

**STATE OF VERMONT  
PUBLIC SERVICE BOARD**

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”) )

Docket No. 8400

**SUPPLEMENTAL PREFILED DIRECT TESTIMONY OF  
JEFFREY NELSON**

**ON BEHALF OF CHAMPLAIN VT, LLC**

August 26, 2015

Summary:

Mr. Nelson’s supplemental testimony adopts the prefiled direct testimony and exhibits of Galen Guerrero-Murphy who is no longer working on this Project. In addition, Mr. Nelson provides an update on several issues covered in his initial testimony and that of Mr. Guerrero-Murphy, including updates to impacts resulting from design changes; collateral permit filings; and updated Project Analyses with respect to headwaters, floodways, streams, shorelines, wetlands, sufficiency of water and burden on existing supply, soil erosion, waste disposal, as well as rare and irreplaceable natural areas (“RINA”), necessary wildlife habitat, and rare, threatened, and endangered (“RTE”) Species.

<b>Exhibit Number</b>	<b>Superseded Exh. (if applicable)</b>	<b>Name of Exhibit</b>
TDI-JAN-3(Rev.)	JAN-3	Natural Resources Map Series
TDI-JAN-11a(Rev.)	JAN-11a	Water Supply Impact Analysis (VHB)
TDI-JAN-11b(Rev.)	JAN-11b	Water Supply Maps (VHB) – Oversize, Vol. 5
TDI-JAN-12(Rev.)	JAN-12	Vegetation Management Plan (VHB)
TDI-JAN-13a	GGM-2	Survey Results Report: Rare, Threatened and Endangered Species, Necessary Wildlife Habitat, and Natural Communities
TDI-JAN-13b-f	GGM-3-7	Attachments A,C-F to SRR
TDI-JAN-14a	JAN-4,10	Wetland Permit Application
TDI-JAN-14b	JAN-7	Construction Phase Stormwater Permit Application
TDI-JAN-14c	JAN-7	Operational Phase Stormwater Discharge Permit Application
TDI-JAN-14d	JAN-8, 9	Stream Alteration Permit Application
TDI-JAN-14e	JAN-8, 9	Floodplain Permit Application
TDI-JAN-14f	N/A	Lake Champlain Encroachment Permit Application
TDI-JAN-14g	N/A	Lake Bomoseen Encroachment Permit Application
TDI-JAN-14h	JAN-4- 5	Section 401 Water Quality Certification Application

1 **Q. Please state your name, occupation and business address.**

2 Response: My name is Jeffrey A. Nelson, and I am the Director of Energy and  
3 Environmental Services for the Vermont office of Vanasse Hangen Brustlin, Inc. (“VHB”),  
4 located at 40 IDX Drive, Building 100, Suite 200, South Burlington, Vermont.

5  
6 **Q. Have you previously filed testimony in this proceeding?**

7 Response: Yes, I submitted prefiled direct testimony on behalf of Champlain VT, LLC  
8 d/b/a TDI New England (“TDI-NE”) concerning the New England Clean Power Link  
9 (“NECPL” or “Project”) on December 8, 2014.

10

11 **Q. What is the purpose of your supplemental testimony?**

12 Response: The purpose of my testimony is to document my adoption of the prefiled direct  
13 testimony of Mr. Galen Guerrero-Murphy, who is no longer working on the Project. In  
14 addition, I provide an update on several issues discussed in my earlier testimony as well as  
15 that of Mr. Guerrero-Murphy, including updates to impacts resulting from design changes;  
16 collateral permit filings; and an updated Project Analysis with respect to headwaters,  
17 floodways, streams, shorelines, wetlands, sufficiency of water and burden on existing supply,  
18 soil erosion, waste disposal, RINA, necessary wildlife habitat, and RTE species.

19

20 **Q. Have there been changes to the Natural Resource Plans submitted with your**  
21 **previous testimony as *Exhibit TDI-JAN-3*?**

22 Response: Yes, a revised version of the Natural Resource Maps have been submitted with  
23 this testimony as *Exhibit TDI-JAN-3(Rev.)*. The maps have been revised to reflect route

1 alignment changes and/or newly available natural resources data, as discussed in more detail  
2 below.

3

4 **Q. Have you reviewed the prefiled direct testimony and exhibits of TDI-NE witness**  
5 **Galen Guerrero-Murphy?**

6 Response: Yes, I have. In addition, I (and my staff at VHB) worked collaboratively with  
7 Mr. Guerrero-Murphy and his staff at TRC Environmental during the natural resource  
8 studies and assessments that are the subject of his testimony. At the time, VHB and TRC  
9 Environmental were working for TDI-NE under a joint scope of work.

10

11 **Q. Is Mr. Guerrero-Murphy still working on the Project?**

12 Response: No he is not, and as a result TDI-NE has asked me to step into the role that Mr.  
13 Guerrero-Murphy formerly held for this Project.

14

15 **Q. Are you prepared to adopt the prefiled direct testimony and exhibits of Mr. Guerrero-**  
16 **Murphy as your own?**

17 Response: Yes I am, with the caveat that some of his testimony and exhibits have changed  
18 due to changes to the Project that are discussed later in my testimony. In addition, I am re-  
19 numbering his exhibits as shown in Table 1 below.

