

Tighe&Bond

Line 1113 Insulator Replacement
Project
East Street to New Ludlow Road
South Hadley, Massachusetts

Notice of Intent

Prepared For:

Eversource Energy
107 Selden Street
Berlin, CT 06037

November 2016

Cover Letter

WPA Form 3

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E-0755-22-01 (8100)
November 28, 2016

South Hadley Conservation Commission
Janice Stone, Conservation Administrator
116 Main Street
South Hadley, MA 01705

Re: **Notice of Intent – South Hadley Article XV Wetland Bylaw
Line 1113 Insulator Replacement Project
South Hadley, Massachusetts**

Dear Ms. Stone Members of the South Hadley Conservation Commission:

On behalf of Eversource Energy (Eversource), Tighe & Bond is submitting this Notice of Intent (NOI) under the Local Wetlands Bylaw (Article XV) for the replacement of ceramic insulators along utility Line 1113 from East Street to New Ludlow Road in South Hadley, Massachusetts. The project entails the replacement of existing insulators located on either side of each utility pole to improve electrical reliability along Line 1113. Portions of the replacement work will occur within a Bordering Vegetated Wetland (BVW), as well as the 100-foot Buffer Zone to BVW and the 50-foot Conservation Zone. This application is being filed pursuant to the Town of South Hadley Wetland Protection Bylaw (Article XV) and implementing rules. The proposed project is exempt for the Massachusetts Wetlands Protection Act per 310 CMR 10.53 (3)(d).

Enclosed, please find a completed application for your review, along with a project narrative, project figures and plans, and other required materials. All project abutters will be notified by certificate of mailing of the public hearing for this project in accordance with local regulations.

Thank you in advance for your review of this NOI. Should you have any questions or require additional information, please contact me at 413-875-1312/ DPRukakoski@tighebond.com or Katy Wilkins at 413-875-1305/ KLWilkins@tighebond.com.

Very truly yours,

TIGHE & BOND, INC.



Daniel P. Rukakoski, PWS, CWS, PSS
Principal Environmental Scientist - Associate

Enclosures

Copy: Devleena Ghosh-Brower, Eversource Energy

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South Hadley Wetlands Protection Bylaw
Notice of Intent
 South Hadley Article XV – Non-Zoning Wetlands Bylaw

Provided by MassDEP:

 MassDEP File Number

 Document Transaction Number
 South Hadley

 City/Town

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



Note:
 Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

<u>Utility ROW Line 1113</u>	<u>South Hadley</u>	<u>01075</u>
a. Street Address	b. City/Town	c. Zip Code
<u>Latitude and Longitude:</u>		
<u>Not Applicable - Utility Right-of-Way</u>	<u>42°13'57.77"</u>	<u>72°33'9.63"</u>
f. Assessors Map/Plat Number	d. Latitude	e. Longitude
<u>Not Applicable</u>	<u>Not Applicable</u>	
g. Parcel /Lot Number		

2. Applicant:

<u>Devleena</u>	<u>Ghosh-Brower</u>	
a. First Name	b. Last Name	
<u>Eversource Energy</u>		
c. Organization		
<u>107 Selden Street</u>		
d. Street Address		
<u>Berlin</u>	<u>CT</u>	<u>06037</u>
e. City/Town	f. State	g. Zip Code
<u>860-665-5033</u>	<u>Devleena.ghosh-brower@eversource.com</u>	
h. Phone Number	i. Fax Number	j. Email Address

3. Property owner (required if different from applicant): Check if more than one owner

<u>Eversource Energy maintains a deeded ROW easement</u>	<u></u>	
a. First Name	b. Last Name	
c. Organization		
<u></u>		
d. Street Address		
<u></u>	<u></u>	<u></u>
e. City/Town	f. State	g. Zip Code
<u></u>	<u></u>	<u></u>
h. Phone Number	i. Fax Number	j. Email address

4. Representative (if any):

<u>Daniel</u>	<u>Rukakoski</u>	
a. First Name	b. Last Name	
<u>Tighe & Bond</u>		
c. Company		
<u>53 Southampton Road</u>		
d. Street Address		
<u>Westfield</u>	<u>MA</u>	<u>01085</u>
e. City/Town	f. State	g. Zip Code
<u>413-875-1312</u>	<u>dprukakoski@tighebond.com</u>	
h. Phone Number	i. Fax Number	j. Email address

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

<u>N/A – No Local Fees</u>	<u>N/A – Local Bylaw</u>	<u>N/A – No Local Fees</u>
a. Total Fee Paid	b. State Fee Paid	c. City/Town Fee Paid



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A. General Information (continued)

6. General Project Description:

The project entails the replacement of aging overhead ceramic insulators on Line 1113 to improve system reliability.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- | | |
|---|---|
| 1. <input type="checkbox"/> Single Family Home | 2. <input type="checkbox"/> Residential Subdivision |
| 3. <input type="checkbox"/> Commercial/Industrial | 4. <input type="checkbox"/> Dock/Pier |
| 5. <input checked="" type="checkbox"/> Utilities | 6. <input type="checkbox"/> Coastal engineering Structure |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation |
| 9. <input type="checkbox"/> Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration 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. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)
 310 CMR 10.53 (3)(d) – Limited Project Under MAWPA, Not Under the Local Bylaw Article XV

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

<u>Hampshire</u>	<u>Not Applicable - Right-of-Way</u>
a. County	b. Certificate # (if registered land)
<u>Not Applicable - Right-of-Way</u>	<u>Not Applicable - Right-of-Way</u>
c. Book	d. Page Number

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

1. Buffer Zone Only – 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).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



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

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

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	3,522	3,522
	1. square feet	2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	_____	_____
	1. square feet	2. square feet
	3. cubic yards dredged	

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
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. Riverfront Area
1. Name of Waterway (if available) - **specify coastal or inland** _____
2. Width of Riverfront Area (check one):
- 25 ft. - Designated Densely Developed Areas only
- 100 ft. - New agricultural projects only
- 200 ft. - All other projects
3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

_____	_____	_____
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)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



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

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
 Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
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 Beach	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 _____

	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
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., creation _____
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	1. square feet _____	

4. Restoration/Enhancement
 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 enter the additional amount here.

_____ a. square feet of BVW
 _____ b. square feet of Salt Marsh

5. Project Involves Stream Crossings

_____ a. number of new stream crossings
 _____ b. number of replacement stream crossings



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C. Other Applicable Standards and Requirements

- This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Notice of Intent – Required Actions (310 CMR 10.11).

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 and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

- 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

- October 2008
 b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.1.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

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

2. Project plans for entire project site, including wetland resource areas and areas outside of wetlands 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

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



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C. Other Applicable Standards and Requirements (cont'd)

(c) MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/mesa/mesa_fee_schedule.htm). Make check payable to “Commonwealth of Massachusetts - NHESP” 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

(f) 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/dfwele/dfw/nhosp/regulatory_review/mesa/mesa_exemptions.htm ; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.) – **Project is in compliance with Eversource’s O&M Plan**

2. Separate MESA review ongoing. a. NHESP Tracking # _____ 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.

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

a. Not applicable – project is in inland resource area only b. Yes No

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

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

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
 Southeast Marine Fisheries Station
 Attn: Environmental Reviewer
 1213 Purchase Street – 3rd Floor
 New Bedford, MA 02740-6694
 Email: DMF.EnvReview-South@state.ma.us

Division of Marine Fisheries -
 North Shore Office
 Attn: Environmental Reviewer
 30 Emerson Avenue
 Gloucester, MA 01930
 Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project 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.



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Online Users:
 Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

C. Other Applicable Standards and Requirements (cont'd)

4. 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 MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
-
- b. ACEC
5. 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
6. 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, §
- a. Yes No
7. 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.
- b. No. Check why the project is exempt: **Exempt from WPA**
1. Single-family house
 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

- This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

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.

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. (Electronic filers may omit this item.)
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.



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D. Additional Information (cont'd)

3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. List the titles and dates for all plans and other materials submitted with this NOI.

Line 1113 Insulator Replacement Project

a. Plan Title

Tighe & Bond

b. Prepared By

November 2016

d. Final Revision Date

c. Signed and Stamped by

1" =100'

e. Scale

f. Additional Plan or Document Title

g. Date

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.

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:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name



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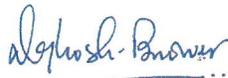
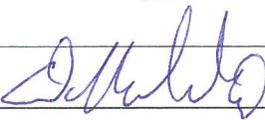
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F. Signatures and Submittal Requirements

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.

		11/28/2016
1. Signature of Applicant		2. Date
		
3. Signature of Property Owner (if different)		4. Date
		11/28/16
5. Signature of Representative (if any)		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 any part of Section C, Item 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
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



A. Applicant Information

1. Location of Project:

Line 1113 Utility ROW	South Hadley
a. Street Address	b. City/Town
_____	_____
c. Check number	d. Fee amount
_____	_____

2. Applicant Mailing Address:

Devleena	Ghosh-Brower	
a. First Name	b. Last Name	
Eversource Energy	_____	
c. Organization	_____	
107 Selden Street	_____	
d. Mailing Address	_____	
Berlin	CT	06037
e. City/Town	f. State	g. Zip Code
603-665-5033	Devleena.ghosh-brower@eversource.com	
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

_____	_____	
a. First Name	b. Last Name	
_____	_____	
c. Organization	_____	
_____	_____	
d. Mailing Address	_____	
_____	_____	
e. City/Town	f. State	g. Zip Code
_____	_____	_____
h. Phone Number	i. Fax Number	j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



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

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
N/A – Local Jurisdiction	N/A	N/A	N/A
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Step 5/Total Project Fee: _____

Step 6/Fee Payments:

Total Project Fee:	<u>N/A</u>
	a. Total Fee from Step 5
State share of filing Fee:	<u>N/A</u>
	b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:	<u>N/A</u>
	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Application for Conservation Permit (ACP)

South Hadley Wetlands Protection Bylaw & Regulations

1. **Applicant:** Name Eversource Energy (Devleena Ghosh-Brower) Phone 860-665-5033
Address 107 Selden Street Berlin, CT 06037
Email Devleena.Ghosh-Brower@eversource.com

2. **Project Location:** Street Line 1113 Utility ROW between East Street & New Ludlow Road

3. **This application is filed along with:** Notice of Intent
 Request for Determination of Applicability
 Other (e.g., ANRAD, ANOI, Amendment)
 Proposed work is outside WPA jurisdiction; no other application

4. **Work is proposed in the following Resource Areas:** Bank Water & Land under said waters
 Lakes & Ponds Riverfront Area
 Streams & Rivers Vernal Pool
 100 yr Flood Zone WAIVER FORM COMPLETED
 Freshwater Wetland

5. **Work is proposed in the following No Alteration Zones:**
 Wetland Resource Area
 50 Foot Conservation Zone
 WAIVER FORM COMPLETED

6. **Work: 100' Buffer Zone Only**

7. **Project Description:**
Existing conditions where work will occur: Lawn or landscaped area Wetland Resource Area
 Wooded or natural area Other: Maintained Utility ROW
 Impervious (e.g., driveway)

Proposed work: Access to and the replacement of existing electric insulators along Line 1113

Equipment to be used: Timber mats, forwarders, & bucket trucks.

Erosion control to be used: Straw wattles will be installed in areas downgradient of work areas and adjacent to temporary wetland crossings.

8. Project Impact

Buffer Zone Setback: If the project involves work in the buffer zone only, what is the shortest distance between project disturbance and the wetland resource area? _____ feet

Tree Cutting: Will trees be removed within ConCom jurisdiction? (Y/N) N

Tree Cutting: List number and approximate diameter of tree(s) to be removed:

Fill and Grading: How much fill will be removed? _____ cu yds

Fill and Grading: How much fill will be brought in? _____ cu yds

Fill and Grading: How will site be stabilized during construction?

Fill and Grading: How will final grade differ from existing?

9. Describe any exemptions in the WPA or bylaw that allows proposed activity:

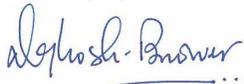
310 CMR 10.02 (2)(a)(2)

10. Describe any mitigating measures proposed. Use additional page(s) if necessary.

11. Local Filing Fee*: _____ \$ _____ **Request for Determination of Applicability**
 X \$ 0 **Other:** No fee for an NOI filing under Local Bylaw

This fee structure is detailed in the Bylaw Regulations. **Make check payable to the Town of South Hadley.*

12. Statement of Applicant: I hereby certify under the penalties of perjury that this application and all supporting plans and documents are true and complete to the best of my knowledge, and that these have been prepared in conformance with the requirements of the South Hadley Wetlands Bylaw and supporting regulations. I further certify that all abutters and other parties have been notified of this application as required by South Hadley Wetlands Bylaw Regulations. I understand that I may be asked to pay for a consultant to review my application for the Commission.

Signature:  Date: 11/28/2016

Landowner's Signature (if different): _____

Request for Waiver
From South Hadley Wetlands Bylaw and Regulations

1. **Applicant** **Name** Eversource Energy (Devleena Ghosh-Brower) **Phone:** 860-665-5033
Address 107 Selden Street Berlin, CT 06037
Email Devleena.Ghosh-Brower@eversource.com

2. **Owner** **Name** _____ **Phone:** _____
(if different) **Address** _____
Email _____

3. **Project Location Street address** East Street to New Ludlow Road - Utility Line 1113

4. **DEP File Number # 288-** N/A - Local Filing Only

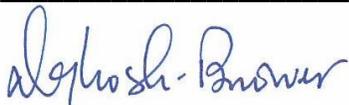
5. **I hereby request a waiver from the prohibition on alterations in the 50-foot Conservation Zone.**

6. **Reason(s) for the waiver request are:**

Work within the 50-foot Conservation Zone and within wetland resource areas is required to access the structures for maintenance activities. The work will be completed in accordance to the industry's standard Best Management Practices.

