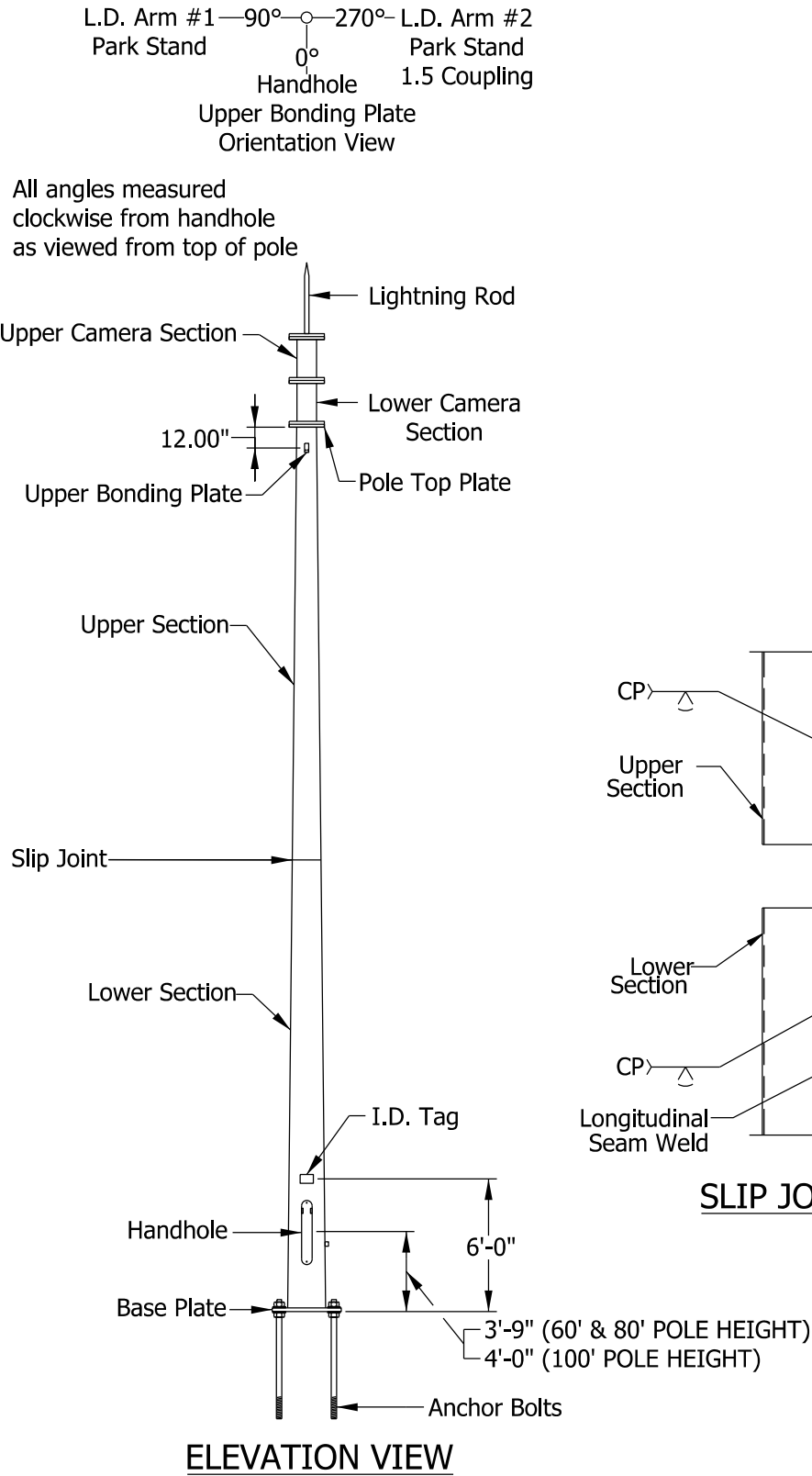


INDEX	
SHEET NO.	SUBJECT
1	ITS Camera Pole Index
2	ITS Camera Pole Tapered Section, Slip Joint Option
3	ITS Camera Pole Constant Cross Section Pipe Option
4	ITS Camera Pole Upper and Lower Camera Detail Slip Joint Option
5	ITS Camera Pole Upper and Lower Camera Details Constant Cross Section Option
6	ITS Camera Pole Lower Section and Base Details
7	ITS Camera Pole Foundation and Anchor Point
8	ITS Camera Pole Service Point Details
9	ITS Camera Pole Service Point and Sub Panel
10	ITS Camera Pole Ground Rod Plan Details
11	ITS Camera Pole Ground Rod Well Details

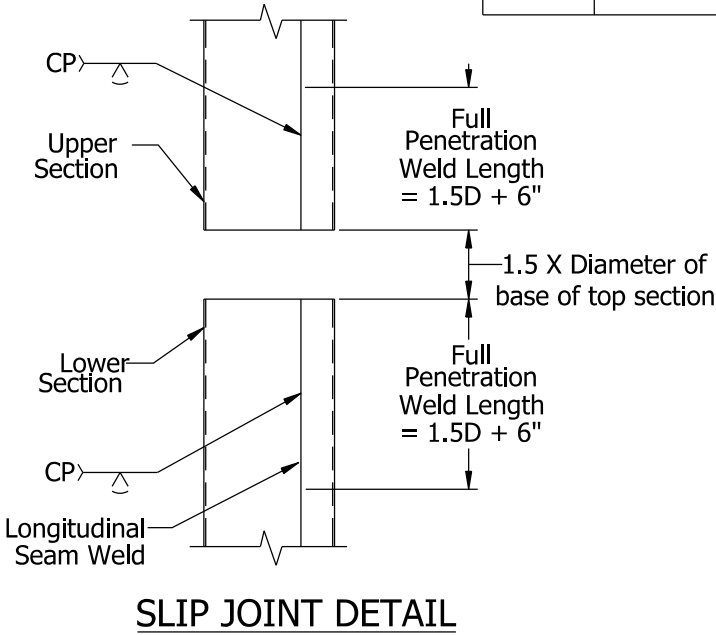
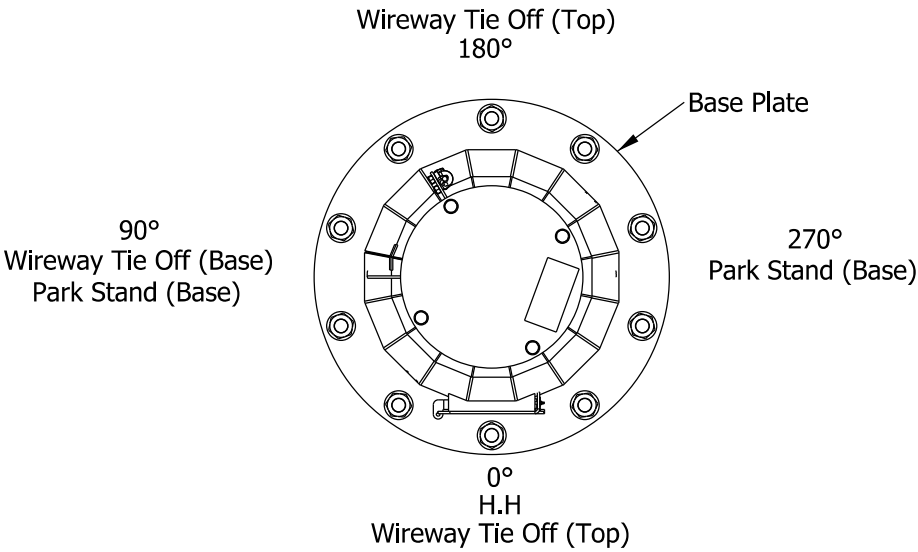
INDIANA DEPARTMENT OF TRANSPORTATION
ITS CAMERA POLE INDEX

NOTE:

1. Pole sections may be round or 16 sided.
2. Diameters for 16 sided poles shall be measured from flat to flat.



Round or 16 sided Pole Data													
POLE HEIGHT (FT)	TUBE					POLE BASE				ANCHOR BOLT			
	SECTION	SEC. LENGTH (FT-IN)	BASE OUTSIDE DIAMETER (IN)	TOP OUTSIDE DIAMETER (IN)	GAUGE OR THICK (IN)	DIA. (IN)	BOLT CIRCLE (IN)	THICK "M" (IN)	BOLT HOLE (IN)	DIA "K" (IN)	LENGTH "J" (IN)	THREAD LENGTH "U" (IN)	NUMBER REQ'D
60	Lower	27.42	21.40 to 21.50	17.50 to 17.76	0.1875	37.00	33.00	2.00	1.75	1.50	60.00	10.00	10
	Upper	29.25 to 29.29	18.35 to 18.51	14.18 to 14.41	0.1875								
80	Lower	43.01 to 43.20	27.00 to 27.53	20.97 to 21.88	0.3125	37.00	33.00	2.00	1.75	1.50	60.00	10.00	10
	Upper	34.00	21.88 to 22.43	17.11 to 17.57	0.1875								
100	Lower	46.13 to 46.17	26.50 to 27.02	20.04 to 20.43	0.3125	37.00	33.00	2.00	1.75	1.50	60.00	10.00	10
	Upper	50.10 to 50.92	20.93 to 21.31	13.81 to 14.05	0.1875								

