

EnCon Services, Inc.

Sign Design Calculations

Job Description
 SHEETZ
 NC 24-87 & SAWYER RD (SR 2482)
 CAMERON, NC 28326
 6'-2 3/8" Menu Board
 Design per 2018 North Carolina Building Code
 ASCE 7-10, Load Case = 0.6W + D

PREPARED BY:
 EnCon Services, Inc., NC C-4112
 PO Box 3613, Apollo Beach, FL 33572
 813-655-3373
 Nathan P. Presnell, PE 042322

DATE SIGNED:

3/16/2021

Risk Category II
 Kzt 1
 Exposure C
 Kd 0.85
 Kz 0.85
 V_{ULT} 120 mph
 Cf 1.60
 G 0.85
 Number of Poles 1
 Wind Pressure (PSF) **36**



Sign	Area (sf)	Distance to Center (ft)	P = Force (lb)	Moment (ft-lb)
Top	24.80	3.82	538	2055
Bottom	2.16	0.72	47	34
Totals			585	2,089

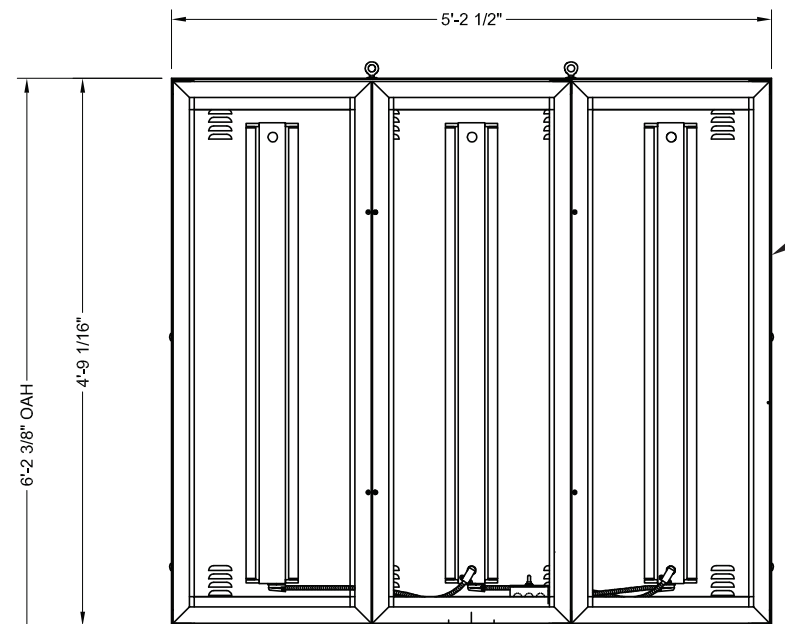
Required Flexural Strength (kip-ft) 2.1 per pole
 Provided Flexural Strength (kip-ft) 14.7 HSS 4 x 4 x 3/8, Grade A500 B Steel
 Flexural Ratio 0.14

