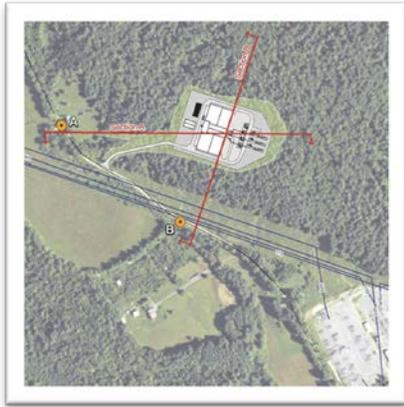


# New England Clean Power Link



## Aesthetic and Orderly Development Analysis Report

December 4, 2014

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## I. Introduction

T. J. Boyle Associates, LLC (“TJBA”), a landscape architecture and planning firm located in Burlington, Vermont, was retained by Champlain VT, LLC, d/b/a TDI New England (“TDI-NE”) to conduct an aesthetic analysis to evaluate potential impacts due to the proposed New England Clean Power Link project (“NECPL” or the “Project”) and to evaluate whether the Project will unduly interfere with orderly growth in the region. NECPL is a proposed high voltage direct current (“HVDC”) electric transmission line that will run from the Canadian border at Alburgh, Vermont to Ludlow, Vermont along underwater and underground routes. The aesthetic analysis determines whether changes to the landscape’s visual character attributable to the proposed Project will be adverse, and if so, whether they will also be undue. This report presents the findings and conclusions of the aesthetic and orderly development analysis.

T. J. Boyle Associates has conducted field investigation, analyzed geographic information system (“GIS”) data, USGS maps, aerial photography, and detailed design plans, and used the latest computer technologies to best understand the Project and how planned improvements will alter the visual character of the landscapes for which they are proposed.

## II. Project Description

The NECPL 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” 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 97 miles in length, will be buried to a target depth of 3-4 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”).<sup>1</sup> The cables will be installed within a railroad ROW for approximately 3.5 miles in the town 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.

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<sup>1</sup> 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.

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 miles to the south that is owned and operated by the Vermont Electric Power Company (“VELCO”).

### **III. Aesthetic Analysis**

#### **A. Methodology**

Section 248(b)(5) of Title 30 of the Vermont Statutes Annotated requires that the Vermont Public Service Board find a proposed project will not have an “undue adverse effect” on a proposed project site’s aesthetics. This requirement is outlined in the Quechee Lakes Decision (Quechee Lakes Corporation, #3EW0411-EB and #30349-EB [1986]).

The Vermont Public Service Board applies the Quechee Analysis in Section 248 proceedings according to the following:

In order to reach a determination as to whether the project will have undue adverse effect on the aesthetics of the area, the Board employs the two-part test first outlined by the Vermont Environmental Board in Quechee, and further defined in numerous other decisions.

Pursuant to this procedure, first a determination must be made as to whether a project will have an adverse impact on aesthetics and the scenic and natural beauty. In order to find that it will have an adverse impact, a project must be out of character with its surroundings. Specific factors used in making this evaluation include the nature of the project’s surroundings, the compatibility of the project’s design with those surroundings, the suitability of the project’s colors and materials with the immediate environment, the visibility of the project, and the impact of the project on open space.

The next step in the two part test, once a conclusion as to the adverse effect of the project has been reached, is to determine whether the adverse effect of the project is “undue.” The adverse effect is considered undue when a positive finding is reached regarding any one of the following factors:

1. Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?
2. Have the applicants failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the project with its surroundings?
3. Does the project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area?

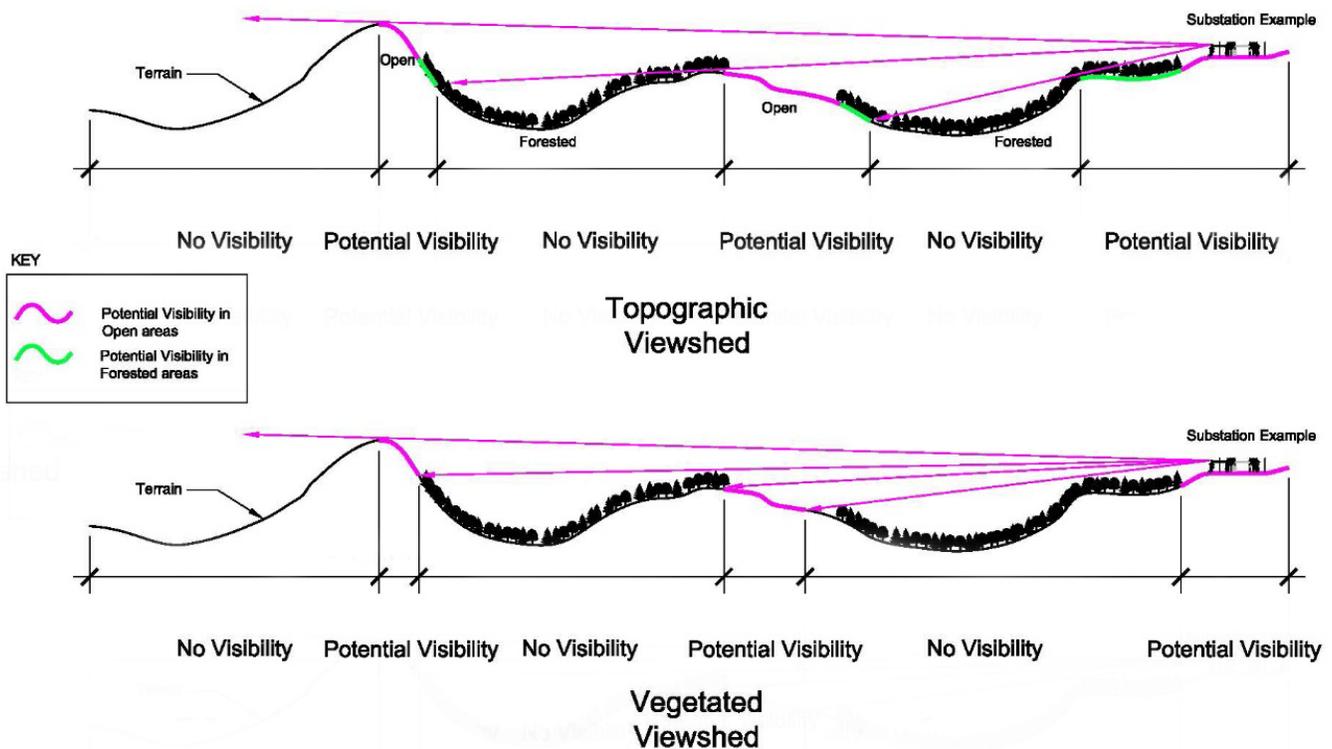
Our analysis, however, does not end with the results of the Quechee test. Instead, our assessment of whether a particular project will have an “undue” adverse effect on aesthetics and scenic or natural beauty is “significantly informed by overall societal benefits of the project.”

*Petitions of the Vermont Electric Power Company, Inc. (VELCO), Vermont Transco, Docket No. 6860, Vt. Pub. Serv. Bd. (Jan. 28, 2005) at 79 (footnotes omitted).*

In conducting the Quechee Analysis and preparing this report, the following three methods have been used: (1) background data collection, (2) GIS viewshed analysis mapping (for the converter station), and (3) field investigation. The background data and field investigation are used to characterize the study area. The GIS viewshed mapping and field investigation are used to identify areas with potential visibility of the Project. All three methods are used to evaluate whether there are in fact “adverse” impacts, and, if so, whether those impacts could be considered “undue.”

- (1) **Background Data Collection.** Standard data that can help describe the landscape of the Project site, the surrounding area, and the Project are assembled. These data include available Project plans and details, aerial photography, topographical maps, Geographical Information System (“GIS”) data including digital elevation model data, water and land cover information, transportation data and primary building data (public, commercial, residential), and applicable regulations such as the town plan, zoning ordinances, sub-division regulations, and the regional plan.
  
- (2) **GIS Viewshed Analysis.** Following the background data collection, ESRI ArcView software is used to calculate a GIS viewshed analysis of potential visibility of the Project. Viewshed analysis mapping can identify areas that may have potential views of a project by utilizing a line of sight method from a prescribed point (such as the top of solar equipment), or points, representing the Project to all other locations within a designated study area. Figure 1 illustrates how line of sight is determined in the viewshed analysis. The analysis results (portrayed as two viewshed maps), and background data review form the basis for organizing the field investigation.
  - a. First, a “Terrain Viewshed” map (see Section C. Evaluation of Impacts: Converter Station) is created to evaluate how the land form may block views of Project upgrades. The map differentiates potential viewing areas as “open” areas without forest cover or areas within forest cover. However, this analysis only accounts for intervening landform and does not incorporate how vegetation, buildings, hedgerows, street trees or any other vegetation or buildings will screen visibility of the Project. This map represents the maximum potential area from which the Project could be visible.
  
  - b. Next, a second map (see Section C. Evaluation of Impacts: Converter Station) is created to represent a “Vegetated Viewshed.” This map shows how forest trees, in addition to landform, may block views of the Project. Two data sources were used to represent forested areas. The first data used to identify forested areas is based on the 2012 National Land Cover Database (NLCD) and is used to represent the majority of forested areas within the viewshed. Vegetation

height is not provided with this data, so a conservative assumption of 40 feet has been used, even though the canopy in the study area is typically between 50' and 80' high. The screening effect of non-forest land cover (buildings, residential landscaping, hedgerows, street trees, and other roadside vegetation) cannot be incorporated with the NLCD data. The second data source is LIDAR data captured specifically for the planning and design of the NECPL. LIDAR is used to create a topographic survey for a particular area, but the raw data when captured, also accurately measures the height of all ground based objects, including canopy height. For the area directly around the proposed converter station, the LIDAR data was incorporated into the GIS viewshed analysis. Use of the LIDAR data significantly increases the accuracy of the vegetated viewshed. This map represents a more likely potential area from which the Project could be visible than the Terrain Viewshed.



