Sign shown

for possible future loading.

> Roadway Clearance Design Height 17 ft

Minimum 16.5 ft.

Maximum 25.6 ft.

EV Detector

See Note 8

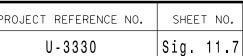
H1= 21.2'

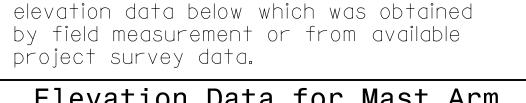
See Note 7

© Pole

21.5′

See Notes 4 & 5





SPECIAL NOTE

The contractor is responsible for verifying that the mast arm attachment height (H1)

will provide the "Design Height" clearance

shop drawings for approval. Verify

from the roadway before submitting final

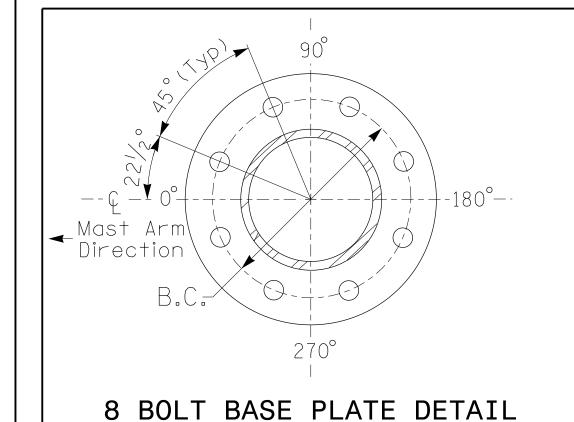
Elevation Data for Mast Arm Attachment (H1)

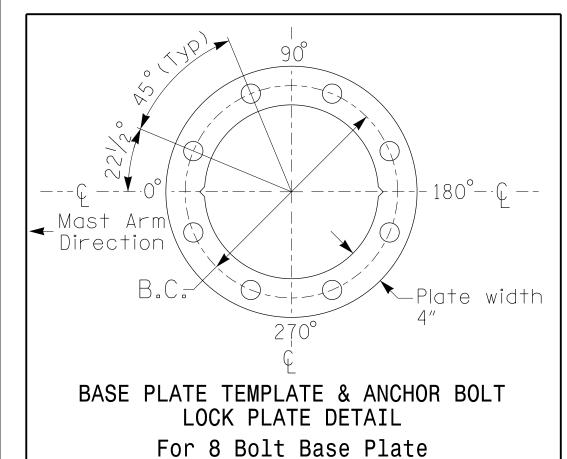
Elevation Differences for:	Pole 23	Pole 24
Baseline reference point at © Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+2.2 ft.	-0.64 ft.
Elevation difference at Edge of travelway or face of curb	+2.0 ft.	-0.3 ft.

MAST ARM LOADING SCHEDULE LOADING DESCRIPTION AREA | SIZE | WEIGHT SYMBOL RIGID MOUNTED SIGNAL HEAD 60 LBS 12"-3 SECTION-WITH BACKPLATE 24.0" W 36 LBS | 96.0" L STREET NAME SIGN Street Name RIGID MOUNTED 5.0 S.F. 24.0" W 11 LBS 30.0" L SIGN RIGID MOUNTED

Terminal Compartment 0.180° 1.180°--

POLE RADIAL ORIENTATION





See Note 6

<u>NOTES</u>

DESIGN REFERENCE MATERIAL

- 1. Design the traffic signal structure 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 signalproject specialprovisions.
- The 2012 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

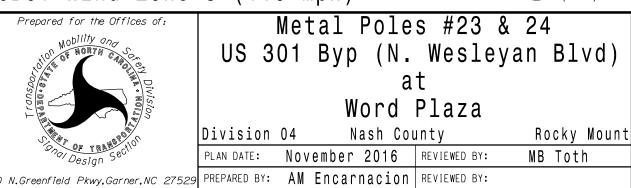
- 2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signalplans for the actualloads that will be applied at the time of the installation.
- 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. 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

