

**MACEDONIA PLANNING COMMISSION  
VIRTUAL MEETING AGENDA  
AUGUST 17, 2020**

**Location:** Macedonia City Hall  
Council Chambers  
9691 Valley View road  
Macedonia, Ohio 44056

**Time:** 5:30 P.M.

**Call to Order**

**Roll Call:**

- Mr. Westbrooks
- Mr. Schiavone
- Mr. Cox
- Mr. Velotta
- Mr. Roberts

**Approval of the July 20, 2020 minutes**

**Agenda Items:**

- 1) Mr. Brian Frackelton (resident) is proposing a solar panel installation at 1018 Shoshone Trail.

Brian Frackelton  
1018 Shoshone Trail  
330-715-8491  
[bpfrack@gmail.com](mailto:bpfrack@gmail.com)

- 2) Mr. Ken White with DLZ is proposing signage for the Chase Bank ATM located at 8210 Macedonia Commons Blvd.

Ken White, P.E.  
Civil Engineer  
DLZ  
6121 Huntley Rd.  
Columbus Ohio 43229  
614-987-0266  
[kenwhite@dlz.com](mailto:kenwhite@dlz.com)

- 3) Mr. Bob Kunzen with Brilliant Electric Sign is proposing signage for the Clean land Car Wash located at 9000 S. Freeway Dr.

Bob Kunzen  
Brilliant Electric Sign Co. LTD  
4811 Van Epps Rd.  
Brooklyn Hts. Ohio 44131  
216-741-3800  
[bkunzen@brilliantsign.com](mailto:bkunzen@brilliantsign.com)

**Miscellaneous:**

**Adjournment**

**Tabled Items:**

- 1/13/2020 Proposed Development Project at 8312 Valley View Rd.
- 6/15/2020 Proposed new Building for Don Basch Jewelers located at Fairlane Dr. parcel numbers 3303773, 3301996, 3303238, 3302000, 330240, and 3303242.

**The next regularly scheduled meeting is set for September 21, 2020**  
**All requests & documentation for the Planning Commission must be submitted by August 24, 2020**  
**Tabled items will be removed after one (1) year of inactivity.**



**City of Macedonia**  
**Building, Engineering, Zoning & Planning Dept.**

*The Crossroads of Northeast Ohio*

9691 Valley View Road \*Macedonia, Ohio 44056

330 / 468-8360 \* Fax: 330 / 468-8396

**RECEIVED**

JUL 28 2020

**APPLICATION FOR HEARING BEFORE THE  
MACEDONIA PLANNING COMMISSION**

CITY OF MACEDONIA  
BUILDING DEPARTMENT

**ALL PLANS FOR SUBMITTAL MUST BE FOLDED. NO ROLLED PLANS WILL BE ACCEPTED.**

DATE OF APPLICATION: July 27, 2020

LOCATION OF PROPERTY INVOLVED: 1018 Shoshone Trl Macedonia OH

NATURE OF REQUEST: Solar Panel Installation

APPLICANT NAME & PHONE: Brian Frackelton (330) 715-8491

APPLICANT ADDRESS: 1018 Shoshone Trl Macedonia OH

APPLICANT EMAIL ADDRESS: bfrack@gmail.com

APPLICANT SIGNATURE: [Signature]

NOTES:

MEETING DATE: Aug 17, 2020

FILING FEE: \$50 (+ \$200 Escrow)

Deadline for submitting applications is 21 DAYS prior to meeting date. When applying for a hearing, please furnish THIRTEEN sets of sketches, maps, drawings, descriptions, or photographs of the property in question. THIRTEEN copies of the site plan are required. PLANS MUST BE FOLDED, NOT ROLLED. No rolled plans will be accepted. If new construction is involved, a landscape and signage plan should be prepared. This application is for the purpose of scheduling and planning the time of the Macedonia Planning Commission. It is the Commission's desire to serve each applicant with a minimum of delay.

**PLEASE NOTE: PERMIT FEES ARE NOT INCLUDED IN THE FILING FEE. ADDITIONAL FEES MAY BE REQUIRED.**

The Macedonia Planning Commission meets on the 3<sup>rd</sup> Monday of each month.

Make checks payable to:  
City of Macedonia

Please submit plans to:  
Macedonia Building Department  
9691 Valley View Rd.  
Macedonia, OH 44056





July 27, 2020

1018 Shoshone Trail  
Macedonia, OH

RECEIVED

JUL 28 2020

CITY OF MACEDONIA  
BUILDING DEPARTMENT

Macedonia Planning Commission,

Please see the attached drawings and photos for a proposed grid connected solar panel array at my residence. The photovoltaic (PV) array consists of 44 black photovoltaic panels to blend in with the dark shingles. They are located over the center portion of the house to maximize exposure to the sun. They will be mounted along the roof slope. The orientation and low profile of the roof (3.5" over 12") minimizes visibility from the ground.

The panels will be mounted using an Iron Ridge mounting system designed for the specific Astroenergy PV panels being used and customized for this specific configuration. At the roof ridge, a walkway of approximately 3 feet of clearance will be provided on both sides to provide fire access if needed. The adjacent roof sections also provide access below the panels on either side.

An externally accessible shutoff switch will be located on the ground next to the utility meter at the point of power entry. Each panel will have a dedicated EnPhase micro-inverter underneath which converts the DC energy into AC power. If the shutoff is activated (or in the event of a utility power failure), the microinverters will shut down per IEEE 1547 requirements ("IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces"). I have filed an Interconnect Application with Ohio Edison.

This packet includes the following:

- Satellite and Ground Photos
- Site, Structural, and Electrical Drawings
- Parts List with supporting datasheets for critical components

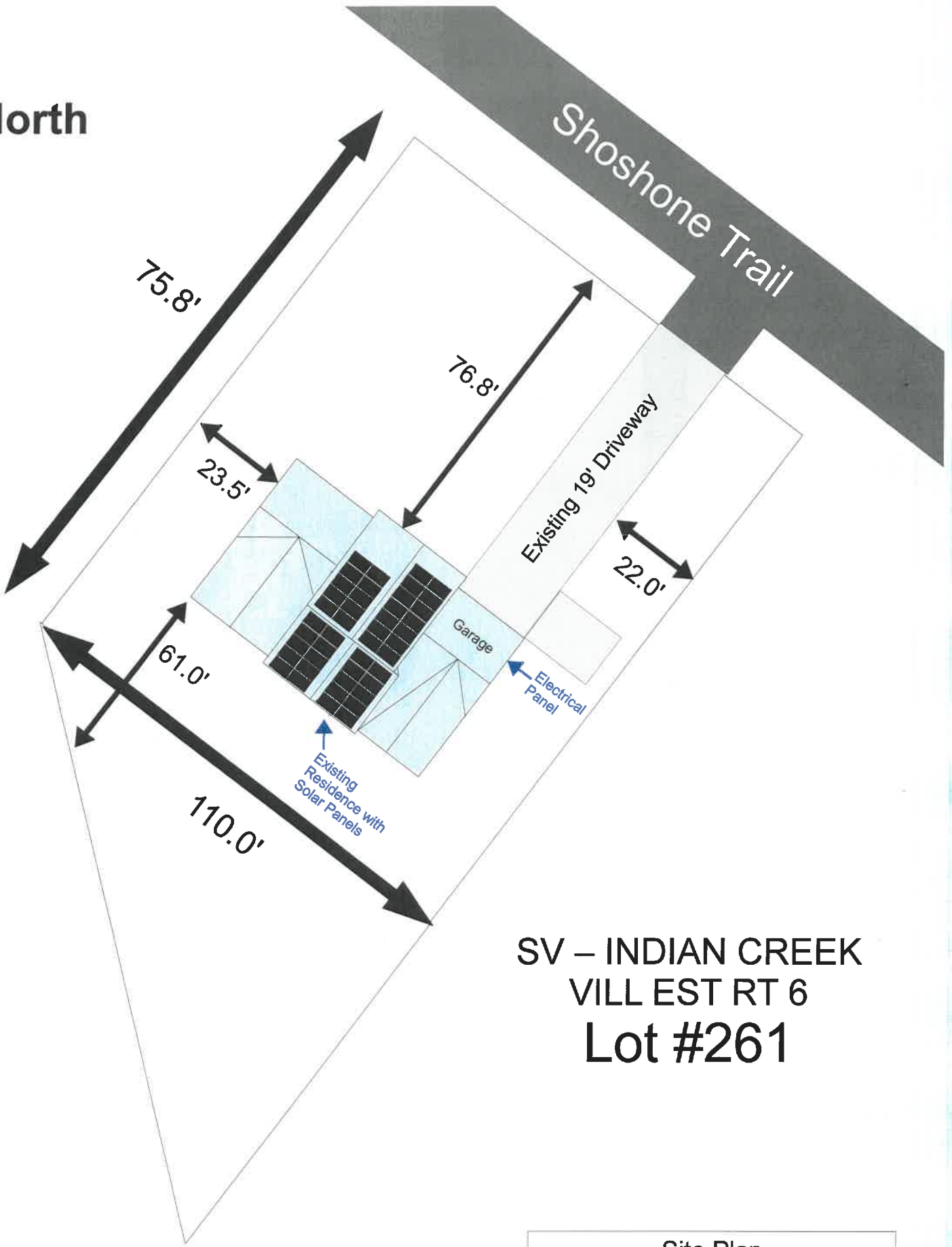
If you have additional questions or require additional information, please feel free to contact me. Thank you for your consideration.

Sincerely,



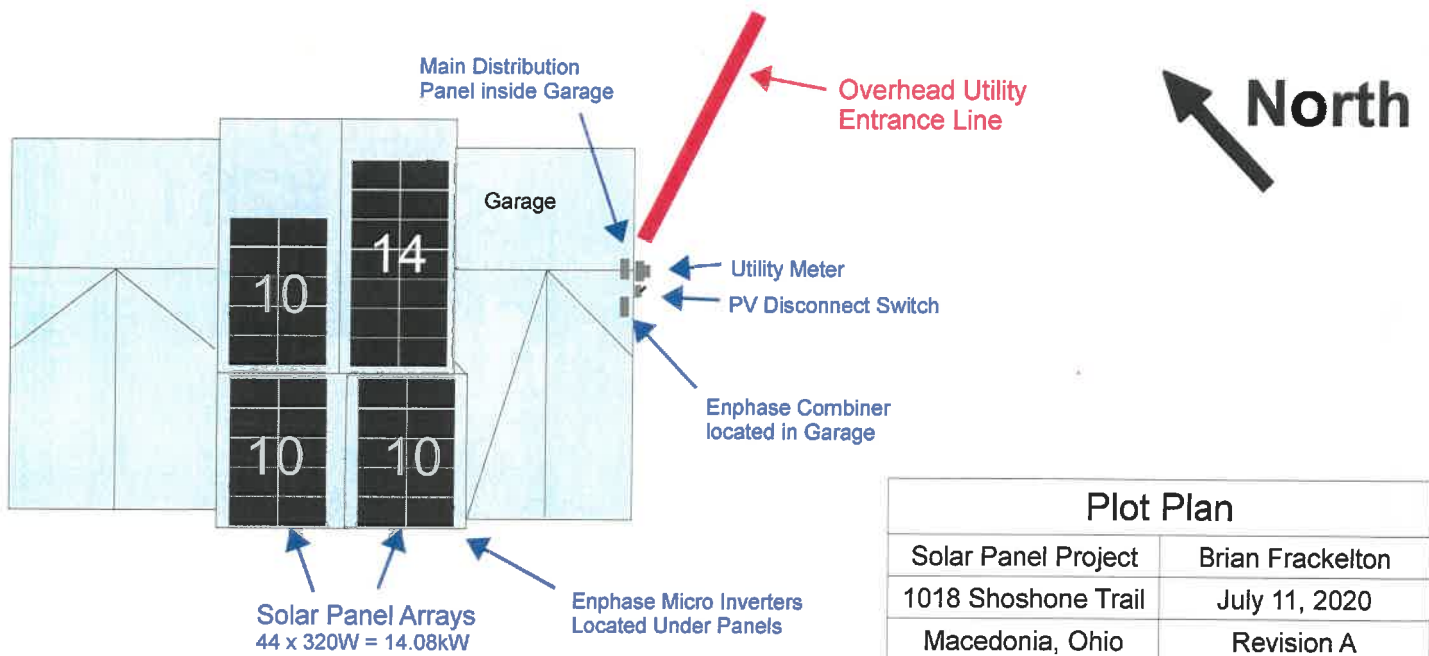
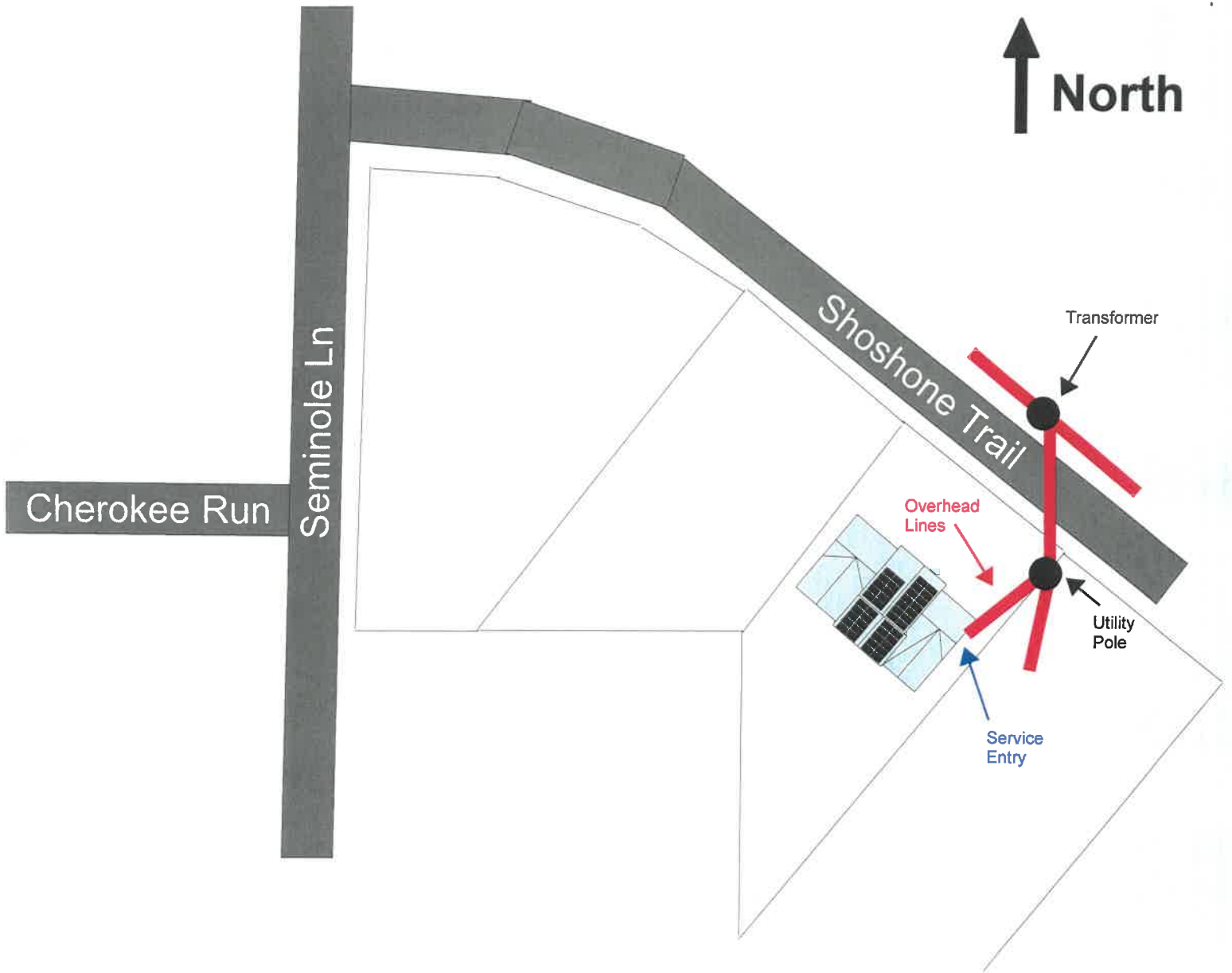
Brian Frackelton, P.E.  
(330) 715-8491  
[bpfrack@gmail.com](mailto:bpfrack@gmail.com)





SV – INDIAN CREEK  
VILL EST RT 6  
Lot #261

Site Plan	
Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 11, 2020
Macedonia, Ohio	Revision A



Plot Plan	
Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 11, 2020
Macedonia, Ohio	Revision A

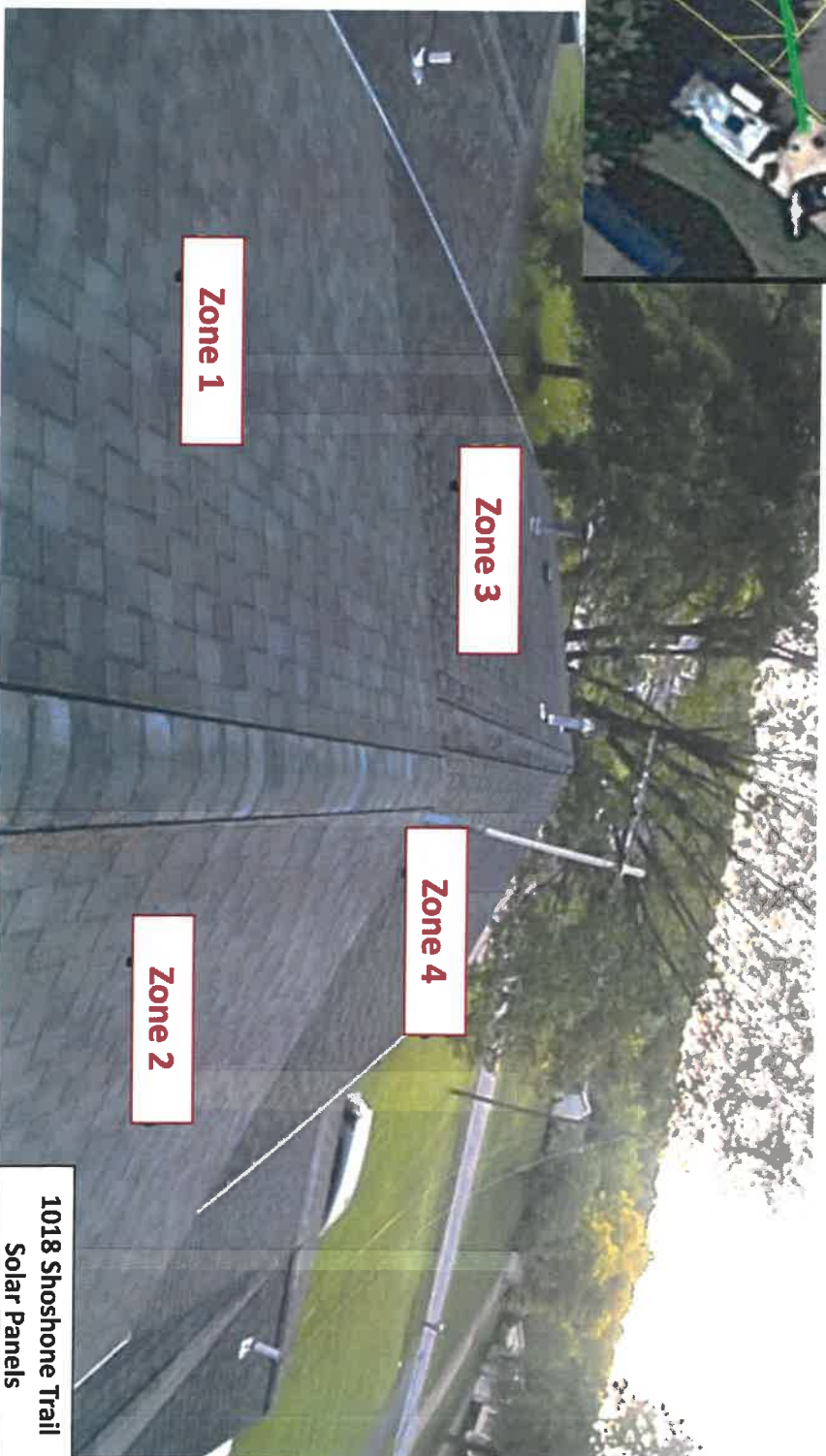
# Satellite View with Roof Sections Marked



