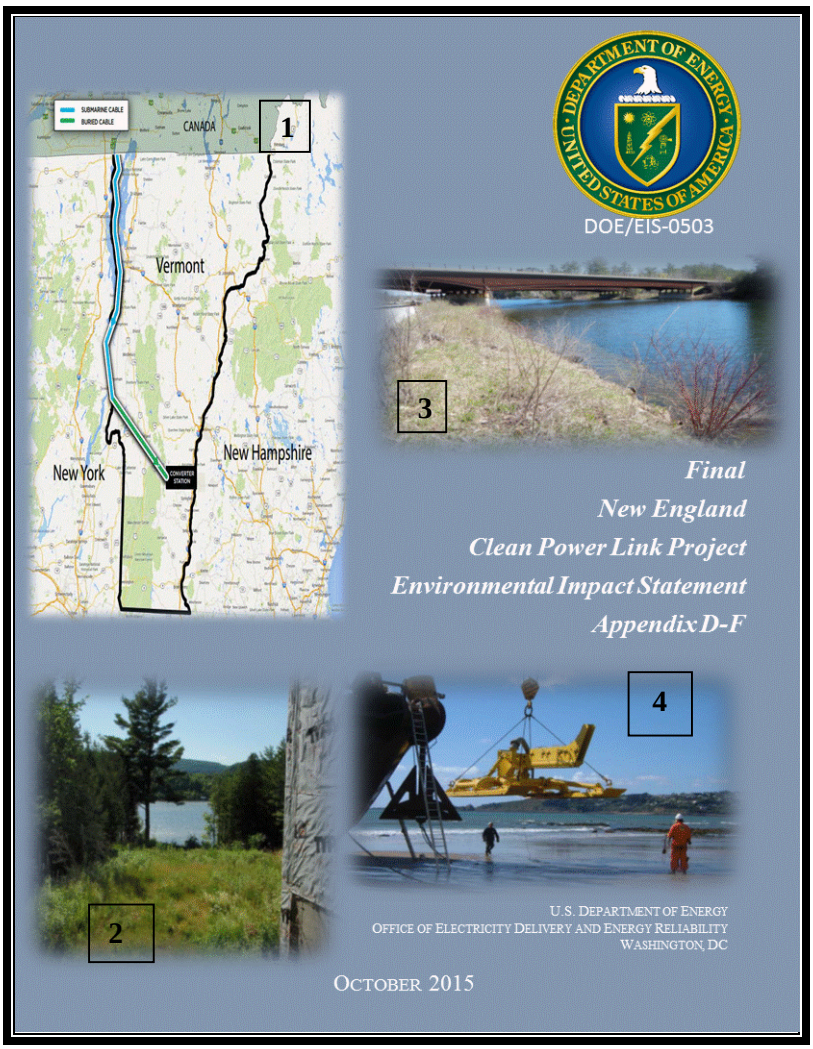
DOE/EIS-0503

Final New England Clean Power Link Project Environmental Impact Statement Appendix D-F

U.S. DEPARTMENT OF ENERGY
OFFICE OF ELECTRICITY DELIVERY AND ENERGY RELIABILITY
WASHINGTON, DC

OCTOBER 2015



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1. TDI-NE (*http://wamc/files/styles/default/public/201410/new-england-clean-power-link-map-ctsy-tdi-new-england.jpg" alt="">)*
2. NECPL exit from Lake Champlain (Benson, Vermont) courtesy of TDI-NE
3. Lake Bomoseen, Fair Haven, Vermont courtesy of TDI-NE
4. TDI-NE 2014a

FINAL

NEW ENGLAND CLEAN POWER LINK PROJECT
ENVIRONMENTAL IMPACT STATEMENT

DOE/EIS-0503

VOLUME II: APPENDICES

U.S. DEPARTMENT OF ENERGY
OFFICE OF ELECTRICITY DELIVERY
AND ENERGY RELIABILITY

COOPERATING AGENCIES

U.S. ENVIRONMENTAL PROTECTION AGENCY
U.S. ARMY CORPS OF ENGINEERS
U.S. COAST GUARD

OCTOBER 2015

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APPENDIX D ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

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New England Clean Power Link Project
Alternatives Considered but Eliminated from Further Analysis

The New England Clean Power Link (NECPL) Project (Project) would transport electricity from Canada on a merchant basis for delivery into Independent System Operator of New England (ISO-New England). Transmission Developers, Inc.-New England (TDI-NE) considered a number of different locations for interconnecting the Project transmission system into the New England grid and for siting the direct current (DC) to alternating current (AC) converter station.

To evaluate potential points of interconnection (POI) (i.e., existing substations) for the Project, TDI-NE conducted initial system screening studies of the following existing 345 kilovolt (kV) substations in Vermont as potential POIs (TDI-NE 2014):

- New Haven 345 kV Substation in Addison County, Vermont
- West Rutland 345 kV Substation in Rutland County, Vermont
- Coolidge 345 kV Substation in Windsor County, Vermont

Potential POI assessment was based on the following criteria:

- Availability of interconnection points (breaker positions) at the substation, or the capability to add interconnection points.
- Capability of existing circuits, connected to the substation that could accommodate the additional capacity of the proposed Project, or the need for system upgrades.
- Proximity of a potential converter station site to the substation and an approximation of expected environmental impacts from a potential converter site.
- Accessibility to the substation property for the high voltage direct current (HVAC) transmission cables from the converter station.

The initial system screening studies indicated that the New Haven 345-kV Substation and West Rutland 345 kV Substation were not practical POI locations because each substation is interconnected to only one existing 345 kV transmission line that could deliver the Project's energy from Canada to load throughout New England. The Coolidge 345 kV substation is interconnected to two existing 345 kV transmission lines. Interconnecting the Project at the New Haven 345 kV substation or the West Rutland 345 kV substation would require an additional 345 kV overhead line from the POI to the Coolidge substation in order to effectively long-distance transmission (TDI-NE 2014).

Constructing new overhead HVAC transmission cables would require a new or expanded right-of-way (ROW) for utility corridors, and in metropolitan and suburban areas, land costs are high and public concern regarding aesthetics and potential environmental and health effects (e.g., electric and magnetic fields [EMF]) from an overhead HVAC transmission line result in few such projects proceeding beyond the planning stage. Capacity at existing overhead HVAC transmission corridors can be increased through upgrading and overbuilding; however, most of the high-voltage corridors in the Project area are already at or near capacity because of either technical constraints or security and contingency considerations regarding the loss of common towers (TDI-NE 2014)

ALTERNATIVES TO CONVERTER STATION LOCATION

In identifying feasible POIs in western Vermont, TDI-NE concurrently identified possible sites for constructing the converter station in proximity to the POIs. Sites were identified and evaluated based on the following criteria:

- Sufficient land available for the converter station facility (approximately 4.5 acres).
- Proximity to the HVDC transmission cable route to minimize environmental impacts, neighborhood disruption (i.e., disturbances, interruptions, or changes), and costs associated with the cable connections to the converter station.
- Consistency with, and potential impacts on, land uses in proximity to the converter station site.
- Potential environmental impacts associated with the transmission cable installation and the construction of the converter station.

TABLE 1: FEASIBLE POINTS OF INTERCONNECTION IN WESTERN VERMONT

Criteria	
	Aquatic Ecosystems
NWI and VSWI Wetlands	• Acres of wetlands within 100' of alternative • Acres of wetlands within 50' of alternative
Stream Crossings	• Number of stream crossings
	Non-Aquatic Ecosystems
Rare, Threatened and Endangered Species	• Number of RTE species within 100' of alternative • Number of RTE species within 50' of alternative • Acres of RTE habitat within 100' of alternative • Acres of RTE habitat within 50' of alternative
Uncommon Species	• Number of uncommon species within 100' of alternative • Number of uncommon species within 50' of alternative • Acres of uncommon species habitat within 100' of alternative • Acres of uncommon species habitat within 50' of alternative
Wildlife Habitat	• Acres of deer wintering areas within 100' of alterative • Acres of deer wintering areas within 50' of alternative
Anthropogenic Resources/Constraints	• Number of Public water sources within 500' of alternative • Number of hazardous waste sites within 500' of alternative

TDI-NE identified two properties as suitable based on these criteria: 1) a 9.8 acre parcel on Nelson Road owned by the Anderson Trust; and b) a 4.8 acre parcel at 278 Nelson Road, both in the Town of Ludlow. The properties are adjacent to each other and located close to the Vermont Electric Power Company (VELCO) Coolidge substation in the Town of Cavendish. Both properties would allow for interconnection to the Coolidge Substation through Nelson Road (a town unpaved road) and/or the VELCO ROW. TDI-NE purchased both properties because of their proximity to the proposed Coolidge Substation POI, combined acreage, potential visual screening by existing vegetation, distance from residential structures, and the presence of only one small wetland on the site in a location that would not affect the siting of the converter station (TDI-NE 2014).

TDI-NE applied the environmental evaluation criteria in ***TABLE 2*** to assess the potential impact of each alternative on various environmental resources.

TABLE 2. CRITERIA TO EVALUATE POTENTIAL IMPACTOF EACH ALTERNATIVE ON VARIOUS ENVIRONMENTAL RESOURCES

Criteria	
	Aquatic Ecosystems
NWI and VSWI Wetlands	• Acres of wetlands within 100' of alternative • Acres of wetlands within 50' of alternative
Stream Crossings	• Number of stream crossings
	Non-Aquatic Ecosystems
Rare, Threatened and Endangered Species	• Number of RTE species within 100' of alternative • Number of RTE species within 50' of alternative • Acres of RTE habitat within 100' of alternative • Acres of RTE habitat within 50' of alternative
Uncommon Species	• Number of uncommon species within 100' of alternative • Number of uncommon species within 50' of alternative • Acres of uncommon species habitat within 100' of alternative • Acres of uncommon species habitat within 50' of alternative
Wildlife Habitat	• Acres of deer wintering areas within 100' of alterative • Acres of deer wintering areas within 50' of alternative
Anthropogenic Resources/Constraints	• Number of Public water sources within 500' of alternative • Number of hazardous waste sites within 500' of alternative

ROUTING ALTERNATIVES CONSIDERED

TDI-NE evaluated four alternative routes:

- Lake Segment Alternative- Lake Champlain to West Haven
- Western Segment Alternative – Railroad ROW
- Eastern Segment Alternative – Railroad/Roadway ROW
- Eastern Segment Alternative – VELCO ROW

Lake Segment Alternative - Lake Champlain to West Haven

This alternative overlaps with the Project's proposed initial in-lake routing but would proceed for an additional 3 miles south in Lake Champlain to exit the lake via horizontal directional drilling (HDD) in West Haven, Vermont rather than Benson, Vermont. The alternative route would proceed east through West Haven undergrounded in town road ROWs for 8 miles before transferring to the Route 22A ROW and travelling south to Fair Haven for approximately 3.4 miles (TDI-NE 2014).

Western Segment Alternative – Railroad ROW

The Project route is compared to an alternative whereby the cables would leave U.S. Route 4 at the intersection with U.S. Route 4A and, after a short distance, enter the Vermont Agency of Transportation (VTrans) railroad ROW. For this alternative, the cables would be laid within the railroad ROW for approximately 13 miles before intersecting with the Project route in West Rutland.

Eastern Segment Alternative - Railroad / Roadway ROW

This alternative overlaps with the Project route within the U.S. Route 4 ROW in West Rutland to the east in the Town of North Clarendon. The alternative would enter the railroad ROW and travel south, then east,

to Vermont Route 103 in Ludlow, at which point it would overlap again with the Project route to reach the proposed converter station location. The total length of this alternative would be approximately 30.8 miles to the proposed converter station location, with approximately 23.3 miles in railroad ROW and 7.5 miles in roadway ROW.

Eastern Segment Alternative - VELCO ROW
This alternative would depart from the Project route in West Rutland and follows the VELCO ROW to the south / south east for approximately 24 miles to the proposed converter station location.

Table 3 provides a summary of the alternatives and environmental criteria.

CONSERVATION AND DEMAND REDUCTION MEASURES

Under this alternative, reductions in energy use and demand would offset the need for additional electricity in the New England region, thus rendering the Project unnecessary. Consequently, the Project would not be built.

This alternative is eliminated from detailed analysis because it does not meet the U.S. Department of Energy's (DOE) purpose and need (***Section 1.2***), or TDI-NE's Project Objectives (***Section 1.3***). ISO-NE identified a need to diversify the region's electricity supply. While energy conservation measures are a component of the ISO-NE strategy, there is still a need for adequate electricity supply. Additionally, as defined in ***Section 1.4***, the purpose of the Project is to build and operate an electric transmission line to deliver low-carbon, non-intermittent power (approximately 98 percent hydropower) from Québec to serve the New England region. This alternative would not meet this purpose.

TABLE 3. SUMMARY OF PRACTICAL ALTERNATIVES BY SEGMENT

Evaluation Criteria	**Lake Champlain Segment (Border to Route 4)**		**Western Segment (Route 4 to West Rutland)**		**Eastern Segment (West Rutland to Ludlow)**		
	Benson	West Haven	Road	Railroad	Road	Railroad	VELCO
Length in miles	110.8	111.9	13	13	29.6	30.8	24
Navigation channel within Route	No	Yes	N/A	N/A	N/A	N/A	N/A
Approximate number of permanent easements	1	1	1	1	1	1	Many
Construction/operational access	Off boat	Off boat	Build roads/ off existing	Off existing	Off existing	Build roads/ off existing	Build roads/ off existing
Acres of Wetlands within 100’ (NWI)	3.6	1.5	3.6	93.4	18.3	32.2	11.8
Acres of Wetlands within 100’ (VSWI)	8	3.1	4.7	129	23.3	37.4	41.2
Stream Crossings	17	13	19	13	36	44	22
Number of RTE Species within 100’	7	10	3	2	4	4	8
Acres of RTE species habitat within 100’	29.2	27.2	17	25	23.8	37.2	50.8
Acres of significant natural communities within 100’	0	1.8	0	5.1	1.8	23.4	5.5
Number of Uncommon Species within 100’	6	8	1	4	2	3	7
Acres of Uncommon Species within 100’	26.5	16.6	0.1	12.2	4.7	1.4	2.7
Acres of Deer Wintering Areas within 100’	1.5	14.3	3.7	0	26.6	47.1	4.5
Number of Groundwater Source Protection Areas within 500’	2	0	8	10	7	6	4
Number of Surface water protection areas within 500’	0	0	0	0	11	5	0
Number of hazardous waste sites within 500’	2	0	2	5	3	3	2
Acres of public land within 500’	0	19.2	101	37.8	101	181	61.7
Acres of 100 year floodplains within 50’	1.6	3.1	4	43.8	41	25.4	12.5
Miles within stormwater impaired watershed	0	0	0	0	0	0	0

Source: TDI-NE 2014

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APPENDIX E CWA SECTION 404 AND SECTION 10 PERMIT APPLICATION

Incorporated by reference November 7, 2014 from TDI-NE to Mike Adams; December 2014;
http://necplink.com/docs/army_corps/01_NECPL_USACE_Cover_Letter_11-07-14l.pdf

Incorporated by reference: April 1, 2015 from VHB to Ms. Meghan McIntyre, Environmental Analyst;
Vermont Department of Environmental Conservation Watershed Management Division;
http://necplink.com/docs/regulatory/401-water-quality-certification/1_NECPL_401WQC_CoverLetter.pdf

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14 Gabriel Drive
Augusta, ME 04330

207.620.3800 PHONE
207.621.8226 FAX

www.trcsolutions.com

November 7, 2014

Michael Adams
U.S. Army Corps of Engineers
New England District
Vermont Project Office
8 Carmichael Street, Suite 205
Essex Junction, VT 05452

Subject: New England Clean Power Link Project
Section 404 / Section 10 Permit Application

Dear Mr. Adams:

Champlain VT, LLC, d/b/a TDI-New England (Applicant or TDI-NE) is proposing to construct, operate, and maintain the New England Clean Power Link Project (Project) to bring renewable sources of power generation in Canada to Vermont and ISO-NE via underwater and underground high-voltage direct current (HVDC) transmission cables. On behalf of the Applicant, please find enclosed an application for construction permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 (Application). The Applicant intends to supplement this Application in the near future with additional information regarding the anticipated impacts associated with the Project.

The Project will include construction, operation, and maintenance of an approximately 154-mile 1,000-MW, high-voltage electric power transmission system that will have both aquatic (underwater) and terrestrial (underground) segments in the State of Vermont. The underwater portions of the transmission line will be buried in the bed of Lake Champlain, except in areas where the water depth exceeds 150 feet, in which areas the Applicant proposes to place the cables on the Lake bottom. The terrestrial portions of the transmission line will be buried underground within roadway and rail system rights-of-way (ROWs) or on private property controlled by TDI-NE.

In addition to a completed ENG form 4345, the Application provides information related to the project purpose and description, construction methods, alternatives considered, and delineated wetlands and water resources. TDI-NE intends to supplement this application later this year with a quantification of wetlands impacts, avoidance/minimization/mitigation measures, and water quality modeling. The Applicant will also provide a listing of affected property owners at that time as well.

We look forward to speaking with you in the near future about this application. Please feel free to contact me at 207-620-3717 or SFMurphy@TRCsolutions.com if you have any questions about the materials presented.

Regards,

Sean Murphy, CEP
Project Manager

Enclosure

cc: Beth Alafat, USEPA
Maria Tur, USFWS
Billy Coster, VT ANR
Brian Mills, DOE
Don Jessome, TDI-NE
Josh Bagnato, TDI-NE

PUBLIC NOTICE

US Army Corps of Engineers ®
New England District
Vermont Project Office
11 Lincoln Street, Room 210
Essex Junction, Vermont 05452

Comment Period Begins: July 21, 2015
Comment Period Ends: Aug 21, 2015
File Number: NAE-2013-2689
In Reply Refer To: Michael S. Adams
Phone: (802) 872-2893
E-mail: Michael.s.adams@usace.army.mil

The District Engineer has received a permit application from the applicant below to conduct work in waters of the United States as described below.

APPLICANT: Champlain VT, LLC d/b/a TDI New England, ATTN: Donald Jessome, P.O. Box 155, Charlotte, Vermont 05445.

ACTIVITY: Place fill in and perform work within waters of the United States in conjunction with the construction of 154.2 miles of a new 1,000-MW, high-voltage direct current (DC) electric transmission line from the international U.S. - Canada border in Alburgh to Cavendish, Vermont. Approximately 97.3 miles of the line will be installed underwater in Lake Champlain and about 56.9 miles will be installed underground within roadway and railroad right-of-ways (ROW). This work will temporarily impact about 5.9 acres of waters of the United States and permanently impact about 2.5 acres of waters of the United States. Construction of a new converter station in Ludlow, Vermont, will convert the electric power from DC to alternating current (AC) will not impact waters of the United States. A detailed description and a partial set of plans of the activity are attached.

