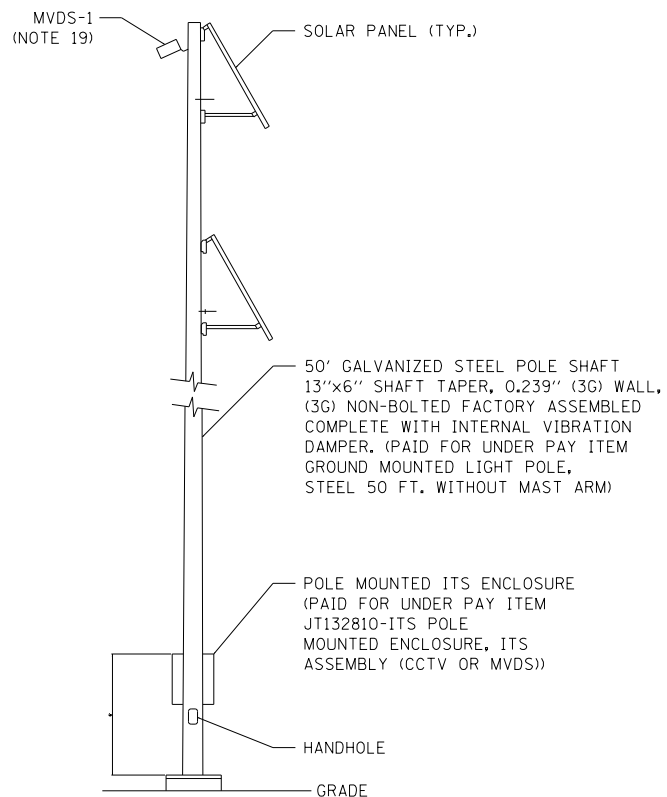


Illinois Tollway Base Sheet Revisions
--

Section M	Base Sheet Drawings	
Drawing	Modification Summary	Effective: 2019-03-01
Pole Assembly (ITS)-Series 1000		
M-ITS-1000	Elevation Views Pole Mounted ITS Element Assembly Changed disconnect switch to unfused.	
M-ITS-1003	ITS Concrete Service Pad (2 sheets) New drawing with three types of service pads for ITS poles for flat and slope installation.	
M-ITS-1004	Cabinet Wiring Diagram - ITS Pole Mounted Enclosure (Solar Powered MVDS) (2 sheets) New cabinet layout separating ITS enclosure and dedicated co-located solar generator/battery cabinet with four 6 V batteries.	
Dynamic Message Sign (ITS)-Series 1100		
M-ITS-1108	DMS Cabinet Wiring Diagram Changed to Cisco 4000 series switch. Changed IP Relay to DIN IV.	
Cabinet Wiring (ITS)-Series 1200		
M-ITS-1200 to M-ITS-1217	Cabinet Wiring Diagrams 18 new ITS enclosure drawings replace old 56 ITS enclosure drawings for clarification. Drawings 1200 to 1217 have been redone completely. Consolidated equipment configurations. Standardized to-scale equipment layout. Changed to Cisco 4000 series switch. Eliminated 24 VAC transformer and 24 VAC CCTVs. Additional 24 VDC power supply. Cat6 Ethernet surge protectors revised to PoE++ compatible models.	
M-ITS-12018 to M-ITS-1255	Cabinet Wiring Diagrams Retired due to consolidation.	
Roadway Weather Information System (ITS)-Series 1300		
M-ITS-1300	RWIS Pole, Sensor Mounting Detail Pole height changed to 50 feet as standard pole for ITS with 17.5 inch bolt circle.	
M-ITS-1301	RWIS Cabinet Wiring Diagram Changed to Cisco 4000 series switch. Not connected to RWIS controller, for future use. Added IP Relay. Disconnected, for future use. Added secondary sensor pole cabinet wiring diagram. Cabinet is part of the design but was omitted in last year release.	
M-ITS-1303	Typical RWIS Grounding Schematic New drawing showing RWIS grounding system with grounding cable.	
Solar Powered Generator (ITS)-Series 1400		
M-ITS-1402	Pole Mounted Solar MVDS Assembly Co-located solar generator cabinet redesigned as M-ITS-1004.	
Tower Mounted CCTV (ITS)-Series 1500		
M-ITS-1500	Tower Mount Camera Details Cameras shown at offset height to avoid view obstruction. Pole mounting arm revised to Axis Q6155-E IP camera.	
M-ITS-1503	Cabinet Wiring Diagram - Tower Mounted CCTV Revised to show 24 VDC power supply, drawing drawn to scale.	
Flashing Beacon (ITS)-Series 1700		
M-ITS-1701	Flashing Sign Beacon Installation Wiring Diagram Revised to show full cabinet layout accomodating flasher beacon. Re-drawn to scale. Added flashing beacon, new surge suppressor.	
IPDC Facility (ITS)-Series 1800		
M-ITS-1802, 1803, 1805, 1806, 1809, 1810	IPDC Facility Building modified to accommodate larger generator room door, door stoppers. Additional exterior CCTV cameras. Added bird deterrant. Added exterior GFCI outlets.	
M-ITS-1802	Note 2: Seal door opening and protrusion/access against rodent and bugs. Note 3: Install removable stainless bollards per Illinois Tollway Maintenance.	
M-ITS-1803	Added 240 V service power outlet outside side wall.	
Conduit Details at Integral Abutment Bridge (ITS)-Series 1900		
M-ITS-1900	Conduit Details at Integral Abutment Bridge with MSE Wall (Sheet 3) Removed note stating concrete encasement to be placed monolithic with the approach slab. Added 0.5" PJF at the back of the abutment and approach bent. Added 0.75" PJF between the approach slab and encasement. Added detail for deflection and expansion fittings at the encasement and pile bent. Added detail for deflection fitting at encasement and abutment.	
100 FT. Monopole (ITS)-Series 2000		
M-ITS-2000 Sheet 4	100 FT. Monopole Closed Circuit Television (CCTV) Camera Tower Added sheet 4 of 4 showing hexagonal service pad.	

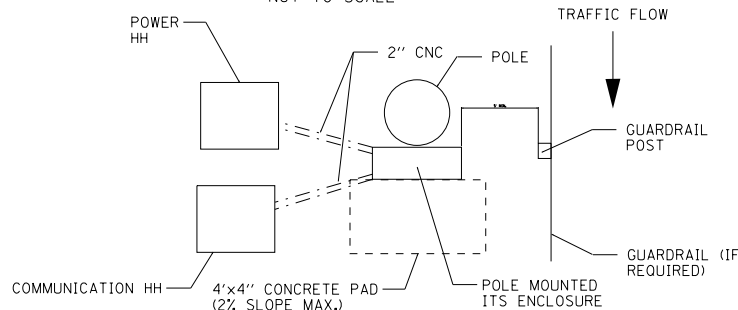
New Sheet

X Retired Sheet



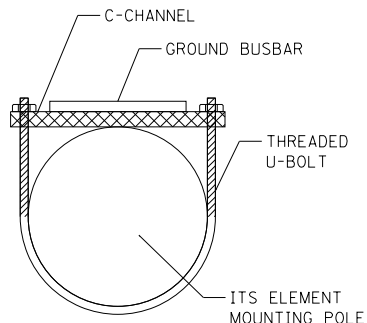
40' STEEL POLE MOUNTED ITS ELEMENT ASSEMBLY

NOT TO SCALE



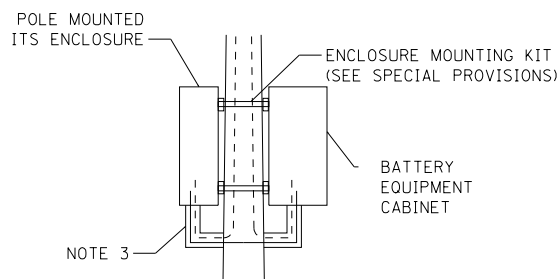
POLE MOUNTED ITS ELEMENT ASSEMBLY - TOP VIEW

