Visual Impact Assessment

Case No. 20-F-0043

June 2021

Garnet Energy Center

Town of Conquest, New York

Prepared For:

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ATTACHMENTS

1.0 INTRODUCTION

Garnet Energy Center, LLC, a wholly-owned, indirect subsidiary of NextEra Energy Resources, LLC, is proposing to construct, operate, and maintain the Garnet Energy Center (Project), and is submitting an Article 10 application to the New York State Board on Electric Generation Siting and the Environment in pursuit of a Certificate of Environmental Compatibility and Public Need.

Provided herein is a Visual Impact Assessment (VIA) that addresses the potential for visual impacts from the major components of the Project. This VIA tracks the requirements of Project Stipulation 24 and therefore, the requirements of 16 New York Codes, Rules and Regulations (NYCRR) §1001.24.

Within the framework of the Article 10 process, the purpose of this VIA is to:

- Describe the visual character of the Visual Study Area (VSA),
- Perform a visual resources inventory that identifies potentially sensitive receptors,
- Evaluate potential Project visibility within the VSA,
- Provide the results of computerized visualization studies that support the evaluation of Project visibility as well as field observations during the site visits, and
- Assess the visual impacts associated with the proposed Project.

The VIA includes both quantitative and qualitative assessment of visually sensitive resources, viewshed mapping, confirmatory visual assessment fieldwork, visual simulations (photographic overlays), and proposed visual impact mitigation for the Project. The VSA for the Project is a 5-mile radius around the fence line of the Facility.

2.0 THE PROJECT

The Garnet Energy Center (the Project) will have a generating capacity of 200 megawatts (MW), as well as a 20 MW/four-hour duration energy storage system. The Project will be located on land leased and/or purchased from owners of private property in the Town of Conquest, Cayuga County, New York. Proposed Project Components include commercial-scale solar arrays, access roads, buried (and possibly overhead) electric collection lines, an energy storage system, a Project collection substation, and electrical interconnection facilities. Refer to Figure C.200 in Attachment 1 for the site plan, as well as Figure 1 in Attachment 2.

Solar Arrays: The Applicant intends to utilize a solar module similar to the Jinko Solar Eagle 72HM G2 380-400 Watt Mono Perc Diamond Cell. The Project will utilize a fixed array racking system such as the Gamechange Solar Genius Tracker™ System. Technical data sheets for

this module and racking system have been included in the Exhibit 2 Appendices. The Applicant is also considering the use of bifacial modules.

The base case design for the Project currently proposes a fixed racking system with a bifacial panel height that will be up to 11 feet above ground.

Due to unknown market conditions regarding the availability of solar modules in the near future with a commercial operation date of 2023, the Applicant is also considering alternative tracker racking systems. Though currently not anticipated, in the event tracker technology is ultimately utilized for the Project, future design trends are indicating that the panels may reach a maximum height of up to 18 feet when at full-tilt with a dual-portrait solar panel orientation. The maximum height of a tracker system is only sustained for a short period during daylight hours as the racking makes continuous angle adjustments to follow the sun. For example, tracker systems lay flat near midday when the sun is directly overhead resulting in a panel height considerably lower than the maximum height of 18 feet during midday. As a result, for the majority of the time when the panels will be visible, the tracker system will be less than 18 feet in height. While the arrays may be taller, the final buildable area needed to meet the Project generating capacity is not anticipated to increase.

For the purposes of this report, the base case for this Project consists of fixed arrays with a maximum height of 11 feet. Additionally:

- This Visual Impact Assessment has produced Project simulations representing 11 foot tall bifacial fixed panels.
- To account for future modules that may become available, the visibility viewshed analyses has conservatively used 18 foot tall panels to predict potential visibility of the Project.

Inverters: Inverters will be located throughout the solar arrays to convert the direct current (DC) electricity generated by the solar modules into alternating current (AC) electricity. Cables from the solar modules are routed to the inverters using a CAB® cabling system or underground lines. The collection lines then convey electricity from the inverters underground to the Project collection substation and ultimately to the existing electric transmission system. The Applicant intends to use Power Electronics HEM inverters, or a similar make/model. Refer to Appendix 2-3 for the technical data sheet.

Access Roads: Roads within the Project Area used to access solar arrays will follow existing farm roads and trails, where practicable, to minimize the need for new roads. The same access roads used during construction will be used during operation of the Project and will be gravel surfaced.

Collection Lines: The 34.5 kV collection lines will connect the inverters with the Project collection substation. Collection lines will be installed underground via direct burial and horizontal directional drilling (HDD).

Fencing: Fencing will be placed around the perimeter of the arrays and associated structures. Fencing will be chain-link and seven to eight feet in height and will only be topped with barbed wire around the perimeter of the collection substation and switchyard.

Project Collection Substation: The 34.5 kV collection lines within the Project Area will collect electricity from the inverters and transport it to a new collection substation. The collection substation, located on the central portion of the Project Area off of Cooper Street, will step up the voltage to 345 kV. Please see Appendix 11-1 of the Application for plan and profile drawings associated with the collection substation.

Point of Interconnection (POI) Facilities: Power from the collection substation will be transferred to the switchyard and then interconnected to the existing NYPA Clay to Pannell 345-kV transmission line by two 345-kV interconnection lines, totaling 770 feet. The collector substation and POI switchyard will be transferred to NYPA to own, maintain, and operate.

Energy Storage Systems: The Project also includes an energy storage system with a capacity of 20 MW for a four-hour duration. There are 11 energy storage systems located throughout the Project Area adjacent to Project inverters and will be contained within cabinets that are anticipated to be approximately 10 feet in height.

The following definitions will be used to describe various areas or boundaries of the Project:

Project: the proposed Garnet Energy Center solar facility.

Project Area: the acreage area encompassing all Project parcels located within the Town of Conquest. The Project Area consists of land that currently is either leased or owned by the Applicant and can therefore be defined as properties belonging to participating landowners.

Component or Facility: an individual piece, or collection of equipment or improvement of the Project, including a solar array, access road, fencing, inverters, energy storage systems, buried electric collection lines, electrical interconnection facilities, and laydown areas.

VSA: Visual Study Area. A 5-mile radius around the fence line of the Facility specifically designated for the study of visual impacts.

3.0 CHARACTER OF THE EXISTING LANDSCAPE

Solar panels are proposed in the Town of Conquest, New York. The VSA is a 5-mile radius and primarily includes Cayuga County and a small eastern portion of Wayne County. The definition of the VSA is 5 miles around the fence line of the proposed solar arrays. As a result of the larger

Study Area under consideration, a number of additional towns are included beyond that of the Project location.

Distance Zones are assigned within the VSA as required by Article 10. Currently, Distance Zones of 0.5 miles, 2 miles, and 5 miles are proposed. The towns within the VSA along with population estimates sourced from The U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates are provided below in Table 1:

- *Towns that fall within 0.5 miles*: Cato and Conquest.
- *Towns and Villages that fall between 0.5 and 2.0 miles*: Brutus, Cato, Conquest, Ira, Mentz, Victory, and Village of Cato.
- *Towns and Villages that fall between 2 and 5 miles*: Brutus, Butler, Cato, Conquest, Ira, Mentz, Montezuma, Savannah, Victory, Village of Cato, Village of Meridian, Village of Port Byron, and Village of Weedsport.

Table 1. Population of VSA Communities

Town/Village	Population (2019 Estimates)
Brutus, Wayne County	4,294
Butler, Cayuga County	1,864
Cato, Cayuga County	2,478
Conquest, Cayuga County	1,899
Ira, Cayuga County	2,402
Mentz, Cayuga County	2,217
Montezuma, Cayuga County	1,560
Savannah, Wayne County	1,888
Victory, Cayuga County	1,843
Village of Cato, Cayuga County	521
Village of Meridian, Cayuga County	312
Village of Port Byron, Cayuga County	1,035
Village of Weedsport, Cayuga County	1,768

3.1 Physiography and Land Use Patterns

The Project is in the town of Conquest, New York, approximately 10 miles north of the Cayuga county seat of Auburn and 20 miles east of Syracuse. The VSA is rural and primarily consists of mixed forest groups, wooded wetlands and open land that also includes hay/pasture and cultivated crops as well as rural residential land. The majority of the Project within the Cayuga County portion lies in Agricultural District #5. For the Wayne County portion of the VSA, Agricultural District #1 is predominant.

Various views of the rural character and the nature of roadways within the VSA can be obtained in the Project Photolog in Attachment 3. Most of the residential development in the VSA consists of rural residential houses along roadways. Several small, low population villages are also recognized. The Villages of Cato and Meridian lie 0.9 and 2.6 miles to the northeast of the Project Area, respectively. The Villages of Port Byron and Weedsport are 3.6 miles to the south. Each of these villages are also represented in the Project Photolog.

Physiographically, the site is approximately 14 miles south of Lake Ontario in the Erie-Ontario Lowlands physiographic province, and approximately 1.6 miles north of the Seneca River. The Erie-Ontario Lowlands in the vicinity of the Project is characterized by wet and dry flats mixed in with a series of post-glacial drumlin fields, which are elongated rounded and gently rolling hills that are oriented in a north to south fashion. The elevation range in the VSA is 370 feet to 627 feet mean sea level (MSL), not varying much more than 257 feet MSL within a 5-mile radius. In the general vicinity of the Project within 0.5 miles, the elevation ranges between 385 and 593 feet MSL with terrain fluctuating within 208 feet. The higher elevations nearing 500 plus feet reflect the top of geologic drumlin hill features which in general, have geometries approximately 800 feet wide east to west and 0.3 miles long from north to south. The lower elevations at the base of these hills drop to around 400 to 460 feet MSL.

In addition to the Seneca River, there are other small waterbodies used recreationally. They are Otter Lake in Cato 3.2 miles west of the Project, Parker Pond in Cato 2.4 miles to the northeast, and Duck Lake in Conquest 1.7 miles west of the Project.

Roadways in a Project vicinity are important to understand since they are one of several viewer groups that may receive Project visibility. This viewer group could consist of local community, commuter, or tourist constituency on a daily or infrequent basis. To help describe the rural nature of the area and thus provide an understanding of the quantity of viewers by road travel, annual average daily traffic (AADT) counts are provided, as available, in the Table 2 listing of roadways in the area. AADT is a measure used primarily in transportation planning and transportation engineering. Traditionally, it is the total volume of vehicle traffic of a highway or road for a year divided by 365 days. In Table 2, NY Route 38 is the only route that directly passes through the Project area, with an AADT of 453. All other roads lie outside of the Project area in various cardinal directions and distances around the site. For perspective, highways

such as Interstate 90 (I-90) in the area has an AADT of 18,230. Other local roads such as Fuller Road and Lake Road have AADTs of 280 and 201, respectively.

Table 2. Available Traffic Data within the VSA

Route/ Road Name	From	To	AADT
CR-129	Victory TL	SR 370	424
Fuller Rd	CR 23	NY-38	280
Lake Rd	Rt 38	Howell Rd	201
NY-38	CR 22 Conquest	Rt 370 Victory	453
NY-34	I-90	Rt 370 Cato	1433
NY 370	Rt 38 Victory	Rt 34 Cato	2733
Interstate I-90	Seneca/Cayuga County Line	Rt 34	18,230

Existing roadways fall into three functional classifications as defined by NYSDOT Office of Technical Services. These classifications with roadway identification are useful for understanding the character of the VSA. Photographs used in this analysis are taken from places accessible to the public and include roadway rights-of-way. Several of these photographs are in the vicinity of residential areas where functional classes of roads assist in understanding the density or frequency of travel in these areas.

Arterial Roads: Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.

Collector Roads: Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.

Local Roads: Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.

Principal Arterial Interstate – Interstate I-90 is located approximately 3 miles south of the site. Principal Arterial Interstates are roadways classified as an interstate that carry multiple travel lanes and are designated for high rates of speed between major points.

Principal Arterial Other – Principal Arterial Other found within the VSA is NY Route 370. Principal Arterials Other are roadways classified as a non-interstate that consist of a connected rural network of continuous routes that serve corridor movement having trip length and travel density characteristics indicative of substantial statewide or interstate travel and provide an integrated

network without stub connections except where unusual geographic or traffic flow conditions dictate otherwise.

Minor Arterial – There is one Rural Minor Arterial roadway classified by the NYSDOT in the vicinity: NY-38. Minor Arterials are often moderate length and usually provide a connection to a higher-level roadway, such as a Principal Arterial. In rural areas, such as the Project Area, Minor Arterials provide high travel speeds with minimal disruption to the through traveling vehicles.

Major Collector – The only Major Collector roadway within the Project Area as classified by the NYSDOT is NY-34. Major Collectors generally have few driveways and also allow for minimal disruption to the through traveling vehicles. Major Collectors can be shorter in length and have fewer daily traffic than Minor Arterials.

Minor Collector – The only Minor Collector roadways within the Project Area as classified by the NYSDOT are CR 17B and CR 17A (Slayton Road). Minor Collectors generally are spaced at intervals to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road, while providing service to the remaining smaller communities and linking the locally important traffic generators with their rural areas.

Local Road – The rest of the roadways within the Project Area are identified as Local Roads including Spook Woods Road, Cooper Street, and Drake Road. These roads account for the largest percentage of total roadway miles. These roadways are short and are intended for specific local access. Local roads primarily facilitate direct access to adjacent property owners with many driveways and access points.

In addition to the classifications, most of the roadways in the Project Area are generally rural in nature and generally provide one travel lane in each direction with limited shoulder and roadside treatments.

4.0 DISTANCE ZONES

Delineation of Distance Zones are required under Stipulation 24(b)(1) and are based on Project distances from the fence line to an observer. Three distance zones are applied to the Project: foreground, middle ground, and background. Each of these areas will determine the level of visual detail and acuity of objects. Distance Zones are often identified by the definitions in *The US Forest Service Landscape Aesthetics – A Handbook for Scenery Management* (US Forest Service Handbook) (1995). The effects of distance are highly dependent on the characteristics of the landscape. However, size, level of visibility perceived for this particular type of project (solar panels), and panel position in the landscape should also be considered in determining zones. Distance Zones for this Project have been reasonably modified from the US Forest Service Handbook to accommodate the VSA radius, limitations of human vision and perceptible detail of the low profile of the Project components, and how much of the Project can actually be seen. Solar panels are not wind turbines or tall buildings. They are of a different character with a low vertical height profile (11 feet high) in comparison to other larger objects found in the

landscape such as houses, barns, and trees, in addition to the rolling topography in the area that could easily visually obstruct farther locations. Solar projects typically have lateral breadth but the visibility of solar projects in the northeast, because of frequent and highly vegetated narrow ridges and valleys and dense forest areas surrounding agricultural lands, often do not offer substantial far-reaching vistas of many miles. Distance Zones for this project are as follows:

- Distance Zone 1: Foreground (up to 0.5 miles from the viewer). This is the closest distance at which details of the landscape and the solar panels can be seen. Individual landscape forms are typically dominant and individual panel strings and racking system detail may be seen. The concentration of predicted visible areas lies within this zone typically due to proximity to the Project.

- Distance Zone 2: Middle ground (0.5 to 2 miles from the viewer). At this distance, individual tree forms and building detail can still be distinguished at, for example, 1 mile. The outer boundary of this distance zone, however, is defined as the point where the texture and form of individual plants are no longer visibly acute in the landscape. In some areas, atmospheric conditions can reduce visibility and shorten the distance normally covered by each zone. Solar panels lose their level of detail and are seen as a contiguous mass of form and/or color.

- Distance Zone 3: Background (2 to 5 miles from the viewer to the horizon). At the extent of background distances, texture disappears, and color flattens but large light and dark patterns of vegetation or open land due to shape or color are distinguishable and ridgelines and horizon lines are the dominant visual characteristics. Landscapes are simplified and are viewed in groups or patterns. Solar panels can be detected as a distant form and color change but are not as discernible.

Further discussion on the percentages of visibility for each Distance Zone can be found in Section 10.1.6 and Table 6.

