T.J. BOYLE ASSOCIATES
LANDSCAPE ARCHITECTURE & PLANNING

MEMORANDUM

To: Thomas Hand, Northland Solar LLC

From: Jeremy B. Owens

Date: September 26, 2025

Re: Northland Solar Project – Aesthetic Analysis and Orderly Development Review

I. Project Description

The Northland Solar Project (the "Project") is being developed by Northland Solar LLC in the town of Lowell, Vermont. The Project is a proposed 4.999 MW photovoltaic electric generation facility and will include solar modules mounted on single-axis racking systems. The Project site is located on an existing field approximately 549' east of Vermont Route 100 and 312' north of Vermont Route 58E. The fenced Project area will occupy approximately 27 acres of the greater 44-acre parcel.

The proposed solar panels will be grouped in rows running north-south that will be approximately 10' tall on the high side. The panels will be surrounded by a fence that utilizes wooden posts and is 7-8' in height. The Lowell Village and nearby residential uses are located west, southwest and south of the site, and forested areas are located to the east and north.

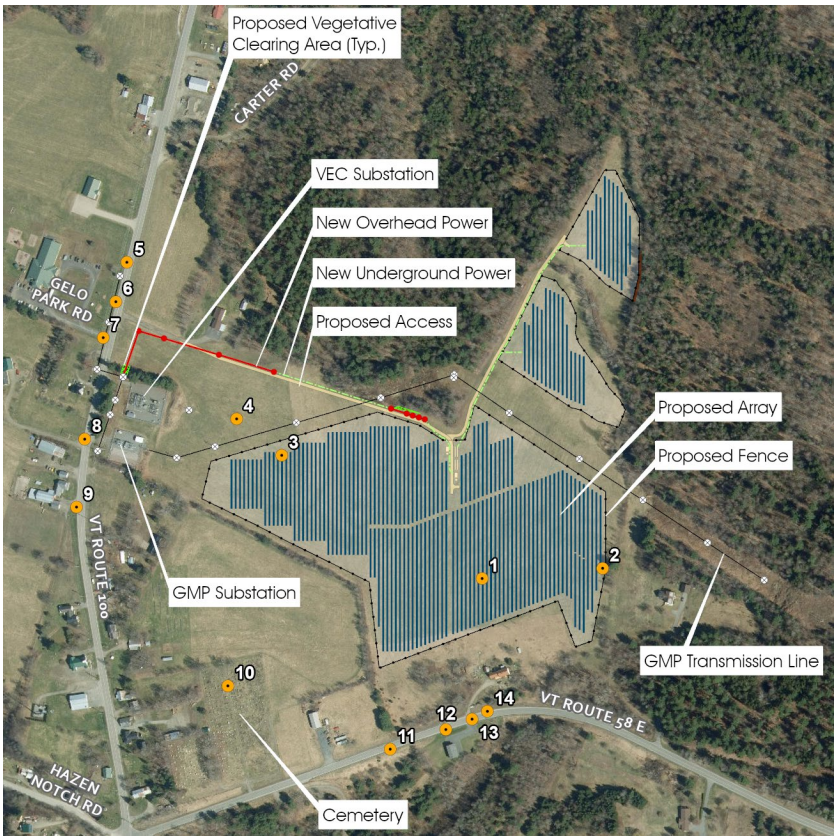

Figure 1 – Proposed Array Layout and Viewpoint Locations

The Project will be accessed from Route 100 by an existing gravel driveway and associated curb cut. Near the east end of the existing drive, a proposed 12' wide gravel access road will be extended into the site for approximately 1,320' to two new equipment pads and pad mounted transformers. An additional 12' wide pervious or temporary construction access road will extend approximately 925' from the transformers and equipment pads to the northern portion of the Project area. A system of underground wiring and aboveground cabling will convey electrical output from each solar panel to inverter racks and the transformers. Underground wiring will then lead north to a system of poles near the center of the array. From this location, the line will transition back underground to cross an existing transmission line, then travel above ground to the northeast for approximately 553' before turning south for 190' to the point of interconnection at an existing Vermont Electric Cooperative ("VEC") pole, which is located near the

northwest corner of the existing VEC substation. For more information, see the prefiled testimony of Seth Goddard and Thomas Hand.

The general arrangement of the Project is illustrated in Figure 1.

II. Methodology – Quechee Test

Section 248(b)(5) of Title 30, Vermont Statutes Annotated requires the Commission to make a finding that a proposed electrical generation Project would not have an undue adverse effect on aesthetics, as outlined in the so-called "Quechee Lakes Decision."[1] As explained in the Commission's order in Docket No. 6860, the Commission applies the Quechee Test in Section 248 proceedings, as follows:

> The Commission 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 would have an undue adverse effect on the aesthetics of the area, the Commission 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 would have an adverse impact on aesthetics and the scenic and natural beauty. In order to find that it would 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 would have an "undue" adverse effect on aesthetics and scenic or natural beauty is "significantly informed by overall societal benefits of the project." (In re Petition of Tom Halnon, CPG NM-25, Order of 3/15/01 at 10-11).[2]

[1] Quechee Lakes Corporation, Applications #3W0411-EB and #3W0439-EB at pgs. 18-20

[2] Petitions of Vermont Electric Power Company, Inc. (VELCO), Vermont Transco, Docket No. 6860, Vt. Pub. Serv. Bd. (Jan. 28, 2005) at 79-80.

