StructuresUSA

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Manufacturing Custom Designed Tubular/Pole Products

June 15, 2026

Mr. Steve Gault
Chief, TSMO Arterials & Planning Section
Pennsylvania Department of Transportation
Bureau of Operations
400 North Street
Harrisburg, PA 17120

Re: Review of Structures USA's updated Standard Design Drawings for strain poles with Gr.50 Material.

Dear Mr. Gault

The Pennsylvania Department of Transportation has completed their review of Structure USA's ship drawings for standard traffic signal support strain poles. Structures USA has requested the following revisions to their currently approved shop drawings "SPA-4703 " dated 1/11/2019.

- New strain pole design utilizing Grade 50 material for the vertical shafts.
- New shop drawing number "SPA-4705"
- Revised title block
- Revised stamping engineer

Pennsylvania Department of Transportation finds that the shop drawings conform to the following requirements:

- PennDOT Publication 148 - Traffic Standards – Signals, dated April, 2026
- PennDOT Publication 149 – Traffic Signal Design Handbook, dated May, 2026
- PennDOT Publication 408/2020 – Highway Specifications

According, we recommend listing Structures USA as an approved fabricator in section 951.2(c) of PennDOT Publication 35 – Approved Construction Materials (Bulletin 15) for the mast arms, strain poles and pedestal poles in the attached shop drawings.

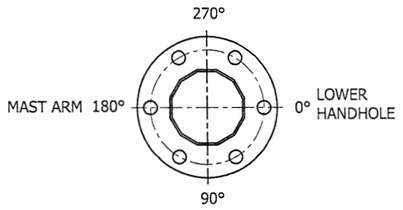
If you have any questions or require additional information, please don't hesitate to contact me.

Sincerely,

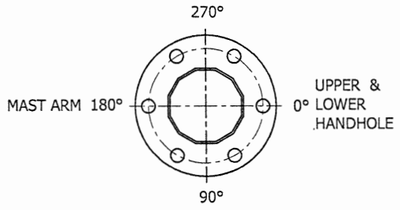
Hossein Mousavian | Manager of Engineering M.Eng, P.Eng

Ph: 604-881-0090 x.112

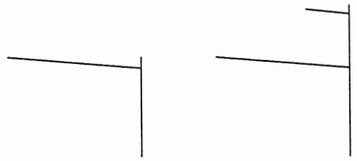
Cell: 778-288-8083



ORIENTATION DETAIL
TYPE SM ONLY



ORIENTATION DETAIL
TYPE CSM ONLY

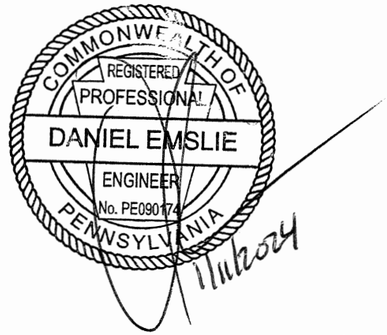


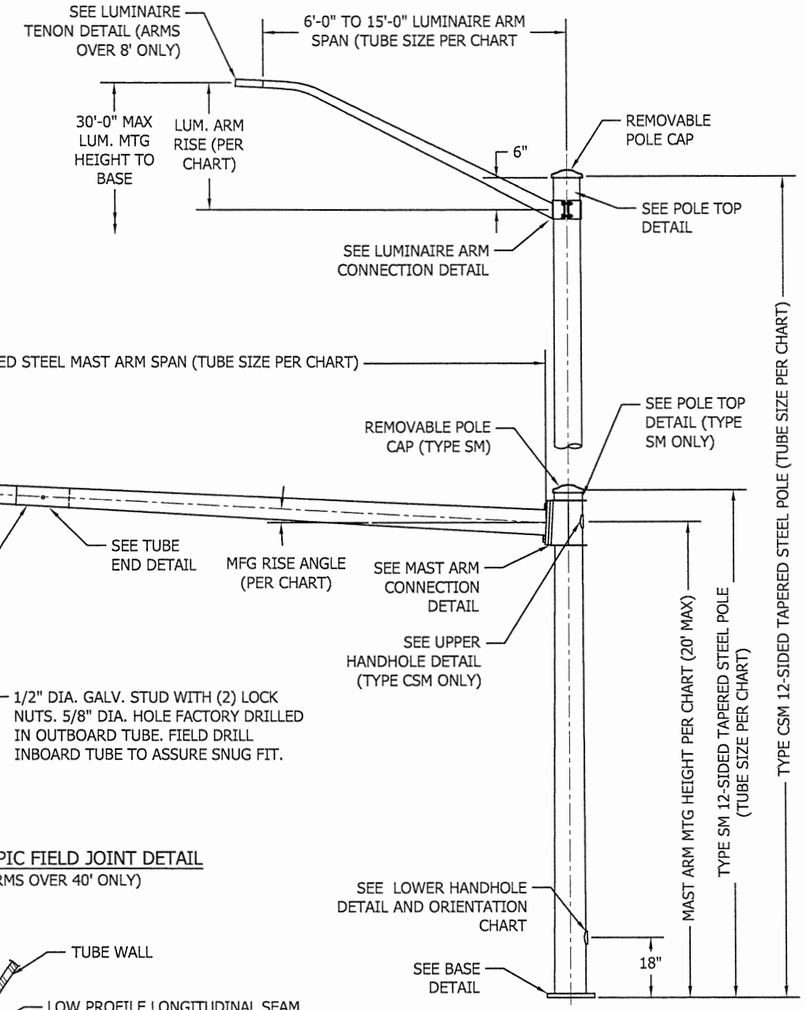
TYPE SM

TYPE CSM

NOTES:

1. DESIGNED IN ACCORDANCE WITH 2001 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" 4TH EDITION INCLUDING 2002, 2003, AND 2006 INTERIMS.
   THE DESIGN PARAMETERS INCLUDE:
   80 MPH WIND ZONE (PER APPENDIX C)
   50 RECURRENCE INTERVAL
   FATIGUE CATEGORY II CONSIDERATION FOR:
   NATURAL WIND GUST
   TRUCK-INDUCED GUST AND GALLOPING LOADS EXCLUDED
2. WELDING TO CONFORM TO AWS D1.1.
3. WELD INSPECTION SHALL CONFORM TO AWS D1.1
4. COMPLETE JOINT PENETRATION SEAM WELDS IN TUBES SHALL BE NON DESTRUCTIVELY TESTED PER FOLLOWING:
   TUBE THICKNESS 1/4" AND GREATER: UT
   TUBE THICKNESS LESS THAN 1/4": RT
5. ALL MAIN LOAD CARRYING TENSION MEMBERS GREATER THAN 1/2" TO BE CVN TESTED TO ZONE 2 NON-FRACTURE CRITICAL.
6. THE EXPOSED LENGTH OF THE ANCHOR BOLT BETWEEN THE TOP OF THE FOUNDATION AND THE BOTTOM OF THE LEVELING NUT SHOULD NOT EXCEED ONE BOLT DIAMETER.
7. ANCHOR BOLTS ANALYZED FOR STEEL STRENGTH ONLY. THE ANCHOR BOLT EMBEDMENT LENGTH SHOWN ON THIS DRAWING SHALL BE VERIFIED BY THE FOUNDATION ENGINEER.
8. VIBRATION IS MORE LIKELY TO OCCUR WHEN STRUCTURES ARE INSTALLED WITHOUT ATTACHING THE SIGNALS AND OR SIGNS. THEREFORE, THE INTENDED EQUIPMENT OR DAMPENING DEVICES MUST BE INSTALLED AT THE TIME OF ERECTION. BECAUSE VIBRATION IS GENERALLY UNPREDICTABLE, A MAINTENANCE PROGRAM SHOULD INCLUDE INSPECTION FOR INDICATIONS OF EXCESSIVE VIBRATION OR FATIGUE AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING.
9. SUSA RESERVES THE RIGHT TO INSTALL TOOLING LUGS OR HOLES TO FACILITATE IN THE GALVANIZING PROCESS. THESE LUGS/HOLES WILL NOT IMPEDE WITH THE FIT, FORM OR FUNCTION OF THE FINISHED PRODUCT AND ARE TO BE USED SOLELY BY THE MANUFACTURER.
10. PER AASHTO THE MINIMUM LENGTH OF ANY TELESCOPIC FIELD JOINT SHALL BE 1.5 TIMES THE INSIDE DIAMETER OF THE END OF THE FEMALE SECTION.
11. MULTISIDED TUBE OUTSIDE DIAMETERS MEASURED ACROSS "FLATS".
12. CUSTOMER TO CONFIRM ALL DIMENSIONS & ORIENTATIONS BEFORE RELEASING ORDER FOR MANUFACTURING.

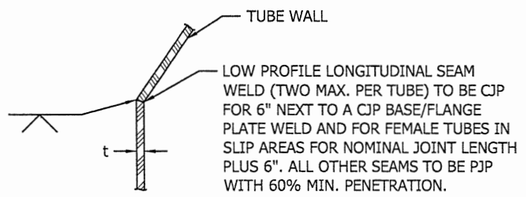




STEEL MAST ARM POLE:
TYPE SM & CSM

MATERIAL SPECIFICATIONS	
TAPERED TUBE	ASTM A572 GR 50 MIN. or ASTM A1018 GR 50 MIN. or ASTM A1011 GR 50 MIN.
PLATE	ASTM A572 GR 50 MIN.
HANDHOLE FRAME	ASTM A500 or ASTM A572 GR 50
HANDHOLE COVER	ASTM A1011 or A36 MIN.
ANCHOR BOLTS	ASTM F1554 GR 55
HEX NUTS	ASTM A563 GR DH
FLAT WASHERS	ASTM F436
ANCHOR PLATE/TEMPLATE	ASTM A36 MIN.
HEX BOLTS	ASTM F3125 GR A325
ARM JOINT STUDS	ASTM A36
LOCK NUTS	ASTM A194 GR 2H
PIPE	ASTM A53 GR B, or ASTM A500 GR B or C
S.S. HARDWARE	AISI-300 SERIES (18-8)
STRUCTURE FINISH	H.D. GALV TO ASTM A123
ANCHOR BOLTS, ANCHOR ROD HARDWARE, AND LUMINAIRE ARM CONNECTION HARDWARE FINISH	H.D. GALV TO ASTM A153
MAST ARM CONNECTION HARDWARE FINISH	MECHANICALLY GALV TO ASTM B695

TELESCOPIC FIELD JOINT DETAIL
(ARMS OVER 40' ONLY)



REV.	DATE	REVISION	BY	CHK'D

FABRICATION TOLERANCES

GENERAL:	+/-1/8"
ANGULAR: (UNLESS NOTED OTHERWISE)	+/-0.5°
ANCHOR BOLT CIRCLE DIA.:	+/-1/16"
ANCHOR BOLT HOLE DIA.:	+1/16",-1/32"
CONNECTION BOLT HOLE DIA.:	+/-1/16"
TUBE LENGTH:	+/-1"
TUBE DIA. AND SYMMETRY:	+/-2%
TUBE STRAIGHTENS VARIATION (in inches):	1/8" times the number of feet of total length divided by 5

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL MAST POLE (SINGLE ARM) WITH DETAILS

PROJECT: PENNDOT BULLETIN 15 APPROVAL	
	DRAWN BY: DRE
	CHK BY: DRE
LOCATION: PENNSYLVANIA	DATE: 1/11/2024
DRAWING NO.: SPA-4701	SCALE: NTS
	SHEET 1 OF 3

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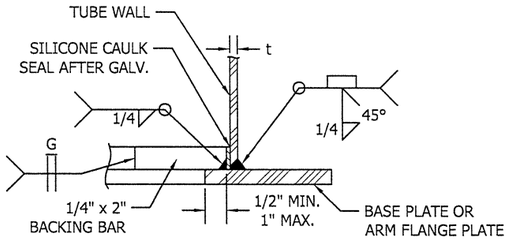
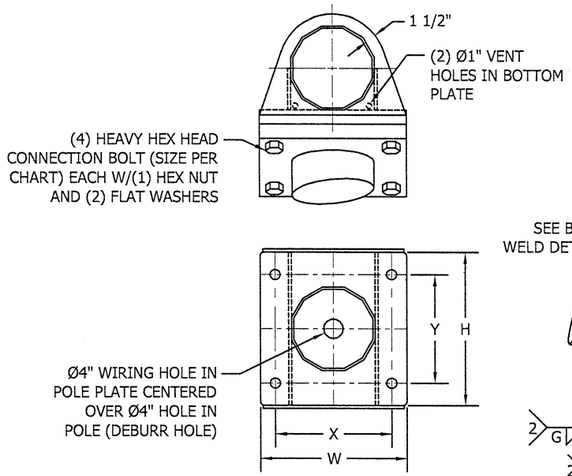
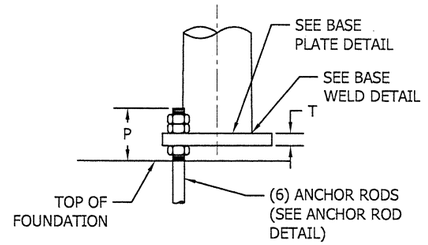