5.0 LANDSCAPE SIMILARITY ZONES

Landscape Similarity Zones (LSZs) are areas of similar landscape and aesthetic character based on patterns of landform, vegetation, water resources, land use, and user activity. These zones provide additional context for evaluating viewer circumstances where relationships between viewer groups and visual experience can be made, as well as understanding the influence that the LSZ has on visibility. For example, a viewer's experience will be different in a forested area vs. open water vs. open land vs. urban areas. Viewer groups, as well as potential viewer frequency and duration of view, can also be estimated as they relate to LSZ.

Land cover classification datasets from the 2016 United States Geological Survey (USGS) National Land Cover Dataset (NLCD) are available for GIS analysis and were used for an initial establishment of LSZs as they provide distinct and usable landscape categories. These NLCD

land cover groupings were then refined based on aerial photo interpretation and general field review into land category characteristics that have the ability to influence or be influenced by visibility of the Project. This effort resulted in the definition of five final LSZs within the VSA as depicted in Table 3 and on Figure 2, Attachment 2 and include the following:

Zone 1: Agricultural – This zone is characteristic of open land and includes cultivated land and that which is used for row crops, hay or pasture, and can sometimes be left fallow. Agricultural lands are most often privately owned and while they may be abundant in a particular area, the numbers of the viewing public, as well as the frequency and duration of viewers, is likely low.

Zone 2: Forested – This zone includes mature deciduous and coniferous tree groups either in uplands or wetlands. Forested areas may be abundant, and the general public may have greater access to forested areas on public lands as many recreational activities are available within them. However, views may be very limited as outward views beyond the tree canopy or large tree groupings are typically not prevalent.

Zone 3: Developed – This zone includes villages, towns, cities, rural residential abutting roadways, and transportation corridors. Thus, this zone included those areas that are expected to have the highest number of observers whether rural, urban, static, or transient. Typically, villages and towns may not have prevalent views of other development at distance since more densely spaced building structures or existing streetside trees can preclude many views. Privately owned rural residential dwellings, if in close proximity to the Project, have a higher likelihood of receiving views of a nearby project. Roadways absent of roadside vegetation can also potentially afford many transient and intermittent views of short duration to numbers of the viewing public.

Zone 4: Open – This zone includes miscellaneous other open land that may have minor development with less visually obstructive features such as minor expanses of barren land, land with short scrub shrub vegetation, cemeteries, golf courses, paved lots, or playgrounds. This zone, often in public or semi-public locations, has a higher potential of experiencing views of a nearby project because of limited low profile features.

Zone 5: Open Water –There are a few water bodies with associated recreational activities to warrant an open water category. Larger lakes, ponds, and rivers recognized in this zone are: Otter, Duck, and Cross Lakes, Parker Pond, and the Seneca River. Other smaller unnamed water bodies, as well as open water of emergent wetlands, may be present. Most water bodies such as lakes and ponds are by nature very open and can potentially afford views to nearby projects. Numbers of viewers would be higher in publicly accessible locations. Duration of views may not be either long duration or transient but could be experienced over the course of a day. Rivers may not be as susceptible to direct line of sight views to projects if riparian vegetation is abundant. Rivers are also located at low valley elevations where higher topography on either side could block views to nearby projects.

Table 3 summarizes the percentage of LSZs in the VSA.

Table 3. Percentage of Landscape Similarity Zones within 5-Mile VSA

LSZ	Distance Zone 1 0.5 Miles		Distance Zone 2 0.5-2.0 Miles		Distance Zone 3 2.0-5.0 Miles			
	Square Miles	% of LSZ w/in VSA	Square Miles	% of LSZ w/in VSA	Square Miles	% of LSZ within VSA	Total Square Miles of LSZ	Total Percent of LSZ in VSA
Zone 1 - Agricultural	5.55	3.93%	14.23	10.05%	44.63	31.54%	64.41	45.52%
Zone 2 - Forested	6.08	4.30%	12.49	8.83%	43.26	30.57%	61.83	43.70%
Zone 3 - Developed	0.55	0.39%	1.65	1.16%	6.84	4.83%	9.04	6.39%
Zone 4 - Open	0.16	0.11%	0.35	0.25%	2.45	1.73%	2.96	2.09%
Zone 5 - Open Water	0.02	0.02%	0.84	0.60%	2.39	1.69%	3.25	2.30%
Totals	**12.37**	**8.74%**	**29.56**	**20.89%**	**99.57**	**70.37%**	**141.49**	**100.00%**

LSZ 1 Agricultural and LSZ 2 Forested are co-dominant and occupy 45.5% and 43.7% of the 5-mile VSA, respectively. These two zones also occur in similar percentages to each other throughout each Distance Zone as well. The occurrence of LSZ Developed drops significantly and comprises 6.4% of the land area in the VSA. Zone 4 Open is land with few visual obstructions such as minor expanses of barren land, land with short scrub-shrub vegetation, and emergent wetlands, and occurs in the least amount and comprises 2.1% of the VSA. Zone 5 Water (primarily as Otter, Duck, and Cross Lakes, Parker Pond, and the Seneca River) accounts for 2.3% of the VSA.

6.0 SCENIC RESOURCE INVENTORY

An inventory of publicly available and accessible local, county, state, and federally recognized visual resources out to the 5-mile VSA was compiled under Stipulation 24(b)(4)(ii). GIS data, town, county, and agency reports, topographic data, and site visits along with photographic documentation were used as source data. Also, on January 27, 2021 an information request was sent out to stakeholders per Stipulation 24(b)(4). In this request, a preliminary visual report was provided, indicating the extent and findings of visibility studies at that point in time which included identified visual resources. Opportunity was provided for stakeholders to append additional visual resources of concern to the inventory. DPS responded, and in a memo dated February 10, 2021, provided additional visual receptors to include in the inventory. Correspondence is available in Attachment 5. Visual resources within 5 miles of the Project are listed in Table 4.

Per Stipulation 24(b)(4)(ii), the following have been reviewed for their appearance within the VSA:

1) Landmark landscapes;

2) Wild, scenic or recreational rivers;

3) Forest preserve lands, scenic vistas specifically identified in the Adirondack Park State Land Master Plan, conservation easement lands, scenic byways designated by the federal or state governments;

4) Scenic districts and scenic roads;

5) Scenic Areas of Statewide Significance;

6) State parks or historic sites;

7) Sites listed on National or State Registers of Historic Places;

8) Areas covered by scenic easements, public parks or recreation areas;

9) Locally designated historic or scenic districts and scenic overlooks; and

10) High-use public areas.

Information for historic sites and districts, listed New York historic sites, National Register of Historic Places (NRHP), and eligible historic properties was obtained directly from New York State Historic Preservation Office (SHPO) as part of a specific Applicant request made on October 6, 2020. In February 2021, a historic architectural survey was conducted by the Applicant within a 2-mile Area of Potential Effect (APE) to fulfill Exhibit 20 requirements under SHPO guidelines. As a result of this survey, six properties above and beyond what SHPO provided in the October 6th Applicant request for listed and eligible sites are recommended for NRHP status: one property where the previous status was "Undetermined" by SHPO, and five new surveyed sites. These six sites are listed in Table 4 and noted on Attachment 2 mapping. Please refer to Exhibit 20 of the Application as well as the Historic Architectural Resources Survey and Effects Report for greater detail on the cultural resources investigations and results.

6.1 Results of Article 10 Scenic Resources Investigation

Table 4 shows results of the investigatory findings of municipal village/town, or agency listed and recognized scenic resources that are required by the regulatory guidelines set forth for Article 10 (Section 6.0). In addition, formal outreach to stakeholders, including local municipalities, was initiated to solicit any other visual resources of concern to be added to the inventory (further described in Section 7.3.2). Figures 3, 4 and 5 in Attachment 2 show resulting resource locations.

Table 4. Inventory of Visual Resources within the Five Mile VSA

Map ID	Resource Name	Town/Village	Distance to Project (miles)	LSZ	Potential Visibility[1]
	Parks/Recreation				
1	Graham Park	Brutus	4.0	1,2	No
2	Public School Playing Fields	Brutus, Village of Weedsport	4.5	4	No
3	River Forest Park	Brutus	2.6	2,4	No
4	River Forest Park Campground	Brutus	3.1	3	No
5	Trolley Park	Village of Weedsport	4.5	3	No
6	Weedsport Speedway	Brutus	4.4	3	No
7	Conquest Recreation Field	Conquest	0.4	4	No
8	Duck Lake Campgrounds	Conquest	1.9	3,4	No
9	Howland Island State Wildlife Management Area	Conquest	3.1	1,2	No
10	CIMARF - Cato, Ira, Meridian Area Recreation Facility	Ira, Village of Cato	1.9	3	No
11	Schasel Park	Village of Port Byron	4.1	3	No
12	Mott Park	Village of Cato	1.5	3	No
13	Whitford's Airport	Cato	3.9	4	No
14	Eagles Landing Marina	Brutus	3.9	5	No
	Lakes and Boat Launches				
15	Otter Lake	Cato	3.2	5	No
16	Parker Pond	Cato	2.4	5	No
17	Duck Lake	Conquest	1.7	5	No
18	Erie Canal - Seneca River (Hand) Boat Launch	Brutus	4.9	5	No
19	Otter Lake Boat Launch	Cato	3.5	5	No
20	Cross Lake Boat Launch	Cato	4.7	5	No
21	Erie Canal - Seneca River Boat Launch	Mentz	1.8	5	No
22	Erie Canal Ramp	Conquest	3.3	5	No
	Cemeteries				
23	God's Acre Cemetery	Village of Weedsport	4.6	3	No
24	Saint Joseph's Cemetery	Village of Weedsport	3.8	3	No
25	Crosman Cemetery	Cato	4.0	1	No

Map ID	Resource Name	Town/Village	Distance to Project (miles)	LSZ	Potential Visibility[1]
26	La Due Cemetery	Cato	2.7	1	No
27	Meridian Village Cemetery	Village of Meridian	3.3	3	No
28	Smith Road Cemetery	Cato	2.2	4	No
29	Conquest Village Cemetery	Conquest	0.3	4	No
30	Emerson Cemetery	Conquest	0.1	4	No
31	Spring Lake Cemetery	Conquest	1.7	4	No
32	Dutton Cemetery	Ira	3.1	4	No
33	Ferris Cemetery	Ira	4.6	2	No
34	Union Hill Cemetery	Village of Cato	2.5	3	No
35	Dixon-Wilson Cemetery	Mentz	4.5	1	No
36	Mount Pleasant Cemetery	Village of Port Byron	4.5	3	No
37	Old Port Byron Cemetery	Village of Port Byron	4.1	3	No
38	Salt Road Cemetery	Mentz	4.5	1	No
39	Stevens Family Cemetery	Mentz	3.4	2	No
40	Cummings Cemetery	Victory	4.2	2	No
41	French Cemetery	Victory	4.2	1	No
42	Victory Union Cemetery	Victory	3.2	4	No
	Local Designated Scenic Features				
43	Scenic Drumlin Feature	Village of Weedsport	4.5	2	No
44	Scenic Drumlin Feature	Brutus	4.7	2	No
45	Scenic Drumlin Feature	Brutus	5.0	2	No
	Wildlife Management Areas				
NA	Howland Island State Wildlife Management Area	Conquest, Montezuma	1.9	1,2	No
NA	Northern Montezuma Wetlands State Wildlife Management Area	Conquest, Savannah	2.3[2]	1,2	No
	Scenic Byways				
NA	NY State Route 34 Scenic Byway	Cato, Ira	1.5	1,2,3	No
	Heritage Corridor				
NA	Erie Canalway National Heritage Corridor	Towns of Brutus, Cato, Conquest,	n/a	1,2,3,4,5	No

Map ID	Resource Name	Town/Village	Distance to Project (miles)	LSZ	Potential Visibility[1]
		Mentz, Montezuma, and Savannah are within Heritage Area boundary			
	Bikeways, Trails and Waterways				
NA	Erie Canal Trail (State Bikeway Route 5 & Erie Canal Trail is the same in some areas)	Brutus, Mentz, Village of Port Byron, Village of Weedsport	3.9	2,3,4,5	No
NA	Cato-Fairhaven Trail (North Trail)	Ira, Village of Cato	2.1	1,2,3	No
NA	Erie Canalway Greenway	Cato	1.6	1,2,5	No
NA	Muskrat Creek Canoe-Kayak Trail	Cato	1.9	1,2,5	No
NA	Future Rail Trail	Cato, Village of Cato	2.0	1,2	No
	Snowmobile Trails				
NA	Cato Trailblazers Club, Port Byron Snow Panthers (NYS Snowmobile Assoc. Members) Trails S55B and S55D.	Brutus, Cato, Conquest, Ira, Mentz, Victory, Village of Cato, Village of Port Byron	0	1,2,3,4	Yes, discrete segments of trail in Conquest

Map ID	USN	Resource Name	Town/Village	Distance (miles)	LSZ	Potential Visibility*
		Listed Historic District				
N/A	00104.000641	New York State Barge Canal Historic District	Brutus, Cato, Conquest, Mentz, Montezuma	1.8	5	No
		CRIS Listed Historic Sites				
A	01102.000042	Bridge E-83, BIN-4023370	Brutus/Cato	3.6	3,5	No
B	01102.000043	Weedsport Canal Terminal Office	Brutus	3.6	3,5	No
C	01102.000044	Weedsport Terminal	Brutus	3.6	3,5	No
D	01103.000015	Bridge E-80, BIN-4433140	Cato	5.1	3,5	No
E	01103.000090	Bridge E-81, BIN-4431020	Cato/Brutus	4.9	3,5	No
F	01104.000033	Bridge E-84, BIN-4431030	Conquest	1.4	3,5	No
G	01110.000024	Bridge E-85, BIN-4024330	Conquest/Mentz	1.7	3,5	No

Map ID	USN	Resource Name	Town/Village	Distance (miles)	LSZ	Potential Visibility*
H	01111.000037	Bridge E-86, BIN-4431040	Montezuma	3.2	3,5	No
I	01111.000055	Bridge E-87, BIN unknown	Montezuma	5.0	3,5	No
J	01145.000005	Dudley Residence (William Smith Ingram)	Village of Meridian	3.5	3	No
K	01147.000001	Erie Canal Lock 52 Complex	Village of Port Byron	4.2	4	No
L	01149.000085	Weedsport Baptist Church	Village of Weedsport	4.4	3	No
M	01149.000094	Frank and Eliza Tryon Home, ca. 1890	Village of Weedsport	4.3	3	No
N	01102.000008	Centreport Aqueduct	Brutus	4.4	4,5	No
N/A		**CRIS Eligible Historic Sites**				
	01103.000083	Cato-Meridian Central School	Cato	3.2	3	No
	01103.000085	9602 Bonta Bridge	Cato	4.7	3,5	No
	01104.000036	Greek Revival Schoolhouse	Conquest	0.7	2	No
	01107.000030	Farmstead	Ira	3.1	3	No
	01110.000023	Erie Canal Prism	Mentz	4.0	5	No
	01142.000006	Cobblestone House	Village of Cato	2.1	3	No
	01142.000007	Chilson Cobblestone House	Village of Cato	2.2	3	No
	01142.000018	Unknown	Village of Cato	2.4	3	No
	01142.000019	Unknown	Village of Cato	2.4	3	No
	01142.000032	Titus Warehouse	Village of Cato	2.2	3	No
	01145.000010	1st Baptist Church	Village of Meridian	3.6	3	No
	01145.000020	Unknown	Village of Meridian	3.4	3	No
	01145.000021	Meridian Village Cemetery	Village of Meridian	3.3	3	No
	01145.000022	Unknown	Village of Meridian	3.4	3	No
	01145.000023	Meridian District Schoolhouse	Village of Meridian	3.6	3	No
	01145.000047	Unknown	Village of Meridian	3.4	3	No
	01147.000020	Unknown	Village of Port Byron	4.1	3	No
	01147.000023	Unknown	Village of Port Byron	4.4	3	No
	01147.000029	Port Byron Hotel	Village of Port Byron	4.3	3	No