T.J. Boyle Associates interprets the first part of the Quechee Test to initially require an assessment of a project's visibility. Although the Quechee Test lists visibility of a project as a "specific factor" for evaluation, visibility establishes the underlying method for which all visual aesthetics are evaluated. For instance, a project's design, materials, and colors may be completely out of character with its surroundings, but if such project is not visible to the general public (or "average person"), then there would be no adverse visual effect. Likewise, when a project is determined to be out of character with its surroundings, one solution is to visually obscure the project with landscape mitigation or other screening, which itself is a simple reduction or occlusion of visibility. In this way, T.J. Boyle Associates interprets the first part of the Quechee Test to be asking, "What is the project's visibility, and is that visibility out of character with its surroundings?" In our experience, if the Quechee Test were not interpreted in this way then a given project could be considered adverse even if it was completely invisible to surrounding areas, which would be an unreasonable interpretation and inconsistent with the purpose of the test. Per the original Vermont Environmental Board decision, a given project first must have an adverse impact under the first part of the Quechee Test before then moving on to answering the second part of the test, which is whether the adverse impact is "undue."

Our study area for visibility of solar generation facilities tends to extend up to two miles from a project location. This distance tells us whether a given project is, or is not, visible from prominent or protected locations in the study area, or, perhaps more importantly, if a project itself is in a prominent or highly visible location.

In conducting this Quechee Test and preparing this memo, three distinct methods have been used: (1) background data collection, (2) GIS viewshed analysis mapping, and (3) field investigation. The GIS viewshed mapping and field investigation are used to identify areas with potential visibility of the Project. The background data and field investigation are used to determine the character of the study area. All three methods are used to evaluate whether there are in fact 'adverse' impacts and if so, whether those impacts could be considered 'undue.'

Attached to this memo are three maps: an aerial context map, topographic viewshed map and a vegetated viewshed map (Appendix A, Maps 1-3). It should be noted that 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 tend to overestimate visibility and are not a definitive indication of actual visibility. Potential visibility needs to be confirmed through field investigation and/or other visualization techniques.

Also attached to this memo is a photographic inventory of locations investigated during field work (see Appendix B). Photograph viewpoint locations are indicated on the mapping in Appendix A and in Figure 1.

III. Quechee Test Part I – Evaluation of Adversity

A. Overview

During the field review of the proposed Project it was observed that the potential visibility indicated on the Vegetated Viewshed Map (see Appendix A, Map 3) is generally accurate, and visibility is typically limited to areas immediately around the Project and along a short segment of Vermont Route 100. Project visibility from the vast majority of the study area is either highly limited or not possible due to intervening vegetation and landform that exists around the site, along nearby roadways, and in the larger landscape. See Appendix B, Viewpoints 1-4 for views from the Project site.

B. Vermont Route 100

Vermont Route 100 is an Agency of Transportation ("AoT") Class 30 paved state highway that connects Morristown to the south with Newport to the north. In the vicinity of the Project, Route 100 passes approximately 549' west of the nearest proposed array. This area of Route 100 is characterized by medium- to low-density

residential, commercial and agricultural uses. Two substations are present off Route 100 west of the Project parcel; one owned by VEC and one by Green Mountain Power ("GMP"). VEC and GMP have overhead electric lines in the immediate area around the two existing substations: VEC's distribution lines run north-south along Route 100 and connect to the existing VEC substation; and GMP's existing transmission line crosses through the Project site and ties into the existing GMP Lowell Substation (see Figure 1).

For travelers heading southbound on Route 100, visibility of the proposed array will be possible starting approximately 1,100' northeast of the Project. Through this area, views of the proposed array will be possible for a distance of approximately 700', after which the Project will move behind existing evergreen vegetation, the two existing substations, and then intervening landform (see Appendix B, Viewpoints 5 through 9). At a speed limit of 35 miles per hour (mph), this equates to approximately 14 seconds of potential Project visibility for travelers heading south on Route 100.

For travelers heading north on Route 100, the Project may be noticeable behind existing vegetation at approximately 90° from the direction of travel (see Viewpoint 9), though as travelers continue north, the proposed array structures are not likely to be noticeable as travelers pass the two existing substations and continue moving away from the Project.

The proposed aboveground pole structures, which will be located along the access road that leads into the site, will likely be noticeable for travelers heading in both directions, and any view of these poles will appear similar to utility poles currently visible alongside Route 100 as well as elsewhere in the landscape, as well as the existing GMP poles and overhead lines that currently cross the Project site.

C. Elementary School, Town Clerk's Office and Gelo Park Road

The Lowell Graded School, accessed from Gelo Park Road, is located directly across Route 100 from the proposed Project entrance, and a town building that houses the Town Clerk, Public Library and Historical Society. Views from these locations will be very similar to views from Route 100, where the view from the town building will be similar to Viewpoint 5, the view from the school will be similar to Viewpoint 6, and the view from Gelo Park Road will be similar to Viewpoint 7. Gelo Park Road provides access to the school and an existing recreation area that is located behind (west of) the elementary school). The recreation area, which includes athletic fields, a basketball court, access to trails, and playground area, will have minimal views to the Project due to the presence of the intervening school building, which blocks most views to the east.

The proposed aboveground pole structures will be visible from these buildings and road, but will appear similar to utility poles currently visible alongside Route 100 as well as elsewhere in the landscape, as well as the existing GMP poles and overhead lines that currently cross the Project site.

D. Mountain View Cemetery

Mountain View Cemetery property is located approximately 375' southwest of the nearest proposed array structure at its closest location, and is separated from the Project parcel by other properties that include an agricultural field and a commercial property. Although views from the cemetery are limited by existing vegetation, the direction to views of prominent ridgelines and mountains from the cemetery is to the southeast, southwest and west. In contrast, views of the proposed array structures will be possible to the northwest, and will typically be screened by an intervening hedgerow that borders the southwest boundary of the proposed array (see Viewpoint 10).

