

Prickly Pear LLC / Matrix LLC / Hudson National Golf Club

Additional Environmental Materials

Solar Panel Array Installation

at

Hudson National Golf Club

November 23, 2021

**Village of Croton-on-Hudson
Westchester County, New York**

**Prickly Pear Solar LLC
153 Mercer Street, #4
New York, New York 10012**

**Hudson National Golf Club
40 Arrowcrest Drive
Croton-on-Hudson, New York, 10520**



RALPH G. MASTROMONACO, P.E., P.C.

Consulting Engineers

13 Dove Court, Croton-on-Hudson, New York 10520

Tel: (914) 271-4762 Fax: (914) 271-2820

Civil / Site / Environmental

www.rgmpepc.com

Contents

1. Visual Analysis Tree Loss
2. Solar Array System -Croton Pt Beach Transects 1-20-21
3. 7-11-Solar Site Rev 5-5-20 Transects -Plan-Sects
4. 12-Solar Site Offsite-Sections-Photos-5-5-20
5. Natural Heritage Letter - Prickly Pear Solar LLC
6. Ground Screw - Ksf G 76x2100-3xm16
7. Megapack Datasheet
8. Decomissioning Plan - Prickly Pear Solar, LLC. - 11-23-2021
9. Matrix Response - Chazen 11-22-21 Public Comment & 10-29-21 Eng
Review
10. Matrix Response To TDE Nov 19th Energy Review Letter
11. Operations And Maintenance Plan 11-23-2021
12. Power Clerk Attachment - Appendix A (Standard Contract)
13. Ps-M- A Deg15vc.20(li) En 2020 A Web

Project: Matrix – Solar Array
Hudson National Golf Course
Scope: Ground Level Visual Analysis of Tree Loss
Date: December 12, 2020



This is an analysis of the visual impact of the proposed Solar Array as a vantage point at ground level from three relevant points in the Village to determine how the hillside would appear if the trees were removed.

The analysis was performed using the solar array graphical outline clamped to the ground in Google Earth and then further translated onto recent photographs at the vantage point.

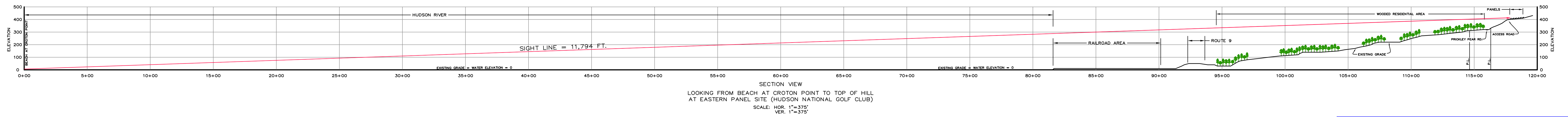
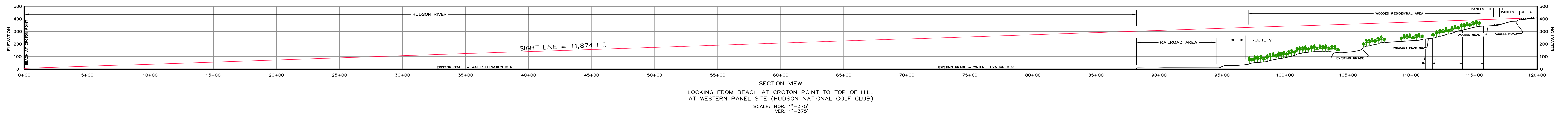
The analysis was performed this December where there are no longer leaves on the trees and represents an accurate, physical visual representation of the loss of tree cover.

The vantage points were taken from: **1.** the parking lot at Eliot Way, **2.** Croton Point Park beach area, **3.** Riverside Drive just south of the flats where the hillside could be seen

In each case the visible portion of the array system was colored by superimposing a brownish color to the portion tree loss that may be seen from the vantage point.



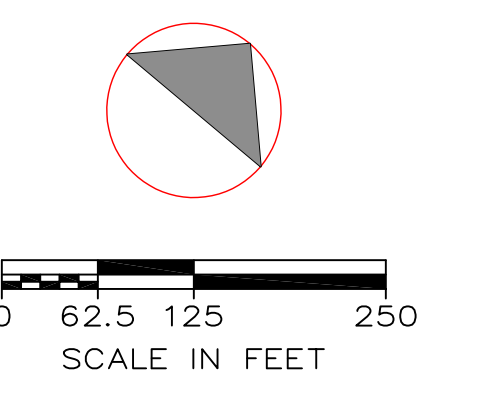
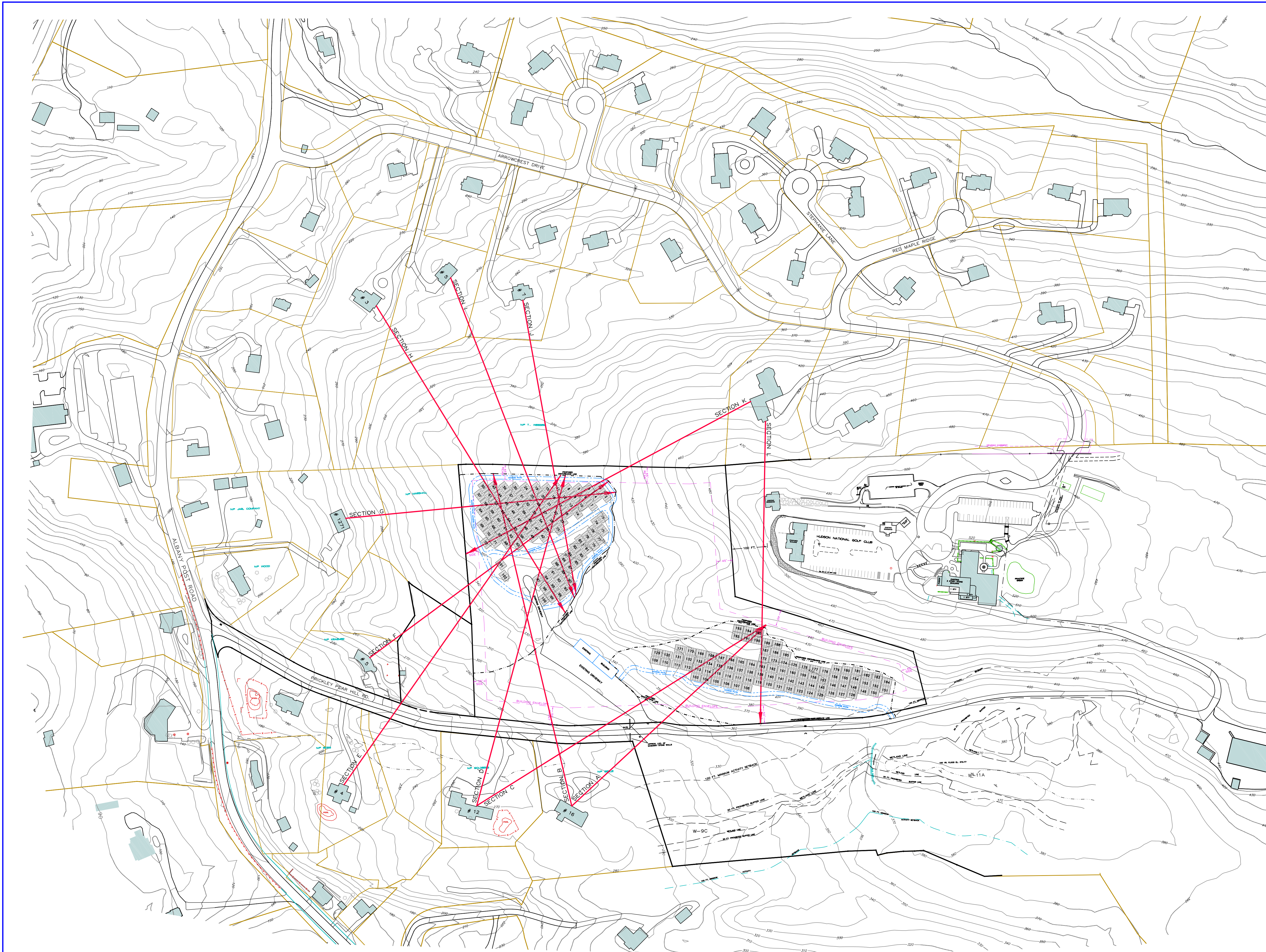




VIEWS LOOKING FROM
CROTON POINT BEACH
TO
POTENTIAL SOLAR
PANEL LOCATIONS
PREPARED FOR
HUDSON NATIONAL GOLF CLUB
VILLAGE OF CROTON-ON-HUDSON
TOWN OF CORTLANDT
WESTCHESTER COUNTY, NY
JANUARY 20, 2021
SHEET 1 OF 1 SHEETS

RALPH G. MASTROMONACO, P.E., P.C.
Consulting Engineers
13 Dove Court, Croton-on-Hudson, New York 10520
(914) 271-4762 (914) 271-2820 Fax

Unauthorized alterations or additions to this drawing is
a violation of Section 7209 (2) of the New York State
Education Law.

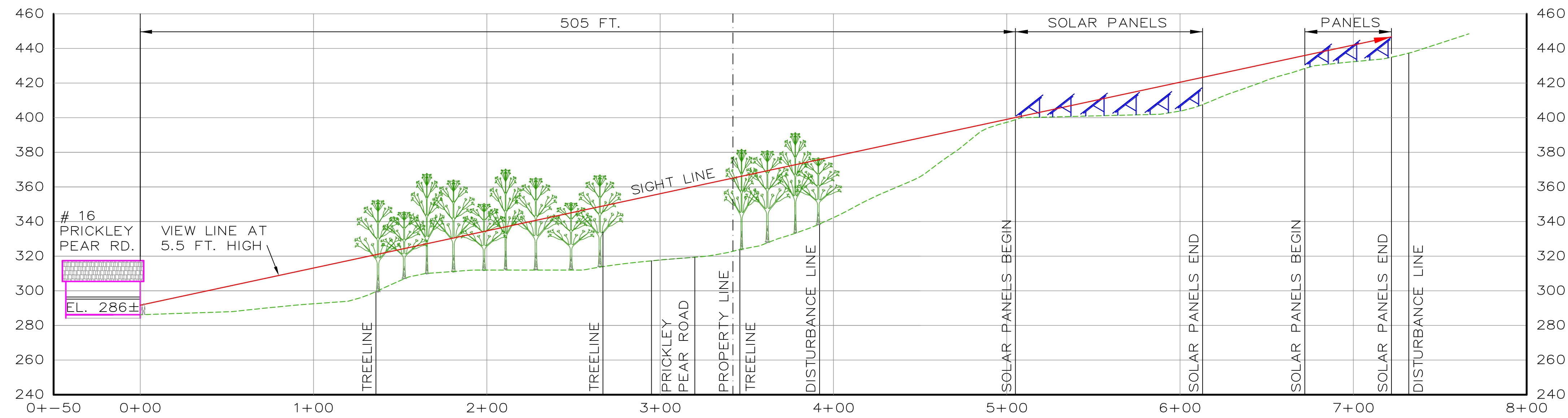


Unauthorized alterations or additions to this drawing is a violation of Section 7209 (2) of the New York State Education Law.

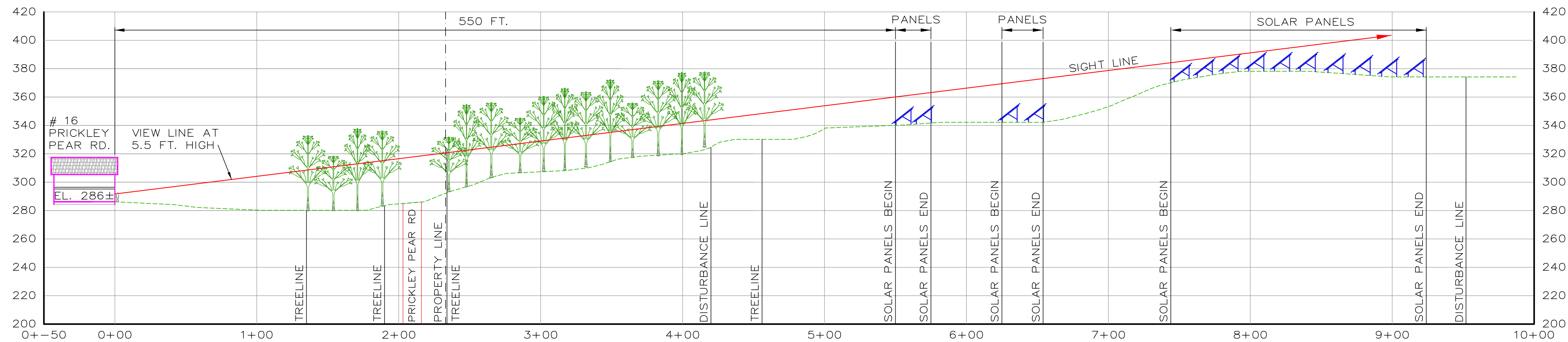
RALPH G. MASTROMONACO, P.E., P.C.
Consulting Engineers
13 Dove Court, Croton-on-Hudson, New York 10520
(914) 271-4762 (914) 271-2820 Fax

OVERALL MAP
SIGHT LINES
PROPOSED SUBDIVISION/
POTENTIAL SOLAR
PANEL LOCATIONS
PREPARED FOR
HUDSON NATIONAL GOLF CLUB
VILLAGE OF CROTON-ON-HUDSON
TOWN OF CORTLANDT
WESTCHESTER COUNTY, NY
FEBRUARY 25, 2020