7. **Proposed mitigation for the work within the Conservation Zone:**

Seed and mulch areas of ground disturbance within the Conservation Zone due to temporary impacts from maintenance activities.

Signature:  **Date:** 11/28/2016

Section 1

Introduction

This Notice of Intent (NOI) is being submitted on behalf of Eversource Energy (Eversource) for an insulator replacement project along Line 1113 between East Street and New Ludlow Road in South Hadley, Massachusetts. The project is comprised of the replacement of existing overhead insulators on each structure to improve electrical reliability of the line. The project in whole is comprised of insulator replacement work extending from Route 9 in Amherst, MA to the Fairmont Substation in Chicopee. The project is being permitted under the Town of South Hadley Wetland Protection Bylaw, the Massachusetts Clean Water Act (401 Water Quality Certification), and the ACOE Massachusetts General Permit (Self-Verification Notification). A Site Locus (Figure 1), DEP Priority Resource Areas Map (Figure 2), and Site Plans (Figure 3) are provided in Appendix B.

Section 2

Existing Environment

This section provides a site description and wetland characterization for the project area at the proposed wetland crossing and areas where work will occur within regulated buffer zones. Land use in the general vicinity of the right-of-way (ROW) is primarily residential and deciduous forest. Wetlands were determined based on direct observations made during site investigations and a review of information available through the Massachusetts Geographic Information System (MassGIS).

2.1 Project Location

The proposed project area is located along the Line 1113 ROW from East Street to New Ludlow Road, generally from the Granby to Chicopee town line. The project location is shown on the USGS Site Locus (Figure 1) provided in Appendix B. The site and surrounding area are also shown on the Massachusetts Department of Environmental Protection (MassDEP) Priority Resource Map (Figure 2) and Site Plans (Figure 3) in Appendix A. Photographs of the project location are provided in Appendix B.

The existing overhead transmission line runs northeast to southwest from East Street, passing southeast of the Pine Grove Drive Condo complex, over Lyman Terrace, old Lyman Road, Route 33, and Laurie Avenue to New Ludlow Road and the Chicopee town line. Surrounding development consists primarily of residential housing, some agriculture, and other undeveloped areas.

2.2 Methodology of Resource Area Investigations

Wetland resource area investigations at the site were conducted by Tighe & Bond on July 26, 2016. Wetland resource areas were named based on the wetland system number within the larger project of the entire utility line. Representative site photographs are provided in Appendix B.

Wetland boundaries were roughly determined by first observing distinct changes in vegetation cover and type, as well as soil conditions and microtopography. Resource areas were delineated in accordance with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0, U.S. Army Corps of Engineers, January 2012), Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act (MassDEP, 1995), 310 CMR 10.55(2)(c)(1), and the Town of South Hadley Protection Bylaw (Article XV).

2.3 Description of Wetland Resource Areas

Wetland resource areas observed within the ROW limits and proposed work areas consist of Bordering Vegetated Wetland (BVW) and inland Bank to an intermittent stream.

2.3.1 Wetland 49 – Bordering Vegetated Wetland

An area of BVW (Wetland #49) is located southwest of East Street between the roadway and Structure (STR) 10279. The wetland boundaries extend to ROW limits and are located just north of the structure. This wetland is characterized as a palustrine scrub shrub (PSS). The vegetation observed included silky dogwood (*Cornus amomum*),

arrowwood (*Viburnum recognitum*), rough stem goldenrod (*Solidago rugose*), late goldenrod (*Solidago gigantea*), and bittersweet (*Celastrus orbiculatus*).

2.3.2 Wetland 50 – BVW (w/ Intermittent Stream)

An area of BVW (Wetland #50) is located between STR 10281 and 10282, which are located east of Karen Drive and south of the condos on Pine Grove Drive. The stream channel appears to flow from east to west and are surrounded by adjacent vegetated wetland. There is poor channel formation in this reach of the stream and the adjacent wetland has a thick muck substrate. There is a section of upland that separates the two reaches of stream channel. This wetland is characterized as a palustrine scrub shrub/emergent marsh (PSS/PEM). Vegetation observed included arrowwood, maleberry (*Lyonia ligustrina*), willow species (*Salix* sp.), jewelweed (*Impatiens capensis*), and lurid sedge (*Carex lurida*).

2.3.3 Wetland 51 – BVW

An area of BVW (Wetland #51) is located south of STR 10287 along the southeastern ROW boundary which is just north of Eagle Drive. The wetland is characterized as a palustrine emergent and scrub shrub wetland (PEM/PSS) defined largely by topography. The vegetation observed included willow species, steeplebush (*Spirea tomentosa*), meadowsweet (*Spirea latifolia*) wool grass (*Scirpus cyperinus*), and tussock sedge (*Carex stricta*).

2.3.4 Wetland 53 – BVW (w/ Intermittent Stream)

An area of BVW (Wetland #53) is located just southwest of STR 10291 within close proximity to a private residence and Route 33. The area contains very dense vegetation and water flow was limited to no flow. This wetland is characterized as a palustrine scrub shrub (PSS) wetland within an intermittent stream channel flowing east to west across the ROW. The vegetation observed included arrowwood, glossy buckthorn (*Frangula alnus*), elderberry (*Sambucus canadensis*), bittersweet, and jewelweed.

2.3.5 Wetland 54 – BVW (w/ Intermittent Stream)

An area of BVW (Wetland #54) with an intermittent stream is present northeast of STR 10292 and Route 33. The area is adjacent to a paved parking area and maintained lawn. The wetland is characterized as a palustrine scrub shrub wetland (PSS) that borders an intermittent stream that generally flows from east to west across the ROW. The wetland is primarily defined by topography. The vegetation observed included glossy buckthorn, maleberry, knotweed (*Polygonum cuspidatum*), grape species (*Vitis* sp.), and jewelweed.

2.4 Rare Species

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) Atlas (October 1, 2008), MassGIS online (October 2008), and data provided to Eversource via coordination with NHESP, were consulted during the preparation of this application. According to these sources, there are several areas throughout the ROW and project areas that are located within the limits of mapped Estimated Habitats of Rare Wildlife or Priority Habitats of Rare Species, as shown on the DEP Priority Resource Map and the Project Plan Set (Figures 2 and 3, respectively, in Appendix A).

Section 3 Project Description

3.1 Proposed Activities

The project consists of utility maintenance activities along Line 1113 that involve the replacement of ceramic insulators on structures along the entire line from Amherst to Chicopee. The project areas within South Hadley are within the utility ROW from East Street, at the Granby town line, to New Ludlow Road at the Chicopee town line. The insulators have exceeded their expected life expectancy and require replacement to maintain reliability of the system. This and other lines in the area are under increased pressure to stay live due to heavy demands and decommissioning of regional generation facilities.

3.1.1 Insulator Replacement

Insulator replacement work is proposed at 17 structures along the ROW, and require some access through jurisdictional wetland resource areas and the local 50-foot Conservation Zone. The existing ceramic insulators will be replaced in kind with similar new insulators. Work requires access to each side of the structure for replacement. The old ceramic insulators will be removed and properly disposed off-site.

3.1.2 Site Vehicle Access

The project entails the installation of temporary wetland matting to access structures to replace the insulators. Access will be gained from town roads and within the ROW as much as possible. Existing access roads will be utilized and no new access roads are proposed as part of this project within the Town of South Hadley. There is one wetland crossing proposed through the BVW south of East Street. At the wetland crossing, 16-foot wide wooden swamp mats will be placed along the access roads. Timber construction mats are widely used as construction Best Management Practices (BMPs) where the ground surface is unstable due to shallow standing water, saturated soils, or other substrates not suitable for heavy vehicles. Woody vegetation present within the proposed matting footprint will be cut off at ground level if necessary to facilitate a safe installation. Typical details depicting swamp mat placement for wetland crossings are presented in Appendix D - Construction Best Management Practices.

Wooden swamp mats will be placed along the travel area so that the individual boards are resting perpendicular to the direction of traffic. No gaps should exist between mats and they will extend far enough on either side of the resource area so as not to result in ruts when equipment enters and exits a sensitive area. Upon completion of work, mats will be removed by "backing" out of the site, removing mats one at a time and re-grading soils to pre-existing contours while taking care not to compact soils.

3.1.3 Erosion Control Measures

Construction period erosion and sediment control measures will be installed, as necessary, in accordance with Eversource's Construction and Maintenance Best Management Practices Manual for Massachusetts (September 2016).

Any sedimentation and erosion controls installed will be removed and properly disposed of once construction and stabilization activities are complete.

3.2 Anticipated Construction Sequence

The actual sequence of construction will be left to the discretion of the selected contractor. The anticipated construction sequence includes the following:

- Install sedimentation and erosion controls/ protective measures
- Repair access roads with gravel in uplands, as needed
- Install temporary timber mats within wetland crossings and at work pad locations to enable vehicular crossing of equipment access and set up
- Conduct insulator replacement activities
- Remove timber mats upon completion of work
- Complete *in-situ* restoration activities
- Remove erosion control barriers and construction BMPs

3.3 Project Site Restoration

Upon completion of work, disturbed areas will be stabilized to match pre-construction conditions to the extent practicable. Erosion and sedimentation control measures will remain in place and in good working condition until soils have stabilized.

Section 4 Regulatory Compliance

This section summarizes the project’s relationship to and compliance with the Town of South Hadley Wetland Protection Bylaw (Article XV) and implementing rules. The proposed maintenance project is considered an exempt activity under the MAWPA per 10.02(2)(a)(2).

4.1 South Hadley Wetlands Protection Bylaw

Portions of the proposed activities will occur within areas subject to protection and jurisdiction under the South Hadley Wetlands Protection Bylaw. These areas include, Bordering Vegetated Wetland, the 100-foot Buffer Zone to Bordering Vegetated Wetlands and inland Bank, and the local 50-foot Conservation Zone.

4.1.1 Summary of Article XV Jurisdiction

The proposed project will result in temporary alterations to wetland resource areas, as those areas are defined in Article XV. These areas include:

- Bordering Vegetated Wetlands
- 100-foot Buffer Zone
- 50-foot Conservation Zone

Table 4-1 below outlines the total proposed alteration area by wetland resource.

TABLE 4-1
Summary of WPA Jurisdictional Alterations by Resource Area

Resource Area	Proposed Impact Area	Activity
Bordering Vegetated Wetland	3,522 sf	Temporary Access Route
100-foot Buffer Zone	8,933 sf	Temporary Access and Work Pad
50-foot Conservation Zone	4,968 sf	Temporary Access & Work Pads

The proposed work within wetlands is an exempt activity under the MAWPA as it is an ancillary activity to an exempt maintenance activity per 310 CMR 10.02(2)(a)(2). The proposed matting is regulated under the Clean Water Act, and a 401 Water Quality Certification will be acquired from MassDEP to authorize placement of the matting. A detail of the swamp mat installation is provided in Attachment D.

The work within the 100-foot Buffer Zone does not have defined performance standards set for in Article XV or under the MAWPA. The proposed work within the 100-foot Buffer Zone will consist of access routes, most of which will be matted. Matting in uplands is primarily used when access routes are through areas of agriculture or maintained lawns.

Proposed work within the 50-foot Conservation Zone will consist of access routes and one set of work pads. The work will occur near STRs 10279 and 10291. The work near STR 10291 will only be access through an already established driveway. Due to the existing condition of the access road, limited to no disturbance of vegetation is