The proposed aboveground poles will be highly screened from the cemetery due to an intervening hedgerow that exists southwest of the array. Any visibility of these poles will appear similar to the existing GMP transmission poles and overhead lines that currently cross the Project site.

E. Vermont Route 58 (Hazen Notch Road and Route 58E)

Vermont Route 58 is an AoT Class 30 paved state highway that connects Montgomery Center to the northwest with Orleans to the east. The portion of Route 58 that is west of Route 100 is more typically known as Hazen Notch

Road, and the portion that is east of Route 100 is known as Route 58 or Route 58E. Notably, the Project is not clearly visible from the Hazen Notch Road (western) portion of Route 58. The eastern portion of Route 58 passes approximately 312' south of the nearest proposed array, and this area of Route 58 is characterized by low-density residential, agricultural uses and forested areas.

For travelers heading east on Route 58E, highly limited views of the proposed array will be possible behind existing roadside vegetation for a distance of approximately 1,100' (see Appendix B, Viewpoints 11 through 14). At a speed limit of 50 miles per hour (mph), this equates to approximately 15 seconds of highly screened potential Project visibility for travelers heading east on Route 58E.

For travelers heading west on Route 58E, highly limited views of the Project may be possible behind the existing roadside vegetation for a distance of approximately 450' (see Viewpoints 11 through 14 in reverse order), after which travelers will pass the nearest portion of the Project, and other areas of the Project will be fully screened by intervening terrain and vegetation. At a speed limit of 50 miles per hour (mph), this equates to approximately 6 seconds of highly screened potential Project visibility for travelers heading west on Route 58E.

The proposed aboveground pole structures, which are located along the access road that leads into the site, will not likely be noticeable for travelers heading in either direction on Route 58E. Any visibility will be similar to existing roadside distribution structures visible along Route 58 and other roads in the area.

F. Other Surrounding Roads and Public Areas

Other areas were investigated during field investigation that did not have significant visibility of the Project, including the intersection of Route 100 and Route 58 (the 'Four Corners' intersection), as well as areas of Route 100 just north if this intersection. The lower Lowell Village area and the East Branch of the Missisquoi River, both located west of Route 100, will also not have visibility of the proposed array. Other publicly accessible areas, including elevated roadways to the west and northwest of Route 100, are not expected to have potential visibility of the proposed Project within the 2-mile study area.

G. Private Properties

There are four residential properties located around the periphery of the Project that will have visibility of the proposed array. One residence is located approximately 240' east of the array, and is separated from the Project by a partially wooded hedgerow (see Viewpoints 1b, 2b and 4b). Views of the mountains to the west are likely possible from this residence, as well as the existing transmission line and two substations located at the opposite end of the Project field (see examples in Viewpoints 1f and 2e). A second residence is located approximately 191' south of the array (see Viewpoints 1c, 2c, 3b and 4b), and the rear of this house faces the south side of the Project. A third residence is located approximately 512' northwest of the proposed array, and is partially separated from the Project area by mature vegetation (see Viewpoints 3d and 4f). A fourth residence is located approximately 290' southwest of the proposed array, and is separated from the Project by intervening hedgerows (see Viewpoint 4c).

Other residential structures in the area are not expected to have significant visibility of the Project site due to intervening landform and vegetation.

H. Suitability of Colors and Materials for the Project

The Project materials and colors would be dark blue photovoltaic panels, galvanized metal array frames, a surrounding galvanized metal fence with wooden posts, a new gravel access road, wooden poles and associated equipment for the overhead electric line. Other similar materials currently exist in the nearby areas, including a small existing roof-mounted array on the residence to the east (see Viewpoint 2b), two existing galvanized metal electrical substations (see Viewpoints 1f, 2e and 8), metal conductors and wooden poles of the existing transmission line that crosses the Project site (visible from Viewpoints 1 through 8), as well as the existing metal building that exists along Route 58E to the south of the Project (visible from Viewpoint 11). For these reasons, the Project's colors and materials are considered somewhat similar to the existing conditions around the site.

I. Impact on Open Space

The Regional Plan for the Northeast Kingdom 2015-2023, re-adopted and updated on July 29, 2023[3,4] (the "Regional Plan") does not specifically define open space. There is a short discussion of Open Space in Chapter Seven: Natural Resources that states the following:

> The Northeast Kingdom is composed of rolling hills, farmlands, lakes and rivers, forests, country roads, and compact village centers. These areas combined create an open, picturesque landscape unlike any other. Open space provides not only scenic beauty and wildlife habitat, but is necessary for the numerous outdoor activities enjoyed by the region's residents and visitors, and is key to the agricultural and forestry traditions of the region. (Regional Plan at p. 187)

The above description that "rolling hills, farmlands, lakes and rivers, forests, country roads, and compact village centers" combine to create open space would essentially mean that most of the Northeast Kingdom, including developed areas, is considered open space. Such a description lacks specificity, and provides little guidance for clearly identifying what constitutes open space and where it is located.

The Lowell Town Plan 2022, adopted August 2023 ("Town Plan")[5] does not define open space, and only loosely indicates areas above 2,000' (and, separately, above 1,500') in elevation as being "open spaces reserved for conservation purposes." Elsewhere, the Town Plan states that "Lowell has a small center surrounded by extensive rural settlement and open space" (Town Plan at pgs. 19 and 51). The Project is located below 1,500' in elevation and is near to, though not obviously within, the town center.

