

Exhibit CS-BW-45

Docket 8302

Exhibit CS-MK-2

Aesthetic Analysis Report



CHELSEA SOLAR PROJECT

Bennington, Vermont

Aesthetics Assessment Report

Prepared by:



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Part I: Project Background

Section A: Scope of Work

Pursuant to Title 30 Section 248 governing the review of energy generation facilities and transmission projects, SE Group has prepared an analysis of potential aesthetic impacts of Chelsea Solar LLC's proposed Chelsea Solar Project ("Project"). The scope of this assessment addresses the requirements under section 248(b)(5). Section 248(b)(5) of Title 30 of the Vermont Statutes Annotated requires that the Vermont Public Service Board find a proposed project will not have an "undue adverse effect" on a proposed project site's aesthetics, which the Vermont Public Service Board assesses utilizing the following two-part test ("the Quechee Test"):

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.”¹

Section B: Project Description and Context

General Description

The Project will be located on a portion of a currently undeveloped 27+/- acre parcel of land just north of the US Route 7 / VT 279 Interchange in the Town of Bennington, Vermont. The site is identified as 500 Apple Hill Road. The parcel is designated Rural/Conservation in the Town of Bennington Town Plan and Zoning. At present the site on which the Project is proposed is nearly completely wooded with mostly northern hardwood species. A wetland area near the southwest corner of the subject property has been identified and has been voided in the proposed array layout.

¹ *In re Vermont Elec. Power Co., Inc.*, Docket No. 6860, Order of 1/28/05 at 79 (footnotes omitted).

The Project will consist of solar arrays² containing non-reflective photovoltaic modules, oriented to the south and placed on racks driven into the ground. The racking system is designed so that the bottom of the lowest panel (each rack is a combination of multiple modules) is about 18 inches above the natural terrain. The overall height of the modules will maximally be about nine (9) feet. No grading is planned, as the racks will be set on posts driven into the ground. The overall production (nameplate capacity) for the system is expected to be 2.2MW (AC).

The array is set approximately 200 feet back from US Route 7 along the western edge of the site. A gravel access road into the Project site is planned near the center point of the array, connecting to Apple Hill Road north and east of the site. This access road is approximately 1,900 lineal feet and 16 feet wide and includes several turn-around areas (hammerheads) to facilitate service and emergency vehicle movement.

A central inverter skid is proposed which will house the majority of all electrical components. It is maximally twelve (12) feet in height and, given its location, will be largely screened by the adjacent arrays. All wiring connecting the array to the inverters will be placed underground. The primary interconnection from the Project to the grid will also be placed underground to three new riser poles coming from the south (near Willow Road) across an easement on the remainder of the 27 +/- acre parcel. From these poles the power will be conveyed across this utility easement on five new poles to connect with existing poles along Willow Road.

In addition to these elements, the Project will also include a perimeter 8 foot tall fence (black, 6" x 6" knotted mesh "game" fencing) with a gate at the access road to the array. The fencing will have black metal posts along the perimeter of the Project. Recent

² The exact numbers of arrays will be determined during design and optimization of the array configuration, and based on analysis of snow and wind loads. Exact wattage, number of panels, and panel configuration will be determined at time of final design and procurement. The accompanying site plan (See Figure 2) shows the anticipated arrangement of project components.

interactions with the Vermont Department of Public Service has raised issues related to the use of the 6" x 6" knotted mesh fencing. The final fencing form, however, will be fully compliant with all required codes and meet the objectives of the Vermont Agency of Natural Resources to assure unhindered mobility of small mammals across the site.

Visual Context

The context of the Project is depicted on Figure 1 (Context/Viewshed Plan) within this report. An illustrative site plan highlighting the major components of the Project is provided as Figure 2. A more detailed site plan for the Project is provided by the Petitioner as part of its civil engineering set. Traditional and panoramic photographs of the Project site as viewed from nearby public vantage points documenting the existing conditions discussed above can be found on Figures 3 and 4.

As illustrated on the Context Plan (Figure 1) as well as on the photographs (See Figures 3 and 4), the existing visual character of the site is dominated by the extensive highway infrastructure. The site sits within a broader valley terminated to west by the foothills of the Green Mountains and to the east by rolling hillsides.

The northbound lanes of Route 7 defines the western edge of the property on which the Project is proposed. Route 7 is a divided, limited-access highway in the immediate vicinity of the Project and the roadways associated with the Route 7/VT 279 interchange are highly travelled according to the Vermont Agency of Transportation Route logs with an Average Annual Daily Traffic (AADT) of about 9,000 vehicles³. As will be discussed, the development of the Project does not materially affect the qualities of the broader landscape; which contributes to the arrival experience for those traversing Route 7.

³ 2012 (Route Log) AADT's – State Highways, Vermont Agency of Transportation, Page 18. AADT provided is for station B233 (Route 7 and 279, where the divide highway begins).

To the south of the Project, in the center of the Route 7/VT 279 interchange is the Vermont Welcome Center rest area which consists of a rest area structure, parking areas and some outdoor spaces. The parking area is on the northern side of the Welcome Center, facing the Project Site. The welcome center structure is oriented towards long-range range views of the Bennington Battle Monument (approximately 1.13 miles to the south and slightly west) and Mount Anthony (approximately 3.10 miles to the south and west).

To the east of the Project site are lands associated with a former apple orchard. The shared property line between the Project and this property includes many mature trees. The area to the north is generally low density residential set within highly wooded neighborhoods. The nearest neighbor is approximately 175 north of the Project fence. Apple Hill Road, which provides access to the Project Site is set within this wooded environment and has very truncated long-range views to the south given the density of trees.

The terrain of the Project site slopes gently from a high elevation of 758 feet at the northeast corner to a low point of 664 near the southwest corner. Overall the grade is about 8% with a total vertical change of 94 feet.

Section C: Evaluation Methods and Approach

First, we have thoroughly reviewed the applicant's engineering and design materials and documents to understand the Project scope and scale, its location, characteristics and setting. We have also sought additional information on the Project and its setting from published sources, atlases and statistical records. We have reviewed the manufacturer's information on the nature of the proposed solar panels, inverter enclosures, and transformers related to their appearance and potential to create glare.