Map ID	USN	Resource Name	Town/Village	Distance (miles)	LSZ	Potential Visibility*
	01147.000037	Mill - Former Hitchcock Electroplating Facility	Village of Port Byron	4.1	3	No
	01149.000005	Unknown	Village of Weedsport	4.5	3	No
	01149.000034	Unknown	Village of Weedsport	4.5	3	No
	01149.000049	Unknown	Village of Weedsport	4.4	3	No
	01149.000050	Unknown	Village of Weedsport	4.4	3	No
	01149.000051	Unknown	Village of Weedsport	4.3	3	No
	01149.000052	Unknown	Village of Weedsport	4.4	3	No
	01149.000053	Unknown	Village of Weedsport	4.4	3	No
	01149.000084	Weedsport Elementary School	Village of Weedsport	4.4	3	No
		Historic Architectural Survey Additional Recommended NRHP Sites[3]				
O	N/A	11676 Old State Road	Victory	1.9	2	No
P	N/A	Emerson Church Cemetery, O'Neil Road	Conquest	0.2	4	No
Q	N/A	10430 Conquest Road	Conquest	0.4	3	No
R	N/A	10418 Conquest Road	Conquest	0.5	3	No
S	N/A	Conquest Cemetery, Conquest Road	Conquest	0.3	3	No
T	01104.000037	Conquest Methodist Church[4]	Conquest	0.4	3	No

[1] *Expected visibility is based on LiDAR-based viewshed analysis results that include trees and buildings and is reflective of realistic landscape conditions per Stipulation 24(b)(1).*

[2] *Distance reflects main larger parcel to southwest. One small parcel is 0.3 miles to east at Mud Pond.*

[3] *Based on historic architectural survey conducted within the Area of Potential Effects which was determined to be two miles. Survey was conducted in February 2021. Refer to Exhibit 20 for full details.*

[4] *Previous status was "Undetermined" by SHPO. Is now a "Recommended NRHP Site" based on February 2021 historic architectural survey.*

7.0 GIS AND 3D ANALYSIS FOR VISUAL IMPACT EVALUATION - METHODOLOGY

7.1 Viewshed Analysis

A viewshed analysis is a computerized GIS analytical technique that illustrates the predicted visibility that may potentially be expected for a project. It allows one to determine if and where

an object, such as a solar project, can geographically be seen within a larger regional area. The viewshed model accounts for topography, vegetation, and the height of the solar panels. The results of the viewshed analysis, typically displayed over a USGS topographic map or aerial photo, are combined with other sensitive location information such as historic places, national forests, or state parks, etc. Incorporating GIS-integrated data along with a viewshed analysis assists in understanding the potential for project visibility at sensitive receptors.

7.1.1 Methodology

The viewshed analysis results (Figures 3, 4 and 5, Attachment 2) show areas of expected visibility. For the analysis, Light Detection and Ranging (LiDAR) point cloud data from the 2018 Cayuga/Oswego County New York LiDAR dataset and obtained from the New York State GIS Program website was used. LiDAR data is the best available elevation data as it includes high resolution accurate ground elevations in addition to building heights and individual tree heights that offer realistic physical visual impediments as they occur in the landscape.

The proposed panels for this Project will have a fixed racking system with array heights up to 11 feet. However, as noted in Section 2.0 for the viewshed analysis, the top of the panels with the viewshed model was conservatively set at a maximum of 18 feet in height above ground surface (e.g. full tilt tracking system) to include assessment for photovoltaic models that may become available in the future.

The viewshed model was further developed by establishing an observer height of 6 feet and the assumption that the Project would not be visible to a viewer who is standing amongst trees in a forested area for the viewshed analysis that incorporated trees. The final resulting output identified those areas from which viewers would potentially see all or some part of the proposed solar panels. ESRI Spatial and 3D Analyst GIS software were used to develop the viewshed model.

1. Two viewshed analyses for the solar arrays have been produced to illustrate predicted visibility within the VSA:

    - With Vegetation and Buildings: This is the primary visibility analysis performed per Stipulation 24 (b)(1), as it incorporates trees and buildings in the study area in addition to topography and gives the most reasonable and realistic depiction of the surrounding Project landscape. The results of this analysis provide the focus of visibility discussion in visual impact assessments because of the inherent aspects of reproducing realistic conditions when LiDAR datasets are used.
    - Topography-Only: A topography-only viewshed analysis was also performed. The viewshed analysis with bare earth topography is not recognized as being a realistic representation of potential visibility, as it is not truly reflective of the environment due to the absence of all trees. Despite this limitation of the topography-only analysis, it can be a useful tool in allowing an understanding of how much of the Project is blocked by

terrain alone. Another caveat is that the topography-only results must not be interpreted as representing visibility during leaf-off conditions, since even leaf-off bare branched tree groups act as a solid mass where lines of sight to objects can be screened. VPs 6, 8, 10, 16a, 19, 21, 22a, 41, 42, 47, 48, 51, and 56, in the Attachment 3 Project Photolog, are a few examples of how much visibility can be impeded even during leaf-off conditions, and thus serve to act more like the analysis using trees than topography alone. Under certain circumstances, there may possibly be visibility through bare-branched trees only if the trees are sparse, if this sparse tree row is the only existing vegetation between the viewer and the site, and if the viewer is in fairly close proximity to the Project.

The bare earth topography-only analysis is also typically performed to assist a separate historic architectural survey investigation (Survey) which is led by other cultural resource experts. The topography-only methodology and results pertaining to visibility of historic resources from the Survey is specific to the guidance, performance standards, and agreements with the NY Office of Parks, Recreation, and Historic Preservation (OPRHP) that is not inclusive for Exhibit 24. Details of bare earth topography visibility results pertaining to this policy is addressed and discussed further in Exhibit 20 along with the Historic Architectural Resources Survey and Effects Report. Any additional architectural survey properties discovered as a result of the Survey that is above and beyond the data that was provided by SHPO in October 2020 and included herein, can be found in Table 4 and Attachment 2 mapping.

2. Two viewshed analyses separate from the arrays were completed for the collection substation.

- Collection Substation: Two viewshed analyses were produced using the same LiDAR data and the same methodology as that of the solar arrays. One viewshed analysis was performed with the tallest components of the collection substations which included 101-foot tall surge arrestors at the switchyard, several 76-foot high dead end structures at the substation, and three 56-foot lightning masts within the fence line. Since much of the collection station is comprised of electrical components with less vertical height, a second viewshed analysis was performed that included transformers, bus equipment, and breakers that range from 23 to 37 feet tall. A control building is proposed that will be 17 feet tall.

7.1.2 Assumptions and Limitations of the Viewshed Model

The viewshed analysis identifies cells (image pixels) that contain elevation information and computes the differences along the terrain surface between an observer in the landscape and a target (e.g., a solar panel). The analysis is a clear line of sight. Therefore, certain factors in the interpretation of results need to be considered:

1. The model, because of its computerized aspect, assumes the observer to have perfect vision at all distances. Therefore, a certain amount of reasonable interpretation needs to be considered because of the limitations of human vision at greater distances or those atmospheric/meteorological conditions that may cause imperfect vision, such as haze or inclement weather. Additionally, an object is naturally smaller and shows much less detail at distances and will have less visual impact. These aspects cannot be conveyed with this analysis.

2. Because an area may show visibility, it does not mean the entirety of the Project will be seen. The viewshed analysis depicts areas of visibility over a regional area. It can only predict geographically on a map, areas where some part of the solar panels might be seen. It does not and cannot determine if it is seeing a full-on view or a partial view. Additionally, if visibility is occurring in an area, it may sometimes only be a result of glimpsing a portion of the Project over undulating treetops between gaps of trees, or visibility of the tops of panels and not a full-on view. Likewise, there may be understory tree gaps where there may be visibility of the Project.

3. The model was developed with the assumption that a viewer would not see the panels if standing among trees in forested areas as it is assumed the tree canopy would preclude outward-looking views.

7.2 Line of Sight Analysis

Line of Sight (LOS) profiles were performed for the collection substation and switchyard. LOS analyses are able to provide the viewer with information that assists in examining the reasons why objects such as collection station components may have impeded views or no views. The underlying topography of a sight line, in addition to vegetative obstructions, can be produced, as can an estimated amount of visibility of the upper portion of an object if it is visible.

Elevation data obtained for the Project noted in Section 7.1.1 was used for the data source. ArcGIS Esri 3D Analyst was used to produce linear elevation profiles sampled across select sight lines for bare earth topography and for vegetation. Section 10.2.2 provides a discussion of results and Attachment 4 contains the profiles.

7.3 Photographic Simulations

Site visits were made to obtain photos during leaf-on and leaf-off conditions on September 10, 2020, November 6, 2020, and March 4, 2021. However, typically leaf-off photos are always chosen for simulations over leaf-on in order to depict worst-case scenario. A digital SLR full frame Canon EOS 5D Mark II with a 50 mm fixed lens was used for taking photos. See the Project Photolog in Attachment 3. The field photo-effort attempted to provide the most unobstructed views as possible at north, south, east, and west positions and/or in areas where the viewshed maps represent potential visibility. Simulations are presented in Attachment 4.

7.3.1 Methodology

To create visual simulations, Autodesk 3DS MAX 2020 visualization software was used to correctly dimension the Project 3D models onto the digital photographic image from each viewpoint location. TRC created the 3D model of the solar layout by using engineering specifications obtained from Westwood, the design engineers for the Project. The terrain elevation data (z value) needed to place the panels correctly on the surface of the earth was derived from the LiDAR sources noted in Section 7.1.1. Proposed grading elevations were incorporated into the model. Using the engineering site plan and LiDAR terrain surface data in GIS, each x, y, z coordinate location of each proposed solar array was obtained and imported into Autodesk 3DS MAX visualization software including the terrain surface itself. A 3D model of every proposed individual solar array was then physically constructed according to the proposed panel specifications and tilt angle along with the proposed racking system. The proposed arrays were built as bifacial double-portrait fixed panels with a height of 11 feet above ground surface with the array axis oriented east-west. The simulation model was further developed to position the viewer at the selected vantage point. For a given vantage point, the visualization software is capable of providing and adjusting a camera view that matches that of the actual photograph. From the field effort, the documented camera coordinate (x, y, z) positions were entered into the model along with other camera information. The arrays were further refined within the simulation photograph by referencing point cloud LiDAR data against the landscape features seen within the photo. For the landscaping simulations, a CAD version of the proposed landscaping plan obtained directly from the Project Landscape Architect was imported into the MAX modeling environment where, subsequently, each proposed tree and shrub species was then translated and built into 3D, and growth heights set and placed in with the Project along the fence line according to the landscape plan. The day and time of the photographs were also recorded and typically exist as electronic information embedded in the respective digital photograph files. This information was used to adjust for the sun angle in the simulation software in order to represent lighting conditions for the time of day and year and that which is seen in the photo.

7.3.2 Viewpoint Selection for Photosimulations

Integrating the results of the GIS resources inventory data along with the viewshed analysis results provided desktop reconnaissance for recognizing areas with potential visibility and identifying candidate locations for photosimulations. While focusing on inventoried locations as listed in Section 6.0, an additional objective in the viewpoint selection process is to also choose locations for simulations that represent the various LSZs as well as Distance Zones. Further, site field visits are also necessary for ground-truthing and increasing the understanding of the visual environment.

Potential visibility, as noted by the viewshed results in Figures 3, 4, and 5 of Attachment 2, guided the candidate locations for simulation viewpoints per Stipulation 24(b)(3). Attachment 2 viewshed mapping shows the most prominent visibility is within Distance Zone 1 (0.5 miles) of

the Project, with some extremely minor predicted visibility in Distance Zone 2 and no predicted visibility in Distance Zone 3. The majority of areas with visibility occur within the Project Area which is defined as parcels belonging to participating landowners. It is often difficult to obtain representative simulation photos at distance because there are often minimal locations with far reaching views of solar projects in the northeast. And, as noted in Table 4, there are no listed visual receptors that will experience views of the Project except for short segments of two private seasonal snowmobile trails that run through discrete locations in the Project Area, as well as along the right-of-way (ROW) of the existing NYPA 345 kV Pannell to Clay transmission line at the northern part of the site. In fact, very few resources are even present within 1 mile. Therefore, much of the focus for viewpoint locations are closer to the Project where visibility is predicted near residences and segments of roadway among areas of non-participating landowners. Cardinal compass directions as well as central interior locations were also considered.

Stipulation 24(b)(4) requires both general and specific consultations with affected agencies and municipalities. “The applicant shall confer with municipal planning representatives, DPS, DEC, OPRHP, and where appropriate, APA in its selection of important or representative viewpoints that may be subject to project visibility.” Per Project stipulations dated March 5, 2021, Stipulation 24(b)(4)(i) states that viewpoint selection will be based on representative or typical views from locations predicted to have direct line-of-sight visibility of facility components, based on results of preliminary viewshed mapping.

On January 27, 2021, an information request was sent out to stakeholders. In this request, a preliminary visual report was provided, indicating the extent and findings of visibility studies at that point in time which consisted of identified visual resources as well as the result of the trees-only viewshed analysis, Project mapping, and the Project Photolog. Opportunity was provided for stakeholders, including local municipalities with predicted visibility of the project, to suggest additional and reasonable candidate locations for photosimulations or to append additional visual resources of concern to the inventory. This request to stakeholders was specific to locations that were publicly accessible.

DPS responded in a letter dated February 10, 2021. In their response letter, DPS suggested viewpoint location photos that should be considered for final simulations as presented in Attachment 5 Outreach Correspondence.

In a letter dated February 12, 2021, the Town of Conquest responded to the Project outreach solicitation letter. As noted, the Applicant’s solicitation letter was for possible viewpoint locations that had public access only. The Town of Conquest however only added 12 additional simulation requests not in areas of public access but on private properties. Neither the Stipulations nor the Article 10 regulations require the production of simulations from a multitude of private backyards in the VSA. Four of the 12 locations listed as a request for additional simulations were disregarded as they appear to be in the middle of agricultural fields and not near a residence.

The Applicant has provided 8 simulations for the Project. The Applicant's selection of representative simulations for the Project weighed heavily towards viewpoints from the pool of available photos from the Project Photolog that were representative or close to the Town's list of private properties while also addressing DPS's preferred viewpoints. In summary, the Applicant has prepared 8 simulations that are representative of the Project with respect to LSZs and inventoried visual resources with predicted visibility, different distance zones as best as Project views allowed, different viewer types, varying lighting conditions, and views that offered as much of a clear, unobstructed sightline as possible in joint consideration of the Town of Conquest response comments as well as DPS suggested viewpoints.

8.0 ADDITIONAL APPLICABLE VISUAL CONCEPTS TO CONSIDER: VIEWER CHARACTERISTICS

Sensitivity levels are a measure of public concern for scenic quality. Visual sensitivity is dependent upon user or viewer attitudes, the amount of use, and the types of activities in which people are engaged when viewing an object. Overall, higher degrees of visual sensitivity are correlated with areas where people live and with people who are engaged in recreational outdoor pursuits or participate in scenic driving. Conversely areas of industrial or commercial use are considered to have low to moderate visual sensitivity because the activities conducted are not significantly affected by the quality of the environment.

These concepts are applied when evaluating the visual landscape and assessing the importance of a viewpoint location if it falls in an area of visibility. Viewer groups and associated responses to visual changes are analyzed from a variety of factors including:

Viewer group – Types of viewers will vary by geographic region, as well as by travel route or use areas, such as a developed recreation site, urban area, or back yard. Viewer groups include:

- *Local Constituency*: People living in the local area and/or surrounding communities who interpret the significance of where they live and interact with others. These people may include local residents and members of groups to which the local area is important in different ways.

- *Commuter Constituency*: People who use or are generally restricted to travel corridors that are destination oriented towards places of employment. These people generally have transient short duration views.

- *Visitor or Recreational Constituency*: Individuals who visit the area to experience its natural appearance, cultural landscape qualities or recreational opportunities. Visitors may be of local, regional, or national origin.

Context of viewer – The viewer group and associated viewer sensitivity are distinguished among viewers in residential, recreational/open space, tourist commercial establishments, and workplace areas, with the first two having relative high sensitivity.