WATERWAY AND LOCATION OF THE PROPOSED WORK
The northern end of the project site is located on the Rouses Point, VT-NY USGS quadrangle sheet at UTM coordinates N 4985284.0 and E 631537.0. The southern end of the project site is located on the Ludlow, VT USGS quadrangle sheet at UTM coordinates N 4810890.0 and E 689332.0.

AUTHORITY
Permits are required pursuant to:
__X__ Section 10 of the Rivers and Harbors Act of 1899
__X_ Section 404 of the Clean Water Act
_____Section 103 of the Marine Protection, Research and Sanctuaries Act).

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which may reasonably accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among

those are: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural value, fish and wildlife values, flood hazards, flood plain value, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Where the activity involves the discharge of dredged or fill material into waters of the United States or the transportation of dredged material for the purpose of disposing it in ocean waters, the evaluation of the impact of the activity in the public interest will also include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act, and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972 as amended.

NATIONAL HISTORIC PRESERVATION ACT
Based on his initial review, the District Engineer has determined that the proposed work may impact properties listed in, or eligible for listing in, the National Register of Historic Places. Additional review and consultation to fulfil requirements under Section 106 of the National Historic Preservation Act of 1966, as amended, will be ongoing as part of the permit review process.

ENDANGERED SPECIES CONSULTATION
The New England District, Army Corps of Engineers has reviewed the list of species protected under the Endangered Species Act of 1973, as amended, which might occur at the project site. It is our preliminary determination that the proposed activity for which authorization is being sought is designed, situated or will be operated/used in such a manner that it is not likely to adversely affect any Federally listed endangered or threatened species or their designated critical habitat. By this Public Notice, we are requesting that the appropriate Federal Agency concur with our determination.

The following authorizations have been applied for, or have been, or will be obtained:
(X) Permit, License or Assent from State.
( ) Permit from Local Wetland Agency or Conservation Commission.
(X) Water Quality Certification in accordance with Section 401 of the Clean Water Act.

In order to properly evaluate the proposal, we are seeking public comment. Anyone wishing to comment is encouraged to do so.. **Comments should be submitted in writing by the above date.** If you have any questions, please contact Michael S. Adams at (802) 872-2893.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for a public hearing shall specifically state the reasons for holding a public hearing. The Corps holds public hearings for the purpose of obtaining public comments when that is the best means for understanding a wide variety of concerns from a diverse segment of the public.

The initial determinations made herein will be reviewed in light of facts submitted in response to this notice. All comments will be considered a matter of public record. Copies of letters of objection will be forwarded to the applicant who will normally be requested to contact objectors directly in an effort to reach an understanding.

In accordance with 33 CFR 325.2(a)(8), we publish monthly a list of permits issued or denied during the previous month at www.nae.usace.army.mil/reg, under the heading "Monthly General and Individual Permit Authorizations." Relevant environmental documents and the SOFs or RODs are available upon written request and, where applicable, upon the payment of administrative fees. Also visit www.nae.usace.army.mil for more information on the New England District Corps of Engineers programs.

THIS NOTICE IS NOT AN AUTHORIZATION TO DO ANY WORK.

Frank DelGiudice
Chief, Permits and Enforcement Branch
Regulatory Division

If you would prefer not to continue receiving Public Notices, please contact Ms. Tina Chaisson at (978) 318-8058 or e-mail her at bettina.m.chaisson@usace.army.mil. You may also check here ( ) and return this portion of the Public Notice to: Bettina Chaisson, Regulatory Division, U.S. Army Corps of Engineers, 696 Virginia Road, Concord, MA 01742-2751.

NAME: _____
ADDRESS: _____

PROPOSED WORK AND PURPOSE

Place fill in and perform work within waters of the United States in conjunction with the construction of 154.2 miles of a new 1,000-MW, high-voltage direct current (DC) electric transmission line from the international U.S. - Canada border in Alburgh to the existing Coolidge Substation in Cavendish, Vermont. The transmission line will be a bipole line consisting of two transmission cables, one positively charged and the other negatively charged. Approximately 97.3 miles of the line will be installed underwater in Lake Champlain and about 56.9 miles will be installed underground within roadway and railroad right-of-ways (ROW). This work will temporarily impact about 5.9 acres of waters of the United States and permanently impact about 2.5 acres of waters of the United States. Construction of a new converter station in Ludlow, Vermont, will convert the electric power from DC to alternating current (AC) will not impact waters of the United States. The proposed work involves the following:

UNDERWATER CABLE INSTALLATION

The proposed underwater Lake Champlain cable route will enter the lake about 0.5 mile south of the border in Alburgh, Vermont and will exit the lake in Benson, Vermont. The cables will be installed in the transition areas between aquatic and terrestrial portions of the project by using horizontal directional drilling (HDD). A sheet-pile cofferdam or receiver casing will be used in the lake at the aquatic transitions to minimize turbidity. In depths less than 150' the two cables will be bundled and laid together in the same trench about 4 feet below the lake using a jet plow or a shear plow. This portion of the route will be cleared of debris on the lake bottom using various types of grapnels. Both plowing processes will be conducted using a specially designed cable barge and towed plow device that simultaneously lays and embeds the aquatic transmission cables in the trench. At the 21 locations where the transmission cables cross existing utility lines or bedrock, they will be laid over the existing utility line or bedrock and protective articulating concrete mats will be placed over the cable crossing. A total of approximately 108,560 sq. ft. (2.5 acres) of lake bottom will be impacted by the concrete mats. In depths greater than 150 feet the cables will be laid on the lakebed without burial or protection and are expected to settle an average of 1 foot below the lake bottom.

UNDERGROUND CABLE INSTALLATION

With the exception of two privately owned parcels along the lake in Alburgh and Benson, the transmission line will be installed within existing town and state roadway and railroad ROWs. The overland segment consists of a 12' wide permanent project corridor centered on the transmission line alignment. The two cables will be installed side-by-side in a trench approximately 4' wide by 6' deep. Approximately 195,711 sq. ft. (4.5 acres) of wetlands and approximately 63,160 sq. ft. (1.45 acre) of stream bottom will be temporarily impacted by the trench, cofferdams, sidecast material and construction mats. Trenches in which the pipe will be installed will be backfilled with low thermal resistive backfill (when necessary) and indigenous material, with contours restored. The project will cross 151 perennial, intermittent and ephemeral streams. All temporary fills will be removed in their entirety upon project completion and disposed of at an upland, non-wetland location. Tree clearing within the work area will occur in about 84,758 sq. ft. (1.95 acre) of wetlands, with about 52,731 sq. ft. (1.21 acre) being allowed to grow back.

The purpose of the project is to deliver renewable power from Canada into Vermont and the markets operated by the New England Independent System Operator (ISO-NE).

In that this project involves the construction of a long linear project from the U.S. - Canada border in Alburgh to Cavendish, the applicant developed alternatives based on a review of using the lake and/or existing ROWs (roadway, railroad and utility). Three entirely overland routes were identified which follow existing road and/or utility ROWs. In considering alternatives which included Lake Champlain, the applicant identified three distinct segments, each containing specific alternatives. These included the Lake Champlain Segment (two alternatives using the lake from Alburgh and exiting the lake in Benson or West Haven to get to Fair Haven), Western Segment (two alternatives between Fair Haven and West Rutland), and Eastern Segment (three alternatives between West Rutland and Cavendish). Overall the applicant developed ten conceptual alternative routes that utilized existing right-of-ways, with one being the proposed project. The routes were evaluated using a desktop GIS review of potential impacts on wetlands, hydric soils, stream crossings, RTE Species and Significant Natural Communities, uncommon species, wildlife habitat, public water source protection areas, hazardous waste sites, floodplains, and historic sites. The overall project length, number of easements and project cost were also considered. The alternative routes consisted of:

1) Route 7 Alternative - Overland buried from the U.S. - Canada border in Highgate to Clarendon along the US Route 7 ROW for 125.2 miles, then from Clarendon to the existing substation in Cavendish along the Vermont Electric Power Company (VELCO) ROW for 17.8 miles;
2) Interstate Alternative - Overland buried from the U.S. - Canada border in Highgate to White River Junction along Interstate 89 for 127.9 miles, then along Interstate 91 to Ascutney for 18.47 miles, then along VT Route 131 and local roads for 19 miles to the existing substation in Cavendish;
3) Overland Alternative - Overland aerial from the U.S. - Canada border in Highgate to West Rutland to the existing substation in Cavendish for 131 miles using several existing VELCO ROWs;
4) Lake Champlain Segment West Haven Alternative – Lake Champlain from Alburgh to West Haven for 100 miles, then local roads, VT Route 22A and US Route 4 ROWs to Fair Haven for 11.4 miles to connect to the Western Segment;
5) Lake Champlain Segment Benson Landing Alternative - Lake Champlain from Alburgh to Benson for 97.3 miles, then to local roads, VT Route 22A and US Route 4 ROWs to Fair Haven for 12.5 miles to connect to the Western Segment;
6) Western Segment Route 4 Alternative - from Fair Haven to West Rutland along the US Route 4 ROW for 13 miles to connect to the Eastern Segment;
7) Western Segment Railroad West Alternative – from Fair Haven to West Rutland along local roads and VT Route 4A ROWs for 1.7 miles to the VTrans railroad ROW for 11 miles to connect to the Eastern Segment;
8) Eastern Segment Route 103 Alternative – from West Rutland to Cuttingsville along the US Route 4, VT Routes 7 and 103 ROWs for 10.9 miles. Through Cuttingsville on the railroad ROW for 3.5 miles, then back to VT Routes 103 and 100 ROWs for 10.6 miles to Ludlow. From Ludlow to the existing substation in Cavendish using 4.5 miles of local roads;

9) Eastern Segment Railroad East Alternative – from West Rutland to Rutland along US Route 4 and VT Route 7 ROWs for 6.8 miles to the railroad ROW for 20.3 miles to VT Route 103 in Ludlow where the final 5.8 miles would follow VT Route 100 and local roads to the substation in Cavendish; and
10) Eastern Segment VELCO Alternative – from West Rutland to the substation in Cavendish along 24 miles of VELCO ROW.

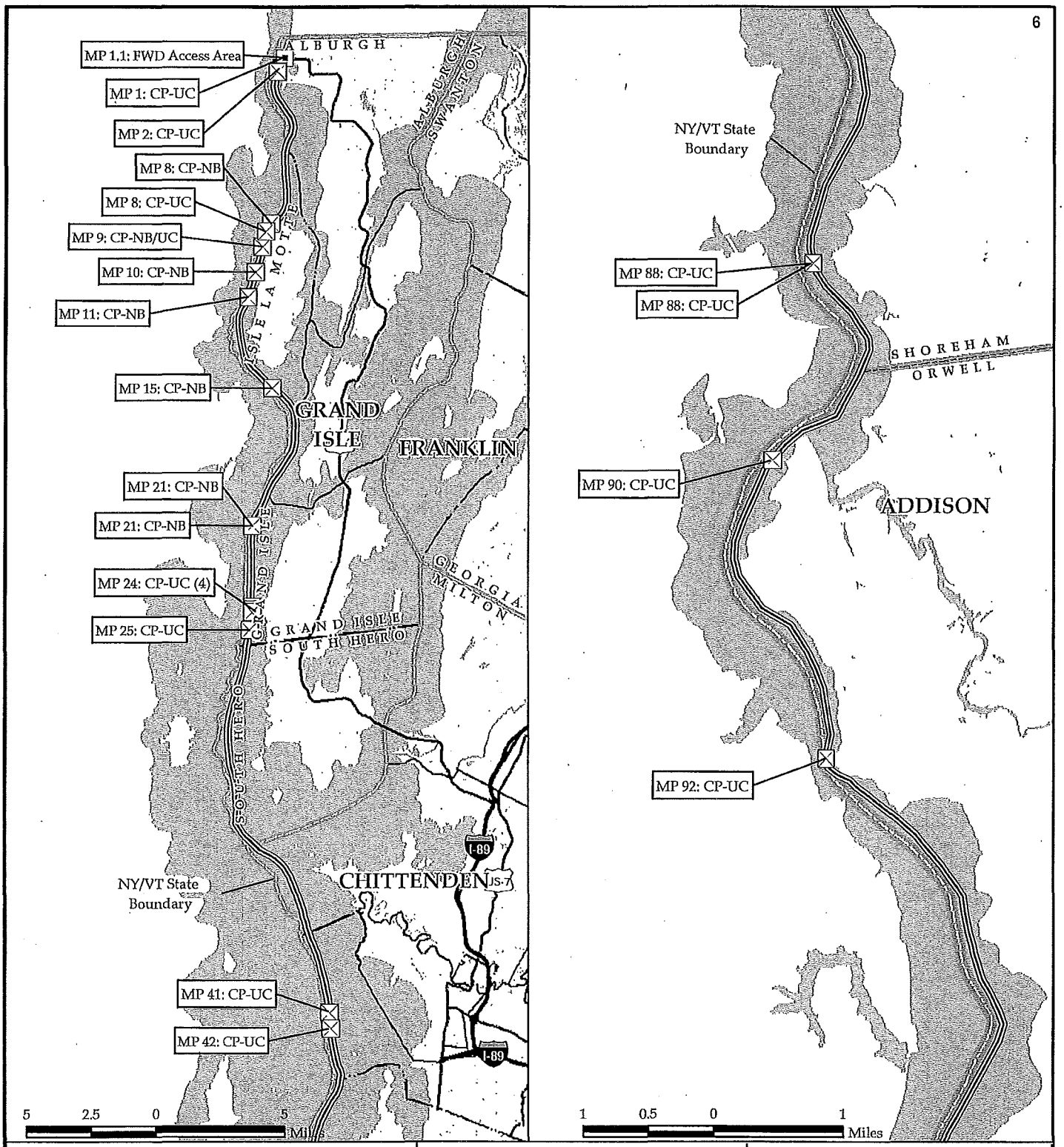
The proposed route follows Alternatives 5, 6 and 8. The applicant concluded that the preferred alternative is the least environmentally damaging and practicable alternative.

New right-of-ways were not considered in that they would likely involve greater impacts to waters of the United States.

To minimize the impacts to aquatic resources the transmission line will be installed directly beneath existing town roads, within the ROW of state roads and by directional bore across Lake Bomoseen, 18 stream channels including Otter Creek, and several large wetland complexes. The project has been designed such that impacts to wetlands and waterways have been avoided and minimized to the maximum extent practicable while maintaining the project objectives. All areas of temporarily disturbed soils, including access and construction areas will be regraded, reseeded, and restored upon project completion. The overland portion of the project will not involve any permanent fill within waters of the United States.

To compensate for unavoidable impacts to waters of the U.S. of the proposed project, the applicant proposes to make a payment to the Ducks Unlimited – Vermont In-Lieu Fee Program.

The work is partially described on the enclosed plans, in thirty one sheets, entitled "TDI-NE" (dated "March 31, 2015", revised "June 10, 2015") and "TDI – New England Clean Power Link (NECPL)" (dated "March 31, 2015", revised "July 9, 2015" and "June 10, 2015"). The entire set of wetland and stream impact plans can be viewed by contacting Josh Bagnato with TDI New England at (802) 477-3830.



Approximate Activity Locations

- FWD Access Area
- CP = Cable Protection
- UC = Utility Crossing
- NB = Natural Bedrock
- Interstate
- US Highway

NECPL Proposed Route

- Aquatic Route
- Waterbody (VHD)
- Stream (VHD)
- County Boundary
- Town Boundary

TDI-NE
New England Clean Power Link Project
Grand Isle, Rutland, Windsor Counties, and Lake Champlain, VT
Impact Exhibit - Lake Champlain
Approximate Impact Locations
Sheet # 3 of 215
March 31, 2015
Revised: June 10, 2015

Sources: Roads downloaded from VCGI (2013); VHD Streams & Waterbodies by VHD and downloaded from VCGI (2009); Town and County Boundaries by VCGI (2009); Proposed Cable Alignment by TRC (2015); Proposed Lake Activity Impacts by TRC/VHB (2015).

vhb TRC

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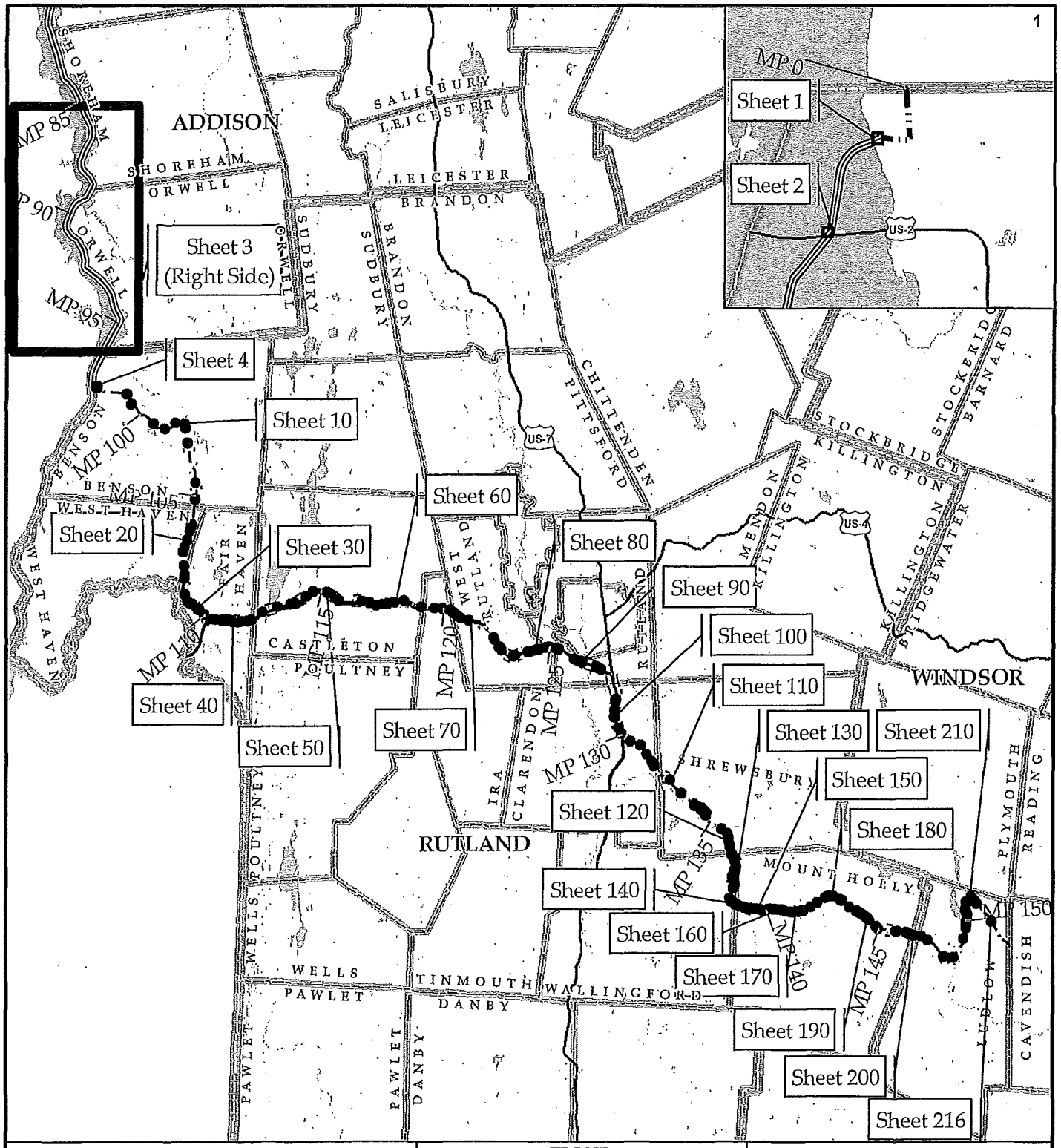

