EDR

Memorandum

To: Connecticut Siting Council

From: Gordon Perkins, Associate/Visualization Services Leader, Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, DPC. (EDR)
Jacob Loughlin, Visualization Project Manager, EDR

Date: March 11, 2026

Reference: Visibility Assessment Memorandum
Sunset Solar, Town of Ellington, Tolland County, Connecticut

List of Attachments

Attachment A: Viewpoint Photolog

Attachment B: Photosimulations and Wireframe Renderings

Introduction

On behalf of Greenskies Clean Energy LLC (the Petitioner), Environmental Design and Research, Landscape Architecture, Engineering & Environmental Services, DPC (EDR) conducted a Visibility Assessment for Sunset Solar (the Project), which is proposed to be located in the Town of Ellington, Tolland County, Connecticut. This Visibility Assessment was prepared in support of a Petition for Declaratory Ruling to the Connecticut Siting Council. The information included in this memorandum is intended to assist state agencies, interested stakeholders, and the public in their review of the proposed Project. The purpose of this assessment is to identify areas where the proposed photovoltaic (PV) array may be visible and to illustrate the potential visual change resulting from the installation of the Project. Areas of potential Project visibility were identified by conducting a viewshed analysis. Photographic simulations (photosimulations) were prepared to illustrate the appearance of the Project from representative views. The methodology employed and results of these analyses are described in the following sections.

Project Setting

The Project is proposed to be located on a former orchard on a 74.6 acre parcel of land north of Schoolhouse Road near the intersection of Wheelock Road in the Town of Ellington. The area surrounding the Project primarily consists of heavily forested land with gently undulating topography and numerous single family residential homes lining the major roads or in neighborhood subdevelopments.

Project Description

The Project consists of 143 individual rows of PV panels arranged in a north-south orientation in a fenced area measuring 21.5 acres. The PV panels will be fixed to a racking system that is anchored to the ground using driven piles. The PV panels will be attached to a single axis tracking system, which means the PV panels will rotate from east to west as the sun crosses the sky. At their greatest tilt angle, the PV panels are

anticipated to reach a maximum height of 9.5 feet. The Project will be accessed via Schoolhouse Road on a proposed access road measuring 15 feet wide and roughly 0.3 mile in length. The security fence surrounding the PV arrays will consist of an agricultural fence measuring seven feet high. The Project will also include pad-mounted equipment located on the northeast portion of the PV panels for the purposes of collection and converting the energy generated by the PV panels. The energy will be exported to the local grid via an underground cable which will daylight at a new utility pole proposed to be located on Schoolhouse Road.

Project Visibility

To identify areas where the proposed PV panels may be visible, a digital surface model (DSM) viewshed analysis was conducted. The DSM is a representation of topography as well as natural and built features on the land (e.g., buildings, trees, powerlines). The DSM viewshed analysis was prepared using the following data and parameters:

- A 2-foot resolution DSM derived from the 2023 Connecticut Statewide Lidar dataset;
- A 2-mile radius study area surrounding the proposed Project fence line;
- A total of 85 sample points representing the proposed PV panels, each spaced approximately 100 feet apart in a grid pattern throughout the proposed PV array[1];
- A maximum height of 9.5 feet applied to each of the 85 PV panel sample points;
- An assumed eye-level viewer height of 6 feet;
- ESRI ArcGIS Pro® software with the Spatial Analyst extension.

To avoid misleading results, some modifications to the DSM were made prior to conducting the viewshed analysis. Existing overhead transmission lines and roadside utility lines are generally misrepresented in the DSM as solid structures that extend from the top of these lines to the ground surface and therefore are incorrectly interpreted as solid features with the potential to screen views. In order to correct this inaccuracy, all above-ground surface features within transmission line and road corridors (defined as areas within 50 feet of transmission line and state highway centerlines, and areas within 30 feet of local road centerlines) were removed using bare earth (DEM) elevation values within these corridors. It is important to note that this removal of surface features (such as vegetation and structures) within road and transmission corridors may also eliminate legitimate screening features which occur in these areas. This has the potential to result in an overstatement of proposed PV panel visibility within and adjacent to road and transmission line corridors. All surface features (vegetation) within the Project's limit of disturbance were also removed and replaced with bare earth elevation values to account for proposed clearing.

Once the viewshed analysis was complete, PV panel visibility was set to zero in locations where existing surface features exceed the bare earth elevation value by 6 feet or more, indicating the presence of vegetation or structures that exceed the assumed viewer height. This was done for two reasons: 1) in locations where trees or structures are present in the DSM, the viewshed results would reflect visibility from