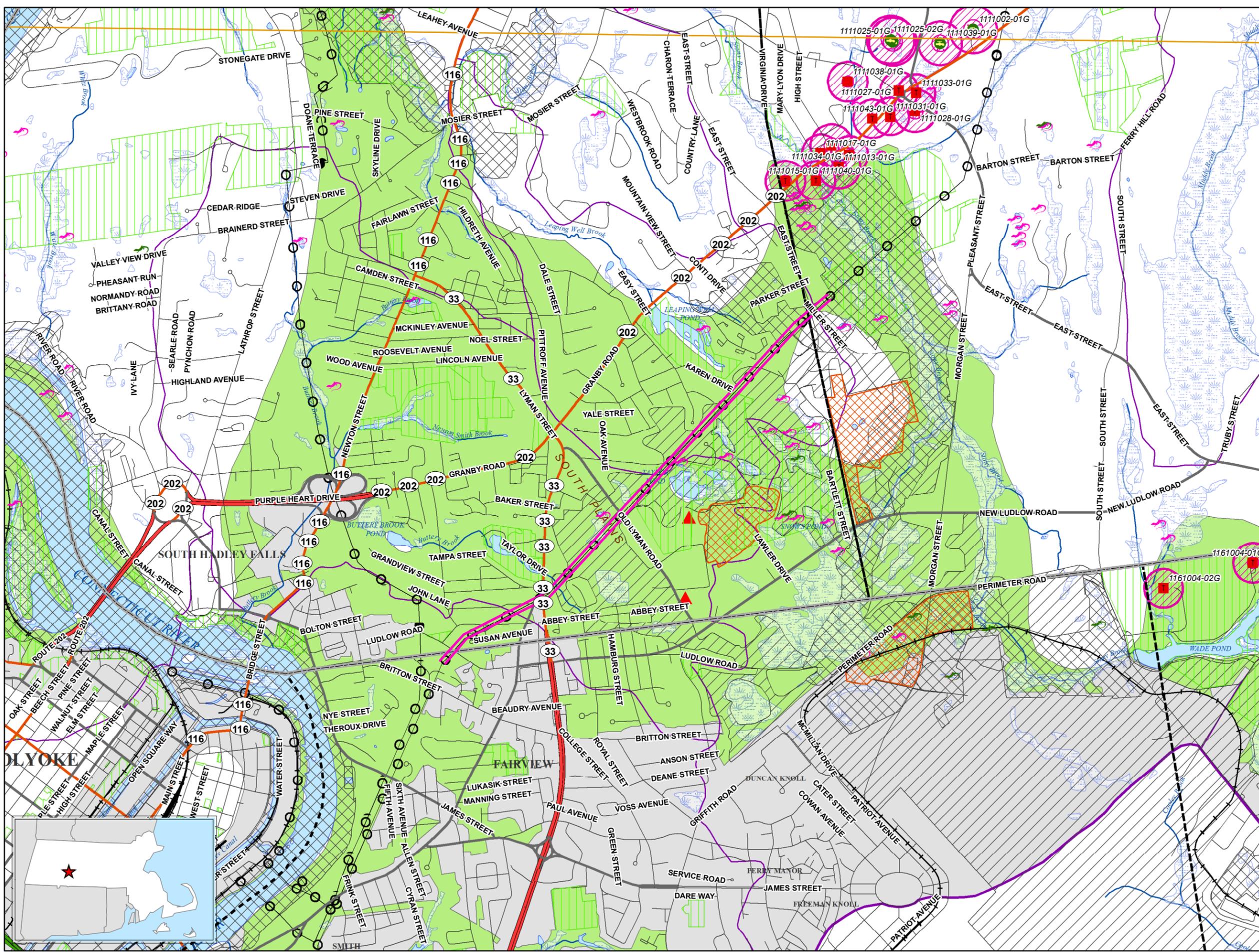
anticipated in this portion of the Conservation Zone. The work proposed by STR 10279 will involve matting for an access route from East Street to the structure. Some vegetation will need to be cut to provide for a safe and stable area for the placement of mats. Any woody vegetation in need of cutting will be cut at the base with the root system left intact. This area of the ROW is subject to exempt vegetation management activities along the ROW. The area has been maintained, as such no mitigation is prosed within the work area. Any areas of ground disturbance will be seeded and mulched. A request for waiver for work within the Conservation Zone is provided.

4.1.2 Abutter Notification

Abutters were notified in accordance with Article XV. The abutter notification form, affidavit of service and a copy of the list of abutters is provided in Appendix C.

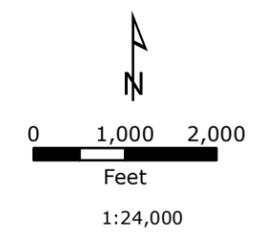
APPENDIX A

**FIGURE 2
PRIORITY RESOURCE MAP**



LEGEND

- Project Area
- County Boundary
- Town Boundary
- USGS Quadrangle Sheet Boundary
- NHESP Certified Vernal Pools
- NHESP Potential Vernal Pools
- Community Public Water Supply - Surface Water
- Community Public Water Supply - Groundwater
- Non-Community Non-Transient Public Water Supply
- Non-Community Transient Public Water Supply
- Limited Access Highway
- Multi-Lane Highway, NOT Limited Access
- Other Numbered Highway
- Major Road - Collector
- Minor Street or Road
- Aquaducts
- Powerline
- Pipeline
- Track or Trail
- Trains
- Public Surface Water Supply Protection Area (Zone A)
- DEP Approved Wellhead Protection Area (Zone I)
- DEP Approved Wellhead Protection Area (Zone II)
- DEP Interim Wellhead Protection Area (IWPA)
- Protected and Recreational Open Space
- Solid Waste Landfill
- Non-Landfill Solid Waste Sites
- Area of Critical Environmental Concern (ACEC)
- NHESP Priority Habitats for Rare Species
- NHESP Estimated Habitats for Rare Wildlife
- EPA Designated Sole Source Aquifer
- Major Drainage Basin
- Sub Drainage Basin
- Inland Wetlands
- Coastal Wetlands
- Public Surface Water Supply (PSWS)
- Water Bodies
- Stream/Intermittent Stream
- Non-Potential Drinking Water Source Area - High Yield
- Non-Potential Drinking Water Source Area - Medium Yield
- Potentially Productive Medium Yield Aquifer
- Potentially Productive High Yield Aquifer



1. Data source: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, MassIT) Executive Office of Environmental Affairs. Data valid as of November 2016.

**2016 Insulator
Replacement Project
Line 1113
South Hadley, Massachusetts
November 2016**

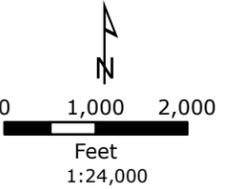


**FIGURE 1
SITE LOCATION MAP**

LEGEND

-  Project
-  Municipal Boundary

LOCUS MAP

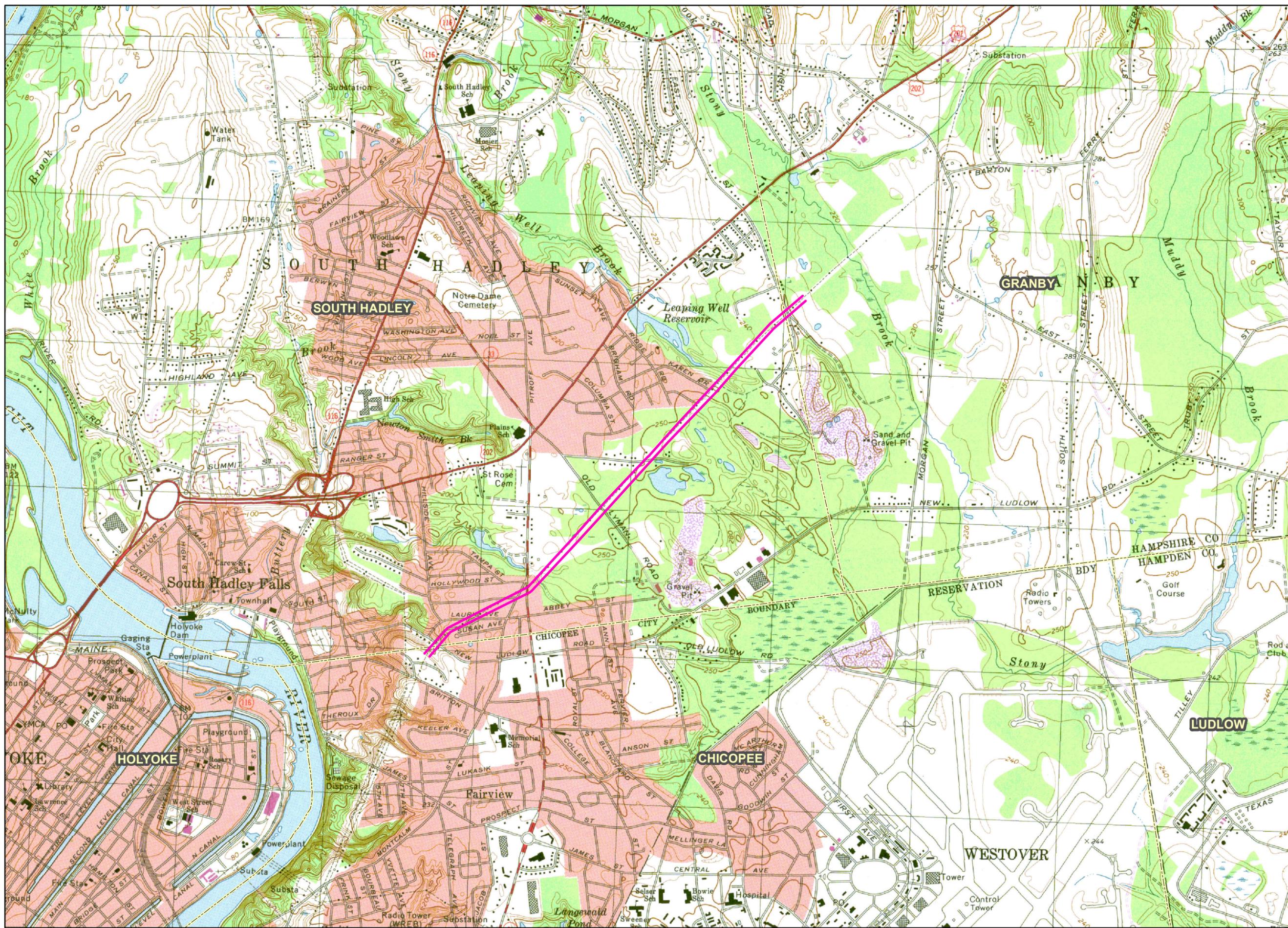


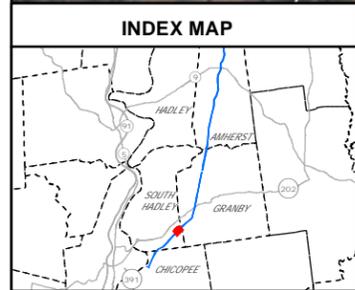
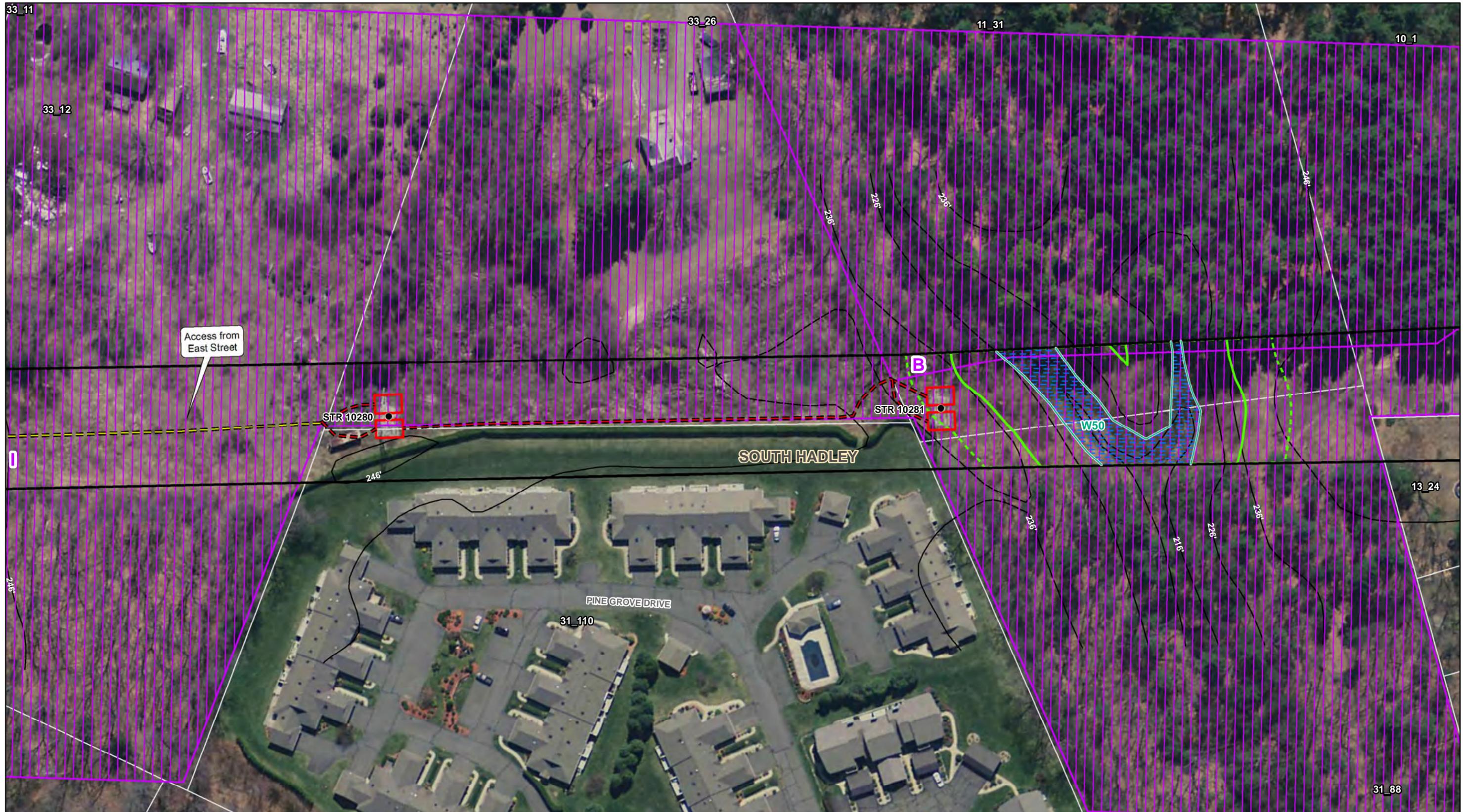
NOTES

Based on USGS Topographic Map for:
Springfield North, Massachusetts. Revised
1979. [Site Quad]
Contour Interval Equals 10 feet.

**2016 Insulator
Replacement Project
Line 1113
South Hadley,
Massachusetts**

November 2016





Legend		14D-2 Parcel ID Label	
	NHESP Certified Vernal Pools		Eversource NHESP 2016 Rare Species Data
	NHESP Potential Vernal Pools		100 Year Flood (Bordering Land Subject to Flooding)
	Existing Structure		Municipal Boundary
	Existing Structure (Climb Structure)		Delineated Species Colony
	Railroads		Mapped Colony Species
	MassDEP Hydrology		Upland Matting
	Approximate Limits of Right-of-Way		Wetland Matting
	Ordinary High Water Line		20' x 30' Work Pads
	Stream Centerline (Not Field Delineated)		Wetland Span
	Tighe & Bond Delineated Wetland Boundary		100 Ft. Buffer Zone
	Delineated Wetland Boundary By Others		50 Ft. Conservation Zone
	Existing Access		
	Proposed Access		
	Alternative Access		
	Flex Track Access		
	Parcel Boundary		
	Wetland Area		

Map Notes:
 Basemap: 2013 & 2014 Orthophotographs, MassGIS
 Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs.
 Parcels downloaded from MassGIS: Amherst (2011), Granby (2012), South Hadley (2016), Chicopee (2015).
 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.