NECPL Proposed Route
- Terrestrial Cable Route/Duct Bank
- HDD/Jack and Bore
- Aquatic Cable Route/Lake HDD
- Sheet Outline
- County Boundary
- Town Boundary
- Waterbody (VHD)
- Interstate
- US Highway

TDI-NE
New England Clean Power Link Project
Grand Isle, Rutland, & Windsor Counties, VT
Wetland and Stream Impact Exhibit - Index Map

March 31, 2015
Revised: June 10, 2015

5 2.5 0 5 Miles

Sources: Roads downloaded from VCGI (2013); VHD Streams & Waterbodies by VHD and downloaded from VCGI (2009), Town and County Boundaries by VCGI (2009); Proposed Cable Route by TRC (2015)

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TDI - New England Clean Power Link (NECPL)
Grand Isle, Rutland, and Windsor Counties, VT
404/401 Wetland Impact Analysis
Prepared by VHB/TRC
March 31, 2015
Revised: July 9, 2015

VHB Impact Exhibit #	Wetland ID[1]	NR Sheet #	Town	Cowardin Classification[2]	Delineated Area (Sq Ft)	Proposed Wetland Impacts					TOTAL IMPACTS (SQ FT)	Abutters[9]	
						Permanent Impacts (Sq Ft)[3]	Temporary Impacts (Sq Ft)[4]			Secondary Impacts (Sq Ft)		LLN #	Last Name of Abutting Property Owner
							Trenching/ Earthwork[5]	Forested Areas[6]	Non-Forested Areas[7]	Forest Conversion[8]			
1	V-AL-W-2	1	Alburgh	PEM/ PFO	17400	0	0	0	0	0	0	6, 8	Leon and Shirley Aubin, Matthew Buron Trustee
4	V-BE-W-1	2	Benson	PSS	3310	0	0	0	0	0	0	16, 17, 17.01	Lombardi/TDI, Cushing Family, LLC, Deirdre Denehy
4	V-BE-W-2	2	Benson	PFO	3930	0	0	0	0	0	0	16, 17, 17.01	Lombardi/TDI, Cushing Family, LLC, Deirdre Denehy
7	V-BE-W-14	4	Benson	PSS/PFO	1480	0	0	49	356	0	405	12, 38	Town of Benson, Eunice Munger Life Estate
10	V-BE-W-100	5	Benson	PEM	740	0	29	0	45	0	74	63, 84	David & Debra Tyler, Vermont Agency of Transportation
11	V-BE-W-101	5	Benson	PEM	910	0	788	0	119	0	907	63, 84	David & Debra Tyler, Vermont Agency of Transportation
15	V-WH-W-101	9	West Haven	PEM	140	0	113	0	29	0	142	84, 94, 95	Vermont Agency of Transportation, Williams Properties, LLC, Williams Properties, LLC
15	V-WH-W-100	9	West Haven	PEM	100	0	90	0	8	0	98	84, 94, 95	Vermont Agency of Transportation, Williams Properties, LLC, Williams Properties, LLC
17	V-WH-W-5	9	West Haven	PEM	1450	0	1168	0	286	0	1454	84, 96, 99	Vermont Agency of Transportation, The Nature Conservancy, The Nature Conservancy
18	V-WH-W-6	9	West Haven	PEM	120	0	106	0	10	0	116	84, 96, 97	Vermont Agency of Transportation, The Nature Conservancy, Langis Anctil

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TDI - New England Clean Power Link (NECPL)
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VHB Impact Exhibit #	Wetland ID[1]	NR Sheet #	Town	Cowardin Classification[2]	Delineated Area (Sq Ft)	Proposed Wetland Impacts					TOTAL IMPACTS (SQ FT)	Abutters[9]	
						Permanent Impacts (Sq Ft)[3]	Temporary Impacts (Sq Ft)[4]			Secondary Impacts (Sq Ft)		LLN #	Last Name of Abutting Property Owner
							Trenching/ Earthwork[5]	Forested Areas[6]	Non-Forested Areas[7]	Forest Conversion[8]			
19	V-WH-W-8	9	West Haven	PEM	6360	0	1898	0	587	0	2485	84, 96, 99	Vermont Agency of Transportation, The Nature Conservancy, The Nature Conservancy
20	V-WH-W-10	9	West Haven	PEM	1800	0	0	0	2252	0	2252	84, 101	Vermont Agency of Transportation, Linda Benissi
20	V-WH-AW-10	9	West Haven	PEM	7150	0	0	0	241	0	241	84, 101	Vermont Agency of Transportation, Linda Benissi
21	V-WH-W-11	10	West Haven	PEM	1220	0	0	0	680	0	680	84, 101, 102	Vermont Agency of Transportation, Linda Benissi, Peter Doran
27	V-FH-W-22	11	Fair Haven	PEM	1130	0	138	0	962	0	1100	84, 118	Vermont Agency of Transportation, Kathleen Knapp
28	V-FH-W-21	11	Fair Haven	PEM/PSS	8780	0	654	988	307	828	2777	84, 122	Vermont Agency of Transportation, Phillip Stannard, Sr. & Kathleen Knapp
30	V-FH-W-19	12	Fair Haven	PEM	9070	0	0	0	43	0	43	84, 124	Vermont Agency of Transportation, Kevin & Aileen Durkee
32	V-FH-W-29	12	Fair Haven	PEM / PSS	920	0	124	0	796	0	920	128, 252	Paul & Colleen Heibler, Vermont Agency of Transportation
35	V-FH-W-5	13	Fair Haven	PEM	6290	0	0	275	0	0	275	252	Vermont Agency of Transportation
36, 37	V-FH-W-4	13	Fair Haven	PEM / PFO / PSS	85510	0	15	1035	544	707	2301	252	Vermont Agency of Transportation
38	V-FH-W-6	13	Fair Haven	PEM	5320	0	1092	138	1228	0	2458	252	Vermont Agency of Transportation

TDI - New England Clean Power Link (NECPL)
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							Trenching/ Earthwork[5]	Forested Areas[6]	Non-Forested Areas[7]	Forest Conversion[8]			
45	V-CN-W-103	15	Castleton	PEM / PSS	25930	0	27	0	733	0	760	252, 182	Vermont Agency of Transportation, JAMAC Corp.
46	V-CN-W-104	15	Castleton	PFO / PEM / PSS	119100	0	0	1007	0	0	1007	252, 182	Vermont Agency of Transportation, JAMAC Corp.
47	V-CN-W-113	16	Castleton	PEM / PSS / PFO	30220	0	155	425	846	28	1454	188, 252	Myrtle Hall, Vermont Agency of Transportation
48	V-CN-W-115	16	Castleton	PEM	17290	0	0	0	2265	0	2265	252, 192	Vermont Agency of Transportation, Daniel Amrick
49	V-CN-W-11	17	Castleton	PEM/PSS/PFO	5940	0	0	95	97	0	192	252	Vermont Agency of Transportation
50	V-CN-W-12	17	Castleton	PEM/PSS	12060	0	340	0	413	0	753	195, 252	Wayne Doane, Vermont Agency of Transportation
51, 52	V-CN-W-15	17	Castleton	PEM/PSS	21510	0	3044	292	11467	397	15200	201, 252	James Dodge, Vermont Agency of Transportation
54	V-CN-W-3/6	18	Castleton	PEM/PSS	9900	0	817	0	1428	0	2245	252, 221	Vermont Agency of Transportation, Breton Brook Properties, Inc.
59	V-CN-W-1	19	Castleton	PEM / PSS	12780	0	0	218	357	58	633	252	Vermont Agency of Transportation
66	T-WR-W8	22	West Rutland	PSS/PEM	6720	0	0	341	0	198	539	252	Vermont Agency of Transportation
68	T-WR-W7	22	West Rutland	PEM	1380	0	0	384	0	0	384	252	Vermont Agency of Transportation

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						Permanent Impacts (Sq Ft)[3]	Temporary Impacts (Sq Ft)[4]			Secondary Impacts (Sq Ft)		LLN #	Last Name of Abutting Property Owner
							Trenching/ Earthwork[5]	Forested Areas[6]	Non-Forested Areas[7]	Forest Conversion[8]			
84	T-RU-W8	26	Rutland	PEM/PFO	22590	0	2161	2088	2823	1275	8347	252, 356	Vermont Agency of Transportation, Paul Grabowski
91, 92, 93, 94, 95	T-RU-W4	27	Rutland	PEM/PSS	223760	0	737	13367	1175	3325	18604	252, 379	Vermont Agency of Transportation, Dyer Management, LLC
96	T-CL-W11	29	Clarendon	PFO	2340	0	0	426	21	243	690	388, 410	Vermont Agency of Transportation, John and Barbara Pratt
97	T-CL-W12	29	Clarendon	PEM	1190	0	0	480	203	42	725	388, 410	Vermont Agency of Transportation, John and Barbara Pratt
98	T-CL-W7	29	Clarendon	PFO/PEM	11020	0	604	896	576	962	3038	388, 416	Vermont Agency of Transportation, Loomis & Allen Darby
99	T-CL-W5	29	Clarendon	PEM	2700	0	335	14	1810	0	2159	388, 417, 418	Vermont Agency of Transportation, Marjorie Southard, John, Winona & Bradley Gilman
100	T-CL-W2	30	Clarendon	PFO/PEM	770	0	0	39	16	0	55	388, 420	Vermont Agency of Transportation, Caroll Adams
101	T-CL-W1	30	Clarendon	PEM	2550	0	0	0	163	0	163	388, 427	Vermont Agency of Transportation, Robert Turgeon
102	T-CL-W15	30	Clarendon	PEM	280	0	0	0	820	0	820	428, 429, 469	Thomas Pierce et al, Thomas Pierce et al, Vermont Agency of Transportation
103	T-CL-W18	31	Clarendon	PFO	910	0	0	208	5	0	213	431, 433, 469	Thomas Pierce et al, J P Carrara & Sons, Vermont Agency of Transportation
104	T-CL-W20	31	Clarendon	PFO	2420	0	0	27	0	0	27	433, 469	J P Carrara & Sons, Vermont Agency of Transportation

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						Permanent Impacts (Sq Ft)[4]	Temporary Impacts (Sq Ft)[4]			Secondary Impacts (Sq Ft)		LLN #	Last Name of Abutting Property Owner
							Trenching/ Earthwork[5]	Forested Areas[6]	Non-Forested Areas[7]	Forest Conversion[8]			
105, 106, 107, 108	T-CL-W22	32	Clarendon	PEM	34150	0	3394	7566	22909	284	34153	436, 447, 448, 469	Airport Properties Corp, Brian & Jeffrey Godnick, Bonnie Wood, Clayton Webster, Karen Webster, Vermont Agency of Transportation
111	V-SH-W-7	34	Shrewsbury	PEM/PSS	1690	0	104	447	0	1108	1659	469, 481, 482	Vermont Agency of Transportation, Donna & Richard Swartz, Trustees, Thedora & Jonathan Kingsbury, Co-Trustees
113	V-SH-W-201	34	Shrewsbury	PFO	5410	0	0	37	0	0	37	491, 520	Robert & Judith Landon, Vermont Agency of Transportation Rail Program
114	V-SH-W-202	34	Shrewsbury	PSS/PFO	680	0	0	680	0	0	680	491, 520	Robert & Judith Landon, Vermont Agency of Transportation Rail Program
116	T-SH-W6	35	Shrewsbury	PFO	1860	0	0	728	43	1091	1862	499, 501, 520	John & Jackson Ridlon & John Ridlon, II, Timothy & Kathi Faulkner, Vermont Agency of Transportation Rail Program
118, 119, 120	T-SH-W9	35	Shrewsbury	PFO	9180	0	0	5291	0	3614	8905	514, 520	Ryan Wood-Beauchamp & Kara Fitzgerald, Vermont Agency of Transportation Rail Program
120	T-SH-W10	36	Shrewsbury	PFO	4000	0	0	1951	0	2050	4001	514, 520	Ryan Wood-Beauchamp & Kara Fitzgerald, Vermont Agency of Transportation Rail Program
121	T-SH-W12	36	Shrewsbury	PEM	770	0	0	762	8	0	770	508, 514, 520	Donald Larson, Ryan Wood-Beauchamp & Kara Fitzgerald, Vermont Agency of Transportation Rail Program
124, 125	T-SH-W13	36	Wallingford	PSS	11760	0	625	906	5781	4292	11604	517, 517.01, 518, 520	David Parker & Patricia Moriel, Town of Wallingford, Michelle Martin Shaw, Vermont Agency of Transportation Rail Program
126	T-WA-W3	36	Wallingford	PFO	6638	0	0	871	484	1085	2440	520, 530, 533	Vermont Agency of Transportation Rail Program, Walter F. Semrow, Daniel Gram
127, 128	T-WA-W3b	37	Wallingford	PEM	2526	0	0	1363	0	1164	2527	520, 536	Vermont Agency of Transportation Rail Program, Daniel Gram

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						Permanent Impacts (Sq Ft)[3]	Temporary Impacts (Sq Ft)[4]			Secondary Impacts (Sq Ft)		LLN #	Last Name of Abutting Property Owner
							Trenching/ Earthwork[5]	Forested Areas[6]	Non-Forested Areas[7]	Forest Conversion[8]			
128, 129	T-WA-W4	37	Wallingford	PFO	8620	0	0	3872	0	4326	8198	520, 536	Vermont Agency of Transportation Rail Program, Daniel Gram
130	T-WA-W6	37	Wallingford	PFO	1300	0	0	461	0	834	1295	520, 536	Vermont Agency of Transportation Rail Program, Daniel Gram
131	T-WA-W9	37	Wallingford	PEM	1270	0	0	738	0	359	1097	520, 542	Vermont Agency of Transportation Rail Program, Phillip & Florence Carroll
131	T-WA-W10	37	Wallingford	PEM	1050	0	0	806	0	247	1053	520, 542	Vermont Agency of Transportation Rail Program, Phillip & Florence Carroll
134	V-WA-W-102	37	Wallingford	PEM/ PSS	60	0	64	0	0	0	64	543, 548, 549	Vermont Agency of Transportation, George and Donna Chamberland, Robert Kapusta & Katherine Wade
136, 137, 138	V-WA-W-101	38	Wallingford	PEM/ PFO	2300	0	1120	231	0	953	2304	543, 550, 555, 556	Vermont Agency of Transportation, Jonathan and Monica Rogers, Doris Roach, Alfred and Iona Bumps
139, 140	T-MH-W55	38	Mount Holly	PSS	550	0	314	14	0	222	550	543, 556, 559, 565, 566	Vermont Agency of Transportation, Alfred and Iona Bumps, Daniel & Diane Gray, Daniel Susco, Al Gates & Kathy Swift
141	T-MH-W56	38	Mount Holly	PEM	540	0	539	0	0	0	539	543, 569	Vermont Agency of Transportation, Geoffrey Stone
142, 143	T-MH-W53 NORTH	38	Mount Holly	PFO	230	0	0	17	212	0	229	543, 569, 570	Vermont Agency of Transportation, Geoffrey Stone, William & Ruth Johnson
145	T-MH-W54	38	Mount Holly	PEM	630	0	290	0	340	0	630	543, 570	Vermont Agency of Transportation, William & Ruth Johnson
146, 147	T-MH-W50	38	Mount Holly	PEM/PSS	5380	0	2400	48	1068	148	3664	543, 575	Vermont Agency of Transportation, David Johnson

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TDI - New England Clean Power Link (NECPL)
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						Permanent Impacts (Sq Ft)[3]	Temporary Impacts (Sq Ft)[4]			Secondary Impacts (Sq Ft)		LLN #	Last Name of Abutting Property Owner
							Trenching/ Earthwork[5]	Forested Areas[6]	Non-Forested Areas[7]	Forest Conversion[8]			
148	T-MH-W48-North	38	Mount Holly	PEM	130	0	130	0	0	0	130	543, 576	Vermont Agency of Transportation, Grover Taylor Sr.
149	T-MH-W51	38	Mount Holly	PSS	290	0	192	0	103	0	295	543, 577, 582	Vermont Agency of Transportation, William & Mary Ellen Jacobs, Randy Hawkins
150, 151	T-MH-W52	39	Mount Holly	PEM	2140	0	996	390	410	253	2049	543, 582, 583	Vermont Agency of Transportation, Randy Hawkins, Charles Ripchick
154, 155, 156, 157	T-MH-W45	39	Mount Holly	PSS/PEM	8460	0	3859	0	4602	0	8461	543, 597, 598	Vermont Agency of Transportation, Brian Buffum, Randy Hawkins
158	T-MH-W41	39	Mount Holly	PEM	2510	0	242	0	1285	0	1527	543, 598	Vermont Agency of Transportation, Randy Hawkins
160, 161	T-MH-W38	39	Mount Holly	PSS/PFO	1060	0	463	0	0	597	1060	543, 605, 606	Vermont Agency of Transportation, Johnny & Sally Butler, Bernard Wheeler Sr.
162	T-MH-W37	39	Mount Holly	PSS	440	0	325	10	95	0	430	543, 606	Vermont Agency of Transportation, Bernard Wheeler Sr.
163	T-MH-W34	40	Mount Holly	PSS	360	0	99	172	13	74	358	543, 604	Vermont Agency of Transportation, Rodney Cole
163	T-MH-W35 NORTH	40	Mount Holly	PSS	130	0	16	22	0	90	128	543, 604	Vermont Agency of Transportation, Rodney Cole
164	T-MH-W36	40	Mount Holly	PSS	900	0	312	469	122	0	903	543, 604, 607	Vermont Agency of Transportation, Rodney Cole, Mary and Walter Surething
165, 166	T-MH-W33	40	Mount Holly	PSS	950	0	555	50	348	0	953	543, 608, 609	Vermont Agency of Transportation, Charleen Cole, Joseph Fitzgerald

