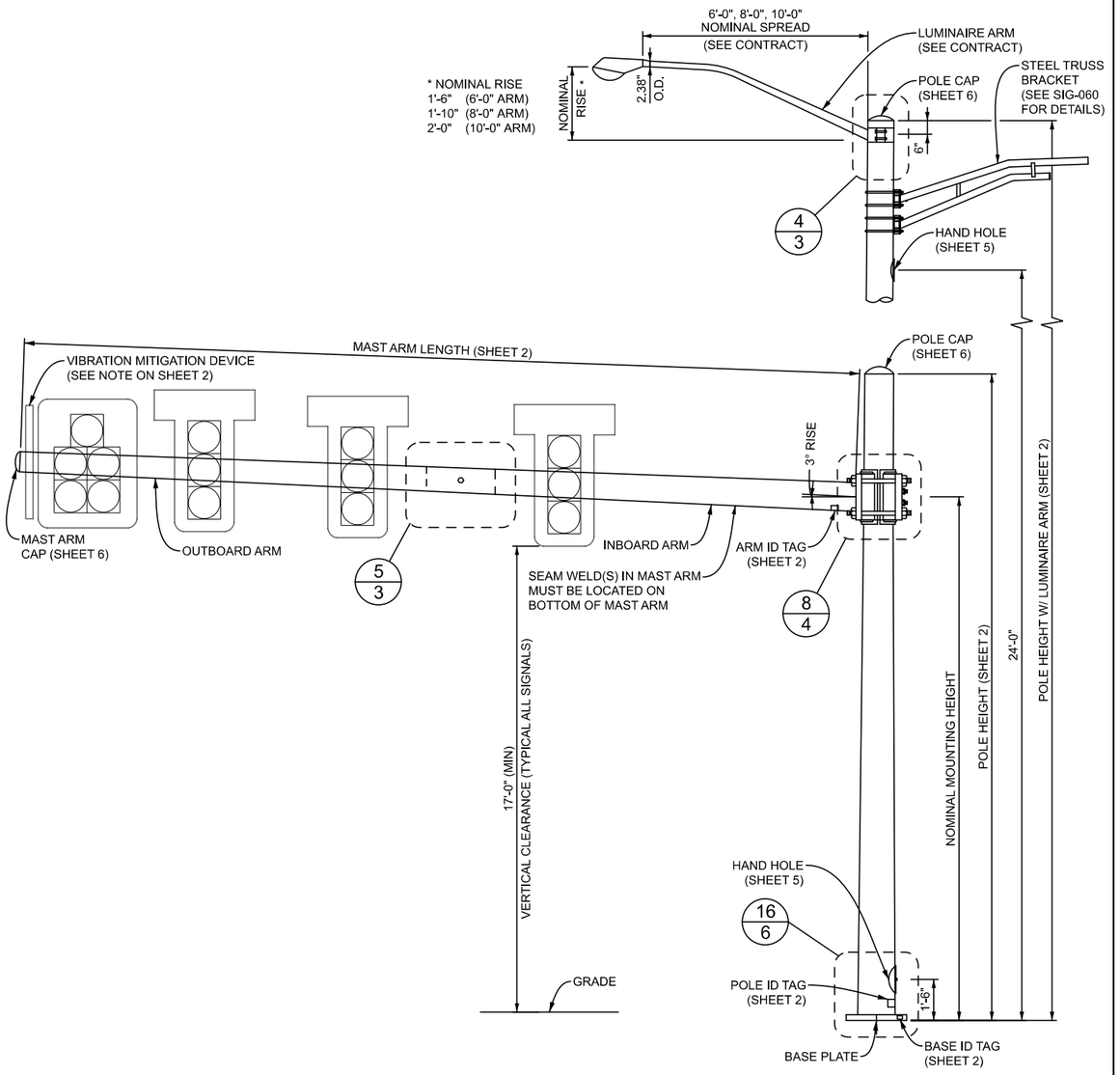


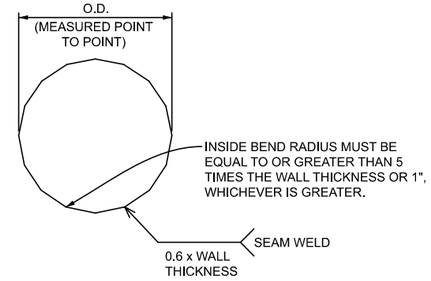
ELEVATION - MAST ARM POLE

TAPERED STEEL MAST ARM POLE		
POLE DIMENSIONS *	LUMINAIRE ARM AND/OR STEEL TRUSS BRACKET	MAST ARM LENGTH (FT)
0.4375"-18.00" x 14.78" x 23'-0"	NO	20, 25, 30, 35, 40, 45
0.4375"-18.00" x 13.94" x 29'-0"	YES	
0.5000"-18.00" x 14.78" x 23'-0"	NO	50, 55, 60
0.5000"-18.00" x 13.94" x 29'-0"	YES	

POLE TUBE TAPER IS 0.140 IN/FT
* DIAMETERS ARE GIVEN BY O.D.

TAPERED STEEL MAST ARM			
MAST ARM LENGTH	MAST ARM DIMENSIONS *	MTG HT SINGLE	MTG HT TWIN
20'-0"	0.1793"-16.50" x 13.70" x 20'-0"	19'-0"	18'-6" & 21'-6"
25'-0"	0.1793"-16.50" x 13.00" x 25'-0"		
30'-0"	0.1793"-16.50" x 12.30" x 30'-0"		
35'-0"	0.4290"-16.50" x 13.70" x 20'-0" 0.1793"-14.30" x 12.00" x 16'-9"		
40'-0"	0.4290"-16.50" x 13.70" x 20'-0" 0.1793"-14.30" x 11.30" x 21'-9"		
45'-0"	0.4290"-16.50" x 13.70" x 20'-0" 0.1793"-14.30" x 10.60" x 26'-9"		
50'-0"	0.4290"-17.50" x 14.70" x 20'-0" 0.2391"-15.45" x 11.00" x 31'-11"		
55'-0"	0.4290"-17.50" x 14.70" x 20'-0" 0.2391"-15.45" x 10.28" x 36'-11"		
60'-0"	0.5000"-18.50" x 15.70" x 20'-0" 0.3750"-16.73" x 10.85" x 42'-0"		

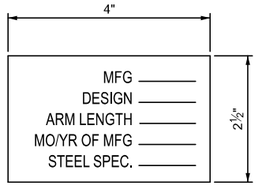
MAST ARM TUBE TAPER IS 0.140 IN/FT
* DIAMETERS ARE GIVEN BY O.D.

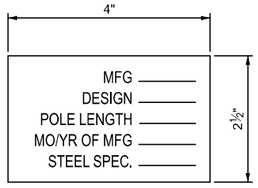


1 DETAIL - 16-SIDED SECTION

NOTES:

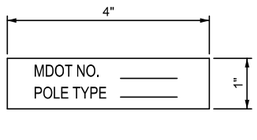