Number of viewers – The number of viewers is established by the amount of people estimated to be exposed to the view. In comparing viewing locations to each other, one can consider if the area is a high public use area or if it is a location that is less frequently visited or more inaccessible where the public is not expected to be present (such as marshes or swamps).

Duration of view – Duration of view is the amount of time a viewer would actually be looking at a particular site. Use areas are locations that receive concentrated public-use viewing with views of long duration such as residential back yards. Recreational long duration views include picnic areas, favorite fishing spots, campsites, or day use in smaller local parks. Comparatively, drivers, hikers, snowmobilers, or canoeists will likely encounter a shorter, more rapid transient experience as a person transitions from one linear segment to the next but will encounter more visually varied experiences.

Viewer activities – Activities can either encourage a viewer to observe the surrounding area more closely (hiking) or discourage close observation (commuting in traffic).

9.0 VISUAL IMPACT RATING

TRC has developed a visual impact rating form for use in comparing project photosimulations as required by Article 10. This form is a simplified version of various federal agency visual impact rating systems. It includes concepts and applications sourced from:

- U.S. Bureau of Land Management (BLM), Handbook H-8431: Visual Contrast Rating, January 1986 (USDOI, 1986).
- Visual Resources Assessment Procedure for U.S. Army Corps of Engineers, March 1988 (Smardon, et al., 1988).
- National Park Service Visual Resources Inventory View Importance Rating Guide, 2016 (NPS, 2016c).
- USDA Forest Service, Landscape Aesthetics: A Handbook for Scenery Management. USDA Forest Service Agriculture Handbook No. 701, 1995 (USDA, 1995).

Depending on the project location, a variety of VIA guidance and established procedures exist, as noted above, that apply to management of federal lands that fall under a specific agency such as the U.S. Forest Service or Bureau of Land Management. These guidance documents vary in regard to agency specific rating systems or procedures and often begin with the evaluation of existing conditions such as scenic quality or presence of sensitive resource locations.

TRC has developed this form for efficient and streamlined use with projects that undergo state environmental permitting processes. This methodology has been previously approved and accepted by the Siting Board for numerous other Article 10 projects. It is assumed that visual resource inventories, terrain analyses, development of LSZs or viewshed analyses have already been performed in the Project VIA according to state regulatory requirements or other visual policy. This form was developed to be used as a numerical rating system for the comparison of Existing Conditions (before) vs. With Project (after) photosimulations of final selected viewpoint locations and is meant to accompany the Project VIA.

To evaluate visual change, there are two parts to the form. Part 1 is the *Visual Contrast Rating,* which rates the Project as it contrasts against compositional visual elements of the viewpoint scene. This includes compositional contrasts against the existing and natural environment such as vegetation, water, sky, landform, or structures. The higher the rating total, the higher the contrast. Part 2 is the *Viewpoint Sensitivity Rating*. This section rates the sensitivity of the viewpoint location which inherently considers the importance of the viewpoint (if it falls within a visual resource area), viewer groups, duration of view, if it is a high use area, or if there is the presence of water. The higher the rating total, the more sensitive the viewpoint is. Part 3 does not rate change but is an overall *General Scenic Quality of the View* which rates the view of existing conditions only, without the influence of the Project.

Please refer to Attachment 6 for more comprehensive guidelines on how the contrast ratings were assessed and applied within each category.

The rating scale is as follows:

Rating Scale	
0	None
0.5	
1	Weak
1.5	
2	Moderate
2.5	
3	Strong

Degree of Contrast Criteria

None The element contrast is not visible or perceived.

Weak The element contrast can be seen but does not attract attention.

Moderate The element contrast begins to attract attention and begins to dominate the characteristic landscape.

Strong The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

10.0 VISUAL IMPACT ANALYSIS RESULTS

10.1 Viewshed Results and Discussion

The viewshed analysis showing areas of potential visibility can be found in Figures 3, 4, and 5 in Attachment 2). As noted in Section 7.1.1, four viewshed analyses were performed. Two analyses were completed for solar arrays: one with topography only and one with vegetation included, both with solar panel heights conservatively set at 18 feet above ground surface to account for possible future panel availability. Two analyses were performed regarding the collection station: one that considered the tallest elements of the station such as surge arrestors and lightning masts (56 to101 feet tall) and one that considered the shorter utility components such as transformers, bus equipment, and breakers (less than 37 feet tall).

10.1.1 Viewshed Results for Arrays – Trees and Buildings Included

This analysis, per Stipulation 24(b)(1), incorporates trees and buildings in the study area in addition to topography and gives the most reasonable and realistic depiction of the surrounding Project landscape. The results of this analysis provide the focus of visibility discussion in the visual impact assessment because of the inherent aspects of reproducing realistic conditions when LiDAR datasets are used. When vegetation is included to present a more realistic depiction of the landscape, the viewshed analysis results in the Attachment 2 maps show limited visibility is expected. The general vicinity surrounding the Project is a mosaic of well-forested and open land, as illustrated in Figure 1 Site Location and Figure 2 Landscape Similarity Zone maps in Attachment 2. These forested areas, along with the topography of the rolling hills and fields of geologic hill features (drumlins) in the area, provide much screening and preclude many views. The majority of visibility that is expected occurs mostly in a focused location inside of the 0.5-mile Distance Zone 1 ,within the Project parcels themselves, and in a few roadways, open fields, and nearby properties within and outside of the Project area. As seen in Figure 4 of Attachment 2 and further described in Section 10.1.6, the majority of visibility occurs on properties belonging to participating landowners. Although the panels are sited in open land within forested areas, the low-profile panels set against existing tree buffers, hedgerows, and tree groups that frame the panel locations, are enough to obscure many outward views. Because of the maximum panel height in relation to the mature vegetation, there are minimal far-reaching views outside of the general array locations. Outside of Distance Zone 1, visibility is expected to be minimal to non-existent.

The Project has been strategically sited away from population centers and other sensitive visual receptors. The effect that this siting strategy has on potential visibility for visual resources is apparent in Table 4. Few visual changes are expected to occur to the visual resources listed in Table 4. In fact, all but 5 sensitive receptors are over 1 mile away (snowmobile trails, 2

cemeteries, 1 town recreation field, and a small parcel of the Northern Montezuma Wetlands State Wildlife Management Area are within a mile). Only the snowmobile trails are expected to have visibility of the arrays since they cross through some of the Project Area, and these views will be limited due to the transient use of these trails.

Refer to Section 10.1.5 and 10.1.6 for tables and more detailed discussion of the percentages of land area that may experience visual change as a result of the viewshed visibility analysis. In summary, the viewshed analysis results show that only 2.47% of the land area within the 5-mile VSA will have either a full or partial view of the Project. Visibility results also indicate that 1.75% of the total 2.47% visibility within the VSA occurs on land within the Project Area, and thus, on participating landowner properties.

10.1.2 Viewshed Results for Arrays – Topography Only

As described in Section 7.1.1, viewshed analysis with bare earth topography without trees is not recognized as being a realistic representation of potential visibility, because it is not truly reflective of the environment due to the absence of all trees. Another caveat is that the topography-only results must not be interpreted as representing visibility during leaf-off conditions, since even leaf-off bare branched tree groups act as a solid mass where lines of sight to objects can be screened. Despite the limitations of a topography-only analysis, it is a useful tool in understanding the influence that terrain has on blocking views to the Project.

The bare earth topography-only viewshed analysis results show that without the presence of existing vegetation, the Project is visible in much of the VSA and is predominant within 2 miles. However unrealistic this result may be, it indicates that topography is fairly level within the majority of land within 2 miles where the terrain is not high enough to block views. However, there does exist a series of geologic glacial drumlins (elongated hills oriented north-south) that occur to the northeast, east, and southeast. These drumlin fields serve to block many easterly views between 0.5 and 2 miles and block most east and west views between 2 and 5 miles.

Some topographic-only screening does occur beyond 2 miles. The visibility that is present between 2 and 5 miles tends to occur at the crests of higher terrain to the north, west, and south. Refer to Figures 3 and 4 in Attachment 2. Views from the east and west are obstructed by topography, as well as isolated areas to the north in Ira and Victory and to the south in Mentz and Brutus.

10.1.3 Visibility of Solar Arrays at Article 10 Resources

Visibility results from the viewshed analysis are explained in Section 10.1.1. The viewshed visibility results, and as summarized in Table 4, indicate that the only federal, state, or county Article 10 sensitive visual receptors that will have a view of the Project are trails for two private snowmobile clubs that are a part of the New York State Snowmobile Association. The Cato Trailblazers and Port Byron Snow Panthers each have trails running through the Project area. A segment of Trail S55D is already routed within the existing NYPA 345 kV Pannell to Clay

transmission line ROW and associated lattice towers. Specifically however, the small trail segments designated as S55B and S55D located in Conquest near NY State Route 38, Cooper Street, and Drake Road as they approach the vicinity of the existing powerline, will likely receive partial, intermittent, and transient views of solar arrays as seen on Attachment 2 mapping.

Historic resources in the VSA are not expected to have views of the Project.

10.1.4 Visibility of Solar Arrays at Local Resources

Local scenic resources are those locations that are officially listed or designated in an adopted comprehensive or master plan. Those local resources that have been recognized by document research and/or were received as a response from the outreach program described in Section 7.3.2 are listed in Table 4. There are no designated local scenic resources listed in Table 4 that will have views of the Project.

However, not classed specifically as agency listed scenic resources, it is recognized that local town residents and local roadway traffic will experience views of the Project in varying locations.

Included with Attachment 3 Project Photolog is an aerial photo map series that shows predicted visibility at all photolog viewpoints. Many of the viewpoint locations are along roadways at nearby residences. Several segments of local roadways running through the interior of the Project as well as perimeter roads may experience transient views from vehicular traffic. Much of this visibility along intermittent road segments are within 0.5 miles in Distance Zone 1 and include those such as Cooper Street, Slayton Road, Spook Woods Road, Montana Road, Oneil Road, Drake Road, Field Farm Road, and State Route 38. Views from several nearby residences along these roads are represented in the Project photosimulations such as VP4b, VP7, VP12, VP13, VP15a, VP16a, VP19, and VP61. Each VP simulation and visual change in the view is described further in Section 10.2.1.

As noted in Section 3.0, discrete areas of low intensity populated areas exist within the VSA and include the Villages of Cato, Meridian, Port Byron, and Weedsport. Several visual resources within each of the Villages exist and are noted in Table 4. Attachment 3 Project Photolog has several photos as well, illustrating the character of these small population centers. Predicted visibility mapping indicates that none of these villages are expected to see any of the Project arrays nor the Table 4 listed visual resources within them.

10.1.5 Visibility of Arrays Within LSZ

For reference, a reiteration of the total percentage of each LSZ within 5 miles outlined in Table 3 of Section 5.0 is reiterated as follows:

- LSZ Percent Within 5 Miles:
    - Zone 1 Agricultural: 45.52%

- Zone 2 Forested: 43.70%
- Zone 3 Developed: 6.39%
- Zone 4 Open: 2.09%
- Zone 5 Water: 2.30%

Table 5 shows the percentages of visibility as it occurs within each LSZ.

Table 5. Percent Visibility of Arrays within Landscape Similarity Zones Within 5-Mile VSA

LSZ	Total LSZ Square Miles Within 5 Miles	LSZ Square Miles of Visibility	% Visibility within LSZ	% Visibility within VSA
Zone 1 Agricultural	64.41	2.62	4.07%	**1.85%**
Zone 2 Forested	61.83	0.63	1.02%	**0.45%**
Zone 3 Developed	9.04	0.18	1.95%	**0.12%**
Zone 4 Open	2.96	0.05	1.80%	**0.04%**
Zone 5 Water	3.25	0.002	0.06%	**0.00%**
Total	**141.49**	**3.49**	**2.47%**	**2.47%**

One can use the visibility results in a variety of ways. For example, when using Table 5, one can begin to distinguish or make assumptions about which viewer types may be impacted visually. For example, Table 3 and the list above states that 6.39% of the land area within 5 miles falls in the Developed Zone, which is fairly low. Section 5.0 describes this zone as villages, towns, cities, rural residential abutting roadways, and transportation corridors.

Note that calculated percentages do not indicate the actual percentage of viewers that would be impacted. The percentage numbers indicate how much physical area within a designated LSZ where visual change could occur. Table 2 provides the types of roads and traffic counts within the Project Area and indicates most roads are generally rural low traffic types of roads. One may assume then, that based upon land area relative to viewer types (inferred by LSZ category) and location density, resident numbers that may see some portion of the Project are

low. As Table 5 notes, there will be 1.95% visibility within all of Developed LSZ itself (all developed areas) but it accounts for less than 0.2% of visibility within the entire VSA.

Comparing the Agricultural category is a similar exercise. The Agricultural LSZ comprises about 45.52% of the 5-mile VSA. However, only 1.85% of that LSZ land area within 5 miles may experience visibility of the Project. As described in Section 5.0, this LSZ predominantly consists of land consisting of cultivated crops, hay, or pasture. Frequently, there are hedgerows or small tree groups that provide intermittent screening. One can infer which viewer type might be affected (refer to Section 8.0 for discussion of viewer groups and other factors that assist in evaluating visual change). Much of this land is farmland infrequently visited and not accessible to the public. It belongs to private landowners or rather, the local constituency viewer type who themselves may not access parts of their properties at all times. Although the amount of land area that receives visibility is comparatively higher than that of Developed areas, the number of viewers is likely lower. However intermittent or low the exposure is or where the constituency is from, visibility may diminish the viewer experience depending on viewer expectations or reactions to solar development.

In using the 5-mile VSA again, Table 3 shows that approximately 43.7% of the land area belongs to the Forested LSZ. Although this is just under half of the 5-mile VSA, Table 5 shows that 0.45% of the 5-mile land area will have visibility from forested areas. This low number, in part, is due to the fact that the viewshed model assumes that viewers in the interior of tree groups will not have outward views through the density of tree trunks and branches or through the canopy above.

The Zone 4 Open category includes miscellaneous other open parcels that may have minimal development as well as other open lands that have few visual obstructions such as minor expanses of open water, barren land, land with short scrub shrub vegetation, and emergent wetlands. Areas of visibility in Zone 4 comprise less than 0.1% of the entire VSA. Similarly, Zone 5 Water locations have no predicted views with 0% visibility.

10.1.6 Visibility of Arrays Within Distance Zones

Table 6 shows that when considering visibility between Distance Zones, the highest amount of visibility occurs within the 0.5-mile radius of Zone 1, comprising 26.6% of just the Zone 1 land area. This is because there is a concentrated amount of visibility in proximity to the Project within the 0.5-mile radius, much of it within the solar array parcels themselves in open land as well as open adjacent parcels to the Project and several roadways. In addition, some of that acreage consists of visible areas within the adjacent NYPA 345 kV Pannell to Clay transmission line right of way (ROW). There is an abrupt difference once outside of the 0.5-mile radius. Visibility within Distance Zones 2 and 3 drops to a negligible <1% each. There is approximately 3.5 square miles of total visibility within the entire 141.5 square miles that comprises the VSA. Therefore, only 2.47% of the VSA is predicted to experience partial, close, intermittent, or distant views of the Project.

Furthermore, the Project Area itself consists of 2,288.7 acres or 3.6 square miles and falls entirely within the 0.5-mile radius of Zone 1. The Project Area is described as acreage area encompassing all Project parcels located within the Town of Conquest and is comprised of land that currently is either leased or owned by the Applicant and can therefore be defined as properties belonging to participating landowners. Visibility results also indicate that 1.75% of the total 2.47% visibility within the VSA occurs on land within the Project Area, and thus, on participating landowner properties. The remaining 0.72% of Project visibility will occur on non-participating landowner parcels.

