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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

Grand Isle, Rutland, and Windsor Counties, Vermont

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Attachment B: Figure 1: Overview Map; Figure 2: Natural Resource Maps

Attachment C: RTE, Natural Community and Critical Wildlife Habitat Inventory Report (Arrowwood Environmental)

Attachment D: NECPL Project Survey Memorandums – Railroad and Ludlow Converter Station Site; Temporary Off-ROW Work Areas (Gilman & Briggs Environmental)

Attachment E: Indiana Bat Habitat Assessment Report (Arrowwood Environmental)

Attachment F: Non-Native Invasive Species Inventory Report (Arrowwood Environmental)

1.0 Introduction

In April of 2014, TRC Environmental (in collaboration with VHB, HDR, and Arrowwood Environmental ("AE")) submitted the Rare, Threatened, and Endangered species ("RTE"), Necessary Wildlife Habitat, and Natural Community Survey Program ("Survey Program") to the Vermont Agency of Natural Resources ("VT ANR") and Vermont Fish and Wildlife Department ("VT FWD") for the proposed New England Clean Power Link ("NECPL" or "Project") to be developed by Champlain VT, LLC d/b/a TDI-New England ("TDI-NE"). The Survey Program provided initial assessments of potential impacts or threats to Vermont Natural Heritage Inventory ("NHI") known Element Occurrences ("EO"s) (i.e., the database of documented RTE and significant natural communities maintained by the VT ANR NHI), and made recommendations for survey protocols for RTE, natural communities and necessary wildlife habitat that could be impacted by the Project. The Survey Program was presented during a meeting held with VT ANR stakeholders on April 24, 2014, and subsequent concurrence with the Survey Program approach was received from ANR via email correspondence (with some additional agency comments, as noted in this document).

RTE, natural communities, and necessary wildlife habitat were surveyed by AE and Gilman & Briggs Environmental based on the recommended Survey Program protocol from June to September of 2014. This Summary Report and enclosed attachments serve as a follow up to the Survey Program and summarize the methodology employed in the surveys, the survey results, and the plans to minimize and avoid undue, adverse impacts to the species and communities identified during the surveys.

2.0 Survey Objective and Project Overview

The NECPL is a proposed high-voltage direct-current ("HVDC") electric transmission line that will provide electricity generated by renewable energy sources in Canada to the New England electric grid. The line will run from the Canadian border at Alburgh, Vermont to Ludlow, Vermont along underwater and underground routes.

The transmission line will be comprised of two approximately 5 inch diameter cables – one positively charged and the other negatively charged – and will be solid-state dielectric and thus

contain no fluids or gases. The nominal operating voltage of the line will be approximately 300 to 320 kV, and the system will be capable of delivering 1,000 megawatts (MW) of electricity.

The proposed underwater portion of the transmission line, approximately 98 miles in length, will be buried to a target depth of three to four feet in the bed of Lake Champlain except at water depths of greater than 150 feet where the cables will be placed on the bottom and self-burial of the cables in sediment will occur. In areas where there are obstacles to burial (e.g. existing infrastructure, bedrock), protective coverings will be installed.

The overland portion of the transmission line, approximately 56 miles in length, will be buried approximately four feet underground within existing public (state and town) road rights-of-way ("ROW"s).[1] The cables will be installed within a railroad ROW for approximately 3.5 miles in the towns of Shrewsbury and Wallingford. Very short sections of the route at the Lake Champlain entry and exit points, as well as at the converter site in Ludlow, will be located on private land that is owned or controlled by TDI-NE.

In Ludlow, the HVDC line will terminate at a converter station that will convert the electrical power from direct current ("DC") to alternating current ("AC"). An underground AC transmission line will then run to the existing 345 kV Coolidge Substation in Cavendish, Vermont, located approximately 0.3 mile to the south that is owned and operated by the Vermont Electric Power Company ("VELCO").

The Project overland route, or terrestrial segment (and approximate linear lengths), is defined as follows:

1. (0.5 miles) Overland Route from Canadian Border along Bay Road to 55 Bay Road, Alburgh; enter Lake Champlain to start Lake Cable Route
2. (97.6 miles) Marine Cable Route within Lake Champlain
3. (4.3 miles) Exit Lake Champlain to start Overland Route at 113 Stoney Point Road, Benson to Lake Road to VT Route 22A,
4. (8.2 miles) VT Route 22A to US Route 4

[1] The only potential areas where underground burial may not occur is at two stream/river crossings in Ludlow where the cables may be placed in conduit and attached to a bridge or culvert headwall.

5. (17.4 miles) US Route 4 to US Route 7
6. (2.7 miles) US Route 7 to VT Route 103
7. (3.8 miles) VT Route 103 to Railroad in Shrewsbury
8. (3.5 miles) Railroad in Shrewsbury to VT Route 103 in Wallingford
9. (10.6 miles) VT Route 103 to VT Route 100
10. (0.8 Miles) VT Route 100 to Town Roads in Ludlow
11. (4.5 miles) Town Roads in Ludlow to Converter Station Site
12. (0.3 miles) Town Roads in Ludlow and Cavendish, from Converter Station Site in Ludlow to Coolidge Substation in Cavendish

Along the overland route, the transmission cables will be installed underground by utilizing a combination of open-trench excavation ("OTE"), horizontal directional drilling ("HDD"), and jack-and-bore construction. The transmission line will be buried in public road ROWs, railroad ROW, or private property controlled by TDI-NE. Along town roads (in Benson, Alburgh and Ludlow), the cables are proposed to be installed in the existing roadways. Along state-controlled roads, the transmission line will primarily be installed along the edge of the road ROW, although some in-road installation is proposed.

State and federal environmental permitting for this Project (e.g., Vermont Section 248 Petition for a Certificate of Public Good, U.S. Department of Energy Presidential Permit, U.S. Army Corps Section 10/404 permits), as well as related consultations (e.g., Endangered Species Act Section 7 consultations with federal resource agencies) require natural resource evaluations. In order to facilitate this review, EOs of RTE species and significant natural communities within 0.25 mile of the proposed Project centerline were provided to ANR and summarized in the Survey Program. Tables A-1, A-2 and A-3 (see Attachment A) identify the 18 RTE animal occurrences, 44 RTE plant occurrences, and 14 natural communities previously documented within 0.25 mile of the terrestrial route centerline. Tables A-4 and A-5 (see Attachment A) identify the 17 aquatic RTE animal occurrences and 10 aquatic or shoreline RTE plant occurrences previously documented within 0.25 mile of the lake segment centerline. TRC provided the following three survey recommendations in the Survey Program:

- Identify species or significant natural communities associated with known occurrences in the vicinity of the Project survey area;

- Identify whether there is potential for suitable or preferred habitat for these species in the Project survey area; and
- Identify whether the proposed work areas for the Project have the potential to directly or indirectly affect actual species, habitat, or natural communities.

AE and Gilman & Briggs Environmental conducted the terrestrial segment resource surveys based on the recommendations contained in the Survey Program and applicable follow-up consultation described in Section 3.0 of this report. HDR Engineering Inc. ("HDR"), in cooperation with Biodrawversity LLC, conducted the lake segment resource surveys based on follow-up consultation with the VT FWD regarding the Survey Program as described in Section 4.0 of this report.