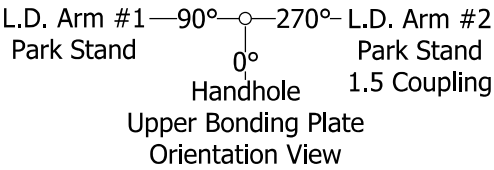
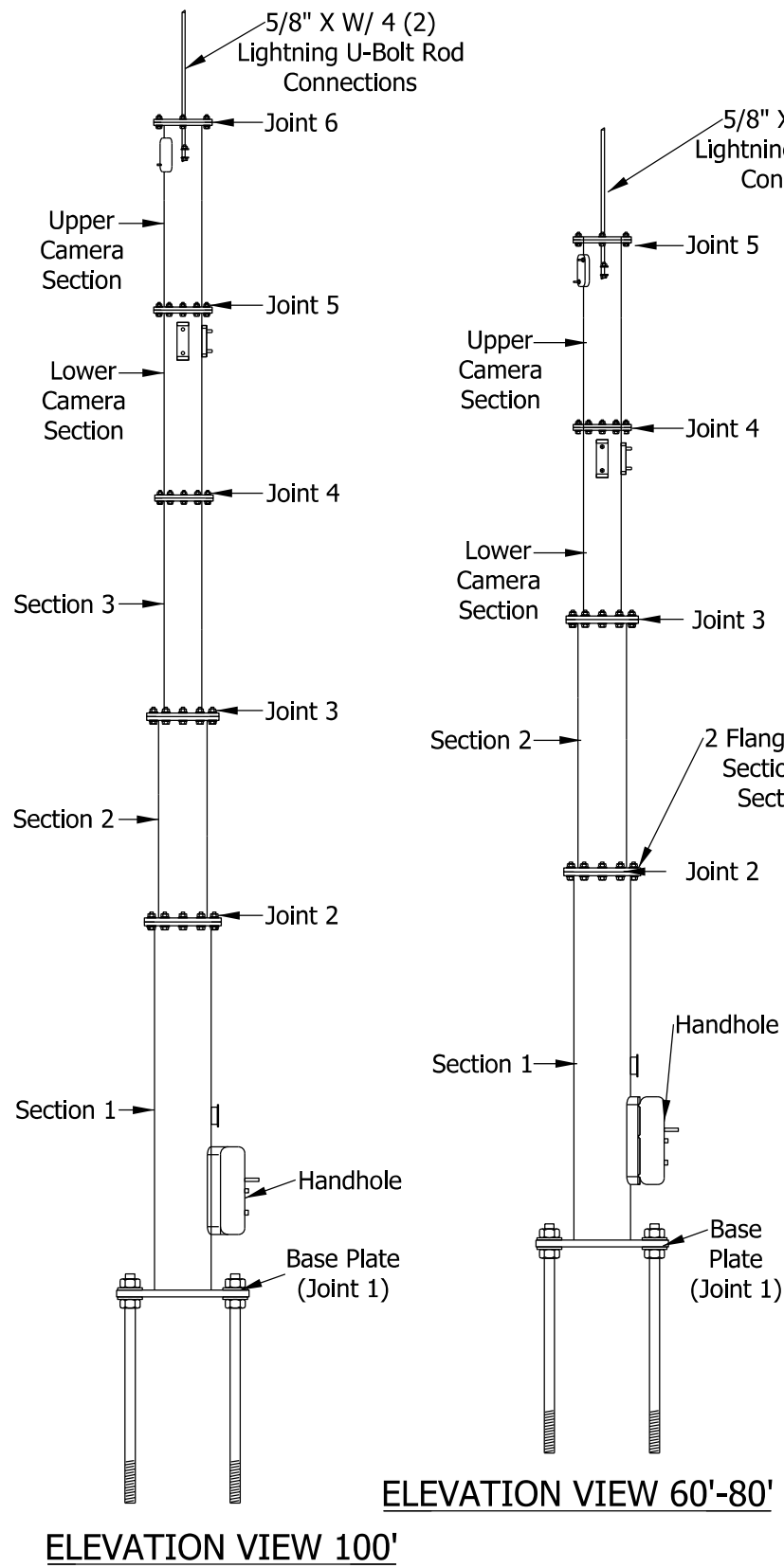


CAMERA EXTENSION DATA				
SECTION	TUBE DATA			
	SEC. LENGTH (FT)	BASE OUTSIDE DIAMETER (IN)	TOP OUTSIDE DIAMETER (IN)	GUAGE OR THICK (IN)
LOWER	3.34	14.00 to 14.27	13.53 to 13.79	0.188
UPPER	3.34	13.53 to 14.27	13.06 to 13.79	0.188

MATERIAL DATA		
COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
POLE SHAFTS (16 SIDED)	A572 GR.55	55
POLE SHAFTS (ROUND)	A572 GR.55	55
BASE PLATES	A36	36
CONNECTING PLATES	A36	36
ANCHOR BOLTS	F1554 GR.55	55
GALVANIZING-HARDWARE	HOT DIP ZINC	
CONNECTING BOLTS	A325	
GALVANIZED RING ASTM	A123	

INDIANA DEPARTMENT OF TRANSPORTATION

ITS CAMERA POLE
TAPERED SECTION, SLIP JOINT
OPTION



CAMERA EXTENSION DATA				
SECTION	TUBE DATA			
	SEC. LENGTH (FT)	BASE OUTSIDE DIAMETER (IN)	TOP OUTSIDE DIAMETER (IN)	GAUGE OR THICK (IN)
LOWER	5	12"	12"	0.25
UPPER	5	12"	12"	0.25

POLE HEIGHT (FT)	Pole Data							
	POLE				BASE PLATE			
	SECTION	SEC. LENGTH (FT)	BASE OUTSIDE DIAMETER (IN)	THICKNESS (IN)	OUTSIDE DIA. (IN)	THICKNESS (IN)	BOLT CIRCLE (IN)	BOLT HOLE (IN)
60'	1	10'	16"	0.25	37"	2"	33"	1.75
	2	40'	12.75"	0.25				
80'	1	30'	18"	0.375	37"	2"	33"	1.75
	2	40'	12.75"	0.25				
100'	1	10'	18"	0.375	37"	2"	33"	1.75
	2	40'	16"	0.312				
	3	40'	12.75"	0.25				

FLANGE PLATE DATA, 60 AND 80 FT POLES							
FLANGE CONNECTION	OUTSIDE DIA	THICKNESS	BOLT CIRCLE	BOLT HOLE DIA	BOLT DIA	BOLT LENGTH	BOLT #
JOINT 2	23"	1"	19.5"	1 1/8"	1"	4 1/2"	10
JOINT 3	19"	3/4"	17"	13/16"	3/4"	3"	6
JOINT 4	19"	3/4"	17"	13/16"	3/4"	3"	6
JOINT 5	19"	3/4"	17"	13/16"	3/4"	2 1/2"	6
FLANGE PLATE DATA, 100 FT POLES							
JOINT 2	25"	1 1/4"	21.5"	1 1/8"	1"	4 1/2"	10
JOINT 3	23"	1"	19.5"	1 1/8"	1"	3 3/4"	10
JOINT 4	19"	3/4"	17"	13/16"	3/4"	3"	6
JOINT 5	19"	3/4"	17"	13/16"	3/4"	3"	6
JOINT 6	19"	3/4"	17"	13/16"	3/4"	2 1/2"	6