Anchor Bolt Design

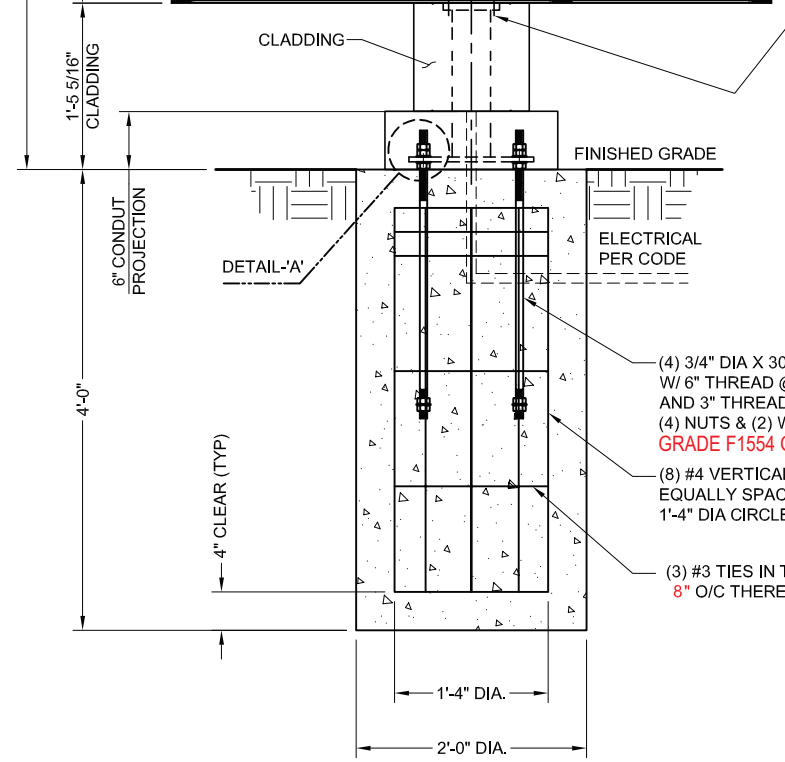
Distance Between Bolts 10
 Number of Bolts per Base Plate 4
 1253 Tension on Bolts (LB)
Use 3/4" Dia. X 30" Long F1554 Gr36 Bolts with Nuts Embedded in Foundation

Base Design

Number of Bases 1
 Diagonal B (FT) 2.00
 Lateral soil pressure (LB/SF/FT) 150
 Depth (Estimated) (FT) 4
 S1 400
 Design Depth (FT) 3.57 Ft
Base Size Required
4.0 FT Deep
2.0 FT Diameter



PRE-ENGINEERED DRIVE THRU SIGN ELEMENT



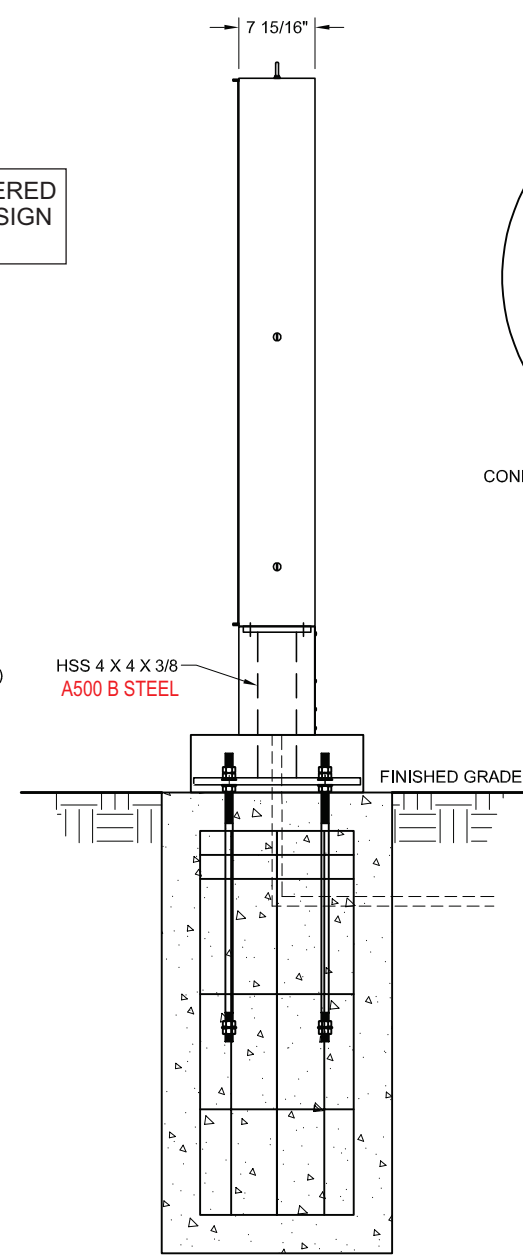
FRONT ELEVATION
SCALE 1:20

(4) 5/8" DIA. X 2 1/2" LONG MTG. BOLTS (HI-STRENGTH A325 STEEL)

