Alburgh Substation Project

Alburgh, Vermont

Aesthetic Analysis Report

October 29, 2014

Prepared for:

Prepared by:

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Appendices

I. Introduction

T. J. Boyle Associates, LLC ("TJB"), a landscape architecture and planning firm located in Burlington, Vermont, was retained by the Vermont Electric Coop ("VEC") to conduct a visual analysis to evaluate potential impacts due to a proposed new electrical substation in the town of Alburgh, Vermont (referred to as the "Alburgh Substation Project" or "Project"). The aesthetic analysis determines whether changes to the landscape's visual character attributable to the proposed Project are adverse, and if so, whether they are also undue. This report presents the findings and conclusions of the aesthetic analysis.

T. J. Boyle Associates has conducted field visits, analyzed GIS data, 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.

Figure 1: Route 2 looking northwest at the existing VEC Alburgh Substation.

II. Project Description

Vermont Electric Cooperative, Inc. (VEC) plans to seek approval under 30 V.S.A. § 248 from the Vermont Public Service Board for a Certificate of Public Good to: (1) decommission VEC's existing Alburgh Substation ("Existing Substation") located at 149 Summit Road, Alburgh, Vermont; (2) construct a new substation approximately one mile north of the Existing Substation near 512 Route 2S in Alburgh, Vermont ("New Substation"); and (3) install 46 kV and distribution line extensions to connect the New Substation to existing VEC lines. VEC needs to rebuild the Existing Substation because it has aged equipment and the Existing Substation is too close to US Route 2S

VEC's Existing Substation is approximately 50 feet by 50 feet and is located very close to US Route 2S, approximately 20 feet away. The Project will remove all equipment within the Existing Substation, including the fence (see figure 1). The New Substation will be a steel framed substation, located approximately one mile to the north of the Existing Substation and approximately 300 feet west of 512 US Route 2S in Alburgh. The New Substation footprint would be approximately 90 feet by 120 feet, which would allow for safer working clearances, and allow VEC to upgrade aged equipment. VEC would install a new transformer that is the same size as the transformer at the Existing Substation with secondary oil containment. VEC also would install new substation equipment and an additional distribution bay to allow for maintenance, expedited restorations, and to account for any future load growth or reallocation. An existing dirt road will be utilized to access the New Substation. Exhibit VEC-KS-4 (New Substation Site Plan).

VEC proposes to install new lighting as part of the Project. VEC has positioned the new lighting along the fence line such that the lighting will not be pointed in the direction of the surrounding homes. The new lighting will allow for safe operation and maintenance at this location. The lighting will normally be off, and will be utilized during planned night-time maintenance or unplanned system events.

VEC would install approximately 750 feet of new transmission line on five new single wooden poles, approximately 45 feet to 50 feet in height above-ground and approximately 250 feet apart, from the New Substation to the existing transmission line. VEC would also install four wooden poles, approximately 45-50 feet in height above-ground and approximately 125 feet apart, from the New Substation to Route 2 to support distribution lines from the New Substation to the existing distribution lines. The new transmission poles would carry 3 transmission wires and 4 distribution wires. The distribution poles would carry 8 distribution wires.

