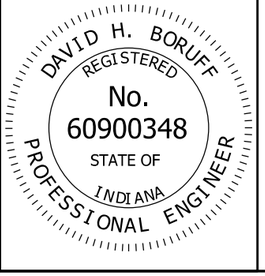
INDEX

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
INDEX

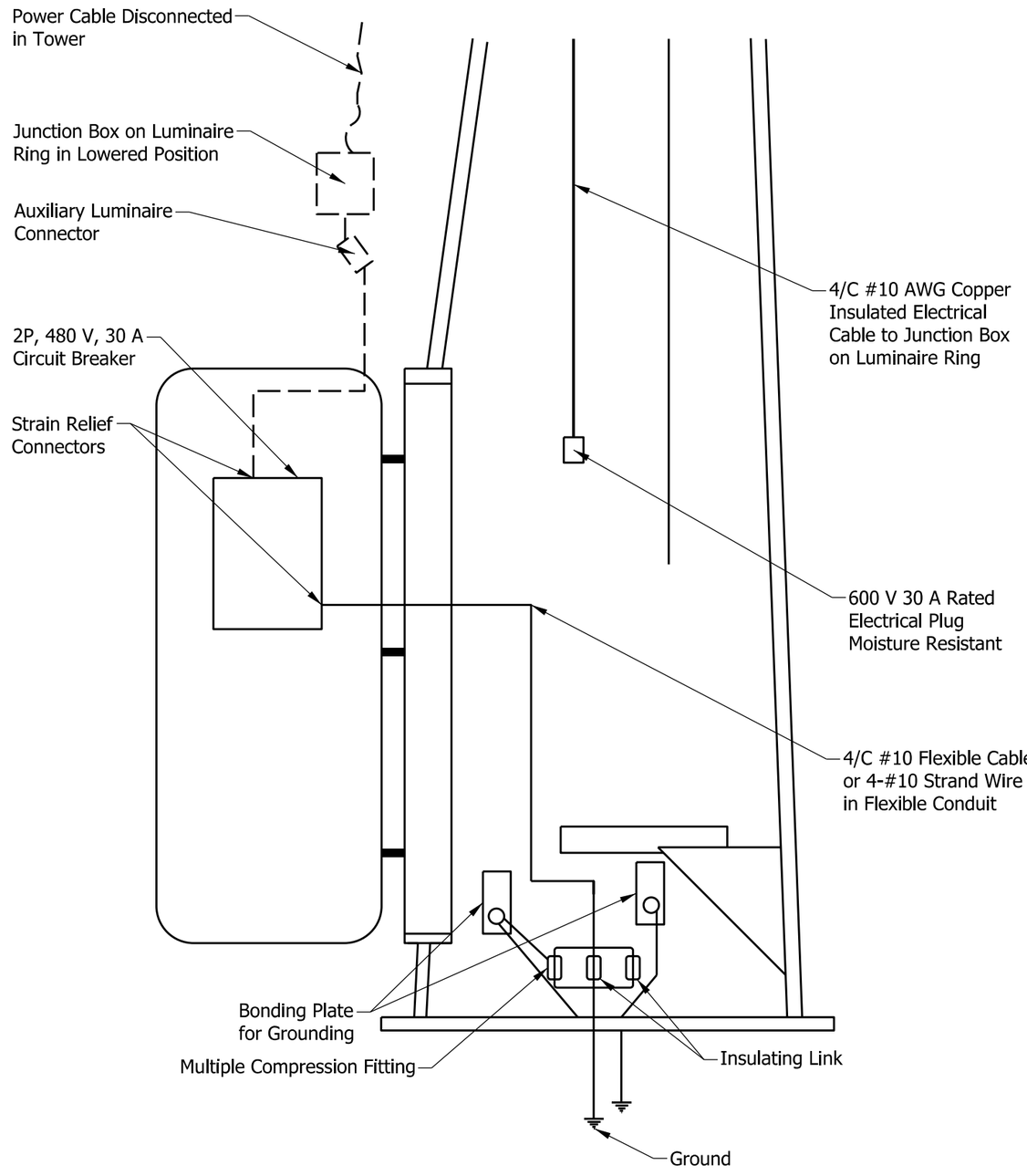
SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-01



/s/ David H. Boruff *03/20/17*
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie *03/20/17*
CHIEF ENGINEER DATE



DETAIL

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
CIRCUIT BREAKER AND
GROUNDING

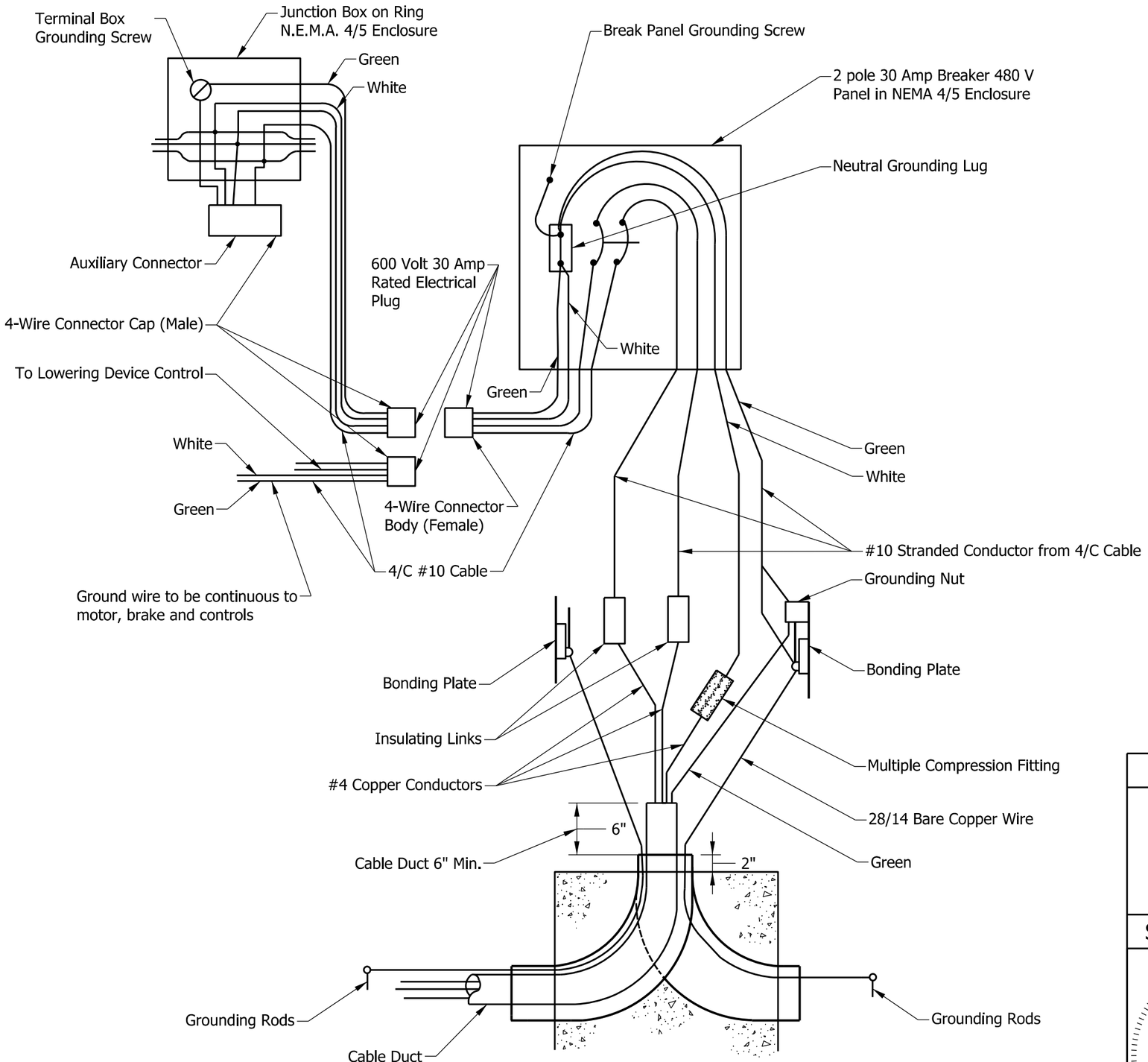
SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-02

