

Technical drawing of a traffic signal pole layout. The drawing shows a side view of the pole and its components, including the signal head, the pole itself, and the base. The layout is defined by several dimensions:

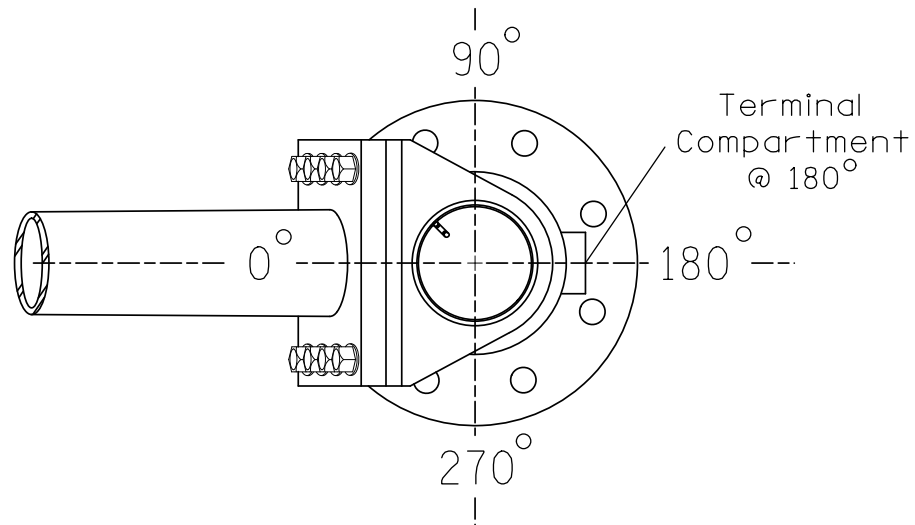
- Horizontal Dimensions:**
 - 1' (from left edge to first signal head)
 - 4' (between first and second signal heads)
 - 8' (between second and third signal heads)
 - 8' (between third and fourth signal heads)
 - 4' (between fourth signal head and pole base)
 - 12' (from pole base to 'Street Name' sign)
 - 18' (from 'Street Name' sign to pole base)
 - 55'** (Total length from left edge to pole base)
- Vertical Dimensions:**
 - Maximum 25.6 ft.** (Total height from base line to top of pole)
 - Roadway Clearance:**
 - Design Height 17 ft
 - Minimum 16.5 ft.
 - H1 = 19.5'** (Height from base line to top of signal head)
 - H2 See Note 8** (Height from top of signal head to top of pole)
- Components and Labels:**
 - Signal Head:** A rectangular box containing three circular lights.
 - Street Name:** A rectangular sign.
 - Pole:** A vertical structure supporting the signal head and sign.
 - Base:** The foundation of the pole, labeled **Foundation**.
 - High Point of Roadway Surface:** A horizontal line indicating the ground level.
 - Base line reference elev. = 0.0'** (at the bottom of the base)
 - See Note 7d** (pointing to the base of the pole)
 - See Note 7e** (pointing to the base of the pole)
 - See Notes 4 & 5** (pointing to the signal head)
 - See Note 7** (pointing to the pole)
 - See Note 8** (pointing to the top of the pole)

