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Showing 1 of 1

<input type="checkbox"/> Permit #	Status	Record Type Alias	Street #	Street Name	Type	Unit Type	Unit #	City
<input type="checkbox"/> <u>B23000740</u>	Review In Process	Residential Solar Panels	12550	FOLLY QUARTER	RD			ELLICOTT

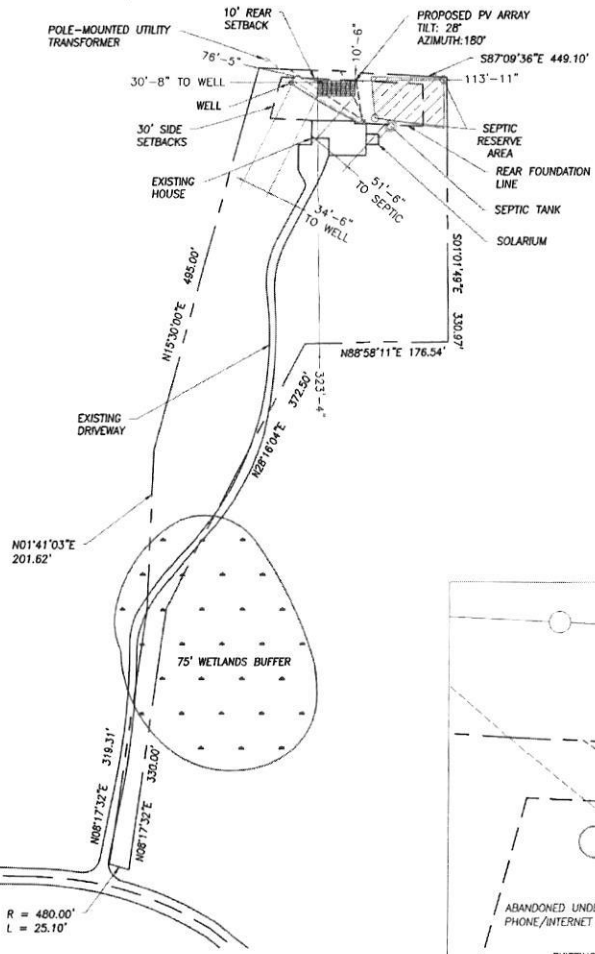
Page  of 1

*Online*

Approved Septic System Plan  
 Howard County Health Department  
Dana Beard      3-13-23  
 Signature



**Battery**



**SITE PLAN**  
Scale: 1" = 150'



General Notes



**SolarEnergyWorld**  
*Because Tomorrow Matters*  
Solar Energy World LLC.  
5881 Main Street  
Elkridge, MD 21075  
(888) 407-3233

This drawing is the property of Solar Energy World Inc. The information herein contained shall be used for the sole benefit of Solar Energy World. It shall not be disclosed to others outside the recipient's organization, in whole or in part, without the written permission of Solar Energy World, except in connection with the sale and use of the respective Solar Energy equipment.

Professional Certification: I hereby certify that these documents were prepared or approved by me and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 400027, Expiration Date 3/15/23.

Stamp

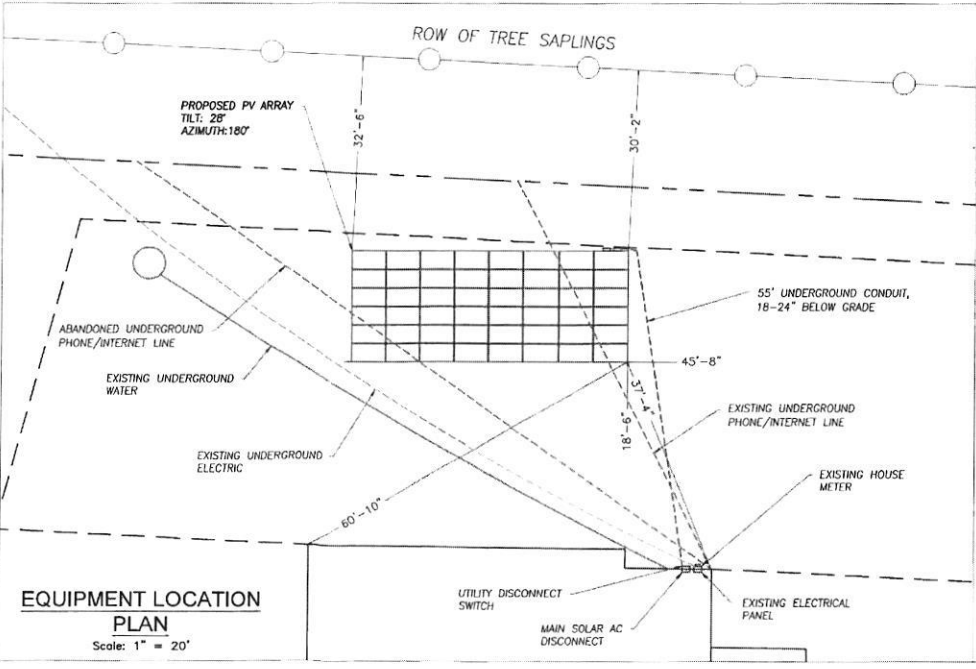
James C Douglas  
Professional Engineer  
No. 400027  
State of Maryland

