

SPECIAL NOTE The contractor is responsible for verifying that the mast arm attachment height (H1) willprovide 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 2	
Baseline reference point at © Foundation @ ground level	0.0 ft.	
Elevation difference at High point of roadway surface	0.85 ft.	
Elevation difference at Edge of travelway or face of curb	0.93 ft.	

POLE RADIAL ORIENTATION

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270°

8 BOLT BASE PLATE DETAIL

See Note 6

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BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

< yp)

B.C.

"Direction"

B.C.

## DESIGN REFERENCE MATERIAL

## DESIGN REQUIREMENTS

Terminal

Compartment @ 180°

180°--

--180°---

180°--€ ---

-Plate width

- requirements.

- the following:

- NCC
  - 750 N

	MAST ARM LOADING SC	HEDU	LE	
loading Symbol	DESCRIPTION	AREA	SIZE	WEIGHT
	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

PROJECT REFERENCE NO.

I-2513 AA/AB

SHEET NO.

Sig 4 4

## NOTES

1. Design the traffic signalstructure 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 signalproject specialprovisions. • The 2024 NCDOT Roadway Standard Drawings.

• The traffic signalproject plans and specialprovisions.

METAL POLE No. 2

• The NCDOT "MetalPole Standards" located at the following NCDOT website:

https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

2. Design the traffic signalstructure 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 signalplans for the actualloads that willbe applied at the time of the installation. 3. Design all signal supports using force 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

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 ot

Mast arm attachment height (H1) plus 2 feet, or

• H1 plus 1/2 of the totalheight 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 SignalDesign Section Senior StructuralEngineer 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 signalheads over the roadway. 11. The contractor is responsible for providing soilpenetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

> All metalpoles and arms shall be black factory powder coat in color as specified in the project special provisions.

DOT Wind Zone	5 (110 mph)				DOCUMENT NOT CO FINAL UNLESS SIGNATURES COM	S ALL
Prepared in the Offices of:					SEAL	
Nobility and So and Divisio	US 19-23 (Smoke a I-40 WB	t	Highw	ay)	SEAL	
	Division 13 Buncombe County Asheville			eville	026679	
Design Section	PLAN DATE: December 2023	REVIEWED BY:	R. Garr		TO NGINET	R. III
Greenfield Pkwy,Garner,NC 27529	PREPARED BY: M. Tindal	REVIEWED BY:				int
SCALE	REVISIONS		INIT.	DATE	— DocuSigned by:	
0 N/A				· · · · · · · · · · .	Rochelle Garrett	_ <u>12/5/2023</u> Date
N / A					SIG. INVENTORY NO.	13-0468