Table 6. Percent Visibility within Distance Zones

Distance Zone	Total Area Comprising Distance Zone Square Miles	Visibility Within Distance Zone Square Miles	% Visibility Within Distance Zone	% Visibility Within Full VSA
Zone 1 0-0.5 Miles	12.37	3.29	26.60%	**2.32%**
Zone 2 0.5-2.0 Miles	29.56	0.11	0.36%	**0.07%**
Zone 3 2.0-5.0 Miles	99.57	0.09	0.09%	**0.07%**
Total	**141.49**	**3.49**	**2.47%**	**2.47%[1]**

[1] *1.75% of the 2.47% total visibility in the VSA occurs on lands belonging to participating landowners.*

10.1.7 Viewshed Results for Collection Substation

Figure 5 in Attachment 2 shows visibility based on the tallest components of the collection substation which includes 101-foot tall surge arrestors at the switchyard, several 76-foot tall dead end structures at the substation, and three 56-foot tall lightning masts within the fence line. Results shows that most visibility occurs within 0.5 miles in locations that are within the existing NYPA 345 kV Pannell to Clay transmission ROW and land within the Project Area that is already occupied by the arrays. There is visibility along approximately 0.6 miles of the linear ROW. There is some visibility just north of the collection substation in open land where arrays are proposed and also areas that extend in a linear fashion to the south. Very short segments of Cooper Street and Slayton Road may experience views of taller components. Moreover, the

Project Area is defined as all Project parcels that are either owned or leased by the Applicant. Since the majority of views will occur within the Project Area, the majority of visibility from the tallest substation components are falling on land already belonging to participating landowners. There are, however, a few isolated areas of visibility outside of the Project Area in either adjoining or unconnected land parcels farther away from the Project. Most of these discrete areas occur in privately owned open fields where the general public is not expected to be. Despite the tall structures, far reaching views are not obtained and there are minimal to no distant views outside of 0.5 miles.

Figure 5 in Attachment 2 also shows visibility based on the lower electrical components of the substation with less vertical height that include transformers, bus equipment, and breakers as well as a control building. These components range from 17 to 37 feet tall. The lower electrical components do not add any additional new visible areas over that of the taller components. The visible areas just occupy a smaller footprint within the visible areas of the tall structures, generally restricted to the existing ROW and within the array footprints themselves as well as short roadway segments along Cooper Street and Slayton Road. There are some extended areas to the south that may see some of the shorter components but nearly all of it occurs within the Project Area. Visibility of lower collection substation components does not exceed 0.5 miles.

10.2 Photosimulation and LOS Results and Discussion

The discussion of predicted visibility in Section 10.1 focuses on relative quantities of visibility (how much is seen and where) under various conditions such as within LSZs and Distance Zones, all in an effort to understand and objectively assess the amount of visual change in the landscape.

Photosimulations from representative vantage points at varying distances and cardinal directions around the Project have been developed to provide the quality of the view that will be obtained as a result of the Project (what does it look like). Per Project Stipulation 24(b)(4)(i), simulation locations are based on representative or typical views showing proposed site conditions from areas predicted to have direct line-of-sight visibility of facility components based on results of viewshed mapping and therefore, where the visual change is likely to occur.

Another objective is to provide views from some of the visual resources within the Study Area. However, out of all of the sensitive receptors listed in Table 4 in 6.0, only snowmobile trails that run through fields on private land in the Project area will obtain views of the arrays. VP16a is a simulation viewpoint that is in the vicinity of a snowmobile trail. As such, few Table 4 listed resources are represented in simulations as they are not expected to experience views as a result of the visibility analysis. In conclusion, representative simulations were then directed to what the immediate community would experience such as travelers on local roads. Attention to residents and residential groupings with expected views located near the Project was given high

priority. As part of the stakeholder outreach, DPS and the Town of Conquest viewpoint requests were considered.

A LOS analysis was performed for the collection substation. Table 7 summarizes information for each simulation and LOS viewpoint. Please refer to the Project Photolog in Attachment 3 to view other photographs of viewpoints and to assess the character of the area.

Table 7. Summary Table Simulation and LOS Viewpoints

Viewpoint ID	Location	Town	Approximate Distance to Project	Landscape Similarity Zone	Camera Orientation
4b	Slayton Road	Conquest	260 feet	1,3	SW
7	Drake Road	Conquest	324 feet	1,3	SW
12	Spook Woods Road	Conquest	60 feet	1	NW
13	Spook Woods Road	Conquest	521 feet	1,2,3	SW
15a	Slayton Road	Conquest	134 feet	1,3	NE
16a	Lake Road	Conquest	545 feet	1,3	NE
19	Cooper Street	Conquest	200 feet	1,3	NE
61	Slayton Road	Conquest	783 feet	1,3	W
L1*	Cooper Street	Conquest	236 feet	1	W
L2*	Cooper Street	Conquest	646 feet	1	N
L3*	Cooper Street	Conquest	933 feet	1	NE

** Line of sight viewpoint*

10.2.1 Discussion of Simulations

The following discusses the visibility of the Project to viewers at or in the immediate vicinity of the Project simulation viewpoint. Simulations are presented as sets of Existing Conditions and Proposed Conditions based on VP number and can be found in Attachment 4. Proposed mitigation vegetation at 5 years is anticipated to range between 5 to 15 feet in height and is depicted in the simulations where vegetative landscaping is proposed. According to the Landscape Plan presented in Appendix 11-2, fully mature heights of the year-round coniferous species could possibly reach heights up to 40 feet in future years.

10.2.1.1 VP4b Slayton Road, View Southwest – Conquest (LSZ 1,3; Distance 260 feet)

This viewpoint represents a view at the eastern side of the Project. The viewer is located on Slayton Road, 430 feet south of the existing NYPA 345 kV Pannell to Clay transmission line corridor, and is near a residence with potential views that is located perpendicular to the road (out of view to the left). The Project fence line and arrays have varying distances but is approximately 260 feet away from this viewpoint. This view also represents rural areas of less population, such as isolated residences close to the Project. The camera angle and location has been chosen to show the character of the area in context to the surroundings as well as

what motorists would see approaching the Project. The existing conditions contain a small amount of successional growth (camera-right) in the immediate foreground along with young deciduous trees and an overhead distribution line running parallel to the linear road. Aside from the open hay/pastureland, the background comprises divided deciduous and coniferous forest groups and a rural farmstead interrupting a portion of the visible horizon.

Proposed conditions show the that the overall form and line of the array field is apparent in the existing landscape due to proximity and presence of discernible detail such as the security fence, solar panels, and racking system. Overall Project Part 1 visual contrast (of the Visual Impact Rating, see Section 10.3), however, is rated as moderate. Arrays massed at this distance display a different kind of texture overall compared to the existing field conditions. The darker panels contrast with the existing earth tone, autumn, and green colors found in the landscape but provide a similar color and value to the asphalt road. The man-made structure of the farm, utility structures, and the road in the image help to tie the solar panels into a context with existing development that appears less incongruous. From this vantage point, the size and scale of arrays appear codominant in the image frame balanced with the grass massing and the road. There is minimal interruption of the horizon line. New vertical and horizontal line edges are introduced but is compatible with other horizontal and vertical lines in view.

Although existing foreground vegetation offers some screening, it is not being relied upon in the landscape design nor purposely used to screen any future views that may occur into the Project site from this viewpoint. Any screening by existing vegetation is incidental. There is proposed Project mitigation at the fence line facing the road that is intended to provide screening to a non-participating resident that is across the road and perpendicular to the array locations (left of photo) as depicted on the Landscape Plan drawings included in Appendix 11-2. It also serves to block some views along the open roadway. Accordingly, it is expected that there will be partial views as the proposed landscaping grows to maturity as demonstrated in the simulation with mitigation at 5 years. The inclusion of vegetative mitigation softens and moderates the effects of the security fence from the VP4b vantage point. A variety of ornamental, pollinator-friendly, small tree and shrub species are incorporated throughout the planting scheme and provide a naturalized planting look that is aesthetically pleasing. Views of the mitigation for motorists will be intermittent and of short duration while longer duration views will be obtained by residences. The farmstead in the background is a participating landowner.

10.2.1.2 VP7 Drake Road, View South Southwest – Conquest (LSZ 1,3; Distance 324 feet)

This viewpoint generally represents a view at the eastern side of the Project. This viewpoint was captured on Drake Road within the vicinity of a small residential grouping. The Project fence line and arrays have varying distances. The observer is adjacent to a non-participating residential property (right of photo) on Drake Road facing south-southwest, approximately 324 feet from the Project fence line. The viewpoint location is representative of what a local rural resident may experience, such as close foreground views of the Project with the inclusion of the proposed setbacks that provide an undeveloped land buffer between the Project and

landowners. Existing conditions show maintained lawn transitioning to an open, partially harvested field with the prominent overhead NYPA 345 kV Pannell to Clay transmission line that intersects the background sky. Along the forested background lies a farmstead and a single silo structure subsumed by the distant forested hill. The existing photo is comprised of linear open land with soft-sloping topography. The farmhouse, silo, outbuildings, road and electric transmission infrastructure create a small but rural development footprint.

From this viewpoint location, the sight lines in the proposed conditions simulation show clear views of solar panels due to proximity of the Project in the open field. The overall form and line of the arrays is seen as a horizontal shape sweeping across the view in a similar pattern to the far distant ridge and background trees. The panels are at such an angle to lighten the felt weight of their presence as the panels stretch across the view towards the south and continue out of sight. The panels and fence appear to be a continuation of the dark tree line and tree covered hills in the distance. New form, line, and color contrasts are introduced and have contiguous lateral breadth but minimally interrupt the horizon line. Features such as the fence, panels, and racking system have discernible detail due to proximity, and combined with a repetitive pattern, provide some texture contrast. Arrays are darker than the existing field but are somewhat visually absorbed by the presence of darker background trees. The dark asphalt of the road in the foreground anchors the panels and tree line in the frame. Project Part 1 visual contrasts overall are rated as moderate.

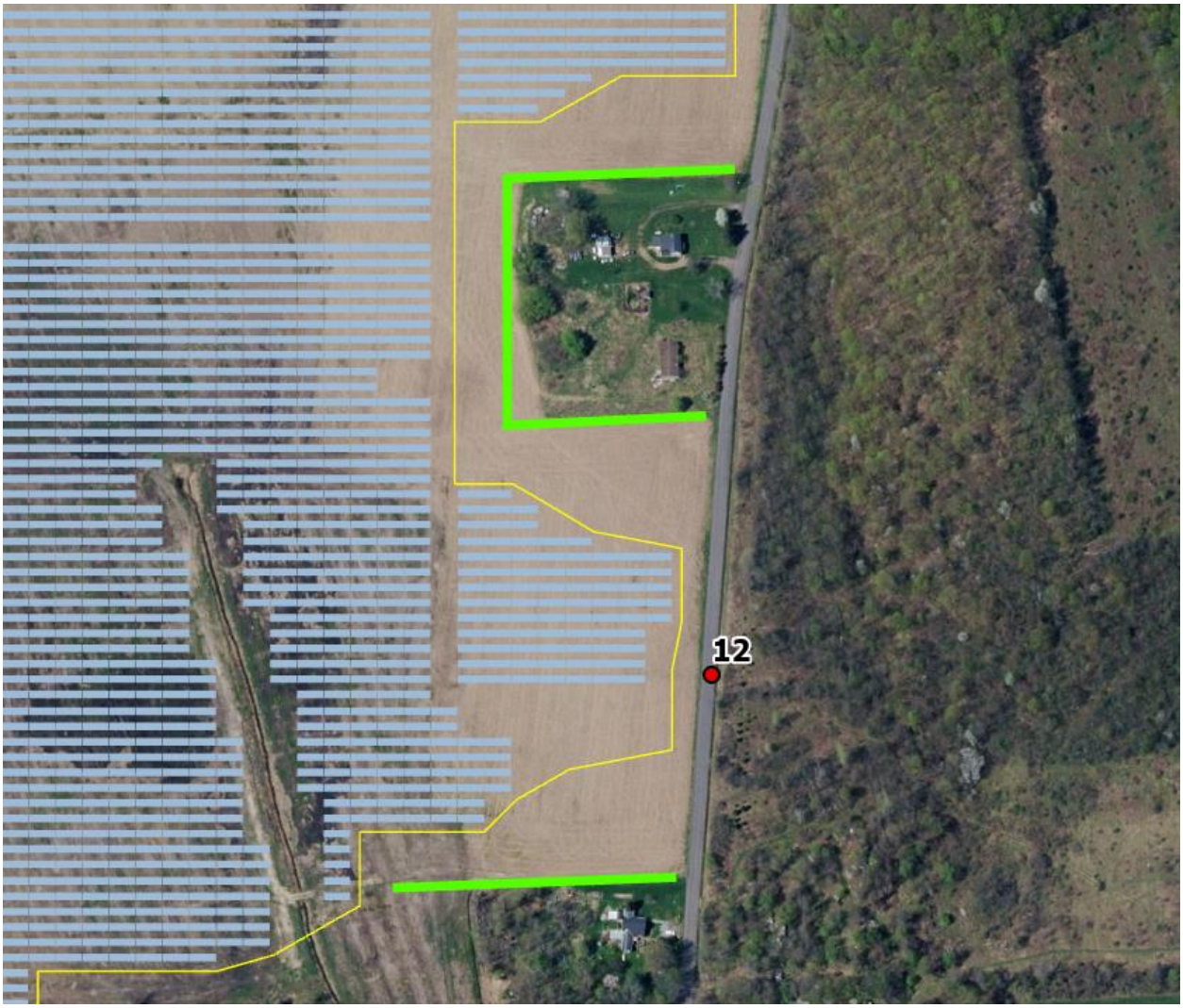
There is no existing vegetation that is purposely being used to screen views. The distance farmstead is a participating landowner. As depicted on the Landscape Plan drawings included in Appendix 11-2, the proposed Project mitigation is intended to provide screening to the non-participating residents that are across the road to the left as well as to the resident that is to the right of the photo out of the view. The mitigation also serves to block views along the open roadway. Accordingly, it is expected that there will be partial views as the proposed landscaping grows to maturity as demonstrated in the simulation with mitigation at 5 years. With the inclusion of vegetative mitigation, views are softened and moderated as the trees and shrubs are more congruous with the existing environment and the Project color and value contrasts are reduced. Views of the mitigation for motorists will be intermittent and of short duration while longer duration views of the vegetative buffer will be obtained by residences.

10.2.1.3 VP12 Spook Woods Road (132), View Northwest – Conquest (LSZ 1; Distance 60 feet)

This viewpoint is located on Spook Woods Road near the southern region of the Project area. The Project fence line is approximately 60 feet away from the viewer where the view overlooks a large agricultural field and is relatively close to a small group of residences. Existing conditions show field and sky as large dominant horizontal shapes in the view. Trees present in the view act as a visual perimeter around the field and present as a small darker horizontal band in the distant background.

Proposed conditions show that the overall form and line of the array field mimics and conforms to the horizontal aspects of the ground contours. However, the Project dominates the view and contrasts against the existing landscape due to proximity and presence of discernible detail such as the fence, solar panels, and racking system. Arrays are darker contrasting against the existing ochre colored field. On the whole, the Project is low profile where panels are lower than the trees. The space of field left undeveloped provides a visual break from the large front grouping of panels. The background arrays on the hill shows very low size contrast while the distant panel color is more compatible with background trees. Project Part 1 visual contrasts are rated on the high end of moderate.

This location was chosen as a representative view at the southern portion of the Project along the roadway and near residences. However, proposed mitigation does not appear within the simulation view as there isn't a residence at the immediate vantage point. Inset 1 below shows the viewpoint location. Proximal residents just to the north and south will have landscape mitigation (thick green line) but happen to be out of the view of the simulation.



Inset 1. Aerial photo showing visual mitigation of nearby residents to VP12. Green line represents proposed landscape screening location.

10.2.1.4 VP13 Spook Woods Road (132), View Southwest – Conquest (LSZ 1,2,3; Distance 521 feet)

This viewpoint generally represents a view at the south-central portion of the Project. VP13 is approximately 521 feet northeast of the Project fence line located on Spook Woods Road and is adjacent to two non-participating residences that will likely have views. Existing conditions show a maintained lawn framed by an existing residential structure and a section of forest. Further beyond, a transition to an open agricultural field occurs, followed by a swath of deciduous forest and sloping topography that recedes towards the far background. Horizontal bands of lawn, field, forest and sky comprise the view.