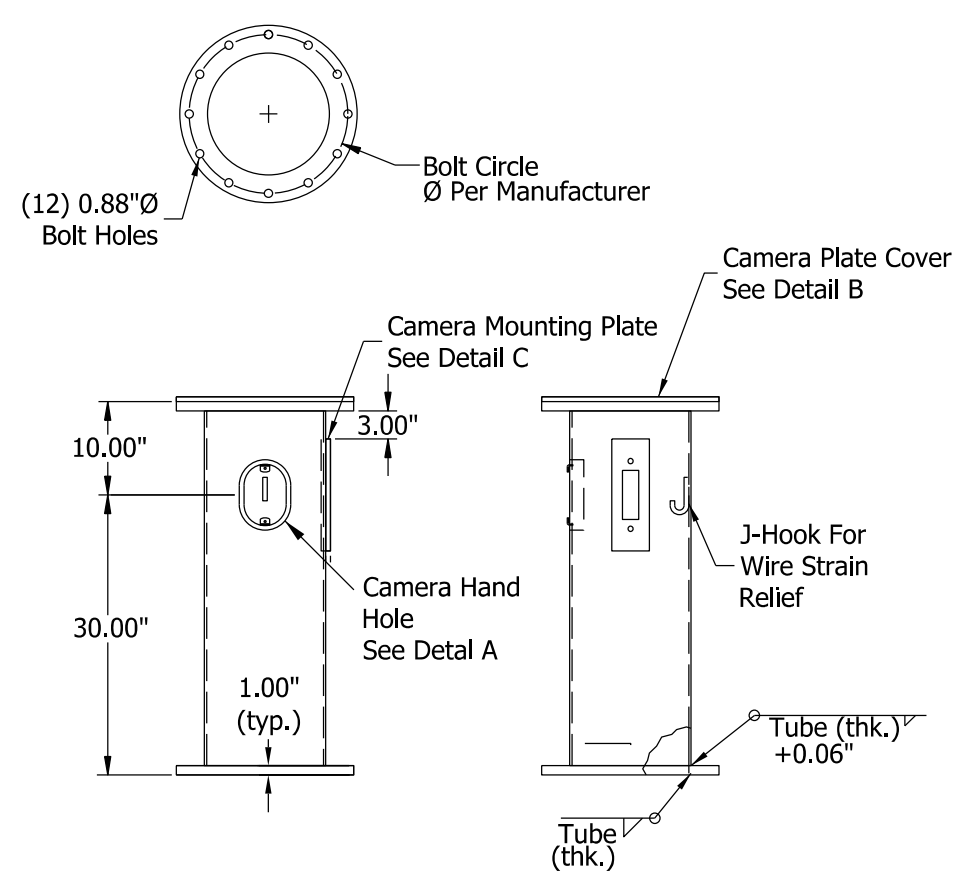
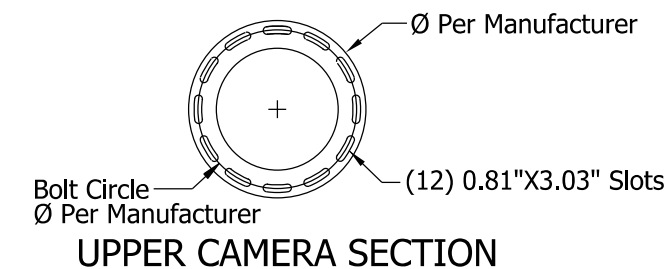
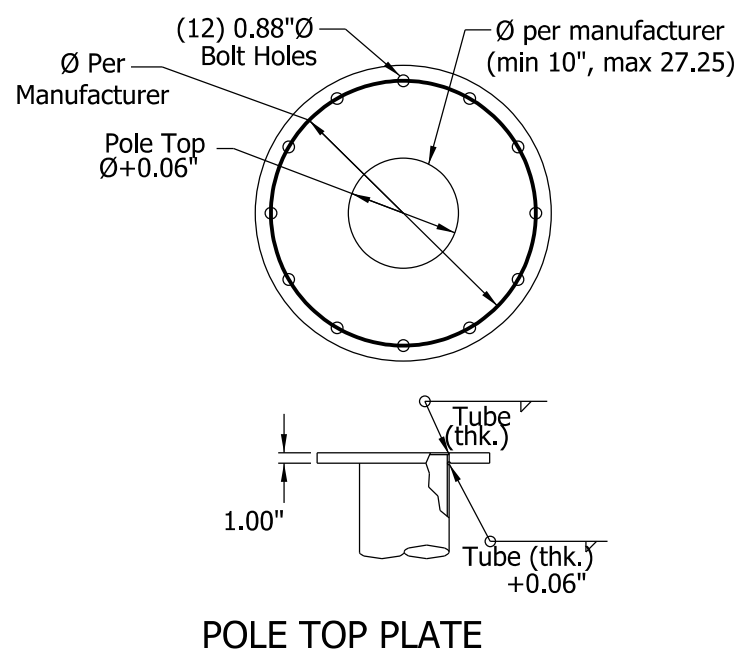
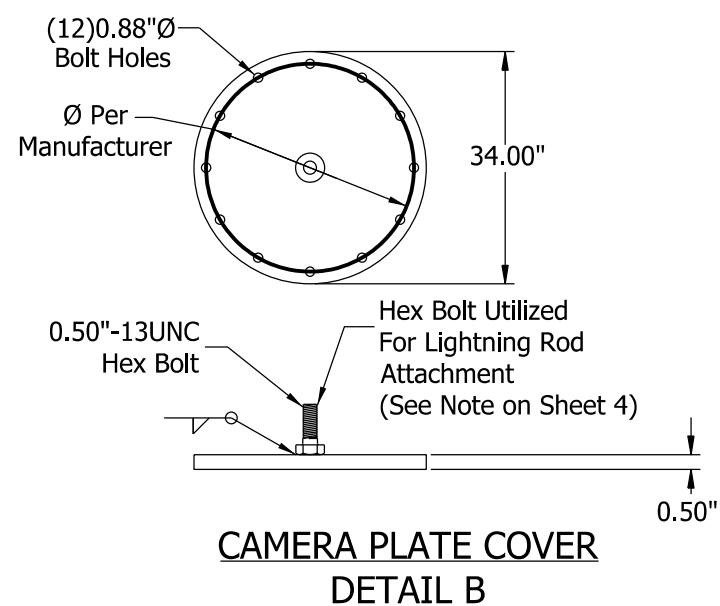
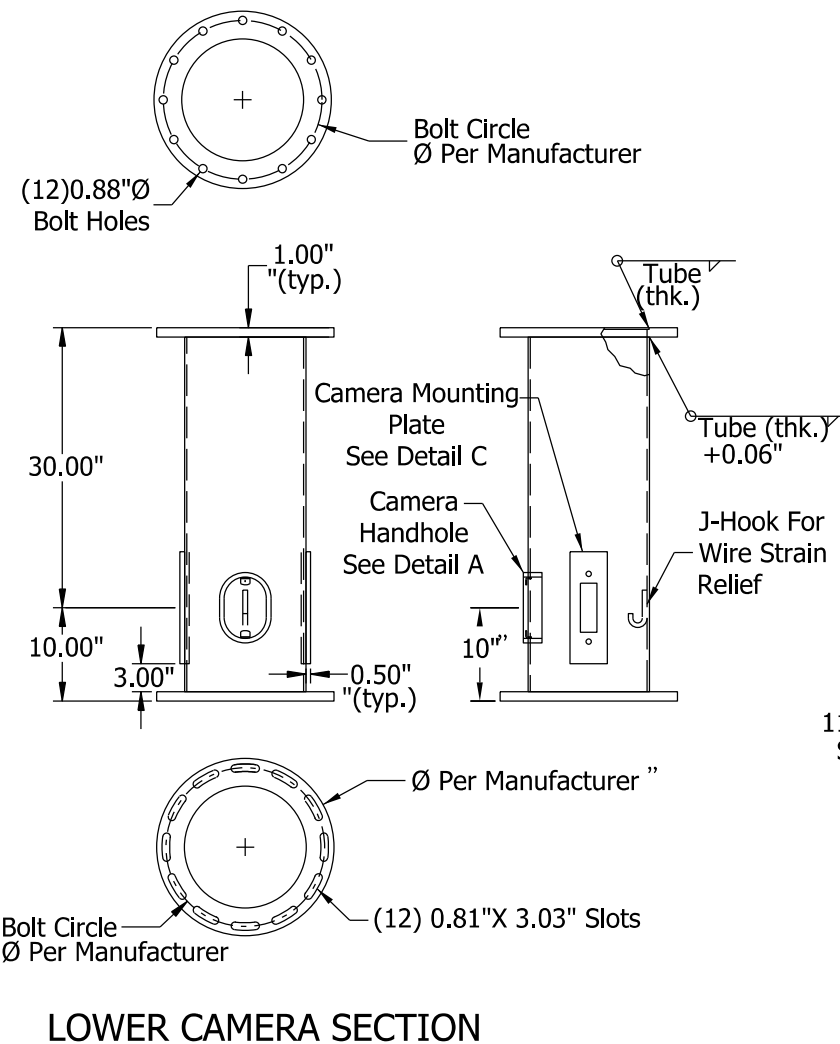
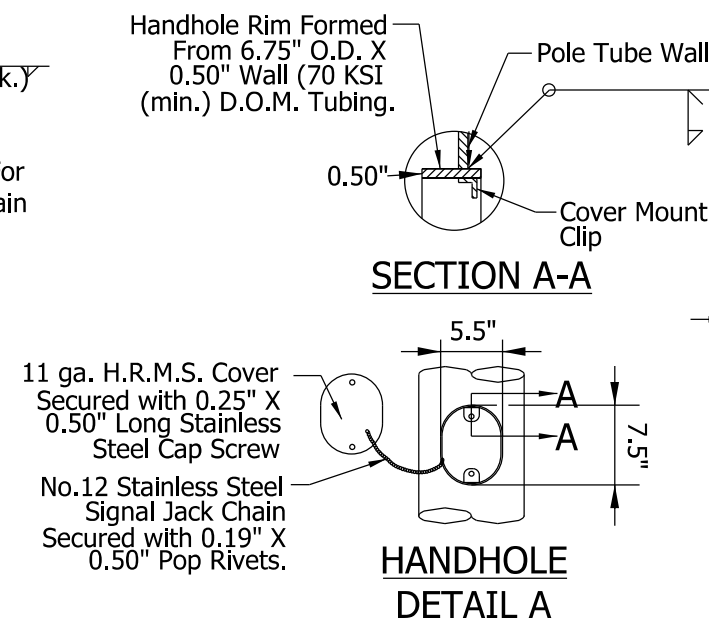
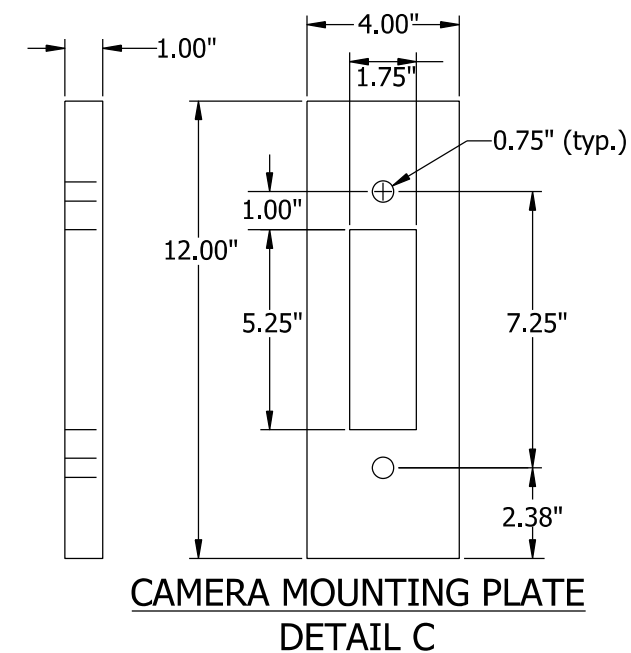
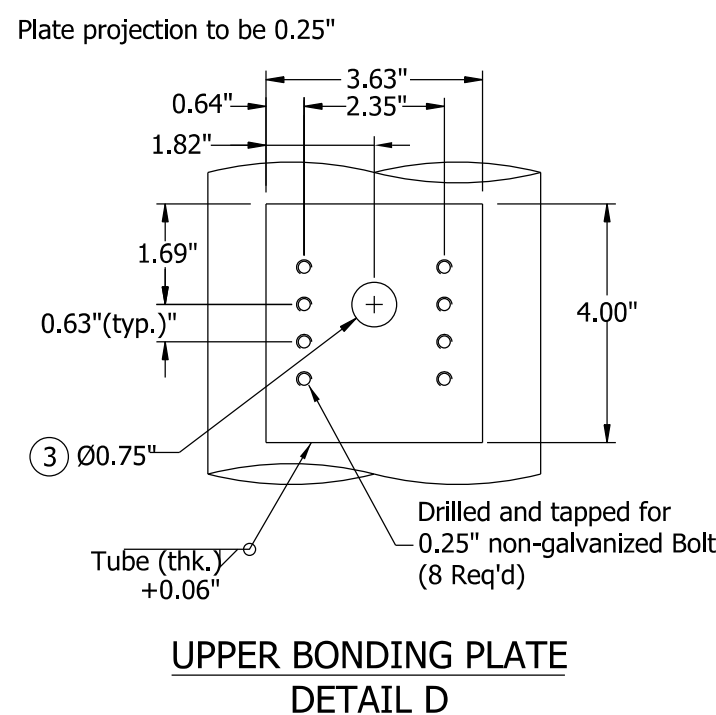
NOTES:

- 1. All feed lines shall be inside the pole.
- 2. All Sections shall be round HSS/pipe 42 KSI minimum yield (ASTM A500-B). Plate shall be 50 KSI minimum yield (ASTM A572-50).
- 3. Bolts shall be ASTM A325. All thread shall be ASTM F1554-105 nuts shall be ASTM A563 Grade "DH: or better. Washers shall be ASTM F436. Anchor rods shall be ASTM F1554-55 or greater.
- 4. All steel shall be hot dipped galvanized per ASTM A123.