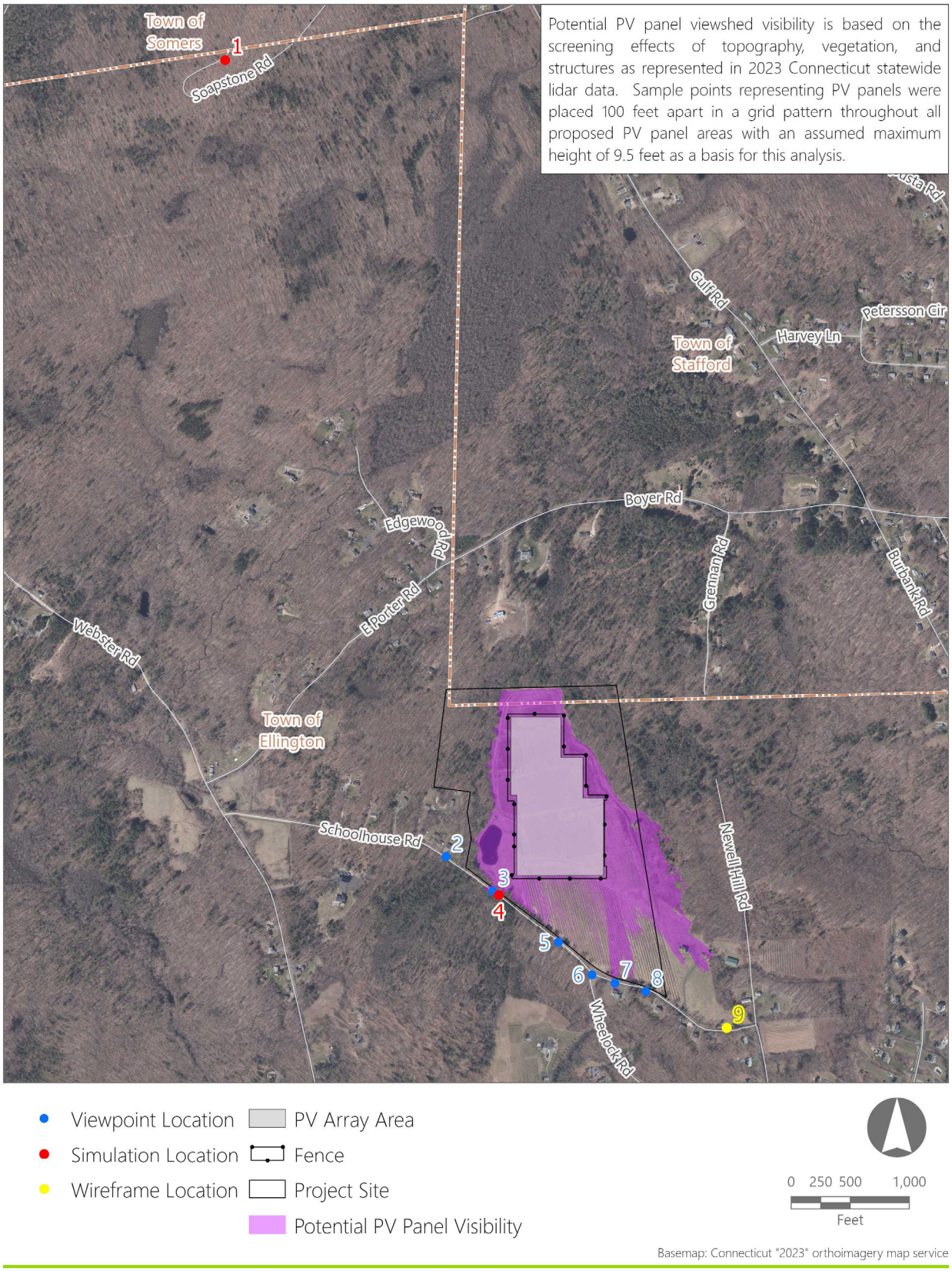
[1] A grid of sample points used to represent the PV panels provides adequate representation of the position and height across the entire proposed array. The 100 foot spacing provides a sufficient sample distance to account for site topography change across the entire array.

treetops or building roofs, which is not the intent of this analysis, and 2) to reflect the fact that the PV panels will generally be screened from view at ground-level vantage points within buildings or areas of vegetation that exceed viewer height.

Because it accounts for screening provided by topography, vegetation, and structures, DSM viewshed analysis is the best available representation of potential visibility of the proposed PV panels. However, because certain characteristics of the Project and the study area that may serve to limit visibility (e.g., color, atmospheric/weather conditions, distance from the viewer) are not taken into consideration in the analysis, being located in an area indicated to have potential PV panel visibility does not necessarily equate to actual Project visibility, nor does it indicate that adverse visual impacts will occur within these geographic locations. There is also the possibility of the DSM overstating screening, and therefore underestimating actual visibility, in locations where views are available through trees during the dormant season. However, even in a "leaf-off" condition, such views will typically be significantly screened by bare tree branches and trunks.

The results of the viewshed analysis indicate that the Project may be visible from a total area measuring 52.6 acres. This potential Project visibility represents 0.5% of the 2-mile-radius study area. The PV panel viewshed analysis results are shown in Figure 1. As illustrated in this figure, potential PV panel visibility would be mostly limited to the Project Site (i.e., the 74.6-acre parcel of land currently under control of the Petitioner) due to the screening provided by surrounding forest vegetation. Potential visibility extends up to 450 feet from the southern and eastern sides of the Project Site boundary into adjoining residential properties where vegetation is minimal. The viewshed also indicates a very small area of potential visibility occurring along the southeastern face of Soapstone Mountain 1.2 miles northeast of the Project.

