



Barnstable Old Kings Highway Historic District Committee

200 Main Street, Hyannis, MA 02601, Tel 508.862.4787 Eml erin.logan@town.barnstable.ma.us

APPLICATION, CERTIFICATE OF APPROPRIATENESS

Application is hereby made, with five (5) complete sets, for the issuance of a Certificate of Appropriateness under Section 6 of Chapter 470, Acts and Resolves of Massachusetts, 1973, for proposed work as described below and on plans, drawings, or photographs accompanying this application for:

Check all categories that apply;

- 1. Building construction: New Addition Alteration
- 2. Type of Building: House Garage/barn Shed Commercial Other
- 3. Exterior Painting, roof new roof color/material change, of trim, siding, window, door
- 4. Sign: New Sign Existing Sign Repainting Existing Sign
- 5. Structure: Fence Wall Flagpole Retaining wall Tennis court Other
- 6. Pool Swimming Other man-made pool Solar panels Other

Type or Print Legibly: Date 2/12/21.

NOTE: All applications must be signed by the current owner

Owner (print): Katherine Converse Telephone #: 508 362 7427
Address of Proposed Work: 20 Sudder Ln 02630 Village Barnstable Map Lot # 258/022

Mailing Address (if different) _____
Owner's Signature _____ **attached contract*

Description of Proposed Work: Give particulars of work to be done: installation of roof mounted photovoltaic solar systems.
16 panels 5.2 kW

Agent or Contractor (print): Steve J. Spengler Telephone #: 661 271 7029
Address: 184 Edge Hill Rd Milton MA 02186 Email: steve.spengler@sunn.com
Contractor/Agent' signature: *Steve J. Spengler* VIVINT Solar Developer

<p><i>For committee use only</i></p> <p>Date _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Conditions of approval _____</p> <p>_____</p>	<p>This Certificate is hereby APPROVED / DENIED</p> <p>Members signatures _____</p> <p>_____</p> <p>_____</p>
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CERTIFICATE OF APPROPRIATENESS SPEC SHEET Please submit 5 copies

Foundation Type: (Max. 12" exposed) (material - brick/cement, other) slab

Siding Type: Clapboard shingle other
Material: red cedar white cedar other Color: grey

Chimney Material: brick Color: white (painted)

Roof Material: (make & style) Comp shingle Color: grey

Roof Pitch(s): (7/12 minimum) 7/12 ^{38°} (specify on plans for new buildings, major additions)

Window and door trim material: wood other material, specify _____

Size of cornerboards _____ size of casings (1 X 4 min.) _____ color _____

Rakes 1st member _____ 2nd member _____ Depth of overhang _____

Window: (make/model) _____ material _____ color _____
(Provide window schedule on plan for new buildings, major additions)

Window grills (please check all that apply):
true divided lights exterior glued grills grills between glass removable interior None

Door style and make: _____ material _____ Color: _____

Garage Door, Style _____ Size of opening _____ Material _____ Color _____

Shutter Type/Style/Material: _____ Color: _____

Gutter Type/Material: _____ Color: _____

Deck material: wood other material, specify _____ Color: _____

Skylight, type/make/model/: _____ material _____ Color: _____ Size: _____

Sign size: _____ Type/Materials: _____ Color: _____

Fence Type (max 6') Style _____ material: _____ Color: _____

Retaining wall: Material: _____

Lighting, freestanding _____ on building _____ illuminating sign _____

OTHER INFORMATION: install 16 roof mounted solar panels

THE ATTACHED CHECK LIST MUST BE COMPLETED AND SUBMITTED

Please provide samples of paint colors, manufacturers brochure of windows, doors, garage door, fences, lamp posts etc

Signed: (plan preparer) [Signature] Print Name Col Steel
J. Spangler

N/A
N/A
N/A
N/A
N/A
N/A

5. SIGNS

N/A

- Diagram of sign, showing graphics, size, design and height of post, color and materials.
- Spec sheet.
- Site Plan on a GIS map or mortgage survey, OR photographs OR to-scale sketch of building elevation showing location of proposed sign; and any tree to be removed near a freestanding sign.

6. SOLAR PANELS

- Drawing of location of panels on house showing roof and panel dimensions.
- Site plan showing location of building on property. (Assessors map may be submitted)
- Height of solar panel above the roof.
- Color of panels
- Finish (matt or glossy) *matte*

7. FEES

- Filing fee according to schedule, made payable to the Town of Barnstable
- Legal ad fee \$19.84 check made payable to the Town of Barnstable for the required legal ad notification
Note the filing fee and legal ad fees need to be on separate checks. We apologize in advance for any inconvenience this may cause.
- First Class Postage Stamps for abutter notification. Please contact the Barnstable Old King's Highway Office

SIGNED (plan preparer) *Steve J. Spengler* Print Steve J. Spengler
 Date: 2/12/21. Tel. Phone no's: 661 271 7029
 Email steve.spengler@sunrun.com

NOTE: The Old Kings Highway Historic District Committee MAY DENY INCOMPLETE APPLICATIONS

ATTENDANCE AT MEETINGS: If the applicant or his/her representative is not present during the hearing is scheduled, the application may be either CONTINUED OR DENIED

APPEAL PERIOD APPROVED PLANS PLAN PICK UP

There is a ten (10) day appeal period, plus a 4 day waiting period for approved plans from the date the decision is filed with Town Clerk. This is necessary for each Certificate of Appropriateness and/or Certificate for Demolition issued by the Old King's Highway Committee. Plans approved by the Old King's Highway Historic District Committee may be picked up at Planning & Development Department, 200 Main Street, Hyannis, after expiration of the 14 day "wait" period. If the 14th day falls on a Saturday, your plans will be available the afternoon of the following business day.

DENIALS

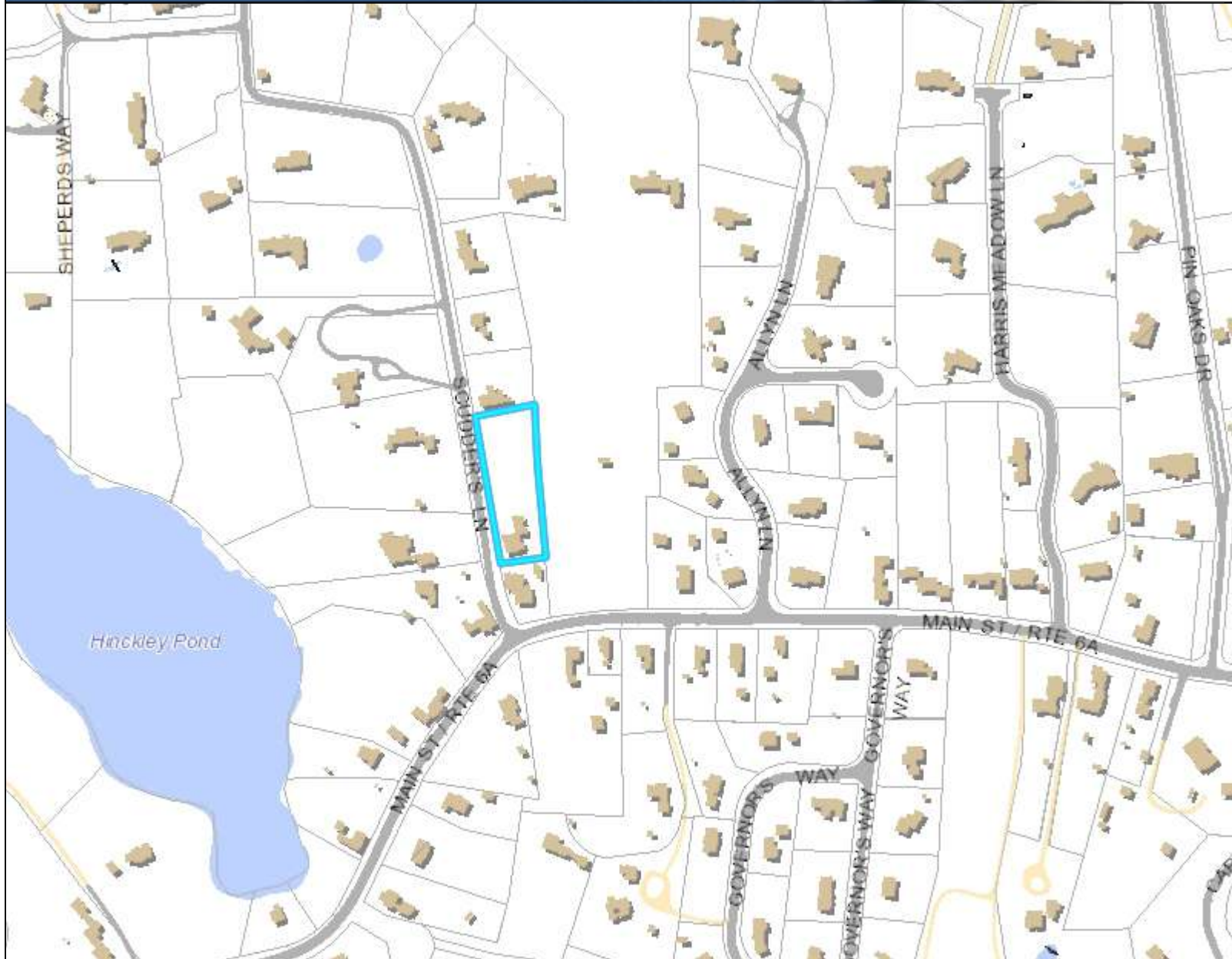
Applications that are denied may be appealed to the Old Kings Highway Regional Historic District Commission within 10 days of the filing of the decision with the Town Clerk. For more information, see the Bulletin of the Old Kings Highway Regional Historic District Commission.

BUILDING PERMITS, OTHER AGENCY CONTACTS

In most instances, before commencing work, a Building Permit is required. The Building Division will require a certified plot plan for new construction and/or demolition. Commercial work may require Site Plan approval. Demolitions: the applicant should check with the Building Division as to conformance with Zoning requirements.

All certificates issued will expire one year from the date of issue, or upon the expiration date of any building permit issued for the work, whichever expiration date shall be later. The committee may renew any certificate for one additional year, providing the request for such renewal is received at least 30 days prior to the expiration date.

QUESTIONS ABOUT YOUR APPLICATION? PLEASE CALL THE BARNSTABLE OLD KINGS HIGHWAY OFFICE AT 508 862-4787



Legend

- Parcels
- Town Boundary
- + Railroad Tracks
- Buildings
 - Approx. Building
 - Buildings
- Parking Lots
 - Paved
 - Unpaved
- Roads
 - Paved Road
 - Unpaved Road
 - Bridge
 - Paved Median
- Water Bodies

Map printed on: 2/23/2021



Approx. Scale: 1 inch = 333 feet



This map is for illustration purposes only. It is not adequate for legal boundary determination or regulatory interpretation. This map does not represent an on-the-ground survey. It may be generalized, may not reflect current conditions, and may contain cartographic errors or omissions.

Parcel lines shown on this map are only graphic representations of Assessor's tax parcels. They are not true property boundaries and do not represent accurate relationships to physical objects on the map such as building locations.



Town of Barnstable GIS Unit

367 Main Street, Hyannis, MA 02601

508-862-4624

gis@town.barnstable.ma.us

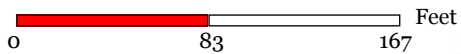


Legend

Road Names



Map printed on: 2/23/2021



Approx. Scale: 1 inch = 83 feet



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GOVERNING CODES
 ALL WORK SHALL CONFORM TO THE FOLLOWING CODES:
 2015 INTERNATIONAL RESIDENTIAL CODE
 2020 NATIONAL ELECTRICAL CODE
 2015 NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION

SHEET INDEX
 PV 0.0 - COVER SHEET
 PV 1.0 - SITE PLAN
 S 1.0 - MOUNT DETAILS
 E 1.0 - ELECTRICAL DIAGRAM
 E 2.0 - ELECTRICAL NOTES
 E 3.0 - WARNING LABELS
 E 4.0 - WARNING LABEL LOCATIONS

GENERAL ELECTRICAL NOTES

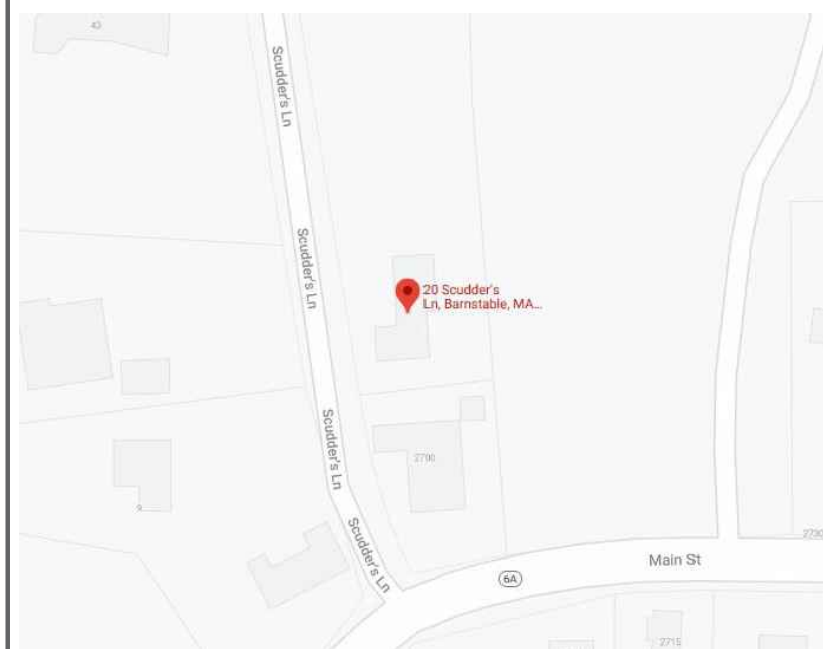
1. ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE. FOR ROOF-MOUNTED SYSTEMS- WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF OF THE ROOF SURFACE.
2. ANY CODE VIOLATIONS EVIDENT IN THE INTERCONNECTION PANEL WILL BE CORRECTED ON INSTALLATION.
3. SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH ALL RELEVANT CODE
4. RAPID SHUTDOWN INITIATION TAKES PLACE WITHIN THE FIRMWARE OF THE INVERTER. RAPID SHUTDOWN COMMENCES UPON LOSS OF UTILITY SOURCE VOLTAGE.
5. SEE *E 1.0 AND *E 2.0 FOR DIAGRAMS- CALCULATIONS- SCHEDULE AND SPECIFICATIONS


GENERAL STRUCTURAL NOTES

1. THE SOLAR PANELS ARE TO BE MOUNTED TO THE ROOF FRAMING USING THE ROCK-IT RAIL-LESS SYSTEM BY ECOFASTEN. THE MOUNTING FEET ARE TO BE SPACED AS SHOWN IN THE DETAILS- AND MUST BE STAGGERED TO ADJACENT FRAMING MEMBERS TO SPREAD OUT THE ADDITIONAL LOAD.
2. UNLESS NOTED OTHERWISE SEE S 1.0 - MOUNTING ANCHORS SHALL BE 5/16" LAG SCREWS WITH A MINIMUM OF 2-1/2" MIN PENETRATION INTO ROOF FRAMING.
3. THE PROPOSED PV SYSTEM ADDS 3.0 psf TO THE ROOF FRAMING SYSTEM
4. ROOF LIVE LOAD = 20 psf TYPICAL- 0 psf UNDER NEW PV SYSTEM.
5. GROUND SNOW LOAD = 30 psf
6. WIND SPEED = 140 mph
7. EXPOSURE CATEGORY = B

PHOTOVOLTAIC SYSTEM SPECIFICATIONS

SYSTEM SIZE - 5.2KW DC | 3.8KW AC
 MODULE TYPE & AMOUNT - (16) JINKO SOLAR JKM325M-60HBL WITH SOLAREEDGE P340 OPTIMIZERS
 MODULE DIMENSIONS: (L/W/H) 66.3 / 39.45 / 1.38
 INVERTER: (1) SOLAREEDGE TECHNOLOGIES SE3800H-USS
 INTERCONNECTION METHOD (GRID-TIED): PROTECTED LOAD SIDE TAP



 A sunrun COMPANY 1800 ASHTON BLVD. LEHI, UT, 84043 1.877.404.4129 MA LIC: 170848 15688A	
RESIDENCE 20 SCUDDERS LN BARNSTABLE, MA 02630 UTILITY ACCOUNT: 1446 556 0069 METER: 2288008	
S# S-6525819 ROC: MA-03 DRAWN BY: DIN DATE: 12/12/2020 REVISION: 0	PV 0.0

PV STRING:

 PV STRING 1 = 16 MODULES

ROOF SECTION:

ROOF PLANE 1 SLOPE = 38°
ROOF PLANE 1 AZIMUTH = 177°
ROOF 1 MAT = COMPOSITION SHINGLE

SYSTEM LEGEND

PV SYSTEM SIZE:
(N) 5.200kW DC | 3.800kW AC


M POINT OF INTERCONNECTION IN NEW EXTERIOR MSP TIED TO UTILITY METER 2288008.


S NEW INTERIOR SUBPANEL


P (N) SMART METER. LOCATED WITHIN 10' OF MSP.

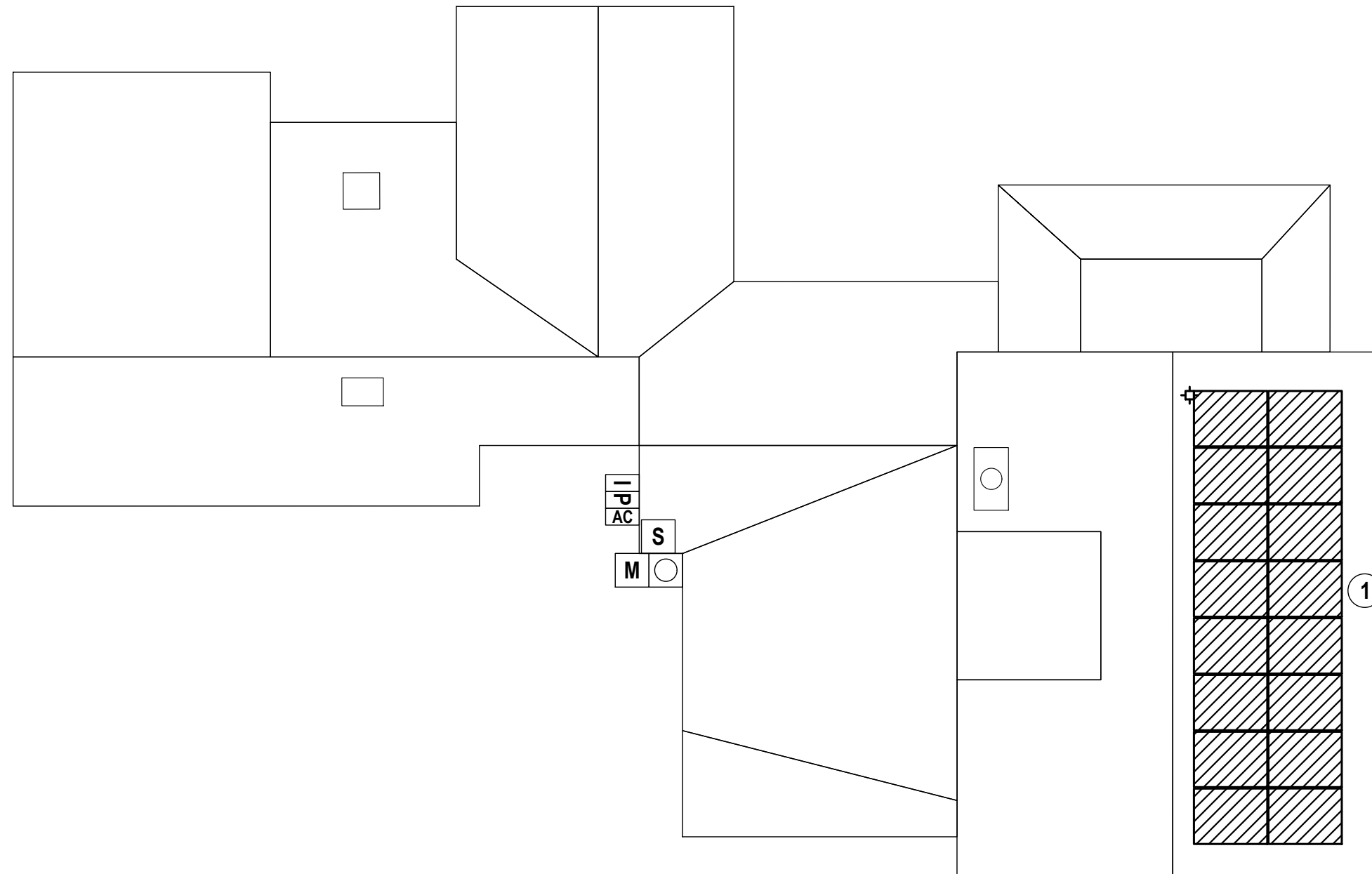
AC (N) PV SYSTEM AC DISCONNECT.

I (N) 1 PV STRING INVERTER: SE3800H-USS

 (N) 16 JINKO SOLAR JKM325M-60HBL MODULES WITH P340 OPTIMIZERS MOUNTED ON THE BACK OF EACH MODULE.

 (N) JUNCTION BOX. (MOUNTED TO PV MODULE)

 EXISTING ATTACHED \ UTILITY METER (2288008)



20 SCUDDERS LN
FRONT OF HOUSE.

 **SITE PLAN**
SCALE: 1/8" = 1'-0"

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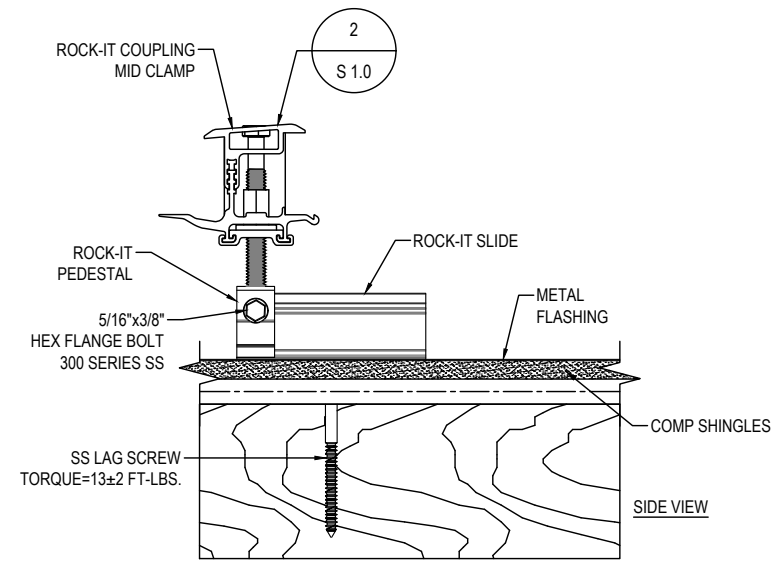
1800 ASHTON BLVD. LEHI, UT, 84043
1.877.404.4129
MA LIC: 170848 | 15688A

RESIDENCE
20 SCUDDERS LN
BARNSTABLE, MA 02630
UTILITY ACCOUNT: 1446 556 0069
METER: 2288008

S# S-6525819
ROC: MA-03
DRAWN BY: DIN
DATE: 12/12/2020
REVISION: 0

PV 1.0

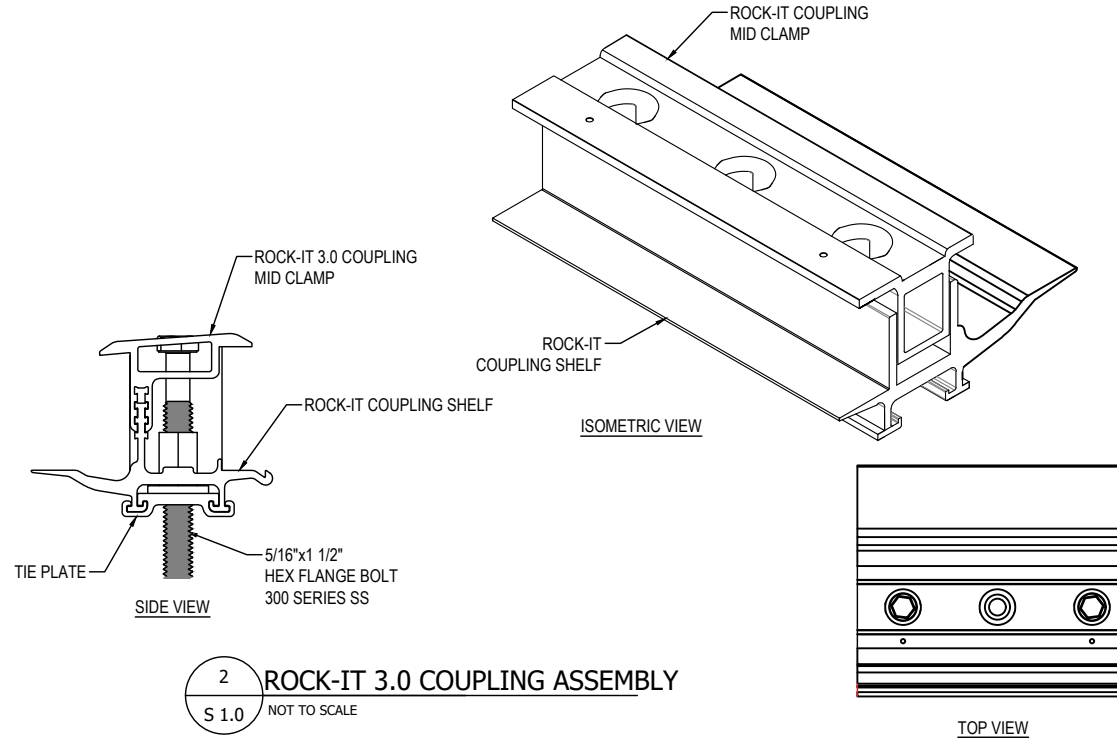
EDT(12-7-2020)V1, CL.A2.34



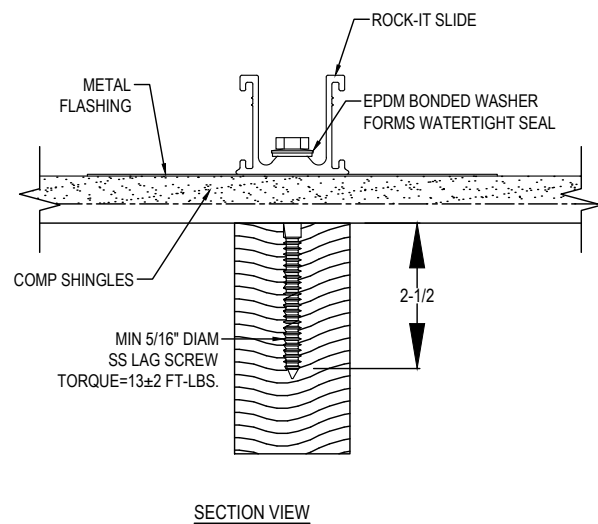
1 ROCK-IT 3.0 MOUNT DETAIL
S 1.0 NOT TO SCALE



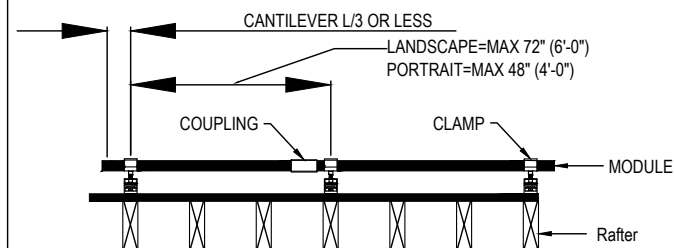
8 ILSCO SGB-4 GROUNDING LUGS
S 1.0 NOT TO SCALE



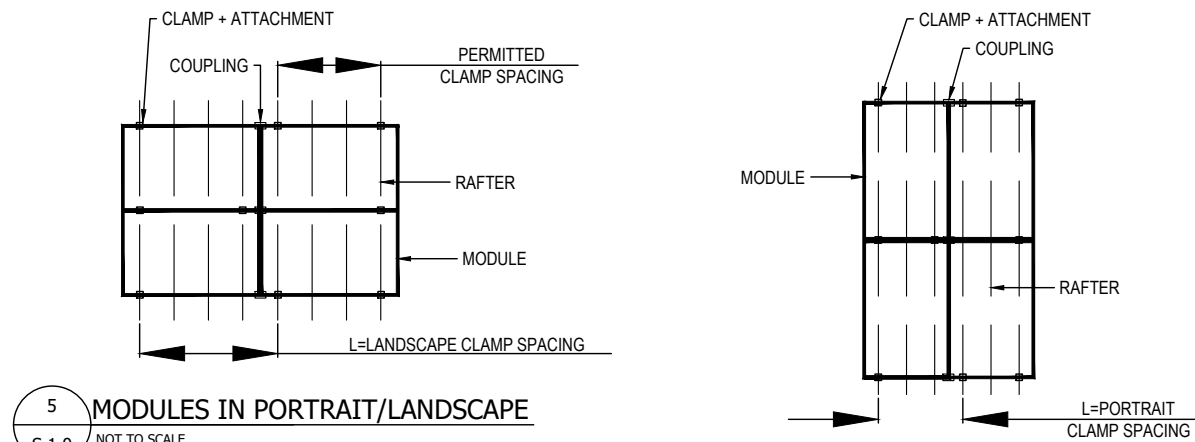
2 ROCK-IT 3.0 COUPLING ASSEMBLY
S 1.0 NOT TO SCALE



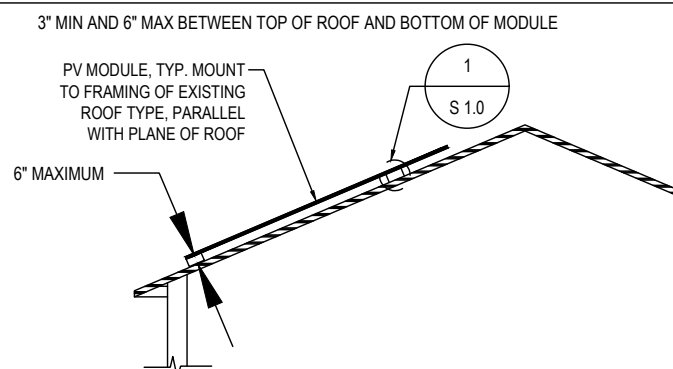
3 SECTION VIEW
S 1.0 NOT TO SCALE



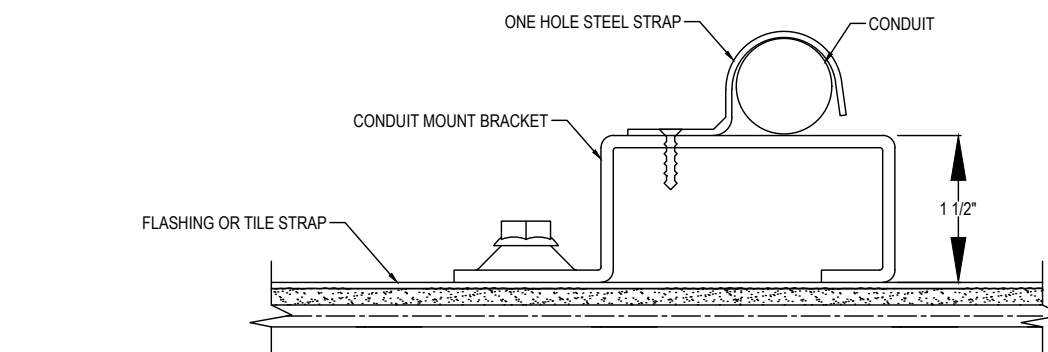
4 PV SYSTEM MOUNTING DETAIL
S 1.0 NOT TO SCALE



5 MODULES IN PORTRAIT/LANDSCAPE
S 1.0 NOT TO SCALE



6 PV ARRAY TYP. ELEVATION
S 1.0 NOT TO SCALE



7 CONDUIT MOUNTING DETAIL
S 1.0 NOT TO SCALE

MOUNT DETAILS

SCALE: NOT TO SCALE

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REVISION: 0

S 1.0

EDT(12-7-2020)V1, CL.A2.34

Photovoltaic System	
DC System Size (Watts)	5200
AC System Size (Watts)	3800
Total Module Count	16

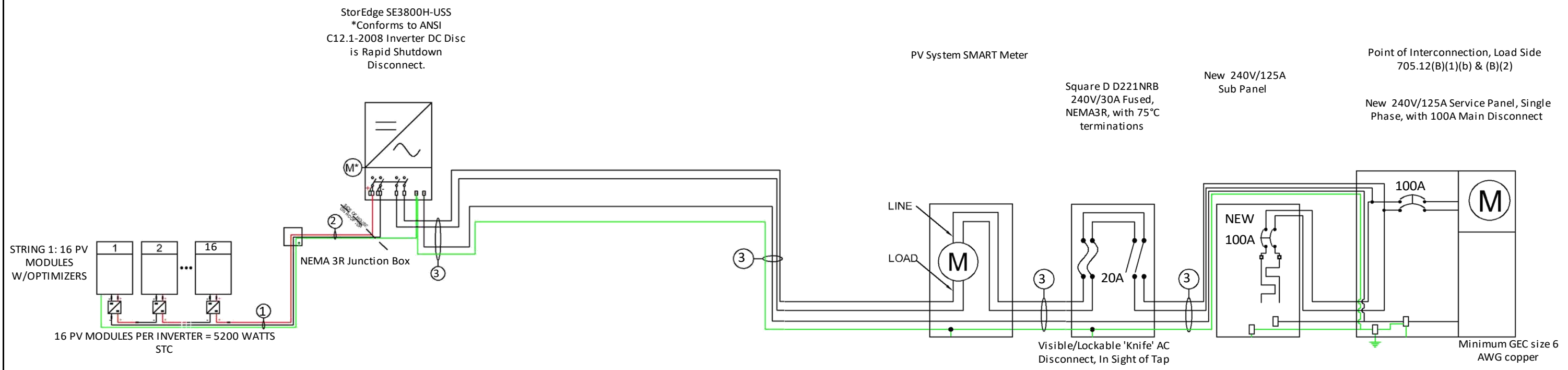
Conduit Conductor Schedule (Unless Otherwise Specified Conductors Shall be Copper)					
Tag	Description	Wire Gauge	# of Conductors/Color	Conduit Type	Conduit Size
1	DC-to-DC Converter Output (PV Wire)	10 AWG	2(V+, V-) B/R	Free Air	N/A
1	EGC (Bare)	6 AWG	1 BARE	Free Air	N/A
2	DC-to-DC Converter Output (THWN-2)	12 AWG	2(V+, V-) B/R	EMT	1/2"
2	EGC (THWN-2)	12 AWG	1(GRN)	EMT	1/2"
3	Inverter Output (THWN-2)	12 AWG	3(L1, L2, N) B/R/W	EMT	1/2"
3	EGC (THWN-2)	12 AWG	1(GRN)	EMT	1/2"

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Utility Account: 1446 556 0069

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INSTALLER: VIVINT SOLAR
INSTALLER NUMBER: 1.877.404.4129
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6525819

SHEET NAME:
3-Line Drawing
SHEET NUMBER:
E.1



Inverter/Optimizer Specs	
Optimizer	SolarEdge P340
DC Input Power	340 Watts
DC Max. Input Voltage	48 Volts
DC Max. Input Current	13.75 Amps
DC Max. Output Current	15 Amps
Max. string rating inverter dependent. See SE documents.	
Inverter Make/Model	StorEdge SE3800H-USS
CEC Efficiency	99 %
AC Operating Voltage	240 Volts
Cont. Max Output Current	16 Amps
DC Max Input Current	10.5 Amps
Input Short Circuit Current	45 Amps
Max Output Fault Current	16 A/20 ms

PV Module Rating @ STC		
Module Make/Model	Jinko Solar JKM325M-60HBL	
Max. Power-Point Current (Imp)	9.68	Amps
Max. Power-Point Voltage (Vmp)	33.6	Volts
Open-Circuit Voltage (Voc)	41.1	Volts
Short-Circuit Current (Isc)	10.2	Amps
Max. Series Fuse (OCPD)	20	Amps
Nom. Max. Power at STC (Pmax)	325	Watts
Max. System Voltage	1000 VDC (UL/IEC)	
Voc Temperature Coefficient	-0.28	%/C

ASHRAE 2017 - BARNSTABLE MUNICIPAL
Highest Monthly 2% D.B. Design Temp.: 29.5 °C
Lowest Min. Mean Extreme D.B.: -19.2 °C

Conductor Calculations

Wire ampacity calculated from 310.16 & 17 as appropriate with ambient temperature calculations from Table 310.15(B)(1) & 310.15(B)(2) and raceway fill adjustments from 310.15(C)(1). Conduit on the roof shall be installed no less than 1" above the roof deck. PV Circuit conductor ampacity is constrained using the 75°C column with the continuous duty uprating or the 90°C column with the relevant ambient temperature and raceway fill adjustments without the continuous duty uprating per 690.8(B), whichever results with a larger wire size. Non-PV Circuit conductors use the ampacity in the 75°C column or the 90°C column with the relevant ambient temperature and raceway fill adjustments, whichever is less (110.14(C) & 310.14(A)(2)). The rating of the conductor after adjustments shall be greater than, or equal to, the continuous duty uprated current.

More information about conductor calculations can be provided upon request.
Calc. Ex: Wire Ampacity x Ambient Temp. Corr. Factor x Conduit Fill Adj. Factor >= Output Current
(Tag 1 Under Array):
DC-to-DC Converter Output: 10 AWG rated 30 A, 30 A >= 18.75 A
(Tag 2 On Roof):
DC-to-DC Converter Output: 12 AWG rated 20 A, 20 A >= 18.75 A
(Tag 3 Exterior):
Inverter Output: 12 AWG rated 20 A, 20 A >= 20 A

Other Notes


- Designed according to and all code citations are relevant to the 2020 National Electrical Code.
- All interior raceways carrying DC current shall be metallic.