The simulation shows panels in the view with a near distance offset of approximately 537 feet from the viewer, where array size and scale is diminished and panels appear below the tree line. New form is introduced into the existing field but the array mass is geometrically similar to horizontal shapes of green foreground grass and light brown open field. The arrays undulate with the existing terrain and appear nestled in place, drawing less attention and creating less contrast within the surrounding area. Array color is darker than the ochre-colored field but this color is also similar to background trees and other elements in the view and appears less impactful. While the arrays are visible in the field, the level of discernible detail is low, thereby weakening any texture contrast. Overall, average Project Part 1 visual contrast is rated weakly moderate. Viewer groups affected are local motorists and residences. There is estimated to be a low number of viewers because of the rural location and approximately three residences in the near vicinity.

As noted above, the large setback from the arrays to the roadway (and nearby residences) moderates the size and scale of the arrays. Also, although the depth of the leaf-off trees in the right of the photo are substantial enough to block views, the arrays were not purposely sited here to specifically use the forested area for mitigation. The arrays were sited to accommodate the MWs required on an available participating landowner parcel and any existing vegetation with mitigative effects are incidental. However, it can be noted that the forested area in the right of the photo has been preserved to reduce the amount of tree clearing and to maintain the existing occurring natural landscape in the view.

There is vegetative mitigation for a residence farther down the road (left and out of the view) but no vegetative is mitigation proposed at this location. Vegetative plantings are typically placed at the fence line or at the edge of the Project parcel boundary. The land slopes up higher behind the fence line and would limit the effects of screening located at lower elevation if proposed in this location.

10.2.1.5 VP15a Slayton Road, View Northeast – Conquest (LSZ 1,3; Distance 134 feet)

VP15a is located at the central portion of the site on Slayton Road approximately 134 feet from the Project fence line. The viewing location is at the corner of the field that is in view and represents what vehicular traffic would see upon approach to the Project looking to the northeast. Existing conditions depict an open cultivated field that typically is comprised of corn-row crops but is currently fallow.

Due to viewer proximity from the VP15a vantage point, the clarity of the installation is high, ranging to weaker in the distance where panels break the horizon line across the view. The fencing and panels contrast strongly with the organic natural setting of the plain agricultural landscape. The arrays are the primary objects seen in the simulation from a close distance and are dominant in the view. Visual contrasts are rated as strong.

As depicted on the Landscape Plan drawings included in Appendix 11-2, the proposed mitigation for this location is intended to provide screening for approximately four non-

participating residences in the vicinity. Two of those residences are approximately 170 feet behind the viewer. For each of the four residences there are existing trees that are expected to partially screen views to the arrays. Despite the existing trees, additional Project mitigation is also proposed to provide more of a vegetative buffer with year-round screening. The landscape plantings also serve to block views along the open roadway. Accordingly, it is expected that there will be partial views as the proposed landscaping grows to maturity as demonstrated in the simulation with mitigation at 5 years. With the inclusion of vegetative mitigation, views are softened and moderated as the trees and shrubs are more congruous with a natural environment and the Project color and value contrasts are reduced. Views of the mitigation for motorists will be intermittent and of short duration while longer duration views of the vegetative buffer will be obtained by residences.

10.2.1.6 VP16a Lake Road/State Route 38, View Northeast – Conquest (LSZ 1,3; Distance 545 feet)

This viewpoint generally represents a view at the western side of the Project. VP16a is on Lake Road approximately 180 feet west of the intersection of State Route 38. Route 38 can be seen in the photo middle ground going up the hill. The viewer is looking to the northeast and is approximately 545 feet from the Project fence line. Existing conditions show open field mixed with forested areas and a house at the top of the hill in the background. VP16a vantage point was chosen to show contextual landscape conditions in the vicinity of the house and also an area with snowmobile use. Table 4 indicates that seasonal private snowmobile trails are the only listed visual resources that may experience views of the Project. Discrete segments of NY State Snowmobile Association trail S55B runs through the area paralleling State Route 38 in the middle ground view.

Proposed conditions in the simulation show a portion of Project arrays in the fields on both sides of Route 38. The arrays follow the topographic contours and are seen sweeping down the hill. Some discernible detail is obtained at this viewing distance and the horizon line is only partially interrupted in the right of the simulation. Although the arrays occupy much of the view, they appear co-dominant against the size and scale in the view such as houses, forested areas, and utilities in the area and seemingly fit into the landscape. Some tree clearing is noted to the left of the simulation that exposes two lattice towers belonging to the NYPA Clay to Pannell 345-kV transmission line that cuts through the area. The arrays en masse are perceived as larger geometric shape overall, that appear similar to the geometric field patterns seen in the view. The amount of color related to the solar panels in this view creates contrast. However, patterns of color exist throughout this view as a result of the various existing types of vegetation and blue sky.

Overall, average Project visual contrasts are rated as moderate. Viewer groups affected are local motorists and two residences in the vicinity.

As noted in the simulation and depicted on the Landscape Plan drawings included in Appendix 11-2, there is proposed Project mitigation that is intended to provide screening to the non-participating residence located at the top of the hill (right side of road), as well as one seen in the far distance in the middle left. As observed in the simulation, the proposed landscape plantings occur on the right side of the road between the house on the hill and the solar arrays, as well as a vegetated buffer located on the left side of the road at the edge of the field. It is expected that this vegetative mitigation will provide screening and soften and moderate the views from resident locations, because the trees and shrubs are more congruous with natural vegetation. Views of the mitigation for motorists will be intermittent and of short duration while longer duration views of the vegetative buffer will be obtained by the residences.

10.2.1.7 VP19 Cooper Street, View Northeast – Conquest (LSZ 1,3; Distance 200 feet)

VP19, in the middle portion of the Project, is representative of views that will be experienced along an adjacent rural road near one non-participating residence on Cooper Street, left and out of view in the photo. The view is looking northeast approximately 200 feet from the Project fence line. The existing conditions photo shows a light-colored cultivated field in the foreground and a wooded area in the middle to background. Also bisecting the view is NYPA's 345 kV Pannell to Clay transmission line and large lattice towers.

The Project provides new shapes of color change from light to dark. The colors of the fence line mirror that of the utility towers and access road. However, the amount of color depicted by the solar panels creates contrast with the various types of existing vegetation. New form is introduced into the existing open field but the horizontal nature of shape as a whole is similar to the background trees. New line is introduced into the landscape but the line mimics several landscape features such as the field edges and horizontal lines of landscape features across view. The Project may have some lateral breadth but overall is low profile compared to trees and large electric utility infrastructure and appears co-dominant in the view. As such, the line and color of the vertical utility towers and the background wooded area help to reduce visual contrasts. The panels directly in front of the viewer are close enough to allow for moderate to strong discernible detail while the array continues to the north and up the hill which decreases in detail as the distance increases with minimal vertical interruption of the horizon. Overall, average Project Part 1 visual contrast is rated as moderate. Viewer groups affected are local motorists and one residence. There are expected to be a low number of viewers because of the rural road location and the one residence that might experience visual change.

There is proposed mitigation at the portion of the Project facing the road that is intended to provide screening to the one non-participating residence that is located across the road and perpendicular to the array locations (left of photo and out of view), as depicted on the Landscape Plan drawings included in Appendix 11-2. The landscape plantings will also serve to block views along the open roadway. Accordingly, it is expected that there will be partial views as the proposed landscaping grows to maturity as demonstrated in the simulation with mitigation at 5 years. The inclusion of vegetative mitigation softens and moderates the effects of the security

fence and blocks some views of panels. A variety of ornamental, pollinator-friendly, small tree and shrub species are incorporated throughout the planting scheme and provide a naturalized planting look that is aesthetically pleasing. Views of the mitigation for motorists will be intermittent and of short duration while longer duration views will be obtained by the residence.

10.2.1.8 VP61 Slayton Road, View West – Conquest (LSZ 1,3; Distance 783 feet)

This viewpoint generally represents a view at the central portion of the Project. VP61 on Slayton Road is located approximately 783 feet east from the fence line in the view. VP61 was taken to represent a group of residences that are located on a higher section of road with westerly views to the Project. The existing conditions photo shows that the semi-foreground is mixed with dense evergreens to the left of the road and a large mature tree row to the right of the road while large horizontal shapes of open cultivated field and sky are in the background. It is expected that these existing trees will provide partial screening of the solar arrays as can be evidenced from the existing conditions photo. Prevalent in the view itself is Slayton Road as well as roadside utility distribution. The Project site in the background shows terrain that undulates slightly with a forested area in the far background that appears as a narrow horizontal band of darker value color.

New line is introduced into landscape, but it is moderated by all of the other features with similar lines in the foreground such as scattered vegetation, pavement and utility distribution. Color contrasts of the arrays are moderate and are somewhat visually absorbed because there are both light and dark landscape features such as the trees and asphalt road that are similar. The Project has lateral breadth in the view but overall is low profile, fits in the landscape and appears co-dominant in the view. The panels are diminished in size and scale due to distance, especially compared to the larger foreground shapes and darker colors. Distance also allows for minimal discernible details of the panels and fence line. A textured pattern is created by the rows and the angles of the solar panels that is not otherwise there. The existing linear road and utility poles in the foreground weaken the contrast of the solar installation. Project visual contrasts for the VP61 simulation are rated as weakly moderate.

There is no existing vegetation that is purposely being used to screen views, such as the foreground evergreen trees to the left nor the mature trees that are interspersed with some younger saplings that are right of the road. Any existing vegetation seen in the simulation that has the ability to block views is incidental. Despite existing trees and shrubs in the view, there is vegetative mitigation proposed along the fence line of the Project itself that is intended to provide screening for non-participating residences that are facing the arrays, as depicted on the Landscape Plan drawings included in Appendix 11-2. The mitigation also serves to block some views along the open roadway. Views of the Project for motorists will be intermittent and of short duration while longer duration partial views will be obtained by residences.

10.2.2 Discussion – Line of Sight Results

LOS profiles can be found in Attachment 4.

10.2.2.1 L1 – Cooper Street (North Location) to Collection Substation, View West (LSZ 1; Distance 236 feet)

The collection substation and interconnection facilities will be located on land adjacent to NYPA's 345 kV Pannell to Clay transmission ROW, as can be seen in Figure 1, Attachment 2, as well as the inset aerial photo for each Line of Sight. The existing lattice towers of the transmission line in the vicinity of Cooper Street are approximately 90 feet tall. Clear views to these existing lattice towers will continue to be obtained offering similar in-kind electric infrastructure at the site. The tallest components at the collection substation will include three 56-foot lightning masts, several 101-foot tall dead end structures at the switchyard, and 76-foot tall dead end structures at the substation. Other utility components with less vertical height include transformers, bus equipment, and breakers ranging from 23 to 37 feet tall. A control building is proposed that will be 17 feet tall.

L1 LOS is located on Cooper Street at a location that would represent what vehicular travel would observe when passing by the site. The nearest residence is to the southwest approximately 360 feet away. To mitigate potential views of these interconnection facilities at this single residence, the Applicant is proposing a special planting template in this area (see Type 3 planting template in Appendix 11-2 landscape plan). This special planting template includes a solid row of evergreen species including eastern red cedar, white spruce, and blue spruce species, along with a mix of deciduous tree species and shrubs in order to provide maximum visual screening.

LOS L1 in Attachment 4 shows the various collection station components. Although there are forested areas to the north and west, they occur behind the proposed station at the L1 viewpoint and will serve to block views elsewhere but not at the viewpoint location. As the collection station is located in an open field, the profile shows an unobstructed view of the substation and switchyard from LOS L1.

10.2.2.1 L2 – Cooper Street (South Location to Collection Substation, View North (LSZ 1; Distance 646 feet)

The collection substation and interconnection facilities will be located on land adjacent to NYPA's 345 kV Pannell to Clay transmission ROW, as can be seen in Figure 1, Attachment 2, as well as the inset aerial photo for each Line of Sight.

L2 LOS is approximately 646 feet away from the fence line located on Cooper Street south of the proposed collection station and near a residence. If unmitigated, views of the existing transmission towers within the ROW will still be maintained at the L2 location and will offer similar in-kind infrastructure within the view. The existing lattice towers in the vicinity are

approximately 90 feet tall. The tallest components at the collection substation will include several 101-foot tall dead end structures at the switchyard with 76-foot tall dead end structures at the substation and three 56-foot lightning masts within the fence line. Other collection substation components with less vertical height include transformers, bus equipment, and breakers ranging from 23 to 37 feet tall. A control building is proposed that will be 17 feet tall.

LOS L2 in Attachment 4 shows the various components in the profile. This area will be mitigated with vegetative plantings. Although the collection substation is proposed in open field, the Line of Sight profile shows views are not expected due to mitigation plantings along Cooper Street.

10.2.2.2 L3 – Cooper Street (Southwest Location) to Collection Substation, View Northeast (LSZ 1; Distance 933 feet)

The collection substation and interconnection facilities will be located on land adjacent to NYPA's 345 kV Pannell to Clay transmission line ROW, as can be seen in Figure 1, Attachment 2, as well as the inset aerial photo for each Line of Sight.

L3 is located on Cooper Street southwest of the proposed collection station and near a resident, approximately 933 feet way from the fence line. As noted in the profile, a small, forested area exists between the viewer and the collection substation essentially creating a 245-foot deep vegetative barrier. There are no expected views due to the screening of the existing trees.

10.3 Visual Impact Rating Results

Section 9.0 briefly describes the concepts and methodology applied to rating visual change incurred by the proposed Project by evaluating the Project photosimulations. Simulations of the Project and security fence without mitigation were rated to evaluate contrasts under worst-case conditions with the understanding that proposed vegetative mitigation will moderate views. Attachment 6 provides a more complete description on methodology.

Descriptions of the moderating effects of mitigation are discussed in Section 10.2.1 while simulations showing mitigation are presented in Attachment 4. Attachment 6 provides more detail on panelist qualifications as well as the raw evaluation forms for each simulation viewpoint.

Table 8 below summarizes the final scores and averages for Part 1 Visual Contrast, Part 2 Viewpoint Sensitivity and Part 3 Existing Scenic Quality. Here, trends of contrast ratings where those VP locations that are considered to have the highest or lowest visual change in relation to each other can be obtained.

10.3.1 Part 1 Contrast Rating

Part 1 Contrast is fully described in Attachment 6 and rates proposed visual change against existing conditions with respect to compositional elements such as newly introduced lines,

shapes, colors, project scale, and broken horizon lines. Under Part 1, there are nine categories to rate, where the total rating ranges from 0 to 27. When the rating contrast scale outlined in Section 9.0 is rescaled to account for the averages found in Table 8 with respect to the nine categories, the scale is as follows:

Contrast Rating Scale	
0	None
0 - 4.5	Very Weak
4.5 - 9	Weak
9 - 13.5	Weakly Moderate
13.5 - 18	Moderate
18 - 22.5	Moderately Strong
22.5 - 27	Strong

The viewpoint with the strongest Part 1 Contrast is VP15a on Slayton Road with an average rating of 22.8. This simulation shows the viewer approximately 134 feet from the Project fence line. The Project will not be seen in its entirety because only a portion of the arrays are visible from this location. However, the proposed view results in a strong contrast rating due to new form, color, line, and texture contrasts of discernible detail observed at close proximity to the viewer, compared to what is currently there. VP15a is the only simulation viewpoint rated as strong due to the proximal location to the Project that lacks moderating effects such as offset distance and background trees. There is mitigation proposed at VP15a that will provide a vegetative buffer to provide year-round screening

The next highest contrast groupings, which are rated as moderate, are VP12 on Spook Woods Road (60 feet from the Project fence line), VP4b on Slayton Road (260 feet away), and VP19 on Cooper Street (200 feet from Project). The average rating for VP12 and 4b is 17.3 while VP19 is 15.7. VP4b and VP19 has vegetative mitigation proposed. VP12 does not have mitigation proposed.

VP16a at Lake Road (545 feet away) and VP7 at Drake Road also have moderate ratings but trend towards the lower end of moderate with average ratings of 14.7 and 13.7, respectively. Each of these are several hundred feet from the viewer but have the appearance of fitting into the landscape. These two vantage points also have greater Project offsets from the viewer, compared to the previous four above. VP7 and VP16a has vegetative mitigation proposed.