Second, we reviewed the potential viewshed of the Project initially using Geographic Information Systems (GIS) tools. Given the relatively “flat” nature of the terrain and the low height of the proposed structures, we augmented the GIS analysis with fieldwork to validate areas of potential visibility. A more detailed discussion of how we determined the viewshed can be found in Part II–Section B.

After defining the likely extent of the viewshed, we also identified several key viewpoints from which the proposed solar field could be seen. We collected photographs and catalogued landscape and visual resource characteristics from these viewpoints.

We evaluated these technical factors (where can it be seen, what would it look like, etc.) against the qualities and sensitivities of the visual environment. We have employed several techniques for this process that blend the quantitative and qualitative aspects of visual analysis. These have all been combined into a final analysis of visual impacts from the Project using the Quechee Analysis. This process is described in detail in Part II of this report.

Part II: The Quechee Test

Section A: Characterization of Existing Viewshed

While the terrain on the Project site is falling away with respect to public vantage points; it is doing so rather gradually. The relatively low heights of the panels and other structures that comprise the array limit its potential visibility. Because of this relatively low height, changes in micro-topography (small, often unmapped changes in elevation), mature woodlands and structures can have a significant influence on the extent of the viewshed. Traditional GIS tools, relying on digital elevation models, are not reliable to

define a viewshed for this type of proposed use. The vertical accuracy of such models is generally larger than the actual height of the proposed panels.

Rather than relying solely on a GIS-based viewshed analysis, our work also involved reviewing the Project site plan and conducting a photographic reconnaissance of the area. During this reconnaissance we noted the qualities of setting, the position of the project relative to public observation points and how structures, vegetation and micro-topographic changes influence potential visibility.

Based on these efforts we have determined a viewshed area that encompasses areas along Route 7 and VT 279 within approximately 0.50 miles of the Project. While additional areas to the west and south of the Route 7/VT 279 interchange may have some visibility of the Project Site, the distance and change in elevation, along with substantial visual obstruction from structures and vegetation would tend to fragment such visibility.

Project Visibility and Appearance from within the Viewshed:

On two separate occasions, SE Group reviewed the areas adjacent to the Project site as part of this aesthetics assessment. Based on limits of the viewshed, we identified six (6) areas representative of potential viewpoints to the Project. These viewpoints (See Figure 1) include areas along major roadways and the Vermont Welcome Center. The identified viewpoints and their approximate distance to the Project (fence) are below:

Viewpoint	Location	Distance (feet) to Project Fence
A	Location within the loop road to the Vermont Welcome Center	1,209 feet
B	View looking south on Route 7 heading into Bennington	505 feet
C	View looking eastbound on VT 279 at Interchange	1,265 feet
D	View looking east on Loop Road near VT Welcome Center	820 feet

Viewpoint	Location	Distance (feet) to Project Fence
E	View looking north from US Route 7 Northbound	1,680 feet
F	View looking north from Orchard Road	1,685 feet

The roadway system in/around the Project site is highly complex. Collecting photographs safely in this environment was a challenge. In some cases we have relied on Google Streetview images taken from the roadway. While these images are not suitable for development of simulations, they are helpful in understanding the basic composition of the landscape and visual and context. We will briefly address each viewpoint below:

Viewpoint A – The Vermont Welcome Center is a relatively recent addition to the interchange area. As noted earlier, the structure is oriented so that the parking lots face the Project Site. From this location the Project site would be the background while retained vegetation along the southern edge of the overall parcel will largely obscure the array. The fore and midground is dominated by highway uses including street lights.

Viewpoint B - This is representative of the arrival gateway image. The right side of the image shows the iconic view of the Bennington Monument and Mount Anthony in the background. The view is expansive. The Project site is to the extreme left. The area of trees along the highway right-of-way will be retained. The height of the panels will not impede the long-range view.

Viewpoint C – This viewpoint is also a gateway view taken on the eastbound lane of VT 279 approaching the interchange area. The Project site is also to the left in the midground and partially obscured by roadway overpasses in the foreground.

Of particular note from this location is the background view of the Green Mountains which acts as a strong visual terminus within the landscape.

Viewpoint D – This is the most proximal location along the roadways we evaluated. This view shows the rock outcropping at the base of the hillside on which the Project is proposed. It also looks across the Route 7 northbound lanes. The background views of the Green Mountains are still visible and more so looking due east. The position of the Project will not degrade these eastern views.

Viewpoint E – This view is looking westward from Route 7 as you approach the Project site. Again the rock outcroppings are visible. It is likely that some of the wooden power poles would be visible from this vantage point. As you can tell from the road geometry, the observers view will not be directed towards the Project site for a long duration. Longer-range views west of the Tectonic Range are visible and would not be directly impacted by the Project.

Viewpoint F – Directly south of the interchange area is Orchard Road. This roadway serve a mix of residential and commercial uses. These uses (See Figure 1) are on the south side of Orchard Road. Views north from this roadway show a chain link fence, portions of the interchange area (and Vermont Welcome Center) and the previously mentioned rock outcropping. Portions of the northeastern section of the array will likely be visible from this location. Views to the south from this area are much more visually significant and not impacted by roadway development.

To help further evaluate the general visibility and expected appearance of the Project, we have prepared three cross-sections from select viewpoint within the viewshed. These cross-sections were generated using 3D computer models of the array

components as well as the underlying terrain. While they are not meant to simulate the view of the Project, they are helpful in illustrating the form, scale, and mass of the Project elements. Used in combination with the site photographs and site plan, they are helpful in characterizing the visibility and expected appearance of the Project.

The three cross-sections provided are discussed below:

Cross-Section A: This first section line (See Figure 6) is drawn from a point approximately near Viewpoint D along VT Route 279. From this position the foreground is dominated by the ramping and circulation system associated with the US Route 7/VT 279 interchange. Where the section line intersects with the Project Site is at the southernmost point where existing roadside vegetation associated with the Route 7 right-of-way terminates. In this area, our suggestion is to incorporate some new shrubs along the property line to help bolster the existing screening. The location and placement of this landscaping is provided on Figure 2. Given the proximity of both the array and the riser poles, this new vegetation will need to be managed to a height of 10 to 12 feet to avoid conflicts.

Cross-Section B: The second cross-section completed was drawn from a position on US Route 7 near Viewpoint E (See Figures 4 and 7). From this vantage point the natural terrain shows a slight rise to the south of the Project Site in the vicinity of Willow Road. It also shows the significant midground forest cover that will be retained south of the Project site. Along this section, approximately 700 feet of woodlands are retained between Willow Road and the Project fence.

