



May 6, 2016

Ms. Darlene Forst  
Shoreland Program  
NH Department of Environmental Services  
PO Box 95  
Concord, NH 03302

RE: Northern Pass Transmission, LLC. Shoreland Applications

Dear Ms. Forst:

On behalf of Northern Pass Transmission LLC, Normandeau Associates, Inc. is submitting three shoreland applications for underground cable installation in the Northern Pass project area. The applications for Woodstock and Campton have been updated with additional shoreland impacts, and the application for Thornton is new. The proposed work is similar to what was submitted in October 2015, but upon further review of the reference line originally used to identify the shoreland buffer where it parallels the project route (and field access is not available), it was determined that using the visible edge of water apparent on current aerial photos slightly increased the shoreland buffer overlap with construction locations. There are now five construction sites along Route 3 in Thornton that appear to be within the Shoreland buffer. In Woodstock, two sites, numbered 5 and 7, were added, and Site 1 was added in Campton. These are numbered north to south, so the numbers of the sites submitted previously were changed accordingly in the applications. However, no changes to the work in the original sites will occur.

Per your guidance, there are no waiver requests associated with any of these applications. The Shoreland rules at RSA 483-B:9 IV-b. state "Public utility lines and associated structures and facilities, public roads, and public water access facilities including boat ramps shall be permitted by the commissioner as necessary and consistent with the purposes of this chapter and other state law." In addition, there are no calculations for unaltered area, as land within a roadway or shoulder cannot be left in an unaltered state for safety reasons.



We appreciate your review of these applications. Please feel free to contact me if you have any questions or require additional information.

Sincerely,

Lee Carbonneau  
As Agent for Northern pass Transmission, LLC.  
Senior Principal Scientist  
Normandeau Associates, Inc.

Attach.

Cc. Robert Clarke, Northern Pass Transmission, LLC.



***Via Certified Mail***

May 3, 2016

Pemigewasset River Local Advisory Committee  
Max Stamp, Chair  
2110 Summer St.  
Bristol, NH 03222

**Re: Shoreland Permit Application – The Northern Pass Project**

Dear Mr. Stamp:

Enclosed please find a copy of the Shoreland Permit Application package that will be filed with the NH Department of Environmental Services (DES) and New Hampshire Site Evaluation Committee for the Northern Pass Project. This is an update to a previously submitted application that includes one or more additional work locations within a protected shoreland of a public water or Designated River in your regulatory area. Under state law, it is a requirement to provide the municipalities and Local River Advisory Committees having jurisdiction over these waterbodies with a copy of the shoreland application by Certified mail, for review and comment.

Sincerely,

A handwritten signature in blue ink that reads "Lee E. Carbonneau".

Lee Carbonneau  
Normandeau Associates, Inc.  
As agent for Northern Pass Transmission, LLC.



***Via Certified Mail***

May 3, 2016

Town of Thornton  
Merrill Access Road  
Thornton, NH 03285

**Re: Shoreland Permit Application – The Northern Pass Project**

Dear Sir or Madam:

Enclosed please find a copy of the Shoreland Permit Application package that will be filed with the NH Department of Environmental Services (DES) and New Hampshire Site Evaluation Committee for the Northern Pass Project. The project includes work in or around rivers, lakes, streams ponds, etc. Under state law, it is a requirement to provide the municipalities and Local River Advisory Committees having jurisdiction over these waterbodies with a copy of the shoreland application by Certified mail, for review and comment. Please find attached a copy of the application, which proposes work within the protected shoreland of a public water or Designated River in your regulatory area.

Sincerely,

Lee Carbonneau  
Normandeau Associates, Inc.  
As agent for Northern Pass Transmission, LLC.



**Shoreland Permit Application  
Northern Pass  
Pemigewasset River, Thornton, NH**

**Prepared for**  
Northern Pass Transmission, LLC and  
Public Service Company of New Hampshire  
d/b/a Eversource Energy  
Energy Park  
780 Commercial Street  
Manchester, NH 03101

May 2016

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DISCLOSURE STATEMENT

*The data contained in all pages of this document have been submitted in confidence and contain trade secrets and/or privileged or confidential information, and such data shall be used or disclosed only for evaluation purposes, provided that if a contract is awarded to this proposer as a result of or in connection with the submission of this proposal, the client shall have the right to use or disclose the data herein to the extent provided in the contract. This document includes data that shall not be disclosed outside of the purposes of this submittal and shall not be duplicated, used, or disclosed--in whole or in part--for any purpose other than for evaluation purposes.*

## 1.0 Shoreland Permit Application

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# SHORELAND PERMIT APPLICATION

Water Division/ Shoreland Program

Land Resources Management

Check the status of your application: [www.des.nh.gov/onestop](http://www.des.nh.gov/onestop)



RSA/Rule: RSA 483-B, Env-Wq 1400

Activity Type Use Only	Activity Type Use Only	Activity Type Use Only	W. Number
			City/Town
			AP Number
			Project

This is an application for a permit to excavate, fill or construct new structures within the protected shoreland as regulated under RSA 483-B. For a complete list of activities that do not require a shoreland permit, view the shoreland program [frequently asked questions](#) (FAQs)

Please type or print clearly. **Please note:** Application packages missing required elements will be returned to the applicant in their entirety, including the fee. Land Resources Management will include a letter identifying the missing elements and describing how to resubmit the application package to NHDES. Application packages that are accepted will proceed to technical review to ensure the applicant has fulfilled all requirements as specified by statute or rules. For more information visit the [New Land Resources Management Application Return Process](#) site located on the Shoreland Program Page.

<b>1. PROPERTY OWNER</b>			
LAST NAME, FIRST NAME, M.I.: _NH Department of Transportation, c/o Alan Hanscom, District Engineer_			
ADDRESS: _2 Sawmill Road_		TOWN/CITY: Gilford	STATE: NH
PHONE: _603-524-6667		EMAIL: district3@dot.state.nh	
<b>2. PROJECT LOCATION</b>			
ADDRESS: Multiple		TOWN/CITY: Thornton	STATE: NH
WATERBODY NAME: Pemigewasset River		TAX MAP: Multiple	LOT NUMBER: Multiple
<b>3. CONTRACTOR OR AGENT</b>			
LAST NAME, FIRST NAME, M.I.: Carboneau, Lee E.			
ADDRESS: 25 Nashua Road		TOWN/CITY: Bedford	STATE: NH
PHONE: 603-637-1150		EMAIL: lcarboneau@normandeau.com	
<b>4. CRITERIA</b>			
Please check at least one of the following below:			
<input checked="" type="checkbox"/> This shoreland permit application requires neither a proposal to make the property more nearly conforming nor a request for a waiver of a minimum standard.			
<input type="checkbox"/> This shoreland permit application includes a proposal to make the structures and/ or the property more nearly conforming in accordance with RSA 483-B:11			
<input type="checkbox"/> This shoreland permit application includes a request for a waiver of the following minimum standard(s) under RSA 483-B:9, V_____.			
<b>5. PROJECT DESCRIPTION</b>			
Total Square feet of impact 31,919 Total square feet of new impervious area 0			



Provide a complete description of the proposed project. A new high voltage transmission line will be constructed in an existing road ROW. The Thornton Project area includes five Shoreland locations along the Pemigewasset River. Work in the Shoreland includes the underground installation of transmission cable, as shown in the project plans. To place the line, the road bed or shoulder of NH Route 3 will be trenched, the line will be placed, and the trench will be backfilled to restore these work areas after construction. In addition, no tree clearing is planned within the existing road ROW.

#### 6. PERMIT APPLICATIONS SUBMITTED

Please indicate if applications for any of the permits listed below have been submitted or will need to be submitted:

- ☒ Wetlands Permit per RSA 482-A ☐ Individual Sewage Disposal System per RSA 485-A:29  
☒ Alteration of Terrain Permit Per RSA 485-A:17 ☐ Subdivision Permit Per RSA 485-A:29

#### 7. REFERENCE LINE ELEVATION (REQUIRED FOR LAKES, PONDS, AND ARTIFICIAL IMPOUNDMENTS)

Reference line elevations for most lakes, ponds and artificial impoundments greater than 10 acres in size are listed in the [Consolidated List of Waterbodies Subject to the Shoreland Water Quality Protection Act](#). Please see RSA 483-B:4, xvii for the definition of reference line.

The reference line for this waterbody is N/A Feet above sea level.

#### 8. SHORELAND FRONTAGE Shoreland frontage is the actual frontage along the waterfront measured at the reference line.

The shoreland frontage on this lot is : \_\_\_\_\_ Linear Feet

☒ N/A – No Direct frontage on this lot

#### 9. APPLICATION FEE

A non-refundable permit application fee of \$100 plus \$0.10 per total square foot of is required at the time the application is submitted. Fees are capped at \$750 for projects impacting less than 10,000 sq ft, \$1,875 for projects impacting between 10,000 and less than 25,000 sq ft, and \$3,750 for projects impacting 25,000 sq ft and greater. Please note that your application will not be considered complete if it does not include the appropriate fee. **Please make checks payable to the Treasurer, State of NH.**

#### 10. CALCULATING THE TOTAL IMPACT AREA AND PERMIT APPLICATION FEE

Total impact area is calculated by determining the sum of all areas disturbed by regrading, excavation, filling, construction, and structure removal. Impacts often include, but are not limited to: constructing new driveways, constructing new structures, areas disturbed when installing a new septic system or foundation, creating temporary access roads for the purpose of installing a well and regrading associated with landscaping activities.

