THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

2700 OGDEN AVENUE • DOWNERS GROVE • ILLINOIS • 60515

BASE SHEETS

ITS (1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2100, 2500)

VOLUME 2 of 2

MARCH 2025

PART 2 OF 2

INDEX OF BASE SHEETS
SECTION M

POLE ASSEMBLY – SERIES 1000

DRAWING NUMBER	DESCRIPTION
M-ITS-1000	ELEVATION VIEWS POLE MOUNTED ITS ELEMENT ASSEMBLY
M-ITS-1001	GENERAL NOTES POLE MOUNTED ITS ELEMENT ASSEMBLY
M-ITS-1002	ITS STANDARD FOUNDATION
M-ITS-1003	ITS CONCRETE SERVICE PAD
M-ITS-1004	SPACER - DUCT PACKAGE IN A TRENCH

DYNAMIC MESSAGE SIGN – SERIES 1100

DRAWING NUMBER	DESCRIPTION
M-ITS-1100	DMS WALK-IN ELECTRICAL SCHEMATIC
M-ITS-1101	DMS WALK-IN SITE GROUNDING PLAN
M-ITS-1102	DMS WALK-IN TYPICAL SITE GROUNDING DETAIL
M-ITS-1103	DMS FRONT ACCESS-CANTILEVER ELECTRICAL SCHEMATIC
M-ITS-1104	DMS FRONT ACCESS-BUTTERFLY ELECTRICAL SCHEMATIC
M-ITS-1105	DMS FRONT ACCESS SITE GROUNDING PLAN
M-ITS-1106	DMS FRONT ACCESS SITE WIRING DETAIL
M-ITS-1107	DMS CABINET LAYOUT DETAIL
M-ITS-1108	DMS CABINET WIRING DIAGRAM

CABINET WIRING – SERIES 1200

DRAWING NUMBER	DESCRIPTION
M-ITS-1200	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-MVDS)
M-ITS-1201	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-MVDS)
M-ITS-1202	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (3-MVDS)
M-ITS-1203	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-CCTV CAMERA)
M-ITS-1204	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-CCTV CAMERA AND 1-MVDS)
M-ITS-1205	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-CCTV CAMERA AND 2-MVDS)
M-ITS-1206	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-CCTV CAMERA AND 3-MVDS)
M-ITS-1207	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-CCTV CAMERAS)
M-ITS-1208	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-CCTV CAMERA AND 1-MVDS)
M-ITS-1209	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-CCTV CAMERA AND 2-MVDS)
M-ITS-1210	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-CCTV CAMERA AND 3-MVDS)
M-ITS-1214	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-MVDS) SOLAR GENERATOR AND WIRELESS
M-ITS-1215	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-MVDS) SOLAR GENERATOR AND WIRELESS
M-ITS-1216	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (3-MVDS) SOLAR GENERATOR AND WIRELESS
M-ITS-1217	CABINET WIRING DIAGRAM IN PAVEMENT DETECTION SYSTEM AP, POE, AND INJECTOR ITS ASSEMBLY

ROADWAY WEATHER INFORMATION SYSTEM – SERIES 1300

DRAWING NUMBER	DESCRIPTION
M-ITS-1300	RWIS POLE SENSOR MOUNTING DETAIL
M-ITS-1301	RWIS CABINET WIRING DIAGRAM
M-ITS-1302	TYPICAL RWIS SITE INSTALLATION PLAN
M-ITS-1303	TYPICAL RWIS GROUNDING SCHEMATIC

SOLAR POWERED GENERATOR ASSEMBLY – SERIES 1400

DRAWING NUMBER	DESCRIPTION
M-ITS-1400	SOLAR POWER GENERATOR DETAILS
M-ITS-1401	SOLAR POWER GENERATOR CABINET 1-LINE ELECTRICAL DIAGRAM

TOWER MOUNTED CAMERA ASSEMBLY – SERIES 1500

DRAWING NUMBER	DESCRIPTION
M-ITS-1500	ITS DETAILS TOWER MOUNT CAMERA DETAILS
M-ITS-1502	ITS DETAILS TOWER CAMERA ASSEMBLY 300' CAT OR LESS
M-ITS-1503	CABINET WIRING DIAGRAM TOWER MOUNTED CCTV ITS ASSEMBLY

WEIGH–IN–MOTION – SERIES 1600

DRAWING NUMBER	DESCRIPTION
M-ITS-1600	WEIGH-IN-MOTION CABINET AND FOUNDATION DETAILS
M-ITS-1601	WEIGH-IN-MOTION IP CAMERA DETAILS
M-ITS-1602	WEIGH-IN-MOTION LOOP DETECTOR DETAILS
M-ITS-1603	WEIGH-IN-MOTION 3 LANES
M-ITS-1604	WEIGH-IN-MOTION 4 LANES
M-ITS-1605	WEIGH-IN-MOTION 6 LANES
M-ITS-1606	WEIGH-IN-MOTION JUNCTION BOX DETAIL
M-ITS-1607	WEIGH-IN-MOTION HEIGHT DETECTOR
M-ITS-1608	WEIGH-IN-MOTION QUARTZ SENSOR DETAILS
M-ITS-1609	WEIGH-IN-MOTION VECTORSENSE SENSOR DETAILS

FLASHING SIGN BEACON – SERIES 1700

DRAWING NUMBER	DESCRIPTION
M-ITS-1700	FLASHING SIGN BEACON INSTALLATION BREAKAWAY ELECTRICAL DETAIL
M-ITS-1701	CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-CCTV AND FLASHING SIGN BEACON)

INTERMEDIATE POWER DISTRIBUTION CENTERS (IPDC) FACILITY – SERIES 1800

DRAWING NUMBER	DESCRIPTION
M-ITS-1800	IPDC-LEGEND ABBREV AND SCHEDULES
M-ITS-1801	IPDC FACILITY CABLE-CONDUIT SCHEDULE AND NOTES
M-ITS-1802	IPDC FACILITY SITE PLAN
M-ITS-1803	STANDARD IPDC EXTERIOR ELEVATIONS
M-ITS-1804	STANDARD IPDC BUILDING INTERIOR ELEVATIONS
M-ITS-1805	IPDC FACILITY SITE PLAN
M-ITS-1806	STANDARD IPDC GROUNDING-LIGHTING PROTECTION PLAN
M-ITS-1807	COMBINATION PLAZA-IPDC BUILDING EXTERIOR ELEVATIONS
M-ITS-1808	COMBINATION PLAZA-IPDC BUILDING INTERIOR ELEVATIONS
M-ITS-1809	IPDC AND COMBINATION PLAZA-IPDC FACILITY CONCRETE FOUNDATION
M-ITS-1810	IPDC AND COMBINATION PLAZA-IPDC FACILITY MECHANICAL PLAN
M-ITS-1811	IPDC AND PLAZA-IPDC COMBINATION FACILITY LIGHTING AND RECEPTACLE PLAN
M-ITS-1812	IPDC AND PLAZA-IPDC COMBINATION FACILITY GROUNDING PLAN
M-ITS-1813	IPDC AND COMBINATION PLAZA-IPDC GROUNDING SCHEMATIC AND DETAILS
M-ITS-1814	IPDC AND COMBINATION PLAZA-IPDC SINGLE LINE DIAGRAM
M-ITS-1815	IPDC AND COMBINATION PLAZA-IPDC FACILITY PANELBOARD SCHEDULE
M-ITS-1816	IPDC FACILITY IDENTIFICATION SIGN

CONDUIT DETAILS AT INTEGRAL ABUTMENT BRIDGE – SERIES 1900

DRAWING NUMBER	DESCRIPTION
M-ITS-1900	CONDUIT DETAILS AT INTEGRAL ABUTMENT BRIDGE STANDARD SLOPE WALL CONDUIT DETAILS AT INTEGRAL ABUTMENT BRIDGE WITH MSE WALL

100 FT MONOPOLE CAMERA TOWER – SERIES 2000

DRAWING NUMBER	DESCRIPTION
M-ITS-2000	100 FT MONOPOLE CLOSED CIRCUIT TELEVISION (CCTV) CAMERA TOWER

VIDEO POWER JUNCTION BOX – SERIES 2100

DRAWING NUMBER	DESCRIPTION
M-ITS-2100	VIDEO POWER JUNCTION BOX MODEL A
M-ITS-2101	VIDEO POWER JUNCTION BOX MODEL B

PLAZA ELECTRICAL WORK – SERIES 2500

DRAWING NUMBER	DESCRIPTION
M-BUS-2500	CABLE/CONDUIT SCHEDULE AND GENERAL NOTES
M-BUS-2501	LEGEND AND SYMBOL LIST ABBREVIATIONS AND EQUIPMENT SCHEDULES
M-BUS-2502A	ELECTRICAL SITE PLAN - AET LANES
M-BUS-2502B	ELECTRICAL SITE PLAN - AET LANES - DETAIL
M-BUS-2503	SINGLE LINE POWER DIAGRAM
M-BUS-2504	GROUNDING SCHEMATIC
M-BUS-2505	FIBER INTERCONNECTIONS BETWEEN MAIN AND REMOTE PLAZAS
M-BUS-2506	UNDERGROUND CONDUIT PLAN - MAIN PLAZA
M-BUS-2509	EXTERIOR ELEVATIONS - MAIN PLAZA
M-BUS-2510	CONTROL BUILDING EQUIPMENT LAYOUT - MAIN PLAZA
M-BUS-2511	INTERIOR ELEVATIONS - CONTROL BUILDING
M-BUS-2512	MECHANICAL PLAN - MAIN PLAZA
M-BUS-2513	CONTROL BUILDING LIGHTING AND RECEPTACLE PLAN - MAIN PLAZA
M-BUS-2514	CONTROL BUILDING GROUNDING DETAILS - MAIN PLAZA
M-BUS-2515	PANELBOARD SCHEDULES - MAIN PLAZA
M-BUS-2516	VIDEO POWER JUNCTION BOX DETAIL - MAIN PLAZA
M-BUS-2517	UNDERGROUND CONDUIT PLAN - REMOTE PLAZA
M-BUS-2518A	LOOP PLAN - AET 3-LANE LAYOUT
M-BUS-2518B	LOOP PLAN - AET 1-LANE LAYOUT
M-BUS-2518C	LOOP PLAN - AET 1-LANE LAYOUT SINGLE MONOTUBE
M-BUS-2518D	GROUND MOUNTED VES CAMERA WITH VES WASH TUBING
M-BUS-2519A	WIRING DIAGRAM - AET 3-LANE LAYOUT
M-BUS-2519B	WIRING DIAGRAM - AET 1-LANE LAYOUT
M-BUS-2520	EXTERIOR ELEVATIONS - REMOTE PLAZA
M-BUS-2521	CONTROL BUILDING EQUIPMENT LAYOUT - REMOTE PLAZA
M-BUS-2522	INTERIOR ELEVATIONS - REMOTE PLAZA
M-BUS-2523	MECHANICAL PLAN - REMOTE PLAZA
M-BUS-2524	CONTROL BUILDING LIGHTING AND RECEPTACLE PLAN - REMOTE PLAZA
M-BUS-2525	CONTROL BUILDING GROUNDING DETAILS - REMOTE PLAZA
M-BUS-2526	PANELBOARD SCHEDULES - REMOTE PLAZA AET LANES
M-BUS-2527	VIDEO POWER JUNCTION BOX - REMOTE PLAZA
M-BUS-2528	LOOP JUNCTION BOX DETAIL
M-BUS-2529	UPS SINGLE LINE AND WIRING DIAGRAM
M-BUS-2530	DOOR ALARMS DETAIL
M-BUS-2531	MISCELLANEOUS SCHEMATIC DIAGRAMS
M-BUS-2532	TSIC TERMINAL BLOCK LAYOUT MAIN AND REMOTE PLAZAS - AET LANES
M-BUS-2533	DATA LOGGER CAMERA
M-BUS-2534	MISCELLANEOUS CROSS SECTION DETAILS
M-BUS-2535	COMED TRANSFORMER PAD DETAIL
M-BUS-2536A	OVERHEAD CONDUIT TRAY
M-BUS-2536B	OVERHEAD CONDUIT TRAY
M-BUS-2537	TOLL PLAZA IDENTIFICATION SIGN
M-BUS-2538	VES WASH SYSTEM SINGLE CABINET DETAIL
M-BUS-2539	VES WASH SYSTEM PANEL DETAIL
M-BUS-2540	VES WASH SYSTEM FLOW DIAGRAM AND SYSTEM
M-BUS-2541	VES WASH SYSTEM SUGGESTED CONDUIT ROUTING
M-BUS-2542	VES WASH SYSTEM MISCELLANEOUS POWER WIRING DIAGRAM
M-BUS-2543	VES WASH SYSTEM CONTROL SWITCH SCHEMATIC
M-BUS-2544	PLAZA CONTROL BUILDING CONCRETE FOUNDATION

Illinois Tollway

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INDEX OF
BASE SHEETS

MARCH 2025

BASE SHEETS

SERIES 1000 (ITS)

POLE ASSEMBLY

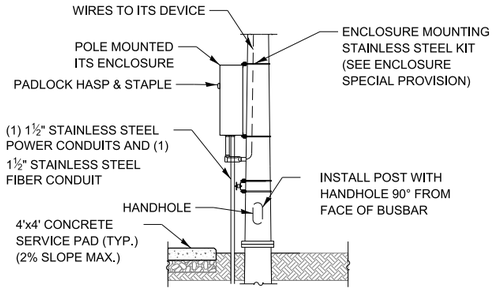
MARCH 2025

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Pole Assembly (ITS)-Series 1000	
	M-ITS-1000	**Elevation Views Pole Mounted ITS Element Assembly**
	Sheet 1	Added details for locate wire and conduit attached to the bottom of the ITS enclosure and showing connection to communication handhole
		Added option for pre-cast to the ground well details
		Remove reference to notes
		Replaced the name of "Schedule of Devices" to say: "Total Schedule of Devices"
		Removed "qty of solar panel on pole" from the Schedule of Devices table
		Removed "Solar Generator" from Schedule of Devices table
		Removed reference to M-ITS-1001 for notes
	M-ITS-1001	**General Notes Pole Mounted ITS Element Assembly**
		Remove Note 13 that refers to solar panels and battery enclosure
	M-ITS-1003	**ITS Concrete Service Pad**
	Sheet 1	Added a note to say: "Cast in place or Pre-cast concrete pad"
	Sheet 2	Added a note to say: "Cast in place" for the concrete service slab
	M-ITS-1004	**Spacer - Duct Package in a Trench**
		Added two (2) warning tapes each at 12" deep one at center of the spacer and one at each end of the spacer
		Replaced Note 5 to say: The duct bank must be held in place at installed depth below subgrade during and immediately after the concrete pour to prevent conduit flotation
		Revised Note 6 to add: "… of the conduit assembly…"

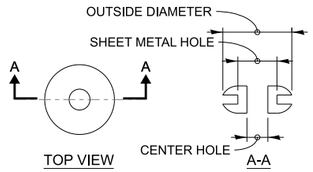
New Sheet

Retired Standard



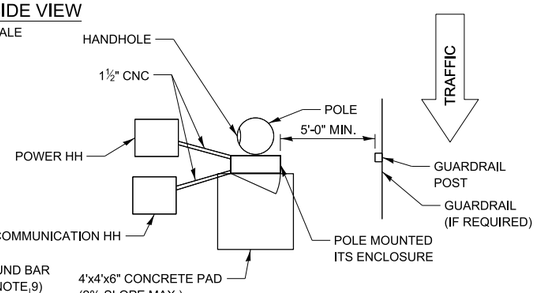
ENCLOSURE SIDE VIEW

NOT TO SCALE



GROMMET DETAIL

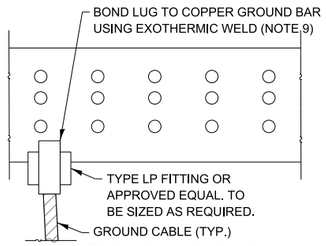
NOT TO SCALE



POLE MOUNTED ITS ELEMENT ASSEMBLY - TOP VIEW

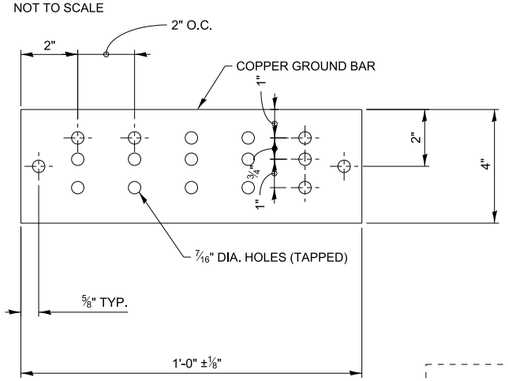
NOT TO SCALE

NOTE:
WHEN ITS ENCLOSURE IS CONNECTED TO POWER, THEN NO SOLAR ARRANGEMENT AND NO BATTERY ENCLOSURE REQUIRED.



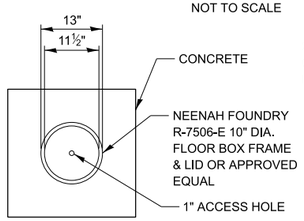
MASTER GROUND BUSBAR CONNECTION DETAIL

NOT TO SCALE



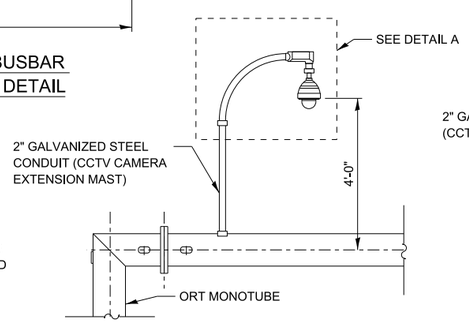
MASTER GROUND BUSBAR SUPPORT SPACING DETAIL

NOT TO SCALE

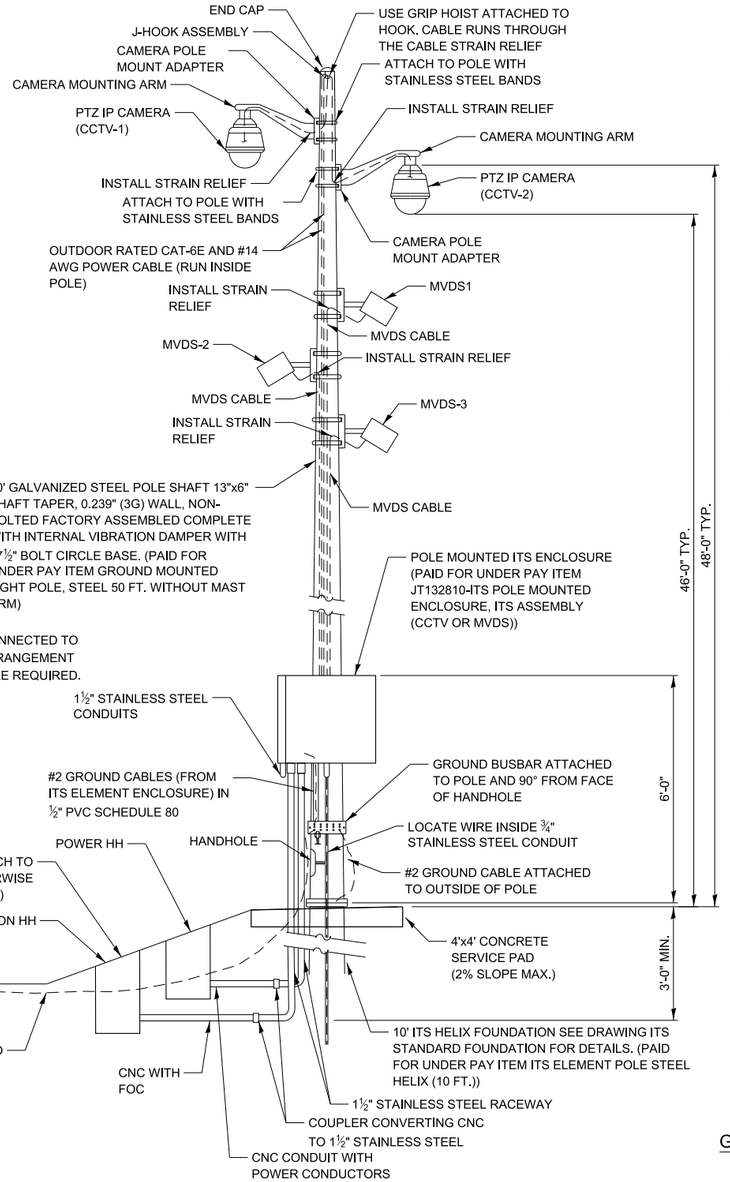


GROUND WELL PLAN DETAIL

NOT TO SCALE

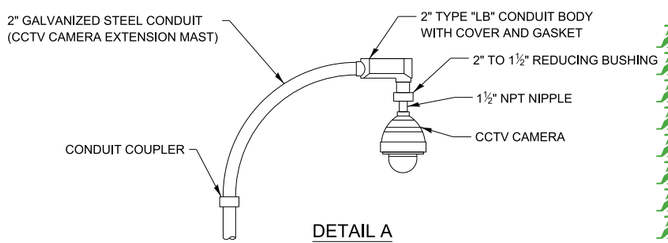


CCTV CAMERA MONOTUBE MOUNTING DETAIL

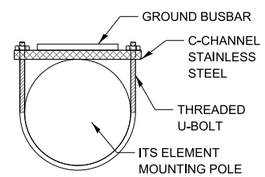


50' GALVANIZED STEEL POLE MOUNTED ITS ELEMENT ASSEMBLY

NOT TO SCALE



DETAIL A



GROUND BUSBAR

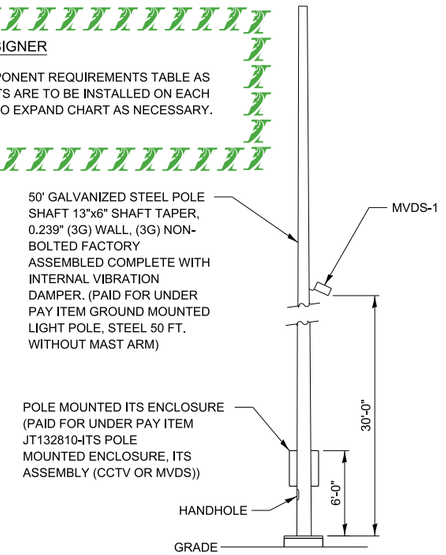
PLAN VIEW

NOT TO SCALE

TOTAL SCHEDULE OF DEVICES							
	SITE				SUPPORT TYPE		
	MILEPOST	STATION	OFFSET	ORIENTATION	POLE	FOUNDATION	MOUNTING HEIGHT
CCTV-1							
CCTV-2							
MVDS-1							
MVDS-2							
MVDS-3							
DC POWER							

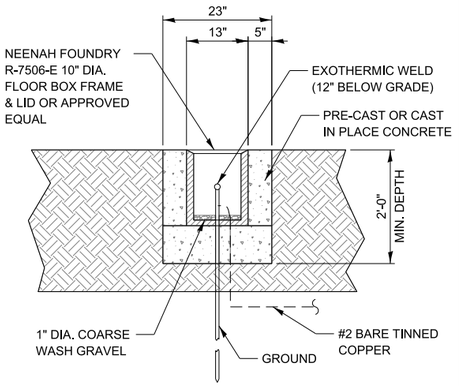
NOTE TO DESIGNER

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.



SIMPLIFIED ITS POLE ARRANGEMENT

NOT TO SCALE



GROUND WELL ELEVATION DETAIL

NOT TO SCALE

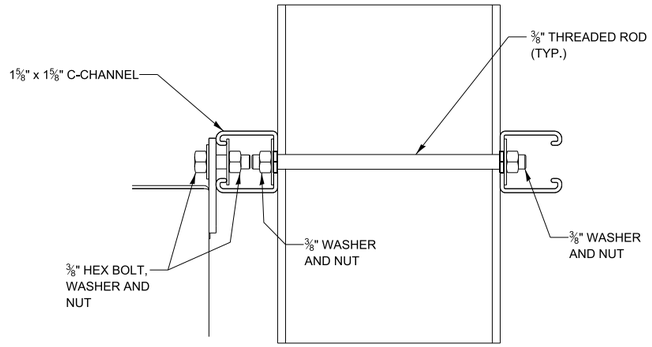
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

Illinois Tollway

ELEVATION VIEWS POLE MOUNTED ITS ELEMENT ASSEMBLY

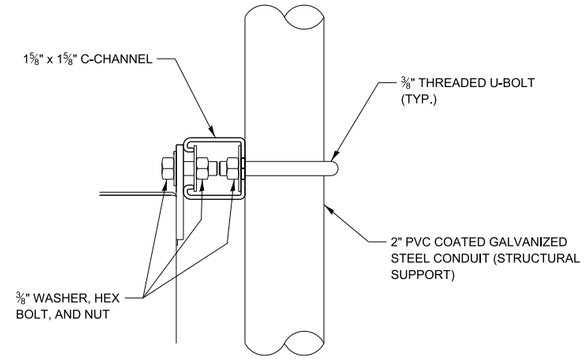
VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1000	1 OF 2



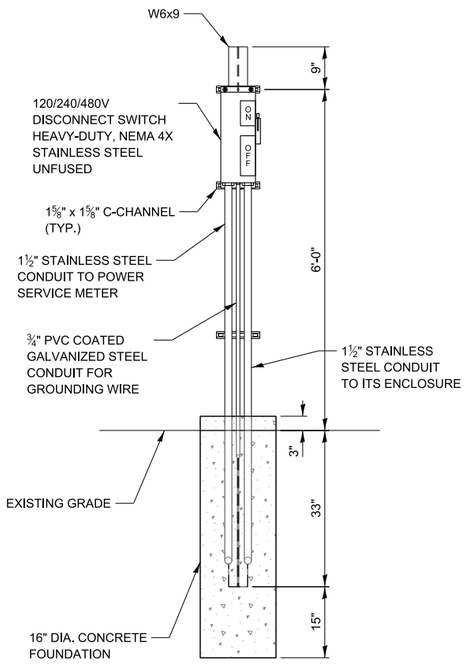
DETAIL A - TYPICAL MOUNTING ATTACHMENT CONNECTION

NOTES:

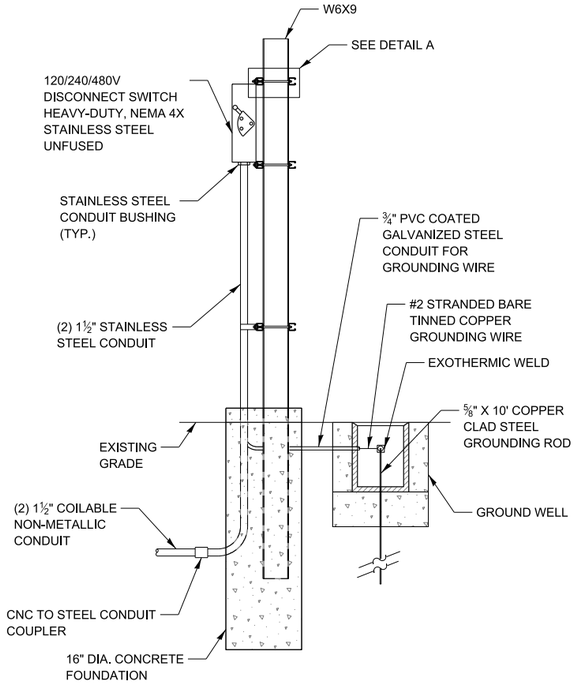
1. ALL CONCRETE SHALL BE IDOT CLASS SI.
2. DISCONNECT SWITCH, POSTS, FOUNDATION, AND MOUNTING HARDWARE ARE INCLUDED IN PAY ITEM "ITS DISCONNECT SWITCH ASSEMBLY" (JT132814).
3. DETAILS SHOWN IN THIS DRAWING APPLY ONLY TO LOCATIONS WHERE A STANDALONE DISCONNECT SWITCH IS REQUIRED AT AN ITS POLE.
4. THIS PRECAST ITS DISCONNECT SWITCH IS THE PREFERRED OPTION FOR WINTER INSTALLATION.



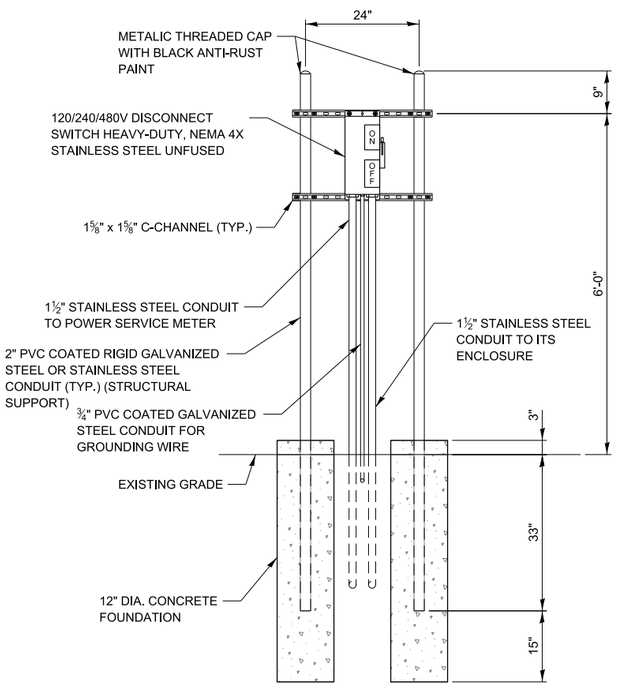
DETAIL B - TYPICAL MOUNTING ATTACHMENT CONNECTION



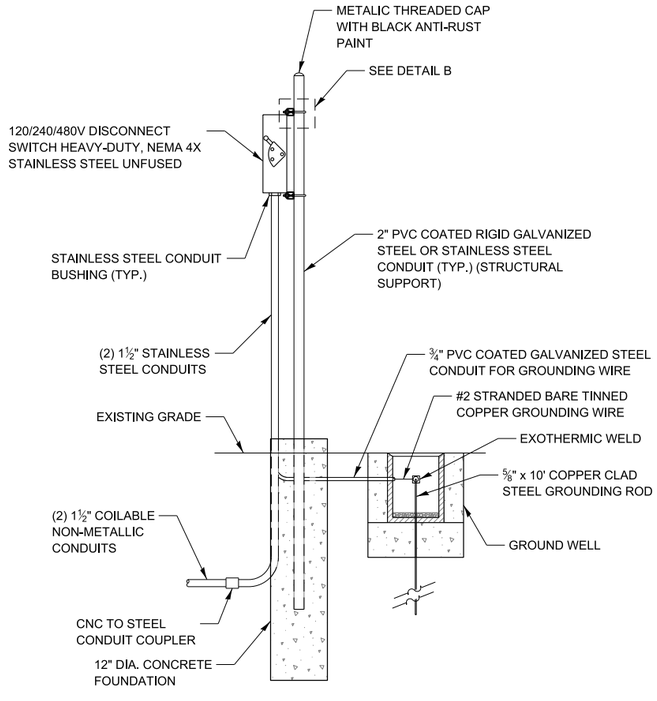
ITS DISCONNECT SWITCH PRECAST ASSEMBLY
FRONT VIEW



ITS DISCONNECT SWITCH PRECAST ASSEMBLY
SIDE VIEW



ITS DISCONNECT SWITCH CAST-IN-PLACE ASSEMBLY
FRONT VIEW



ITS DISCONNECT SWITCH CAST-IN-PLACE ASSEMBLY
SIDE VIEW

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

Illinois Tollway

ELEVATION VIEWS POLE MOUNTED ITS ELEMENT ASSEMBLY

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1000	2 OF 2

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. N/A

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, 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).

22. CABLES SHALL ENTER POLES THROUGH A GROMMET. GROMMET SIZE SHALL BE CHOSEN SO THAT THE CENTER HOLE FORMS A WATER TIGHT SEAL AROUND THE CABLES.

23. IF HANDHOLE IS INSTALLED NEAR THE BOTTOM OF A DITCH, THEN IT SHALL NOT BE INSTALLED BELOW THE FIFTY YEAR FLOOD ELEVATION.

24. THE DOOR FOR THE ITS ENCLOSURE SHALL HAVE ITS HINGE INSTALLED VERTICALLY AND ON THE LEFT SIDE OF THE CABINET WHEN FACING THE CABINET.

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. FOR SITE WHERE 2 CCTV TO BE INSTALLED ON SAME ITS POLE: KEEP A MINIMUM 24 INCHES HEIGHT DIFFERENCE BETWEEN THE 2 CCTVS.

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 RQD. THE CONTRACTOR SHALL ORIENT THE MVDS UNITS PERPENDICULAR TO THE ROADWAY BEING DETECTED.

21. BATTERY ENCLOSURE TO BE ATTACHED ON THE SIDE OF THE POLE UPSTREAM TO TRAFFIC.

NOTE TO DESIGNER

WHEN A CCTV NEEDS TO BE INSTALLED AT A DISTANCE GREATER THAN 300 FEET BUT LESS THAN 500 FEET FROM THE COMMUNICATION SWITCH IN THE PLAZA COMMUNICATION ROOM THEN THE CONTRACTOR CAN USE THE ILLINOIS TOLLWAY APPROVED EXTENDED RANGE ETHERNET CAT 6 CABLE. BETWEEN 300 FEET TO 500 FEET THIS CABLE WILL AVOID THE NEED TO INSTALL AN ITS VIDEO JUNCTION BOX NEXT TO THE CCTV. WHEN THE DISTANCE IS GREATER THAN 500 FEET THEN INSTALL A VIDEO JUNCTION BOX MODEL B NEMA 4X (WITH COMMUNICATION SWITCH) AND FIBER OPTIC CABLE FROM THE VIDEO POWER JUNCTION BOX TO THE PLAZA COMMUNICATION ROOM.

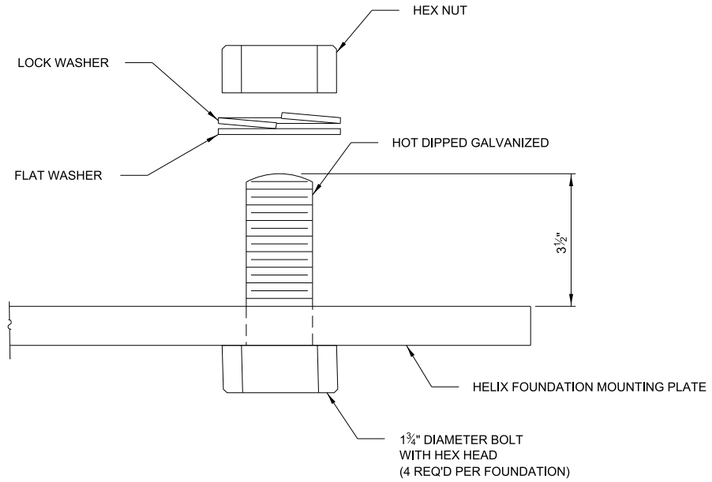
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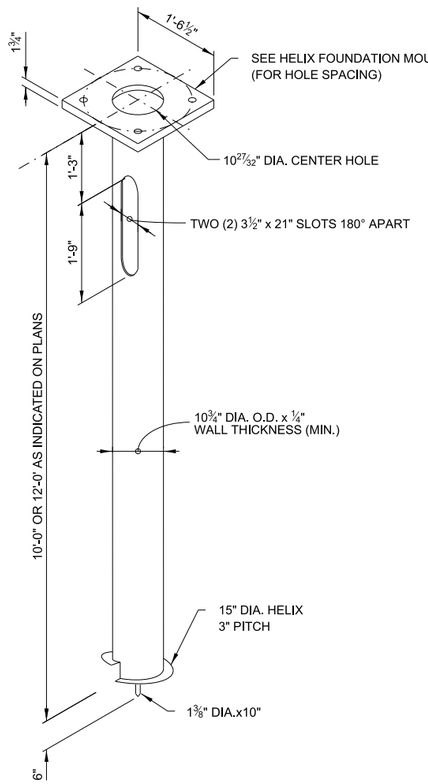
Illinois Tollway

GENERAL NOTES POLE MOUNTED ITS ELEMENT ASSEMBLY

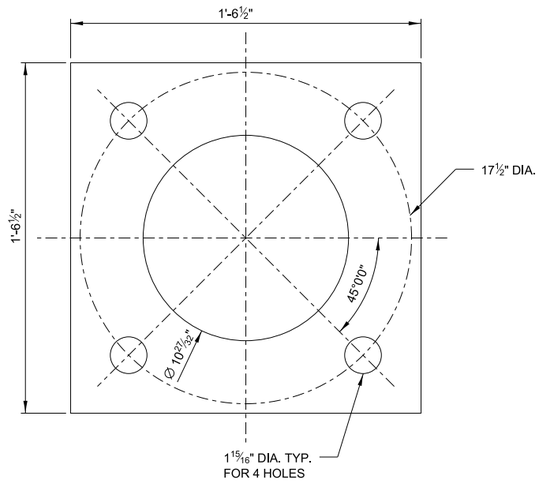
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BASE ATTACHMENT DETAIL
17 ½" BASE DIA.



ISOMETRIC



HELIX FOUNDATION MOUNTING PLATE

HELIX - GROUND MOUNTED ASSEMBLY

NOTE TO DESIGNER

12 FT. STEEL HELIX FOUNDATIONS TO BE USED FOR SLOPES GREATER THAN 1:6. DESIGNER SHALL PROVIDE A TABLE TO BE INCLUDED ON THE PLANS WHICH INDICATES LOCATION, DEPTH OF FOUNDATION, AND ANY OTHER INFORMATION DEEMED NECESSARY FOR CONTRACTOR TO INSTALL PROPER FOUNDATION.

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).

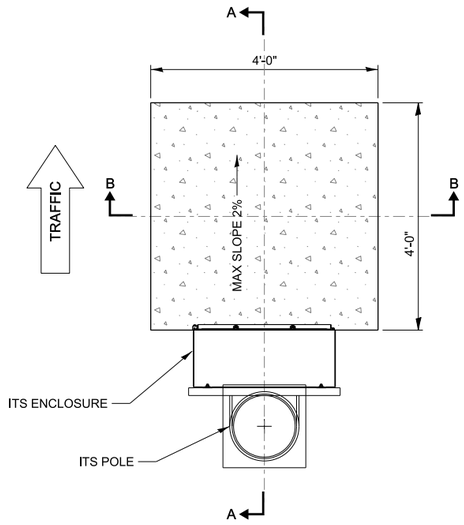
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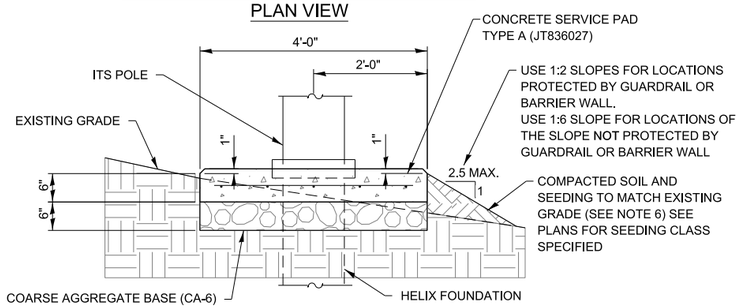
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ITS STANDARD FOUNDATION

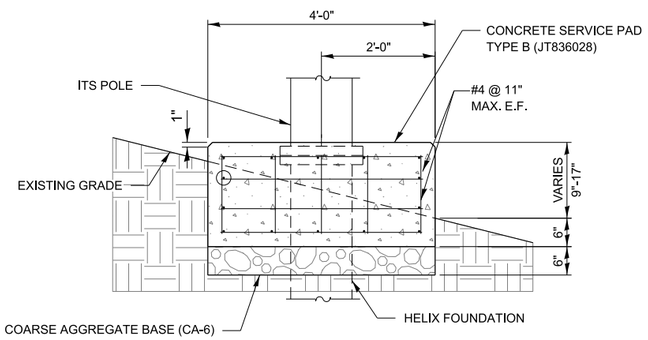
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CONCRETE SERVICE PAD FOR ITS POLE
PLAN VIEW



SECTION B-B (TYPE A)



SECTION B-B (TYPE B)

NOTE TO DESIGNER

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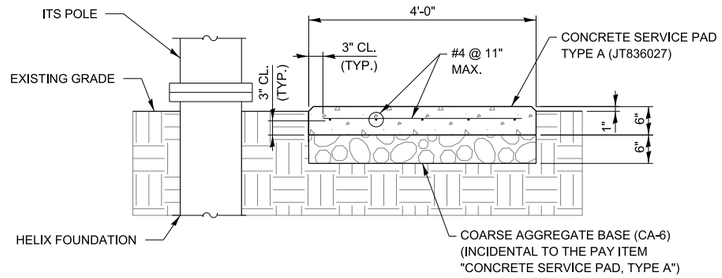
DESIGN STRESSES

CONCRETE

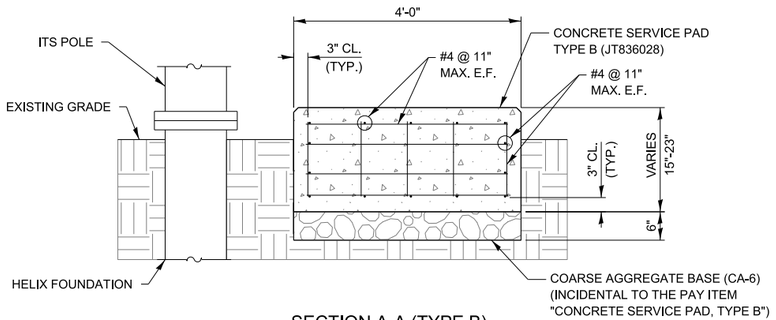
CAST-IN-PLACE:	f'c = 3,500 PSI AT 14 DAYS (CLASS SI)
PRE-CAST:	f'c = 3,500 PSI AT 5 DAYS, f'c = 5,000 PSI AT 28 DAYS (CLASS PC)

STEEL

ASTM A615, GRADE 60 DEFORMED:	Fy = 60,000 PSI (EPOXY COATED)
OR	
WELDED WIRE MESH:	Fy = 60,000 PSI - 6x6 D10



SECTION A-A (TYPE A)



SECTION A-A (TYPE B)

CONCRETE SERVICE PAD DETAILS

NOTE:
CAST IN PLACE OR PRE-CAST CONCRETE SLAB

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 SHEET 2 OF 2.
4. ALL EXPOSED CONCRETE EDGES SHALL HAVE A 1" MINIMUM CHAMFER.
5. CONTRACTOR SHALL TAKE PRECAUTIONS TO STABILIZE EXISTING ITS POLES AND HELIX FOUNDATIONS WHILE EXCAVATING SOIL FOR INSTALLATION OF CONCRETE SERVICE PADS.
6. 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.
7. 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.
8. THE TOP SURFACE OF SOIL DISTURBED BY EXCAVATION FOR PLACING THE SERVICE PADS SHALL BE SEEDED AND PROTECTED WITH EROSION CONTROL MEASURES PER THE GENERAL NOTES ON SHEET GN-08.
9. SURFACE OF SERVICE PADS SHALL BE BROOM FINISHED.
10. SERVICE PAD MAY BE PRECAST TO MATCH TYPE A (JT836027) OR TYPE B (JT836028) PAD ACCORDINGLY.
11. ALL EMBEDDED LIFTING HARDWARE USED SHALL BE GALVANIZED.
12. FOR LIFTING INSERT, INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION INCLUDING MINIMUM EDGE DISTANCE AND SPACING REQUIREMENTS AND HAVE A 4:1 SAFETY FACTOR.
13. FOR LIFTING PLATES, INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND HAVE A STANDARD 5:1 SAFETY FACTOR FOR THE LIFTING HARDWARE.
14. PRECAST SERVICE PADS SHALL BE TRANSPORTED IN SUCH A MANNER THAT THE PAD WILL NOT BE DAMAGED DURING TRANSPORTATION. PLASTIC CORNER PIECES OR SHOCK-ABSORBING CUSHIONING MATERIAL SHALL BE USED AT ALL BEARING POINTS AND ALL EXPOSED CORNERS DURING TRANSPORTATION OF THE PRECAST ELEMENTS. PADS SHALL BE PROPERLY SUPPORTED DURING TRANSPORTATION SUCH THAT CRACKING OR DEFORMATION DOES NOT OCCUR. IF MORE THAN ONE PAD IS TRANSPORTED PER VEHICLE, PROPER SUPPORT AND SEPARATION MUST BE PROVIDED BETWEEN INDIVIDUAL PADS. PADS MUST BE LYING HORIZONTALLY DURING TRANSPORTATION, UNLESS OTHERWISE APPROVED.
15. PRECAST ELEMENT DAMAGED DURING HANDLING AND STORAGE SHALL BE REPAIRED OR REPLACED AT NO COST TO THE ILLINOIS TOLLWAY.
16. A PRECAST PAD SHALL NOT BE TRANSPORTED FROM THE CASTING YARD UNTIL A MINIMUM 5 DAY COMPRESSIVE STRENGTH SPECIFIED HAS BEEN ATTAINED.
17. MATERIAL QUALITY AND CONDITION AFTER SHIPMENT WILL BE INSPECTED AFTER DELIVERY TO THE CONSTRUCTION SITE, WITH THIS AND ANY PREVIOUS INSPECTIONS CONSTITUTING ON PARTIAL ACCEPTANCE.
18. REPAIR OF DAMAGE CAUSE TO THE PADS DURING FABRICATION, LIFTING AND HANDLING, OR TRANSPORTATION SHALL BE ADDRESSED ON A CASE-BY-CASE BASIS. DAMAGE WITHIN ACCEPTABLE LIMITS CAUSED TO THE TOP OF THE SURFACES OR TO KEYED EDGES OF THE PADS SHALL BE REPAIRED USING AN APPROVED REPAIR METHOD AT THE FABRICATION PLANT AT THE EXPENSE OF THE CONTRACTOR. REPETITIVE DAMAGE TO THE PADS SHALL BE CAUSE FOR STOPPAGE OF FABRICATION OPERATION UNTIL CAUSE OF DAMAGE CAN BE REMEDIED.
19. THE CONTRACTOR SHALL RETAIN THE SOLE RESPONSIBILITY FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION OF THE PADS AND FOR COMPLIANCE WITH LAWS, REGULATIONS, AND CODES, AND FOR THE SAFETY OF CONSTRUCTION APPLICABLE TO THIS WORK.

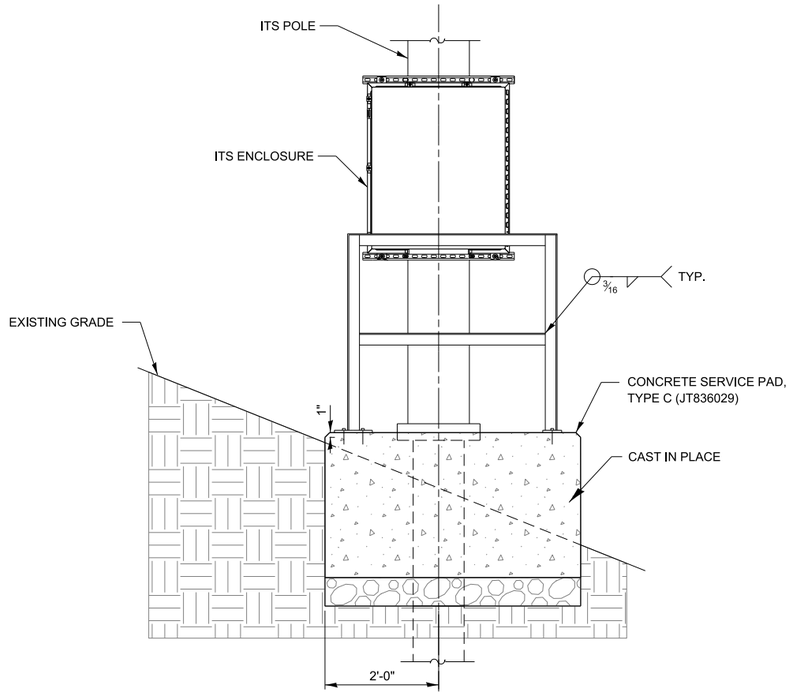
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ITS CONCRETE SERVICE PAD

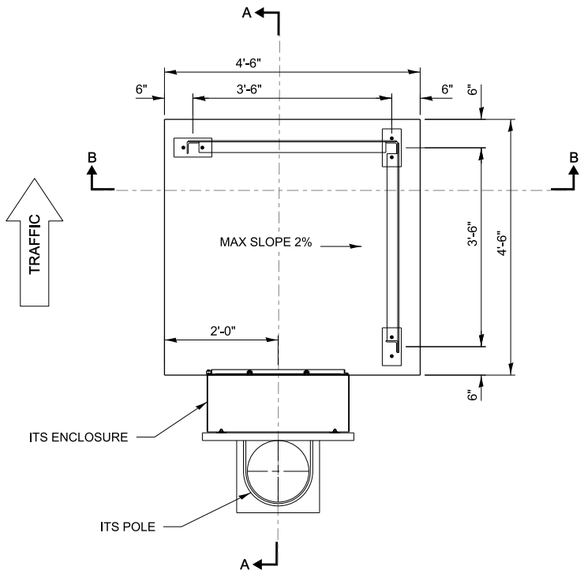
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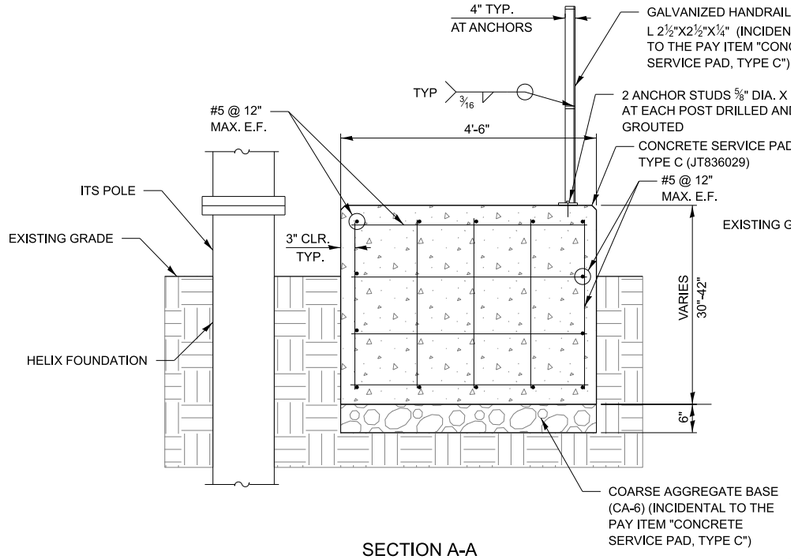
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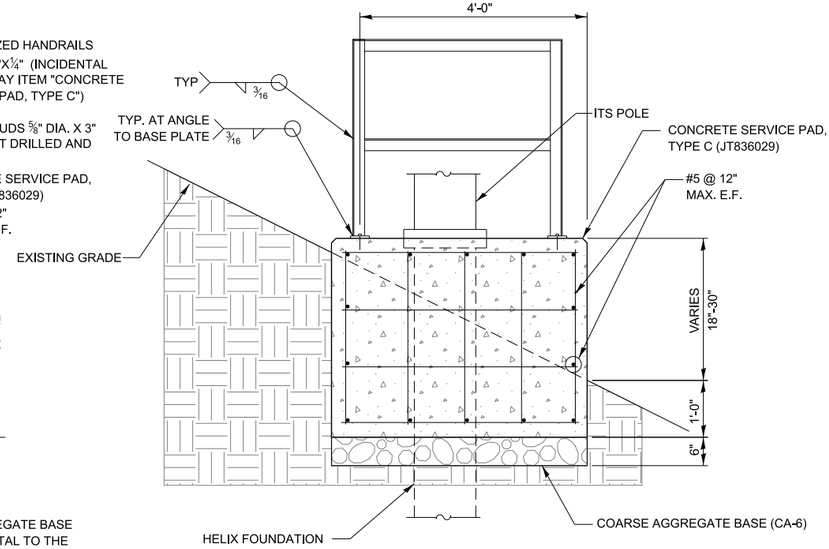
CONCRETE SERVICE PAD, TYPE C
ELEVATION VIEW



CONCRETE SERVICE PAD, TYPE C
PLAN VIEW



SECTION A-A



SECTION B-B

DESIGN STRESSES

CONCRETE

CAST-IN-PLACE:	f'c = 3,500 PSI AT 14 DAYS (CLASS SI)
PRE-CAST:	f'c = 3,500 PSI AT 5 DAYS, f'c = 5,000 PSI AT 28 DAYS (CLASS PC)

STEEL

ASTM A615, GRADE 60 DEFORMED:	Fy = 60,000 PSI (EPOXY COATED)
OR	
WELDED WIRE MESH:	Fy = 60,000 PSI 6x6 D14

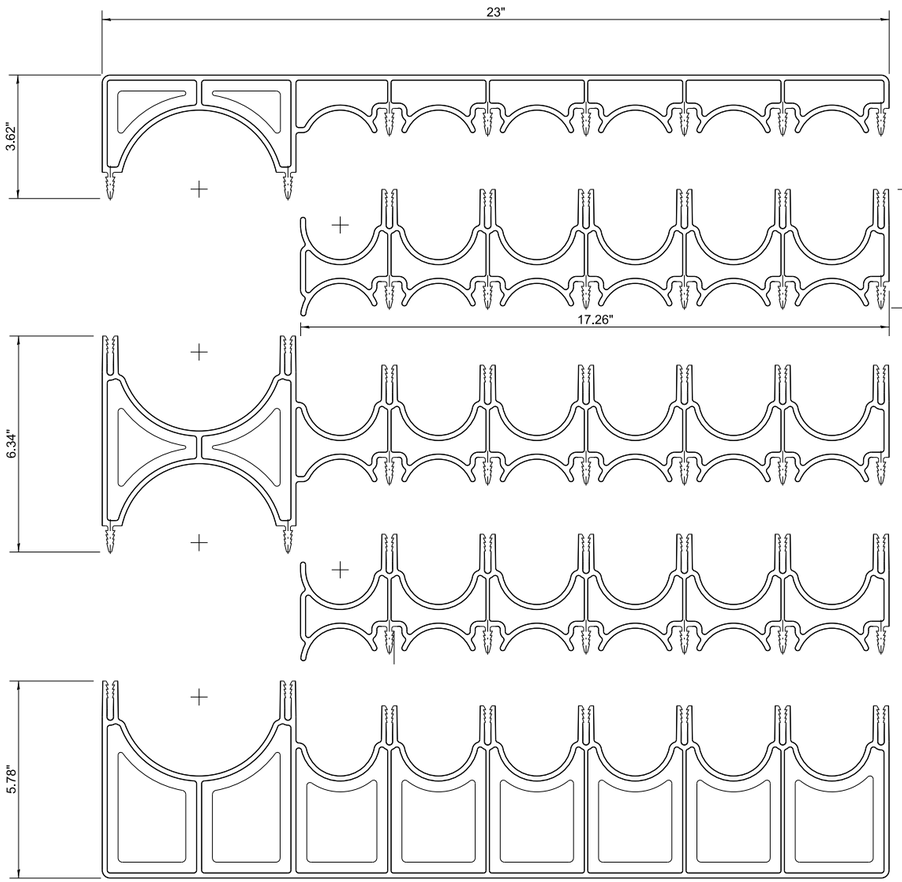
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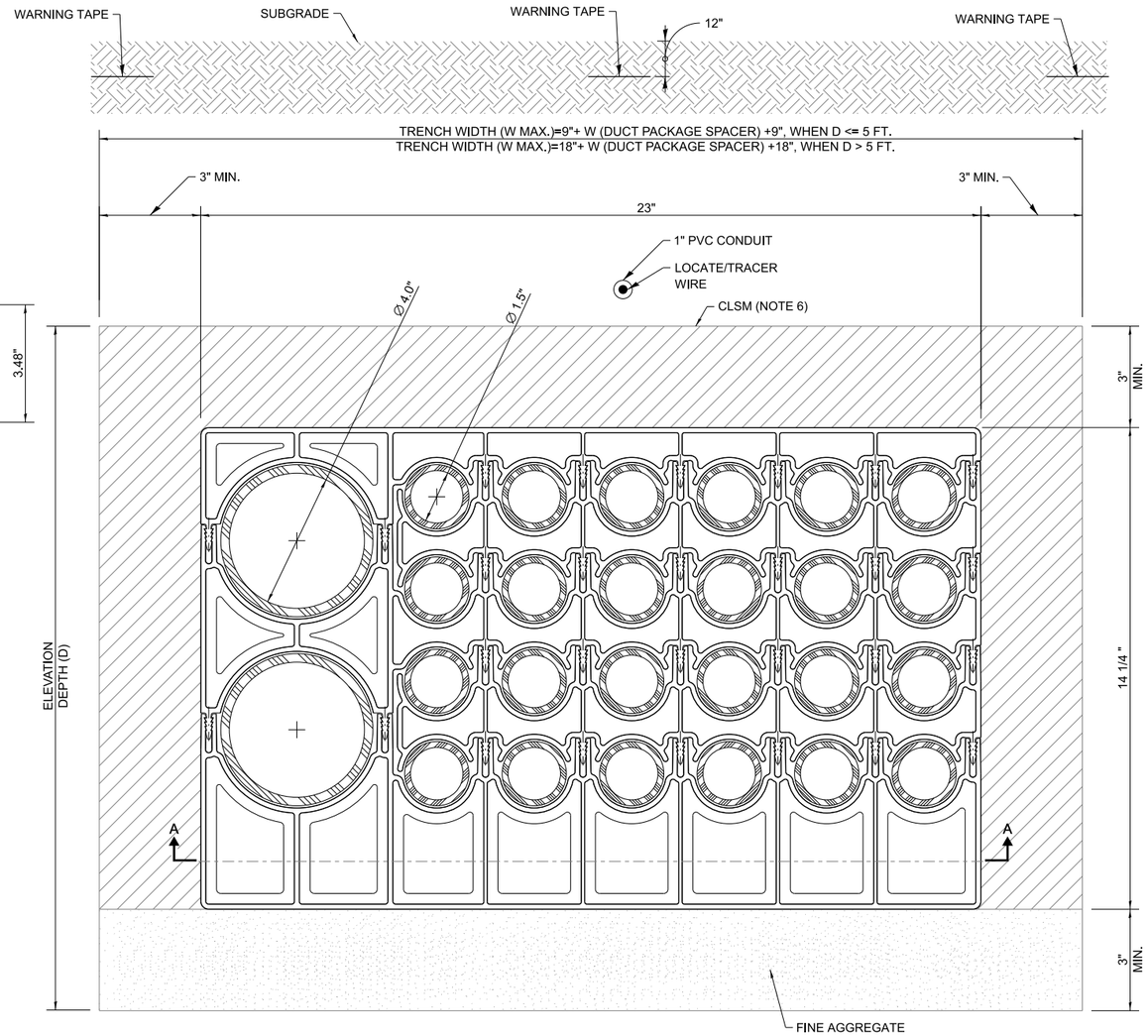
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ITS CONCRETE SERVICE PAD

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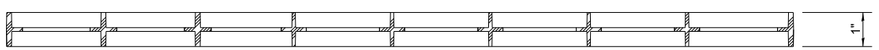
INTERLOCKING CONDUIT SPACER SYSTEM



FRONT VIEW



BOTTOM VIEW



SECTION A-A

NOTES:

1. USE ONE SOLID PIECE SPACER (UNDERGROUND DEVICES BS13666SS OR APPROVED EQUAL) AT 5 FOOT INTERVALS FOR 30 FEET ON EACH SIDE OF EACH CONDUIT JOINT (MEANING 6 SOLID PIECE SPACERS ON EACH SIDE OF EACH JOINT).
2. USE ONE CRAB CLAW SPACER (UNDERGROUND DEVICES B51086355 OR APPROVED EQUAL) AT 5 FOOT INTERVALS ALONG THE FULL LENGTH OF THE DUCT BANK PLACE EACH SPACER BETWEEN CONDUIT JOINTS.
3. EACH CRAB CLAW SPACER INCLUDES:
   1 EA. LEVEL 1 BASE SPACER
   2 EA. LEVEL 2 AND 4 SPACER
   1 EA. LEVEL 3 SPACER
4. WHEN PLACING CONCRETE AROUND CONDUITS, ADJUST THE DELIVERY CHUTE SO THE FALL OF THE CONCRETE IS MINIMAL. POUR THE CONCRETE SLOWLY AND DISTRIBUTE IT EVENLY SO AS NOT TO DISLODGE THE SPACERS.
5. THE DUCT BANK MUST BE HELD IN PLACE AT INSTALLED DEPTH BELOW SUBGRADE DURING AND IMMEDIATELY AFTER THE CONCRETE POUR TO PREVENT CONDUIT FLOTATION.
6. CONTROLLED LOW STRENGTH MATERIAL (CLSM) SHALL BE PLACED A MINIMUM OF 3 INCHES ON EACH SIDE OF THE CONDUIT ASSEMBLY, AND ABOVE THE INTERLOCKING CONDUIT SPACER SYSTEM.

NOTE TO DESIGNER

WHEN THE PROJECT REQUIRES TO BURY THE FIBER AND POWER CONDUITS INTO A DUCT BANK THEN SPECIFY HOW MANY FIBER CONDUIT AND HOW MANY POWER CONDUITS THE PROJECT WILL REQUIRE AND MODIFY THIS ARRANGEMENT TO FIT THE NUMBER OF CONDUITS IN THE TRENCH. REFER TO ILLINOIS TOLLWAY DUCT PACKAGE SPECIAL PROVISION FOR DETAILS

NOTES:

1. THIS IS A REPRESENTATION ONLY, THE DSE HAS TO ADAPT THE NUMBER OF CONDUIT PER THE DESIGN.
2. CONTROLLED LOW STRENGTH MATERIAL (CLSM) SHALL BE PLACED A MINIMUM OF 3-INCHES TO THE SIDE OF AND ABOVE THE INTERLOCKING CONDUIT SPACER SYSTEM.

DUCT BANK SPACER DETAILS

NOTE TO DESIGNER

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SPACER - DUCT PACKAGE IN A TRENCH

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1004	1 OF 1

BASE SHEETS

SERIES 1100 (ITS)

DYNAMIC MESSAGE SIGN

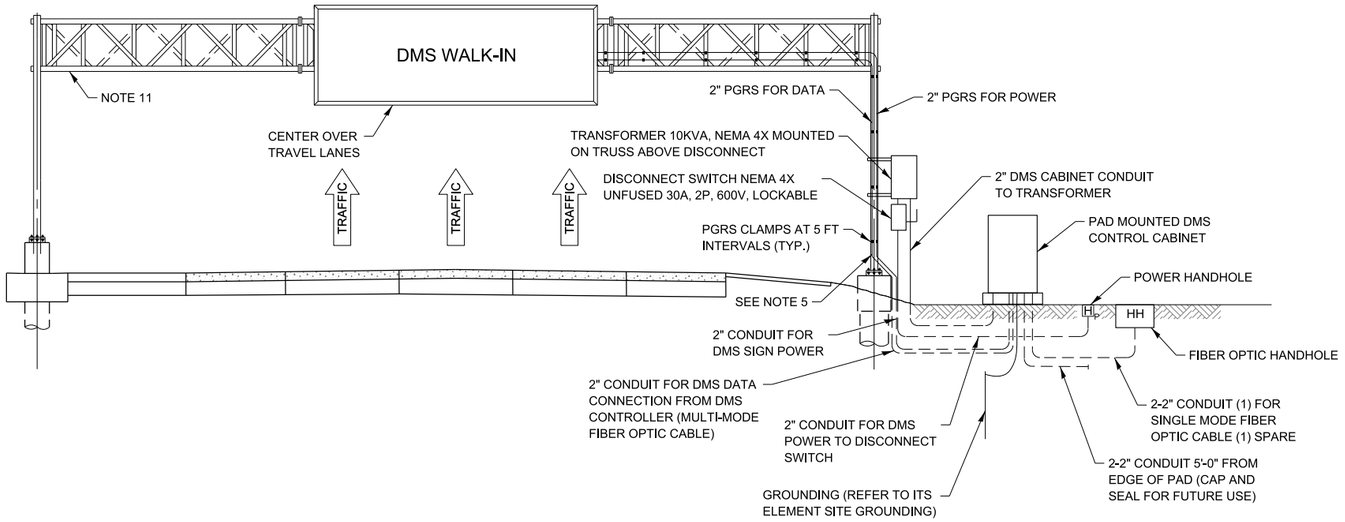
MARCH 2025

Illinois Tollway Base Sheet Revisions

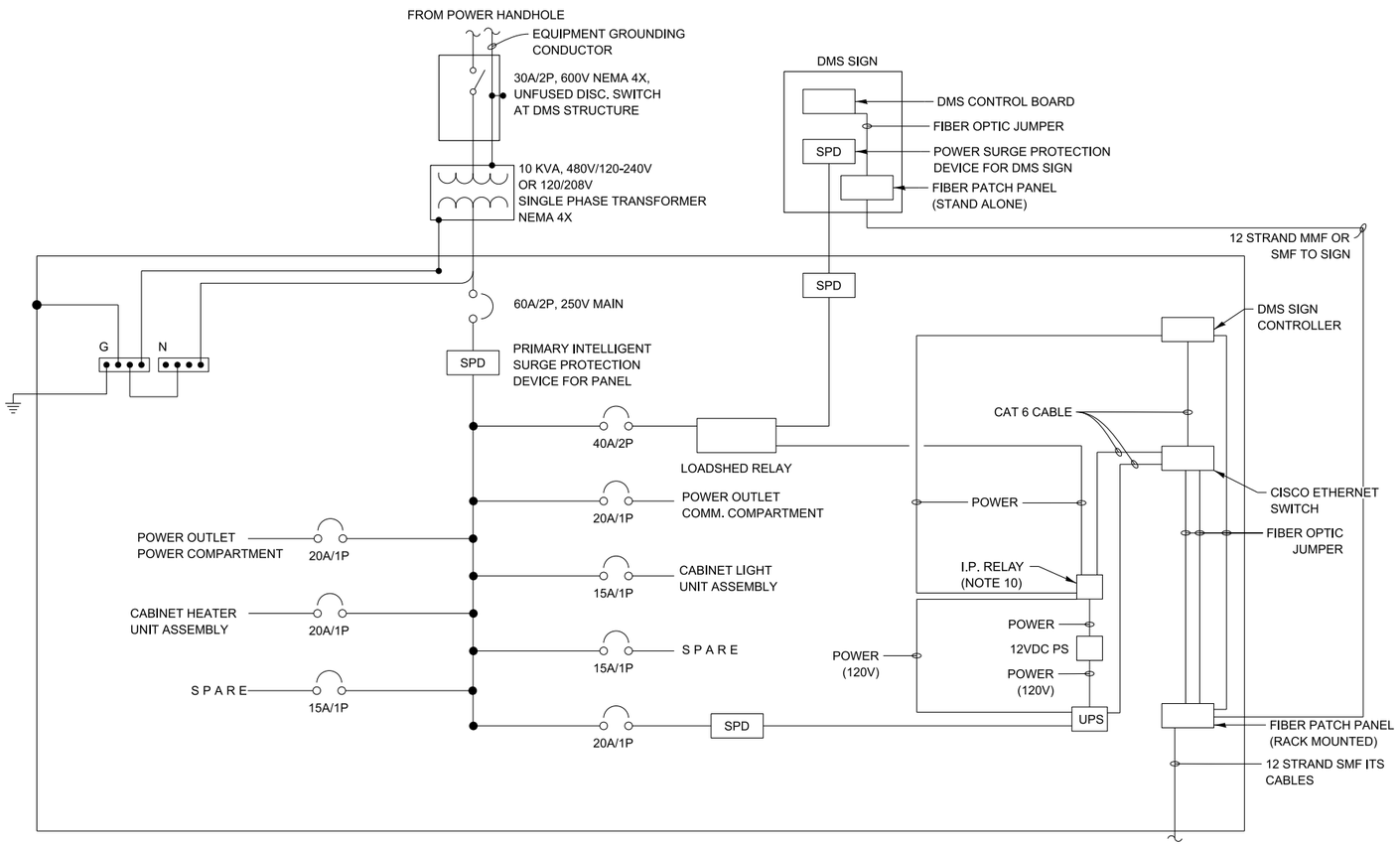
Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Dynamic Message Sign (ITS)-Series 1100	
	M-ITS-1101	**DMS Walk-In Site Grounding Plan**
		Note 2 revised to add the word "overhead" before the word "structure"
	M-ITS-1102	**DMS Walk-In Typical Site Grounding Detail**
		Title of the drawing revised to say:" DMS Walk-In Typical Site Grounding Detail"
		Added the word: "DMS" in the note pointing at the DMS sign
		Added the word: "DMS" to the note pointing to DMS cabinet
		Added a note to say: "No N-G bound, there will be a bond only when there is no transformer required"
	M-ITS-1103	**DMS Front Access Cantilever Electrical Schematic**
		Added a note to identify the transformer
		Corrected the arrow pointing at the disconnect switch
	M-ITS-1105	**DMS Front Access Site Grounding Plan**
		Removed the dash lines between the proposed DMS foundation to the proposed DMS cabinet pad. Each site will have its own grounding site
	M-ITS-1106	**DMS Front Access Site Wiring Detail**
		Reduced the scale of the fence detail to be more in line with the other details on the drawing
	M-ITS-1107	**DMS Cabinet Layout Detail**
		Revised details for Cisco switch to represent new Cisco IE-3300-8T2S-E
		Added a note to Designer: Install a locate wire between the DMS cabinet and the DMS sign gantry and install a locate post next to the DMS cabinet and connect the locate wire in the locate post.
		Added a locate wire between the DMS sign structure and the DMS cabinet
		Added a note to designer: Install a locate post near communication handhole closer to the DMS cabinet
	M-ITS-1108	**DMS Cabinet Wiring Diagram**
		Revised details for Cisco switch to represent new Cisco 9300

New Sheet

Retired Standard



DMS CABINET - IP RELAY WIRING TABLE					
DESCRIPTION		CONNECTION FROM		CONNECTION TO	
IP TERMINAL	IP TERMINAL ASSIGNMENT	DEVICE	CONNECTION	DEVICE	CONNECTION
1	RESERVED FOR CCTV1				
2	RESERVED FOR CCTV2				
		IP_RELAY	12VDC (+)	CB	CB1A
3	DMS LOAD SHEDDING RELAY	CB	CB1B	IP_RELAY	3 COMM
		IP_RELAY	3 NC	LOAD SHED RELAY	COIL (+)
		SPLICE BLOCK	120 V	IP_RELAY	NC
4	DMS CONTROLLER				
		IP_RELAY	4 NC	POWER OUTLET #1	HOT
				(COMMUNICATION)	
5	RESERVED FOR FLASHING BEACONS				
6	OPEN				
7	OPEN				
8	OPEN				



POWER WIRING SCHEMATIC FOR 100A PANEL, 120 / 240V LOAD CENTER OF DMS CABINET

(NOT TO SCALE)

COMMUNICATION RISER

(NOT TO SCALE)

GENERAL NOTES:

1. FURNISH AND INSTALL LOCKABLE SERVICE DISCONNECT AT PROPOSED STRUCTURE.
2. 10KVA, 480V/120/240V SINGLE PHASE TRANSFORMER SHALL BE MOUNTED ABOVE DISCONNECT.
3. THIS IS A DIAGRAMMATIC SCHEMATIC, ALL BREAKERS, TRANSFORMER LOAD CENTER SHALL BE SIZED AND WIRED AS PER MANUFACTURER RECOMMENDATIONS.
4. NEUTRAL AND GROUNDING SHALL BE BONDED AT SERVICE ENTRANCE DISCONNECT.
5. ALL UNDERGROUND CONDUITS SHALL BE NON-METALLIC CNC AND ABOVE GRADE CONDUITS SHALL BE RGS PVC COATED. COUPLERS SHALL BE UTILIZED WHEN TRANSITIONING FROM CNC TO PRGS.
6. MOUNT CLAMPS ON 5'-0" ON CENTER MOUNTING. HARDWARE SHALL BE USED AS PER CONDUIT MANUFACTURER RECOMMENDATION.
7. CONTRACTOR SHALL SUPPLY AND INSTALL CABLE REDUCER LUGS WHERE SIZE OF CABLE ENTERING THE DISCONNECT IS MORE THAN RECOMMENDED SIZE DUE TO VOLTAGE DROP.
8. ALL ELECTRICAL WORK FOR DMS WALK-IN SHALL BE PAID UNDER PAY ITEM "JT132621 - DMS ELECTRICAL WORK - WALK-IN".
9. THIS SCHEMATIC IS FOR GUIDANCE ONLY. CONTRACTOR SHALL WIRE THE DMS CABINET AS PER MANUFACTURER RECOMMENDATIONS AND INDUSTRY STANDARDS.
10. THE COM (COMMON) CONTACT AND NC (NORMALLY CLOSED) CONTACT ON RELAY CONTACTS OF DIN RELAY SHALL FOLLOW THE TABLE ABOVE.
11. REFER TO ILLINOIS TOLLWAY STANDARD DRAWING F17 FOR OVERHEAD SIGN STRUCTURE SPAN TYPE (STEEL) STRUCTURE DETAILS.
12. FIBER PATCH PANEL IN DMS SIGN HOUSING SHALL BE A FACTORY TERMINATED UNIT WITH A 12-STRAND PIGTAIL CONNECTING TO RACK MOUNTED FIBER PATCH PANEL IN DMS CONTROLLER CABINET.

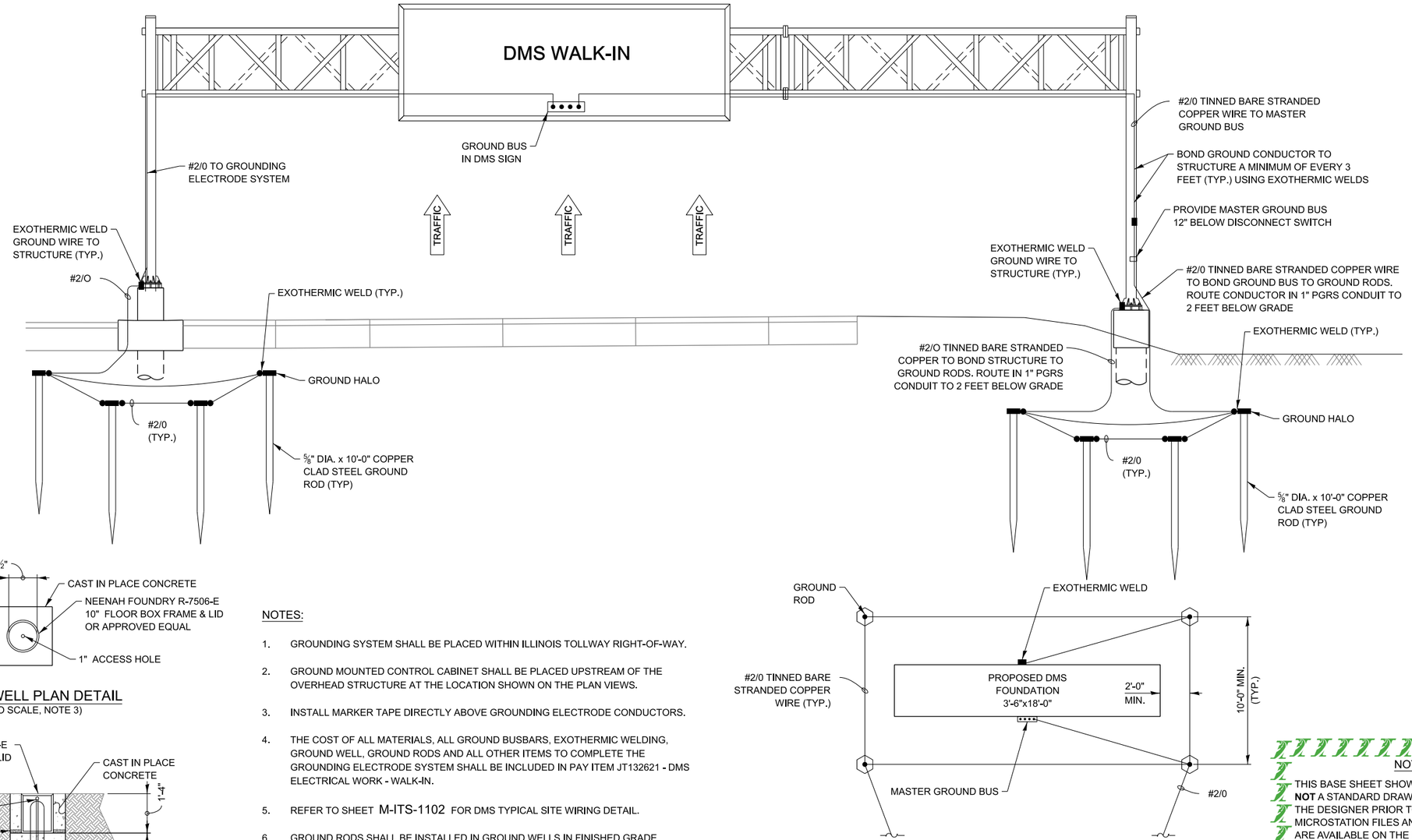
NOTE TO DESIGNER

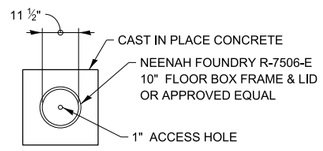
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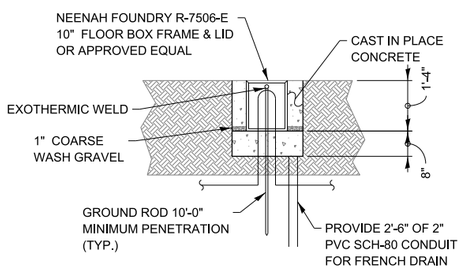
DMS WALK-IN ELECTRICAL SCHEMATIC

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1100	1 OF 1

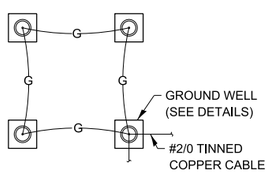




GROUND WELL PLAN DETAIL
(NOT TO SCALE, NOTE 3)



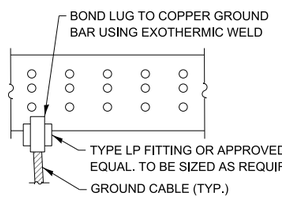
GROUND WELL ELEVATION DETAIL
(NOT TO SCALE, NOTE 3)



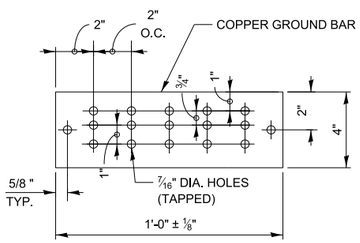
GROUND HALO DETAIL
N.T.S.

NOTES:

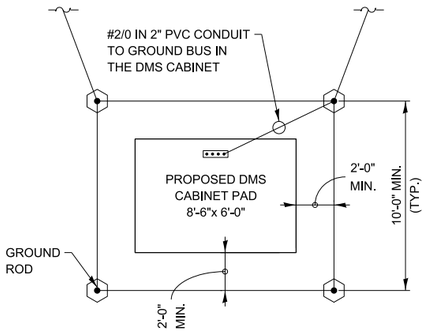
1. GROUNDING SYSTEM SHALL BE PLACED WITHIN ILLINOIS TOLLWAY RIGHT-OF-WAY.
2. GROUND MOUNTED CONTROL CABINET SHALL BE PLACED UPSTREAM OF THE OVERHEAD STRUCTURE AT THE LOCATION SHOWN ON THE PLAN VIEWS.
3. INSTALL MARKER TAPE DIRECTLY ABOVE GROUNDING ELECTRODE CONDUCTORS.
4. THE COST OF ALL MATERIALS, ALL GROUND BUSBARS, EXOTHERMIC WELDING, GROUND WELL, GROUND RODS AND ALL OTHER ITEMS TO COMPLETE THE GROUNDING ELECTRODE SYSTEM SHALL BE INCLUDED IN PAY ITEM JT132621 - DMS ELECTRICAL WORK - WALK-IN.
5. REFER TO SHEET M-ITS-1102 FOR DMS TYPICAL SITE WIRING DETAIL.
6. GROUND RODS SHALL BE INSTALLED IN GROUND WELLS IN FINISHED GRADE UNLESS INSTALLED UNDER SHOULDERS OR PAVEMENT.



MASTER GROUND BUSBAR CONNECTION DETAIL
(NOT TO SCALE)



MASTER GROUND BUSBAR SUPPORT SPACING DETAIL
(NOT TO SCALE)



GROUNDING SCHEMATIC
(NOT TO SCALE)

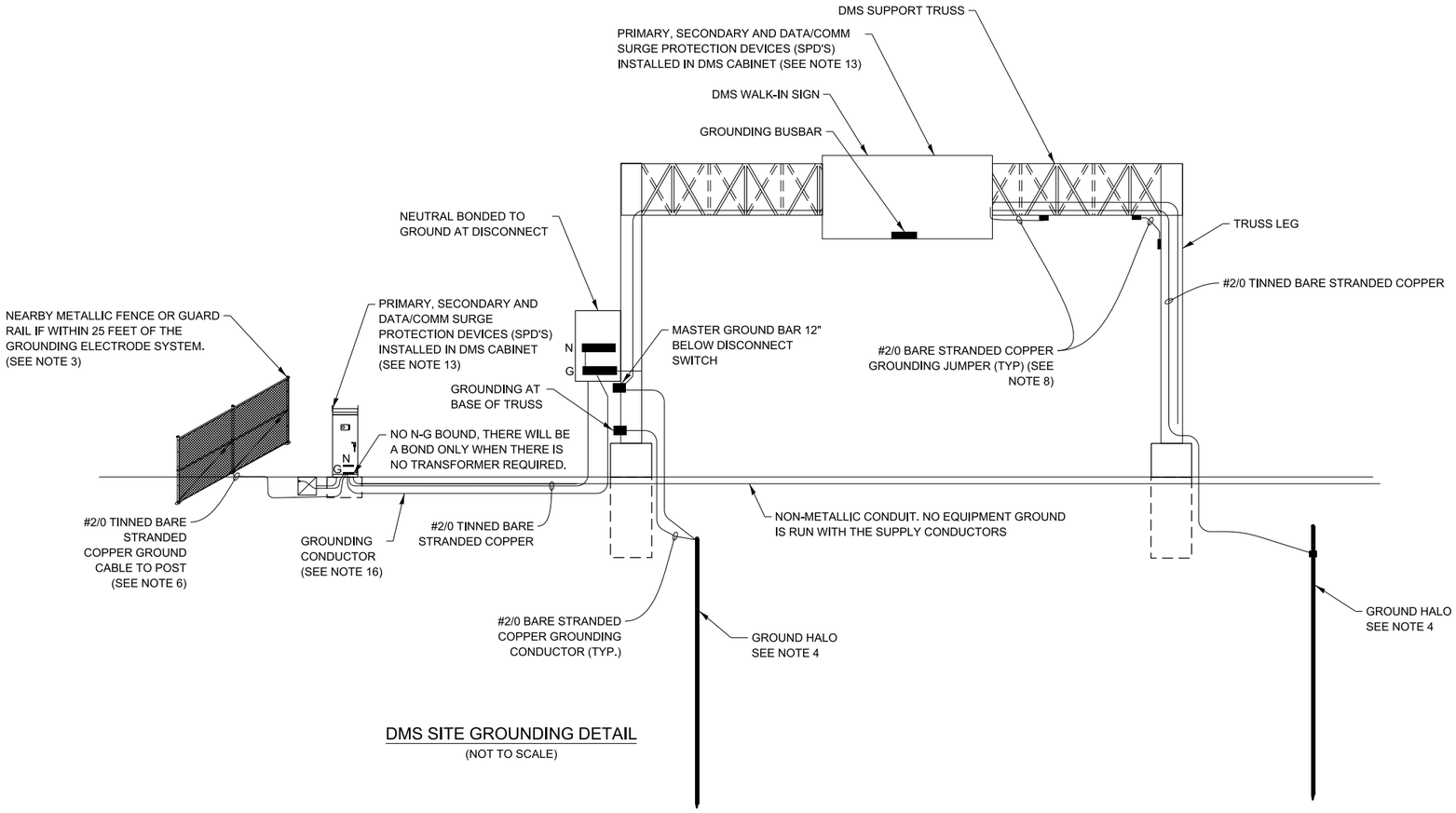
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DMS WALK-IN SITE GROUNDING PLAN

VERSION:	BASE SHEET:	SHEET:
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DMS SITE GROUNDING DETAIL

(NOT TO SCALE)

NOTES:

1. ADDITIONAL GROUND RODS SHALL BE ADDED TO GROUNDING ELECTRODE CONDUCTOR AS REQUIRED UNTIL RESISTANCE TO GROUND IS 5 OHMS OR LESS. FOR DEVICE AND POWER SERVICE LOCATIONS. IF ADDITIONAL GROUND ROD ELECTRODES ARE REQUIRED IN ORDER TO ACHIEVE REQUIRED RESISTANCE THEY SHALL RADIATE OUT FROM EXISTING GROUND ROD ELECTRODES, THESE SHALL BE CONNECTED WITH #2/0 TINNED BARE STRANDED CONDUCTOR, AND SHALL BE 20' FROM CONNECTED GROUND ROD. ALL COMMUNICATION EQUIPMENT GROUNDING SITES SHALL BE TESTED FOR RESISTANCE TO GROUND USING THE THREE-POINT FALL-OF-POTENTIAL TEST PER ANSI/IEEE STD 81. SEE ITS ELEMENT SITE GROUNDING SPECIAL PROVISION FOR PROCEDURES.
2. GROUND RODS SHALL NOT BE ROUTED THROUGH FOUNDATIONS.
3. FENCES AND OTHER METALLIC STRUCTURES WITH PATHS TO GROUND SHALL BE CONNECTED TO EQUIPMENT GROUND IF THEY ARE LOCATED WITHIN 25' OF THE GROUNDING ELECTRODE SYSTEM OR ANY OBJECT GROUNDED TO THE GROUNDING ELECTRODE SYSTEM.
4. GROUND RODS SHALL BE INSTALLED IN GROUND WELLS IN FINISHED GRADE UNLESS INSTALLED UNDER SHOULDERS OR PAVEMENT.
5. ALL EQUIPMENT GROUNDS SHALL BE PROPERLY CONNECTED TO A CHASSIS: ALL PAINT AND OTHER COATINGS, INCLUDING GALVANIZATION, SHALL BE REMOVED PRIOR TO TERMINATION OF A GROUND, AFTER THE GROUND IS TERMINATED A NON-OXIDIZING COATING SHALL BE PAINTED OVER THE EXPOSED METAL SURFACES.
6. GROUNDING ELECTRODE SYSTEM CONNECTIONS TO FENCING SHALL BE MADE USING HEAVY DUTY TINNED LISTED PIPE CLAMPS DESIGNED FOR GROUNDING AND STAINLESS STEEL HARDWARE.
7. ALL GROUNDING DIAGRAMS ARE SCHEMATIC ONLY.
8. ALL METALLIC MEMBERS OF THE DMS TRUSS AND THE DMS SIGN WITHIN 6 FEET OF EACH OTHER SHALL BE BONDED TOGETHER. WELDS SHALL BE CONSIDERED AN ACCEPTABLE BONDING METHOD. U-BOLT CONNECTIONS SHALL NOT BE CONSIDERED AN ACCEPTABLE BONDING METHOD.
9. AT LEAST AN 8 INCH MINIMUM BENDING RADIUS SHALL BE MAINTAINED ON ALL GROUNDING ELECTRODE CONDUCTORS. THE ANGLE OF ANY BENDING SHALL NOT BE LESS THAN 90 DEGREE.
10. GROUNDING CONDUCTORS SHALL ALWAYS ROUTE AS STRAIGHT AS POSSIBLE. "U" FORM JUMPERS SHALL BE ACCEPTABLE ONLY FOR GATES AND DOORS.
11. THE QUANTITY OF GROUNDING ELECTRODE CONDUCTORS CONNECTED TO A GROUND ROD ELECTRODE SHALL BE LIMITED TO THREE.
12. WHENEVER POSSIBLE, GROUND ROD ELECTRODES SHALL BE INSTALLED NO CLOSER THAN 11' FROM A FOUNDATION.
13. EVERY COPPER CONDUCTOR OR CABLE ENTERING OR LEAVING A DMS ENCLOSURE, THE DMS CONTROLLER, OR THE CCTV ELECTRONICS ENCLOSURE SHALL BE PROTECTED, WITH A SURGE PROTECTION DEVICE.
14. DIAGRAM OMITS EQUIPMENT GROUNDING INSIDE ENCLOSURES.
15. GROUNDING CONDUCTOR SHALL BE #2/0 TINNED BARE STRANDED COPPER. CONTRACTOR SHALL INSTALL GROUND RODS AS NECESSARY TO ENSURE GROUND RESISTANCE AT DMS CABINET IS 5 OHMS OR LESS.
16. IF THERE IS A METAL HANDRAIL WITHIN 20 FEET OF CONTROL CABINET CONNECT HANDRAIL TO GROUNDING SYSTEM WITH #2/0 TINNED BARE STRANDED COPPER CONDUCTOR.

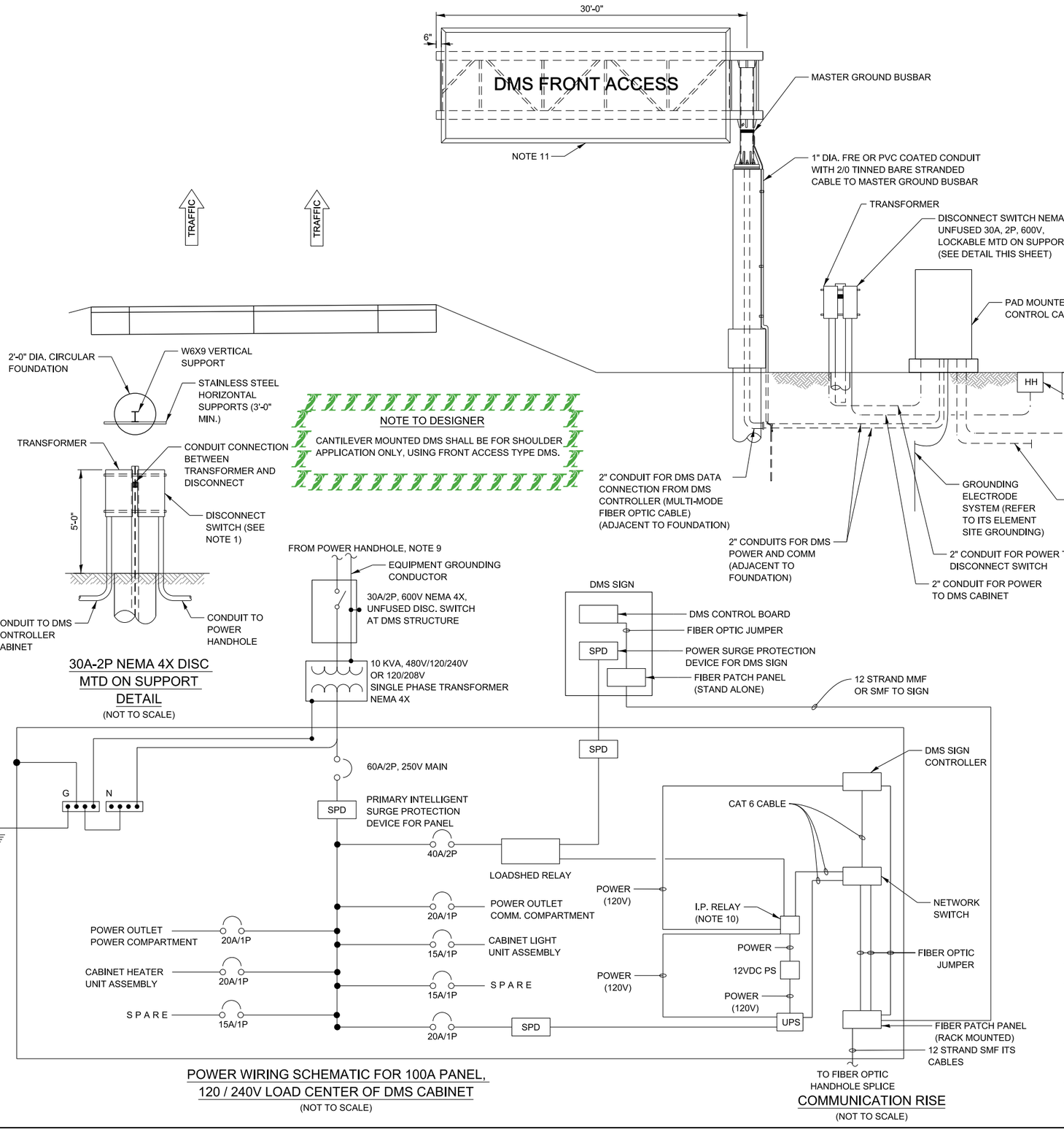
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DMS WALK-IN TYPICAL SITE GROUNDING DETAIL

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1102	1 OF 1



DMS CABINET - IP RELAY WIRING TABLE

DESCRIPTION		CONNECTION FROM		CONNECTION TO	
IP TERMINAL	IP TERMINAL ASSIGNMENT	DEVICE	CONNECTION	DEVICE	CONNECTION
1	RESERVED FOR CCTV1				
2	RESERVED FOR CCTV2				
		IP_RELAY	12VDC (+)	CB	CB1A
3	DMS LOAD SHEDDING RELAY	CB	CB1B	IP_RELAY	3 COMM
		IP_RELAY	3 NC	LOAD SHED RELAY	COIL (+)
		SPLICE BLOCK	120 V	IP_RELAY	NC
4	DMS CONTROLLER				
		IP_RELAY	4 NC	POWER OUTLET #1	HOT
				(COMMUNICATION)	
5	RESERVED FOR FLASHING BEACONS				
6	OPEN				
7	OPEN				
8	OPEN				

GENERAL NOTES:

1. FURNISH AND INSTALL SERVICE DISCONNECT ON W6X9 SUPPORT.
2. 10KVA, 480V/120/240V SINGLE PHASE TRANSFORMER.
3. THIS IS A DIAGRAMMATIC SCHEMATIC, ALL BREAKERS, TRANSFORMER LOAD CENTER SHALL BE SIZED AND WIRED AS PER MANUFACTURER RECOMMENDATIONS.
4. ENTIRE COMPLETED SYSTEM SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH MOTOROLA R56 MANUAL AND THE APPLICABLE ARTICLES OF SECTION 250 OF THE NATIONAL ELECTRICAL CODE.
5. ALL UNDERGROUND CONDUITS SHALL BE NON-METALLIC CNC AND ABOVE GRADE CONDUITS SHALL BE RGS PVC COATED. COUPLERS SHALL BE USED WHEN TRANSITIONING FROM CNC TO PRGS.
6. MOUNT CLAMPS ON 5'-0" ON CENTER MOUNTING. HARDWARE SHALL BE USED AS PER CONDUIT MANUFACTURER RECOMMENDATION.
7. CONTRACTOR SHALL SUPPLY AND INSTALL CABLE REDUCER LUGS WHERE SIZE OF CABLE ENTERING THE DISCONNECT IS MORE THAN RECOMMENDED SIZE DUE TO VOLTAGE DROP.
8. ALL ELECTRICAL WORK FOR DMS FRONT ACCESS SHALL BE PAID UNDER PAY ITEM JT132622 - DMS ELECTRICAL WORK - FRONT ACCESS.
9. THIS SCHEMATIC IS FOR GUIDANCE ONLY. CONTRACTOR SHALL WIRE THE DMS CABINET AS PER MANUFACTURER RECOMMENDATIONS AND INDUSTRY STANDARDS.
10. THE COM (COMMON) CONTACT AND NC (NORMALLY CLOSED) CONTACT ON RELAY CONTACTS OF DIN RELAY SHALL FOLLOW THE TABLE ABOVE.
11. REFER TO ILLINOIS TOLLWAY STANDARD DRAWING F4 FOR OVERHEAD SIGN STRUCTURE CANTILEVER TYPE STRUCTURE DETAILS.
12. PAD MOUNTED TRANSFORMER SHALL BE FURNISHED BY UTILITY COMPANY. FOUNDATION AND TRANSFORMER GROUNDING BY CONTRACTOR SHALL BE IN ACCORDANCE WITH UTILITY COMPANY REQUIREMENTS AND MUST BE TIED INTO DMS SITE GROUNDING ELECTRODE SYSTEM.
13. FOR THE DISCONNECT SWITCH, HORIZONTAL SUPPORT SHALL BE SIZED TO ALLOW CONDUITS TO VERTICALLY DROP OUTSIDE OF THE FOUNDATION WITHOUT BENDS.
14. FIBER PATCH PANEL IN DMS SIGN HOUSING SHALL BE A FACTORY TERMINATED UNIT WITH A 12-STRAND PIGTAIL CONNECTING TO RACK MOUNTED FIBER PATCH PANEL IN DMS CONTROLLER CABINET.

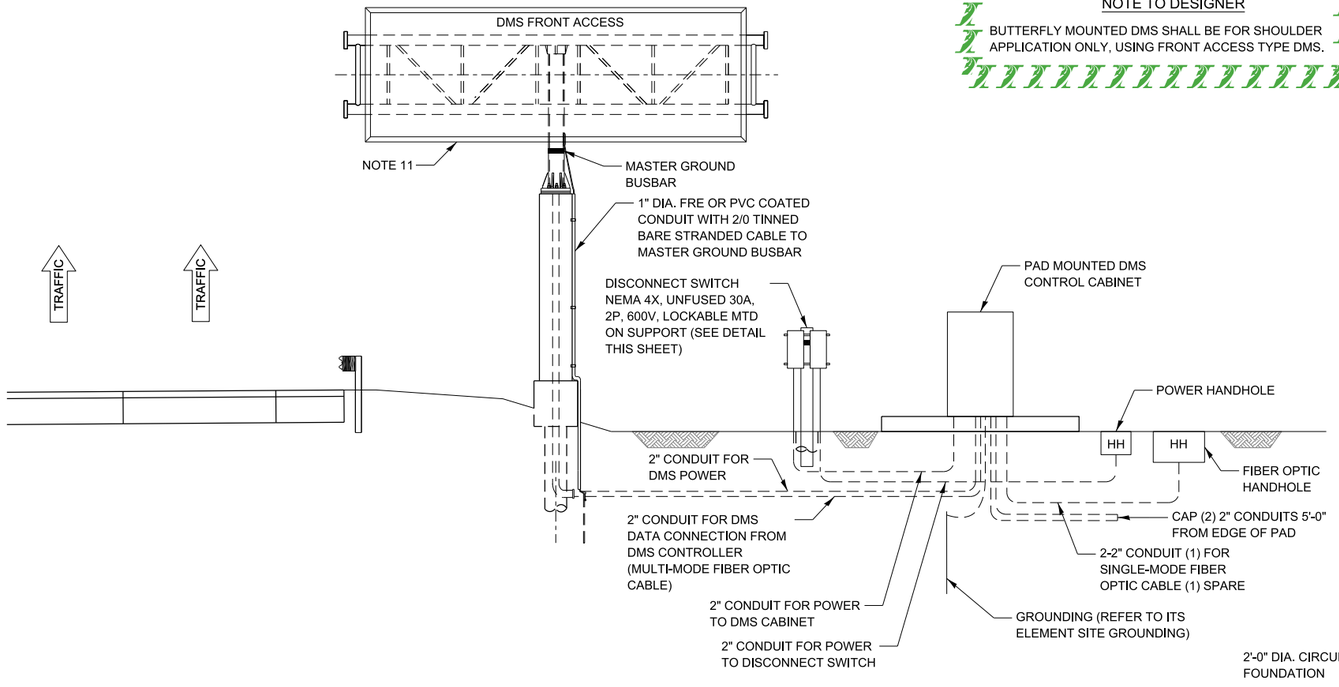
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DMS FRONT ACCESS - CANTILEVER ELECTRICAL SCHEMATIC

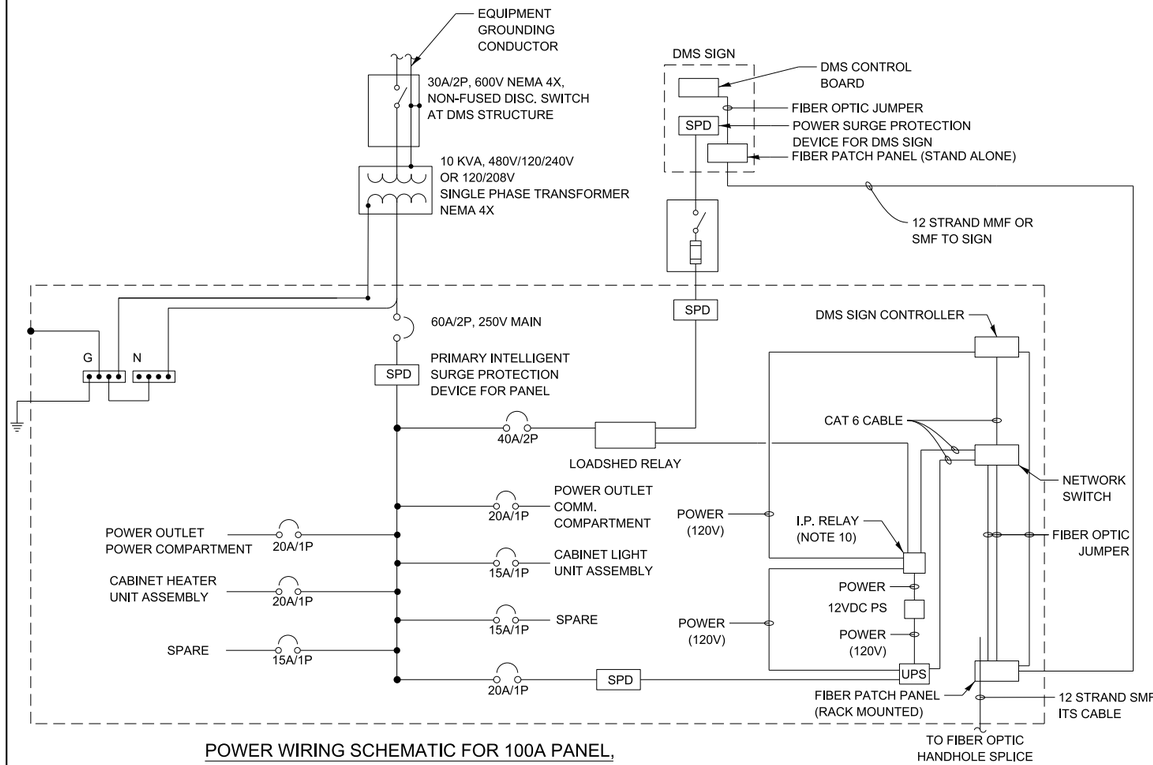
VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1103	1 OF 1



NOTE TO DESIGNER

BUTTERFLY MOUNTED DMS SHALL BE FOR SHOULDER APPLICATION ONLY, USING FRONT ACCESS TYPE DMS.

DMS CABINET - IP RELAY WIRING TABLE					
DESCRIPTION		CONNECTION FROM		CONNECTION TO	
IP TERMINAL	IP TERMINAL ASSIGNMENT	DEVICE	CONNECTION	DEVICE	CONNECTION
1	RESERVED FOR CCTV1				
2	RESERVED FOR CCTV2				
		IP_RELAY	12VDC (+)	CB	CB1A
3	DMS LOAD SHEDDING RELAY	CB	CB1B	IP_RELAY	3 COMM
		IP_RELAY	3 NC	LOAD SHED RELAY	COIL (+)
		SPLICE BLOCK	120 V	IP_RELAY	NC
4	DMS CONTROLLER				
		IP_RELAY	4 NC	POWER OUTLET #1	HOT
				(COMMUNICATION)	
5	RESERVED FOR FLASHING BEACONS				
6	OPEN				
7	OPEN				
8	OPEN				

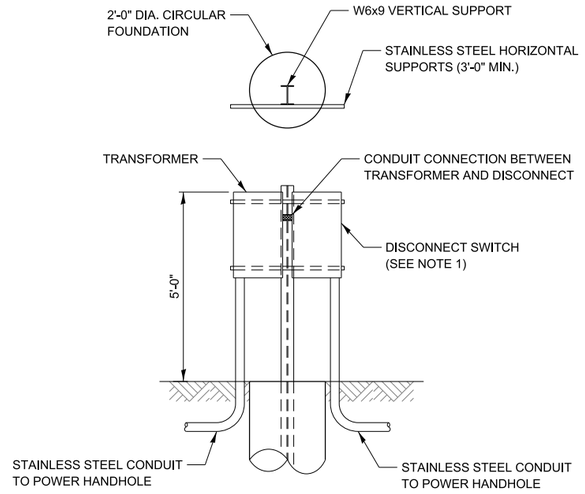


POWER WIRING SCHEMATIC FOR 100A PANEL, 120 / 240V LOAD CENTER OF DMS CABINET

(NOT TO SCALE)

COMMUNICATION RISER

(NOT TO SCALE)



30A-2P NEMA 4X DISC MTD ON SUPPORT DETAIL

NOTES:

1. FURNISH AND INSTALL SERVICE DISCONNECT ON W6X9 SUPPORT.
2. 10KVA, 480V/120/240V SINGLE PHASE TRANSFORMER.
3. THIS IS A DIAGRAMMATIC SCHEMATIC, ALL BREAKERS, TRANSFORMER LOAD CENTER SHALL BE SIZED AND WIRED AS PER MANUFACTURER RECOMMENDATIONS.
4. ENTIRE COMPLETED SYSTEM SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF NFPA 70 (NATIONAL ELECTRIC CODE) SECTION 250.
5. ALL UNDERGROUND CONDUITS SHALL BE NON-METALLIC CNC AND ABOVE GRADE CONDUITS SHALL BE RGS PVC COATED. COUPLERS SHALL BE USED WHEN TRANSITIONING FROM CNC TO PRGS.
6. MOUNT CLAMPS ON 5'-0" ON CENTER MOUNTING. HARDWARE SHALL BE USED AS PER CONDUIT MANUFACTURER RECOMMENDATION.
7. CONTRACTOR SHALL SUPPLY AND INSTALL CABLE REDUCER LUGS WHERE SIZE OF CABLE ENTERING THE DISCONNECT IS MORE THAN RECOMMENDED SIZE DUE TO VOLTAGE DROP.
8. ALL ELECTRICAL WORK FOR DMS TYPE 2 SHALL BE PAID UNDER PAY ITEM JT132622 - DMS ELECTRICAL WORK - TYPE 2.
9. THIS SCHEMATIC IS FOR GUIDANCE ONLY. CONTRACTOR SHALL WIRE THE DMS CABINET AS PER MANUFACTURER RECOMMENDATIONS AND INDUSTRY STANDARDS.
10. THE COM (COMMON) CONTACT AND NC (NORMALLY CLOSED) CONTACT ON RELAY CONTACTS OF DIN RELAY SHALL FOLLOW THE TABLE ABOVE.
11. REFER TO ILLINOIS TOLLWAY STANDARD DRAWING F14 FOR OVERHEAD SIGN STRUCTURE BUTTERFLY TYPE STRUCTURE DETAILS.
12. FOR THE DISCONNECT SWITCH, HORIZONTAL SUPPORT SHALL BE SIZED TO ALLOW CONDUITS TO VERTICALLY DROP OUTSIDE OF THE FOUNDATION WITHOUT BENDS.
13. FIBER PATCH PANEL IN DMS SIGN HOUSING SHALL BE A FACTORY TERMINATED UNIT WITH A 12-STRAND PIGTAIL CONNECTING TO RACK MOUNTED FIBER PATCH PANEL IN DMS CONTROLLER CABINET.

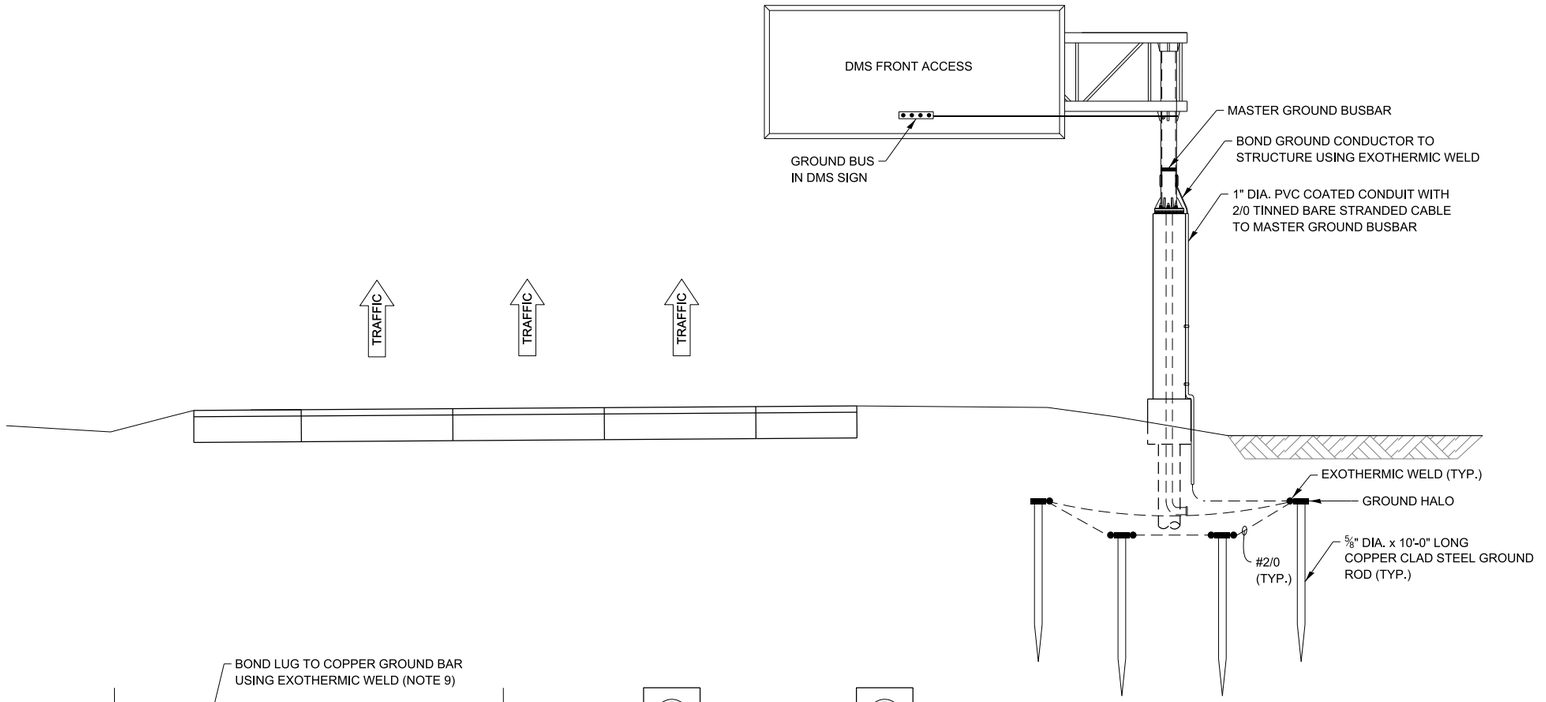
NOTE TO DESIGNER

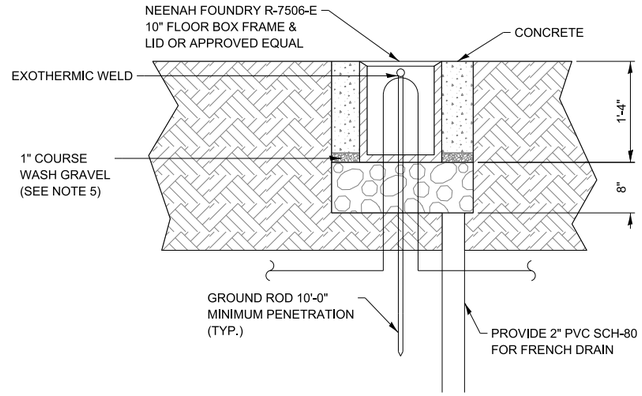
THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS **NOT** A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY 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.

Illinois Tollway

DMS FRONT ACCESS-BUTTERFLY ELECTRICAL SCHEMATIC

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1104	1 OF 1

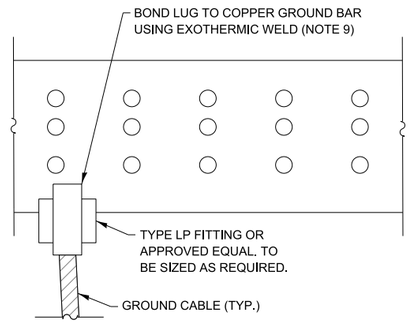




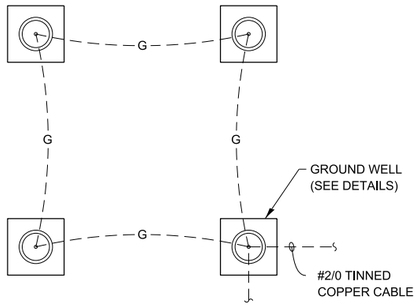
GROUND WELL ELEVATION DETAIL
NOT TO SCALE

NOTES:

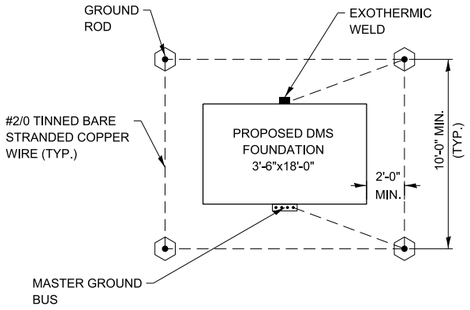
1. GROUNDING SYSTEM SHALL BE PLACED WITHIN ILLINOIS TOLLWAY RIGHT-OF-WAY.
2. GROUND MOUNTED CONTROL CABINET SHALL BE PLACED UP STREAM OF THE STRUCTURE AT THE LOCATION SHOWN ON THE PLAN VIEW.
3. INSTALL MARKER TAPE DIRECTLY ABOVE GROUNDING ELECTRODES AND CONDUCTORS.
4. THE COST OF ALL MATERIALS, ALL GROUND BUSBARS, EXOTHERMIC WELDING, GROUND WELL, OTHER ITEMS TO COMPLETE THE GROUNDING SYSTEMS SHALL BE INCLUDED IN PAY ITEM JT132622 - DMS ELECTRICAL WORK - FRONT ACCESS.
5. CA-11, A QUALITY, IN ACCORDANCE WITH SSRBC 1004.

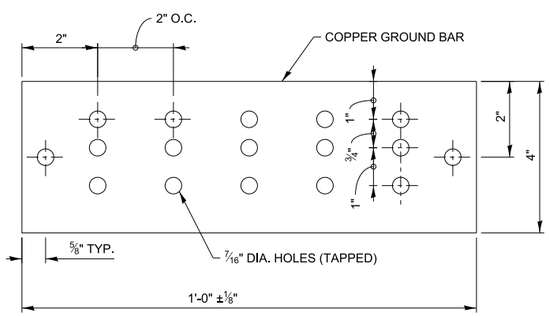


MASTER GROUND BUSBAR CONNECTION DETAIL
NOT TO SCALE

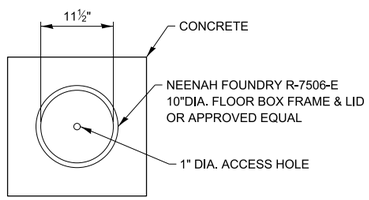


GROUND HALO DETAIL
NOT TO SCALE

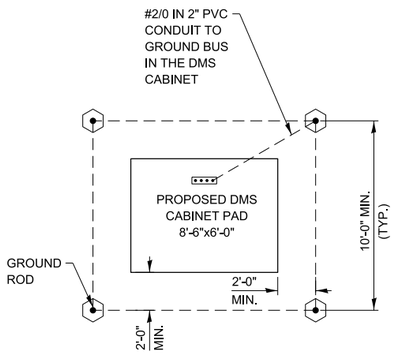




MASTER GROUND BUSBAR SUPPORT SPACING DETAIL
NOT TO SCALE



GROUND WELL PLAN DETAIL
NOT TO SCALE



GROUNDING SCHEMATIC
NOT TO SCALE

NOTE TO DESIGNER

THIS TYPICAL DMS FRONT ACCESS GROUNDING PLAN IS APPLICABLE TO BOTH DMS FRONT ACCESS CANTILEVER AND BUTTERFLY SIGNS. DMS FRONT ACCESS CANTILEVER SIGN IS SHOWN ON THIS DRAWING FOR CLARITY. DESIGNER SHALL MODIFY AND COMPLETE THIS DRAWING FOR DMS FRONT ACCESS BUTTERFLY SIGN.