DAVID H. BORUFF
REGISTERED
No. 60900348
STATE OF INDIANA
PROFESSIONAL ENGINEER

/s/ David H. Boruff 03/20/17
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie 03/20/17
CHIEF ENGINEER DATE



WIRING DIAGRAM

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
WIRING DETAILS

SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-03

DAVID H. BORUFF
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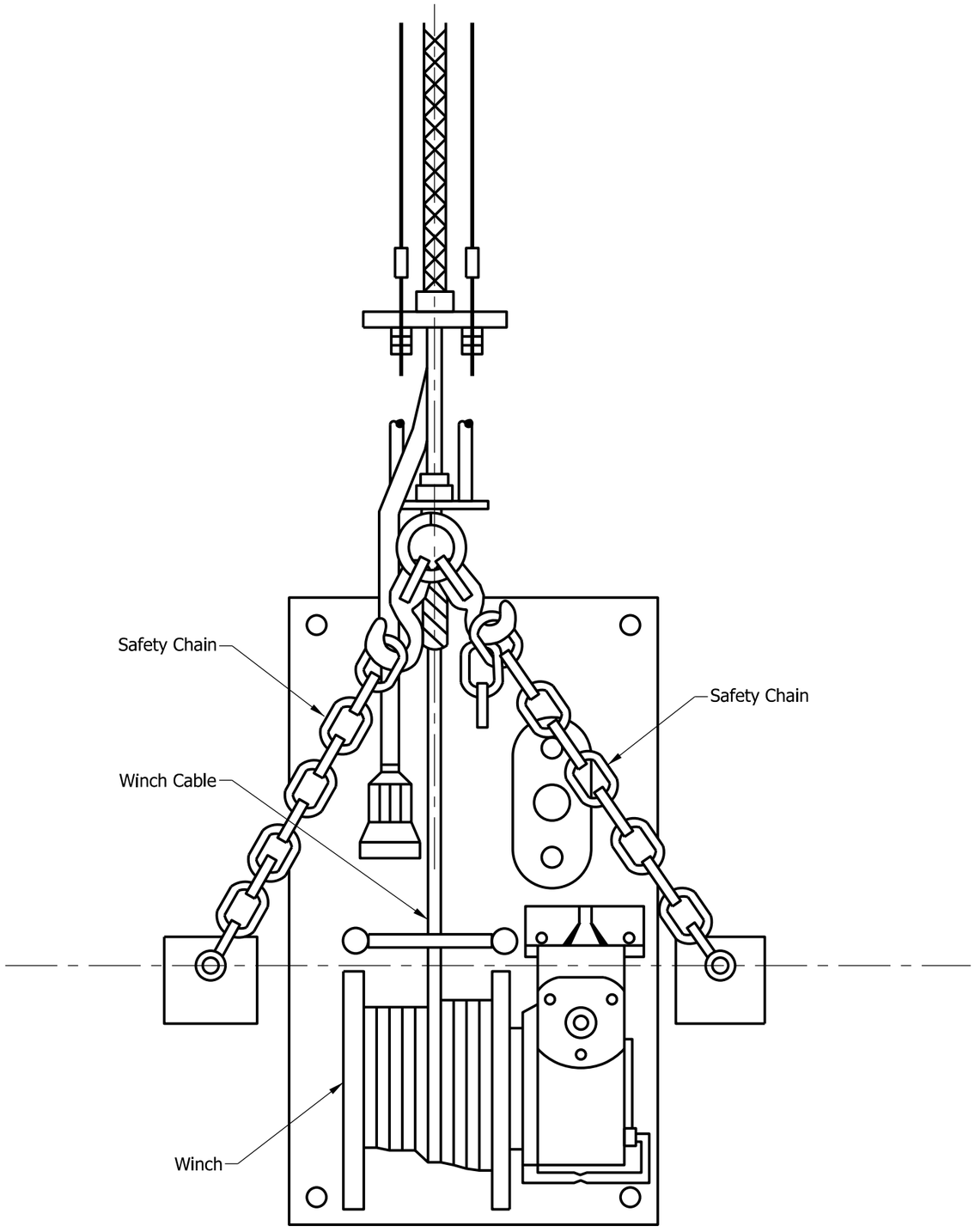
/s/ David H. Boruff 03/20/17
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie 03/20/17
CHIEF ENGINEER DATE



BOTTOM LATCH

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER BOTTOM LATCH AND WINCH DETAILS

SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-04

DAVID H. BORUFF
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No. 60900348
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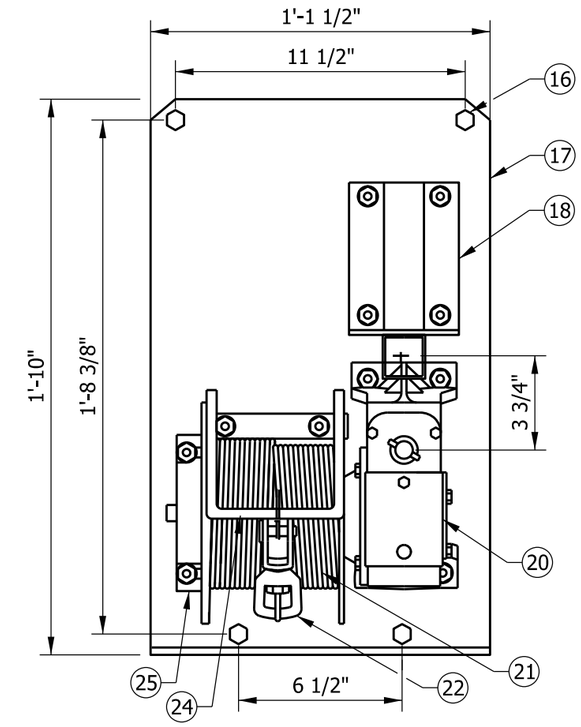
/s/ David H. Boruff *03/20/17*
DESIGN STANDARDS ENGINEER DATE

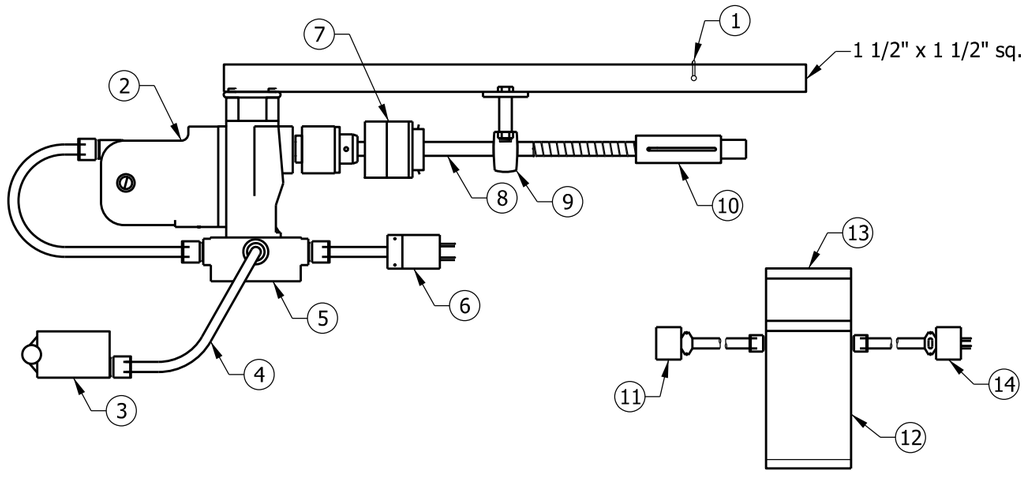
/s/ John Leckie *03/20/17*
CHIEF ENGINEER DATE

