

MONTGOMERY COUNTY HISTORIC PRESERVATION COMMISSION
STAFF REPORT

Address:	101 Elm Avenue, Takoma Park	Meeting Date:	2/25/2026
Resource:	Contributing Resource Takoma Park Historic District	Report Date:	2/18/2026
Applicant:	Jared Hughes Morgan Malone (Agent)	Public Notice:	2/11/2026
Review:	HAWP	Tax Credit:	No
Permit Number:	1144999	Staff:	Devon Murtha
PROPOSAL:	Solar panel installation		

STAFF RECOMMENDATION

Staff recommends that the HPC **approve with one (1) condition** the Historic Area Work Permit (HAWP) application.

1. The applicant must submit an updated justification to confirm that the expected energy generated will not exceed 100% of household needs prior to issuance of final approval documents. If expected energy generated exceeds 100% of household needs, the applicant will return to the HPC with an updated plan for a reduced number of panels.

ARCHITECTURAL DESCRIPTION

SIGNIFICANCE: Contributing Resource within the Takoma Park Historic District
STYLE: Bungalow
DATE: c. 1910s



Figure 1: Aerial view of 101 Elm Avenue within the Takoma Park Historic District.

PROPOSAL

The subject property is located at 101 Elm Avenue, on a corner lot at the intersection of Pine and Elm Avenues. It contains a one-story house with a gable roof and front porch (*Figure 2*). It is a Contributing Resource within the Takoma Park Historic District.



Figure 2: Subject property from the right-of-way along Elm Avenue (c. 1992).

The applicant proposes to install thirty (33) solar panels in three (3) arrays on the main roof of the subject property. The Canadian Solar TOPHiKu6 series panels will be mounted to the asphalt shingle roof. The load center and disconnect switch will be installed on the northwest corner of the house.

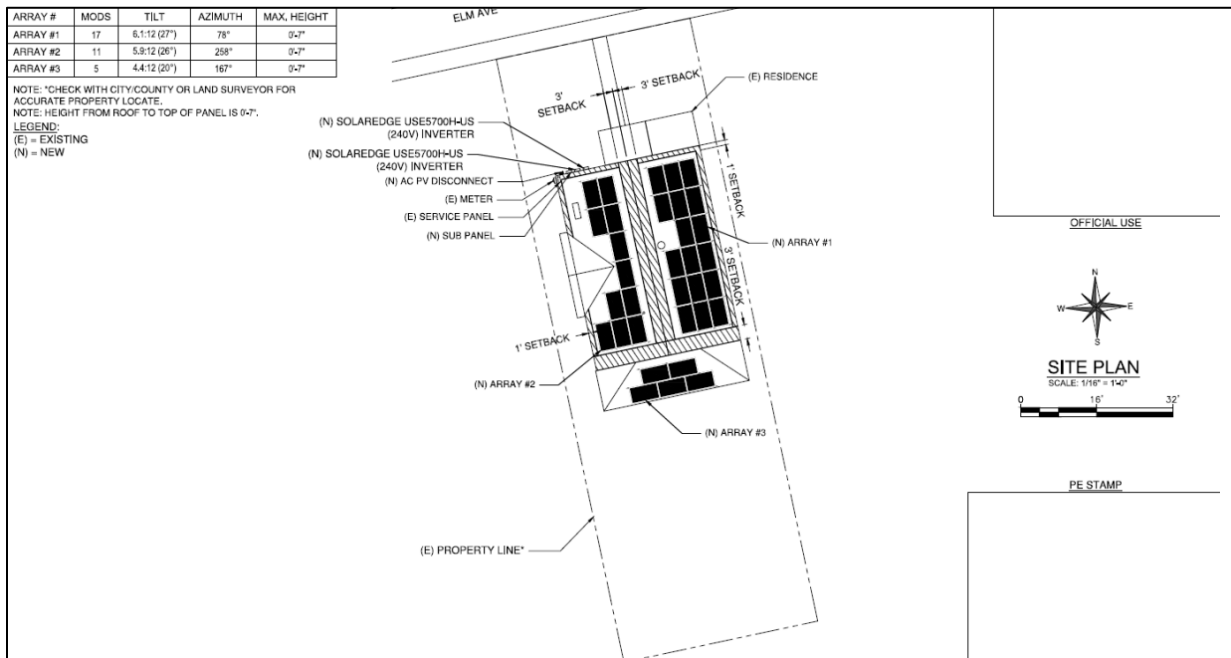


Figure 3: The site plan shows the proposed location of the solar panels and the equipment location.



Figure 4: Specifications for the solar panels.

APPLICABLE GUIDELINES

The Historic Preservation Office and Historic Preservation Commission (HPC) consult several documents when reviewing alterations and new construction within the Takoma Park Historic District. These documents include the historic preservation review guidelines in the approved and adopted amendment for the *Takoma Park Historic District (Guidelines)*, *Montgomery County Code Chapter 24A (Chapter 24A)*, and the *Secretary of the Interior's Standards for Rehabilitation (Standards)*, and the HPC's *Policy No. 20-01: Addressing Emergency Climate Mobilization Through The Installation of Roof-Mounted Solar Panels*. The pertinent information in these four documents is outlined below.

Takoma Park Historic District Guidelines

There are two broad planning and design concepts which apply to all categories. These are:

- The design review emphasis will be restricted to changes that are all visible from the public right-of-way, irrespective of landscaping or vegetation (it is expected that the majority of new additions will be reviewed for their impact on the overall district), and
- The importance of assuring that additions and other changes to existing structures act to reinforce and continue existing streetscape, landscape, and building patterns rather than to impair the character of the historic district.

Most of the buildings in the Takoma Park Historic District have been assessed as being “Contributing Resources.” While these buildings may not have the same level of architectural or historical significance as Outstanding Resources or may have lost some degree of integrity, collectively, they are the basic building blocks of the Takoma Park district. They are important to the overall character of the district and the streetscape due to their size, scale, and architectural qualities, rather than for their particular architectural features.

Contributing Resources should receive a more lenient review than those structures that have been classified as Outstanding. This design review should emphasize the importance of the resource to the overall streetscape and its compatibility with existing patterns rather than focusing on a close scrutiny of

architectural detailing. In general, however, changes to Contributing Resources should respect the predominant architectural style of the resource. As stated above, the design review emphasis will be restricted to changes that are at all visible from the public right-of-way, irrespective of landscaping or vegetation.

Some of the factors to be considered in reviewing HAWPs on Contributing Resources include:

- All exterior alterations, including those to architectural features and details, should be generally consistent with the predominant architectural style and period of the resource and should preserve the predominant architectural features of the resource; exact replication of existing details and features is, however, not required.
- Minor alterations to areas that do not directly front on a public right-of-way -such as vents, metal stovepipes, air conditioners, fences, skylights, etc. should be allowed as a matter of course;
- Alterations to areas that do not directly front on a public right-of-way which involve the replacement of or damage to original ornamental or architectural features are discouraged but may be considered and approved on a case-by-case basis.
- Alterations to features that are not visible at all from the public right-of-way should be allowed as a matter of course.
- All changes and additions should respect existing environmental settings, landscaping, and patterns of open space.

Montgomery County Code, Chapter 24A-8

The following guidance which pertains to this project are as follows:

- (b) The commission shall instruct the director to issue a permit, or issue a permit subject to such conditions as are found to be necessary to ensure conformity with the purposes and requirements of this chapter, if it finds that:
 - (1) The proposal will not substantially alter the exterior features of an historic site or historic resource within an historic district; or
 - (2) The proposal is compatible in character and nature with the historical, archeological, architectural or cultural features of the historic site or the historic district in which an historic resource is located and would not be detrimental thereto or to the achievement of the purposes of this chapter;
 - (6) In balancing the interests of the public in preserving the historic site or historic resource located within an historic district, with the interests of the public from the use and benefit of the alternative proposal, the general public is better served by granting the permit.
- (d) In the case of an application for work on an historic resource located within an historic district, the commission shall be lenient in its judgment of plans for structures of little historical or design significance or for plans involving new construction, unless such plans would seriously impair the historic or architectural value of surrounding historic resources or would impair the character of the historic district. (Ord. No. 9-4, § 1; Ord. No. 11-59.)