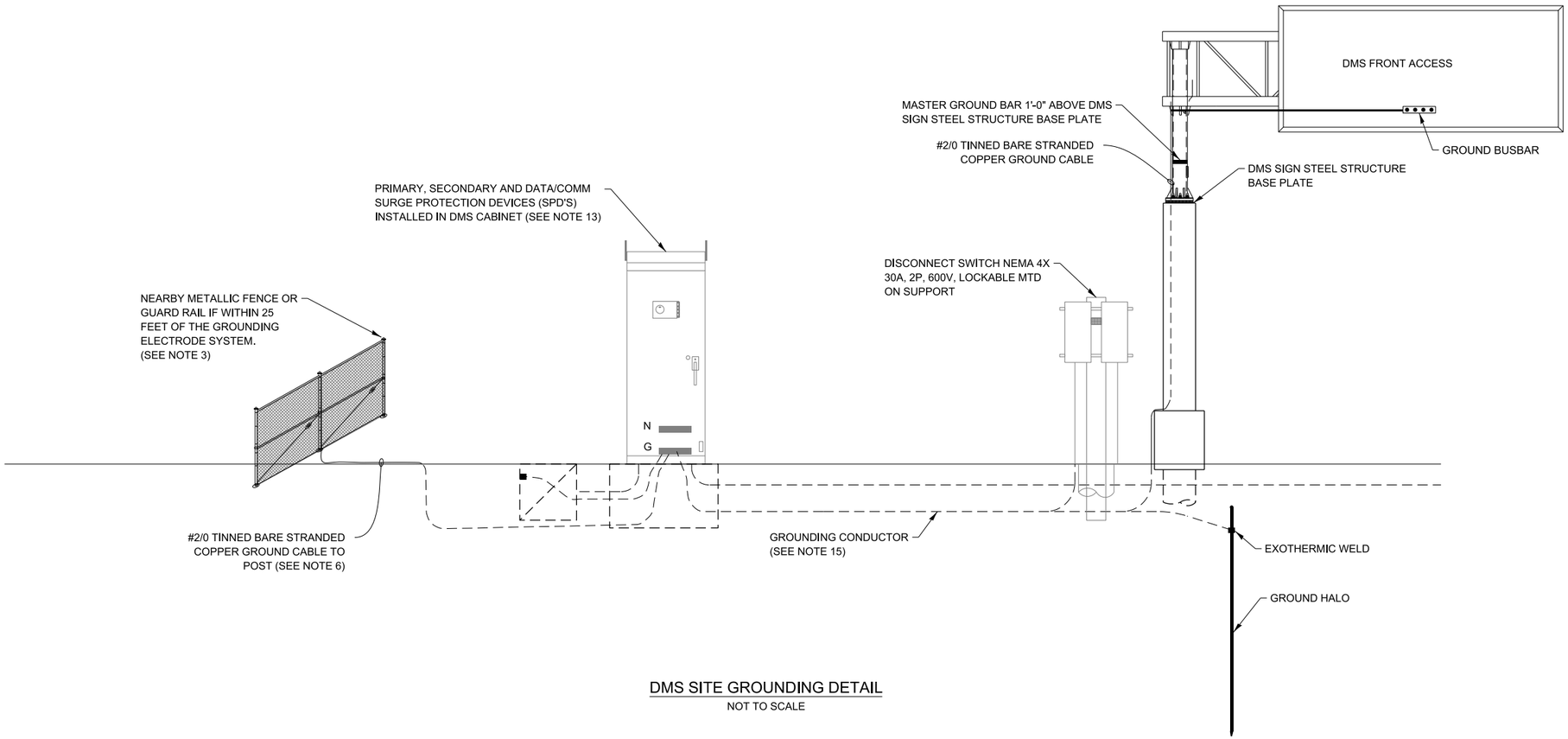
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

Illinois Tollway

DMS FRONT ACCESS SITE GROUNDING PLAN

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1105	1 OF 1



DMS SITE GROUNDING DETAIL

NOT TO SCALE

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

NOTE TO DESIGNER

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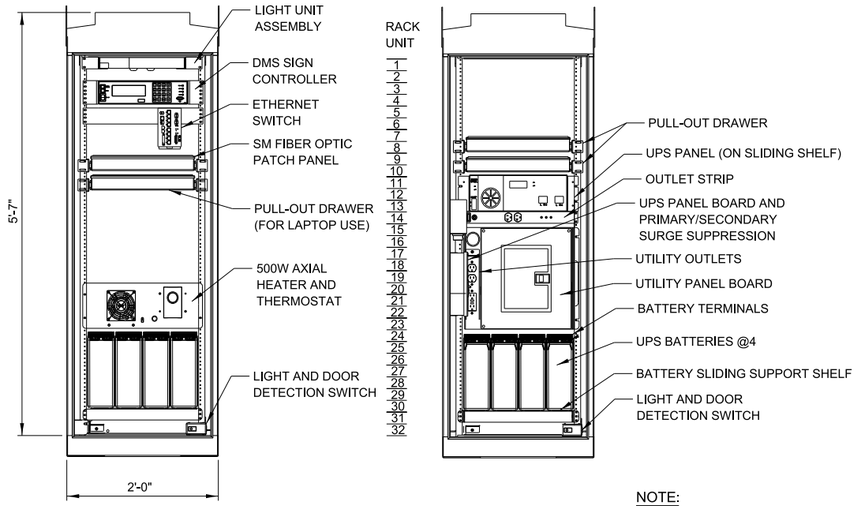
NOTES:

1. ADDITIONAL GROUND RODS SHALL BE ADDED TO GROUNDING ELECTRODE CONDUCTOR AS REQUIRED UNTIL RESISTANCE TO GROUND IS 5 OHMS OR LESS. FOR DEVICE AND POWER SERVICE LOCATIONS. IF ADDITIONAL GROUND ROD ELECTRODES ARE REQUIRED IN ORDER TO ACHIEVE REQUIRED RESISTANCE THEY SHALL RADIATE OUT FROM EXISTING GROUND ROD ELECTRODES, THESE SHALL BE CONNECTED WITH #2/0 TINNED BARE STRANDED CONDUCTOR, AND SHALL BE 20' FROM CONNECTED GROUND ROD. ALL COMMUNICATION EQUIPMENT GROUNDING SITES SHALL BE TESTED FOR RESISTANCE TO GROUND USING THE THREE-POINT FALL-OF-POTENTIAL TEST PER ANSI/IEEE STD 81. SEE ITS ELEMENT SITE GROUNDING SPECIAL PROVISIONS FOR PROCEDURES.
2. GROUND RODS SHALL NOT BE ROUTED THROUGH FOUNDATIONS.
3. FENCES AND OTHER METALLIC STRUCTURES WITH PATHS TO GROUND SHALL BE CONNECTED TO EQUIPMENT GROUND IF THEY ARE LOCATED WITHIN 25' OF THE GROUNDING ELECTRODE SYSTEM OR ANY OBJECT GROUNDED TO THE GROUNDING ELECTRODE SYSTEM.
4. GROUND RODS SHALL BE INSTALLED IN GROUND WELLS IN FINISHED GRADE.
5. ALL EQUIPMENT GROUNDS SHALL BE PROPERLY CONNECTED TO A CHASSIS: ALL PAINT AND OTHER COATINGS, INCLUDING GALVANIZATION, SHALL BE REMOVED PRIOR TO TERMINATION OF A GROUND, AFTER THE GROUND IS TERMINATED A NON-OXIDIZING COATING SHALL BE PAINTED OVER THE EXPOSED METAL SURFACES.
6. GROUNDING ELECTRODE SYSTEM CONNECTIONS TO FENCING SHALL BE MADE USING HEAVY DUTY TINNED LISTED PIPE CLAMPS DESIGNED FOR GROUNDING AND STAINLESS STEEL HARDWARE.
7. ALL GROUNDING DIAGRAMS ARE SCHEMATIC ONLY.
8. ALL METALLIC MEMBERS OF THE DMS TRUSS AND THE DMS SIGN WITHIN 6 FEET OF EACH OTHER SHALL BE BONDED TOGETHER. WELDS SHALL BE CONSIDERED AN ACCEPTABLE BONDING METHOD. U-BOLT CONNECTIONS SHALL NOT BE CONSIDERED AN ACCEPTABLE BONDING METHOD.
9. AT LEAST AN 8 INCH MINIMUM BENDING RADIUS SHALL BE MAINTAINED ON ALL GROUNDING ELECTRODE CONDUCTORS. THE ANGLE OF ANY BENDING SHALL NOT BE LESS THAN 90 DEGREES.
10. GROUNDING CONDUCTORS SHALL ALWAYS ROUTE AS STRAIGHT AS POSSIBLE. "U" FORM JUMPERS SHALL BE ACCEPTABLE ONLY FOR GATES AND DOORS.
11. THE QUANTITY OF GROUNDING ELECTRODE CONDUCTORS CONNECTED TO A GROUND ROD ELECTRODE SHALL BE LIMITED TO THREE.
12. WHENEVER POSSIBLE, GROUND ROD ELECTRODES SHALL BE INSTALLED NO CLOSER THAN 11' FROM A FOUNDATION.
13. EVERY COPPER CONDUCTOR OR CABLE ENTERING OR LEAVING A DMS ENCLOSURE, THE DMS CONTROLLER, OR THE CCTV ELECTRONICS ENCLOSURE SHALL BE PROTECTED WITH A SURGE PROTECTION DEVICE.
14. DIAGRAM OMITS EQUIPMENT GROUNDING INSIDE ENCLOSURES.
15. GROUNDING CONDUCTOR SHALL BE #2/0 TINNED BARE STRANDED COPPER. CONTRACTOR SHALL INSTALL GROUND RODS AS NECESSARY TO ENSURE GROUND RESISTANCE AT DMS CABINET IS 5 OHMS OR LESS.
16. IF THERE IS A METAL HANDRAIL WITHIN 20 FEET OF CONTROL CABINET CONNECT HANDRAIL TO GROUNDING SYSTEM WITH #2/0 TINNED BARE STRANDED COPPER CONDUCTOR.

Illinois Tollway

DMS FRONT ACCESS SITE WIRING DETAIL

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1106	1 OF 1

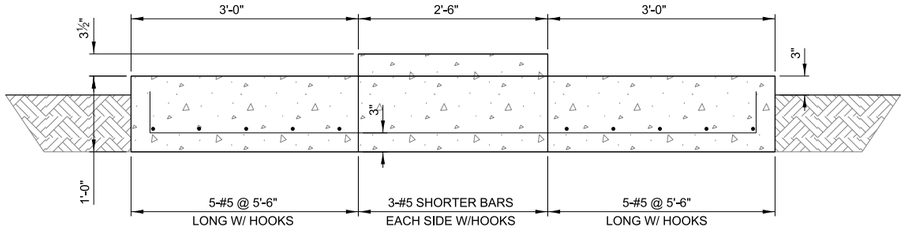


SECTION B-B FRONT VIEW
(NO DOOR SHOWN)

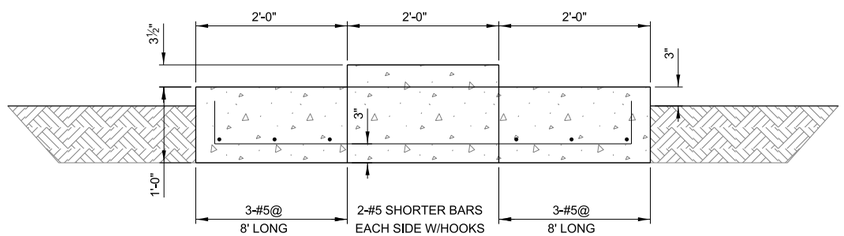
SECTION A-A REAR VIEW
(NO DOOR SHOWN)

NOTE:
SPLICE BLOCK, LOAD SHED RELAY, CONTROL POWER TRANSFORMER & DIN IP RELAY MOUNTED ON SIDE WALL ADJACENT UTILITY PANEL BOARD.

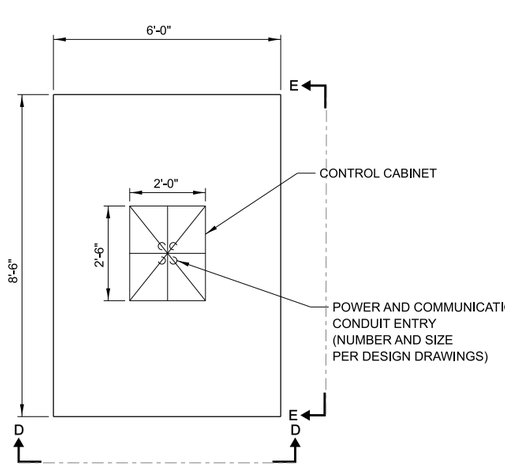
TYPE 334 DMS CABINET LAYOUT DETAILS



SECTION E-E



SECTION D-D
NOT TO SCALE



PLAN

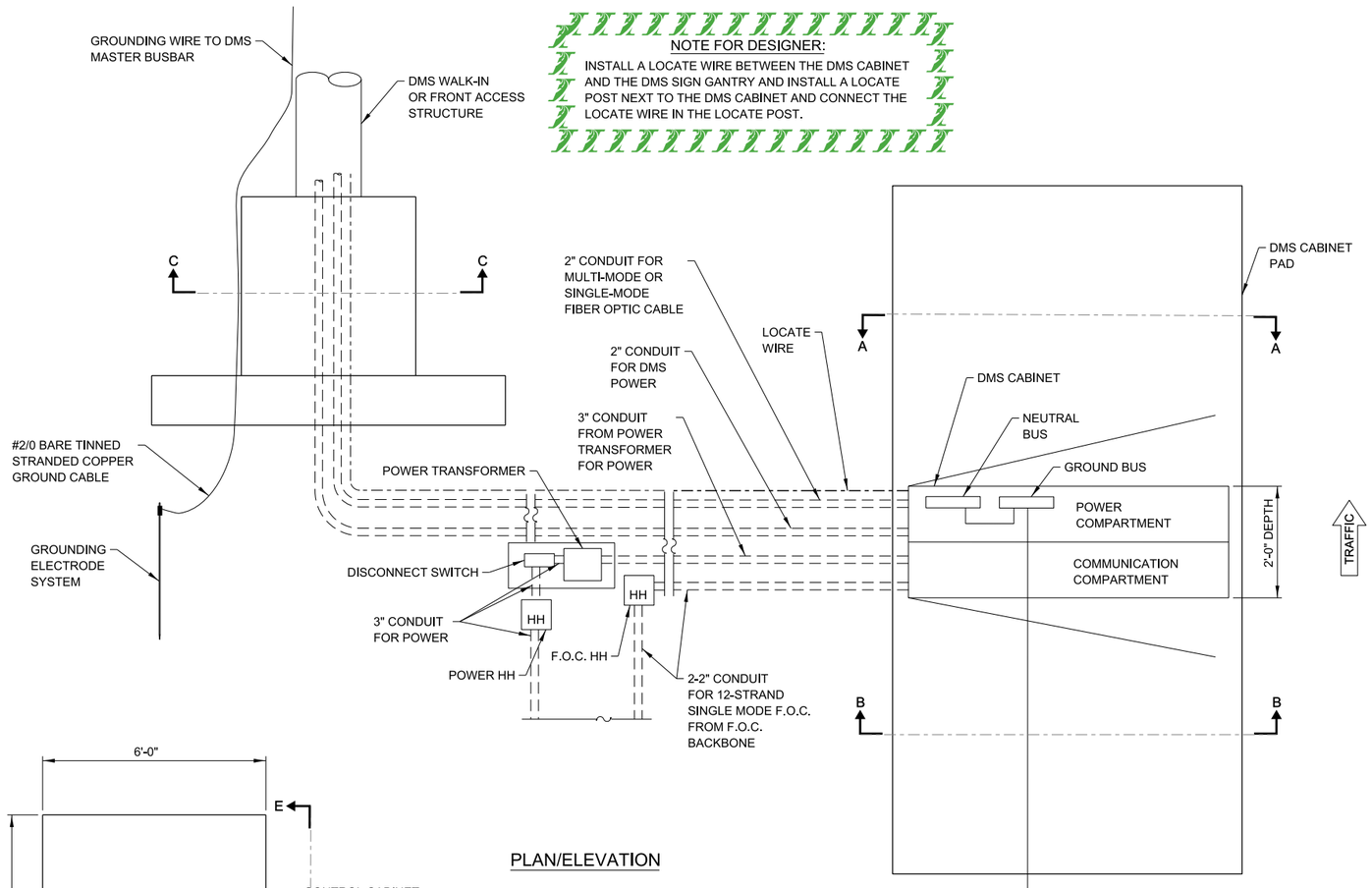
DMS CONTROLLER FOUNDATION DETAILS

DMS CABINET FOUNDATION NOTES:

1. COORDINATE SIZE OF OPENING WITH DMS CONTROLLER CABINET BOTTOM CONDUIT CUT-OUTS
2. CONCRETE = 4,000 PSI (MIN.)
3. REBAR EPOXY COATED FY=60,000 PSI (MIN.)
4. PROVIDE SHOP DRAWINGS PRIOR TO CONSTRUCTION
5. INCLUDE CONDUITS

NOTE TO DESIGNER

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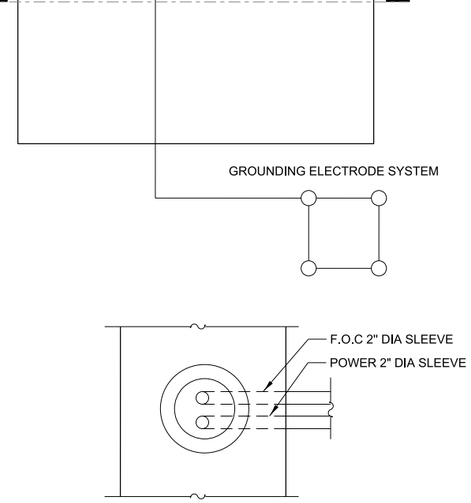


NOTE FOR DESIGNER:
INSTALL A LOCATE WIRE BETWEEN THE DMS CABINET AND THE DMS SIGN GANTRY AND INSTALL A LOCATE POST NEXT TO THE DMS CABINET AND CONNECT THE LOCATE WIRE IN THE LOCATE POST.

PLAN/ELEVATION

DMS CABINET NOTES:

1. PAD MOUNT CONFIGURATION
2. 0.125" ALUMINUM 5052-H34 CONSTRUCTION WITH CONTINUOUSLY WELDED EXTERNAL SEAMS
3. THREE POINT LATCH WITH SST HANDLE
4. DOUBLE FLANGED DOOR SEAL WITH ½" X 2" CLOSED CELL NEOPRENE GASKET WITH CORBIN #2 LOCK ON EACH DOOR.
5. FULL LENGTH EIA GAGE FOR 19" EQUIPMENT
6. ADJUSTABLE PULL OUT DRAWER
7. DOOR OPENING: 21.50" X 54.75"
8. FULL LENGTH STAINLESS STEEL HINGE
9. ALL STAINLESS STEEL HARDWARE
10. CORBIN #2 LOCK
11. NEMA 4X ENCLOSURE
12. SHIPPED ON WOOD PALLET
13. MOUNT LAYER 2 ETHERNET SWITCH (DIN-RAIL MOUNT) USING DIN-RAIL MOUNT
14. BATTERIES AND UPS SHALL BE PLACED ON A SLIDING SHELF
15. CABINET DIMENSION 24"X30"X67"

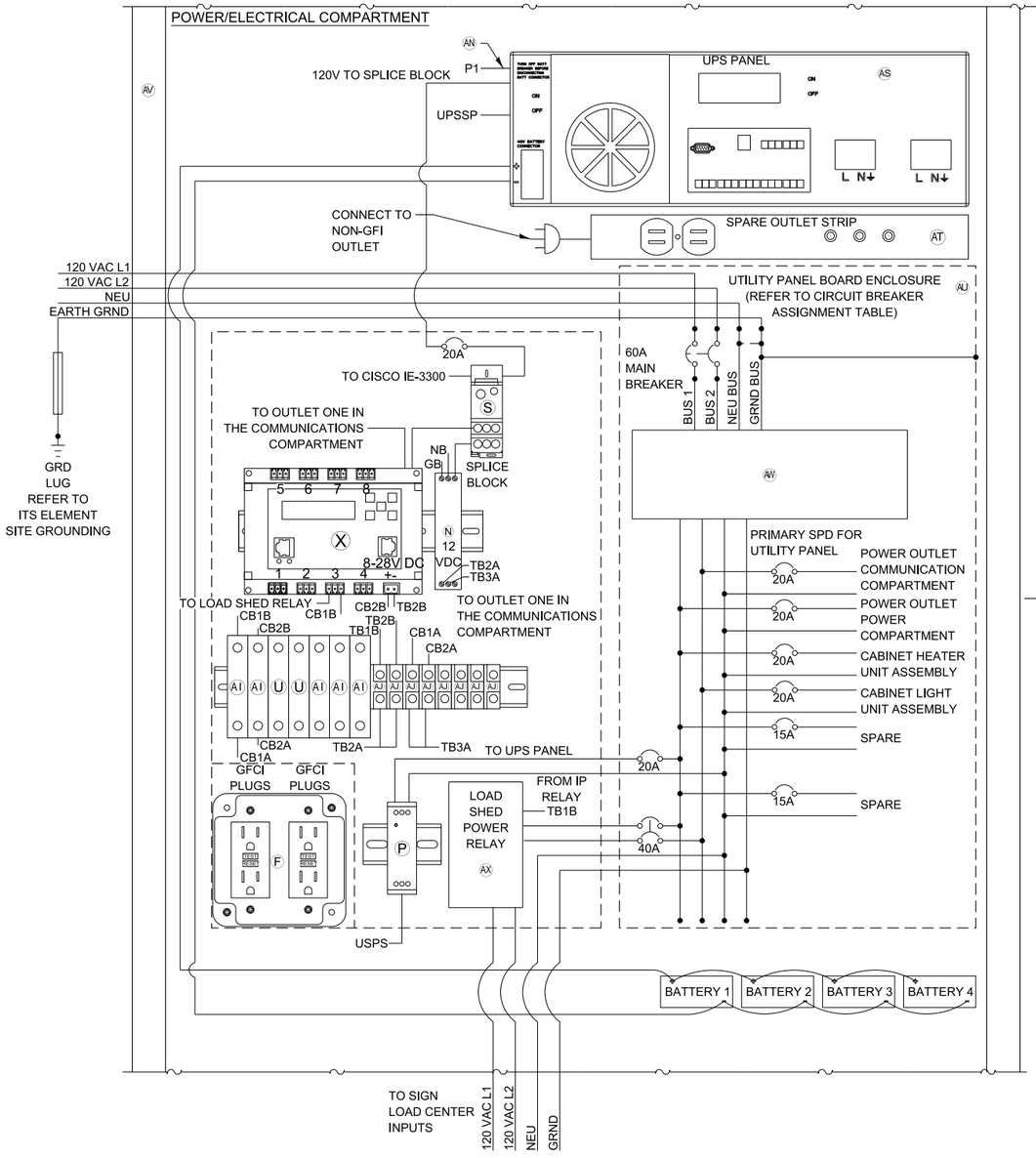


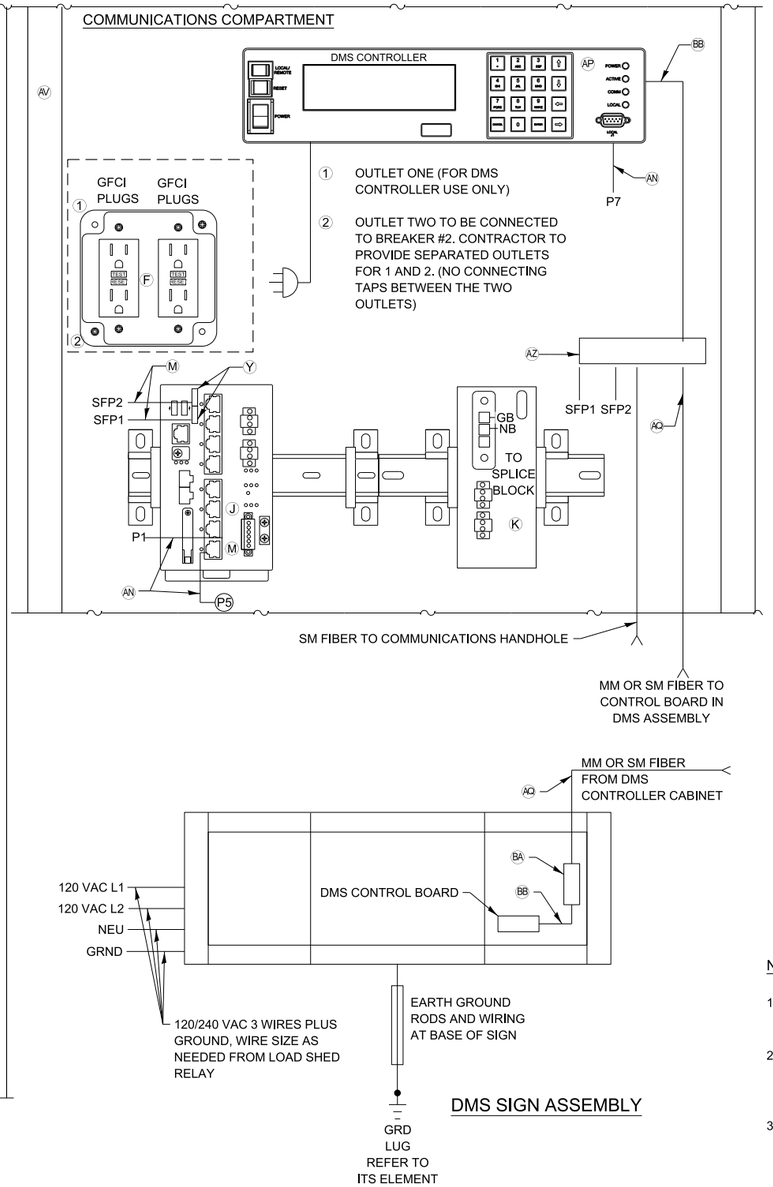
SECTION C-C
POWER AND F.O.C WITHIN DMS FOUNDATION

Illinois Tollway

DMS CABINET LAYOUT DETAIL

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1107	1 OF 1





DMS SIGN ASSEMBLY

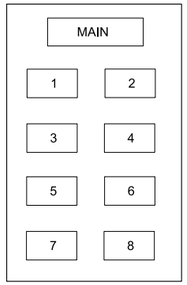
LEGEND:

ITEM	DESCRIPTION
A - E	NOT USED
F	TWO DUPLEX 120V RECEPTACLES, ONE GFCI (HUBBELL GFR5362TR) AND ONE STANDARD (HUBBELL BR20WR)
G - I	NOT USED
J	NETWORK SWITCH CISCO IE-3300-8T2S-E
K	CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
L	IP SERVICES LICENSE: L-IE3300-DNS-A-3Y
M	2 METER - SMFO LC-SC DUPLEX JUMPERS, CORNING/047202R5120002M
N	AC/DC POWER SUPPLY, 12VDC, 10 WATTS, MEAN WELL/MDR-10-12
O	SMF PATCH PANEL WITH SC CONNECTORS FIBER CONNECTIONS G620U012 LAN-100-0
P	120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
Q - R	NOT USED
S	SPLICE BLOCK, ALTECH/38041
T	NOT USED
U	5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
V - W	NOT USED
X	POWER CONTROLLER, 8-CHANNEL DIN ETHERNET RELAY DIGITAL LOGGERS/DIN 4
Y	(2) GLC-LX-SM-RGD = 1 GBPS SM SFP MODULES
Z	NOT USED
AA - AH	NOT USED
AI	2A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B020
AJ	TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
AK - AM	NOT USED
AN	INDOOR/OUTDOOR RATED CAT6 (1000MBS, TEMPERATURE HARDENED) THESE ARE THE CAT6 CABLES ROUTED INSIDE CABINET
AO	NOT USED
AP	DMS CONTROLLER
AQ	12-STRAND MULTI-MODE OR SINGLE-MODE FIBER OPTIC CABLE
AR	NOT USED
AS	UPS PANEL ALPHA TECHNOLOGIES FXM1100 WITH BATTERIES
AT	OUTLET STRIP
AU	DMS MANUFACTURER UTILITY PANEL ENCLOSURE
AV	DMS CONTROL CABINET TYPE 334 NEMA 4X
AW	120/240VAC MTL ZONE DEFENDER MODEL ZD16100
AX	LOAD SHED POWER RELAY MAGNECRAFT MODEL 199X-12 WITH COVER
AY	RACK MOUNTED FIBER PATCH PANEL
BA	STAND ALONE FIBER PATCH PANEL
BB	2 METER FIBER JUMPER, CORNING (TYPE AND CONNECTION PER DMS MANUFACTURER)

NOTES:

1. FABRICATOR TO PROVIDE CABINET DRAWINGS SUBMITTAL FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
2. ENTIRE COMPLETED SYSTEM SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH MOTOROLA R56 MANUAL AND THE APPLICABLE ARTICLES OF SECTION 250 OF THE NATIONAL ELECTRICAL CODE.
3. DMS CONTROLLER SHOWN REPRESENTS A GENERIC DMS CONTROLLER. DMS CONTROLLERS ARE SUPPLIED BY THE DMS MANUFACTURER AND THEREFORE THE FRONT PANEL MAY DIFFER.

CIRCUIT BREAKER ASSIGNMENT TABLE
(SEE UTILITY PANEL BOARD CIRCUIT BREAKER LOCATIONS)



CIRCUIT BREAKER DESCRIPTION	AMPS	CIRCUIT BREAKER LOCATION
POWER OUTLET POWER COMPARTMENT	20	1
CABINET HEATER UNIT ASSEMBLY	20	2
POWER OUTLET COMMUNICATION COMPARTMENT	20	3
CABINET LIGHT UNIT ASSEMBLY	15	4
LOAD SHED RELAY	40	5
		7
UPS PANEL	20	6
NOT USED	-	8

NOTE TO DESIGNER

A CONTRACT SUBMITTAL CONTAINING THE FULL PROPOSED DMS CABINET LAYOUT AND ALL EQUIPMENT IS REQUIRED FOR ACCEPTANCE BY THE DESIGN ENGINEER.

NOTE TO DESIGNER

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Illinois Tollway

DMS CABINET WIRING DIAGRAM

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1108	1 OF 1

BASE SHEETS

SERIES 1200 (ITS)

CABINET WIRING

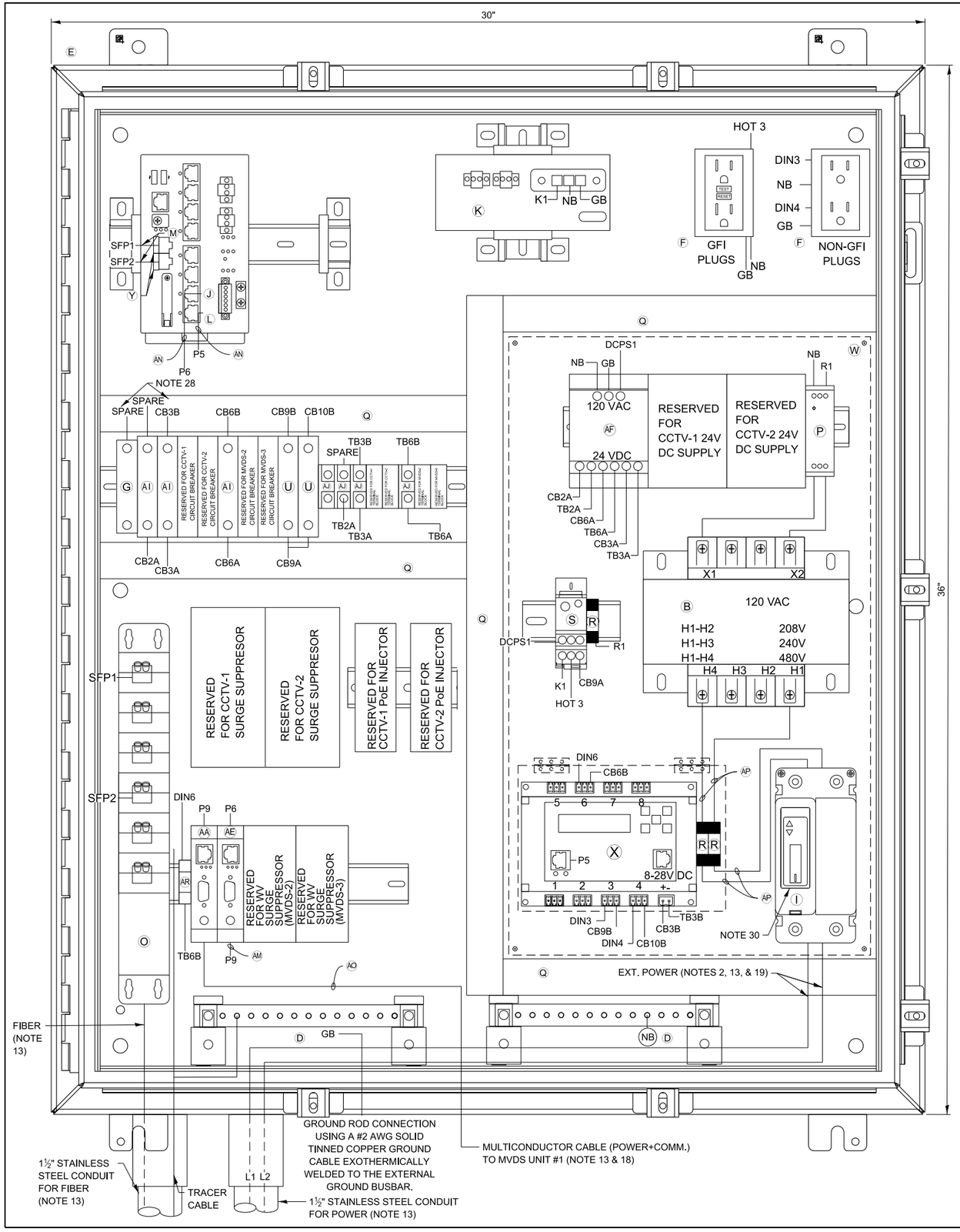
MARCH 2025

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Cabinet Wiring (ITS)-Series 1200	
	M-ITS-1200 to M-ITS-1210	**Cabinet Layout and Wiring ITS Pole Mounted Enclosure**
		Revised layout of Cisco switch to match the details of Cisco IE-3300-8T2S-E
		Revised layout to add access door through the Plexiglas cover to give easy access to IP Relay for programing
		Revised item to call Cisco IE-3300-8T2S-E
		Revised Cisco license to connect to Cisco IE3300-DNS-A-3Y
	M-ITS-1217	**Cabinet Wiring Diagram In-Pavement Detector System AP. PoE. And Injector ITS Assembly**
		Revised layout to add access door through the Plexiglas cover to give easy access to IP Relay for programing
		Revised layout of Cisco switch to match the details of Cisco IE-3300-8T2S-E
		Revised Cisco license to connect to Cisco IE3300-DNS-A-3Y
		Revised item to call Cisco IE-3300-8T2S-E

New Sheet

Retired Standard



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) NOT USED FOR THIS SHEET APPLICATION
- (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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) NOT USED FOR THIS SHEET APPLICATION
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

0 2" 4"
SCALE IN INCHES
SCALE: 1" = 2"

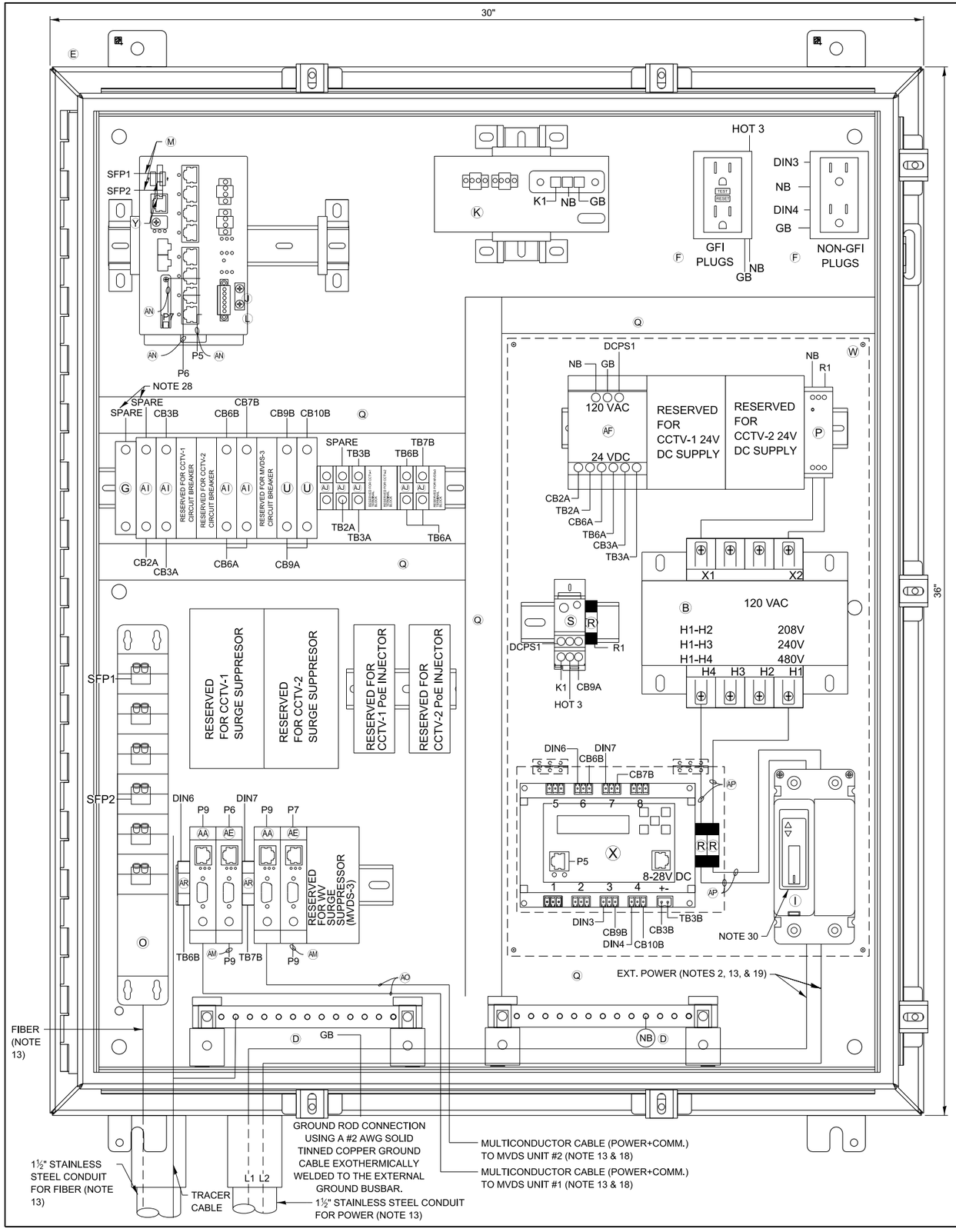
NOTE TO DESIGNER

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

Illinois Tollway

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

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1200	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

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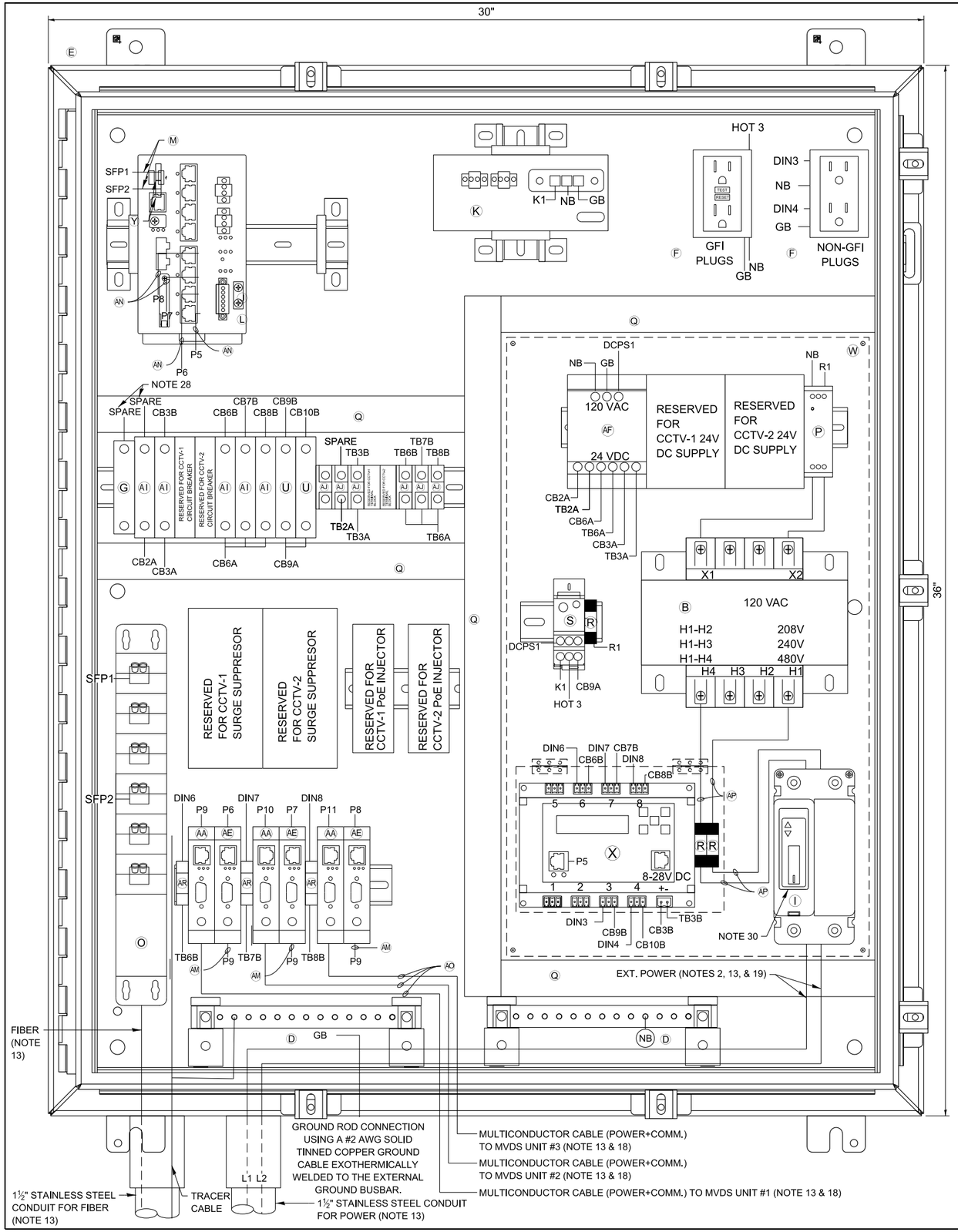
NOTE TO DESIGNER

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-MVDS)

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1201	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

0 2" 4"
SCALE IN INCHES
SCALE: 1" = 2"

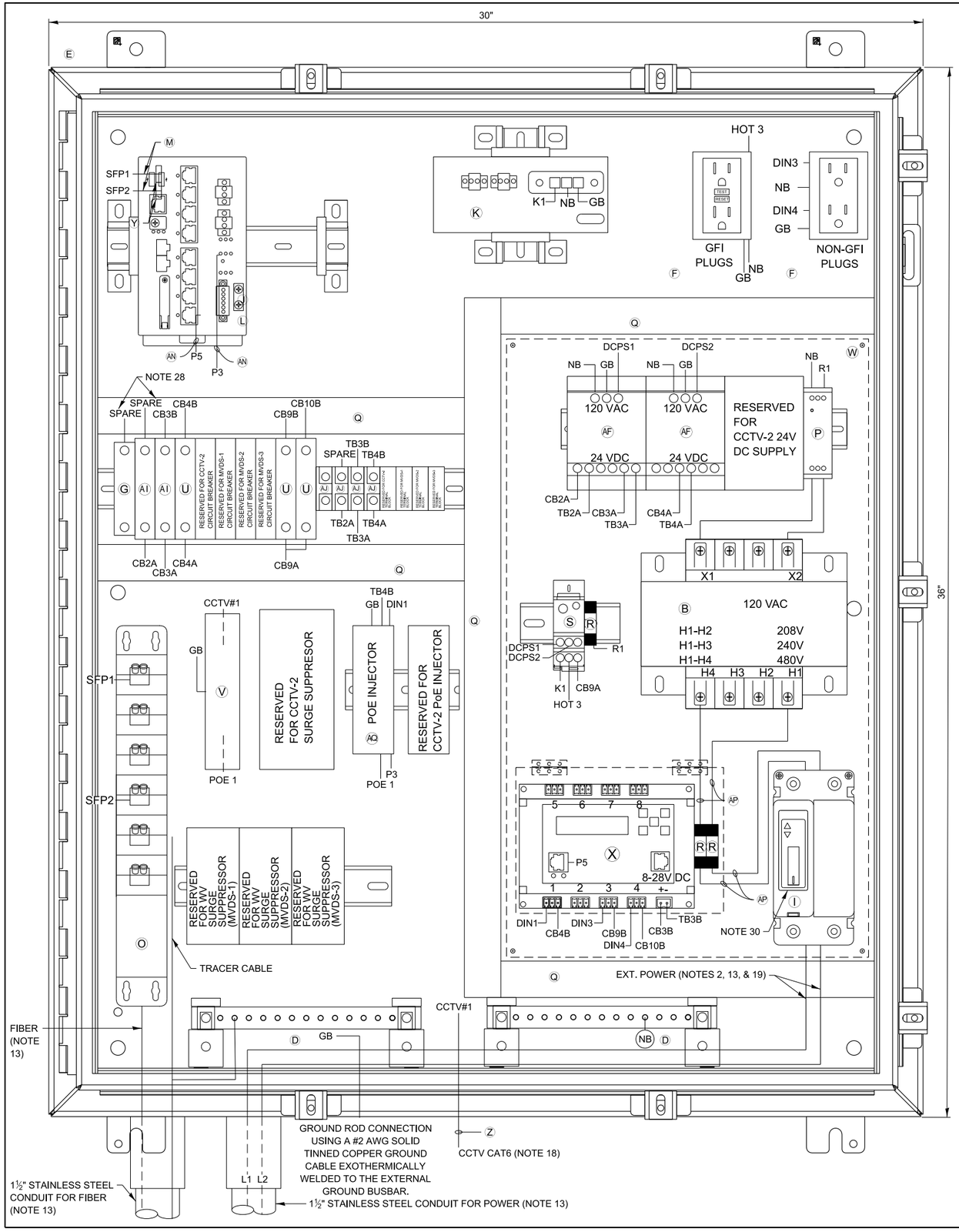
NOTE TO DESIGNER

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (3-MVDS)

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1202	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144 24VDC
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

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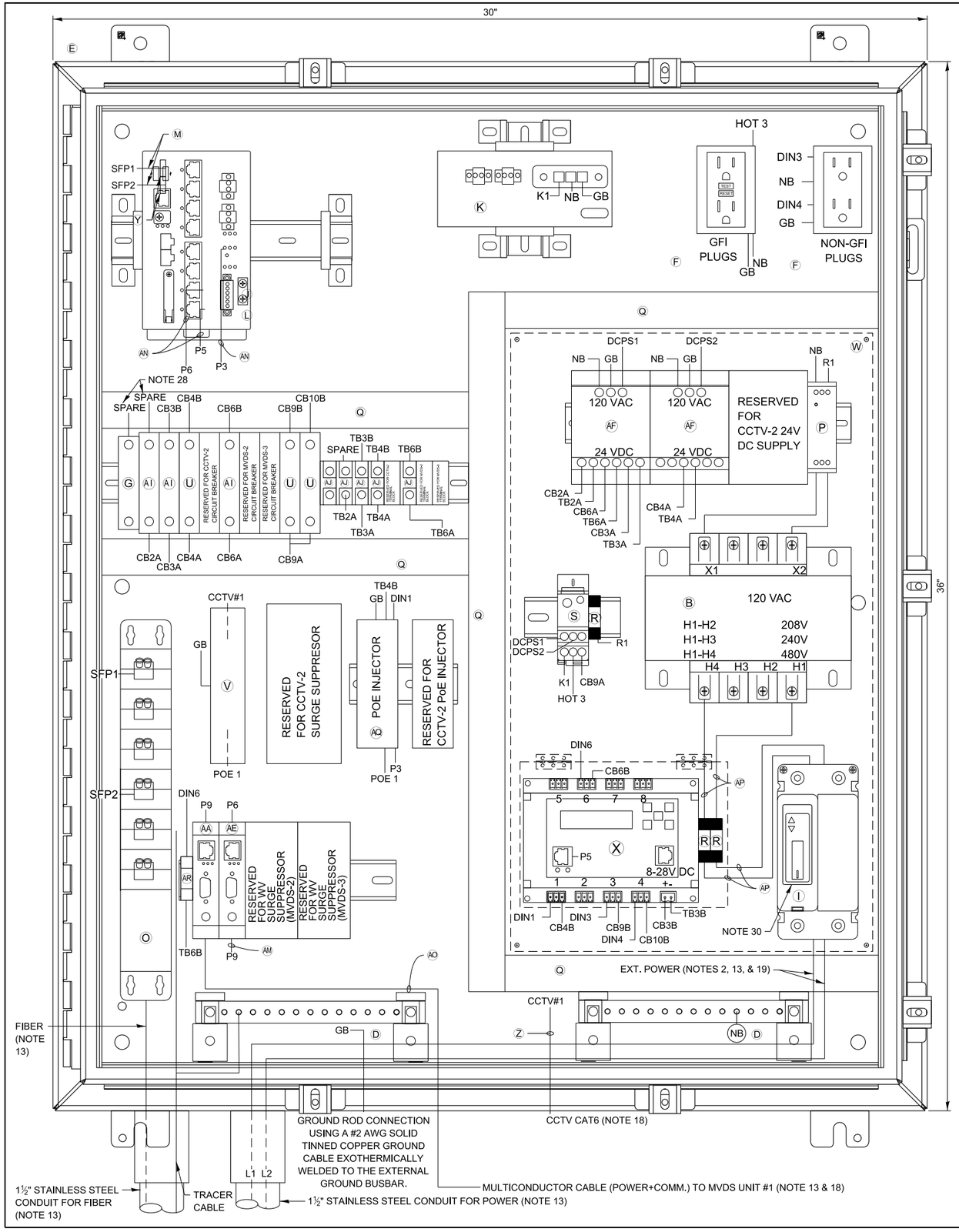
NOTE TO DESIGNER

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-CCTV CAMERA)

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1203	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144 24VDC
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

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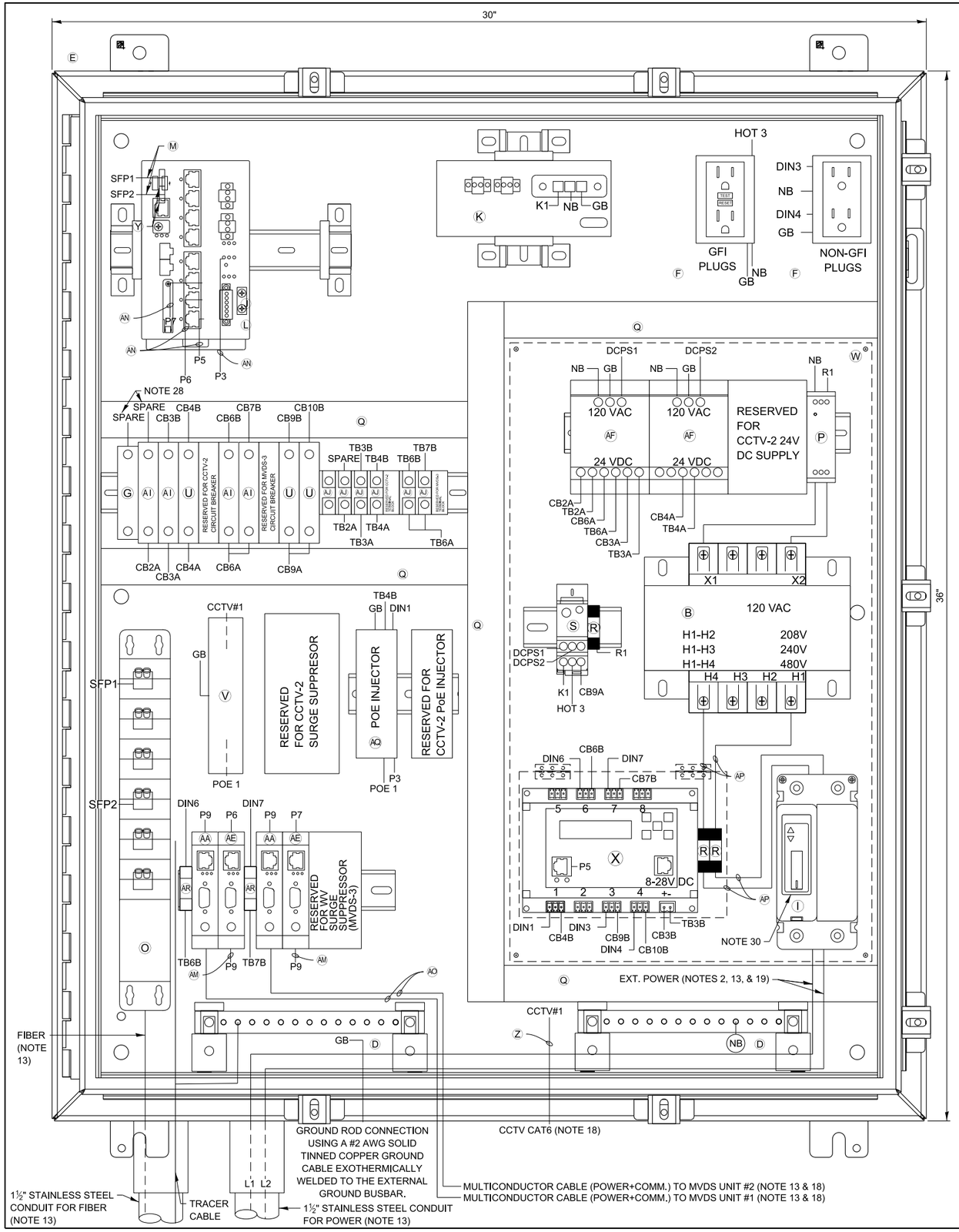
NOTE TO DESIGNER

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-CCTV CAMERA AND 1-MVDS)

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1204	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144 24VDC
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

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SCALE IN INCHES
SCALE: 1" = 2"

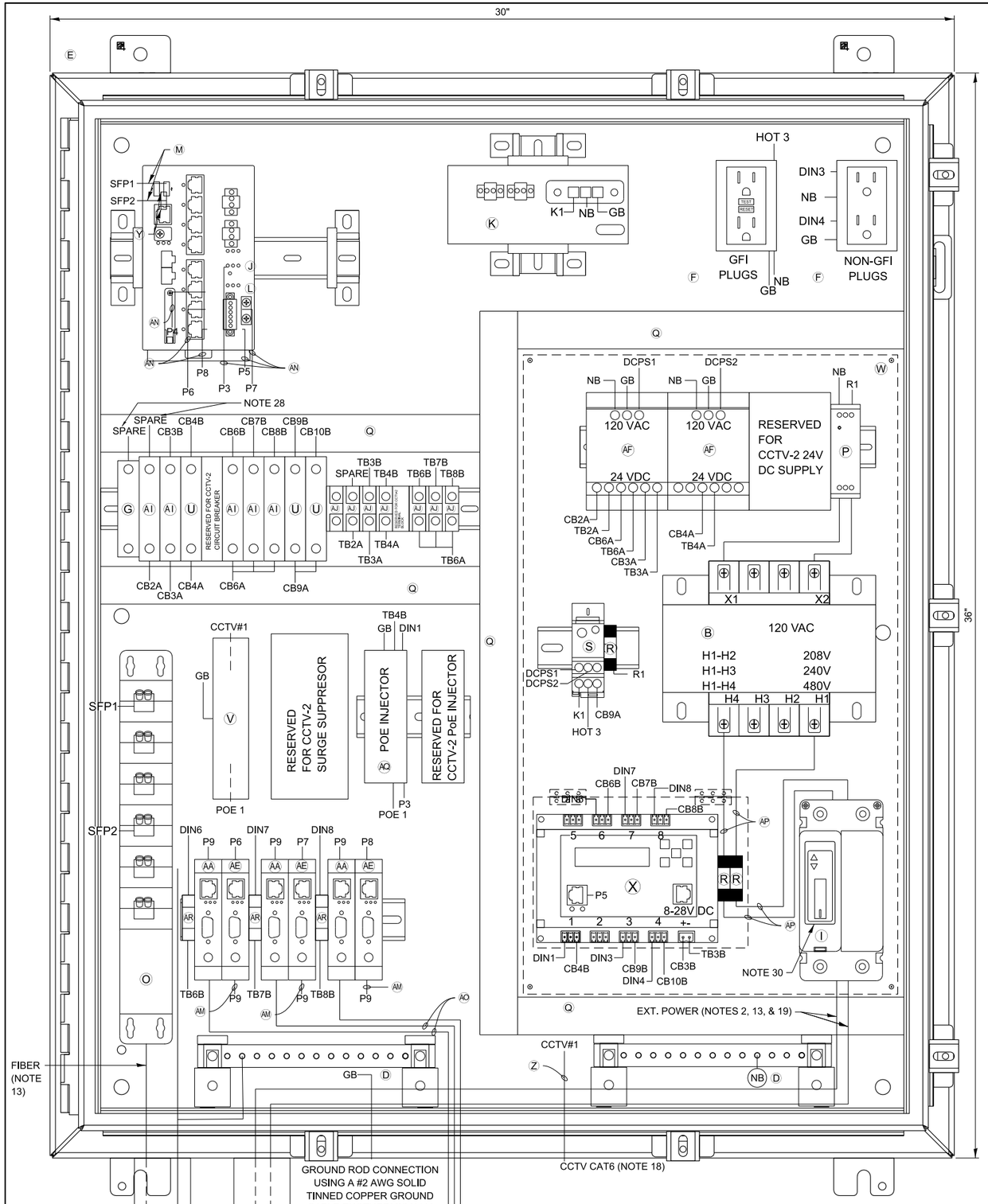
NOTE TO DESIGNER

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-CCTV CAMERA AND 2-MVDS)

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1205	1 OF 1



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
- (E) TWO (2) GROUNDING BAR SYSTEM HOFFMAN/PGS2K. BONDED OR SEPARATED AS REQUIRED.
- (F) NEMA 4X STAINLESS STEEL, 36"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144 24VDC
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

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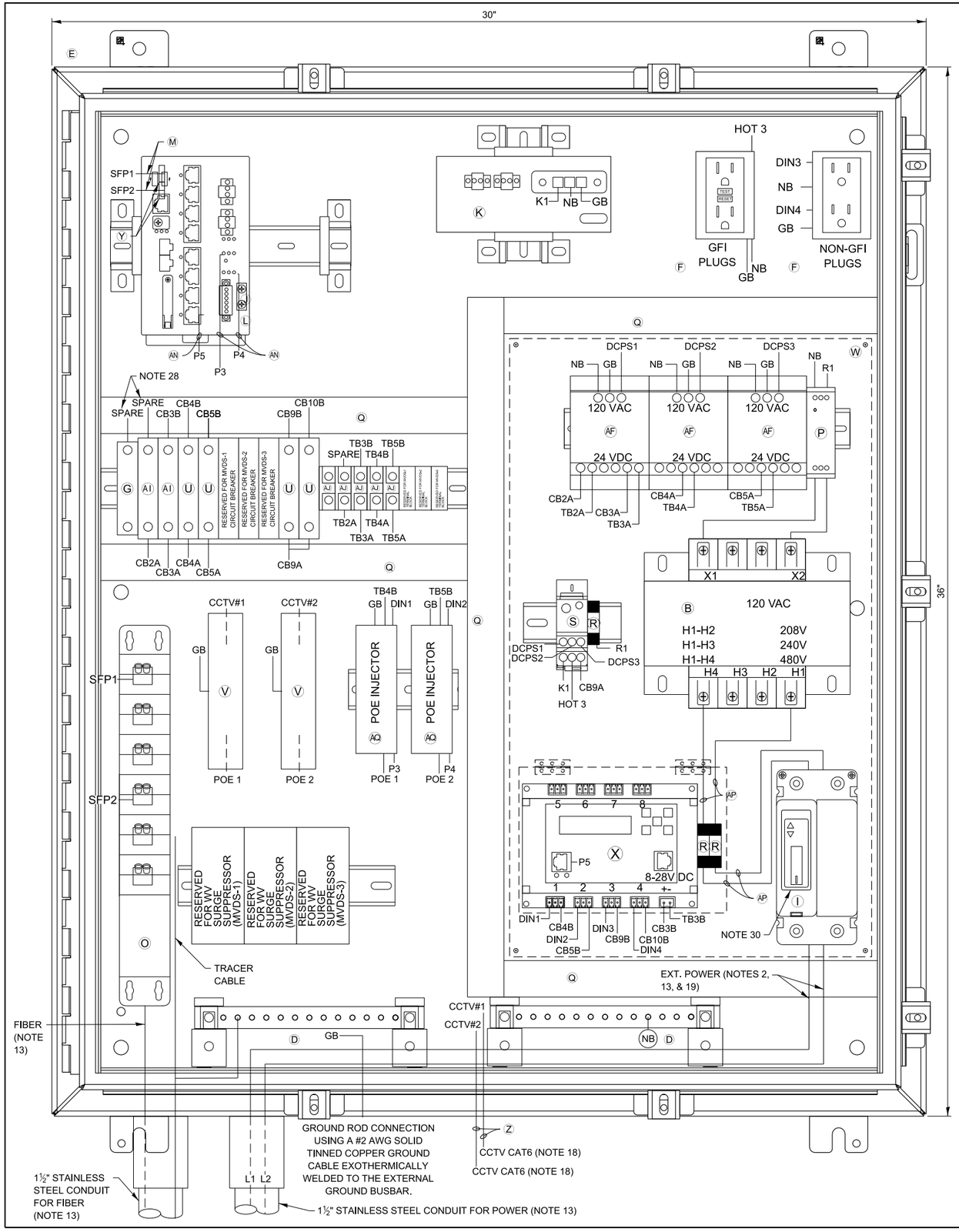
NOTE TO DESIGNER

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (1-CCTV CAMERA AND 3-MVDS)

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1206	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144 24VDC
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

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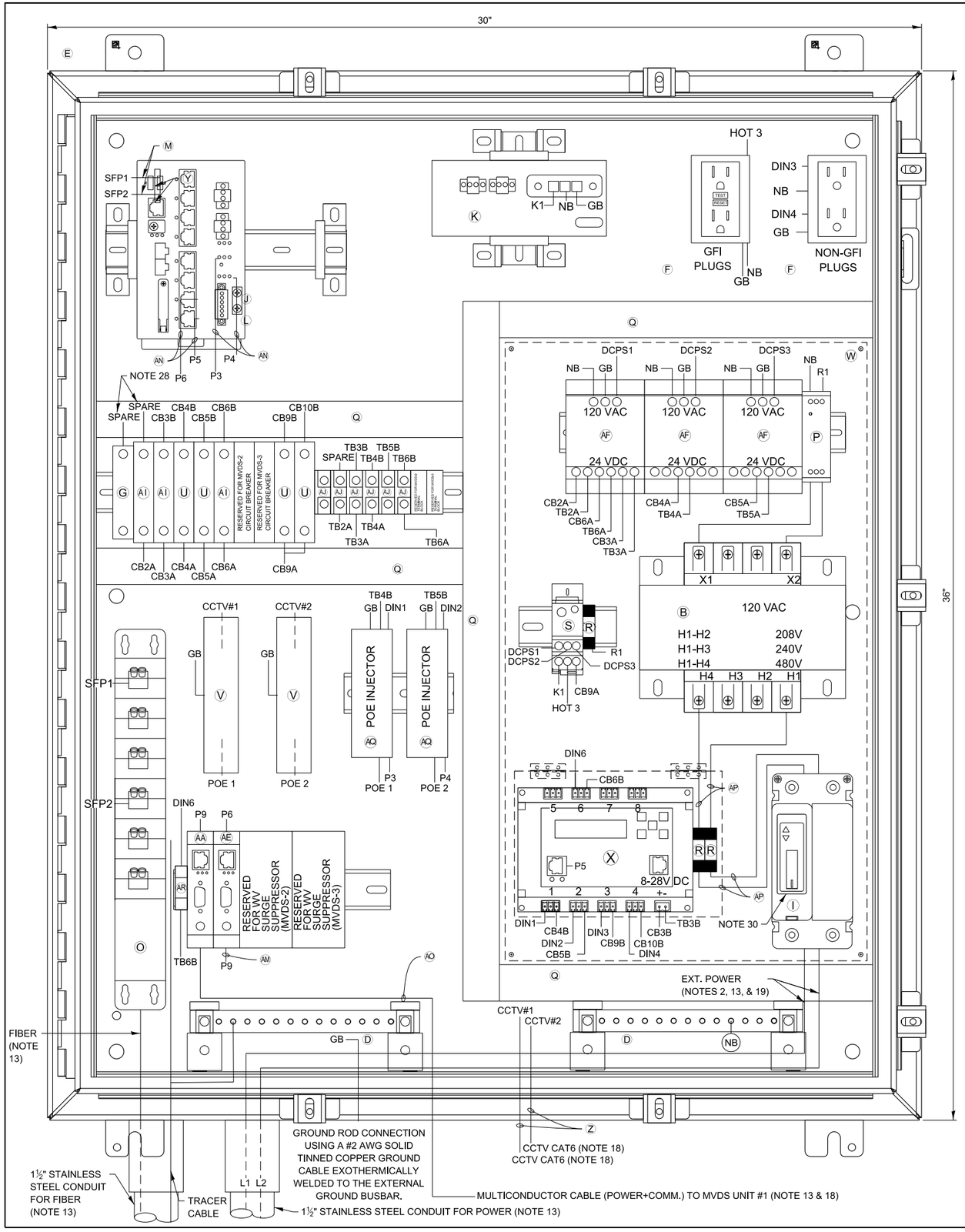
NOTE TO DESIGNER

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-CCTV CAMERAS)

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1207	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144 24VDC
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

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SCALE IN INCHES
SCALE: 1" = 2"

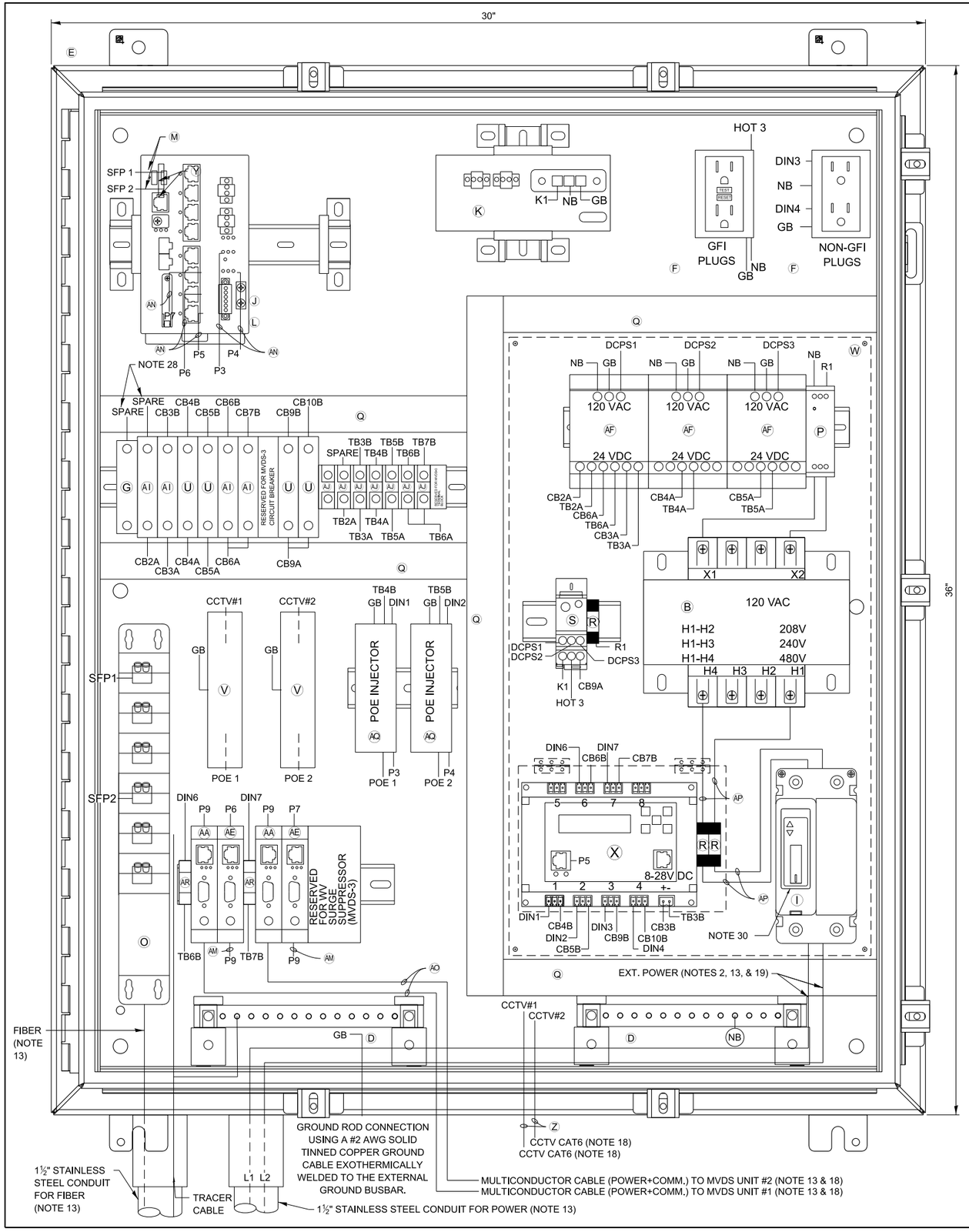
NOTE TO DESIGNER

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-CCTV CAMERAS AND 1-MVDS)

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1208	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144 24VDC
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

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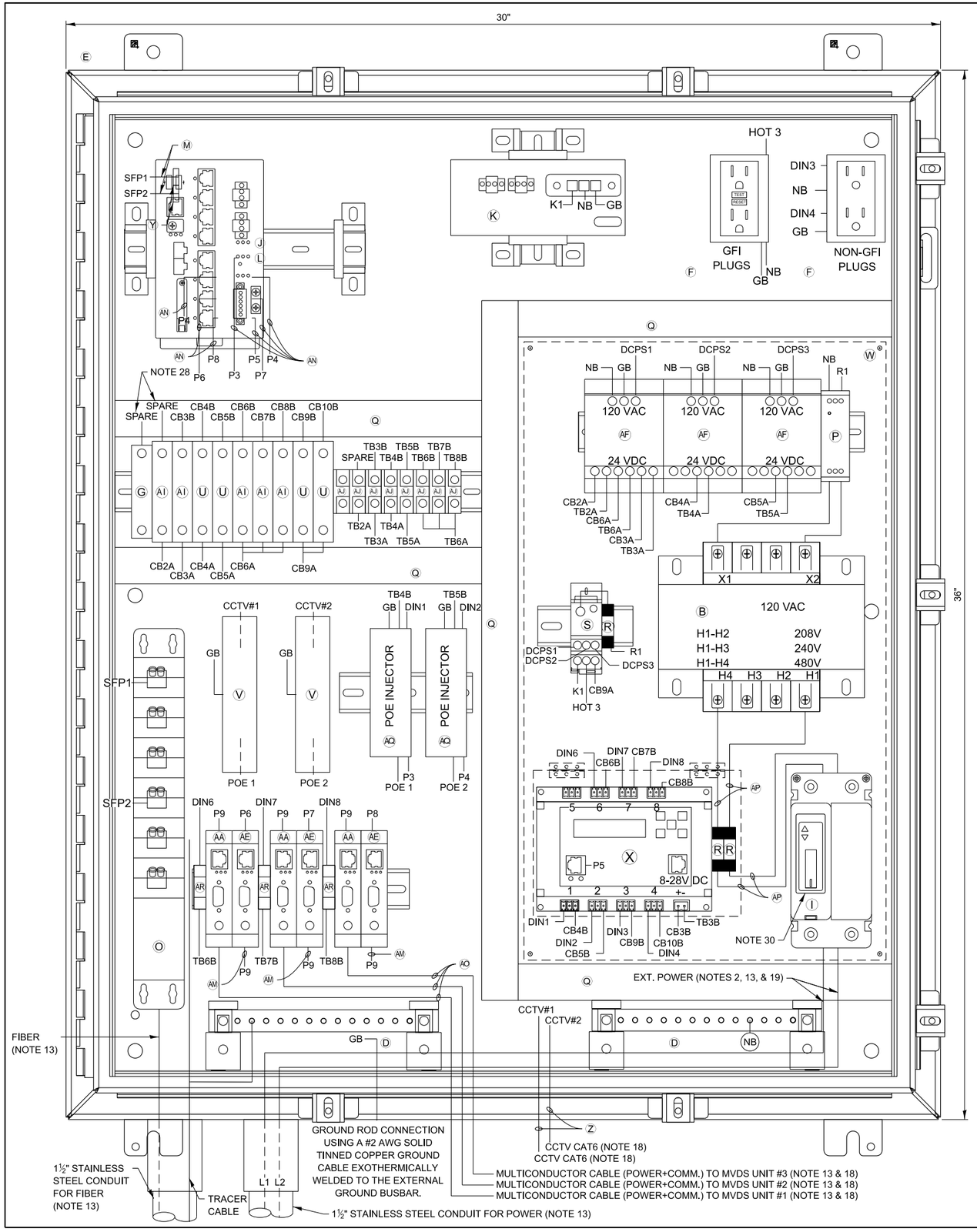
NOTE TO DESIGNER

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-CCTV CAMERAS AND 2-MVDS)

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1209	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 & 625B220G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS, SEE SPECIAL PROVISIONS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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, SEE SPECIAL PROVISIONS
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144 24VDC
- (AR) T-BUS CONNECTOR (WAVETRONIX)

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.
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 GROUNDED.
7. ALL CABLES INSTALLED WITHIN THE CABINET AND POLE SHALL BE OUTDOOR RATED.
8. WIFI COMMUNICATION SHALL BE DISABLED ON DIN ETHERNET RELAY.
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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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, 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.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

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SCALE IN INCHES
SCALE: 1" = 2"

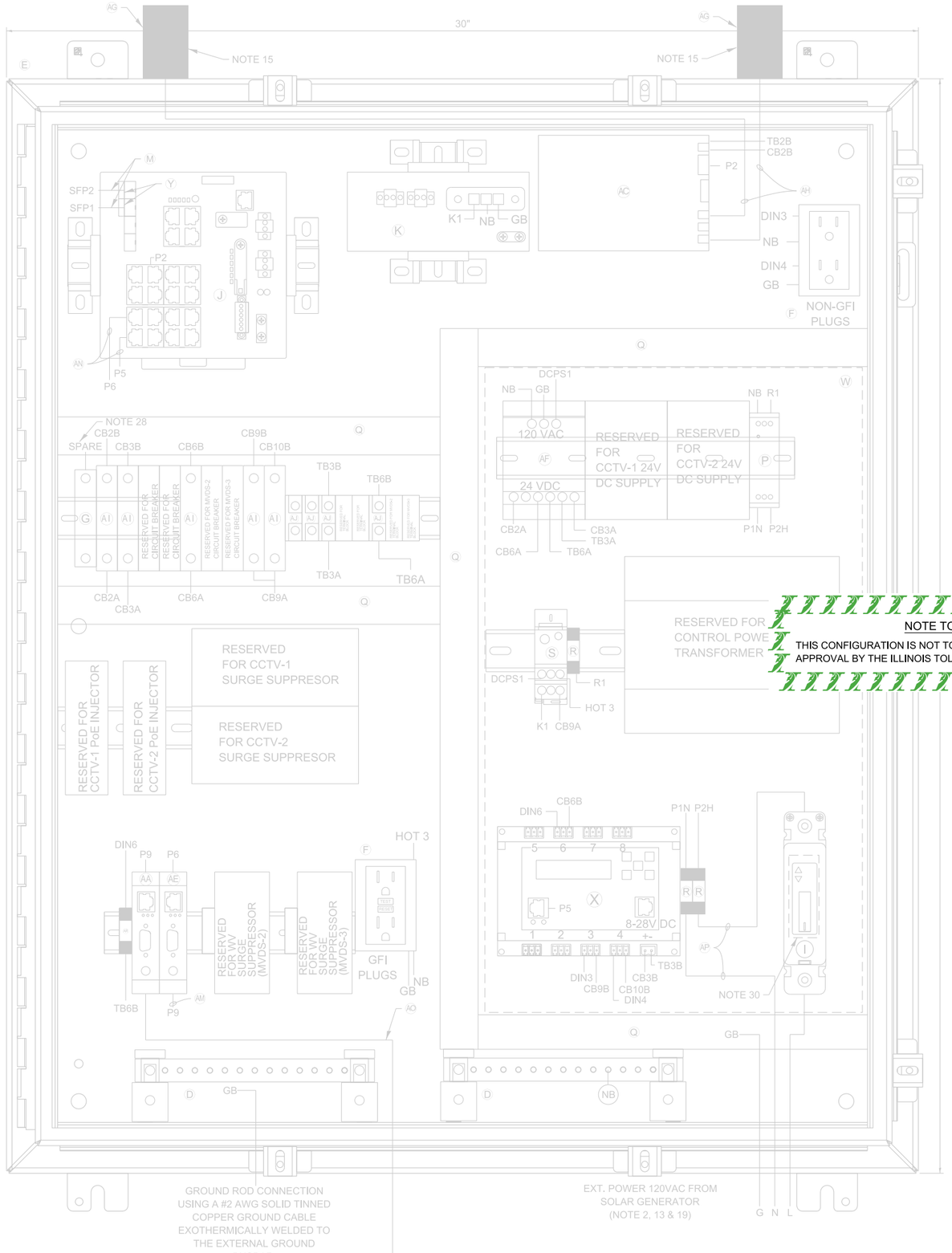
NOTE TO DESIGNER

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

Illinois Tollway

CABINET LAYOUT AND WIRING POLE MOUNTED ENCLOSURE (2-CCTV CAMERAS AND 3-MVDS)

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1210	1 OF 1



NOTE TO DESIGNER

THIS CONFIGURATION IS NOT TO BE USED WITHOUT PRIOR APPROVAL BY THE ILLINOIS TOLLWAY. SEE SHEET M-ITS-1004.

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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 120VAC, 1P, 30A CIRCUIT BREAKER WITH TERMINAL SHIELD
- J NOT USED FOR THIS SHEET APPLICATION
- K NOT USED FOR THIS SHEET APPLICATION
- L CONTROL POWER TRANSFORMER, 250VA, 120-24VAC, 1PH SQUARE D/CLASS 9070-T250D13
- M 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- N NOT USED FOR THIS SHEET APPLICATION
- O NOT USED FOR THIS SHEET APPLICATION
- P 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- Q PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- R 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- S SPLICE BLOCK, ALTECH/38041
- T NOT USED FOR THIS SHEET APPLICATION
- U 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- V NOT USED FOR THIS SHEET APPLICATION
- 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 NOT USED FOR THIS SHEET APPLICATION
- AA SENSOR SURGE SUPPRESSION, WAVETRONIX - CLICK-200 OR ISS ZONE BARRIER ZP-24540
- 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 WIRELESS MODEM ANTENNAS, PCTEL/BMLPVDB700/2500
- AH WIRELESS MODEM ANTENNA CABLE, WITH SMA CONNECTORS PCTEL/PROFLEX PLUS 195-RG58/U
- AI 2A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B020
- 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 NOT USED FOR THIS SHEET APPLICATION
- AO MVDS CABLE, WAVETRONIX - WX-SS-706-60 OR ISS G4-CBL-60
- AP #10 AWG
- AQ NOT USED FOR THIS SHEET APPLICATION
- AR T-BUS CONNECTOR (WAVETRONIX)
- AS 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. 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 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 GFI'S 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 TEMPERATURE 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.
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.

NOTE TO DESIGNER

THIS CONFIGURATION IS NOT TO BE USED WITHOUT PRIOR APPROVAL BY THE ILLINOIS TOLLWAY. SEE SHEET M-ITS-1004.

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.

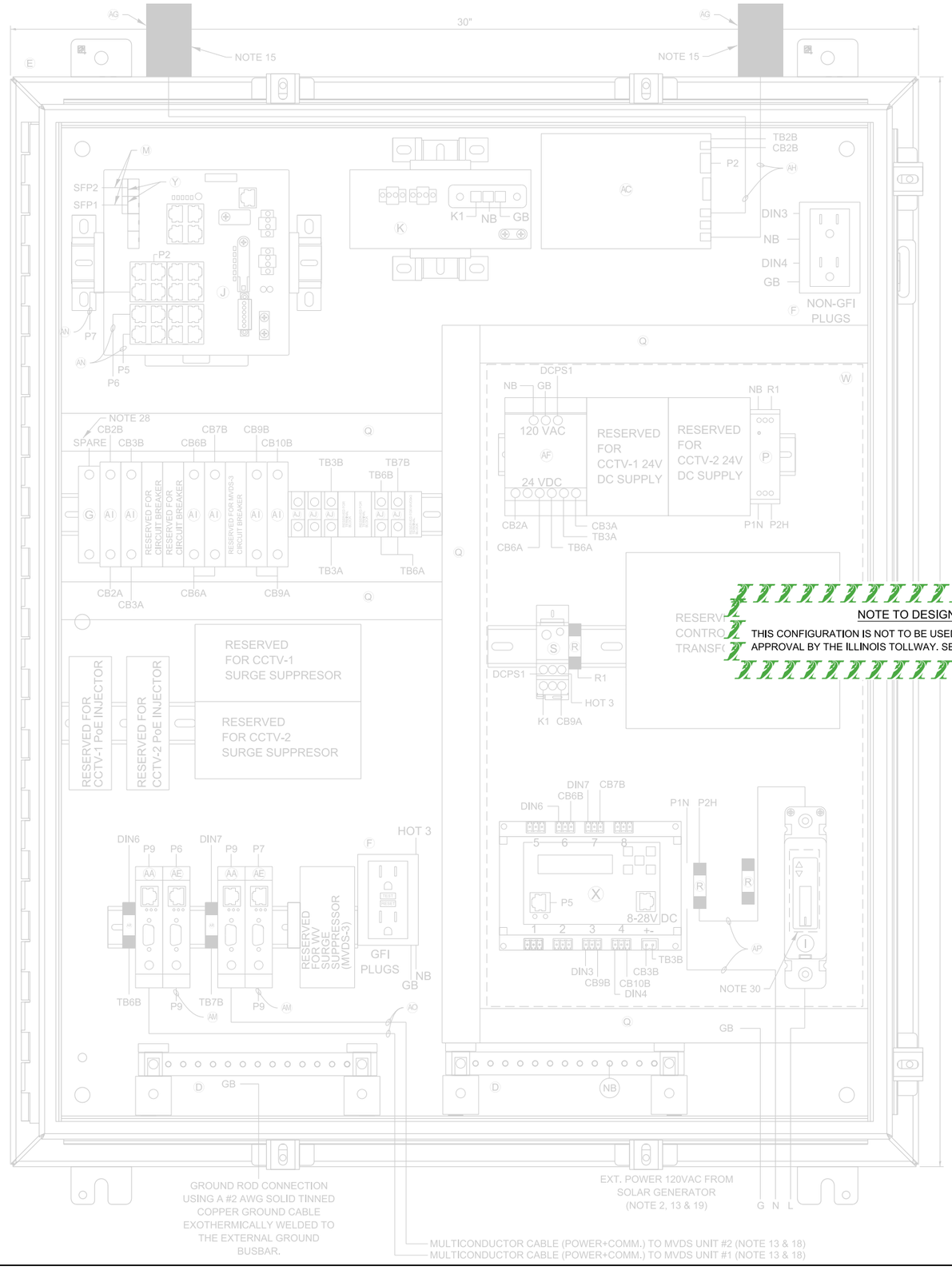
DSE SHALL SPECIFY THE GATOR PATCH CABLE LENGTH PER SITE AND UPDATE ITEM (O) TO INCLUDE THIS LENGTH.

0 2" 4"
SCALE IN INCHES
SCALE: 1" = 2"

Illinois Tollway

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

VERSION:	BASE SHEET:	SHEET:
2022-03	M-ITS-1214	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 120VAC, 1P, 30A CIRCUIT BREAKER WITH TERMINAL SHIELD
- J NOT USED FOR THIS SHEET APPLICATION
- K NOT USED FOR THIS SHEET APPLICATION
- L CONTROL POWER TRANSFORMER, 250VA, 120-24VAC, 1PH SQUARE D/CLASS 9070-T250D13
- M 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- N NOT USED FOR THIS SHEET APPLICATION
- O NOT USED FOR THIS SHEET APPLICATION
- P 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- Q PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- R 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- S SPLICE BLOCK, ALTECH/38041
- T NOT USED FOR THIS SHEET APPLICATION
- U 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- V NOT USED FOR THIS SHEET APPLICATION
- 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 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 [illegible] EMBLY (FOR VERIZON NETWORK)
- AD [illegible] S SHEET APPLICATION
- AE [illegible] ETHERNET CONVERTOR WAVETRONIX - CLICK-301 OR ISS-MOXA
- AF [illegible] PLY, 24VDC WAVETRONIX - CLICK-204 OR ISS LAMBDA DSP100-24
- AG [illegible] ANTENNAS, PCTEL/BMLPVDB700/2500
- AH [illegible] ANTENNA CABLE, WITH SMA CONNECTORS PCTEL/PROFLEX PLUS 195-RG58/U
- AI 2A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B020
- 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 NOT USED FOR THIS SHEET APPLICATION
- AO MVDS CABLE, WAVETRONIX - WX-SS-706-60 OR ISS G4-CBL-60
- AP #10 AWG
- AQ NOT USED FOR THIS SHEET APPLICATION
- AR T-BUS CONNECTOR (WAVETRONIX)
- AS 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. 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 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 GFI'S 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 TEMPERATURE 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.
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.

0 2" 4"
SCALE IN INCHES
SCALE: 1" = 2"

NOTE TO DESIGNER

THIS CONFIGURATION IS NOT TO BE USED WITHOUT PRIOR APPROVAL BY THE ILLINOIS TOLLWAY. SEE SHEET M-ITS-1004.

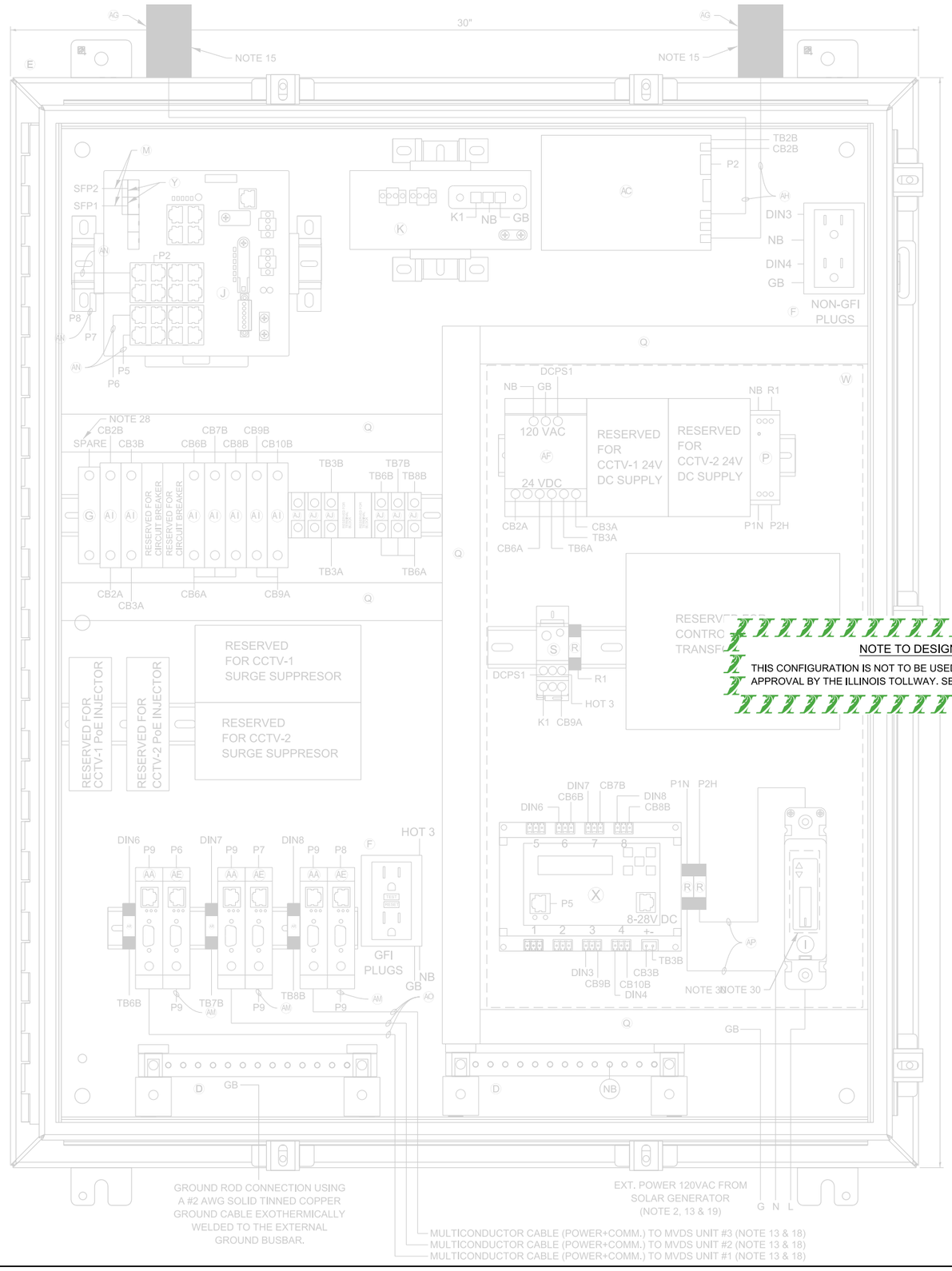
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF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

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (2-MVDS) SOLAR GENERATOR AND WIRELESS

VERSION:	BASE SHEET:	SHEET:
2022-03	M-ITS-1215	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 120VAC, 1P, 30A CIRCUIT BREAKER WITH TERMINAL SHIELD
- J NOT USED FOR THIS SHEET APPLICATION
- K NOT USED FOR THIS SHEET APPLICATION
- L CONTROL POWER TRANSFORMER, 250VA, 120-24VAC, 1PH SQUARE D/CLASS 9070-T250D13
- M 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- N NOT USED FOR THIS SHEET APPLICATION
- O NOT USED FOR THIS SHEET APPLICATION
- P 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- Q PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- R 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- S SPLICE BLOCK, ALTECH/38041
- T NOT USED FOR THIS SHEET APPLICATION
- U 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- V NOT USED FOR THIS SHEET APPLICATION
- 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 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 ETHERNET CONVERTOR WAVETRONIX - CLICK-301 OR ISS-MOXA
- AF LY, 24VDC WAVETRONIX - CLICK-204 OR ISS LAMBDA DSP100-24
- AG ANTENNAS, PCTEL/BMLPVDB700/2500
- AH ANTENNA CABLE, WITH SMA CONNECTORS PCTEL/PROFLEX
- AI R, ALLEN BRADLEY/1492-SPM1B020
- 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 NOT USED FOR THIS SHEET APPLICATION
- AO MVDS CABLE, WAVETRONIX - WX-SS-706-60 OR ISS G4-CBL-60
- AP #10 AWG
- AQ NOT USED FOR THIS SHEET APPLICATION
- AR T-BUS CONNECTOR (WAVETRONIX)
- AS 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. 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 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 GFI'S 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 TEMPERATURE 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.
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.

0 2" 4"
SCALE IN INCHES
SCALE: 1" = 2"

NOTE TO DESIGNER

THIS CONFIGURATION IS NOT TO BE USED WITHOUT PRIOR APPROVAL BY THE ILLINOIS TOLLWAY. SEE SHEET M-ITS-1004.

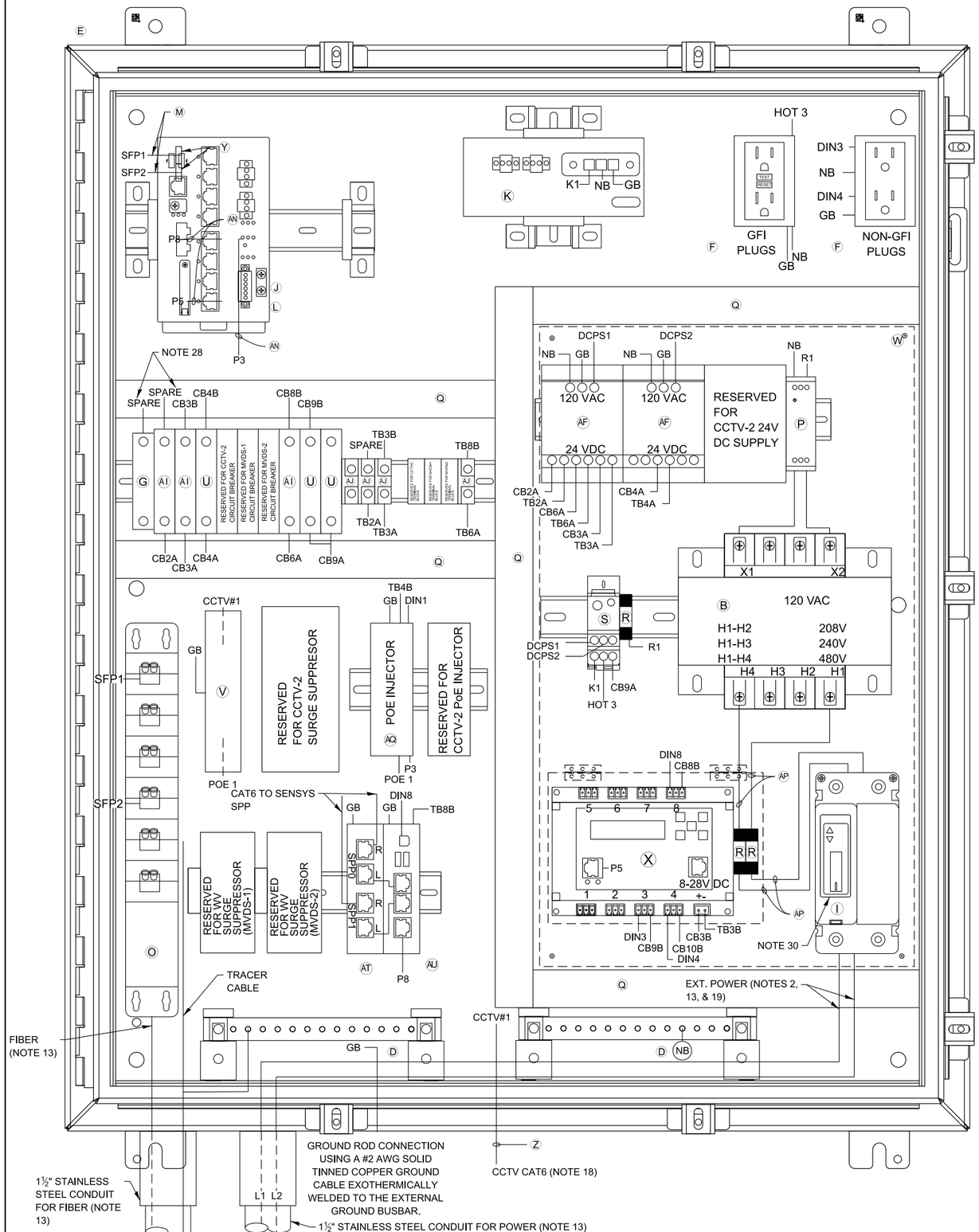
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF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

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

Illinois Tollway

CABINET LAYOUT AND WIRING ITS POLE MOUNTED ENCLOSURE (3-MVDS) SOLAR GENERATOR AND WIRELESS

VERSION:	BASE SHEET:	SHEET:
2022-03	M-ITS-1216	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED FOR THIS SHEET APPLICATION
- (O) SMF PATCH PANEL WITH LC CONNECTORS
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED FOR THIS SHEET APPLICATION
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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-T, DK-035T
- (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-SPM1B020
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AK) MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
- (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
- (AP) #10 AWG
- (AQ) PoE INJECTOR AXIS T8144 24VDC
- (AR) T-BUS CONNECTOR (WAVETRONIX)
- (AS) NOT USED FOR THIS SHEET APPLICATION
- (AT) SENSYS FLEX ISOLATOR
- (AU) SENSYS FLEX-CTRL-M-E

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. 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 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 GFI'S 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. THE FIBER CABLE SHALL RUN STRAIGHT DOWN FROM THE GATOR PATCH THROUGH THE LEFT MOST CONDUIT. THE POWER CABLE SHALL BE PULLED THROUGH THE CONDUIT TO THE RIGHT OF THE FIBER CONDUIT. NO SLACK SHALL BE PLACED IN THE CABINET. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THEIR RESPECTIVE HANDHOLES.
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 GROUNDED 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.

NOTE TO DESIGNER

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0 2" 4"
SCALE IN INCHES
SCALE: 1" = 2"

NOTE TO DESIGNER

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

Illinois Tollway

CABINET WIRING DIAGRAM IN PAVEMENT DETECTION SYSTEM AP. POE. AND INJECTOR ITS ASSEMBLY

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1217	1 OF 1

BASE SHEETS

SERIES 1300 (ITS)

ROADWAY WEATHER INFORMATION SYSTEM

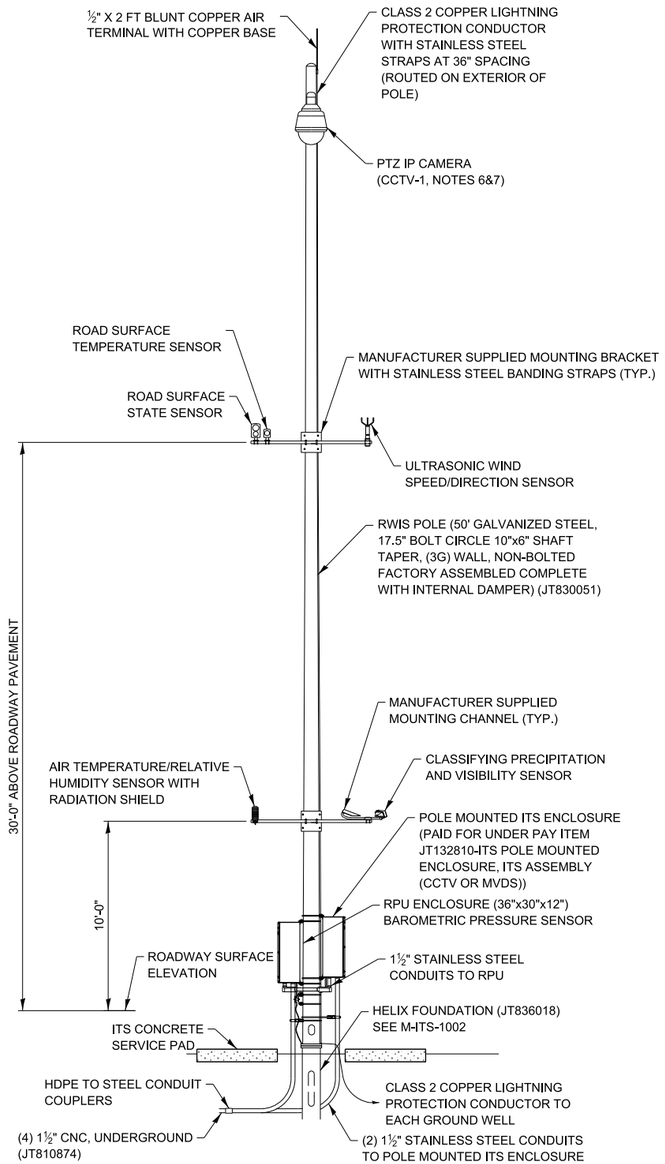
MARCH 2025

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
Drawing	**Modification Summary**	**Effective: 03-01-2025**
	Roadway Weather Information System (ITS)-Series 1300	
M-ITS-1300	**RWIS Pole, Sensor Mounting Detail**	
Sheet 1	Revised Note 1:"… excluding CCTV camera and associated ITS component where indicated on the plan sheets…"	
	Revised Note 7 to replace word "placement" by "mounting"	
	Revised Note 9 to add: "… when transitioning to pole exterior"	
	Revised ratio 6:1 to say 1:6	
Sheet 2	Revised Note 15 to replace the word "placement" with "mounting"	
M-ITS-1301	**RWIS Cabinet Wiring Diagram**	
Sheet 1	Revised layout of Cisco switch to match the details of Cisco IE-3300-8T2S-E	
	Revised item to call Cisco IE-3300-8T2S-E	
	Revised layout to add access door through the Plexiglas cover to give easy access to IP Relay for programing	
	Revised Cisco license to connect to Cisco IE-3300-8TS2-E	
Sheet 2	Revised item DES511 (EB) to say: DRS511 (EB/NB)	
	Revised item DES511 (EB) to say: DRS511 (WB/SB))	

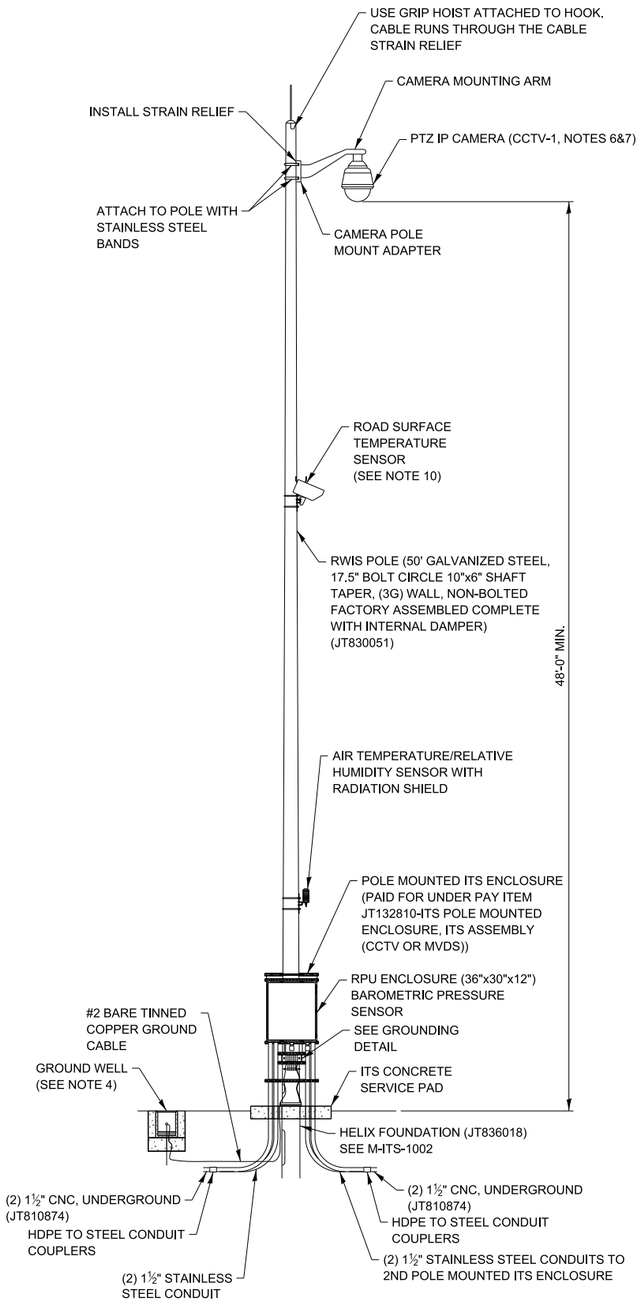
New Sheet

Retired Standard



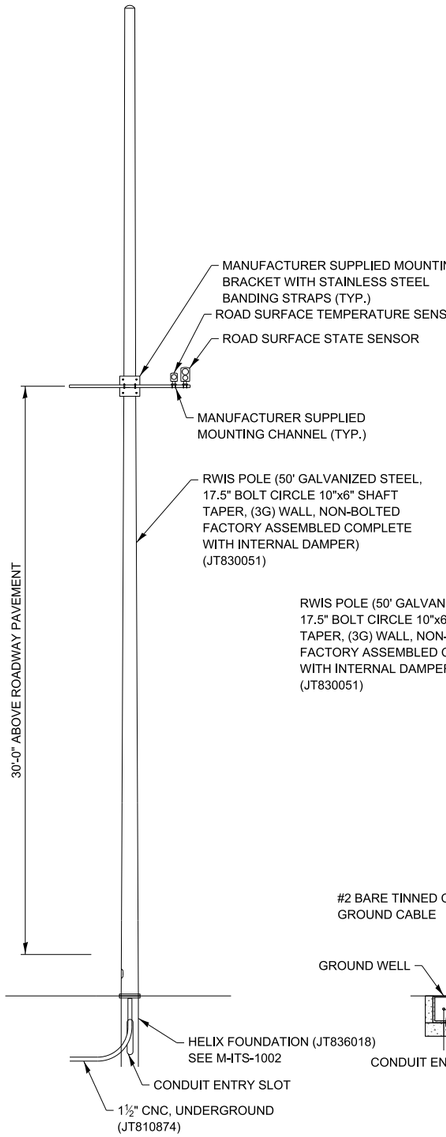
RWIS POLE (FRONT VIEW) - PRIMARY POLE

NOT TO SCALE



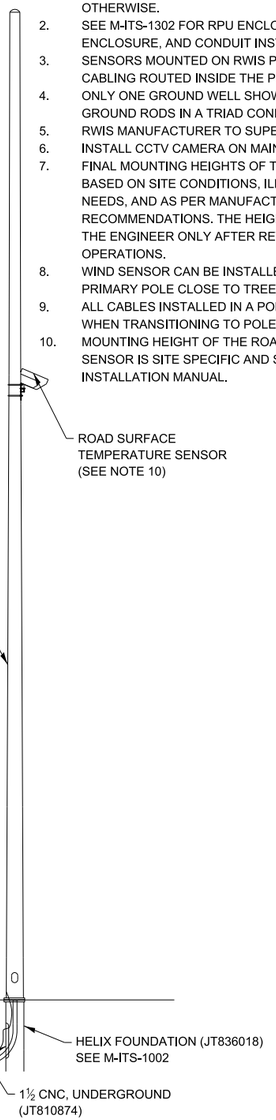
RWIS POLE (SIDE VIEW) - PRIMARY POLE

NOT TO SCALE



RWIS POLE (FRONT VIEW) - REMOTE SENSOR POLE

NOT TO SCALE



RWIS POLE (SIDE VIEW) - REMOTE SENSOR POLE

NOT TO SCALE

NOTES:

1. ALL ITEMS (EXCLUDING CCTV CAMERA AND ASSOCIATED ITS COMPONENTS WHERE INDICATED ON THE PLAN SHEETS) ON THIS SHEET ARE INCLUDED IN PAY ITEM "ROADWAY WEATHER INFORMATION SYSTEM" (JT131142) UNLESS NOTED OTHERWISE.
2. SEE M-ITS-1302 FOR RPU ENCLOSURE, REMOTE SENSOR ENCLOSURE, AND CONDUIT INSTALLATION DETAILS.
3. SENSORS MOUNTED ON RWIS POLES SHALL HAVE THEIR CABLING ROUTED INSIDE THE POLE.
4. ONLY ONE GROUND WELL SHOWN FOR CLARITY. INSTALL 3 GROUND RODS IN A TRIAD CONFIGURATION ON PRIMARY POLE.
5. RWIS MANUFACTURER TO SUPERVISE INSTALLATION PROCESS.
6. INSTALL CCTV CAMERA ON MAIN RWIS POLE.
7. FINAL MOUNTING 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.
8. WIND SENSOR CAN BE INSTALLED ON THE SECONDARY POLE IF PRIMARY POLE CLOSE TO TREE LINE.
9. ALL CABLES INSTALLED IN A POLE SHALL USE A GROMMET WHEN TRANSITIONING TO POLE EXTERIOR.
10. MOUNTING HEIGHT OF THE ROAD SURFACE TEMPERATURE SENSOR IS SITE SPECIFIC AND SHALL BE PER MANUFACTURER INSTALLATION MANUAL.

NOTE TO DESIGNER

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NOTE TO DESIGNER

THE FOUNDATION SHOWN HERE IS FOR SURFACES AT 1:6 OR FLATTER. THE DESIGNER SHALL USE THE FOUNDATION PAY ITEM JT836020 FOR FOUNDATION AT STEEPER SLOPES.

NOTE TO DESIGNER

IF THERE IS A ROADWAY CCTV CAMERA WITHIN 500' OF THE RWIS SITE THE DESIGNER SHALL REMOVE THE CCTV CAMERA FROM THESE BASE SHEETS AND ASSOCIATED NOTES 6 AND 7.

Illinois Tollway

RWIS POLE SENSOR MOUNTING DETAIL

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1300	1 OF 2

GENERAL NOTES:

1. RWIS POLES SHIELDED BY GUARDRAIL SHALL BE LOCATED A MINIMUM OF 5' 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 EXOTHERMICALLY WELDED TO THE BUSBAR.

3. PROVIDE A 1½" STAINLESS STEEL 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 ENCLOSURE FOR SUPPORT. USE METAL BUSHING WHEN CONNECTING PVC TO CABINET. USE GROMMETS AT BOTH ENDS OF CONDUIT TO SEAL CONDUIT TO PREVENT RODENTS AND INSECTS FROM ENTERING, BUT ALLOW GROUND CABLE TO RUN THROUGH BOTH ENDS.

7. GROUND RODS 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 EXOTHERMICALLY WELDED.

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

10. ALL CABLING (INCLUDING CABLING INSIDE THE ENCLOSURE) SHALL BE OUTDOOR RATED.

11. INSTALL CONCRETE SERVICE PAD(S) 6 INCHES FROM THE POLE BASE ON THE SAME SIDE AS THE RPU AND ITS CABINET, IF PRESENT, CENTERED ON THE RPU AND/OR ITS ENCLOSURE.

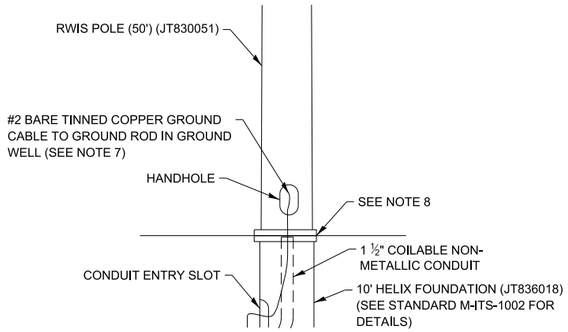
12. THIRTY DAYS PRIOR TO INSTALLING ANY SENSORS, THE CONTRACTOR SHALL COORDINATE DEVICE CONFIGURATION WITH THE ENGINEER.

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

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

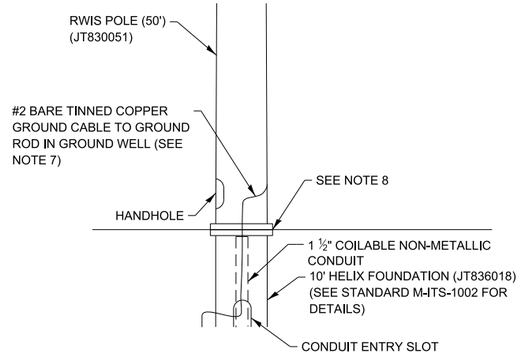
15. FINAL MOUNTING HEIGHTS OF THE SENSORS SHALL BE BASED ON SITE CONDITIONS, ILLINOIS TOLLWAY OPERATIONAL NEEDS, AND AS PER MANUFACTURER'S MOUNTING RECOMMENDATIONS. THE HEIGHT SHALL BE APPROVED BY THE ENGINEER ONLY AFTER REVIEW BY ILLINOIS TOLLWAY ITS OPERATIONS.

16. THE CONTRACTOR SHALL ENGAGE THE RWIS MANUFACTURER TO BE PRESENT ON SITE DURING THE INSTALLATION AND COMMISSIONING OF ALL RWIS EQUIPMENT, INCLUDING RWIS PRIMARY AND SECONDARY POLES AND ALL RWIS SENSORS AND CABINET EQUIPMENT. THE SITE ACCEPTANCE MUST BE SIGNED BY THE RWIS MANUFACTURER PRIOR TO SITE ACCEPTANCE BY THE TOLLWAY/GEC ITS UNIT.



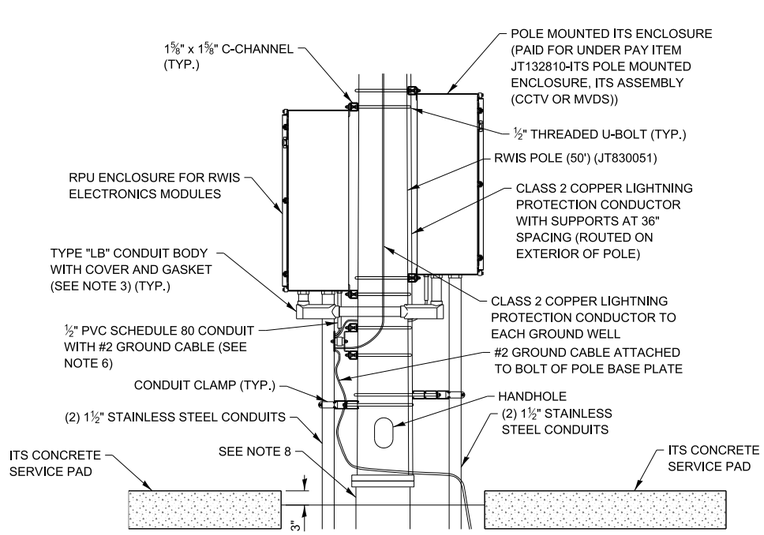
REMOTE SENSOR POLE - SIDE VIEW

NOT TO SCALE



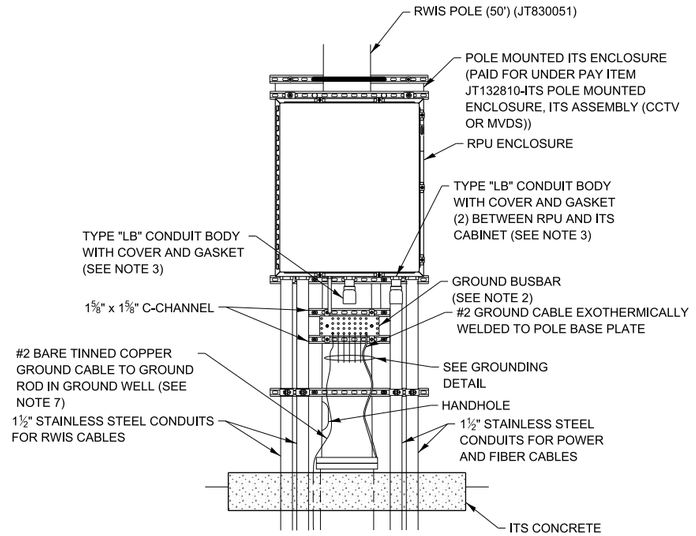
REMOTE SENSOR POLE - FRONT VIEW

NOT TO SCALE



RPU ENCLOSURE - SIDE VIEW

NOT TO SCALE



RPU ENCLOSURE - FRONT VIEW

NOT TO SCALE

NOTE TO DESIGNER

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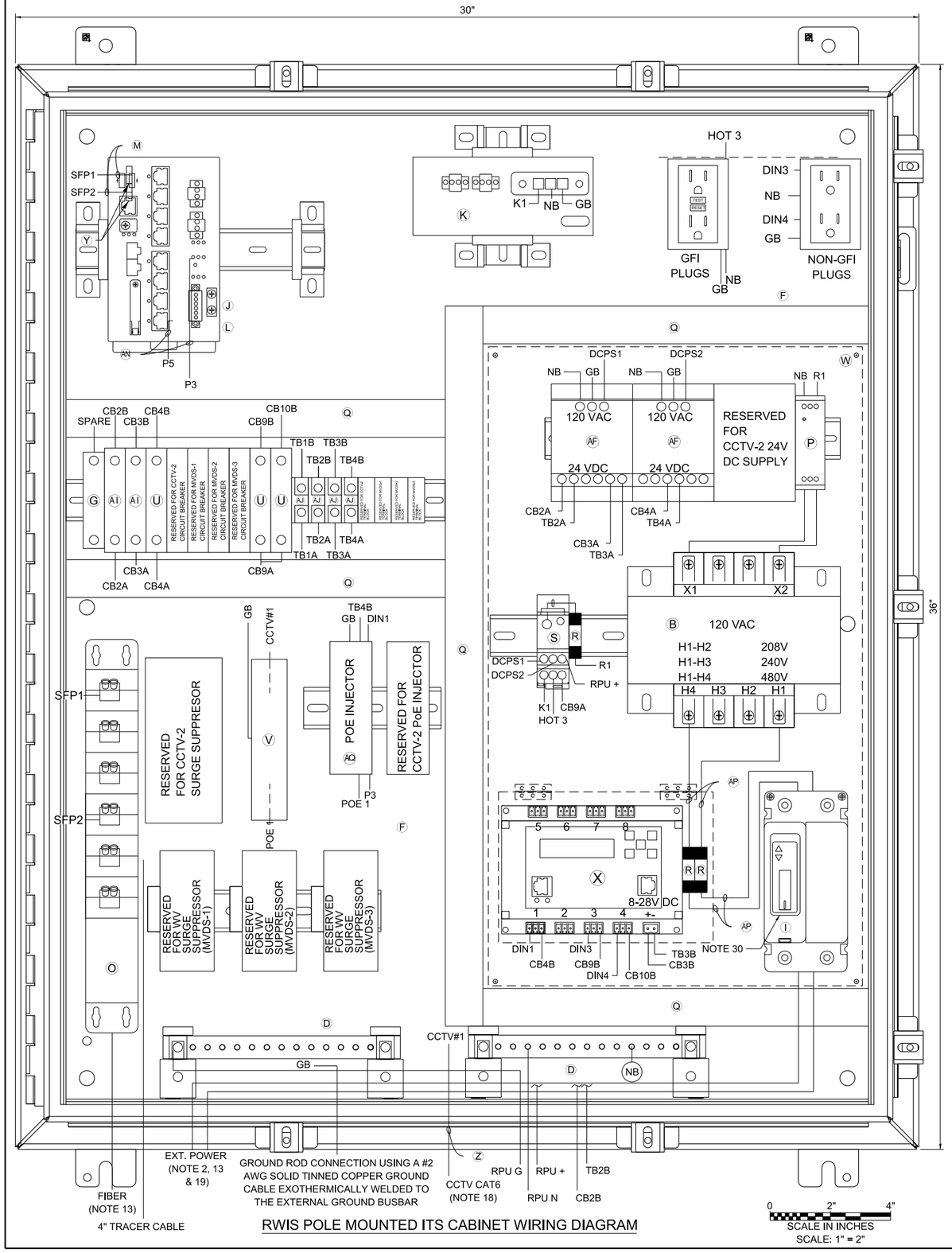
NOTE TO DESIGNER

FOR BRIDGE MOUNTING APPLICATIONS, THE DESIGNER SHALL DEVELOP STRUCTURAL FOUNDATION AND POLE MOUNTING DETAILS.

Illinois Tollway

RWIS POLE SENSOR MOUNTING DETAIL

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1300	2 OF 2



RWIS POLE MOUNTED ITS CABINET WIRING DIAGRAM

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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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-3300-8T2S-E
K	CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
L	IP SERVICES LICENSE: L-IE3300-DNS-A-3Y
M	NOT USED FOR THIS SHEET APPLICATION
N	NOT USED FOR THIS SHEET APPLICATION
O	SMF PATCH PANEL WITH LC CONNECTORS
P	120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL, COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
Q	PANDUIT WIRING DUCT (OR EQUIVALENT), PANDUIT/F1X2LG6 WITH COVER-C1LG6
R	10 AMP FUSE, GOULD (MERSEN)/ATM-10
S	SPLICE BLOCK, ALTECH/38041
T	NOT USED FOR THIS SHEET APPLICATION
U	5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
V	CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR TO IP RELAY. REFER TO ITEM X.
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	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	RS-232 / RS-485 TO ETHERNET CONVERTOR, WAVETRONIX - CLICK-301 OR ISS-MOXA P5150T, DK-35T
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-SPM1B020
AJ	TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
AK	NOT USED FOR THIS SHEET APPLICATION
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
AP	#10 AWG
AQ	PoE INJECTOR AXIS T8144 24VDC (ONLY REQUIRED FOR PoE CAMERAS)
AR	T-BUS CONNECTOR (WAVETRONIX)
AS	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. 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 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 GFI'S 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 GROUNDED TO THE GROUND BUS.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER. 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 INSTALLED 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.

NOTE TO DESIGNER

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

IF THERE IS NO CCTV IN 400 FEET FROM RWIS PRIMARY POLE THEN INSTALL A CCTV AND ITS ENCLOSURE.