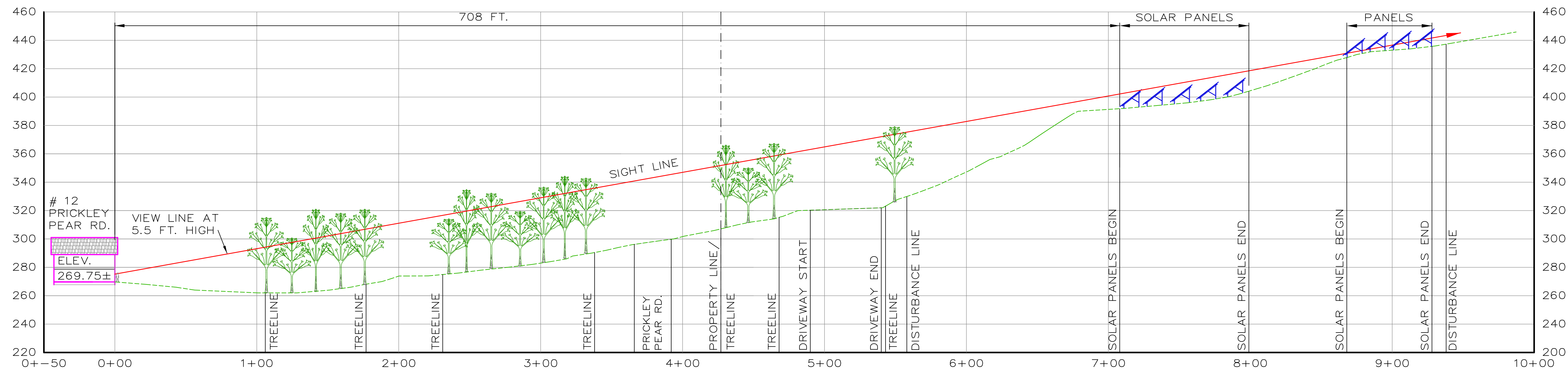
SHEET 1 OF 5 SHEETS



SECTION 'A' VIEW LOOKING NORTH
FROM 16 PRICKLEY PEAR RD.
SCALE: HOR. 1"=40'
VER. 1"=40'



SECTION 'B' VIEW LOOKING WEST
FROM 16 PRICKLEY PEAR RD.
SCALE: HOR. 1"=40'
VER. 1"=40'



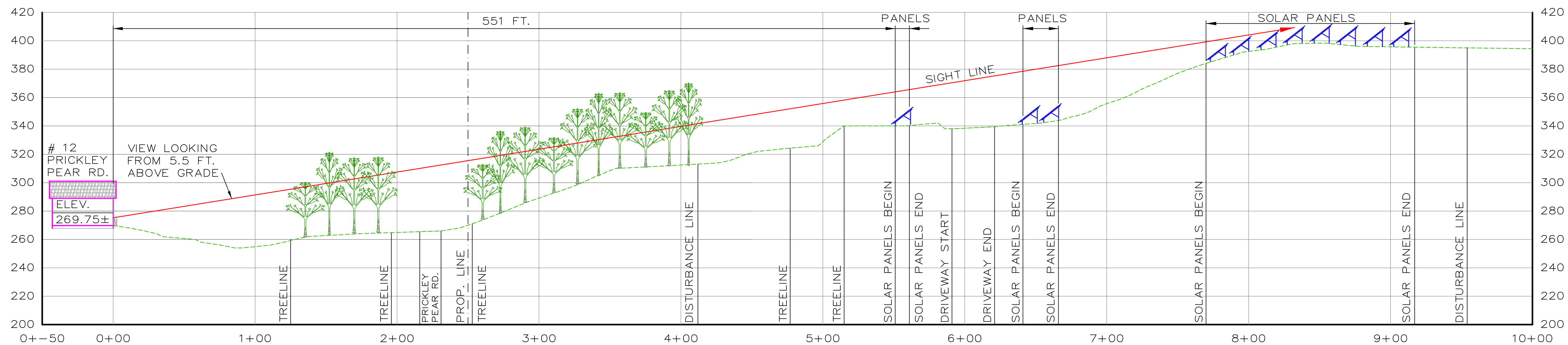
SECTION 'C' VIEW LOOKING NORTH
FROM 12 PRICKLEY PEAR RD.
SCALE: HOR. 1"=40'
VER. 1"=40'

Unauthorized alterations or additions to this drawing is
a violation of Section 7209 (2) of the New York State
Education Law.

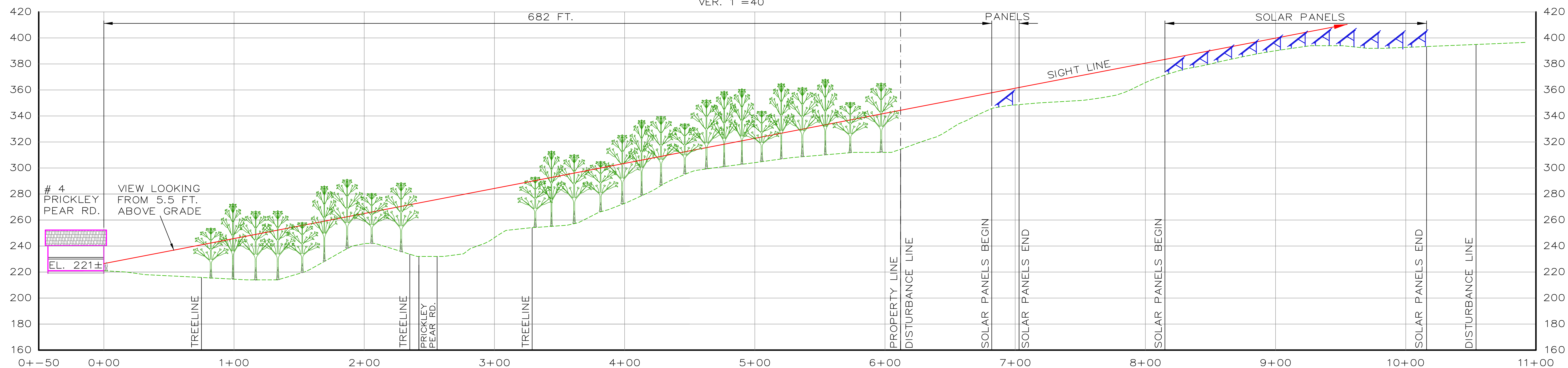
RALPH G. MASTROMONACO, P.E., P.C.
Consulting Engineers
13 Dove Court, Croton-on-Hudson, New York 10520
(914) 271-4762 (914) 271-2820 Fax

VIEWS LOOKING FROM
ADJACENT PROPERTIES
AT
POTENTIAL SOLAR
PANEL LOCATIONS
PREPARED FOR
HUDSON NATIONAL GOLF CLUB
VILLAGE OF CROTON-ON-HUDSON
TOWN OF CORTLANDT
WESTCHESTER COUNTY, NY
FEBRUARY 25, 2020

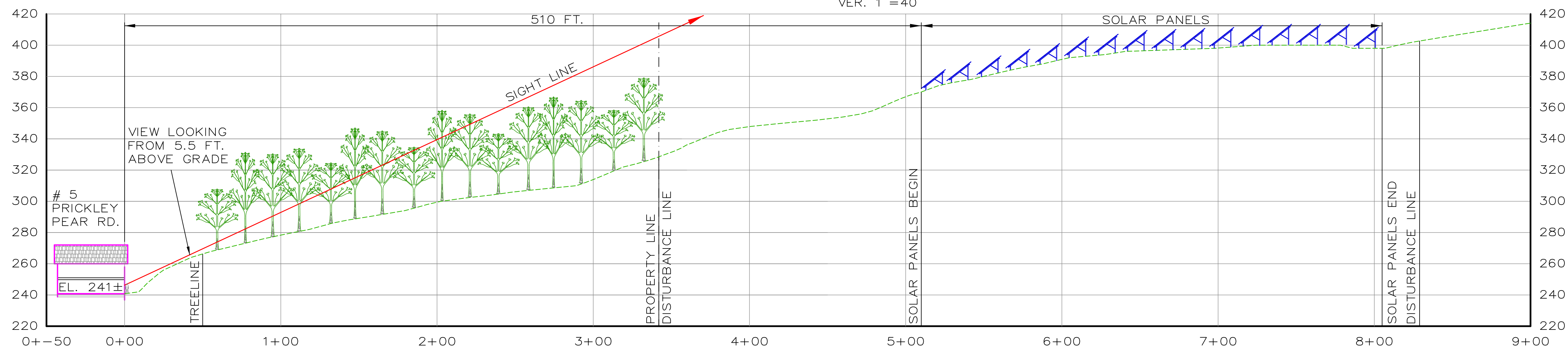
SHEET 2 OF 5 SHEETS



SECTION 'D' VIEW LOOKING WEST
FROM 12 PRICKLEY PEAR RD.
SCALE: HOR. 1"=40'
VER. 1"=40'



SECTION 'E' VIEW LOOKING NORTH
FROM 4 PRICKLEY PEAR RD.
SCALE: HOR. 1"=40'
VER. 1"=40'



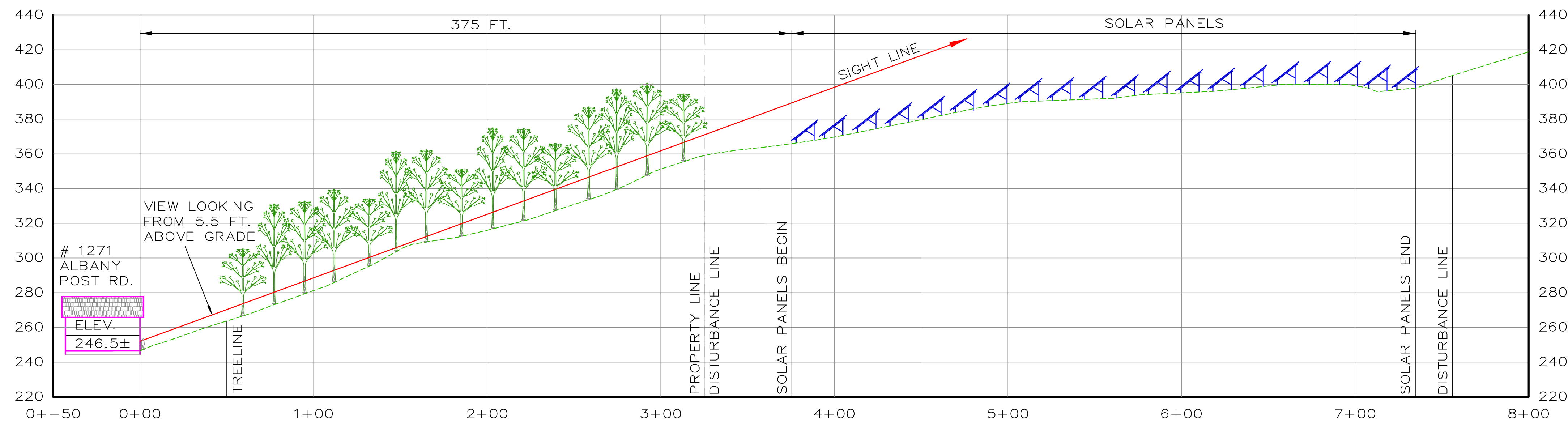
SECTION 'F' VIEW LOOKING NORTH
FROM 5 PRICKLEY PEAR RD.
SCALE: HOR. 1"=40'
VER. 1"=40'

Unauthorized alterations or additions to this drawing is a violation of Section 7209 (2) of the New York State Education Law.

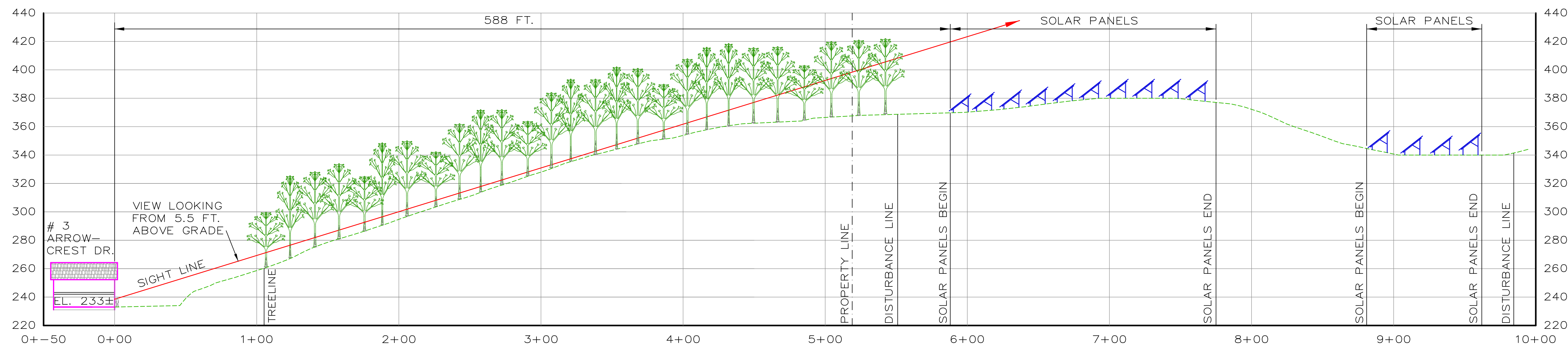
RALPH G. MASTROMONACO, P.E., P.C.
Consulting Engineers
13 Dove Court, Croton-on-Hudson, New York 10520
(914) 271-4762 (914) 271-2820 Fax