1018 Shoshone Trail  
Solar Panels



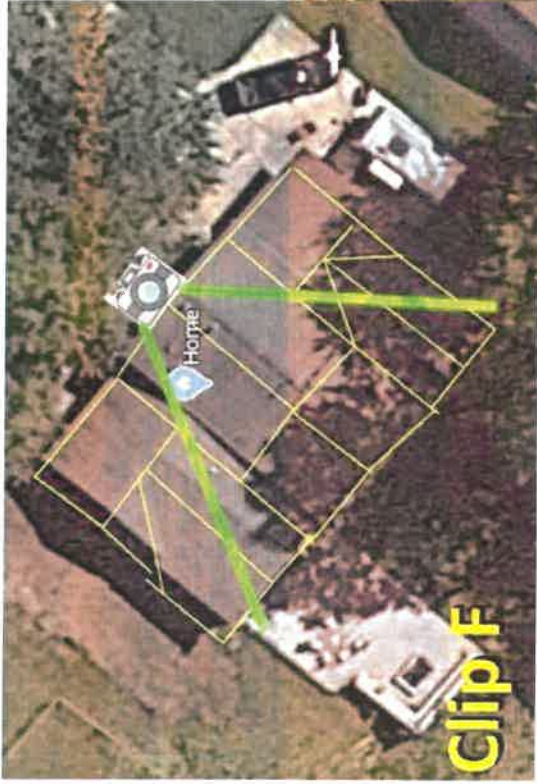
# View from back looking towards street



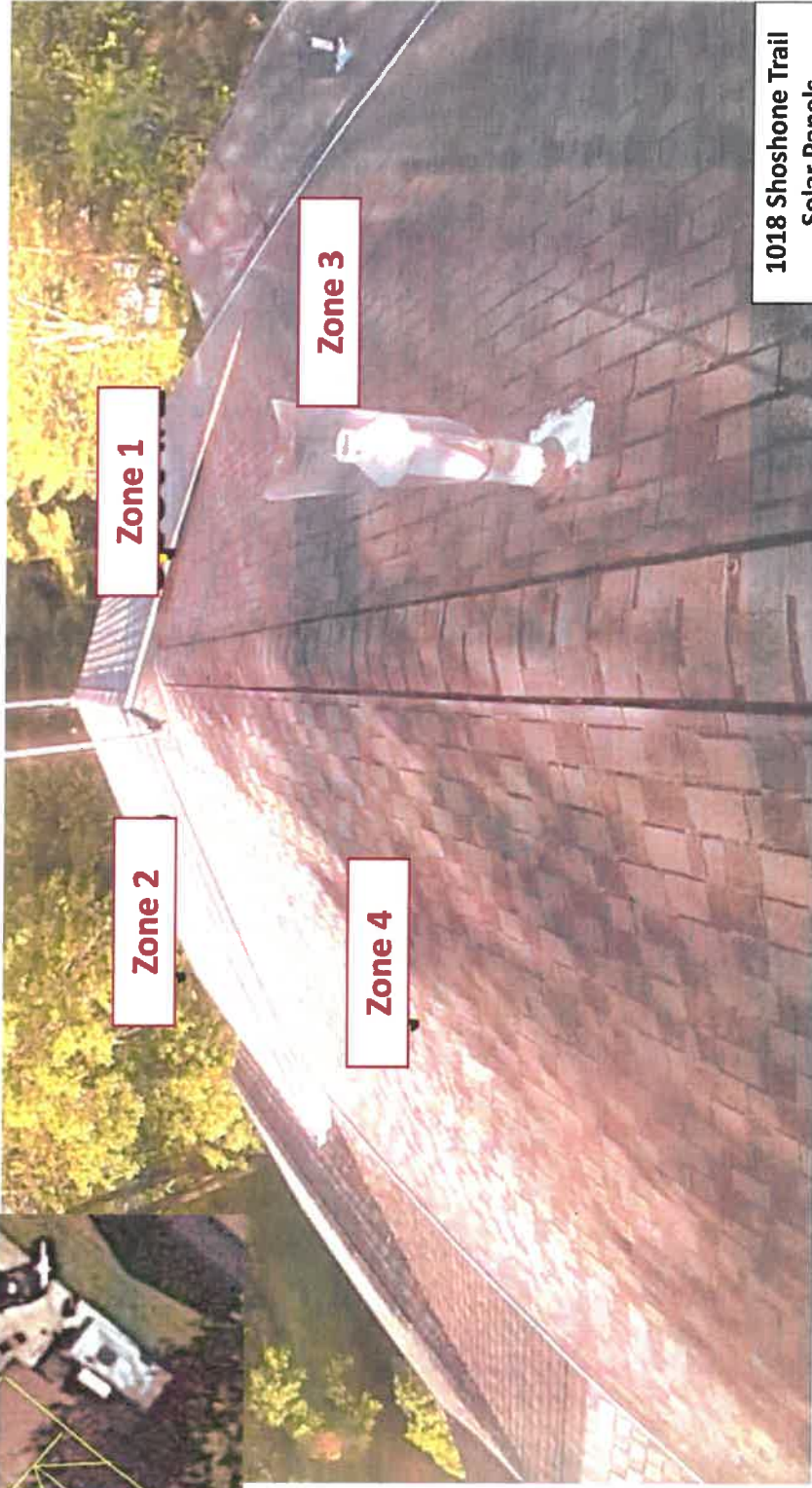
Time Lapse

Characterizing Shade:

<https://youtu.be/JKNH1y1OGuk>



# View from front looking away from street



Time Lapse

Characterizing Shade:

<https://youtu.be/JKNH1yJOguk>



# Street View in Front of House



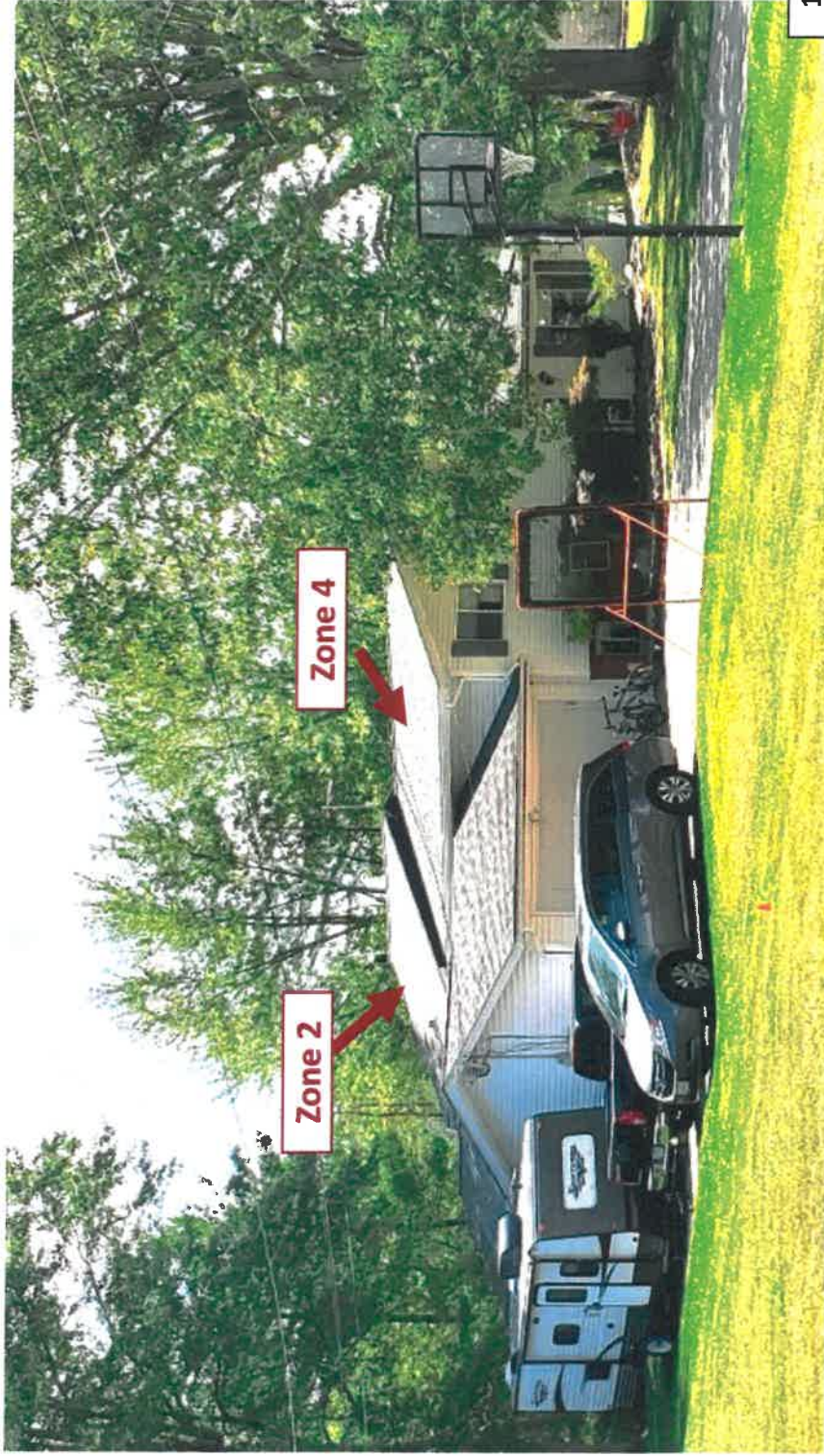
# Street View from Northeast of House



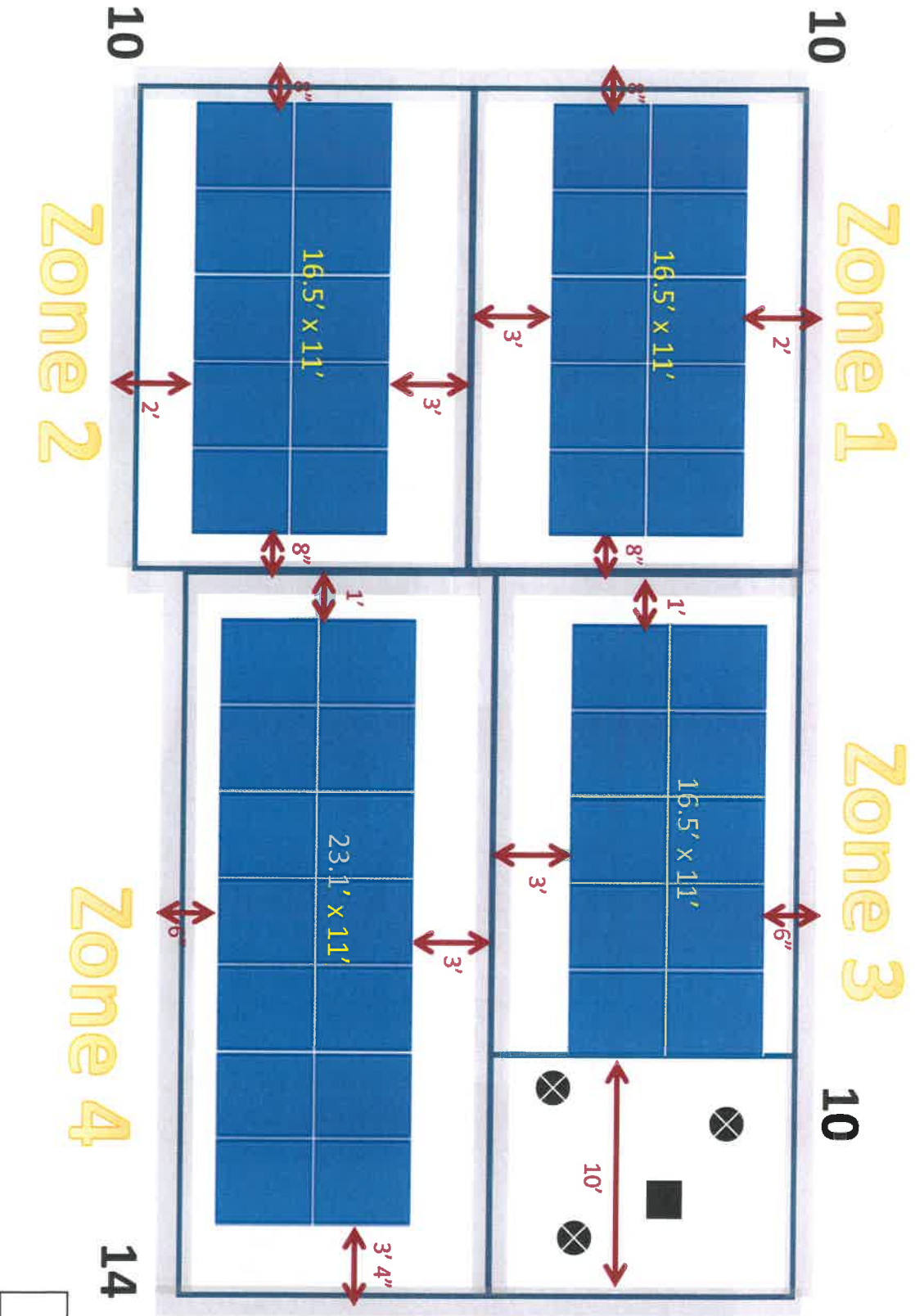
1018 Shoshone Trail  
Solar Panels



# Street View from Southwest of House

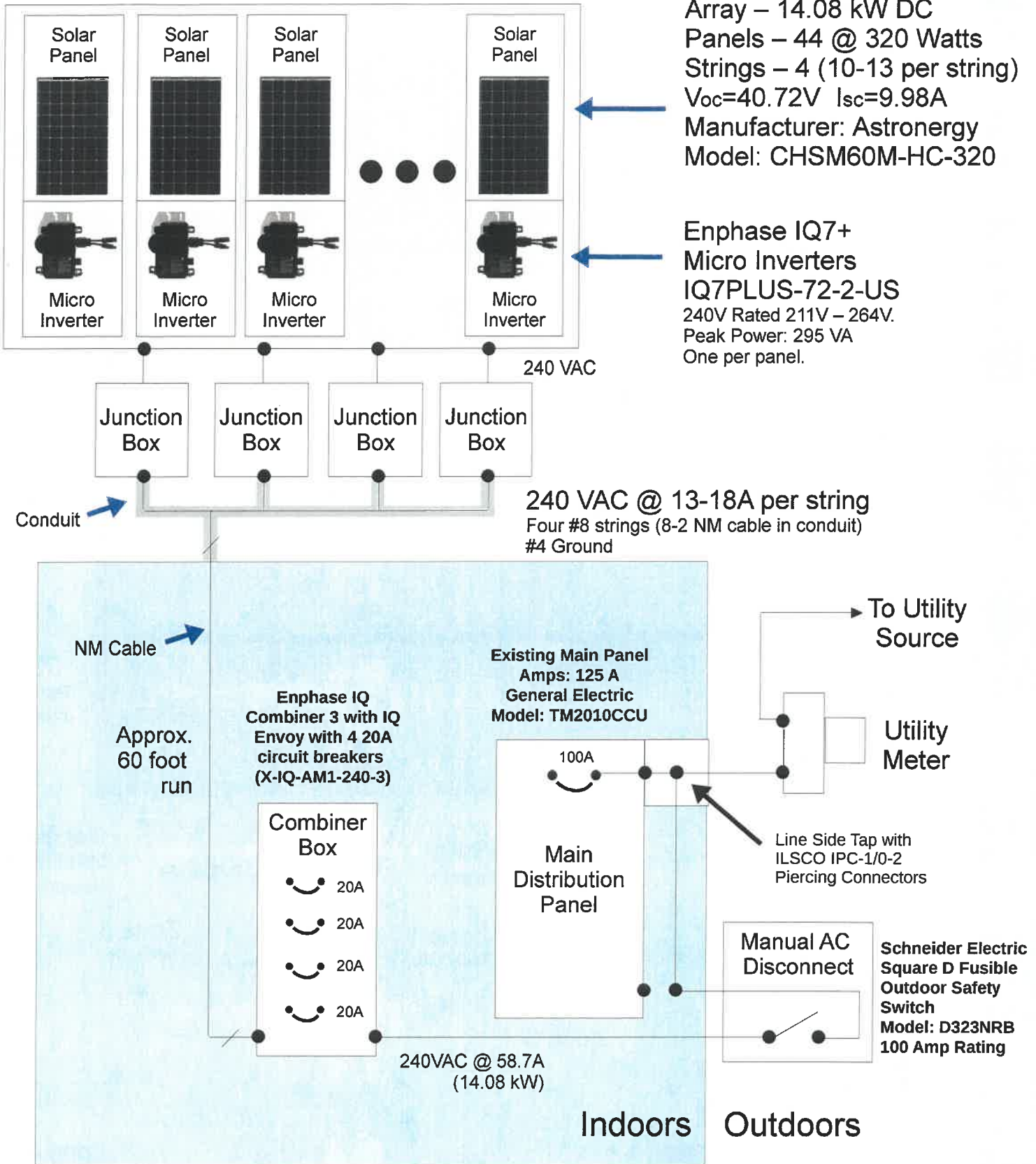


1018 Shoshone Trail  
Solar Panels



**Total**  
**44**

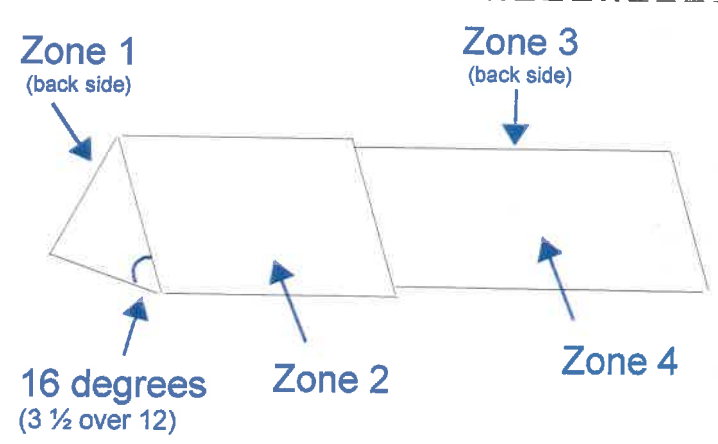
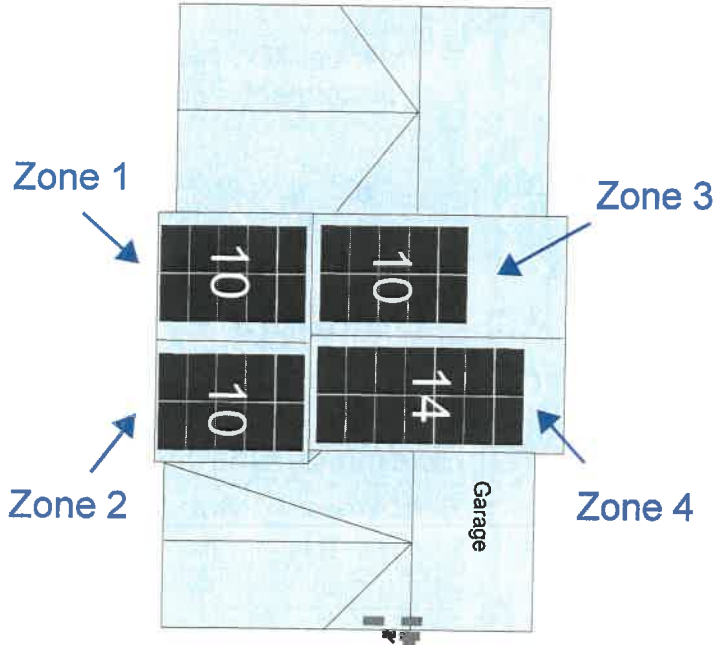
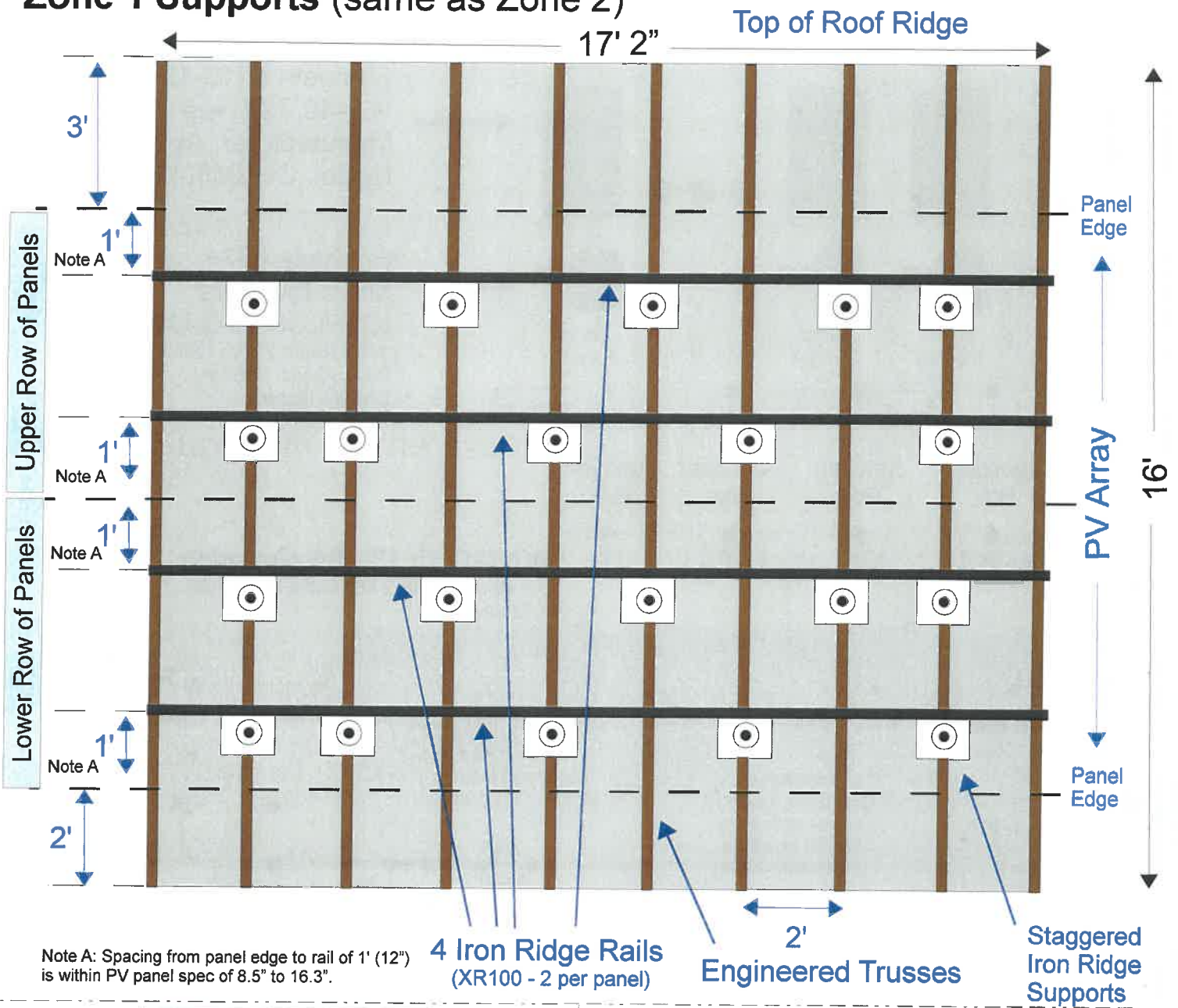
1018 Shoshone Trail  
Solar Panels



Electrical One-Line	
Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 16, 2020
Macedonia, Ohio	Revision B