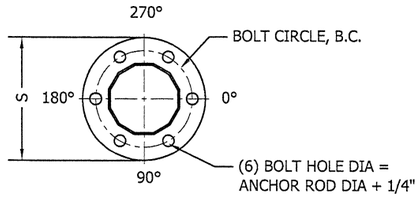
BASE WELD DETAIL



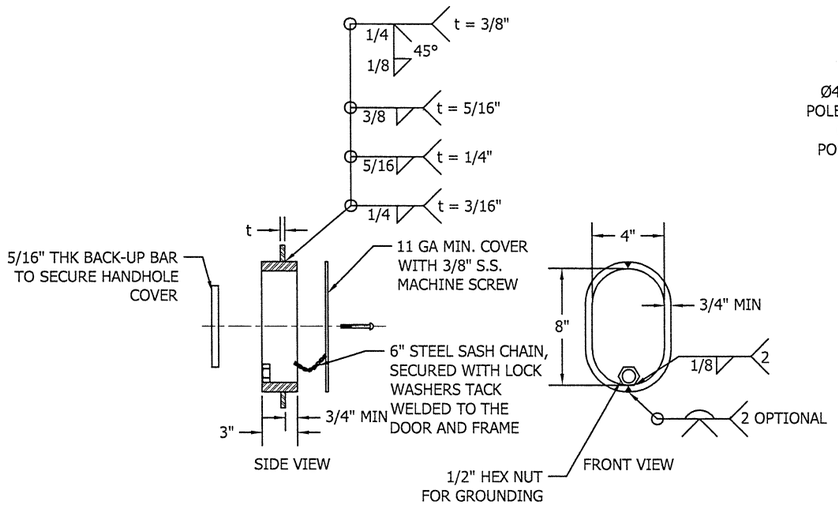
MAST ARM CONNECTION DETAIL



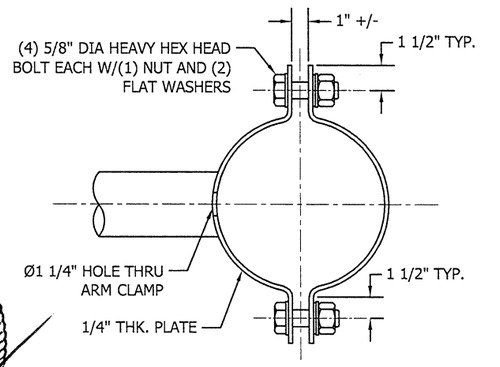
BASE CONNECTION DETAIL

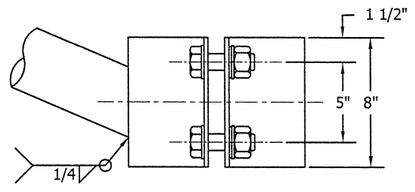


BASE PLATE DETAIL

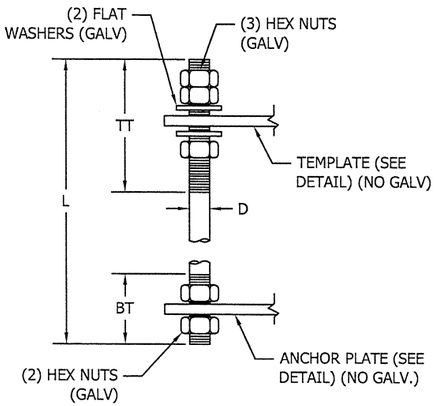


LOWER HANDHOLE DETAIL





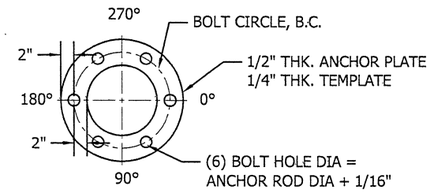
LUMINAIRE ARM CLAMP DETAIL



ANCHOR ROD DETAIL

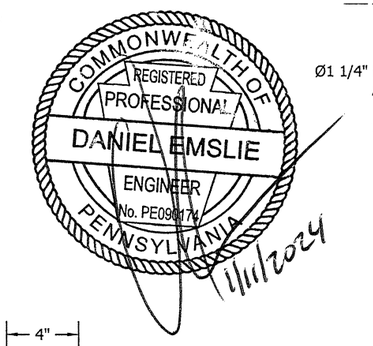
ANCHOR RODS TO BE GALVANIZED FULL LENGTH

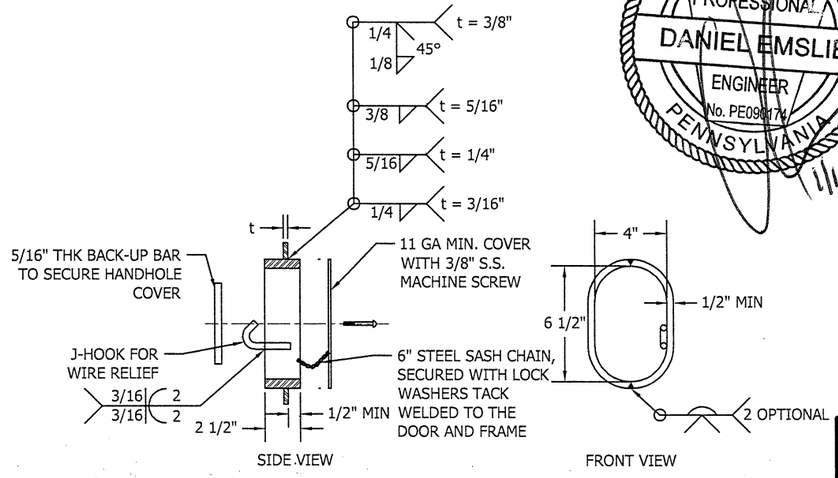
ANCHOR ROD DIMENSIONS (IN)			
D	L	TT	BT
1 3/4	49	14	7
2	60	15	7



ANCHOR PLATE/TEMPLATE DETAIL

ANCHOR PLATE AND TEMPLATE TO BE BARE, NO GALV





UPPER HANDHOLE DETAIL

REV.	DATE	REVISION	BY	CHK'D

FABRICATION TOLERANCES

GENERAL:	+/-1/8"
ANGULAR: (UNLESS NOTED OTHERWISE)	+/-0.5°
ANCHOR BOLT CIRCLE DIA.:	+/-1/16"
ANCHOR BOLT HOLE DIA.:	+1/16",-1/32"
CONNECTION BOLT HOLE DIA.:	+/-1/16"
TUBE LENGTH:	+/-1"
TUBE DIA. AND SYMMETRY:	+/-2%
TUBE STRAIGHTENS VARIATION (in inches):	1/8" times the number of feet of total length divided by 5

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL MAST POLE (SINGLE ARM) WITH DETAILS

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	DRAWN BY: DRE
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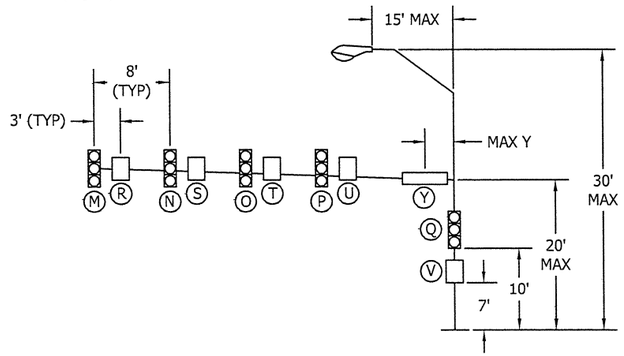
MAST ARM SPAN LENGTH		SIGNALS					SIGNS						MAX Y (FT)
		M	N	O	P	Q	R	S	T	U	V	Y	
0'-10'	W	70	-	-	-	123	-	-	-	-	39	87	5.2
	A	8.76	-	-	-	8.82	-	-	-	-	7.48	10.50	
11'-15'	W	70	-	-	-	123	39	-	-	-	39	106	6.6
	A	8.76	-	-	-	8.82	7.48	-	-	-	7.48	21.33	
16'-20'	W	97	70	-	-	123	39	-	-	-	39	106	6.6
	A	13.89	8.76	-	-	8.82	7.48	-	-	-	7.48	21.33	
21'-25'	W	97	70	-	-	123	39	39	-	-	39	106	8.5
	A	13.89	8.76	-	-	8.82	7.48	7.48	-	-	7.48	21.33	
26'-30'	W	97	70	97	-	123	39	39	-	-	39	106	8.5
	A	13.89	8.76	13.89	-	8.82	7.48	7.48	-	-	7.48	21.33	
31'-35'	W	97	70	97	-	123	39	39	39	-	39	106	10.8
	A	13.89	8.76	13.89	-	8.82	7.48	7.48	7.48	-	7.48	21.33	
36'-40'	W	97	70	97	-	123	39	39	39	-	39	106	15.7
	A	13.89	8.76	13.89	-	8.82	7.48	7.48	7.48	-	7.48	21.33	
41'-45'	W	97	70	97	-	123	39	39	39	-	39	106	20.7
	A	13.89	8.76	13.89	-	8.82	7.48	7.48	7.48	-	7.48	21.33	
46'-50'	W	97	70	70	97	123	39	39	-	39	39	106	17.7
	A	13.89	8.76	8.76	13.89	8.82	7.48	7.48	-	7.48	7.48	21.33	
51'-60'	W	97	70	70	97	123	39	39	-	39	39	106	27.9
	A	13.89	8.76	8.76	13.89	8.82	7.48	7.48	-	7.48	7.48	21.33	

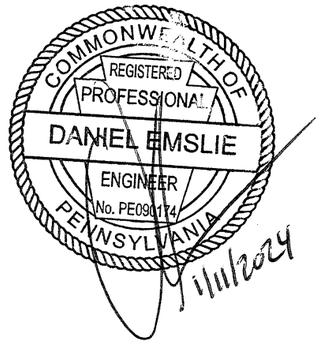
W=WEIGHT (LBS)
A=AREA (SQ FT)



MAXIMUM LOADING INFORMATION

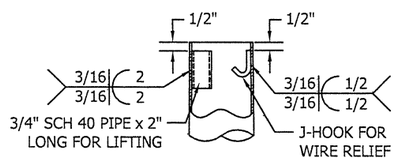
LUMINAIRE ARM DATA				
SPAN (1)	THICK-NESS (in) or GAUGE	BASE DIA. (in)	TOP DIA. (in)	RISE
6'-0"	0.154	2.375	2.375	1'-6"
8'-0"	0.154	2.375	2.375	1'-6"
10'-0"	11	4.47	3.00	1'-6"
12'-0"	11	4.75	3.00	1'-6"
15'-0"	11	5.10	3.00	1'-6"

(1) LUMINAIRE ARM LENGTHS 8' AND LESS SHALL BE 2" SCH 40 PIPE, LUMINAIRE ARMS GREATER THAN 8' SHALL BE 8-SIDED TAPERED TUBE