Current and OCPD Calculations (690.7, 690.9)

PV Source Max Circuit Voltage: Module Voc × (1-(ΔT × Voc Coeff)) [art. 690.7(A)]
JKM325M-60HBL: 41.1 V × (1-((25 C - -19.2 C) × -0.28%)) = 46.19 V <= 48 V

Inverter Output Circuit(s): Listed Output Current × 1.25 [art. 690.9(B)]
Inverter 1: SE3800H-USS Max Output = 16 A × 1.25 = 20 A <= 20 A (OCPD)

System output current w/ continuous duty = 20 A <= 20 A (System OCPD)

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 A sunrun COMPANY		INSTALLER: VIVINT SOLAR		INSTALLER NUMBER: 1.877.404.4129		Created: 12/12/20	
		170848 15688A		6525819			
SHEET NAME:		Notes Page		SHEET NUMBER:		E.2	

Inverter 1 DC Disconnect per 690.53

MAXIMUM DC VOLTAGE OF PV SYSTEM: 480 V

Conduit, Raceways, and J-Boxes (Labeled Every 10') and Reflective per 690.31(D)(2)

PHOTOVOLTAIC POWER SOURCE

Installed within 3 ft of Rapid Shutdown Switch, Reflective, and shall be placed on both Panel Exterior & next to Main Disconnect per 690.56(C)(2)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

All AC Disconnecting Means - AC Disconnect(s), Combiner Panels, and Load Centers per 690.54

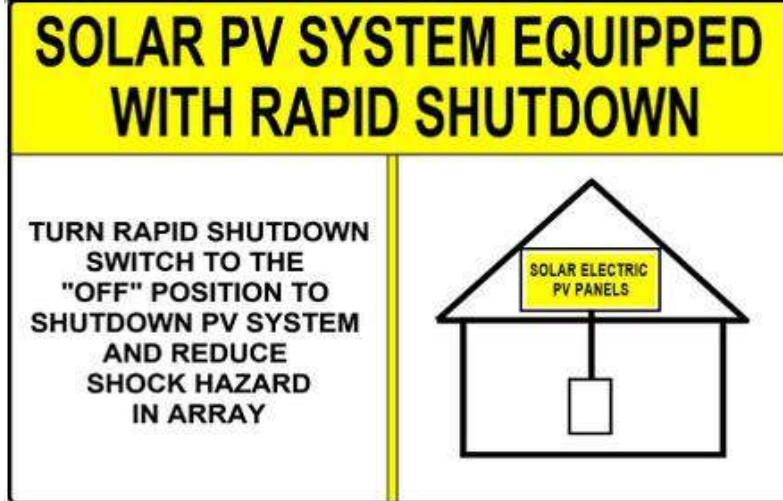
PHOTOVOLTAIC AC DISCONNECT

MAXIMUM AC OPERATING CURRENT: 16 A
NOMINAL AC OPERATING VOLTAGE: 240 V

PV System Disconnects per 690.13(B)

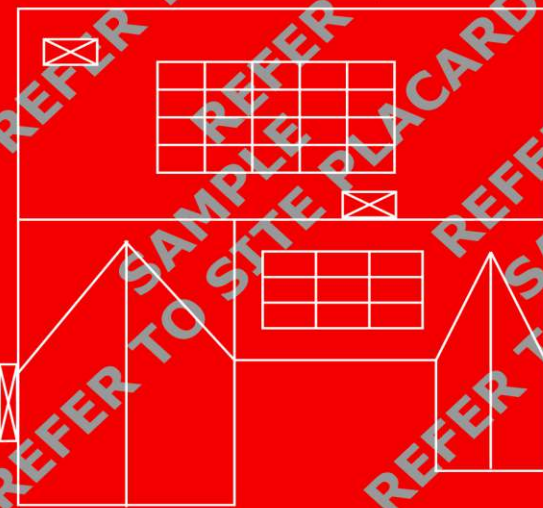
PV SYSTEM DISCONNECT

PV with Rapid Shutdown Switch, Installed within 3 ft of Service Disconnecting Means with min. 3/8" black capitalized text on yellow background & 3/16" black capitalized text on white background per 690.56(C)



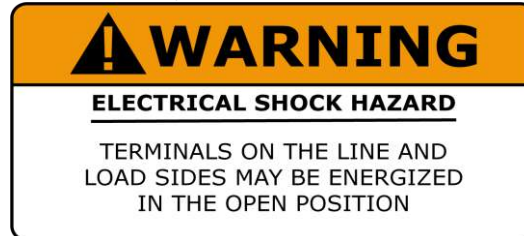
Plaque / Directory at Service Disconnecting Means per 690.56(B), & 705.10

CAUTION: MULTIPLE SOURCES OF POWER POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN



AT: METER AND MAIN SERVICE AC DISCONNECT DC DISCONNECT

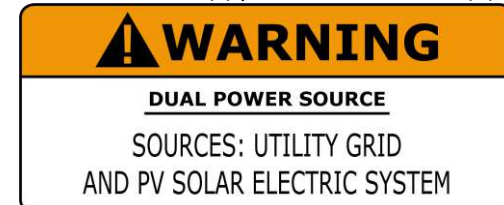
All Disconnecting Means - AC & DC Disconnect(s), Load Centers, and Combiner Panels per 690.13(B) & 690.15(C)



Power Source Output Connection, Adjacent to Back-fed Breaker per 705.12(B)(3)(2)



Dual Power Sources in Main Service Panel and Sub Panel(s) per 690.59 & 705.12(C)



• SIGNS/LABELS SHALL MEET THE REQUIREMENTS OF ARTICLES 690 AND 705, UNLESS OTHERWISE SPECIFIED PER LOCAL AHJ REQUIREMENTS • SIGNS/LABELS SHALL MEET THE REQUIREMENTS OF SECTION 110.21(B) AS REQUIRED PER ARTICLES 690 AND 705 AND SHALL COMPLY WITH ANSI Z535.4-2011, PRODUCT SAFETY SIGNS AND LABELS • SIGNS/LABELS SHALL BE REFLECTIVE IF REQUIRED TO BE SO PER ARTICLE 690 • SIGNS/LABELS MEETING REQUIREMENTS OF ARTICLE 690 SHALL HAVE NO SMALLER THAN 3/8" WHITE TEXT ON RED BACKGROUND UNLESS OTHERWISE DEPICTED OR DESCRIBED • SIGNS/LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HANDWRITTEN • SIGNS/LABELS SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED • SIGNS/LABELS SHALL NOT COVER EXISTING MANUFACTURER LABELS

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INSTALLER: VIVINT SOLAR	INSTALLER NUMBER: 1.877.404.4129	170848 15688A	6525819
SHEET NAME:		Warning Labels Page	
SHEET NUMBER:		E.3	

REFER TO SITE PLACARD

1	MAXIMUM DC VOLTAGE OF PV SYSTEM *** V	4	RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM	7	SITE PLACARD SHOWING ADDITIONAL POWER SOURCE AND DISCONNECT LOCATIONS. PLACARD SHALL BE MOUNTED ON EXTERIOR OF ELECTRICAL PANEL	10	WARNING DUAL POWER SOURCE SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM
2	PHOTOVOLTAIC POWER SOURCE	5	SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN	8	WARNING TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION	11	MAIN BREAKER DE-RATED DUE TO SOLAR CIRCUITS ***AMPS MAX ALLOWED DO NOT UPGRADE
3	PV SYSTEM DISCONNECT	6	PHOTOVOLTAIC AC DISCONNECT MAXIMUM AC OUTPUT CURRENT: *** A NOMINAL AC OPERATING VOLTAGE: *** V	9	WARNING POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT PROTECTION DEVICE		

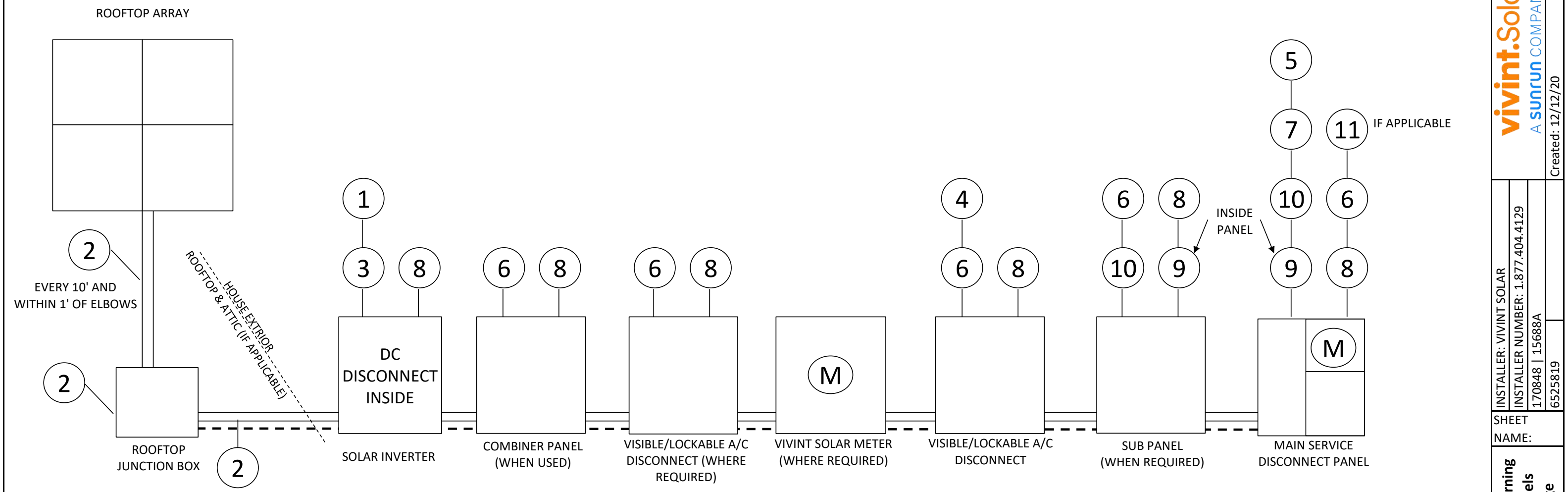
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INSTALLER: VIVINT SOLAR
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SHEET NAME:
Warning Labels Page
SHEET NUMBER:

E.4



TYPICAL SOLAR GENERATION INSTALLATION
(NOT ALL DEVICES ARE REQUIRED IN EVERY JURISDICTION)

*** - value calculated for each account, for specific value see the previous warning label page

• SIGNS/LABELS SHALL MEET THE REQUIREMENTS OF ARTICLES 690 AND 705, UNLESS OTHERWISE SPECIFIED PER LOCAL AHJ REQUIREMENTS • SIGNS/LABELS SHALL MEET THE REQUIREMENTS OF SECTION 110.21(B) AS REQUIRED PER ARTICLES 690 AND 705 AND SHALL COMPLY WITH ANSI Z535.4-2011, PRODUCT SAFETY SIGNS AND LABELS • SIGNS/LABELS SHALL BE REFLECTIVE IF REQUIRED TO BE SO PER ARTICLE 690 • SIGNS/LABELS MEETING REQUIREMENTS OF ARTICLE 690 SHALL HAVE NO SMALLER THAN 3/8" WHITE TEXT ON RED BACKGROUND UNLESS OTHERWISE DEPICTED OR DESCRIBED • SIGNS/LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HANDWRITTEN • SIGNS/LABELS SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED • SIGNS/LABELS SHALL NOT COVER EXISTING MANUFACTURER LABELS

Welcome to Vivint Solar a Sunrun Company

vivint.Solar
A sunrun COMPANY



MEET YOUR NEW SOLAR ENERGY SYSTEM

We believe energy should do more, should power our homes while giving back to the planet, and that starts with you. We've designed a custom solar energy system for your home, and now it's time to take a look.

HERE'S YOUR CUSTOM SITE PLAN

THE PERFECT FIT

Here's the solar energy system for your home. We designed it to match your energy needs and preferences. So sit back, relax, and let us take care of the details.

20 Scudder's Ln, Barnstable, MA 02630, USA

SOLAR ENERGY SYSTEM SIZE

5.2 kW DC
3.80 kW AC

FIRST YEAR
ESTIMATED PRODUCTION

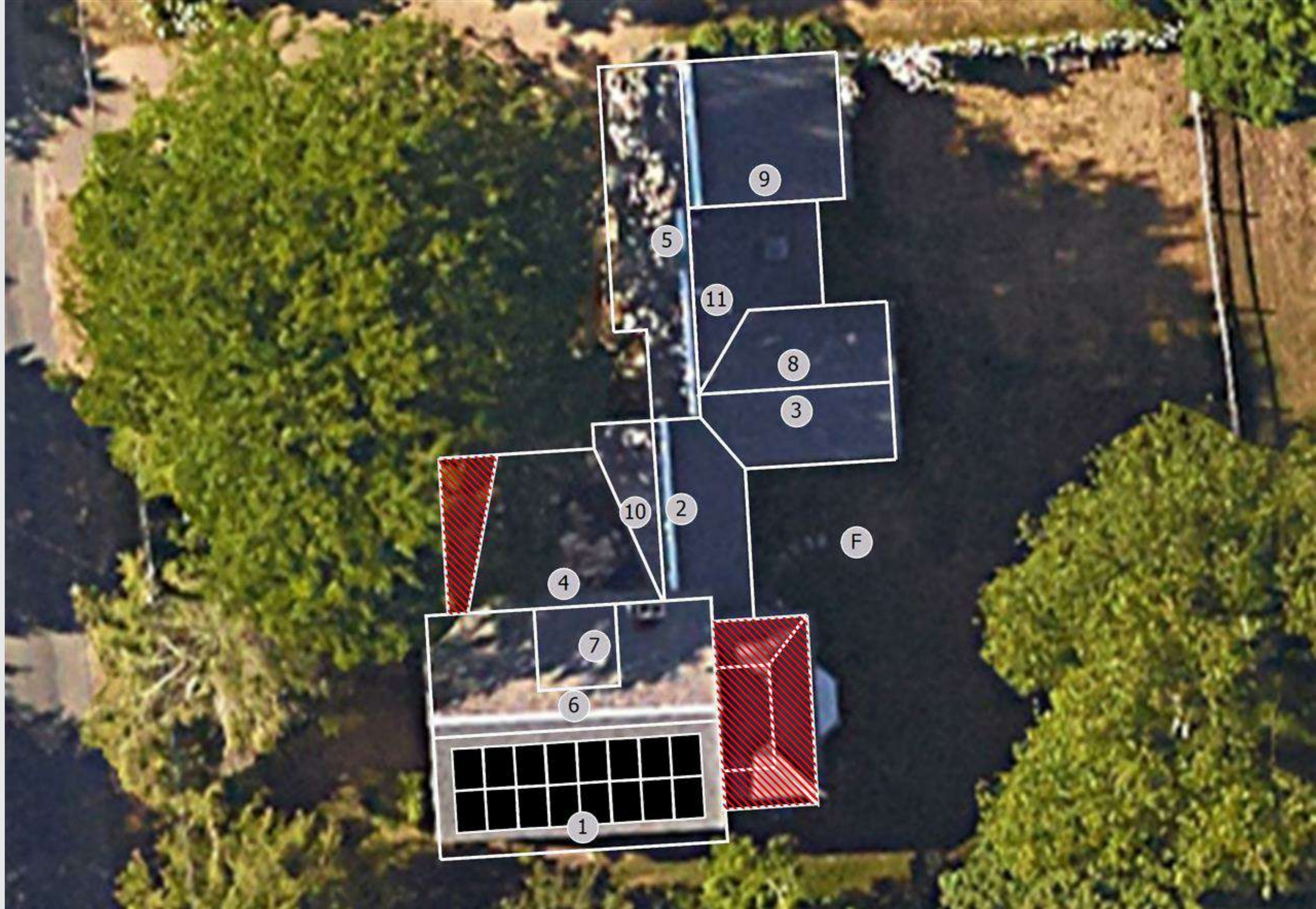
5985 kWh AC

MONTHLY ESTIMATED PRODUCTION



We estimate the solar system will offset 84% of your current energy usage, based on the information you have provided.

Your preferences can affect the design. See page 6 for more information.



ABOUT THE SYSTEM

INVERTER

MAKE	MODEL	QUANTITY
SolarEdge Technologies	SE3800H-USSSHBC14	1

MODULE

MAKE	MODEL	QUANTITY
Jinko Solar	JKM325M-60HBL	16

EXPECTED ANNUAL USAGE
7105 kWh AC

SHADE SOURCE
Google Sunroof

SYSTEM AVERAGE SUNHOURS
1150

DESIGN LIMITATIONS
Customer Preference

- ① 5,985 kWh AC (1,150 Sun Hours)
- ② to ⑤ Not used per customer request.
- ⑥ Designed with customer.
- ⑦ Designed with customer.
- ⑧ Designed with customer.
- ⑨ Designed with customer.
- ⑩ Designed with customer.
- ⑪ Designed with customer.

GOOD FOR YOU, GREAT FOR THE PLANET.

See what environmental impact you
will have over 20 years.



2124

TREES PLANTED



18

CARS OFF THE ROAD



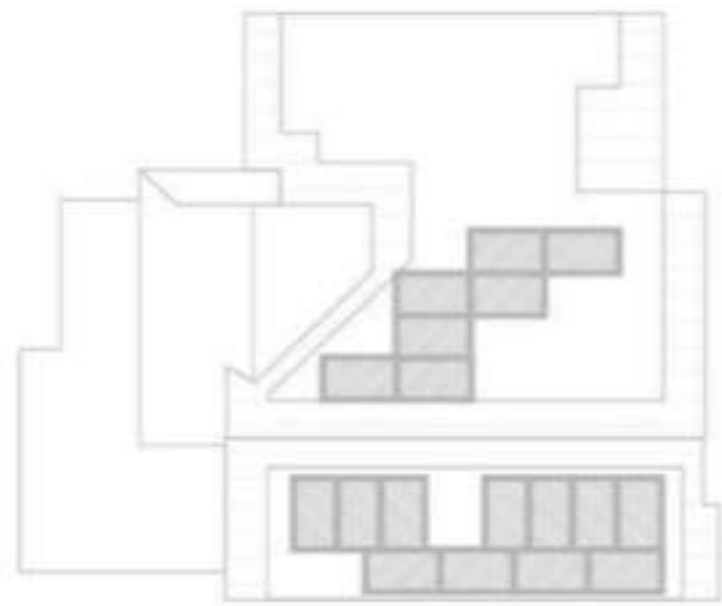
90613

POUNDS OF COAL BURNED

NUMBERS BASED OFF THE ESTIMATED FIRST YEAR PRODUCTION
ACCORDING TO WWW.EPA.GOV/ENERGY/GREENHOUSE-GAS-EQUIVALENCIES-CALCULATOR

HERE'S HOW IT WORKS

1 We have designed a solar array for your home.



2 The Vivint Solar System produces the clean energy to power your home.

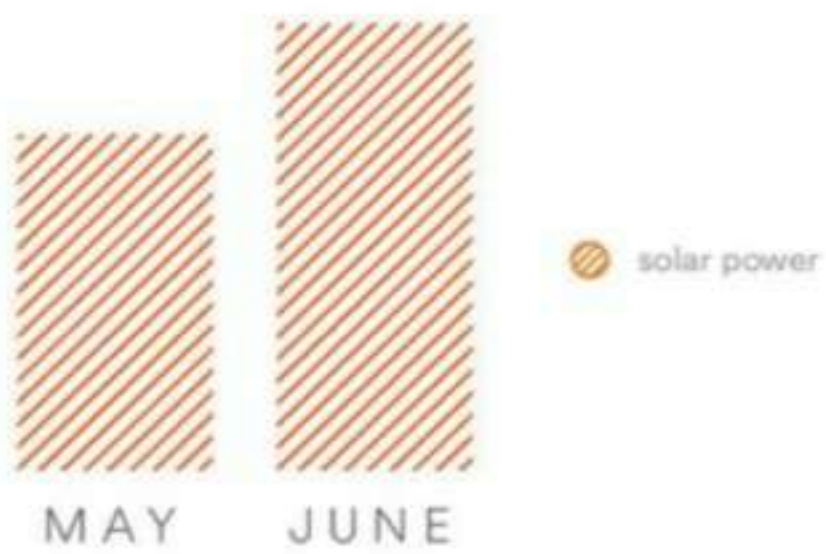


3 You will have a net meter installed that calculates the power produced by the solar energy system.

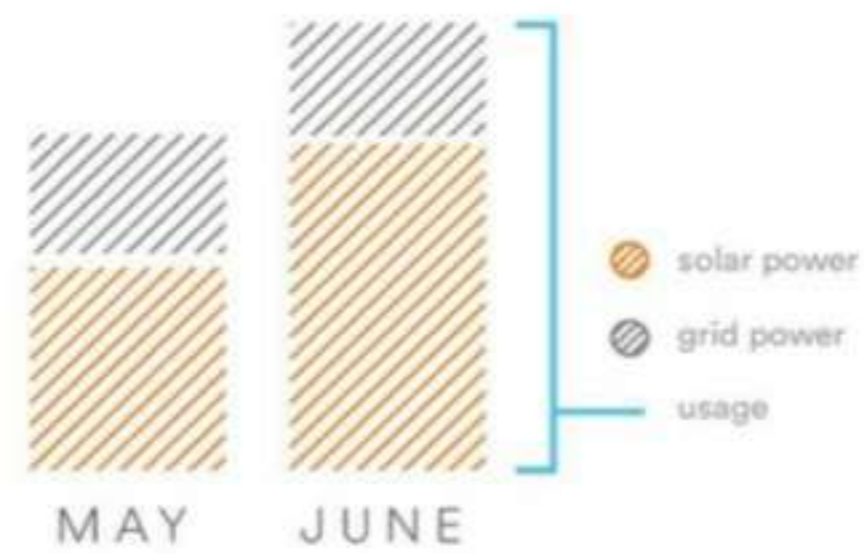
You will either use that power in real time or it will be sent back to the grid and calculated through the net meter as a credit.



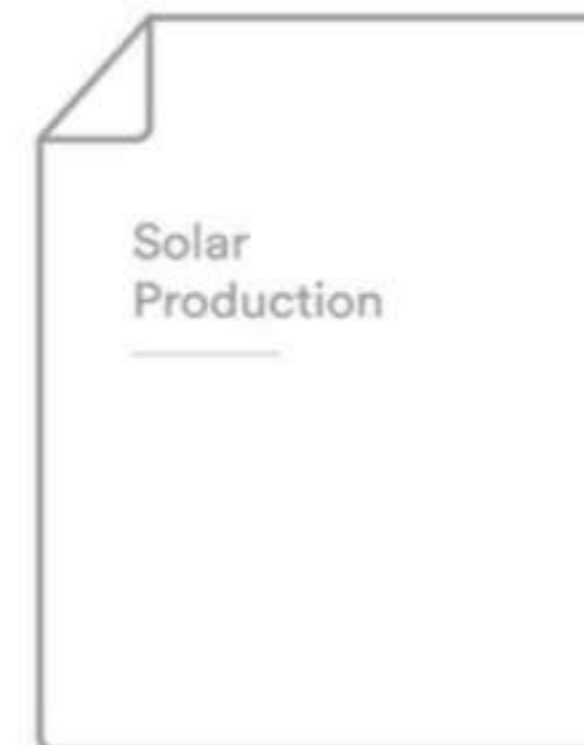
4 Each month your Vivint Solar system will produce power. That power production may vary each month.



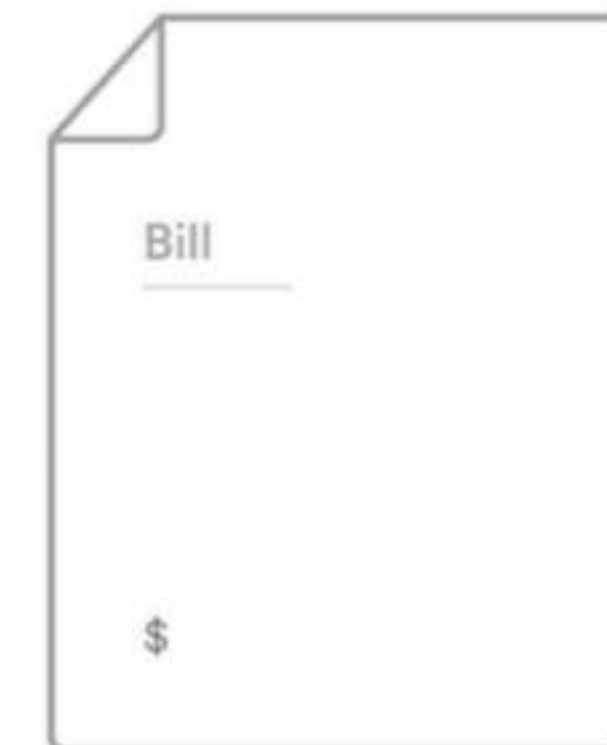
You may still need to use power from the utility depending on your needs and solar production.



5 Your online Account Center will allow you to see how much power was produced by the solar system on a monthly basis.



You will also get a bill from your utility if your energy needs exceed the solar production.





THERE HAS NEVER BEEN A BETTER TIME TO GO SOLAR

For more information, feel free to visit the Account Center at account.vivintsolar.com

VIVINTSOLAR.COM

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*The system, as depicted and described in this customer packet, is designed to reasonably reflect your preference to: (i) maximize the system size to increase your estimated usage offset, (ii) design a system that places the panels on your roof sections in accordance with your aesthetic preferences, (iii) maximize the system's efficiency per panel and optimize the economic return to you, or (iv) some combination of the foregoing factors. A design based on factors like maximizing the system size or your aesthetic preferences may have a reduced economic value per additional solar panel, than a system designed for maximum efficiency. Design factors that influence the system's performance, include (without limitation): shading, roof constraints, layout and orientation of the panels, slope of your roof, and performance of the equipment.

System performance may degrade by about 0.7% per year for 20 years.





SolarEdge Single Phase Inverters

For North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US



INVERTERS

The best choice for SolarEdge enabled systems

- Integrated arc fault protection (Type 1) for NEC 2011 690.11 compliance
- Superior efficiency (98%)
- Small, lightweight and easy to install on provided bracket
- Built-in module-level monitoring
- Internet connection through Ethernet or Wireless
- Outdoor and indoor installation
- Fixed voltage inverter, DC/AC conversion only
- Pre-assembled Safety Switch for faster installation
- Optional – revenue grade data, ANSI C12.1



Single Phase Inverters for North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US

	SE3000A-US	SE3800A-US	SE5000A-US	SE6000A-US	SE7600A-US	SE10000A-US	SE11400A-US		
OUTPUT									
Nominal AC Power Output	3000	3800	5000	6000	7600	9980 @ 208V 10000 @ 240V	11400	VA	
Max. AC Power Output	3300	4150	5400 @ 208V 5450 @ 240V	6000	8350	10800 @ 208V 10950 @ 240V	12000	VA	
AC Output Voltage Min.-Nom.-Max. ⁽¹⁾ 183 - 208 - 229 Vac	-	-	✓	-	-	✓	-		
AC Output Voltage Min.-Nom.-Max. ⁽¹⁾ 211 - 240 - 264 Vac	✓	✓	✓	✓	✓	✓	✓		
AC Frequency Min.-Nom.-Max. ⁽¹⁾	59.3 - 60 - 60.5 (with HI country setting 57 - 60 - 60.5)							Hz	
Max. Continuous Output Current	12.5	16	24 @ 208V 21 @ 240V	25	32	48 @ 208V 42 @ 240V	47.5	A	
GFDI Threshold	1							A	
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							Yes	
INPUT									
Recommended Max. DC Power ⁽²⁾ (STC)	3750	4750	6250	7500	9500	12400	14250	W	
Transformer-less, Ungrounded	Yes								
Max. Input Voltage	500							Vdc	
Nom. DC Input Voltage	325 @ 208V / 350 @ 240V							Vdc	
Max. Input Current ⁽³⁾	9.5	13	16.5 @ 208V 15.5 @ 240V	18	23	33 @ 208V 30.5 @ 240V	34.5	Adc	
Max. Input Short Circuit Current	45							Adc	
Reverse-Polarity Protection	Yes								
Ground-Fault Isolation Detection	600k Ω Sensitivity								
Maximum Inverter Efficiency	97.7	98.2	98.3	98.3	98	98	98	%	
CEC Weighted Efficiency	97.5	98	97.5 @ 208V 98 @ 240V	97.5	97.5	97 @ 208V 97.5 @ 240V	97.5	%	
Nighttime Power Consumption	< 2.5				< 4				W
ADDITIONAL FEATURES									
Supported Communication Interfaces	RS485, RS232, Ethernet, ZigBee (optional)								
Revenue Grade Data, ANSI C12.1	Optional ⁽⁴⁾								
Rapid Shutdown – NEC 2014 690.12	Functionality enabled when SolarEdge rapid shutdown kit is installed ⁽⁵⁾								
STANDARD COMPLIANCE									
Safety	UL1741, UL1699B, UL1998, CSA 22.2								
Grid Connection Standards	IEEE1547								
Emissions	FCC part15 class B								
INSTALLATION SPECIFICATIONS									
AC output conduit size / AWG range	3/4" minimum / 16-6 AWG				3/4" minimum / 8-3 AWG				
DC input conduit size / # of strings / AWG range	3/4" minimum / 1-2 strings / 16-6 AWG				3/4" minimum / 1-2 strings / 14-6 AWG				
Dimensions with Safety Switch (HxWxD)	30.5 x 12.5 x 7 / 775 x 315 x 172		30.5 x 12.5 x 7.5 / 775 x 315 x 191		30.5 x 12.5 x 10.5 / 775 x 315 x 260			in / mm	
Weight with Safety Switch	51.2 / 23.2		54.7 / 24.7		88.4 / 40.1			lb / kg	
Cooling	Natural Convection				Fans (user replaceable)				
Noise	< 25				< 50				dBA
Min.-Max. Operating Temperature Range	-13 to +140 / -25 to +60 (-40 to +60 version available ⁽⁶⁾)							°F / °C	
Protection Rating	NEMA 3R								

⁽¹⁾ For other regional settings please contact SolarEdge support.

⁽²⁾ 6kW and lower: Limited to 135% of AC power; 7.6kW and higher: Limited to 125% for locations where the yearly average high temperature is above 77°F/25°C and to 135% for locations where it is below 77°F/25°C. For detailed information, refer to http://www.solaredge.us/files/pdfs/inverter_dc_oversizing_guide.pdf.

⁽³⁾ A higher current source may be used; the inverter will limit its input current to the values stated.

⁽⁴⁾ Revenue grade inverter P/N: SExxxxA-US000NRR2

⁽⁵⁾ Rapid shutdown kit P/N: SE1000-RSD-S1

⁽⁶⁾ -40 version P/N: SExxxxA-US000NNU4



RoHS

Eagle 60 290-310 Watt

MONO PERC MODULE

Positive power tolerance of 0~+3%



KEY FEATURES



Innovative Solar Cells

Five busbar polycrystalline cell technology improves module efficiency



High Efficiency

Higher module conversion efficiency (up to 18.94%) due to Passivated Emitter Rear Contact (PERC) technology



PID Free

World's 1st PID-Free module



Low-Light Performance

Advanced glass technology improves light absorption and retention



Strength and Durability

Certified for high snow (5400Pa) and wind (2400Pa) loads

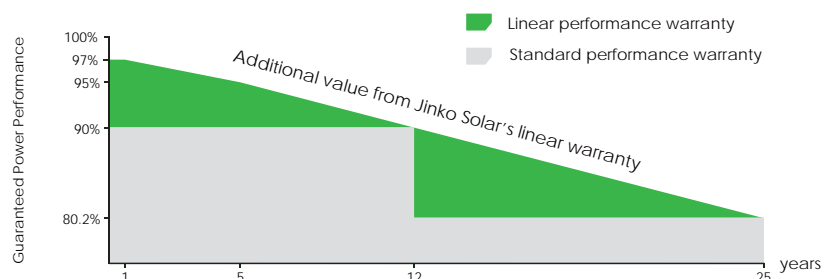


Weather Resistance

Certified for salt mist and ammonia resistance

LINEAR PERFORMANCE WARRANTY

10 Year Product Warranty • 25 Year Linear Power Warranty



- ISO9001:2008 Quality Standards
- ISO14001:2004 Environmental Standards
- OHSAS18001 Occupational Health & Safety Standards

Nomenclature:

JKM310M - 60B

Code	Backsheet
null	White
B	Black



Historic Districts (OKH or HMSWHD) Abutter List for Subject Parcel 258022

Direct abutters – all parcels that touch subject property including those across the street or way that would touch but for the road.

Parcel ID	Owner 1	Owner 2	Address Line 1	Address Line 2	City	State	Zip
258009	SQUIBB, EDITH V & JOHN		9 SCUDDER'S LANE		BARNSTABLE	MA	02630
258011	EHRET, BARBARA TR	BARBARA EHRET 2004 REVOCABLE TRUST	98 MOUNT VERNON STREET		BOSTON	MA	02108
258012	LAMB, ALBERT R III & NANCY S		PO BOX 97		BARNSTABLE	MA	02630
258021	BRANDIN, JAN A L & KERRY K TRS &	BRANDIN, ANNA C	54 SCUDDER'S LANE		BARNSTABLE	MA	02630
258022	CONVERSE, KATHERINE W & SMITH, DAVID TRS	KATHERINE W CONVERSE REV TR	900 SOUTHAMPTON AVE		WYNDMOOR	PA	19038
258023	PATRICK, LESLIE G & MIYA T		P O BOX 432		BARNSTABLE	MA	02630
258024	BROWN, ROBERT & JANET		2724 MAIN STREET		BARNSTABLE	MA	02630

CERTIFICATE OF APPROPRIATENESS SPEC SHEET Please submit 5 copies

Foundation Type: (Max. 12" exposed) (material - brick/cement, other) cement

Siding Type: Clapboard shingle other
Material: red cedar white cedar other Color: weathering stain

Chimney Material: STONE Color: Berge

Roof Material: (make & style) CERTANTEED IKO Color: BEACHWOOD

Roof Pitch(s): (7/12 minimum) 6/12 & 12/24 (specify on plans for new buildings, major additions)

Window and door trim material: wood other material, specify FIBERGLASS
Size of cornerboards 3/4 x 6 size of casings (1 X 4 min.) 5/4 x 6 color Pebble Grey

Rakes 1st member 1x8 2nd member 1x3 Depth of overhang 12"

Window: (make/model) MARVIN ELEVATE material FIBERGLASS color Pebble Grey
(Provide window schedule on plan for new buildings, major additions)

Window grills (please check all that apply): 2
true divided lights exterior glued grills grills between glass removable interior None

Door style and make: MARVIN ELEVATE material FIBERGLASS Color: Pebble Grey
ThermATRU

Garage Door, Style CARRIAGE Size of opening 8x8 Material Fiberglass Color Pebble Grey

Shutter Type/Style/Material: N/A Color: _____

Gutter Type/Material: ALUM. or FIBERGLASS Obee Color: Pebble Grey

Deck material: wood other material, specify _____ Color: NATURAL

Skylight, type/make/model/: NA material _____ Color: _____ Size: _____

Sign size: NA Type/Materials: _____ Color: _____

Fence Type (max 6') Style CHAIN LINK material: METAL Color: BLACK

Retaining wall: Material: NA

Lighting, freestanding _____ on building _____ illuminating sign _____

OTHER INFORMATION: All PAINTED TRIM will match MARVIN Pebble Grey

THE ATTACHED CHECK LIST MUST BE COMPLETED AND SUBMITTED

Please provide samples of paint colors, manufacturers brochure of windows, doors, garage door, fences, lamp posts etc

Signed: (plan preparer) Toby Print Name TOBY LEARY

5. SIGNS

NA

- Diagram of sign, showing graphics, size, design and height of post, color and materials.
- Spec sheet.
- Site Plan on a GIS map or mortgage survey, OR photographs OR to-scale sketch of building elevation showing location of proposed sign; and any tree to be removed near a freestanding sign.

6. SOLAR PANELS

NA

- Drawing of location of panels on house showing roof and panel dimensions.
- Site plan showing location of building on property. (Assessors map may be submitted)
- Height of solar panel above the roof.
- Color of panels
- Finish (matt or glossy)

7. FEES

- Filing fee** according to schedule, made payable to the Town of Barnstable
- Legal ad fee \$19.84** check made payable to the Town of Barnstable for the required legal ad notification
Note the filing fee and legal ad fees need to be on separate checks. We apologize in advance for any inconvenience this may cause.
- First Class Postage Stamps** for abutter notification. Please contact the Barnstable Old King's Highway Office

SIGNED (plan preparer) Toby Leary Print TOBY LEARY

Date: 2/9/21 Tel. Phone no's: 774-836-5571

Email toby.leary@gmail.com

NOTE: The Old Kings Highway Historic District Committee **MAY DENY INCOMPLETE APPLICATIONS**

ATTENDANCE AT MEETINGS: If the applicant or his/her representative is not present during the hearing is scheduled, the application may be either **CONTINUED OR DENIED**

APPEAL PERIOD

APPROVED PLANS

PLAN PICK UP

There is a ten (10) day appeal period, plus a 4 day waiting period for approved plans from the date the decision is filed with Town Clerk. This is necessary for each Certificate of Appropriateness and/or Certificate for Demolition issued by the Old King's Highway Committee. Plans approved by the Old King's Highway Historic District Committee may be picked up at Planning & Development Department, 200 Main Street, Hyannis, after expiration of the 14 day "wait" period. If the 14th day falls on a Saturday, your plans will be available the afternoon of the following business day.

DENIALS

Applications that are denied may be appealed to the Old Kings Highway Regional Historic District Commission within 10 days of the filing of the decision with the Town Clerk. For more information, see the Bulletin of the Old Kings Highway Regional Historic District Commission.

BUILDING PERMITS, OTHER AGENCY CONTACTS

In most instances, before commencing work, a Building Permit is required. The Building Division will require a certified plot plan for new construction and/or demolition. Commercial work may require Site Plan approval. Demolitions: the applicant should check with the Building Division as to conformance with Zoning requirements.

All certificates issued will expire one year from the date of issue, or upon the expiration date of any building permit issued for the work, whichever expiration date shall be later. The committee may renew any certificate for one additional year, providing the request for such renewal is received at least 30 days prior to the expiration date.

QUESTIONS ABOUT YOUR APPLICATION? PLEASE CALL THE BARNSTABLE OLD KINGS HIGHWAY OFFICE AT 508 862-4787



Legend

- Parcels
- Town Boundary
- + Railroad Tracks
- Buildings
 - Approx. Building
 - Buildings
- Parking Lots
 - Paved
 - Unpaved
- Roads
 - Paved Road
 - Unpaved Road
 - Bridge
 - Paved Median
- Water Bodies

Map printed on: 2/23/2021



Approx. Scale: 1 inch = 333 feet



This map is for illustration purposes only. It is not adequate for legal boundary determination or regulatory interpretation. This map does not represent an on-the-ground survey. It may be generalized, may not reflect current conditions, and may contain cartographic errors or omissions.

Parcel lines shown on this map are only graphic representations of Assessor's tax parcels. They are not true property boundaries and do not represent accurate relationships to physical objects on the map such as building locations.



