

# Michael E. Miele, PE

Licensed Professional Engineer

Licensed In New York, New Jersey, Connecticut & California

New York License # 079676

New Jersey License # 44042

Connecticut License # 23158

California License # 31508

March 9, 2021 - Revised 4.13.2021

Village of Upper Nyack Building Department

The Office of the Building Inspector

328 N. Broadway

Upper Nyack, NY 10960

Re: Laura Yassky-Glynn - 214 Radcliff Drive, Nyack, NY 10960  
Single Family Residence, Solar Panel Loading Certification  
Village of Upper Nyack, County of Rockland, State of New York

Dear Building Department

I am the engineer of record for the above referenced project. I have prepared the attached plans dated March 5, 2021 that consists of the installation of (49) LG-340W solar panels at the above referenced location.

I can hereby certify that the existing roof structure combined with the additional weight of the solar panels meets the requirements of The 2020 Residential Code of New York State, Publication Date, November 2019.

The design loads were as follows,

Roof Design Load: 40psf live load

Wind Design Load: 120mph

No additional structural members were required.

The roof is currently framed with 2x6 true dimensional wood framing @ 16" O.C. w/ 2x4 collar ties @ 32" O.C. The roof structural members are in compliance with ASCE 7-16 for deflection and acceptable bending stress.

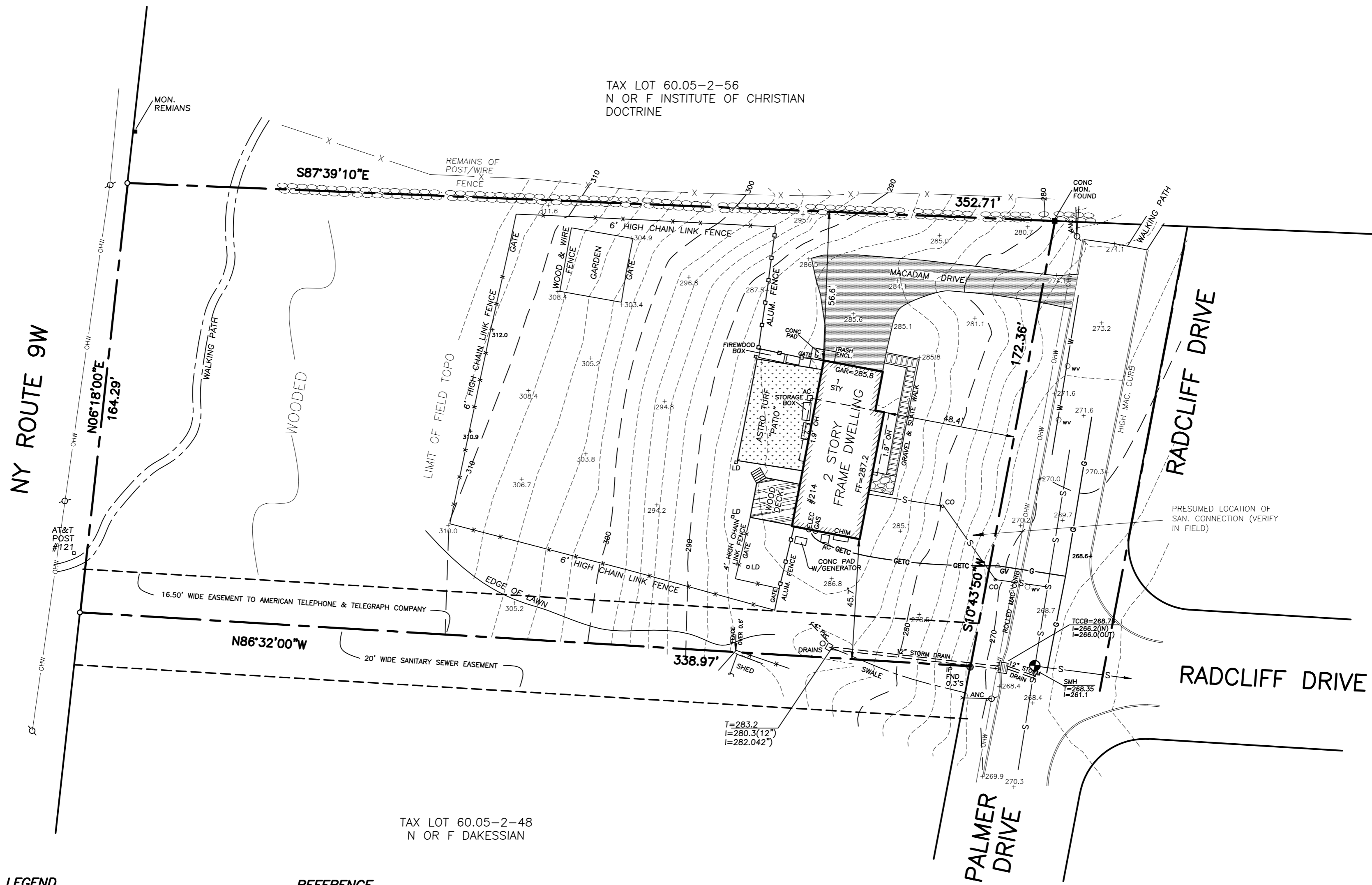
If you have any questions, please feel free to call me at any time. Thanks in advance.

Sincerely Yours,



Michael E. Miele, PE





TAX LOT 60.05-2-56  
N OR F INSTITUTE OF CHRISTIAN  
DOCTRINE

TAX LOT 60.05-2-48  
N OR F DAKESSIAN

**LEGEND**

- CB    FI    CATCH BASIN/FIELD INLET
- DRAIN LINE
- SMH    SANITARY MANHOLE / PIPE
- EDGE OF PAVEMENT
- CONCRETE CURB
- G    GAS LINE/ VALVE
- W    WATER LINE / VALVE
- UTILITY POLE
- OHW    OVERHEAD WIRES
- LD    LAWN DRAIN

**REFERENCE**

BEING LOT #8 AS SHOWN ON A MAP ENTITLED  
"RADCLIFF AT UPPER NYACK" FILED IN THE ROCKLAND  
COUNTY CLERK'S OFFICE ON 5/14/63 AS MAP #3119.

**DATUM**

NAVD 88

DATE	REVISIONS

UNAUTHORIZED ALTERATION TO A MAP BEARING A LICENSED PROFESSIONAL LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.

THE CERTIFICATION HEREON IS NOT AN EXPRESS OR IMPLIED WARRANTY OR GUARANTEE. IT IS A STATEMENT OF PROFESSIONAL OPINION BASED ON KNOWLEDGE, INFORMATION AND BELIEF, BASED ON EXISTING FIELD EVIDENCE AND DOCUMENTARY EVIDENCE AVAILABLE.

EASEMENTS OR RIGHTS OF WAY, EITHER ON OR BELOW THE SURFACE OF THE GROUND, EVIDENCE OF WHICH IS NOT VISIBLE IN THE FIELD OR FOR WHICH DOCUMENTATION IS NOT PROVIDED, ARE NOT SHOWN.

