

Illinois Tollway Base Sheet Revisions

Section M		Base Sheet Drawings	
Drawing	Modification Summary	Effective: 2020-03-01	
Pole Assembly (ITS)-Series 1000			
M-ITS-1000	Elevation Views Pole Mounted ITS Element Assembly		
	Use 1 1/2" stainless conduits for power and fiber to ITS Enclosure instead of 2". Corrected the MVDS mounting height on elevation details Use 1 1/2" stainless conduit for ITS Disconnect switch		
M-ITS-1001	General Notes Pole Mounted ITS Assembly		
	Note added on placement of battery enclosure		
M-ITS-1002	ITS Standard Foundation		
	Note added to use 12 ft helix foundation for slopes over 1:6		
M-ITS-1003	ITS Concrete Service Pad		
	Shows option for back-to-back mounted ITS enclosures.		
M-ITS-1004	Cabinet Wiring Diagram - ITS Pole Mounted Enclosure (Solar Powered MVDS) (2 sheets)		
	Sheet 1: Revised layout to better accommodate future expansion.		
Dynamic Message Sign (ITS)-Series 1100			
M-ITS-1100 to M-ITS-1108	DMS		
	(Typical) Revised Type 1 nomenclature to Walk-in (Typical) Revised Type 2 nomenclature to Front Access		
M-ITS-1101	DMS Type 1 Site Grounding Plan		
	Revised to show paved median structure		
M-ITS-1108	DMS Cabinet Wiring Diagram		
	Clarified wiring diagram Updated switch model		
Cabinet Wiring (ITS)-Series 1200			
M-ITS-1200 to M-ITS-1217	Cabinet Wiring Diagrams		
	New Cat6 surge suppressor Axis T8061 for Axis PoE camera and Ditek for Cohu PoE camera Revised layout for Cisco 4000 switch, power supply, Cohu PoE injectors Revised 1214-1216 plan to remove Cisco switch Added Level 3 Cisco license (L-IE4000-RTU=) Modified gator patch model number		
Roadway Weather Information System (ITS)-Series 1300			
M-ITS-1300	RWIS Pole, Sensor Mounting Detail		
	General note to have manufacturer to supervise installation and commissioning Revised to show option for co-located CCTV camera and ITS enclosure Clarified the mounting height measured from pavement surface Installed new ITS Enclosure back to back to the RPU enclosure Add ITS Disconnect switch within 50 feet from primary pole Show RWIS cabinet configuration for the 3 electrical services		
M-ITS-1301	RWIS Cabinet Wiring Diagram		
	Removed Cisco switch and gator patch from RPU enclosure		
M-ITS-1302	Typical RWIS Site Installation Plan		
	Proposed location of temperature sensors are site specific, final position to be determined by the Engineer in consultation with manufacturer. Correct sensor beam position to be in the wheel track for primary and secondary pole. Power cable from primary pole to secondary pole not to be spliced		
M-ITS-1303	RWIS Grounding Schematic		
	Corrections and additional detail to grounding diagram		