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TDI - New England Clean Power Link (NECPL)
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						Permanent Impacts (Sq Ft)[3]	Temporary Impacts (Sq Ft)[4]			Secondary Impacts (Sq Ft)			
							Trenching/ Earthwork[5]	Forested Areas[6]	Non-Forested Areas[7]	Forest Conversion[8]		LLN #	Last Name of Abutting Property Owner
167	T-MH-W32	40	Mount Holly	PEM	570	0	358	0	240	0	598	543, 611	Vermont Agency of Transportation, Philip & Marilyn Dunwoody
167, 168	T-MH-W31	40	Mount Holly	PEM	970	0	401	0	565	0	966	543, 611	Vermont Agency of Transportation, Philip & Marilyn Dunwoody
168	T-MH-W30	40	Mount Holly	PEM	300	0	216	0	86	0	302	543, 611	Vermont Agency of Transportation, Philip & Marilyn Dunwoody
170	T-MH-W28	41	Mount Holly	PSS	4740	0	37	0	0	0	37	543, 614.01	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program
173	T-MH-W23	41	Mount Holly	PEM/PSS	220	0	220	0	0	0	220	543, 623, 628, 629	Vermont Agency of Transportation, Neil Pelsue Jr. Trustee, Maria Howard, Maria Rae Howard C/O Mary Nortunen
175, 176	T-MH-W21	42	Mount Holly	PSS	2520	0	1504	245	60	927	2736	543, 630, 631, 632	Vermont Agency of Transportation, Angelo Chiari & Cynthia Dilworth, Ginger & Clarence Palmer, Ginger & Clarence Palmer
176, 177	T-MH-W20	42	Mount Holly	PEM/PSS	1180	0	878	115	44	141	1178	543, 631, 632	Vermont Agency of Transportation, Ginger & Clarence Palmer, Ginger & Clarence Palmer
182, 183	T-MH-W17	43	Mount Holly	PEM	3420	0	115	268	3340	0	3723	543, 663	Vermont Agency of Transportation, Gene Syria
185	T-MH-W16	43	Mount Holly	PEM	6570	0	0	0	31	0	31	543, 672	Vermont Agency of Transportation, Keith Demers
188	T-MH-W9	43	Mount Holly	PSS	1060	0	61	5	559	0	625	543, 678, 679	Vermont Agency of Transportation, Stanton Wyman, Joseph & Gina Labate
190	T-MH-W6	43	Mount Holly	PSS	110	0	0	0	0	105	105	543, 701	Vermont Agency of Transportation, Tammy Harrington

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VHB Impact Exhibit #	Wetland ID[1]	NR Sheet #	Town	Cowardin Classification[2]	Delineated Area (Sq Ft)	Proposed Wetland Impacts: Permanent Impacts (Sq Ft)[3]	Temporary Impacts (Sq Ft)[4]: Trenching/ Earthwork[5]	Temporary Impacts (Sq Ft)[4]: Forested Areas[6]	Temporary Impacts (Sq Ft)[4]: Non-Forested Areas[7]	Secondary Impacts (Sq Ft): Forest Conversion[8]	TOTAL IMPACTS (SQ FT)	Abutters[9]: LLN #	Abutters[9]: Last Name of Abutting Property Owner
195	T-MH-W2	45	Mount Holly	PEM	340	0	0	47	5	0	52	543, 715.01, 725	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program,
195, 196	T-MH-W3	45	Mount Holly	PEM	440	0	0	173	11	0	184	543, 715.01, 725	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program,
200	T-LU-W13	46	Ludlow	PEM	11140	0	0	1046	214	0	1260	543	Vermont Agency of Transportation
201	T-LU-W1	46	Ludlow	PEM	140	0	0	138	0	0	138	730.01, 768	Vermont Agency of Transportation, Village of Ludlow
			Impact Subtotal (Sq Ft)			0	34,264	52,731	76,689	32,027	195,711		
							163,684						
			Impact Subtotal (Acres)			0.00	0.79	1.21	1.76	0.74	4.50		
							3.76						

Note: GIS impact analysis conducted using Limits of Disturbance created by TRC-engineering- Drafted 06/05/2015

[1]VHB/TRC wetland delineations have been field-reviewed (representative areas) by USACE and VT DEC personnel.

[2]Wetland classifications based on Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitat of the United States. U.S. Fish and Wildlife Service. FWS/OBD-79/31. 103pp.

[3] Permanent impacts are calculated as areas of direct fill or grading. There will be no permanent wetland impacts as a result of project construction.

[4]Temporary impacts have been divided into three types, for the purpose of calculating compensatory mitigation credits required, in consultation with the USACE. Temporary wetland impacts consist of: 1) impacts from trenching and/or earthwork; 2) impacts from tree clearing in forested areas and 3) impacts from non-trenching/earthwork type activities in non-forested areas. Deatils are provided in footnotes 6, 7, and 8.

[5] Temporary impacts from trenching/earthwork will occur within the approximately 12-foot wide Permanent Project Corridor as a result of excavation of an approximately 4-foot wide trench for the cable Following construction, these areas will be restored per the project EPSC plan (see Block 18 Attachment of 404 Permit Application).

[6] Temporary impacts in forested areas will occur as a result of required tree clearing in Temporary Workspaces, which will be allowed to regenerate after construction.

[7] Temporary impacts in non-forested areas will occur in the Temporary Workspace where construction mats will be utilized to minimize rutting and compaction from equipment. These areas will be allowed to regernate after construction.

[8]Secondary impacts will occur in the Permanent Project Corridor as a result of permanent tree clearing, which will result in the conversion of forested wetlands to emergent or scrub-shrub wetlands.

[9] Abutter information, including mailing addresses and Line List Numbers are found in the Adjoining Property Owners table in the 404 Permit Application.

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404/401 Stream Impact Analysis
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Revised: July 9, 2015

Impact Exhibit #	Stream ID	Natural Resource Map Series Sheet #	Town	Flow Regime[2]	Average Ordinary High Water (OHW) Width (Ft)[3]	Unique Associated Stream Culvert ID	Associated Stream Culvert Diameter (Ft) (TRC)	Stream Culvert Activity[2]	Proposed Stream Impacts[4,5]: Permanent Impact: Impact (Linear Feet)	Permanent Impact: Impact Area (Sq Ft)	Temporary Impact: Trenching/Earthwork (Stream): Impact (LF)	Trenching/Earthwork (Stream): Impact Area (Sq Ft)	Culvert Work[6]: Impact (LF)	Culvert Work[6]: Impact Area (Sq Ft)	Dewatering (Stream)[7]: Impact (LF)	Dewatering (Stream)[7]: Impact Area (Sq Ft)	Dewatering (Culvert)[8]: Impact (LF)	Dewatering (Culvert)[8]: Impact Area (Sq Ft)	TOTAL IMPACTS[9]: IMPACT (LF)	TOTAL IMPACTS[9]: IMPACT AREA (SQ FT)	Abutter[10]: LLN #	Abutter[10]: Last Name of Abutting Property Owner
5	V-BE-AS-3	3	Benson	Perennial	3	SC-1	2	At Culvert Splice	0	0	0	0	21	42	0	0	50	100	76	157	12, 21, 28	Town of Benson, Anne M. Munger, Anne M. Munger
6	V-BE-AS-5	3	Benson	Intermittent	7	SC-4	4.5	At Culvert Splice	0	0	0	0	21	95	0	0	30	135	56	265	12, 28, 30	Town of Benson, Anne M. Munger, Anne M. Munger
7	V-BE-S-8	4	Benson	Perennial	7	SC-12	2	Remove and Replace	0	0	0	37	26	52	0	168	0	0	31	257	12, 33, 38	Town of Benson, Robert J. Phelps & Karen A. Barber, Eunice Munger Life Estate
8	V-BE-AS-10	4	Benson	Perennial	5	SC-17	3	Remove and Replace	0	0	0	0	55	165	0	0	0	0	60	190	12, 45	Town of Benson, Caleb R. Symons, Jr. & Paul A. Millette
9	V-BE-AS-11	5	Benson	Intermittent	4	SC-21	2.5	At Culvert Splice	0	0	0	0	22	55	0	0	18	45	45	120	12, 56, 57	Town of Benson, James & Betty Arthur, Francis Munger Life Estate
10	V-BE-S-100	5	Benson	Perennial	3	SC-24	2	At Culvert Splice	0	0	9	27	15	30	0	0	34	68	63	140	63, 64, 84	David & Debra Tyler, David & Debra Tyler, Vermont Agency of Transportation
12	V-BE-S-101	6	Benson	Ephemeral	1.5	SC-36	2	At Culvert Splice	0	0	108	162	11	22	0	0	42	84	166	276	65, 66, 84	Timothy B. Bird & Janice C. Bird, Robert M. Butler & Juliet N. Butler, Vermont Agency of Transportation
13	V-BE-AS-105	7	Benson	Intermittent	1.5	CU-50	1.25	Open Trench Excavate	0	0	10	15	12	15	0	0	37	46	64	84	80, 81, 84	Bartholomew Brothers Inc., Vermont Agency of Transportation, Paul Lussier & Karl Lee Ann Lussier
14	V-BE-S-109	8	Benson	Perennial	4	SC-59	2.5	At Culvert Splice	0	0	10	40	14	35	0	0	32	80	61	175	84, 85, 86	Vermont Agency of Transportation, Henry & Joan Daley, Trustees, Henry & Joan Daley, Trustees
16	V-WH-S-4	9	West Haven	Perennial	5	SC-71	2.5	Open Trench Excavate	0	0	13	65	0	0	1	5	0	0	19	95	84, 96	Vermont Agency of Transportation, The Nature Conservancy
19	V-WH-S-5	9	West Haven	Intermittent	3	-	-	Open Trench Excavate	0	0	11	33	0	0	7	21	0	0	23	69	84, 96, 99	Vermont Agency of Transportation, The Nature Conservancy, The Nature Conservancy
22	V-WH-S-3	10	West Haven	Ephemeral	2	-	-	Open Trench Excavate	0	0	0	0	0	0	4	8	0	0	9	18	84, 108	Vermont Agency of Transportation, Heman W. Stannard

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Revised: July 9, 2015[5]

Impact Exhibit #	Stream ID	Natural Resource Map Series Sheet #	Town	Flow Regime[2]	Average Ordinary High Water (OHW) Width (Ft)[3]	Unique Associated Stream Culvert ID	Associated Stream Culvert Diameter (Ft) (TRC)	Stream Culvert Activity[3]	Proposed Stream Impacts[4,5]												Abutter[10]	
									Permanent Impact		Temporary Impact								TOTAL IMPACTS[9]			
											Trenching/Earthwork (Stream)		Culvert Work[6]		Dewatering (Stream)[7]		Dewatering (Culvert)[8]					
									Impact (Linear Feet)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	IMPACT (LF)	IMPACT AREA (SQ FT)	LLN #	Last Name of Abutting Property Owner
23	V-WH-S-2	10	West Haven	Perennial	4.5	SC-89	2	At Culvert Splice	0	0	0	0	50	100	0	0	81	162	136	285	84, 108, 112	Vermont Agency of Transportation, Heman W. Stannard, Christopher Neubert
24	V-WH-S-1	10	West Haven	Intermittent	2	-	-	Open Trench Excavate	0	0	0	0	0	0	11	22	0	0	16	32	84, 108	Vermont Agency of Transportation, Heman W. Stannard
25	V-FH-S-24	11	Fair Haven	Intermittent	2	SC-99	1.5	At Culvert Splice	0	0	0	0	47	71	0	0	98	147	150	228	84, 114, 115	Vermont Agency of Transportation, Earl & Sally Corey, Steven & Lonna Farrar
26	V-FH-S-22	11	Fair Haven	Ephemeral	2	SC-104	2	At Culvert Splice	0	0	10	20	18	36	0	0	59	118	92	184	84, 115, 118, 120	Vermont Agency of Transportation, Steven & Lonna Farrar, Kathleen Knapp, Roderic Holzworth II & Jacqueline Holzworth
28	V-FH-S-18	11	Fair Haven	Intermittent	2	-	-	Open Trench Excavate	0	0	62	124	0	0	147	294	0	0	214	428	84, 122	Vermont Agency of Transportation, Phillip Stannard, Sr. & Kathleen Knapp
29	V-FH-S-17	12	Fair Haven	Perennial	3	SC-110	4	At Culvert Splice	0	0	0	0	61	244	0	0	108	432	174	691	84, 121, 124	Vermont Agency of Transportation, Roderic Holzworth II & Jacqueline Holzworth, Kevin & Aileen Durkee
31	V-FH-S-16	12	Fair Haven	Ephemeral	2	-	-	Open Trench Excavate	0	0	0	0	0	0	9	18	0	0	14	28	84, 124	Vermont Agency of Transportation, Kevin & Aileen Durkee
33	V-FH-S-3	12	Fair Haven	Intermittent	1.5	SC-122	3	Open Trench Excavate	0	0	12	18	0	0	36	54	0	0	53	80	135, 252	William Bischoff, Vermont Agency of Transportation
34	V-FH-S-4	13	Fair Haven	Ephemeral	1.5	SC-125	4	At Culvert Splice	0	0	0	0	69	276	0	0	96	384	170	668	252	Vermont Agency of Transportation
35	V-FH-S-5	13	Fair Haven	Perennial	4	SC-128	4	At Culvert Splice	0	0	0	0	76	304	0	0	85	340	166	664	252	Vermont Agency of Transportation
39	V-FH-S-26	13	Fair Haven	Ephemeral	2	SC-131	2.5	At Culvert Splice	0	0	0	0	19	48	0	0	43	108	67	166	252	Vermont Agency of Transportation
40	V-FH-S-6	13	Fair Haven	Intermittent	2	SC-137	4	At Culvert Splice	0	0	0	0	74	296	0	0	494	1976	573	2282	145, 252	Joyce Roberts, Vermont Agency of Transportation
41	V-FH-S-10	14	Fair Haven	Perennial	2	SC-139	4	At Culvert Splice	0	0	0	0	169	676	0	0	425	1700	599	2386	252	Vermont Agency of Transportation

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									Permanent Impact		Temporary Impact								TOTAL IMPACTS[9]			
											Trenching/Earthwork (Stream)		Culvert Work[6]		Dewatering (Stream)[7]		Dewatering (Culvert)[8]					
									Impact (Linear Feet)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	IMPACT (LF)	IMPACT AREA (SQ FT)	LLN #	Last Name of Abutting Property Owner
42	V-FH-S-7	14	Fair Haven	Ephemeral	1	-	-	Open Trench Excavate	0	0	27	27	0	0	21	21	0	0	53	53	252	Vermont Agency of Transportation
43	V-FH-S-8	14	Castleton	Intermittent	3	SC-153, SC-154	3	At Culvert Splice	0	0	0	0	24	72	3	9	61	183	93	279	252	Vermont Agency of Transportation
44	V-CN-S-101	15	Castleton	Perennial	3.5	SC-161	5	Open Trench Excavate	0	0	13	46	0	0	29	102	0	0	47	165	252, 172	Vermont Agency of Transportation, JAMAC Corp.
50	V-CN-S-11	17	Castleton	Intermittent	1	SC-184	3	Open Trench Excavate	0	0	12	12	0	0	14	14	0	0	31	31	195, 252	Wayne Doane, Vermont Agency of Transportation
53	V-CN-S-13	17	Castleton	Intermittent	1	-	-	Open Trench Excavate	0	0	20	20	0	0	53	53	0	0	78	78	201, 202, 252	James Dodge, James Dodge, Vermont Agency of Transportation
55	V-CN-S-5	18	Castleton	Ephemeral	2	SC-198	3	At Culvert Splice	0	0	0	0	64	192	0	0	130	390	199	592	252, 222, 223	Vermont Agency of Transportation, Breton Brook Properties, Inc., State of Vermont
56	V-CN-S-7	19	Castleton	Ephemeral	1	SC-202	2	At Culvert Splice	0	0	0	0	30	60	13	13	100	200	148	278	252	Vermont Agency of Transportation
57	V-CN-S-6	19	Castleton	Intermittent	3	SC-206	2.5	At Culvert Splice	0	0	5	15	40	100	19	57	109	273	178	460	252	Vermont Agency of Transportation
58	V-CN-S-4	19	Castleton	Perennial	5	SC-209	4	At Culvert Splice	0	0	0	0	40	160	3	15	84	336	132	536	252	Vermont Agency of Transportation
59	V-CN-S-3	19	Castleton	Intermittent	0.5	SC-213	2	At Culvert Splice	0	0	7	4	40	80	25	13	70	140	147	239	252	Vermont Agency of Transportation
60	V-CN-S-2	20	Castleton	Intermittent	2.5	SC-214, SC-215	2.25	At Culvert Splice	0	0	6	15	63	142	19	48	126	284	219	501	252	Vermont Agency of Transportation
61	V-CN-S-1	20	Castleton	Intermittent	2	SC-220	2	At Culvert Splice	0	0	0	0	24	48	0	0	243	486	272	544	252, 256	Vermont Agency of Transportation, Canadian Pacific Railway
62	T-IR-S4	21	Ira	Perennial	5	SC-228	4	At Culvert Splice	0	0	0	0	51	204	33	165	262	1048	351	1442	252, 256	Vermont Agency of Transportation, Canadian Pacific Railway

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											Trenching/Earthwork (Stream)		Culvert Work[6]		Dewatering (Stream)[7]		Dewatering (Culvert)[8]					
									Impact (Linear Feet)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	IMPACT (LF)	IMPACT AREA (SQ FT)	LLN #	Last Name of Abutting Property Owner
63	T-IR-S3	21	Ira	Intermittent	5	SC-235	3	At Culvert Splice	0	0	13	65	30	90	22	110	166	498	236	788	250, 252	Frank Grabowski, Vermont Agency of Transportation
64	T-IR-S2	21	Ira	Intermittent	2	SC-239	3	At Culvert Splice	0	0	39	78	23	69	66	132	56	168	189	457	252	Vermont Agency of Transportation
65	T-IR-S1	21	Ira	Intermittent	4	SC-241	4.5	At Culvert Splice	0	0	0	0	30	135	12	48	137	617	184	820	252	Vermont Agency of Transportation
66	T-WR-S35	21	West Rutland	Intermittent	1	-	-	Open Trench Excavate	0	0	0	0	0	0	3	3	0	0	8	8	252	Vermont Agency of Transportation
67	T-WR-S31	22	West Rutland	Intermittent	1	-	-	Open Trench Excavate	0	0	12	12	0	0	46	46	0	0	63	63	252, 261	Vermont Agency of Transportation, Vermont Earth Resources, Inc.
68	T-WR-S30	22	West Rutland	Intermittent	5	SC-246	2	At Culvert Splice	0	0	0	0	42	84	167	835	117	234	331	1178	252, 261	Vermont Agency of Transportation, Vermont Earth Resources, Inc.
69	T-WR-S34	22	West Rutland	Perennial	3	SC-249	3	At Culvert Splice	0	0	0	0	64	192	0	0	305	915	374	1122	252, 261	Vermont Agency of Transportation, Vermont Earth Resources, Inc.
70	T-WR-S19	23	West Rutland	Intermittent	3	SC-262	3	Open Trench Excavate	0	0	9	27	15	45	19	57	60	180	108	324	252	Vermont Agency of Transportation
71	T-WR-S20	23	West Rutland	Intermittent	5	SC-264	1.5	At Culvert Splice	0	0	4	20	21	32	20	100	60	90	110	267	252	Vermont Agency of Transportation
72	T-WR-S23	24	West Rutland	Intermittent	4	SC-269	2.5	Open Trench Excavate	0	0	39	156	0	0	56	224	0	0	100	400	252	Vermont Agency of Transportation
73	T-WR-S24	24	West Rutland	Intermittent	3	-	-	Open Trench Excavate	0	0	15	45	0	0	95	285	0	0	115	345	252, 304	Vermont Agency of Transportation, Philip J. Gawet
74, 75	T-WR-S17	24	West Rutland	Intermittent	2	SC-276	4	At Culvert Splice	0	0	0	0	32	128	155	310	7	28	199	476	252, 328	Vermont Agency of Transportation, Town of West Rutland
76	T-WR-S11	25	West Rutland	Intermittent	3	SC-288	4	At Culvert Splice	0	0	0	0	17	68	1	3	165	660	188	746	252	Vermont Agency of Transportation