Town of Barnstable GIS Unit

367 Main Street, Hyannis, MA 02601

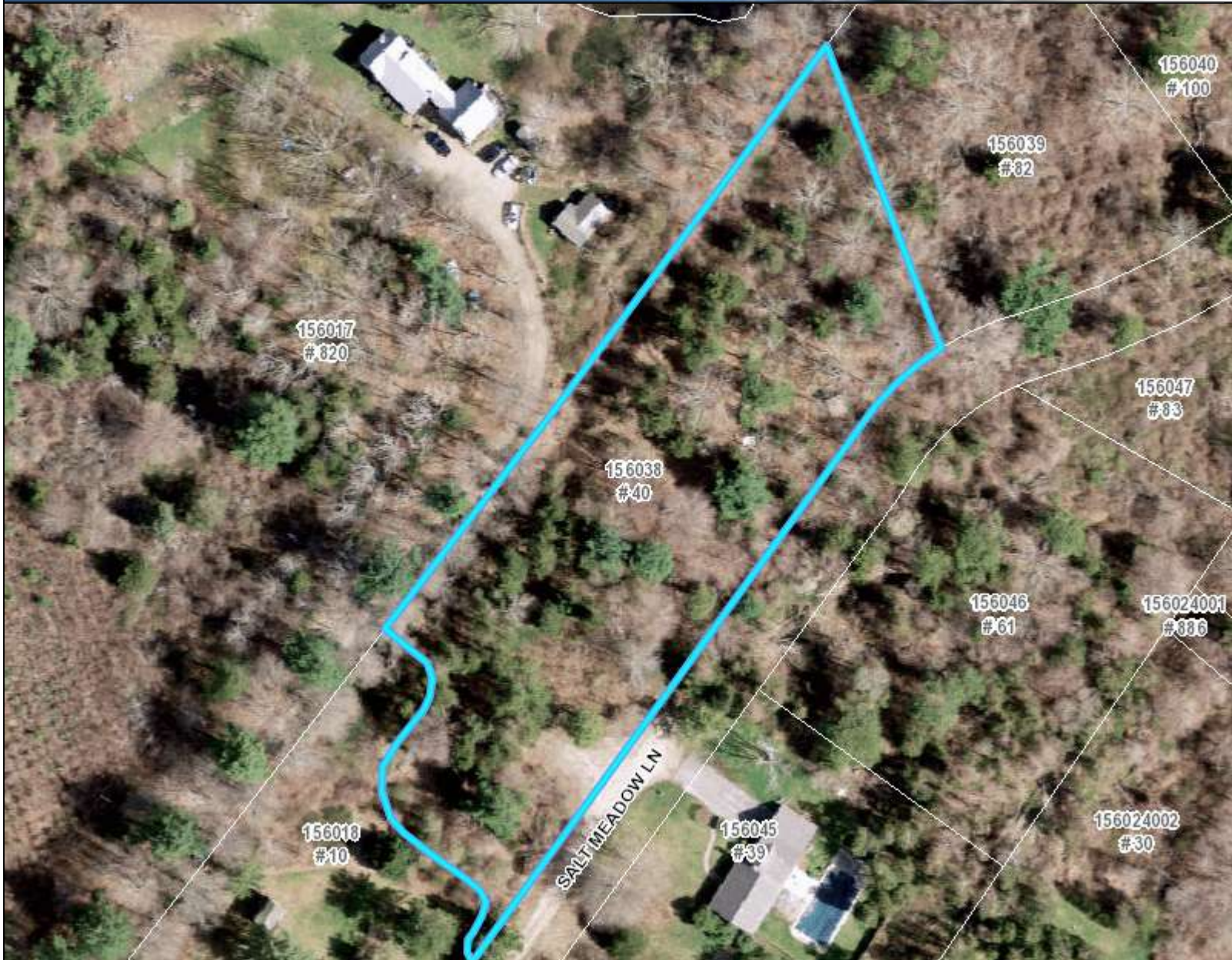
508-862-4624

gis@town.barnstable.ma.us

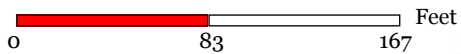


Legend

Road Names



Map printed on: 2/23/2021



Approx. Scale: 1 inch = 83 feet



This map is for illustration purposes only. It is not adequate for legal boundary determination or regulatory interpretation. This map does not represent an on-the-ground survey. It may be generalized, may not reflect current conditions, and may contain cartographic errors or omissions.

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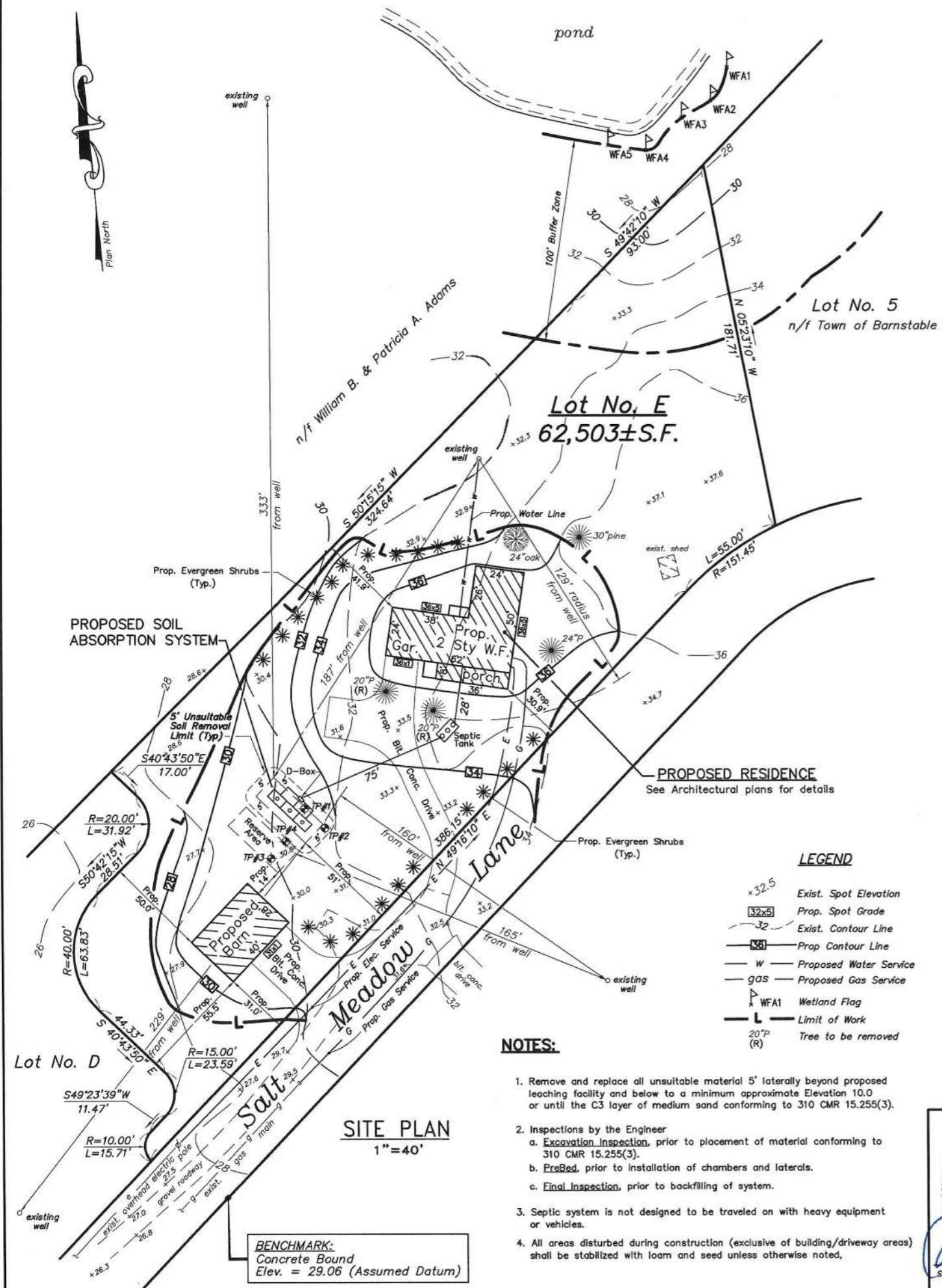


Town of Barnstable GIS Unit

367 Main Street, Hyannis, MA 02601

508-862-4624

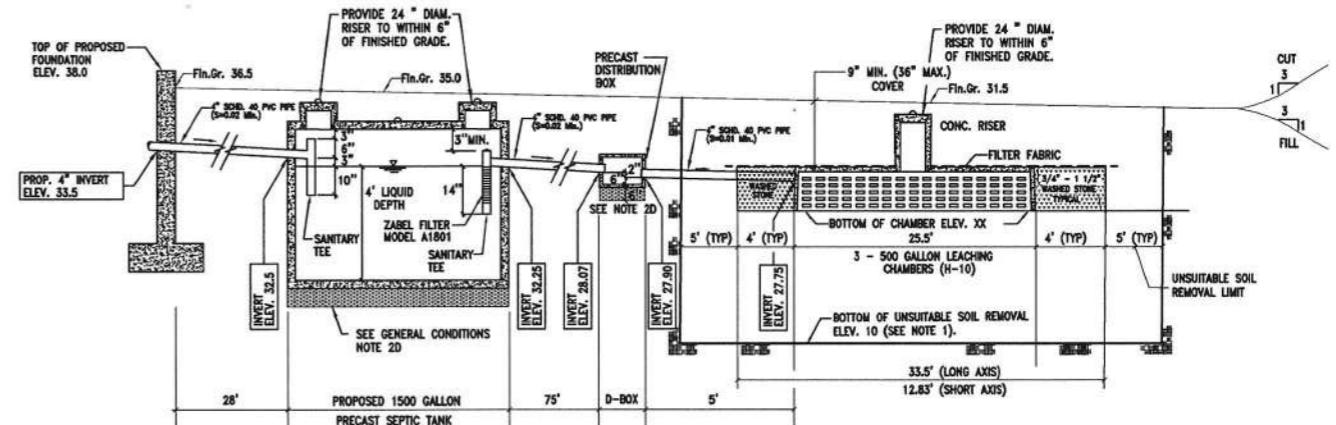
gis@town.barnstable.ma.us



- NOTES:**
- Remove and replace all unsuitable material 5' laterally beyond proposed leaching facility and below to a minimum approximate Elevation 10.0 or until the C3 layer of medium sand conforming to 310 CMR 15.255(3).
 - Inspections by the Engineer
 - Excavation Inspection, prior to placement of material conforming to 310 CMR 15.255(3).
 - PreBed, prior to installation of chambers and laterals.
 - Final Inspection, prior to backfilling of system.
 - Septic system is not designed to be traveled on with heavy equipment or vehicles.
 - All areas disturbed during construction (exclusive of building/driveway areas) shall be stabilized with loam and seed unless otherwise noted.

SITE PLAN
1" = 40'

BENCHMARK:
Concrete Bound
Elev. = 29.06 (Assumed Datum)



SEPTIC SYSTEM PROFILE
NOT TO SCALE

TEST PIT # 1		MUNSELL		TEST PIT # 2	
DEPTH				DEPTH	
0"	A ₀ SANDY LOAM w/ROOTS	7.5 YR 5/1		0"	A ₀ SANDY LOAM w/ROOTS
9"	B SANDY LOAM	7.5 YR 7/4		9"	B
18"	C ₁ VERY FIRM SILTY CLAY LOAM	10 YR 7/4		18"	C ₁ VERY FIRM SILTY CLAY LOAM
168"	C ₂ VERY STICKY CLAY LOAM	10 YR 7/4		168"	C ₂ VERY STICKY CLAY LOAM
241"	C ₃ MEDIUM SAND w/15% GRAVEL	10 YR 8/2		241"	C ₃ MEDIUM SAND w/15% GRAVEL
251"	BOTTOM OF EXPLORATION WATER WEeping IN 251"			251"	BOTTOM OF EXPLORATION WATER WEeping IN 251"
295"				295"	

SOIL TEST DATA DATE: 04/08/2005
 PERFORMED BY: John P. Doyle, III, P.L.S. SOIL EVALUATOR
 WITNESSED BY: DONALD DESMARIS, BOARD OF HEALTH AGENT
 SOIL CLASS: 1 PERCOLATION RATE: less than 5 MIN./INCH in C₃
 L.T.A.R.: 0.74 G.P.D./ SQ. FT.

TEST PIT # 3		MUNSELL		TEST PIT # 4	
DEPTH				DEPTH	
0"	A ₀ SANDY LOAM w/ROOTS	7.5 YR 5/1	30.8	0"	A ₀ SANDY LOAM w/ROOTS
9"	B SANDY LOAM	7.5 YR 7/4		9"	B
18"	C ₁ VERY FIRM SILTY CLAY LOAM	10 YR 7/4		18"	C ₁ VERY FIRM SILTY CLAY LOAM
168"	C ₂ VERY STICKY CLAY LOAM	10 YR 7/4		168"	C ₂ VERY STICKY CLAY LOAM
246"	C ₃ MEDIUM SAND w/15% GRAVEL	10 YR 8/2	10.3	246"	C ₃ MEDIUM SAND w/15% GRAVEL
256"	BOTTOM OF EXPLORATION WATER WEeping IN 256"			256"	BOTTOM OF EXPLORATION WATER WEeping IN 256"
312"				316"	

SOIL TEST DATA DATE: 01/25/2021
 PERFORMED BY: RICHARD M. CHURCHILL, PE, SOIL EVALUATOR
 WITNESSED BY: DAVID STANTON, BOARD OF HEALTH AGENT
 SOIL CLASS: 1 PERCOLATION RATE: less than 5 MIN./INCH in C₃
 L.T.A.R.: 0.74 G.P.D./ SQ. FT.

DESIGN CRITERIA

- TYPE OF BUILDING - RESIDENCE
 NO. OF BEDROOMS - 4
 GARBAGE GRINDER - NOT ALLOWED
 DESIGN FLOW -
 4-BDRM x 110 GPD/BDRM = 440 GPD
- SEPTIC TANK VOLUME - 1500 GAL (PROPOSED)
- ABSORPTION AREA REQUIRED
 EFFLUENT LOADING RATE 0.74 GPD/SF
 440 GPD/0.74 GPD/SF = 595 SF
- NUMBER OF CHAMBERS REQUIRED - 3
 500 GALLON (PRECAST CONCRETE) WITH 4' OF DOUBLE WASHED STONE ALL AROUND
- ABSORPTION AREA PROVISION
 BOTTOM AREA - 12.83' X 33.5' = 429.8 S.F.
 SIDE AREA - (67+25.66') X 2' = 185.3 S.F.
 TOTAL AREA = 615.1 S.F.

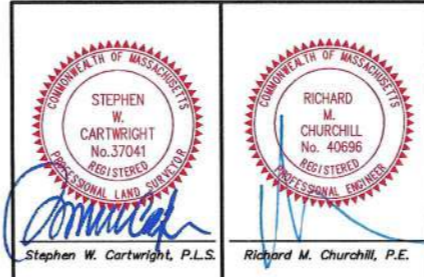
GENERAL CONDITIONS

- ALL ELEVATIONS REFER TO SYSTEM BENCHMARK, SEE PLAN FOR LOCATION.
- CONSTRUCTION DETAILS:
 - ALL PIPES AND STRUCTURES MUST BE LAID ON A FIRM BASE.
 - OUTLET PIPES FROM DISTRIBUTION BOX SHALL BE LEVEL FOR 2 FT.
 - FOR FINISHED GRADES, SEE PROPOSED CONTOURS ON PLAN.
 - SIX INCHES OF STONE (MINIMUM) TO BE PLACED BENEATH THE SEPTIC TANK AND DISTRIBUTION BOX.
- ALL CONSTRUCTION SHALL CONFORM TO TITLE OF THE MASSACHUSETTS STATE ENVIRONMENTAL CODE AND THE TOWN OF BARNSTABLE BOARD OF HEALTH.
- THE SYSTEM MUST BE INSPECTED BY THE BOARD OF HEALTH PRIOR TO BACKFILLING.
- NO PERMANENT STRUCTURES MAY BE CONSTRUCTED NOR ANY PLANTS BE PLACED OVER THE SYSTEM OR RESERVE AREA.
- NO SURFACE OR SUBSURFACE DRAINS ARE ALLOWED WITHIN 25' OF THE PROPOSED SYSTEM.
- FOR PROPER PERFORMANCE THE SEPTIC TANK SHOULD BE INSPECTED AT LEAST ONCE A YEAR AND SHALL BE PUMPED EVERY TWO YEARS.
- ALL KNOWN WATER SUPPLIES WITHIN 300' OF THE PROPOSED SOILS ABSORPTION SYSTEM ARE IDENTIFIED ON THE PLAN.
- ALL UNDERGROUND UTILITY LOCATIONS SHOWN ARE BASED ON FIELD EVIDENCE. THESE LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY AND OTHER UTILITIES MAY EXIST WHICH ARE NOT EVIDENT. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" AT 1-888-344-7233 BEFORE EXCAVATION BEGINS. CHURCHILL ENGINEERING, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN.
- TOPOGRAPHIC AND BACKGROUND MAPPING BY R.A.S. ASSOCIATES, STEPHEN W. CARTWRIGHT, P.L.S., 30 CAROLYN DRIVE, PLYMOUTH, MA.
- THE PROPERTY AND STRUCTURES DO NOT LIE WITHIN A SPECIAL FLOOD HAZARD ZONE AS DETERMINED BY F.E.M.A. AND DELINEATED ON F.L.R.M. COMMUNITY MAP NO. 250001 DATED 07/16/14, (ZONE X).
- WETLAND FLAGGING BY ECR - ENVIRONMENTAL CONSULTING, PLYMOUTH, MA, JULY 2019.

Proposed Sewage Disposal System
for
Toby Leary
in
West Barnstable, Massachusetts

Churchill Engineering, Inc.
Consulting Engineers-Construction Managers-Contractors
18 Main Street Ext., Suite 201 - Plymouth, MA 02360
Tel: (508) 747-6969

"Serving Cape Cod and the South Shore continuously since 1983"
RAS Associates
Civil Engineers - Land Surveyors - Land Use Consultants
30 Carolyn Drive
Plymouth, MA 02360
email: ras.associates1@gmail.com Tel: (508) 224-9035

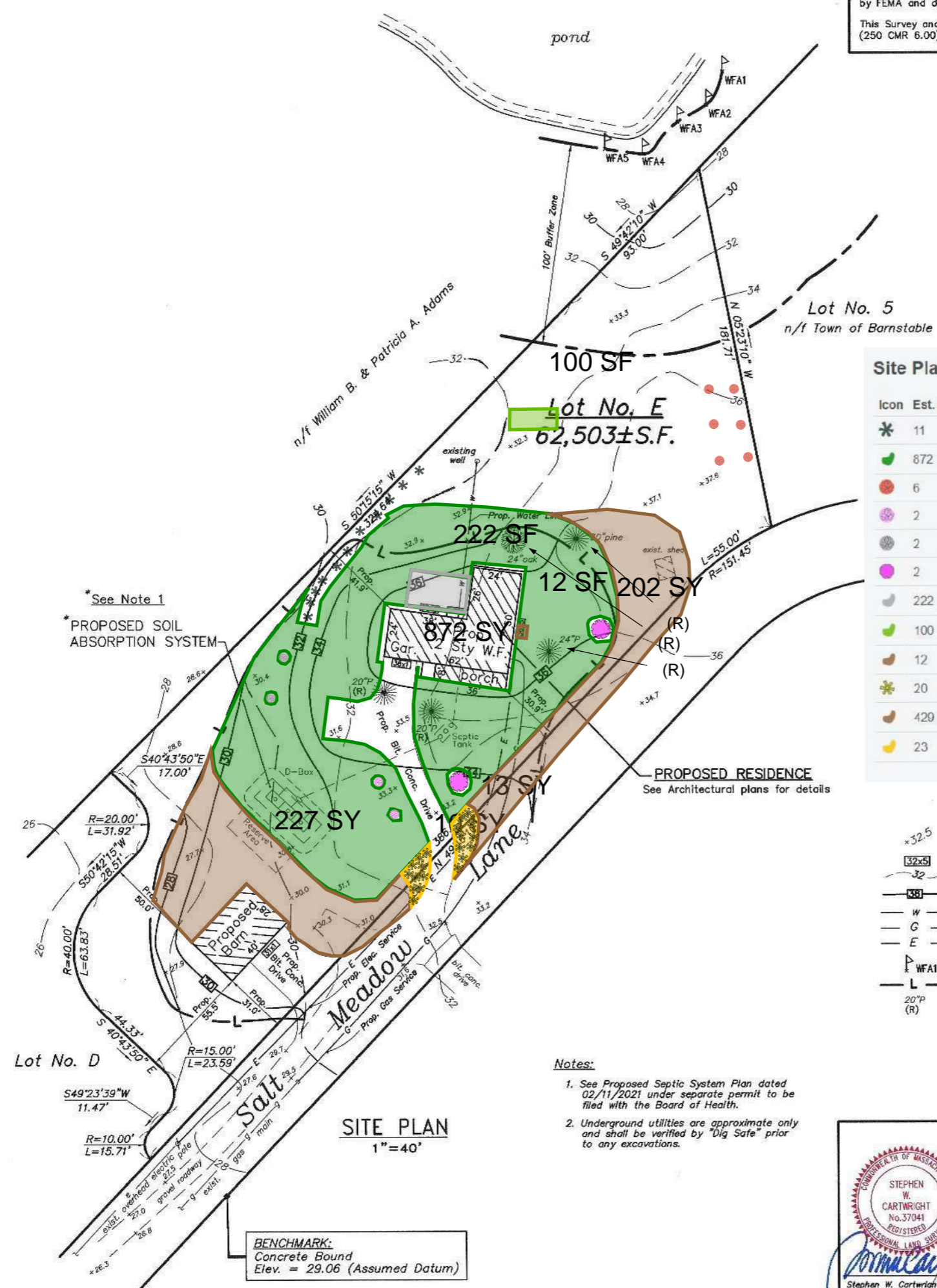


REVISION:	DATE:	DESCRIPTION:
SURVEY:	RAS	DESIGNED BY: RMC
CALC. BY:	RMC	CHECKED BY: RMC
		DRAWN BY: SWC
ZONING DISTRICT - RESIDENTIAL "F"		
MAP/BLOCK/LOT: 156/038/000		
PROPERTY ADDRESS: 40 SALT MEADOW LANE		
VILLAGE: WEST BARNSTABLE		
20' 10' 0 20' 40' 60' 80'		

To the best of my knowledge and belief, the proposed structures depicted do not lie within a Special Flood Hazard Zone as determined by FEMA and delineated on F.I.R.M. Community Map No. 250001 dated 07/16/14.

This Survey and Plot Plan has been prepared in accordance with the Procedural and Technical Standards for the Practice of Land Surveying (250 CMR 6.00) and the Standards as adopted by the Massachusetts Association of Land Surveyors and Civil Engineers, Inc.

ZONING DISTRICT TABLE	
RESIDENTIAL RF	
MINIMUM REQUIREMENTS	
LOT AREA	43,560 S.F.
FRONTAGE	150 FEET
FRONT SETBACK	30'
SIDE SETBACK	15'
REAR SETBACK	30'



Site Plan

Icon	Est. Qty	Description	Units
* (star)	11	Evergreen	EA
■ (green)	872	Sod	SY
● (red)	6	Apple Tree	EA
● (purple)	2	Robinson Crabapple	EA
● (grey)	2	Canada Red Chokecherry	EA
● (magenta)	2	Magnolia	EA
■ (grey)	222	Granite pavers	SF
■ (green)	100	Garden	SF
■ (brown)	12	Outside Shower	SF
■ (yellow)	20	Beach grass	EA
■ (brown)	420	Mulch	SY
■ (yellow)	23	Planting Bed	SY

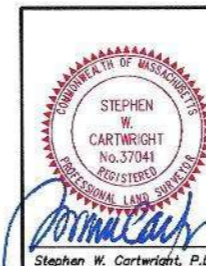
LEGEND

- 32.5 Exist. Spot Elevation
- 32.5 Prop. Spot Grade
- 32 Exist. Contour Line
- 32 Prop Contour Line
- W Proposed Water Service
- G Proposed Gas Service
- E Proposed Electric Service
- ▲ WFA1 Wetland Flag
- L Limit of Work
- 20°P Tree to be removed
- (R)

Notes:

1. See Proposed Septic System Plan dated 02/11/2021 under separate permit to be filed with the Board of Health.
2. Underground utilities are approximate only and shall be verified by "Big Sate" prior to any excavations.

BENCHMARK:
Concrete Bound
Elev. = 29.06 (Assumed Datum)



REVISION	DATE	DESCRIPTION

SURVEY: RAS DESIGNED BY: SWC CHECKED BY: SWC
 MAP/BLOCK/LOT: 156/038/000
 PROPERTY ADDRESS:
 40 SALT MEADOW LANE
 VILLAGE: WEST BARNSTABLE

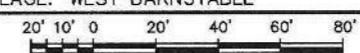
© 2021 R.A.S. associates

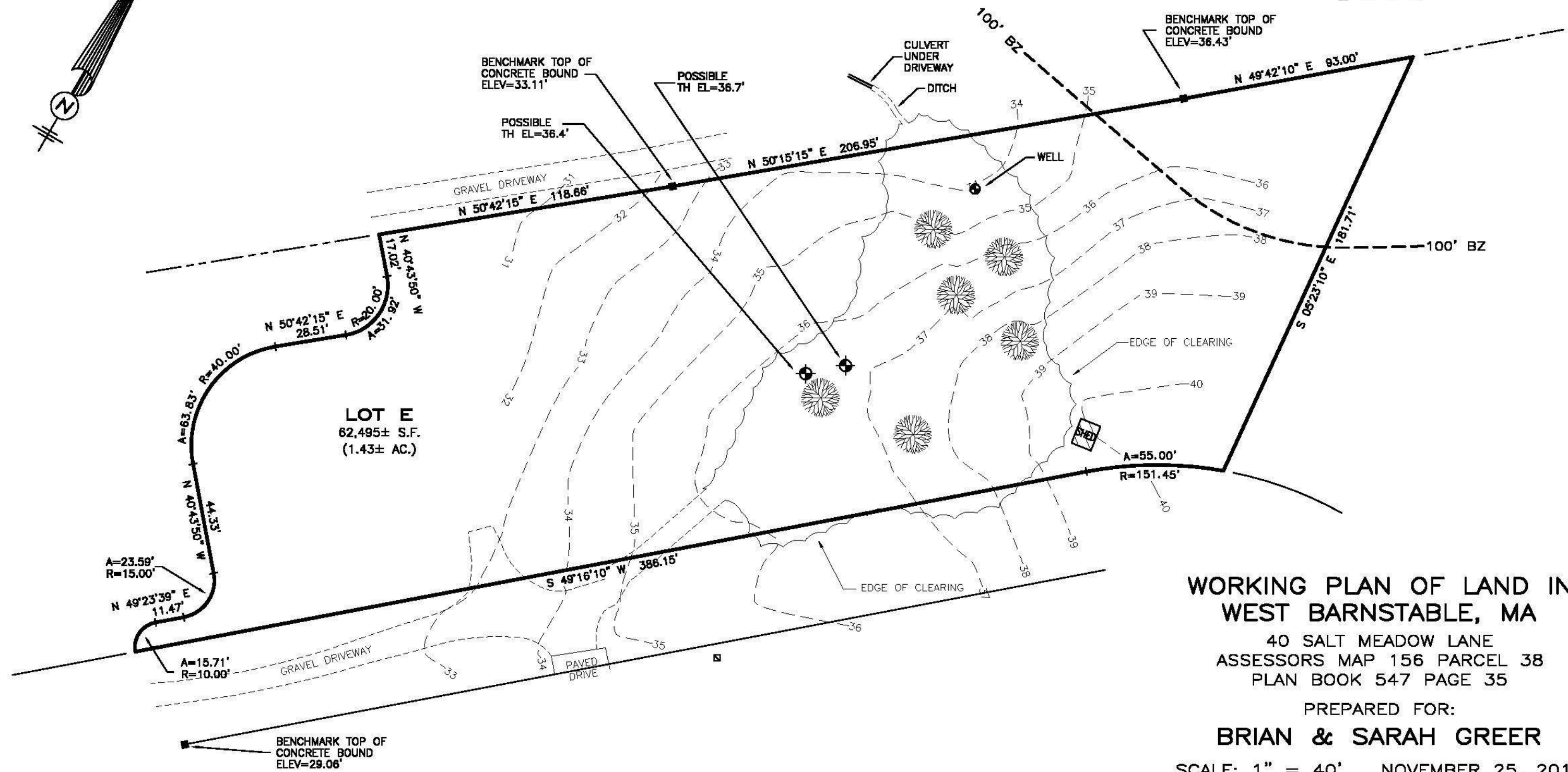
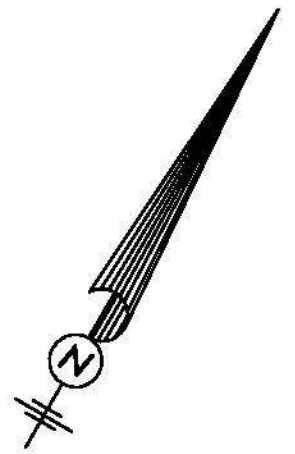
Building Permit Plot Plan
for
Toby Leary
in
West Barnstable, Massachusetts

"Serving Cape Cod and the South Shore continuously since 1983"

RAS Associates
Civil Engineers - Land Surveyors - Land Use Consultants
30 Carolyn Drive Plymouth, MA 02360
email: ras.associates1@gmail.com Tel: (508) 224-9035

DATE: 02/11/21 JOB NO. 20-240BP SHEET NO. 1 of 1





LOT E
62,495± S.F.
(1.43± AC.)

WORKING PLAN OF LAND IN
WEST BARNSTABLE, MA
40 SALT MEADOW LANE
ASSESSORS MAP 156 PARCEL 38
PLAN BOOK 547 PAGE 35

PREPARED FOR:
BRIAN & SARAH GREER

SCALE: 1" = 40' NOVEMBER 25, 2019

GRAPHIC SCALE IN FEET



DEMAREST LAND SURVEYING
338 MAYFAIR ROAD
SOUTH DENNIS, MA 02660
508-364-9049



Google

Imagery ©2021 MassGIS, Commonwealth of Massachusetts EOE, Maxar Technologies

To the best of my knowledge and belief, the proposed structures depicted do not lie within a Special Flood Hazard Zone as determined by FEMA and delineated on F.I.R.M. Community Map No. 250001 dated 07/16/14.

This Survey and Plot Plan has been prepared in accordance with the Procedural and Technical Standards for the Practice of Land Surveying (250 CMR 6.00) and the Standards as adopted by the Massachusetts Association of Land Surveyors and Civil Engineers, Inc.

ZONING DISTRICT TABLE

RESIDENTIAL RF

MINIMUM REQUIREMENTS

LOT AREA	43,560 S.F.
FRONTAGE	150 FEET
FRONT SETBACK	30'
SIDE SETBACK	15'
REAR SETBACK	30'



Site Plan

Icon	Est. Qty	Description	Units
★	11	Evergreen	EA
★	822	Sod	SY
★	0	Sod	SY
★	0	Sod	SY
★	6	Apple Tree	EA
★	2	Robinson Crabapple	EA
★	2	Canada Red Chokecherry	EA
★	1	Magnolia	EA
★	200	Granite pavers	SF
★	100	Garden	SF
★	12	Outside Shower	SF
★	20	Beach grass	EA

PROPOSED RESIDENCE
See Architectural plans for details

* See Note 1
PROPOSED SOIL ABSORPTION SYSTEM

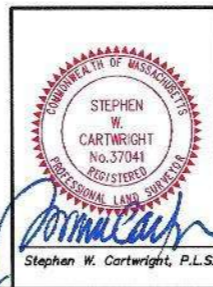
LEGEND

- ★32.5 Exist. Spot Elevation
- 32.5 Prop. Spot Grade
- 32 Exist. Contour Line
- 32 Prop. Contour Line
- W Proposed Water Service
- G Proposed Gas Service
- E Proposed Electric Service
- WFA1 Wetland Flag
- L Limit of Work
- 20°P Tree to be removed
- (R)

- Notes:**
- See Proposed Septic System Plan dated 02/11/2021 under separate permit to be filed with the Board of Health.
 - Underground utilities are approximate only and shall be verified by "Big Sate" prior to any excavations.

BENCHMARK:
Concrete Bound
Elev. = 29.06 (Assumed Datum)

SITE PLAN
1" = 40'



REVISION	DATE	DESCRIPTION

SURVEY: RAS DESIGNED BY: SWC CHECKED BY: SWC

MAP/BLOCK/LOT: 156/038/000

PROPERTY ADDRESS:
40 SALT MEADOW LANE
VILLAGE: WEST BARNSTABLE

20' 10' 0 20' 40' 60' 80'

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Building Permit Plot Plan
for
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West Barnstable, Massachusetts

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30 Carolyn Drive Plymouth, MA 02360
email: ras.associates1@gmail.com Tel: (508) 224-9035

DATE: 02/11/21 JOB NO. 20-240BP SHEET NO. 1 of 1



PROJECT PROFESSIONAL OF RECORD

DRAWN BY CHECKED BY	DRAWING DATE REVISIONS
RG	12/14/20

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

LEARY **FRONT ELEVATION**

SITE LOCATION: WEST BARNSTABLE, MA
WIND SPEED (ULT/ASD): 140MPH/108MPH
EXPOSURE CATEGORY: B
SNOW LOAD (GROUND/ASD): 30PSF/25PSF

SCALE
1/8" = 1'-0"

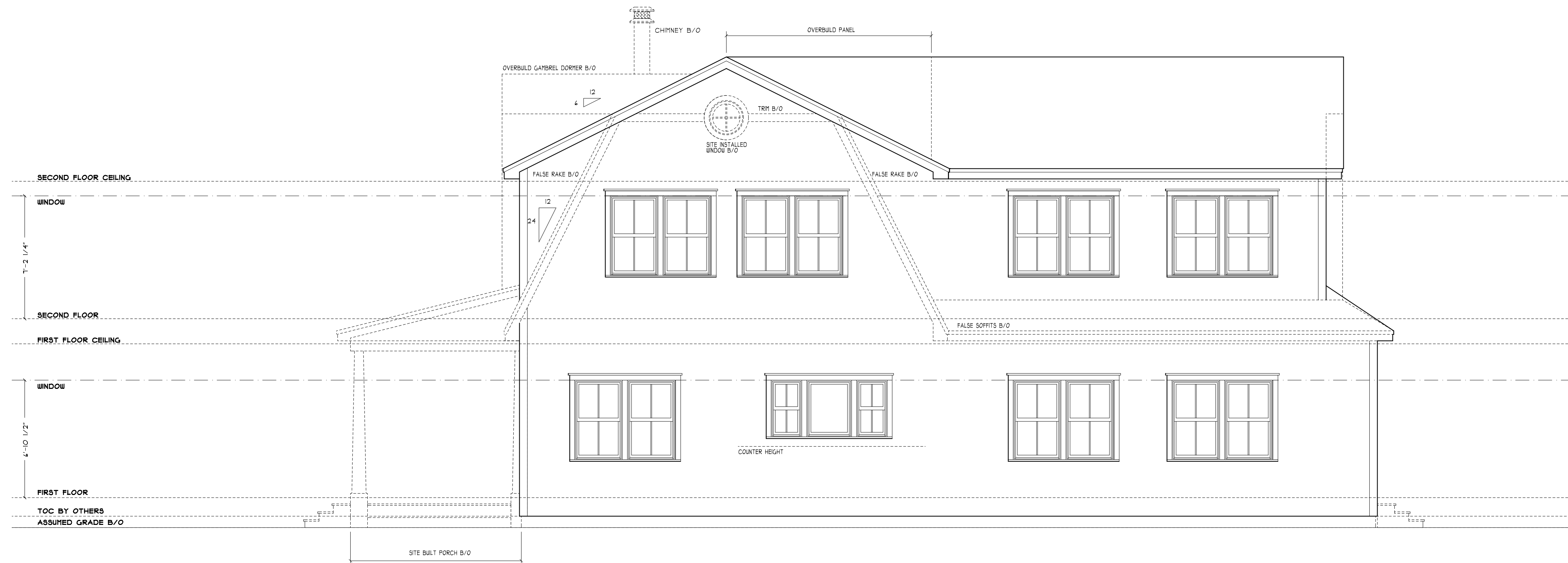
**HUNTINGTON
HOMES, INC.**

344 FASSETT RD, EAST MONTPELIER, VERMONT 05651
OFFICE (802) 479-3625 FAX (802) 479-0575

PROJECT: # 10318

SHEET SIZE: 11x17

DRAWING NO: **EL-1**



PROJECT PROFESSIONAL OF RECORD

DRAWN BY CHECKED BY	DRAWING DATE REVISIONS
RG	12/14/20

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

LEARY **RIGHT SIDE ELEVATION**

SITE LOCATION: WEST BARNSTABLE, MA
WIND SPEED (ULT/ASD): 140MPH/108MPH
EXPOSURE CATEGORY: B
SNOW LOAD (GROUND/ASD): 30PSF/25PSF

SCALE
1/8" = 1'-0"

**HUNTINGTON
HOMES, INC.**

344 FASSETT RD, EAST MONTPELIER, VERMONT 05651
OFFICE (802) 479-3625 FAX (802) 479-0575

PROJECT: # 10318
SHEET SIZE: 11x17
DRAWING NO: EL-2



PROJECT PROFESSIONAL OF RECORD

DRAWN BY	DRAWING DATE
CHECKED BY	REVISIONS
RG	12/14/20

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

LEARY LEFT SIDE ELEVATION

SITE LOCATION: WEST BARNSTABLE, MA
WIND SPEED (ULT/ASD): 140MPH/108MPH
EXPOSURE CATEGORY: B
SNOW LOAD (GROUND/ASD): 30PSF/25PSF

SCALE
1/8" = 1'-0"

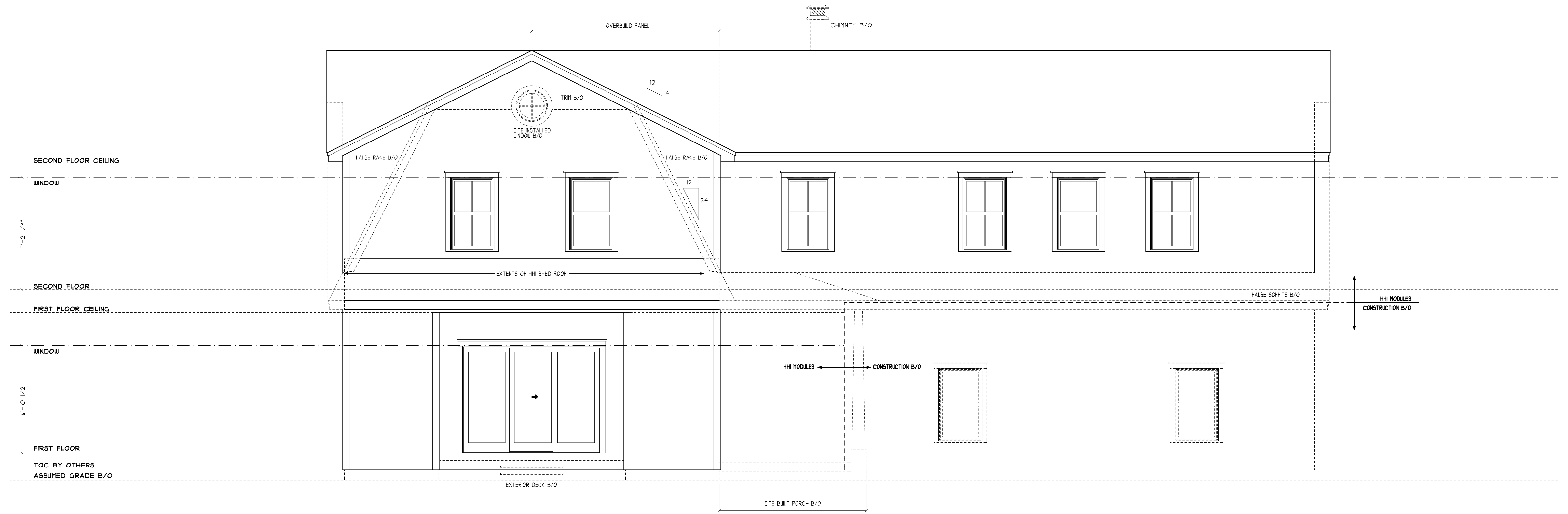
HUNTINGTON HOMES, INC.