Two viewpoints are assigned a Part 1 contrast rating of weakly moderate. They are VP61 on Slayton Road (783 feet away) and VP13 on Spook Woods Road (521 feet away) where average ratings are 11.7 and 11.0, respectively. Each of these views has trees or ridges in the background, similar color values to those in the landscape, as well as a viewer offset that moderates the views where they appear visually absorbed. There is vegetative mitigation proposed for VP61. There is no vegetative mitigation proposed for VP13.

Table 8. Visual Impact Rating Results

VP	Location	Contrast Rating Panelist 1			Contrast Rating Panelist 2			Contrast Rating Panelist 3			Avg Part 1	Avg Part 2	Avg Part 3
		Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3			
4b	Slayton Road	18	5.5	2	16	5	1	18	5.5	2	**17.3 M**	**5.3 W**	**1.7 WM**
7	Drake Road	14.5	1.5	2	16	6.5	1.5	10.5	6	2	**13.7 M**	**4.7 W**	**1.8 WM**
12	Spook Woods Road	19	2.5	2.5	17	6	1.5	16	2.5	2	**17.3 M**	**3.7 VW**	**2.0 M**
13	Spook Woods Road	11	5.5	2	11	6	1	11	4.5	2	**11.0 WM**	**5.3 W**	**1.7 WM**
15a	Slayton Road	22	5	2	23	6	0.5	23.5	4.5	2	**22.8 S**	**5.2 W**	**1.5 WM**
16a	Lake Road	15.5	6.5	2	14.5	9	1	14	4.5	2	**14.7 M**	**6.7 W**	**1.7 WM**
19	Cooper Street	14.5	5	1	15	6	0.5	17.5	6	0.5	**15.7 M**	**5.7 W**	**0.7 W**
61	Slayton Road	13.5	6	1	10	5	0.5	11.5	4	2	**11.7 WM**	**5.0 W**	**1.2 WM**

VW-very weak, W=weak, WM= weakly moderate, M=moderate, MS=moderately strong, S=strong

10.3.2 Part 2 Viewer Sensitivity

There are eight categories under Part 2 to rate where the total rating ranges from 0 to 24. When the rating contrast scale outlined in Section 9.0 is rescaled to account for the averages found in Table 8 with respect to the eight categories, the scale is as follows:

Contrast Rating Scale	
0	None
0 - 4	Very Weak
4 - 8	Weak
8 - 12	Weakly Moderate
12 - 16	Moderate
16 - 20	Moderately Strong
20 - 24	Strong

Part 2 takes into account viewer sensitivity, in particular if the VP falls within or has a view of an existing visual receptor as well as the character of viewer groups such as number of viewers, duration of view, presence of existing development, etc.

Because Table 4 indicates there will be no views of the Project from the listed visual receptors, except for small private snowmobile trail segments designated as S55B and S55D, most of the viewer sensitivity issues focus on viewer groups related to the community travelers or residences as opposed to recreational viewers or tourists. All Part 2 Viewer Sensitivity ratings were assigned a very weak or weak rating, ranging from 3.7 to 6.7. This is due to the fact that only one viewpoint is within or has a view of a visual receptor but mainly due to the fact that Project views are located within a rural area with a low number of viewers and local residences, as well as roads with low vehicular traffic. While rated as weak, VP16a has the highest sensitivity rating because it shows a view of a Table 4 listed resource where a private snowmobile trail runs adjacent to State Route 38.

10.3.3 Part 3 Scenic Quality

Part 3 Scenic Quality is a standalone single rating that assesses the overall scenic quality of the VP's existing conditions (see also Attachment 6). For this rating, there is no evaluation of visual change, only a simple appraisal of the scenic quality of the view. A rating of 1 is weak, 2 is moderate, and 3 is strong.

VP12 at Spook Woods Road is the highest rated with a moderate value of 2. Scenic quality for the remaining seven simulations is generally rated as weak to moderate. However, this is not to imply that views are not pretty, restful, or important to the community. Although there are restful views of open fields, panelists also felt that the particular viewpoint views were average and typical of the area and that views did not offer a high degree of visual interest such as landscape diversity, show distinct aesthetic focal points that enhance scenic quality, or offer other types of outstanding views according to criteria in Attachment 6. Several of the views also showed some type of

development. Most views have a similar large horizontal shape in the photo consisting of foreground-midground fields in the bottom half of the photo and several with a band of background trees in the middle and the upper half of the photo showing sky. However, the intent was to provide simulations of the Project from visual resources and representative views of what the community would experience from nearby residences and roadways.

11.0 LIGHTING

Lighting is only proposed at the Project interconnection facilities and is only for security, safety, and maintenance purposes; no lighting is proposed within the solar arrays. Details regarding the Project's Lighting Plan, such as the type, number, location, elevation of exterior fixtures, and representative manufacturers cut sheets for lighting fixtures are included in the Preliminary Design Drawings in Appendix 11-3. Manually operated security lighting is proposed at the collection substation and switchyard. Lighting is not proposed outside the energy storage facility. A lighting plan for the collection substation and switchyard is included with the Exhibit 11 drawings. This plan was developed to minimize fugitive light while meeting lighting standards established by the National Electric Safety Code (NESC). The collection substation and switchyard will primarily remain unoccupied. All lighting will be activated manually turned on by a switch. Lighting will be installed facing downward to minimize potential impacts to the surrounding public. Lighting has been designed to provide up to a maximum 3.4 foot-candle average, to eliminate unnecessary light trespass beyond the collection substation and switchyard. Lighting will be attached to equipment or pole structure mounted and will not be illuminated during unoccupied periods. The collection substation and switchyard will use full cut-off fixtures and task lighting wherever feasible, as specified in the Lighting Plan. Drop-down optics will not be used for the Project.

12.0 MITIGATION

Mitigation includes siting and design and vegetative plantings to help moderate visibility.

When a solar facility is decommissioned and removed, the land can be returned to other productive use, including farming. In this way, a solar lease can be a way to preserve land for potential future agricultural use. Large-scale solar projects can be made less visible from roads or other public vantage points. Several approaches for minimizing and mitigating visibility from large-scale solar projects can be made such as keeping facility components at low profile and siting and designing the site to take advantage of natural topographic and vegetative screening; road setbacks; siting against tree lines; and avoiding the use of overhead interconnection lines.

12.1 Siting and Design

Current siting is optimized to minimize visibility of the project by placing, orienting, or arranging the arrays in certain ways. Siting against existing vegetation such as tree lines and utilizing sufficient setback distances are effective in reducing visibility.

Siting layout and design considerations that offer mitigation are summarized as follows:

- Use of existing vegetation such as the surrounding woodlands and hedgerows as existing visual barriers as much as possible.
- Panels proposed against background trees to reduce visual contrasts, as color contrasts are absorbed and moderated by the background trees.
- Setbacks and offsets: The Project alignment has been designed to incorporate and abide by and/or exceed the minimum property and building setback distance requirements for the Town of Conquest (see Exhibit 31 for more detail). The Applicant utilized minimum setbacks of 100 feet to non-participating residential property lines, 50 feet to public road right-of-ways, and 250 feet to non-participating occupied residences.
- Use of antireflective coatings on solar panels. Solar photovoltaic panels are also designed to absorb light, not reflect light, and therefore, produce minimal, if any, glare.
- Racking systems consist of non-reflective metallic materials.
- General site location placed far from sensitive resources listed addressed in the Stipulations 1001.24 listed visual receptors.
- The Project has been sited away from the population centers in order to minimize potential visibility by a relatively larger number of viewers.
- The collection substation and switchyard are located proximal to the existing transmission right-of-way for minimally distant new interconnects.
- The collection substation is located near in-kind utility infrastructure.
- Vegetative buffers: plantings of native/indigenous pollinator-friendly plant species are included in the proposed landscape mitigation plan.
- Collection lines have been placed underground to decrease additional aboveground Project visibility.
- Minimized vegetation clearing outside of the arrays in order to preserve existing trees and other vegetation for Project screening to the best extent possible.

12.2 Vegetative Mitigation

From a scenery point of view, methods and techniques of hiding/screening solar farms can be effective in moderating views. Typically, a landscape planting scheme is developed to provide year-round screening that is sustainable, hearty, and resilient. The vegetative screening will primarily use native/indigenous plant species incorporated with opaque evergreen tree species to help minimize views into the project site. Additionally, a variety of ornamental, pollinator-friendly, small tree and shrub species are incorporated throughout the planting scheme as well. This

approach will provide a more naturalized planting look that is aesthetically pleasing and compliments the surrounding area.

The Landscaping Plan for vegetative mitigation can be found in Appendix 11-2 of Exhibit 11. The following items and concepts were applied to the plan:

- Native/indigenous evergreen trees and pollinator-friendly deciduous shrubs and small ornamental tree species were selected for the vegetative buffer. The species chosen will need to reach an adequate height and width to provide the appropriate visual screening required while also maintaining minimum mature heights that will not produce shade over the Project in later years. Deciduous and evergreen tree species include balsam fir (*Abies balsamea*), northern white cedar (*Thuja occidentalis*), white spruce (*Picea glauca*), flowering dogwood (*Cornius florida*), and downy shadbush (*Amelanchier arborea*). Shrub species include red chokeberry (*Aronia arbutifolia*), red twig dogwood (*Cornus sericea*), common witch hazel (*Hamamelis virginiana*), American cranberry (*Viburnam triloblum)*, common winterberry (*Ilex verticillata*), and highbush blueberry (*Vaccinium corymbosum*).

- The plantings are proposed along the outside fence line or at property boundaries in locations noted on the Landscaping Plan in Appendix 11-2. Three planting types are proposed for an approximate total of 28,600 linear feet of vegetative mitigation around the arrays and another 670 feet at the substation:

    - Mitigation Planting Template Type 1: This planting scheme provides a density of plantings that will be considered a typical visual screening effort for this Project. Approximately 26 evergreens per 300 feet of linear planting are proposed among the deciduous species. Type 1 plantings will be utilized/implemented along 25,600 linear feet (90%) of the Project.

    - Mitigation Planting Template Type 2: This planting scheme provides a density that is considered a supplemental screening effort in areas where visual impacts do not demand as robust of a planting effort. Approximately 11 evergreens per 300 feet of linear planting are proposed among the deciduous species. Approximately 3,000 linear feet (10%) of Type 2 plantings are proposed to be used within the Project site.

    - Mitigation Planting Template Type 3: This planting scheme provides the highest density of plantings specifically at the proposed collection substation to screen views to nearby residents. Approximately 38 evergreens per 300 feet of linear planting are proposed among the deciduous species. Blue spruce (*Picea pungens*) is proposed to be planted as a part of Planting Template 3 only. There will be 670 linear feet of the Type 3 planting at the collection substation site.

- A grass seed mix using native/indigenous warm and cool season grasses was developed especially for the areas under and around the solar array fields and is considered favorable for wildlife habitat and sustainable growth. The seed mix will provide a groundcover that minimizes erosion concerns, does not pose any shading issues, and is manageable year-round. Appendix 11-2 of Exhibit 11 identifies the species that are included in the grass seed mix.

- Expected growth heights (depending on the specific tree or shrub species) are expected to be between 5 to 15 feet at 5 years. However, fully mature heights of the year-round coniferous species may reach up to 40 feet high.

- It is important to note that an annual O&M (Operation and Maintenance) effort will be provided to ensure that proper care and attention is given to the proposed plantings once they have been installed. Annual O&M efforts will include, but not be limited to, selective pruning, mowing, and monitoring of invasive species. Additionally, landscaping notes in the Landscaping Plan will provide further direction, recommendations, insight, and guidelines to ensure a healthy, viable, and sustainable landscape throughout the life-cycle of the Project to the maximum extent practicable.

13.0 VISIBILITY DURING CONSTRUCTION

Potential visibility during construction is anticipated to be minor and temporary in nature. Construction activities of a typical facility, and thus short-term effects, normally involve the following major actions with potential visibility: building/upgrading roads, constructing laydown areas, tree clearing activities, transporting components and other materials and equipment related to the solar site, assembling the solar array's racking system, constructing ancillary structures (e.g., collection substation, fences) and installing power-conducting cables (typically buried). These elements are quite typical of many major construction projects. Construction visual contrasts would vary in frequency and duration throughout the course of construction. There may be periods of intense activity followed by periods with less activity and associated visibility would vary in accordance with construction activity levels. Construction schedules are project dependent. Potential visual contrasts from construction activities include contrasts in form, line, color, and texture as well as motion, as a result of these activities.

Heavy vehicles/equipment will not be traveling to and from the site regularly. Most of the equipment will stay on the site for the days needed, and thus would not be going back and forth to the site each day. The hours of construction are to be determined but are likely to be 7:00 AM to 7:00 PM Monday through Saturday. Please refer to Exhibit 25 for greater specificity on number, frequency, and timing of vehicle trips, as well as the types of construction equipment and materials that will be seen on-site.

There will also be temporary stockpiles, and stormwater management, and erosion control measures in place during construction activities. Landscape planting activities will take place post construction.

14.0 SUMMARY CONCLUSIONS – VISUAL IMPACTS DURING OPERATION

The information in this VIA provides an understanding of the visual relationship between the Project and its surrounding context. In depth compilation of computerized analysis results and corresponding discussion is provided in Section 10.0. The following provides a summary of findings and impacts related to the Project.

1. The viewshed analysis results objectively show that there is minimal expected visibility of solar arrays (2.47%) within the overall VSA and there would be limited areas from which the Project would be visible but, in contrast, a multitude of areas from which it would not be seen. Overall, the majority of the visibility is predicted to occur within 0.5 miles of the arrays (2.32%).

2. As seen in Figure 4 of Attachment 2 and further described in Section 10.1.1, the majority of visibility for the arrays occurs on properties belonging to participating landowners. The Project Area consists of 2,288.7 acres or 3.6 square miles. The Project Area is described as an acreage area encompassing all Project parcels located within the Town of Conquest. It is comprised of land that currently is either leased or owned by the Applicant and is therefore defined as properties belonging to participating landowners. Visibility results also indicate that 1.75% of the total 2.47% visibility within the VSA occurs within the Project Area, and thus, on participating landowner properties. The remaining 0.72% of Project visibility will occur on non-participating landowner parcels.

3. The VSA was partitioned into designated distance zones and landscape similarity zones as required by Article 10.

    a. The VSA was partitioned into 3 distance zones each offering its own level of visual acuity as described in Section 4.0, These zones include: Zone 1 from 0 to 0.5 miles, Zone 2 from 0.5 to 2.0 miles and Zone 3 from 2.0 to 5.0 miles. Zone 1 had the highest percentage of visibility of 2.32% while there is an abrupt difference once outside of the 0.5-mile radius where percent visibility in the VSA drops to a negligible < 1%. This can be expected as there would reasonably be a concentrated amount of visibility in proximity to the Project. This also indicates the existing trees and forested areas provide effective screening to the Project.

    b. There are five LSZ categories presented in Tables 2 and 4. The presence of the highest LSZ percentages within the VSA are Zone 1 Agricultural and Zone 2 Forested at 45.52% and 43.70%, respectively.

    c. The actual percent of visibility in LSZs is highest in Zone 1. Table 5 shows that 1.85% of land area in agricultural areas within 5 miles may experience visibility of

the Project followed by 0.45% from forested areas. Developed areas resulted in 0.12% of the land area that is expected to experience visibility within 5 miles.

4. The viewshed visibility analysis (Attachment 2) geographically shows where predicted visibility is expected to occur . There are forested areas, along with the topography of the rolling hills along with geologic drumlin hill features in the area that provide much screening and preclude many views of arrays as noted on the maps. Viewshed maps show the majority of visibility that is expected occurs mostly in a focused location within the Project Area inside of the 0.5-mile Distance Zone 1. Visible areas include the Project parcels themselves and at a few roadways, open fields, and nearby properties. Although the panels are sited in open land against forested areas, the low-profile panels set against existing tree buffers, hedgerows, and tree groups that frame the panel locations is enough to obscure many outward views.