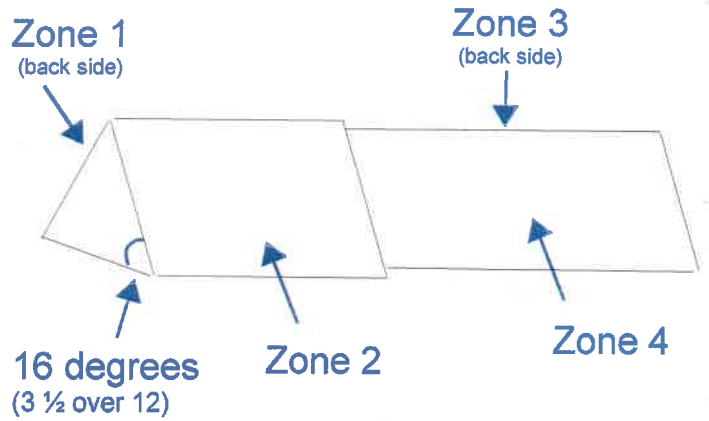
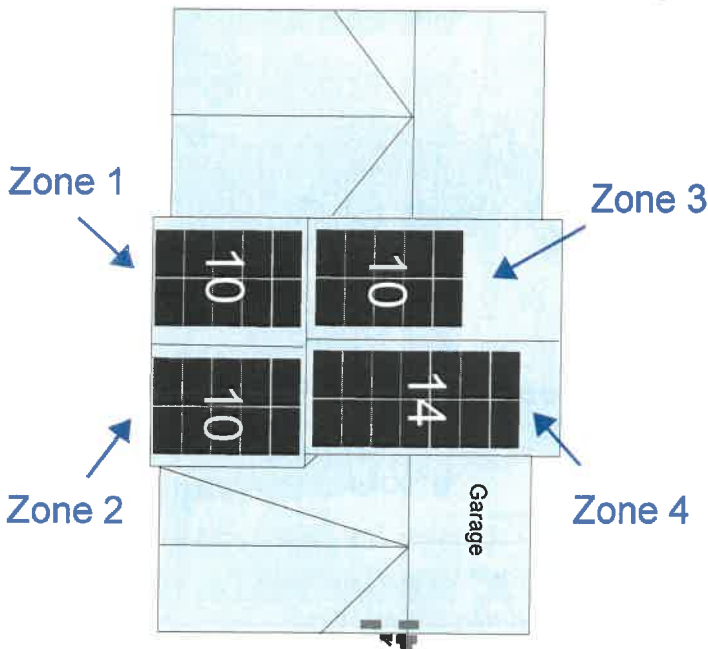
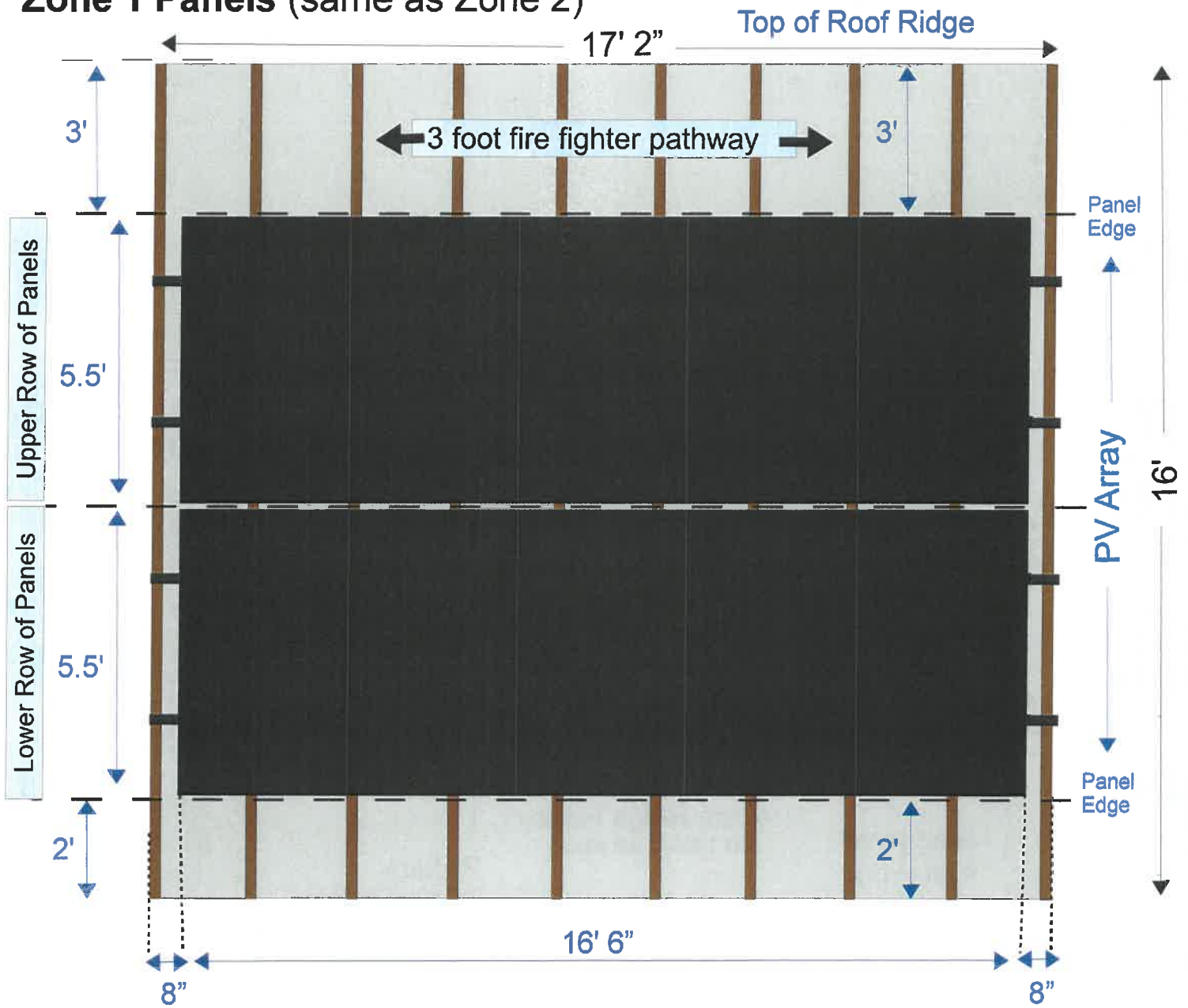
# Zone 1 Supports (same as Zone 2)



**Structural Diagram: Zones 1 & 2**

Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 16, 2020
Macedonia, Ohio	Revision A

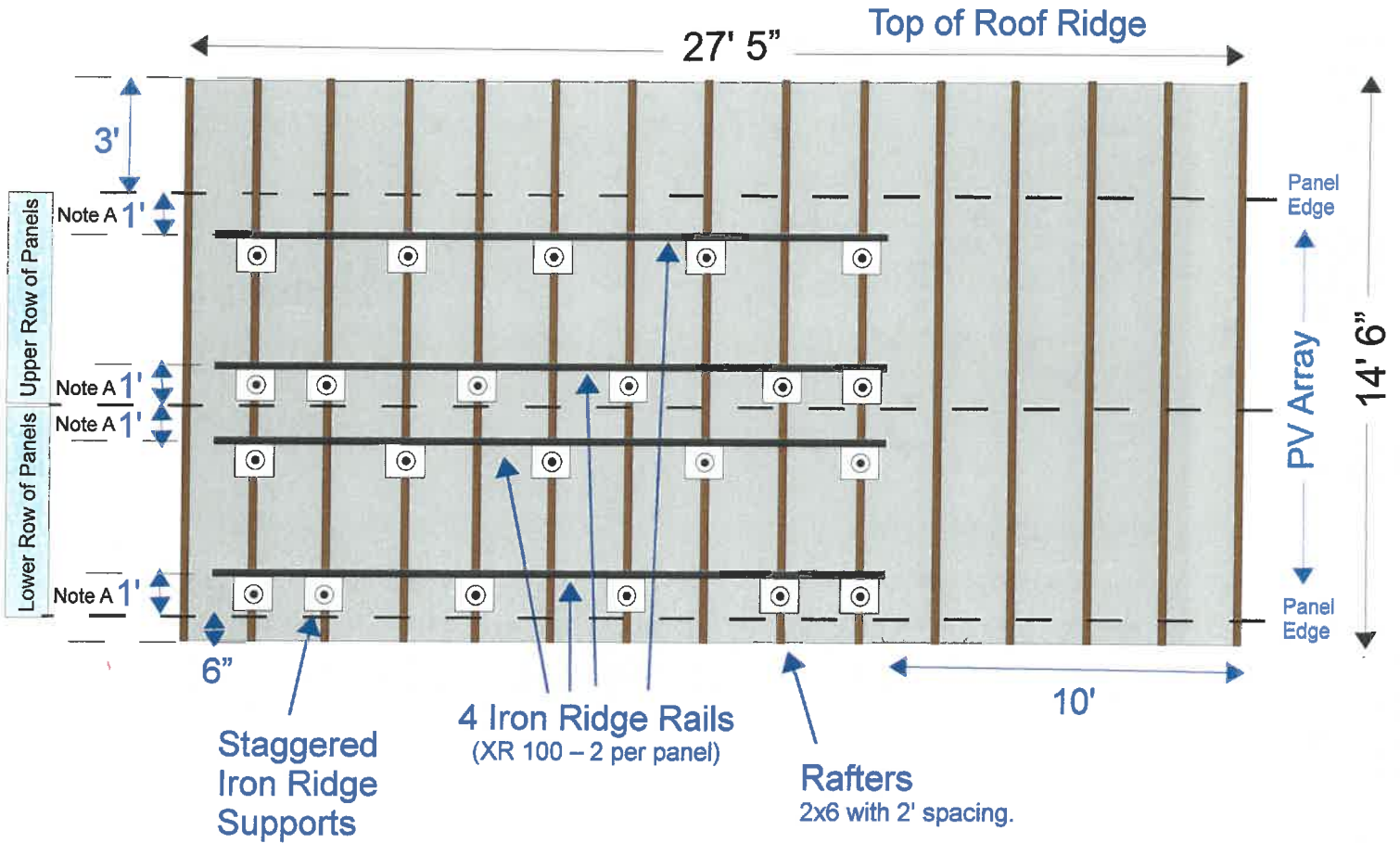
# Zone 1 Panels (same as Zone 2)



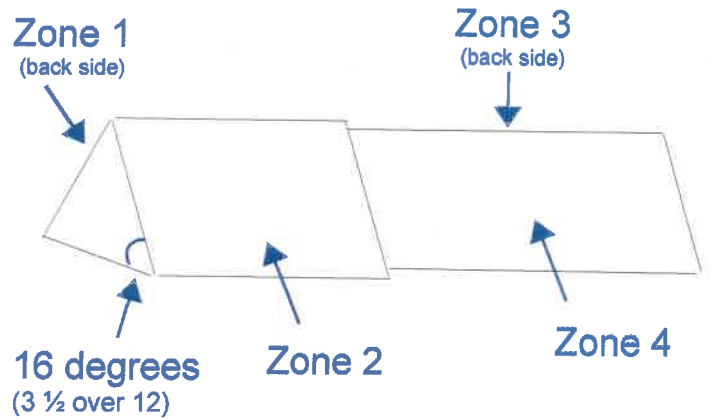
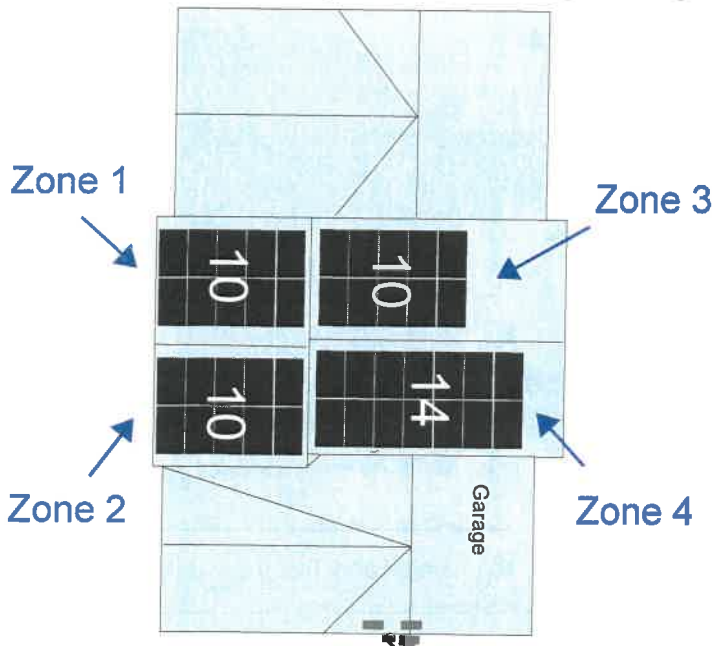
## Structural Diagram: Zones 1 & 2

Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 16, 2020
Macedonia, Ohio	Revision A

# Zone 3 Supports



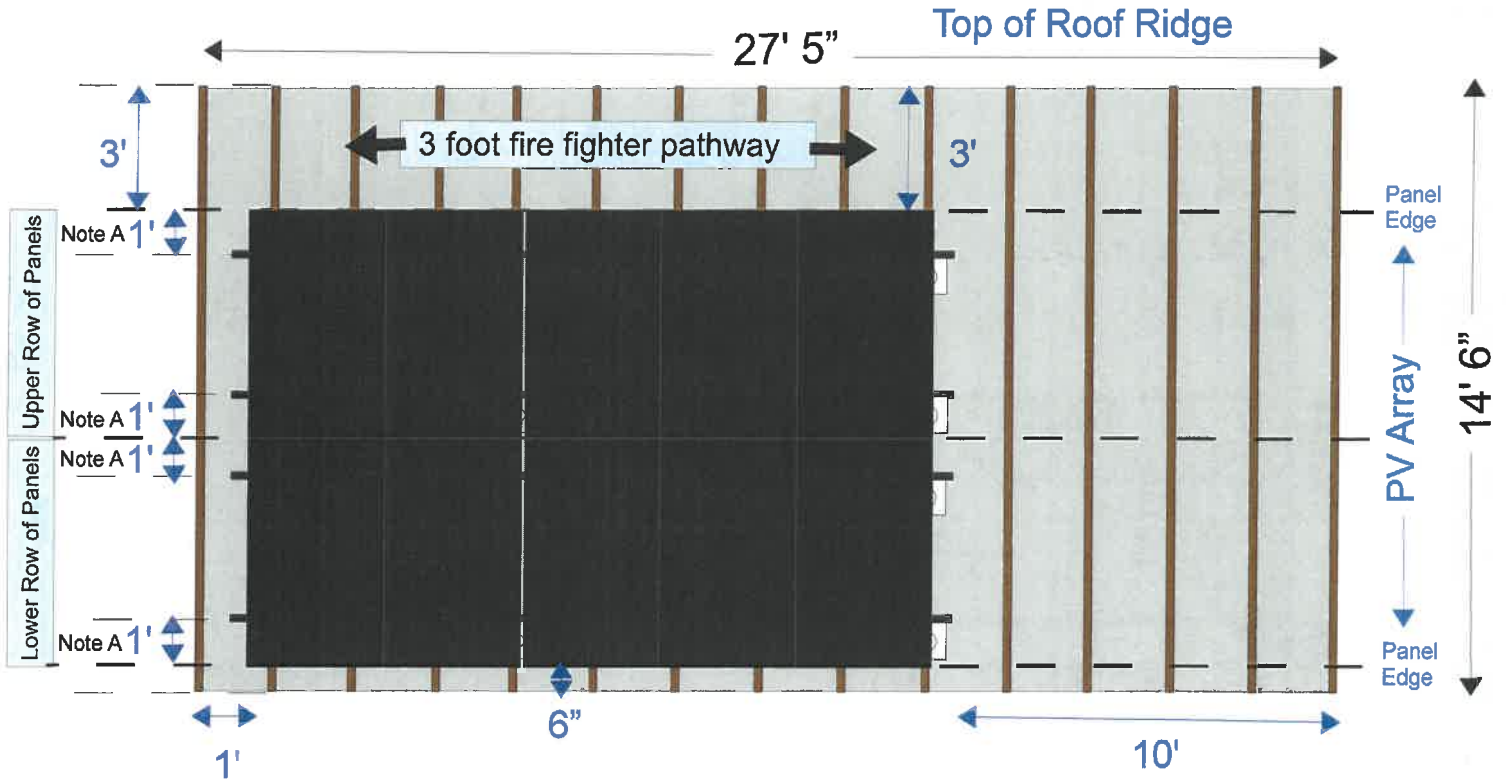
Note A: Spacing from panel edge to rail of 1' (12") is within panel spec of 8.5" to 16.3".



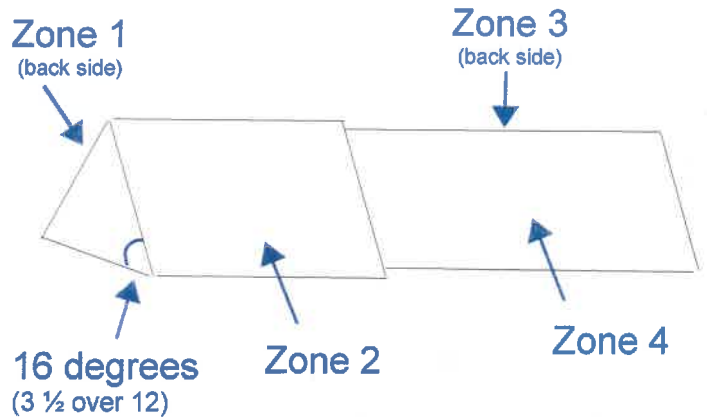
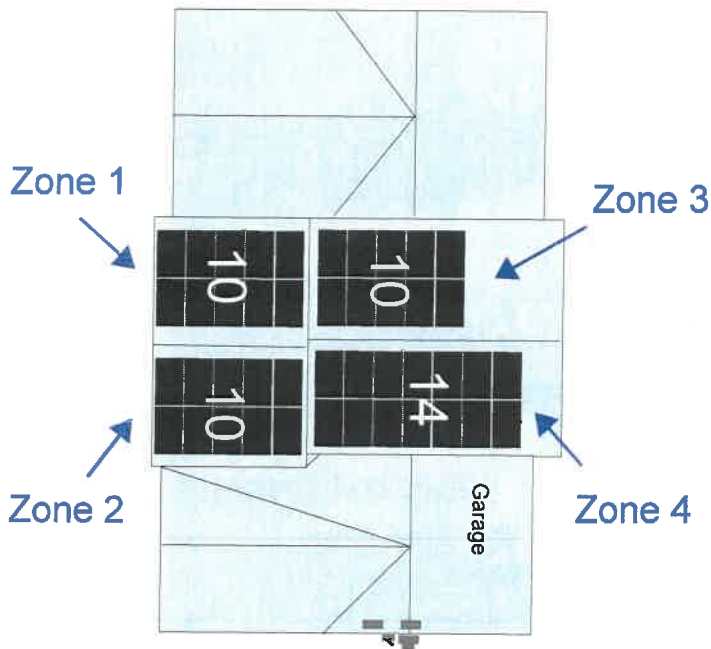
## Structural Diagram: Zone 3

Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 16, 2020
Macedonia, Ohio	Revision A

# Zone 3 Panels



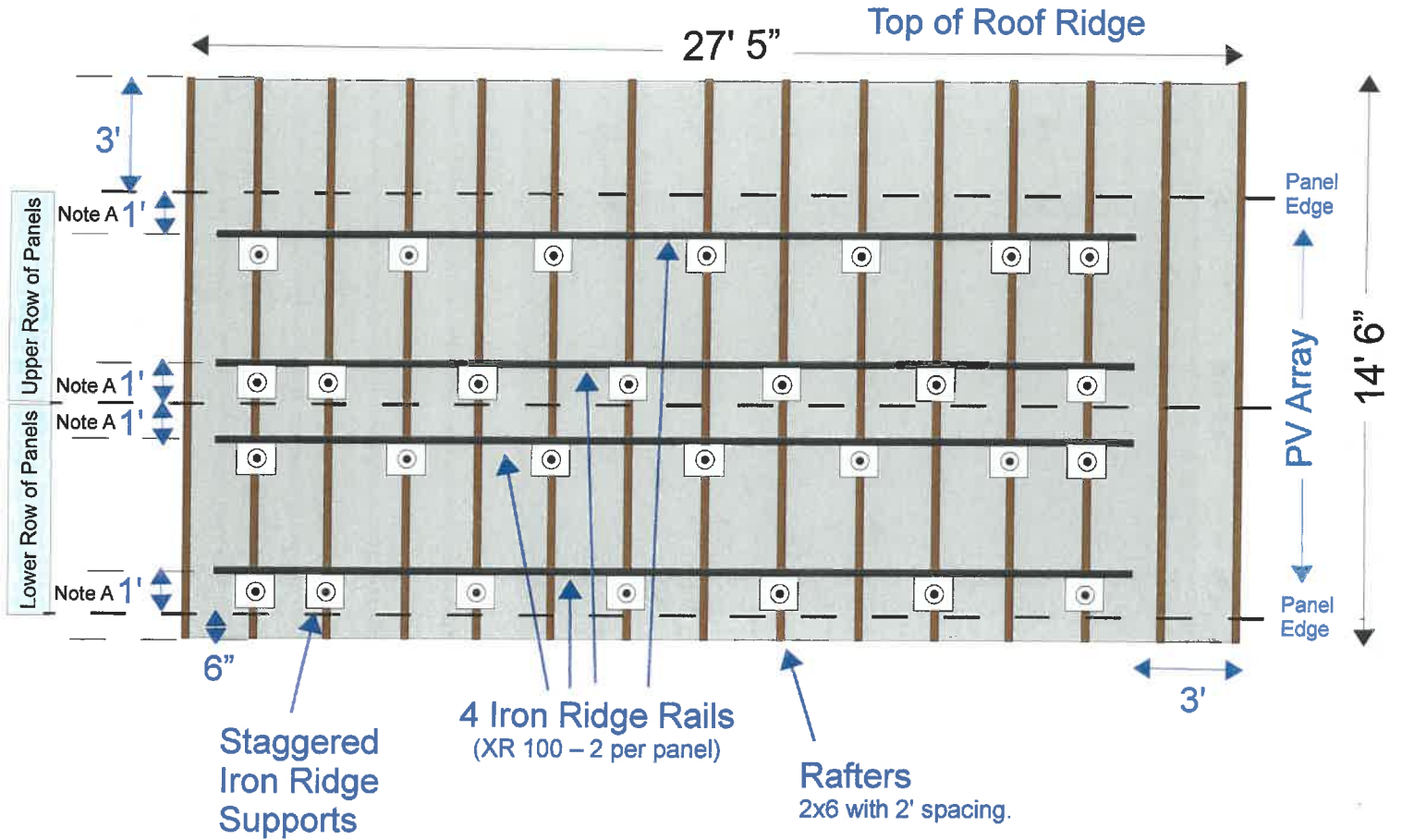
Note A: Spacing from panel edge to rail of 1' (12") is within panel spec of 8.5" to 16.3".