Since preparation of the Survey Program in April 2014, a 3.5 mile railroad ROW route segment has been evaluated as the preferred route in Shrewsbury and Wallingford. Both the railroad ROW and the alternative route along VT Route 103 in Shrewsbury and Wallingford were evaluated and results are included in this report.

AE's report entitled RTE, Natural Community and Critical Wildlife Habitat Inventory Report is provided in Attachment C, and Gilman & Briggs Environmental' s NECPL Project Survey Memorandum is included in Attachment D. AE completed the primary terrestrial segment assessments described in this report, while Gilman & Briggs Environmental (with support from TRC) completed the assessments for the Ludlow Converter Station Site, temporary off-ROW workspaces (e.g., temporary construction areas, staging and laydown areas), and the 3.5 mile railroad segment. The results of these surveys are briefly summarized in Section 3 of this report. The Survey Program states that an RTE Protection Plan will be developed in consultation with VT ANR/VT FWD and will include appropriate minimization or mitigation measures for species that may be impacted by the Project. Proposed protection measures are described in Section 4 of the report for the Project as currently proposed.

3.0 Survey Results: Terrestrial Cable Route

3.1 RTE Plants

AE conducted the RTE plant surveys by utilizing the EO locations and conducting field surveys based on the recommended protocol in the Survey Program. Plant rarity ranks were based on the Vermont Natural Heritage Inventory list dated September 15, 2014. Species with an S-rank of S1 ("very rare"), S2 ("rare") or S2S3 ("rare to uncommon"), SH ("possibly extirpated"), or SU ("unrankable"/unknown) were mapped to sub-meter accuracy and a VT FWD Rare Plant Occurrence Reporting Form was completed. For uncommon species (S3), points were collected with a mapping grade GPS to illustrate the general vicinity of the populations, and no forms were recorded.

During the surveys, 101 RTE plant populations and 83 uncommon plant populations were identified. These populations are comprised of 53 different plant species. This includes three State Endangered and six State Threatened species. These are summarized in Table A-1 in Attachment A, and Vermont Rare Plant Forms are included with AE's report included as Attachment C.

No federally listed[2] threatened or endangered plant species were encountered.

3.2 RTE Animals

AE conducted RTE animal surveys and habitat assessments by utilizing the EO locations and conducting field surveys based on the recommended protocol in the Survey Program. Fourteen different RTE animal species were identified as potentially occurring along the terrestrial segment of the Project. AE confirmed that the general habitat features preferred by the rare animal species were present within or in the vicinity of the documented EOs within 0.25 mile of the Project's terrestrial route centerline, but no specific features, such as snake hibernacula, were discovered. The survey results for each of these areas is summarized in Table A-2 of Attachment A, and the AE report included as Attachment C.

[2] Refers to listing under the Federal Endangered Species Act.

RTE Snake Species: Eastern Ribbonsnake, Eastern Ratsnake, Timber Rattlesnake

Following submittal of the Survey Program, VT FWD (Doug Blodgett) was consulted regarding state RTE snake species that may be affected by the Project, including eastern ribbonsnake (*Thamnophis sauritus sauritus*), eastern ratsnake (*Pantherophis alleghaniensis*) and timber rattlesnake (*Crotalus horridus*). None of these species are federally listed. Protocol for avoidance and minimization of impacts to individual snake species during construction for segments of the overland route in the vicinity of known EOs and within areas of potential habitat in Benson, Fair Haven, West Haven, and Castleton are defined in Section 5.2.

RTE Turtle Species: Eastern Musk Turtle and Wood Turtle

Following submittal of the Survey Program, the VT FWD (Doug Blodgett) was consulted regarding RTE species that may be affected by the Project. The eastern musk turtle (*Sternotherus odoratus)* and the wood turtle (*Glyptemys insculpta*), although not federally or state listed species, are considered state uncommon (rank "S2" for the musk turtle and "S3" for the wood turtle) species and are both Species of Special Concern ("SSC"). They were both identified as species that may potentially occur in portions of the terrestrial segment of the Project. Specifically, both of these turtles may occupy larger rivers encountered in the Project area and terrestrial habitat located in the vicinity (i.e., typically within 1,000 feet) of such rivers. Although the species is less likely to occur at higher elevations encountered by the Project (e.g., in Ludlow and Mount Holly), it may be present in each of the towns traversed by the Project. No musk or wood turtles were observed during field surveys. As recommended by VT FWD, musk turtle and wood turtle monitoring, avoidance, and minimization measures are identified in Section 5.2 of this report.

RTE Bat Species: Indiana Bat and Northern Long-Eared Bat

Following submittal of the Survey Program, it was determined that tree removal may be required for the Project. Based on follow-up telephone consultation with the VT FWD (Scott Darling) and U.S. Fish and Wildlife Service ("USFWS", Susi Van Oettingen) during the summer of 2014, a habitat assessment protocol was developed for the state- and federally-endangered Indiana bat (*Myotis sodalis*), and potential roosting tree assessments were performed as described in Attachment E. In total, 116 potential roosting trees were identified in the study area. Indiana Bat avoidance and minimization measures are identified in Section 5.2 of this report.

Additionally, the northern long-eared bat (*Myotis septentrionalis*) has the potential to occur in the Project area. It is a state-endangered species and, as of April 2, 2015, received a threatened listing under the federal Endangered Species Act. VT FWD (Scott Darling) recommended no additional or specific surveys or assessments for northern long-eared bat. Because this species may occur throughout the State of Vermont and its habitat requirements are not as specific as Indiana bat (i.e. it has fewer unique habitat requirements), this bat could occur in numerous habitats along the overland component of the proposed Project. It is expected that the proposed limited tree removal along existing road and rail ROWs and at the converter site will not imperil this species, as it may utilize many alternative habitats in the vicinity of the Project. No additional assessments or minimization measures are proposed for the northern long-eared bat by the Project.

Migratory Birds

Following submittal of the Survey Program, the VT FWD (John Buck) was consulted regarding migratory bird species. It was indicated during that consultation that known bald eagle (*Haliaeetus leucocephalus*) nests are documented along Lake Champlain in Benson. Based on a VT FWD desktop review of the Project route, it was determined that no known bald eagle nests have been documented at the proposed shoreline transition for the Project (148 Stony Point Road, Benson). The proposed work area, including setup for the HDD, for the shoreline transition in Benson is located within a cleared area adjacent to an existing home, and no Bald Eagle nests were observed during field surveys. Other large bodies of water that may provide suitable habitat for bald eagles include Lake Bomoseen and Otter Creek. No bald eagles or nests were observed during field surveys.

Migratory bird habitat in the Project study area is limited, since the majority of the route is along busy roadways. The Lake Champlain shoreline approaches are within existing, cleared parcels and no tree removal along shoreline resources will be required. The forested Ludlow Converter Station parcel contains mature mixed hardwoods and conifers that will be removed for the Project and may be providing migratory bird habitat, but no habitat features were observed that indicate this area is a unique or critical habitat for migratory bird species. Grassland and wetland migratory bird habitats are encountered along the overland route, but Project construction activities will be within existing road or railway ROWs that provide low-quality habitat for migratory birds.