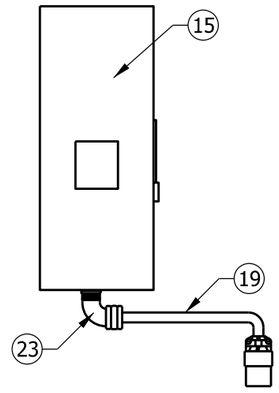
ITEM DESRIPTIONS

1. Hitch Pin
2. 3/4" Dia. Reversible Electric Motor 120 V, 11.5 A, 350 RPM
3. Reversing Drum Switch
4. Control Cord 20 ft, Length
5. Wiring Housing
6. Plug to Mate to Connector in Pole Base or Transformer Secondary
7. Torque Limiter Coupling
8. 3/4" Dia. Steel Shaft
9. Ballbearing Pillowblock
10. 5/8" Hex Socket Crank Shaft Coupling
11. Connector to Motor from 120 V Transformer Secondary
12. Stepdown Transformer 120 V Secondary, 1.5 kVA for 240 V, 277 V, & 480 V; 2.0 kVA for 208 V
13. 1/2" Carry Handle
14. Plug to Connector in Pole Base from Transformer Primary
15. NEMA 4-Circuit-Breaker Enclosure Field Mounted to Pole Handhole Door
16. 1/2" Dia. Mounting Bolt, 4 Req'd.
17. 0.25 in. Thick Steel Winch Plate Zinc Electroplate Finish
18. Power Unit Mounting Bracket, 0.25 in. Thick Steel Zinc Electroplate Finish
19. 5 ft Power Supply Cord and Connector
20. Winch 30:1 Gear Ratio Internal Drag Brake
21. 5/16" Dia. 7 x 19 Stainless Steel Wire Rope. Length is Pole Height + 6 ft
22. Forged Steel Swivel, 11,000 psi Ultimate Strength
23. Cord Grip
24. Winch Cable Guard
25. Winch Outboard Support



WINCH PLATE ASSEMBLY

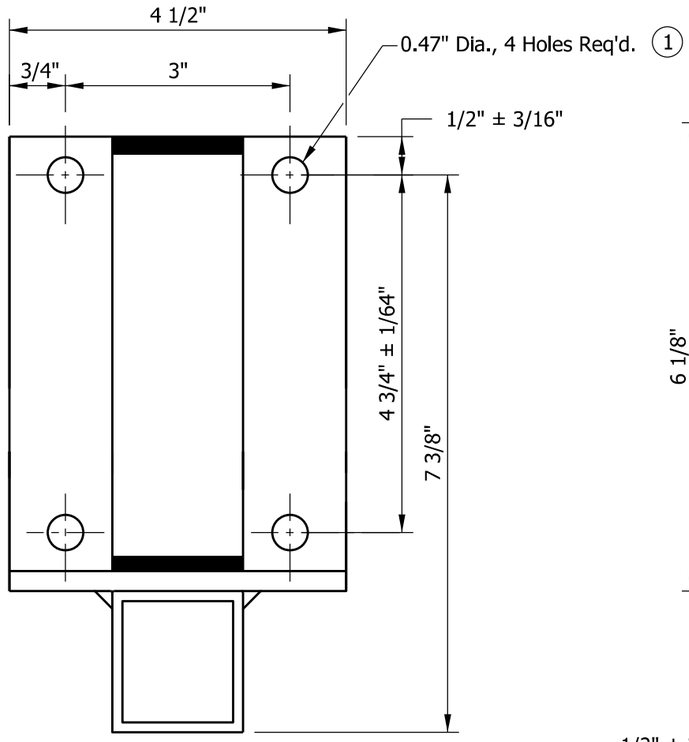




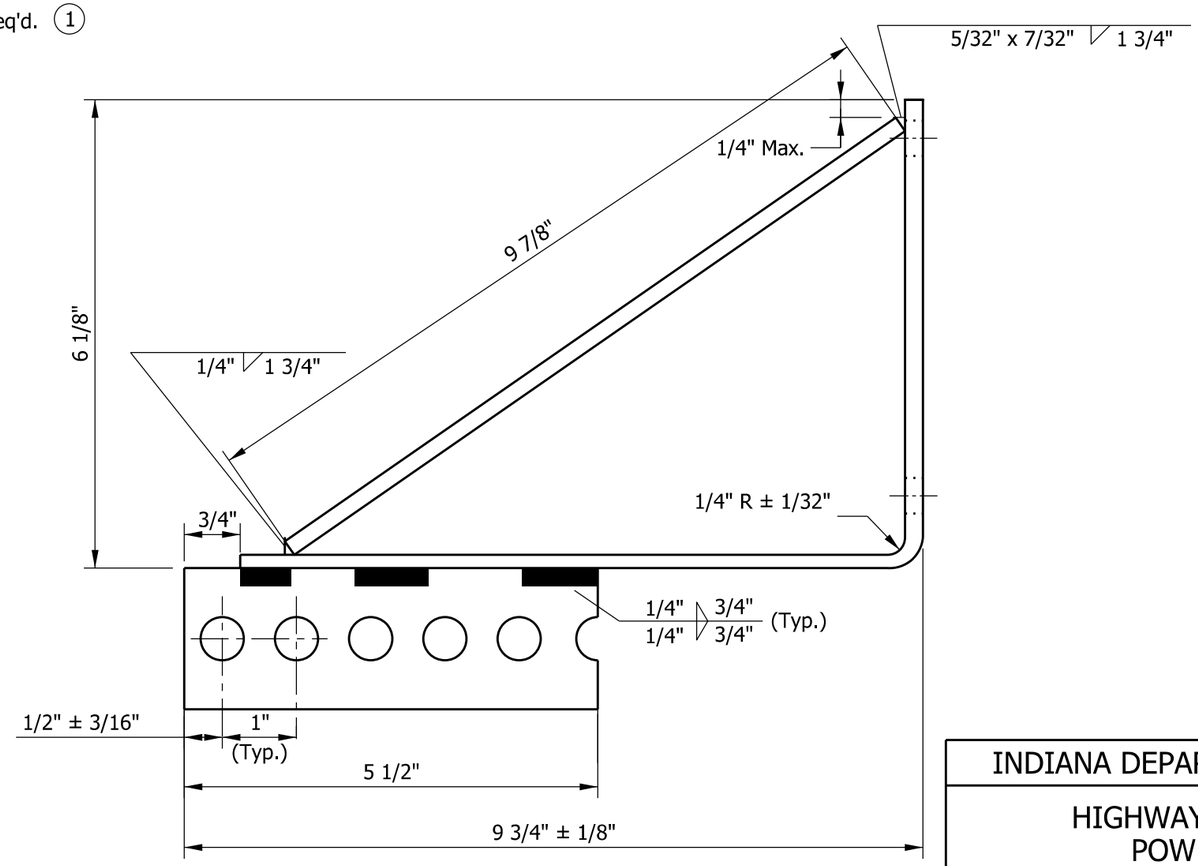
INDIANA DEPARTMENT OF TRANSPORTATION	
HIGHWAY ILLUMINATION TOWER WINCH DRIVE DETAILS SEPTEMBER 2017	
STANDARD DRAWING NO. E 807-LTHI-05	
DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER	*/s/ David H. Boruff* 03/20/17 DESIGN STANDARDS ENGINEER DATE */s/ John Leckie* 03/20/17 CHIEF ENGINEER DATE

NOTES:

1. Tolerances: 0 1/32", Angles ± 1/2" Unless Noted



FRONT VIEW



SIDE VIEW

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
POWER UNIT MOUNTING
BRACKET DETAILS

