

August 2021

Property Owner: Jennette Spears

Property Address: 864 Old Stage Road South, Erwin, NC 28339

RE: Goundmount Installation

I have reviewed the address referenced above to determine the adequacy of the existing area supports the proposed installation of an array of solar panels in the ground.

The photovoltaic ground mount structure offered by Unirac is found to be of sufficient capacity for the design loads when installed in accordance with the drawings and calculations attached, and manufacturer's instructions. The foundation shall be installed as marked on the drawings to the depth specified in the drawing table. To the best of my professional knowledge and belief, the product and system installation will be in compliance with all state and local building codes and guidelines at the time of our review.

Evaluation Criteria:

Windspeed: 118
Applied Codes: ASCE 7-10 NCBC 2018 NEC 2017
Risk Category: II
Wind Exposure Category: C
Ground Snow Load: 15 PSF
Footing Depth: 3'
Row Spacing: 72"

Connection of Array to Ground:

Manufacturer: UNIRAC
Model: ULA (Unirac Large Array)
Foundation Type: Drilled Cast-In-Hole Concrete Pile

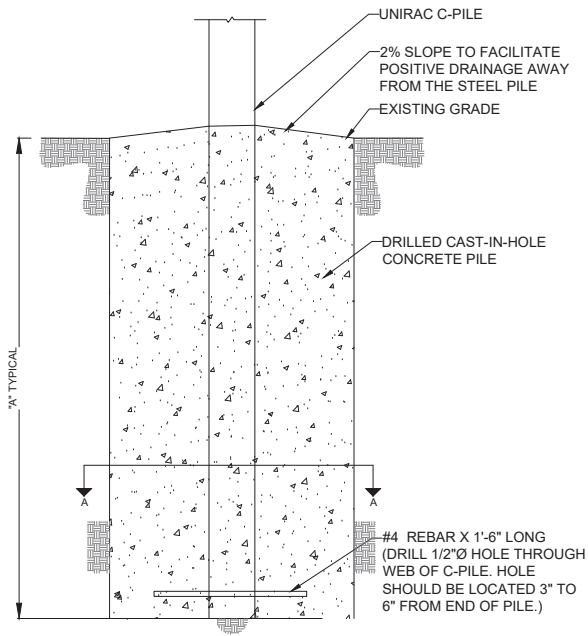
Limitations

Unirac's ground mount system is to be installed per manufacturer's specifications and in accordance with accepted industry-wide safety standards. Electrical engineering is beyond our scope of the installation.



08/25/2021

North Carolina Firm No. C4113
Principal Engineering, Inc.



20 OR 30 DEGREE UNIRAC STEEL C-PILE FOUNDATION DEPTHS
(REFER TO SHEET SR-200 OR SR-300 FOR PILE STICK-UP HEIGHT) (c)

FOUNDATION TYPE	DETAIL NUMBER	NO FROST DEPTH		FROST DEPTH = 3.5 FT OR LESS		FROST DEPTH = 5.0 FT	
		DIMENSION "A"		DIMENSION "A"		DIMENSION "A"	
24" FULL CAST-IN-PLACE CONCRETE	400	6'-0" (a)		6'-0" (a)		6'-0"	
18" FULL CAST-IN-PLACE CONCRETE	400	7'-0"		7'-0"		6'-0"	

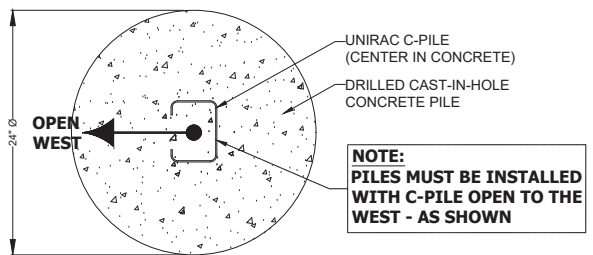
(a) FOR 20 DEGREE DESIGNS THE 6'-0" EMBEDMENT REQUIRES CUTTING 24" OFF OF THE BOTTOM OF A 12'-6" LONG C-PILE. (DO NOT CUT THE END OF PILE WITH PRE-PUNCHED HOLES.) IF CUTTING IS NOT PREFERRED, AN 8'-0" CONCRETE FOUNDATION IS ACCEPTABLE.

(b) SHALLOWER EMBEDMENT DEPTHS ARE POSSIBLE, HOWEVER, PILE TESTING AND/OR APPROVAL FROM A GEOTECHNICAL OR PROFESSIONAL ENGINEER ARE REQUIRED.

(c) BASED ON THE PILE STICK-UP HEIGHT FOR A STANDARD 20 DEGREE GFT TABLE. ALL PILE EMBEDMENT DEPTHS THAT ARE 6'-1" OR GREATER, REQUIRE A 15 FT LONG PILE.

(d) BASED ON THE PILE STICK-UP HEIGHT FOR A STANDARD 30 DEGREE GFT TABLE. ALL PILE EMBEDMENT DEPTHS THAT ARE 6'-4" OR GREATER, REQUIRE A 15 FT LONG PILE.