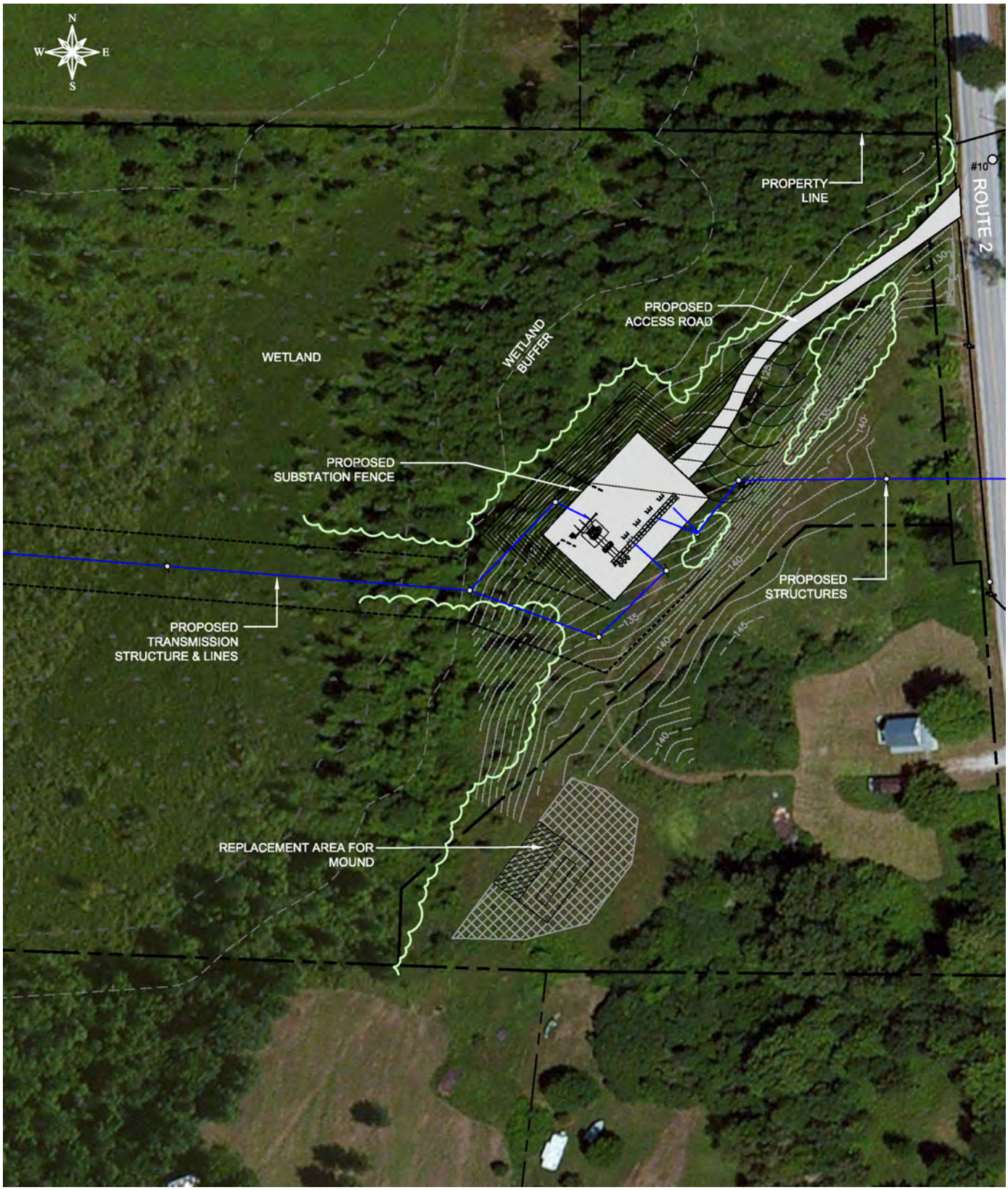


Figure 2: **Detailed aerial photo of Project site and surrounding area.**

III. Methodology

Section 248(b)(5) of Title 30, Vermont Statutes Annotated requires the Board to make a finding that a proposed electrical transmission Project will not have an undue adverse effect on aesthetics, as outlined in the so-called "Quechee Lakes Decision" (Quechee Lakes Corporation, #3EW0411-EB and #3O439- EB [1986]). As explained in the Public Service Board's recent order in Docket No. 6860, this Board applies the Quechee Test in Section 248 proceedings, as follows:

> The Public Service Board has adopted the Environmental Board's Quechee analysis for guidance in assessing the aesthetic impacts of proposed projects under Section 248. We have previously explained the components of the Quechee analysis as follows:
>
> > In order to reach a determination as to whether the project will have an 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 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, three distinct methods have been used: (1) background data collection, (2) GIS viewshed analysis mapping, 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 or points (such as the top of substation equipment or transmission / distribution line structures), representing the Project to all other locations within a designated study area. Figure 3 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 Appendix A, Map 2) 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 Appendix A, Map 3) is created to represent a "Vegetated Viewshed." This map shows how forest trees, in addition to landform, may block views of the Project. The data used to identify forested areas is based on the 2012 National Land Cover Database (NLCD). This analysis reflects a conservative assumption that the forest canopy is only 40' high, 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) is not included in this analysis. This map represents a more likely potential area from which the Project could be visible than the Terrain Viewshed.

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 3 illustrates the difference between the Terrain Viewshed and the Vegetated Viewshed maps.

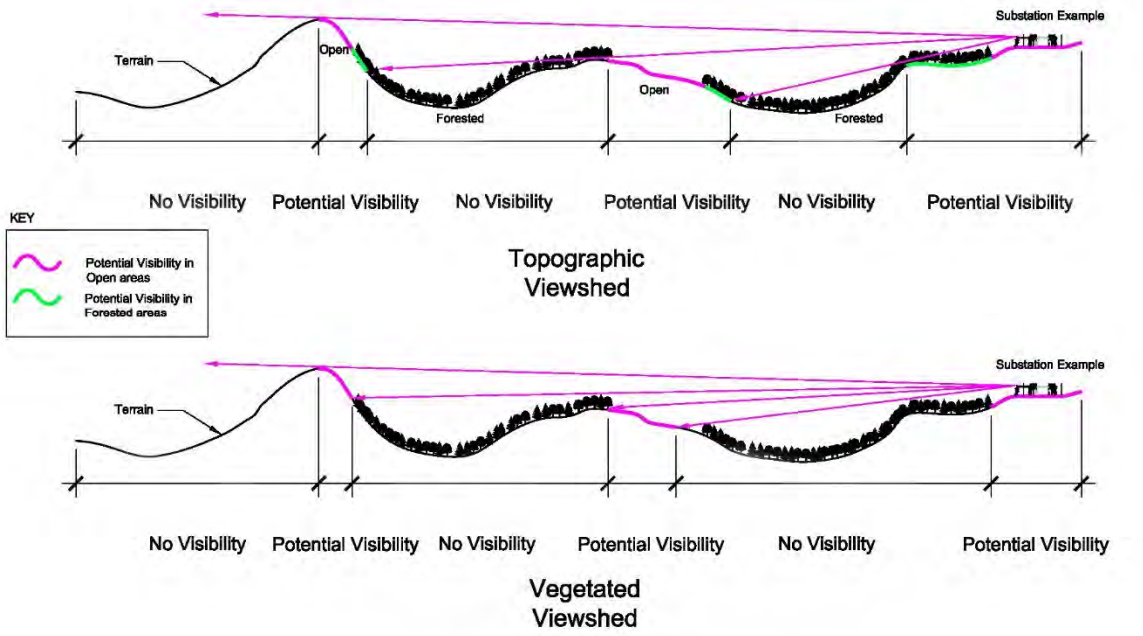


Figure 3: Terrain Viewshed and Vegetated Viewshed Diagrams. (Please note this diagram is to illustrate the results of a GIS Viewshed analysis and is not representative of the proposed Project.)

(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

On 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) landscape mitigation plan (Appendix B), and (3) a catalog of photographs (Appendix C). All three components are coordinated through indexed viewpoint numbers.

TJB 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.

IV. Description of the Project Site and Surrounding Area

Although Alburgh is not really an island, but a peninsula reaching south into Lake Champlain from Quebec, Alburgh is considered part of the Lake Champlain Islands. It is also within the Vermont Lowlands physiographic region at the northwest corner of the state. The climate is milder than the rest of the state due to the low average elevation. The growing season is longer in this region and has fertile soil. The lowlands receive less precipitation and the rocks in this area comprise of sedimentary and metamorphic which includes limestone, shale, marble and slate. The proposed substation is located off Route 2 south of Alburgh Center and Village in a predominantly rural residential area with a mix of open fields and wooded areas.

US Route 2 connects with the mainland of Vermont to the south end of the islands and provides a connection to the state of New York to the north. US Route 2 is mostly rural, with a mix of agricultural uses, rural residential, open natural areas, recreational uses and the Alburgh Village and Town Center. The landscape is relatively flat with very gentle rolling hills.

The Project parcel is partially wooded with a large wetland to the north and west of the proposed substation site. The closest portion of the New Substation fences is approximately 225 feet west of Route 2. There is an existing VEC corridor along the western edge of the Project parcel which contains transmission and distribution infrastructure. As a result of topography and vegetation immediately along the western edge of Route 2, views to the project site are limited.

Figure 4: USGS map of the area around the Project site.

V. Evaluation of Impacts

Field investigation concentrated on areas identified to have potential visibility, based on the GIS viewshed mapping. The following section evaluates impacts for each of those individual locations. When evaluating the impact of the Project on whole, we consider the cumulative impact from the individual locations, the intensity of use at locations that are identified to have views and the severity of any potential impact.