344 FASSETT RD, EAST MONTPELIER, VERMONT 05651
OFFICE (802) 479-3625 FAX (802) 479-0575

PROJECT: # 10318

SHEET SIZE: 11x17

DRAWING NO: **EL-3**



PRELIMINARY PLANS
NOT FOR CONSTRUCTION

LEARY

REAR ELEVATION

SITE LOCATION: WEST BARNSTABLE, MA
WIND SPEED (ULT/ASD): 140MPH/108MPH
EXPOSURE CATEGORY: B
SNOW LOAD (GROUND/ASD): 30PSF/25PSF

SCALE
1/8" = 1'-0"

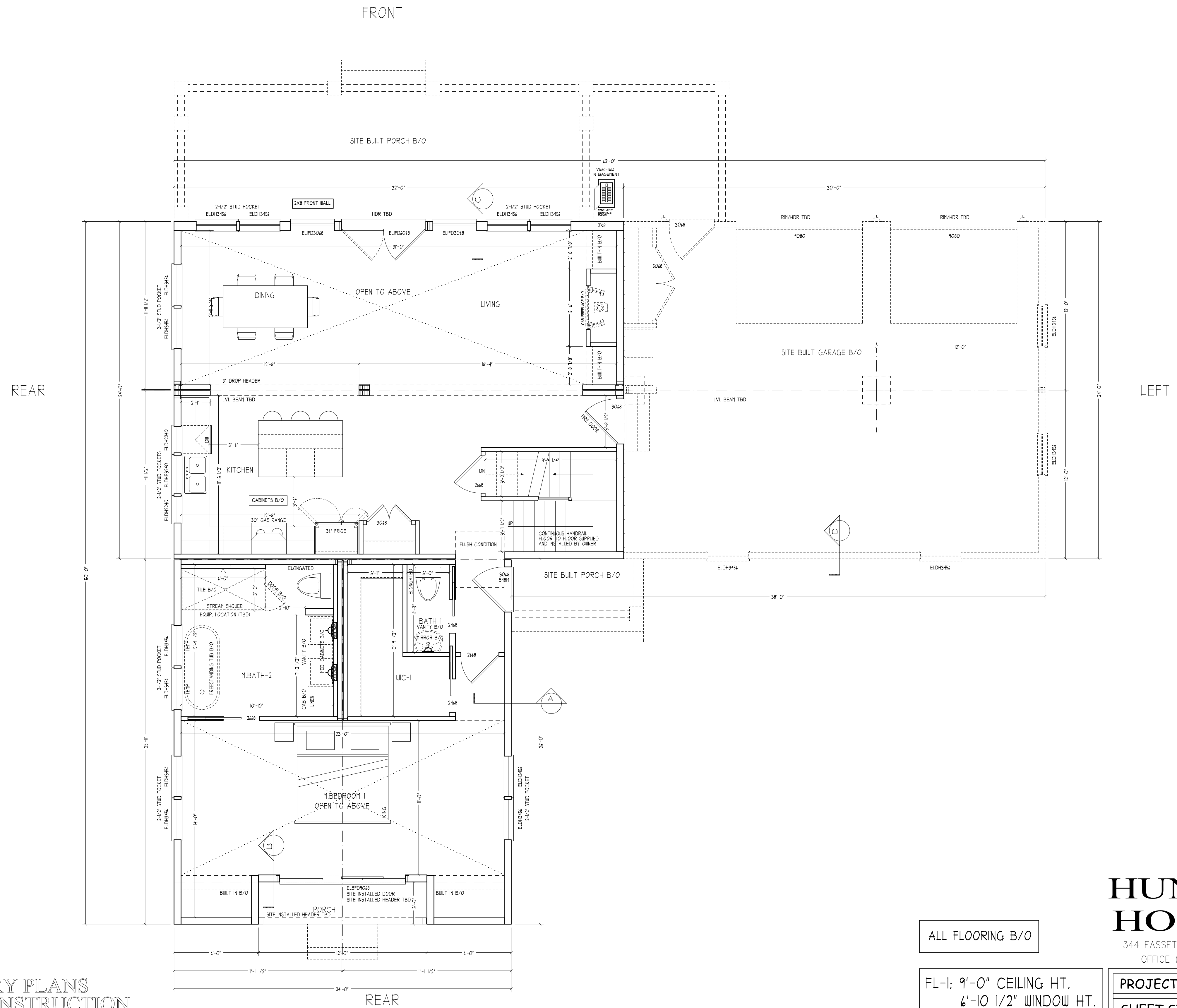
**HUNTINGTON
HOMES, INC.**

344 FASSETT RD, EAST MONTPELIER, VERMONT 05651
OFFICE (802) 479-3625 FAX (802) 479-0575

PROJECT: # 10318

SHEET SIZE: 11x17

DRAWING NO: EL-4



DRAWN BY	DRAWING DATE
CHECKED BY	REVISIONS
RG	12/14/20

HVAC B/O

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

LEARY

FIRST FLOOR PLAN

ALL FLOORING B/O

FL-1: 9'-0" CEILING HT.
6'-10 1/2" WINDOW HT.

SCALE
1/8" = 1'-0"

SITE LOCATION: WEST BARNSTABLE, MA
WIND SPEED (ULT/ASD): 140MPH/108MPH
EXPOSURE CATEGORY: B
SNOW LOAD (GROUND/ASD): 30PSF/25PSF

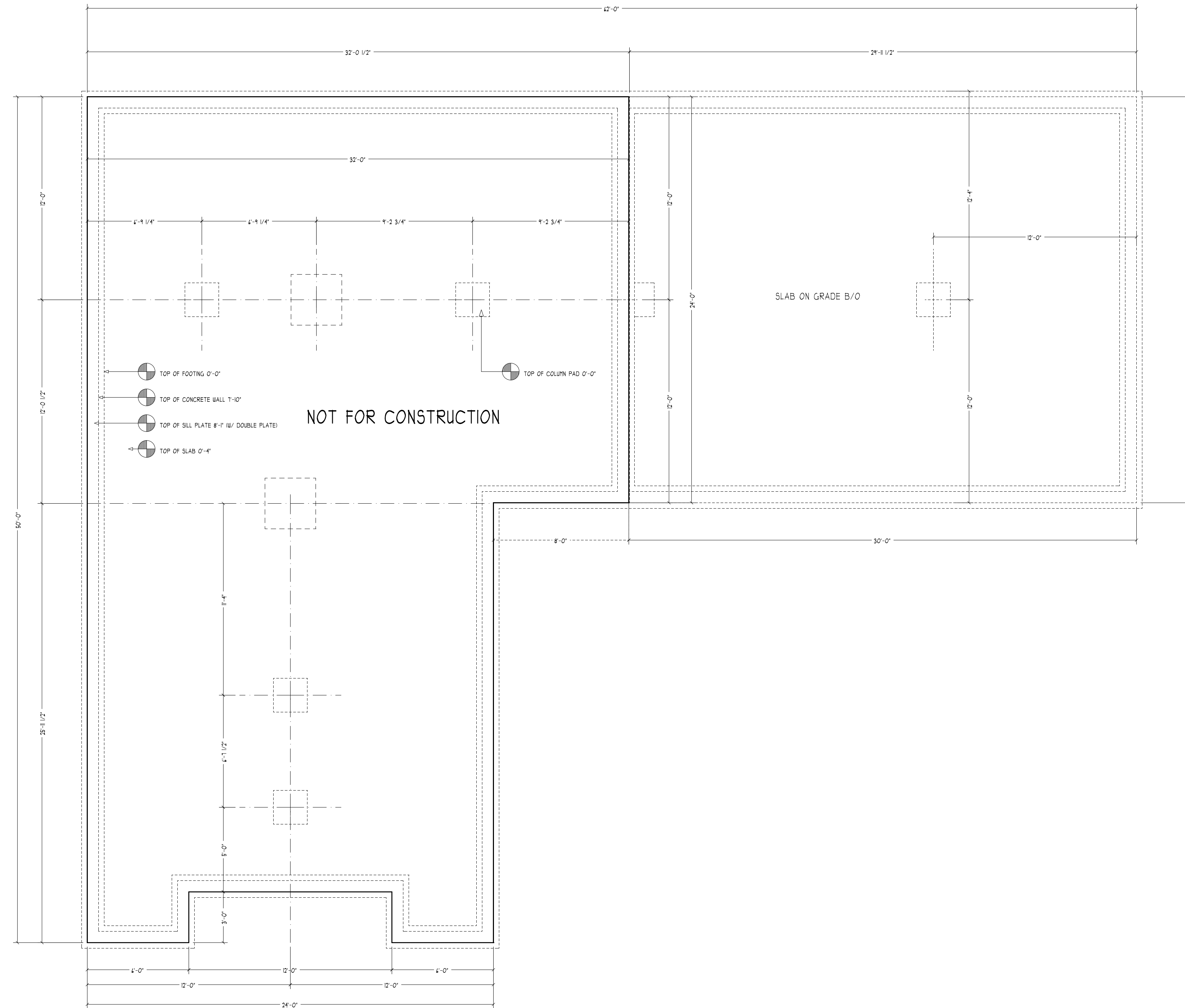
**HUNTINGTON
HOMES, INC.**

344 FASSETT RD, EAST MONTPELIER, VERMONT 05651
OFFICE (802) 479-3625 FAX (802) 479-0575

PROJECT: # 10318

SHEET SIZE: 11x17

DRAWING NO: **A-1**



PRELIMINARY PLANS
NOT FOR CONSTRUCTION

LEARY

FOUNDATION PLAN

SITE LOCATION: WEST BARNSTABLE, MA
WIND SPEED (ULT/ASD): 140MPH/108MPH
EXPOSURE CATEGORY: B
SNOW LOAD (GROUND/ASD): 30PSF/25PSF

SCALE
1/8" = 1'-0"

**HUNTINGTON
HOMES, INC.**

344 FASSETT RD, EAST MONTPELIER, VERMONT 05651
OFFICE (802) 479-3625 FAX (802) 479-0575

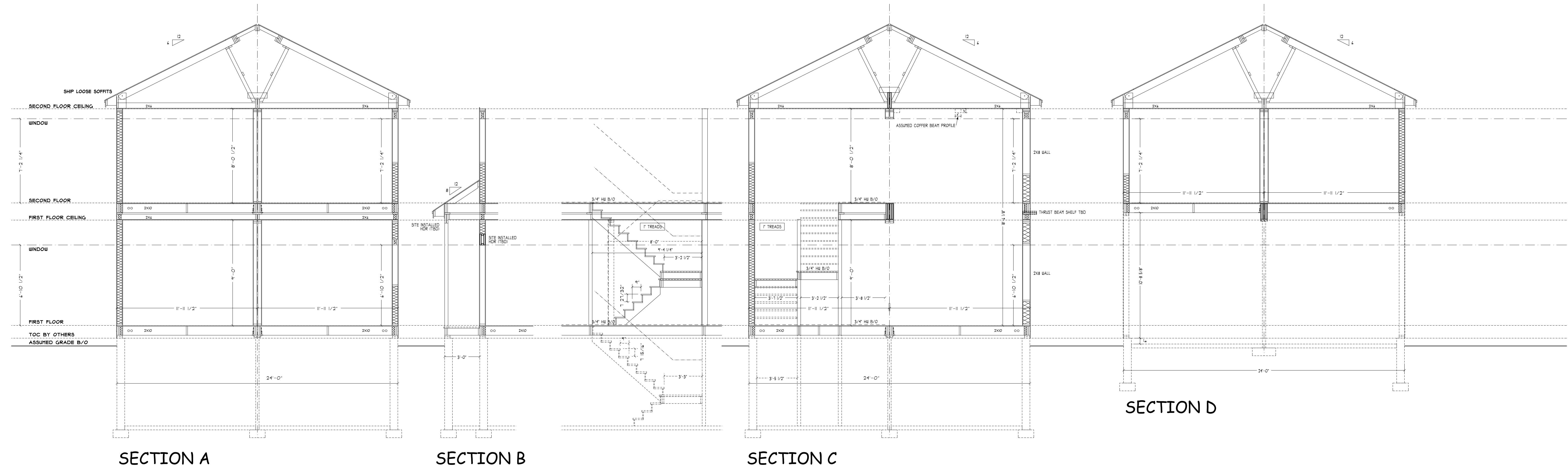
PROJECT: # 10318

SHEET SIZE: 11x17

DRAWING NO: **F0-1**

PROJECT PROFESSIONAL OF RECORD	
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DRAWN BY	DRAWING DATE
CHECKED BY	REVISIONS
RG	12/14/20



SECTION D

SECTION A

SECTION B

SECTION C

PROJECT PROFESSIONAL OF RECORD

DRAWN BY	DRAWING DATE
CHECKED BY	REVISIONS
RG	12/14/20

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

LEARY

BUILDING SECTIONS

SITE LOCATION: WEST BARNSTABLE, MA
WIND SPEED (ULT/ASD): 140MPH/108MPH
EXPOSURE CATEGORY: B
SNOW LOAD (GROUND/ASD): 30PSF/25PSF

SCALE
1/8" = 1'-0"

HUNTINGTON
HOMES, INC.

344 FASSETT RD, EAST MONTPELIER, VERMONT 05651
OFFICE (802) 479-3625 FAX (802) 479-0575

PROJECT: # 10318

SHEET SIZE: 11x17

DRAWING NO: SEC-1

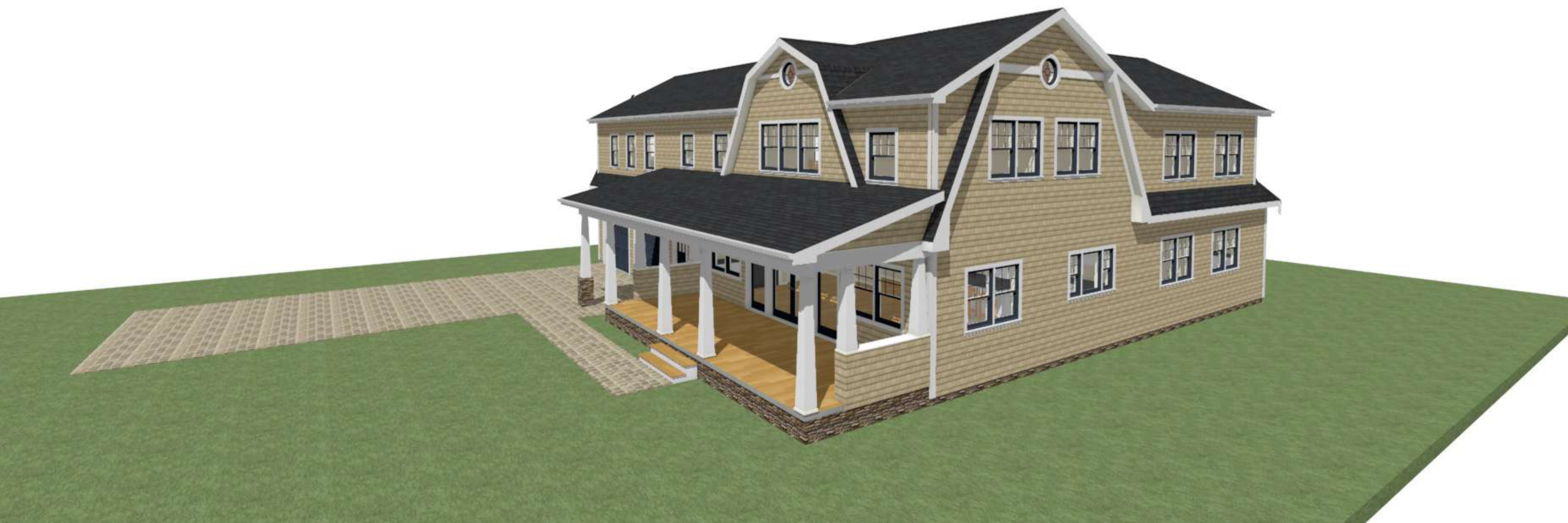


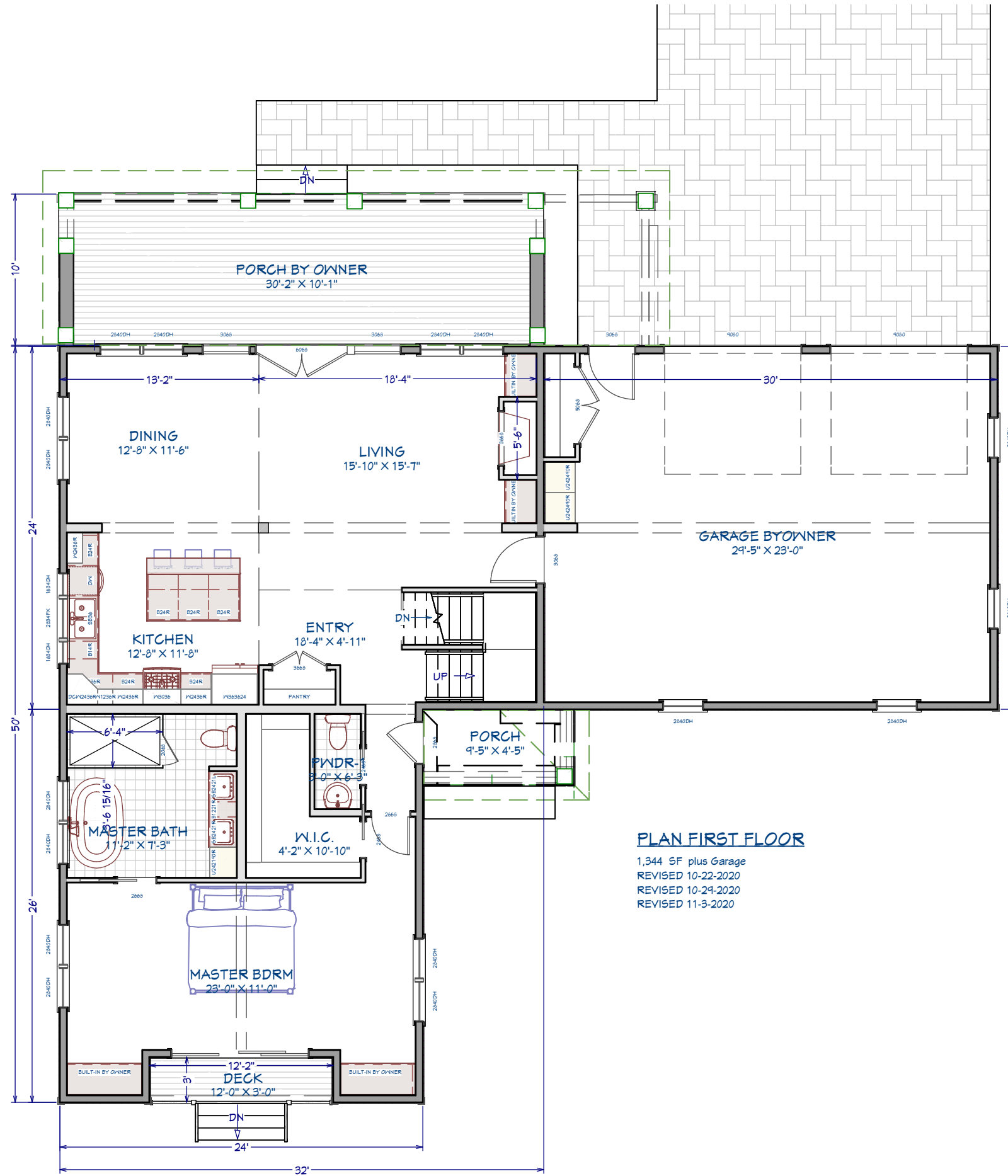






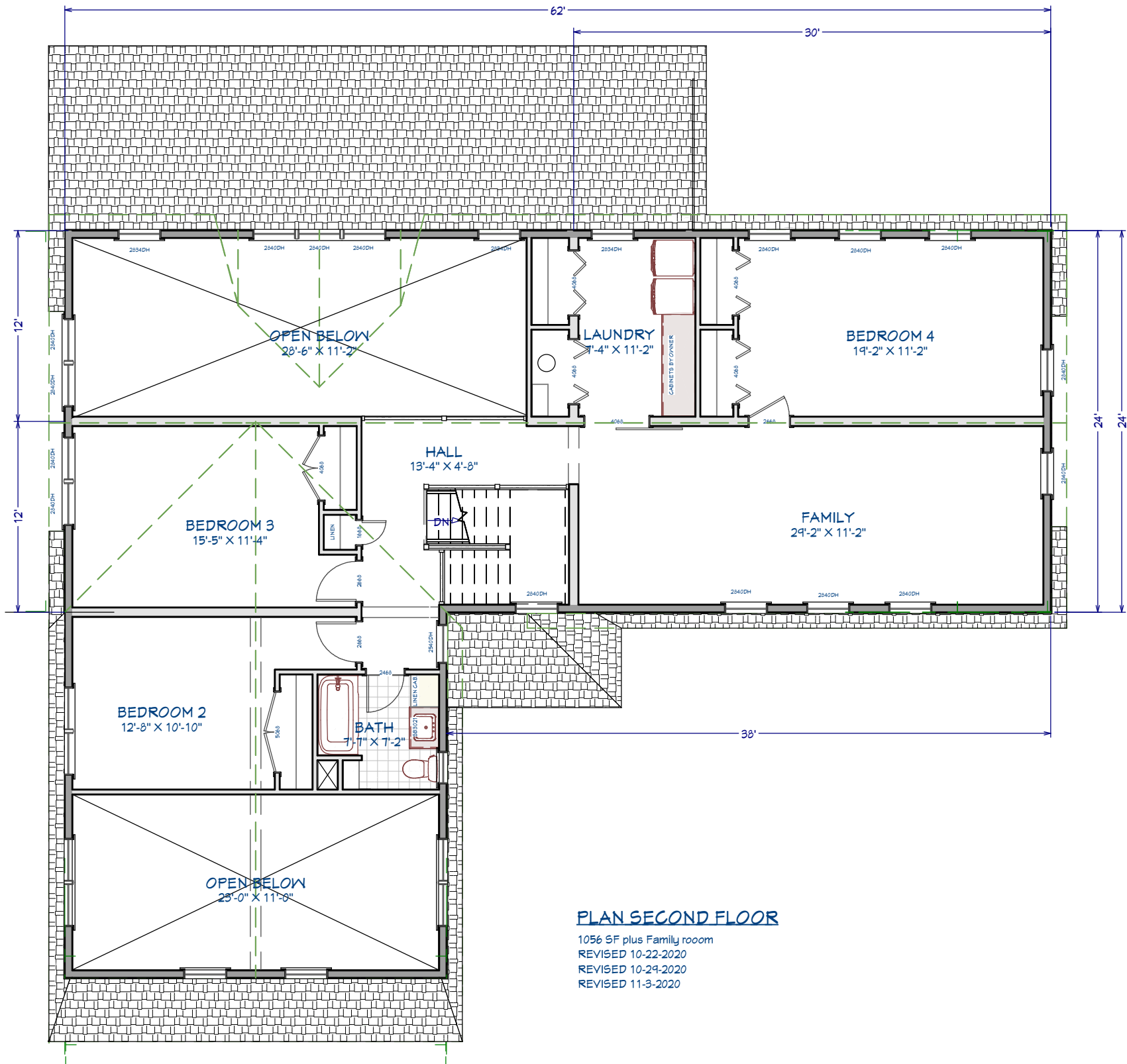






PLAN FIRST FLOOR

1,344 SF plus Garage
 REVISED 10-22-2020
 REVISED 10-29-2020
 REVISED 11-3-2020



PLAN SECOND FLOOR

1056 SF plus Family room
 REVISED 10-22-2020
 REVISED 10-29-2020
 REVISED 11-3-2020

WINDOW SCHEDULE

Required Egress: 3.4 SF Mass. Double Hung Window Opening

No.	Qty	Manufacturer Number	Rough Opening	Area	(SF) Clear Opening	Meets Egress?	(SF) Light Area	(SF) Vent Area	+/- Design Pressure	U-Factor	SHGC ²	Remarks
A	38	ELDH3456	2'-10 1/2" x 4'-8 1/4"	12.97	4.81	Y	9.11	4.81	40	0.28	0.27	Marvin Elevate Double Hung 11/16" Double Pane Low "E" w/argon
A/B.B	4	ELDH3456	2'-10 1/2" x 4'-8 1/4"	12.97	4.81	Y	9.11	4.81	40	0.28	0.27	Marvin Elevate Double Hung 11/16" Double Pane Low "E" w/argon
B	3	ELDH2240	1'-10 1/2" x 3'-4 1/4"	5.93	1.89	N	3.42	1.89	40	0.28	0.27	Marvin Elevate Double Hung 11/16" Double Pane Low "E" w/argon
C	1	ELDH3240	2'-8 1/2" x 3'-4 1/4"	8.69	2.92	N	5.6	2.92	40	0.28	0.27	Marvin Elevate Double Hung 11/16" Double Pane Low "E" w/argon
Total Window Area:				571.22								

DOOR SCHEDULE

No.	Qty	Manufacturer Number	Rough Opening	Area	Door Size	(SF) Light Area	(SF) Vent Area	U-Factor	SHGC ²	Remarks	
1	1	ELSFD9068	8'-11 1/2" x 6'-10 1/2"	61.59	9068	41.14	15.8	0.30	0.29	Marvin-Elevate Sliding French Door 3/4" Insulating Glass low "E" w/Argon	
2	1	ELIFD3068	3'-1 5/16" x 6'-10 1/2"	21.38	3068	13.22	17.38	0.30	0.27	Marvin-Elevate Inswing French Door 3/4" Insulating Glass low "E" w/Argon	
3	1	SSF120-3068	3'-2 1/2"x6'-10 1/2"	21.26	3068	0	0	0.14	n/a	Fire Rated Door	
4	1	ELIFD6068	6'-0" x 6'-10 1/2"	41.25	6068	26.43	17.09	0.30	0.27	Marvin-Elevate Inswing French Door 3/4" Insulating Glass low "E" w/Argon	
5	2	ELIFD3068	3'-1 5/16" x 6'-10 1/2"	21.38	3068	13.22	17.38	0.30	0.27	Marvin-Elevate Inswing French Door 3/4" Insulating Glass low "E" w/Argon	
6/B.B	1	S4812 3068	3'-2 1/2"x6'-10 1/2"	21.26	3068	2.19	0	0.19	0.08	Thermatru Fiberglass Entry -1/4 Glass	
Total Door Area:				209.49							

Client Name: Leary

Project #: 10318

Date: 2/10/2021

Exterior Finish

A strong alternative to vinyl, our Ultrex[®] pultruded fiberglass exterior finish is applied through a patented process to provide a superior, consistent finish. The American Architectural Manufacturers Association (AAMA) awards certifications to materials that pass numerous, rigorous tests. These tests simulate the harsh conditions that a finish will encounter throughout the life of the window or door. Passing these specification tests and achieving AAMA 624 verification gives independent verification that the Ultrex finish is best in class among fiberglass products.

Built for durability and low-maintenance, our Ultrex finish is 3x thicker than competitive finishes, with a smooth consistency and strong finish that resists fading, chalking, peeling and cracking, even in the darkest colors. If a design change calls for a new color down the road, our material can be painted without voiding our warranty. Six colors are available in neutral and dark tones.

Selected: Pebble Gray





Historic Districts (OKH or HMSWHD) Abutter List for Subject Parcel 156038

Direct abutters – all parcels that touch subject property including those across the street or way that would touch but for the road.

Parcel ID	Owner 1	Owner 2	Address Line 1	Address Line 2	City	State	Zip
156017	ADAMS, WILLIAM B & STREETER, ELLEN L EXE	C/O ADAMS, WILLIAM B	820 MAIN ST./RTE 6A		WEST BARNSTABLE	MA	02668-1145
156018	SPANO, THOMAS C & SUZANNE		10 SALT MEADOW LN		WEST BARNSTABLE	MA	02668
156038	GREER, BRIAN M		35 PINKHAM ROAD		SANDWICH	MA	02563
156039	BARNSTABLE, TOWN OF (LB)		367 MAIN STREET		HYANNIS	MA	02601
156045	KLVANA, L TIMOTHY & LYONS ELIZABETH		123 CEDAR LANE		RIDGEFIELD	CT	06877
156046	CRAFT, THOMAS J & JACQUELYN B		253 ROCKET RD		TITUSVILLE	FL	32780



Barnstable Old Kings Highway Historic District Committee

200 Main Street, Hyannis, MA 02601, Tel 508.862.4787 Eml erin.logan@town.barnstable.ma.us

APPLICATION, CERTIFICATE OF APPROPRIATENESS

Application is hereby made, with five (5) complete sets, for the issuance of a Certificate of Appropriateness under Section 6 of Chapter 470, Acts and Resolves of Massachusetts, 1973, for proposed work as described below and on plans, drawings, or photographs accompanying this application for:

Check all categories that apply;

1. Building construction: New Addition Alteration
2. Type of Building: House Garage/barn Shed Commercial Other
3. Exterior Painting, roof new roof color/material change, of trim, siding, window, door
4. Sign: New Sign Existing Sign Repainting Existing Sign
5. Structure: Fence Wall Flagpole Retaining wall Tennis court Other
6. Pool Swimming Other man-made pool Solar panels Other

Type or Print Legibly: Date Jan. 22, 2021

NOTE: All applications must be signed by the current owner

Owner (print): Anthony Franze Telephone #: 617-803-6872
 Address of Proposed Work: 2310 main St. Village _____ Map Lot # _____
 Mailing Address (if different) W. Barnstable, Ma 02608
 Owner's Signature [Signature]

Description of Proposed Work: Give particulars of work to be done:
Construct and build two 3-4' retaining walls with a step down between the two. Retaining wall is to be built out of rock boulders.

Agent or Contractor (print): _____ Telephone #: _____
 Address: _____ Email: _____
 Contractor/Agent signature: _____

<i>For committee use only</i>	This Certificate is hereby APPROVED / DENIED
Date _____	Members signatures _____
Conditions of approval _____	

CERTIFICATE OF APPROPRIATENESS SPEC SHEET Please submit 5 copies

Foundation Type: (Max. 12" exposed) (material - brick/cement, other) _____

Siding Type: Clapboard ___ shingle ___ other ___
Material: red cedar ___ white cedar ___ other _____ Color: _____

Chimney Material: _____ Color: _____

Roof Material: (make & style) _____ Color: _____

Roof Pitch(s): (7/12 minimum) _____ (specify on plans for new buildings, major additions)

Window and door trim material: wood ___ other material, specify _____

Size of cornerboards _____ size of casings (1 X 4 min.) _____ color _____

Rakes 1st member _____ 2nd member _____ Depth of overhang _____

Window: (make/model) _____ material _____ color _____
(Provide window schedule on plan for new buildings, major additions)

Window grills (please check all that apply):
true divided lights ___ exterior glued grills ___ grills between glass ___ removable interior ___ None ___

Door style and make: _____ material _____ Color: _____

Garage Door, Style _____ Size of opening _____ Material _____ Color _____

Shutter Type/Style/Material: _____ Color: _____

Gutter Type/Material: _____ Color: _____

Deck material: wood ___ other material, specify _____ Color: _____

Skylight, type/make/model/: _____ material _____ Color: _____ Size: _____

Sign size: _____ Type/Materials: _____ Color: _____

Fence Type (max 6') Style _____ material: _____ Color: _____

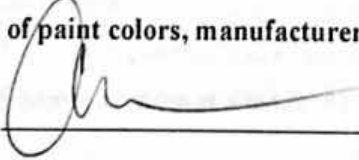
Retaining wall: Material: Rock Balders

Lighting, freestanding _____ on building _____ illuminating sign _____

OTHER INFORMATION: _____

THE ATTACHED CHECK LIST MUST BE COMPLETED AND SUBMITTED

Please provide samples of paint colors, manufacturers brochure of windows, doors, garage door, fences, lamp posts etc

Signed: (plan preparer)  _____ Print Name Anthony Franze

5. SIGNS

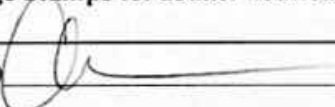
- Diagram of sign, showing graphics, size, design and height of post, color and materials.
- Spec sheet.
- Site Plan on a GIS map or mortgage survey, OR photographs OR to-scale sketch of building elevation showing location of proposed sign; and any tree to be removed near a freestanding sign.

6. SOLAR PANELS

- Drawing of location of panels on house showing roof and panel dimensions.
- Site plan showing location of building on property. (Assessors map may be submitted)
- Height of solar panel above the roof.
- Color of panels
- Finish (matt or glossy)

7. FEES

- Filing fee** according to schedule, made payable to the Town of Barnstable
- Legal ad fee \$19.84** check made payable to the Town of Barnstable for the required legal ad notification
Note the filing fee and legal ad fees need to be on separate checks. We apologize in advance for any inconvenience this may cause.
- First Class Postage Stamps** for abutter notification. Please contact the Barnstable Old King's Highway Office

SIGNED (plan preparer)  Print Anthony Franze

Date: Jan 22, 2021 Tel. Phone no's: 617-803-6872
 Email _____

NOTE: *The Old Kings Highway Historic District Committee MAY DENY INCOMPLETE APPLICATIONS*

ATTENDANCE AT MEETINGS: *If the applicant or his/her representative is not present during the hearing is scheduled, the application may be either CONTINUED OR DENIED*

APPEAL PERIOD	APPROVED PLANS	PLAN PICK UP
----------------------	-----------------------	---------------------

There is a ten (10) day appeal period, plus a 4 day waiting period for approved plans from the date the decision is filed with Town Clerk. This is necessary for each Certificate of Appropriateness and/or Certificate for Demolition issued by the Old King's Highway Committee. Plans approved by the Old King's Highway Historic District Committee may be picked up at Planning & Development Department, 200 Main Street, Hyannis, after expiration of the 14 day "wait" period. If the 14th day falls on a Saturday, your plans will be available the afternoon of the following business day.

DENIALS

Applications that are denied may be appealed to the Old Kings Highway Regional Historic District Commission within 10 days of the filing of the decision with the Town Clerk. For more information, see the Bulletin of the Old Kings Highway Regional Historic District Commission.

BUILDING PERMITS, OTHER AGENCY CONTACTS
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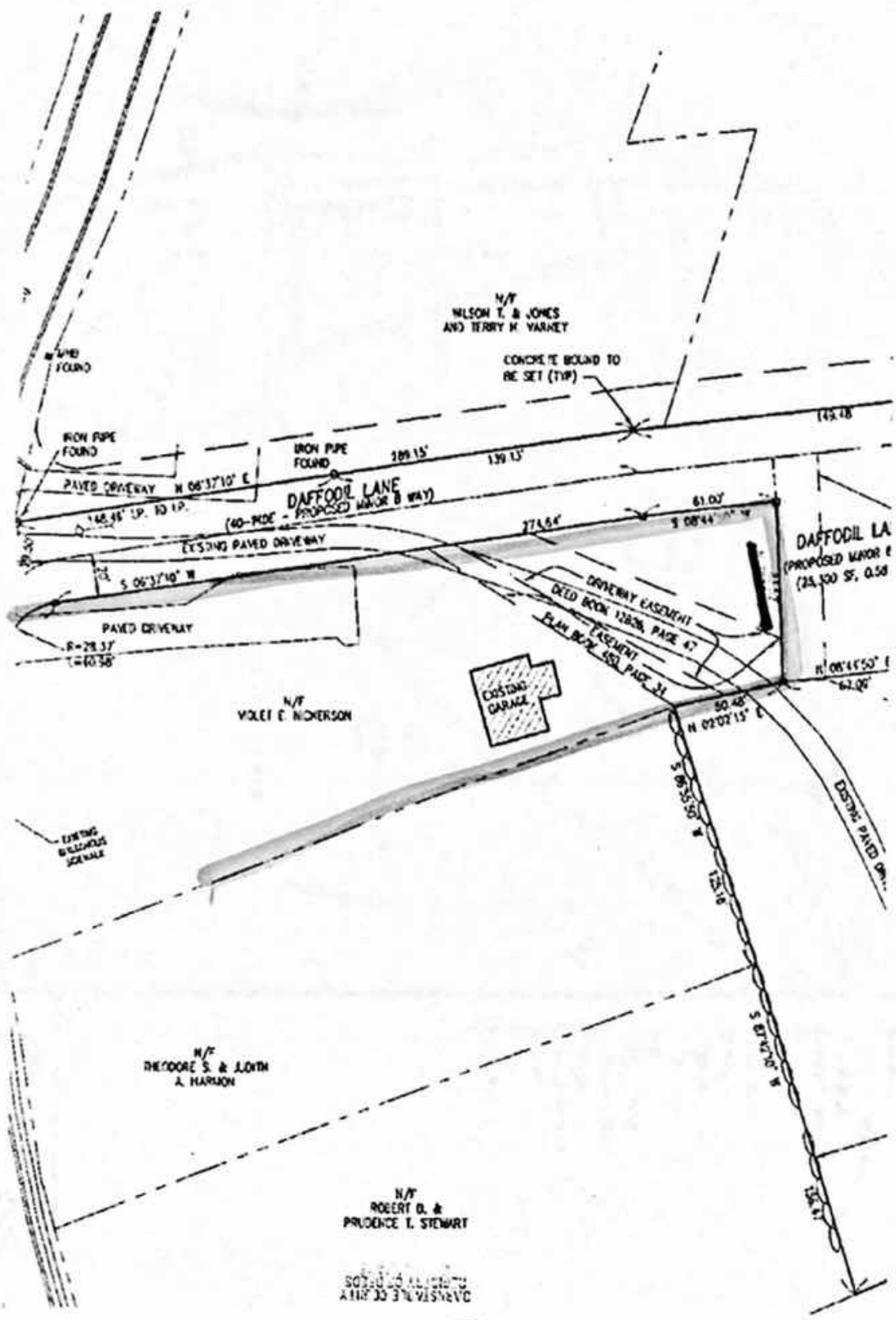
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QUESTIONS ABOUT YOUR APPLICATION? PLEASE CALL THE BARNSTABLE OLD KINGS HIGHWAY OFFICE AT 508 862-4787
--

TRY USE

Raymond P. Long
 City Engineer
 Madison, Wis.
 Dan P. [unclear]
 Alicia B. [unclear]

NOTE:
 APPROVAL OF THIS PLAN SUBJECT TO COMPLIANCE
 WITH COVENANT TO BE RECORDED HEREIN.