Secretary of the Interior's Standards for Rehabilitation

The Secretary of the Interior defines rehabilitation as “the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features, which convey its historical, cultural, or architectural values.” The applicable *Standards* are as follows:

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Historic Preservation Commission Policy No. 20-01: Addressing Emergency Climate Mobilization Through The Installation of Roof-Mounted Solar Panels

Now, THEREFORE:

WHEREAS, Historic Area Work Permit decisions are guided by the criteria in Section 24A, The Secretary of the Interior's Standards for Rehabilitation, and pertinent guidance from applicable master plan amendments and/or site or district-specific studies;

WHEREAS, The Secretary of the Interior's Standards for Rehabilitation as interpreted by the National Park Service limit the placement of rooftop solar panels under Standards 2, 9, and 10 to less conspicuous locations;

WHEREAS, the County Council has established a Climate Emergency;

WHEREAS, the Historic Preservation is a body established by the County Executive and County Council;

WHEREAS, Section 24-8(b)(6) states, "In balancing the interest of the public in preserving the historic site or historic resource located within an historic district, with the interests of the public from the use and benefit of the alternative proposal, the general public welfare is better served by granting the permit;"

WHEREAS, the widespread use of solar panels, both for hot water and for electricity production, will reduce greenhouse gases in the county, in accordance with the aims of the Emergency Climate Mobilization resolution (Resolution No.: 18-974), it shall be the policy of the Historic Preservation Commission that:

1. The preferred locations for solar panel installation(s) on a designated historic site or an historic resource located within an historic district is a) on the rear of the property, b) on non-historic building additions, c) on accessory structures, or d) in ground-mounted arrays;
2. If it is not feasible to install solar panels in one of the identified preferred locations due to resource orientation or other site limitations; and,
3. The roof is determined to be neither architecturally significant, nor a character-defining feature of the resource, nor is it a slate or tile roof, that unless it can be demonstrated that the solar array will be installed without damaging the historic character of the resource or historic fabric; then
4. The public welfare is better served by approving a Historic Area Work Permit for solar panels on all visible side or front roof slopes under Section 24A-8(b)(6).
5. A Historic Area Work Permit (HAWP) is required for all work referenced in this policy.

STAFF DISCUSSION

Staff generally supports the installation of the proposed solar panels and recommends approval. The HPC approved a proposal for solar panel installation on the subject property at the December 20, 2023 HPC meeting, but the project was never completed.¹ The new proposal utilizes the same roof planes as the previous proposal, but with additional panels (*Figure 5*).

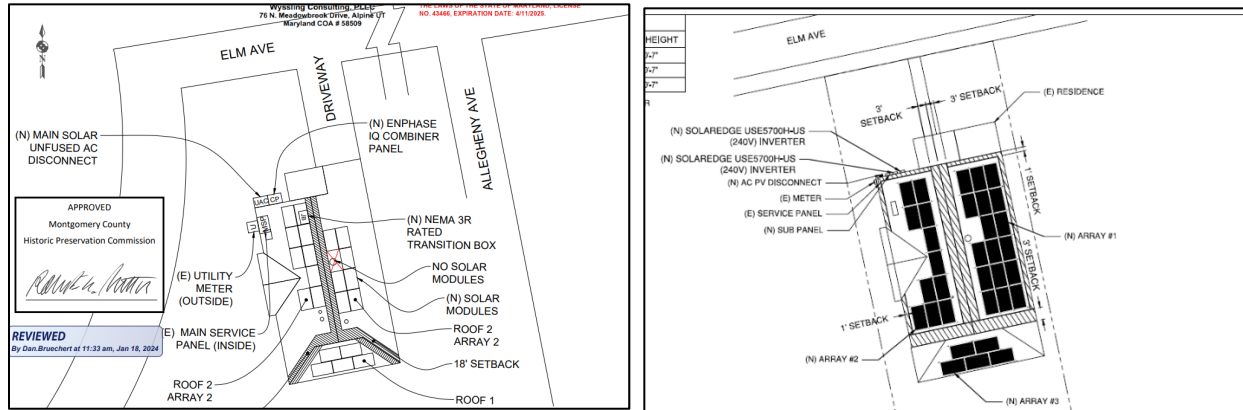


Figure 5: Solar panel plan approved in 2023 (left) and current proposal (right).

Staff evaluated the proposed placement of the solar panels on the subject property against the guidance provided by *Historic Preservation Commission Policy No. 20-01*. In determining the most appropriate placement of solar panels, the policy outlines several preferred locations, including (in order of preference): in ground-mounted arrays, on accessory structures, on non-historic building additions, and on the rear of the property. Staff finds that the primary and secondary preferred locations are not feasible for this project. The applicants cannot install ground-mounted arrays due to the small, suburban lot size and substantial tree coverage. The applicants also contend that they cannot install panels on the accessory building on the property, as it suffers from structural issues. Based on the photos, Staff finds that the structure does appear to suffer from some exterior deterioration, as evidenced by issues with the siding and the presence of biological growth (*Figure 6*). The applicant has not submitted any other documentation that speaks to the structural deficiencies.



Figure 6: Photos of the accessory structure (2025).

¹ See the approval documents for HAWP No. 1051115 here: https://mcatlas.org/tiles6/06_HistoricPreservation_PhotoArchives/HAWP/12-20-2023/101%20Elm%20Avenue,%20Takoma%20Park%20-%201051115%20-%20Approval.pdf

Staff notes that in 2024, the HPC approved a scheme for this property that did not include any panels installed on the accessory structure. The Staff Report for the 2023 proposal stated that “the detached garage is too obscured by mature trees to receive adequate direct sunlight.” The applicant did not submit any information about the tree coverage in that area as part of this new application; however, Staff finds there has not been a significant change to the surrounding tree canopy in the last two years, and the conditions remain the same.

One (1) of the proposed arrays will be location on the non-historic rear addition, which is a tertiary preferred location. Due to the relatively small size of the addition, Staff finds that the no additional panels, beyond the five that are proposed, can fit of this roof slope.



Figure 7: Aerial View of subject property, with non-historic addition notated with a yellow arrow.

The remaining two (2) arrays will be installed on the side-facing gable slope roofs of the subject property, which are non-preferred locations. Staff notes that *Policy 20-01* allows for installation of panels on non-preferred location if it is not feasible to install solar panels in one of the identified preferred locations due to resource orientation or other site limitations; and if the roof is determined to be neither architecturally significant, nor a character-defining feature of the resource, nor is it a slate or tile roof. Staff finds that in this case, the applicants have submitted compelling justification that there are no alternate roof slopes, and that only the non-preferred locations are feasible. The existing roof is not character-defining and is clad in asphalt shingles.

The HPC typically allows for installation of systems of non-preferred locations, provided that the applicants demonstrate that the system will generate 100% or less of the energy needed for the house. In 2024, the homeowners used roughly 22,800 kWh. The applicants have stated that the system will produce less than that total, although they did not specify a number. Staff recommend that the HPC add a condition that the applicants submit a more detailed justification to confirm that the energy generated by the proposed system does not exceed the anticipated usage.

Staff acknowledges that two of the arrays will be visible from some vantage points along both Pine Avenue and Elm Avenue; however, per the *Guidelines*, Staff finds that their installation will not impact the existing

pattern of the streetscape. The most visible panels, on the west roof slope, will be partially obscured by the chimney (*Figure 8*).



Figure 8: View of roof from right-of-way. The location of panels is notated with a red arrow.

Additionally, photovoltaic systems are already an established element of the district; the HPC has approved the installation of solar panels in locations visible from the right-of-way on similar resources. In 2022, the HPC approved panels on the side of an Outstanding Resource at 28 Pine Avenue on a Contributing Resource at 49 Elm Avenue.² Both houses are less than a block away from the subject property (*Figure 9*).