20

21

22

<b>Table 1: Summary of Exhibits adopted from GGM Testimony</b>		
<b>Document Title</b>	<b>Original Exhibit Number</b>	<b>Revised/New Exhibit Number</b>
Report of Survey Results and Plan for Impact Avoidance and Minimization: Rare, Threatened, and Endangered Species, Necessary Wildlife Habitat, and Natural Communities - New England Clean Power Link ("RTE Survey and Plan"), as revised July 31, 2015	GGM-2	JAN-13a (revised)
Attachment A: Summary Tables	GGM-3	JAN-13b (not revised)
Attachment B: Figures <sup>1</sup>	Not included in original GGM exhibits	N/A
Attachment C: RTE Report	GGM-4	JAN-13c (not revised)
Attachment D: Supp. RTE Info	GGM-5	JAN-13d (not revised)
Attachment E: Bat Habitat Report	GGM-6	JAN-13e (not revised)
Attachment F: NNIS Report	GGM-7	JAN-13f (not revised)

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**Q. TDI-NE has entered into a number of agreements with parties to this Docket. Have you reviewed these agreements with respect to any issues that were within the scope of your original prefiled testimony?**

Response: Yes, with a particular focus on the Stipulation between TDI-NE and the Vermont Public Service Department (“DPS”), the Vermont Agency of Natural Resources (“ANR”), and the Vermont Division for Historic Preservation (“DHP”), and within that document, primarily Attachment II: Environmental Conditions (*see Exhibit TDI-JMB-19a*) (*hereafter “ANR Stipulation Attach. II”*). I was significantly involved in providing technical input to TDI-NE and ANR personnel, during the development of this Attachment.

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<sup>1</sup> Attachment B: Figures to the Survey Results Report can be found at Exhibit TDI-JAN-3(Rev.)

1 **Q. As a result of these agreements, do you need to update your prior testimony? If so,**  
2 **please explain.**

3 Response: Yes. These agreements, individually and collectively, represent further actions by  
4 TDI-NE to avoid, minimize, and/or mitigate potential impacts associated with the terrestrial  
5 portions of the NECPL, which was the subject of my prefiled direct testimony. Of  
6 particular note are those portions of Attachment II of the ANR Stipulation that address  
7 RTE Wildlife Species, including snakes and turtles (Paragraphs 1-2), Bats (Paragraphs 3-7),  
8 Water Supplies (Paragraphs 10-13), Plants (Paragraphs 14-17), Floodplains and River  
9 Corridors (Paragraphs 18-20), Shorelines (Paragraph 23), Blasting (Groundwater (Paragraphs  
10 27-29)), and Waste Management and Hazardous Materials (Paragraph 30).

11  
12 **Q. Please describe any changes to the Project that have resulted in changes to stream**  
13 **and wetland impacts since the prior filing with the Board (the “12/8/14 filing”).**

14 Response: The supplemental testimony of Jessome, Martin & Bagnato and Alan Wironen  
15 describe the specific design changes that have occurred between the 12/8/2014 filing and  
16 this filing. Brief descriptions of the principal refinements of the Project’s terrestrial design,  
17 based on consultation with staff at the Vermont Agency of Natural Resources (“ANR”), that  
18 resulted in changes to stream and wetland impacts are as follows:

- 19
- 20 • Milepost 103.1 – The method of crossing an unnamed tributary to Hubbardton  
21 River (V-BE-S-102) changed from over culvert to horizontal directional drill  
22 (“HDD”) in accordance with ANR Stipulation, Attach. II, Paragraph 18.
  - 23 • Milepost 126.7 – The HDD at Otter Creek (T-RU-S2) was extended by  
approximately 800 feet further east to extend outside of the River Corridor.

- 1           • Milepost 144.8 – The method of crossing an unnamed tributary to Branch Brook  
2           (T-MH-S14) changed from over culvert to an open trench excavation (“OTE”), in  
3           accordance with ANR Stipulation, Attach. II, Paragraph 18.

4           In addition to the above design changes, the limits of disturbance associated with  
5           Project construction activities and placement of Erosion Prevention and Sediment Control  
6           measures along the terrestrial Project corridor, and the refinement of the stormwater system  
7           design at the Ludlow Converter Station have been established and refined based on  
8           comments by ANR personnel.

9  
10   **Q. Can you provide an update on the status of the collateral permit applications filed**  
11   **with ANR or one of its departments?**

12    Response: All applicable permit applications (listed below) were originally submitted to the  
13    respective VT Department of Environmental Conservation (“VT DEC”) programs in  
14    March/April 2015. Since the original permit application submittals, TDI-NE executed the  
15    ANR Stipulation. As necessary, TDI-NE (through its consultants) revised the permit  
16    application materials in accordance with the ANR Stipulation to avoid or further reduce  
17    certain impacts, as well as in response to additional engineering assessments, design  
18    refinements, ANR feedback aside from the ANR Stipulation, and coordination with VTTrans  
19    and municipalities. The applicable permits and the most recent submittal dates are listed as  
20    follows and provided as new exhibits to this supplemental testimony:<sup>2</sup>

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<sup>2</sup> Due to the voluminous nature of these permit applications and their appendices, I am submitting these exhibits as follows: the cover letter and/or application form (as the case may be) of each permit application is provided as the hard copy exhibit. The entire set of permit applications and all attachments are provided electronically on DVD.

