ MGR: DMN	REVIEWED BY: DMN	DESIGNED BY: WJ	DRAWN BY: WJ	DATE: 07/02/2020	PROJECT NO: 15.0166832.00	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">CHECKED BY: SLL</td> <td style="width: 50%;">SCALE: 1 in = 4,000 ft</td> </tr> <tr> <td colspan="2">REVISION NO:</td> </tr> </table>	CHECKED BY: SLL	SCALE: 1 in = 4,000 ft	REVISION NO:		<p>FIG. 2</p>
PROJ MGR: DMN	REVIEWED BY: DMN												
DESIGNED BY: WJ	DRAWN BY: WJ												
DATE: 07/02/2020	PROJECT NO: 15.0166832.00												
CHECKED BY: SLL	SCALE: 1 in = 4,000 ft												
REVISION NO:													



APPENDIX B
ABUTTER DOCUMENTATION



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F: 413.732.1249
www.gza.com

July 1, 2020
GZA File No: 15.0166832.00

To: Project Abutters

From: GZA GeoEnvironmental, Inc. (GZA)

Re: Notification of Notice of Intent Application Submission
Massachusetts Municipal Wholesale Electric Company
Structure Replacement Project
Ludlow, MA

Dear Project Abutter:

On behalf of Massachusetts Municipal Wholesale Electric Company (MMWEC), the Applicant, GZA has submitted a Notice of Intent (NOI) application to the Ludlow Conservation Commission for the above-referenced project. The application has been filed for the replacement of select Transmission Structures within wetland resources and their 100-foot Buffer Zone.

Pursuant to the Wetlands Protection Act Regulations, 310 CMR 10.00, and the Town of Ludlow Wetlands Protection Bylaw, all abutters within 100 feet of a specific work area must be notified of the Notice of Intent application (via certified mail, certificate of mailing, or hand delivery).

Information about the time and location of the Public Hearing to discuss this application can be obtained by contacting the Ludlow Conservation Commission (413-583-5600 x1285), located at Ludlow Town Hall, 3rd Floor, 488 Chapin Street. The application is available for review in the Ludlow's Conservation Commission's office between the hours of 8:30 AM and 12:30 PM Monday – Friday, but you should call ahead to arrange for a viewing of the application.

Very truly yours,
GZA GeoEnvironmental, Inc.

Daniel M. Nitzsche, CPESC, CESSWI, SE
Senior Project Manager

Encl: Abutter Notification Form



**Notification to Abutters Under the Wetlands Protection Act and
Ludlow Conservation By-law**

You are hereby notified of the following:

- A. The name of the applicant is: **Massachusetts Municipal Wholesale Electric Company**
- B. The address of the lot where activity is proposed: **Between Randall Road and Center Street.**
- C. The applicant has filed a Notice of Intent with the Conservation Commission of the **Town of Ludlow** seeking permission to perform work within wetland resource areas or areas subject to protection under the Wetlands Protection Act (General Laws 131, Section 40) and the **Ludlow Conservation By-law** or work within the 100' Buffer Zone associated with these protected wetland resource areas.
- C. Copies of the Notice of Intent may be examined at the **Ludlow Town Hall** between the hours of **8:30** and **4:30** on **Mon to Fri**. For more information call: **(413) 583-5621** to confirm potential COVID protection procedures.
- D. Information regarding the date, time, and place of the public hearing for this application, may be obtained from the **Ludlow Conservation Commission** between the hours of **8:30** to **4:30 Wed & Th.** and **8:30** to **2:30** on **Fri**. For more information call: **(413) 583-5621 x 280**.
- E. For more information regarding this notice or where copies of the NOI Application may be obtained, contact:

**GZA GeoEnvironmental, Inc
1350 Main Street, Suite 1400
Springfield, AM 01103
413-746-2100**

Note: Notice of the public hearing, including its date, time, and place, will be published at least 5 days in advance in the following newspaper:

Register

Note: You may also contact your local Conservation Commission or the nearest Department of Environmental Protection Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call:

Western Region: 413-784-1100



APPENDIX C
WETLAND DETERMINATION FORMS

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: MMWEC Electric Transmission ROW City/County: Ludlow Sampling Date: 4/23/2020
 Applicant/Owner: Massachusetts Municipal Wholesale Electric Company State: MA Sampling Point: A-13 UP
 Investigator(s): GZA GeoEnvironmental, Inc. Section, Township, Range: _____
 Landform (hillside, terrace, etc.): valley Local relief (concave, convex, none): concave Slope %: 0
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.206116 Long: -72.448339 Datum: WGS84
 Soil Map Unit Name: Ridgebury fine sandy loam; 3 to 8% slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
---	---

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: A-13 UP

<u>Tree Stratum</u> (Plot size: <u>2800 sf</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>83</u></td> <td>x 2 = <u>166</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 = <u>40</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals <u>118</u> (A)</td> <td><u>281</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.38</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>83</u>	x 2 = <u>166</u>	FAC species <u>25</u>	x 3 = <u>75</u>	FACU species <u>10</u>	x 4 = <u>40</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals <u>118</u> (A)	<u>281</u> (B)	Prevalence Index = B/A = <u>2.38</u>	
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Column Totals <u>118</u> (A)	<u>281</u> (B)																			
Prevalence Index = B/A = <u>2.38</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>700 sf</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																
1. <u>Frangula alnus</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>																	
2. <u>Lonicera tatarica</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. <u>Vaccinium corymbosum</u>	<u>3</u>	<u>No</u>	<u>FACW</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>18</u> =Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.																
<u>Herb Stratum</u> (Plot size: <u>80 sf</u>)																				
1. <u>Rubus hispidus</u>	<u>50</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Phalaris arundinacea</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Solidago canadensis</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>100</u> =Total Cover																				
<u>Woody Vine Stratum</u> (Plot size: <u>2800 sf</u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover																				