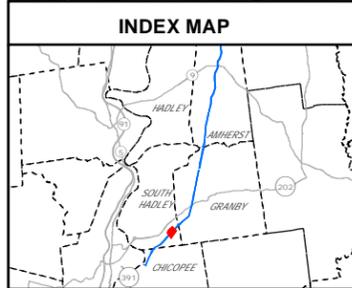
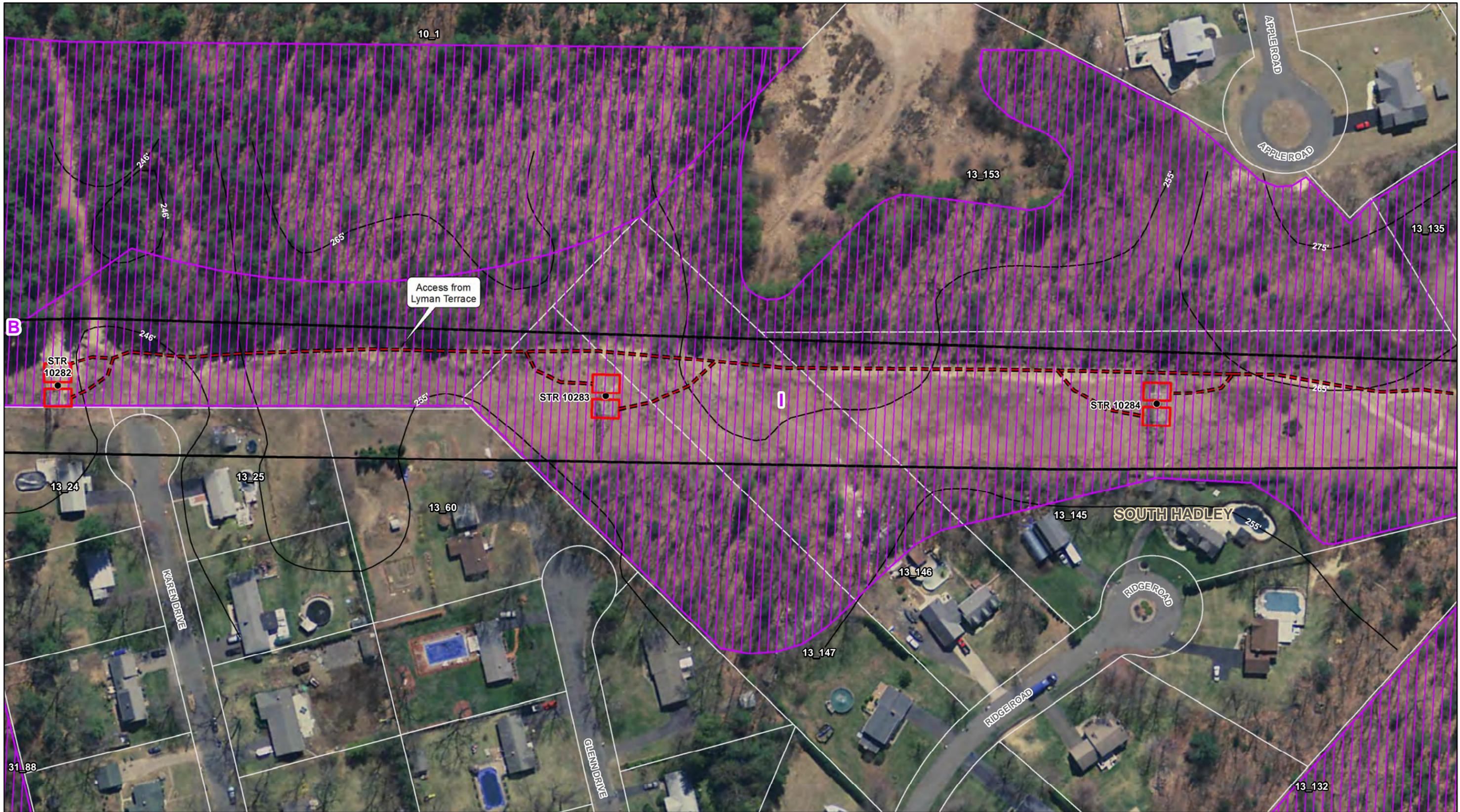
1 inch = 100 feet
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Line 1113
Insulator Replacement Project
South Hadley, Massachusetts
Mapsheets: 02 of 08

EVERSOURCE ENERGY

Tighe & Bond
 Engineers | Environmental Specialists

November 2016



Legend		14D-2 Parcel ID Label	
NHESP Certified Vernal Pools	Stream Centerline (Not Field Delineated)	Eversource NHESP 2016 Rare Species Data	100 Ft. Buffer Zone
NHESP Potential Vernal Pools	Tighe & Bond Delineated Wetland Boundary	100 Year Flood (Bordering Land Subject to Flooding)	50 Ft. Conservation Zone
Existing Structure	Delineated Wetland Boundary By Others	Municipal Boundary	100 Ft. Buffer Zone
Existing Structure (Climb Structure)	Existing Access	Delineated Species Colony	50 Ft. Conservation Zone
Railroads	Proposed Access	Mapped Colony Species	
MassDEP Hydrology	Alternative Access	Upland Matting	
Approximate Limits of Right-of-Way	Flex Track Access	Wetland Matting	
Ordinary High Water Line	Parcel Boundary	20' x 30' Work Pads	
	Wetland Area	Wetland Span	

Map Notes:
 Basemap: 2013 & 2014 Orthophotographs, MassGIS
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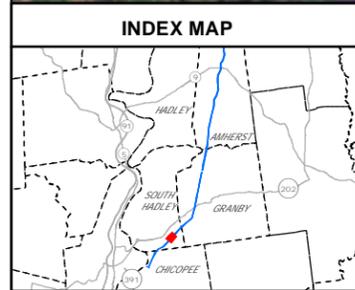
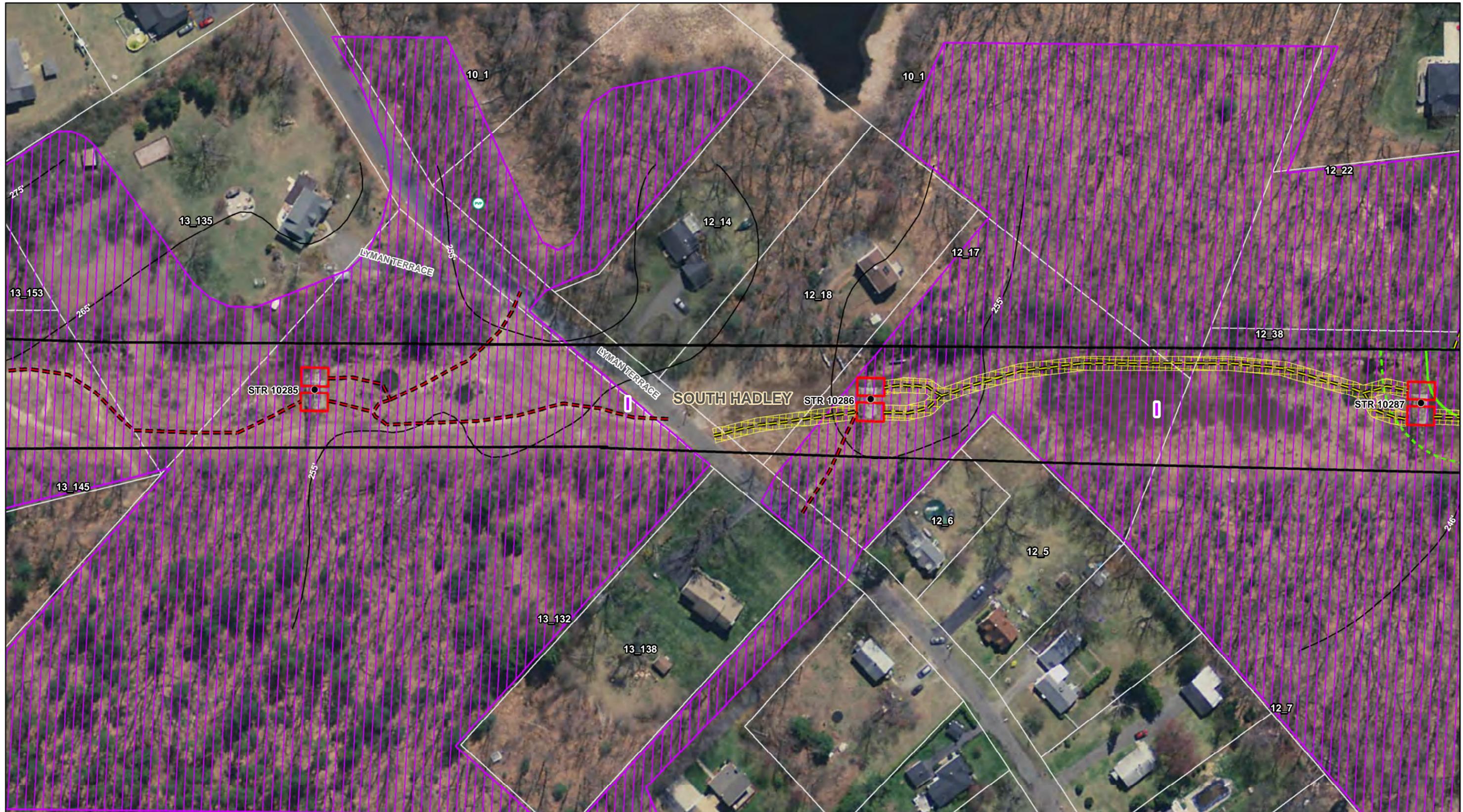
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Line 1113
Insulator Replacement Project
 South Hadley, Massachusetts
 Mapsheet: 03 of 08

EVERSOURCE
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November 2016



Legend	
NHESP Certified Vernal Pools	Stream Centerline (Not Field Delineated)
NHESP Potential Vernal Pools	Tighe & Bond Delineated Wetland Boundary
Existing Structure	Delineated Wetland Boundary By Others
Existing Structure (Climb Structure)	Existing Access
Railroads	Proposed Access
MassDEP Hydrology	Alternative Access
Approximate Limits of Right-of-Way	Flex Track Access
Ordinary High Water Line	Parcel Boundary
	Wetland Area
14D-2 Parcel ID Label	Eversource NHESP 2016 Rare Species Data
100 Year Flood (Bordering Land Subject to Flooding)	100 Ft. Buffer Zone
Municipal Boundary	50 Ft. Conservation Zone
Delineated Species Colony	Upland Matting
Mapped Colony Species	Wetland Matting
Wetland Span	20' x 30' Work Pads

Map Notes:
 Basemap: 2013 & 2014 Orthophotographs, MassGIS
 Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs.
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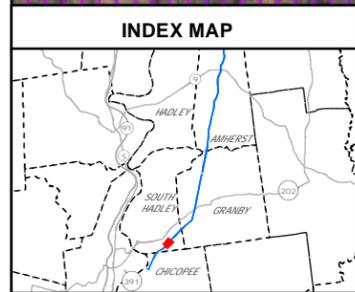
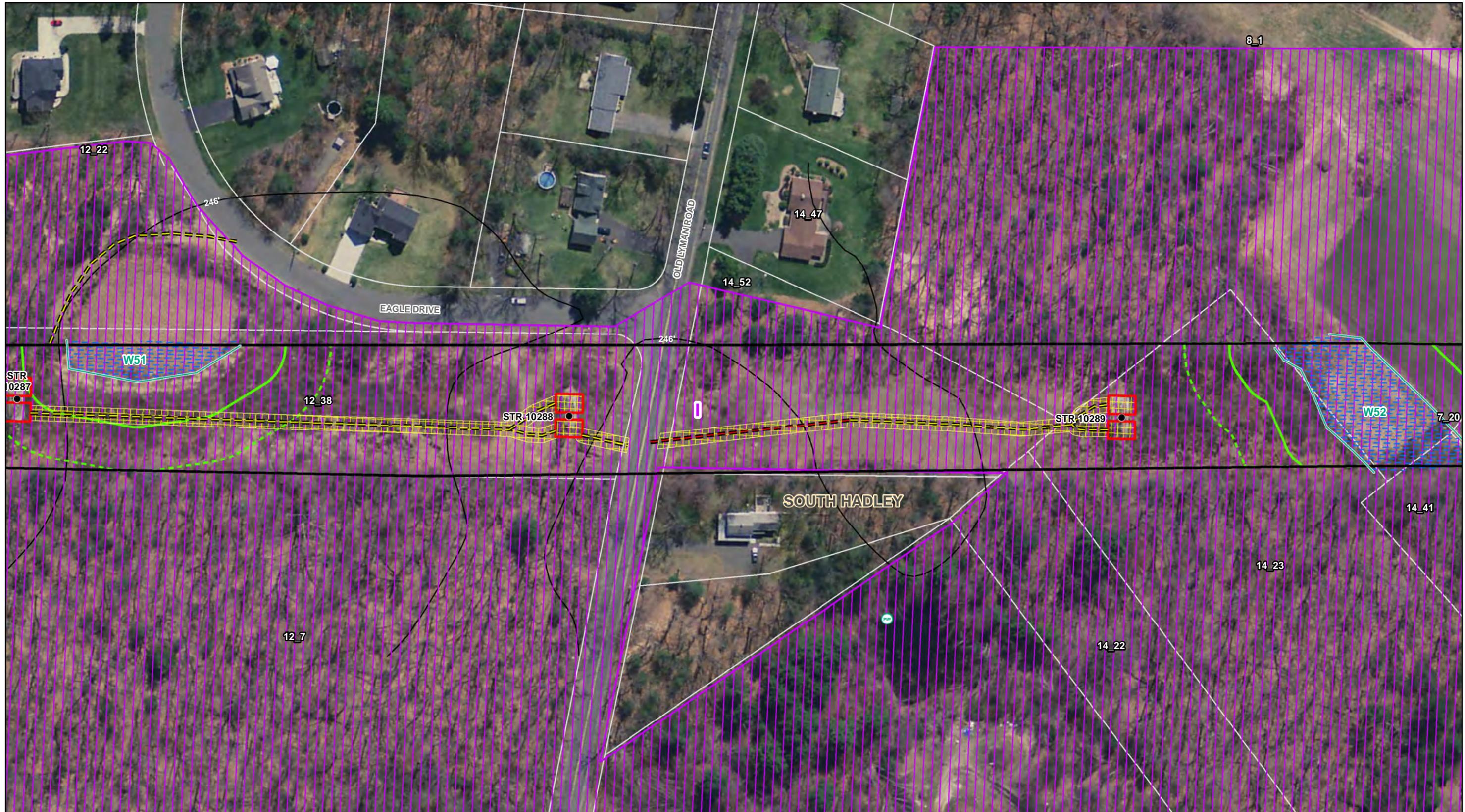
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Line 1113
Insulator Replacement Project
 South Hadley, Massachusetts
 Mapsheet: 04 of 08