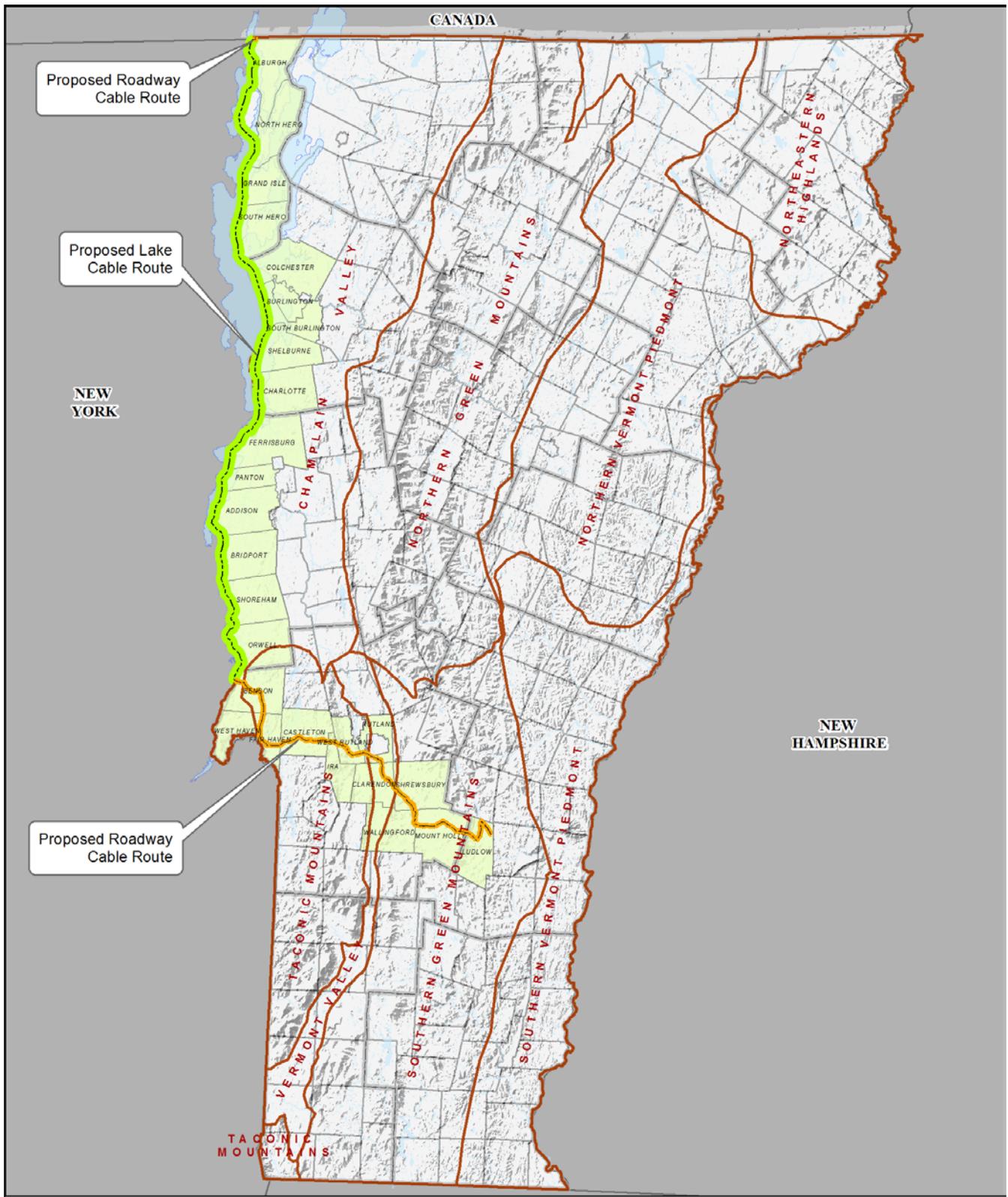
**Figure 1:** Terrain Viewshed and Vegetated Viewshed Diagrams. (Please note this diagram is to illustrate the results of a GIS Viewshed analysis and is not representative of the proposed Project.

When properly reviewed, these maps indicate areas most likely to have views, emphasizing areas vulnerable to the greatest impacts while also identifying areas that are unlikely to have views. The assumptions used to calculate these maps are conservative, and tend to over-estimate Project visibility. Rather than serving as a final result, these maps are primarily used in preparation of the field investigation, which more fully evaluates the landscape context, views, and potential impacts based on the visibility indicated on the maps. Therefore it is inappropriate to use these maps as the only basis to evaluate visual extent and impacts. Figure 2 illustrates the difference between the Terrain Viewshed and the Vegetated Viewshed maps.

- (3) **Field Investigation.** The viewshed maps are used to focus the field investigation on areas most likely to have views of the Project. The purpose of the field investigation is to:
- a. Verify potential visibility as indicated on the viewshed maps
  - b. Photograph views toward the Project from these and any other sensitive areas (parks, public facilities, etc.)
  - c. Photographically document the landscape's visual character within the study area
  - d. Record notes concerning each viewpoint where photographs are taken
  - e. Identify location of photograph viewpoints using a global positioning system ("GPS") unit

Following completion of the field investigation, the GPS data is transferred to a GIS database and synchronization of the data and photograph locations are verified. Documentation of the field investigation is then prepared, which includes: (1) mapping of the routes traveled and locations of photograph viewpoints (Appendix A, Maps 1-3), (2) a catalog of photographs (Appendix B), and (3) a planting mitigation plan (Appendix C). All three components are coordinated through indexed viewpoint numbers. Unless specified otherwise, all photos included in Appendix B and throughout the report are captured with a 'normal lens' or a focal length equivalent to 50mm on a full frame camera, to most accurately replicate a person's field of view.

TJBA evaluates data from the steps above and compares existing conditions with plans for the proposed Project. The following sections of this report describe in detail the collection and evaluation of data and the resulting conclusions.



### New England Clean Power Connect Roadway Cable Physiographic Regions Map

**Figure 2:** Physiographic Regions Map with Proposed Project Route

## B. Description of the Study Area

For the review of potential impacts to aesthetics, this study focuses on two main components of the Project. First, we reviewed potential impacts for the overland portion of the HVDC line that will be buried along existing road ROWs and a short stretch of railroad ROW. The second component is the converter station in Ludlow. Visual impacts from the portion of the Project buried or laid at the bottom of Lake Champlain were not evaluated for visual impacts, because no visual impacts are expected. Overland locations of the Project include Alburgh from the Canadian border to where it transitions to beneath Lake Champlain, and from Benson where the line transitions back to an overland route, continuing through the towns of West Haven, Fair Haven, Castleton, Ira, West Rutland, Rutland Town, Clarendon, Shrewsbury, Wallingford, Mount Holly, Ludlow and ending at the existing VELCO substation in Cavendish, Vermont. The Project begins in and proceeds through the Champlain Valley physiographic region (also referred to as the Vermont Lowlands), continues across the northern end of the Taconic Mountains, through the Vermont Valley, and across the Southern Green Mountains.

Within the Champlain Valley region, the Project runs approximately one-half mile in Alburgh before transitioning beneath Lake Champlain. The Champlain Valley is located on the western side of the state, surrounding Lake Champlain and is characterized by flat and gently rolling land. It has a low average elevation and the climate is milder than the rest of the state. Agriculture is an important and prevalent use in this region.

Within Benson, the Project enters the Taconic Mountains region, which contains a random collection of peaks and ridgelines. The Taconic Mountains extend into southwestern Vermont from New York and Massachusetts. The Project route generally avoids mountains and ridgelines in this region, first running along the western edge of the region in Benson, West Haven and Fair Haven. This area is closer in character to the Champlain Valley, with a flat and gently rolling landscape and prevalent agricultural use. In Fair Haven, the Project route turns to the east and follows US Route 4 through a gap in the Taconic Mountains, along the Castleton River. On the west side of the Taconic Mountains, the Project enters the Vermont Valley.

The Vermont Valley is a narrow valley region between the Taconic Mountains and the Green Mountains. It runs from the southern edge of the Champlain Valley, in the Brandon area, to Bennington in the South. It consists of flat to rolling topography with streams, wetlands, and dry terraces. The Project enters the Valley of Vermont in the Town of Rutland and continues south along US Route 7 to Clarendon where it turns to the east and follows Vermont Route 103 into the Southern Green Mountains.

The Southern Green Mountains are characterized as a broad high plateau with a few prominent peaks. Overall, the Green Mountains are the backbone of Vermont and run the length of the state from Massachusetts to Canada. This region is predominantly forested.

## C. Evaluation of Adverse Impacts

The following section provides an overview of changes to the visual landscape as a result of the project and whether changes will create an adverse impact to a particular area. It is first important to understand how the Project can potentially affect the visual landscape of the areas through which it is located.

Unlike most high voltage transmission lines within the state of Vermont, the HVDC line will be constructed entirely in an underwater and underground configuration. The only components that will be exposed at the surface are a limited number of manholes, which will be installed with the top of the manholes level with the existing grades, and the likely attachment of the cables to the side of bridge/culvert structures at two stream crossings within steel piping. Therefore there is very little potential for the transmission line to result in direct impacts to the aesthetics of the Project area. The avoidance of direct impacts to aesthetics is a significant mitigation measure that results in the avoidance of major impacts that would otherwise occur for a project of this sort. Indirect impacts are more likely to result from vegetation clearing that will be required to construct and maintain the line. In fact, the only visual changes along the entire cable route will be related to selective vegetation clearing adjacent to existing cleared road and rail right of ways. In particular, construction details call for temporary construction areas up to 50 feet wide and a permanently maintained cleared area of twelve (12) feet wide, centered above the line. However, there are numerous locations (over twenty locations extending nearly 5 miles) where Project plans call for the transmission line to be installed by horizontal directional drilling (“HDD”), a steerable trenchless method of installing underground pipes, conduits, and cables by using a surface stationed drilling rig. HDD results in minimal impact to the area above the drilled area, and vegetation will not be removed above the line at these locations. HDD installation does require a temporary cleared staging area at both the launch and receiver ends of the drilled section.

The Project component that has the greatest potential for aesthetic impacts is the HVDC converter station, proposed in Ludlow near the end of the proposed transmission line. This facility is a specialized type of transmission substation, necessary to convert electricity from DC to AC to be connected with New England electric grid. The evaluation of potential aesthetic impacts will first review the buried HVDC transmission line.

### HVDC Transmission Line

As previously mentioned, evaluation of aesthetic impacts for the transmission line is limited to locations where the line will be buried along existing public ROWs. The HVDC line will be installed overland for approximately one-half mile in Alburgh, and over 55 miles from Benson to Ludlow. An approximately .5 mile of buried AC transmission line, will connect the converter station in Ludlow to the VELCO Coolidge Substation just over the town line in Cavendish. To assess potential impacts for the HVDC line, field investigation and review of Project plans were the primary methods used to evaluate impacts. Appendix A, Key Observation Points Maps and Photos, provides documentation and specific assessment at a series of representative locations along the overland portions of the line. Project plans were overlaid on aerial photos using GIS software and used to understand impacts to the existing landscape.

Within Alburgh, the line runs from the Canadian border along Bay Road, a gravel surfaced, class 3 town road for three tenths of a mile before proceeding through a TDI-NE controlled parcel and transitioning beneath Lake Champlain. The line transitions back to an overland configuration in Benson and proceeds just over four (4) miles along a combination of gravel and dirt surfaced, and paved class 2, 3, and 4 town roads. The line then turns south along VT Route 22A in Benson and continues for over eight (8) miles through West Haven and Fair Haven, where the line turns east along US Route 4. The line continues for over 17 miles from Fair Haven through Castleton, Ira, West Haven and the Town of Rutland along Route 4. In the Town of Rutland it turns south and follows along US Route 7 into Clarendon for less than three (3) miles. In Clarendon, the line turns along Vermont Route 103 and continues southeast through Shrewsbury, Wallingford, Mount Holly and Ludlow for the next 18 miles to Vermont Route 100, although the line diverges from the Route 103 ROW in Shrewsbury to follow the railroad ROW for three and one-half (3.5) miles into Wallingford, before reconnecting with Route 103. In Ludlow, the line will turn north along Vermont Route 100 for approximately .8 miles and then continues for just over four (4) miles along a series of gravel surfaced, class 3 town roads in Ludlow before terminating at the proposed converter station.

Impacts associated with the HVDC line are limited to indirect visual impacts that will result from clearing trees or vegetation to construct and maintain the line. This can be categorized into two specific types of indirect impacts.