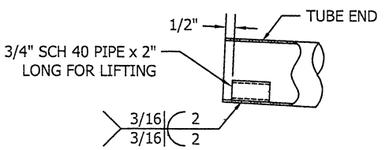


POLE TYPE	SPAN LENGTH	POLE TUBE SIZE (THK. x BASE Ø. x TOP Ø x LGTH.)	POLE BASE CONNECTION DATA (in)				
			B.C.	S	T	P	ANCHOR BOLT SIZE
SM-1	0'-15'	3/16" x 12.00" x 8.92" x 22'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
SM-2	16'-25'	1/4" x 13.00" x 9.92" x 22'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
SM-3	26'-35'	1/4" x 14.50" x 11.42" x 22'-0"	21	25 1/2	2 1/2	10 3/4	1 3/4 x 49
SM-4	36'-45'	5/16" x 15.00" x 11.92" x 22'-0"	24	29	2 1/2	11 3/4	2 x 60
SM-5	46'-55'	3/8" x 16.00" x 12.92" x 22'-0"	24	29	2 1/2	11 3/4	2 x 60
SM-6	56'-60'	3/8" x 17.00" x 13.92" x 22'-0"	24	29	2 1/2	11 3/4	2 x 60
CSM-1	0'-15'	3/16" x 12.00" x 7.94" x 29'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
CSM-2	16'-25'	1/4" x 13.00" x 8.94" x 29'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
CSM-3	26'-35'	1/4" x 14.50" x 10.44" x 29'-0"	21	25 1/2	2 1/2	10 3/4	1 3/4 x 49
CSM-4	36'-45'	5/16" x 15.00" x 10.94" x 29'-0"	24	29	2 1/2	11 3/4	2 x 60
CSM-5	46'-55'	3/8" x 16.00" x 11.94" x 29'-0"	24	29	2 1/2	11 3/4	2 x 60
CSM-6	56'-60'	3/8" x 17.00" x 12.94" x 29'-0"	24	29	2 1/2	11 3/4	2 x 60

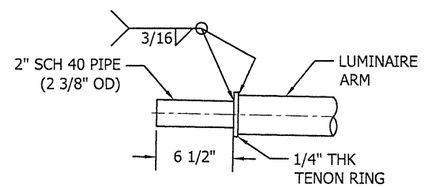
MAST ARM DATA							MAST ARM FLANGE CONNECTION DATA (in)							
SPAN LENGTH	TUBE SIZE (THK. x BASE Ø. x TOP Ø x LGTH.)	JOINT LENGTH (in) NOM	JOINT LENGTH (in) MIN	MAX MTG HEIGHT	ORIENT	RISE ANGLE	BOLT DIA	X	Y	W	H	APL	PPL	G
0'-10'	3/16" x 6.00" x 4.60" x 10'-0"	-	-	20'-0"	180°	3°	1	13 1/2	11	16	13 1/2	2	2	1/4
11'-15'	3/16" x 7.00" x 4.90" x 15'-0"	-	-	20'-0"	180°	3°								
16'-20'	3/16" x 8.50" x 5.70" x 20'-0"	-	-	20'-0"	180°	3°	1	14 1/2	13	17	15 1/2	2	2	1/4
21'-25'	3/16" x 10.50" x 7.00" x 25'-0"	-	-	20'-0"	180°	3°								
26'-30'	1/4" x 11.00" x 6.80" x 30'-0"	-	-	20'-0"	180°	3°	1 1/4	16 3/4	14 1/4	20	17 1/2	2	2	5/16
31'-35'	1/4" x 12.50" x 7.60" x 35'-0"	-	-	20'-0"	180°	3°								
36'-40'	5/16" x 12.50" x 6.90" x 40'-0"	-	-	20'-0"	180°	3°								
41'-45'	3/8" x 13.00" x 10.69" x 16'-6" 3/16" x 11.38" x 7.18" x 30'-0"	18.00	16.50	20'-0"	180°	3°	1 1/4	17 1/2	15	20 3/4	18 1/4	2	2	5/16
46'-50'	3/8" x 14.00" x 10.92" x 22'-0" 3/16" x 11.68" x 7.48" x 30'-0"	24.00	16.95	20'-0"	180°	3°	1 1/2	19	19	23	23	2 1/2	2 1/2	3/8
51'-55'	3/8" x 15.00" x 11.92" x 22'-0" 3/16" x 12.68" x 7.78" x 35'-0"	24.00	18.45	20'-0"	180°	3°								
56'-60'	3/8" x 15.75" x 12.67" x 22'-0" 3/16" x 13.43" x 7.83" x 40'-0"	24.00	19.58	20'-0"	180°	3°	1 1/2	20	20	24	24	2 1/2	2 1/2	3/8



POLE TOP DETAIL



TUBE END DETAIL



LUMINAIRE TENON DETAIL
(LUMINAIRE ARMS OVER 8' ONLY)

REV.	DATE	REVISION	BY	CHK'D

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FABRICATION TOLERANCES

GENERAL:	+/-1/8"
ANGULAR: (UNLESS NOTED OTHERWISE)	+/-0.5°
ANCHOR BOLT CIRCLE DIA.:	+/-1/16"
ANCHOR BOLT HOLE DIA.:	+1/16",-1/32"
CONNECTION BOLT HOLE DIA.:	+/-1/16"
TUBE LENGTH:	+/-1"
TUBE DIA. AND SYMMETRY:	+/-2%
TUBE STRAIGHTENS VARIATION (in inches):	1/8" times the number of feet of total length divided by 5

StructuresUSA
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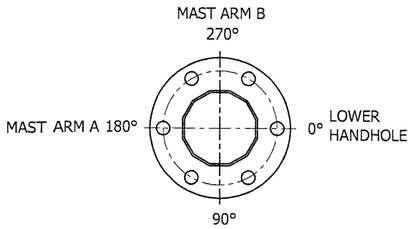
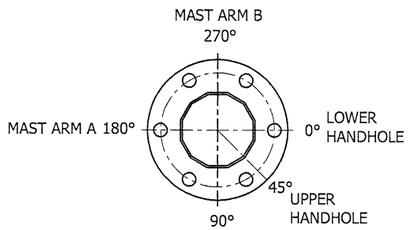
PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL MAST POLE (SINGLE ARM) WITH DETAILS

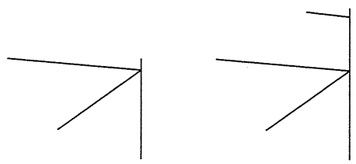
PROJECT: PENNDOT BULLETIN 15 APPROVAL	DRAWN BY: DRE
	CHK BY: DRE
LOCATION: PENNSYLVANIA	DATE: 1/11/2024
DRAWING NO.: SPA-4701	SCALE: NTS
	SHEET 3 OF 3

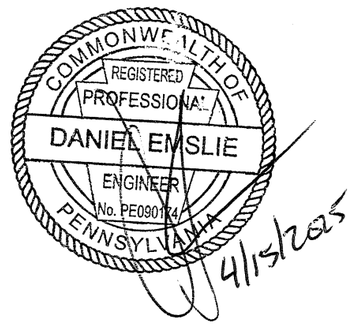


ORIENTATION DETAIL
TYPE DSM ONLY



ORIENTATION DETAIL
TYPE DCSM ONLY

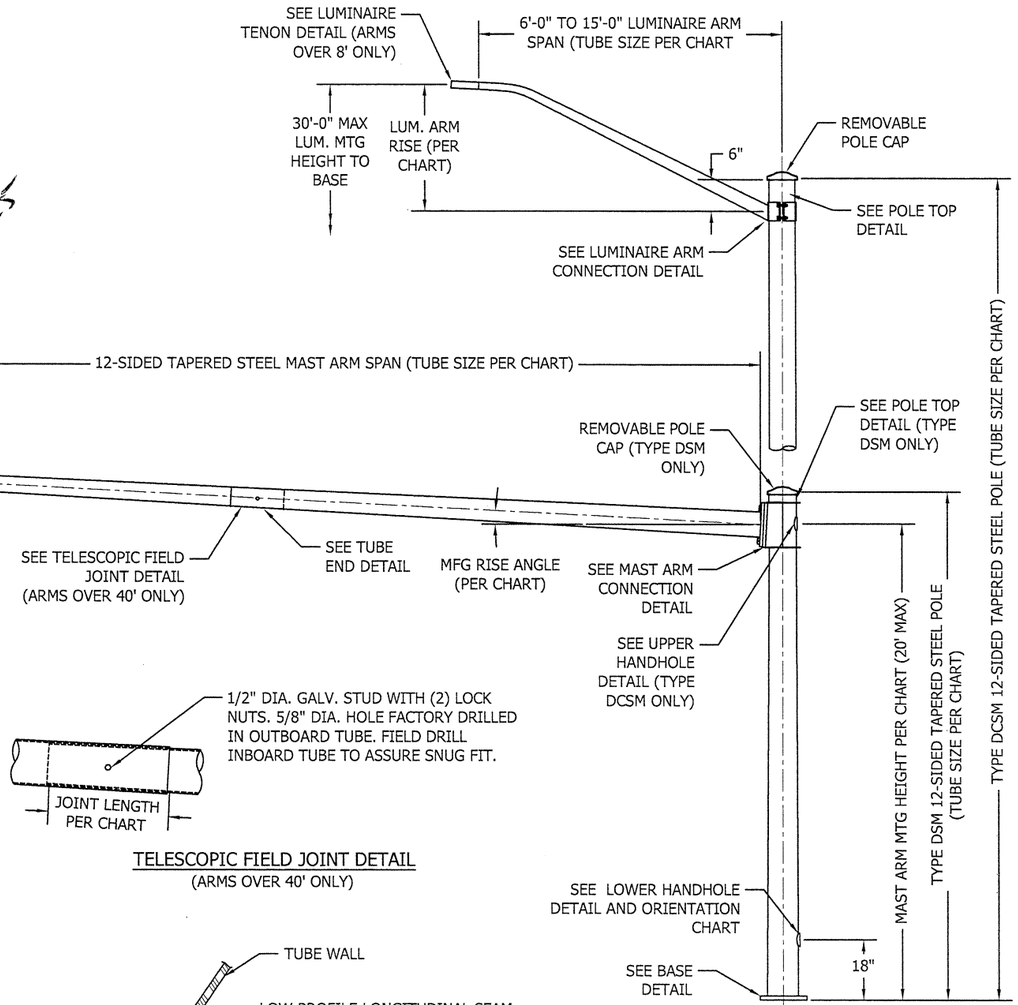




NOTES:

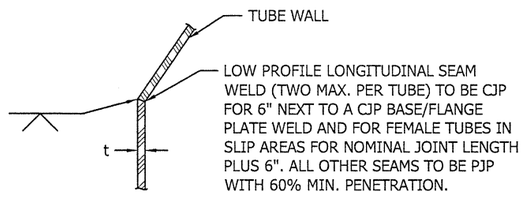
1. DESIGNED IN ACCORDANCE WITH 2001 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" 4TH EDITION INCLUDING 2002, 2003, AND 2006 INTERIMS.
   THE DESIGN PARAMETERS INCLUDE:
   80 MPH WIND ZONE (PER APPENDIX C)
   50 RECURRENCE INTERVAL
   FATIGUE CATEGORY II CONSIDERATION FOR:
   NATURAL WIND GUST
   TRUCK-INDUCED GUST AND GALLOPING LOADS EXCLUDED
2. WELDING TO CONFORM TO AWS D1.1.
3. WELD INSPECTION SHALL CONFORM TO AWS D1.1
4. COMPLETE JOINT PENETRATION SEAM WELDS IN TUBES SHALL BE NON DESTRUCTIVELY TESTED PER FOLLOWING:
   TUBE THICKNESS 1/4" AND GREATER: UT
   TUBE THICKNESS LESS THAN 1/4": RT
5. ALL MAIN LOAD CARRYING TENSION MEMBERS GREATER THAN 1/2" IN THICKNESS TO BE CVN TESTED TO ZONE 2 NON-FRACTURE CRITICAL.
6. THE EXPOSED LENGTH OF THE ANCHOR BOLT BETWEEN THE TOP OF THE FOUNDATION AND THE BOTTOM OF THE LEVELING NUT SHOULD NOT EXCEED ONE BOLT DIAMETER.
7. ANCHOR BOLTS ANALYZED FOR STEEL STRENGTH ONLY. THE ANCHOR BOLT EMBEDMENT LENGTH SHOWN ON THIS DRAWING SHALL BE VERIFIED BY THE FOUNDATION ENGINEER.
8. VIBRATION IS MORE LIKELY TO OCCUR WHEN STRUCTURES ARE INSTALLED WITHOUT ATTACHING THE SIGNALS AND OR SIGNS. THEREFORE, THE INTENDED EQUIPMENT OR DAMPENING DEVICES MUST BE INSTALLED AT THE TIME OF ERECTION. BECAUSE VIBRATION IS GENERALLY UNPREDICTABLE, A MAINTENANCE PROGRAM SHOULD INCLUDE INSPECTION FOR INDICATIONS OF EXCESSIVE VIBRATION OR FATIGUE AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING.
9. SUSA RESERVES THE RIGHT TO INSTALL TOOLING LUGS OR HOLES TO FACILITATE IN THE GALVANIZING PROCESS. THESE LUGS/HOLES WILL NOT IMPEDE WITH THE FIT, FORM OR FUNCTION OF THE FINISHED PRODUCT AND ARE TO BE USED SOLELY BY THE MANUFACTURER.
10. PER AASHTO THE MINIMUM LENGTH OF ANY TELESCOPIC FIELD JOINT SHALL BE 1.5 TIMES THE INSIDE DIAMETER OF THE END OF THE FEMALE SECTION.
11. MULTISIDED TUBE OUTSIDE DIAMETERS MEASURED ACROSS "FLATS".
12. CUSTOMER TO CONFIRM ALL DIMENSIONS & ORIENTATIONS BEFORE RELEASING ORDER FOR MANUFACTURING.