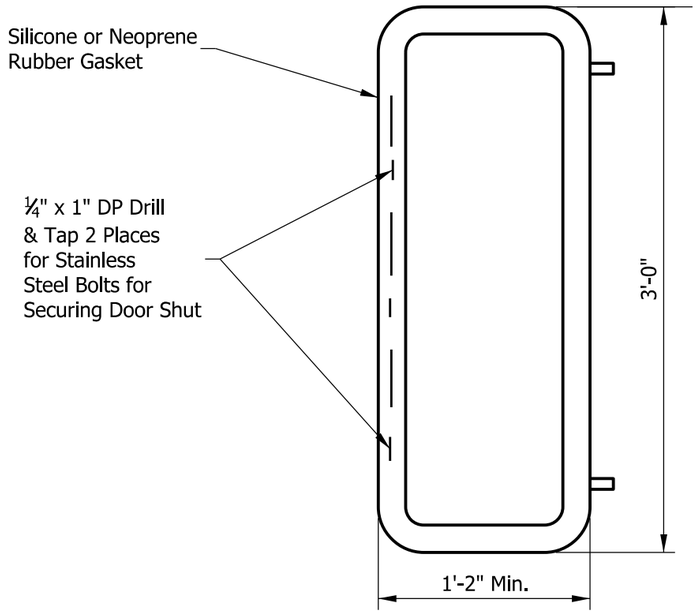
SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-06

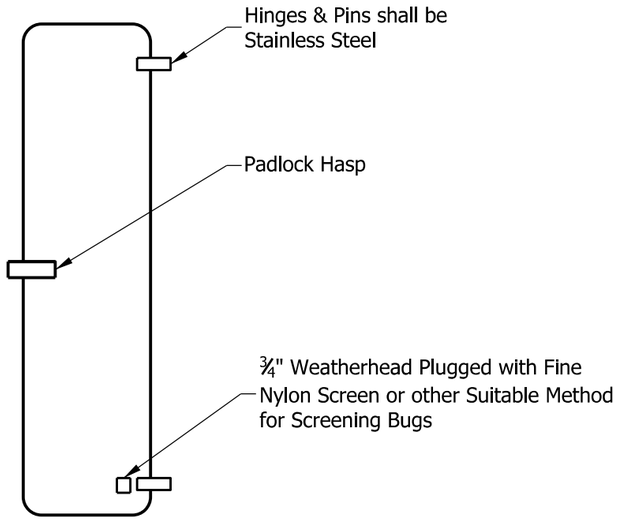
DAVID H. BORUFF
REGISTERED
No. 60900348
STATE OF INDIANA
PROFESSIONAL ENGINEER

/s/ David H. Boruff 03/20/17
DESIGN STANDARDS ENGINEER DATE

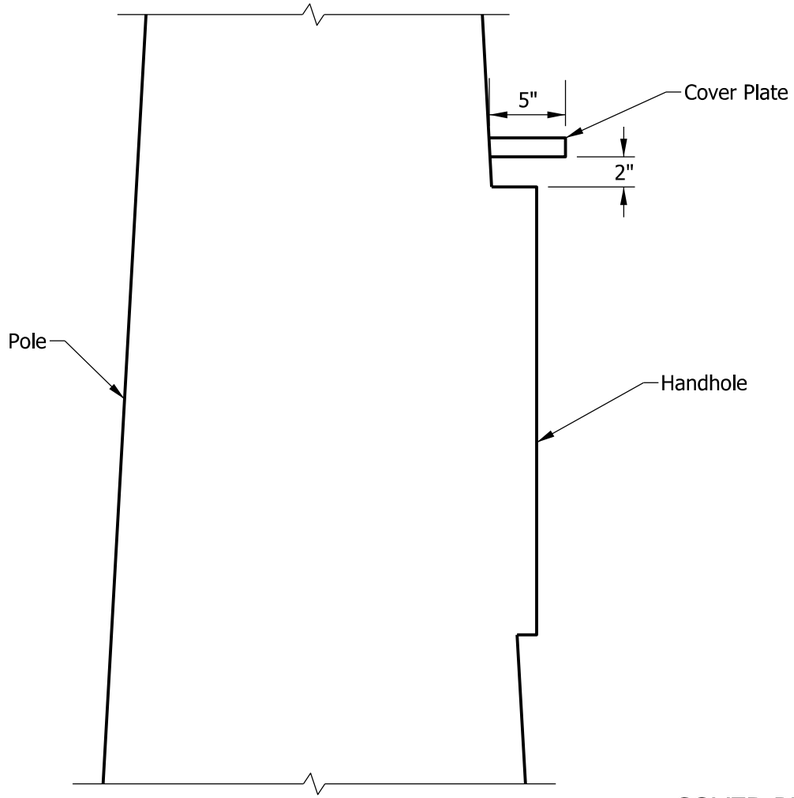
/s/ John Leckie 03/20/17
CHIEF ENGINEER DATE

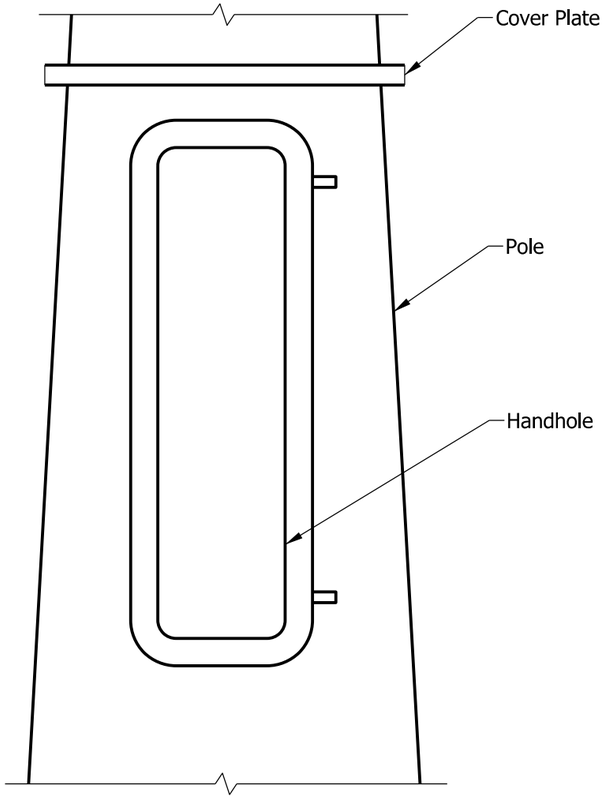


HANDHOLE FRAME DETAIL



HANDHOLE COVER DETAIL





COVER PLATE

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
HANDHOLE DETAILS

SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-07

DAVID H. BORUFF
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No.
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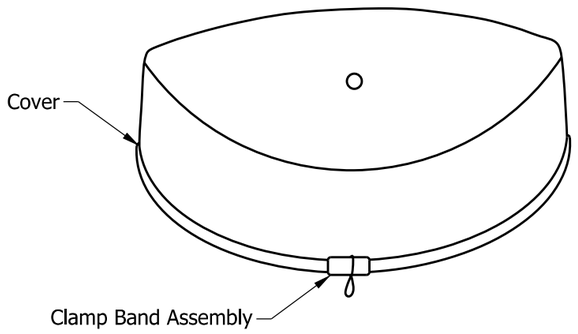
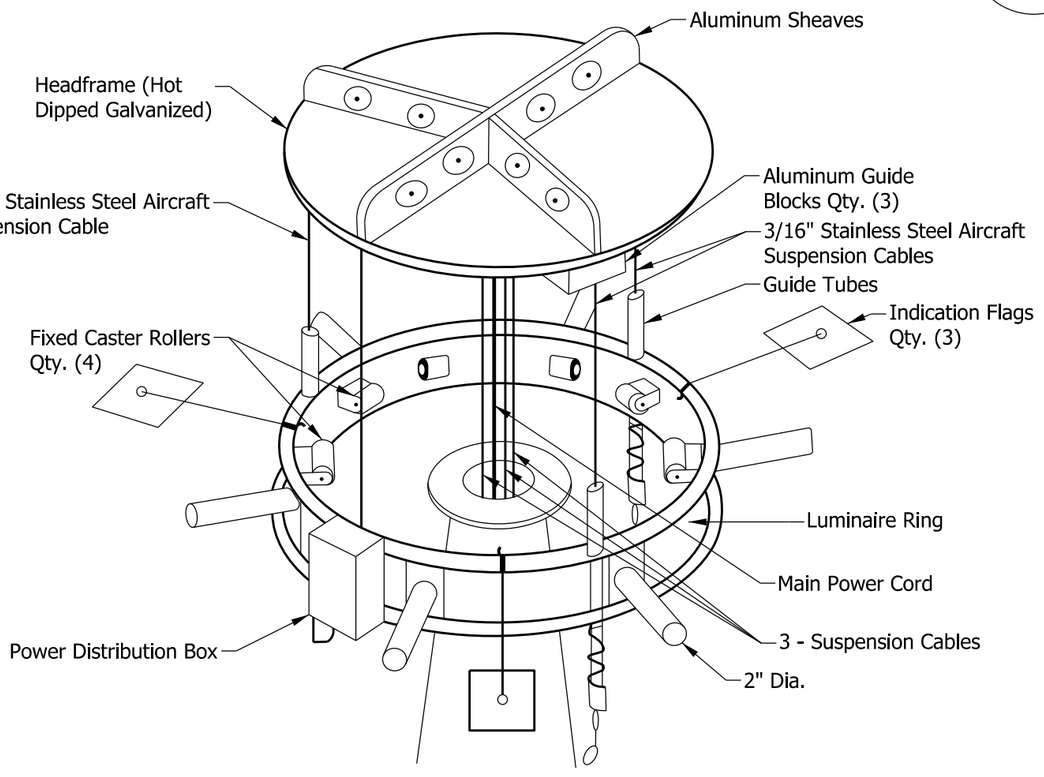
STATE OF
INDIANA
PROFESSIONAL ENGINEER