1. THE DESIGN OF THIS STRUCTURE IS BASED ON CATEGORY I GALLOPING, NATURAL WIND GUSTS, AND TRUCK INDUCED FATIGUE LOADS.
2. WELD THE LONGITUDINAL ARM SEAM ON THE INBOARD AND OUTBOARD SECTIONS OF THE TELESCOPIC FIELD SPLICE WITH A COMPLETE JOINT PENETRATION (CJP) WELD WITH A LENGTH EQUAL TO THE TELESCOPIC FIELD SPLICE LENGTH PLUS 6 INCHES. THE LAP OF THE ARM SECTIONS CANNOT EXTEND BEYOND THE LONGITUDINAL ARM SEAM CJP WELD WHEN THE FIELD SPLICE IS ERECTED AND IN ITS FINAL POSITION. IN ADDITION, LONGITUDINAL SEAM WELDS MUST HAVE 60% MINIMUM PENETRATION OR FUSION AND MUST BE CJP FOR A MINIMUM OF 6 INCHES FROM TUBE TO PLATE CJP WELDS.
3. SEAM WELDS IN MAST ARM POLE MUST BE 90° ± FROM HAND HOLE AT BASE. SEAM WELDS IN MAST ARM MUST BE LOCATED ON BOTTOM OF MAST ARMS.
4. LUMINAIRE ARM IS 11 GAUGE ROUND STEEL WITH 0.140 INCH PER FOOT TAPER.
5. BACKING BAR FOR PIPE TO BASE PLATE (℄) AND MAST ARM TO MAST ARM PLATE MUST BE MINIMUM 5/16 INCH X 2 INCH PLATE.
6. 1/2 INCH DIAMETER (Ø) ROUND STOCK C-HOOK ATTACHED TO ALL POLE SIZES. 1 INCH SCHEDULE (SCH.) 80 PIPE ATTACHED TO ALL POLE SIZES AND INBOARD AND OUTBOARD ARM.
7. S.S. DENOTES STAINLESS STEEL. GA. DENOTES GAUGE. O.D. DENOTES OUTSIDE DIAMETER. I.D. DENOTES INSIDE DIAMETER. H.S. DENOTES HIGH STRENGTH.
8. ROUND OR 16-SIDED SECTIONS ARE ALLOWED.
9. MULTI-PLY SECTIONS ARE NOT ALLOWED.
10. A VIBRATION MITIGATION DEVICE IS REQUIRED FOR ARMS GREATER THAN 45 FOOT LONG AND SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE END OF THE ARM.





