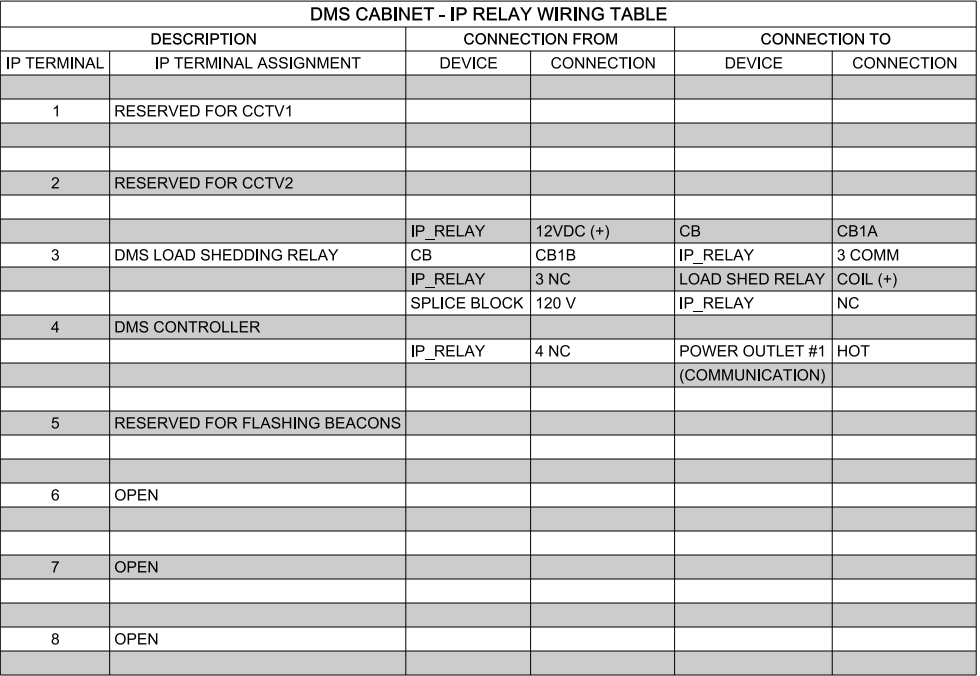


Illinois Tollway Base Sheet Revisions

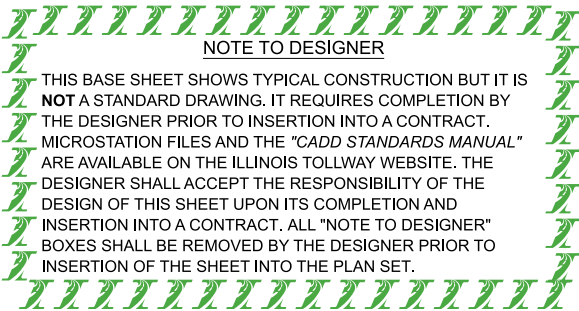
Section M	Base Sheet Drawings		
	Drawing	Modification Summary	Effective: 03-01-2025
	Dynamic Message Sign (ITS)-Series 1100		
	M-ITS-1101	DMS Walk-In Site Grounding Plan	
		Note 2 revised to add the word "overhead" before the word "structure"	
	M-ITS-1102	DMS Walk-In Typical Site Grounding Detail	
		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	