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point A-13 UP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/1	100					Loamy/Clayey	Fine Sandy Loam
7-16	10YR 6/4	100					Loamy/Clayey	Sandy Loam

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surface (S7)</p>	<p><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)</p> <p><input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)</p> <p><input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> <p><input type="checkbox"/> Marl (F10) (LRR K, L)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)</p> <p><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)</p> <p><input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)</p> <p><input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
--	--	--

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed):</p> <p>Type: _____ Rock _____</p> <p>Depth (inches): _____ 16 _____</p>	<p>Hydric Soil Present? Yes _____ No <u> X </u></p>
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Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Soil was unable to stay in hand auger due to standing/flowing water.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: MMWEC Electric Transmission ROW City/County: Ludlow Sampling Date: 4/23/2020
 Applicant/Owner: Massachusetts Municipal Wholesale Electric Company State: MA Sampling Point: A-13 WET
 Investigator(s): Gza GeoEnvironmental, Inc. Section, Township, Range: _____
 Landform (hillside, terrace, etc.): valley Local relief (concave, convex, none): concave Slope %: 0
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.206116 Long: -72.448339 Datum: WGS84
 Soil Map Unit Name: Ridgebury fine sandy loam; 3 to 8% slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) _____ Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) <input checked="" type="checkbox"/> Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: A-13 WET

<u>Tree Stratum</u> (Plot size: <u>2800 sf</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">Total % Cover of:</th> <th style="width:50%;">Multiply by:</th> </tr> </thead> <tbody> <tr><td>OBL species <u>25</u></td><td>x 1 = <u>25</u></td></tr> <tr><td>FACW species <u>25</u></td><td>x 2 = <u>50</u></td></tr> <tr><td>FAC species <u>16</u></td><td>x 3 = <u>48</u></td></tr> <tr><td>FACU species <u>0</u></td><td>x 4 = <u>0</u></td></tr> <tr><td>UPL species <u>0</u></td><td>x 5 = <u>0</u></td></tr> <tr><td>Column Totals <u>66</u></td><td>(A) <u>123</u> (B)</td></tr> <tr><td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>1.86</u></td></tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>25</u>	x 1 = <u>25</u>	FACW species <u>25</u>	x 2 = <u>50</u>	FAC species <u>16</u>	x 3 = <u>48</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals <u>66</u>	(A) <u>123</u> (B)	Prevalence Index = B/A = <u>1.86</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>25</u>	x 1 = <u>25</u>																			
FACW species <u>25</u>	x 2 = <u>50</u>																			
FAC species <u>16</u>	x 3 = <u>48</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals <u>66</u>	(A) <u>123</u> (B)																			
Prevalence Index = B/A = <u>1.86</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>700 sf</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Frangula alnus</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>																	
2. <u>Alnus incana</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Acer rubrum</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																	
4. <u>Vaccinium corymbosum</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
<u>Herb Stratum</u> (Plot size: <u>80 sf</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Carex stricta</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>																	
2. <u>Symplocarpus foetidus</u>	<u>5</u>	<u>No</u>	<u>OBL</u>																	
3. <u>Onoclea sensibilis</u>	<u>1</u>	<u>No</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ =Total Cover																				
<u>Woody Vine Stratum</u> (Plot size: <u>2800 sf</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover																				

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point A-13 WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/1	100					Mucky Sand	Mucky mineral

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, **MLRA 149B**)
- Thin Dark Surface (S9) (LRR R, **MLRA 149B**)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, **MLRA 149B**)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____ rock _____
 Depth (inches): _____ 12 _____

Hydric Soil Present? Yes No _____

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: MMWEC Electric Transmission ROW City/County: Ludlow Sampling Date: 4/24/2020
 Applicant/Owner: Massachusetts Municipal Wholesale Electric Company State: MA Sampling Point: F-55 UPL
 Investigator(s): Gza GeoEnvironmental, Inc. Section, Township, Range: _____
 Landform (hillside, terrace, etc.): valley Local relief (concave, convex, none): concave Slope %: 0
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.21866 Long: -72.48539 Datum: WGS84
 Soil Map Unit Name: Ridgebury fine sandy loam; 3 to 8% slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) <u>X</u> Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: F-55 UPL