The first type of indirect impact is clearing that will remove an established edge to existing wooded areas. At these locations up to 50 feet of clearing may be required and the new edge of woods will have a different character. The edge of existing wooded areas that have long been established includes trees that have limbs along the entire height of the tree and includes edge and understory plantings. Where clearing creates a new edge along roads that the Project follows, the new edge includes trees within branching confined to the very tops of the trees and little understory plantings. This creates a 'raw' edge that will be more pronounced during 'leaf-on' times of the year, or times when deciduous vegetation is in foliage. This is a temporary impact and will be naturally mitigated overtime as new understory plantings and foliage is generated. The design and placement of the line within road ROWs significantly limits the need for clearing across much of the Project.

For locations where the line runs along town roadways in Alburgh, Benson and Ludlow, and also for the stretch along Vermont Route 100, the Project will be buried beneath the traveled portion of the road and will not require vegetation clearing along the roads. Clearing, and associated potential impacts, is generally limited to locations along Vermont Route 22A, US Route 4, US Route 7 and Vermont Route 103.

The second type of indirect visual impact includes certain locations where the line will require clearing that results in vegetation removal, which currently provides screening and landscape value, such as landscape planting between an existing roadway and adjacent development. In locations where this type of impact has been identified, landscape mitigation is proposed to help to mitigate potential impacts. These locations are identified below.

In general, removal of vegetation in these select areas can be considered adverse, but these impacts can also be mitigated. It should be noted that Applicant spent considerable time attempting to avoid these impacts during design, but due to other constraints along these roads (i.e. wetlands, RTE plants, steep slopes) certain

impacts could not be entirely avoided. The Applicant has advised that it will continue to assess the potential to minimize adverse visual impacts as project details are prepared. The specific locations where vegetation may need to be removed that would result in adverse impacts include the following:

**Vermont Route 22A, West Haven – MP 105.4**

At the West Haven / Benson town line, the HVDC line will be installed along the west side of Route 22A and will require a line of trees within the road ROW to be removed. The line of trees currently provides a buffer between the road and an adjacent residential structure and contributes to the aesthetics along this portion of Route 22A. Attempts will be made to avoid impacting these trees, but if removal is required, it will have an adverse impact on the character of the roadway. To help mitigate this impact, a landscape mitigation plan has been prepared. Five (5) proposed American Elm trees to be planted along Route 22A are shown at this location, however, it is unlikely that these trees can be planted within the road ROW. The plan shows the trees planted just outside the road ROW on the adjacent property and will require permission from the landowner. The landscape mitigation plan is provided in Appendix B as sheet L-1. A map and photo of this location can be found in Appendix A on page A-25.

**Vermont Route 22A, West Haven – MP 106.5**

As currently designed, the line will likely require the removal of a large willow tree that provides the only buffer between the roadway and an adjacent farm house, which is sited relatively close to Route 22A. The size and location of this large, mature tree provide an important component to the character of the area as seen from the roadway at this location. According to TDI-NE, attempts will be made to shift the line closer to the edge of the road and implement tree preservation methods at this location to avoid impacts to this tree. If the tree can't be preserved, TDI-NE will offer to plant new trees outside of the ROW if the landowner consents. A map and photo of this location can be found in Appendix A on page A-26.

**US Route 4, Exit 4 & Airport Road, Fair Haven – MP 110.4 to 110.5**

At Exit 4, where the line turns from Route 22A to follow US Route 4, until Airport Road, a row of White Pine, approximately 900 feet long, may be removed as a result of the Project. It appears that these trees were plantings associated with Route 4 to provide a buffer between the road and areas north of the road. Removal of this buffer will create views between the roadway and adjacent development to the north, including the Green Mountain Mobile Home Park. Removal of this screen planting will result in an adverse impact to the aesthetics of this area. To mitigate these potential impacts, a proposed landscape mitigation plan has been prepared if needed. Up to sixty (60) new White Pine trees are proposed to be planted at the edge of the ROW. Where the Project crosses Airport Road, the line moves south, away from the edge of the ROW and avoids additional clearing at this location. The proposed landscape mitigation plan can be found as sheet L-2 in appendix B and a map and photos of this location can be found in Appendix A on pages A-29 and A-31.

**US Route 4 / E. Hubbardton Road / Higgins Road, Castleton – MP 116.3**

A HDD temporary staging area along US Route 4 at exit 5 may require clearing that would remove a row of pines that appear to have been installed as a buffer between Route 4, East Hubbardton Road and Higgins Road, possibly during the construction of US Route 4. Removal of these trees would eliminate part of the buffer and will have an adverse effect to the character of the area at this location. A proposed landscape mitigation plan has been prepared to replace any trees removed from the row of pines and is provided as

sheet L-3 in appendix B. It is possible that clearing of these trees can be avoided during construction, which would avoid an adverse impact or the need for mitigation plantings. A map and photos of this location can be found in Appendix A on pages A-36 and A-37.

#### **US Route 4 / Vermont Route 4A / Whipple Hollow Road, West Rutland – MP 121.7**

Where VT Route 4A crosses beneath US Route 4 in West Rutland, a temporary HDD staging area will require a large, wooded highway embankment to be cleared, opening views between Whipple Hollow Road and the surrounding properties to US Route 4. Removal of vegetation on the embankment will have an adverse effect to the character of the area, particularly from views traveling south on Whipple Hollow Road. To help mitigate and soften views, a proposed landscape mitigation plan has been prepared, which includes eleven (11) Red Maple trees to be planted along Whipple Hollow Road, and thirteen (13) White Spruce trees to be planted along the embankment to re-establish a vegetated buffer. The proposed landscape plan can be found as sheet L-4 in appendix B. A map and photos of this location can be found in Appendix A on pages A-40, A-41 and A-42.

#### **US Route 4, West Rutland Recreational Area, West Rutland – MP 123.5**

Near exit 6 in West Rutland, a recreational path, part of a larger recreational area / park, shares a portion of the US Route 4 ROW. An HDD staging area may result in clearing along a portion of the recreational path and will open views between parts of the park, recreation path and US Route 4. Removal of vegetation will have a negative effect to the aesthetics of this area. TDI-NE will work to avoid clearing trees that currently provide screening to this park and path during final design, but if avoidance is not feasible, a proposed landscape mitigation plan will be implemented. A map and photos of this location can be found in Appendix A on pages A-45 and A-46. A proposed landscape mitigation plan can be found in Appendix B as sheet L-5.

#### **US Route 7, Clarendon – MP 128.2**

In Clarendon, tree clearing for an HDD staging area, just south of the Cold River may remove an existing vegetative buffer and will open views between US Route 7 and the rear side of an adjacent residential structure and property. TDI-NE has shifted the proposed HDD closer to the road to attempt to alleviate these impacts and expects vegetation will be retained. If removal of this vegetation occurs it will allow views between Route 7 and this residential Property and will have a negative effect to the aesthetics of the area, which could be adverse depending on the extent of the removal required. If necessary, to mitigate these impacts, a proposed landscape mitigation plan has been prepared to re-establish and reinforce the vegetated buffer at this location. A map and photo of this location can be found in Appendix A on page A-50 and the proposed landscape mitigation plan can be found in Appendix B as sheet L-6.

#### **Vermont Route 103, Shrewsbury – MP 132.7**

Near MP 132.7, the Project could result in removal of roadside vegetation, including landscape plantings, opening views between an adjacent residential structure and Route 103. However, removal of trees may not be necessary. If vegetation is removed, replacement planting should be provided to retain the visual quality along this portion of Vermont Route 103.

#### **Vermont Route 103 & Green Mountain Railroad, Shrewsbury – MP 134.1**

Near MP 134.1 on Vermont Route 103, the line will turn from the road ROW to follow along the north side of the Green Mountain Railroad. To accommodate the Project, up to 26 feet of temporary clearing along the north side of the railroad will be required, opening a wider corridor along the railroad from Route 103. Especially just after construction, views from Route 103 along the railroad corridor will have diminished visual quality as a result of the Project. Much of this impact will soften as border vegetation and the edge of woods are re-established, but to help screen and limit views along the railroad corridor, a small clump of vegetation is proposed near the Route 103 ROW. A map and photos of this location can be found in Appendix A on page A-56 and A-57. A landscape mitigation plan has been prepared and is included as sheet L-7 in Appendix B.

#### **Town Hill Road / Shunpike Road, Shrewsbury – MP 135.6 to 135.8**

The line crosses Town Hill Road along the Green Mountain Railroad. Continuing east from the crossing, the Project will result in the removal of most vegetation within an existing hedgerow north of the tracks. The hedgerow softens views along the railroad when viewed from the crossing with Town Hill Road but also provides a buffer between the railroad and Shunpike Road. Shunpike Road parallels the railroad, slightly to the north. The hedgerow contributes to the overall scenic quality in this area and screens the railroad from views along Shunpike Road. Loss of this hedgerow will result in an adverse effect to the visual quality of the area. To mitigate impacts to this area, proposed landscape mitigation is recommended to re-establish the vegetated buffer along the railroad. A map and photos of this location can be found in Appendix A on pages A-58, A-59 and A-60. Proposed landscape mitigation plantings are shown on sheet L-8 in Appendix B.

#### **Vermont Route 103, Wallingford – MP 137.6**

The Project reconnects with Vermont Route 103 in Wallingford, near the railroad crossing of the Mill River. A 50 foot width of vegetation will be cleared along the east side of the railroad as the Project descends the steep slope to return to Route 103. An HDD staging area will require additional clearing along the edge of the roadway. Vegetation at this location frame views of the railroad trestle and contribute to the overall scenic quality of the area. Removal of vegetation will have an adverse effect to the visual quality of this area. Landscape mitigation plantings are proposed to help re-vegetate areas temporarily cleared for construction and to also block views along the corridor created adjacent to the railroad. A map and photo of this location can be found in Appendix A on page A-62 and a proposed landscape mitigation plan is provided on sheet L-9 in Appendix B.

#### **Vermont Route 103, East Wallingford Village, Wallingford – MP 138.4 to 138.7**

The line is proposed along the east/north side of Vermont Route 103 through East Wallingford Village. The line will result in the temporary removal of up to a 25-foot wide strip of vegetation along the road. Currently, the edge of existing woods along this side of the road grows relatively close to the edge of the roadway, which helps to visually narrow the roadway and contributes to the visual landscape at this location. Removal of this vegetation will have an adverse effect to the aesthetics. Due to the narrow width from the paved road to the edge of the Route 103 ROW, it is unlikely that additional landscape plantings can be installed along this section. To help limit the amount of impact, tree preservation methods should be utilized and the line should be installed as close to the edge of the roadway as possible to minimize clearing. A map and photos of this location can be found in Appendix A on pages A-63 and A-64.

**Vermont Route 103 / Hortonville Road, Mount Holly – MP 141.2**

Although relatively minor, the Project will result in the removal of a small clump of trees at the northeast corner of the intersection of Vermont Route 103 and Hortonville Road at the center of Mount Holly. However, this small clump of trees is the only vegetative relief on that corner and removal of it will impact the visual quality of the area. Proposed mitigation plantings, including three (3) Red Maple trees and one (1) Common Hackberry tree, are shown for this intersection on sheet L-10 in appendix B. A map and photo at this location can be found in Appendix A on page A-66.

In conclusion, all impacts assessed due to the HVDC line are indirect since virtually all of the infrastructure associated with this line will be buried underground. Potential adverse impacts have been identified for specific locations. Combined, these areas represent an extremely small percentage of the entire overland route. In addition, there will be an additional level of temporary minor impact due to clearing along the existing wooded areas. Overall, because these impacts are dispersed over a relatively large geographic area, the impacts caused by the Project are minor. As the design continues to advance TDI-NE has committed to reducing vegetation removal in these areas. The proposed landscape mitigation and tree preservation commitments will further reduce and mitigate adverse impacts. The level of adversity as a result of the Project will not be undue.