Retaining Wall
 Property lines

TOWN OF BARNSTABLE PROPERTY MAPS



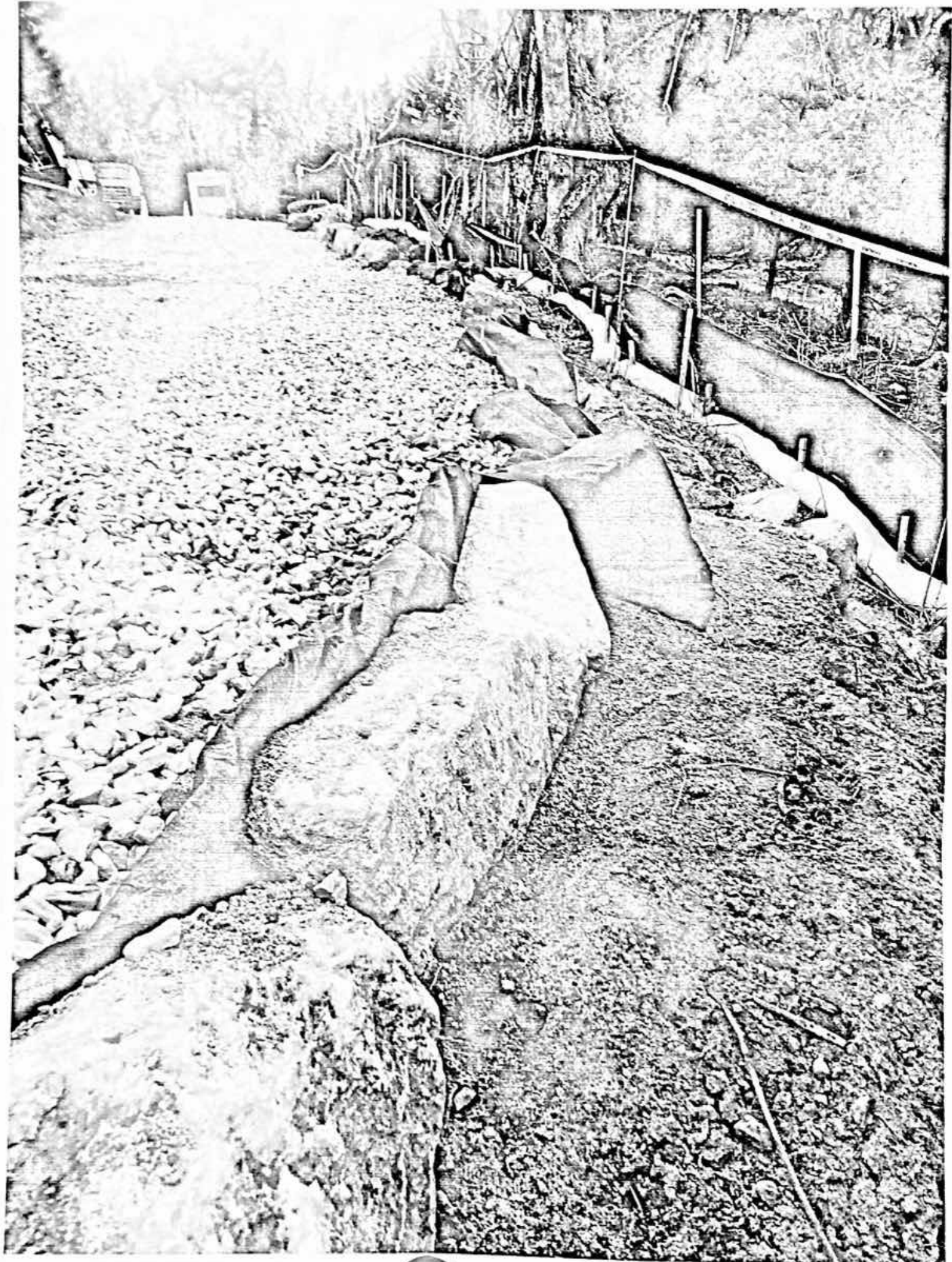
- Legend**
- Town Boundary
 - State Street
 - Main Street
 - Main Street SA
 - Main Street SE
 - Water
 - Sewer
 - Gas
 - Electric
 - Telephone
 - Cable
 - Fire
 - Police
 - School
 - Church
 - Cemetery
 - Park
 - Golf Course
 - Airport
 - Railroad
 - Highway
 - Interstate
 - State
 - Local
 - Private
 - Unimproved
 - Improved
 - Paved
 - Gravel
 - Dirt
 - Other

Map scale: 1 inch = 100 feet
 Approximate scale: 1:12,500

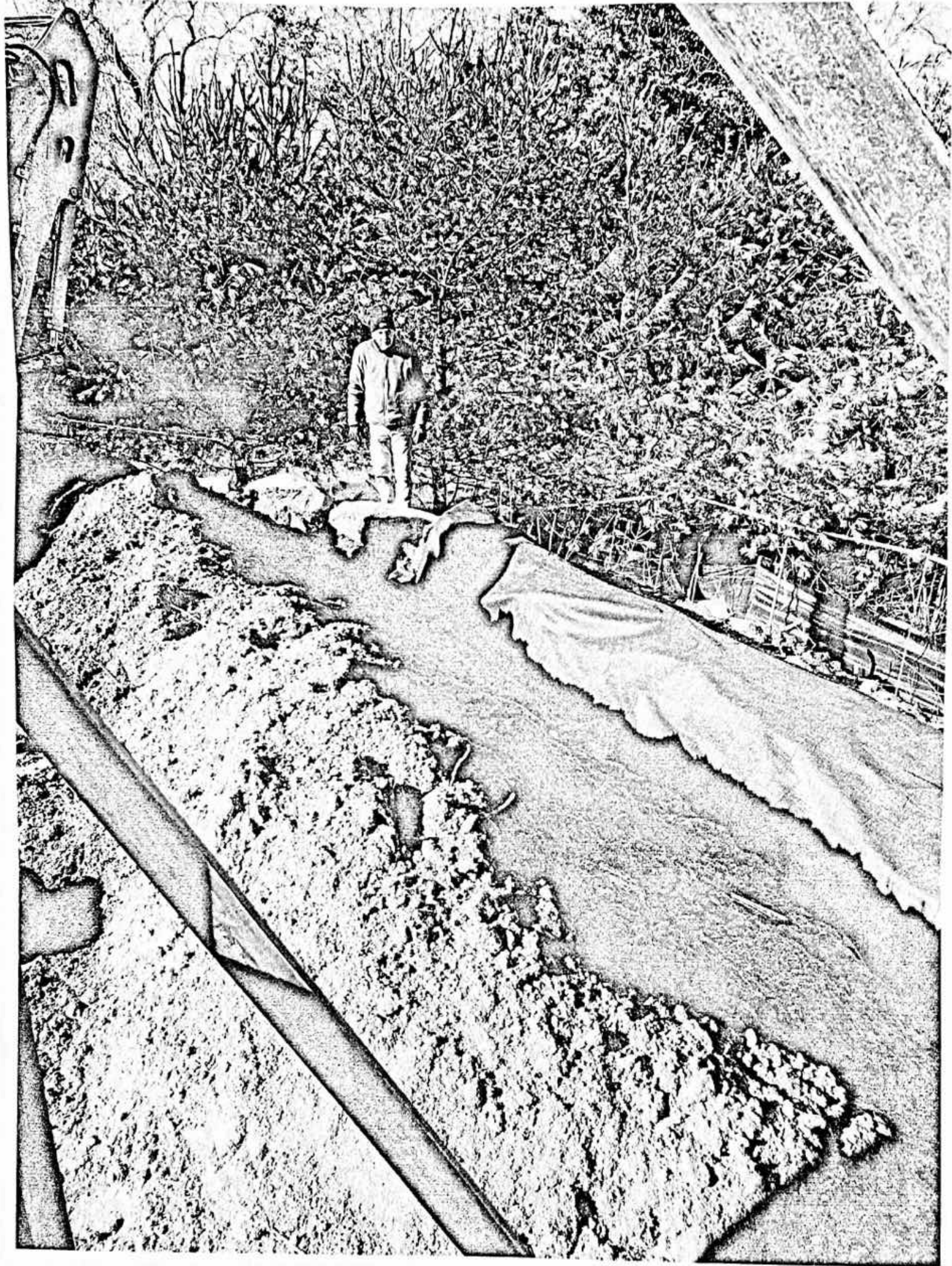
This map is a representation of the current state of the town's property records. It is not a warranty of accuracy. The town is not responsible for any errors or omissions. The map is provided for informational purposes only. The town is not responsible for any damages or losses resulting from the use of this map.

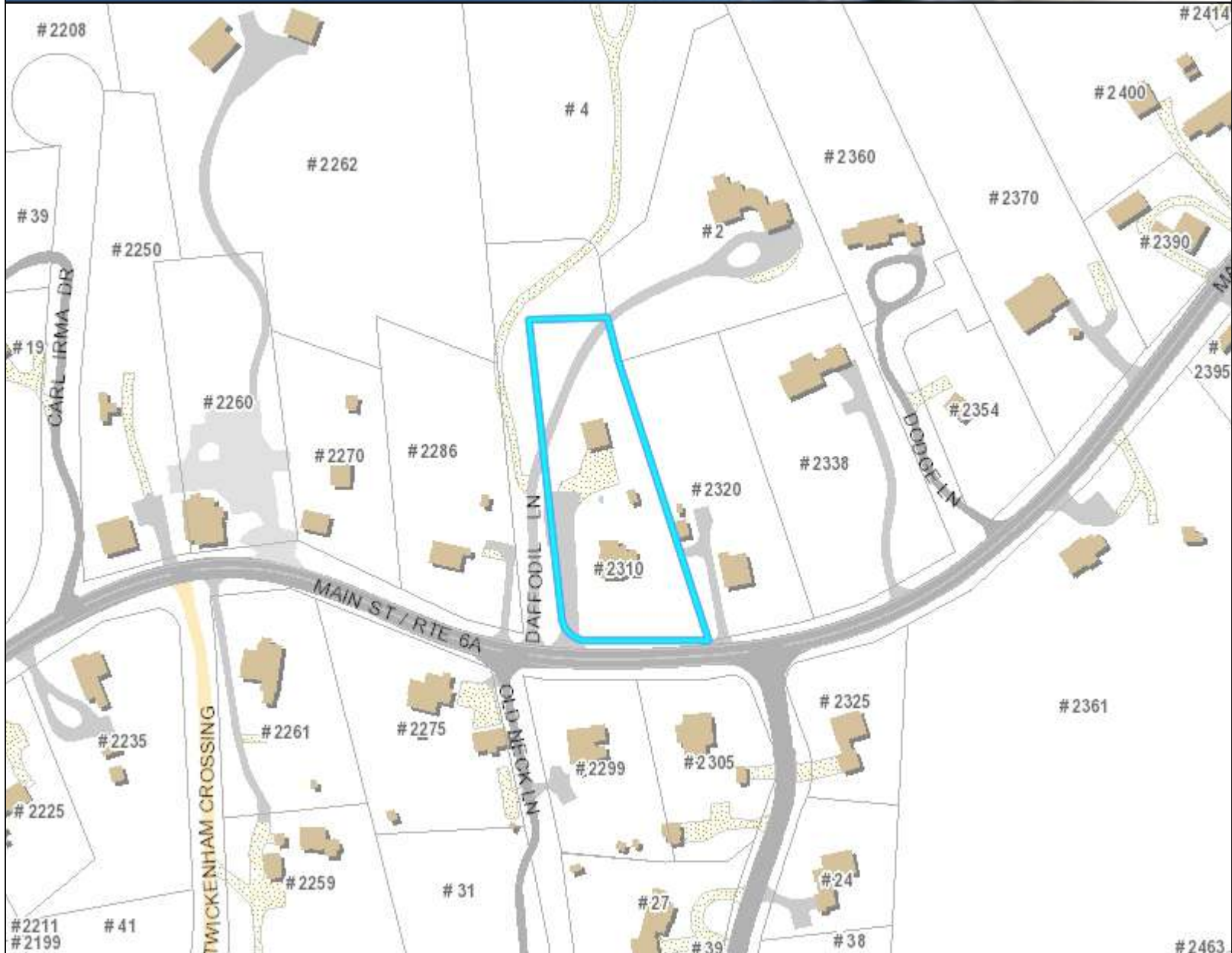
For more information, please contact the Town of Barnstable GIS Clerk. The map is available for purchase. The price is \$10.00 per copy. The map is available in both print and digital formats. The digital format is available for download. The print format is available for purchase. The map is available in both English and Spanish. The map is available in both large and small formats. The map is available in both color and black and white. The map is available in both PDF and JPEG formats. The map is available in both vector and raster formats. The map is available in both 2D and 3D formats. The map is available in both desktop and mobile formats. The map is available in both web and print formats. The map is available in both online and offline formats. The map is available in both public and private formats. The map is available in both open and closed formats. The map is available in both free and paid formats. The map is available in both legal and illegal formats. The map is available in both ethical and unethical formats. The map is available in both moral and immoral formats. The map is available in both good and bad formats. The map is available in both right and wrong formats. The map is available in both just and unjust formats. The map is available in both fair and unfair formats. The map is available in both honest and dishonest formats. The map is available in both kind and unkind formats. The map is available in both gentle and ungentle formats. The map is available in both soft and hard formats. The map is available in both weak and strong formats. The map is available in both easy and difficult formats. The map is available in both simple and complex formats. The map is available in both clear and unclear formats. The map is available in both bright and dim formats. The map is available in both loud and quiet formats. The map is available in both fast and slow formats. The map is available in both high and low formats. The map is available in both up and down formats. The map is available in both left and right formats. The map is available in both front and back formats. The map is available in both top and bottom formats. The map is available in both inside and outside formats. The map is available in both above and below formats. The map is available in both between and among formats. The map is available in both against and for formats. The map is available in both with and without formats. The map is available in both by and from formats. The map is available in both to and towards formats. The map is available in both into and out of formats. The map is available in both on and off formats. The map is available in both over and under formats. The map is available in both above and below formats. The map is available in both between and among formats. The map is available in both against and for formats. The map is available in both with and without formats. The map is available in both by and from formats. The map is available in both to and towards formats. The map is available in both into and out of formats. The map is available in both on and off formats. The map is available in both over and under formats.

Town of Barnstable GIS Clerk
 100 State Street
 Barnstable, MA 02532
 508-833-2000





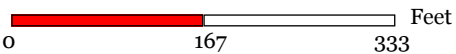




Legend

- Parcels
- Town Boundary
- + Railroad Tracks
- Buildings
- Approx. Building
- Buildings
- Painted Lines
- Parking Lots
- Paved
- Unpaved
- Driveways
- Paved
- Unpaved
- Roads
- Paved Road
- Unpaved Road
- Bridge
- Paved Median
- Streams
- Marsh
- Water Bodies

Map printed on: 2/23/2021



Approx. Scale: 1 inch = 167 feet



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Town of Barnstable GIS Unit

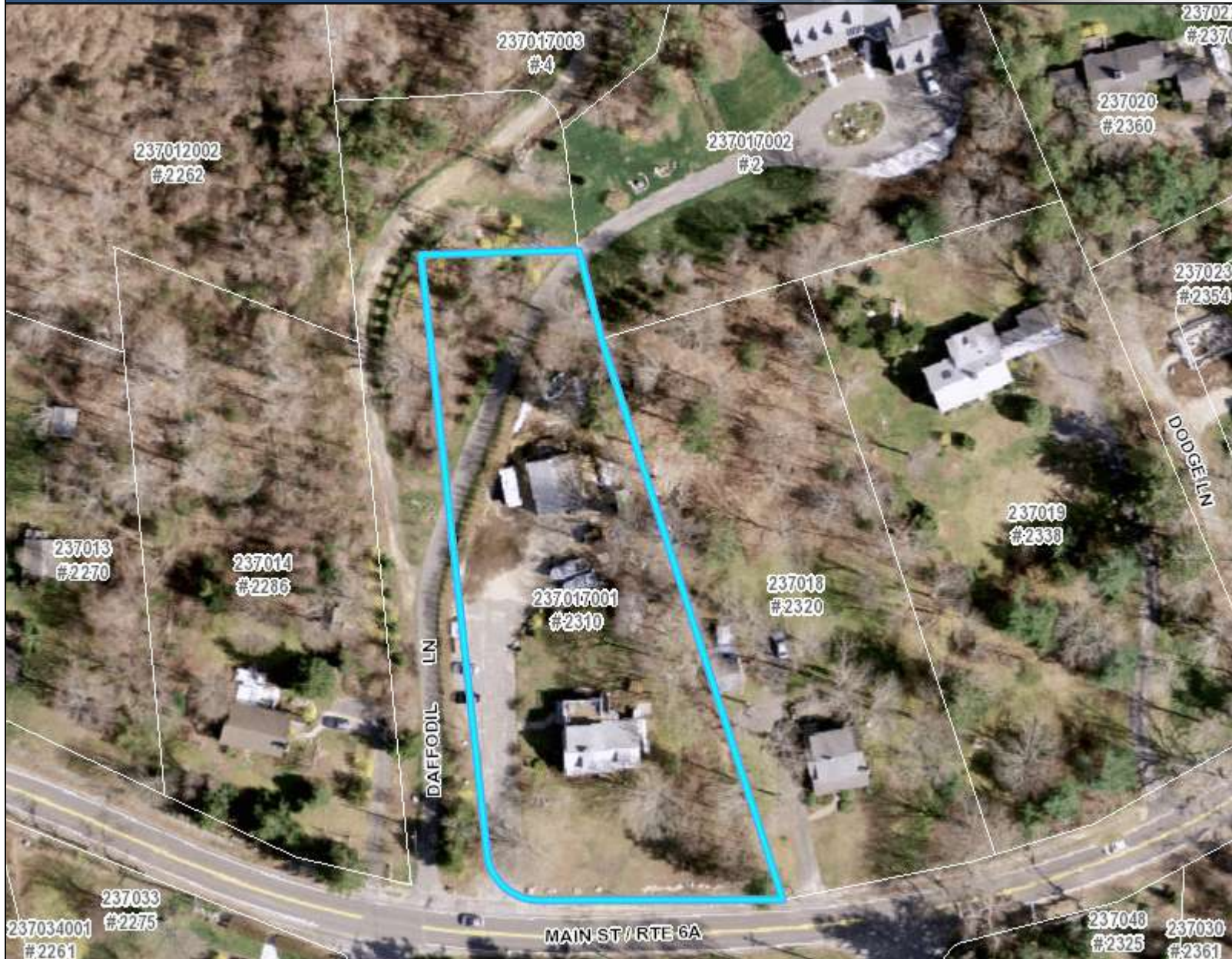
367 Main Street, Hyannis, MA 02601

508-862-4624

gis@town.barnstable.ma.us

Legend

Road Names



Map printed on: 2/23/2021



Approx. Scale: 1 inch = 83 feet



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gis@town.barnstable.ma.us

Historic Districts (OKH or HMSWHD) Abutter List for Subject Parcel 237017001

Direct abutters – all parcels that touch subject property including those across the street or way that would touch but for the road.

Parcel ID	Owner 1	Owner 2	Address Line 1	Address Line 2	City	State	Zip
237012002	BEARSE, SCOTT F		2262 MAIN STREET		WEST BARNSTABLE	MA	02668
237014	JONES, WILSON T		2286 MAIN STREET		WEST BARNSTABLE	MA	02668
237017001	FRANZE, ANTHONY E		2310 MAIN ST		WEST BARNSTABLE	MA	02668
237017002	EDDY, WILLIAM M		2294 MAIN STREET		WEST BARNSTABLE	MA	02668
237017003	EDDY, MARY BETH		2294 MAIN STREET		WEST BARNSTABLE	MA	02668
237018	HARMON JUDITH A TR	JUDITH A HARMON 2007 TRUST	2320 MAIN STREET		WEST BARNSTABLE	MA	02668
237046	CASS, ROBERTA L		2299 MAIN ST./RTE 6A(BARN.)		WEST BARNSTABLE	MA	02668
237047	MOORE, JEFFERY P & ANDREA M		2305 MAIN ST		WEST BARNSTABLE	MA	02668



Barnstable Old Kings Highway Historic District Committee

200 Main Street, Hyannis, MA 02601, Tel 508.862.4787 Eml erin.logan@town.barnstable.ma.us

APPLICATION, CERTIFICATE OF APPROPRIATENESS

Application is hereby made, with five (5) complete sets, for the issuance of a Certificate of Appropriateness under Section 6 of Chapter 470, Acts and Resolves of Massachusetts, 1973, for proposed work as described below and on plans, drawings, or photographs accompanying this application for:

Check all categories that apply;

- 1. Building construction: New Addition Alteration
- 2. Type of Building: House Garage/barn Shed Commercial Other
- 3. Exterior Painting, roof new roof color/material change, of trim, siding, window, door
- 4. Sign: New Sign Existing Sign Repainting Existing Sign
- 5. Structure: Fence Wall Flagpole Retaining wall Tennis court Other
- 6. Pool Swimming Other man-made pool Solar panels Other

Type or Print Legibly: Date 02/18/2021

NOTE: All applications must be signed by the current owner

Owner (print): Bob Kennedy Telephone #: 508-776-7316

Address of Proposed Work: 3885 Main Street, Barnstable 02630 Village _____ Map Lot # _____

Mailing Address (if different) _____

Owner's Signature Bob Kennedy

Description of Proposed Work: Give particulars of work to be done: Installation of roof mounted PV solar panels- 4.095 Kw system- 13 total panels- 125A

Agent or Contractor (print): Daniel Kelley/Freedom Forever Massachusetts LLC Telephone #: 774-218-4474

Address: 135 Robert Treat Paine Dr., Taunton, MA 02780 Email: dlapira@freedomforever.com

Contractor/Agent' signature: D. Kelley

For committee use only **This Certificate is hereby APPROVED / DENIED**

Date _____ Members signatures _____

Conditions of approval _____

CERTIFICATE OF APPROPRIATENESS SPEC SHEET Please submit 5 copies

Foundation Type: (Max. 12" exposed) (material - brick/cement, other) _____

Siding Type: Clapboard ___ shingle ___ other _____
Material: red cedar ___ white cedar ___ other _____ Color: _____

Chimney Material: _____ Color: _____

Roof Material: (make & style) composition shingles Color: _____

Roof Pitch(s): (7/12 minimum) _____ (specify on plans for new buildings, major additions)

Window and door trim material: wood _____ other material, specify _____

Size of cornerboards _____ size of casings (1 X 4 min.) _____ color _____

Rakes 1st member _____ 2nd member _____ Depth of overhang _____

Window: (make/model) _____ material _____ color _____
(Provide window schedule on plan for new buildings, major additions)

Window grills (please check all that apply):
true divided lights ___ exterior glued grills ___ grills between glass ___ removable interior ___ None ___

Door style and make: _____ material _____ Color: _____

Garage Door, Style _____ Size of opening _____ Material _____ Color _____

Shutter Type/Style/Material: _____ Color: _____

Gutter Type/Material: _____ Color: _____

Deck material: wood _____ other material, specify _____ Color: _____

Skylight, type/make/model/: _____ material _____ Color: _____ Size: _____

Sign size: _____ Type/Materials: _____ Color: _____

Fence Type (max 6') Style _____ material: _____ Color: _____

Retaining wall: Material: _____

Lighting, freestanding _____ on building _____ illuminating sign _____

OTHER INFORMATION: Installation of roof mounted PV solar panels

THE ATTACHED CHECK LIST MUST BE COMPLETED AND SUBMITTED

Please provide samples of paint colors, manufacturers brochure of windows, doors, garage door, fences, lamp posts etc

Signed: (plan preparer) D. Kelley Print Name Daniel Kelley

5. SIGNS

- Diagram of sign, showing graphics, size, design and height of post, color and materials.
- Spec sheet.
- Site Plan on a GIS map or mortgage survey, OR photographs OR to-scale sketch of building elevation showing location of proposed sign; and any tree to be removed near a freestanding sign.

6. SOLAR PANELS

- Drawing of location of panels on house showing roof and panel dimensions.
- Site plan showing location of building on property. (Assessors map may be submitted)
- Height of solar panel above the roof.
- Color of panels
- Finish (matt or glossy)

7. FEES

- Filing fee** according to schedule, made payable to the Town of Barnstable
- Legal ad fee \$19.84** check made payable to the Town of Barnstable for the required legal ad notification
Note the filing fee and legal ad fees need to be on separate checks. We apologize in advance for any inconvenience this may cause.
- First Class Postage Stamps** for abutter notification. Please contact the Barnstable Old King’s Highway Office

SIGNED (plan preparer) D. Kelley Print Daniel Kelley

Date: 02/18/2021 Tel. Phone no’s: 774-218-4474
 Email dlapira@freedomforever

NOTE: *The Old Kings Highway Historic District Committee MAY DENY INCOMPLETE APPLICATIONS*

ATTENDANCE AT MEETINGS: *If the applicant or his/her representative is not present during the hearing is scheduled, the application may be either CONTINUED OR DENIED*

APPEAL PERIOD	APPROVED PLANS	PLAN PICK UP
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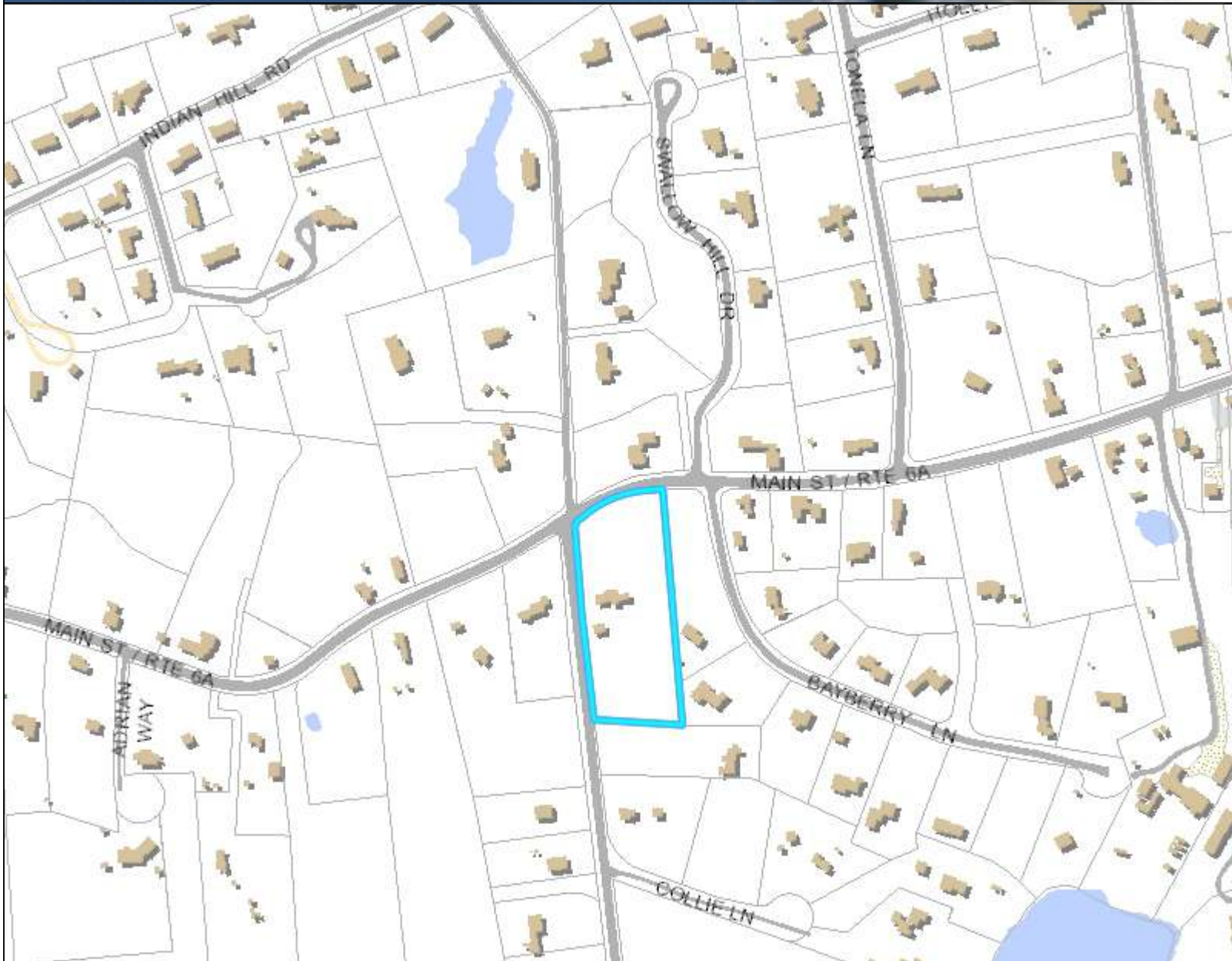
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Legend

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- Town Boundary
- + Railroad Tracks
- Buildings
 - Approx. Building
 - Buildings
- Parking Lots
 - Paved
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Map printed on: 2/23/2021



Approx. Scale: 1 inch = 333 feet



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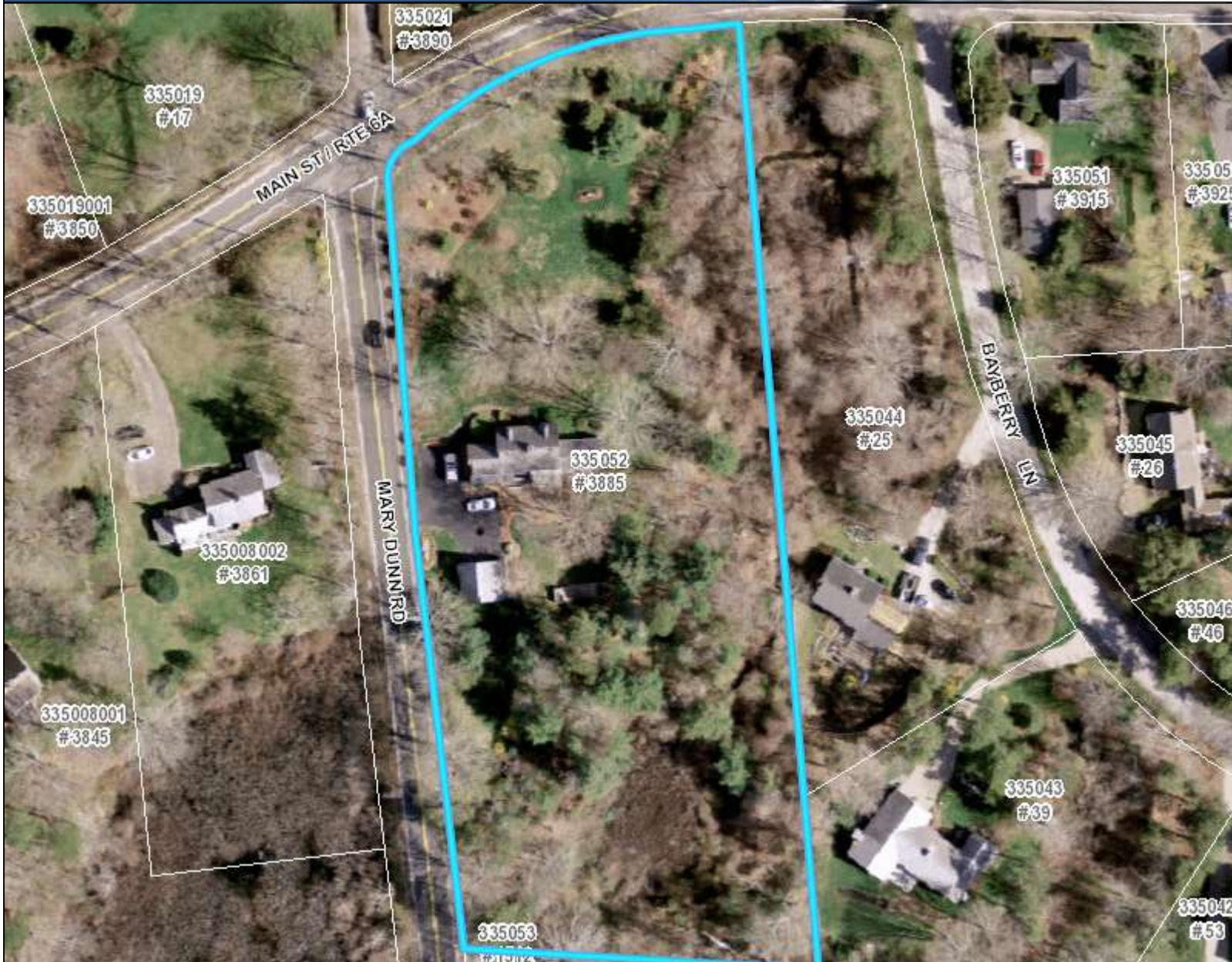
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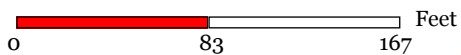
gis@town.barnstable.ma.us

Legend

Road Names



Map printed on: 2/23/2021



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Town of Barnstable GIS Unit

367 Main Street, Hyannis, MA 02601

508-862-4624

gis@town.barnstable.ma.us

PHOTOVOLTAIC SYSTEM

PV SYSTEM SUMMARY: 4.095 KW

RESIDENTIAL PHOTOVOLTAIC SYSTEM

SYSTEM SIZE (DC)	: STC: 13 X 315 = 4095W DC
	: PTC: 13 X 294.1 = 3823W DC
SYSTEM SIZE (AC)	: 5000W AC @ 240V
MODULES	: 13 X LONGI SOLAR: LR6-60HPB-315M
OPTIMIZERS	: 13 X SOLAR EDGE: P340
INVERTER	: SOLAR EDGE: SE5000H-USRGM [SI1]
TILT	: 15°, 10°
AZIMUTH	: 177°, 177°
ROOF	: COMPOSITION SHINGLE
RAFTER/TRUSS SIZE	: 2X6 RAFTER @ 24" O.C.
ATTACHMENT TYPE	: UNIRAC: SFM INFINITY MICRORAIL WITH UNIRAC SFM INFINITY RAIL-LESS
MAIN SERVICE PANEL	: EXISTING 125 AMPS MSP WITH (E) 100 AMPS MAIN BREAKER ON END FED
INTERCONNECTION	: PV BREAKER TIES IN MSP
OCPD RATING	: 30 AMPS
UTILITY	: NG - NATIONAL GRID

CITY NOTES:

THIS PROJECT COMPLIES WITH THE FOLLOWING:
 2015 INTERNATIONAL BUILDING CODE (IBC)
 2015 INTERNATIONAL RESIDENTIAL CODE (IRC)
 2015 INTERNATIONAL MECHANICAL CODE (IMC)
 2015 INTERNATIONAL PLUMBING CODE (IPC)
 2015 INTERNATIONAL FUEL GAS CODE (IFGC)
 2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
 2015 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
 2015 INTERNATIONAL SWIMMING POOL AND SPA CODE (ISpsc)
 2020 NATIONAL ELECTRICAL CODE (NEC)
 AS ADOPTED BY **TOWN OF BARNSTABLE**

CONDUIT AND CONDUCTOR SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS.

ALL SOLAR ENERGY SYSTEM EQUIPMENT SHALL BE SCREENED TO THE MAXIMUM EXTENT POSSIBLE AND SHALL BE PAINTED A COLOR SIMILAR TO THE SURFACE UPON WHICH THEY ARE MOUNTED.

MODULES SHALL BE TESTED, LISTED AND IDENTIFIED WITH FIRE CLASSIFICATION IN ACCORDANCE WITH UL 2703. SMOKE AND CARBON MONOXIDE ALARMS ARE REQUIRED PER SECTION R314 AND 315 TO BE VERIFIED AND INSPECTED BY INSPECTOR IN THE FIELD.