NOT TO SCALE



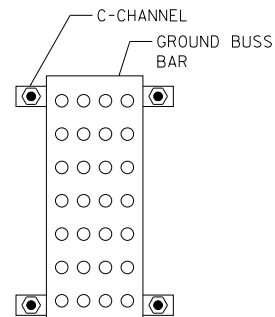
GROUND BUSBAR PLAN VIEW

NOT TO SCALE



ENCLOSURE SIDE VIEW

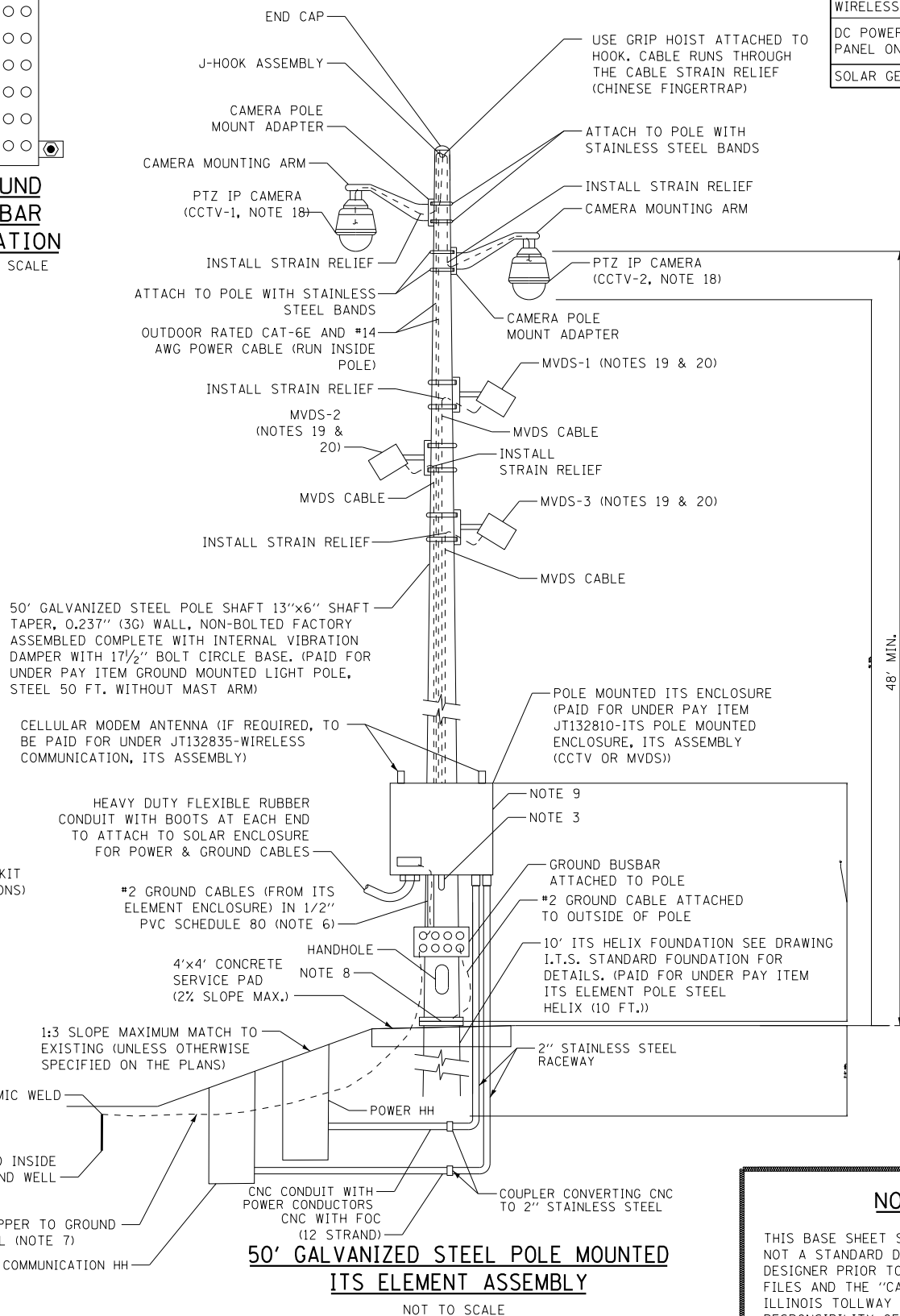
NOT TO SCALE



GROUND BUSBAR ELEVATION

NOT TO SCALE

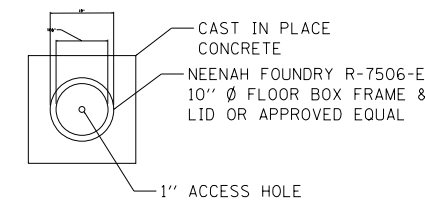
NOTE 2 TO DESIGNER
THE DESIGNER SHALL COMPLETE THE COMPONENT REQUIREMENTS TABLE AS REQUIRED TO INDICATE WHICH COMPONENTS ARE TO BE INSTALLED ON EACH POLE MOUNTED ITS ASSEMBLY. DESIGNER TO EXPAND CHART AS NECESSARY.



50' GALVANIZED STEEL POLE MOUNTED ITS ELEMENT ASSEMBLY

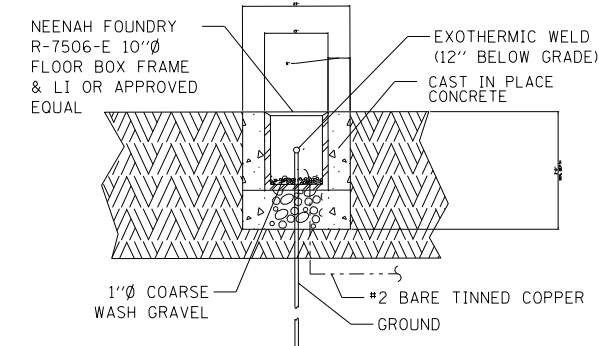
NOT TO SCALE

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



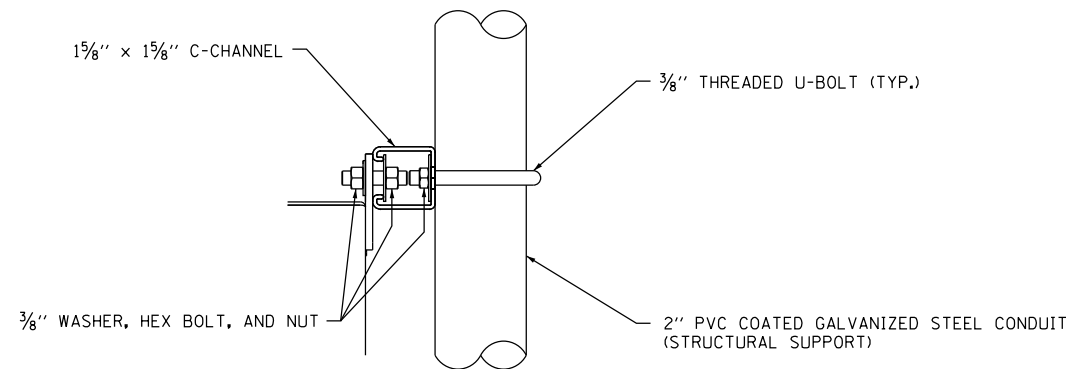
GROUND WELL ELEVATION DETAIL

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.