**Ludlow Converter Station**

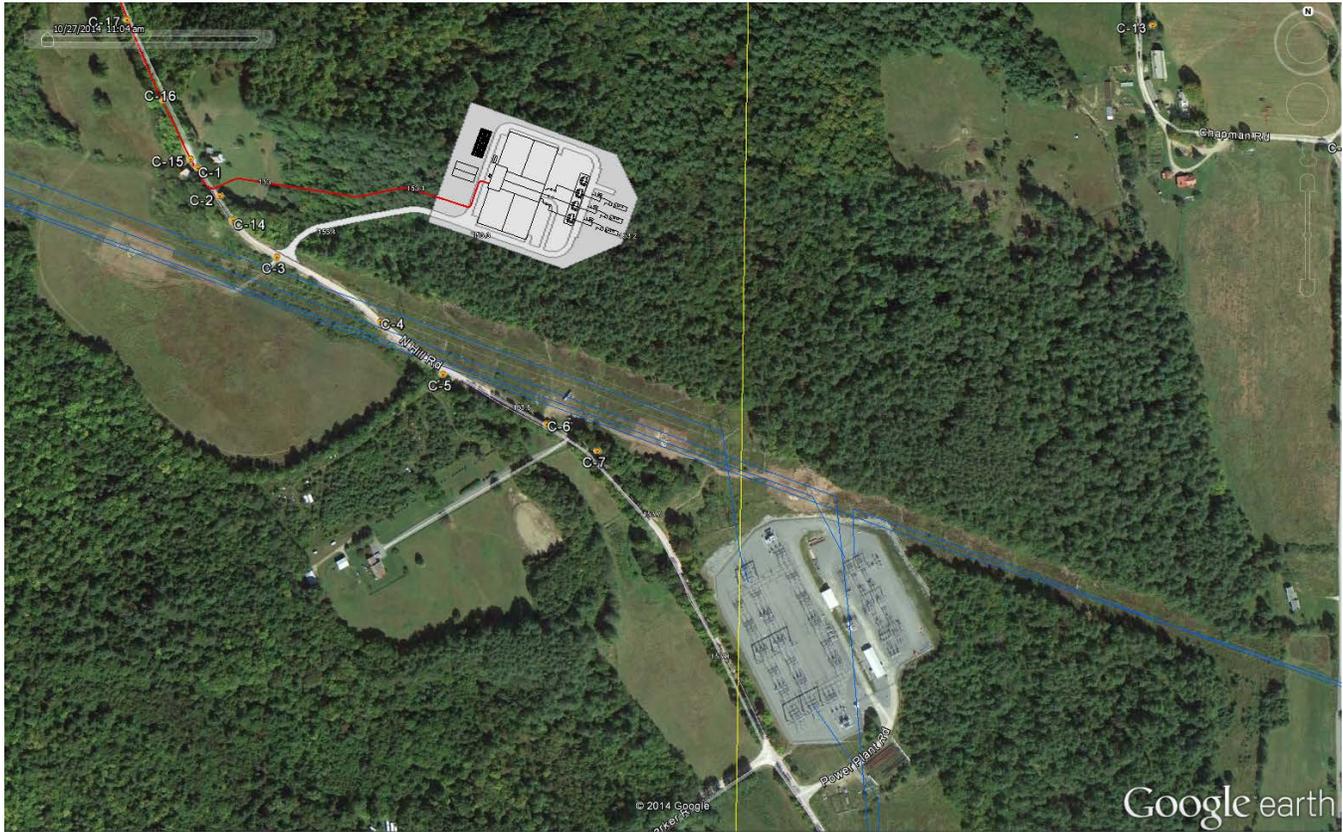
The HVDC line will terminate in Ludlow at a proposed converter station that will convert electricity to AC and allow the NECPL to be connected to the New England electrical grid. The converter station is proposed in the town of Ludlow, along Nelson Road on a forested parcel of land, immediately adjacent to a VELCO transmission line corridor. T. J. Boyle Associates were part of a multi-discipline team, engaged early in the process to site and provide design input for the converter station. As a result of this effort, the proposed converter station location and design significantly avoid visibility of the facility from the surrounding area, including nearby public roads and adjacent private property.

Nelson Road is a gravel surface town roadway that provides access to rural residential properties in Ludlow and Cavendish, Vermont. Immediately south of the proposed converter station is a VELCO transmission corridor that includes a 345 kV and a 115 kV overhead transmission lines. Adjacent to the VELCO corridor to the south, and southeast of the converter site is the VELCO Coolidge Substation, at which the NECPL will connect into the New England electrical grid.

The converter station will be similar to an electrical transmission substation. It will include a fenced yard with a variety of electrical transmission components. However, this facility will also include a large building that will house the converter equipment. The building is approximately 325 feet long, by 170 feet wide and up to approximately 60 feet tall. There will also be several lightning masts within the yard, which will be approximately 68 feet tall, the tallest structures on the site.

The greatest potential for public visibility of the converter station will be from Nelson Road. When traveling from the south, Nelson Road includes a strong visual presence of existing electrical transmission infrastructure. The road begins as Quent Phelan Road in Cavendish and first passes through a VELCO

corridor with two 345 kV lines that connect to the Coolidge Substation from the south. The road continues to proceed immediately adjacent to the Coolidge Substation, where the road changes to Nelson Road and crosses the town line into Ludlow. After the VELCO substation, there is a short wooded stretch before entering the VELCO corridor south of the converter station. The road crosses the corridor at an obtuse angle, which extends the length of the roadway within the transmission corridor to approximately 1,000 feet. From the north, Nelson Road passes through a primarily forested landscape, punctuated by small roadside fields and rural residences up to the VELCO corridor.



**Figure 3:** Aerial image of the proposed converter station in relation to existing VELCO transmission infrastructure.

The converter station is proposed to be located north of the VELCO corridor along the same stretch of corridor that Nelson Road passes through. The converter station site is currently forested with a mix of deciduous and evergreen trees. LIDAR data captured for the topographic survey of the site shows vegetation surrounding the converter to be up to 90 feet tall. The converter has been sited so that clearing for the facility will retain at least 200 feet of vegetation between the existing edge of clearing along the VELCO corridor and the converter. The surrounding vegetation will almost entirely screen all potential views of the converter station.

The following pages include a series of maps, cross sections and photos to portray potential visibility of the converter. The Aerial Context Map provides an overview of the surrounding area, the Topographic Viewshed Map shows potential visibility assuming no vegetative screening, and the Vegetative Viewshed Map shows potential visibility while incorporating the screening effect of the surrounding vegetation. The Vegetated Viewshed uses actual canopy heights of vegetation directly surrounding the proposed converter,

captured as part of the LIDAR data. As illustrated by the Vegetated Viewshed Map, the surrounding vegetation will screen almost all potential visibility of the converter. The cross sections provided in figure 7 and the associated images, figures 8, 9, 10 and 11, represent the surrounding conditions and further illustrate how the adjacent vegetation will screen views to the converter. The enlargement at the bottom of the Vegetated Viewshed Map indicates the only visibility from Nelson Road will be from the west of the converter. Two small clearings will be necessary to construct an access road and for the DC lines coming in and the AC lines leaving the converter. While these clearings have been designed to limit visibility, some limited exposure will be created. Views from Nelson Road will mostly be from clearing for the access road, which connects to Nelson Road at the western edge of VELCO corridor crossing. Views will be limited to less than a 100-foot stretch of road and the closest portion of the fenced yard will be approximately 500 feet away.

Significant effort has been made to limit views through the design and location of the converter station. Visibility will be extremely minimal and largely avoids adverse impacts as a result of this facility. Within the limited views that will be created, the scale and materials of the converter will result in a modest adverse impact for a project of this nature. Landscape mitigation plantings are proposed to narrow the width of the clearing and to screen and soften views of the converter within these limited views.