- 1           • Individual NPDES Construction Stormwater Discharge (“INDC”) Permit  
2           Application and Erosion Prevention and Sediment Control Plans, Revised  
3           Submittal Date August 4, 2015 (new *Exh. TDI-JAN-14b*)
- 4           • Application for Operational-phase Stormwater Discharge pursuant to the VT  
5           DEC General Permit 3-9015, revised submittal date April 24, 2015 (new *Exh.*  
6           *TDI-JAN-14c*)
- 7           • Lake Champlain Encroachment Permit Application, revised submittal date July  
8           14, 2015 (new *Exh. TDI-JAN-14f*)
- 9           • Lake Bomoseen Encroachment Permit Application, original submittal date March  
10          25, 2015 (new *Exh. TDI-JAN-14g*)
- 11          • Stream Alteration Individual Permit Application, revised submittal date August 4,  
12          2015 (new *Exh. TDI-JAN-14d*)
- 13          • Flood Hazard Area and River Corridor Individual Permit (aka “Floodplain  
14          Permit”) revised submittal date August 4, 2015 (new *Exh. TDI-JAN-14e*)
- 15          • Vermont Wetland Individual Permit Application, revised submittal date August 4,  
16          2015 (new *Exh. TDI-JAN-14a*)
- 17          • Section 401 Water Quality Certification Application, revised submittal date  
18          August 5, 2015 (new *Exh. TDI-JAN-14h*)

19  
20    **I. Updated Project Analyses**

21           **10 V.S.A. § 6086(a)(1)(A) – Headwaters, 10 V.S.A. § 6086(a)(1)(B) – Waste Disposal,**  
22           **and 10 V.S.A. § 6086(a)(4) - Soil Erosion**

1 **Q. Please describe additional information with respect to headwaters, stormwater, and**  
2 **soil erosion that has been prepared by VHB for the Project.**

3 Response: Since the 12/8/2014 filing, VHB and TRC have prepared EPSC plans and  
4 completed the proposed design for the operational phase stormwater management system  
5 for the Converter Station in Ludlow. These items have been used as a basis for the INDC  
6 Stormwater Permit Application and the Operational Phase Stormwater Discharge Permit  
7 Application respectively, and subsequent revisions as described above, that VHB filed with  
8 VT DEC (see *Exhs. TDI-JAN-14b and -14c*). These stormwater discharge permit  
9 applications supersede the Stormwater Technical Memorandum I filed with my initial direct  
10 testimony (*Exh. TDI-JAN-7*). These applications and supporting materials propose  
11 construction-phase Best Management Practices (“BMPs”) and operational-phase stormwater  
12 management that TDI-NE will implement during construction and operation of the Project  
13 to protect the water quality of receiving waters, minimize soil erosion, and manage  
14 stormwater, consistent with Section 248(b)(5), which incorporates Act 250 Criteria 1(A),  
15 1(B) and (4). Since the only jurisdictional operational phase impervious surfaces that will be  
16 constructed by the Project are at the Converter Station, the applicability of the operational  
17 phase stormwater permit is limited to that portion of the Project.

18

19 **Q. Please describe additional information with respect to the injection of waste**  
20 **materials into groundwater or wells that has been developed for the Project.**

21 Response: In accordance with ANR Stipulation, Attach. II, paragraphs 27-29, TDI-NE will  
22 implement additional measures associated with Project blasting activities to avoid impacts to  
23 groundwater, including the following:



- 1           • Avoid the use of initiators that contain perchlorate, and will not utilize perchlorate  
2           in connection with blasting activities (Paragraph 27),
- 3           • Revise its blasting plan (*Exh. TDI-JMB-10*) to incorporate the requirements of the  
4           VT DEC Waste Management Prevention Division Best Management Practices for  
5           Blasting to Avoid Environmental Contamination (Paragraph 28), and
- 6           • Undertake an evaluation of the potential impacts to groundwater in the event TDI-  
7           NE determines that more than 5,000 cubic yards of bedrock will be blasted in a  
8           single work zone in connection with the Project (Paragraph 29).

9           Additionally, in accordance with ANR Stipulation, Attach. II, Paragraph 30, TDI-NE  
10          will revise as needed, the previously submitted Overall Oil and Hazardous Materials Spill  
11          Prevention and Contingency Plan (“Spill Plan”), or submit a stand-alone plan to address  
12          overland construction activities to ANR at least 90 days prior to any site preparation or  
13          construction. As it pertains to the injection of hazardous waste into groundwater, the Spill  
14          Plan serves to help contractor personnel prevent, prepare for, and to respond quickly and  
15          safely to oil and hazardous material spill incidents. Appropriate implementation of the Spill  
16          Plan will avoid the risk of the injection of hazardous wastes into groundwater.