Total Area Impacted within 250 Feet of the Reference Line. = 31,919 (A) Square Feet

Multiply the total Impact Area By 10¢ and add \$100.00. [ (A) X .10 + \$100.00 ] = \$Exempt per 483-B:5-b III Permit Fee

#### 11. REQUIRED CERTIFICATIONS

By initialing within the blank before each of the following statements, and signing below, you are certifying that: to the best of my knowledge, the information provided is true, complete and not misleading.

ABC I understand that any permit or waiver granted based on false, incomplete, or misleading information shall be subject to revocation.

ABC I am aware that obtaining a shoreland permit will not exempt the work I am proposing from other state, local or federal approvals.

ABC I have notified the municipality or municipalities in which the proposed impacts are located and provided them with a complete copy of the application and all supporting materials on    /    /    via certified mail.

☒ This project is within ¼ mi of a designated river (river name: Pemigewasset River) and I have notified the Local River Management Advisory Committee by providing them with a copy of the complete application, including all supporting materials, via certified mail on day:    month:    year:    and I have included a copy of the certified mail receipt in the application submittal (RSA 482-A:3,i(d)(2))

☐ This project is **not** within ¼ mi of a designated river

N/A I have notified all abutters of the proposed impacts via certified mail as required by RSA 483-B:5-b, iv-a. (see definition of "abutter" on page (6)).  
**Exempt per RSA-483-B:5-b, IV (A)**

#### 12. SIGNATURES (Both must sign per Env-Wq 1406.08)



OWNER NAME		PRINT NAME LEGIBLY: NH Department of Transportation, c/o Alan Hanscom, District Engineer	DATE:
APPLICANT NAME		PRINT NAME LEGIBLY: Northern Pass LLC, c/o Robert P. Clarke, Project Director	DATE: 5/3/16

Please mail this application and all other attachments to the Department of Environmental Services Wetlands Bureau, PO Box 95, Concord NH 03302-0095. Missing information will delay processing of your application and may result in denial of a Shoreland Permit.

## SHORELAND APPLICATION WORKSHEET

This form must be submitted to the Department of Environmental Services Wetlands Bureau accompanied with a Shoreland Permit Application. [Instructions for completing this form](#) are available on the shoreland program web page.

For the purposes of this worksheet, “**Pre-Construction**” impervious surface areas<sup>1</sup> means all human made impervious surfaces<sup>2</sup> currently in existence on the property, whether to be removed or to remain after the project is completed. “**Post-Construction**” impervious area means all impervious surfaces that will exist on the property upon completion of the project, including both new and any remaining pre-existing impervious surfaces. All answers shall be given in square feet.

CALCULATING THE IMPERVIOUS AREA WITHIN 250 FEET OF THE REFERENCE LINE			
	STRUCTURE DESCRIPTION	PRE-CONSTRUCTION IMPERVIOUS AREA	POST-CONSTRUCTION IMPERVIOUS AREA
<b>PRIMARY STRUCTURE</b>  Include all <u>attached</u> decks and porches.	_____	_ 0 _ FT <sup>2</sup>	_ 0 _ FT <sup>2</sup>
<b>ACCESSORY STRUCTURES</b>  All other impervious surfaces excluding lawn furniture, well heads, and fences.  Common accessory structures include, but are not limited to: driveways, walkways, patios and sheds.	<u>Route 3</u>  _____  _____  _____  _____  _____	<u>149,022</u>  _____ FT <sup>2</sup>  _____ FT <sup>2</sup>  _____ FT <sup>2</sup>  _____ FT <sup>2</sup>  _____ FT <sup>2</sup>	<u>149,022</u> FT <sup>2</sup>  _____ FT <sup>2</sup>  _____ FT <sup>2</sup>  _____ FT <sup>2</sup>  _____ FT <sup>2</sup>
<b>TOTAL:</b>		(A) <u>149,022</u> FT <sup>2</sup>	(B) <u>149,022</u> FT <sup>2</sup>
Area of the lot located within 250 ft of reference line:			(C) <u>466,588</u> FT <sup>2</sup>
Percentage of lot covered by pre-construction impervious area within 250 ft of the reference line: [divide (a) by (c) x 100]			(D) <u>31.90</u> %
Percentage of lot to be covered by post-construction impervious area within 250 ft of the reference line upon completion of the project: [divide (b) by (c) x 100]			(E) <u>31.90</u> %

<sup>1</sup> “**Impervious surface area**” as defined in Env-Wq 1402.15 means, for purposes of the impervious surface limitation specified in RSA 483-B:9, V(g), the sum total of the footprint of each impervious surface that is located within the protected shoreland.

<sup>2</sup> “**Impervious Surface**” as defined in RSA 483-B:4, VII-b means any modified surface that cannot effectively absorb or infiltrate water. Examples of impervious surfaces include, but are not limited to, roofs, and unless designed to effectively absorb or infiltrate water, decks, patios, and paved, gravel, or crushed stone driveways, parking areas, and walkways.

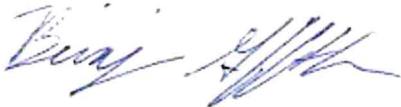
## IMPERVIOUS AREA THRESHOLDS

DETERMINING THE PLAN REQUIREMENTS	
<input checked="" type="checkbox"/>	<p>The percentage of post-construction impervious area (<b>Calculation E</b>) is less than or equal to 20%.*</p> <p>This project <b>does not</b> require a stormwater management plan and <b>does not</b> require a plan demonstrating that each waterfront buffer grid segment at least meets the minimum required tree and sapling point score.</p> <p><i>*The current impervious area is &gt;30% but the net increase in impervious surface is 0.</i></p>
<input type="checkbox"/>	<p>A net increase in impervious area is proposed and the percentage of post-construction impervious area (<b>Calculation E</b>) is greater than 20%, but less than 30%.</p> <p>This project <b>requires</b> a stormwater management but, <b>does not</b> require a plan demonstrating that each waterfront buffer grid segment at least meets the minimum required tree and sapling point score.</p> <p>See details on the <i>Checklist of Required Items</i> on page 6</p>
<input type="checkbox"/>	<p>A net increase in impervious area is proposed and the percentage of post-construction impervious area (<b>Calculation E</b>) is greater than 30%</p> <p>This project <b>requires</b> a stormwater management plan be designed and certified by a professional engineer <b>and</b> <b>requires</b> plans demonstrating that each waterfront buffer grid segment at least meets the minimum required tree and sapling point score.</p> <p>See details on the <i>Checklist of Required Items</i> on page 6</p>

## UNALTERED STATE REQUIREMENT

DETERMINING THE AREA TO REMAIN IN AN UNALTERED STATE	
Total area of the lot between 50 ft and 150 ft of the reference line within which the vegetation currently exists in an unaltered state <sup>3</sup> (see definition below). If this area is completely altered, place a zero on line (F) and (I) and proceed to (J).	(F) <u>0</u>
Total area of the lot between 50 ft and 150 ft from the reference line	(G) _____
At least 25 percent of the vegetation within area (G) must remain in an unaltered state. [.25 x G]	(H) _____
Place the smaller of line (F) and calculation (H) on this line. In order to remain compliant with RSA 483-B:9, V(b), this is the minimum area that must remain in an unaltered state between 50 ft and 150 ft from the reference line. This area must be represented on all plans.	(I) <u>0</u>
Name of person who prepared this worksheet:	(J) Benjamin Griffith
Name and date of the plan this worksheet is based upon:	(K) <u>NHDES Shoreland Permit Application Plans Thornton, NH 4/13/2016</u>

<sup>3</sup> "Unaltered State" means native vegetation allowed to grow without cutting, limbing, trimming, pruning, mowing, or other similar activities except as needed for renewal or to maintain or improve plant health.

 SIGNATURE:	DATE: April 28, 2016
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**Unaltered State section.** The shoulder and travel way of a public road must be maintained for safety and operational purposes, and therefore there will always be little or no unaltered land in the project location within the road ROW. Therefore no calculations for this metric were performed. Furthermore, RSA 483-B:9 IV-b. states “Public utility lines and associated structures and facilities, public roads, and public water access facilities including boat ramps shall be permitted by the commissioner as necessary and consistent with the purposes of this chapter and other state law.” In addition, RSA 483-B:2 XVI provides for economic development in proximity to waters.

## **2.0 Copy of Check for Application Fee**

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**N/A, per RSA 483-B:5-b-III. Construction of public roads, public utility lines and associated structures and facilities, and public water access facilities shall be exempt from the permitting fees of paragraph I and the abutter notification requirements of paragraph IV-a.**



### **3.0 Project Specific Work within the Protected Shoreland**

The Northern Pass project area extends from the international border of Canada and the United States in Pittsburg, New Hampshire to Londonderry, New Hampshire. The project will require work within the Protected Shoreland of multiple waterbodies. This application includes information related to the work within an existing road ROW that intersects the Protected Shoreland of the Pemigewasset River in Thornton, NH at five locations. The Pemigewasset River in Thornton is within the UG1 (underground) portion of the Project.

The Project seeks to use existing transmission and road ROW in order to minimize environmental and other impacts of the Project. The underground transmission line will be located within the roadbed or shoulder of NH Route 3 in Thornton and should not require limbing or tree cutting for installation as this area is already a maintained ROW. There will be no increase in impervious area.