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>2800 sf</u>)																				
1. <u><i>Pinus strobus</i></u>	<u>10</u>	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B) Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>35</u></td> <td>x 2 = <u>70</u></td> </tr> <tr> <td>FAC species <u>50</u></td> <td>x 3 = <u>150</u></td> </tr> <tr> <td>FACU species <u>15</u></td> <td>x 4 = <u>60</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals <u>100</u> (A)</td> <td><u>280</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.80</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>35</u>	x 2 = <u>70</u>	FAC species <u>50</u>	x 3 = <u>150</u>	FACU species <u>15</u>	x 4 = <u>60</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals <u>100</u> (A)	<u>280</u> (B)	Prevalence Index = B/A = <u>2.80</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>35</u>	x 2 = <u>70</u>																			
FAC species <u>50</u>	x 3 = <u>150</u>																			
FACU species <u>15</u>	x 4 = <u>60</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals <u>100</u> (A)	<u>280</u> (B)																			
Prevalence Index = B/A = <u>2.80</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>10</u> =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>700 sf</u>)																				
1. <u><i>Amelanchier</i></u>	<u>5</u>	No	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Ulmus americana</i></u>	<u>10</u>	Yes	FACW																	
3. <u><i>Frangula alnus</i></u>	<u>15</u>	Yes	FAC																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>30</u> =Total Cover																				
Herb Stratum (Plot size: <u>80 sf</u>)																				
1. <u><i>Osmundastrum cinnamomeum</i></u>	<u>5</u>	No	FACW																	
2. <u><i>Onoclea sensibilis</i></u>	<u>20</u>	Yes	FACW																	
3. <u><i>Rubus idaeus</i></u>	<u>30</u>	Yes	FAC																	
4. <u><i>Rosa multiflora</i></u>	<u>5</u>	No	FACU																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>60</u> =Total Cover																				
Woody Vine Stratum (Plot size: <u>2800 sf</u>)																				
1. _____	_____	_____	_____	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point F-55 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 4/3	100					Loamy/Clayey	Sandy Loam
10-20	7.5YR 5/6	100					Loamy/Clayey	Sandy Loam

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: MMWEC Electric Transmission ROW City/County: Ludlow Sampling Date: 4/24/2020
 Applicant/Owner: Massachusetts Municipal Wholesale Electric Company State: MA Sampling Point: F-55 WET
 Investigator(s): Gza GeoEnvironmental, Inc. Section, Township, Range: _____
 Landform (hillside, terrace, etc.): valley Local relief (concave, convex, none): concave Slope %: 0
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.206116 Long: -72.448339 Datum: WGS84
 Soil Map Unit Name: Ridgebury fine sandy loam; 3 to 8% slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) <u>X</u> High Water Table (A2) _____ Aquatic Fauna (B13) <u>X</u> Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) <u>X</u> Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
---	--

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>10</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>8</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: F-55 WET

<u>Tree Stratum</u> (Plot size: <u>2800 sf</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">Total % Cover of:</th> <th style="width:50%;">Multiply by:</th> </tr> </thead> <tbody> <tr><td>OBL species <u>0</u></td><td>x 1 = <u>0</u></td></tr> <tr><td>FACW species <u>40</u></td><td>x 2 = <u>80</u></td></tr> <tr><td>FAC species <u>40</u></td><td>x 3 = <u>120</u></td></tr> <tr><td>FACU species <u>0</u></td><td>x 4 = <u>0</u></td></tr> <tr><td>UPL species <u>0</u></td><td>x 5 = <u>0</u></td></tr> <tr><td>Column Totals <u>80</u></td><td>(A) <u>200</u> (B)</td></tr> <tr><td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.50</u></td></tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>40</u>	x 2 = <u>80</u>	FAC species <u>40</u>	x 3 = <u>120</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals <u>80</u>	(A) <u>200</u> (B)	Prevalence Index = B/A = <u>2.50</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>40</u>	x 2 = <u>80</u>																			
FAC species <u>40</u>	x 3 = <u>120</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals <u>80</u>	(A) <u>200</u> (B)																			
Prevalence Index = B/A = <u>2.50</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>700 sf</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Amelanchier</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Ulmus americana</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Frangula alnus</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
<u>Herb Stratum</u> (Plot size: <u>80 sf</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Osmundastrum cinnamomeum</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Onoclea sensibilis</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Rubus idaeus</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ =Total Cover				Woody Vine Stratum (Plot size: <u>2800 sf</u>)																
<u>Woody Vine Stratum</u> (Plot size: <u>2800 sf</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover				Remarks: (Include photo numbers here or on a separate sheet.)																

SOIL

Sampling Point F-55 WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/2	100					Loamy/Clayey	Fine Sandy Loam
8-16	2.5Y 4/1	80	7.5YR 5/6	20	C	M	Sandy	Loamy Fine Sand

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (F22)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Dark Surface (S7)					