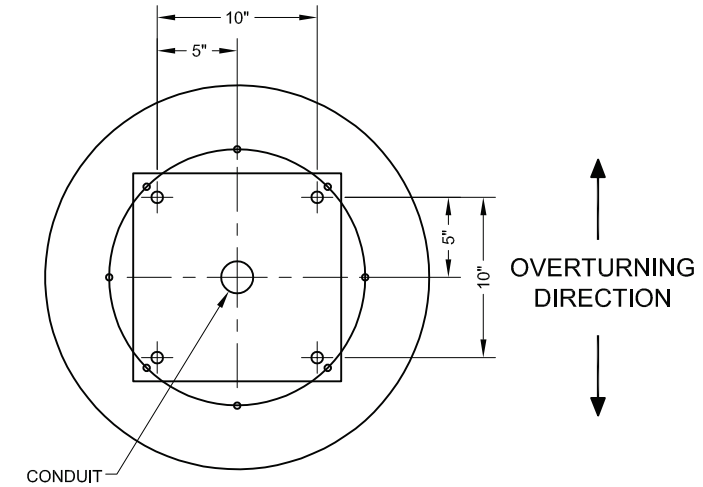
(4) 3/4" DIA X 30" LONG ANCHOR BOLTS, W/ 6" THREAD @ TOP AND 3" THREAD @ BOTTOM, (4) NUTS & (2) WASHERS PER BOLT
GRADE F1554 Gr 36 ANCHOR BOLTS

(8) #4 VERTICAL REBARS EQUALLY SPACED AROUND 1'-4" DIA CIRCLE

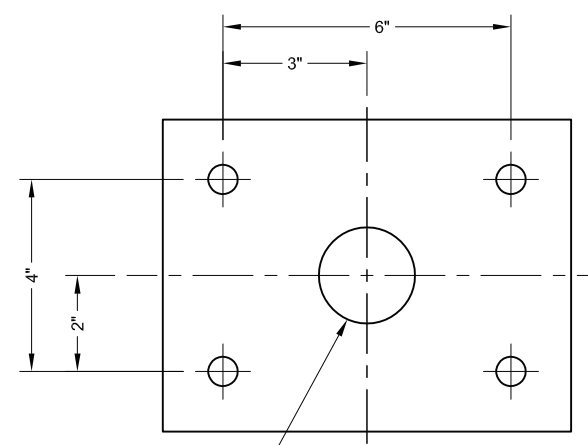
(3) #3 TIES IN THE TOP 5", 8" O/C THEREAFTER



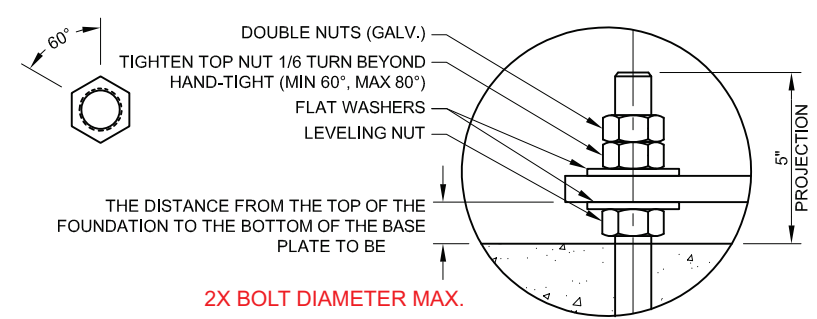
SIDE ELEVATION
SCALE 1:20



ANCHOR BOLT PATTERN
SCALE 1:12



SIGN MTG. PATTERN
SCALE 1:4



ANCHOR BOLT DETAIL-A'
SCALE 1:10

GENERAL NOTES
INSTALLER TO PROVIDE COMPLETION PHOTOS OF FOUNDATION WITH ANCHOR BOLTS, REBAR & CONDUIT (BEFORE & AFTER POUR), BASE PLATE(S) w/ANCHOR BOLT CONNECTIONS, MATCH PLATE/SIGN CONNECTIONS, ANY WELDED CONNECTIONS, ELECTRICAL WIRING AND OVERALL ELEVATION.