 New Sheet

 Retired Standard

Illinois Tollway Base Sheet Revisions

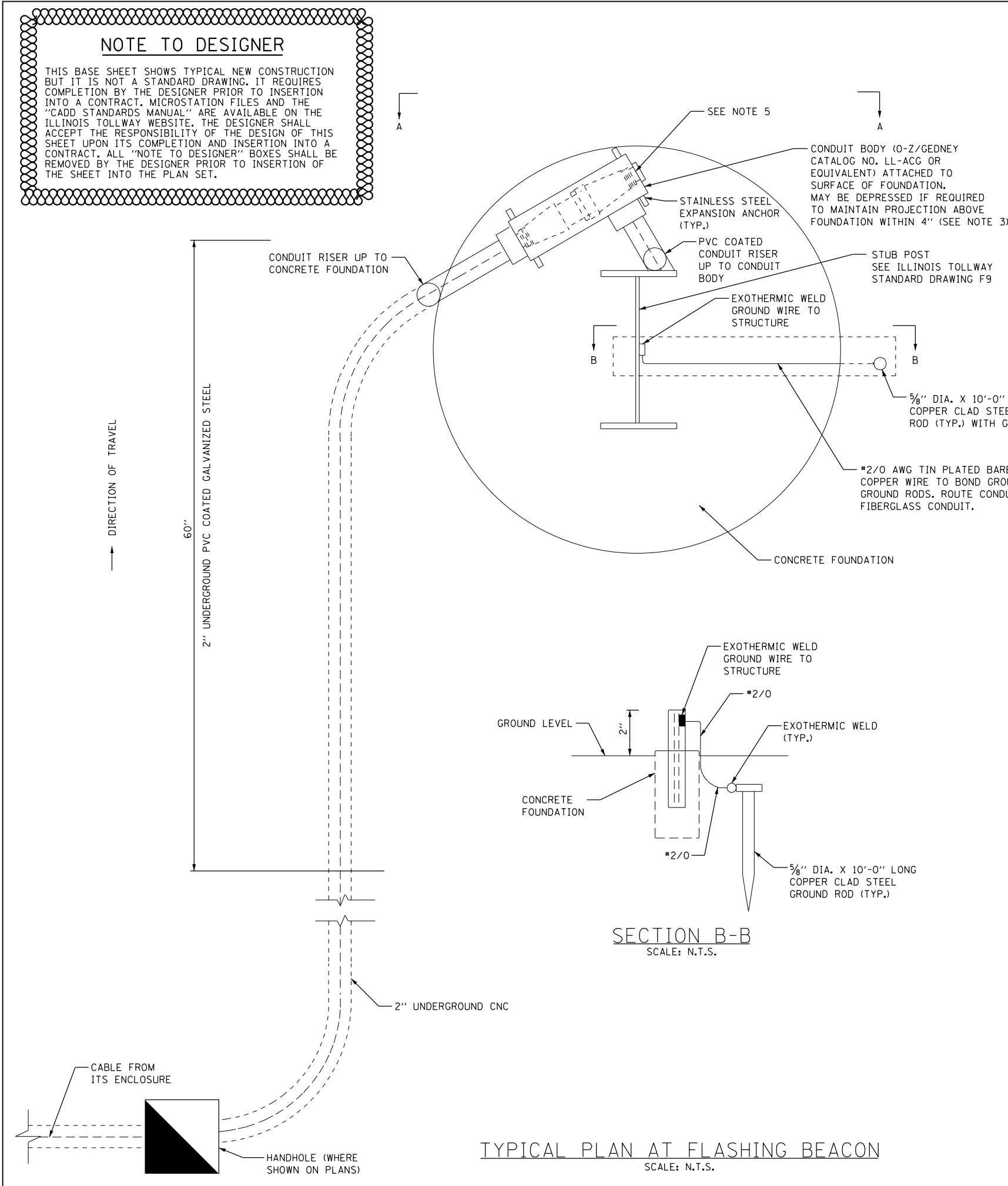
Section M		Base Sheet Drawings	
Drawing	Modification Summary	Effective: 2020-03-01	
Solar Powered Generator (ITS)-Series 1400			
M-ITS-1400	Solar Power Generator Details		
	Enclosure changed to Nema 4X		
Tower Mounted CCTV (ITS)-Series 1500			
M-ITS-1500	ITS Details Tower Mount Camera Details		
	Vertical distance between the two cameras is 24 in min. Both cameras to be installed on same side of the tower structure		
M-ITS-1501	ITS Details Tower Mount Camera Details, 300' Cat6 or More		
	Retired		
M-ITS-1502	ITS Details Tower Mount Camera Details, 300' Cat6 or Less		
	Vertical distance between the two cameras is 24 in min. Both cameras to be installed on same side of the tower structure		
M-ITS-1503	Cabinet Wiring Diagram Tower Mounted CCTV ITS Assembly		
	New Cat6 surge suppressor model		
	Revised layout of Cisco switch, power supply and Cohu PoE injector		
Weigh-in-Motion (ITS)-Series 1600			
M-ITS-1600	Weigh-In-Motion Cabinet and Foundation Details		
	Show two permanent antennas installed on top of WIM cabinet		
M-ITS-1603	Weigh-In-Motion Detector Loop and Quartz Sensor Detail		
	Show parking area for one vehicle for annual calibration		
M-ITS-1607	Weigh-In-Motion Height Detector		
	Added detail for overheight detector		
Flashing Sign Beacon (ITS)-Series 1700			
M-ITS-1701	Cabinet Layout and Wiring ITS Pole Mounted Enclosure (1-CCTV and Flashing Sign Beacon)		
	Update enclosure layout		
IPDC Facility (ITS)-Series 1800			
M-ITS-1800	IPDC Facility		
	No change		
Conduit Details at Integral Abutment Bridge (ITS)-Series 1900			
M-ITS-1900	Conduit Details at Integral Abutment Bridge with MSE Wall (Sheet 3)		
	No change		
100 FT. Monopole (ITS)-Series 2000			
M-ITS-2000	100 FT. Monopole Closed Circuit Television (CCTV) Camera Tower		
	Pole cap to use hex head screws		
	Show revised grounding around service pad		

