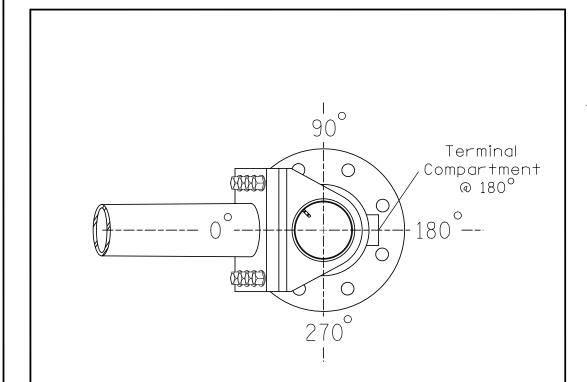
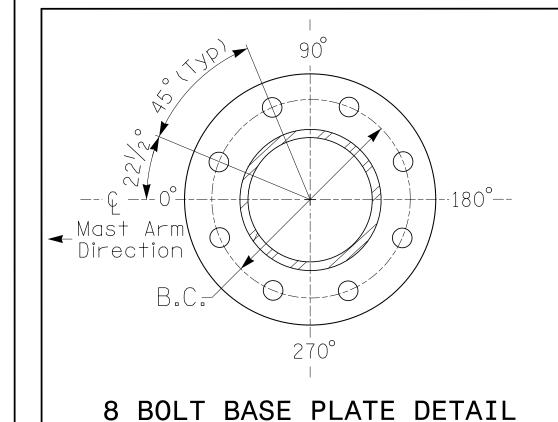
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

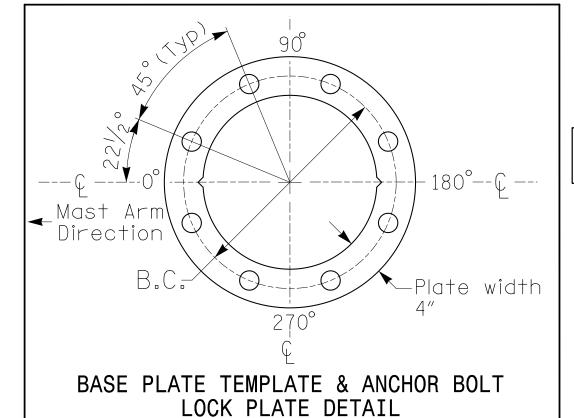
## Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 3	Pole 4
Baseline reference point at © Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+0.1 ft.	+0.0 ft.
Elevation difference at Edge of travelway or face of curb	+0.1 ft.	+0.0 ft.



### POLE RADIAL ORIENTATION





For 8 Bolt Base Plate

See Note 6

METAL POLES No. 3 and 4

PROJECT REFERENCE NO. U-5907 SIG. 6.3

MAST ARM LOADING SCHEDULE					
load <b>i</b> ng Symbol	DESCRIPTION	AREA	SIZE	WEIGHT	
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9 S.F.	36.0"W X 36.0"L	75 LBS	
	SIGN RIGID MOUNTED	5.0 S.F.	24.0" W X 30.0"L	11 LBS	
2	SIGN RIGID MOUNTED	4.5 S.F.	36.0"W X 18.0"L	10 LBS	
Street Name	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 2018 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signalproject specialprovisions.
- The 2018 NCDOT Roadway Standard Drawings.
- The traffic signal project plans and special provisions.
- The NCDOT "MetalPole Standards" located at the following NCDOT website:
- https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

#### DESIGN REQUIREMENTS

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 signalplans for the actualloads 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