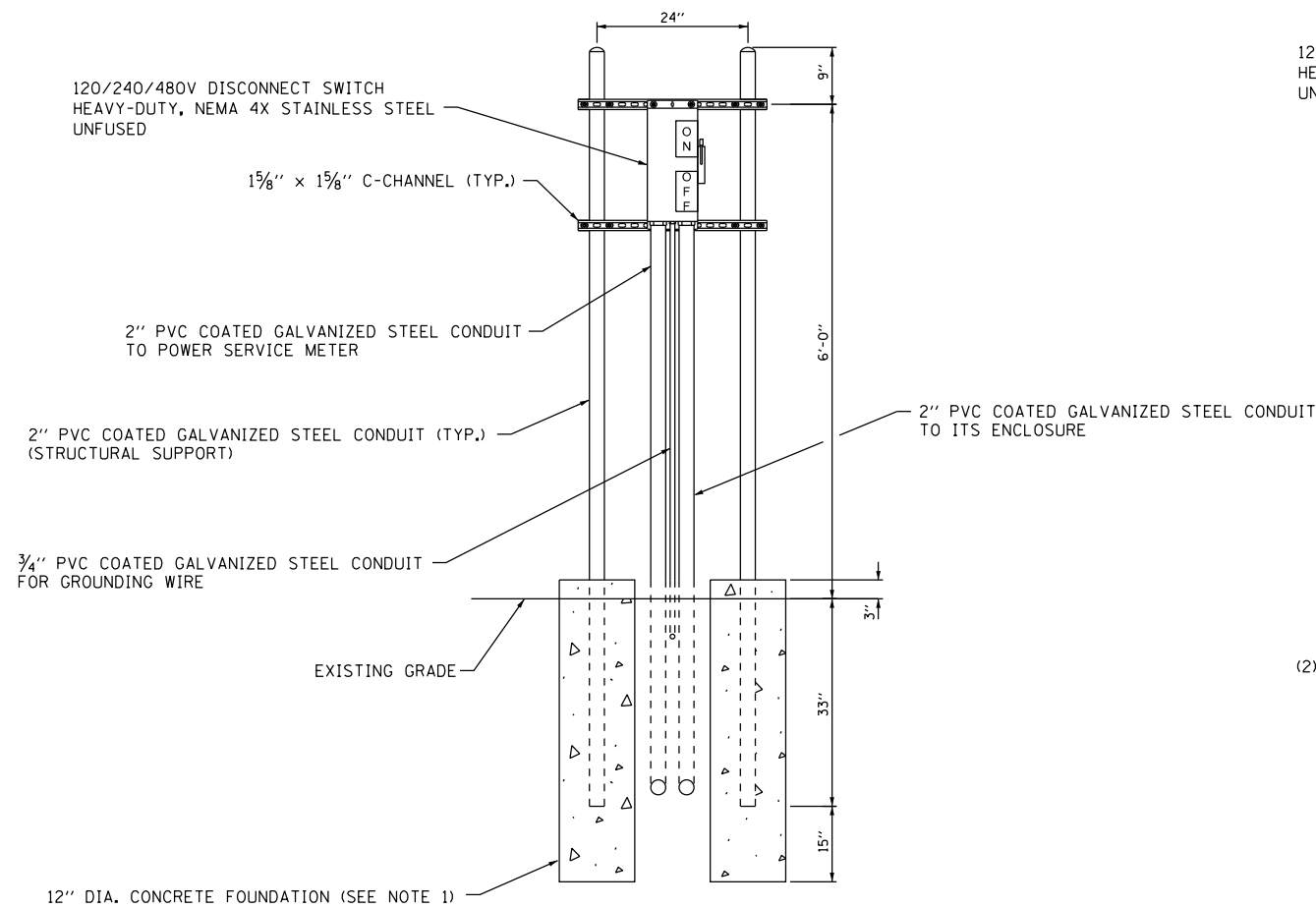




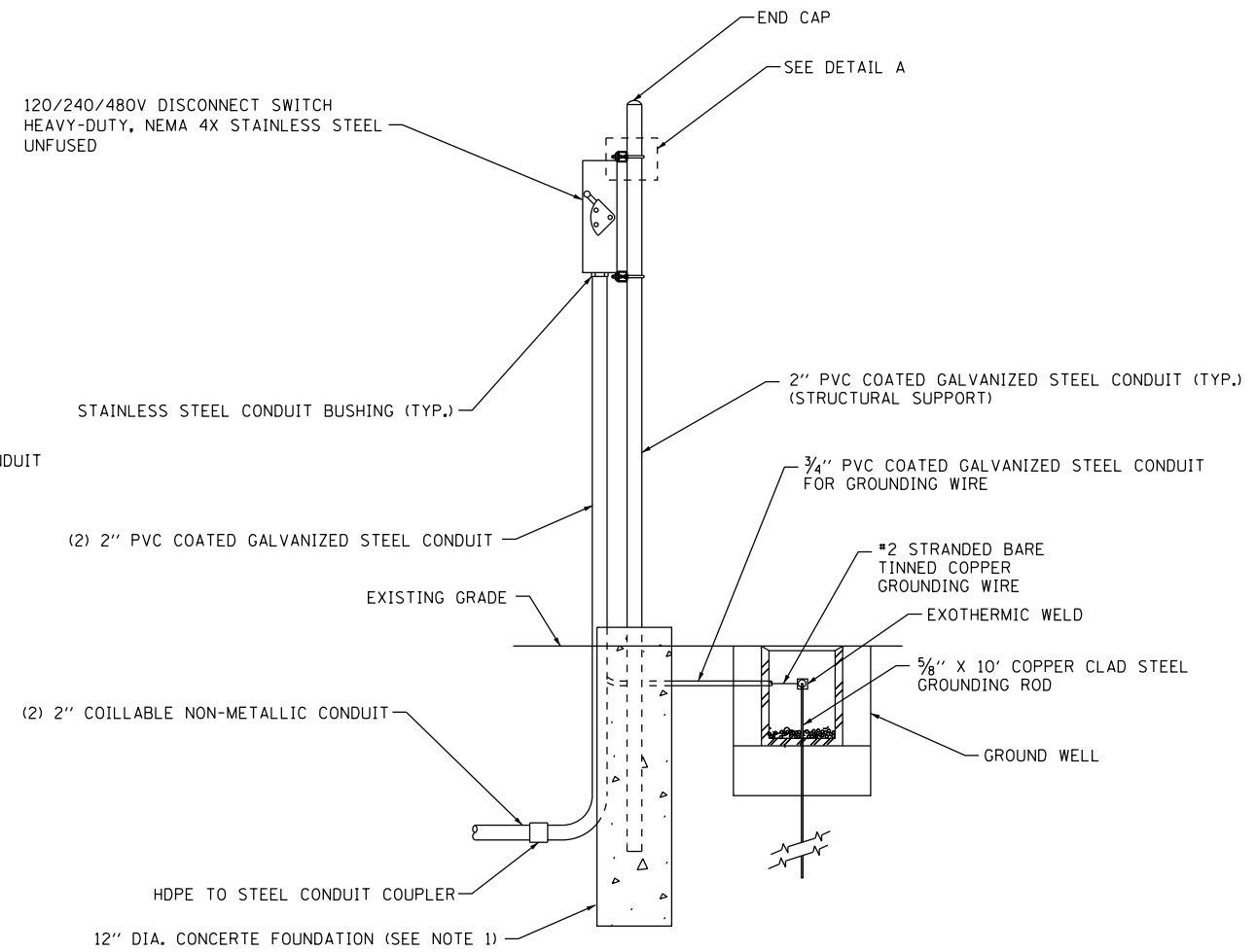
DETAIL A - TYPICAL MOUNTING ATTACHMENT CONNECTION

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



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 1/2" 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 COMMERCIALY AVAILABLE HYDROPHOBIC LOW DENSITY COMPOSITE BACKFILL MATERIAL (KNOWN AS O-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.

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 ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

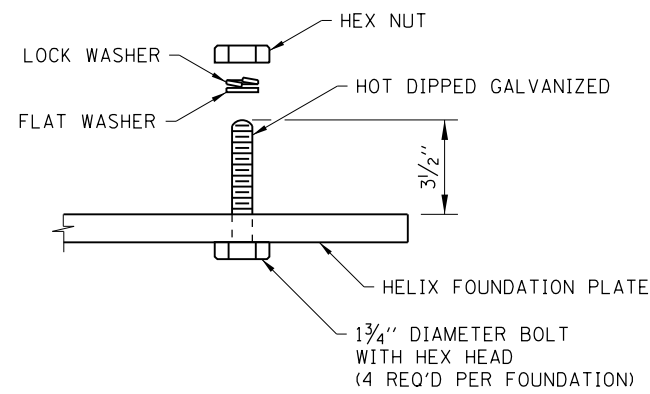
M-ITS-1001



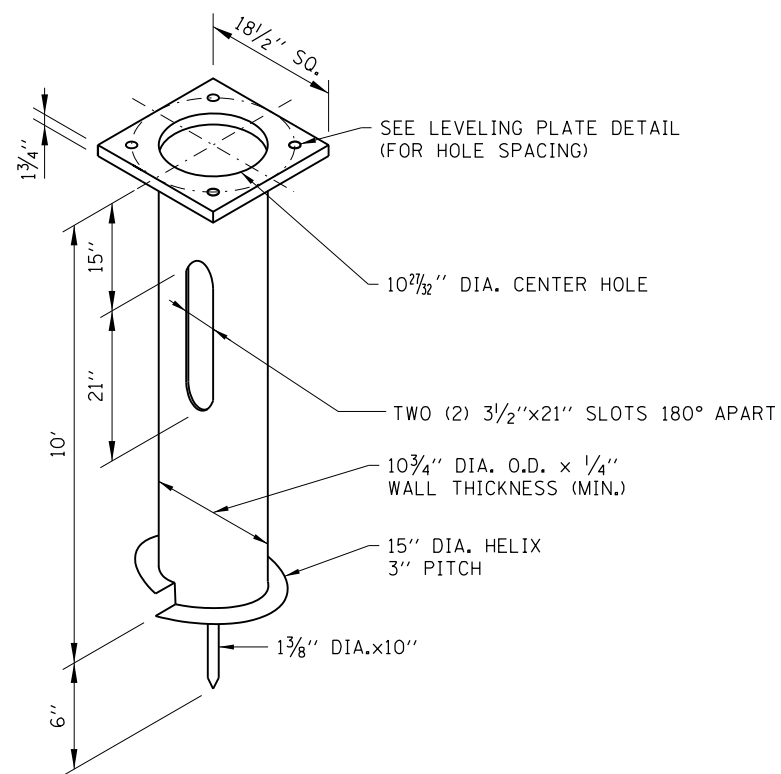
GENERAL NOTES
POLE MOUNTED ITS
ELEMENT ASSEMBLY

DATE

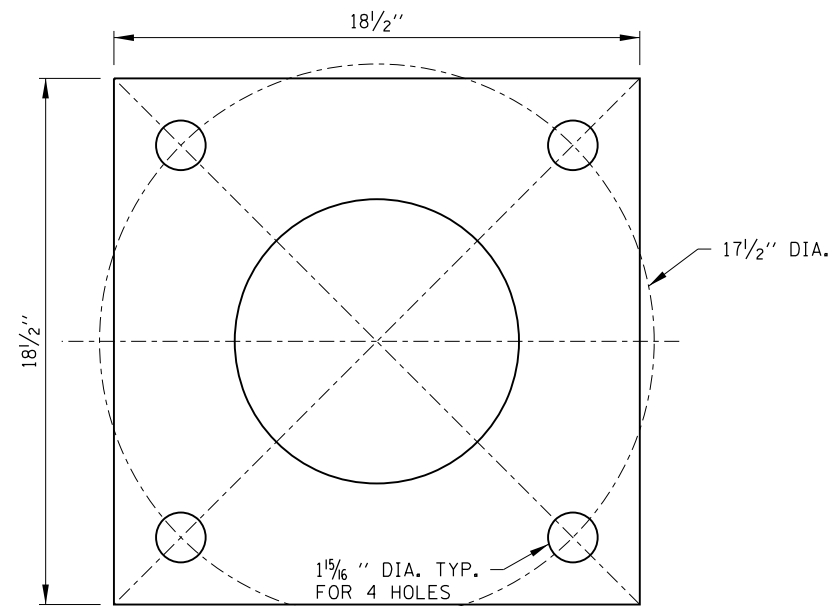
3-01-2019



BASE ATTACHMENT DETAIL
17 1/2" BASE DIA.



ISOMETRIC



LEVELING PLATE

NOTE 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 ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

NOTE TO DESIGNER

ALL NEW 50 FT. STEEL ITS POLES REQUIRE A 17 1/2" DIA. BOLT CIRCLE. SHOULD A 15" DIA. BOLT CIRCLE BE REQUIRED, THE DSE SHALL REFERENCE ILLINOIS TOLLWAY STANDARD DRAWING HI (LIGHT STANDARD FOUNDATION).