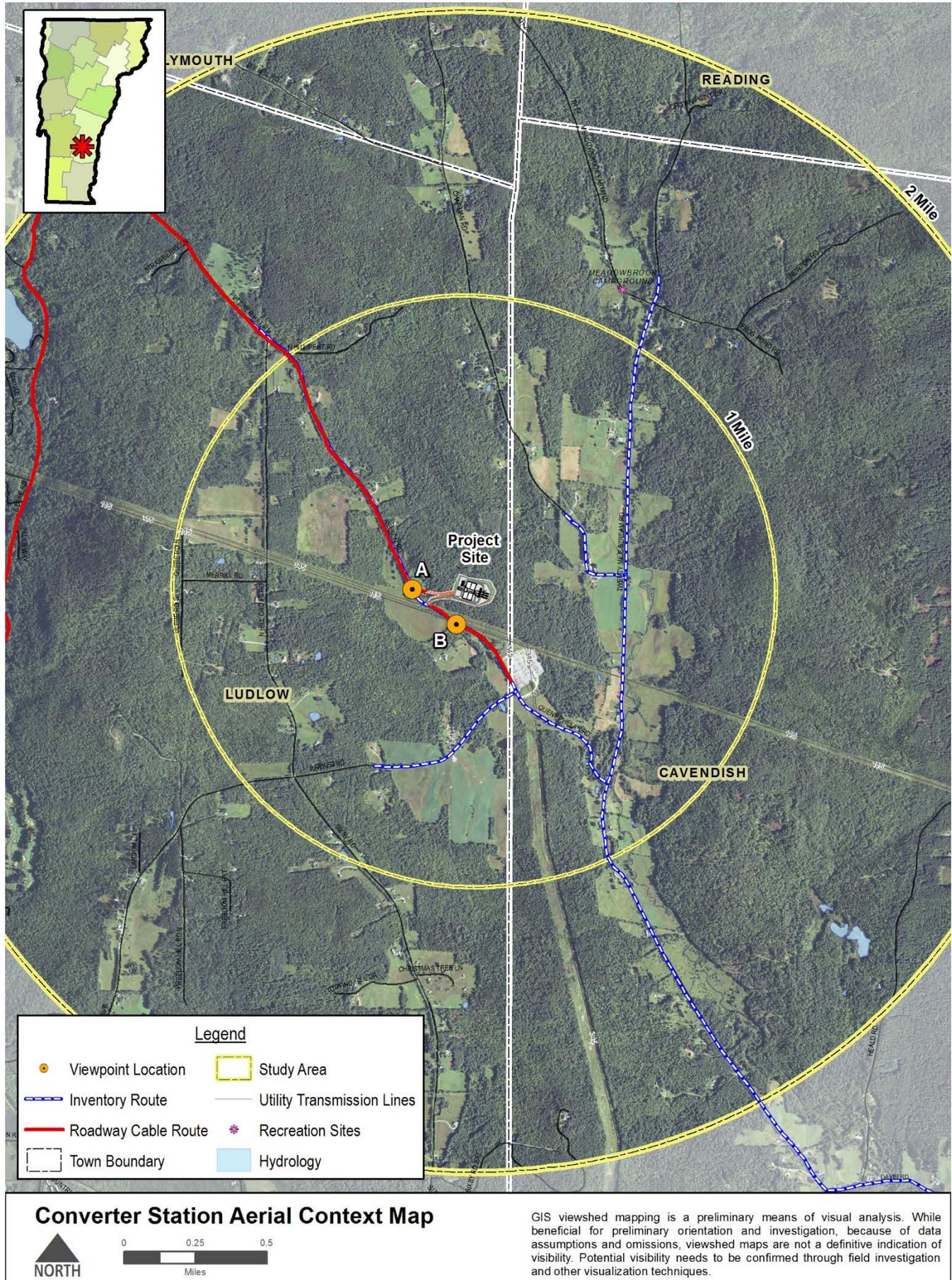


Figure 4: Converter Station Aerial Context Map

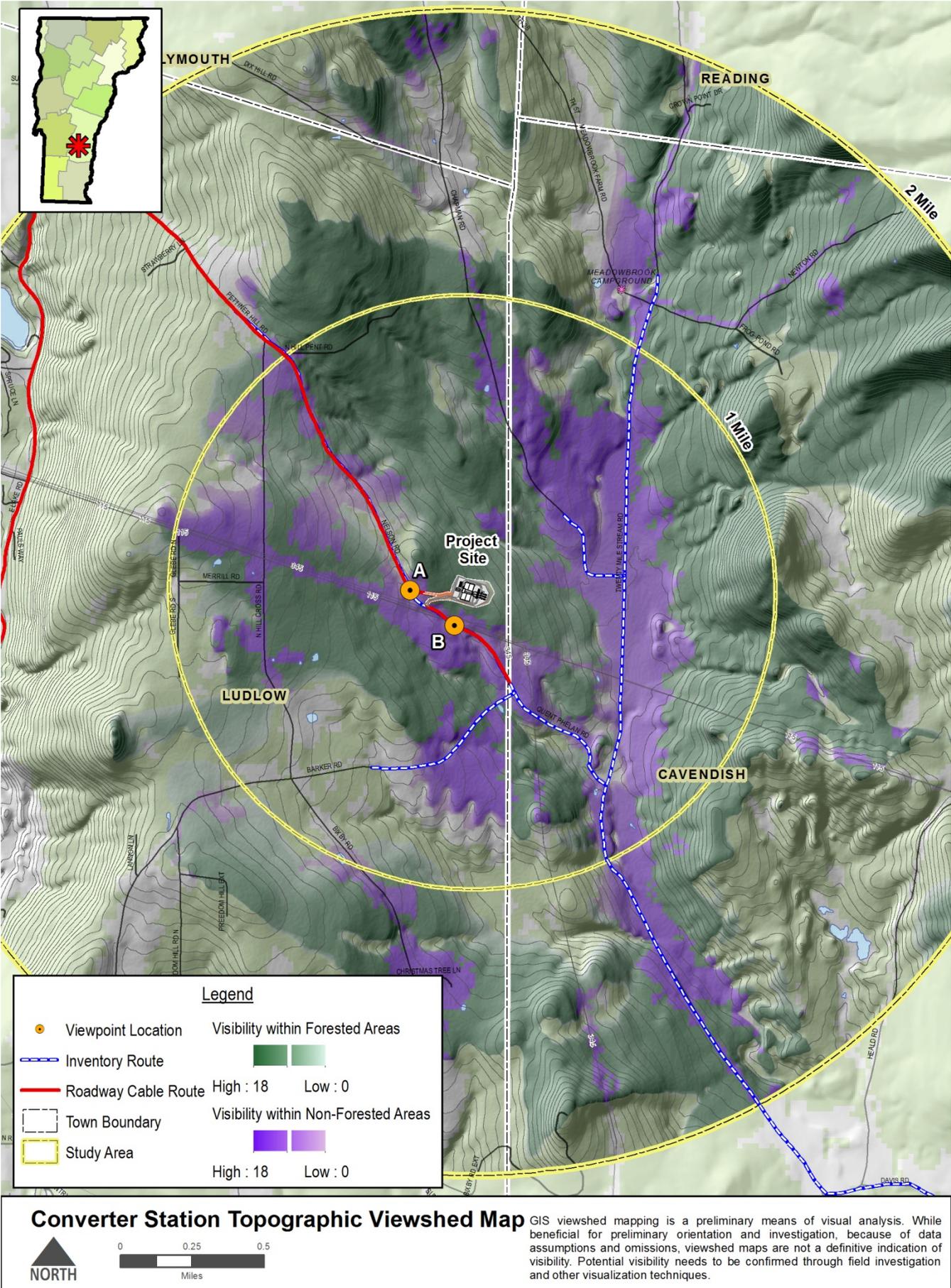


Figure 5: Converter Station Topographic Viewshed Map

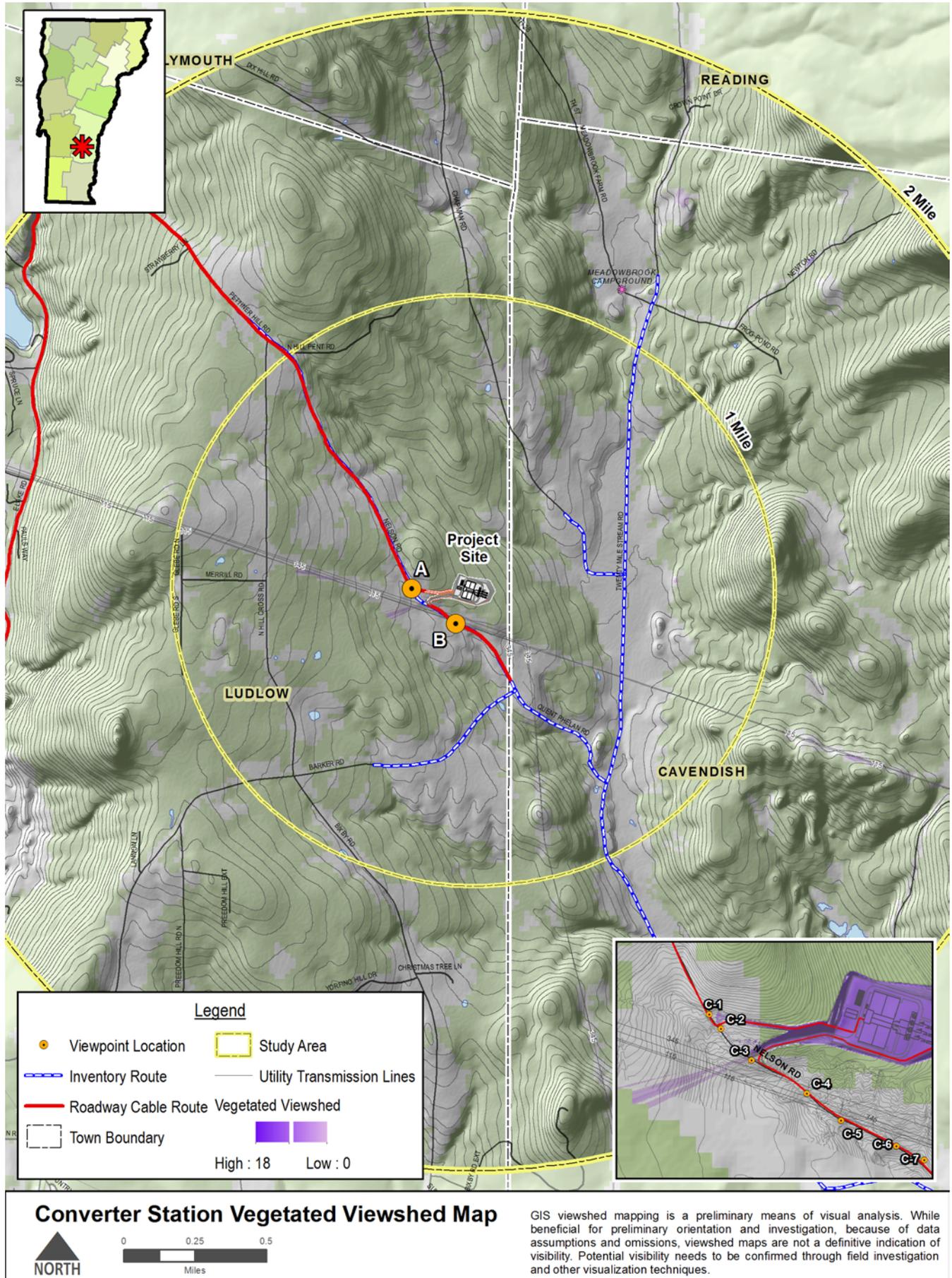
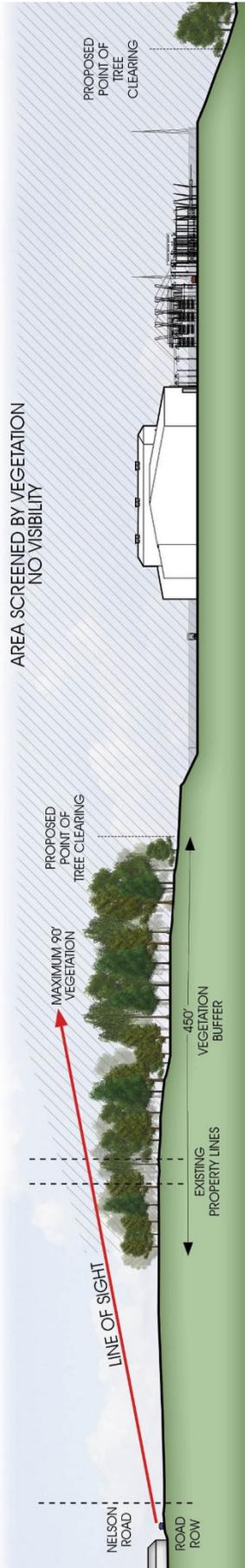
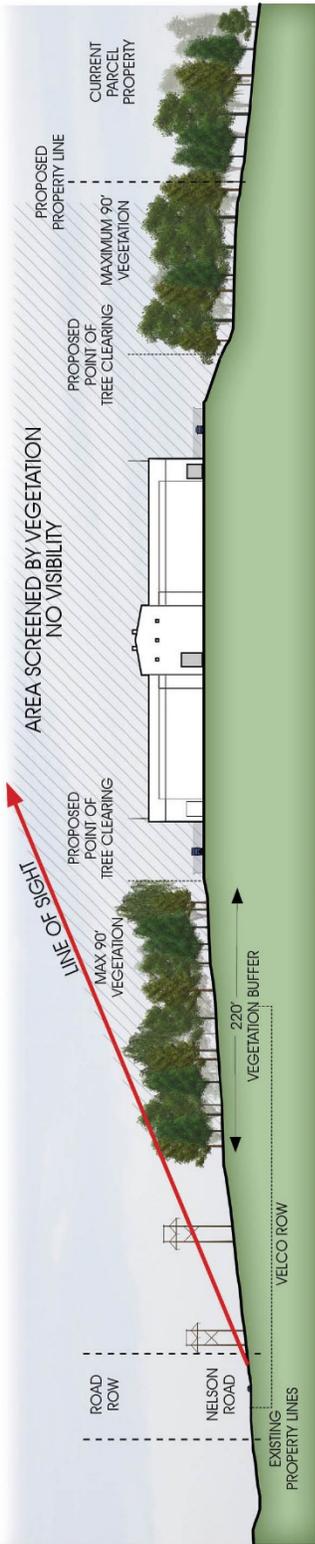