UNDERGROUND UTILITIES NOT SHOWN UNLESS MARKED IN THE FIELD.

CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS. COPIES OF THIS SURVEY NOT HAVING THE EMBOSSED SEAL OF THE LAND SURVEYORS ARE NOT VALID. CERTIFICATIONS ARE SUBJECT TO A CURRENT AND COMPLETE TITLE SEARCH.

**CERTIFIED TO:**

JAY A. GREENWELL, PLS  
NYS LIC. # 49676

**SURVEY OF PROPERTY FOR**  
**YASSKY**

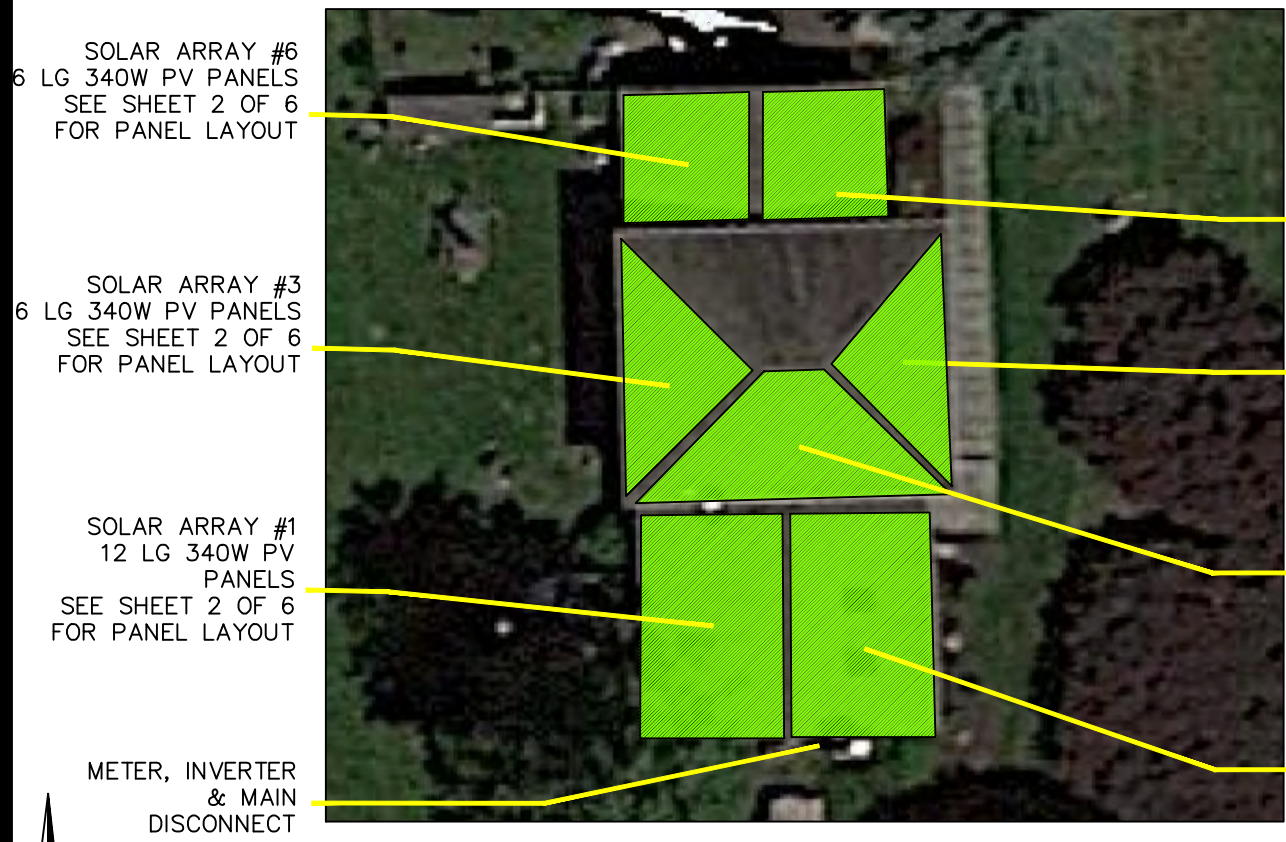
VILLAGE OF UPPER NYACK  
ROCKLAND COUNTY, NEW YORK

**JAY A. GREENWELL, PLS, LLC**

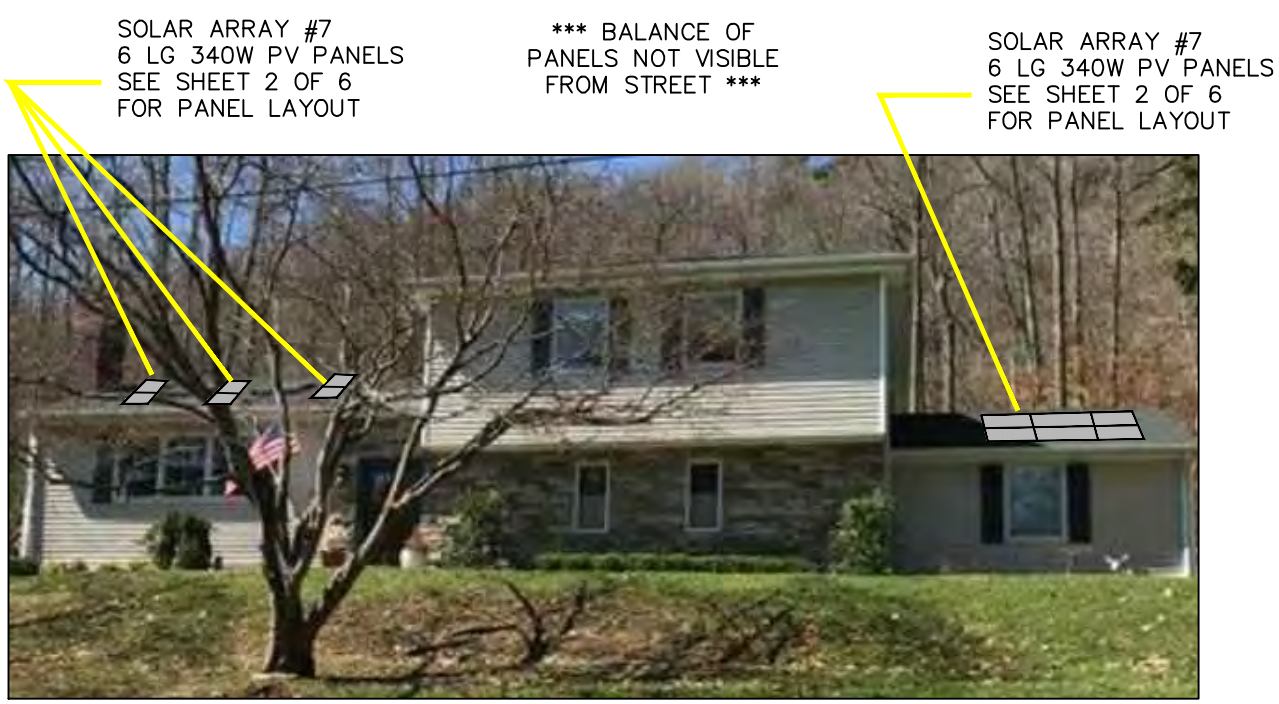
LAND PLANNING - LAND SURVEYING  
85 LAFAYETTE AVENUE, SUFFERN, NEW YORK 10901  
PHONE 845-357-0830 FAX 845-357-0756  
© 2020 JAY A GREENWELL, PLS, LLC