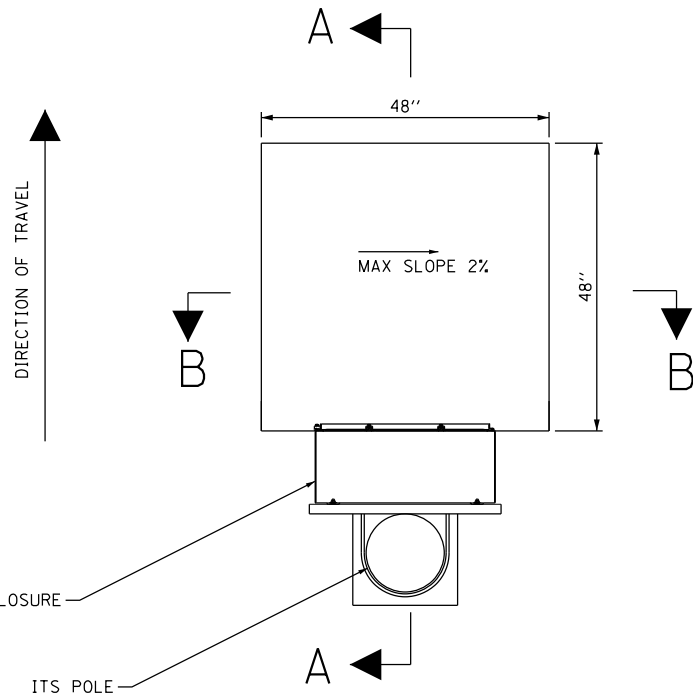
HELIX - GROUND MOUNTED ASSEMBLY

M-ITS-1002

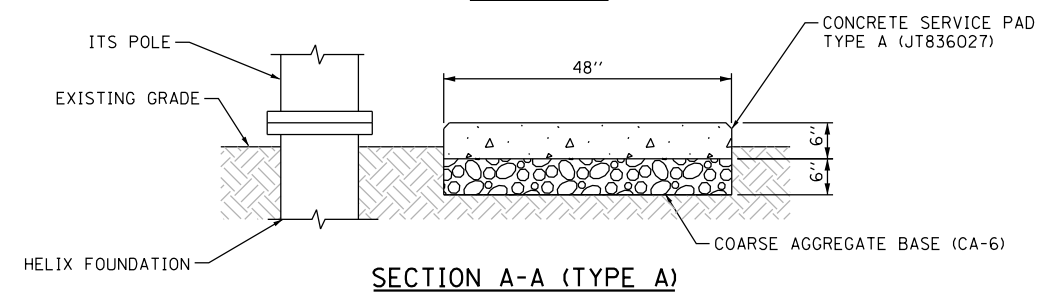


ITS STANDARD FOUNDATION

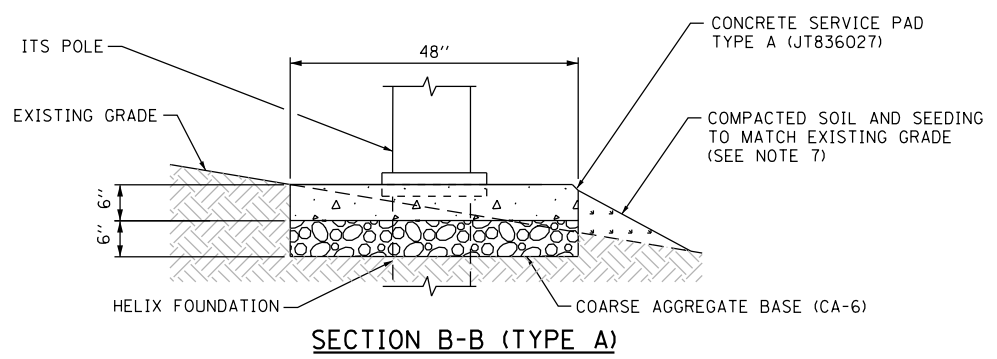
DATE
 3-31-2017



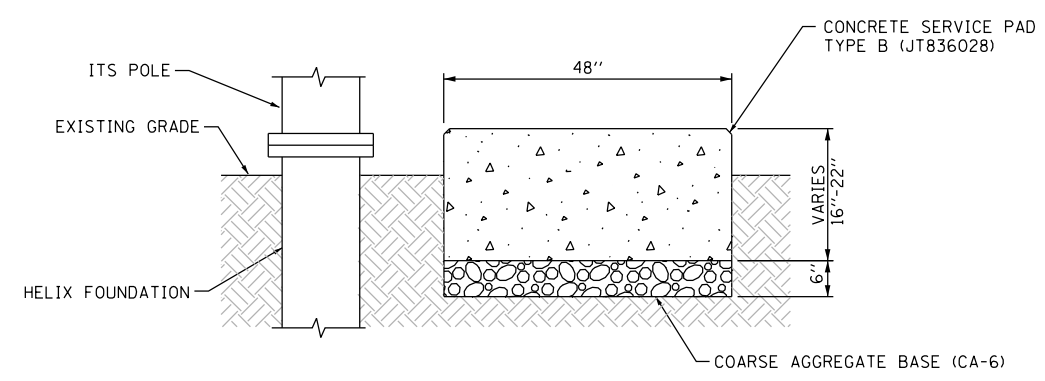
**CONCRETE SERVICE PAD FOR ITS POLE
PLAN VIEW**



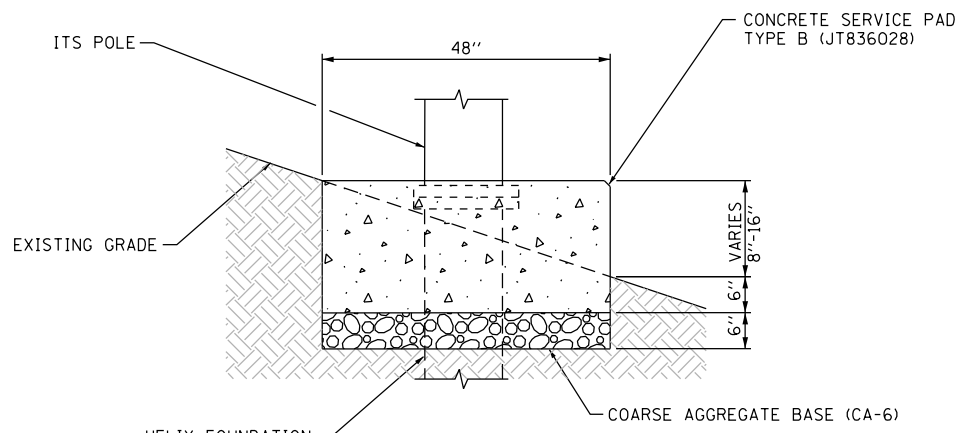
SECTION A-A (TYPE A)



SECTION B-B (TYPE A)



SECTION A-A (TYPE B)



SECTION B-B (TYPE B)

CONCRETE SERVICE PAD DETAILS

NOT TO SCALE

NOTE 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 ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE DRAWING INTO THE PLAN SET.

NOTES:

1. TYPE A SERVICE PADS SHALL BE INSTALLED ON SLOPES UP TO AND INCLUDING 1:6 (V:H).
2. TYPE B SERVICE PADS SHALL BE INSTALLED ON SLOPES GREATER THAN 1:6 AND LESS THAN OR EQUAL TO 1:3.
3. TYPE C SERVICE PADS SHALL BE INTALLED ON SLOPES GREATER THAN 1:3 AS SHOWN ON SHEET M-ITS-1003 SHEET 2 OF 2.
4. CONCRETE SHALL BE IDOT CLASS SI.
5. ALL EXPOSED CONCRETE EDGES SHALL HAVE A 1" MINIMUM CHAMFER.
6. CONTRACTOR SHALL TAKE PRECAUTIONS TO STABILIZE EXISTING ITS POLES AND HELIX FOUNDATIONS WHILE EXCAVATING SOIL FOR INSTALLATION OF CONCRETE SERVICE PADS.
7. COMPACTED SOIL SHALL BE PLACED TO BE LEVEL WITH THE SERVICE PAD. CONTRACTOR MAY USE EXCVATED SOIL FROM PLACING THE PAD'S AGGREGATE BASE FOR GRADING PURPOSES WITH APPROVAL OF THE ENGINEER. SEEDING AND EROSION CONTROL SHALL BE PER THE GENERAL NOTES ON SHEET GN-08.
8. SOIL EXCAVATED FOR THE PURPOSE OF MAINTAINING A STABLE WORKING SLOPE WHILE INSTALLING THE SERVICE PAD SHALL BE REPLACED. BACKFILL SHALL BE EARTH WHICH IS FREE FROM DEBRIS, CINDERS, AND ROCKS MEASURING 2" OR GREATER IN DIAMETER. IN THE EVENT THAT EXCAVATED MATERIAL IS UNSUITABLE FOR USE AS BACKFILL, THE CONTRACTOR SHALL USE A CLEAN, NATURAL SAND. THIS SUBSTITUTE BACKFILL SHALL BE INCIDENTAL TO THE SERVICE PAD INSTALLATION AND WILL NOT BE PAID FOR SEPARATELY. ALL BACKFILL MATERIALS SHALL BE COMPACTED TO THE SATISFACTION OF THE ENGINEER.
9. THE TOP SURFACE OF SOIL DISTURBED BY EXCAVATION FOR PLACING THE SERVICE PADS SHALL BE SEEDD AND AND PROTECTED WITH EROSION CONTROL MEASURES PER THE GENERAL NOTES ON SHEET GN-08

