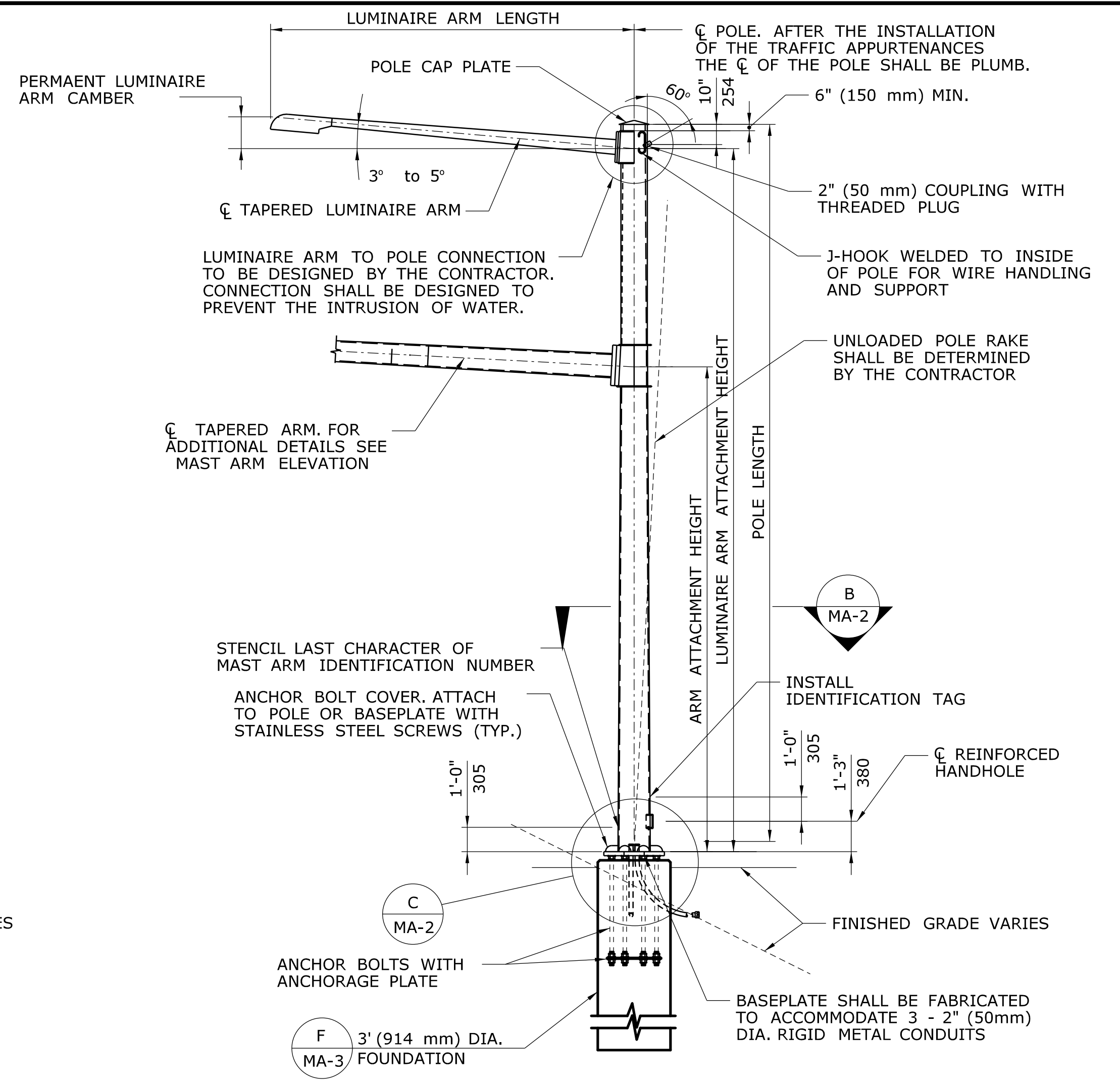


**ELEVATION  
MAST ARM**  
SCALE: 1/4" = 1'-0"



**ELEVATION  
COMBINATION MAST ARM**  
SCALE: 1/4" = 1'-0"

**MAST ARM ASSEMBLY NOTES**

THE MAST ARM, INCLUDING THE ANCHORAGE TO THE FOUNDATION, SHALL BE DESIGNED, FABRICATED AND INSTALLED BY THE CONTRACTOR, OF THE SPAN SPECIFIED, IN ACCORDANCE WITH THE SPECIAL PROVISION "XX STEEL MAST ARM ASSEMBLY" OR "XX STEEL COMBINATION MAST ARM ASSEMBLY".