Underground cables will be installed using a combination of construction techniques including direct bury of the cable, installation of the cable in a duct bank, or the use of trenchless technology (directional boring and jack and bore). These techniques result in cables being buried at different depths. Direct-buried cable is installed approximately four feet below grade. The depth of duct banks varies, but these will have at least 2.5 feet of cover. Cables installed via jack and bore will be approximately 10 to 15 feet below grade. Directional boring sections will be installed at a maximum depth of approximately 65 feet below grade, and will be used primarily for crossing under large perennial streams and rivers. Exact depths may be adjusted during final design. Jack and bore and directional bore require installation pits for construction. Direct bury and duct bank installations require permanent splice boxes or vaults spaced approximately every 1,800 feet to allow for maintenance. One Splice box will be installed along segments of the underground line in these areas to allow for repair and replacement as necessary over time to maintain integrity of the line. Erosion control will be installed along of the shore of the Pemigewasset River to prevent impacts. Within a half mile of the Protected Shoreland of the Pemigewasset River in Thornton, NH there are two elemental occurrences identified by NHB. NHB identified the S3, state species of special concern, *Glyptemys insculpta* (Wood Turtle) within a half mile of the Protected Shoreland Buffer of the Pemigewasset River. The second elemental occurrence identified by NHB within a half mile of the Protected Shoreland buffer was a state ranked S2 Silver maple-false nettle-sensitive fern floodplain forest.

#### **3.1 Pemigewasset River Shoreland Site 1**

At Site 1, the River varies from approximately 150 feet to more than 300 feet in width. The land in the vicinity of the Site 1 work is New Hampshire Route 3, which is owned by the State of New Hampshire and is surrounded by residential and commercial lots along the project area. The Project comes within 200 feet of the river but does not cross it. This site does include an unnamed perennial stream crossing and the work area includes two excavated jacking or directional drill pits to allow cable to be placed under the streambed. All work within the 250 foot Shoreland buffer along Route 3 in Thornton will be trenching and associated work for placing the underground transmission line as detailed on the associated plan set (Appendix A).

BMPs will be followed, and where appropriate, erosion/sediment controls will be installed to prevent the movement of sediment to nearby water resources.

Pemigewasset River Shoreland Site 1	0'-50' Waterfront Buffer	50'-150' Natural Woodland Buffer	150'-250' Shoreland Buffer	Total Impacts at Shoreland Crossing
<b>Temporary Impacts</b>	0 sq. ft.	0 sq. ft.	6,398 sq. ft. trenching	6,398 sq. ft. trenching
<b>Permanent Impacts</b>	0 sq. ft.	0 sq. ft.	0 sq. ft.	0 sq. ft.
<b>Pre-Construction Impervious Surface Area</b>	0 sq. ft.	15,642 sq. ft.	44,154 sq. ft.	59,796 sq. ft.
<b>Post-Construction Impervious Surface Area</b>	0 sq. ft.	15,642 sq. ft.	44,154 sq. ft.	59,796 sq. ft.

### 3.2 Pemigewasset River Shoreland Site 2

The Pemigewasset River at this location is approximately 195 feet wide.

The land in vicinity of the river at this Shoreland site is NH Route 3 and is owned by the State of New Hampshire Department of Transportation. The land in the vicinity of the underground line work includes residential properties bordering Route 3. An underground cable will be installed within 200 feet of the River and will be set in place by trenching within the town as shown in the project plans (Attachment A). This site does include a crossing of Bagley Brook, and the work area includes one excavated jacking or directional drill pit to allow cable to be placed under the streambed. BMPs will be followed, and where appropriate, erosion/sediment controls will be installed to prevent the movement of sediment to nearby water resources.



Pemigewasset River Shoreland Site 2	0'-50' Waterfront Buffer	50'-150' Natural Woodland Buffer	150'-250' Shoreland Buffer	Total Impacts at Shoreland Crossing
Temporary Impacts	0 sq. ft.	0 sq. ft.	7,542 sq. ft. trenching	7,542 sq. ft. trenching
Permanent Impacts	0 sq. ft.	0 sq. ft.	0 sq. ft.	0 sq. ft.
Pre-Construction Impervious Surface Area	0 sq. ft.	0 sq. ft.	37,424 sq. ft.	37,424 sq. ft.
Post-Construction Impervious Surface Area	0 sq. ft.	0 sq. ft.	37,424 sq. ft.	37,424 sq. ft.

### 3.3 Pemigewasset River Shoreland Site 3

The Pemigewasset River at this location is approximately 195 feet wide. The land in vicinity of the river at this Shoreland site is NH Route 3 and is owned by the State of New Hampshire Department of Transportation. The land in the vicinity of the underground line work includes rural residential bordering Route 3. An underground cable will be installed within 150 feet of the River and will be set in place by trenching within the town as shown in the project plans (Attachment A). BMPs will be followed, and where appropriate, erosion/sediment controls will be installed to prevent the movement of sediment to nearby water resources.

Pemigewasset River Shoreland Site 3	0'-50' Waterfront Buffer	50'-150' Natural Woodland Buffer	150'-250' Shoreland Buffer	Total Impacts at Shoreland Crossing
Temporary Impacts	0 sq.	333 sq. ft. trenching	5,191 sq. ft. trenching	5,524 sq. ft. trenching
Permanent Impacts	0 sq.	0 sq. ft.	0 sq. ft.	0 sq. ft.
Pre-Construction Impervious Surface Area	0 sq.	623 sq. ft.	11,666 sq. ft.	12,289 sq. ft.
Post-Construction Impervious Surface Area	0 sq.	623 sq. ft.	11,666 sq. ft.	12,289 sq. ft.

### 3.4 Pemigewasset River Shoreland Site 4

The River at this location is approximately 195 feet in width.

The land in vicinity of the river at this Shoreland site is NH Route 3 and is owned by the State of New Hampshire Department of Transportation. The land in the vicinity of the underground line work includes residential and commercial properties bordering Route 3. An underground cable will be installed within 200 feet of the River and will be set in place by trenching within the town as shown in the project plans (Attachment A). BMPs will be followed, and where appropriate, erosion/sediment controls will be installed to prevent the movement of sediment to nearby water resources.

Pemigewasset River Shoreland Site 4	0'-50' Waterfront Buffer	50'-150' Natural Woodland Buffer	150'-250' Shoreland Buffer	Total Impacts at Shoreland Crossing
<b>Temporary Impacts</b>	0 sq. ft.	0 sq. ft.	8,009 sq. ft. trenching	8,009 sq. ft. trenching
<b>Permanent Impacts</b>	0 sq. ft.	0 sq. ft.	0 sq. ft.	0 sq. ft.
<b>Pre-Construction Impervious Surface Area</b>	0 sq. ft.	0 sq. ft.	22,776 sq. ft.	22,776 sq. ft.
<b>Post-Construction Impervious Surface Area</b>	0 sq. ft.	0 sq. ft.	22,776 sq. ft.	22,776 sq. ft.

### 3.5 Pemigewasset River Shoreland Site 5

The River at this location is approximately 195 feet wide.

The land in vicinity of the river at this Shoreland site is NH Route 3 and is owned by the State of New Hampshire Department of Transportation. The land in the vicinity of the underground line work includes residential and commercial properties bordering Route 3. An underground cable will be installed within 250 feet of the River and will be set in place by trenching within the town as shown in the project plans (Attachment A). BMPs will be followed, and where appropriate, erosion/sediment controls will be installed to prevent the movement of sediment to nearby water resources.

Pemigewasset River Shoreland Site 5	0'-50' Waterfront Buffer	50'-150' Natural Woodland Buffer	150'-250' Shoreland Buffer	Total Impacts at Shoreland Crossing
Temporary Impacts	0 sq. ft.	0 sq. ft.	4,446 sq. ft. trenching	4,446 sq. ft. trenching
Permanent Impacts	0 sq. ft.	0 sq. ft.	0 sq. ft.	0 sq. ft.
Pre-Construction Impervious Surface Area	0 sq. ft.	886	15,851 sq. ft.	16,736 sq. ft.
Post-Construction Impervious Surface Area	0 sq. ft.	886	15,851 sq. ft.	16,736 sq. ft.

### 3.6 Pemigewasset River Shoreland Summary

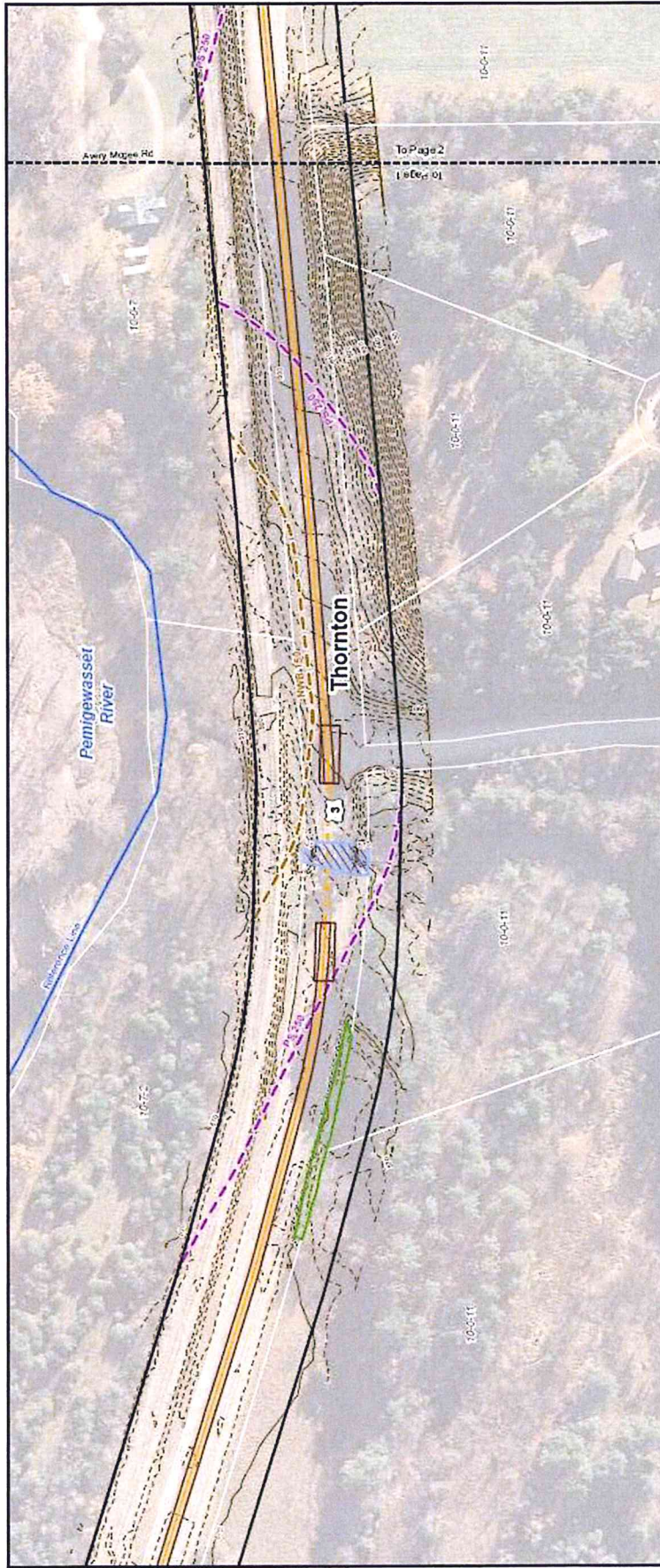
The proposed work in the shoreland of the Pemigewasset River in Thornton will take place in the road or shoulder of NH Route 3 which is owned by the State of New Hampshire Department of Transportation. The land in the vicinity of the underground line work includes residential and commercial properties bordering Route 3. An underground cable will be installed within 250 feet of the River and will be set in place by trenching or directionally drilling under tributary streams as needed. Erosion control will be installed to prevent impacts where appropriate. No tree clearing or change in impervious surface area will occur.