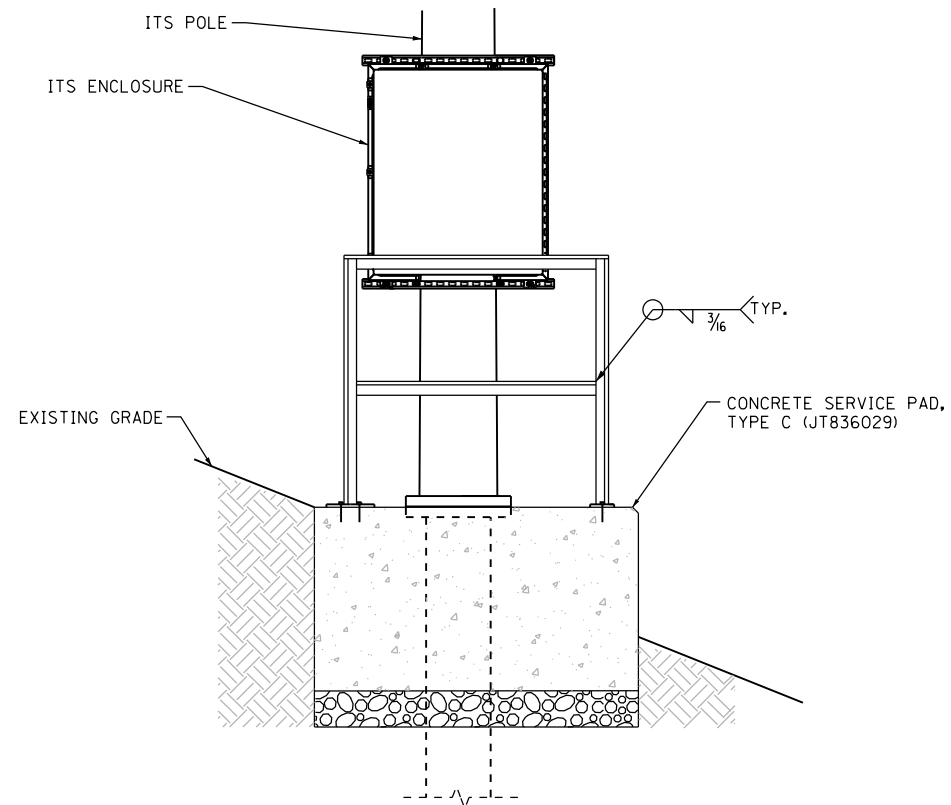


ITS CONCRETE SERVICE PAD

DATE
3-01-2019

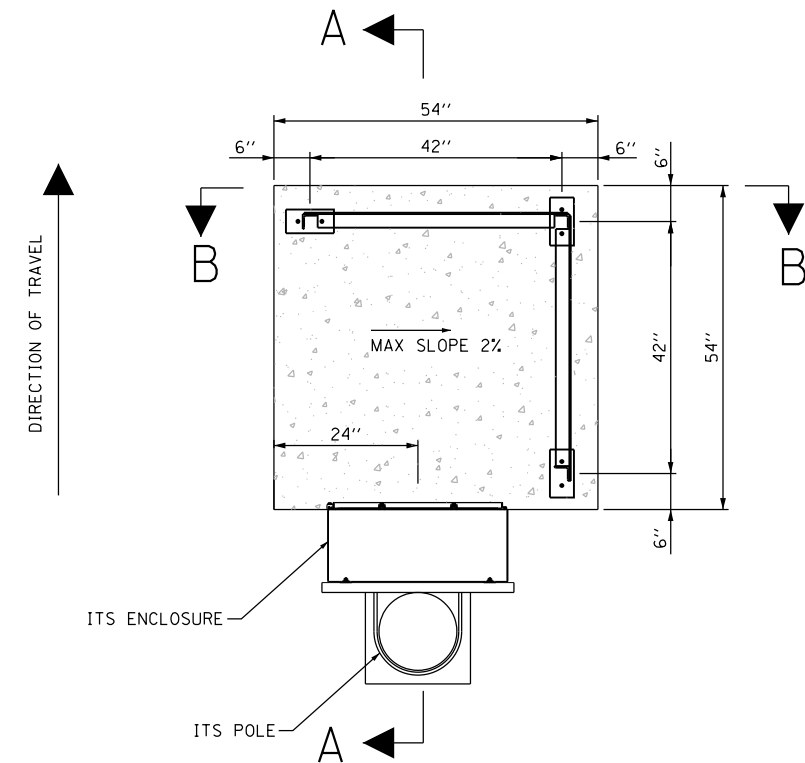
NOTES:

1. TYPE A SERVICE PADS SHALL BE INSTALLED ON SLOPES UP TO AND INCLUDING 1:6 (V:H).
2. TYPE B SERVICE PADS SHALL BE INSTALLED ON SLOPES GREATER THAN 1:6 AND LESS THAN OR EQUAL TO 1:3.
3. TYPE C SERVICE PADS SHALL BE INSTALLED ON SLOPES GREATER THAN 1:3 AS SHOWN ON SHEET M-ITS-1003.
4. CONCRETE SHALL BE IDOT CLASS S1.
5. ALL EXPOSED CONCRETE EDGES SHALL HAVE A 1" MINIMUM CHAMFER.
6. CONTRACTOR SHALL TAKE PRECAUTIONS TO STABILIZE EXISTING ITS POLES AND HELIX FOUNDATIONS WHILE EXCAVATING SOIL FOR INSTALLATION OF CONCRETE SERVICE PADS.
7. COMPACTED SOIL SHALL BE PLACED TO BE LEVEL WITH THE SERVICE PAD. CONTRACTOR MAY USE EXCAVATED SOIL FROM PLACING THE PAD'S AGGREGATE BASE FOR GRADING PURPOSES WITH APPROVAL OF THE ENGINEER. SEEDING AND EROSION CONTROL SHALL BE PER THE GENERAL NOTES ON SHEET GN-08.
8. SOIL EXCAVATED FOR THE PURPOSE OF MAINTAINING A STABLE WORKING SLOPE WHILE INSTALLING THE SERVICE PAD SHALL BE REPLACED. BACKFILL SHALL BE EARTH WHICH IS FREE FROM DEBRIS, CINDERS, AND ROCKS MEASURING 2" OR GREATER IN DIAMETER. IN THE EVENT THAT EXCAVATED MATERIAL IS UNSUITABLE FOR USE AS BACKFILL, THE CONTRACTOR SHALL USE A CLEAN, NATURAL SAND. THIS SUBSTITUTE BACKFILL SHALL BE INCIDENTAL TO THE SERVICE PAD INSTALLATION AND WILL NOT BE PAID FOR SEPARATELY. ALL BACKFILL MATERIALS SHALL BE COMPACTED TO THE SATISFACTION OF THE ENGINEER.
9. THE TOP SURFACE OF SOIL DISTURBED BY EXCAVATION FOR PLACING THE SERVICE PADS SHALL BE SEEDING AND PROTECTED WITH EROSION CONTROL MEASURES PER THE GENERAL NOTES ON SHEET GN-08



**CONCRETE SERVICE PAD, TYPE C
ELEVATION VIEW**

NOT TO SCALE



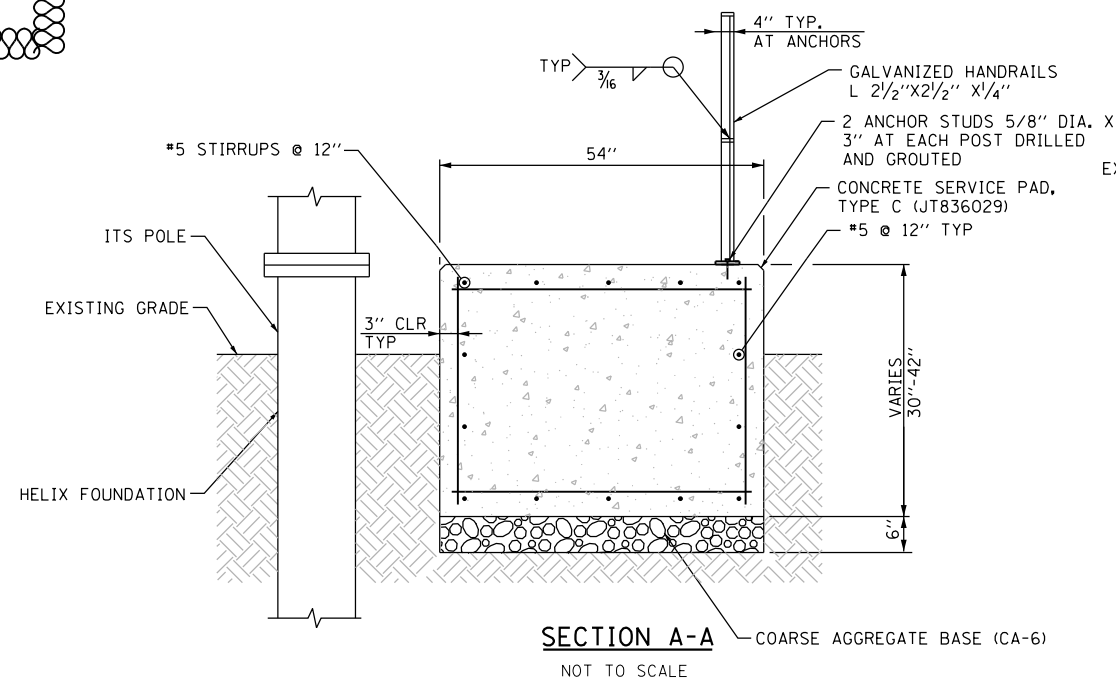
**CONCRETE SERVICE PAD, TYPE C
PLAN VIEW**

NOT TO SCALE

TYP. $\frac{3}{16}$

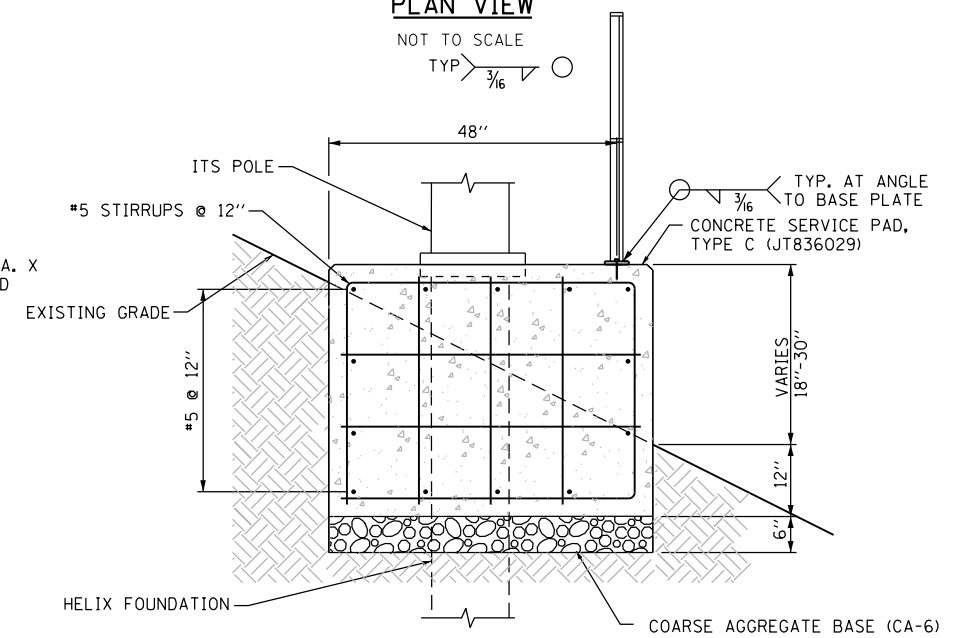
NOTE TO DESIGNER

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 ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE DRAWING INTO THE PLAN SET.