THIS SIGN IS INTENDED TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 600 OF THE NATIONAL ELECTRIC CODE AND/OR OTHER APPLICABLE LOCAL CODES. THIS INCLUDES PROPER GROUNDING AND BONDING OF THE SIGN.

INSTALLER TO BE SURE SIGNS ARE PROPERLY INSTALLED, CONNECTED AND GROUNDED.

LANDSCAPING MATERIALS SHOULD BE KEPT MINIMUM TWO INCHES AWAY FROM SIGN POLES OR BASE PLATES.

THIS DRAWING IS FOR INSTALLATION PURPOSES ONLY AND NOT TO BE USED FOR MANUFACTURING.

CONCRETE SPECIFICATION
0.47 CU. YDS. TOTAL. CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 3,000 PSI @ 28 DAYS. REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI. RECOMMENDED MIN. CURE TIME OF 7 DAYS BEFORE PROCEEDING WITH INSTALLATION.

LIFTING HOLE NOTE
ANY LIFTING HOLES CREATED ARE THE RESPONSIBILITY OF THE INSTALLER. LIFTING HOLES ARE TO BE SEALED BY A CAP PLATE, WELDED OVER TO COVER AND THEN PAINTED.

WELDING NOTE
ANY REQUIRED WELDING IS TO BE COMPLETED BY AN AWS CERTIFIED WELDER QUALIFIED IN THE APPLICABLE POSITIONS NEEDED.

DESIGN NOTE
CONCRETE BASE DESIGNED USING A LATERAL SOIL BEARING CAPACITY OF 150 PSF / FT. OF DEPTH. IF THESE SOIL CONDITIONS DO NOT EXIST AT THE FOUNDATION LOCATION, IT IS THE ERECTOR'S RESPONSIBILITY TO NOTIFY EVERBRITE, LLC PRIOR TO PERFORMING ADDITIONAL EXCAVATION OR ANY CONCRETE PLACEMENT.

- INSTALLATION INSTRUCTIONS**
1. STAKE FOUNDATION AREA AND CONFIRM FINAL GRADE REQUIREMENTS WITH G. C.
 2. EXCAVATE FOUNDATION AREA.
 3. SET ANCHOR BOLTS, REBAR AND CONDUIT STUB. (PRIMARY ELECTRICAL SERVICE TO BASE BY G.C.)
 4. POUR CONCRETE. ALLOW CONCRETE CURE TIME AS REQUIRED. RECOMMENDED MIN. CURE TIME OF 7 DAYS BEFORE PROCEEDING WITH INSTALLATION.
 5. ANCHOR POLE(S) AS SHOWN IN AB DETAIL. CHECK FOR PLUMB.
 6. MOUNT SIGNAGE TO POLE(S). (INSTALLER TO PROVIDE WIRE BETWEEN SIGN AND BASE OF POLE.)
 7. MAKE FINAL ELECTRICAL HOOK-UP. (ALL ELECTRICAL TO MEET LOCAL CODES.)
 8. TEST SIGNAGE FOR PROPER FUNCTION AND LIGHTING.
 9. REMOVE ANY LIFTING BRACKETS AND REINSTALL BOLTS.
 10. CLEAN UP AREA AND REMOVE ANY PACKING MATERIAL. DO NOT DISCARD ANY MATERIAL OR DEBRIS INTO ON SITE DUMPSTERS.