VIEWS LOOKING FROM
ADJACENT PROPERTIES
AT
POTENTIAL SOLAR
PANEL LOCATIONS
PREPARED FOR
HUDSON NATIONAL GOLF CLUB
VILLAGE OF CROTON-ON-HUDSON
TOWN OF CORTLANDT
WESTCHESTER COUNTY, NY
FEBRUARY 25, 2020

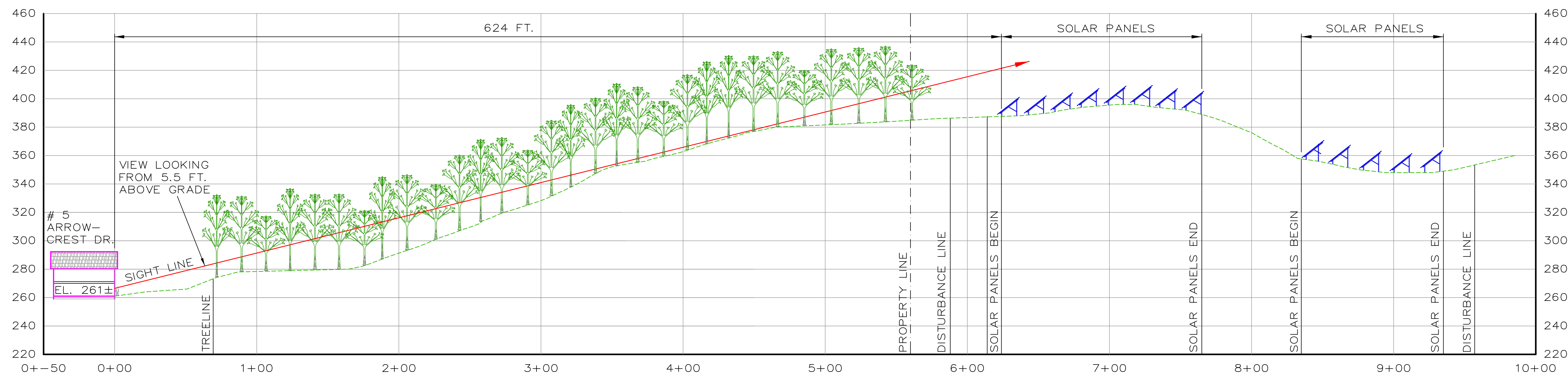
SHEET 3 OF 5 SHEETS



SECTION 'G' VIEW LOOKING NORTH
FROM 1271 ALBANY POST RD.
SCALE: HOR. 1"=40'
VER. 1"=40'



SECTION 'H' VIEW LOOKING EAST
FROM 3 ARROWCREST DRIVE
SCALE: HOR. 1"=40'
VER. 1"=40'



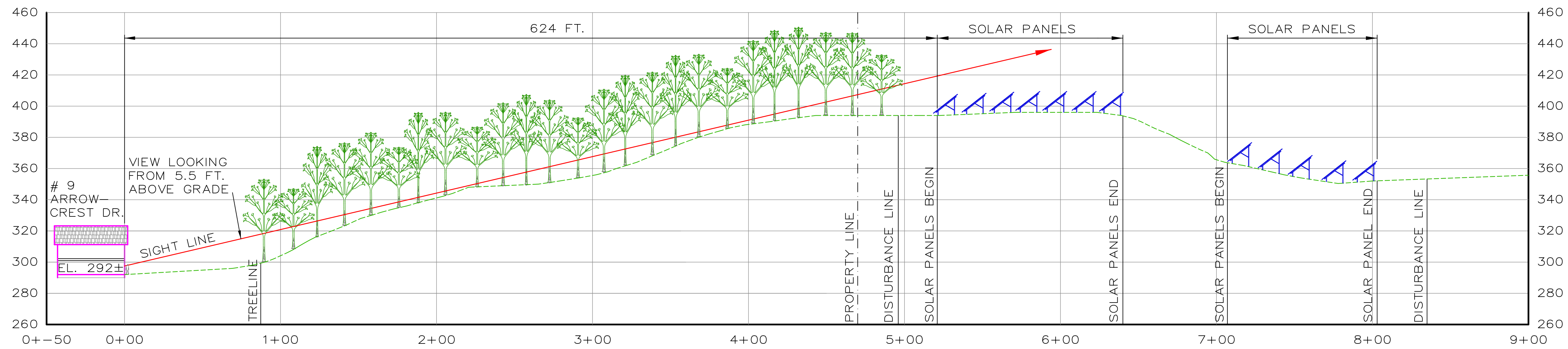
SECTION 'I' VIEW LOOKING EAST
FROM 5 ARROWCREST DRIVE
SCALE: HOR. 1"=40'
VER. 1"=40'

Unauthorized alterations or additions to this drawing is a violation of Section 7209 (2) of the New York State Education Law.

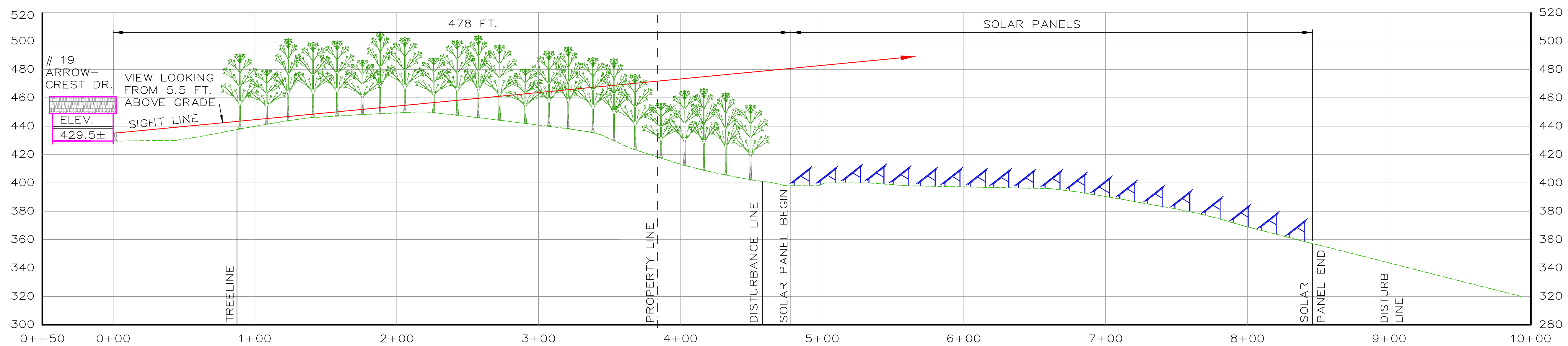
RALPH G. MASTROMONACO, P.E., P.C.
Consulting Engineers
13 Dove Court, Croton-on-Hudson, New York 10520
(914) 271-4762 (914) 271-2820 Fax

VIEWS LOOKING FROM
ADJACENT PROPERTIES
AT
POTENTIAL SOLAR
PANEL LOCATIONS
PREPARED FOR
HUDSON NATIONAL GOLF CLUB
VILLAGE OF CROTON-ON-HUDSON
TOWN OF CORTLANDT
WESTCHESTER COUNTY, NY
FEBRUARY 25, 2020

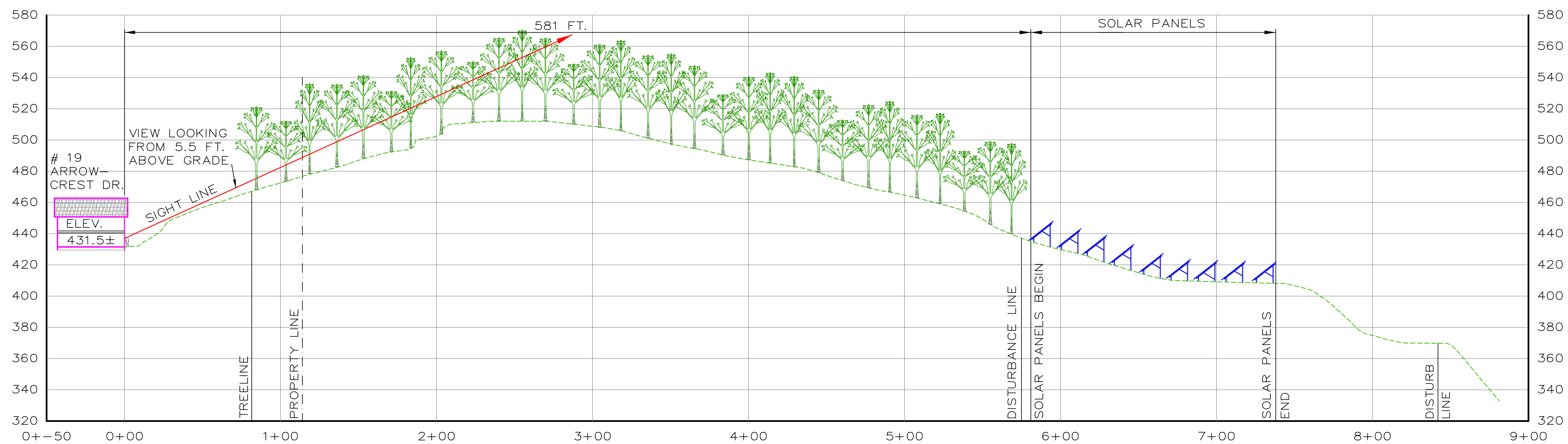
SHEET 4 OF 5 SHEETS



SECTION 'J' VIEW LOOKING EAST
FROM 9 ARROWCREST DRIVE
SCALE: HOR. 1"=40'
VER. 1"=40'



SECTION 'K' VIEW LOOKING SOUTH
FROM 19 ARROWCREST DRIVE
SCALE: HOR. 1"=40'
VER. 1"=40'

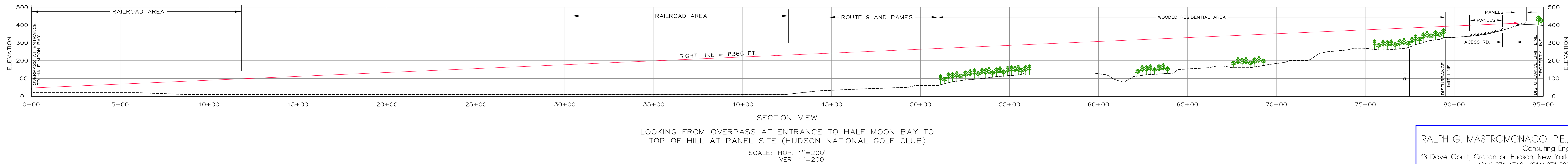
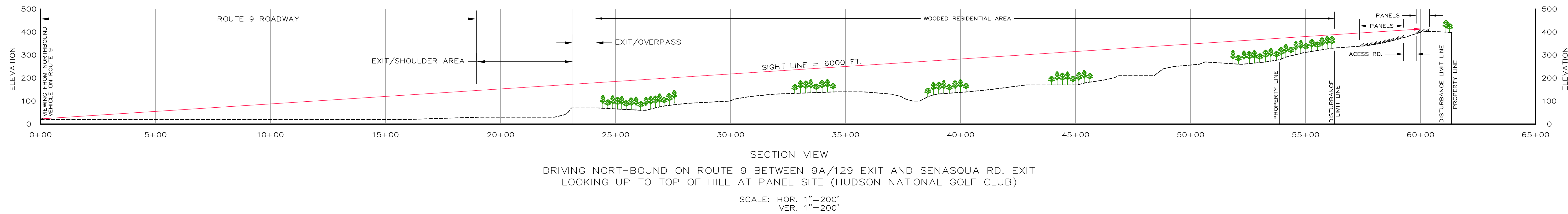


SECTION 'L' VIEW LOOKING EAST
FROM 19 ARROWCREST DRIVE
SCALE: HOR. 1"=40'
VER. 1"=40'

RALPH G. MASTROMONACO, P.E., P.C.
Consulting Engineers
13 Dove Court, Croton-on-Hudson, New York 10520
(914) 271-4762 (914) 271-2820 Fax

VIEWS LOOKING FROM
ADJACENT PROPERTIES
AT
POTENTIAL SOLAR
PANEL LOCATIONS
PREPARED FOR
HUDSON NATIONAL GOLF CLUB
VILLAGE OF CROTON-ON-HUDSON
TOWN OF CORTLANDT
WESTCHESTER COUNTY, NY
FEBRUARY 25, 2020

SHEET 5 OF 5 SHEETS



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program

625 Broadway, Fifth Floor, Albany, NY 12233-4757

P: (518) 402-8935 | F: (518) 402-8925

www.dec.ny.gov

December 15, 2020

Michael Doud
Matrix Development
153 Mercer Street #4
New York, NY 10012

Re: Prickley Pear Solar
County: Westchester Town/City: Cortlandt

Dear Mr. Doud :

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 3 Office, Division of Environmental Permits, at dep.r3@dec.ny.gov.

Sincerely,



Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program



**The following state-listed animals have been documented
in the vicinity of the project site.**

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed.

For information about any permit considerations for the project, please contact the NYSDEC Region 3 Office, Department of Environmental Permits, at dep.r3@dec.ny.gov, (845) 256-3054.

The following species have been documented in the Lower Hudson River and so could occur in the vicinity of the project site.

<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>NY STATE LISTING</i>	<i>FEDERAL LISTING</i>	
Fish				
Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Endangered	Endangered	1091
Atlantic Sturgeon	<i>Acipenser oxyrinchus</i>	No Open Season	Endangered	11464

This report only includes records from the NY Natural Heritage database.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.