Pemigewasset River Shoreland Summary	0'-50' Waterfront Buffer	50'-150' Natural Woodland Buffer	150'-250' Shoreland Buffer	Total Impacts at Shoreland Crossing
Temporary Impacts	0 sq. ft.	333 sq. ft. trenching	31,586 sq. ft.	31,919 sq. ft.
Permanent Impacts	0 sq. ft.	0 sq. ft.	0 sq. ft.	0 sq. ft.
Pre-Construction Impervious Surface Area	0 sq. ft.	17,151 sq. ft.	131,871 sq. ft.	149,022 sq. ft.
Post-Construction Impervious Surface Area	0 sq. ft.	17,151 sq. ft.	131,871 sq. ft.	149,022 sq. ft.



## ■ Appendix A Plan Set

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NHDES Shoreland Permit Application Plans					
SWQPA Areas	Extent of Clearing (sq. ft.)	Construction Impacts (sq. ft.)		Impervious Surface (sq. ft.)	
		Clearing In Upland	Temporary	Permanent	Post-Construction
Waterfront Buffer (50')	0	0	0	0	0
Natural Woodland Buffer (150')	0	0	0	0	15,642
Protected Shoreland (250')	0	0	6,398	0	44,154
Total	0	0	6,398	0	59,796
May not have to total due to rounding					
THE NORTHERN PASS PROJECT AREA					
Pemigewasset River, Thornton					
Date: 4/12/2016					
DRAWN: L.L.					
Page 01					

**Existing Conditions**

- Existing Structure -
- Existing Structure to be Removed
- Existing Transmission Line
- Existing Transmission Line to be Removed
- Delineated Wetlands
- Tax Parcel
- Existing Right of Way
- 10' Index Contour
- 2' Interval Contour

**Proposed Conditions**

- Proposed Structure -
- No Shoreland Impact
- Proposed Structure -
- Shoreland Impact
- Proposed
- Transmission Line
- Proposed New Right of Way
- Off ROW and UG
- Reporting Intents
- Temporary
- Construction Pad
- Station LODs
- Existing Access Route
- New Access Route

**Stream Centerlines**

- Perennial
- Intermittent
- Ephemeral

**Delineated Waterbodies**

- Perennial
- Intermittent
- Ephemeral
- Local Seabacks

**Temporary Wetlands**

- Matting (10' x 16')
- Erosion and Sedimentation Control BMPs
- Erosion and Sedimentation Control BMPs (Steep Slope)
- Temporary Limit of Disturbance
- Construction Pad
- Limits of Permanent Vegetation Clearing
- UG Splice Vaults
- Trenched UG
- Trenchless UG

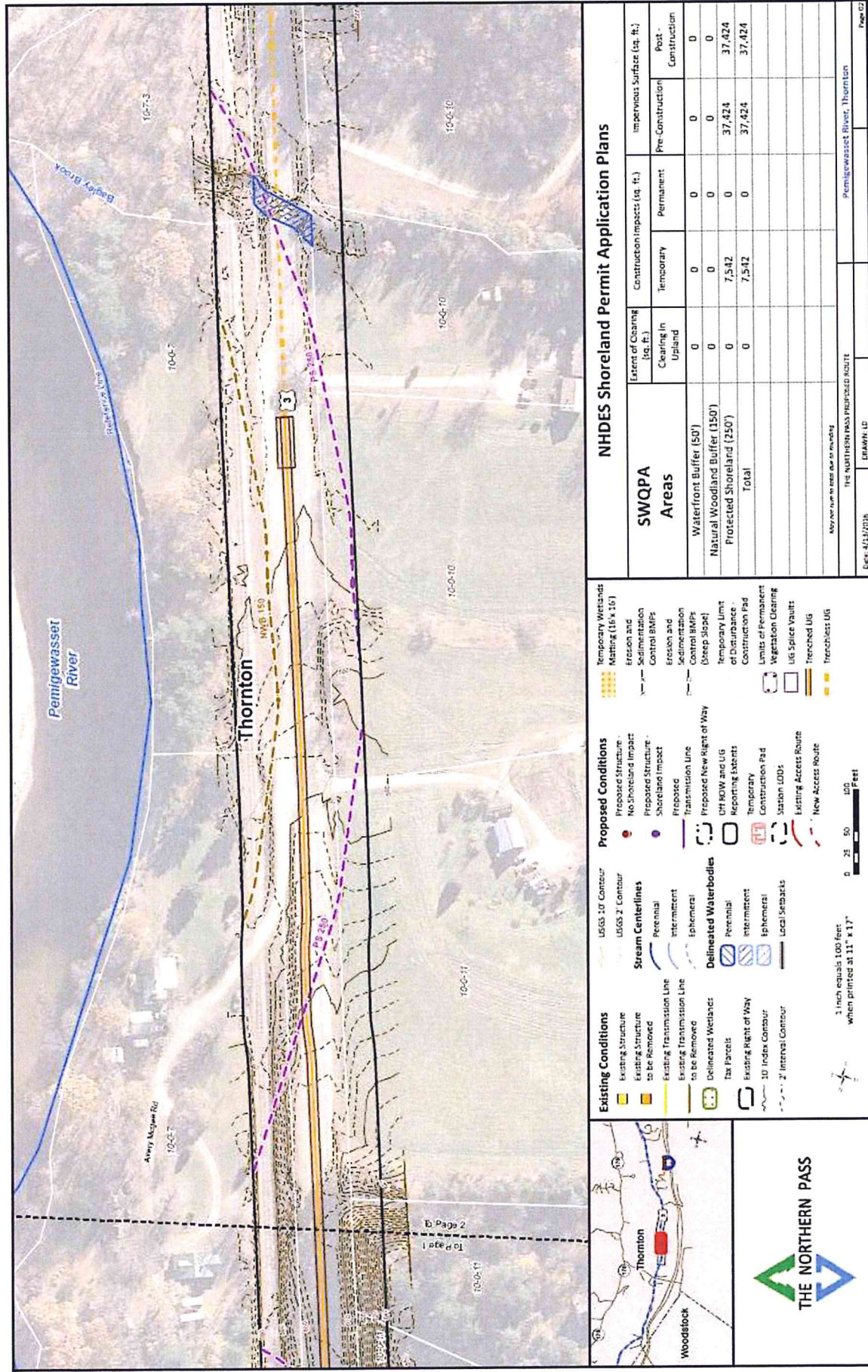
1 inch equals 100 feet when printed at 11" x 17"