SPECIAL NOTE

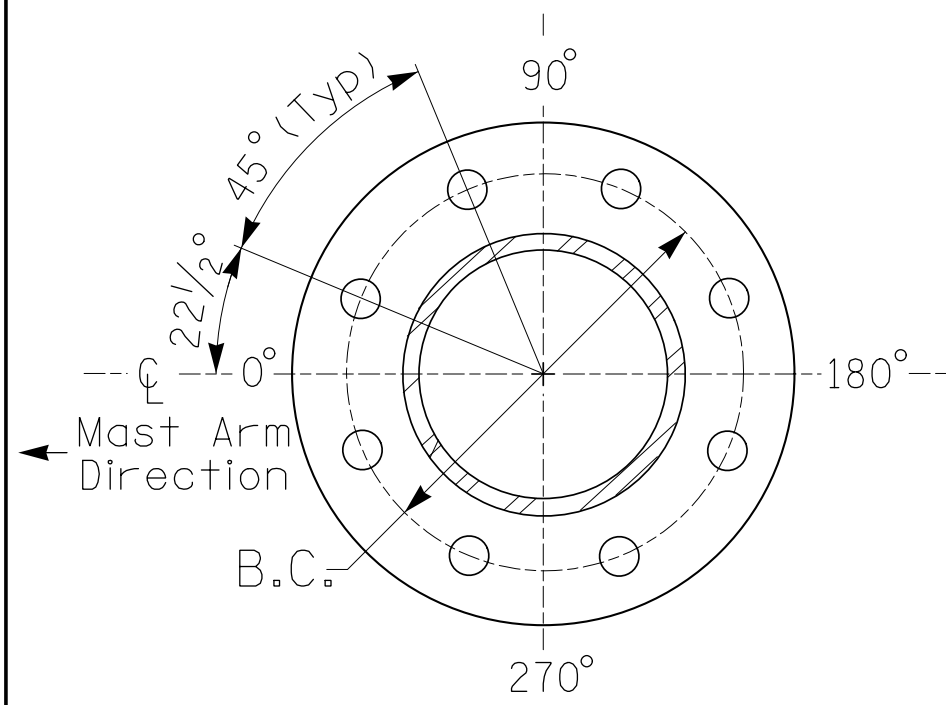
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Differences for:	Pole 1
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00
7	0.00
8	0.00
9	0.00
10	0.00
11	0.00
12	0.00
13	0.00
14	0.00
15	0.00
16	0.00
17	0.00
18	0.00
19	0.00
20	0.00
21	0.00
22	0.00
23	0.00
24	0.00
25	0.00
26	0.00
27	0.00
28	0.00
29	0.00
30	0.00
31	0.00
32	0.00
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34	0.00
35	0.00
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38	0.00
39	0.00
40	0.00
41	0.00
42	0.00
43	0.00
44	0.00
45	0.00
46	0.00
47	0.00
48	0.00
49	0.00
50	0.00
51	0.00
52	0.00
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73	0.00
74	0.00
75	0.00
76	0.00
77	0.00
78	0.00
79	0.00
80	0.00
81	0.00
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83	0.00
84	0.00
85	0.00
86	0.00
87	0.00
88	0.00
89	0.00
90	0.00
91	0.00
92	0.00
93	0.00
94	0.00
95	0.00
96	0.00
97	0.00
98	0.00
99	0.00
100	0.00

Baseline reference point at C Foundation @ ground level		0.0 ft.
Elevation difference at High point of roadway surface		+0.3 ft.
Elevation difference at Edge of travelway or face of curb		-0.69 ft.