3.3 Natural Communities

Vermont natural community occurrences can be considered "state-significant" (or "significant") based on an evaluation of the rarity of the natural community type and the quality of the natural community occurrence (per ANR Guidelines for the Conservation and Protection of State-significant Natural Communities, October 2004, and updated ranking protocols). State-significant natural communities can be recommended for consideration or designation as Rare and Irreplaceable Natural Areas ("RINA") under Act 250 Criterion 8, however every instance of RINA is not defined or designated by VT ANR. Although not specifically defined by statute, prior Act 250 precedent suggests evaluation of whether an area in question is a "natural area" and if so, whether the natural area is "rare and irreplaceable."

The ANR-approved Survey Program provided protocol recommendations for surveying significant natural communities and potential RINA. AE and Gilman & Briggs Environmental conducted natural community assessments concurrent with the RTE plant and animal surveys to identify any natural communities that would warrant designation as state-significant. AE and Gilman & Briggs Environmental assessed targeted locations in the vicinity of known EOs of natural communities as well as a general evaluation for potential significant natural communities in the survey area.

AE conducted a desktop review of upland and wetland communities in the study area surrounding the Project that included significant natural community EOs (which may be considered to be RINA), State Natural Areas listed by the Vermont Department of Forests, Parks, and Recreation ("VT FPR", considered to be RINA), and used remote sensing to identify potentially significant natural communities based on orthophoto imagery, topographic maps, soil surveys and Vermont Significant Wetland Inventory ("VSWI") mapping within 0.25 mile of the study area. This information was used to guide field surveys to locate potentially significant natural areas.

No Vermont State Natural Areas occur within the study area. Fourteen previously documented significant natural community EOs occur within the 0.25 mile of the study area, but none of these were found to occur within the study area. Nine new potential and likely significant communities were identified in the study area during field surveys. Table A-3 in Attachment A provides the details of the natural community evaluation. Section 5.3 identifies avoidance and minimization measures for potential and likely significant natural communities.

Non-Native Invasive Species

The Survey Program called for a general documentation of non-native invasive species ("NNIS") populations (Class A and B Noxious Weeds as identified in the Vermont Noxious Weed Quarantine Rule, 2002) observed in vegetative communities within the Project survey area. The intention of this documentation was to provide a general idea of the presence/absence of NNIS and the general location and extent to inform Project planning.

In accordance with the Survey Program, AE conducted an inventory of NNIS concurrent with the RTE surveys. The full report entitled Non-Native Invasive Species Inventory Report is in Attachment F. Additional NNIS inventory data for the Railroad Option and Ludlow Converter Site is included in the NECPL Project Survey Memorandum by Gilman & Briggs Environmental included as Attachment C.

Meander surveys for NNIS were conducted throughout the survey area by three botanists, and GPS points were collected along with data on phenology and geographic distribution. A total of 10 NNIS species were documented throughout the survey area and most of these were recurrent. Honeysuckle (*Lonicera spp*.), purple loosestrife (*Lythrum salicaria*) and common buckthorn (*Rhamnus cathartica*) were present throughout the study area, although these are most abundant along US Route 4. The Non-Native Invasive Species Inventory Report (Attachment F) includes a table that summarizes the NNIS data as well as the number of individual infestations and total linear miles. NNIS monitoring and control measures are proposed in the Project Vegetation Management Plan (VHB, 2015).

3.4 Necessary Wildlife Habitat

Necessary wildlife habitat is defined under Act 250 as "concentrated habitat which is identifiable and is demonstrated to be decisive to the survival of wildlife at any point in its life, including breeding and migratory periods." Necessary wildlife habitat is most often considered as deer wintering areas ("DWA") and black bear habitat (forage or travel).

Deer Wintering Areas

AE, TRC, and Gilman & Briggs Environmental conducted surveys for deer wintering areas within the study area by reviewing available digital databases and aerial imagery and assessing those areas that intersected the study areas for on-site habitat characteristics. For white-tailed deer (*Odocoileous virginianus*) wintering habitat, areas with coniferous and mixed conifer/hardwood forest communities

within the study area were assessed for appropriate forest structure and evidence of utilization by over-wintering white-tailed deer. Five stands within the survey areas were identified as having both the appropriate tree species and adequate structure suitable for deer wintering habitat (see Section 1 in Attachment C). This included one NHI-mapped Deer Wintering Area at milepost 137.4 to 138.0. Other NHI-mapped deer wintering areas were determined to not have suitable tree species and/or structure for deer wintering in the study area. Within the five stands, no indications of use by deer as overwintering habitat were evident.

Black Bear Habitat

For black bear (*Ursus americanus*), the presence/absence of necessary habitat was assessed by AE and Gilman & Briggs Environmental (with support from TRC) by reviewing available data including a Black Bear Habitat in Vermont map by VT FWD, the Vermont Biodiversity Project "Bear Points", and 2006 road kill data as well as conducting field assessments. Necessary habitat that was assessed included travel corridors, spring feeding wetlands and areas with stands of mast-producing trees. Habitat in the Project study area is fragmented and disturbed due to traffic and human activities, so biologically-critical black bear habitat was found to be limited or not present. The Project intersects one potential black bear travel corridor on VT Route 103 near the Mount Holly and Ludlow town line, and signs of bear crossing were observed. This area has been designated "Bear Production Habitat" by the State of Vermont and relatively remote and contiguous forest blocks are located north and south of VT Route 103 in this area. The Project survey area is likely limited in function to its role as part of a travel corridor in this area wherein bears are moving quickly between the forest blocks north and south of the roadway/study area, where more appropriate biologically-critical habitat exists.

4.0 Survey Results: Marine Cable Route

The April 2014 Rare, Threatened, and Endangered Species (RTE), Necessary Wildlife Habitat, and Natural Community Survey Program recommended no further RTE assessments for the marine cable route in Lake Champlain. Based on follow-up consultation with Mark Ferguson, VT FWD, surveys for state RTE mussel species were recommended and completed. The Lake Champlain survey effort was completed by HDR and detailed results were provided to VT FWD under a separate cover in

the report entitled New England Clean Power Link, Lake Champlain Freshwater Mussel Survey Report (August 2014). No live threatened or endangered mussel species were observed.

Based on the survey results, the VT FWD concurred in September 2014 that endangered or threatened mussel species are not likely to persist within the Project area. Therefore, VT ANR concluded that mussel relocation and monitoring for the Project as currently proposed will not be required.

A summary of aquatic RTE EOs within 0.25 mile of the centerline of the lake route, based on the April 2014 Rare, Threatened, and Endangered Species (RTE), Necessary Wildlife Habitat, and Natural Community Survey Program and conclusions are included in Tables A-4 and A-5 in Attachment A.

5.0 Impact Minimization and Avoidance

5.1 RTE Plants

Six state rare plant species occur within the Project area as currently proposed, occurring in a total of 20 distinct populations. They are located within the permanent cable easement and/or temporary construction ROW and could be impacted by earth disturbing activities associated with Project construction. The majority of populations of these six rare plant species occur within the exiting Vermont Department of Transportation ("VTrans") "Clear Zone" and are thus already subject to roadside mowing and maintenance independent of the Project (as described in detail in the following sections). Mitigation measures identified below are designed to avoid and minimize any additional potential impacts as a result of the Project.

The remaining observed RTE plant species in the study area will likely be avoided.