TAX LOT #	60.05-2-36
AREA	57,882 SF
FILE	22026SURV
SCALE	1" = 30'
DATE	08/06/20
JOB NO.	22026





**ROOF PANEL LAYOUT PLAN:**  
NTS



**FRONT ELEVATION:**  
NTS

SOLAR ARRAY #7  
6 LG 340W PV PANELS  
SEE SHEET 2 OF 6  
FOR PANEL LAYOUT

SOLAR ARRAY #5  
6 LG 340W PV PANELS  
SEE SHEET 2 OF 6  
FOR PANEL LAYOUT

SOLAR ARRAY #3  
7 LG 340W PV PANELS  
SEE SHEET 2 OF 6  
FOR PANEL LAYOUT

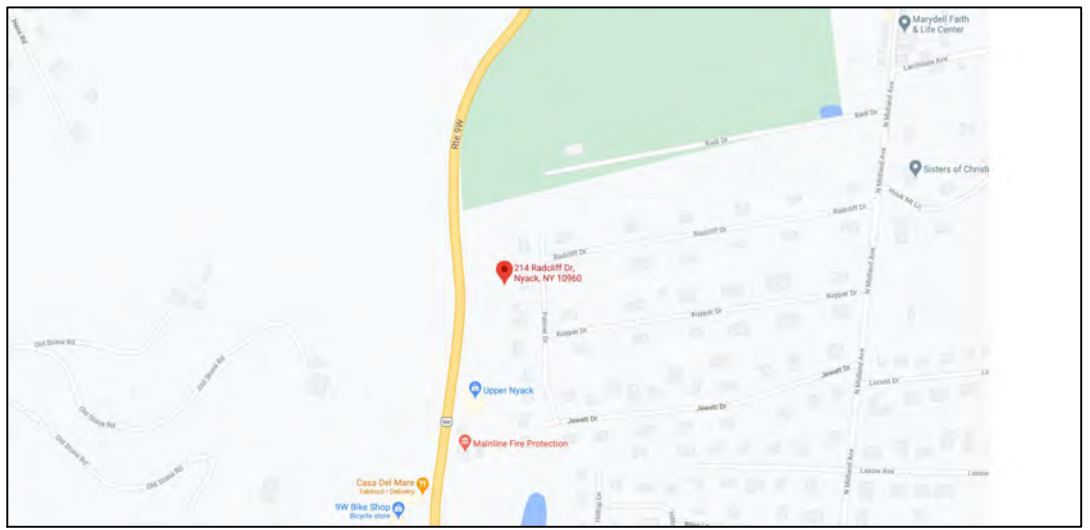
SOLAR ARRAY #2  
6 LG 340W PV PANELS  
SEE SHEET 2 OF 6  
FOR PANEL LAYOUT

**GENERAL NOTES:**

1. ALL SOLAR MODULES TO BE LG 340W AND SHALL BE INSTALLED AS PER LG INSTALLATION MANUAL.
2. ALL INVERTERS TO BE ENPHASE MICRO INVERTERS ALL RACKING TO BE IRON RIDGE AND ALL RACKING TO INSTALLED AS PER IRON RIDGE MANUFACTURERS SPECIFICATIONS.

**PROJECT DESIGN DATA:**

WORK SHALL BE COMPLETED AS PER 2020 RESIDENTIAL CODE OF NEW YORK STATE, PUBLICATION DATE: NOVEMBER 2019, NFPA 70, 2020 NATIONAL ELECTRICAL CODE AND 2018 WOOD FRAME CONSTRUCTION MANUAL LOAD CRITERIA AS FOLLOWS  
EXPOSURE CATEGORY: "B"  
GROUND SNOW LOAD: 40 PSF  
WIND SPEED: 120 MPH



**VICINITY MAP:**

**SITE VERIFICATION NOTES:**

1. PRIOR TO SUBMISSION TO MUNICIPALITY OF THE PLANS, THIS CONTRACTOR SHALL VISIT THE JOB SITE TO ASCERTAIN THE ACTUAL FIELD CONDITIONS AS THEY RELATE TO THE WORK INDICATED ON THE DRAWINGS AND DESCRIBED HEREIN. DISCREPANCIES, IF ANY, SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO SUBMISSION OF THE PLANS. SUBMISSION OF PLANS SHALL BE EVIDENCE THAT SITE VERIFICATION HAS BEEN PERFORMED AS DESCRIBED ABOVE.
2. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO THE START OF WORK. IF EXISTING CONDITIONS VARY FROM PLANS, THE CONTRACTOR SHALL STOP WORK AND NOTIFY PROJECT ENGINEER A.S.A.P. CONTRACTOR ASSUMES ALL RESPONSIBILITY AND LIABILITY THEREFROM.
3. THE OWNER/CONTRATOR SHALL OBTAIN ALL NECESSARY PERMITS, VERIFY ALL CONDITIONS, EXAMINE THE DESIGN DOCUMENTS AND BE RESPONSIBLE FOR ALL MEASUREMENTS, DIMENSIONS AND CONDITIONS.
4. COMMENCEMENT OF CONSTRUCTION WILL SIGNIFY THAT THE CONTRACTOR WILL HOLD THE DESIGN ENGINEER HARMLESS FOR ANY AND ALL ERRORS, OMISSIONS AND PERSONAL LIABILITY.