TERRAS**SMART**®

GROUND SCREW SPECIFICATION SHEET

KSF G 76x2100-3xM16

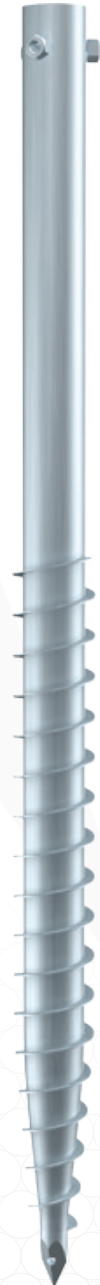
Material:	Steel tube 1. ASTM A500, Grade B, or 2. EN 10219 S235 JRH
Finish:	Hot Dip Galvanized (min 2.8 mils thick) 1. ASTM A123 2. ISO 1461
Nominal Length:	82 inches
Shank Diameter:	3 inches
Wall Thickness:	0.145 inches (8 gauge)
Weight:	31 lbs
Warranty:	20-year limited warranty
Quality:	Patented body formed from a single steel pipe. Continuous spiral thread around shank. Forged chisel-tip for insertion into soil, including rock.

DESIGN CAPACITIES

Max Down Force:	10,125 lbs
Max Up Force:	7,313 lbs
Max Lateral Force:	2,588 lbs
Max Moment:	2,499 lb.-ft.

Note: The design capacities shown were derived from extensive testing in medium dense soils and include a safety factor of 1.5. The tests were performed to replicate typical loading conditions.

TerraSmart recommends that a geotechnical soil composition analysis and an on-site ground screw load test be performed on all projects to determine the most economical screw selection for large-scale projects. The quantity and size of ground screws should be designed to support the structure and all applicable loads, including wind, snow, and other loads. Bending moments in soil were calculated from the application point of the horizontal force when installed with approximately 20 inches of shank exposed.





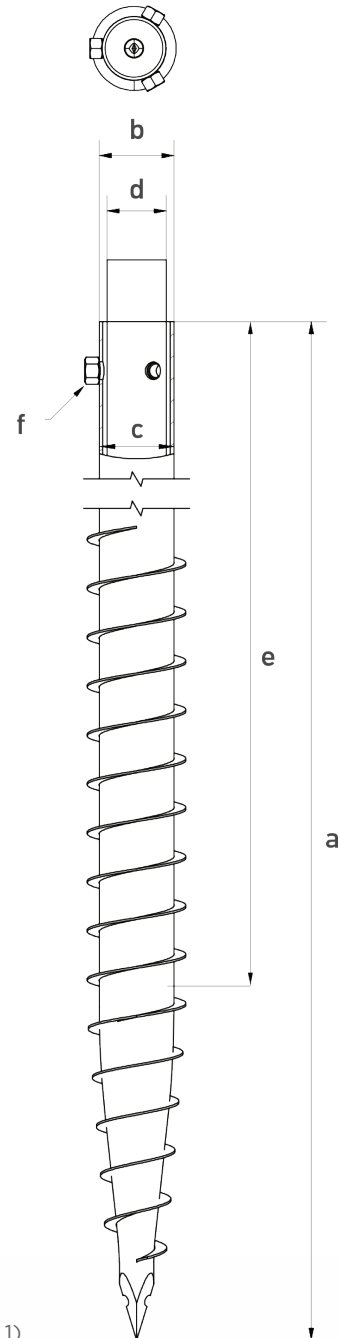
TERRAS**SMART**®

GROUND SCREW SPECIFICATION SHEET

KSF G 76x2100-3xM16

SIDE VIEW (Fig 1)

a.	Length	82.0"
b.	Outside Diameter	3.0"
c.	Inside Diameter	2.67"
d.	Internal Adjustment	2.36"
e.	Depth	59.0"
f.	Adjustment Nuts	3 x M16



(Fig 1)



Megapack is an all-in-one utility-scale energy storage system that is scalable to the space, power, and energy requirements of any site from 1 MWh to over 1 GWh. Megapack is optimized for cost, performance, and ease of installation, and includes a standard system warranty of up to 15 years.

FULLY INTEGRATED SYSTEM

Megapack ships with battery modules, bi-directional inverter, thermal management system, and AC main breaker all pre-installed and pre-tested within a single enclosure. This turnkey system is designed to have the industry's fastest, lowest cost installation without sacrificing performance or reliability.

OPTIMIZATION SOFTWARE

Proprietary optimization software, developed in parallel with the Megapack hardware, learns and predicts local energy patterns, offering autonomous charge and discharge and seamless SCADA integration. Fast-response controls can integrate co-located renewables and enable market participation.

ENHANCED SYSTEM SAFETY

Parallel DC/DC converters, integrated heating and cooling at the cell level, and dedicated hazard venting are just a few of the safety and hazard mitigation features built into Megapack. Designed to meet international safety standards, Megapack helps ensure ease-of-permitting wherever it's installed.

INDUSTRY-LEADING RELIABILITY

A vertically integrated product from hardware design and sourcing to software development, Megapack offers significant reliability advantages over the competition. These design advantages are exemplified by a cooling system optimized specifically for Megapack that provides superior heating and cooling while factoring its HVAC energy consumption into its performance, and module-level DC/DC converters that can keep the system running uninterrupted in case of a partial failure.

LOWEST ENGINEERING, PROCUREMENT, AND CONSTRUCTION (EPC) COSTS

Megapack is shipped onsite fully assembled and pre-tested, offering customers the world's fastest utility-scale energy storage installation. Once on site, Megapack only requires seismic anchoring and connection of AC conductors and a communication cable. The EPC benefit is clear: no other current utility-scale solution offers such a simplified process.

GLOBAL SERVICE FOOTPRINT

As a vertically integrated manufacturer and supplier, Tesla provides a streamlined service offering on all components of Megapack. With Tesla, customers enjoy a single point of contact through all stages of product life. Our operational fleet of 2+ GWh provides valuable data that informs our maintenance models and our performance guarantees, and the entire Megapack system is covered by a standard warranty of up to 15 years, with the option of a 20-year Capacity Maintenance Agreement (CMA) in certain cases.

MEGAPACK SPECIFICATIONS

Specifications are subject to change.

Flexible offering designed for utility-scale projects

- Modular inverter Powerstages allow greater configuration flexibility
- Supports Capacity Maintenance Agreements (CMA)

Proven inverter and battery technology drives design efficiency

- One Megapack includes up to 17 independent battery modules
- Configurable for 2 to 6+ hour continuous charge/discharge
- Best-in-class round-trip efficiency and thermal system performance

Turnkey solution enables rapid and cost-effective deployment

- Up to 40% expected reduction in EPC costs compared to Powerpack
- Pre-assembled and pre-tested at Tesla's Gigafactory
- No DC connections required onsite



STANDARD SYSTEM SPECIFICATIONS

Megapack is a customizable energy system capable of being sized according to customer needs.

AC Power / Energy Available per Megapack ¹	2-hour: Up to 1341 kW / 2682 kWh (Scalable in increments of 89.4 kW / 178.8 kWh)
	4-hour: Up to 770.1 kW / 3080.4 kWh (Scalable in increments of 45.3 kW / 181.2 kWh)

Below are specifications for selected system sizes. A light Megapack is optimized for global payload limits. A standard Megapack has the maximum number of energy modules.

	AC Power / Energy Available per Megapack ¹	Round-Trip System Efficiency ¹
2-Hour Standard	1341 kW / 2682 kWh	87%
2-Hour Light	1072.8 kW / 2145.6 kWh	
4-Hour Standard	770.1 kW / 3080.4 kWh	90%
4-Hour Light	543.6 kW / 2174.4 kWh	

¹Nominal energy and RTE at 25°C (77°F) including thermal management loads, Day 1

ELECTRICAL

Inverter Size (at 480 V AC)	2-hour: Up to 1573 kVA 4-hour: Up to 929.5 kVA (Scalable in increments of 71.5 kVA)
Inverter Size (at 505 V AC)	2-hour: Up to 1654.9 kVA 4-hour: Up to 977.9 kVA (Scalable in increments of 75.224 kVA)
AC Voltage	380-505 V AC 3-phase
Nominal Frequency	50 or 60 Hz

MECHANICAL AND MOUNTING

Ingress Ratings	IP66/NEMA 3R (Main enclosure) IP20 (Thermal system)
Enclosure Dimensions	W: 7168 mm (282 1/4 in) D: 1659 mm (65 1/4 in) H: 2522 mm (99 1/4 in)
Maximum Shipping Weight	Standard: 25,400 kg (56,000 lb) Light: 18,600 kg (41,000 lb)
Operating Ambient Temperature	-30°C to 50°C (-22°F to 122°F)

REGULATORY (Expected Listings)

Lithium-Ion Cells	NRTL listed to UL 1642
System	NRTL listed to UL 1973, UL 9540, UL 9540A, UL 1741 SA, IEC 62619, IEC 62477-1 IEEE 1547 Compliant to grid codes and safety standards of all major markets

COMMUNICATIONS

Protocol	Modbus TCP / DNP3 / Rest API
----------	------------------------------

PART NUMBER

Megapack (all variants)	1462965-XX-Y (C00Z) (Where X is a number between 0-9, Y is a letter, and Z is a number greater than 1. Changes to these do not affect product ratings.)
-------------------------	--

DECOMMISSIONING PLAN

SOLAR ARRAY SYSTEM AT

**Hudson National Golf Course
40 Arrowcrest Drive
Croton-on-Hudson, NY 10520**

Prepared By:
**Matrix Development, LLC
Prickly Pear Solar, LLC
18 Pasture Pl.
Ballston Lake, NY
12019**

November 15, 2021

Table of Contents

1 Executive Summary 2

2 Decommissioning..... 2

2.1 Dismantling PV Modules, Racks and Supports..... 2

2.2 Dismantling Electrical Equipment and Foundations 3

2.3 Dismantling Driveways..... 3

2.4 Other Components 3

2.5 Decommissioning Cost Estimate 4

2.6 Decommissioning Schedule 5

3 Erosion and Sediment Control Plan..... 4

3.1 Erosion and Sediment Control Measures 4

3.2 Pollution Prevention Controls..... 4

3.3 Inspections and Maintenance 5

3.3.1 Trained Contractor Requirements..... 5

3.3.2 Qualified Inspector Requirements..... 5

4 Waste Disposal 6

5 Restoration of Land 6

5.1 General 6

5.1 Tree Restoration Plan 6

6 Emergency Response and Communications Plans 7

7 Permit and Approvals..... 7

1 Executive Summary

Decommissioning will occur as a result of any of the following conditions:

- The land lease expires or is terminated; or
- The solar energy system (SES) does not produce power for a period of 12 consecutive months.

The site activity impacts will be similar to the construction phase, but in reverse sequence. Decommissioning of electrical devices, equipment and wiring/cabling will be conducted in accordance with local, municipal, state, and federal standards and guidelines. Electrical decommissioning will include obtaining the required permits and following procedures before de-energizing, isolating, and disconnecting electrical devices, equipment and wiring/cabling.

The procedures will include the following:

- The creation of temporary work areas. In order to provide sufficient area for the laydown of the disassembled panels and racking and loading onto trucks, gravel may be placed on a clear, level area that is accessible.
- Equipment will include, at a minimum:
 - The use of telehandlers to remove the panels, racking, inverters, and transformers.
 - The use of trucks for removal of panels, racking, inverters, and transformers.
- Driveways or access roads will be removed unless property owner requests them left in place. If removed, gravel access roads will be removed and replaced with soil for reuse by the landowner.

Erosion and sediment control measures, similar to those used during construction will be implemented and maintained by performing contractor.

2 Decommissioning

2.1 Dismantling PV Modules, Racks and Supports

Modules will be disconnected, removed from the racks and transported to a designated location for resale, recycling or disposal. If the modules are not resold or reused, they will be properly disposed based on regulations set forth by the authority of proper jurisdiction at the time of decommissioning. It is the applicants desire to the extent practical to ensure the panels are reused if the system is decommissioned or becomes obsolete. The connecting cables, and the junction boxes will be de-energized, disconnected and removed.

Steel racks supporting the modules will be unbolted and disassembled using standard hand tools, possibly assisted by use of other construction equipment. The vertical steel posts supporting the racks and steel support posts (driven or screwed) will be removed by mechanical equipment and transported off-site for salvage (driven piles) or reuse (screw piles).

Any demolition debris that is not salvageable will be transported by truck to an approved offsite disposal area. Other salvageable equipment and/or material will be removed from the site for resale, scrap value or disposal depending on market conditions.

2.2 Dismantling Electrical Equipment and Foundations

Decommissioning of electrical devices, equipment, and wiring/cabling will be in accordance with local, municipal, provincial and federal agency standards and guidelines. Electrical decommissioning will include obtaining the required permits, and following before de-energizing, and disconnecting electrical devices, equipment and wiring/cabling.

Decommissioning will require dismantling and removal of the electrical equipment, including inverters, transformers, cables and overhead lines, and prefabricated inverter enclosures, unless property requests some or all of the equipment to remain. The equipment will be disconnected and transported off-site by truck. The concrete foundations and support pads may be broken up by mechanical equipment (backhoe-hydraulic hammer/shovel, jackhammer), loaded onto dump trucks and removed from the site, at the request of the property owners; and smaller pre-cast concrete support pads may be removed intact by cranes and loaded onto trucks for reuse or be broken up and hauled away by dump trucks.

Equipment and material may be salvaged for resale or scrap value depending on the market conditions.

2.3 Dismantling Access Roads

The gravel may be removed or left in place at the property owner's request. If removed, the gravel will be placed in dump trucks to haul the aggregate to an offsite location. Clean topsoil would be replaced over this area to match the surrounding grade. Unless explicitly requested by property owner and seasonality of decommissioning timing, access road areas will be returned to a similar pre-construction condition with 12 months of decommissioning.