2. Design the traffic signal structure using the loading conditions shown in the elevation

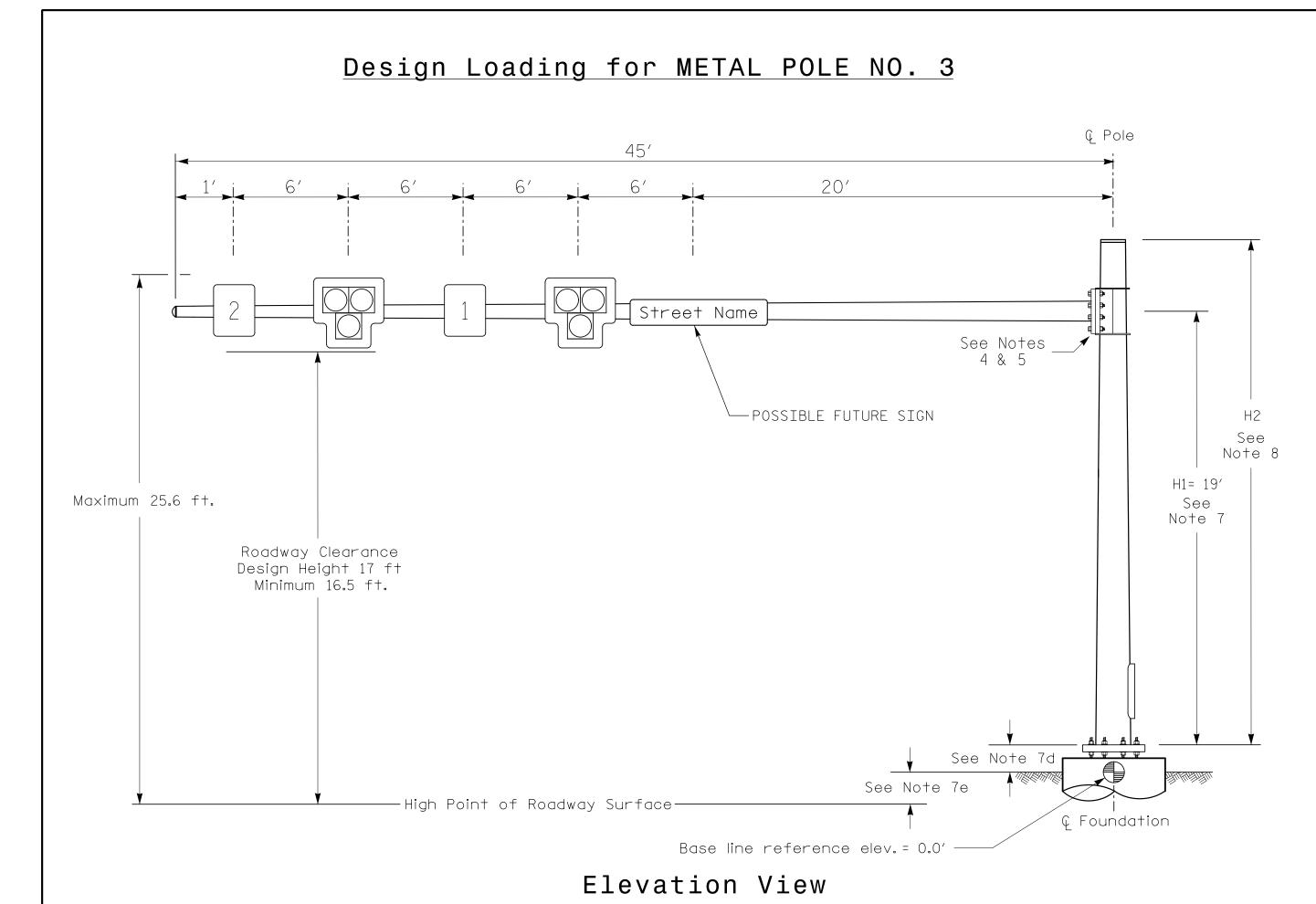
- pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
- 5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
- 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. Signalheads 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 leveland 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 willallow 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.

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

PLANS PREPARED IN THE OFFICE OF: Kimley » Horn NC License #F-0102 421 Fayetteville Street, Suite 600 Raleigh, NC 27601 (919) 677-2000

## NCDOT Wind Zone 4 (90 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED Griffith Street Pedestrian Hybrid Beacon East of Sloan Street/ Beaty Street Division 10 Mecklenburg Davidson PLAN DATE: July 2023 REVIEWED BY: KP Baumann 750 N.Greenfield Pkwy, Garner, NC 27529 PREPARED BY: SP Pennington REVIEWED BY: REVISIONS INIT. DATE 9/19/2023 N/ASIG. INVENTORY NO. DAVI-2



# Design Loading for METAL POLE NO. 4