**RESIDENTIAL SOLAR PANEL INSTALLATION**  
LOCATED AT - 214 RADCLIFF DR, NYACK, NEW YORK 10960  
VILLAGE OF UPPER NYACK, ROCKLAND COUNTY, NEW YORK



**SOLAR PANEL INSTALLATION**  
**YASSKY-GLYNN RESIDENCE**  
214 RADCLIFF DR  
NYACK  
NEW YORK 10960

REVISIONS NOTES	
①	APRIL 13, 2021
DWG. BY: MEM	SCALE: AS-NOTED
CHECKED BY: MEM	PROJECT #: ES-1244-21
DATE: MARCH 5, 2021	SBL #: 60.05 - 2 - 49
MUNICIPALITY: VILLAGE OF UPPER NYACK	COUNTY: ROCKLAND

SYSTEM NOTES:						
TOTAL SYSTEM SIZE: 16.66KW DC SYSTEM						
PANEL TYPE:	LG 340W					
OF PANELS:	49					
INVERTER TYPE:	ENPHASE IQ7+					
OF INVERTERS:	49					
ARRAY #1	#2	#3	#4	#5	#6	#7
AZIMUTH 269	88	269	178	88	269	88
TILT: 24	24	24	24	24	24	24
# PANE 12	6	6	7	6	6	6

**PROFESSIONAL NOTES:**  
UNAUTHORIZED ALTERATION OR ADDITION TO THIS PLAN IS A VIOLATION OF SECTION 7209(2) OF THE NEW YORK STATE EDUCATION LAW. COPIES OF THIS MAP NOT HAVING THE SEAL OF THE ENGINEER SHALL NOT BE VALID



**DWG#**  
**S-1**  
**PROJECT SITE PLAN AND NOTES**  
DWG.  
**1 OF 5**



**PROPOSED ARRAY #6**  
 (6) LG 340W SOLAR  
 MODULES MOUNTED  
 PORTRAIT CONFIGURATION  
 ON IRON RIDGE RACKING  
 AS PER IRON RIDGE  
 INSTALLATION MANUAL

**PROPOSED ARRAY #7**  
 (6) LG 340W SOLAR  
 MODULES MOUNTED  
 PORTRAIT CONFIGURATION  
 ON IRON RIDGE RACKING  
 AS PER IRON RIDGE  
 INSTALLATION MANUAL

**PROPOSED ARRAY #3**  
 (6) LG 340W SOLAR  
 MODULES MOUNTED  
 LANDSCAPE CONFIGURATION  
 ON IRON RIDGE RACKING  
 AS PER IRON RIDGE  
 INSTALLATION MANUAL

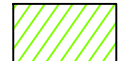
**PROPOSED ARRAY #5**  
 (6) LG 340W SOLAR  
 MODULES MOUNTED  
 LANDSCAPE CONFIGURATION  
 ON IRON RIDGE RACKING  
 AS PER IRON RIDGE  
 INSTALLATION MANUAL

**PROPOSED ARRAY #4**  
 (7) LG 340W SOLAR  
 MODULES MOUNTED  
 LANDSCAPE CONFIGURATION  
 ON IRON RIDGE RACKING  
 AS PER IRON RIDGE  
 INSTALLATION MANUAL

**PROPOSED ARRAY #2**  
 (6) LG 340W SOLAR  
 MODULES MOUNTED  
 PORTRAIT CONFIGURATION  
 ON IRON RIDGE RACKING  
 AS PER IRON RIDGE  
 INSTALLATION MANUAL

**PROPOSED ARRAY #1**  
 (12) LG 340W SOLAR  
 MODULES MOUNTED  
 PORTRAIT CONFIGURATION  
 ON IRON RIDGE RACKING  
 AS PER IRON RIDGE  
 INSTALLATION MANUAL

ANCHOR POINTS @ 48"  
 MAX. SPACING, TYP.

 = FIRST RESPONDER ACCESS AS PER THE 2020 RESIDENTIAL CODE OF NEW YORK STATE, PUBLICATION DATE: NOVEMBER 2019, SECTION R324.6 "ROOF ACCESS AND PATHWAYS"

**ROOF PANEL LAYOUT:**



**SOLAR PANEL  
 INSTALLATION  
 YASSKY-GLYNN  
 RESIDENCE**  
 214 RADCLIFF DR  
 NYACK  
 NEW YORK 10960

REVISIONS NOTES	
①	APRIL 13, 2021
DWG. BY: MEM	SCALE: AS-NOTED
CHECKED BY: MEM	PROJECT #: ES-1244-21
DATE: MARCH 5, 2021	SBL #: 60.05 - 2 - 49
MUNICIPALITY: VILLAGE OF UPPER NYACK	COUNTY: ROCKLAND

SYSTEM NOTES:						
TOTAL SYSTEM SIZE: 16.66KW DC SYSTEM						
PANEL TYPE:	LG 340W					
OF PANELS:	49					
INVERTER TYPE:	ENPHASE IQ7+					
OF INVERTERS:	49					
ARRAY #1	#2	#3	#4	#5	#6	#7
AZIMUTH 269	88	269	178	88	269	88
TILT: 24	24	24	24	24	24	24
# PANE 12	6	6	7	6	6	6

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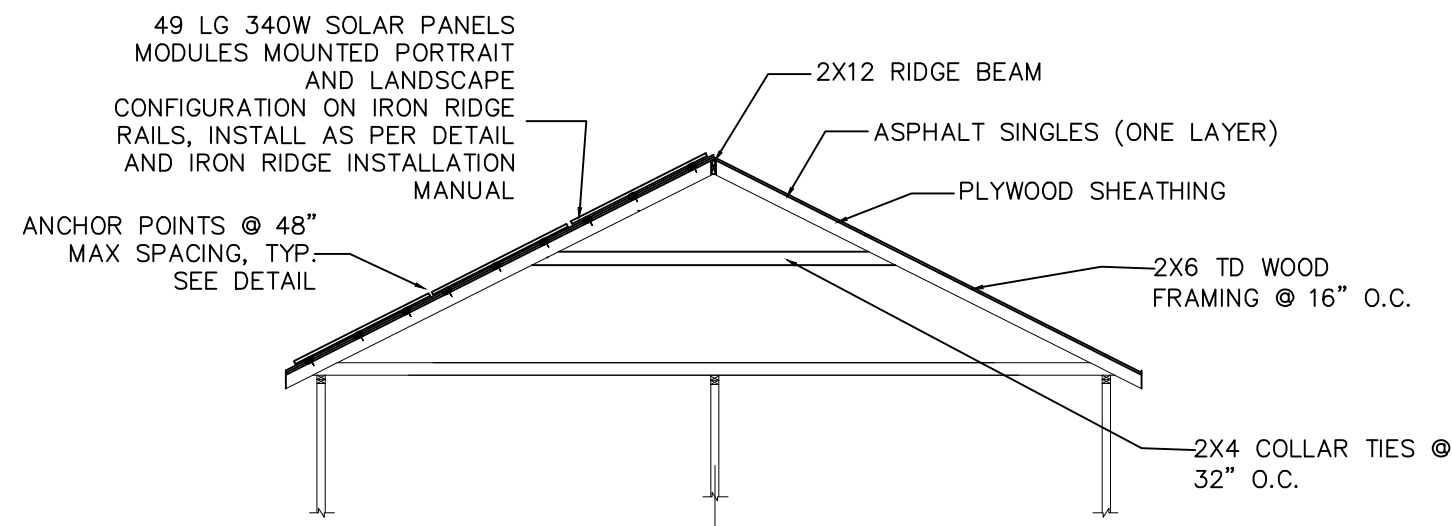
DWG#  
**S-2**  
 SOLAR  
 ROOF  
 LAYOUT  
 PLAN  
 DWG.  
 2 OF 5