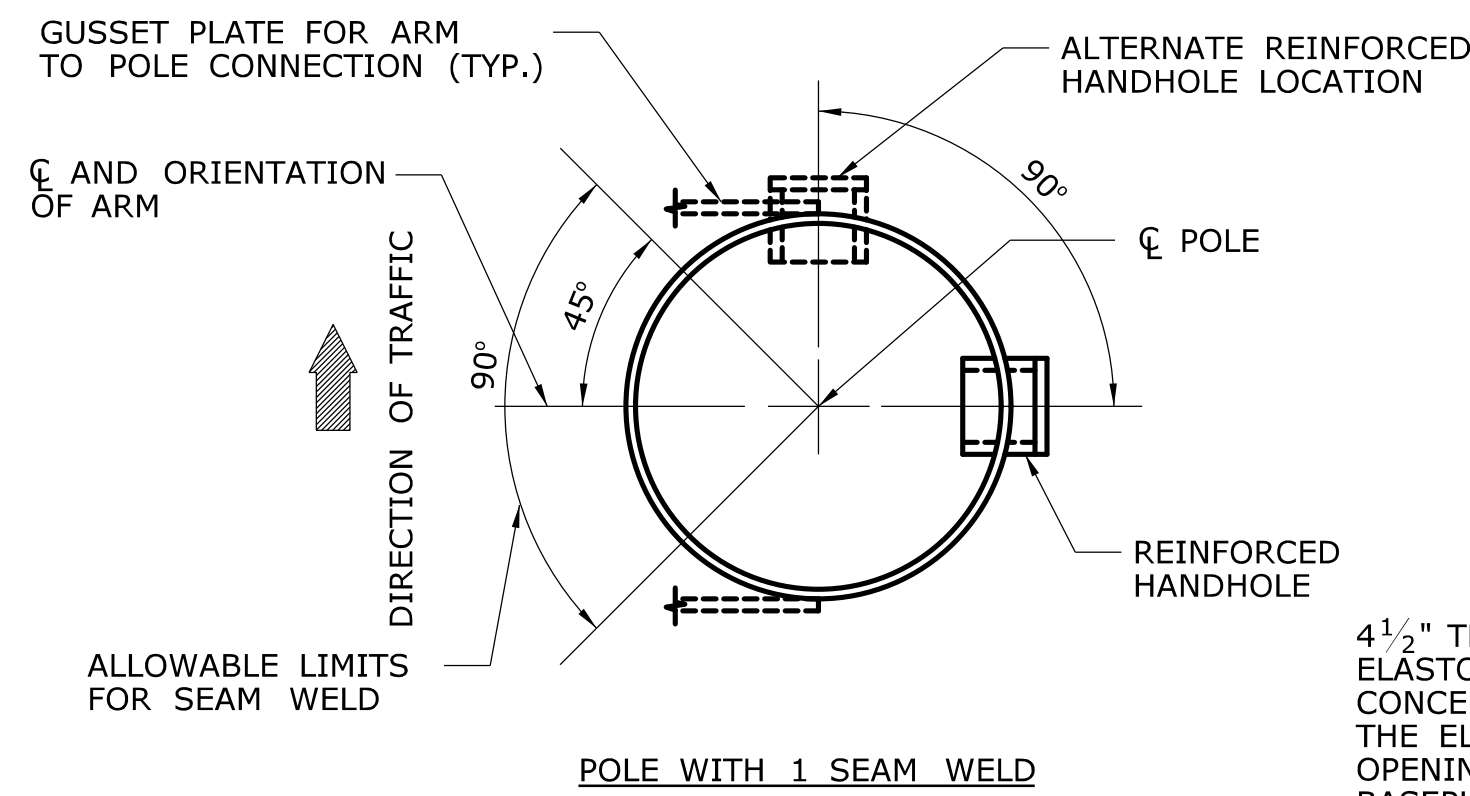
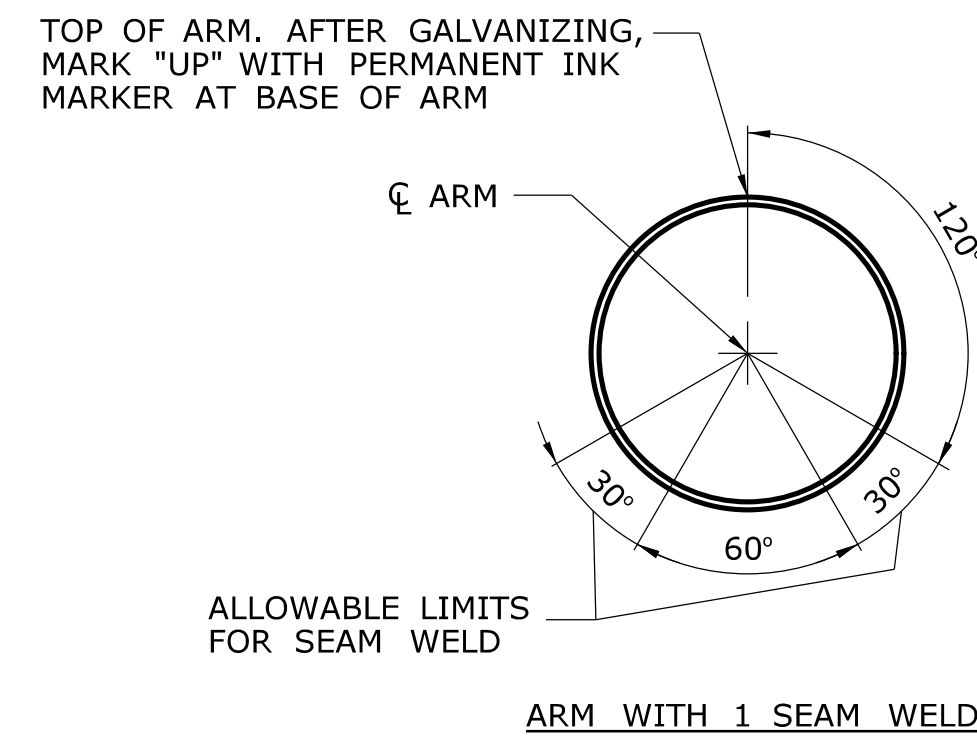
THE DIMENSIONS OF THE MAST ARM ASSEMBLY AND DETAILS OF THE TRAFFIC APPURTENANCES SUPPORTED BY THE MAST ARM ASSEMBLY ARE SHOWN ON THE TRAFFIC SIGNAL PLANS, ELEVATIONS, CROSS-SECTIONS OR IN THE SPECIAL PROVISIONS. THE ARM AND POLE LENGTHS AND THE ATTACHMENT HEIGHTS SHALL BE VERIFIED BY THE CONTRACTOR BASED ON THE FINISHED GRADE AT THE SITE, TOP OF FOUNDATION ELEVATION, THE LOCATIONS OF OVERHEAD UTILITY CABLES AND THE TRAFFIC APPURTENANCE MOUNTING HEIGHTS. IF EITHER THE ARM OR POLE LENGTH IS INADEQUATE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

THE MAST ARMS SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, INCLUDING THE LATEST INTERIM SPECIFICATIONS, AS AMENDED BY THE AS SPECIAL PROVISION "XX STEEL MAST ARM ASSEMBLY" OR "XX STEEL COMBINATION MAST ARM ASSEMBLY".

THE MAST ARM SHALL BE DESIGNED FOR THE LOAD EFFECTS DUE TO THE ACTUAL TRAFFIC APPURTENANCES (SIGNALS, SIGNS, LUMINAIRES, CAMERAS, ETC.). THE MAST ARMS SHALL ALSO BE DESIGNED FOR THE EFFECTS OF TRAFFIC APPURTENANCES DURING ALL STAGES OF CONSTRUCTION THAT MAY EXIST DURING THE PROJECT UNDER WHICH THE MAST ARMS ARE INSTALLED.