 New Sheet

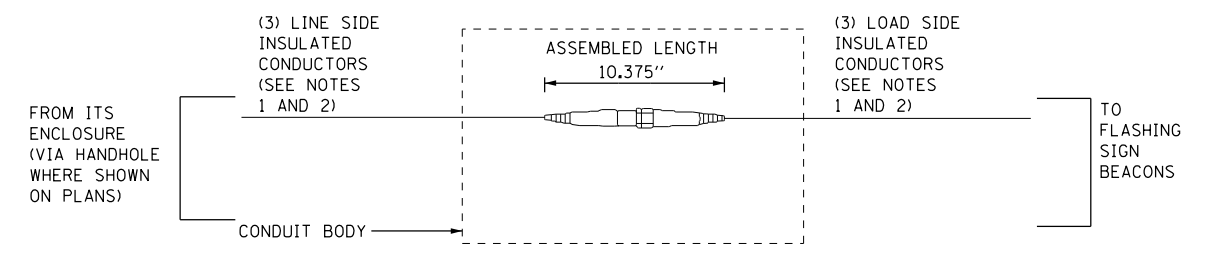
 Retired Standard

NOTE TO DESIGNER

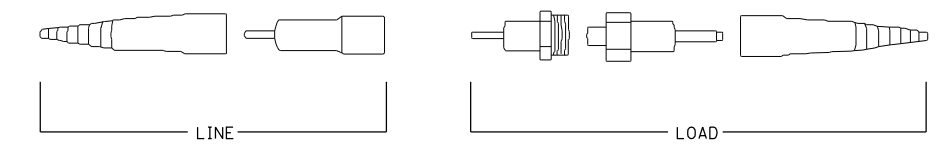
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT, MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF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



