

Diagram illustrating the dimensions and components of a traffic signal system, including a street name sign, signal heads, and a pole assembly.

Dimensions:

- Horizontal dimensions (from left to right): 1', 6', 6', 8', 3', 3', 18'.
- Vertical dimensions: 5' Rise (from roadway surface to signal head centerline), 23' feet (from signal head centerline to pole top), H2 (pole height above signal head), H1 = 14.6' (pole height above foundation).
- Signal head dimensions: 7' min. - 10' max. (height from foundation to signal head centerline).
- Foundation dimensions: 7' min. - 10' max. (height from foundation to signal head centerline).

Components and Notes:

- Street Name
- Signal heads (labeled 2, 2)
- Pole
- Foundation
- Edge of travelway or face of curb
- High Point of Roadway Surface
- Base line reference elev. = 2124.4'
- Notes: See Note 4, See Note 6f, See Note 6d, See Note 6e, See Note 6.

Clearance Requirements:

- Roadway Clearance Design Height 17 ft.
- Minimum 16.5 ft.
- Maximum 25.6 ft.

Elevation View

Technical drawing of a traffic signal pole and its components, showing dimensions and notes.

Dimensions:

- Horizontal dimensions (from left to right): 1', 4', 4', 6', 6', 8', 3', 3', 25'.
- Vertical dimensions: 5' Rise, 18' feet (See Note 6f), H2 (See Note 7), H1 = 18.4' (See Note 6), 7' min. - 10' max., and a base line reference elevation of 2119.0'.

Components and Notes:

- Signal Head:** A rectangular unit with three circular lenses, labeled "Street Name".
- Controller:** A rectangular unit labeled "2".
- Pole:** A vertical pole with a "Pole" label at the top and "Foundation" at the base.
- Notes:**
 - See Note 4
 - See Note 6e
 - See Note 6f
 - See Note 6d

Other Labels:

- Maximum 25.6 ft.
- Roadway Clearance Design Height 17 ft. Minimum 16.5 ft.
- High Point of Roadway Surface
- Edge of travelway or face of curb
- Plans Prepared By: **CDM**