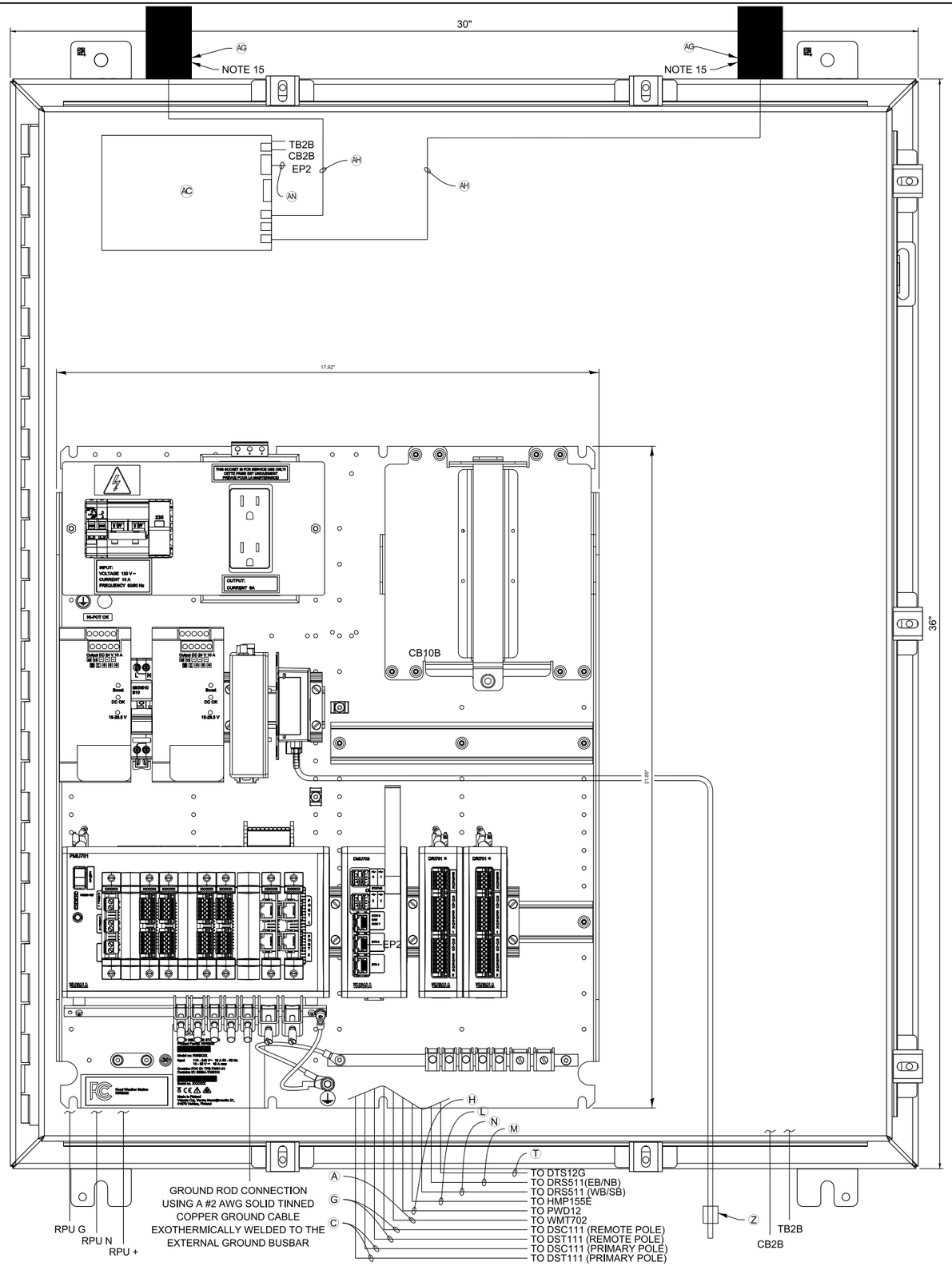
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

Illinois Tollway

RWIS CABINET WIRING DIAGRAM

VERSION:	BASE SHEET:	SHEET:
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ITEM	DESCRIPTION
A	WMT700 CABLE, VAISALA 237890
B	NOT USED FOR THIS SHEET APPLICATION
C	DSC11/DST111 CABLE (PRIMARY POLE), VAISALA 216547
D	NOT USED FOR THIS SHEET APPLICATION
E	NEMA 4X STAINLESS STEEL, 36"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & A36P30
F	NOT USED FOR THIS SHEET APPLICATION
G	DSC11/DST111 CABLE (REMOTE POLE), VAISALA DR22174Z150M
H	PWD12 CABLE, VAISALA 217148
I	NOT USED FOR THIS SHEET APPLICATION
J	NOT USED FOR THIS SHEET APPLICATION
K	NOT USED FOR THIS SHEET APPLICATION
L	HMP155E CABLE, VAISALA 220497
M	TYPE IIA CABLE (EB SENSOR), VAISALA 76420300
N	TYPE IIA CABLE (WB SENSOR), VAISALA 76421500 (FOR SENSORS GREATER THAN 500' FROM RWIS ENCLOSURE USE TYPE V CABLE, VAISALA 76420500) NOT USED FOR THIS SHEET APPLICATION
O	NOT USED FOR THIS SHEET APPLICATION
P	NOT USED FOR THIS SHEET APPLICATION
Q	NOT USED FOR THIS SHEET APPLICATION
R	NOT USED FOR THIS SHEET APPLICATION
S	DTS210 CABLE (20 METERS), VAISALA
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	DMU703 CABLE, VAISALA 210267
Y	NOT USED FOR THIS SHEET APPLICATION
Z	PRESSURE PORT, VAISALA 16941DM
AA	NOT USED FOR THIS SHEET APPLICATION
AB	NOT USED FOR THIS SHEET APPLICATION
AC	CDMA MODEM ASSEMBLY (FOR VERIZON NETWORK)
AD	NOT USED FOR THIS SHEET APPLICATION
AE	NOT USED FOR THIS SHEET APPLICATION
AF	NOT USED FOR THIS SHEET APPLICATION
AG	WIRELESS MODEM ANTENNAS, PCTEL/BMLPVDB700/2500
AH	WIRELESS MODEM ANTENNA CABLE, WITH SMA CONNECTORS PCTEL/PROFLEX PLUS 195-RG58/U
AI	NOT USED FOR THIS SHEET APPLICATION
AJ	NOT USED FOR THIS SHEET APPLICATION
AK	NOT USED FOR THIS SHEET APPLICATION
AL	NOT USED FOR THIS SHEET APPLICATION
AM	NOT USED FOR THIS SHEET APPLICATION
AN	INDOOR/OUTDOOR RATED CAT6 (1000MBS, TEMPERATURE HARDENED) THESE ARE THE CAT6 CABLES ROUTED INSIDE CABINET

NOTES:

1. ALL POWER WIRING SHALL BE RHH/RHW WITH WIRE TERMINALS OR TINNED.
2. NOT USED FOR THIS SHEET APPLICATION.
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).
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8. NOT USED FOR THIS SHEET APPLICATION.
9. NOT USED FOR THIS SHEET APPLICATION.
10. NOT USED FOR THIS SHEET APPLICATION.
11. NOT USED FOR THIS SHEET APPLICATION.
12. NOT USED FOR THIS SHEET APPLICATION.
13. ALL CABLES SHALL ENTER THE ENCLOSURE FROM THE BOTTOM. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THE HANDHOLE.
14. NOT USED FOR THIS SHEET APPLICATION.
15. THE CELL MODEM ANTENNAS SHALL BE PROPERLY SEALED WITH HIGH DENSITY NEOPRENE GASKETS RATED FOR HIGH TEMPERATURE TO PREVENT WATER PENETRATION INTO THE CABINET.
16. NOT USED FOR THIS SHEET APPLICATION.
17. NOT USED FOR THIS SHEET APPLICATION.
18. NOT USED FOR THIS SHEET APPLICATION..
19. NOT USED FOR THIS SHEET APPLICATION.
20. NOT USED FOR THIS SHEET APPLICATION.
21. NOT USED FOR THIS SHEET APPLICATION.
22. NOT USED FOR THIS SHEET APPLICATION.
23. BOND NEUTRAL AND GROUND BUSES TOGETHER, WHEN REQUIRED. TIE THE ENCLOSURE INTO THE GROUND BUS.
24. NOT USED FOR THIS SHEET APPLICATION.
25. NOT USED FOR THIS SHEET APPLICATION.
26. ALL INTERNAL ENCLOSURE ROUTED AND TERMINATED CAT6 CABLE SHALL BE TEMPERATURE RATED.
27. NOT USED FOR THIS SHEET APPLICATION..
28. NOT USED FOR THIS SHEET APPLICATION.
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

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

NOTE TO DESIGNER

IF THERE IS NO CCTV IN 400 FEET FROM RWIS PRIMARY POLE THEN INSTALL A CCTV AND ITS ENCLOSURE.

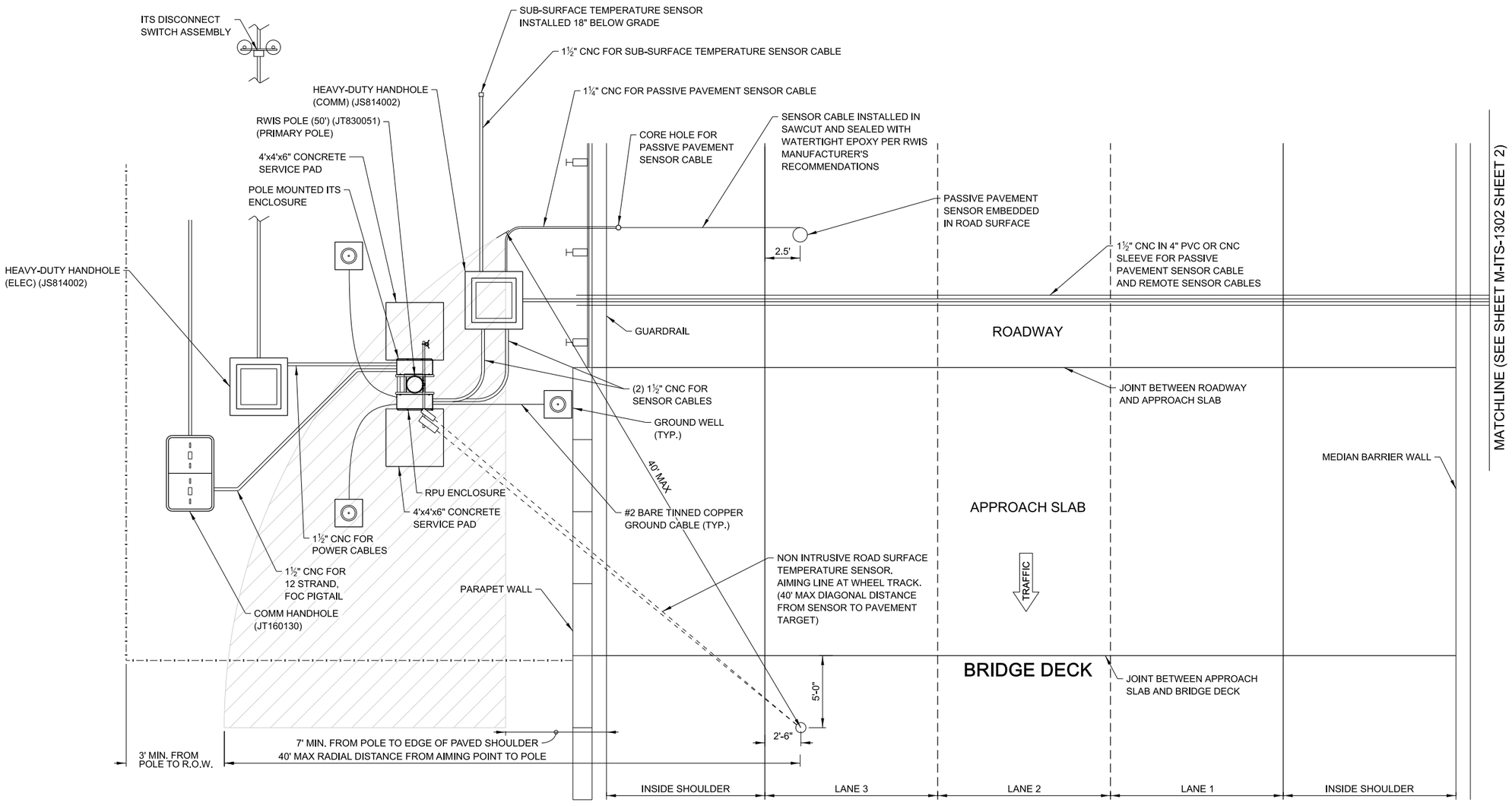
NOTE TO DESIGNER

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Illinois Tollway

RWIS CABINET WIRING DIAGRAM

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1301	2 OF 2



NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

NOTE 1 TO DESIGNER

LASERS SENSORS MUST BE LOCATED WITHIN 50 FEET (ON DIAGONAL) OF THE AIM POINT ON THE BRIDGE DECK SURFACE.

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.

NOTE 3 TO DESIGNER

ENSURE THE DIRECTION OF TRAFFIC FLOW AND THE ORIENTATION OF THE BRIDGE DECK AND THE ROADWAY PAVEMENT ARE CORRECT FOR THE PROJECT SPECIFIC SITE. ENSURE THE NON-INTRUSIVE SENSORS POINT TO THE BRIDGE DECK AND THAT THE IN-PAVEMENT SENSOR IS IN THE ROADWAY PAVEMENT. ENSURE THE SLOPE ON THE BRIDGE SHOULDER ALLOWS THE POLE TO BE PLACED WITHIN 40 FEET HORIZONTAL OF THE BRIDGE DECK.

NOTE 4 TO DESIGNER

DSE TO ENSURE THE RWIS POLE IS LOCATED WITHIN SENSORS MAXIMUM DISTANCE (HATCHED AREA).

NOTE 5 TO DESIGNER

IN THE EVENT THE PRIMARY POLE AND SECONDARY POLES CANNOT BE INSTALLED WITHIN THE 40 FOOT MAXIMUM RADIUS OF THE BRIDGE DECK, THE DESIGNER SHALL CONSULT WITH THE ILLINOIS TOLLWAY AND GEC ON AN ALTERNATE PLACEMENT SOLUTION.

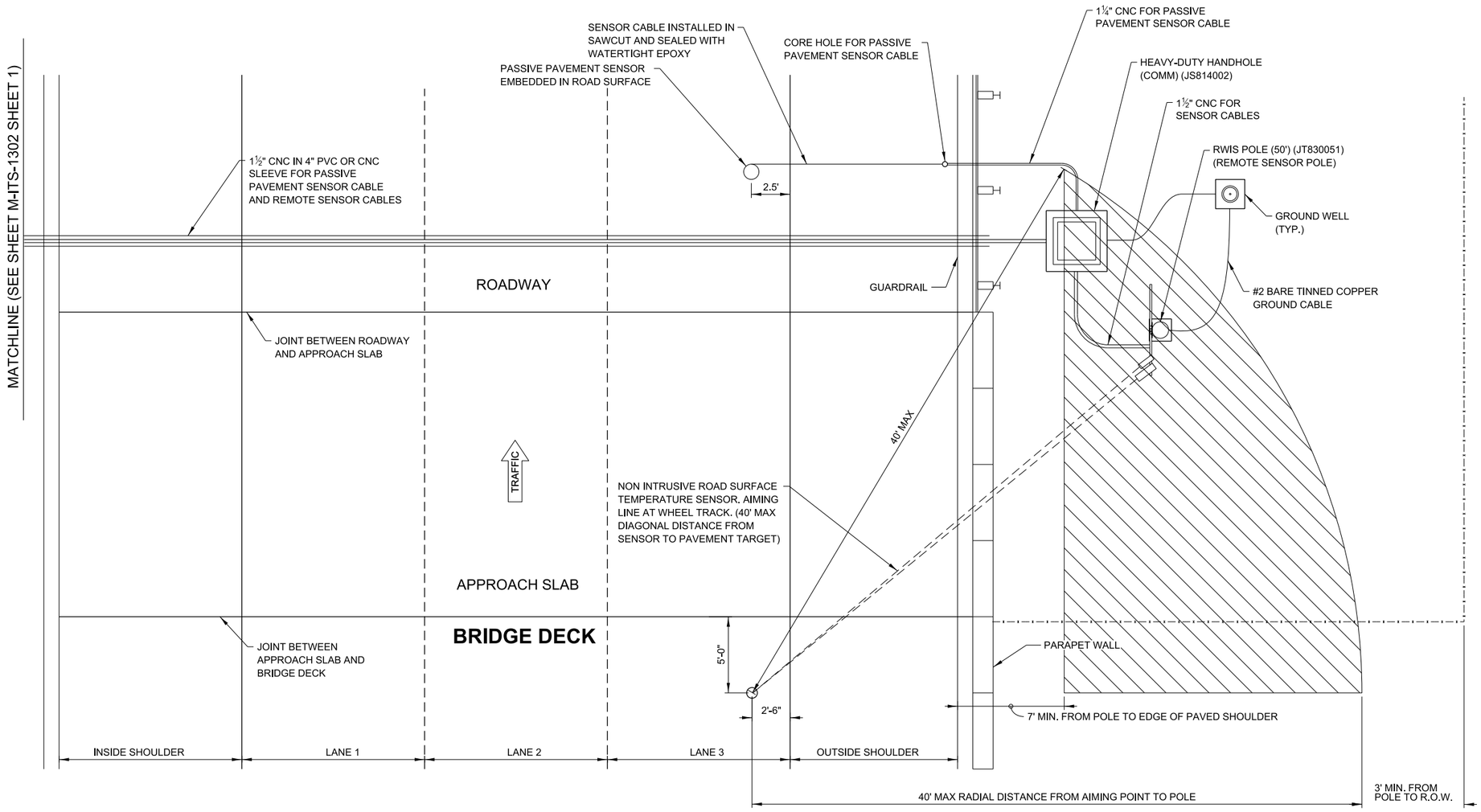
NOTE 6 TO DESIGNER

INSTALLATION OF THE PRIMARY POLE AND SECONDARY POLE FOR BRIDGE INSTALLATION: POLES TO BE INSTALLED NEAR IMMEDIATE ENTRANCE OF THE BRIDGE SO THE NON-INVASIVE LASER TEMPERATURE SENSOR CAN MONITOR BRIDGE DECK TEMPERATURE AND ALSO THE BRIDGE APPROACH OR DEPARTURE.

Illinois Tollway

TYPICAL RWIS SITE INSTALLATION PLAN

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1302	1 OF 2



NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

NOTE 1 TO DESIGNER

LASERS SENSORS MUST BE LOCATED WITHIN 50 FEET (ON DIAGONAL) OF THE AIM POINT ON THE BRIDGE DECK SURFACE.

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.

NOTE 3 TO DESIGNER

ENSURE THE DIRECTION OF TRAFFIC FLOW AND THE ORIENTATION OF THE BRIDGE DECK AND THE ROADWAY PAVEMENT ARE CORRECT FOR THE PROJECT SPECIFIC SITE. ENSURE THE NON-INTRUSIVE SENSORS POINT TO THE BRIDGE DECK AND THAT THE IN-PAVEMENT SENSOR IS IN THE ROADWAY PAVEMENT. ENSURE THE SLOPE ON THE BRIDGE SHOULDER ALLOWS THE POLE TO BE PLACED WITHIN 40 FEET HORIZONTAL OF THE BRIDGE DECK.

NOTE 4 TO DESIGNER

DSE TO ENSURE THE RWIS POLE IS LOCATED WITHIN SENSORS MAXIMUM DISTANCE (HATCHED AREA).

NOTE 5 TO DESIGNER

IN THE EVENT THE PRIMARY POLE AND SECONDARY POLES CANNOT BE INSTALLED WITHIN THE 40 FOOT MAXIMUM RADIUS OF THE BRIDGE DECK, THE DESIGNER SHALL CONSULT WITH THE ILLINOIS TOLLWAY AND GEC ON AN ALTERNATE PLACEMENT SOLUTION.

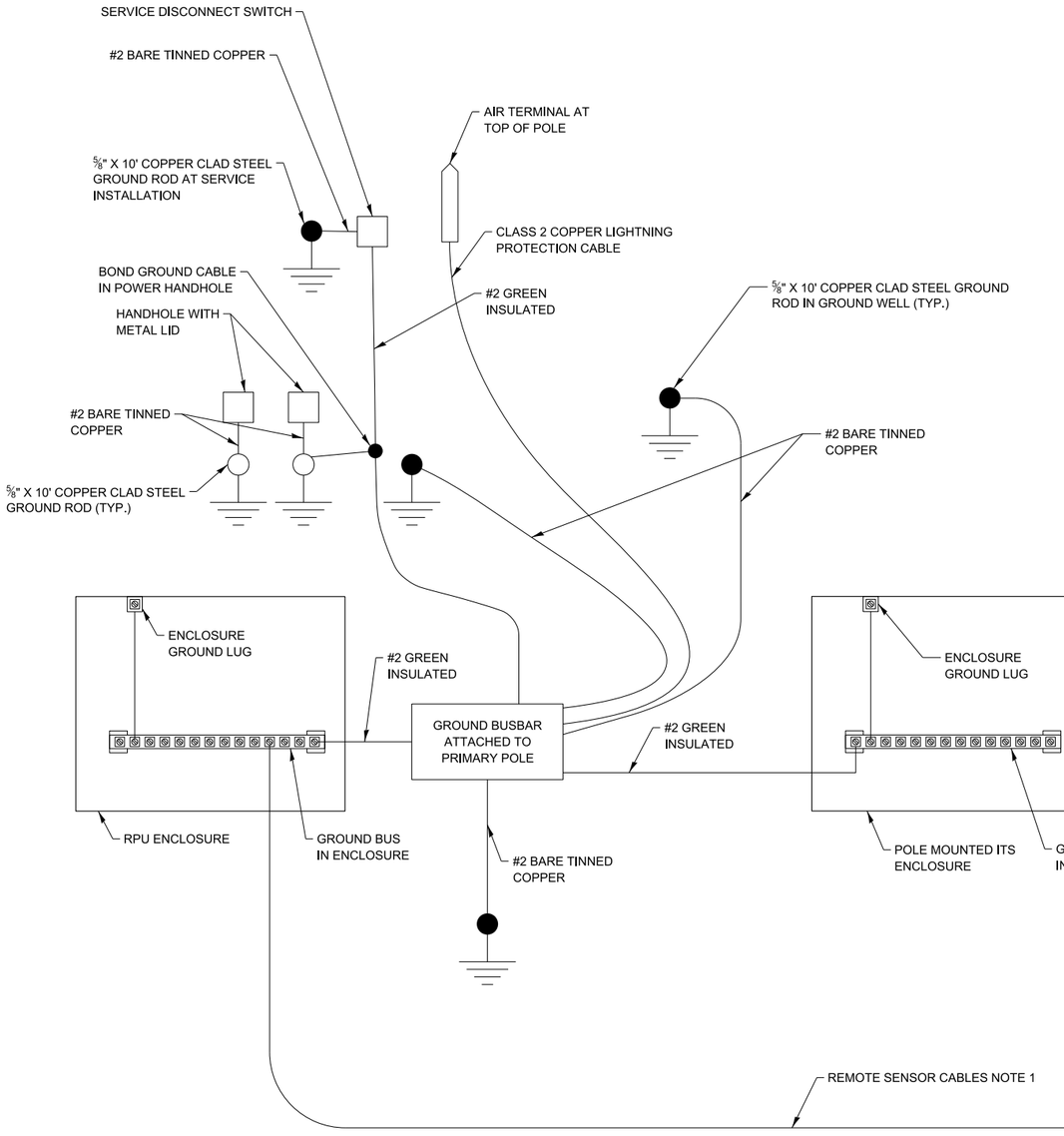
NOTE 6 TO DESIGNER

INSTALLATION OF THE PRIMARY POLE AND SECONDARY POLE FOR BRIDGE INSTALLATION: POLES TO BE INSTALLED NEAR IMMEDIATE ENTRANCE OF THE BRIDGE SO THE NON-INVASIVE LASER TEMPERATURE SENSOR CAN MONITOR BRIDGE DECK TEMPERATURE AND ALSO THE BRIDGE APPROACH OR DEPARTURE.

Illinois Tollway

TYPICAL RWIS SITE INSTALLATION PLAN

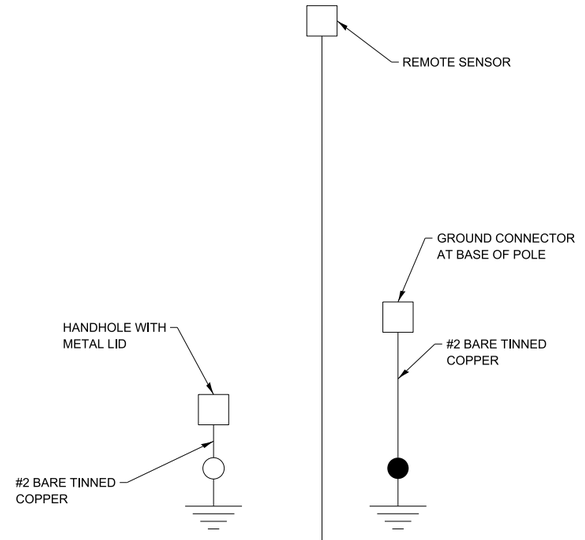
VERSION:	BASE SHEET:	SHEET:
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RPU POLE

NOTE TO DESIGNER

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REMOTE POLE

NOTES:

1. CONTRACTOR SHALL INSTALL A CONTINUOUS RUN FOR THE POWER AND COMMUNICATION CABLE BETWEEN THE PRIMARY RWIS AND SECONDARY REMOTE POLE. NO SPLICING WILL BE ALLOWED. INSTALL 40 FEET OF SLACK IN THE POWER HANDHOLE BETWEEN THE TWO POLES.

Illinois Tollway

TYPICAL RWIS GROUNDING SCHEMATIC

VERSION:	BASE SHEET:	SHEET:
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BASE SHEETS

SERIES 1400 (ITS)

SOLAR POWERED GENERATOR ASSEMBLY

MARCH 2025

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	Modification Summary Effective: 03-01-2025
	Solar Powered Generator Assembly (ITS) -Series 1400	
		NO CHANGES

New Sheet

Retired Standard

NOTES:

1. SOLAR POWER GENERATOR TO INCLUDE PANEL, BRACKETS, CABINET, CHARGER REGULATOR, BATTERIES, POLES, AND CABLES. STRUCTURE TO BE DESIGNED TO MEET STRUCTURAL DESIGN CRITERIA IN SPECIFICATION.

2. THE BATTERIES SHALL BE WIRED TO PROVIDE 24V DC POWER TO AN INVERTER FOR 120V AC DELIVERY TO ITS ENCLOSURE.

3. CONTRACTOR SHALL LOCATE THE GROUND MOUNTED SOLAR PANEL SYSTEM LESS THAN 20' FROM THE POLE-MOUNTED ITS SYSTEM AND ENSURE THAT THE SOLAR PANELS HAVE UNOBSTRUCTED SUN EXPOSURE.

4. GROUND MOUNTED SOLAR PANEL POLES INSTALLED OUTSIDE THE CLEAR ZONE AND SHALL BE SHIELDED BY BARRIER, LOCATED A MINIMUM OF 5' BEHIND THE PLANE OF ANY GUARDRAIL POSTS. SEE ILLINOIS TOLLWAY GUARDRAIL STANDARD (SECTION C OF STANDARDS) FOR MORE INFORMATION. ALL OTHER POLES SHALL BE LOCATED OUTSIDE THE CLEAR ZONE OR AS DIRECTED BY THE ENGINEER. FINAL LOCATION TO BE APPROVED BY THE ENGINEER.

5. ALL EQUIPMENT MUST BE CONNECTED TO A COMMON GROUND THROUGH THE ADJACENT ITS POLE BUSBAR. CONNECT A #2 AWG GROUND CABLE FROM THE EXTERNAL SOLAR POLE MOUNTED GROUND BUSBAR TO THE GROUND BAR IN THE SOLAR ENCLOSURE. ANY GROUND CONNECTED TO THE EXTERNAL GROUND BUSBAR SHALL BE EXOTHERMIC WELDED TO THE BUSBAR. SEALTITE CONDUIT SHOULD BE GROMMETTED ON END GOING TO BUSBAR TO PREVENT RODENTS AND INSECTS FROM ENTERING. A #2 AWG GROUND CABLE SHALL BE ATTACHED TO THE GROUND BUSBAR ATTACHED TO THE ADJACENT ITS POLE AND ROUTED THROUGH THE CONDUIT CONNECTING THE TWO ENCLOSURES AND ATTACHED TO THE GROUND BUSBAR ATTACHED TO THE SOLAR POLE. THE GROUND BUSBAR SHALL CONNECT TO A GROUND ROD (IN AN INSPECTION WELL) FOR THE SOLAR GENERATOR.

6. THE SOLAR POWER GENERATOR GROUND ROD SHALL BE CONNECTED TO THE GROUND ROD FOR THE ITS ENCLOSURE VIA A #2 AWG BARE GROUND CABLE EXOTHERMIC WELDED TO BOTH GROUND RODS.

7. CONTRACTOR TO PROVIDE ALL POWER AND GROUND WIRING REQUIRED FOR SYSTEM OPERATION WITHIN AND OUTSIDE THE ENCLOSURE.

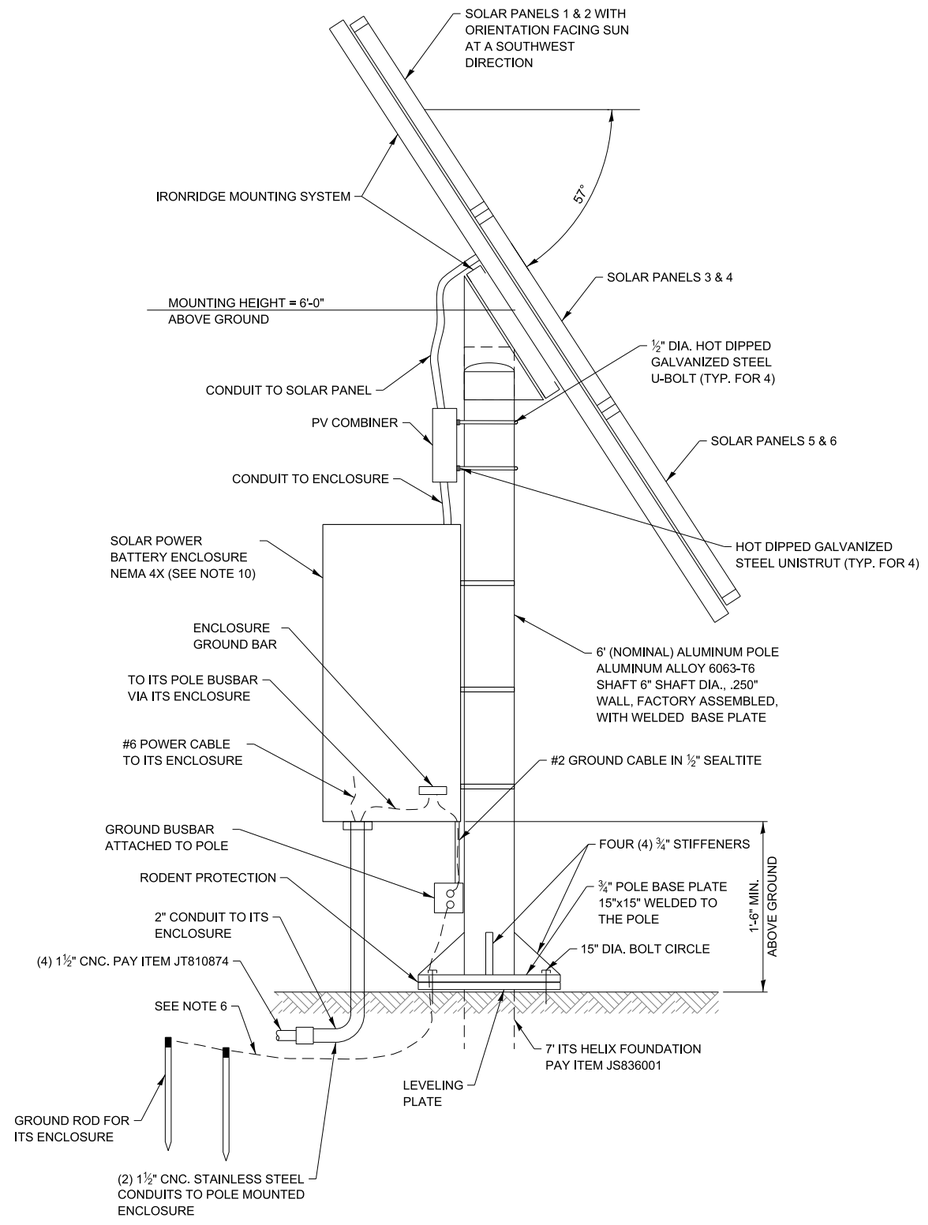
8. BACKFILL HELIX FOUNDATION TO THE TOP OF THE POLE BASE ON ALL SIDES.

9. ALL CABLING (INCLUDING CABLING INSIDE THE ENCLOSURE) SHALL BE OUTDOOR RATED. THE GROUND WIRE (WHITE) IN THE POWER CABLE SHALL BE TAPED GREEN.

10. ENCLOSURE SHALL BE VENTED AND CONTAIN BATTERIES AND SOLAR CONTROLLER.

11. SOLAR PANELS SHALL FACE 186 DEGREES FROM MAGNETIC NORTH AND SHALL BE TILTED 57 DEGREES FROM THE HORIZON.

12. THE LOCATION OF THE SOLAR POWER GENERATOR SHALL BE AT A LOCATION FACING SOUTH WEST AND CLEAR FROM THE SHADOW OF TREES AND OTHER STRUCTURES. SHALL HAVE DIRECT SUNLIGHT FACING THE SOLAR PANELS.



SOLAR PANEL &
MOUNTING HARDWARE DETAILS
NOT TO SCALE

NOTE TO DESIGNER

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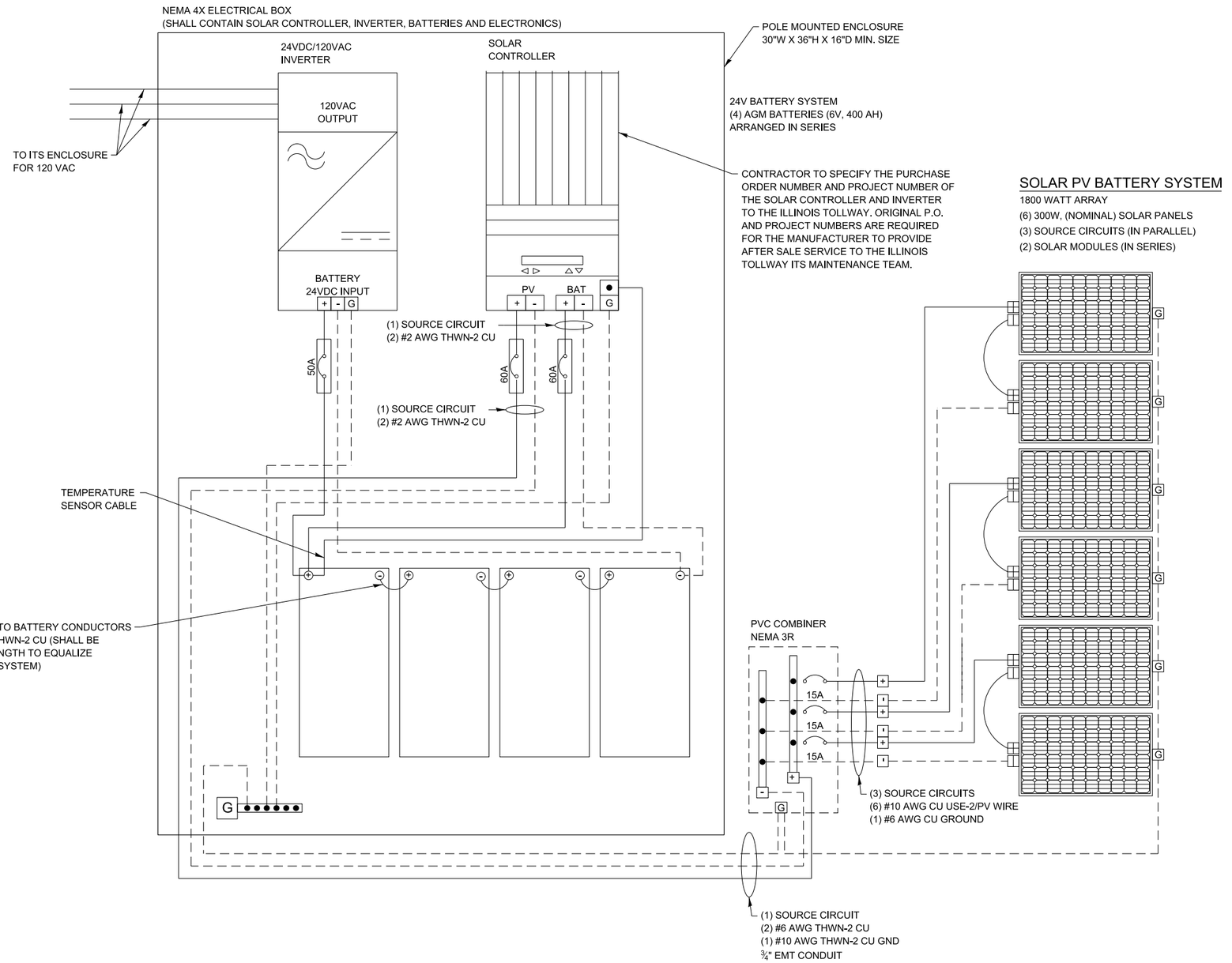
NOTE TO DESIGNER

THE SOLAR POWER GENERATOR ASSEMBLY SHALL BE USED WITH SITES WITH CCTV AND OTHER DEVICES WITH GREATER POWER DEMAND. FOR SITES WITH ONLY MVDS, REFER TO M-ITS-1000 SERIES.

Illinois Tollway

SOLAR POWER GENERATOR DETAILS

VERSION:	BASE SHEET:	SHEET:
2022-03	M-ITS-1400	1 OF 1



SOLAR PV BATTERY SYSTEM

1800 WATT ARRAY
(6) 300W, (NOMINAL) SOLAR PANELS
(3) SOURCE CIRCUITS (IN PARALLEL)
(2) SOLAR MODULES (IN SERIES)

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

Illinois Tollway

SOLAR POWER GENERATOR CABINET 1-LINE ELECTRICAL DIAGRAM

VERSION:	BASE SHEET:	SHEET:
2023-03	M-ITS-1401	1 OF 1

BASE SHEETS

SERIES 1500 (ITS)

TOWER MOUNTED CAMERA ASSEMBLY

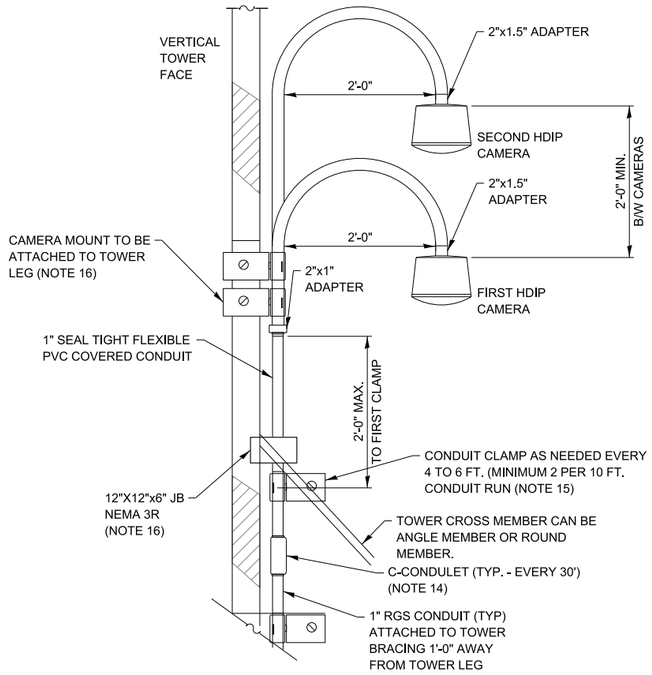
MARCH 2025

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Tower Mounted Camera Assembly (ITS) - Series 1500	
	M-ITS-1503	**Cabinet Wiring Diagram Tower Mounted CCTV ITS Assembly**
		Revised layout to add access door through the Plexiglas cover to give easy access to IP Relay for programing

New Sheet

Retired Standard



CCTV EQUIPMENT MOUNTING SCHEME
LATTICED TOWER
NOT TO SCALE

NOTE TO DESIGNER

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NOTE TO DESIGNER

ROUTING OF CONDUIT AND CABLES TO PLAZA/TOWER BUILDING SHALL BE SHOWN FOR EACH INSTALLATION OCCURRENCE DEPICTING ACTUAL CONDITIONS. INSTALLATION AND ROUTING OF EQUIPMENT AND CABLES SHALL BE SHOWN IN PLAN VIEW FORMAT AS WELL AS A DESCRIPTION OF THE LOCATION AND POSITION OF WALL MOUNT, RACK MOUNT AND CABLE TRAY POSITIONS WITHIN THE PLAZA/TOWER BUILDING. CISCO SWITCH PORTS TO BE USED SHALL BE IDENTIFIED.

NOTE TO DESIGNER

THE 2 CCTV'S SHALL BE PLACED ON THE LEG FACING THE ROADWAY WITH A CLEAR FIELD OF VIEW.

NOTE TO DESIGNER

CAMERA CONTROLS ARE LOCATED IN THE VIDEO POWER JUNCTION BOX IN THE PLAZA COMMUNICATION ROOM.

ABBREVIATIONS:

AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
TIA	TELECOMMUNICATION INDUSTRY ASSOCIATION
RGS	RIGID GALVANIZED STEEL
JB	JUNCTION BOX

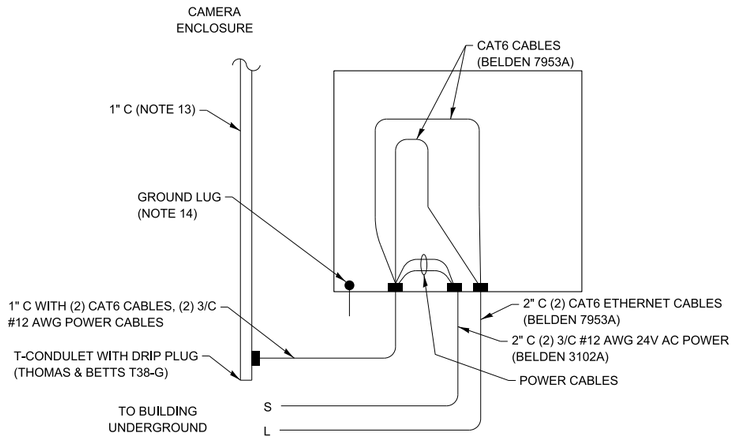
GENERAL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR FINAL ATTACHMENT DETAILS BASED ON THE DRAWINGS AND PRE-INSTALLATION MEETING WITH ILLINOIS TOLLWAY.
2. APPLICABLE DESIGN CRITERIA SHALL BE PER THE LATEST EDITION OF AISC MANUAL, ASCE 7-05, TIA-222-G, AND APPLICABLE NATIONAL, STATE, AND OR LOCAL BUILDING CODES.
3. EQUIPMENT MOUNTING SHALL ALSO MEET REQUIREMENTS LISTED IN SPECIAL PROVISIONS.
4. DESIGN LOADS SHALL BE AS FOLLOWS:
   A. DEAD LOADS SHALL INCLUDE ALL EQUIPMENT LOADS, INCLUDING CONDUIT AND MOUNTING LOADS SHALL BE CONSIDERED IN THE DESIGN. PTZ HDIP CAMERA WEIGHT SHALL BE ASSUMED TO WEIGH MINIMUM 10.14 LBS. ACTUAL LOAD SHALL BE VERIFIED FOR THE SPECIFIED MODEL FROM VENDOR.
   B. DESIGN SEISMIC ACCELERATION AND WIND SPEED SHOULD BE DETERMINED FROM APPLICABLE BUILDING CODES AND DESIGN STANDARDS.
   C. DESIGN LOAD COMBINATIONS SHOULD BE DETERMINED FROM APPLICABLE BUILDING CODES AND DESIGN STANDARDS. DESIGN SHALL BE BASED ON ALLOWABLE STRESS DESIGN (A.S.D.) METHOD.
5. MOUNTING HEIGHTS FOR CAMERA WILL BE AS CLOSE TO TOWER TOP AS PRACTICAL, UNLESS THE OR ENGINEER SPECIFIES OTHERWISE. THE PLAN LOCATION SHALL BE COORDINATED WITH THE ILLINOIS TOLLWAY AND ENGINEER.
6. NO HOLES CAN BE DRILLED AND NO WELDING IS ALLOWED INTO TOWER MEMBERS. DO NOT MOUNT RIGID CONDUIT TO TRANSMISSION LINE LADDER. CAMERA AND ANTENNA SHALL BE MOUNTED ON TOWER VERTICAL LEGS ONLY AT A MINIMUM OF 1'-0" AWAY FROM TOWER LEG.
7. CONDUIT HANGERS AND MANUFACTURER SHOWN IN DRAWINGS ARE REPRESENTATIVE ONLY. CONTRACTOR SHALL ONLY CHOOSE MANUFACTURED HARDWARE THAT HAS A RATED "DESIGN LOAD" FROM THE VENDOR AND IS CAPABLE OF RESISTING ALL APPLIED LOADS. A MINIMUM FACTOR OF SAFETY OF 5 SHALL BE ENSURED. VENDOR SPECIFIED "DESIGN LOAD" BASED ON F.S. < 5 SHALL BE PROPORTIONATELY DERATED (E.G. IF DESIGN LOAD IS BASED ON F.S. OF 3, IT SHALL BE DERATED TO 60%).
8. NOT USED.
9. CONTRACTOR IS RESPONSIBLE FOR THEIR QUALITY CONTROL AND PROVIDING DOCUMENTATION THAT ALL BOLTS ARE TORQUED AND HARDWARE TIGHTENED TO MANUFACTURER'S ESTABLISHED REQUIREMENTS.
10. CONTRACTOR, THROUGH THE ENGINEER, SHALL COORDINATE CAMERA AND ANTENNA MOUNTING WITH ILLINOIS TOLLWAY'S TOWER CREW, AT LEAST ONE WEEK BEFORE PROPOSED INSTALLATION. CONTRACTOR SHALL PROVIDE ALL MATERIALS, TOOLS AND EQUIPMENT FOR COMPLETE INSTALLATION OF CAMERA AND ANTENNAS AT EACH PLAZA.
11. NOT USED.
12. UNLESS INCLUDED AS PART OF MANUFACTURED ASSEMBLY, THREADED RODS AND U-BOLTS SHALL BE HOT-DIPPED GALVANIZED STEEL). IN SOME CASES DUE TO MANUFACTURED PART AVAILABILITY, THREADED RODS AND U-BOLTS MAY BE STAINLESS STEEL. IN THIS CASE, THEY MUST CONFORM TO ASTM A193, CLASS I, GRADE B8 (AISI TYPE 304). WASHERS SHALL CONFORM TO ASTM A240, TYPE 302. NUTS SHALL CONFORM TO ASTM A194 (AASHTO M292), GRADE 8F (AISI TYPE 303). ALL THREADED RODS AND U-BOLTS TO BE DOUBLE NUTTED. MATERIAL FOR STRUCTURAL STEEL, ANGLES, ETC. SHALL BE A36 AND SHALL BE HOT-DIPPED GALVANIZED ACCORDING TO ASTM 4123.
13. CONDUIT OUTLET BODY WITH COVER SHALL BE MALLEABLE IRON WITH TRIPLE COAT FINISH OR EPOXY POWDER COATED ALUMINUM. OUTLET BODY SHALL BE SEALED TIGHT WITH NEOPRENE GASKETS.
14. CABLE STRAIN RELIEF STARTS AT THE 12"x12"x6" JUNCTION BOX. BELOW THE JUNCTION BOX, C-CONDULETS SHALL BE UTILIZED EVERY 30'-0". THE CONTRACTOR IS RESPONSIBLE FOR UTILIZING STRAIN RELIEF TECHNIQUES IN THE CONDULETS AND JUNCTION BOX. FOR EXAMPLE, A WEAVED STRAIN RELIEF GRIP CAN BE UTILIZED OR WEDGES. THE CONTRACTOR WILL COORDINATE THIS EFFORT WITH THE ENGINEER AND THE ILLINOIS TOLLWAY TOWER CREW. JUNCTION BOX SHALL HAVE WEEP HOLES IN BOTTOM TO ALLOW MOISTURE TO BLEED OFF. JB SHALL HAVE A NON-CORROSIVE TERMINAL STRIP SO IT CAN BE USED AS A TRANSITION POINT FOR CABLING.
15. ALL NECESSARY MOUNTING HARDWARE AND BRACKETS NECESSARY TO ATTACH THE EQUIPMENT, RACEWAYS AND PULL BOXES TO THE TOWER SHALL BE PRE-MANUFACTURED AND NOT BE BUILT IN THE FIELD WITH INDIVIDUAL COMPONENTS.
16. CAMERA ATTACHMENTS TO TOWER LEG SHALL BE AT MINIMUM OF 2 LOCATIONS UTILIZING UNIVERSAL SADDLE MOUNTS OR WELDED PIPE TO PIPE CLAMPS DEPENDING ON THE TOWER TYPE. CONTRACTOR TO DETERMINE PROPER SIZE. U-BOLTS WILL BE REQUIRED. THE GOOSE NECK MOUNT TO THE TOWER SHALL BE SET PLUMB SO AS TO PROVIDE A PLUMB CAMERA INSTALLATION.
17. ALL WORK WILL REQUIRE CLOSE COORDINATION WITH ILLINOIS TOLLWAY STAFF AND THE ENGINEER. THIS INCLUDES A PRE-INSTALLATION MEETING WITH ILLINOIS TOLLWAY STAFF AND ENGINEER.
18. NOT USED.
19. ALL CONDUIT CONNECTIONS SHALL BE SEALED WITH TAPE AS PER ILLINOIS TOLLWAY TOWER CREW INSTRUCTIONS.
20. NOT USED.
21. NOT USED.
22. NOT USED.
23. NOT USED.

Illinois Tollway

ITS DETAILS TOWER MOUNT CAMERA DETAILS

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1500	1 OF 1

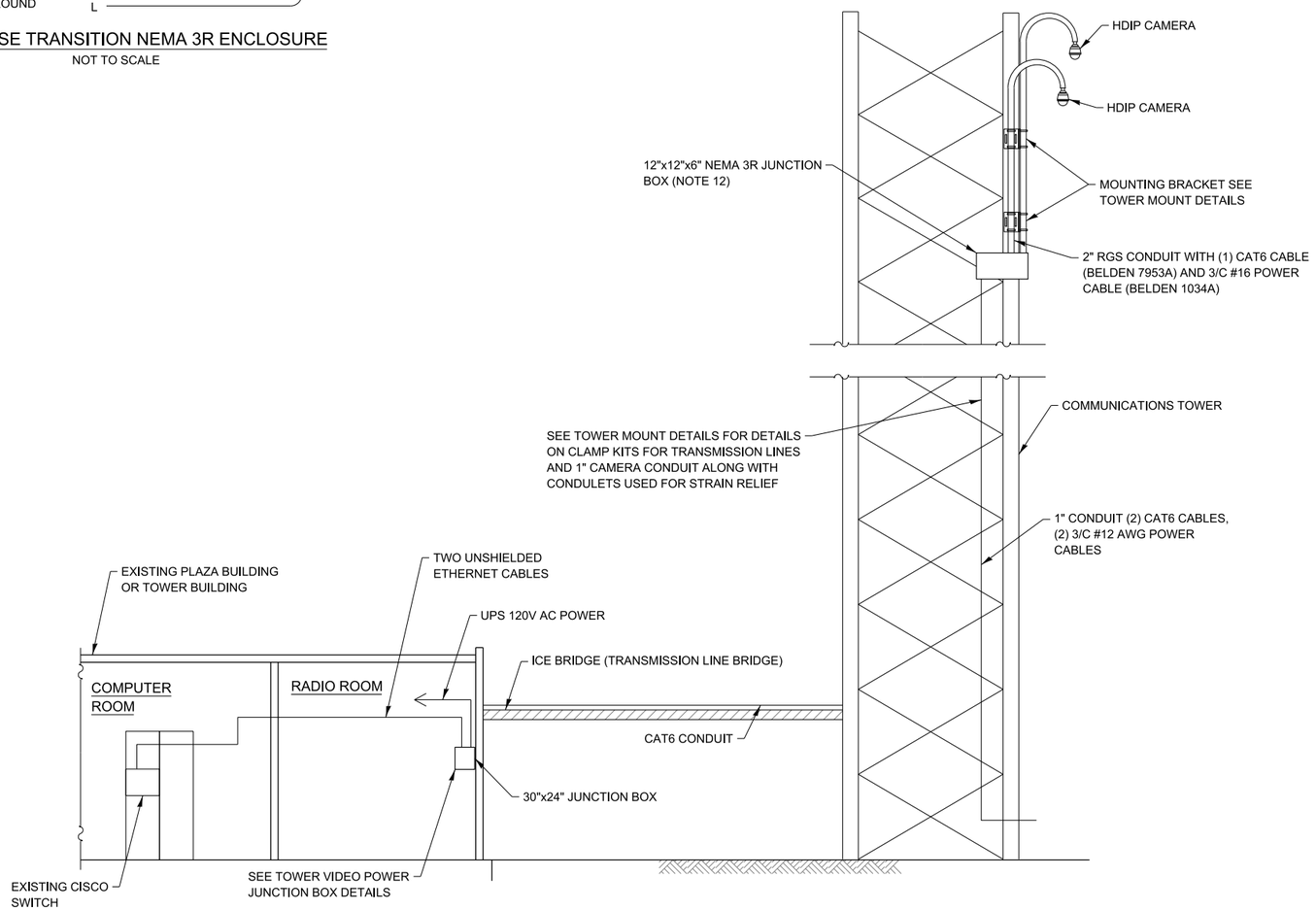


TOWER BASE TRANSITION NEMA 3R ENCLOSURE

NOT TO SCALE

ABBREVIATIONS:

AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
TIA	TELECOMMUNICATION INDUSTRY ASSOCIATION
RGS	RIGID GALVANIZED STEEL
JB	JUNCTION BOX



TOWER MOUNT CAMERA ASSEMBLY

NOT TO SCALE

NOTES:

1. NOT USED.
2. CAMERA MUST BE GROUNDED IN HOUSING.
3. ALL EQUIPMENT MUST BE CONNECTED TO A COMMON GROUND. GROUND CABLES SHALL BE GREEN INSULATED TYPE RHW CONDUCTORS. ANY GROUND CONDUCTORS THAT ARE BURIEDSHALL BE SOLID COPPER TINNED.
4. NOT USED.
5. NOT USED.
6. ALL CONDUIT CONNECTIONS SHALL BE SEALED WITH TAPE PER ILLINOIS TOLLWAY TOWER CREW INSTRUCTIONS.
7. NOT USED.
8. NOT USED.
9. NOT USED.
10. HD IP CAMERA WILL USE A SINGLE CAT6 CABLE TO EACH CAMERA.
11. NOT USED.
12. CAMERA TRANSITION NEMA 3R STAINLESS STEEL JUNCTION BOX IS USED TO TRANSITION TO THE 2 CAMERAS. ENCLOSURE MUST MOUNT SECURELY TO TOWER AT TWO POINTS.
13. LOOP A MINIMUM OF 3FT OF CAT 6 INSIDE CAMERA TRANSITION ENCLOSURE.
14. NOT USED.

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NOTE TO DESIGNER

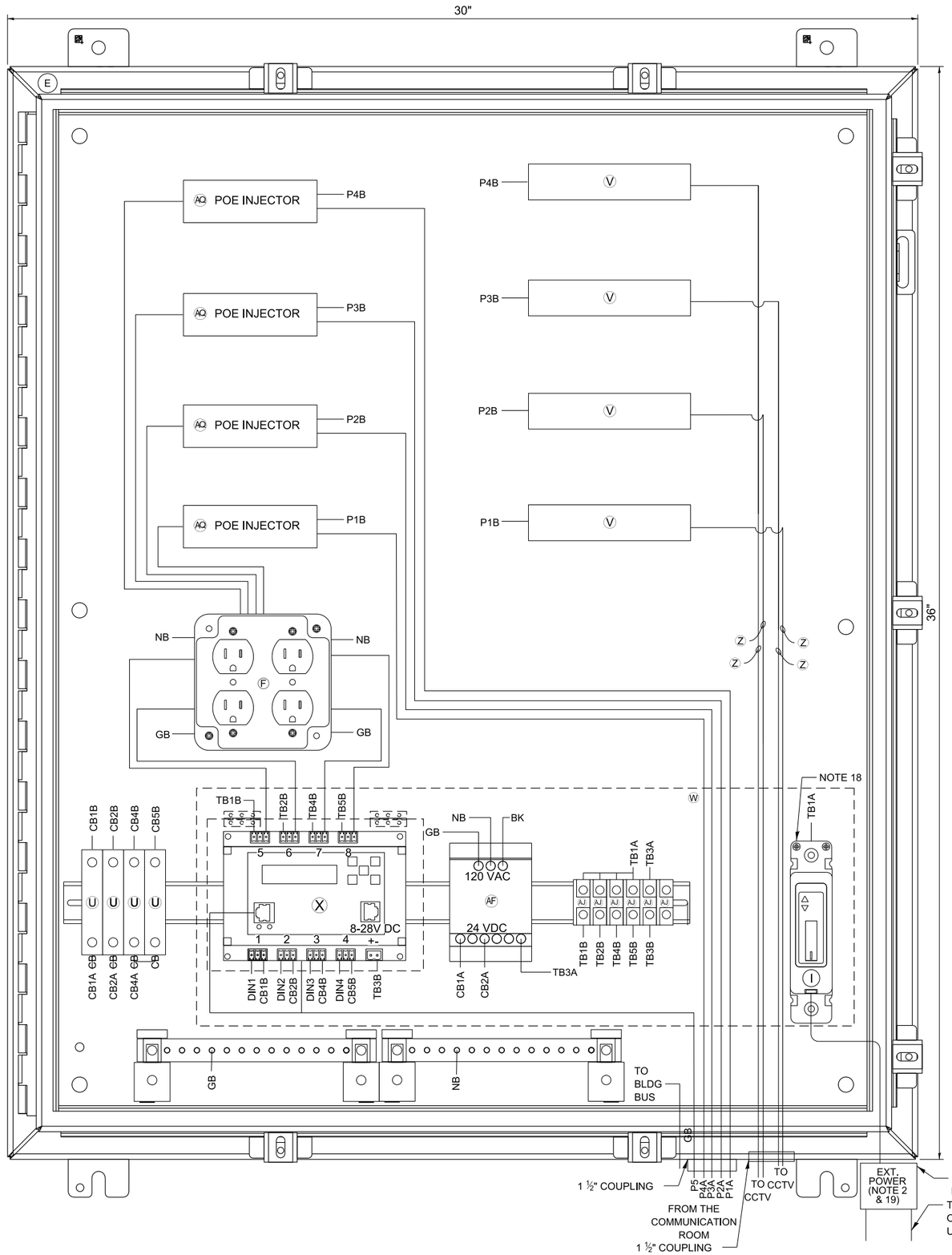
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MAXIMUM OF 300' LENGTH FOR CAT 6 CABLE TO CAMERA. IF LENGTH IS EXCEEDED, REDUCE MOUNTING HEIGHT. MAXIMUM HEIGHT OF THE 2 CCTV IS 100 FEET FROM THE BASE OF THE TOWER

Illinois Tollway

ITS DETAILS TOWER CAMERA ASSEMBLY 300' CAT OR LESS

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1502	1 OF 1



ITEM DESCRIPTION

- (A) NOT USED
- (B) NOT USED
- (C) NOT USED
- (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"X27" PANEL, HOFFMAN/A36H3012SS6LP & A36P30
- (F) ONE QUAD 120V RECEPTACLE
- (G) NOT USED
- (H) NOT USED
- (I) 120V, 1P, 30A CIRCUIT BREAKER WITH TERMINAL SHIELD EATON
- (J) NOT USED
- (K) NOT USED
- (L) NOT USED
- (M) NOT USED
- (N) NOT USED
- (O) NOT USED
- (P) NOT USED
- (Q) NOT USED
- (R) NOT USED
- (S) NOT USED
- (T) NOT USED
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) AXIS SURGE SUPPRESSOR T8061, MOUNTED ON COMMON DIN RAIL AND GROUNDED
- (W) CLEAR PLEXIGLASS SAFETY COVER PANEL ENCOMPASSING ITEMS I, X, AF AND AJ (THE INSTALLER SHALL PERMANENTLY AFFIX A LABEL STATING "DANGER 480 VAC" OR "DANGER 240 VAC" OR "DANGER 120 VAC" FOR VOLTAGE AS FIELD CONDITIONS WARRANT.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (X) POWER CONTROLLER, 8-CHANNEL DIN ETHERNET RELAY DIGITAL LOGGERS/DIN 4
- (Y) NOT USED
- (Z) CATEGORY 6 CABLE, 23AWG, OUTDOOR RATED CABLE BELDEN/7953A
- (AA) NOT USED
- (AB) NOT USED
- (AC) NOT USED
- (AD) NOT USED
- (AE) NOT USED
- (AF) AC/DC POWER SUPPLY, 24VDC WAVETRONIX - CLICK-204
- (AG) NOT USED
- (AH) NOT USED
- (AI) NOT USED
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AP) #10 AWG
- (AQ) POE INJECTOR AXIS T8154 60W MIDSPAN 120VAC

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. EACH 120VAC OUTLET, OR (ITEM F, & AF) SHALL BE FED FROM A SEPARATE POWER CIRCUIT.
5. MOUNT ITEMS U, X, AF & AJ ON A 21 INCH CONTINUOUS SECTION OF DIN RAIL.
6. ALL BREAKERS SHALL BE LABELED (e.g. CAMERA-AC, CAMERA-DC, DIN RELAY-AC, DIN RELAY-DC, CELL MODEM-AC ETC.).
7. USE THE MOUNTING TABS ON THE IP RELAY UNIT TO MOUNT THE UNIT DIRECTLY TO THE DIN RAIL. REFER TO THE IP RELAY WIRING TABLE FOR WIRING DETAILS.
8. IP RELAY IS USED TO CONTROL POWER TO THE CAMERAS AND DETECTORS. ALL 120VAC CONNECTIONS ON ITEM X SHALL BE PROTECTED.
9. DIN RAIL SHALL BE INSTALLED AS ILLUSTRATED ON DRAWING. DIN RAIL SHALL BE GROUNDED TO THE GROUND BUS.
10. BOND NEUTRAL AND GROUND BUSES TOGETHER, WHEN REQUIRED. TIE THE ENCLOSURE INTO THE GROUND BUS.
11. THE PLEXIGLASS PANEL DENOTED BY THE DASHED LINE SHALL BE ATTACHED TO THE BACKPLATE WITH 4 MOUNTING STUDS.
12. ALL INTERNAL ENCLOSURE ROUTED AND TERMINATED CAT6 CABLE SHALL BE TEMPERATURE RATED.
13. ALL INTERNAL 24VAC, 120VAC AND ANY DC VOLTAGE POWER FEEDS USE #16 AWG CABLE.
14. PROVIDE WINDOW IN PMMA SHIELD FOR ACCESS TO BREAKER, MOUNT BREAKER FLUSH WITH PMMA SHIELD USING MOUNTING BRACKET.
15. 120V POWER COMES FROM THE BUILDING CIRCUIT PANEL.
16. WIFI COMMUNICATION SHALL BE DISABLED ON DIN ETHERNET RELAY.

NOTE TO DESIGNER

THE CAMERA CONTROLS ARE LOCATED IN THE VIDEO POWER JUNCTION BOX IN THE PLAZA COMMUNICATION ROOM.

NOTE TO DESIGNER

THIS CONFIGURATION IS FOR USE WHERE THE POWER FROM THE COMMUNICATION BUILDING IS 120V AND THE DISTANCE FROM THE SWITCH INSIDE THE BUILDING TO THE CAMERA IS LESS THAN 300'. THIS CONFIGURATION REQUIRES THE ETHERNET RELAY TO BE INSTALLED INSIDE THE COMMUNICATION BUILDING.

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Illinois Tollway

CABINET WIRING DIAGRAM TOWER MOUNTED CCTV ITS ASSEMBLY

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1503	1 OF 1

BASE SHEETS

SERIES 1600 (ITS)

WEIGH-IN-MOTION

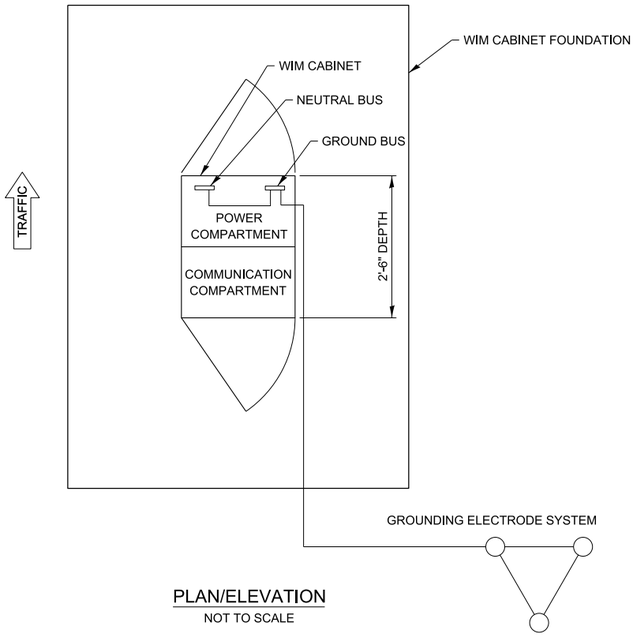
MARCH 2025

Illinois Tollway Base Sheet Revisions

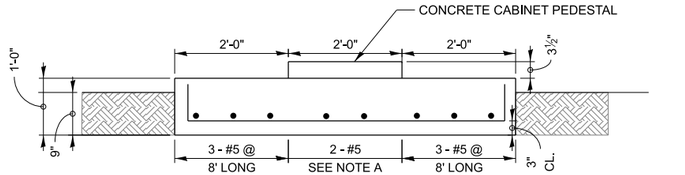
Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Weigh-in-Motion (ITS)-Series 1600	
	M-ITS-1600	**Weigh-In-Motion Cabinet and Foundation Details**
		Revised the front layout of Cisco switch IE-3300-16T2S-E

New Sheet

Retired Standard

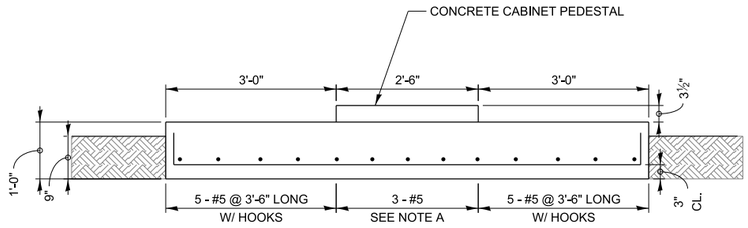


PLAN/ELEVATION
NOT TO SCALE

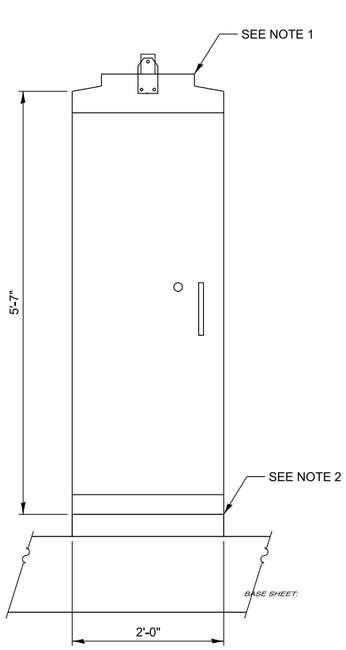


NOTE A:
#5 SHORTER BARS @ EACH SIDE WITH HOOKS

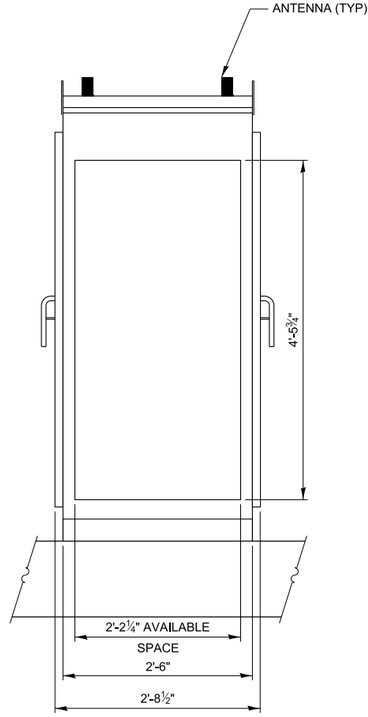
SECTION A-A
NOT TO SCALE



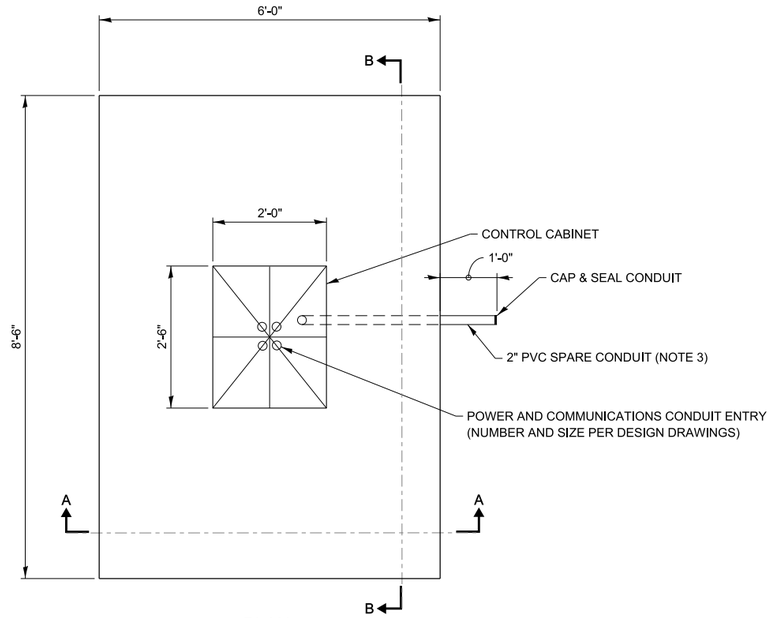
SECTION B-B
NOT TO SCALE



FRONT VIEW
(NO DOOR SHOWN)

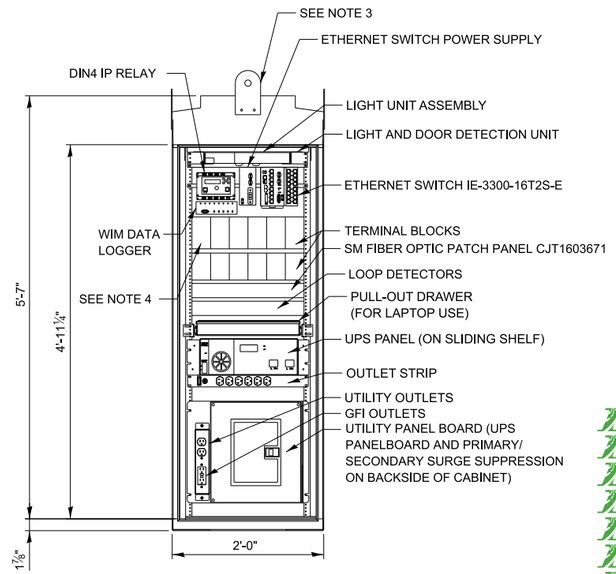


SIDE VIEW



PLAN
NOT TO SCALE

WIM CONTROLLER FOUNDATION DETAILS
NOT TO SCALE



FRONT VIEW
(NO DOOR SHOWN)

NOTES:

1. THE WIM INTERNAL CABINET LAYOUT SHALL BE AS PER WIM MANUFACTURER'S RECOMMENDATION AND APPROVED BY THE ILLINOIS TOLLWAY.
2. SEAL CABINET TO FOUNDATION JOINT WITH SILICONE SEALANT TO PREVENT WATER INTRUSION. LOCATE CABINET ABOVE HIGH WATER LEVEL.
3. INSTALL 2" PVC SPARE CONDUIT FOR FUTURE USE. EXTEND 12" OUTSIDE OF CONCRETE FOUNDATION. PROVIDE CONDUIT MARKING FOR EASE OF FUTURE LOCATING.

WIM CABINET FOUNDATION NOTES:

1. COORDINATE SIZE OF CONDUIT STUB-UP GROUPING WITH WIM CONTROLLER CABINET BOTTOM CONDUIT CUT-OUTS
2. CONCRETE = 4,000 PSI (MIN.)
3. REBAR = EPOXY COATED FY = 60,000 PSI (MIN.)
4. PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION
5. INCLUDE CONDUITS

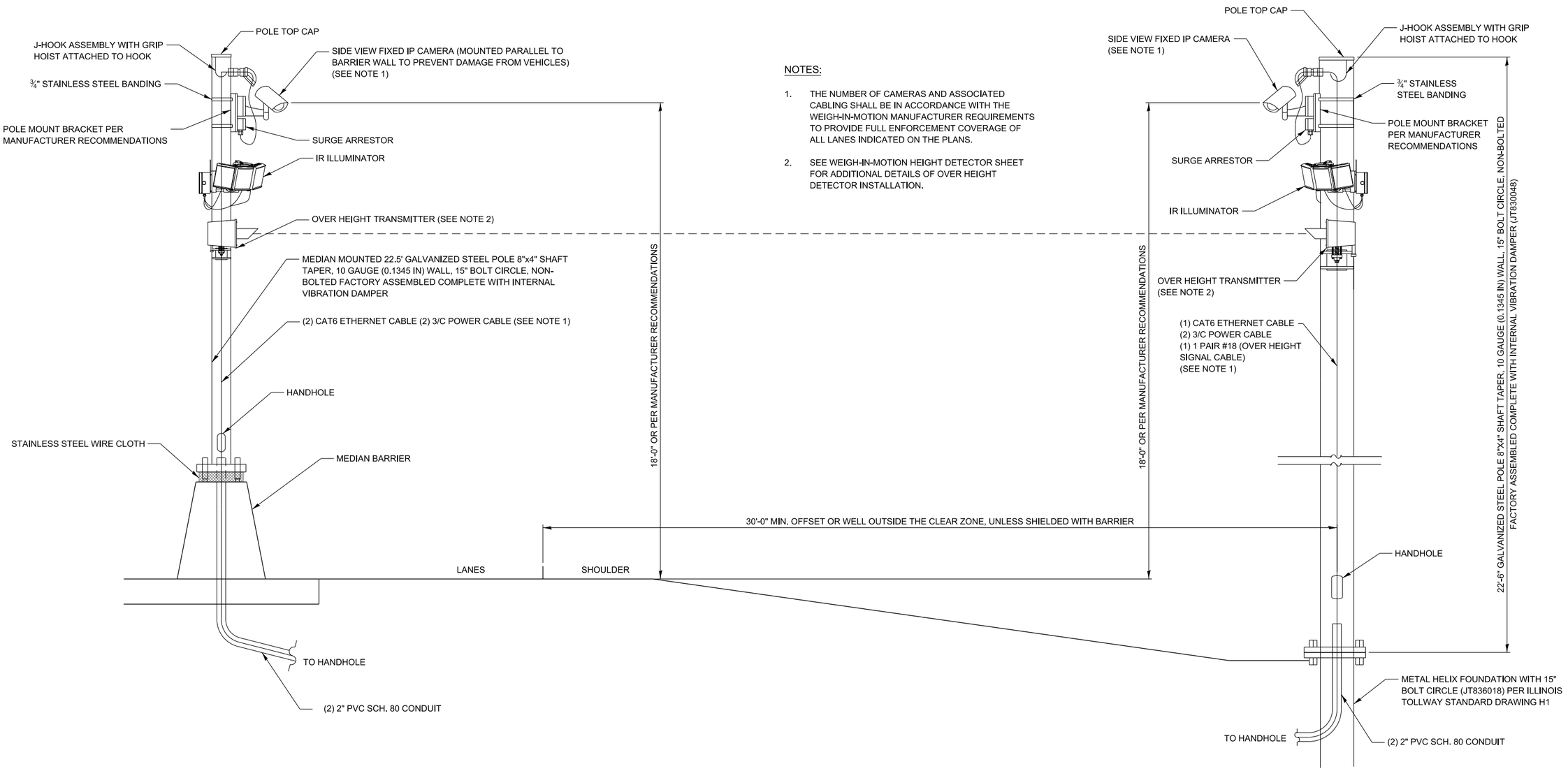
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Illinois Tollway

WEIGH-IN-MOTION CABINET AND FOUNDATION DETAILS

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1600	1 OF 1



NOTES:

1. THE NUMBER OF CAMERAS AND ASSOCIATED CABLING SHALL BE IN ACCORDANCE WITH THE WEIGH-IN-MOTION MANUFACTURER REQUIREMENTS TO PROVIDE FULL ENFORCEMENT COVERAGE OF ALL LANES INDICATED ON THE PLANS.
2. SEE WEIGH-IN-MOTION HEIGHT DETECTOR SHEET FOR ADDITIONAL DETAILS OF OVER HEIGHT DETECTOR INSTALLATION.

NOTE TO DESIGNER

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Illinois Tollway

WEIGH-IN-MOTION IP CAMERA DETAILS

VERSION:	BASE SHEET:	SHEET:
2020-08	M-ITS-1601	1 OF 1

LOOP DETECTOR SPLICE DETAIL

① WESTERN UNION SPLICE SOLDERED WITH ROSIN CORE FLUX. ALL EXPOSED SURFACES OF THE SOLDER SHALL BE SMOOTH. THE WESTERN UNION SPLICES SHALL BE STAGGERED.

② WCSMW 30/100 HEAT SHRINK TUBE, MINIMUM LENGTH 3" (75 mm), UNDERWATER GRADE.

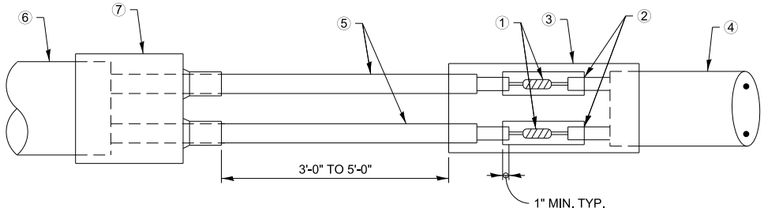
③ WCSMW 30/100 HEAT SHRINK TUBE, MINIMUM LENGTH 6" (150 mm), UNDERWATER GRADE.

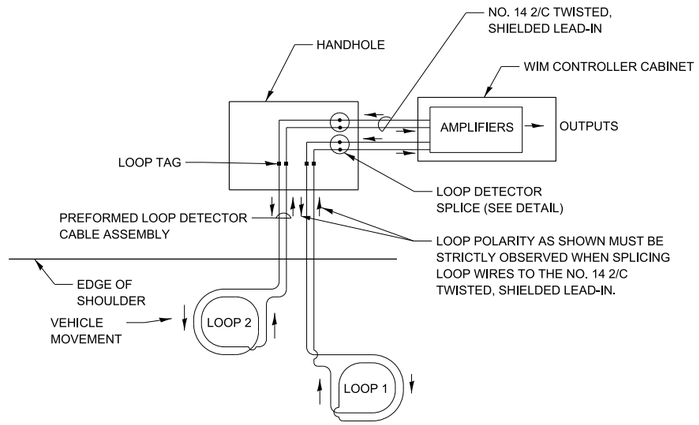
④ NO. 14 2/C TWISTED, SHIELDED CABLE.

⑤ LOOP CONDUCTOR WITH FLEXIBLE PLASTIC TUBE.

⑥ PRE-FORMED LOOP.

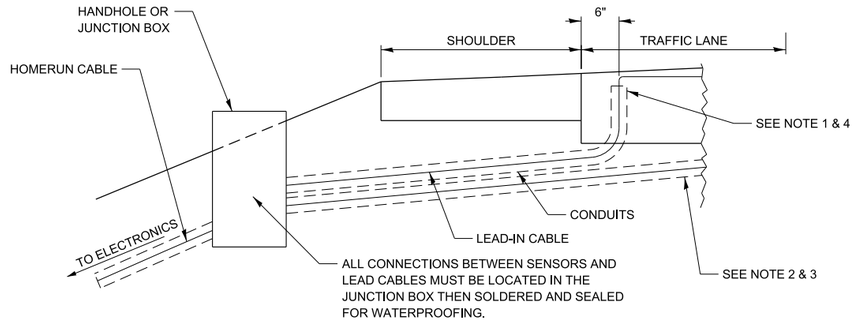
⑦ XL POLYOLEFIN 2 CONDUCTOR BREAKOUT SEALS. TYCO CBR-2 OR APPROVED EQUAL.





DETECTOR LOOP WIRING SCHEMATIC

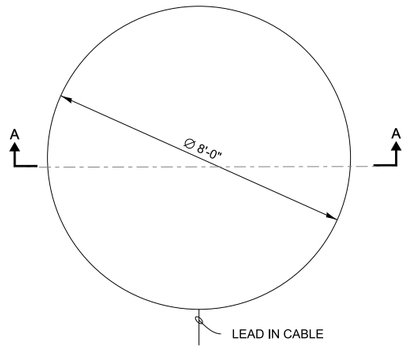
LOOP CABLE ROUTING DETAILS

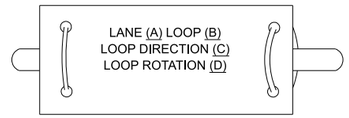


1. SPARE/FUTURE STUB-UP CONDUIT TO 2" BELOW CONCRETE SURFACE. BEFORE POURING CONCRETE, CAP OPENINGS AND PROTECT WITH TAPE AND SOFT MATERIAL TO PREVENT DAMAGE IN FUTURE DISCOVERY. TO BE CUT TO PROPER HEIGHT WHEN SENSORS ARE INSTALLED. USE METALLIC CAP TO ALLOW EASIER DETECTION FOR RE-ENTRY.
2. PLUG AND SEAL CONDUIT OPENING AFTER INSTALLING LOOP LEAD-IN CABLE.
3. INITIAL INSTALL - ROUTE PREFORMED LOOP PROTECTED LEAD TO HANDHOLE OR JUNCTION BOX.
4. FOR FUTURE REPLACEMENT - PLACE STUB UP FOR LOOP TO ALLOW FUTURE SAWCUT LOOP.

TOP VIEW OF PERFORMED LOOP

8' DIA. PERFORMED LOOP INSTALL CENTERED IN THE LANE INTO ASPHALT BASE BEFORE CONCRETE POUR





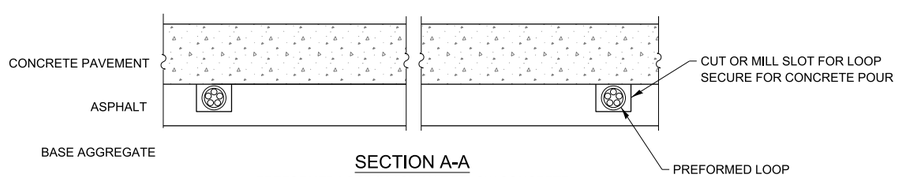
A. LANE 1 IS THE LANE CLOSEST TO THE CENTERLINE OF THE ROADWAY.

B. LOOP #1 IS THE LOOP IN THE LANE DOWN STREAM OF THE QUARTZ SENSORS.

C. LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".

D. LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.

LOOP LEAD-IN CABLE TAG



SECTION A-A

PREFORMED LOOP IN ASPHALT BELOW CONCRETE PAVEMENT DETAIL

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

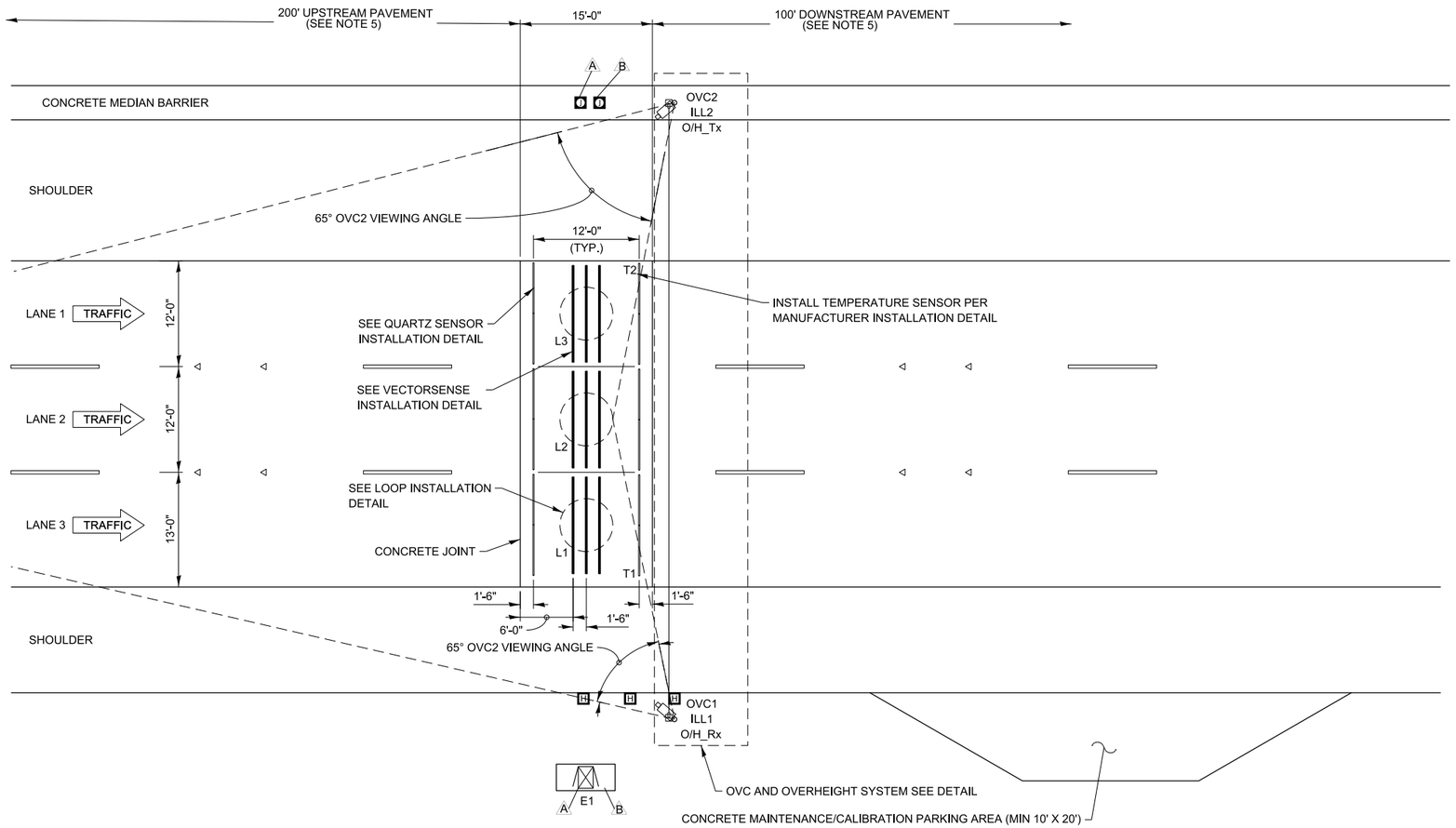
NOTES:

1. PREFORMED DETECTOR LOOPS SHALL BE USED, AS SHOWN ON THE PLANS, SINCE NEW CONCRETE PAVEMENT IS PROPOSED. INSTALLATION SHALL BE ACCORDING TO THE STANDARD SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. FOLLOW LOOP DETECTOR MANUFACTURER RECOMMENDATIONS FOR MINIMUM SEPARATION DISTANCE FROM REBAR MATS (APPLICABLE FOR 3 OR 4 LANE PRECAST CONCRETE INSTALLATIONS). USE STAND OFFS AS REQUIRED.
3. LOOP SIZE AND NUMBER OF TURNS AS SPECIFIED ON SITE LAYOUT AND IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

Illinois Tollway

WEIGH-IN-MOTION LOOP DETECTOR DETAILS

VERSION:	BASE SHEET:	SHEET:
2022-03	M-ITS-1602	1 OF 1



SITE OVERVIEW
NOT TO SCALE

LEGEND

- E - ELECTRONICS ENCLOSURE
- ILL - ILLUMINATOR
- L - INDUCTIVE LOOP
- O/H - OVERHEIGHT SENSOR
- OVC - OVERVIEW CAMERA
- Q - QUARTZ WIM SENSOR
- T - TEMPERATURE SENSOR
- V - VECTORSENSE SENSOR
- Tx - TRANSMITTER
- Rx - RECEIVER
- ⊠ - CABINET
- [1] - SIGNAL CONDUIT
- (1) - POWER CONDUIT
- A - NOTE
- ◘ - JUNCTION BOX
- [H] - HANDHOLE
- - WIM HEIGHT DETECTOR
- - WIM CAMERA

NOTES: (THIS SHEET ONLY)

A JUNCTION BOX WITH WIM ELECTRONICS

B CABINET FOUNDATION.

NOTE TO DESIGNER

DIAMOND GRINDING OF THE 315' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR AFTER PRECAST PANELS ARE INSTALLED. DSE SHALL COORDINATE CONSTRUCTION SCHEDULE AND MAINTENANCE OF TRAFFIC ACCORDINGLY.

GENERAL NOTES:

1. ALL CONNECTIONS BETWEEN SENSORS AND LEAD CABLES SHALL BE DONE WITHIN A PULL BOX BY SOLDERING THEN SEALING FOR WATERPROOFING. PLACEMENT OF PULL BOXES MAY BE DIFFERENT FROM THAT SHOWN TO MEET SITE REQUIREMENTS.
2. AC POWER CABLES MUST BE RUN IN SEPARATE CONDUITS/PULLBOXES FROM SIGNAL CABLES OR SEPARATED INSIDE PULLBOXES WITH A DIVIDER.
3. SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT, ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS IF APPROVED BY THE ENGINEER AND MANUFACTURER REPRESENTATIVE.
4. SITE CONDITIONS MUST MEET ASTM E1318-09 TYPE 1 REQUIREMENTS TO ACHIEVE OPTIMAL WIM SYSTEM PERFORMANCE.
5. A CONCRETE PAVEMENT SECTION ON STRAIGHT GRADE OBTAINED BY DIAMOND GRINDING WITH NO VERTICAL CURVES AND NO SUPERELEVATION TRANSITIONS IS REQUIRED FOR WIM LANES, FROM 200' BEFORE THE SENSORS UP TO 100' AFTER THE SENSORS, TO IMPROVE LONG TERM PERFORMANCE AND REDUCE MAINTENANCE. DIAMOND GRINDING OF THE 315' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR AFTER PRECAST PANELS ARE INSTALLED.
6. CABLES MUST BE PROTECTED BY PVC SLEEVES WHERE THEY CROSS PAVEMENT JOINTS/CRACKS.
7. ADDITIONAL DRAINAGE MAY BE REQUIRED DEPENDING ON SLOPE OF ROADWAY.
8. EXACT ROUTING OF CONDUIT TO BE DETERMINED ON SITE.
9. PROVIDE 6" MINIMUM SPACING BETWEEN ADJACENT MEDIAN BARRIER JUNCTION BOXES.
10. OVC AND OVERHEIGHT SYSTEM POLES SHALL BE INSTALLED 20' (PREFERRED) TO 100' (MAX) DOWNSTREAM OF WIM SENSORS. POLES SHALL BE APPROXIMATELY IN-LINE WITH EACH OTHER AS SHOWN ON THIS SHEET.

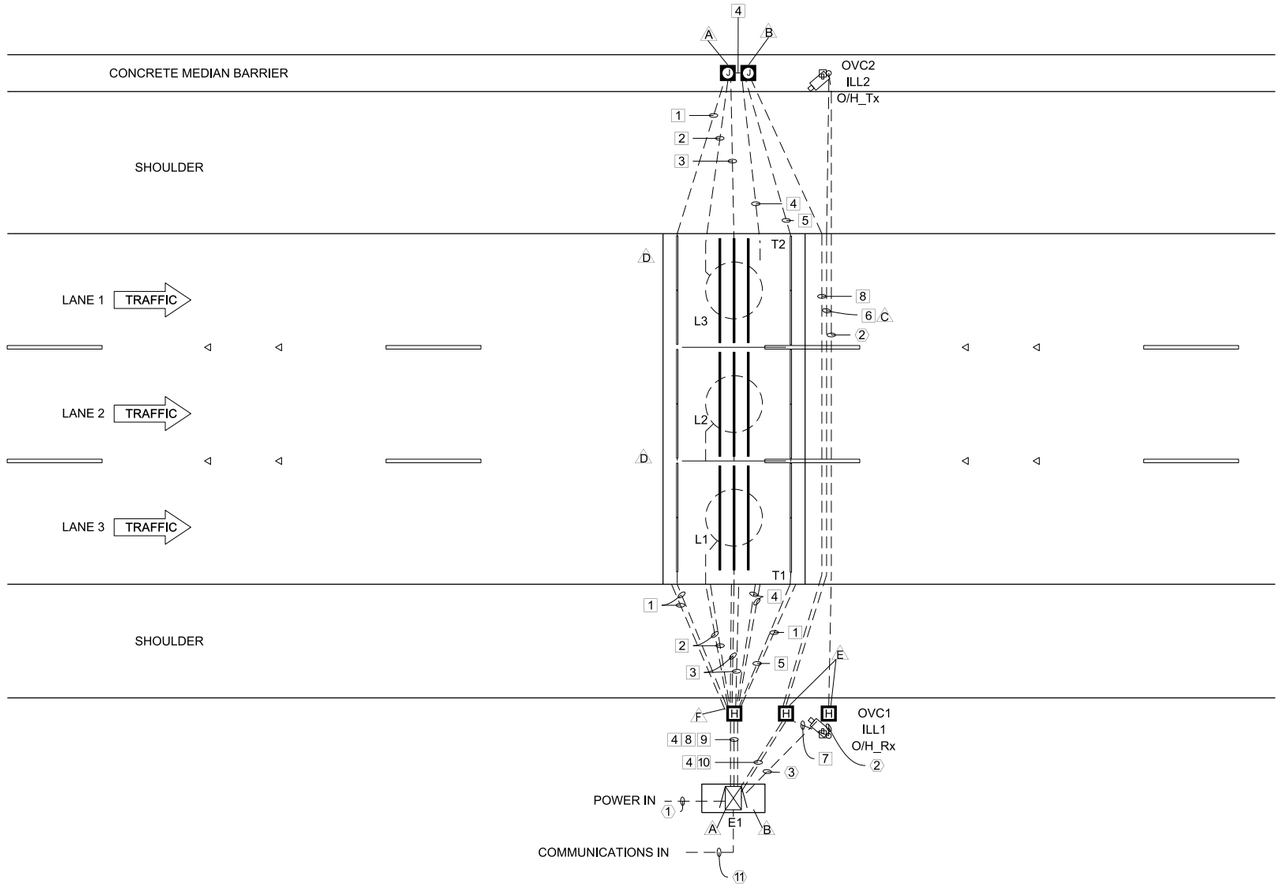
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Illinois Tollway

WEIGH-IN-MOTION 3 LANES

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1603	1 OF 3



SITE WIRING LAYOUT

NOT TO SCALE

CONDUIT DETAIL

SIGNAL CONDUITS:

1 2" [50mm] CONDUIT
2 - QUARTZ SENSOR LEAD
1 - GROUND WIRE (QUARTZ)

2 2" [50mm] CONDUIT
2 - LOOP WIRE

3 2" [50mm] CONDUIT
3 - VECTORSENSE SENSOR LEAD

4 2" [50mm] CONDUIT SPARE

5 2" [50mm] CONDUIT
2 - QUARTZ SENSOR LEAD
1 - GROUND WIRE (QUARTZ)
1 - TEMPERATURE SENSOR LEAD

6 2" [50mm] CONDUIT
1 - OVC SIGNAL CABLE

7 2" [50mm] CONDUIT
1 - OVC SIGNAL CABLE
1 - O/H_Rx SIGNAL CABLE

8 2" [50mm] CONDUIT
4 - QUARTZ SENSOR LEAD
2 - GROUND WIRE (QUARTZ)
1 - TEMPERATURE SENSOR LEAD
2 - VECTORSENSE SIGNAL CABLE
1 - GROUND WIRE (VECTORSENSE)
1 - LOOP LEAD

9 2" [50mm] CONDUIT
4 - QUARTZ SENSOR LEAD
2 - GROUND WIRE (QUARTZ)
2 - VECTORSENSE SIGNAL CABLE
1 - GROUND WIRE (VECTORSENSE)
1 - LOOP LEAD

10 2" [50mm] CONDUIT
4 - QUARTZ SENSOR LEAD
2 - GROUND WIRE (QUARTZ)
2 - VECTORSENSE SIGNAL CABLE
1 - GROUND WIRE (VECTORSENSE)
1 - LOOP LEAD
2 - OVC SIGNAL CABLE
1 - O/H_Rx SIGNAL CABLE

11 2" CONDUIT WIM CABINET FIBER

POWER CONDUITS

① 2" CONDUIT
WIM CABINET POWER

② 2" CONDUIT
1 - O/H POWER
1 - ILLUMINATOR POWER

③ 2" CONDUIT
2 - O/H POWER
2 - ILLUMINATOR POWER

NOTES: (THIS SHEET ONLY)

A JUNCTION BOX WITH VECTORSENSE ™ ELECTRONICS
(40" X 14" X 12" IN TOP OF BARRIER WALL)

B JUNCTION BOX
(40" X 14" X 12" IN TOP OF BARRIER WALL)

C BURIED CONDUIT.

D CABLES FOR INTERIOR LANES EQUIPMENT RUN UNDER ADJACENT LANE PANELS. NOT ALL CONDUITS SHOWN, FOR CLARITY

E HANDHOLE
(30" X 30" X 39" IN GROUND)

F HANDHOLE WITH VECTORSENSE ELECTRONICS
(30" x 30" x 39" IN GROUND)

ALL CONDUITS SHALL BE PVC SCH 80 UNLESS NOTED OTHERWISE

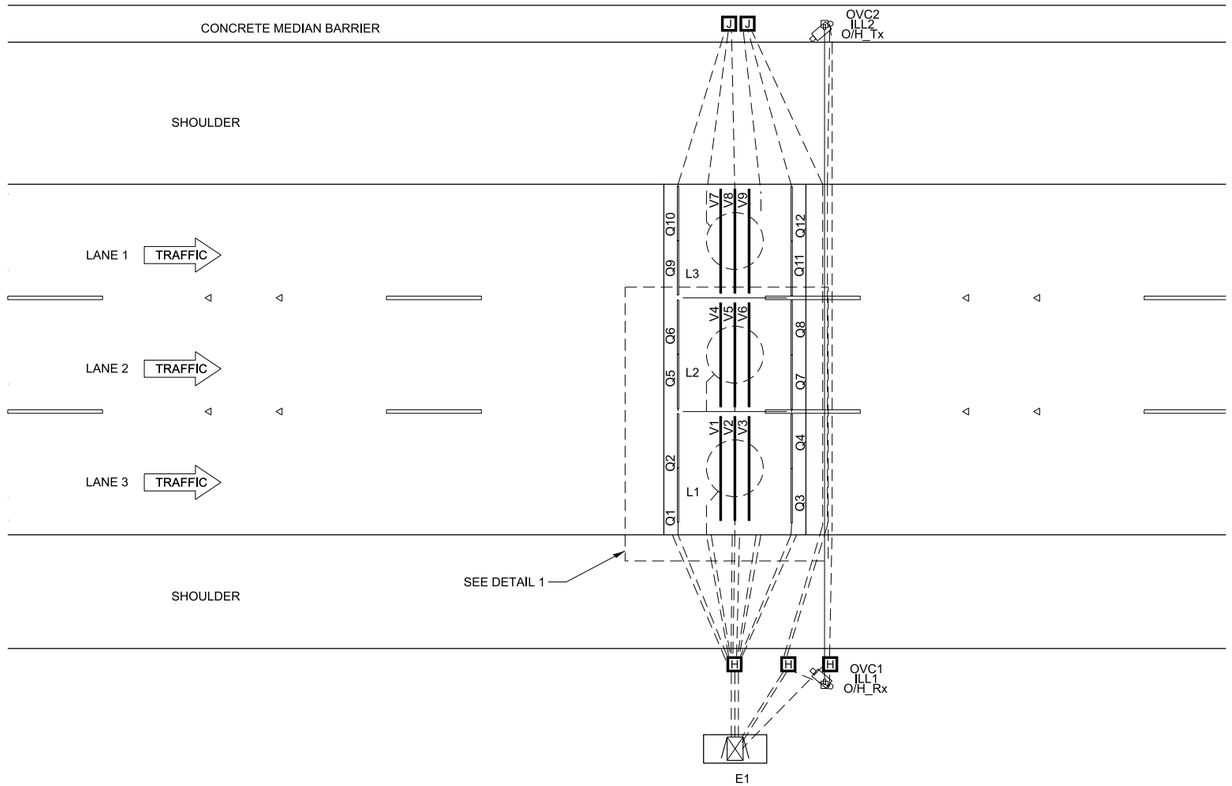
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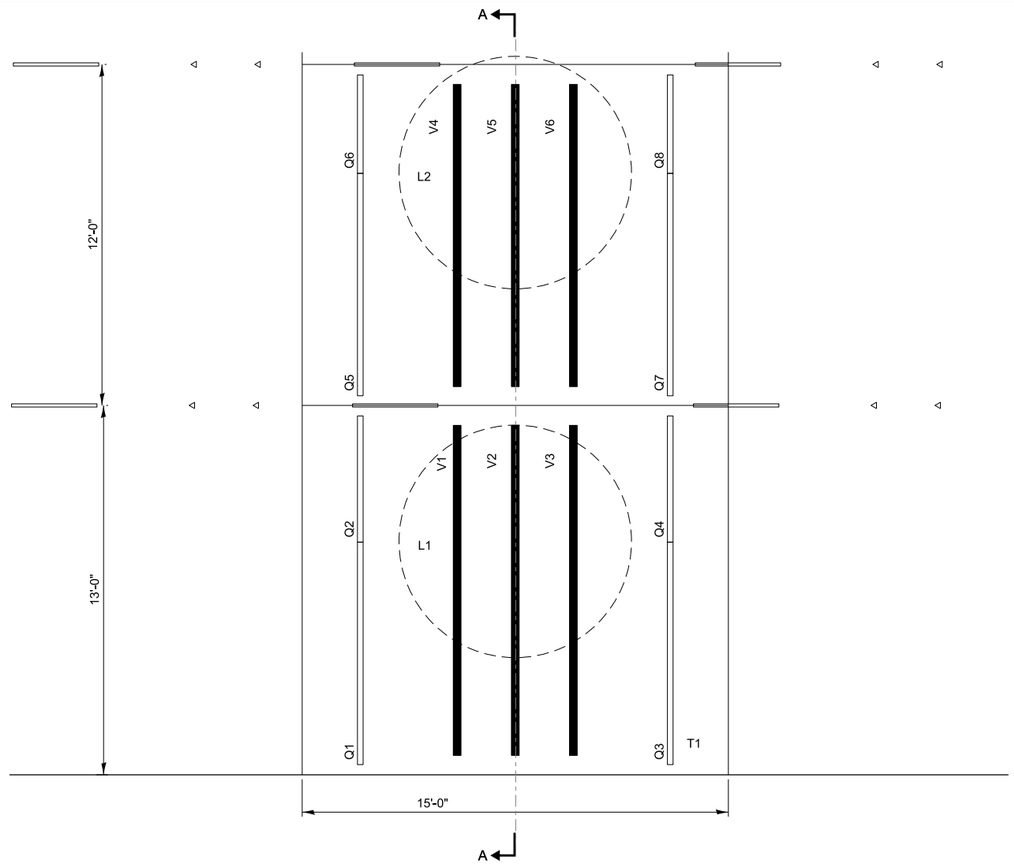
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WEIGH-IN-MOTION 3 LANES

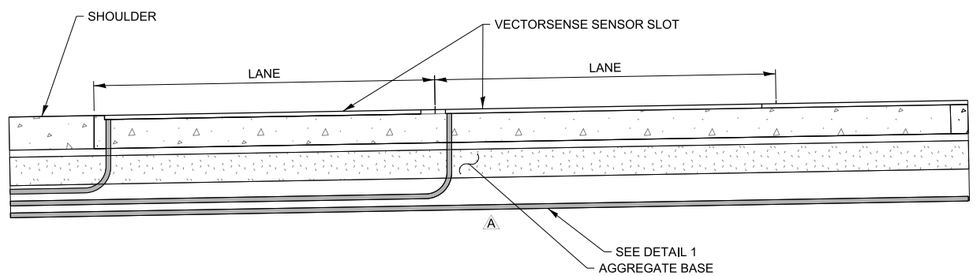
VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1603	2 OF 3



SITE LAYOUT
NOT TO SCALE



DETAIL 1



SECTION A-A

NOTES: (THIS SHEET ONLY)

A. GENTLY CURVE CONDUIT AS NECESSARY TO FOLLOW ROAD SLOPE AND TO PASS OVER INTERSECTING CONDUIT. NO 90° PIPE FITTINGS PERMITTED, ONLY SWEEPS.

B. CONDUIT AND FITTINGS, OTHER THAN AT PRECAST PANEL CONNECTION LOCATION, ARE PLACED BELOW THE AGGREGATE LAYER, BACKFILLED WITH BEDDING SAND. ENSURE SAND SURROUNDS CONDUITS AND FITTINGS AND COMPACT THE MATERIAL.

C. CONDUIT DEPTH SHALL BE 33"MIN TO 45"MAX BELOW TOP OF PAVEMENT.

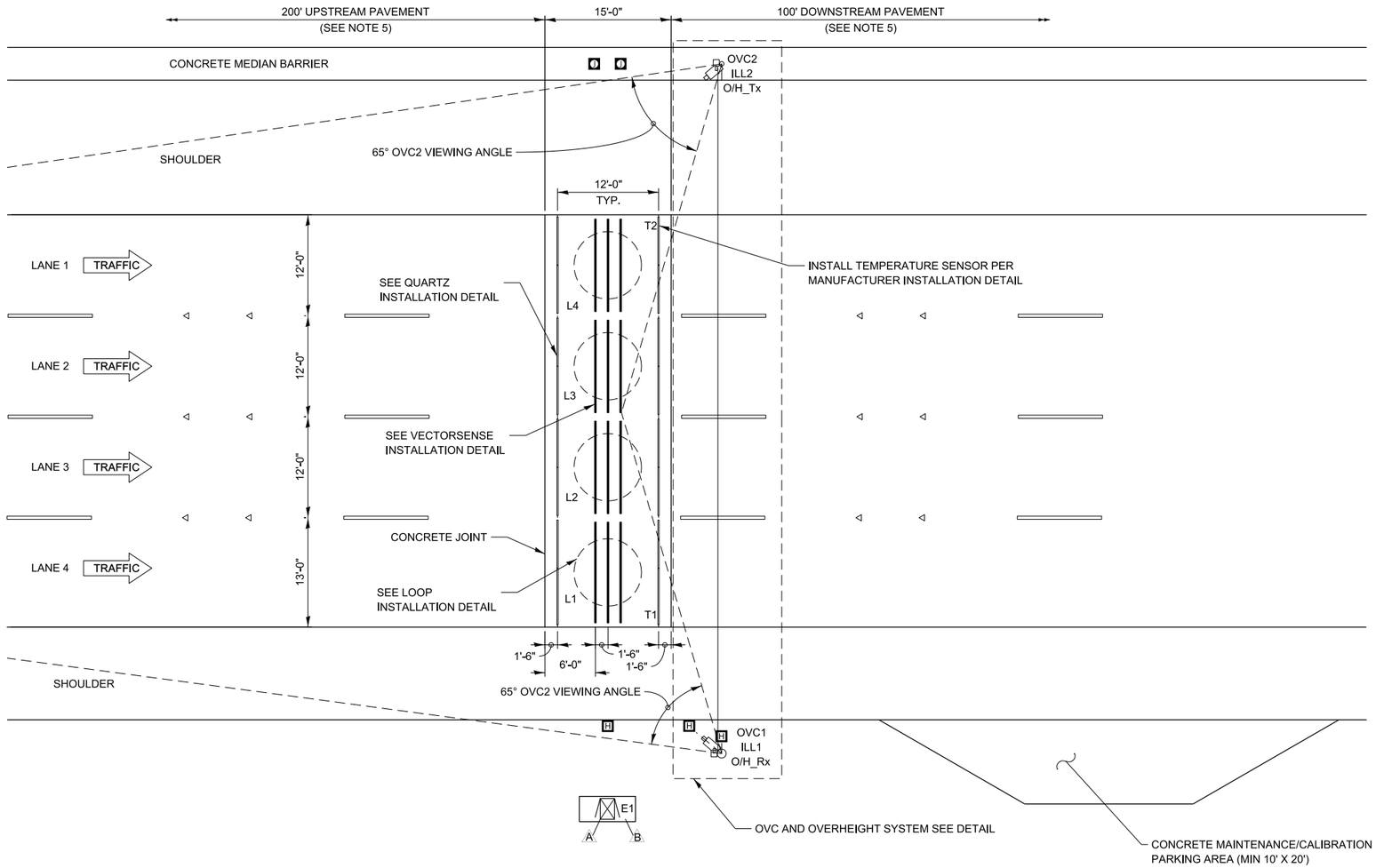
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Illinois Tollway

WEIGH-IN-MOTION 3 LANES

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1603	3 OF 3



SITE OVERVIEW
NOT TO SCALE

LEGEND

E	- ELECTRONICS ENCLOSURE
ILL	- ILLUMINATOR
L	- INDUCTIVE LOOP
O/H	- OVERHEIGHT SENSOR
OVC	- OVERVIEW CAMERA
Q	- QUARTZ WIM SENSOR
T	- TEMPERATURE SENSOR
V	- VECTORSENSE SENSOR
Tx	- TRANSMITTER
Rx	- RECEIVER
⊠	- CABINET
1	- SIGNAL CONDUIT
(1)	- POWER CONDUIT
A	- NOTE
◉	- JUNCTION BOX
H	- HANDHOLE
	- WIM HEIGHT DETECTOR
	- WIM CAMERA

NOTE TO DESIGNERS

DIAMOND GRINDING OF THE 315' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR AFTER PRECAST PANELS ARE INSTALLED. DSE SHALL COORDINATE CONSTRUCTION SCHEDULE AND MAINTENANCE OF TRAFFIC ACCORDINGLY.

NOTES: (THIS SHEET ONLY)

A. JUNCTION BOX WITH WIM ELECTRONICS

B. CABINET FOUNDATION

GENERAL NOTES:

1. ALL CONNECTIONS BETWEEN SENSORS AND LEAD CABLES SHALL BE DONE WITHIN A PULL BOX BY SOLDERING THEN SEALING FOR WATERPROOFING. PLACEMENT OF PULL BOXES MAY BE DIFFERENT FROM THAT SHOWN TO MEET SITE REQUIREMENTS.
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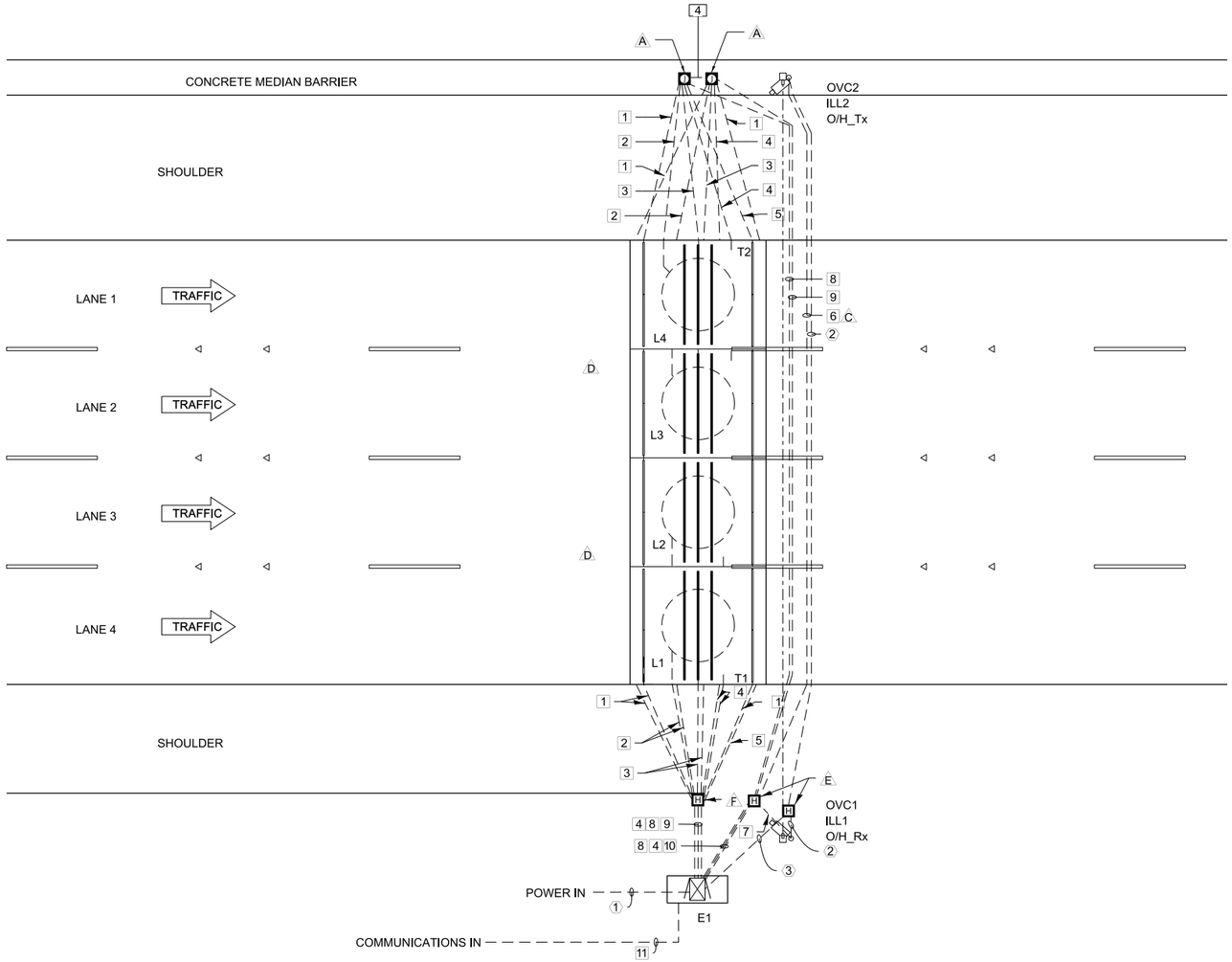
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Illinois Tollway

WEIGH-IN-MOTION 4 LANES

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1604	1 OF 3



WIRING LAYOUT

CONDUIT DETAIL

SIGNAL CONDUITS:

1 2" [50mm] CONDUIT
- 2 - QUARTZ SENSOR LEAD
- 1 - GROUND WIRE (QUARTZ)

2 2" [50mm] CONDUIT
- 2 - LOOP WIRE

3 2" [50mm] CONDUIT
- 3 - VECTORSENSE SENSOR LEAD

4 2" [50mm] CONDUIT SPARE

5 2" [50mm] CONDUIT
- 2 - QUARTZ SENSOR LEAD
- 1 - GROUND WIRE (QUARTZ)
- 1 - TEMPERATURE SENSOR LEAD

6 2" [50mm] CONDUIT
- 1 - OVC SIGNAL CABLE

7 2" [50mm] CONDUIT
- 1 - OVC SIGNAL CABLE
- 1 - O/H_Rx SIGNAL CABLE

8 2" [50mm] CONDUIT
- 4 - QUARTZ SENSOR LEAD
- 2 - GROUND WIRE (QUARTZ)
- 1 - TEMPERATURE SENSOR LEAD
- 2 - VECTORSENSE SIGNAL CABLE
- 1 - GROUND WIRE (VECTORSENSE)
- 1 - LOOP LEAD

9 2" [50mm] CONDUIT
- 4 - QUARTZ SENSOR LEAD
- 2 - GROUND WIRE (QUARTZ)
- 2 - VECTORSENSE SIGNAL CABLE
- 1 - GROUND WIRE (VECTORSENSE)
- 1 - LOOP LEAD

10 2" [50mm] CONDUIT
- 4 - QUARTZ SENSOR LEAD
- 2 - GROUND WIRE (QUARTZ)
- 2 - VECTORSENSE SIGNAL CABLE
- 1 - GROUND WIRE (VECTORSENSE)
- 1 - LOOP LEAD
- 2 - OVC SIGNAL CABLE
- 1 - O/H_Rx SIGNAL CABLE

11 2" CONDUIT WIM CABINET FIBER

POWER CONDUITS

① 2"CONDUIT
WIM CABINET POWER

② 2" CONDUIT
- 1 - O/H POWER
- 1 - ILLUMINATOR POWER

③ 2" CONDUIT
- 2 - O/H POWER
- 2 - ILLUMINATOR POWER

NOTES: (THIS SHEET ONLY)

Ⓐ JUNCTION BOX WITH VECTORSENSETM ELECTRONICS (40" X 14" X 12" IN TOP OF BARRIER WALL)

Ⓒ BURIED CONDUIT.