EVERSOURCE
 ENERGY

Tighe & Bond
 Engineers | Environmental Specialists

November 2016



Legend		14D-2 Parcel ID Label	
NHESP Certified Vernal Pools	Stream Centerline (Not Field Delineated)	Eversource NHESP 2016 Rare Species Data	100 Year Flood (Bordering Land Subject to Flooding)
NHESP Potential Vernal Pools	Tighe & Bond Delineated Wetland Boundary	Municipal Boundary	100 Ft. Buffer Zone
Existing Structure	Delineated Wetland Boundary By Others	Delineated Species Colony	50 Ft. Conservation Zone
Existing Structure (Climb Structure)	Existing Access	Mapped Colony Species	
Railroads	Proposed Access	Upland Matting	
MassDEP Hydrology	Alternative Access	Wetland Matting	
Approximate Limits of Right-of-Way	Flex Track Access	20' x 30' Work Pads	
Ordinary High Water Line	Parcel Boundary	Wetland Span	
	Wetland Area		

Map Notes:
 Basemap: 2013 & 2014 Orthophotographs, MassGIS
 Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs.
 Parcels downloaded from MassGIS: Amherst (2011), Granby (2012), South Hadley (2016), Chicopee (2015).
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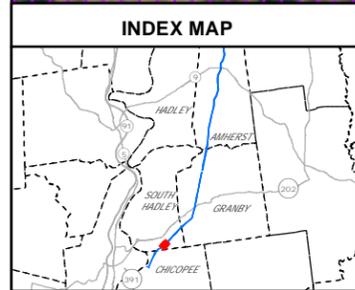
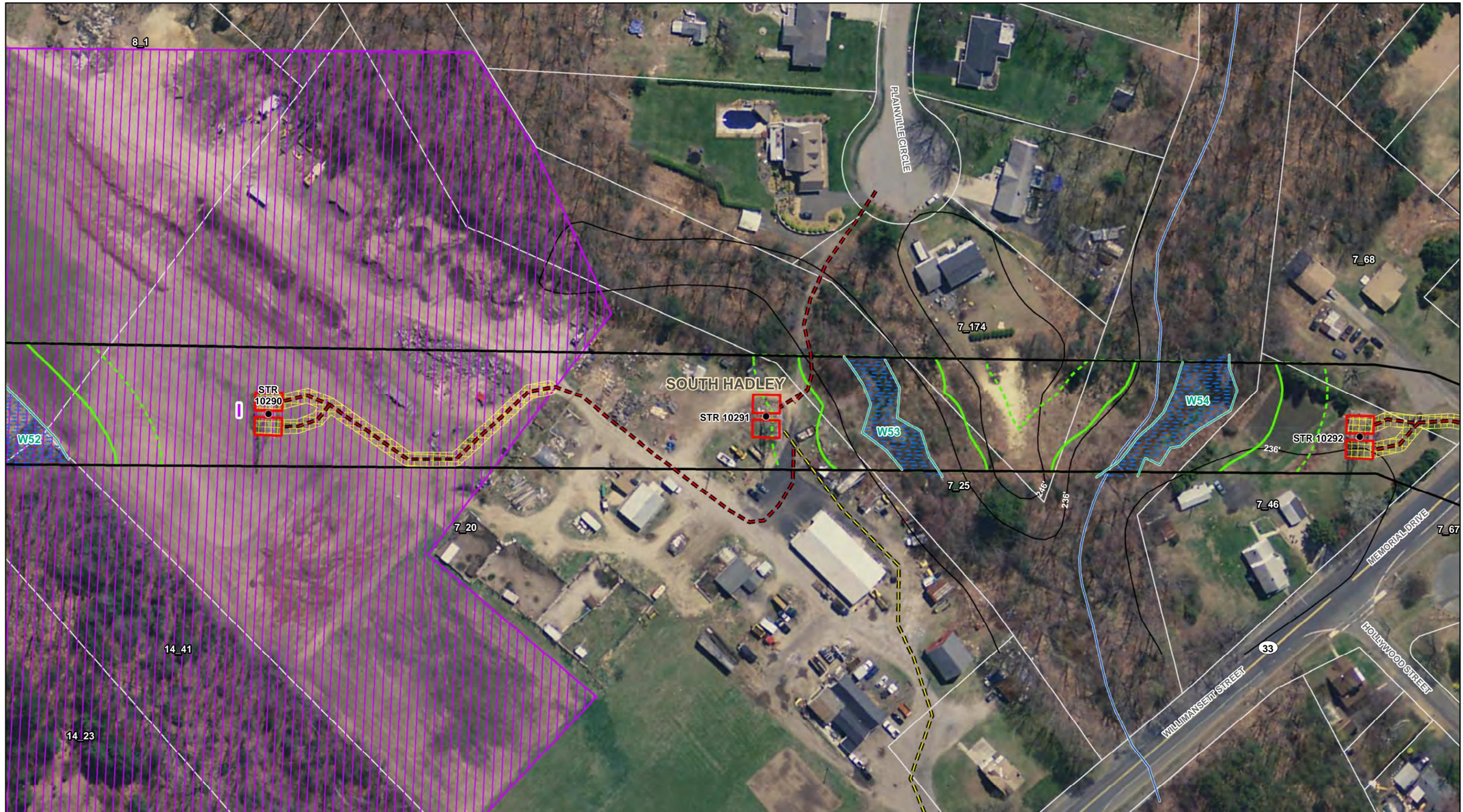
1 inch = 100 feet
 0 25 50 100 Feet

Line 1113
Insulator Replacement Project
 South Hadley, Massachusetts
 Mapsheet: 05 of 08

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 ENERGY

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 Engineers | Environmental Specialists

November 2016



Legend		14D-2 Parcel ID Label	
	NHESP Certified Vernal Pools		Eversource NHESP 2016 Rare Species Data
	Stream Centerline (Not Field Delineated)		100 Year Flood (Bordering Land Subject to Flooding)
	Tighe & Bond Delineated Wetland Boundary		Municipal Boundary
	NHESP Potential Vernal Pools		Delineated Species Colony
	Existing Structure		Mapped Colony Species
	Existing Structure (Climb Structure)		Upland Matting
	Railroads		Wetland Matting
	MassDEP Hydrology		20' x 30' Work Pads
	Approximate Limits of Right-of-Way		Wetland Span
	Ordinary High Water Line		100 Ft. Buffer Zone
	Parcel Boundary		50 Ft. Conservation Zone
	Wetland Area		
	Existing Access		
	Proposed Access		
	Alternative Access		
	Flex Track Access		

Map Notes:
 Basemap: 2013 & 2014 Orthophotographs, MassGIS
 Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs.
 Parcels downloaded from MassGIS: Amherst (2011), Granby (2012), South Hadley (2016), Chicopee (2015).
 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.

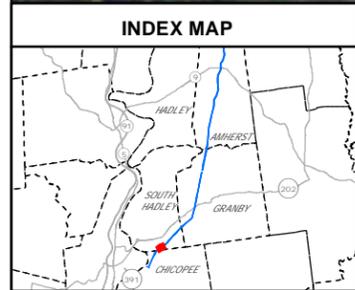
1 inch = 100 feet
 0 25 50 100 Feet

Line 1113
Insulator Replacement Project
 South Hadley, Massachusetts
 Mapsheet: 06 of 08

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November 2016



Legend		14D-2 Parcel ID Label	
	NHESP Certified Vernal Pools		Eversource NHESP 2016 Rare Species Data
	Stream Centerline (Not Field Delineated)		100 Year Flood (Bordering Land Subject to Flooding)
	Tighe & Bond Delineated Wetland Boundary		Municipal Boundary
	Delineated Wetland Boundary By Others		Delineated Species Colony
	Existing Structure		Mapped Colony Species
	Existing Structure (Climb Structure)		Upland Matting
	Railroads		Wetland Matting
	MassDEP Hydrology		20' x 30' Work Pads
	Approximate Limits of Right-of-Way		Wetland Span
	Ordinary High Water Line		100 Ft. Buffer Zone
	Parcel Boundary		50 Ft. Conservation Zone
	Wetland Area		
	Existing Access		
	Proposed Access		
	Alternative Access		
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 0 25 50 100 Feet

Line 1113
Insulator Replacement Project
 South Hadley, Massachusetts
 Mapsheet: 07 of 08

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November 2016

APPENDIX B



Photo 1: View of the scrub shrub wetland near STR 10279 located south of East Street. View facing south (7/26/2016).



Photo 2: View of the northern extent of the wetland and intermittent stream system near STR 10281. View facing west (7/26/2016).



Photo 3: View of the southern extent of the wetland and intermittent stream near STR 10281. View facing west (7/26/2016).



Photo 4: View of the emergent and scrub shrub wetland located along the eastern ROW boundary near STR 10297 and Eagle Drive. View facing east (7/26/2016)



Photo 5: View of the wetland near STR 10298 adjacent to an active agricultural area off of Old Lyman Road. View to the north looking at STR 10298 (7/26/2016).



Photo 6: View of wetland and intermittent stream near STR 10292. Wetland appears to have been affected by recent beaver activity. View facing north (7/26/2016).

APPENDIX C

NOTIFICATION TO ABUTTERS

Under the South Hadley local wetlands bylaw.

NOTICE OF PUBLIC HEARING

scheduled for

December 14 , 2016 AT 7:00 PM, in
the
**Selectboard Meeting Room, Town Hall,
116 Main Street, South Hadley.**

In accordance with the second paragraph of Massachusetts General Law Chapter 131, Section 40 and the South Hadley wetlands bylaw (Article XV of the Town General Bylaws), you are hereby notified of the following:

Tighe & Bond on behalf of Eversource Energy has filed a Notice of Intent with the South Hadley Conservation Commission to replace overhead electric insulators along Line 1113 from East Street to New Ludlow Road.

The address of the proposed activity is From East Street to New Ludlow Road along Line 1113.

The Hearing will be held on December 14 , 2016 at **7:00 PM** in the Selectboard Meeting Room at the Town Hall, 116 Main Street, South Hadley.

A copy of the Notice of Intent may be examined at the South Hadley Conservation Commission office, Room 205 of the Town Hall, 116 Main Street, South Hadley, between the hours of 8:30 A.M. to 4:00 P.M. Monday through Friday, or by appointment. For more information on the filing, proposed work, or Public Hearing call the South Hadley Conservation Commission office (413) 538-5052.

Note: Notice of the public hearing, including date, time and place, must be published at least five business days in advance in the Town Reminder.

STATEMENT OF NOTIFICATION OF ABUTTERS

To be submitted to the South Hadley Conservation Commission at the time of the meeting or hearing.

I CERTIFY UNDER PENALTIES OF PERJURY THAT ALL ABUTTERS WERE NOTIFIED OF THIS APPLICATION, PURSUANT TO THE REQUIREMENTS OF M.G.L. c. 131, sec. 40 AND THE SOUTH HADLEY WETLANDS BYLAW (ARTICLE XV OF THE TOWN GENERAL BYLAWS). NOTICE MUST BE MADE 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.