0 25 50 100 Feet

THE NORTHERN PASS

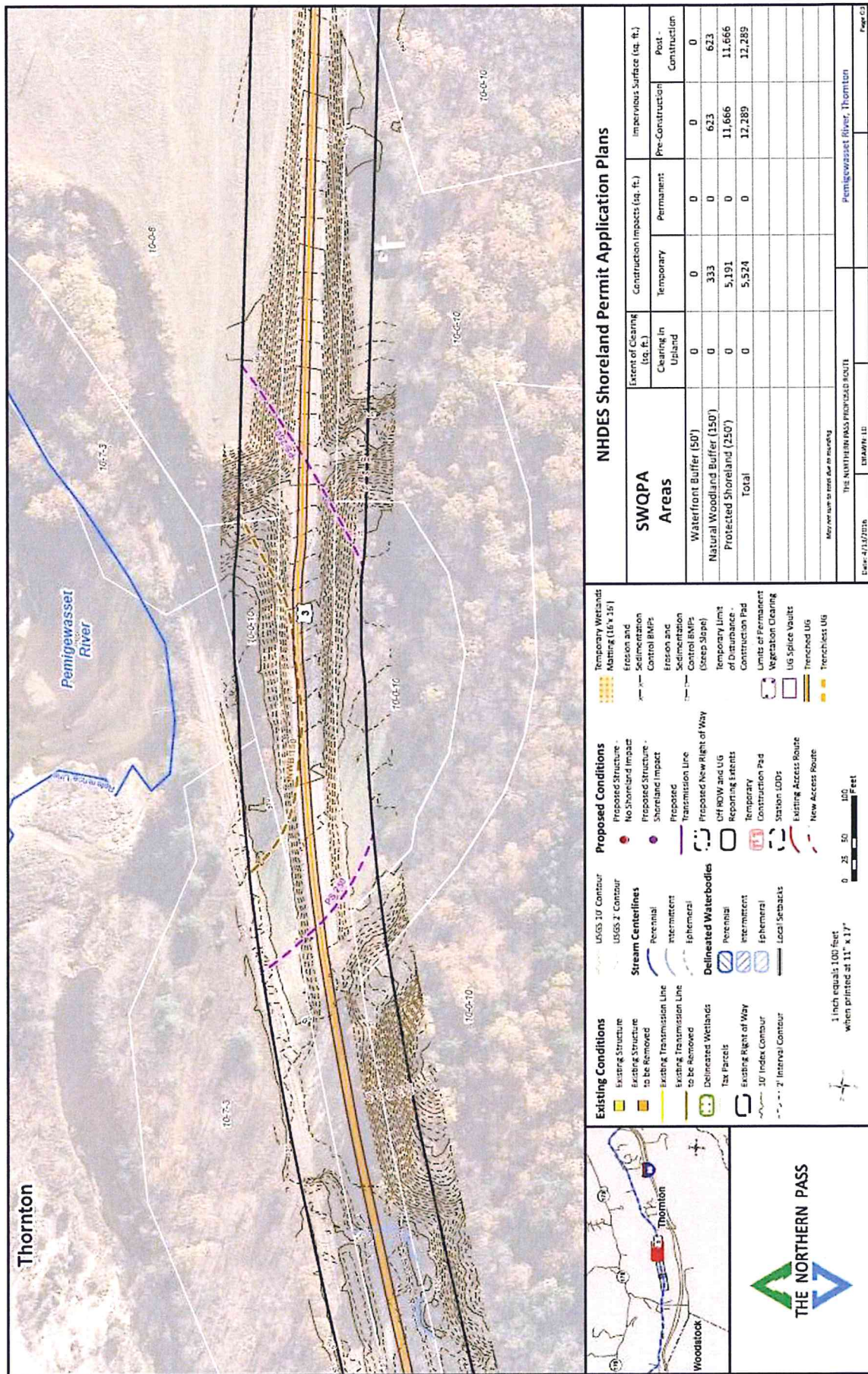
Source: NHDOT 2010 and 2011 Aerials; New Hampshire GRANIT GIS Data; Color & Contour; Norcross & McDermott





Source: NHDOT 2010 and 2011. Aerials: New Hampshire GRANIT GIS Data; Cedar & Colman; Normandeau, Bruns & McDonald.



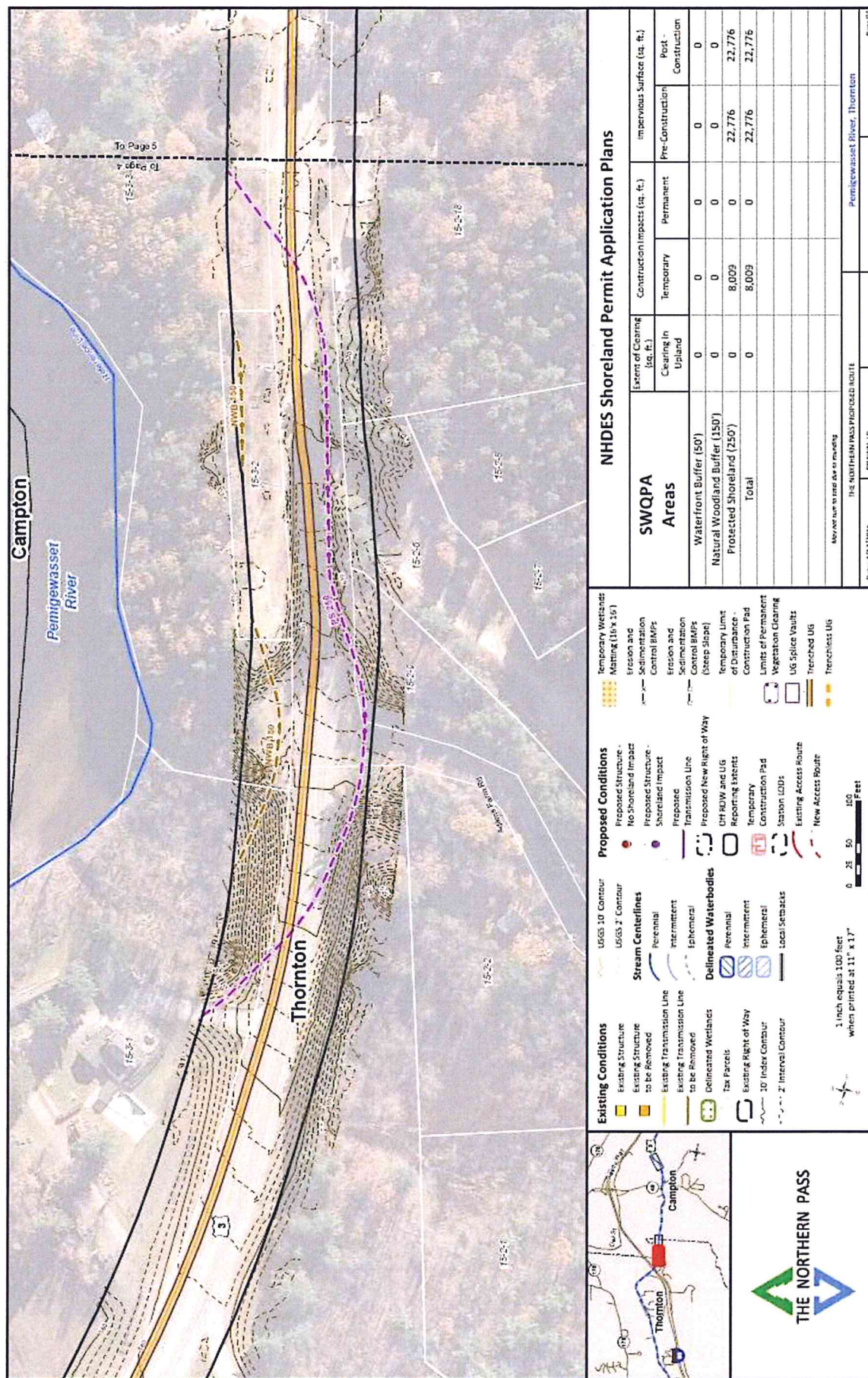


### NHDES Shoreland Permit Application Plans

SWQPA Areas	Extent of Clearing (sq. ft.)	Construction Impacts (sq. ft.)		Post - Construction Construction
		Temporary	Permanent	
Waterfront Buffer (50')	0	0	0	0
Natural Woodland Buffer (150')	0	333	0	623
Protected Shoreland (250')	0	5,191	0	11,666
<b>Total</b>	<b>0</b>	<b>5,524</b>	<b>0</b>	<b>12,289</b>
Limits of Permanent Vegetation Clearing				
UG Splice Vaults				
Trenched UG				
Trenchless UG				
May not sum to totals due to rounding				
THE NORTHERN PASS PROJECT/ROAD ROUTE		Pemigewasset River, Thornton		
DATE: 4/15/2016	DESIGNED BY:	Page 10		

Source: NHDOT 2010 and 2011 Aerials; New Hampshire GRANIT GIS Data; Color & Contour; Normandeau; Burns & McDonnell.