2.4 Other Components

Unless retained for other purposes, and at the request of the property owners, removal of other facility components from the site will be completed, including but not limited to surface drains, culverts, and fencing. Anything deemed usable shall be recovered and reused. Other remaining components will be considered as waste and managed according to federal, provincial and municipal requirements. For safety and security, the security fence will be the final component dismantled and removed from the site.

Concrete piers, footers or other supports must be removed to a depth of 48-inches below the soil surface. Underground electric lines must be abandoned in place. Access roads will be removed, unless otherwise specified by the landowner.

2.5 Decommissioning Costs

Solar System Assumptions	
System Size (wattage)	1,950,000
Module Size (wattage)	475
# of Modules	4,105
Racking Tables (5 x 4)	205
# Racking Screws (4 per table)	821
Decommissioning Labor Cost (\$\$/man-hr.)	\$90.00
Salvage Weight (lbs./watt)	0.026351

ITEM	DESCRIPTION OF ITEM	QUANTITY	UNIT	UNIT COST	TOTAL
DISASSEMBLY & DISPOSAL					
1.0	PV Modules	4,105	EA.	\$5.33	\$ 21,881.05
2.0	Inverter(s)	11	EA.	\$271.00	\$ 2,981.00
3.0	Transformer	0	EA.	0	\$ -
4.0	Racking Frame	205	EA.	\$260.00	\$ 53,368.42
5.0	Racking Screws	821	EA.	\$50.00	\$ 41,052.63
6.0	LV Wiring	3020	LF	\$1.50	\$ 4,530.00
7.0	MV Wiring	300	LF	\$3.50	\$ 1,050.00
8.0	Fiber Optic Cable	300	LF	\$0.66	\$ 198.00
9.0	Fence	3480.0	LF	\$2.50	\$ 8,700.00
10.0	Concrete	8.5	CY	\$200.00	\$ 1,700.00
11.0	Gravel	560	CY	\$40.00	\$ 22,400.00
12.0	General Conditions	2	MW	\$3,822.00	\$ 7,644.00
				SUBTOTAL	\$165,505.11
SITE RESTORATION					
13.0	Re-Seeding (drives & fenced area)	8	AC	\$3,924.00	\$ 31,392.00
14.0	Re-Grading (access path only)	60	CY	\$120.00	\$ 7,200.00
				SUBTOTAL	\$ 38,592.00
SALVAGE					
15.0	Racking (Frame & Screws)	51,384.45	LBS.	\$0.09	4,624.60
16.0	Solar Panels	4,105	EA.	15.576	63,943.58
				SUBTOTAL	68,568.18
SUBTOTAL - Disassembly, Disposal and Site Restoration					\$204,097.11
TOTAL - Salvage Value					(68,568.18)
NET DECOMMISSIONING COST					\$135,528.93
10 % Contingency					\$ 13,552.89
TOTAL - Decommissioning Costs					\$149,081.82

ASSUMPTIONS/EXCLUSIONS:

- 17.0 LV & MV Wiring quantities are estimates only since the project has not been fully designed.
- 18.0 Line item #9.0 includes removal of fence and all appurtenances, including but not limited to footings, posts and barbed wire.
- 19.0 Line item #13.0 includes re-seeding of the driveway area (after stone removal), concrete pads and reseeding within the fenced area as a result of

2.6 Decommissioning Schedule

At an appropriate time which will be mutually determined in writing with the Village of Croton-on-Hudson, the owner and operator shall begin the process of decommissioning and site restoration. It is anticipated that all decommissioning activities will be concluded with 365 days from receiving written notification from the Village Attorney, unless otherwise mutually determined between both parties. Decommissioning schedule shall also include repairing damage caused by installation of decommissioning activities. The solar system is expected to be fully operational at the end of the 25 year Site Plan Approval period and that both parties may seek to extend site plan approval based on the significant environmental benefits offered at the time. Owner may request a 1 year extension, which shall not be unreasonably withheld by the Village of Croton-on-Hudson, to either finalize a Site Plan Approval extension with the Village or complete certain site restoration that impacted by seasonal weather conditions.

3 Erosion and Sediment Control Plan

3.1 Erosion and Sediment Control Measures

Temporary erosion and sediment control measures to be used during decommissioning construction generally include the following:

- Stabilized construction access.
- Dust control.
- Temporary soil stockpiles.
- Silt fencing.
- Temporary seeding.

Once decommissioning is completed, disturbed areas shall be seeded within 14 days after completion of the land disturbing activities. Final site stabilization is achieved when soil-disturbing activities have been completed and a uniform, perennial vegetative cover with a density of 80 percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on the disturbed unpaved areas and areas not covered by permanent structures.

3.2 Pollution Prevention Controls

Good housekeeping practices are designed to maintain a clean and orderly work environment. Good housekeeping measures shall be maintained throughout the construction process by those parties involved with the direct care and development of the site. The following measures shall be implemented to control the possible exposure of harmful substances and materials to stormwater runoff:

1. Soil stockpile locations shall be located away from storm drainage, water bodies or watercourses and surrounded with adequate erosion and sediment control measures. Soil stockpile locations shall be exposed no longer than 14 days before seeding.

2. Equipment maintenance areas shall be protected from stormwater flows and shall be supplied with appropriate waste receptacles for spent chemicals, solvents, oils, greases, gasoline, and any pollutants that might contaminate the surrounding habitat or water supply. Equipment wash-down zones shall be within areas draining to sediment control devices.
3. The use of detergents for large-scale (e.g., vehicles, buildings, pavement surfaces) washing will be prohibited.
4. Material storage locations and facilities (e.g., covered storage areas, storage sheds) shall be on-site and shall be stored according to the manufacturer's standards in a dedicated staging area. Chemicals, paints, solvents, fertilizers, and other toxic material shall be

stored in waterproof containers. Runoff containing such materials shall be collected, removed from the site, treated and disposed of at an approved solid waste or chemical disposal facility.

5. Hazardous spills shall be immediately contained to prevent pollutants from entering the surrounding habitat or water supply. Spill Kits shall be provided on site and shall be displayed in a prominent location for ease of access and use. Spills greater than 5 gallons shall be reported to the NYSDEC Response Unit at 1-800-457-7362. In addition, a record of the incidents or notifications shall be documented and attached to the SWPPP.
6. Portable sanitary waste facilities shall be provided on site for workers and shall be properly maintained.
7. Dumpsters or debris containers shall be on site and shall be of adequate size to manage respective materials. Regular collection and disposal of wastes must occur as required.
8. Non-stormwater components of site discharge shall be clean water. Water used for construction, which discharges from the site, must originate from a public water supply or approved private well. Water used for construction that does not originate from an approved public supply must not discharge from the site.
9. Discharges from dewatering activities, including discharges from dewatering trenches and excavations, shall be managed by appropriate control measures.

3.3 Inspections and Maintenance

3.3.1 Trained Contractor Requirements

The trained contractor must inspect the erosion and sediment control practices and pollution-prevention measures to verify that they are being maintained in effective operating condition during the construction of the project. The inspections will be performed daily in the active work area. If deficiencies are identified, the contractor will begin implementing corrective actions within two business days and must complete the corrective actions by the end of the day.

3.3.2 Qualified Inspector Requirements

The site contractor must have a Qualified Inspector conduct site inspections to verify the stability and effectiveness of protective measures and practices employed during construction. The site inspections will be conducted at least once every seven days.

Inspection reports must identify and document the maintenance of the erosion and sediment control measures. If deficiencies are identified, the contractor will begin implementing corrective actions within two business days and must complete the corrective actions by the end of the day.

4 Waste Disposal

As discussed above, the waste generated by the installation, operation and decommissioning of The Project is minimal, and there are no toxic residues. Any wastes generated will be disposed of according to standards of the day with the emphasis of recycling materials whenever possible.

5 Restoration of Land

5.1 General

The agricultural use of the areas will be restored by:

- Site cleanup.
- Any excavation and/or trenching caused by the removal of building or equipment foundations, rack supports and underground electrical cables will be backfilled with the appropriate material and leveled to match the ground surface.
- Driveways will be removed completely, filled with suitable sub-grade material and leveled. Topsoil will be placed on these areas to restore agricultural capability.
- Any compacted ground will be tilled, mixed with suitable sub-grade materials and leveled.

5.1 Tree Restoration Plan

At the conclusion of the mechanical disassembly and regrading, trees will be replanted on a 1 to 1 ratio to the healthy trees removed, excluding invasive species. Replanting will contain an assortment of native hardwood species, including oaks (*Quercus* spp.), hickory (*Carya* spp.) birch (*Betula* spp.), American beech (*Fagus grandifolia*), and Sugar maple (*Acer saccharum*). Spacing will be consistent with published requirements for each species and collectively for groups of plantings. A final tree restoration site plan will be submitted to the Village of Croton for review and approval as a condition of Site Plan approval.

6 Emergency Response and Communications Plans

Prior to initiating any decommissioning activities, Prickly Pear Solar, LLC will notify authorities having jurisdiction and relevant government agencies of their intent to decommission the equipment. Copies of a emergency response plan, developed in conjunction with the local emergency services, will be provided to the local municipality prior to the commencement of operations. A plan specific to the project will be developed during the construction phase of and will be applicable to both the operations and decommissioning phases of the project.

During decommissioning, Prickly Pear Solar, LLC will coordinate with the local authority, the public and others as required to provide them with information about the ongoing activities. Contact information signage for general inquires or emergency purposes will be posted at the gate of the solar facility which will include (telephone number, e-mail and mailing address)

7 Permit and Approvals

Decommissioning activities are not expected to disturb more than one or more acres of land. Therefore, coverage under the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System ("SPDES") General Permit for Stormwater Discharges from Construction Activity (General Permit) latest revision will not be required prior to commencement of decommissioning. If during disturbance limits change during the planning process, the performing contractor shall obtain the necessary permits and approvals including but not limited to SPDES General Permit. Erosion and sediment control inspections will be preformed in accordance with approvals.

MATRIX DEVELOPMENT, LLC

153 Mercer Street, #4
New York, New York 10012



November 23th, 2021

Attn: Mayor Pugh
Croton-On-Hudson Planning Board
1 Van Wyck Street
Croton-on-Hudson, NY 10520

RE: Chazen's Engineering Review & Public Comment Review

Dear Mayor Pugh,

On behalf of Matrix Development, LLC. and Prickly Pear Solar, LLC. the following letter is in response to Chazen's Engineering Review Memorandum dated October 29th, 2021 and the subsequent Public Comment Review Memorandum dated November 22nd, 2021. As the applicant of the proposed Community Solar Energy System, we hope to clarify the questions generated by Chazen's review.

Chazen's Public Comment Review

- 1) Public Comment: Email and View Study from Susan Ealer:

Matrix Response: Further information not requested.

- 2) Public Comment: Email from Sharon Lazarov, November 7, 2021

Matrix Response: Further information not requested.

- 3) Email from John Ealer, November 4, 2021

Matrix Response: The information is a duplication from Chazen Engineering Review letter dated 10-29-2021 which will be addressed by Matrix's November 23rd, 2021 submission to the Village of Croton-On- Hudson and inclusive of a comprehensive bat habitat study.

- 4) Concern over sequestration of Greenhouse Gases

Matrix Response: Chazen has previously reviewed estimated kilowatt-hours generation and corresponding carbon sequestration calculations on November 20, 2020 and December 8, 2020 for the Village of Croton-On-Hudson Planning Board. Please refer to Matrix's response dated December 8th, 2020 for further information. A copy of the letter has been included for convenience.

Additional Questions:

- 1) Has the applicant submitted a copy of a draft or final interconnection agreement with ConEdison?

MATRIX DEVELOPMENT, LLC

153 Mercer Street, #4
New York, New York 10012



Matrix Response: Matrix has executed an Interconnection agreement with Consolidated Edison (ConEd). A copy has been provided for the record. The approved generator capacity is 1.375 megawatts(ac).

- 2) Is the total electric production number based on the nameplate capacity or an actual production model?

Matrix Response: As outlined in Matrix's December 8th, 2020 response letter to the Planning Board, communicated production values are estimates only and highly dependent on actual solar panels procured and many other variables. The values provided are based on both nameplate capacity and production models.

- 3) If an electrical production model is used to determine the annual output, what assumptions are made on the loss of power generating capacity due to the age of the system? Wouldn't the carbon sequestration in year 25 be less than that in year 1? It would be helpful to see the difference in the year 1 and year 25 values.

Matrix Response: Actual degradation rates of existing solar panel technology vary. We estimate production will be 90% of the factory flash test value in 25 years. However, if the proposed solar panels only produced 50% of their rated capacity in year 25, the carbon sequestration benefit of the solar panels at year 25 would be more than fifty to hundred times greater than 6.5 acres of existing forest the array will disturb. Again, there are a number of variables including the density of the forest, type of trees and equipment selection that affect the absolute carbon sequestration value. Generally, all reputable solar panel manufactures offer a standard a minimum production warranty of 85% of nameplate capacity at year 25 and will achieve a useful life of 35 years or beyond.

Chazen Engineer Review Memo dated 10-29-2021

- 6) Array 1 contains a dead-end access drive over 850 feet in length without a hammerhead or other turnaround area. The local Fire Department should be consulted to verify that this is acceptable. Additionally, the Fire Department should be asked to comment on the width, slope, and proposed surface of the access paths.

Matrix Response: We have attempted to contact Fire Department several times with no response. Emailed Chief Dinkler on February 8th, 2021 and November 7th, 2021 @ info@crotonfd.org and washingtonengine@crotonfd.org. Called on February 8th and November 17, 2021 as well. Meetings are held at the Harmon Firehouse located at 30 Wayne Street, Croton, NY 10520.