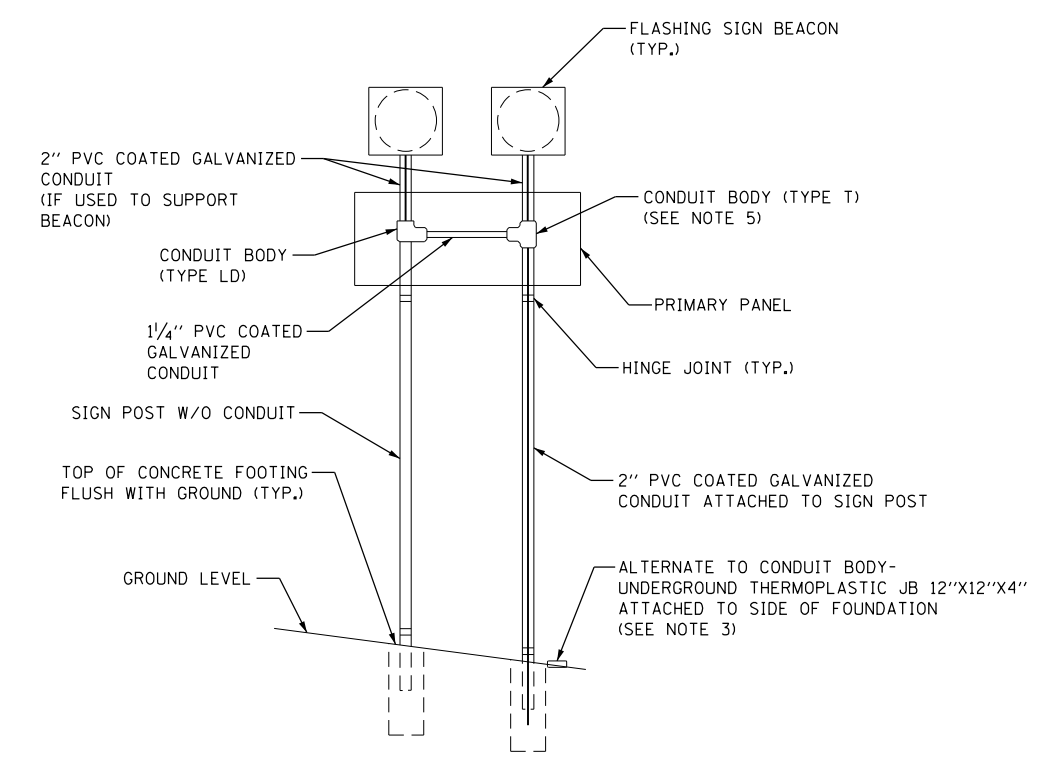
TYPICAL PLAN AT FLASHING BEACON
SCALE: N.T.S.



NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS



NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS EXPLODED VIEW



ELEVATION A-A
SCALE: N.T.S.

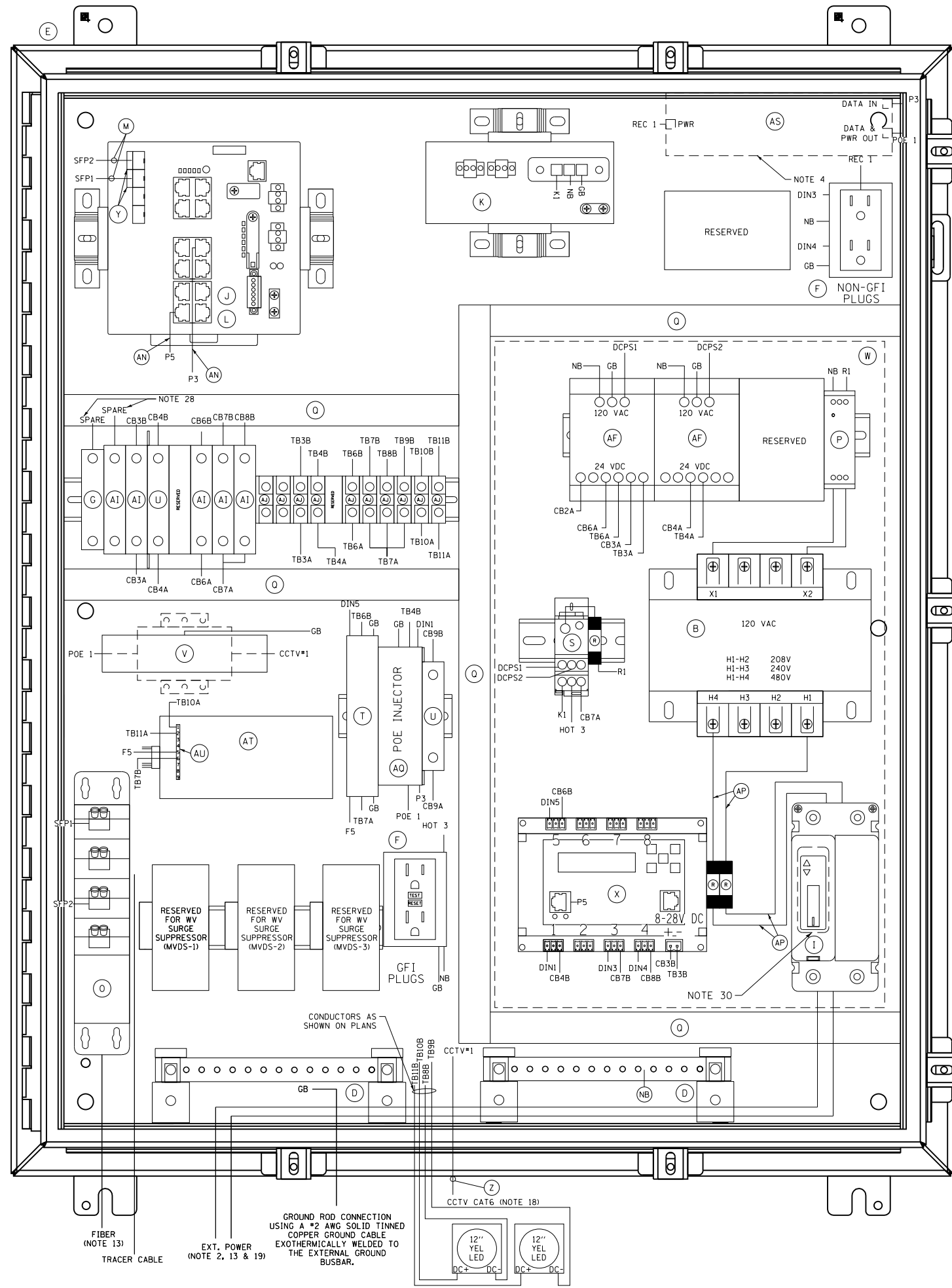
- NOTES:**
1. SEE PLANS FOR REQUIRED CONDUCTOR SIZES.
 2. ALL THREE CONDUCTORS SHALL BE IN ONE HARNESS.
 3. AS AN ALTERNATE TO THE CONDUIT BODY ON FOUNDATION, USE THERMOPLASTIC JUNCTION BOXES (CARLON PART NO. E989UUN OR APPROVED EQUAL)
 4. SLACK IN LINE SIDE CABLE SHALL BE PROVIDED IN HANDHOLE.
 5. SLACK IN LOAD SIDE CABLE SHALL BE PROVIDED IN TYPE "T" CONDUIT BODY, BUT CABLE SHALL BE TIED.