1. US Route 2 — ADVERSE

US Route 2 is a Class 40 Federal Highway road and has the highest concentration of use in the area. This highway runs north to south connecting the islands with the mainland of Vermont and the state of New York. The project location is south of the Alburgh Village area and west of Dillenbeck Bay. The majority of this area is agricultural activity with a mix of rural residential, excluding the village center. There is a heavy presence of recreational activity mostly based on the water resources of Lake Champlain and interconnecting bays. The existing transmission line and VEC corridor along the western edge of the Project parcel is not readily visible from US Route 2, adjacent to the Project site.

Figure 5: Viewpoint 10, Route 2 looking southwest at proposed VEC Alburgh Substation location. (18mm) The arrow marks the existing dirt road, which will be used to access the New Substation.

The proposed substation is expected to be located 4,800' north of the existing substation off Summit Road. This is a 15.2 acre parcel containing existing transmission line infrastructure along the west side of the parcel. The approximate substation elevation is 133 feet and the road elevation is approximately at 128 feet in Figures 5, 6, and 7. The New Substation will have a significant setback from US Route 2 (+/- 225 feet) versus the existing substation located immediately adjacent to the road edge. The existing dirt road will be

upgraded with a gravel surface, no more than 20 feet at the widest point and will be 320 feet in length to access the New Substation. The arrow in Figure 5 shows approximately the location of the access road. Vegetation will be removed along the proposed access road, substation yard and along the fill slope. The exiting and entering transmission and distribution structures will be 38.5' in height and will run nearly perpendicular to the existing transmission line on site to the west, and east to US Route 2. An existing overhead distribution line runs parallel to Route 2.

Figure 6: South of Viewpoint 10 adjacent to project site. From Route 2 looking southwest at proposed VEC Alburgh Substation location. The topography and vegetation at the top of slope will screen most if not all of the New Substaton at this location and help to screen the proposed structures.

Public views of new transmission infrastructure associated with the Project are generally limited to locations along US Route 2. Potential intermittent visibility will be possible at limited locations for a stretch of approximately one-half mile along the road, adjacent to the Project site. Views will be limited to isolated spots, scattered along the road corridor. The wooded vegetation and topography does not allow for consistent and long duration views to the site. The most direct view towards the New Substation and transmission/distribution lines will be along the access road when traveling southbound on Route 2. Views immediately east of the New Substation will be screened by the steep berm adjacent to Route 2. Limited views from further south on US Route 2, when traveling north may be possible of limited portions of Project components, including the top of the substation equipment. Leaf-off conditions will have a marginal increase in visibility. Figure 6 highlights the small rise in topography immediately adjacent to the road. Section A (Appendix 3) illustrates the relationship of the New Substation to Route 2 and how the intermediate landform will screen views of the substation.

The two proposed VEC structures along Route 2 will be the most visible project components when traveling northbound. The closest structure is located 12' off the road to the east, while the structure to the

west will be 80' off the road up the slope. These potential views of both these structures will be brief and will be similar to other existing distribution infrastructure along Route 2. Beyond the approximate one-half mile of limited visibility, the Project will not be a visible component within the landscape from along US Route 2.

Figure 7: Viewpoint 9, Route 2 looking north along Route 2, west of the New VEC Alburgh Substation location.

Although visibility of the Project will be limited, due to the contrast of the electrical transmission infrastructure to the existing conditions of the site, the Project will result in mildly adverse impacts to the aesthetics of the area. The help mitigate views of the New Substation, landscape mitigation plantings have been proposed to soften and screen these views. A proposed landscape mitigation plan is included with this report as Appendix 2, which mainly consists of coniferous, or evergreen plantings. This planting will supplement existing vegetation that will largely screen the substation from the beginning. To allow the mitigation plantings to be most effective, the locations of plantings should be marked after construction in the field. As an example, plantings along the access road will help narrow views to southbound travelers and will overtime significantly eliminate most visibility of the New Substation.

2. Other Rural Roads & Long Distant Views — NOT ADVERSE

Several other areas were investigated during field investigation, noted as having potential visibility on the GIS viewshed maps. At the most, only minor visibility of Project components was identified at these locations, but more often, these areas were found not to have visibility of the Project. Views at these locations were blocked by landscape vegetation, small hedgerows, buildings and other landscape elements not represented within the GIS data. Since there is no visibility or very minimal visibility from these areas, the Project will not result in adverse impacts at these locations.

Figure 8: Viewpoint 1, Route 2 looking from a distant view towards the proposed VEC Alburgh Substation location.

Figure 10: Viewpoint 12, View looking northwest, taken from the opposite side of Lake Champlain, east of the Project near New North End Road in Colchester. looking northwest. Views are limited from public roads on this side of the bay.

VI. Project Mitigation

A number of mitigating elements have been implemented as part of the Alburgh Substation Project.

1. The first and greatest form of mitigation is the location and design of the proposed New Substation. The proposed site locates it away from heavily used areas and significantly reduces visibility of Project upgrades. The substation will be built approximately 250' away from Route 2.

2. The Project will enable the removal of the Existing Substation, which is immediately adjacent to and readily visible from US Route 2. The Project will remove all equipment within the Existing Substation, including the fence.

3. The substation is sited on a parcel that currently contains, and has historically contained, transmission infrastructure. Potential visual impacts will have only incremental effects. The proposed location -adjacent to existing transmission infrastructure - will reduce the amount of infrastructure required.

4. Landscape mitigation plantings are being proposed at the one area identified as having views of the substation. Plantings will screen and soften views at this single location identified as having visibility of the new substation.

VII. 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.*

For the Alburgh Substation Project the Northwest Regional Planning Commission, *Plan for the Northwest Region 2007-2012 Effective October 3, 2007* and the *Town of Alburgh Town Plan. Adopted July 26, 2011* were reviewed.

Regional Plans

The Northwest Regional Planning Commission ("NRPC") *Plan for the Northwest Region 2007-2012* was reviewed as part of this study.

Scenic & Aesthetic Resources

The Northwest Vermont region is an extremely rich visual mosaic of diverse landscapes, from the sweeping agricultural viewsheds of the Lake Champlain islands, to the heavily wooded Western slopes of the Green Mountains. It is the visual language of place which instrumentally shapes our perceptions and recollections. These cognitive maps are translated into the verbal language of the region's communities, and are integrated into the vernacular of nearly every aspect of daily life. Descriptions like "a mile past the Bay Bridge;" "over the other side of St. Albans hill;" "take a left just before the big island" are usually met with nods of recognition by those whose experience of place has taught them to speak the language.