17

18      **Q. Do these proposed modifications to the Project change your opinion with respect to**  
19      **the conformance of the project with Criterion 1(A) Headwaters, 1(B) Waste Disposal,**  
20      **and (4) Soil Erosion?**

21      Response: No. Since the proposed refinements to the operational phase stormwater runoff  
22      management, the EPSC Plan, the blasting plan, and the Spill Plan provide comparable

1 protection of water quality, my opinion is that the Project will continue to conform to the  
2 requirements of these criteria.

3  
4 **10 V.S.A. § 6086(a)(1)(D) – Floodways and 10 V.S.A. § 6086(a)(1)(E) – Streams**

5 **Q. Please describe additional information with respect to floodways and streams that**  
6 **has been gathered by VHB for the Project.**

7 Response: With respect to A23. of my direct testimony, a refined review of the FEMA  
8 mapping and additional field assessments indicate that floodplains and/or floodways are  
9 associated with 22 of the streams (previously 25) that would be crossed by the Project.

10 Since the 12/8/14 filing, VT DEC has begun implementing new flood hazard rules  
11 (including a new permitting program) for evaluating and avoiding risks associated with  
12 potential impacts to infrastructure due to fluvial erosion and stream channel migration.<sup>3</sup> To  
13 assist with the implementation of this new program, meander belts or Fluvial Erosion  
14 Hazard areas (“FEH”) have been mapped for most streams in Vermont with watershed  
15 areas greater than two square miles. The river corridor concept enhances these delineated  
16 FEH areas by adding an additional 50 foot riparian buffer beginning at the edge of the  
17 meander belt. However, because the Project involves the installation of an underground  
18 utility along already-developed roadway and railroad corridors, the FEH boundary was  
19 considered to be sufficiently protective to avoid and minimize impacts from the Project due  
20 to fluvial erosion or channel migration. For streams smaller than two square miles, the river  
21 corridor is represented as a 50 foot buffer from the top of each bank that is assumed to

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<sup>3</sup> Vermont Environmental Protection Rules (“EPR”), Chapter 29 and the *Flood Hazard Area and River Corridor Protection Procedure* (VT DEC 2014), effective date March 1, 2015.

1 provide both meander belt and riparian corridor functions. GIS polygons for 12 streams  
2 with watershed areas larger than two square miles were obtained from the VT DEC Rivers  
3 Program. For the remaining 40 streams, river corridors were produced by VHB by buffering  
4 the field-delineated and approximate streams by 50 feet plus the width at ordinary high water  
5 (“OHW”).

6 Due to VT DEC’s new FEH rules for river corridors, this information supersedes  
7 the reference to 28 Fluvial Erosion Hazard corridors presented in A23. of my previous  
8 prefiled direct testimony.

9 In April 2015, VHB revisited perennial streams crossed by the Project to evaluate  
10 bed and bank stability in the vicinity of the crossing and to confirm that the previously-  
11 selected crossing methodology would be feasible to construct. In addition, VHB held  
12 multiple discussions with the VT DEC Rivers Program prior to the signing of the ANR  
13 Stipulation that reviewed this information and the specifics of how each stream and river  
14 corridor crossing would be completed. These findings and outcomes of discussion with VT  
15 DEC were incorporated into the Flood Hazard Area and River Corridor Permit  
16 (“Floodplain Permit”) application that was submitted on April 30, 2015 and the revised  
17 Stream Alteration Permit and Floodplain Permit applications that were submitted on August  
18 4, 2015 (see *Exhs. TDI-JAN-14d and JAN-14e*).

19  
20 **Q. Have the number and types of proposed stream crossings, as presented in A27. of**  
21 **your direct testimony changed?**

22 Response: Yes. The number of proposed crossings has increased by one, as stream T-MH-  
23 AS-45, a small perennial feature, was not included on the list of crossings in the 12/8/14

1 filing, but will be crossed by the Project at the location of an existing culvert along VT Route  
2 103 (*Exh. TDI-JAN-14d, Appendix 1 and 2*, and *Exh. TDI-JAN-14h, Appendix IVb*  
3 *and IVc*). This stream crossing brings the total number of perennial streams crossed by the  
4 Project to 52, and the number of stream crossing with watersheds less than 0.5 square miles  
5 to 26. A revised summary of the proposed perennial stream crossings is as follows:

- 6 • 10 of the stream crossings are located at sites with contributing drainage areas  
7 greater than 10 square miles.
- 8 • 10 of the stream crossings are located at sites with contributing drainage areas  
9 between 1 and 10 square miles.
- 10 • 5 of the stream crossings (previously 8) are located at sites with contributing  
11 drainage areas between 0.5 and 1 square miles.
- 12 • 26 of the stream crossings (previously 23) are located at sites with contributing  
13 drainage areas less than 0.5 square miles.

14 In addition, the proposed Project alignment would cross 72 intermittent streams  
15 (previously 78) and 27 ephemeral channels (previously 38). The decrease in the number of  
16 stream crossings is due to the refined analysis of the Project's alignment and its intersections  
17 with delineated streams.