No state listed threatened or endangered plant species will be impacted by the Project; proposed utilization of HDD and route and workspace re-configurations will successfully avoid all known occurrences of protected, state listed plants.

As noted above in Section 3.2, there are no federally listed threatened or endangered plant species in the project area.

General RTE Plant Protection Measures

The following plant protection measures will be implemented for all RTE plant species located in the Project area:

- Prior to any site preparation activities and other preconstruction measures outlined below, a qualified botanist will re-delineate all rare plant populations within or adjacent to the final Project alignment and all construction work areas;
- All previously identified RTE plant populations will be clearly demarcated (utilizing high visibility fencing or other acceptable alternative) by a qualified botanist prior to site preparation or construction activities;
- Preconstruction training will be provided for work crews on identifying the RTE plant protection demarcation and to avoid all such areas during construction;
- If the proposed Project alignment is changed such that impacts to any state threatened or endangered plants would occur, then a Vermont Endangered & Threatened Species Takings Permit would be secured, and additional minimization and mitigation measures may be required and would occur per further coordination with VT ANR. Examples of possible additional minimization and mitigation measures for listed species include:
    - Using temporary construction matting to create a barrier between RTE plants and construction equipment (in place matting not to exceed 5 consecutive days, where feasible);
        - If matting must be left in place longer than 5 consecutive days during the growing season, then the population will be considered impacted and mitigation would be necessary according to the following provisions:
            - TDI-NE will provide for mitigation if 20 percent or more of any rare plant population is impacted;
            - Mitigation may take the form of transplantation of plants or rhizomes, seed collection, and/or planting;
    - Narrowing work zones to minimize the area or number of plants in an RTE population that may be impacted;

- Post-construction annual monitoring of impacted RTE plant populations for a period of 5 years following construction. Annual monitoring reports will be submitted to VT ANR by December 31 of each of the five years. Annual monitoring will include the following:
    - Inspect populations of RTE at each site and assess the health and vigor of the population;
    - Assess the area for evidence of accidental intrusion or unanticipated impacts;
    - Compare health and vigor of population to the previous year;
    - Obtain digital photographs of the site and population of RTE;
    - Monitoring reports shall describe these observations and include recommendations for adaptive management of the populations, if warranted, to be evaluated and/or implemented in consultation with VT ANR; and
    - If any Project induced population decline of more than 20 percent is observed during annual monitoring, TDI-NE would consult with VT ANR to determine an appropriate course of remedial action(s) and may include plant relocation, soil (seedbank) redistribution, or other such activities;
- Previously identified populations of RTE plants will be re-surveyed every 8 years for the life of the Project, and documentation of these efforts will be recoded using the Vermont Rare Plant Sighting Form, to be submitted to VT ANR before December 31 of the year of the population survey;
- Where construction activity occurs in the immediate vicinity of RTE plants, the area will be lightly mulched with certified weed free hay so as to facilitate recolonization of RTE plant populations and exclude colonization by NNIS; and
- Implement special construction and operation-phase vegetation management as outlined in the NECPL Vegetation Management Plan, including NNIS monitoring and control.

Species- and population-specific plant protection measures are identified in the following sections, for the six RTE plant species, occurring as 20 distinct populations, present within the current Project area and are likely to be impacted by the Project as currently proposed. Natural Resource Maps included in Attachment B depict their locations.

Short-stalked False Bindweed (*Calystegia silvatica ssp. fraterniflora*)

Short-stalked false bindweed is a perennial vine identified in four locations along the Project route. It is state-ranked S2 ("rare") and is not listed as a state threatened or endangered species. It grows in meadows and fields, especially in previously disturbed areas. Two Project areas where the plant is documented will be avoided, but two areas will likely be impacted by the Project.

- Polygon 2014-RTE-CS-2, located at MP 112.3, is a small population (1 genet, 10 ramets) on the roadside, north of the US Route 4 westbound lane. The population grows in the actively-mowed VTrans Clear Zone and is visibly stressed.
- Polygon 2014-RTE-CS-5, located at MP 122.7, is a medium population (over 100 plants) on the roadside, southwest of the US Route 4 eastbound lane. The population is in the actively-mowed VTrans Clear Zone, on the outer perimeter of a potential Mesic Red Oak-Northern Hardwood Forest natural community.

The following protection measures will be implemented for Short-stalked False Bindweed:

- Transplanting of the entire population that occurs beyond the VTrans mowed area that was observed to be visibly stressed during field surveys. Transplanted plants will be replanted in a nearby location of suitable habitat, subject to input from VT ANR;
- Segregate topsoil and place adjacent to the work areas. Clearly mark the segregated topsoil with signage. This will contain the plant's rhizomes for future re-propagation of the population following construction and restoration;
- Post construction, replace topsoil and restore the work area in the population area; and
- Stabilize soil with straw mulch (only); seed with annual mix (e.g. annual rye).

Shore Sedge (*Carex lenticularis*)

Shore sedge is a perennial sedge identified in a single location along the Project route. It is state-ranked S2S3 ("rare/uncommon") and is not listed as a state threatened or endangered species. It is found in alpine and subalpine zones as well as the shores of rivers and lakes, and wetland fringes (obligate wetland status). Polygon 2014-RTE-CL-1, located at MP 140.8, consists of a population of approximately four plants in a roadside ditch wetland north of VT Route 103 and will likely be impacted by the Project route.

The following protection measures will be implemented for Shore sedge:

- Transplant the several plants in this small population to an area outside of the Project impact area in a permanently-saturated area or temporarily store in an irrigated area for re-planting following construction completion;
- Segregate topsoil and place adjacent to the work areas. Clearly mark the segregated topsoil with signage and replace following construction; and
- If attempting to re-plant the RTE plants in Project impact area, ensure that pre-existing hydrology is maintained
    - Field indication of suitably maintained hydrology may include saturated soil and similar pre-Project microtopography at the specific planting location
    - If hydrology does not appear to have been maintained at the replanting site, then an alternative planting site will be selected that exhibits similar habitat (cover, soil, hydrology) to the pre-Project growing conditions.

Long-leaved Bluets (*Houstonia longifolia*)

Long-leaved bluets is a perennial wildflower that was identified in multiple locations along VT Route 22A and Route 4 within the Project study area. It is state-ranked S2 ("rare") and it is not listed as a state threatened or endangered species. It grows in rocky or gravelly soil in full to partial sun, including man- made and disturbed areas, rocky upland woodlands, meadows and fields, and ledges.

Eight populations were identified, five of which will be avoided by the Project. Three population areas, designated as Polygons 2014-RTE-HL-1, 2014-RTE-HL-3, and 2014-RTE-HL-4 will likely be impacted on and adjacent to an outcrop adjacent to VT Route 22A at MP 108.5 and 108.6. The overall metapopulation that will be impacted includes greater than 200 plants, although not all are located in the Project area.

The following protection measures will be implemented for long-leaved bluets:

- Transplant plants to other suitable habitat in the VTrans corridor outside of Project disturbance areas (e.g., immediately east of the Project temporary construction area in the rocky wood line) prior to construction; and
- If transplantation is not feasible (e.g., for plants growing directly in ledge), collect seeds during the end of the growing season prior to construction and store in a cool, dry location

for re-seeding following construction. Spread seeds in rocky or gravelly areas in the temporary construction area following construction and restoration of the Project.