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									Permanent Impact		Temporary Impact								TOTAL IMPACTS[9]			
											Trenching/Earthwork (Stream)		Culvert Work[6]		Dewatering (Stream)[7]		Dewatering (Culvert)[8]					
									Impact (Linear Feet)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	IMPACT (LF)	IMPACT AREA (SQ FT)	LLN #	Last Name of Abutting Property Owner
77	T-WR-S12	25	West Rutland	Intermittent	4	SC-292	4.5	At Culvert Splice	0	0	0	0	50	225	0	0	332	1494	387	1739	252, 345	Vermont Agency of Transportation, Mortimer Brown & Laura Whitehead
78	T-WR-S14	25	West Rutland	Intermittent	1	SC-295	4	At Culvert Splice	0	0	0	0	50	200	0	0	330	1320	385	1525	252, 345	Vermont Agency of Transportation, Mortimer Brown & Laura Whitehead
79	T-WR-S6	25	West Rutland	Intermittent	3	-	-	Open Trench Excavate	0	0	0	0	0	0	7	21	0	0	12	36	252	Vermont Agency of Transportation
79	T-WR-S7	25	West Rutland	Intermittent	2	-	-	Open Trench Excavate	0	0	0	0	0	0	3	6	0	0	8	16	252	Vermont Agency of Transportation
79	T-WR-S5	25	West Rutland	Intermittent	5	SC-294	3	At Culvert Splice	0	0	0	0	35	105	149	745	190	570	379	1445	252, 345	Vermont Agency of Transportation, Mortimer Brown & Laura Whitehead
80	T-WR-S8	25	West Rutland	Ephemeral	2	SC-303	2.5	At Culvert Splice	0	0	0	0	19	48	0	0	207	518	231	576	252	Vermont Agency of Transportation
81	T-RU-S10	25	Rutland	Ephemeral	3	SC-306	2	At Culvert Splice	0	0	0	0	34	68	0	0	34	68	73	151	252	Vermont Agency of Transportation
82, 83	T-RU-S5	25	Rutland	Intermittent	2	-	-	Open Trench Excavate	0	0	96	192	0	0	267	534	0	0	368	736	252	Vermont Agency of Transportation
82, 83	T-RU-S6	25	Rutland	Ephemeral	2	-	-	Open Trench Excavate	0	0	0	0	0	0	28	56	0	0	33	66	252	Vermont Agency of Transportation
83	T-RU-S7	25	Rutland	Intermittent	5	SC-309	2.5	At Culvert Splice	0	0	0	0	45	113	17	85	121	303	188	526	252	Vermont Agency of Transportation
85	T-WR-S1	26	Rutland	Intermittent	4	SC-312	5	At Culvert Splice	0	0	0	0	79	395	8	32	125	625	217	1072	252, 356	Vermont Agency of Transportation, Paul Grabowski
86, 87, 88, 89, 90	T-RU-S4	26	Rutland	Intermittent	2	SC-322	4	Open Trench Excavate	0	0	575	1150	2	8	406	812	103	412	1091	2392	252, 367, 373	Vermont Agency of Transportation, Laura J. Whitehead, PETEL Properties, Inc.
95	T-CL-S4	29	Clarendon	Perennial	15	SC-348	4	Open Trench Excavate	0	0	12	180	0	0	37	555	0	0	54	810	388, 410	Vermont Agency of Transportation, John and Barbara Pratt

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											Trenching/Earthwork (Stream)		Culvert Work[6]		Dewatering (Stream)[7]		Dewatering (Culvert)[8]					
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96	T-CL-AS-S4	29	Clarendon	Perennial	5	-	-	Open Trench Excavate	0	0	3	15	0	0	5	25	0	0	13	65	388, 410	Vermont Agency of Transportation, John and Barbara Pratt
100	T-CL-S1	30	Clarendon	Intermittent	2	-	-	Open Trench Excavate	0	0	0	0	0	0	10	20	0	0	15	30	388, 420	Vermont Agency of Transportation, Carell Adams
103	T-WR-S9	30	West Rutland	Ephemeral	1	SC-372	6	At Culvert Splice	0	0	0	0	46	276	0	0	53	318	104	599	432, 433, 469	David & Mary Dransfield, J P Carrara & Sons, Vermont Agency of Transportation
103	T-WR-AS-9	31	West Rutland	Ephemeral	1	-	-	Open Trench Excavate	0	0	0	0	0	0	2	2	0	0	7	7	469, 432, 433	Vermont Agency of Transportation, David & Mary Dransfield, J P Carrara & Sons
109	V-SH-S-16	31	Shrewsbury	Perennial	3	SC-385	3	At Culvert Splice	0	0	0	0	36	108	12	36	76	228	129	387	459, 461, 469	Jason & Laurie Teal, Uwe and Josefa Behrendt, Vermont Agency of Transportation
109	V-SH-S-17	32	Shrewsbury	Intermittent	2	SC-384	3	At Culvert Splice	0	0	0	0	20	60	7	14	54	162	86	246	458, 459, 469	Rosemarie Pluss Dobler, Jasen & Laurie Teal, Vermont Agency of Transportation
110	V-SH-S-14	33	Shrewsbury	Perennial	25	SC-395	12	At Culvert Splice	0	0	0	0	48	576	0	0	179	2148	232	2849	469, 473, 470	Vermont Agency of Transportation, Joseph & Linda Lapre, Thomas Kelley
110	V-SH-S-13	33	Shrewsbury	Ephemeral	1	-	-	Open Trench Excavate	0	0	0	0	0	0	19	19	0	0	24	24	469, 468	Vermont Agency of Transportation, Todd and Deirdre Filmore
111, 112	V-SH-S-11	34	Shrewsbury	Intermittent	4	SC-403	1.25	Open Trench Excavate	0	0	2	8	85	106	245	980	0	0	337	1114	469, 481, 482, 520	Vermont Agency of Transportation, Donna & Richard Swartz, Trustees, Theodora & Jonathan Kingsbury, Co-Trustees, Vermont Agency of Transportation Rail Program
113	T-SH-S1	34	Shrewsbury	Intermittent	5	SC-405	3	Open Trench Excavate	0	0	14	70	0	0	3	15	0	0	22	110	486, 491, 520	Matthew & Sabrina McDonough, Robert & Judith Landon, Vermont Agency of Transportation Rail Program
115	T-SH-S4	34	Shrewsbury	Intermittent	5	SC-410	8	At Culvert Splice	0	0	27	135	30	240	119	595	38	304	219	1299	490, 491, 492, 520	Susan Ransom-Kelley, Robert & Judith Landon, Paul & Karen Stewart, Vermont Agency of Transportation Rail Program
116	T-SH-S3	34	Shrewsbury	Perennial	20	SC-412	14	Open Trench Excavate	0	0	0	168	0	0	0	287	0	0	0	455	501, 520	Timothy & Kathi Faulkner, Vermont Agency of Transportation Rail Program
117	T-SH-S5	35	Shrewsbury	Intermittent	3	SC-414	3	At Culvert Splice	0	0	7	21	24	72	0	0	37	111	73	219	503, 504, 520	Grace and Richard Brigham, Alan Ridlon Sr., Alan Ridlon Jr., & Ann Ridlon, Vermont Agency of Transportation Rail Program

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119	T-SH-S6	36	Shrewsbury	Intermittent	2.5	SC-416	3	At Culvert Splice	0	0	15	38	25	75	96	240	61	183	202	548	507, 514, 520	Lois & Donald Butler, Ryan Wood-Beauchamp & Kara Fitzgerald, Vermont Agency of Transportation Rail Program
120	T-SH-S7	36	Shrewsbury	Perennial	3	SC-418	3	Open Trench Excavate	0	0	0	37	0	0	0	101	0	0	0	138	514, 520	Ryan Wood-Beauchamp & Kara Fitzgerald, Vermont Agency of Transportation Rail Program
122	T-SH-S9	36	Shrewsbury	Ephemeral	1	-	-	Open Trench Excavate	0	0	12	12	0	0	26	26	0	0	43	43	514, 520	Ryan Wood-Beauchamp & Kara Fitzgerald, Vermont Agency of Transportation Rail Program
122	T-SH-S10	36	Shrewsbury	Intermittent	3	-	-	Open Trench Excavate	0	0	0	184	0	0	0	529	0	0	0	713	514, 520	Ryan Wood-Beauchamp & Kara Fitzgerald, Vermont Agency of Transportation Rail Program
123	T-SH-S11	36	Shrewsbury	Ephemeral	2	-	-	Open Trench Excavate	0	0	9	18	0	0	8	16	0	0	22	44	515, 517, 520	Lawrence Allen Jr. & Carol Lee Allen, David Parker & Patrida Moriel, Vermont Agency of Transportation Rail Program
126	T-WA-S2	36	Wallingford	Intermittent	1	SC-427	3.3	Open Trench Excavate	0	0	12	12	0	0	7	7	0	0	24	24	520, 530	Vermont Agency of Transportation Rail Program,
126, 127	V-WA-JD-1	37	Wallingford	Ephemeral	3	-	-	Open Trench Excavate	0	0	9	27	0	0	359	1077	0	0	373	1119	520, 530, 536	Vermont Agency of Transportation Rail Program, Walter F. Semrow, Daniel Gram
128	T-WA-S3	37	Wallingford	Intermittent	6	SC-429	4.5	Open Trench Excavate	0	0	34	204	31	140	0	0	75	338	145	712	520, 536, 537	Vermont Agency of Transportation Rail Program, Daniel Gram, Daniel Gram
128, 129	T-WA-S4	37	Wallingford	Intermittent	6	-	-	Open Trench Excavate	0	0	37	222	0	0	0	0	0	0	42	252	520, 536	Vermont Agency of Transportation Rail Program, Daniel Gram
131	T-WA-S6	37	Wallingford	Intermittent	4	-	-	HDD	0	0	12	48	0	0	54	216	0	0	71	284	520, 542	Vermont Agency of Transportation Rail Program, Phillip & Florence Carroll
132	V-WA-S-106	37	Wallingford	Perennial	3.5	SC-438	2	Open Trench Excavate	0	0	8	28	16	32	0	0	36	72	65	150	543, 545, 546	Vermont Agency of Transportation, Carolyn & Bjorn Behrendt, Raymond Agostinelli & Nancy Kelly
133	V-WA-S-105	37	Wallingford	Perennial	3	SC-442	2.5	At Culvert Splice	0	0	0	0	12	30	0	0	45	113	62	158	543, 545, 546	Vermont Agency of Transportation, Carolyn & Bjorn Behrendt, Raymond Agostinelli & Nancy Kelly
134	V-WA-AS-104	37	Wallingford	Intermittent	5	SC-444	2	At Culvert Splice	0	0	0	0	10	20	0	0	30	60	45	105	543, 545, 546, 547	Vermont Agency of Transportation, Carolyn & Bjorn Behrendt, Raymond Agostinelli & Nancy Kelly, Raymond Agostinelli

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136, 138	V-WA-S-100	38	Wallingford	Intermittent	1.5	SC-447	2	At Culvert Splice	0	0	43	65	24	48	11	17	54	108	137	245	543, 555, 556, 557	Vermont Agency of Transportation, Doris Roach, Alfred and Iona Bumps, Doris Roach
140	V-MH-AS-101	38	Mount Holly	Intermittent	2	SC-455	4	Jack and Bore	0	0	0	0	8	32	0	0	31	124	44	166	543, 559, 565, 566	Vermont Agency of Transportation, Daniel & Diane Gray, Daniel Susco, Al Gates & Kathy Swift
141	T-MH-DITCH18	38	Mount Holly	Intermittent	2	SC-458	2	At Culvert Splice	0	0	92	184	20	40	0	0	74	148	191	382	543, 562, 563, 569	Vermont Agency of Transportation, Jonathan & Tina Cohen, Roger & Diana Garrow, Geoffrey Stone
142	T-MH-S38	38	Mount Holly	Ephemeral	1	SC-460	3	At Culvert Splice	0	0	0	0	34	102	2	2	54	162	95	271	543, 562, 569, 570	Vermont Agency of Transportation, Jonathan & Tina Cohen, Geoffrey Stone, William & Ruth Johnson
143, 144, 145	T-MH-DITCH17	38	Mount Holly	Intermittent	1	-	-	At Culvert Splice	0	0	488	488	0	0	31	31	0	0	524	524	543, 570	Vermont Agency of Transportation, William & Ruth Johnson
150, 151	T-MH-DITCH16	39	Mount Holly	Ephemeral	1	-	-	Open Trench Excavate	0	0	271	271	0	0	0	0	0	0	276	276	543, 582, 583	Vermont Agency of Transportation, Randy Hawkins, Charles Ripchick
152	T-MH-S32	39	Mount Holly	Intermittent	1	SC-480	2	At Culvert Splice	0	0	0	0	27	54	0	0	56	112	88	171	543, 589, 590, 592, 593	Vermont Agency of Transportation, Rachel Miller Estate of Administrators Nicholas & Richard Delong, Jon Spaulding, Michael & Maria Blais, David Johnson
153	T-MH-DITCH13	39	Mount Holly	Intermittent	1	CU-481	1	At Culvert Splice	0	0	9	9	60	60	0	0	0	0	74	74	543, 597	Vermont Agency of Transportation, Brian Buffum
153	T-MH-S30	39	Mount Holly	Intermittent	1	SC-482	4	At Culvert Splice	0	0	108	108	20	80	0	0	51	204	184	397	543, 597, 599	Vermont Agency of Transportation, Brian Buffum, Randy Hawkins
159	T-MH-S28	39	Mount Holly	Perennial	25	-	-	Open Trench Excavate	0	0	0	184	0	0	0	294	0	0	0	478	543, 598, 599, 600, 604	Vermont Agency of Transportation, Randy Hawkins, Randy Hawkins, Johnathan & Christina Turin, Rodney Cole
160	T-MH-DITCH12	39	Mount Holly	Intermittent	1	SC-488	4	At Culvert Splice	0	0	104	104	16	64	0	0	46	184	171	357	543, 600, 604, 605	Vermont Agency of Transportation, Johnathan & Christina Turin, Rodney Cole, Johnny & Sally Butler
160	T-MH-AS-11	39	Mount Holly	Intermittent	3	SC-492	2.5	At Culvert Splice	0	0	0	0	23	58	0	0	58	145	86	218	543, 600, 605	Vermont Agency of Transportation, Johnathan & Christina Turin, Johnny & Sally Butler
160, 161	T-MH-DITCH11	39	Mount Holly	Intermittent	3	SC-491	1.5	At Culvert Splice	0	0	197	591	25	38	0	0	0	0	227	644	543, 605, 606	Vermont Agency of Transportation, Johnny & Sally Butler, Bernard Wheeler Sr.