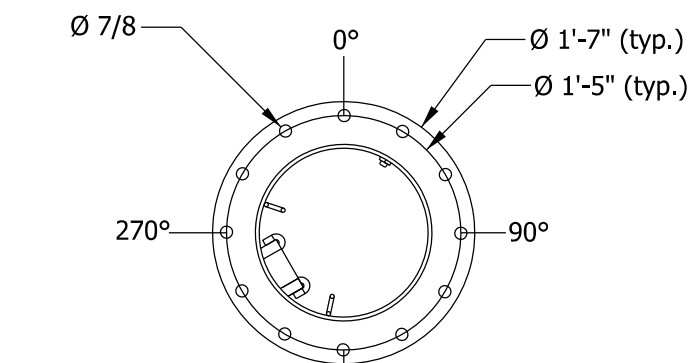
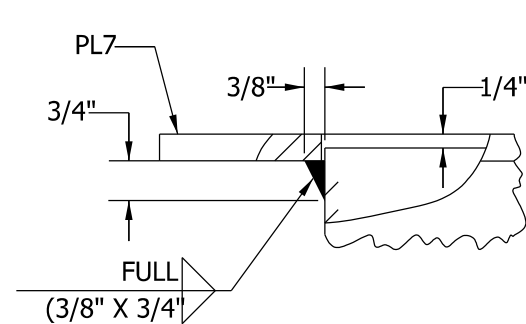
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INDIANA DEPARTMENT OF TRANSPORTATION

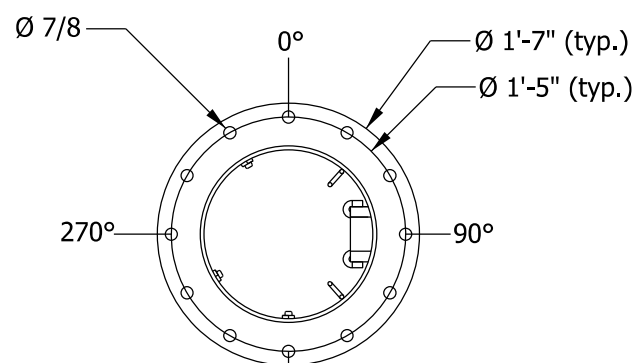
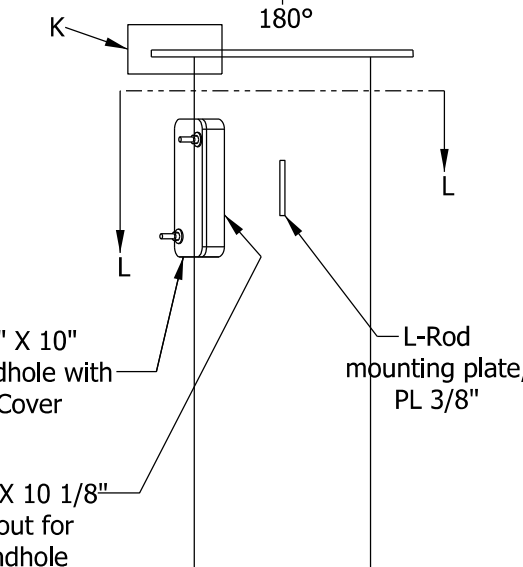
ITS CAMERA POLE
CONSTANT CROSS SECTION PIPE
OPTION



- NOTES:**
- Two camera mounting plate covers shall be provided with each structure".
 - Twelve 0.75" hex head bolts with 1 nut, 1 lock washer, and 2 flat washers per bolt shall be provided.
 - Grounding wire from lighting rod shall be attached to bonding plate at the connector.



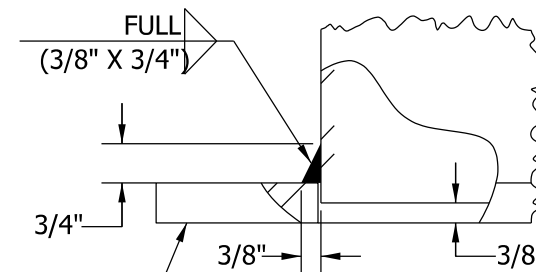
DETAIL H



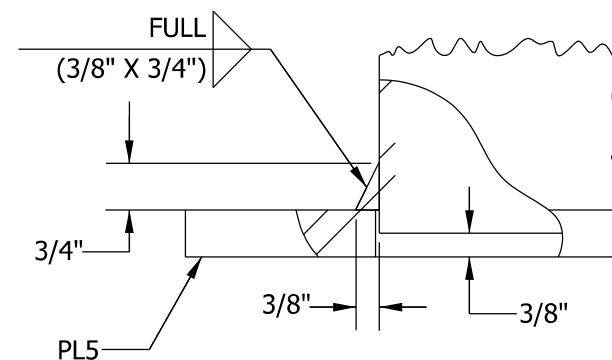
UPPER SECTION

NOTES:

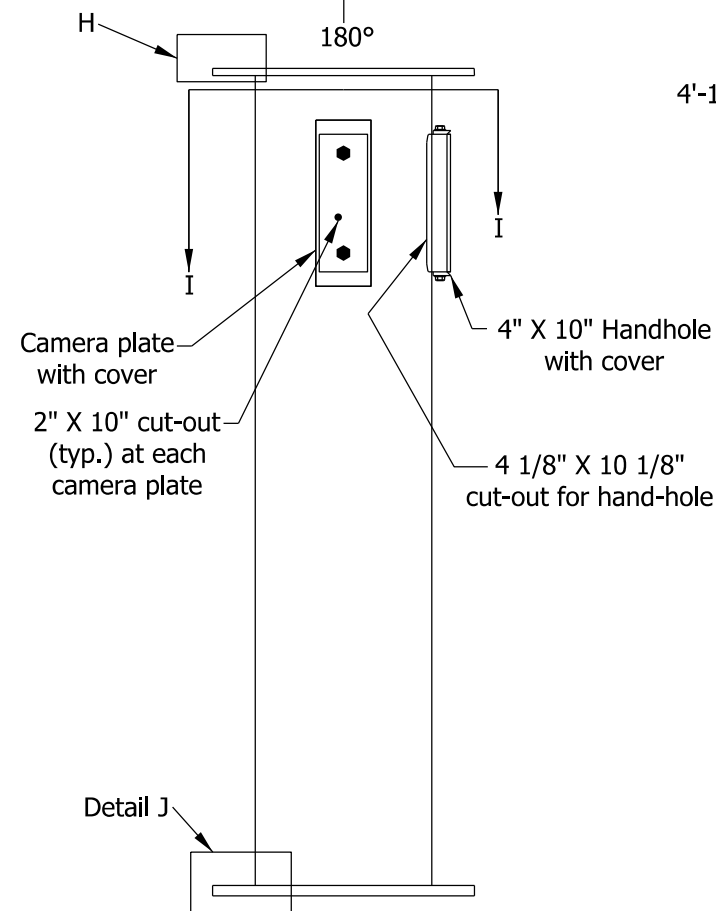
- ① Two camera mounting plate covers shall be provided with each structure".
- ② Twelve 0.75" hex head bolts with 1 nut, 1 lock washer, and 2 flat washers per bolt shall be provided.



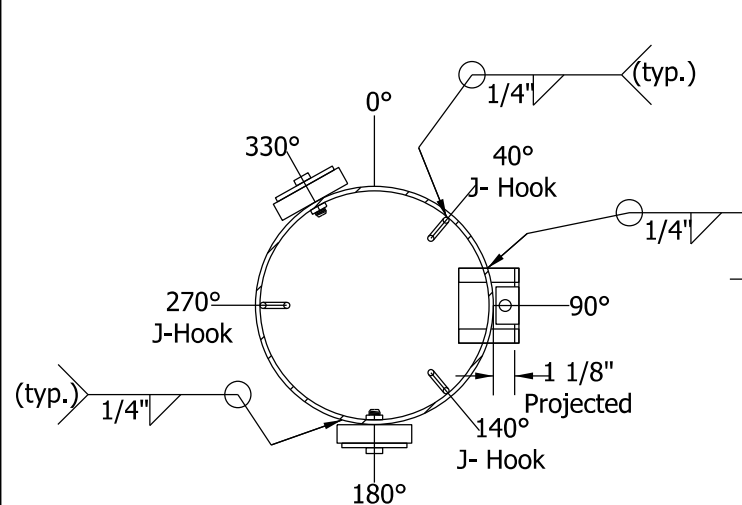
DETAIL J



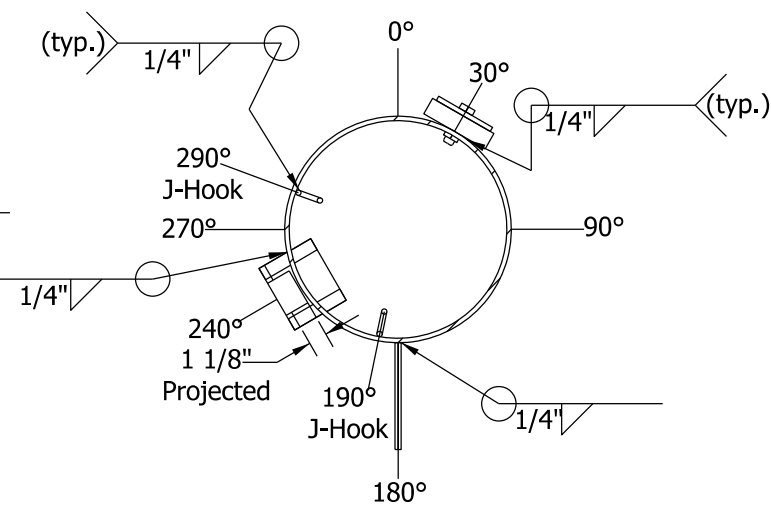
DETAIL M



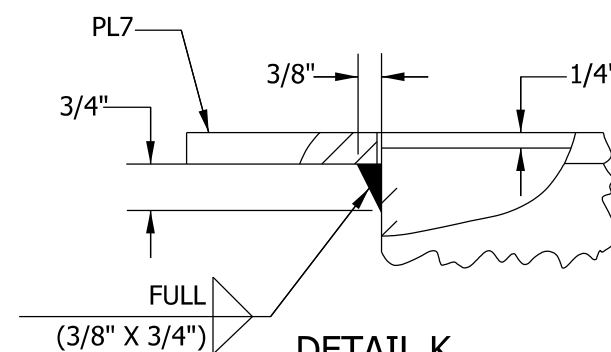
LOWER SECTION



SECTION I-I



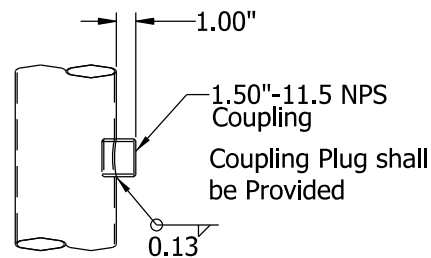
SECTION L-L



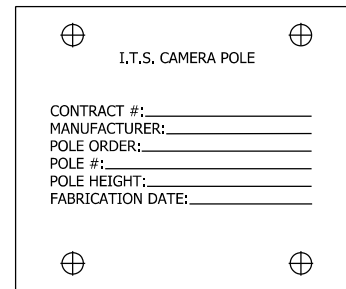
DETAIL K

INDIANA DEPARTMENT OF TRANSPORTATION

ITS CAMERA POLE
UPPER AND LOWER CAMERA DETAILS
CONSTANT CROSS SECTION OPTION

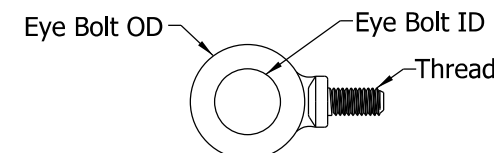


POLE COUPLING



I.D. TAG

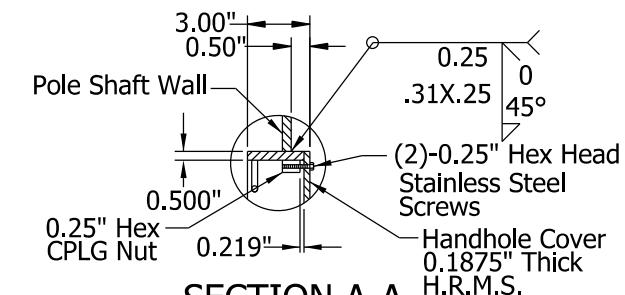
1.50" X 3.25" Aluminum or stainless steel Identification Tag Secured to Pole Shaft with (2) 0.125" Rivets at 6'-0" up from Base Stamped as Shown