Smaller Forget-me-not (*Myosotis laxa*)

Smaller forget-me-not is an annual/biennial (sometimes short-lived perennial) herb identified in fifteen locations along the Project route. It is state-ranked S2 ("rare") and is not listed as a state threatened or endangered species. It grows in marshes, shores of rivers and streams and wetland fringes (obligate wetland status).

Nine areas where the plant is documented will be avoided, but six populations will be impacted. Polygon 2014-RTE-ML-3, located at MP 140.0, is a mid-sized population (500 to 1,000 plants) on VT Route 103 on the corner of Packer Road. The population grows in a roadside jurisdictional ditch. Polygon 2014-RTE-ML-4, located at MP 140.5, is a small population of approximately 30 plants north of VT Route 103. The population grows in a non-jurisdictional roadside ditch within a maintained ROW. Polygon 2014-RTE-ML-7, located at MP 140.6 is comprised of approximately 100 to 200 plants, north of VT Route 103. Part of the population occurs in a ditch within the roadside ROW, and part occurs in a mowed residential lawn. Polygon 2014-RTE-ML-9, located at MP 142.8, is comprised of approximately 150 plants, north of VT Route 103. The population grows in roadside wetland ditch in a disturbed area. Polygon 2014-RTE-ML-12, located at MP 146.5, is a small population comprised of approximately 30 plants south of VT Route 103. The population grows in a roadside ditch at the confluence with a small stream. Finally, polygon 2014-RTE-ML-13, located at MP 146.7, is a small population comprised of approximately 45 plants south of VT Route 103. The population grows in a roadside ditch along a culverted intermittent stream.

The populations of smaller forget-me-not that will likely be impacted by the Project as currently proposed are primarily concentrated within the actively mowed and maintained VTrans Clear Zone along VT Route 103.

The following protection measures will be implemented for smaller forget-me-not:

- Complete construction and restoration work in the population areas during the dormancy period if practical. Alternatively, if work cannot be completed during the dormancy period,

collect seeds during the end of the growing season prior to construction and store in a cool, dry location for re-seeding following construction; and

- Segregate topsoil and place adjacent to the work areas. Clearly mark the segregated topsoil with signage. This will contain the plant's seed bank for future re-propagation of the population following construction and restoration; and
- Post-construction, replace topsoil and restore the work area in the population area. If seeds were collected, utilize for re-seeding within the restored population area.

Smooth Blue Aster (*Symphyotrichum laeve var. leave*)

Smooth blue aster is a perennial herb identified in thirteen locations along the Project route. It is state-ranked S2S3 ("rare/uncommon") and is not listed as a state threatened or endangered species. It grows in meadows, fields and woodlands and can be found in previously disturbed areas.

Seven of thirteen areas where the plant is documented will be avoided. The following six populations will likely be impacted.

- Polygon 2014-RTE-SL-4, located at MP 107.5, is comprised of a single plant of smooth blue aster. It is located on the west side of VT Route 22A at the top of a dry outcrop near the roadway.
- Polygons 2014-RTE-SL-8, 2014-RTE-SL-9, 2014-SL-10, and 2014-SL-11 represent small populations with an unknown number of plants on an outcrop east of VT Route 22A between MP 108.4 and 108.7 (also with the Long-leaved bluets populations that will be impacted as previously described).
- Finally, polygon 2014- SL-12 is a population comprised of more than 100 plants located on a rocky side slope and adjacent to VT Route 22A at MP 109.8.

The following protection measures are recommended to be implemented for smooth blue aster:

- Transplant plants to other suitable habitat in the VTrans corridor outside of Project disturbance areas prior to construction; and
- If transplantation is not feasible (e.g., for plants growing directly in ledge), collect seeds during the end of the growing season prior to construction and store in a cool, dry location for re-seeding following construction. Spread seeds in rocky or gravelly areas in the temporary construction area following construction and restoration of the Project.

False Pennyroyal (*Trichostema brachiatum*)

False pennyroyal is an annual herb identified in eight locations along the Project route. It is state-ranked S1 ("very rare") and is not listed as a state threatened or endangered species. It grows in dry meadows and fields, ridges or ledges, shores of rivers or lakes and woodlands. It is a calciphile, and, based on survey results, is apparently tolerant of dry, gravelly soil at the immediate edge of road pavement and tolerates impacts from winter road salt application.

Six areas where the plant is documented will be avoided, but the following two areas will be impacted. Polygon 2014-RTE-TB-6, located at MP 123.9, is a very small isolated population (few plants) just west of a much larger population on the south side of the US Route 4 eastbound lane. Polygon 2014-RTE-TB-7 is a large population located at MP 124.5 comprised of thousands of plants. It is on the south side of the US Route 4 eastbound lane and occurs off the road shoulder. This is the largest population of this species in the state.

The following protection measures are recommended to be implemented for false pennyroyal:

- In the year preceding construction, seeds will be collected from both populations that are proposed to be impacted by the Project. Seeds will be sent to the VT ANR botanist or will be planted according to VT ANR instruction outside of the Project impact area in a suitable habitat;
- Complete construction and restoration work in the population area during the dormancy period, if practical, or during the early or later periods of the normal growing season. Alternatively, if work cannot be completed during the dormancy period or during the beginning or end of the growing season, collect seeds during the growing season prior to construction and store in a cool, dry location for re-seeding following construction;
- Segregate topsoil and place adjacent to the work areas. Clearly mark the segregated topsoil with signage. This will contain the plant's seed bank for future re-propagation of the population following construction and restoration;
- Complete construction, replace topsoil and restore the work area in the population area; and
- Leave soil bare or, if required by Erosion Prevention and Sediment Control ("EPSC") Plan, temporarily stabilize with fine limestone chips or gravel and a light layer of mulch, and seed

with annual mix (e.g., annual rye). If seeds were collected, utilize for re-seeding within the restored population area.

5.2 RTE Animals

The following impact avoidance measures are proposed for construction in the vicinity of known RTE animal occurrences. These protocols have been developed in coordination with and following pre-filed testimony ("PFT") provided by VT FWD (Doug Blodgett, Scott Darling) for the Project (VT Public Service Board Docket 8400). Prior to site preparation or construction within certain habitats, the Project will obtain a Vermont Endangered & Threatened Species Takings Permit, if required, to address the possible need for capture and handling of protected species (eastern ratsnake, timber rattlesnake). For on-site construction monitoring for RTE snakes and turtles, a qualified individual will be designated as the Project's Herpetologist, subject to review and approval of qualifications by VT FWD. The Herpetologist will be the primary contact for communication and reporting with TDI and VT FWD and will be responsible for training staff biologists and construction crews as necessary. The Herpetologist will be someone who has professional experience with the identification, biology, and handling of target species, in particular with safety and handling of venomous snakes for the safety of the animal, themselves, and work crews. In addition to the designated Herpetologist for construction monitoring, any other trained biologists or crew members that may conduct work that could include capture or handling of protected species under direction of the Herpetologist will be identified on the takings permit as sub-permittees as necessary.