From this location we would expect the Project to be mostly screened by this midground vegetation. As a traveler continues first west then north on US Route 7, the visibility of the Project (to the travelers' right) would briefly increase then

wane as the more extensive roadside vegetation of the US Route 7 right-of-way comes into view.

Cross-Section C: The third section (See Figure 8) is drawn essentially north to south from beyond the northern boundary of the property (proximal to where one of the three nearest neighbors are) to the Vermont Welcome Center and US Route 7/VT 279 interchange (Viewpoint A - see Figure 1 and 3). What is most illustrative in this section is the shape of the landform. While the gently sloping nature of the site is apparent, its more sudden descent near the US Route 7 right-of-way, becomes obvious. This change in elevation tends to foreshorten the view and allows the nearly 300 feet of retained forest above this outcrop area to be more effective in screening the Project.

Based on this analysis we believe that the majority of the array will be screened by existing and retained vegetation. The exception to this might be the north eastern area of the array which is far enough back and higher in elevation so as to perhaps allow some limited offsite visibility. The Project will not appear in its entirety or be wide open in view. In addition, the new wooden poles associated with the utility easement will also be visible above the outcrop area. Given retained vegetation and the relative position of observers at offsite vantage points, they will be set against a wooden backdrop, lessening their visual impact.

Project Visibility from Nearby Residential Areas:

The Project has two nearby residential structures (to the north). At its closest point these structure are about 175 feet away from the Project. What visual impact the Project has on this adjacent residential property is ameliorated by distance, the falling nature of the Project Site and the existing (and retained) natural vegetation which

significantly screens views of the Project. If any glimpses of the Project are possible, these residential properties will essentially see “over” the Project towards the south, which is a much more dominant focal point in the landscape.

Project Visibility from the Bennington Monument:

The Bennington (Battle) Monument is located approximately 1.13 miles to the south and west of the Project site. While we did not complete a detailed assessment from this area, our review of photographs and aerial images suggests that the Project Site is within the potential views from the observation area of the structure. According to the Vermont Division for Historic Preservation website (historicvermont.org) and the Friends of the Bennington Battle Monument, the monument is the most-visited state historic site and commemorates the 1777 Battle of Bennington during the American Revolutionary War.

The 306 foot tall structure (the tallest in Vermont) has a small observation area at 200 feet which is accessed via elevator. The windows of the observatory are oriented to the cardinal directions (North, South, East and West). Given the position of the monument (to the west of the Project site) it may be possible to glimpse a portion of the Project from one of the several north-facing windows. Given the great distance and the limited field of view from the narrow windows, visibility would be minimal. In context, visibility of the Project would not be any more noticeable than the surrounding highway infrastructure. In fact, given the visual qualities of the array, from this distance its appearance would soften considerably; appearing as a dark mass, similar in tonality to woodlands. Visibility from the grounds of the monument are highly limited by the presence of foreground obstruction (structures, trees).

Section B: Assessment of Potential Visual Impacts

Having determined the extent of the visibility and after completing an analysis of potential views from the Project, the next step is to prepare an assessment of potential impacts using the Quechee Test. This process first tests whether the proposed Project's impacts are adverse. Second, assuming a conclusion that the Project would have an adverse aesthetic impact, the process continues to determine whether or not that impact would be undue.

Test for Adverse Impact:

The first prong of the Quechee Test asks five basic questions, which are used to determine whether the Project would result in an adverse impact with respect to the visual resource. These questions are:

Q1: What is the nature of the project's surroundings? Is the project located in an urban, suburban, rural or recreational resort area? What land uses presently exist? What is the topography like? What structures exist in the area? What vegetation is prevalent? Does the area have particular scenic value?

While the Project site is presently wooded, areas to the south are highly impacted by highway infrastructure including significant ramping and overpasses associated with the US Route 7/VT 279 interchange. The mixed hardwood vegetation within the Property is approximately 50-70 feet in height. The site is generally sloping southward from the northern property line at approximately 8% resulting in about 94 feet of grade change from north to south. This grade change is graphically depicted on cross-sections A, B and C (Figures 6, 7 and 8).

While the views to the south from the Project site are much more scenic (with long-

range views of Mount Anthony and a patchwork of rolling meadows) the views of the Project site in the immediate area is dominated by the highway infrastructure and does not have a particularly high scenic value.

Q2: Is the project's design compatible with its surroundings? Is the architectural style of the buildings compatible with other buildings in the area? Is the scale of the project appropriate to its surroundings? Is the mass of the structures proposed for the site consistent with land use and density patterns in the vicinity?

The low hillside on which the Project is planned is not a visual focal point within the broader landscape. The components of the Project are low in height and will be viewed largely as a single mass, following the natural shape of the landform. The distance between the Project site and offsite observers within the roadway system lessen the perception of scale. The mass of the Project will not be observed in its entirety from off-site locations given the variation in the underlying terrain and wooded buffering.

Q3: Are the colors and materials selected for the project suitable for the context in which the project will be located?

The materials and colors are not currently observed within the landscape, but are consistent with materials and forms used for other similar solar projects. The galvanized metal/gray color of the frames and racks that support the photovoltaic panels are less visible during winter. The photovoltaic surfaces are non-reflective and a dull, dark blue color that has a similar albedo (or surface reflectivity) to natural grasses, meadows and fields.

The Project does not require constant exterior lighting. Some exterior lights on the inverter skid are proposed that may be used when maintenance of the system is done during the evening. Any lights would be low wattage and only activated as needed. Any

contribution to the night time lighting conditions by the limited exterior illumination needs for the inverter shed will be negligible. The placement of the inverter and transformer components within the center of the array further limits the spread of any proposed exterior lighting. The area to the south associated with the Route 7/VT 279 interchange is currently illuminated with street lights.

The supporting elements of the Project include an 8 foot high black mesh-grid that surrounds the solar field, the gravel access road, and the inverter/transformer “skid”. The fence, of PVC coated galvanized mesh is of a form typical for enclosure of utility projects and other large areas. The mesh itself will not be visible from off-site vantage points. The black color of the fence will further help it visually retreat when viewed from public vantage points.