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

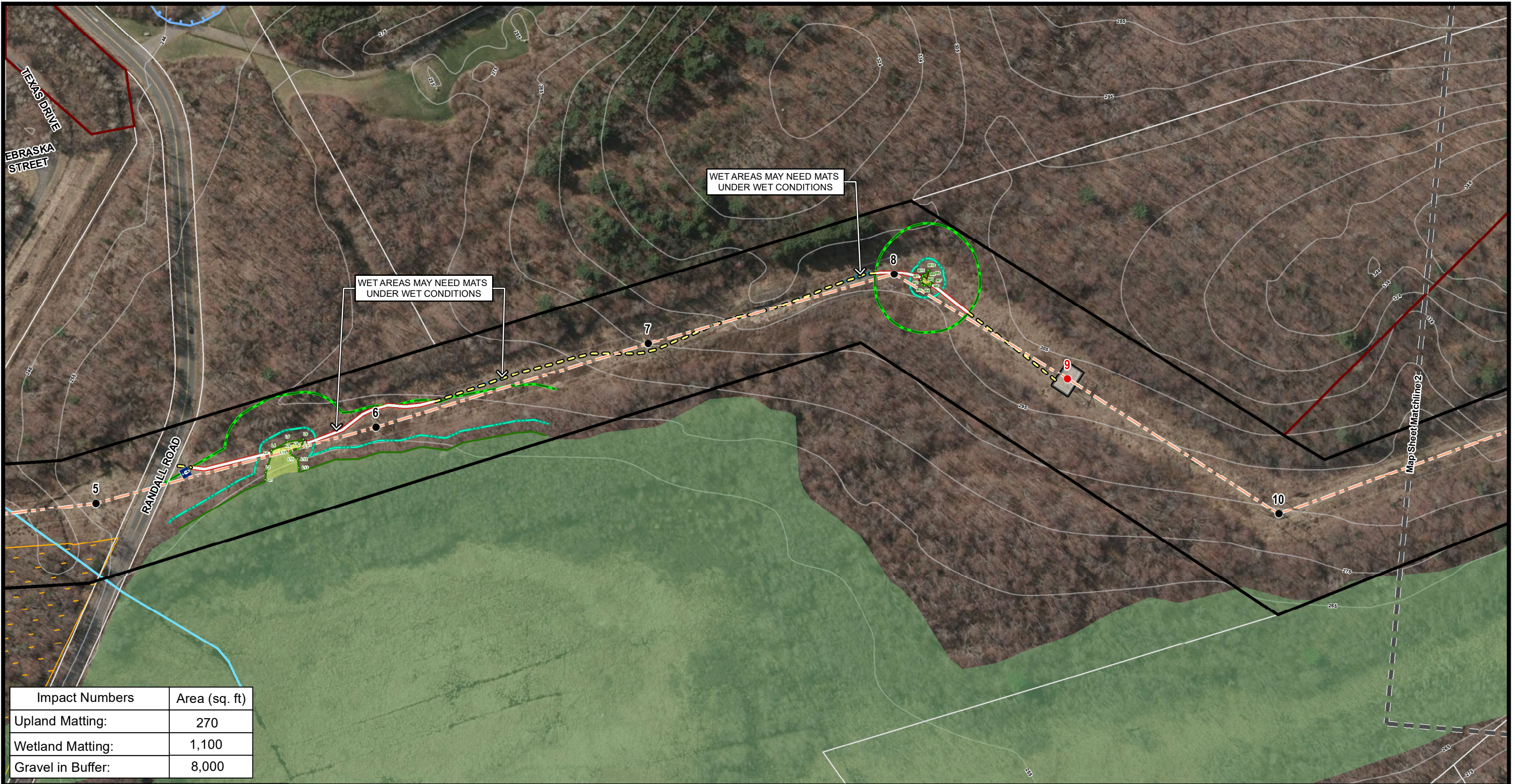
Restrictive Layer (if observed):		Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____ rock _____	Depth (inches): _____ 12 _____	

Remarks:
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

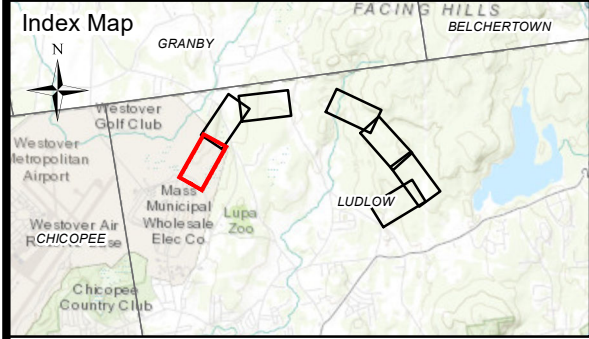


APPENDIX D

SITE PLANS



Impact Numbers	Area (sq. ft)
Upland Matting:	270
Wetland Matting:	1,100
Gravel in Buffer:	8,000



Legend

- Existing Structure
- Existing Structure to be Removed
- Transmission Line
- Existing Access Road
- Access Road to be Improved
- Access Road to be Improved in Regulated Area
- Proposed Alternate Access
- Temporary Upland Construction Matting
- Temporary Wetland Construction Matting
- Construct Gravel Work Pad (unless otherwise noted)
- Existing Work Area
- Stream Span
- Bordering Vegetated Wetland
- Isolated Vegetated Wetland
- Isolated Vegetated Wetland under Bylaw only
- MA DEP Wetlands
- Wet Area
- Wetland Flag
- Watercourse Flag
- Delineated Intermittent Stream
- Delineated Perennial Stream
- Delineated OHW
- Estimated Stream Centerline (not delineated)
- 25 ft Local Buffer
- 100ft Buffer Zone
- 200ft Riverfront Area
- NHESP Priority & Estimated Habitat
- MA Outstanding Resource Waters
- FEMA 100yr Floodzone
- Line List Parcel
- Approx ROW Limits
- State-Owned Property
- Culvert
- Gate
- Map Sheet Matchline
- 10' Contour Line
- 9" Straw Wattle
- 12" Straw Wattle

Map Notes:
 Data valid as of June 2020.
 Basemap: Massachusetts 2019 USGS Color Ortho Imagery. Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs. Parcels downloaded from MassGIS. The information/data provided in this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation or parcel level analysis. The maps should not be used for construction purposes. Figure intended to be printed on 11" x 17".