Although the Project site is on private property and is thus not accessible to the public (though the landowner does currently allow snowmobile access), the site is within an existing field that is visible from Route 100, and most public visibility will occur from the area near the proposed Project entrance. Based on these considerations, the Project will have at least some visibility within what could be perceived as "open space" in the area, although the site is not specifically described as "open space" within the Regional and Town plans.

J. Summary

This review of potential aesthetic impacts finds that the proposed Project would have visibility from a scenic public road in the study area (Vermont Route 100), as well as from nearby town-owned buildings, with minor to no visibility expected from other publicly accessible locations. The colors and materials are somewhat comparable with existing electrical infrastructure around the site, which include two utility substations, and some visibility will occur in what could be considered "open space," particularly for travelers heading south along Route 100. Based on these findings, the Project will have an **adverse** impact on the aesthetics and scenic and natural beauty of the area. Therefore, an analysis of the Project under the second part of the *Quechee* test is provided below. .

IV. Quechee Test Part II

i. Clear, Written Community Standards Intended to Preserve the Aesthetics or Scenic Beauty of the Area

Although Section 248 projects are exempt from municipal zoning and related permits, local plans and regulations are reviewed under the second prong of the Quechee test 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. In Docket No. 7508, the Public Utility Commission held that "[i]n order for a provision to be considered a clear, written community

[3] https://www.nvda.net/nvda-regional-plan/2018FullPlan.pdf
[4] https://www.nvda.net/files/AccessmentReport.pdf
[5] https://www.nvda.net/files/barton_town_plan_2018.pdf

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."[6] The Commission 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."[7] The Commission has further clarified that any such standard must expressly "designate the [project] parcel as a scenic resource worthy of protection."[8]

Available local and regional planning documents were reviewed to determine if the Project would violate a clear written community standard. These plans and documents include the Regional Plan, NVDA Regional Energy Plan Assessment and Report – June 2023 ("Regional Energy Plan"), and the Town Plan. The relevant pages from these documents are included in Appendix D – Regional and Town Plan Excerpts, and language from these documents pertaining to aesthetics and the Project is included below:

A. Regional Plan

CHAPTER ONE: LAND USE

Future Land Use & Development Goals

- Traditional development patterns will be maintained and linear "strip" development will be avoided.
- New development will be compatible with existing land uses, and consistent with local plans.

(Regional Plan at p. 26)

CHAPTER TWO: ENERGY

V. Energy Resource Analysis And Recommendations

…great care and consideration shall be given to the siting of new generation.

Siting Potential

The maps accompanying this plan do not carry the weight of zoning, and the siting of renewables on prime acreages (i.e. without known constraints) is not a foregone conclusion. Rather regional maps should be viewed as a starting point for our member municipalities to determine suitable and unsuitable locations for renewable energy development. This plan's siting considerations for each specific energy technology on the following pages should not be considered exclusive. They too should be seen as a starting point for creating effective local specification and constraints.

…This plan strongly encourages municipalities to conduct additional site investigations to identify local constraints (as well as preferred sites in addition to existing statewide preferred sites) in order to address the environmental, aesthetic, civic, economic, and cultural concerns unique to each community.

Siting Policies For Solar:

- The Northeast Kingdom has a robust agricultural economy, and NVDA discourages siting ground-mounted solar in a manner that fragments productive agricultural soils, effectively removing farmland from production for decades. To this end, NVDA encourages municipalities to explore and identify local constraints that minimize farmland fragmentation.
- Notwithstanding the above concern, NVDA recognizes that successful integration of solar into active agricultural uses can help farms reduce expense, generate extra income, and remain viable. NVDA encourages on-farm solar that, to every extent feasible, uses existing farm structures, or is sited in a manner that supports grazing, the establishment of pollinator crops, or simply to create buffers between organic and non-organic production areas.

(Regional Plan at p. 57-60)

[6] Petition of Georgia Mountain Community Wind, LLC, Docket No. 7508 at p. 52

[7] *Id.* at 53.

[8] Petition of Rutland Renewable Energy, LLC, Docket No. 8188, Order of 3/11/15 at 85-86.

Regional Energy Goals & Strategies

Environmental and aesthetic impacts of energy generation and usage will be considered.

(Regional Plan at p. 72)

(Regional Plan Update and Readoption at p. 20)

CHAPTER FOUR: HISTORIC, CULTURAL & SCENIC RESOURCES

Historic & Scenic Resources

Preserving historic, archeological, and scenic resources enables communities to retain links to their past, maintain their traditions (including quality of life), and can bring economic benefits through increased property values and tourism. Indeed, there are federal and state programs to assist communities with preservation. Tourism has been increasingly beneficial for much of the New England region, and particularly for Vermont due to its abundance of scenic resources.

(Regional Plan at p. 124)

Goals And Strategies For Historic, Cultural & Scenic Resources

Historic, Cultural & Scenic Resource Goals

- Future development should follow traditional development patterns, while providing for economic development opportunities and livable communities.
- Significant historic, cultural, and scenic resources within the region should be identified and preserved.

Historic, Cultural & Scenic Resource Strategies

- Promote local and regional tourism, since it is an important part of our economic base.
- Assist communities to preserve and maintain historic downtowns, village centers, buildings, and rural and scenic landscapes.

(Regional Plan at p. 129)

CHAPTER SIX: ECONOMIC DEVELOPMENT

II. Regional Economic Sectors

Visitor and Tourism (Star)

Recognized water trails located within the Northeast Kingdom … In the northwest part of the region, the Missisquoi River was recently designated as Wild & Scenic River by the federal government.
(Regional Plan at pgs. 164-165)

CHAPTER SEVEN: NATURAL RESOURCES

I. Overview

The Northeast Kingdom is recognized for its diverse wildlife, large undeveloped areas, and vast woodlands. The region's natural resources…provide residents and others a variety of benefits. The largest source of revenue in the region is from outdoor recreation, and much of the tourism industry relies on the healthy and scenic environment to remain viable.