² See the Staff Report for HAWP No. 989988: <https://montgomeryplanning.org/wp-content/uploads/2022/04/I.L-28-Pine-Avenue-Takoma-Park-989988.pdf>

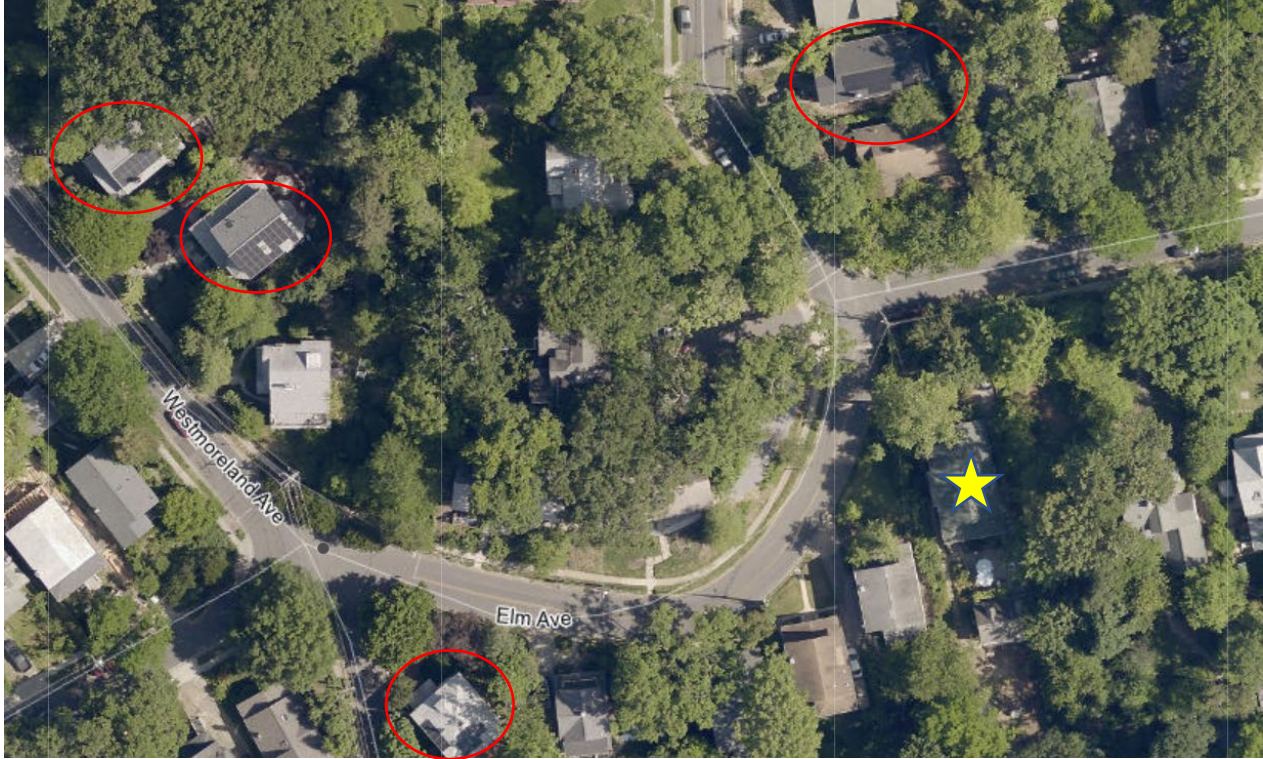


Figure 9: Aerial view showing the subject property annotated with a yellow star, and nearby houses with solar panels visible from the right-of-way circled in red.

After full and fair consideration of the applicant's submission, staff finds the proposal, as modified by the conditions, consistent with the Criteria for Issuance in Chapter 24A-8(b)(1), (2), and (d), having found the proposal is consistent with the *Secretary of the Interior's Standards for Rehabilitation* #2, 9, and 10, and *Takoma Park Historic District Guidelines*, and the *HPC's Policy No. 20-01* as outlined above.

STAFF RECOMMENDATION

Staff recommends that the HPC **approve with one (1) condition** the Historic Area Work Permit (HAWP) application.

1. The applicant must submit an updated justification to confirm that the expected energy generated will not exceed 100% of household needs prior to issuance of final approval documents. If expected energy generated exceeds 100% of household needs, the applicant will return to the HPC with an updated plan for a reduced number of panels.

under the Criteria for Issuance in Chapter 24A-8(b)(1) and (2), and Chapter 24A-8(d), having found that the proposal will not substantially alter the exterior features of the historic resource and is compatible in character with the purposes of Chapter 24A;

The Takoma Park Historic District Guidelines;

and with the *Secretary of the Interior's Standards for Rehabilitation* # 2, 9, and 10;

and with the *Historic Preservation Commission Policy No. 20-01: Addressing Emergency Climate Mobilization Through The Installation of Roof-Mounted Solar Panels;*

and with the general condition that the applicant shall present an electronic set of drawings, if applicable, to HPC staff for review and stamping prior to submission for the Montgomery County Department of

Permitting Services (DPS) building permits;

and with the general condition that final project design details, not specifically delineated by the Commission, shall be approved by HPC staff or brought back to the HPC as a revised HAWP application at staff's discretion;

and with the general condition that the applicant shall notify the HPC staff if they propose to make **any alterations** to the approved plans. Once the work is completed the applicant will contact the staff person assigned to this application at 301-495-1328 or devon.murtha@montgomeryplanning.org to schedule a follow-up site visit.

Description of Property: Please describe the building and surrounding environment. Include information on significant structures, landscape features, or other significant features of the property:

The subject property at 101 Elm Avenue is a detached single-family dwelling located within the Takoma Park Historic District, a locally and nationally recognized historic district characterized by late-19th- and early-20th-century suburban residential development. The property occupies an interior lot along Elm Avenue, a residential, tree-lined street exhibiting a consistent historic streetscape pattern of modestly scaled houses set back from the public right-of-way.

The building is oriented toward Elm Avenue and maintains the established setback, scale, and massing typical of contributing resources within the district. The surrounding neighborhood is composed primarily of single-family dwellings of similar height, width, and spacing, reinforcing the cohesive historic character of the block. Sidewalks, mature street trees, and front yards contribute to the pedestrian-oriented suburban setting that defines the historic district.

The lot includes landscaped open space with lawn areas, foundation plantings, and mature vegetation that contribute to the property's historic setting. The rear and side yards provide additional green space consistent with the historic residential lot pattern in Takoma Park. No significant historic sites

Description of Work Proposed: Please give an overview of the work to be undertaken:

The proposed work consists of the installation of a rooftop-mounted photovoltaic solar energy system on the existing residential structure. The system will include a total of 33 photovoltaic panels, each rated at 455 watts, arranged in three discrete arrays mounted flush to the roof surface.

Array 1: 17 panels

Array 2: 11 panels

Array 3: 5 panels

The solar arrays will be located on roof planes selected to minimize visibility from the public right-of-way and to reduce visual impact on the historic streetscape, consistent with the Montgomery County Historic Preservation Guidelines for rooftop solar installations. Panels will be installed parallel to the roof slope using a low-profile mounting system and will not alter the roof form, massing, or architectural character of the historic resource.

All installation work will be reversible and will avoid removal or permanent alteration of historic materials to the extent feasible. No changes are proposed to the building's footprint, height, or primary character-defining features. The proposed solar installation is designed to be compatible with the historic character of the property and the Takoma Park Historic District while supporting energy efficiency and sustainability goals.

Work Item 1: _____	
Description of Current Condition:	Proposed Work:

Work Item 2: _____	
Description of Current Condition:	Proposed Work:

Work Item 3: _____	
Description of Current Condition:	Proposed Work:

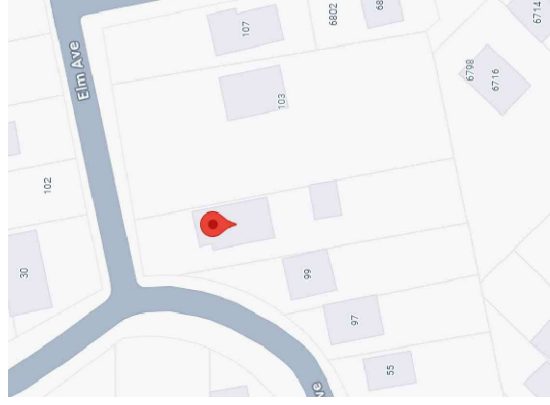
**HISTORIC AREA WORK PERMIT
CHECKLIST OF
APPLICATION REQUIREMENTS**

	Required Attachments						
Proposed Work	I. Written Description	2. Site Plan	3. Plans/ Elevations	4. Material Specifications	5. Photographs	6. Tree Survey	7. Property Owner Addresses
New Construction	*	*	*	*	*	*	*
Additions/ Alterations	*	*	*	*	*	*	*
Demolition	*	*	*		*		*
Deck/Porch	*	*	*	*	*	*	*
Fence/Wall	*	*	*	*	*	*	*
Driveway/ Parking Area	*	*		*	*	*	*
Grading/Exc avation/Land scaing	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/ Door Changes	*	*	*	*	*		*
Masonry Repair/ Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*