THE MAST ARMS SHALL BE DESIGNED TO SUPPORT TRAFFIC APPURTENANCES WITH PROPERTIES NO LESS THAN THOSE SHOWN IN THE TABLE ENTITLED "TRAFFIC APPURTENANCE PROPERTIES - MINIMUM DESIGN VALUES".

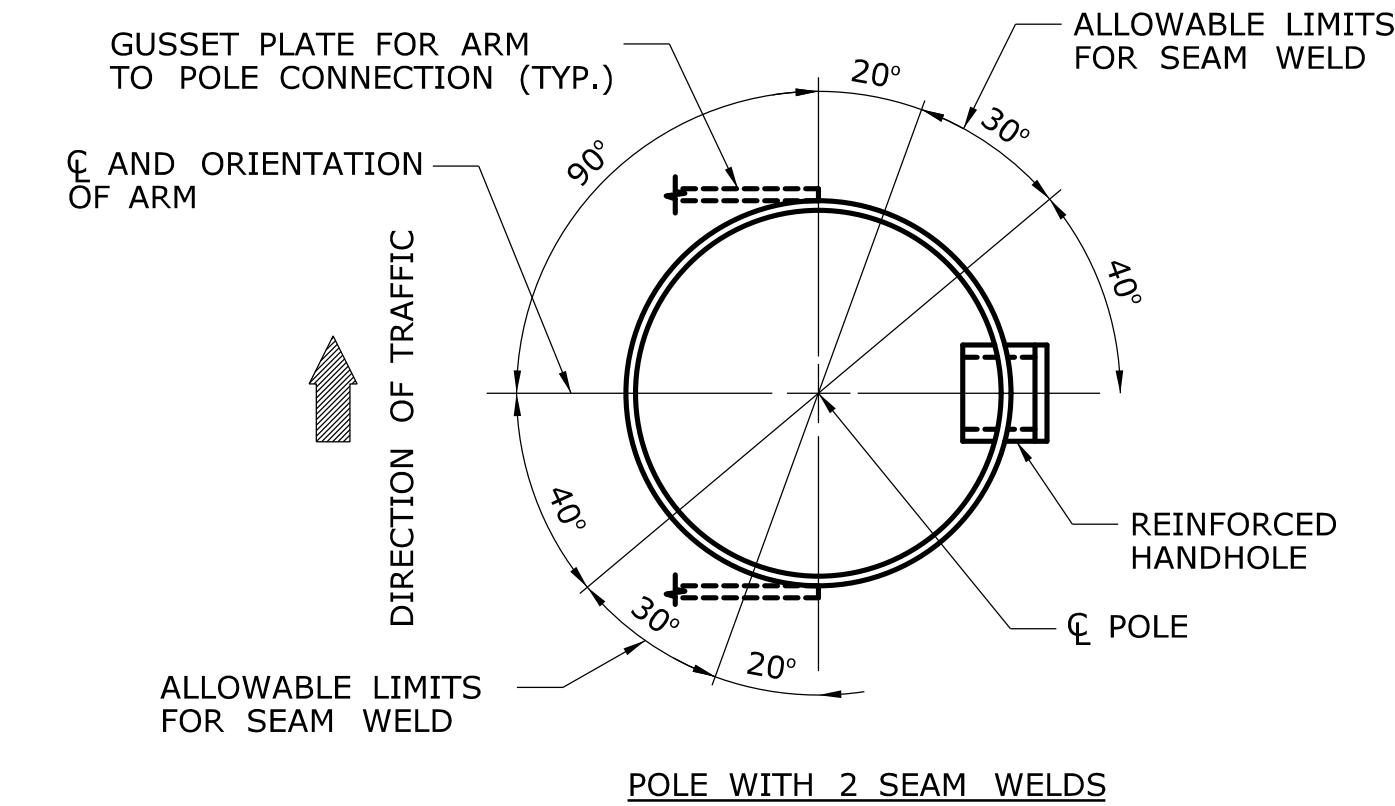
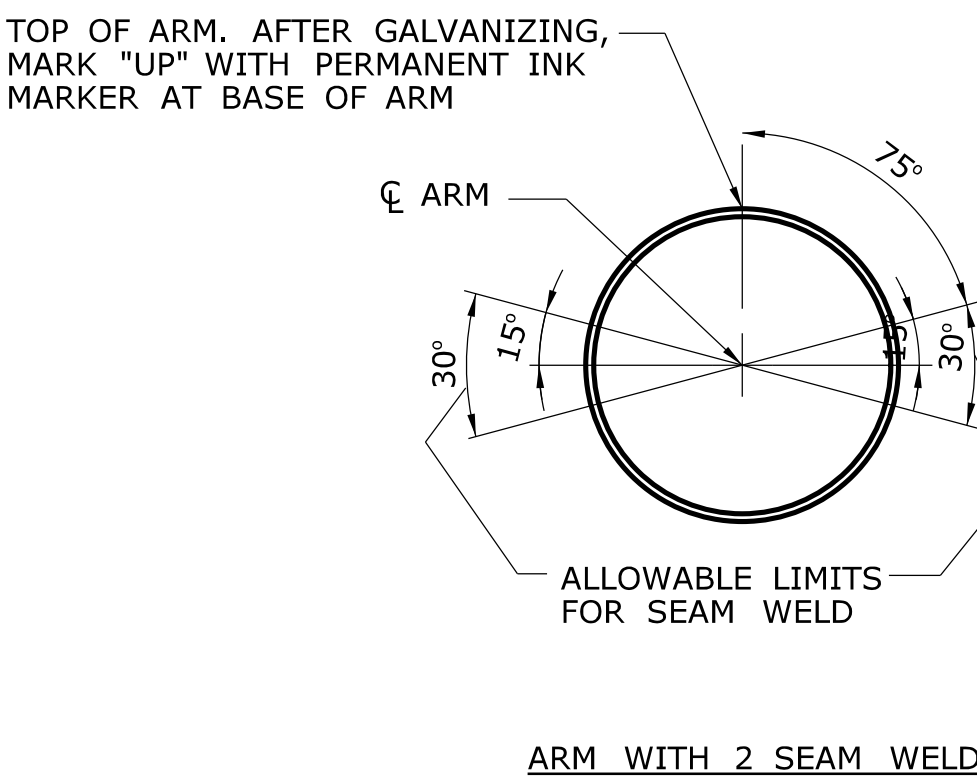
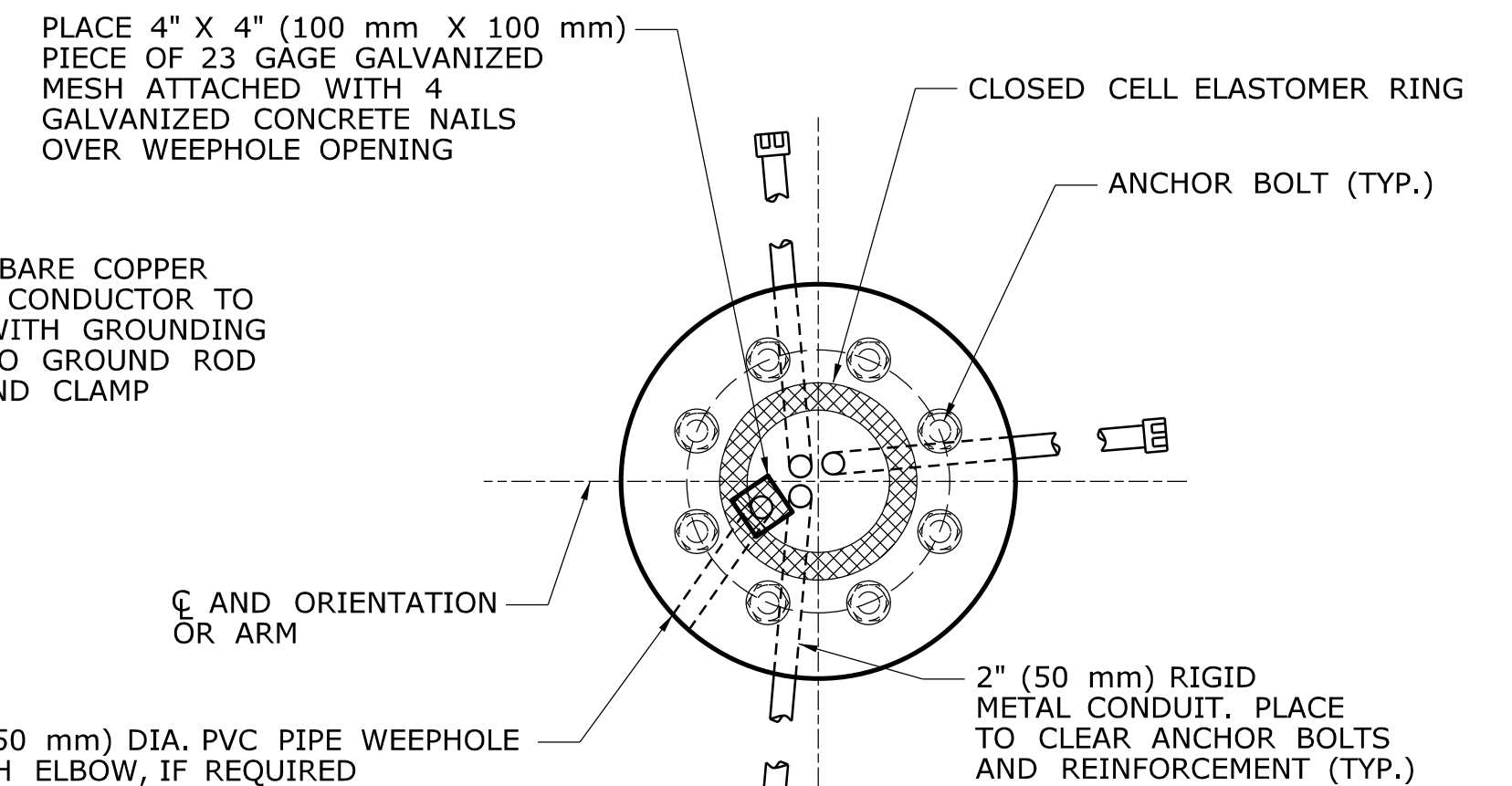
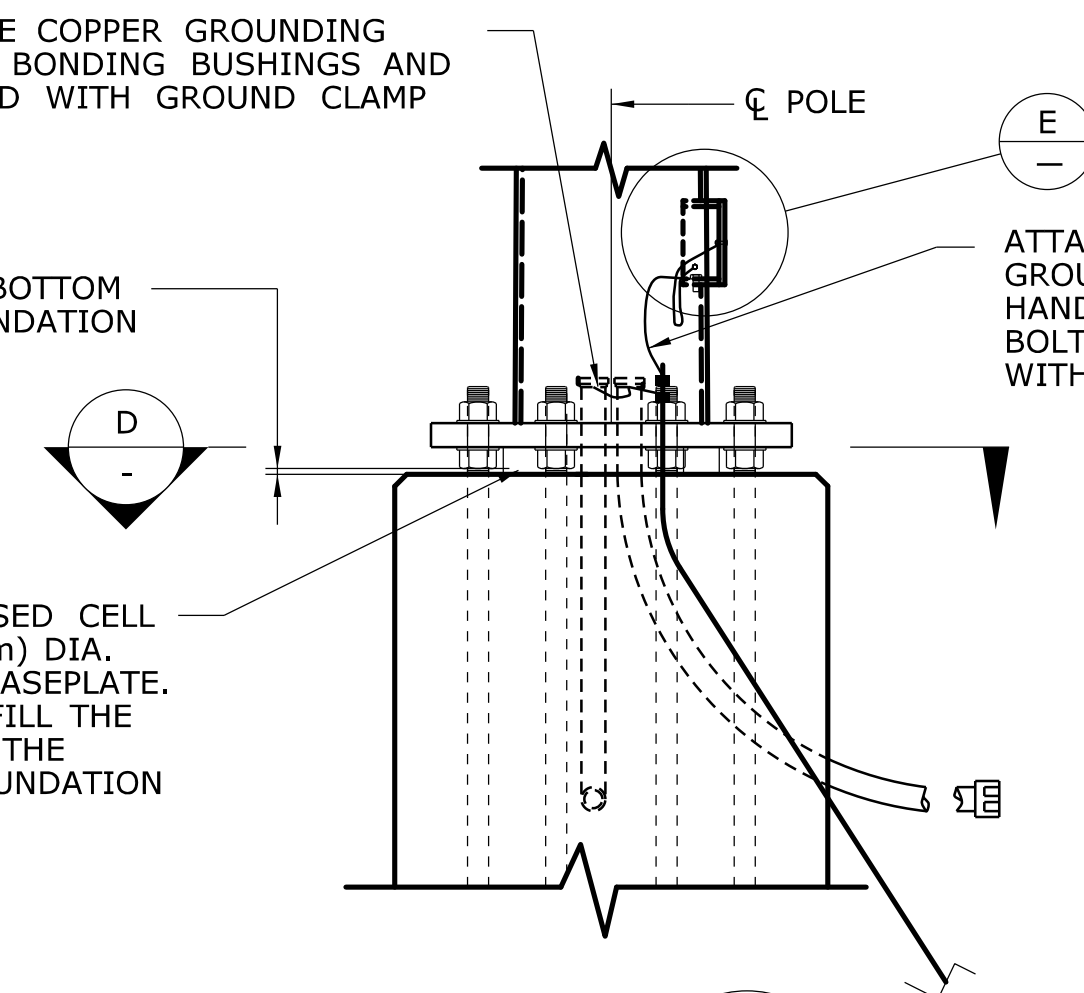
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 4/14/2010	DESIGNER/DRAFTER: -	CHECKED BY: -	SCALE AS NOTED	<p><b>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</b></p> <p>Filename: ...XXXXXX_SB_MastArm_MA1_Elev.dgn</p>	<p>SIGNATURE/ BLOCK: -</p> <p>APPROVED BY:                      DATE:</p>	PROJECT TITLE: -	TOWN: -	PROJECT NO. -	DRAWING NO. <b>MA-1</b>	SHEET NO.
<p><b>MAST ARM ASSEMBLY ELEVATION</b></p>														