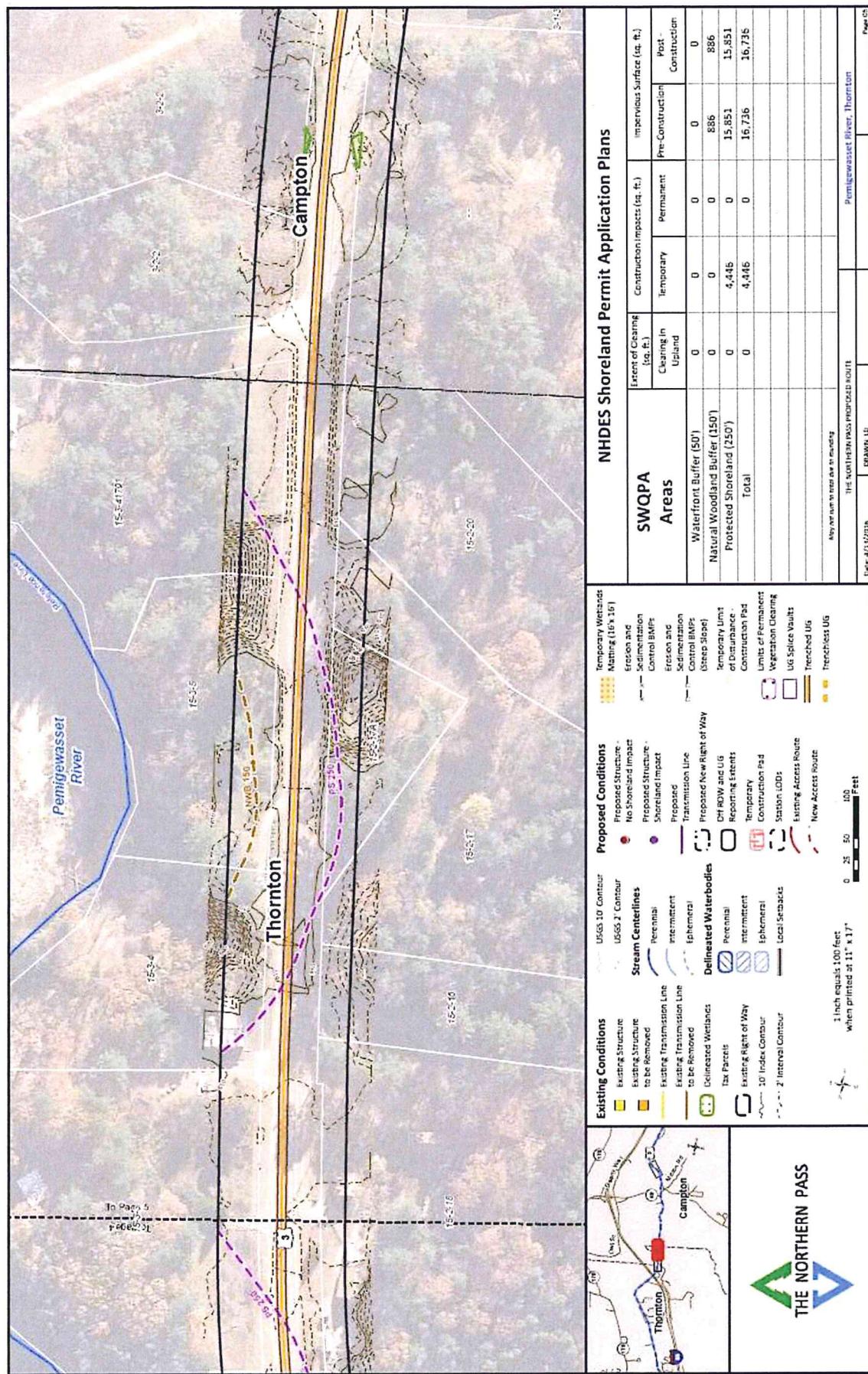




### NHDES Shoreland Permit Application Plans

SWQPA Areas	Extent of Clearing (sq. ft.)	Construction Impacts (sq. ft.)		Impervious Surface (sq. ft.)	
		Temporary	Permanent	Pre-Construction	Post-Construction
Waterfront Buffer (50')	0	0	0	0	0
Natural Woodland Buffer (150')	0	0	0	0	0
Protected Shoreland (250')	0	8,009	0	22,776	22,776
<b>Total</b>	<b>0</b>	<b>8,009</b>	<b>0</b>	<b>22,776</b>	<b>22,776</b>
Map Not to Scale Due to Plotting					
THE NORTHERN PASS PROPOSED ROUTE					
DATE: 4/23/2018	DRAWN: LD	PEMIGEWASSET RIVER, THORNTON		PAGE 04	





### NHDES Shoreland Permit Application Plans

SWQPA Areas	Extent of Clearing (sq. ft.)		Construction Impacts (sq. ft.)		Impervious Surface (sq. ft.)	
	Clearing in Upland	Temporary	Permanent	Pre-Construction	Post-Construction	
Waterfront Buffer (50')	0	0	0	0	0	0
Natural Woodland Buffer (150')	0	0	0	0	886	886
Protected Shoreland (250')	0	4,446	0	15,851	15,851	15,851
Total	0	4,446	0	16,736	16,736	16,736
May not sum to total due to rounding						
THE NORTHERN PASS PROPOSED ROUTE						
Date: 4/11/2016						
DRAWN: LD						
Pemigewasset River, Thornton						
Page 02						

## ■ Appendix B Property Deeds

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NPT will install underground transmission facilities pursuant to authority provided under RSA 231:160, et seq. for use of public highways for various utility purposes.

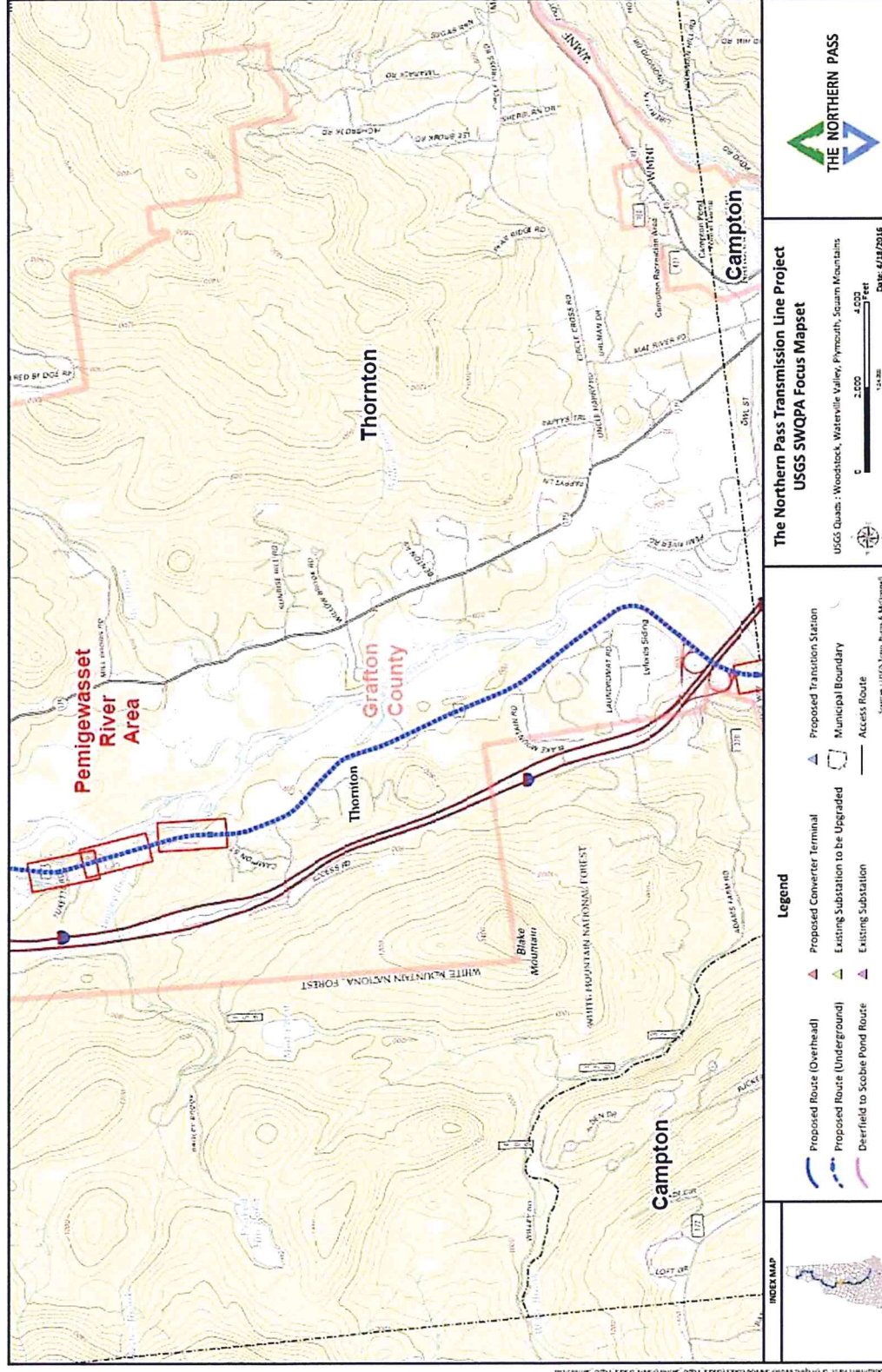
231:160 Authority to Erect. – Telegraph, television, telephone, electric light and electric power poles and structures and underground conduits and cables, with their respective attachments and appurtenances may be erected, installed and maintained in any public highways and the necessary and proper wires and cables may be supported on such poles and structures or carried across or placed under any such highway by any person, copartnership or corporation as provided in this subdivision and not otherwise.

The NHDOT adopted a Utility Accommodation Manual (hereinafter UAM), dated February 24, 2010, to guide its process for accommodating and licensing utilities within highway and railroad corridors.