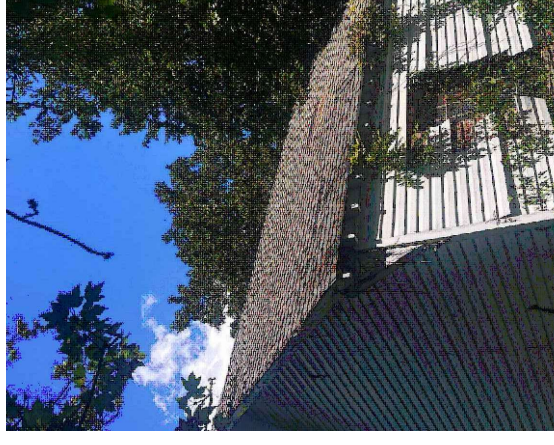
PROJECT INFORMATION	
OWNER	HUGHES, JARED RESIDENCE 101 ELM AVE, TAKOMA PARK, MD 20912 (301) 270-3012
SCOPE OF WORK	RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION CANADIAN SOLAR INC. CS6.1-54TM-445H SOLAR MODULES (33) X445W = 14.685 KWdc (33) U650 POWER OPTIMIZERS (2) SOLAREDGE USE5700H-US (240V) INVERTER
BUILDING OCCUPANCY GROUP	R-3 (SINGLE-FAMILY RESIDENTIAL)
CODES AND STANDARDS	2017 NATIONAL ELECTRICAL CODE 2021 INTERNATIONAL BUILDING CODE 2021 INTERNATIONAL FIRE CODE 2021 INTERNATIONAL RESIDENTIAL CODE
MODULE SPECS	CANADIAN SOLAR INC. CS6.1-54TM-445H (L) 70.9" X (W) 44.6" X (H) 1.38" WEIGHT = 50.7 LBS COMBINED WEIGHT OF MODULES AND RACKING: 2.94 PSF ≤ 4.5 PSF
EQUIPMENT CONTRACTOR	ROI CONSTRUCTION 8378 VETERANS HWY MILLERSVILLE, MD 21108 CONTACT: JORGE ESCOBAR PHONE: 202-694-9890
SITE DETAILS	COMP. SHINGLE ROOF, 2X6 RAFTERS @ 16" O.C., DF#2 ROOF SLOPE(S): 6.1:12 (27°), 5.9:12 (26°) AND 4.4:12 (20°) AREA OF ROOF(PLAN VIEW) = 1900 SF AREA OF NEW ARRAY = 723 SF = 34% OF ROOF AREA (ARRAY <66% OF ROOF AREA) CLIMATE DATA SOURCE: WASHINGTON DC REAGAN AP, 38.87N, 77.03W ASHRAE EXTREME LOW: -12.3°C ASHRAE 2% HIGH: 36°C ASHRAE EXTREME HIGH: 40.9°C WIND SPEED: 115 MPH RISK CATEGORY: II WIND EXPOSURE CATEGORY: B GROUND SNOW LOAD: 35 PSF ROOF SNOW LOAD: 25 PSF ROOF ASSEMBLY FIRE CLASS RATING: A HISTORIC DISTRICT: NONE FIRE SPRINKLES: NO

SOLAR ARRAY PROPOSED				
ARRAY #	MODS	TILT	AZIMUTH	MAX. HEIGHT
ARRAY #1	17	6.1:12 (27°)	78°	0'-7"
ARRAY #2	11	5.9:12 (26°)	258°	0'-7"
ARRAY #3	5	4.4:12 (20°)	167°	0'-7"

DRAWINGS INDEX	
G-1	COVER SHEET
PV-1	SITE PLAN
PV-2	ROOF LAYOUT
PV-2.1	STRUCTURAL DETAILS
PV-3	ELECTRICAL PLAN
PV-4	SINGLE LINE DIAGRAM
PV-4.1	ELECTRICAL SCHEDULE
PV-5	LABELS
SUPPORTING DOCUMENTS	DATA SHEETS, STRUCTURAL CALCULATIONS



VICINITY MAP



ROOF

OFFICIAL USE

PE STAMP

CONTRACTOR
ROI CONSTRUCTION
8378 VETERANS HWY
MILLERSVILLE MD 21108
Ph: (202) 694-9890
Contractor# 420219000135

HUGHES, JARED RESIDENCE
RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION
101 ELM AVE, TAKOMA PARK, MD 20912
PH: (301) 270-3012
PEPCO: 5501 2645 911

COVER SHEET

System AC Size @ STC: 11.52 kW System DC Size @ STC: 14.685 kW
(33) CANADIAN SOLAR INC. CS6.1-54TM-445H SOLAR MODULES
(2) SOLAREDGE USE5700H-US (240V) INVERTER RGM CERTIFIED

Page: **G-1**

Date: 02/04/2026
Rev: PERMIT SET
LM

SOLAR ARRAY PROPOSED

ARRAY #	MODS	TILT	AZIMUTH	MAX. HEIGHT
ARRAY #1	17	6.1:12 (27°)	78°	0'-7"
ARRAY #2	11	5.9:12 (26°)	258°	0'-7"
ARRAY #3	5	4.4:12 (20°)	167°	0'-7"

NOTE: *CHECK WITH CITY/COUNTY OR LAND SURVEYOR FOR ACCURATE PROPERTY LOCATE.

NOTE: HEIGHT FROM ROOF TO TOP OF PANEL IS 0'-7".

LEGEND:

(E) = EXISTING

(N) = NEW

(N) SOLAREEDGE USE5700H-US (240V) INVERTER

(N) SOLAREEDGE USE5700H-US (240V) INVERTER

(N) AC PV DISCONNECT

(E) METER

(E) SERVICE PANEL

(N) SUB PANEL

(E) RESIDENCE

(N) ARRAY #1

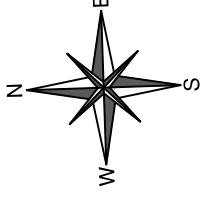
(N) ARRAY #3

(N) ARRAY #2

(E) PROPERTY LINE*

ELM AVE

OFFICIAL USE



SITE PLAN

SCALE: 1/16" = 1'-0"



PE STAMP

CONTRACTOR

ROI CONSTRUCTION
8378 VETERANS HWY
MILLERSVILLE MD 21108
Ph: (202) 694-9890
Contractor# 420219000135



HUGHES, JARED RESIDENCE
RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION
101 ELM AVE, TAKOMA PARK, MD 20912
PH: (301) 270-3012
PEPCO: 5501 2645 911

SITE PLAN

System AC Size @ STC: 11.52 kW System DC Size @ STC: 14.685 kW
(33) CANADIAN SOLAR INC. CS6.1-54TM-445H SOLAR MODULES
(2) SOLAREEDGE USE5700H-US (240V) INVERTER RGM CERTIFIED

Drawn by:
LM

Rev: PERMIT SET

Date:
02/04/2026

Page:

PV-1

KEYED NOTES:

- 1 IRONRIDGE HUG L, TYP. OF 95
- 2 2X6 RAFTERS @ 16" O.C. TYP.
- 3 IRONRIDGE XR10 RAIL, TYP.
- 4 IRONRIDGE MID CLAMP, TYP. OF 46
- 5 IRONRIDGE END CLAMP, TYP. OF 40
- 6 RIDGE (SETBACK 36")
- 7 RAKE (SETBACK 36")
- 8 EAVE (SETBACK 12")
- 9 PV MODULE WITH FIRE SAFETY CLASS A ACCORDING TO UL1703 AND TABLE 1505.1

GENERAL NOTES:

- A. RAFTERS LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS MAY DIFFER AND CONTRACTOR MAY NEED TO ADJUST MOUNT LOCATIONS. IN NO CASE SHALL THE MOUNT SPACING EXCEED OF 48", MAX. CANTILEVER IS 1/2 MOUNT SPACING OR 24". TYPICAL MOUNT SPACING OF 4' FOR MODULES IN PORTRAIT POSITION AND 6' FOR MODULES IN LANDSCAPE POSITION.
- B. THE MEMBRANE COVERING THE ROOF HAS A MINIMUM FIRE CLASS C RATING.
- C. THE ATTACHMENT ASSEMBLIES INSTALLED FIREPLACE RATING IS A MINIMUM OF C.
- D. HEIGHT FROM ROOF TO TOP OF PANEL IS 0'-7".
- E. FOR STRUCTURAL DETAILS REFER TO THE STRUCTURAL CALCULATION BY THE EOR.
- F. STRUCTURAL PLANS CERTIFIED AS PROVIDED IN SECTION 106.1.4.1 OF THE D.C. CONSTRUCTION CODES

ROOF PROPERTIES

ROOF MATERIAL	COMP. SHINGLE
ROOF SLOPE	6.1:12 (27°), 5.9:12 (26°) AND 4.4:12 (20°)
MEAN ROOF HEIGHT	~22 FT
DECK SHEATING	1/8" OR THICKER OSB OR PLYWOOD
CONSTRUCTION	RAFTERS 2X6 @ 16" O.C.