ATTACH TO POLE AND MAST ARM AT LOCATIONS SHOWN
4" FROM BASE OF TUBE BELOW HANDHOLE WITH (4) #8 x 3/8"
S.S. TYPE U DRIVE SCREWS.
(LETTERS STAMPED IN 3/8" CHARACTERS)
STEEL SPEC. REFERS TO THE ASTM SPECIFICATION AND GRADE: "AXXX GR YY"

2 DETAIL - ARM/POLE S.S. ID TAG



WELD TAG TO EDGE OF BASE PLATE
(LETTERS STAMPED IN 3/8" CHARACTERS)

3 DETAIL - BASE S.S. ID TAG

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

MDOT Michigan Department of Transportation
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
TRAFFIC SIGNAL MAST ARM POLE AND MAST ARM DETAILS - CATEGORY I

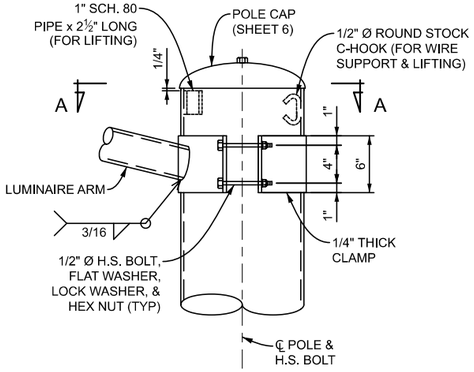
(SPECIAL DETAIL) FHWA APPROVAL	05/17/24 PLAN DATE	SIG-031-B	SHEET 1 OF 6

MDOT Michigan Department of Transportation
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
MAST ARM POLE AND MAST ARM REQUIREMENTS