"Visually Sensitive" Areas

Despite the importance of these resources to the definition of regional character and sense of place, scenic and aesthetic concerns are often difficult to quantify, and can be challenging to incorporate into comprehensive planning endeavors. However, efforts have been made which attempt to categorize scenic resources for more effective protection and appropriate use.

A committee formed by the Vermont Agency of Natural Resources defined six types of "sensitive landscapes" as viewed from public vantage points, which deserve special consideration in planning, design and project review. These landscape types, shown in the example of Table 3.3, were published by the Agency in Vermont's Scenic Landscapes: A Guide for Growth and Protection (VANR 1991). (Regional Plan Chapter 3 at 3.22)

Table 3.3 PLANNING FOR VISUALLY SENSITIVE AREAS	
Challenge	**Prescriptions for minimizing visual impact**
Open fields and meadows	- cluster buildings at the edge of open fields
Ridgelines, hilltops, and peaks	- locate new development down-slope - provide screening to prevent visual dominance of the landscape
Shorelines	- set new development back from water bodies- prevent visual obstruction between existing vantage points and new structures to water bodies- provide visual screening of structures from water viewpoints
Foregrounds of distant views	- proper siting to avoid "blocking the view"- screen development to help blend with existing landscape
Steep slopes	- avoid development on steep slopes, where visibility is high and conditions for development are poor
Historic settlements / gateways	- design developments which harmonize with the traditional pattern and scale of development- maintain a distinct visual "edge" between developed areas and the surrounding landscape

With sensitive siting and design even the most scenic landscapes may be developed and still retain much of their intrinsic character. Aesthetic considerations are recognized as a legitimate public concern under Criterion 8 of Act 250 (See "Quechee Decision"). Failure to legitimize aesthetic values through site-sensitive development could damage the region's sense of place as well as hamper the regional tourism economy.

Scenic Highways and Corridors

Scenic highways and corridors link natural, cultural, and scenic resources, as well as to the historical landscape of the area. The National Scenic Byways Program was created as to induce economic development, manage traffic, promote tourism, and protect natural and cultural resources through the recognition of these important resources. Locally, the Lake Champlain Byways Program seeks to balance economic development and tourism with resource stewardship around Lake Champlain by developing a collaborative vision for Lake communities in Vermont and New York. The Lake Champlain Byway includes US Route 2 in Grand Isle County. (Regional Plan Chapter 3 at 3.23)

Natural & Cultural Environment Resources Goals, Policies & Objectives

Scenic and Aesthetic Resources Goals:

3.14 To preserve significant scenic and aesthetic resources of the region for the benefit of current and future generations.

3.15 To encourage land uses that enhance the image of a working, sustainably managed, natural resource based economy balanced with settled towns and wild lands. (Regional Plan Chapter 3 at 3.26)

Objectives:

3.6 Work with municipalities to identify locally and regionally significant scenic resources.

3.7 Assist towns in researching and implementing strategies that preserve scenic resources.

3.8 Work with state and federal agencies regarding projects or policies that would adversely impact the region's scenic resources and develop strategies to reduce the impact. (Regional Plan Chapter 3 at 3.27)

Utilities, Facilities & Services Goals, Policies & Objectives

General Goals:

4.1 To insure that the region's infrastructure has adequate capacity to meet current needs and planned growth in a timely and cost-effective manner.

Policies:

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. (Regional Plan at Chapter 4 at 4.28)

Energy Goals, Policies & Objectives

General Goals:

6.6 Generation, transmission and distribution lines or corridors should avoid adverse impacts on significant wetlands, plant and animal habitat, and recognized historic, natural, or cultural resources. (Regional Plan at Chapter 6 at 6.9)

Objectives:

6.3 NRPC will continue to review and/or participate as a statutory party in Public Service Board Section 248 applications for a Certificate of Public Good. (Regional Plan at Chapter 6 at 6.10)

Land Use Goals:

6.3 Encourage energy efficient and energy conserving patterns of land use.

6.22 Plans for generation, transmission and distribution lines should incorporate the following design principles:

1. Rights of way shall not divide land uses, particularly agricultural lands and large contiguous forest parcels.
2. Geographic features should be used to minimize the visual impacts of corridors. Corridors, lines and towers should not be placed on prominent geographic features such as ridge lines and hilltops.
3. Placement and maintenance of utility lines should minimize the removal of vegetation and the disruption of views from public highways, trails and waters. (Regional Plan at Chapter 6 at 6.10)

Land Use Goals, Policies & Objectives

General Goals:

7.3 Maintain and preserve the scenic resources of the region for the benefit of current and future generations.

General Policies

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. (Regional Plan at Chapter 7 at 7.16)

The Regional Plan covers a wide range of topics for the Northwest Region, including land use, housing, economics, cultural resources and other community issues. As is often true of Regional Plans,

encouragement is offered for the constituent towns to review their own needs and desires, and there are rarely any specific guidelines for scenic quality control. With regard to aesthetics and energy sources, the basic premise offered in the plan is a general interest in the growth of the energy infrastructure and services portfolio with generalized statements regarding the value and protection of scenic resources and the character of the region.

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.

Alburgh

The *Town of Alburgh Town Plan (Adopted July 26, 2011)* was reviewed.

"Land Use"
Goals: To preserve and protect scenic resources, including significant scenic roads, waterways, and views, and important landscape features of the town." (Town Plan at 8)

"Chapter 7 - Utilities, Facilities & Services"
Proposals for new towers, upgrades to existing facilities, and upgrades to similar structures such as high voltage electric transmission lines must adequately address the following issues to be found compatible with this Plan:

- All such facilities shall be located in appropriate areas, respecting the integrity of residential areas, aesthetic concerns, agricultural uses and natural resources. Protection of scenic beauty is of great importance.
- Wherever possible, facilities shall be co-located at or on existing structures or facilities, unless the Planning Commission determines that separate facilities will create less visual impact or disturbance to the community.
- Towers, related facilities and similar structures shall only be as tall as absolutely necessary. Where towers are located within tree lines, they should be made extendable, so they can "grow" with the trees, and maintain the minimum height above the treetops.
- Structures shall be designed to minimize aesthetic impacts. Equipment sheds can be hidden in trees; depending on site-specific circumstances, tower structures may be monopole or lattice, of appropriate colors and minimal reflectivity, or even disguised as steeples, trees or as part of silos. Towers, related facilities and similar structures shall be screened from view to the greatest extent possible.
- Electric or transmission lines shall be installed so as to minimize aesthetic and ecological impacts.