Ⓓ CABLES FOR INTERIOR LANES EQUIPMENT RUN UNDER ADJACENT LANE PANELS. NOT ALL CONDUITS SHOWN, FOR CLARITY

Ⓔ HANDHOLE (30" X 30" X 39" IN GROUND)

Ⓕ HANDHOLE WITH VECTORSENSE ELECTRONICS (30" x 30" x 39" IN GROUND)

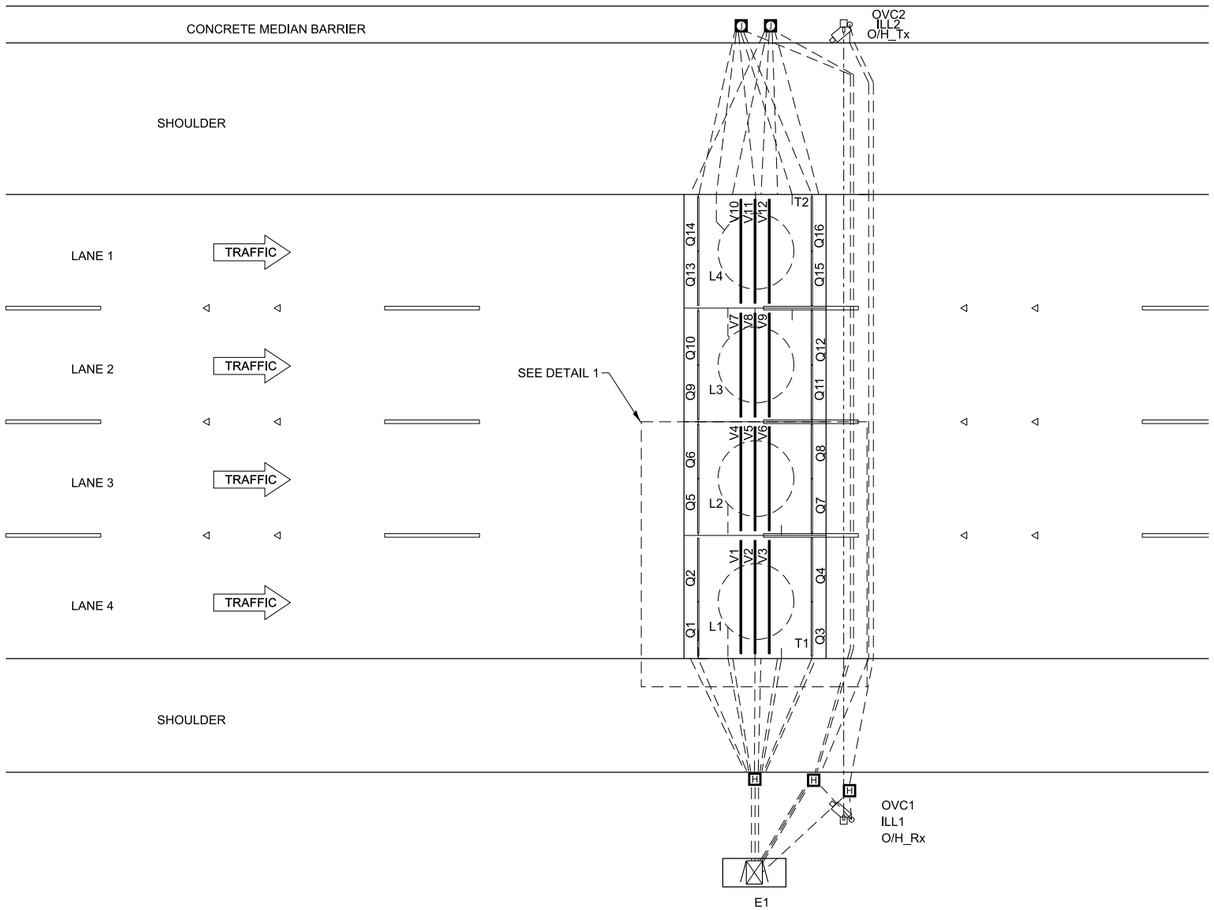
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Illinois Tollway

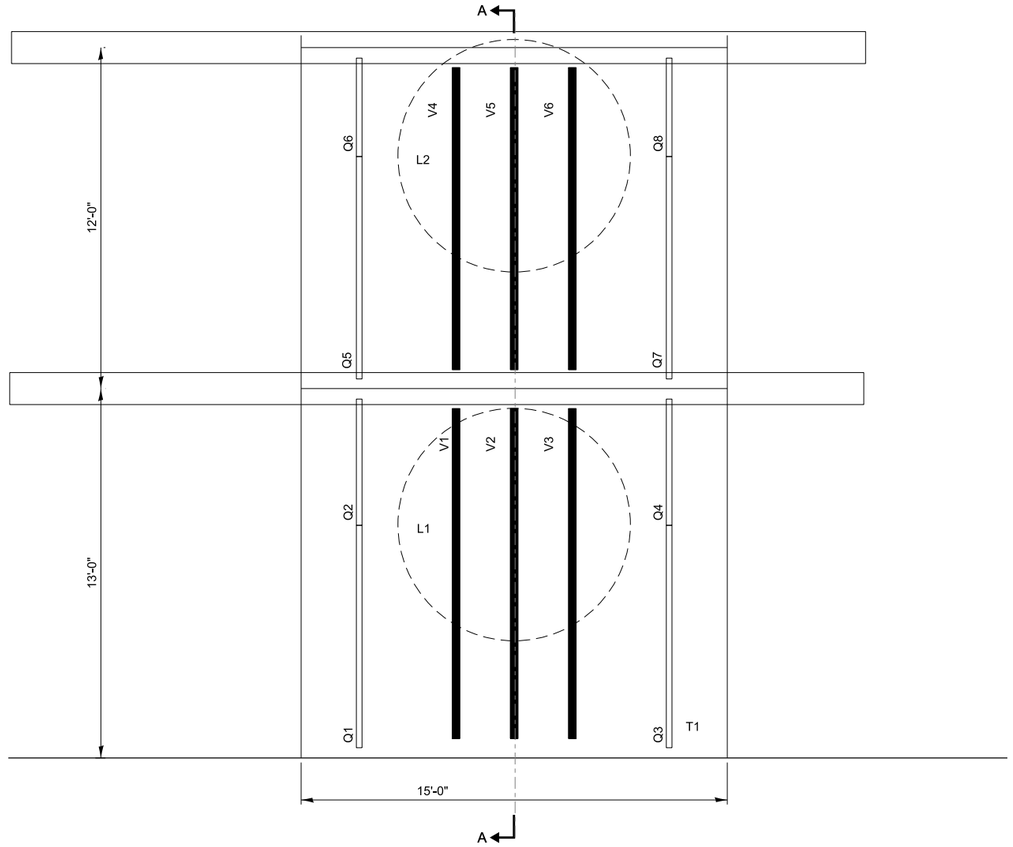
WEIGH-IN-MOTION 4 LANES

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1604	2 OF 3

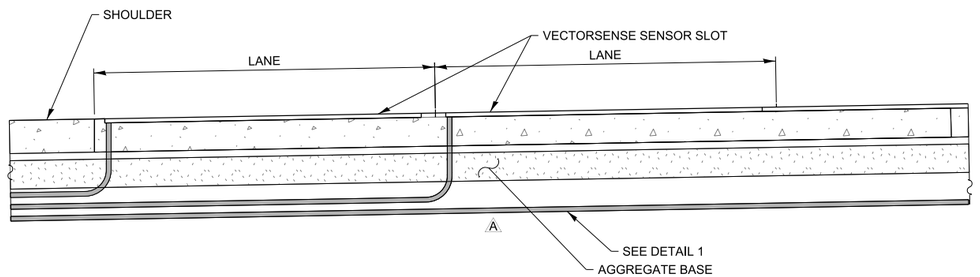


SITE LAYOUT

NOT TO SCALE



DETAIL 1



SECTION A-A

NOTES: (THIS SHEET ONLY)

A GENTLY CURVE CONDUIT AS NECESSARY TO FOLLOW ROAD SLOPE AND TO PASS OVER INTERSECTING CONDUIT. NO 90° PIPE FITTINGS PERMITTED, ONLY SWEEPS.

B CONDUIT AND FITTINGS, OTHER THAN AT PRECAST PANEL CONNECTION LOCATION, ARE PLACED BELOW THE AGGREGATE LAYER, BACKFILLED WITH BEDDING SAND. ENSURE SAND SURROUNDS CONDUITS AND FITTINGS AND COMPACT THE MATERIAL.

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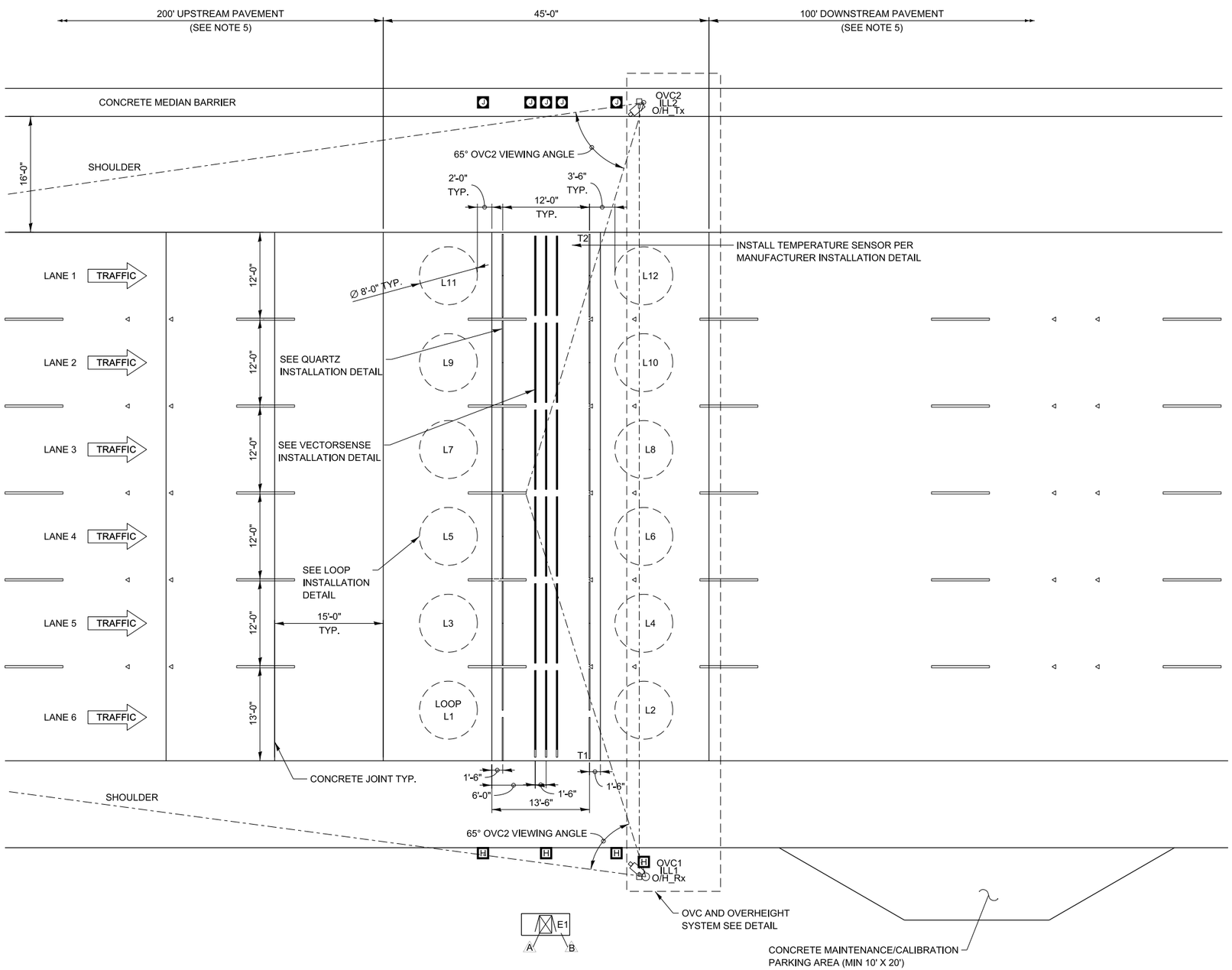
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Illinois Tollway

WEIGH-IN-MOTION 4 LANES

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1604	3 OF 3



SITE OVERVIEW
NOT TO SCALE

NOTE TO DESIGNER

DIAMOND GRINDING OF THE 345' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR AFTER PRECAST PANELS ARE INSTALLED. DSE SHALL COORDINATE CONSTRUCTION SCHEDULE AND MAINTENANCE OF TRAFFIC ACCORDINGLY.

LEGEND

E	- ELECTRONICS ENCLOSURE
ILL	- ILLUMINATOR
L	- INDUCTIVE LOOP
O/H	- OVERHEIGHT SENSOR
OVC	- OVERVIEW CAMERA
Q	- QUARTZ WIM SENSOR
T	- TEMPERATURE SENSOR
V	- VECTORSENSE SENSOR
Tx	- TRANSMITTER
Rx	- RECEIVER
⊠	- CABINET
1	- SIGNAL CONDUIT
①	- POWER CONDUIT
A	- NOTE
J	- JUNCTION BOX
H	- HANDHOLE
	- WIM HEIGHT DETECTOR
	- WIM CAMERA

NOTES: (THIS SHEET ONLY)

A. JUNCTION BOX WITH WIM ELECTRONICS

B. CABINET FOUNDATION

GENERAL NOTES:

1. ALL CONNECTIONS BETWEEN SENSORS AND LEAD CABLES SHALL BE DONE WITHIN A PULL BOX BY SOLDERING THEN SEALING FOR WATERPROOFING. PLACEMENT OF PULL BOXES MAY BE DIFFERENT FROM THAT SHOWN TO MEET SITE REQUIREMENTS.
2. AC POWER CABLES MUST BE RUN IN SEPARATE CONDUITS/PULLBOXES FROM SIGNAL CABLES OR SEPARATED INSIDE PULLBOXES WITH A DIVIDER.
3. SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT, ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS APPROVED BY THE ENGINEER AND MANUFACTURER REPRESENTATIVE.
4. SITE CONDITIONS MUST MEET ASTM E1318-09 TYPE 1 REQUIREMENTS TO ACHIEVE OPTIMAL WIM SYSTEM PERFORMANCE.
5. A CONCRETE PAVEMENT SECTION ON STRAIGHT GRADE OBTAINED WITH DIAMOND GRINDING WITH NO VERTICAL CURVES AND NO SUPERELEVATION TRANSITIONS IS REQUIRED FOR WIM LANES, FROM 200' BEFORE THE SENSORS UP TO 100' AFTER THE SENSORS, TO IMPROVE LONG TERM PERFORMANCE AND REDUCE MAINTENANCE. DIAMOND GRINDING OF THE 345' LENGTH OF CONCRETE PAVEMENT SHALL OCCUR BEFORE SAW CUT SLOTS ARE MADE FOR SENSOR INSTALLATION.
6. CABLES MUST BE PROTECTED BY PVC SLEEVES WHERE THEY CROSS PAVEMENT JOINTS/CRACKS.
7. ADDITIONAL DRAINAGE MAY BE REQUIRED DEPENDING ON SLOPE OF ROADWAY.
8. EXACT ROUTING OF CONDUIT TO BE DETERMINED ON SITE.
9. PROVIDE 6" MINIMUM SPACING BETWEEN ADJACENT MEDIAN BARRIER JUNCTION BOXES.
10. OVC AND OVERHEIGHT SYSTEM POLES SHALL BE INSTALLED 20' (PREFERRED) TO 100' (MAX) DOWNSTREAM OF WIM SENSORS. POLES SHALL BE APPROXIMATELY IN-LINE WITH EACH OTHER AS SHOWN ON THIS SHEET.

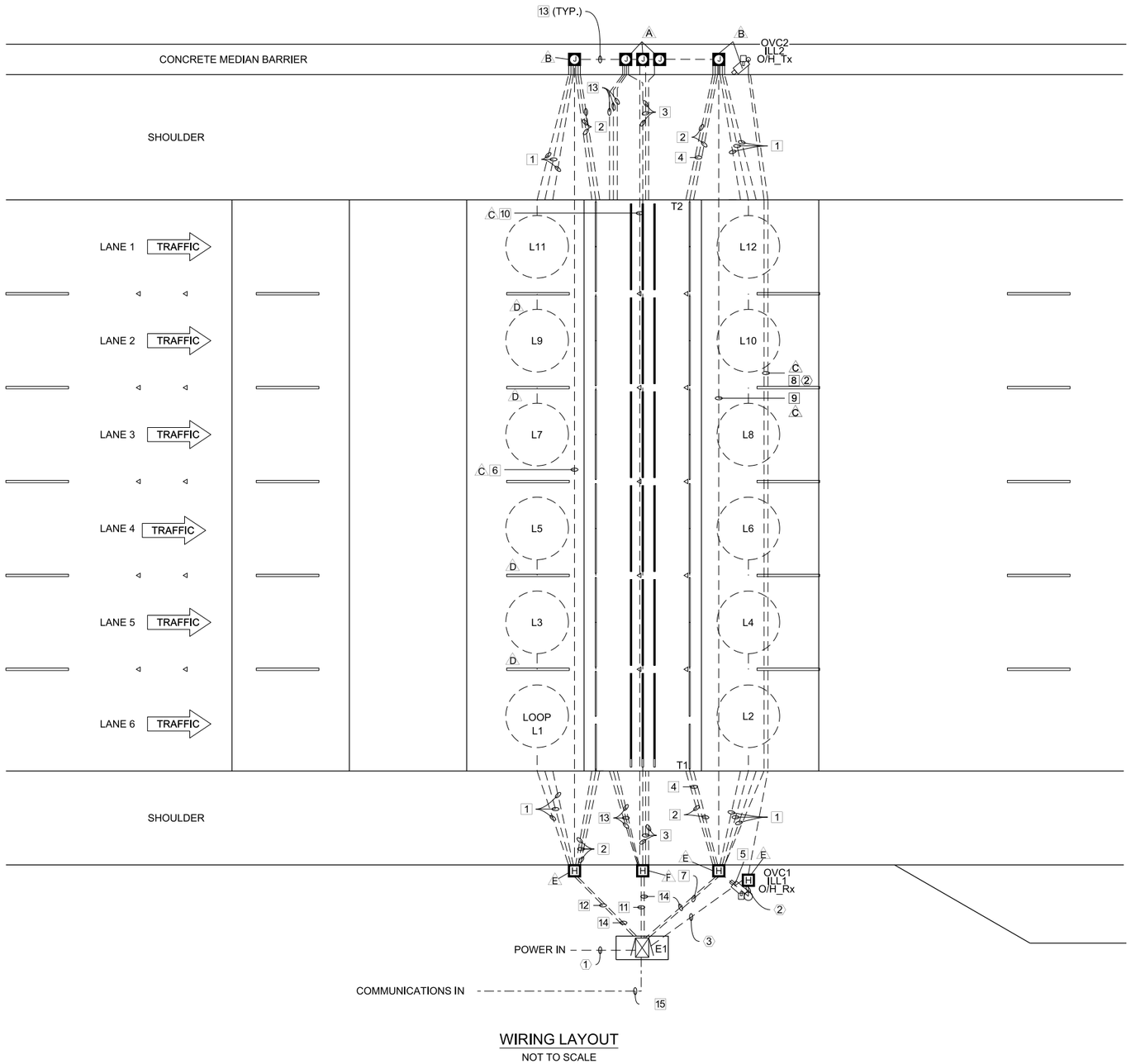
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Illinois Tollway

WEIGH-IN-MOTION 6 LANES

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1605	1 OF 3



WIRING LAYOUT

NOT TO SCALE

CONDUIT DETAIL
SIGNAL CONDUITS:

1 2" [50mm] CONDUIT
2 - LOOP WIRE

2 2" [50mm] CONDUIT
2 - QUARTZ SENSOR LEAD
1 - GROUND WIRE (QUARTZ)

3 2" [50mm] CONDUIT
3 - VECTORSENSE SENSOR LEAD

4 2" [50mm] CONDUIT SPARE
2 - QUARTZ SENSOR LEAD
1 - TEMPERATURE SENSOR LEAD
1 - GROUND WIRE (QUARTZ)

5 2" [50mm] CONDUIT
1 - OVC SIGNAL CABLE
1 - O/H_Rx SIGNAL CABLE

6 2" [50mm] CONDUIT
3 - LOOP LEAD
6 - QUARTZ SENSOR LEAD
3 - GROUND WIRE (QUARTZ)

7 3" [75mm] CONDUIT
6 - LOOP LEAD
12 - QUARTZ SENSOR LEAD
6 - GROUND WIRE (QUARTZ)
2 - TEMPERATURE SENSOR LEAD
2 - OVC SIGNAL CABLE
1 - O/H Tx SIGNAL CABLE

8 2" [50mm] CONDUIT
1 - OVC SIGNAL CABLE

9 2" [50mm] CONDUIT
3 - LOOP LEAD
6 - QUARTZ SENSOR LEAD
3 - GROUND WIRE (QUARTZ)
1 - TEMPERATURE SENSOR LEAD

10 2" [50mm] CONDUIT
6 - VECTORSENSE SIGNAL CABLE
3 - GROUND WIRE (QUARTZ)

11 3" [75mm] CONDUIT
12 - VECTORSENSE SIGNAL CABLE
6 - GROUND WIRE (VECTORSENSE)

12 3" [75mm] CONDUIT
6 - LOOP LEAD
12 - QUARTZ SENSOR LEAD
6 - GROUND WIRE (QUARTZ)

13 2" [50mm] CONDUIT
SPARE

14 3" [75mm] CONDUIT
SPARE

15 2" [50mm] CONDUIT WIM CABINET FIBER

POWER CONDUITS

1 2" CONDUIT
WIM CABINET POWER

2 2" CONDUIT
1 - O/H POWER
1 - ILLUMINATOR POWER

3 2" CONDUIT
2 - O/H POWER
2 - ILLUMINATOR POWER

NOTES: (THIS SHEET ONLY)

A JUNCTION BOX WITH VECTORSENSE™ ELECTRONICS (40" X 14" X 12" IN TOP OF BARRIER WALL)

B JUNCTION BOX (40" X 14" X 12" IN TOP OF BARRIER WALL)

C BURIED CONDUIT.

D CABLES FOR INTERIOR LANES EQUIPMENT RUN UNDER ADJACENT LANE PANELS. NOT ALL CONDUITS SHOWN, FOR CLARITY

E HANDHOLE (30" X 30" X 39" IN GROUND)

F HANDHOLE WITH VECTORSENSE ELECTRONICS (30" x 30" x 39" IN GROUND)

ALL CONDUITS SHALL BE PVC SCH 80 UNLESS NOTED OTHERWISE

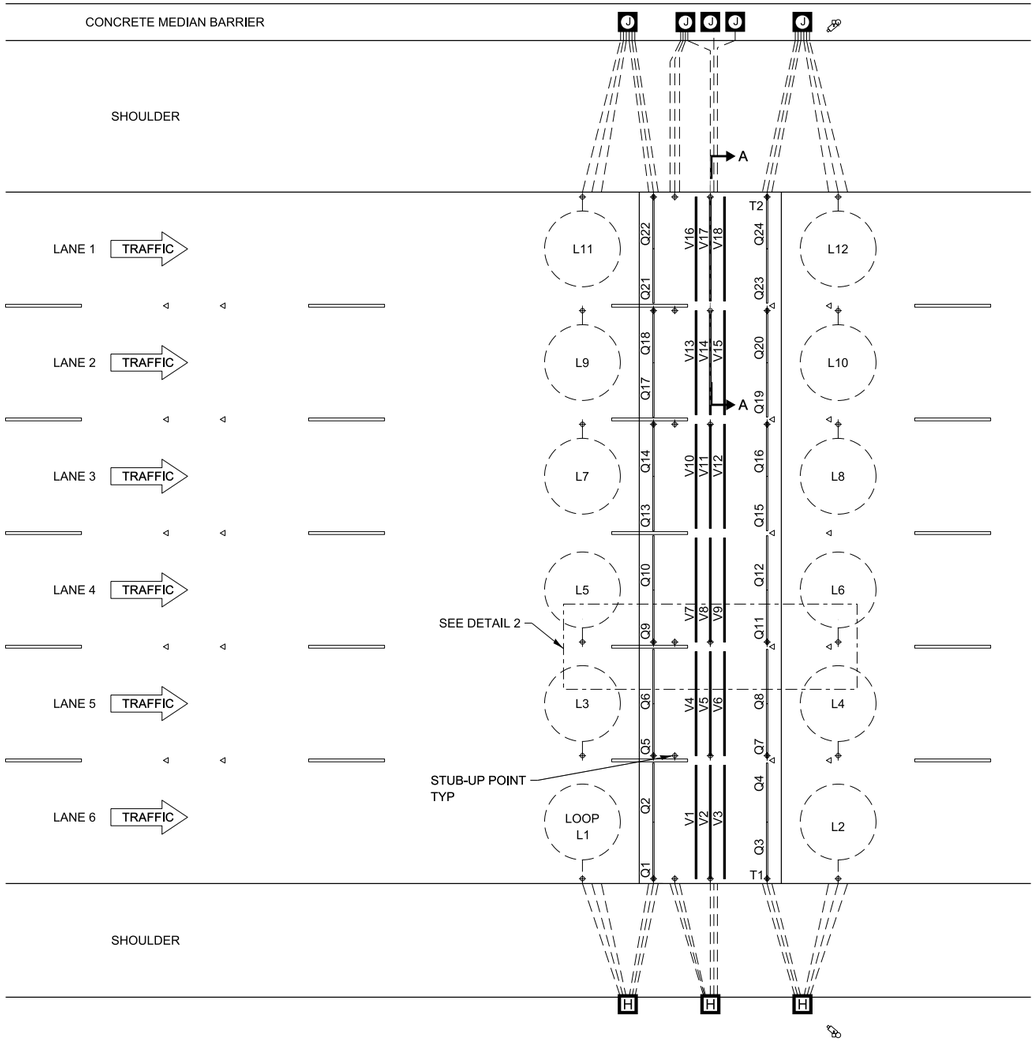
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Illinois Tollway

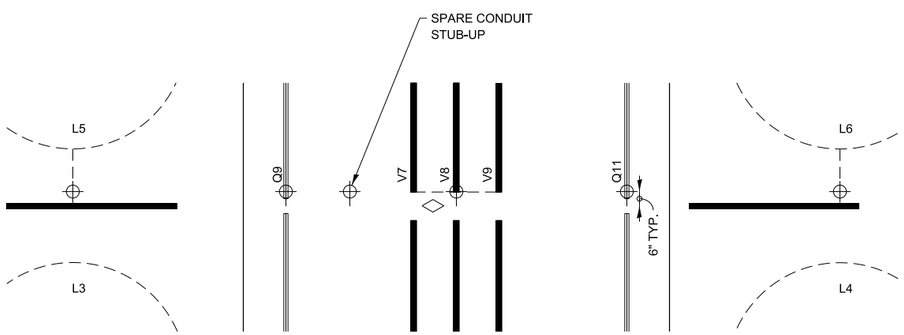
WEIGH-IN-MOTION 6 LANES

VERSION:	BASE SHEET:	SHEET:
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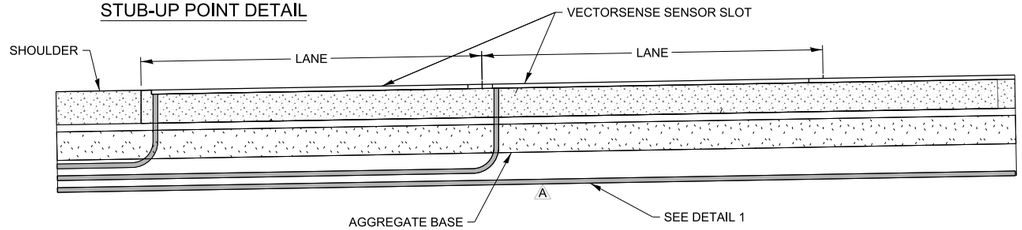
SITE LAYOUT
NOT TO SCALE

E1

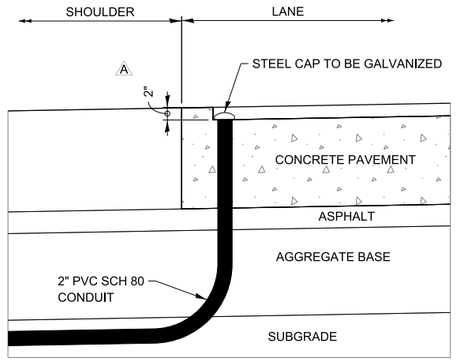


DETAIL 2
NOT TO SCALE

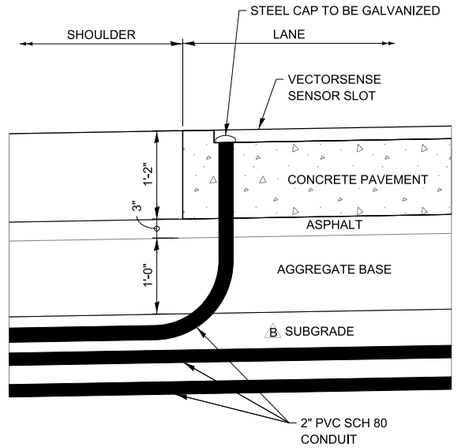
STUB-UP POINT DETAIL



SECTION A-A



STAGE 1 - CONCRETE POUR
DETAIL 1
NOT TO SCALE



STAGE 1 - COMPLETED
DETAIL 1
NOT TO SCALE

NOTES: (THIS SHEET ONLY)

A STUB-UP CONDUIT TO 2" BELOW CONCRETE SURFACE.
BEFORE POURING CONCRETE, CAP OPENINGS AND PROTECT WITH TAPE AND SOFT MATERIAL TO PREVENT DAMAGE IN FUTURE DISCOVERY.
TO BE CUT TO PROPER HEIGHT WHEN SENSORS ARE INSTALLED. METAL CAP WILL ALLOW EASIER DETECTION FOR RE-ENTRY.

B GENTLY CURVE CONDUIT AS NECESSARY TO FOLLOW ROAD SLOPE AND TO PASS OVER INTERSECTING CONDUIT.
NO 90° PIPE FITTINGS PERMITTED, ONLY SWEEPS.

C ALL CONDUIT DIMENSIONS HAVE A TOLERANCE OF +/- 2".

D CONDUIT AND FITTINGS, OTHER THAN AT STUB-UP LOCATION, ARE PLACED BELOW THE AGGREGATE LAYER, BACKFILLED WITH BEDDING SAND.
ENSURE SAND SURROUNDS CONDUITS AND FITTINGS AND COMPACT THE MATERIAL. AT CONDUIT STUB-UP LOCATIONS RAPCAP THE TOP 3" TO MATCH 3" ASPHALT LAYER.

E CONDUIT DEPTH SHALL BE 33" MIN TO 45" MAX BELOW TOP OF PAVEMENT.

F SPACING OF REBAR DOWELS AT PAVEMENT JOINTS TO METAL CONDUIT CAPS SHALL BE COORDINATED TO MAINTAIN 12"MINIMUM HORIZONTAL SEPARATION.

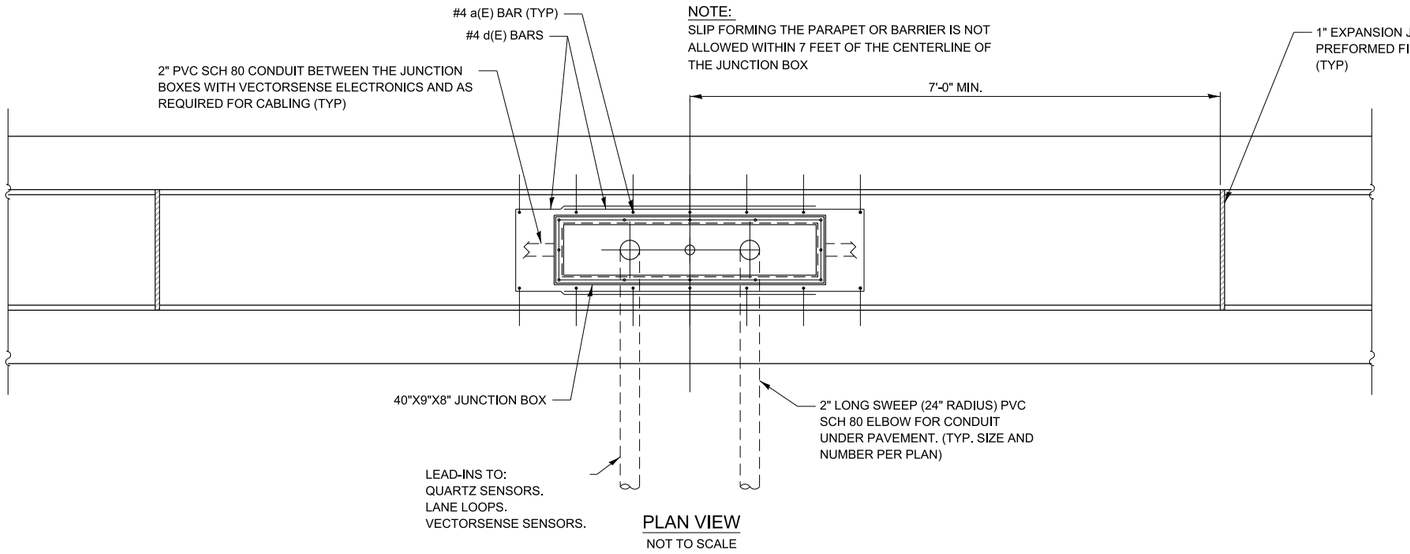
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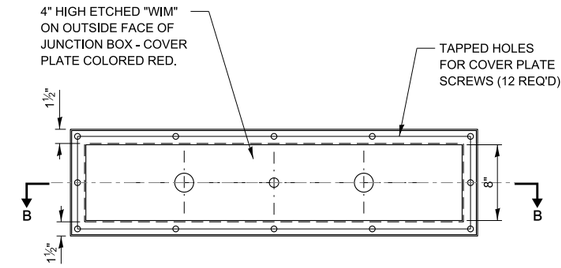
Illinois Tollway

WEIGH-IN-MOTION 6 LANES

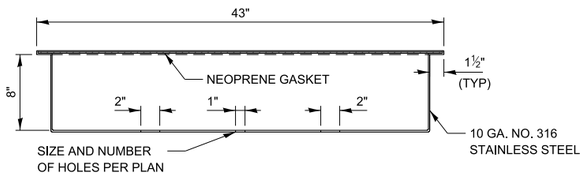
VERSION:	BASE SHEET:	SHEET:
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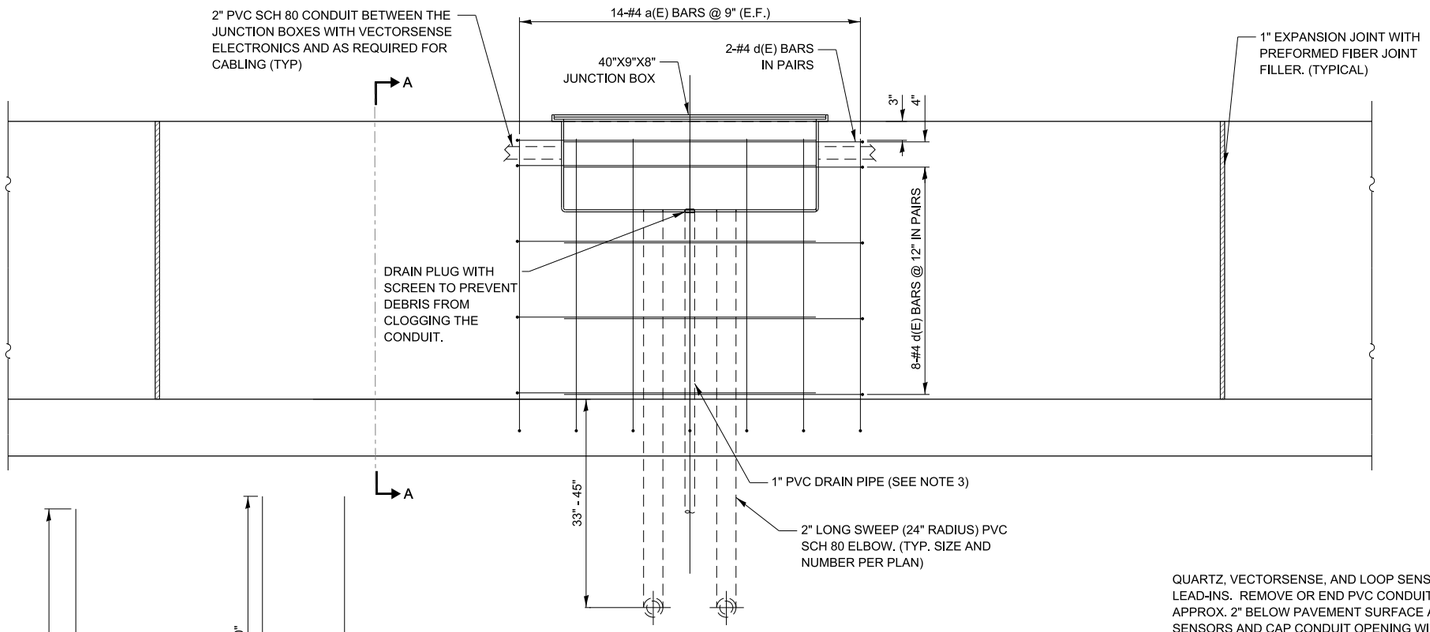
PLAN VIEW
NOT TO SCALE



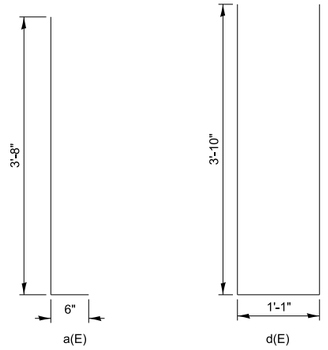
TOP VIEW
NOT TO SCALE



SECTION B-B
NOT TO SCALE



SIDE VIEW
NOT TO SCALE



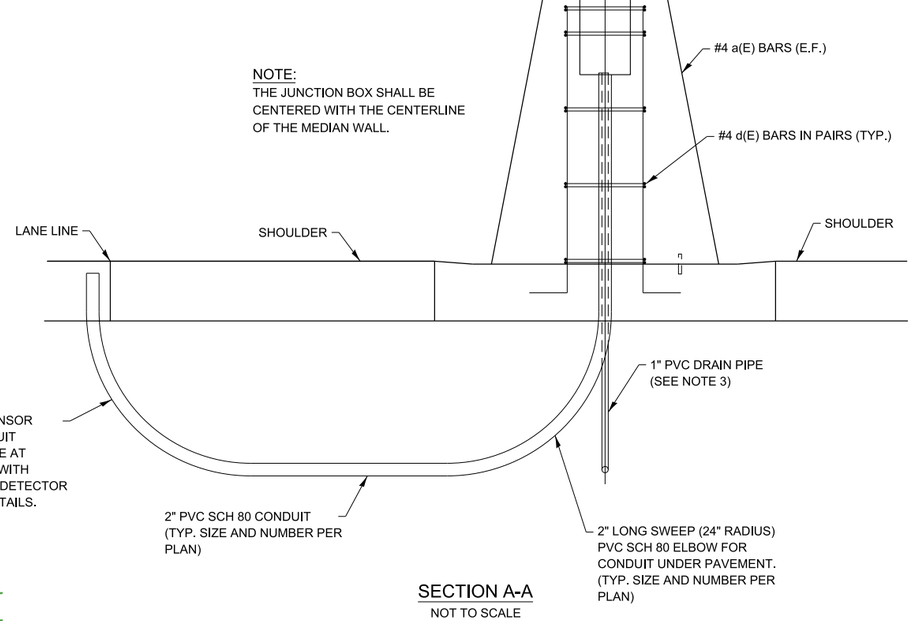
REINFORCEMENT BAR SCHEDULE					
BAR	NO	SIZE	LENGTH	WT. LB.	SHAPE
a(E)	14	#4	4'-4"	41	
d(E)	10	#4	8'-9"	41	

NOTES:

1. THE JUNCTION BOX SHALL BE ACCESSED FROM THE TOP OF MEDIAN BARRIER.
2. DUCT SHALL BE CUT AND REMOVED AT JUNCTION BOX CONDUIT OPENINGS AND INSIDE BOX. ELECTRICAL CONDUITS SHALL PROTRUDE 1#4" INTO BOX.
3. CONTRACTOR SHALL INSTALL 1" PVC PIPE TO DRAIN JUNCTION BOX TO AGGREGATE SUBGRADE. INSTALL S.S. SCREEN OVER DRAIN INSIDE JUNCTION BOX.
4. SLIPFORMING OF BARRIER WALL PROHIBITED AT JUNCTION BOXES.

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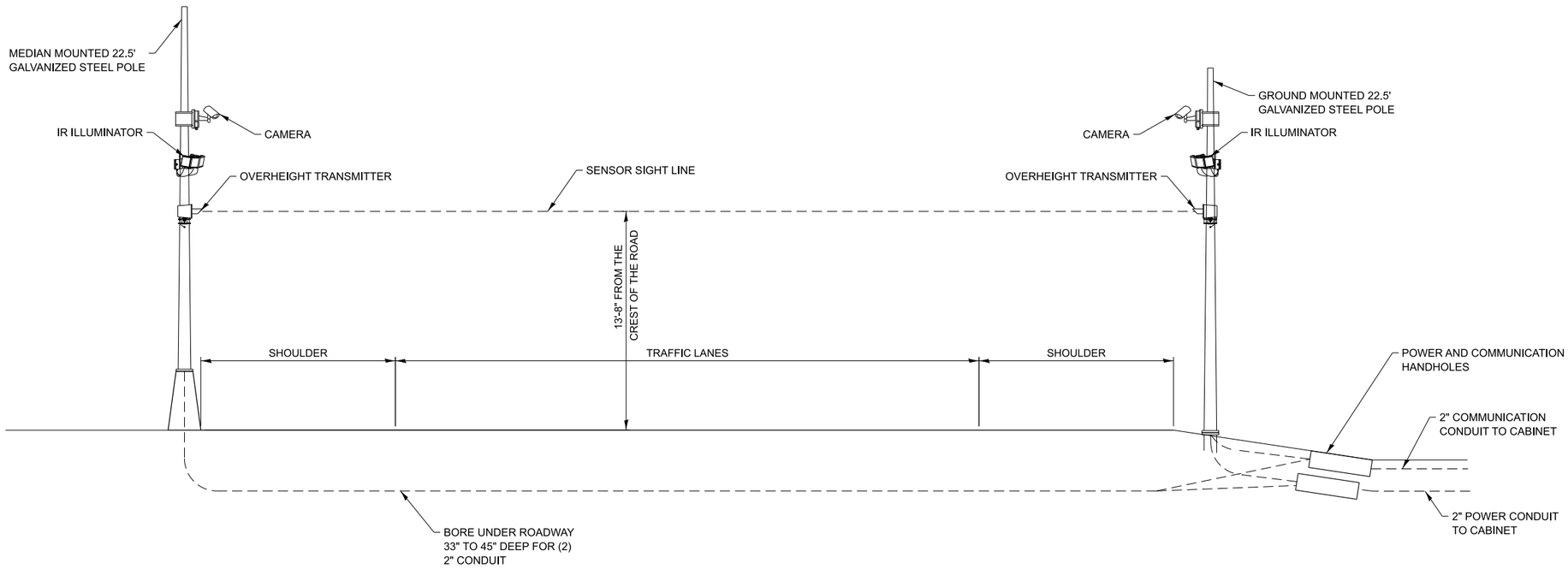


SECTION A-A
NOT TO SCALE

Illinois Tollway

WEIGH-IN-MOTION JUNCTION BOX DETAIL

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1606	1 OF 1



SENSOR CONFIGURATION

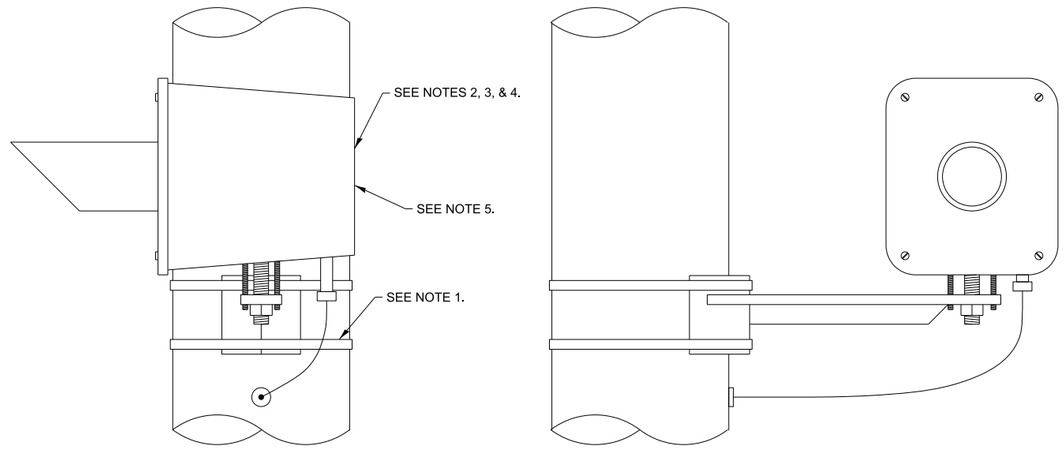
NOT TO SCALE

NOTE TO DESIGNER

USE A 50 FOOT ITS POLE IF INSTALLED ON A SLOPE

NOTE TO THE CONTRACTOR:

SUBMIT SITE SURVEY TO THE ENGINEER FOR EACH OVER HEIGHT SENSOR MOUNTING HEIGHT TO CONFIRM THE MOUNTING HEIGHT IS 13'-8" FROM THE CREST OF THE ROAD AT THE OVER HEIGHT SENSORS LOCATION.



SENSOR DETAIL

NOT TO SCALE

NOTES:

1. BAND MOUNTING BRACKET TO POLE AT APPROPRIATE HEIGHT.
2. MOUNT, WIRE AND AIM THE OVERHEIGHT TRANSMITTER AND RECEIVER IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. DETECTOR AND BRACKET WEIGHT: 40 lbs
4. DETECTOR HOUSING SIZE: 15-½" X 10" X 8-¾"
5. DETECTOR POWER: 115 VAC, 0.3 AMP.

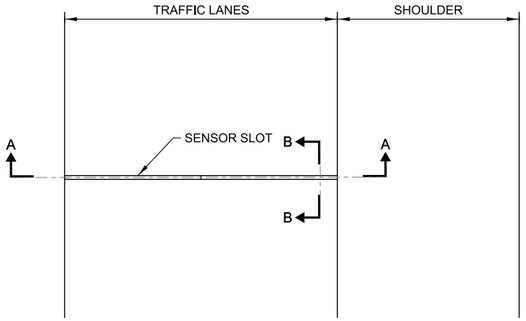
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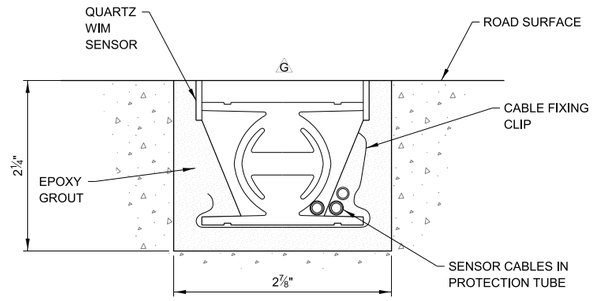
Illinois Tollway

WEIGH-IN-MOTION HEIGHT DETECTOR

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1607	1 OF 1



PLAN VIEW - SENSOR INSTALLATION
NOT TO SCALE



SECTION B-B
NOT TO SCALE

SECTION A-A
NOT TO SCALE

NOTES:

A. FOR INSTALLATION PROCESS REFER TO MANUFACTURERS INSTALLATION MANUAL.

B. SLOT LENGTH IS 6" LONGER THAN SENSOR THE EXTRA 6 IN. IS ON THE CONDUIT STUB-UP SIDE.

C. SET SENSOR FLUSH WITH OR SLIGHTLY HIGHER THAN ROAD SURFACE USING INCLUDED LEVELING BEAMS.

D. CHECK THE RESISTANCE OF THE SENSOR BY PLACING A DIGITAL MULTIMETER ACROSS THE CENTER CONDUCTOR OF THE BNC CONNECTOR AND THE OUTER BODY. THE READING SHOULD BE INFINITY.

E. CHECK THE VOLTAGE OUTPUT OF THE SENSOR BY MONITORING THE METER WHEN A TRUCK PASSES OVER THE SENSOR INSTALLED IN THE ROADWAY. AS THE TRUCK PASSES OVER THE SENSOR, VOLTAGE DEFLECTION SHOULD BE OBSERVED.

F. CRACKS OR SAW CUTS IN THE ROADWAY MUST NOT BE LOCATED CLOSER THAN 18" UPSTREAM AND 18" DOWNSTREAM OF THE CENTERLINE OF THE SENSOR.

G. SENSOR MUST BE GROUND FLUSH WITH ROAD SURFACE AFTER GROUT HAS CURED.

H. CONNECT INSULATED GROUND WIRE PER MANUFACTURER RECOMMENDATIONS. OTHER END OF GROUND WIRE CONNECTS CABINET GROUND BUSBAR.

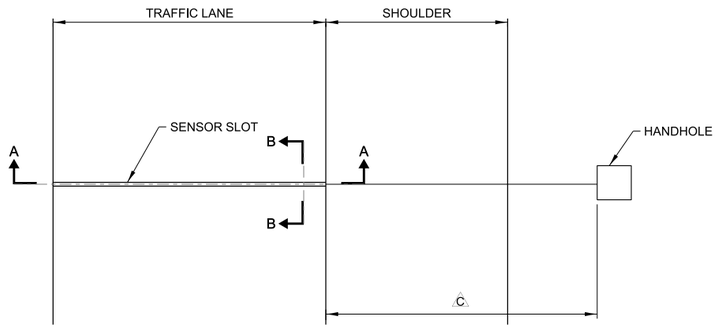
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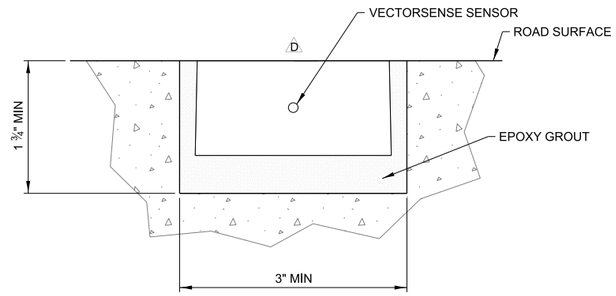
WEIGH-IN-MOTION QUARTZ SENSOR DETAILS

VERSION:	BASE SHEET:	SHEET:
2022-03	M-ITS-1608	1 OF 1



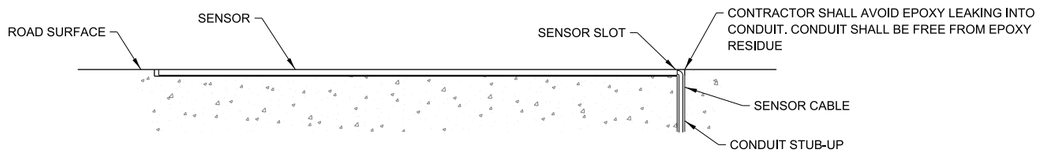
PLAN VIEW - SENSOR INSTALLATION

NOT TO SCALE



SECTION B-B

NOT TO SCALE



SECTION A-A

NOT TO SCALE

NOTES:

A. CRACKS IN THE ROADWAY MUST NOT BE LOCATED CLOSER THAN 18" UPSTREAM AND 18" DOWNSTREAM OF THE CENTERLINE OF THE SENSOR.

B. SLOT LENGTH IS 2" LONGER THAN SENSOR. THE EXTRA 2" SHALL BE ON THE CONDUIT STUB-UP SIDE.

C. 50' MAXIMUM DISTANCE BETWEEN SENSOR AND ELECTRONICS INSIDE HANDHOLE OR JUNCTION BOX.

D. SENSOR GROUT MUST BE GROUND FLUSH WITH ROAD SURFACE AFTER GROUT HAS CURED.

VECTORSENSE SENSOR INSTALLATION

NOTE TO DESIGNER

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Illinois Tollway

WEIGH-IN-MOTION VECTORSENSE SENSOR DETAILS

VERSION:	BASE SHEET:	SHEET:
2022-03	M-ITS-1609	1 OF 1

BASE SHEETS

SERIES 1700 (ITS)

FLASHING SIGN BEACON

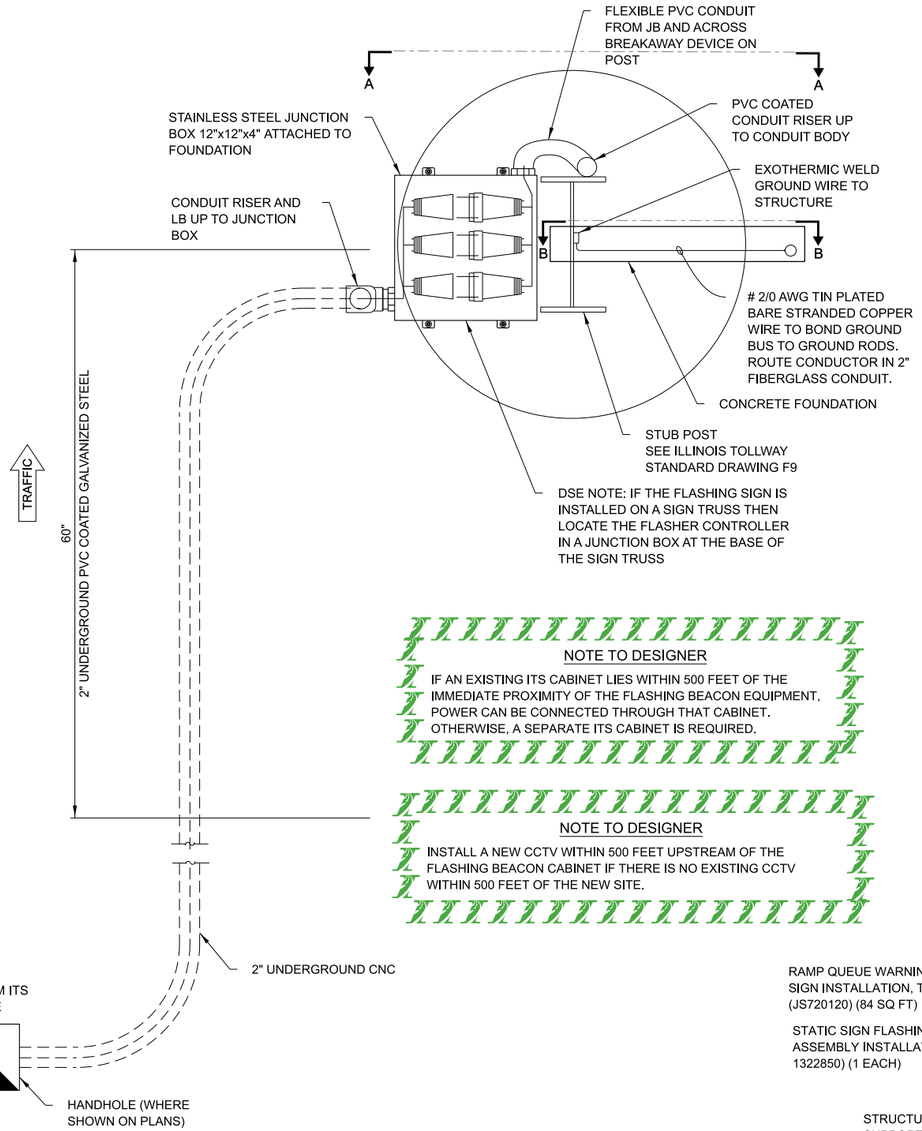
MARCH 2025

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Flashing Sign Beacon (ITS)-Series 1700	
	M-ITS-1700	**Flashing Sign Beacon Installation Breakaway Electrical Detail**
		Revise a note to designer to say: … if within 500 feet of the flashing beacon equipment…"
	M-ITS-1701	**Cabinet Layout and Wiring ITS Pole Mounted Enclosure (1-CCTV and Flashing Sign Beacon)**
		Revised layout of the new Cisco switch IE-3300-8T2S-E
		Revised Item J for Cisco IE-3300-8T2S-E
		Revised layout to add access door through the Plexiglas cover to give easy access to IP Relay for programing
		Revised for Item L for Cisco license IE3300-DNS-A-3Y

New Sheet

Retired Standard



TYPICAL PLAN AT FLASHING BEACON

NOT TO SCALE

NOTE TO DESIGNER

IF AN EXISTING ITS CABINET LIES WITHIN 500 FEET OF THE IMMEDIATE PROXIMITY OF THE FLASHING BEACON EQUIPMENT, POWER CAN BE CONNECTED THROUGH THAT CABINET. OTHERWISE, A SEPARATE ITS CABINET IS REQUIRED.

NOTE TO DESIGNER

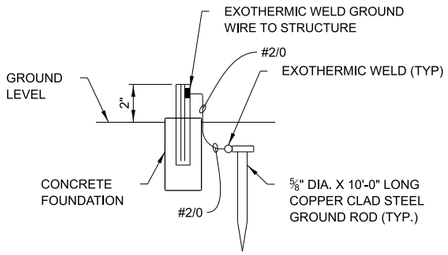
INSTALL A NEW CCTV WITHIN 500 FEET UPSTREAM OF THE FLASHING BEACON CABINET IF THERE IS NO EXISTING CCTV WITHIN 500 FEET OF THE NEW SITE.

NOTE TO DESIGNER

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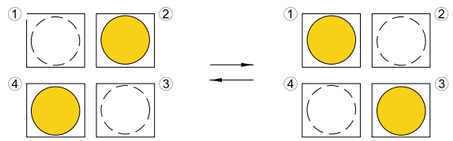
NOTES:

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. PROVIDE 50' OF SLACK IN LINE SIDE CABLE IN HANDHOLE.



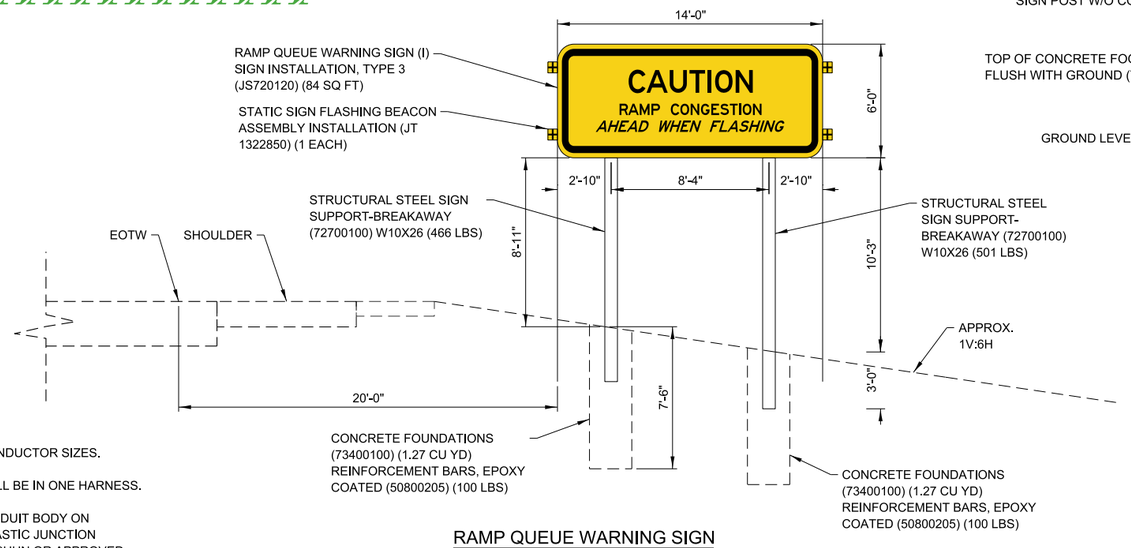
SECTION B-B

NOT TO SCALE

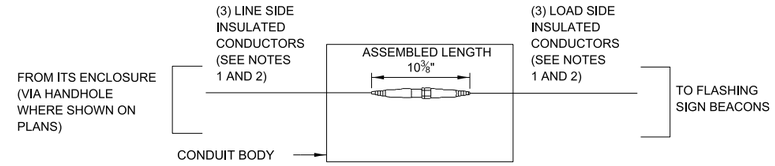


FLASHING SEQUENCE

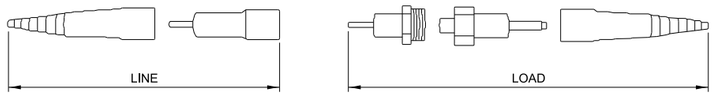
NOT TO SCALE



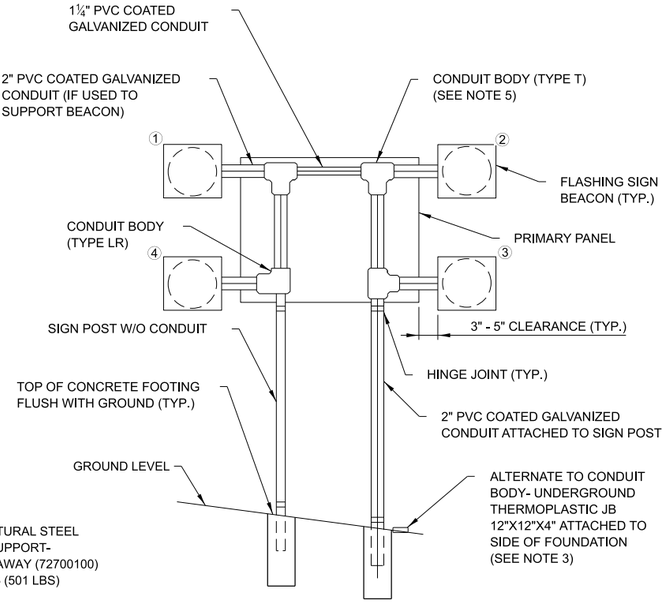
RAMP QUEUE WARNING SIGN



NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS



NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS EXPLODED VIEW



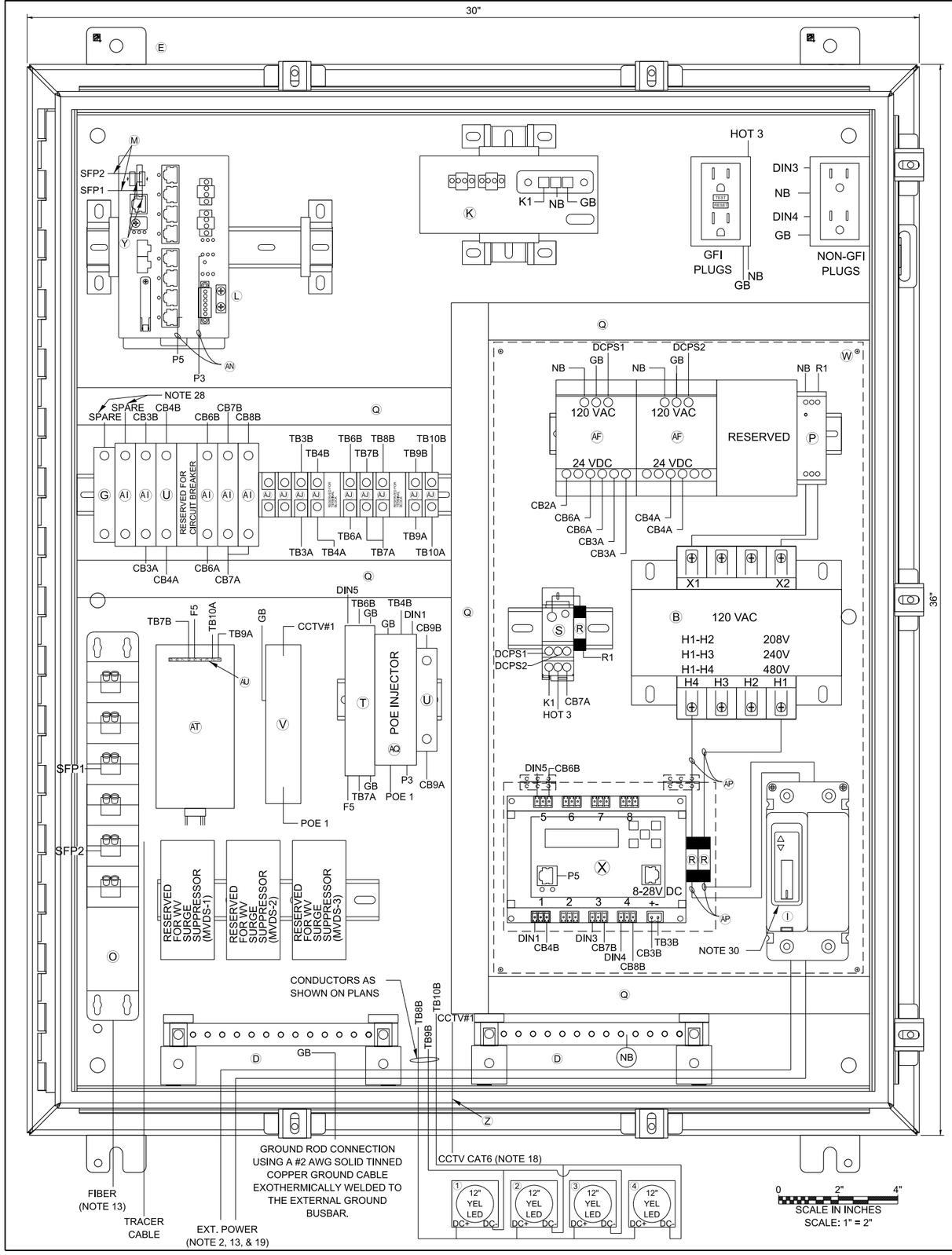
ELEVATION A-A

NOT TO SCALE

Illinois Tollway

FLASHING SIGN BEACON INSTALLATION BREAKAWAY ELECTRICAL DETAIL

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1700	1 OF 1



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"H X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & 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 NOT USED FOR THIS SHEET APPLICATION
H	NOT USED FOR THIS SHEET APPLICATION
I	480V, 2P, 30A CIRCUIT BREAKER WITH TERMINAL SHIELD EATON/HFD2030L & 625B229G07
J	NETWORK SWITCH CISCO IE-3300-8T2S-E
K	CISCO POWER SUPPLY, PWR-IE170W-PC-AC=
L	IP SERVICES LICENSE: IE3300-DNS-A-3Y
M	2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
N	NOT USED FOR THIS SHEET APPLICATION
O	SMF PATCH PANEL WITH LC CONNECTORS
P	120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
Q	PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/F1X2LG6 WITH COVER-C1LG6 10 AMP FUSE, GOULD (MERSEN)/ATM-10
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-SPM1B050
V	CAT6 PoE+ SURGE SUPPRESSOR: USE AXIS T8061 FOR AXIS 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.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
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 P5150T, DK-35T
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-SPM1B020
AJ	TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
AK	MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS
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
AP	#10 AWG
AQ	PoE INJECTOR AXIS T8144 24VDC
AR	T-BUS CONNECTOR (WAVETRONIX)
AS	NOT USED FOR THIS SHEET APPLICATION
AT	ELTEC FS-4 DC FLASHER
AU	9 PIN HARNESS FOR FS-4

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. 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 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 GFI'S 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 GROUNDED 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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NOTE TO DESIGNER

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

Illinois Tollway

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

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1701	1 OF 1

BASE SHEETS

SERIES 1800 (ITS)

INTERMEDIATE POWER DISTRIBUTIONS CENTERS (IPDC) FACILITY

MARCH 2025

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Intermediate Power Distribution and Communication Facility (ITS)-Series 1800	
	M-ITS-1803	**Standard IPDC Exterior Elevations**
		Added a note to identify Gas Service Meter as shown on Elevation A
		Added at the word "electrical" before " …service meter…
	M-ITS-1809	**IPDC and Combination Plaza-IPDC Facility Concrete Foundation**
		Added a call out to say: "Anchor bolts to be specified by the manufacturer of the building and to be installed by the contractor
	M-ITS-1810	**IPDC and Combination Plaza-IPDC Facility Mechanical Plan**
		Revised the HVAC model to BARD W5SAF0A05ZPXXXJ for HVAC-01 and HVAC-02
	M-ITS-1811	**IPDC and Plaza-IPDC Combination Facility Lighting and Receptacle Plan**
		Clarified and modified the representation of the conduits attached to the junction box, the conduits are not going through the junction box as previous edition

New Sheet

Retired Standard

SYMBOL LIST

SYMBOL	DESCRIPTION
25 KVA 480-120/240 1Ø, 3W	TRANSFORMER 25 KVA DENOTES TRANSFORMER RATING 480-120/240V DENOTES VOLTAGE 1Ø DENOTES 1 PHASE 3W DENOTES 3 WIRE
Ⓐ ①	LEGEND NUMBER FOR CABLE & CONDUIT (SEE CABLE AND CONDUIT SCHEDULES)
N E L ATS 400 2P,3W	AUTOMATIC TRANSFER SWITCH (ATS) N DENOTES NORMAL SOURCE E DENOTES EMERGENCY SOURCE L DENOTES LOAD 400 DENOTES 400 AMPERE ATS RATING 2P DENOTES 2 POLE 3W DENOTES 3 WIRE
JB OR Ⓙ	JUNCTION BOX
60A	DISCONNECT SWITCH 60A DENOTES 60 AMPERES
50A	CIRCUIT BREAKER 50A DENOTES 50 AMPERES
400A 2PDT. SW.	MANUAL TRANSFER SWITCH 400A DENOTES 400 AMPERES 2PDT DENOTES 2 POLE DOUBLE-THROW
Ⓦ	SELF CONTAINED UTILITY METERING
Ⓖ	STANDBY GENERATOR
30A 2P	PANEL CIRCUIT BREAKER 30A DENOTES 30 AMPERES 2P DENOTES 2 POLES
Ⓒ	MECHANICALLY HELD LIGHTING COIL
CR	CONTROL RELAY COIL
SPD WITH LP	SURGE PROTECTION DEVICE WITH LIGHTNING PROTECTION
Ⓢ	SMOKE DETECTOR
M	DOOR ALARM SWITCH
	EXHAUST FAN
R R	GENERATOR RUNNING LIGHT

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LEGEND

- EXPOSED CONDUIT
- CONDUIT IN SLAB
- UNDERGROUND CONDUIT OR CABLE DUCT
- CONDUIT OR CABLE DUCT IN CASING
- HOME RUN TO PANEL AS NOTED
- ⊗ INDICATES CIRCUIT TURNING DOWN
- ⊙ INDICATES CIRCUIT TURNING UP
- ● INDICATES 'LB' OR PULL BOX
- GROUND ROD
- GROUNDING TRIAD
- G EXPOSED GROUND CONDUCTOR
- G UNDERGROUND GROUND CONDUCTOR

ABBREVIATIONS

AFF	ABOVE FINISH FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
CCTV	CLOSED CIRCUIT TELEVISION
EX	EXISTING
FAP	FIRE ALARM PANEL
GCS	GENERATOR CONTROL SWITCH
GRD	GROUND
GFI	GROUND FAULT INTERRUPTER
HH	HANDHOLE
IPDC	INTERMEDIATE POWER DISTRIBUTION AND COMMUNICATION
JB	JUNCTION BOX
LC	LINE CONDITIONER
LP	LIGHTNING PROTECTION
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUG ONLY
MMF	MULTI-MODE FIBER
MSD	MAIN SERVICE DISCONNECT
MTS	MANUAL TRANSFER SWITCH
PR	PROPOSED
SHLD	SHIELDED
SMF	SINGLE MODE FIBER
SPD	SURGE PROTECTION DEVICE
TSIC	TERMINAL STRIP INTERCONNECT CENTER
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
UPS	UNINTERRUPTIBLE POWER SUPPLY
VPJB	VIDEO POWER JUNCTION BOX
WP	WEATHERPROOF
XFMR	TRANSFORMER

Illinois Tollway

IPDC-LEGEND ABBREV AND SCHEDULES

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1800	1 OF 1

IPDC FACILITY COMMUNICATIONS AND GROUNDING CABLE/CONDUIT SCHEDULE		
SYMBOL	**CABLE DESCRIPTION**	**REMARKS**
①	1-6PR #22 SHLD	
②	1-3/C #12 SHLD	NOTE 2
③	1-3PR #22 SHLD	
④	1-4/C #12 SHLD	NOTE 1 & 2
⑤	2-1/C #12, 1-1/C #12 (GRD)	NOTE 1
⑥	1-1/C #6 (GRD)	
⑦	1-9/C #12 SHLD	NOTE 1 & 2
⑧	1-3/C #16 SHLD	NOTE 3
⑨	1PR #22 SHLD	NOTE 1
⑩	1-4PR #24 (RS-422)	NOTE 4
⑪	1-9/C #22 IND SHLD	
⑫	1-1/C #4/0 (GRD BUS)	
⑬	1-1/C #8 (GRD)	
⑭	1-1/C #2 (GRD)	
⑮	1-4PR #24 (CATEGORY 6)	NOTE 4

IPDC FACILITY TO REMOTE DEVICE CABLE/CONDUIT SCHEDULE			
SYMBOL	**CABLE DESCRIPTION**	**CONDUIT SIZE (INCHES)**	**REMARKS**
①	NOT USED	-	DO NOT USE
②	2-1/C #6 1-1/C #8 (GRD)	NOTE 6	
③	2-1/C #4 1-1/C #6 (GRD)	NOTE 6	
④	2-1/C #2 1-1/C #6 (GRD)	NOTE 6	
⑤	2-1/C #1 1-1/C #4 (GRD)	NOTE 6	
⑥	2-1/C #1/Ø 1-1/C #4 (GRD)	NOTE 6	
⑦	2-1/C #2/O 1-1/C #4 (GRD)	NOTE 6	
⑧	2-1/C #3/Ø 1-1/C #2 (GRD)	NOTE 6	
⑨	2-1/C #4/O 1-1/C #2 (GRD)	NOTE 6	
⑩	2-1/C 250 Kcmil 1-1/C #2 (GRD)	NOTE 6	
⑪	2-1/C 350 Kcmil 1-1/C #1 (GRD)	NOTE 6	
⑫	2-1/C #8 1-1/C #10 (GRD)	NOTE 6	

IPDC FACILITY POWER CABLE/CONDUIT SCHEDULE			
SYMBOL	**CABLE DESCRIPTION**	**CONDUIT SIZE (INCHES)**	**REMARKS**
⑩①	3-1/C 500 MCM	4	
⑩②	3-1/C 500 MCM 1-1/C #4 (GRD)	4	
⑩③	3-1/C #3/0 1-1/C #6 (GRD)	2	
⑩④	3-1/C #10 1-1/C #10 (GRD)	3/4	
⑩⑤	4-1/C #10 1-1/C #10 (GRD)	3/4	
⑩⑥	2-1/C #12 1-1/C #12 (GRD)	NOTE 5	
⑩⑦	3-1/C #12 1-1/C #12 (GRD)	NOTE 5	
⑩⑧	4-1/C #12 1-1/C #12 (GRD)	NOTE 5	
⑩⑨	5-1/C #12 1-1/C #12 (GRD)	NOTE 5	
⑩⑩	5-1/C #12 1-1/C #12 (GRD)	NOTE 5	
⑩⑪	6-1/C #12 1-1/C #12 (GRD)	1	
⑩⑫	7-1/C #12 1-1/C #12 (GRD)	1	
⑩⑬	6-1/C #22 SHLD	1	SECURITY-CARD ACCESS
⑩⑭	2-1/C #8 1-1/C #8 (GRD)	1	
⑩⑮	3-1/C #2 1-1/C #8 (GRD)	2	
⑩⑯	2-1/C #2 1-1/C #8 (GRD)	2	
⑩⑰	2-1/C #1 1-1/C #6 (GRD)	2	
⑩⑱	3-1/C #3/Ø 1-1/C #6 (GRD)		AERIAL
⑩⑲	3-1/C #1 1-1/C #6 (GRD)	2	

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NOTES:

1. EXPOSED CONDUIT SHALL BE A MINIMUM OF ¾". EMBEDDED OR UNDERGROUND CONDUIT SHALL BE A MINIMUM OF 1".
2. MULTI-CONDUCTOR SHIELDED CABLE #12 AWG SHALL BE COLOR CODED AS SPECIFIED IN THE ILLINOIS TOLLWAY SPECIAL PROVISION "INTERMEDIATE POWER DISTRIBUTION AND COMMUNICATION FACILITY ELECTRICAL WORK."
3. MULTI-CONDUCTOR SHIELDED CABLE #14 AWG THROUGH #18 AWG FOR CONTROL USE SHALL BE COLOR CODED PER ICEA-NEC (K-2) STANDARD.
4. PROVIDE SURGE PROTECTION ADAPTERS FOR ALL RS-422 AND CATEGORY 6 CABLES ENTERING THE IPDC FACILITY. IN-LINE 485 ADAPTERS MUST BE INSTALLED AT ALL CONNECTIONS TO THE CISCO SWITCH. THE TVSS ADAPTER FOR RS-422 CABLES SHALL BE PHOENIX CONTACT (OR EQUIVALENT) DATATRAB D-UFB-V11/BS-B. THE TVSS ADAPTER FOR CATEGORY 6 CABLES SHALL BE PHOENIX CONTACT (OR EQUIVALENT) DATATRAB D-LAB-CAT-.6+.
5. ELEVATION WITH A MINIMUM MOUNTING HEIGHT AS INDICATED IN THE LIGHTING FIXTURE SCHEDULE.
6. CONDUCTORS FROM IPDC FACILITY TO ITS DEVICES TO BE INSTALLED IN FUTURE CONTRACT AND ARE ONLY SHOWN FOR REFERENCE FOR ROADWAY CONTRACTS.
7. ALL CONDUIT AND CONDUCTORS SHOWN IN SCHEDULES MAY NOT NECESSARILY BE UTILIZED FOR ROADWAY CONTRACTS. ALL CONDUIT AND CONDUCTORS ARE INCLUDED IN SCHEDULES TO MAINTAIN CONSISTENCY BETWEEN ROADWAY AND ITS CONTRACTS.

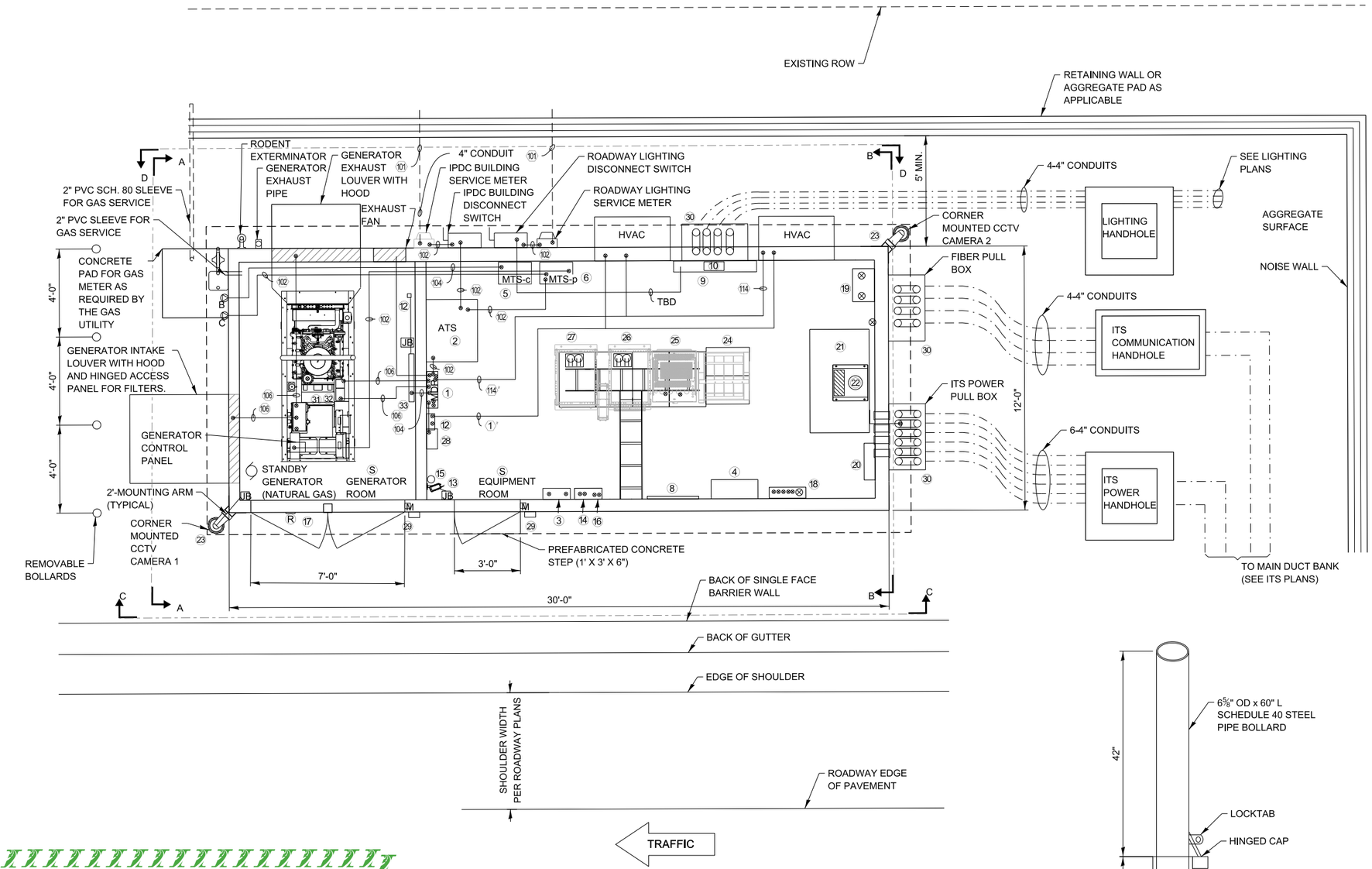
WIRING DEVICE SCHEDULE				
SYMBOL	**DESCRIPTION**	**RATING**	**MFR. AND CAT. NO.**	**MOUNTING HEIGHT**
$	SINGLE-POLE SWITCH	20A, 120V	HUBBELL #HBL1221	4'-0"
#	DUPLEX RECEPTACLE (# = BREAKER)	20A, 120V	HUBBELL #HBL5362	18" AS NOTED
#	QUAD RECEPTACLE (# = BREAKER)	20A, 120V	(2) HUBBELL #HBL5362	18" AS NOTED
C	3P, 3W, WEATHERPROOF RECEPTACLE WITH SPRING DOOR, BACK BOX, & ANGLE ADAPTER	400A, 600V	CROUSE-HINDS "ARKTITE" SERIES #AREX40318	3'-0" ABOVE GRADE
B	3P, 3W, WEATHERPROOF RECEPTACLE WITH SPRING DOOR & BACK BOX	30A, 600V	CROUSE-HINDS "ARKTITE" SERIES #ARE3313	3'-0" ABOVE GRADE
WP GFI #	WEATHERPROOF DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION (# = BREAKER)	20A, 120V	HUBBELL #GFR5362SG	3'-0" ABOVE GRADE
A	3P, 3W, WEATHERPROOF RECEPTACLE	30A, 240V		3'-0" ABOVE GRADE

LIGHTING FIXTURE SCHEDULE					
SYMBOL	**DESCRIPTION**	**VOLTAGE**	**LAMPS**	**MFR. AND CAT. NO.**	**REMARKS**
A	IPDC FACILITY INTERIOR LIGHTING 4' INDUSTRIAL LED FIXTURE	120 V	LED	ATLAS LIGHTING ILW48LED4D	MOUNT 8' ABOVE FINISHED FLOOR
B	COMPACT WALL-MOUNTED LED EXTERIOR FIXTURE WITH WIRE GUARD & SINGLE FACTORY INSTALLED FUSE	120 V	LED	HOLOPHANE W4GLED10C100040KT3-M120SFTBWGBZ	MOUNT 9'-0" ABOVE FINISHED GRADE (NOTE 6)
C	EMERGENCY LIGHT UNIT WITH 2-1 WATT, LED LAMPS	120 V	2-1 WATT LED	H.E. WILLIAMS EMER/LED WHTSDT	MOUNT 8' ABOVE FINISHED FLOOR

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IPDC FACILITY CABLE-CONDUIT SCHEDULE AND NOTES

VERSION:	BASE SHEET:	SHEET:
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IPDC FACILITY SITE PLAN

NOT TO SCALE



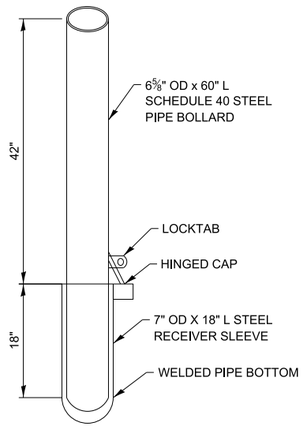
(SEE DESIGNER NOTE 3)

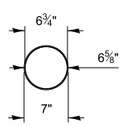
NOTES TO DESIGNER

1. INSTALLATION OF A GANTRY AT EACH IPDC FACILITY IS TYPICAL, BUT SHALL BE CONFIRMED WITH THE ILLINOIS TOLLWAY BY THE DESIGNER.
2. DIRECTIONAL INDICATIONS USED ON THIS SHEET ASSUME THE IPDC FACILITY IS INSTALLED ALONG THE WESTBOUND DIRECTION, THE DESIGNER SHALL ADJUST ACCORDINGLY BASED ON THE ACTUAL PLACEMENT OF THE IPDC FACILITY.
3. THE BATTERY RACK AND HVAC EQUIPMENT SHOWN ON THESE BASE SHEETS ARE BASED ON A 30-MINUTE BATTERY RUNTIME. THE DESIGNER SHALL RESIZE AS REQUIRED IF A LONGER BATTERY RUNTIME IS SELECTED.
4. DOORS SHALL SWING OPEN 170° AND HAVE A MECHANISM TO LOCK THE DOOR IN AN OPEN POSITION.

NOTE TO DESIGNER

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6" X 60" REMOVABLE LOCKABLE STEEL BOLLARD

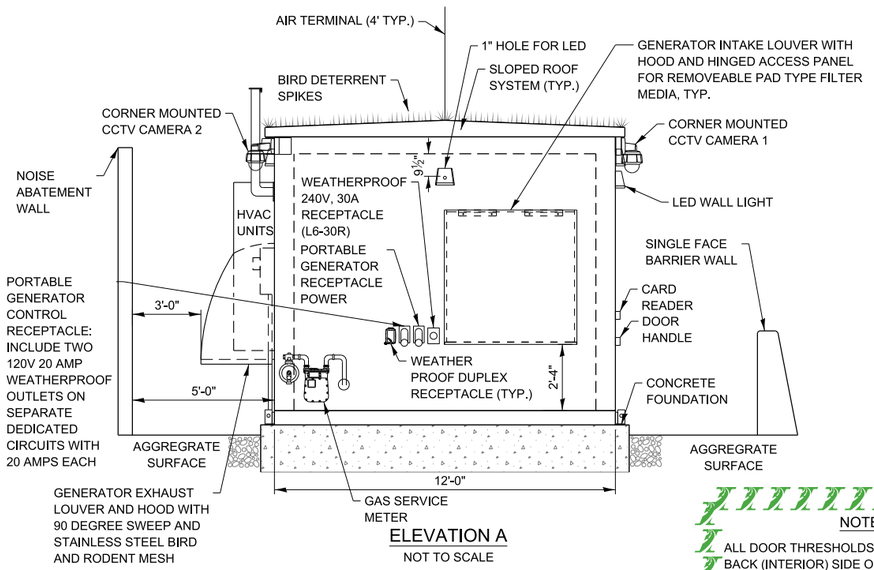
NOTES:

1. SEE SPECIAL PROVISIONS FOR REQUIREMENTS ASSOCIATED WITH IPDC FACILITY PREFABRICATED BUILDING.
2. CONTRACTOR SHALL SEAL DOOR OPENING, DOOR FRAMING, AND ANY PROTRUSION/ACCESS CUT THROUGH BUILDING WALLS AGAINST RODENT OR PEST INFESTATION OR ACCESS, TO THE SATISFACTION OF THE ENGINEER.
3. INSTALL REMOVABLE STAINLESS STEEL BOLLARDS WITH YELLOW REFLECTIVE TAPE TO PROTECT THE HVAC UNITS AND BUILDING.
4. ALL 120/240v OUTLETS ON THE UPS SYSTEM MUST BE ORANGE IN COLOR

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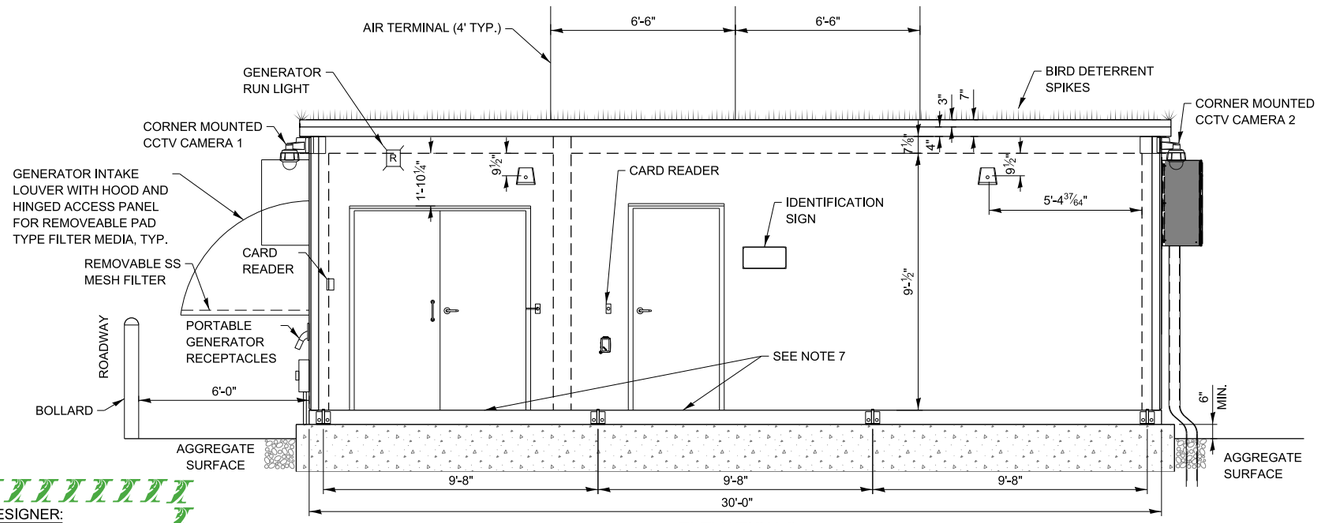
IPDC FACILITY SITE PLAN

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2024-03	M-ITS-1802	1 OF 1



ELEVATION A

NOT TO SCALE



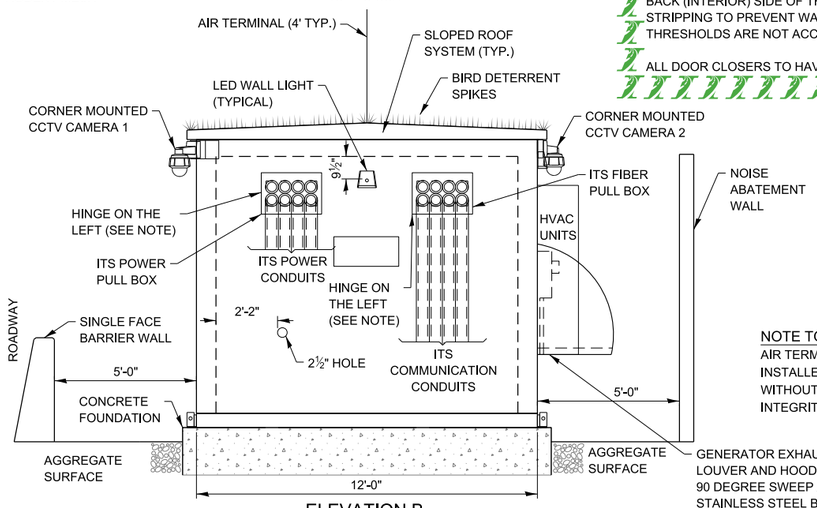
ELEVATION C

NOT TO SCALE

NOTE TO DESIGNER:

ALL DOOR THRESHOLDS TO HAVE A VERTICAL LEG AT THE BACK (INTERIOR) SIDE OF THE DOOR WITH WEATHER STRIPPING TO PREVENT WATER INTRUSION. FLAT DOOR THRESHOLDS ARE NOT ACCEPTABLE, TYP.

ALL DOOR CLOSERS TO HAVE A HOLD-OPEN FUNCTION, TYP.

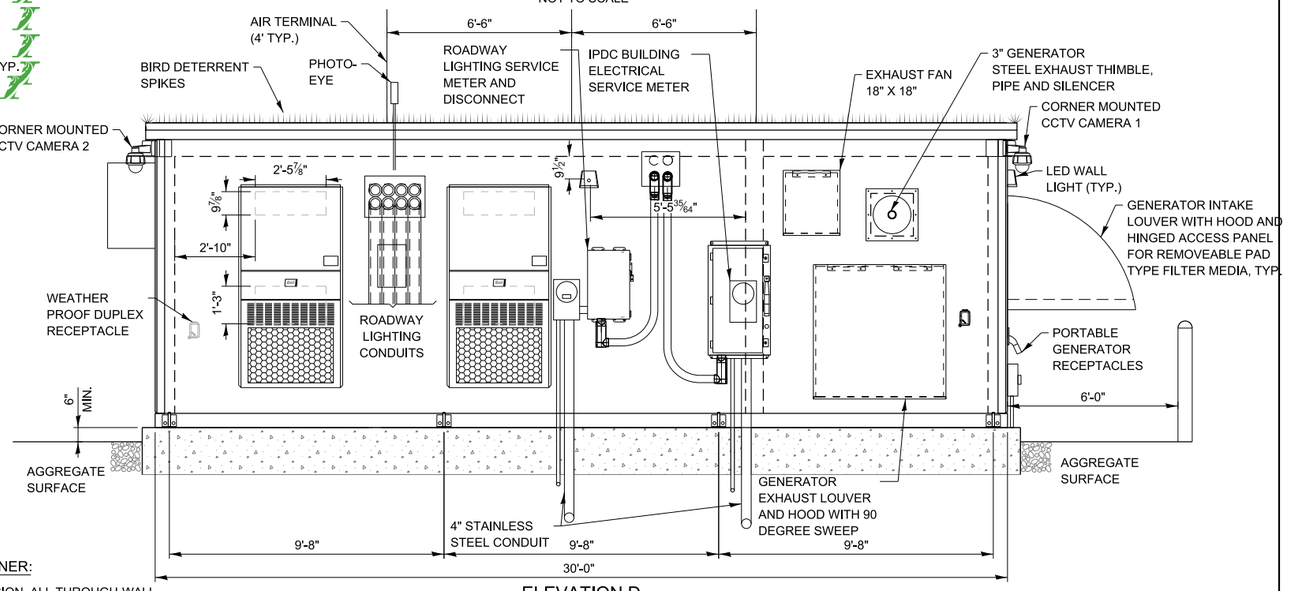


ELEVATION B

NOT TO SCALE

NOTE TO DESIGNER:

AIR TERMINAL RODS ARE TO BE INSTALLED AND FIXED TO ROOF WITHOUT INTERFERING WITH THE INTEGRITY OF THE STRUCTURE

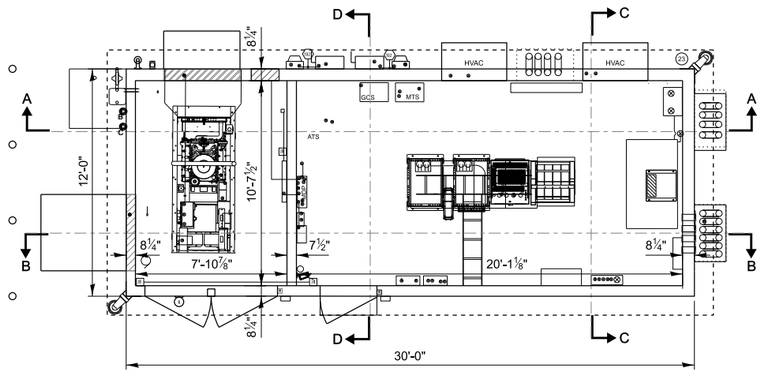


ELEVATION D

NOT TO SCALE

NOTE TO DESIGNER:

IN ORDER TO PREVENT WATER INTRUSION, ALL THROUGH-WALL OPENINGS SHALL BE PROPERLY & COMPLETELY FLASHED, PRIOR TO THE EQUIPMENT BEING INSTALLED TO THE BUILDING (HVAC UNITS, HOODS, LOUVERS, GENERATOR EXHAUST THIMBLES, AND ALL OTHER THROUGH-WALL ITEMS). THE THROUGH-WALL OPENINGS SHALL HAVE FLASHING DETAILS SIMILAR TO STANDARD WINDOW OPENING DETAILS, WITH FULLY WRAPPED FLASHINGS AT THE HEAD AND JAMBS, AND A WATER DAM AT THE SILL. FLUSH FLANGE MOUNTING EQUIPMENT ON THE EXTERIOR IS NOT ACCEPTABLE.



IPDC FACILITY KEY PLAN

NOT TO SCALE

NOTE TO DESIGNER

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NOTES:

1. SEE STANDARD IPDC BUILDING FLOOR PLAN FOR PLAN VIEW.
2. THIS DRAWING APPLIES TO IPDC-01 AND IPDC-05.
3. EQUIPMENT SHOWN IN GRAY SCALE IS EXISTING.
4. PRIOR TO INSTALLING THE EXTERIOR WALL PANELS, THE ENTIRE SURFACE OF THE EXTERIOR WALL SHEATHING SHALL BE COVERED WITH AN APPROVED AIR AND WATER BARRIER.
5. ALL SEALANTS SHALL BE ONE-PART POLYURETHANE SEALANTS; ALL SEALANT JOINTS SHALL BE MECHANICALLY STRUCK FOR THE FINISH SURFACE; SILICONE CAULK IN NOT PERMITTED.
6. THE ENTIRE PERIMETER AT THE BOTTOM OF THE EXTERIOR WALLS SHALL HAVE A DRIP FLASHING TO PROTECT THE BOTTOM EDGE OF THE EXTERIOR WALL SHEATHING FROM WATER DAMAGE.
7. ALL DOORS SHALL BE FLASHED WITH A CONTINUOUS HEAD FLASHING, AND A RAIN DRIP TRIM MOUNTED ON THE HEAD OF THE DOOR FRAME, A RAIN DRIP TRIM SHALL ALSO BE MOUNTED AT THE BOTTOM OF THE DOOR TO PROTECT THE FRONT EDGE OF THE DOOR THRESHOLD.
8. IN ORDER TO PREVENT WATER INTRUSION, THE ROOF SHALL HAVE A MINIMUM OF 4" OVERHANG PAST THE EXTERIOR FACE OF THE EXTERIOR WALLS (ALL SIDES OF THE BUILDING) AND HAVE A DRIP EDGE FLASHING ALONG THE ENTIRE PERIMETER OF THE BOTTOM OF THE FASCIA.
9. ALL EXTERIOR PANEL JOINTS SHALL BE FILLED WITH ONE PART POLYURETHANE SEALANT AND COVERED BY A BATTEN TYPE JOINT COVER TRIM.
10. ALL INTAKE HOODS FOR GENERATORS SHALL HAVE A HINGED BOTTOM PANEL FOR REPLACEABLE PAD TYPE FILTER MEDIA. EXHAUST HOODS ONLY NEED 1/4" SQUARE STAINLESS STEEL MESH TO PREVENT BIRDS AND RODENTS ENTERING.
11. IN ORDER TO PREVENT WATER INTRUSION, THE ROOF SHALL HAVE A MINIMUM OF 4" OVERHANG PAST THE EXTERIOR FACE OF THE EXTERIOR WALLS (ALL SIDES OF THE BUILDING) AND HAVE A DRIP EDGE FLASHING ALONG THE ENTIRE PERIMETER OF THE BOTTOM OF THE FASCIA.

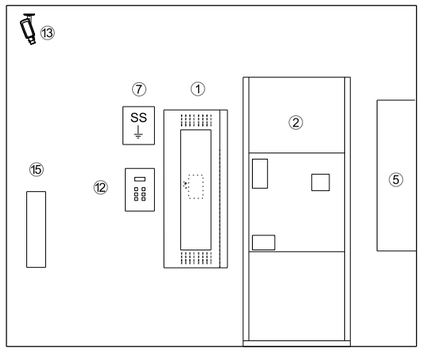
NOTE:

ALL SS JUNCTION BOXES SHALL HAVE THE LID HINGE MOUNTED ON THE LEFT SIDE SO THE BOXES OPEN FROM RIGHT TO LEFT, TYP.

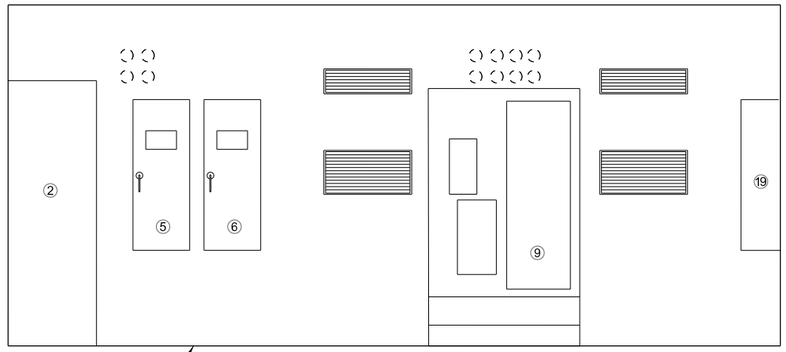
Illinois Tollway

STANDARD IPDC EXTERIOR ELEVATIONS

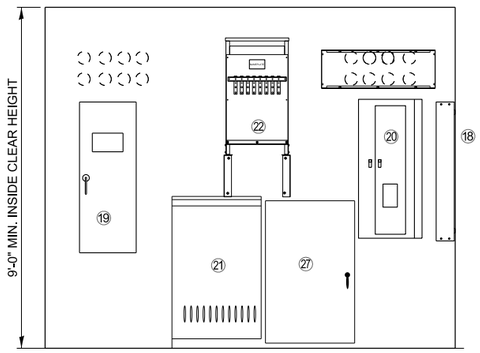
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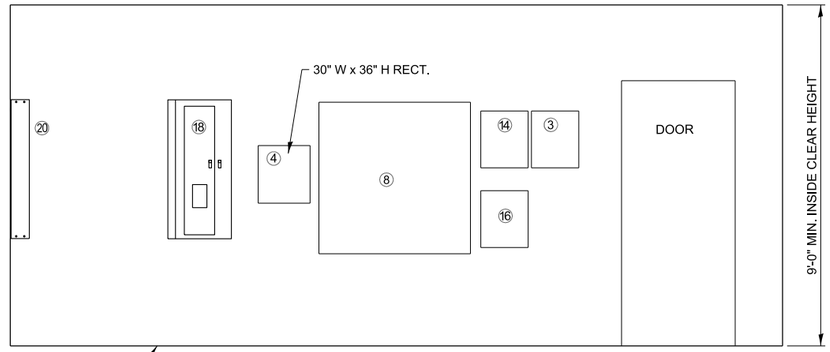
SECTION A-A
NOT TO SCALE



SECTION C-C
NOT TO SCALE



SECTION B-B
NOT TO SCALE



SECTION D-D
NOT TO SCALE

LEGEND

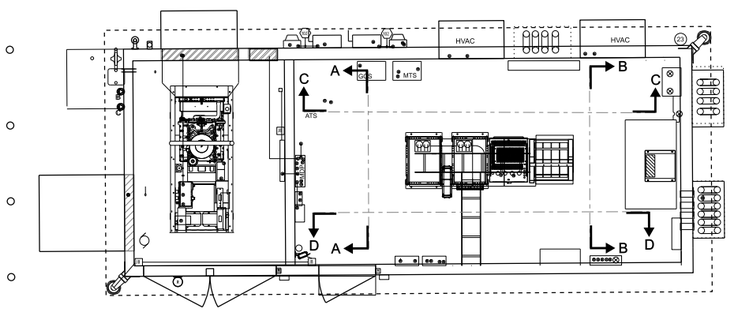
① MAIN DISTRIBUTION PANELBOARD
② AUTOMATIC TRANSFER SWITCH
③ FIRE ALARM PANEL
④ VPJB
⑤ MANUAL TRANSFER SWITCH - CONTROLS
⑥ MANUAL TRANSFER SWITCH - POWER
⑦ SURGE SUPPRESSOR
⑧ 4' x 4' WALLBOARD PAINTED WHITE OR BEIGE
⑨ ROADWAY LIGHTING CONTROLLER
⑩ HVAC CONTROL
⑪ ELECTRIC HEATER
⑫ THERMOSTAT
⑬ INTERIOR SECURITY CAMERA CCTV 1
⑭ HIRSCH PANEL
⑮ FIRE EXTINGUISHER
⑯ CARD READER PANEL
⑰ GENERATOR RUNNING LIGHT
⑱ UPS-1 PANELBOARD
⑲ UPS/LC MTS
⑳ UPS-2 PANELBOARD
㉑ ITS LINE CONDITIONER
㉒ ITS STEP UP TRANSFORMER
㉗ VES WASH SYSTEMS CABINET

NOTES:

1. CONTRACTOR SHALL SEAL DOOR OPENING, DOOR FRAMING, AND ANY PROTUSION/ACCESS CUT THROUGH BUILDING WALLS AGAINST RODENT OR PEST INFESTATION OR ACCESS, TO THE SATISFACTION OF THE ENGINEER.
2. ALL CABINET DOORS SHALL BE ABLE TO OPEN 90 DEGREES MIN, TO ALLOW FOR PARTS REPLACEMENT, TYP.
3. EQUIPMENT SHOWN IN GRAYSCALE IS EXISTING.
4. ALL CABINET DOORS SHALL BE ABLE TO OPEN 90 DEGREES MIN, TO ALLOW FOR PARTS REPLACEMENT, TYP.
5. IT IS RECOMMENDED TO USE TREATED PLYWOOD FOR THE SHEATHING OF THE ROOF, FLOOR, WALLS, TYP.
6. IT IS RECOMMENDED TO USE COLD FORMED METAL FRAMING FOR THE FLOOR, ROOF, & WALLS IN LIEU OF WOOD FRAMING, TYP.

NOTE TO DESIGNER

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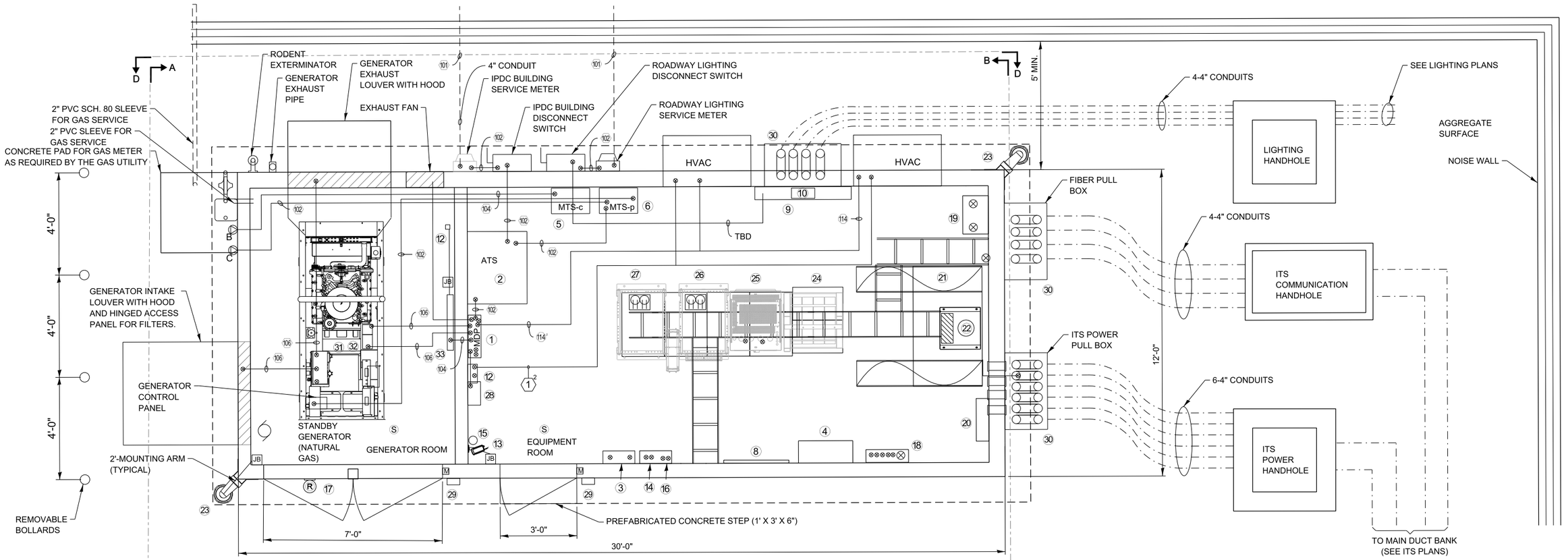


IPDC FACILITY SITE PLAN
NOT TO SCALE

Illinois Tollway

STANDARD IPDC BUILDING INTERIOR ELEVATIONS

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IPDC FACILITY SITE PLAN

NOT TO SCALE

NOTE TO DESIGNER

STANDARD IPDC BUILDING SHOWN.

THE IPDC BUILDING SHALL HAVE A MINIMUM OF 5' AREA AROUND THE ENTIRE BUILDING WITH A MINIMUM OF 1.5% SLOPE AWAY FROM THE BUILDING.

CONDUIT/CABLES CALLED OUT AS "TBD" SHALL BE SIZED BY THE LIGHTING DESIGNER.

NOTES:

1. CONTRACTOR SHALL SEAL DOOR OPENING, DOOR FRAMING, AND ANY PROTRUSION/ACCESS CUT THROUGH BUILDING WALLS AGAINST RODENT OR PEST INFESTATION OR ACCESS, TO THE SATISFACTION OF THE ENGINEER.
2. SMOKE DETECTOR AND FIRE ALARM STATION CONDUIT/CABLES NOT SHOWN FOR CLARITY.
3. PROVIDE AN AUTOMATIC RODENT EXTERMINATOR SYSTEM INSIDE BOTH ROOMS, TYP.
4. THE CONTRACTOR SHALL INSTALL THE GENERATOR INSIDE THE IPDC BUILDING WITH A MANUFACTURER'S REPRESENTATIVE PRESENT TO VERIFY ANY REQUIRED DISASSEMBLY AND REASSEMBLY IS COMPLETED PER MANUFACTURER'S RECOMMENDATIONS ENSURING ALL WARRANTIES ARE MAINTAINED
5. ALL 120/240v OUTLEST ON THE UPS SYSTEM MUST BE ORANGE IN COLOR

NOTE TO DESIGNER

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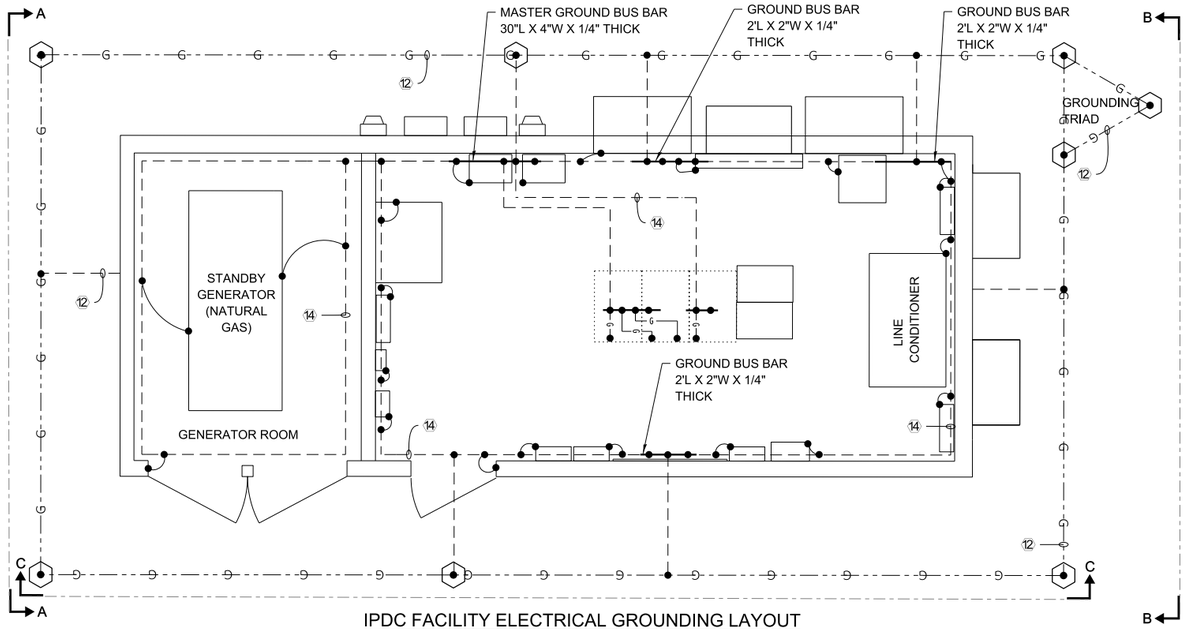
LEGEND

1. MAIN DISTRIBUTION PANELBOARD
2. AUTOMATIC TRANSFER SWITCH
3. FIRE ALARM PANEL
4. VPJB
5. MANUAL TRANSFER SWITCH - CONTROLS
6. MANUAL TRANSFER SWITCH - POWER
7. SURGE SUPPRESSOR
8. 4' x 4' WALLBOARD
9. ROADWAY LIGHTING CONTROLLER
10. HVAC CONTROL
11. ELECTRIC HEATER
12. THERMOSTAT
13. INTERIOR SECURITY CAMERA CCTV 1
14. HIRSCH PANEL
15. FIRE EXTINGUISHER
16. CARD READER PANEL
17. GENERATOR RUNNING LIGHT
18. UPS-1 PANELBOARD
19. UPS/LC MTS
20. UPS-2 PANELBOARD
21. ITS LINE CONDITIONER
22. ITS STEP UP TRANSFORMER
23. OUTDOOR CCTV SECURITY CAMERA
24. BATTERY RACK
25. UPS RACK
26. RACK 2
27. RACK 1
28. SURGE PROTECTIVE DEVICE
29. CARD READER
30. NEMA 4X PULL BOXES
31. BATTERY CHARGER
32. GENERATOR JACKET HEATER
33. ELECTRIC HEATER

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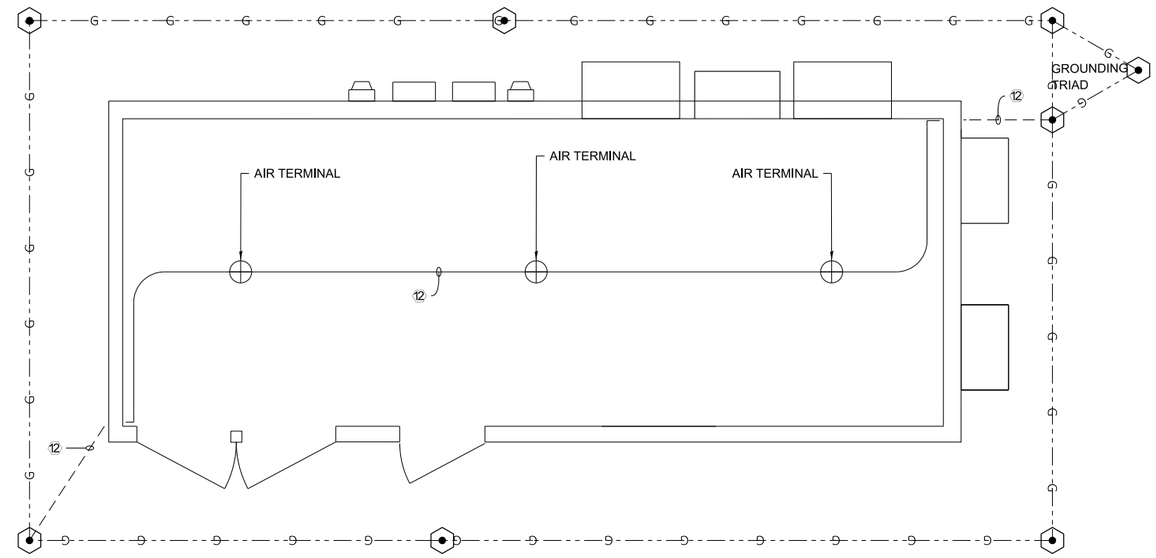
IPDC FACILITY SITE PLAN

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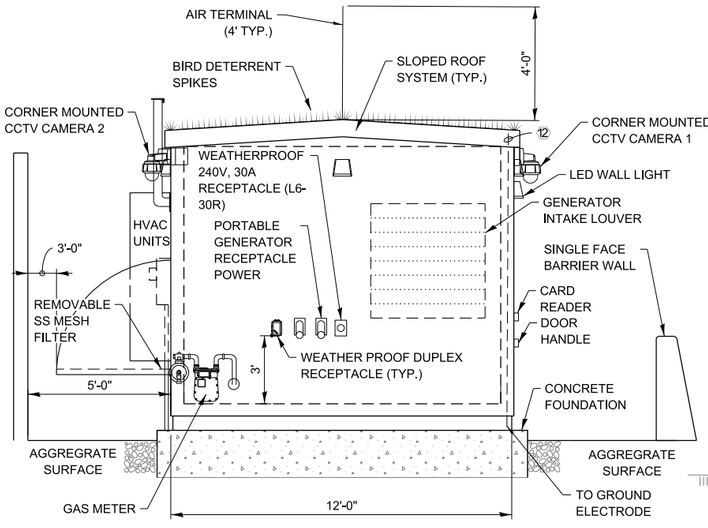
IPDC FACILITY ELECTRICAL GROUNDING LAYOUT

NOT TO SCALE



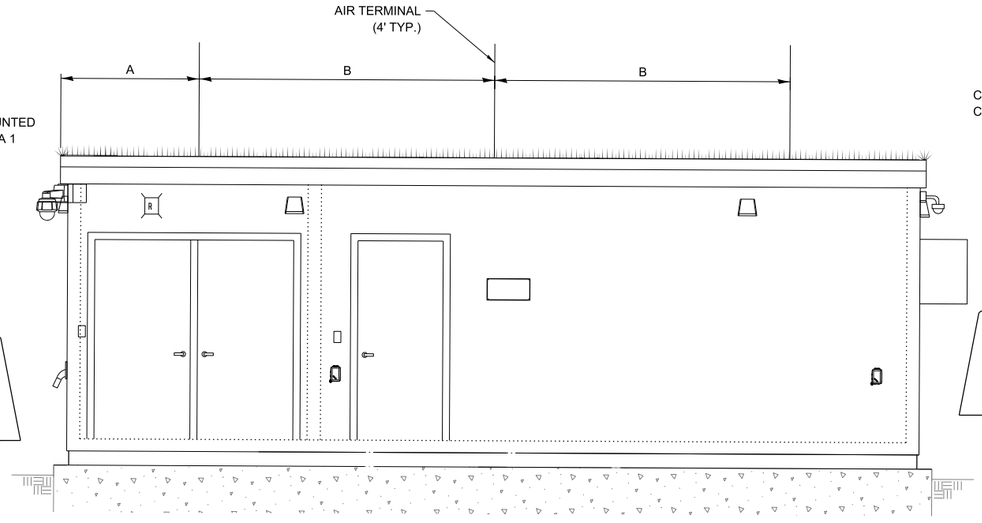
IPDC FACILITY - GROUNDING OF LIGHTNING PROTECTION SYSTEM

NOT TO SCALE



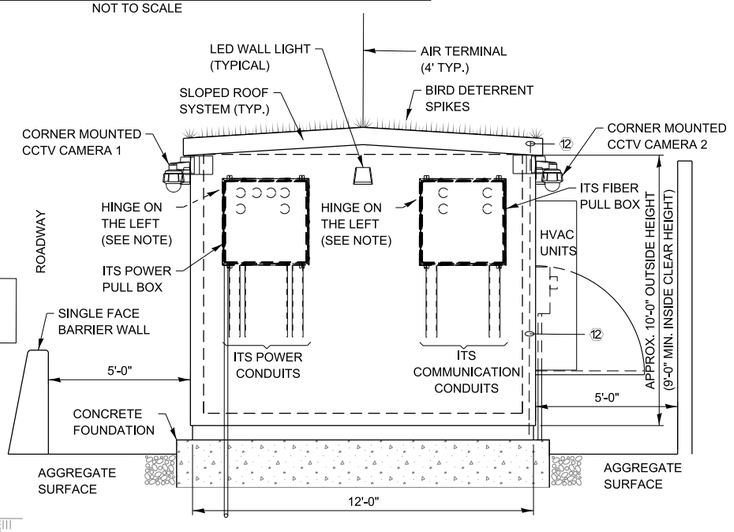
SECTION A-A

NOT TO SCALE



SECTION C-C

NOT TO SCALE



SECTION B-B

NOT TO SCALE

NOTE TO DESIGNER

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NOTE TO DESIGNER:

AIR TERMINAL RODS ARE TO BE INSTALLED AND FIXED TO ROOF WITHOUT INTERFERING WITH THE INTEGRITY OF THE STRUCTURE

IPDC FACILITY - GROUNDING OF LIGHTNING PROTECTION SYSTEM

NOT TO SCALE

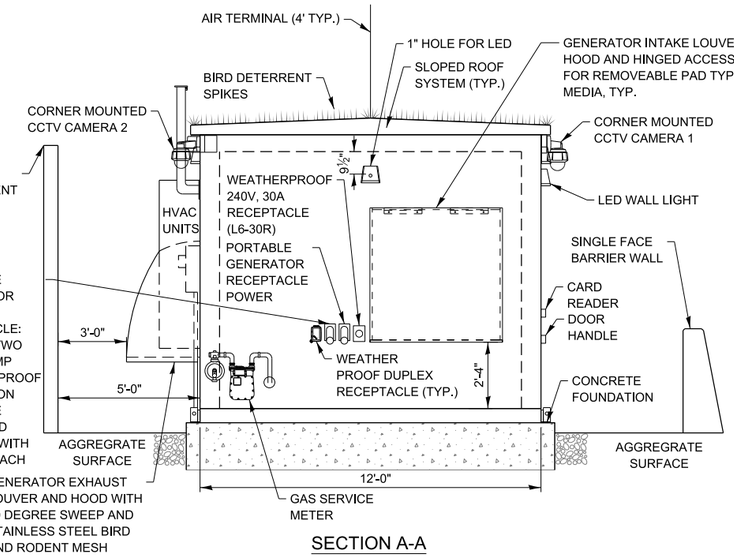
NOTES:

1. EQUIPMENT SHOWN IN GRAYSCALE IS EXISTING.
2. ALL SS JUNCTION BOXES SHALL HAVE THE LID HINGE MOUNTED ON THE LEFT SIDE SO THE BOXES OPEN FROM RIGHT TO LEFT, TYP.