Engineering Review is Limited to Structural Design Only As it Pertains to the SFUSA Array Structure.

Project Name and Address  
**Mary and John Ferma GM**  
6Lx8C  
12550 Folly Quarter Rd  
Ellicott City, MD 21042  
MD13207  
17.52 kW

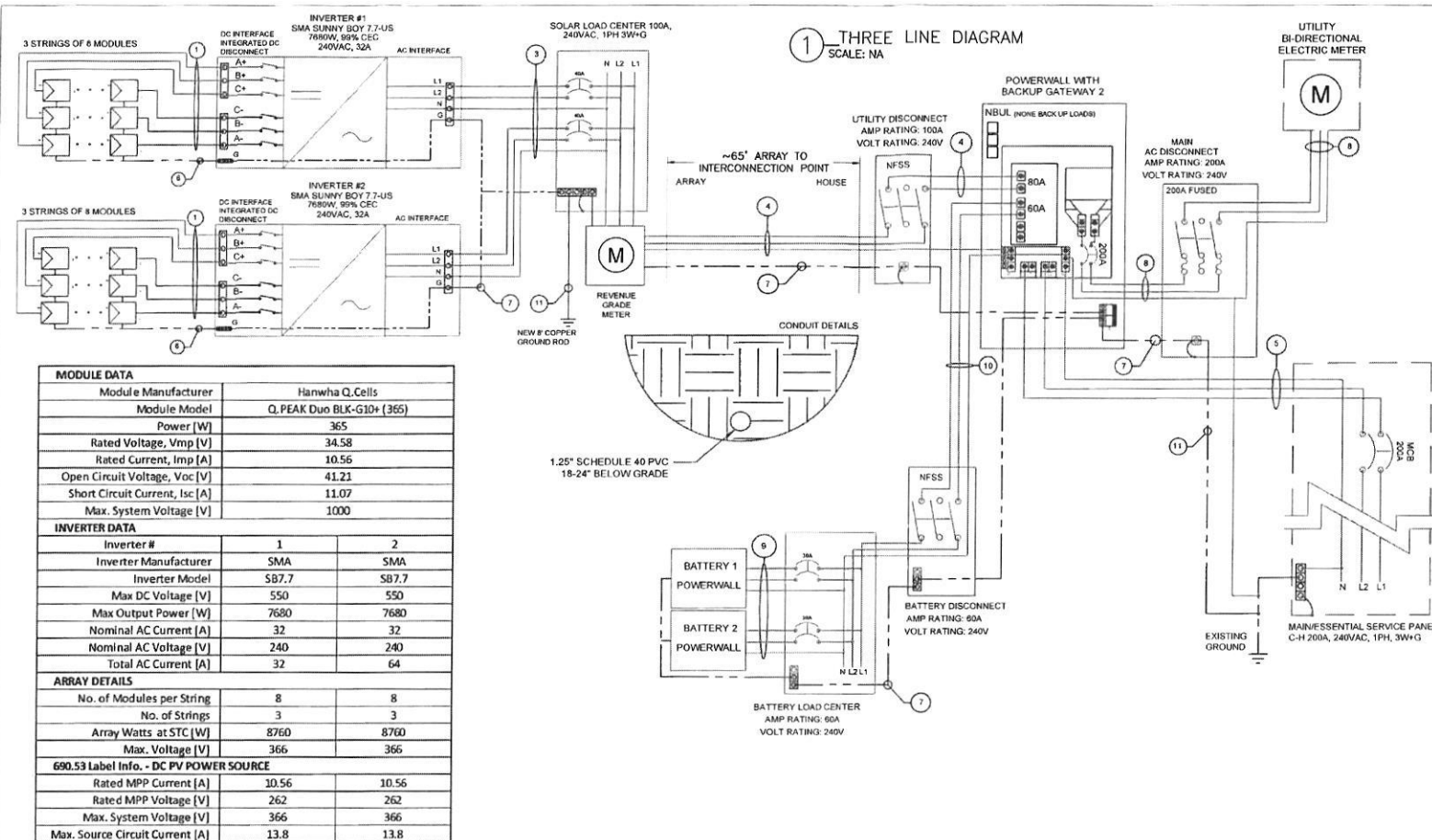
Drawn by  
**J. Mountain**  
Date  
**08-FEB-2023**  
Scale  
**AS NOTED**

