

NOTES
 1.) SEE MANUFACTURERS DRAWINGS FOR ADDITIONAL DETAILS AND DIMENSIONS.
 2.) SIGN CABINET AND CONNECTION BY DANIELS WHOLESALE.

* CLIENT - DANIELS WHOLESALE
 * 2014 FLORIDA BUILDING CODE, 5TH EDITION
 * 140 MPH WIND SPEED, EXP. C
 * (2) POLES, (2) FOOTINGS

CALCULATIONS INCLUDE THE FOLLOWING CONSIDERATIONS AS OUTLINED IN THE 2014 FLORIDA BUILDING CODE (5th ED.):
 CHAPTER 16-LOADS AND FORCES
 CHAPTER 17-SPECIAL INSPECTIONS
 CHAPTER 18- SOILS AND FOUNDATIONS
 CHAPTER 19-CONCRETE
 CHAPTER 20-ALUMINUM
 CHAPTER 21-MASONRY
 CHAPTER 22-STEEL
 CHAPTER 23-WOOD

FRONT ELEVATION
 SCALE: N.T.S. 1

SIDE ELEVATION
 SCALE: N.T.S. 2

MBI
 michael brady inc.
 sign engineering
 structural engineering

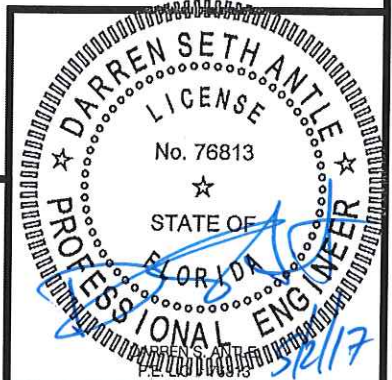
KNOXVILLE OFFICE
 299 WEISGARBER RD.
 KNOXVILLE, TENNESSEE
 37919
 PHONE 865-584-0999
 FAX 865-584-5213

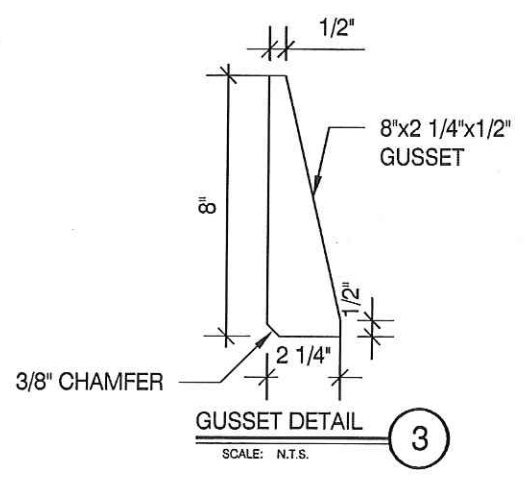
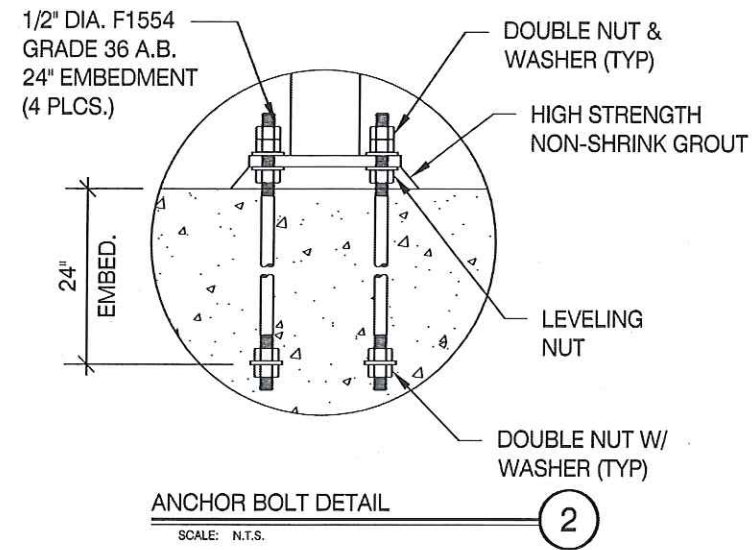
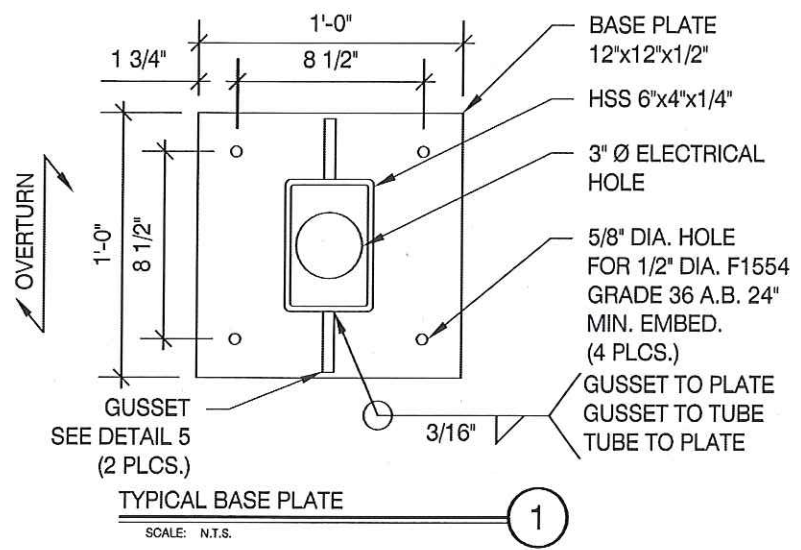
PROJECT:
 Deland, FL
 DRAWING TITLE:
GMS