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162	T-MH-S27	39	Mount Holly	Ephemeral	1.5	SC-490	3	At Culvert Splice	0	0	4	6	22	66	3	5	68	204	102	288	543, 600, 606	Vermont Agency of Transportation, Johnathan & Christina Turin, Bernard Wheeler Sr.
164	T-MH-DITCH10	39	Mount Holly	Intermittent	1	SC-497	1.5	At Culvert Splice	0	0	183	183	56	84	0	0	0	0	244	272	543, 604, 607	Vermont Agency of Transportation, Rodney Cole, Mary and Walter Surething
166	T-MH-S26	40	Mount Holly	Ephemeral	1	-	-	Open Trench Excavate	0	0	12	12	0	0	2	2	0	0	19	19	543, 609	Vermont Agency of Transportation, Joseph Fitzgerald
166	T-MH-DITCH9	40	Mount Holly	Intermittent	3	-	-	Open Trench Excavate	0	0	69	207	0	0	0	0	0	0	74	222	543, 608, 609	Vermont Agency of Transportation, Charleen Cole, Joseph Fitzgerald
167	T-MH-S25	40	Mount Holly	Intermittent	1	SC-505	4	At Culvert Splice	0	0	7	7	28	112	5	5	67	268	112	397	543, 611,614.01	Vermont Agency of Transportation, Philip & Marilyn Dunwoody, Vermont Agency of Transportation Rail Program
169	T-MH-S24	40	Mount Holly	Intermittent	3	SC-509	2.5	At Culvert Splice	0	0	6	18	23	58	0	0	62	155	96	246	543, 613, 614.01	Vermont Agency of Transportation, Philip & Marilyn Dunwoody, Vermont Agency of Transportation Rail Program
171	T-MH-AS-23	40	Mount Holly	Perennial	4	SC-515	5.5	At Culvert Splice	0	0	0	0	19	105	0	0	74	407	98	532	543, 614.01, 620, 621	Vermont Agency of Transportation Rail Program, Neil Pelsue Jr. Trustee
172	T-MH-S22	40	Mount Holly	Intermittent	2	SC-518	2	At Culvert Splice	0	0	0	0	14	28	0	0	78	156	97	194	543, 614.01, 620, 621	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program, Neil Pelsue Jr. Trustee, Neil Pelsue Jr. Trustee
174	T-MH-S21	41	Mount Holly	Intermittent	3	SC-525	4.5	At Culvert Splice	0	0	0	0	18	81	12	36	54	243	89	375	543, 614.01, 625, 627, 629	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program, , Marla Howard, Marla Rae Howard C/O Mary Nortunen
178	T-MH-AS-20	41	Mount Holly	Perennial	4	SC-533	5	At Culvert Splice	0	0	0	0	33	165	0	0	89	445	127	630	543, 634, 636, 637	Vermont Agency of Transportation, Stanley Bussino, Vermont Agency of Transportation, Kevin MacDougal & Margaret Combatti
179	T-MH-AS-46	41	Mount Holly	Intermittent	3	CU-535	3	At Culvert Splice	0	0	0	0	27	81	0	0	203	609	235	705	543, 647, 650, 655	Vermont Agency of Transportation, Patricia Santoro & Richard Lawson, Thurlow Burnett, State of Vermont
180	T-MH-AS-45	42	Mount Holly	Perennial	5	SC-537	5	At Culvert Splice	0	0	0	0	31	155	0	0	80	400	116	580	543, 650, 654, 655	Vermont Agency of Transportation, Thurlow Burnett, State of Vermont, State of Vermont
181	T-MH-AS-42	42	Mount Holly	Intermittent	3	SC-544	2	At Culvert Splice	0	0	0	0	26	52	0	0	100	200	131	267	543, 657, 659	Vermont Agency of Transportation, Ronald & Madaeja Priest, Susan Loso & Sandra Higaboom

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184, 185	T-MH-DITCH6	43	Mount Holly	Ephemeral	1	-	-	At Culvert Splice	0	0	203	203	0	0	418	418	0	0	626	626	543, 670, 671, 672	Vermont Agency of Transportation, Burtco, Inc., Paul & Melissa McNeely, Keith Demers
186	T-MH-S19	43	Mount Holly	Ephemeral	1	-	-	Open Trench Excavate	0	0	0	0	0	0	21	21	0	0	26	26	543, 673	Vermont Agency of Transportation, Hull Trustee Iva, Hull-Nolan Turstee Marian
187	T-MH-S17	43	Mount Holly	Ephemeral	2	-	-	Open Trench Excavate	0	0	0	0	0	0	8	16	0	0	13	26	543, 677	Vermont Agency of Transportation, Andrew Landman
188	T-MH-S16	43	Mount Holly	Intermittent	1	-	-	Open Trench Excavate	0	0	0	0	0	0	1	1	0	0	6	6	677, 678	Stanton Wyman, Andrew Landman, Vermont Agency of Transportation
189	T-MH-S14	43	Mount Holly	Perennial	12	SC-559	10	Over Culvert	0	0	0	0	34	340	0	0	65	650	104	1050	543, 694, 696, 697	Vermont Agency of Transportation, Pearce Harrison Hamlin, Nicholas Turco, David & Toni Avery
191, 192	T-MH-S4	44	Mount Holly	Intermittent	6	SC-570	1	At Culvert Splice	0	0	191	1145	71	71	239	1434	1	1	507	2682	543, 714, 715, 715.01	Vermont Agency of Transportation, , Steven & Liane Heller, Vermont Agency of Transportation Rail Program
192	T-MH-AS-4	43	Mount Holly	Intermittent	3	SC-569	2	At Culvert Splice	0	0	0	0	24	48	0	0	73	146	102	209	543, 715, 715.01, 722	Vermont Agency of Transportation, Steven & Liane Heller, Vermont Agency of Transportation Rail Program, Steven & Liane Heller
193	T-MH-S5	44	Mount Holly	Intermittent	1.5	SC-576	2	At Culvert Splice	0	0	0	0	24	48	0	0	73	146	102	202	543, 715.01, 722, 725	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program, Steven & Liane Heller,
195	T-MH-DITCH1	45	Mount Holly	Ephemeral	5	-	-	Open Trench Excavate	0	0	0	0	0	0	92	460	0	0	97	485	543, 715.01, 725	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program,
194	T-MH-S3	45	Mount Holly	Ephemeral	2	SC-578	2	At Culvert Splice	0	0	0	0	23	46	14	28	59	118	101	202	543, 715.01, 722, 725	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program, Steven & Liane Heller,
195	T-MH-S2	45	Mount Holly	Ephemeral	4	SC-580	2.5	At Culvert Splice	0	0	0	0	28	70	6	24	63	158	102	272	543, 715.01, 723, 725	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program, ,
197	T-MH-S1	45	Mount Holly	Perennial	7	SC-584	6	At Culvert Splice	0	0	0	0	21	126	0	0	56	336	82	497	543, 715.01, 724, 725	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program, ,
198	T-LU-S32	45	Ludlow	Intermittent	3	SC-589	3	At Culvert Splice	0	0	0	0	25	75	13	39	72	216	115	345	543, 715.01	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program

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									Permanent Impact		Temporary Impact								TOTAL IMPACTS[9]			
									Impact (Linear Feet)	Impact Area (Sq Ft)	Trenching/Earthwork (Stream)		Culvert Work[6]		Dewatering (Stream)[7]		Dewatering (Culvert)[8]		IMPACT (LF)	IMPACT AREA (SQ FT)	ILN #	Last Name of Abutting Property Owner
											Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)	Impact (LF)	Impact Area (Sq Ft)				
199	T-LU-S31	45	Ludlow	Ephemeral	4	SC-594	3	At Culvert Splice	0	0	0	0	23	69	28	112	91	273	147	474	543, 715.01, 732	Vermont Agency of Transportation, Vermont Agency of Transportation Rail Program, Diana Blythe
201	T-LU-S5	46	Ludlow	Perennial	3	SC-627	3.5	Duct Bank	0	0	0	0	30	105	11	33	7	25	53	178	730.01, 766, 768, 769, 773	Vermont Agency of Transportation, Peter Cloudas, Village of Ludlow, Almos Revesz & Jessica Pike, Stephen & Patricia Kriss
202	T-LU-S28	48	Ludlow	Ephemeral	1.5	SC-633	1.5	At Culvert Splice	0	0	0	0	29	44	0	0	26	39	60	91	730, 806	Town of Ludlow, Mary and Debra Karvonen
203	T-LU-S27	48	Ludlow	Ephemeral	1	SC-641	1.5	At Culvert Splice	0	0	0	0	23	35	0	0	13	20	41	60	730, 827, 829	Town of Ludlow, Vermont Electric Power Company Inc, Vermont Electric Power Company, Inc.
204	T-LU-S26	48	Ludlow	Ephemeral	2	SC-644	1.5	At Culvert Splice	0	0	0	0	37	56	0	0	4	6	46	72	730, 828, 830	Town of Ludlow, 400 East Lake Road Realty Trust, Patrick & Emily McGovern
205	T-LU-S24	48	Ludlow	Ephemeral	1	SC-648	1.5	At Culvert Splice	0	0	0	0	48	72	0	0	16	24	69	101	730, 833, 835	Town of Ludlow, Richard & Marjorie Killian, Michael & Mabel Goonan
206	T-LU-S23	48	Ludlow	Ephemeral	3	SC-654	2	At Culvert Splice	0	0	2	6	30	60	0	0	19	38	56	119	730, 840, 841, 842	Town of Ludlow, Thompson Page & Molly Jager, Barbara Silver & Harry Holt, Dinah Schell
207	T-LU-S22	48	Ludlow	Intermittent	3	SC-655	2	At Culvert Splice	0	0	5	15	27	54	0	0	19	38	56	122	730, 840, 845, 846	Town of Ludlow, Thompson Page & Molly Jager, Richard & Marjorie Killian, John & Tracy Lowry, John & Trach Lowry
208	T-LU-S21	49	Ludlow	Perennial	2	SC-661	2.7	At Culvert Splice	0	0	0	0	22	59	0	0	18	49	45	118	730, 840, 851, 852	Town of Ludlow, Thompson Page & Molly Jager, Neil Mahoney, Trustee, Meredith Gutner Rubin
209	T-LU-S20	49	Ludlow	Perennial	10	SC-663	7	Aerial	0	0	0	0	52	364	0	0	20	140	77	554	730, 840, 854	Town of Ludlow, Thompson Page & Molly Jager, Alan & Michelle Grant
210	T-LU-AS-19	49	Ludlow	Intermittent	1	SC-666	1.5	At Culvert Splice	0	0	0	0	27	41	0	0	27	41	59	87	730, 856, 858	Town of Ludlow, William and Ruth Combes, William and Ruth Combes
211	T-LU-S17	49	Ludlow	Intermittent	1	SC-669	1.5	At Culvert Splice	0	0	0	0	25	38	0	0	16	24	46	67	730, 863, 864, 865	Town of Ludlow, Betty Ada Green, Lois & Elizabeth Krefski, Daniel & Erica Brinton
212	T-LU-S16	49	Ludlow	Ephemeral	1	SC-672	1.5	At Culvert Splice	0	0	0	0	28	42	0	0	8	12	41	59	730, 864, 865	Town of Ludlow, Lois & Elizabeth Krefski, Daniel & Erica Brinton

22/31

TDI - New England Clean Power Link (NECPL)
Grand Isle, Rutland, and Windsor Counties, VT
404/401 Stream Impact Analysis
Prepared by VHB/TRC
March 31, 2015
Revised: July 9, 2015

Impact Exhibit #	Stream ID	Natural Resource Map Series Sheet #	Town	Flow Regime[1]	Average Ordinary High Water (OHW) Width (Ft)[2]	Unique Associated Stream Culvert ID	Associated Stream Culvert Diameter (Ft) (TRC)	Stream Culvert Activity[3]	Proposed Stream Impacts[4,5]: Permanent Impact: Impact (Linear Feet)	Permanent Impact: Impact Area (Sq Ft)	Temporary Impact: Trenching/Earthwork (Stream): Impact (LF)	Trenching/Earthwork (Stream): Impact Area (Sq Ft)	Culvert Work[6]: Impact (LF)	Culvert Work[6]: Impact Area (Sq Ft)	Dewatering (Stream)[7]: Impact (LF)	Dewatering (Stream)[7]: Impact Area (Sq Ft)	Dewatering (Culvert)[8]: Impact (LF)	Dewatering (Culvert)[8]: Impact Area (Sq Ft)	TOTAL IMPACTS[9]: IMPACT (LF)	TOTAL IMPACTS[9]: IMPACT AREA (SQ FT)	Abutter[10]: LLN #	Abutter[10]: Last Name of Abutting Property Owner
213	T-LU-S14	49	Ludlow	Intermittent	2	SC-675	2	At Culvert Splice	0	0	0	0	21	42	0	0	15	30	41	82	730, 865, 856	Town of Ludlow, Daniel & Erica Brinton, Alan & Marsha Waylor
213	T-LU-S15	49	Ludlow	Perennial	6	SC-676	3.3	At Culvert Splice	0	0	0	0	15	50	0	0	29	96	49	176	730, 865, 866	Town of Ludlow, Daniel & Erica Brinton, Alan & Marsha Waylor
214	T-LU-S12	49	Ludlow	Perennial	4	SC-680	2	At Culvert Splice	0	0	0	0	23	46	0	0	28	56	56	122	730, 865, 868	Town of Ludlow, Daniel & Erica Brinton, Daniel & Erica Brinton
214	T-LU-S13	49	Ludlow	Intermittent	2	SC-679	1.5	At Culvert Splice	0	0	0	0	25	38	0	0	30	45	60	93	730, 865, 867	Town of Ludlow, Daniel & Erica Brinton, Saviatore & Jean Fanciullo
215	T-LU-S10	50	Ludlow	Intermittent	4	SC-688	2	At Culvert Splice	0	0	0	0	22	44	0	0	12	24	39	88	730, 890, 881	Town of Ludlow, Gregory & Susan Riveiro, Michael & Rosemary Gaings
								Total Stream Impacts (Linear Feet)	0		3,344		3,438		3,820		8,275		15,692			
											Total Temp Impacts (LF):		18,977									
								Total Stream Impacts (Square Feet)	0		7,657		11,006		13,280		29,027		63,160			
											Total Temp Impacts (SQ. FT):		60,970									
								Total Stream Impacts (Acres)	0.00		0.18		0.25		0.30		0.67		1.45			
											Total Temp Impacts (Acres):		1.40									

Note: GIS Impact analysis conducted using Limits of Disturbance created by TRC-engineering- Drafted 06/05/2015

[1] Flow regime is based on qualitative observations of instream hydrology indicators and geomorphic characteristic and is subject to professional judgment.

[2] Ordinary High Water (OHW) Width is determined from measurements taken in the field at the time of the delineation in accordance with guidance provided in the U.S. Army Corps of Engineers (USACE). 2005. "Regulatory Guidance Letter. Subject: Ordinary High Water Mark Identification." No. 05-05. Accessed online at: http://www.usace.army.mil/cw/cecwo/reg/rgisindx.htm.

[3] Culvert activity provided by TRC Engineering based on initial design plans that may be revised with design detail completed for project construction. A value of " - " indicates that the impacted stream does not cross the proposed cable alignment, but is still impacted by the 12-ft Permanent Project Corridor or temporary workspace.

[4] Linear stream and/or culvert impacts are calculated by multiplying average OHW width by linear length of stream impact, or culvert diameter by linear length of culvert impact. Impact areas for the following streams are calculated as areas and have no associated linear impacts: V-BE-S-8, T-SH-S10, T-SH-S7, T-SH-S3, and T-MH-S28.

[5] Trenching/earthwork stream impacts are those for a 4'-wide trench that would occur within a maximum of 12-feet wide corridor that may be subject to bed/bank impacts during construction

[6] Culvert work relates to activities such as culvert cut/splice, removal/replacement or new culvert within existing culvert footprint. Impacts are conservatively estimated to occur within the Limit of Disturbance of the Project

[7] Temporary dewatering of non-culverted stream channel reaches associated with trenching, temporary workspace, or culvert work.

[8] Temporary dewatering of culverted stream reaches where the entire length of the culvert not associated with culvert work is included. Dewatering assumed to stop at the downstream culvert invert where diversion water to be returned according to project typicals.

[9] Five linear feet has been added to all impacted streams, except V-BE-S-8, T-SH-S10, T-SH-S7, T-SH-S3, and T-MH-S28, to conservatively account for any temporary dewatering/diversion structures needed

[10] Abutter information, including mailing addresses and Line List Numbers are found in the Adjoining Property Owners table in the 404 Permit Application.

23/31

TDI - New England Clean Power Link (NECPL)
Grand Isle, Rutland, and Windsor Counties, and Lake Champlain VT
Lake Champlain Section 404/Section 10 Impacts
Prepared by VHB/TRC
March 31, 2015
Revised: June 10, 2015

Impact Exhibit #	Plan Reference (Exhibit/Typical)	EPSC Sheet #	Approximate Milepost	Proposed Lake Champlain 404 Impacts			
				Permanent Impact (Sq Ft)[1]	Temporary Impacts (Sq Ft)		TOTAL IMPACTS (SQ FT)
					Causeway (FWD Access Area)	Receiver Casing/Coffer Dam[2]	
1	Alburgh HDD	Overland Route - Alburgh - TR-1	0.5	0	0	0	0
2	Impact Exhibit - Fish & Wildlife Department (FWD) Access Area	Overland/Lake Route Transition Option 2 - Causeway L-TR-4	1.1	0	0	-	0
3	Existing Utility Crossing	Typical Details L-TD-1	1	320	-	-	320
3	Existing Utility Crossing	Typical Details L-TD-1	2	320	-	-	320
3	Articulated Concrete Mat	Typical Details L-TD-1	8	34,560	-	-	34,560
3	Existing Utility Crossing	Typical Details L-TD-1	8	320	-	-	320
3	Articulated Concrete Mat	Typical Details L-TD-1	9	7,040	-	-	7,040
3	Articulated Concrete Mat	Typical Details L-TD-1	10	8,400	-	-	8,400
3	Articulated Concrete Mat	Typical Details L-TD-1	11	7,200	-	-	7,200
3	Articulated Concrete Mat	Typical Details L-TD-1	15	12,000	-	-	12,000
3	Articulated Concrete Mat	Typical Details L-TD-1	21	7,200	-	-	7,200
3	Articulated Concrete Mat	Typical Details L-TD-1	21	27,680	-	-	27,680
3	Existing Utility Crossing	Typical Details L-TD-1	24	320	-	-	320
3	Existing Utility Crossing	Typical Details L-TD-1	24	320	-	-	320

TDI - New England Clean Power Link (NECPL)
Grand Isle, Rutland, and Windsor Counties, and Lake Champlain VT
Lake Champlain Section 404/Section 10 Impacts
Prepared by VHB/TRC
March 31, 2015
Revised: June 10, 2015

Impact Exhibit #	Plan Reference (Exhibit/Typical)	EPSC Sheet #	Approximate Milepost	Proposed Lake Champlain 404 Impacts			
				Permanent Impact (Sq Ft)[1]	Temporary Impacts (Sq Ft)		TOTAL IMPACTS (SQ FT)
					Causeway (PWD Access Area)	Receiver Casing/Coffer Dam[2]	
3	Existing Utility Crossing	Typical Details L-TD-1	24	320	-	-	320
3	Existing Utility Crossing	Typical Details L-TD-1	24	320	-	-	320
3	Existing Utility Crossing	Typical Details L-TD-1	25	320	-	-	320
3	Existing Utility Crossing	Typical Details L-TD-1	41	320	-	-	320
3	Existing Utility Crossing	Typical Details L-TD-1	42	320	-	-	320
3	Existing Utility Crossing	Typical Details L-TD-1	88	320	-	-	320
3	Existing Utility Crossing	Typical Details L-TD-1	88	320	-	-	320
3	Existing Utility Crossing	Typical Details L-TD-1	90	320	-	-	320
3	Existing Utility Crossing	Typical Details L-TD-1	92	320	-	-	320
-	HDD Coffer Dam Installation	Typical Details L-TD-1	TBD	0	0	960	960
-	Shoreline Bank Stabilization	Lake/Overland Route Transition - Benson - TR-5	97.7	TBD			
4	Benson HDD Landing	Lake/Overland Route Transition - Benson - TR-5	97.8	0	0	0	0
			Impact Subtotal (Sq Ft)	108,560	0	960	109,520
					960		
			Impact Subtotal (Acres)	2.49	0.00	0.02	2.51
					0.02		

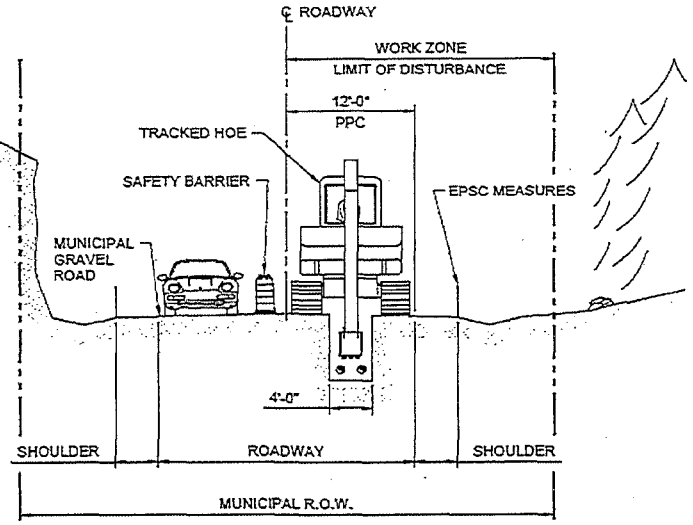
Note: GIS Impact area analysis conducted using Limits of Disturbance created by TRC-Engineering- Drafted 03/18/2015 and referenced on Lake Champlain Segment EPSC Plans

[1]Permanent impact to lake bottom is from concrete mattresses as necessary for utility crossings on exposed bedrock. The exact location and area is unknown, but 40x8 feet mattresses at 14 locations are assumed.