Therefore, the natural resources in the Northeast Kingdom have intrinsic scenic and economic values that require careful consideration when making planning decisions. The overarching goal for the region is to balance local economic needs with the protection of the resources that so many of region's residents enjoy and depend upon.
(Regional Plan at p. 172)

Goals and Strategies for Natural Resources

Natural Resource Goals

- Private, public and community interests should be considered in matters affecting local recreation and open space.

(Regional Plan at p. 189)

B. Regional Energy Plan

NEK Siting Guidelines for Renewable Energy Generation

NVDA Energy Maps, available online at NVDA.net, can be used to identify areas unsuitable for development, but more importantly guide decision-making around identified potential (and preferred) areas for renewable energy development to meet regional energy demand, reduce energy burden, and contribute to the state energy and climate goals.

The maps accompanying this plan do not carry the weight of zoning, and the siting of renewables on prime acreages (i.e., without known constraints) is not a foregone conclusion. Rather regional maps should be viewed as a starting point for our member municipalities to determine suitable and unsuitable locations for renewable energy development.
(Regional Energy Plan at p. 17)

SECTION 3 – NEK PATHWAYS: GOALS, OBJECTIVES & ACTIONS

Objective:
Support the development of new, community-scale renewable energy in the region to meet the Vermont Comprehensive Energy Plan's goal of using 90% renewable energy by 2050, in a manner that is affordable, equitable, and respects the natural environment and its inhabitants.
ACTIONS:
● Support the development and siting of renewable energy, storage, transmission, and distribution resources on state and regionally preferred (and potential) locations, as identified by NVDA Act 174 Energy Maps (available online at NVDA.net).
(Regional Energy Plan at p. 20)

C. Town Plan

Community Profile

A large percentage of Lowell's land is forested mixed with rural residential and a small portion being considered "the Village" which is located where Route 58 and Route 100 intersect. This location is commonly referred to as "The Four Corners".
(Town Plan at p. 6)

Vision Statement
It is the primary and fundamental intention of Lowell to remain a rural, agricultural town that encourages farming and a town that encourages individual businesses and entrepreneurship of a scale that can integrate harmoniously into its residential areas.

Goals & Objectives
The primary goal of this Town Plan is to provide for Lowell's residents: to further their opportunities to maintain an adequate and satisfying livelihood, to foster harmony among neighbors and to protect and maintain the rural lifestyle we all enjoy. It is to these ends the following objectives are set out.
● Ensure all residents have their property rights both respected and protected.
● The growth of Lowell should occur in such a way as to enable residents to continue to live in town without undue tax burdens.
● Allow for commercial and industrial development that fit within the Town's primary objective.
● Maintain the Town's beautiful rural character as much as possible – eliminating junk yards and unsightly areas.
(Town Plan at pgs. 8-9)

Land Use

Village Character
The Planning Commission is proud of the Town's historic village and wants to encourage the revival of some original aesthetics it once possessed. The Planning Commission aims to maintain the integrity of all public areas of the town to these standards to encourage residents to follow, bringing the town's core to its original charm.
Plans for the Village:
● Give the town a more community-like and attractive appearance to reflect what the area really is, has been, and could be in the future. This can be done by adding parks, benches, secure places young children can play with their parents, improved sidewalks, elderly housing and easy off-street parking that would encourage business.
(Town Plan at p. 20)

Public Safety and Emergency Response

Highways & Streets
Route 58 to the west of Route 100, however, is a town road with a gravel surface. This portion of Route 58 passes through Hazen's Notch and is closed during the winter months.

Route 58 to the east of Route 100, which is classified as a major collector, passes over the ridge that forms the northern end of the Lowell Mountains and therefore provides many scenic vistas to the west and north.
(Town Plan at p. 57)

Scenic Roads
Some of the scenic features of Lowell to celebrate are:
- Route 58 corridor

- Hazen's Notch Road
- Bayley Hazen Road
- Route 100
- Long trail- Belvidere Mountain

Route 58 is perhaps the most scenic road in Lowell. This highway passes over some of the higher elevations in Lowell and offers some spectacular views. That section of Route 58 between Irasburg and Route 100 crosses an elevation of almost 1,700 feet above sea level.
(Town Plan at p. 59)

D. Summary of Clear, Written Community Standards Analysis

In general, the Regional and Regional Energy Plans cover a wide range of topics for the region including land use, housing, economics, cultural resources, energy generation and consumption, as well as other community issues. The Regional Plan recognizes the importance of scenic resources within the region, but does not specifically call out the Project site itself for scenic protection. The Regional Plan was amended in 2018 to incorporate Chapter 2, which was certified by the Vermont Public Service Department as an Enhanced Energy Plan. Chapter 2 includes limited siting policies for solar, but these do not directly address scenic quality or scenic resources. A further discussion of Chapter 2 is provided within the Orderly Development section of this report.

Based on our review, the Regional Plan does not provide clear written standards intended to preserve the aesthetics or scenic beauty of the area, either for the Project site or the area surrounding the Project. The Regional Plan provides general statements and offers support, recommendations, and guidance for its member municipalities to implement scenic resource protection within their communities, but these do not rise to the level of a clear written community standard intended to preserve the aesthetics or scenic, natural beauty of the area. A review of the various Regional Plan maps did not reveal any protections or significant scenic resources at the proposed Project location.