MATERIAL SPECIFICATIONS	
TAPERED TUBE	ASTM A572 GR 50 MIN.
PLATE	ASTM A572 GR 50 MIN. or ASTM A709 GR 50 MIN.
HANDHOLE FRAME	ASTM A500 or ASTM A572 GR 50
HANDHOLE COVER	ASTM A1011 or A36 MIN.
ANCHOR BOLTS	ASTM F1554 GR 55
HEX NUTS	ASTM A563 GR DH
FLAT WASHERS	ASTM F436
ANCHOR PLATE/TEMPLATE	ASTM A36 MIN.
HEX BOLTS	ASTM F3125 GR A325
ARM JOINT STUDS	ASTM A36
LOCK NUTS	ASTM A194 GR 2H
PIPE	ASTM A53 GR B, or ASTM A500 GR B or C
S.S. HARDWARE	AISI-300 SERIES (18-8)
STRUCTURE FINISH	H.D. GALV TO ASTM A123
ANCHOR BOLTS, ANCHOR ROD HARDWARE, AND LUMINAIRE ARM CONNECTION HARDWARE FINISH	H.D. GALV TO ASTM A153
MAST ARM CONNECTION HARDWARE FINISH	MECHANICALLY GALV TO ASTM B695



STEEL MAST ARM POLE:
TYPE DSM & DCSM

TELESCOPIC FIELD JOINT DETAIL
(ARMS OVER 40' ONLY)



REV.	DATE	REVISION	BY	CHK'D
R2	4/14/2025	CHANGES PER REVIEWER'S COMMENTS	DRE	DRE
R1	4/7/2025	REMOVED THREADED PLATE MAST ARM CONNECTION	DRE	DRE

FABRICATION TOLERANCES

GENERAL:	+/-1/8"
ANGULAR: (UNLESS NOTED OTHERWISE)	+/-0.5°
ANCHOR BOLT CIRCLE DIA.:	+/-1/16"
ANCHOR BOLT HOLE DIA.:	+1/16",-1/32"
CONNECTION BOLT HOLE DIA.:	+/-1/16"
TUBE LENGTH:	+/-1"
TUBE DIA. AND SYMMETRY:	+/-2%
TUBE STRAIGHTENS VARIATION (in inches):	1/8" times the number of feet of total length divided by 5

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL MAST POLE (DUAL ARMS) WITH DETAILS

PROJECT: PENNDOT BULLETIN 15 APPROVAL	
	DRAWN BY: DRE
	CHK BY: DRE
LOCATION: PENNSYLVANIA	DATE: 1/11/2024
DRAWING NO.: SPA-4702	SCALE: NTS
	SHEET 1 OF 4

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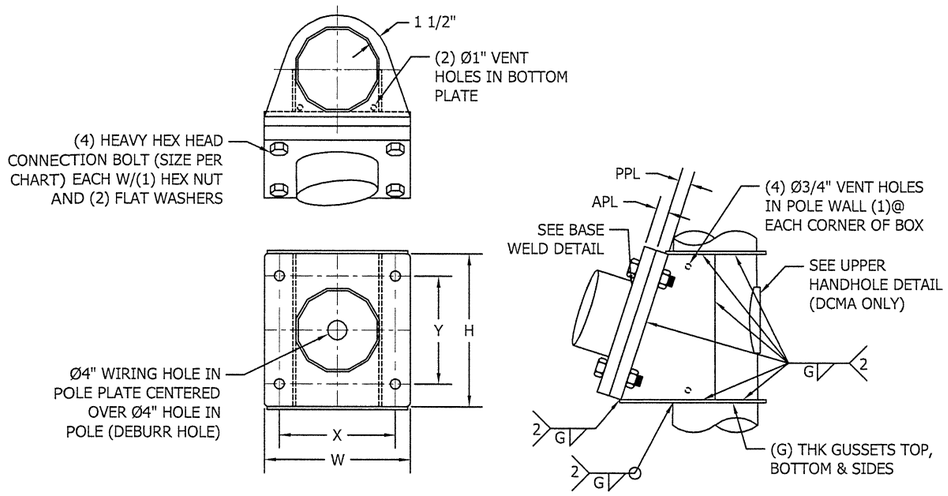
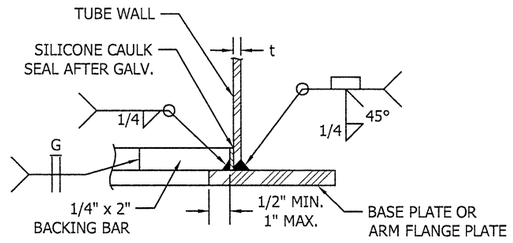
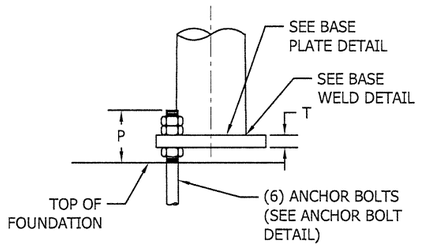


MAST ARM CONNECTION DETAIL

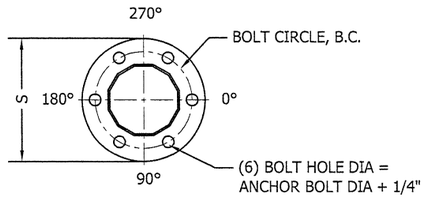
MAST ARMS WITH OFF SET MOUNTING HEIGHTS
(VERTICAL OFFSET OF DUAL MAST ARMS WILL VARY BETWEEN 2' AND 2'-6" DEPENDING ON SIZE OF CONNECTION)



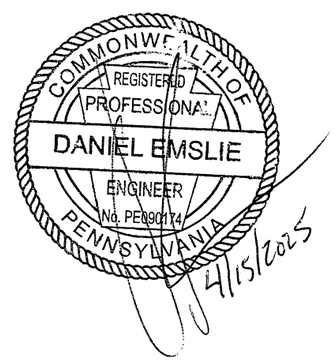
BASE WELD DETAIL

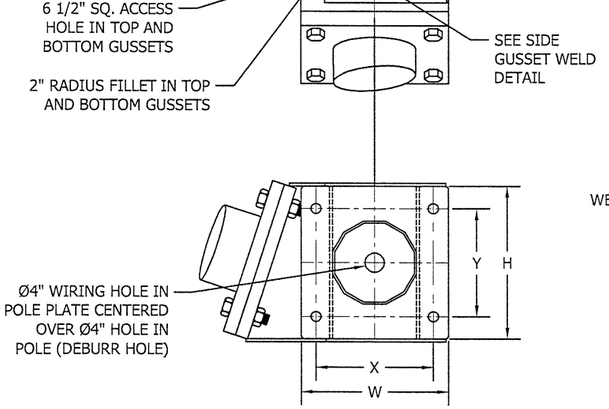


BASE CONNECTION DETAIL

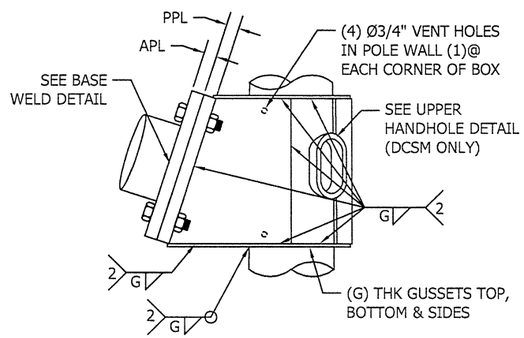


BASE PLATE DETAIL



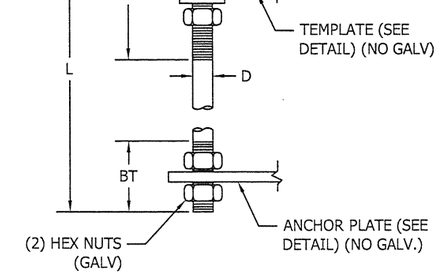


SIDE GUSSET WELD DETAIL



DUAL MAST ARM CONNECTION DETAIL

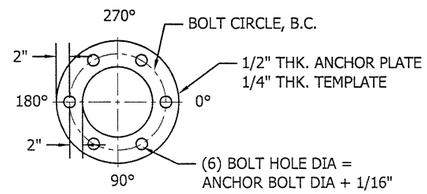
MAST ARMS AT EQUAL MOUNTING HEIGHTS



ANCHOR BOLT DETAIL

ANCHOR RODS TO BE GALVANIZED FULL LENGTH

ANCHOR ROD DIMENSIONS (IN)			
D	L	TT	BT
1 3/4	49	14	7
2	60	15	7



ANCHOR PLATE/TEMPLATE DETAIL

ANCHOR PLATE AND TEMPLATE TO BE BARE, NO GALV

REV	DATE	REVISION	BY	CHK'D
R2	4/14/2025	CHANGES PER REVIEWER'S COMMENTS	DRE	DRE
R1	4/7/2025	REMOVED THREADED PLATE MAST ARM CONNECTION	DRE	DRE

FABRICATION TOLERANCES

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TUBE DIA. AND SYMMETRY:	+/-2%
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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL MAST POLE (DUAL ARMS) WITH DETAILS

PROJECT: PENNDOT BULLETIN 15 APPROVAL	
	DRAWN BY: DRE
	CHK BY: DRE
LOCATION: PENNSYLVANIA	DATE: 1/11/2024
DRAWING NO.: SPA-4702	SCALE: NTS
	SHEET 2 OF 4

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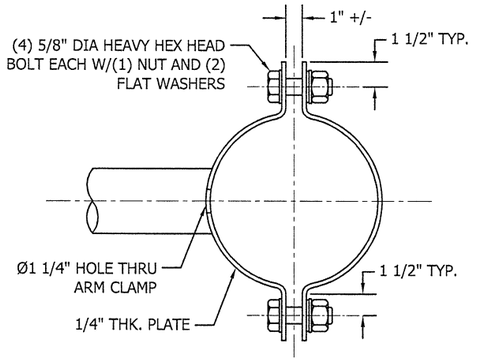
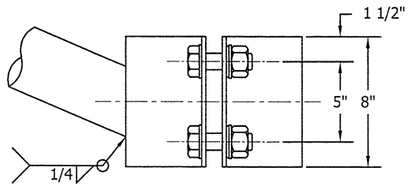
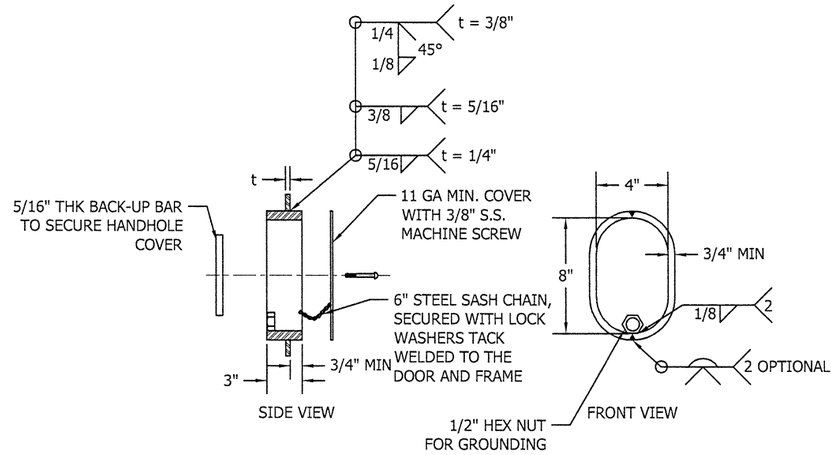
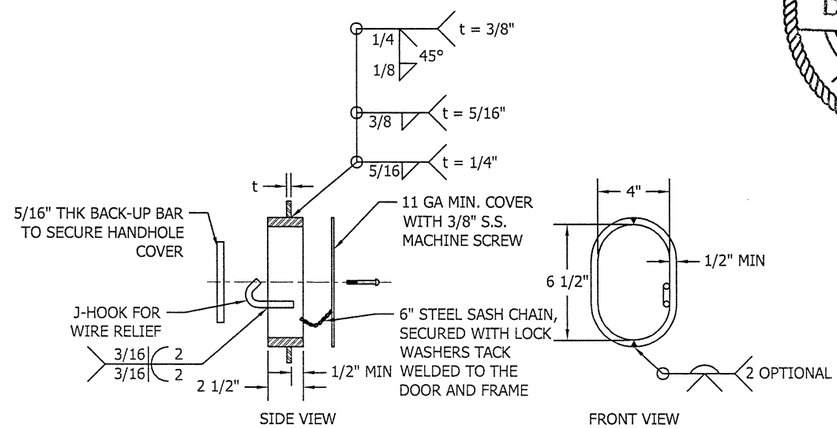