DRAWN BY: JAM	CHECKED BY: DSA	COMM. NO. 170235.02
CORP. LIC. # F02000002650 BUS. LIC. # AA26000828 ENG. C.O.A. # 29794		

DATE: 05/02/17		
REV. #	DATE	DRAWN BY

DRAWING NO.
 DWG.
1

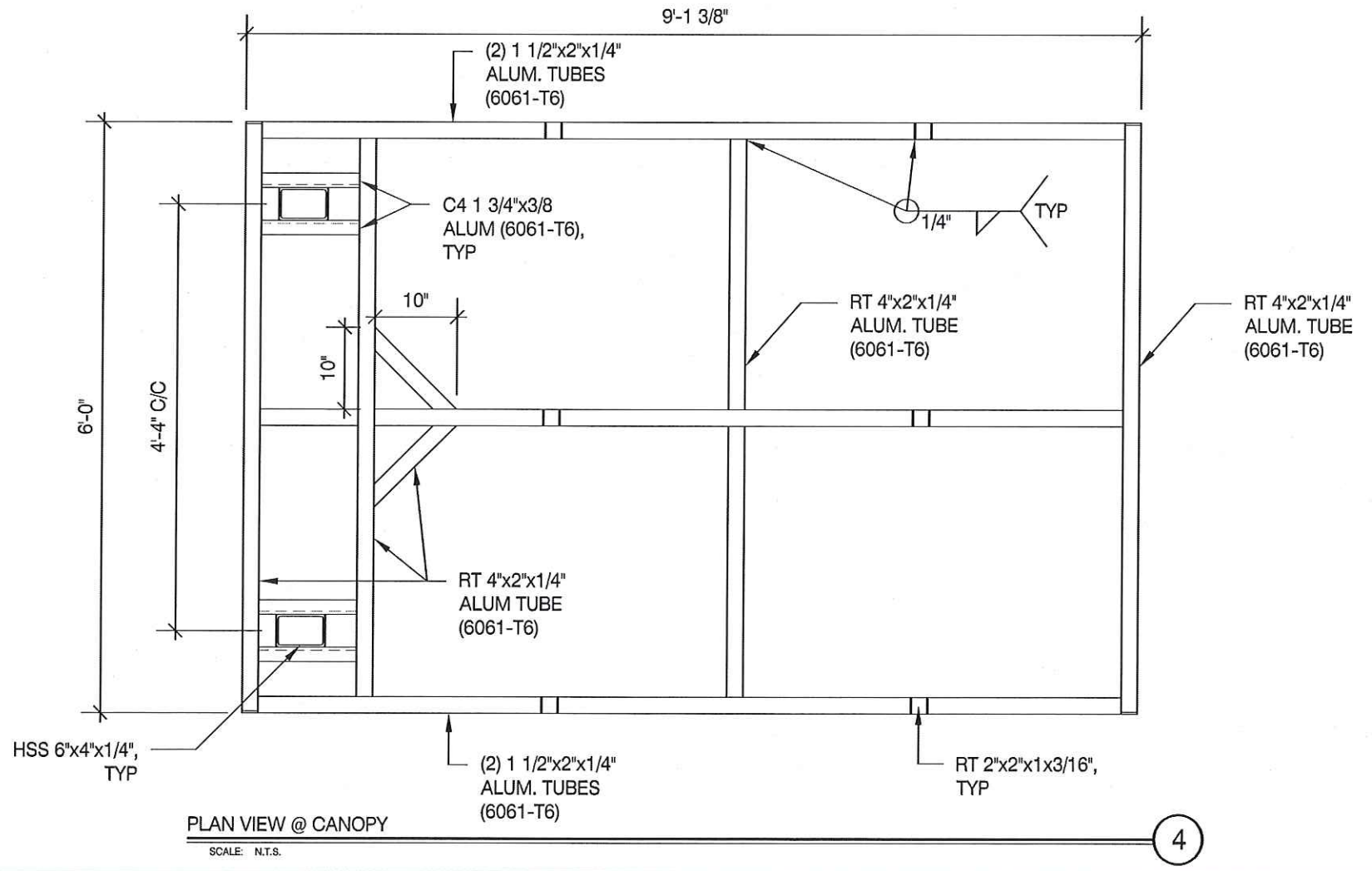




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DESIGN SPECIFICATIONS:

REFER TO SIGN COMPANY'S DRAWINGS FOR MORE DETAILS.
ALL DESIGNS, DETAILING FABRICATION AND CONSTRUCTION SHALL CONFORM TO:

- 2014 FLORIDA BUILDING CODE, 5TH EDITION
- ACI
- AISC
- AMERICAN WELDING SOCIETY
- LOCAL BUILDING CODES & ORDINANCES

CONCRETE: 2500 PSI @ 28 DAYS
STD. STEEL PIPE SECTION: ASTM A53 GRADE B (Fy=35 KSI), U.N.O.
STEEL PIPE SECTION (> 20" Ø): ASTM A252 GRADE 3 (Fy=42 KSI MIN.) U.N.O.
HSS ROUND SECTION: ASTM A500 GRADE B (Fy=42 KSI) U.N.O.
HSS SQUARE/RECTANGULAR SECTION: ASTM A500 GRADE B (Fy=46 KSI)
ANCHOR BOLTS: ASTM F1554 GRADE 36 U.N.O. (ALTERNATES GRADE 55 & 105)
CONNECTION BOLTS: ASTM A325
THREADED RODS: ASTM A193 GRADE B7
STEEL ANGLES, CHANNELS, STRUCTURAL SHAPES & PLATES ASTM A36
REINFORCING: GRADE 60 ASTM A615
PROVIDE A MINIMUM OF THREE INCHES OF CONCRETE COVER OVER EMBEDDED STEEL.

THE CONTRACTOR (INSTALLER) IS RESPONSIBLE FOR THE MEANS & METHODS OF CONSTRUCTION IN REGARDS TO JOBSITE SAFETY.

NO FIELD HEATING FOR BENDING OR CUTTING OF STEEL SHALL BE ALLOWED WITHOUT THE ENGINEER'S APPROVAL.

WELDING ELECTRODES: E70XX

ALLOWABLE SOIL BEARING PRESSURE ASSUMED: 2000 PSF

ASSUMED HORIZONTAL (PASSIVE PRESSURE) ASSUMED AT 150 PSF/FT OF DEPTH.