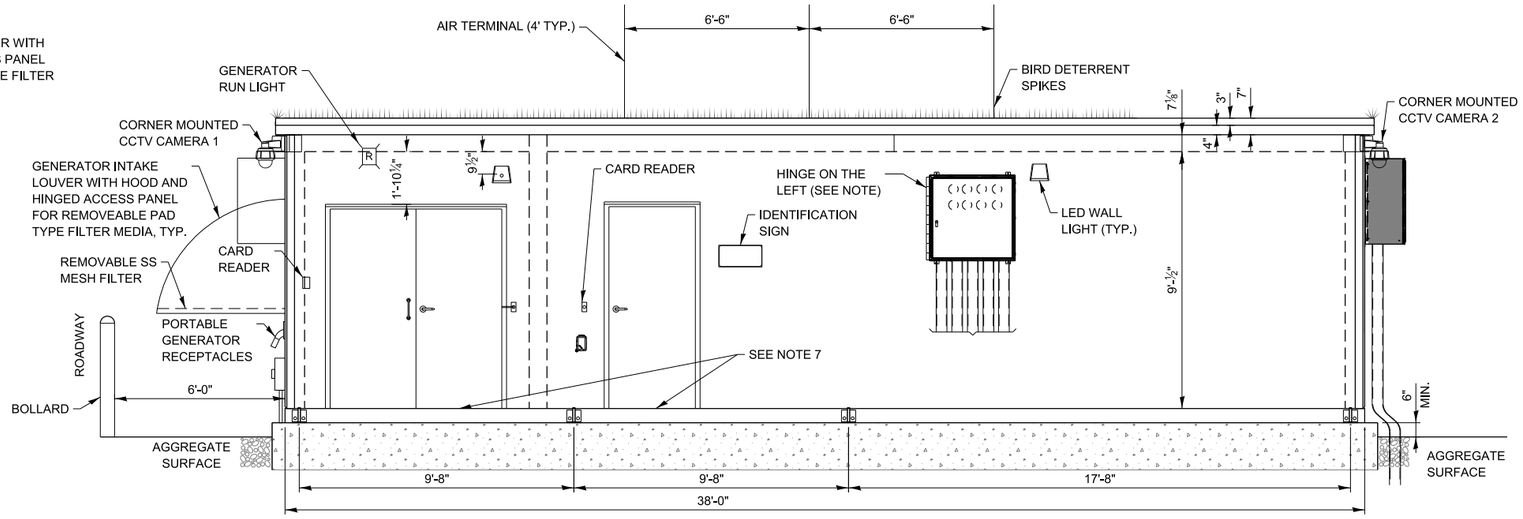
Illinois Tollway

STANDARD IPDC GROUNDING-LIGHTING PROTECTION PLAN

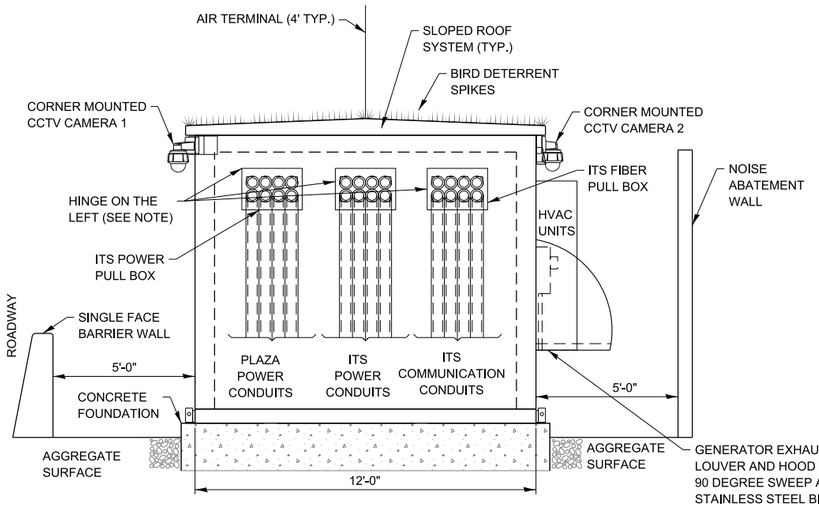
VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1806	1 OF 1



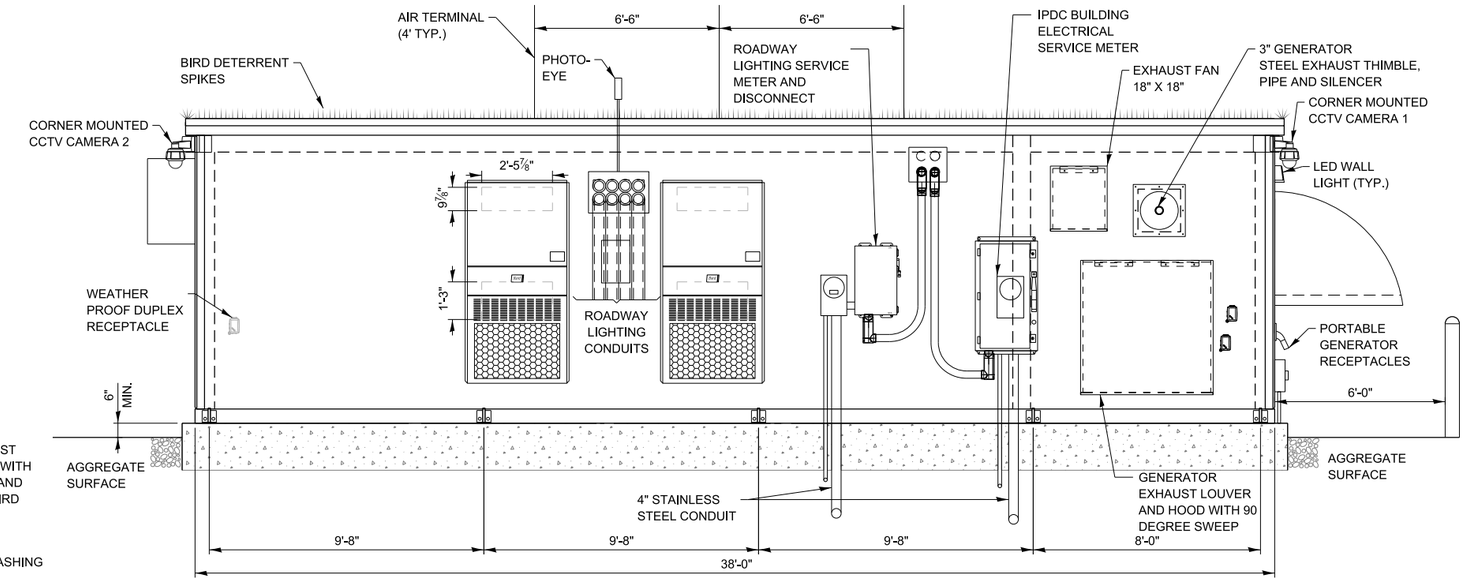
SECTION A-A
NOT TO SCALE



SECTION C-C
NOT TO SCALE



SECTION B-B
NOT TO SCALE

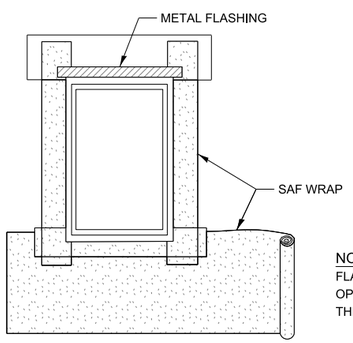


SECTION D-D
NOT TO SCALE

NOTE TO DESIGNER:
AIR TERMINAL RODS ARE TO BE INSTALLED AND FIXED TO ROOF WITHOUT INTERFERING WITH THE INTEGRITY OF THE STRUCTURE

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.



FLASHING DETAILS
FOR THROUGH-WALL OPENINGS

NOTE:
FLASHING DETAILS FOR THROUGH-WALL OPENINGS FOR ALL EQUIPMENT PASSING THROUGH THE EXTERIOR WALL

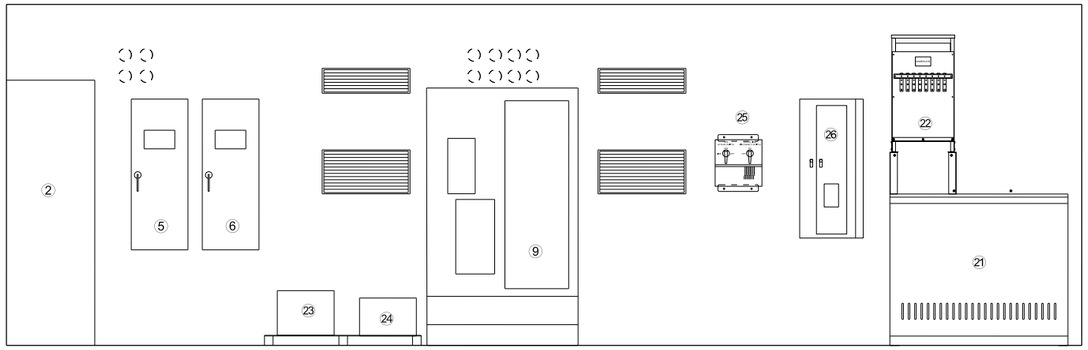
NOTES:

1. THIS LAYOUT SHOWS PLAZA REMOTE CONTROL BUILDING COMBINED TO IPDC BUILDING
2. EQUIPMENT SHOWN IN GRAYSCALE IS EXISTING.
3. ALL SS JUNCTION BOXES SHALL HAVE THE LID HINGE MOUNTED ON THE LEFT SIDE SO THE BOXES OPEN FROM RIGHT TO LEFT, TYP.

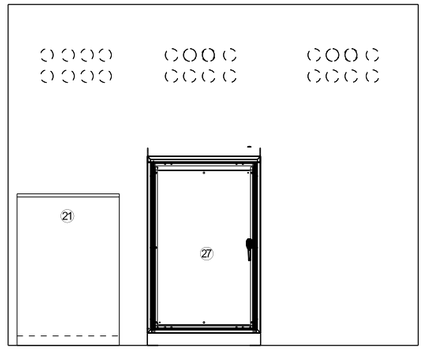
Illinois Tollway

COMBINATION PLAZA-IPDC BUILDING EXTERIOR ELEVATIONS

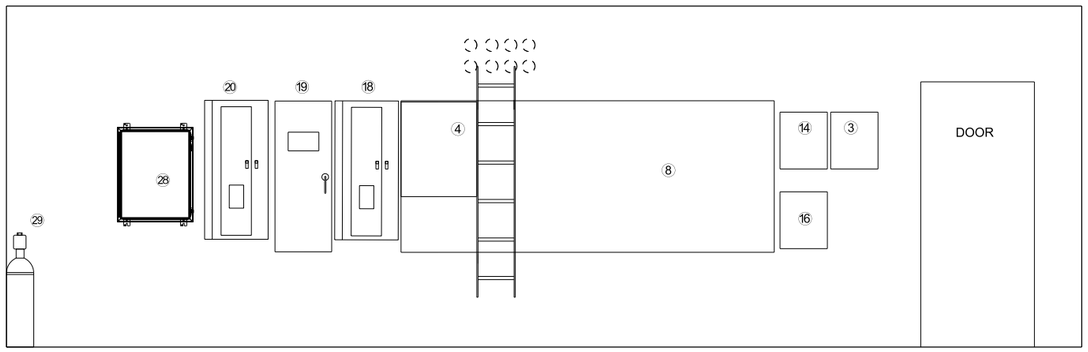
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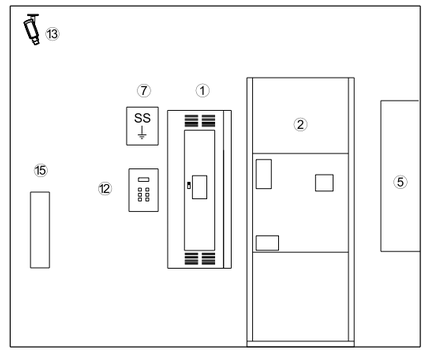
SECTION A-A
NOT TO SCALE



SECTION C-C
NOT TO SCALE



SECTION B-B
NOT TO SCALE



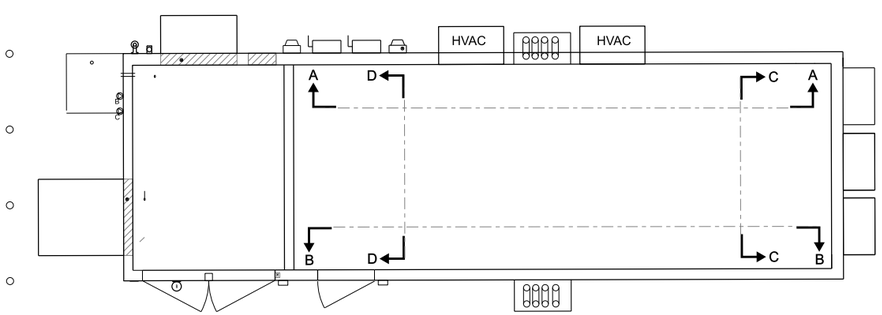
SECTION D-D
NOT TO SCALE

LEGEND

1. MAIN DISTRIBUTION PANELBOARD
2. AUTOMATIC TRANSFER SWITCH
3. FIRE ALARM PANEL
4. VPJB
5. MANUAL TRANSFER SWTICH - CONTROLS
6. MANUAL TRANSFER SWTICH - POWER
7. SURGE SUPPRESSOR
8. 4' x 8' WALLBOARD
9. ROADWAY LIGHTING CONTROLLER
10. HVAC CONTROL
11. ELECTRIC HEATER
12. THERMOSTAT
13. INTERIOR SECURITY CAMERA CCTV 1
14. HIRSCH PANEL
15. FIRE EXTINGUISHER
16. CARD READER PANEL
17. GENERATOR RUNNING LIGHT
18. UPS-1 PANELBOARD
19. UPS/LC MTS
20. UPS-2 PANELBOARD
21. ITS LINE CONDITIONER
22. ITS STEP UP TRANSFORMER
23. BUS. SYSTEMS UPS
24. BUS. SYSTEMS LINE CONDITIONER
25. BUS. SYSTEMS UPS BYPASS SWITCH
26. BUS. SYSTEMS UPS PANELBOARD
27. VES WASH SYSTEMS CABINET
28. BUS. SYSTEMS VPJB

NOTE TO DESIGNER

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COMBINATION IPDC/PLAZA FACILITY SITE PLAN
NOT TO SCALE

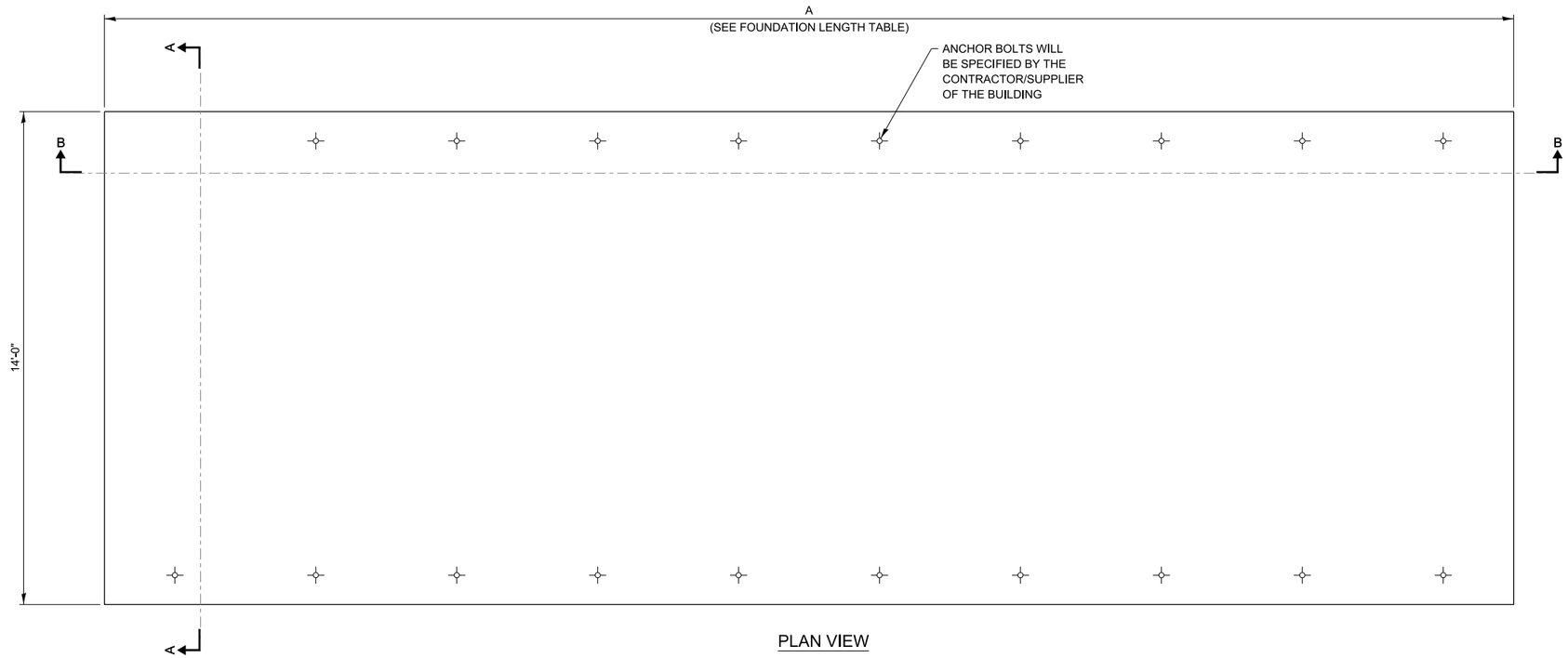
NOTES:

1. CONTRACTOR SHALL SEAL DOOR OPENING, DOOR FRAMING, AND ANY PROTRUSION/ACCESS CUT THROUGH BUILDING WALLS AGAINST RODENT OR PEST INFESTATION OR ACCESS, TO THE SATISFACTION OF THE ENGINEER.
2. THIS LAYOUT SHOWS PLAZA REMOTE CONTROL BUILDING COMBINED TO IPDC BUILDING
3. EQUIPMENT SHOWN IN GRAYSCALE IS EXISTING OR BY OTHERS.

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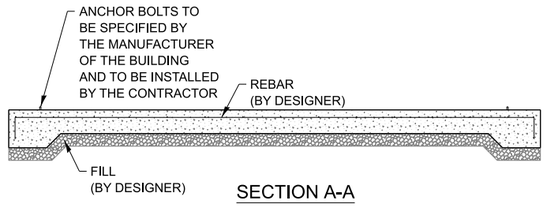
COMBINATION PLAZA-IPDC BUILDING INTERIOR ELEVATIONS

VERSION:	BASE SHEET:	SHEET:
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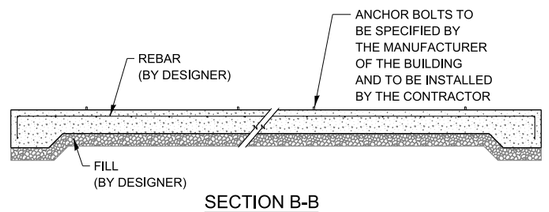


PLAN VIEW

FOUNDATION LENGTH TABLE	
IPDC BUILDING TYPE	DIMENSION
STANDARD IPDC	A = 32'
COMBINATION PLAZA/IPDC	A = 40'



SECTION A-A



SECTION B-B

NOTE TO DESIGNER

ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

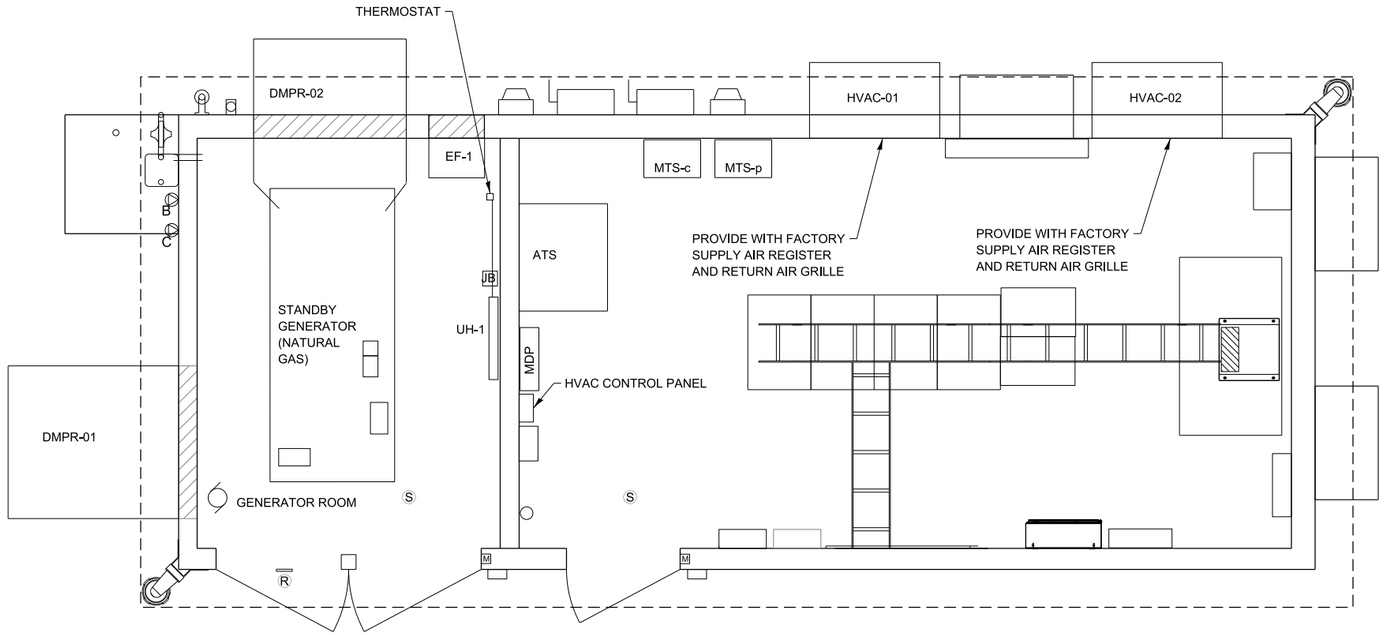
THIS DRAWING IS A CONCEPT FOUNDATION FROM A BUILDING MANUFACTURER. THE FOUNDATION MUST HAVE A FLAT TOP SLAB AS SHOWN IN THE DRAWING TO SUPPORT THE BUILDING FRAME.

THE DESIGNER SHALL DESIGN THE SLAB, FOOTERS, WALLS AND REINFORCING DETAILS AS NECESSARY TO SUPPORT THE BUILDING AND MEET LOCAL CODES.

Illinois Tollway

IPDC AND COMBINATION PLAZA-IPDC FACILITY CONCRETE FOUNDATION

VERSION:	BASE SHEET:	SHEET:
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IPDC BUILDING MECHANICAL PLAN

NOTES:

1. UNIT SHALL HAVE ARI CERTIFIED COILS, AIWCA RATED FANS, AND UL LISTED & LABELED ELECTRICAL COMPONENTS.
2. PROVIDE HVAC UNITS WITH FACTORY SUPPLY AND RETURN GRILLES.
3. HVAC PROVIDE LEAD/LAG THERMOSTAT CONTROLLER BARD MODEL #MC4001-AC WITH BASE ALARMS AND ETHERNET ACCESS.
4. ALL MANUFACTURERS AND PART NUMBERS ARE FOR REFERENCE. THE CONTRACTOR SHALL PROVIDE CALCULATIONS FOR HVAC AND HEATING SYSTEM BASED ON BUILDING CONSTRUCTION AND INTERNAL BUILDING LOADS.

NOTE TO DESIGNER

THE ESTIMATED EQUIPMENT BUILDING LOADS FOR FUTURE ITS RELATED EQUIPMENT INSTALLED IN CONTRACT 4308 IS 19,000 BTU/HR. THE DESIGNER SHALL SIZE THE HVAC SYSTEMS ACCORDINGLY.

A STANDARD IPDC BUILDING SHOWN. MECHANICAL PLAN SHALL BE SIMILAR FOR COMBINATION PLAZA/IPDC BUILDING. ITS LOADS WILL BE THE SAME. ADDITIONAL HVAC LOAD REQUIRED FOR PLAZA EQUIPMENT. HVAC UNITS SHALL BE LOCATED IN THE SAME POSITION FROM SERVICE DISCONNECTS FOR A COMBINATION PLAZA/IPDC BUILDING.

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ELECTRICAL ROOM

MARK	LOCATION	SERVES	NOM. TON	TOTAL AIRFLOW CFM	OUTSIDE AIRFLOW CFM	ESP (IN WG)	REFRIG. TYPE	COOLING DATA						HEATING DATA				ELECTRICAL DATA			MANUFACTURER/ MODEL NUMBER	REMARKS
								TOTAL CAP MBH	SENS CAP MBH	EAT (DEG F) DB	EAT (DEG F) WB	OUTDOOR TEMP (DEG F)	MIN. EER AT ARI CONDITIONS	CAP MBH	EAT (DEG F) DB	OUTDOOR TEMP (DEG F)	SUPPLEMENTAL HEATING (KW)	VOLTS	PH	HZ		
HVAC-01	OUTSIDE	BUILDING	4	1500	-	0.15	R454B A2L	45.5	34.0	75	62	90	11	17.1	70	0	5	240	1	60	BARD W5SAF0A05ZPXXXJ	
HVAC-02	OUTSIDE	BUILDING	4	1500	-	0.15	R454B A2L	45.5	34.0	75	62	90	11	17.1	70	0	5	240	1	60	BARD W5SAF0A05ZPXXXJ	

EXHAUST FAN

MARK	LOCATION	MAKE	MODEL	TYPE	CFM	ESP IN WG	FAN RPM	DRIVE TYPE	MOTOR DATA		NOTES
									HP	V / PH / HZ	
EF-1	GENERATOR ROOM	GREENHECK	SE1	EXHAUST FAN	750	0.25	1307	DIRECT	1/8	115/ 1/ 60	WITH MOTORIZED LOUVERS AND GALV. HOUSING, THERMOSTAT CONTROLLED

EXHAUST DAMPERS

MARK	LOCATION	DESCRIPTION	TYPE	MAKE	MODEL	SIZE	ELECTRICAL	NOTES
							V / PH / HZ	
DMPR-01	GENERATOR ROOM	SUPPLY DAMPER	MOTORIZED DAMPER	GREENHECK	VCD-23	48" x 48"	115/ 1/ 60	LOUVERS FAIL OPEN ON LOSS OF POWER, INSTALL HOOD WITH SS MESH FILTER ON EXTERIOR
DMPR-02	GENERATOR ROOM	EXHAUST DAMPER	MOTORIZED DAMPER	GREENHECK	135 TLCD	48" x 48"	460 / 3 / 60	LOUVERS FAIL OPEN ON LOSS OF POWER, INSTALL PARTIAL HOOD WITH STAINLESS STEEL WIRE GRID

ELECTRIC UNIT HEATER SCHEDULE (UH)

MARK	ROOM	MAKE	MODEL	TYPE	CAPACITY (kW)	CFM	V / PH / HZ	NOTES
UH-1	GENERATOR	INDEECO	ULI	WALL MOUNTED	2KW/1.5KW	300	240/ 1 / 60	INCLUDE DISCONNECT

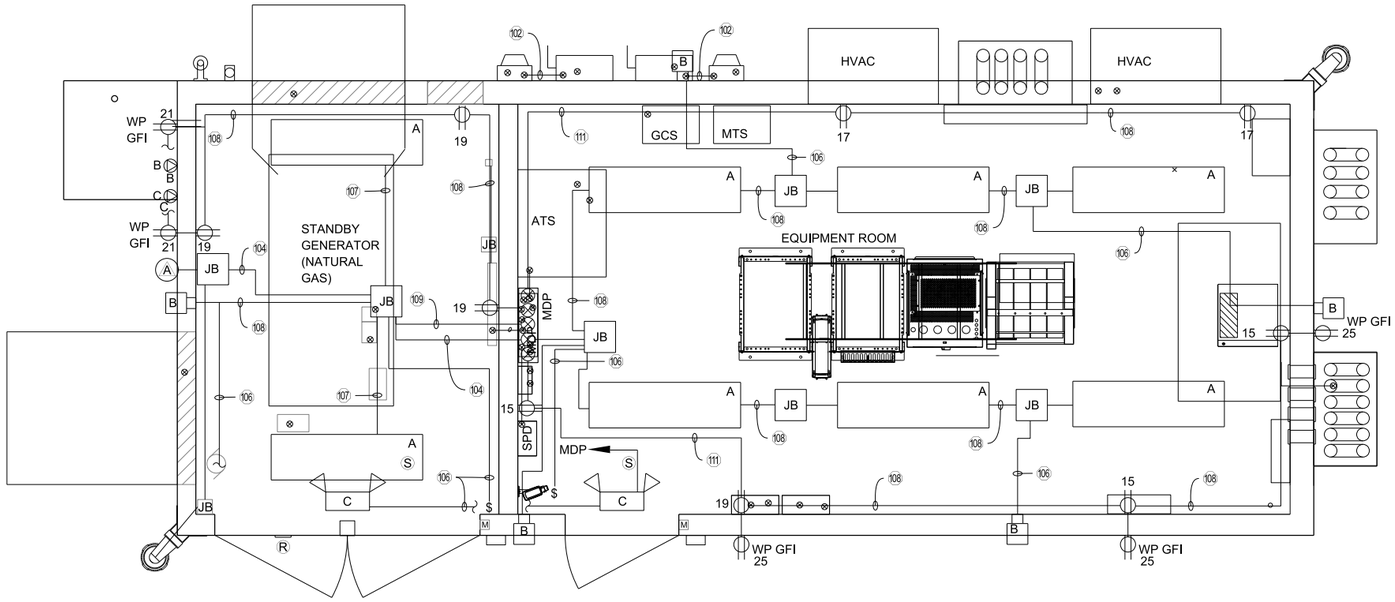
ABBREVIATION LEGEND

CFM - CUBIC FEET PER MINUTE

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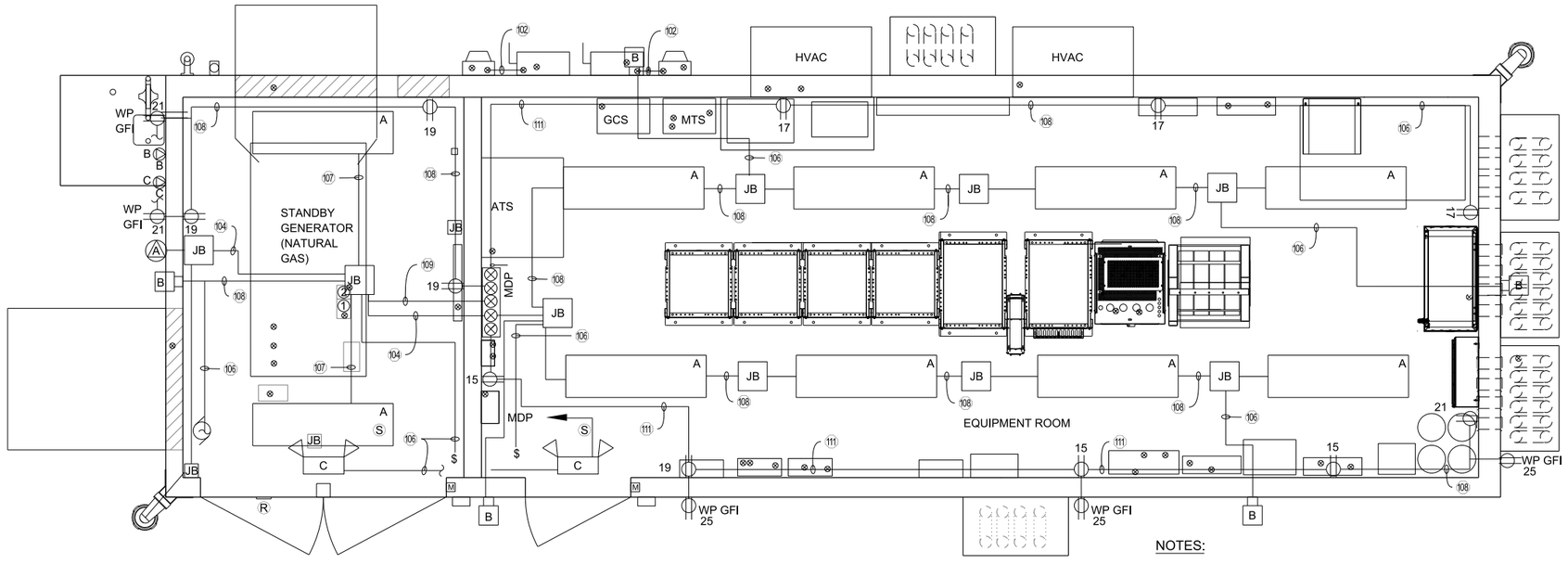
IPDC AND COMBINATION PLAZA-IPDC FACILITY MECHANICAL PLAN

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-1810	1 OF 1



IPDC FACILITY LIGHTING AND RECEPTACLE PLAN

NOT TO SCALE



COMBINATION PLAZA/IPDC FACILITY LIGHTING AND RECEPTACLE PLAN

NOT TO SCALE

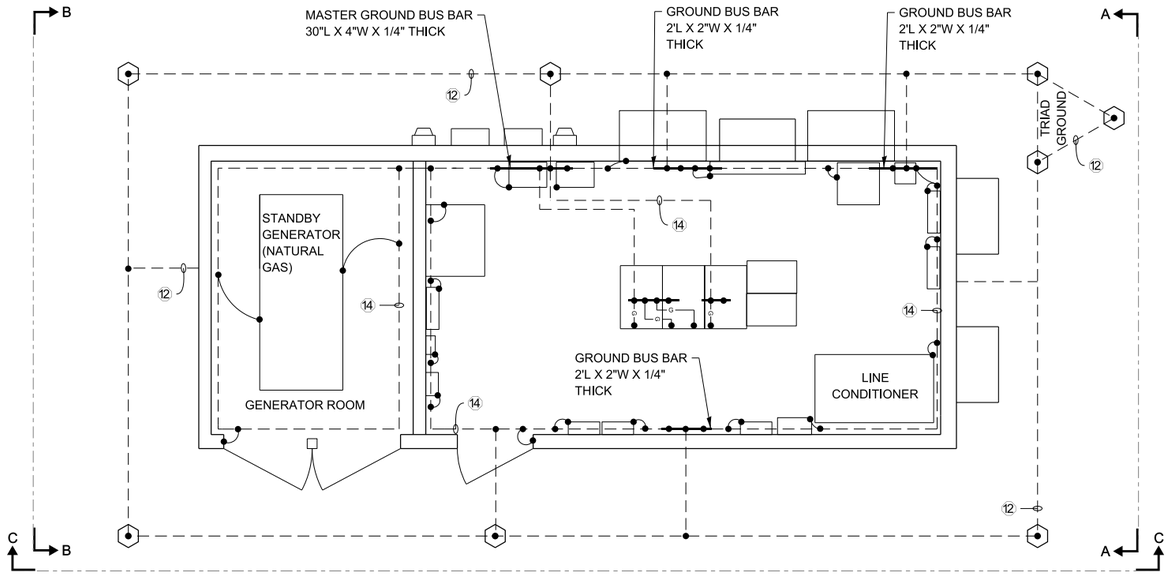
NOTES:

1. SEE IPDC FACILITY CABLE/CONDUIT SCHEDULE AND NOTES SHEET (M-ITS-1801)
2. RECEPTACLE AND LIGHTING CONDUIT SHALL BE 3/4" WITH 2-1/C #12 AND 1/C #12 GRD. UNLESS OTHERWISE NOTED.
3. SEE IPDC FACILITY LEGEND, SYMBOL LIST, ABBREVIATIONS, AND EQUIPMENT SCHEDULES SHEET (M-ITS-1800) FOR ADDITIONAL DETAILS

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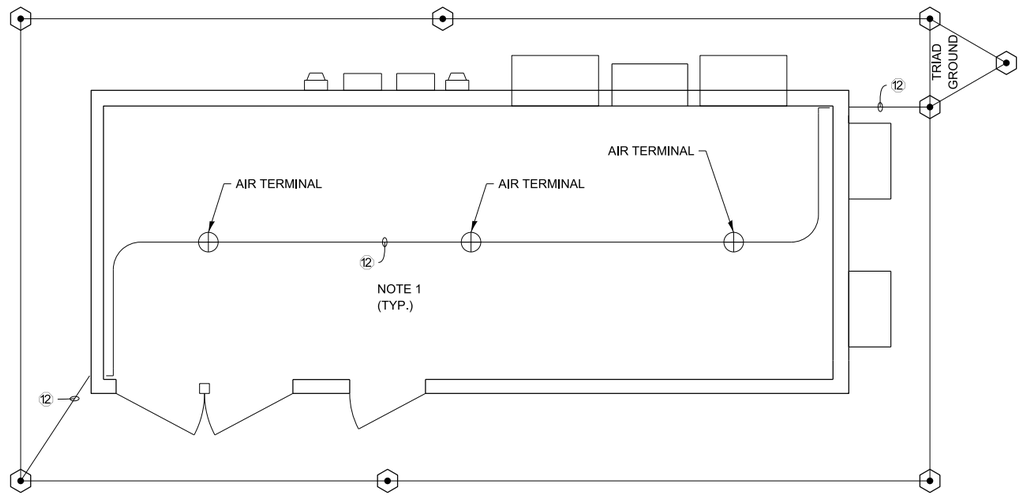
IPDC AND PLAZA-IPDC COMBINATION FACILITY LIGHTING AND RECEPTACLE PLAN

VERSION:	BASE SHEET:	SHEET:
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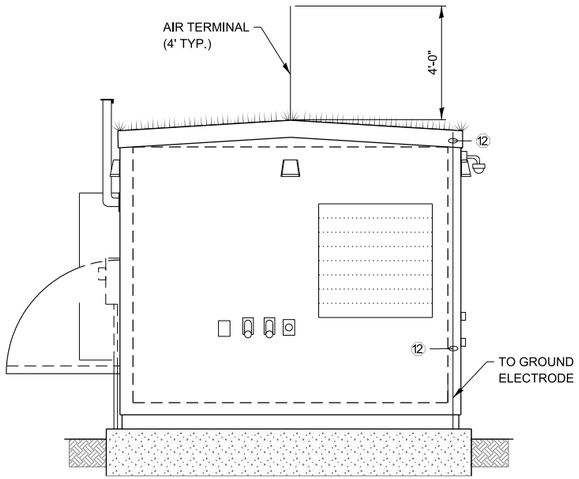
IPDC FACILITY ELECTRICAL GROUNDING LAYOUT

NOT TO SCALE



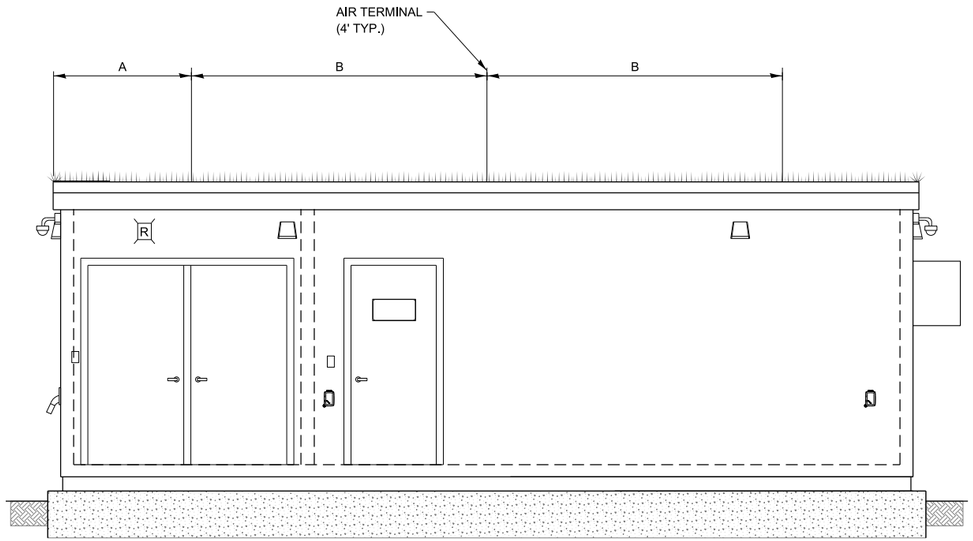
IPDC FACILITY - GROUNDING OF LIGHTNING PROTECTION SYSTEM

NOT TO SCALE



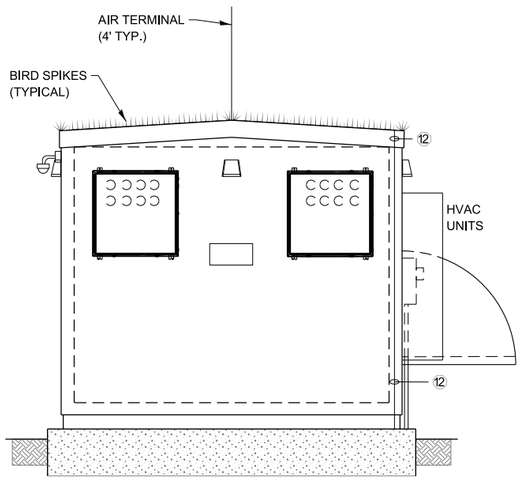
SECTION A-A

NOT TO SCALE



SECTION C-C

NOT TO SCALE



SECTION B-B

NOT TO SCALE

AIR TERMINAL TABLE			
	A	B	# OF TERMINALS
30' BUILDING	5'	10'	3
38' BUILDING	4'-9"	9'-6"	4

IPDC FACILITY - GROUNDING OF LIGHTNING PROTECTION SYSTEM

NOT TO SCALE

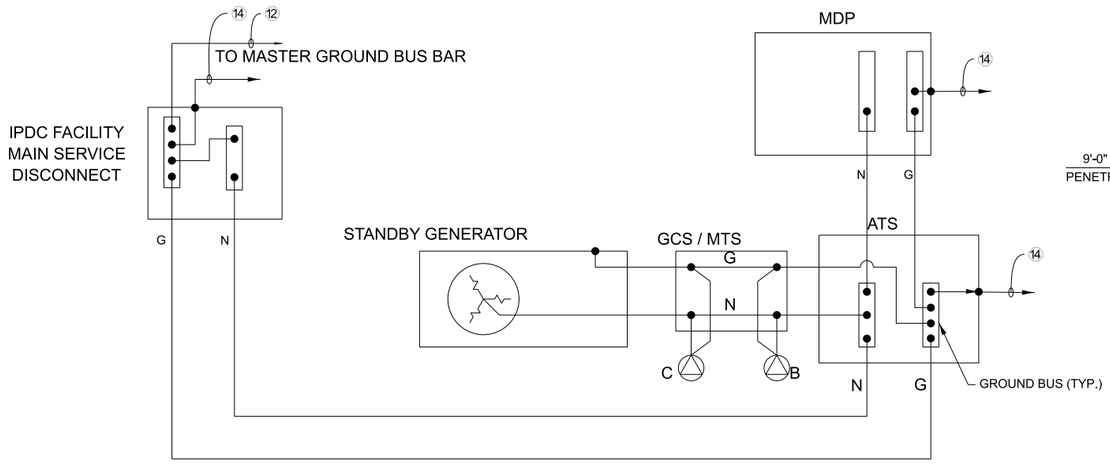
NOTES:

1. BOND BASE OF BIRD SPIKE ASSEMBLY TO GROUNDING CONDUCTOR FOR THE LIGHTNING PROTECTION SYSTEM.
2. 30' BUILDING LENGTH SHOWN. SEE TABLE FOR NUMBER OF AIR TERMINALS AND SPACING

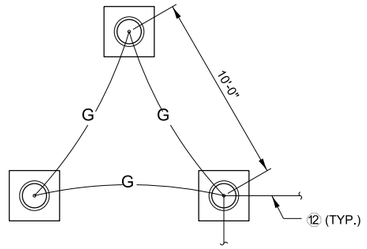
Illinois Tollway

IPDC AND PLAZA-IPDC COMBINATION FACILITY GROUNDING PLAN

VERSION:	BASE SHEET:	SHEET:
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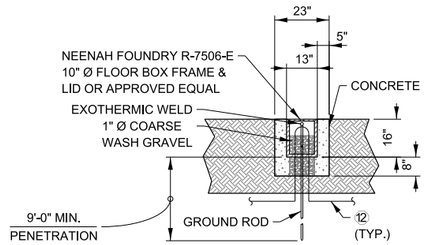


IPDC FACILITY GROUNDING SCHEMATIC



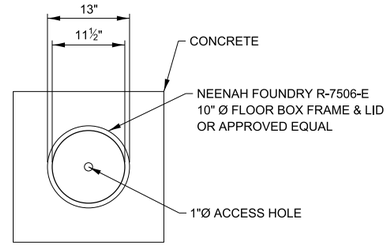
GROUND TRIAD DETAIL

NOT TO SCALE



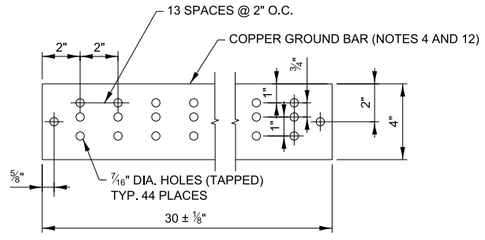
GROUND WELL ELEVATION DETAIL

NOT TO SCALE (NOTE 1 AT RIGHT)



GROUND WELL PLAN DETAIL

NOT TO SCALE

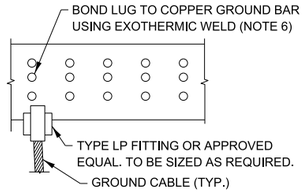


MASTER GROUND BUS BAR SUPPORT SPACING DETAIL

NOT TO SCALE

NOTES:

1. DETAIL SHOWS INSTALLATION IN UNPAVED AREA. WHEN INSTALLING IN A PAVED AREA, INCORPORATE GROUND WELL IN THE POUR.
2. GROUND WELLS ARE REQUIRED AT EVERY GROUND ROD.
3. PROVIDE 1" SCHEDULE 40 PVC CONDUIT FOR ALL GROUND CABLES UNDER BUILDING.
4. ALL COPPER GROUND BARS SHALL BE OF HARD DRAWN, COMMERCIALLY PURE, ELECTROLYTIC COPPER, FOR USE AS AN ELECTRICAL CONDUCTOR AND SHALL COMPLY WITH THE CURRENT VERSION OF ASTM SPEC. B-187 OF LATEST DATE.
5. BOLTS, NUTS, AND WASHERS USED FOR CONNECTION TO GROUND BUS BARS SHALL BE SOLID COPPER.
6. WELD PER MANUFACTURER SPECIFICATION (ERICO PRODUCTS OR BURNDY CORP.).
7. THE COPPER GROUND BUS BAR SHALL BE MOUNTED TO THE CABLE TRAY ABOVE EQUIPMENT RACKS.
8. PROVIDE A #2 AWG GROUND CABLE FROM THE FRAME OF EACH EQUIPMENT RACK TO THE GROUND BUS AS SHOWN. THE CABLE SHALL BE BOLTED TO THE RACK USING A SEAMLESS HEAVY DUTY COMPRESSION TERMINAL.
9. A 4 INCH GAP SHALL BE PROVIDED BETWEEN THE ENDS OF THE TWO CONDUCTORS THAT MAKE UP THE INTERNAL PERIMETER GROUND BUS CONDUCTOR.
10. ALL EQUIPMENT LOCATED INSIDE THE IPDC FACILITY PREFABRICATED BUILDING SHALL BE BONDED TO THE MAIN GROUND BUS OR THE INTERNAL PERIMETER GROUND CONDUCTOR WITH A #2 AWG GROUND CABLE. ALL CONNECTIONS MUST BE EXOTHERMICALLY WELDED.
11. THE INTERNAL PERIMETER GROUND BUS CONDUCTOR MUST BE INSTALLED HORIZONTALLY ALONG THE WALL APPROXIMATELY 8 FEET ABOVE FINISHED FLOOR. THE CONDUCTOR SHALL BE SUPPORTED 2 INCHES FROM THE WALL SURFACE ON INSULATED STANDOFFS. THE STANDOFFS SHALL BE INSTALLED AT INTERVALS AS NECESSARY TO KEEP THE CONDUCTOR SECURELY IN PLACE WITHOUT NOTICEABLE SAGS AND BENDS.
12. THE GROUND BUS BARS MUST BE MOUNTED APPROXIMATELY 8 FEET ABOVE FINISHED FLOOR AND MOUNTED TO WALL USING A MOUNTING BRACKET WITH INSULATOR.
13. SEE IPDC FACILITY CABLE/CONDUIT SCHEDULES AND NOTES SHEET (M-ITS-1800).
14. PROVIDE ¾" SCHEDULE 40 PVC CONDUIT FOR GROUND CABLE CONNECTING UPS PANEL TO MASTER GROUND BUS BAR.
15. PROVIDE EXOTHERMIC CONNECTION TO INTERNAL PERIMETER BUS CONDUCTOR.
16. GROUNDING SHALL BE PER MOTOROLA R56 STANDARD.



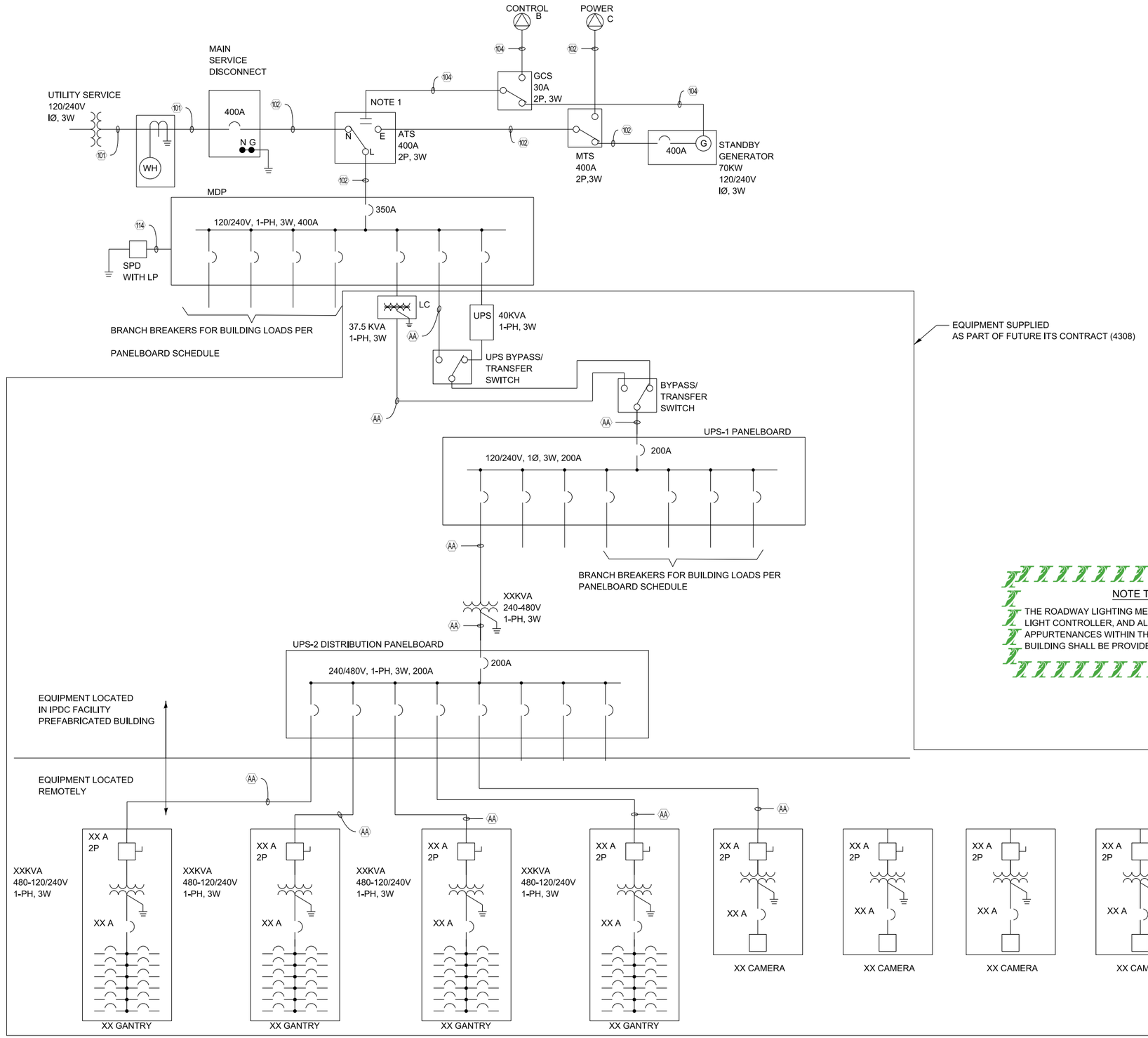
MASTER GROUND BUS BAR CONNECTION DETAIL

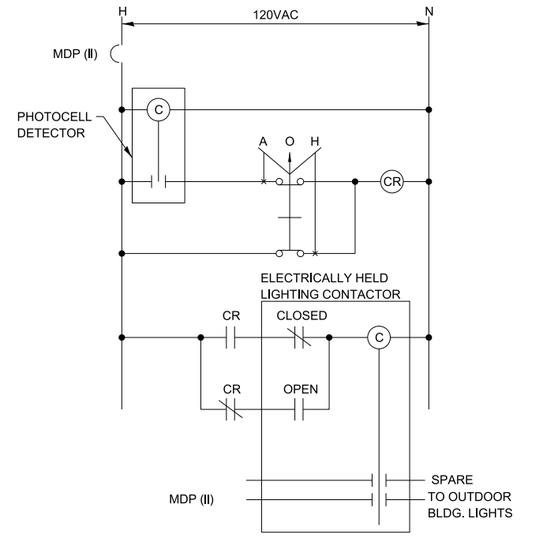
NOT TO SCALE

Illinois Tollway

IPDC AND COMBINATION PLAZA-IPDC GROUNDING SCHEMATIC AND DETAILS

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1813	1 OF 1





OUTDOOR LIGHTING CONTACTOR WIRING DIAGRAM

NOTE TO DESIGNER

THE ROADWAY LIGHTING METER HOUSING, DISCONNECT SWITCH, LIGHT CONTROLLER, AND ALL ROADWAY LIGHTING APPURTENANCES WITHIN THE IPDC FACILITY PREFABRICATED BUILDING SHALL BE PROVIDED BY THE ROADWAY CONTRACT.

NOTE TO DESIGNER

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NOTES:

1. CONTACT IN ATS TO INITIATE ENGINE STARTING CONTROLS.
2. SEE PANELBOARD SCHEDULE FOR CIRCUIT BREAKER SIZES.
3. EQUIPMENT INDICATED BY XXX ARE TO BE INSTALLED IN FUTURE ITS CONTRACT BY OTHERS.

Illinois Tollway

IPDC AND COMBINATION PLAZA-IPDC SINGLE LINE DIAGRAM

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1814	1 OF 1

PANELBOARD: MDP
VOLTAGE: 120/240
PHASE/WIRE: 1/3

MAIN: 350A
BUS RATING 400A
MOUNTING: SURFACE

CKT	CB SIZE	POLES	DESCRIPTION	WATTS A	WATTS B		WATTS A	WATTS B	DESCRIPTION	POLES	CB SIZE	CKT
1	225	2	UPS-1	10571			0		SURGE PROTECTOR	2	30	2
3					13537			0				4
5	20	2	HVAC UNIT 1	4560			4560		HVAC UNIT 2	2	20	6
7					4560			4560				8
* 9	15	1	EMERGENCY LIGHTS	50			100		GEN. ROOM EXHAUST FAN	1	20	10
11	15	1	OUTDOOR LIGHTS		126			100	GEN. BAT. CHARGER	1	20	12
13		1	INDOOR LIGHTS	300			1500		GEN. JACKET WATER HTR	1	20	14
15	20	1	INTERIOR RECEPTACLE 1		600			1000	GEN. ROOM HEATER	2	15	16
17	20	1	INTERIOR RECEPTACLE 2	300			1000					18
19	20	1	GENERATOR ROOM RECEPT.		450			0	SPARE	1	20	20
21							150		OUTDOOR RECEPTACLE 1	1	20	22
23								150	OUTDOOR RECEPTACLE 2	1	20	24
25							450		OUTDOOR RECEPTACLE 3	1	20	26
27								2750	OUTDOOR 240V RECEPTACLE	2	30	28
29							2750					30
				15781	19273	WATTS	10510	8560	WATTS			

TOTAL WATTS:	54124
KW:	54.1
KVA:	67.7

* PROVIDE WITH HANDLE LOCKING DEVICE

MDP

Illinois Tollway

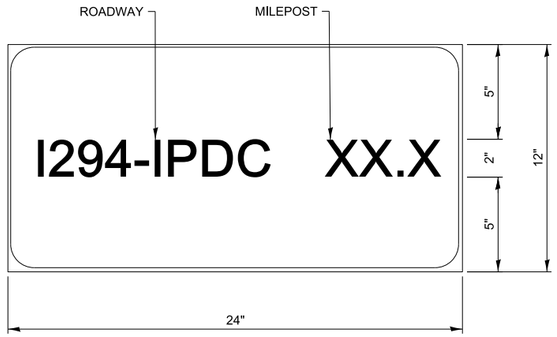
IPDC AND COMBINATION
PLAZA-IPDC FACILITY
PANELBOARD SCHEDULE

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1815	1 OF 1

NOTES:

1. IPDC FACILITY IDENTIFICATION SIGN MATERIAL SHALL MEET THE REQUIREMENTS OF ARTICLE 720.02 OF THE STANDARD SPECIFICATIONS.

2. IPDC FACILITY IDENTIFICATION SIGNS SHALL BE MOUNTED ONTO THE BUILDING USING BOLTS AND WASHERS ACCORDING TO ARTICLE 720.04 OF THE STANDARD SPECIFICATIONS.



1.5" RADIUS, 0.5" BORDER, BLACK ON WHITE

IPDC IDENTIFICATION SIGN

Illinois Tollway

IPDC FACILITY
IDENTIFICATION SIGN

VERSION:	BASE SHEET:	SHEET:
2024-03	M-ITS-1816	1 OF 1

BASE SHEETS

SERIES 1900 (ITS)

CONDUIT DETAILS AT INTEGRAL ABUTMENT BRIDGE

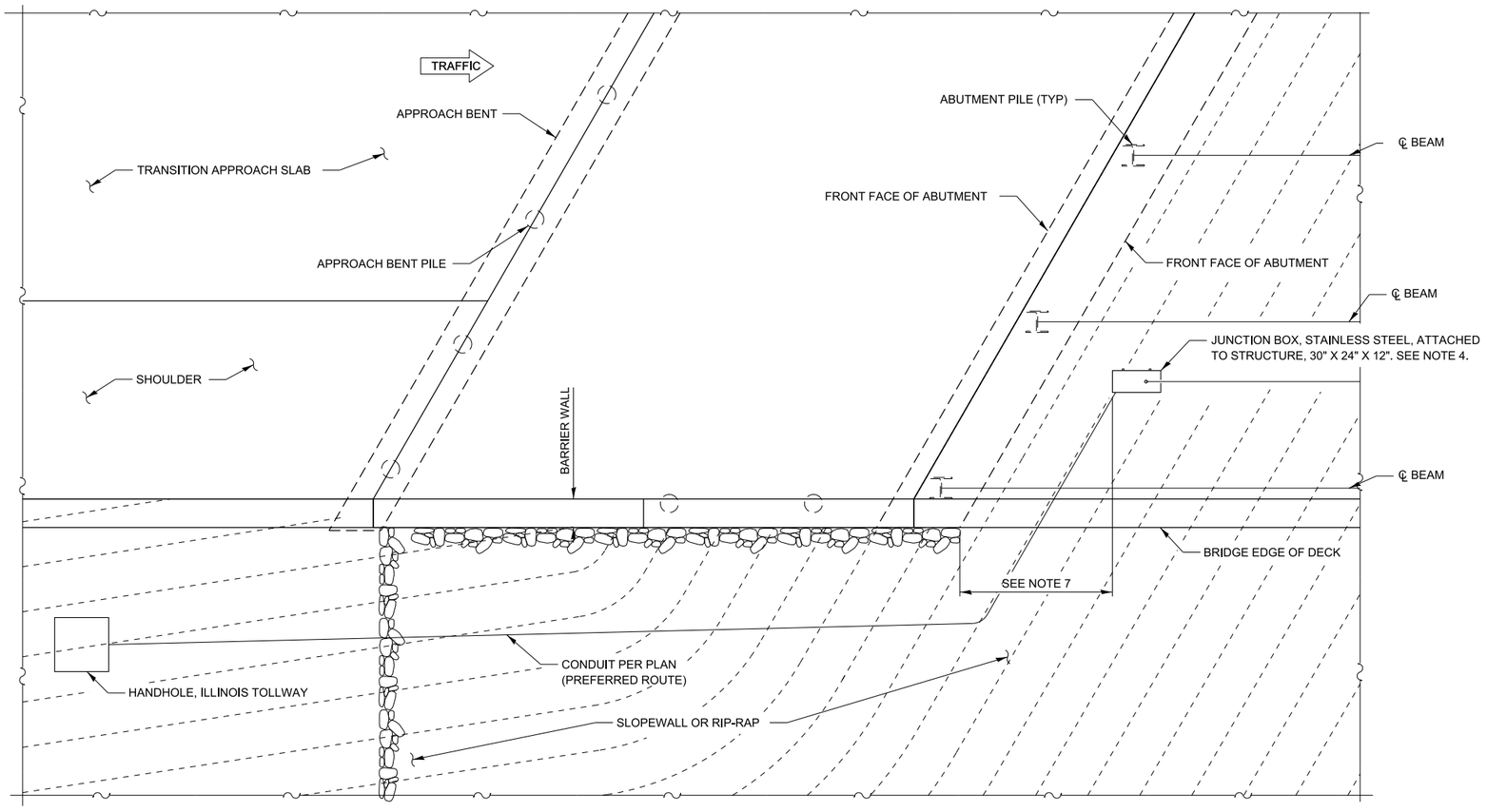
MARCH 2025

Illinois Tollway Base Sheet Revisions

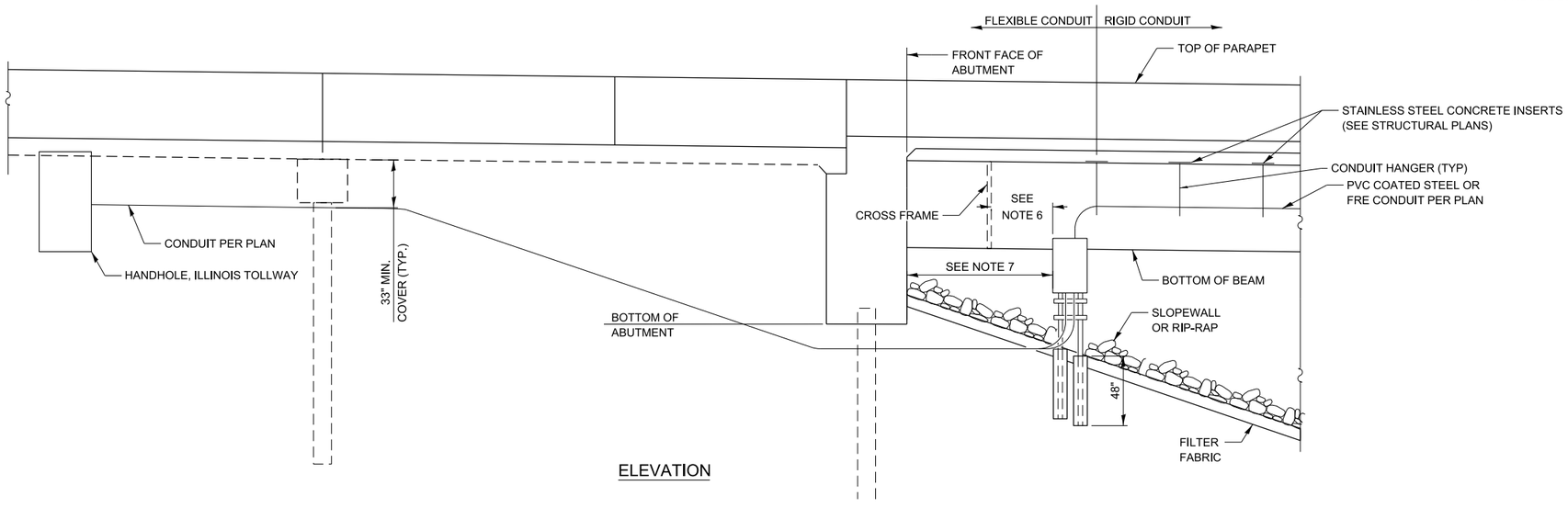
Section M	Base Sheet Drawings	
	Drawing	Modification Summary Effective: 03-01-2025
	Conduit Details at Integral Abutment Bridge (ITS)-Series 1900	
		NO CHANGES

New Sheet

Retired Standard



PLAN



ELEVATION

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

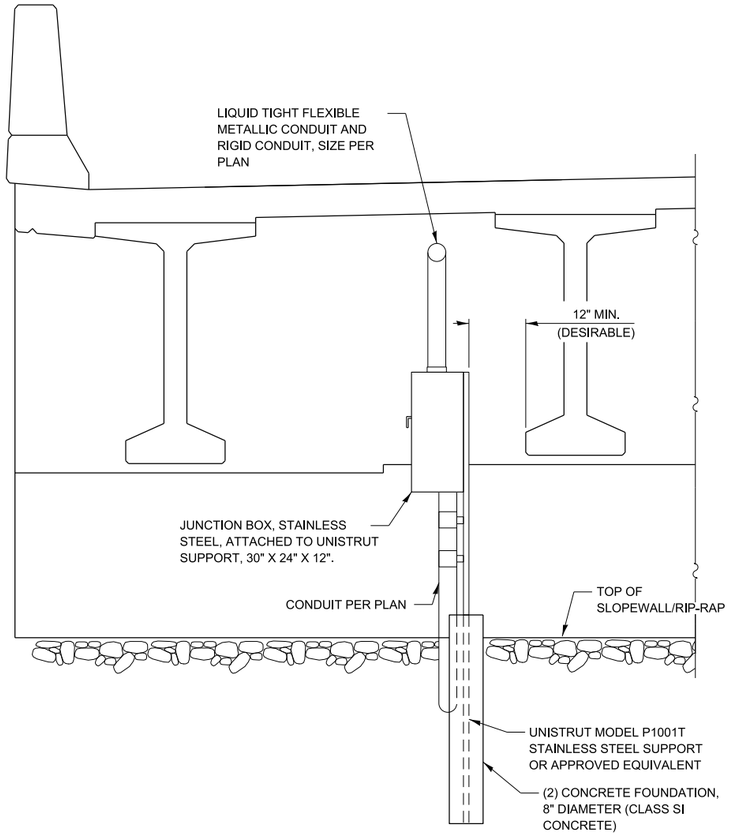
NOTES:

1. THE CONTRACTOR SHALL FURNISH & INSTALL A PULL TAPE THROUGH ALL CONDUITS INSTALLED AS PART OF THIS WORK.
2. ALL HARDWARE SHALL BE STAINLESS STEEL IN ACCORDANCE WITH ARTICLE 1006.31 OF THE STANDARD SPECIFICATIONS.
3. CONDUIT SHALL BE SUPPORTED AT A MAXIMUM INTERVAL OF 5' AND WITHIN 2.5' OF ANY JUNCTION BOX, COUPLING/FITTING, OR CHANGE IN DIRECTION.
4. THE JUNCTION BOX SHALL MEET THE REQUIREMENTS OF ARTICLE 1088.04 OF THE STANDARD SPECIFICATIONS. A HINGED DOOR AND PROVISIONS FOR 3-POINT LOCK OR A PADLOCK ARE REQUIRED.
5. FLEXIBLE CONDUIT SHALL BE LIMITED TO A MAXIMUM LENGTH OF 5'.
6. JUNCTION BOX SHALL BE LOCATED AT LEAST 24" FROM CROSS FRAMES.
7. PROVIDE DIMENSION FROM ABUTMENT.

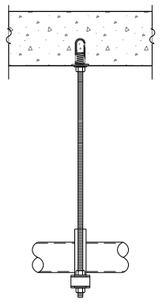
Illinois Tollway

CONDUIT DETAILS AT INTEGRAL ABUTMENT BRIDGE STANDARD SLOPE WALL

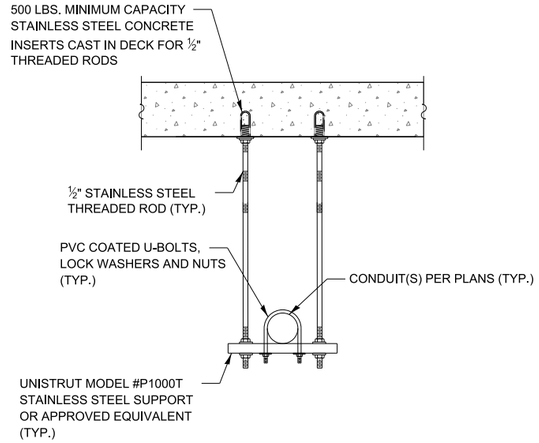
VERSION:	BASE SHEET:	SHEET:
2016-03	M-ITS-1900	1 OF 4



VIEW AT ABUTMENT - GROUND MOUNTED JUNCTION BOX



SIDE VIEW



SECTION VIEW

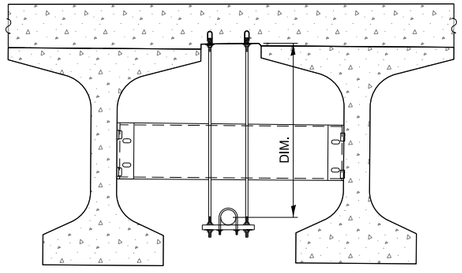
CONDUIT HANGER ASSEMBLY DETAIL

NOTES:

1. CONDUIT SHALL BE SUPPORTED AT A MAXIMUM INTERVAL OF 5' AND WITHIN 2.5' OF ANY JUNCTION BOX, COUPLING/FITTING, OR CHANGE IN DIRECTION.
2. ALL HARDWARE SHALL BE STAINLESS STEEL IN ACCORDANCE WITH ARTICLE 1006.31 OF THE STANDARD SPECIFICATIONS.
3. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION OF THE CONCRETE INSERTS WITH THE BRIDGE CONTRACTOR.
4. THE COST OF THE CONCRETE INSERTS SHALL BE INCLUDED IN THE COST OF CONDUIT ATTACHED TO STRUCTURE.
5. CONDUIT SHALL BE CENTERED BETWEEN THE BEAMS.
6. CONDUIT SHALL NOT COME INTO CONTACT WITH ANY BRACING OR OTHER STRUCTURAL MEMBERS.
7. PROVIDE 1" MINIMUM CLEARANCE TO ALL STRUCTURAL MEMBERS.

NOTE TO DESIGNER

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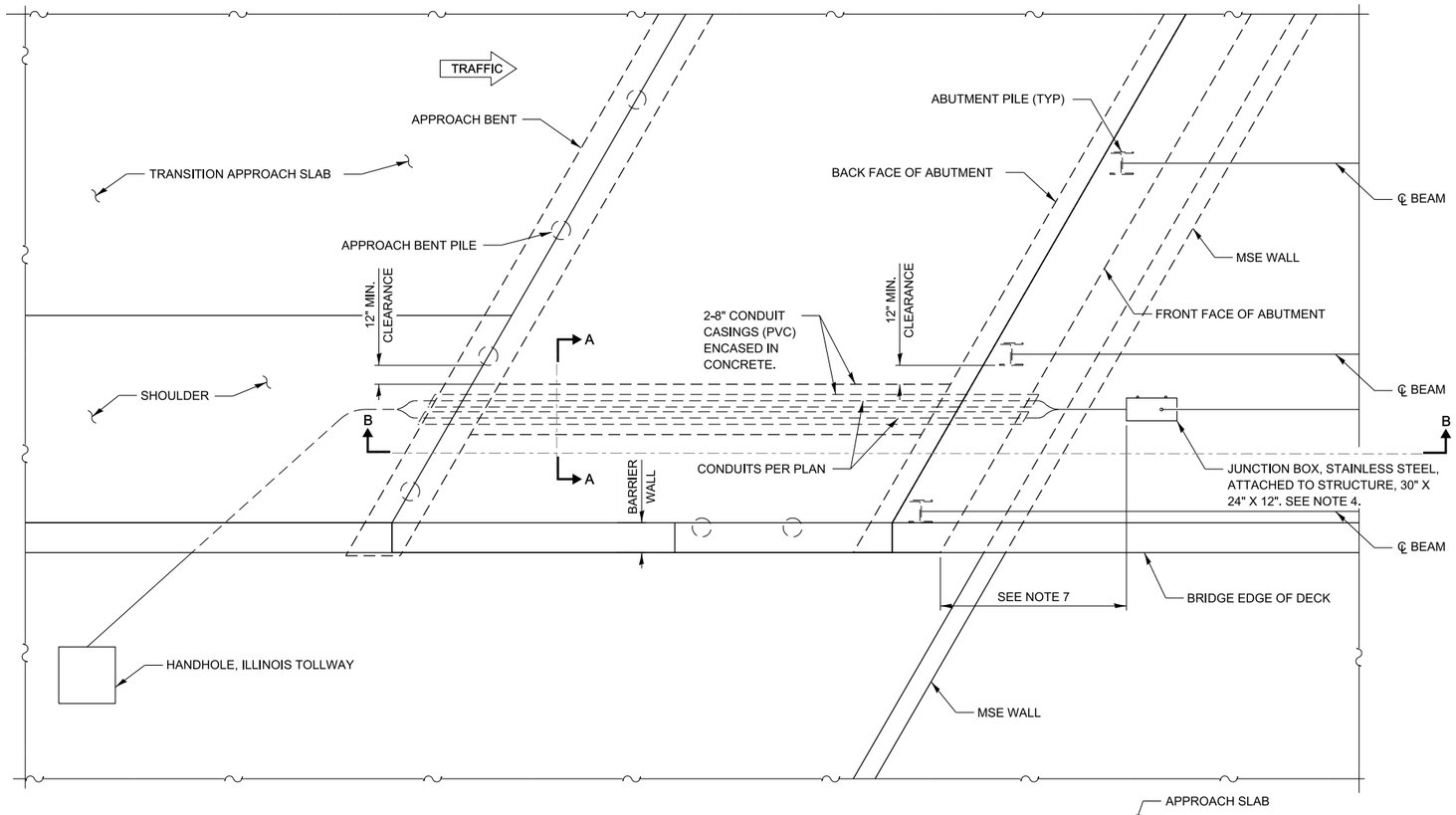


CONDUIT ROUTING AT DIAPHRAGM

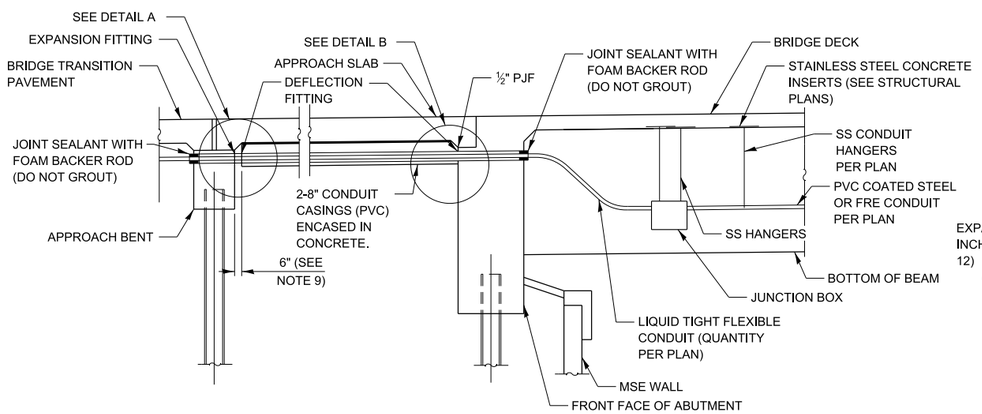
Illinois Tollway

CONDUIT DETAILS AT INTEGRAL ABUTMENT BRIDGE STANDARD SLOPE WALL

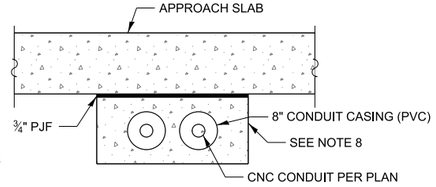
VERSION:	BASE SHEET:	SHEET:
2016-03	M-ITS-1900	2 OF 4



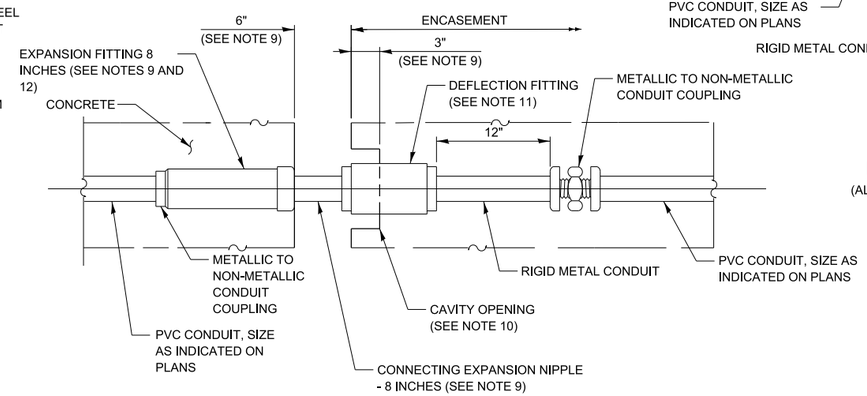
PLAN



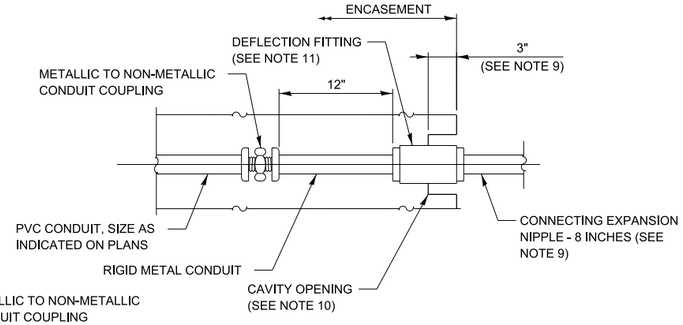
SECTION B-B



SECTION A-A



DETAIL A
CONDUIT EXPANSION / DEFLECTION COUPLING DETAIL
(ALL METALLIC PARTS SHALL BE STAINLESS STEEL)



DETAIL B
DEFLECTION COUPLING DETAIL
(ALL METALLIC PARTS SHALL BE STAINLESS STEEL)

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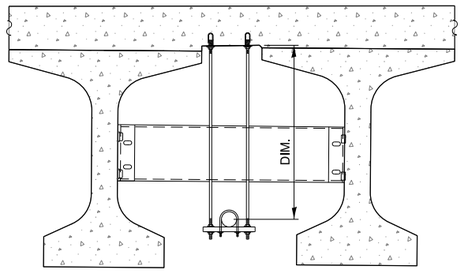
NOTES:

1. THE CONTRACTOR SHALL FURNISH & INSTALL A PULL TAPE THROUGH ALL CONDUITS INSTALLED AS PART OF THIS WORK.
2. ALL HARDWARE SHALL BE STAINLESS STEEL IN ACCORDANCE WITH ARTICLE 1006.31 OF THE STANDARD SPECIFICATIONS.
3. CONDUIT SHALL BE SUPPORTED AT A MAXIMUM INTERVAL OF 5' AND WITHIN 2.5' OF ANY JUNCTION BOX, COUPLING/FITTING , OR CHANGE IN DIRECTION.
4. THE JUNCTION BOX SHALL MEET THE REQUIREMENTS OF ARTICLE 1088.04 OF THE STANDARD SPECIFICATIONS.
5. FLEXIBLE CONDUIT SHALL BE LIMITED TO A MAXIMUM LENGTH OF 5'.
6. JUNCTION BOX SHALL BE LOCATED AT LEAST 24" FROM CROSS FRAMES.
7. PROVIDE DIMENSION FROM ABUTMENT.
8. PROVIDE A MINIMUM OF 3" CONCRETE ENCASEMENT AROUND CONDUIT.
9. DIMENSION SHOWN WILL VARY TO MEET THE REQUIREMENTS OF THE SPECIFIC PROJECT.
10. A CAVITY OPENING SHALL BE 3 IN. LARGER IN DIAMETER THAN THE DEFLECTION SLEEVE LENGTH.
11. THE DEFLECTION FITTING SHALL BE CENTERED IN THE OPENING AND EMBEDDED IN THE CONCRETE ONLY UP TO THE DEFLECTION FITTING CENTER.
12. THE BARREL OF THE FITTING SHALL BE FULLY EMBEDDED IN THE CONCRETE.
13. COUPLING MUST BE PROPERLY INSTALLED TO ACHIEVE ACCEPTABLE PERFORMANCE

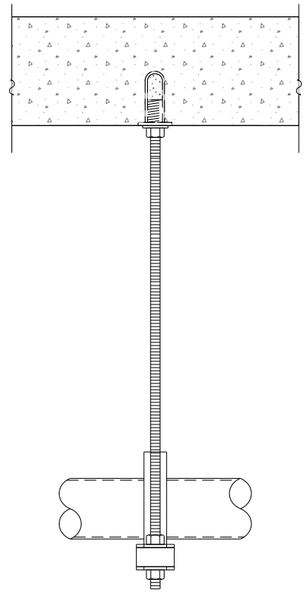
Illinois Tollway

CONDUIT DETAILS AT INTEGRAL ABUTMENT BRIDGE WITH MSE WALL

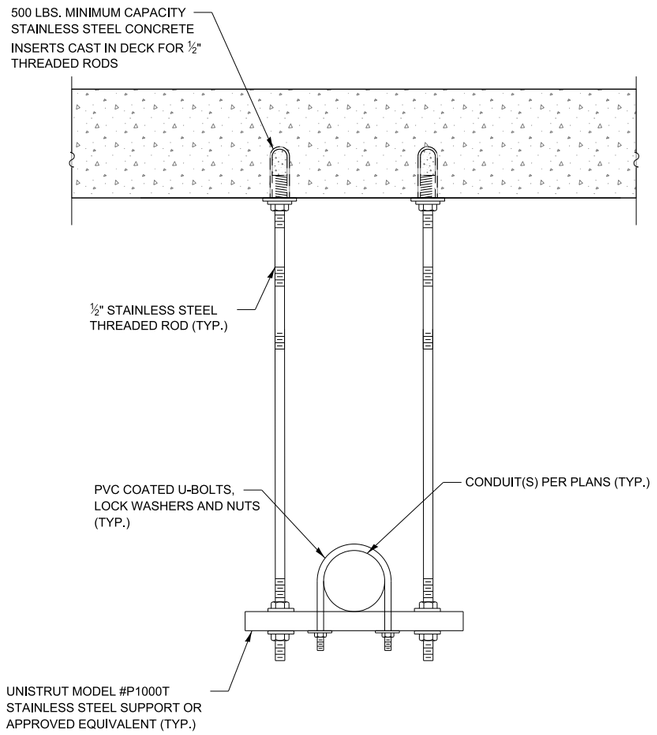
VERSION:	BASE SHEET:	SHEET:
2021-03	M-ITS-1900	3 OF 4



CONDUIT ROUTING AT DIAPHRAGM



SIDE VIEW



SECTION VIEW

CONDUIT HANGER ASSEMBLY DETAIL

NOTES:

1. CONDUIT SHALL BE SUPPORTED AT A MAXIMUM INTERVAL OF 5' AND WITHIN 2.5' OF ANY JUNCTION BOX, COUPLING/FITTING, OR CHANGE IN DIRECTION.
2. ALL HARDWARE SHALL BE STAINLESS STEEL IN ACCORDANCE WITH ARTICLE 1006.31 OF THE STANDARD SPECIFICATIONS.
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7. PROVIDE 1" MINIMUM CLEARANCE TO ALL STRUCTURAL MEMBERS.

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Illinois Tollway

CONDUIT DETAILS AT INTEGRAL ABUTMENT BRIDGE WITH MSE WALL

VERSION:	BASE SHEET:	SHEET:
2016-03	M-ITS-1900	4 OF 4

BASE SHEETS

SERIES 2000 (ITS)

100 FT MONOPOLE CAMERA TOWER

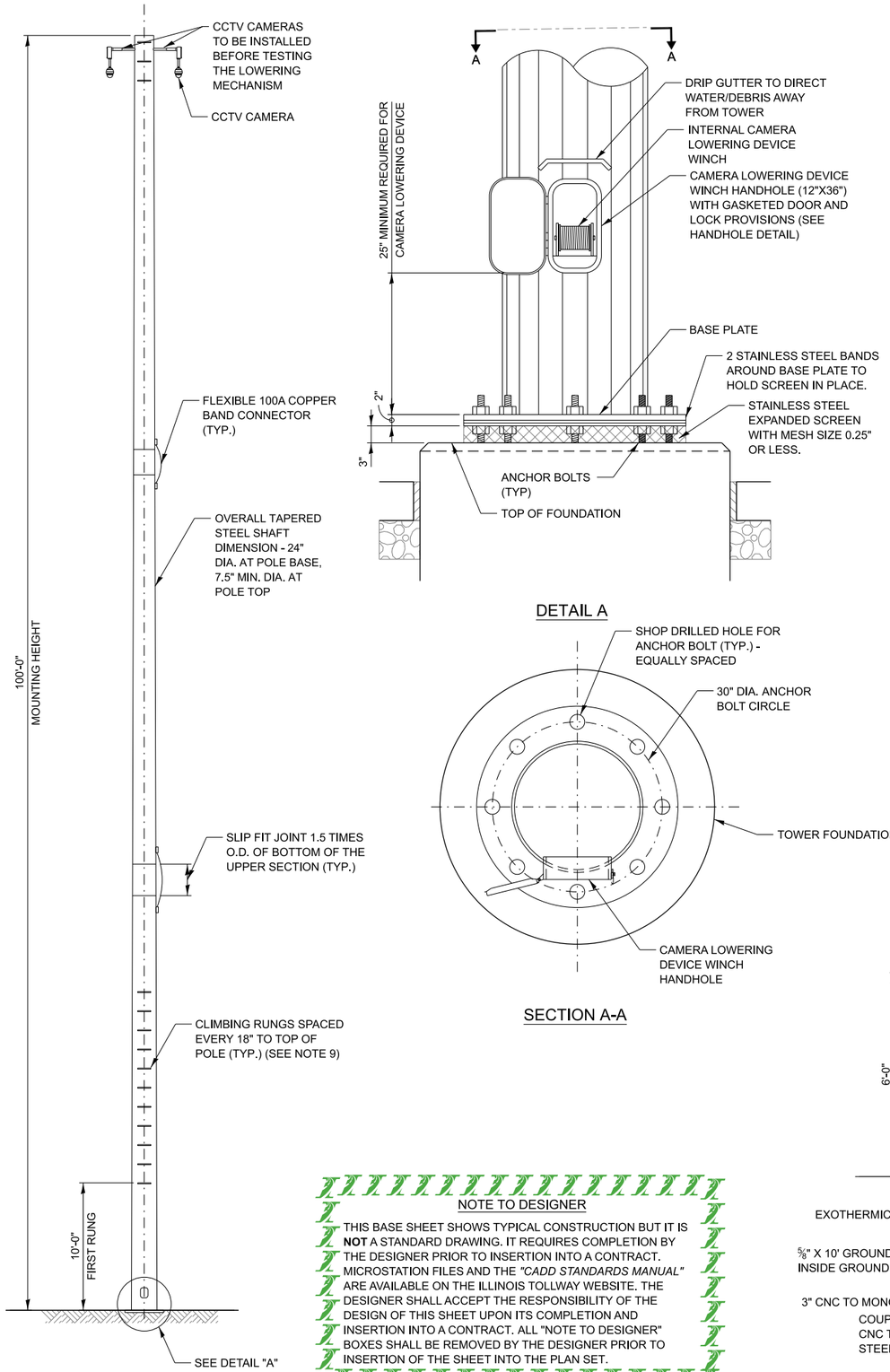
MARCH 2025

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	100 FT. Monopole Camera Tower (ITS)-Series 2000	
	M-ITS-2000	**100 Ft. Monopole Closed Circuit Television (CCTV) Camera Tower**
	Sheet 1	Revised Note 14 to say "CAT 6" instead of "Cat 6"

New Sheet

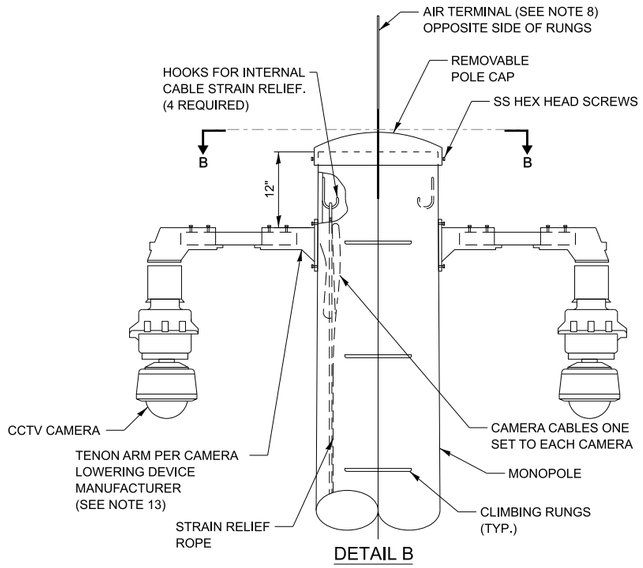
Retired Standard



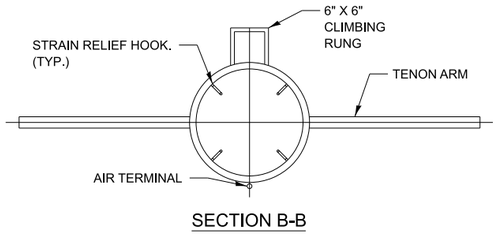
MONOPOLE TOWER

DETAIL A

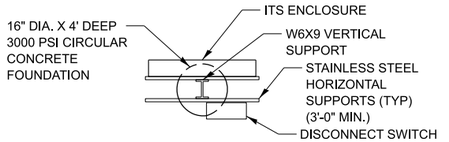
SECTION A-A



DETAIL B

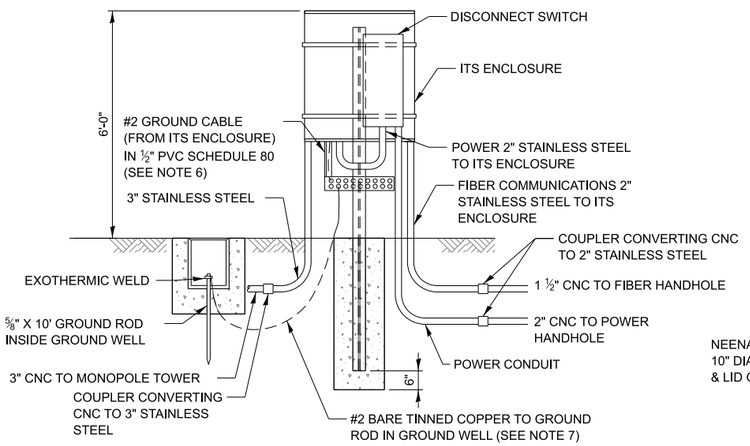


SECTION B-B



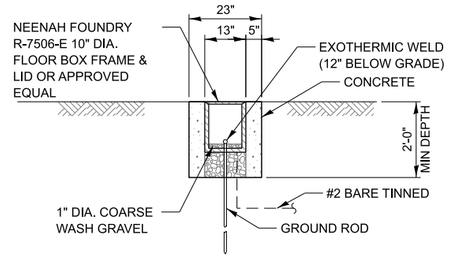
ITS ENCLOSURE PLAN DETAIL

NOT TO SCALE



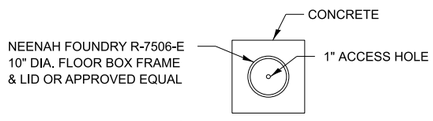
ITS ENCLOSURE ELEVATION DETAIL

NOT TO SCALE



GROUND WELL ELEVATION DETAIL

NOT TO SCALE



GROUND WELL PLAN DETAIL

NOT TO SCALE

NOTE TO DESIGNER

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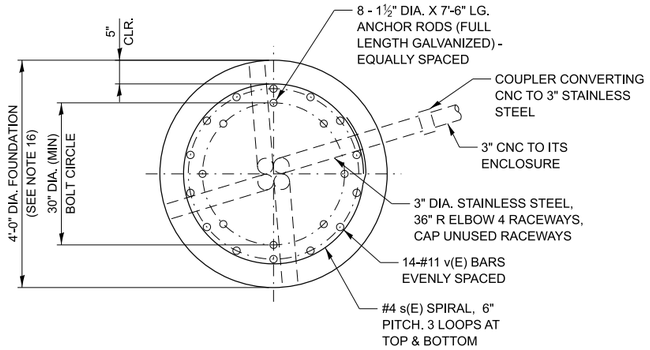
NOTES:

1. THE MONOPOLE TOWER SHALL BE DESIGNED TO SATISFY FATIGUE CRITERIA PER AASHTO SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS 7TH ED. WITH 2017 & 2018 INTERIMS (NOTED HEREIN AS AASHTO) WITH THE PROCEDURE AND EXCEPTIONS AS NOTED IN SECTION 1069 OF THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
2. CAMERA WIRES SHALL EXTEND 24 INCHES LONGER THAN THEIR RESPECTIVE TENON ARM AND SHALL BE TRAINED BACK INTO THE ARM/POLE WHICH SHALL THEN BE CLOSED WITH A CAP AS SPECIFIED. ALL WIRES SHALL BE CAPPED WITH HEAT SHRINK INSULATING BOOTS. CRIMP CAPS ARE UNACCEPTABLE. ALL WIRES SHALL BE TAGGED WITH WIRE MARKERS AT BOTH ENDS. THE TENON ARMS SHALL BE TAGGED CORRESPONDING TO THE WIRING CONTAINED WITHIN.
3. ALL MULTI-CONDUCTOR CABLES SHALL BE FITTED WITH A HEAT-SHRINK MULTI-LEG BOOT. THE BOOT SHALL MEET MILITARY SPECIFICATION MIL-I-81765/1.
4. TENON ARM SHALL BE AS REQUIRED BY CAMERA LOWERING DEVICE MANUFACTURER.
5. CAMERA MOUNTING HARDWARE SHALL BE WATERTIGHT.
6. 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 EXOTHERMIC WELD.
8. AIR TERMINAL SHALL EXTEND A MINIMUM OF 3 FEET ABOVE TOP OF TOWER. AIR TERMINAL SHALL CONNECT TO TOWER USING STRAPS OR CLAMPS APPROVED BY THE ENGINEER. AIR TERMINAL SHALL BE EXOTHERMIC WELDED TO A #2/0 GROUNDING CONDUCTOR. GROUNDING CONDUCTOR SHALL BE STRAPPED TO MONOPOLE TOWER EVERY 10 FEET. GROUNDING CONDUCTOR SHALL EXTEND TO AND BE EXOTHERMIC WELDED TO THE NEAREST TOWER GROUND ROD.
9. CLIMBING RUNGS SHALL BE ORIENTED 90° FROM TENON ARMS AND ON THE SIDE OF POLE FACING AWAY FROM TRAFFIC. THE ORIENTATION OF CRANK HANDHOLE RELATIVE TO CAMERAS SO CAMERAS ARE NOT DIRECTLY ABOVE THE MAINTENANCE PERSONNEL.
10. FOUNDATION AND SERVICE PAD SHALL BE IN ACCORDANCE WITH SECTION 837 OF THE STANDARD SPECIFICATIONS AND PAID FOR AS LIGHT TOWER FOUNDATION, 48" DIAMETER (83700300).
11. MONOPOLE, LOWERING DEVICE, AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISION "MONOPOLE CCTV CAMERA TOWER ASSEMBLY".
12. THE MONOPOLE TOWER, ITS ENCLOSURE, AND FENCE GROUNDING SHALL BE IN ACCORDANCE WITH ILLINOIS TOLLWAY SPECIAL PROVISION "ITS ELEMENT SITE GROUNDING".
13. TENON ARMS MAY OPTIONALLY BE "TOP-MOUNTED".
14. TEST THE CAT 6 COMMUNICATION CABLE THAT WILL RUN FROM THE ITS ENCLOSURE UP TO EACH OF THE CCTV INSTALLED. TEST FOR CONTINUITY DURING INSTALLATION. IF ITS ENCLOSURE IS NOT INSTALLED AT THE TIME OF THE CAT 6 ETHERNET CABLE INSTALLATION INSIDE THE MONOTUBE UP TO EACH OF CCTV THEN TEST THE CONTINUITY AT BOTH END OF THE CAT 6 CABLE.

Illinois Tollway

100 FT. MONOPOLE CLOSED CIRCUIT TELEVISION (CCTV) CAMERA TOWER

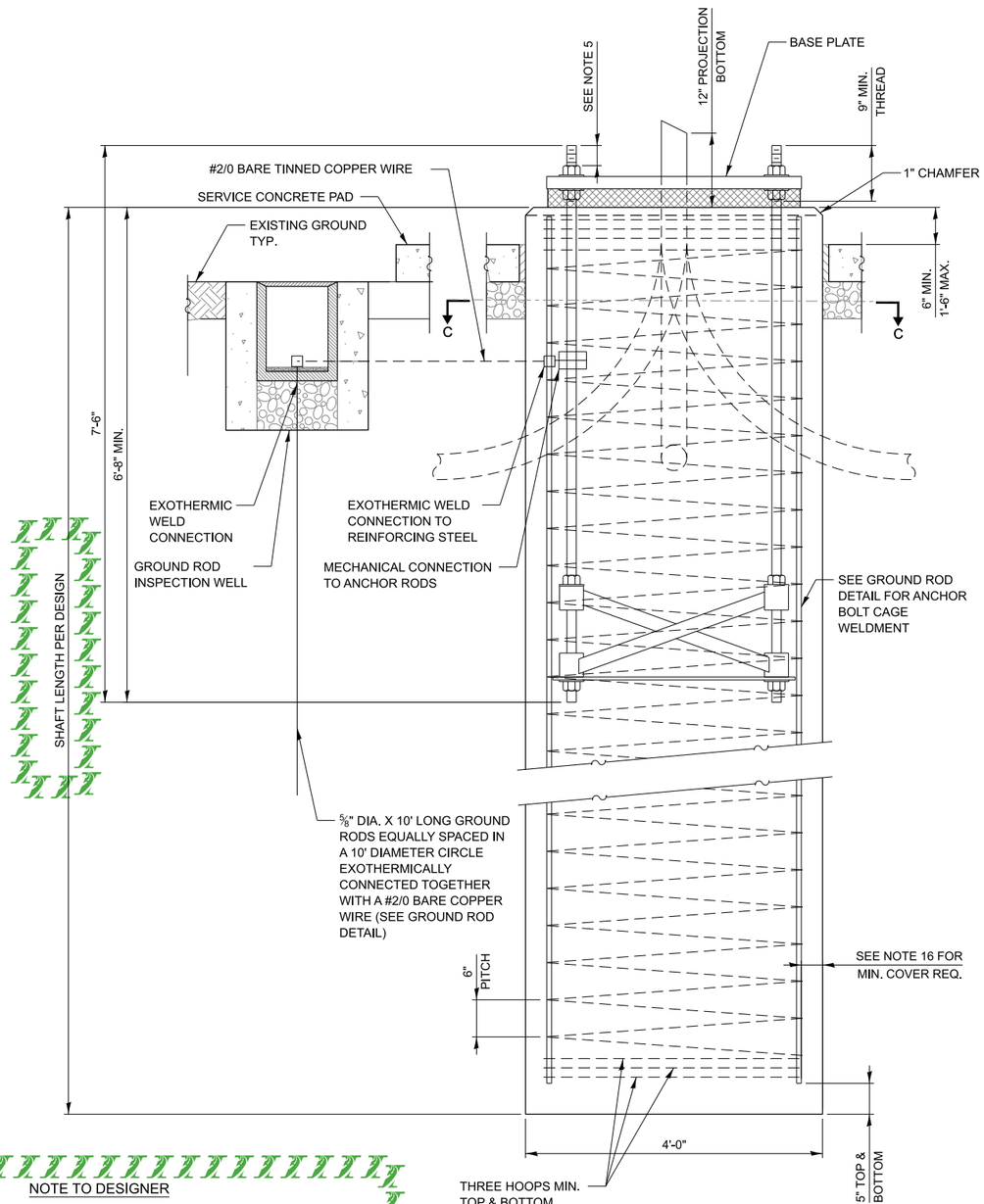
VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-2000	1 OF 4



SECTION C-C

MONOPOLE FOUNDATION SCHEDULE						
STATION	SHAFT LENGTH	BAR	NUMBER	SIZE	LENGTH	SHAPE
		v(E)	14	11	SHAFT LENGTH-10"	—
		#4 SPIRAL s(E) - SEE FOUNDATION ELEVATION				
		v(E)	14	11	SHAFT LENGTH-10"	—
		#4 SPIRAL s(E) - SEE FOUNDATION ELEVATION				
		v(E)	14	11	SHAFT LENGTH-10"	
		#4 SPIRAL (E) - SEE FOUNDATION ELEVATION				

SHAFT LENGTH TABLE			
SOIL CONSISTENCY		AVERAGE STRENGTH Qu in tsf	SHAFT LENGTH
Cohesive	SOFT	< 0.5	22'-6"
	MEDIUM	0.5 to 1	18'-6"
	STIFF	1 to 2	15'-6"
	VERY STIFF	2 to 4	13'-6"
	HARD	> 4	12'-0"
		N in BLOWS/FT.	
Granular	VERY LOOSE	< 5	18'-0"
	LOOSE	5 to 10	16'-6"
	MEDIUM	10 to 25	15'-6"
	DENSE	25 to 50	15'-0"
	VERY DENSE	> 50	14'-0"



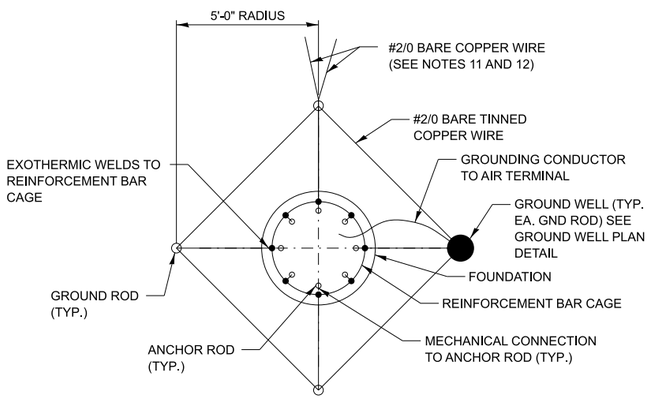
FOUNDATION ELEVATION

NOTE TO DESIGNER

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NOTES:

1. THE ANCHOR RODS SHALL BE VERTICAL. NO ADJUSTMENT SHALL BE ALLOWED AFTER THE FOUNDATION IS PLACED.
2. THE TOP OF THE FOUNDATION TO 18" BELOW GRADE SHALL BE FORMED.
3. SURFACE WATER WILL NOT BE PERMITTED TO ENTER THE HOLE AND ALL WATER WHICH MAY HAVE INFILTRATED INTO THE HOLE SHALL BE REMOVED BEFORE PLACING CONCRETE.
4. TWO ANCHOR RODS OPPOSITE EACH OTHER SHALL HAVE ROD THREADS PEENED AFTER NUTS ARE INSTALLED.
5. A MINIMUM OF THREE FULL THREADS SHALL REMAIN EXPOSED AFTER MONOPOLE TOWER IS INSTALLED.
6. STEEL ANCHOR ROD FORMS SHALL NOT BE REMOVED FOR A MINIMUM OF 3 DAYS AFTER CONCRETE IS POURED. THE TOWER SHALL NOT BE SET UNTIL THE CONCRETE HAS BEEN CURED ACCORDING TO ART. 1020.13 OF THE STANDARD SPECIFICATIONS, OR AS APPROVED BY THE ENGINEER.
7. ANCHOR ROD QUANTITY, DIAMETER, AND LENGTH SHALL BE DETERMINED BY THE TOWER MANUFACTURER AND APPROVED BY THE ENGINEER. EACH FOUNDATION SHALL HAVE A MINIMUM OF 8 ANCHOR RODS.
8. COORDINATE THE ROD CIRCLE DIAMETER OF THE TOWER WITH THE DIAMETER OF THE ANCHOR ROD CAGE.
9. THE FOUNDATION SHALL BE POURED MONOLITHICALLY AND SHALL HAVE NO CONSTRUCTION JOINTS.
10. ALL GROUNDING INDICATED ON THE PLANS SHALL BE INCLUDED IN THE COST OF ITS ELEMENT SITE GROUNDING.
11. FOUNDATION GROUNDING RING IS TO BE CONNECTED TO PLAZA BUILDING GROUNDING HALO, IF WITHIN 100 FEET OF ONE ANOTHER.
12. FOUNDATION GROUNDING RING IS TO BE CONNECTED TO ITS ENCLOSURE GROUNDING.
13. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
14. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF DIFFERENT SOILS ARE FOUND DURING CONSTRUCTION THAN AS SHOWN IN THE SOIL BORINGS.
15. THE DRILLED SHAFT FOUNDATION CONCRETE SHALL BE CLASS DS WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI. THE REINFORCEMENT BARS SHALL HAVE A MINIMUM FIELD STRENGTH OF 60,000 PSI.
16. FOUNDATION DIAMETER BASED ON 5" CONCRETE COVER. THE MINIMUM COVER SHALL BE 3" IN DRY SHAFT EXCAVATION AND 4" IN A WET HOLE. WHEN ROCK IS ENCOUNTERED A 5" COVER AGAINST SOIL AND A 2" COVER AGAINST ROCK SHALL BE REQUIRED.

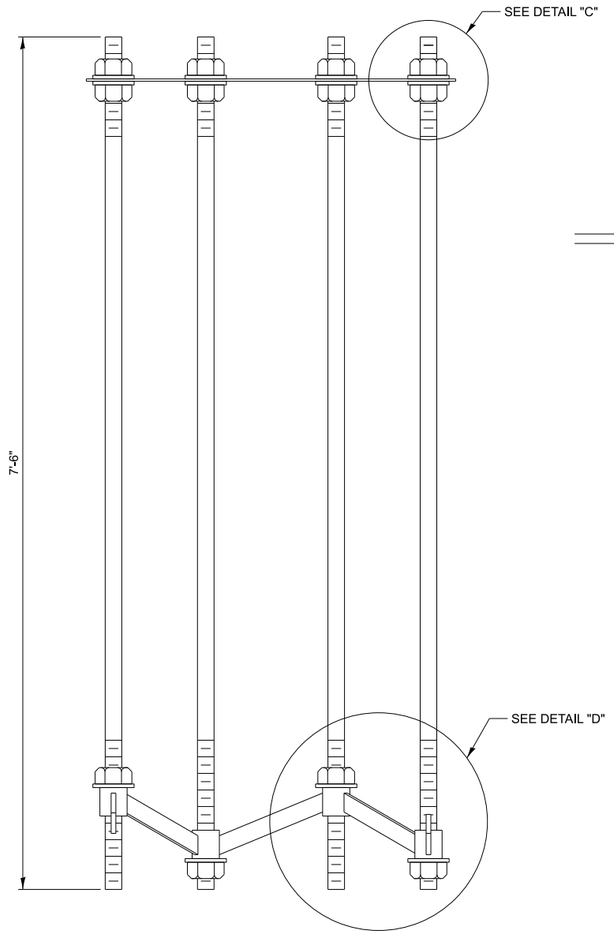


GROUND ROD DETAIL

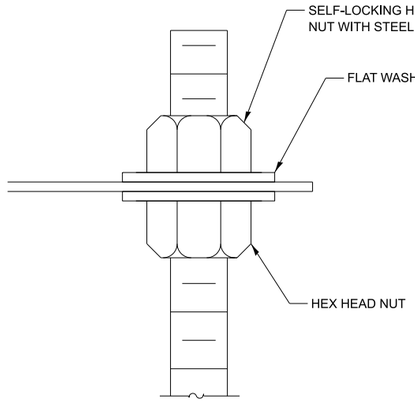
Illinois Tollway

100 FT. MONOPOLE CLOSED CIRCUIT TELEVISION (CCTV) CAMERA TOWER

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-2000	2 OF 4



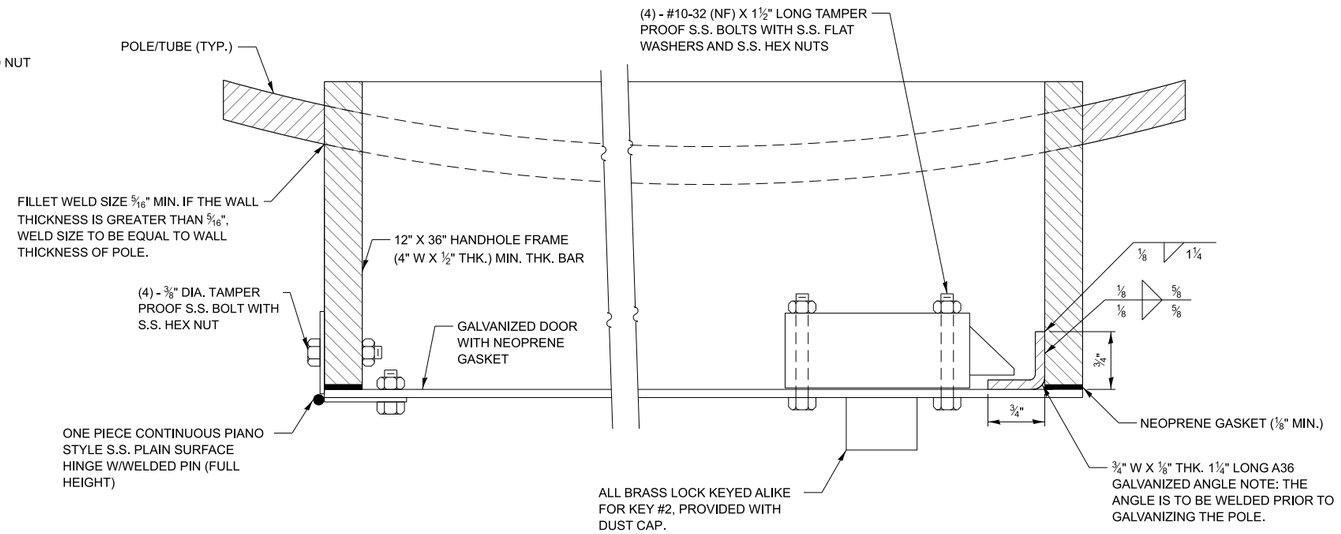
SECTION D-D



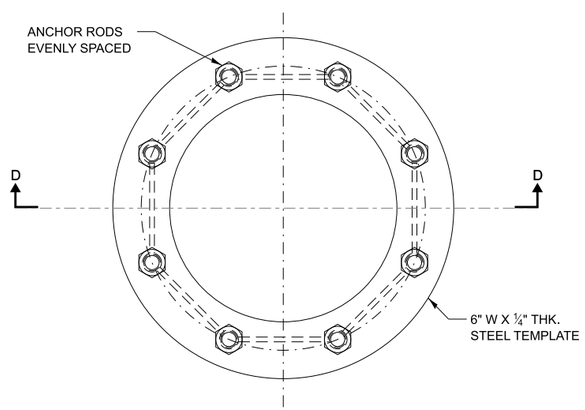
DETAIL "C"

NOTE TO DESIGNER

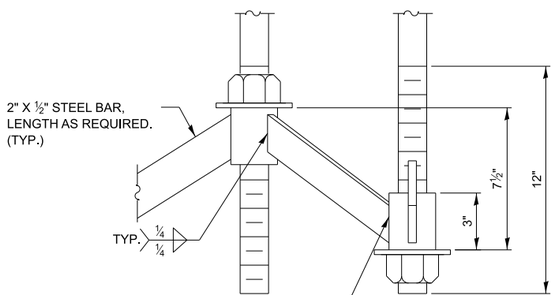
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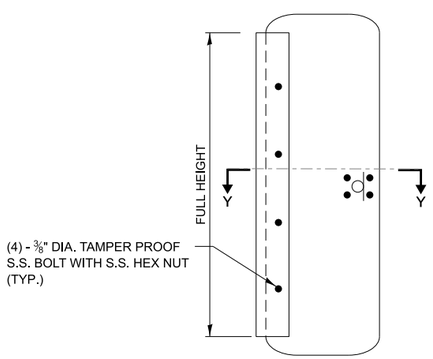
SECTION Y-Y



ANCHOR ROD CAGE (PLAN)



DETAIL "D"

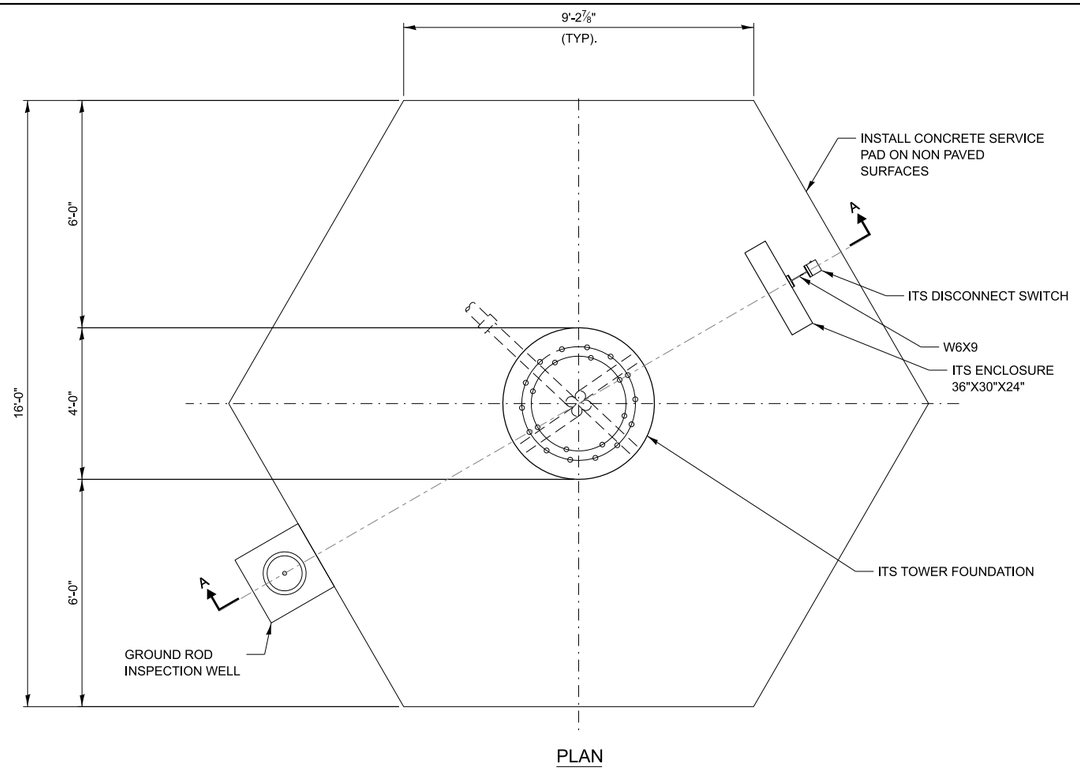


HANDHOLE DETAIL
(FACTORY ASSEMBLED)

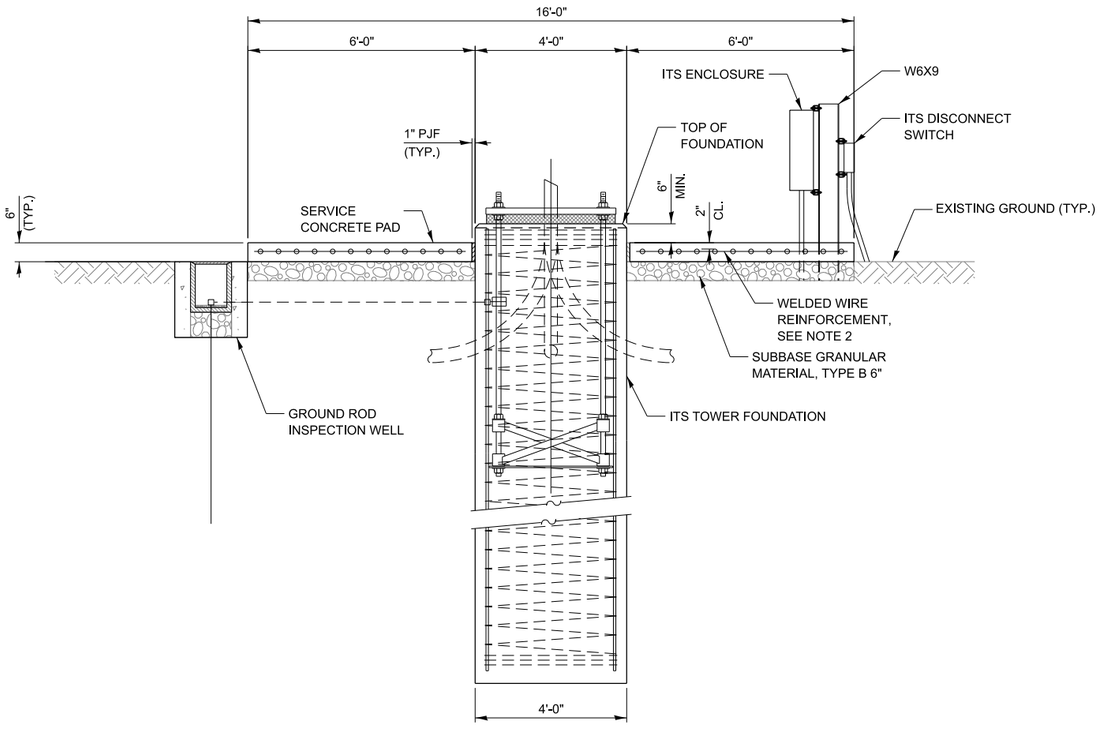
Illinois Tollway

100 FT. MONOPOLE CLOSED CIRCUIT TELEVISION (CCTV) CAMERA TOWER

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-2000	3 OF 4



PLAN



SECTION A-A

NOTE TO DESIGNER

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NOTES:

1. THE CONCRETE COMPRESSIVE STRENGTH SHALL BE F'C = 3,500 PSI. THE WELDED WIRE FABRIC GRADE SHALL BE FY = 65,000 PSI.
2. WELDED WIRE REINFORCEMENT SHALL HAVE A MINIMUM AREA OF 0.31 INCH IN EACH DIRECTION.
3. MIN. 3,000 PSF SOIL BEARING CAPACITY IS REQUIRED BELOW THE SERVICE PAD.
4. THE CABINET ASSEMBLY MUST BE ERECTED IN SUCH A WAY THAT THE CENTERLINE AXIS OF THE W-BEAM WEB IS LOCATED 90 DEGREES FROM THE CENTERLINE OF THE TENON ARM FOR THE CAMERAS.