EVERBRITE TO FURNISH

1. 4'-9 1/16" X 5'-2 1/2" SIGN WITH POLE & CLADDING
2. ANCHOR BOLTS AND NUTS
3. ALL MOUNTING HARDWARE

ELECTRICAL SPECIFICATION:

LAMP : (6) F032/741 FLUORESCENT
BALLAST : (3) @ 0.56 AMPS
LINE LOAD : 1.68 AMPS TOTAL
(1) 15 AMP. 120 VOLT CIRCUIT

- INSTALLER TO FURNISH**
1. ALL ELECTRICAL COMPONENTS REQUIRED
 2. FOUNDATION
- GENERAL CONTRACTOR TO FURNISH**
1. PRIMARY WIRES FROM BUILDING TO SIGN

DESIGN PARAMETERS:
2018 NORTH CAROLINA BUILDING CODE
ASCE 7-10
WIND SPEED DATA
1. VULT WIND SPEED = 120 MPH
2. RISK CATEGORY II
3. WIND EXPOSURE C
4. INTERNAL PRESSURE COEF. N/A
5. COMPONENT AND CLADDING N/A

ENCON SERVICES, INC.
PO BOX 3613
APOLLO BEACH, FL 33572
813-655-3373
NORTH CAROLINA C-4112
ENCON@ME.COM



NATHAN P. PRESNELL, P.E. 042322
DATE SIGNED: 3/16/2021

SIGN TO BE CONSTRUCTED TO NEC 600 STANDARD
SIGN TO BEAR UL LABEL
SIGN TO HAVE ELECTRICAL DISCONNECT ON THE EXTERIOR



INSTALLATION DRAWING

THESE DRAWINGS ARE THE EXCLUSIVE PROPERTY OF EVERBRITE, LLC. USE OF, OR DUPLICATION IN ANY MANNER WITHOUT EXPRESS WRITTEN PERMISSION OF EVERBRITE, LLC. IS PROHIBITED.

REV	DATE	BY	CHK	DESCRIPTION
A	06/14/19	IMPACT-USK	CJB	RELEASED FOR INSTALLATION

DRAWN BY	IMPACT-USK	SITE	SHEETZ CAMERON NC 24-87 & SAWYER RD (SR 2482) CAMERON, NC 28326
DATE	06/14/19	CHECKED BY	CJB
DATE	06/14/19	SCALE	AS SHOWN
		REF	

TITLE	SHZ 4'-9 1/16" X 5'-2 1/2" MENU BOARD @ 6'-2 3/8" OAH		
PROJECT NO.	404309	DRAWING NO.	IN404309B
		REV	A

EnCon Services, Inc.

Sign Design Calculations

Job Description
 SHEETZ
 NC 24-87 & SAWYER RD (SR 2482)
 CAMERON, NC 28326
 Drive Thru Canopy
 Design per 2018 North Carolina Building Code
 ASCE 7-10, Load Case = 0.6W + D

PREPARED BY:
 EnCon Services, Inc., NC C-4112
 PO Box 3613, Apollo Beach, FL 33572
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 Nathan P. Presnell, PE 042322

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Risk Category II
 Kzt 1
 Exposure C
 Kd 0.85
 Kz 0.85
 V_{ULT} 120 mph
 Cf 1.85
 G 0.85
 Number of Poles 1
 Wind Pressure (PSF) **42**
 Ground Snow Load (PSF) **10**



Sign	Area (sf)	Distance to Center (ft)	P = Force (lb)	Moment (ft-lb)
Top - Vertical	42.00	1.75	1652	2892
Top - Horizontal	10.50	11.75	264	3099
Cabinet	5.33	3.33	134	447
Pole	28.75	5.81	722	4196
Totals			1,120	10,634

Required Flexural Strength (kip-ft) 10.6 per pole
 Provided Flexural Strength (kip-ft) 25.7 HSS 6 x 6 x 1/4, Grade A500 B Steel Tube
 Flexural Ratio 0.41

Anchor Bolt Design

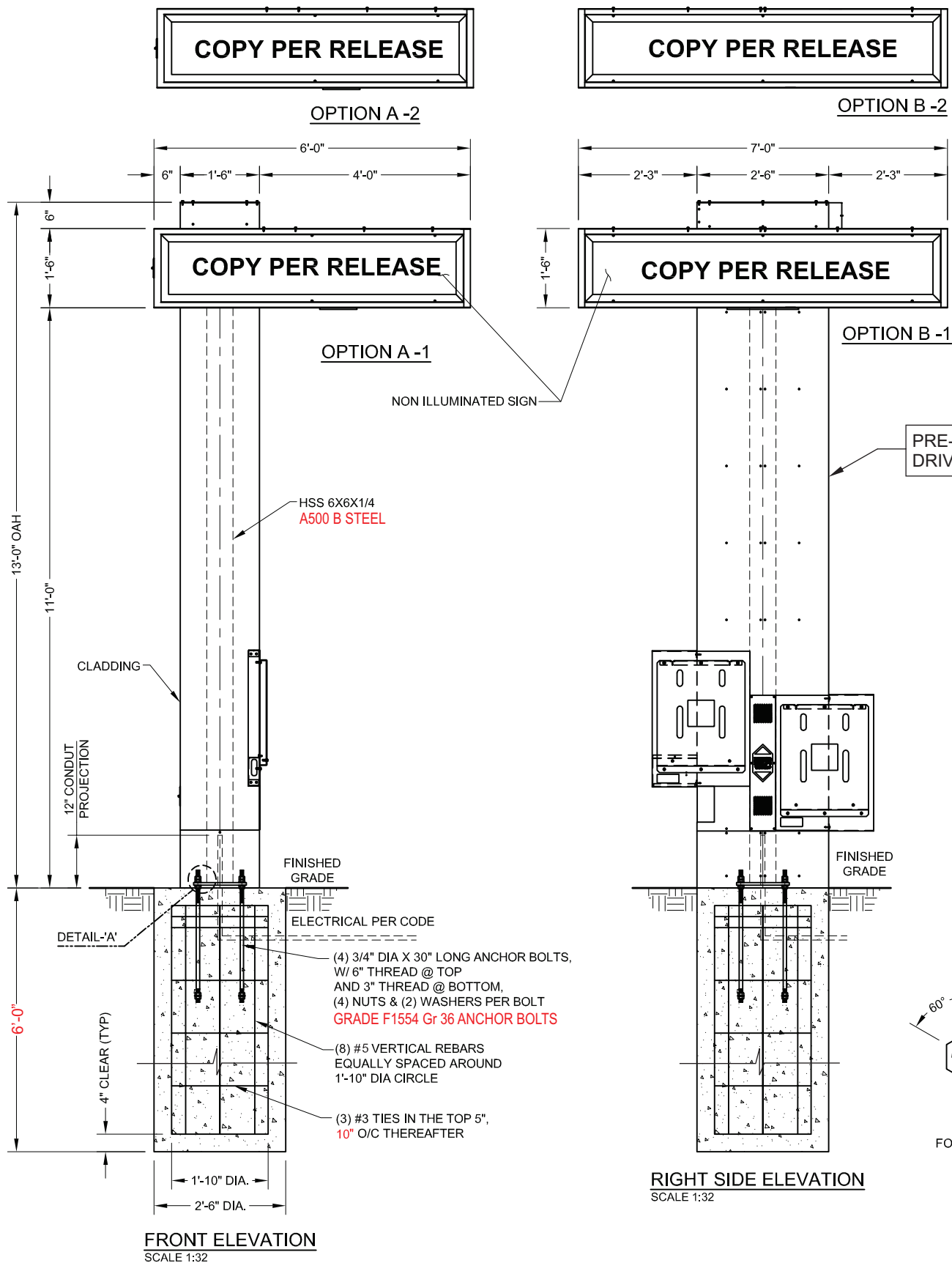
Distance Between Bolts 10
 Number of Bolts per Base Plate 4

6380 Tension on Bolts (LB)
Use 3/4" Dia. X 30" Long F1554 Gr36 Bolts with Nuts Embedded in Foundation

Base Design

Number of Bases 1
 Diagonal B (FT) 2.50
 Lateral soil pressure (LB/SF/FT) 150
 Depth (Estimated) (FT) 6
 S1 600
 Design Depth (FT) 5.21 Ft

Base Size Required
6.0 FT Deep
2.5 FT Diameter



EVERBRITE TO FURNISH

- 1'-6" X 6'-0" X 7'-0" SIGN, POLE WITH CLADDING
- ANCHOR BOLTS AND NUTS
- ALL MOUNTING HARDWARE

INSTALLER TO FURNISH

- ALL ELECTRICAL COMPONENTS REQUIRED
- FOUNDATION

GENERAL CONTRACTOR TO FURNISH

- PRIMARY WIRES FROM BUILDING TO SIGN

ELECTRICAL SPECIFICATION:

LAMPS: (2) F64T12 CW/HO
 (2) F72T12 CW/HO
 BALLAST: (1) EESB-424-13L
 1.85 AMPS @ 120VAC
 (1) 20 AMP CIRCUIT, 60Hz UL 48 & NEC COMPLIANT

GENERAL NOTES
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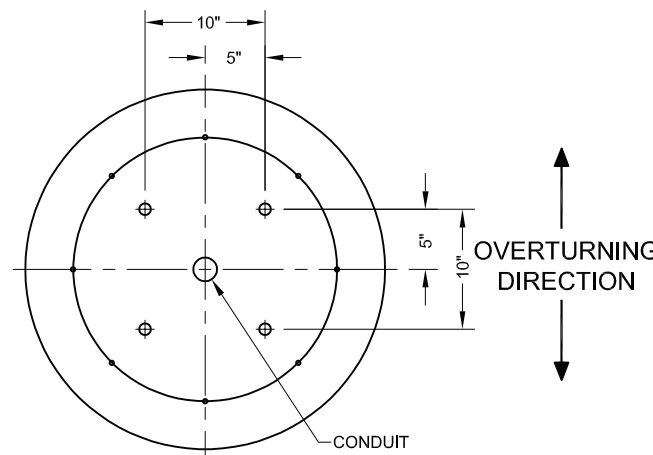
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 SIGN TO HAVE ELECTRICAL DISCONNECT ON THE EXTERIOR

DESIGN PARAMETERS:
 2018 NORTH CAROLINA BUILDING CODE
 ASCE 7-10
 WIND SPEED DATA
 1. VULT WIND SPEED = 120 MPH
 2. RISK CATEGORY II
 3. WIND EXPOSURE C
 4. INTERNAL PRESSURE COEF. N/A
 5. COMPONENT AND CLADDING N/A
 GROUND SNOW LOAD, Pg = 10 PSF

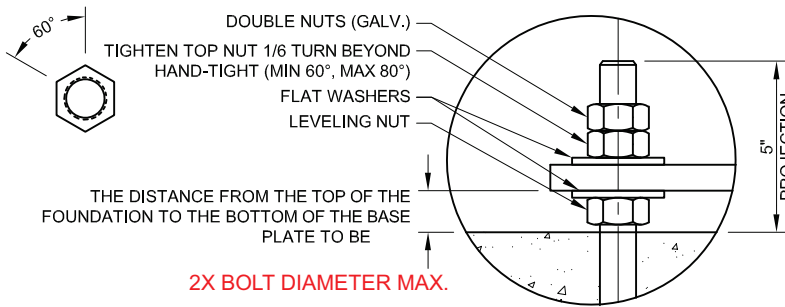
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NATHAN P. PRESNELL, P.E. 042322
 DATE SIGNED: 3/16/2021



ANCHOR BOLT PATTERN
 SCALE 1:16



ANCHOR BOLT DETAIL-'A'
 SCALE 1:10



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DATE	06/14/19	CHECKED BY	CJB
DATE	06/14/19	SCALE	AS SHOWN
		REF	

TITLE			CHZ CNPY 1'-6" X 6'-0" X 7'-0" SIGN @ 13'-0" OAH		
PROJECT NO.	DRAWING NO.	REV			
404309	IN404309A	A			