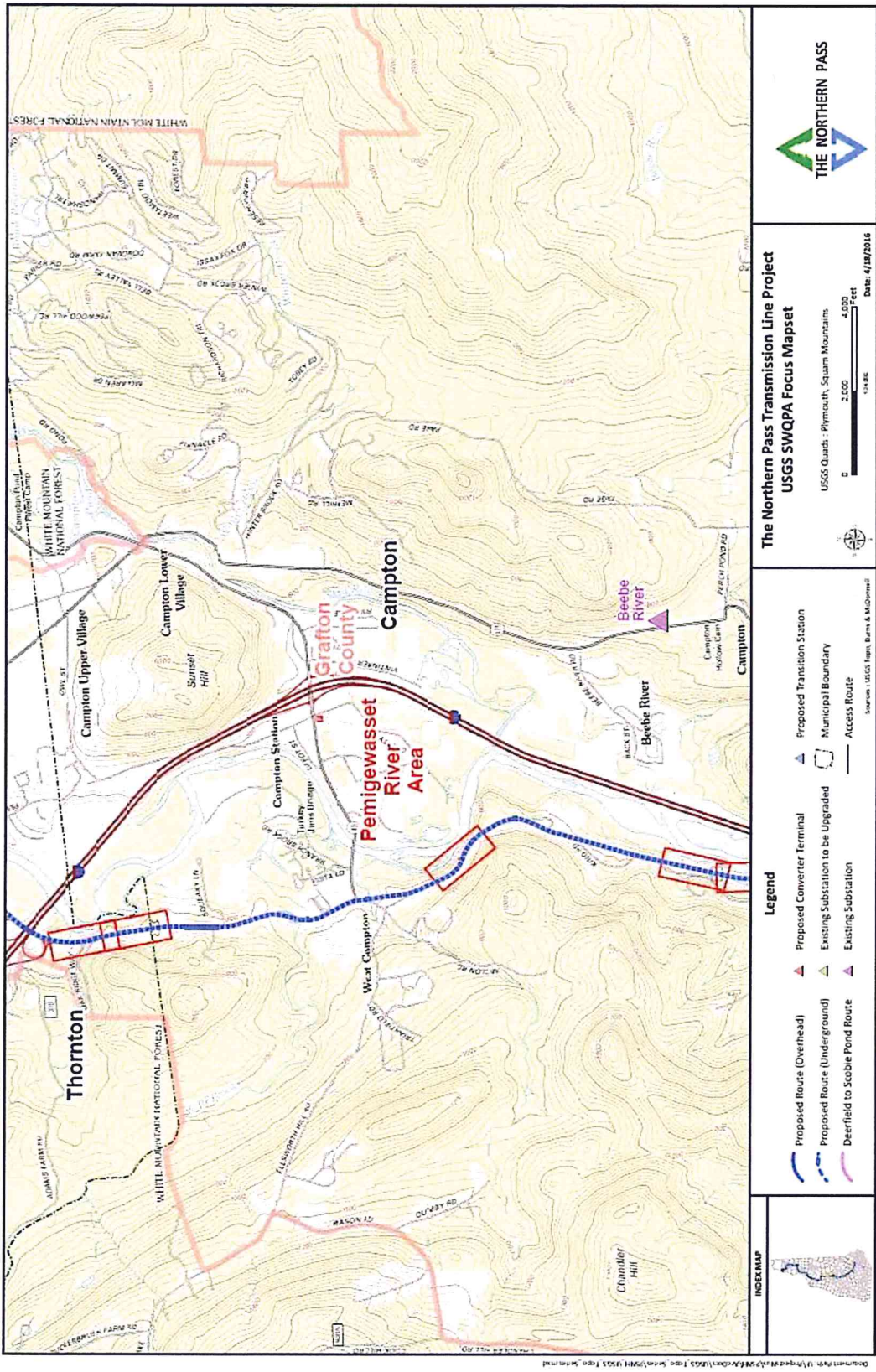
## ■ Appendix C USGS Locus Maps

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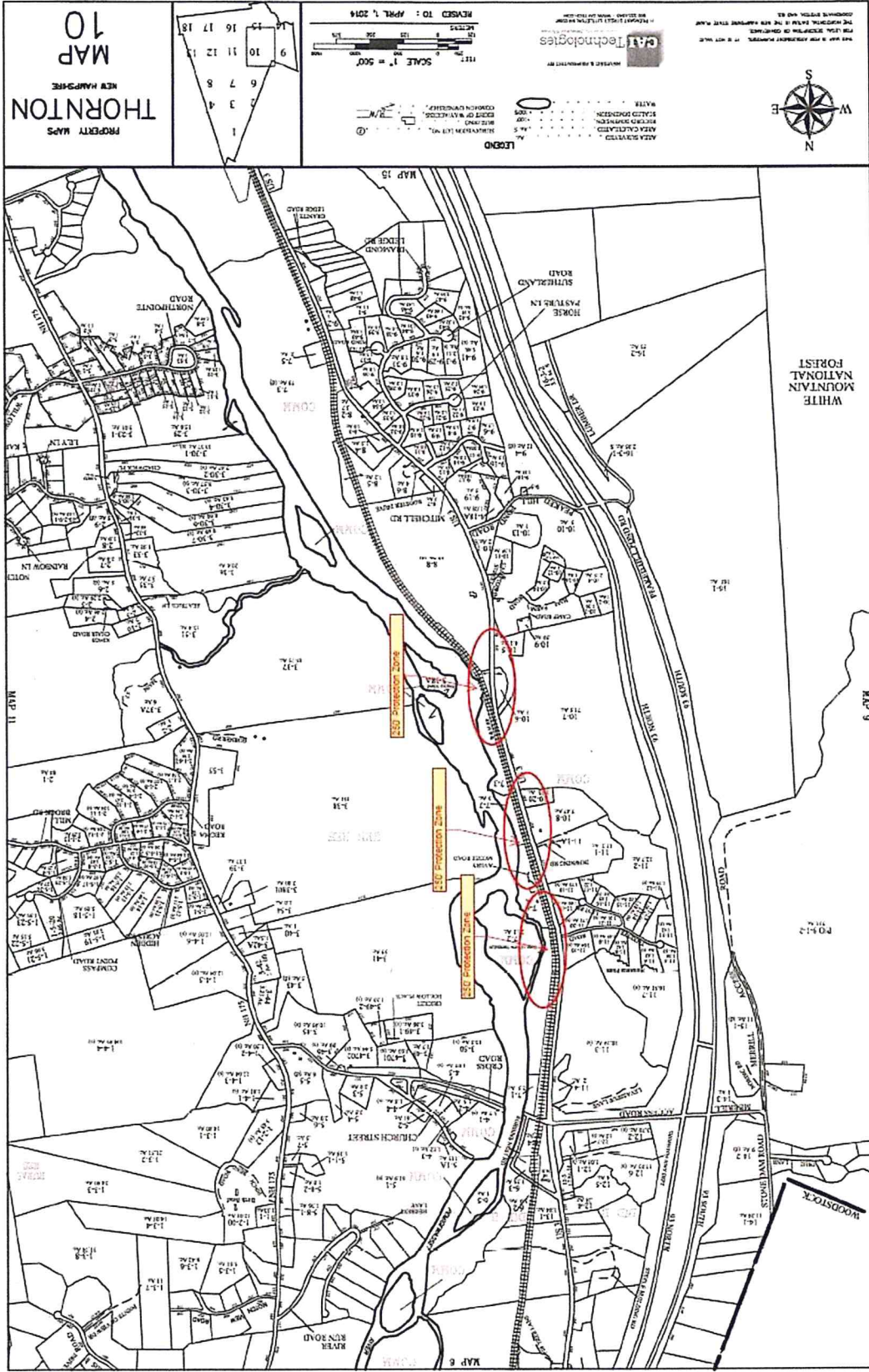




## ■ Appendix D NH Tax Maps

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## ■ Appendix E Representative Photos



**Photo 1. Site 1. The NPT line follows Route 3 and crosses the protected Shoreland buffer of the Pemigewasset in Thornton, NH. The work are first comes within 250 feet of the reference line north of Avery McGee Road. Aerial image from Google Earth® accessed 4/22/2016.**



**Photo 2. Site 2. The NPT line follows Route 3 and crosses the protected Shoreland buffer of the Pemigewasset in Thornton, NH. This site is located directly south of Avery McGee Road. Aerial image from Google Earth® accessed 4/22/2016.**



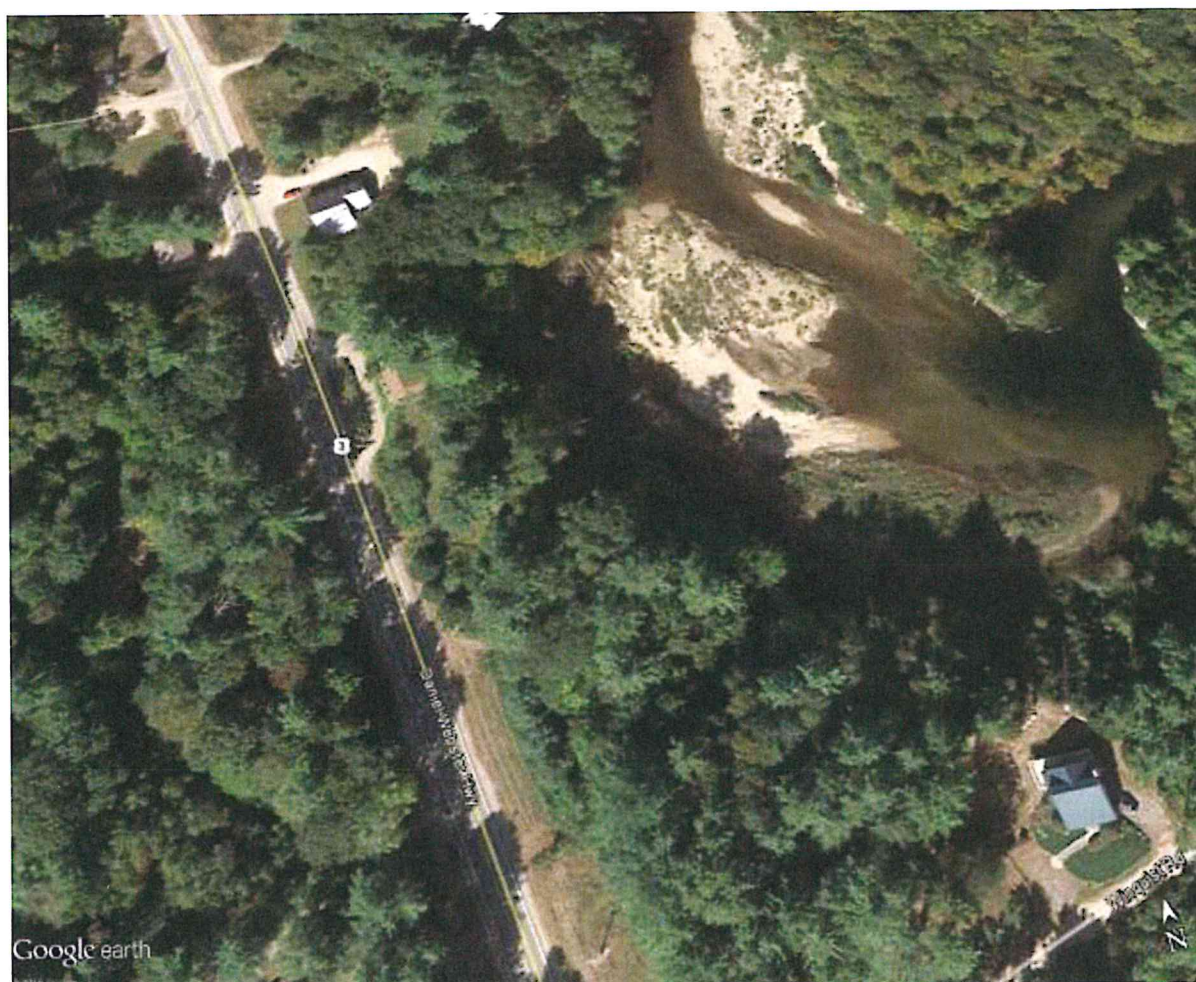


**Photo 3. Site 3. The NPT line follows Route 3 and crosses the protected Shoreland buffer of the Pemigewasset in Thornton, NH. This site is located between Ham Farm Road and Downing Road. Aerial image from Google Earth® accessed 4/22/2016.**