ISOLATED LATERAL BEARING FOUNDATIONS FOR SIGNS NOT ADVERSELY AFFECTED A 1/2" MOTION AT THE GROUND SURFACE DUE TO SHORT TERM LATERAL LOADS SHALL BE PERMITTED TO BE DESIGNED USING TWO TIMES THE TABULATED CODE VALUES.

ALL FOOTINGS SHALL BEAR ON FIRM UNDISTURBED RESIDUAL SOIL AND/OR ENGINEERED EARTH.

FILL COMPACTED TO 98% OF ITS MAXIMUM DRY DENSITY AS PER ASTM D 698-70 (STANDARD PROCTOR) UNLESS NOTED OTHERWISE. THE SOIL BEARING CAPACITY IS TO BE VERIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION. IF ALLOWABLE BEARING AND/OR LATERAL PRESSURE IS LESS THAN THE ABOVE ASSUMED AND/OR CALCULATED PRESSURES, THE ENGINEER SHOULD BE CONTACTED FOR RE-EVALUATION.

EXCAVATION SHALL BE FREE OF LOOSE SOIL BEFORE POURING CONCRETE. WELDERS SHALL BE CERTIFIED FOR THE TYPE OF WELDING. ADEQUATELY BRACE POLE(S) UNTIL CONCRETE HAS SET UP FOR 14 DAYS. GROUT UNDER BASE PLATES WITH NON-SHRINK GROUT.

THIS ENGINEER DOES NOT WARRANT THE ACCURACY OF DIMENSIONS FURNISHED BY OTHERS.

ALL EXPOSED STEEL SHALL BE PAINTED WITH AN ENAMEL PAINT TO INHIBIT CORROSION.

THIS DESIGN IS FOR THE INDICATED ADDRESS ONLY, AND SHOULD NOT BE USED AT OTHER LOCATIONS WITHOUT WRITTEN PERMISSION OF THE ENGINEER.

DESIGN OF DETAILS AND STRUCTURAL MEMBERS NOT SHOWN, BY OTHERS.

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WIND DATA				DEFLECTION ANALYSIS			
Building Code	2014 Florida Building Code	Importance Factor, I	1.0	Damping Ratio, β	0.005		
Wind Load Criteria	ASCE 7-10	Directionality Factor, K_d	0.85	Natural Frequency, n_1	8.56 Hz		
Wind Speed, V	140 mph	Topography Factor, K_t	1.0	Gust Effect Factor, G	0.85		
Exposure Category	C	Base Pressure, $v(z)/K_z$	25.6 psf	ASD Wind Load Factor, γ	0.6		
Wind Pressure Override per Jurisdiction Requirement	0 psf						

Notes: (1) Loading values in chart below are based upon average K_z values for each segment. Actual values are calculated on hidden sheet using derived V-M equations. Chart is provided for information purposes only.
(2) Wind directionality (K_d) factor is 0.95 for Single Pole (Round) segments instead of 0.85. The C_f value from Fig. 6-21 has been increased by 0.95/0.85 to account for this variation.
(3) Wind pressures listed below have already been multiplied by the ASD Wind Load Factor, γ .