MODULE MECHANICAL PROPERTIES

MODEL	CANADIAN SOLAR INC. CS6.1-54TM-445H
DIMENSIONS	(L) 70.9" X (W) 44.6" X (H) 1.38"
WEIGHT	50.7 LB

CONTRACTOR

ROI CONSTRUCTION
8378 VETERANS HWY
MILLERSVILLE MD 21108
Ph: (202) 694-9890
Contractor# 420219000135



HUGHES, JARED RESIDENCE

RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION
101 ELM AVE, TAKOMA PARK, MD 20912
PH: (301) 270-3012
PEPCO: 5501 2645 911

ROOF LAYOUT

System AC Size @ STC: 11.52 kW System DC Size @ STC: 14.685 kW
(33) CANADIAN SOLAR INC. CS6.1-54TM-445H SOLAR MODULES
(2) SOLAREEDGE USE5700H-US (240V) INVERTER RGM CERTIFIED

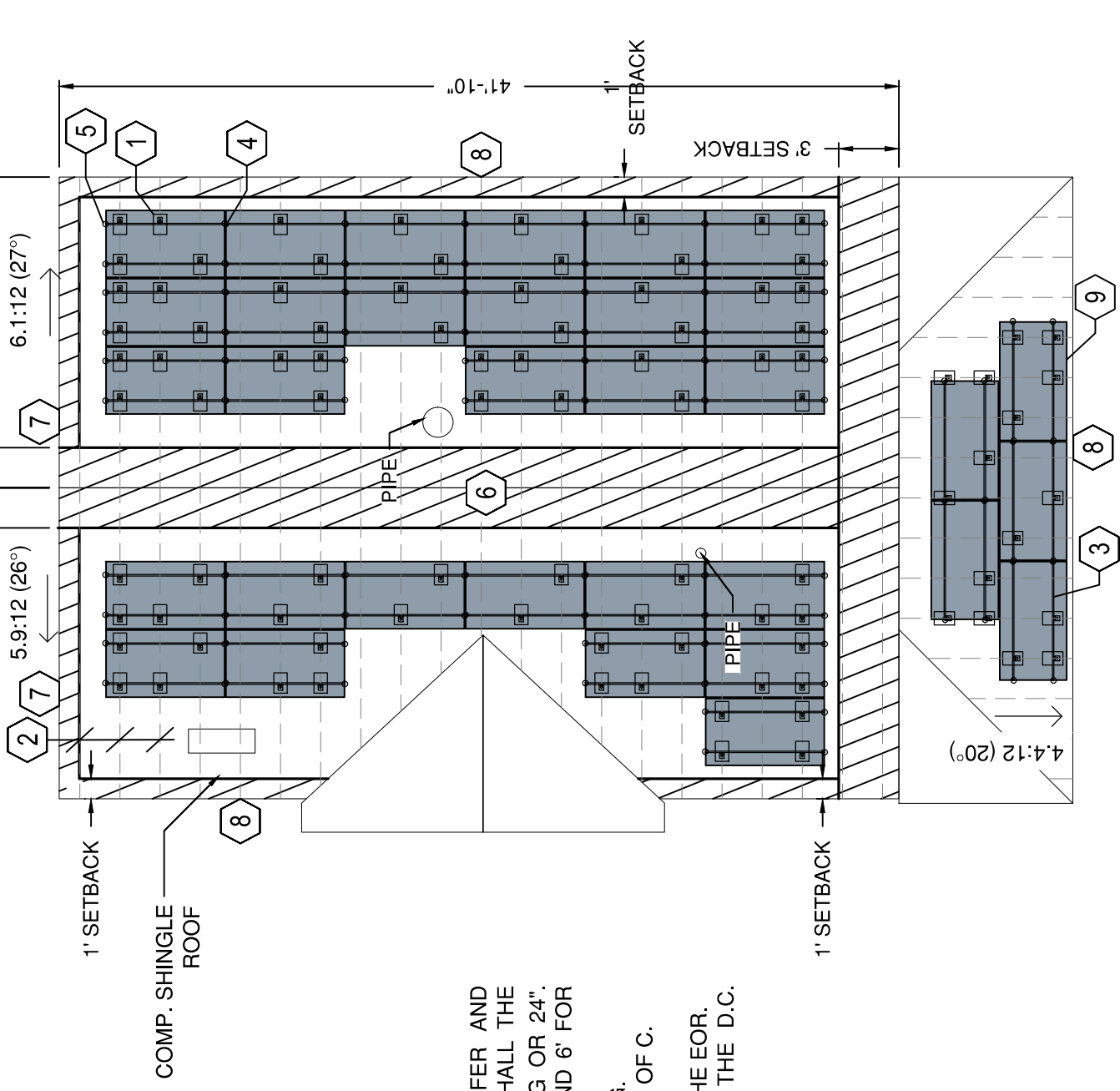
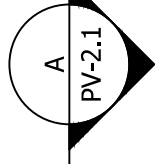
Drawn by:
LM

Rev: PERMIT SET

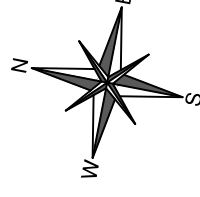
Date:
02/04/2026

Page:

PV-2



OFFICIAL USE



ROOF LAYOUT

SCALE: 1/8" = 1'-0"

PE STAMP

KEYED NOTES:

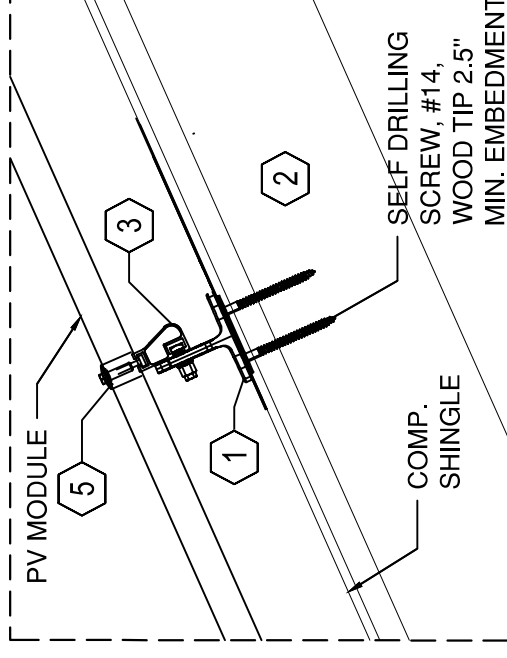
- 1 IRONRIDGE HUG L, TYP. OF 95
- 2 2X6 RAFTERS @ 16" O.C. TYP.
- 3 IRONRIDGE XR10 RAIL, TYP.
- 4 IRONRIDGE MID CLAMP, TYP. OF 46
- 5 IRONRIDGE END CLAMP, TYP. OF 40
- 6 RIDGE (SETBACK 36")
- 7 RAKE (SETBACK 36")
- 8 EAVE (SETBACK 12")

9 PV MODULE WITH FIRE SAFETY CLASS A ACCORDING TO UL1703 AND TABLE 1505.1

GENERAL NOTES:

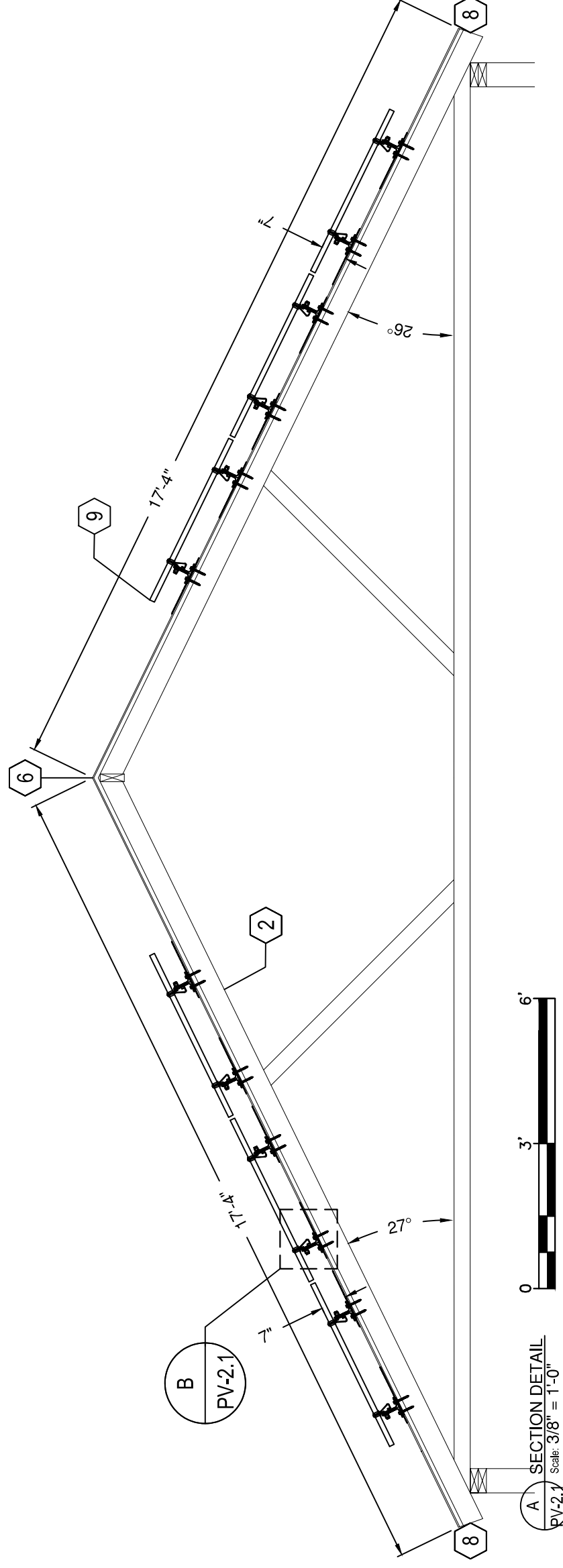
- A. RAFTERS LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS MAY DIFFER AND CONTRACTOR MAY NEED TO ADJUST MOUNT LOCATIONS. IN NO CASE SHALL THE MOUNT SPACING EXCEED OF 48", MAX. CANTILEVER IS 1/2 MOUNT SPACING OR 24". TYPICAL MOUNT SPACING OF 4' FOR MODULES IN PORTRAIT POSITION AND 6' FOR MODULES IN LANDSCAPE POSITION.
- B. THE MEMBRANE COVERING THE ROOF HAS A MINIMUM FIRE CLASS C RATING.
- C. THE ATTACHMENT ASSEMBLIES INSTALLED FIREPLACE RATING IS A MINIMUM OF C.
- D. HEIGHT FROM ROOF TO TOP OF PANEL IS 0'-7".
- E. FOR STRUCTURAL DETAILS REFER TO THE STRUCTURAL CALCULATION BY THE EOR.

B MOUNTING DETAIL
Scale: NTS



OFFICIAL USE

PE STAMP



A SECTION DETAIL
Scale: 3/8" = 1'-0"

CONTRACTOR

ROI CONSTRUCTION
8378 VETERANS HWY
MILLERSVILLE MD 21108
Ph: (202) 694-9890
Contractor# 420219000135



HUGHES, JARED RESIDENCE

RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION
101 ELM AVE, TAKOMA PARK, MD 20912
PH: (301) 270-3012
PEPCO: 5501 2645 911

STRUCTURAL DETAILS

System AC Size @ STC: 11.52 kW System DC Size @ STC: 14.685 kW
(33) CANADIAN SOLAR INC. CS6.1-54TM-445H SOLAR MODULES
(2) SOLAREEDGE USE5700H-US (240V) INVERTER RGM CERTIFIED

Drawn by:
LM

Rev: PERMIT SET

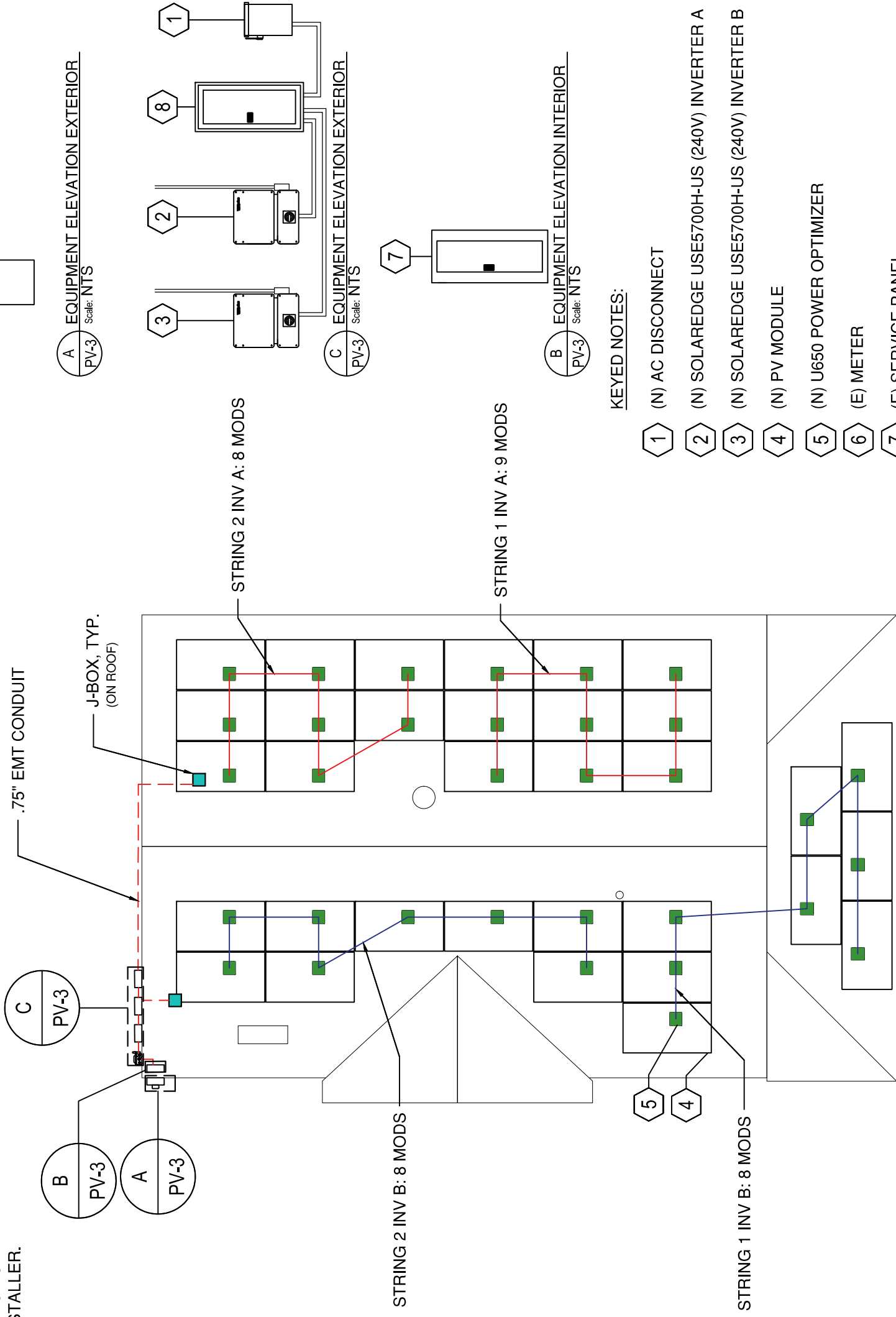
Page:

PV-2.1

Date:
02/04/2026

GENERAL NOTES:

A. CONDUIT AND WIRING IS DIAGRAMMATIC. FINAL ROUTING TO BE DETERMINED BY INSTALLER.



A EQUIPMENT ELEVATION EXTERIOR
PV-3
Scale: NTS

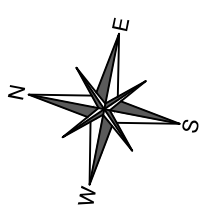
C EQUIPMENT ELEVATION EXTERIOR
PV-3
Scale: NTS

B EQUIPMENT ELEVATION INTERIOR
PV-3
Scale: NTS

KEYED NOTES:

- 1 (N) AC DISCONNECT
- 2 (N) SOLAREGE USE5700H-US (240V) INVERTER A
- 3 (N) SOLAREGE USE5700H-US (240V) INVERTER B
- 4 (N) PV MODULE
- 5 (N) U650 POWER OPTIMIZER
- 6 (E) METER
- 7 (E) SERVICE PANEL
- 8 (N) SUB PANEL