**Photo 4. Site 4. The NPT line follows Route 3 and crosses the protected Shoreland buffer of the Pemigewasset in Thornton, NH. This site is located across from Adams Farm Road. Aerial image from Google Earth® accessed 4/22/2016.**





**Photo 4. Site 4. The NPT line follows Route 3 and crosses the protected Shoreland buffer of the Pemigewasset in Thornton, NH. This site is located across from Oak Ridge Way. Aerial image from Google Earth® accessed 4/22/2016.**

■ **Appendix F**  
**NHB Report and Correspondence**

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**NEW HAMPSHIRE NATURAL HERITAGE BUREAU**

DRED - DIVISION OF FORESTS & LANDS  
PO Box 1 856 - 1 72 PEMBROKE ROAD, CONCORD, NH 03302-1 856  
(603) 271-221 4

**To:** William McCloy, Normandeau Associates, Inc.  
**From:** Melissa Coppola, Environmental Information Specialist  
**Date:** March 30, 2015  
**Subject:** Northern Pass Database Request (NHB15-0611)

This memo is to confirm that Normandeau Associates have coordinated with the NH Natural Heritage Bureau (NHB) regarding information on known locations of rare species and exemplary natural communities for the Northern Pass project.

Due to the size and scope of the project, NHB is not providing a typical NHB review memo for permitting. Instead, this memo summarizes information provided by NHB to date, and notes that specific recommendations should be developed after project plans are close to being finalized:

- Normandeau was provided with digital data for the project under a data-sharing agreement dated 1/16/15 (397 digital NHB records). This is the sixth data-sharing agreement Normandeau has requested for this project: others were provided in 2010, 2011, 2012, 2013, and 2014 for project planning and ecological impact studies. NHB has also reviewed work plans associated with plant and community survey methodology on several occasions, including a meeting on 6/18/10.
- At the request of NHB, Normandeau consultants have conducted rare plant and natural community surveys within the proposed project area. If the project area extends to new locations, or new concerns are identified, additional surveys may be requested.
- As the project progresses and impacts areas are further clarified, Normandeau should set up a meeting with NHB staff to discuss avoiding and minimizing impacts to rare plant species and exemplary natural communities.





## New Hampshire Natural Heritage Bureau

DRED - Division of Forests & Lands  
172 Pembroke Road, Concord, NH 03301  
(603) 271-2214

**To:** Lee Carbonneau, Normandeau Associates, Inc.  
**From:** Amy Lamb, Ecological Information Specialist  
**Date:** October 5, 2015  
**Subject:** Northern Pass Pre-Application Meeting Summary (NHB15-0611)

On March 30, 2015, Melissa Coppola issued a NH Natural Heritage Bureau (NHB) memo (NHB15-0611) to Normandeau Associates, Inc. that listed Threatened and Endangered species populations that will potentially be impacted by the proposed Northern Pass project. Since that date, NHB and Normandeau have met on several occasions to discuss project impacts, avoidance and minimization measures, route changes, and the remaining survey work to be completed.

This memo summarizes the most recent pre-application meeting, which took place on October 1, 2015. This meeting was held in order to review current rare plant and natural community information, refine avoidance and minimization measures, and determine additional steps to be taken in preparation for permit application submittal at the end of October, 2015.

The meeting resulted in the following determinations regarding data and documentation:

- NHB last provided digital data to Normandeau in February of 2015, and will continue to provide any new data (i.e., new plant surveys within the project area) as they become available.
- Normandeau will provide the final reports on Vegetation and Threatened and Endangered species to NHB upon completion.
- Normandeau will provide NHB a table summarizing the anticipated impacts to all rare plants and exemplary natural communities within the selected corridor. This table will distinguish between the different types of impacts and their resulting (long-term) effects on rare plants and exemplary natural communities.

- Any reports that are filed as publicly available information will not contain specific locations of rare plants; this information will be restricted to an appendix and treated as confidential, and will be removed from publicly available reports.
- The rare plant avoidance and minimization measures that the applicant has proposed were developed in consultation with NHB. NHB will provide additional species-specific avoidance and minimization guidance during the permit review period. This will consist of a table with prioritized actions for each species.
- As any new areas for access, staging, etc. become known, Normandeau (or any subsequent contractor) will conduct rare plant surveys in the areas and provide the results to NHB.
- Normandeau identified Lee Carbonneau as the point person for future Natural Heritage communications, and the NHB point person will be Amy Lamb.

The meeting also resulted in the determination of several measures to avoid and minimize impacts to Natural Heritage resources during construction:

- Meetings will be held among contractors, environmental monitors, and inspectors, prior to contractors working in or near areas where listed plants are located, that will include making contractors aware of sensitive areas and the appropriate best management practices for each area.
- Plans that are provided to contractors will contain a color-coded bar indicating the extent of a sensitive area; no further information will be revealed on such plans.
- Normandeau (or any subsequent contractor) will have "Sensitive Area" signs installed around rare plant populations and exemplary natural communities to alert work crews to their presence.
- It was agreed that it is critical that environmental monitors have the power and authority to stop work immediately if they become aware that any action will violate agreed-upon BMPs.
- NHB will make a recommendation to NHDES regarding qualifications of Environmental Monitors, to be included as a permit condition.

NHB and Normandeau will continue to communicate as the project progresses, in particular as any route changes or new impacts to rare plants become known.

Normandeau Associates has coordinated with the NH Natural Heritage Bureau since 2010 to obtain information on known locations of rare species and exemplary natural communities within a half mile of the Northern Pass Project. Normandeau was provided with a digital data set for known locations and, per the request of NHB, Normandeau consultants conducted rare plant and natural community surveys within the proposed project area.

Within a half mile of the Protected Shoreland of the Pemigewasset River in Thorton, NH there are two elemental occurrences identified by NHB. NHB identified the S3, state species of special concern, *Glyptemys insculpta* (Wood Turtle) within a half mile of the Protected Shoreland Buffer of the Pemigewasset River once. The second elemental occurrence identified by NHB within a half mile of the Protected Shoreland buffer was a state ranked S2 Silver maple-false nettle-sensitive fern floodplain forest.



## ■ Appendix G Notifications and Certified Mail Receipts

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N/A for abutters (Waiver for public utility lines exempt per RSA-483-B:5-b, IV (A))

Shipment-----  
USPS First Class Package Service

Ship To:

Town of Thornton  
Merrill Access Road  
THORNTON, NH 03285

Package ID: 180425 9.23  
Tracking #: 9407110200883058149435  
Actual Wt: 0 lbs 8.1 ozs  
Rating Wt: 0.56 lbs  
Certified [\$4.25]

USPS Priority Mail

Ship To:

Max Stamp, Chair  
Pemigewasset River Local Ad. Comm.  
2110 SUMMER ST  
BRISTOL, NH 03222-3249

Package ID: 180428 13.21  
Tracking #: 9402610200793993599649  
Actual Wt: 1 lbs 12.7 ozs  
Rating Wt: 2 lbs  
Pkg Dims: 13.00 x 12.00 x 2.00  
Certified [\$4.25]



***Via Certified Mail***

May 3, 2016

Pemigewasset River Local Advisory Committee  
Max Stamp, Chair  
2110 Summer St.  
Bristol, NH 03222

**Re: Shoreland Permit Application – The Northern Pass Project**

Dear Mr. Stamp:

Enclosed please find a copy of the Shoreland Permit Application package that will be filed with the NH Department of Environmental Services (DES) and New Hampshire Site Evaluation Committee for the Northern Pass Project. This is an update to a previously submitted application that includes one or more additional work locations within a protected shoreland of a public water or Designated River in your regulatory area. Under state law, it is a requirement to provide the municipalities and Local River Advisory Committees having jurisdiction over these waterbodies with a copy of the shoreland application by Certified mail, for review and comment.

Sincerely,



Lee Carbonneau  
Normandeau Associates, Inc.  
As agent for Northern Pass Transmission, LLC.





***Via Certified Mail***

May 3, 2016

Town of Thornton  
Merrill Access Road  
Thornton, NH 03285

**Re: Shoreland Permit Application – The Northern Pass Project**

Dear Sir or Madam:

Enclosed please find a copy of the Shoreland Permit Application package that will be filed with the NH Department of Environmental Services (DES) and New Hampshire Site Evaluation Committee for the Northern Pass Project. The project includes work in or around rivers, lakes, streams ponds, etc. Under state law, it is a requirement to provide the municipalities and Local River Advisory Committees having jurisdiction over these waterbodies with a copy of the shoreland application by Certified mail, for review and comment. Please find attached a copy of the application, which proposes work within the protected shoreland of a public water or Designated River in your regulatory area.

Sincerely,



Lee Carbonneau  
Normandeau Associates, Inc.  
As agent for Northern Pass Transmission, LLC.