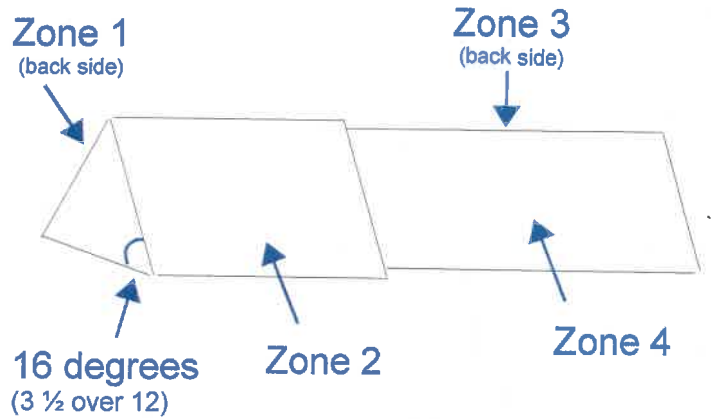
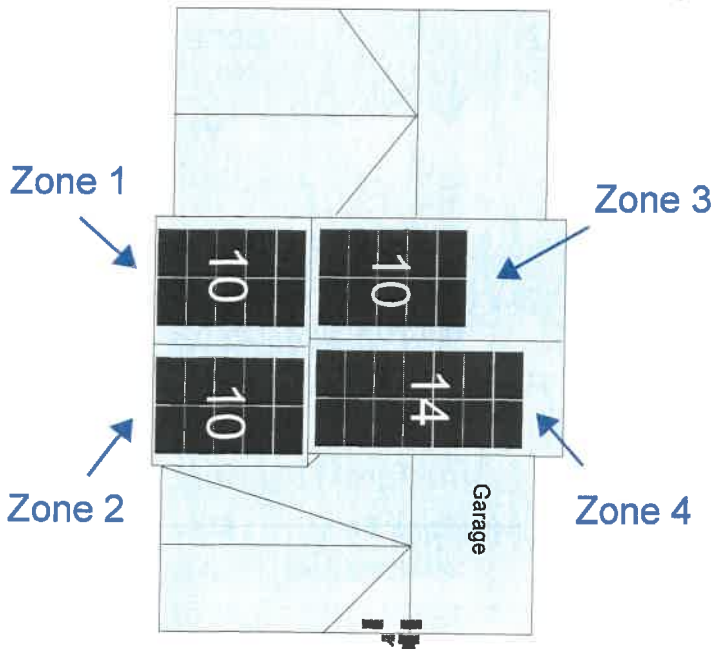
Structural Diagram: Zone 3	
Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 16, 2020
Macedonia, Ohio	Revision A



# Zone 4 Supports



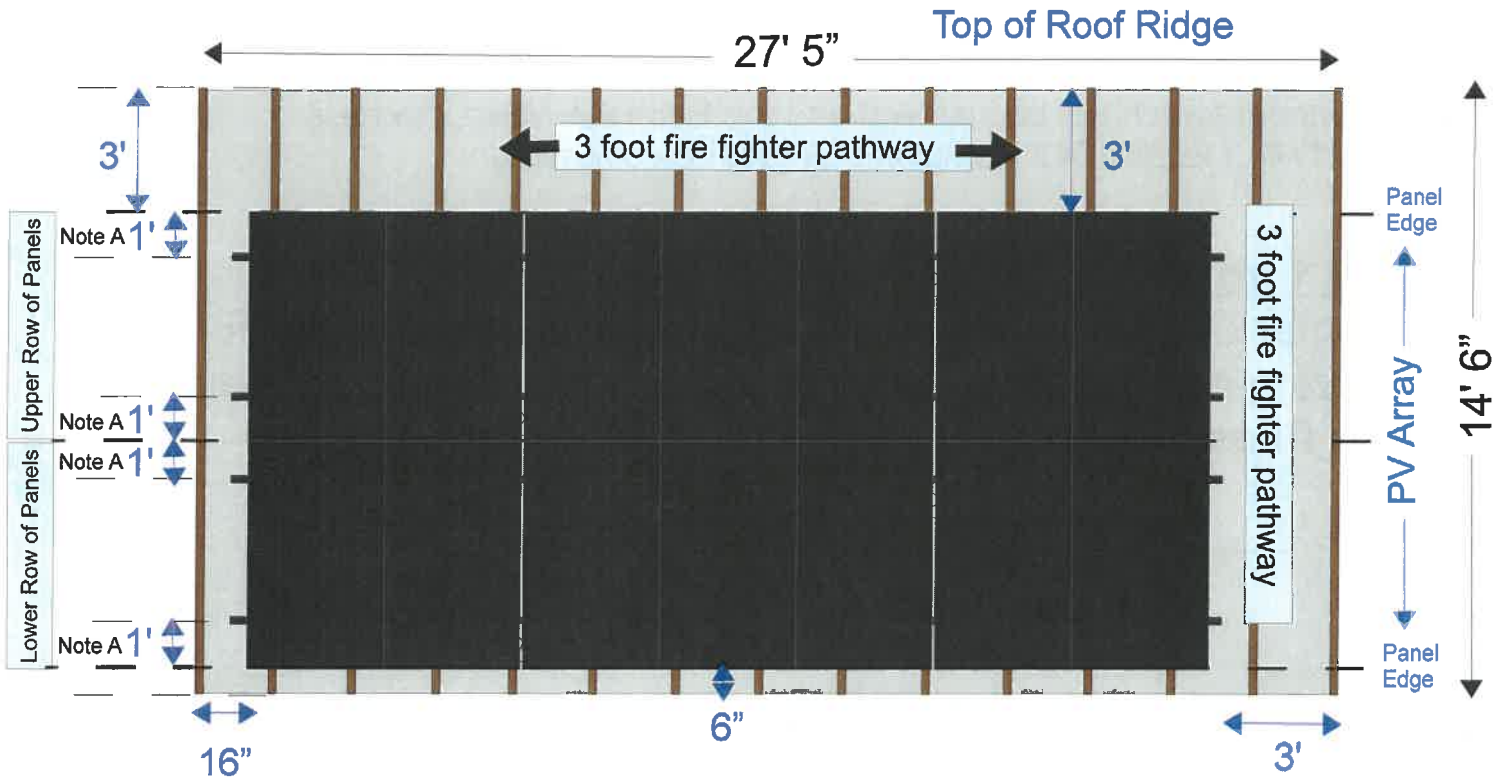
Note A: Spacing from panel edge to rail of 1' (12") is within panel spec of 8.5" to 16.3".



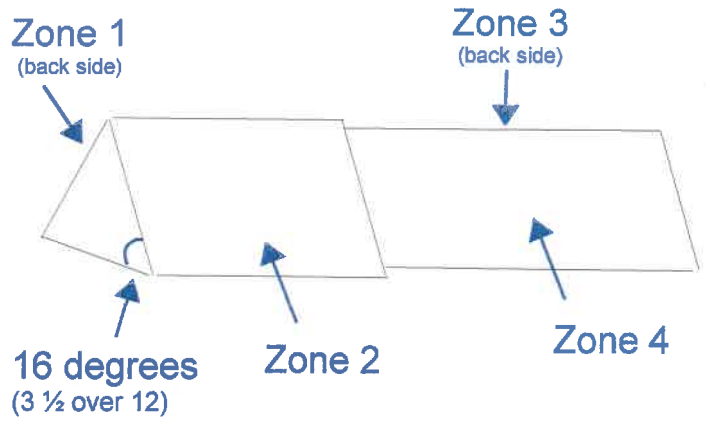
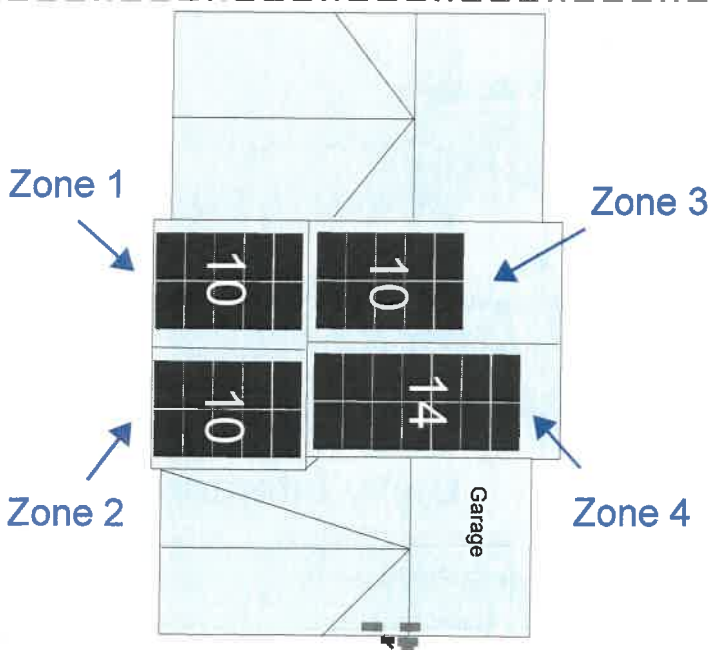
Structural Diagram: Zone 4	
Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 16, 2020
Macedonia, Ohio	Revision A



# Zone 4 Panels



Note A: Spacing from panel edge to rail of 1' (12") is within panel spec of 8.5" to 16.3".



Structural Diagram: Zone 4	
Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 16, 2020
Macedonia, Ohio	Revision A

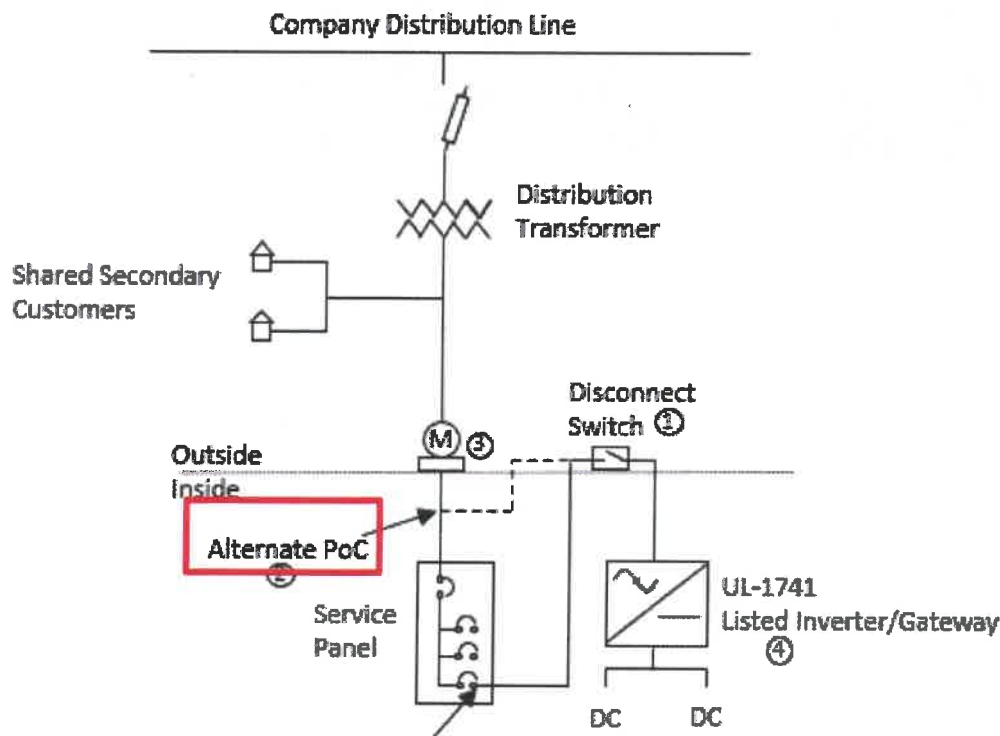
# Utility Interconnect

An Interconnection Application has been submitted to Ohio Edison. Pending approval, the utility connection will use the "Alternate PoC" method shown below in the utility interconnect documentation. The current plan is to use conductor piercing connectors such as ILSCO IPC-1/0-2.



A disconnect switch will be installed and the Enphase Micro Inverters are UL 1741 / IEEE 1547 Compliant for grid interconnect.

**Figure 1 from Ohio Edison's documentation:**  
*Customer Guide for Retail Interconnection of Electric Power Producing and Storage Facilities Residential / Small Commercial – Single Phase Inverter Based – 167 kWac or Less*



**Notes:**

1. Disconnect switch required. See section 6.5 and 6.6 of this document.
2. When using a supply side connection as per the NEC, the disconnect switch shall be listed as suitable for use as service equipment.
3. No Customer connections are permitted in the meter pan
4. UL-1741 certified inverter meeting the requirements of IEEE-1547. See Section 6.1 of this document.

Utility Interconnect	
Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 20, 2020
Macedonia, Ohio	Revision A

Equipment	Manufacturer	Part Number	Quantity	Description	Notes
Solar Panels	Astroenergy	CHSM60M-HC-320	44	Astroenergy 320 watt Module Silver Mono PERC MC4 CHSM60M-HC-320 – 35mm Frame	Compatible with Iron Ridge Mounts. Fire Raed Class C (IEC) or Type 1 (UL).
Mounting Hardware	Ironridge		44	IronRidge 1/4 X 3/4 T-Bolt Microinverter Bonding Hardware Kit Single	Secures panels to rails. Compatible with Astroenergy Panels. Class A fire rated. UL 2703 Compliant
Mounting Hardware	Ironridge	XR100	44	IronRidge XR100 Roof Mount Racking Kit	Custom configuration of Ironridge parts for specific application. Compatible with Astroenergy Panels. Class A fire rated. UL 2703 Compliant
Wire Management	Enphase	Q-CLIP	132	Enphase IQ Cable Clip, Single, Q-CLIP	Cable Management. Wire clips
Wire Management	Heyco Products Inc	S-6405	88	Heyco Products Inc. HEYClip Sunrunner Cable Clip – S-6405 – Single	Cable Management. Wire clips
Inverter Equipment	Enphase	IQ7PLUS-72-2-US	44	Enphase IQ7+ Microinverter IQ7PLUS-72-2-US	Installed directly underneath each panel. Transitions power from DC to AC. UL 1741 / IEEE 1547 Compliant.
Inverter Equipment	Enphase	X-IQ-AM1-240-3	1	Enphase IQ Combiner 3 with IQ Envoy -- 4 Circuit, Breakers Sold Separately X-IQ-AM1-240-3	Used to combine 4 panel strings. IQ Envoy also enables monitoring of panel efficiency. Each string can have a 20A breaker. UL 1741 Compliant
Inverter Equipment	Enphase	BR220	4	Enphase Circuit Breaker for IQ Combiner BR220	20A Breaker. One per string. Installed in the Enphase Combiner 3.
Inverter Equipment	Enphase	Q-12-10-240 SINGLE	44	Enphase IQ Cable Portrait SINGLE	Cables for interconnecting panels
Electrical Interconnect	TBD	TBD	1	Waterproof Outdoor Junction Box	Transitions from Q-cables to NM cable to run from roof down to electrical panel in garage.
Electrical Interconnect	Schneider Electric	D323NRB	1	Schneider Electric Square D Fusible Outdoor Safety Switch	Externally accessible disconnect with fuse. UL Listed. UL 98 Compliant. Equipped with a factory installed neutral assembly for use as service equipment.
Electrical Interconnect	ILSCO	IPC-1/0-2	2	INSULATION PIERCING CONNECTOR, 1/0 AWG - 8 AWG CONDUCTOR RANGE MAIN, 2 AWG - 8 AWG CONDUCTOR RANGE TAP, 300 VOLTAGE, 0.5" HEX SIZE	Tested to UL 486A-486B, UL File E6207

### Critical Components List

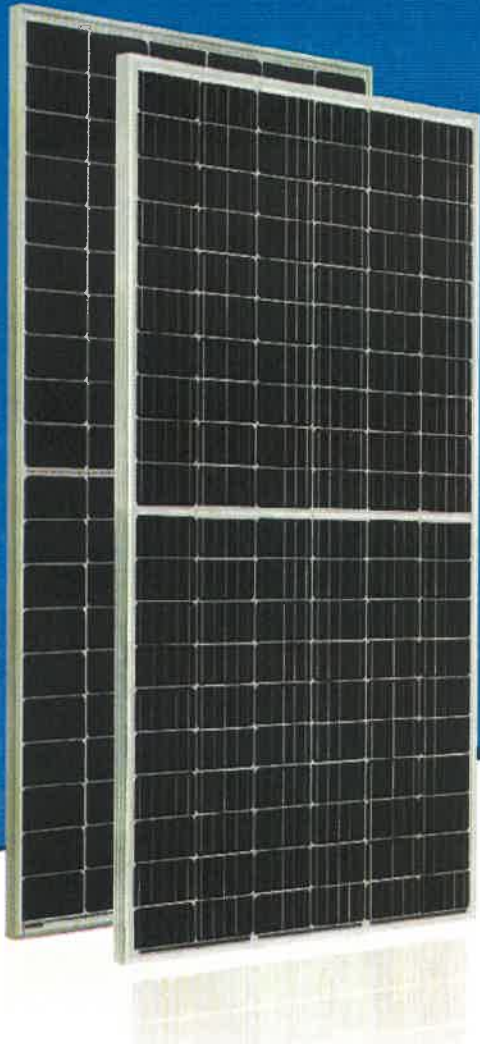
Solar Panel Project	Brian Frackelton
1018 Shoshone Trail	July 19, 2020
Macedonia, Ohio	Revision A





# AstroSemi™

Incredible Power for Small Body



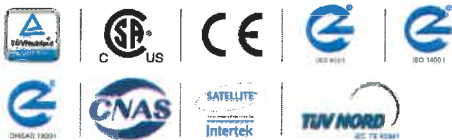
## 315W~335W

Monocrystalline PV Module  
CHSM60M-HC Series (156.75)



Multi-Busbar Module could be the option

### COMPREHENSIVE CERTIFICATES



First solar company which passed the TUV Nord IEC/TS 62941 certification audit.

### KEY FEATURES

- OUTPUT POSITIVE TOLERANCE**  
 Guaranteed 0~+5W positive tolerance ensures power output reliability.
- INNOVATIONAL HALF-CELL TECHNOLOGY**  
 Improves the module output, decreases the risk of micro-crack, enhances the module reliability.
- INNOVATIVE PERC CELL TECHNOLOGY**  
 Excellent cell efficiency and output.
- REDUCE SHADOW LOSS**  
 Effectively reduces the effect of shadow on the module surface.
- REDUCE INTERNAL MISMATCH LOSS**  
 Reduces mismatch loss and improves output.
- PASSED HAIL TEST**  
 Certified to hail resistance: ice ball size (d=45mm) and ice ball velocity (v=30.7m/s).
- Anti PID RESISTANCE**  
 Excellent PID resistance at 96 hours (@85°C /85%) test, and also can be improved to meet higher standards for the particularly harsh environment.

For Global Market



**ASTRONERGY**  
A CHNT COMPANY

## ELECTRICAL SPECIFICATIONS

STC rated output ( $P_{mpp}$ )*	315 Wp	320 Wp	325 Wp	330 Wp	335 Wp
Rated voltage ( $V_{mpp}$ ) at STC	33.44 V	33.68 V	33.93 V	34.17 V	34.44 V
Rated current ( $I_{mpp}$ ) at STC	9.42 A	9.50 A	9.58 A	9.66 A	9.73 A
Open circuit voltage ( $V_{oc}$ ) at STC	40.42 V	40.72 V	41.03 V	41.32 V	41.61 V
Short circuit current ( $I_{sc}$ ) at STC	9.90 A	9.98 A	10.06 A	10.14 A	10.22 A
Module efficiency	19.0%	19.3%	19.6%	19.9%	20.2%
Rated output ( $P_{mpp}$ ) at NMOT	234.9 Wp	238.6 Wp	242.4 Wp	246.1 Wp	249.8 Wp
Rated voltage ( $V_{mpp}$ ) at NMOT	31.18 V	31.39 V	31.63 V	31.85 V	32.10 V
Rated current ( $I_{mpp}$ ) at NMOT	7.53 A	7.60 A	7.66 A	7.73 A	7.78 A
Open circuit voltage ( $V_{oc}$ ) at NMOT	38.00 V	38.28 V	38.57 V	38.85 V	39.12 V
Short circuit current ( $I_{sc}$ ) at NMOT	7.96 A	8.03 A	8.09 A	8.16 A	8.22 A
Temperature coefficient ( $P_{mpp}$ )			- 0.3438%/°C		
Temperature coefficient ( $I_{sc}$ )			+0.0353%/°C		
Temperature coefficient ( $V_{oc}$ )			- 0.2722%/°C		
Nominal module operating temperature (NMOT)			44±2°C		
Maximum system voltage (IEC/UL)			1500V <sub>DC</sub>		
Number of diodes			3		
Junction box IP rating			IP 67		
Maximum series fuse rating			20 A		

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, AM=1.5

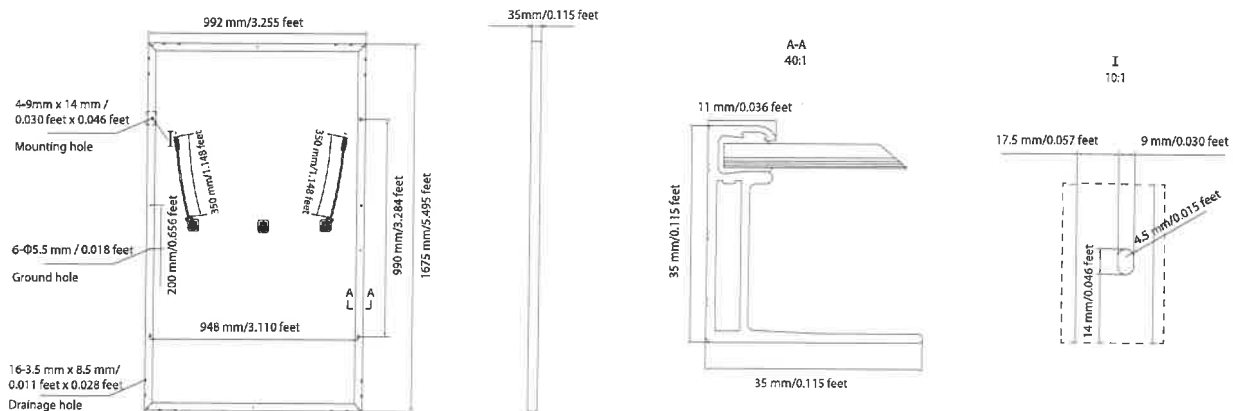
NMOT: Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, AM=1.5, Wind Speed 1m/s

## MECHANICAL SPECIFICATIONS

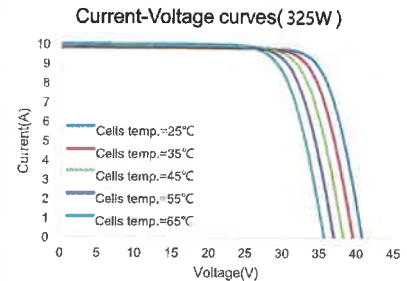
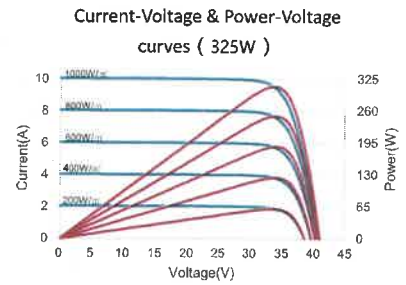
Outer dimensions (L x W x H)	1675 x 992 x 35 mm 65.94 x 39.06 x 1.38 in
Frame technology	Aluminum, silver anodized
Module composition	Glass / EVA / Backsheet (white)
Front glass thickness	3.2 mm / 0.13 in
Cable length (IEC/UL)	Portrait: 350 mm (13.78 in) Landscape: 1000 mm (39.37 in)
Cable diameter (IEC/UL)	4 mm <sup>2</sup> / 12 AWG
① Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Fire performance (IEC/UL)	Class C (IEC) or Type 1 (UL)
Connector type (IEC/UL)	MC4 compatible

① Refer to Astronergy crystalline installation manual or contact technical department.  
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.