Figure 6: Converter Station Vegetated Viewshed Map



Section A



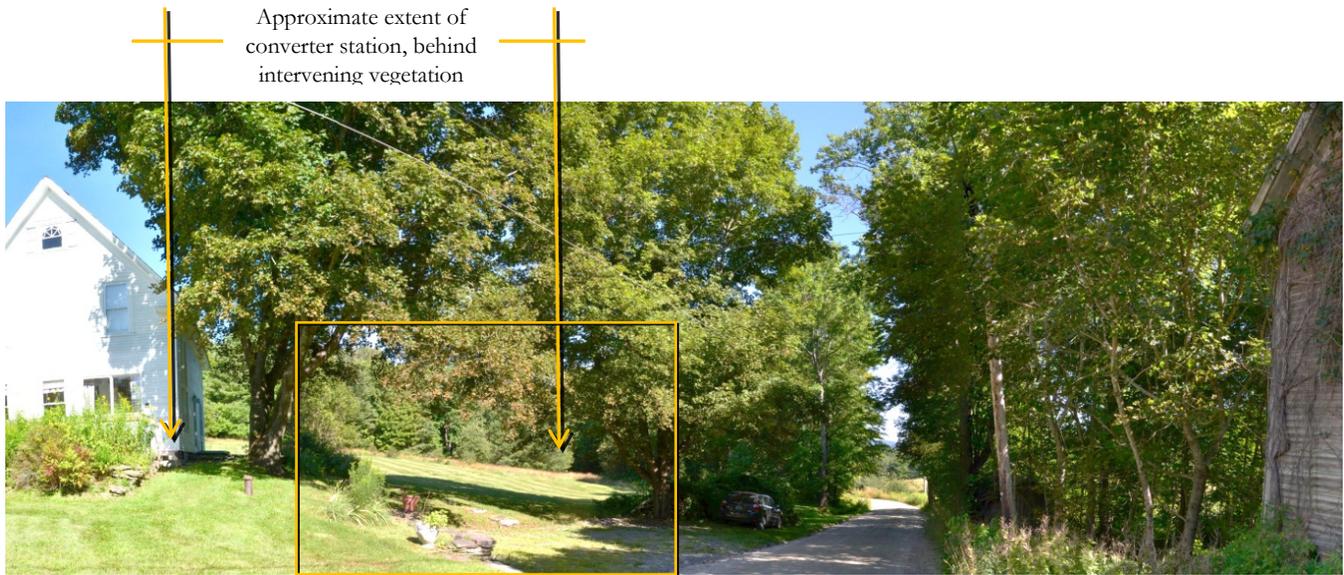
Section B

New England Clean Power Link - Proposed Converter Station Illustrative Sections



T. J. Boyle Associates  
landscape architects • planning consultants

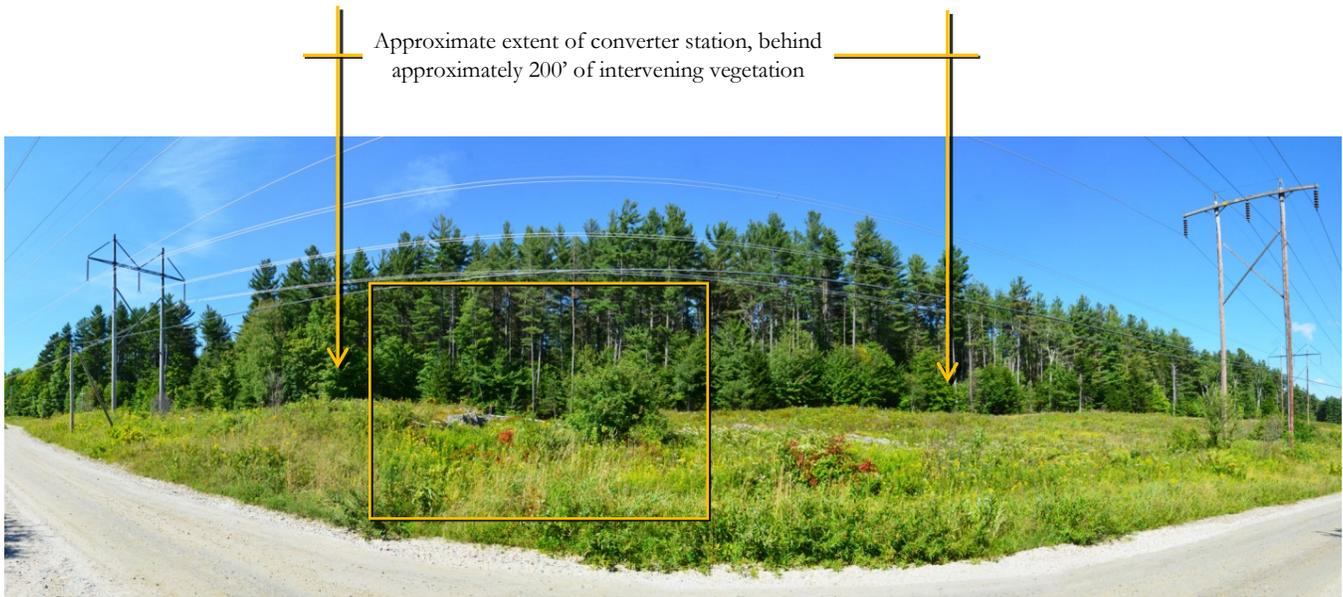
Figure 7: Line of Sight Illustrative Cross Sections



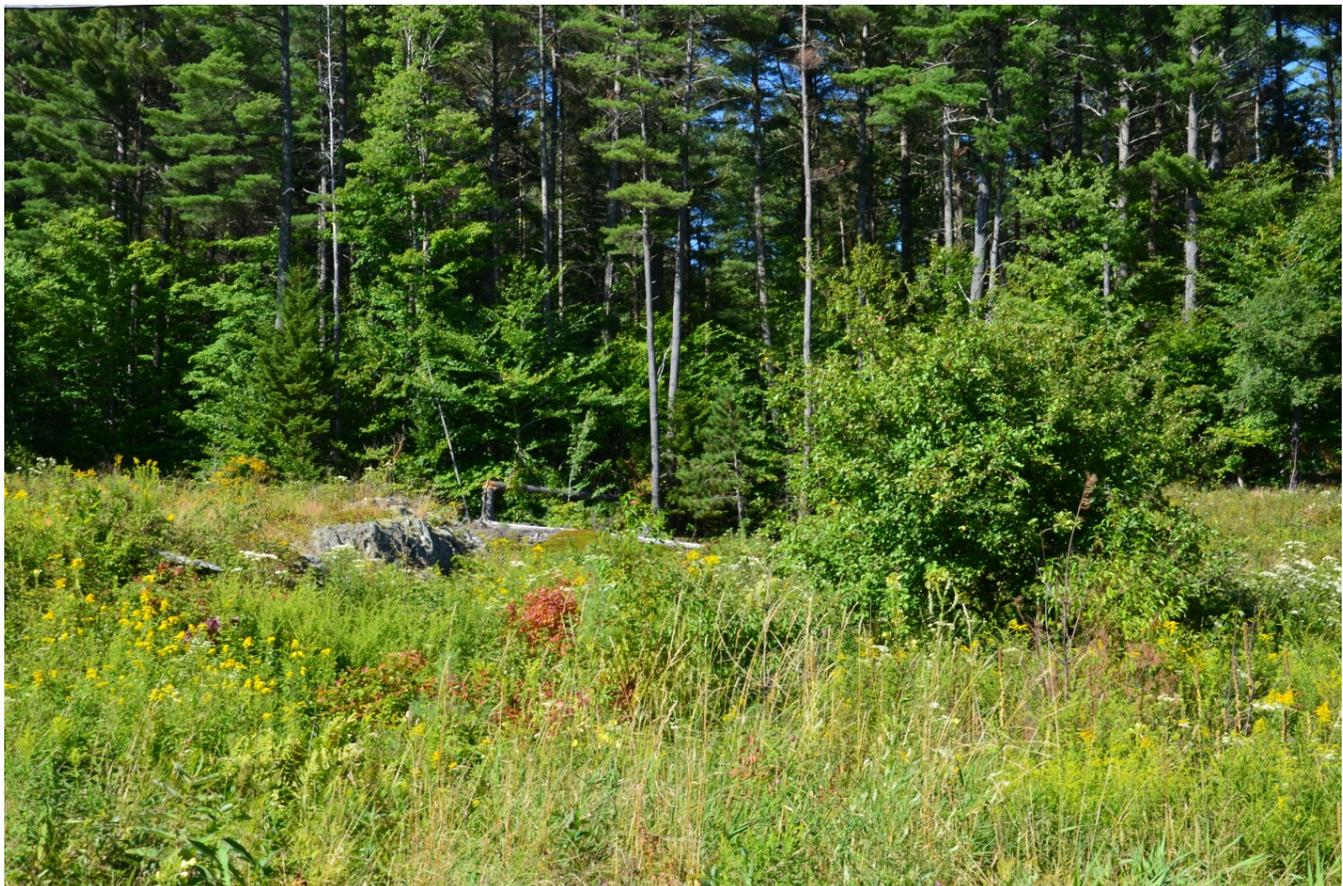
**Figure 8 - Viewpoint A:** +/- 125° Panoramic view from Nelson Road, west of the Project, panning east to south. The orange rectangle at the center of the photo represents the image below, which is captured with a 50mm normal lens, equivalent to the human 'field of view'. This panorama was digitally lightened.



**Figure 9 - Viewpoint A:** View looking east from Nelson Road, directly towards the proposed Project, as represented by the orange rectangle in the panoramic view above. Vegetation at the back of the open lawn will screen views of the converter station, although a small corridor will be cleared for the DC line to connect with the facility.



**Figure 10 - Viewpoint B:** +/- 125° Panoramic view from Nelson Road, within the transmission line right of way. Panning northwest to southeast. This view faces northeast toward the project. The orange rectangle at the center of the photo represents the image below, which is captured with a 50mm normal lens, equivalent to the human 'field of view'.



**Figure 11 - Viewpoint B:** View looking northeast to the project, while on Nelson Road. Over 200 feet of existing forest cover will be retained prior from the visible edge of forest in this image to the start of clearing for the proposed converter station.

## D. Clear Written Community Standards

Although Section 248 does not require local permitting of projects seeking a Certificate of Public Good, local plans and regulations are reviewed under the second prong of the Quechee analysis (described in Section III of this Report) where it has been determined that a Project may have a potential adverse visual impact. Under Quechee, this involves an assessment as to whether or not a project violates a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area. The Public Service Board has noted that “[i]n order for a provision to be considered a clear, written community standard, it must be “intended to preserve the aesthetics or scenic beauty of the area” where the proposed project is located and must apply to specific resources in the proposed project area.” Petition of Georgia Mountain Community Wind, LLC, Docket No. 7508, Order of Vt. Pub. Serv. Bd. (Jun. 11. 2010) at 52. There, the Board clarified that generalized statements and general scenic resource policies that are not focused on a particular scenic resource or that fail to offer specific guidance or measures to protect the resource cannot be considered “clear written community standards.” Id. at 53.

To determine if the NECPL will violate a clear written community standard, available local and regional planning documents were reviewed for all municipalities directly affected by components of the Project, including the Town of Alburgh (a member of the Northwest Regional Planning Commission), Benson, West Haven, Fair Haven, Castleton, Ira, Rutland Town, Clarendon, Shrewsbury, Wallingford, Mount Holly (each of which is a member of the Rutland Regional Planning Commission), Ludlow, and Cavendish (each of which is a member of the Southern Windsor County Regional Planning Commission). A selection of pages from planning documents reviewed with all pertinent sections relating to clear written community standards to preserve the aesthetics or scenic beauty of the area are provided in Appendix C. However, there are only a few standards which were determined to be directly applicable to the Project, and they are identified below.