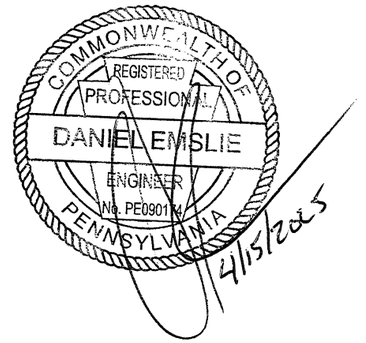
LUMINAIRE ARM CLAMP DETAIL



LOWER HANDHOLE DETAIL



UPPER HANDHOLE DETAIL



REV.	DATE	REVISION	BY	CHK'D
R2	4/14/2025	CHANGES PER REVIEWER'S COMMENTS	DRE	DRE
R1	4/7/2025	REMOVED THREADED PLATE MAST ARM CONNECTION	DRE	DRE

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TUBE DIA. AND SYMMETRY:	+/-2%
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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL MAST POLE (DUAL ARMS) WITH DETAILS

PROJECT: PENNDOT BULLETIN 15 APPROVAL	
	DRAWN BY: DRE
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LOCATION: PENNSYLVANIA	DATE: 1/11/2024
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SPA-4702	SHEET 3 OF 4

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MAST ARM SPAN LENGTH		SIGNALS					SIGNS						MAX Y (FT)
		M	N	O	P	Q	R	S	T	U	V	Y	
0'-10'	W	70	-	-	-	123	-	-	-	-	39	87	5.2
	A	8.76	-	-	-	8.82	-	-	-	-	7.48	10.50	
11'-15'	W	70	-	-	-	123	39	-	-	-	39	106	6.6
	A	8.76	-	-	-	8.82	7.48	-	-	-	7.48	21.33	
16'-20'	W	97	70	-	-	123	39	-	-	-	39	106	6.6
	A	13.89	8.76	-	-	8.82	7.48	-	-	-	7.48	21.33	
21'-25'	W	97	70	-	-	123	39	39	-	-	39	106	8.5
	A	13.89	8.76	-	-	8.82	7.48	7.48	-	-	7.48	21.33	
26'-30'	W	97	70	97	-	123	39	39	-	-	39	106	8.5
	A	13.89	8.76	13.89	-	8.82	7.48	7.48	-	-	7.48	21.33	
31'-35'	W	97	70	97	-	123	39	39	39	-	39	106	10.8
	A	13.89	8.76	13.89	-	8.82	7.48	7.48	7.48	-	7.48	21.33	
36'-40'	W	97	70	97	-	123	39	39	39	-	39	106	15.7
	A	13.89	8.76	13.89	-	8.82	7.48	7.48	7.48	-	7.48	21.33	
41'-45'	W	97	70	97	-	123	39	39	39	-	39	106	20.7
	A	13.89	8.76	13.89	-	8.82	7.48	7.48	7.48	-	7.48	21.33	
46'-50'	W	97	70	70	97	123	39	39	-	39	39	106	17.7
	A	13.89	8.76	8.76	13.89	8.82	7.48	7.48	-	7.48	7.48	21.33	
51'-60'	W	97	70	70	97	123	39	39	-	39	39	106	27.9
	A	13.89	8.76	8.76	13.89	8.82	7.48	7.48	-	7.48	7.48	21.33	

W=WEIGHT (LBS)
A=AREA (SQ FT)

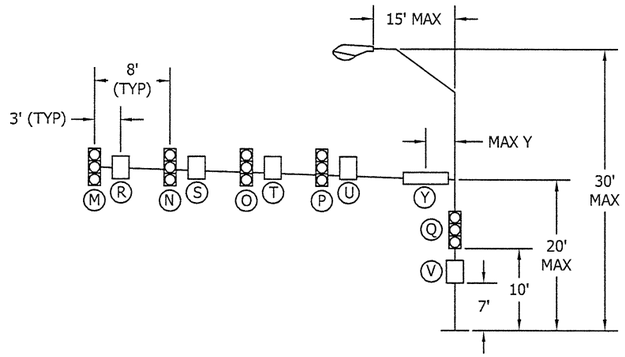
LUMINAIRE ARM DATA				
SPAN (1)	THICK-NESS (in) or GAUGE	BASE DIA. (in)	TOP DIA. (in)	RISE
6'-0"	0.154	2.375	2.375	1'-6"
8'-0"	0.154	2.375	2.375	1'-6"
10'-0"	11	4.47	3.00	1'-6"
12'-0"	11	4.75	3.00	1'-6"
15'-0"	11	5.10	3.00	1'-6"

(1) LUMINAIRE ARM LENGTHS 8' AND LESS SHALL BE 2" SCH 40 PIPE, LUMINAIRE ARMS GREATER THAN 8' SHALL BE 8-SIDED TAPERED TUBE

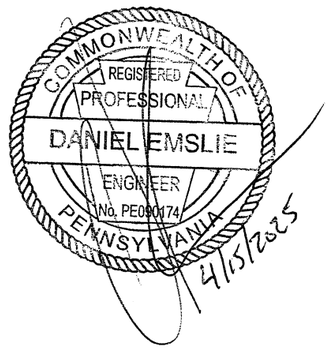
POLE TYPE	MAX SPAN LENGTH	POLE TUBE SIZE (THK. x BASE Ø. x TOP Ø x LGTH.)	POLE BASE CONNECTION DATA (in)				
			B.C.	S	T	P	ANCHOR BOLT SIZE
DSM-1	0'-15'	1/4" x 12.00" x 8.92" x 22'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
DSM-2	16'-25'	5/16" x 13.00" x 9.92" x 22'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
DSM-3	26'-35'	5/16" x 15.00" x 11.92" x 22'-0"	21	25 1/2	2 1/2	10 3/4	1 3/4 x 49
DSM-4	36'-45'	5/16" x 16.50" x 13.42" x 22'-0"	24	29	2 1/2	11 3/4	2 x 60
DSM-5	46'-55'	3/8" x 17.50" x 14.42" x 22'-0"	24	29	2 1/2	11 3/4	2 x 60
DSM-6	56'-60'	3/8" x 18.50" x 15.42" x 22'-0"	24	29	2 1/2	11 3/4	2 x 60
DCSM-1	0'-15'	1/4" x 12.00" x 7.94" x 29'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
DCSM-2	16'-25'	5/16" x 13.00" x 8.94" x 29'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
DCSM-3	26'-35'	5/16" x 15.00" x 10.94" x 29'-0"	21	25 1/2	2 1/2	10 3/4	1 3/4 x 49
DCSM-4	36'-45'	5/16" x 16.50" x 12.44" x 29'-0"	24	29	2 1/2	11 3/4	2 x 60
DCSM-5	46'-55'	3/8" x 17.50" x 13.44" x 29'-0"	24	29	2 1/2	11 3/4	2 x 60
DCSM-6	56'-60'	3/8" x 18.50" x 14.44" x 29'-0"	24	29	2 1/2	11 3/4	2 x 60

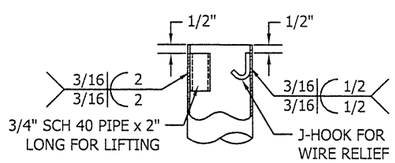
DUAL MAST ARMS MUST BE A 90° ANGLE FROM EACHOTHER

MAST ARM DATA							MAST ARM FLANGE CONNECTION DATA (in)							
SPAN LENGTH	TUBE SIZE (THK. x BASE Ø. x TOP Ø x LGTH.)	JOINT LENGTH (in) NOM	JOINT LENGTH (in) MIN	MAX MTG HEIGHT	ORIENT	RISE ANGLE	BOLT DIA	X	Y	W	H	APL	PPL	G
0'-10'	3/16" x 6.00" x 4.60" x 10'-0"	-	-	20'-0"	180°	3°	1	13 1/2	8 1/2	16	11	2	2	1/4
11'-15'	3/16" x 7.00" x 4.90" x 15'-0"	-	-	20'-0"	180°	3°								
16'-20'	3/16" x 8.50" x 5.70" x 20'-0"	-	-	20'-0"	180°	3°	1	14 1/2	12	17	14 1/2	2	2	1/4
21'-25'	3/16" x 10.50" x 7.00" x 25'-0"	-	-	20'-0"	180°	3°								
26'-30'	1/4" x 11.00" x 6.80" x 30'-0"	-	-	20'-0"	180°	3°	1 1/4	17 1/4	13	20 1/2	16 1/2	2	2	5/16
31'-35'	1/4" x 12.50" x 7.60" x 35'-0"	-	-	20'-0"	180°	3°								
36'-40'	5/16" x 12.50" x 6.90" x 40'-0"	-	-	20'-0"	180°	3°	1 1/4	19	15	22 1/4	18 1/4	2	2	5/16
41'-45'	3/8" x 13.00" x 10.69" x 16'-6" 3/16" x 11.38" x 7.18" x 30'-0"	18.00	16.50	20'-0"	180°	3°								
46'-50'	3/8" x 14.00" x 10.92" x 22'-0" 3/16" x 11.68" x 7.48" x 30'-0"	24.00	16.95	20'-0"	180°	3°	1 1/2	20 1/2	16	24 1/4	20	2 1/2	2 1/2	3/8
51'-55'	3/8" x 15.00" x 11.92" x 22'-0" 3/16" x 12.68" x 7.78" x 35'-0"	24.00	18.45	20'-0"	180°	3°								
56'-60'	3/8" x 15.75" x 12.67" x 22'-0" 3/16" x 13.43" x 7.83" x 40'-0"	24.00	19.58	20'-0"	180°	3°	1 1/2	21 1/2	17	20 1/4	20 3/4	2 1/2	2 1/2	1/2

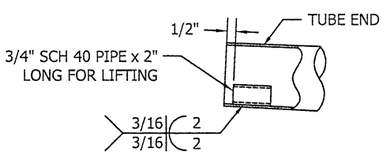


MAXIMUM LOADING INFORMATION

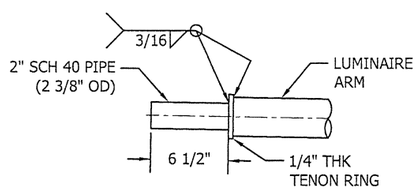




POLE TOP DETAIL



TUBE END DETAIL



LUMINAIRE TENON DETAIL
(LUMINAIRE ARMS OVER 8' ONLY)

REV.	DATE	REVISION	BY	CHK'D
R2	4/14/2025	CHANGES PER REVIEWER'S COMMENTS	DRE	DRE
R1	4/7/2025	REMOVED THREADED PLATE MAST ARM CONNECTION	DRE	DRE

FABRICATION TOLERANCES

GENERAL:	+/-1/8"
ANGULAR: (UNLESS NOTED OTHERWISE)	+/-0.5°
ANCHOR BOLT CIRCLE DIA.:	+/-1/16"
ANCHOR BOLT HOLE DIA.:	+1/16",-1/32"
CONNECTION BOLT HOLE DIA.:	+/-1/16"
TUBE LENGTH:	+/-1"
TUBE DIA. AND SYMMETRY:	+/-2%
TUBE STRAIGHTENS VARIATION (in inches):	1/8" times the number of feet of total length divided by 5

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL MAST POLE (DUAL ARMS) WITH DETAILS