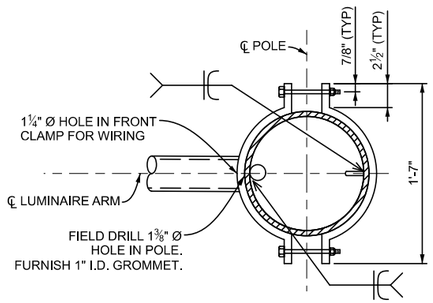
(SPECIAL DETAIL) FHWA APPROVAL	05/17/24 PLAN DATE	SIG-031-B	SHEET 2 OF 6

SECT

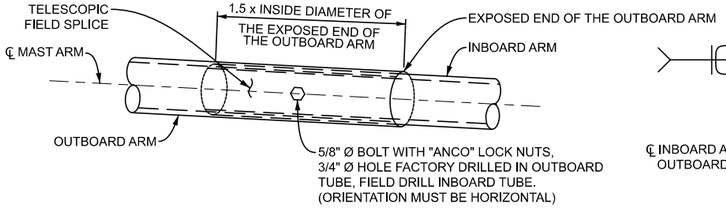


ORIENTATION OF SCH. 80 PIPE 180° FROM HAND HOLE AT BASE & C-HOOK 180° FROM SCH. 80 PIPE

4 DETAIL - LUMINAIRE ARM BRACKET

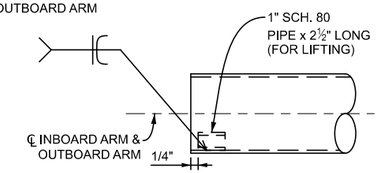


A SECTION - LUMINAIRE ARM BRACKET

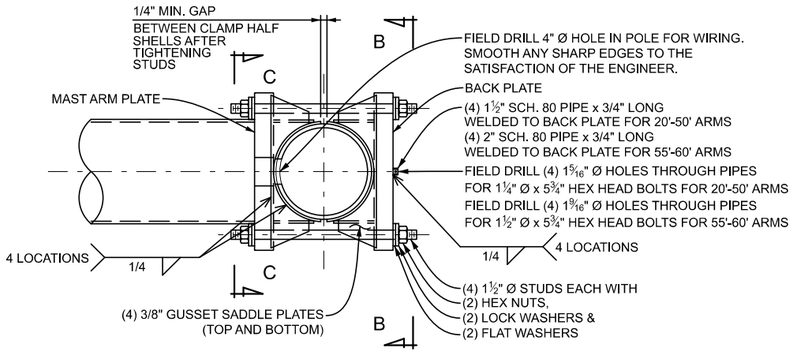


NOTES:
1. FOR 35'-0" ARMS AND GREATER.
2. THE INBOARD AND OUTBOARD ARMS MUST FIT TIGHTLY.