The Project will use panels which include an anti-reflective coating to reduce the potential for glare. While some surface reflectivity from the panels is possible from certain perspectives to the south and west, the presence of intervening vegetation and low height of the panels will reduce the potential for glare. To help further evaluate this issue, we utilized the Solar Glare Hazard Analysis Tool (SGHAT) from the Sandia National Laboratories⁴. Using this screening model we identified the general limits of the Project, set the maximum height of panels at 9 feet above the ground plane and placed four observation points within the surrounding area. The location of the array, observation points and input parameters considered are shown below.

⁴ <https://share.sandia.gov/phlux>



SGHAT Model Inputs

<i>Analysis name:</i>	<i>Chelsea Solar</i>	<i>Timezone offset:</i>	<i>-5.0</i>
<i>PV array axis tracking:</i>	<i>none</i>	<i>Subtended angle of sun (mrad):</i>	<i>9.3</i>
<i>Orientation of array (deg):</i>	<i>180.0</i>	<i>Peak DNI (W/m^2):</i>	<i>1000.0</i>
<i>Tilt of solar panels (deg):</i>	<i>30.0</i>	<i>Ocular transmission coefficient:</i>	<i>0.5</i>
<i>Rated power (kW):</i>	<i>2200.0</i>	<i>Pupil diameter (m)</i>	<i>0.002</i>
<i>Vary reflectivity:</i>	<i>True</i>	<i>Eye focal length (m)</i>	<i>0.017</i>
<i>PV surface material: Smooth glass with ARC</i>		<i>Time interval (min)</i>	<i>1</i>
		<i>Slope error (mrad)</i>	<i>10.0</i>

This model does not accurately consider the presence of intervening vegetation or small variations in terrain; it relies on Google Earth derived elevation data as opposed to more accurate local models of terrain. Given that, it is still useful to identify areas where

additional consideration of glare might be advisable. Based on the input parameters provided, the model suggests a “low potential for temporary after-image” at observation point 4 (northbound lane of Route 7 just west of the Project). This level of impact is at the low end of the hazard analysis profile for glare/glint from solar production facilities which was used as a basis for the model.⁵ The occurrence of glare is limited to summer months (May-August) between 5:30 and 6:30 am. No glare was identified using the model at the other three observation locations. A summary of model output is provided as an attachment to this report.

Q4: Where can the project be seen from? Will the project be in the viewer’s foreground, middleground or background? Is the viewer likely to be stationary so that the view is of long duration or will the viewer be moving quickly by the site so that the length of view is short?

As described above, the primary viewshed of the Project is from areas within immediate adjacency along Route 7 and VT 279. When viewed, the Project will be seen as part of the midground. The likely observer is either someone who is stationary (at least temporarily) at the Vermont Welcome Center rest area or someone who is navigating the roadways are part of the interchange. For the former, while we expect the duration of view might be long, the presence of the Project is limited by distance (about 1290 feet) and the intervening vegetation (See Cross-Section C, Figure 8). For the latter, the posted speed limits in and around the interchange indicate 55 miles per hour. Given the complexities of the road network, however, we believe views would be highly constrained as the orientation of the viewer is in nearly constant flux as his/her vehicle moves through the viewshed.

⁵ https://share.sandia.gov/phlux/static/references/glnt-glare/Ho-SolarToday-April13_v2.pdf

Q5: What is the project's impact on open space in the area? Will it maintain existing open space or will it contribute to the loss of open space?

The Project will require significant clearing and convert existing woodlands into a different land use. This loss of vegetation however, does not necessarily contribute to a long-term loss of open space. The Project requires no grading or alteration of the underlying terrain. The components of the Project (panels, inverter structures, and transformers) will, following the useful life of the Project, be removed and the land restored swiftly to an undeveloped condition. Areas of sensitive environmental issues (wetlands) have been avoided in the plan.

Conclusion of Adversity:

The site requires significant clearing and introduces a new land use in the area which will be visible to the public in close proximity highly travelled roadways. Visibility is limited to a constrained viewshed that is almost exclusively vehicular oriented and of generally shorter duration. The Project has provided setbacks to the public roadways and, given its orientation and the low scale of its components, does not materially impact the broader and longer range views of the landscape.

While the impact is somewhat constrained, the unique form and visual qualities of this Project relative to the existing conditions of the site does creates some visual incompatibilities and impacts. Given this, we conclude that the Project **would** create an adverse aesthetic impact on the scenic resources. Because of this, we will continue to test the nature of these impacts relative to the second prong of the Quechee Test.

Test of Undue Adverse Impact:

The Quechee Test continues by evaluating whether the impact of the Project would be unduly adverse. This is done by addressing three fundamental questions which provide clarity on whether or not community standards are violated as a result of the impacts, whether the aesthetic incompatibility of the Project is so great as to be “shocking or offensive” to an average person or whether the Applicant has provided reasonable mitigation to address identified impacts. We will address each of these questions below.

1. *Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?*

No. 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 where it has been determined that a Project may have a potential adverse visual impact. 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*. 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. Finally, this analysis is significantly informed by the overall societal benefits of the project.

We have, as part of our analysis, reviewed the local and regional plans relative to this criterion.

Bennington Town Plan: The Town of Bennington’s most recent adopted Town Plan is from 2010. Our review of this document included relevant sections on land use, scenic resources and historic resources. In addition we have also reviewed the energy section of the Town Plan.

Land Use

Bennington has identified the lands within which the Project is set as Rural Conservation (“RCON”) and defines the characteristics of this district as follows:

“The purpose of the Rural Conservation Districts is to preserve this distinctive rural character while accommodating low density residential development in a manner that avoids the need for public water supply and public sewer systems.”⁶

The RCON district covers a large percentage of the town outside of the urban growth areas and is essentially a transitional land use between more dense/intensive development and forest lands. The intention of this land use is to preserve rural character, largely by limiting density and the extension of public water and wastewater systems.

The language describing the district does not expressly prohibit development but states:

“Development in this area cannot be sited in prominently visible locations on hillsides or ridgelines, shall utilize earth tone colors and non-reflective

⁶ Bennington Town Plan (2010), Pages 25-26. See Land Use Plan (Map 3-2) on Page 31.

materials on exterior surfaces of all structures, and must minimize clearing of natural vegetation.”⁷

The Project sits midpoint along a low sloping hillside and does not become prominent in its visibility. The non-reflective nature of the panels, along with retained vegetation along the periphery of the Project, limits offsite impacts. While the clearing is extensive, it has been minimized to the degree possible while still allowing the proposed use to be viable.