GEOMETRY INPUT																	
Section	Location	Type	Height	Width	Horiz. Offset	Area	Top Elev.	Centroid	K_z	C_f	Wind Press.	Support Pole Loads			Footing Loads		
			ft	ft	ft	sq ft	ft	ft			psf	Trib. Factor	Shear k/ps	Moment k-ft	Trib. Factor	Shear k/ps	Moment k-ft
1	Base	Single Pole (Not Round)	7.10	0.50		3.6	7.1	3.6	0.85	1.77	32.7	1.0	0.1	0.4	1.0	0.1	0.4
2		Multiple Poles w/ Cabinet	1.67	6.00		10.0	8.8	7.9	0.85	1.82	33.6	0.7	0.2	1.9	0.7	0.2	1.9
3		None				0.0	8.8	8.8	0.85	1.46	27.0	0.0	0.0	0.0	0.0	0.0	0.0
4		None				0.0	8.8	8.8	0.85	1.46	27.0	0.0	0.0	0.0	0.0	0.0	0.0
5		None				0.0	8.8	8.8	0.85	1.46	27.0	0.0	0.0	0.0	0.0	0.0	0.0
6		None				0.0	8.8	8.8	0.85	1.46	27.0	0.0	0.0	0.0	0.0	0.0	0.0
7		None				0.0	8.8	8.8	0.85	1.46	27.0	0.0	0.0	0.0	0.0	0.0	0.0
8		None				0.0	8.8	8.8	0.85	1.46	27.0	0.0	0.0	0.0	0.0	0.0	0.0
9		None				0.0	8.8	8.8	0.85	1.46	27.0	0.0	0.0	0.0	0.0	0.0	0.0
10	Top	None				0.0	8.8	8.8	0.85	1.46	27.0	0.0	0.0	0.0	0.0	0.0	0.0
			Overall Height:			8.77 ft			Summation based upon averages above:			0.4	2.3	0.4	2.3		
									Actual base reactions based upon V-M equations:			0.4	2.3	0.4	2.3		

SUPPORT POLE DESIGN SUMMARY																	
Base Elev. ft	Section	Axis	Required Strength Values (ASD)				Allowable Strength Values (ASD)				Unity Ratios			Interaction Ratios			Status
			V_r	M_r	T_r	P_r	V_c	M_c	T_c	P_c	V_r/V_c	M_r/M_c	T_r/T_c	P_r/P_c	P-M	P-M-V-T	
0.00	HSS60X4X1/4	Strong	0.4	2.3	0.0	0.2	45.5	19.6	13.9	37.8	0.8%	11.8%	0.0%	0.6%	12.4%	0.0%	✓
0.00	None	Strong	0.4	2.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	✓
0.00	None	Strong	0.4	2.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	✓
0.00	None	Strong	0.4	2.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	✓
0.00	None	Strong	0.4	2.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	✓
0.00	None	Strong	0.4	2.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	✓
0.00	None	Strong	0.4	2.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	✓
0.00	None	Strong	0.4	2.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	✓
0.00	None	Strong	0.4	2.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	✓
0.00	None	Strong	0.4	2.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	✓

ELEMENT DESIGN LOCATIONS, LOADS AND DISPLACEMENTS																	
Element	Elev. ft	Type	V_r	M_r	T_r	P_r	$0.7^* \theta$	$0.7^* \delta$	Element	Elev. ft	Type	V_r	M_r	T_r	P_r	$0.7^* \theta$	$0.7^* \delta$
			kip	kip-ft	kip-ft	kip	radians	in				kip	kip-ft	kip-ft	kip	radians	in
1	0.00	Base Plate	0.4	2.3	0.0	0.2	0.0	0.0	3	0.00	Match Plate 2	0.4	2.3	0.0	0.2	0.000	0.00
2	0.00	Match Plate 1	0.4	2.3	0.0	0.2	0.0	0.0	4	0.00	Torsion Tube	0.4	2.3	0.0	0.2	0.000	0.00

PLATE DESIGN SUMMARY																	
Type	Plate Dimensions				Number	d_b	N_{edge}	B_{edge}	Circle Diameter	Material	Embed in Caisson / Vertical Slab	Embed in	Weld Size	Gussets	Status		
	N	B	D	t												in	in
✓ Rectangular Base Plate	12	12	--	0.5	4	0.5	1.75	1.75	--	F1554 Grade 36	24	N/A	0.1875	Yes	OK		
□ Circular Base Plate																	
□ Match Plate 1 (Lower)																	
□ Match Plate 1 (Upper)																	
□ Match Plate 2 (Lower)																	
□ Match Plate 2 (Upper)																	

FOUNDATION DESIGN SUMMARY										
Type	Diameter	Width	Thickness	Length	Depth	Volume	Reinforcing			Status
	ft	ft	ft	ft	ft	cy				
✓ Caisson	2.00	--	--	--	4.00	0.47	(4) #5 Vert. w/ #3 Ties @ 12 in o.c. and (3) @ 3 in o.c. Top			OK
□ Vertical Slab										
□ Spread										



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