IRON RIDGE RACKING

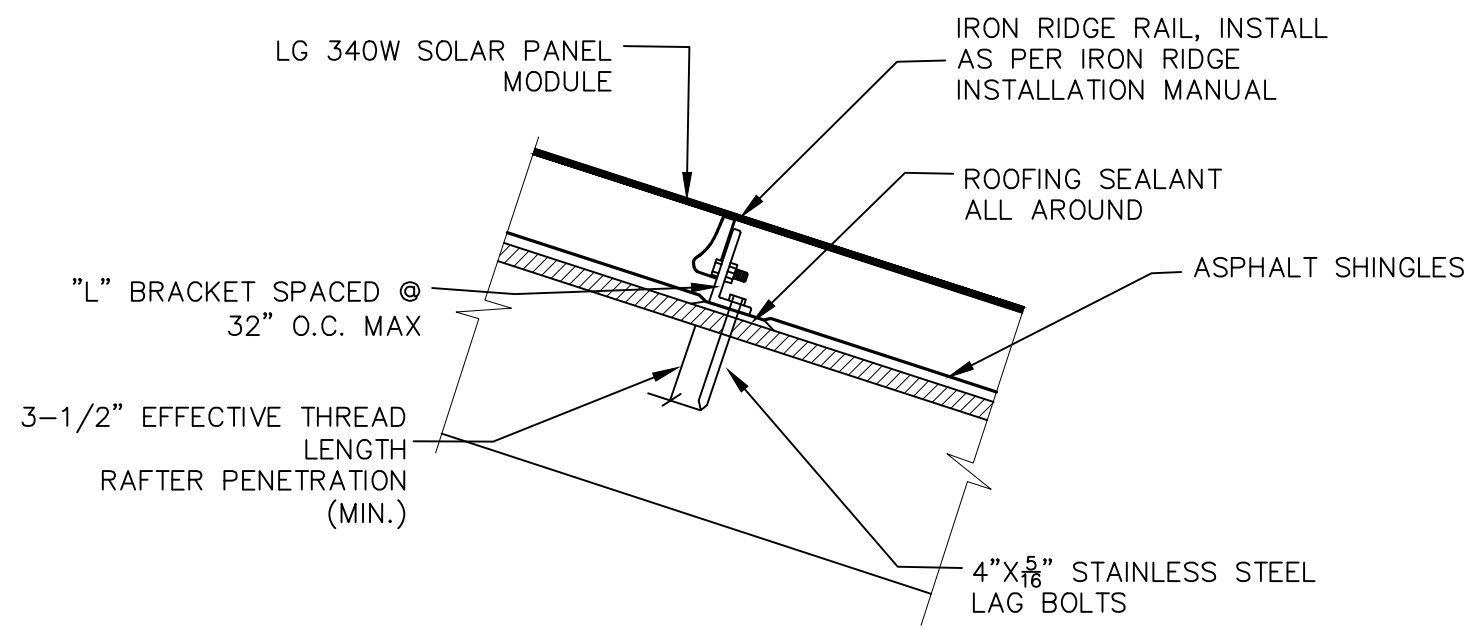
XRS Maximum Spans (feet)

Exposure	Wind Speed (mph)	0 psf Snow			10 psf Snow			20 psf Snow			30 psf Snow			40 psf Snow		
		Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
Category B	90 mph	13.5	13.5	10.5	12.5	12.5	10.5	10.5	10.5	10.5	10.0	10.0	10.0	9.0	9.0	9.0
	100 mph	13.5	12.0	9.5	12.5	12.0	9.5	10.5	10.5	9.5	10.0	10.0	9.5	9.0	9.0	9.0
	110 mph	13.5	11.5	9.0	12.5	11.5	9.0	10.5	10.5	9.0	10.0	10.0	9.0	9.0	9.0	9.0
	120 mph	13.5	10.5	8.5	12.5	10.5	8.5	10.5	10.5	8.5	10.0	10.0	8.5	9.0	9.0	8.5
	130 mph	13.5	9.5	7.5	12.5	9.5	7.5	10.5	9.5	7.5	10.0	9.5	7.5	9.0	9.0	7.5
	150 mph	11.5	8.5	6.5	11.5	8.5	6.5	9.5	9.5	6.5	10.0	8.5	6.5	9.0	8.5	6.5
Category C	90 mph	13.5	11.0	8.5	12.5	11.0	8.5	10.5	10.5	10.5	10.0	10.0	8.5	9.0	9.0	8.5
	100 mph	13.5	9.5	8.0	12.5	9.5	8.0	10.5	9.5	8.0	10.0	9.5	8.0	9.0	9.0	8.0
	110 mph	13.0	9.5	7.5	12.5	9.5	7.5	10.5	9.5	7.5	10.0	9.5	7.5	9.0	9.0	7.5
	120 mph	12.0	8.5	7.0	12.0	8.5	7.0	10.5	8.5	7.0	10.0	8.5	7.0	9.0	8.5	7.0
	130 mph	11.0	8.0	6.5	11.0	8.0	6.5	10.5	8.0	6.5	9.5	8.0	6.5	9.0	8.0	6.5
	150 mph	9.5	7.0	5.5	9.5	7.0	5.5	9.5	7.0	5.5	9.0	7.0	5.5	8.5	7.0	5.5



ROOF SECTION:

NTS



ATTACHMENT DETAIL:

NTS



**SOLAR PANEL INSTALLATION**  
**YASSKY-GLYNN RESIDENCE**  
 214 RADCLIFF DR  
 NYACK  
 NEW YORK 10960

REVISIONS NOTES

① APRIL 13, 2021

DWG. BY: MEM	SCALE: AS-NOTED
CHECKED BY: MEM	PROJECT #: ES-1244-21
DATE: MARCH 5, 2021	SBL #: 60.05 - 2 - 49
MUNICIPALITY: VILLAGE OF UPPER NYACK	COUNTY: ROCKLAND

SYSTEM NOTES:  
 TOTAL SYSTEM SIZE: 16.66KW DC SYSTEM  
 PANEL TYPE: LG 340W  
 OF PANELS: 49  
 INVERTER TYPE: ENPHASE IQ7+  
 OF INVERTERS: 49

ARRAY #1	#2	#3	#4	#5	#6	#7
AZIMUTH 269	88	269	178	88	269	88
TILT: 24	24	24	24	24	24	24
# PANE 12	6	6	7	6	6	6

PROFESSIONAL NOTES:  
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DWG# **S-3**  
**SOLAR PANEL ATTACHMENT PLAN I**  
 DWG. 3 OF 5