The Project site is not located within public, open space or conserved parcels of land as identified on Map 7-3 of the Town Plan. It is not identified in the Town’s Park and Open Space Plan for conservation purposes.

Scenic Resources

The Town of Bennington completed a Scenic Resource Inventory in 2004 which is extensively referenced in the Town Plan. As part of this inventory the Town identified specific scenic views and several important “gateway” features. As noted in the Town Plan:

“Special attention should be given to visual gateways: points of transition along a public highway where it is evident that the traveler is arriving at a unique place. Gateways are located at entry points to the historical downtown and at places along rural highways where significant visual elements of the town’s landscape first appear.”⁸

One of the specific gateway points referenced in the 2004 Scenic Resource Inventory is along Route 7 heading southward just north of the Project site. This gateway is described as:

⁷ Bennington Town Plan (2010), Page 26.

⁸ Bennington Town Plan (2010), Page 42.

“From the north, as Route 7 sweeps around a bend and begins to descend toward the valley, a gateway scene featuring the Battle Monument set against Mount Anthony comes into view in dramatic fashion. This sweeping view is one of the most distinctive in Bennington. The commercial buildings adjacent to the intersection at the bottom of the hill are not particularly attractive, although they do create an abrupt change from the rural to the developed landscape of Town.”⁹

As we noted in our evaluation, the views looking southward towards the Bennington Battle Monument, Old Bennington and the village all within the shadow of Mount Anthony are clearly highly scenic and of high value. The Project, located on the east (opposite) side of Route 7 to the aforementioned commercial buildings, is at the edge of this defining view but will not overly distract or visually compromise the gateway experience. The low height of the Project, its ability to follow the natural grade and the retention of existing vegetation on the periphery of the site all help to limit negative impacts. Our discussion above on Viewpoint B addresses potential concerns from this location.

The second “gateway” in the Scenic Resource Inventory is along VT 279 west of its interchange with Route 67. This is approximately 0.75 miles from the Project site. The most defining characteristic of this gateway area is the longer-range views of the Green Mountains (to the east) which act as the visual terminus. The components of the Project are very low compared to surrounding vegetation and will not distract or compromise this long-range view. The fore and mid-ground views along this gateway are already visually impacted by adjacent commercial development and the highway infrastructure. Our previous discussion of Viewpoint C addresses many of these same issues.

⁹ Town of Bennington Scenic Resource Inventory (2004), Page 21.

Historic Resources

The Town of Bennington takes seriously its historic resources and has devoted substantial community resources to documenting the location of historic sites and structures. While some 3,000 historic structures and areas have been identified in the Town, the overwhelming majority of these are within the urban growth area. Some of these structures are listed on the National Register of Historic Place.

Our review of the Town Plan did not identify any listed structures on the property. The property is not part of any historic district nor has it been specifically noted in the Town Plan.

Energy

While the section related to energy in the Town Plan does not specifically address solar development such as the one proposed by the Project, it does address the broader issue of renewable energy and states that:

“Create and support programs and facilities that provide stable, affordable, and clean renewable sources of energy, including wood (and other biomass), wind, water (hydroelectric), solar, and geothermal. Give strong consideration to the energy needs of the community when evaluating the environmental and economic effects of such programs and facilities.”¹⁰

While not a specific standard related to aesthetics under the Quechee Test, the language affirms the importance of broadly considering energy development in light of economic and environmental issues.

Overall Town Plan Goals

Overall the Town Plan identifies several goals which relate to aspects of the Project:

¹⁰ Bennington Town Plan (2010), Page 96.

-
- *“Development of renewable energy resources should consider both the need for locally produced energy and the need to protect natural and scenic resources.*
 - *New development shall be sensitive to scenic resources and shall be planned in a manner that preserves the visual integrity of critical scenic elements and visual qualities.*
 - *The town should work with conservation organizations to permanently protect important viewsheds through purchase of properties or scenic easements. The town should continue to participate in and support local and state scenic roads programs.*
 - *Protect and enhance existing visual gateways to the community and downtown, and seek opportunities to establish new gateways at appropriate locations.”¹¹*
-

The language of the Town Plan and its referenced studies recognizes that development might exist in many parts of town and that sensitivity and consideration of the visual impacts is critical.

In that light, the placement of this Project in this setting seems to be consistent with these community concerns. The Project site is proximal to the necessary infrastructure to convey the generated power, is located within a fairly limited viewshed that is already compromised and its presence does not degrade other, more significant long-range views. While many parts of Bennington are highly scenic and the iconic views of the Battle Monument as viewed from distant vantage points is unique in the State, the Project site has little contribution in supporting the town’s scenic character.

¹¹ Bennington Town Plan (2010), Page 45.

Bennington Regional Plan: The 2007 Bennington Regional Plan (“Regional Plan”) is the guidance document prepared by the Bennington County Regional Commission which provides an overarching policy framework for land use and development within the region. However, as a regional document, it affords considerable deference to local land use policy.

The Regional Plan recognizes that the appearance of the regional landscape is a critical determinant of the character and attractiveness of the region. It highlights the importance of the basic landscape form of the region; broad valleys set against backdrops of wooded hillsides. In this context it states:

“Consequently, development on visually prominent hillsides or ridgelines must be carefully planned, with special care given to the siting and screening of buildings, to avoid the loss of scenic value. Development that reinforces traditional development patterns – growth in and around historic village centers and in clusters – will also help to maintain the region's aesthetic appeal.”¹²

The Regional Plan goes on to describe the range of policy tools that can leverage local scenic inventories to protect important resources. The Regional Plan, however does not identify with any specificity the Project site or the landscape within which it is proposed.

While the Regional Plan does “encourage the development of renewable energy resources” it does not identify large scale solar in its consideration of renewable energy.¹³ It does speak more broadly in consideration of renewables towards biomass and wind; recognizing past wind development in the region.

¹² Bennington Regional Plan (2007). Bennington Regional Planning Commission. Page 45.

¹³ Ibid, Pages 66-68.

