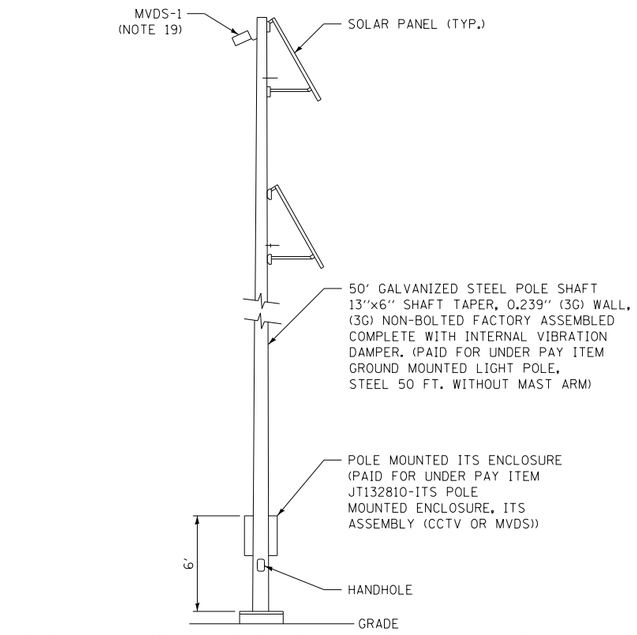
Illinois Tollway Base Sheet Revisions

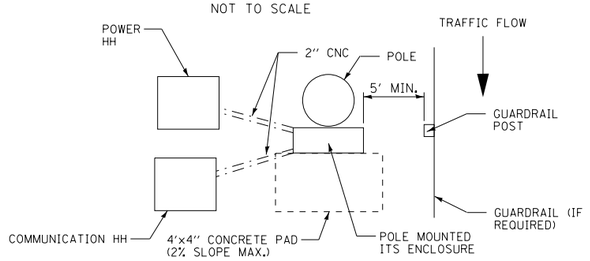
Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 2018-03-01**
	Pole Assembly (ITS)-Series 1000	
	M-ITS-1000	**Elevation Views Pole Mounted ITS Element Assembly**
		Added disconnect switch detail sheet.
		Minor editorial changes.
	Dynamic Message Sign (ITS)-Series 1100	
	M-ITS-1100	**DMS Type 1 Electrical Plan**
		Minor editorial changes.
	M-ITS-1101	**DMS Type 1 Site Grounding Plan**
		Minor editorial changes.
	M-ITS-1102	**DMS Type 1 Typical Site Wiring Detail**
		Minor editorial changes
	M-ITS-1103	**DMS Type 2-Cantilever Electrical Plan**
		Minor editorial changes.
	M-ITS-1104	**DMS Type 2-Butterfly Electrical Plan**
		Minor editorial changes
	M-ITS-1105	**DMS Type 2 Site Grounding Plan**
		Clarified coarse wash gravel specifications.
		Minor editorial changes.
	M-ITS-1106	**DMS Type 2 Site Wiring Details**
		Minor editorial changes
	M-ITS-1107	**DMS Cabinet Layout Detail**
		Minor editorial changes.
	M-ITS-1108	**DMS Cabinet Wiring Diagram**
		Minor editorial changes.
	Cabinet Wiring (ITS)-Series 1200	
	M-ITS-1200 to M-ITS-1255	**Cabinet Wiring Diagrams**
		Revised DIN3 IP relay to DIN4.
	M-ITS-1200 to M-ITS-1207, M-ITS-1210, M-ITS-1255	**Cabinet Wiring Diagrams**
		Added single mode fiber patch panel.
	M-ITS-1200 to M-ITS-1202, M-ITS-1223 to M-ITS-1254	**Cabinet Wiring Diagrams**
		Added power over ethernet injector(s).
	M-ITS-1200	**ITS Pole Mounted Enclosure (CCTV and MVDS)**
		Added second sheet showing scale layout.
	M-ITS-1203 to M-ITS-1205, M-ITS-1211 to M-ITS-1222, M-ITS-1231 to M-ITS-1254	**Cabinet Wiring Diagrams**
		Clarified MVDS wiring.
	~~**M-ITS-1256**~~	**Tower Mounted CCTV ITS Assembly, 300' CAT6 or Less**
		Retired.
	Roadway Weather Information System (ITS)-Series 1300	
	M-ITS-1300	**RWIS Pole, Sensor Mounting Detail**
		Sheet redrawn with new pole-mounted RWIS design
	M-ITS-1301	**RWIS Cabinet Wiring Diagram**
		Sheet redrawn with new pole-mounted RWIS design.
		RWIS connected to fiber.
	M-ITS-1302	**Typical RWIS Site Installation Plan**
		Sheet redrawn with new pole-mounted RWIS design.
		Added non-intrusive pavement sensor.
	~~**M-ITS-1303**~~	**RWIS Road Surface Sensor Pole**
		Retired.
	Tower Mounted CCTV (ITS)-Series 1500	
	M-ITS-1502	**ITS Details Tower Mount Camera Assembly**
		Reference to M-ITS-1256 changed to M-ITS-1255 to reflect changes in 1200 series.
	Plaza Electrical (Business System)-Series 2500	
	M-BUS-2501	**Legend, Symbol List, Abbreviations and Equipment Schedules**
		Minor editorial changes.
	M-BUS-2525	**I-Pass Only (IPO) Lane Island Plan and Details 12 Foot Wide Lane**
		Minor editorial changes.
	M-BUS-2526	**Toll Equipment Wiring Diagram ACM and IPO Lanes**
		Minor editorial changes.
	M-BUS-2558	**VES Wash System Suggested Conduit Routing**
		Minor editorial changes.