- 9) It appears from Sheet 6 of 6 that the proposed solar panels will be mounted on driven piles. Please verify the foundation type.

Matrix Response: As previously submitted to the Planning Board, Matrix is planning to use Terrasmarts ground screw foundation technology subject to availability.

- 13) Please indicate the location of the proposed fence around the electrical equipment.

MATRIX DEVELOPMENT, LLC

153 Mercer Street, #4
New York, New York 10012



Matrix Response: In consultation with the Planning Board we have agreed to remove the fence around the array, subject to code enforcement approval, to allow for wildlife access to these areas. A 7' foot high chain-link fence will be installed around the electrical distribution equipment inhibit access of unskilled or unauthorized personnel and public.

Additional Comment: At the last Village Trustee meeting, the board asked Matrix why the solar installation cannot feasibly be located elsewhere on the 250+ Club property?

Matrix Response: Matrix preformed a comprehensive site plan review of Hudson National Golf Course property to determine potential locations for the proposed solar array. Through a process of elimination, the proposed location was selected due to the proximity to Consolidated Edison's customer connection point. Extending the Consolidated Edison's distribution infrastructure up to ½ a mile from the customer connection point to other locations on the golf course were cost prohibitive

Attachments:

- 1) Matrix's Response letter to Chazen's Energy Review
- 2) Consolidated Edison Interconnection Agreement
- 3) Terrasmart ground screw datasheet

Regards,

A handwritten signature in black ink, appearing to read "Michael Doud", written in a cursive style.

Michael Doud
Matrix Development, LLC.
Director of Development
(518) 727-6219
mdoud@matrixdevllc.com

MATRIX DEVELOPMENT, LLC

153 Mercer Street, #4
New York, New York 10012



December 8th, 2020

Attention: Chairman Luntz and Board Members
Croton-On-Hudson Planning Board
1 Van Wyck Street
Croton-on-Hudson, NY 10520

RE: Response to Chazen's Energy Review Memorandum dated Nov. 20th, 2020

Dear Mr. Luntz,

I am writing on behalf of Matrix Development, LLC. and Prickly Pear Solar, LLC. in response to Chazen's Energy Review Memorandum dated November 19th, 2020. As the applicant of the proposed solar array, we hope to clarify the questions generated by Chazen's review.

Chazen Comment #1:

Applicant claims that over 25 years the 1.86 MW PV system will produce 2,160,000 kwh of solar electricity annually. The kwh figure was presumably used as an input in the EPA's Greenhouse Gas Equivalencies Calculator for which the findings were included in the application. Chazen attempted to confirm the EPA calculations by inputting 2,160,000 kwh and received different/conflicting information. The Board may wish to ask 1) how 2,160,000 kwh was determined, and 2) confirm the kwh used in the EPA calculator.

Matrix Response #1:

Due to the complexity of the proposed application and ongoing conversations with ConEdison, the solar system wattage, energy production, mechanical configuration and equipment selection will evolve in unison with Planning Board evaluation. It's also the intention of the developer to optimize the solar system to maximize energy production and community benefit. More appropriately, until the solar panels are purchased the exact solar system wattage and energy production is unknown. Solar panel market conditions remain highly volatile which make it an impossibility to determine the exact wattage of the panel which indirectly affects total solar energy system wattage and energy production forecasting. For the benefit of the board, we provided the chart below to illustrate the most likely design scenarios and associated environmental attributes as calculated by the EPA Greenhouse Gas Equivalencies Calculator. It is important recognize equipment procurement will not change or exceed the disturbance limit as indicated on the contemplated final site plan. In other words, the larger system size does not correspond directly with a larger disturbance area. The solar panel coverage should remain relatively constant.

Design Scenarios	Solar Energy System Size (watts)	Annual Energy Production (kWhr)	CO ² Equivalent Avoided Annually (Tons)	CO ² Equivalent Avoided Lifetime (Tons)	Carbon Sequestered (Acres of Trees - 1yr)
Worst Case	1,750,000	2,030,000	1,582	39,550	1,874
Current Design	1,852,000	2,148,320	1,674	41,850	1,984
Best Case	1,950,000	2,262,000	1,763	44,075	2,089

MATRIX DEVELOPMENT, LLC

153 Mercer Street, #4
New York, New York 10012



Chazen Comment #2:

The Applicant cited the U.S. Department of Energy's Method for Calculating Carbon Sequestration by Trees in Urban and Suburban Settings as an information source. This source was presumably used for the carbon sequestration calculations provided in the Environmental Offset Summary. Further information/back up should be provided to assess the conclusions made by the Applicant.

Matrix Response #2:

The chart provided in "Matrix Response #1" should be used to determine environmental attributes and carbon related offsets. This information will supersede previous calculations of carbon offsets based the appropriate design scenarios. EPA carbon equivalencies summaries have been attached for each of the potential design scenarios.

Chazen Comment #3:

The Environmental Offset Summary includes (bullets 2 and 3) information on offsets of pounds of carbon equivalents and tons of carbon. Further information is needed to understand the basis for these conclusions. Similarly, additional information is needed to understand how offsets of carbon generation related to annual electricity use by homes and passenger cars is calculated.

Matrix Response #3:

Environmental Offsets outlined in "Matrix Response #1" has been calculated in "Tons" which is not to be confused with Metric Tons. We urge the board to consider EPA calculations to be a highly credible and independent verifiable source. Further evaluation of the EPA calculations beyond verifying the accuracy of the EPA Calculator inputs and corresponding outputs of the calculator would not be beneficial. We have attached EPA summary sheets that show both inputs and outputs of each design scenario.

Regards,

A handwritten signature in black ink, appearing to read "Michael Doud", written in a cursive style.

Michael Doud
Matrix Development, LLC.
Director of Development
(518) 727-6219
mdoud@matrixdevllc.com

If You Have Energy Data

If You Have Emissions Data

2030000

kilowatt-hours of electricity

Calculate

Equivalency Results

[How are they calculated?](#)

The sum of the greenhouse gas emissions you entered above is of Carbon Dioxide Equivalent. This is equivalent to:

1,582 Tons

Greenhouse gas emissions from

CO₂ emissions from

Greenhouse gas emissions avoided by



Carbon sequestered by



If You Have Energy Data **If You Have Emissions Data**

kilowatt-hours of electricity ▼

Calculate

Equivalency Results [How are they calculated?](#)

The sum of the greenhouse gas emissions you entered above is of Carbon Dioxide Equivalent. This is equivalent to:

1,674 Tons ▼

Greenhouse gas emissions from



CO₂ emissions from



Greenhouse gas emissions avoided by



Carbon sequestered by



If You Have Energy Data

If You Have Emissions Data

2262000

kilowatt-hours of electricity ▾

Calculate

Equivalency Results

[How are they calculated?](#)

The sum of the greenhouse gas emissions you entered above is of Carbon Dioxide Equivalent. This is equivalent to:

1,763 Tons ▾

Greenhouse gas emissions from

CO₂ emissions from

Greenhouse gas emissions avoided by



Carbon sequestered by



Prickly Pear Solar, LLC

Operations and Maintenance Plan
1.375 MWac Photovoltaic Solar Energy System

Date: 11/15/2021

1.0 Introduction:

Matrix Development is proposing to construct, own and operate a 1.8MWdc community solar system (Photovoltaic – PV) on a 12 acre parcel which will be subdivided from the Hudson National Golf Course. The proposed PV system will be accessed from Prickly Pear Hill Rd for long term operation and maintenance activities. Once constructed, the solar system will be monitored remotely by the system operator and Consolidated Edison. The system operator will contract Community Power Partners, affiliate or similar firm to subscribe the solar system and administratively manage all associated utility accounts for the life of the project. Scheduled and unscheduled periodic maintenance will be contracted to a local qualified electrical contractor to ensure safe, reliable power production. Vegetation management will also be sourced locally to maintain vegetation directly below the array and adjacent areas. Vegetation will be managed on a frequency that is consummate with the annual growth cycle to ensure ample solar access and safe operation of the array.

2.0 Emergency Contact Information: All emergency and non-emergency inquiries should be directed to the following parties.

Fire Department Emergencies:
Croton-on-Hudson Fire Department
Dial # 911

Utility Emergencies:
Consolidate Edison
(800) 752-6633

General Inquires:
Prickly Pear Solar LLC.
Michael Doud
(518) 727-6219

3.0 System Operation:

Emergency Health and Safety (EH&S):

Each PV array and associated electrical distribution equipment will be enclosed by a 7 foot chain link fence. Fenced areas will have service and vehicle access gates. Emergency contact information and Knox Box will be placed adjacent to each gate which will allow the local fire department (Washington Fire District) unrestricted access to address emergency situations. Prior full-time operation, all emergency and non-emergency service personnel will receive training by Matrix Development to provide awareness of the potential hazards associated with PV equipment and how to safely shutdown the PV system.

Utility Approval & Monitoring:

Consolidated Edison will review and approve the electrical connection of the PV array to the utility system. Once the PV system is fully constructed and inspected by a third-party electrical agency, Matrix will perform witness/system commissioning testing in coordination with Consolidated Edison (ConEd). Once ConEd authorizes exporting power to the utility system, ConEd will monitor PV system compliance with IEEE 1547 and NYS Standard Interconnection Requirements (SIR) for the duration of power generation.

PV System Monitoring:

The system operator will remotely monitor the PV array through a SCADA system designed to capture key engineering datapoints and maintenance information to ensure safe reliable power generation. The SCADA system will actively monitor the PV system through a variety of different online platforms and issue alerts that will be used to dispatch service personnel for unscheduled service calls.

4.0 Maintenance

Preventative Electrical Maintenance:

Photovoltaic (PV) systems are almost entirely designed with solid state electronics and have few moving parts. This has made PV systems highly reliable power generating assets that require minimal preventative maintenance. Post system commissioning, the following items will be checked on an annual basis;

- 1) Inverter air filters will be cleaned and/or replaced
 - 2) Thermal Imaging – electrical generation and distribution equipment will be scanned for hot spots and addressed as required.
 - 3) Mechanical connections and operators will be visually inspected and operated.
 - 4) Fire Extinguishers will be serviced, replaced and/or exchanged.
 - 5) Electrical cabling shall be visually inspected periodically.
 - 6) Vegetation Management – the overall site will be maintained to prevent shading of the array. This will include mechanical cutting or trimming of the ground vegetation and adjacent trees as required. The frequency of this activity will proactively and reactively to account for changes in growth cycles based on cyclical weather conditions. It's anticipated that a local landscape company will visit the site no more than two times per year to inspect and maintain the flora.
-

Unscheduled Maintenance:

Due to the maturity of PV technology, unscheduled maintenance is nominally infrequent and generally related to nuisance shutdowns of the inverters during electrical storms. Although, inverters can be restarted or reset remotely, it is likely that a local resource would be deployed to inspect the condition before restarting the inverter. Each event as communicated by the SCADA or inverter system will be evaluated on a case by case basis and addressed in accordance with solar industry best practices and standards.

APPENDIX A

NEW YORK STATE STANDARDIZED CONTRACT FOR INTERCONNECTION OF NEW DISTRIBUTED GENERATION UNITS AND/OR ENERGY STORAGE SYSTEMS WITH CAPACITY OF 5 MW OR LESS CONNECTED IN PARALLEL WITH UTILITY DISTRIBUTION SYSTEMS

Interconnection Customer Information:

Name:

Scott Sabbagh
Matrix Development, LLC

Address:

153 Mercer Street
#4
New York, NY 10012

Telephone:

(212) 775-8290

Fax:

Email:

ssabbagh@matrixrea.com

Unit Application/File No.:

LDG-01973

Utility Information:

Name:

Consolidated Edison Company of NY, Inc.

Address:

4 Irving Pl., New York, NY 10003

Telephone:

1-800-752-6633 (1-800-75-CONED)

Fax:

Email:

dgexpert@coned.com

Utility Account Number:

9999999999999999

DEFINITIONS

Delivery Service means the services the Utility may provide to deliver capacity or energy generated by the Interconnection Customer to a buyer to a delivery point(s), including related ancillary services.

Energy Storage System (ESS) means a commercially available mechanical, electrical, or electrochemical means to store and release electrical energy, and its associated electrical inversion device and control functions that may be stand-alone or paired with a distributed generator at a point of common coupling.

Interconnection Customer means the owner of the Unit.

Interconnection Facilities means the equipment and facilities on the Utility's system necessary to permit operation of the Unit in parallel with the Utility's system.

Premises means the real property where the Unit is located.

SIR means the New York State Standardized Interconnection Requirements for new distributed generation units with a nameplate capacity of 5 MW or less connected in parallel with the Utility's distribution system.

Unit means the distributed generation, stand-alone ESS, or combined generation and ESS facilities approved by the Utility for operation in parallel with the Utility's system. This Agreement relates only to such Unit, but a new agreement shall not be required if the Interconnection Customer makes physical alterations to the Unit that do not result in an increase in its nameplate generating capacity. The nameplate generating capacity or inverter/converter rating of the Unit shall not exceed 5 MW.

Utility means Consolidated Edison of New York, Inc. (Con Edison)

I. TERM AND TERMINATION

1.1 Term: This Agreement shall become effective when executed by both Parties and shall continue in effect until terminated.