Chapter. 9 Energy
Alburgh can also work with local utility companies to promote energy conservation programs aimed at residences and businesses, to reduce energy demand, save money, and preserve natural Resources. (Town Plan at 70)

The location of the proposed changes will minimize visibility of the Project to the general public, therefore minimizing impacts on scenic and aesthetic resources. Based on review of these planning documents, the proposed Project does not violate any clear written community standard.

VIII. Conclusions

In review, the findings of this analysis conclude the overall visual impact of the VEC Alburgh Substation Project in Alburgh, Vermont will result in ADVERSE impacts to the aesthetics of the area in which it is being proposed. However, these impacts will be limited and generally mild and COULD NOT be considered undue for the following reasons:

1) The Project would not be shocking or offensive based on the reasons outlined above.
    a. The Project site is appropriately located to significantly limit views from the surrounding geographical area.
    b. Potential public viewing locations of the substation are generally limited to a short stretch of US Route 2, and views will be at intermittent locations and will be short in duration.
    c. Overall, The Project will not be a dominant or highly visible feature in the landscape.

2) The conformance review found that the Project did not violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area.

3) The applicant has taken all reasonable mitigation steps including:

    a. Selection of a well sited location for the substation that significantly limits potential visibility.
    b. The project is located adjacent to existing utility infrastructure and wooded vegetation screens most of the surrounding viewing areas.
    c. Proposed landscape mitigation plantings will screen and soften possible views.
    d. The Project will enable the removal of the Existing Substation, approximately 1 mile to the south on Route 2, which is much more visible than the New Substation.

In conclusion, we believe this Project meets the Quechee Test insofar as its impact on aesthetics will NOT be UNDULY ADVERSE.

IX. References

Northwest Regional Planning Commission. *Plan for the Northwest Region 2007-2012. Effective October 3, 2007.* (Accessed August 22, 2014). *http://www.nrpcvt.com/Publications/Reports/RegionalPlan.pdf*

Town of Alburgh, Vermont. *Town of Alburgh Town Plan. Adopted July 26, 2011.* (Accessed August 22, 2014*) http://www.nrpcvt.com/Publications/TownPlans/AlburghTownPlan.pdf*

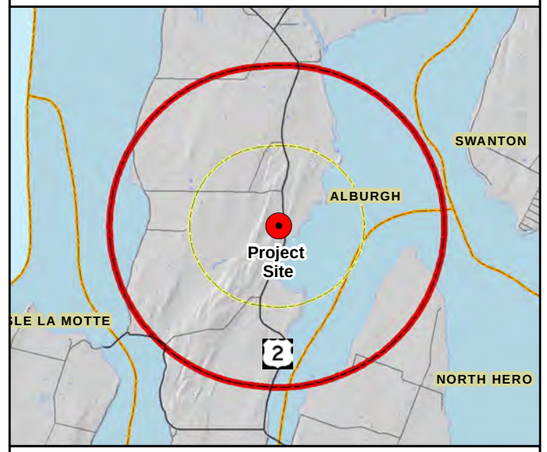
Appendix 1

Project Maps

Aesthetic Analysis Report

Alburgh Substation Project

Context Map



General Information

Map 1
Aerial Context Map

September 2014

Legend

- Viewpoint Locations
- Inventory Route
- Proposed Substation Layout
- Utility Transmission Lines
- 1-Mile Study Area
- 2-Mile Study Area
- Recreation Sites
- Public Conserved Lands
- Hydrology

0 0.25 Miles

NORTH

GIS viewshed mapping is a preliminary means of visual analysis. While beneficial for preliminary orientation and investigation, because of data assumptions and omissions, viewshed maps are not a definitive indication of visibility. Potential visibility needs to be confirmed through field investigation and other visualization techniques.

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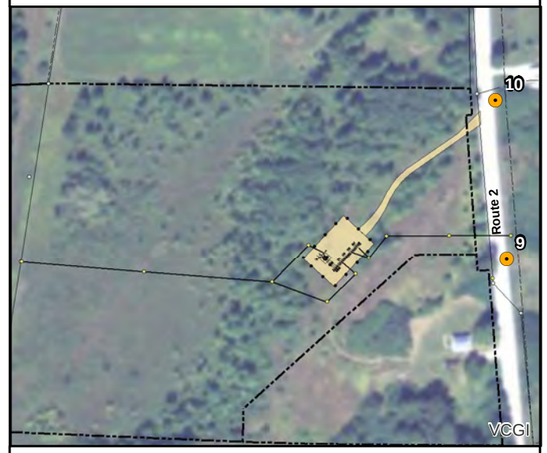
Alburgh Substation Project

Proposed Substation Layout



General Information

Map 2
Terrain Viewshed Map

September 2014

Legend

- Viewpoint Location
- Inventory Route
- Proposed Substation
- 1-Mile Study Area
- 2-Mile Study Area
- Utility Transmission Lines
- Private Roads

Visibility within Non-Forested Areas (30-40' High)

High : 16 Low : 0

Visibility within Forested Areas (30'-40' High)

High : 16 Low : 0

0 0.25 0.5 Miles

NORTH

GIS viewshed mapping is a preliminary means of visual analysis. While beneficial for preliminary orientation and investigation, because of data assumptions and omissions, viewshed maps are not a definitive indication of visibility. Potential visibility needs to be confirmed through field investigation and other visualization techniques.

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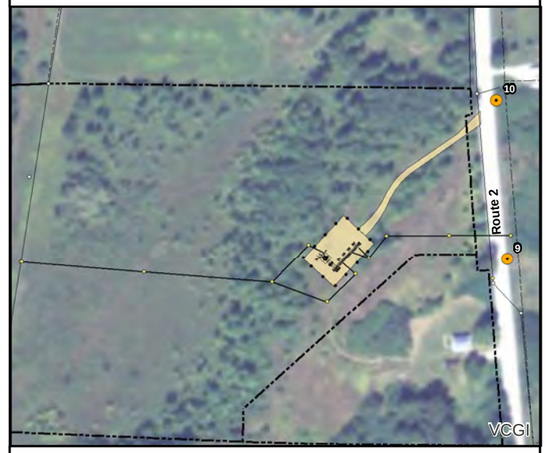
Alburgh Substation Project

Proposed Substation Layout



General Information

Map 3
Vegetated Viewshed Map

September 2014

Legend

- Viewpoint Location
- Inventory Route
- 1-Mile Study Area
- 2-Mile Study Area
- Private Roads
- Utility Transmission Lines
- 20' Contours

Vegetated Viewshed (30' - 40' High)

High : 16 Low : 0

0 0.25 0.5 Miles

NORTH

GIS viewshed mapping is a preliminary means of visual analysis. While beneficial for preliminary orientation and investigation, because of data assumptions and omissions, viewshed maps are not a definitive indication of visibility. Potential visibility needs to be confirmed through field investigation and other visualization techniques.