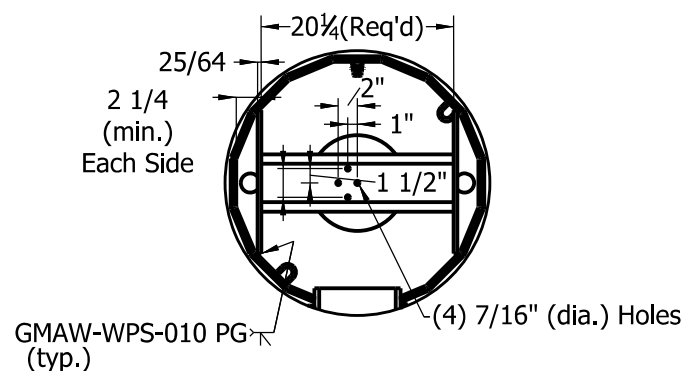
EYE BOLT

NOTE:

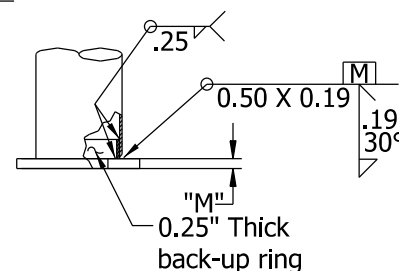
- Plates shall be on opposite sides of the pole interior.