New Sheet ~~Retired Sheet~~



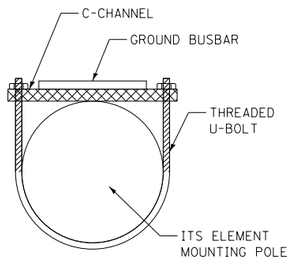
40' STEEL POLE MOUNTED ITS ELEMENT ASSEMBLY

NOT TO SCALE



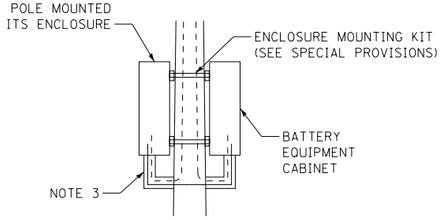
POLE MOUNTED ITS ELEMENT ASSEMBLY - TOP VIEW

NOT TO SCALE



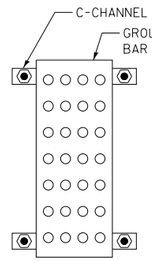
GROUND BUSBAR PLAN VIEW

NOT TO SCALE



ENCLOSURE SIDE VIEW

NOT TO SCALE

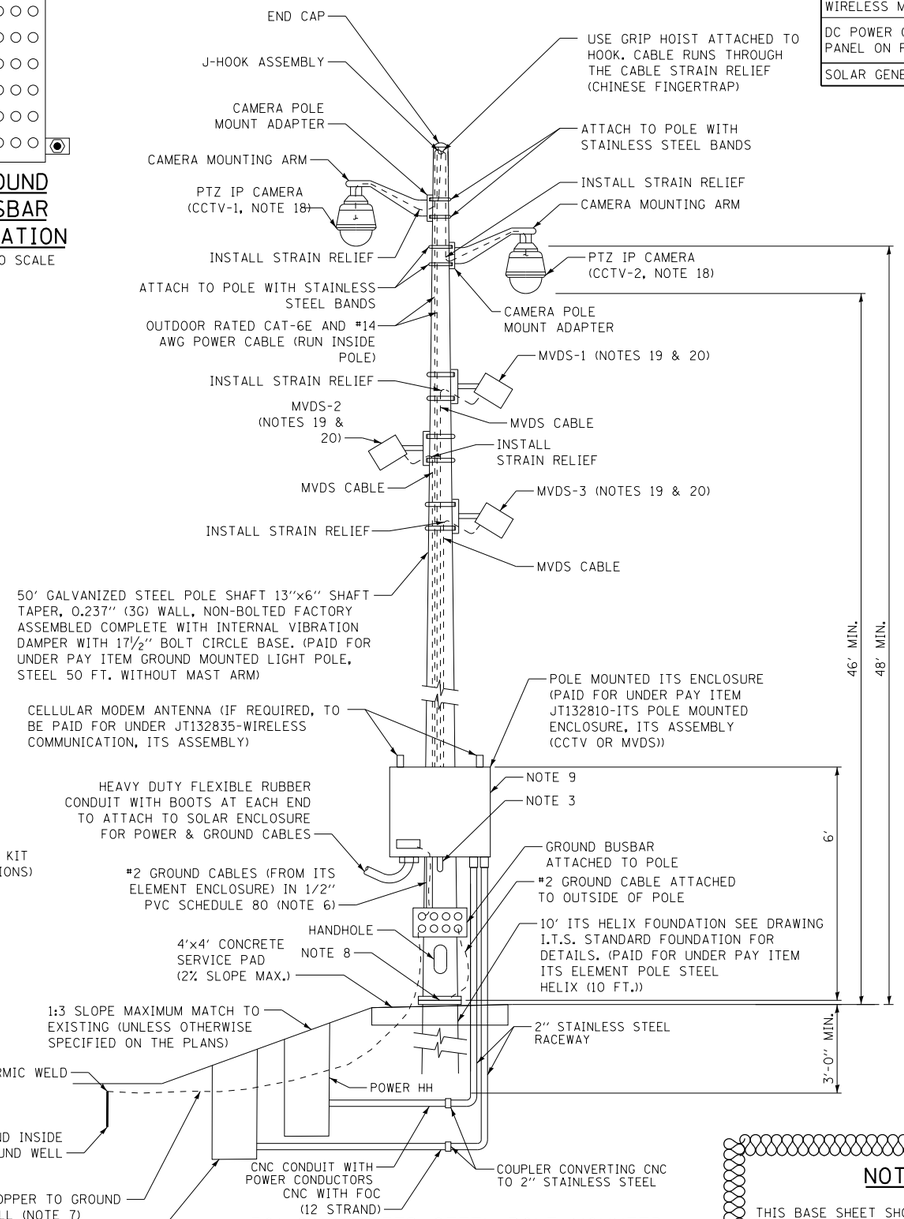


GROUND BUSBAR ELEVATION

NOT TO SCALE

NOTE 2 TO DESIGNER

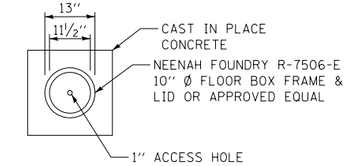
THE DESIGNER SHALL COMPLETE THE COMPONENT REQUIREMENTS TABLE AS REQUIRED TO INDICATE WHICH