Figure 1. PV Panel DSM Viewshed Analysis Results



Photosimulations

EDR personnel conducted field review on January 19, 2026, to document potential Project visibility and obtain photographs from public vantage points to document representative views for subsequent development of photosimulations. The determination of potential Project visibility was based on the proposed location and dimensions of Project components, viewshed analysis results, and other prominent landscape features within or near the Project area that served as location and scale references. To assist with viewer orientation and determination of potential Project visibility in the field, global positioning system (GPS) units were combined with live mapping in ESRI Field Maps®. The data contained in the Field Maps unit included Project components, viewshed analysis results, a topographic and aerial base map, and the current viewer location. At each viewpoint, the GPS unit was used to document the location, time, and observations regarding potential Project visibility. At each viewpoint, multiple photographs were taken to capture the full extent of the Project and the surrounding landscape context. These photographs were taken using a digital SLR camera with a resolution of 30 megapixels and full-frame (35 mm) camera sensor. Single-frame photographs included in the photolog and used for photosimulations were obtained with a lens setting (focal length) of 50 millimeters (mm). A 50 mm focal length (35 mm camera sensor equivalent) is typically used in visual studies because it is generally agreed amongst visual professionals that it provides accurate scale and perspective between close and distant elements in a view. The location of the nine viewpoints documented during field review is illustrated in Figure 1, and all photographs can be found in the Viewpoint Photolog (Attachment A).

To show anticipated visual changes associated with the proposed Project, three-dimensional (3D) modeling software was used to create photosimulations of the proposed Project from Viewpoint 1 located on Soapstone Road and Viewpoint 4 located on Schoolhouse Road. These locations were chosen based on the viewshed analysis results and/or field observations. It was determined that these locations provided the greatest likelihood of actual Project Visibility, they represent an aesthetic resource, and/or they provide open, unobstructed views towards the Project. The photosimulations were developed by using Autodesk 3ds Max Design® to create simulated perspectives (3D camera view) to match the location, bearing, and focal length of the existing conditions photograph. A 3D model of the lidar data (point cloud) used to generate the DSM was created to represent existing landscape features, such as roads, buildings, terrain, and vegetation. The 3D camera's orientation, location, roll, and focal length were then adjusted to match the modeled landscape features in the lidar data with the corresponding landscape features in the photographs. This ensures that any elements introduced to the model space (e.g., the PV panels system) will be shown in proper proportion, perspective, and relation to the existing landscape features in the views. Consequently, the alignment, elevations, dimensions, and locations of the proposed Project components in the simulations will be accurate.

Computer models of the PV panels/racking system and perimeter fence were prepared based on layout information and specifications provided by the Petitioner. The modeled Project components were imported into the landscape model space described above and set at the proper geographic locations. The PV panels were then rotated to accurately represent their orientation as it would be on the date and time of the photograph for each view. With the proposed Project in place, a daylight system was created based on the date, time, and location of each photograph in order to accurately represent light reflection, highlights,

color casting, and shadows. Once complete, the modeled Project was rendered and superimposed over the existing photographs in Adobe Photoshop®. Using lidar data and the proposed limits of disturbance as guides, portions of the Project that would fall behind vegetation, structures, or topography were then masked out and any vegetation that is proposed to be cleared was removed from the photographs. Finally, any shadows cast on the ground by the proposed Project components were rendered in a separate "shadow pass" and placed over the terrain with the proper fall-off and transparency using Photoshop®.

For Viewpoint 9 located on Schoolhouse Road, the Project components were determined to be substantially screened during field review. Therefore, a wireframe rendering was prepared to illustrate the degree of screening provided by existing structures and vegetation in the landscape. In this wireframe rendering, the proposed Project extent is shown with brackets in the image. This Project extent is based on a 3D alignment of the photograph as described above, so the position of the Project as indicated by the extent lines in the photograph is true and accurate.

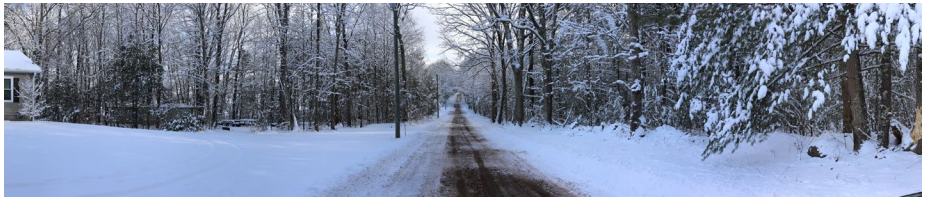
The photosimulations and wireframe rendering, along with existing view photographs and additional contextual information for each viewpoint, are included in Attachment B.

Attachments

Attachment A

Viewpoint Photolog

Panorama Composition: View looking east (left) to west (right)



Panorama Composition: View looking north (left) to south (right)

Viewpoint 1

View looking southeast from Soapstone Road in the Town of Ellington, Tolland County

Coordinates: 41.95639°N, 72.41443°W
Elevation: 977 feet

Viewpoint 2

View looking east from Schoolhouse Road in the Town of Ellington, Tolland County

Coordinates: 41.93785°N, 72.40763°W
Elevation: 763 feet

Panorama Composition: View looking northwest (left) to southeast (right)

Panorama Composition: View looking northwest (left) to southeast (right)

Viewpoint 3

View looking east from Schoolhouse Road in the Town of Ellington, Tolland County

Coordinates: 41.93705°N, 72.40618°W
Elevation: 761 feet

Viewpoint 4

View looking northeast from Schoolhouse Road in the Town of Ellington, Tolland County