M-ITS-1700



**FLASHING SIGN BEACON
INSTALLATION BREAKAWAY
ELECTRICAL DETAIL**

DATE
3-31-2016



- ITEM DESCRIPTION
- A NOT USED FOR THIS SHEET APPLICATION
 - B CONTROL POWER TRANSFORMER, 1000VA, 208/240/480-120VAC, 1PH SQUARE D/CLASS 9070 - T1000 D95
 - 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"X 4" X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012S56LP & A36P30
 - F TWO DUPLEX 120V RECEPTACLES, ONE GFCI AND NON-GFI (SEE NOTE 9) HUBBELL/GFR5362 & BR20WR
 - G 24VDC, 1P, 15A CIRCUIT BREAKER SCHNEIDER ELECTRIC/MGN61510
 - H NOT USED FOR THIS SHEET APPLICATION
 - I 480V, 2P, 30A CIRCUIT BREAKER WITH TERMINAL SHIELD EATON/HFD2030L & 625B229G07
 - J NETWORK SWITCH CISCO IE-4000-8T4G-E
 - K CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
 - L IP SERVICES LICENSE: L-IE4000-RTU=
 - M 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z200Q2M
 - N NOT USED FOR THIS SHEET APPLICATION
 - O SMF PATCH PANEL WITH LC CONNECTORS FIBER CONNECTIONS G420U008LAN-XXX-0
 - P 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/S1 OR APPROVED EQUAL
 - Q PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/FIX2LG6 WITH COVER-CILG6
 - R 10 AMP FUSE, GOULD (MERSEN)/ATM-10
 - S SPLICE BLOCK, ALTECH/38041
 - T 24VAC/VDC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL MTL INSTRUMENTS/ZB24580
 - U 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPMIB050
 - V CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS PoE CAMERA AND USE DITEK DTK-MRJPOES FOR COHU PoE CAMERA.
 - W CLEAR POLY METHYL METHACRYLATE (PMMA, PLEXIGLAS) SAFETY COVER ENCOMPASSING ITEMS AF, P, S, R, B, X, & I. (THE INSTALLER SHALL PERMANENTLY AFFIX A LABEL STATING "DANGER 480 VAC" OR "DANGER 240 VAC" OR "DANGER 120 VAC" FOR 120 VAC AS FIELD CONDITIONS WARRANT.)
 - X POWER CONTROLLER, 8-CHANNEL DIN ETHERNET RELAY DIGITAL LOGGERS/DIN 4
 - Y (2) CISCO GLC-LX-SM-RGD = 1 GBPS SM SFP MODULES
 - Z CATEGORY 6 CABLE, 23 AWG, OUTDOOR RATED CABLE BELDEN/7953A
 - AA SENSOR SURGE SUPPRESSION, WAVETRONIX - CLICK-200 OR ISS ZONE BARRIER ZB24510
 - AB NOT USED FOR THIS SHEET APPLICATION
 - AC NOT USED FOR THIS SHEET APPLICATION
 - AD NOT USED FOR THIS SHEET APPLICATION
 - AE RS-232 / RS-485 TO ETHERNET CONVERTOR WAVETRONIX - CLICK-301 OR ISS-MOXA P5150A, 0K-35A
 - AF AC/DC POWER SUPPLY, 24VDC WAVETRONIX - CLICK-204 OR ISS LAMBDA DSP100-24
 - 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 MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS WAVETRONIX (SMART SENSOR HDSS-126) OR ISS (SX-300)
 - AL TRANSFORMER COVERS, SQUARE D/9070FSC2
 - AM 5-CONDUCTOR JUMPER (Tx, Rx, GND, RTS, CTS), RS-232 SERIAL COMMUNICATIONS (APPLICABLE TO ISS/MOXA)
 - AN INDOOR/OUTDOOR RATED CAT6 (1000MBS, TEMPERATURE HARDENED) THESE ARE THE CAT6 CABLES ROUTED INSIDE CABINET
 - AO MVDS CABLE, WAVETRONIX - WX-SS-706-60 OR ISS G4-CBL-60
 - AP #10 AWG
 - AQ PoE INJECTOR AXIS T8144 (ONLY REQUIRED FOR PoE CAMERAS)
 - AR T-BUS CONNECTOR (WAVETRONIX)
 - AS PoE INJECTOR COHU 7412007-003 (ONLY REQUIRED FOR PoE CAMERAS)
 - AT ELTEC FS-3 DC FLASHER
 - AU 9 PIN HARNESS FOR FS-3

- 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. SHEET SHOWS BOTH POE INJECTOR OPTIONS USING A 120VAC SUPPLY AND 24VDC SUPPLY. DEVICES REQUIRED FOR THE 120VAC SUPPLY ARE DENOTED WITH A DASHED LINE.
 5. EACH 120VAC OUTLET, PS OR TRANSFORMER (ITEM F, K, L, & AF) SHALL BE FED FROM A SEPARATE INPUT LINE.
 6. THE DIN RAIL(S) FOR ITEMS J & K 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 GROUNDING.
 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. NOT USED FOR THIS SHEET APPLICATION
 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 GROUNDING TO THE GROUND BUS.
 23. BOND NEUTRAL AND GROUND BUSES TOGETHER, WHEN REQUIRED. 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.
 29. 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.
 30. PROVIDE WINDOW IN PMMA SHIELD FOR ACCESS TO BREAKER. MOUNT BREAKER FLUSH WITH PMMA SHIELD USING MOUNTING BRACKET.

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DESIGNER SHALL SPECIFY THE GATOR PATCH CABLE LENGTH PER SITE AND UPDATE ITEM (O) TO INCLUDE THIS LENGTH.

M-ITS-1701
SHEET 1 OF 1

CABINET LAYOUT AND WIRING
ITS POLE MOUNTED ENCLOSURE
(1-CCTV AND FLASHING SIGN
BEACON)

DATE 3-01-2020