1.2 Termination: This Agreement may be terminated as follows:

- a. The Interconnection Customer may terminate this Agreement at any time, by giving the Utility sixty (60) days' written notice.
- b. Failure by the Interconnection Customer to seek final acceptance by the Utility within twelve (12) months after completion of the utility construction process described in the SIR shall automatically terminate this Agreement.
- c. Either Party may, by giving the other Party at least sixty (60) days' prior written notice, terminate this Agreement in the event that the other Party is in default of any of the material terms and conditions of this Agreement. The terminating Party shall specify in the notice the basis for the termination and shall provide a reasonable opportunity to cure the default.
- d. The Utility may, by giving the Interconnection Customer at least sixty (60) days' prior written notice, terminate this Agreement for cause. The Interconnection Customer's non-compliance with an upgrade to the SIR, unless the Interconnection Customer's installation is "grandfathered," shall constitute good cause.

1.3 Disconnection and Survival of Obligations: Upon termination of this Agreement the Unit will be disconnected from the Utility's electric system. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of the termination.

1.4 Suspension: This Agreement will be suspended during any period in which the Interconnection Customer is not eligible for Delivery Service from the Utility

II. SCOPE OF AGREEMENT

2.1 Scope of Agreement: This Agreement relates solely to the conditions under which the Utility and the Interconnection Customer agree that the Unit may be interconnected to and operated in parallel with the Utility's system.

2.2 Electricity Not Covered: The Utility shall have no duty under this Agreement to account for, pay for, deliver, or return in kind any electricity produced by the Facility and delivered into the Utility's System unless the system is net metered as described in Public Service Law Section 66-1.

III. INSTALLATION, OPERATION AND MAINTENANCE OF UNIT

3.1 Compliance with SIR: Subject to the provisions of this Agreement, the Utility shall be required to interconnect the Unit to the Utility's system, for purposes of parallel operation, if the Utility accepts the Unit as in compliance with the SIR. The Interconnection Customer shall have a continuing obligation to maintain and operate the Unit in compliance with the SIR.

3.2 Observation of the Unit: Construction Phase: The Utility may, in its discretion and upon reasonable notice, perform reasonable on-site verifications during the construction of the Unit. Whenever the Utility chooses to exercise its right to perform observations herein it shall specify to the Interconnection Customer its reasons for its decision to perform the observation. For purposes of this paragraph and paragraphs 3.3 through 3.5, the term "onsite verification" shall not include testing of the Unit, and verification tests shall not be required except as provided in paragraphs.

3.3 Observation of the Unit: Ten-day Period: The Utility may perform on-site verifications of the Unit and observe the execution of verification testing within a reasonable period of time, not exceeding ten (10) business days after system installation. The Unit will be allowed to commence parallel operation upon satisfactory completion of the verification test. The Interconnection Customer must have complied with and must continue to comply with all contractual and technical requirements.

3.4 Observation of the Unit: Post-Ten-day Period: If the Utility does not perform an onsite verification of the Unit and observe the execution of verification testing within the ten-day period, the Interconnection Customer will send the Utility within five (5) days of the verification testing a written notification certifying that the Unit has been installed and tested in compliance with the SIR, the utility-accepted design and the equipment manufacturer's instructions. The Interconnection Customer may begin to produce energy upon satisfactory completion of the verification test. After receiving the verification test notification, the Utility will either issue to the Interconnection Customer a formal letter of acceptance for interconnection, or may request that the applicant and utility set a date and time to perform an on-site verification of the Unit and make reasonable inquiries of the Interconnection Customer, but only for purposes of determining whether the verification tests were properly performed. The Interconnection Customer shall not be required to perform the verification tests a second time, unless irregularities appear in the verification test report or there are other objective indications that the tests were not properly performed in the first instance.

3.5 Observation of the Unit: Operations: The Utility may perform on-site verification of the operations of the Unit after it commences operations if the Utility has a reasonable basis for doing so based on its responsibility to provide continuous and reliable utility service or as authorized by the provisions of the Utility's Retail Electric Tariff relating to the verification of Interconnection Customer installations generally.

3.6 Costs of Interconnection Facilities: During the term of this Agreement, the Utility shall design, construct and install the Interconnection Facilities. The Interconnection Customer shall be responsible for paying the incremental capital cost of such Interconnection Facilities attributable to the Interconnection Customer's Unit. All costs associated with the operation and maintenance of the Dedicated Facilities after the Unit first produces energy shall be the responsibility of the Utility.

IV. DISCONNECTION OF THE UNIT

4.1 Emergency Disconnection: The Utility may disconnect the Unit, without prior notice to the Interconnection Customer (a) to eliminate conditions that constitute a potential hazard to Utility personnel or the general public; (b) if pre-emergency or emergency conditions exist on the Utility system; (c) if a hazardous condition relating to the Unit is observed by a Utility inspection; or (d) if the Interconnection Customer has tampered with any protective device. The Utility shall notify the Interconnection Customer of the emergency if circumstances permit. The Interconnection Customer shall notify the Utility promptly when it becomes aware of an emergency condition that affects the Unit that may reasonably be expected to affect the Utility EPS.

4.2 Non-Emergency Disconnection Due to Unit Performance: The Utility may disconnect the Unit, after notice to the responsible party has been provided and a reasonable time to correct, consistent with the conditions, has elapsed, if (a) the Interconnection Customer has failed to make available records of verification tests and maintenance of his protective devices; (b) the Unit system interferes with Utility equipment or equipment belonging to other customers of the Utility; (c) the Unit adversely affects the quality of service of adjoining customers; (d) the ESS does not operate in compliance with the operating parameters and limits described in Attachment 1 to this Agreement.

4.3 Non-Emergency Disconnection for Utility Work: The Utility may disconnect the Unit after notice to Interconnection Customer when necessary for routine maintenance, construction, and repairs on the Utility EPS. The Interconnection Customer may request to reconnect its service prior to the completion of the Utility's work. The Utility shall accommodate such requests, provided that the Interconnection Customer shall be responsible for the costs of the Utility's review and any system modifications required to reconnect the Unit ahead of schedule.

4.4 Disconnection by Interconnection Customer: The Interconnection Customer may disconnect a Unit with an AC nameplate rating above 300 kW upon 18 hours advance notice to the Utility if the planned shutdown will last 8 hours or more. For non-emergency forced outages lasting 8 hours or more, the Interconnection Customer shall notify the Utility within 24 hours of the commencement of the shutdown

4.5 Utility Obligation to Cure Adverse Effect: If, after the Interconnection Customer meets all interconnection requirements, the operations of the Utility are adversely affecting the performance of the Unit or the Customer's premises, the Utility shall immediately take appropriate action to eliminate the adverse effect. If the Utility determines that it needs to upgrade or reconfigure its system, the Interconnection Customer will not be responsible for the cost of new or additional equipment beyond the point of common coupling between the Interconnection Customer and the Utility.

V. ACCESS

5.1 Access to Premises: The Utility shall have access to the disconnect switch of the Unit at all times. At reasonable hours and upon reasonable notice consistent with Section III of this Agreement, or at any time without notice in the event of an emergency (as defined in paragraph 4.1), the Utility shall have access to the Premises.

5.2 Utility and Interconnection Customer Representatives: The Utility shall designate, and shall provide to the Interconnection Customer, the name and telephone number of a representative or representatives who can be reached at all times to allow the Interconnection Customer to report an emergency and obtain the assistance of the Utility. For the purpose of allowing access to the premises, the Interconnection Customer shall provide the Utility with the name and telephone number of a person who is responsible for providing access to the Premises.

5.3 Utility Right to Access Utility-Owned Facilities and Equipment: If necessary for the purposes of this Agreement, the Interconnection Customer shall allow the Utility access to the Utility's equipment and facilities located on the Premises. To the extent that the Interconnection Customer does not own all or any part of the property on which the Utility is required to locate its equipment or facilities to serve the Interconnection Customer under this Agreement, the Interconnection Customer shall secure and provide in favor of the Utility the necessary rights to obtain access to such equipment or facilities, including easements if the circumstances so require.

VI. DISPUTE RESOLUTION

6.1 Good Faith Resolution of Disputes: Each Party agrees to attempt to resolve all disputes arising hereunder promptly, equitably and in a good faith manner.

6.2 Mediation: If a dispute arises under this Agreement, and if it cannot be resolved by the Parties within ten (10) business days after written notice of the dispute, the parties agree to submit the dispute to mediation by a mutually acceptable mediator, in a mutually convenient location in New York State, in accordance with the then current International Institute for Conflict prevention & Resolution Procedure, or to mediation by a mediator provided by the New York Public Service Commission. The Parties agree to participate in good faith in the mediation for a period of up to 90 days. If the Parties are not successful in resolving their disputes through mediation, then the parties may refer the dispute for resolution to the New York Public Service Commission, which shall maintain continuing jurisdiction over this Agreement.

6.3 Escrow: If there are amounts in dispute of more than two thousand dollars (\$2,000), the Interconnection Customer shall either place such disputed amounts into an independent escrow account pending final resolution of the dispute in question, or provide to the Utility an appropriate irrevocable standby letter of credit in lieu thereof.

VII. INSURANCE

7.1. Commercial General Liability: The Interconnection Customer shall, at its own expense, procure and maintain throughout the period of this Agreement the following minimum insurance coverage:

7.1.1. Commercial general liability insurance with limits not less than:

- 7.1.1.1.** Five million dollars (\$5,000,000) for each occurrence and in the aggregate if the AC Nameplate rating of the Interconnection Customer's Facility is greater than five (5) MWAC
- 7.1.1.2.** Two million dollars (\$2,000,000) for each occurrence and five million dollars (\$5,000,000) in the aggregate if the AC Nameplate rating of the Interconnection Customer's Facility is greater than one (1) MWAC and less than or equal to five (5) MWAC
- 7.1.1.3.** One million dollars (\$1,000,000) for each occurrence and in the aggregate if the AC Nameplate rating of the Interconnection Customer's Facility is greater than or equal to 300 (kWAC) and less than or equal to one (1) MWAC

7.1.2. Any combination of general liability and umbrella/excess liability policy limits can be used to satisfy the limit requirements of Section 7.1.1 (a).

7.1.3. The general liability insurance required to be purchased in Section 7.1 (a) may be purchased for the direct benefit of the Utility and shall respond to third party claims asserted against the Utility (hereinafter known as "Owners Protective Liability"). Should this option be chosen, the requirement of Section 7.3(a) will not apply but the Owners Protective Liability policy will be purchased for the

direct benefit of the Utility and the Utility will be designated as the primary and “Named Insured” under the policy.

7.2. General Commercial Liability Insurance: The Interconnection Customer is not required to provide general commercial liability insurance for facilities with an AC nameplate rating of 300 kW or less. Due to the risk of incurring damages however, the New York State Public Service Commission (“Commission”) recommends that the Interconnection Customer obtain adequate insurance. The inability of the Utility to require the Interconnection Customer to provide general commercial liability insurance coverage for operation of the Unit is not a waiver of any rights the Utility may have to pursue remedies at law against the Interconnection Customer to recover damages.

7.3. Insurer Requirements and Endorsements: All required insurance shall be written by reputable insurers authorized to conduct business in New York. In addition, all general liability insurance shall, (a) include the Utility as an additional insured; (b) contain a severability of interest clause or cross-liability clause; (c) provide that the Utility shall not incur liability to the insurance carrier for payment of premium for such insurance; and (d) provide for thirty (30) calendar days’ written notice to the Utility prior to cancellation or termination of such insurance, with the exception of a ten (10) days’ notice in the event of premium non-payment; provided that to the extent the Interconnection Customer is satisfying the requirements of subpart (d) of this paragraph by means of a presently existing insurance policy, the Interconnection Customer shall only be required to make good faith efforts to satisfy that requirement and will assume the responsibility for notifying the Utility as required above.

7.4. Evidence of Insurance: Evidence of the insurance required shall state that coverage provided is primary and is not in excess to or contributing with any insurance or self-insurance maintained by Interconnecting Customer. Prior to the Utility commencing work on System Modifications, and annually thereafter, the Interconnection Customer shall have its insurer furnish to the Utility certificates of insurance evidencing the insurance coverage required above.

7.4.1 If coverage is on a claims-made basis, the Interconnection Customer agrees that the policy effective date or retroactive date shall be no later than the effective date of this agreement, be continuously maintained throughout the life of this agreement, and remain in place for a minimum of three (3) years following the termination of this agreement or if policies are terminated will purchase a three-year extended reporting period. Evidence of such coverage will be provided on an annual basis.

7.4.2 In the event that an Owners Protective Liability policy is provided, the original policy shall be provided to the Utility.

7.5. Self-Insurance: If the Interconnection Customer has a self-insurance program established in accordance with commercially acceptable risk management practices, the Interconnection Customer may comply with the following in lieu of the above requirements as reasonably approved by the Utility:

7.5.1. The Interconnection Customer shall provide to the Utility, at least thirty (30) calendar days prior to the Date of Initial Operation, evidence of such program to self-insure to a level of coverage equivalent to that required.

7.5.2. If the Interconnection Customer ceases to self-insure to the standards required hereunder, or if the Interconnection Customer is unable to provide continuing evidence of the Interconnection Customer's financial ability to self-insure, the Interconnection Customer agrees to promptly obtain the coverage required under Section 7.1.

7.6. Utility Obligation to Maintain Insurance: The Utility agrees to maintain general liability insurance or self-insurance consistent with its existing commercial practice. Such insurance or self-insurance shall not exclude coverage for the Utility's liabilities undertaken pursuant to this Agreement.

7.7. Notification Obligations: The Parties further agree to notify each other whenever an accident or incident occurs resulting in any injuries or damages that are included within the scope of coverage of such insurance, whether or not such coverage is sought.

VIII. LIMITATION OF LIABILITY

8.1. Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either Party be liable to the other Party for any indirect, special, consequential, or punitive damages of any kind whatsoever. Nothing herein is meant to limit the liability of a Party to an unaffiliated third-party claimant.