Coordinates: 41.93698°N, 72.40605°W
Elevation: 763 feet

Panorama Composition: View looking northwest (left) to southeast (right)

Panorama Composition: View looking northwest (left) to east (right)

Viewpoint 5

View looking north from Schoolhouse Road in the Town of Ellington, Tolland County

Coordinates: 41.93585°N, 72.40414°W
Elevation: 805 feet

Viewpoint 6

View looking north from Schoolhouse Road and Wheelock Road in the Town of Ellington, Tolland County

Coordinates: 41.93509°N, 72.40311°W
Elevation: 820 feet

Panorama Composition: View looking northwest (left) to southeast (right)

Panorama Composition: View looking west (left) to east (right)

Viewpoint 7

View looking northwest from Schoolhouse Road in the Town of Ellington, Tolland County

Coordinates: 41.93489°N, 72.40239°W
Elevation: 824 feet

Viewpoint 8

View looking north from Schoolhouse Road in the Town of Ellington, Tolland County

Coordinates: 41.93470°N, 72.40143°W
Elevation: 830 feet

Panorama Composition: View looking west (left) to east (right)

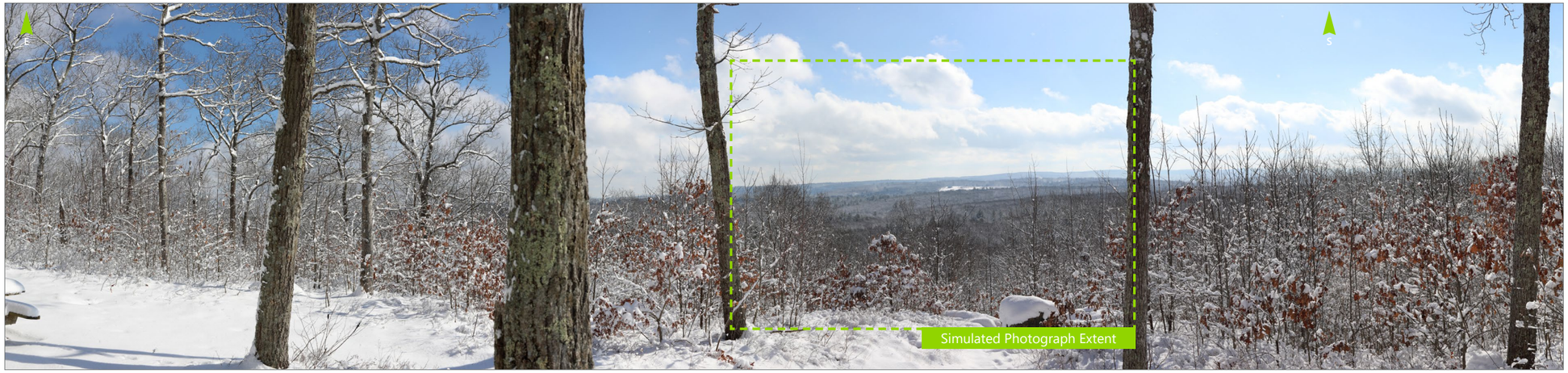
Viewpoint 9

View looking northwest from Schoolhouse Road in the Town of Ellington, Tolland County

Coordinates: 41.93379°N, 72.39894°W
Elevation: 843 feet

Attachment B

Photosimulations and Wireframe Renderings



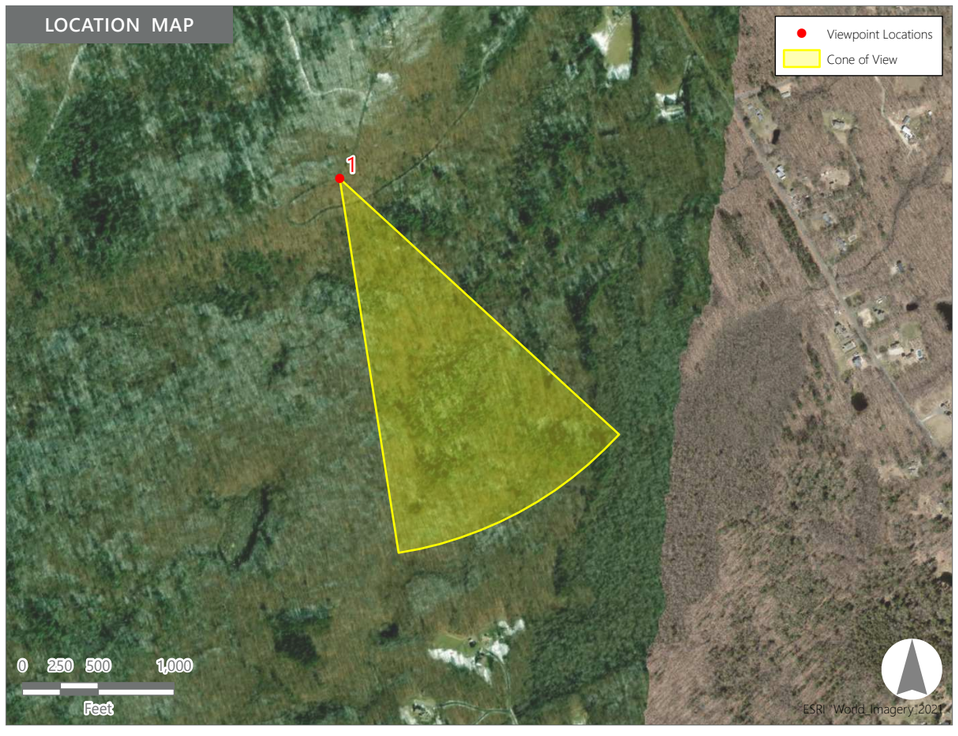
Note: *The image above is a panorama composition panning clockwise from east (left) to west (right).*