# CERTIFICATION NOTES:

1. THE ROOF STRUCTURAL MEMBERS HAVE BEEN CHECKED FOR 120 MPH WIND LOADS BASED ON ASCE7-16 AND FOR COMPLIANCE WITH THE 2020 RESIDENTIAL CODE OF NEW YORK STATE, PUBLICATION DATE: NOVEMBER 2019. THERE WAS (1) LAYER OF ROOF SHINGLES INSTALLED AT THE TIME OF THE INSPECTION. THIS PLAN DOES NOT APPLY IF ANY ADDITIONAL ROOF SHINGLES LAYERS ARE INSTALLED AFTER THE SITE INSPECTION. INSTALLATION OF SOLAR PANELS WITH MORE THAN (1) LAYERS OF ROOF SHINGLES IS NEVER PERMITTED.
2. THE MOUNTING BRACKETS & HARDWARE MEET OR EXCEEDS ASCE 7-16 AND 2020 RESIDENTIAL CODE OF NEW YORK STATE, PUBLICATION DATE: NOVEMBER 2019 WITH 120 MPH WIND DESIGN. THE SYSTEM'S ATTACHMENT TO THE ROOF TO MEET OR EXCEED 2020 RESIDENTIAL CODE OF NEW YORK STATE, PUBLICATION DATE: NOVEMBER 2019.
3. ANY PLUMBING VENTS THROUGH THE ROOF ARE NOT TO BE CUT OR COVERED DURING PANEL INSTALLATION. ANY MODIFICATION OR RELOCATION OF VENTS WILL REQUIRE A PLUMBING PERMIT AND INSPECTIONS.
4. SIZES OF MEMBERS THAT WERE NOT ACCESSIBLE FOR DIRECT MEASUREMENT ARE BASED ON OBSERVATIONS OF ACCESSIBLE MEMBERS OR CONSTRUCTION DEPTH OR BOTH AND OUR KNOWLEDGE OF STANDARD CONSTRUCTION PRACTICES AT THE TIME OF CONSTRUCTION.
5. THE EXISTING ROOF AND BUILDING STRUCTURE CAN SAFELY SUSTAIN, AND DISTRIBUTE TO THE GROUND, THE ADDITIONAL LOADS IMPOSED BY THE PROPOSED WORK IN ADDITION TO ALL OTHER GRAVITY AND LATERAL LOADS AS REQUIRED BY 2020 RESIDENTIAL CODE OF NEW YORK STATE, PUBLICATION DATE: NOVEMBER 2019

## LG NeON<sup>2</sup> Black

LG340N1K-LS

### General Data

Cell Properties (Material/Type)	Monocrystalline/N-type
Cell Maker	LG
Cell Configuration	60 Cells (6 x 10)
Number of Buses	12EA
Module Dimensions (L x W x H)	1,700mm x 1,016mm x 40 mm
Weight	18.0 kg
Glass (Material)	2.8mm/Tempered Glass with High Transmission Anti-Reflective Coating
Backsheet (Color)	Black
Frame (Material)	Anodized Aluminium
Junction Box (Protection Degree)	IP 68 with 3 Bypass Diodes
Cables (Length)	1,000mm x 2EA
Connector (Type/Maker)	MC 4/MC

### Certifications and Warranty

Certifications	IEC 61215-1/-1-1/2:2016, IEC 61730-1/2:2016 ISO 9001, ISO 14001, ISO 50001 OHSAS 18001, UL 1703
Salt Mist Corrosion Test	IEC 61701:2012 Severity 6
Ammonia Corrosion Test	IEC 62716:2013
Hail Test	35mm (1.38") at 27.2m/s (60.8mph)
Module Fire Performance	Type 2 (UL 1703)
Fire Rating	Class C (UL 790, ULC/ORD C 1703)
Solar Module Product Warranty	25 Year Limited
Solar Module Output Warranty	Linear Warranty*

\*Improved: 1st year 98%, from 2-24th year: 0.33%/year down, 90.1% at year 25

### Temperature Characteristics

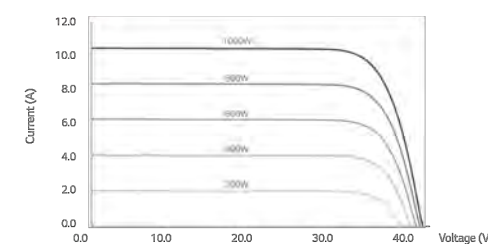
NMOT* [°C]	42 ± 3
Pmax [%/°C]	-0.35
Voc [%/°C]	-0.26
Isc [%/°C]	0.03

\*NMOT (Nominal Module Operating Temperature): Irradiance 800 W/m<sup>2</sup>, Ambient temperature 20°C, Wind speed 1 m/s, Spectrum AM 1.5

### Electrical Properties (NMOT)

Model	LG340N1K-LS
Maximum Power (Pmax) [W]	255
MPP Voltage (Vmpp) [V]	32.8
MPP Current (Impp) [A]	7.78
Open Circuit Voltage (Voc) [V]	38.8
Short Circuit Current (Isc) [A]	8.32

### I-V Curves



### Electrical Properties (STC\*)

Model	LG340N1K-LS
Maximum Power (Pmax) [W]	340
MPP Voltage (Vmpp) [V]	34.9
MPP Current (Impp) [A]	9.75
Open Circuit Voltage (Voc + 5%) [V]	41.2
Short Circuit Current (Isc + 5%) [A]	10.35
Module Efficiency [%]	19.7
Bifaciality Coefficient of Power [%]	10
Power Tolerance [%]	0 ~ +3

\*STC (Standard Test Condition): Irradiance 1000 W/m<sup>2</sup>, cell temperature 25°C, AM 1.5  
\*\*Measurement Tolerance of Pmax: ± 3%

### Operating Conditions

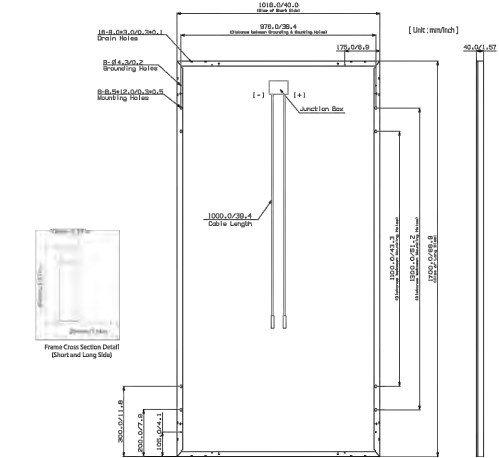
Operating Temperature [°C]	-40 ~ +90
Maximum System Voltage [V]	1,000 (UL/IEC)
Maximum Series Fuse Rating [A]	20
Mechanical Test Load (Front) [Pa/psf]	5,400/113
Mechanical Test Load (Rear) [Pa/psf]	4,000/84

\*Based on IEC 61215-2:2016 (Test Load = Design Load x Safety Factor (1.5))  
\*\*Mechanical Test Loads 6,000Pa/5,400Pa based on IEC 61215:2005

### Packaging Configuration

Number of Modules per Pallet	[EA]	25
Number of Modules per 40' Container	[EA]	650
Number of Modules per 53' Container	[EA]	850
Packaging Box Dimensions (L x W x H) [mm]		1750 x 1,120 x 1,221
Packaging Box Dimensions (L x W x H) [in]		69 x 44.25 x 48.25
Packaging Box Gross Weight [kg]		485
Packaging Box Gross Weight [lb]		1,070