Sheet  
**A001**



**EQUIPMENT LOCATION PLAN**  
Scale: 1" = 20'

- NOTES:**
- THIS DRAWING IS TO PROVIDE REFERENCE FOR THE INSTALLATION OF GROUND MOUNT PHOTOVOLTAIC ARRAYS.
  - THE SYSTEM SHALL INCLUDE [48] HANWHA Q-CELLS DUO BLK-G10+ 365W MODULES [DIMENSIONS: 67.60" (L) x 41.14" (W) x 1.26" (D)] AND WEIGHING 43.9 LBS (PANEL DEAD LOAD = 2.27PSF)
  - THE SOLAR FOUNDATIONS RACKING WILL BE INSTALLED PER MANUFACTURER'S INSTALLATION MANUAL.
  - THE PROPOSED ARRAY SHALL COVER APPROX. 846 SQ.FT. OF 3.19 AC. PROPERTY.
  - EQUIPMENT LOCATION PLAN IS APPROXIMATE, EXACT LOCATION TO BE VERIFIED WITH INSTALLATION CREW AND HOME OWNER AT THE TIME OF INSTALLATION



① THREE LINE DIAGRAM  
SCALE: NA

MODULE DATA	
Module Manufacturer	Hanwha Q.Cells
Module Model	Q.PEAK Duo BLK-G10+ (365)
Power [W]	365
Rated Voltage, Vmp [V]	34.58
Rated Current, Imp [A]	10.56
Open Circuit Voltage, Voc [V]	41.21
Short Circuit Current, Isc [A]	11.07
Max. System Voltage [V]	1000
INVERTER DATA	
Inverter #	1 2
Inverter Manufacturer	SMA SMA
Inverter Model	S87.7 S87.7
Max DC Voltage [V]	550 550
Max Output Power [W]	7680 7680
Nominal AC Current [A]	32 32
Nominal AC Voltage [V]	240 240
Total AC Current [A]	32 64
ARRAY DETAILS	
No. of Modules per String	8 8
No. of Strings	3 3
Array Watts at STC [W]	8760 8760
Max. Voltage [V]	366 366
690.53 Label Info. - DC PV POWER SOURCE	
Rated MPP Current [A]	10.56 10.56
Rated MPP Voltage [V]	262 262
Max. System Voltage [V]	366 366
Max. Source Circuit Current [A]	13.8 13.8

WIRE/CONDUIT SCHEDULE ARRAY			
TAG	DESCRIPTION	WIRE SIZE/TYPE	NOTES
1	Module to DC Disconnect	#10 PV WIRE 2KV RATED	
2	DC Disconnect to Inverter	NA	Integrated
3	Inverter to Solar Load Center	#8 Cu THHN/THWN-2 in EMT	
4	Solar Load Center to Utility Disconnect/Gateway	#4 Cu THHN/THWN-2 in 1.25" PVC	Vdrop=1.0%
5	Gateway to Service Panels	#4/0 Al THHN/THWN-2 in EMT	
6	Equipment Grounding Conductor	#8 Bare Cu	
7	Equipment Grounding Conductor	#6 Cu THHN/THWN-2	
8	Gateway to Main Disco/Utility Meter	#4/0 Cu THHN/THWN-2	
9	PowerWall to Battery Load Center	#8 Cu THHN/THWN-2 in 1" PVC	
10	Battery Load Center to Disconnect/Gateway	#4 Cu THHN/THWN-2 in 1.5" PVC	
11	Grounding Electrode Conductor	#6 Cu	