Summary: While the Town and Regional Plan identify issues and the importance of addressing impacts to the scenic resource in the development of land, these documents **do not provide specific clear written community standards** that are designed to preserve the aesthetics or scenic beauty of the area in which the Project will be built. The Project site is not specifically identified in the Town Plan for protection or special consideration related to aesthetics. The design of the Project has met the intent of these recommendations, goals and objectives; namely to assure that facilities like the one proposed are sited with considerable regard to the scenic qualities of the area. The Project does not degrade or otherwise impact the identified gateway experience for those arriving in Bennington via Route 7 from the north. Furthermore, the Project has proposed mitigation which helps to ameliorate its visual impact on the limited viewshed within which it is proposed (see below).

2. Has the Applicant failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the proposed project with its surroundings?

We believe the applicant **has taken generally available mitigating steps** that a reasonable person would take to improve the harmony of the Project with its surroundings. Some of these steps are integral to the site selection and design of the facility:

- a. The Applicant has chosen a site which is not identified for conservation or open space protection. While identified as Rural Conservation by the Town, the land use allows a variety of low density uses with due consideration of aesthetic impacts. Additionally, the nature of this Project, upon its decommissioning, will allow the site to be restored to an undeveloped condition.

- b. The Applicant has chosen a south-facing site which is relatively low sloping which, while sloping towards the public rights-of-way for Route 7/VT 279, is variable and partially screened, helping to limit the overall visibility of the entire mass of the array.
- c. The Applicant has placed the arrays comprising the solar field on slim mounting brackets, neutral gray in color, that follow the natural terrain of the land to minimize its profile. These slight variations in terrain help break up and limit the perceived scale of the Project.
- d. All of the electrical collection lines for the Project will be buried and the Project will connect to the grid via an easement to Willow Road. The form of the poles (wooden) is very common in the broader landscape and the position of the structures against the backdrop of retained vegetation will soften their appearance.
- e. The applicant has chosen neutral “earth” tones for supporting structures, such as the inverter skid to minimize their appearance. The placement of the inverter skid within the center of the array effectively screens the structure. This placement also puts these components over 650 feet away from the nearest residential structure.
- f. The photovoltaic surface of the panels are non-reflective and do not create problematic glare. As noted earlier, while modeling suggest a potential for low-impact glare along Route 7 north in the immediate vicinity of the Project site. This impact, relegated to a narrow window of time in the early am during the summer will be even further mitigated by the presence of existing (and proposed) landscaping. Additionally, the area of this low-level impact is along the highway meaning the duration of impact is fleeting. Glare is not expected at any stationary points nearby.

- g. The Applicant is proposing to retain segments of the existing roadside vegetation which limit views into the site from the public right-of-way to the west. This vegetation has been supplemented with additional plantings near the interconnection point which will improve the visual appearance of the Project (See Figure 2). A mix of 47 native deciduous shrubs (including grey dogwood, ninebark and viburnum) placed 3-4 feet on center and installed at between 2 and 5 feet apart will bolster the existing hedgerow along the western property.
- h. The Applicant has chosen PVC coated galvanized black-mesh fence with minimal visual impact profile to secure the site. The mesh of the fence is very difficult to discern except at very close distances.

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?*

No. We **do not** believe that the Project would offend an average person. Its scale, mass and form are not so out of character that they are offensive nor do they diminish or distract from the scenic qualities of the area. Within the broader landscape, the Project does not significantly diminish the scenic qualities. The Project is set on a site which retains natural vegetated areas on its periphery, has a relatively gentle slope with slight undulations that tend to break-up the mass of the array, and does not permanently degrade or diminish areas of noted or high scenic qualities. The Project allows continued visibility of the regional landscape forms.

The viewshed of the Project is relatively small, restricted mostly an area of intensive highway infrastructure within about 0.5 miles of the Project site. The Project is set back by over 175 feet from its closest private residential neighbor to help further diminish its ability to shock or offend. This setback between the Project and these

residential properties is heavily wooded. The Project, conforming the natural shape of the terrain, will fall away relative to these neighbors, further lessening any potential for impact.

The Project does not introduce secondary factors which often can contribute to how a project “fits” into its setting. These factors include such things as traffic, noise, exterior lighting, dust, odors, glare or other nuisances which often are at the root of public objections.

Part III: Overall Conclusion

We believe that the Project has addressed its setting in a very balanced way. It has recognized its potential impacts and taken reasonable steps to improve its harmony with this setting. As such, we **do not** believe the Project creates an undue adverse impact to the aesthetics or scenic beauty of the area.

FIGURES

ATTACHMENT

Solar Glare Hazard Analysis Report

Generated June 16, 2014, 4:09 p.m.

Glare found

 Print



Inputs

Analysis name	Chelsea Solar
PV array axis tracking	none
Orientation of array (deg)	180.0
Tilt of solar panels (deg)	30.0
Rated power (kW)	2200.0
Vary reflectivity	True

PV surface material

Smooth glass with ARC

Timezone offset	-5.0
Subtended angle of sun (mrad)	9.3
Peak DNI (W/m^2)	1000.0
Ocular transmission coefficient	0.5
Pupil diameter (m)	0.002
Eye focal length (m)	0.017
Time interval (min)	1
Slope error (mrad)	10.0