VIEWPOINT 1
Soapstone Road

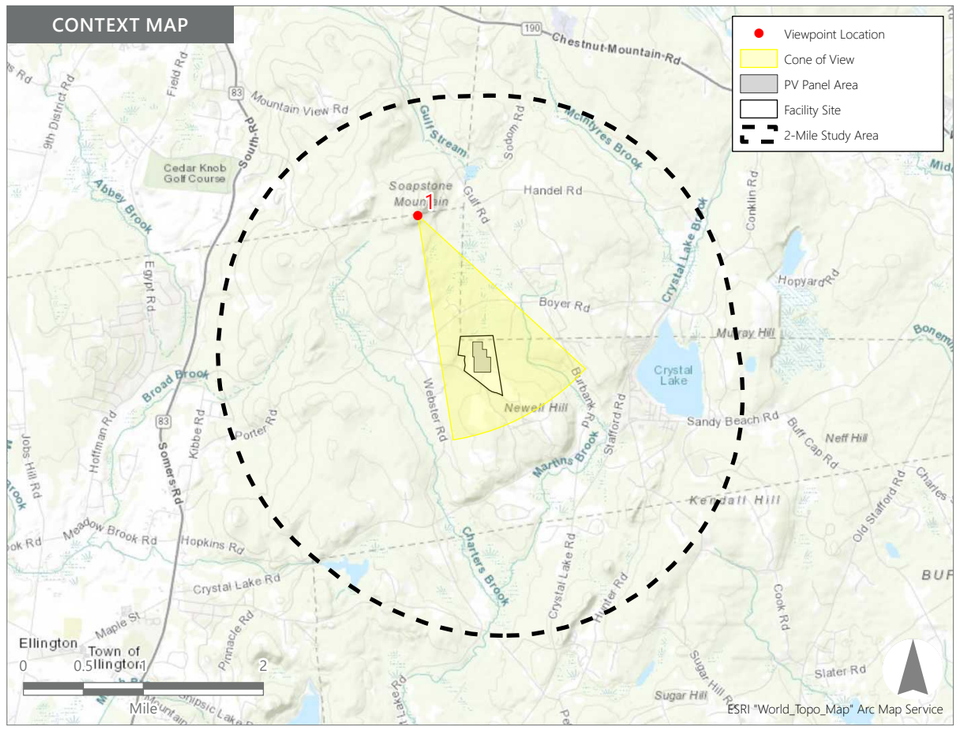
LOCATION INFORMATION

Municipality:	Town of Sunset
County:	Tolland
Latitude:	41.95637° N
Longitude:	72.41440° W
Project Distance:*	1.1 miles

LOCATION MAP



CONTEXT MAP



PHOTOGRAPH INFORMATION

Date:	January 19, 2026
Time:	11:56 AM
Camera:	Canon EOS 5D Mark IV
Camera Resolution:	30.4 Megapixels
Lens Focal Length (35 mm sensor equivalent):	51.1 mm
Camera Elevation:	981 feet
*Field of View**:*	39 degrees
Direction of View:	Southeast
Printed Size:	10 inches x 15 inches
*Viewing Distance***:*	21 inches

NOTES

**Distance as measured from the viewpoint to the closest pv panel array within the simulated photograph's field of view.*

***The simulated field of view is comprised of multiple single frame simulations, each with a field of view of 39 degrees.*

****The single-frame photograph simulations are at the correct perspective when printed on an 11 inch by 17 inch sheet at full scale, and viewed approximately 21 inches from the eye of the viewer.*

Sunset Solar Project
Town of Ellington, Tolland County, Connecticut

Visibility Assessment Memorandum

EXISTING VIEW

0 1 in. 2 in.

This scale is to ensure the simulation images are printed at the intended size.

VIEWPOINT 1
Soapstone Road

Sunset Solar Project
Visibility Assessment Memorandum, Attachment B

EDR

Note: *Printed at actual size, the existing view image is 15 inches wide by 10 inches high. At this size and focal length, the existing view should be viewed from a distance 21 inches from the eye of the viewer.*

PHOTOSIMULATION

0 1 in. 2 in.

This scale is to ensure the simulation images are printed at the intended size.

VIEWPOINT 1
Soapstone Road

Sunset Solar Project
Visibility Assessment Memorandum, Attachment B

EDR

Note: *Printed at actual size, the resulting photosimulation image is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance 21 inches from the eye of the viewer.*

WIREFRAME RENDERING

PROJECT SCREENED BY VEGETATION AND/OR TOPOGRAPHY

0 1 in. 2 in.