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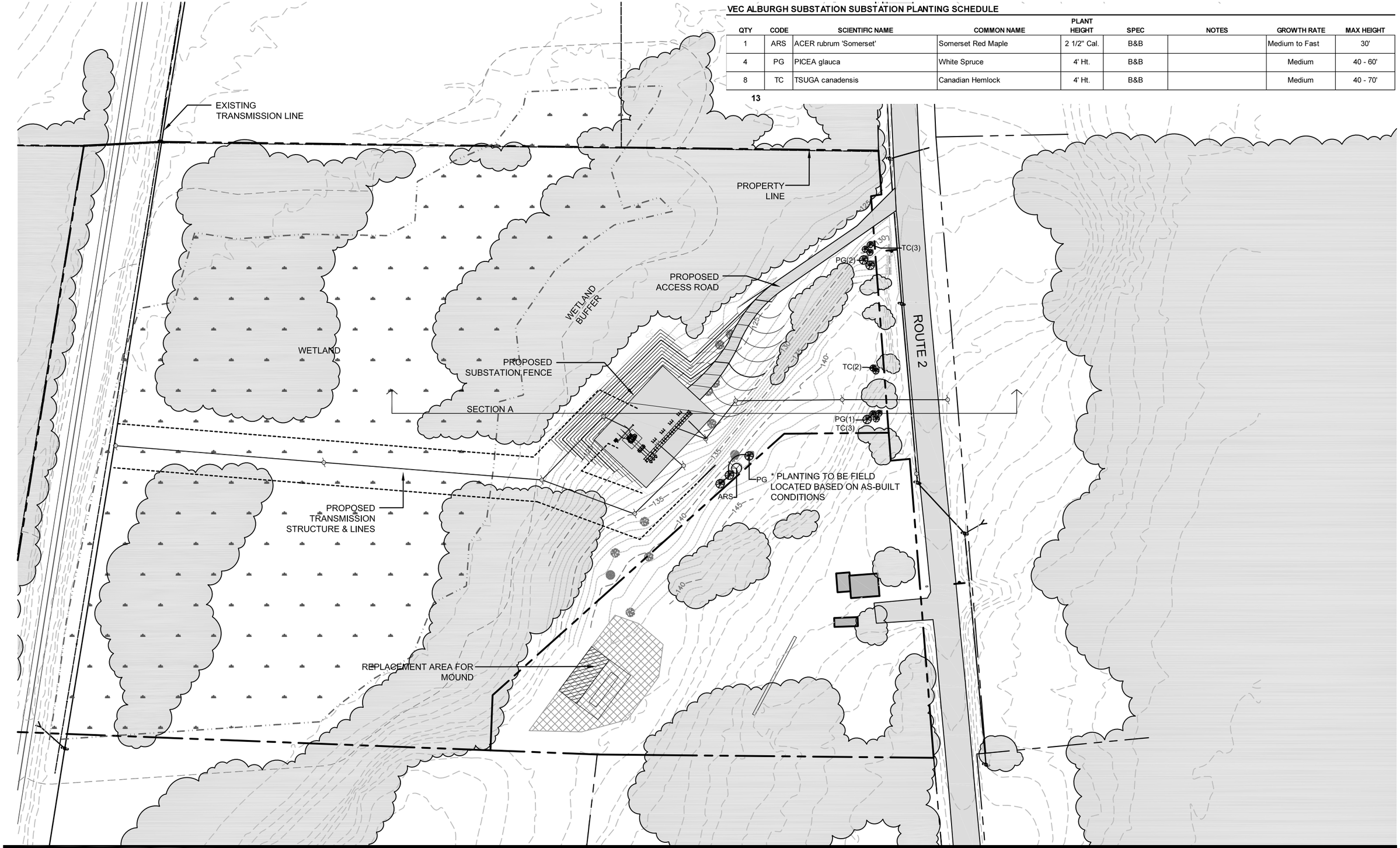
Appendix 2

Landscape Mitigation Plan

Aesthetic Analysis Report

VEC ALBURGH SUBSTATION SUBSTATION PLANTING SCHEDULE

QTY	CODE	SCIENTIFIC NAME	COMMON NAME	PLANT HEIGHT	SPEC	NOTES	GROWTH RATE	MAX HEIGHT
1	ARS	ACER rubrum 'Somerset'	Somerset Red Maple	2 1/2" Cal.	B&B		Medium to Fast	30'
4	PG	PICEA glauca	White Spruce	4' Ht.	B&B		Medium	40 - 60'
8	TC	TSUGA canadensis	Canadian Hemlock	4' Ht.	B&B		Medium	40 - 70'



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north

jds drawn by | 09-11-2014 date | scale 1" = 100'

Alburgh Substation Project

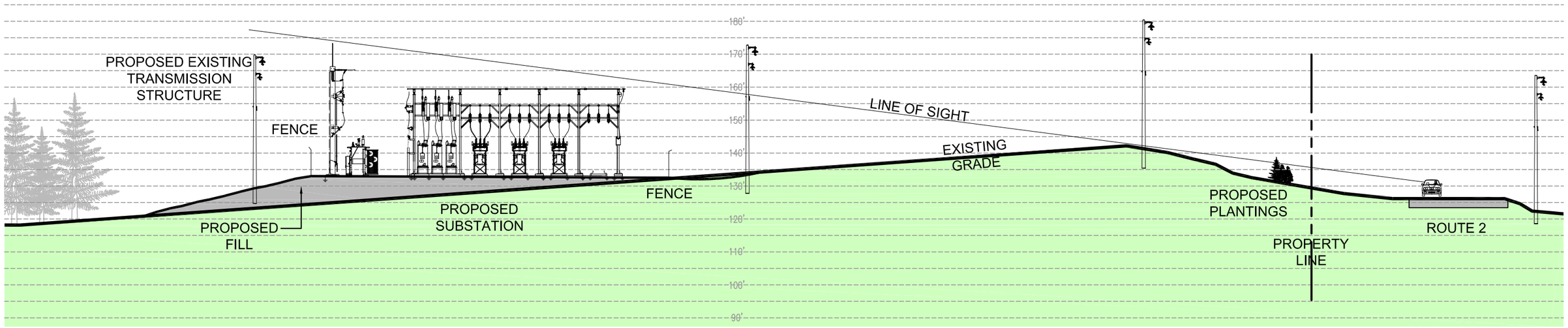
Landscape Mitigation Plan

sheet no: S-1

Appendix 3

Illustrative Section

Aesthetic Analysis Report



1
S - 2

SECTION A
SCALE: 1" = 30'