Wood Turtle (*Glyptemys insculpta*, S3, Special Concern)

The following protective measures will be implemented for areas of concern for wood turtle, generally defined as areas within approximately 1,000 feet of rivers and streams and any associated adjacent wetland complexes within the Project corridor which contain suitable and preferred habitats for this species. In those Project areas where there is no suitable habitat despite being within 1,000 feet of a river containing potentially suitable habitat, no monitoring is proposed. An example of one such area is MP 119.6 through 121.9, where the Castleton River is within 1,000 of the Project, however it is on the south side of US-Route 4, and potential wood turtle habitat would not exist due to the US Route 4 roadway, fill, and associated infrastructure as well as the presence of large slate bedrock outcroppings in the Project area. Through communication with VT FWD (Doug Blodgett), the rivers with potential wood

turtle habitat that will require this specific construction monitoring were identified, and are included in Table 1 below.

Table 1. Wood Turtle Construction Monitoring				
Waterbody Name	**Mile Post (MP) Segment**	**Dominant Bed-Bank Substrate**	**Road(s) within MP Segment**	**Town**
Hubbardton River	104.2 – 105.0	Gravel, sand, silt	VT-22A	Benson
Mud Brook	109.8 – 110.1, 110.2 – 110.5	Silt	VT-22A	Fair Haven
Castleton River	121.5 - 121.6, 121.7 – 121.9	Gravel, sand	US-4	Castleton
Clarendon River	123.5 – 123.6	Gravel, sand	US-4	West Rutland
Otter Creek	126.2 – 126.4, 126.5 – 126.6, 126.8 - 127	Silt	US-4	Rutland Town
Branch Brook	144.9 – 145.2	Sand, silt	VT-103	Mount Holly

These waters within proximity to the Project are of moderate gradient, slow to moderate flow velocity, and contain a predominance of sand, silt, and/or organic substrate in their bed and banks. In some instances, Project construction within portions of the MP ranges indicated above would be performed through HDD, as opposed to OTE, thus not presenting a risk to wood turtles. The monitoring within these MP ranges would only be required to occur outside of the designated HDD segments. The specific protocols to be followed will be as follows:

- On site monitoring activities will occur throughout the day: in the morning as construction activities begin and then periodically during daily operations until construction is complete for the day
    - Monitoring for wood turtles will be conducted by the Herpetologist and/or trained personnel on site during construction;
- Open trenches without temporary covering (e.g., steel plates) will be visually inspected for entrapped wood turtles;
- The entire construction area adjacent to the trench-line where equipment traverse will occur will also be monitored;
- Entrapped animals shall be removed from the work zone by the Herpetologist or trained personnel;
- Turtles observed to be in imminent, likely, or potential threat of disturbance or mortality by

construction activities will be captured and relocated to a safe location within reasonable distance[3]; and

- Each time a wood turtle is encountered during monitoring activities, data will be recorded using project-specific field forms or a standardized field journal. Field data will be submitted to VT FWD via electronic mail at least on a weekly basis throughout the duration of Project construction. Data collection shall include at least the following:
    - Confirmation of species identification
    - Date, time, mile post of Project and brief qualitative description (i.e. within trench, adjacent to trench within construction area, on the edge of the construction area)
    - Photographic documentation (if possible)
    - Any signs of visible stress or physical disturbance to the animal
    - Description of handling methods and relocation of the animal
    - Duration of the encounter from detection through final relocation and/or release as necessary

Musk Turtle (*Sternotherus odoratus*, S2, Special Concern)

The following protective measures will be implemented for areas of concern for the eastern musk turtle. Areas of concern are those open trench construction work areas between approximately MP 103 and MP 110 in the towns of Benson, West Haven, and Fair Haven, and which are also being monitored for target snake species described below. The specific protocols to be followed will be as follows:

- On site monitoring activities will occur throughout the day: in the morning as construction activities begin and then periodically during daily operations until construction is complete for the day
    - Monitoring for musk turtles will be conducted by the Herpetologist and/or trained personnel on site during construction;
- Open trenches without temporary covering (e.g., steel plates) will be visually inspected for entrapped wood turtles;

[3] Safe location within reasonable distance will be determined by the professional judgement of the trained herpetologist and is intended to be a release site with suitable cover/shelter and at enough distance from the Project that the animal will not likely wander back into harm's way in the interim before the next routine monitoring activities. VT FWD suggested a rule of thumb distance of 50 yards, however this may vary depending on an individual site or encounter.

- The entire construction area adjacent to the trench-line where equipment traverse will occur will also be monitored;
- Entrapped animals shall be removed from the work zone by a Herpetologist or trained personnel;
- Turtles observed to be in imminent, likely, or potential threat of disturbance or mortality by construction activities will be captured and relocated to a safe location within reasonable distance[4]; and
- Each time a musk turtle is encountered during monitoring activities, data will be recorded using project-specific field forms or a standardized field journal. Field data will be submitted to VT FWD via electronic mail at least on a weekly basis throughout the duration of Project construction. Data collection shall include at least the following:
    - Confirmation of species identification
    - Date, time, mile post of Project and brief qualitative description (i.e. within trench, adjacent to trench within construction area, on the edge of the construction area)
    - Photographic documentation (if possible)
    - Any signs of visible stress or physical disturbance to the animal
    - Description of handling methods and relocation of the animal
    - Duration of the encounter from detection through final relocation and/or release as necessary.

Eastern Ribbonsnake (*Thamnopis sauritus*, S2, Special Concern), Eastern Ratsnake (*Pantherophis alleghaniensis*, S2, State Threatened)

The following protective measures will be implemented for areas of concern for both the eastern ribbonsnake and the eastern ratsnake. Areas of concern are construction work areas within the OTE overland route segments defined in Table 2 below. These areas have been selected because they are within proximity to an EO of current record and were observed to have potential habitat for the RTE snake species. Additionally for the eastern ribbonsnake, VT FWD suggested to include monitoring within approximately 150 feet of all wetlands within the towns of current EO record, which have been included in this plan as indicated in Table 2.

[4] See Footnote 3

Table 2. Eastern Ratsnake and Eastern Ribbonsnake Construction Monitoring			
Species	**Mile Post (MP) Segment**	**Road(s) within MP Segment**	**Town(s)**
Eastern Ratsnake	97.7 – 100.8	Stony Point Road, North Lake Road, Old North Lake Road	Benson
	101.7 – 102.1	Hulett Hill Road, VT-22A	Benson
	103.6 – 109.6	VT-22A	Benson, West Haven, Fair Haven
	112.5 – 113.4	US-4	Castleton
Eastern Ribbonsnake	97.7 – 100.8	Stony Point Road, North Lake Road, Old North Lake Road	Benson
	101.7 – 102.1	Hulett Hill Road, VT-22A	Benson
	132.3 – 134.3, 134.6 – 136.6	VT-103	
	Multiple; within approx. 150 feet of any wetland along the Project		Benson, West Haven, Fair Haven, Castleton

The specific protocols to be followed will be as follows:

- On site monitoring activities will occur throughout the day: in the morning as construction activities begin and then periodically during daily operations until construction is complete for the day
    - Monitoring for ratsnakes and ribbonsnakes will be conducted by the Herpetologist and/or trained personnel on site during construction;
- Open trenches without temporary covering (e.g., steel plates) will be visually inspected for entrapped target snake species;
- The entire construction area adjacent to the trench-line where equipment traverse will occur will also be monitored;
- Entrapped animals shall be removed from the work zone by the Herpetologist or trained personnel;
    - In the case of necessary capture of a ratsnake (state threatened), handling will be conducted only by the Herpetologist and/or other sub-permittees identified on the Vermont Endangered & Threatened Species Takings Permit, if required;