Katherine Wilkins

11/28/2016

SIGNATURE

DATE

PROP_ID	SITE_ADDR	CITY	ZIP	OWNER1	OWN_ADDR	OWN_CITY	OWN_STA	OWN_ZIP
6_168	51 LUDLOW RD	SOUTH HADLEY	01075	WARREN SCHLEY A III	51 LUDLOW RD	SOUTH HADLEY	MA	01075 3052
6_170	62 LUDLOW RD	SOUTH HADLEY	01075	CROSS DAVID	62 LUDLOW RD	SOUTH HADLEY	MA	01075
6_172	COTE BV	SOUTH HADLEY	01075	DEAN THOMAS E	86	SOUTH HADLEY	MA	01075
6_174	COTE BV	SOUTH HADLEY	01075	LUCIA REGINALD W	82 LAURIE AV	SOUTH HADLEY	MA	01075
6_176	COTE BV	SOUTH HADLEY	01075	LUCIA REGINALD W	82 LAURIE AV	SOUTH HADLEY	MA	01075
6_179	12 COTE BV	SOUTH HADLEY	01075	COTE PAUL E	12 COTE BV	SOUTH HADLEY	MA	01075 3010
6_182	56 LAURIE AV	SOUTH HADLEY	01075	MOORE RALPH ALLEN	56 LAURIE AV	SOUTH HADLEY	MA	01075 3047
6_183	LUDLOW RD	SOUTH HADLEY	01075	COTE PAUL E	12 COTE BV	SOUTH HADLEY	MA	01075 3010
6_184	54 LAURIE AV	SOUTH HADLEY	01075	DEVINE JEANNE M	54 LAURIE AV	SOUTH HADLEY	MA	01075
6_186	47 SUSAN AV	SOUTH HADLEY	01075	GENDRON RONALD W	47 SUSAN AV	SOUTH HADLEY	MA	01075 3059
6_187	50 SUSAN AV	SOUTH HADLEY	01075	GAGNE ANDRE A	50 SUSAN AV	SOUTH HADLEY	MA	01075 3055
6_191	20 NEW LUDLOW RD	SOUTH HADLEY	01075	ENGLISH BRIAN	20 NEW LUDLOW RD	SOUTH HADLEY	MA	01075 4002
7_20	128 WILLIMANSETT ST	SOUTH HADLEY	01075	WALTON CHRISTINE J TRUSTEE	143 OLD LYMAN RD	SOUTH HADLEY	MA	01075
7_25	WILLIMANSETT ST	SOUTH HADLEY	01075	SO HADLEY TOWN OF	116 MAIN ST	SOUTH HADLEY	MA	01075
7_46	158 WILLIMANSETT ST	SOUTH HADLEY	01075	NERGARARIAN MICHAEL C	158 WILLIMANSETT ST	SOUTH HADLEY	MA	01075
7_64	8 MICHAEL DR	SOUTH HADLEY	01075	SASSEVILLE WILLIAM R	8 MICHAEL DR	SOUTH HADLEY	MA	01075 3024
7_65	4 MICHAEL DR	SOUTH HADLEY	01075	MALINOWSKI MITCHEL J JR	4 MICHAEL DR	SOUTH HADLEY	MA	01075 3024
7_66	165 WILLIMANSETT ST	SOUTH HADLEY	01075	GOODENOUGH ROBERT	165 WILLIMANSETT ST	SOUTH HADLEY	MA	01075 3033
7_67	180 WILLIMANSETT ST	SOUTH HADLEY	01075	NEW ENGLAND PROPERTY	180 WILLIMANSETT ST	SOUTH HADLEY	MA	01075
7_68	2099 MEMORIAL DR	SOUTH HADLEY	01075	RATKIEWICZ BERNARD V	2099 MEMORIAL DR	SOUTH HADLEY	MA	01075
7_84	195 WILLIMANSETT ST	SOUTH HADLEY	01075	PISE JOHN J	195 WILLIMANSETT ST	SOUTH HADLEY	MA	01075 3039
7_85	15 MICHAEL DR	SOUTH HADLEY	01075	ME CHIN	15 MICHAEL DR	SOUTH HADLEY	MA	01075 3023
7_86	19 MICHAEL DR	SOUTH HADLEY	01075	SIERZEGO EDWARD M	19 MICHAEL DR	SOUTH HADLEY	MA	01075 3023
7_87	23 MICHAEL DR	SOUTH HADLEY	01075	KIDNESS DEBORAH A	23 MICHAEL DR	SOUTH HADLEY	MA	01075 3023
7_88	27 MICHAEL DR	SOUTH HADLEY	01075	NEWMAN JEFFREY T	27 MICHAEL DR	SOUTH HADLEY	MA	01075 3023
7_89	47 LAURIE AV	SOUTH HADLEY	01075	GONZALEZ SONIA J	15 LOWELL LN	HUNTINGTON	MA	01050
7_90	43 LAURIE AV	SOUTH HADLEY	01075	ROBERTS CAROL ANNE	43 LAURIE AV	SOUTH HADLEY	MA	01075 3013
7_91	19 LAURIE AV	SOUTH HADLEY	01075	OZGA DANIEL G	19 LAURIE AV	SOUTH HADLEY	MA	01075 3013
7_92	15 LAURIE AV	SOUTH HADLEY	01075	ZYCH KENNETH W	15 LAURIE AV	SOUTH HADLEY	MA	01075 3013
7_174	12 PLAINVILLE CR	SOUTH HADLEY	01075	WALTON JOANNE M	12 PLAINVILLE CR	SOUTH HADLEY	MA	01075
8_1	OLD LYMAN RD	SOUTH HADLEY	01075	WALTON CHRISTINE J	143 OLD LYMAN RD	SOUTH HADLEY	MA	01075
10_1	NEW LUDLOW RD	SOUTH HADLEY	01075	SO HADLEY TOWN OF	116 MAIN ST	SOUTH HADLEY	MA	01075
11_31	EAST ST	SOUTH HADLEY	01075	SO HADLEY TOWN OF	438 GRANBY RD	SOUTH HADLEY	MA	01075
12_5	81 LYMAN TR	SOUTH HADLEY	01075	BARA ANTOINETTE M	81 LYMAN TR	SOUTH HADLEY	MA	01075 2623
12_6	87 LYMAN TR	SOUTH HADLEY	01075	NOFAL ABDEL	87 LYMAN TR	SOUTH HADLEY	MA	01075 2623
12_7	60 OLD LYMAN RD	SOUTH HADLEY	01075	SO HADLEY TOWN OF	85 MAIN ST	SOUTH HADLEY	MA	01075
12_14	93 LYMAN TR	SOUTH HADLEY	01075	GATZOUNAS MARK W	93 LYMAN TR	SOUTH HADLEY	MA	01075 2923
12_17	89 LYMAN TR	SOUTH HADLEY	01075	SOUTH HADLEY ELECTRIC	85 MAIN ST	SOUTH HADLEY	MA	01075
12_18	91 LYMAN TR	SOUTH HADLEY	01075	LIU MILES XIAN	91 LYMAN TR	SOUTH HADLEY	MA	01075
12_22	2 EAGLE DR	SOUTH HADLEY	01075	MARCOUX ANDRE S	67 CATHERINE STREET	CHICOPEE	MA	01013
12_38	EAGLE DR	SOUTH HADLEY	01075	SO HADLEY REALTY TRUST	248 OLD LYMAN RD	SOUTH HADLEY	MA	01075
13_24	22 KAREN DR	SOUTH HADLEY	01075	BROUGH JAMES A	22 KAREN DR	SOUTH HADLEY	MA	01075 2413
13_25	19 KAREN DR	SOUTH HADLEY	01075	MOISE TINA MARIE	19 KAREN DR	SOUTH HADLEY	MA	01075 2412
13_60	12 GLENN DR	SOUTH HADLEY	01075	ELLIS KENNETH R	12 GLENN DR	SOUTH HADLEY	MA	01075
13_132	96 LYMAN TR	SOUTH HADLEY	01075	WARNKEN MARGARET ANN	138 VAUXHALL ST	NEW LONDON	CT	06320
13_135	99 LYMAN TR	SOUTH HADLEY	01075	DEGENZA RUSSELL F	99 LYMAN TR	SOUTH HADLEY	MA	01075

13_138	86 LYMAN TR	SOUTH HADLEY	01075	KENDALL WILLIAM L	86 LYMAN TR	SOUTH HADLEY	MA	01075 2651
13_145	90 RIDGE RD	SOUTH HADLEY	01075	JARVIS DONALD G	90 RIDGE RD	SOUTH HADLEY	MA	01075
13_146	88 RIDGE RD	SOUTH HADLEY	01075	LABARRE RICHARD C	88 RIDGE RD	SOUTH HADLEY	MA	01075 2424
13_147	86 RIDGE RD	SOUTH HADLEY	01075	HAYWARD DONALD M	86 RIDGE RD	SOUTH HADLEY	MA	01075
13_153	13 APPLE RD	SOUTH HADLEY	01075	ADAM & EVE	105 LYMAN TR	SOUTH HADLEY	MA	01075
14_22	WILLIMANSETT ST	SOUTH HADLEY	01075	NYZIO GENE	11 COVE ISLAND RD	SOUTH HADLEY	MA	01075
14_23	98 WILLIMANSETT ST	SOUTH HADLEY	01075	NIZIO CASIMIRA	98 WILLIMANSETT ST	SOUTH HADLEY	MA	01075 3062
14_41	110 WILLIMANSETT ST	SOUTH HADLEY	01075	MECKAY FRANCIS P	110 WILLIMANSETT ST	SOUTH HADLEY	MA	01075 3062
14_47	141 OLD LYMAN RD	SOUTH HADLEY	01075	JUBINVILLE ANN L	141 OLD LYMAN RD	SOUTH HADLEY	MA	01075 2629
14_52	OLD LYMAN RD	SOUTH HADLEY	01075	JUBINVILLE ANN L	141 OLD LYMAN RD	SOUTH HADLEY	MA	01075
31_88	438 GRANBY RD	SOUTH HADLEY	01075	SO HADLEY TOWN OF	438 GRANBY RD	SOUTH HADLEY	MA	01075
31_110	195 PINE GROVE DR	SOUTH HADLEY	01075	PINE GROVE CONDOMINIUMS	195 PINE GROVE DR	SOUTH HADLEY	MA	01075
33_11	EAST ST	SOUTH HADLEY	01075	HOLYOKE SANITARY LANDFILL INC	C/O WASTE MANAGEMENT	CHICAGO	IL	60690 1450
33_12	351 EAST ST	SOUTH HADLEY	01075	SO HADLEY TOWN OF	116 MAIN ST	SOUTH HADLEY	MA	01075
33_26	451 EAST ST	SOUTH HADLEY	01075	MARION ANDREW T	451 EAST ST	SOUTH HADLEY	MA	01075 0325

APPENDIX D

Construction Mats (i.e., timber or swamp mats)Applications: Wetland crossings, rut minimization

- Used for access where the ground surface is unstable due to shallow, standing water, saturated soils, or other substrates not suitable for heavy vehicles.

Limitations:

- Only for temporary use. Generally mats should be removed upon construction completion.
- May float away in high water conditions.
- Need to be installed with heavy machinery.
- AlturnaMATS® limited to smaller vehicles and equipment.
- Equipment operators should remain cautious so as not to drive off or slip off the side of the mats.
- In winter, mats must be plowed and sanded or heated to prevent equipment from sliding off mats. Use of a deicing agent requires approval by the Environmental Licensing and Permitting Group.

Installation:

- Place mats along the travel area without any gaps and so that each board is positioned perpendicular to the direction of traffic. Position mats so that they are offset far enough from the resource area so that ruts are not created when equipment enters and exits a sensitive area.
- Remove mats by “backing” out of the site and removing mats one at a time. Regrade soils to pre-existing contours while taking care not to compact soils.
- Clean mats after use to remove any invasive plant species seed stock. Cleaning methods may include, but are not limited to, shaking or dropping mats in a controlled manner with a piece of machinery to knock off attached soil and debris, spraying with water or air, sweeping, or exposing the mats to high temperatures.
- Clean mats that were used in wetlands dominated by invasive species using brooms, shovels, and compressed air, if needed.

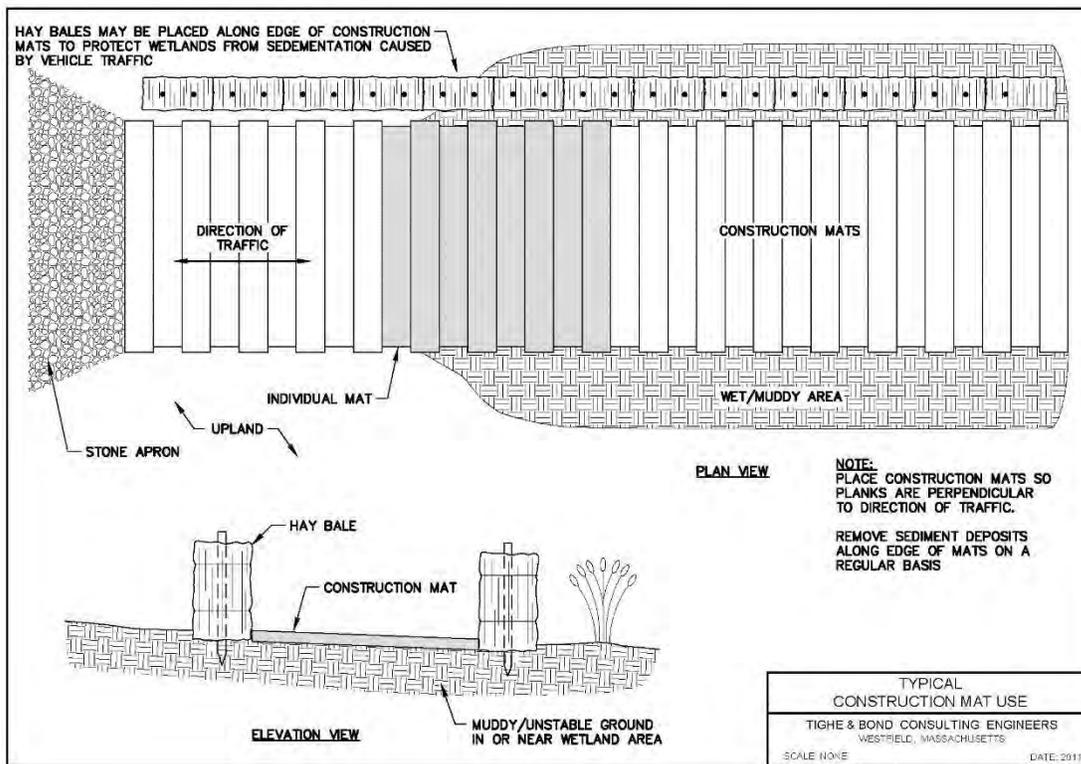
Additional Comments:

Lightweight, easy to maneuver alternatives to traditional mats are available. For example, AlturnaMATS® are half-inch thick polyethylene slip-resistant ground protection mats available in dimensions up to 4 feet by 8 feet and weigh between 21.5 and 86 pounds.