The Town Plan notes the importance of the town's scenic quality, commonly in reference to the rural, agricultural and forested character of the town outside of the Lowell Village. There are several areas called out within the town as being scenic, including Route 100, Route 58 to the south of the Project site and Hazen Notch Road. As noted in the review of visibility above, the proposed Project will be visible from Route 100, particularly for travelers heading southbound. The Project will not have substantial visibility from Hazen Notch Road, and will have very limited visibility from Route 58E. The Project site itself is not specifically listed as a scenic resource, and a review of the accompanying maps did not reveal any additional scenic resources or protections at the Project site.

Based on this review, the Regional Plan, Regional Energy Plan and Town Plan do not provide clear written standards for the protection of scenic resources at the Project site or the immediately surrounding area.

ii. Generally Available Mitigating Steps which a Reasonable Person would Take to Improve the Harmony of the Project with its Surroundings

The Project includes a number of mitigating elements that help to reduce potential adverse aesthetic impacts from both public and private properties. Mitigation for the Project includes:

1. Locating the Project on a site that takes advantage of existing vegetation and landform to screen the array from much of the surrounding area, including from the residential properties to the southwest and Route 58.
2. Project components are limited in height and will have a low profile.
3. The Project seeks to limit visibility of the tallest components (utility poles) by locating the structures along an existing tree line.
4. A landscape mitigation plan with a mix of evergreen and deciduous plantings is proposed to help screen the proposed array from Vermont Route 100, nearby residential properties, the Lowell

Graded School and the Town Clerk's Office building (see Appendix C, Landscape Plan). These plantings will help mitigate the views of the Project from these areas.

iii. 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?

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. The threshold for a project to be shocking or offensive is relatively high, and a given project would need to be entirely inconsistent with the surrounding land uses or exceptionally out of scale with the surroundings.

The assessment of impacts found that the Project would result in an adverse aesthetic impact. However, the Project could not be reasonably considered to be shocking or offensive for the following reasons:

- Any visibility of the Project from private residences will be in the context of existing views of two electrical substations and a transmission line, and will screened and softened by both existing and proposed intervening vegetation. Existing views of background ridgelines and mountains would remain unchanged.
- Visibility of the Project is limited, and where visible from public locations the Project will only be briefly so. Landscape mitigation plantings have been strategically located to soften views of the proposed array structures without interfering with visibility of background ridgelines and mountains.
- A view of the entire Project is not possible due to intervening vegetation and landform that will remain on and around the proposed array areas.
- Proposed overhead distribution structures associated with the interconnection are commonly seen in the landscape, including along nearby portions of Route 100 and Route 58.
- For these reasons, the Project would not offend the sensibilities of the average person, and would not be offensive or shocking because it would not be highly visible, and would not appear significantly out of character with its surroundings or unduly diminish the scenic qualities of the area in which it is proposed.

V. Conclusions of Aesthetic Analysis

This review of potential aesthetic impacts finds that the proposed array is located in a rural setting on an existing field. The Project would be potentially visible from limited locations in the study area, with minor to no visibility expected from most locations. The Project's colors and materials are compatible with existing structures at and around the site, and the Project will have at least some impact on open space. However, the proposed array and interconnection structures will be visible to the general public, including persons traveling along Vermont Route 100, a scenic road, as well as from the Lowell Elementary School. For this reason, the Project represents a change to the existing setting and would therefore be considered **adverse** to the aesthetics and scenic and natural beauty of the area as defined under the first part of the *Quechee* test.

However, the Project would not result in an undue adverse impact because:

- The Project does not violate a clearly written community standard intended to preserve the aesthetics or scenic beauty of the Project site or surrounding area based on the review of the Regional Plan, Regional Energy Plan and Town Plan.
- The Project incorporates reasonable siting and landscape mitigation efforts to reduce potential visibility and harmonize the Project with its surroundings. Portions of the proposed array will be

located in remote areas of the Project property and landscaping is proposed to visually buffer the array from Route 100 as well as the Lowell Graded School, the Town Clerk's building, and the nearest residences.

- The Project would not be considered shocking or offensive to the average person due to the lack of extensive public views, similarity of Project materials to nearby electrical infrastructure (including two substations and a transmission line), limited visibility of the overall Project from the majority of the surrounding area, and incorporation of landscape mitigation measures.

Based on these findings, the Northland Solar Project would meet the Quechee test insofar as its impact on aesthetics would NOT be UNDULY ADVERSE.

VI. Orderly Development Within the Region

Section 248(b)(1) of Title 30 of the Vermont Statutes Annotated requires that the Vermont Public Utility Commission 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 generation projects, Section 248(b)(1)(C) further states that "the Commission shall give substantial deference to the land conservation measures and specific policies contained in a duly adopted regional and municipal plan that has received an affirmative determination of energy compliance under 24 V.S.A. § 4352. In this subdivision (C), 'substantial deference' means "that a land conservation measure or specific policy shall be applied in accordance with its terms unless there is a clear and convincing demonstration that other factors affecting the general good of the State outweigh the application of the measure or policy."

Even when a town plan has received a determination of energy compliance, provisions of a town plan must only be considered "to the extent they qualify as land conservation measures or where there are screening requirements of a municipal ordinance or bylaw."[9] The Vermont Supreme Court has ruled that "broad and general statements in Town and Regional Plans are not sufficiently specific to constitute a basis for denying a permit under § 248."[10] Instead, for purposes Section 248(b)(1), provisions of a regional or municipal plan will only be given due consideration or substantial deference if they qualify as "land conservation measures" that apply clearly and specifically to a defined area or areas.[11] As such, the particular language used within Town and Regional Plans is important to determining whether a standard is clearly written and specifically applies to a given Project to constitute a land conservation measure.