Illinois Tollway

100 FT. MONOPOLE CLOSED CIRCUIT TELEVISION (CCTV) CAMERA TOWER

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-2000	4 OF 4

BASE SHEETS

SERIES 2100 (ITS)

VIDEO POWER JUNCTION BOX

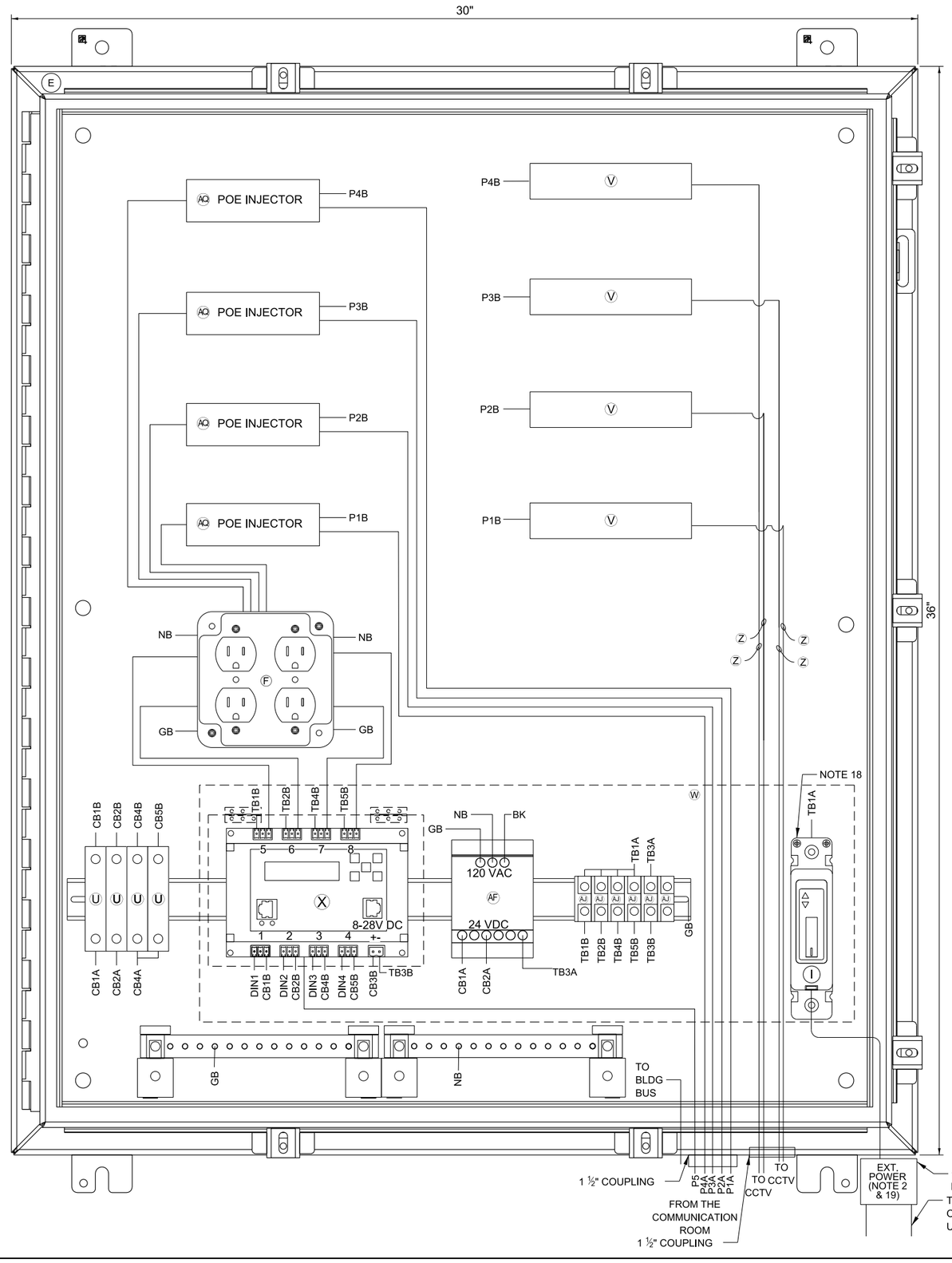
MARCH 2025

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Video Power Junction Box - Series 2100	
	M-ITS-2100	**Video Power Junction Box Model A**
		Revised layout to add access door through the Plexiglas cover to give easy access to IP Relay for programing
		Added CB3B to power port of the IP Relay details
	M-ITS-2101	**Video Power Junction Box Model B**
		Revised layout of Cisco switch to match the details of Cisco IE-3300-8T2S-E
		Revised layout to add access door through the Plexiglas cover to give easy access to IP Relay for programing
		Revised Cisco license to connect to Cisco IE3300-DNS-A-3Y
		Revised item to call Cisco IE-3300-8T2S-E

New Sheet

Retired Standard



ITEM DESCRIPTION

- (A) NOT USED
- (B) NOT USED
- (C) NOT USED
- (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"X27" PANEL, HOFFMAN/A36H3012SS6LP & A36P30
- (F) ONE QUAD 120V RECEPTACLE
- (G) NOT USED
- (H) NOT USED
- (I) 120V, 1P, 30A CIRCUIT BREAKER WITH TERMINAL SHIELD EATON
- (J) NOT USED
- (K) NOT USED
- (L) NOT USED
- (M) NOT USED
- (N) NOT USED
- (O) NOT USED
- (P) NOT USED
- (Q) NOT USED
- (R) NOT USED
- (S) NOT USED
- (T) NOT USED
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) AXIS SURGE SUPPRESSOR T8061, MOUNTED ON COMMON DIN RAIL AND GROUNDED
- (W) CLEAR PLEXIGLASS SAFETY COVER PANEL ENCOMPASSING ITEMS I, X, AF AND AJ (THE INSTALLER SHALL PERMANENTLY AFFIX A LABEL STATING "DANGER 480 VAC" OR "DANGER 240 VAC" OR "DANGER 120 VAC" FOR VOLTAGE AS FIELD CONDITIONS WARRANT.)
- (X) POWER CONTROLLER, 8-CHANNEL DIN ETHERNET RELAY DIGITAL LOGGERS/DIN 4
- (Y) NOT USED
- (Z) CATEGORY 6 CABLE, 23AWG, OUTDOOR RATED CABLE BELDEN/7953A
- (AA) NOT USED
- (AB) NOT USED
- (AC) NOT USED
- (AD) NOT USED
- (AE) NOT USED
- (AF) AC/DC POWER SUPPLY, 24VDC WAVETRONIX - CLICK-204
- (AG) NOT USED
- (AH) NOT USED
- (AI) NOT USED
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AP) #10 AWG
- (AQ) POE INJECTOR AXIS T8154 60W MIDSPAN 120VAC

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. EACH 120VAC OUTLET, OR (ITEM F, & AF) SHALL BE FED FROM A SEPARATE POWER CIRCUIT.
5. MOUNT ITEMS U, X, AF & AJ ON A 21 INCH CONTINUOUS SECTION OF DIN RAIL.
6. ALL BREAKERS SHALL BE LABELED (e.g. CAMERA-AC, CAMERA-DC, DIN RELAY-AC, DIN RELAY-DC, CELL MODEM-AC ETC.).
7. USE THE MOUNTING TABS ON THE IP RELAY UNIT TO MOUNT THE UNIT DIRECTLY TO THE DIN RAIL. REFER TO THE IP RELAY WIRING TABLE FOR WIRING DETAILS.
8. IP RELAY IS USED TO CONTROL POWER TO THE CAMERAS AND DETECTORS. ALL 120VAC CONNECTIONS ON ITEM X SHALL BE PROTECTED.
9. DIN RAIL SHALL BE INSTALLED AS ILLUSTRATED ON DRAWING. DIN RAIL SHALL BE GROUNDED TO THE GROUND BUS.
10. BOND NEUTRAL AND GROUND BUSES TOGETHER, WHEN REQUIRED. TIE THE ENCLOSURE INTO THE GROUND BUS.
11. THE PLEXIGLASS PANEL DENOTED BY THE DASHED LINE SHALL BE ATTACHED TO THE BACKPLATE WITH 4 MOUNTING STUDS.
12. ALL INTERNAL ENCLOSURE ROUTED AND TERMINATED CAT6 CABLE SHALL BE TEMPERATURE RATED.
13. ALL INTERNAL 24VAC, 120VAC AND ANY DC VOLTAGE POWER FEEDS USE #16 AWG CABLE.
14. PROVIDE WINDOW IN PMMA SHIELD FOR ACCESS TO BREAKER, MOUNT BREAKER FLUSH WITH PMMA SHIELD USING MOUNTING BRACKET.
15. 120V POWER COMES FROM THE BUILDING CIRCUIT PANEL.
16. WIFI COMMUNICATION SHALL BE DISABLED ON DIN ETHERNET RELAY.

NOTE TO DESIGNER

IF DESIGN REQUIRES MORE THAN 4 CCTV'S PLEASE ADD THE ADDITIONAL CCTV/POE INJECTOR/POWER SUPPRESSOR INTO A SMALLER CABINET SIDE BY SIDE AND CONTROLLED BY THE MAIN CABINET.

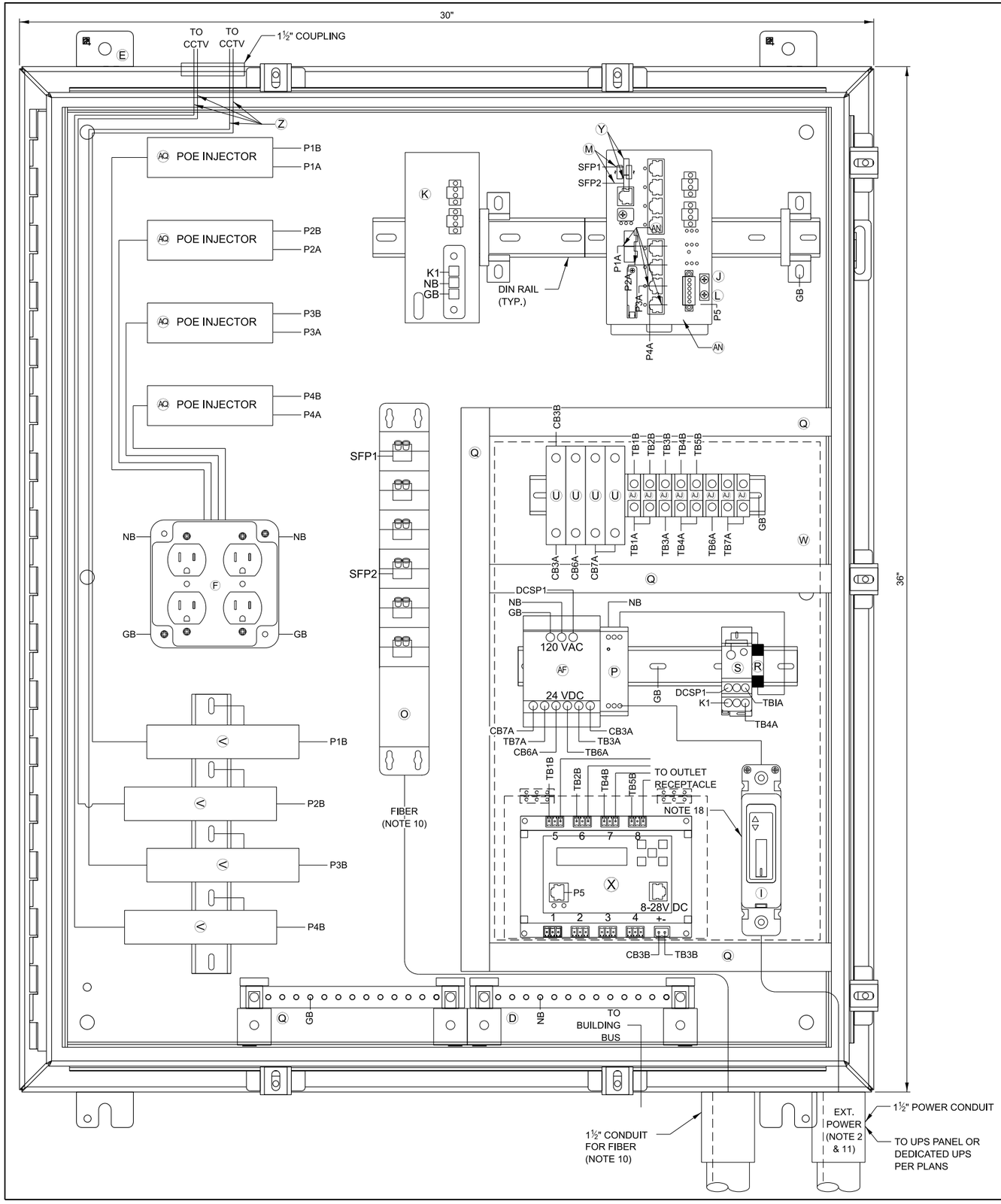
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Illinois Tollway

VIDEO POWER JUNCTION BOX MODEL A

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-2100	1 OF 1



ITEM DESCRIPTION

- (A) NOT USED
- (B) NOT USED
- (C) NOT USED
- (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"X27" PANEL, HOFFMAN/A36H3012SS6LP & A36P30. IF VPJB IS INSTALLED INSIDE A BUILDING (ABOVE GROUND) THEN USE NEMA 1 CABINET, IF THE VPJB IS INSTALLED OUTDOOR OR IN A TUNNEL WHERE THERE IS A RISK OF WATER DRIPPING ONTO THE VPJB THEN USE NEMA 4X GRADE FOR VPJB.
- (F) ONE QUAD 120V RECEPTACLE
- (G) NOT USED
- (H) NOT USED
- (I) 120V,1P, 30A CIRCUIT BREAKER WITH TERMINAL SHIELD EATON/HFD2030L & 625B229G07
- (J) NETWORK SWITCH CISCO IE-3300-8T2S-E
- (K) CISCO POWER SUPPLY, PWR-IE70W-PC-AC=
- (L) IP SERVICES LICENSE: IE3300-DNS-A-3Y
- (M) 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z20002M
- (N) NOT USED
- (O) SMF PATCH PANEL WITH LC CONNECTORS FIBER CONNECTIONS G620U012LAN-100-0
- (P) 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL
- (Q) PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/FIX1LG6 WITH COVER-C1LG6
- (R) 10 AMP FUSE, GOULD (MERSEN)/ATM-10
- (S) SPLICE BLOCK, ALTECH/38041
- (T) NOT USED
- (U) 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPM1B050
- (V) AXIS SURGE SUPPRESSOR T8061, MOUNTED ON COMMON DIN RAIL AND GROUNDED
- (W) CLEAR PLEXIGLASS SAFETY COVER PANEL ENCOMPASSING ITEMS I, R, S, P, X & AF. (THE INSTALLER SHALL PERMANENTLY AFFIX A LABEL STATING "DANGER 480 VAC" OR "DANGER 240 VAC" OR "DANGER 120 VAC" FOR VOLTAGE AS FIELD CONDITIONS WARRANT.) COMES WITH ACCESS DOOR FOR IP RELAY. REFER TO ITEM X.
- (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, 23AWG, OUTDOOR RATED CABLE BELDEN/7953A
- (AA) NOT USED
- (AB) NOT USED
- (AC) NOT USED
- (AD) NOT USED
- (AE) NOT USED
- (AF) AC/DC POWER SUPPLY, 24VDC WAVETRONIX - CLICK-204
- (AG) NOT USED
- (AH) NOT USED
- (AI) NOT USED
- (AJ) TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8
- (AN) INDOOR/OUTDOOR RATED CAT6 (1000MBS, TEMPERATURE HARDENED) THESE ARE THE CAT6 CABLES ROUTED INSIDE CABINET
- (AO) NOT USED
- (AP) #10 AWG
- (AQ) POE INJECTOR AXIS T8154 60W MIDSPAN 120VAC

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. EACH 120VAC OUTLET, OR (ITEM F, K, & AF) SHALL BE FED FROM A SEPARATE INPUT LINE.
5. MOUNT ITEMS J & K ON A 15 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.
6. MOUNT ITEMS AJ & U ON A 9 INCH CONTINUOUS SECTION OF DIN RAIL.
7. MOUNT ITEMS AF, P & S ON A 10 INCH CONTINUOUS SECTION OF DIN RAIL.
8. ALL BREAKERS SHALL BE LABELED (e.g. CAMERA-AC, CAMERA-DC, DIN RELAY-AC, DIN RELAY-DC, CELL MODEM-AC ETC.).
9. 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.
10. THE FIBER CABLE SHALL ENDURE MINOR BENDING AS IT RUNS FROM THE GATOR PATCH UP THROUGH THE LEFT MOST CONDUIT.
11. POWER FEED TO THE CISCO IE3300 SWITCH SHALL BE FROM THE 120VAC INPUT WHEN THE ENCLOSURE IS AC POWERED.
12. IP RELAY IS USED TO CONTROL POWER TO THE CAMERAS. ALL 120VAC CONNECTIONS ON ITEM X SHALL BE PROTECTED.
13. DIN RAIL SHALL BE INSTALLED AS ILLUSTRATED ON DRAWING. DIN RAIL SHALL BE GROUNDED TO THE GROUND BUS.
14. BOND NEUTRAL AND GROUND BUSES TOGETHER, WHEN REQUIRED. TIE THE ENCLOSURE INTO THE GROUND BUS.
15. THE PLEXIGLASS PANEL DENOTED BY THE DASHED LINE SHALL BE ATTACHED TO THE BACKPLATE WITH 4 MOUNTING STUDS.
16. ALL INTERNAL ENCLOSURE ROUTED AND TERMINATED CAT6 CABLE SHALL BE TEMPERATURE RATED.
17. ALL INTERNAL 24VAC, 120VAC AND ANY DC VOLTAGE POWER FEEDS USE #16 AWG CABLE.
18. PROVIDE WINDOW IN PMMA SHIELD FOR ACCESS TO BREAKER, MOUNT BREAKER FLUSH WITH PMMA SHIELD USING MOUNTING BRACKET.
19. NOT USED
20. WIFI COMMUNICATION SHALL BE DISABLED ON DIN ETHERNET RELAY.

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NOTE TO DESIGNER

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Illinois Tollway

VIDEO POWER JUNCTION BOX MODEL B

VERSION:	BASE SHEET:	SHEET:
2025-03	M-ITS-2101	1 OF 1

BASE SHEETS

SERIES 2500 (BUS)

PLAZA ELECTRICAL WORK

MARCH 2025

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Plaza Electrical Work (Business System)-Series 2500	
	M-BUS-2503	**Single Line Power Diagram**
		Removed reference to air compressor: VES Wash cabinet has a built-in compressor for nitrogen generator.
		Revised to one UPS per plaza building to provide emergency power to IT, ITS and Tolling equipment.
	M-BUS-2505	**Fiber Interconnections Between Main and Remote Plazas**
		Added Watch Dog camera to security camera identification.
		Added identification for MTS-1 manual transfer switch and MTS-2 manual transfer switch.
	M-BUS-2509	**Exterior Elevations - Main Plaza**
	Sheet 1	Added the air terminal (lighting rods) on roof of plaza building.
		Added note to designer: "Air terminal rods are to be installed and fixed to roof…"
	Sheet 2	Added exterior wall and roof details
	M-BUS-2512	**Mechanical Plan - Main Plaza**
		Updated details of Manual Transfer Switch MTS-1 and MTS-2.
		Revised HVAC-01 and HVAC-02 model number for new refrigerant gas in BARD HVAC unit.
	M-BUS-2514	**Control Building Grounding Details - Main Plaza**
	Sheet 1	Rearranged the original M-BUS-2514 to keep layout on Sheet 1 and moved grounding details to Sheet 2 for clarity
		Added details for facility grounding of lighting protection system to improve efficiency of grounding triad loop
	Sheet 2	Moved grounding details from original M-BUS-2514 to this Sheet 2 for clarity
	M-BUS-2515	**Panelboard Schedules - Main Plaza**
		Convert breaker #31 from Air Compressor to Spare.
		Convert breaker #37 from Line Conditioner to Spare.
		Convert breakers #30 and #32 Line Conditioner to UPS-1 (Tolling).
		Convert breaker #2 from UPS-1 to Spare.
		For Panel UPS-1 change voltage to 120V/208V, change phase/wire to 1/3, change bus rating to 60A.
	M-BUS-2516	**Video Power Junction Box Detail - Main Plaza**
		Added option for four power supplies (one per VES camera to connect).
		Added air vents to enclosure.

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Plaza Electrical Work (Business System)-Series 2500	
	M-BUS-2518A	**Loop Plan - AET 3-Lane Layout**
		Revised representation of pavement marking as solid lines and no RRPM within the limits of the CRC pavement.
		Revised details of the piezo sensors and loops in each lane.
		Added Legend for antennas, mainline loops, narrow loops and piezo sensors.
	M-BUS-2518B	**Loop Plan - AET 1-Lane Layout**
		Added Legend for antennas, mainline loops, narrow loops and piezo sensors.
		Revised details of the piezo sensors and loops in each lane.
	M-BUS-2518C	**Loop Plan - AET 1-Lane Layout Single Monotube**
		Created details for single monotube with loops and piezo sensors.
		Added mounting details of the junction box at the top of the vertical section of the monotube.
		Added routing of the conduit for VES wash tubing .
		Add details for VES wash tubing cut-out.
	M-BUS-2518D	**Ground Mounted VES Camera with VES Wash Tubing**
		Added details for ground mounted VES cameras on pedestal.
		Added mounting details to attach the conduit for VES Wash tubing to the VES camera pedestal.
	M-BUS-2520	**Exterior Elevations - Remote Plaza**
		Added the air terminal (lighting rods) on roof of plaza building.
		Added note to designer for lighting rods on top of the building
	M-BUS-2523	**Mechanical Plan - Remote Plaza**
		Revised HVAC-01 and HVAC-02 model number for new refrigerant gas in BARD HVAC unit.
	M-BUS-2526	**Panelboard Schedules- Remote Plaza AET Lanes**
		Convert breakers #25 and #27 to Spare.
		Convert breakers #30 and #32 to UPS-2 spare.
		Convert breaker #36 to Spare.
		Change voltage on UPS-2 panelboard to 120V/208V.
		Change phase/wire to 1/3.
		Change bus rating to 60A.
		Change mains to 30A, 2P, MCB.

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Plaza Electrical Work (Business System)-Series 2500	
	M-BUS-2527	**Video Power Junction Box Detail - Remote Plaza**
		Added option for four power supply (one per VES camera to connect).
		Added air vents to enclosure.
	M-BUS-2536A	**Overhead Conduit Tray**
		Revised layout to show details of mounting provisions for the cable tray with all the parts and assembly required.
		Added note to designer: " All values designated "X" are required…"
		The old Note 1 was removed and Note 2 was renamed the new Note 1, the old Note 3 has been renamed Note 2
	M-BUS-2536B	**Overhead Conduit Tray**
		Part summary list was created and some notes revised and added new notes
	M-BUS-2538	**VES Wash System Single Cabinet Detail**
		Revised layout of VES Wash single cabinet to position the nitrogen tank and washing liquid reservoir from the left side to the right side of the cabinet assembly drawing.
		Remove exterior box for manual switches.
		Revised assembly model number to: NS-GEN-SY-Y-0300
		Revised Item A to be stainless steel enclosure.
		Revised VES Wash cabinet manufacturer model number.
		Expanded the Bil of Materials
	M-BUS-2539	**VES Wash System Panel Detail**
		Revised layout of the VES Wash cabinet to show two front doors and rearranged of components
		Notes and layout revised of the VES Wash single cabinet.
		Revised assembly model number to: NS-GEN-SY-Y-0300
		Revised part number for Liquid Tank: NG-ECD-00314
		Model of the VES cabinet revised to 48" wide with two doors configuration model Hammond # HN4FM604818S16 NEMA 3R
		Modified equipment layout to fit a bigger washing liquid reservoir
	M-BUS-2540	**VES Wash System Flow Diagram and System**
		Revised Bill of Material spreadsheet
		Revised several notes
		Inlet valves details removed
		Remove details for external switches

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2025**
	Plaza Electrical Work (Business System)-Series 2500	
	M-BUS-2542	**VES Wash System Miscellaneous Power Wiring Diagram**
		Revised wiring diagram of the VES Wash single cabinet final configuration

New Sheet

Retired Standard

CONDUIT SIZES

①	RIGID METALLIC CONDUIT ¾"
②	RIGID METALLIC CONDUIT 1"
③	RIGID METALLIC CONDUIT 1¼"
④	RIGID METALLIC CONDUIT 1½"
⑤	RIGID METALLIC CONDUIT 2"
⑥	RIGID METALLIC CONDUIT 2½"
⑦	RIGID METALLIC CONDUIT 3"
⑨	RIGID METALLIC CONDUIT 4"
⑫	RIGID NON-METALLIC CONDUIT 1" SCHEDULE 40
⑮	RIGID NON-METALLIC CONDUIT 2" SCHEDULE 40
⑰	RIGID NON-METALLIC CONDUIT 3" SCHEDULE 40
⑱	NOT USED
⑲	RIGID NON-METALLIC CONDUIT 4" SCHEDULE 40
㉒	RIGID NON-METALLIC CONDUIT 1" SCHEDULE 80
㉔	RIGID NON-METALLIC CONDUIT 1½" SCHEDULE 80
㉕	RIGID NON-METALLIC CONDUIT 2" SCHEDULE 80
㉗	RIGID NON-METALLIC CONDUIT 3" SCHEDULE 80
㉙	RIGID NON-METALLIC CONDUIT 4" SCHEDULE 80
㉜	RIGID METALLIC CONDUIT PVC COATED 1"
㉝	RIGID METALLIC CONDUIT PVC COATED 1¼"
㉞	RIGID METALLIC CONDUIT PVC COATED 1½"
㉟	RIGID METALLIC CONDUIT PVC COATED 2"
㊲	RIGID METALLIC CONDUIT PVC COATED 3"
㊴	RIGID METALLIC CONDUIT PVC COATED 4"
㊵	1½" COILABLE PVC CABLE DUCT
㊶	RIGID NON-METALLIC CONDUIT 4" SCHEDULE 80 WITH 1" INNER DUCTS
㊷	1" COILABLE NON-METALLIC CONDUIT
㊸	2" COILABLE NON-METALLIC CONDUIT
㊹	4" COILABLE NON-METALLIC CONDUIT
㊺	3" COILABLE NON-METALLIC CONDUIT
㊻	1 ½" COILABLE NON-METALLIC CONDUIT

TOLL EQUIPMENT WIRING CABLE/CONDUIT SCHEDULE

SYMBOL	CABLE DESCRIPTION	REMARKS
①	1-6PR #22 SHLD	NOTE 8
②	1-3/C #12 SHLD	NOTE 3
③	1-3PR #22 SHLD	NOTE 8
④	1-4/C #12 SHLD	NOTES 1 & 3
⑤	2-1/C #12, 1-1/C #12(GRD)	NOTE 1
⑥	1-1PR #14 SHLD (LOOP LEAD IN)	
⑦	1-1/C #14 (LOOP WIRE)	
⑧	1-1/C #6 BARE TINNED (GRD)	
⑨	1-7/C #12 SHLD	NOTE 3
⑩	1-3/C #12 SHLD	NOTE 3
⑪	2-1PR #22 SHLD	NOTE 1
⑫	1-2/C #12 SHLD	NOTE 3
⑬	1-2 PR #24 (RS 422)	NOTE 7
⑭	NOT USED	
⑮	1-COAXIAL ANTENNA CABLE	
⑯	1- 9/C #22 IND SHLD	
⑰	1-1/C #4/0 (GRD BARE TINNED COPPER CONDUCTOR)	
⑱	1-1/C #8 (GRD BARE TINNED COPPER CONDUCTOR)	
⑲	1-1/C #2 (GRD BARE TINNED COPPER CONDUCTOR)	
⑳	1-4PR #24 (CATEGORY 6)	
㉑	1-6 STRAND, SINGLE MODE FIBER OPTIC CABLE	ARMORED CABLE
㉒	1-24 STRAND, SINGLE MODE FIBER OPTIC CABLE	ARMORED CABLE
㉓	1-36 STRAND, SINGLE MODE FIBER OPTIC CABLE	ARMORED CABLE
㉔	1-48 STRAND, SINGLE MODE FIBER OPTIC CABLE	ARMORED CABLE
㉕	1-12PR #22 SHLD	
㉖	1-9/C #18 SHLD	NOTE 4
㉗	2-2/C #18 SHLD	NOTE 4
㉘	1-6PR #22 SHLD	
㉙	1-3PR #24 SHLD	NOTE 6
㉚	1-3/C #10 SHLD	
㉛	1-2PR #22 SHLD	
㉜	OEM CABLE (POWER AND VIDEO)	NOTE 10
㉝	1 - 1PR #22 SHLD (SENSE WIRE VES CAM)	
㉞ THRU ㊾	RESERVED FOR STANDARD DRAWINGS	
㊿	CAT6 CABLE	OUTDOOR RATED
㊿①	SYNC CABLE, TWISTED PAIR # 24. BELDEN 89730	NOTE 11

TOLL EQUIPMENT WIRING CABLE/CONDUIT SCHEDULE

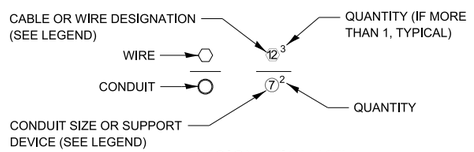
SYMBOL	CABLE DESCRIPTION	CONDUIT SIZE		REMARKS
		EXPOSED	EMBEDED OR UNDERGROUND	
⑩①	(4) 1/C #3/0 (1) 1/C #4 (GRD)		4"	
⑩②	(4) 1/C 250 MCM (1) 1/C #1/0 (GRD)		4"	
⑩③	(4) 1/C #2 (1) 1/C #8 (GRD)		2"	
⑩④	(3) 1/C #10 (1) 1/C #10 (GRD)	1"	1"	
⑩⑤	(4) 1/C #10 (1) 1/C #10 (GRD)	1"	1"	
⑩⑥	(2) 1/C #12 (1) 1/C #12 (GRD)	1"	1"	
⑩⑦	(4) 1/C #12 (1) 1/C #12 (GRD)	1"	1"	
⑩⑧	(4) 1/C #12 (1) 1/C #12 (GRD)	1"	1"	
⑩⑨	(5) 1/C #12 (1) 1/C #12 (GRD)	1"	1"	
⑪⓪	(5) 1/C #12 (1) 1/C #12 (GRD)	1"	2"	
⑪①	(6) 1/C #12 (1) 1/C #12 (GRD)	1"	1"	
⑪②	(8) 1/C #12 (1) 1/C #12 (GRD)	1"	1"	
⑪③	1" CABLE DUCT WITH (2) 1/C #12 (1) 1/C #12 (GRD)	1"	1"	
⑪④	1" CABLE DUCT WITH (3) 4/C #12 (SHLD)	1"	1"	
⑪⑤	(3) 1/C #2/0 & 1 #8 (GND)		4"	
⑪⑥	(2) 1/C #8 (1) 1/C #8 (GRD) 600V			
⑪⑦	(3) 1/C #250MCM 600V (1) 1/C #1/0 (GRD) 600V		3"	
⑪⑧	(2) 1/C #4 (1) 1/C #8 (GRD) 600V		2"	
⑪⑨	(1) 16 AWG 6C FPLR (6) 1PR #22 SHLD	1"	1"	SECURITY-CARD ACCESS
⑫⓪	(2) 1/C #16 SHIELDED PAIR	1"	1"	FIRE ALARM
⑫①	(2) 1/C #10 (1) 1/C #10 (GRD)	1"	1"	
⑫②	(3) 1/C #3/0 (1) 1/C #1/0 (GRD)		3"	
⑫③	(3) 1/C #1/0 (1) 1/C #4 (GRD)		3"	
⑫④	(1) 1/C #6 SHLD			NOTE 10
⑫⑤	144 STRANDS SM, FIBER OPTIC			ARMORED CABLE
⑫⑥	12 STRANDS SM, FIBER OPTIC			ARMORED CABLE
⑫⑦	2#2, 1#6		2"	
⑫⑧	2#1, 1#6		2"	
⑫⑨	3#8, 1#8		2"	
⑬⓪	2#6, 1#8		1¼"	

TOLL EQUIPMENT WIRING CABLE/CONDUIT SCHEDULE

SYMBOL	CABLE DESCRIPTION	CONDUIT SIZE		REMARKS
		EXPOSED	EMBEDED OR UNDERGROUND	
⑬①	48 STRANDS SM. FIBER OPTIC			ARMORED CABLE
⑬②	(3) 1/C #1 (1) 1/C #8 (GRD)			
⑬③	(3) 1/C #2 (1) 1/C #8 (GRD)			
⑬④	(3) 1/C #4 (1) 1/C #8 (GRD)			
⑬⑤	(3) 1/C #12	1"	1"	
⑬⑥	(4) 1/C 500 MCM (1) 1/C #1/0 (GRD)			
⑬⑦	(4) 1/C 500 MCM (1) 1/C #4 (GRD)			

NOTES:

1. MINIMUM SIZE OF EXPOSED CONDUIT IS ¾". MINIMUM SIZE OF EMBEDDED CONDUIT IS 1". EMBEDDED CONDUIT SHALL BE PVC COATED RIGID STEEL.
2. STANDARD AND QUANTUM LOOPS SHALL BE FURNISHED AND INSTALLED BY THE ILLINOIS TOLLWAY. LOOP LEAD-IN CABLING IS FURNISHED AND INSTALLED BY THE CONTRACTOR.
3. MULTI-CONDUCTOR SHIELDED CABLE #12 AWG FOR NORMAL AND UPS POWER, SHALL BE COLOR CODED AS SPECIFIED IN THE SPECIAL PROVISIONS OF THE CONTRACT.
4. MULTI-CONDUCTOR SHIELDED CABLE #14 AWG THROUGH #18 AWG FOR CONTROL USE SHALL BE COLOR CODED PER ICEA-NEC (K-2) STANDARD.
5. NOT USED
6. PROVIDE SPD PROTECTION ADAPTERS FOR ALL ANTENNA CABLES ENTERING BUILDING. IN-LINE ADAPTERS MUST BE INSTALLED AT ALL CONNECTIONS TO THE RACK, ELPAC AND IPASS EQUIPMENT. THE SPD PROTECTION ADAPTERS SHALL BE PHOENIX CONTACT (OR EQUIVALENT) "COAXTRAX SERIES" CATALOG NUMBER C-UFB-5DC/E.
7. PROVIDE SPD PROTECTION ADAPTERS FOR ALL RS-422 AND CATEGORY 6 CABLES ENTERING THE BUILDING. IN-LINE ADAPTERS MUST BE INSTALLED AT ALL CONNECTIONS TO THE CISCO SWITCH, ELPAC AND IPASS EQUIPMENT. THE SPD ADAPTER FOR RS-422 CABLES SHALL BE PHOENIX CONTACT (OR EQUIVALENT) DATATRAB D-UFB-V11/BS-B. THE SPD ADAPTER FOR CATEGORY 6 CABLES SHALL BE PHOENIX CONTACT (OR EQUIVALENT) DATATRAB D-LAN-CAT.6+.
8. PLENUM RATED CABLE INSTALLED IN EMBEDDED CONDUIT.
9. LANE VIOLATION CAMERA IS MOUNTED ON MONOTUBE.
10. PROVIDE SURGE PROTECTION DEVICE FOR ALL CABLES FROM EXTERNAL DEVICES ROUTED INTO THE PLAZA BUILDING INCLUDING ALL CAT6, ANTENNA AND POWER CABLES.
11. ANTENNA READER SYNC CABLE IN CONDUIT MUST BE INSTALLED BETWEEN TWO PLAZAS WHEN THEIR ANTENNAS ARE WITHIN 500FT. OF EACH OTHER.



DESIGNATION KEY

NOTE TO DESIGNER

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CABLE / CONDUIT SCHEDULE AND GENERAL NOTES

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2500	1 OF 1

LEGEND

- EXPOSED CONDUIT
- CONDUIT IN SLAB
- UNDERGROUND CONDUIT OR CABLE DUCT
- CONDUIT OR CABLE DUCT IN CASING
- HOME RUN TO PANEL AS NOTED
- INDICATES CIRCUIT TURNING DOWN
- INDICATES CIRCUIT TURNING UP
- GROUND ROD
- GROUNDING TRIAD
- G — EXPOSED GROUND CONDUCTOR
- G — UNDERGROUND GROUND CONDUCTOR
- H_P — 4'X4' HEAVY DUTY HANDHOLE (POWER) EXISTING/PROPOSED
- H_C — 4'X4' HEAVY DUTY HANDHOLE (COMMUNICATIONS) EXISTING/PROPOSED
- TYPE A H — 72"X48"X36" TORSION ASSIST FIBER HANDHOLE EXISTING/PROPOSED

ARM LENGTH
MOUNTING HEIGHT
CIRCUIT NUMBER
S15-50-C1
TYPE A
DISTRIBUTION TYPE AS SPECIFIED ON THE PLANS

LIGHT STANDARD DESCRIPTION
LED LUMINAIRES

SYMBOL LIST

SYMBOL	DESCRIPTION
30 KVA 480-208Y/120V 3}, 4W	TRANSFORMER. 30 KVA DENOTES TRANSFORMER RATING. 480-208Y/120V DENOTES VOLTAGE. 3} DENOTES 3 PHASE. 4W DENOTES 4 WIRE.
(1)	LEGEND NUMBER FOR CABLE & CONDUIT. (SEE CABLE AND CONDUIT SCHEDULES).
(1)	MOTOR. NUMBER 1 DENOTES HORSEPOWER.
N E L — ATS 260A 3P,4W	AUTOMATIC TRANSFER SWITCH (ATS). N DENOTES NORMAL SOURCE. E DENOTES EMERGENCY SOURCE. L DENOTES LOAD. 260A DENOTES 260 AMPERE ATS RATING. 3P DENOTES 3 POLE. 4W DENOTES 4 WIRE.
JB OR J	JUNCTION BOX.
60A	DISCONNECT SWITCH. 60A DENOTES 60 AMPERES.
50A	CIRCUIT BREAKER. 50A DENOTES 50 AMPERES.
200A 3PDT. SW.	MANUAL TRANSFER SWITCH. 200A DENOTES 200 AMPERES. 3PDT DENOTES 3 POLE DOUBLE-THROW.
WH	SELF CONTAINED UTILITY METERING.
G	STANDBY GENERATOR.
30A 2P	PANEL CIRCUIT BREAKER. 30A DENOTES 30 AMPERES. 2P DENOTES 2 POLES.
E	ELECTRICALLY HELD LIGHTING CONTACTOR.
C	MECHANICALLY HELD LIGHTING COIL.
CR	CONTROL RELAY COIL.
SPD WITH LP	TRANSIENT VOLTAGE SURGE SUPPRESSION WITH LIGHTNING PROTECTION

ABBREVIATIONS

ACM	AUTOMATIC COIN MACHINE
AET	ALL ELECTRONIC TOLL
AFF	ABOVE FINISH FLOOR
ATPM	AUTOMATIC TOLL PAYMENT MACHINE
ATS	AUTOMATIC TRANSFER SWITCH
AVI	AUTOMATED VEHICLE IDENTIFICATION
BF	BARRIER WARNING LIGHT
C/B	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CNC	COILABLE NON-METALLIC CONDUIT
DHH	DOUBLE HANDHOLE
FACP	FIRE ALARM CONTROL PANEL
FLPC	FRONT LICENSE PLATE CAMERA
GCS	GENERATOR CONTROL SWITCH
GFI	GROUND FAULT INTERRUPTER
HDPE	HIGH DENSITY POLYETHYLENE
HH	HANDHOLE
IPO	I-PASS ONLY
JB	JUNCTION BOX
LA	LIGHTNING ARRESTER
LC	LINE CONDITIONER
LCC	LANE CONTROLLER CABINET
LP	LIGHTNING PROTECTION
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUG ONLY
MMF	MULTI-MODE FIBER
MSD	MAIN SERVICE DISCONNECT
MTS	MANUAL TRANSFER SWITCH
OCR	OPTICAL CHARACTER RECOGNITION
RLPC	REAR LICENSE PLATE CAMERA
SDR	STANDARD DIMENSION RATIO
SMF	SINGLE MODE FIBER
SPD	SURGE PROTECTION DEVICE
TOC	TRAFFIC OPERATION CENTER
TSIC	TERMINAL STRIP INTERCONNECT CENTER
UPS	UNINTERRUPTIBLE POWER SUPPLY
VES	VIOLATION ENFORCEMENT SYSTEM
WP	WEATHERPROOF

NOTES:

1. ALL TYPE 'B' FIXTURES SHALL BE MOUNTED AT THE SAME ELEVATION WITH A MINIMUM MOUNTING HEIGHT AS INDICATED.

NOTE TO DESIGNER

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WIRING DEVICE SCHEDULE

SYMBOL	DESCRIPTION	RATING	MFR. AND CAT. NO.	MOUNTING HEIGHT
$ a OC	SINGLE-POLE SWITCH a-SWITCH LEG (LOWER CASE LETTER)	20A, 120V	HUBBELL #LHIR	4'-0"
X	DUPLEX RECEPTACLE X - CIRCUIT NUMBER	20A, 120V	HUBBELL #HBL5362	18" AS NOTED
X	QUAD RECEPTACLE X - CIRCUIT NUMBER	20A, 120V	(2) HUBBELL #HBL5362	18" AS NOTED
C	4P, 4W, WEATHERPROOF RECEPTACLE WITH SPRING DOOR, BACK BOX, & ANGLE ADAPTER	200A, 600V	CROUSE-HINDS "ARKTITE" SERIES #AREA20417	3'-0" ABOVE GRADE
B	4P, 4W, WEATHERPROOF RECEPTACLE WITH SPRING DOOR & BACK BOX	30A, 600V	CROUSE-HINDS "ARKTITE" SERIES #ARE3413	3'-0" ABOVE GRADE
WP GFI	DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION WP - IDENTIFIES WEATHERPROOF	20A, 120V	HUBBELL #GF5362SG	3'-0" ABOVE GRADE
A	3P, 3W, WEATHERPROOF RECEPTACLE	30A, 240V		3'-0" ABOVE GRADE

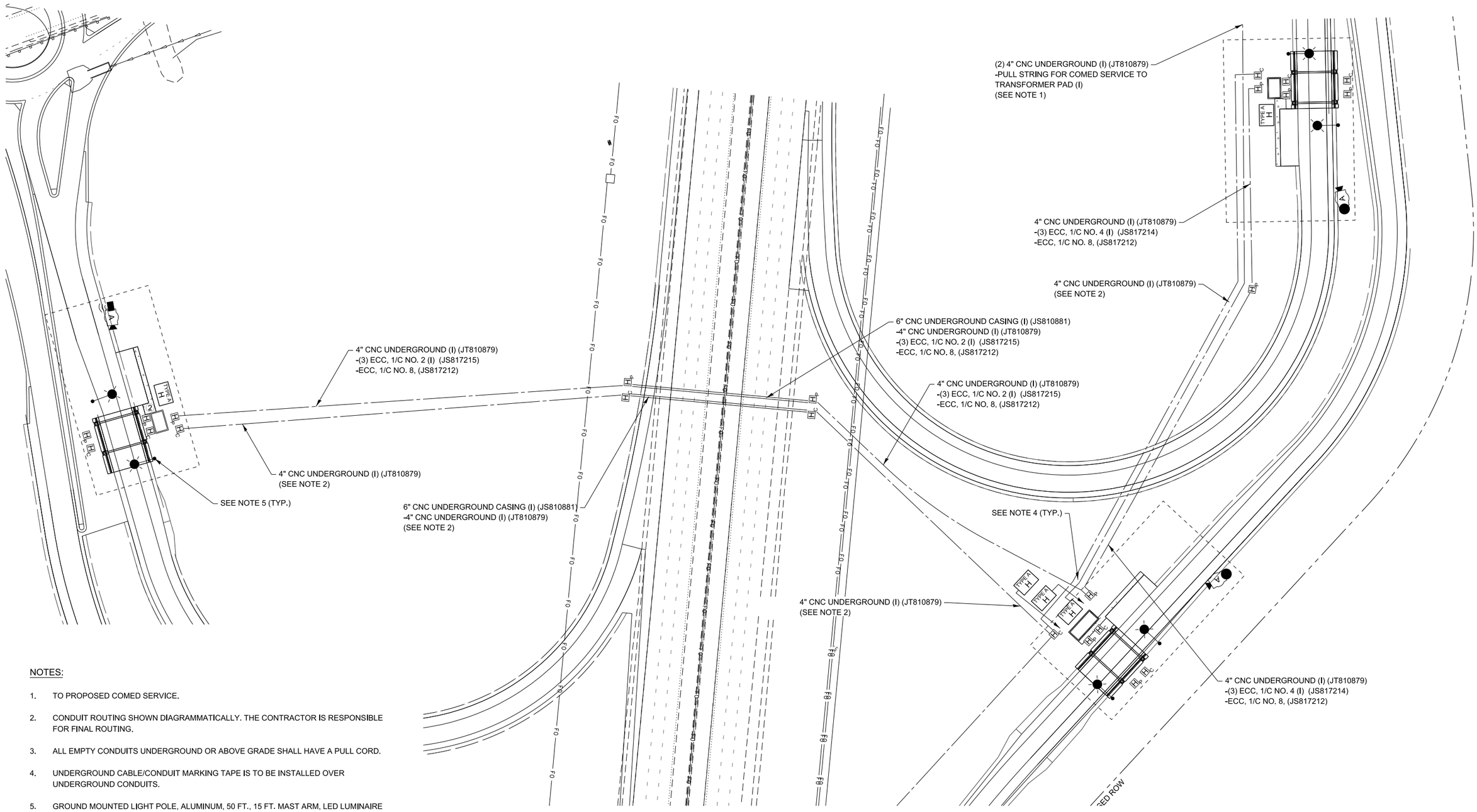
LIGHTING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	VOLTAGE	LAMPS	MFR. AND CAT. NO.	REMARKS
A	4' LED LOW PROFILE INDUSTRIAL LUMINAIRE	120 V	LED	H.E. WILLIAMS 96-4-L62/840-HIAFR-DRV-UNV	MOUNT 8' ABOVE FINISHED FLOOR
B	LED LOW PROFILE WALL PACK	120 V	LED	H.E. WILLIAMS VWPV-L30/740-TFT-DBZ-CGL-DIM-UNV	MOUNT 10'-0" ABOVE FINISHED GRADE NOTE 1
C	EMERGENCY LED LIGHT WITH NICKEL METAL HYBRIDE BATTERY	120 V	LED	H.E. WILLIAMS EMER/LED-WHT-SDT-D	MOUNT 8' ABOVE FINISHED FLOOR

Illinois Tollway

LEGEND AND SYMBOL LIST ABBREVIATIONS AND EQUIPMENT SCHEDULES

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2501	1 OF 1



NOTES:

1. TO PROPOSED COMED SERVICE.
2. CONDUIT ROUTING SHOWN DIAGRAMMATICALLY. THE CONTRACTOR IS RESPONSIBLE FOR FINAL ROUTING.
3. ALL EMPTY CONDUITS UNDERGROUND OR ABOVE GRADE SHALL HAVE A PULL CORD.
4. UNDERGROUND CABLE/CONDUIT MARKING TAPE IS TO BE INSTALLED OVER UNDERGROUND CONDUITS.
5. GROUND MOUNTED LIGHT POLE, ALUMINUM, 50 FT., 15 FT. MAST ARM, LED LUMINAIRE (AS PER ROADWAY LIGHTING PLAN) AND LIGHT POLE FOUNDATION (ROADWAY) STEEL HELIX (7 FT) OR CONCRETE.
6. PROVIDE (2) 6" SDR 11 HDPE SLEEVES, EACH SLEEVE SHALL HAVE;
   (1) 1 ½" CNC DUCT (SOLID GREEN)
   (1) 1 ½" CNC DUCT (GREEN/WHITE STRIPE)
   (1) 1 ½" CNC DUCT (BLACK/RED STRIPE)

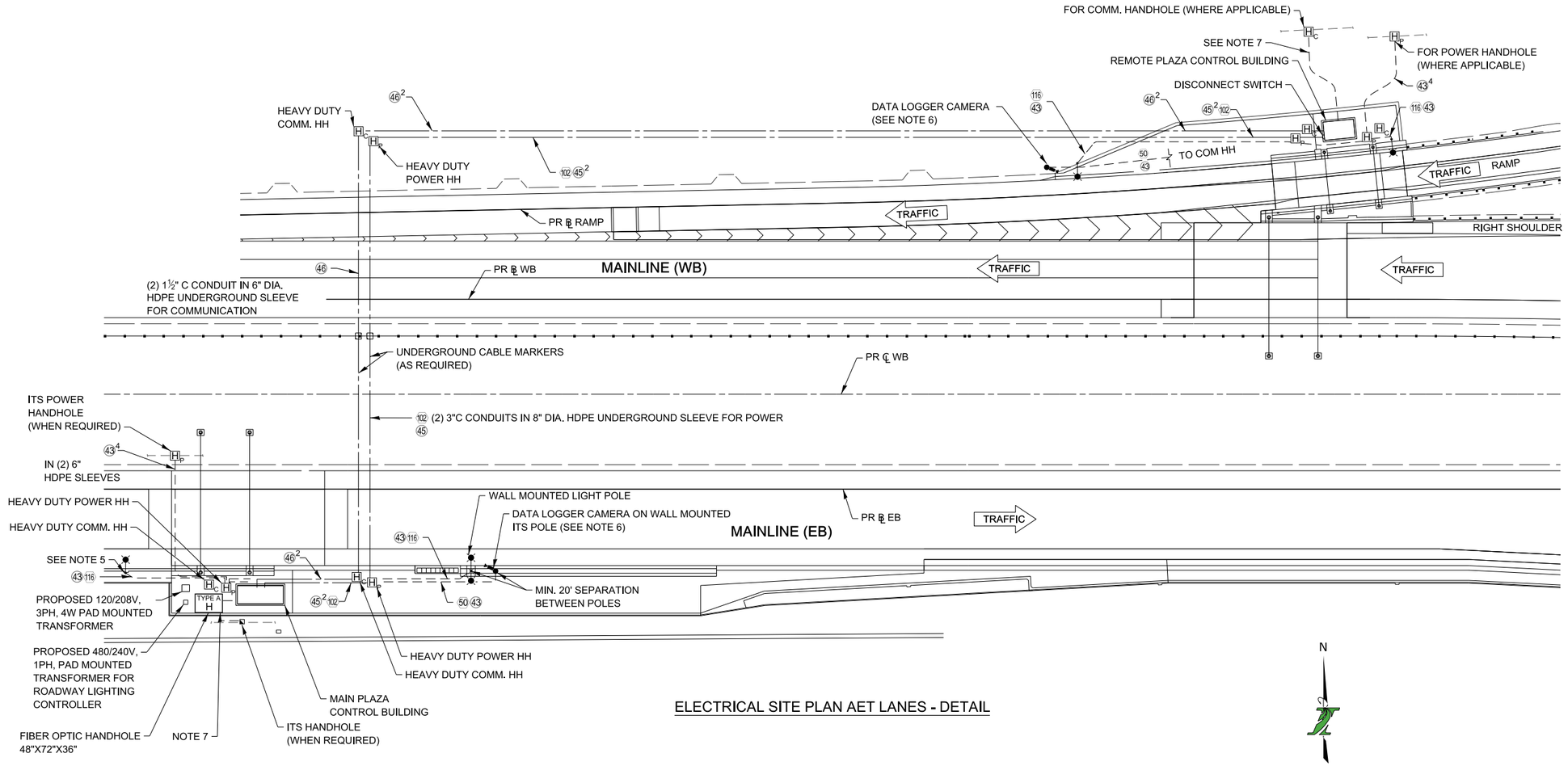
NOTE TO DESIGNER

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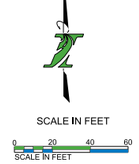
Illinois Tollway

ELECTRICAL SITE PLAN AET LANES

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2502A	1 OF 1



ELECTRICAL SITE PLAN AET LANES - DETAIL



NOTES:

1. SEE LEGEND SHEET FOR SYMBOL LEGEND.
2. SEE CABLE/CONDUIT SCHEDULE SHEET FOR CABLE TAGS.
3. ALL EMPTY CONDUITS UNDERGROUND OR ABOVE GRADE SHALL HAVE A PULL CORD.
4. UNDERGROUND CABLE/CONDUIT MARKING TAPE IS TO BE INSTALLED OVER UNDERGROUND CONDUITS.
5. GROUND MOUNTED LIGHT POLE, ALUMINUM, 50 FT., 15 FT. MAST ARM, LED LUMINAIRE (AS PER ROADWAY LIGHTING PLAN) AND LIGHT POLE FOUNDATION (ROADWAY) STEEL HELIX (7 FT) OR CONCRETE.
6. DATA LOGGER CAMERA SHALL BE INSTALLED ON STEEL ITS POLE. SEE CAMERA DETAILS.
7. PROVIDE (2) 6" SDR 11 HDPE SLEEVES, EACH SLEEVE SHALL HAVE;
   (1) 1 ½" CNC DUCT (SOLID GREEN)
   (1) 1 ½" CNC DUCT (GREEN/WHITE STRIPE)
   (1) 1 ½" CNC DUCT (BLACK/RED STRIPE)

NOTE TO DESIGNER

1. THE DESIGNER MUST PROVIDE A CONTRACT SPECIFIC ELECTRICAL SITE PLAN. THIS DRAWING IS TO BE USED AS A GUIDE IN DEVELOPING THE CONTRACT ELECTRICAL SITE PLAN.
2. THE POWER FEEDER MUST BE SIZED BY THE DESIGNER TO PROVIDE A MAXIMUM 3% VOLTAGE DROP.
3. THE DESIGNER MUST PROVIDE PAY ITEMS, QUANTITIES AND UNIT BID PRICES FOR THE WORK SHOWN ON THIS DRAWING NOT INCLUDED IN THE PLAZA LUMP SUM PRICE.
4. IF DISTANCE BETWEEN MAIN AND REMOTE PLAZA ANTENNAS IS LESS THAN 500 FT., PROVIDE CONDUIT AND SYNC CABLE TO CONNECT ANTENNA READERS IN THE MAIN AND REMOTE CONTROL BUILDINGS.
5. MAIN AND REMOTE PLAZA BUILDING DOORS MUST FACE PAY ZONES.

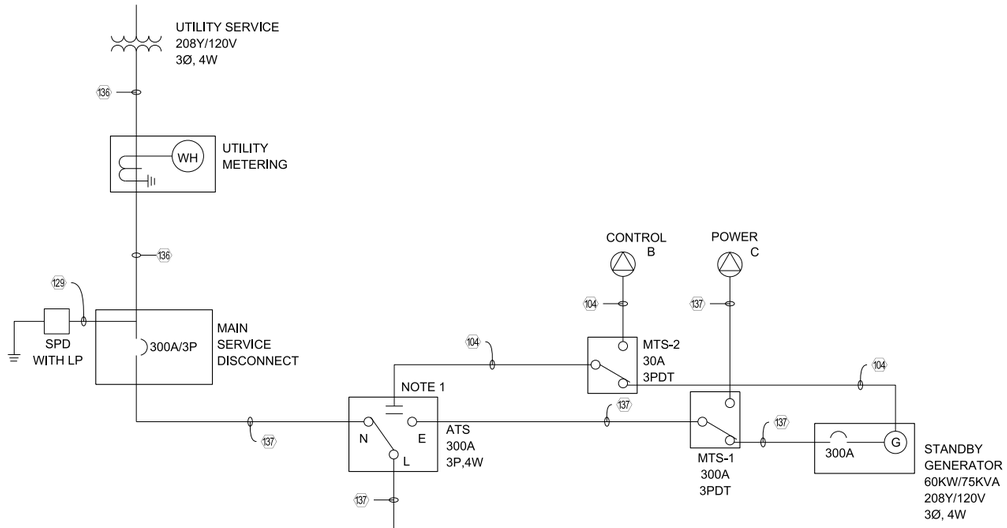
NOTE TO DESIGNER

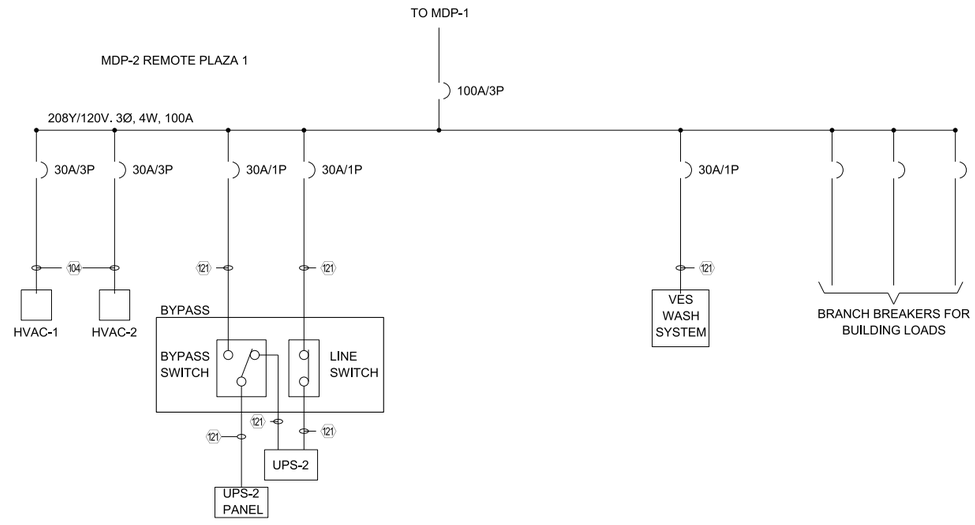
THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS **NOT** A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY 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.

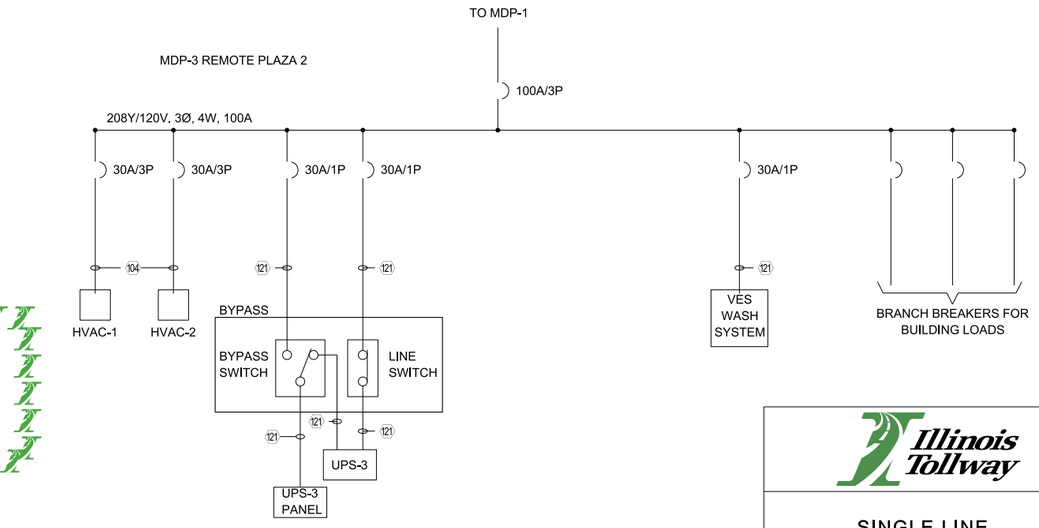
Illinois Tollway

ELECTRICAL SITE PLAN AET LANES - DETAIL

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2502B	1 OF 1







NOTES:

1. CONTACT TO INITIATE ENGINE STARTING CONTROLS.
2. ALL CIRCUIT BREAKERS AND DISCONNECT SWITCHES ARE 3-POLE UNLESS NOTED OTHERWISE.
3. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
4. SEE ELECTRICAL LEGENDS, SYMBOLS, ABBREVIATIONS AND EQUIPMENT SCHEDULES SHEET.

SINGLE LINE DIAGRAM

NOTE TO DESIGNER

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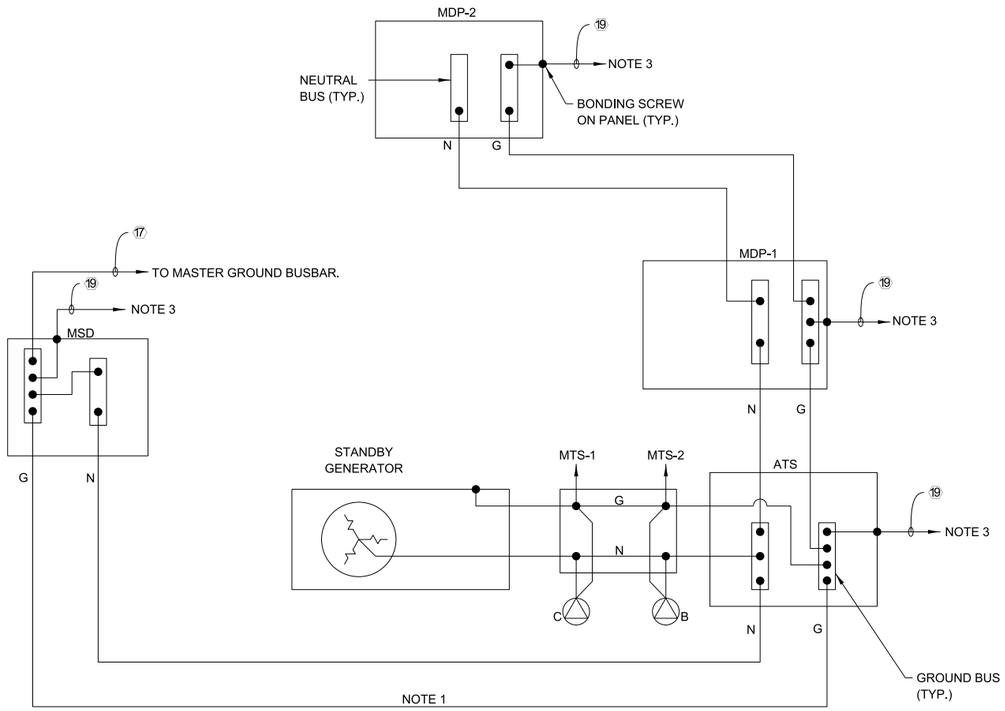
NOTES TO DESIGNER

FEEDER TO REMOTE RAMP POWER PANEL. CABLING TO REMOTE PLAZA TO BE SIZED BY THE DESIGNER. DRAWING SHOWS TWO REMOTE PLAZAS, TO BE MODIFIED BY DSE WHEN ONE OR NO REMOTE PLAZAS.

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SINGLE LINE POWER DIAGRAM

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2503	1 OF 1



CONTROL BUILDING EQUIPMENT

NOTES:

1. SEE CABLE/CONDUIT SCHEDULE SHEET FOR CABLE TAGS.
2. PROVIDE ¾" SCHEDULE 40 PVC CONDUITS FOR GROUND CABLES CONNECTING UPS-1 AND LC-1 TO MASTER GROUND BUSBAR.
3. PROVIDE EXOTHERMIC CONNECTION TO INTERNAL PERIMETER BUS CONDUCTOR.
4. GROUNDING SHALL BE PER SPECIAL PROVISION.

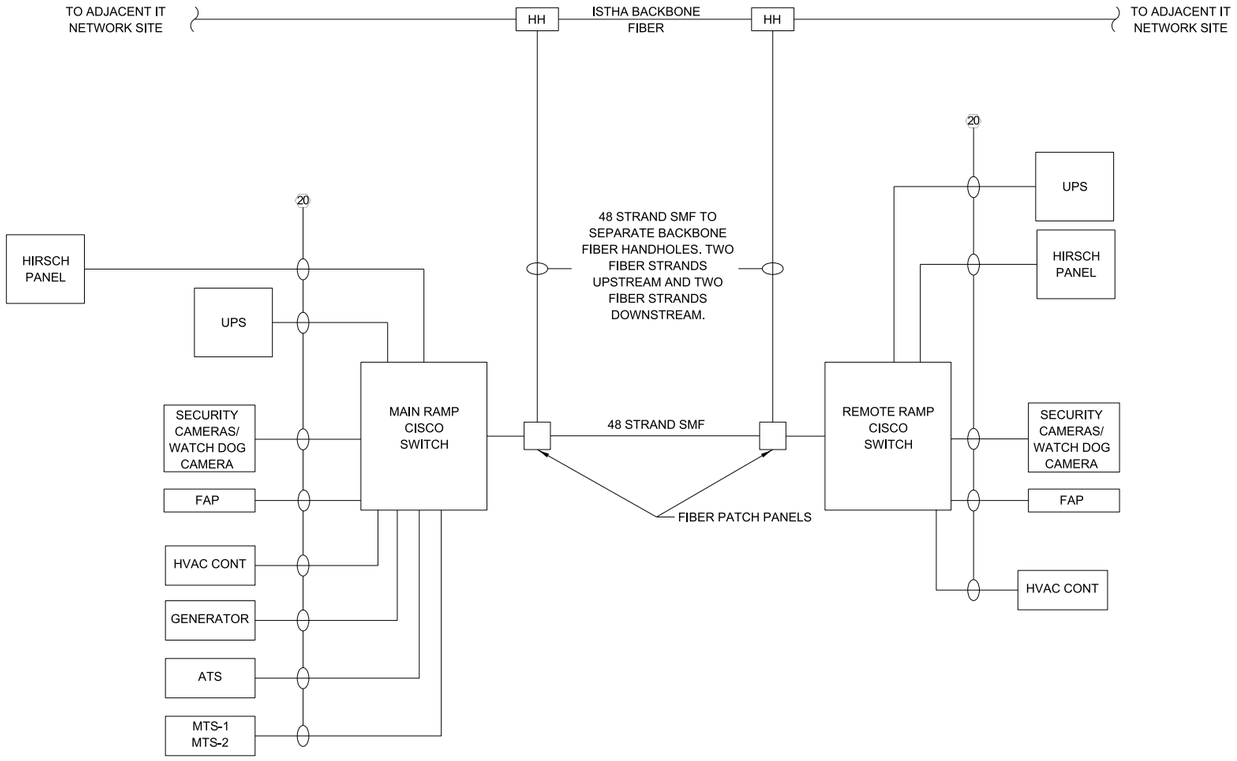
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GROUNDING SCHEMATIC

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2504	1 OF 1



SMF AND NETWORK CONNECTIVITY BETWEEN MAIN PLAZA AND REMOTE PLAZA

NOTES:

1. EQUIPMENT SHOWN ON THIS DRAWING MUST BE COORDINATED WITH THE ILLINOIS TOLLWAY IT DEPARTMENT.
2. ALL CABLING AND CONNECTORS REQUIRED SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
3. ALL FIBER OPTIC PATCH CORDS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
4. ALL FIBER OPTIC SFP'S REQUIRED FOR TERMINATING FIBER OPTIC CABLES AT CISCO SWITCHES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
5. PROVIDE IN-LINE SPD PROTECTION ADAPTERS FOR ALL CATEGORY 6 CABLES ENTERING THE BUILDING INCLUDING ALL CONNECTIONS TO THE CISCO SWITCH, EPAC, I-PASS EQUIPMENT AND RACK.

NOTE TO DESIGNER

WHETHER A RAMP PLAZA BUILDING CONNECTS TO THE FIBER BACKBONE DIRECTLY OR THROUGH A MAIN CONTROL BUILDING IS SITUATIONAL BASED ON THE NUMBER OF BUILDINGS, DISTANCE BETWEEN THEM, AND OTHER FACTORS. DETERMINE FIBER ROUTING IN COORDINATION WITH ILLINOIS TOLLWAY I.T. AND BUSINESS SYSTEMS.

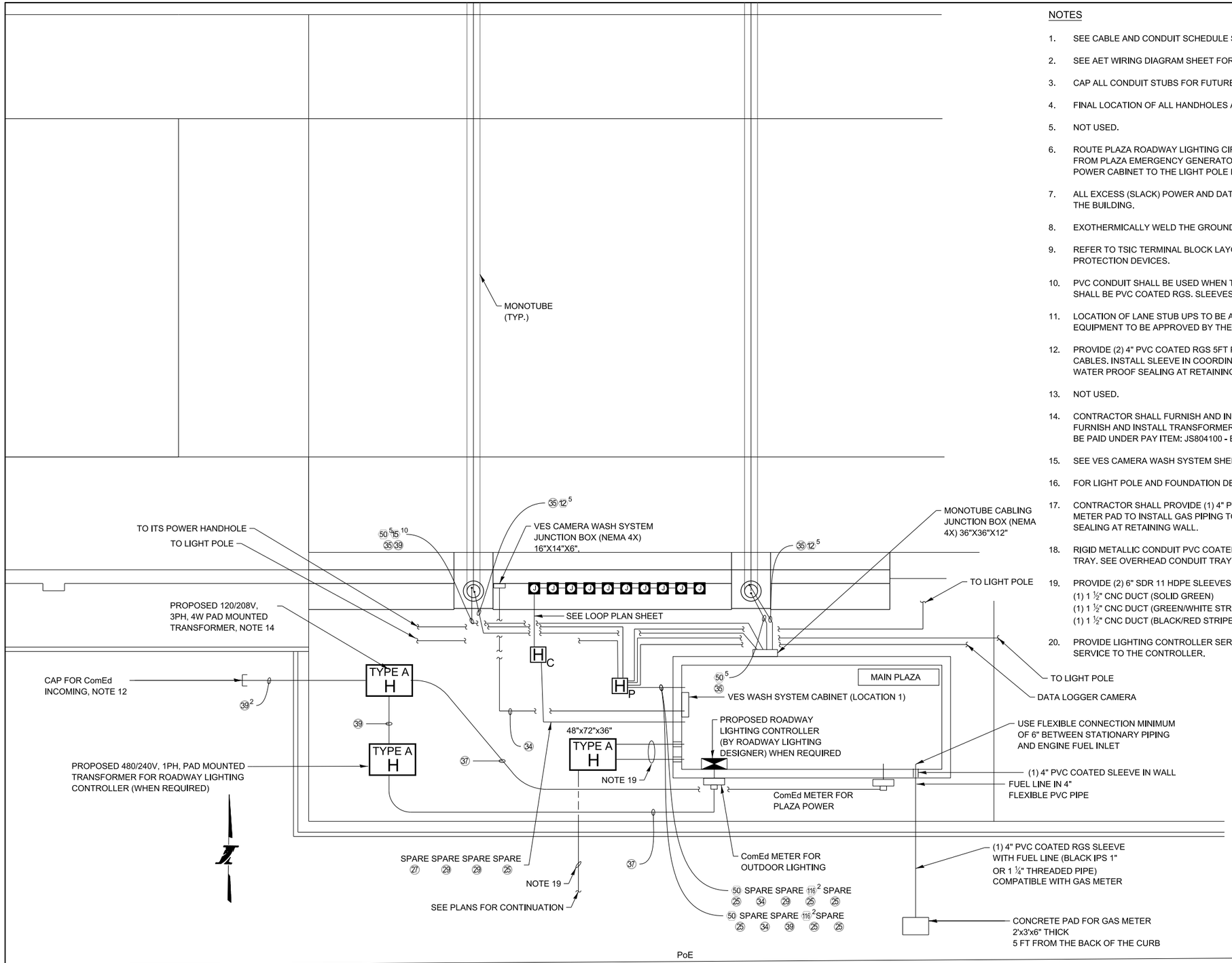
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FIBER INTERCONNECTIONS BETWEEN MAIN AND REMOTE PLAZAS

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2505	1 OF 1



UNDERGROUND CONDUIT PLAN MAIN PLAZA

NOTES

1. SEE CABLE AND CONDUIT SCHEDULE SHEET FOR CABLE TAGS.
2. SEE AET WIRING DIAGRAM SHEET FOR MONOTUBE WIRING.
3. CAP ALL CONDUIT STUBS FOR FUTURE USE.
4. FINAL LOCATION OF ALL HANDHOLES AND JUNCTION BOXES SHALL BE APPROVED BY THE ENGINEER.
5. NOT USED.
6. ROUTE PLAZA ROADWAY LIGHTING CIRCUITS TO LIGHTING CONTACTOR. THESE STAY ON PLAZA CIRCUITS, THAT ARE POWERED FROM PLAZA EMERGENCY GENERATOR. ROUTE 2-1/C #8 AND 1/C #8 GROUND WIRE FROM LIGHTING CONTACTOR LOCATED IN THE POWER CABINET TO THE LIGHT POLE FOR PLAZA LIGHTING CONTROL CIRCUIT. PROVIDE PHOTOCELL ON SAME POLE.
7. ALL EXCESS (SLACK) POWER AND DATA CABLES MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLE WILL BE COILED INSIDE THE BUILDING.
8. EXOTHERMICALLY WELD THE GROUND WIRE TO THE MONOTUBE'S BASE.
9. REFER TO TSIC TERMINAL BLOCK LAYOUT SHEET. LOW VOLTAGE WIRE FROM VES AND SECURITY CAMERAS LAND ON SURGE PROTECTION DEVICES.
10. PVC CONDUIT SHALL BE USED WHEN THE CONDUIT IS EITHER COVERED OR ENCASED IN CONCRETE. ANY EXPOSED CONDUIT SHALL BE PVC COATED RGS. SLEEVES SHALL BE USED WHEN CROSSING WALL FOUNDATIONS.
11. LOCATION OF LANE STUB UPS TO BE APPROVED BY THE ILLINOIS TOLLWAY PRIOR TO CONCRETE POUR. FINAL LOCATION OF EQUIPMENT TO BE APPROVED BY THE ENGINEER.
12. PROVIDE (2) 4" PVC COATED RGS 5FT PAST RETAINING WALL UP TO ComEd TRANSFORMER FOR ComEd INCOMING PRIMARY CABLES. INSTALL SLEEVE IN COORDINATION WITH STRUCTURAL AND STUB UP NEAR ComEd TRANSFORMER LOCATION. PROVIDE WATER PROOF SEALING AT RETAINING WALL.
13. NOT USED.
14. CONTRACTOR SHALL FURNISH AND INSTALL PROPOSED TRANSFORMER PAD AND CONDUIT/TRENCH FOR ComEd. ComEd WILL FURNISH AND INSTALL TRANSFORMER AND GROUND ROD/WIRING. ALL WORK SHALL CONFORM TO ComEd STANDARD. THIS WILL BE PAID UNDER PAY ITEM: JS804100 - ELECTRIC SERVICE INSTALLATION.
15. SEE VES CAMERA WASH SYSTEM SHEETS FOR DETAILS.
16. FOR LIGHT POLE AND FOUNDATION DETAILS, SEE ILLINOIS TOLLWAY STANDARD DRAWINGS H1 AND H2.
17. CONTRACTOR SHALL PROVIDE (1) 4" PVC COATED RGS SLEEVE FROM BUILDING SOUTHEAST CORNER SOUTH UP TO NICOR METER PAD TO INSTALL GAS PIPING TO BUILDING. STUB UP SLEEVE NEAR GAS METER LOCATION. PROVIDE WATERPROOF SEALING AT RETAINING WALL.
18. RIGID METALLIC CONDUIT PVC COATED FOR MONOTUBE POWER/DATA/ANTENNA CABLING SHALL RUN IN OVERHEAD CONDUIT TRAY. SEE OVERHEAD CONDUIT TRAY DETAILS.
19. PROVIDE (2) 6" SDR 11 HDPE SLEEVES, EACH SLEEVE SHALL HAVE;
    (1) 1 ½" CNC DUCT (SOLID GREEN)
    (1) 1 ½" CNC DUCT (GREEN/WHITE STRIPE)
    (1) 1 ½" CNC DUCT (BLACK/RED STRIPE)
20. PROVIDE LIGHTING CONTROLLER SERVICE CONDUIT 3"C PVC-SCH 40 AND STUP UP INTO METER 3"C RGS PVC COATED FOR SERVICE TO THE CONTROLLER.

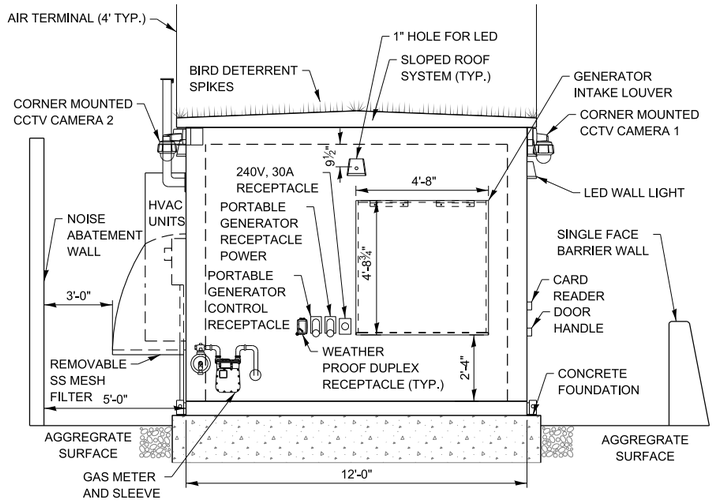
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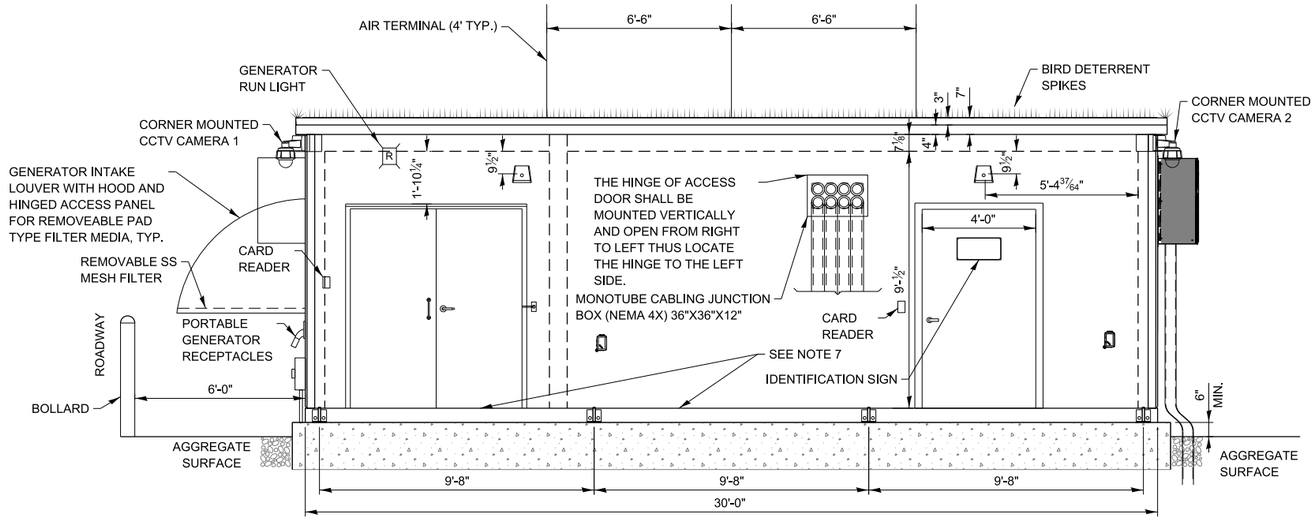
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UNDERGROUND CONDUIT
PLAN - MAIN PLAZA

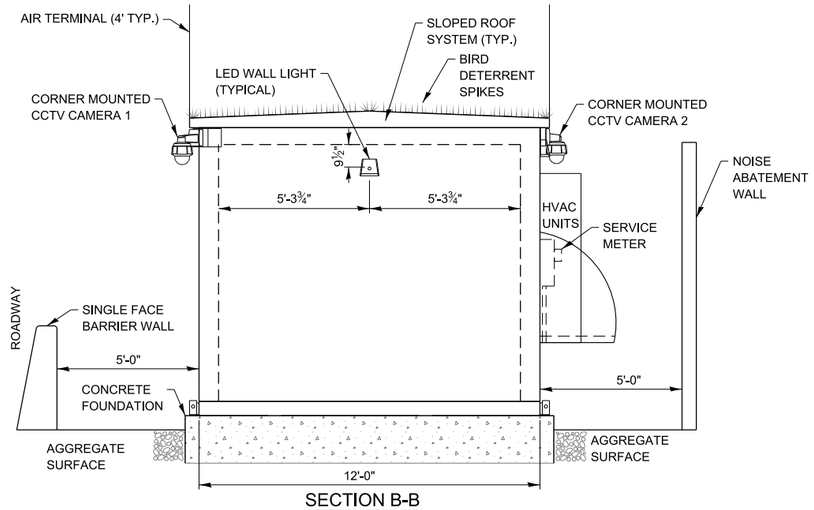
VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2506	1 OF 1



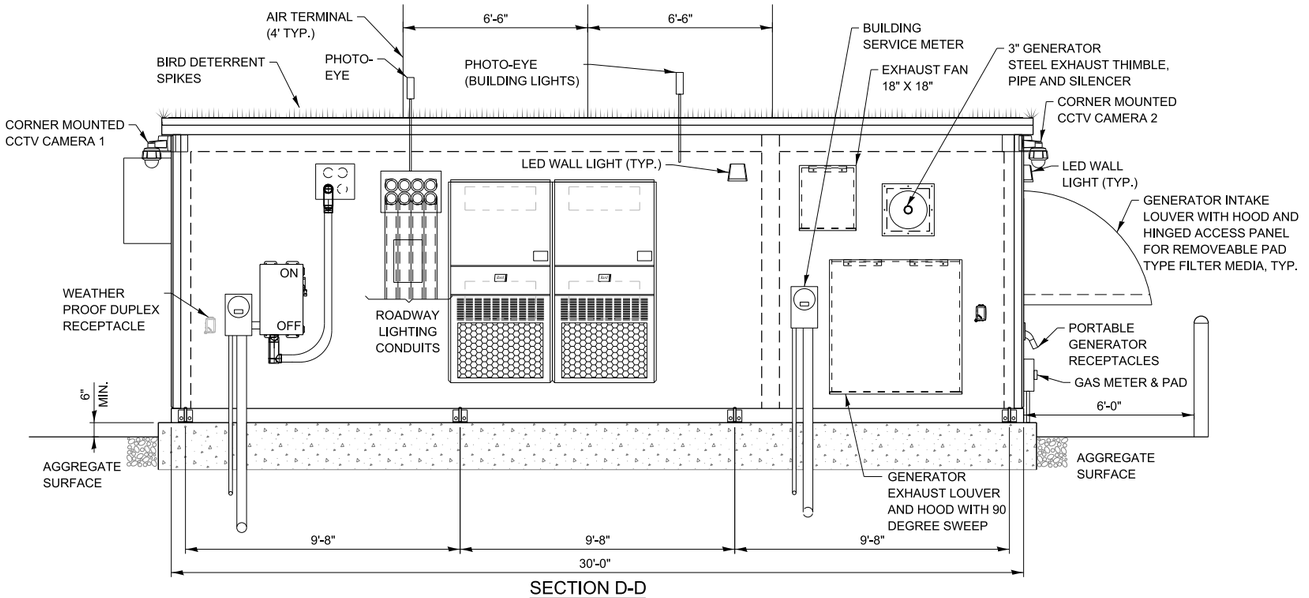
SECTION A-A



SECTION C-C



SECTION B-B



SECTION D-D

NOTE TO DESIGNER:

AIR TERMINAL RODS ARE TO BE INSTALLED AND FIXED TO ROOF WITHOUT INTERFERING WITH THE INTEGRITY OF THE STRUCTURE

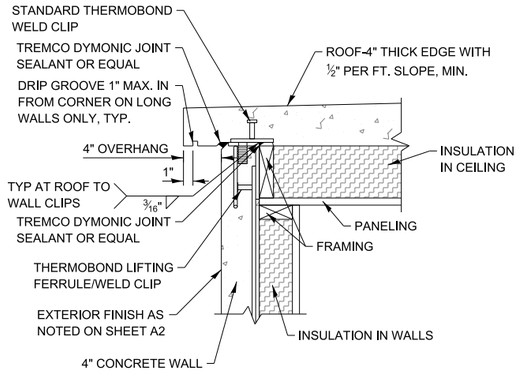
NOTES:

1. TREAD RISERS SHALL BE EQUAL AND NO GREATER THAN 7".
2. BOND BASE OF BIRD SPIKE ASSEMBLY TO GROUNDING CONDUCTOR FOR THE LIGHTNING PROTECTION SYSTEM.
3. CONNECT CABLE TO NEAREST GROUND ROD ON THE BUILDING GROUND GRID.

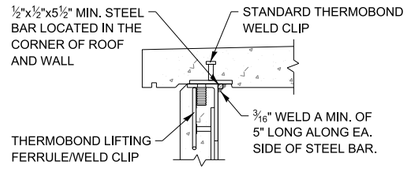
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EXTERIOR ELEVATIONS - MAIN PLAZA

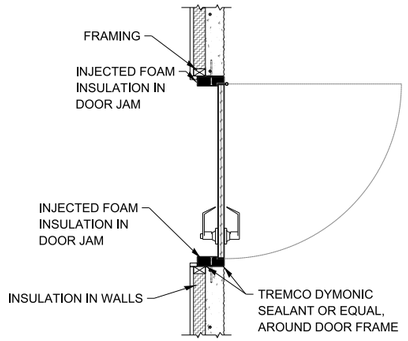
VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2509	1 OF 2



ROOF TO WALL SECTION



ROOF TO WALL WELD



TYPICAL DOOR SECTION DETAIL

CONSTRUCTION MATERIALS:

INTERIOR FINISH:
- FLOOR: ⅛" X 12" X 12" VINYL TILE WITH 4" BASE COVE
- WALLS: ¾" PANELING (1 1/16" OSB W/.030 FRP COATING) (CLASS "C" MINIMUM)
- CEILING: ¾" PANELING (1 1/16" OSB W/.030 FRP COATING) (CLASS "C" MINIMUM)

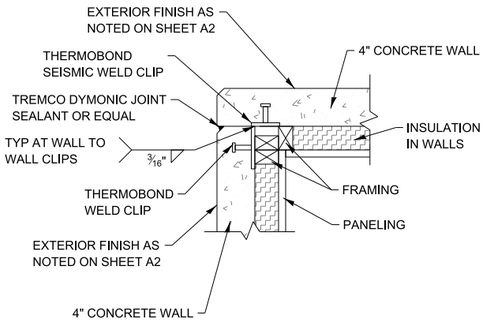
INSULATION:
- WALLS: 3" THERMAX FOAM INSULATION (R-19) ESR-1659
- CEILING: 5" THERMAX FOAM INSULATION (R-32) ESR-1659

FRAMING:
- WALLS: 2" X 6" FURRING STRIPS ON END AT 24" O.C.
- CEILING: 2" X 6" FURRING STRIPS ON END AT 24" O.C.

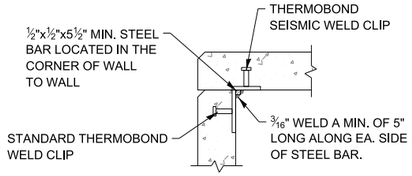
CONCRETE:
- FLOOR: 5000 PSI SAND LIGHTWEIGHT
- WALLS: 5000 PSI SAND LIGHTWEIGHT
- CEILING: 5000 PSI SAND LIGHTWEIGHT

CONSTRUCTION NOTES:

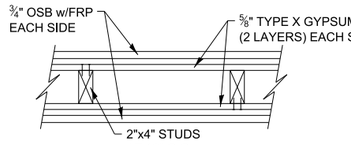
1. FLOORS ARE TO BE WAXED AND SEALED BEFORE SHIPPING.



WALL TO WALL SECTION



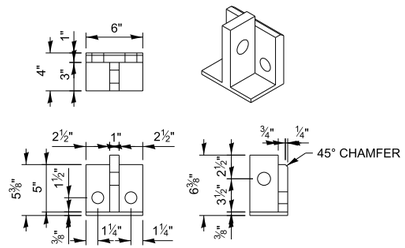
WALL TO WALL WELD



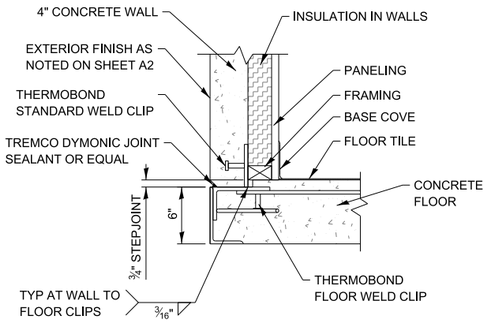
THICKNESS:	6⅛"
APPROXIMATE WEIGHT:	12 PSF
FIRE TEST:	SWRI 01-5920-614, 12-5-94
SOUND TEST:	NGC 2363, 4-1-70

2 HOUR INTERIOR WALL DETAIL
GA FILE WP NO. 4136

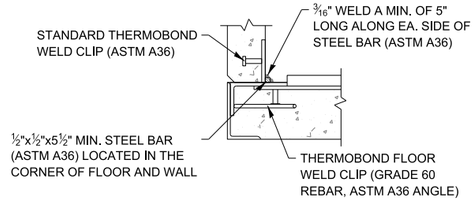
BASE LAYER ⅝" TYPE X GYPSUM WALLBOARD OR VENEER BASE APPLIED PARALLEL OR AT RIGHT ANGLES TO EACH SIDE OF 2 X 4 WOOD STUDS 16" O.C. WITH 1¼" TYPE W DRYWALL SCREWS 12" O.C. FACE LAYER ⅝" TYPE X GYPSUM WALLBOARD OR VENEER BASE APPLIED PARALLEL OR AT RIGHT ANGLES TO EACH SIDE WITH 1⅞" TYPE W DRYWALL SCREWS 12" O.C. AND OFFSET 6" FROM SCREWS IN BASE LAYER. JOINTS STAGGERED 16" EACH LAYER AND SIDE. (LOAD-BEARING)



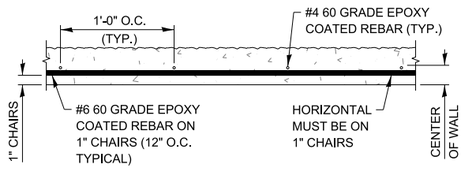
MOUNTING BRACKET



WALL TO FLOOR SECTION



WALL TO FLOOR WELD

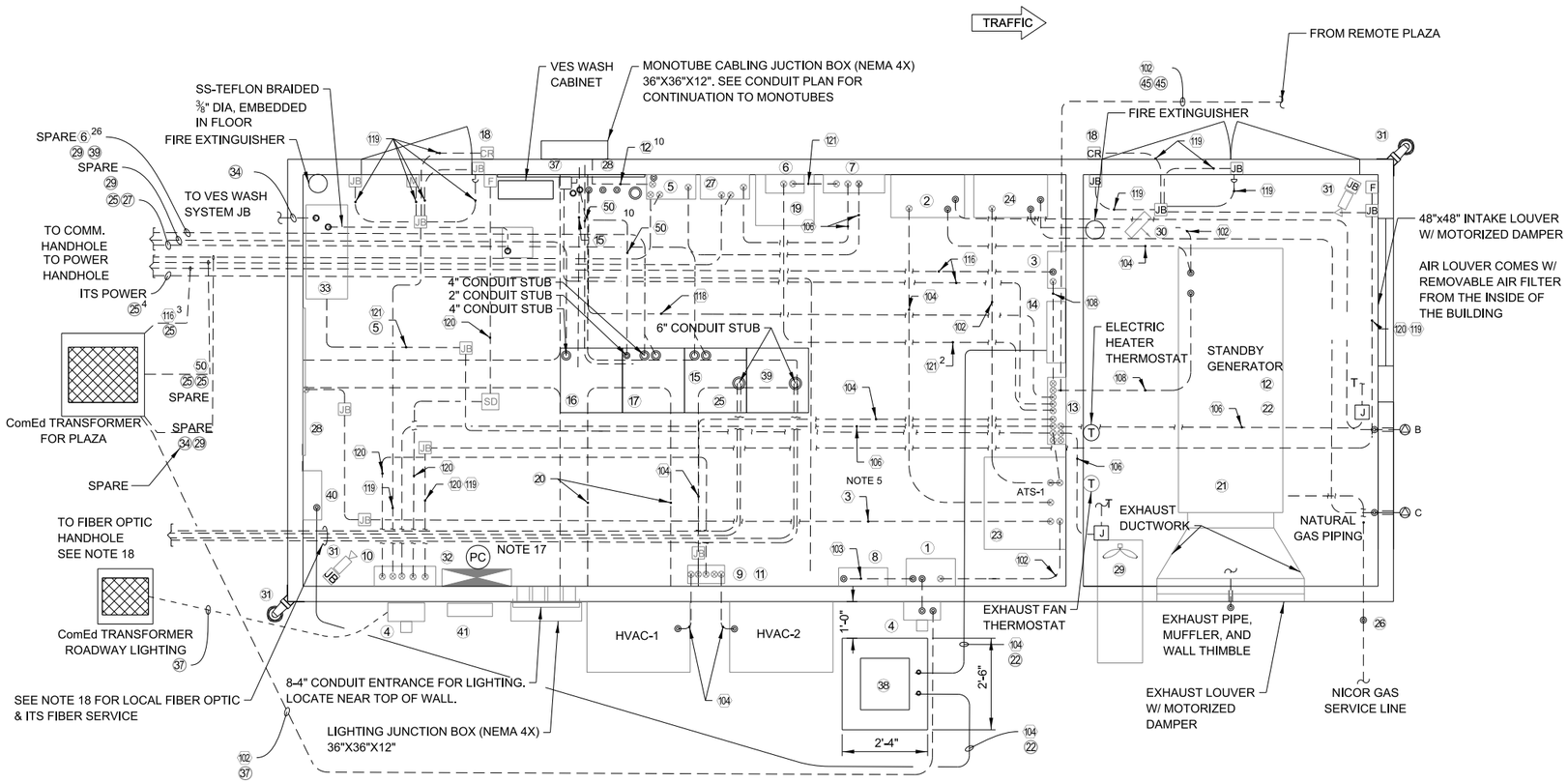


TYPICAL FLOOR REBAR LAYOUT

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EXTERIOR ELEVATIONS - MAIN PLAZA

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2509	2 OF 2



CONTROL BUILDING MAIN TOLL PLAZA EQUIPMENT LAYOUT

LEGEND:

1. MAIN SERVICE DISCONNECT 200A/3P
2. MTS-2 FOR GENERATOR CONTROL
3. LIGHTING CONTACTOR, TRANSFORMER, AND CIRCUIT BREAKER
4. ELECTRIC UTILITY METER
5. VIDEO JB POWER #1
6. BYPASS SWITCH
7. UPS-1 PANEL.
8. LIGHTNING ARRESTER
9. TEMPERATURE ALARM
10. CARD READER PANEL
11. HVAC CONTROL PANEL
12. GENERATOR CONTROL PANEL
13. MAIN DISTRIBUTION PANEL MDP-1
14. ITS 1-1 PANEL
15. 19" RACK LOCAL BACKBONE FIBER
16. 19" RACK I-PASS READER
17. 19" RACK LANE CONTROLLER RACK
18. CARD READER
19. UPS/LINE CONDITIONER. CONTRACTOR SHALL INSTALL THE 3KVA UPS ABOVE GROUND, ON A SHELVING SYSTEM AS DIRECTED BY THE ENGINEER
20. CABLE TRAY
21. JACKET WATER HEATER
22. BATTERY CHARGER
23. ATS
24. MTS-1 FOR GENERATOR POWER
25. SMF DISTRIBUTION PANEL
26. NICOR GAS SERVICE LINE
27. VIDEO JB POWER #2
28. TSIC BOARD
29. SIDEWALL EXHAUST FAN W/ MOTORIZED DAMPER
30. ELECTRIC CEILING MOUNTED HEATER
31. SECURITY CAMERA
32. ROADWAY LIGHTING CONTROLLER (BY ROADWAY LIGHTING DESIGNER)
33. VES WASH SYSTEM CABINET LOCATION 1
34. ROLAIR AIR COMPRESSOR
35. N/A
36. N/A
37. 5 KVA, 208V/480V OUTDOOR TYPE SINGLE PHASE TRANSFORMER, NEMA 4X
38. 19" RACK ITS FIBER
39. ITS 1-2 PANEL
40. ROADWAY LIGHTING DISCONNECT SWITCH

NOTES:

1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. SEE SYSTEM POWER SINGLE LINE DIAGRAM SHEET FOR DETAILS.
3. SEE WALL ELEVATION SHEET FOR DETAILS.
4. DOOR ALARM SWITCH, SEE DETAIL ON CONTROL BUILDING MISCELLANEOUS DETAILS SHEET.
5. PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR ATS ALARMS AND ROUTE TO TSIC BOARD. ALL CONTACT CLOSURES SHALL BE ROUTED TO TSIC.
6. THE LIGHTNING PROTECTION SYSTEM DEVICE SHALL BE CONNECTED TO THE LOAD SIDE OF THE UTILITY METER.
7. FOR ROADWAY LIGHTING. ROUTE TO 30A. CIRCUIT BREAKER.
8. ALL EXCESS (SLACK) POWER AND DATA CABLES MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLES WILL BE COILED INSIDE THE CABINET.
9. NOT USED.
10. PVC SCH-80 CONDUIT INSIDE BUILDING SHALL BE USED WHEN THE CONDUIT IS EITHER COVERED OR ENCASED IN CONCRETE. TRANSITION SHALL BE ALLOWED. ANY EXPOSED CONDUIT SHALL BE PVC COATED RGS. SLEEVES SHALL BE USED WHEN DEEMED NECESSARY.
11. THE CABLE LENGTH FROM THE ANTENNA TO THE I-PASS READER SHALL NOT EXCEED 150 FEET FOR MAIN PLAZA.
12. PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR SMOKE DETECTOR ALARM CONTACT AND ROUTE TO CARD READER EQUIPMENT.
13. PROVIDE AN ETHERNET CABLE FROM UPS AND FROM CARD READER PANEL TO LOCAL BACKBONE RACK. NETWORK SWITCHES TO BE PROCURED BY OTHERS.

NOTES (CONT'D):

14. TERMINATE ALARM CABLES ON TERMINAL BLOCK ON TSIC BOARD.
15. CONTRACTOR SHALL COORDINATE ALL WORK FOR UTILITY SERVICES WITH COMED AND NICOR.
16. POWER FRONT AND REAR VES CAMERAS FROM 24V DC VIDEO JUNCTION BOX #1 AND DATA LOGGER CAMERA FROM SECURITY VIDEO JUNCTION BOX #2. ALL POWER TO BE SURGE PROTECTED.
17. MOUNT PHOTOCELL 6" ABOVE TOP OF BUILDING POINTING TOWARDS NORTHEAST.
18. PROVIDE (2) 6" SDR 11 HDPE SLEEVES EACH. SLEEVE SHALL HAVE;
    (1) 1½" CNC DUCT (SOLID GREEN)
    (1) 1½" CNC DUCT (GREEN / WHITE STRIPE)
    (1) 1½" CNC DUCT (BLACK / RED STRIPE)
19. LOCATION OF (4) RACKS BE IN THE MIDDLE OF THE ROOM.
20. FOR SECURITY CAMERA, CONTRACTOR TO VERIFY CLEAR UNOBSTRUCTED LINE OF SIGHT TO THE ENTRANCE DOORS.
21. INSTALL TRANSFORMER ON 6" CONCRETE PAD 1 FT AWAY FROM EXTERIOR WALL. ALL FEED TO THIS TRANSFORMER SHALL BE UNDERGROUND.

NOTE TO DESIGNER

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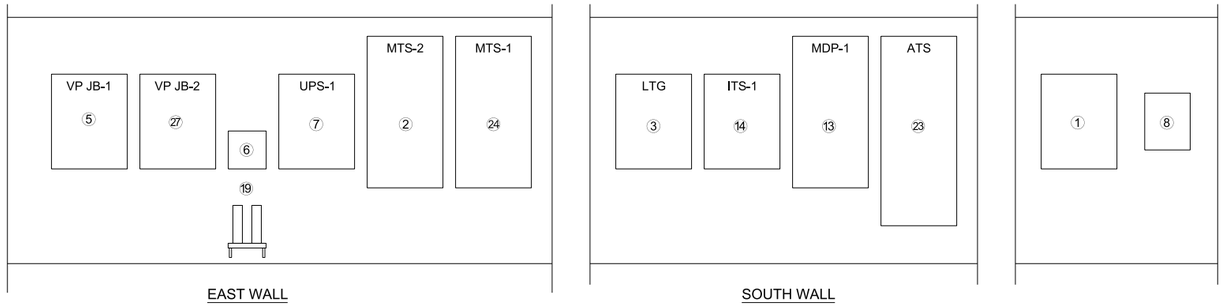
NOTE TO DESIGNER

IF DISTANCE BETWEEN MAIN AND REMOTE PLAZA ANTENNAS IS LESS THAN 500 FT., PROVIDE CONDUIT AND SYNC CABLE TO CONNECT ANTENNA READERS IN THE MAIN AND REMOTE CONTROL BUILDINGS.

Illinois Tollway

CONTROL BUILDING EQUIPMENT LAYOUT - MAIN PLAZA

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2510	1 OF 1



WALL ELEVATIONS

NOT TO SCALE

NOTE 2

EQUIPMENT LEGEND

ITEM DESCRIPTION

1. MAIN SERVICE DISCONNECT 200A/3P
2. MTS-2 FOR GENERATOR CONTROL
3. LIGHTING CONTRACTOR 120V, 30A, 1 PHASE, 4-POLE IN A NEMA 1 ENCLOSURE WITH A THREE POSITION SELECTOR SWITCH HAND-OFF-AUTO MOUNTED ON THE COVER. TRANSFORMER DRY TYPE, 2KVA, 120V PRIMARY, 480V SECONDARY, 1-PHASE, 3-WIRE ROADWAY LIGHTING.
5. VIDEO JB POWER #1
6. BYPASS SWITCH.
7. UPS-1 PANEL.
8. LIGHTNING ARRESTOR SYSTEM
13. MAIN DISTRIBUTION PANEL (MDP-1), 208Y/120V, 3 PHASE, 4W 250 AMP, MAIN CIRCUIT BREAKER
14. ITS-1 PANEL
19. UPS / LINE CONDITIONER CONTRACTOR SHALL INSTALL THE 3KVA UPS ABOVE GROUND, ON A SHELVING SYSTEM AS DIRECTED BY THE ENGINEER
23. ATS
24. MTS-1 FOR GENERATOR POWER
27. VIDEO JB POWER #2

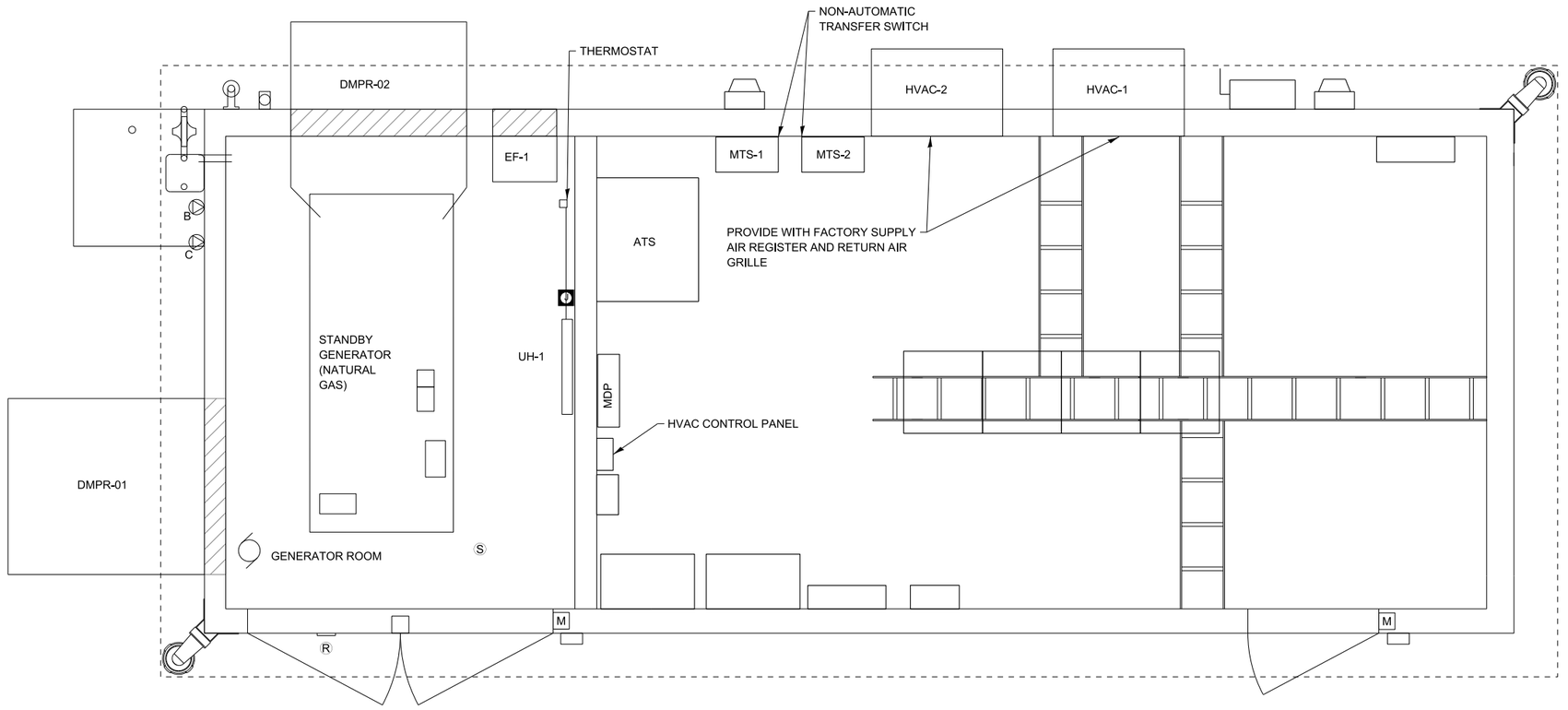
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Illinois Tollway

INTERIOR ELEVATIONS - CONTROL BUILDING

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2511	1 OF 1



BUILDING MECHANICAL PLAN

NOT TO SCALE

NOTES:

1. UNIT SHALL HAVE ARI CERTIFIED COILS, AIWCA RATED FANS, AND UL LISTED & LABELED ELECTRICAL COMPONENTS.
2. PROVIDE HVAC UNITS WITH FACTORY SUPPLY AND RETURN GRILLES.
3. HVAC PROVIDE LEAD/LAG THERMOSTAT CONTROLLER BARD MODEL #MC4001-AC WITH BASE ALARMS AND ETHERNET ACCESS.
4. ALL MANUFACTURERS AND PART NUMBERS ARE FOR REFERENCE. THE CONTRACTOR SHALL PROVIDE CALCULATIONS FOR HVAC AND HEATING SYSTEM BASED ON BUILDING CONSTRUCTION AND INTERNAL BUILDING LOADS.

ELECTRICAL ROOM

MARK	LOCATION	SERVES	NOM. TON	TOTAL AIRFLOW CFM	OUTSIDE AIRFLOW CFM	ESP (IN WG)	REFRIG. TYPE	COOLING DATA						HEATING DATA				ELECTRICAL DATA			MANUFACTURER/ MODEL NUMBER	REMARKS
								TOTAL CAP MBH	SENS CAP MBH	EAT (DEG F) DB	EAT (DEG F) WB	OUTDOOR TEMP (DEG F)	MIN. EER AT ARI CONDITIONS	CAP MBH	EAT (DEG F) DB	OUTDOOR TEMP (DEG F)	SUPPLEMENTAL HEATING (KW)	VOLTS	PH	HZ		
HVAC-01	OUTSIDE	BUILDING	4	1500	-	0.15	R454B A2L	45.5	34.0	75	62	90	11	17.1	70	0	5	240	1	60	BARD W5SAF0A05ZPXXXJ	
HVAC-02	OUTSIDE	BUILDING	4	1500	-	0.15	R454B A2L	45.5	34.0	75	62	90	11	17.1	70	0	5	240	1	60	BARD W5SAF0A05ZPXXXJ	

EXHAUST FAN AND DAMPERS

MARK	LOCATION	MAKE	MODEL	TYPE	CFM	ESP IN WG	FAN RPM	DRIVE TYPE	MOTOR DATA		NOTES
									HP	V / PH / HZ	
EF-1	GENERATOR ROOM	GREENHECK	SE1	EXHAUST FAN	750	0.25	1307	DIRECT	1/8	115/ 1/ 60	WITH MOTORIZED LOUVERS AND GALV. HOUSING, THERMOSTAT CONTROLLED

EXHAUST FAN AND DAMPERS

MARK	LOCATION	DESCRIPTION	TYPE	MAKE	MODEL	SIZE	ELECTRICAL	NOTES
							V / PH / HZ	
DMPR-01	GENERATOR ROOM	SUPPLY DAMPER	MOTORIZED DAMPER	GREENHECK	VCD-23	48" x 48"	115/ 1/ 60	LOUVERS FAIL OPEN ON LOSS OF POWER, INSTALL HOOD WITH SS MESH FILTER ON EXTERIOR
DMPR-02	GENERATOR ROOM	EXHAUST DAMPER	MOTORIZED DAMPER	GREENHECK	135 TLCD	48" x 48"	460 / 3 / 60	LOUVERS FAIL OPEN ON LOSS OF POWER, INSTALL PARTIAL HOOD WITH STAINLESS STEEL WIRE GRID

ELECTRIC UNIT HEATER SCHEDULE (UH)

MARK	ROOM	MAKE	MODEL	TYPE	CAPACITY (kW)	CFM	V / PH / HZ	NOTES
UH-1	GENERATOR	INDEECO	ULI	WALL MOUNTED	2KW/1.5KW	300	240/ 1 / 60	INCLUDE DISCONNECT

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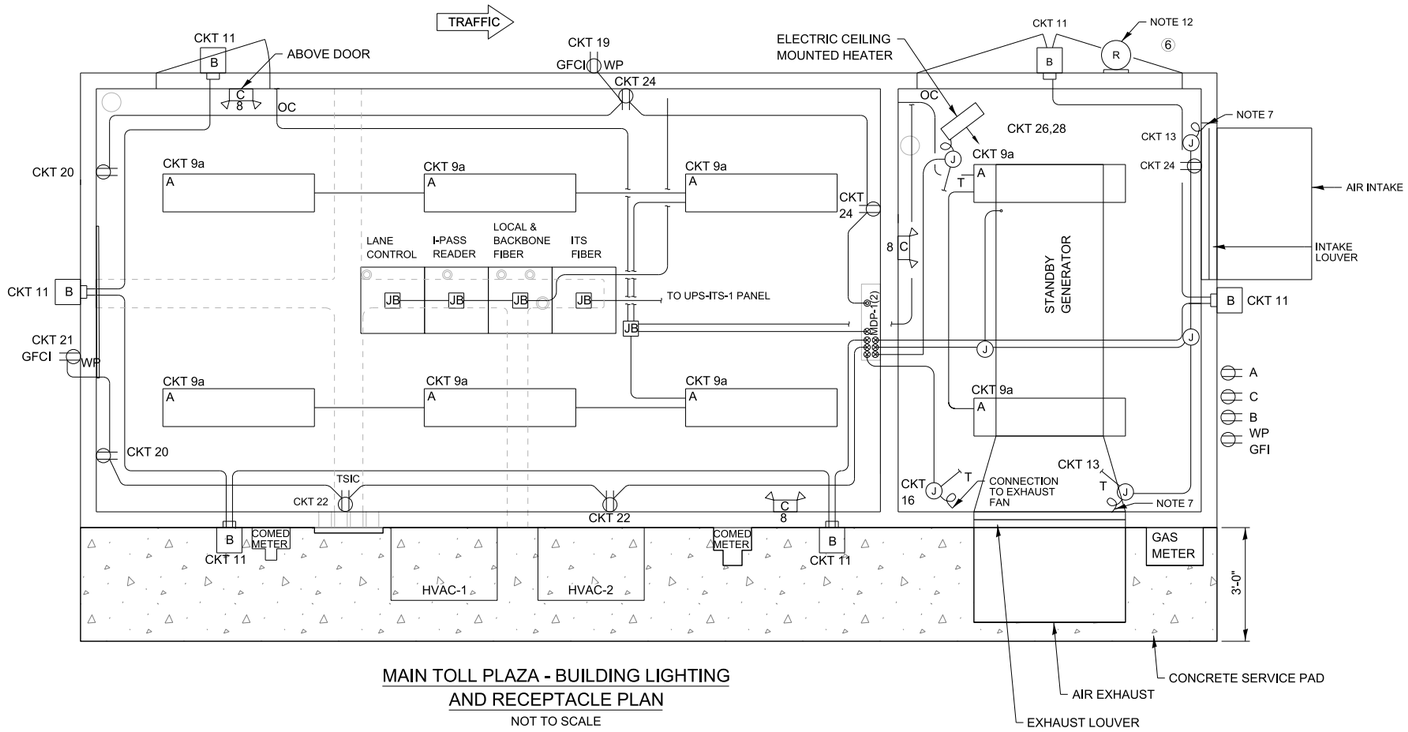
NOTE TO DESIGNER

THE ESTIMATED EQUIPMENT BUILDING LOADS FOR EQUIPMENT IS 19,000 BTU/HR. THE DESIGNER SHALL SIZE THE HVAC SYSTEMS ACCORDINGLY.

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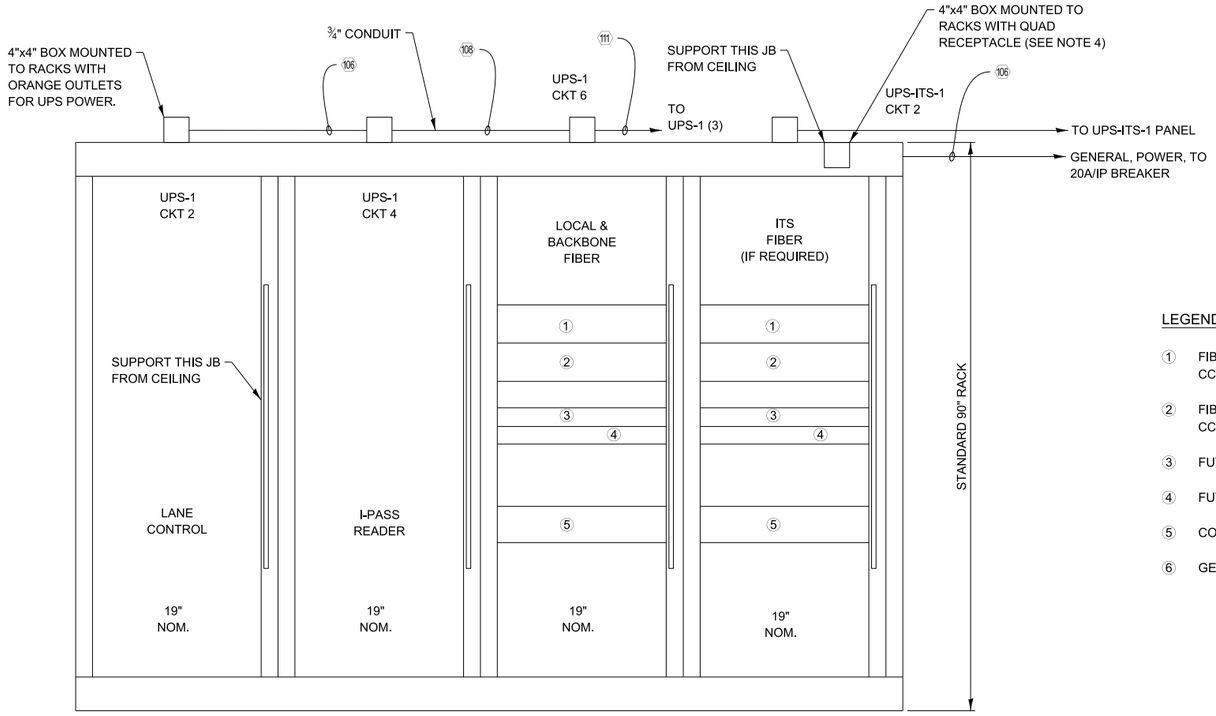
MECHANICAL PLAN - MAIN PLAZA

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2512	1 OF 1



MAIN TOLL PLAZA - BUILDING LIGHTING AND RECEPTACLE PLAN

NOT TO SCALE



COMMUNICATIONS AND EQUIPMENT RACK ELEVATION

NOT TO SCALE

NOTES:

1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. RECEPTACLE AND LIGHTING CONDUIT SHALL BE ¾" WITH 2-1/C #12 AND 1/C #12 GRD, UNLESS OTHERWISE NOTED.
3. FOR PANEL SCHEDULES, SEE PANELBOARD SCHEDULES SHEET.
4. PROVIDE CONNECTION TO RECEPTACLES FOR THE EQUIPMENT RACKS AS SPECIFIED. THE PLUG STRIP SHALL BE MOUNTED TO THE SIDE OF THE CABINET AS DIRECTED BY THE ENGINEER.
5. FOR LIGHTING FIXTURE SCHEDULE, ELECTRICAL SYMBOLS, LEGEND, AND ABBREVIATIONS, SEE LEGEND SHEET.
6. LIGHTING AND RECEPTACLES SHALL BE FED FROM PANEL MDP-1.
7. PROVIDE CONNECTIONS TO THE MOTORIZED DAMPER AND GEN. CONTROL PANEL DAMPERS TO BE CONTROLLED FROM GEN. CONTROLLER.
8. CONNECT EMERGENCY BATTERY PACKS AHEAD OF LIGHTING CIRCUIT.
9. COMMUNICATION AND EQUIPMENT RACK SHALL BE AS FOLLOWS: I-PASS LANE CONTROL BACKBONE FIBER IT ITS FIBER
10. CONTRACTOR SHALL COORDINATE FINAL RACK LAYOUT WITH THE ENGINEER AND THE ILLINOIS TOLLWAY.
11. NETWORK SWITCHES PROCURED BY OTHERS.
12. RED INDICATOR LIGHT INSTALLED FACING THE ROADWAY AND ACTIVATED WHEN GENERATOR IS RUNNING.
13. SEE MISCELLANEOUS SCHEMATIC DIAGRAMS SHEET FOR EXTERIOR LIGHTING CONTROLS.