See photograph and typical sheet on following pages.



Construction mat access road.



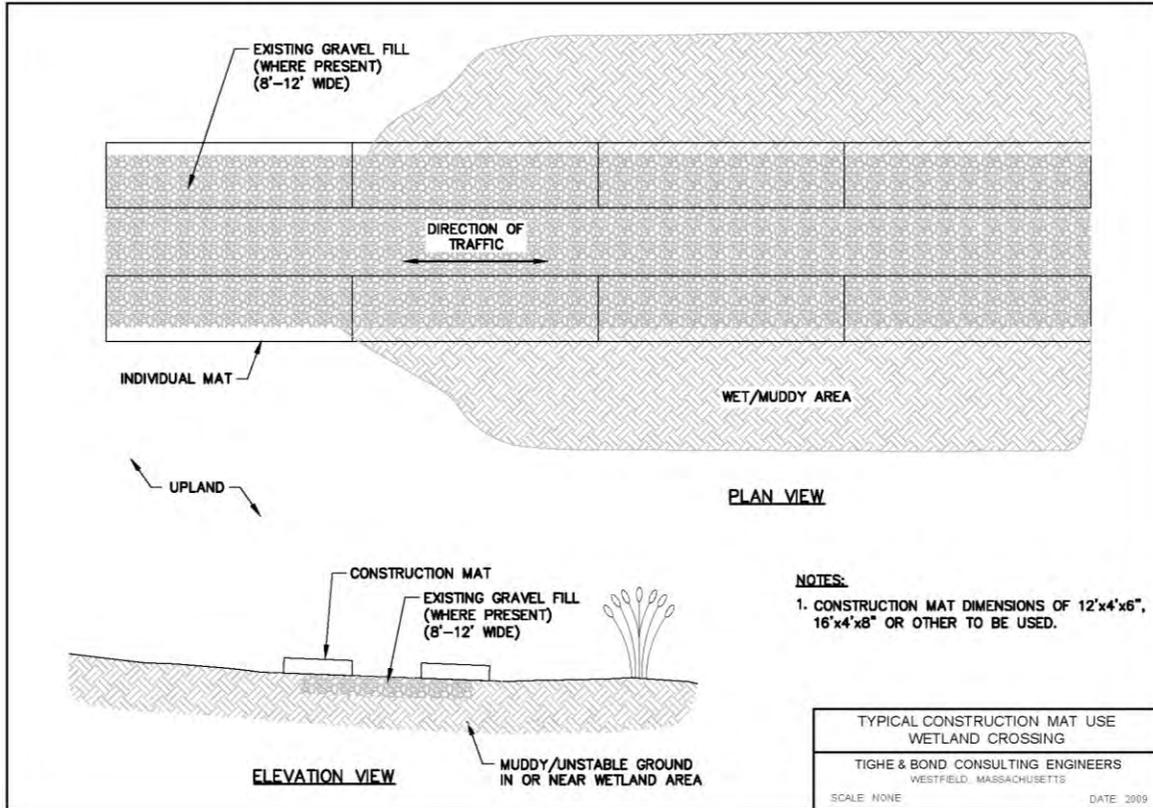
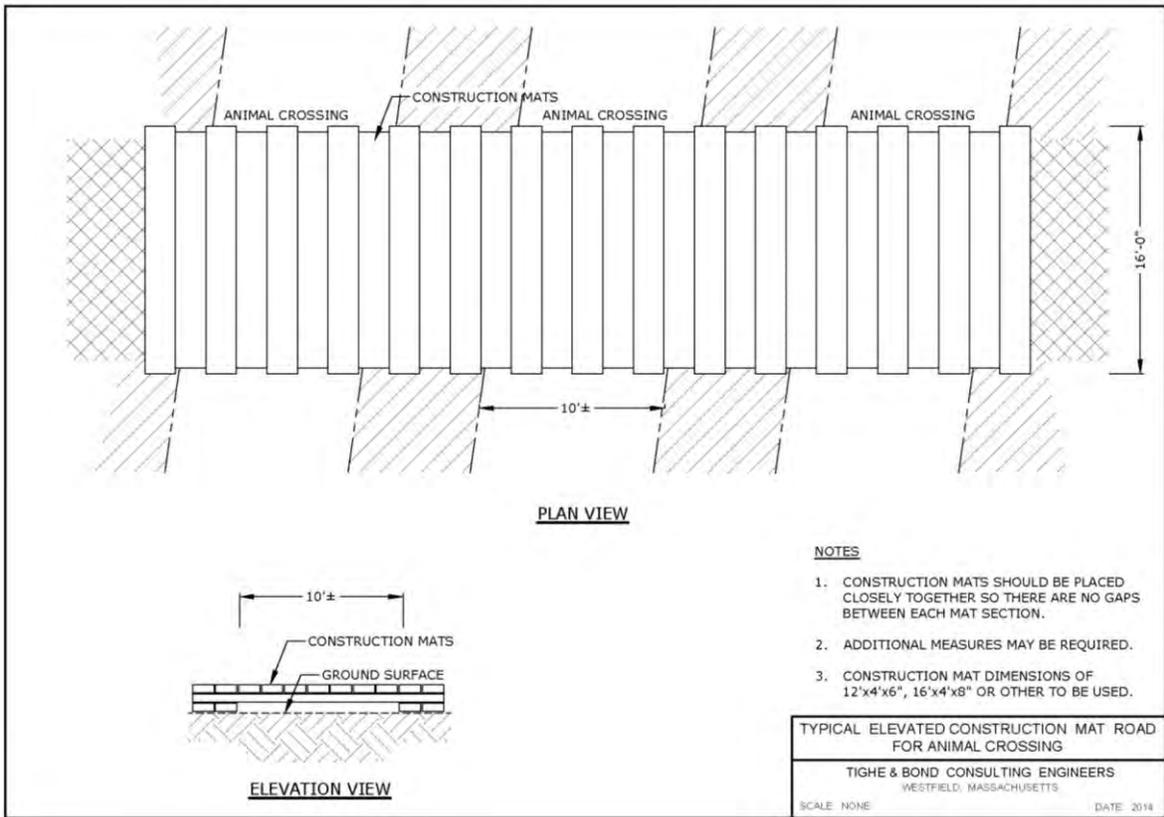




Photo provided courtesy of Tighe & Bond, Inc.

Elevated construction mat road with bridging for animal crossing.



1.3 Straw (or Hay) Bales

Applications: Erosion and sedimentation control, mulch

Limitations:

- Hay bales degrade quickly.
- Hay bale height can provide an obstacle to movement of smaller wildlife.
- Should not be used as a temporary check dam/ stormwater control within waterways.
- Difficult to install during frozen conditions.
- Generally only effective for 3-6 months (hay) or 6-12 months (straw) before replacement.

Overview:

Hay/straw bales should be placed end-to-end to form a temporary sedimentation control barrier. This barrier should run perpendicular to the slope and direction of runoff, and should be installed downgradient of the disturbed site (i.e., construction area). Hay/straw bales are intended to slow flow velocity and trap sediments to prevent siltation in sensitive areas, specifically downgradient areas with open and/or flowing water. Barriers should be removed once the project is complete and soils are stabilized with erosion control blankets and/or well-established vegetation.

Installation:

- Install hay/straw bales end-to-end lengthwise along the toe of a slope or along a slope contour being sure the bales are butted tightly against each other without gaps between them. The outer ends of the barrier should be turned slightly upslope.
- Entrench to a minimum depth of 4 inches and backfill around the base of the bale. If additional protection is needed, backfill both upslope and downslope to create better ground contact and reduce sediment passage through or beneath hay/straw bales.
- Stake each hay/straw bale into the ground by two stakes each approximately 3 feet long
- If a silt fence is being used with the hay/straw bale barrier, position the silt fence downgradient of the hay/straw bales (hay bales filter first).
- Since hay/straw bales degrade quickly, check barriers often and replace as needed. Routinely remove and dispose of sediment buildup in a stable upland area.
- The hay/straw bale barrier should be as far away from downgradient sensitive areas, and as close to the work areas as construction limitations allow, in order to minimize the total work area and disturb as little area as possible.
- Once the project is complete and soils are stabilized, hay/straw bales should generally be compacted and allowed to decay in place, as their height can provide an obstacle to movement of smaller wildlife. Spreading hay bales around a site as mulch could introduce weed seeds. Using hay/straw as mulch is not generally

problematic if the site is already colonized by invasive species. Plastic bailing twine should be removed from hay/straw bales. Wooden stakes should also be removed.

Maintenance:

- Inspect before a forecasted storm event and daily during a prolonged rain event.
- Remove accumulated sediment and properly disposed outside sensitive areas when it has reached a thickness of ½ to ¾ the height of the bale.
- Replace rotted or sediment-covered bales when necessary.

Additional Comments:

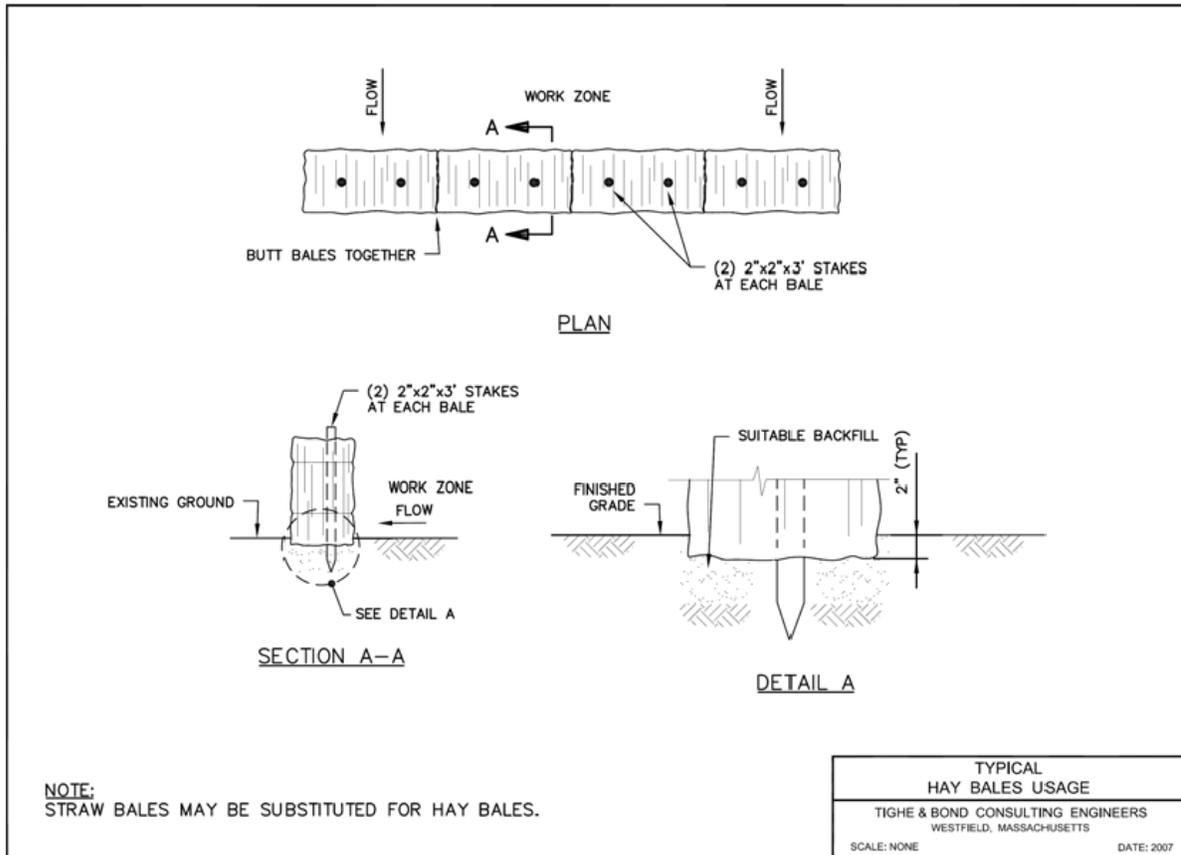
Straw bales are favored over hay bales for use as erosion control barriers. Since straw bales are composed of the dried stalks left over after a grain is harvested, they do not contain the plant's seeds and therefore will not spread growth of such species, some of which may be exotic, invasive or otherwise undesirable. Hay bales are generally less expensive, but consist of the seed heads and the upper, thinner portion of the stems which generally decay faster than straw.



Properly installed hay bale barrier with silt fence.



Properly installed hay bale barrier with silt fence.



1.4 Silt Fence

Applications: Sedimentation control, work limits, temporary animal barrier, slows flow on steep slopes

Limitations:

- Frozen or rocky ground (for installing stakes).
- May prevent critical movements of sensitive wildlife species.
- Disposal.