This scale is to ensure the simulation images are printed at the intended size.

VIEWPOINT 1
Soapstone Road

Sunset Solar Project
Visibility Assessment Memorandum, Attachment B

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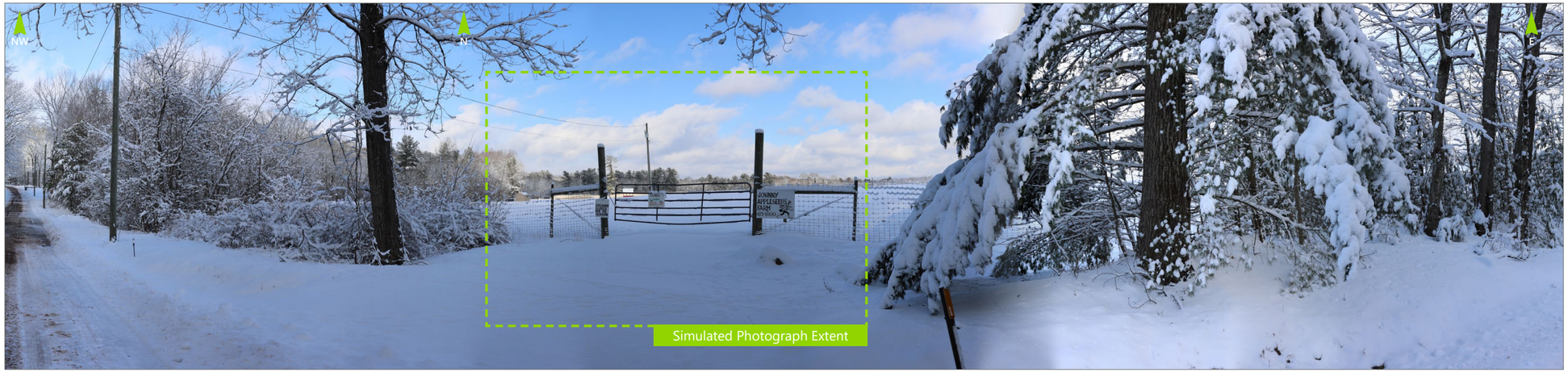
Note: *Printed at actual size, the resulting wireframe rendering image is 15 inches wide by 10 inches high. At this size and focal length, the wireframe rendering should be viewed from a distance 21 inches from the eye of the viewer.*



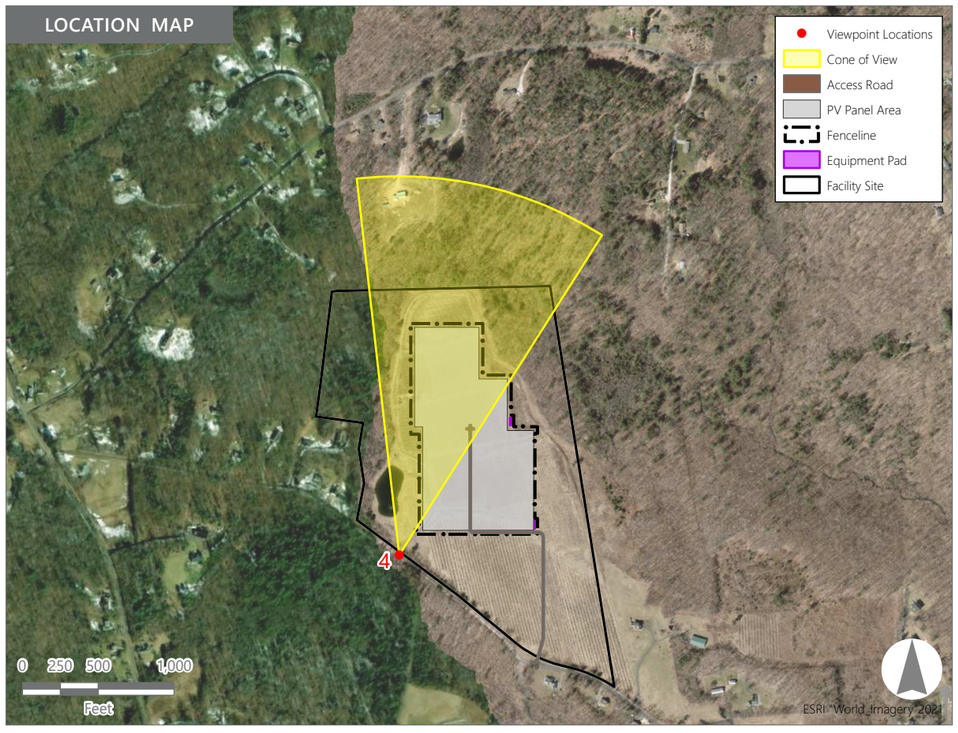
Note: *The image above is a panorama composition panning clockwise from northwest (left) to east (right).*