18  
19 **Q. Have any proposed stream crossing methodologies, as presented in A27. of your**  
20 **direct testimony, changed in comparison to the 12/8/2014 Filing?**

21 Response: Yes. The proposed crossing methods for ten streams have been modified since  
22 the 12/8/14 filing. Although crossing methodologies have been modified, construction at

1 43 of the 52 crossings (previously 51), including all of the larger named features would occur  
2 in a manner that would avoid disturbance of the bed or banks of the stream, which is  
3 consistent with that presented in the 12/8/14 filing. In addition, as a result of consultation  
4 with ANR personnel, the length of the horizontal directional drill (“HDD”) crossing of the  
5 Otter Creek that was previously proposed has been extended by approximately 800 feet to  
6 extend the drill beyond the ANR-mapped river corridor. A revised table of crossings is  
7 included within the Stream Alteration Permit and Floodplain Permit applications that were  
8 submitted on August 4, 2015 (*see Appendix 2 of Exh. TDI-JAN-14d and Appendix 2 of*  
9 *Exh. TDI-JAN-14e*).

10 The “At Culvert” crossing method was also refined through the discussions held  
11 with the VT DEC Rivers Program prior to the ANR Stipulation being executed. These  
12 crossings will be constructed with the cables being laid a minimum of 5 feet below the  
13 bottom of the culvert within the OHW width of the channel. On either side of the OHW  
14 but within four channel widths or a minimum of 20 feet of the edge of the channel  
15 (whichever is greater), the burial depth of the cable will decrease until it is no shallower than  
16 the invert of the channel within the culvert. Outside of this area, the cable will resume the  
17 standard burial depth. This additional burial depth will allow the culvert to be replaced  
18 and/or upgraded in the future without disturbing the cable.

19  
20 **Q. Have any of the proposed stream crossing methods, as presented in A27. of your**  
21 **directed testimony, changed as a result of the ANR Stipulation?**

22 Response: Yes. In accordance with ANR Stipulation Attach. II Paragraph 18, and as  
23 described in Question 9, the proposed method of crossing an unnamed tributary to

1 Hubbardton River (V-BE-S-102) at milepost 103.1 has changed from over culvert to  
2 horizontal directional drill (“HDD”), and the method of crossing an unnamed tributary to  
3 Branch Brook (T-MH-S14) has changed from over culvert to an open trench excavation  
4 (“OTE”) at milepost 144.8.

5  
6 **Q. Please describe the Project’s conformance to other provisions in the ANR Stipulation**  
7 **that pertain to these Criteria.**

8 Response: In accordance with ANR Stipulation, Attach. II, Paragraph 19, the “Over-  
9 Culvert” crossing at MP 133.4 in Shrewsbury will remain as designed and TDI-NE will place  
10 signage on both sides of the culvert indicating the presence of the cables. TDI-NE will also  
11 provide as-built information and location details of this culvert crossing to municipal road  
12 crews, first responders, VTrans, ANR, DPS, and the Department of Emergency and  
13 Homeland security. TDI-NE will coordinate the specific design of this over-culvert crossing  
14 with VTrans prior to construction.

15 In accordance with ANR Stipulation, Attach. II, Paragraph 20, TDI-NE has  
16 considered alternatives for the proposed “Aerial Crossing” of the Black River at MP 149.0 in  
17 Ludlow at the East Lake Road Bridge. The aerial crossing is expected to be constructed  
18 based on a practicable alternative analysis completed by TDI-NE. In turn, and as required  
19 by the ANR Stipulation, Attach. II, Paragraph 20, additional engineering details  
20 demonstrating the capability of the cable anchoring system to withstand the forces  
21 associated with floodwaters overtopping this bridge will be provided to the Agency at least  
22 90 days prior to construction. Additional signage will also be posted at this location and

1 further coordination with the Town and first responders will be provided to ensure that  
2 public safety is protected in the event of an emergency at this location.

3  
4 **Q. Do these proposed modifications to the Project change your opinion with respect to**  
5 **the conformance of the project with Criterion 1(D) - Floodways and Criterion 1(E) -**  
6 **Streams?**

7 Response: No. Since the proposed refinements to the stream crossing methodologies  
8 provide comparable or improved construction practices and protection of water quality, my  
9 opinion is that the Project will continue to conform with Criteria 1(D) and 1(E).

10  
11 **10 V.S.A. § 6086(a)(1)(F) – Shorelines**

12 **Q. Please describe additional information and analyses completed with respect to the**  
13 **Project's impacts on shorelines.**

14 Response: Since the 12/8/14 filing, Lake Encroachment Permit Applications have been filed  
15 with VT DEC for the Project's underwater portion in Lake Champlain and for the overland  
16 portion where it will cross Lake Bomoseen (see *Exhs. TDI-JAN-14f and -14g*). The Lake  
17 Champlain Encroachment Permit Application was originally filed on March 20, 2015, and  
18 re-submitted on July 14, 2015 with revisions consistent with the MOU. The Lake Bomoseen  
19 Encroachment Permit Application was originally filed on March 25, 2015, and no revisions  
20 or supplemental filings for this application have been made.