PROJECT: PENNDOT BULLETIN 15 APPROVAL	
	DRAWN BY: DRE
	CHK BY: DRE
LOCATION: PENNSYLVANIA	DATE: 1/11/2024
DRAWING NO.: SPA-4702	SCALE: NTS
	SHEET 4 OF 4

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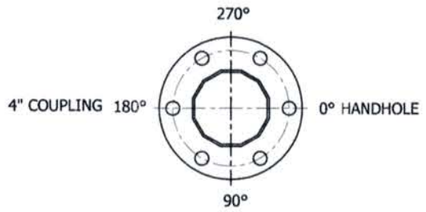
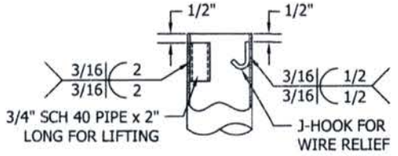
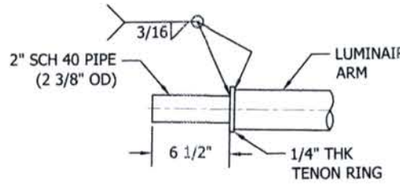


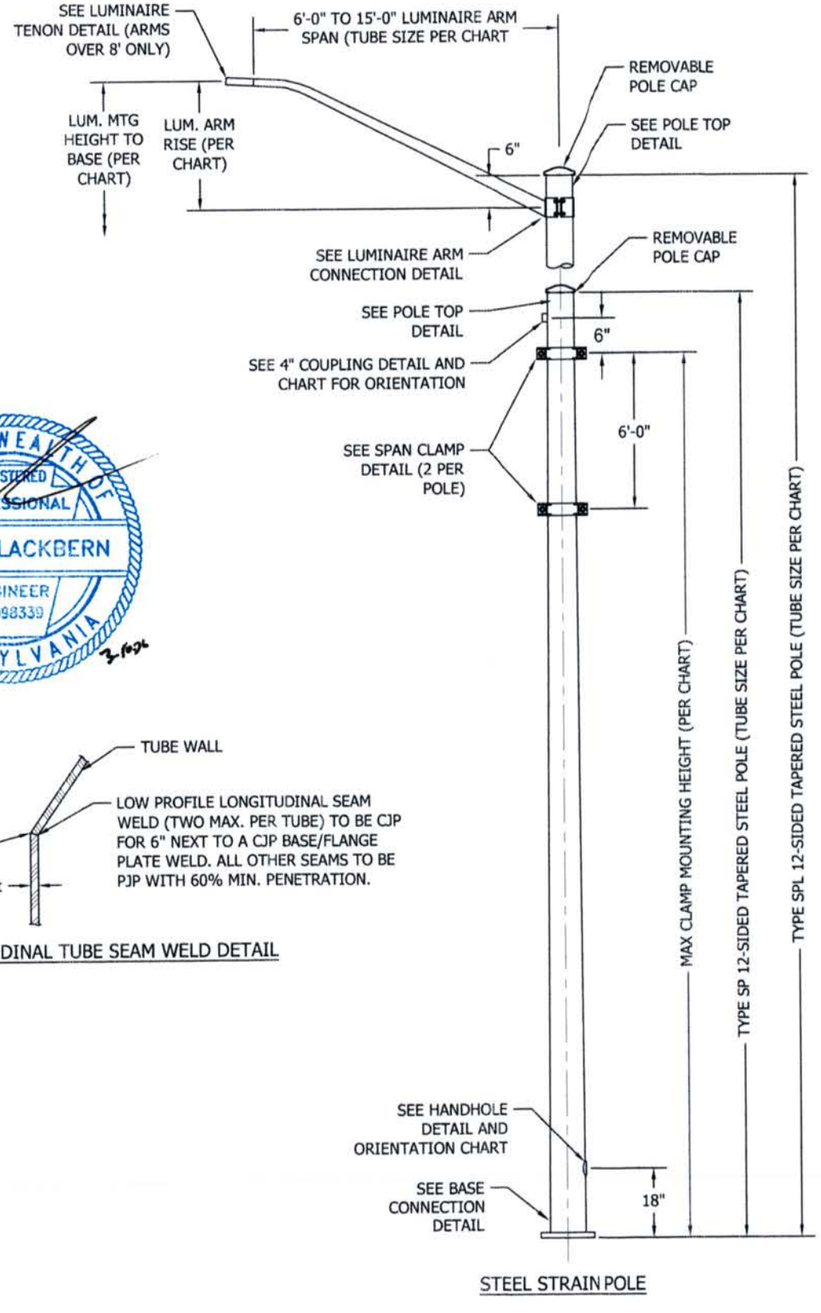
ORIENTATION DETAIL



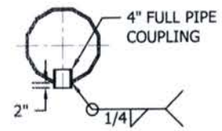
POLE TOP DETAIL



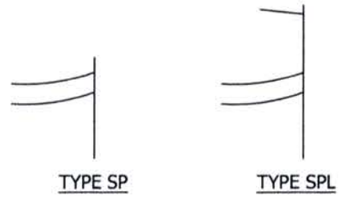
LUMINAIRE TENON DETAIL
(LUMINAIRE ARMS OVER 8' ONLY)



STEEL STRAIN POLE



4" COUPLING DETAIL



NOTES:

1. DESIGNED IN ACCORDANCE WITH 2001 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" 4TH EDITION INCLUDING 2002, 2003, AND 2006 INTERIMS.
   THE DESIGN PARAMETERS INCLUDE:
   80 MPH WIND ZONE (PER APPENDIX C)
   50 YEAR RECURRENCE INTERVAL
   FATIGUE DESIGN EXCLUDED
2. STRAIN POLES ARE DESIGNED FOR A HORIZONTAL DESIGN TENSION (PER CHART) APPLIED 12" BELOW THE DESIGN LENGTH OF THE STRAIN POLES, EXCLUDING EXTRA LENGTH TO ACCOMMODATE THE LUMINAIRE ARM.
3. WELDING TO CONFORM TO AWS D1.1.
4. WELD INSPECTION SHALL CONFORM TO AWS D1.1.
5. COMPLETE JOINT PENETRATION SEAM WELDS IN TUBES SHALL BE NON DESTRUCTIVELY TESTED PER THE FOLLOWING:
   TUBE THICKNESS 1/4" AND GREATER: UT
   TUBE THICKNESS LESS THAN 1/4": RT
6. ALL MAIN LOAD CARRYING TENSION MEMBERS GREATER THAN 1/2" TO BE CVN TESTED TO ZONE 2 NON-FRACTURE CRITICAL.
7. THE EXPOSED LENGTH OF THE ANCHOR BOLT BETWEEN THE TOP OF THE FOUNDATION AND THE BOTTOM OF THE LEVELING NUT SHOULD NOT EXCEED ONE BOLT DIAMETER.
8. ANCHOR BOLTS ANALYZED FOR STEEL STRENGTH ONLY. THE ANCHOR BOLT EMBEDMENT LENGTH SHOWN ON THIS DRAWING SHALL BE VERIFIED BY THE FOUNDATION ENGINEER.
9. VIBRATION IS MORE LIKELY TO OCCUR WHEN STRUCTURES ARE INSTALLED WITHOUT ATTACHING THE SIGNALS AND OR SIGNS. THEREFORE, THE INTENDED EQUIPMENT OR DAMPENING DEVICES MUST BE INSTALLED AT THE TIME OF ERECTION. BECAUSE VIBRATION IS GENERALLY UNPREDICTABLE, A MAINTENANCE PROGRAM SHOULD INCLUDE INSPECTION FOR INDICATIONS OF EXCESSIVE VIBRATION OR FATIGUE AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING.
10. SUSA RESERVES THE RIGHT TO INSTALL TOOLING LUGS OR HOLES TO FACILITATE IN THE GALVANIZING PROCESS. THESE LUGS/HOLES WILL NOT IMPEDE WITH THE FIT, FORM OR FUNCTION OF THE FINISHED PRODUCT AND ARE TO BE USED SOLELY BY THE MANUFACTURER.
11. STRINGING TENSION SHALL NOT EXCEED 75% OF THE DESIGN TENSION.
12. MULTISIDED TUBE OUTSIDE DIAMETERS MEASURED ACROSS "FLATS".
13. CUSTOMER TO CONFIRM ALL DIMENSIONS & ORIENTATIONS BEFORE RELEASING ORDER FOR MANUFACTURING.

MATERIAL SPECIFICATIONS	
STRAIN POLE TAPERED TUBE	ASTM A572 GR 50 MIN. or ASTM A1018 GR 50 MIN. or ASTM A1011 GR 50 MIN.
LUMINAIRE ARM TAPERED TUBE	ASTM A572 GR 50 MIN. or ASTM A1018 GR 50 MIN. or ASTM A1011 GR 50 MIN.
PLATE	ASTM A572 GR 50 MIN.
HANDHOLE FRAME	ASTM A500 or ASTM A572 GR 50
HANDHOLE COVER	ASTM A1011 or A36 MIN.
ANCHOR BOLTS	ASTM F1554 GR 55
HEX NUTS	ASTM A563 GR DH
FLAT WASHERS	ASTM F436
ANCHOR PLATE/TEMPLATE	ASTM A36 MIN.
HEX BOLTS	ASTM F3125 GR A325
SPAN CLAMP MATERIAL	ASTM A572 GR 50
PIPE COUPLINGS	ASTM A105, or ASTM A53 GR B, or ASME B1.20.1
PIPE	ASTM A53 GR B, or ASTM A500 GR B or C
S.S. HARDWARE	AISI-300 SERIES (18-8)
STRUCTURE FINISH	H.D. GALV TO ASTM A123
ANCHOR BOLTS, SPAN CLAMP HARDWARE, AND LUMINAIRE CLAMP HARDWARE FINISH	H.D. GALV TO ASTM A153

LONGITUDINAL TUBE SEAM WELD DETAIL

REV.	DATE	REVISION	BY	CHK'D

FABRICATION TOLERANCES

GENERAL:	+/-1/8"
ANGULAR: (UNLESS NOTED OTHERWISE)	+/-0.5°
ANCHOR BOLT CIRCLE DIA.:	+/-1/16"
ANCHOR BOLT HOLE DIA.:	+1/16",-1/32"
CONNECTION BOLT HOLE DIA.:	+/-1/16"
TUBE LENGTH:	+/-1"
TUBE DIA. AND SYMMETRY:	+/-2%
TUBE STRAIGHTENS VARIATION (in inches):	1/8" times the number of feet of total length divided by 5

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL STRAIN POLE WITH DETAILS- Gr. 50 DESIGN

PROJECT: PENNDOT BULLETIN 15 APPROVAL	
	DRAWN BY: HM
	CHK BY: KB
LOCATION: PENNSYLVANIA	DATE: 09/03/2026
DRAWING NO.: SPA-4705	SCALE: NTS
	SHEET 1 OF 3

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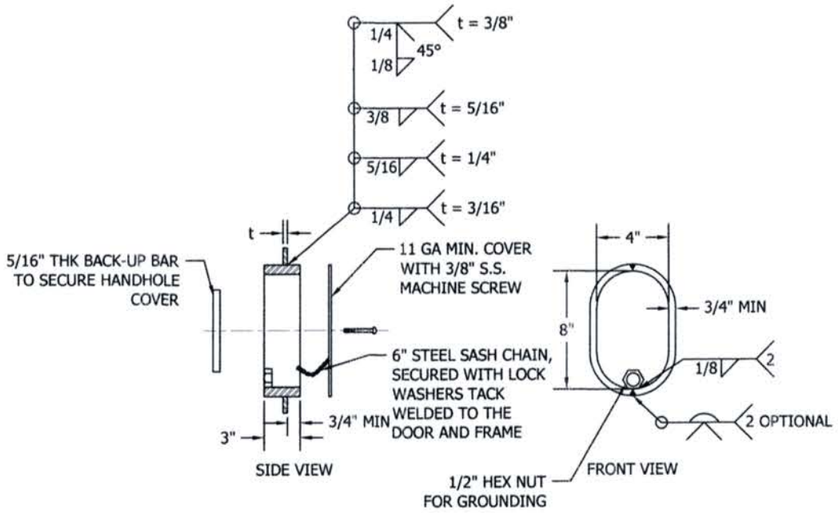
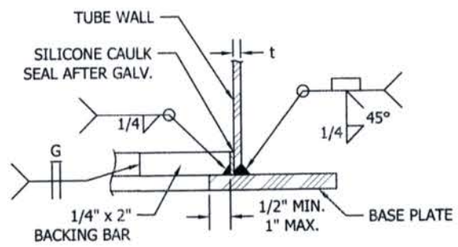
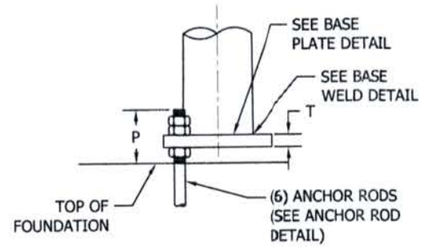