Within Chapter 10, Energy of the Shrewsbury Town Plan, Policy 63 includes specific standards regarding the siting and expansion of utility and transmission projects.

### 10.2 Energy Transmission

Shrewsbury currently has two major electrical power transmission corridors. These have environmental and aesthetic impacts on the Town such as electromagnetic radiation, noise, wildlife corridor interruption, and the visual impact of clear-cut swaths across ridgelines and hillsides.

Utility lines inappropriately sited along our roadsides also have an aesthetic impact. The tree-trimming required to maintain them can significantly change the character of a road where branches arch overhead. The web of overhead lines in village centers limits the size of trees that can grow there. On-site energy production can potentially offset the impact of power line installation and maintenance tree trimming. The Town encourages the burying of utility lines when appropriate.

#### Policy 63 – Energy Transmission

1. Utility line siting should take into consideration tree location.
2. Utility line tree maintenance shall be restricted to the minimum cutting possible.
3. Do not allow expansion of major energy (electric or gas) transmission outside of the two existing corridors, and require buffering of visual and environmental impacts of corridors.

(Shrewsbury Town Plan at 68)

Additionally, the Northwest Regional Plan, applicable for the Town of Alburgh, also includes specific standards regarding energy transmission facilities.

#### **Chapter 4 – Utilities, Facilities & Services**

##### **Goals, Policies, & Objectives**

4.11 Utility lines should be buried when crossing locally or regionally designated historic, cultural and scenic areas or otherwise be strategically located to minimize adverse impacts on these resources. (Northwest Regional Plan at 4.28)

#### **Chapter 7 – Land Use**

##### **Goals, Policies, & Objectives**

7.9 Construct corridors for new energy transmission facilities only when there is a demonstrated need, and then these should be built adjacent to and parallel to existing operational energy transmission corridors. Visual impact of these facilities should be minimized and should avoid sensitive natural features and historic resources. (Northwest Regional Plan at 7.16)

When evaluating the NECPL against these standards, the Project will not violate a clear written community standard. The Project will be buried underground using existing ROW corridors. It will result in minimal above-ground disturbance within the areas for which these plans are applicable thereby avoiding the necessity to buffer direct visual impacts. The layout and design of the HVDC line significantly avoid cutting of trees and the overall impact of the Project has been minimized through appropriate siting measures. Therefore the Project is consistent with provisions of the Shrewsbury Town Plan and the Regional Plan.

To the extent that other town plans specifically identify certain scenic resources, the Project is not located within these specified viewsheds. Based on our review of these documents, the Project does not violate a clear written community standard intended to preserve the aesthetics or scenic beauty of the area.

### **E. Project Mitigation**

The NECPL has employed several forms of mitigation to significantly reduce the aesthetic impacts of the Project including:

- Most importantly, the entire length of the high voltage transmission line will be installed either underwater or underground. When compared to aerial high voltage transmission lines, this significantly reduces and avoids visual impacts to the areas in which the Project will be located.
- For portions of the Project where the HVDC line is located underground, with exception to where the line transitions between land and Lake Champlain, the Project will entirely utilize existing road and railroad ROWs. No new ROWs are being proposed.

- The Project design and route significantly avoids removing sensitive vegetation that could otherwise result in a greater change to the visual landscape of the Project area.
- The Project utilizes HDD installation at several locations that will not result in ground disturbance for the length of the drill paths.
- Where removal of vegetation is unavoidable along the HVDC line, and at specific locations where it results in impacts to aesthetics, landscape mitigation plantings are proposed to screen and soften views and to re-establish vegetation proposed to be removed. Landscape mitigation plans are provided in Appendix B.
- Early scoping efforts for the design and location of the converter station in Ludlow, resulted in a final site selection and design that significantly avoids visibility of the facility. Vegetation surrounding the site will be retained and will screen most if not all public views to the converter station.
- Additional landscape mitigation plantings are proposed from the converter station to screen and views that may be created.

With these measures, the NECPL proposes to use reasonable, generally available mitigation measures to minimize the limited adverse impacts caused by the Project.

## **F. Shocking and Offensive**

When evaluating whether a Project would offend the sensibilities of the average person, the criteria to make this assessment is related back to the first part of the Quechee Test: how the Project ‘fits’ within its surroundings. An ‘average person’ is considered a disinterested party, not an affected neighbor. The threshold for a Project to be shocking or offensive is high and a project would need to be entirely inconsistent with the surrounding land uses or exceptionally out of scale with the surroundings.

Although the Project was found to result in adverse aesthetic impacts, the level of impact is relatively low. The Project would not offend the sensibility of the average person and it will not be offensive or shocking. This determination is based on a number of factors that were assessed during the aesthetic analysis.

- Most Project components will be installed underground. Adversity is largely based on the contrast of a proposed project’s components to the existing conditions of the surroundings where they are located. Since the Project will generally not result in visible infrastructure, there is little contrast to existing conditions.
- Most impacts are a result of vegetation removal. Proposed mitigation, including landscape plantings will in time reverse these impacts.

- The proposed converter station is not expected to have any significant visibility.
- The proposed location for the converter station is adjacent to significant existing transmission infrastructure, including a high voltage transmission corridor with two major overhead transmission lines and the VELCO Coolidge Substation. The converter station will be similar in character to existing transmission infrastructure in the area, which are established components of the visual landscape.

Overall, the adverse impacts that were identified as a result of the Project are relatively minor. The Project could not be considered shocking or offensive.

### **G. Findings and Conclusion**

Overall, the Project will result in adverse impacts to the aesthetics and the scenic and natural beauty of the area that it will be located in. However, the level of adversity is low and the Project does not violate any of the three criteria of the second part of the Quechee Test.

In conclusion, the NECPL meets the Quechee Test insofar as its impact on aesthetics will NOT be UNDULY ADVERSE.

## IV. Orderly Development

Section 248(b)(1) of Title 30 of the Vermont Statutes Annotated requires that the Vermont Public Service Board find that a proposed project will not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality.

For the NECPL, local and regional plans were reviewed for all of the municipalities directly affected by the overland components of the Project, including the Town of Alburgh (a member of the Northwest Regional Planning Commission), Benson, West Haven, Fair Haven, Castleton, Ira, Rutland Town, Clarendon, Shrewsbury, Wallingford, Mount Holly (each of which is a member of the Rutland Regional Planning Commission), Ludlow, and Cavendish (each of which is a member of the Southern Windsor County Regional Planning Commission). A review of each of these planning documents for the overland communities is provided below. A selection of pages with pertinent sections relating to orderly growth is provided in Appendix D.

Local and regional plans for Vermont communities that border Lake Champlain along the proposed Project route were also evaluated for any potentially relevant provisions, despite the fact that the Project will not be directly located on lands regulated by these communities, but rather will be in public trust waters in the middle of Lake Champlain. These communities included the Towns of Addison, Burlington, Charlotte, Colchester, Ferrisburgh, Grand Isle, Isle La Motte, North Hero, Orwell, Panton, Shelburne, Shoreham, South Burlington, and South Hero. The Town of Bridport Town Plan could not be obtained, and therefore was not reviewed. The regional plans adopted by the Addison County Regional Planning Commission and the Chittenden County Regional Planning Commission were also reviewed. No land conservation measures were identified in any of these plans which would apply to development of the Project in the lake bed in Lake Champlain, and the project will not unduly interfere with development in these lake communities.

Discussion of town and regional plans for the overland segment of the Project follows.

### Town Plans

#### **Alburgh**

Alburgh's town plan specifies two conservation categories within their overall land use. The NECPL is not proposed within or adjacent to these areas. The Project will cross the Shoreland land use category. "To protect lake water quality a 50 foot undeveloped and vegetated buffer strip is required for new development, measured from the high water mark of 99 feet above sea level." (Alburgh Town Plan at 49) To install the HVDC line where it transitions from underground to underwater, the line will be horizontally drilled. The HDD staging area will be approximately 180 feet back from the 99 foot level. The Project will meet the Town of Alburgh's requirement for the Shoreland category as the HDD will not result in any aboveground disturbance or infrastructure within the 50 foot setback, nor will it require clearing of existing vegetation within 50 feet of the Lake. The Project supports the Town Plan under Chapter 9. Energy, which states, "Most energy sources have negative environmental impacts and the challenge for the future will be to reduce energy consumption in general, and to shift demand from the more harmful energy sources toward those that are renewable and have an overall low environmental impact." (Alburgh Town Plan at 67) The Project will create a new connection point from which Vermont utilities can purchase renewable energy.

### **Benson**

Energy Goals, Policies and Programs listed in the Town Plan states, “(e)ncourage the development and use of renewable energy (including but not limited to Wind, Solar, micro-hydro, and methane generation) where such installations will not adversely affect the environment or scenic beauty in Benson.” (Benson Town Plan at 13). The Project generally supports this goal by encouraging the use renewable energy. The Town Plan also recognizes the importance of the several natural features within the town and supports conservation of those resources. The town plan states that “while our plan does not specifically protect specific areas, our policy of supporting The Nature Conservancy, Land Trust and State conservation efforts, our 20 acre density requirement to preserve open lands and forest and our publicizing the importance of maintaining wildlife corridors has this effect.” (Benson Town Plan at 15) The Town Plan includes a Lake Champlain Shoreline District, which promotes conservation and protection of lands adjacent to the lake but does not include specific standards. The NECPL is consistent with the Benson Town Plan insofar as the Project within Benson will be underground, along existing road ROWs and is design to minimize impacts to natural resources.

### **West Haven**

The NECPL supports the West Haven Town Plan that states, “(t)he Town of West Haven is committed to encouraging energy efficiency and the use of renewable energy resources throughout the community.” (West Haven Town Plan a 29). The plan also denotes a specific Conservation District on Map 4, the Conceptual Future Land Use Map. The town plan specifies that “all forms of development should be directed to other areas of the town whenever possible;” (West Haven Town Plan at 41). The NECPL is not located within or adjacent to the Conservation District.

### **Fair Haven**

The Fair Haven Town Plan includes the Resource Protection area, which “consists of the 100-year flood plain and a buffer area adjacent to other significant surface waters including Iman Pond, Glen Lake, Mud Brook, Castleton River and Poultney River.” (Fair Haven Town Plan at 16) “(D)evlopment, filling, and other incompatible uses” (Fair Haven Town Plan at 16) are restricted within the Resource Protection area. The plan also “encourages the conservation of land for forestry, farming, natural resource functions, and recreation” (Fair Haven Town Plan at 45), although no specific standards are provided. The Project is consistent with the Fair Haven Town Plan in that the HVDC line will be installed underground, within existing road ROWs and will avoid natural and cultural resources. Additionally, the Project will employ HDD to install the line at any location within the Resource Protection area. HDD installation will avoid any disturbance to these areas and will comply with restrictions on development in this area. The Project generally supports the Fair Haven Town Plan objective to encourage the use of renewable energy sources.

### **Castleton**

The Castleton Town Plan generally supports the conservation of lands for natural resources but does not provide specific standards. The Project is consistent with this goal insofar that the line will be installed underground within the existing ROW for US Route 4. The NECPL supports the energy goals, policies, and programs of the Castleton Town Plan, which “encourages the use of renewable sources of energy such as wind, solar, wood and methane.” (Castletown Town Plan at 41).