- Snakes observed to be in imminent, likely, or potential threat of disturbance or mortality by construction activities will be captured and relocated to a safe location within reasonable distance[5]; and
- Each time a target snake species is encountered during monitoring activities, data will be recorded using project-specific field forms or a standardized field journal. Field data will be submitted to VT FWD via electronic mail at least on a weekly basis throughout the duration of Project construction. Data collection shall include at least the following:
    - Confirmation of species identification
    - Date, time, mile post of Project and brief qualitative description (i.e. within trench, adjacent to trench within construction area, on the edge of the construction area)
    - Photographic documentation (if possible)
    - Any signs of visible stress or physical disturbance to the animal
    - Description of handling methods and relocation of the animal
    - Duration of the encounter from detection through final relocation and/or release as necessary
    - The Herpetologist or trained personnel as described above will observe erosion control matting used in monitoring areas to confirm that it is free of plastic mesh or similar backing which pose hazards to snakes, and shall instead be constructed of loosely-woven, natural fibers, or bonded fiber matrix (EPSC Project plans contain Project specifications for erosion control matting).

Timber Rattlesnake (*Crotalus horridus*, S1, State Endangered)

The following protective measures will be implemented for areas of concern for the state endangered timber rattlesnake. Areas of concern for this species are construction work areas within the overland route segments between approximately MP 103 and MP 110 in the towns of Benson, West Haven, and Fair Haven. The specific protocols to be followed will be as follows:

- On-site monitoring activities will occur throughout the course of construction activities when open trenching activities are occurring within the target MP segment and will be conducted by the Herpetologist;

[5]See Footnote 3

- Open trenches without temporary covering (e.g., steel plates) as well as adjacent areas within the path of construction equipment will be monitored;
- Entrapped animals in the trench shall be removed from the work zone by the Herpetologist who has experience in venomous snake capture and handling;
- Snakes observed outside of the trench but in imminent, likely, or potential threat of disturbance or mortality by construction activities will be captured and relocated to a safe location within reasonable distance[6];
- Special protocol for all encounters with timber rattlesnakes during construction monitoring:
    - If a timber rattlesnake is encountered, VT FWD shall be notified immediately;
    - If a timber rattlesnake is captured, it shall be temporarily held by the Herpetologist, and VT FWD will be consulted prior to relocation and release to discuss an appropriate location;
- If a timber rattlesnake is encountered during monitoring activities, data will be recorded using project-specific field forms or a standardized field journal. Field data will be submitted to VT FWD via electronic mail at least on a weekly basis throughout the duration of Project construction. This data will be provided in addition to the immediate VT FWD notification protocol described above. Data collection shall include at least the following:
    - Confirmation of species identification
    - Date, time, mile post of Project and brief qualitative description (i.e. within trench, adjacent to trench within construction area, on the edge of the construction area)
    - Photographic documentation (if possible)
    - Any signs of visible stress or physical disturbance to the animal
    - Description of handling methods and relocation of the animal
    - Duration of the encounter from detection through final relocation and/or release as necessary; and
- The Herpetologist or trained personnel as described above will observe erosion control matting used in monitoring areas to confirm that it is free of plastic mesh or similar backing which pose hazards to snakes, and shall instead be constructed of loosely-woven, natural fibers, or bonded fiber matrix (EPSC Project plans contain Project specifications for erosion control matting).

[6] See Footnote 3

Indiana Bat (S1, State Endangered, Federally Endangered)

The following protective measures will be implemented for Indiana bat:

- Prior to any site preparation or construction activities, all potential roosting trees identified during biological surveys (116 trees) will be demarcated in the field with high visibility flagging;
- As part of environmental training during construction orientation, work crews will be advised of the flagging color that was used for potential roost trees and that such trees are not to be cut during construction activities;
- All potential Indiana bat roosting trees will be avoided by construction and operation of the Project as currently proposed;
- If design changes result in impacts or removal of any identified potential roosting trees, bat exit surveys of the impacted trees will be conducted in accordance with the following criteria:
    - Surveys will be conducted during the months of June and July in order to determine the presence of, or absence of use by, roosting Indiana bats;
    - For each potential roost tree proposed to be impacted, a total of five detector nights of acoustic survey will be completed, with the detector aimed at the tree proposed for removal or impact;
    - At least one detector cone will be placed such that it covers the target tree bole from 10 feet above the ground up to full canopy height, which typically would require that the detector be placed between approximately 50 to 60 feet from the base of the tree with the microphone pointed at the correct angle;
    - At least four of the detector nights will have conditions above 50 degrees Fahrenheit, winds less than 9 miles per hour, and no sustained rainfall;
    - Acoustic survey results will be presented to the VT FWD upon completion of each tree's surveys, and consultation from VT FWD will precede any tree cutting;
    - Any potential roost tree that is found to exhibit the following conditions will be considered to have no protected bats present:
        - No cat calls recorded; or
        - No *Myotis spp*. bat calls recorded during the dusk period (up to 2 hours after sunset) or dawn period (Within 2 hours prior to sunrise);

- The presence of roosting bats will be presumed for every tree for which *Myotis spp*. bat calls have been recorded during dawn or dusk periods. In order to overcome this presumption, TDI-NE will conduct emergence surveys consisting of 3 consecutive nights of emergence surveys to establish the absence of roosting bats. The bat emergence surveys, if required, would include the following:
    - Specific methodology outlined in the USFWS 2015 Range-wide Indiana Bat Summer Survey Guidelines, Appendix E Phase 4 Emergence Surveys – Emergence Surveys for Potential Roost Trees;
    - Emergence surveys to be conducted by at least one person, and will commenced at least one-half hour before sunset and not end earlier than one hour after sunset;
    - Data will be recorded using the USFWS Bat Emergence Survey Dataset provided in the USFWS Guidelines appendix;
- All survey work and acoustic data analysis will be conducted by individuals trained in bat monitoring and acoustic identification and subject to approval by VT FWD. TDI-NE will provide VT FWD with the identification and qualifications of proposed surveyors at least 30 days prior to the survey window. Approval of proposed individuals who possess the appropriate qualifications shall not be unreasonable withheld;

- Any potential roost tree for which surveys indicate no bat use may be removed by TDI-NE at any time of year as long as the tree does not exceed 16 inches diameter at breast height ("DBH"). For any tree greater than 16 inches DBH for which survey data indicates no bat use, TDI-NE may only cut the tree within 10 days of the last emergence count or acoustic survey night, or during the winter season between October 1 and March 31; and
- No cutting of roost trees found to contain Indiana bats will occur unless VT FWD reviews the exit survey data and determines that the tree may be cut during the winter season between October 1 and March 31.

5.3 Natural Communities

None of the significant natural community E0s identified within 0.25 mile of the Project are present within the areas proposed for construction disturbance. The field surveys identified four new

potentially-significant natural communities (each of which would require an off-ROW investigation to confirm) and five likely significant communities. All are forest communities located adjacent to roadside ROWs.