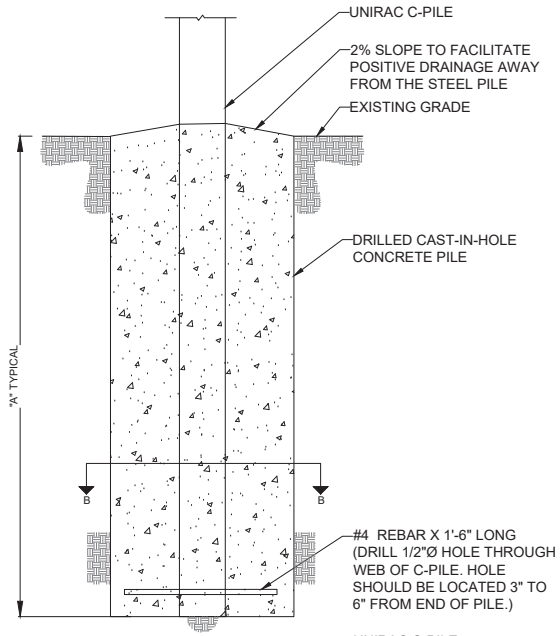
#4 REBAR X 1'-6" LONG (DRILL 1/2"Ø HOLE THROUGH WEB OF C-PILE. HOLE SHOULD BE LOCATED 3" TO 6" FROM END OF PILE.)



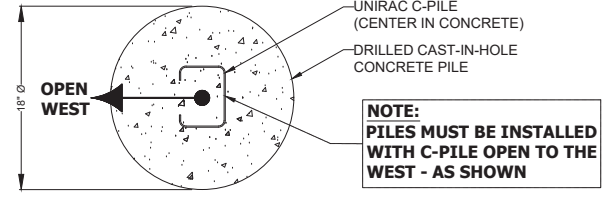
SECTION A-A
TOP VIEW

400 DRILLED CAST-IN-HOLE CONCRETE PILE FOUNDATION (ALTERNATE OPTION) NOT TO SCALE

- FOUNDATION 400: DRILLED CAST-IN-HOLE CONCRETE PILE FOUNDATION
1. THE FOUNDATION MUST BE EXCAVATED WITH LITTLE TO NO LOOSE MATERIAL IN THE BOTTOM.
 2. THE FOUNDATION CANNOT BE BELOW THE GROUND WATER UNLESS WRITTEN APPROVAL FROM UNIRAC.
 3. IN SOFT OR UNSTABLE SOILS, A TEMPORARY CASING TO STABILIZE THE EXCAVATION IS PERMITTED.
 4. THE PILE SHALL HAVE A #4 REBAR PLACED THROUGH THE BOTTOM OF THE PILE.
 5. THE PILE MUST BE CENTERED IN THE HOLE WITH EQUAL AMOUNTS OF CONCRETE AROUND THE CASING.
 6. CONCRETE SHALL CONFORM TO THE CONCRETE SPECIFICATIONS LISTED ON SR-100.
 7. CONCRETE DEPTH SHALL CONFORM TO THE DEPTHS LISTED IN THE TABLE ON THIS SHEET.
 8. THE TOP OF THE CONCRETE MUST BE ABOVE GRADE.
 9. THE CORE OF THE CONCRETE CAST-IN-DRILLED HOLE PILE WILL CONSIST OF THE UNIRAC C-PILES AS DEPICTED IN THE FIGURE.
 10. FOUNDATIONS MUST NOT BE INSTALLED IN ORGANIC SOILS.
 11. DEPTH OF CONCRETE CAN BE +6/-2 INCHES.
 12. UNIRAC C-PILE CAN EXTEND TO BOTTOM OF CONCRETE OR EXTEND DEEPER THAN THE CONCRETE.



#4 REBAR X 1'-6" LONG (DRILL 1/2"Ø HOLE THROUGH WEB OF C-PILE. HOLE SHOULD BE LOCATED 3" TO 6" FROM END OF PILE.)



SECTION B-B
TOP VIEW

PROFESSIONAL SEAL
041743
ENGINEER
HENRY J. DIFRANCO, JR.
Henry J. DiFranco, Jr.
08/25/2021

North Carolina Firm No. C4113
Principal Engineering, Inc.

REVISION BLOCK		
MARK	DATE	DESCRIPTION
0	08/14/2019	Original Release
1	08/25/2019	Rev-1
2	05/26/2020	Rev-2
3	07/30/2020	Rev-3

OWNER/CLIENT:

ENGINEERING CONSULTANT:

PROFESSIONAL SEAL

SEE STATE SPECIFIC STAMPED & SIGNED GFT CERTIFICATION LETTER

UNIRAC
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Albuquerque, New Mexico 87102
Phone: (505) 243-8412
Fax: (505) 243-8413
www.unirac.com

PROJECT NUMBER: GFT
ENGINEERED BY: HJD
CHECKED BY: HJD
ORIGINAL RELEASE DATE: 08/14/2019
DRAWING SHEET SIZE: 17" x 24 1/2"

SHEET TITLE: FOUNDATION EMBEDMENT AND FOUNDATION DETAILS

SHEET NUMBER: SR-400
6 of 11

The engineer's seal and signature on this manufacturer's drawing certifies the product for use in this project only.