## MODULE DIMENSION DETAILS



## CURVE



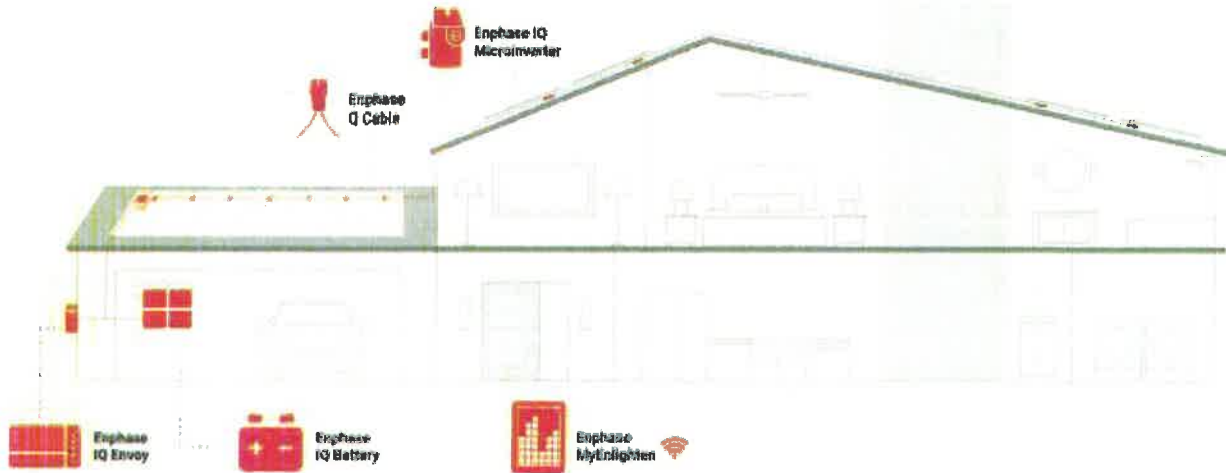
## PACKING SPECIFICATIONS

① Weight (module only)	18.7 kg / 41.23 lbs
② Packing unit	31 pcs / box
Weight of packing unit (for 40'HQ container)	619 kg / 1365 lbs
Number of modules per 40'HQ container	806 pcs

① Tolerance +/- 1.0kg  
② Subject to sales contract

## How the Enphase IQ Series Micros Work

The Enphase Microinverter maximizes energy production by using a sophisticated Maximum Power Point Tracking (MPPT) algorithm. Each Enphase Microinverter individually connects to one PV module in your array. This configuration enables an individual MPPT to control each PV module, ensuring that maximum power available from each PV module is exported to the utility grid regardless of the performance of the other PV modules in the array. While an individual PV module in the array may be affected by shading, soiling, orientation, or PV module mismatch, each Enphase Microinverter ensures top performance for its associated PV module.



### System Monitoring

Once you install the Enphase IQ Envoy and provide an internet connection through a broadband router or modem, the Enphase IQ Microinverters automatically begin reporting to Enlighten. Enlighten presents current and historical system performance trends and informs you of PV system status.

### Optimal Reliability

Microinverter systems are inherently more reliable than traditional inverters. The distributed nature of a microinverter system ensures that there is no single point of system failure in the PV system. Enphase Microinverters are designed to operate at full power at ambient temperatures as high as 65° C (150° F).

### Ease of Design

PV systems using Enphase Microinverters are very simple to design and install. You will not need string calculations or cumbersome traditional inverters. You can install individual PV modules in any combination of PV module quantity, type, age and orientation. Each microinverter quickly mounts on the PV racking, directly beneath each PV module. Low voltage DC wires connect from the PV module directly to the co-located microinverter, eliminating the risk of personnel exposure to dangerously high DC voltage.



**IQ7PLUS-72-2-US Microinverter Specifications****IQ7PLUS-72-2-US Microinverter Parameters**

Topic	Unit	Min	Typical	Max
<b>DC Parameters</b>				
Commonly used module pairings <sup>4</sup>	W	235 W - 440+ W		
Peak power tracking voltage	V	27	36	45
Operating range	V	16		60
Maximum DC input voltage	V			60
Minimum / maximum start voltage	V	22		60
Maximum DC input short circuit current (module I <sub>sc</sub> )	A			15
Overvoltage class DC port			II	
DC Port backfeed under single fault	A			0
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20 A per branch circuit			
<b>AC Parameters</b>				
Maximum continuous AC output power (-40 to +65°C)	VA	290		
Peak output power	VA	295		
Power factor (adjustable)		0.7 leading 0.7 lagging		
Nominal AC output voltage range <sup>5</sup>				
240 VAC (single phase)	V <sub>rms</sub>	211		264
208 VAC (single phase)	V <sub>rms</sub>	183		229
Nominal output current				
240 VAC (single phase)	A <sub>rms</sub>		1.21	
208 VAC (single phase)	A <sub>rms</sub>		1.39	
Nominal frequency	Hz		60	
Extended frequency range	Hz	47		68
Maximum AC output over current protection device	A	20		
AC short circuit fault current over 3 cycles	A rms for over 3 cycles	5.8 Arms		
High AC voltage trip limit accuracy	%	±1.0		
Low AC voltage trip limit accuracy	%	±1.0		
Frequency trip limit accuracy	%	±0.1		
Trip time accuracy	milliseconds	±33		
Overvoltage class AC port			III	
AC port backfeed under single fault	A		0	
Power factor setting			1.0	

<sup>4</sup> No enforced DC/AC ratio. See the compatibility calculator at [enphase.com/en-us/support/module-compatibility](http://enphase.com/en-us/support/module-compatibility)

<sup>5</sup> Nominal Voltage Range can be extended if required by the utility.



**IQ7PLUS-72-2-US Microinverter Parameters**

**Miscellaneous Parameters**

Maximum <sup>6</sup> microinverters per 20A (max) AC branch circuit				
240 VAC (single phase)				13
208 VAC (single phase)				11
CEC weighted efficiency	%			
240 VAC (single phase)		97.0		
208 VAC (single phase)		96.5		
Static MPPT efficiency (weighted, ref EN 50530)	%	99.5		
Total harmonic distortion	%			5
Ambient temperature range	°C	-40		+65
Night tare loss	mW			50
Storage temperature range	°C	-40		+85

**Features and Specifications**

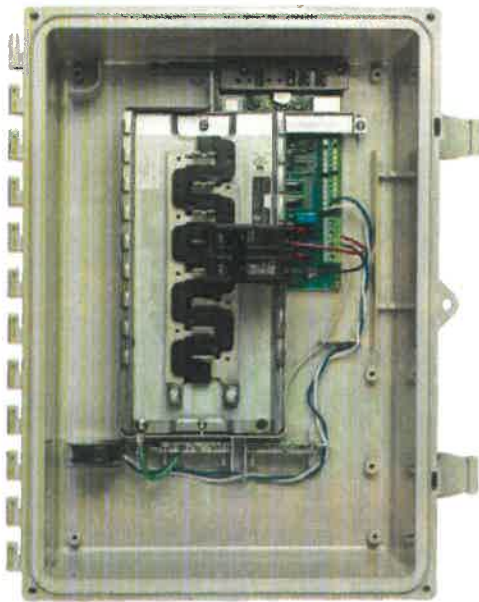
Compatibility	Pairs with most 60 and 72-cell PV modules
Dimensions not including mounting bracket	212 mm x 175 mm x 30.2 mm (approximate)
Connector type	MC-4 (or Amphenol H4 UTX with additional Q-DCC-5 adaptor)
Weight	1.08 kg (2.38 lbs.)
Environmental category / UV exposure rating	NEMA type 6 / outdoor
Torque specifications for fasteners (Do not over torque)	<ul style="list-style-type: none"> <li>• 6 mm (1/4") mounting hardware: 5 N m (45 - 50 in-lbs.)</li> <li>• 8 mm (5/16") mounting hardware: 9 N m (80 - 85 in-lbs.)</li> <li>• When using UL 2703 mounting hardware, use the manufacturer's recommended torque value</li> </ul>
Cooling	Natural convection - no fans
Relative humidity range	4% to 100% condensing
Approved for wet locations	Yes
Pollution degree	PD3
Communication	Power line
Standard warranty term	<a href="http://enphase.com/warranty">enphase.com/warranty</a>
<b>Compliance</b>	<p>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</p> <p>This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC-2014 and NEC-2017 section 690.12 and G22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.</p>
Grounding	The DC circuit meets the requirements for ungrounded PV arrays in NEC. Ground fault protection (GFP) is integrated into the class II double insulated microinverter.
Monitoring	Enlighten Manager and MyEnlighten monitoring options require an Enphase IQ Envoy
Integrated DC disconnect	The DC connector has been evaluated and approved for use as the load-break disconnect required by NEC 690.
Integrated AC disconnect	The AC connector has been evaluated and approved for use as the load-break disconnect required by NEC 690.

<sup>6</sup> Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.



## Enphase IQ Combiner 3 (X-IQ-AM1-240-3)

The **Enphase IQ Combiner 3™** with Enphase IQ Envoy™ consolidates interconnection equipment into a single enclosure and streamlines PV and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.



### Smart

- Includes IQ Envoy for communication and control
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and optional consumption monitoring

### Simple

- Reduced size from previous combiner
- Centered mounting brackets support single stud mounting
- Supports back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV or storage branch circuits

### Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year warranty
- UL listed



**LISTED**

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



# Enphase IQ Combiner 3

## MODEL NUMBER

**IQ Combiner 3 X-IQ-AM1-240-3**

IQ Combiner 3 with Enphase IQ Envoy™ printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and optional\* consumption monitoring (+/- 2.5%).

## ACCESSORIES and REPLACEMENT PARTS (not included, order separately)

Enphase Mobile Connect™ CELLMODEM-03 (4G / 12-year data plan) CELLMODEM-01 (3G / 5-year data plan) CELLMODEM-M1 (4G based LTE-M / 5-year data plan)	Plug and play industrial grade cellular modem with data plan for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.)
Consumption Monitoring* CT CT-200-SPLIT	Split core current transformers enable whole home consumption metering (+/- 2.5%).
Circuit Breakers BRK-10A-2-240 BRK-15A-2-240 <b>BRK-20A-2P-240</b>	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220
EPLC-01	Power line carrier (communication bridge pair), quantity 2
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 3 (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Envoy printed circuit board (PCB) for Combiner 3

## ELECTRICAL SPECIFICATIONS

Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating (output to grid)	65 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. continuous current rating (input from PV)	64 A
Max. total branch circuit breaker rating (input)	80A of distributed generation / 90A with IQ Envoy breaker included
Production Metering CT	200 A solid core pre-installed and wired to IQ Envoy

## MECHANICAL DATA

Dimensions (WxHxD)	49.5 x 37.5 x 16.8 cm (19.5" x 14.75" x 6.63"). Height is 21.06" (53.5 cm with mounting brackets).
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	<ul style="list-style-type: none"> <li>• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors</li> <li>• 60 A breaker branch input: 4 to 1/0 AWG copper conductors</li> <li>• Main lug combined output: 10 to 2/0 AWG copper conductors</li> <li>• Neutral and ground: 14 to 1/0 copper conductors</li> </ul> Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)

## INTERNET CONNECTION OPTIONS

Integrated Wi-Fi	802.11b/g/n
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
Cellular	Optional, CELLMODEM-01 (3G) or CELLMODEM-03 (4G) or CELLMODEM-M1 (4G based LTE-M) (not included)

## COMPLIANCE

Compliance, <b>Combiner</b>	UL 1741 CAN/CSA C22.2 No. 107.1 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production)
Compliance, <b>IQ Envoy</b>	UL 60601-1/CANCSA 22.2 No. 61010-1

\* Consumption monitoring is required for Enphase Storage Systems.

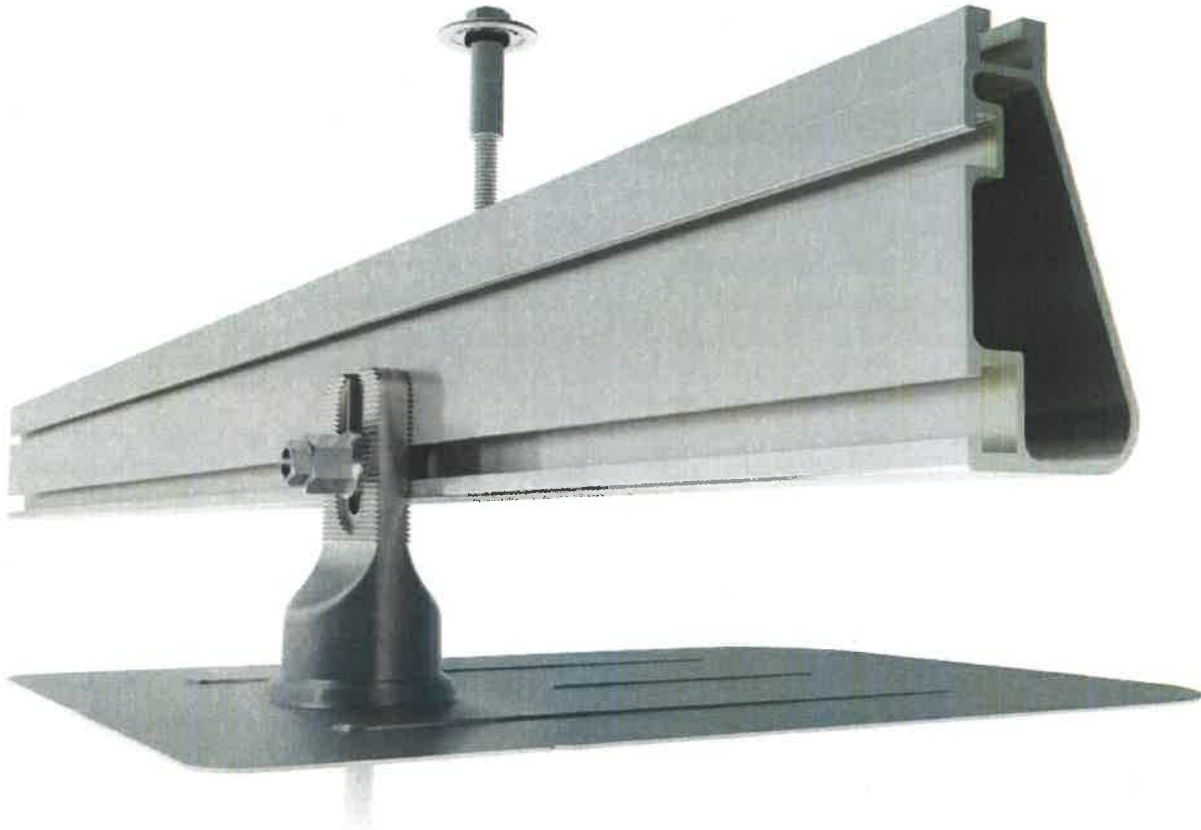
To learn more about Enphase offerings, visit [enphase.com](http://enphase.com)

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2018-09-13





## Flush Mount System



### Built for solar's toughest roofs.

IronRidge builds the strongest mounting system for pitched roofs in solar. Every component has been tested to the limit and proven in extreme environments.

Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 25-year warranty.



#### Strength Tested

All components evaluated for superior structural performance.



#### PE Certified

Pre-stamped engineering letters available in most states.



#### Class A Fire Rating

Certified to maintain the fire resistance rating of the existing roof.



#### Design Assistant

Online software makes it simple to create, share, and price projects.



#### UL 2703 Listed System

Entire system and components meet newest effective UL 2703 standard.



#### 25-Year Warranty

Products guaranteed to be free of impairing defects.



**XR Rails**

**XR10 Rail**



A low-profile mounting rail for regions with light snow.

- 6' spanning capability
- Moderate load capability
- Clear and black finish

**XR100 Rail**



The ultimate residential solar mounting rail.

- 8' spanning capability
- Heavy load capability
- Clear and black finish

**XR1000 Rail**



A heavyweight mounting rail for commercial projects.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish

**Bonded Splices**



All rails use internal splices for seamless connections.

- Self-drilling screws
- Varying versions for rails
- Forms secure bonding

**Clamps & Grounding**

**UFOs**



Universal Fastening Objects bond modules to rails.

- Fully assembled & lubed
- Single, universal size
- Clear and black finish

**Stopper Sleeves**



Snap onto the UFO to turn into a bonded end clamp.

- Bonds modules to rails
- Sized to match modules
- Clear and black finish

**Grounding Lugs**



Connect arrays to equipment ground.

- Low profile
- Single tool installation
- Mounts in any direction

**Microinverter Kits**



Mount MIs or POs to XR Rails.

- Bonds devices to rails
- Kit comes assembled
- Listed to UL 2703

**Attachments**

**FlashFoot2**



Flash and mount XR Rails with superior waterproofing.

- Twist-on Cap eases install
- Wind-driven rain tested
- Mill and black finish

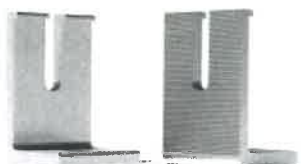
**Conduit Mount**



Flash and mount conduit, strut, or junction boxes.

- Twist-on Cap eases install
- Wind-driven rain tested
- Secures 3/4" or 1" conduit

**Slotted L-Feet**



Drop-in design for rapid rail attachment.

- Secure rail connections
- Slot for vertical adjusting
- Clear and black finish

**Bonding Hardware**



Bond and attach XR Rails to roof attachments.

- T & Square Bolt options
- Nut uses 7/16" socket
- Assembled and lubricated

**Resources**



**Design Assistant**

Go from rough layout to fully engineered system. For free.

[Go to IronRidge.com/design](http://IronRidge.com/design)



**NABCEP Certified Training**

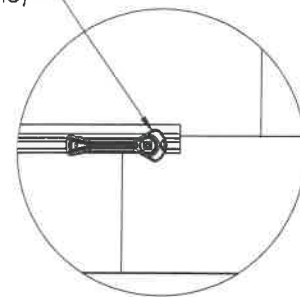
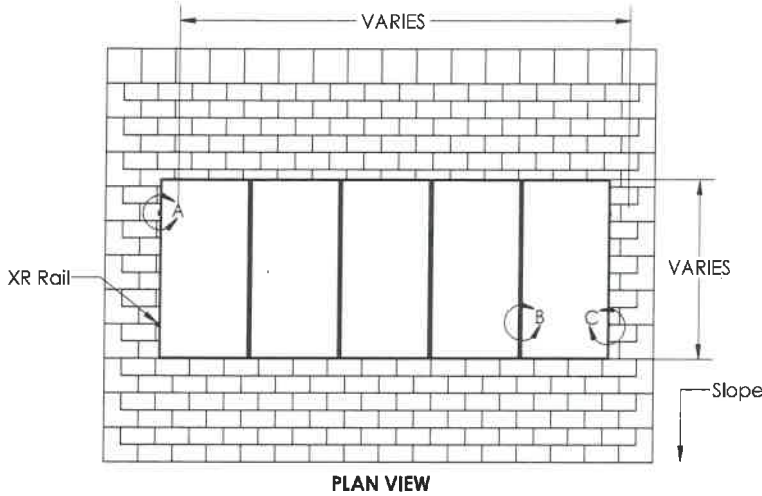
Earn free continuing education credits, while learning more about our systems.

