

PROJECT REFERENCE NO. SHEET NO. B-3159 Sig. 4.3

MAST ARM LOADING SCHEDULE							
loading symbol	DESCRIPTION	AREA	SIZE	WEIGHT			
	RIGID MOUNTED SIGNAL HEAD 12"-5 SECTION-WITH BACKPLATE	16.3 S.F.	42.0″W X 56.0″L	103 LBS			
	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″₩ X 52.5″L	60 LBS			
	PEDESTRIAN SIGNAL HEAD WITH MOUNTING HARDWARE	2.2 S.F.	18.5″W X 17.0″L	21 LBS			
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0″W X 96.0″L	36 LBS			
1	SIGN RIGID MOUNTED	5.0 S.F.	24.0″W X 30.0″L	11 LBS			

<u>NOTES</u>

DESIGN REFERENCE MATERIAL

1. Design the traffic signalstructure and foundation in accordance with: • The 5th Edition 2009 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions. • The 2012 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions. • The 2012 NCDOT Roadway Standard Drawings.

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

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

• 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 SignalDesign Section Senior StructuralEngineer for assistance at (919)773-2800.

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 soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

> All metalpoles and mast arms shall be black powder decorative coating in color as specified in the project special provisions.

NCDOT Wind Zone 4 (90 MPH)

Prepared in the Offices of:	NC 8 (Winston Ro	d /W. Sixt	ch St.)	SEAL			
Nobility one Some	at I-85 Business/US 29 NB-			LINH CARO			
Transport	US 64-70 EB Ramps			SEAL	NP		
STATISTICS STATISTICS	Division 9 Davidson Co	ounty	Lexington	026486	_ E		
Design Section	PLAN DATE: June 2015	REVIEWED BY:		P C C NGINEER	181		
Greenfield Pkwy.Garner.NC 27529	PREPARED BY: I.O.UMOZUNIKe	REVIEWED BY:		PT 1	1×111		
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