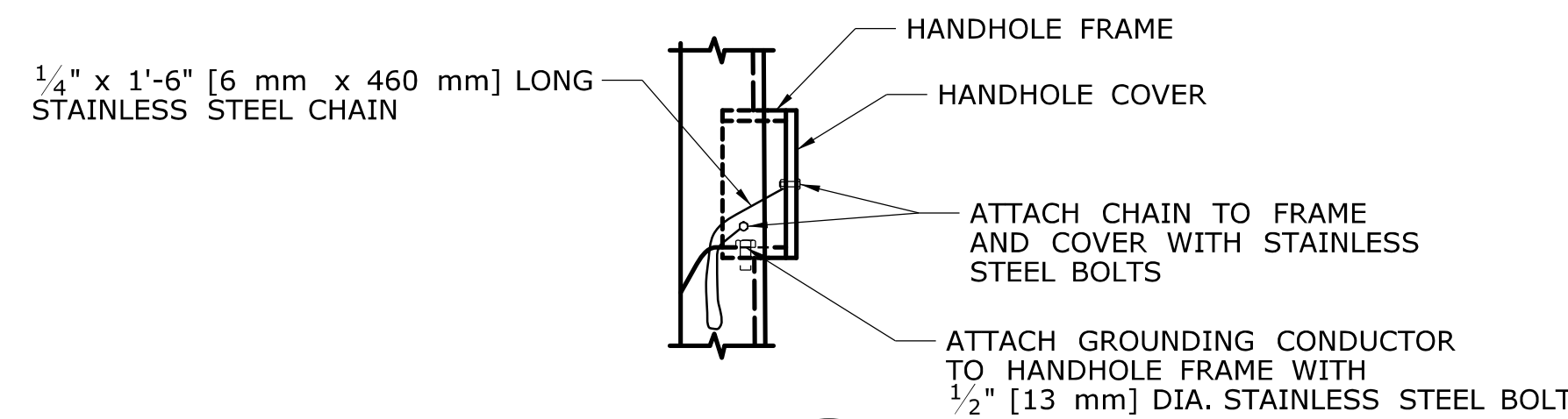
4 1/2" THK. X 1'-6" (457 mm) DIA. CLOSED CELL ELASTOMER SEAL WITH 1'-1" (330 mm) DIA. CONCENTRIC HOLE PLACED BELOW BASEPLATE. THE ELASTOMER SHALL COMPLETELY FILL THE OPENING BETWEEN THE BOTTOM OF THE BASEPLATE AND THE TOP OF THE FOUNDATION

ATTACH #8 BARE COPPER GROUNDING CONDUCTOR TO BONDING BUSHINGS AND TO GROUND ROD WITH GROUND CLAMP

1" (25 mm) MAX FROM BOTTOM OF NUT TO TOP OF FOUNDATION



1/4" x 1'-6" [6 mm x 460 mm] LONG STAINLESS STEEL CHAIN



ATTACH TAG TO POLE AND ARM WITH SELF-TAPPING TAMPER RESISTANT STAINLESS STEEL SCREWS (TYP.)

• IDENTIFICATION NUMBER:  
• MANUFACTURER:  
• DATE OF MANUFACTURE: MM/YY  
• ARM LENGTH: IN FEET (METERS)

IDENTIFICATION TAG  
NTS

SECTION A  
SCALE: 1 1/2" = 1'-0"  
MA-1

SECTION B  
SCALE: 1 1/2" = 1'-0"  
MA-1

DETAIL E  
SCALE: 1 1/2" = 1'-0"