21 As discussed in the direct testimony of Sean Murphy, TDI-NE has agreed, as part of  
22 a suite of public benefits that it will provide for this Project, to develop a detailed assessment

1 of the current condition of the bank on the parcel of land in Benson where the cables will  
2 exit the Lake and to consult with the ANR to develop a restoration and long-term  
3 maintenance plan for this area that will reestablish bank stability and shoreline habitat in  
4 accordance with ANR Stipulation Attach. II, paragraph 23. This plan will be presented to  
5 the ANR at least 90 days prior to commencement of construction.

6  
7 **Q. Does this additional information regarding the Project change your opinion with**  
8 **respect to the conformance of the project with Criterion 1(F) - Shorelines?**

9 Response: No. My opinion continues to be that the Project conforms to the requirements  
10 of Criterion 1(F) Shorelines.

11  
12 **10 V.S.A. § 6086(a)(1)(G) – Wetlands**

13 **Q. Please describe additional information and analyses completed with respect to the**  
14 **Project's impacts on Wetlands.**

15 Response: Since the 12/8/2014 filing, VHB, with support from TRC, prepared supporting  
16 materials and filed a Vermont Wetland Individual Permit Application and Section 401 Water  
17 Quality Certification Application for the Project with VT DEC (see *Exhs. TDI-JAN-14a*  
18 *and -14h*). The original Vermont Wetland Permit application was filed on 3/6/2015, and a  
19 revised application was filed on 8/4/2015 in response to Project refinements and ANR  
20 comments. The original 401 WQC Application was filed on 4/1/2015, and revised  
21 supporting documents were filed on 8/5/2015.



1           Impact numbers have been revised since my original filing based on refined  
2 alignment, avoidance and minimization, and the refinement of impact area calculation  
3 methods estimate.

4  
5 **Q. Have the Project's proposed Class II wetland impacts, as presented in A43. of your**  
6 **direct testimony changed?**

7 Response: Yes. As presented in *Exhibit TDI-JAN-14a*, the Project will result in reduced  
8 total impacts as follows:<sup>4</sup>

- 9           • Project corridor: 1.37 acres (previously 1.02 acres)
- 10           • Temporary off-road work area: 1.53 acres (previously 2.68 acres)
- 11           • Total: 2.90 acres (previously 3.70 acres)

12 Of these impacted wetlands, 2.13 acres are currently forested (previously 1.70 acres) and 0.77  
13 acres are non-forested (previously 2.0 acres). Ongoing vegetation maintenance would occur  
14 within the Project corridor as necessary, resulting in the permanent conversion of 0.60 acres  
15 of forested wetland to non-forested, compared to the previous estimate of 0.47 acres.<sup>5</sup> Due  
16 to the refinement of the impact analysis as described in the previous question, and the  
17 proposed use of matting during construction within wetlands, there will be less impact  
18 within the Project corridor, and no impact to non-forested temporary off-road work areas,  
19 which is reflected in the revised impact values. Consistent with my initial direct testimony,

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<sup>4</sup> Note that my initial direct testimony at page 33 contained transposed values for the impacted acreage in the *Project corridor* and *Temporary off-road work area*. The figures have been corrected above.

<sup>5</sup> The initial direct testimony contained a transposed value for the permanent conversion impact area, which has been corrected above.

1 the NECPL will not result in permanent fill impacts to Class II wetlands for either the cable  
2 alignment or Converter Station.

3  
4 **Q. Have the Project's proposed Class II wetland buffer impacts, as presented in A44. of  
5 your direct testimony changed?**

6 Response: Yes. As presented in *Exh. TDI-JAN-14a*, the Project will result in reduced  
7 impacts as follows:

- 8 • Project corridor: 5.84 acres (previously 7.29 acres)
- 9 • Temporary off-road work area: 5.18 acres (previously 10.1 acres)
- 10 • Total: 11.02 acres (previously 17.4 acres)

11 Of these, 6.34 acres are currently forested (previously 3.56 acres) and 4.68 acres are non-  
12 forested (previously 13.8 acres). Ongoing vegetation maintenance would occur within the  
13 Project corridor as necessary, resulting in the permanent conversion of 1.16 acres of forested  
14 wetland buffers to non-forested buffer, compared to the previous estimate of 1.08 acres. As  
15 described in the previous questions, the revised impact areas reflect the refinements of the  
16 impact analysis and elimination of impact estimates to non-forested temporary off-road  
17 work area, since no changes to existing buffer characteristics are expected to occur.

18 Consistent with my original testimony, the NECPL will not result in permanent fill impacts  
19 to Class II wetland buffers for the cable alignment or Converter Station.