### **Ira**

The Ira Town Plan supports the use of renewable sources of energy, which is supported by the Project. The plan denotes a Highland Conservation District and notes “all forms of development should be directed to other areas of the Town whenever possible.” (Ira Town Plan at 31) All land in Ira north of US Route 4 is designated within the Highland Conservation District. While the Project abuts this district, it will be collocated within the US Route 4 ROW and will avoid important natural resources. The Project does not violate the standards set forth for this district.

### **West Rutland**

Goal 1 under Natural Resources in the West Rutland Town Plan is to “(i)dentify, protect, and preserve the valuable natural areas within West Rutland.” (Town Plan at 9) Under the Land Use chapter, the plan includes Conservation District I and Conservation District II. The Project is consistent with the West Rutland Town Plan, insofar as the Project is located entirely within the US Route 4 ROW, will be installed underground, and is designed to minimize impacts to natural resources. At locations of particularly sensitive natural resources, such as at the Castleton River crossing near Whipple Hollow Road, the Project will use HDD to install the line, which will not require any disturbance or clearing in these areas. Furthermore, the Project supports the Energy section of the West Rutland Town Plan, by providing an additional option for Vermont utilities to purchase renewable energy.

### **Town of Rutland**

The Town of Rutland Municipal Plan identifies a Conservation land use district. The Project is not located within or adjacent to this district. One goal of the Municipal Plan within the Energy section is to “(a)void or minimize the adverse impacts of energy development on public health, safety and welfare, the town’s historic and planned pattern of development, environmentally sensitive areas, and Rutland Town’s most highly valued natural, cultural and scenic resources, consistent with adopted plan policies and community standards for energy development, resource protection and land conservation.” (Rutland Municipal Plan at 40) A second goal within the Natural and Cultural Resources section is to “(p)rotect natural and cultural resources from the impacts of development...” (Rutland Municipal Plan at 45) This section goes on to discuss protection of agricultural soils, forested lands, wildlife habitats, flood plain and riparian zones, and historic, scenic, cultural and recreations resources. One of the listed strategies is that “(n)o development or earth disturbance of any kind should occur within fifty (50) feet of any shoreline...” (Rutland Municipal Plan at 53) The NECPL is consistent with the Town of Rutland Municipal Plan insofar as the line will be installed underground, entirely within the US Route 4 and US Route 7 ROWs and has been designed to minimize impacts to natural and cultural resources. Where the Project crosses the Otter Creek, HDD will be used to install the line. Staging areas for the HDD will be well over 100 feet from the Otter Creek and there will be no disturbance within 50 feet of the shores of the Otter Creek.

### **Clarendon**

The Clarendon Town Plan includes goals and objectives to protect and preserve natural and cultural resources but do not provide specific standards. The NECPL is consistent with the Town Plan insofar as the Project will be installed underground, entirely within the US Route 7 and Vermont Route 103 ROWs and has been design to minimize impacts to natural and cultural resources. The Clarendon Town Plan does include a Conservation District within the Future Land Use section, but the Project is not within or adjacent to this district.

### **Shrewsbury**

Several of the Shrewsbury's Town Plans objectives in section 3, focus on the conservation, preservation and protection of the town's natural and cultural resources. Section 4.3 Prospective Land Use goes into detailed description of the town's resources. The plan includes two land use areas, Conservation Areas and Protection Areas, which include sensitive natural resources. The Shrewsbury Town Plan also includes specific standards regarding Energy Transmission. "Utility lines inappropriately sited along our roadsides also have an aesthetic impact. The tree-trimming required to maintain them can significantly change the character of a road where branches arch overhead... The Town encourages the burying of utility lines when appropriate." (Shrewsbury Town Plan at 68) The NECPL is consistent with the Shrewsbury Town Plan insofar that the Project will be located along existing road and railroad ROWs and the line will be buried underground. In locations where sensitive natural resources exist, the Project will be installed by HDD and will result in minimal disturbance.

### **Wallingford**

The Wallingford Town Plan includes general encouragement for the "reasonable balance between conservation and preservation of existing land uses and a viable economy that provides economic opportunity for our citizens." (Wallingford Town Plan at 60) The plan does not provide specific standards for land conservation measures, but does provide basic encouragement for preservation and protection of their natural and cultural resources. The Project will be buried underground within existing road and railroad ROWs. The Project will be consistent with the Wallingford Town Plan.

### **Mount Holly**

A goal of the Mount Holly Town Plan is "(t)o preserve and enhance Mount Holly's natural resources, scenic landscape, environmental quality, and historic heritage for the benefit of current and future generations." (Mount Holly Town Plan at 107) Including lands within Vermont's Current Use program, 43% of the town land can be considered conserved or protected. The Town Plan includes policies to protect natural resources from development. Under the Transportation section within goals and policies, it notes "(t)he Town shall remove healthy trees from the right of way only where necessary for safety, visibility, snow removal, utilities, or drainage." The NECPL is consistent with the Mount Holly Town Plan insofar as the Project will be buried underground entirely within the Vermont Route 103 ROW. The Project is designed to minimize impacts to natural resources, including minimal tree clearing within the Rote 103 ROW.

### **Ludlow**

The Ludlow Municipal Development Plan ("Ludlow Town Plan") states, "(p)rotection and preservation of Ludlow's important natural amenities are vital to maintaining a fundamental component of Ludlow's economic base." (Ludlow Town Plan at 9) The plan goes on to discuss specifics of forest resources, agricultural resources, water resources, and wildlife resources, including the conservation and preservation of lands that support these resources. The Ludlow Town Plan includes a Conservation land use district. "The purpose of this area is to provide for outdoor recreational activities, as well as to conserve forests for sustainable forestry, wildlife habitat, improved water quality and the preservation of Ludlow's rural character." (Ludlow Town Plan at 90) The plan includes goals from the promotion of renewable energy. Policies require the town to "(c)ontinue to evaluate the placement of electric lines and facilities for health, safety, and aesthetic concerns." (Ludlow Town Plan at 54) The NECPL is consistent with the Ludlow Town Plan insofar that the HVDC will be installed underground within existing public road ROWs. The converter station and the line have been designed to significantly minimize impacts to natural and cultural resources, including aesthetic concerns.

### **Cavendish**

Within the Town of Cavendish, the Project is less than a few hundred feet into the town. Most improvements will be within the existing VELCO Coolidge Substation and will not conflict with the Cavendish Town Plan.

## **Regional Plans**

### **Plan for the Northwest Regional**

The Plan for the Northwest Region (“Northwest Regional Plan”) includes specific policies for utility ROWs.

- 4.9 Whenever feasible utilities should share rights-of-way and /or easements.
- 4.10 Utility rights of way and public investment should be planned so as to minimize environmental, cultural and environmental impacts, particularly seeking to minimize development pressure on agricultural and forest lands.
- 4.11 Utility lines should be buried when crossing locally or regionally designated historic, cultural and scenic areas or otherwise be strategically located to minimize adverse impacts on these resources.
- 4.12 Utility rights of way should not traverse resource and conservation lands including, but not limited to, agricultural lands.
- 4.13 Development or maintenance of utility systems or facilities that result in or create an undue adverse impact on municipal services, natural resources and/or other unique features shall be discouraged. (Northwest Regional Plan at 4.28)

Within the jurisdiction of the Northwest Regional Plan, the Project will be installed overland for less than one mile. Even so, the Project will be consistent with policies of the plan. It will be installed within an existing road ROW, with exception for a short stretch to connect with Lake Champlain. The Project design will minimize cultural and environmental impacts. Even though the HVDC will cross Agricultural/Resource Lands, the Project will be buried underground and will not impact the agricultural potential for this area. The NECPL is consistent with the goals, policies and objectives of the Northwest Regional Plan.

### **Rutland Regional Plan**

The largest portion of the HVDC line route is located within the Rutland Region. The Rutland Regional Plan provides encouragement for the conservation of the natural landscape. The Future Use of Land Map includes Development-Constrained Area but is more conceptual. As is often the case with regional plans, the Rutland Regional Plan provides encouragement and support to member towns for the implementation of specific standards through their own plans and regulations. The NECPL is consistent with the general goals and policies of the Rutland Regional Plan, insofar as the Projects design will minimize impacts to cultural and natural resources.

### **Southern Windsor County Regional Plan**

Similar to the Rutland Regional Plan, the Southern Windsor County Regional Plan (“SWC Regional Plan”) includes general goals, policies and objectives and provides encouragement and support to member towns for the implementation of specific standards. Within the Future Land Use section, the Resource area is provided to represent a combination of conserved lands. The plan states “(a)ll land uses, including roads and utilities should avoid fragmenting large blocks of forested lands, wildlife habitat and wildlife travel corridors.” The SWC Regional Plan continues to provide encouragement for the conservation of agricultural and forested lands, of wildlife habitat and scenic lands, and for the development of open space plans. The plan also promotes the use of cleaner and alternative energy resources. The NECPL is consistent with the Southern Windsor County Regional Plan, in that the Project is designed to minimize

impacts to important resources in the region. The HVDC line will be installed within public road ROWs and will avoid the fragmentation of contiguous resource lands. The converter station is located in an area that avoids natural resource impacts, while significantly avoiding aesthetic impacts.

Overall, a main focus of Municipal and Regional Plans is to direct development and ensure orderly development. All of the town plans reviewed included general provisions to encourage clustered development that preserves resources. Most of the plans also include statements supporting the use of renewable energy. The NECPL is consistent with these two general policies.

**Summary of Project Conformity with Overland Town/Regional Plan Land Conservation Measures**

<b>Town or RPC</b>	<b>Does the Plan(s) Contain Relevant Provisions?</b>	<b>Do the Plan(s) Provisions Include Specific Land Conservation Standards?</b>	<b>Is the Project Consistent with the Provisions of the Town Plan?</b>
<b>Town Plans</b>			
Alburgh	Yes	Yes	Yes
Benson	Yes	No	Yes
West Haven	Yes	Yes	Yes
Fair Haven	Yes	Yes	Yes
Castleton	Yes	No	Yes
Ira	Yes	Yes	Yes
West Rutland	Yes	Yes	Yes
Town of Rutland	Yes	Yes	Yes
Clarendon	Yes	No	Yes
Shrewsbury	Yes	Yes	Yes
Wallingford	Yes	No	Yes
Mount Holly	Yes	Yes	Yes
Ludlow	Yes	Yes	Yes
Cavendish	Yes	Yes	Yes
<b>Regional Plans</b>			
Northwest Regional Planning Commission	Yes	Yes	Yes
Rutland Regional Planning Commission	Yes	No	Yes
Southern Windsor County Regional Planning Commission	Yes	No	Yes

Based upon the review of these planning documents, the NECPL **will not** unduly interfere with the orderly development of the region

## V. References

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- Clarendon Town Plan, Adopted March 22, 2010, <http://www.clarendonvt.org/pdf/town-plan.pdf>
- Town of Shrewsbury, Vermont, Town Plan, Effective: November 2013 – November 2018, [http://kevaco.net/shrewsburyvt/wp-content/uploads/2014/03/2013\\_Town\\_Plan.pdf](http://kevaco.net/shrewsburyvt/wp-content/uploads/2014/03/2013_Town_Plan.pdf)
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- Mount Holly Town Plan, Adopted April 8, 2008, [http://www.mounthollyvt.org/planning\\_commission\\_docs/TownPlan07/FINAL\\_Feb/S\\_CompiledFINAL.pdf](http://www.mounthollyvt.org/planning_commission_docs/TownPlan07/FINAL_Feb/S_CompiledFINAL.pdf)
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