TRAFFIC APPURTENANCE PROPERTIES  
MINIMUM DESIGN VALUES

	2'-0" 610	2'-0" 610	2'-0" 610	3'-2" 965	WIDTH HEIGHT
					SHEET ALUMINUM SIGN PANEL
	3 SECTION, 12" (305) DIA. TRAFFIC SIGNAL W/ BACKPLATE	4 SECTION, 12" (305) DIA. TRAFFIC SIGNAL W/BACKPLATE	5 SECTION, 12" (305) DIA. TRAFFIC SIGNAL W/ BACKPLATE	5 SECTION, 12" (305) DIA. TRAFFIC SIGNAL W/ BACKPLATE	
WEIGHT, INCLUDING MOUNTING HARDWARE	65 LBS (29.48 kg)	80 LBS (36.29 kg)	95 LBS (43.09 kg)	105 LBS (47.63 kg)	4 LBS/SQ.FT. (19.53 kg/m <sup>2</sup> )
TOTAL SURFACE AREA	28.04 SQ. FT. (2.61 m <sup>2</sup> )	35.46 SQ. FT. (3.29 m <sup>2</sup> )	45.16 SQ. FT. (4.20 m <sup>2</sup> )	41.04 SQ. FT. (3.81 m <sup>2</sup> )	BASED ON PANEL DIMENSIONS
PROJECTED AREA, FRONT FACE	8.62 SQ. FT. (0.80 m <sup>2</sup> )	10.91 SQ. FT. (1.01 m <sup>2</sup> )	13.34 SQ. FT. (1.24 m <sup>2</sup> )	13.72 SQ. FT. (1.28 m <sup>2</sup> )	BASED ON PANEL DIMENSIONS
PROJECTED AREA, BOTTOM FACE	1.18 SQ. FT. (0.11 m <sup>2</sup> )	1.18 SQ. FT. (0.11 m <sup>2</sup> )	1.18 SQ. FT. (0.11 m <sup>2</sup> )	2.58 SQ. FT. (0.24 m <sup>2</sup> )	BASED ON PANEL DIMENSIONS

NOTES:  
THE TABULATED VALUES ARE THE MINIMUM VALUES THAT SHALL BE USED FOR THE DESIGN.  
MAST ARMS SHALL BE DESIGNED ASSUMING ALL TRAFFIC SIGNALS ARE COMPOSED OF 12" (305 mm) DIAMETER SECTIONS WITH BACKPLATES.  
THE PROJECTED FRONT FACE AREA IS IN A PLANE PARALLEL TO THE PLANE FORMED BY THE ARM AND THE POLE.  
IF MULTIPLE APPURTENANCES ARE ATTACHED AT THE SAME LOCATION, THE MINIMUM DESIGN VALUE SHALL BE NO LESS THAN THE SUM OF THE CORRESPONDING TRAFFIC APPURTENANCE PROPERTIES.  
FOR TRAFFIC APPURTENANCES NOT SHOWN, THE PROPERTIES SHALL BE DETERMINED BY THE CONTRACTOR AND SUBMITTED FOR REVIEW WITH THE WORKING DRAWING SUBMITTAL.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

DESIGNER/DRAFTER: -  
CHECKED BY: -  
SCALE AS NOTED

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

SIGNATURE/BLOCK: -  
OFFICE OF ENGINEERING  
APPROVED BY: - DATE: -

PROJECT TITLE: -

TOWN: -  
DRAWING TITLE: MAST ARM ASSEMBLY DETAILS

PROJECT NO. -  
DRAWING NO. MA-2  
SHEET NO. \$\$\$

Plotted Date: 4/14/2010

Filename: ...XXXXXX\_SB\_MastArm\_MA1\_Elev.dgn

**FOUNDATION NOTES**

THE MAST ARM FOUNDATION IS DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, WITH THE LATEST INTERIM SPECIFICATIONS.

THE FOUNDATION EMBEDMENT IS DESIGNED FOR MAXIMUM LOAD EFFECTS, APPLIED AT THE TOP OF THE FOUNDATION, NO GREATER THAN THE FOLLOWING:

AXIAL COMPRESSIVE FORCE:	K ( kN)
RESULTANT SHEAR FORCE:	K ( kN)
TORSION:	FT - K ( kN - m)
RESULTANT BENDING MOMENT:	FT - K ( kN - m)

THE USE OF THE FOUNDATION IS NOT PERMITTED IF THE COMPUTED REACTIONS FROM THE CONTRACTOR DESIGNED MAST ARM ASSEMBLY EXCEED THE ABOVE LOAD EFFECTS.

THE ENGINEER SHALL BE NOTIFIED IF THE SLOPE OF THE FINISHED GRADE AT THE FOUNDATION EXCEEDS THE MAXIMUM PERMITTED SLOPE.

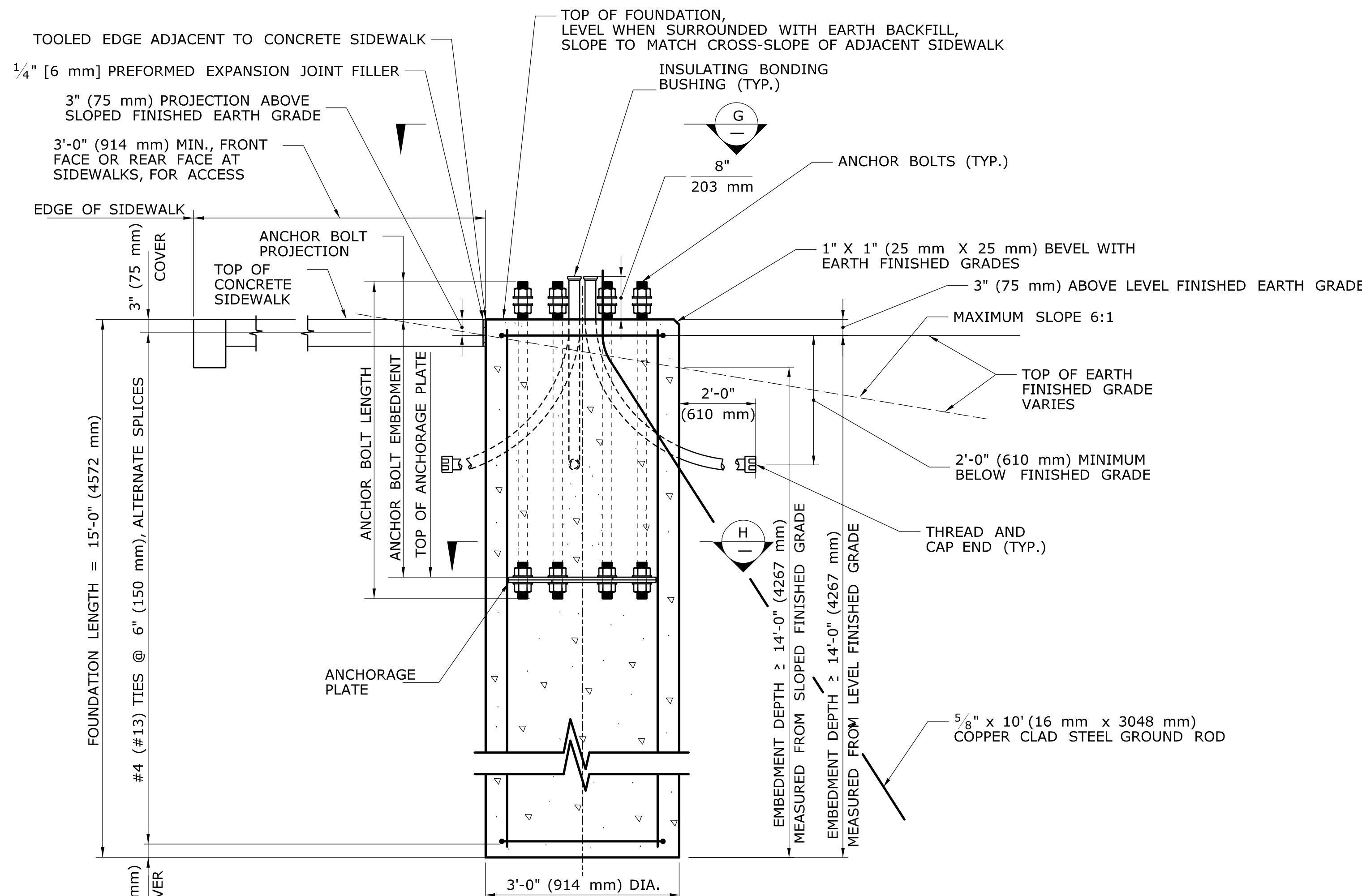
THE CONCRETE FOR THE FOUNDATION SHALL CONFORM TO "CLASS "A" CONCRETE".