[2]Locations of temporary lake impacts from use of HDD cofferdam or receiver casing use at Alburgh and Benson landings are not yet final, but will consist of a) an approximately 16-foot by 30 foot area in the case of a cofferdam or b) 48 inch steel pipe in the case of the receiver casing. The conservative estimate of 480 square feet per site is used here.

TDI-NE

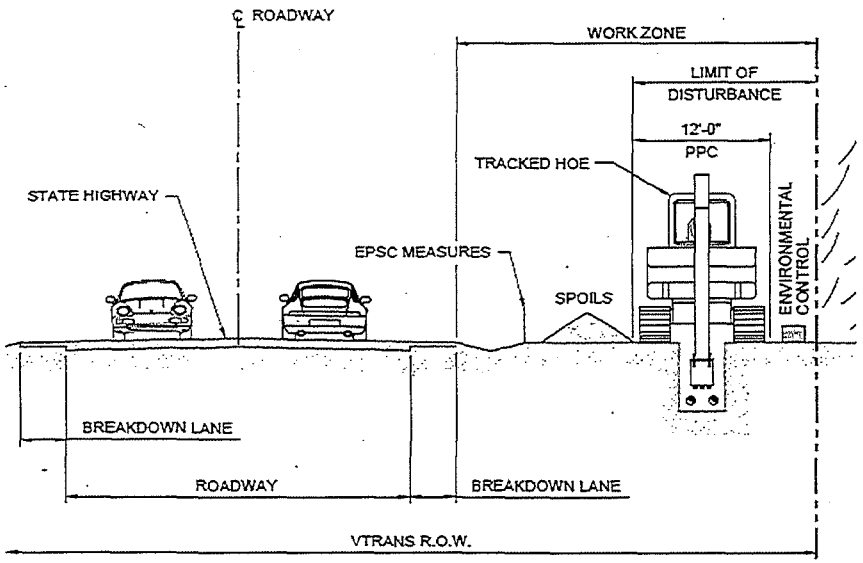
March 31, 2015
Revised: June 10, 2015



NOTES

1. CONSTRUCTION METHOD 1D IS SIMILAR TO METHOD 1C EXCEPT THE WIDER ROADWAY PERMITS ONE-WAY TRAFFIC TO BE MAINTAINED.
2. CONSTRUCTION METHOD 1D ASSUMES CONSTRUCTION WILL BE CONDUCTED USING LINEAR OR IN-LINE CONSTRUCTION OPERATIONS.
3. TOPOGRAPHY, R.O.W. WIDTH AND/OR PROTECTED NATURAL RESOURCES PREVENT CONSTRUCTION USE OF ADJACENT TURFED AREAS.
4. ROADWAY WIDTH VARIES FROM 18-24 FEET, OR MORE.
5. WITH PROPER EPSC MEASURES SPOILS MAY BE STOCKPILED WITHIN R.O.W. AS SPACE PERMITS OR REMOVED AND STOCKPILED AT AN APPROVED OFF-SITE LOCATION.
6. PROVIDE DEMARKATION OF APPROVED LIMIT OF DISTURBANCE (LOD). SEE EPSC PLAN NOTES AND DETAILS FOR ADDITIONAL REQUIREMENTS.
7. SAFETY BARRIERS, TRAFFIC CONTROL AND SIGNAGE TO BE PROVIDED IN ACCORDANCE WITH THE APPROVED TRAFFIC CONTROL PLANS.
8. THE WORK ZONE IS RESTRICTED TO 1/2 OF THE ROADWAY AND ADJACENT PROPERTY TO EDGE OF THE R.O.W.
9. INSTALL PERIMETER CONTROLS (E.G. SILTFENCE) ON DOWNSLOPE SIDE OF EARTH DISTURBANCE WHERE POTENTIAL FOR EROSION EXISTS. SEE EPSC PLAN NOTES AND DETAILS FOR ADDITIONAL REQUIREMENTS.
10. SENSITIVE HABITAT MAY FURTHER RESTRICT AVAILABLE WORK ZONE/R.O.W. FOR CONSTRUCTION OPERATIONS.

MUNICIPAL GRAVEL ROAD
CONSTRUCTION METHOD 1D
SCALE: 1" = 10'



NOTES

1. CONSTRUCTION METHOD 3B WILL BE USED WHERE SUFFICIENT R.O.W. WIDTH EXISTS TO ALLOW INSTALLATION COMPLETELY OFF THE PAVED ROADWAY. THIS METHOD INCLUDES THOSE AREAS WHERE CABLE INSTALLATION MAY BE OVER THE TOP OF ROCK OUTCROPS ADJACENT TO THE VTRANS R.O.W.
2. CONSTRUCTION METHOD 3B PERMITS TWO-WAY TRAFFIC ADJACENT TO THE WORK ZONE.
3. CONSTRUCTION METHOD 3B ASSUMES CONSTRUCTION WILL BE CONDUCTED USING LINEAR OR IN-LINE CONSTRUCTION OPERATIONS TO MINIMIZE IMPACT TO NATURAL ENVIRONMENT IN SENSITIVE OR CHALLENGING CONSTRUCTION LOCATIONS.
4. WITH PROPER EPSC MEASURES SPOILS MAY BE STOCKPILED WITHIN R.O.W. AS SPACE PERMITS OR REMOVED AND STOCKPILED AT AN APPROVED OFF-SITE LOCATION.
5. SAFETY BARRIERS, TRAFFIC CONTROL AND SIGNAGE TO BE PROVIDED IN ACCORDANCE WITH THE APPROVED TRAFFIC CONTROL PLANS.
6. CABLE INSTALLATION LOCATION WILL BE RESTORED TO NATURAL VEGETATED R.O.W. EXCEPT WETLANDS AND OTHER NATURAL ENVIRONMENTS SPECIFIED TO BE RESTORED TO THEIR ORIGINAL CONDITION.
7. REFER TO GENERAL WORK REQUIREMENTS ON SHEET G-2.
8. PROVIDE DEMARKATION OF APPROVED LIMIT OF DISTURBANCE (LOD). SEE EPSC PLAN NOTES AND DETAILS FOR ADDITIONAL REQUIREMENTS.
9. INSTALL PERIMETER CONTROLS (E.G. SILTFENCE) ON DOWNSLOPE SIDE OF EARTH DISTURBANCE WHERE POTENTIAL FOR EROSION EXISTS. SEE EPSC PLAN NOTES AND DETAILS FOR ADDITIONAL REQUIREMENTS.
10. SENSITIVE HABITAT MAY FURTHER RESTRICT AVAILABLE WORK ZONE/R.O.W. FOR CONSTRUCTION OPERATIONS.

STATE HIGHWAY
CONSTRUCTION METHOD 3B
SCALE: 1" = 10'

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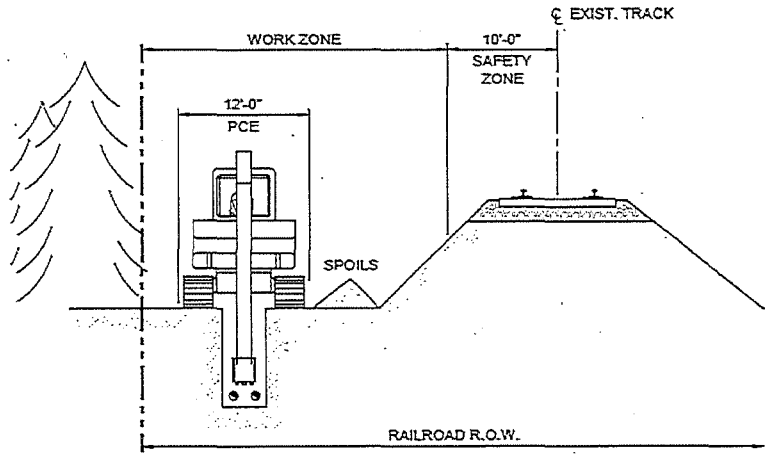
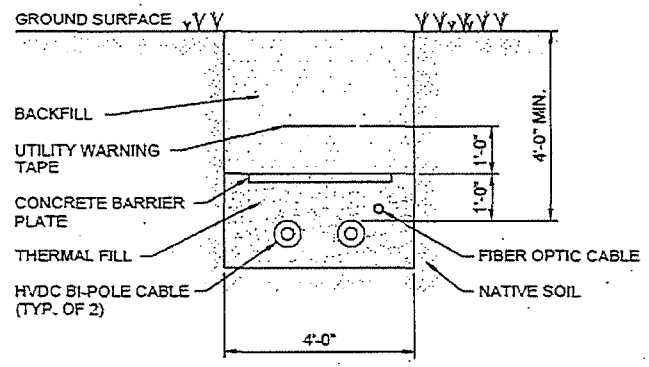
March 31, 2015
Revised: June 10, 2015



NOTES

1. CONSTRUCTION METHOD 5D WILL BE USED IN AREAS WHERE THE CONSTRUCTION OPERATION TAKES PLACE SIGNIFICANTLY BELOW THE RAILROAD BED ELEVATION.
2. CONSTRUCTION METHOD 5D WILL BE USED IN AREAS WITH SUFFICIENT R.O.W. WIDTH AT THE BASE OF THE RAILROAD BED OR ADDITIONAL EASEMENT HAS BEEN OBTAINED.
3. THE WORK ZONE WILL EXTEND FROM THE EDGE OF THE SAFETY ZONE TO THE EDGE OF THE R.O.W.
4. CONSTRUCTION METHOD 5D UTILIZES IN-LINE CONSTRUCTION METHODS. ACCESS TO THE WORK AREA IS ALONG THE PLANNED TRENCH ALIGNMENT. SPOILS MAY BE STOCKPILED WITHIN THE WORK ZONE AS SPACE PERMITS.
5. TREE CLEARING SHALL BE LIMITED TO THE AREA BETWEEN THE TRACK CENTERLINE AND THE EDGE OF THE R.O.W. UNLESS ADDITIONAL EASEMENT HAS BEEN OBTAINED. CLEARING SHALL BE LIMITED TO THE MINIMUM NECESSARY TO PERFORM THE WORK.
6. PROVIDE EROSION CONTROL MEASURES PER THE APPROVED PERMITS AND/OR AS DIRECTED.

RAILROAD ADJACENT
CONSTRUCTION METHOD 5D
SCALE: 1" = 10'



NOTES

1. CABLE SPACING MAY VARY BASED UPON CONTRACTOR INSTALLATION PREFERENCE AND LOCATION. A TYPICAL SPACING OF UP TO 3 FEET IS ANTICIPATED.
2. CABLES SHALL BE BEDDED IN SCREENED SAND, NATIVE SOIL OR THERMAL FILL. THERMAL FILL SHALL BE USED WHERE NATIVE MATERIAL OR SCREENED SAND DO NOT MEET MINIMUM THERMAL PROPERTIES (100°C-CM/WATT). DEPTH OF THERMAL SAND OVER CABLE SHALL BE FIELD DETERMINED FOLLOWING TESTING OF NATIVE SOILS.
3. CONCRETE PROTECTIVE PLATES SHALL BE PROVIDED OVER CABLES.
4. EXCAVATION MAY BE VERTICAL SHORED OR SLOPED BACK PER OSHA REQUIREMENTS WHERE NECESSARY.
5. PRIOR TO EXCAVATION INSTALL EPSC MEASURES PER THE EPSC PLAN. AT THE COMPLETION OF THE WORK, CONDUCT STABILIZATION AND REMOVE EPSC MEASURES PER THE EPSC PLAN.
6. ABOVE SKETCH IS TO PRESENT CONCEPTS. MORE RESTRICTIVE REQUIREMENTS OF THE RAILROAD, STATE OR OTHER AUTHORITY WILL BE REFLECTED IN THE DETAILED DESIGN.

TYPICAL TRENCH CROSS SECTION
SCALE: N.T.S.

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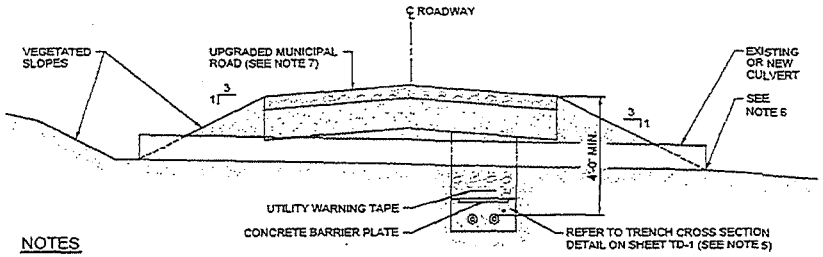
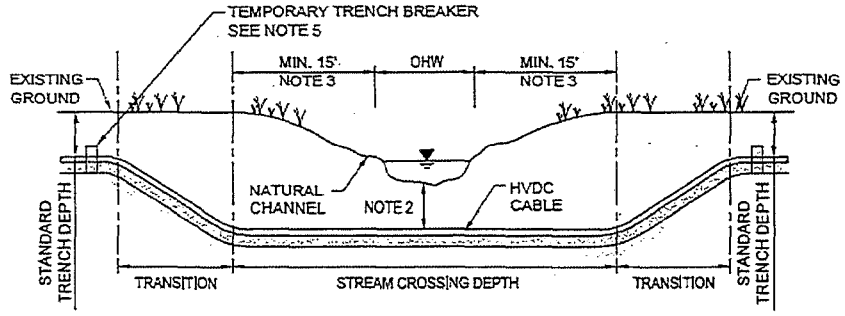
Revised: June 10, 2015



NOTES

1. DIMENSIONS AND DETAILS ARE CONCEPT ONLY AND SUBJECT TO MODIFICATION TO MEET MUNICIPAL, STATE AND FEDERAL REQUIREMENTS.
2. CULVERTS ALONG THE ROUTE MAY BE DISASSEMBLED OR TEMPORARILY REMOVED TO FACILITATE CABLE INSTALLATION.
3. CULVERTS DETERMINED TO BE UNDERSIZED OR DETERIORATED MAY BE REPLACED.
4. CULVERT BEDDING AND BACKFILL SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE MUNICIPAL ROAD SPECIFICATIONS.
5. CABLE TRENCH DESIGN SHALL BE COORDINATED WITH CULVERT INSTALLATION TO ENSURE NOT LESS THAN 1'-0" OF SEPARATION BETWEEN CULVERT AND HVDC CABLES.
6. UNLESS DETERMINED NECESSARY TO COMPLY WITH THE STREAM ALTERATION PERMIT, CULVERT INVERTS SHALL MATCH EXISTING.
7. EXISTING MUNICIPAL DIRT ROADS SHALL BE UPGRADED TO MEET CURRENT MUNICIPAL ROAD STANDARDS. ROAD WIDENING TO CURRENT MUNICIPAL STANDARDS SHALL BE PROVIDED WHERE PRACTICAL.
8. REFER TO DETAIL PERENNIAL STREAM AT CULVERT CROSSING FOR SEPARATION REQUIREMENTS AT CULVERTS THAT CARRY PERENNIAL STREAMS.

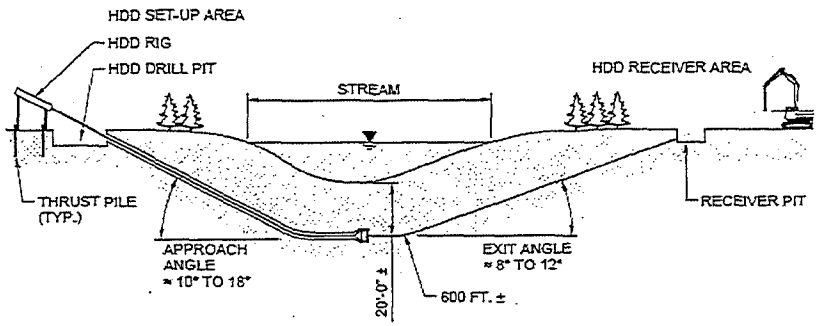
TYPICAL MUNICIPAL CULVERT CROSSING
SCALE: N.T.S.



NOTES:

1. OPEN TRENCH EXCAVATION OF PERENNIAL STREAMS SHALL BE PERFORMED AFTER ESTABLISHING APPROPRIATE ENVIRONMENTAL CONTROLS AS SPECIFIED AND/OR DIRECTED.
2. CABLE SHALL BE INSTALLED NOT LESS THAN 5 FEET BELOW THE EXISTING NATURAL STREAM CHANNEL BOTTOM UNLESS OTHERWISE SPECIFIED OR DIRECTED.
3. THE DEPTH OF INSTALLATION SHALL CONTINUE FOR A DISTANCE OF 15 FEET BEYOND THE EDGE OF THE ORDINARY HIGH WATER (OHW) EMBANKMENT.
4. STREAM BANKS AND BOTTOM SHALL BE RESTORED TO MATCH PRE-CONSTRUCTION CONDITION UNLESS OTHERWISE DIRECTED.
5. SEGREGATE AND STOCKPILE STREAM BED AND BANK MATERIALS SEPARATELY FROM SUBSURFACE MATERIAL SOILS. RESTORE SOIL HORIZONS TO THE EXTENT PRACTICABLE WHEN BACKFILLING DISTURBED SECTIONS OF BED AND BANK.
6. TEMPORARY TRENCH BREAKER SHALL BE INSTALLED UPGRADIENT FROM THE TRANSITION ZONE ON EACH SIDE OF THE CHANNEL AND REMOVED AS WORK PROGRESSES.

PERENNIAL STREAM AT OPEN TRENCH CROSSING
SCALE: N.T.S.