INSTALLATION NOTES:

- PV WIRE SHALL BE USED ON DC RUNS FOR UNGROUNDED/TRANSFORMERLESS INVERTERS.
- INSTALL CREW TO VERIFY ROOF STRUCTURE PRIOR TO COMMENCING WORK. EMT CONDUIT ATTACHED TO THE ROOF USING CONDUIT MOUNT.
- DIG ALERT (811) TO BE CONTACTED AND COMPLIANCE WITH EXCAVATION SAFETY PRIOR TO ANY EXCAVATION TAKING PLACE



SITE LOCATION:



SITE LOCATION

TABLE OF CONTENTS

PV-1	SITE LOCATION AND HOUSE AERIAL VIEW
PV-2	SITE PLAN
PV-2A	ROOF PLAN WITH MODULES LAYOUT
PV-3	MOUNTING DETAILS
PV-4	THREE LINE DIAGRAM
PV-5	EXISTING SERVICE PANEL
PV-6	NOTES AND EQUIPMENT LIST
PV-7	LABELS
PV-7A	SITE PLACARD
PV-8	OPTIMIZER CHART
PV-9 & 10	SAFETY PLAN

HOUSE AERIAL VIEW:



MODULE LOCATION

freedom
FOREVER
FREEDOM FOREVER MASSACHUSETTS
LLC
135 ROBERT TREAT PAINE DR., TAUNTON, MA 02780
Tel: (800) 385-1075

ELECTRICAL CONTRACTOR NO.
HOME IMPROVEMENT CONTRACTOR
198080; BUSINESS ELECTRICAL
CONTRACTOR LICENSE 902-EL-A1;
CONSTRUCTION SUPERVISOR
LICENSE CS-111662; MASTER
ELECTRICIAN 1136 MR
MATTHEW MARKHAM

CLIENT:

KENNEDY BOB
3885 MAIN ST BARNSTABLE,
MA 02630, MA 02630
508-776-7316

REVISIONS:

DESCRIPTION	DATE	REVISION

DATE: 2/11/2021

DESIGN BY: GREG

JOB NO.: F076258

TITLE:

SITE LOCATION AND
HOUSE AERIAL VIEW

SHEET:

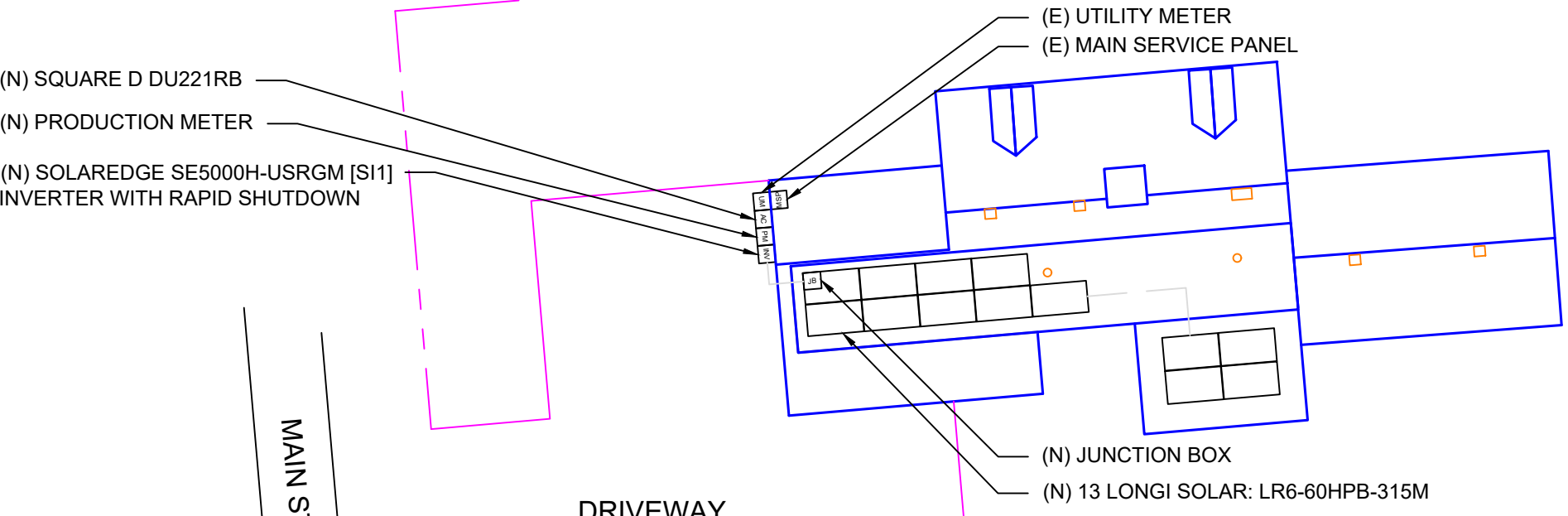
PV-1

ROOF AREA : 2239.45 SQ FT

PV SYSTEM
4.095 kW-DC
 5.000 kW-AC

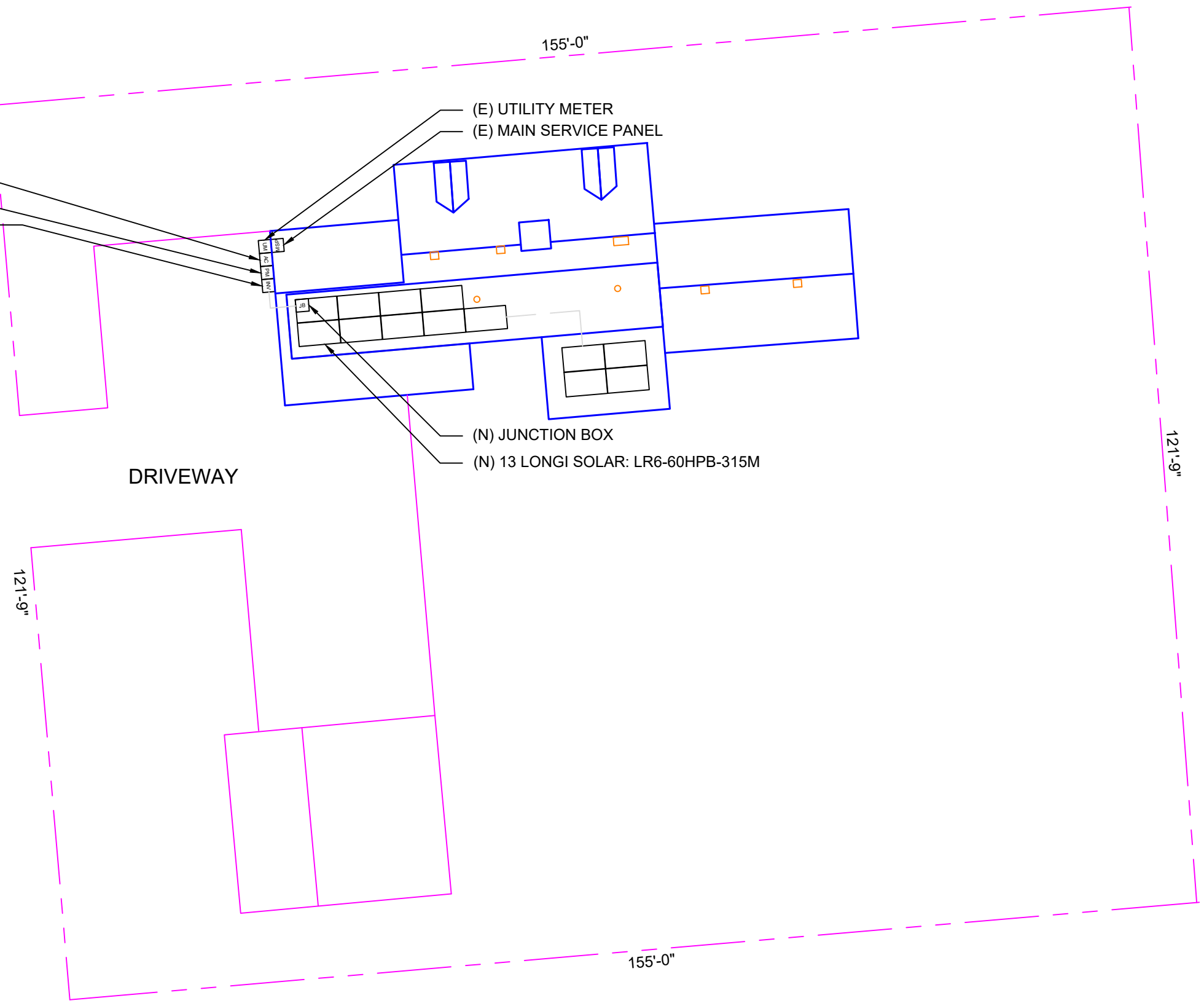


- (N) SQUARE D DU221RB
- (N) PRODUCTION METER
- (N) SOLAREEDGE SE5000H-USRGM [S11] INVERTER WITH RAPID SHUTDOWN



MAIN ST BARNSTABLE

DRIVEWAY



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

1

freedom
 FOREVER
 FREEDOM FOREVER MASSACHUSETTS
 LLC
 135 ROBERT TREAT PAINE DR., TAUTON, MA 02780
 Tel: (800) 385-1075

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 198080; BUSINESS ELECTRICAL
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 3885 MAIN ST BARNSTABLE,
 MA 02630, MA 02630
 508-776-7316

REVISIONS:

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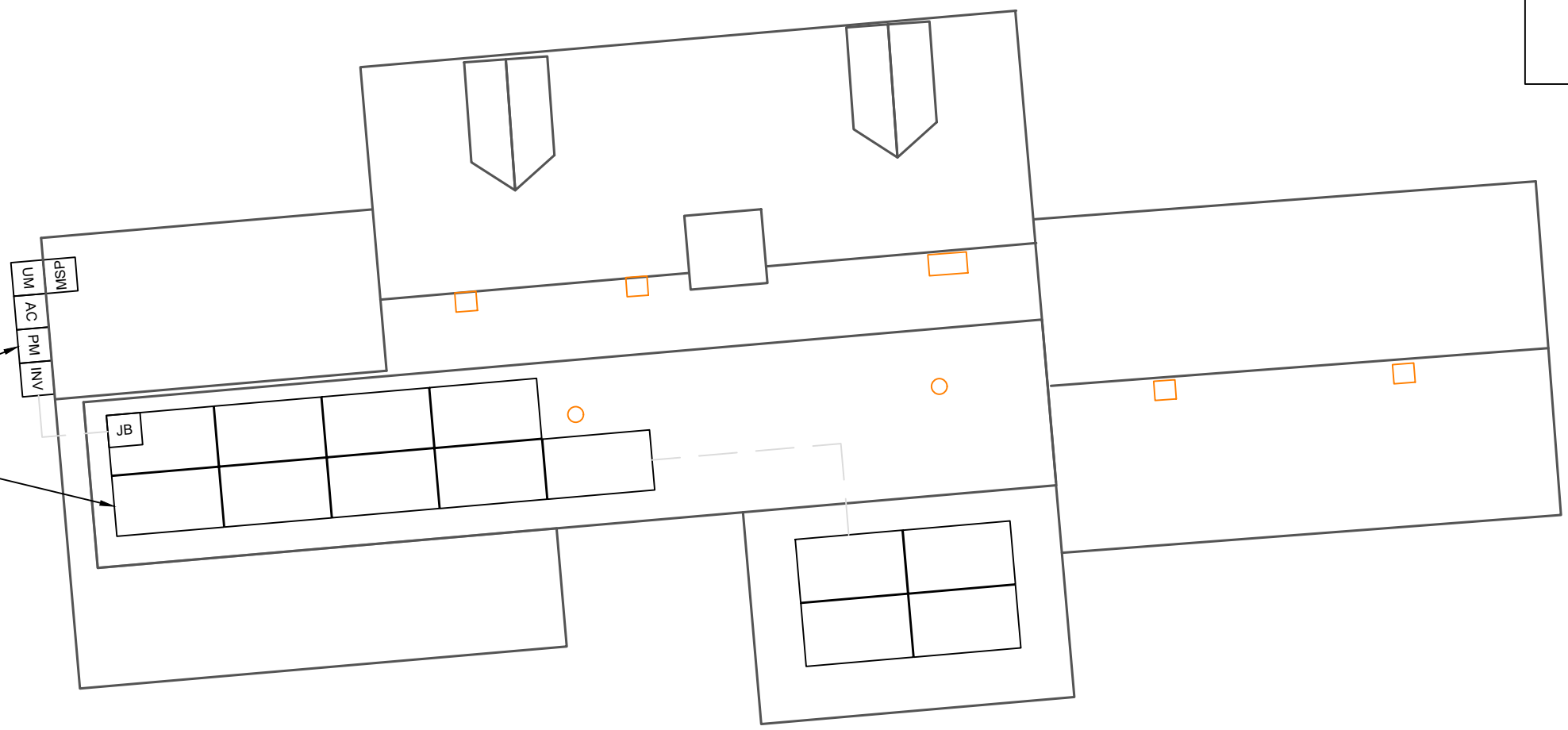
TITLE:
SITE PLAN

SHEET:
PV-2

ROOF AREA : 2239.45 SQ FT

PV SYSTEM
 4.095 kW-DC
 5.000 kW-AC

ROOF AREA STATEMENT							
ROOF	MODULES QTY	PITCH	AZIMUTH	ROOF AREA	ARRAY AREA	ARRAY COVERAGE %	SYSTEM DISTRIBUTED WEIGHT
1	9	15	177°	446.24 SQ FT	158.22 SQ FT	10.21%	2.37 PSF
2	4	10	177°	176.46 SQ FT	70.32 SQ FT		



(N) PRODUCTION METER
 (N) 13 LONGI SOLAR: LR6-60HPB-315M

LEGEND:	
[Square]	OBSTRUCTION
[Circle]	PIPE VENT
[Rectangle]	MODULES
[Dashed Line]	CONDUIT
[Hatched Box]	SETBACK
[AC]	AC DISCONNECT
[MSP]	MAIN SERVICE PANEL
[JB]	JUNCTION BOX
[INV]	INVERTER
[PM]	PRODUCTION METER

- NOTES:
- EMT CONDUIT ATTACHED TO THE ROOF USING CONDUIT MOUNTS
 - ATTACHED CLAMPS AT 25% FROM THE EDGE AND 50% FROM THE CENTER OF THE MODULES
 - JUNCTION BOX IS MOUNTED TO THE RAIL.



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

1

freedom
 FOREVER
 FREEDOM FOREVER MASSACHUSETTS LLC
 135 ROBERT TREAT PAINE DR., TAUNTON, MA 02780
 Tel: (800) 385-1075

ELECTRICAL CONTRACTOR NO:
 HOME IMPROVEMENT CONTRACTOR
 198080; BUSINESS ELECTRICAL
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 MATTHEW MARKHAM

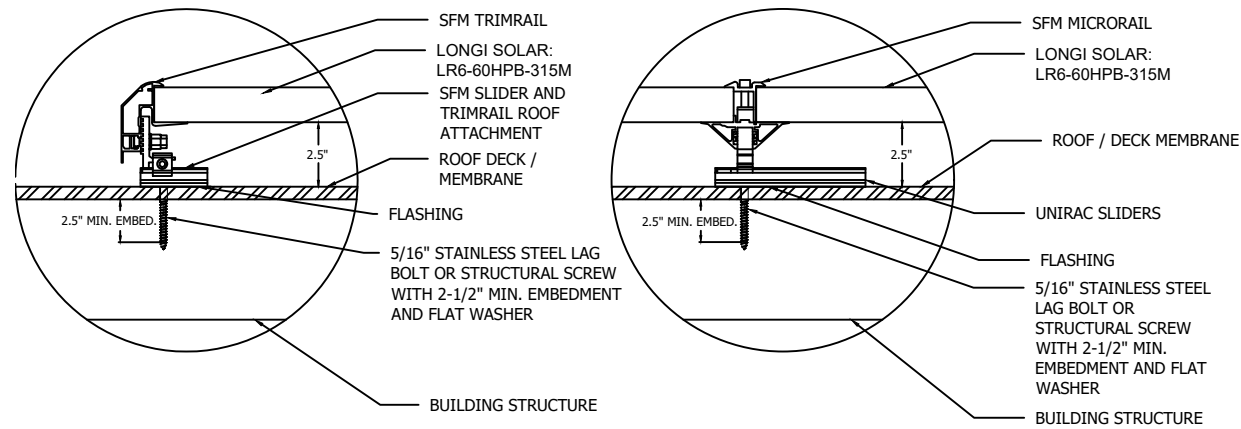
CLIENT: **KENNEDY BOB**
 3885 MAIN ST BARNSTABLE,
 MA 02630, MA 02630
 508-776-7316

REVISIONS:		
DESCRIPTION	DATE	REVISION

DATE:	2/11/2021
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JOB NO.:	F076258

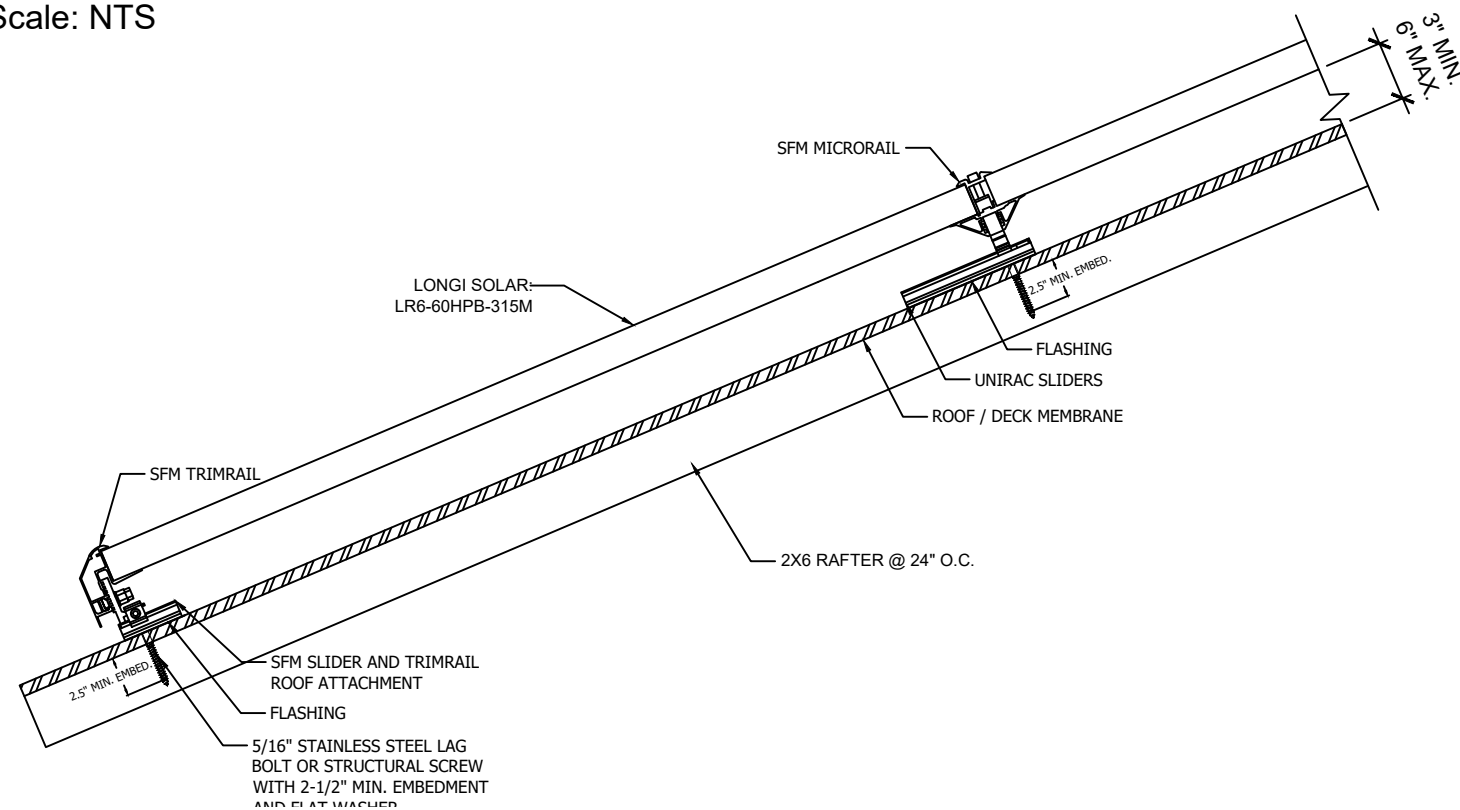
TITLE:
**ROOF PLAN W/
 MODULES LAYOUT**

SHEET:
PV-2A



ATTACHMENT DETAIL

Scale: NTS



SOLAR PV ARRAY SECTION VIEW

Scale: NTS

MAX ATTACHMENT SPAN - 4'

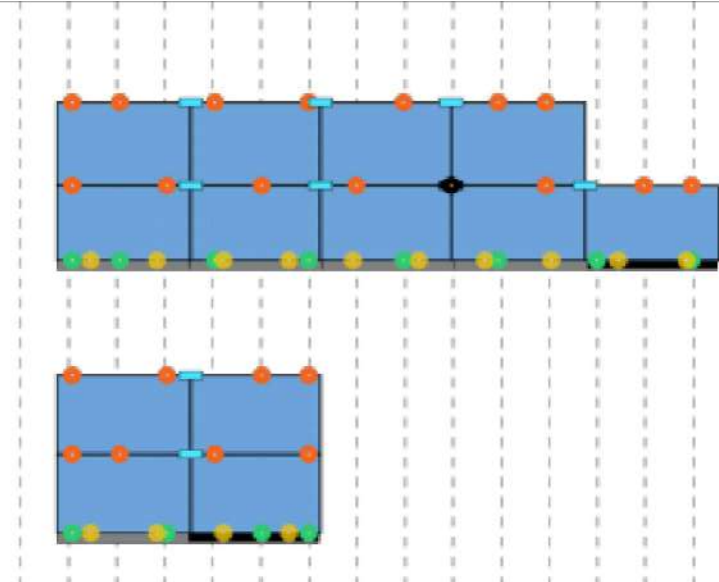
LEGEND

Module (Roof Zones)

- Zone 1
- Zone 2
- Zone 3

SFM Components

- SFM Microrail 2"
- SFM Splice 6.5"
- SFM Attached Splice 8"
- SFM Trim Attachment
- SFM Trim Univ Clip
- Full Trim Section
- Cut Trim Section



CLIENT:

KENNEDY BOB

3885 MAIN ST BARNSTABLE,
MA 02630, MA 02630
508-776-7316

REVISIONS:

DESCRIPTION	DATE	REVISION

DATE: 2/11/2021

DESIGN BY: GREG

JOB NO.: F076258

TITLE:

**MOUNTING
DETAILS**

SHEET:

PV-3

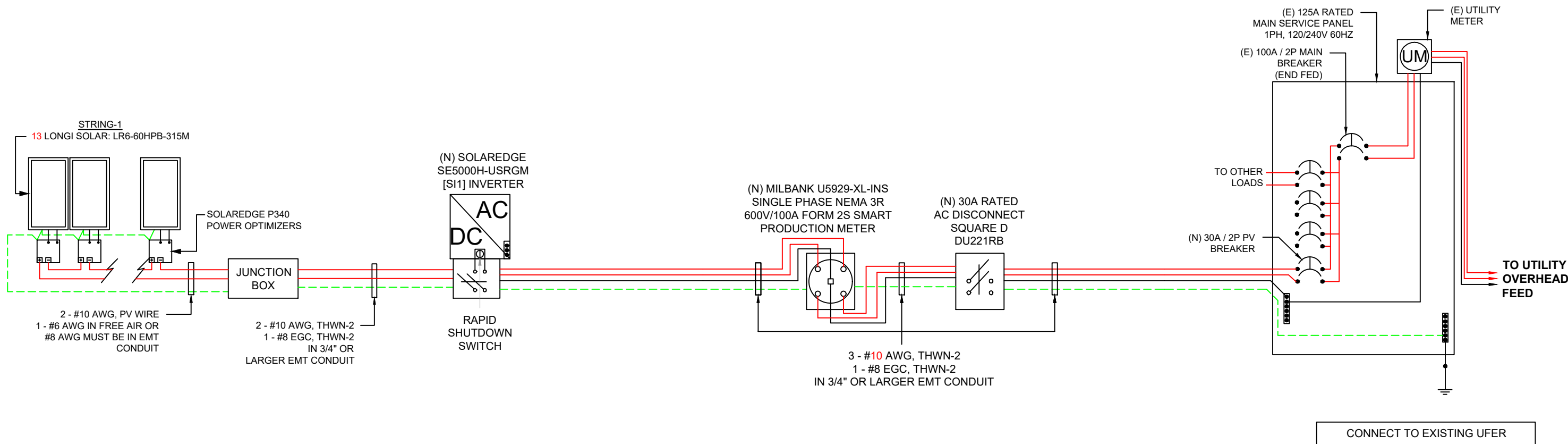
BACKFEED BREAKER SIZING

MAX. CONTINUOUS OUTPUT 21A @ 240V
 21 X 1.25 = 26.25AMPS 30A BREAKER - OK
 SEE 705.12 OF 2020 NEC
 125 X 1.20 = 150
 150 - 100 = 50A ALLOWABLE BACKFEED

PV SYSTEM
 4.095 kW-DC
 5.000 kW-AC

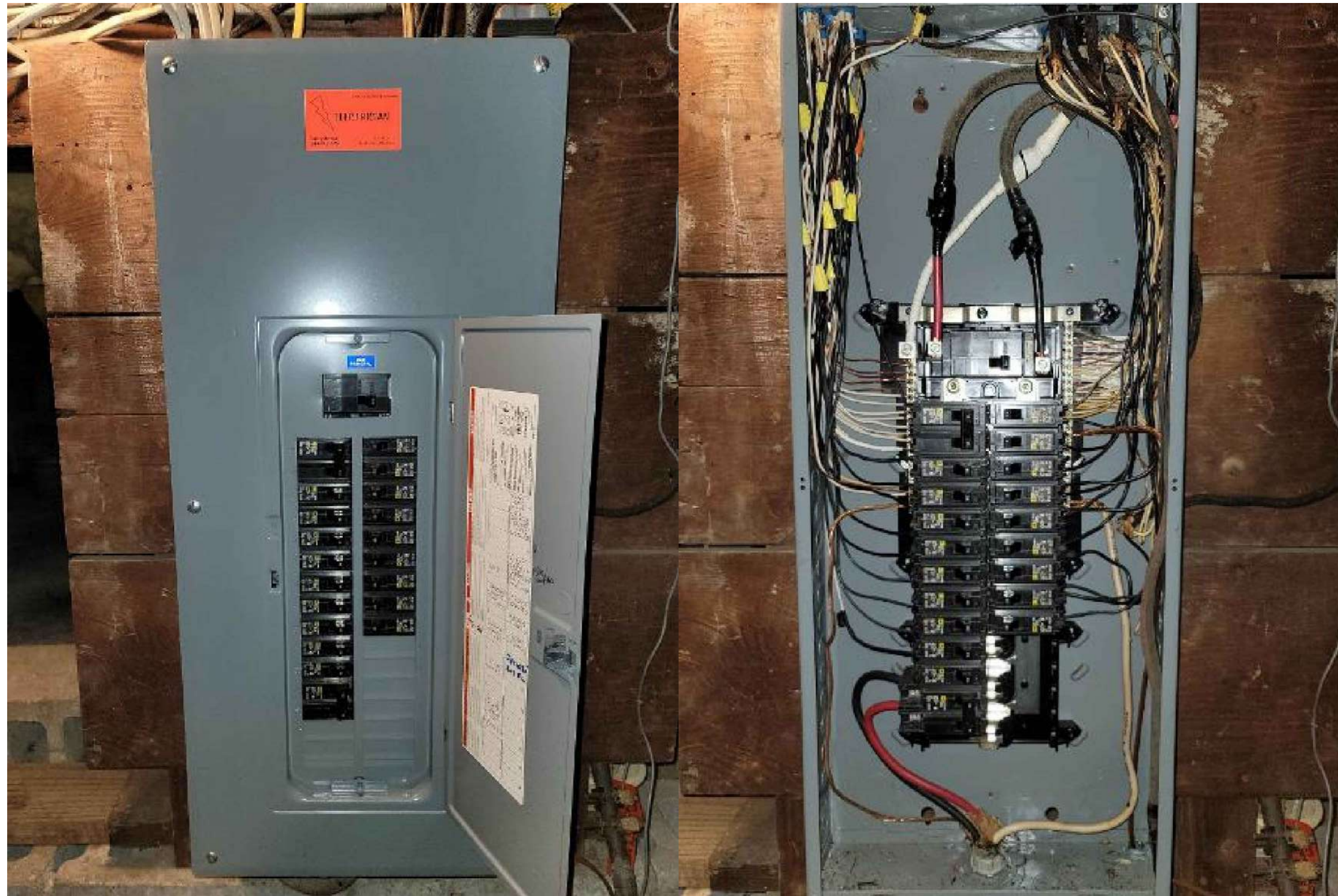
CONDUCTOR AMPACITY DE-RATE CALCULATION

EQUIPMENT				WIRE LOCATION	CONDUCTOR QTY.	AWG WIRE SIZE	NEC FACTORS TABLE 310.15(B)(16)	NEC FACTORS TABLE 310.15(B)(2)(a)	CONDUCTOR AMPACITY @90C ADJ.	NEC FACTORS TABLE 310.15(B)(3)(a)	
1	AC	INVERTER	TO	AC DISCONNECT	EXTERIOR WALL	3	10	40	1	40	1.00
2	AC	AC DISCONNECT	TO	POI	EXTERIOR WALL	3	10	40	1	40	1.00



NOTE:
 CONDUIT AND CONDUCTORS SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS

DESCRIPTION	DATE	REVISION




REVISIONS:		
DESCRIPTION	DATE	REVISION

DATE:	2/11/2021
DESIGN BY:	GREG
JOB NO.:	F076258

MATERIAL LIST:

QTY.	PART TYPE	PART #	DESCRIPTION
1	COMBINER BOX	VARIES	A DEDICATED LOAD CENTER
13	MODULES	114-315	LONGI SOLAR: LR6-60HPB-315M
13	OPTIMIZERS	130-340	P340 SOLAREEDGE POWER OPTIMIZER - FRAME MOUNTED MODULE ADD-ON
1	INVERTER	120-503 OR SIMILAR	SE5000H-USRGM [SI1] 240V INVERTER UL1741 SA CERTIFIED INTEGRATED ARC FAULT PROTECTION AND RAPID SHUTDOWN
1	PV BREAKER	VARIES	30A / 2P PV BREAKER
1	PV BREAKER	VARIES	A / 2P PV BREAKER
1	PV BREAKER	VARIES	A / 2P PV BREAKER
1	AC DISCONNECT	323-030	30A RATED 240VAC NEMA 3R UL LISTED
1	PRODUCTION METER	322-100	MILBANK U5929-XL-INS SINGLE PHASE NEMA 3R 600V/100A FORM 2S SMART PRODUCTION METER
3	SFM MICRORAIL	261-602	UNIRAC SFM INFINITY RAIL-LESS
3	MICRORAIL	261-602	SFM MICRORAIL 2 INCH (10 PACK)
1	SFM TRIM	241-253	FLASHKIT SFM TRIM COMP DARK (10 PACK)
4	SFM SLIDER	261-603	FLASHKIT SFM SLIDER COMP DARK (10 PACK)
1	BONDING CLAMP	221-100	SFM N/S BONDING CLAMP (20 PACK)
1	BONDING CLAMP	241-404	SFM TRIM BONDING CLAMP (10 PACK)
2	MOUNT ASSEMBLY	241-405	MLPE MOUNT ASSY (10 PACK)
1	SFM SPLICE	261-604	SFM SPLICE (10 PACK)
1	SFM ATTACHED SPLICE	211-101	SFM ATTACHED SPLICE 8 INCH (10 PACK)
2	TRIMRAIL	261-606	SFM TRIMRAIL UNIV CLIP W/ HDW (10 PACK)
1	TRIM SPLICE	261-605	SFM TRIM SPLICE DRK (10 PACK)
2	TRIMRAIL	211-115	SFM TRIMRAIL UNIV DRK (4 PACK)



GENERAL NOTES:

- (13) LONGI SOLAR: LR6-60HPB-315M WIRED AND LISTED TO UL1703 STANDARDS.
- THE SE5000H-USRGM [SI1] INVERTER WITH INTEGRATED DC DISCONNECT AND ARC FAULT PROTECTION. ATTACHED WITH SYSTEM ELECTRICAL SPECIFICATIONS, GROUND FAULT PROTECTION & LISTED TO UL 1741 STANDARDS.
- PHOTOVOLTAIC SYSTEM GROUND WILL BE TIED INTO EXISTING GROUND AT MAIN SERVICE FROM DC DISCONNECT/INVERTER AS PER 2020 NEC SEC. 250.166(A).
- SOLAR PHOTOVOLTAIC SYSTEM EQUIPMENT WILL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF ART. 690 OF THE 2020 NEC.
- CONDUIT ABOVE ROOF SHALL BE NO LESS THAN 1" FROM TOP OF THE ROOF TO BOTTOM OF RACEWAY. TABLE NEC 310.15(B)(3)(C).
- PHOTOVOLTAIC DC CONDUCTORS ENTERING THE BUILDING SHALL BE INSTALLED IN METALLIC RACEWAY AND SHALL BE IDENTIFIED EVERY 10 FEET -- AND WITHIN 1 FOOT ABOVE AND BELOW PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS, OR BARRIERS -- WITH MINIMUM 3/8-INCH-HIGH WHITE LETTERING ON RED BACKGROUND READING: "WARNING: PHOTOVOLTAIC POWER SOURCE."
- SYSTEM GROUNDING ELECTRODE CONDUCTOR FOR PV SYSTEM TO BE SIZED TO MEET THE REQUIREMENTS OF 2020 NEC TABLE 250.66.
- THE EXISTING MAIN SERVICE PANEL WILL BE EQUIPPED WITH A GROUND ROD OR UFER.
- UTILITY COMPANY WILL BE NOTIFIED PRIOR TO ACTIVATION OF THE SOLAR PV SYSTEM.
- TERMINALS OF THE DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION.
- SOLAREEDGE INVERTERS ARE LISTED TO UL 1741 AND UL 1699B STANDARDS.
- SOLAREEDGE OPTIMIZERS ARE LISTED TO IEC 62109-1 (CLASS II SAFETY) AND UL 1741 STANDARDS.

FREEDOM FOREVER MASSACHUSETTS LLC
 135 ROBERT TREAT PAINE DR., TAUTON, MA 02780
 Tel: (800) 385-1075

ELECTRICAL CONTRACTOR NO. 198080; BUSINESS ELECTRICAL CONTRACTOR LICENSE 902-EL-A1; CONSTRUCTION SUPERVISOR LICENSE CS-111662; MASTER ELECTRICIAN 1136 MR
 MATTHEW MARKHAM

CLIENT:

KENNEDY BOB
 3885 MAIN ST BARNSTABLE,
 MA 02630, MA 02630
 508-776-7316

REVISIONS:

DESCRIPTION	DATE	REVISION

DATE: 2/11/2021

DESIGN BY: GREG

JOB NO.: F076258

TITLE:

NOTES AND EQUIPMENT LIST

SHEET:

PV-6



NOTES:

1. NEC ARTICLES 690 AND 705 AND NEC SECTION R324 MARKINGS SHOWN HEREON.
2. ALL MARKING SHALL CONSIST OF THE FOLLOWING:
 - A. UV RESISTANT SIGN MATERIAL WITH ENGRAVED OR MACHINE PRINTED LETTERS OR ELECTRO-PLATING.
 - B. RED BACKGROUND COLOR WHITE TEXT AND LINE WORK.
 - C. AERIAL FONT.
3. ALL SIGNS SHALL BE SIZED APPROPRIATELY AND PLACED IN THE LOCATIONS SPECIFIED. SIGNAGE CANNOT BE HAND-WRITTEN.
3. SIGNS SHALL BE ATTACHED TO THE SERVICE EQUIPMENT WITH POP-RIVETS OR SCREWS.

WARNING:
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE.

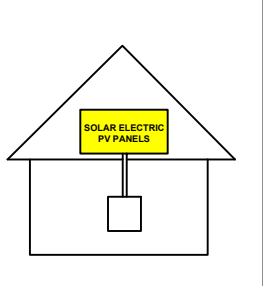
705.12(B)(2)(3)(b)

"WARNING"
DUAL POWER SOURCES
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM
RATED AC OUTPUT CURRENT - 21.00 AMPS
AC NORMAL OPERATING VOLTAGE - 240 VOLTS

690.54

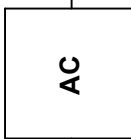
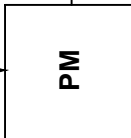
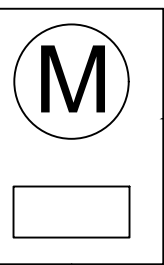
**SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN**

TURN RAPID
SHUTDOWN SWITCH TO
THE "OFF" POSITION TO
SHUT DOWN PV SYSTEM
AND REDUCE SHOCK
HAZARD IN THE ARRAY



690.56(C)(1)(A)

PV METER



PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT - 21.00 AMPS
AC NORMAL OPERATING VOLTAGE - 240 VOLTS

690.15, 690.54

"WARNING"
ELECTRICAL SHOCK HAZARD.
TERMINALS ON BOTH LINE AND LOAD SIDES
MAY BE ENERGIZED IN THE OPEN POSITION.

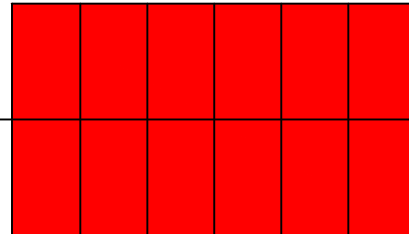
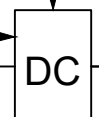
690.13 (B)

PV SYSTEM DC DISCONNECT
MAXIMUM VOLTAGE: 480V
MAXIMUM CIRCUIT CURRENT: 21A
MAX RATED OUTPUT CURRENT OF
THE CONTROLLER OR DC-TO-DC
CONVERTER: 15A

690.53

**RAPID SHUTDOWN SWITCH FOR
SOLAR PV SYSTEM**

690.56(C)(3)



NEC 690.31(G)(3) & (4)

"WARNING"
PHOTOVOLTAIC POWER SOURCE

EVERY 10' ON CONDUIT AND ENCLOSURES

freedom
FOREVER
FREEDOM FOREVER MASSACHUSETTS
LLC
135 ROBERT TREAT PAINE DR., TAUNTON, MA 02780
Tel: (800) 385-1075

ELECTRICAL CONTRACTOR NO:
HOME IMPROVEMENT CONTRACTOR
198080; BUSINESS ELECTRICAL
CONTRACTOR LICENSE 902-EL-A1;
CONSTRUCTION SUPERVISOR
LICENSE CS-111662; MASTER
ELECTRICIAN 1136 MR
MATTHEW MARKHAM

CLIENT:
KENNEDY BOB
3885 MAIN ST BARNSTABLE,
MA 02630, MA 02630
508-776-7316

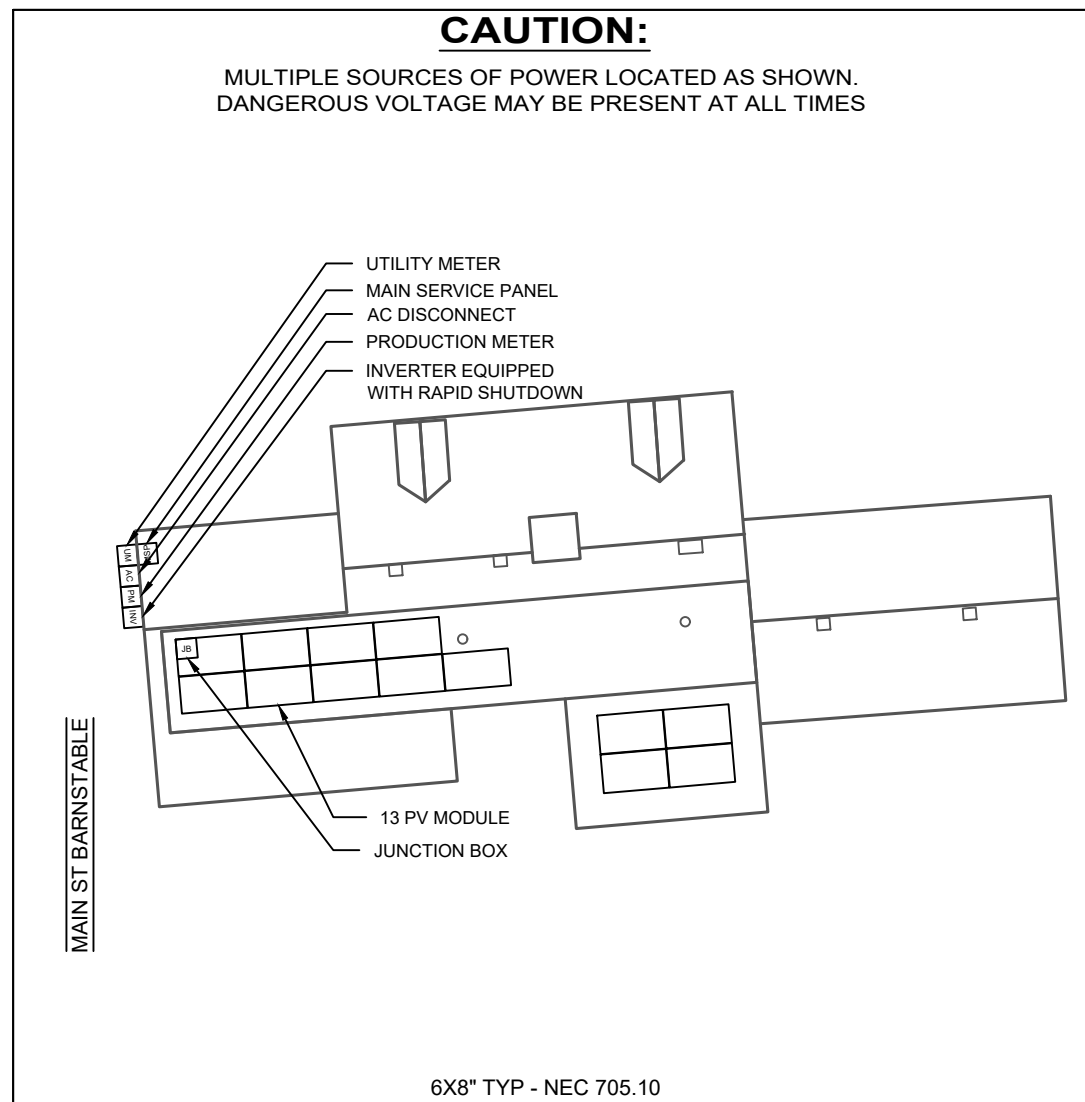
REVISIONS:

DESCRIPTION	DATE	REVISION

DATE: 2/11/2021
DESIGN BY: GREG
JOB NO.: F076258

TITLE:
LABELS

SHEET:
PV-7



NOTES:

1. NEC ARTICLES 690 AND 705 AND NEC SECTION R324 MARKINGS SHOWN HEREON.
2. ALL MARKING SHALL CONSIST OF THE FOLLOWING:
 - A. UV RESISTANT SIGN MATERIAL WITH ENGRAVED OR MACHINE PRINTED LETTERS OR ELECTRO-PLATING.
 - B. RED BACKGROUND COLOR WHITE TEXT AND LINE WORK.
 - C. AERIAL FONT.
3. ALL SIGNS SHALL BE SIZED APPROPRIATELY AND PLACED IN THE LOCATIONS SPECIFIED. SIGNAGE CANNOT BE HAND-WRITTEN.
3. SIGNS SHALL BE ATTACHED TO THE SERVICE EQUIPMENT WITH POP-RIVETS OR SCREWS.