For the Northland Solar Project, the Regional Plan, Regional Energy Plan, and the Town Plan set forth the standards for orderly development of the region at the Project location. The following review discusses land conservation measures, if any, that are applicable to the Project site, and whether the Project will unduly interfere with the stated goals and policies in these documents. Excerpts from the various plans are included in Appendix D – Regional and Town Plan Excerpts.

The Regional Plan for the Northeast Kingdom received its Certificate of Energy Compliance on June 22, 2018,[12] and was updated and readopted on June 29, 2023. At the time this report was prepared, the Town of Lowell has NOT received an affirmative determination of energy planning compliance pursuant to 24 V.S.A. §4352.

[9] *Application of Emancipation Energy, LLC for A Certificate of Pub. Good, Pursuant to 30 V.S.A. Ss 248 & 8010, for A 150 Kw (Ac) Solar Net-Metering Sys. in Middlesex, Vermont.*, No. 20-1848-NMP (Order of June 21, 2022).

[10] *In re Petition of Apple Hill Solar LLC*, 2021 VT 69 at ¶ 36.

[11] *Id.* at ¶¶ 36, 43.

[12] https://publicservice.vermont.gov/sites/dps/files/documents/Pubs_Plans_Reports/Act_174/NVDA/NVDA%20Certificate%20FINAL%20062218.pdf

A. Regional Plan and Regional Energy Plan

Regional plans help guide many issues within the region, many of which are in the form of recommendations and support to its member towns. The Regional Plan includes chapters which cover land use, energy, utilities, historic/cultural/scenic resources, housing, economic development, natural resources, flood resilience, and transportation. Topics in regional plans pertaining to the Project include overall regional goals, land use and conservation goals and strategies, and the region's approach to renewable energy siting.

Chapter One, Section I: Land Resources describes the use of conservation as a strategy to achieve several goals. The Regional Plan discusses land conservation efforts and conserved locations as it relates to forestland, agricultural land, and recreational lands. The Public Lands map (Regional Plan at p. 9) depicts public lands in the Town of Lowell, none of which overlap the Project location. The Regional Plan discusses development patterns in rural areas, stating that rural areas with certain characteristics should not be developed:

> [T]he region's rural areas should receive very little commercial or industrial development unless it occurs in an established industrial park or in an area specifically designated, either in a local zoning bylaw or in a local municipal plan as being well suited to such a use. Nevertheless, rural lands containing one or more of the following conservation attributes, shall be considered exceptionally sensitive and shall therefore not be designated as appropriate for commercial or industrial development that is not directly related to the region's lands-based economy (i.e. forestry, agriculture, and recreation):
>
> - State natural areas and fragile areas: The region has two such areas, which are both designated as National Natural Landmarks, the Willoughby Cliffs area and the Barton River Marsh.
> - Lands managed by the Department of Forest Parks and Recreation
> - Highest priority forest habitat blocks
> - Forested coverage of Site Class 1, 2, and 3 soils of 25 acres or more
> - Headwaters
> - Upland areas of 2,000 or higher
>
> Lands containing one or more of these attributes shall not be developed, as their best uses are a combination of forest and conservation purposes.
>
> (Regional Plan at pgs. 23-24)

Notably, the Project site does not contain any of the above attributes. In general, the strategy for future conservation efforts in rural areas is mostly encouraged through support from the NVDA to its member municipalities, and the Regional Plan recognizes that privately held land would need to be protected by conservation easements (Regional Plan at p. 27).

Chapter Two: Energy serves as the region's enhanced energy plan, and discusses overall energy use, efficiency and weatherization, transportation, generation and distribution, among other details of the regional energy profile, renewable energy generation, and targets for future energy use and generation. The Energy chapter also includes limited information about solar generation siting locations, including "preferred locations" such as rooftops and gravel pits (Regional Plan at pgs. 58-61). Language is also included that "siting ground-mounted solar in a manner that fragments productive agricultural soils" is discouraged, and encourages municipalities "to explore and identify local constraints that minimize farmland fragmentation." The updated Energy chapter, which is very similar to the previous Energy chapter, also refers readers to the Solar Energy Potential map, which is provided as an appendix to the Energy chapter[13] (see Appendix D, Regional Plan Update and Readoption). This map appears to show the Project location within prime solar areas with "possible" state constraints.[14]

Conserved lands are discussed under the Public Lands section of Chapter Seven: Natural Resources and the accompanying Conserved Lands map (Regional Plan at pgs. 187-188). As can be seen more clearly on the online

[13] https://www.nvda.net/nvda-regional-plan/2018EnergyPlanAppendix.pdf

[14] See also: https://geodata.vermont.gov/datasets/VCGI::vt-act-174-ground-mount-solar-potential/explore?location=44.802001%2C-72.444415%2C16.00

Vermont Conserved Lands Inventory map, the Project is not within an area designated as federal, state, municipal or other conserved lands.[15]

The Regional Plan also includes other goals for balancing economic needs with the protection of natural resources, including surface waters, ground water, wetlands, soils, and wildlife resources. As discussed in the prefiled testimony of Seth Goddard and Michael Lew-Smith, the Project will not have an undue adverse impact on agricultural soils, headwaters, floodways, streams, shorelines, wetlands, rare and irreplaceable natural areas, rare threatened and endangered species and necessary wildlife habitat, or outstanding resource waters.