/s/ David H. Boruff 03/20/17
DESIGN STANDARDS ENGINEER DATE

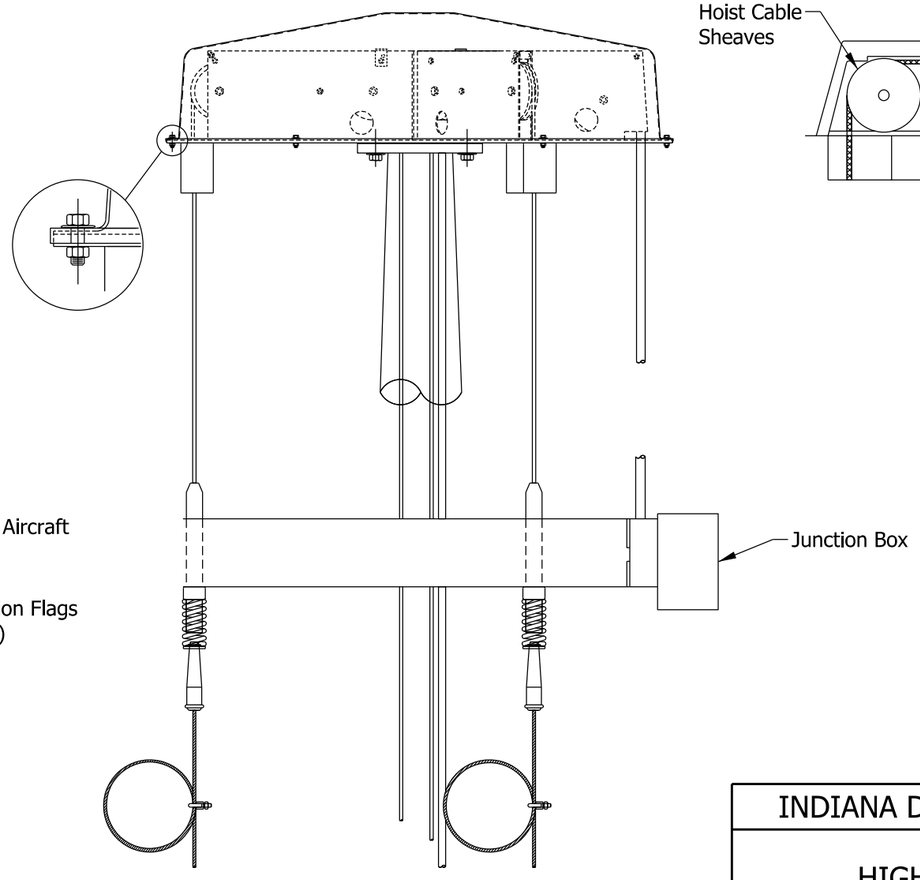
/s/ John Leckie 03/20/17
CHIEF ENGINEER DATE

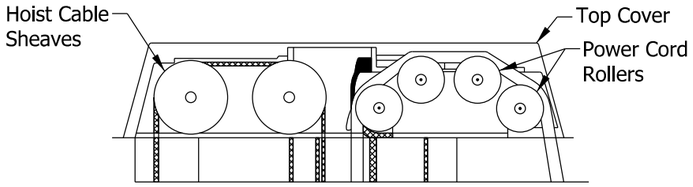


COVER



RING ASSEMBLY





COVER DETAILS

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
LUMINAIRE RING ASSEMBLY

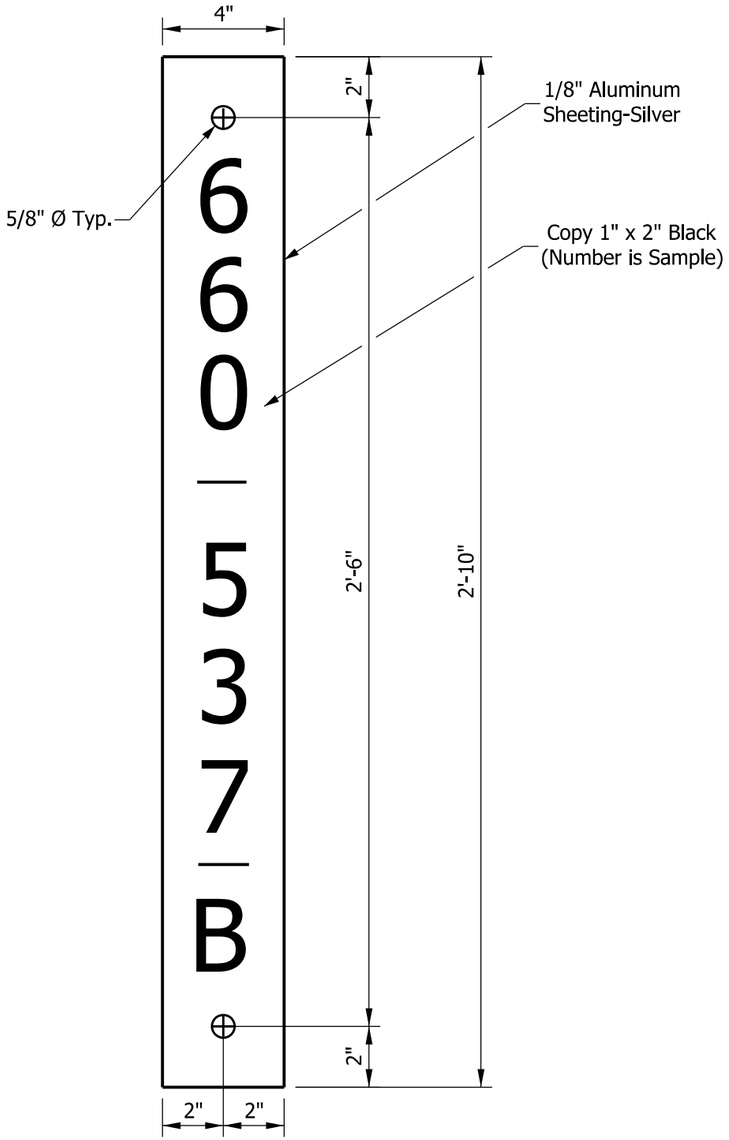
SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-08