LEGEND:

1. FIBER-OPTIC CORNING RACK INTERCONNECT CENTER CCH-04U (4 RU)
2. FIBER-OPTIC CORNING RACK INTERCONNECT CENTER CCH-04U (4 RU)
3. FUTURE NETWORK SWITCHES - (1 RU) NOTE 11
4. FUTURE NETWORK SWITCHES - (1 RU) NOTE 11
5. COMMSCOPE MODULAR PATCH PANEL - (2 RU)
6. GENERATOR RUNNING LIGHT

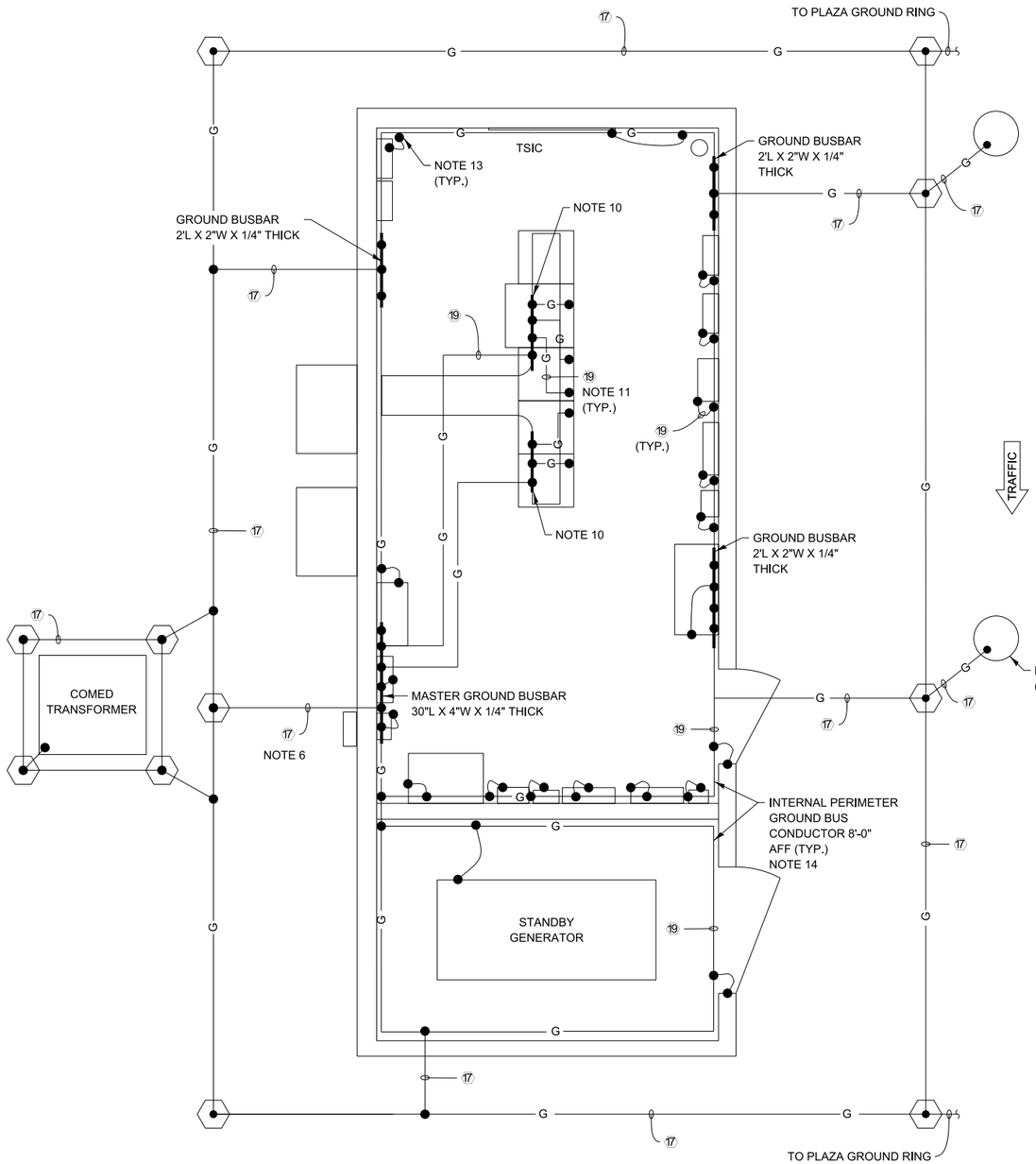
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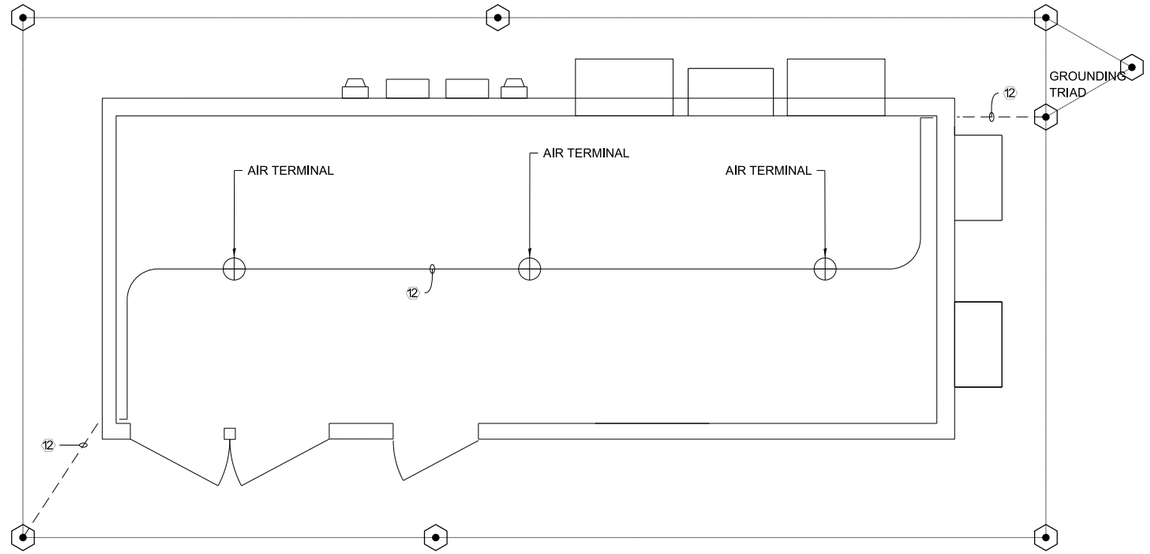
CONTROL BUILDING LIGHTING AND RECEPTACLE PLAN - MAIN PLAZA

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2513	1 OF 1



BUILDING ELECTRICAL GROUNDING LAYOUT

NOT TO SCALE



FACILITY - GROUNDING OF LIGHTNING PROTECTION SYSTEM

NOT TO SCALE

NOTES:

1. SEE CABLE/CONDUIT SCHEDULE SHEET FOR CABLE TAGS.
2. NOT USED
3. DETAIL SHOWS INSTALLATION IN UNPAVED AREA. WHEN INSTALLING IN A PAVED AREA, INCORPORATE GROUND WELL IN THE POUR.
4. GROUND WELLS ARE REQUIRED AT EVERY GROUND ROD.
5. SEE GROUNDING SCHEMATIC SHEET FOR MORE DETAILS.
6. PROVIDE 1" SCHEDULE 40 PVC CONDUIT FOR GROUND CABLES UNDER BUILDING (TYP.).
7. ALL COPPER GROUND BARS SHALL BE OF HARD DRAWN, COMMERCIALLY PURE, ELECTROLYTIC COPPER, FOR USE AS AN ELECTRICAL CONDUCTOR AND SHALL COMPLY WITH ASTM SPEC. B-187 OF LATEST DATE.
8. BOLTS, NUTS, & WASHERS USED FOR CONNECTION TO GROUND BUSBARS SHALL BE SOLID COPPER.
9. WELD PER MANUFACTURER SPECIFICATION (ERICO PRODUCTS OR BURNDY CORP.).
10. THE COPPER GROUND BUSBAR SHALL BE MOUNTED TO THE CABLE TRAY ABOVE EQUIPMENT RACKS.
11. PROVIDE A #2 AWG GROUND CABLE FROM THE FRAME OF EACH EQUIPMENT RACK TO THE GROUND BUS AS SHOWN. THE CABLE SHALL BE BOLTED TO THE RACK USING A SEAMLESS HEAVY DUTY COMPRESSION TERMINAL.
12. A FOUR INCH GAP SHALL BE PROVIDED BETWEEN THE ENDS OF THE TWO CONDUCTORS THAT MAKE UP THE INTERNAL PERIMETER GROUND BUS CONDUCTOR.
13. ALL EQUIPMENT LOCATED INSIDE THE BUILDING SHALL BE BONDED TO THE MAIN GROUND BUS OR THE INTERNAL PERIMETER GROUND CONDUCTOR WITH A #2 AWG GROUND CABLE. ALL CONNECTIONS MUST BE EXOTHERMICALLY WELDED.
14. THE INTERNAL PERIMETER GROUND BUS CONDUCTOR MUST BE INSTALLED HORIZONTALLY ALONG THE WALL APPROXIMATELY 8 FEET ABOVE FINISHED FLOOR. THE CONDUCTOR SHALL BE SUPPORTED 2 INCHES FROM THE WALL SURFACE ON INSULATED STANDOFFS. THE STANDOFFS SHALL BE INSTALLED AT INTERVALS AS NECESSARY TO KEEP THE CONDUCTOR SECURELY IN PLACE WITHOUT NOTICEABLE SAGS AND BENDS.
15. THE GROUND BUSBARS MUST BE MOUNTED APPROXIMATELY 8 FEET ABOVE FINISHED FLOOR AND MOUNTED TO WALL USING A MOUNTING BRACKET WITH INSULATOR.

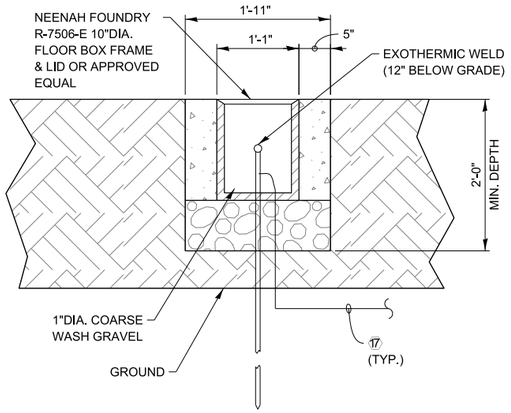
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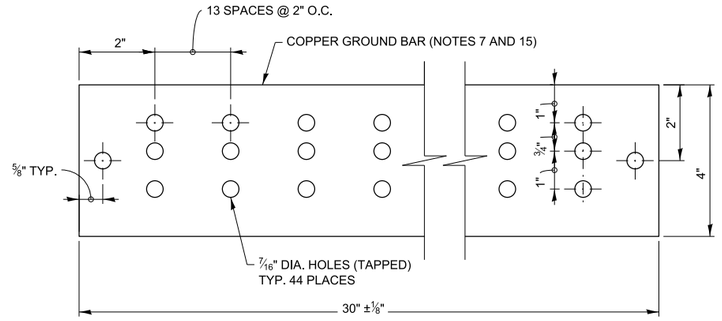
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CONTROL BUILDING GROUNDING DETAILS - MAIN PLAZA

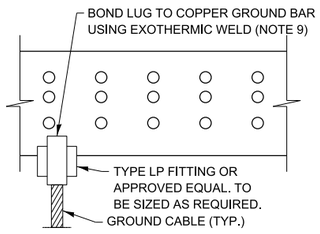
VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2514	1 OF 2



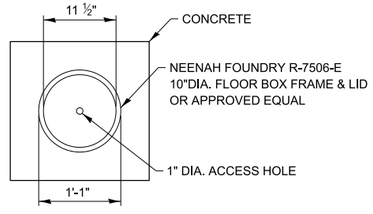
GROUND WELL ELEVATION DETAIL
NOTE 3



MASTER GROUND BUSBAR
SUPPORT SPACING DETAIL



MASTER GROUND BUSBAR
CONNECTION DETAIL
(NOT TO SCALE)



GROUND WELL PLAN DETAIL

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CONTROL BUILDING GROUNDING DETAILS - MAIN PLAZA

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2514	2 OF 2

PANELBOARD MDP-1
VOLTAGE 120/208V
PHASE/WIRE 3/4

MAINS 250A. MCB
BUS RATING 300A.
MOUNTING SURFACE

DESCRIPTION	CKT NO.	LOAD (WATTS) A	B	C	AMPS/ POLES	CKT BKR	CKT BKR	AMPS/ POLES	LOAD (WATTS) A	B	C	CKT NO.	DESCRIPTION
PANEL MDP-2	1	11450			100/3			30/1				2	SPARE
	3		11960					20/1		200		4	LIGHTING CONTACTOR (CONTROL)
	5			7470				30/3			2000	6	HVAC UNITS
EMERGENCY LIGHT	7	200			20/1				2000			8	
INTERIOR LIGHTS	9		400		20/1					2000		10	
EXTERIOR BUILDING LIGHTS	11			400	20/1			60/2			—	12	SPARE
MOTORIZED DAMPERS	13	180			20/1				——			14	
GEN. BATTERY CHARGER	15		160		20/1			20/1		400		16	EXHAUST FAN
GEN. JACKET WATER HTR.	17			1500	20/1			20/1			—	18	SPARE
EXTERIOR RECEPTACLE	19	400			20/1			20/1	400			20	INTERIOR RECEPTACLES
EXTERIOR RECEPTACLE	21		400		20/1			20/1		400		22	INTERIOR RECEPTACLES
SPARE	23			–	20/1			20/1			400	24	INTERIOR RECEPTACLES
SPARE	25	--			20/2			20/2	375			26	ELECTRIC CEILING MOUNTED HEATER
	27		–							375		28	
VES WASH SYSTEM (LOC 1)	29			2500	30/1			30/2			--	30	UPS-1 (TOLLING)
SPARE	31				40/1				–			32	
ROADWAY LTG TRANSFORMER	33		960		20/2			20/1		–		34	SPARE
	35			960				30/2			1252	36	UPS-ITS-1 (5 KVA)
SPARE	37		--		30/1				1252			38	
SPARE	39				20/1			20/1		–		40	SPARE
SPARE	41				20/1			20/1			--	42	SPARE
"A"		15830						SUBTOTAL "A" = 22257		6427			"A"
"B"			13880					SUBTOTAL "B" = 17255		3375			"B"
"C"				12830				SUBTOTAL "C" = 16682			3852		"C"
TOTAL WATTS "A,B,C"		= 56.19 KW											

PANELBOARD UPS-1
VOLTAGE 120V./208V.
PHASE/WIRE 1/3

MAINS 30A. 2P. MCB
BUS RATING 60A.
MOUNTING SURFACE

DESCRIPTION		LOAD (WATTS)	AMPS/ POLES	CKT NO.	CKT NO.	AMPS/ POLES	LOAD (WATTS)	CKT NO.	DESCRIPTION
SPARE	1	–	20/1			20/1	400	2	RACK RECEPTACLE (LCC)
SPARE	3	–	20/1			20/1	400	4	RACK RECEPTACLE (I-PASS)
SPARE	5	–	20/1			20/1	400	6	RACK RECEPTACLE (FIBER)
SPARE	7	–	20/1			20/1	200	8	CARD READER PANEL
VIDEO POWER JUNCTION BOX 1	9	500	20/1			20/1	–	10	SPARE
VIDEO POWER JUNCTION BOX 2	11	400	20/1			20/1	65	12	VIDEO POWER JUCTION BOX (DATA LOGGER)
SUBTOTAL "A"		900					1465		
TOTAL WATTS "A,B"		= 2.4 KW							

PANELBOARD ITS 1
VOLTAGE 120V / 208V
PHASE/WIRE 1/3

MAINS 30A. 2P. MCB
BUS RATING 60A.
MOUNTING SURFACE

DESCRIPTION		LOAD (WATTS)	AMPS/ POLES	CKT NO.	CKT NO.	AMPS/ POLES	LOAD (WATTS)	CKT NO.	DESCRIPTION
5 KVA TRANSFORMER	1	–	30/2P			10/1P	200	2	ITS RACK RECEPTACLES
	3					10/1P	–	4	SPARE
SPARE	5	–	10/1P			10/1P		6	SPARE
SPARE	7	–	10/1P			10/1P		8	SPARE
SUBTOTAL = -—		—					200		
TOTAL WATTS "A,B"		= 0.2 KW							

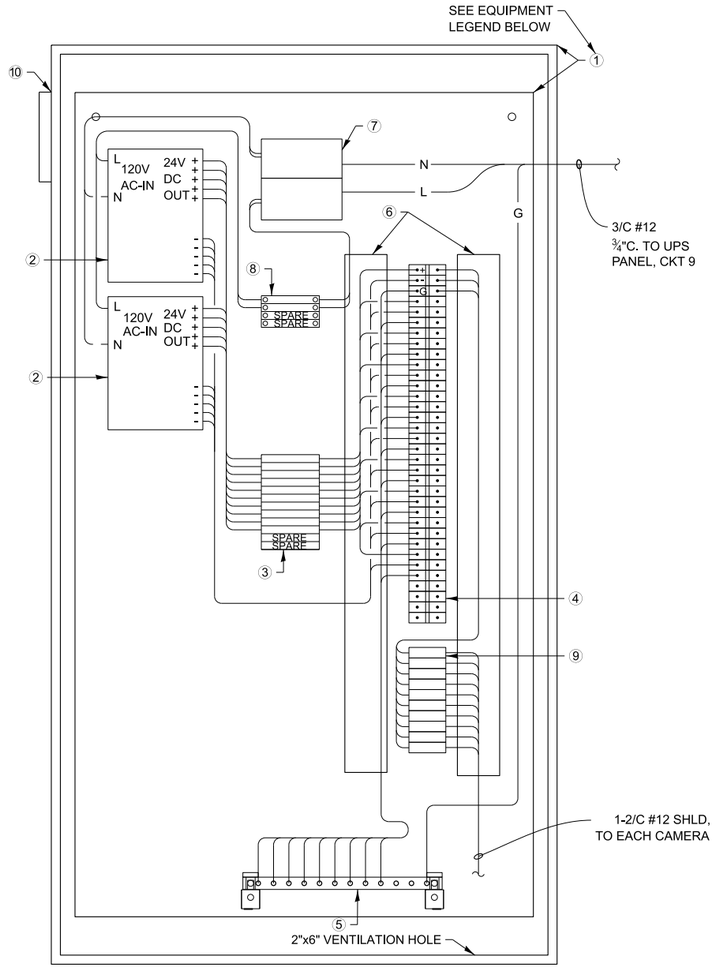
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Illinois Tollway

PANELBOARD SCHEDULES - MAIN PLAZA

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2515	1 OF 1



FRONT & REAR VES CAMERA VIDEO POWER JUNCTION BOX - MAIN PLAZA ALTERNATIVE LAYOUT

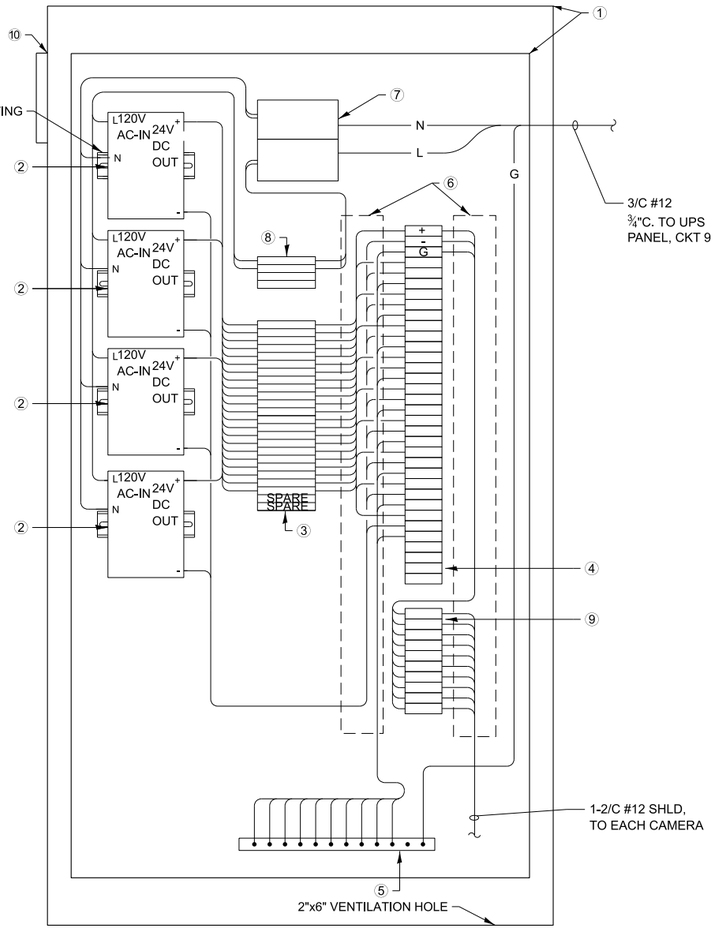
NOT TO SCALE

EQUIPMENT LEGEND - VIDEO POWER JUNCTION BOX (ALTERNATIVE LAYOUT)

ITEM	QUANTITY (SAMPLE)	DESCRIPTION
①	1	48"H X 24"W X 8"D NEMA 1 ENCLOSURE WITH 44"H X 221#2"W BACK PANEL, HOFFMAN CATALOG NO. A-48N24BLP, WITH A-48N24MP PANEL.
②	2	POWER SUPPLY, 24VDC, TDK-LAMBDA NO. QM7FSDL 24/24DMS 24/24DMS 24/24DMS 24/24DMS 24/24DMS.
③	12	TERMINAL BLOCKS, FUSE SWITCH TYPE WITH BLOWN FUSE INDICATOR COMPLETE WITH 5 AMP FUSE, MOUNTING RAIL, ANCHORS, BARRIERS, MARKING STRIPS AND JUMPERS, ALLEN BRADLEY CATALOG NO. 1492-FB1M30-D1.
④	21	TERMINAL BLOCKS, ON POLE PANEL MOUNT BLOCK SCREW TERMINAL WITH WIRE CLAMP, ALLEN BRADLEY CATALOG NO. 1492-CD6.
⑤	1	GROUND BAR SYSTEM WITH INSULATED MOUNTING BRACKET, HOFFMAN CATALOG NO. PGS2K.
⑥	LOT	PANDUIT PLASTIC WIRING DUCT SNAP-IN SLOT DESIGN AND NON-SLIP COVER, 1"W X 1"H, CATALOG NO. F1X1LG6 WITH COVER C1LG6.
⑦	1	POWER DISTRIBUTION BLOCK MARATHON NO. 1322580.
⑧	4	SQUARE D, QOU 115 1P/15A BREAKER.
⑨	10	SURGE SUPPRESSOR MTL MODEL ZB24580.
⑩	1	SQUARE AXIAL FAN $4^{11}/_{16}$" x $4^{11}/_{16}$", 1½" IN DEPTH, 115 CFM, IP20, CAST ALUMINUM FRAME, 115V AC, AND COMPACT AXIAL FAN GUARD $4^{11}/_{16}$" x $4^{11}/_{16}$"

EQUIPMENT LEGEND - VIDEO POWER JUNCTION BOX

ITEM	QUANTITY	DESCRIPTION
①	1	48"H X 24"W X 8"D NEMA 1 ENCLOSURE WITH 44"H X 22 1#2"W BACK PANEL, HOFFMAN CATALOG NO. A-48N24BLP, WITH A-48N24MP PANEL.
②	4	POWER SUPPLY 24VDC, MEANWELL MODEL NO. SDR-240-24
③	24	TERMINAL BLOCKS, FUSE SWITCH TYPE WITH BLOWN FUSE INDICATOR COMPLETE WITH 5 AMP FUSE, MOUNTING RAIL, ANCHORS, BARRIERS, MARKING STRIPS AND JUMPERS, ALLEN BRADLEY CATALOG NO. 1492-FB1M30-D1.
④	42	TERMINAL BLOCKS, ON POLE PANEL MOUNT BLOCK SCREW TERMINAL WITH WIRE CLAMP, ALLEN BRADLEY CATALOG NO. 1492-CD6.
⑤	1	GROUND BAR SYSTEM WITH INSULATED MOUNTING BRACKET, HOFFMAN CATALOG NO. PGS2K.
⑥	LOT	PANDUIT PLASTIC WIRING DUCT SNAP-IN SLOT DESIGN AND NON-SLIP COVER, 1"W X 1"H, CATALOG NO. F1X1LG6 WITH COVER C1LG6.
⑦	1	POWER DISTRIBUTION BLOCK MARATHON NO. 1322580.
⑧	4	SQUARE D, QOU 115 1P/15A BREAKER.
⑨	20	SURGE SUPPRESSOR MTL MODEL ZB24580.
⑩	1	SQUARE AXIAL FAN $4^{11}/_{16}$" x $4^{11}/_{16}$", 1½" IN DEPTH, 115 CFM, IP20, CAST ALUMINUM FRAME, 115V AC, AND COMPACT AXIAL FAN GUARD $4^{11}/_{16}$" x $4^{11}/_{16}$".



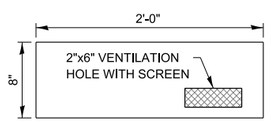
FRONT & REAR VES CAMERA VIDEO POWER JUNCTION BOX

N.T.S.

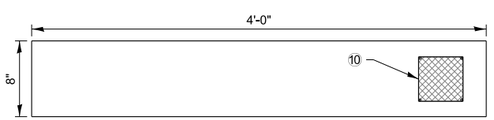
VIDEO POWER JUNCTION BOX REMOTE PLAZA

NOTES TO DESIGNER

1. 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.
2. THE DESIGNER SHALL ADJUST DETAIL AND QUANTITIES AS REQUIRED FOR NUMBER OF VES CAMERAS.
3. THE DESIGNER SHALL INCLUDE VIDEO POWER JUCTION BOX DETAILS (M-ITS-2100 SERIES BASE SHEETS) FOR SECURITY CAMERAS AND DATA LOGGER CAMERA.



BOTTOM PLATE
VENTILATION HOLE DETAIL



SIDE PLATE
VENTILATION HOLE DETAIL

NOTES:

1. LABEL JUNCTION BOX, TERMINAL STRIPS, AND ALL WIRE AND CABLES.
2. ROUTE 1-2/C #12 POWER CABLE TO EACH CAMERA.
3. ALL ELECTRICAL CABLES TO CAMERA SHALL HAVE SURGE PROTECTION.
4. CAT6 CABLE SHALL BE SURGE PROTECTED ON THE TSIC.

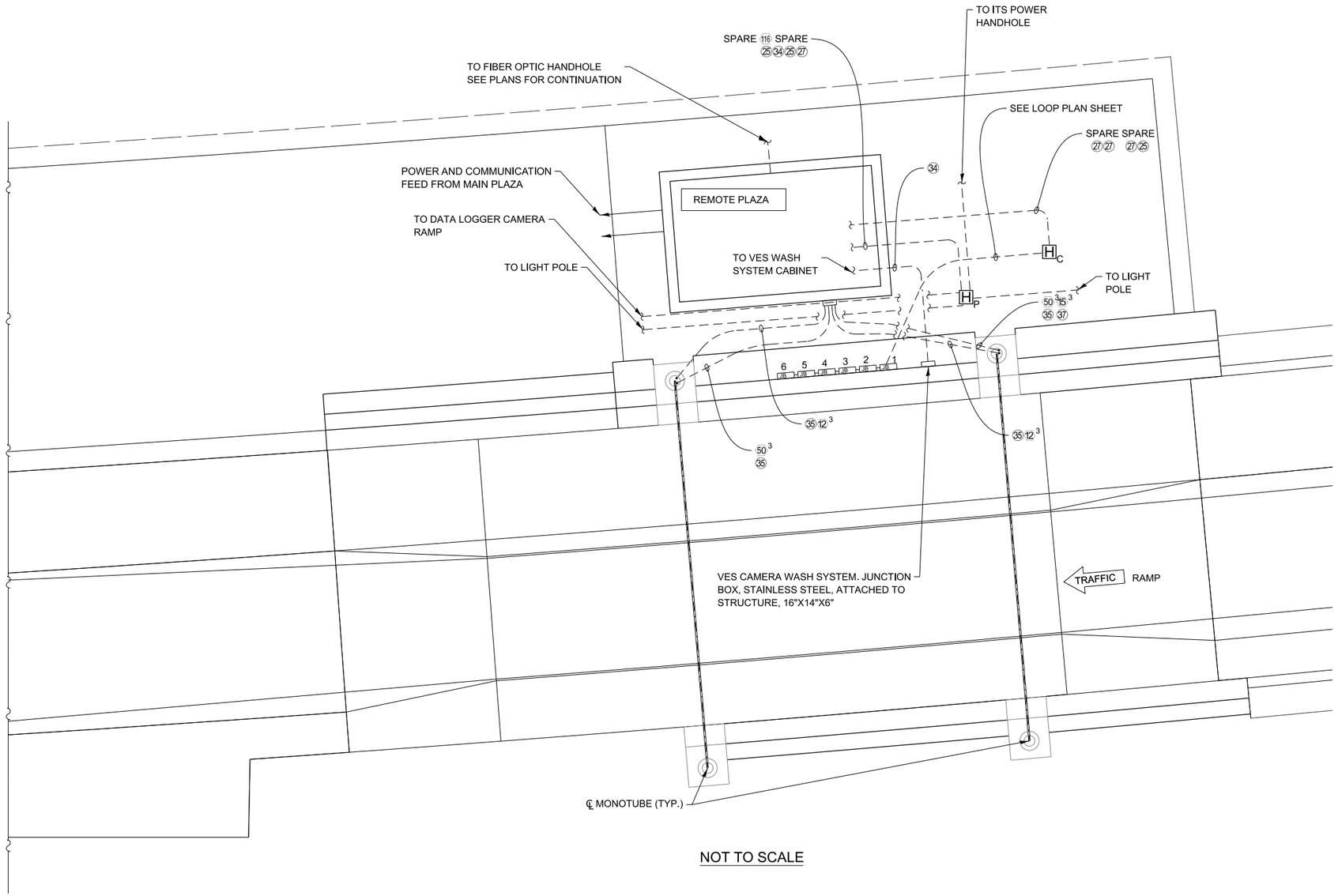
Illinois Tollway

VIDEO POWER JUNCTION BOX DETAIL - MAIN PLAZA

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2516	1 OF 1

NOTES:

1. SEE CABLE AND CONDUIT SCHEDULE. SHEET FOR CABLE TAGS.
2. SEE AET WIRING DIAGRAMS SHEET FOR MONOTUBE WIRING.
3. NOT USED.
4. CAP ALL CONDUIT STUBS FOR FUTURE USE.
5. FINAL LOCATION OF ALL HANDHOLES AND JUNCTION BOXES SHALL BE APPROVED BY THE ENGINEER.
6. NOT USED.
7. ROUTE PLAZA ROADWAY LIGHTING CIRCUITS TO LIGHTING CONTRACTOR. THESE STAY ON PLAZA CIRCUITS, THAT ARE POWERED FROM PLAZA EMERGENCY GENERATOR. ROUTE 2-1/C #8 AND 1/C #8 GROUND WIRE FROM LIGHTING CONTRACTOR LOCATED IN THE POWER CABINET TO THE LIGHT POLE FOR PLAZA LIGHTING CONTROL CIRCUIT. PROVIDE PHOTOCELL ON SAME POLE.
8. ALL EXCESS (SLACK) POWER AND DATA CABLES MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLE WILL BE COILED INSIDE THE BUILDING.
9. EXOTHERMICALLY WELD THE GROUND WIRE TO THE MONOTUBE'S BASE.
10. REFER TO TSIC TERMINAL BLOCK LAYOUT SHEET. LOW VOLTAGE WIRE FROM VES AND SECURITY CAMERAS LAND ON SURGE PROTECTION DEVICES.
11. PVC CONDUIT SHALL BE USED WHEN THE CONDUIT IS EITHER COVERED OR ENCASED IN CONCRETE. ANY EXPOSED CONDUIT SHALL BE PVC COATED RGS. SLEEVES SHALL BE USED WHEN CROSSING WALL FOUNDATIONS.
12. LOCATION OF LANE STUB UPS TO BE APPROVED BY THE ILLINOIS TOLLWAY PRIOR TO CONCRETE POUR. FINAL LOCATION OF EQUIPMENT TO BE APPROVED BY THE ENGINEER.
13. PROVIDE (2) 4" PVC COATED RGS 5FT PAST RETAINING WALL UP TO ComEd TRANSFORMER FOR ComEd INCOMING PRIMARY CABLES. INSTALL SLEEVE IN COORDINATION WITH STRUCTURAL AND STUB UP NEAR ComEd TRANSFORMER LOCATION. PROVIDE WATER PROOF SEALING AT RETAINING WALL.
14. RIGID METALLIC CONDUIT PVC COATED FOR MONOTUBE POWER/DATA/ANTENNA CABLING SHALL RUN IN OVERHEAD CONDUIT TRAY. SEE OVERHEAD CONDUIT TRAY DETAILS..
15. SEE VES CAMERA WASH SYSTEM SHEETS FOR DETAILS. THIS WORK WILL BE PAID UNDER PAY ITEM JT132701 "VES CAMERA HIGH PRESSURE WASH SYSTEM, LOCATION 2".
16. FOR LIGHT POLE AND FOUNDATION DETAILS, SEE ILLINOIS TOLLWAY STANDARD DRAWINGS H1 AND H2.
17. NOT USED.
18. PROVIDE (2) 6" SDR 11 HDPE SLEEVES, EACH SLEEVE SHALL HAVE;
    (1) 1 1#2" CNC DUCT (SOLID GREEN)
    (1) 1 1#2" CNC DUCT (GREEN/WHITE STRIPE)
    (1) 1 1#2" CNC DUCT (BLACK/RED STRIPE)



NOT TO SCALE

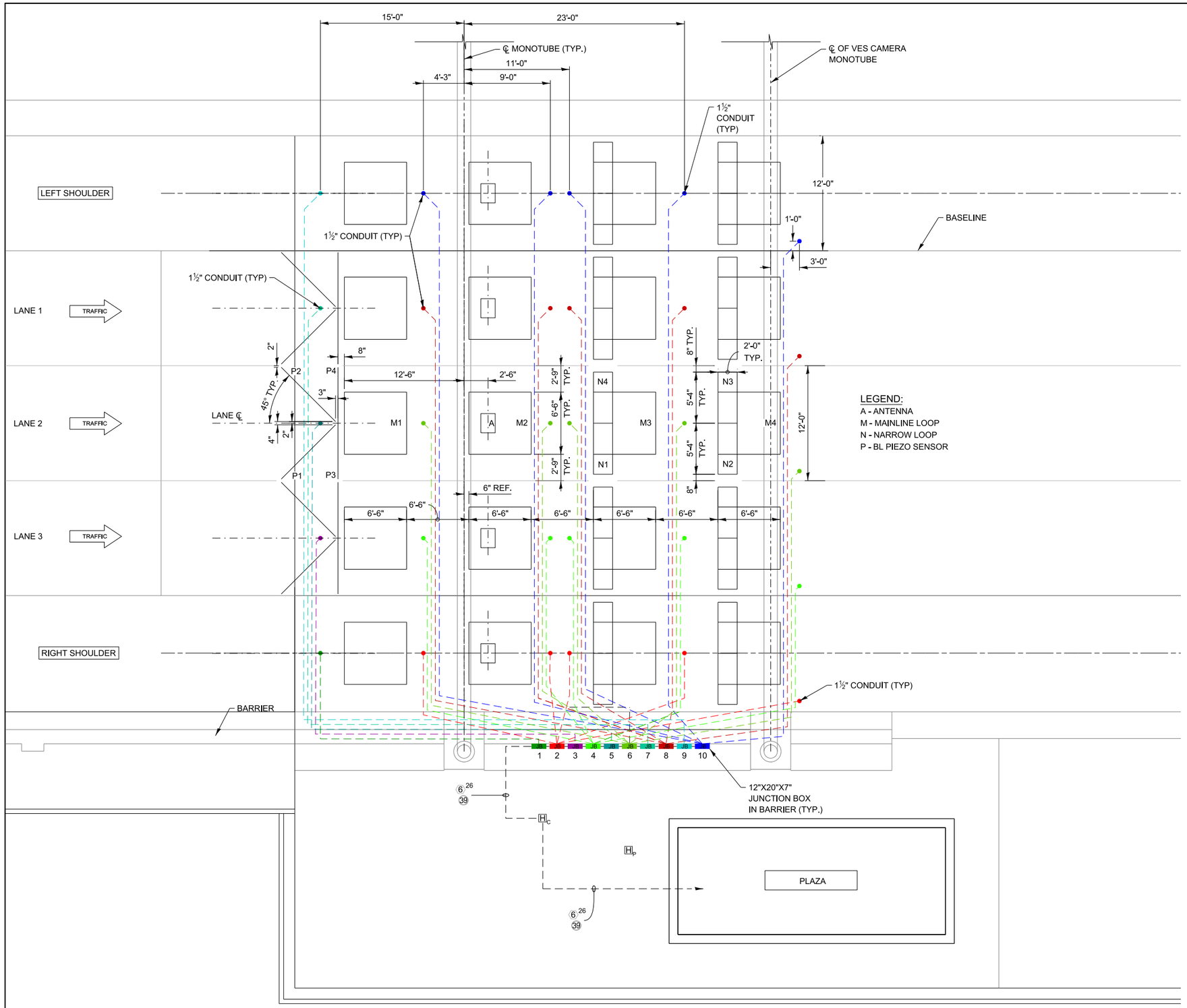
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Illinois Tollway

UNDERGROUND CONDUIT PLAN - REMOTE PLAZA

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2517	1 OF 1



3-LANE AET EQUIPMENT AND LOOP LAYOUT

(AET LANES-THREE LANE CONFIGURATION)

NOTES:

1. MINIMUM CONDUIT SIZE IS 1-1/2".
2. LOOP WIRE SPLICES ARE MADE IN JUNCTION BOXES.
3. CONDUITS FOR LOOPS ARE TO BE 1-1/2" RIGID GALVANIZED STEEL PVC COATED.
4. LOOPS PROVIDED AND INSTALLED BY THE ILLINOIS TOLLWAY. LOOPS PULLED BACK TO JUNCTION BOXES IN BARRIER WALL. SEE LOOP INSTALLATION DETAILS. CONTRACTOR SHALL COORDINATE WITH ILLINOIS TOLLWAY FOR PROVIDING SLOT OPENING, SAW CUTTING AND OTHER MISCELLANEOUS WORK REQUIRED FOR COMPLETE LOOP INSTALLATION.
5. VERIFY THE CONDUIT, MONOTUBES AND VES CAMERA POLE LOCATIONS WITH THE ILLINOIS TOLLWAY PRIOR TO BARRIER CONSTRUCTION.
6. EQUIPMENT LOCATIONS MUST BE VERIFIED BY THE ILLINOIS TOLLWAY PRIOR TO ANY CONSTRUCTION STARTING. LOCATION OF ALL LANE LOOPS AND LANE STUB UPS SHALL BE APPROVED BY THE ILLINOIS TOLLWAY BEFORE CONCRETE POUR CONTRACTOR TO COORDINATE WITH THE ENGINEER.
7. SEE CONDUIT ROUTING DETAILS.
8. CONTRACTOR IS TO PROVIDE ALL CONDUIT AND LOOP LEAD IN CABLE FROM BUILDING TO JUNCTION BOX IN BARRIER WALL. 3 FEET OF CABLE COILED IN JUNCTION BOX AT BARRIER WALL.
9. ALL LOOP DETECTORS SHALL BE IN THE CENTER OF THE STRIPED LANES.
10. CONDUITS AND CONDUIT STUB UPS SHOWN SHALL BE INSTALLED IN ALL LANES (TRAVEL LANES AND SHOULDERS).
11. LEAD EDGE OF LOOP 2 SHALL BE 6" DOWNSTREAM OF MONOTUBE CENTERLINE.
12. PIEZO AND QUANTUM SYSTEM LOOPS SHALL BE INSTALLED IN TRAVEL LANES ONLY.

LEGEND:
A - ANTENNA
M - MAINLINE LOOP
N - NARROW LOOP
P - BL PIEZO SENSOR

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

NOTE TO DESIGNER

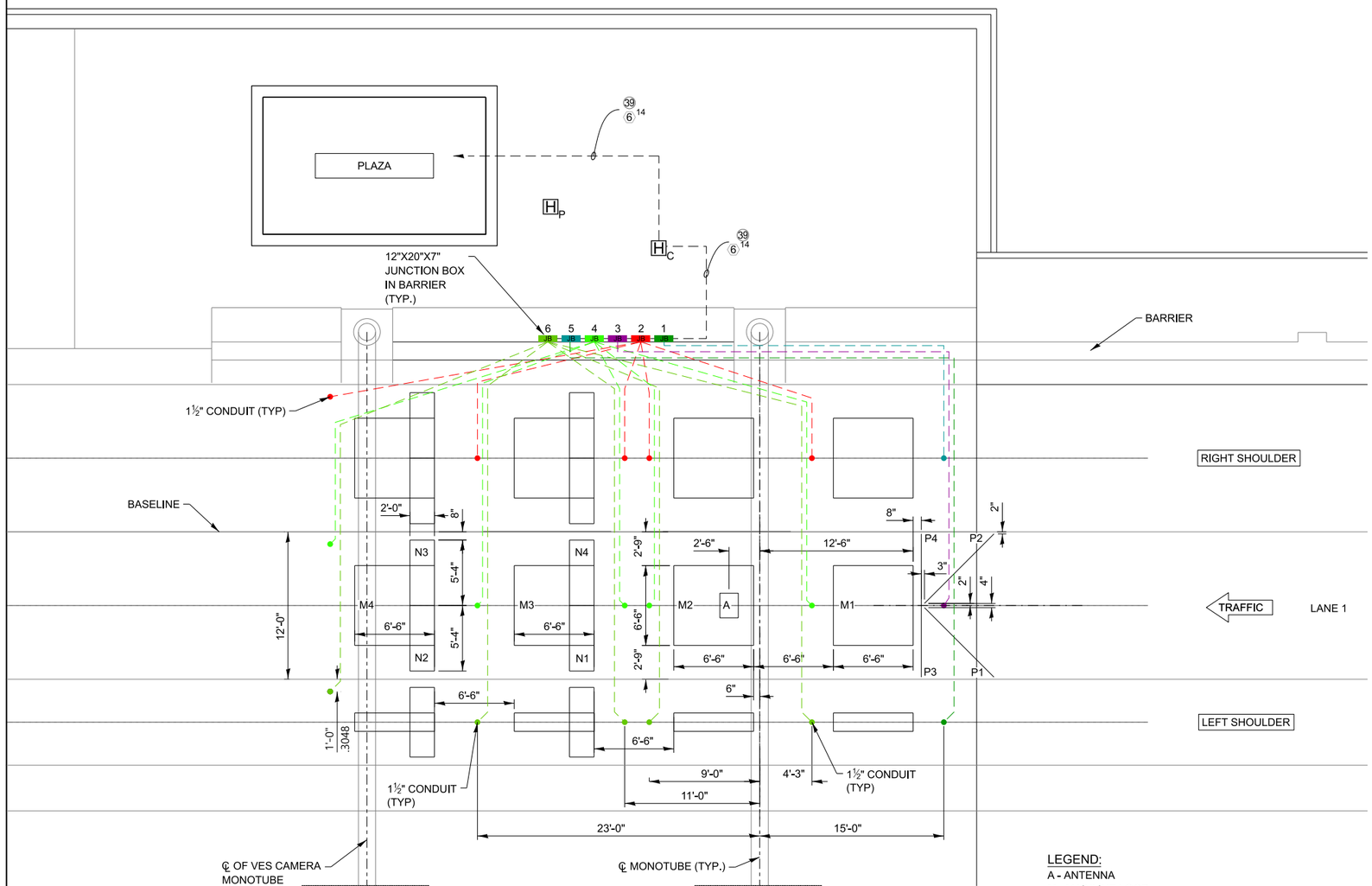
DSE TO CONFIRM THE CORRECT NUMBER OF DETECTOR LEAD-IN CABLES (DLCs) ROUTED TO THE BARRIER JUNCTIONBOXES, BASED ON THE LAYOUT SHOWN HERE.

A. SHOULDERS - (4) DLCs EACH SHOULDER FOR MAIN LOOPS.
B. TRAVEL LANES - (6) DLCs EACH TRAVEL LANE: (4) MAIN LOOPS + (1) PIEZO ANGLE LOOP + (1) SPARE

Illinois Tollway

LOOP PLAN - AET 3-LANE LAYOUT

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2518A	1 OF 1



LEGEND:
A - ANTENNA
M - MAINLINE LOOP
N - NARROW LOOP
P - BL PIEZO SENSOR

1-LANE AET EQUIPMENT AND LOOP LAYOUT

NOTES:

1. MINIMUM CONDUIT SIZE IS 1-1/2".
2. LOOP WIRE SPLICES ARE MADE IN JUNCTION BOXES.
3. CONDUITS FOR LOOPS ARE TO BE 1-1/2" RIGID GALVANIZED STEEL PVC COATED.
4. LOOPS PROVIDED AND INSTALLED BY THE ILLINOIS TOLLWAY. LOOPS PULLED BACK TO JUNCTION BOXES IN BARRIER WALL. SEE LOOP INSTALLATION DETAILS. CONTRACTOR SHALL COORDINATE WITH ILLINOIS TOLLWAY FOR PROVIDING SLOT OPENING, SAW CUTTING AND OTHER MISCELLANEOUS WORK REQUIRED FOR COMPLETE LOOP INSTALLATION.
5. VERIFY THE CONDUIT, MONOTUBES AND VES CAMERA POLE LOCATIONS WITH THE ILLINOIS TOLLWAY PRIOR TO BARRIER CONSTRUCTION.
6. EQUIPMENT LOCATIONS MUST BE VERIFIED BY THE ILLINOIS TOLLWAY PRIOR TO ANY CONSTRUCTION STARTING. LOCATION OF ALL LANE LOOPS AND LANE STUB UPS SHALL BE APPROVED BY THE ILLINOIS TOLLWAY BEFORE CONCRETE POUR CONTRACTOR TO COORDINATE WITH THE ENGINEER.
7. SEE CONDUIT ROUTING DETAILS.
8. CONTRACTOR IS TO PROVIDE ALL CONDUIT AND LOOP LEAD IN CABLE FROM BUILDING TO JUNCTION BOX IN BARRIER WALL. 3 FEET OF CABLE COILED IN JUNCTION BOX AT BARRIER WALL.
9. ALL LOOP DETECTORS SHALL BE IN THE CENTER OF THE STRIPED LANES.
10. CONDUITS AND CONDUIT STUB UPS SHOWN SHALL BE INSTALLED IN ALL LANES (TRAVEL LANES AND SHOULDERS).
11. LEAD EDGE OF LOOP 2 SHALL BE 6" DOWNSTREAM OF MONOTUBE CENTERLINE.
12. PIEZO AND QUANTUM SYSTEM LOOPS SHALL BE INSTALLED IN TRAVEL LANES ONLY.

NOTE TO DESIGNER

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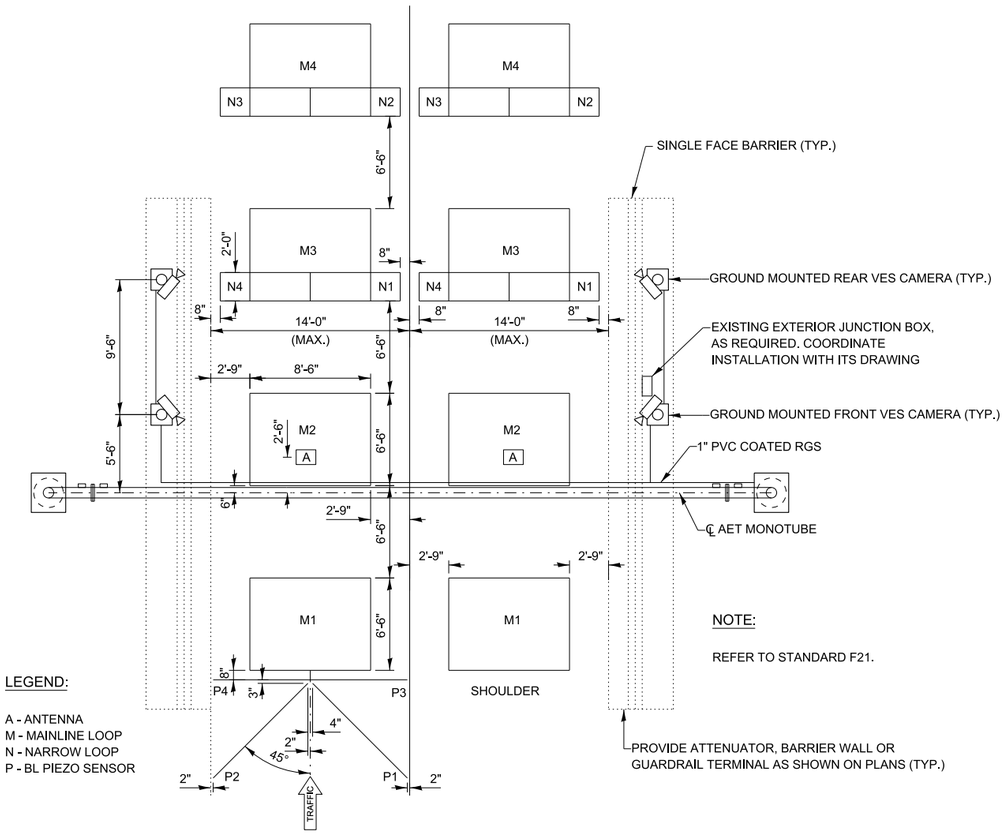
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A. SHOULDERS - (4) DLCs EACH SHOULDER FOR MAIN LOOPS.
B. TRAVEL LANES - (6) DLCs EACH TRAVEL LANE:
(4) MAIN LOOPS + (1) PIEZO ANGLE LOOP + (1) SPARE

Illinois Tollway

LOOP PLAN - AET 1-LANE LAYOUT

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2518B	1 OF 1



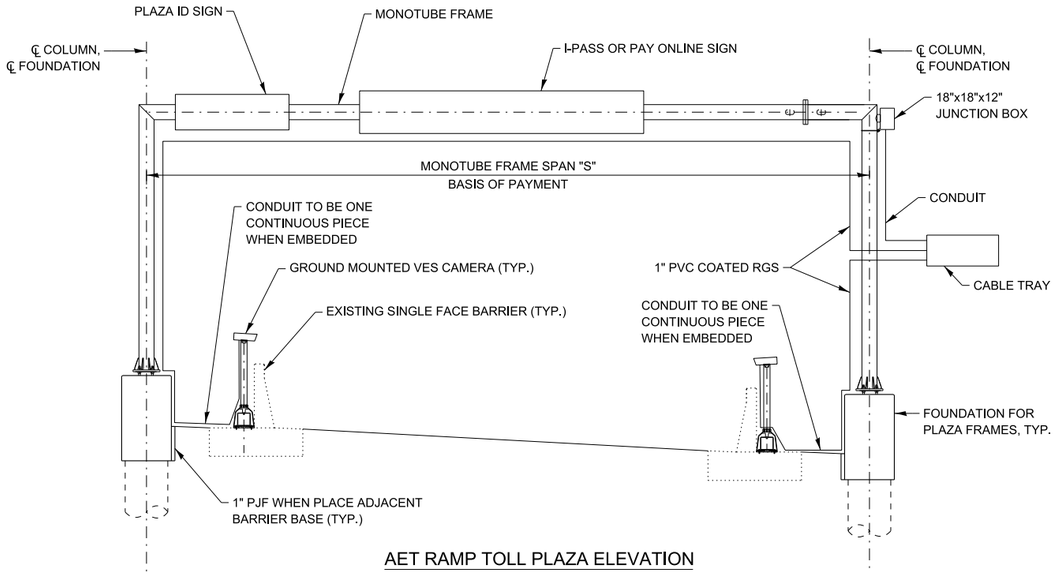
LEGEND:

A - ANTENNA
M - MAINLINE LOOP
N - NARROW LOOP
P - BL PIEZO SENSOR

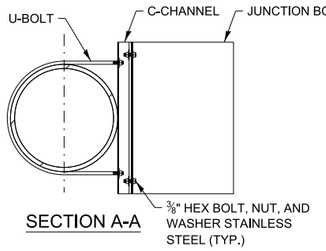
NOTE:

REFER TO STANDARD F21.

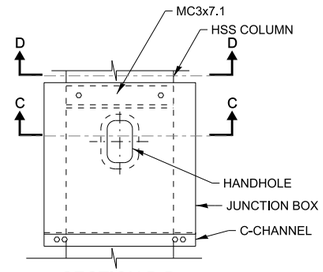
AET RAMP TOLL PLAZA PLAN



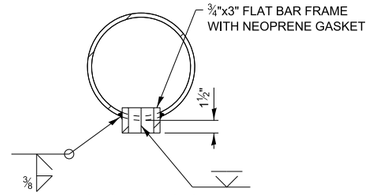
AET RAMP TOLL PLAZA ELEVATION



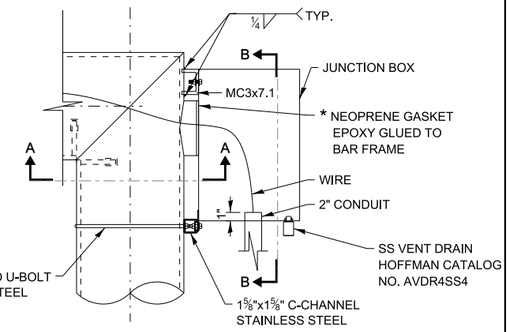
SECTION A-A



SECTION B-B

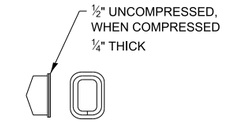


SECTION C-C

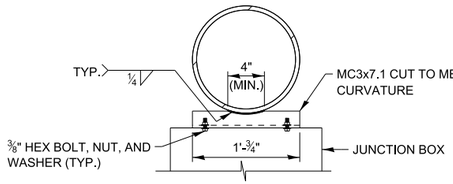


* EPOXY GLUE SHALL BE FOR OUTDOOR USE WITH A TEMPERATURE RANGE OF -20°F TO 150°F AND SHALL BE SUITABLE FOR METAL AND PLASTIC WITH A SHEAR STRENGTH GREATER THAN 2300 PSI.

JUNCTION BOX ATTACHMENT



HANDHOLE AND HIGH DENSITY
NEOPRENE GASKET



SECTION D-D

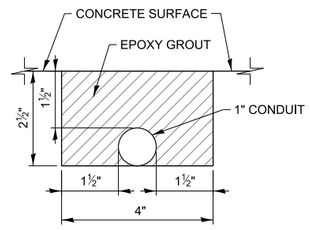
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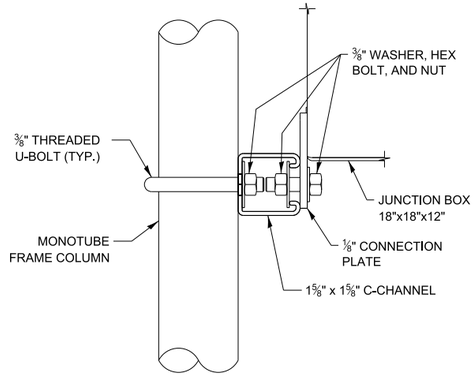
NOTE TO DESIGNER

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A. SHOULDERS - (4) DLCs EACH SHOULDER FOR MAIN LOOPS.
B. TRAVEL LANES - (6) DLCs EACH TRAVEL LANE:
(4) MAIN LOOPS + (1) PIEZO ANGLE LOOP + (1) SPARE



VES WASH TUBING
CUT-OUT

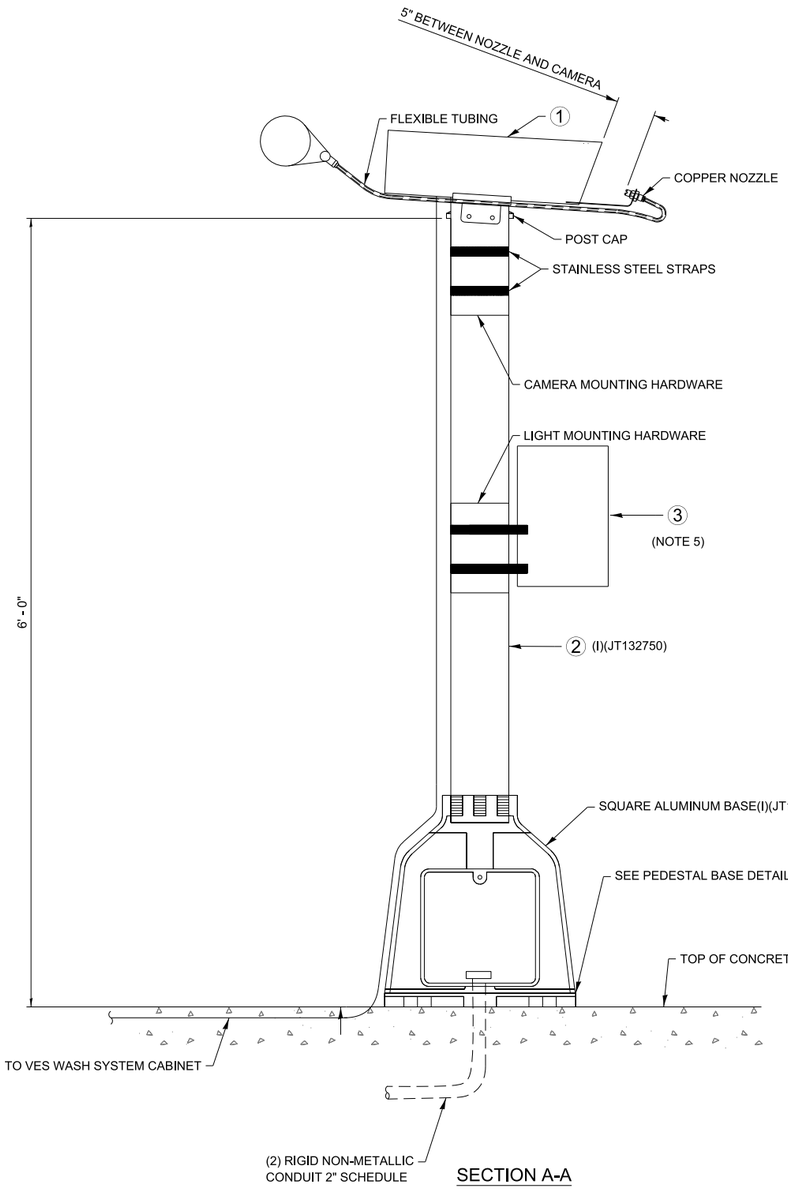


U-BOLT CONNECTION DETAIL
FOR JUNCTION BOX

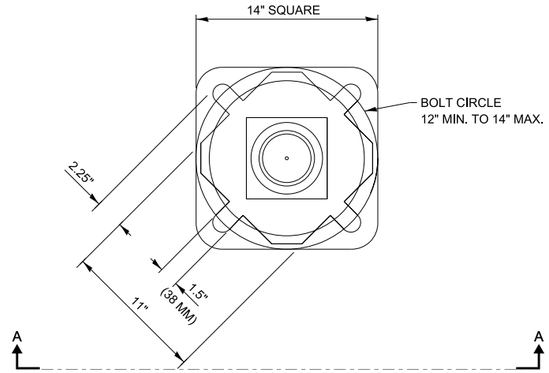
Illinois Tollway

LOOP PLAN - AET 1-LANE LAYOUT SINGLE MONOTUBE

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2518C	1 OF 1



SECTION A-A



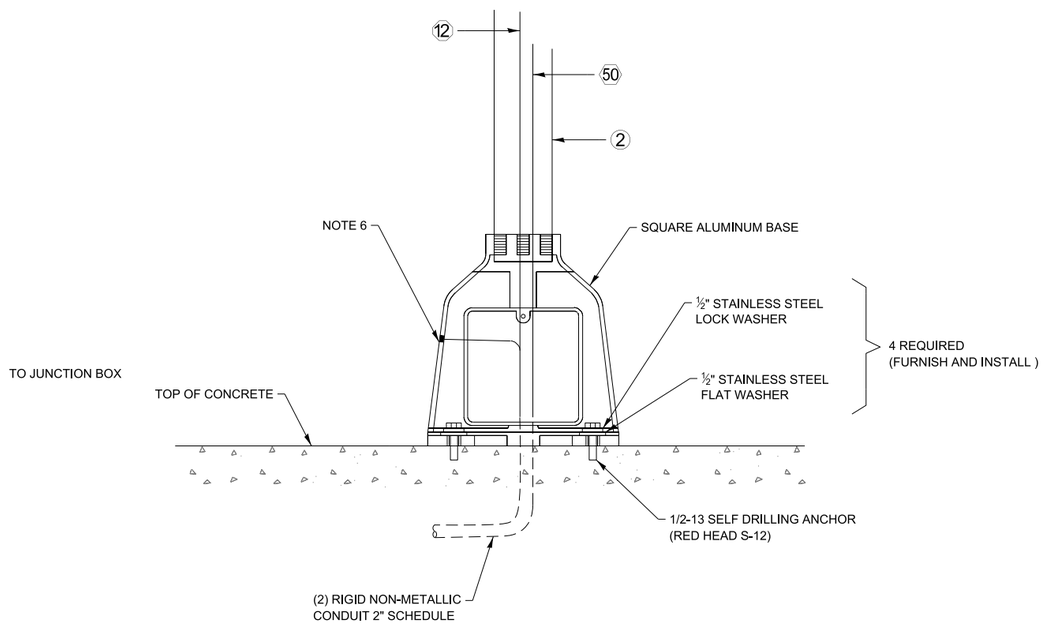
PLAN
PELESTAL BASE DETAIL

NOTES:

1. REFER TO TOLL EQUIPMENT WIRING DIAGRAM.
2. VIOLATION CAMERAS SHALL BE INSTALLED BY THE TOLLWAY.
3. USE GALVANIZED STEEL SHIMS UNDER THE BASE PLATE TO PLUMB THE CAMERA PEDESTAL.
4. THE GROUND WIRE MUST BE EXOTHERMICALLY WELDED OR MECHANICALLY BONDED TO THE CAMERA PEDESTAL AS DIRECTED BY THE ENGINEER,
5. NEW STROBE ILLUMINATOR.

EQUIPMENT LEGEND

ITEM	DESCRIPTION
1	CAMERA FURNISHED AND INSTALLED BY THE TOLLWAY.
2	4" ALUMINIUM POST.
3	TRAFFIC WHITE LIGHT ILLUMINATOR



VES CAMERA PEDESTAL DETAIL

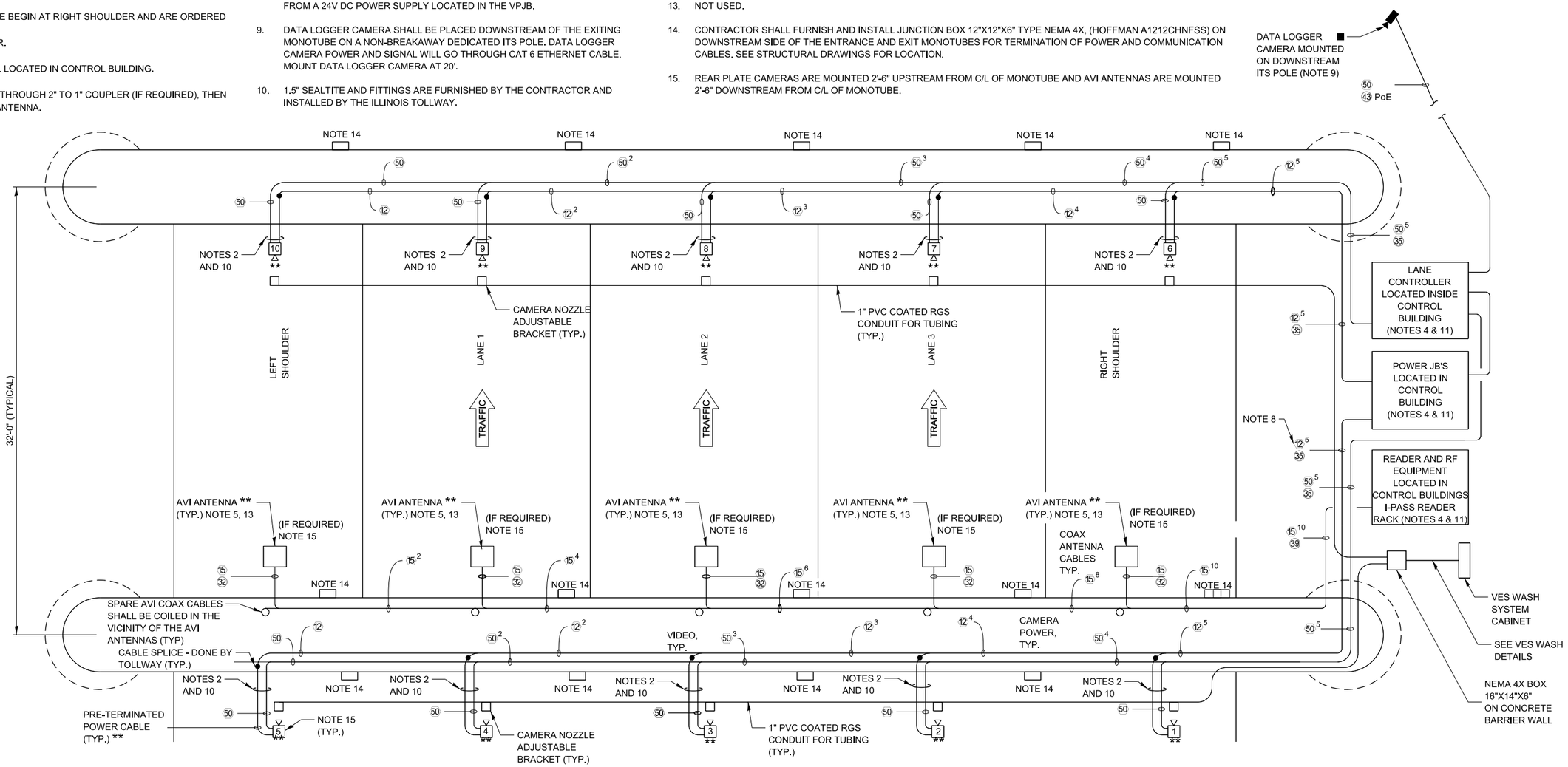
Illinois Tollway

GROUND MOUNTED VES CAMERA WITH VES WASH TUBING

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2518D	1 OF 1

NOTES:

1. SEE CABLE/CONDUIT SCHEDULE AND NOTES SHEET FOR CABLE TAGS.
2. FRONT AND REAR VES CAMERA CABLES ARE PULLED BY THE CONTRACTOR INTO MONOTUBE AND POLE ARM. THE CONTRACTOR WHIPS UP ABOUT 10 FEET OF CABLE, LEAVING THE MAJORITY INSIDE THE MONOTUBE/POLE ARM. THE ILLINOIS TOLLWAY WILL PULL FROM THE JB/POLE ARM TO THE CAMERAS AND THEN TERMINATE.
3. VES CAMERA NUMBERING SCHEME BEGIN AT RIGHT SHOULDER AND ARE ORDERED SEQUENTIALLY (1, 2, 3, ... ETC) TO LEFT SHOULDER.
4. ALL CABINETS AND POWER PANEL LOCATED IN CONTROL BUILDING.
5. COAX FOR AVI ANTENNAS ROUTE THROUGH 2" TO 1" COUPLER (IF REQUIRED), THEN RUN IN 1" SEALTITE CONDUIT TO ANTENNA.
6. EQUIPMENT LOCATIONS MUST BE VERIFIED BY THE ILLINOIS TOLLWAY PRIOR TO CONSTRUCTION AND INSTALLATION.
7. IF VES CAMERAS ARE MOUNTED 18' ABOVE THE ROADWAY, THEN THE CAMERAS SHALL BE PLACED 33' HORIZONTAL FROM THE TRIGGER.
8. THIS CABLING IS USED TO POWER THE VES CAMERAS. THESE CABLES WILL RUN FROM A 24V DC POWER SUPPLY LOCATED IN THE VPJB.
9. DATA LOGGER CAMERA SHALL BE PLACED DOWNSTREAM OF THE EXITING MONOTUBE ON A NON-BREAKAWAY DEDICATED ITS POLE. DATA LOGGER CAMERA POWER AND SIGNAL WILL GO THROUGH CAT 6 ETHERNET CABLE. MOUNT DATA LOGGER CAMERA AT 20'.
10. 1.5" SEALTITE AND FITTINGS ARE FURNISHED BY THE CONTRACTOR AND INSTALLED BY THE ILLINOIS TOLLWAY.
11. ALL WIRING FROM CAMERAS/I-PASS ANTENNAS SHALL BE SURGE PROTECTED AS IT ENTERS PLAZA BUILDING. SURGE PROTECTION SHALL BE IN VES VPJB FOR CAMERAS AND IN COMMUNICATION ROOM FOR ANTENNA CABLE.
12. PROVIDE 14 FT PERPENDICULAR OUTRIGGER SUPPORT FOR VES CAMERA POLE AND THE ANTENNA POLE DUE TO THE NEEDS OF MULTIPROTOCOL READERS ONLY. MAINTAIN THE POSITION OF THE VES SUPPORT POLE SO THE LONGER OUTRIGGER WILL NEED TO CANTILEVER MORE TOWARDS THE DEPARTURE SIDE OF THE MONOTUBE.
13. NOT USED.
14. CONTRACTOR SHALL FURNISH AND INSTALL JUNCTION BOX 12"X12"X6" TYPE NEMA 4X, (HOFFMAN A1212CHNFSS) ON DOWNSTREAM SIDE OF THE ENTRANCE AND EXIT MONOTUBES FOR TERMINATION OF POWER AND COMMUNICATION CABLES. SEE STRUCTURAL DRAWINGS FOR LOCATION.
15. REAR PLATE CAMERAS ARE MOUNTED 2'-6" UPSTREAM FROM C/L OF MONOTUBE AND AVI ANTENNAS ARE MOUNTED 2'-6" DOWNSTREAM FROM C/L OF MONOTUBE.



FRONT - REAR PLATE VES BLOCK WIRING DIAGRAM

NOTE TO DESIGNER

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NOTE TO DESIGNER

VES CAMERAS ON SHOULDERS ARE NOT TYPICALLY INSTALLED. SHOWN HERE FOR COMPLETION, BUT SHOULD BE REMOVED BY DESIGNER UNLESS THEY ARE SPECIFICALLY REQUESTED BY ILLINOIS TOLLWAY.

LEGEND:

* INDICATES EQUIPMENT FURNISHED BY THE ILLINOIS TOLLWAY AND INSTALLED BY THE CONTRACTOR.

** INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE ILLINOIS TOLLWAY.

[1] INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR.

Illinois Tollway

WIRING DIAGRAM - AET 3-LANE LAYOUT

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2519A	1 OF 1

NOTES:

1. SEE CABLE/CONDUIT SCHEDULE AND NOTES SHEET FOR CABLE TAGS.
2. FRONT AND REAR VES CAMERA CABLES ARE PULLED BY THE CONTRACTOR INTO MONOTUBE AND POLE ARM. THE CONTRACTOR WHIPS UP ABOUT 10 FEET OF CABLE, LEAVING THE MAJORITY INSIDE THE MONOTUBE/POLE ARM. THE ILLINOIS TOLLWAY WILL PULL FROM THE JB/POLE ARM TO THE CAMERAS AND THEN TERMINATE.
3. VES CAMERA NUMBERING SCHEME BEGIN AT RIGHT SHOULDER AND ARE ORDERED SEQUENTIALLY (1, 2, 3, ... ETC) TO LEFT SHOULDER.
4. ALL CABINETS AND POWER PANEL LOCATED IN CONTROL BUILDING.
5. COAX FOR AVI ANTENNAS ROUTE THROUGH 2" TO 1" COUPLER (IF REQUIRED), THEN RUN IN 1" SEALTITE CONDUIT TO ANTENNA.
6. EQUIPMENT LOCATIONS MUST BE VERIFIED BY THE ILLINOIS TOLLWAY PRIOR TO CONSTRUCTION AND INSTALLATION.
7. IF VES CAMERAS ARE MOUNTED 18' ABOVE THE ROADWAY, THEN THE CAMERAS SHALL BE PLACED 33' HORIZONTAL FROM THE TRIGGER.
8. THIS CABLING IS USED TO POWER THE VES CAMERAS. THESE CABLES WILL RUN FROM A 24V DC POWER SUPPLY LOCATED IN THE VPJB.
9. DATA LOGGER CAMERA SHALL BE PLACED DOWNSTREAM OF THE EXITING MONOTUBE ON A NON-BREAKAWAY DEDICATED ITS POLE. DATA LOGGER CAMERA POWER AND SIGNAL WILL GO THROUGH CAT 6 ETHERNET CABLE. MOUNT DATA LOGGER CAMERA AT 20'.
10. 1.5" SEALTITE AND FITTINGS ARE FURNISHED BY THE CONTRACTOR AND INSTALLED BY THE ILLINOIS TOLLWAY.
11. ALL WIRING FROM CAMERAS/I-PASS ANTENNAS SHALL BE SURGE PROTECTED AS IT ENTERS PLAZA BUILDING. SURGE PROTECTION SHALL BE IN VES VPJB FOR CAMERAS AND IN COMMUNICATION ROOM FOR ANTENNA CABLE.
12. PROVIDE 14 FT PERPENDICULAR OUTRIGGER SUPPORT FOR VES CAMERA POLE AND THE ANTENNA POLE DUE TO THE NEEDS OF MULTIPROTOCOL READERS ONLY. MAINTAIN THE POSITION OF THE VES SUPPORT POLE SO THE LONGER OUTRIGGER WILL NEED TO CANTILEVER MORE TOWARDS THE DEPARTURE SIDE OF THE MONOTUBE.
13. NOT USED.
14. CONTRACTOR SHALL FURNISH AND INSTALL JUNCTION BOX 12"X12"X6" TYPE NEMA 4X, HOFFMAN A1212CHNFSS ON DOWNSTREAM SIDE OF THE ENTRANCE AND EXIT MONOTUBES FOR TERMINATION OF POWER AND COMMUNICATION CABLES (EXCEPT AVI CABLES). SEE STRUCTURAL DRAWINGS FOR LOCATION.
15. REAR PLATE CAMERAS ARE MOUNTED 2'-6" UPSTREAM FROM C/L OF MONOTUBE AND AVI ANTENNAS ARE MOUNTED 2'-6" DOWNSTREAM FROM C/L OF MONOTUBE.

NOTE TO DESIGNER

SHOULDER VES CAMERAS ARE SHOWN FOR COMPLETION, BUT TYPICALLY NOT INSTALLED. DELETE IF NOT SPECIFICALLY REQUESTED BY ILLINOIS TOLLWAY BUSINESS SYSTEMS.

LEGEND:

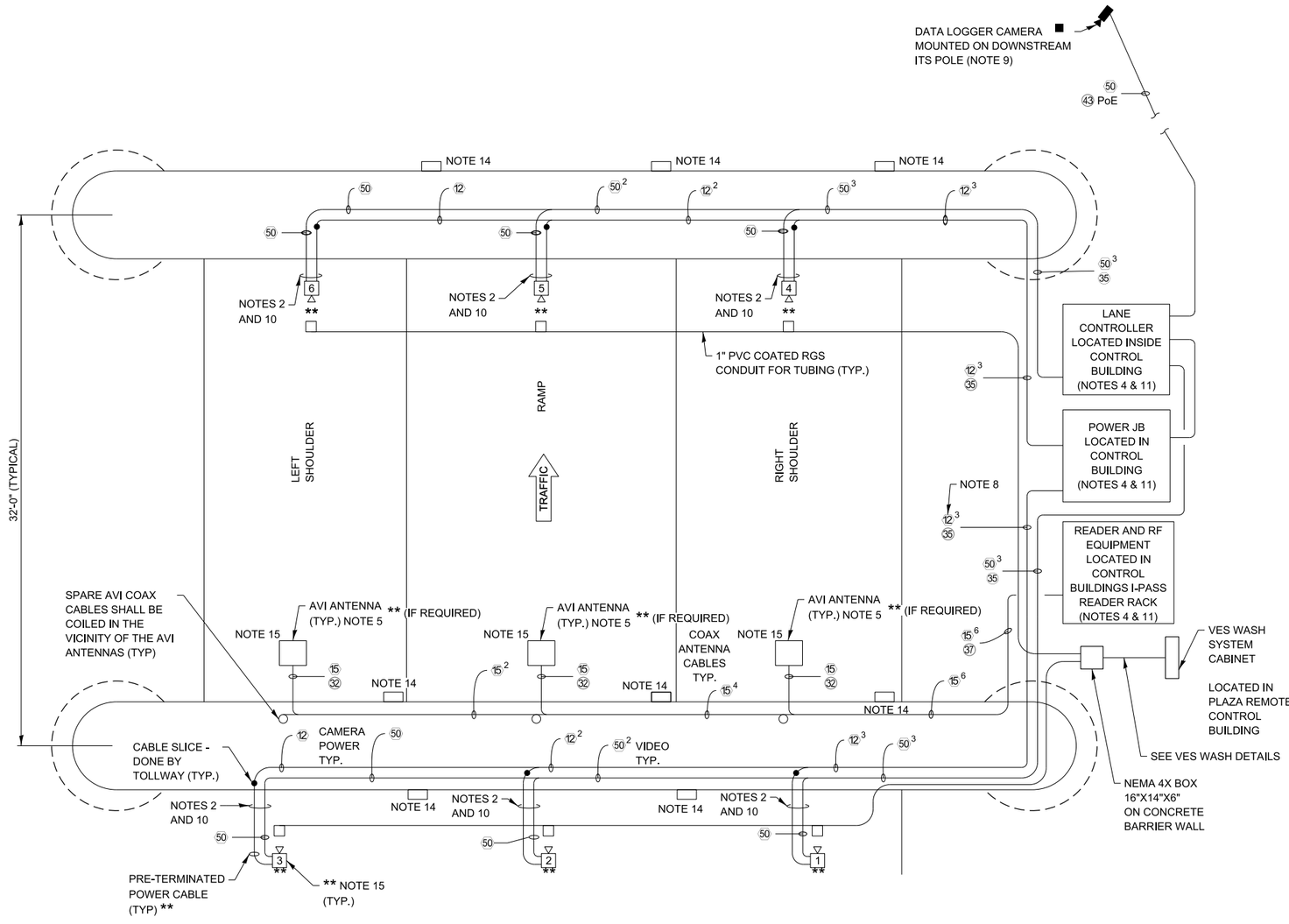
* INDICATES EQUIPMENT FURNISHED BY THE ILLINOIS TOLLWAY AND INSTALLED BY THE CONTRACTOR.

** INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE ILLINOIS TOLLWAY.

■ INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR.

NOTE TO DESIGNER

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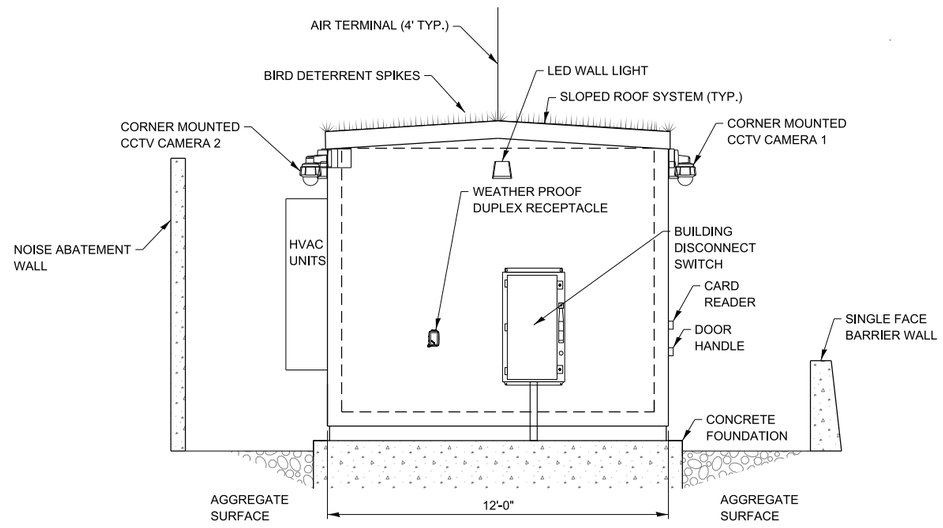


FRONT / REAR PLATE VES BLOCK WIRING DIAGRAM

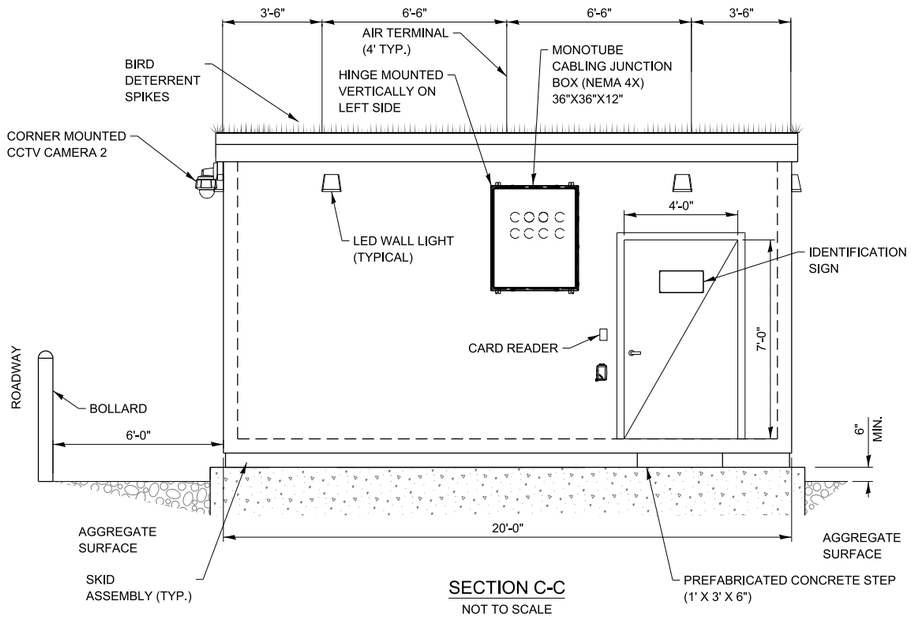
Illinois Tollway

WIRING DIAGRAM - AET
1-LANE LAYOUT

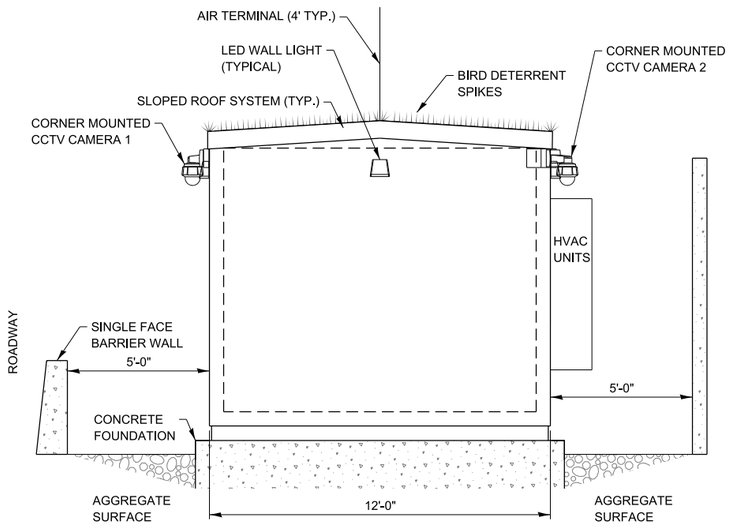
VERSION:	BASE SHEET:	SHEET:
2024-03	M-BUS-2519B	1 OF 1



SECTION A-A
NOT TO SCALE
M-BUS-2521

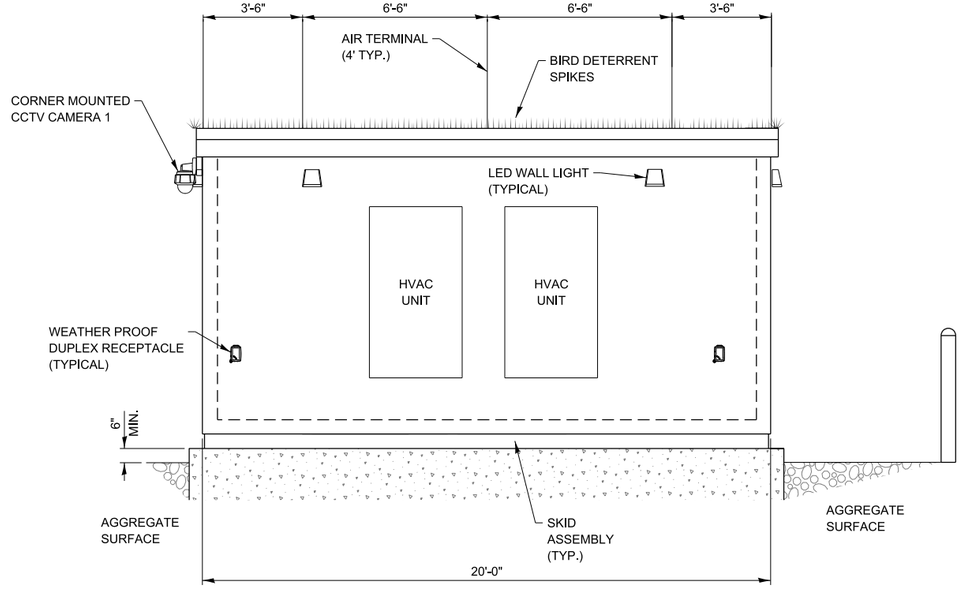


SECTION C-C
NOT TO SCALE



SECTION B-B
NOT TO SCALE
M-BUS-2521

NOTE FOR DESIGNER:
AIR TERMINAL RODS ARE TO BE INSTALLED AND FIXED TO ROOF WITHOUT INTERFERING WITH THE INTEGRITY OF THE STRUCTURE.

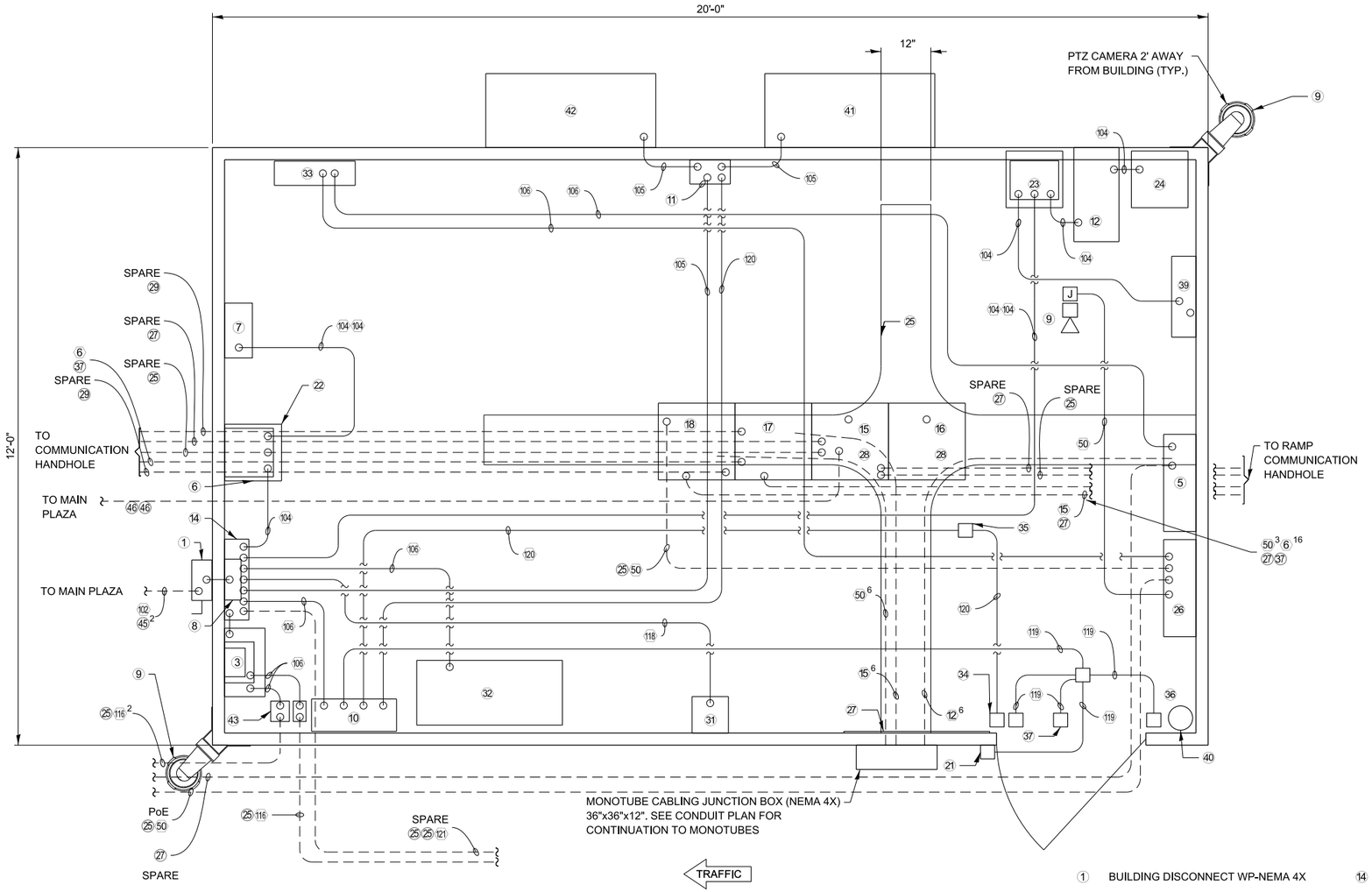


SECTION D-D
NOT TO SCALE

Illinois Tollway

EXTERIOR ELEVATIONS - REMOTE PLAZA

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2520	1 OF 1



CONTROL BUILDING REMOTE TOLL PLAZA EQUIPMENT LAYOUT

NOT TO SCALE

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

NOTE TO DESIGNER

IF DISTANCE BETWEEN MAIN AND REMOTE PLAZA ANTENNAS IS LESS THAN 500 FT., PROVIDE CONDUIT AND SYNC CABLE TO CONNECT ANTENNA READERS IN THE MAIN AND REMOTE CONTROL BUILDINGS.

NOTES:

1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. SEE SYSTEM POWER SINGLE LINE DIAGRAM SHEET FOR DETAILS.
3. DOOR ALARM SWITCH, SEE DETAIL ON DOOR ALARMS DETAILS SHEET.
4. PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR ATS ALARMS AND ROUTE TO TSIC BOARD. ALL CONTACT CLOSURES SHALL BE ROUTED TO TSIC.
5. THE LIGHTNING PROTECTION SYSTEM DEVICE SHALL BE CONNECTED TO THE LOAD SIDE OF THE MAIN BREAKER.
6. FOR ROADWAY LIGHTING. ROUTE TO 30A. CIRCUIT BREAKER
7. ALL EXCESS (SLACK) POWER AND DATA CABLES MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLES WILL BE COILED INSIDE THE CABINET.
8. NOT USED.
9. PVC SCH-80 CONDUIT INSIDE BUILDING SHALL BE USED WHEN THE CONDUIT IS EITHER COVERED OR ENCASED IN CONCRETE. TRANSITION SHALL BE ALLOWED. ANY EXPOSED CONDUIT SHALL BE PVC COATED RGS. SLEEVES SHALL BE USED WHEN DEEMED NECESSARY.
10. THE CABLE LENGTH FROM THE ANTENNA TO THE I-PASS READER SHALL NOT EXCEED 150 FEET.
11. PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR SMOKE DETECTOR ALARM CONTACT AND ROUTE TO CARD READER EQUIPMENT.
12. PROVIDE AN ETHERNET CABLE FROM UPS AND FROM CARD READER PANEL TO LOCAL BACKBONE RACK. NETWORK SWITCHES TO BE PROCURED BY OTHERS.
13. TERMINATE ALARM CABLES ON TERMINAL BLOCK ON TSIC BOARD.
14. NOT USED.
15. POWER FRONT AND REAR VES CAMERAS FROM 24V DC VIDEO JUNCTION BOX #3 AND DATA LOGGER CAMERA FROM SECURITY VIDEO JUNCTION BOX #4 ALL POWER TO BE SURGE PROTECTED.
16. ALL COPPER COMMUNICATIONS AND CONTROL CABLES SHALL ENTER BUILDING ALONG OUTSIDE WALL AND BE CONNECTED TO A SURGE PROTECTION THAT IS GROUNDED TO GROUND BUS IN BUILDING.
17. LOCATION OF (6) RACKS BE IN THE MIDDLE OF THE ROOM.
18. FOR SECURITY CAMERA, CONTRACTOR TO VERIFY CLEAR UNOBSTRUCTED LINE OF SIGHT TO THE ENTRANCE DOORS.
19. INSTALL TRANSFORMER ON 6" CONCRETE PAD 1 FT AWAY FROM EXTERIOR WALL. ALL FEED TO THIS TRANSFORMER SHALL BE UNDERGROUND.
20. PROVIDE (2) 6" SDR 11 HDPE SLEEVES EACH, SEE BASE SHEET $M-BUS-2547 FOR DETAILS
    SLEEVE SHALL HAVE;
    (1) 1 ½" CNC DUCT (SOLID GREEN)
    (1) 1 ½" CNC DUCT (GREEN / WHITE STRIPE)
    (1) 1 ½" CNC DUCT (BLACK / RED STRIPE)

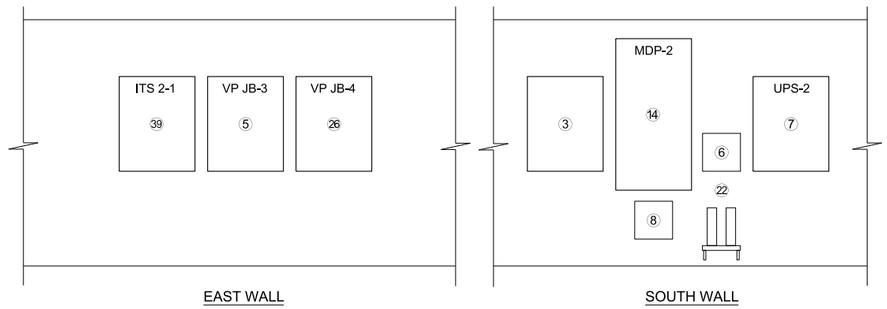
LEGEND

1. BUILDING DISCONNECT WP-NEMA 4X
2. NOT USED.
3. LIGHTING TRANSFORMER, CONTRACTOR, AND CIRCUIT BREAKER
4. NOT USED.
5. VIDEO JB POWER #3
6. BYPASS SWITCH
7. UPS-2 PANEL.
8. SPD LIGHTNING PROTECTION SYSTEM
9. SECURITY CAMERA
10. CARD READER PANEL
11. HVAC CONTROL PANEL
12. UPS-ITS-2 (5 KVA)
13. 5 KVA, 208V/480V OUTDOOR TYPE SINGLE PHASE TRANSFORMER, NEMA 4X
14. ELECTRICAL PANEL MDP-2
15. 19" RACK LOCAL AND BACKBONE FIBER
16. 19" RACK ITS FIBER
17. 19" RACK I-PASS READER REMOTE PLAZA
18. 19" RACK LANE CONTROL REMOTE PLAZA
19. NOT USED.
20. NOT USED.
21. CARD READER
22. UPS/LINE CONDITIONER. CONTRACTOR SHALL INSTALL THE 3KVA UPS ABOVE GROUND, ON A SHELVING SYSTEM AS DIRECTED BY THE ENGINEER
23. BYPASS SWITCH LINE CONDITIONER ITS POWER
24. BYPASS SWITCH CABINET ITS POWER
25. CABLE TRAY
26. VIDEO JB POWER #4
27. TSIC BOARD
28. SMF DISTRIBUTION PANEL
29. NOT USED.
30. NOT USED.
31. DISCONNECT SWITCH 60A/1P, 250V FOR AIR COMPRESSOR
32. VES WASH CABINET
33. PANEL UPS-2
34. PULL STATION
35. SMOKE DETECTOR
36. NOT USED.
37. MAGNETIC LOCK
38. NOT USED.
39. ITS 2-1 PANEL
40. FIRE EXTINGUISHER
41. HVAC UNIT - 1
42. HVAC UNIT - 2
43. 30A/2P C/B

Illinois Tollway

CONTROL BUILDING EQUIPMENT LAYOUT - REMOTE PLAZA

VERSION:	BASE SHEET:	SHEET:
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WALL ELEVATIONS

NOT TO SCALE

NOTE 2

EQUIPMENT LEGEND

ITEM	DESCRIPTION
③	LIGHTING CONTRACTOR 120V, 30A, 1 PHASE, 4-POLE IN A NEMA 1 ENCLOSURE WITH A THREE POSITION SELECTOR SWITCH HAND-OFF-AUTO MOUNTED ON THE COVER. TRANSFORMER DRY TYPE, 2KVA, 120V PRIMARY, 480V SECONDARY, 1-PHASE, 3-WIRE ROADWAY LIGHTING.
⑤	VIDEO JB POWER #3
⑥	BYPASS SWITCH
⑦	UPS-2 PANEL.
⑧	LIGHTNING ARRESTOR SYSTEM
⑭	MAIN DISTRIBUTION PANEL (MDP-2), 208Y/120V, 3 PHASE, 4W 100 AMP, MAIN CIRCUIT BREAKER
㉒	UPS/LINE CONDITIONER. CONTRACTOR SHALL INSTALL THE 3KVA UPS ABOVE GROUND, ON A SHELVING SYSTEM AS DIRECTED BY THE ENGINEER
㉖	VIDEO JB POWER #4
㊴	ITS 2-1 PANEL

NOTES:

1. CONTRACTOR SHALL ROUTE ALL CONDUIT AS REQUIRED TO ALL PANELS, EQUIPMENT AND CONTROL DEVICES.
2. THE WALL ELEVATIONS FOR THE MAIN RAMP CONTROL BUILDING ARE SHOWN ON THIS DRAWING. THE WALL ELEVATIONS (NOT SHOWN) FOR THE REMOTE RAMP CONTROL BUILDING ARE SIMILAR.
3. MINIMUM CLEARANCE BETWEEN CABINETS SHALL ALLOW THE DOORS TO OPEN 90 DEGREES MINIMUM.

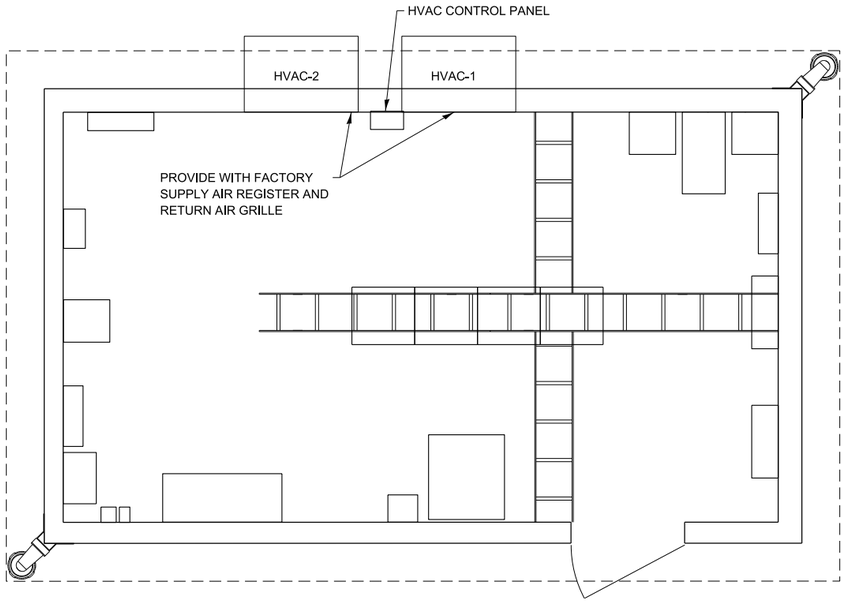
NOTE TO DESIGNER

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Illinois Tollway

INTERIOR ELEVATIONS - REMOTE PLAZA

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2522	1 OF 1



BUILDING MECHANICAL PLAN

NOTES:

1. UNIT SHALL HAVE ARI CERTIFIED COILS, AIWCA RATED FANS, AND UL LISTED & LABELED ELECTRICAL COMPONENTS.
2. PROVIDE HVAC UNITS WITH FACTORY SUPPLY AND RETURN GRILLES.
3. HVAC PROVIDE LEAD/LAG THERMOSTAT CONTROLLER BARD MODEL #MC4001-AC WITH BASE ALARMS AND ETHERNET ACCESS.
4. ALL MANUFACTURERS AND PART NUMBERS ARE FOR REFERENCE. THE CONTRACTOR SHALL PROVIDE CALCULATIONS FOR HVAC AND HEATING SYSTEM BASED ON BUILDING CONSTRUCTION AND INTERNAL BUILDING LOADS.

NOTE TO DESIGNER

THE ESTIMATED EQUIPMENT BUILDING LOADS FOR EQUIPMENT IS 19,000 BTU/HR. THE DESIGNER SHALL SIZE THE HVAC SYSTEMS ACCORDINGLY.

NOTE TO DESIGNER

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ELECTRICAL ROOM

MARK	LOCATION	SERVES	NOM. TON	TOTAL AIRFLOW CFM	OUTSIDE AIRFLOW CFM	ESP (IN WG)	REFRIG. TYPE	COOLING DATA						HEATING DATA				ELECTRICAL DATA			MANUFACTURER/ MODEL NUMBER	REMARKS
								TOTAL CAP MBH	SENS CAP MBH	EAT (DEG F) DB	EAT (DEG F) WB	OUTDOOR TEMP (DEG F)	MIN. EER AT ARI CONDITIONS	CAP MBH	EAT (DEG F) DB	OUTDOOR TEMP (DEG F)	SUPPLEMENTAL HEATING (KW)	VOLTS	PH	HZ		
HVAC-01	OUTSIDE	BUILDING	4	1500	-	0.15	R454B A2L	45.5	34.0	75	62	90	11	17.1	70	0	5	208/240	1	60	BARD W5SAF0A05ZPXXXJ	
HVAC-02	OUTSIDE	BUILDING	4	1500	-	0.15	R454B A2L	45.5	34.0	75	62	90	11	17.1	70	0	5	208/240	1	60	BARD W5SAF0A05ZPXXXJ	

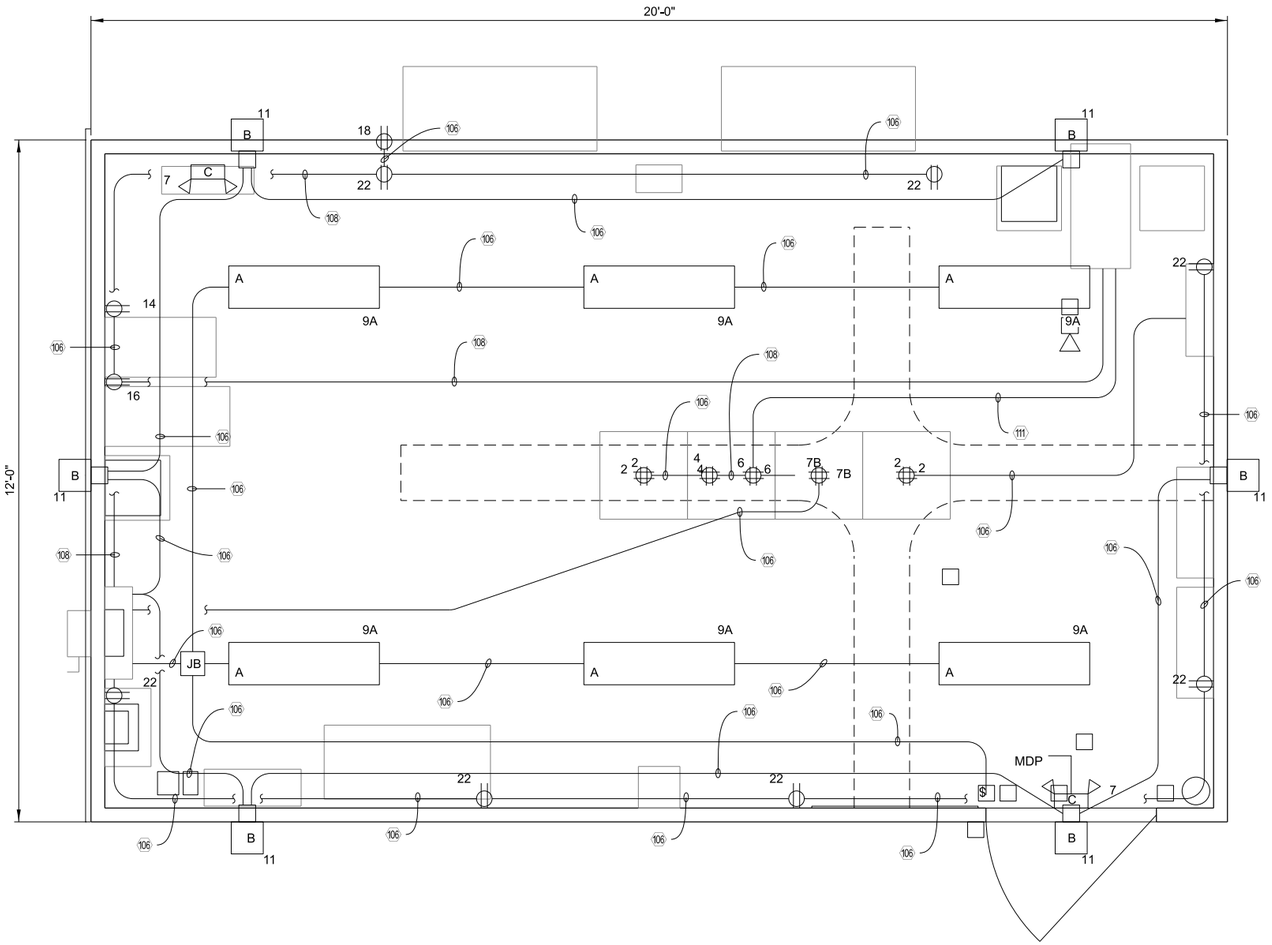
ABBREVIATION LEGEND

CFM - CUBIC FEET PER MINUTE

Illinois Tollway

MECHANICAL PLAN - REMOTE PLAZA

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2523	1 OF 1

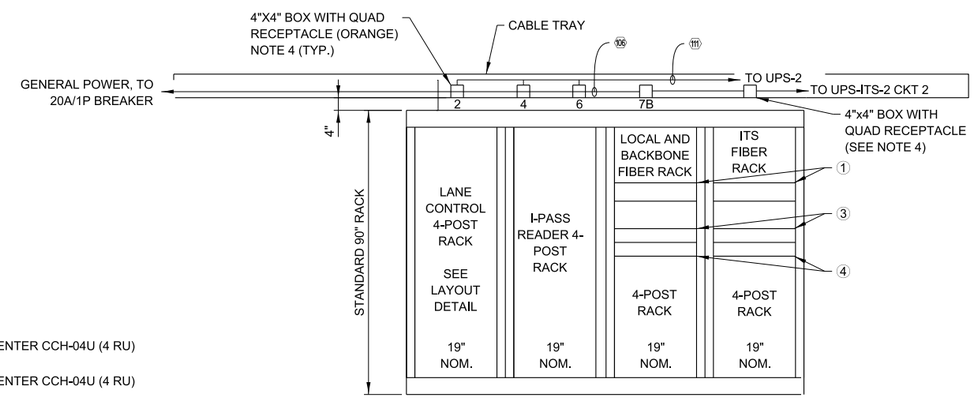


REMOTE TOLL PLAZA - BUILDING LIGHTING AND RECEPTACLE PLAN

NOT TO SCALE

NOTES:

1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. RECEPTACLE AND LIGHTING CONDUIT SHALL BE ¾" WITH 2-1/C #12 AND 1/C #12 GRD, UNLESS OTHERWISE NOTED.
3. FOR PANEL SCHEDULES, SEE PANELBOARD SCHEDULES SHEET.
4. PROVIDE CONNECTION TO RECEPTACLES FOR THE EQUIPMENT RACKS AS SPECIFIED. THE PLUG STRIP SHALL BE MOUNTED TO THE SIDE OF THE CABINET AS DIRECTED BY THE ENGINEER.
5. FOR LIGHTING FIXTURE SCHEDULE, ELECTRICAL SYMBOLS, LEGEND, AND ABBREVIATIONS, SEE LEGEND SHEET.
6. LIGHTING AND RECEPTACLES SHALL BE FED FROM PANEL MDP-2.
7. CONNECT EMERGENCY BATTERY PACK AHEAD OF LIGHT CIRCUIT.
8. COMMUNICATION AND EQUIPMENT RACKS SHALL BE APPROVED BY THE ENGINEER. A SAMPLE IS SHOWN BELOW.
   SAMPLE:
   I-PASS READER
   LANE CONTROL
   ITS FIBER
   LOCAL AND BACKBONE FIBER
9. CONTRACTOR SHALL COORDINATE FINAL RACK LAYOUT WITH THE ENGINEER AND THE ILLINOIS TOLLWAY.
10. NETWORK SWITCHES PROCURED BY OTHERS.



COMMUNICATIONS AND EQUIPMENT RACK ELEVATION

NOT TO SCALE

NOTE TO DESIGNER

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LEGEND:

① FIBER-OPTIC CORNING RACK INTERCONNECT CENTER CCH-04U (4 RU)

② FIBER-OPTIC CORNING RACK INTERCONNECT CENTER CCH-04U (4 RU)

③ FUTURE NETWORK SWITCHES - (1 RU) NOTE 10

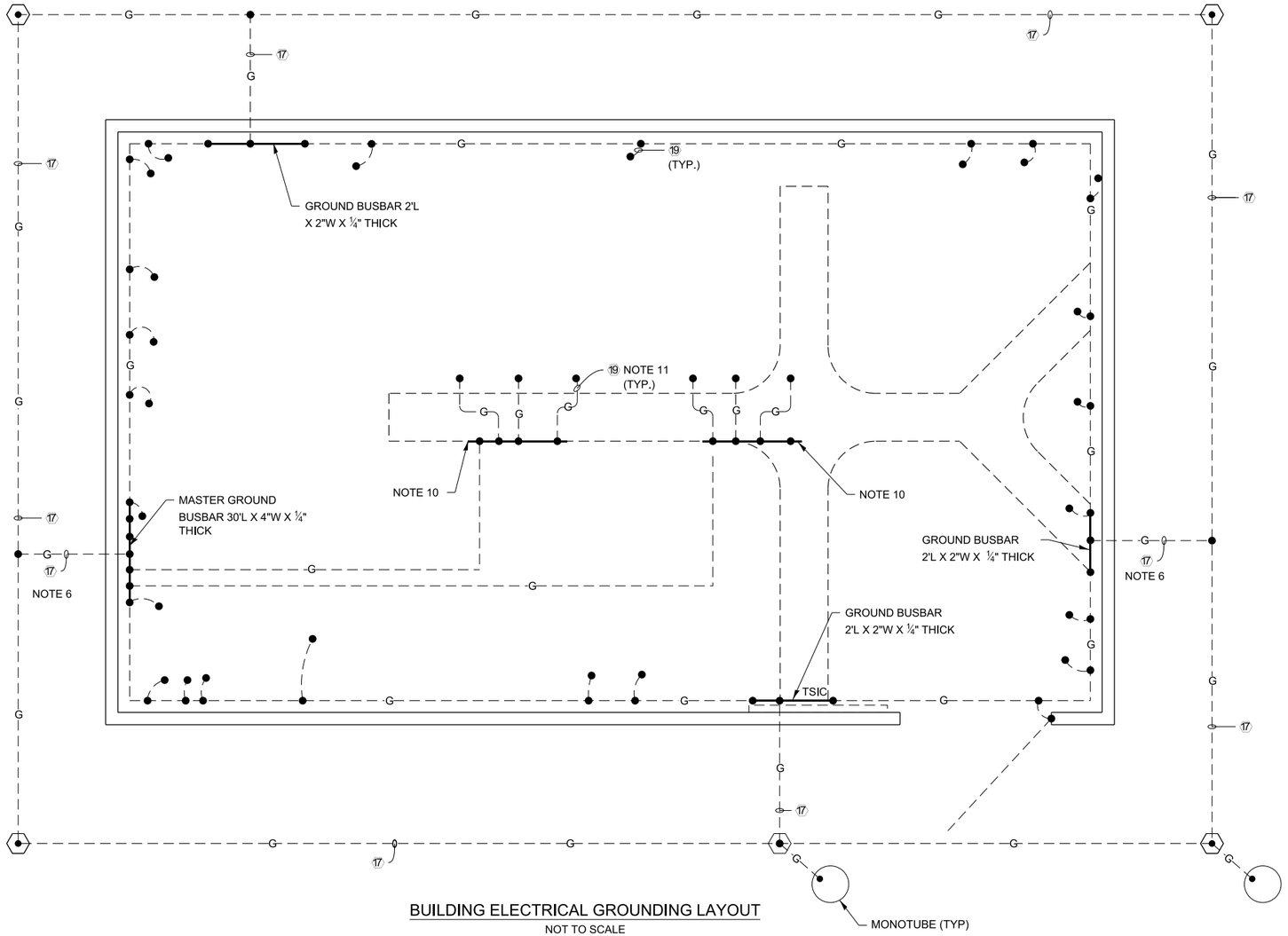
④ FUTURE NETWORK SWITCHES - (1 RU) NOTE 10

⑤ COMMSCOPE MODULAR PATCH PANEL - (2 RU)

Illinois Tollway

CONTROL BUILDING LIGHTING AND RECEPTACLE PLAN - REMOTE PLAZA

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2524	1 OF 1

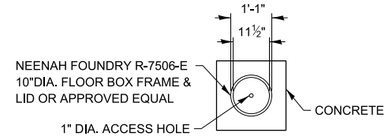


BUILDING ELECTRICAL GROUNDING LAYOUT

NOT TO SCALE

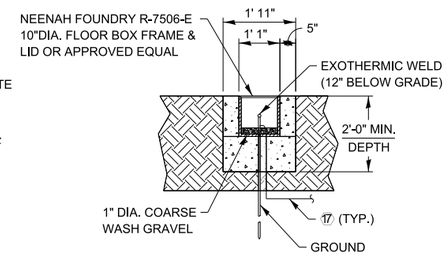
NOTES:

1. SEE CABLE/CONDUIT SCHEDULE FOR CABLE TAGS.
2. SEE CONTROL BUILDING EQUIPMENT LAYOUT SHEET FOR MORE DETAIL.
3. DETAIL SHOWS INSTALLATION IN UNPAVED AREA. WHEN INSTALLING IN A PAVED AREA, INCORPORATE GROUND WELL IN THE POUR.
4. GROUND WELLS ARE REQUIRED AT EVERY GROUND ROD.
5. NOT USED
6. PROVIDE 1" PVC CONDUIT FOR GROUND CABLES UNDER BUILDING (TYP.).
7. ALL COPPER GROUND BARS SHALL BE OF HARD DRAWN, COMMERCIALLY PURE, ELECTROLYTIC COPPER, FOR USE AS AN ELECTRICAL CONDUCTOR AND SHALL COMPLY WITH ASTM SPEC. B-187 OF LATEST DATE.
8. BOLTS, NUTS, & WASHERS USED FOR CONNECTION TO GROUND BUSBARS SHALL BE SOLID COPPER.
9. WELD PER MANUFACTURER SPECIFICATION (ERICO PRODUCTS OR BURNDY CORP.).
10. THE COPPER GROUND BUSBAR SHALL BE MOUNTED TO THE CABLE TRAY ABOVE EQUIPMENT RACKS.
11. PROVIDE A #2 AWG GROUND CABLE FROM THE FRAME OF EACH EQUIPMENT RACK TO THE GROUND BUS AS SHOWN. THE CABLE SHALL BE BOLTED TO THE RACK USING A SEAMLESS HEAVY DUTY COMPRESSION TERMINAL.
12. A FOUR INCH GAP SHALL BE PROVIDED BETWEEN THE ENDS OF THE TWO CONDUCTORS THAT MAKE UP THE INTERNAL PERIMETER GROUND BUS CONDUCTOR.
13. ALL EQUIPMENT LOCATED INSIDE THE BUILDING SHALL BE BONDED TO THE MAIN GROUND BUS OR THE INTERNAL PERIMETER GROUND CONDUCTOR WITH A #2 AWG GROUND CABLE. ALL CONNECTIONS MUST BE EXOTHERMICALLY WELDED.
14. THE INTERNAL PERIMETER GROUND BUS CONDUCTOR MUST BE INSTALLED HORIZONTALLY ALONG THE WALL APPROXIMATELY 7'-6" ABOVE FINISHED FLOOR. THE CONDUCTOR SHALL BE SUPPORTED 2 INCHES FROM THE WALL SURFACE ON INSULATED STANDOFFS. THE STANDOFFS SHALL BE INSTALLED AT INTERVALS AS NECESSARY TO KEEP THE CONDUCTOR SECURELY IN PLACE WITHOUT NOTICEABLE SAGS AND BENDS.
15. THE GROUND BUSBARS MUST BE MOUNTED APPROXIMATELY 7'-6" ABOVE FINISHED FLOOR AND MOUNTED TO WALL USING A MOUNTING BRACKET WITH INSULATOR.