The Regional Plan Update and Readoption document includes language supporting renewable energy:

- To meet energy, climate, and equity goals much of our power will also need to be generated by in-state renewable facilities that prioritize access and affordability to reduce energy burden (Regional Plan Update and Readoption at pgs. 14-15)
- NVDA will support projects that are consistent with the land use and conservation measures in this plan and in duly adopted plans of impacted municipalities. (Regional Plan Update and Readoption at p. 16)
- Support a wide variety of renewable energy generation types, including, but not limited to, sustainable uses of biomass for heating, passive solar building design, biodigesters for electricity generation, photovoltaic solar, agrivoltaics, small-scale wind turbines, and optimizing the energy potential for existing hydro-electric dams. (Regional Plan Update and Readoption at pgs. 19-20)
- Support the development of new, community-scale renewable energy in the region to meet the Vermont Comprehensive Energy Plan's goal of using 90% renewable energy by 2050, in a manner that is affordable, equitable, and respects the natural environment and its inhabitants. (Regional Plan Update and Readoption at p. 20)
- An adequate, reliable, diverse, and secure energy supply will benefit the region.
    - Promote a diversified energy portfolio for the region (Regional Plan at p. 69)

In addition to typical language about determining known and possible constraints, the Regional Plan Update and Readoption document also includes "regional" constraints:

> NVDA's regional plan has long held that rural areas should receive very little commercial or industrial development unless it occurs in an established industrial park, or in an area specifically designated in the local bylaw or plan as being well suited to such uses. Lands with an elevation of 2,000 feet or more merit consideration as a special class of rural lands that should be protected from any large-scale commercial or industrial development characterized by a constructed height of 100' or more, and an acre or more of permanent site disturbance, such as clear-cutting. These lands, as indicated on NVDA's renewable energy maps, contain one or a combination of factors that make them unsuitable to such development – contiguous forest cover; sensitive wildlife and plant habitat; conservation lands and recreational assets; managed forestland; and headwaters and ephemeral surface waters, which are highly vulnerable to erosion and man-made disturbance. High elevation forest cover must be kept unfragmented for the attenuation of flood flows, carbon storage/sequestration potential, the benefit of wildlife habitat and linkage, and public enjoyment through passive recreation.
> (Regional Plan Update and Readoption at p. 17)

Importantly, the Project is located within a "preferred ground-mounted solar energy site" (see Appendix D, NVDA Energy Map Preferred Ground-Mounted Solar Energy Sites).

Based on this review, the Regional Plan contains no land conservation measures or specific policies for the Project parcel or site, and the Project supports the Regional Plan's general goals and policies identified above. While the land conservation measures and specific policies in Chapter 2: Energy have received a determination of energy compliance and are entitled to substantial deference, none of the conservation measures or policies apply to the proposed Project. Therefore, this review indicates that, relative to the Project and its proposed site, there are no applicable land conservation measures or specific policies within the Regional Plan or Regional Energy Plan for which the Commission need give due consideration or substantial deference.

[15] https://geodata.vermont.gov/datasets/VTANR::conserved-land-inventory/explore?location=44.803978%2C-72.441555%2C15.90

B. Town Plan

The Lowell Town Plan contains general language related to the future of the Town, including an acknowledgment that the land use within Lowell is changing:

> With the aging population, and technology advances leading youth into different career paths we feel there will be no real recovery for the farming industry. The future of farming in Lowell will be strictly a few remaining family farms staying in production and the rest will be for hobby/leisure and not on a full production size scale.
> Although Lowell will not turn its back on its farmers and will continue to do everything it can to support and encourage the industry, it will not attempt to promote this area as huge growth potential for the town. The Town will need to focus on other areas moving into the future.
> (Town Plan at p. 22)

Similar to the Regional Plan, Lowel also has language about conserving steep slopes and high elevations, forest blocks, wetlands and recreation areas. The Conservation Mountain district is described as "all lands above 2,000" feet (Town Plan at p. 23).

Regarding energy, most conservation language revolves around being energy efficient given that "Lowell has a small center surrounded by extensive rural settlement and open space," which "is linked to considerable energy use to meet transportation and heating needs" (Town Plan at p. 51).

The Town Plan also includes language regarding wildlife:

> It is very important for a community to protect its natural inhabitants and their habitat. There is no urgency in Lowell for extra measures to be taken to control or protect the wildlife population, but the Planning Commission will keep attune to the environmental concerns and ensure no building or development becomes a severe detriment to any one wildlife species.
> (Town Plan at p. 67)

Notably, the Project site is not located within a mapped habitat block or otherwise within a mapped conservation, preservation or overlay protection area (see Appendix D and the limited mapping included with the Town Plan).

As stated above, the Project will incorporate mitigation measures to preserve agricultural soils on site, including stockpiling excavated soils for the life of the Project (see prefiled testimony of Seth Goddard) and will not have an undue impact on natural resources (see prefiled testimony of Michael Lew-Smith).

Based on this review, there are no land conservation measures or other protections described in the Town Plan that the Project would violate. As such, the Project is consistent with land conservation measures in the Lowell Town Plan.

C. Summary of Orderly Development Analysis

Overall, the Regional Plan, Regional Energy Plan and Town Plan do not identify the Project area as having specific limitations, planned conservation measures, or being unsuitable for solar development. The Regional Plan indicates that the Project is in a preferred area for ground-mounted solar energy sites. No land conservation measures were found in any of the Plan documents that would be affected by the Project, and the Project proposes landscape screening to augment the existing natural screening and reduce visibility of the proposed array, as envisioned in these plans. Based on the above, and giving substantial deference to the recommendations and land conservations measures in the Regional Plan and Regional Energy Plan, the Northland Solar Project **will not** unduly interfere with the orderly development of the region.