Eight areas will incur minimal permanent impacts to their periphery, where they abut roadside ROWs. Impacts can be distinguished between permanent and temporary tree clearing. The Project as currently proposed will require approximately 5.51 acres of tree removal in these areas. Of this, 4.73 acres will be allowed to regenerate to pre-construction conditions following construction of the Project when temporary workspaces are no longer required and after all EPSC restoration measures have been completed. The 4.73 acres that would be allowed to regenerate naturally is defined as 4.72 acres in collateral environmental permit language (USACE), however is reported here as 4.73 acres due to rounding to report acreage measurements to three significant figures.

Only 0.79 acre within potential or likely significant natural communities will be permanently converted from a forested state to herbaceous and low-growing scrub-shrub cover (coinciding with the 12 foot wide permanent cable easement), which will be managed in accordance with the Project Vegetation Management Plan (VHB, 2015). The cutting includes areas located adjacent to the US Route 4 Clear Zone along the edges of much larger forested blocks, thereby creating a negligible effect on the area or overall quality of the subject communities. Tree removal requirements for the Project as currently proposed are summarized in Table 3. Post construction NNIS monitoring and management will be implemented in accordance with the Project Vegetation Management Plan. No undue adverse impacts to the communities will occur from this limited tree removal along an existing highway corridor.

If significant changes to the Project design result in changes to the necessary tree clearing for Project construction, then coordination with the VT FWD will be completed in order to discuss any additional avoidance or minimization protocols.

Table 3: Potential Significant Natural Communities and Approximate Tree Removal Impacts						
MP	**Site Name**	**Natural Community**	**State Rank**	**Rank Comment**	**Temporary Tree Removal (Acres)**	**Permanent Tree Removal (Acres)**
112.0	Green Dump Hills	Dry Oak-Hickory-Hophornbeam Forest	S3	May be significant natural community, would require further study off-ROW to confirm.	None	None
114.5	Pine Pond West	Temperate Hemlock-Hardwood Forest	S4	May be significant natural community, would require further study off-ROW to confirm.	0.99	0.32
115.0	Pine Pond East	Temperate Hemlock Forest	S4	May be significant natural community, would require further study off-ROW to confirm.	0.32	0.01
117.0	Blueberry Hill	Mesic Maple-Ash-Hickory-Oak Forest	S3	Likely significant natural community	0.73	0.09
119.3	Mount Hanley West	Mesic Maple-Ash-Hickory-Oak Forest	S3	Likely significant natural community	0.04	0.02
120.4	Mount Hanley East	Mesic Maple-Ash-Hickory-Oak Forest	S3	Likely significant natural community	0.8	0.13
121.3	Twin Mountain	Mesic Maple-Ash-Hickory-Oak Forest	S3	Likely significant natural community	0.57	0.01
122.6	Herrick Mountain NE	Mesic Red Oak-Northern Hardwood Forest	S4	May be significant natural community, would require further study off-ROW to confirm.	1.28	0.21
135.1	Mill River, Railroad	Sugar Maple-Ostrich Fern Riverine Floodplain Forest	S1	Likely significant natural community	None	None

5.4 Necessary Wildlife Habitat

As currently proposed, the Project will avoid tree removal in all potential DWA with the exception of one limited area immediately adjacent to VT Route 103 from approximate MP 140.7 to 140.9. In this area, a narrow (between approximately 10 to 30 feet wide) swath of trees adjacent to VT Route 103 will be removed for construction and operation of the Project. This will include approximately 0.3 acre of temporary tree removal and 0.3 acre of permanent tree removal. No adverse impacts to this potential DWA will occur from this limited tree removal along an existing highway corridor.

If, during refinement of the Project design, it is determined that additional tree removal will be required in potential DWA, further consultation with the VT FWD will be conducted to determine any necessary additional avoidance and minimization strategies.

Regarding necessary wildlife habitat for black bear, a potential bear travel corridor within mapped "Bear Production Habitat" along VT Route 103 near the Mount Holly and Ludlow town border will be traversed by the Project. Limited tree removal may be required along the VT Route 103 corridor in this area to install the cable within the VTrans ROW. This limited tree removal will not affect critical Bear Production Habitat since the habitat in the Project area is fragmented and disturbed due to traffic and human activities. Additionally, the temporary construction activities will not significantly impede movement of Black Bear during construction (especially relative to pre-existing traffic in the area) nor will the Project have a permanent effect on the travel corridor.

6.0 Summary and Regulatory Context

This Summary Report and the enclosed attachments describe state and federal RTE species, natural communities and necessary wildlife habitat within the study area of the proposed NECPL Project. Additionally, it details the Project avoidance and minimization measures that will be implemented to avoid undue Project-related adverse impacts to the RTE species, natural communities and necessary wildlife habitat.

If Project design changes subsequent to the preparation of this report have the potential to adversely affect RTE species, natural communities or necessary wildlife habitat, follow-up consultation with VT ANR and/or USFWS will be conducted.

6.1 Conclusion Regarding Section 248(b) Criteria

This Summary Report addresses the potential effect on RTE species, significant natural communities or RINA, and necessary wildlife habitat in accordance with Section 248(b)(5) of Title 30, Vermont Statutes Annotated (V.S.A.), which provides that a generation or transmission facility should not have an undue adverse effect on the natural environment with due consideration having been given to the environmental criteria specified in 10V.S.A. § 6086(a)(1)(8) and 10 V.S.A. § 6086(a)(1)(8)(A).

Specifically, criterion 8(A) of Act 250 provides that a Certificate of Public Good will not be granted if it is demonstrated by a party opposing a project that the project will "destroy or significantly imperil necessary wildlife habitat or any endangered species." The Act 250 criterion for wildlife habitat defines "necessary wildlife habitat" as "concentrated habitat which is identifiable and is demonstrated as being decisive to the survival of a species of wildlife at any period in its life, including breeding and migratory periods" (10 V.S.A. Section 6001(12)). Additionally, Act 250 Criterion 8 provides that before granting a Certificate of Public Good, the Public Service Board must determine that the project will not have an undue adverse effect on "rare or irreplaceable" natural areas ("RINA"), among other resources.

This Report details the avoidance and minimization measures to avoid undue Project-related adverse impacts to the RTE species, significant natural communities or RINA, and necessary wildlife habitat. With implementation of the avoidance and minimization measures included herein, we conclude the Project will not have an undue, adverse effect upon necessary wildlife habitat, RINA, nor will it destroy or significantly imperil rare, threatened, or endangered species.

6.2 Federal Endangered Species Consultation

With implementation of the Indiana bat and northern long-eared bat habitat avoidance measures described in Section 5.2, no federally threatened or endangered animal species will be adversely affected by the Project.

Based on survey results described in this report, no federally threatened or endangered plants are present in the study area. No federally listed plants will be affected by the Project.

6.3 State Endangered Species Consultation

With implementation of the RTE Animal monitoring and protection measures described in Section 5.2, no state threatened or endangered animal species will be adversely affected by the Project.

Based on survey results described in this report and Project design as currently proposed, no state threatened or endangered plants will be impacted. Six threatened and three endangered plant species were identified in the study area; all have been avoided with the proposed implementation of HDD construction, or route and workspace reconfiguration.

7.0 References

Champlain, VT, LLC d/b/a TDI New England. Vegetation Management Plan - New England Clean Power Link. Prepared by VHB, revised July 27, 2015.