[Go to IronRidge.com/training](http://IronRidge.com/training)

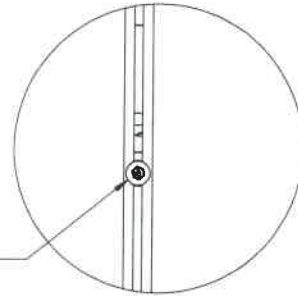
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Module Mounting System  
 Bonding End Clamp (CAMO)

05/25/2018

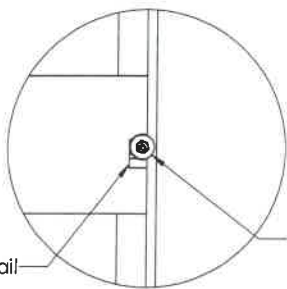


**DETAIL C**  
 (Module Removed for Clarity)



Module Mounting System  
 Bonding Mid Clamp

**DETAIL B**



XR Rail  
 Module Mounting System  
 Bonding End Clamp (UFO)

**DETAIL A**

**IRONRIDGE**

FLUSH MOUNT SYSTEM

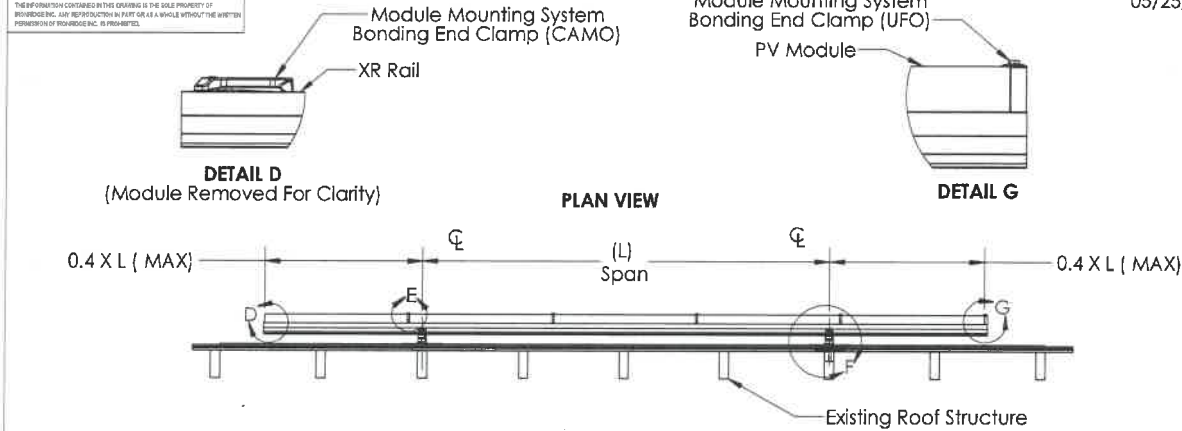
SHEET NO.	DWG. NO.	EX-0015
SCALE: NTS	WEIGHT: N/A	SHEET 1 OF 3

**EXHIBIT: EX-0015 - page 1 of 3**

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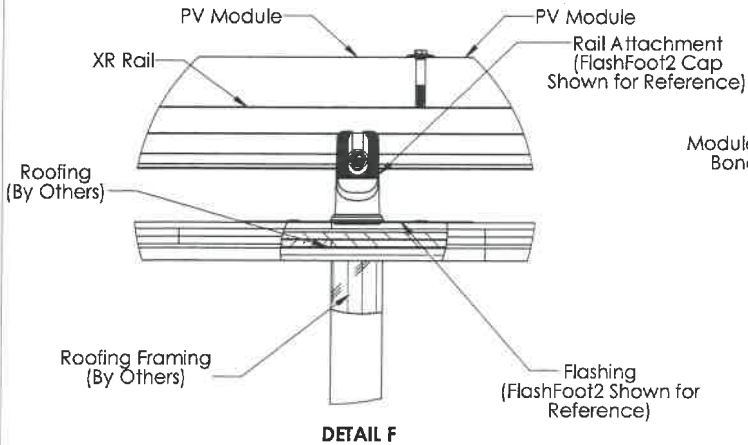
Module Mounting System  
 Bonding End Clamp (CAMO)

05/25/2018

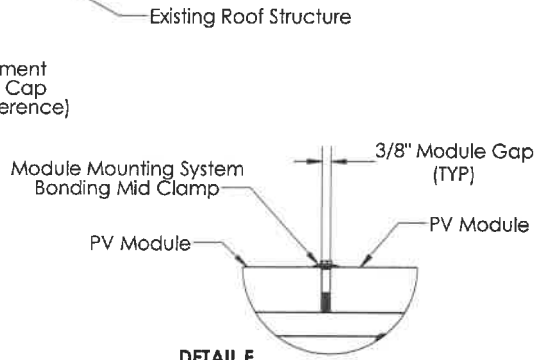


**DETAIL D**  
 (Module Removed For Clarity)

**DETAIL G**



**DETAIL F**



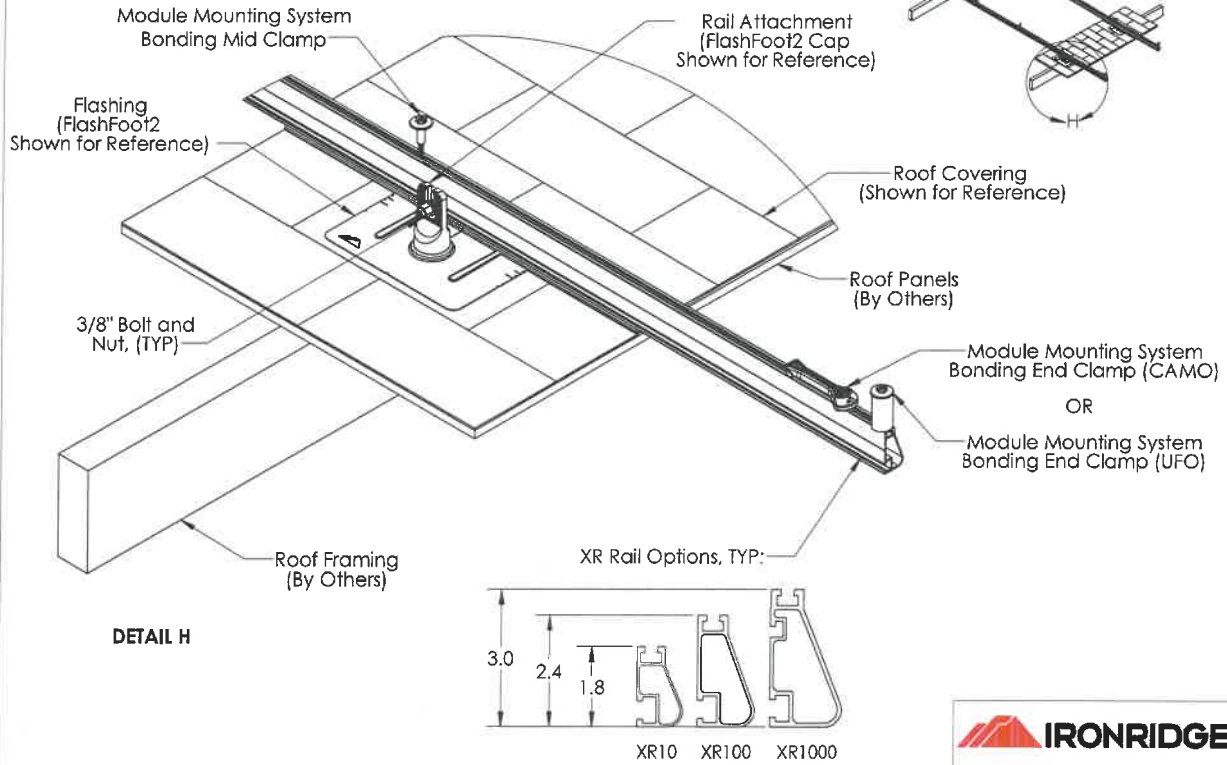
**DETAIL E**

**IRONRIDGE**

FLUSH MOUNT SYSTEM

SHEET NO.	DWG. NO.	EX-0015
SCALE: NTS	WEIGHT: N/A	SHEET 2 OF 3

**EXHIBIT: EX-0015- page 2 of 3**



FLUSH MOUNT SYSTEM		
SIZE	DWG. NO.	EX-0015
SCALE: NTS	WEIGHT: N/A	SHEET 3 OF 3





Attn: Corey Geiger, COO, IronRidge Inc.  
Date: May 18<sup>th</sup>, 2020

Re: Structural Certification and Span Tables for IronRidge Flush Mount System

This letter addresses the structural performance and code compliance of IronRidge's Flush Mount System. The contents of the letter shall be read in its entirety before being applied to any project design. The Flush Mount System is a proprietary rooftop mounting system used to support photovoltaic (PV) modules installed in portrait or landscape orientation and set parallel to the underlying roof surface. PV modules are supported by extruded aluminum XR Rails and secured to the rails with IronRidge mounting clamps. The XR Rails are side mounted to a selected roof attachment with 3/8" stainless steel bonding hardware and then attached directly to the roof structure or to a stanchion that is fastened to the underlying roof structure. Assembly details of a typical Flush Mount installation and its core components are shown in Exhibit EX-0015.

The IronRidge Flush Mount System is designed and certified to the structural requirements of the reference standards listed below, for the load conditions and configurations tabulated in the attached span tables.

- ASCE/SEI 7-10 Minimum Design Loads for Buildings and Other Structures (ASCE 7-10)
- 2015 International Building Code (IBC-2015)
- 2017 Ohio Building Code
- 2015 Aluminum Design Manual (ADM-2015)

The tables included in this letter provide the maximum allowable spans of XR Rails in the Flush Mount System for the respective loads and configurations listed, covering wind exposure categories B, C, & D, roof zones 1, 2 & 3, and roof slopes from 8° to 45°. The span tables are applicable provided that the following conditions are met:

1. Span is the distance between two adjacent roof attachment points (measured at the center of the attachment fastener)
2. The underlying roof pitch, measured between roof surface and horizontal plane, is 45° or less.
3. The *mean roof height*, defined as the average of the roof eave height and the roof ridge height measured from grade, does not exceed 30 feet.
4. Module length shall not exceed the listed maximum dimension provided for the respective span table and module width shall not exceed 42".
5. All Flush Mount components shall be installed in a professional workmanlike manner per IronRidge's *Flush Mount Installation manual* and other applicable standards for general roof construction practice.



The parameters and adjustments allowed in the span tables are defined as the following:

1. The Flush Mount System is designed as a Risk Category II structure as defined by ASCE 7-10 Chart 1.5-1.
2. The wind speed selection shall conform to ASCE 7-10 Fig. 26.5-1A (Risk Category II wind) and any state & local county/city amendments to the IBC. No special wind topographic features are included in the span tables and the topographic coefficient (Kzt) is taken as 1.0.
3. The snow load used in the span tables is the *ground snow* and shall conform to ASCE 7-10 Fig. 7-1 and applicable state & local county/city amendments to the IBC. If the local jurisdiction specified snow load is in the format of a flat roof snow load, it shall first be converted to a ground snow following the local building code/amendment before the application of the attached span tables. No special snow conditions are considered including unbalanced, drifting, sliding, retention, or ponding snow. The span tables do not include buildings which are intentionally kept below freezing, kept just above freezing, or unheated.
4. The span tables reflect the ASCE 7 prescribed earthquake loads with the maximum magnitudes being:
  - 1) For ground snow no greater than 42psf:  $S_s \leq 2.0g$  for Site Class A, B, C, or D.
  - 2) For ground snow greater than 42psf:  $S_s \leq 1.0g$  for Site Class A, B, C, or D.
  - 3) For ground snow between 42 and 65psf:  $S_s \leq 1.5g$  for Site Class A, B, C, or D.
5. Roof zone size and definition conforms to ASCE 7-10 Fig. 30.4-2A to 30.4-2C.
6. Allowable span length in the charts may be multiplied by a factor of 1.08 if the rails are continuous over a minimum of three spans.
7. The maximum cantilever length measured from the rail end to the nearest attachment point shall not exceed 40% of the allowable span provided for the respective load & configuration condition from the span tables.
8. An array to roof clearance of 2' minimum must be provided.
9. No rail splices are allowed in the cantilever, outer 2/3 of end spans, or middle 1/3 of interior spans.
10. Shaded cells of the span tables indicate conditions in which UFO Mid Clamp connection capacity is exceeded. If such conditions are encountered contact [support@ironridge.com](mailto:support@ironridge.com)
11. When a roof attachment listed in IronRidge's Flush Mount *Installation manual* is considered, the span values provided in this letter can be adjusted using IronRidge's online Design Assistant by checking the capacity of the selected roof attachment against the reaction forces provided in Design Assistant.

12. Systems using CAMO module clamps shall be installed with the following guidance:

- 1) For single module installations ("orphan modules") using modules with a length greater than 67.5', CAMO clamps shall not be installed in regions that experience ground snow loads of 70psf and greater; such scenarios are shown by asterisks in the applicable span table.
- 2) CAMO will function within a module's design load ratings. Be sure the specific module being used with CAMO meets the dimensional requirements shown in the figure below and that the module selected is suitable for the environmental conditions of a particular project.

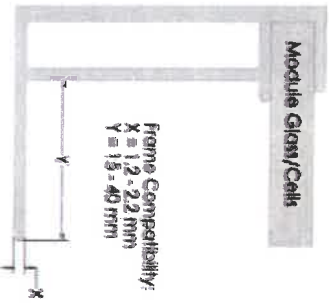
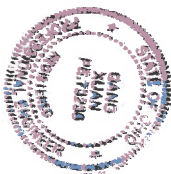


Figure 1: CAMO Module Frame Dimensional Requirements

The span tables provided in this letter are certified based on the structural performance of IronRidge XR Rails only with no consideration of the structural adequacy of the chosen roof attachments, PV modules, or the underlying roof supporting members. It is the responsibility of the installer or system designer to verify the structural capacity and adequacy of the aforementioned system components in regards to the applied or resultant loads of any chosen array configuration.

Sincerely,

Gang Xuan, PE  
Senior Structural Engineer



*Gang Xuan*

Date:  
2020.05.22  
12:47:51  
-07'00'

# IronRidge Design Tool for XR 100 Mounts/Rails with Astroenergy Panels

**PR** Frackelton-195766  
1918 Shoshone Trail  
Macedonia, OH 44056

MSRP (-0%) **\$1,999.68** Modules **24** Attachments **44**  
Watts **7.68 kW** \$/Watt **\$0.26** \$/Module **\$83.32**

[Bill of materials](#) →

## Project Information

Project name

Frackelton-195766

Location

1018 Shoshone Trail, Macedonia, OH 44056

ASCE code

7-10

Snow load (psf)

20

Wind speed (mph)

PSF 115

MPH

Wind exposure

B  C  D

Risk category

I  II  III

Panel

Astroenergy

CHSM60M-HC-320 (1666x992x35mm)

65.59" x 39.06" x 1.38" (1666.0mm x 992.0mm x 35.0mm)

Panel finish

Clear

Black

End clamp

UFO + Stopper Sleeve

## Building & Roof Information

Roof material

Comp Shingle

Roof attachment

Flashfoot2

Attachment hardware

Square Bolt

Conduit mounts

Yes

No

Building height (ft)

up to 30ft

Roof slope

16°

Default rafter spacing (inches)

24

Spectral acceleration (Sg)

IN 0.189

[verify](#)

## Roof Section 1

[Delete](#)

Orientation

Portrait

Landscape

Rafter spacing (inches)

24

IN

Grid tools

[Add](#)

[Remove](#)

[Toggle](#)

[Clear all](#)

Shift

←

→

↓

↑

Rows

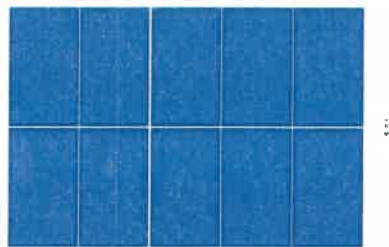
2

Columns

5

[Crop](#)

Dimension crosshairs



16'5"

11'

## Roof Section 2

Delete

Orientation

Portrait  Landscape

Rafter spacing (inches)

24

Grid tools

Add Remove Toggle

Clear all

Shift

Rows

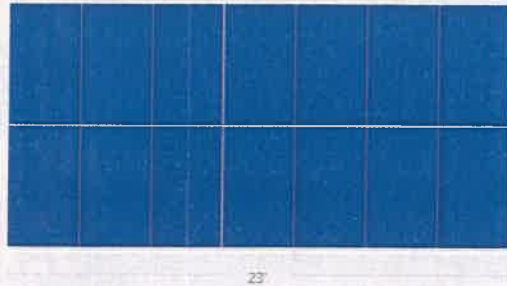
2

Columns

7

Crop

Dimension crosshairs



## Rails, Spans, and Forces

Span (feet)

4 ft 0 in

Rail type

XR100

Rail lengths: 7', 11', 14' [customize](#)

Portrait

Landscape

### Span Limits

		XR10	XR100	XR1000
Max Span	Zone 1	5' 7"	7' 10"	9' 11"
	Zone 2	5' 7"	7' 10"	9' 11"
	Zone 3	5' 5"	7' 9"	9' 11"
Max Cantilever	Zone 1	2' 3"	3' 2"	4'
	Zone 2	2' 3"	3' 2"	4'
	Zone 3	2' 2"	3' 1"	4'

### Reaction Forces

	Down (lbs)	Uplift (lbs)	Lateral (lbs)
Zone 1	238	98	57
Zone 2	238	203	57
Zone 3	238	322	57
<b>System Weight</b>			
Total system weight			1,176.1 lbs
Weight/attachment			26.7 lbs
Racking weight			191.9 lbs
Distributed weight			2.7 psf



## Roof Section Details

### Roof Section 1

Definition		Roof Section Weights		Roof Section (all segments)			
10 modules		Total weight	4929 lbs	Provided rail	72' [4 x 7', 4 x 11']		
Portrait orientation		Weight/attachment	24.6 lbs	Attachments	20		
Graphical entry		Total area	181.6 sq ft	Splices	4		
		Distributed weight	2.7 psf	Clamps	24		
Segments							
Columns	Length	Cantilever	Cantilever Violations ⓘ	Rail	Attachments	Splices	Clamps
5	16' 7"	3"	None	36' [2 x 7', 2 x 11']	10	2	12
<b>Row segment totals (x 2) →</b>				<b>72' [4 x 7', 4 x 11']</b>	<b>20</b>	<b>4</b>	<b>24</b>

### Roof Section 2

Definition		Roof Section Weights		Roof Section (all segments)			
14 modules		Total weight	683.5 lbs	Provided rail	100' [4 x 11', 4 x 14']		
Portrait orientation		Weight/attachment	28.5 lbs	Attachments	24		
Graphical entry		Total area	253.7 sq ft	Splices	4		
		Distributed weight	2.7 psf	Clamps	32		
Segments							
Columns	Length	Cantilever	Cantilever Violations ⓘ	Rail	Attachments	Splices	Clamps
7	23' 2"	1' 7"	None	50' [2 x 11', 2 x 14']	12	2	16
<b>Row segment totals (x 2) →</b>				<b>100' [4 x 11', 4 x 14']</b>	<b>24</b>	<b>4</b>	<b>32</b>





**City of Macedonia**  
**Building, Engineering, Zoning & Planning Dept.**

*The Crossroads of Northeast Ohio*

9691 Valley View Road °Macedonia, Ohio 44056

330 / 468-8360 ° Fax: 330 / 468-8396

**APPLICATION FOR HEARING BEFORE THE  
MACEDONIA PLANNING COMMISSION**

**ALL PLANS FOR SUBMITTAL MUST BE FOLDED. NO ROLLED PLANS WILL BE ACCEPTED.**

**DATE OF APPLICATION:** JULY 27, 2020

**LOCATION OF PROPERTY INVOLVED:** 8210 MACEDONIA COMMONS BLVD

**NATURE OF REQUEST:** APPROVAL OF SIGNAGE FOR DRIVE-THROUGH CHASE BANK ATM

**APPLICANT NAME & PHONE:** CHASE BANK c/o JOHN JOHNSON w/ WESNEY CONSTRUCTION

**APPLICANT ADDRESS:** 791 SCIENCE BLVD, GAHANNA, OH 43230

**APPLICANT EMAIL ADDRESS:** JJOHNSON@WESNEYCONSTRUCTION.COM

**APPLICANT SIGNATURE:**  JOHN JOHNSON

**NOTES:**  
\_\_\_\_\_  
\_\_\_\_\_

**MEETING DATE:** AUGUST 17, 2020      **FILING FEE:** \$200.00

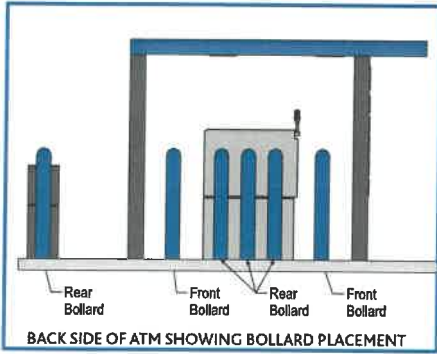
Deadline for submitting applications is 21 DAYS prior to meeting date. When applying for a hearing, please furnish THIRTEEN sets of sketches, maps, drawings, descriptions, or photographs of the property in question. THIRTEEN copies of the site plan are required. **PLANS MUST BE FOLDED, NOT ROLLED.** No rolled plans will be accepted. If new construction is involved, a landscape and signage plan should be prepared. This application is for the purpose of scheduling and planning the time of the Macedonia Planning Commission. It is the Commission's desire to serve each applicant with a minimum of delay.

**PLEASE NOTE: PERMIT FEES ARE NOT INCLUDED IN THE FILING FEE. ADDITIONAL FEES MAY BE REQUIRED.**  
The Macedonia Planning Commission meets on the 3<sup>rd</sup> Monday of each month.

Make checks payable to:  
City of Macedonia

Please submit plans to:  
Macedonia Building Department  
9691 Valley View Rd.  
Macedonia, OH 44056

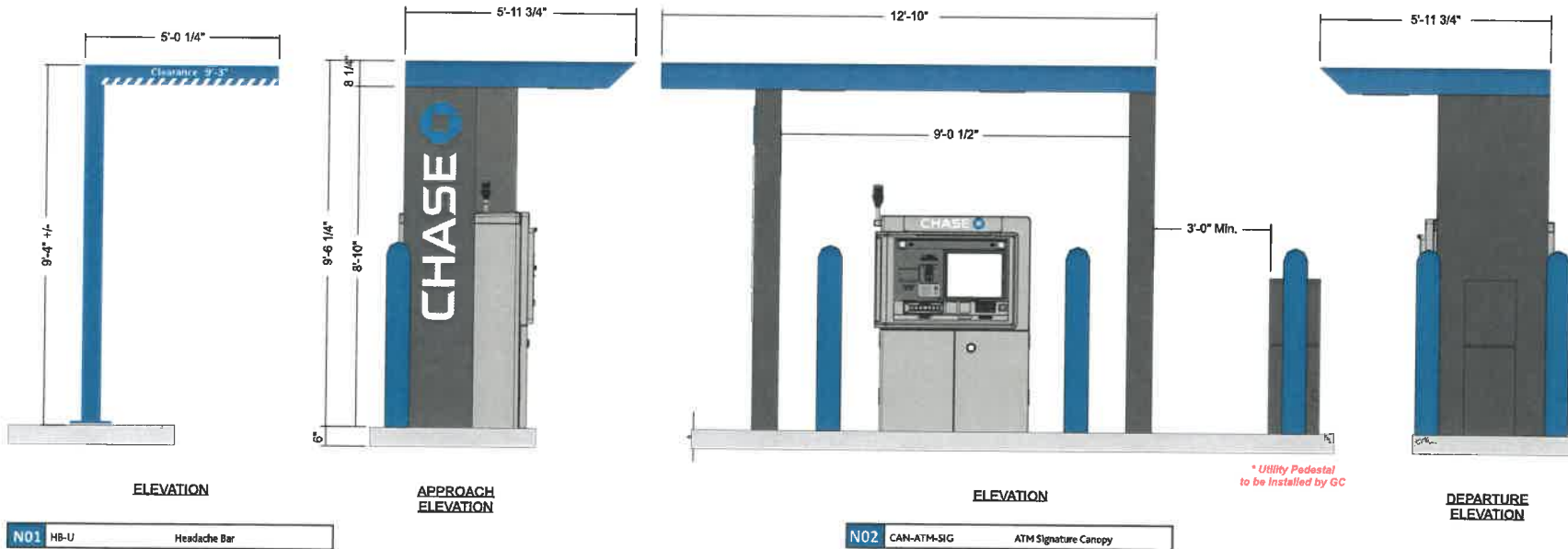
SIGN DETAILS - N01 & N02



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AUG 05 2020

CITY OF MACEDONIA  
BUILDING DEPARTMENT



Project ID

MD5-31773

Date: 05-14-2020

Scale: NTS

Sales: B Ewart

Designer: R Andree

Rev. #:

Date:

Revision Note:

Conceptual

Information Required:

Master

Electrical

120V  347V

Other \_\_\_\_\_

Customer Approval

Signature

MM/DD/YYYY

It is the Customer's responsibility to ensure that the structure of the building is designed and constructed to accept the installation of the signs being ordered. Please ask PSG to provide further details if required.