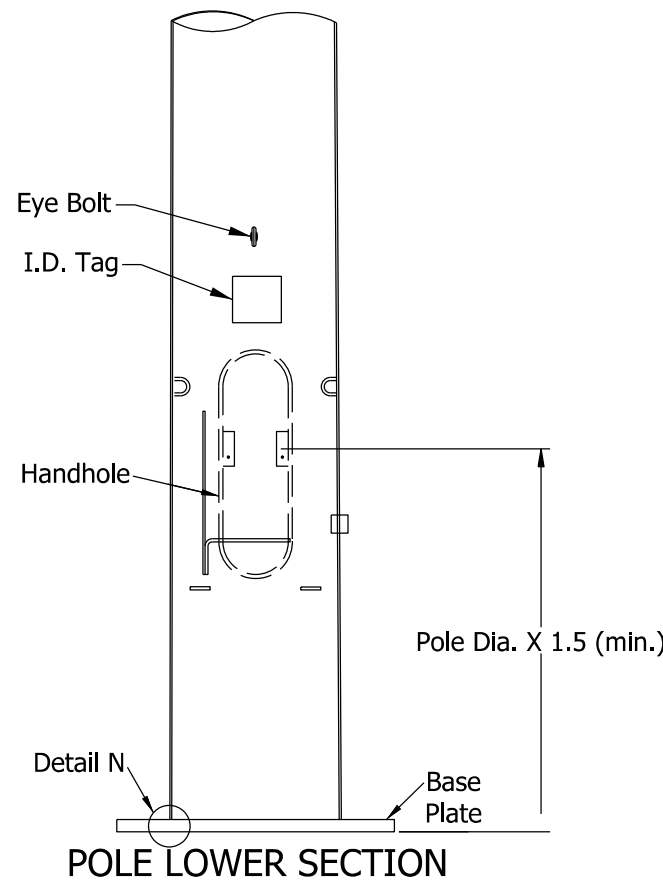
SECTION A-A



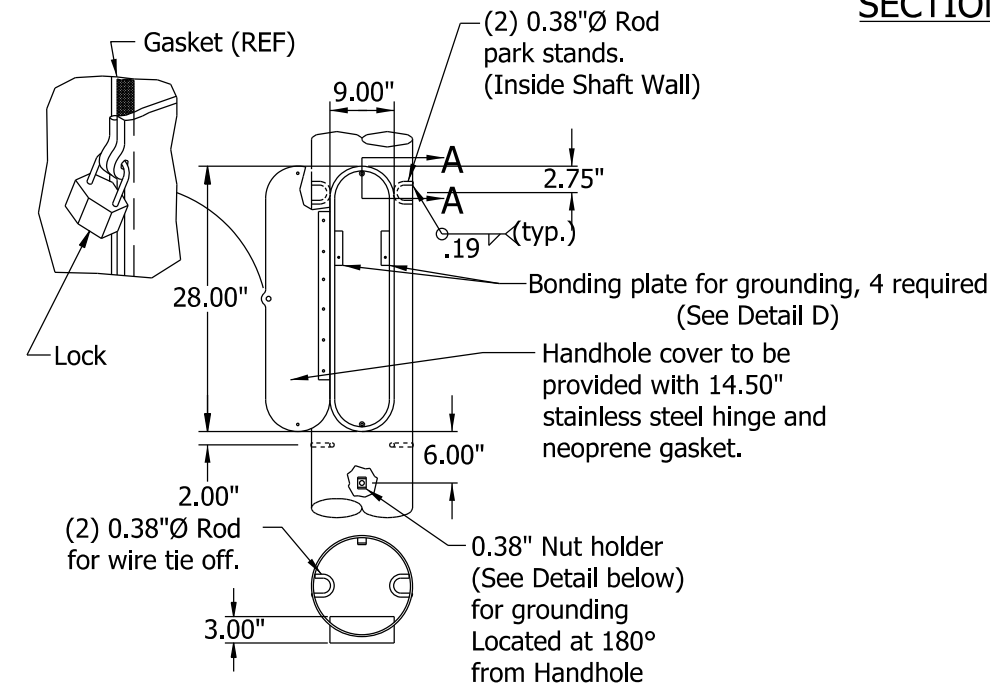
WINCH MOUNTING CHANNEL



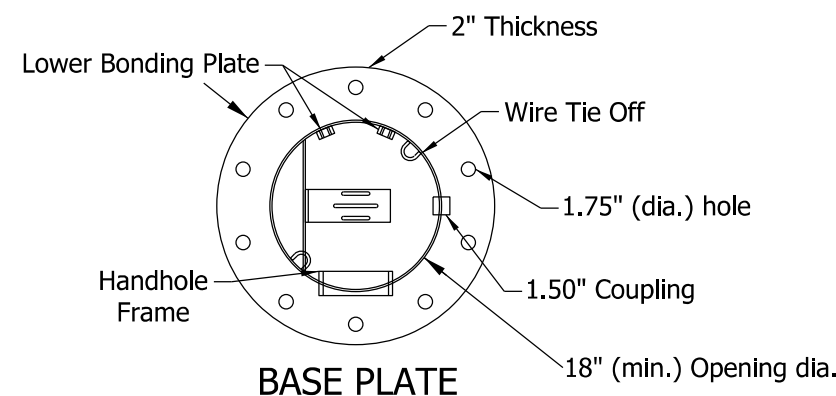
DETAIL N



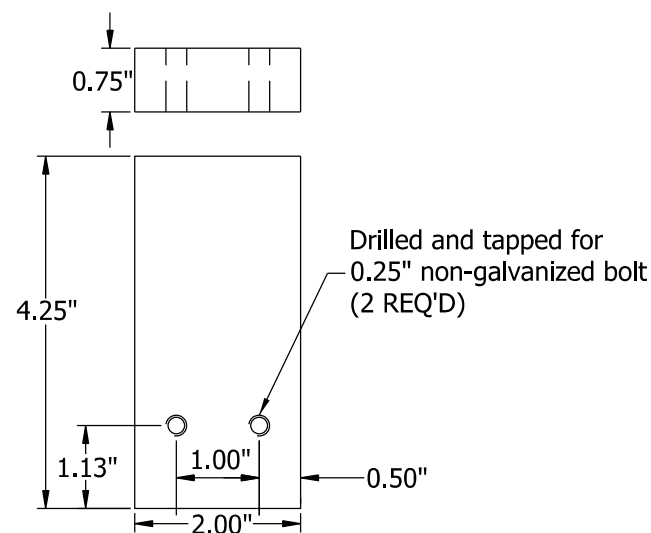
POLE LOWER SECTION



HANDHOLE



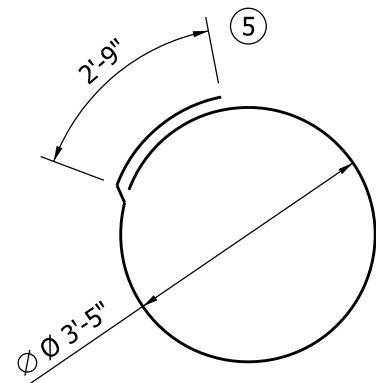
BASE PLATE



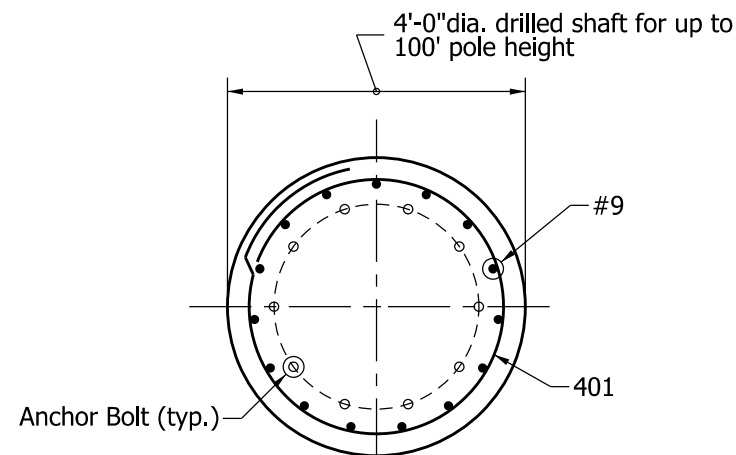
LOWER BONDING PLATE ①
DETAIL D

INDIANA DEPARTMENT OF TRANSPORTATION

ITS CAMERA POLE
LOWER SECTION AND BASE DETAILS

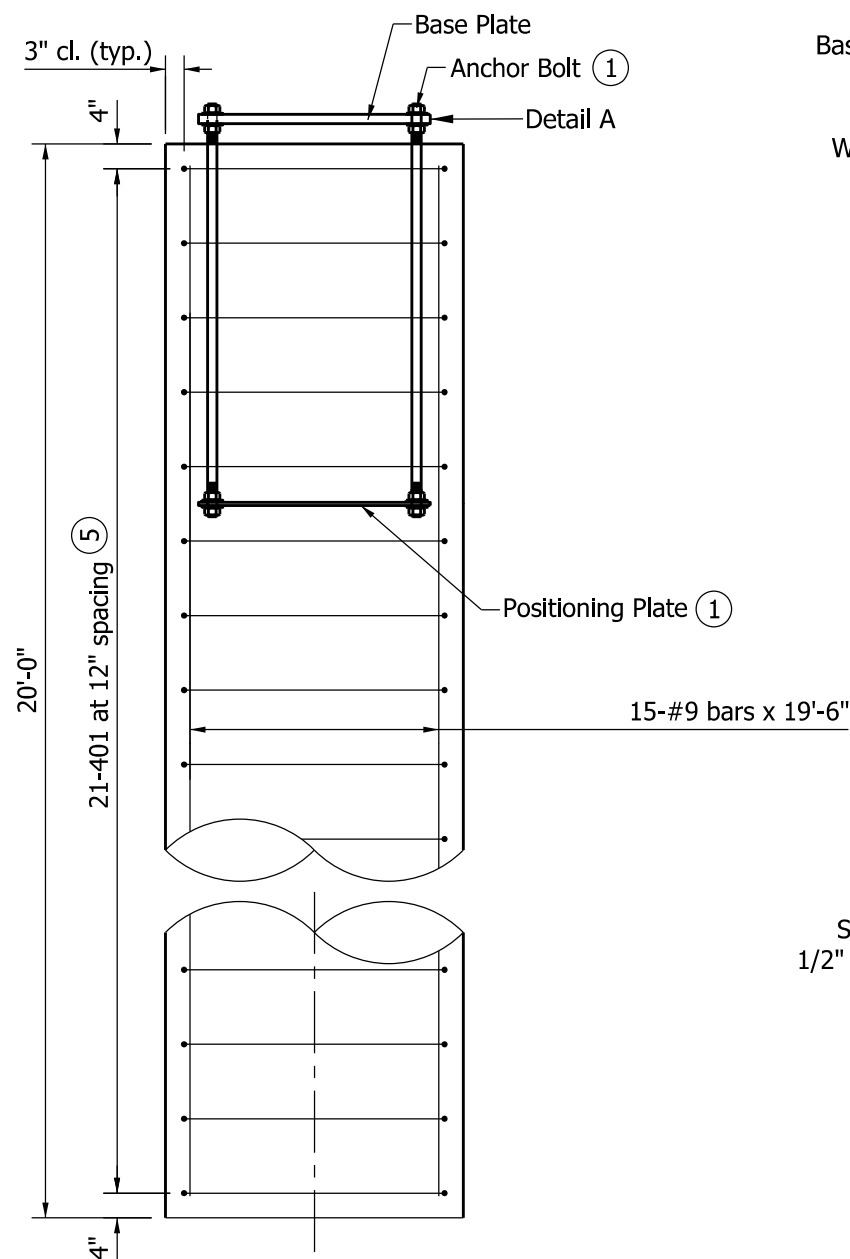


401 x 13'-8"

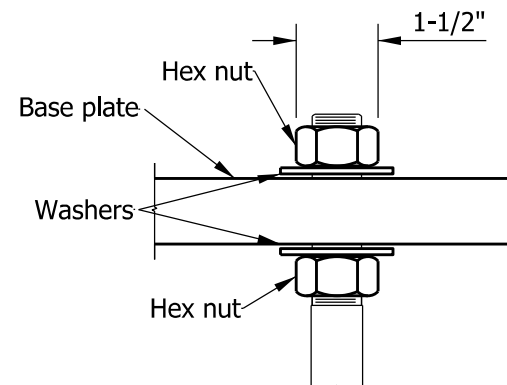


PLAN

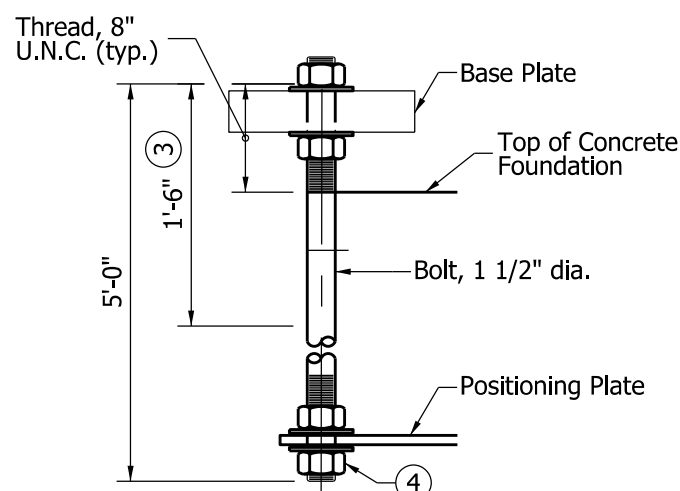
(Base plate of ITS pole not shown)



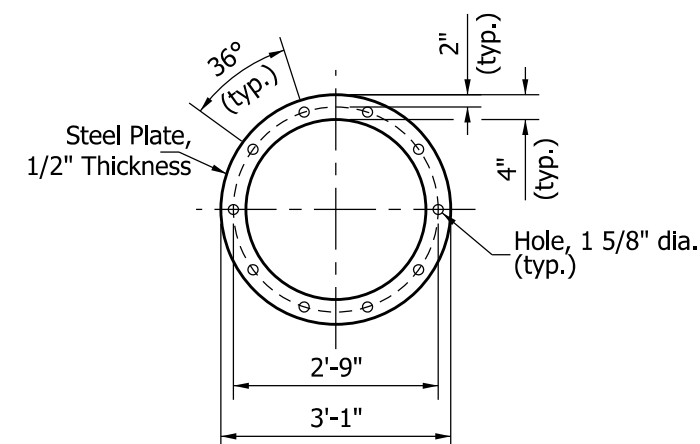
ELEVATION



DETAIL A



ANCHOR BOLT DETAIL



ANCHOR AND BASE POSITIONING PLATE

NOTES:

- ① Temporary positioning plate and leveling nuts or other engineer-approved methods shall be used to maintain anchor bolt alignment during concrete placement. Positioning plate and associated nuts shall be removed upon completion of the foundation.
- ② See Standard Drawing E807-LTLR-02 for details on lightning rod grounding.
- ③ Minimum length of galvanizing shall be 1'-6". Entire bolt may be galvanized at contractor's option.
- ④ Uncoated nut shall be provided at bottom of anchor plate. A deformed thread or chemical thread lock shall be used to secure.
- ⑤ Each tie shall be rotated 90° from the previous tie to stagger lap locations.
6. An arrow or arrows shall be imprinted onto the top of the foundation to indicate the direction of the cable-duct run.
7. Minimum concrete strength $f'_c = 3,500$ psi. Minimum yield strength of reinforcing steel $f_y = 60,000$ psi.
8. To allow future changes of pole height the foundation dimensions shall not be reduced from that specified here regardless of geotechnical investigation and structural analysis.

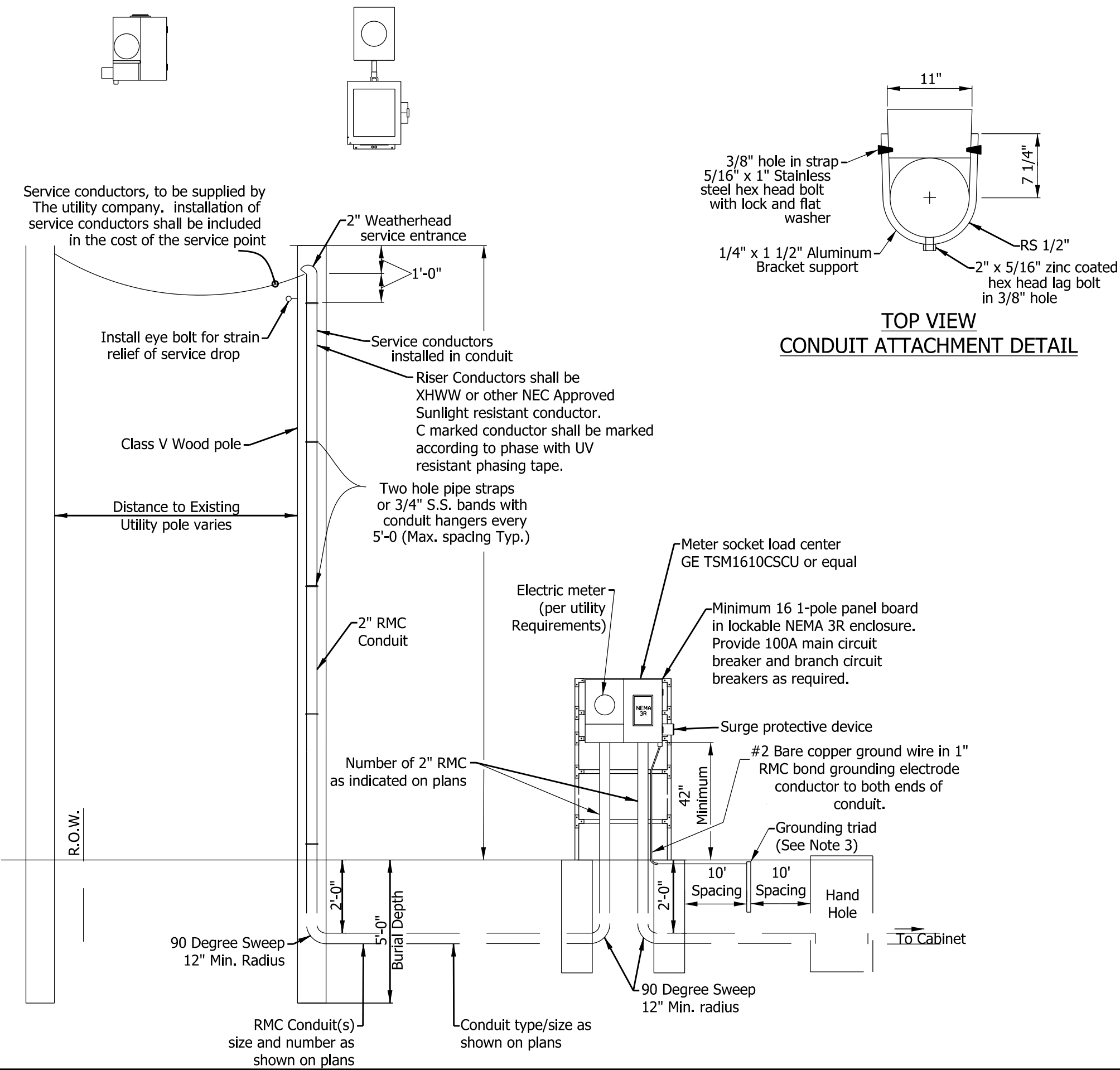
BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	15	19'-6"	
Total #9			995 LBS
401	21	13'-8"	
Total #4			192 LBS
Total Reinforcing Bars			1,187 LBS
CONCRETE, CLASS A			
Total Concrete, Class A			9.3 CYS

INDIANA DEPARTMENT OF TRANSPORTATION

ITS CAMERA POLE
FOUNDATION AND ANCHOR POINT

NOTES:

- 1. All service installations shall comply with nec and utility requirements.
- 2. Installation of service conductors shall be included in the cost of the service point pay item.
- 3. Triad ground shall consist of three 5/8" X 10' exothermically weld the ground rods to the #2 ground electrode conductor.