COMPONENTS ARE TO BE INSTALLED ON EACH POLE MOUNTED ITS ASSEMBLY. DESIGNER TO EXPAND CHART AS NECESSARY.



50' GALVANIZED STEEL POLE MOUNTED ITS ELEMENT ASSEMBLY

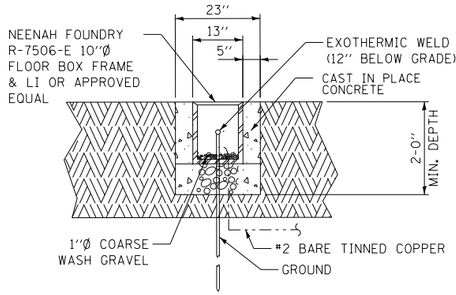
NOT TO SCALE

SCHEDULE OF DEVICES							
ELEMENT	SITE				SUPPORT TYPE		
	MILEPOST	STATION	OFFSET	ORIENTATION	POLE	FOUNDATION	MOUNTING HEIGHT
CCTV-1							
CCTV-2							
MVDS-1							
MVDS-2							
MVDS-3							
WIRELESS MODEM							
DC POWER (SOLAR PANEL ON POLE)							
SOLAR GENERATOR							



GROUND WELL PLAN DETAIL

NOT TO SCALE



GROUND WELL ELEVATION DETAIL

NOT TO SCALE

NOTE:

1. SEE M-ITS-1001 FOR NOTES.

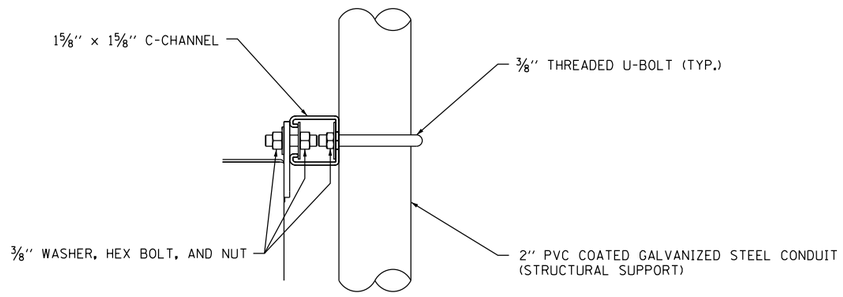
NOTE 1 TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

ELEVATION VIEWS
POLE MOUNTED ITS
ELEMENT ASSEMBLY
1 OF 2

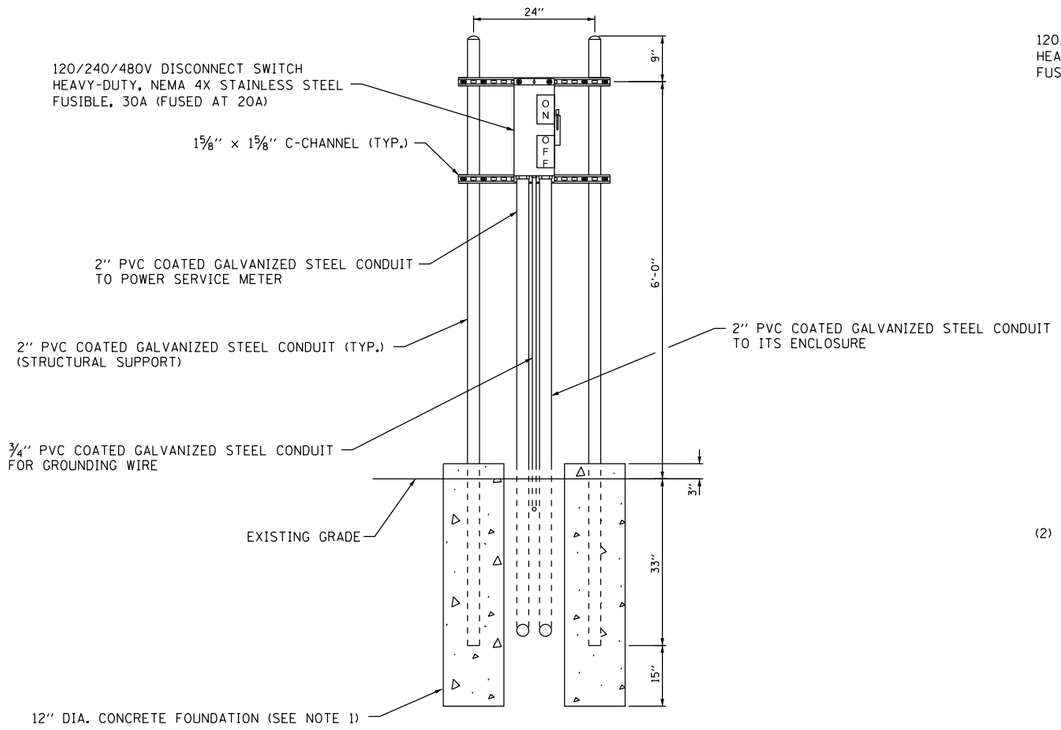
DATE
3-01-2018



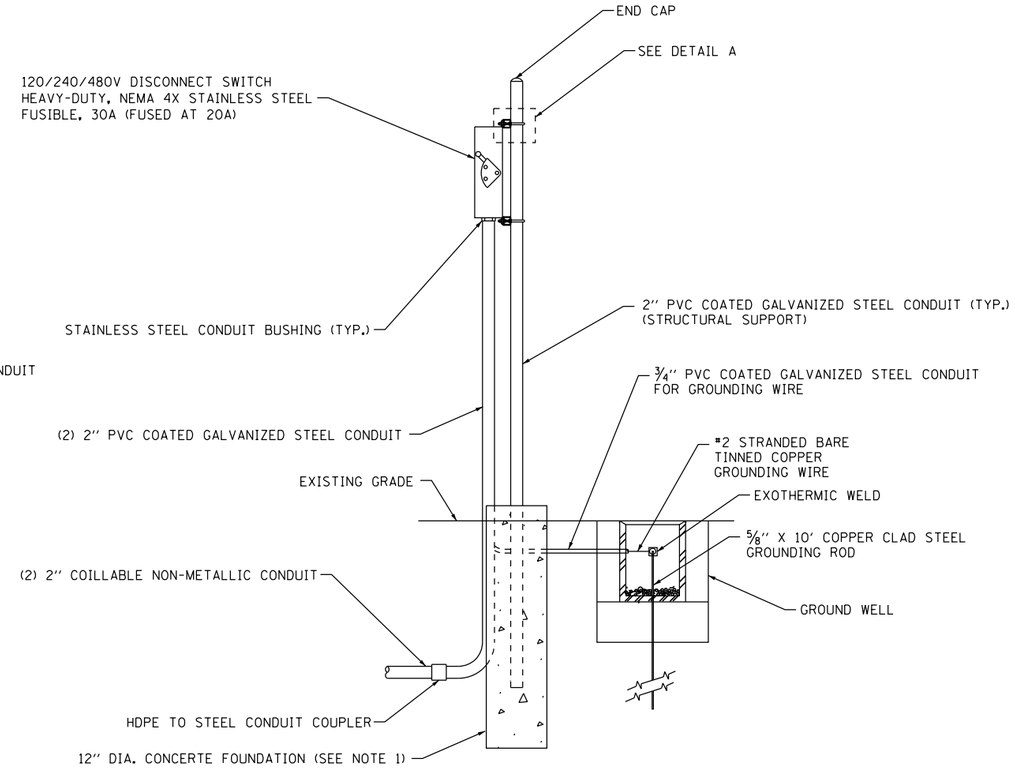
DETAIL A - TYPICAL MOUNTING ATTACHMENT CONNECTION

NOTES:

1. CONTRACTOR MAY ELECT TO CONSTRUCT A SINGLE, MONOLITHIC FOUNDATION IN PLACE OF THE FOUNDATION SHOWN ON THIS SHEET. CONTRACTOR SHALL SUBMIT ALTERNATE FOUNDATION DESIGN TO ENGINEER PRIOR TO CONSTRUCTION.
2. ALL CONCRETE SHALL BE IDOT CLASS SI.
3. DISCONNECT SWITCH, POSTS, FOUNDATION, AND MOUNTING HARDWARE ARE INCLUDED IN PAY ITEM "ITS DISCONNECT SWITCH ASSEMBLY" (JT132814).
4. DETAILS SHOWN IN THIS DRAWING APPLY ONLY TO LOCATIONS WHERE A STANDALONE DISCONNECT SWITCH IS REQUIRED AT AN ITS POLE.



DISCONNECT SWITCH ON ELECTRICAL FRAME
FRONT VIEW



DISCONNECT SWITCH ON ELECTRICAL FRAME
SIDE VIEW

M-ITS-1000
SHEET 2 OF 2

Illinois Tollway

ELEVATION VIEWS
POLE MOUNTED ITS
ELEMENT ASSEMBLY
2 OF 2

DATE
3-01-2018

GENERAL NOTES:

1. ITS ELEMENT POLES SHIELDED BY GUARDRAIL SHALL BE LOCATED A MINIMUM OF 5' TO A MAXIMUM OF 20' BEHIND THE GUARDRAIL POST. SEE ILLINOIS TOLLWAY GUARDRAIL STANDARD (SECTION C OF STANDARDS) FOR MORE INFORMATION. ALL OTHER POLES SHALL BE LOCATED OUTSIDE THE CLEAR ZONE. FINAL LOCATION TO BE APPROVED BY THE ENGINEER.