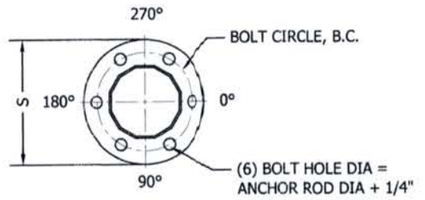
HANDHOLE DETAIL



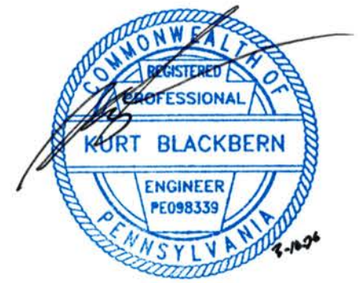
BASE WELD DETAIL

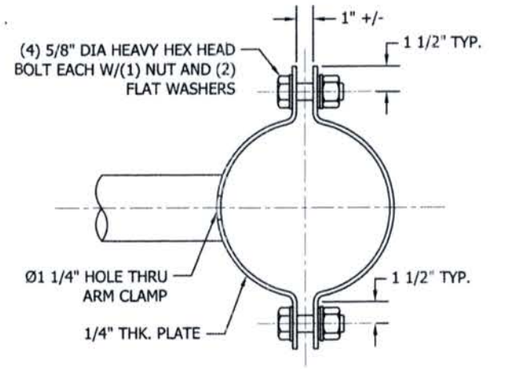


BASE CONNECTION DETAIL

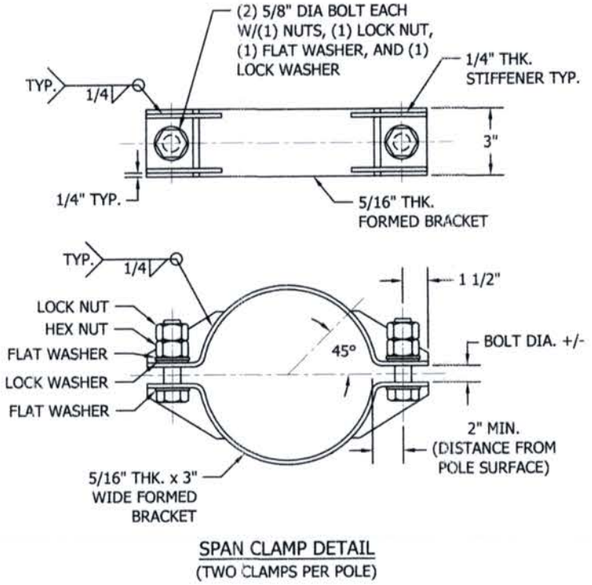


BASE PLATE DETAIL

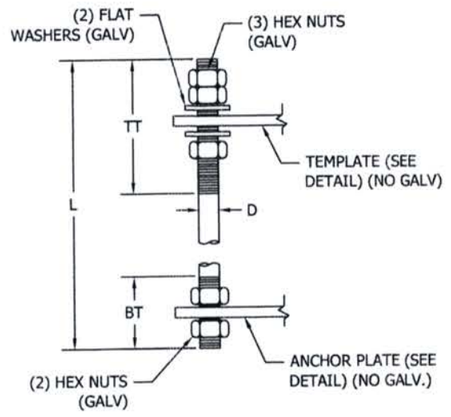




LUMINAIRE ARM CLAMP DETAIL

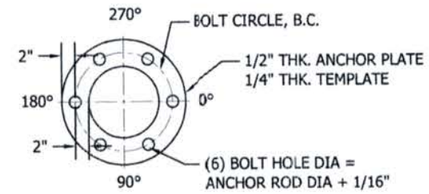


SPAN CLAMP DETAIL
(TWO CLAMPS PER POLE)



ANCHOR ROD DETAIL
ANCHOR RODS TO BE GALVANIZED FULL LENGTH

ANCHOR ROD DIMENSIONS (IN)			
D	L	TT	BT
1 3/4	49	14	7
2	66	15	7
2 1/4	66	16	7
2 1/2	66	17	7



ANCHOR PLATE/TEMPLATE DETAIL
ANCHOR PLATE AND TEMPLATE TO BE BARE, NO GALV

REV	DATE	REVISION	BY	CHK'D

FABRICATION TOLERANCES

GENERAL:	+/-1/8"
ANGULAR: (UNLESS NOTED OTHERWISE)	+/-0.5°
ANCHOR BOLT CIRCLE DIA.:	+/-1/16"
ANCHOR BOLT HOLE DIA.:	+1/16",-1/32"
CONNECTION BOLT HOLE DIA.:	+/-1/16"
TUBE LENGTH:	+/-1"
TUBE DIA. AND SYMMETRY:	+/-2%
TUBE STRAIGHTENS VARIATION (in inches):	1/8" times the number of feet of total length divided by 5

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL STRAIN POLE WITH DETAILS- Gr. 50

PROJECT: PENNDOT BULLETIN 15 APPROVAL	
	DRAWN BY: HM
	CHK BY: KB
LOCATION: PENNSYLVANIA	DATE: 09/03/2026
DRAWING NO.: SPA-4705	SCALE: NTS
	SHEET 2 OF 3

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STRAIN POLE DATA FOR 20'-24' DESIGN LENGTHS								
POLE TYPE	DESIGN TENSION (LBS)	MAX CLAMP MOUNTING HEIGHT (FT)	POLE TUBE SIZE (THK. x BASE Ø. x TOP Ø x LGTH.)	POLE BASE CONNECTION DATA (in)				
				B.C.	S	T	P	ANCHOR BOLT SIZE
SP1-24	1000	23	3/16" x 11.00" x **	18	22 1/2	2	10 1/4	1 3/4 x 49
SP2-24	2000	23	3/16" x 11.00" x **	18	22 1/2	2	10 1/4	1 3/4 x 49
SP3-24	3000	23	3/16" x 11.75" x **	18	22 1/2	2	10 1/4	1 3/4 x 49
SP4-24	4000	23	1/4" x 12.00" x **	18	22 1/2	2	10 1/4	1 3/4 x 49
SP5-24	5000	23	1/4" x 13.50" x **	18	22 1/2	2	10 1/4	1 3/4 x 49
SP6-24	6000	23	3/8" x 12.50" x **	18	24	2	12 1/4	2 1/4 x 66
SP7-24	7000	23	1/2" x 11.75" x **	18	24	2	12 1/4	2 1/4 x 66
SP8-24	8000	23	1/2" x 12.50" x **	18	24	2	12 1/4	2 1/4 x 66
SP9-24	9000	23	5/8" x 12.00" x **	18	24	2	12 1/4	2 1/4 x 66
SP10-24	10000	23	5/8" x 12.50" x **	18	24	2	12 1/4	2 1/4 x 66
SPL1-24	1000	23	3/16" x 11.00" x 6.94" x 29'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
SPL2-24	2000	23	3/16" x 11.00" x 6.94" x 29'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
SPL3-24	3000	23	3/16" x 11.75" x 7.00" x 29'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
SPL4-24	4000	23	1/4" x 12.00" x 7.20" x 29'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
SPL5-24	5000	23	1/4" x 13.50" x 7.5" x 29'-0"	18	22 1/2	2	10 1/4	1 3/4 x 49
SPL6-24	6000	23	3/8" x 12.50" x 7.00" x 29'-0"	18	24	2	12 1/4	2 1/4 x 66
SPL7-24	7000	23	1/2" x 11.75" x 7.69" x 29'-0"	18	24	2	12 1/4	2 1/4 x 66
SPL8-24	8000	23	1/2" x 12.50" x 8.44" x 29'-0"	18	24	2	12 1/4	2 1/4 x 66
SPL9-24	9000	23	5/8" x 12.00" x 7.94" x 29'-0"	18	24	2	12 1/4	2 1/4 x 66
SPL10-24	10000	23	5/8" x 12.50" x 8.44" x 29'-0"	18	24	2	12 1/4	2 1/4 x 66

** TOP DIAMETER AND LENGTH AS REQUIRED. LENGTHS TO BE 20'-24'.

STRAIN POLE DATA FOR 26'-30' DESIGN LENGTHS								
POLE TYPE	DESIGN TENSION (LBS)	MAX CLAMP MOUNTING HEIGHT (FT)	POLE TUBE SIZE (THK. x BASE Ø. x TOP Ø x LGTH.)	POLE BASE CONNECTION DATA (in)				
				B.C.	S	T	P	ANCHOR BOLT SIZE
SP1-30	1000	29	3/16" x 11.00" x **	18	23	2	11 1/4	2 x 66
SP2-30	2000	29	3/16" x 11.00" x **	18	23	2	11 1/4	2 x 66
SP3-30	3000	29	3/16" x 13.00" x**	18	23	2	11 1/4	2 x 66
SP4-30	4000	29	1/4" x 13.00" x **	18	23	2	11 1/4	2 x 66
SP5-30	5000	29	3/8" x 12.50" x **	18	23	2	11 1/4	2 x 66
SP6-30	6000	29	5/16" x 15.00" x**	21	27	2 1/2	12 3/4	2 1/4 x 66
SP7-30	7000	29	3/8" x 15.00" x **"	21	27	2 1/2	12 3/4	2 1/4 x 66
SP8-30	8000	29	1/2" x 14.00" x **	21	27	2 1/2	12 3/4	2 1/4 x 66
SP9-30	9000	29	1/2" x 14.75" x **	21	27	2 1/2	12 3/4	2 1/4 x 66
SP10-30	10000	29	1/2" x 15.50" x **	21	27	2 1/2	12 3/4	2 1/4 x 66
SPL1-30	1000	29	3/16" x 11.00" x 6.24" x 34'-0"	18	23	2	11 1/4	2 x 66
SPL2-30	2000	29	3/16" x 11.00" x 6.24" x 34'-0"	18	23	2	11 1/4	2 x 66
SPL3-30	3000	29	3/16" x 13.00" x 8.24" x 34'-0"	18	23	2	11 1/4	2 x 66
SPL4-30	4000	29	1/4" x 13.00" x 9.26" x 34'-0"	18	23	2	11 1/4	2 x 66
SPL5-30	5000	29	3/8" x 12.50" x 7.00" x 34'-0"	18	23	2	11 1/4	2 x 66
SPL6-30	6000	29	5/16" x 15.00" x 8.00" x 34'-0"	21	27	2 1/2	12 3/4	2 1/4 x 66
SPL7-30	7000	29	3/8" x 15.00" x 8.00" x 34'-0"	21	27	2 1/2	12 3/4	2 1/4 x 66
SPL8-30	8000	29	1/2" x 14.00" x 8.00" x 34'-0"	21	27	2 1/2	12 3/4	2 1/4 x 66
SPL9-30	9000	29	1/2" x 14.75" x 8.00" x 34'-0"	21	27	2 1/2	12 3/4	2 1/4 x 66
SPL10-30	10000	29	1/2" x 15.50" x 8.75" x 34'-0"	21	27	2 1/2	12 3/4	2 1/4 x 66