THE REINFORCEMENT SHALL BE UNCOATED AND CONFORM TO ASTM A615, GRADE 60 (ASTM A615M, GRADE 420). THE REINFORCEMENT SHALL BE ASSEMBLED WITH WIRE TIES. WELDING TO ASSEMBLE REINFORCEMENT IS NOT PERMITTED. ALL REINFORCEMENT SHALL HAVE 3" (75 mm) COVER, UNLESS OTHERWISE NOTED.

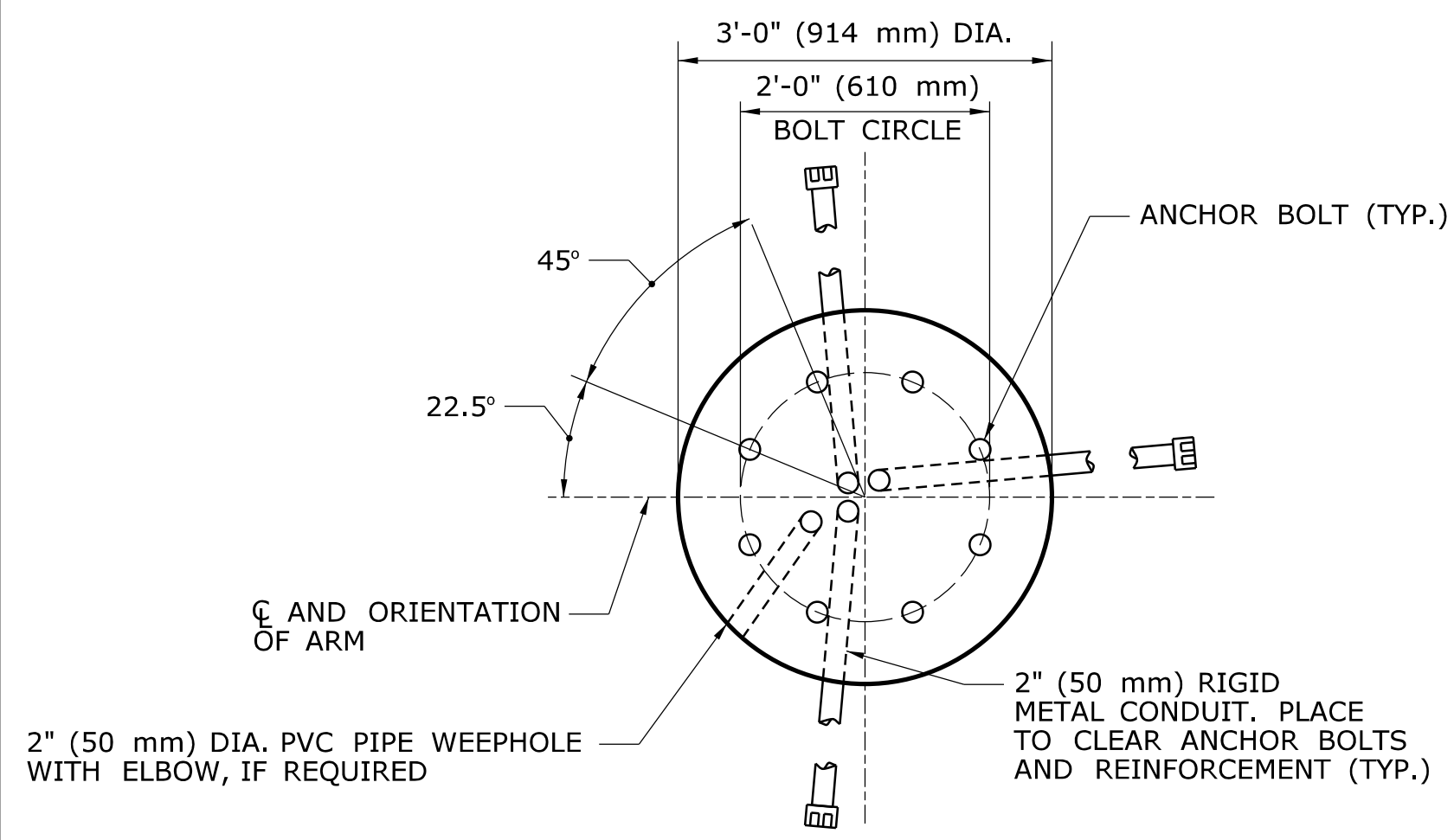
THE CONCRETE SHALL BE PLACED IN A AUGERED HOLE AGAINST UNDISTURBED EARTH.