### Dimensions (mm/inch)



## Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US	IQ7PLUS-72-2-US		
Commonly used module pairings <sup>1</sup>	235 W - 350 W +	235 W - 440 W +		
Module compatibility	60-cell PV modules only	60-cell and 72-cell PV modules		
Maximum input DC voltage	48 V	60 V		
Peak power tracking voltage	27 V - 37 V	27 V - 45 V		
Operating range	16 V - 48 V	16 V - 60 V		
Min/Max start voltage	22 V / 48 V	22 V / 60 V		
Max DC short circuit current (module Isc)	15 A	15 A		
Overvoltage class DC port	II	II		
DC port backfeed current	0 A	0 A		
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit			
OUTPUT DATA (AC)	IQ 7 Microinverter	IQ 7+ Microinverter		
Peak output power	250 VA	295 VA		
Maximum continuous output power	240 VA	290 VA		
Nominal (L-L) voltage/range <sup>2</sup>	240 V / 208 V / 211-264 V	240 V / 208 V / 211-264 V		
Maximum continuous output current	1.0 A (240 V) 1.15 A (208 V)	1.21 A (240 V) 1.39 A (208 V)		
Nominal frequency	60 Hz	60 Hz		
Extended frequency range	47 - 68 Hz	47 - 68 Hz		
AC short circuit fault current over 3 cycles	5.8 Arms	5.8 Arms		
Maximum units per 20 A (L-L) branch circuit <sup>3</sup>	16 (240 VAC) 13 (208 VAC)	13 (240 VAC) 11 (208 VAC)		
Overvoltage class AC port	III	III		
AC port backfeed current	18 mA	18 mA		
Power factor setting	1.0	1.0		
Power factor (adjustable)	0.85 leading ... 0.85 lagging	0.85 leading ... 0.85 lagging		
EFFICIENCY	@240 V	@208 V	@240 V	@208 V
Peak efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA				
Ambient temperature range	-40°C to +65°C			
Relative humidity range	4% to 100% (condensing)			
Connector type	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)			
Dimensions (HxWxD)	212 mm x 175 mm x 30.2 mm (without bracket)			
Weight	1.08 kg (2.38 lbs)			
Cooling	Natural convection - No fans			
Approved for wet locations	Yes			
Pollution degree	PD3			
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure			
Environmental category / UV exposure rating	NEMA Type 6 / outdoor			
FEATURES				
Communication	Power Line Communication (PLC)			
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.			
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.			
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC-2014 and NEC-2017 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.			

1. No enforced DC/AC ratio. See the compatibility calculator at <https://enphase.com/en-us/support/module-compatibility>.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit [enphase.com](https://enphase.com)



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**SOLAR PANEL INSTALLATION**  
**YASSKY-GLYNN RESIDENCE**  
214 RADCLIFF DR  
NYACK  
NEW YORK 10960

### REVISIONS NOTES

①	APRIL 13, 2021
DWG. BY: MEM	SCALE: AS-NOTED
CHECKED BY: MEM	PROJECT #: ES-1244-21
DATE: MARCH 5, 2021	SBL #: 60.05 - 2 - 49
MUNICIPALITY: VILLAGE OF UPPER NYACK	COUNTY: ROCKLAND

### SYSTEM NOTES:

TOTAL SYSTEM SIZE: 16.66KW DC SYSTEM  
PANEL TYPE: LG 340W  
OF PANELS: 49  
INVERTER TYPE: ENPHASE IQ7+  
OF INVERTERS: 49  
ARRAY #1 #2 #3 #4 #5 #6 #7  
AZIMUTH 269 88 269 178 88 269 88  
TILT: 24 24 24 24 24 24 24  
# PANE 12 6 6 7 6 6 6

### PROFESSIONAL NOTES:

UNAUTHORIZED ALTERATION OR ADDITION TO THIS PLAN IS A VIOLATION OF SECTION 7209(2) OF THE NEW YORK STATE EDUCATION LAW. COPIES OF THIS MAP NOT HAVING THE SEAL OF THE ENGINEER SHALL NOT BE VALID

### SEAL & SIGNATURE



### DWG#

S-4

SOLAR PANEL & INVERTER SPECIFICATIONS

DWG.

4 OF 5



AC & DC GROUNDING CONDUCTORS PER  
NEC ARTICLE 690.47(c)(2)  
CONNECTED AS PER 250.64(c)(2)

ALL CONDUCTORS ARE TO BE  
COPPER UNLESS NOTED OTHERWISE

ALL EXTERIOR MOUNTED COMBINERS,  
JUNCTION BOXES, TROUGHS, DISCONNECTS,  
ETC. SHALL BE NEMA 3R RATED.