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Macedonia  
Commons - ATM  
8210 Macedonia  
Commons Blvd  
Macedonia, OH 44056

Sign Item

pg 5



520 W Summit Hill, Suite 702, Knoxville TN, 37902  
(Toll Free) 1.866.635.1110 (Fax) 1.888.694.1106  
www.pattisonsign.com

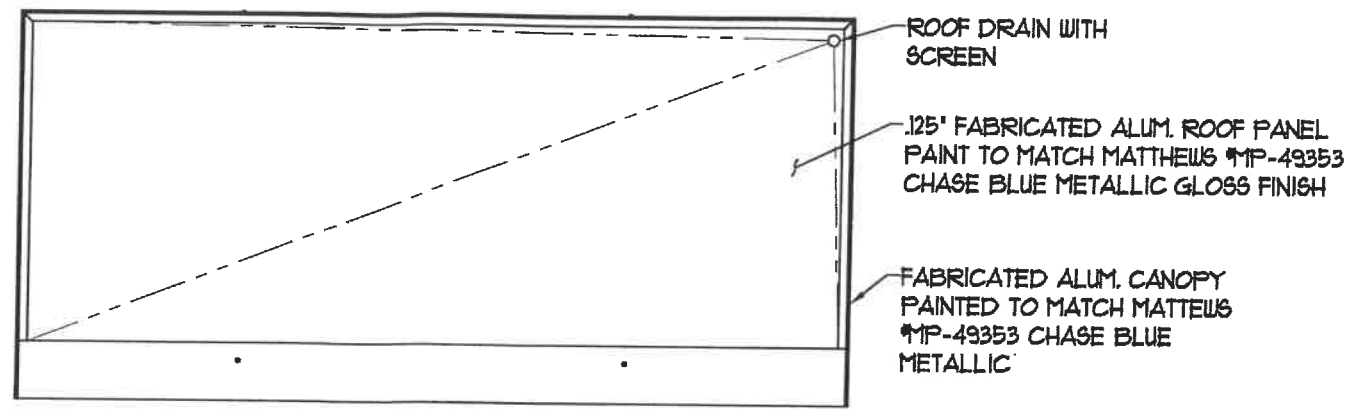


This sign to be installed in accordance with the requirements of Article 600 of the National Electrical Code and/or other applicable local codes. This includes proper grounding and bonding of the sign.

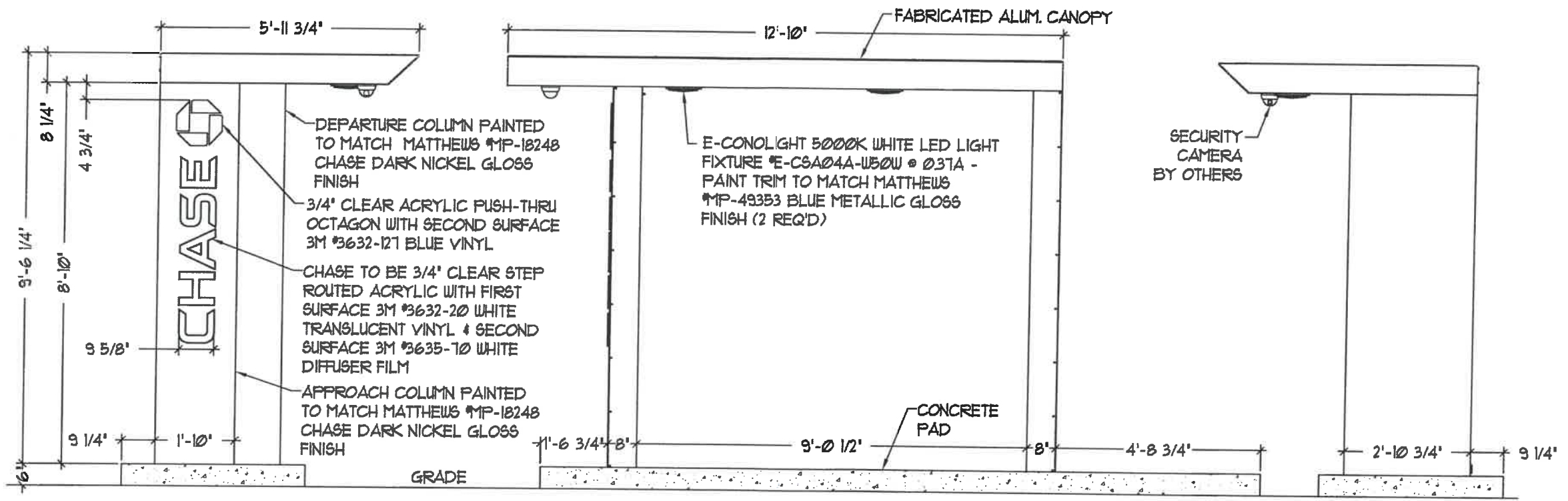


Fluorescent, Neon and HID lamps contain Mercury (Pb). Dispose of the lamps according to Local, Provincial, State or Federal Laws.





TOP VIEW



APPROACH ELEVATION

ELEVATION

DEPARTURE ELEVATION

**CANOPY ELECTRICAL REQUIREMENTS (NOT INCLUDING ATM MACHINE, SECURITY CAMERA & RELATED APPLIANCES):**

LEDS: (4) 1100°K WHITE SLOAN PRISM #101269-7WBJI-MB  
 (12) BLUE SLOAN PRISM #101269-BLSJI-MB

DOWNLIGHTS: (2) E-CONOLIGHT 5000K WHITE LED LIGHT FIXTURE #E-CSA04A-W50W @ 0.37A

LED POWER SUPPLY: (2) SLOAN #101507-60CI @ 0.70A

TOTAL LOAD: 2.14 AMPS @ 120VAC

CIRCUITS: (1) 20 AMP REQ'D.

ALL EXPOSED PAINTED SURFACES SHALL BE COATED WITH MATTHEWS #282-2085P VOC GLOSS CLEAR, WITH MINIMUM 2 MILS DRY FILM THICKNESS (DFT) PER MATTHEWS APPLICATION SPECIFICATIONS.

NOTE: All designs and plans indicated on this drawing are the sole property of LINK Engineering, L.L.C., created specifically for the noted project. Use of these designs or plans for any purpose other than the intended application shall be prohibited without the written consent of LINK Engineering, L.L.C. Disclosure of any of the information enclosed herein, without consent of owner, is a violation of Intellectual property and shall not be tolerated.



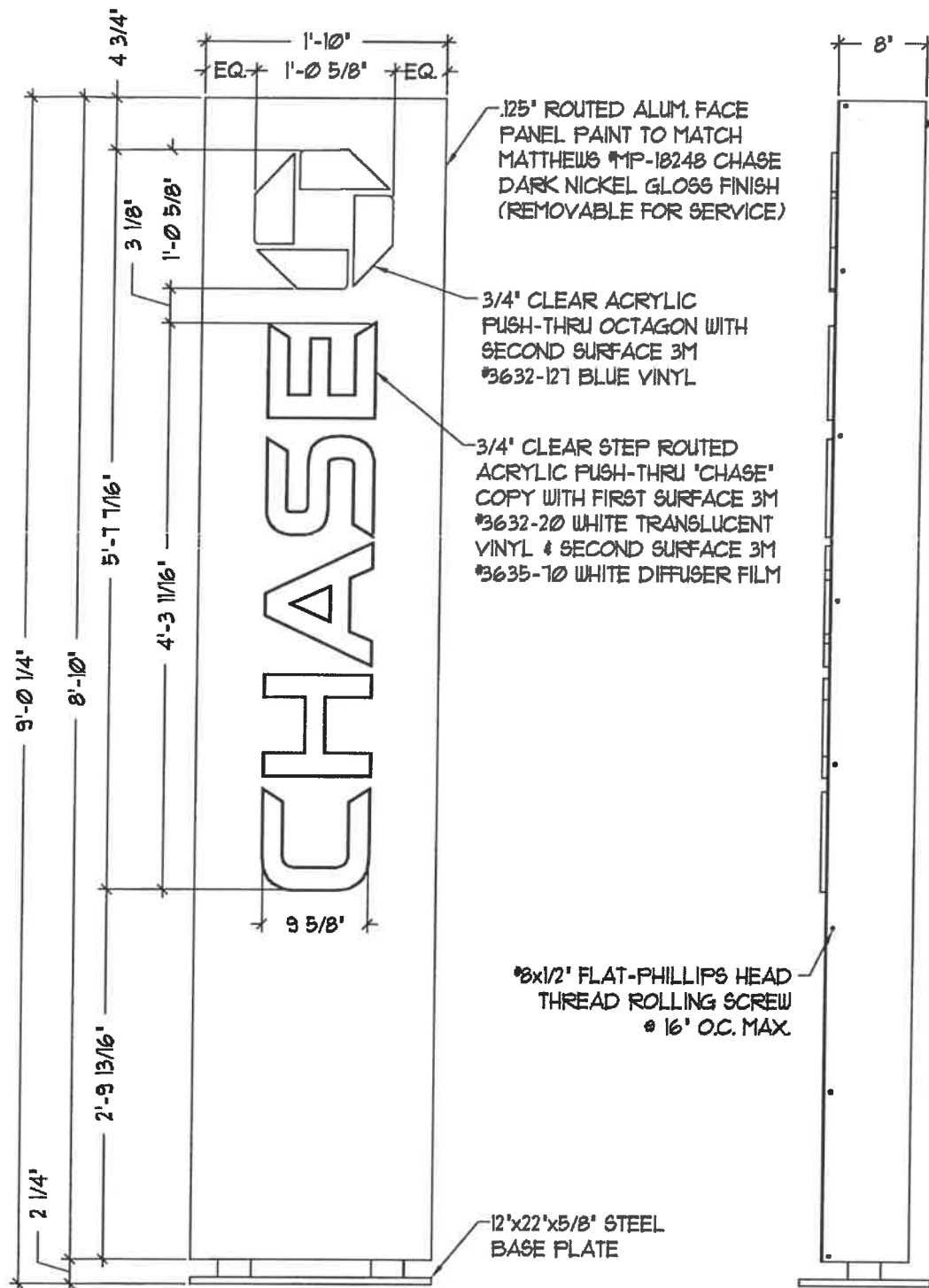
INSTALLATION ADDRESS:  
 CHASE BANK - MACEDONIA COMMONS - ATM  
 8210 MACEDONIA COMMONS BOULEVARD  
 MACEDONIA, OH 44056

CLIENT:  **Pattison Sign Group**  
 Powering Your Brand

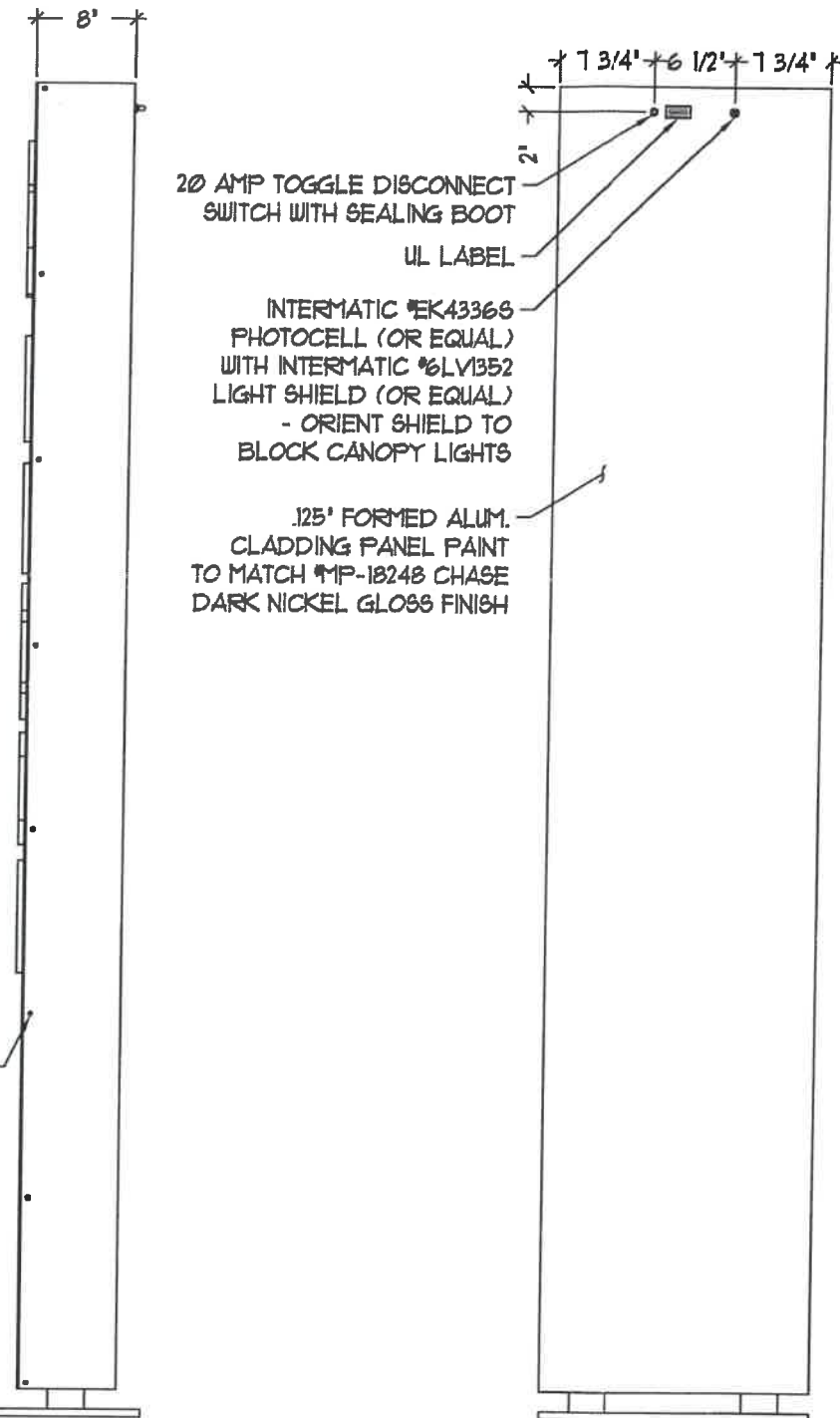
520 WEST SUMMIT HILL DR  
 SUITE 702  
 KNOXVILLE, TN 37902  
 Tel (865) 693-1105  
 Fax (865) 693-1106  
 Toll Free (866) 218-1976

 **LINK Engineering, L.L.C.**  
 135 South David Lane • Knoxville, Tennessee 37922  
 Phone: (865) 539-4001 • Fax: (865) 539-0851  
 Online: www.linkengr.com

SHT.	1	BY:	TRR	Project Number:	20-0340
OF	10	DATE:	5/13/20	Drawing Number:	B2582479

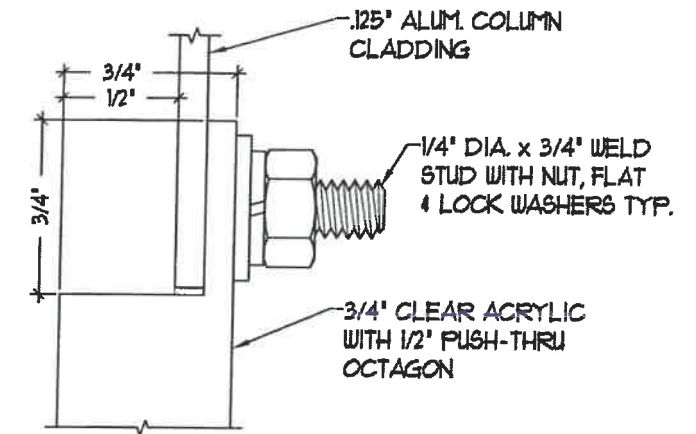


APPROACH COLUMN APPROACH VIEW

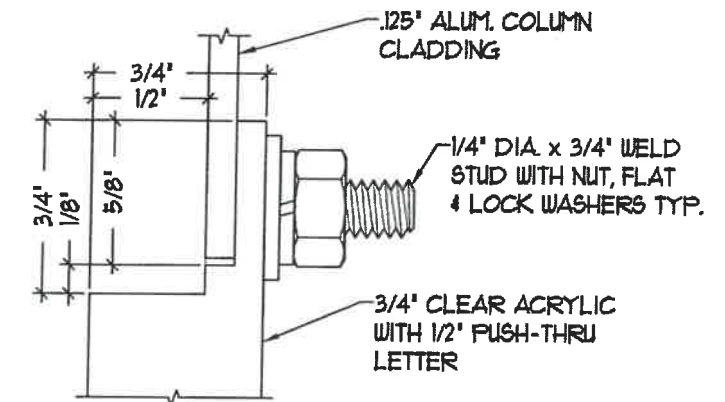


APPROACH COLUMN ELEVATION

APPROACH COLUMN DEPARTURE VIEW



OCTAGON ATTACHMENT DETAIL



PUSH-THRU LETTER MOUNTING DETAIL

STEP ROUTING OF LETTERS SHALL BE FINISHED WITH A 1/8" DIA. BIT TO PROVIDE SHARP CORNERS

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INSTALLATION ADDRESS:

CHASE BANK - MACEDONIA COMMONS - ATM  
 8210 MACEDONIA COMMONS BOULEVARD  
 MACEDONIA, OH 44056

CLIENT:


**Pattison Sign Group**  
 Powering Your Brand

520 WEST SUMMIT HILL DR  
 SUITE 702  
 KNOXVILLE, TN 37902  
 Tel (865) 693-1105  
 Fax (865) 693-1106  
 Toll Free (866) 218-1976

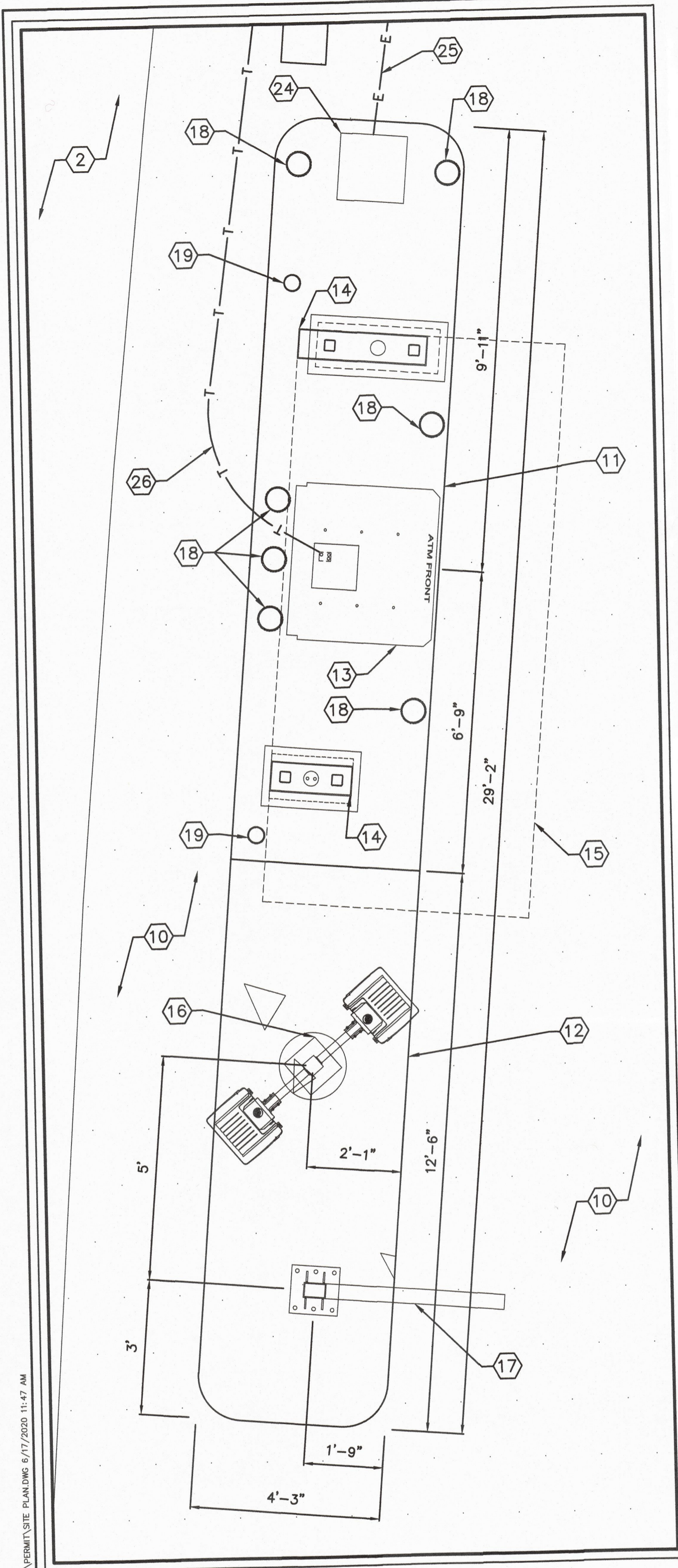



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 135 South David Lane • Knoxville, Tennessee 37922  
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 Online: www.linkengr.com