1 in = 200 ft

0 100 200 Feet

MMWEC STRUCTURE REPLACEMENT PROJECT

LUDLOW MASSACHUSETTS

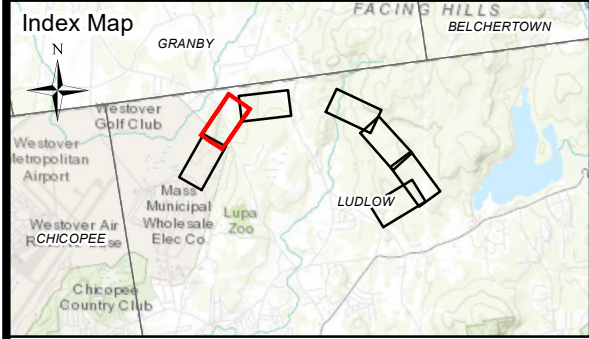
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Impact Numbers	Area (sq. ft)
Upland Matting:	185
Wetland Matting:	4,500



Legend

- Existing Structure
- Existing Structure to be Removed
- Transmission Line
- Existing Access Road
- Access Road to be Improved
- Access Road to be Improved in Regulated Area
- Proposed Alternate Access
- Temporary Upland Construction Matting
- Temporary Wetland Construction Matting
- Construct Gravel Work Pad (unless otherwise noted)
- Existing Work Area
- Stream Span
- Bordering Vegetated Wetland
- Isolated Vegetated Wetland
- Isolated Vegetated Wetland under Bylaw only
- MA DEP Wetlands
- Wet Area
- Wetland Flag
- Watercourse Flag
- Delineated Intermittent Stream
- Delineated Perennial Stream
- Delineated OHW
- Estimated Stream Centerline (not delineated)
- 25 ft Local Buffer
- 100ft Buffer Zone
- 200ft Riverfront Area
- NHESP Priority & Estimated Habitat
- MA Outstanding Resource Waters
- FEMA 100yr Floodzone
- Line List Parcel
- Approx ROW Limits
- State-Owned Property
- Culvert
- Gate
- Map Sheet Matchline
- 10' Contour Line
- 9" Straw Wattle
- 12" Straw Wattle

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1 in = 200 ft

0 100 200 Feet

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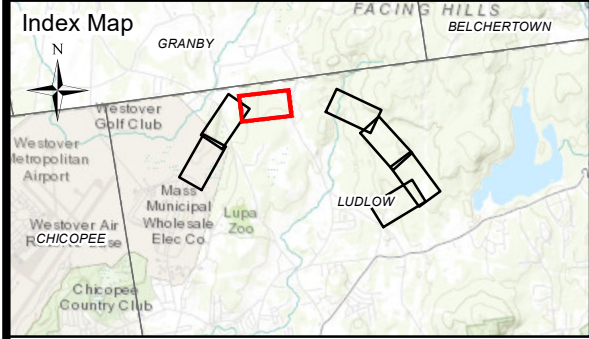
PAGE 2 OF 7

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Impact Numbers	Area (sq. ft)
Upland Matting:	2,400
Wetland Matting:	5,400



Legend

- Existing Structure
- Existing Structure to be Removed
- Transmission Line
- Existing Access Road
- Access Road to be Improved
- Access Road to be Improved in Regulated Area
- Proposed Alternate Access
- Temporary Upland Construction Matting
- Temporary Wetland Construction Matting
- Construct Gravel Work Pad (unless otherwise noted)
- Existing Work Area
- Stream Span
- Bordering Vegetated Wetland
- Isolated Vegetated Wetland
- Isolated Vegetated Wetland under Bylaw only
- MA DEP Wetlands
- Wet Area
- Wetland Flag
- Watercourse Flag
- Delineated Intermittent Stream
- Delineated Perennial Stream
- Delineated OHW
- Estimated Stream Centerline (not delineated)
- 25 ft Local Buffer
- 100ft Buffer Zone
- 200ft Riverfront Area
- NHESP Priority & Estimated Habitat
- MA Outstanding Resource Waters
- FEMA 100yr Floodzone
- Line List Parcel
- Approx ROW Limits
- State-Owned Property
- Culvert
- Gate
- Map Sheet Matchline
- 10' Contour Line
- 9" Straw Wattle
- 12" Straw Wattle

Map Notes:
 Data valid as of June 2020.
 Basemap: Massachusetts 2019 USGS Color Ortho Imagery. Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs. Parcels downloaded from MassGIS. The information/data provided in this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation or parcel level analysis. The maps should not be used for construction purposes. Figure intended to be printed on 11" x 17".