SECTION A-A

NOT TO SCALE



SECTION B-B

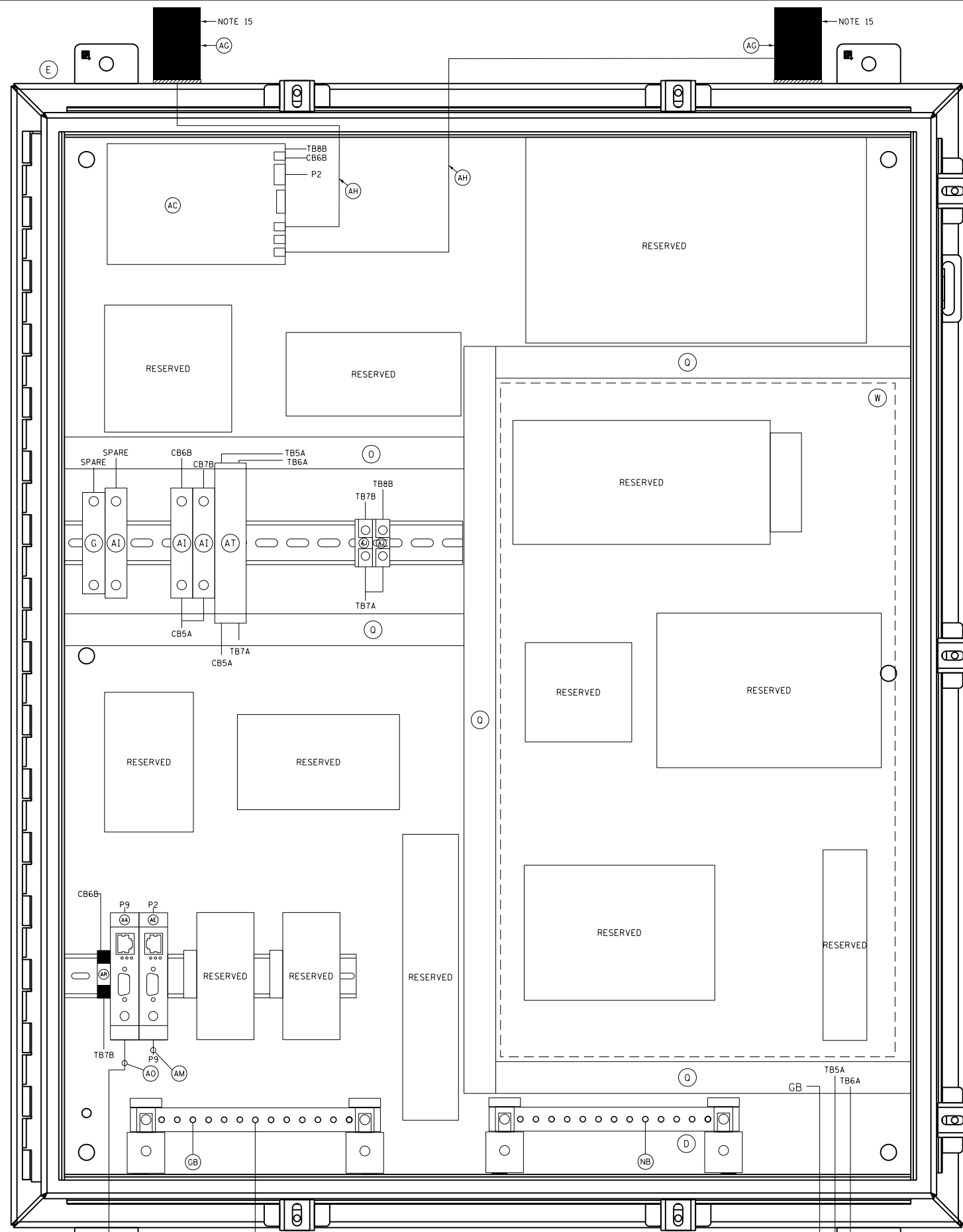
NOT TO SCALE

M-ITS-1003
SHEET 2 OF 2



ITS CONCRETE SERVICE PAD

DATE
3-01-2019



- ITEM DESCRIPTION
- A NOT USED FOR THIS SHEET APPLICATION
 - B NOT USED FOR THIS SHEET APPLICATION
 - C NOT USED FOR THIS SHEET APPLICATION
 - D TWO (2) GROUNDING BAR SYSTEM HOFFMAN/PGS2K, BONDED OR SEPARATED AS REQUIRED.
 - E NEMA 4X STAINLESS STEEL, 36" H X 30" W X 12" D ENCLOSURE WITH 33" X 27" PANEL, HOFFMAN/A36H3012SS6LP & A36P30
 - F NOT USED FOR THIS SHEET APPLICATION
 - G 24VDC, 1P, 15A CIRCUIT BREAKER SCHNEIDER ELECTRIC/MGN61510
 - H NOT USED FOR THIS SHEET APPLICATION
 - I NOT USED FOR THIS SHEET APPLICATION
 - J NOT USED FOR THIS SHEET APPLICATION
 - K NOT USED FOR THIS SHEET APPLICATION
 - L NOT USED FOR THIS SHEET APPLICATION
 - M NOT USED FOR THIS SHEET APPLICATION
 - N NOT USED FOR THIS SHEET APPLICATION
 - O NOT USED FOR THIS SHEET APPLICATION
 - P NOT USED FOR THIS SHEET APPLICATION
 - Q PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/FIX1LG6 WITH COVER-FIX2LG6
 - R NOT USED FOR THIS SHEET APPLICATION
 - S NOT USED FOR THIS SHEET APPLICATION
 - T NOT USED FOR THIS SHEET APPLICATION
 - U NOT USED FOR THIS SHEET APPLICATION
 - V NOT USED FOR THIS SHEET APPLICATION
 - W CLEAR POLY METHYL METHACRYLATE (PMMA, PLEXIGLAS) SAFETY COVER.
 - X POWER CONTROLLER, 8-CHANNEL DIN ETHERNET RELAY DIGITAL LOGGERS/DIN 4
 - Y NOT USED FOR THIS SHEET APPLICATION
 - Z NOT USED FOR THIS SHEET APPLICATION
 - AA SENSOR SURGE SUPPRESSION, WAVETRONIX - CLICK-200 OR ISS ZONE BARRIER ZB 24510
 - AB NOT USED FOR THIS SHEET APPLICATION
 - AC CDMA MODEM ASSEMBLY (FOR VERIZON NETWORK)
 - AD NOT USED FOR THIS SHEET APPLICATION
 - AE RS-232 / RS-485 TO ETHERNET CONVERTOR WAVETRONIX - CLICK-301 OR ISS-MOXA P5150A, OK-35A
 - AF NOT USED FOR THIS SHEET APPLICATION
 - AG WIRELESS MODEM ANTENNAS, PCTEL/BMLPVD8700/2500
 - AH WIRELESS MODEM ANTENNA CABLE, WITH SMA CONNECTORS PCTEL/PROFLEX PLUS 195-R058/U
 - AI 2A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPMIB020
 - AJ TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
 - AK MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS WAVETRONIX (SMART SENSOR HDSS-126) OR ISS (SX-300)
 - AL NOT USED FOR THIS SHEET APPLICATION
 - AM 5-CONDUCTOR JUMPER (Tx, Rx, GND, RTS, CTS), RS-232 SERIAL COMMUNICATIONS (APPLICABLE TO ISS/MOXA)
 - AN NOT USED FOR THIS SHEET APPLICATION
 - AO MVDS CABLE, WAVETRONIX - WX-SS-706-60 OR ISS G4-CBL-60
 - AP NOT USED FOR THIS SHEET APPLICATION
 - AQ NOT USED FOR THIS SHEET APPLICATION
 - AR T-BUS CONNECTOR (WAVETRONIX)
 - AS NOT USED FOR THIS SHEET APPLICATION
 - AT EATON ZONE BARRIER ZB24580 (OR EQUIVALENT)
 - AU NOT USED FOR THIS SHEET APPLICATION
 - AV NOT USED FOR THIS SHEET APPLICATION