2. ANY GROUND CABLES ROUTED INSIDE THE ENCLOSURE SHALL BE GREEN INSULATED TYPE RHW CONDUCTORS. ANY GROUND CONDUCTORS THAT ARE BURIED SHALL BE BARE COPPER TINNED. ANY GROUND CONNECTED TO THE EXTERNAL GROUND BUSBAR SHALL BE CADWELDED TO THE BUSBAR. PVC SCH 80 CONDUIT SHOULD BE GROMMETTED ON END GOING TO BUSBAR TO PREVENT RODENTS AND INSECTS FROM ENTERING.

3. PROVIDE A 1½" ALUMINUM CONDUIT NIPPLE WITH LB FITTING FOR ROUTING ITS ELEMENT CABLES INSIDE THE POLE TO THE EQUIPMENT ENCLOSURE. DRILL AND TAP POLE FOR THE CONDUIT NIPPLE. CABLE SLACK SHALL BE PULLED AND FASTENED WITHIN THE TOP OF THE POLE. PROPER CABLE STRAIN RELIEF SHALL BE INSTALLED AND APPROVED BY THE ENGINEER. ALL CABLE RUN INSIDE THE POLE SHALL NOT HANG BELOW THE TOP OF THE HANDHOLE COVER ON THE POLE.

4. ALL CONDUITS ENTERING THE ENCLOSURE SHALL BE SEALED. SEE "ITS POLE MOUNTED ENCLOSURE, ITS ASSEMBLY (CCTV OR MVDS)" SPECIAL PROVISION FOR MORE DETAIL FOR RODENT PROTECTION.

5. CONTRACTOR TO PROVIDE ALL POWER, COMMUNICATIONS AND GROUND WIRING REQUIRED FOR SYSTEM OPERATION.

6. ATTACH PVC SCH 80 CONDUIT TO POLE FOR SUPPORT. USE METAL BUSHING WHEN CONNECTING PVC TO CABINET. USE GROMMETS AT BOTH ENDS OF CONDUIT TO SEAL CONDUIT BUT ALLOW GROUND CABLE TO RUN THROUGH BOTH ENDS.

7. GROUND ROD SHALL BE PLACED A MINIMUM OF 10' FROM THE FOUNDATION. A GROUND WELL SHALL BE INCLUDED TO PERMIT ACCESS TO THE GROUND ROD CONNECTION. CONNECTION TO THE GROUND BUSBAR AND THE GROUND ROD SHALL BE CADWELD.

8. A FLAT STEEL MESH PANEL ALONG WITH A COMMERCIALLY AVAILABLE HYDROPHOBIC LOW DENSITY COMPOSITE BACKFILL MATERIAL (KNOWN AS Q-SET 250) SHALL BE INSTALLED BETWEEN THE ANCHOR BASE AND THE POLE TO PREVENT THE ENTRY OF RODENTS INTO THE POLE. SEE SPECIAL PROVISIONS FOR MORE DETAILS.

9. THIS ITS ELEMENT ENCLOSURE DETAIL WILL BE UTILIZED FOR POLE MOUNTED APPLICATIONS ONLY, IT CANNOT BE UTILIZED FOR TOWER MOUNTED APPLICATION.

10. BACKFILL PER ILLINOIS TOLLWAY STANDARD H1. BACKFILL SHALL BE TO THE TOP OF THE POLE BASE ON ALL SIDES.

11. ALL CABLING (INCLUDING CABLING INSIDE THE ENCLOSURE) IS OUTDOOR RATED. CAMERA CABLE PART NUMBERS ARE: CAT-6E CABLE (BELDEN CATALOG NO. 7953A) AND #14 AWG 3/C CCTV POWER CABLE (BELDEN CATALOG NO. 9367). THE GROUND WIRE (WHITE) IN THE 3/C #14 AWG POWER CABLE SHALL BE TAPED GREEN. ANY OTHER ITS ELEMENT WILL USE SPECIFIC CABLE ASSOCIATED TO THAT ELEMENT.

12. THE J-HOOK SHALL BE WELDED IN PLACE TO THE SIDE OF THE POLE, NEAR THE TOP OF THE POLE. THE CONTRACTOR SHALL PROVIDE A CUSTOM FLAT TOP POLE CAP THAT WILL FIT THE POLE TOP WITH THE J-HOOK WELDED TO THE SIDE. THE POLE CAP SHALL BE SECURED TO THE POLE BY DRILLING AND INSERTING SET SCREWS.