VIEWPOINT 4
Schoolhouse Road

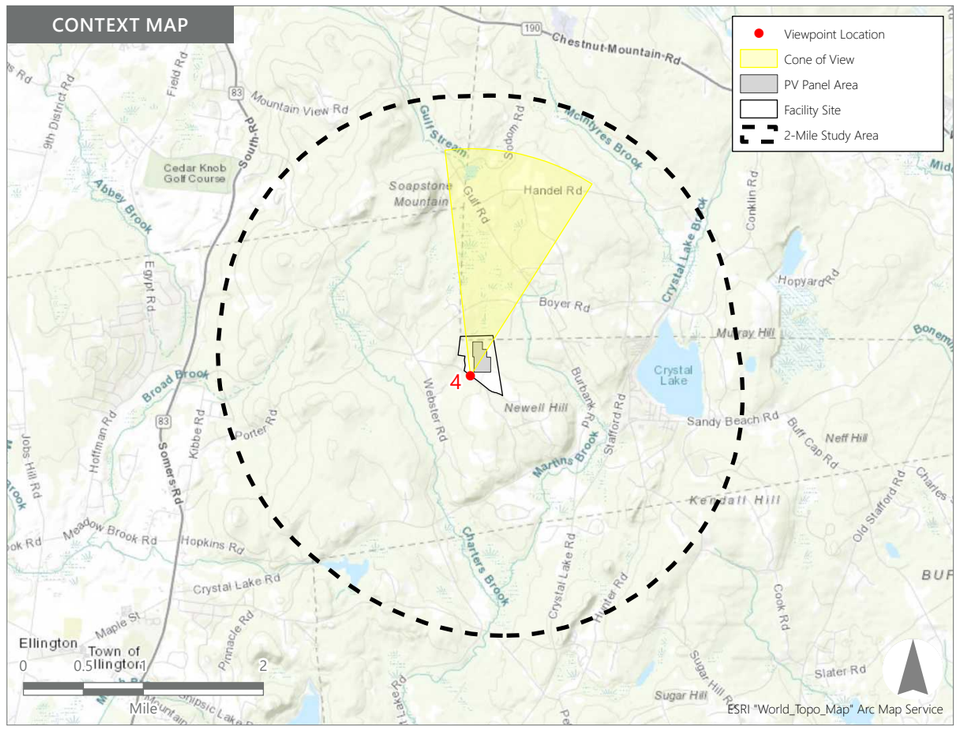
LOCATION INFORMATION

Municipality:	Town of Sunset
County:	Tolland
Latitude:	41.93695° N
Longitude:	72.40599° W
Project Distance:*	224 feet

LOCATION MAP



CONTEXT MAP



PHOTOGRAPH INFORMATION

Date:	January 19, 2026
Time:	12:47 PM
Camera:	Canon EOS 5D Mark IV
Camera Resolution:	30.4 Megapixels
Lens Focal Length (35 mm sensor equivalent):	51.1 mm
Camera Elevation:	769 feet
*Field of View**:*	39 degrees
Direction of View:	North-northeast
Printed Size:	10 inches x 15 inches
*Viewing Distance***:*	21 inches

NOTES

**Distance as measured from the viewpoint to the closest pv panel array within the simulated photograph's field of view.*

***The simulated field of view is comprised of multiple single frame simulations, each with a field of view of 39 degrees.*

****The single-frame photograph simulations are at the correct perspective when printed on an 11 inch by 17 inch sheet at full scale, and viewed approximately 21 inches from the eye of the viewer.*

EXISTING VIEW

Note: *Printed at actual size, the existing view image is 15 inches wide by 10 inches high. At this size and focal length, the existing view should be viewed from a distance 21 inches from the eye of the viewer.*

0 1 in. 2 in.

This scale is to ensure the simulation images are printed at the intended size.

VIEWPOINT 4

Schoolhouse Road

Sunset Solar Project

Visibility Assessment Memorandum, Attachment B

EDR

PHOTOSIMULATION

Note: *Printed at actual size, the resulting photosimulation image is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance 21 inches from the eye of the viewer.*

0 1 in. 2 in.

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VIEWPOINT 4

Schoolhouse Road

Sunset Solar Project

Visibility Assessment Memorandum, Attachment B

EDR

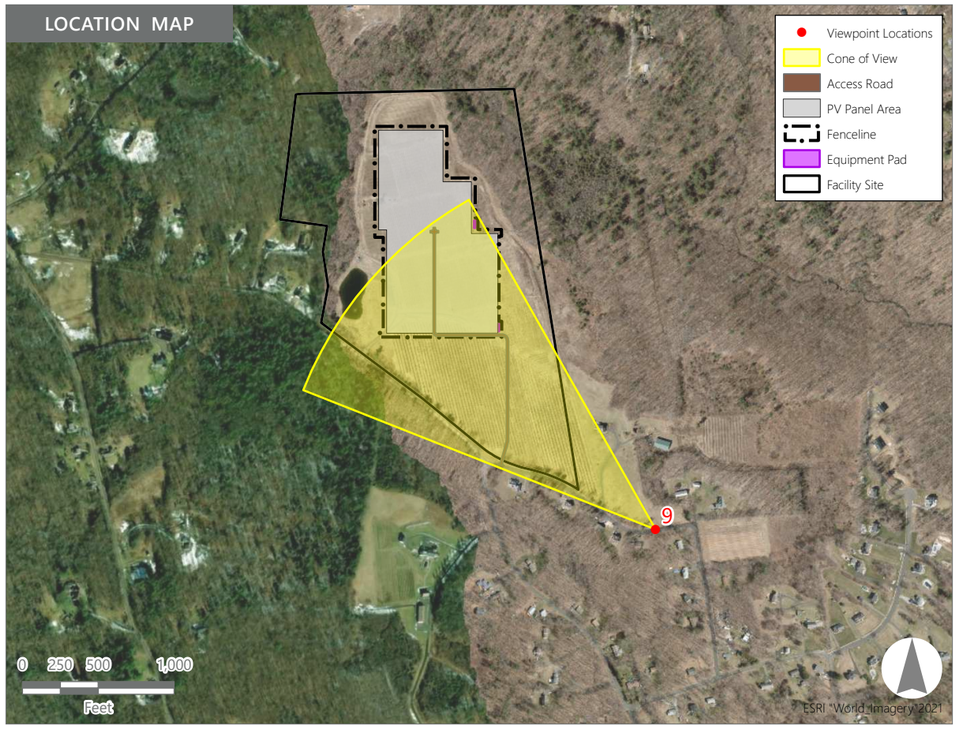
Note: *The image above is a panorama composition panning clockwise from west (left) to east (right).*