- NOTES:
1. ALL POWER WIRING SHALL BE RHH/RHW WITH WIRE TERMINALS OR TINNED.
 2. CONTRACTOR TO VERIFY CORRECT TRANSFORMER TAPS ARE USED BASED ON INCOMING POWER SOURCE.
 3. ALL CABLES AND EQUIPMENT SHALL BE PROPERLY DRESSED AND LABELED. ALL CONDUITS SHALL BE PROPERLY PLUGGED WITH DUCT SEAL PUTTY (RAINBOW TECHNOLOGIES OR EQUIVALENT).
 4. NOT USED FOR THIS SHEET APPLICATION.
 5. EACH 120VAC OUTLET, PS OR TRANSFORMER (ITEM F, K, L, & AF) SHALL BE FED FROM A SEPARATE INPUT LINE.
 6. MOUNT ITEMS J & K ON A 11.75 INCH CONTINUOUS SECTION OF DIN RAIL. THE DIN RAIL SHALL BE INSTALLED WITH THE CENTER LINE NO LESS THAN 5 INCHES FROM ANY OBSTACLE ABOVE AND NO LESS THAN 4 INCHES FROM ANY OBSTACLE BELOW. ALL DIN RAIL SHALL BE GROUNDED.
 7. ALL CABLES INSTALLED WITHIN THE CABINET AND POLE SHALL BE OUTDOOR RATED.
 8. WIFI COMMUNICATION SHALL BE DISABLED ON DIN ETHERNET RELAY.
 9. THE GFI OUTLETS LOAD SHALL NOT BE CONNECTED TO ANY OTHER LOAD IN THE ENCLOSURE. THE 1900 QUAD BOX GFIS ARE INTENDED TO BE UTILIZED FOR EXTERNAL EQUIPMENT ONLY. EACH OUTLETS TAB SHALL BE BROKEN SO THEY ARE INDEPENDENT.
 10. ALL BREAKERS SHALL BE LABELED (e.g. CAMERA-AC, CAMERA-DC, DIN RELAY-AC, DIN RELAY-DC, CELL MODEM-AC ETC.).
 11. NOT USED FOR THIS SHEET APPLICATION
 12. USE THE MOUNTING TABS ON THE IP RELAY UNIT TO MOUNT THE UNIT DIRECTLY TO THE BACK PLATE. REFER TO THE IP RELAY WIRING TABLE FOR WIRING DETAILS.
 13. ALL CABLES SHALL ENTER THE ENCLOSURE FROM THE BOTTOM. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THE HANDHOLE.
 14. POWER FEED TO THE CISCO IE4000 SWITCH SHALL BE FROM THE 120VAC INPUT WHEN THE ENCLOSURE IS AC POWERED.
 15. THE CELL MODEM ANTENNAS SHALL BE PROPERLY SEALED WITH HIGH DENSITY NEOPRENE GASKETS RATED FOR HIGH TEMPERATRURE TO PREVENT WATER PENETRATION INTO THE CABINET.
 16. IF A SOLAR GENERATOR IS CONNECTED, THEN ITEM P AND THE SECONDARY SIDE OF ITEM B SHALL BE CONNECTED UNTIL A FINAL AC CONNECTION IS MADE.
 17. ITEM X IS USED TO CONTROL POWER TO THE CAMERAS AND DETECTORS. ALL 120VAC CONNECTIONS ON ITEM X SHALL BE PROTECTED.
 18. CABLES TO BE ROUTED THROUGH POLE.
 19. WHEN A 24VDC TO 120VAC POWER GENERATOR IS CONNECTED, THEN THE 480VAC TO 120VAC STEP DOWN TRANSFORMER IS BYPASSED.
 20. NOT USED FOR THIS SHEET APPLICATION
 21. NOT USED FOR THIS SHEET APPLICATION
 22. DIN RAIL SHALL BE INSTALLED AS ILLUSTRATED ON DRAWING. DIN RAIL SHALL BE GROUNDED TO THE GROUND BUS.
 23. TIE THE ENCLOSURE INTO THE GROUND BUS.
 24. ITEM W SHALL BE FORMED AND MOLDED TO FIT AROUND THE AREA DENOTED BY THE DASHED LINE. THE PLEXIGLASS SHALL BE MOUNTED TO THE BACKPLATE WITH SUFFICIENT AIR HOLES TO ALLOW HEAT TO ESCAPE THE AREA. THERE SHALL ALSO BE OPENINGS ON THE BOTTOM TO ALLOW CABLES TO BE PASSED FROM THE AC SECTION TO THE OTHER SECTIONS OF THE ENCLOSURE.
 25. ITEM AL SHALL BE PLACED ON ITEM B.
 26. ALL INTERNAL ENCLOSURE ROUTED AND TERMINATED CAT6 CABLE SHALL BE TEMPERATURE RATED.
 27. ALL INTERNAL 24VAC, 120VAC (STARTING ON SECONDARY SIDE OF ITEM B) AND ANY DC VOLTAGE POWER FEEDS USE #16 AWG CABLE.
 28. SPARE BREAKER RESERVED FOR CONNECTED VEHICLE TECHNOLOGY.
 29. ALL CONDUIT EXITING THE BOTTOM OF THE CABINET SHALL BE INSTALLED IN-LINE WITH THE EQUIPMENT IT IS CONNECTED TO. THE CABLES SHALL BE INSTALLED IN A NEAT AND PROFESSIONAL MANNER.


NOTE 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 ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE DRAWING INTO THE PLAN SET.

M-ITS-1004
SHEET 1 OF 2

NOTE TO DESIGNER

DESIGNER SHALL CONTACT THE TOLLWAY'S ITS UNIT WHEN THE DESIGN NEEDS 2 OR 3 MVDS UNITS.



**Illinois
Tollway**

CABINET LAYOUT AND WIRING
ITS POLE MOUNTED ENCLOSURE
(SOLAR POWERED 1-MVDS)

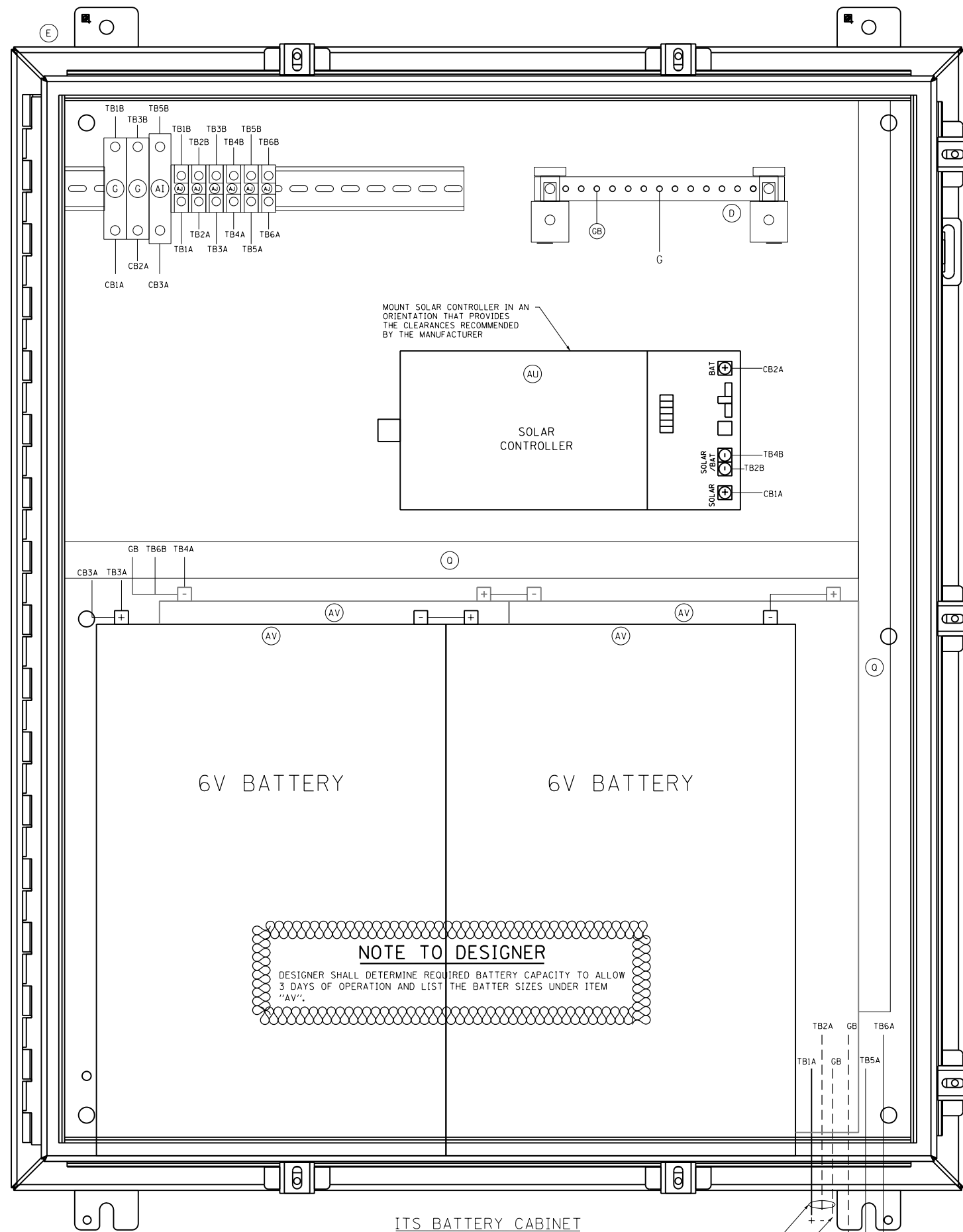
DATE
3-01-2019

MULTICONDUCTOR CABLE (POWER+COMM.) TO MVDS UNIT #1 (NOTE 13 & 18)

GROUND ROD CONNECTION USING A #2 AWG SOLID TINNED COPPER GROUND CABLE EXOTHERMICALLY WELDED TO THE EXTERNAL GROUND BUSBAR.