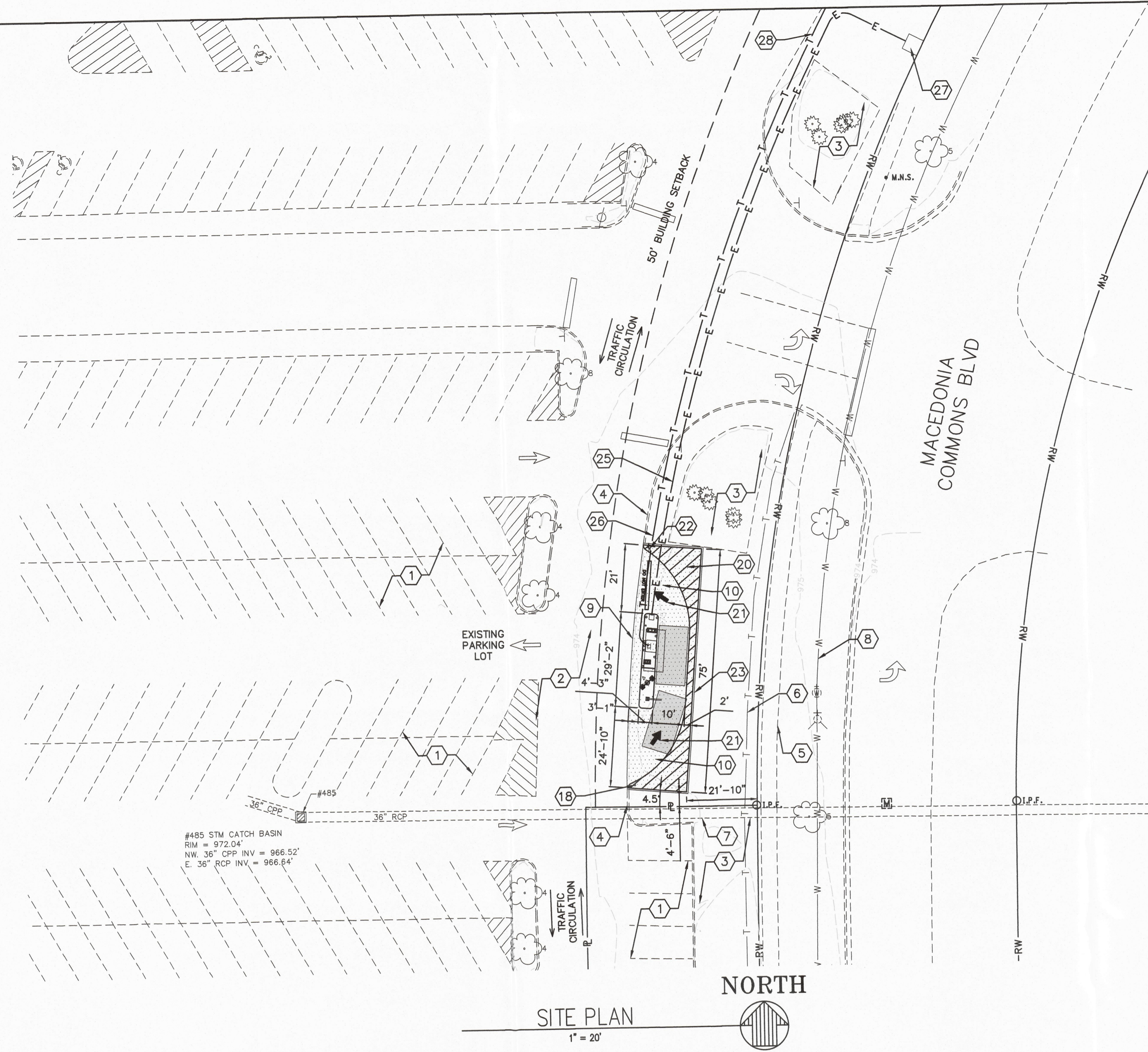
SHT.	2	BY:	TRR	Project Number:	20-0340
OF	10	DATE:	5/13/20	Drawing Number:	E2582419

5/14/20





**ATM ISLAND DETAIL PLAN**  
1/2" = 1'-0"



#485 STM CATCH BASIN  
RIM = 972.04'  
NW 36" CPP INV = 966.52'  
E 36" RCP INV = 966.84'

- KEYED NOTES (X)**
- EXISTING STRIPING TO REMAIN.
  - EXISTING ASPHALT PAVEMENT TO REMAIN.
  - EXISTING LANDSCAPE TO REMAIN. ANY LANDSCAPE DISTURBED DURING CONSTRUCTION TO BE REPLACED TO MATCH EXISTING CONDITIONS.
  - EXISTING CURB TO REMAIN. DO NOT DISTURB.
  - EXISTING CONCRETE SIDEWALK TO REMAIN. DO NOT DISTURB.
  - EXISTING TELEPHONE TO REMAIN. DO NOT DISTURB.
  - EXISTING STORM SEWER TO REMAIN. DO NOT DISTURB.
  - EXISTING WATER MAIN TO REMAIN. DO NOT DISTURB.
  - EXISTING CURB TO BE REMOVED FULL DEPTH.
  - PROPOSED ASPHALT PAVEMENT. SEE ATM DETAILS SHEET.
  - ATM/CANOPY FOUNDATION. SEE CANOPY DRAWINGS.
  - NEW CONCRETE ATM ISLAND. SEE ATM DETAILS SHEET.
  - ATM. SEE ATM DRAWINGS.
  - ATM CANOPY LEG. SEE CANOPY DRAWINGS.
  - LINE OF ATM CANOPY ABOVE. SEE CANOPY DRAWINGS.
  - NEW LIGHT POLE (WITH DUAL ARM LIGHTING FIXTURES) AND CONCRETE BASE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. SEE ATM ELECTRICAL DETAILS SHEET. FURNISH AND INSTALL 3/4" DIAMETER X 10'-0" LONG COPPER GLAD GROUNDING ELECTRODE ROD. BOND TO LIGHTING POLE GROUND LUG WITH #4 AWG BARE COPPER GROUNDING ELECTRODE CABLE.
  - NEW CLEARANCE BAR. SEE ATM DETAILS SHEET.
  - 6" BOLLARD. SEE ATM DETAILS SHEET.
  - 4" BOLLARD. SEE ATM DETAILS SHEET.
  - 4" WHITE PAINTED STRIPES.
  - WHITE DIRECTIONAL ARROW. SEE ATM DETAILS SHEET. INCLUDE WHITE 12" STOP BAR AND 10" LETTERING "DO NOT ENTER" AT EXIT.
  - MOUNT "STOP" SIGN R1-1 AND "DO NOT ENTER" SIGN R5-1 BACK TO BACK ON 2" DIAM. SCHEDULE 40 GALVANIZED STEEL PIPE. MIN 7'-0" FROM GRADE TO BOTTOM OF SIGN. ENCASE POST IN 6" CONCRETE BOLLARD TO MATCH ATM BOLLARDS.
  - 18" CONCRETE STRAIGHT CURB. SEE ATM DETAILS SHEET.
  - NEW ELECTRIC UTILITY METER PEDESTAL (UTILITY METER ENCLOSURE MFR: MILBANK AS APPROVED BY ELECTRIC UTILITY). SEE ATM ELECTRICAL DETAILS SHEET.
  - NEW UNDERGROUND ELECTRICAL SERVICE CONDUIT FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR INSTALLATION. DIRECT BORE INSTALLATION. (1) 3" CONDUIT (HDPE OR PVC) WITH PULLWIRE (ELECTRICAL SERVICE CABLING FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR AND TERMINATED BY ELECTRIC UTILITY). COORDINATE WITH ELECTRIC UTILITY COMPANY PRIOR TO CONSTRUCTION TO VERIFY SERVICE CONNECTION LOCATION AND ROUTING. SEE ONE-LINE DIAGRAM ON ATM ELECTRICAL DETAILS SHEET C-5 FOR ADDITIONAL CONNECTION DETAILS. ROUTE CONDUIT WITHIN UTILITY RIGHT-OF-WAY; AVOID EXISTING UNDERGROUND UTILITIES.
  - NEW UNDERGROUND TELEPHONE SERVICE CONDUIT FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. DIRECT BORE INSTALLATION. (1) 1" CONDUIT (HDPE OR PVC) WITH PULLWIRE FOR FUTURE USE. CAP BOTH ENDS OF CONDUIT. COORDINATE WITH TELEPHONE UTILITY COMPANY PRIOR TO CONSTRUCTION TO VERIFY SERVICE CONNECTION LOCATION AND ROUTING. ROUTE CONDUIT WITHIN UTILITY RIGHT-OF-WAY; AVOID EXISTING UNDERGROUND UTILITIES.
  - EXISTING ELECTRIC UTILITY PADMOUNT TRANSFORMER.
  - TO EXISTING TELEPHONE UTILITY PEDESTAL. SEE SHEET C-2.

**NOTE:**  
EXISTING SITE LAYOUT AND CONDITIONS IS SHOWN AS TAKEN FROM TOPOGRAPHIC SURVEY PERFORMED MAY 2020 BY DLZ OHIO, INC AND BASED ON OVERALL PROPOSED SITE PLAN BY NEFF AND ASSOCIATES DATED 02/18/2020.  
  
GENERAL CONTRACTOR TO VERIFY ALL EXISTING SITE CONDITIONS AND LOCATION OF EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.



6121 HUNTLEY ROAD  
COLUMBUS, OHIO 43229  
PHONE: (614) 888-0040

No.	BY Int.	DATE Mo./Dy./Yr.	REVISIONS Remarks	PROJ. PERSONNEL Initials	DATE Mo./Dy./Yr.
				DES. KAW	06/05/20
				DWN. KAW	06/05/20
				CKD. KAW/TKF	06/05/20

8210 MACEDONIA COMMONS BLVD  
MACEDONIA, OH 43606

SCALE  
AS INDICATED

**SITE IMPROVEMENT PLAN**

ISSUED STATUS: PERMIT  
SHEET **C-3**  
DATE ISSUED: 06/17/2020  
Mo./Dy./Yr.

KEN WHITE, P.E., PROJECT MANAGER, PROJECT VENDOR, WESNEY CONSTRUCTION, ATN: CHASE, 06/17/2020, 11:47 AM



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JUL 30 2020

CITY OF MACEDONIA  
BUILDING DEPARTMENT



**City of Macedonia**  
**Building, Engineering, Zoning & Planning Dept.**

*The Crossroads of Northeast Ohio*

9691 Valley View Road \*Macedonia, Ohio 44056

330 / 468-8360 \* Fax: 330 / 468-8396

**APPLICATION FOR HEARING BEFORE THE  
MACEDONIA PLANNING COMMISSION**

**ALL PLANS FOR SUBMITTAL MUST BE FOLDED. NO ROLLED PLANS WILL BE ACCEPTED.**

DATE OF APPLICATION: 7-29-20

LOCATION OF PROPERTY INVOLVED: 9000 S. FREEWAY DR

NATURE OF REQUEST: APPROVAL OF SIGNAGE PLAN

APPLICANT NAME & PHONE: BOB KUNZEN / BRILLIANT ELECTRIC SIGNS, 216-741-3800

APPLICANT ADDRESS: 4811 VAN EARS ROAD, BROOKLYN HTS., OH 44131

APPLICANT EMAIL ADDRESS: BKUNZEN@BRILLIANTSIGN.COM

APPLICANT SIGNATURE: *Bob Kunzen*

NOTES:  
\_\_\_\_\_  
\_\_\_\_\_

MEETING DATE: \_\_\_\_\_ FILING FEE: \_\_\_\_\_

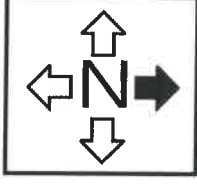
Deadline for submitting applications is 21 DAYS prior to meeting date. When applying for a hearing, please furnish THIRTEEN sets of sketches, maps, drawings, descriptions, or photographs of the property in question. THIRTEEN copies of the site plan are required. PLANS MUST BE FOLDED, NOT ROLLED. No rolled plans will be accepted. If new construction is involved, a landscape and signage plan should be prepared. This application is for the purpose of scheduling and planning the time of the Macedonia Planning Commission. It is the Commission's desire to serve each applicant with a minimum of delay.

**PLEASE NOTE: PERMIT FEES ARE NOT INCLUDED IN THE FILING FEE. ADDITIONAL FEES MAY BE REQUIRED.**  
The Macedonia Planning Commission meets on the 3<sup>rd</sup> Monday of each month.

Make checks payable to:  
City of Macedonia

Please submit plans to:  
Macedonia Building Department  
9691 Valley View Rd.  
Macedonia, OH 44056





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JUL 30 2020

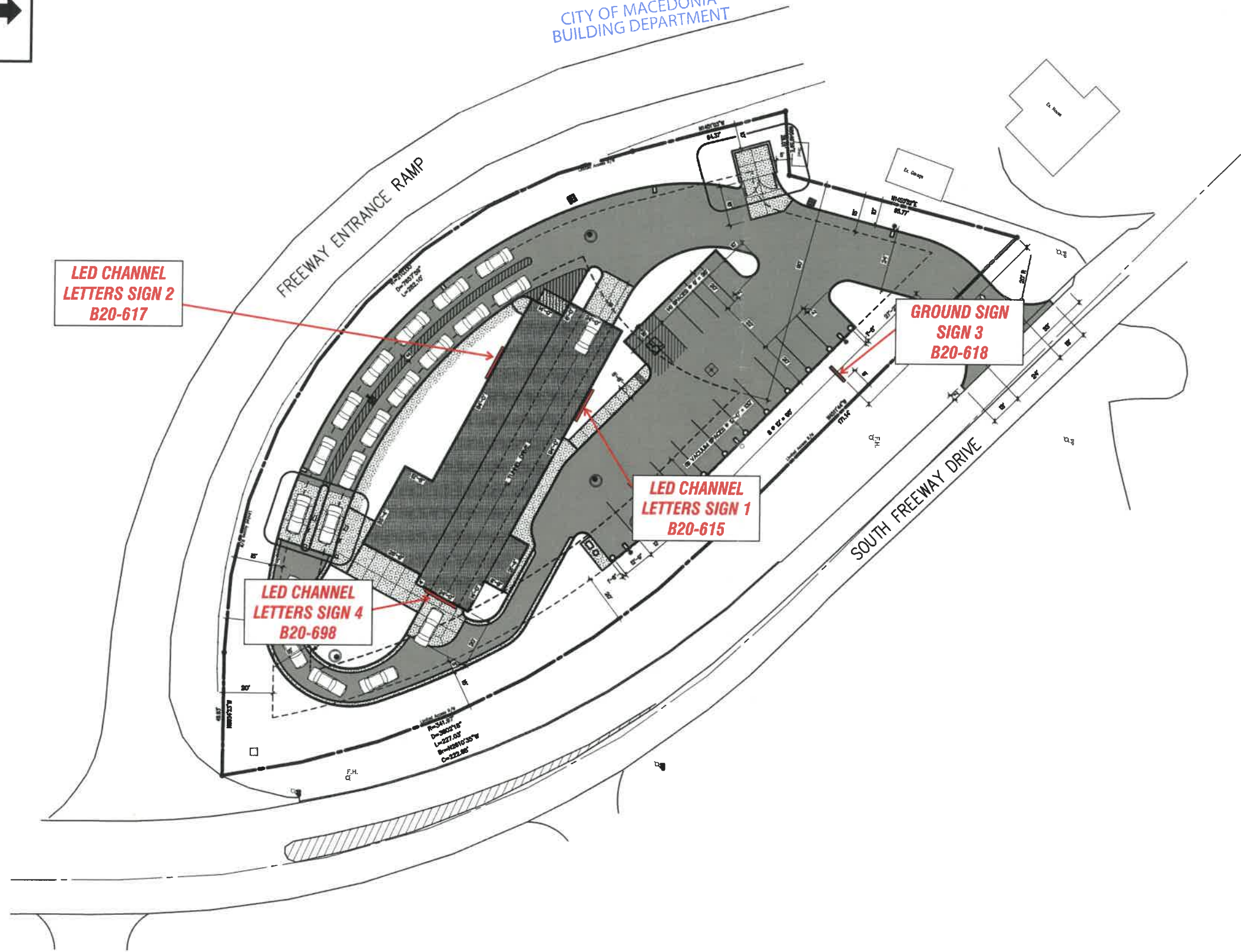
CITY OF MACEDONIA  
BUILDING DEPARTMENT

LED CHANNEL  
LETTERS SIGN 2  
B20-617

LED CHANNEL  
LETTERS SIGN 4  
B20-698

LED CHANNEL  
LETTERS SIGN 1  
B20-615

GROUND SIGN  
SIGN 3  
B20-618



NOTE: due to printer limitations, colors shown may not exactly match specified. Refer to material charts for true colors.



**Brilliant Electric Sign Co., Ltd.**

4811 VAN EPPS RD., CLEVELAND, OHIO 44131 (216)741-3800

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COMPANY NAME	CLEANLAND CAR WASH	SALESMAN	MH	DATE	7/27/20	REVISION	DESIGN NO.
LOCATION	9900 S. FREEWAY DR., MACEDONIA, OH	DESIGNER	CP	SCALE	SHOWN		B20-956
							COPYRIGHT © 2020
							FILE NAME charlotte/ cleanland sp





**SIGN 1 (A)**

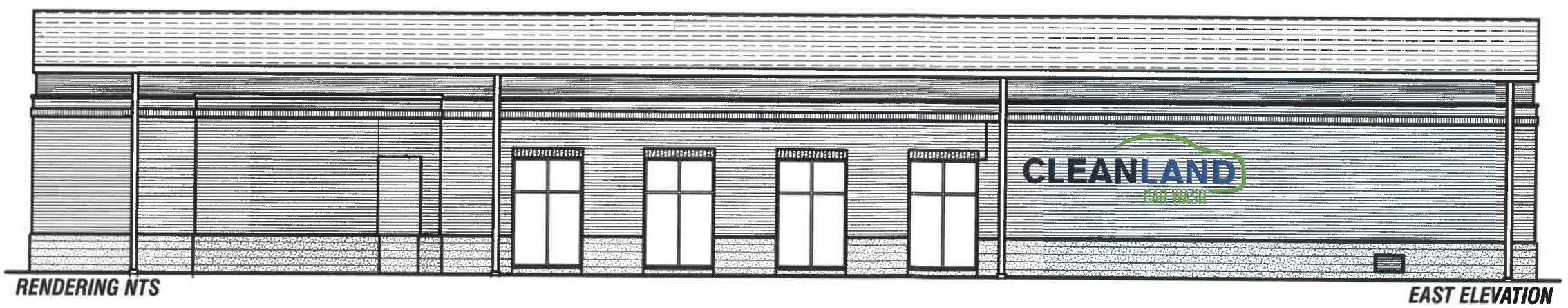
SIGN ELEVATION: 1/2" = 1'-0'

**Notes**

Manufacture & install one (1) set of internally illuminated, LED channel letters & car outline; all to be flush mounted to the wall; remote power supplies

- Letters & car outline to have white 2447 plexiglass faces with first surface, translucent vinyls; "CLEAN," to be blue 3630-36; "LAND," to be olympic blue 3630-57; "CAR WASH," & car outline to be lime green 3630-136
- All trim & returns to be painted white

**RATED 120 VOLTS**



NOTE: due to printer limitations, colors shown may not exactly match specified. Refer to material charts for true colors.



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COMPANY NAME	CLEANLAND CAR WASH	SALESMAN	MH	DATE	6/9/20	REVISION	6/23/20cp 7/27/20CP	DESIGN NO.	B20-615
LOCATION	9900 S. FREEWAY DR., MACEDONIA, OH	DESIGNER	CP	SCALE	SHOWN	COPYRIGHT © 2020		FILE NAME	charlotte/ cleanland sign 1 (A)



2'-0" 8'-10 3/8"

# CAR WASH

## SIGN 2

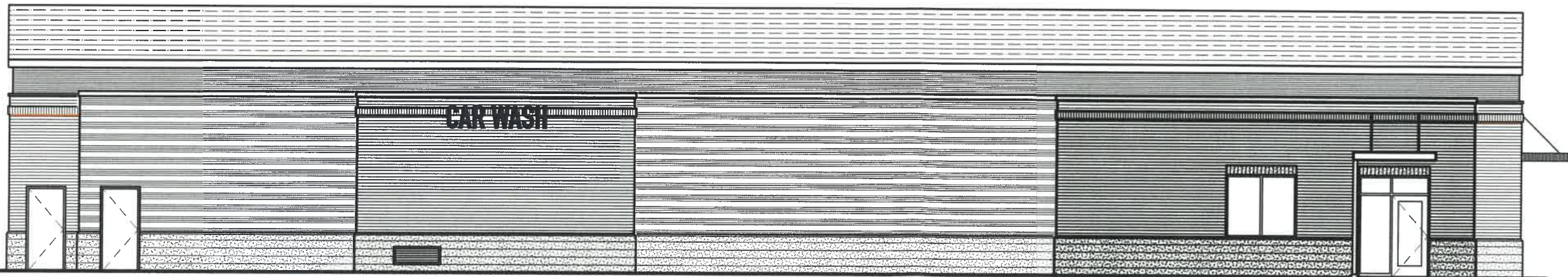
SIGN ELEVATION: 3/4" = 1'-0"

### Notes

Manufacture & install one (1) set of internally illuminated, LED channel letters mounted on raceway on the wall; raceway to contain power supplies

- Letter faces to be white 2447 plexiglass with first surface, translucent blue 3630-36; trim & returns to be painted white
- Raceway to be painted to match building fascia

RATED 120 VOLTS



RENDERING NTS

WEST ELEVATION

NOTE: due to printer limitations, colors shown may not exactly match specified. Refer to material charts for true colors.



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COMPANY NAME	CLEANLAND CAR WASH	SALESMAN	MH	DATE	6/9/20	REVISION	6/23/20CP 6/30/20cp	DESIGN NO.	B20-617
LOCATION	9900 S. FREEWAY DR., MACEDONIA, OH	DESIGNER	CP	SCALE	SHOWN		7/27/20CP	COPYRIGHT ©	2020
		FILE NAME		charlotte/ cleanland sign 2					



### SIGN 3

SIGN ELEVATION: 1" = 1'-0'

**Notes**

- Manufacture & install one (1) double face, LED internally illuminated, ground sign with panned lexan faces; graphics to be painted on second surface; header cabinet to be mounted on pole cover*
- Background of the faces to be painted opaque white; "CLEAN," to be painted dark blue PMS 534C; "LAND," to be painted blue PMS 3005C; "CAR WASH," & the car outline to be painted lime green PMS 367C; cabinet & trim to be painted white*
- Pole cover to be painted white*

**RATED 120 VOLTS**

NOTE: due to printer limitations, colors shown may not exactly match specified. Refer to material charts for true colors.



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4811 VAN EPPS RD., CLEVELAND, OHIO 44131 (216)741-3800

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COMPANY NAME	CLEANLAND CAR WASH	SALESMAN	MH	DATE	6/9/20	REVISION	6/12/20CP 6/24/20cp	DESIGN NO.	B20-618
LOCATION	9900 S. FREEWAY DR., MACEDONIA, OH	DESIGNER	CP	SCALE	SHOWN			COPYRIGHT ©	2020
								FILE NAME	charlotte/ cleanland sign 3





**SIGN 4**

SIGN ELEVATION: 3/4" = 1'-0'

**Notes**

Manufacture & install one (1) set of internally illuminated, LED channel letters & car outline; all to be flush mounted to the wall; remote power supplies

- Letters & car outline to have white 2447 plexiglass faces with first surface, translucent vinyls; "CLEAN," to be blue 3630-36; "LAND," to be olympic blue 3630-57; "CAR WASH," & car outline to be lime green 3630-136
- All trim & returns to be painted white

RATED 120 VOLTS



RENDERING NTS

SOUTH ELEVATION

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COMPANY NAME	CLEANLAND CAR WASH	SALESMAN	MH	DATE	6/23/20	REVISION	6/30/20cp	DESIGN NO.	B20-698
LOCATION	9900 S. FREEWAY DR., MACEDONIA, OH	DESIGNER	CP	SCALE	SHOWN			COPYRIGHT ©	2020
								FILE NAME	charlotte/ cleanland sign 4