PV array vertices

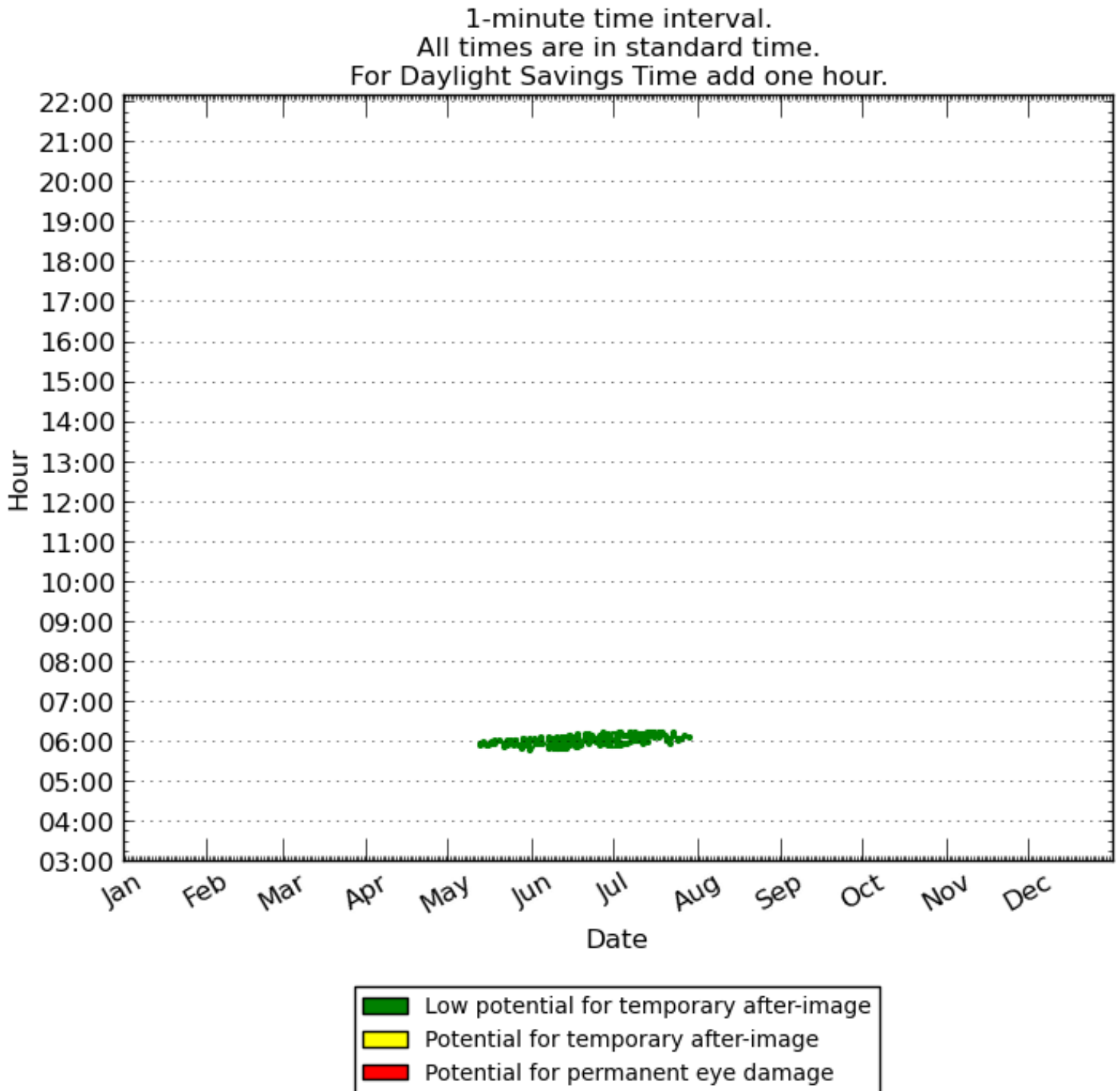
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2	42.9105803785	-73.2055413723	750.9	9.0	759.9
3	42.9080972056	-73.2055413723	687.23	9.0	696.23
4	42.9080657724	-73.2079446316	660.39	9.0	669.39

Observation Points

	Latitude (deg)	Longitude (deg)	Ground Elevation (ft)	Height above ground (ft)
4	42.9072799369	-73.2084488869	636.09	5.5

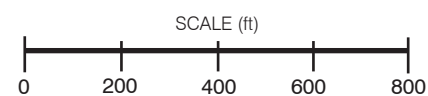
Glare Occurrence Plot

All times are in standard time. For Daylight Savings Time add one hour.





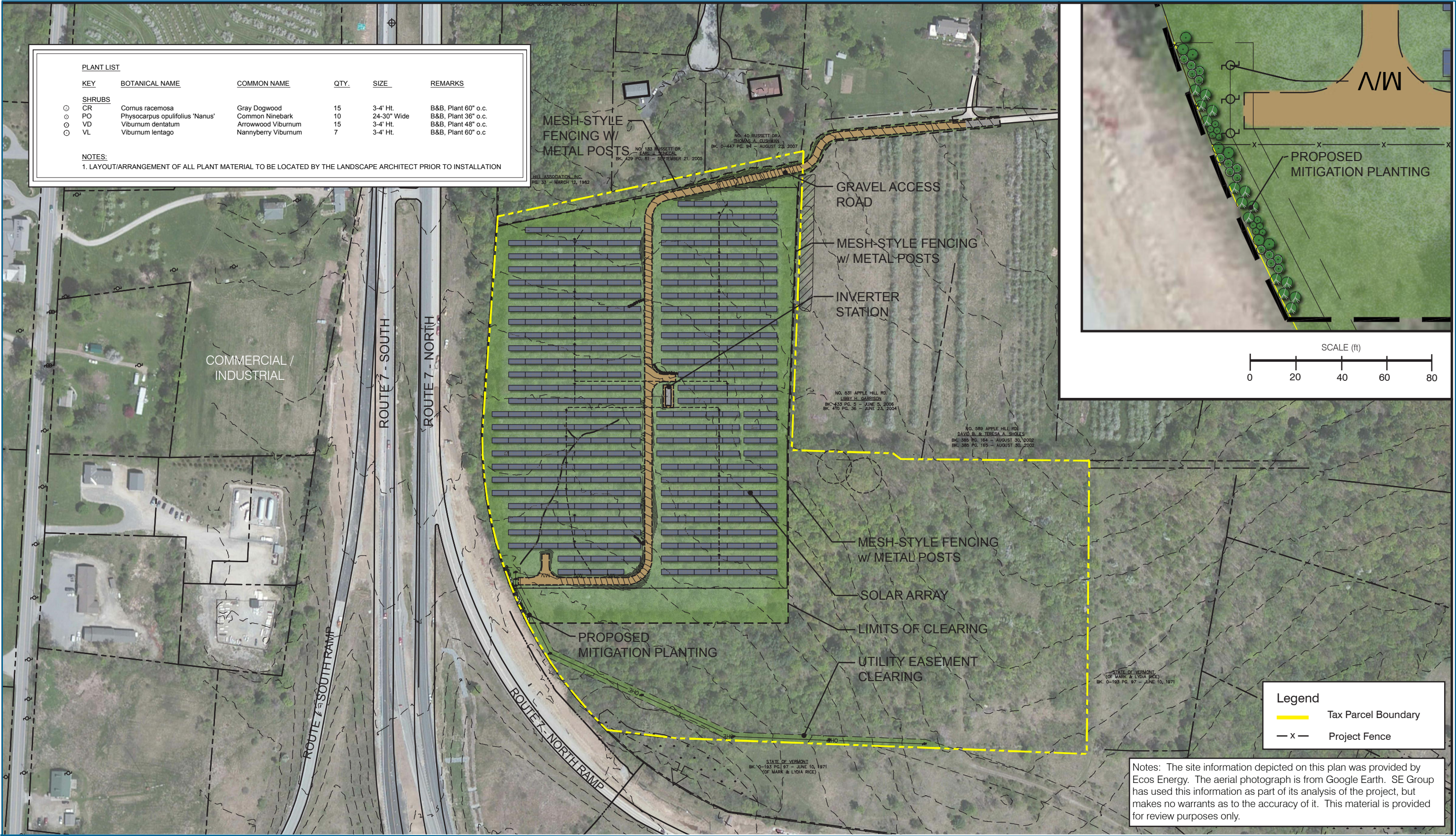
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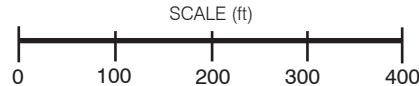
| Chelsea Solar Project