Scale: 1 in = 200 ft

0 100 200 Feet

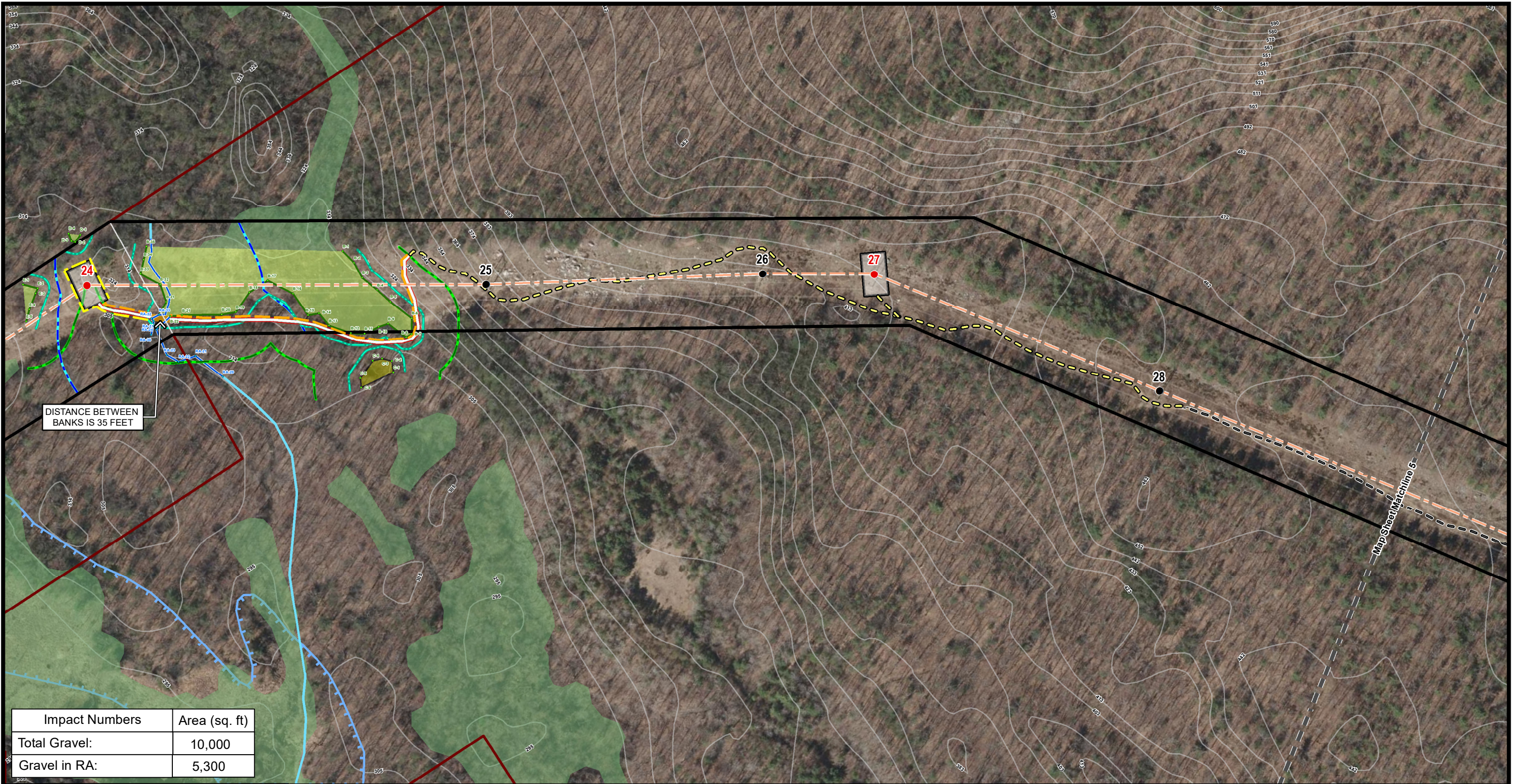
MMWEC STRUCTURE REPLACEMENT PROJECT

LUDLOW MASSACHUSETTS

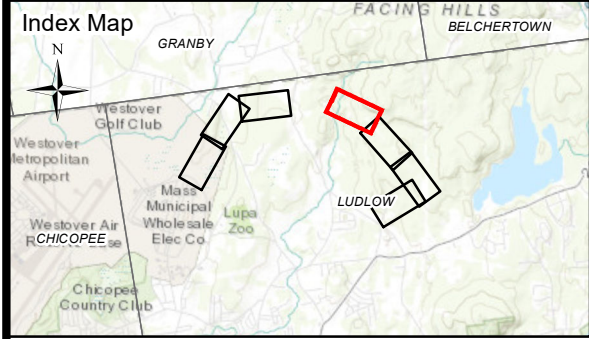
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Impact Numbers	Area (sq. ft)
Total Gravel:	10,000
Gravel in RA:	5,300



Legend

- Existing Structure
- Existing Structure to be Removed
- Transmission Line
- Existing Access Road
- Access Road to be Improved
- Access Road to be Improved in Regulated Area
- Proposed Alternate Access
- Temporary Upland Construction Matting
- Temporary Wetland Construction Matting
- Construct Gravel Work Pad (unless otherwise noted)
- Existing Work Area
- Stream Span
- Bordering Vegetated Wetland
- Isolated Vegetated Wetland
- Isolated Vegetated Wetland under Bylaw only
- MA DEP Wetlands
- Wet Area
- Wetland Flag
- Watercourse Flag
- Delineated Intermittent Stream
- Delineated Perennial Stream
- Delineated OHW
- Estimated Stream Centerline (not delineated)
- 25 ft Local Buffer
- 100ft Buffer Zone
- 200ft Riverfront Area
- NHESP Priority & Estimated Habitat
- MA Outstanding Resource Waters
- FEMA 100yr Floodzone
- Line List Parcel
- Approx ROW Limits
- State-Owned Property
- Culvert
- Gate
- Map Sheet Matchline
- 10' Contour Line
- 9" Straw Wattle
- 12" Straw Wattle

Map Notes:
 Data valid as of June 2020.
 Basemap: Massachusetts 2019 USGS Color Ortho Imagery. Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs. Parcels downloaded from MassGIS. The information/data provided in this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation or parcel level analysis. The maps should not be used for construction purposes. Figure intended to be printed on 11" x 17".