20  
21 **Q. Have the Project's proposed impacts on all wetlands (Class II and III), as presented  
22 in in A45 of your direct testimony changed?**

1        Response: Yes. As presented in *Exh. TDI-JAN-14h*, the Project will result in reduced  
2        impacts as follows:

- 3            • Project corridor: 1.53 acres (previously 1.65 acres)
- 4            • Temporary off-road work area: 2.97 acres (previously 3.64 acres)
- 5            • Total: 4.50 acres (previously 5.29 acres)

6        Of these, 1.95 acres are currently forested (previously 2.40 acres) and 2.55 acres are non-  
7        forested (previously 2.89 acres). Ongoing vegetation maintenance would occur within the  
8        Project corridor as necessary, resulting in the permanent conversion of 0.74 acres of forested  
9        wetland to non-forested wetland, compared to the previous estimate of 0.68 acres. As  
10       described above, the revised impact areas reflect further avoidance and minimization of  
11       wetland impacts resulting from the Project. Consistent with my original testimony, the  
12       NECPL will not result in permanent fill impacts to wetlands for the cable alignment or  
13       Converter Station.

14  
15    **Q. Do these proposed modifications to the Project change your opinion with respect to**  
16    **the conformance of the project with Criterion 1(G) - Wetlands?**

17       Response: No. My opinion continues to be that the Project conforms to the requirements  
18       of Criterion 1(G) Wetlands.

19  
20       **10 V.S.A. § 6086(a)(2) and (3) – Sufficiency of Water and Burden on Existing Supply**

21    **Q. Have there been any changes to the Project since the 12/8/14 filing, and if so, do**  
22    **they alter your evaluation of the Project under Criteria 2 & 3 – Water Supply as**  
23    **presented in your prior testimony?**

1        Response: Since the 12/8/14 filing, minor revisions have been made to the terrestrial  
2        NECPL route within Source Protection Areas of public water supplies. Accordingly, *Exh.*  
3        *TDI-JAN-11b* has been revised to reflect the updated route, with changes reflected on  
4        Sheets 4, 18, 24, 18, and 29 (see *Exh. TDI-JAN-11b(Rev.)*). These terrestrial route  
5        modifications do not alter my evaluation of the Project under Criteria 2 & 3 – Water Supply.

6                In accordance with the ANR Stipulation, Attach. II, Paragraph 10, TDI-NE has  
7        revised the Project alignment so that the cable will be installed at least 300 feet from the  
8        Grand Isle Consolidated Water District’s deep water supply intake to avoid impacts to the  
9        Vermont Fish and Wildlife Department’s Fish Hatchery, as further described in *Exh. TDI-*  
10       *JAN-11a(Rev.)* and in the prefiled direct testimony of Sean Murphy. To provide further  
11       protection of the intake, TDI-NE has also agreed to additional installation, monitoring,  
12       notification, and mitigation provisions as specified by ANR Stipulation, Attach. II,  
13       Paragraphs 11 through 13, and further described in the prefiled direct testimony of Sean  
14       Murphy.

15                Additionally, TDI-NE does not anticipate that more than 5,000 cubic yards of  
16        bedrock will be blasted in a single work zone in connection with the Project. However, in  
17        accordance with ANR Stipulation, Attach. II, Paragraph 29, TDI-NE will undertake an  
18        evaluation of the potential impacts to groundwater in the event TDI-NE determines that  
19        more than 5,000 cubic yards of bedrock will be blasted in a single work zone in connection  
20        with the Project.

21                Since the proposed refinement to the in-Lake NECPL route and ANR Stipulations  
22        provide measures to avoid impacts to the Fish Hatchery’s water supply intake and to

1 groundwater as a result of blasting, my opinion is that the Project will continue to conform  
2 with Criteria 2 and 3.

3  
4 **10 V.S.A. § 6086(a)(8) and (8)(A) – Rare and Irreplaceable Natural Areas,**

5 **Necessary Wildlife Habitat and Endangered Species**

6 **Q. Please describe additional information and analyses completed with respect to the**  
7 **Project’s impacts under Criterion 8.**

8 Response: Since the 12/8/14 filing, and based on review/input from ANR personnel, VHB  
9 has revised the Vegetation Management Plan (“VMP”) (*Exh. TDI-JAN-12(Rev.)*) and the  
10 Survey Results Report: Rare, Threatened, and Endangered Species, Necessary Wildlife  
11 Habitat, and Natural Communities (*Exh. TDI-JAN-13a; “RTE Survey and Plan”*)<sup>6</sup> to  
12 address applicable conditions of the ANR Stipulation. The revised documents have been  
13 filed with the VT DEC as part of the August 2015 filing of the Vermont Wetland Permit  
14 and Section 401 Water Quality Certification Applications (*see Attachment 6 of Exh. TDI-*  
15 *JAN-14a and Appendix Ie of Exh. TDI-JAN-14h*). Language in both the VMP and the  
16 RTE Survey and Plan has been revised to clarify that the Project has been designed to avoid  
17 all but six rare plant species occurring in a total of 20 populations along the Project  
18 alignment (previously, the number of populations was not directly stated; see prefiled direct  
19 testimony of Galen Guerrero-Murphy at page 16).

20 With respect to the VMP, the principal revisions were as follows:

- 21 • In accordance with ANR Stipulation, Attach. II, Paragraph 14, each of the 20  
22 populations of 6 rare plants in the Project alignment will be re-delineated and

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<sup>6</sup> Formerly Exhibit TDI-GGM-2.