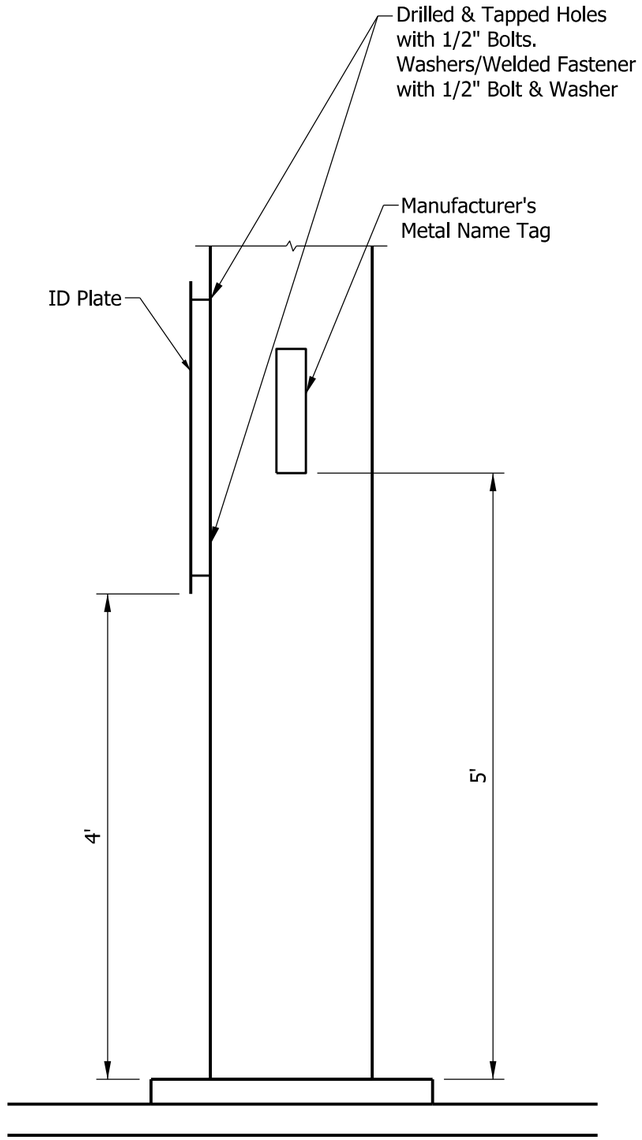
DAVID H. BORUFF
REGISTERED
No. 60900348
STATE OF INDIANA
PROFESSIONAL ENGINEER

/s/ David H. Boruff 03/20/17
DESIGN STANDARDS ENGINEER DATE

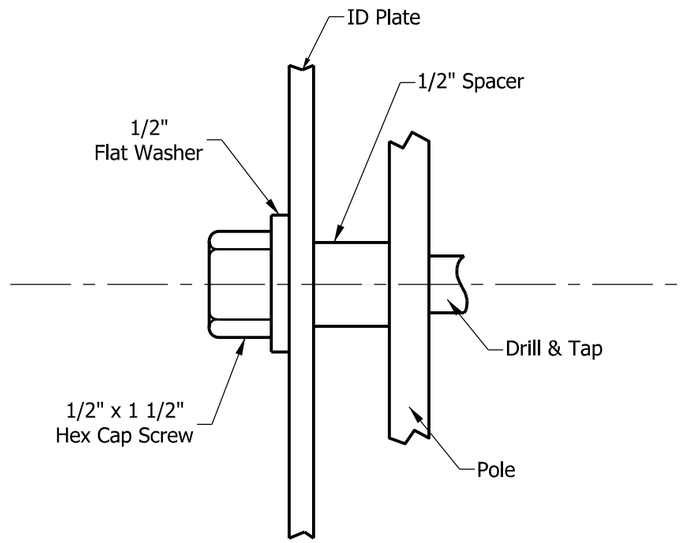
/s/ John Leckie 03/20/17
CHIEF ENGINEER DATE



ID PLATE DETAIL



HIGH MAST POLE



MOUNTING DETAIL

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
ID PLATES

SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-09

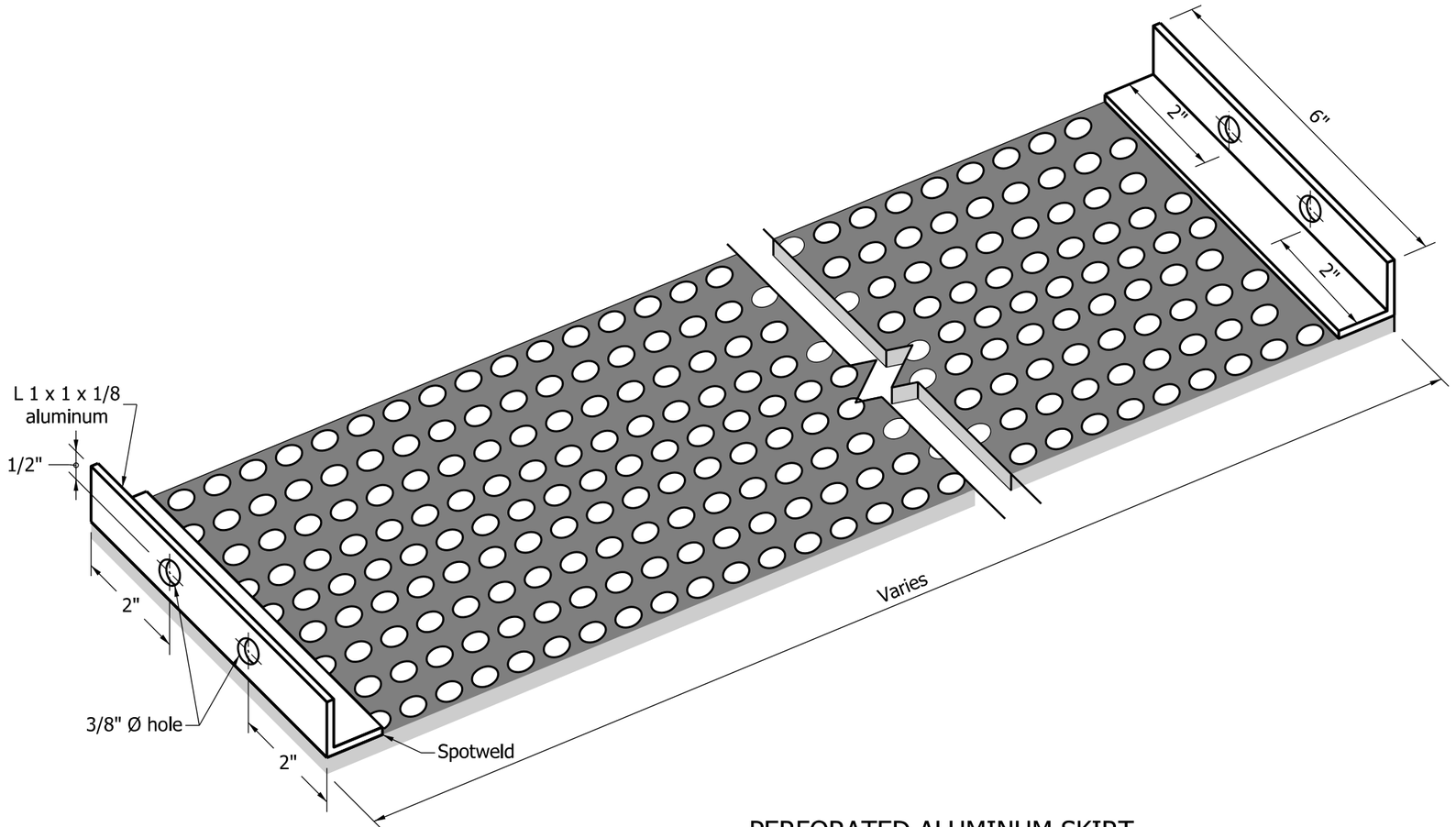
DAVID H. BORUFF
REGISTERED
No.
60900348
STATE OF
INDIANA
PROFESSIONAL ENGINEER

/s/ David H. Boruff *03/20/17*
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie *03/20/17*
CHIEF ENGINEER DATE

NOTES:

1. Holes shall be 3/8" dia., 1/2" outer circle, staggered.
2. The base plate of the high mast pole and exposed anchor bolts shall be enclosed by the aluminum skirt.