1 in = 200 ft

0 100 200 Feet

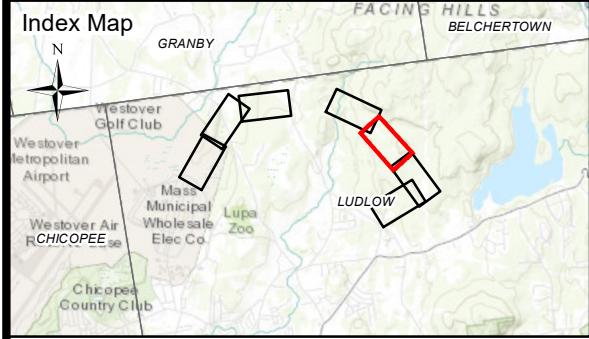
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Project No.: 15.0166832.00 DRAFT - 06/18/20

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Legend	
● Existing Structure	Stream Span
● Existing Structure to be Removed	Bordering Vegetated Wetland
— Transmission Line	Isolated Vegetated Wetland
— Existing Access Road	Isolated Vegetated Wetland under Bylaw only
— Access Road to be Improved	MA DEP Wetlands
— Access Road to be Improved in Regulated Area	Wet Area
— Proposed Alternate Access	Wetland Flag
— Temporary Upland Construction Matting	Watercourse Flag
— Temporary Wetland Construction Matting	— Delineated Intermittent Stream
— Construct Gravel Work Pad (unless otherwise noted)	— Delineated Perennial Stream
— Existing Work Area	— Delineated OHW
	— Estimated Stream Centerline (not delineated)
	— 25 ft Local Buffer
	— 100ft Buffer Zone
	— 200ft Riverfront Area
	— NHESP Priority & Estimated Habitat
	— MA Outstanding Resource Waters
	— FEMA 100yr Floodzone
	— Line List Parcel
	— Approx ROW Limits
	— State-Owned Property
	— Culvert
	— Gate
	— Map Sheet Matchline
	— 10' Contour Line
	— 9" Straw Wattle
	— 12" Straw Wattle

Map Notes:
 Data valid as of June 2020.
 Basemap: Massachusetts 2019 USGS Color Ortho Imagery. Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs. Parcels downloaded from MassGIS. The information/data provided in this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation or parcel level analysis. The maps should not be used for construction purposes. Figure intended to be printed on 11" x 17".