1 demarcated in the field prior to any site preparation or construction activities, and  
2 specific instruction will be provided to work crews on the locations and type of  
3 demarcation for rare plant populations. Additionally, TDI-NE will update the plant  
4 survey prior to engaging in any site preparation or construction activities that will occur  
5 more than three years beyond the actual date of the original inventory (Summer 2014).

- 6 • In accordance with ANR Stipulation, Attach. II, Paragraph 16, specific monitoring,  
7 reporting, and triggers for remedial action for each of the 20 populations of 6 rare plant  
8 species that could be impacted by the Project are defined in the VMP, including annual  
9 monitoring for 5 years following construction and re-delineation of rare plant  
10 populations at least every 8 years for the life of the Project.
- 11 • In accordance with ANR Stipulation, Attach. II, Paragraph 17, non-native invasive  
12 species (“NNIS”) were added to the list of the Project’s target species for NNIS  
13 monitoring and control: additions include the European alder (*Alnus glutinosa*), wild  
14 chervil (*Anthriscus sylvestris*), and narrow leaved bitter cress (*Cardamine impatiens*). Annual  
15 monitoring will occur for 3 years, and control measures, if necessary, will occur in  
16 consultation with ANR. Herbicide use will only occur in the vicinity of the Ludlow  
17 Converter Station and not within the vicinity of any known rare plants.
- 18 • In accordance with ANR Stipulation, Attach. II, Paragraph 17, TDI-NE will attempt to  
19 reach out to other entities responsible for ROW management if, during annual NNIS  
20 monitoring, NNIS are observed on lands beyond the control of TDI-NE but are part of  
21 the same population(s) of NNIS being monitored or controlled by TDI-NE.

22 For the RTE Survey and Plan, refinements included:

- 1           • The proposed acreages of temporary tree removal proposed to occur within potentially  
2           significant natural communities, as reported in A12. of the initial prefiled direct  
3           testimony of Galen Guerrero-Murphy, have been adjusted. Approximately 2.1 acres  
4           (previously 2.76 acres) of temporary tree removal will be required within four  
5           occurrences of the likely significant Mesic Maple-Ash-Hickory-Oak Forest natural  
6           communities adjacent to Route 4 to accommodate construction equipment access and  
7           work activities (which represent less than 1 percent of the total community areas).  
8           Additionally, approximately 2.59 acres (previously 2.61) of temporary tree removal will  
9           be required within four occurrences of the potentially significant Dry Oak-Hickory-  
10          Hophornbeam Forest, Temperate Hemlock Forest, Temperate Hemlock-Hardwood  
11          Forest, and Mesic Red Oak-Northern Hardwood Forest occurrences along Route 4 to  
12          accommodate construction equipment access and work activities (which represent less  
13          than 1 percent of the total community areas).
- 14          • In accordance with ANR Stipulation, Attach. II, Paragraph 1, species-specific  
15          construction monitoring and reporting protocols were developed, in coordination with  
16          ANR, for RTE animal species including the eastern ribbonsnake (*Thamnophis sauritus*),  
17          eastern ratsnake (*Pantherophis alleghaniensis*), timber rattlesnake (*Crotalus horridus*), wood  
18          turtle (*Glyptemys insculpta*), and the musk turtle (*Sternotherus odoratus*) and will be led by a  
19          qualified herpetologist, subject to ANR approval.
- 20          • In accordance with ANR coordination regarding protection protocols for rare,  
21          threatened, and endangered animals during project construction, the revised RTE Survey  
22          and Plan (*Exh. TDI-JAN-13a*) includes a provision for TDI-NE to obtain a Vermont

1 Endangered & Threatened Species Takings Permit prior to site preparation or  
2 construction within certain habitats.

- 3 • TDI-NE, and its consultants, revised the RTE Survey and Plan (*Exh. TDI-JAN-13a*) in  
4 accordance with ANR Stipulation, Attach. II, Paragraphs 3-7 to include additional  
5 measures to protect potential Indiana Bat roost trees within the Towns of Benson, West  
6 Haven, and Fair Haven. Additional measures include pre-construction flagging  
7 (Paragraph 3), environmental training during construction orientation (Paragraph 4), bat  
8 exit surveys (Paragraph 5), and provisions for cutting potential roost trees (Paragraphs 6  
9 and 7) for which surveys indicate no bat use.
- 10 • The addition of construction-phase protocols to protect rare plant populations, and the  
11 inclusion of specific contingency measures to occur if the Project design changes such  
12 that a threatened or endangered plant could be impacted.

13  
14 **Q. Do these proposed modifications to the Project change your opinion with respect to**  
15 **the conformance of the project with Criterion 8 – RINA, Necessary Wildlife Habitat**  
16 **and Endangered Species?**

17 Response: No. With the implementation of the refined avoidance and minimization  
18 measures described in *Exhs. TDI-JAN-12 and TDI-JAN-13a*, the Project will not have an  
19 undue adverse effect upon potential significant natural communities or potential RINAs.

20  
21 **Q. Does this conclude your testimony at this time?**

22 Response: Yes.