PERFORATED ALUMINUM SKIRT

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
PERFORATED ALUMINUM SKIRT

SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-10

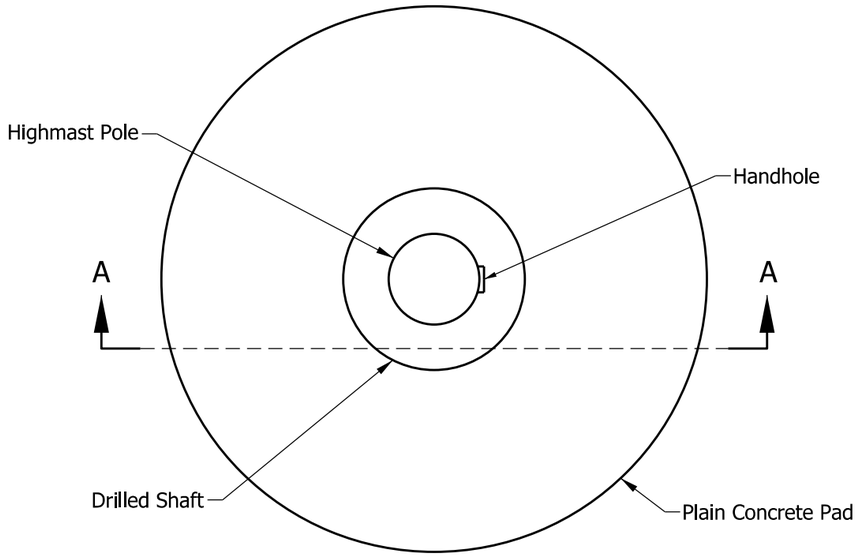
DAVID H. BORUFF
REGISTERED
No.
60900348
STATE OF
INDIANA
PROFESSIONAL ENGINEER

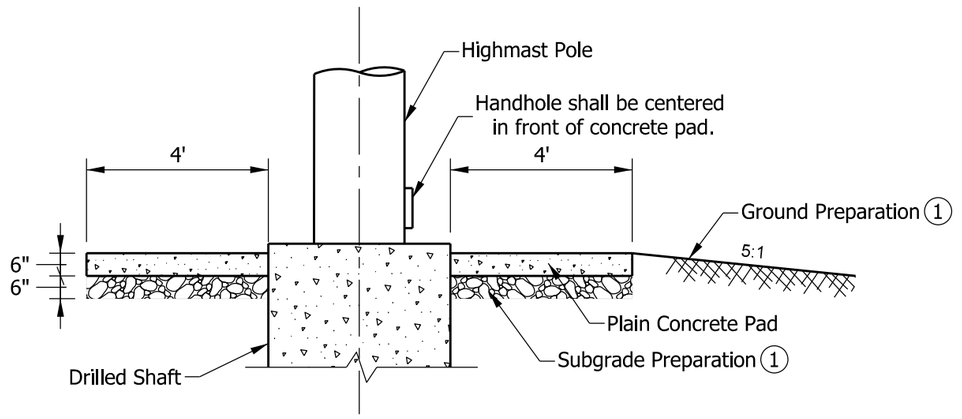
/s/ David H. Boruff *03/20/17*
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie *03/20/17*
CHIEF ENGINEER DATE

NOTES:

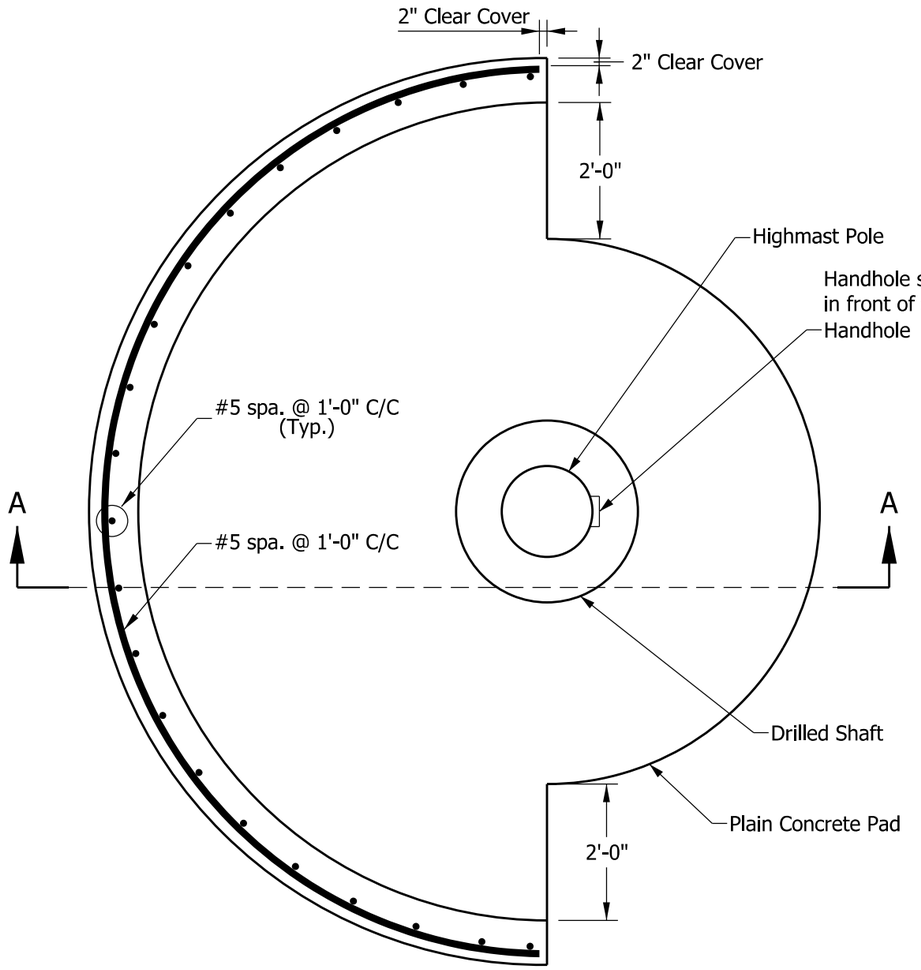
1. See Standard Drawing E 807-LTHI-11 for Subgrade and ground preparation requirements.
2. The slope grading around the concrete pad shall be as shown unless otherwise directed.





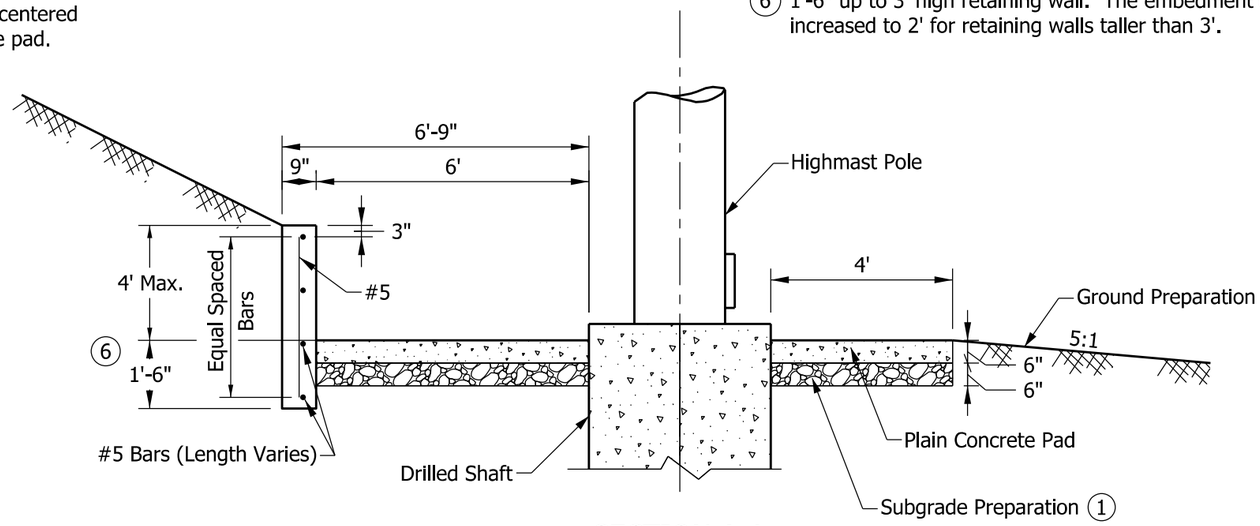
SECTION A-A

INDIANA DEPARTMENT OF TRANSPORTATION	
HIGHWAY ILLUMINATION TOWER CONCRETE PAD SEPTEMBER 2017	
STANDARD DRAWING NO. E 807-LTHI-11	
DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER	*/s/ David H. Boruff* 03/20/17 DESIGN STANDARDS ENGINEER DATE */s/ John Leckie* 03/20/17 CHIEF ENGINEER DATE