** TOP DIAMETER AND LENGTH AS REQUIRED. LENGTHS TO BE 26'-30'.

STRAIN POLE DATA FOR 32'-34' DESIGN LENGTHS								
POLE TYPE	DESIGN TENSION (LBS)	MAX CLAMP MOUNTING HEIGHT (FT)	POLE TUBE SIZE (THK. x BASE Ø. x TOP Ø x LGTH.)	POLE BASE CONNECTION DATA (in)				
				B.C.	S	T	P	ANCHOR BOLT SIZE
SP1-34	1000	33	3/16" x 12.00" x **	18	23	2	11 1/4	2 x 66
SP2-34	2000	33	3/16" x 12.00" x **	18	23	2	11 1/4	2 x 66
SP3-34	3000	33	1/4" x 12.25" x **	18	23	2	11 1/4	2 x 66
SP4-34	4000	33	5/16" x 12.75" x **	18	23	2	11 1/4	2 x 66
SP5-34	5000	33	3/8" x 13.00" x **	18	23	2	11 1/4	2 x 66
SP6-34	6000	33	5/16" x 15.50" x **	21	27	2 1/2	12 3/4	2 1/4 x 66
SP7-34	7000	33	3/8" x 15.50" x **	21	27	2 1/2	12 3/4	2 1/4 x 66
SP8-34	8000	33	1/2" x 14.75" x **	21	27	2 1/2	12 3/4	2 1/4 x 66
SP9-34	9000	33	1/2" x 15.50" x **	21	27 1/2	2 1/2	13 3/4	2 1/2 x 66
SP10-34	10000	33	5/8" x 14.75" x **	21	27 1/2	2 1/2	13 3/4	2 1/2 x 66
SPL1-34	1000	33	3/16" x 12.00" x 6.54" x 39'-0"	18	23	2	11 1/4	2 x 66
SPL2-34	2000	33	3/16" x 12.00" x 6.54" x 39'-0"	18	23	2	11 1/4	2 x 66
SPL3-34	3000	33	1/4" x 12.25" x 6.79" x 39'-0"	18	23	2	11 1/4	2 x 66
SPL4-34	4000	33	5/16" x 12.75" x 7.29" x 39'-0"	18	23	2	11 1/4	2 x 66
SPL5-34	5000	33	3/8" x 13.00" x 8.00" x 39'-0"	18	23	2	11 1/4	2 x 66
SPL6-34	6000	33	5/16" x 15.50" x 8.50" x 39'-0"	21	27	2 1/2	12 3/4	2 1/4 x 66
SPL7-34	7000	33	3/8" x 15.50" x 8.50" x 39'-0"	21	27	2 1/2	12 3/4	2 1/4 x 66
SPL8-34	8000	33	1/2" x 14.75" x 8.50" x 39'-0"	21	27	2 1/2	12 3/4	2 1/4 x 66
SPL9-34	9000	33	1/2" x 15.50" x 8.80" x 39'-0"	21	27 1/2	2 1/2	13 3/4	2 1/2 x 66
SPL10-34	10000	33	5/8" x 14.75" x 9.29" x 39'-0"	21	27 1/2	2 1/2	13 3/4	2 1/2 x 66

** TOP DIAMETER AND LENGTH AS REQUIRED. LENGTHS TO BE 32'-34'.

LUMINAIRE ARM DATA							
SPAN (1)	THICK-NESS (in) or GAUGE	BASE DIA. (in)	TOP DIA. (in)	RISE	LUMINAIRE MOUNTING HEIGHT		
					29'-0" POLE	34'-0" POLE	39'-0" POLE
6'-0"	0.154	2.375	2.375	1'-6"	30'-0"	35'-0"	40'-0"
8'-0"	0.154	2.375	2.375	1'-6"			
10'-0"	11	4.47	3.00	1'-6"			
12'-0"	11	4.75	3.00	1'-6"			
15'-0"	11	5.10	3.00	1'-6"			

(1) LUMINAIRE ARM SPANS 8' AND LESS SHALL BE 2" SCH 40 PIPE, LUMINAIRE ARMS GREATER THAN 8' SHALL BE 8-SIDED TAPERED TUBE.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
KURT BLACKBERN
ENGINEER
PE098339
3-10-26

REV	DATE	REVISION	BY	CHK'D

FABRICATION TOLERANCES

GENERAL:	+/-1/8"
ANGULAR: (UNLESS NOTED OTHERWISE)	+/-0.5°
ANCHOR BOLT CIRCLE DIA.:	+/-1/16"
ANCHOR BOLT HOLE DIA.:	+1/16",-1/32"
CONNECTION BOLT HOLE DIA.:	+/-1/16"
TUBE LENGTH:	+/-1"
TUBE DIA. AND SYMMETRY:	+/-2%
TUBE STRAIGHTENS VARIATION (in inches):	1/8" times the number of feet of total length divided by 5

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL STRAIN POLE WITH DETAILS- Gr. 50

PROJECT: PENNDOT BULLETIN 15 APPROVAL	
	DRAWN BY: HM
	CHK BY: KB
LOCATION: PENNSYLVANIA	DATE: 09/03/2026
DRAWING NO.: SPA-4705	SCALE: NTS
	SHEET 3 OF 3

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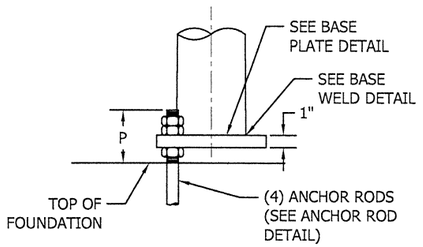
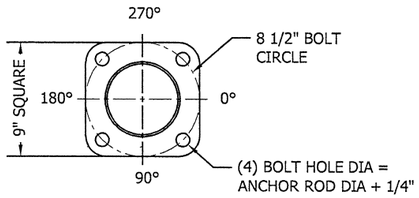
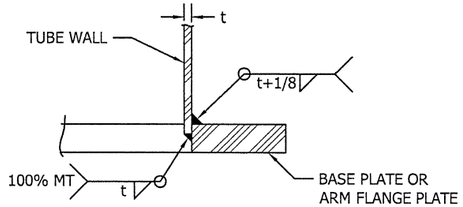


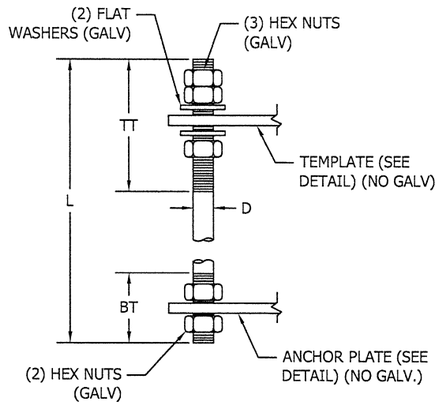
BASE CONNECTION DETAIL



BASE PLATE DETAIL



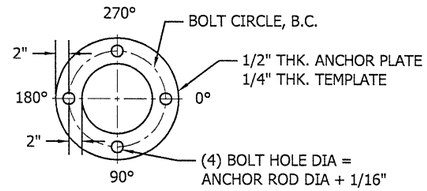
BASE WELD DETAIL



ANCHOR ROD DETAIL

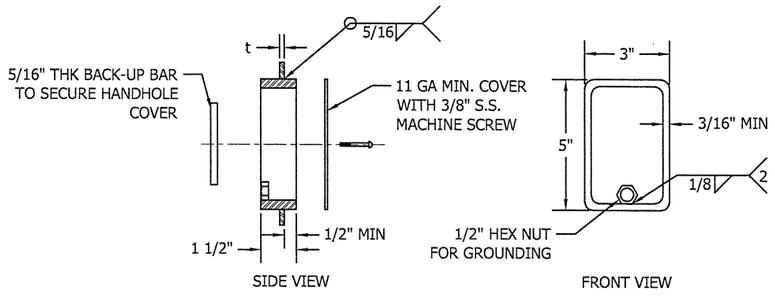
ANCHOR RODS TO BE GALVANIZED FULL LENGTH

ANCHOR ROD DIMENSIONS (IN)			
D	L	TT	BT
3/4	35	8	8

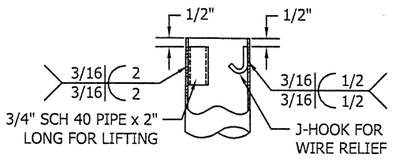


ANCHOR PLATE/TEMPLATE DETAIL

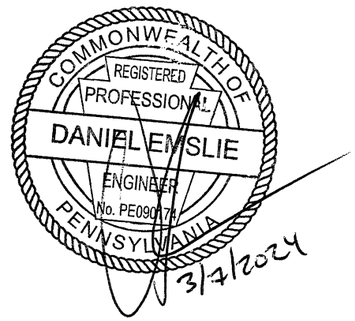
ANCHOR PLATE AND TEMPLATE TO BE BARE, NO GALV

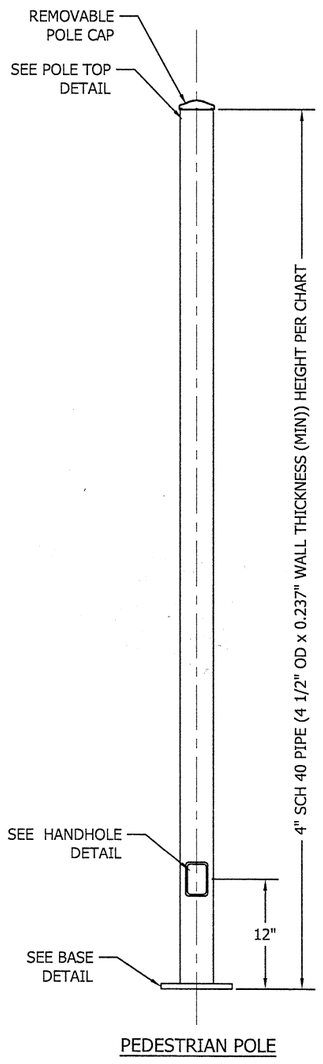


HANDHOLE DETAIL



POLE TOP DETAIL





PEDESTRIAN POLE

NOTES:

1. DESIGNED IN ACCORDANCE WITH 2001 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" 4TH EDITION INCLUDING 2002, 2003, AND 2006 INTERIMS.
   THE DESIGN PARAMETERS INCLUDE:
   80 MPH WIND ZONE (PER APPENDIX C)
   50 YEAR RECURRENCE INTERVAL
   FATIGUE DESIGN EXCLUDED
2. WELDING TO CONFORM TO AWS D1.1.
3. WELD INSPECTION SHALL CONFORM TO AWS D1.1
4. THE EXPOSED LENGTH OF THE ANCHOR BOLT BETWEEN THE TOP OF THE FOUNDATION AND THE BOTTOM OF THE LEVELING NUT SHOULD NOT EXCEED ONE BOLT DIAMETER.
5. ANCHOR BOLTS ANALYZED FOR STEEL STRENGTH ONLY. THE ANCHOR BOLT EMBEDMENT LENGTH SHOWN ON THIS DRAWING SHALL BE VERIFIED BY THE FOUNDATION ENGINEER.
6. SUSA RESERVES THE RIGHT TO INSTALL TOOLING LUGS OR HOLES TO FACILITATE IN THE GALVANIZING PROCESS. THESE LUGS/HOLES WILL NOT IMPEDE WITH THE FIT, FORM OR FUNCTION OF THE FINISHED PRODUCT AND ARE TO BE USED SOLELY BY THE MANUFACTURER.
7. CUSTOMER TO CONFIRM ALL DIMENSIONS & ORIENTATIONS BEFORE RELEASING ORDER FOR MANUFACTURING.

MATERIAL SPECIFICATIONS	
POLE TUBE	ASTM A53 GR B, or ASTM A500 GR B or C
PLATE	ASTM A36 or ASTM A572 GR 36 MIN
HANDHOLE FRAME	ASTM A500 or ASTM A572 GR 50
HANDHOLE COVER	ASTM A1011 or A36 MIN.
ANCHOR BOLTS	ASTM F1554 GR 55
HEX NUTS	ASTM A563 GR DH
FLAT WASHERS	ASTM F436
ANCHOR PLATE/TEMPLATE	ASTM A36 MIN.
S.S. HARDWARE	AISI-300 SERIES (18-8)
STRUCTURE FINISH	H.D. GALV TO ASTM A123
ANCHOR BOLTS AND ANCHOR ROD HARDWARE FINISH	H.D. GALV TO ASTM A153

PEDESTRIAN POLE CHART		
QTY	POLE TYPE	LENGTH
	PP-08	8'-0"
	PP-10	10'-0"
	PP-12	12'-0"
	PP-14	14'-0"

REV	DATE	REVISION	BY	CHK'D

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TUBE DIA. AND SYMMETRY:	+/-2%
TUBE STRAIGHTENS VARIATION (in inches):	1/8" times the number of feet of total length divided by 5

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STEEL PEDESTRIAN POLE WITH DETAILS

PROJECT: PENNDOT BULLETIN 15 APPROVAL	
	DRAWN BY: DRE
	CHK BY: DRE
LOCATION: PENNSYLVANIA	DATE: 3/7/2024
DRAWING NO.: SPA-4704	SCALE: NTS
	SHEET 1 OF 1