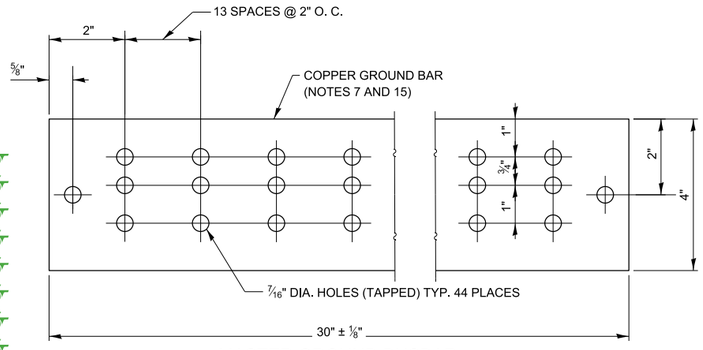
GROUND WELL PLAN DETAIL

NOT TO SCALE (NOTE 3)



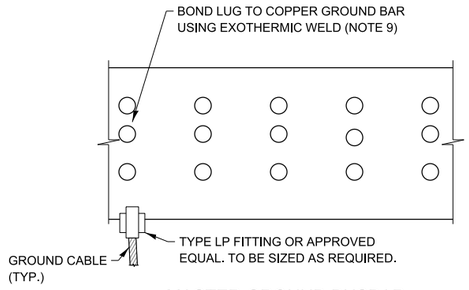
GROUND WELL ELEVATION DETAIL

NOT TO SCALE (NOTE 3)



MASTER GROUND BUSBAR
SUPPORT SPACING DETAIL

NOT TO SCALE



MASTER GROUND BUSBAR
CONNECTION DETAIL

NOT TO SCALE

NOTE TO DESIGNER

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Illinois Tollway

CONTROL BUILDING GROUNDING DETAILS - REMOTE PLAZA

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2525	1 OF 1

PANELBOARD MDP-2
VOLTAGE 120/208V
PHASE/WIRE 3/4

MAINS 100A. MCB
BUS RATING 100A.
MOUNTING SURFACE

DESCRIPTION	CKT NO.	LOAD (WATTS) A	B	C	AMPS/ POLES	CKT BKR	AMPS/ POLES	LOAD (WATTS) A	B	C	CKT NO.	DESCRIPTION
SPARE	1	--			20/1		20/1	–			2	SPARE
SPARE	3		–		20/1		20/1		200		4	LIGHTING CONTRACTOR (CONTROL)
SPARE	5			--	20/1		30/3			2000	6	HVAC UNITS
EMERGENCY LIGHT	7	100			20/1			2000			8	
INTERIOR LIGHTS	9		200		20/1				2000		10	
EXTERIOR BUILDING LIGHTS	11			240	20/1		30/1			--	12	SPARE
VES WASH SYSTEM (LOC 2)	13	2500			30/1		30/2	2500			14	UPS-2 (5 KVA)
SPARE	15		–		20/1				2500		16	
SPARE	17			--	20/1		20/1			–	18	SPARE
EXTERIOR RECEPTACLE	19	200			20/1		20/1	400			20	INTERIOR RECEPTACLES
EXTERIOR RECEPTACLE	21		200		20/1		20/1		400		22	INTERIOR RECEPTACLES
SPARE	23			–	20/1		30/2			–	24	UPS-2 (TOLLING)
SPARE	25				30/2			–			26	
	27						20/1		–		28	SPARE
SPARE	29			--	30/1		30/2				30	SPARE
SPARE	31	–			20/1						32	
ROADWAY LTG TRANSFORMER	33		960		20/2		20/1		–		34	SPARE
ROADWAY LTG TRANSFORMER	35			960			40/1				36	SPARE
"A"		5300			SUBTOTAL "A" = 11450			6150				"A"
"B"			3860		SUBTOTAL "B" - 11960				8100			"B"
"C"				3700	SUBTOTAL "C" = 7470					3770		"C"
TOTAL WATTS "A,B,C"		= 28.38 KW										

PANELBOARD UPS-2
VOLTAGE 120V./208V.
PHASE/WIRE 1/3

MAINS 30A. 2P. MCB
BUS RATING 60A.
MOUNTING SURFACE

DESCRIPTION	CKT NO.	LOAD (WATTS)	AMPS/ POLES	CKT BKR	CKT BKR	AMPS/ POLES	LOAD (WATTS)	CKT NO.	DESCRIPTION
SPARE	1	–	20/1			20/1	300	2	RACK RECEPTACLE (LCC) RAMP L1
SPARE	3	–	20/1			20/1	300	4	RACK RECEPTACLE (I-PASS) RAMP L1
VIDEO POWER JUNCTION BOX 3	5	400	20/1			20/1	400	6	RACK RECEPTACLE (FIBER)
VIDEO POWER JUNCTION BOX 4	7	400	20/1			20/1	200	8	CARD READER PANEL
SPARE	9	–	20/1			20/1	–	10	SPARE
SPARE	11	–	20/1			20/1	–	12	SPARE
SUBTOTAL "A"		800					1200		
TOTAL WATTS "A,B,C"		= 2.0 KW							

PANELBOARD ITS 2
VOLTAGE 120V / 208V
PHASE/WIRE 1/3

MAINS 30A. 2P. MCB
BUS RATING 60A.
MOUNTING SURFACE

DESCRIPTION	CKT NO.	LOAD (WATTS)	AMPS/ POLES	CKT BKR	CKT BKR	AMPS/ POLES	LOAD (WATTS)	CKT NO.	DESCRIPTION
SPARE	1	--	30/2P			10/1P	200	2	ITS RACK RECEPTACLES
	3					10/1P	--	4	SPARE
SPARE	5	–	10/1P			10/1P	--	6	SPARE
SPARE	7	–	10/1P			10/1P	--	8	SPARE
SUBTOTAL = --		--					200		
TOTAL WATTS "A,B"		= 0.2 KW							

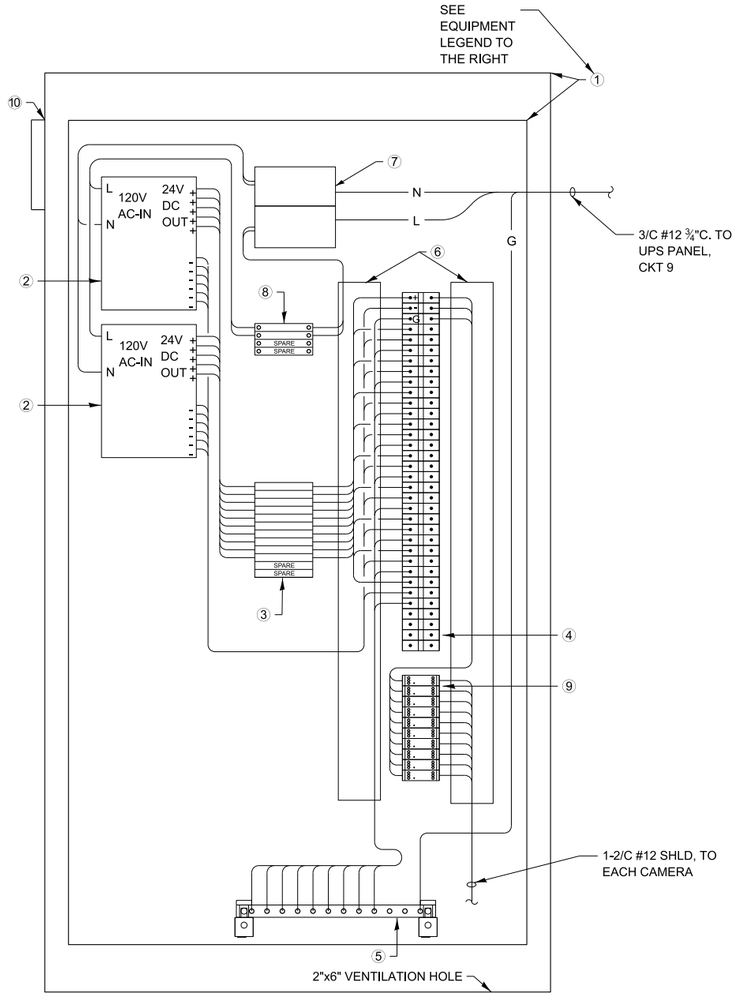
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Illinois Tollway

PANELBOARD SCHEDULES - REMOTE PLAZA AET LANES

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2526	1 OF 1



FRONT & REAR VES CAMERA
VIDEO POWER JUNCTION BOX - REMOTE PLAZA
ALTERNATIVE LAYOUT

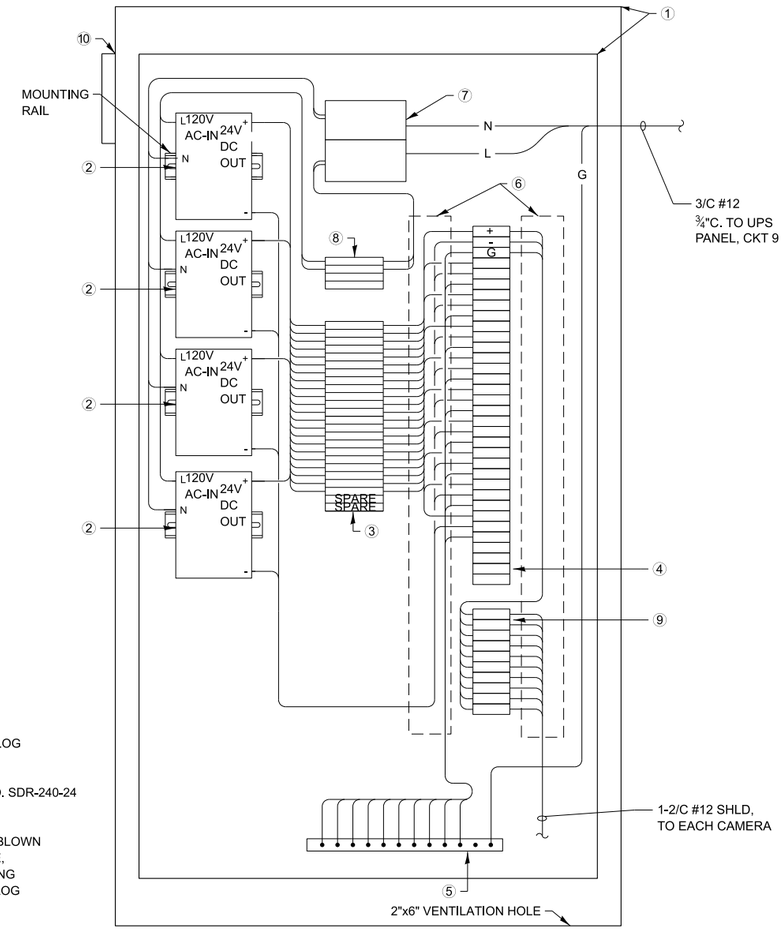
NOT TO SCALE

EQUIPMENT LEGEND - VIDEO POWER JUNCTION BOX (ALTERNATIVE LAYOUT)

ITEM	QUANTITY (SAMPLE)	DESCRIPTION
①	1	48"H X 24"W X 8"D NEMA 1 ENCLOSURE WITH 44"H X 22 ½"W BACK PANEL, HOFFMAN CATALOG NO. A-48N24BLP, WITH A-48N24MP PANEL.
②	2	POWER SUPPLY 24VDC, TDK-LAMBDA NO. QM7FSDL 24/24DMS 24/24DMS 24/24DMS 24/24DMS 24/24DMS.
③	12	TERMINAL BLOCKS, FUSE SWITCH TYPE WITH BLOWN FUSE INDICATOR COMPLETE WITH 5 AMP FUSE, MOUNTING RAIL, ANCHORS, BARRIERS, MARKING STRIPS AND JUMPERS, ALLEN BRADLEY CATALOG NO. 1492-FB1M30-D1.
④	21	TERMINAL BLOCKS, ON POLE PANEL MOUNT BLOCK SCREW TERMINAL WITH WIRE CLAMP, ALLEN BRADLEY CATALOG NO. 1492-CD6.
⑤	1	GROUND BAR SYSTEM WITH INSULATED MOUNTING BRACKET, HOFFMAN CATALOG NO. PGS2K.
⑥	LOT	PANDUIT PLASTIC WIRING DUCT SNAP-IN SLOT DESIGN AND NON-SLIP COVER, 1"W X 1"H, CATALOG NO. F1X1LG6 WITH COVER C1LG6.
⑦	1	POWER DISTRIBUTION BLOCK MARATHON NO. 1322580.
⑧	4	SQUARE D, QOU 115 1P/15A BREAKER.
⑨	10	SURGE SUPPRESSOR MTL MODEL ZB24580.
⑩	1	SQUARE AXIAL FAN $4^{1}/_{16}$" x $4^{1}/_{16}$", 1½" IN DEPTH, 115 CFM, IP20, CAST ALUMINUM FRAME, 115V AC, AND COMPACT AXIAL FAN GUARD $4^{1}/_{16}$" x $4^{1}/_{16}$".

EQUIPMENT LEGEND - VIDEO POWER JUNCTION BOX

ITEM	QUANTITY	DESCRIPTION
①	1	48"H X 24"W X 8"D NEMA 1 ENCLOSURE WITH 44"H X 22 1#2"W BACK PANEL, HOFFMAN CATALOG NO. A-48N24BLP, WITH A-48N24MP PANEL.
②	4	POWER SUPPLY 24VDC, MEANWELL MODEL NO. SDR-240-24
③	24	TERMINAL BLOCKS, FUSE SWITCH TYPE WITH BLOWN FUSE INDICATOR COMPLETE WITH 5 AMP FUSE, MOUNTING RAIL, ANCHORS, BARRIERS, MARKING STRIPS AND JUMPERS, ALLEN BRADLEY CATALOG NO. 1492-FB1M30-D1.
④	42	TERMINAL BLOCKS, ON POLE PANEL MOUNT BLOCK SCREW TERMINAL WITH WIRE CLAMP, ALLEN BRADLEY CATALOG NO. 1492-CD6.
⑤	1	GROUND BAR SYSTEM WITH INSULATED MOUNTING BRACKET, HOFFMAN CATALOG NO. PGS2K.
⑥	LOT	PANDUIT PLASTIC WIRING DUCT SNAP-IN SLOT DESIGN AND NON-SLIP COVER, 1"W X 1"H, CATALOG NO. F1X1LG6 WITH COVER C1LG6.
⑦	1	POWER DISTRIBUTION BLOCK MARATHON NO. 1322580.
⑧	4	SQUARE D, QOU 115 1P/15A BREAKER.
⑨	20	SURGE SUPPRESSOR MTL MODEL ZB24580.
⑩	1	SQUARE AXIAL FAN $4^{1}/_{16}$" x $4^{1}/_{16}$", 1½" IN DEPTH, 115 CFM, IP20, CAST ALUMINUM FRAME, 115V AC, AND COMPACT AXIAL FAN GUARD $4^{1}/_{16}$" x $4^{1}/_{16}$".



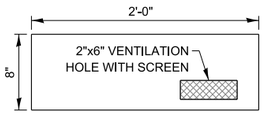
FRONT & REAR VES CAMERA
VIDEO POWER JUNCTION BOX

N.T.S.

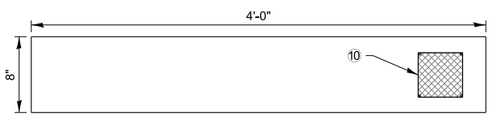
VIDEO POWER JUNCTION BOX REMOTE PLAZA

NOTES TO DESIGNER

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2. THE DESIGNER SHALL ADJUST DETAIL AND QUANTITIES AS REQUIRED FOR NUMBER OF VES CAMERAS.
3. THE DESIGNER SHALL INCLUDE VIDEO POWER JUCTION BOX DETAILS (M-ITS-2100 SERIES BASE SHEETS) FOR SECURITY CAMERAS AND DATA LOGGER CAMERA.



BOTTOM PLATE
VENTILATION HOLE DETAIL



SIDE PLATE
VENTILATION HOLE DETAIL

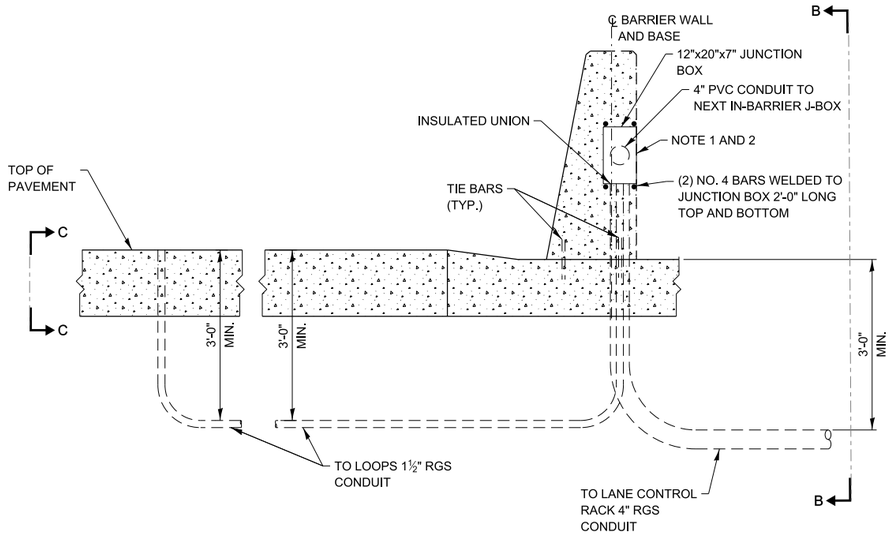
NOTES:

1. LABEL JUNCTION BOX, TERMINAL STRIPS, AND ALL WIRE AND CABLES.
2. ROUTE 1-2/C #12 POWER CABLE TO EACH CAMERA.
3. ALL ELECTRICAL CABLES TO CAMERA SHALL HAVE SURGE PROTECTION.
4. CAT6 CABLE SHALL BE SURGE PROTECTED ON THE TSIC.

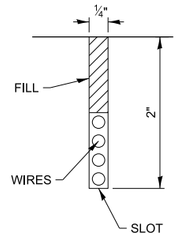
Illinois Tollway

VIDEO POWER JUNCTION BOX DETAIL - REMOTE PLAZA

VERSION:	BASE SHEET:	SHEET:
2025-03	M-BUS-2527	1 OF 1



SECTION A-A
(LANE LOOP LAYOUT)
NOT TO SCALE



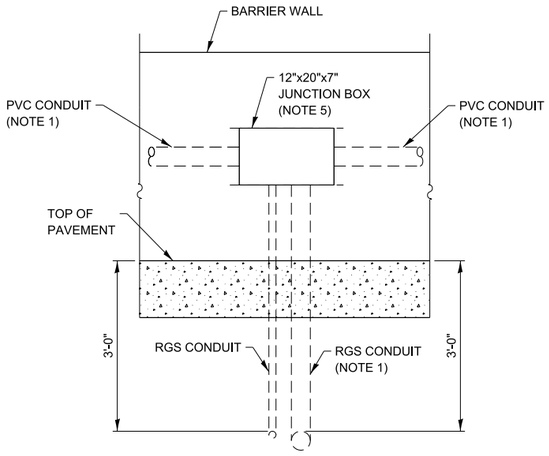
DETAIL OF
DETECTOR LOOP SLOT
NOT TO SCALE

NOTES:

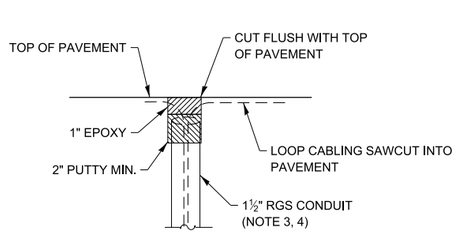
1. SEE LOOP LAYOUT SHEETS FOR MORE DETAILS.
2. THE REINFORCEMENT IS NOT SHOWN FOR CLARITY.
3. CONDUITS THAT STUB UP IN THE PAVEMENT ARE 1½" FOR QUANTUM AND PIEZO STRIPS, 1½" FOR ALL OTHERS UNLESS NOTED OTHERWISE. SEE LOOP LAYOUT DETAIL. CONDUIT BETWEEN JUNCTION BOXES SHALL BE 4" DIA.
4. ELECTRICAL CONTRACTOR MUST COORDINATE WITH ILLINOIS TOLLWAY AND PAVEMENT CONTRACTOR. NO CONCRETE POUR SHALL BE DONE BEFORE CONDUIT IS LAID OUT AND APPROVED BY THE ENGINEER.
5. JUNCTION BOXES MUST BE INSTALLED A MINIMUM OF 12" APART.

NOTE TO DESIGNER

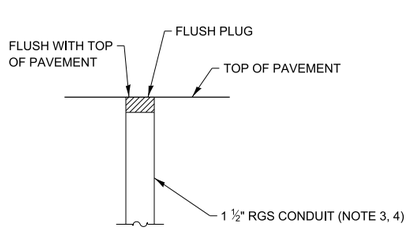
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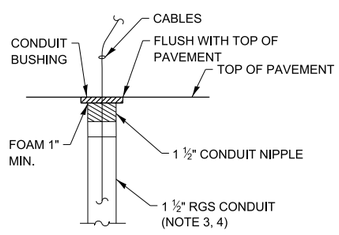
ELEVATION B-B
EMBEDDED JUNCTION BOX IN
BARRIER WALL ELEVATION
NOT TO SCALE



SECTION C-C
LOOP INSTALLATION DETAILS
NOT TO SCALE



SECTION C-C
PRIOR TO ROAD OR
ISLAND CONSTRUCTION
NOT TO SCALE

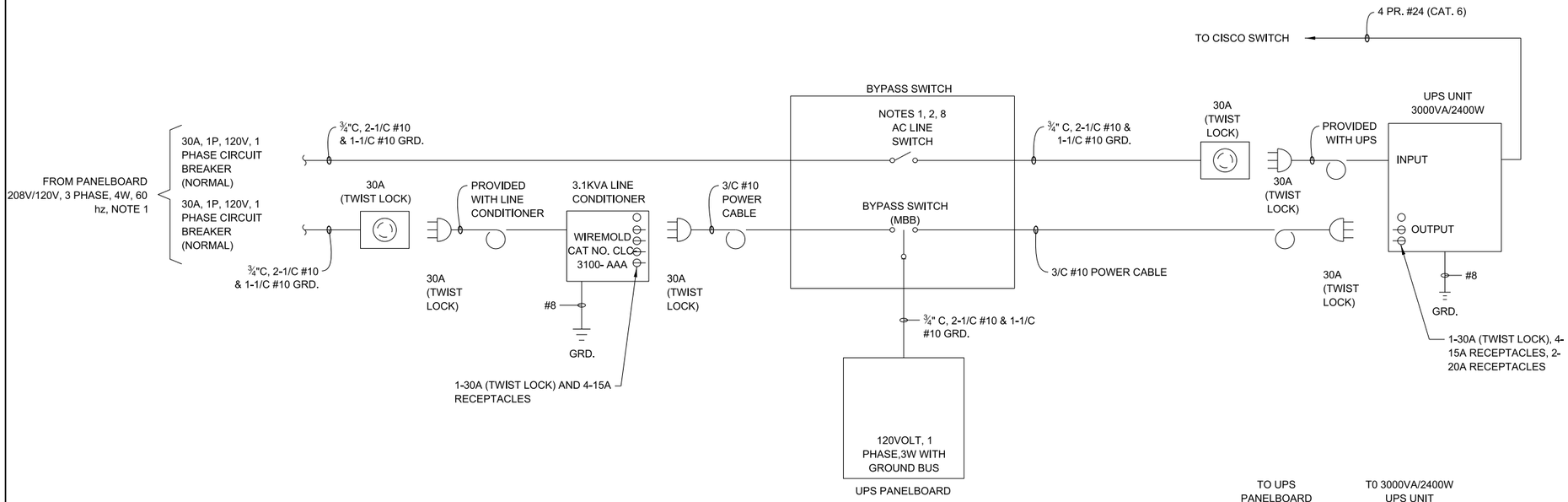


SECTION C-C
EQUIPMENT ENDS AFTER
CABLE INSTALLATION
NOT TO SCALE

Illinois Tollway

LOOP JUNCTION BOX DETAIL

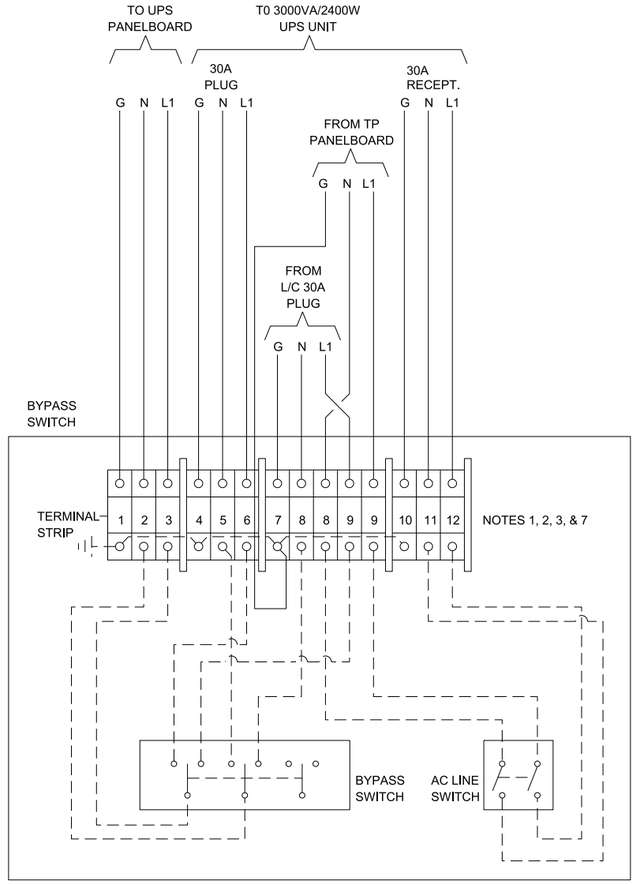
VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2528	1 OF 1



SAMPLE UPS SINGLE LINE DIAGRAM
3000VA SHOWN

NOTES:

1. PHASING MUST BE THE SAME ALL THROUGH SYSTEM.
2. REMOVE FLAT PLATE JUMPER BETWEEN DUAL PINS 8 - 8 AND 9 - 9 AS DIRECTED BY THE MANUFACTURER TO PROVIDE FOR TWO POWER SOURCES.
3. BOTH SWITCHES SHOWN IN "OFF" POSITION.
4. INPUT AND OUTPUT VOLTAGE IS 120 VOLT, 1 PHASE,60 HERTZ, 3 WIRE.
5. CONDUIT SIZE SHOWN IS BASED ON TYPE THHN/THWN WIRE.
6. THE UPS SHALL BE AS MANUFACTURED BY EATON. THE BYPASS SWITCH SHALL BE AS MANUFACTURED BY POWERWARE, INC. THE LINE CONDITIONER SHALL BE AS MANUFACTURED BY WIREMOLD ELECTRONICS.
7. DASHED LINES INDICATE INTERNAL WIRING. SOLID LINES INDICATE EXTERNAL WIRING.
8. ELECTRICAL CONTRACTOR MODIFIES BYPASS SWITCH IN FIELD BY ADDING 30A (TWIST LOCK) RECEPTACLE.
9. VERIFY DETAILS WITH ILLINOIS TOLLWAY PRIOR TO PURCHASING EQUIPMENT



BYPASS SWITCH WIRING DIAGRAM

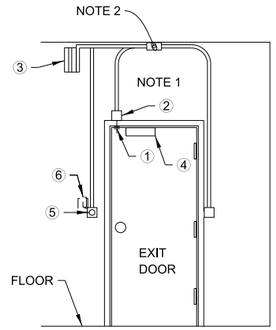
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Illinois Tollway

UPS SINGLE LINE AND WIRING DIAGRAM

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2529	1 OF 1



DOOR ALARM JUNCTION BOX DETAIL- SINGLE DOOR

NOT TO SCALE

EQUIPMENT LEGEND - DOOR ALARM

ITEM	DESCRIPTION
①	NORMALLY CLOSED (N.C. WHEN THE DOOR IS CLOSED) MAG REED CONTACT BUILT INTO DOOR FRAME. SENTROL 1078C OR 1078 SERIES. COIL CONTACT LEADS AND COMMUNICATION CABLE IN JUNCTION BOX.
②	JUNCTION BOX, 4" X 4" WITH BLANK COVER PLATE, AND ¾" CONDUIT TO CABLE TRAY.
③	MOTION DETECTOR
④	MAGNETIC DOOR LOCK
⑤	DOOR RELEASE BUTTON
⑥	CARD READER (EXTERIOR)

NOTES:

1. COIL 2 FEET CABLE IN BOX FOR TERMINATION BY THE ILLINOIS TOLLWAY UNLESS OTHERWISE NOTED.
2. ROUTE TO CARD READER PANEL, TERMINATION BY THE ILLINOIS TOLLWAY. 4-1PR #22 SHLD. CABLE IN ¾" CONDUIT.
3. MECHANICAL LOCKS SHALL BE SCHLAGE BRAND (OR APPROVED EQUAL) AND SECURED WITH A CONSTRUCTION KEY WITH THREE COPIES PROVIDED TO ILLINOIS TOLLWAY BUSINESS SYSTEMS.

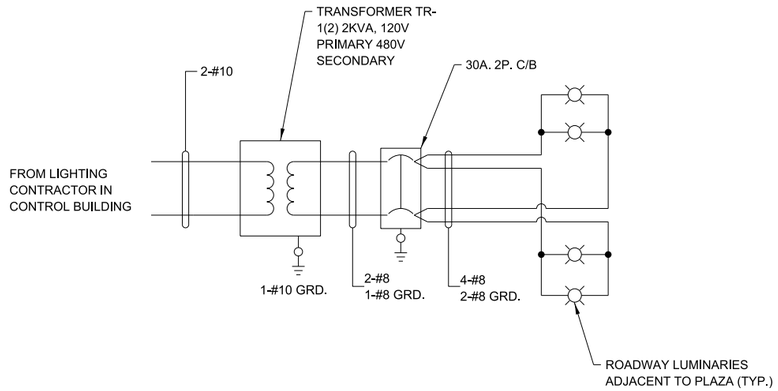
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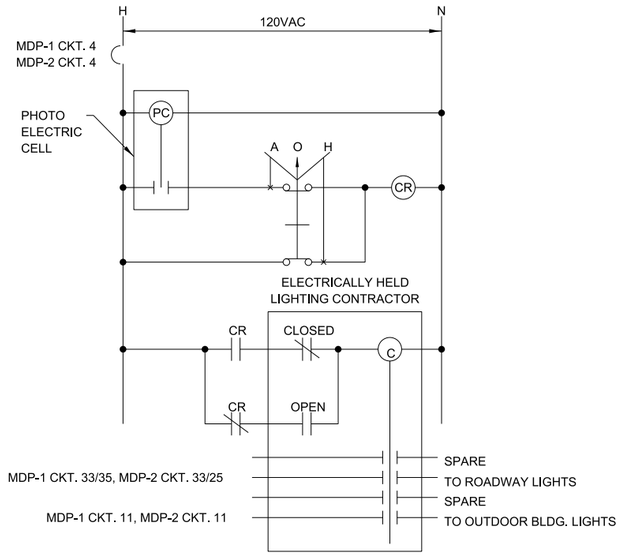
Illinois Tollway

DOOR ALARMS DETAIL

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2530	1 OF 1



SCHEMATIC WIRING DIAGRAM
EMERGENCY ROADWAY PLAZA LIGHTING



LIGHTING CONTRACTOR WIRING DIAGRAM

NOTES:

1. SEE SYMBOLS AND ABBREVIATIONS SHEET FOR LEGEND.
2. SEE PLANS FOR CABLE AND CONDUIT ROUTING.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

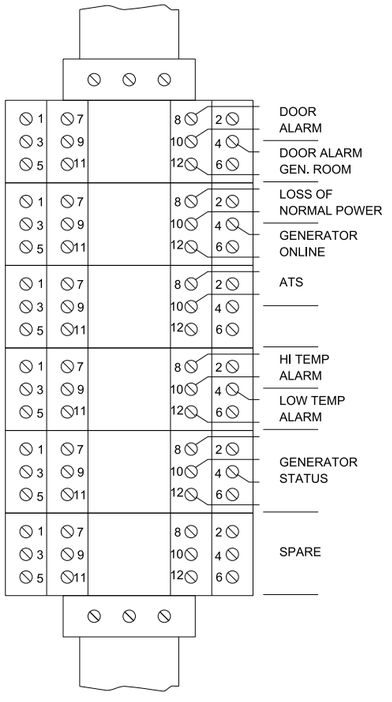
Illinois Tollway

MISCELLANEOUS SCHEMATIC DIAGRAMS

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2531	1 OF 1

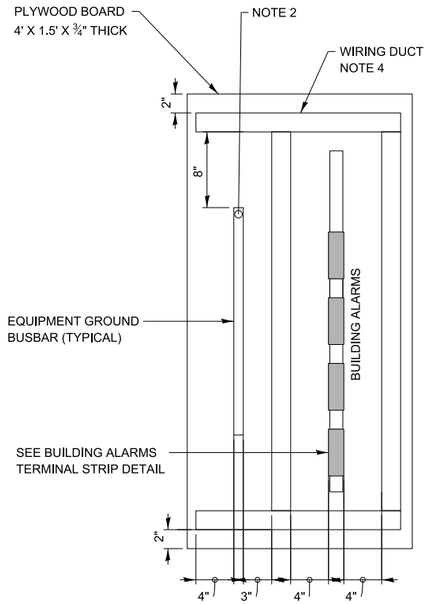
NOTE TO DESIGNER

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BUILDING ALARMS TERMINAL STRIP

NOT TO SCALE



TERMINAL STRIP INTERCONNECT CENTER (TSIC)

NOT TO SCALE (SEE NOTE 1)

NOTES:

1. TERMINAL STRIP INTERCONNECT CENTER (TSIC) IS LOCATED IN THE CONTROL BUILDING. SEE BUILDING EQUIPMENT LAYOUT DRAWINGS, FOR LOCATION.
2. ROUTE #6 COPPER GROUND CABLE FROM GROUND BUSBAR TO INTERNAL PERIMETER GROUND BUS CONDUCTOR.
3. ALL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
4. PROVIDE WIRE DUCT AS SHOWN ON THE DRAWING. WIRE DUCT SHALL BE PANDUIT PART NUMBER E2X3LG6 WITH COVER PART NUMBER C2LG6 AND CORNER STRIP PART NUMBER CSP3LG-Q.

3 PAIR DATA/COMMUNICATIONS CABLE COLOR CODE CHART

PAIR NO.	MFGR'S COLOR CODE CHART COLOR COMBINATION
CABLE-1	
1	BLACK PAIRED WITH RED
2	BLACK PAIRED WITH WHITE
3	BLACK PAIRED WITH GREEN

3 PR. #22 CABLE WITH INDIVIDUALLY SHIELDED PAIRS SHALL BE BELDEN #88777 OR MANHATTAN #M43103.

6 PAIR DATA/COMMUNICATIONS CABLE COLOR CODE CHART

PAIR NO.	MFGR'S COLOR CODE CHART COLOR COMBINATION
CABLE-2	
1	BLACK PAIRED WITH RED
2	BLACK PAIRED WITH WHITE
3	BLACK PAIRED WITH GREEN
4	BLACK PAIRED WITH BLUE
5	BLACK PAIRED WITH YELLOW
6	BLACK PAIRED WITH BROWN

6 PR. #22 CABLE WITH INDIVIDUALLY SHIELDED PAIRS SHALL BE BELDEN #88778 OR MANHATTAN #M43106

9 CONDUCTOR ALARM CABLE COLOR CODE CHART

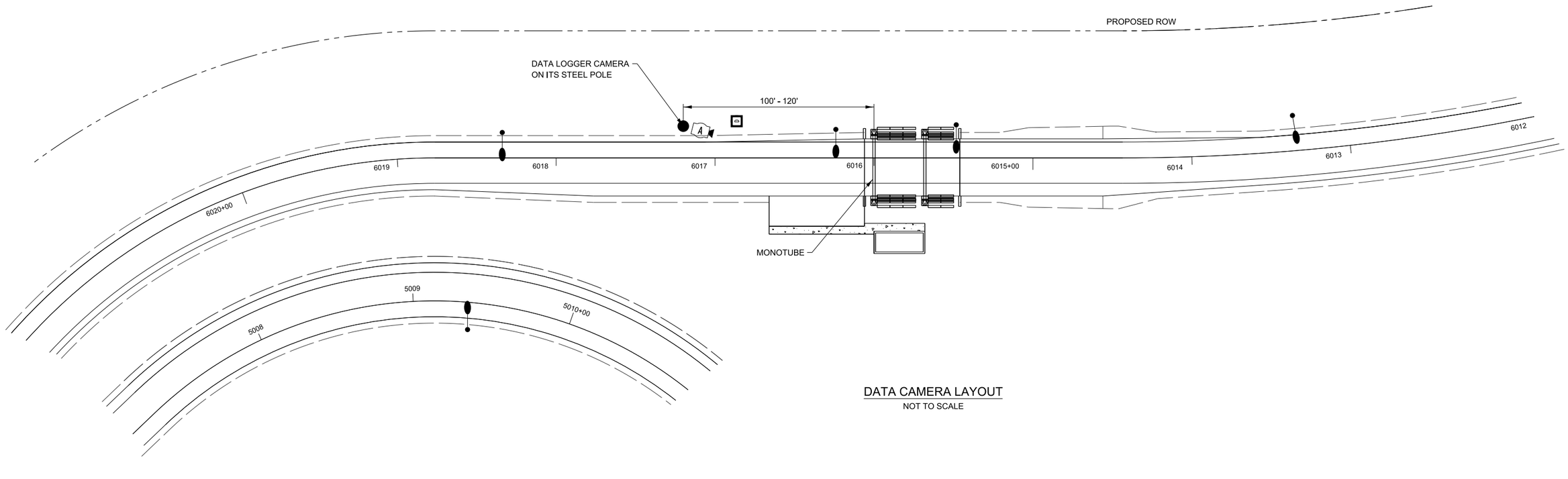
CONDUCTOR NO.	MFGR'S COLOR CODE CHART COLOR COMBINATION
CABLE-3	
1	BLACK
2	WHITE
3	RED
4	GREEN
5	ORANGE
6	BLUE
7	WHITE/BLACK
8	RED/BLACK
9	GREEN/BLACK

9 CONDUCTOR #22 SHIELDED CABLE SHALL BE BELDEN #83559.

Illinois Tollway

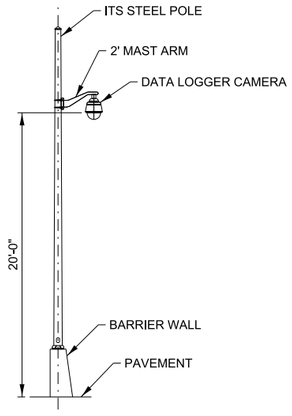
TSIC TERMINAL BLOCK LAYOUT MAIN AND REMOTE PLAZAS - AET LANES

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2532	1 OF 1



DATA CAMERA LAYOUT

NOT TO SCALE



DATA LOGGER INSTALLATION

NOTE TO DESIGNER

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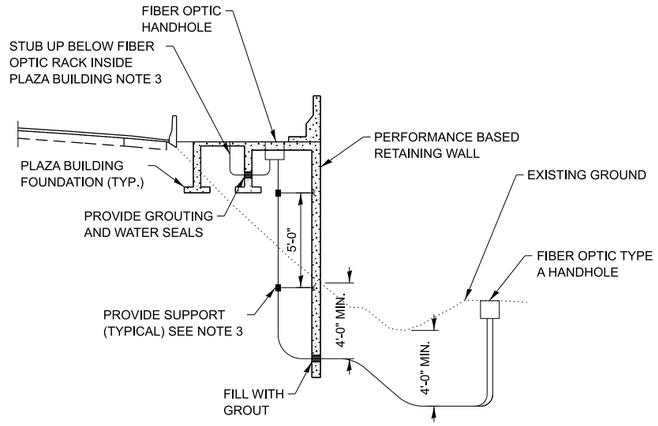
NOTES:

1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. INSTALL CABLES BETWEEN THE PLAZA AND CAMERA PER MANUFACTURER'S RECOMMENDATIONS.
3. THE CAMERA'S FINAL MOUNTING LOCATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
4. THE COST FOR THE WORK TO FURNISH AND INSTALL THE CAMERA, CABLES, CONDUIT, AND ASSOCIATED MOUNTING HARDWARE ON THE POLE SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM FOR ELECTRICAL WORK FOR THE PLAZA.
5. LOOP 3' OF CABLE FOR CAMERA IN POLE TO FACILITATE CAMERA MAINTENANCE.

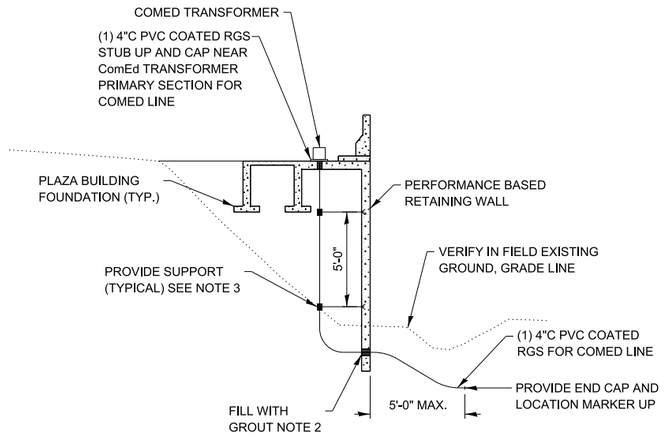
Illinois Tollway

DATA LOGGER CAMERA

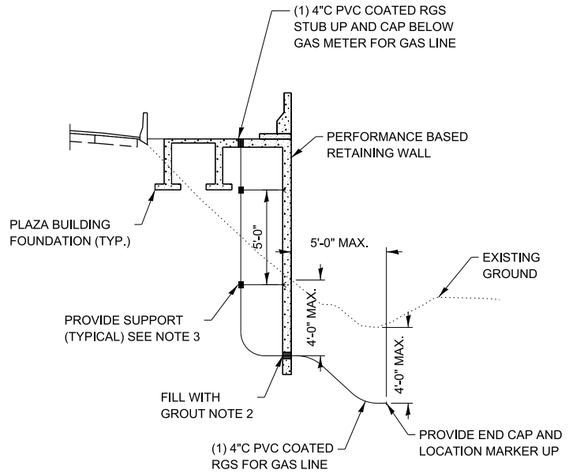
VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2533	1 OF 1



DETAIL FOR FIBER STUB UP



DETAIL FOR COMED LINE STUB UP



DETAIL FOR GAS LINE STUB UP

NOTES:

1. DETAILS ARE ONLY SCHEMATICS FOR GUIDANCE, AND CONTRACTOR MUST COORDINATE WITH COMED AND NICOR GAS SERVICE LINES.

2. CONTRACTOR SHALL COORDINATE WITH STRUCTURAL FOR LOCATION OF OPENINGS THROUGH RETAINING WALL. THE HOLE DIA./SLOT SHALL BE LARGE ENOUGH SO THAT IT DOES NOT CAUSE ANY STRAIN ON UTILITY DUE TO SETTLEMENT OF THE WALL.

3. SUPPORTS ARE REQUIRED TO HOLD THE SLEEVES VERTICALLY BEFORE FILL UP ONLY. THIS HAS TO BE COORDINATED WITH COMED AND NICOR UTILITIES. PROVIDE CONDUIT CLAMP/ANCHOR BOLT OF POWER STRUT, B-LINE OR UNISTRUT AND MOUNTING HARDWARE.

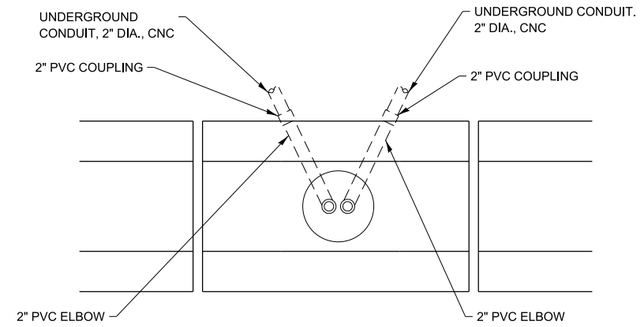
4. ALL DIMENSIONS AND REINFORCEMENT SHALL BE PER ILLINOIS TOLLWAY STANDARD DRAWING H8 FOR TYPE 1 CENTERED CAISSON, 42" BARRIER.

NOTE TO DESIGNER

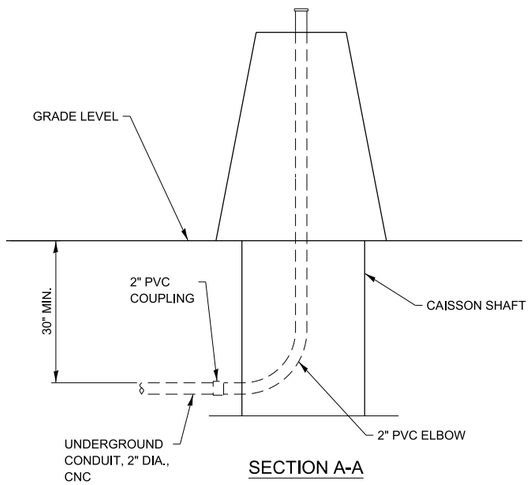
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NOTE TO DESIGNER

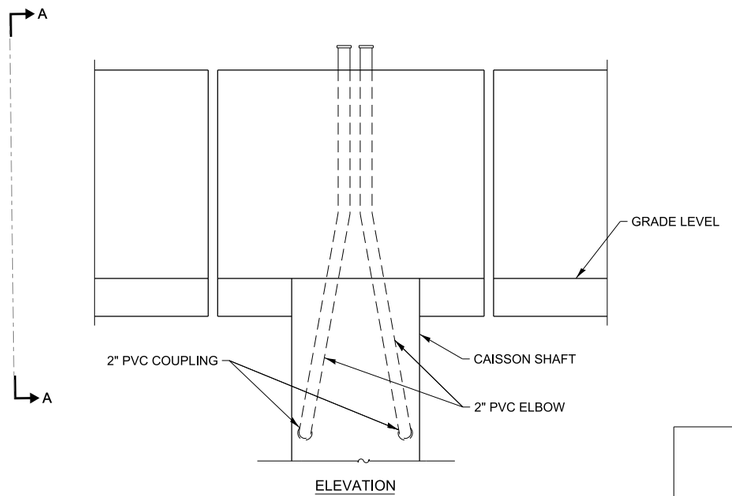
THIS BASE SHEET REFLECTS THE USE OF PERFORMANCE BASED RETAINING WALL. THE DESIGNER SHALL MODIFY THE BASE SHEETS ACCORDINGLY FOR DESIGNED RETAINING WALLS.



PLAN - DOUBLE FACE BARRIER



SECTION A-A



ELEVATION

CONDUIT DETAIL AT LIGHT POLE FOUNDATION INTEGRAL WITH BARRIER WALL

(NOT TO SCALE)

Illinois Tollway

MISCELLANEOUS CROSS SECTION DETAILS

VERSION:	BASE SHEET:	SHEET:
2021-03	M-BUS-2534	1 OF 1

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C5288
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REVISES STANDARD DATED 4-1-98
COMPATIBLE UNITS AVAILABLE IN PASSPORT

9-12-08
C5288
PAGE 1 OF 1

1-PH COMPT TR PAD - ESS/RSS

167kVA MAXIMUM CAPACITY

SIZE OF TRANSFORMER (12)

C5288.A TO 167kVA

ITEM	CAT ID DESCRIPTION TABLE-1		CAT ID	UNIT	QUANTITY A
A	GROUNDING INSTALLATION C8550. GD	(1)			1
C	WIRE,COPPER, OVERHEAD, BARE, 1/0, 19 STR, SOFT DRAWN TINNED, 3	(1)	0000355082	FT	35
D	CONNECTOR, COMPRESSION, 1/0 OR 2/0 STR CU. RUN & TAP, BURNDY C		0000368545	EA	1

NOTES:

APPLICATION

- THIS STANDARD SHALL BE USED FOR THE INSTALLATION OF AN ELECTRIC OR RESIDENTIAL SERVICE STATION FOUNDATION AS DESCRIBED IN "ComEd's GENERAL TERMS AND CONDITIONS".

SUPPLEMENTARY MATERIAL

(1) WHEN BARE LEAD COVERED CABLES ARE LOCATED OR PLANNED WITHIN 200 FEET, OMIT ITEM "C" AND REPLACE WITH 1/0 LEAD CLAD COPPER CONDUCTOR (CATID 0000360809). SPECIFY STAINLESS STEEL GROUNDS PER C8550.020.

(2) PRECAST ALTERNATIVES TO THIS POURED DESIGN MAY BE AVAILABLE. CONTACT CONSTRUCTION STANDARDS GROUP.

INFORMATION

(11) THE CUSTOMER TO INSTALL THE TRANSFORMER FOUNDATION, 1 INCH CONDUITS, AND TRENCH FOR ComEd GROUND WIRE.

(12) ComEd TO PROVIDE AND INSTALL THE GROUND WIRE AND GRID.

(13) AFTER PRIMARY AND SECONDARY CONDUITS ARE IN PLACE, BACKFILL WITH SCREENINGS, SAND, OR FINE EXCAVATED MATERIAL. COMPACT THOROUGHLY BEFORE POURING FOUNDATION.

(14) CONCRETE TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE APPLICABLE ACI CODE AND AIR ENTRAINED. IT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. AIR ENTRAINMENT SHALL BE 4 TO 7 PERCENT OF THE VOLUME OF CONCRETE.

(18) TOP OF FOUNDATION TO BE SMOOTH AND LEVEL.

(16) GRADE AWAY FROM FOUNDATION. FINAL GRADE SHALL BE WELL DRAINED AT ALL TIMES.

(17) PRIMARY AND SECONDARY CONDUIT MUST COME THROUGH FOUNDATION IN DESIGNATED AREAS.

(18) SEE C7723 FDR BURNDY-HUSKY DIE SET CROSS REFERENCE.

(19) DO NOT PLACE CONDUITS UNDER THIS SECTION OF FOUNDATION IF AVOIDABLE.

20 DO NOT DISTURB EARTH IN FOUNDATION AREA MORE THAN NECESSARY WHEN INSTALLING CONDUIT.

(21) TERMINATE PRIMARY AND SECONDARY CONDUITS FLUSH WITH TOP OF FOUNDATION.

(22) BOX OUT CONDUIT OPENING.

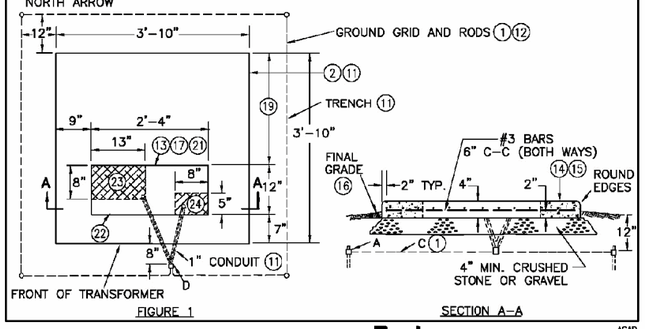
(23) SECONDARY CONDUIT LOCATION.

(24) PRIMARY CONDUIT LOCATION.

25 CONSULT SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PROGRAM OR ENVIRONMENTAL SERVICES IF TOTAL OIL CAPACITY EQUAL TO OR EXCEEDING 1320 GALLONS EXISTS OR IS PLANNED AT ESS/RSS SITE.

PRESSING TABLE (10)		
ITEM	TOOL & DIE	NO. OF CRIMPS
D	Y-35	1
	U-O	1
	U-E	3

NORTH ARROW



ACAD

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Exelon. Energy Delivery SYSTEM STANDARD

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C5286
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REVISES STANDARD DATED 10-31-02
COMPATIBLE UNITS AVAILABLE IN PASSPORT

9-12-08
C5286
PAGE 1 OF 6

3-PH RADIAL COMPT TR PAD - ESS (11)(23)(29)

SIZE OF TRANSFORMER

C5286.B 45 - 225kVA 120/208V
.C 112.5 - 300kVA 120/208V
.D 225 - 500kVA 120/208V
.E 750kVA 120/208V
.F 45 - 75kVA 277/480V
.G 112.5 - 300kVA 277/480V
.H 225 - 1000kVA 277/480V
.J 1500 - 2500kVA 277/480V
.K 500 - 750kVA 4kV
.L 1000 - 2500kVA 4kV

ITEM	CAT ID DESCRIPTION TABLE-1		CAT ID	UNIT	QUANTITY B	C	D	E	F	G	H	J	K	L
A	GROUNDING INSTALLATION C8550. GD	(1)			1	1	1	1	1	1	1	1	1	1
B	WIRE,COPPER, OVERHEAD, BARE, 1/0, 19 STR, SOFT DRAWN TINNED, 3	(1)(2)	0000355082	FT	55	55	60	60	50	55	60	70	60	65
C	CONNECTOR, COMPRESSION, 1/0 OR 2/0 STR CU. RUN & TAP, BURNDY C	(2)	0000368545	EA	1	1	1	1	1	1	1	1	1	1

NOTES:

APPLICATION

- THIS STANDARD SHALL BE USED TO INSTALL AN ELECTRIC SERVICE STATION FOUNDATION FOR A 3Ø RADIAL-FED COMPARTMENTAL TRANSFORMER AS DESCRIBED IN "ComEd's GENERAL TERMS AND CONDITIONS".

SUPPLEMENTARY MATERIAL

(1) WHEN BARE LEAD COVERED CABLES ARE LOCATED OR PLANNED WITHIN 200 FEET, REPLACE ITEM "B" WITH 1/0 LEAD CLAD COPPER CONDUCTOR (CAT ID 0000360809) AND SPECIFY GROUND RODS IN ACCORDANCE WITH C8550. ENGINEER TO SPECIFY WHEN THIS CONDITION EXISTS.

(2) WHEN JUNCTION CABINET IS USED, ADD ONE OF ITEM "C" AND ADD 15 FEET OF ITEM "B".

(3) STEEL PLATE NOT FURNISHED WITH STANDARD. ORDER FROM SYSTEMS SHOPS AT TECH CENTER OR LOCAL VENDOR.

INFORMATION

(11) CUSTOMER SHALL SUPPLY AND INSTALL ALL ITEMS WITHIN THIS STANDARD EXCEPT FOR THE GROUNDING MATERIAL.

(12) PRECAST ALTERNATIVES TO THIS POURED DESIGN MAY BE AVAILABLE. CONTACT DISTRIBUTION ENGINEERING DEPARTMENT FOR DETAILS.

(13) DO NOT PLACE CONDUITS UNDER THIS SECTION OF FOUNDATION IF AVOIDABLE.

(14) DO NOT DISTURB GROUND IN FOUNDATION AREA MORE THAN NECESSARY WHEN INSTALLING CONDUIT.

(15) PRIMARY AND SECONDARY CONDUIT MUST COME THROUGH FOUNDATION IN DESIGNATED AREAS.

(16) CONDUIT SHALL TERMINATE FLUSH WITH THE TOP OF THE FOUNDATION UNLESS OTHERWISE DESIGNATED.

(17) IF METAL CONDUIT IS USED, THE GROUNDING BUSHING SHALL NOT PROTRUDE ABOVE THE TOP OF THE FOUNDATION.

(18) AFTER PRIMARY AND SECONDARY CONDUITS ARE IN PLACE, BACKFILL WITH SCREENINGS, SAND OR FINE EXCAVATED MATERIAL. COMPACT THOROUGHLY BEFORE PLACING AGGREGATE AND POURING FOUNDATION.

(19) CONCRETE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE APPLICABLE ACI CODE. IT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. AIR ENTRAINMENT SHALL BE 4 TO 7% OF THE VOLUME OF CONCRETE.

(20) TOP OF THE FOUNDATION SHALL BE SMOOTH AND LEVEL.

(21) GROUND GRID CONSISTS OF A CONTINUOUS COPPER GROUND LOOP. BRING ONE TAIL OF GROUND LOOP INTO EACH OPENING IN FOUNDATION. CONNECT GROUND CABLE (ITEM "B") TO GROUND RODS AS SHOWN IN C8550. CLOSE LOOP WITH COMPRESSION CONNECTOR (ITEM "C").

WHEN LEAD CLAD CABLE IS USED FOR THE GROUND CABLE, COVER THE ITEM "C" CONNECTION WITH MOISTURE SEALING COMPOUND AND PLASTIC TAPE AS SHOWN IN DETAIL-1.

(22) FINAL GRADE SHALL SLOPE AWAY FROM FOUNDATION. FINAL GRADE SHALL BE WELL DRAINED AT ALL TIMES.

(23) A JUNCTION CABINET IS REQUIRED IF SECONDARY CONDUIT SPACE REQUIREMENTS EXCEED LIMITS SPECIFIED IN TABLE-A. REFER TO PAGE 3 FOR DETAILS OF NECESSARY FOUNDATION.

(24) CONTACT DISTRIBUTION ENGINEERING DEPARTMENT FOR APPROVED SUPPLIERS OF JUNCTION CABINET. ALTERNATIVE DESIGNS MAY BE SUBMITTED FOR APPROVAL.

(25) CABINET SHALL BE ANCHORED TO THE FOUNDATION.

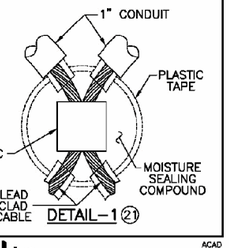
(26) ComEd WILL FURNISH AND INSTALL CABLE AND LUGS BETWEEN JUNCTION CABINET BUS AND TRANSFORMER SECONDARY TERMINALS.

(27) CUSTOMER SHALL NOT CONNECT THEIR CABLES TO BUS IN AREAS DESIGNATED AS ComEd POSITIONS.

(28) BUS BAR SHOWN CAN ACCOMMODATE A MAXIMUM OF 20 CABLES PER PHASE FROM CUSTOMER AND 10 CABLES PER PHASE FROM ComEd TRANSFORMER.

(29) CONSULT SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PROGRAM OR ENVIRONMENTAL SERVICES IF TOTAL OIL CAPACITY EQUAL TO OR EXCEEDING 1320 GALLONS EXISTS OR IS PLANNED AT ESS SITE.

30 FOR TRANSFORMER CLEARANCES REFER TO STANDARDS C5284, C5285, AND C7500.



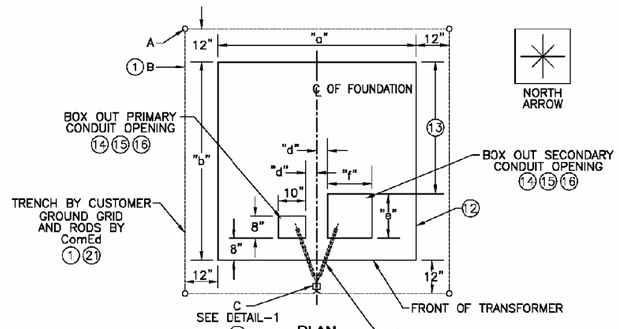
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Exelon. Energy Delivery SYSTEM STANDARD

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C5286
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C5286
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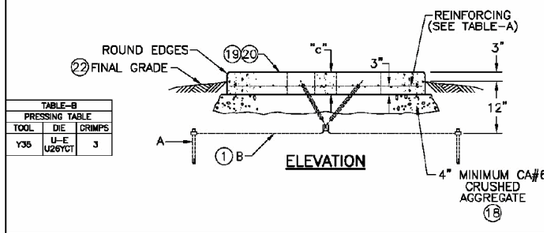


TABLE-B PRESSING TABLE		
TOOL	DIE	CRIMPS
Y36	U-E U20YCT	3

TABLE-A

C5286	TRANSFORMER kVA MIN	TRANSFORMER kVA MAX	DIMENSIONS MIN SEC VOLTAGE	a	b	c	d	e	f	SECONDARY CONDUIT FORMATIONS 3.5" MAX NO. (23)	4"	MAX NO. (23)	REINFORCING (BARS BOTH WAYS)	ESTIMATING DATA REINFORCING BARS (FT)	CONCRETE (CU YD)
.B	45	225	208/120	6'-0"	5'-6"	6"	4"	14"	14"	4		4	#3 BARS 5" C.C.	159	.54
.C	112.5	300	208/120	6'-0"	5'-6"	6"	4"	14"	18"	6		6	#3 BARS 5" C.C.	159	.53
.D	225	500	208/120	7'-0"	6'-6"	6"	4"	18"	18"	9		9	#3 BARS 4" C.C.	259	.74
.E	750	750	208/120	7'-0"	6'-6"	6"	4"	18"	26.5"	16		12	#4 BARS 6" C.C.	174	.68
.F	45	75	480/277	5'-0"	5'-6"	6"	4"	14"	14"	4		4	#2 BARS 4" C.C.	142	.39
.G	112.5	300	480/277	6'-0"	5'-6"	6"	4"	14"	18"	6		6	#3 BARS 5" C.C.	159	.53
.H	225	1000	480/277	8'-0"	7'-0"	7"	4"	18"	18"	9		9	#4 BARS 5" C.C.	266	.94
.J	1500	2500	480/277	8'-6"	8'-6"	8"	4"	18"	26.5"	16		12	#4 BARS 5" C.C.	330	1.64
.K	500	750	4kV	7'-0"	6'-0"	6"	10"	8"	10"	2		2	#4 BARS 5" C.C.	196	.70
.L	1000	2500	4kV	8'-0"	8'-0"	8"	6"	14"	14"	4		4	#4 BARS 5" C.C.	292	1.51

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Exelon. Energy Delivery SYSTEM STANDARD

NOTE:

CONCRETE PAD DETAIL FOR PROPOSED 480/240 V, SINGLE PHASE TRANSFORMER FOR ROADWAY LIGHTING CONTROLLER.

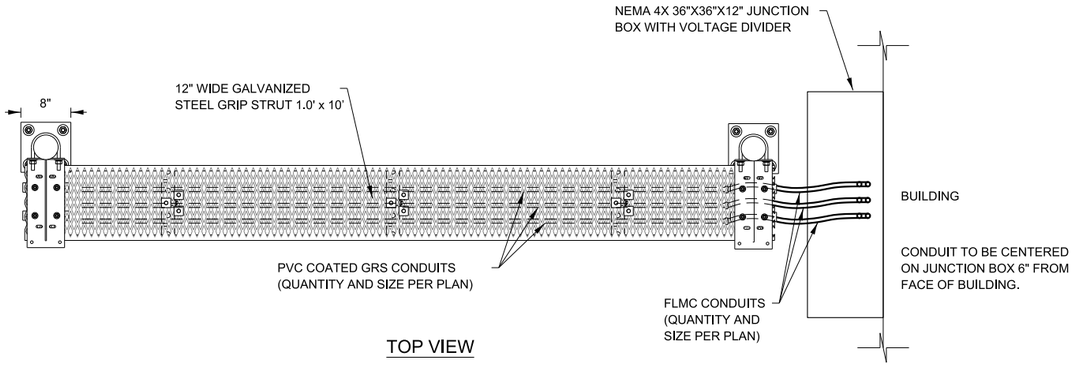
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Illinois Tollway

COMED TRANSFORMER PAD DETAIL

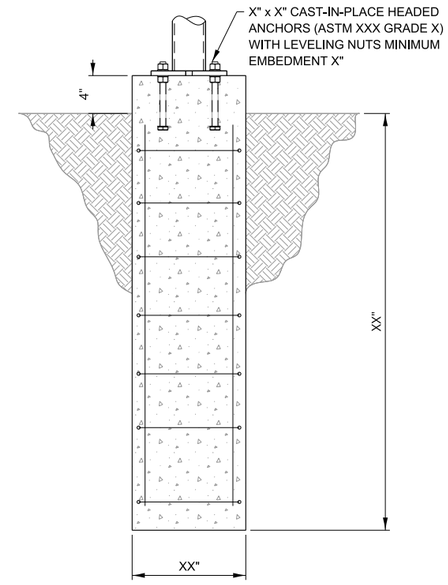
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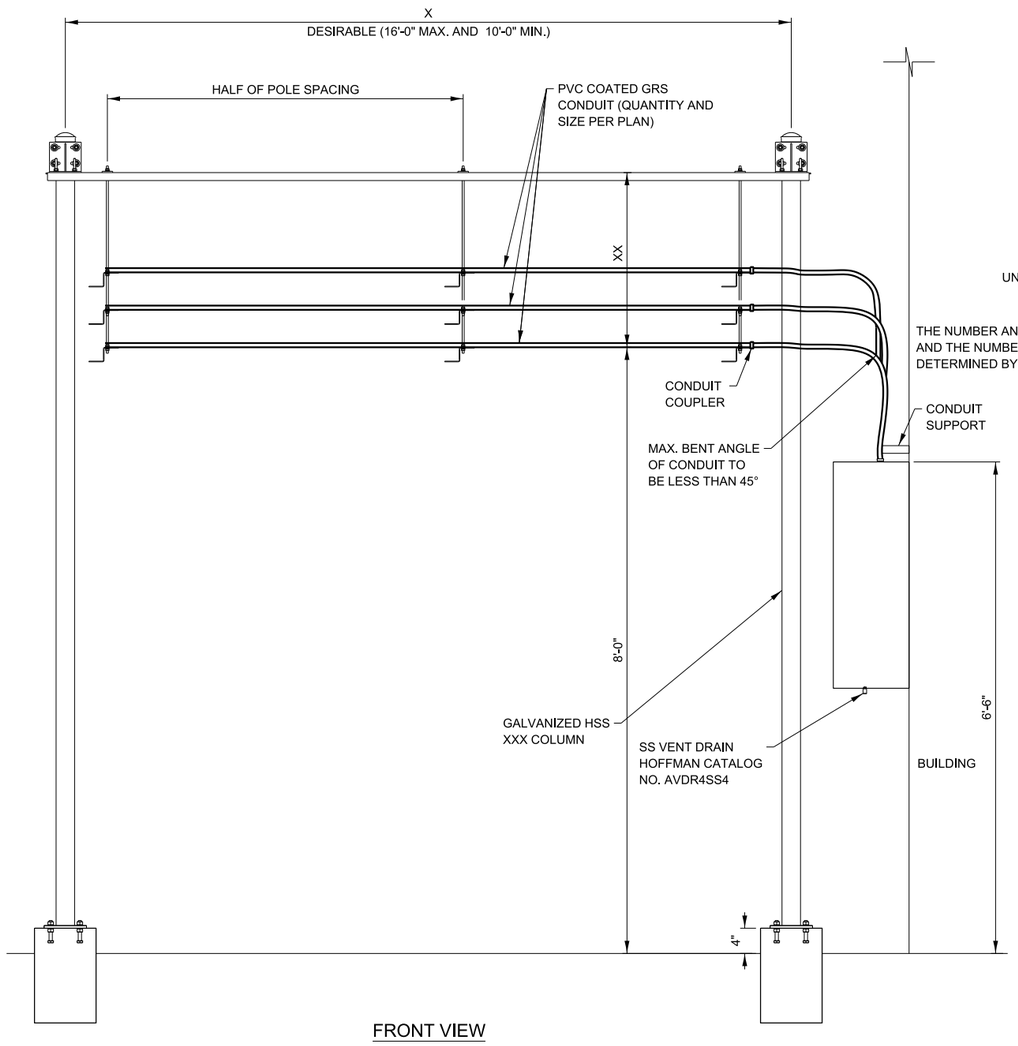
TOP VIEW

NOTES:

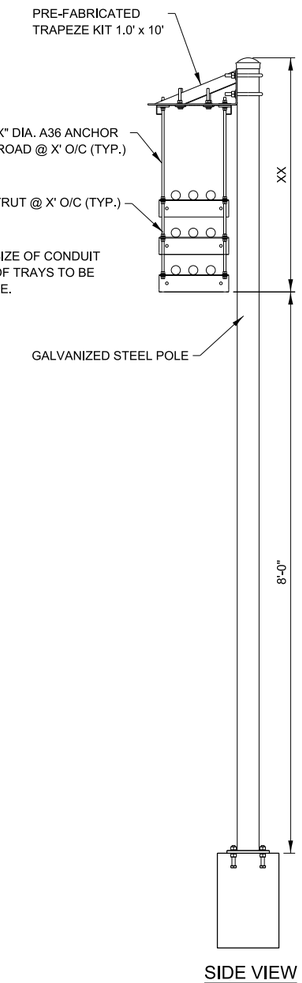
1. INSTALL CONDUIT TRAY PER MANUFACTURERS RECOMMENDATIONS.
2. SECURE CONDUIT TO CABLE TRAY.



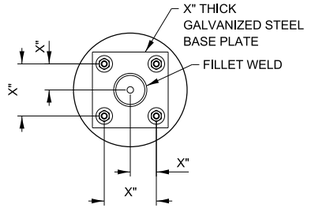
HSS COLUMN FOUNDATION



FRONT VIEW



SIDE VIEW



BASE PLATE LAYOUT

NOTE TO DESIGNER

ALL VALUES DESIGNATED "X" ARE REQUIRED AND SHALL BE PROVIDED BY THE DESIGNER. HSS COLUMN SECTION, FOUNDATION SIZE, AND REINFORCEMENT TO BE DETERMINED AND SHOWN BY DESIGNER.

NOTE TO DESIGNER

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OVERHEAD CONDUIT TRAY

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GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATION ON THE PLANS PRIOR TO CONSTRUCTION.
2. ALL MANUFACTURED ITEMS SHALL BE INSTALLED AND USED IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES.

DESIGN SPECIFICATIONS:

1. ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL, LATEST EDITION.
2. AASHTO LRFD SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINARIES AND TRAFFIC SIGNALS, LATEST EDITION WITH CURRENT INTERIMS.
3. AASHTO LFRD BRIDGE DESIGN SPECIFICATION, LATEST EDITION.
4. ILLINOIS DEPARTMENT OF TRANSPORTATION BRIDGE MANUAL, LATEST EDITION.
5. ILLINOIS TOLLWAY GEOTECHNICAL ENGINEER MANUAL, LATEST EDITION.

DESIGN LOADING:

WIND LOAD CRITERIA:

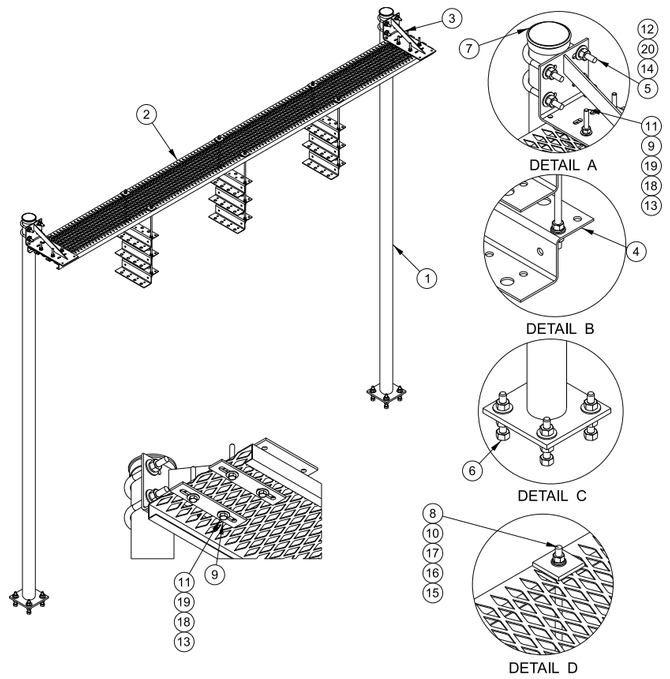
BASIC WIND SPEED:	120 M.P.H.
G:	1.14
I_F (FATIGUE IMPORTANCE FACTOR):	1.0
KZ:	1.0
WIND PRESSURE ON STRUCTURAL AND NON STRUCTURAL COMPONENTS:	62 P.S.F.
ICE LOAD (APPLIED WITH A FACTOR OF 1 FOR STRENGTH I ONLY):	3.0 P.S.F.

EQUIPMENT LOADS:

CONDUIT LOAD:	XXX P.L.F.
MAXIMUM NUMBER OF CONDUITS:	X

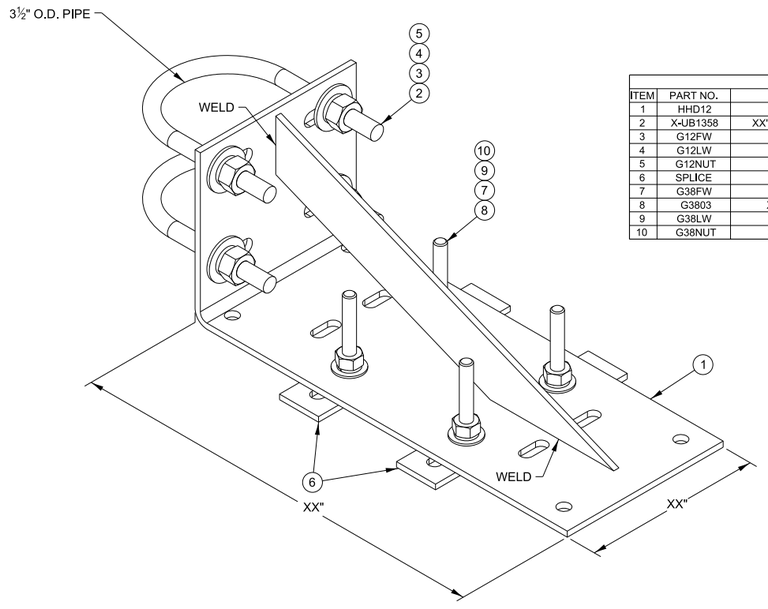
DESIGN STRESSES FOR REINFORCED CONCRETE:

f'c (COMPRESSIVE STRENGTH OF CLASS DS CONCRETE):	4,000 P.S.I
fy (YIELD STRENGTH OF GRADE 60 REINFORCEMENT BARS):	60,000 P.S.I



PARTS LIST		
ITEM	PART NO.	PART DESCRIPTION
1	X-SP126	BASE SHOE PLATE PIPE COLUMN
2	GRS12	12" WIDE GRIP STRUT
3	HHD12	12" CANTILEVER WELDMENT
4	ZB12	⅛" MILL PLATE (Fy=35 Ksi Min)
5	X-UB1358	XX" x XX" x XX" x XX" U-BOLT (HDG.)
6	SWA585	XX" x XX" STAINLESS WEDGE ANCHOR
7	PC312	XX" FENCE POST CAP
8	SS38R-18	XX" x XX" THREADED ROD (STAINLESS STEEL)
9	SPLICE	SPLICE FOR GRIP STRUT
10	SQW38	XX" SQUARE WASHER (GALV.)
11	G3803	XX" x 3" HDG HEX BOLT GR5
12	G12NUT	XX" HDG HEAVY 2H HEX NUT
13	G38NUT	XX" HDG HEAVY 2H HEX NUT
14	G12FW	XX" HDG USS FLATWASHER
15	SS38NUT	XX" SS HEX NUT
16	SS38LW	XX" SS LOCKWASHER
17	SS38FW	XX" STAINLESS FLATWASHER
18	G38LW	XX" HDG LOCKWASHER
19	G38FW	XX" HDG USS FLATWASHER
20	G12LW	XX" HDG LOCKWASHER

12" GRIP-SPAN ICE BRIDGE KITS WITH 2-LEVEL Z-BRACKET TRAPEZE BASE SHOE



PARTS LIST		
ITEM	PART NO.	PART DESCRIPTION
1	HHD12	12" CANTILEVER WELDMENT
2	X-UB1358	XX" x XX" x XX" x XX" U-BOLT (HDG.)
3	G12FW	XX" HDG USS FLATWASHER
4	G12LW	XX" HDG LOCKWASHER
5	G12NUT	XX" HDG HEAVY 2H HEX NUT
6	SPLICE	SPLICE FOR GRIP STRUT
7	G38FW	XX" HDG USS FLATWASHER
8	G3803	XX" x XX" HDG HEX BOLT GR5
9	G38LW	XX" HDG LOCKWASHER
10	G38NUT	XX" HDG HEAVY 2H HEX NUT

12" COMPLETE CANTILEVER KIT

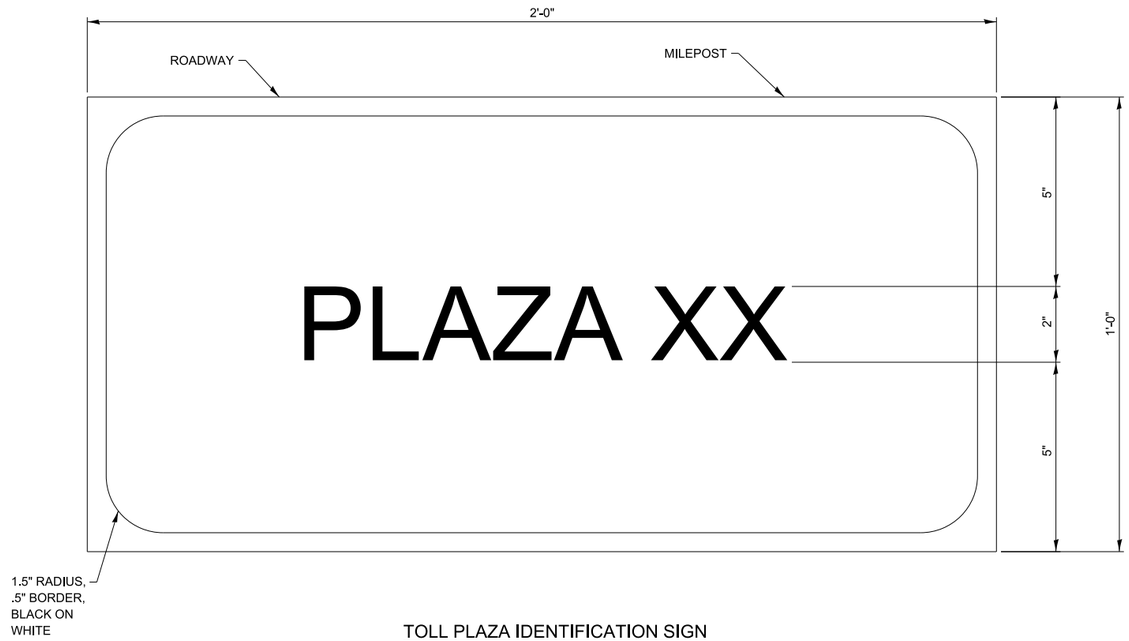
NOTE TO DESIGNER

THICKNESS OF PLATE TO BE SPECIFIED BY DSE.

Illinois Tollway

OVERHEAD CONDUIT TRAY

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TOLL PLAZA IDENTIFICATION SIGN

NOTES:

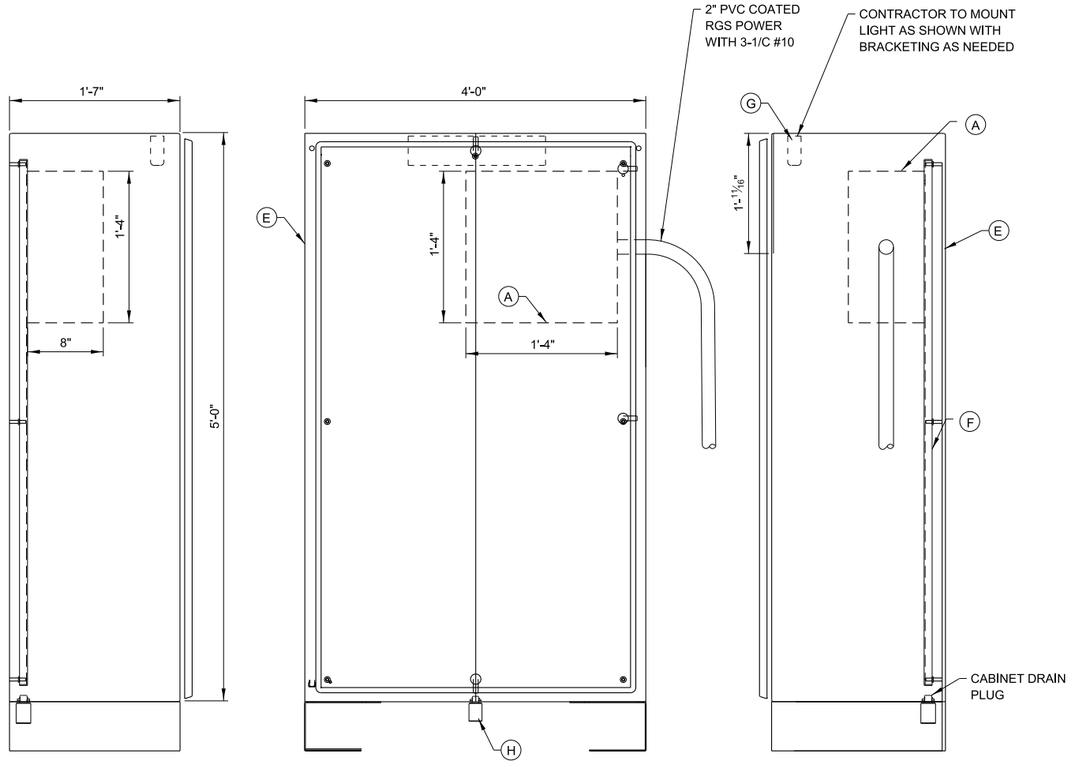
1. IDENTIFICATION SIGN MATERIAL SHALL MEET THE REQUIREMENTS OF ARTICLE 720.02 OF THE STANDARD SPECIFICATIONS.

2. IDENTIFICATION SIGNS SHALL BE MOUNTED ONTO THE BUILDING USING BOLTS AND WASHERS ACCORDING TO ARTICLE 720.04 OF THE STANDARD SPECIFICATIONS.

Illinois Tollway

TOLL PLAZA
IDENTIFICATION SIGN

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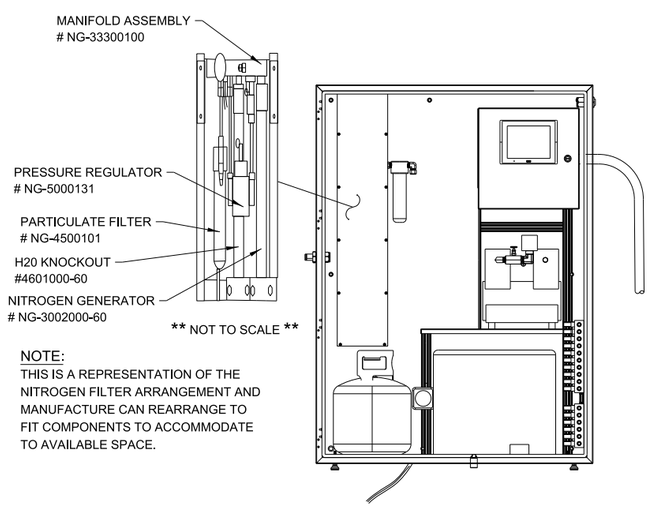


LEFT SIDE VIEW

RIGHT SIDE VIEW

MAIN ENCLOSURE

SCALE: 1 ½"=1'-0"



** NOT TO SCALE **

NOTE:
THIS IS A REPRESENTATION OF THE NITROGEN FILTER ARRANGEMENT AND MANUFACTURE CAN REARRANGE TO FIT COMPONENTS TO ACCOMMODATE TO AVAILABLE SPACE.

FOR COMPLETE ASSEMBLY USE ECD # NS-GEN-SY-Y-0300 (OR APPROVED EQUAL)

VES WASH SYSTEM SINGLE CABINET INSIDE DETAILS

NOT TO SCALE

BILL OF MATERIALS COMPONENTS (OR APPROVED EQUAL)			
MARK NO.	QTY.	SPARE	DESCRIPTION
Ⓐ	1		NEMA 4 STAINLESS STEEL ENCLOSURE - 16"H X 16"W X 8"D (HOFFMAN)
Ⓑ	1		SUBPANEL FOR ENCLOSURE (HOFFMAN CATALOG No. CP3024)
Ⓓ	1		GROUNDING BAR (HOFFMAN CATALOG No. PGS2K) (NOT ILLUSTRATED ON DRAWING)
Ⓔ	1		NEMA 1 ENCLOSURE - 60"H X 48"W X 19"D (HOFFMAN CATALOG No. HN4FM604818S16) WITH MOUNTING BRACKETS (HOFFMAN CAT. No. CMFKSS) FOR OUTDOOR CABINET INSTALLATION: USE NEMA 4X HOFFMAN CABINET OF SAME DIMENSION. THE MANUFACTURER OF THE VES WASH CABINET WILL KNOW WHICH HOFFMAN CABINET MODEL TO USE.
Ⓕ	1		SUBPANEL FOR NEMA 1 ENCLOSURE (HOFFMAN CATALOG No. A49P32N)
Ⓖ	1		FLUORESCENT LIGHT FIXTURE FOR ENCLOSURE WITH 120VAC OUTLET (HOFFMAN CATALOG No. LF120V15) WITH DOOR SWITCH (HOFFMAN CATALOG No. ALFSWD)
Ⓗ	1		SS VENT DRAIN HOFFMAN CATALOG No. AVDR4SS4

NOTES:

1. EXACT OPERATING PRESSURE TO BE DETERMINED.
2. FOR PRODUCT SUBSTITUTIONS SEE THE SPECIFICATIONS.
3. ALL CONDUITS, FITTINGS AND ENTRY POINTS INTO EACH OF THE ENCLOSURES SHALL BE PROPERLY SEALED WITH DUCT SEAL TO PREVENT MOISTURE ENTRY.
4. THIS DETAIL IS APPLICABLE TO VES WASH SYSTEM MAIN ENCLOSURE INSIDE THE BUILDINGS. FOR OUTSIDE INSTALLATION OF MAIN VES WASH SYSTEM ENCLOSURE, USE NEMA 4X ENCLOSURE - 60"H X 36"W X 16"D, NO. WS603616SS, & PAD LOCKING HANDLE KIT.

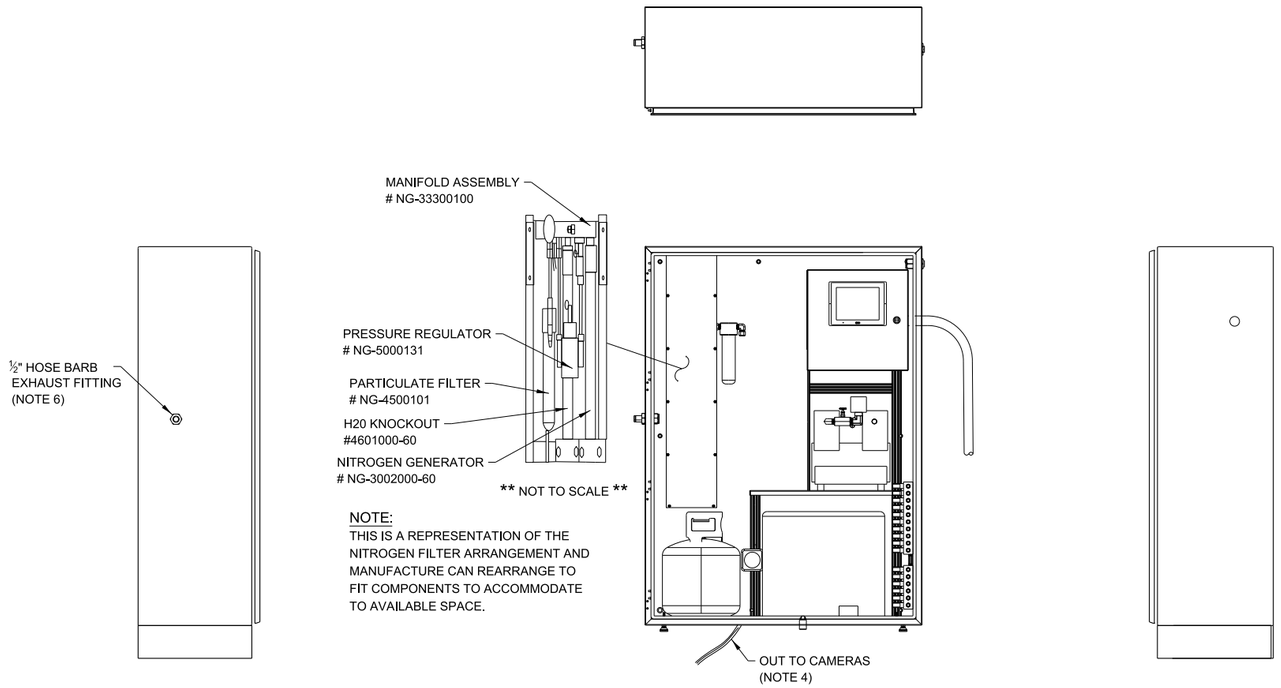
NOTE TO DESIGNER

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Illinois Tollway

VES WASH SYSTEM SINGLE CABINET DETAIL

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VES WASH SYSTEM SINGLE CABINET
INSIDE DETAILS

FOR COMPLETE ASSEMBLY USE ECD # NS-GEN-SY-Y-0300 (OR APPROVED EQUAL)

NOT TO SCALE

MATERIALS LIST			
PART NO.	DESCRIPTION	MANUAL	QUANTITY
NS-GEN-SY-Y-0300	COMPLETE ASSEMBLY	ECD	1
NS-SUB-SY-I-0100	NITROGEN GENERATOR	ECD	1
NG-ECD-00100	REPLACEMENT PARTICULATE FILTER	ECD	1
NG-ECD-00200	NITROGEN VALVE SYSTEM	ECD	1
NG-ECD-00201	LIQUID VALVE SYSTEM	ECD	1
NG-ECD-00300	LIQUID PUMP	ECD	1
NG-ECD-00314	LIQUID TANK	ECD	1
NG-ECD-01101	SYSTEM CONTROL	ECD	1
NG-ECD-00310	PNEUMATIC PUMP	ECD	1
NG-ECD-00311	NITROGEN TANK	ECD	1

NOTES:

1. 20A ,115VAC SERVICE REQUIRED.
2. WILL REQUIRE: LOCATION, IP ADDRESS AND LANE CONFIGURATION.
3. PNEUMATIC FITTINGS TO BE BRASS IN CONSTRUCTION AND MEET SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) SPECIFICATIONS.
4. THE ⅜" NYLON TUBING MAY HAVE TO BE LONGER THAN 100'. TUBING MUST RUN CONTINUOUS FROM THE MANIFOLD VALVES IN THE VES CABINET TO THE CAMERA NOZZLE, WITHOUT ANY INTERMEDIATE SPLICES. CONTRACTOR TO DETERMINE THE ACTUAL LENGTH OF THE TUBING REQUIRED FOR EACH OF THE VES CAMERAS AT THE SITE. THE NYLON TUBES ARE INSIDE OF RGS CONDUIT.
5. ALL CONDUIT FITTINGS AND ENTRY POINTS INTO THE ENCLOSURE SHALL BE PROPERLY SEALED WITH DUCT SEAL TO PREVENT MOISTURE ENTRY.
6. EXHAUST TO FREE AIR.
7. THE VES WASH SYSTEM WITH NITROGEN GENERATOR IS PRODUCED BY ECD COMPANY WITH THE MODEL NUMBER: NS-GEN-SY-Y-0300, AS ASSIGNED BY ECD (OR APPROVED EQUAL MODEL BY THE ILLINOIS TOLLWAY BUSINESS SYSTEMS). CONTRACTOR TO FABRICATE THE VES WASH SINGLE CABINET SYSTEM WITH NITROGEN GENERATOR IN COORDINATION WITH THE SYSTEM VENDOR, TO PROVIDE A COMPLETE FUNCTIONAL SYSTEM, AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL VERIFY WITH THE VENDOR THAT ALL REQUIRED SYSTEM COMPONENTS FIT IN THE MAIN VES WASH CABINET AS SHOWN, IN COMPLIANCE WITH APPLICABLE CODES.
8. CONTRACTOR SHALL VERIFY THE NUMBER OF VES CAMERAS AT EACH INSTALLATION SITE, AS SHOWN ON THE PLANS, AND COORDINATE WITH THE SYSTEM VENDOR TO PROVISION THE VES WASH SYSTEM WITH THE REUQIRED NUMBER OF NITROGEN AND FLUID VALVES AT EACH INSTALLATION SITE.
9. OUTDOOR INSTALLATION WILL REQUIRE OPTIONAL HEATER.

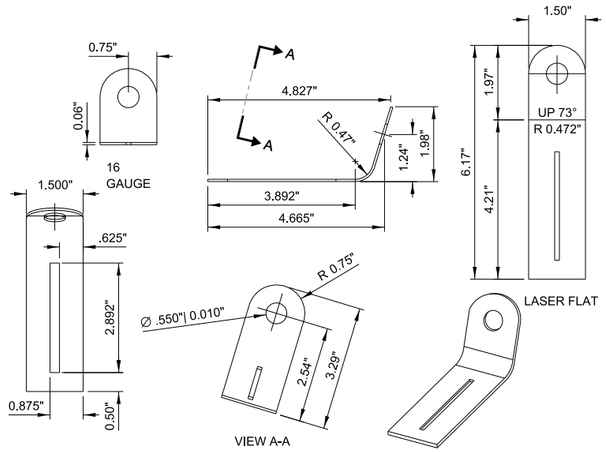
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Illinois Tollway

VES WASH SYSTEM PANEL DETAIL

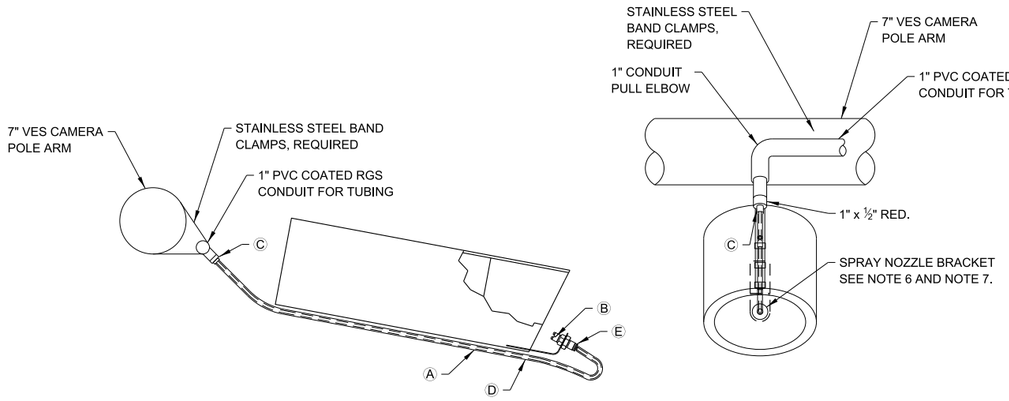
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VES CAMERA NOZZLE BRACKET DETAIL

NOT TO SCALE

BILL OF MATERIAL COMPONENTS (OR APPROVED EQUAL)			
MARK NO.	QTY.	SPARE	DESCRIPTION
Ⓐ	AS REQUIRED PER CONTRACT	2 SPOOLS OF 150 FEET	SILICONE HOSE SLEEVE CONTINUOUS TUBING FROM VES WASH CABINET TO CAMERA. NO SPLICING ALLOWED. McMASTER-CARR CATALOG No. 7453K49
Ⓑ	AS REQUIRED PER CONTRACT	3	SPRAY NOZZLE GRAINGER CATALOG No. 1MDH2
Ⓒ	AS REQUIRED PER CONTRACT	3	MINIATURE CORROSION RESISTANT STRAIN RELIEF HUBBELL CATALOG No. SHC1021CR
Ⓓ	AS REQUIRED PER CONTRACT	3	ADJUSTABLE MOUNTING STRAP McMASTER-CARR CATALOG No. 7572K12 (50 PER PACK)
Ⓔ	AS REQUIRED PER CONTRACT	3	NOZZLE BULKHEAD FITTING (10 PACK) SMC FITTING CATALOG No. KQ2E07-35



NOZZLE DETAIL - VES CAMERA MONOTUBE

NOT TO SCALE

NOTES:

1. CAMERA NOZZLE BRACKET SHALL BE FABRICATED USING 12 GA. STAINLESS STEEL. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR APPROVAL.

2. CAMERA NOZZLE BRACKET SHALL BE ADJUSTABLE. STAINLESS STEEL NUT-BOLT COMBINATION SHALL BE USED FOR MOUNTING THE CAMERA NOZZLE BRACKET TO THE CAMERA LENS HOUSING. CONTRACTOR TO VERIFY THAT THE MOUNTING HARDWARE SECURELY HOLDS THE BRACKET BUT ALSO ALLOWS EASY ADJUSTMENT. CONTRACTOR SHALL SUBMIT INSTALLATION DRAWINGS CLEARLY IDENTIFYING PART NUMBERS USED FOR MOUNTING HARDWARE. INSTALLATION DRAWINGS SHALL ALSO INDICATE THE POSITION OF THE MOUNTING HARDWARE ON THE CAMERA NOZZLE BRACKET. THE INSTALLATION DRAWINGS SHALL BE APPROVED BY THE ILLINOIS TOLLWAY BEFORE INSTALLATION IN THE FIELD.

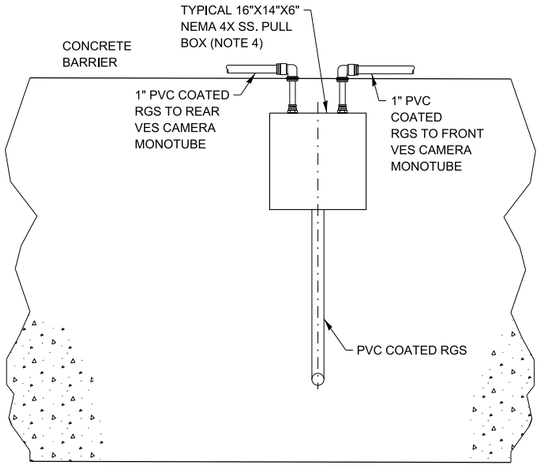
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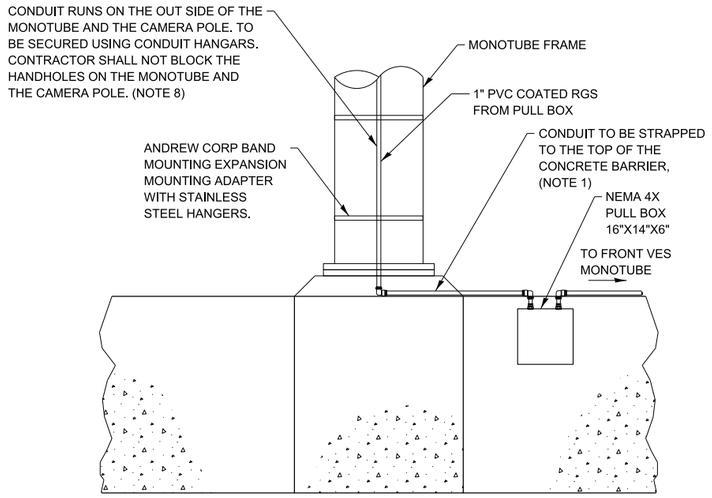
VES WASH SYSTEM FLOW DIAGRAM AND SYSTEM

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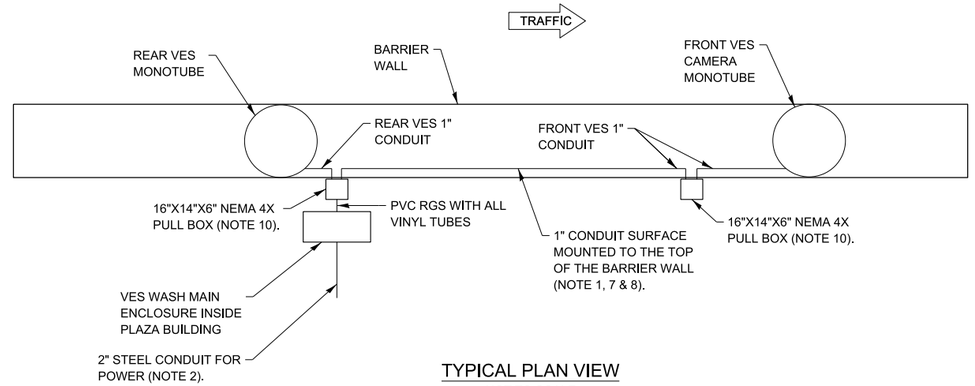


PARTIAL SECTION A-A

NOT TO SCALE

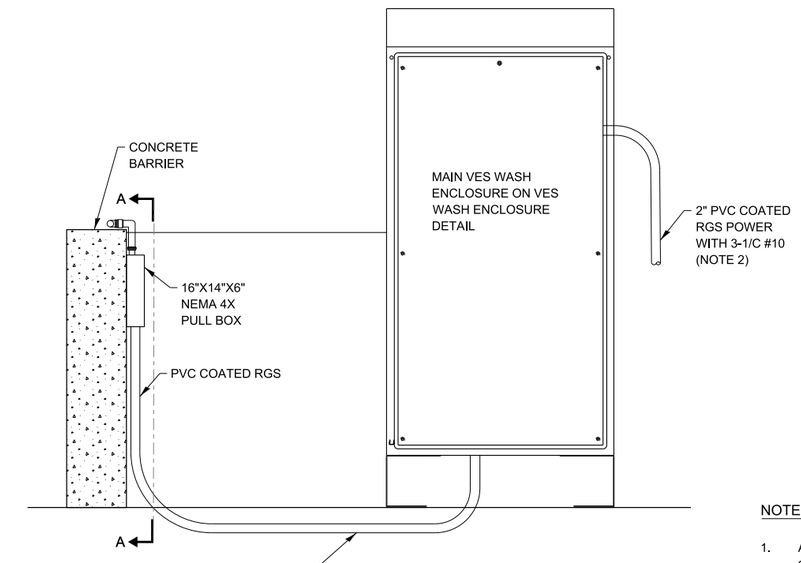


COLLECTION STRUCTURE CONDUIT DETAIL



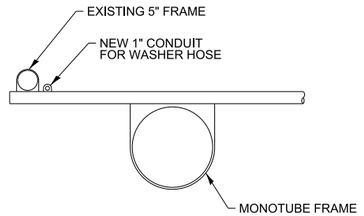
TYPICAL PLAN VIEW

NOT TO SCALE



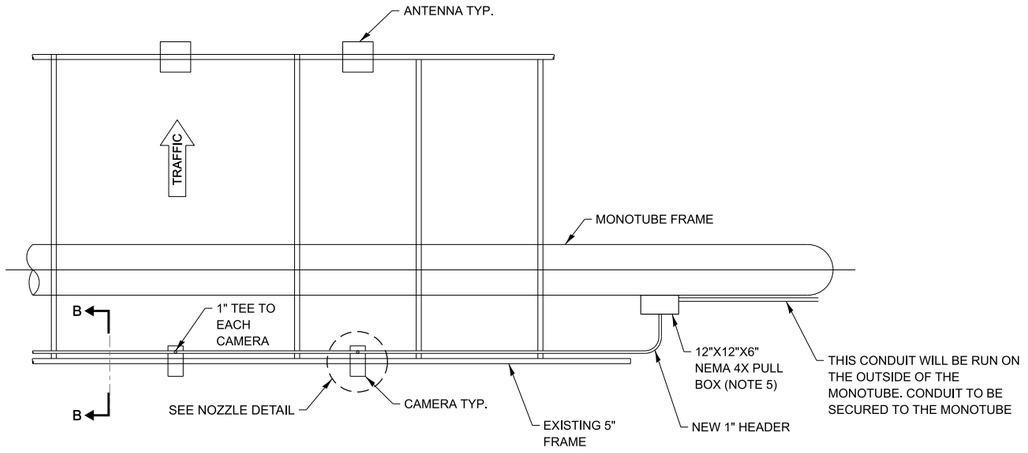
MAIN ENCLOSURE MOUNTING DETAIL (OUTDOOR INSTALLATION ONLY)

NOT TO SCALE



SECTION B-B

NOT TO SCALE



OVERHEAD TOLL LAYOUT

NOTE TO DESIGNER

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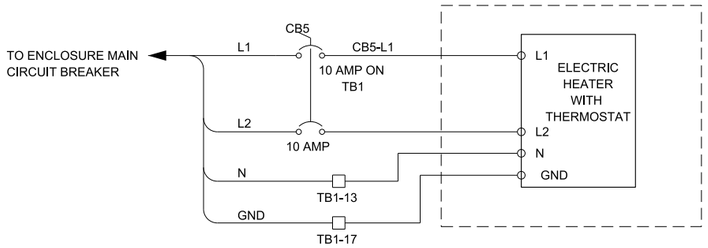
NOTES:

1. ALL CONDUIT ROUTING AND EQUIPMENT PLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ROUTING AND PLACEMENT DEPICTED IS SUGGESTED ONLY. ACTUAL ENCLOSURE LOCATION WILL VARY BASED ON SITE CONDITIONS. THE CONTRACTOR SHALL COORDINATE EQUIPMENT LOCATION AND CONDUIT ROUTING WITH CONSTRUCTION ENGINEER AND ILLINOIS TOLLWAY ENGINEER.
2. THE POWER CONDUIT WILL RUN TO THE POWER PANEL INSIDE THE PLAZA BUILDING. THE NORMAL BREAKER PANEL WILL BE UTILIZED FOR THE VES WASH POWER SOURCE.
3. UNLESS OTHERWISE NOTED ALL CONDUIT IS PVC COATED RGS.
4. ONE (1) NEMA 4X 12"X12"X6" ENCLOSURE WILL BE PLACED ON THE REAR AND FRONT VES CAMERA MONOTUBE AND ONE (1) NEMA 4X 16"X14"X8" WILL BE PLACED ON THE BARRIER WALL AT EACH AET ZONE.
5. MONOTUBE MOUNTED NEMA 4X PULL BOXES LOCATION TO BE DETERMINED IN FIELD. PULL BOX TO BE SECURELY FASTENED TO THE CONCRETE BARRIER. AT LEAST 1' OF SPOOLED UP VINYL TUBING FOR EACH CAMERA WILL BE PLACED IN THE MONOTUBE PULL BOXES.
6. NOT USED.
7. CONDUITS FOR SPRAY TUBING SHALL BE SEALED ON BOTH ENDS TO PREVENT WATER FROM PENETRATING.
8. CONTRACTOR SHALL PROVIDE STRAIN RELIEF FOR WASHER TUBING IN POLES/MONOTUBES.
9. FINAL POSITION AND NUMBER OF VES CAMERAS INSTALLED TO BE DETERMINED IN THE FIELD. NUMBER OF REAR VES CAMERAS SHOWN IS FOR ILLUSTRATION PURPOSES ONLY.
10. 16"x14"x6" NEMA 4X PULL BOXES FOR THE REAR AND FRONT VES CAMERA MONOTUBE SHALL BE SURFACE MOUNTED ON THE RIGHT SHOULDER BARRIER WALL, AWAY FROM TRAFFIC.
11. ALL CONDUITS, FITTINGS AND PENETRATIONS INTO EACH OF THE ENCLOSURES IN THE SYSTEM SHALL BE PROPERLY SEALED WITH ELECTRICAL PUTTY OR OTHER APPROVED SEALING METHODS TO PREVENT MOISTURE AND RODENT ENTRY.
12. CONTRACTOR MUST VERIFY THAT THERE SHALL BE SUFFICIENT ROOM FOR CABINET DOOR TO OPEN.

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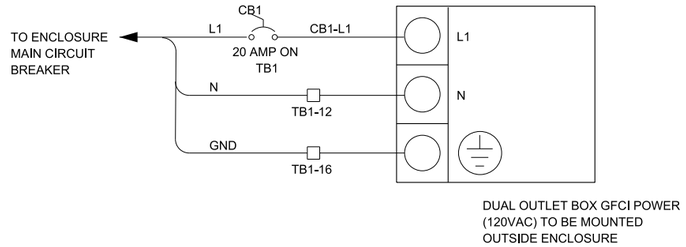
VES WASH SYSTEM SUGGESTED CONDUIT ROUTING

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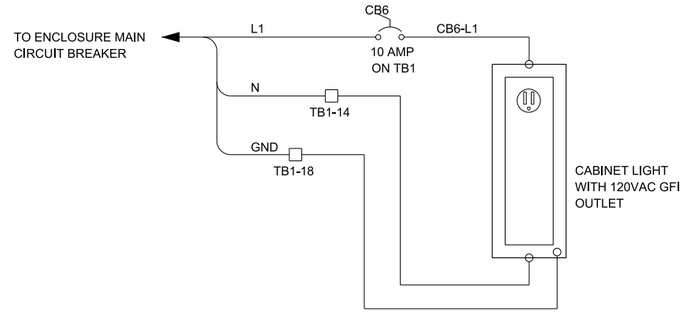


ELECTRIC HEATER WITH THERMOSTAT
(OUTDOOR INSTALLATION ONLY)

NOTE 4



ELECTRICAL DUAL OUTLET GFCI 20A



CABINET LIGHTING AND GFI OUTLET

NOTES:

1. ALL CABLING ON THIS DRAWING IS #12 AWG
2. MAIN BREAKER IS 25A. ILLUSTRATED ON VES WASH PANEL DETAIL ITEM U . LOCATED ON TOP DIN RAIL.
3. THREE 1-C #10 CABLES WILL BE ROUTED FROM THE MDP TO THE VES POWER WASH ENCLOSURE. THE POWER FEED WILL BE INITIATED FROM THE NORMAL BREAKER PANEL. THE CONTRACTOR TO SUPPLY AND INSTALL A 30A BREAKER IN THE MDP PANEL. POWER IS 120VAC WITH A HOT, NEUTRAL AND GROUND. THIS POWER FEED WILL THEN TERMINATE ON THE MAIN 25A BREAKER IN THE VES POWER WASH ENCLOSURE.
4. TO BE USED FOR OUTDOOR INSTALLATION ONLY

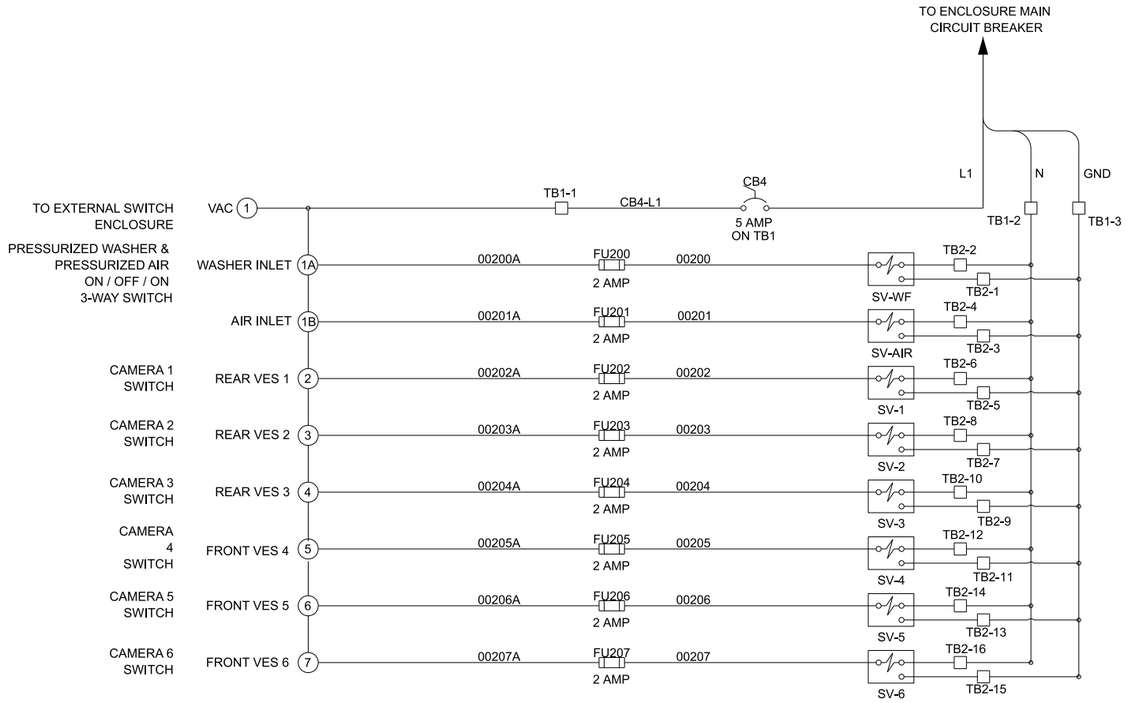
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

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VES WASH SYSTEM MISCELLANEOUS POWER WIRING DIAGRAM

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SWITCH CONFIGURATION

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL 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.

NOTES:

1. SCHEMATIC ILLUSTRATES ONE (1) LANE PLAZA WITH SIX (6) VES CAMERAS INSTALLED (3 REAR AND 3 FRONT VES).

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VES WASH SYSTEM CONTROL SWITCH SCHEMATIC

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GENERAL NOTES:

1. ALL EXPOSED CONCRETE EDGES SHALL HAVE A ¾" x 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE. CHAMFER ON VERTICAL EDGES SHALL BE CONTINUED A MINIMUM OF ONE FOOT BELOW FINISHED GROUND LEVEL.

REINFORCEMENT BARS:

1. REINFORCEMENT BARS, INCLUDING REINFORCEMENT BARS, EPOXY-COATED SHALL CONFORM TO THE REQUIREMENTS OF IDOT STANDARD SPECIFICATIONS SECTION 508 AND ARTICLE 1006.10.

2. REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY-COATED.

3. REINFORCEMENT BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".

4. REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT-TO-OUT.

5. COVER FROM THE FACE OF CONCRETE TO FACE OF REINFORCEMENT BARS SHALL BE 3" FOR SURFACES FORMED AGAINST EARTH AND 2" FOR ALL OTHER SURFACES UNLESS OTHERWISE SHOWN.

CONSTRUCTION SPECIFICATIONS:

1. ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS ISSUED MARCH, 2023 TO THE ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

2. ILLINOIS DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS ADOPTED JANUARY 1, 2023.

3. ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED JANUARY 1, 2022.

DESIGN LOADING:

LIVE LOAD, CONTROLLING CASE OF THE FOLLOWING:
100 P.S.F.
2,000 LB. CONCENTRATED FORCE OR
KNOWN LOADING PROVIDED BY ITS
SNOW LOAD: 50 P.S.F.
WIND SPEED: 120 M.P.H. APPLIED TO BUILDING WALLS, PER ASCE 7-16
DEAD LOAD: 30,000 POUNDS (12'x30' BUILDING) OR 20,000 POUNDS (12'x20' BUILDING) SELF WEIGHT OF SLAB

DESIGN STRESSES FOR REINFORCED CONCRETE:

f'c = COMPRESSIVE STRENGTH OF CONCRETE (CLASS SI) = 3,500 P.S.I.
fy = YIELD STRENGTH OF REINFORCEMENT BARS (GRADE 60) = 60,000 P.S.I.

DESIGN SPECIFICATIONS:

1. ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL ISSUED MARCH, 2023.

2. INTERNATIONAL BUILDING CODE, 2021.

3. ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES, 2017.

4. ACI 318-19 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2022.

5. ILLINOIS DEPARTMENT OF TRANSPORTATION BRIDGE MANUAL, JANUARY 2023.

6. ILLINOIS TOLLWAY GEOTECHNICAL ENGINEER MANUAL DATED MARCH 2022.

NOTE TO DESIGNER

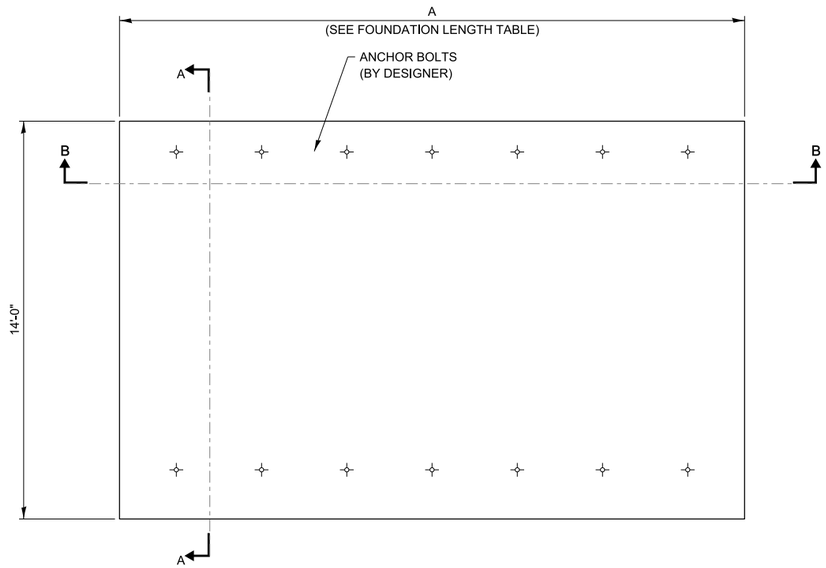
ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

THIS DRAWING IS A CONCEPT FOUNDATION FROM A BUILDING MANUFACTURER. THE FOUNDATION MUST HAVE A FLAT TOP SLAB AS SHOWN IN THE DRAWING TO SUPPORT THE BUILDING FRAME.

THE DESIGNER SHALL DESIGN THE TOP SLAB, FOOTERS, WALLS AND REINFORCING DETAILS AS NECESSARY TO SUPPORT THE BUILDING AND MEET LOCAL CODES.

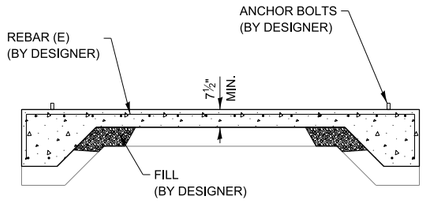
LOADS SHOWN ARE MINIMUM. IF ACTUAL LOADS ARE LARGER, REPLACEMENT MINIMUM LOADS SHOWN.

THE DESIGN IS BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 2,000 P.S.F.

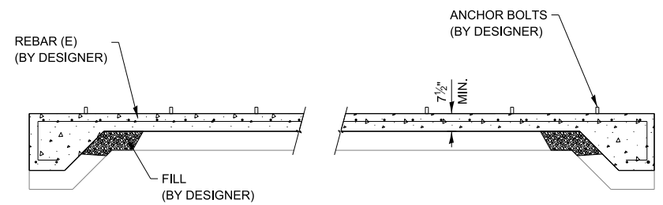


PLAN VIEW

FOUNDATION LENGTH TABLE	
TOLL PLAZA BUILDING TYPE	DIMENSION
MAIN TOLL PLAZA BUILDING WITH GENERATOR	A = 32'
REMOTE TOLL PLAZA BUILDING WITHOUT GENERATOR	A = 22'



SECTION A-A



SECTION B-B

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PLAZA CONTROL BUILDING CONCRETE FOUNDATION

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