CIRCUIT 4  
1 STRING  
X 12  
MODULES  
12 TOTAL  
PANELS

CIRCUIT 3  
1 STRING  
X 12  
MODULES  
12 TOTAL  
PANELS

CIRCUIT 2  
1 STRING  
X 12  
MODULES  
12 TOTAL  
PANELS

CIRCUIT 1  
1 STRING  
X 13  
MODULES  
13 TOTAL  
PANELS

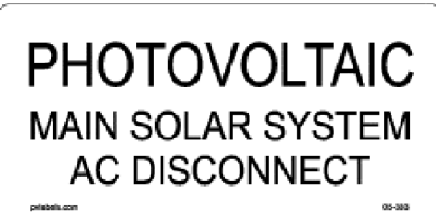
CB1  
AMPACITY: 20 AMP BREAKER  
VOLTAGE: 240V  
SINGLE PHASE + GROUND

CB2  
AMPACITY: 20 AMP BREAKER  
VOLTAGE: 240V  
SINGLE PHASE + GROUND

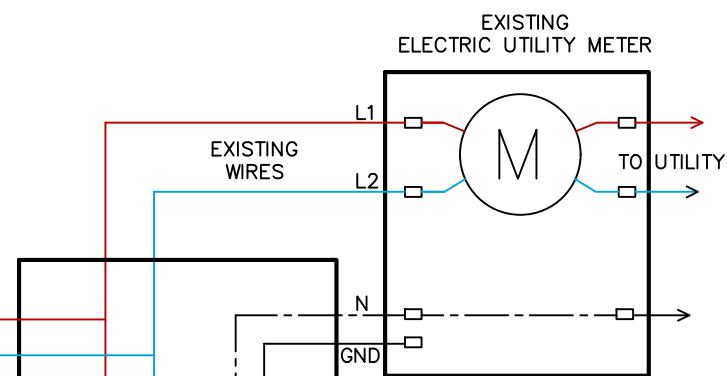
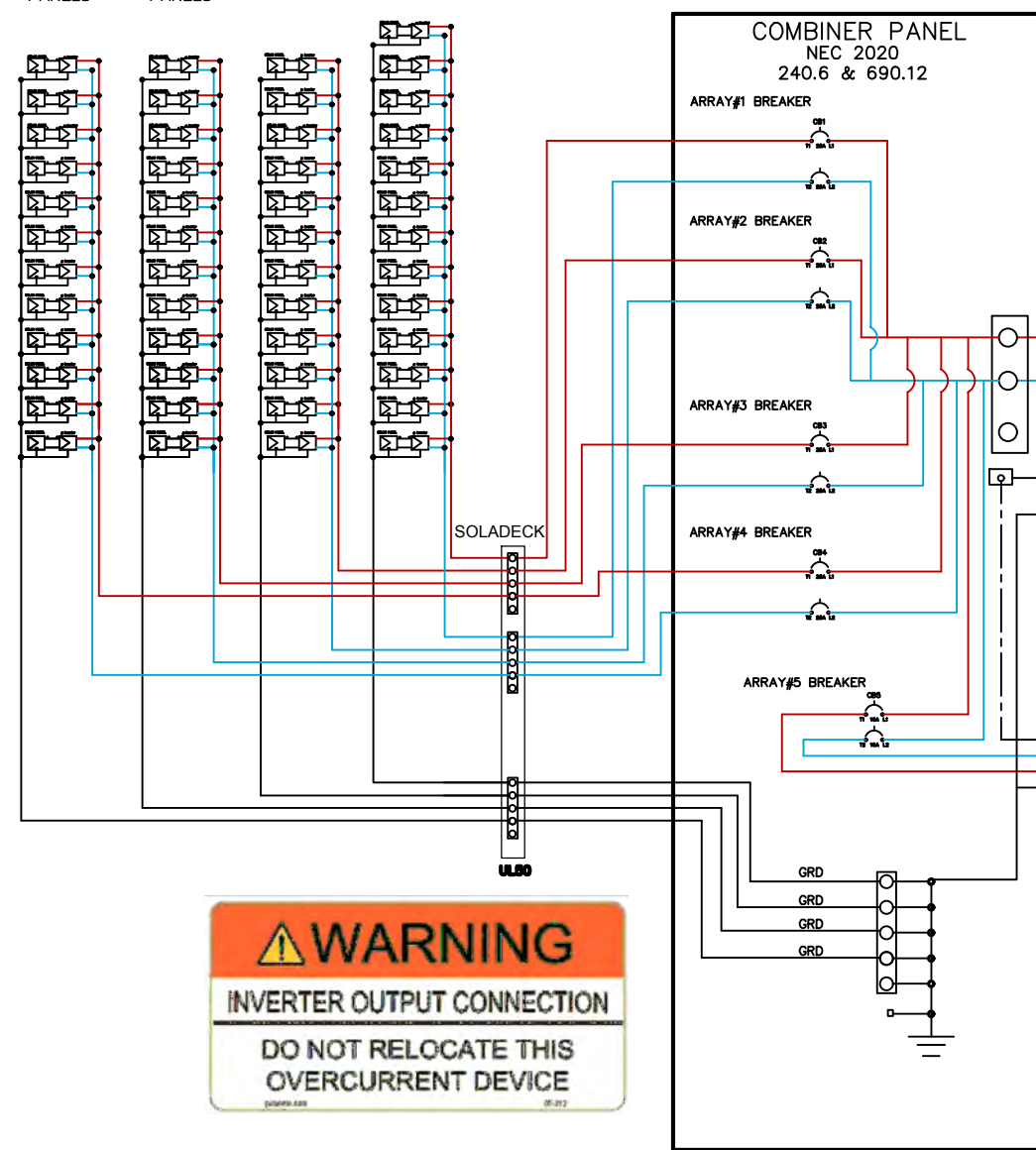
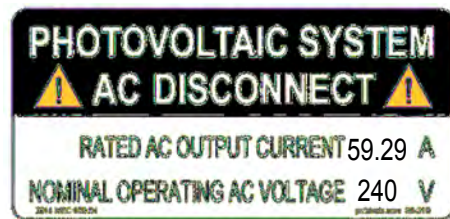
CB3  
AMPACITY: 20 AMP BREAKER  
VOLTAGE: 240V  
SINGLE PHASE + GROUND

CB4  
AMPACITY: 20 AMP BREAKER  
VOLTAGE: 240V  
SINGLE PHASE + GROUND

CB5  
AMPACITY: 10 AMP BREAKER  
VOLTAGE: 240V  
SINGLE PHASE + GROUND



89L DISCONNECT  
100A RATED  
80A FUSED  
DISCONNECT  
120/240V



WIRE AMPACITY  
NEC TABLE 310.15(B)(16)  
#10 THWN Cu35A RATED  
#8 THWN Cu50A RATED  
#6 THWN Cu65A RATED  
#4 THWN Cu85A RATED

AC SYSTEM SIZE = # OF PANELS X  
INVERTER OUTPUT RATING  
  
49 PANELS X 0.290 = 14.21KW/AC

CONFIRM LINE SIDE VOLTAGE AT ELECTRIC  
UTILITY SERVICE ENTRANCE BEFORE  
CONNECTING INVERTER AND ENSURE  
PROPER OPERATIONAL RANGE REQUIRED  
BY SYSTEM INVERTER.

DC CONDUITS MAY BE RUN ABOVE OR BELOW  
ROOF.  
PROVIDE SOLAEDCK JUNCTION/FLASHING WHEN  
PENETRATING THE ROOF WITH DC CONDUCTORS  
  
ALL DC CONDUCTORS WITHIN THE BUILDING  
ENVELOPE MUST BE IN METALLIC CONDUIT.  
  
DC CONDUCTORS MUST BE 90° RATED.

INTERCONNECTION TO UTILITY AND SYSTEM  
GROUNDING PER NEC-2020 ARTICLE 690  
  
PROVIDE SIGNAGE AS REQUIRED BY  
NEC-2020 ARTICLE 690.  
  
ALL OUTDOOR EQUIPTMEN SHALL BE A  
MINIMUM OF NEMA-3R RATED.



**SOLAR PANEL  
INSTALLATION  
YASSKY-GLYNN  
RESIDENCE**  
214 RADCLIFF DR  
NYACK  
NEW YORK 10960

**REVISIONS NOTES**

①	APRIL 13, 2021
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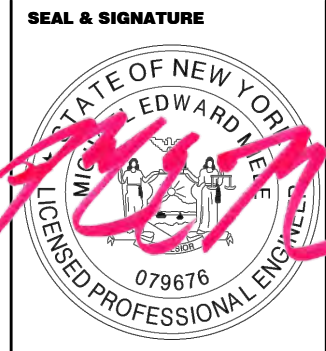
INVERTER TYPE: ENPHASE IQ7+

OF INVERTERS: 49

ARRAY	#1	#2	#3	#4	#5	#6	#7
AZIMUTH	269	88	269	178	88	269	88
TILT:	24	24	24	24	24	24	24
# PANE	12	6	6	7	6	6	6

**PROFESSIONAL NOTES:**

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DWG#  
**S-5**  
**SOLAR PANEL  
3-LINE  
DIAGRAM**  
DWG.  
**5 OF 5**