1 in = 200 ft

0 100 200 Feet

MMWEC STRUCTURE REPLACEMENT PROJECT

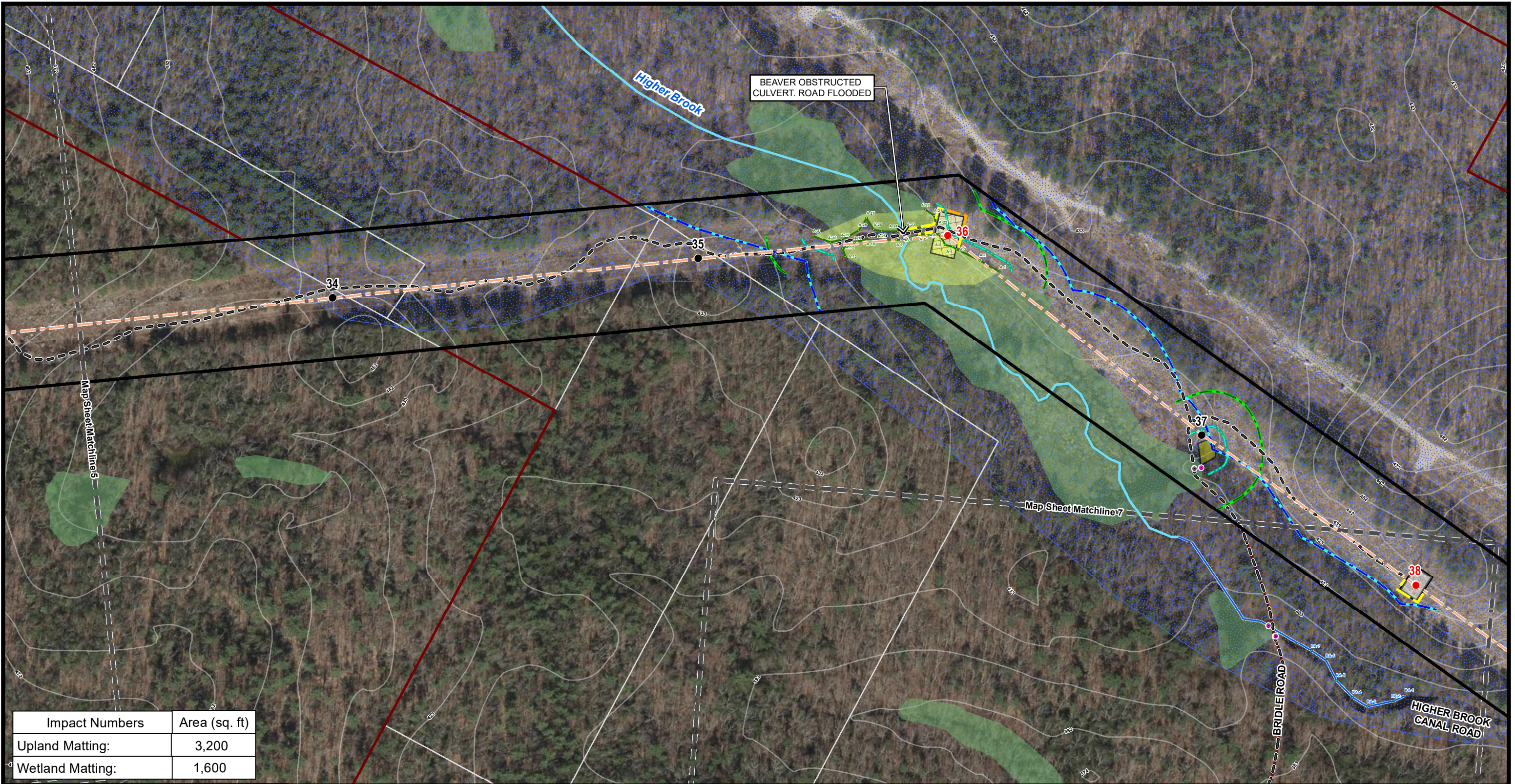
LUDLOW MASSACHUSETTS

PAGE 5 OF 7

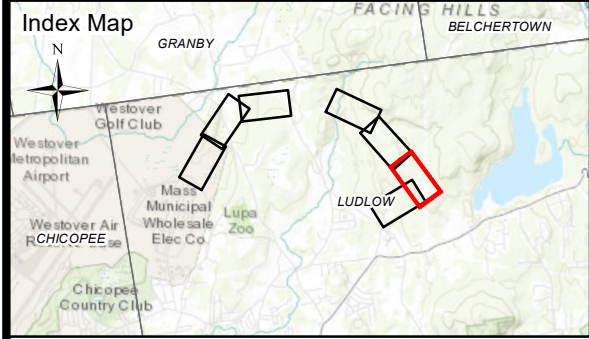
Project No.: 15.0166832.00 DRAFT - 06/18/20




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Impact Numbers	Area (sq. ft)
Upland Matting:	3,200
Wetland Matting:	1,600



Legend

- Existing Structure
- Existing Structure to be Removed
- Transmission Line
- Existing Access Road
- Access Road to be Improved
- Access Road to be Improved in Regulated Area
- Proposed Alternate Access
- Temporary Upland Construction Matting
- Temporary Wetland Construction Matting
- Construct Gravel Work Pad (unless otherwise noted)
- Existing Work Area
- Stream Span
- Bordering Vegetated Wetland
- Isolated Vegetated Wetland
- Isolated Vegetated Wetland under Bylaw only
- MA DEP Wetlands
- Wet Area
- Wetland Flag
- Watercourse Flag
- Delineated Intermittent Stream
- Delineated Perennial Stream
- Delineated OHW
- Estimated Stream Centerline (not delineated)
- 25 ft Local Buffer
- 100ft Buffer Zone
- 200ft Riverfront Area
- NHESP Priority & Estimated Habitat
- MA Outstanding Resource Waters
- FEMA 100yr Floodzone
- Line List Parcel
- Approx. ROW Limits
- State-Owned Property
- Map Sheet Matchline
- 10' Contour Line
- 9" Straw Wattle
- 12" Straw Wattle
- Culvert
- Gate

Map Notes:
 Data valid as of June 2020.
 Basemap: Massachusetts 2019 USGS Color Ortho Imagery. Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs. Parcels downloaded from MassGIS. The information/data provided in this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation or parcel level analysis. The maps should not be used for construction purposes. Figure intended to be printed on 11" x 17".

1 in = 200 ft

0 100 200 Feet

MMWEC STRUCTURE REPLACEMENT PROJECT

LUDLOW MASSACHUSETTS

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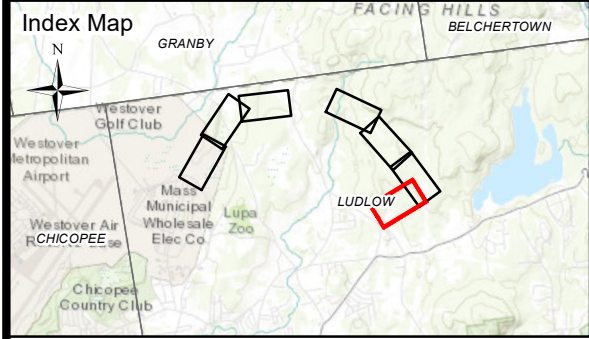


EXISTING GRAVEL ROAD
NO PROPOSED IMPROVEMENTS

Map Sheet Matchline 6

HIGHER BROOK
CANAL ROAD

38



Legend	
● Existing Structure	Stream Span
● Existing Structure to be Removed	Bordering Vegetated Wetland
--- Transmission Line	Isolated Vegetated Wetland
--- Existing Access Road	Isolated Vegetated Wetland under Bylaw only
--- Access Road to be Improved	MA DEP Wetlands
--- Access Road to be Improved in Regulated Area	Wet Area
--- Proposed Alternate Access	Wetland Flag
--- Temporary Upland Construction Matting	Watercourse Flag
--- Temporary Wetland Construction Matting	--- Delineated Intermittent Stream
--- Construct Gravel Work Pad (unless otherwise noted)	--- Delineated Perennial Stream
--- Existing Work Area	--- Delineated OHW
	--- Estimated Stream Centerline (not delineated)
	--- 25 ft Local Buffer
	--- 100ft Buffer Zone
	--- 200ft Riverfront Area
	--- NHESP Priority & Estimated Habitat
	--- MA Outstanding Resource Waters
	--- FEMA 100yr Floodzone
	--- Line List Parcel
	--- Approx ROW Limits
	--- State-Owned Property
	--- Map Sheet Matchline
	--- 10' Contour Line
	--- 9" Straw Wattle
	--- 12" Straw Wattle
	--- Culvert
	--- Gate

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