Overview:

Silt fence is constructed of a permeable geotextile fabric secured by wooden stakes driven into the ground. It is installed as a temporary barrier to prevent sediments from flowing into an unprotected and/or sensitive area from a disturbed site. A silt fence should be installed downgradient of the work area. Once the project is complete and soils are stabilized, silt fence materials (i.e., geotextile fabric and wooden stakes) must be removed and properly disposed off-site (see environmental scientist to determine if area is stabilized).

Installation:

- Install silt fence along the toe of a slope or along a fairly level contour with the outermost ends directed upslope. The fabric should be laid into a 6-inch wide by 6-inch deep trench dug on the upslope side of the fence and tamped down with fill material to ensure a sturdy base and so sediments will not flow beneath the fabric. Use of a Ditch Witch® or similar equipment is suggested for this task.
- Drive the silt fence stakes into the ground until secure (≥ 6 inches below grade).
- If a hay bale or straw bale barrier is being used with the silt fence, position the silt fence downgradient of the bales.
- The silt fence should be as far away from downgradient sensitive areas, and as close to the work areas as construction limitations allow, in order to disturb as little area as possible.

Maintenance:

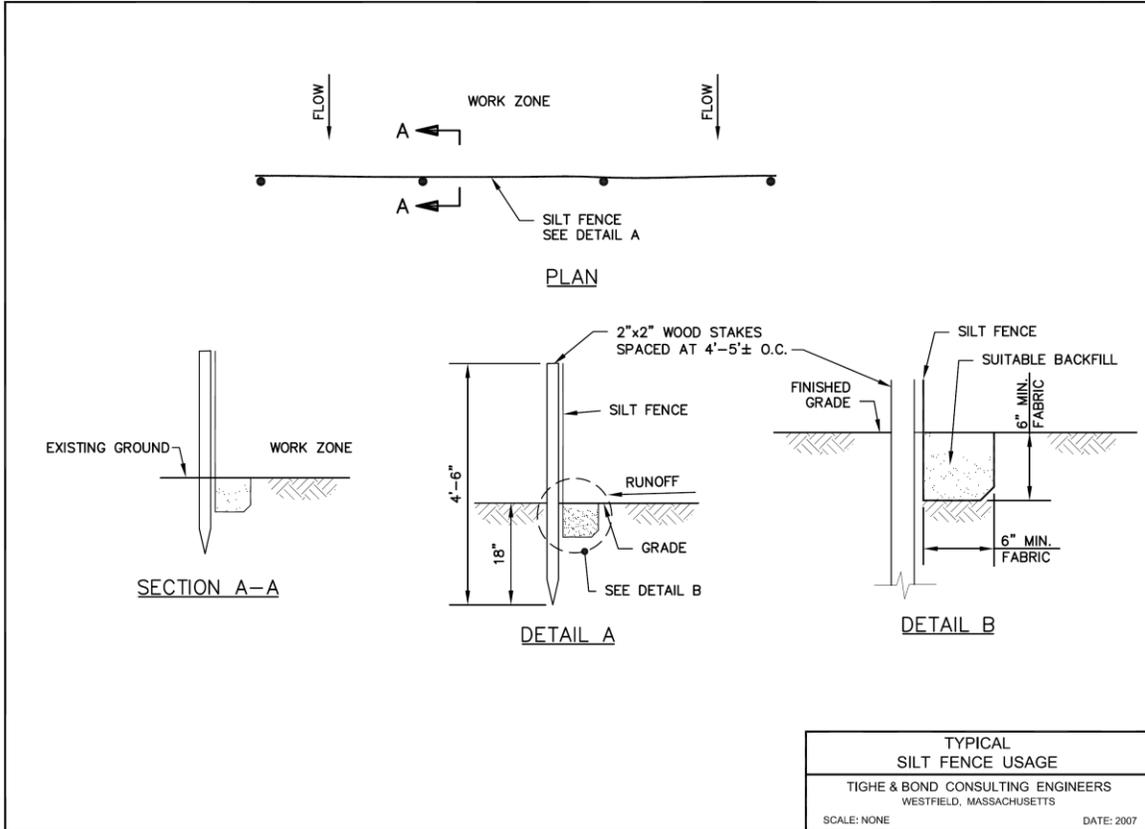
- Inspect frequently and replace or repair as needed, especially during long-term projects.
- Routinely remove and properly dispose of sediment buildup in a stable upland area, outside of sensitive areas. Remove sediment when it has accumulated to a thickness of $\frac{1}{2}$ the height of the silt fence.

Additional Comments:

A silt fence must be installed in an excavated trench and located where shallow pools can form so sediment can settle. The fence must be placed along the contour. If placed otherwise, water may concentrate to a low point and is likely to flow beneath the fence.



Properly installed and functioning silt fence. Direction of flow indicated by blue arrow.



1.7 Straw/Compost Wattles

Applications: Erosion and sedimentation control, work limits

Limitations:

- Not recommended for steep slopes.

Overview:

Straw wattles are used as an erosion control device to slow runoff velocities, entrain suspended sediments, and promote vegetation growth until an area is stabilized. They are not generally intended for steep slopes, but rather, to stabilize low to moderate grades where there is a broad area of disturbance. Straw wattles may also be used along small stream banks to protect areas before vegetation has stabilized the soils. The wattles are constructed from a biodegradable netting sock stuffed with straw and may be left to biodegrade in place once a project is complete.

Wattles should be placed lengthwise, perpendicular to the direction of runoff. The wattles are typically spaced about 10 to 40 feet apart, depending on the slope angle. Additionally, the soil texture should be considered – for soft, loamy soils, wattles should be placed closer together; for coarse, rocky soils, they may be placed further apart.

Installation:

- Install prior to disturbing soil in the upgradient drainage area.
- Install so that the ends of each row of wattles on a slope are slightly turned downhill to prevent ponding behind them.
- Where straw wattles are installed end-to-end, butt the wattles tightly together so as not to allow water/sediments to flow between them.
- Place straw wattles in a shallow trench to assure stabilization and soil should be packed against the wattle on the uphill side.
- Securely stake straw wattles to the ground by driving a stake directly through the wattle approximately every four feet. A portion of each stake should remain approximately 2 to 3 inches above the wattle.
- Use *without* silt fence reinforcement: at the base of shallow slopes, on frozen ground, bedrock, and rooted, forested areas.
- Use *with* silt fence reinforcement: at low points of concentrated runoff, below culvert outlets, at the base of slopes more than 50 feet long, and in places where standalone mulch wattles have failed.

Maintenance:

- Routinely inspect wattles and after rain events. Repair as needed with additional wattles and/or stakes.
- Remove sediment deposits when they reach half the height of the wattle. Repair or reshapes wattles when they have eroded or have become sediment clogged or ineffective.

- If flow is evident around the edges, extend the barriers or evaluate replacing them with temporary check dams.
- Reinforce the berm with an additional sediment control measure, such as silt fence or a temporary rock check dam, if there is erosion or undercutting at the base or sides of the berm or if large volumes of water are being impounded behind the berm.

Additional Comments:

Woody vegetation and tall grasses may need to be removed before installing the berm to prevent voids that allow sediment under the berm. Wattles can also be planted with woody vegetation and seeded with legumes for additional stability.



1.10 Loaming and Seeding

Applications: Erosion control, soil stabilization, site restoration

Limitations:

- May be site specific limitations (e.g. permit or State requirements).
- Applies to upland areas only.

Overview:

Permanent seeding is appropriate for vegetated swales, steep slopes, or filter strips. Temporary seeding is used if construction has ceased and if an area will be exposed.

Installation:

- Apply loam/ topsoil prior to spreading seed mix per manufacturer’s recommendations. Apply water, fertilizer, and mulch to seedbed, as needed.
- Plant native species of grasses and legumes where practicable.

Maintenance:

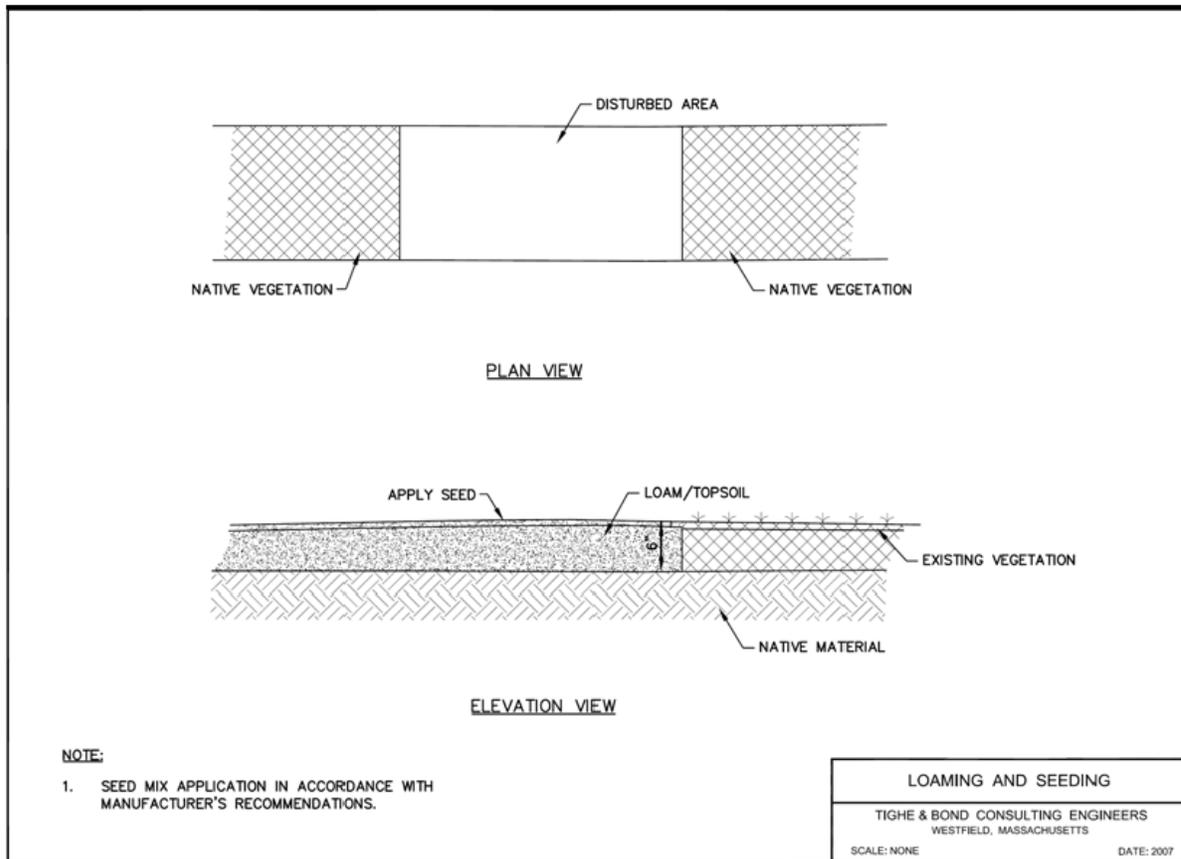
- Inspect on regular basis until vegetation has established.
- If washout or erosion occurs, repair surface, re-seed, re-mulch and install new netting.
- Follow permit requirements regarding use of wetland seed mix in wetlands where required.

Additional Comments:

Cool Season Grasses	Warm Season Grasses
<ul style="list-style-type: none"> • Best growth in the cool weather of fall and spring, set seed in June and July. • Seed April 1-May 31 and Aug 1-Sept 10. 	<ul style="list-style-type: none"> • Growth begins in the spring, accelerates in the summer, and plants set seed in the fall. • Seed April 1-May 15, dormant seeding Nov 1-Dec 15.



Loaming and seeding of recently disturbed right of way.



1.11 Mulching with Hay/Straw/Woodchips

Applications: Erosion control, soil stabilization, site restoration

Limitations:

- May be site specific limitations (e.g. permit or State requirements).
- Applies to upland areas only.
- Thick mulch may prevent seed germinations.
- Mulch on steep slopes must be secured with netting to prevent it from being washed away.

Overview:

Mulching consists of an application of a protective blanket of straw or other plant residue, gravel, or synthetic material to the soil surface to provide short term soil protection. It enhances plant establishment by conserving moisture and moderating soil temperatures, and anchors seed and topsoil in place. Mulch also reduces stormwater runoff velocity.

Application rates and technique depend on material used. Select mulch material based on soil type, site conditions and season. Straw/hay provides the densest cover if applied at the appropriate rate (at least ½ inch) and should be mechanically or chemically secured to the soil surface. Woodchip application can be less expensive if on-site materials are used.

Installation:

- Use in areas which have been temporarily or permanently seeded.
- Use mulch netting on slopes greater than 3% or in concentrated flows.
- Mulch prior to winter (ideally in mid-summer).

Maintenance:

- Inspect on regular basis until vegetation has established.
- If washout or erosion occurs, repair surface, re-seed, re-mulch, and install new netting.

Additional Comments:

Type	Description/Use
Straw/Hay	<ul style="list-style-type: none"> • Straw or hay applied to surface at 2-4 tons per acre • Mechanically or chemically secured to soil surface • Provides the densest cover to protect soil and seeds
Wood Fiber/Hydraulic Mulch	<ul style="list-style-type: none"> • Chopped up fibers applied to the soil surface with a hydroseeder • Tackifier when necessary can be applied with fiber, seeds and fertilizer in one step. This is best when done with fast growing seeds
Compost	<ul style="list-style-type: none"> • Compost acts as a soil amendment but is more expensive than most mulches • Its efficiency is comparable to wood fiber
Wood Chips	<ul style="list-style-type: none"> • Use of wood chips as a mulch saves money if on-site materials are used • Effective when applied at high levels (6 tons per acre) and on up to 35% slopes



Typical view of light mulching atop unstable, seeded soils.