OFFICIAL USE



ELECTRICAL PLAN
SCALE: 1/8" = 1'-0"



PE STAMP

CONTRACTOR

ROI CONSTRUCTION
8378 VETERANS HWY
MILLERSVILLE MD 21108
Ph: (202) 694-9890
Contractor# 420219000135



HUGHES, JARED RESIDENCE
RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION
101 ELM AVE, TAKOMA PARK, MD 20912
PH: (301) 270-3012
PEPCO: 5501 2645 911

ELECTRICAL PLAN

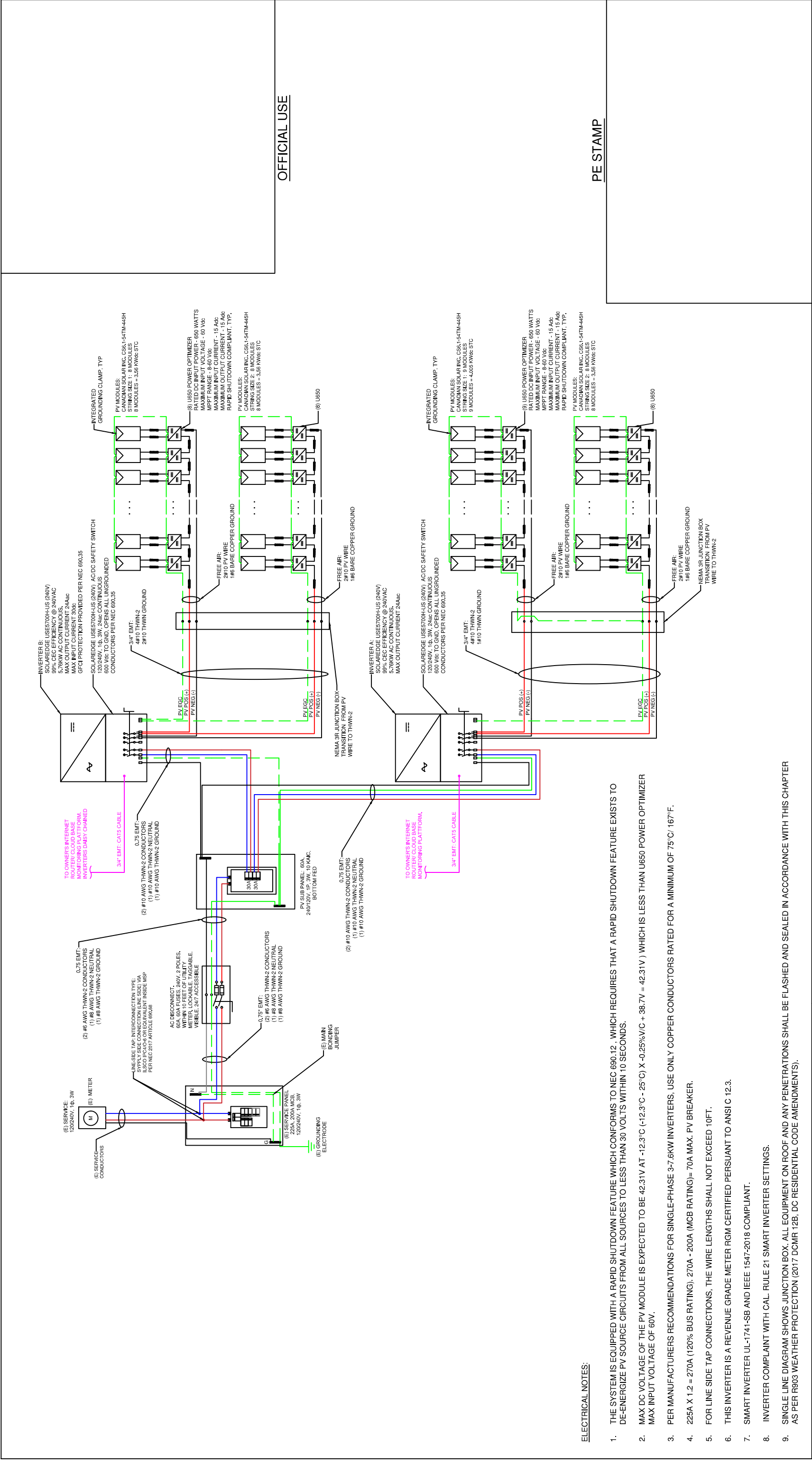
System AC Size @ STC: 11.52 kW System DC Size @ STC: 14.685 kW
(33) CANADIAN SOLAR INC. CS6.1-54TM-445H SOLAR MODULES
(2) SOLAREGE USE5700H-US (240V) INVERTER RGM CERTIFIED

Drawn by:
LM

Rev: PERMIT SET

Date:
02/04/2026

Page:
PV-3



OFFICIAL USE

PE STAMP

ELECTRICAL NOTES:

1. THE SYSTEM IS EQUIPPED WITH A RAPID SHUTDOWN FEATURE WHICH CONFORMS TO NEC 690.12 - WHICH REQUIRES THAT A RAPID SHUTDOWN FEATURE EXISTS TO DE-ENERGIZE PV SOURCE CIRCUITS FROM ALL SOURCES TO LESS THAN 30 VOLTS WITHIN 10 SECONDS.
2. MAX DC VOLTAGE OF THE PV MODULE IS EXPECTED TO BE 42.31V AT -12.3°C (-12.3°C - 25°C) X -0.25%/V/C + 38.7V = 42.31V WHICH IS LESS THAN U650 POWER OPTIMIZER MAX INPUT VOLTAGE OF 60V.
3. PER MANUFACTURERS RECOMMENDATIONS FOR SINGLE-PHASE 3-7.6KW INVERTERS, USE ONLY COPPER CONDUCTORS RATED FOR A MINIMUM OF 75°C/ 167°F.
4. 225A X 1.2 = 270A (120% BUS RATING); 270A - 200A (MCB RATING)= 70A MAX. PV BREAKER.
5. FOR LINE SIDE TAP CONNECTIONS, THE WIRE LENGTHS SHALL NOT EXCEED 10FT.
6. THIS INVERTER IS A REVENUE GRADE METER RGM CERTIFIED PERSUANT TO ANSI C 12.3.
7. SMART INVERTER UL-1741-SB AND IEEE 1547-2018 COMPLIANT.
8. INVERTER COMPLAINT WITH CAL. RULE 21 SMART INVERTER SETTINGS.
9. SINGLE LINE DIAGRAM SHOWS JUNCTION BOX. ALL EQUIPMENT ON ROOF AND ANY PENETRATIONS SHALL BE FLASHED AND SEALED IN ACCORDANCE WITH THIS CHAPTER AS PER R903 WEATHER PROTECTION (2017 DCMR 12B, DC RESIDENTIAL CODE AMENDMENTS).

CONTRACTOR

ROI CONSTRUCTION
 8378 VETERANS HWY
 MILLERSVILLE MD 21108
 Ph: (202) 694-9890
 Contractor# 420219000135



HUGHES, JARED RESIDENCE
 RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION
 101 ELM AVE, TAKOMA PARK, MD 20912
 PH: (301) 270-3012
 PEPCO: 5501 2645 911

SINGLE LINE DIAGRAM

System AC Size @ STC: 11.52 kW System DC Size @ STC: 14.685 kW
 (33) CANADIAN SOLAR INC. CS6.1-54TM-445H SOLAR MODULES
 (2) SOLAREDGE USE5700H-US (240V) INVERTER RGM CERTIFIED

Drawn by:
 LM

Rev. PERMIT SET

Page:

PV-4

Date:
 02/04/2026

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS															
CIRCUIT	TYPICAL	CONDUCTOR	CONDUIT	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	LENGTH	VOLTAGE DROP
PV STRING TO J-BOX	4	10 AWG PV WIRE, CU	FREE AIR	2	N/A	6 AWG BARE, COPPER	0.87 (40.9°C)	1	15A	15A	35A	30.45A	75°C	45FT	0.46%
J-BOX TO INVERTER	2	10 AWG THWN-2, CU	0.75" DIA. EMT	4	N/A	10 AWG THWN-2, CU	0.87 (40.9°C)	0.8	15A	15A	35A	24.36A	75°C	30FT	0.31%
INVERTER A TO SUB PANEL	1	10 AWG THWN-2, CU	0.75" DIA. EMT	2	30A	10 AWG THWN-2, CU	0.91 (36°C)	1	24A	30A	35A	31.85A	75°C	10FT	0.26%
INVERTER B TO SUB PANEL	1	10 AWG THWN-2, CU	0.75" DIA. EMT	2	30A	10 AWG THWN-2, CU	0.91 (36°C)	1	24A	30A	35A	31.85A	75°C	10FT	0.26%
SUB PANEL TO AC DISCONNECT	1	6 AWG THWN-2, CU	0.75" DIA. EMT	2	60A	8 AWG THWN-2, CU	0.91 (36°C)	1	48A	60A	65A	59.15A	75°C	10FT	0.20%
AC DISCONNECT TO SERVICE PANEL	1	6 AWG THWN-2, CU	0.75" DIA. EMT	2	60A	8 AWG THWN-2, CU	0.91 (36°C)	1	48A	60A	65A	59.15A	75°C	10FT	0.20%
										MAX. DC VOLTAGE DROP: 0.76%, MAX. AC VOLTAGE DROP: 0.46%					
										*MAX OPTIMIZER OUTPUT CURRENT LIMITED TO:		15 AMPS			

OFFICIAL USE

PE STAMP

INVERTER A SPECIFICATIONS	
MAKE AND MODEL	SOLAREEDGE USE5700H-US (240V)
POWER STC	5.76KW
Max. Output AC Current	24A
AC Operating Voltage	240V
Max. MPP Voltage	380V
Max. System Voltage	480V

INVERTER B SPECIFICATIONS	
MAKE AND MODEL	SOLAREEDGE USE5700H-US (240V)
POWER STC	5.76KW
Max. Output AC Current	24A
AC Operating Voltage	240V
Max. MPP Voltage	380V
Max. System Voltage	480V

OPTIMIZER SPECIFICATIONS	
MAKE AND MODEL	U650
POWER STC	650W
Max. Input Voltage Range	60V, 42.31 @ LOW TEMP.
MPPT Voltage Range	8-60V
Max. Input Current	15A
Max. Output Current	15A

MODULE SPECIFICATIONS	
MAKE AND MODEL	CANADIAN SOLAR INC. CS6.1-54TM-445H
POWER STC	445W
Imp	13.59A
Vmp	32.8V
Voc	38.7V 42.31 @ LOW TEMP.
Isc	14.48A

CONTRACTOR
ROI CONSTRUCTION
 8378 VETERANS HWY
 MILLERSVILLE MD 21108
 Ph: (202) 694-9890
 Contractor# 420219000135



HUGHES, JARED RESIDENCE
 RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION
 101 ELM AVE, TAKOMA PARK, MD 20912
 PH: (301) 270-3012
 PEPCO: 5501 2645 911

ELECTRICAL SCHEDULE

System AC Size @ STC: 11.52 kW System DC Size @ STC: 14.685 kW
 (33) CANADIAN SOLAR INC. CS6.1-54TM-445H SOLAR MODULES
 (2) SOLAREEDGE USE5700H-US (240V) INVERTER RGM CERTIFIED

Page:

PV-4.1

Date:
02/04/2026

Rev. PERMIT SET
LM

Drawn by:
LM

MAIN SERVICE PANEL

⚠ DANGER
 ARC FLASH AND SHOCK HAZARD
 FOLLOW ALL REQUIREMENT IN NFPA 70E FOR SAFE WORK PRACTICES AND FOR PERSONAL PROTECTIVE EQUIPMENT
 ON PANEL COVER

⚠ WARNING
 DUAL POWER SUPPLY
 SOURCES: UTILITY GRID, AND PV SOLAR ELECTRIC SYSTEM

⚠ WARNING
 TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL
 NEXT TO THE MAIN CIRCUIT BREAKER

SOLAR CONNECTION LINE SIDE TAP
 ON PANEL COVER FOR LINE SIDE TAPS ONLY

JUNCTION OR PULL BOXES

DC JUNCTION BOX
⚠ WARNING
 ELECTRIC SHOCK HAZARD
 THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNINSULATED AND MAY BE ENERGIZED
 PHOTOVOLTAIC POWER SOURCE
 2-3/4" X 2-1/4"
 DC JUNCTION BOXES (STRING INVERTERS) ONLY

STRING INVERTER

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

LABEL 6: FOR PV SYSTEMS THAT SHUT DOWN THE ARRAY AND THE CONDUCTORS LEAVING THE ARRAY.
 THE LABEL SHALL UTILIZE CAPITALIZED CHARACTERS WITH A MINIMUM HEIGHT OF 3/8" IN BLACK ON YELLOW BACKGROUND, AND THE REMAINING CHARACTERS SHALL BE CAPITALIZED WITH A MINIMUM HEIGHT OF 3/16" IN BLACK ON WHITE BACKGROUND.

DIRECT CURRENT PHOTOVOLTAIC POWER SOURCE
 MAXIMUM VOLTAGE **480** VDC
 MAX CIRCUIT CURRENT **13.5** AMPS

DIRECT CURRENT PHOTOVOLTAIC POWER SOURCE
 MAXIMUM VOLTAGE **480** VDC
 MAX CIRCUIT CURRENT **13.5** AMPS
 NEXT TO DC DISCONNECT

UTILITY METER

⚠ WARNING
 THIS SERVICE METER IS ALSO SERVED BY A PHOTOVOLTAIC SYSTEM

AC DISCONNECT

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

PHOTOVOLTAIC SYSTEM AC DISCONNECT
⚠ WARNING
 DUAL POWER SUPPLY
 SOURCES: UTILITY GRID AND PV / SOLAR ELECTRIC SYSTEM
 ELECTRIC SHOCK HAZARD
 DO NOT TOUCH TERMINALS, TERMINALS ON BOTH SIDES OF THE SWITCH MAY BE ENERGIZED IN THE OPEN POSITION
 OPERATING VOLTAGE **240** VOLTS
 OPERATING CURRENT **48** AMPS

INVERTER AC COMBINER

⚠ WARNING
 PHOTOVOLTAIC SYSTEM COMBINER PANEL
 DO NOT ADD LOADS

EXTERIOR CONDUITS

CAUTION SOLAR CIRCUIT

OFFICIAL USE

PE STAMP

CONTRACTOR

ROI CONSTRUCTION
 8378 VETERANS HWY
 MILLERSVILLE MD 21108
 Ph: (202) 694-9890
 Contractor# 420219000135



HUGHES, JARED RESIDENCE
 RESIDENTIAL GRID INTERACTIVE SOLAR INSTALLATION
 101 ELM AVE, TAKOMA PARK, MD 20912
 PH: (301) 270-3012
 PEPCO: 5501 2645 911

LABELS

System AC Size @ STC: 11.52 kW System DC Size @ STC: 14.685 kW
 (33) CANADIAN SOLAR INC. CS6.1-54TM-445H SOLAR MODULES
 (2) SOLAREEDGE USE5700H-US (240V) INVERTER RGM CERTIFIED

Drawn by:
 LM

Rev: PERMIT SET

Date:
 02/04/2026

Page:

PV-5

February 3rd, 2026

To Whom It May Concern:

This letter is in reference to the proposed solar project for Jared Hughes at 101 Elm Ave. in Takoma Park, MD.

Per your request, we reviewed the possibility of removing the panels from the side of the roof that faces Pine Ave., and instead placing them on the shed building behind the main home. Unfortunately, after reviewing this option with the customer, he informed us that the shed is not in good condition and lacks the structural integrity required for solar panels to be installed.

As such, I am writing this letter to outline the justification for placing the panels on both sides of the roof of the main home, including the side that faces Pine Ave. I have outlined the main points of justification below:

1. The customer uses roughly 23,000 kWh of electricity per year. Even when placing panels on both sides of the roof, we will not be able to generate the full 23,000 kWh annually to satisfy his usage needs. Therefore, his usage justifies the need for panels to be placed on both parts of the roof.
2. The side of the roof that faces Pine Ave. gets the most sunlight per the irradiance map that we shared. Excluding panels here would severely impact the overall electrical production of the solar panels.
3. As stated above, we are not able to use the shed to place panels due to structural concerns.
4. There are a number of homes in Takoma Park's historic district that have solar panels installed where they are visible from the road.

For these reasons, we feel justified in requesting that panels be placed on both sides of the roof of the main home at 101 Elm Ave. in Takoma Park, MD.

Please let us know if you have any questions on any of the above.

Thank you for your consideration!

Sincerely,

Justin Evans
Smartr Solar & ROI Construction