5 DETAIL - TELESCOPIC SPLICE

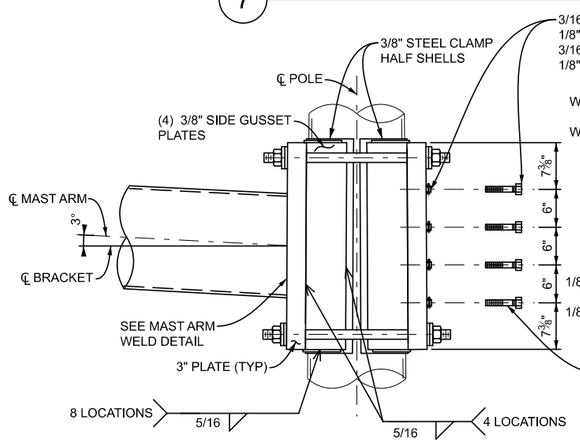


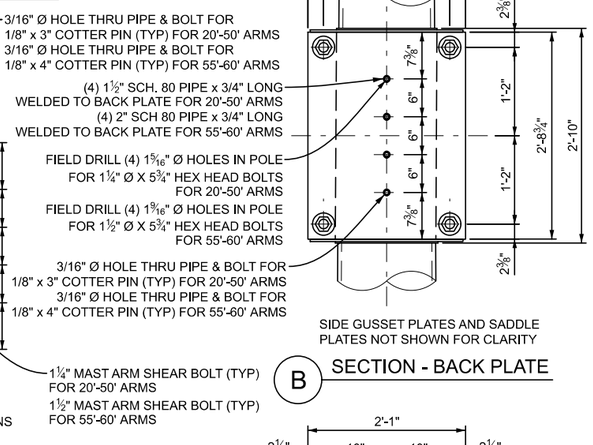
6 INBOARD/OUTBOARD ARM DETAIL - LIFTING DEVICE

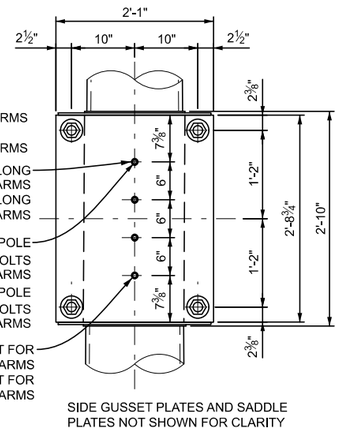


ROUND SECTION SHOWN,
SAME CONNECTION DETAILS FOR 16-SIDED SECTION
GUSSET SADDLE PLATES MUST MATCH 16-SIDED POLE SHAPE

7 DETAIL - MAST ARM BRACKET PLAN



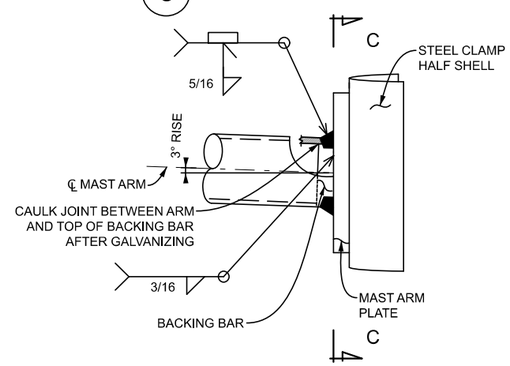




SIDE GUSSET PLATES AND SADDLE PLATES NOT SHOWN FOR CLARITY

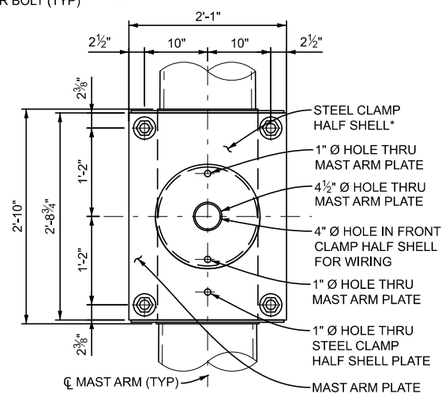
B SECTION - BACK PLATE

8 DETAIL - MAST ARM BRACKET ELEVATION



SIDE GUSSET PLATES AND SADDLE PLATES NOT SHOWN FOR CLARITY

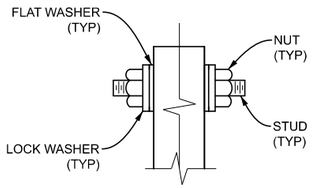
9 DETAIL - MAST ARM WELD



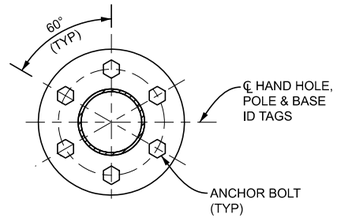
SIDE GUSSET PLATES AND SADDLE PLATES NOT SHOWN FOR CLARITY

*INSIDE RADIUS OF STEEL CLAMP HALF SHELL SHALL BE WITHIN 1/4" OF THE DESIGNED POLE OUTSIDE RADIUS AT THE INTENDED MOUNTING HEIGHT