13. THIS DRAWING IS A MULTI-PURPOSE DRAWING THAT INCLUDES TWO TYPES OF CONNECTIONS TO A SOLAR POWERED BATTERY ENCLOSURE. IF SOLAR POWER IS UTILIZED, THEN THE SPECIAL PROVISIONS WILL CALL OUT THE MATERIAL AND NECESSARY CONNECTIONS TO THE ITS ELEMENT ENCLOSURE.

14. CONSTRUCT A 4 FT. X 4 FT. CONCRETE SERVICE PAD 6-INCHES FROM THE POLE BASE ON THE SAME SIDE AS THE ITS ENCLOSURE, CENTERED WITH THE ITS ENCLOSURE.

15. THIRTY DAYS PRIOR TO INSTALLING ANY NEW CCTV CAMERA, MVDS, SWITCH, WIRELESS OR FIBER OPTIC MODEM, THE CONTRACTOR SHALL COORDINATE DEVICE CONFIGURATION WITH THE ENGINEER.

16. THE DISCONNECT SWITCH, SUPPORT, AND ASSOCIATED CONDUIT SHALL BE INSTALLED FOR ITS SITES WHERE THE UTILITY SERVICE INSTALLATION IS GREATER THAN 500 FEET FROM THE ITS SITE OR LOCATED ON THE OPPOSITE SIDE OF THE ROADWAY FROM THE ITS SITE.

17. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

CCTV NOTES:

18. FINAL PLACEMENT HEIGHTS OF THE CCTV CAMERAS SHALL BE BASED ON SITE CONDITIONS, ILLINOIS TOLLWAY OPERATIONAL NEEDS, AND AS PER MANUFACTURER'S MOUNTING RECOMMENDATIONS. THE HEIGHT SHALL BE APPROVED BY THE ENGINEER ONLY AFTER REVIEW BY ILLINOIS TOLLWAY ITS OPERATIONS.

MVDS NOTES:

19. FINAL PLACEMENT HEIGHT OF THE MVDS SHALL BE BASED ON SITE CONDITIONS. REFER TO THE MVDS MANUFACTURER'S INSTALLATION GUIDE FOR RECOMMENDATIONS. THE HEIGHT SHALL BE APPROVED BY THE ENGINEER. THE MVDS SHALL BE PERPENDICULARLY ALIGNED TO THE ROADWAY IT IS INTENDING TO BE SENSING.

20. TWO MVDS UNITS ARE REQUIRED FOR THE FOLLOWING APPLICATIONS:
    A) GATHER DATA FROM A MAINLINE ROADWAY SENSOR APPLICATION THAT REQUIRES TWO SENSORS.
    B) ONE MVDS MAY BE UTILIZED FOR MAINLINE ROADWAY SENSING, WHILE THE SECOND IS UTILIZED FOR RAMP COUNTING OR ROD. THE CONTRACTOR SHALL ORIENT THE MVDS UNITS PERPENDICULAR TO THE ROADWAY BEING DETECTED.

ITS ASSEMBLY CABINET - IP RELAY WIRING TABLE

DESCRIPTION		CONNECTION FROM		CONNECTION TO	
IP TERMINAL	IP TERMINAL ASSIGNMENT	DEVICE	CONNECTION	DEVICE	CONNECTION
		IP RELAY	1 NC	CIRCUIT BREAKER	CB4B
1	CCTV1	IP RELAY	1 COMM	SURGE SUPPRESSOR	DIN 1
		IP RELAY	2 NC	CIRCUIT BREAKER	CB5B
2	CCTV2	IP RELAY	2 COMM	SURGE SUPPRESSOR	DIN 2
	RESERVED FOR				
3	DMS LOAD SHEDDING RELAY				
	RESERVED FOR				
4	DMS CONTROLLER				
	RESERVED FOR				
5	FLASHING BEACONS				
		IP RELAY	6 NC	CIRCUIT BREAKER	CB6B
6	MVDS 3	IP RELAY	6 COMM	T-BUS	DIN 6
		IP RELAY	7 NC	CIRCUIT BREAKER	CB7B
7	MVDS 1	IP RELAY	7 COMM	T-BUS	DIN 7
		IP RELAY	8 NC	CIRCUIT BREAKER	CB8B
8	MVDS 2	IP RELAY	8 COMM	T-BUS	DIN 8

NOTE 2 TO DESIGNER

DESIGNER TO UPDATE THE "ITS ASSEMBLY CABINET - IP RELAY WIRING TABLE" IN ACCORDANCE WITH ILLINOIS TOLLWAY DIRECTION.