THE MAST ARM SHALL NOT BE ERECTED ON THE FOUNDATION UNTIL AFTER THE CONCRETE HAS ATTAINED A 28 DAY COMPRESSIVE STRENGTH,  $f_c$ , GREATER THAN OR EQUAL TO 3000 PSI (21 MPa).

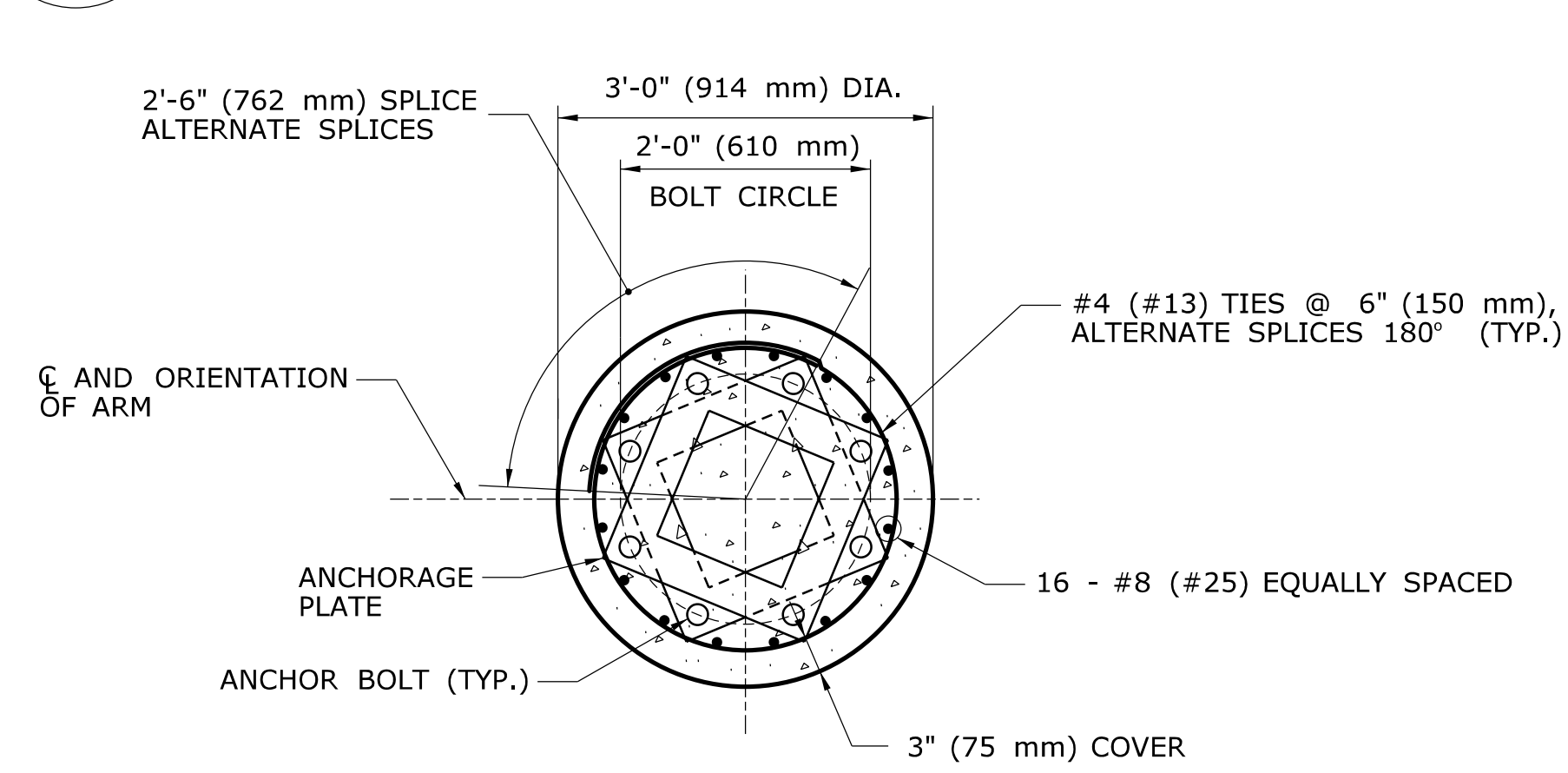
THE COST OF THE FOUNDATION, INCLUDING THE EXCAVATION, CONCRETE AND REINFORCEMENT, SHALL BE PAID FOR UNDER THE ITEM "TRAFFIC CONTROL FOUNDATION - MAST ARM".



**SECTION F**  
SCALE: 3/4"=1'-0"  
**MA-1**



**SECTION G**  
SCALE: 3/4"=1'-0"



**SECTION H**  
SCALE: 3/4"=1'-0"

**ATTENTION USER:**

THE USER OF THESE FOUNDATION DETAILS IS RESPONSIBLE FOR DETERMINING THE VALUES FOR THE MAXIMUM LOAD EFFECTS APPLIED AT THE TOP OF THE FOUNDATION AND ADDING THE VALUES TO THE ABOVE NOTES. THE USER SHALL ENSURE THAT THE FOUNDATION IS ONLY USED FOR MAST ARM ASSEMBLIES WITH COMPUTED REACTIONS THAT DO NOT EXCEED THESE MAXIMUM LOAD EFFECTS. THIS NOTE SHALL BE REMOVED, BY THE USER, PRIOR TO INCORPORATING THESE FOUNDATION DETAILS INTO THE CONTRACT DOCUMENTS.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 4/14/2010	DESIGNER/DRAFTER: -	CHECKED BY: -	SCALE AS NOTED	<p><b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b></p>	<p><b>OFFICE OF ENGINEERING</b></p>	SIGNATURE/ BLOCK: -	DATE: -	PROJECT TITLE: -	TOWN: -	PROJECT NO. -	DRAWING NO. <b>MA-3</b>	SHEET NO. <b>\$\$\$</b>
------	------	----------------------	-----------	-------------------------	------------------------	------------------	----------------	--	-------------------------------------	---------------------------	------------	---------------------	------------	------------------	----------------------------	----------------------------