CLIENT:

KENNEDY BOB
3885 MAIN ST BARNSTABLE,
MA 02630, MA 02630
508-776-7316

REVISIONS:

DESCRIPTION	DATE	REVISION

DATE:	2/11/2021
DESIGN BY:	GREG
JOB NO.:	F076258

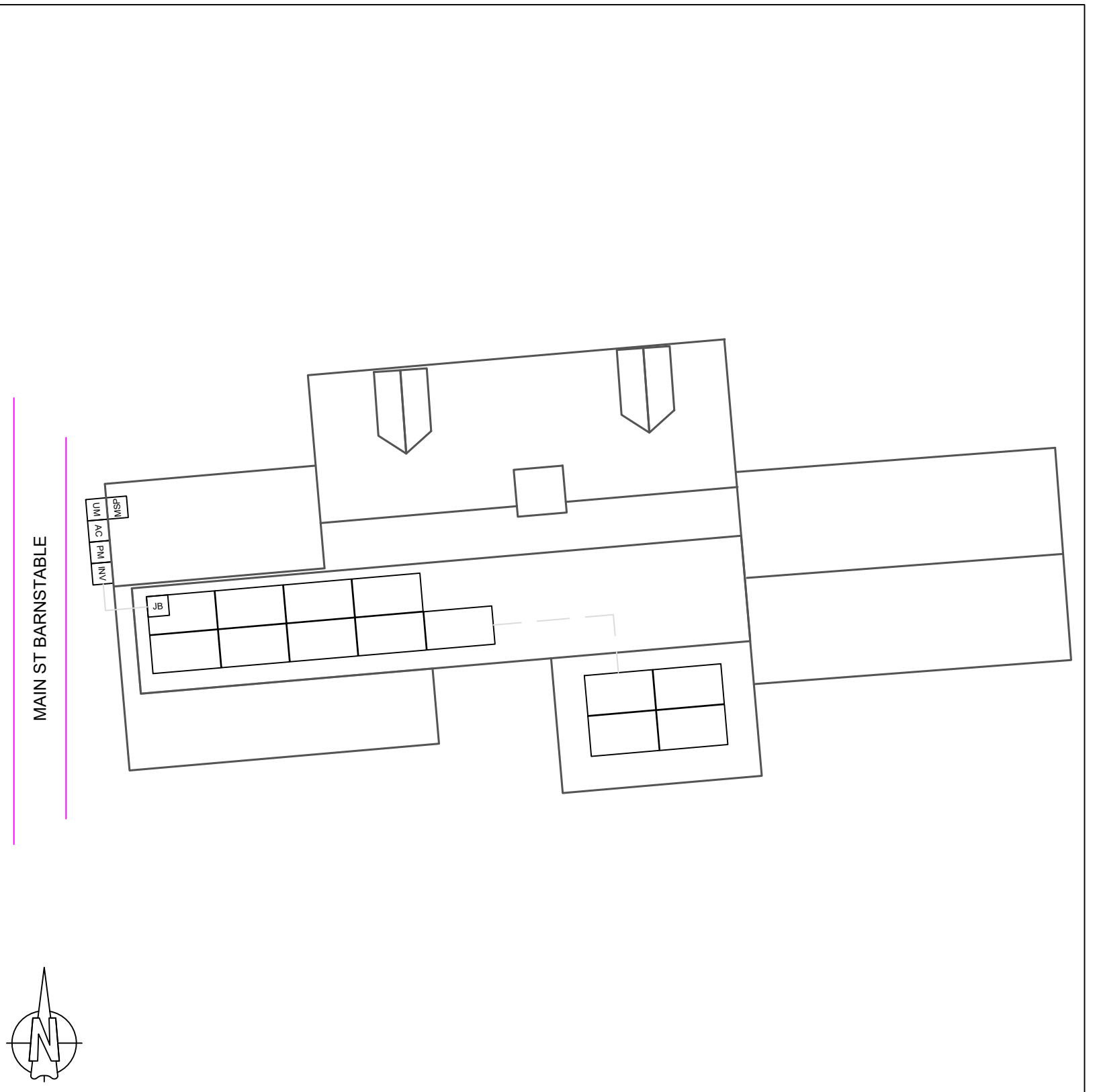
TITLE:	LABELS
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SHEET:	PV-7A
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SOLAREEDGE OPTIMIZER CHART

1-10 11-20 21-30 31-40 41-50 51-60

1					
2					
3					
4					
5					
6					
7					
8					
9					
10					



REVISIONS:		
DESCRIPTION	DATE	REVISION

DATE:	2/11/2021
DESIGN BY:	GREG
JOB NO.:	F076258

JOB HAZARD ANALYSIS

Crew leader to fill out all sections below, hold a pre-job safety meeting with all personnel, and upload this completed document and the Safety Plan to Site Capture

Ladder Access

- Ladders must be inspected before each use.
- Extension ladders must be set up on a firm and level surface at a 4-to-1 rise to run angle (or 75 degrees) and the top must be secured to the structure. Extension style ladders placed on uneven, loose or slippery surfaces must additionally have the base firmly anchored or lashed so the base will not slip out.
- Extension ladders must be used with walk-through devices or the ladder must extend 36" above the stepping off point.
- A-frame ladders must only be climbed with the ladder spreader bars locked in the open position; A-frame ladders shall not be climbed while in the closed position (ex, closed and used while leaned against a structure).

Additional notes:

Mobile Equipment

- Only Qualified operators will operate equipment; operators must maintain a certification on their person for the equipment being operated.
- Type(s) of mobile equipment (Type/Make/Model):
- Qualified operator(s):

Material Handling and Storage

- Materials will be staged/stored in a way that does not present a hazard to client, personnel or public. Materials stored on the roof will be physically protect from failing or sliding off.

Fall Protection

- A site-specific plan for fall prevention and protection is required prior to starting work and must remain onsite at all times until work is complete; a fall rescue plan must be outlined and discussed among the crew prior to work start.
- First-person-Up (FPU) must install their anchor and connect before any other task, including installing other anchors. The Last-Person-Down (LPD) must be the only person on a roof uninstalling fall protection.

FPCP (name and title):

FPU and LPD (name and title):

Electrical Safety

- The Electrical Qualified Person (EQP) is required onsite to perform electrical work.
- All electrical work will be performed with equipment in an electrically safe condition (de-energized) unless approval has been granted prior to work.
- Service drops and overhead electrical hazards will be identified and protected from contact, as necessary.

EQP (name and tile):

Public Protection

- The safety of the Client and the Public must be maintained at all times.
- The Client and the Public shall be prevented from entering the work zone through the use of barriers and/or signage, as required.
- Company, Client and Public property shall be protect from falling objects.
- Pets (including dogs) shall be secured by their owners prior to work start.
- The client should not leave pets, family members, or others in the charge or care of Employees, Contractors, or Temporary Workers.

Crew leader responsible for communication with the client:

Client and public is excluded from work area by barricades (N/A, Yes, No):

Training and Pre-Job Safety Briefing

- All employees onsite shall be made aware of the specific hazards of this project and review this HJA during a pre-job briefing, and their signature indicates awareness of site conditions and the plan to eliminate any hazards identified prior to and during the project.

Crew leader (name/title):

Crew member (name/title):

Crew member (name/title):

Crew member (name/title):

Crew member (name/title):

Crew member (name/title):

Airborne Contaminants:

- Asbestos-containing (Transite) piping (ACP) - Do not disturb (move, drill, cut fracture, etc.)
- Asbestos-containing thermal insulation (ACI) and Asbestos-containing duct wrapping (ACW) - do not disturb, no attic or crawlspace access is allowed if work to be performed could cause exposure to personnel, client or public.

If yes, list specific tasks and protection in place:

Weather and Environment

- The site supervisor shall forecast the weather conditions at the job site, prior to crew arrival, in order to mitigate any hazards associated with inclement weather (heat, cold, wind, rain, etc.)
- The site supervisor will utilized a portable wind meter (anemometer) to verify actual onsite wind conditions, by checking at the ground and on any elevated work surface (ex, rooftop) prior to work start, at midday and prior to solar panel staging on a roof.
- Elevated work involving the moving or maneuvering of solar panels shall cease at 25mph (sustained wind) until wind subsides.

Forecasted weather maximum temp (degrees F):

Heat Related Illness Prevention

- Employees shall have access to potable drinking water that is fresh, pure, and suitably cool. The water shall be located as close as practicable to the areas where employees are working. Water shall be supplied in sufficient quantity at the beginning of the work shift to provide at least one quart per employee per hour for drinking for the entire shift. Employees may begin the shift with smaller quantities of water if they identify the location and have effective means for replenishment during the shift to allow employees to drink on quart or more per hour. The frequent drinking of water shall be encouraged.
- Shade shall be present when temperature exceeds 80 degrees Fahrenheit. When the outdoor temperature in the work exceeds 80 degrees Fahrenheit, employees shall have and maintain one or more areas with shade at all times.
- New employees must be acclimatized. New employees will be monitored by their Crew Leader (site supervisor) for the first two (2) weeks of employment or longer when necessary.
- Employees will be allowed and encouraged to implement scheduled breaks during each shift. Employees must take cool-down breaks in the shade any time they feel the need to do so to protect them from overheating. Supervisors are REQUIRED to allow employees any break period they need during high heat conditions.
- Cool Vests are encouraged for all employees at all times during periods of high heat.
- Identify the location of the closet Occupational/Industrial Clinic or Hospital in case a crew member becomes ill.

What is the specific plan to provide and replenish sufficient water for all employees on site?

If offsite replenish is necessary, where will you go to replenish water (location/address):

Who will replenish the drinking water (name):

Restroom facilities

- Employees shall have access to restroom facilities with hand-washing stations. Use of onsite restroom is at the client's discretion (location is annotated below). If client does not give permission, location of suitable restroom facilities with hand-washing stations offsite will be provided. The onsite supervisor will identify location and make arrangements to ensure all employees have access at any point.

Restroom facilities will be (circle one): Onsite - Offsite
If Offsite, add location name and address:

Incident Reporting Procedure

- Contact your Site Supervisor

Name:

Phone:

- Contact your Manager

Name:

Phone:

- Contact your Site Supervisor

Name:

Phone:

With: Your full name, phone number, office location, brief description of what happen and when.

NOTE ADDITIONAL HAZARDS NOT ADDRESSED ABOVE
(add as many as necessary by using additional sheets)

Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:



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CLIENT: **KENNEDY BOB**
3885 MAIN ST BARNSTABLE, MA 02630, MA 02630
508-776-7316

REVISIONS:		
DESCRIPTION	DATE	REVISION

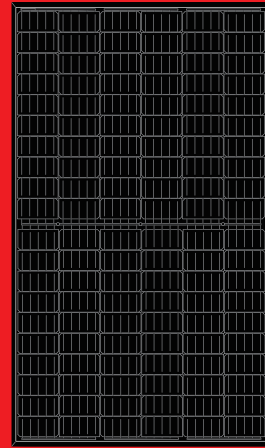
DATE: 2/11/2021
DESIGN BY: GREG
JOB NO.: F076258

TITLE: **SAFETY PLAN**

SHEET: **PV-10**

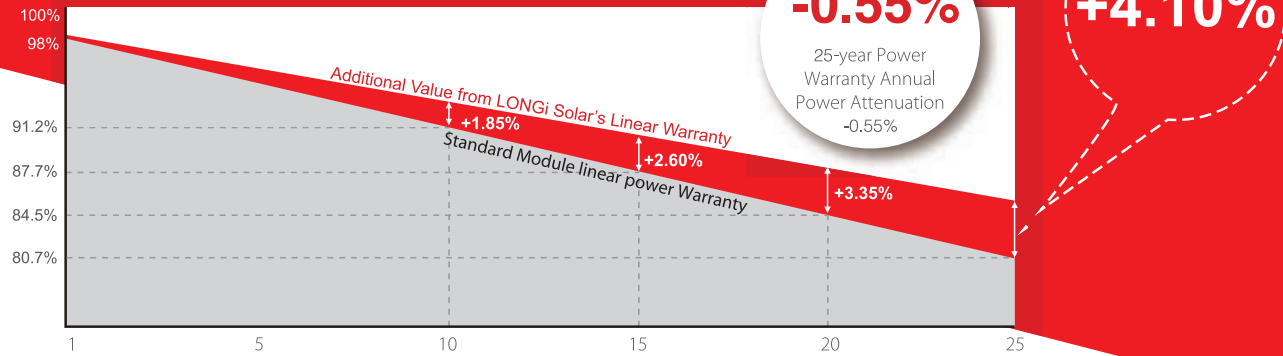
LR6-60HPB 300~320M

Hi-MO 3m
(Black)



High Efficiency
Low LID Mono PERC with
Half-cut Technology

10-year Warranty for Materials and Processing;
25-year Warranty for Extra Linear Power Output



Complete System and Product Certifications

IEC 61215, IEC61730, UL1703
ISO 9001:2008: ISO Quality Management System
ISO 14001: 2004: ISO Environment Management System
TS62941: Guideline for module design qualification and type approval
OHSAS 18001: 2007 Occupational Health and Safety



* Specifications subject to technical changes and tests. LONGi Solar reserves the right of interpretation.

Positive power tolerance (0 ~ +5W) guaranteed

High module conversion efficiency (up to 19.1%)

Slower power degradation enabled by Low LID Mono PERC technology: first year <2%, 0.55% year 2-25

Solid PID resistance ensured by solar cell process optimization and careful module BOM selection

Reduced resistive loss with lower operating current

Higher energy yield with lower operating temperature

Reduced hot spot risk with optimized electrical design and lower operating current

LONGI

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Tel: +86-21-80162606 E-mail: module@longi-silicon.com Facebook: www.facebook.com/LONGi Solar

Note: Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGi Solar have the sole right to make such modification at anytime without further notice. Demanding party shall request for the latest datasheet for such as contract need, and make it a consisting and binding part of lawful documentation duly signed by both parties.

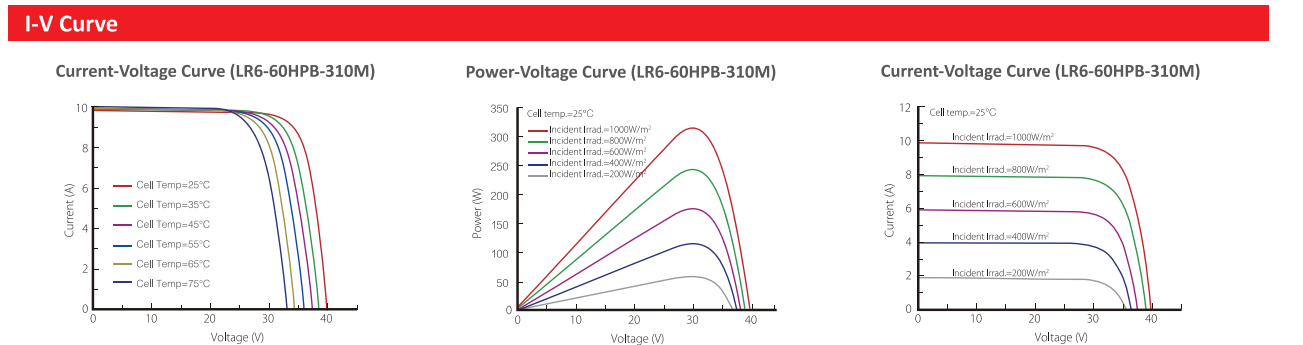
LR6-60HPB 300~320M

Design (mm)	Mechanical Parameters	Operating Parameters
	Cell Orientation: 120 (6×20) Junction Box: IP67, three diodes Output Cable: 4mm ² , 300mm in length length can be customized Glass: Single glass 3.2mm coated tempered glass Frame: Anodized aluminum alloy frame Weight: 18.9kg Dimension: 1683×996×35mm Packaging: 30pcs per pallet 180pcs per 20'GP 780pcs per 40'HC	Operational Temperature: -40 C ~ +85 C Power Output Tolerance: 0 ~ +5 W Voc and Isc Tolerance: ±3% Maximum System Voltage: DC1000V (IEC/UL) Maximum Series Fuse Rating: 20A Nominal Operating Cell Temperature: 45±2 C Safety Class: Class II Fire Rating: UL type 1 or type 2

Electrical Characteristics	Test uncertainty for Pmax: ±3%									
	LR6-60HPB-300M		LR6-60HPB-305M		LR6-60HPB-310M		LR6-60HPB-315M		LR6-60HPB-320M	
Model Number	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	300	222.2	305	225.9	310	229.6	315	233.4	320	237.1
Open Circuit Voltage (Voc/V)	39.8	37.1	40.1	37.4	40.3	37.7	40.6	37.9	40.9	38.2
Short Circuit Current (Isc/A)	9.70	7.82	9.78	7.88	9.86	7.94	9.94	8.01	10.02	8.08
Voltage at Maximum Power (Vmp/V)	32.9	30.4	33.1	30.6	33.3	30.8	33.7	31.1	33.9	31.3
Current at Maximum Power (Imp/A)	9.13	7.32	9.21	7.38	9.30	7.46	9.36	7.50	9.43	7.56
Module Efficiency(%)	17.9		18.2		18.5		18.8		19.1	

STC (Standard Testing Conditions): Irradiance 1000W/m², Cell Temperature 25 C, Spectra at AM1.5
NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m², Ambient Temperature 20 C, Spectra at AM1.5, Wind at 1m/S

Temperature Ratings (STC)	Mechanical Loading		
Temperature Coefficient of Isc	+0.057%/C	Front Side Maximum Static Loading	5400Pa
Temperature Coefficient of Voc	-0.286%/C	Rear Side Maximum Static Loading	2400Pa
Temperature Coefficient of Pmax	-0.370%/C	Hailstone Test	25mm Hailstone at the speed of 23m/s



LONGI

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Tel: +86-21-80162606 E-mail: module@longi-silicon.com Facebook: www.facebook.com/LONGi Solar

Note: Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGi Solar have the sole right to make such modification at anytime without further notice. Demanding party shall request for the latest datasheet for such as contract need, and make it a consisting and binding part of lawful documentation duly signed by both parties.

Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US



INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

solaredge.com



Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US		
OUTPUT									
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA	
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA	
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac	
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac	
AC Frequency (Nominal)	59.3 - 60 - 60.5 ⁽¹⁾							Hz	
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A	
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A	
GFDI Threshold	1							A	
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes								
INPUT									
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W	
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W	
Transformer-less, Ungrounded	Yes								
Maximum Input Voltage	480							Vdc	
Nominal DC Input Voltage	380				400			Vdc	
Maximum Input Current @240V ⁽²⁾	8.5	10.5	13.5	16.5	20	27	30.5	Adc	
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	-	-	27	Adc	
Max. Input Short Circuit Current	45							Adc	
Reverse-Polarity Protection	Yes								
Ground-Fault Isolation Detection	600k ω Sensitivity								
Maximum Inverter Efficiency	99	99.2						%	
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%	
Nighttime Power Consumption	< 2.5							W	
ADDITIONAL FEATURES									
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)								
Revenue Grade Data, ANSI C12.20	Optional ⁽³⁾								
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect								
STANDARD COMPLIANCE									
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07								
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (HI)								
Emissions	FCC Part 15 Class B								
INSTALLATION SPECIFICATIONS									
AC Output Conduit Size / AWG Range	3/4" minimum / 14-6 AWG				3/4" minimum / 14-4 AWG				
DC Input Conduit Size / # of Strings / AWG Range	3/4" minimum / 1-2 strings / 14-6 AWG				3/4" minimum / 1-3 strings / 14-6 AWG				
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174				21.3 x 14.6 x 7.3 / 540 x 370 x 185				in / mm
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9	38.8 / 17.6				lb / kg	
Noise	< 25				< 50				dB(A)
Cooling	Natural Convection								
Operating Temperature Range	-40 to +140 / -25 to +60 ⁽⁴⁾ (-40°F / -40°C option) ⁽⁵⁾							°F / °C	
Protection Rating	NEMA 4X (Inverter with Safety Switch)								

⁽¹⁾ For other regional settings please contact SolarEdge support
⁽²⁾ A higher current source may be used; the inverter will limit its input current to the values stated
⁽³⁾ Revenue grade inverter P/N: SExxxH-US000NNC2
⁽⁴⁾ For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>
⁽⁵⁾ -40 version P/N: SExxxH-US000NNU4

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505



POWER OPTIMIZER

PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

solaredge.com

solaredge

/ Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	P505 (for higher current modules)	
INPUT							
Rated Input DC Power ⁽¹⁾	320	340	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	125 ⁽²⁾	83 ⁽²⁾	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	12.5 - 105	12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11			10.1		14	Adc
Maximum DC Input Current	13.75			12.63		17.5	Adc
Maximum Efficiency	99.5						%
Weighted Efficiency	98.8					98.6	%
Overvoltage Category	II						
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREGE INVERTER)							
Maximum Output Current	15						Adc
Maximum Output Voltage	60			85			Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREGE INVERTER OR SOLAREGE INVERTER OFF)							
Safety Output Voltage per Power Optimizer	1 ± 0.1						Vdc
STANDARD COMPLIANCE							
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3						
Safety	IEC62109-1 (class II safety), UL1741						
RoHS	Yes						
INSTALLATION SPECIFICATIONS							
Maximum Allowed System Voltage	1000						Vdc
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters						
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1			129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9	129 x 162 x 59 / 5.1 x 6.4 x 2.3	mm / in
Weight (including cables)	630 / 1.4			750 / 1.7	845 / 1.9	1064 / 2.3	gr / lb
Input Connector	MC4 ⁽³⁾						
Output Wire Type / Connector	Double Insulated; MC4						
Output Wire Length	0.95 / 3.0		1.2 / 3.9				m / ft
Input Wire Length	0.16 / 0.52						m / ft
Operating Temperature Range	-40 - +85 / -40 - +185						°C / °F
Protection Rating	IP68 / NEMA6P						
Relative Humidity	0 - 100						%

⁽¹⁾ Rated STC power of the module. Module of up to +5% power tolerance allowed

⁽²⁾ NEC 2017 requires max input voltage be not more than 80V

⁽³⁾ For other connector types please contact SolarEdge

PV System Design Using a SolarEdge Inverter ⁽¹⁾	Single Phase HD-Wave	Single phase	Three Phase 300V	Three Phase 400V	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400	8	10	18	
	P405 / P505	6	8	14	
Maximum String Length (Power Optimizers)		25	25	50 ⁽²⁾	
Maximum Power per String	5700 (6000 with SE7600-US - SE11400-US)	5250	6000 ⁽³⁾	12750 ⁽³⁾	W
Parallel Strings of Different Lengths or Orientations	Yes				

⁽⁴⁾ For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf

⁽⁵⁾ It is not allowed to mix P405/P505 with P320/P340/P370/P400 in one string

⁽⁶⁾ A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement

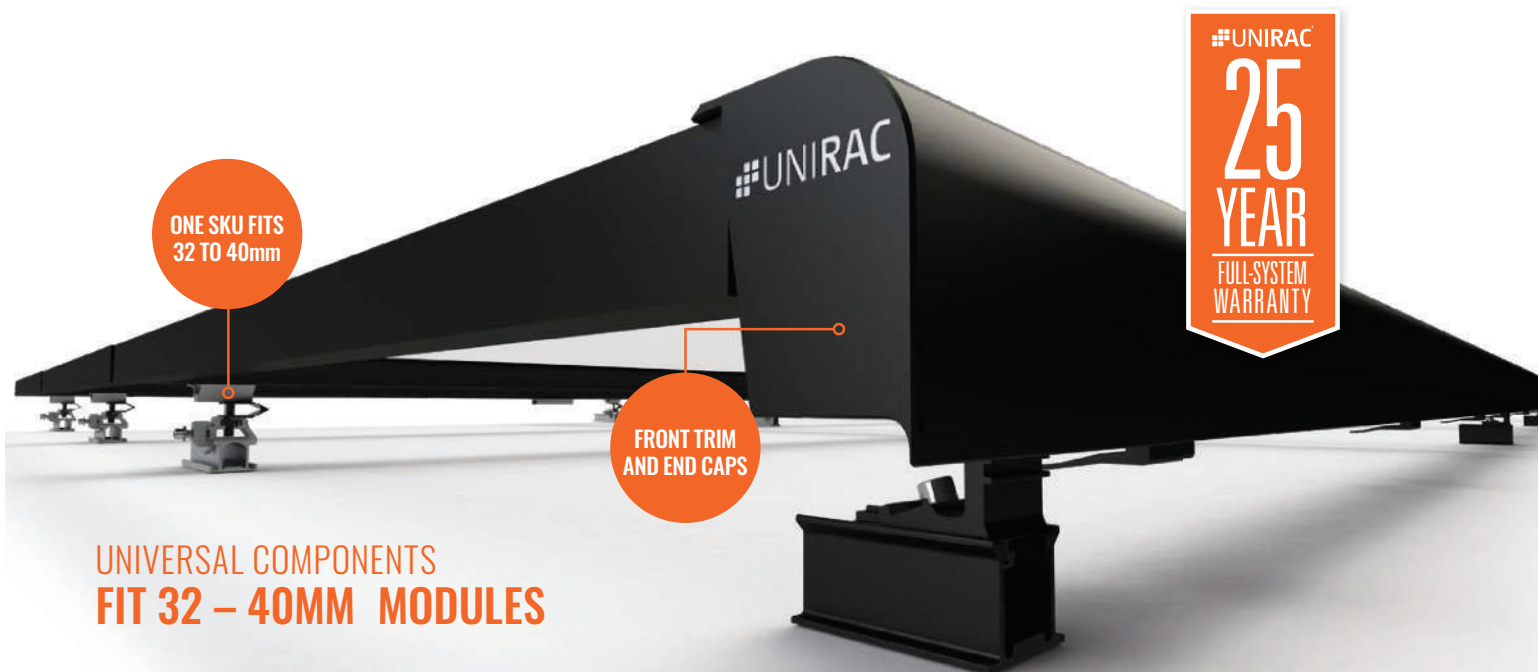
⁽⁷⁾ For SE14.4KUS/SE43.2KUS: It is allowed to install up to 6,500W per string when 3 strings are connected to the inverter (3 strings per unit for SE43.2KUS) and when the maximum power difference between the strings is up to 1,000W

⁽⁸⁾ For SE30KUS/SE33.3KUS/SE66.6KUS/SE100KUS: It is allowed to install up to 15,000W per string when 3 strings are connected to the inverter (3 strings per unit for SE66.6KUS/SE100KUS) and when the maximum power difference between the strings is up to 2,000W

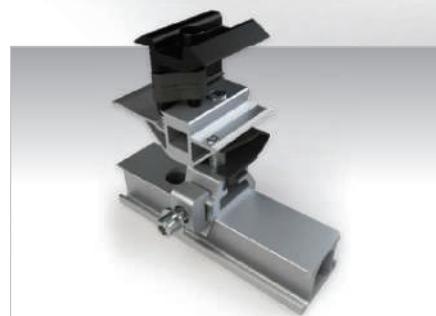
SFM INFINITY



Take your business to the next level with **SFM INFINITY**, UNIRAC's rail-less PV mounting system for flush mount installations on comp shingle and tile roofs. An advanced 3rd generation product platform in use by top solar contractors nationwide, **SFM INFINITY** optimizes your operations on and off the roof, with approximately 40% less labor, 30% logistics savings, and 20% fewer roof attachments than traditional solar racking. Plus, 87% of homeowners prefer **SFM INFINITY**'s aesthetics.



UNIVERSAL COMPONENTS
FIT 32 – 40MM MODULES



SUPERIOR PERFORMANCE
Enhance your business with two installs per day and 30% less cost.



EASY INSTALLATION
Pre-assembled components, 20% fewer roof attachments, and level array in seconds with post height adjustment.



HOMEOWNER PREFERRED
More than 4 out of 5 homeowners prefer **SFM INFINITY**'s aesthetics over a leading rail brand.

REVOLUTIONIZING ROOFTOP SOLAR

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702

SFM INFINITY

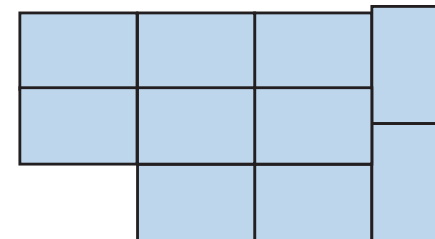
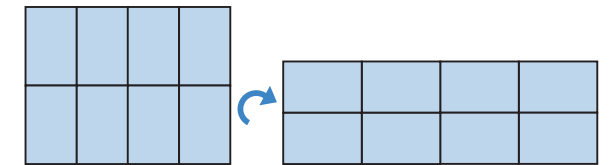
DESIGN GUIDELINES



While you will see advantages simply from switching to **SFM INFINITY**, the following guidelines will help you to maximize its benefits.

DEFAULT TO LANDSCAPE

When possible, design in landscape orientation in order to fit more modules on the roof and minimize roof attachments.



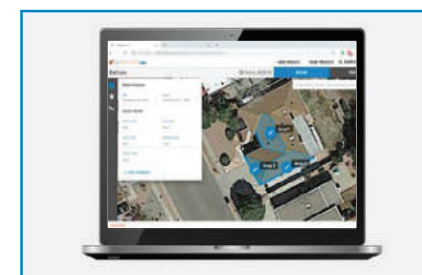
MIX MODULE ORIENTATIONS

SFM INFINITY is easily configured in mixed array shapes and module orientations to maximize array density and to avoid vent pipes and other obstacles. Because mounting locations are not constrained by rails, **SFM INFINITY** has unmatched flexibility to enhance your projects.

CONSULT THE QUICK TIPS VIDEOS

Visit UNIRAC's mobile-friendly library of short, topic-specific videos which answer common questions and demonstrate how simple it is to install **SFM INFINITY**.

Quick Tips Videos: <https://unirac.com/SFM-Infinity/>



DESIGN IN U-BUILDER

Layout your arrays in **U-Builder**, UNIRAC's free solar design software, to optimize **SFM INFINITY**'s capabilities, including mixing module orientations and minimizing roof attachments. Quickly create layouts on Google or Bing Maps and generate project documents.

U-Builder: <https://design.unirac.com/>

REVOLUTIONIZING ROOFTOP SOLAR

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702



Certificate of Compliance

Certificate: 70131735 **Master Contract:** 266909 (266909)

Project: 70185553 **Date Issued:** 2018-10-08

Issued to: **Unirac**
1411 Broadway NE
Albuquerque, New Mexico 87102
USA
Attention: Klaus Nicolaedis

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Issued by: *Michael Hoffnagle*
Michael Hoffnagle

PRODUCTS

CLASS - C531302 - POWER SUPPLIES- PHOTOVOLTAICS--PV Racking
CLASS - C531382 - POWER SUPPLIES- PHOTOVOLTAICS-PV Racking and clamping systems-Certified to US Standards

Models: SM SOLARMOUNT Flush-to-Roof is an extruded aluminum rail PV racking system that is installed parallel to the roof in landscape or portrait orientations.

ULA Unirac Large Array is a ground mount system using the SolarMount (SM) platform for the bonding and grounding of PV modules.

SOLARMOUNT

The system listed is designed to provide bonding/grounding, and mechanical stability for photovoltaic modules. The system is secured to the roof with the L-Foot components through the roofing material to building structure. Modules are secured to the racking system with stainless steel or aluminum mid clamps and Aluminum end clamps. The modules are bonded to the racking system with the stainless steel bonding mid clamps with piercing points. The system is grounded with 10 AWG copper wire to bonding/grounding lugs. Fire ratings of Class A with Type 1, 2, 3, or 10 for steep slope. Tested at 5" interstitial gap which allows installation at any stand-off height.



Certificate: 70131735

Master Contract: 266909

Project: 70185553

Date Issued: 2018-10-08

The grounding of the system is intended to comply with the latest edition of the National Electrical Code, to include NEC 250 & 690. Local codes compliance is required, in addition to national codes. All grounding/bonding connections are to be torqued in accordance with the Installation Manual and the settings used during the certification testing for the current edition of the project report.

The system may employ optimizers/micro-inverters and used for grounding when installed per installation instructions.

Mechanical ratings:

Downward Design Load (lb/ft ²)	113.4
Upward Design Load (lb/ft ²)	50.4
Down-Slope Load (lb/ft ²)	14.7

Conditions of acceptability: Installation is subject to acceptance of the local inspection authorities having jurisdiction. The certification of these products relates only to the methods of installation, bonding, and grounding as outlined in the Installation Manual for each product.

Unirac Large Array

ULA is a ground mount system using the SolarMount (SM) platform for the bonding and grounding of PV modules. ULA aluminum components merge with SM rails and installer-supplied steel pipe. The SM rail system is secured to the horizontal Pipe using the Rail Bracket components. The Rear and Front cap secures the horizontal Pipe to the vertical Pipe. The Front cap is also used to secure the Cross brace. A Slider is attached to the vertical Pipe to secure the Cross brace. The SM rails, caps, slider, rail brackets, and cross braces materials are 6105-T5 aluminum extrusion. Fasteners materials are 304 stainless steel. Horizontal and vertical pipe materials meet the minimum requirements of ASTM A53 for galvanized steel pipe in 2" and 3" diameter.

The mechanical load ratings from the SM test data will be applied to the ULA model.

Fire Testing is not applicable due to being a ground mount system.

APPLICABLE REQUIREMENTS

- UL 2703-1st Edition - Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels.
- LTR AE-001-2012 - List of Technical Requirements for Photovoltaic Module and Panel racking Systems

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Subject: ETL Evaluation of SolarEdge Products to NEC 2017 Rapid Shutdown Requirements

To, whom it may concern

This letter represents the testing results of the below listed products to the requirements contained in the following standards:

National Electric Code, 2017, Section 690.12 requirement for rapid shutdown.

UL 1741, UL 1741 CRD for rapid shutdown

The evaluation was done on the PV Rapid Shutdown System (PVRSS), and covers installations consisting of optimizers and inverters with part numbers listed below.

The testing done has verified that controlled conductors are limited to:

- Not more than 30 volts and 240 voltamperes within 30 seconds of rapid shutdown initiation outside the array.
- Not more than 80 volts and 240 voltamperes within 30 seconds of rapid shutdown initiation inside the array.

The rapid shutdown initiation is performed by either disconnecting the AC feed to the inverter, or – if the inverter DC Safety switch is readily accessible – by turning off the DC Safety switch.

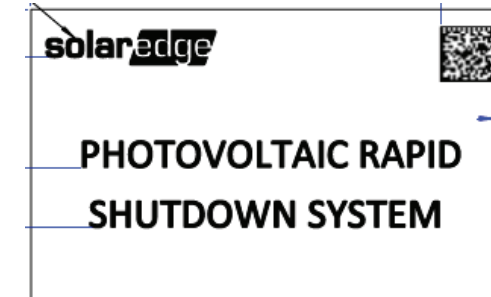
Applicable products:

- Power optimizers:
 - PB followed by 001 to 350; followed by -AOB or -TFI.
 - OP followed by 001 to 500; followed by -LV, -MV, -IV or -EV.
 - P followed by 001 to 850.
 - SP followed by 001 to 350.

*When optimizers are connected to 2 or more modules in series, the max input voltage may exceed 80V. Following the implementation of the NEC 2017 rapid shutdown value of 80V max inside of the array at the beginning of 2019, modules exceeding this combined input max voltage will be required to use optimizers with parallel inputs.
- 1-ph Inverters:

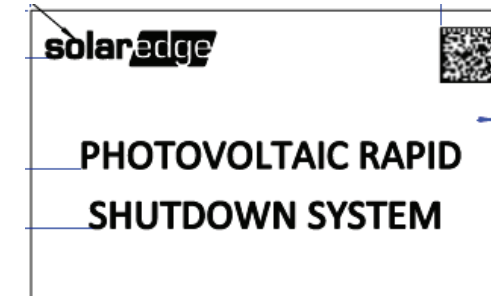
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- SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US / SE7600A-US / SE10000A-US / SE11400A-US / SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US when the following label is labeled on the side of the inverter:



Inverter part number may be followed by a suffix

- 3-ph Inverters:
 - SE9KUS / SE10KUS / SE14.4KUS / SE20KUS / SE30KUS / SE33.3KUS / SE43.2KUS / SE66.6KUS / SE100KUS ; when the following label is labeled on the side of the inverter:



Inverter part number may be followed by a suffix

If there are any questions regarding the results contained in this report, or any of the other services offered by Intertek, please do not hesitate to contact the undersigned.

This information is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense, or damage occasioned by the use of this information. Any observations and results in this report are relevant only to the sample evaluated. Only the Client is authorized to copy and distribute this information and only then in its entirety.



TÜV Rheinland PTL

Certificate

Certificate no.

US 82160015 01

License Holder:

Unirac Inc.
1411 Broadway NE
Albuquerque NM 87102
USA

Manufacturing Plant:

Unirac Inc.
1411 Broadway NE
Albuquerque NM 87102
USA

Test report no.: USA- 31440029 005

Client Reference: Tom Young

Tested to: UL 2703:2015

Certified Product: Module Rack Mounting System

License Fee - Units

Model Designation: SolarMount (SM)

7

Max System Voltage of PV Module: 1000 VDC
Max Size of PV Module: 20.8 sq.ft. surface area
Max Overcurrent Protection Rating of PV Module:
30 A when using the qualified grounding lugs;
20 A when using the Enphase micro inverter EGC.

Fire Rating: Class A when installed with
Type 1, Type 2, Type3, or Type 10 fire rated modules.