NOTE 1 TO DESIGNER

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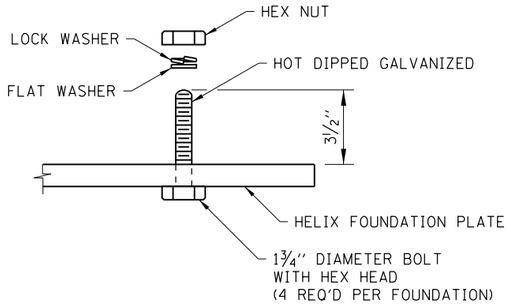
M-ITS-1001

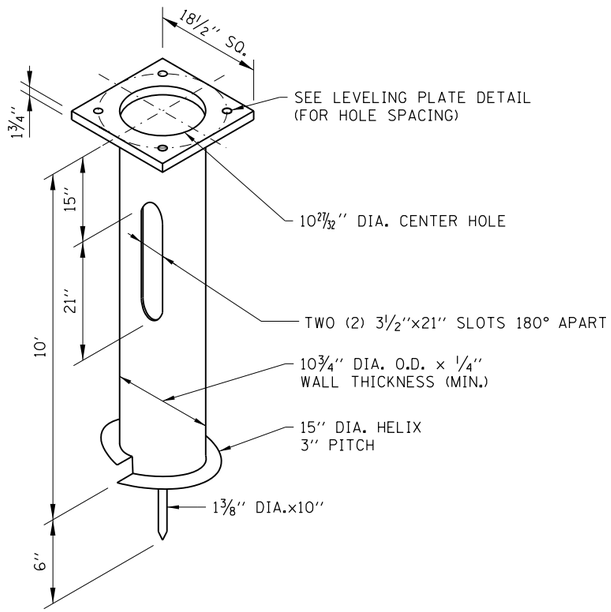
Illinois Tollway

GENERAL NOTES
POLE MOUNTED ITS
ELEMENT ASSEMBLY

DATE
3-31-2017



BASE ATTACHMENT DETAIL
17½'' BASE DIA.



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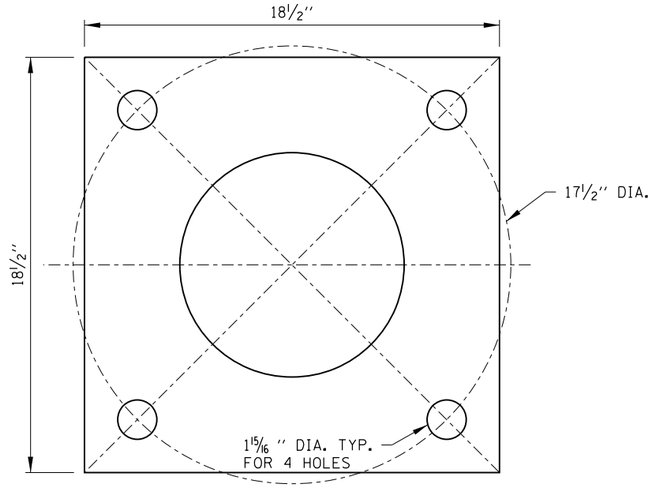

LEVELING PLATE

NOTE TO DESIGNER

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NOTE TO DESIGNER

ALL NEW 50 FT. STEEL ITS POLES REQUIRE A 17½'' DIA. BOLT CIRCLE. SHOULD A 15'' DIA. BOLT CIRCLE BE REQUIRED, THE DSE SHALL REFERENCE ILLINOIS TOLLWAY STANDARD DRAWING H1 (LIGHT STANDARD FOUNDATION).

HELIX - GROUND MOUNTED ASSEMBLY

M-ITS-1002

Illinois Tollway

ITS STANDARD
FOUNDATION

DATE
3-31-2017