VIEWPOINT 9
Schoolhouse Road

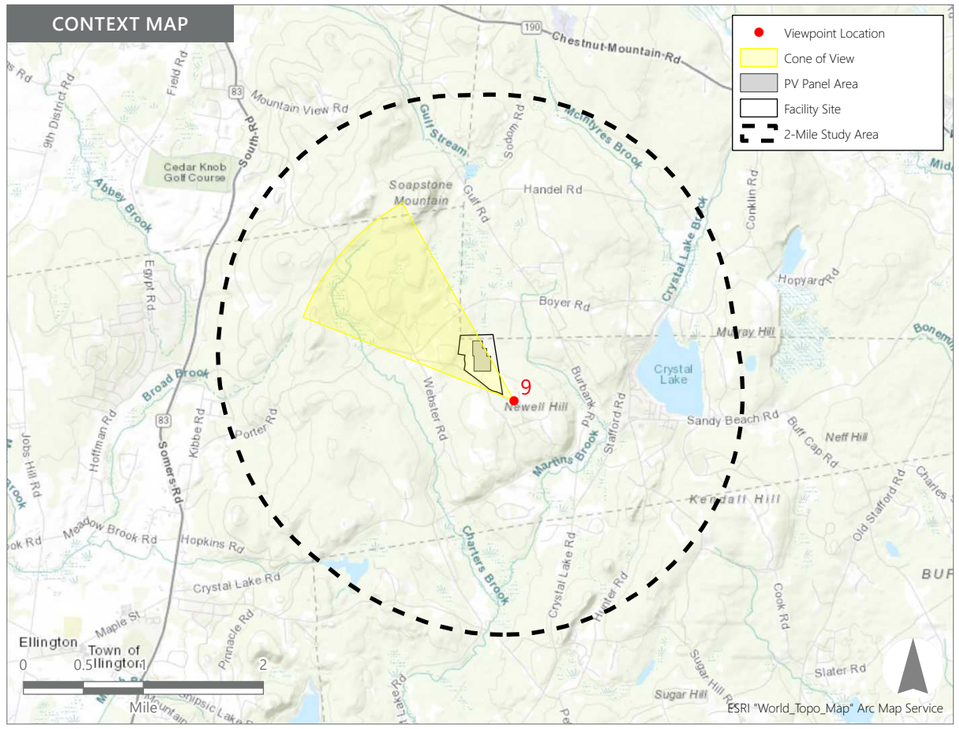
LOCATION INFORMATION

Municipality:	Town of Sunset
County:	Tolland
Latitude:	41.93383° N
Longitude:	72.39892° W
Project Distance:*	1,661 feet

LOCATION MAP



CONTEXT MAP



PHOTOGRAPH INFORMATION

Date:	January 19, 2026
Time:	1:00 PM
Camera:	Canon EOS 5D Mark IV
Camera Resolution:	30.4 Megapixels
Lens Focal Length (35 mm sensor equivalent):	51.1 mm
Camera Elevation:	848 feet
*Field of View**:*	39 degrees
Direction of View:	Northwest
Printed Size:	10 inches x 15 inches
*Viewing Distance***:*	21 inches

NOTES

**Distance as measured from the viewpoint to the closest pv panel array within the simulated photograph's field of view.*

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****The single-frame photograph simulations are at the correct perspective when printed on an 11 inch by 17 inch sheet at full scale, and viewed approximately 21 inches from the eye of the viewer.*

EXISTING VIEW

Note: *Printed at actual size, the existing view image is 15 inches wide by 10 inches high. At this size and focal length, the existing view should be viewed from a distance 21 inches from the eye of the viewer.*

0 1 in. 2 in.

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VIEWPOINT 9

Schoolhouse Road

Sunset Solar Project

Visibility Assessment Memorandum, Attachment B

EDR

WIREFRAME RENDERING

Note: Printed at actual size, the resulting wireframe rendering image is 15 inches wide by 10 inches high. At this size and focal length, the wireframe rendering should be viewed from a distance 21 inches from the eye of the viewer.

0 1 in. 2 in.

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VIEWPOINT 9

Schoolhouse Road

Sunset Solar Project

Visibility Assessment Memorandum, Attachment B

EDR