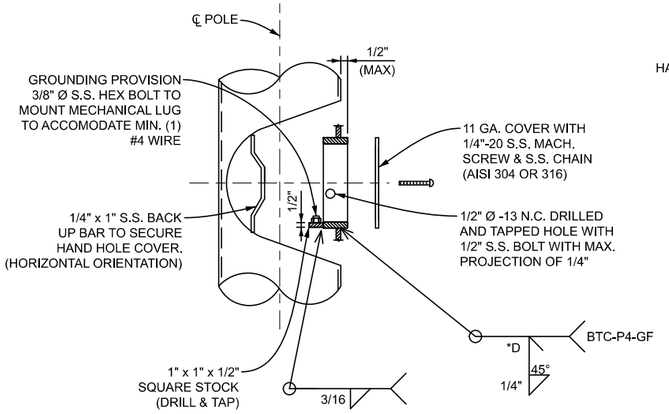
C SECTION - MAST ARM PLATE



10 DETAIL - MAST ARM BRACKET WASHERS

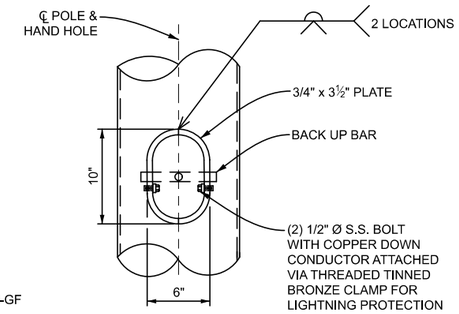


11 DETAIL - ORIENTATION OF HAND HOLE

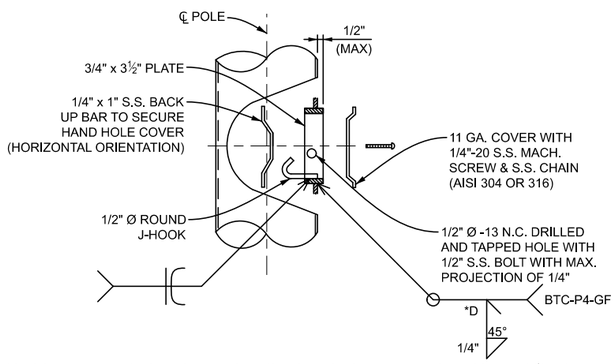


*GROOVE DEPTH (D) EQUALS WEld SIZE (S) EQUALS POLE WALL THICKNESS MINUS ⅛ INCH FLAT (1G) OR HORIZONTAL (2G) POSITION

12 DETAIL - 6" X 10" BAR BOTTOM HAND HOLE

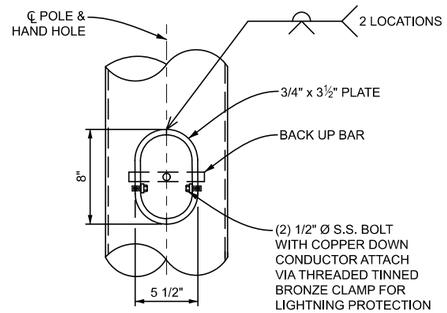


13 DETAIL - 6" X 10" BAR BOTTOM HAND HOLE
VIEW ROTATED 90 DEGREES



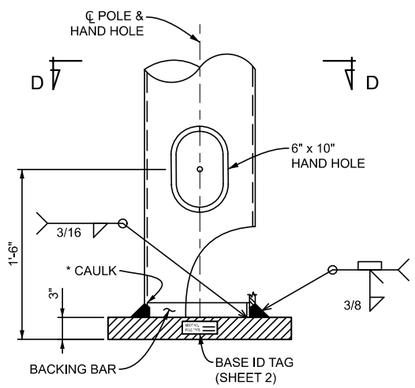
*GROOVE DEPTH (D) EQUALS WELD SIZE (S) EQUALS POLE WALL THICKNESS MINUS ⅛ INCH FLAT (1G) OR HORIZONTAL (2G) POSITION

14 DETAIL - 5 1/2" X 8" BAR TOP HAND HOLE



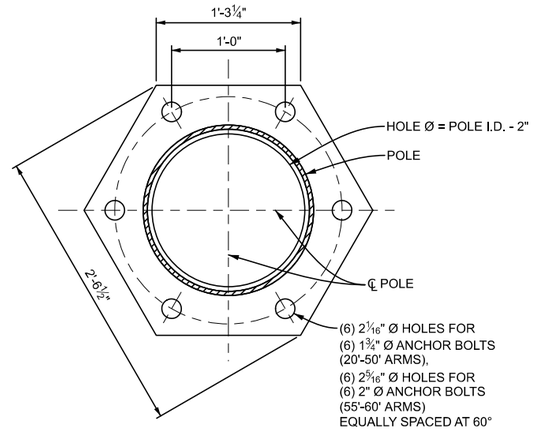
15 DETAIL - 5 1/2" X 8" BAR TOP HAND HOLE
VIEW ROTATED 90 DEGREES

MDOT Michigan Department of Transportation	STANDARD PLAN FOR HAND HOLE DETAILS			
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	05/17/24 PLAN DATE	SIG-031-B	SHEET 5 OF 6

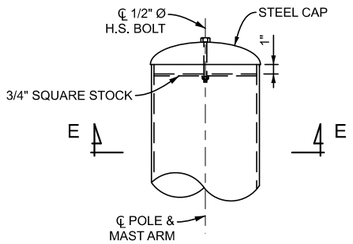


*SEAL JOINT WITH CAULK AFTER GALVANIZING

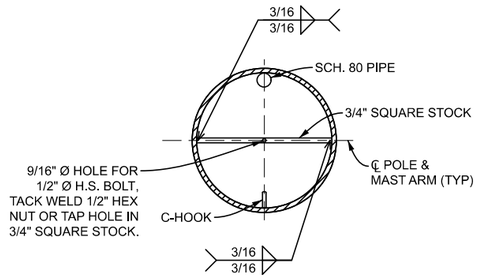
16 DETAIL - BASE PLATE WEld
VIEW ROTATED 90 DEGREES



D SECTION - BASE PLATE



17 DETAIL - POLE AND MAST ARM CAP



E SECTION - POLE AND MAST ARM CAP

MDOT Michigan Department of Transportation	STANDARD PLAN FOR BASE PLATE, MAST ARM POLE CAP, AND MAST ARM CAP DETAILS			
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	05/17/24 PLAN DATE	SIG-031-B	SHEET 6 OF 6

SECT