GENERAL ELECTRICAL NOTES: NEC2017

- EQUIPMENT USED SHALL BE NEW, UNLESS OTHERWISE NOTED.
  - EQUIPMENT USED SHALL BE UL LISTED, UNLESS OTHERWISE NOTED.
  - EQUIPMENT SHALL BE INSTALLED PROVIDING ADEQUATE PHYSICAL WORKING SPACE AROUND THE EQUIPMENT AND SHALL COMPLY WITH NEC.
  - COPPER CONDUCTORS SHALL BE USED AND SHALL HAVE INSULATION RATING 600V, 90°C, UNLESS OTHERWISE NOTED. CONDUCTORS SHALL BE SIZED IN ACCORDANCE TO NEC. CONDUCTORS AMPACITY SHALL BE DE-RATED FOR TEMPERATURE INCREASE, CONDUIT FILL AND VOLTAGE DROP.
  - ALL CONDUCTORS, EXCEPT PV WIRE, SHALL BE INSTALLED IN APPROVED CONDUITS OR RACEWAY. CONDUITS SHALL BE ADEQUATELY SUPPORTED AS PER NEC.
  - AC DISCONNECT SHOWN IS REQUIRED IF THE UTILITY REQUIRES VISIBLE-BLADE SWITCH.
  - EXPOSED NON-CURRENT CARRYING METAL PARTS SHALL BE GROUNDED AS PER NEC.
  - LINE SIDE INTER-CONNECTION SHALL COMPLY WITH NEC
  - SMS MONITORING SYSTEM AND IT'S CONNECTION SHOWN IS OPTIONAL. IF USED, REFER TO SMS INSTALLATION MANUAL FOR WIRING METHODS AND OPERATION PROCEDURE.
  - ASHRAE FUNDAMENTAL OUTDOOR DESIGN TEMPERATURES DO NOT EXCEED 47°C IN THE U.S. (PHOENIX, AZ or PALM SPRINGS, CA)
  - FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN ROOF MOUNTED SUNLIGHT CONDUIT USING THE OUTDOOR TEMPERATURE OF 47°C
  - 10AWG CONDUCTOR ARE GENERALLY ACCEPTABLE FOR MODULES WITH AN Isc OF 9.6 AMPS WITH A 15 AMP FUSE. Wire sizing for OCPD
- Ex(Isc\*(1.25)(1.25)# of strings in parallel)= wire ampacity or using NEC690.8

General Notes

**SolarEnergyWorld**  
Because Tomorrow Matters  
Solar Energy World LLC.  
5681 Main Street  
Elkridge, MD 21075  
(888) 497-3233

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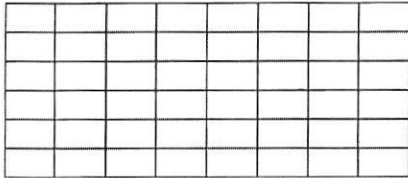
Stamp

STAMPED AND SIGNED FOR STRUCTURES ONLY

Project Name and Address  
**Mary and John Ferma GM**  
6Lx8C  
12550 Folly Quarter Rd  
Ellicott City, MD 21042  
MD13207  
17.52 kW

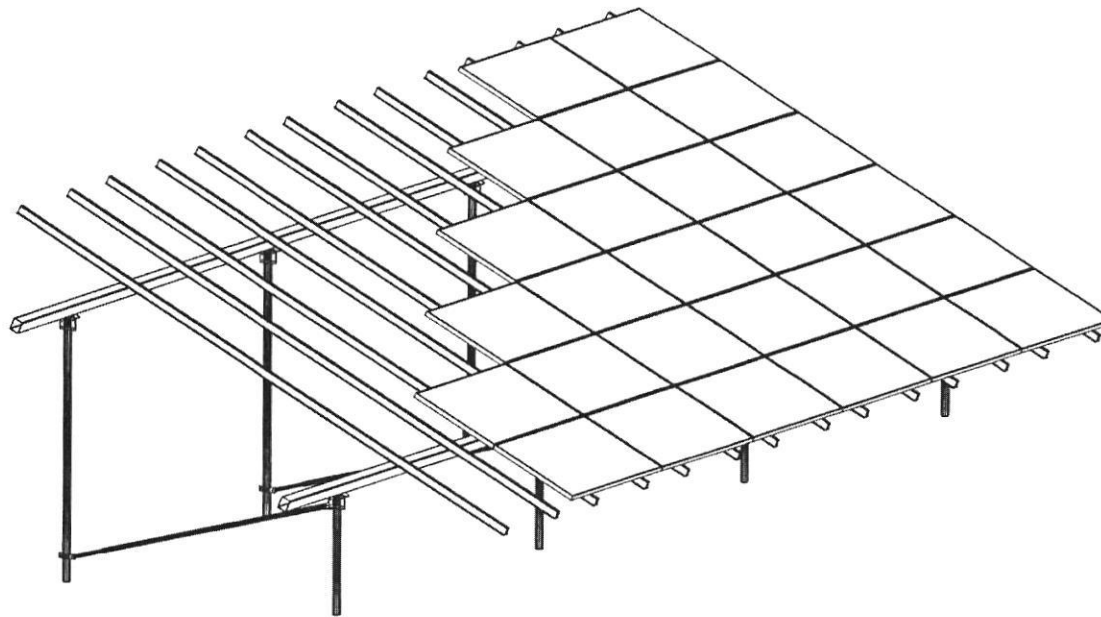
Drawn by: **J. Mountain**  
Date: **02-DEC-2022**  
Scale: **AS NOTED**

Sheet: **E001**



**PLAN VIEW**

N.T.S.