IX. INDEMNITY

9.1 This provision protects each Party from liability incurred to third parties arising from actions taken pursuant to the provisions of this Agreement. Liability under this provision is exempt from the general limitations on liability found in Section 7.

9.2 Each Party (the "Indemnifying Party") shall at all times indemnify, defend, and hold the other Party (the "Indemnified Party") harmless from any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demands, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, to the extent arising out of or resulting from the Indemnifying Party's action or failure to meet its obligations under this Agreement, except in cases of negligence, gross negligence or intentional wrongdoing by the Indemnified Party.

9.3 If a Party is obligated to indemnify and hold the Indemnified Party harmless under this section, the amount owing to the Indemnified Party shall be the amount of such Indemnified Party's actual loss, as adjudicated by the Indemnifying Party's insurance carrier, net of any insurance or other recovery.

9.4 Promptly after receipt by an Indemnified Party of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in this section may apply, the Indemnified Party shall notify the Indemnifying Party of such fact. Any unintentional failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the Indemnifying Party.

X. CONSEQUENTIAL DAMAGES

10.1 Other than as expressly provided for in this Agreement or pursuant to the utility tariff, neither Party shall be liable to the other Party under any provision of this Agreement for any losses, damages, costs, or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided, however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

XI. MISCELLANEOUS PROVISIONS

11.1 Beneficiaries: This Agreement is intended solely for the benefit of the Parties hereto, and if a Party is an agent, it's principal. Nothing in this Agreement shall be construed to create any duty to, or standard of care with reference to, or any liability to, any other person.

11.2 Severability: If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction, such portion or provision shall be deemed separate and independent, and the remainder of this Agreement shall remain in full force and effect.

11.3 Entire Agreement: This Agreement constitutes the entire Agreement between the Parties and supersedes all prior agreements or understandings, whether verbal or written.

11.4 Waiver: No delay or omission in the exercise of any right under this Agreement shall impair any such right or shall be taken, construed or considered as a waiver or relinquishment thereof, but any such right may be exercised from time to time and as often as may be deemed expedient. In the event that any agreement or covenant herein shall be breached and thereafter waived, such waiver shall be limited to the particular breach so waived and shall not be deemed to waive any other breach hereunder.

11.5 Applicable Law: This Agreement shall be governed by and construed in accordance with the law of the State of New York.

11.6 Amendments: This Agreement shall not be amended unless the amendment is in writing and signed by the Utility and the Customer.

11.7 Force Majeure: For purposes of this Agreement, "Force Majeure Event" means any event: (a) that is beyond the reasonable control of the affected Party; and (b) that the affected Party is unable to prevent or provide against by exercising reasonable diligence, including the following events or circumstances, but only to the extent they satisfy the preceding requirements: acts of war, public disorder, insurrection, or rebellion; floods, hurricanes, earthquakes, lightning, storms, and other natural calamities; explosions or fires; strikes, work stoppages, or labor disputes; embargoes; and sabotage. If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, such Party will promptly notify the other Party in writing, and will keep the other Party informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected Party will specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the affected Party is taking to mitigate the effects of the event on its performance. The affected Party will be entitled to suspend or modify its performance of obligations under this Agreement, other than the obligation to make payments then due or becoming due under this Agreement, but only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of reasonable efforts. The affected Party will use reasonable efforts to resume its performance as soon as possible.

11.8 Assignment to Corporate Party: At any time during the term, the Interconnection Customer may assign this Agreement to a corporation or other entity with limited liability, provided that the Interconnection Customer obtains the consent of the Utility. Such consent will not be withheld unless the Utility can demonstrate that the corporate entity is not reasonably capable of performing the obligations of the assigning Interconnection Customer under this Agreement.

11.9 Assignment to Individuals: At any time during the term, the Interconnection Customer may assign this Agreement to another person, other than a corporation or other entity with limited liability, provided that the assignee is the owner, lessee, or is otherwise responsible for the Unit.

11.10 Permits and Approvals: Interconnection Customer shall obtain all environmental and other permits lawfully required by governmental authorities prior to the construction and for the operation of the Unit during the term of this Agreement.

11.11 Limitation of Liability: Neither by inspection, if any, or non-rejection, nor in any other way, does the Utility give any warranty, express or implied, as to the adequacy, safety, or other characteristics of any structures, equipment, wires, appliances or devices owned, installed or maintained by the Interconnection Customer or leased by the Interconnection Customer from third parties, including without limitation the Unit and any structures, equipment, wires, appliances or devices appurtenant thereto.

ACCEPTED AND AGREED:

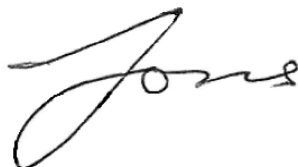
Interconnection Customer

Signature: 

Printed Name: Scott Sabbagh

Title: Managing Principal

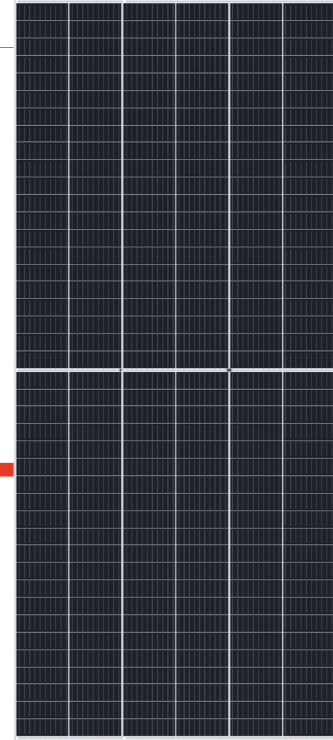
Date: 12/10/2020

Utility Signature: 

Printed Name: Christopher Jones

Title: Chief Engineer

Date: 8/6/2020



THE

DUOMAX^{twin}

BIFACIAL DUAL GLASS 252 LAYOUT MODULE

252 LAYOUT

MONOCRYSTALLINE MODULE

475-490W

POWER OUTPUT RANGE

20.8%

MAXIMUM EFFICIENCY

0~+5W

POSITIVE POWER TOLERANCE

Founded in 1997, Trina Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Trina Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable products with the backing of Trina as a strong, bankable brand. Trina Solar now distributes its PV products to over 100 countries all over the world. We are committed to building strategic, mutually beneficial collaborations with installers, developers, distributors and other partners in driving smart energy together.

Comprehensive Products and System Certificates

IEC61215/IEC61730/IEC61701/IEC62716/UL61730
 ISO 9001: Quality Management System
 ISO 14001: Environmental Management System
 ISO14064: Greenhouse Gases Emissions Verification
 ISO45001: Occupation Health and Safety Management System



PRODUCTS

TSM-DEG15VC.20(II)

POWER RANGE

475-490W



High power

- Up to 490W front power and 20.8% module efficiency with half-cut and MBB (Multi Busbar) technology bringing more BOS savings



High reliability

- Ensured PID resistance through cell process and module material control
- Resistant to salt, acid and ammonia
- Proven to be reliable in high temperature and humidity areas
- Certificated to fire class A
- Minimizes micro-crack and snail trails
- Mechanical performance: Up to 5400 Pa positive load and 2400 Pa negative load



High energy generation

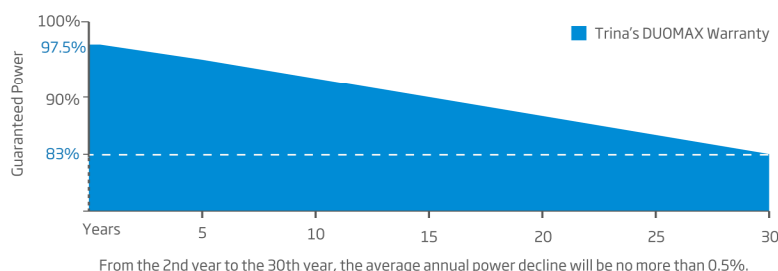
- Up to 25% additional power gain from back side depending on the albedo ;
- Excellent IAM and low light performance validated by 3rd party with cell process and module material optimization
- Better anti-shading performance and lower operating temperature



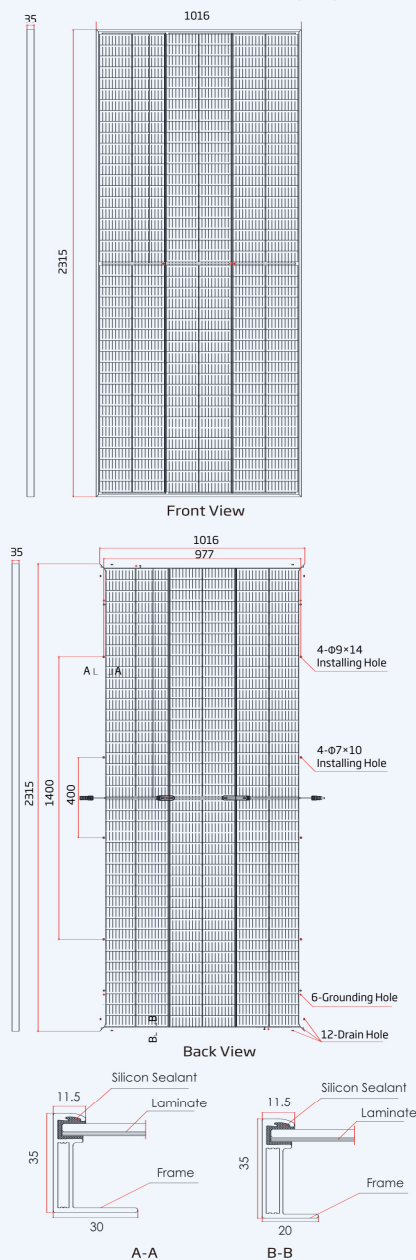
Easy to install

- Frame design makes module compatible with all racking and installation methods
- Easy to handle and install as normal framed module during transportation

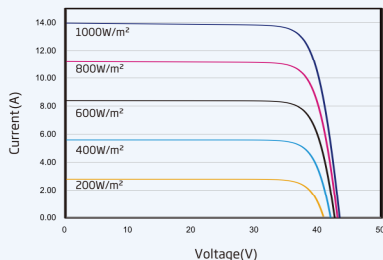
Trina Solar's DUOMAX Performance Warranty



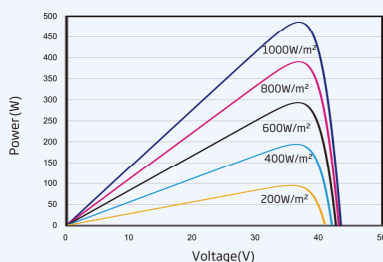
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(485 W)



P-V CURVES OF PV MODULE(485W)



ELECTRICAL DATA (STC)

Peak Power Watts-P _{MAX} (Wp)*	475	480	485	490
Power Tolerance-P _{MAX} (W)	0 ~ +5			
Maximum Power Voltage-V _{MPP} (V)	36.0	36.1	36.2	36.3
Maximum Power Current-I _{MPP} (A)	13.19	13.29	13.39	13.49
Open Circuit Voltage-V _{OC} (V)	43.2	43.3	43.4	43.5
Short Circuit Current-I _{SC} (A)	13.80	13.92	13.97	14.07
Module Efficiency η_m (%)	20.2	20.4	20.6	20.8

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5.*Measuring tolerance: $\pm 3\%$.

Electrical characteristics with different rear side power gain (reference to 485 Wp front)

Maximum Power-P _{MAX} (Wp)	509	558	582	606
Maximum Power Voltage-V _{MPP} (V)	36.2	36.2	36.2	36.2
Maximum Power Current-I _{MPP} (A)	14.06	15.40	16.07	16.74
Open Circuit Voltage-V _{OC} (V)	43.5	43.6	43.7	43.8
Short Circuit Current-I _{SC} (A)	14.67	16.07	16.76	17.46
Pmax gain	5%	15%	20%	25%

Power Bifaciality: 70 \pm 5%.

ELECTRICAL DATA (NMOT)

Maximum Power-P _{MAX} (Wp)	363	367	371	375
Maximum Power Voltage-V _{MPP} (V)	34.3	34.4	34.8	34.8
Maximum Power Current-I _{MPP} (A)	10.59	10.68	10.67	10.76
Open Circuit Voltage-V _{OC} (V)	41.1	41.2	41.2	41.3
Short Circuit Current-I _{SC} (A)	11.10	11.20	11.24	11.32

NMOT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

MECHANICAL DATA

Solar Cells	Monocrystalline
Cell Orientation	252 cells (12 \times 21)
Module Dimensions	2315 \times 1016 \times 35 mm (91.14 \times 40 \times 1.38 inches)
Weight	30.5 kg (67.2 lb)
Front Glass	2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	POE/EVA
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)
Frame	35mm(1.38 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm ² (0.006 inches ²), Portrait: 600mm/P 600mm(23.62/23.62inches) Landscape: 2200 mm /P 2200 mm (86.61/86.61 inches)
Connector	MC4 EVO2 / TS4*

*Please refer to regional datasheet for specified connector.

TEMPERATURE RATINGS

NMOT (Nominal Module Operating Temperature)	41°C ($\pm 3^\circ$ C)
Temperature Coefficient of P _{MAX}	- 0.35%/°C
Temperature Coefficient of V _{OC}	- 0.25%/°C
Temperature Coefficient of I _{SC}	0.04%/°C

(Do not connect Fuse in Combiner Box with two or more strings in parallel connection)

MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC) 1500V DC (UL)
Max Series Fuse Rating	25A

WARRANTY

12 year Product Workmanship Warranty
30 year Power Warranty

(Please refer to product warranty for details)

PACKAGING CONFIGURATION

Modules per box: 31 pieces
Modules per 40' container: 620 pieces