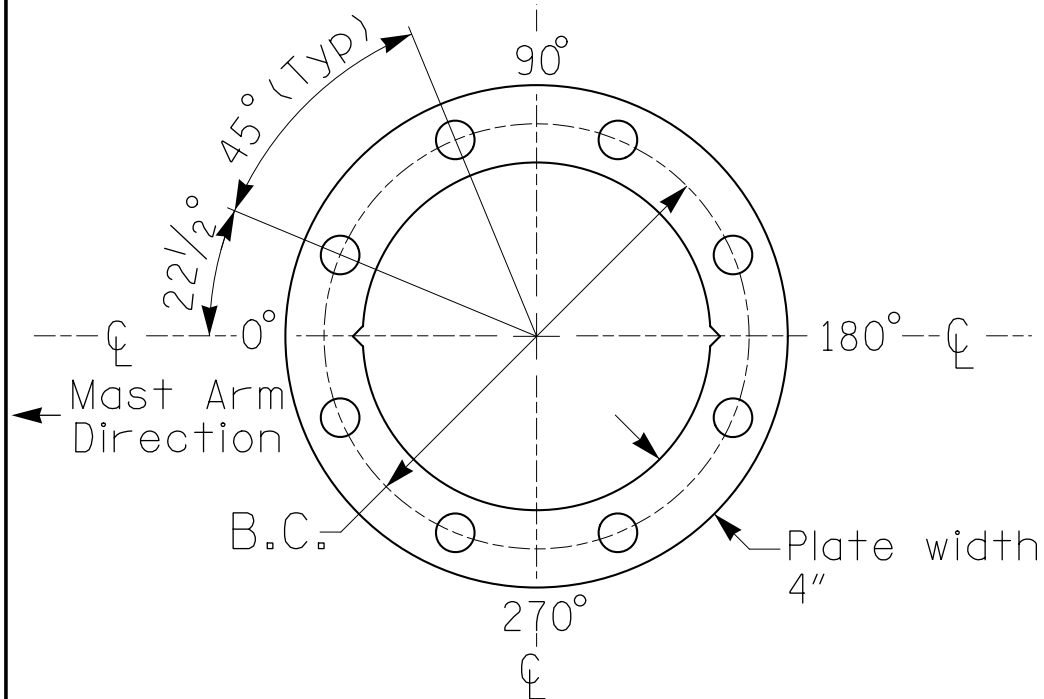


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT
LOCK PLATE DETAIL
For 8 Bolt Base Plate

METAL POLE No. 1

PROJECT REFERENCE NO.	SHEET NO.
U-4700 CB	Sig. 7.4

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5" W X 66.0" L	74 LBS
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5" W X 52.5" L	60 LBS
	SIGN RIGID MOUNTED	9.0 S.F.	36.0" W X 36.0" L	17 LBS
	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0" W X 96.0" L	36 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
 - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
 - The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
 - The 2024 NCDOT Roadway Standard Drawings.
 - The traffic signal project plans and special provisions.
 - The NCDOT "Metal Pole Standards" located at the following NCDOT website:
<https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>

DESIGN REQUIREMENTS

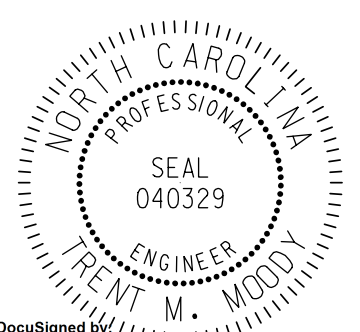
2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
 3. Design all signal supports using stress ratios that do not exceed 0.9.
 4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
 5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate arm connection points.
 6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
 7. The mast arm attachment height (H1) shown is based on the following design assumptions:
 - a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
 - b. Signal heads are rigidly mounted and vertically centered on the mast arm.
 - c. The roadway clearance height for design is as shown in the elevation views.
 - d. The top of the pole base plate is 0.75 feet above the ground elevation.
 - e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
 8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
 - Mast arm attachment height (H1) plus 2 feet, or
 - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
 9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
 10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
 11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.
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DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

EAL



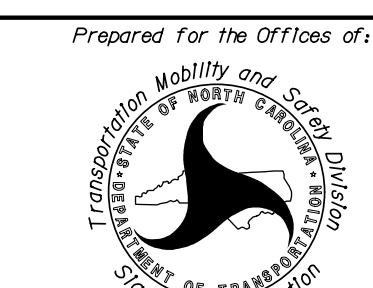
Sum + Negl.

rent Moody 5/29/2020

SIGNATURE	DATE
INVENTORY NO	11 1440

SIG. INVENTORY NO. 11-1449

NCDOT Wind Zone 5 (120 mph)



US 321 (Hickory Boulevard) SB
at
SR 1809/SR 1952
(Pine Mountain Road)

Division 11 Caldwell County Hud.

PLAN DATE:	May 2026	REVIEWED BY:	B. Roth-Roff
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PREPARED BY: J.T. Grimm	REVIEWED BY: T.M. Moody
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REVISIONS	INIT.	DATE
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SCALE N/A

ALLA

N/A