**Site Design Conditions**

Basic Wind Speed: 115 MPH	Max. Leg Axial Bearing: 4,155 lbs.
(Risk Category II)	
Basic Wind Speed: 105 MPH	Max. Leg Uplift: 2,485 lbs.
(Risk Category I)	
Exposure Category: C	Max. Lateral Resistance: 1,915 lbs.
Ground Snow Load: 40 PSF	Top Rail Max. Loading: 97.3 plf
Flat Roof Snow Load: N/A	Helical Pile Depth: 60" Min
(if applicable)	
Site Contour: < 5 Degree Slope	Lateral Resistance Plate Size: Not Req'd

All design work has been performed in accordance with the Howard County Building Code including, but not limited to, the 2021 International Building Code with Amendments per Section 3.101.  
 Net design pressures were calculated in accordance with ASCE 7-16 section 27.3.2, "Open Buildings with Monoslope, Pitched, or Troughed Roofs". All load cases were evaluated in determining the limiting design conditions. The data table above provides the results for the limiting load case. Maximum leg reaction forces represent the highest load condition seen by any leg in the structure. All legs in the structure are designed to meet the maximum load conditions.

**6Lx8C Sub-Array Design Conditions**

Front Leg Height: 39 3/4"	Array Tilt Angle: 28 Degrees
Rear Leg Height: 106 1/2"	Front Edge Ground Clearance: 24"
North-South Leg Spacing: 125 1/2"	Overall Array East-West Dim: 45'-3"
West Span Leg Spacing: 12'-0"	Number of Modules/Sub-Array: 48
East Span Leg Spacing: 12'-0"	Number of Sub-Arrays: 1
Quantity Center Spans: 1	Module Columns/Sub-Array: 8
Center Span Leg Spacing: 12'-6"	Number of Module Rows: 6
East & West Overhang: 3'-6"	Module Orientation: Landscape
Overall Beam Length: 43'-6"	Module Column Spacing: 3'
Horizontal Rail Material: 5"x4" HSS	Module Row Spacing: 3'
Top Rail Material: SF Rails	Module Model: Q.PEAK DUO BLK-G10+
Qty Rails per Panel: 2	Module Size: 41.14" x 67.60"
Top Rail Length: 254"	Individual Module Rating: 365 watt
Top Rail Center Span: 142"	Sub Array Power Rating: 17.52 kw
Top Rail Overhangs: 56"	Total Power Rating: 17.52 kw

James C  
Douglas

Digitally signed by James C Douglas  
DN: cn=James C Douglas, o=Professional Engineer  
No. 40027, email=jcdouglas@pe.com



Professional Certification. I hereby certify that these documents were prepared or approved by me and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 40027, Expiration Date: 3/15/23.

**SHEET 1 OF 3**

**SOLAR ENERGY WORLD**

**-PROJECT-**  
FERMA RESIDENCE (MD13207)  
12550 FOLLY QUARTER ROAD  
ELLICOTT CITY, MD 21042

**Solar Foundations USA**

1142 River Road, New Castle, DE 19720 Ph: (855) 738-7200 Fax: (866) 644-5665

DATE		REVISION	DRAWN BY:	REVIEW BY:
02/23/2023	ORIGINAL		JB	JD







SFUSA™  
Ground Mount Structure

Date: February 23, 2022  
Subject: Ground Mount Solar Support Structure  
Project: Ferma Residence (MD13207)  
12550 Folly Quarter Road  
Ellicott, MD 21042

To whom it may concern,

Solar Foundations USA certifies that the design of the subject ground mount support structure as submitted in Reference (a) conforms to the Maryland Building Performance Standards Regulations, including the 2021 International Building Code (IBC) Amendments per Section 3.101.

Professional Certification. I hereby certify that this document was prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 40027, Expiration Date: 3/15/2023.

Please call if you have any questions or require any additional information.

Respectfully,

James C. Douglas  
Director of Engineering  
MD PE # 40027