5. One Article 10 listed visual resource outlined in Table 4 will have views of the Project - small segments of private snowmobile trails designated as S55B and S55D located in Conquest near NY State Route 38, Cooper Street, and Drake Road as they approach the vicinity of the existing powerline. Snowmobile travel will be seasonal, intermittent, transient, and will experience partial views of arrays.

6. The local community will experience partial views of the Project. Several segments of local roadways running through the interior of the Project as well as perimeter roads may experience transient views from vehicular traffic. Much of this visibility along intermittent road segments are within 0.5 miles in Distance Zone 1 and include those such as Cooper Street, Slayton Road, Spook Woods Road, Montana Road, Oneil Road, Drake Road, Field Farm Road, and State Route 38. Entire roads will not have visibility. Visibility maps in Attachment 2 and 3 further illustrate which segments of road may experience views of the Project. Vegetative mitigation proposed for these locations is explained above.

   It is expected that the number of static (longer duration) viewers able to see the Project is low due to the rural nature of the Project location in addition to the presence of mosaicked tree groups in the area that screen views. However, there will be house locations with views but vegetative mitigation is proposed to screen residence's views of the Project. Road views at several nearby residences along these roads are represented in the Project photosimulations such as VP4b, VP7, VP12, VP13, VP15a, VP16a, VP19, and VP61.

7. Photosimulations showing existing and proposed conditions including proposed mitigation have been produced. The general visual appearance of the low-profile panels as a group contribute to a homogenous form which consists of a new horizontal pattern often similar in color, shape, and size to the landscape features found in many views. Color differences between the Project and the landscape may provide contrast but will vary throughout the seasons. Overall Project contrast and the overall visual effect will vary depending on the extent of panel visibility (partial or full), distance of the arrays from the viewer, and if the panels are seen in the context of other existing noticeable modifications to the local natural

landscape**.** In some instances, background vegetation seen behind the Project moderates visual contrast, because the arrays are perceived to be visually absorbed by similar color and color value expressed by the background trees.

8. A discussion of Project visual contrasts in greater detail can be found in Section 10.3. Project contrast ratings were applied for the unmitigated simulations against existing conditions. Seven simulations had Part 1 Project contrast ratings that are weakly moderate to moderate. One simulation, VP15a on Slayton Road, was rated as strong due to the proximal location to the Project that lacks some of the moderating effects such as offset distance and background trees. All Part 2 viewer sensitivity contrasts were rated as very weak or weak due to the low populated rural nature of the area in addition to the fact there are no simulation locations that are within an Article 10 listed resource except for a seasonal private snowmobile trail at VP16a.

   Proposed mitigation can be seen in the simulations showing a 5-year time frame. With the inclusion of the landscape plantings, contrasts are softened and moderated as the trees and shrubs are more congruous with the existing environment and the Project color and value contrasts are reduced.

9. As noted in finding #6, vegetative mitigation is proposed to screen residence's views of the Project. Proposed landscaping described in Section 12.2 will consist of three planting template schemes, each with a variety of evergreen trees and shrubs that will provide year-round screening. Visual Project contrast from solar panels is anticipated to be avoided or minimized in areas where landscaping is proposed. The Applicant proposes approximately 28,600 linear feet of vegetative mitigation along the Project fence line at or near residential properties. An additional 670 linear feet of landscape plantings are proposed at the collection substation location.

10. Due to surrounding forested area locations, visibility analysis shows that the collection substation and switchyard will not be visible from most areas in the vicinity as well as within the overall VSA. Section 10.1.7 discusses visibility solely from collection substation components in the absence of arrays. The majority of visibility for both upper electrical components between 56 and 101 feet in addition to lower components 37 feet or less occurs within the Project Area thus defined as participating landowners.

    Attachment 4 shows several Line of Sight profiles illustrating how or why the collection substation is visible or not visible and also shows the proposed mitigation for it. Proximal locations east and from adjacent Cooper Street will have open views to the collection substation from vehicles traveling on the roadway represented by Profile L1. However, Profile L2 at a nearby residence on Cooper Street shows that proposed landscape mitigation along the side of the road is expected to screen views. As one proceeds southwesterly, represented by Profile L3, views will be blocked by an existing forested area.

The collection substation will be adjacent to the existing NYPA 345 kV Pannell to Clay transmission line which consists of approximately 90-foot tall lattice towers. The collection substation and switchyard will be integrated within this compatible infrastructure where lattice towers will generally be in the views in and along with the proposed collection substation.

One residence is located adjacent to the parcel where the collection substation and switchyard is proposed. To mitigate potential views of these interconnection facilities, the Applicant is proposing a special planting template in this area (see Type 3 planting template on landscape drawing in Appendix 11-1). This special planting template includes a solid row of evergreen species including eastern red cedar, white spruce, and blue spruce species along with a mix of deciduous tree species and shrubs in order to provide maximum visual screening.

Other factors assessing the degree of visual change from the Project can be considered other than percentages of visibility or observations and results obtained from computer-based analyses, and include:

- Project Facilities are set back from property lines and/or behind forested areas resulting in reduced visibility and less disturbance surrounding agricultural activities on adjacent parcels.

- Through the use of efficient solar panels, the Applicant is able to limit the ground cover required to achieve its objective of 200 MW generating capacity. Additionally, solar facilities typically result in a minimal amount of ground disturbance for the installation of racking and mounting posts thereby preserving the ability to use the land for agricultural purposes in the future following decommissioning.

- The Alternating Current (AC) collection lines will be placed underground and installed primarily via direct burial or trenching with some portions to be proposed via HDD in order to avoid wetland resources and roadways.

- While the Project area consists of many pastoral views, landscape features are similar to each other and landscape characteristics are typical of what you would find in a rural area in this part of New York. The Project will not impair these surrounding regional landscape characteristics.

- The Project will not always appear as a dominant feature in a view within the VSA.

- There will be no interference with the general enjoyment of recreational resources in the area due to the fact that most visual resources are at a distance from the Project with only two private snowmobile trails running through the area that are expected to have intermittent and short-duration views. There is limited to no long-range visibility overall in the VSA.

- The Applicant has employed reasonable mitigation measures to the maximum extent practicable with respect to the overall design and layout of the proposed Project as well as the proposed vegetative plantings that screens views to nearby residents.

- Vertical scale of solar arrays is typically not an issue in relation to surrounding features such as trees, hills, and barns. Lateral extent may be an issue if the arrays appear to overwhelm a ridgeline, scenic water body, or cultural feature that appears diminished in prominence. The Project solar arrays, considering their layout, spacing and the topography and resources in the area, do not overwhelm such physical geographic areas.

- Visual clutter often is adversely perceived and commonly results from the combination of human-made elements in close association that are of differing shapes, colors, forms, patterns, or scales. Generally, solar facilities offer simple and uniform or geometrically patterned arrays or groupings that may be more visually consistent than mixed types and sizes of objects. Landscape mitigation also assists in diminishing visual clutter and offering consistency to the view.

- Aside from normal low local road traffic (see also AADTs in Table 2), the public areas in the vicinity to the Project Area with predicted visibility are not exceedingly high-use destination areas.

- The Project does not have an adverse effect on a known listed scenic vista.

- The Project does not damage or degrade existing scenic resources.

- The Project does not create a new source of substantial light that would adversely affect nighttime views in the area. Potential glare from the solar modules and associated equipment would be negligible because they would consist of a non-reflective coating.

15.0 GLARE

The Project is not predicted to emit glare into the existing environment. Panels are designed to absorb sunlight and will be treated with anti-reflective coatings that will absorb and transmit light rather than reflect it. In general, solar panels are less reflective than window glass or water surfaces (NYSERDA, 2019), any reflected light from solar panels will have a significantly lower intensity than glare from direct sunlight (Mass. Department of Energy Resources, 2015), and studies show that the reflections produced are significantly less than reflections from glass and steel.

Nevertheless, the Applicant retained Pager Power to prepare a Solar Photovoltaic Glint and Glare Study for the Project that is included as Appendix 24-2. Pager Power has undertaken over 600 glint and glare assessments in the UK, Europe, the USA, and internationally. The company's own

glint and glare guidance is based on industry experience and extensive consultation with industry stakeholders including airports and aviation regulators.

Pager Power's approach is to undertake geometric reflection calculations and, where a solar reflection is predicted, undertake solar intensity calculations in line with the Sandia National Laboratories' FAA methodology. The scenario in which a solar reflection can occur is identified and discussed, and a comparison is made against the available solar panel reflection studies to determine the overall impact. As outlined in Appendix 24-2, The glint and glare assessment methodology has been derived from the information provided to Pager Power through consultation with stakeholders and by reviewing the available guidance and studies. The methodology for a glint and glare assessment is as follows:

- Identify receptors in the area surrounding the solar development (residences and roads).
- Consider direct solar reflections from the solar development towards the identified receptors by undertaking geometric calculations.
- Consider the visibility of the panels from the receptor's location. If the panels are not visible from the receptor then no reflection can occur.
- Based on the results of the geometric calculations, determine whether a reflection can occur, and if so, at what time it will occur.
- Consider both the solar reflection from the solar development and the location of the direct sunlight with respect to the receptor's position.
- Consider the solar reflection with respect to the published studies and guidance.
- Determine whether a significant detrimental impact is expected in line with the process presented in Appendix D of the Pager Power report included as Appendix 24-2.

It should be noted that the model is conservative in that it assumes clear, sunny skies for 365 days of the year and does not take into account meteorological conditions that would nullify predicted glare such as clouds, rain or snow.

Within the Pager Power model, the solar development area is defined, as well as the relevant receptor locations. The result is a chart that states whether a reflection can occur, the duration, and the panels that can produce the solar reflection towards the receptor. Where an impact significance of moderate or high is determined, recommendations for mitigation have been provided.

Overall, mitigation has been recommended for seven dwellings and three sections of Cayuga County Route 17B (Slayton Road) where a moderate impact was predicted. For one section of road located along Cayuga County Route 17B, a high impact has been predicted and Pager

Power recommends that mitigation is required. The measures required to mitigate these areas of predicted glare include the installation of additional landscape buffers (beyond those that were proposed originally for visual mitigation purposes) for areas predicted as moderate impacts and the removal of arrays in the area of high impact. The Applicant will follow the recommendations outlined in the report and has prepared standalone landscape and site plan drawings to indicate how these mitigation measures will be included into the site's design.

Refer to Appendix 24-3 to see the proposed glare mitigation measures. The Civil Site Plan sheets C.312 and C.313 dated 06/01/2021 have the solar arrays removed in the area of potential high impact glare area along Cayuga County Route 17 B (Slayton Road) per the recommendation of Pager Power as indicated on Figure 44 on page 101 of their report. The Landscape Plan Glare Additions drawings dated 06/2021 depict the installation of landscape screening to mitigate the potential for glare for the seven dwellings and three sections of Cayuga County Route 17B that were predicted to have a moderate impact. These areas correspond with Figures 40-43 and 45-49 on pages 99-104 of the Page Power report where mitigation is recommended.

By proposing these mitigation measures, the Project will have minimized the potential for glare impacts to the maximum extent practicable. Refer to the Pager Power report in Appendix 24-2 for complete details on the analysis.

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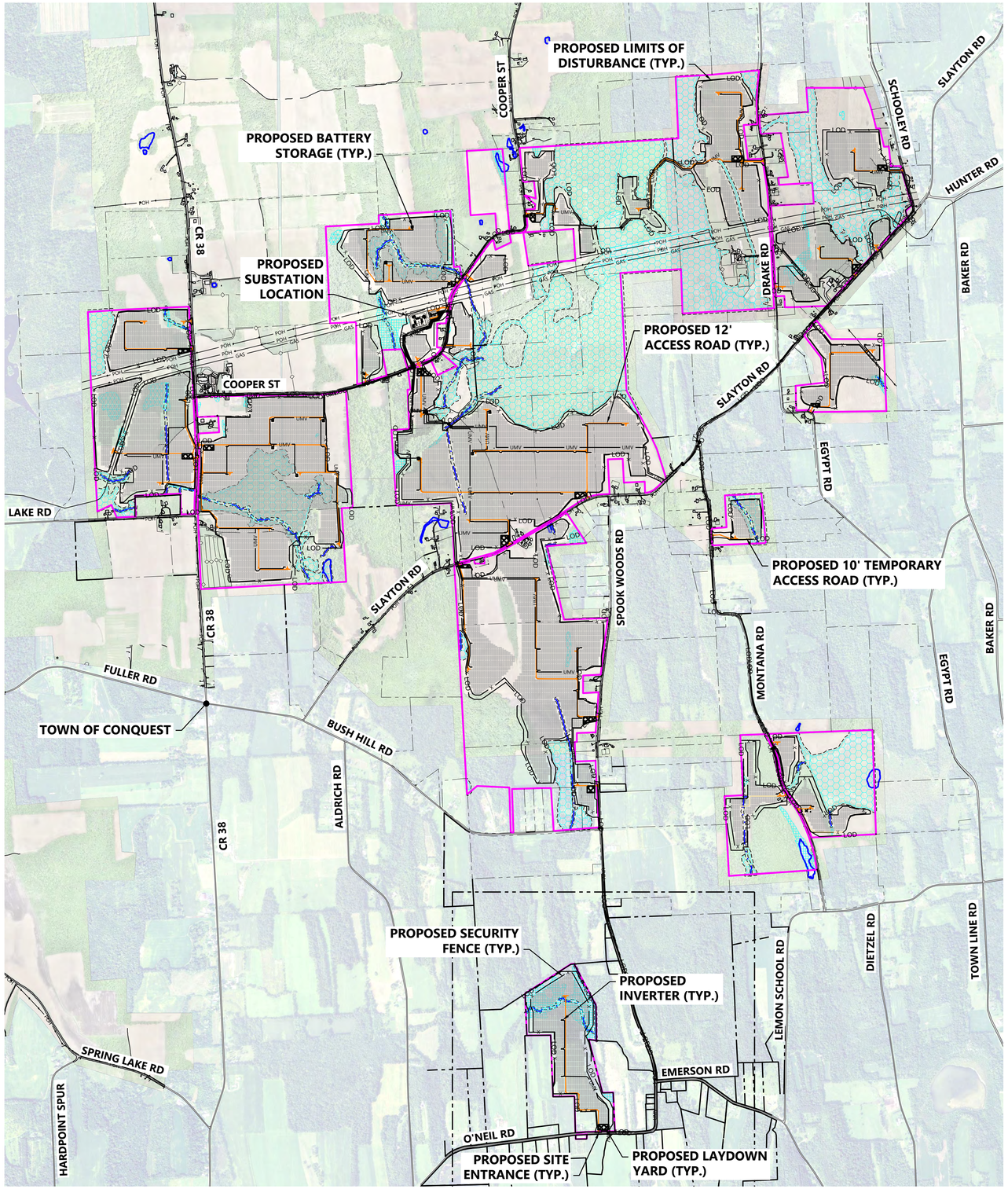
GARNET ENERGY CENTER
ARTICLE 10 EXHIBIT 24

SITE PLAN

ATTACHMENT 1



LEGEND:

- PROJECT BOUNDARY
- PARCEL LINE
- EX. RIGHT OF WAY
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. GAS LINE
- EX. FENCE
- EX. NYSDEC MAPPED WETLAND
- EX. USACE MAPPED WETLAND
- EX. NONJURISDICTIONAL WETLAND
- EX. STREAM
- EX. EDGE OF WATER
- PROPOSED SOLAR ARRAY
- PROPOSED ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED SECURITY FENCE
- PROPOSED ELECTRICAL EQUIPMENT
- PROPOSED UNDERGROUND COLLECTION
- PROPOSED SETBACKS
- PROPOSED LAYDOWN YARD
- LIMIT OF DISTURBANCE

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Westwood Surveying and Engineering, P.C.

PREPARED FOR:

NEXTera ENERGY

700 Universe Boulevard
Juno Breach, FL 33408

REVISIONS:

#	DATE	COMMENT
A	05/13/2021	ISSUED FOR PERMIT

0' 1200' 2400' 3600'

Garnet Energy Center

Cayuga County, New York

Overall Site Plan

PRELIMINARY
NOT FOR CONSTRUCTION

DATE: 5/13/2021

SHEET: C.200