ITS EQUIPMENT CABINET

ROUTED INTERNALLY TO POLE
POWER 24VDC FROM SOLAR GENERATOR (NOTE 13)



MOUNT SOLAR CONTROLLER IN AN ORIENTATION THAT PROVIDES THE CLEARANCES RECOMMENDED BY THE MANUFACTURER

6V BATTERY

6V BATTERY

NOTE TO DESIGNER

DESIGNER SHALL DETERMINE REQUIRED BATTERY CAPACITY TO ALLOW 3 DAYS OF OPERATION AND LIST THE BATTER SIZES UNDER ITEM "AV".

ITS BATTERY CABINET

FROM SOLAR ARRAY ROUTED INTERNALLY TO POLE
TO EXTERNAL BUSBAR
FROM ITS EQUIPMENT CABINET ROUTED INTERNALLY TO POLE

ITEM	DESCRIPTION
A	NOT USED FOR THIS SHEET APPLICATION
B	NOT USED FOR THIS SHEET APPLICATION
C	NOT USED FOR THIS SHEET APPLICATION
D	GROUNDING BAR SYSTEM HOFFMAN/PGS2K.
E	NEMA 4X STAINLESS STEEL, 36"H X 30"W X 18"D ENCLOSURE WITH 33"X27" PANEL
F	NOT USED FOR THIS SHEET APPLICATION
G	24VDC, 1P, 15A CIRCUIT BREAKER SCHNEIDER ELECTRIC/MGN61510
H	NOT USED FOR THIS SHEET APPLICATION
I	NOT USED FOR THIS SHEET APPLICATION
J	NOT USED FOR THIS SHEET APPLICATION
K	NOT USED FOR THIS SHEET APPLICATION
L	NOT USED FOR THIS SHEET APPLICATION
M	NOT USED FOR THIS SHEET APPLICATION
N	NOT USED FOR THIS SHEET APPLICATION
O	NOT USED FOR THIS SHEET APPLICATION
P	NOT USED FOR THIS SHEET APPLICATION
Q	PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/FIX1LG6 WITH COVER-FIX2LG6
R	NOT USED FOR THIS SHEET APPLICATION
S	NOT USED FOR THIS SHEET APPLICATION
T	NOT USED FOR THIS SHEET APPLICATION
U	NOT USED FOR THIS SHEET APPLICATION
V	NOT USED FOR THIS SHEET APPLICATION
W	NOT USED FOR THIS SHEET APPLICATION
X	NOT USED FOR THIS SHEET APPLICATION
Y	NOT USED FOR THIS SHEET APPLICATION
Z	NOT USED FOR THIS SHEET APPLICATION
AA	NOT USED FOR THIS SHEET APPLICATION
AB	NOT USED FOR THIS SHEET APPLICATION
AC	NOT USED FOR THIS SHEET APPLICATION
AD	NOT USED FOR THIS SHEET APPLICATION
AE	NOT USED FOR THIS SHEET APPLICATION
AF	NOT USED FOR THIS SHEET APPLICATION
AG	NOT USED FOR THIS SHEET APPLICATION
AH	NOT USED FOR THIS SHEET APPLICATION
AI	2A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPMIB020
AJ	TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
AK	NOT USED FOR THIS SHEET APPLICATION
AL	NOT USED FOR THIS SHEET APPLICATION
AM	NOT USED FOR THIS SHEET APPLICATION
AN	NOT USED FOR THIS SHEET APPLICATION
AO	NOT USED FOR THIS SHEET APPLICATION
AP	NOT USED FOR THIS SHEET APPLICATION
AQ	NOT USED FOR THIS SHEET APPLICATION
AR	NOT USED FOR THIS SHEET APPLICATION
AS	NOT USED FOR THIS SHEET APPLICATION
AT	NOT USED FOR THIS SHEET APPLICATION
AU	MORNINGSTAR TRISTAR TS-MPPT-60
AV	4-6V AGM BATTERIES CONNECTED IN SERIES.

- NOTES:
- ALL POWER WIRING SHALL BE RHH/RHW WITH WIRE TERMINALS OR TINNED.
 - CONTRACTOR TO VERIFY CORRECT TRANSFORMER TAPS ARE USED BASED ON INCOMING POWER SOURCE.
 - ALL CABLES AND EQUIPMENT SHALL BE PROPERLY DRESSED AND LABELED. ALL CONDUITS SHALL BE PROPERLY PLUGGED WITH DUCT SEAL PUTTY (RAINBOW TECHNOLOGIES OR EQUIVALENT).
 - NOT USED FOR THIS SHEET APPLICATION.
 - EACH 120VAC OUTLET, PS OR TRANSFORMER (ITEM F, K, L, & AF) SHALL BE FED FROM A SEPARATE INPUT LINE.
 - MOUNT ITEMS J & K ON A 1.75 INCH CONTINUOUS SECTION OF DIN RAIL. THE DIN RAIL SHALL BE INSTALLED WITH THE CENTER LINE NO LESS THAN 5 INCHES FROM ANY OBSTACLE ABOVE AND NO LESS THAN 4 INCHES FROM ANY OBSTACLE BELOW. ALL DIN RAIL SHALL BE GROUNDED.
 - ALL CABLES INSTALLED WITHIN THE CABINET AND POLE SHALL BE OUTDOOR RATED.
 - WIFI COMMUNICATION SHALL BE DISABLED ON DIN ETHERNET RELAY.
 - THE GFI OUTLETS LOAD SHALL NOT BE CONNECTED TO ANY OTHER LOAD IN THE ENCLOSURE. THE 1900 QUAD BOX GFIS ARE INTENDED TO BE UTILIZED FOR EXTERNAL EQUIPMENT ONLY. EACH OUTLETS TAB SHALL BE BROKEN SO THEY ARE INDEPENDENT.
 - ALL BREAKERS SHALL BE LABELED (e.g. CAMERA-AC, CAMERA-DC, DIN RELAY-AC, DIN RELAY-DC, CELL MODEM-AC ETC.).
 - NOT USED FOR THIS SHEET APPLICATION
 - USE THE MOUNTING TABS ON THE IP RELAY UNIT TO MOUNT THE UNIT DIRECTLY TO THE BACK PLATE. REFER TO THE IP RELAY WIRING TABLE FOR WIRING DETAILS.
 - ALL CABLES SHALL ENTER THE ENCLOSURE FROM THE BOTTOM. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THE HANDHOLE.
 - POWER FEED TO THE CISCO IE4000 SWITCH SHALL BE FROM THE 120VAC INPUT WHEN THE ENCLOSURE IS AC POWERED.
 - THE CELL MODEM ANTENNAS SHALL BE PROPERLY SEALED WITH HIGH DENSITY NEOPRENE GASKETS RATED FOR HIGH TEMPERATRURE TO PREVENT WATER PENETRATION INTO THE CABINET.
 - IF A SOLAR GENERATOR IS CONNECTED, THEN ITEM P AND THE SECONDARY SIDE OF ITEM B SHALL BE CONNECTED UNTIL A FINAL AC CONNECTION IS MADE.
 - ITEM X IS USED TO CONTROL POWER TO THE CAMERAS AND DETECTORS. ALL 120VAC CONNECTIONS ON ITEM X SHALL BE PROTECTED.
 - CABLES TO BE ROUTED THROUGH POLE.
 - WHEN A 24VDC TO 120VAC POWER GENERATOR IS CONNECTED, THEN THE 480VAC TO 120VAC STEP DOWN TRANSFORMER IS BYPASSED.
 - NOT USED FOR THIS SHEET APPLICATION
 - NOT USED FOR THIS SHEET APPLICATION
 - DIN RAIL SHALL BE INSTALLED AS ILLUSTRATED ON DRAWING. DIN RAIL SHALL BE GROUNDED TO THE GROUND BUS.
 - TIE THE ENCLOSURE INTO THE GROUND BUS.
 - ITEM W SHALL BE FORMED AND MOLDED TO FIT AROUND THE AREA DENOTED BY THE DASHED LINE. THE PLEXIGLASS SHALL BE MOUNTED TO THE BACKPLATE WITH SUFFICIENT AIR HOLES TO ALLOW HEAT TO ESCAPE THE AREA. THERE SHALL ALSO BE OPENINGS ON THE BOTTOM TO ALLOW CABLES TO BE PASSED FROM THE AC SECTION TO THE OTHER SECTIONS OF THE ENCLOSURE.
 - ITEM AL SHALL BE PLACED ON ITEM B.
 - ALL INTERNAL ENCLOSURE ROUTED AND TERMINATED CAT6 CABLE SHALL BE TEMPERATURE RATED.
 - ALL INTERNAL 24VAC, 120VAC (STARTING ON SECONDARY SIDE OF ITEM B) AND ANY DC VOLTAGE POWER FEEDS USE #16 AWG CABLE.
 - SPARE BREAKER RESERVED FOR CONNECTED VEHICLE TECHNOLOGY.
 - ALL CONDUIT EXITING THE BOTTOM OF THE CABINET SHALL BE INSTALL IN-LINE WITH THE EQUIPMENT IT IS CONNECTED TO. THE CABLES SHALL BE INSTALLED IN A NEAT AND PROFESSIONAL MANNER.

NOTE 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 ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE DRAWING INTO THE PLAN SET.

NOTE TO DESIGNER

DESIGNER SHALL CONTACT THE TOLLWAY'S ITS UNIT WHEN THE DESIGN NEEDS 2 OR 3 MVDS UNITS.



CABINET LAYOUT AND WIRING
ITS POLE MOUNTED ENCLOSURE
(SOLAR POWERED MVDS)

DATE
3-01-2019