N/A

N/A

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

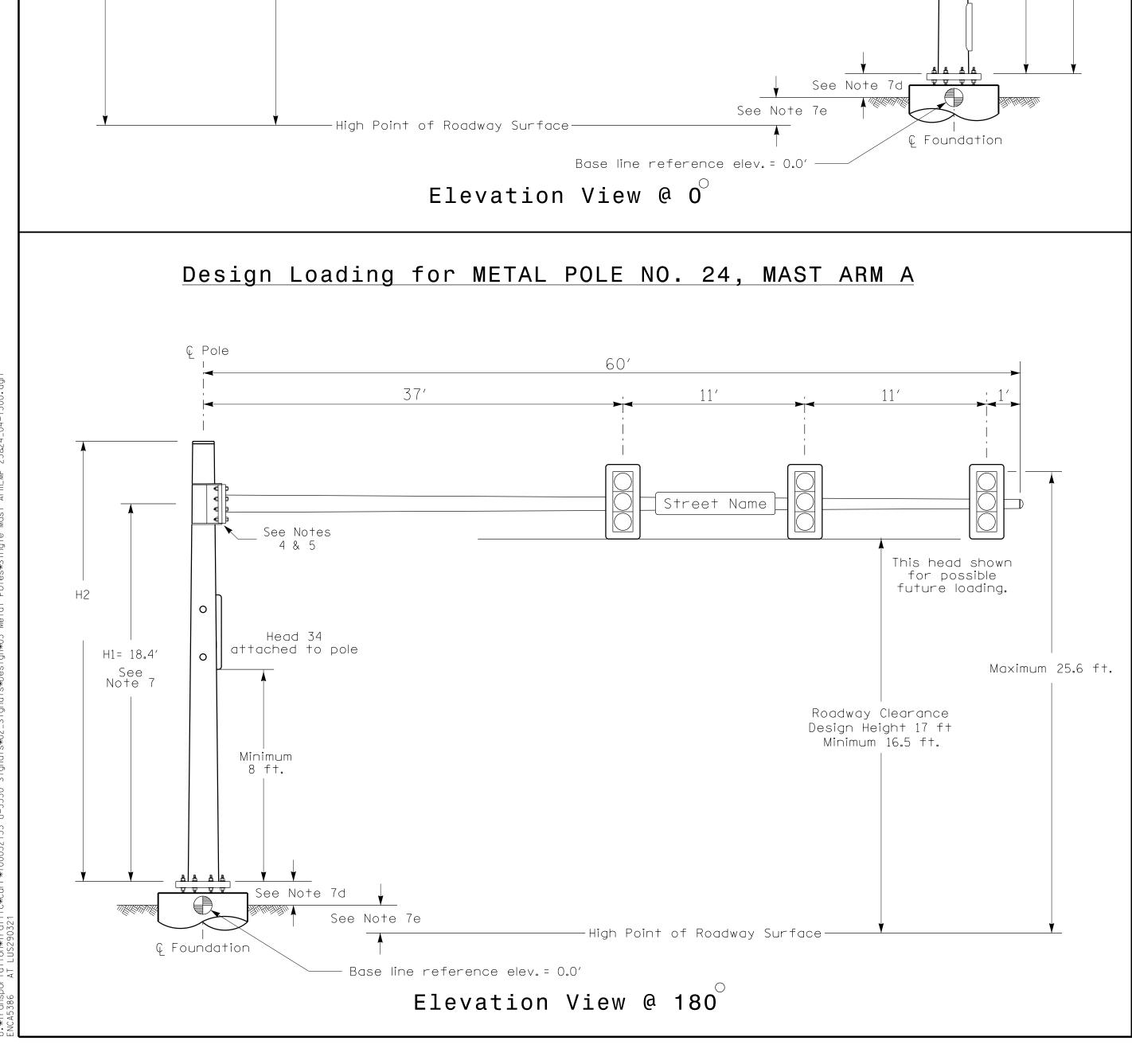




REVISIONS

025892

INIT. DATE 1/30/2017 Melissa B. Toth SIG. INVENTORY NO. 04-1300



Design Loading for METAL POLE NO. 23, MAST ARM A

Street Name