CONTEXT/VIEWSHED PLAN | Figure 1

June 2014



Prepared By:



Chelsea Solar Project
SITE PLAN | Figure 2



A- PANORAMIC VIEW LOOKING NORTH TOWARDS THE PROJECT SITE AND ROUTE 7 INTERCHANGE

Photograph taken by SE Group on 01/15/2014 at 1:30 PM



B - VIEW LOOKING SOUTH FROM ROUTE 7 TOWARDS THE PROJECT SITE

View for Viewpoint B was derived from Google Earth Street View as depicted in May 2012

Prepared By:





C - VIEW LOOKING NORTHEAST FROM THE EASTBOUND ROUTE 279 / ROUTE 7 INTERCHANGE TOWARDS THE PROJECT SITE

View for Viewpoint C was derived from Google Earth Street View as depicted in May 2012



D - VIEW LOOKING EAST FROM LOOP ROAD NEAR VERMONT WELCOME CENTER



E - VIEW LOOKING NORTH AND WEST FROM ROUTE 7 NORTHBOUND RAMP

Photographs taken by SE Group on 06/04/2014 from 9:00 to 9:30 AM

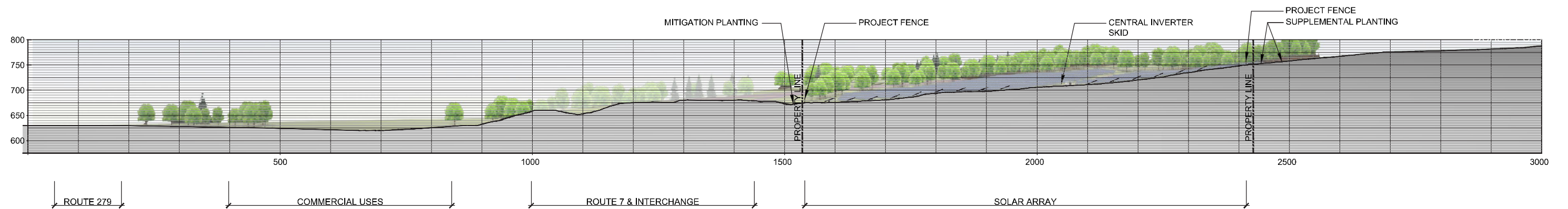
Prepared By:





F - VIEW LOOKING NORTH FROM ORCHARD ROAD TOWARDS THE PROJECT SITE

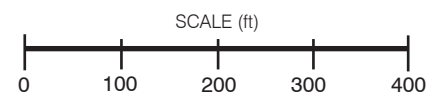
View for Viewpoint F was derived from Google Earth Street View as depicted in May 2012

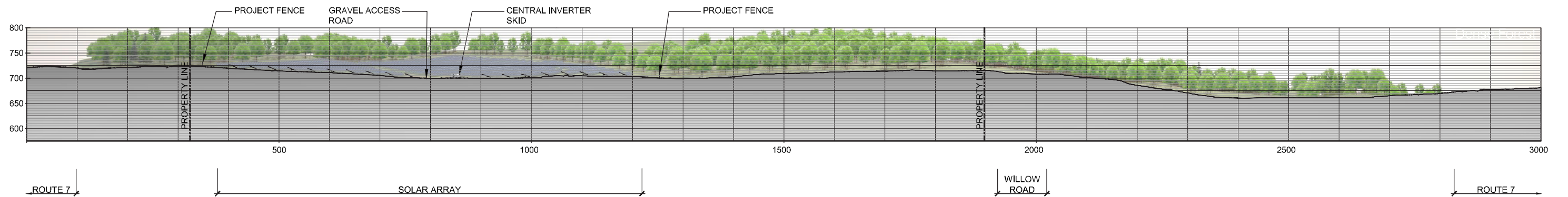


CROSS-SECTION A



Prepared By:

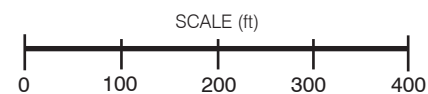


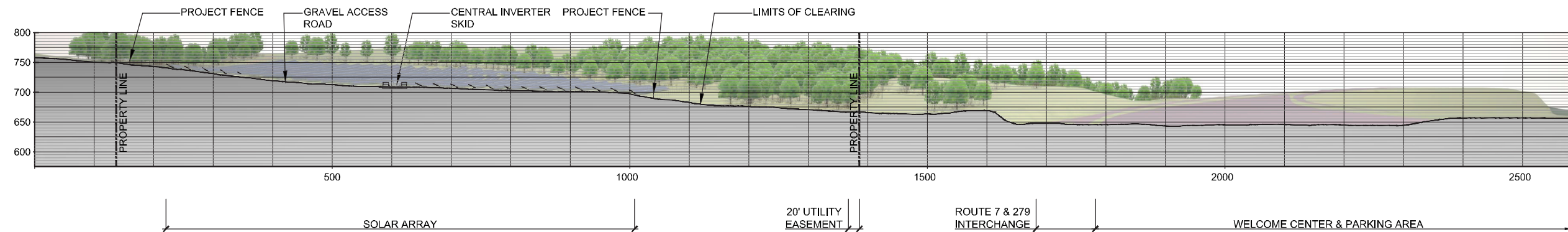


CROSS-SECTION B



Prepared By:





CROSS-SECTION C



Prepared By:

