

PROJECT NAME:  
**NEW SHEETZ SITE  
CAMERON**

Cameron, NC  
PSR #214196

OWNER:  
SHEETZ, INC.

5700 SIXTH AVE.  
ALTOONA, PA 16602

CONSULTANT

PROFESSIONAL

KEYPLAN

ISSUE: **7-15-2020**

PROJECT NO:  
AUTHOR BY: JEB  
REVIEW BY:  
SHEET TITLE



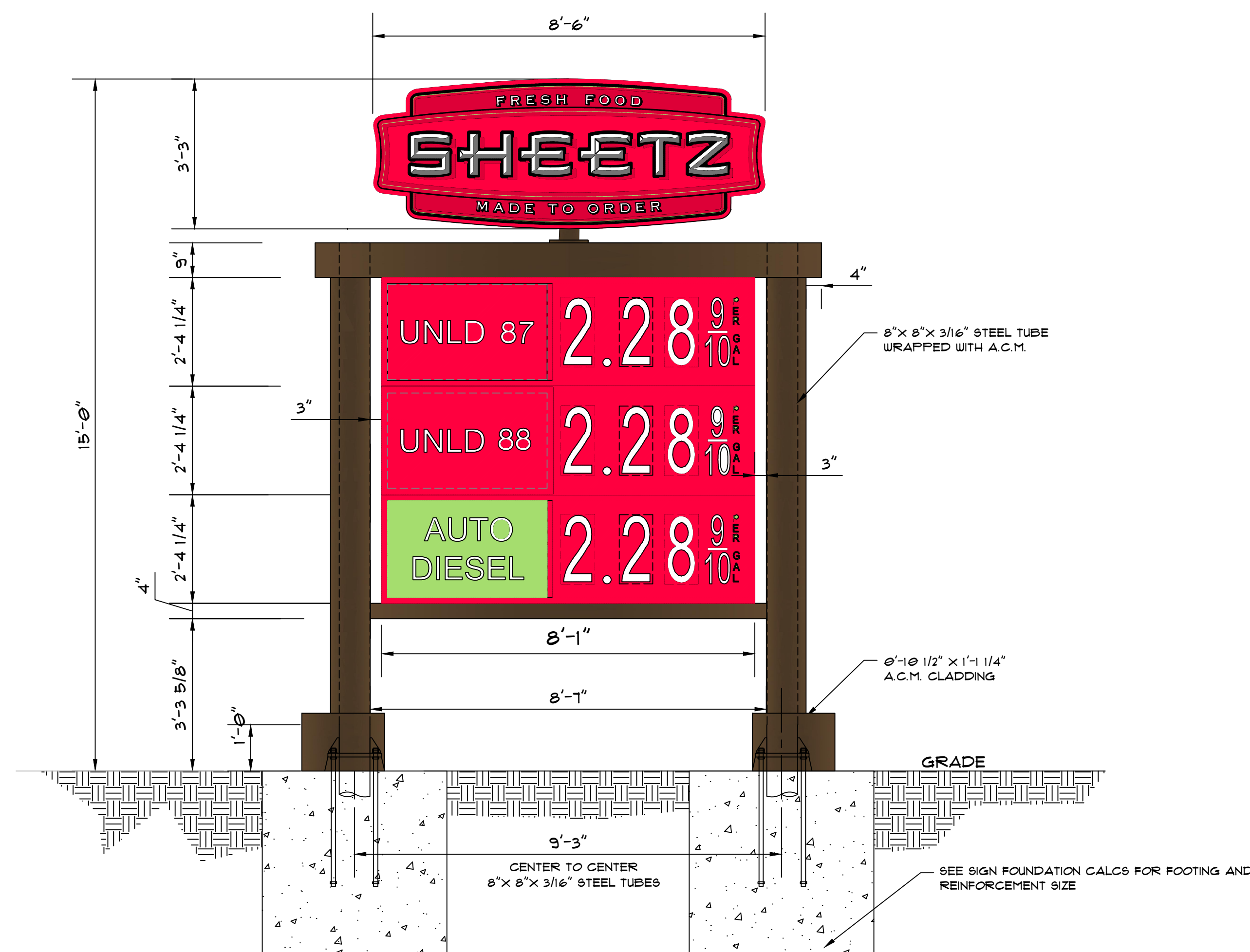
POLE SIGN  
DETAILS

**PS1**

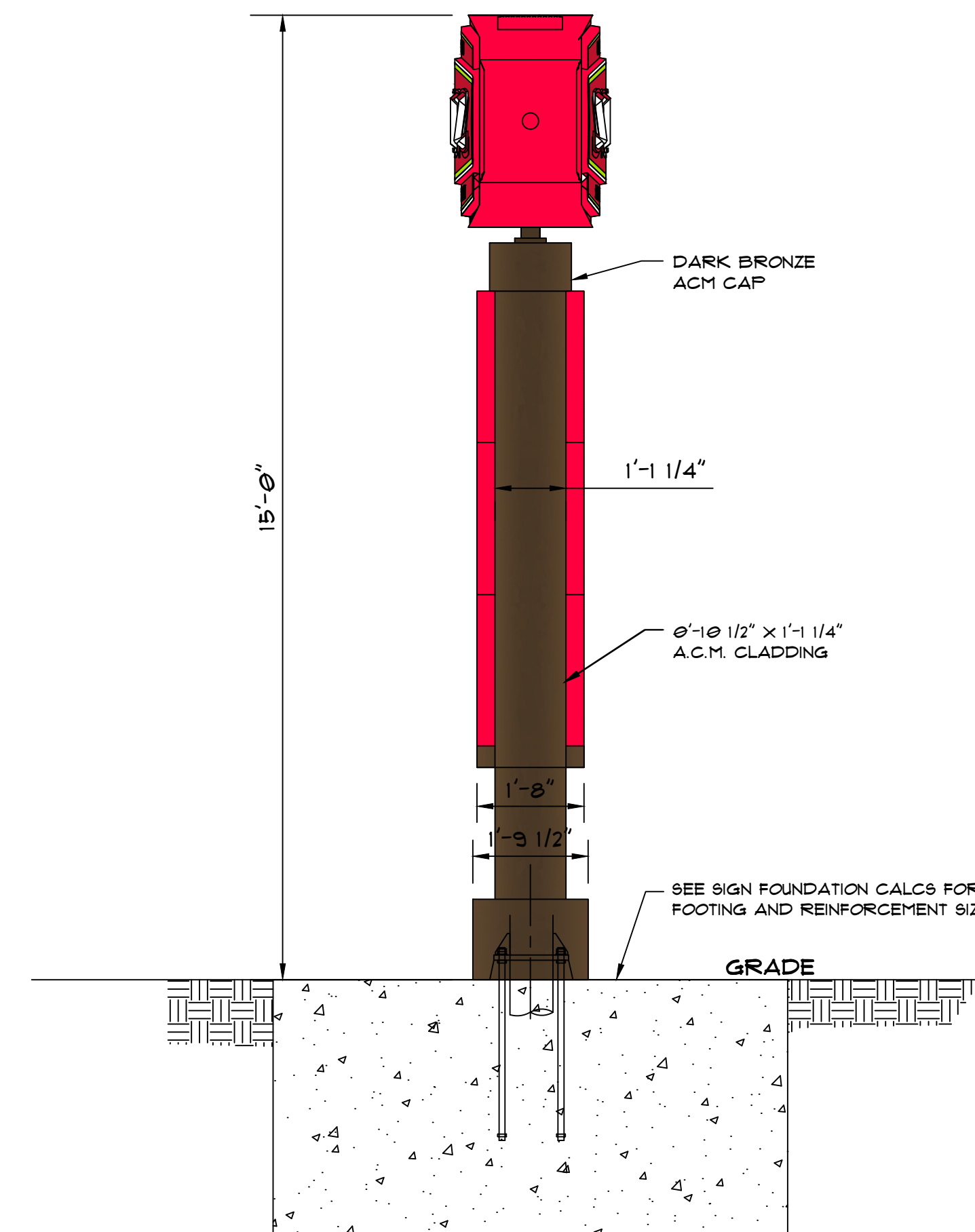
NOTICE TO CONTRACTOR  
All construction must comply with current NC Building Codes  
and is subject to field inspection and verification.

Reviewed for Code  
Compliance

05/12/2021

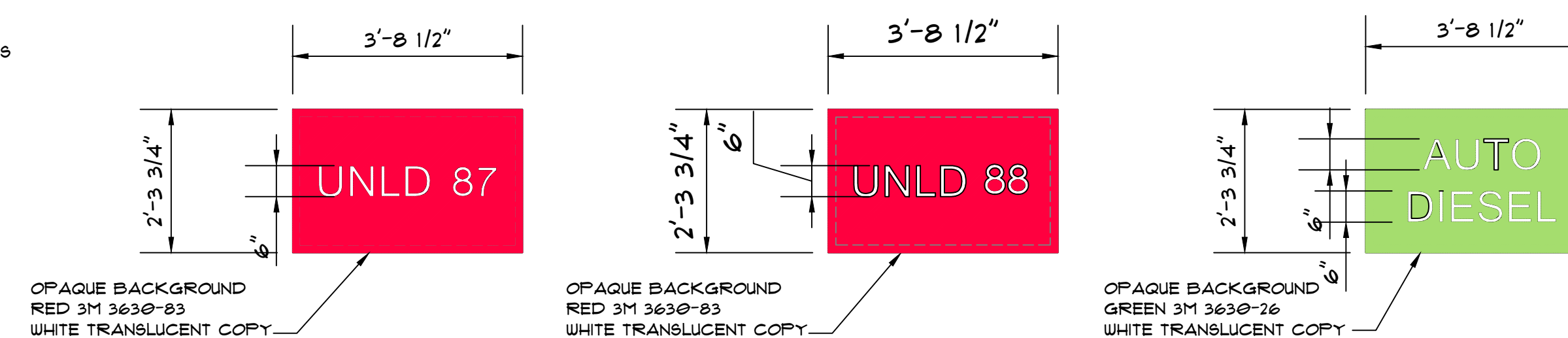
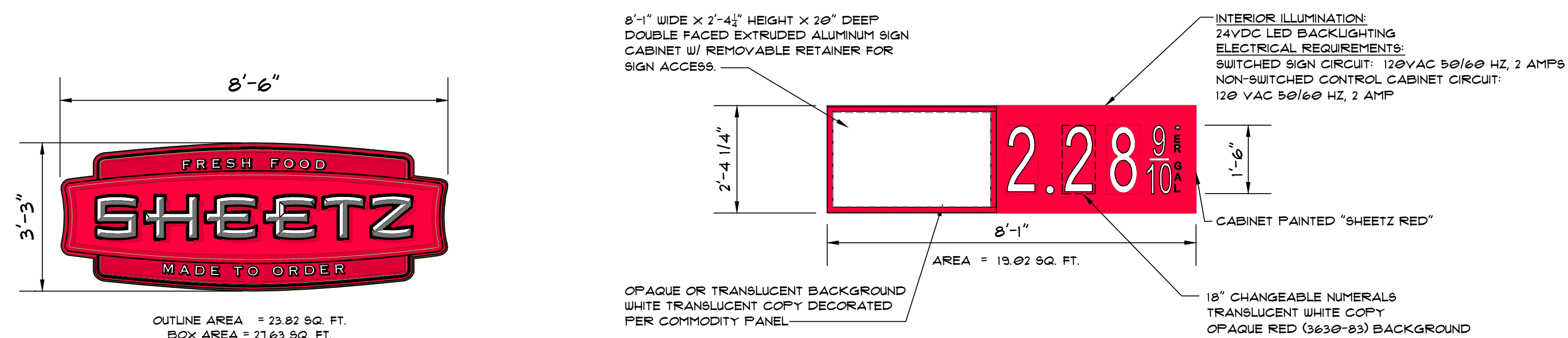




**DOUBLE-FACED GAS PRICE SIGN DETAIL - PARTIAL ELEVATION**  
SCALE: 1/2" = 1'-0"  
AREA: 84.69 SQ. FT.

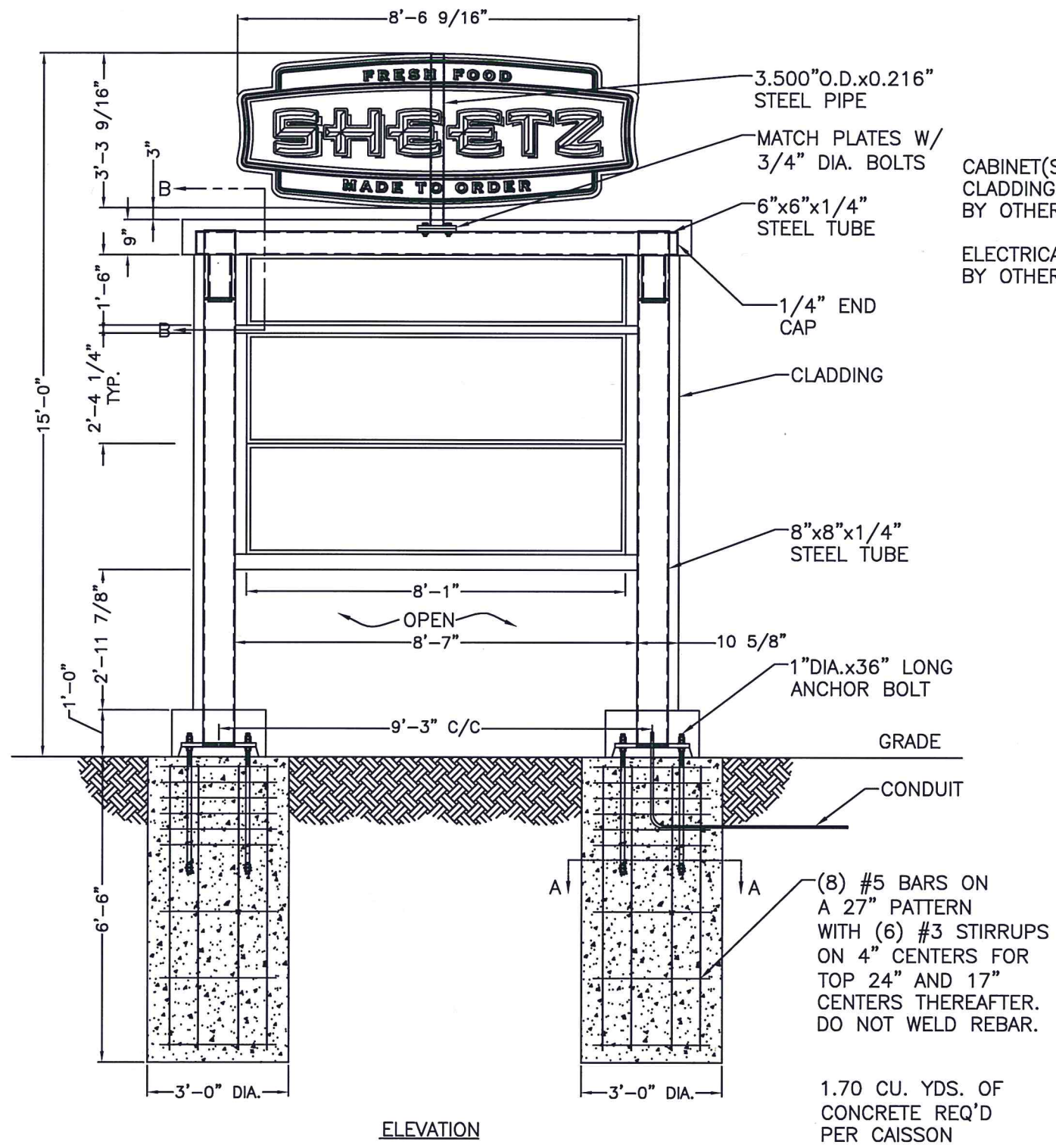


**DOUBLE FACED GAS PRICE SIGN SIDE ELEVATION**  
SCALE: 1/2" = 1'-0"

**SIGN CABINET DETAILS**  
TOTAL SIGN AREAS: 84.69 SQ. FT.



OUTLINE AREA = 23.82 SQ. FT.  
BOX AREA = 21.63 SQ. FT.

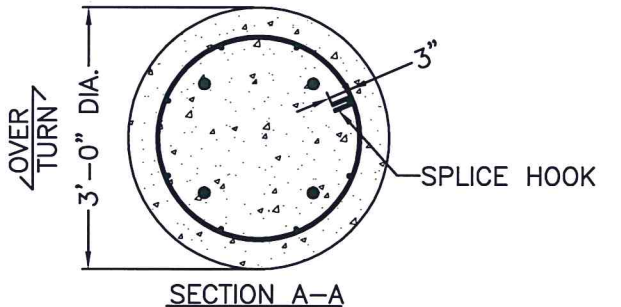


CABINET(S) &  
CLADDING DESIGN  
BY OTHERS

ELECTRICAL DESIGN  
BY OTHERS

General Notes:

- Design is based on 120 mph, 3 second gust wind design per NCBC 2018/IBC 2015. Category II, Exposure C. Seismic Design Category C.
- Spread foundation is based on a presumptive safe vertical soil bearing pressure minimum of 2000 psf. Caisson foundation is based on a presumptive safe lateral soil bearing pressure minimum of 150 psf per foot of depth. Isolated lateral bearing footings subject to short-term lateral loads and not adversely affected by a 1/2" motion at grade are permitted to be designed using twice the tabulated value of the corresponding soil class.
- A soil report was not provided. Foundation analysis assumes Soil Classification 4. Allowable bearing pressure should be verified prior to placement of concrete. In the event that the stated requirements are not met and conditions appear deleterious, cease and secure excavation and immediately contact BLAIR SIGN COMPANY.
- Foundation shall not be placed at the top of, or on the side of a slope exceeding 3:1, or adjacent to a fill slope unless re-evaluated by a competent Professional Engineer. Do not place foundation in fill.
- Concrete shall be mixed to attain a minimum 28 day compressive strength of 3000 psi.
- Steel reinforcing bars shall conform to ASTM A615, Grade 60 with deformations in accordance with ASTM A305. Welding of reinforcing bars is prohibited.
- All voids between column base plate and foundation surface shall be completely filled with high-strength, non-shrink grout.
- Anchor bolts shall meet ASTM F1554 Grade 36. Exposed surfaces shall be galvanized or coated to prevent corrosion.
- All support members shall be free from defects. Steel tube shall meet ASTM A500 Grade B with a minimum yield strength of 46000 psi. Steel angle, channel, and plate shall meet ASTM A36.
- Steel welds shall be made with E70xx electrodes by persons qualified in accordance with AWS standards within the past two years.
- All structural bolts shall conform to ASTM A325, and be zinc coated unless noted otherwise. When used with structural bolts, heavy hex nuts shall conform to ASTM A563, and washers shall conform to ASTM F436. Pretension high strength bolts using the turn of nut method unless noted otherwise.
- The scope of this engineer does not include onsite observations.
- LINK Engineering will not be responsible for the safety on this job site before, during or after installation of this structure. It is the responsibility of the owners, contractors and installers to ensure that the installation and erection of this structure.
- Any deviation from this design or from any part of this drawing, including the General Notes, without prior written consent from LINK Engineering voids this drawing in its entirety.
- The structure designed on this drawing is intended to be installed at the address shown and should not be used at any other location.



INSTALLATION ADDRESS:

SHEETZ - #716  
2201 NC 24-87  
CAMERON, NC

CLIENT:

**blair**  
IMAGE ELEMENTS  
5107 KISSELL AVENUE  
ALTOONA, PA 16601  
PHONE (814) 949-8287  
FAX (814) 949-8293

REV	DATE	DESCRIPTION
△	-/-/-	-----
△	-/-/-	-----
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SEAL & SIGNATURE:

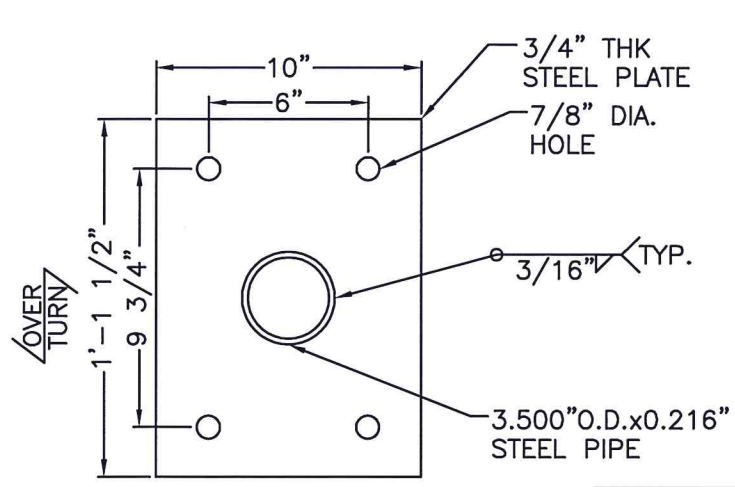


3.12.21



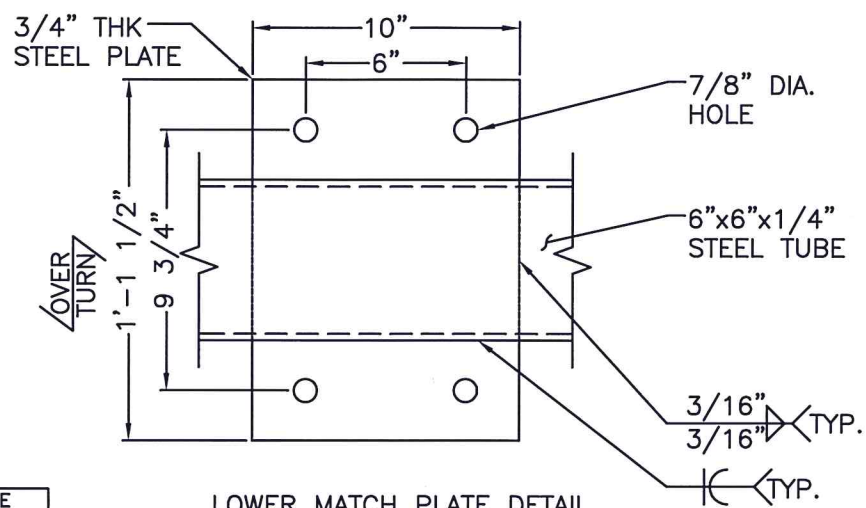
**LINK Engineering, L.L.C.**  
135 South David Lane • Knoxville, Tennessee 37922  
Phone: (865) 539-4001 • www.linkengr.com  
North Carolina Certificate of Authorization No.: P-0483

Project Number:		Drawing Number:	
21-0162		B1071330	
SHT.	OF	DATE:	BY:
1	3	3/11/21	GHK

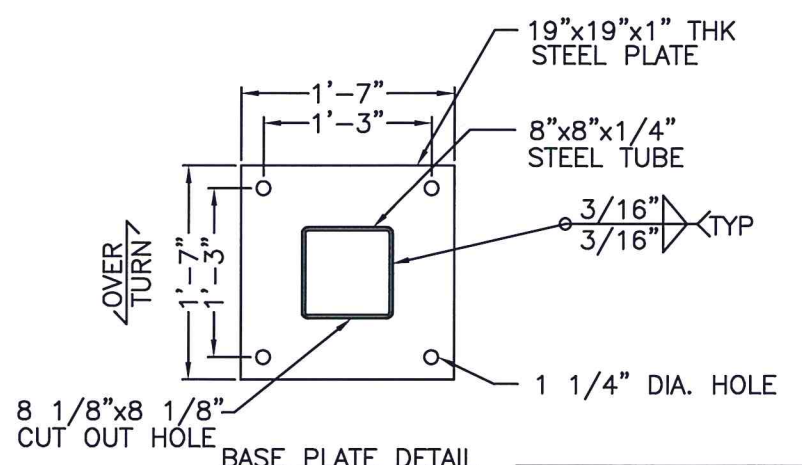


UPPER MATCH PLATE DETAIL

PARTICULAR CARE SHALL BE TAKEN TO PROVIDE SUFFICIENT PREHEAT OF THE THICKER ELEMENT FOR THE SOUNDNESS OF THE WELD. OTHERWISE, USE 1/4" MIN. WELD.

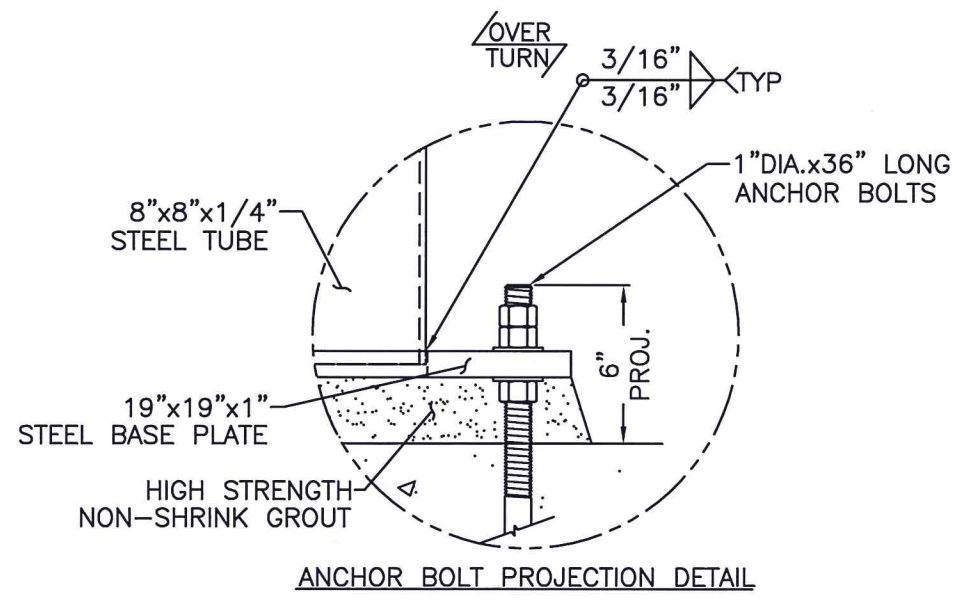


LOWER MATCH PLATE DETAIL



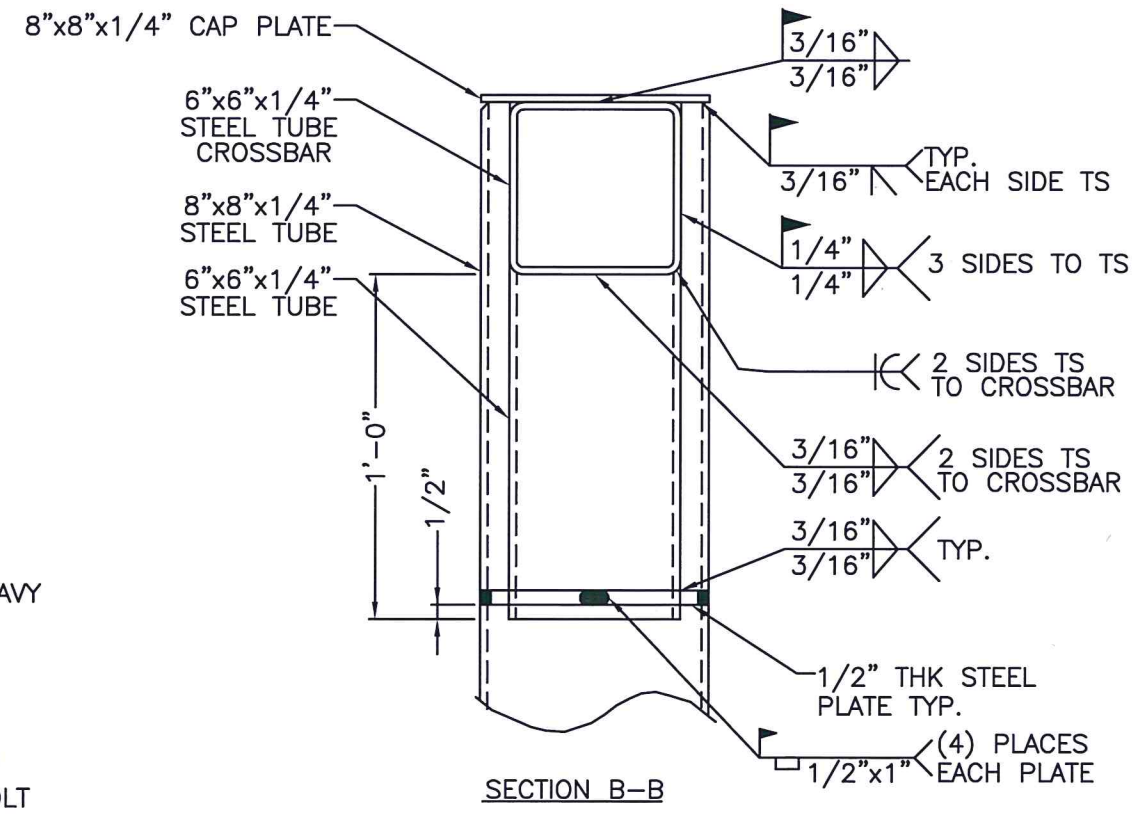
BASE PLATE DETAIL

PARTICULAR CARE SHALL BE TAKEN TO PROVIDE SUFFICIENT PREHEAT OF THE THICKER ELEMENT FOR THE SOUNDNESS OF THE WELD. OTHERWISE, USE 5/16" MIN. WELD.

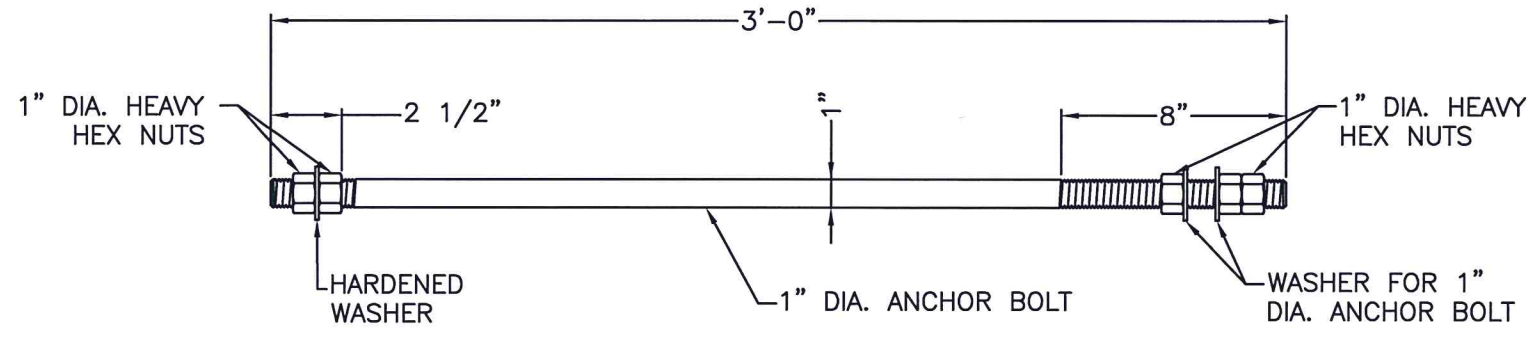


ANCHOR BOLT PROJECTION DETAIL

CUT SLOT IN TS 8X8 VERTICAL, SLEEVE IN TS 6X6, AND WELD AS SHOWN



SECTION B-B




ANCHOR BOLT DETAIL  
ALL-THREADED RODS A-36 ARE ACCEPTABLE REPLACEMENT

INSTALLATION ADDRESS:  
  
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**blair**  
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ALTOONA, PA 16601  
PHONE (814) 949-8287  
FAX (814) 949-8293

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3.12.21

  
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135 South David Lane • Knoxville, Tennessee 37922  
Phone: (865) 539-4001 • www.linkengr.com  
North Carolina Certificate of Authorization No.: P-0483

Project Number: 21-0162		Drawing Number: B1071330	
SHT. 2	OF 3	DATE: 3/11/21	BY: GHK

PROJECT # 21-0162  
 March 11, 2021  
 DRAWING # B1071330  
 WIND LOAD 22.116 PSF  
 WIND SPEED 120 MPH  
 # COLUMNS 2  
 DESIGNER GHK

OWNER SHEETZ  
 2201 NC 24-87  
 CAMERON NC

CLIENT: BLAIR SIGN COMPANY  
 5107 KISSELL AVENUE  
 ALTOONA, PA

BOTTOM STEEL AREA REQ'D PER FT OF WIDTH	0.142
TOP STEEL AREA REQ'D PER FT OF WIDTH	0.056
LONG BOTTOM STEEL	REBAR SIZE 4.000 WEIGHT PER FT 0.668 SPACING 12.000 AREA PER BAR 0.200
BOTTOM STEEL AREA REQ'D PER FT OF WIDTH	0.142
LONG TOP STEEL	REBAR SIZE 4.000 WEIGHT PER FT 0.668 SPACING 12.000 AREA PER BAR 0.200
TOP STEEL AREA REQ'D PER FT OF WIDTH	0.056
CROSS STEEL	REBAR SIZE 4.000 WEIGHT PER FT 0.668 SPACING 12.000 LENGTH 3.500 EST NO. REQ'D 6.000 EDGE 6.000 WEIGHT 28.056 TOTAL WEIGHT 57.448
FOUNDATION WIDTH	4.000
FOUNDATION LENGTH	6.000
CAISSON	MOMENT 15.300 FT-KIP FORCE 1.738 KP
ASSUME SOIL CLASS #4 SV, SP, SM, SC, GM & GC	
LATERAL BEARING PRESSURE - PSF/FT OF DEPTH	150.0 PSF/FT
DEPTH	6.500 FT.
DIAMETER	3.000 FT. 8.804 FT. 2.085 FT.
CALCULATED DEPTH	5.636 FT.
MINIMUM THICKNESS WITHOUT REINFORCEMENT	27.666 IN.
ACTUAL DIAMETER	36.000 IN.
CONCRETE	1.702 CU. YD.

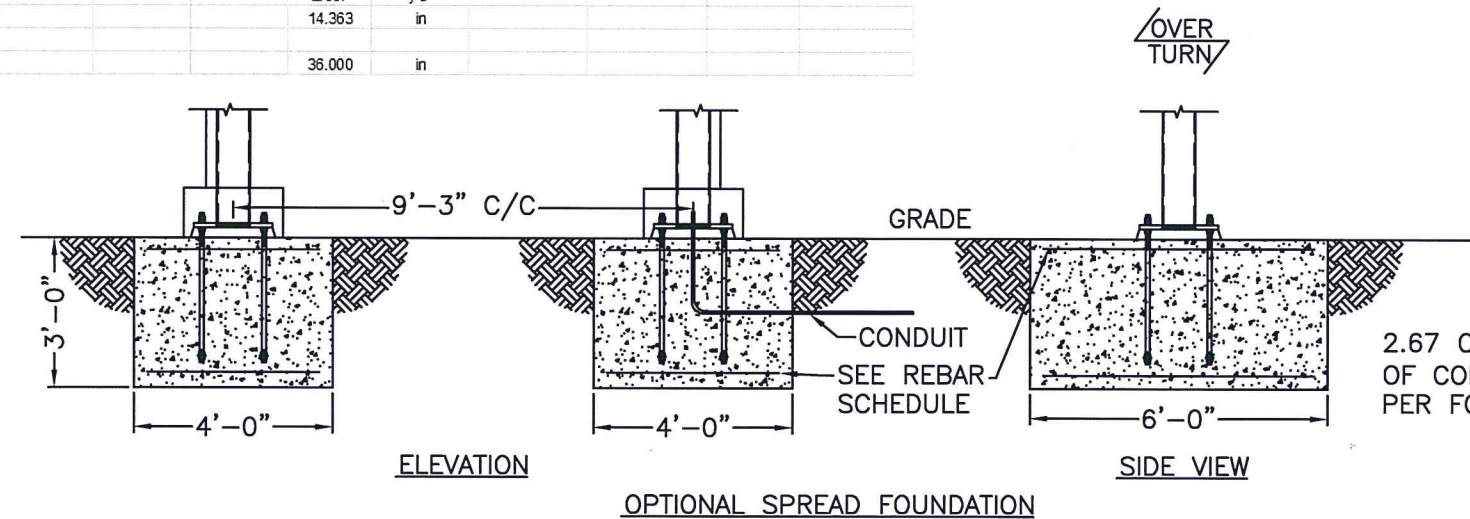
ITEM	HEIGHT	WIDTH	SHAPE FACTOR	CENTROID HEIGHT	FACTORED AREA	TOTAL FORCE	MOMENT
SIGN	3.297	8.547	0.873	1.649	24.591	0.544	0.897
COLUMN	0.438	8.547	1.000	0.219	3.739	0.627	1.153
SIGN	7.276	10.354	1.000	3.638	75.337	2.293	11.773
COLUMNLOADING	3.990	1.771	1.000	1.995	4.880	2.401	21.136
OAH	15.000						

ITEM	COLUMN WIDTH	COLUMN DEPTH	COLUMN WALL	lxx COLUMN	DESIGN MODULUS COLUMN	OBLIQUE LOAD MOMENT	AVAILABLE FLEXURAL STRENGTH	COLUMN CENTER DISTANCE	OBLIQUE LOAD FACTOR	UNITY
P SIGN		3.500	0.201	2.8	2.19	0.897	3.83	9.250	1.448	0.302
P COLUMN		3.500	0.201	2.8	2.19	1.153	3.83			0.369
T SIGN	8.000	8.000	0.233	70.7	17.67	8.52	44.14			0.193
T COLUMNLOADING	8.000	8.000	0.233	70.7	17.67	15.30	44.14			0.347

ITEM	MOMENT	BOLT SPACING	BOLTS/ PLATE	OBLIQUE BOLT	ALLOW. STRESS	ALLOWABLE TENSION
COLUMN	1.153	9.750	4.000	0.710	20.000	8.836
BASEPL.	21.136	15.000	4.000	6.120	19.100	15.001

ITEM	TENSION BOLT	MOMENT ARM	MOMENT PLATE	PLATE WIDTH	PLATE DEPTH	PLATE THICK.	MINIMUM THICK.
COLUMN	0.710	3.969	2.816	5.875	13.500	0.750	0.326
BASEPL.	6.120	5.250	32.129	10.906	19.000	1.000	0.809

ANCHOR BOLT PROJECTION	6.000	ANCHOR EMBEDMENT	12.175	ANCHOR BOLT MIN LENGTH	19.000
*USE 3/8" A.B.					
<b>SPREAD FOUNDATION</b>					
MOMENT AT GRADE				15.300	
TOTAL FORCE				1.738	Kip
WEIGHT OF SIGN				0.698	Kip
SLAB WIDTH				4.000	ft
SLAB LENGTH				6.000	ft
SLAB DEPTH				3.000	ft
SLAB WEIGHT				10.800	Kip
TOTAL WEIGHT				11.498	Kip
OVERTURNING MOMENT				20.513	
FACTOR OF SAFETY				1.682	
e = OT/MWT				1.784	
L/2 - e				1.216	
SOIL PRESSURE 2*WT/(3*(L/2-e)*WIDTH)				1576	
CONCRETE				2.667	yd
MIN. THICKNESS W/O REBAR				14.363	in
SQRT(M*12*6*1.75/(.178*12*WIDTH))					
ACTUAL THICKNESS				36.000	in



REBAR SCHEDULE DO NOT WELD REBAR  
 SPREAD FOUNDATION 3" MIN. CONC. COVER

PLACEMENT	SIZE	SPACING	QUANTITY
LONG BOTTOM STEEL	#4	12"	4
LONG TOP STEEL	#4	12"	4
BOTTOM CROSS STEEL	#4	12"	6
TOP CROSS STEEL	#4	12"	6

INSTALLATION ADDRESS:  
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 2201 NC 24-87  
 CAMERON, NC

CLIENT:  
**blair**  
 IMAGE ELEMENTS  
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 ALTOONA, PA 16601  
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SEAL & SIGNATURE:  
  
 MAD N. KASHIH  
 3/12/21

**LINK Engineering, L.L.C.**  
 135 South David Lane • Knoxville, Tennessee 37922  
 Phone: (865) 538-4001 • www.linkengr.com  
 North Carolina Certificate of Authorization No.: P-0483

Project Number:		Drawing Number:	
21-0162		B1071330	
SHT.	OF	DATE:	BY:
3	3	3/11/21	GHK

PROJECT NAME:  
**NEW SHEETZ SITE  
CAMERON**

Cameron, NC  
PSR #214196

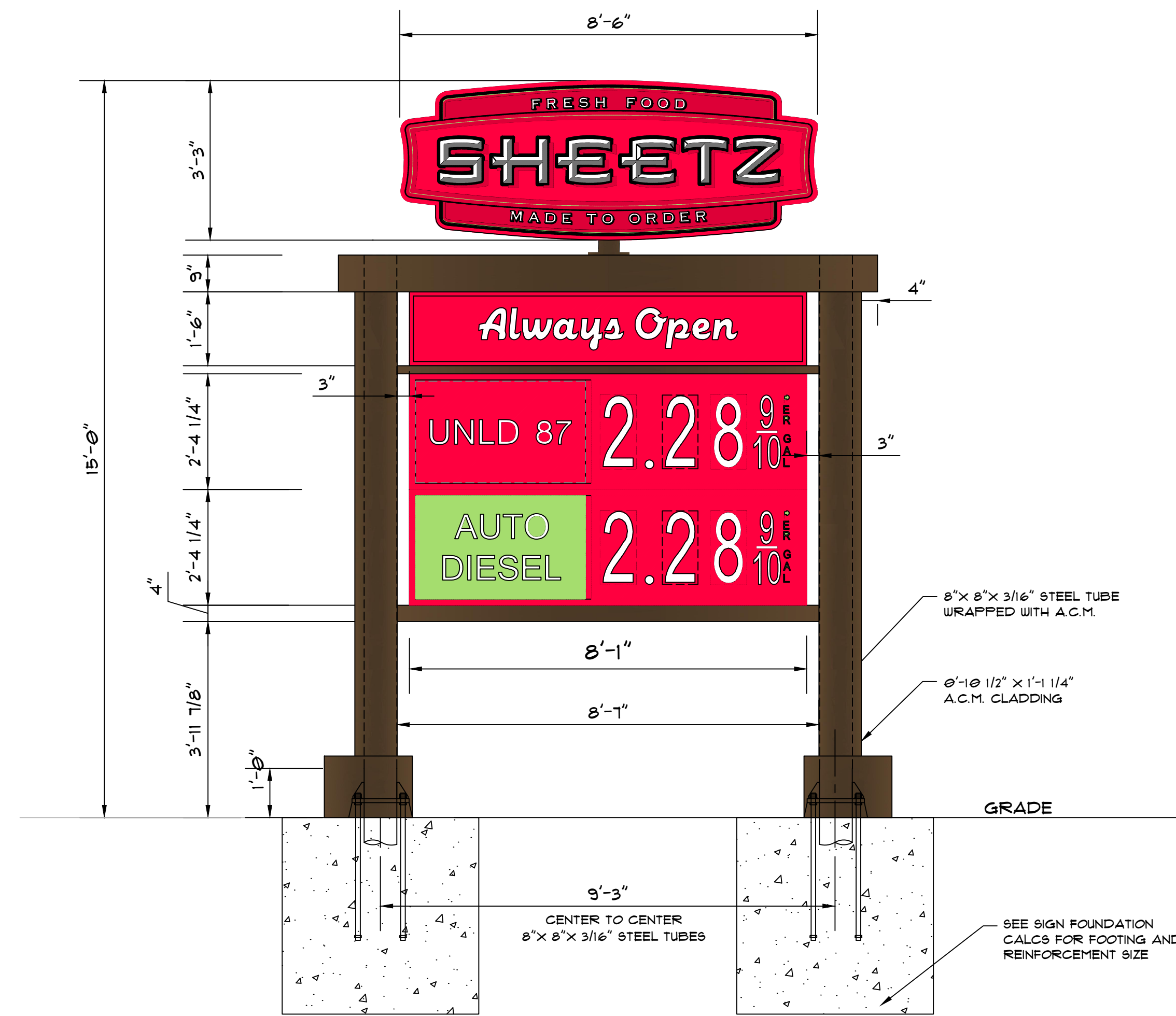
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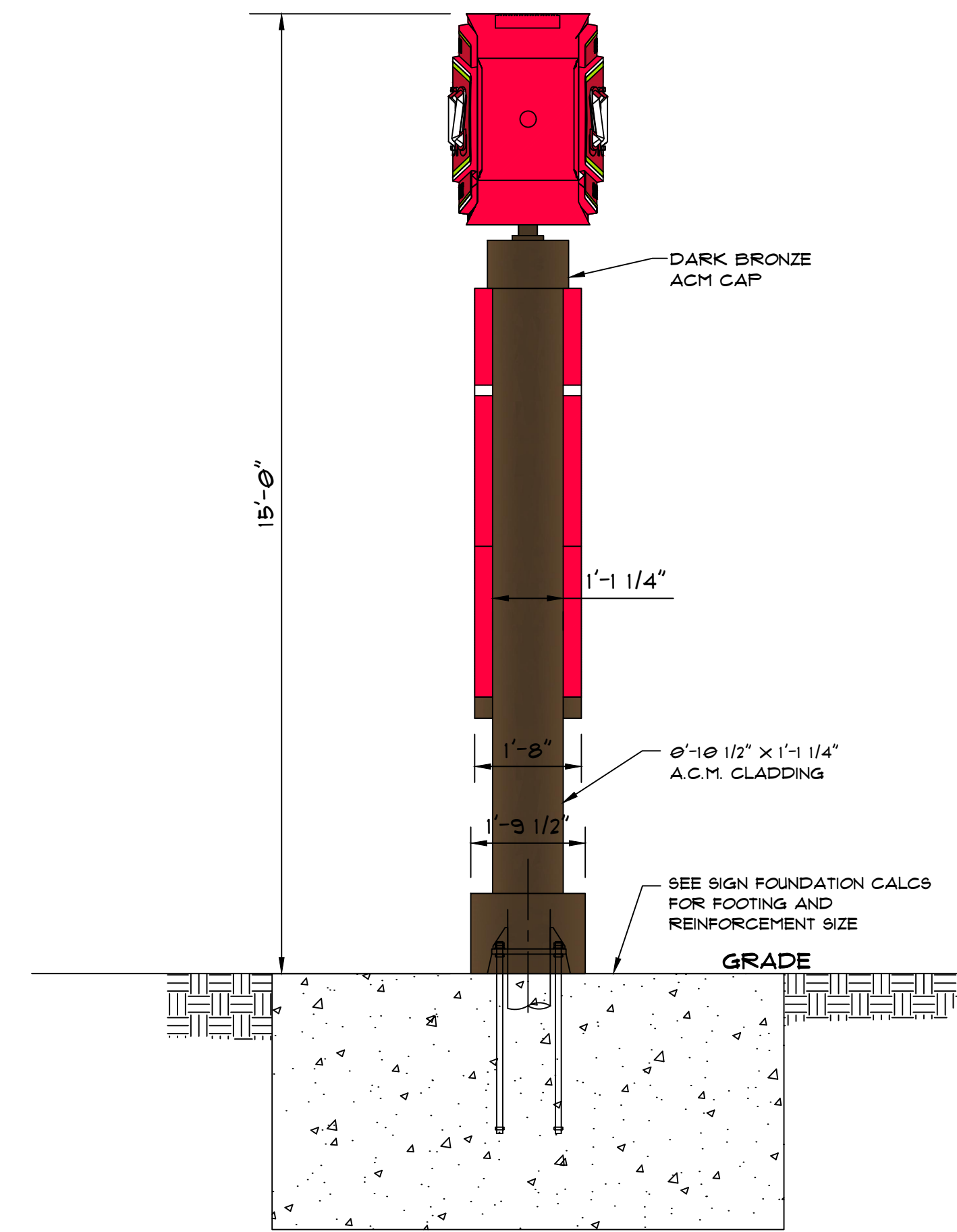
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PROFESSIONAL

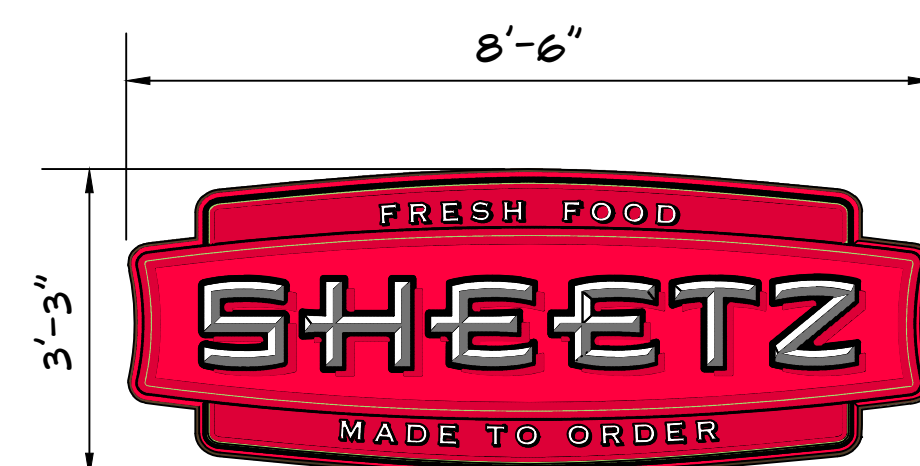
KEYPLAN



**DOUBLE-FACED GAS PRICE SIGN DETAIL - PARTIAL ELEVATION**  
SCALE: 1/2" = 1'-0"  
AREA: 96.82 SQ. FT.



**DOUBLE FACED GAS PRICE SIGN SIDE ELEVATION**  
SCALE: 1/2" = 1'-0"

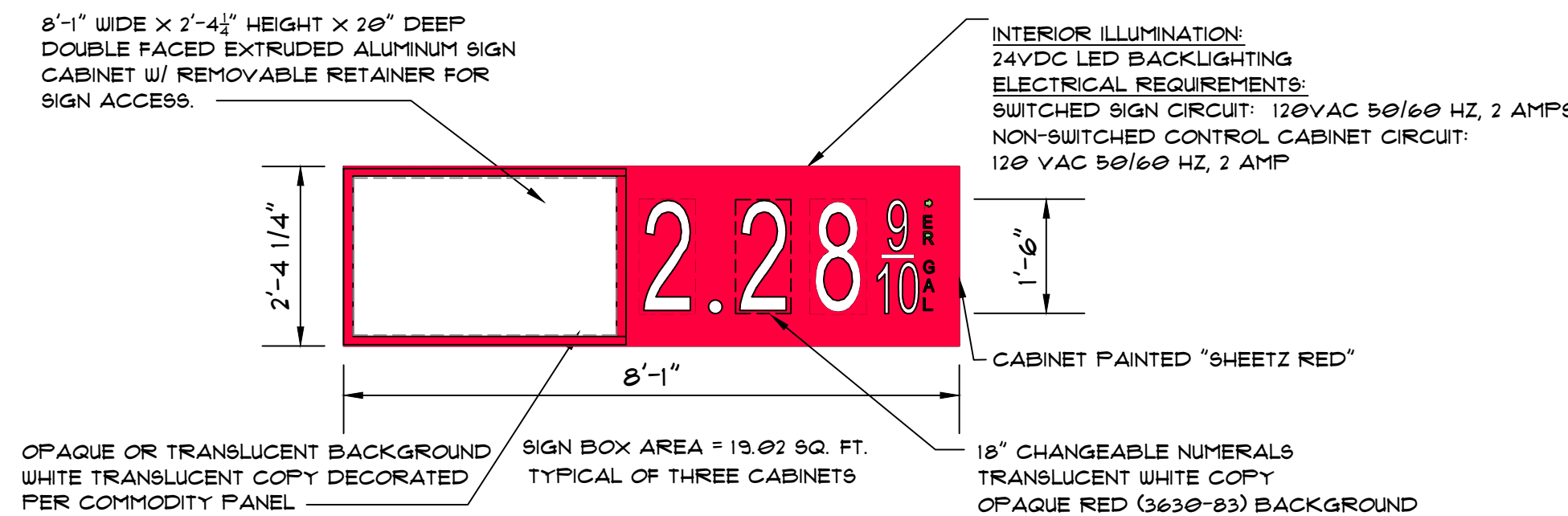


OUTLINE AREA = 23.82 SQ. FT.  
BOX AREA = 21.63 SQ. FT.



AREA: 12.13 SQ. FT.

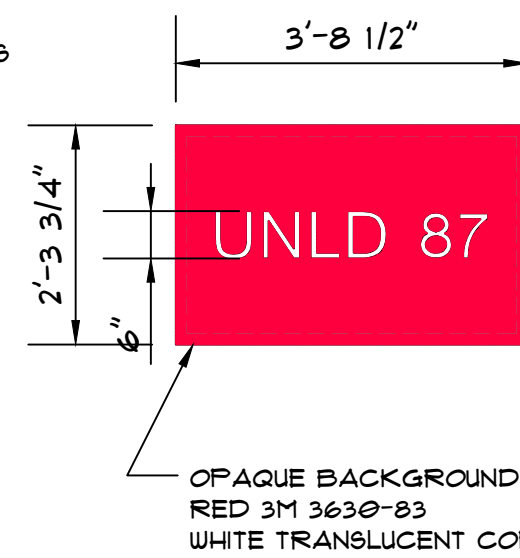
8'-1" WIDE X 2'-4 1/4" HEIGHT X 20" DEEP  
DOUBLE FACED EXTRUDED ALUMINUM SIGN  
CABINET W/ REMOVABLE RETAINER FOR  
SIGN ACCESS.



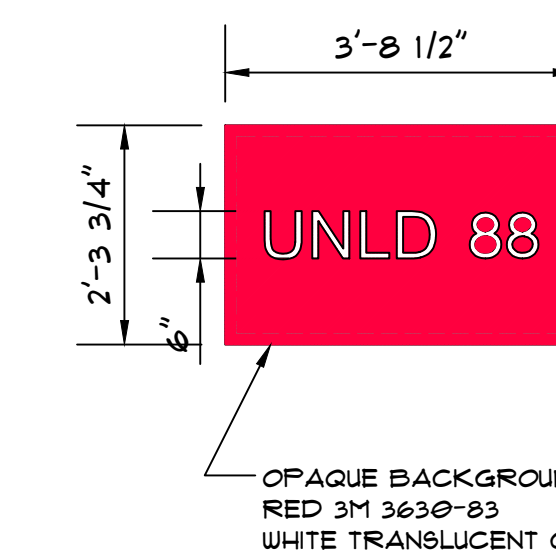
**SIGN CABINET DETAILS**  
TOTAL SIGN AREAS: 96.82 SQ. FT.

OPAQUE OR TRANSLUCENT BACKGROUND  
WHITE TRANSLUCENT COPY DECORATED  
PER COMMODITY PANEL

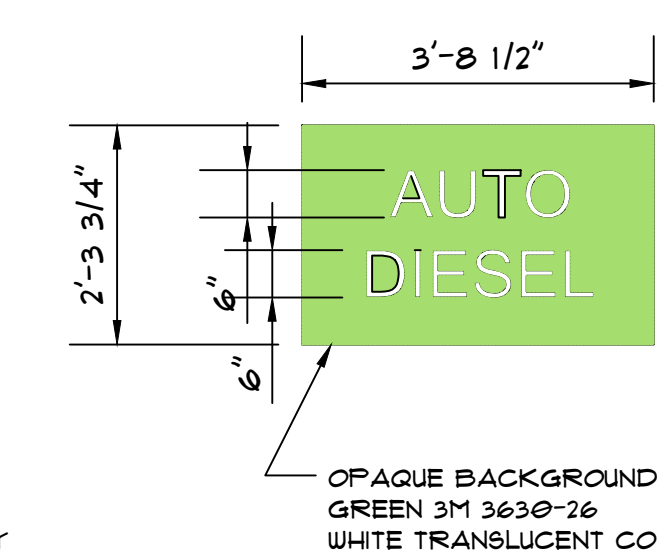
18" CHANGEABLE NUMERALS  
TRANSLUCENT WHITE COPY  
OPAQUE RED (3630-83) BACKGROUND



OPAQUE BACKGROUND  
RED 3M 3630-83  
WHITE TRANSLUCENT COPY



OPAQUE BACKGROUND  
RED 3M 3630-83  
WHITE TRANSLUCENT COPY

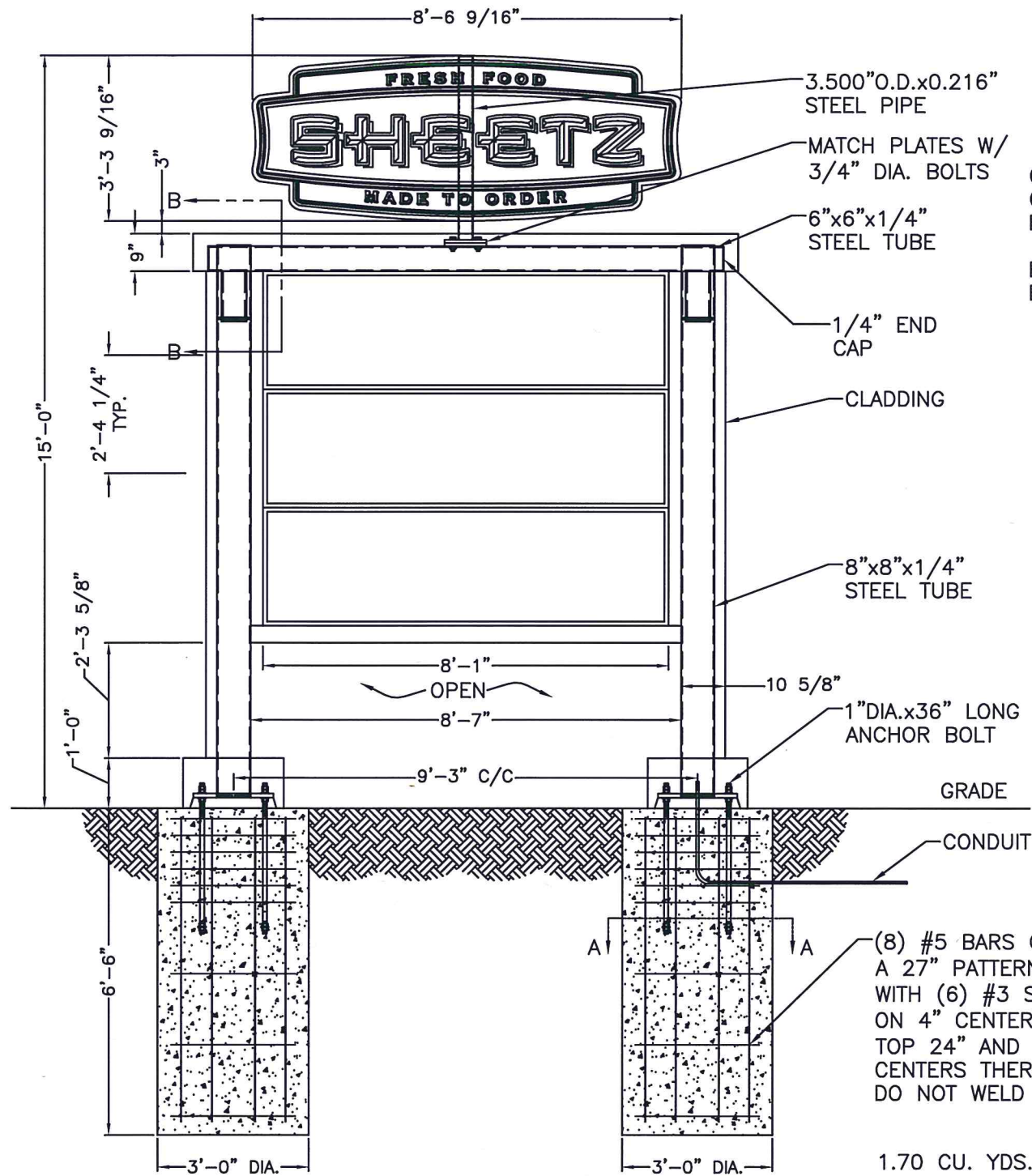


OPAQUE BACKGROUND  
GREEN 3M 3630-26  
WHITE TRANSLUCENT COPY

ISSUE: 7-15-2020  
PROJECT NO:  
AUTHOR BY: NMI  
REVIEW BY:  
SHEET TITLE

POLE SIGN  
DETAILS

**PS2**



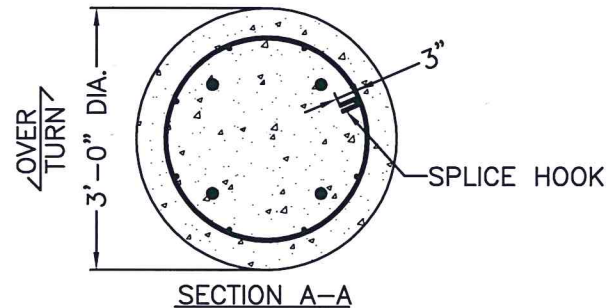
ELEVATION

CABINET(S) &  
CLADDING DESIGN  
BY OTHERS

ELECTRICAL DESIGN  
BY OTHERS

(8) #5 BARS ON  
A 27" PATTERN  
WITH (6) #3 STIRRUPS  
ON 4" CENTERS FOR  
TOP 24" AND 17"  
CENTERS THEREAFTER.  
DO NOT WELD REBAR.

1.70 CU. YDS. OF  
CONCRETE REQ'D  
PER CAISSON



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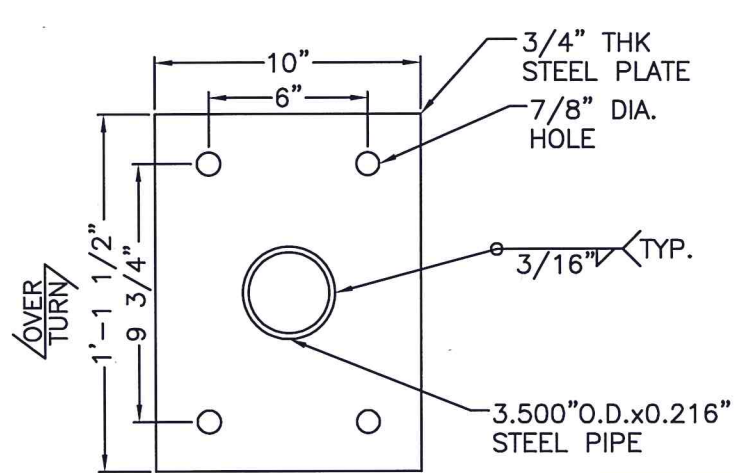


**LINK Engineering, L.L.C.**

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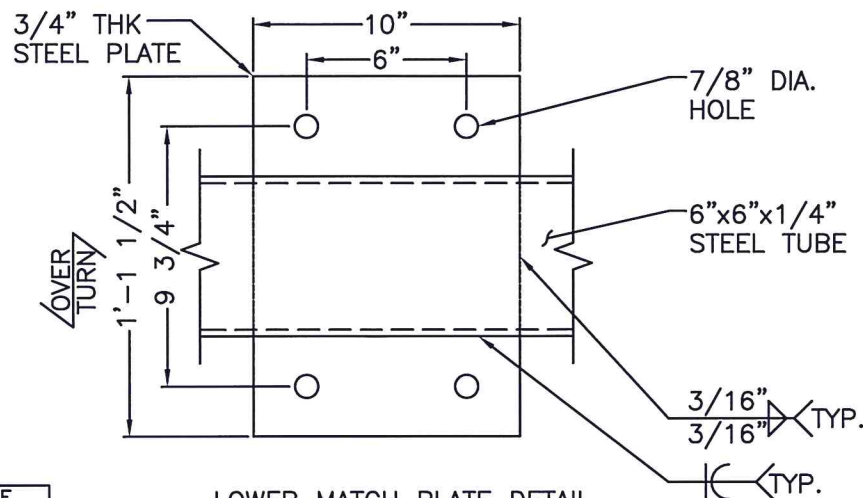
North Carolina Certificate of Authorization No.: P-0483

Project Number: 21-0162		Drawing Number: B1071331	
SHT. 1	OF 3	DATE: 3/11/21	BY: GHK

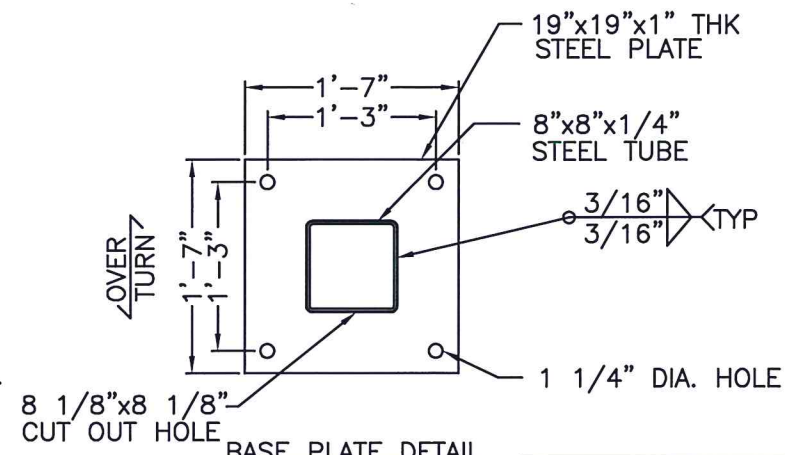


UPPER MATCH PLATE DETAIL

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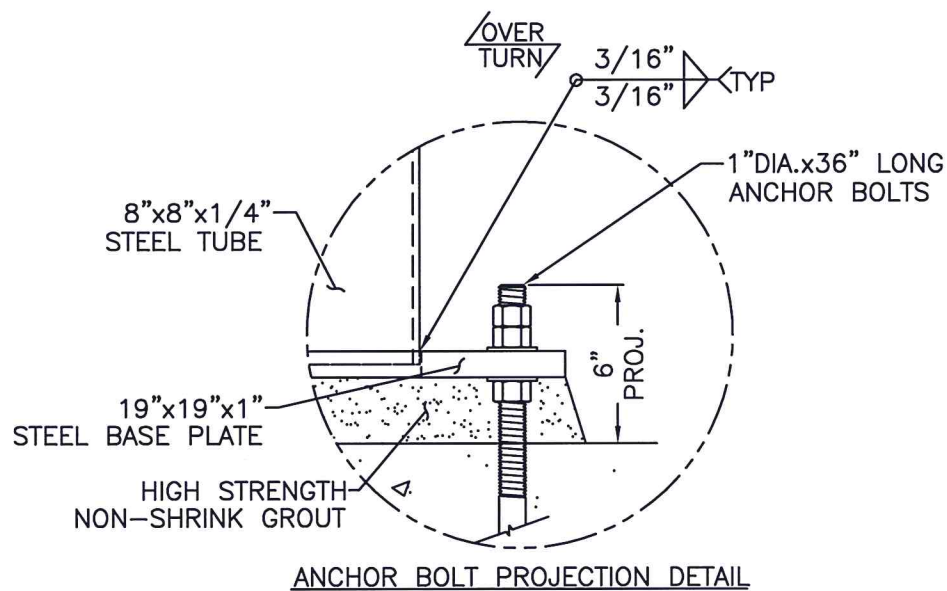


LOWER MATCH PLATE DETAIL

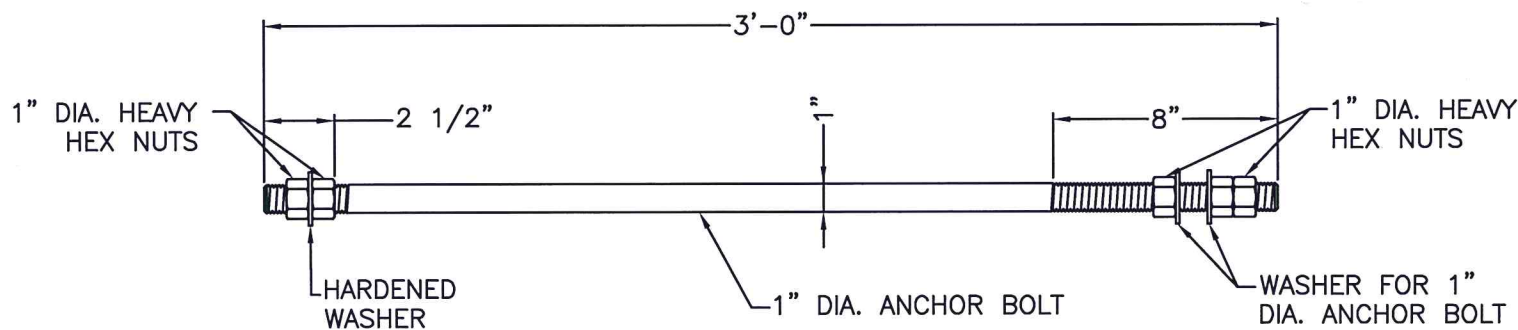


BASE PLATE DETAIL

PARTICULAR CARE SHALL BE TAKEN TO PROVIDE SUFFICIENT PREHEAT OF THE THICKER ELEMENT FOR THE SOUNDNESS OF THE WELD. OTHERWISE, USE 5/16" MIN. WELD.

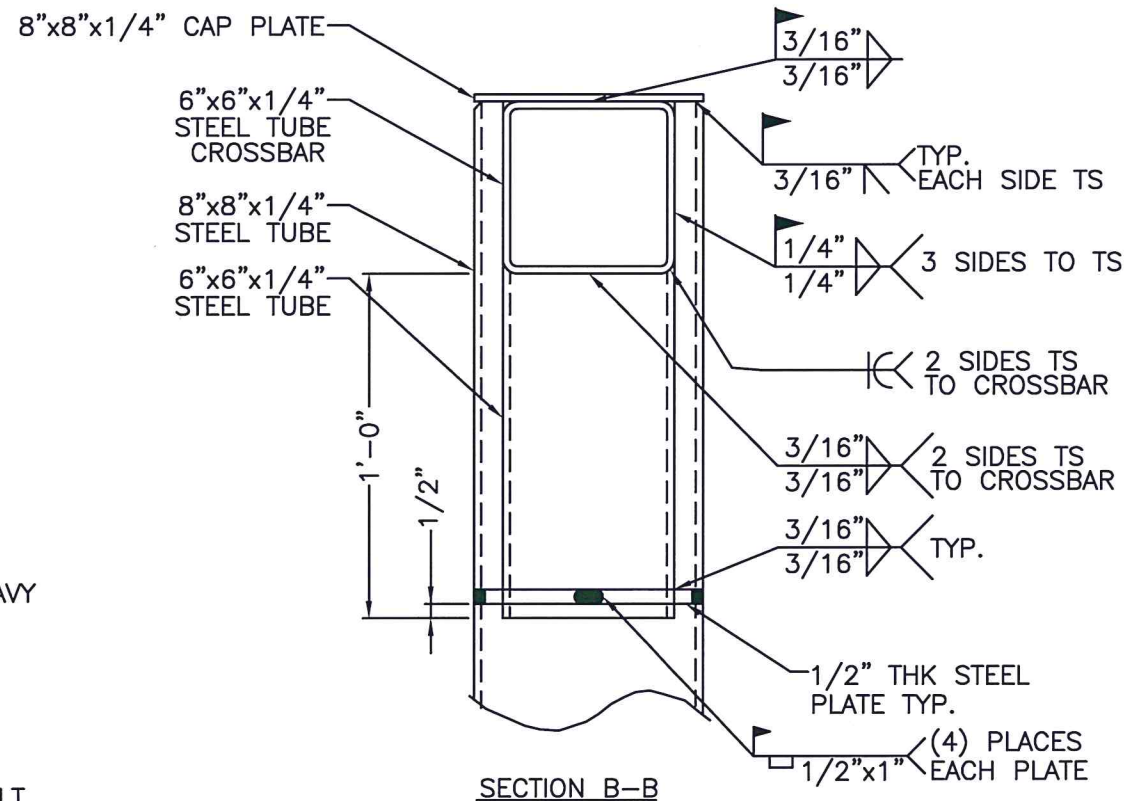


ANCHOR BOLT PROJECTION DETAIL



ANCHOR BOLT DETAIL  
ALL-THREADED RODS A-36  
ARE ACCEPTABLE REPLACEMENT

CUT SLOT IN TS 8X8 VERTICAL,  
SLEEVE IN TS 6X6, AND WELD  
AS SHOWN



SECTION B-B

INSTALLATION ADDRESS:

SHEETZ - #716  
2201 NC 24-87  
CAMERON, NC

CLIENT:

**blair**  
IMAGE ELEMENTS  
5107 KISSELL AVENUE  
ALTOONA, PA 18601  
PHONE (814) 949-8287  
FAX (814) 949-8293

REV	DATE	DESCRIPTION
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SEAL & SIGNATURE:



**LINK Engineering, L.L.C.**

135 South David Lane • Knoxville, Tennessee 37922  
Phone: (865) 538-4001 • www.linkengr.com

North Carolina Certificate of Authorization No.: P-0483

Project Number:		Drawing Number:	
21-0162		B1071331	
SHT.	OF	DATE:	BY:
2	3	3/11/21	GHK

PROJECT #	21-0162	OWNER:	SHEETZ
March 11, 2021			2201 NC 24-87
DRAWING #	B1071331		CAMERON, NC
WIND LOAD	21.726	PSF	
WIND SPEED	120	MPH	CLIENT: BLAIR SIGN COMPANY
# COLUMNS	2	NCBC 2018/IBC 2015	5107 KISSELL AVENUE
DESIGNER	GHK		ALTOONA, PA

ITEM	HEIGHT	WIDTH	SHAPE FACTOR	CENTROID HEIGHT	FACTORED AREA	TOTAL FORCE	MOMENT
SIGN	3.297	8.547	0.873	1.649	24.591	0.534	0.881
COLUMN	0.438	8.547	1.000	0.219	3.739	0.616	1.133
SIGN	7.964	10.354	1.000	3.982	82.456	2.407	13.167
COLUMN/CLADDING	3.302	1.771	1.000	1.651	4.039	2.495	21.260
OAH	15.000						

ITEM	COLUMN WIDTH	COLUMN DEPTH	COLUMN WALL	ix	MODULUS	DESIGN LOAD	OBLIQUE LOAD	AVAILABLE FLEXURAL STRENGTH	COLUMN CENTER DISTANCE	OBLIQUE LOAD FACTOR	UNITY
P SIGN		3.500	0.201	2.8	2.19	0.881	3.83	9.250	1.448	0.295	
P COLUMN		3.500	0.201	2.8	2.19	1.133	3.83			0.361	
T SIGN	8.000	8.000	0.233	70.7	17.67	9.53	44.14			0.216	
T COLUMN/CLADDING	8.000	8.000	0.233	70.7	17.67	15.39	44.14			0.349	

ITEM	MOMENT	BOLT SPACING	BOLTS/PLATE	TENSION BOLT	BOLT DIAM.	ALLOW. STRESS	ALLOWABLE TENSION
COLUMN	1.133	9.750	4.000	0.697	0.750	20.000	8.836
BASE PL.	21.260	15.000	4.000	6.156	1.000	19.100	15.001

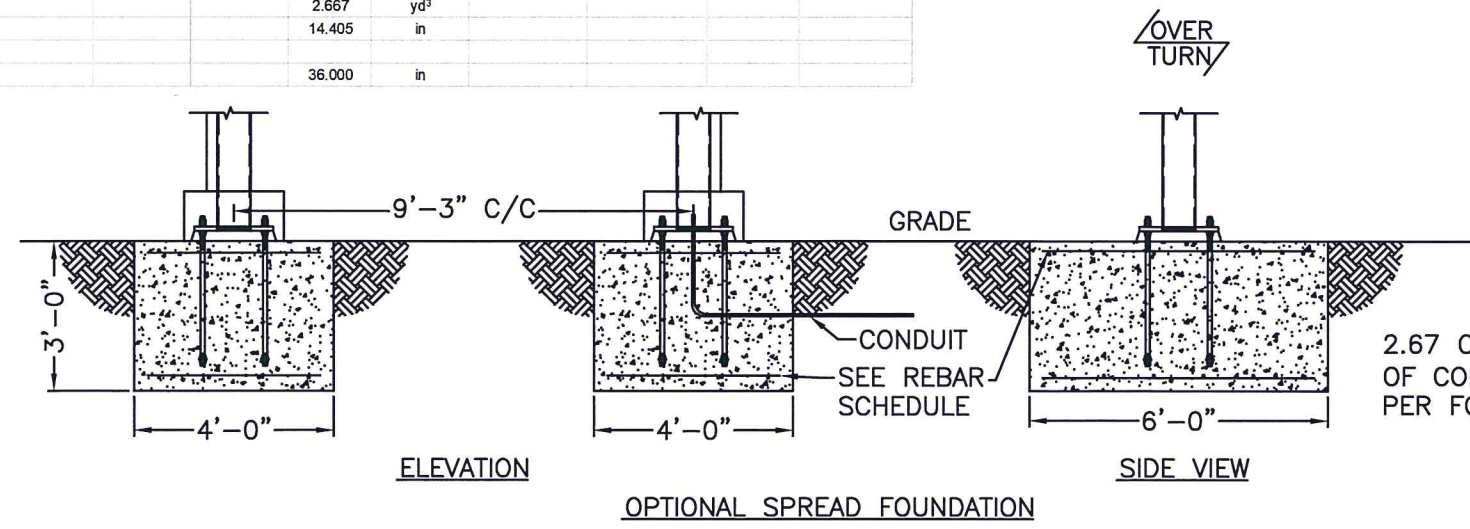
ITEM	TENSION BOLT	MOMENT ARM	MOMENT PLATE	PLATE WIDTH	PLATE DEPTH	PLATE THICK.	MINIMUM THICK.
COLUMN	0.697	3.969	2.767	5.875	13.500	0.750	0.323
BASE PL.	6.156	5.250	32.318	10.906	19.000	1.000	0.811

ANCHOR BOLT PROJECTION	6.000	ANCHOR EMBEDMENT	12.247	ANCHOR BOLT MIN. LENGTH	19.000
*USE 3/8" A.B.					
<b>SPREAD FOUNDATION</b>					
MOMENT AT GRADE	15.390				
TOTAL FORCE	1.806 kip				
WEIGHT OF SIGN	0.727 kip				
SLAB WIDTH	4.000 ft				
SLAB LENGTH	6.000 ft				
SLAB DEPTH	3.000 ft				
SLAB WEIGHT	10.800 kip				
TOTAL WEIGHT	11.527 kip				
OVERTURNING MOMENT	20.807				
FACTOR OF SAFETY	1.662				
e = OTM/WT	1.805				
L/2 - e	1.195				
SOIL PRESSURE 2*WT/(3*(L/2-e)*WIDTH)	1608				
CONCRETE	2.667 yd <sup>3</sup>				
MIN. THICKNESS W/O REBAR	14.405 in				
SQRT(M*12*6*1.7*75/(.178*12*WIDTH))	36.000 in				
ACTUAL THICKNESS	36.000 in				

BOTTOM STEEL AREA REQ'D PER FT OF WIDTH	0.144
TOP STEEL AREA REQ'D PER FT OF WIDTH	0.056
<b>LONG BOTTOM STEEL</b>	
REBAR SIZE	4.000
WEIGHT PER FT	0.668
SPACING	12.000 in
AREA PER BAR	0.200 in <sup>2</sup>
BOTTOM STEEL AREA REQ'D PER FT OF WIDTH	0.144
AREA PER FT	0.200
EST NO. REQ'D	4.000
NUMBER REQ'D	4.000
LENGTH	5.500 ft
WEIGHT	14.696
EDGE	6.000
<b>LONG TOP STEEL</b>	
REBAR SIZE	4.000
WEIGHT PER FT	0.668
SPACING	12.000 in
AREA PER BAR	0.200 in <sup>2</sup>
TOP STEEL AREA REQ'D PER FT OF WIDTH	0.056
AREA PER FT	0.200
EST NO. REQ'D	4.000
NUMBER REQ'D	4.000
LENGTH	5.500 ft
WEIGHT	14.696
EDGE	6.000
<b>CROSS STEEL</b>	
REBAR SIZE	4.000
WEIGHT PER FT	0.668
SPACING	12.000 in
LENGTH	3.500 ft
EST NO. REQ'D	6.000
NUMBER REQ'D	6.000
EDGE	6.000 in
WEIGHT	28.056
TOTAL WEIGHT	57.448
FOUNDATION WIDTH	4.000 ft
FOUNDATION LENGTH	6.000 ft
<b>CAISSON</b>	
MOMENT	15.390 FT-KIP
FORCE	1.806 KIP
REFERENCE IBC 1807.3.2 & TABLE 1806.2	
ASSUME SOIL CLASS #4 SW, SP, SM, SC, GM & GC	
LATERAL BEARING PRESSURE - PSF/FT OF DEPTH	150.0 PSF/FT
S1	650.0
DEPTH	6.500 FT.
DIA METER	3.000 FT.
	8.522 FT.
	2.167 FT.
CALCULATED DEPTH	5.699 FT.
MINIMUM THICKNESS WITHOUT REINFORCEMENT	27.716 IN.
ACTUAL DIA METER	36.000 IN.
CONCRETE	1.702 CU. YD.

REBAR SCHEDULE DO NOT WELD REBAR  
SPREAD FOUNDATION 3" MIN. CONC. COVER

PLACEMENT	SIZE	SPACING	QUANTITY
LONG BOTTOM STEEL	#4	12"	4
LONG TOP STEEL	#4	12"	4
BOTTOM CROSS STEEL	#4	12"	6
TOP CROSS STEEL	#4	12"	6



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