Elevation View

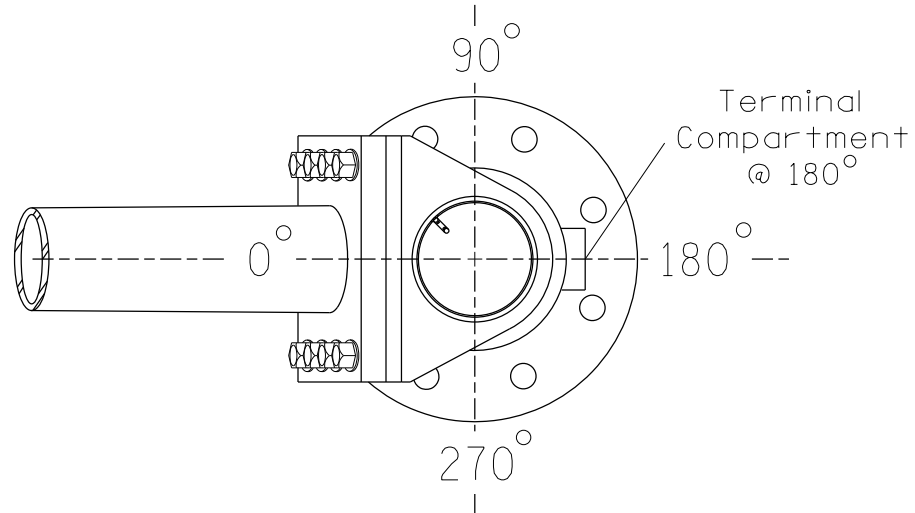


DRMP

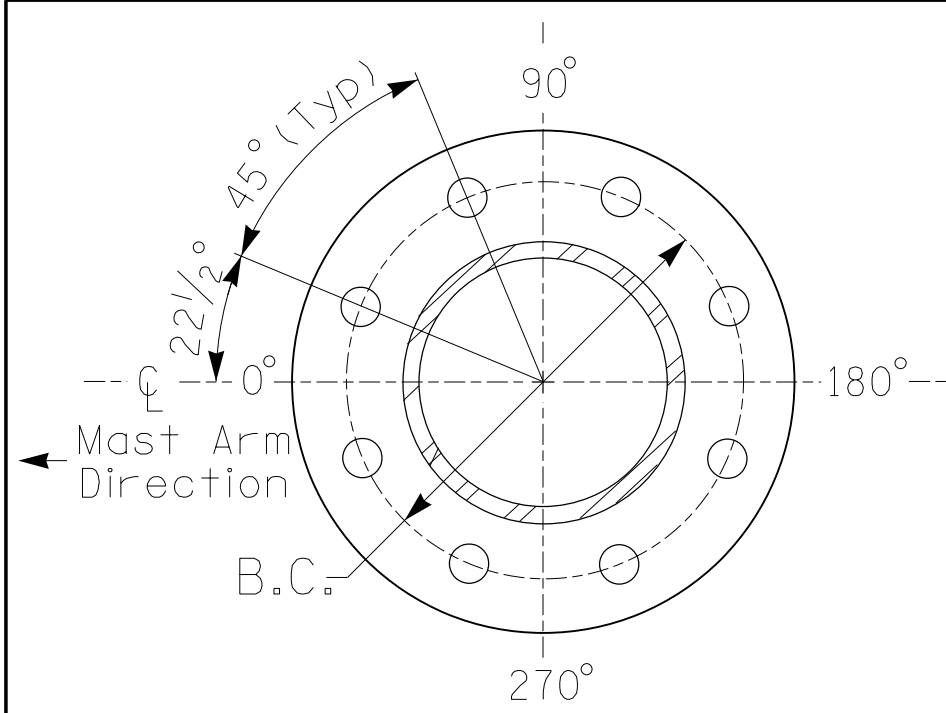
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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	Pole 2
Baseline reference point at ① Foundation @ ground level	2124.4 ft.	2119.0 ft.
Elevation difference at High point of roadway surface	+0.6 ft.	+4.4 ft.
Elevation difference at Edge of travelway or face of curb	+1.1 ft.	+3.2 ft.

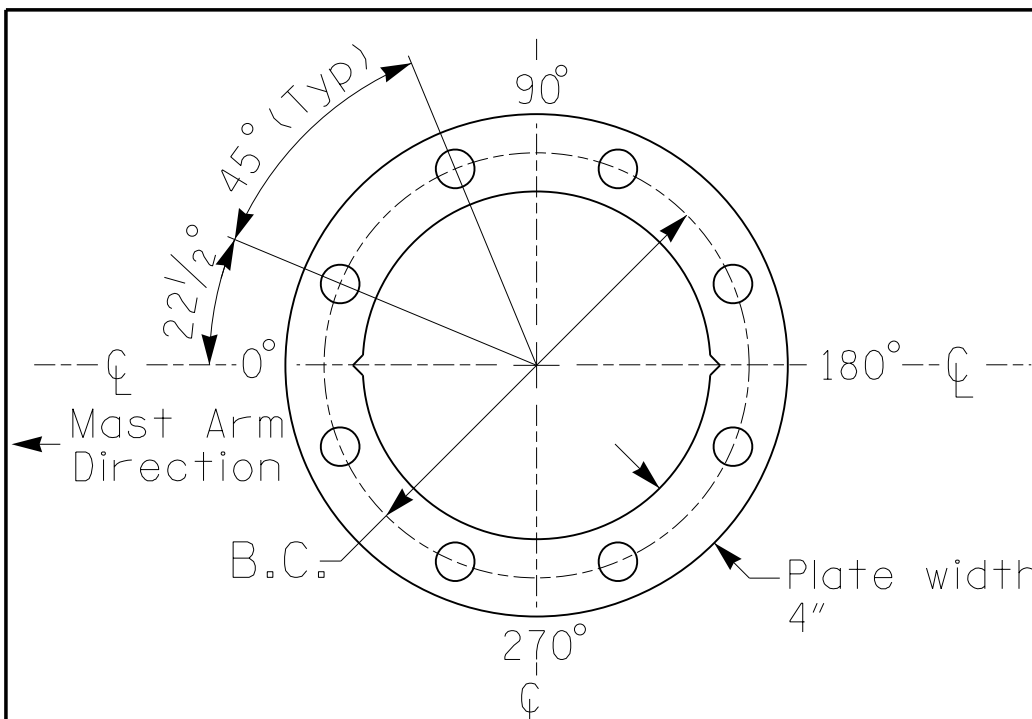


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 5



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

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-42.3

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"x4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5" W X 66.0" L	74 LBS
	RIGID MOUNTED SIGNAL HEAD 12"x3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5" W X 52.5" L	60 LBS
	SIGN RIGID MOUNTED	7.5 S.F.	30.0" W X 36.0" L	14 LBS
	PEDESTRIAN SIGNAL HEAD WITH MOUNTING HARDWARE	2.2 S.F.	18.5" W X 17.0" L	21 LBS
	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0" W X 96.0" L	36 LBS

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
 - The 1st Edition 2015 AASHTO LRFD "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 force ratios that do not exceed 0.9.
4. 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.
5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
6. The mast arm attachment height (H1) shown is based on the following design assumptions:
 - a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
 - 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.
 - f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
7. 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.
8. 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.
9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metal poles and arms should be black in color as specified in the project special provisions.

NCDOT Wind Zone 5 (110 mph)

NC 107

at
SR 1724 (Fairview Road) /

Division 14 Jackson County

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
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PREPARED BY:	DJ White	REVIEWED BY:	BN Groome
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REVISIONS	INIT.	DATE

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DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



Signed by: Brittany Groome 8/26/2022

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