NOTES:

1. After excavation, the ground shall be compacted by means of a portable vibratory roller. Soft soil which does not compact shall be removed. All excavated material shall be replaced with compacted aggregate No. 53. Concrete pad shall be placed prior to placing backfill behind wall.
2. See Standard Drawing E 807-LTHI-11 for concrete pad where no retaining wall is required.
3. See Standard Drawing E 703-BRST-01 for bar bending details.
4. All reinforcing bars shall be epoxy coated.
5. Shape of retaining wall may be semi circular or half trapazoidal.
6. 1'-6" up to 3' high retaining wall. The embedment depth shall be increased to 2' for retaining walls taller than 3'.



SECTION A-A

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
CONCRETE PAD WITH
RETAINING WALL

SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-12

DAVID H. BORUFF
REGISTERED
No.
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STATE OF
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PROFESSIONAL ENGINEER

/s/ David H. Boruff 03/20/17
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie 03/20/17
CHIEF ENGINEER DATE

POLE DATA SCHEDULE

POLE HEIGHT (E.M.H.)	POLE SHAFT DATA						BASE PLATE			ANCHOR BOLT		
	No. of Sec.	Sec.	Minimum Diameter in inches		Min. Wall Thickness in inches	Section Length in Feet	Size in inches	Bolt Circle (in.)	Thick-ness (in.)	No. Req'd.	Diameter (in.)	Length (in.)
			Base	Top								
100'	2	A	24.50	17.16	0.250	52.42	37.50	31.50	2.25	6	2.25	90
		B	18.00	10.88	0.1875	50.89						
105'	3	A	21.50	18.14	0.3125	23.98	37.50	31.50	2.25	6	2.25	90
		B	19.00	13.23	0.1875	41.21						
		C	14.00	7.55	0.1875	46.07						
110'	3	A	22.50	19.13	0.3125	24.10	37.50	31.50	2.25	6	2.25	90
		B	20.00	13.72	0.1875	44.84						
		C	14.50	7.85	0.1875	47.50						
115'	3	A	23.50	20.11	0.3125	24.23	37.50	31.50	2.25	6	2.25	90
		B	21.00	14.21	0.1875	48.48						
		C	15.00	8.15	0.1875	48.93						
120'	3	A	26.00	22.07	0.3125	28.05	37.50	31.50	2.25	6	2.25	90
		B	23.00	16.18	0.1875	48.73						
		C	17.00	9.95	0.1875	50.36						
125'	3	A	25.00	21.09	0.3750	27.92	37.50	31.50	2.25	6	2.25	90
		B	22.00	14.70	0.1875	52.11						
		C	15.50	8.25	0.1875	51.79						
130'	3	A	25.00	20.11	0.3750	34.94	37.50	31.50	2.25	6	2.25	90
		B	21.00	14.21	0.1875	48.48						
		C	15.00	7.55	0.1875	53.21						
135'	3	A	26.00	20.11	0.3750	42.09	37.50	31.50	2.25	6	2.25	90
		B	21.00	14.21	0.1875	48.48						
		C	15.00	7.85	0.1875	51.07						
140'	3	A	26.80	20.60	0.3750	44.29	37.50	31.50	2.25	6	2.25	90
		B	21.50	14.21	0.1875	52.05						
		C	15.00	7.95	0.1875	50.36						
145'	3	A	27.00	20.60	0.4375	45.72	39.50	33.50	2.25	8	2.25	90
		B	21.50	14.21	0.1875	52.05						
		C	15.00	7.45	0.1875	53.93						
150'	3	A	28.00	20.60	0.4375	52.86	39.50	33.50	2.25	8	2.25	90
		B	21.50	14.21	0.1875	52.05						
		C	15.00	7.75	0.1875	51.79						
155'	4	A	28.50	24.04	0.4375	31.87	39.50	33.50	2.25	8	2.25	90
		B	25.00	19.13	0.1875	41.96						
		C	20.00	14.21	0.1875	41.34						
		D	15.00	7.93	0.1875	50.54						

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
POLE DATA SCHEDULE (1 of 2)
POLE HEIGHTS 100' - 155'
SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-13

DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 03/20/17
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie 03/20/17
CHIEF ENGINEER DATE

POLE DATA SCHEDULE

POLE HEIGHT (E.M.H.)	POLE SHAFT DATA						BASE PLATE			ANCHOR BOLT		
	No. of Sec.	Sec.	Minimum Diameter in inches		Min. Wall Thickness in inches	Section Length in Feet	Size in inches	Bolt Circle (in.)	Thick-ness (in.)	No Req'd.	Diameter (in.)	Length (in.)
			Base	Top								
160'	4	A	28.80	25.02	0.4375	27.00	39.50	33.50	2.25	8	2.25	90
		B	26.00	19.62	0.1875	45.59						
		C	20.50	13.72	0.1875	48.42						
		D	14.50	7.53	0.1875	49.82						
165'	4	A	29.50	25.51	0.5000	28.49	46	40.00	2.25	8	2.25	90
		B	26.50	19.62	0.1875	49.17						
		C	20.50	13.72	0.1875	48.42						
		D	14.50	7.53	0.1875	49.82						
170'	4	A	30.50	25.02	0.5000	39.14	46	40.00	2.25	8	2.25	90
		B	26.00	20.11	0.1875	42.09						
		C	21.00	14.21	0.1875	48.48						
		D	15.00	7.83	0.1875	51.25						
175'	4	A	31.00	25.02	0.5000	42.71	46	40.00	2.25	8	2.25	90
		B	26.00	19.62	0.1875	45.59						
		C	20.50	13.72	0.1875	48.42						
		D	14.50	7.63	0.1875	49.11						
180'	4	A	32.00	25.02	0.5000	49.85	46	40.00	2.25	8	2.25	90
		B	26.00	19.13	0.1875	49.10						
		C	20.00	13.23	0.1875	48.35						
		D	14.00	7.93	0.1875	43.39						
185'	4	A	32.50	26.00	0.5000	46.41	46	40.00	2.25	8	2.25	90
		B	27.00	20.11	0.1875	49.23						
		C	21.00	14.21	0.1875	48.48						
		D	15.00	7.73	0.1875	51.96						
190'	5	A	33.00	28.95	0.6250	28.92	48	42.00	2.25	12	2.25	90
		B	30.00	24.04	0.1875	42.59						
		C	25.00	19.13	0.1875	41.96						
		D	20.00	14.21	0.1875	41.34						
		E	15.00	7.90	0.1875	50.71						
195'	5	A	33.50	28.95	0.6250	32.50	48	42.00	2.25	12	2.25	90
		B	30.00	24.04	0.1875	42.59						
		C	25.00	19.13	0.1875	41.96						
		D	20.00	14.21	0.1875	41.34						
		E	15.00	7.70	0.1875	52.14						
200'	5	A	34.00	28.89	0.6250	36.51	48	42.00	2.25	12	2.25	90
		B	30.00	23.55	0.2188	46.09						
		C	24.50	18.63	0.1875	41.90						
		D	19.50	13.72	0.1875	41.27						
		E	14.50	7.56	0.1875	49.55						

INDIANA DEPARTMENT OF TRANSPORTATION

HIGHWAY ILLUMINATION TOWER
POLE DATA SCHEDULE (2 of 2)
POLE HEIGHTS 160' - 200'
SEPTEMBER 2017

STANDARD DRAWING NO. E 807-LTHI-14

DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 03/20/17
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie 03/20/17
CHIEF ENGINEER DATE