(continued)

Appendix: 1,1-5

7

Licensed Test mark:



Date of Issue

(day/mo/yr)

27/07/2016

James A. Marx, Jr. P.E.
10 High Mountain Road
Ringwood, NJ 07456
E-mail: jamlight@verizon.net

January 5, 2016

Unirac, Inc.
1411 Broadway Blvd. NE
Albuquerque, NM 87102

To: Building Department or Others:

RE: Engineer's Notice of Evaluation for UniRac SolarMount™
Solar Module Mounting System

Dear Sir:

I have reviewed Unirac SM SolarMount™ "Design & Engineering Guide – Solarmount Enhancements: Flush-To-Roof Design" and the "Installation Guide"; consisting of Unirac's three rail types, Solarmount Light, Solarmount Rail profile 2 and Solarmount HD and certify that the information and results are accurate. To determine the design level forces, the appropriate wind speed shall be determined as prescribed by local jurisdiction requirements and applied in accordance to the 780 CMR Massachusetts Code. The code requires that wind and snow loading is determined based upon 780 CMR Building Code 8th Ed. or 780 CMR Residential Code 8th Ed. and ASCE 7-05. Unirac's "Design & Engineering Guide" utilizes ASCE 7-05 -Method 2 for which Unirac's On-Line U-Builder or Appendix B – Pressure Lookup Tables are based upon, and that is dependent upon conditions of Low-Rise Buildings with spatial form, height and other structure parameters that are specified in the code provisions for determining the applied wind and snow loading pressures imposed onto the Unirac SolarMount™ rails supporting solar panels. For snow conditions having unbalanced or drift snow, the Analytical procedures should be followed. The Unirac railing assembly requirements for the installation are properly represented in the SolarMount™ Installation Guide.

For other conditions, the determination of wind and snow pressures should be determined by Unirac's Analytical procedures.

For the other conditions, use Massachusetts wind or snow loading criteria and use ASCE 7-05 requirements that are dependent upon conditions of spatial form, height and other structure parameters that are specified in the code provisions for determining the applied wind and snow loading pressures imposed onto the Unirac SolarMount™ rails supporting solar panels.

The design verification is based on:

- I. ASCE7-05 – ASCE Standard
- II. "Steel Construction Manual," 13th Ed., American Institute of Steel Construction, Chicago, IL, 2006.
- III. "Aluminum Design Manual", The Aluminum Association, Washington D.C., 2005.
- IV. Allowable Load Test, Unirac UTR-248 SM2 Enancements.doc

Use:

Three methods have been provided by Unirac "Design & Engineering Guide" to aide in the solar railing requirements.

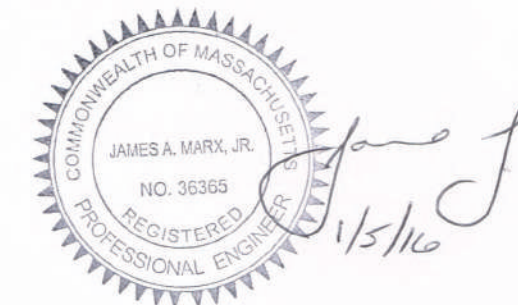
- A) On-Line U-Builder that will provide Bill of Materials & Calculations from project specific input.
- B) Prescriptive Design Method when project specific requirements are known, the project load pressures can be looked up in Tables located in Appendix B.
- C) Do it Yourself – Analytical method design approach that follows ASD calculations per ASCE 7.

By this letter, I certify that the Unirac SolarMount™ assembly, when designed in accordance with one of the 3 methods outlined in the "Design & Engineering Guide" and installed in accordance with the "Installation Guide" will meet the solar railing requirements of the building codes adopted by Massachusetts. Others should evaluate the building structure to which the Unirac SolarMount™ system is to be connected on a case-by-case basis to ensure its adequacy to accept attachments and to support all applied loadings per the building code.

Please call me if you have any questions or concerns.

Sincerely,

James A. Marx, Jr.
Professional Engineer
MA License Number 36365



cc: Tom Young, Unirac



2/12/2021

Freedom Forever LLC
43445 Business Park Dr Suite 110
Temecula, CA 92590

Attn.: To Whom It May Concern

re job: KENNEDY BOB
3885 Main St
Barnstable, MA 02630

The following calculations are for the structural engineering design of the photovoltaic panels and are valid only for the structural info referenced in the stamped plan set. The verification of such info is the responsibility of others.

After review, I certify that the roof structure has sufficient structural capacity for the applied PV loads.

All mounting equipment shall be designed and installed per manufacturer's approved installation specifications.

Design Criteria:

Code:	2015 IBC w/ 780 CMR		
	ASCE 7-10		
Live Load:	20	psf	
Ult Wind Speed:	140	mph	
Exposure Cat:	B		
Ground Snow:	30	psf	Min Roof Snow: 25

Current Renewables Engineering Inc.
Professional Engineer
info@currentrenewableseng.com



Exp: 06/30/2022

Roof Properties:

	Roof 1	Roof 2
Roof Type =	Shingle	Shingle
Roof Pitch (deg) =	15	10
Mean Roof Height (ft) =	13	13
Attachment Trib Width (ft) =	3.3	3.3
Attachment Spacing (ft) =	4	4
Framing Type =	Rafter	Rafter
Framing Size =	2x6	2x6
Framing OC Spacing (in.) =	24	24
Section Thickness, b (in.) =	1.5	1.5
Section Depth, d (in.) =	5.5	5.5
Section Modulus, S _x (in. ³) =	7.6	7.6
Moment of Inertia, I _x (in. ⁴) =	20.8	20.8
Framing Span (ft) =	10	8
Deflection Limit D+L (in.) =	2	1.6
Deflection Limit S or W (in.) =	1.33	1.07
Attachments Pattern =	Fully Staggered	Fully Staggered
Framing Upgrade =	Adequate	Adequate
Sister Size =	NA	NA
Wood Species =	DF #1	DF #1
Wood Fb (psi) =	1000	1000
Wood Fv (psi) =	180	180
Wood E (psi) =	1700000	1700000
C _D (Wind) =	1.6	1.6
C _D (Snow) =	1.15	1.15
C _{LS} =	1.15	1.15
C _M = C _t = C _L = C _i =	1.0	1.0
C _F =	1.3	1.3
C _{fu} =	1.00	1.00
C _r =	1.15	1.15
F'b _{wind} (psi) =	2751	2751
F'b _{snow} (psi) =	1977	1977
F'v _{wind} (psi) =	288	288
F'v _{snow} (psi) =	207	207
M _{allowable_wind} (lb-ft) =	1734	1734
M _{allowable_snow} (lb-ft) =	1246	1246
V _{allowable_wind} (lbs) =	1584	1584
V _{allowable_snow} (lbs) =	1139	1139
E' (psi) =	1700000	1700000

Load Calculation:

Dead Load Calculations:

Panels Dead Load (psf) =	3.0	
	Roof 1	Roof 2
Roofing Weight (psf) =	3.0	3.0
Decking Weight (psf) =	2.0	2.0
Framing Weight (psf) =	0.9	0.9
Misc. Additional Weight (psf) =	1.0	1.0
Existing Dead Load (psf) =	6.9	6.9
Total Dead Load (psf) =	9.9	9.9

Snow Load Calculations:

Ground Snow Load, pg (psf) =	30	
Min Flat Snow, pf_min (psf) =	25	
Min Sloped Snow, ps_min (psf) =	NA	
Snow Importance Factor, Ic =	1.0	
Exposure Factor, Ce =	0.9	
	Roof 1	Roof 2
Thermal Factor, Ct =	1.2	1.2
Flat Roof Snow, pf (psf) =	25	25
Slope Factor, Cs =	1.00	1.00
Sloped Roof Snow, ps (psf) =	25	25

Wind Load Calculations:

Ultimate Wind Speed (mph) =	140	
Directionality Factor, kd =	0.85	
Topographic Factor, kzt =	1.0	
	Roof 1	Roof 2
Velocity Press Exp Factor, kz =	0.70	0.70
Velocity Pressure, qz (psf) =	29.9	29.9
External Pressure Up, GCp_1 =	-0.85	-0.85
External Pressure Up, GCp_2 =	-1.55	-1.55
External Pressure Up, GCp_3 =	-2.45	-2.45
External Pressure Down, GCp =	0.45	0.45
Design Pressure Up, p_1 (psf) =	-25.4	-25.4
Design Pressure Up, p_2 (psf) =	-46.3	-46.3
Design Pressure Up, p_3 (psf) =	-73.2	-73.2
Design Pressure Down, p (psf) =	16.0	16.0

Hardware Checks:

Lag Screw Checks:

	Roof 1	Roof 2
Ref. Withdrawal Value, W (lb/in) =	266	266
($C_M = C_t = C_{eg} = 1.0$) C_D =	1.6	1.6
Adjusted Withdrawal Value, W' (lb/in) =	426	426
Lag Penetration, p (in.) =	2.5	2.5
Allowable Withdrawal Force, W'p (lbs) =	1064	1064
Applied Uplift Force (lbs) =	-344	-343
Uplift DCR =	0.32	0.32
Ref. Lateral Value, Z (lbs) =	270	270
($C_M = C_t = C_{\Delta} = C_{eg} = 1.0$) C_D =	1.15	1.15
Adjusted Lateral Value, Z' (lbs) =	311	311
Applied Lateral Force (lbs) =	96	64
Angle of Resultant Force, α (deg) =	74	79
Adjusted Interaction Lateral Value, Z'_{α} (lbs) =	906	983
Lateral DCR =	0.11	0.07

Roof Framing Checks:

Force Checks:

	Roof 1	Roof 2
LC1: D+S		
Applied Moment (lb-ft) =	874	559
Applied Shear (lbs) =	349	280
Allowable Moment (lb-ft) =	1246	1246
Allowable Shear (lbs) =	1139	1139
Moment DCR =	0.70	0.45
Shear DCR =	0.31	0.25
LC2: D+0.6W		
Applied Moment (lb-ft) =	489	313
Applied Shear (lbs) =	195	156
Allowable Moment (lb-ft) =	1734	1734
Allowable Shear (lbs) =	1584	1584
Moment DCR =	0.28	0.18
Shear DCR =	0.12	0.10
LC3: D+0.75(S+0.6W)		
Applied Moment (lb-ft) =	897	574
Applied Shear (lbs) =	359	287
Allowable Moment (lb-ft) =	1734	1734

Allowable Shear (lbs) =	1584	1584
Moment DCR =	0.52	0.33
Shear DCR =	0.23	0.18
LC4: 0.6D+0.6W		
Applied Moment (lb-ft) =	232	148
Applied Shear (lbs) =	93	74
Allowable Moment (lb-ft) =	1734	1734
Allowable Shear (lbs) =	1584	1584
Moment DCR =	0.13	0.09
Shear DCR =	0.06	0.05

Deflection Checks (Service Level):

	Roof 1	Roof 2
LC1: D+L		
Deflection (in.) =	0.19	0.08
Deflection Limit (in.) =	2.3	1.84
Deflection DCR =	0.08	0.04
LC2: S		
Deflection (in.) =	0.32	0.13
Deflection Limit (in.) =	1.53	1.23
Deflection DCR =	0.21	0.11
LC3: W (Down)		
Deflection (in.) =	0.09	0.04
Deflection Limit (in.) =	1.53	1.23
Deflection DCR =	0.06	0.03
LC4: W (Up)		
Deflection (in.) =	-0.14	-0.06
Deflection Limit (in.) =	1.53	1.23
Deflection DCR =	0.09	0.05

Seismic Check:

Existing Weight:

Wall Weight (psf) =	17
Tributary Wall Area (ft ²) =	1200
Total Wall Weight (lbs) =	20400
Roof Weight (psf) =	7
Roof Area (ft ²) =	3500
Total Roof Weight (lbs) =	24309
Total Existing Weight (lbs) =	44709



Additional PV Weight:

PV Panel Weight (lbs) =	54
Number of Panels =	13
Total Additional PV Weight (lbs) =	708

Weight Increase:

$$(\text{Existing W} + \text{Additional W})/(\text{Existing W}) = 102\%$$

The increase in weight as a result of the solar system is less than 10% of the existing structure and therefore no further seismic analysis is required.

Limits of Scope of Work and Liability:

Existing structure is assumed to have been designed and constructed following appropriate codes at time of erection, and assumed to have appropriate permits. The calculations produced are only for the roof framing supporting the proposed PV installation referenced in the stamped planset and were completed according to generally recognized structural analysis standards and procedures, professional engineering and design experience, opinions and judgments. Existing deficiencies which are unknown or were not observable during time of inspection are not included in this scope of work. All PV modules, racking, and mounting equipment shall be designed and installed per manufacturer's approved installation specifications. The Engineer of Record and the engineering consulting firm assume no responsibility for misuse or improper installation. This analysis is not stamped for water leakage. Framing was determined based on information in provided plans and/or photos, along with engineering judgement. Prior to commencement of work, the contractor shall verify the framing sizes, spacings, and spans noted in the stamped plans, calculations, and cert letter (where applicable) and notify the Engineer of Record of any discrepancies prior to starting construction. Contractor shall also verify that there is no damaged framing that was not addressed in stamped plans, calculations, and cert letter (where applicable) and notify the Engineer of Record of any concerns prior to starting construction.



2/12/2021

Freedom Forever LLC, 43445 Business Park Dr Suite 110, Temecula, CA 92590

Subject: Structural Certification for Installation of Residential Solar
re job: KENNEDY BOB, 3885 Main St, Barnstable, MA 02630

Attn.: To Whom It May Concern

A field observation was performed to document the existing framing of the above mentioned address. From the field observation, the existing roof structure was observed as:

ROOF 1: Shingle roofing supported by 2x6 Rafter @ 24 in. OC spacing. The roof is sloped at approximately 15 degrees and has a max beam span of 10 ft between supports.

ROOF 2: Shingle roofing supported by 2x6 Rafter @ 24 in. OC spacing. The roof is sloped at approximately 10 degrees and has a max beam span of 8 ft between supports.

Design Criteria:

Code: 2015 IBC w/ 780 CMR (ASCE 7-10)			
Ult Wind Speed:	140 mph	Ground Snow:	30 psf
Exposure Cat:	B	Min Roof Snow:	25 psf

After review of the field observation report and based on our structural capacity calculations in accordance with applicable building codes, the existing roof framing supporting the proposed solar panel layout has been determined to be:

ROOF 1: adequate to support the imposed loads. Therefore, no structural upgrades are required.

ROOF 2: adequate to support the imposed loads. Therefore, no structural upgrades are required.

Current Renewables Engineering Inc.
Professional Engineer
info@currentrenewableseng.com



Historic Districts (OKH or HMSWHD) Abutter List for Subject Parcel 335052

Direct abutters – all parcels that touch subject property including those across the street or way that would touch but for the road.

Parcel ID	Owner 1	Owner 2	Address Line 1	Address Line 2	City	State	Zip
335008001	BURROWS, JAMES A		P O BOX 322		CUMMAQUID	MA	02637
335008002	MCCULLOUGH, E TIMOTHY & LAURA G TRS	MCCULLOUGH FAMILY TRUST	4926 INDIAN DEER ROAD		WINDERMERE	FL	34786
335019	WEBB, GRANT & HOWITT, SARAH K		216 TRINITY PASS ROAD		POND RIDGE	NY	10576
335021	JUAN, YU WEN & MCCABE, JASON		320 MADISON STREET		BROOKLYN	NY	11216
335043	KILROY, JOHN E TR	JOHN E KILROY 2019 TRUST	38 BAYBERRY LANE		BARNSTABLE	MA	02630
335044	ALBANESE, DAVID F & JILL L DRUHAN-		25 BAYBERRY LANE		CUMMAQUID	MA	02637
335052	KENNEDY, ROBERT E & CHRISTINA R MENDEZ-		3885 MAIN STREET		BARNSTABLE	MA	02630
335053	BLAKELY, GEORGE W TR	GEORGE W BLAKELY 2018 TRUST	PO BOX 206		BARNSTABLE	MA	02630



Barnstable Old Kings Highway Historic District Committee

200 Main Street, Hyannis, MA 02601, Tel 508.862.4787 Eml erin.logan@town.barnstable.ma.us

APPLICATION, CERTIFICATE OF APPROPRIATENESS

Application is hereby made, with five (5) complete sets, for the issuance of a Certificate of Appropriateness under Section 6 of Chapter 470, Acts and Resolves of Massachusetts, 1973, for proposed work as described below and on plans, drawings, or photographs accompanying this application for:

Check all categories that apply:

- 1. Building construction: New Addition Alteration
- 2. Type of Building: House Garage/barn Shed Commercial Other
- 3. Exterior Painting, roof new roof color/material change, of trim, siding, window, door
- 4. Sign: New Sign Existing Sign Repainting Existing Sign
- 5. Structure: Fence Wall Flagpole Retaining wall Tennis court Other
- 6. Pool Swimming Other man-made pool Solar panels Other

Type or Print Legibly: Date 2/9/21

NOTE: All applications must be signed by the current owner

Owner (print): Peter & Pamela Brouard Telephone #: 774-330-2951

Address of Proposed Work: 176 Dromoland Ln Village OKH-Barn Map Lot # 335/082

Mailing Address (if different) same

Owner's Signature Peter Brouard

Description of Proposed Work: Give particulars of work to be done: _____

Solar PV, big open roof perfect south facing for solar. 2 rows of 16 in landscape and 4 on top in portrait around chimney. Using a black framed panel with black cells, and a white back sheet w/ white diamonds. Flush mounted, rail is not visible.

Agent or Contractor (print): E2 Solar Inc Telephone #: 508-694-7889

Address: 831 Main St, Dennis, 02638 Email: e2solar@e2solarcapecod.com

Contractor/Agent' signature: Jason Stouts

	For committee use only This Certificate is hereby APPROVED / DENIED
Date _____	Members signatures _____
_____	_____
_____	_____
Conditions of approval _____	_____
_____	_____

CERTIFICATE OF APPROPRIATENESS SPEC SHEET Please submit 5 copies

Foundation Type: (Max. 12" exposed) (material - brick/cement, other) cement

Siding Type: Clapboard shingle other
Material: red cedar white cedar other Color: light blue/grey paint

Chimney Material: _____ Color: white

Roof Material: (make & style) asphalt shingle Color: grey

Roof Pitch(s): (7/12 minimum) 8/12 34 degrees (specify on plans for new buildings, major additions)

Window and door trim material: wood other material, specify _____

Size of cornerboards _____ size of casings (1 X 4 min.) _____ color White

Rakes 1st member _____ 2nd member _____ Depth of overhang _____

Window: (make/model) _____ material _____ color _____
(Provide window schedule on plan for new buildings, major additions)

Window grills (please check all that apply):
true divided lights exterior glued grills grills between glass removable interior None

Door style and make: _____ material _____ Color: _____

Garage Door, Style _____ Size of opening _____ Material _____ Color _____

Shutter Type/Style/Material: _____ Color: _____

Gutter Type/Material: _____ Color: _____

Deck material: wood other material, specify _____ Color: _____

Skylight, type/make/model/: _____ material _____ Color: _____ Size: _____

Sign size: _____ Type/Materials: _____ Color: _____

Fence Type (max 6') Style _____ material: _____ Color: _____

Retaining wall: Material: _____

Lighting, freestanding _____ on building _____ illuminating sign _____

OTHER INFORMATION: _____

THE ATTACHED CHECK LIST MUST BE COMPLETED AND SUBMITTED

Please provide samples of paint colors, manufacturers brochure of windows, doors, garage door, fences, lamp posts etc

Signed: (plan preparer) Desiree Revoit - Easolar Print Name Desiree Revoit

5. SIGNS

- Diagram of sign, showing graphics, size, design and height of post, color and materials.
- Spec sheet.
- Site Plan on a GIS map or mortgage survey, OR photographs OR to-scale sketch of building elevation showing location of proposed sign; and any tree to be removed near a freestanding sign.

6. SOLAR PANELS

- Drawing of location of panels on house showing roof and panel dimensions.
- Site plan showing location of building on property. (Assessors map may be submitted)
- Height of solar panel above the roof.
- Color of panels
- Finish (matt or glossy)

7. FEES

- Filing fee** according to schedule, made payable to the Town of Barnstable
- Legal ad fee \$19.84** check made payable to the Town of Barnstable for the required legal ad notification
Note the filing fee and legal ad fees need to be on separate checks. We apologize in advance for any inconvenience this may cause.
- First Class Postage Stamps** for abutter notification. Please contact the Barnstable Old King's Highway Office

SIGNED (plan preparer) Desiree Revoir Print Desiree Revoir Ed Solar

Date: 2/9/21 Tel. Phone no's: 508-694-7889
 Email ed.solar@ed.solarcapecod.com

NOTE: *The Old Kings Highway Historic District Committee MAY DENY INCOMPLETE APPLICATIONS*

ATTENDANCE AT MEETINGS: *If the applicant or his/her representative is not present during the hearing is scheduled, the application may be either CONTINUED OR DENIED*

APPEAL PERIOD	APPROVED PLANS	PLAN PICK UP
----------------------	-----------------------	---------------------

There is a ten (10) day appeal period, plus a 4 day waiting period for approved plans from the date the decision is filed with Town Clerk. This is necessary for each Certificate of Appropriateness and/or Certificate for Demolition issued by the Old King's Highway Committee. Plans approved by the Old King's Highway Historic District Committee may be picked up at Planning & Development Department, 200 Main Street, Hyannis, after expiration of the 14 day "wait" period. If the 14th day falls on a Saturday, your plans will be available the afternoon of the following business day.

DENIALS

Applications that are denied may be appealed to the Old Kings Highway Regional Historic District Commission within 10 days of the filing of the decision with the Town Clerk. For more information, see the Bulletin of the Old Kings Highway Regional Historic District Commission.

BUILDING PERMITS, OTHER AGENCY CONTACTS
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In most instances, before commencing work, a Building Permit is required. The Building Division will require a certified plot plan for new construction and/or demolition. Commercial work may require Site Plan approval. Demolitions: the applicant should check with the Building Division as to conformance with Zoning requirements.

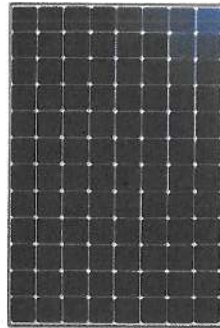
All certificates issued will expire one year from the date of issue, or upon the expiration date of any building permit issued for the work, whichever expiration date shall be later. The committee may renew any certificate for one additional year, providing the request for such renewal is received at least 30 days prior to the expiration date.

QUESTIONS ABOUT YOUR APPLICATION? PLEASE CALL THE BARNSTABLE OLD KINGS HIGHWAY OFFICE AT 508 862-4787
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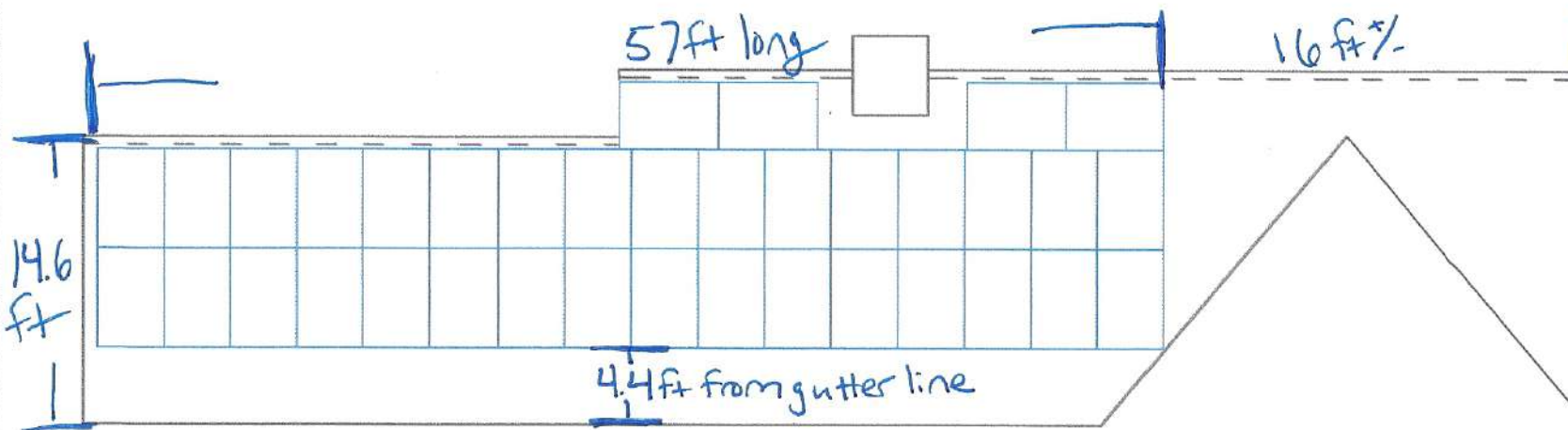
GENERAL NOTES:

- PRELIMINARY LAYOUT
- SYSTEM SIZE: 11.772 KWDC
- (36) SUNPOWER E20-327 MODULES
- 10 KW SOLAREGE INVERTER AND OPTIMIZERS
- SUNPOWER INVISIMOUNT RACKING
- 13,559 KWH ESTIMATED ANNUAL PRODUCTION

SunPower E20 327 panels
 3.43 ft wide x 5.12ft long x 2 in. deep
 632 sq. ft. array
 produces 13,559 kWh/yr.
 11.772 kW system



E20 - 327 PANEL



PHOTOVOLTAIC INSTALLATION FOR:
 PETER AND PAMELA BROUARD
 176 DROMOLAND LANE
 BARNSTABLE, MA

X

TITLE:
 DETAILS

SUNPOWER® | by E2 Solar

831 MAIN ST. (RTE 6A), DENNIS, MA 02638 ph: 508.694.7889
 www.e2solarcapecod.com info@e2solarcapecod.com

Date: 01.11.2021
 Sheet:

A-1

Historic Districts (OKH or HMSWHD) Abutter Map for Subject Parcel 335082

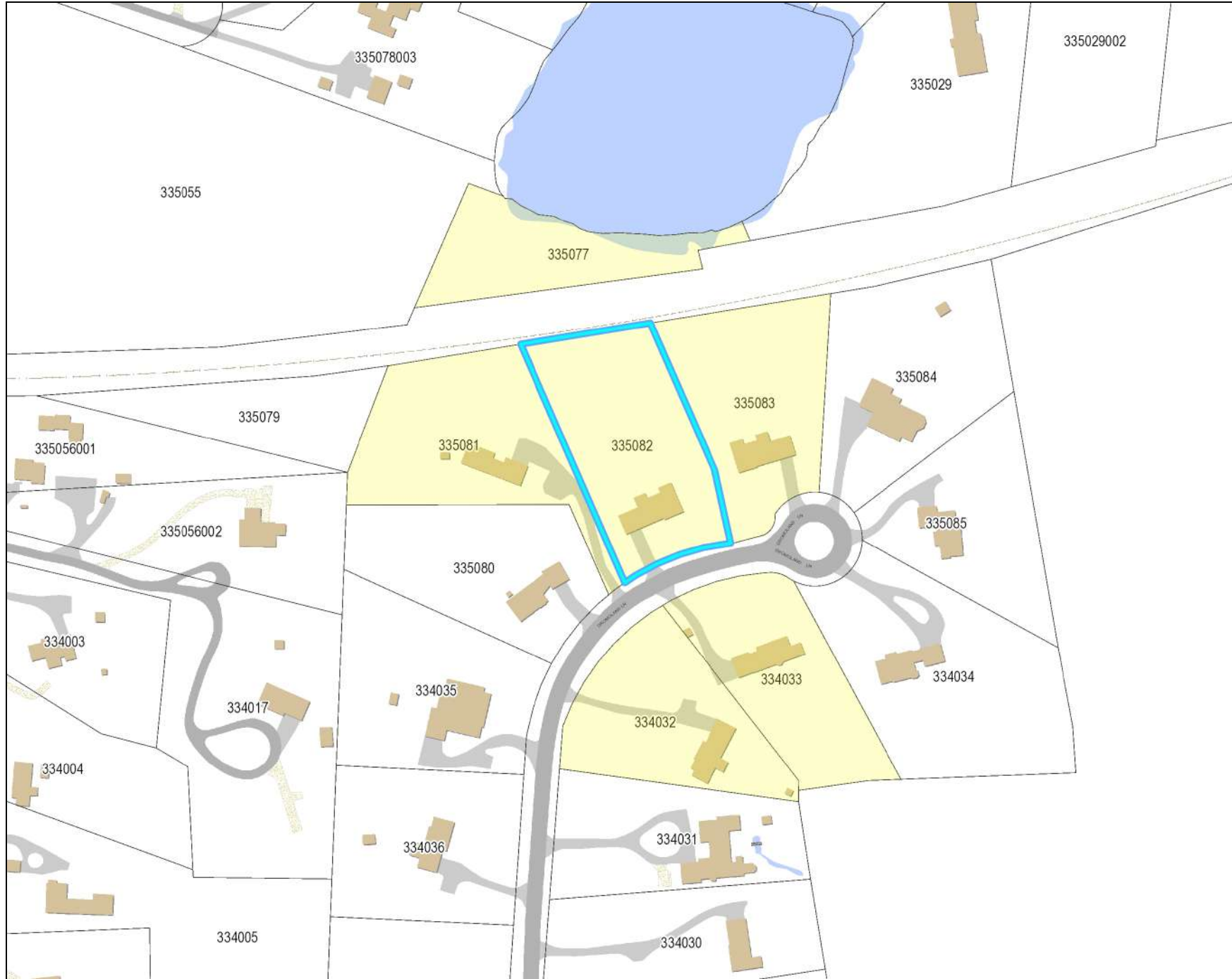
Direct abutters – all parcels that touch subject property including those across the street or way that would touch but for the road.

Town of Barnstable GIS Unit

gis@town.barnstable.ma.us

Legend

- Subject Parcel
- Abutters
- Parcels
- Town Boundary
- Railroad Tracks
- Buildings
 - Approx. Buildi
 - Buildings
- Parking Lots
- Roads
 - Paved
 - Unpaved
- Paved Road
- Unpaved Road
- Bridge
- Paved Median
- Water Bodies



This map is for illustration purposes only. It is not adequate for legal boundary determination or regulatory interpretation. This map does not represent an on-the-ground survey. It may be generalized, may not reflect current conditions, and may contain cartographic errors or omissions.

Parcel lines shown on this map are only graphic representations of Assessor's tax parcels. They are not true property boundaries and do not represent accurate relationships to physical objects on the map such as building locations.



0 88 175 ft.

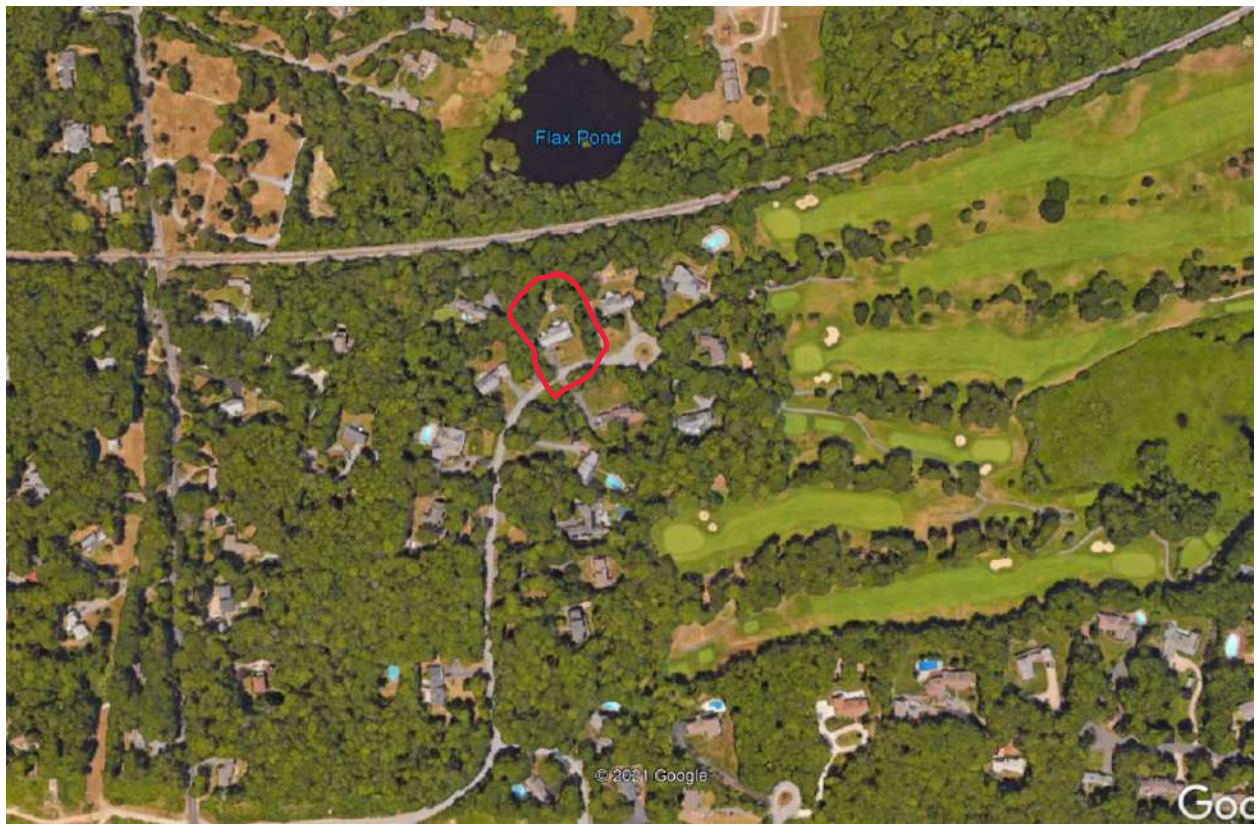
1 inch = approx. 175 ft.

Printed on: 2/9/2021

Historic Districts (OKH or HMSWHD) Abutter List for Subject Parcel 335082

Direct abutters – all parcels that touch subject property including those across the street or way that would touch but for the road.

Parcel ID	Owner 1	Owner 2	Address Line 1	Address Line 2	City	State	Zip
334032	STACK, DENISE E		157 DROMOLAND LANE		BARNSTABLE	MA	02630
334033	HICKEY, KAREN E		177 DROMOLAND LANE		BARNSTABLE	MA	02630
335077	MASSACHUSETTS, COMMONWEALTH OF	C/O EXECUTIVE OFFICE OF	TRANSPORTATION & CONSTRUCTION	10 PARK PLAZA - SUITE 3170	BOSTON	MA	02116
335081	MORGAN, COLLEEN C & ROBERTS, RICHARD W		1 FOREST AVENUE		COHASSET	MA	02025
335082	BROUARD, PETER & PAMELA E		176 DROMOLAND LANE		BARNSTABLE	MA	02630-1803
335083	MURPHY, GREGORY S & TRACEY M		4 MCKAYLA DRIVE		NEW MILFORD	CT	06776

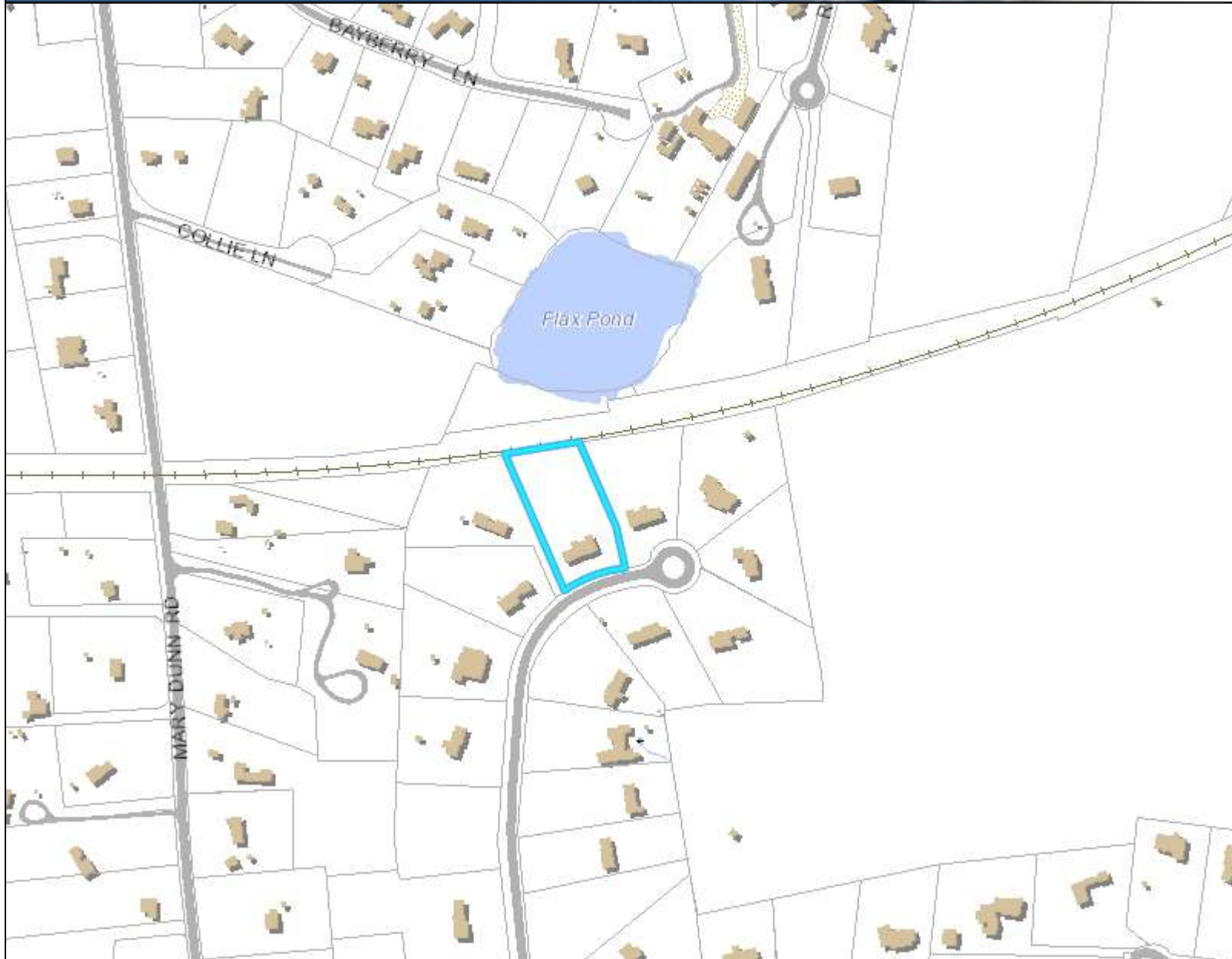




Heading down Dromoland house on left



Leaving Dromoland house on right



Legend

- Parcels
- Town Boundary
- + Railroad Tracks
- Buildings
 - Approx. Building
 - Buildings
- Parking Lots
 - Paved
 - Unpaved
- Roads
 - Paved Road
 - Unpaved Road
 - Bridge
 - Paved Median
- Water Bodies

Map printed on: 2/23/2021



Approx. Scale: 1 inch = 333 feet



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Town of Barnstable GIS Unit

367 Main Street, Hyannis, MA 02601

508-862-4624

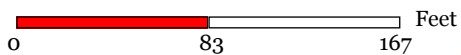
gis@town.barnstable.ma.us

Legend

Road Names



Map printed on: 2/23/2021



Approx. Scale: 1 inch = 83 feet



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Town of Barnstable GIS Unit

367 Main Street, Hyannis, MA 02601

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gis@town.barnstable.ma.us