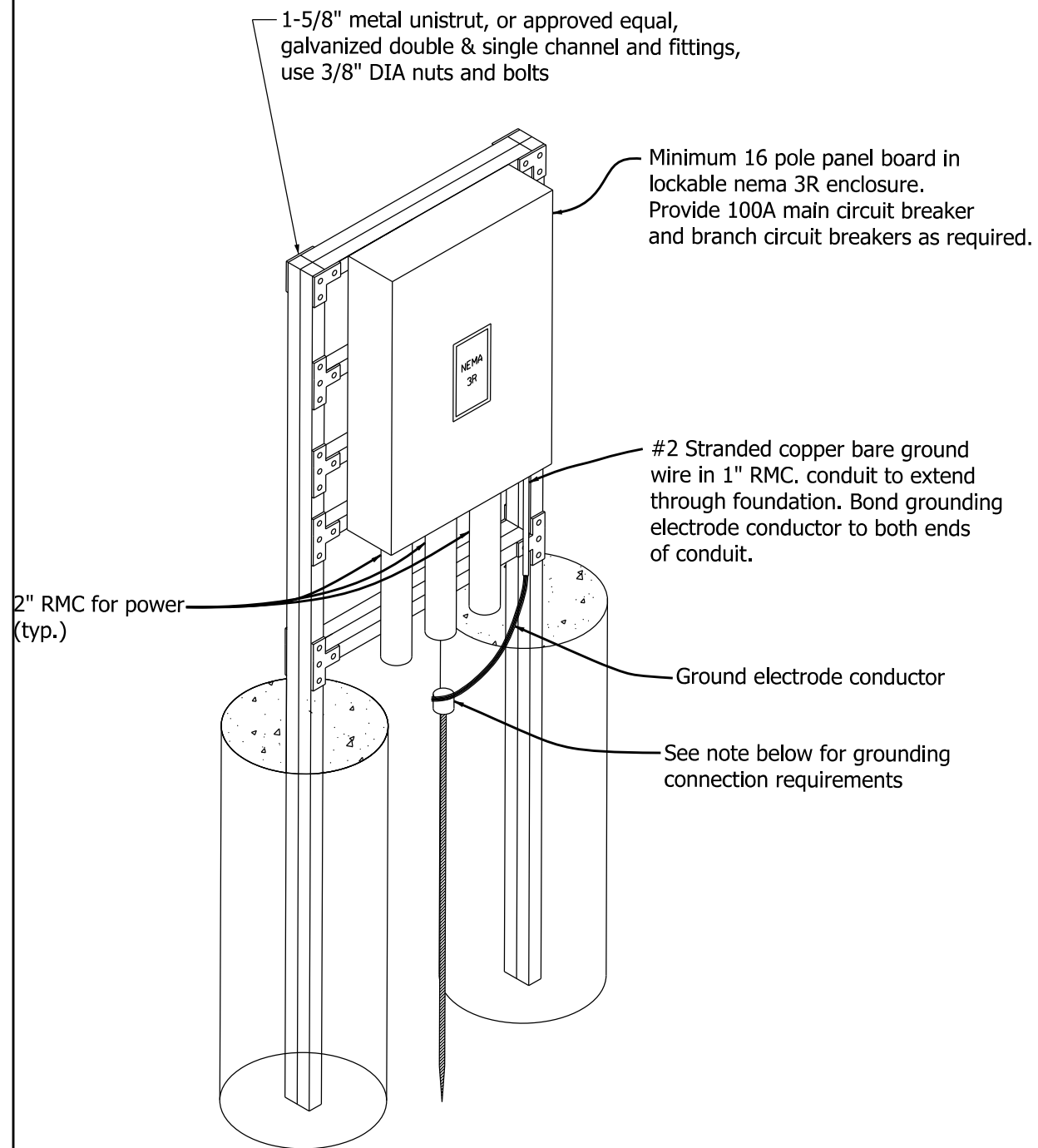


TOP VIEW
CONDUIT ATTACHMENT DETAIL

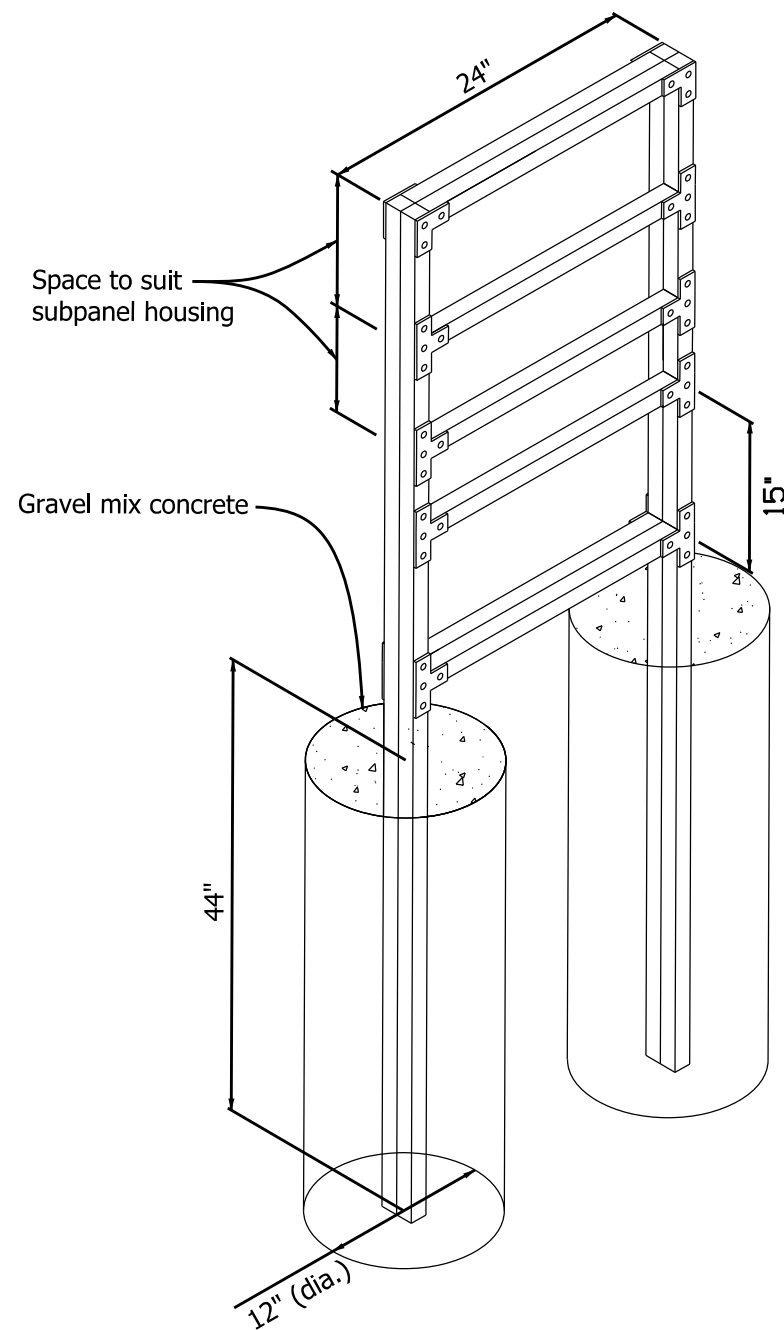
SIDE VIEW
CONDUIT ATTACHMENT DETAIL

INDIANA DEPARTMENT OF TRANSPORTATION

ITS CAMERA POLE
SERVICE POINT DETAILS



ELECTRIC SUBPANEL

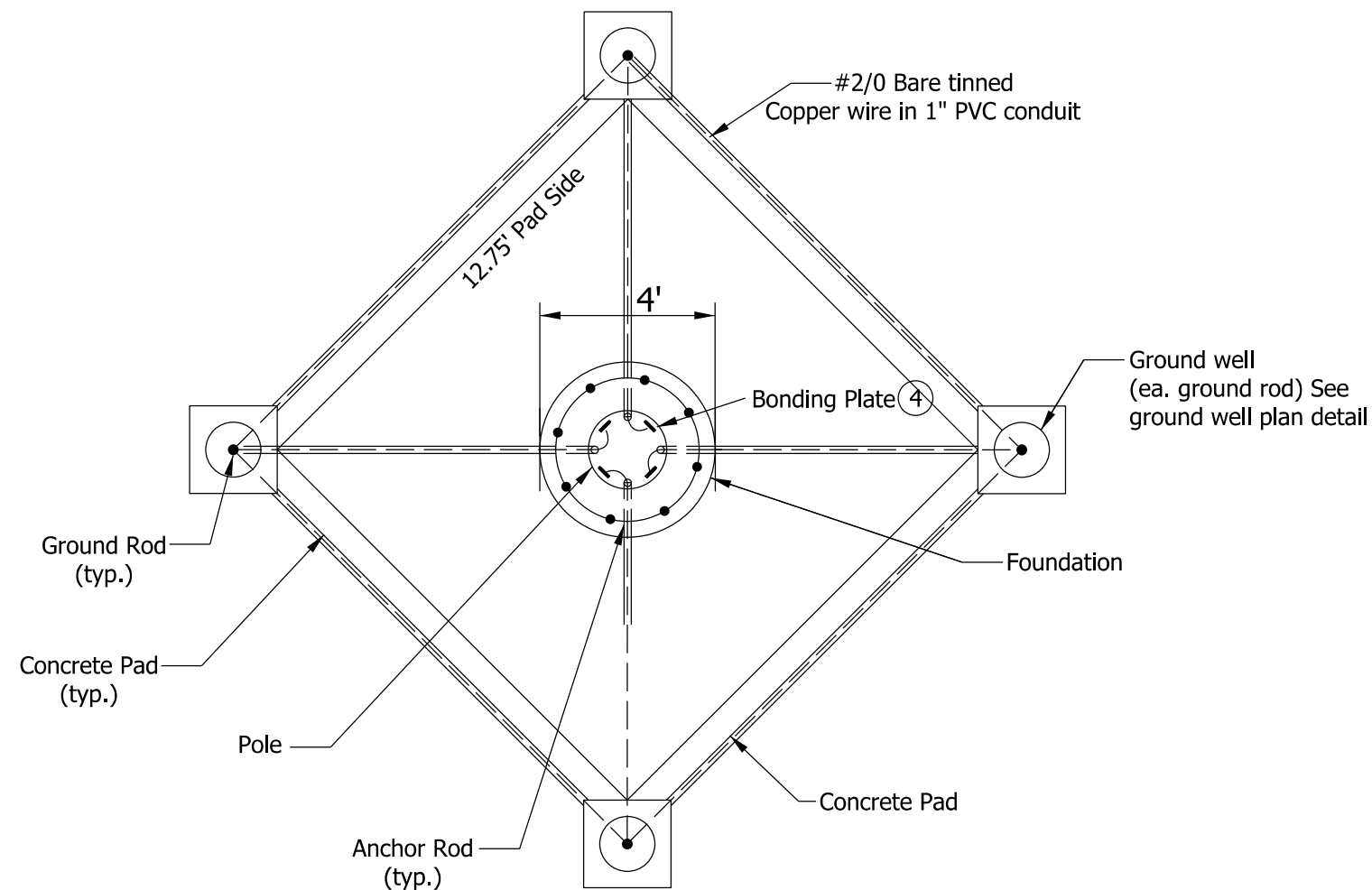


NOTES:

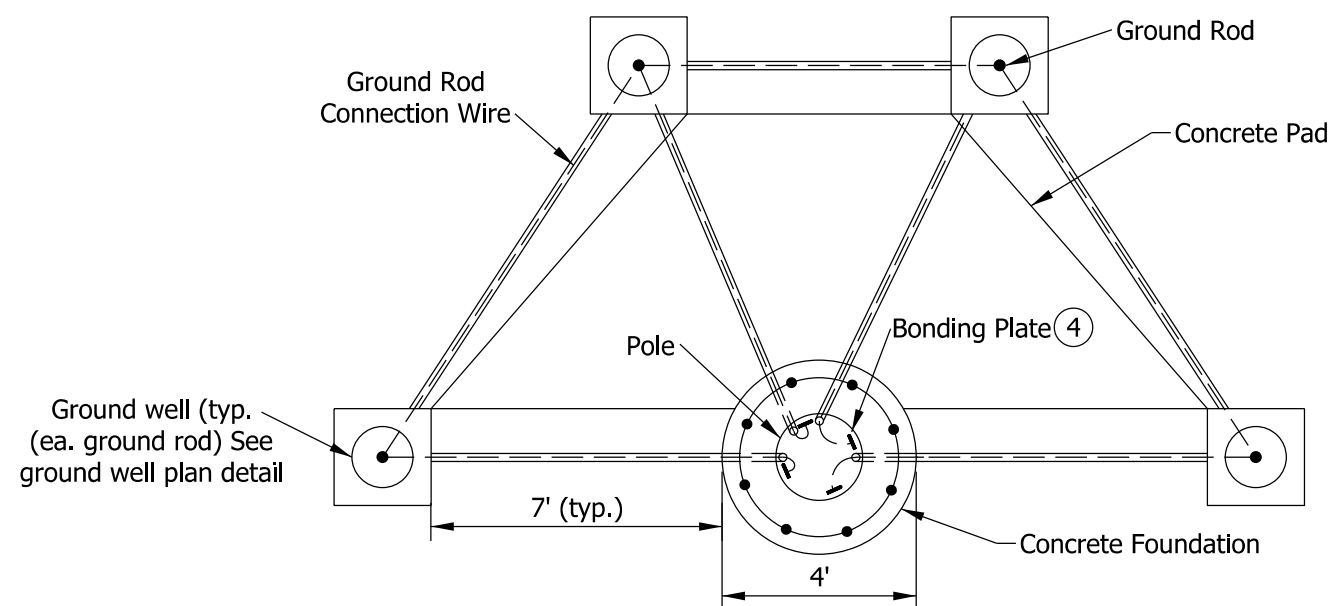
- All subpanel installations shall comply with nec and utility requirements.
- Installation of electric subpanel shall follow these grounding methods based on the proximity to the pole.
 - subpanel at the ITS Camera Pole
 - Located inside main grounding ring of the pole, or within 6 ft of the grounding #2 Bare tinned copper wire is connected to the ground terminal of the metallic enclosure and exothermically welded (bonded) to the main grounding ring.
 - Located more than 6 ft outside the main grounding ring: shall be grounded using a seperate ground rod & in turn, bonded to the main grounding ring with #2 bare tinned copper wire.
- The metal frame shall be bonded to panel board ground lug
- ④ The top slope of the concrete suface shall be away from the channel for drainage.

INDIANA DEPARTMENT OF TRANSPORTATION

ITS CAMERA POLE
SERVICE POINT AND SUB PANEL



GROUND ROD LAYOUT



GROUND ROD LAYOUT FOR STEEP SLOPES ①

NOTES:

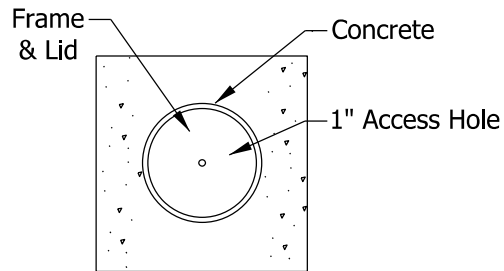
- ① The alternative layout shall be used and only used when one or more ground rods would be on a slope of 6:1 or steeper if located by the default layout.
2. The concrete compressive strength shall be $FC = 3,500$ PSI. The welded wire fabric grade shall be $FY = 65,000$ PSI.
3. Minimum 3,000 PSF soil bearing capacity is required below the service pad.
- ④ See Standard Specification Section 920.01 (b)9 for bonding plate requirements. The bonding plate shall be electrically tied with tin copper wire.

INDIANA DEPARTMENT OF TRANSPORTATION

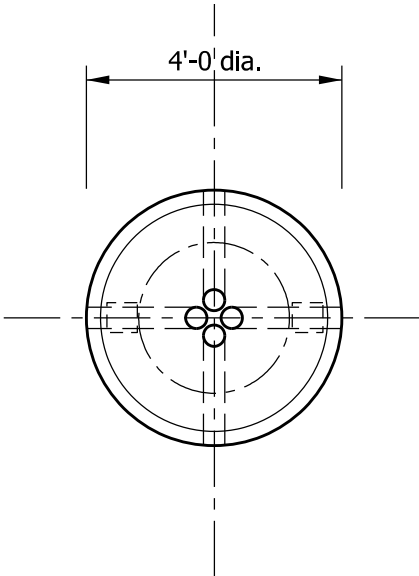
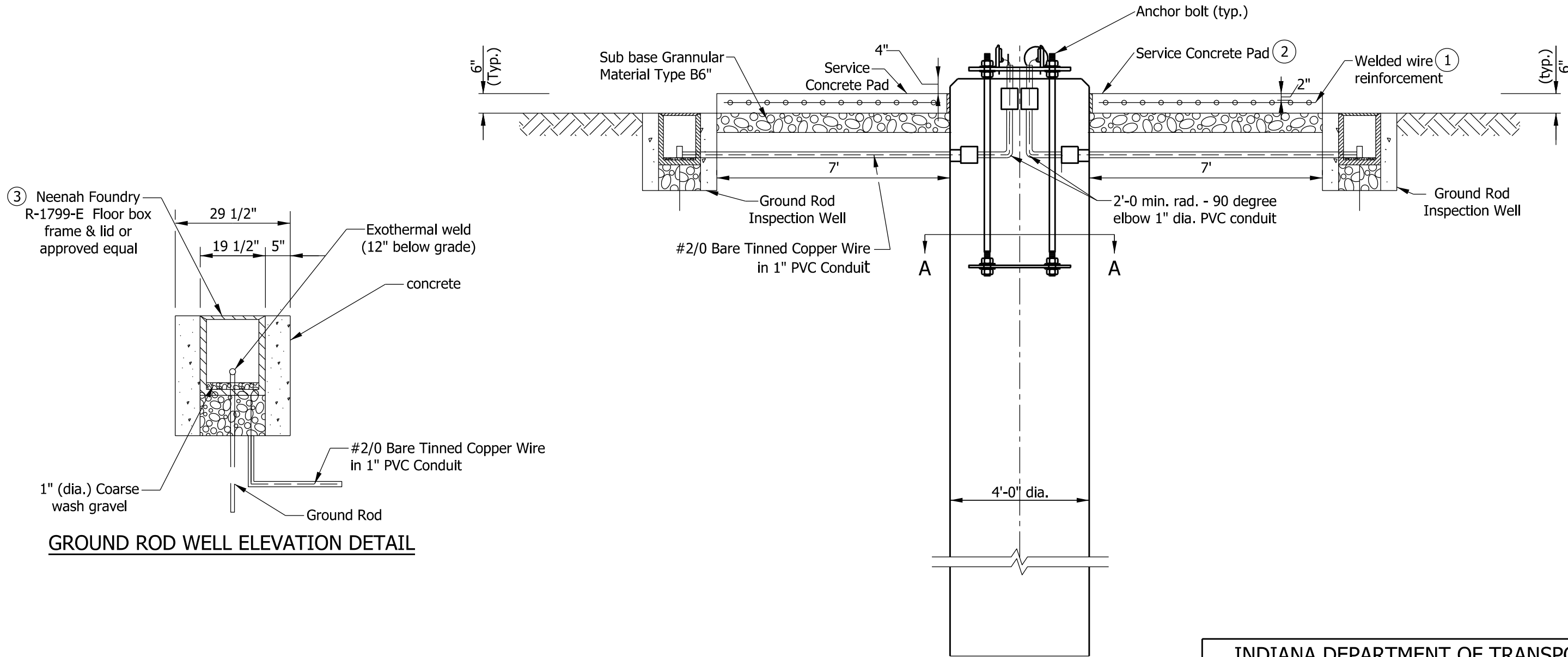
ITS CAMERA POLE
GROUND ROD PLAN DETAILS

NOTES:

- ① Welded wire reinforcement shall have a minimum area of 0.31" in each direction.
- ② Concrete comprehensive strength shall be $f_c = 3500$ PSI.
- ③ The frame and lid shall be provided with a neoprene gasket, the lid shall have concealed water tight pickholes.



GROUND ROD WELL PLAN DETAIL



GROUND ROD WELL ELEVATION DETAIL

INDIANA DEPARTMENT OF TRANSPORTATION

ITS CAMERA POLE
GROUND ROD WELL DETAILS