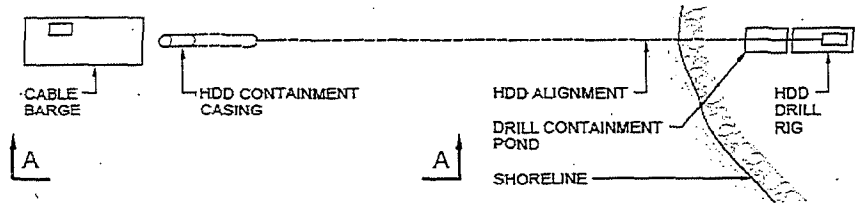


NOTES

1. HDD SET-UP AREA IS APPROXIMATELY 50 FT. x 250 FT. FOR LARGE HDD OPERATIONS. THIS STAGING AREA MAY BE REDUCED FOR SMALLER BORING OPERATIONS OR SOME EQUIPMENT ASSOCIATED WITH LARGE HDD OPERATIONS MAY BE STAGED AT OTHER LOCATIONS.
2. DRILL PIT MAY BE ELIMINATED IN TOTAL IF ALTERNATE MEANS FOR DRILL MUD CONTAINMENT IS PROVIDED. TYPICAL DRILL PIT FOR LARGE HDD OPERATIONS IS 6 FT. DEEP x 8 FT. x 20 FT.
3. HDD SHALL PASS NOT LESS THAN 20 FT. UNDER STREAMS NOR LESS THAN 15 FT. BELOW ROADWAYS AND OTHER GROUND SURFACES.
4. RECEIVER PIT MAY BE ELIMINATED IF ALTERNATE DRILL MUD CONTROL METHOD IS PROVIDED. RECEIVER PIT IS TYPICALLY 5 FT. DEEP x 10 FT. x 10 FT. FOR LARGE DRILL OPERATIONS.
5. FOR CASING AND CABLE PULL-BACK, CASING MAY BE SUSPENDED ABOVE R.O.W. TO FACILITATE INSTALLATION.
6. TWO BORE HOLES PER CROSSING ARE REQUIRED. FOR PLANNING PURPOSES, BORE HOLE SPACING SHALL BE 15-25 FEET. LESSER SPACING MAY BE USED IN CERTAIN SOIL CONDITIONS AND/OR BORE OPERATIONS.

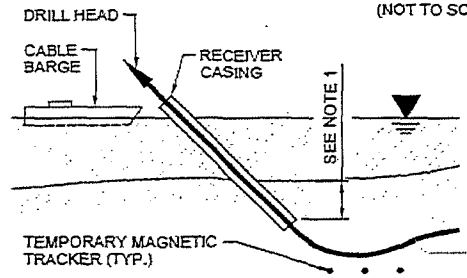
TYPICAL HDD STREAM CROSSING

SCALE: N.T.S.



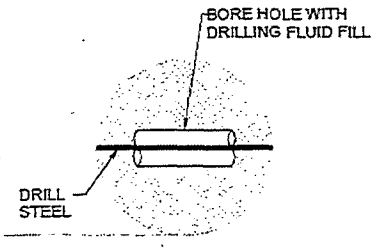
SHORE TO BARGE HDD

(NOT TO SCALE)



ELEVATION A-A

(NOT TO SCALE)



BORE SHAFT DETAIL

(NOT TO SCALE)

NOTES

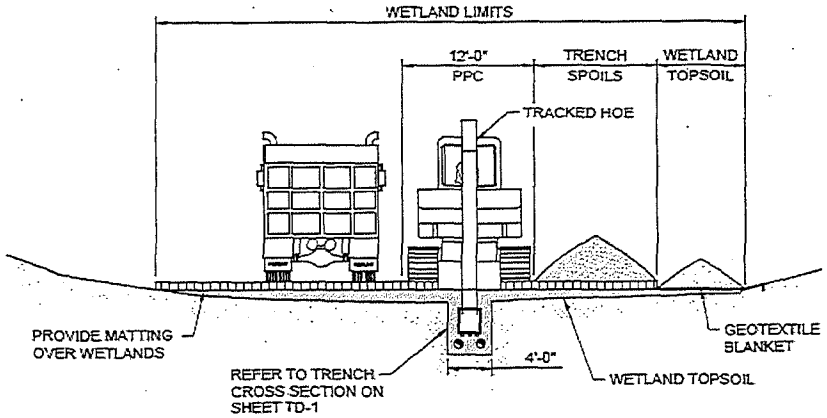
1. RECEIVER CASING SHALL BE DRIVEN INTO THE LAKE BOTTOM AT SUFFICIENT DEPTH TO ENSURE ADEQUATE EARTH COVER TO CONTAIN DRILL FLUID.
2. RECEIVER CASING SHALL BE 48 INCH OR LARGER STEEL PIPE DRIVEN INTO THE LAKE BOTTOM AND USED TO CONTAIN DRILL CUTTINGS AND DRILLING FLUID AT BREAK-OUT.
3. SUITABLE MAGNETIC TRACKING DEVICES OR SIMILAR SHALL BE USED TO GUIDE THE DRILL LEAD INTO THE RECEIVER CASING.
4. RECEIVER CASING AND TRACKING DEVICES SHALL BE REMOVED AT THE COMPLETION OF THE HDD OPERATION.
5. CABLE BARGE WILL BE USED FOR HDD TOOL INSTALLATION/REMOVAL, CASING PULL-IN, AND CABLE PULLING.
6. COFFER DAM MAY BE USED IN LIEU OF RECEIVER CASING SHOULD BOTTOM CONDITIONS OR OTHER FACTORS NOT BE CONDUCIVE TO RECEIVER INSTALLATION OR USE. REFER TO COFFERDAM DETAIL.
7. DRILLING FLUID IS TYPICALLY BENTONITE DRILLING MUD. WATER MAY BE USED UNDER SOME CIRCUMSTANCES.

HDD RECEIVER CASING

SCALE: N.T.S.

TDI-NE

March 31, 2015
Revised: June 10, 2015

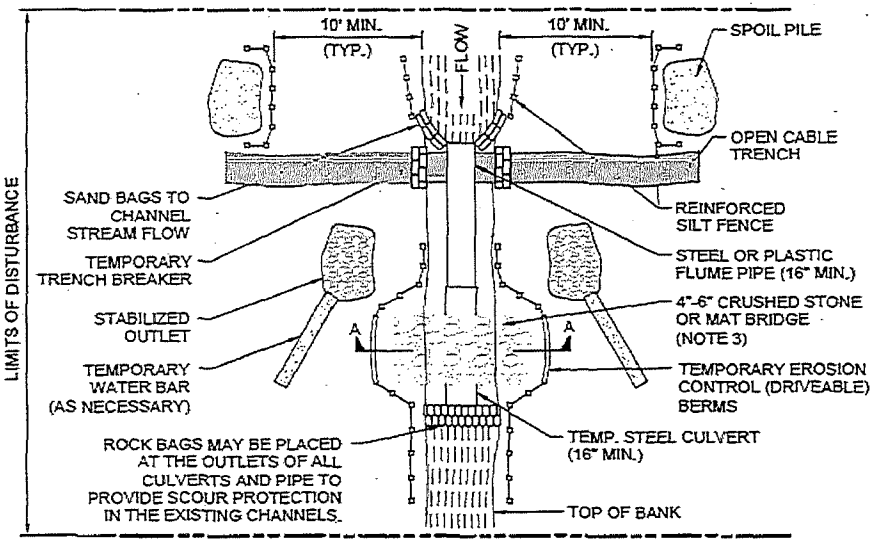


NOTES

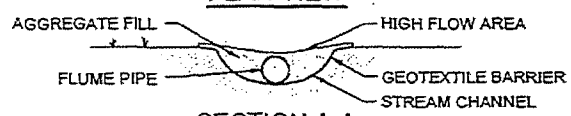
1. EQUIPMENT ACCESS SHALL BE UNDER DRY OR FROZEN CONDITIONS, OR BY USE OF CONSTRUCTION MATS.
2. PROVIDE TEMPORARY TRENCH BREAKER AT EACH EDGE OF STREAM AND WETLAND EXCAVATION.
3. TOPSOIL AND TRENCH SPOILS SHALL BE SEGREGATED AND STOCKPILED ON CONSTRUCTION MATS OR GEOTEXTILE FABRIC WITHIN WETLAND AREAS.
4. TRENCH SHALL BE BACKFILLED WITH SOILS PLACED IN REVERSE ORDER OF HOW THEY WERE REMOVED. UPPER LAYER FILL SHALL BE WETLAND TOPSOIL PLACED TO A DEPTH EQUAL TO THAT OF THE ADJACENT IN-SITU NATIVE TOPSOIL.
5. AT COMPLETION OF THE WORK REMOVE GEOTEXTILE AND CONSTRUCTION MATTING. CONSTRUCTION MATS SHALL BE THOROUGHLY CLEANED IN ACCORDANCE WITH THE EPSC PLAN AND PROJECT PERMITS PRIOR TO USE AT OTHER LOCATIONS.
6. IMPLEMENT EPSC MEASURES IN ACCORDANCE WITH THE EPSC PLAN.

TYPICAL WETLAND CONSTRUCTION

SCALE: 1" = 10'



PLAN VIEW



SECTION A-A

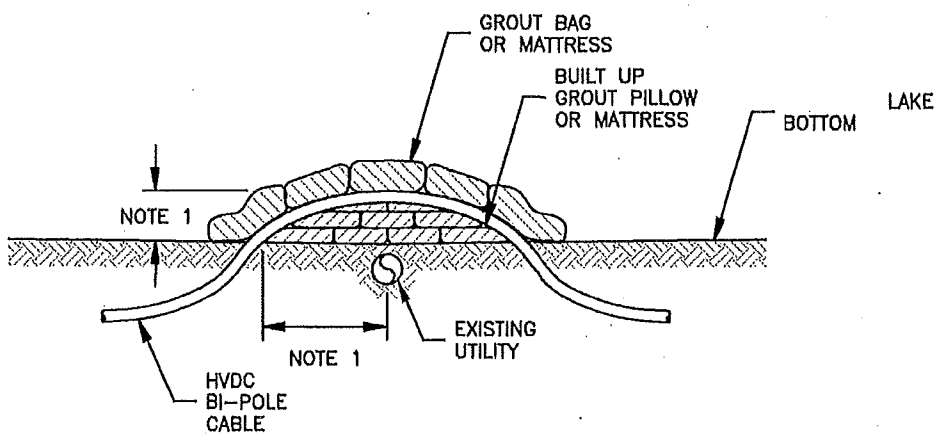
NOTES

1. DIMENSIONS ARE CONCEPT ONLY AND SUBJECT TO MODIFICATION TO MEET MUNICIPAL, STATE AND FEDERAL REQUIREMENTS.
2. CULVERT PIPE SIZE AND NUMBER SHALL BE INCREASED TO ACCOMMODATE ANTICIPATED STREAM FLOW.
3. AGGREGATE FILL CROSSING SHOWN IN THE DETAIL. CONSTRUCTION MAT BRIDGE SHALL BE USED WHERE FEASIBLE.
4. INSTALL EPSC MEASURES IN ACCORDANCE WITH ISSUED PERMITS AND VT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL.
5. FOR MINOR WATERBODIES (< 10 FT. WIDE) TRENCHING AND BACKFILL IN THE WATERBODY SHALL BE COMPLETED WITHIN 24 CONTINUOUS HOURS AFTER INITIATING THE EXCAVATION. IF AUTHORIZED BY THE OSPC OR EPSC SPECIALIST, WORK IN INTERMEDIATE WATERBODIES (10 FT. TO 100 FT. WIDE) SHALL BE COMPLETED WITHIN 48 HOURS.

TYPICAL STREAM FLUME CROSSING

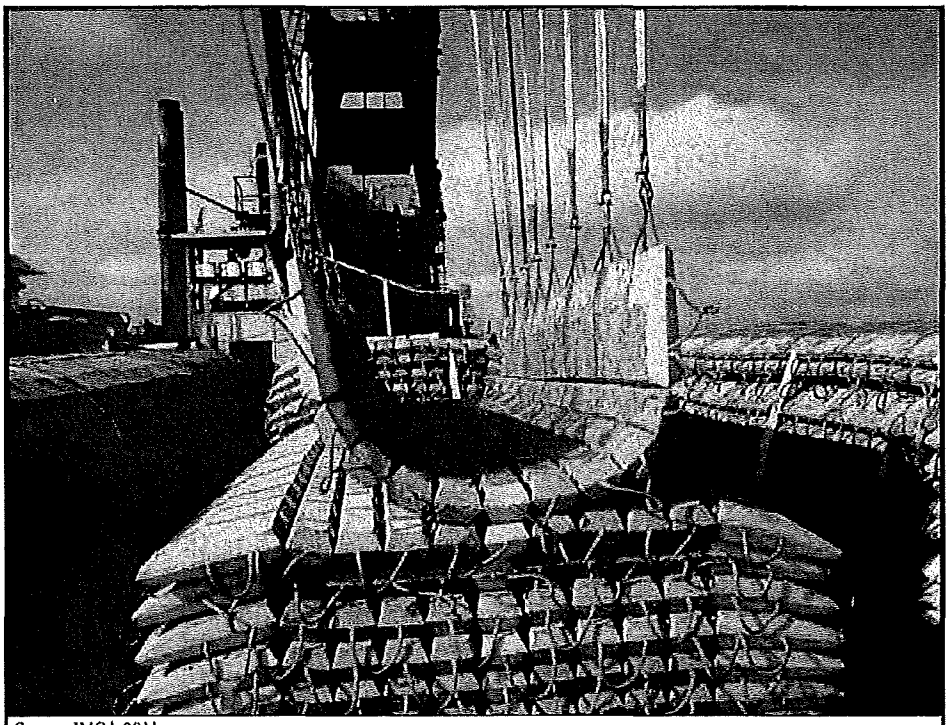
SCALE: N.T.S.

REPRESENTATIVE SCHEMATIC OF PROTECTION MEASURES FOR AQUATIC TRANSMISSION CABLES



NOTE:
1. VARIES BASED ON STABILITY OF EXISTING BOTTOM SEDIMENT, UTILITY DIAMETER AND BEND RADIUS OF CABLE.

TYPICAL ARTICULATED CONCRETE MATS



Source: IMCA 2011

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APPENDIX F VERMONT 248 APPLICATION COVER LETTER

December 8, 2014 – incorporate by reference to
http://necplink.com/docs/Champlain_VT_electronic/01%20Cover%20Materials/TDI-NE%20Letter%20to%20Public%20Service%20Board.pdf

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Mark A. Saunders
Karen L. Tyler

December 8, 2014

By Hand Delivery

Mrs. Susan Hudson, Clerk
Vermont Public Service Board
112 State Street, Drawer 20
Montpelier, VT 05620-2701

Re: Petition of Champlain VT, LLC d/b/a TDI New England for a Certificate of Public Good, pursuant to 30 V.S.A. §248, authorizing the installation and operation of a high voltage direct current (HVDC) underwater and underground electric transmission line with a capacity of 1,000 MW, a converter station, and other associated facilities, to be located in Lake Champlain and in the Counties of Grand Isle, Chittenden, Addison, Rutland, and Windsor, Vermont, and to be known as the New England Clean Power Link Project ("NECPL")

Dear Mrs. Hudson:

On behalf of Champlain VT, LLC, d/b/a TDI-New England ("TDI-NE"), we are pleased to enclose for filing in the above-captioned matter the original and six copies of a Section 248 Petition and supporting materials requesting issuance of a Certificate of Public Good.

TDI-NE is requesting Board approval for the installation and operation of a high voltage direct current (HVDC) electric transmission line with a capacity of 1,000 MW that will provide electricity generated by low carbon, renewable energy sources in Canada to the New England electric grid. The line, to be known as the New England Clean Power Link ("NECPL"), will run from the Canadian border at Alburgh, Vermont to Ludlow, Vermont along underwater and underground routes. In Ludlow, the HVDC line will terminate at a converter station that will convert the electrical power to alternating current (AC), and then run to VELCO's existing 345 kV Coolidge Substation in Cavendish, Vermont, located approximately 0.3 miles to the south along a town road.

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* Also admitted in DC | * Also admitted in MA | ▲ Also admitted in SC | △ Also admitted in MA; Pat. Reg. 61653 | ° Also admitted in NY

The NECPL is an important project for the State of Vermont, and will provide significant environmental, electrical, and economic benefits. As the Petition and supporting materials explain in detail, these benefits include lower electricity costs, diversifying the fuel supply in the region, reduced greenhouse gas emissions, the creation of in-state jobs and millions of dollars in new state and local taxes, and increasing the region's gross domestic product during construction and operation. At the same time, the NECPL will respect Vermont's natural beauty by installing the line underground in existing public rights-of-way, and underwater. In addition, the NECPL will aid Vermont and the New England region in meeting future load growth, and achieving renewable energy and climate change objectives. Finally, the NECPL will support Lake Champlain clean-up efforts, in-state renewable energy programs, and Vermont electric ratepayer relief through the creation of several public good benefit funds.

Service on Entities Listed in 30 V.S.A. § 248(a)(4)(C)

Please be advised of the following with respect to service on certain statutory interested parties entitled to receive a copy of the Petition under § 248(a)(4)(C). In order to avoid waste and reduce cost, and given the voluminous size of the Petition, TDI-NE is serving a paper copy of the Petition and an *electronic-only* copy of all supporting materials, including prefiled testimony and exhibits, on the following entities or persons who, in the experience of the undersigned, rarely participate in § 248 cases involving energy projects: the Office of the Attorney General, the Vermont Department of Health, and the Vermont Scenery Preservation Council. If any of these entities wish to receive a complete paper copy of any of the materials filed herewith, upon request to the undersigned, a copy will be sent. All other persons or entities identified in § 248(a)(4)(C) are receiving a paper copy and electronic copy of the Petition and supporting materials.

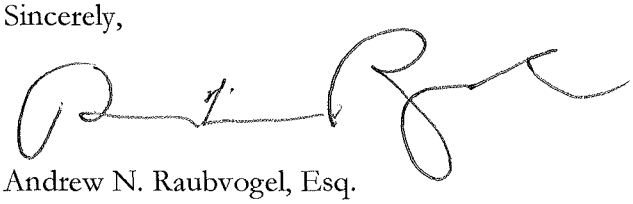
Notice to Adjoining Landowners

Pursuant to PSB Rule 5.402(B), TDI-NE is providing a paper copy of this letter, a project overview map, and the Petition (without supporting materials) to adjoining landowners.

TDI-NE is pleased to file this Petition and looks forward to commencement of the Board's review of the Project as soon as feasible, in order to be in a position to a Board decision by the end of 2015 to meet TDI-NE's target of commencing operations in April 2019.

Thank you in advance for your consideration, and please do not hesitate to contact us if you need any further information.

Sincerely,



Andrew N. Raubvogel, Esq.
Geoffrey H. Hand, Esq.
Brian S. Dunkiel, Esq.
Victoria M. Westgate, Esq.

cc: Service List

Enclosures

1. Certificate of Service
2. Notice of Appearance
3. Petition for a Section 248 Certificate of Public Good
4. Notice to Adjoining Landowners
5. Statement of Compliance re Notice to Adjoining Landowners
6. Index of Section 248 Criteria and Corresponding Evidence
7. List of Prefiled Testimony and Exhibits
8. Prefiled Direct Testimony and Exhibits of the following witnesses:
    a. Jessome-Martin-Bagnato
    b. Wironen
    c. Eng
    d. Singer
    e. Parker
    f. Kavet
    g. Nelson
    h. Guerrero-Murphy
    i. Kaliski
    j. Buscher
    k. Heitert
    l. Olausen
    m. Murphy
    n. Bailey
    o. Thuman
    p. Sabick

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