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jds drawn by | 09-11-2014 date | scale 1" = 30'

Alburgh Substation Project

Section A

sheet no: S-2

Appendix 4

Photographic Inventory of Existing Conditions

Aesthetic Analysis Report

Viewpoint # 1: US Route 2, north of Middle Road, looking south. Intervening vegetation screen views to the Project site.

Viewpoint # 2: US Route 2 at Middle Road intersection looking south. Intervening vegetation screen views to the Project site.

Viewpoint # 3: US Route 2, south of Middle Road, looking south. No view to the Project site.

Viewpoint # 4: From US Route 2 at Wagner Point Road, south of the New Substation, looking north. No view to the Project site.

Viewpoint # 5: US Route 2, at Summit Road, looking north towards the New Substation, with the Existing Substation to the left. Views to the Project site are screened by intervening vegetation.

Viewpoint # 6: View from US Route 2, north of Summit Road, looking north at vegetation which block views to the Project site.

Viewpoint # 7: View from US Route 2 at Goose Point, looking northwest. No view to the Project site.

Viewpoint # 8: US Route 2, just southeast of and looking northwest towards the proposed site. No view to the Project site.

Viewpoint # 9: View from US Route 2, adjacent to the Project site looking northwest at vegetation and a small rise in topography along the west site of the road.

Viewpoint # 10: View from US Route 2, adjacent to the proposed site looking southeast. The arrows highlight the access road.

Viewpoint # 10: Same view as the previous image with a wide angle focal length (27mm equivalent). Again, notice the existing vegetation and rise in topography along the west side of the road.

Viewpoint # 11: View from US Route 2, slightly north of the Project site, looking southwest towards the proposed location of the New Substation. Views to the site are screened by existing vegetation.

Viewpoint # 12: View from a side road off of New North End Road, Colchester, looking northwest towards the project site across Lake Champlain. No visibility to the site was observed.

Appendix 5

Resume for Principal Author

Education

1992-1998	Bachelor of Landscape Architecture, College of Arts and Architecture, The Pennsylvania State University, State College, Pennsylvania
Spring 1996	Roman Urban Studies, Penn State Department of Landscape Architecture, Rome, Italy

Professional Registration

2011 – Present	Licensed Landscape Architect, Vermont No. 81719

Professional Experience

2007-Present	Principal / Landscape Architect, T. J. Boyle Associates LLC, Burlington, Vermont
2001- 2007	Landscape Architect, T. J. Boyle and Associates, Burlington, Vermont
1998-2001	Landscape Architect, Greenhorne & O'Mara Engineers & Planners, Inc., Germantown, Maryland
Summer 1998	Private Contractor, Centre County Historical Society, State College, Pennsylvania

Related Project Experience

New England Clean Power Link

Manger for the visual impact assessment portion of a 1,000 megawatt (300 to 320 kV) HVDC transmission line and converter station. The VIA will address aesthetic impact requirements for permitting within the state of Vermont and for the EIS.

Green Lantern Capital Solar Development

Manager for the visual analysis for the development of over 5.5-MW or solar electric generation facilities, broken into 500 to 1,000 kW net metered Projects. Many of these projects will be co-owned by the towns in which they are located.

Northern Pass Transmission Environmental Impact Statement

Co-manager for the visual impact assessment portion of the EIS for a 180 mile proposed 300 HVDC transmission line in New Hampshire. T. J. Boyle is a sub-consultant to SE Group to provide EIS services for the U.S. Department of Energy and the White Mountain National Forest.

Technology Drive Solar Project

Managed the visual analysis for a 2.2-MW solar electric generation facility in Brattleboro, Vermont. The Project received a Certificate of Public Good from the Vermont Public Service Board in 2013 and is currently awaiting construction.

Whitcomb Solar Project

Managed the visual analysis for a 2.2-MW solar electric generation facility in Essex Junction, Vermont. The Project received a Certificate of Public Good from the Vermont Public Service Board in 2013 and is currently awaiting construction.

Claire Solar Project

Managed the visual analysis for a 2.2-MW solar electric generation facility in South Burlington, Vermont. The Project received a Certificate of Public Good from the Vermont Public Service Board in 2013 and is currently under construction.

Chester Solar Project

Managed the visual analysis for a 2.2-MW solar electric generation facility in Chester, Vermont. The Project received a Certificate of Public Good from the Vermont Public Service Board in 2013 and is currently under construction.

Environmental Assessment for Wind Resources Offshore Georgia

Provided project management for the visual impact assessment portion of the Draft and Final EA to install meteorological measurement towers and buoys on the outer continental shelf, near Tybee Island, GA. This project will be used to assess the potential for offshore wind development in the area.

Harbor View Solar Project

Evaluated potential visual impacts for a proposed 2.2-MW solar electric generation facility in St. Albans, Vermont. The Project received a Certificate of Public Good from the Vermont Public Service Board in November 2012 and is currently awaiting construction.

Visualization Study for Offshore North Carolina

Managed the creation of multiple high quality visualizations including: 234 single-frame photographic simulations, 21 panoramic simulations, 48 animated videos and six simulated movies for potential offshore wind development. The visualizations were used by the Bureau of Ocean Energy Management to assess aesthetic impacts and finalize the federal offshore lease program for renewable energy projects on the Outer Continental Shelf.

VELCO: Bennington Substation

Managed the visual analysis of a proposed electrical transmission substation located in Bennington, Vermont including coordination of public outreach efforts and investigation of several alternatives with VELCO to gain support from local officials. The analysis included the preparation of testimony, a report, and exhibits including photo simulations of several different design alternatives. The Project received a Certificate of Public Good from the Vermont Public Service Board in August of 2012 and completed construction in 2014.

Lamoille County Sheriff Public Safety Project

Provided aesthetic assessment services, including review under the Quechee Analysis, for the replacement of an existing wireless communication tower in the town of Hyde Park. Several emergency service communication networks will be collocated on the new tower. The project received its Certification of Public Good in 2011 under Section 248a of the Vermont State Statutes.

VELCO: Ascutney Substation

Managed all aspects for the visual analysis of a proposed electrical substation located in Weathersfield, Vermont. Responsibilities included preparation of testimony and report, and oversight of exhibit preparation including photo simulations, for inclusion with the Section 248 petition to the Vermont Public Service Board. The Project received a Certificate of Public Good in April of 2012 and completed construction in 2013.

"SunGen Sharon I" Solar Farm Project – VT Department of Public Service

Reviewed the applicant's petition for a Certificate of Public Good and performed an evaluation of potential aesthetic impacts on behalf of the Vermont Department of Public Service. Responsibilities included preparation of testimony, an aesthetic analysis report, and exhibits for inclusion with the Section 248 filings to the Vermont Public Service Board. This project received a Certificate of Public Good in 2011 and completed construction in 2012.

VELCO: Jay Substation

Evaluated potential visual impacts that would result from a proposed electrical transmission substation in Jay, Vermont. Responsibilities included preparation of testimony, report, and exhibits for inclusion with the Section 248 petition to the Vermont Public Service Board. This project received a Certificate of Public Good in 2011 and construction was completed in 2012.

Williamstown Solar Farm

Evaluated potential visual impacts for a proposed 2.0-MW solar electric generation facility in Williamstown, Vermont. The Project received a Certificate of Public Good from the Vermont Public Service Board in November 2010 and went on line in December 2012.

FairPoint Communications Wireless Broadband

Provided aesthetic assessment services for the permitting of multiple wireless towers throughout the State of Vermont. An initial three-tower project that involved coordination of archaeological and historic resources was approved by the Vermont Public Service Board. Studies for several other sites were completed, but FairPoint discontinued the project.

Vermont Community Wind

Conducted a visual resource study in preparation of filing testimony and exhibits to the Vermont Public Service Board for a proposed 85 MW industrial wind turbine project in Ira, Vermont. Responsibilities included assessment of 60 potential turbine locations, coordination and quality control of GIS data for multiple consultants, coordination on public outreach events and the creation of project visualizations. This project is currently on hold.

Southern Loop Project

Evaluated potential visual impacts as the result of proposed transmission upgrades including the addition of a second 345 kV transmission line within an existing corridor, new and expanded substations and a new 345 kV loop. Responsibilities included preparation of testimony, reports, and exhibits for inclusion with the 248 petition to the Vermont Public Service Board. This project received a Certificate of Public Good in February 2009 and construction was completed in 2011.

East Avenue Loop Project

Managed all aspects of the visual analysis for a proposed 115 kV transmission line upgrade between Williston and Burlington, Vermont, including preparation of a visual analysis report, exhibits, and testimony. This project involved the creation of a highly detailed 3-D model that was presented at several key stakeholder meetings and public open house sessions to help inform the public of the visual characteristics of the proposed upgrades. The Certificate of Public Good for this project was issued in May, 2008. Construction was completed 2009.

Deerfield Wind Project

Co-authored a report, created exhibits, prepared joint pre-filed testimony and testified at a technical hearing before the Vermont Public Service Board to evaluate aesthetic impacts of a seventeen 2.0-MW wind turbine project within the Green Mountain National Forest in southern Vermont. This project has received a Certificate of Public Good and is awaiting construction. Co-authored separate report for the EIS.

Beekmantown Wind Project

Conducted a visual resource assessment for a proposed thirteen-turbine industrial wind farm in Beekmantown, NY. Findings were presented in a Visual Impact Assessment Report, along with maps, photo simulations, sections and other exhibits, and filed as attachment D of the Full Environmental Impact Assessment.

Middlebury Spur Environmental Impact Statement

Prepared a visual assessment for inclusion with an Environment Impact Statement of proposed alternates of a railroad spur and loading facilities in Middlebury, VT. Several photo simulations were prepared in order to evaluate alternate proposals, including at-grade and grade-separated crossings of public roads. The final EIS for this project has been completed.

East Haven Windfarm

Completed a report summarizing the visual analysis of a four-turbine industrial wind project in East Haven, Vermont, and provided testimony to the Vermont Public Service Board. This project was denied a Certificate of Public Good due to inadequate avian impact studies.

Independent Wireless One – Pritchard Mt. Telecommunication Facility Expansion

Prepared exhibits, including several photographic simulations, in support of testimony submitted to Act 250 District Commission #4 for approval of substantial changes to a pre-existing telecommunication tower.

Northwest Vermont Reliability Project

Prepared exhibits in support of testimony submitted to the Vermont Public Service Board for approval of electrical transmission line upgrades from West Rutland to South Burlington to ensure the reliability of Vermont's transmission system. Construction of this project was completed in 2009.

Rensselaer Greens

Provided aesthetic assessment in opposition to a 550-MW cogeneration facility and a recycled newsprint facility, and testified before a joint hearing of the New York State DEC and DPS.

Memberships and Affiliations

1998-present	Member, American Society of Landscape Architects
2002-present	Member, Vermont Chapter of the American Society of Landscape Architects
2003-2010	Member, Vermont Landscape Architecture Licensure Committee
2003-2011	Treasurer, Vermont Chapter of the American Society of Landscape Architects
2007-2010	Member, Outdoor Lighting Advisory Board – State of Vermont
2007-present	Member, Vermont Planners Association
2007-present	Member, Vermont Nursery and Landscape Association
2008-present	Affiliate Member, the Vermont Chapter of the American Institute of Architects
2009-present	Member, Vermont Green Building Network
2010-present	Advisory Board Member, Vermont Technical College – Architectural and Building Engineering Technology Department
2010-present	Member, Village Steering Committee, Town of Hinesburg

Awards

- 2011 Vermont Chapter ASLA – President's Award
- 2009 VPA Plan of the Year Award: Neshobe Farm Planned Unit Development
- 2009 Vermont Chapter ASLA - Honor Award: Neshobe Farm Planned Unit Development
- 2007 Vermont Public Space Awards - Honorable Mention: Lake & College Project
- Spring 1999, Greenhorne & O'Mara Award of Merit
- Grant recipient, City of Gary, Indiana, for nomination of the Lincoln Street Historic Neighborhood to National Register of Historic Places.
- First place, 1996 ASLA Undergraduate Team Research Award