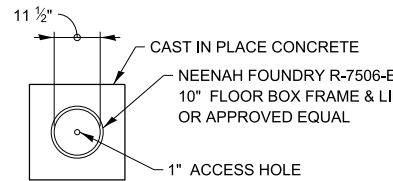
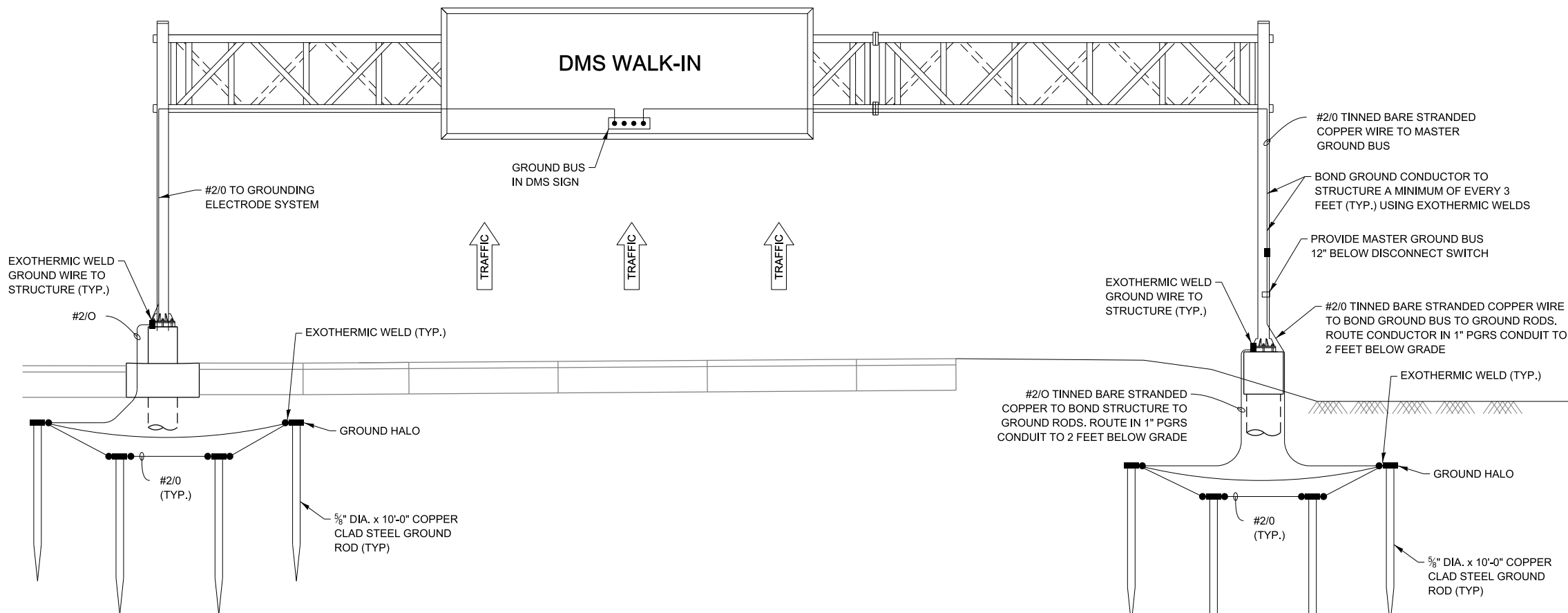
New Sheet

Retired Standard

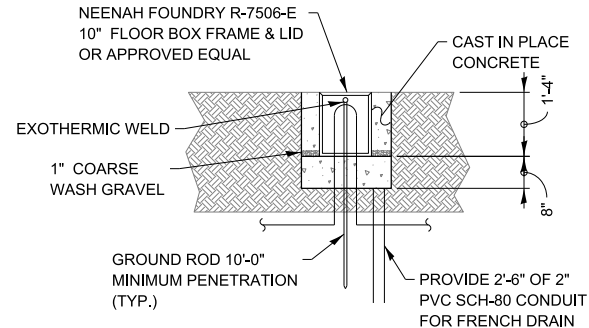


1. FURNISH AND INSTALL LOCKABLE SERVICE DISCONNECT AT PROPOSED STRUCTURE.
2. 10KVA, 480V/120/240V SINGLE PHASE TRANSFORMER SHALL BE MOUNTED ABOVE DISCONNECT.
3. THIS IS A DIAGRAMMATIC SCHEMATIC, ALL BREAKERS, TRANSFORMER LOAD CENTER SHALL BE SIZED AND WIRED AS PER MANUFACTURER RECOMMENDATIONS.
4. NEUTRAL 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.

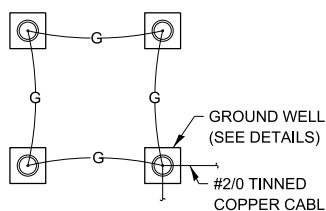




GROUND WELL PLAN DETAIL
(NOT TO SCALE, NOTE 3)



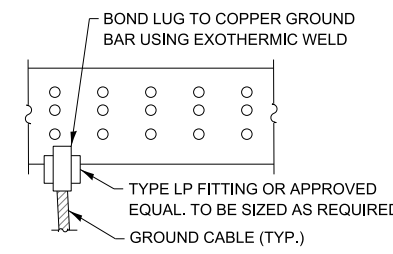
GROUND WELL ELEVATION DETAIL
(NOT TO SCALE, NOTE 3)



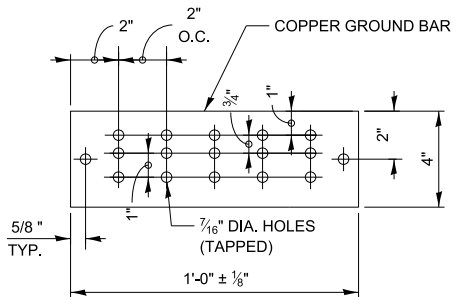
GROUND HALO DETAIL
N.T.S.

NOTES:

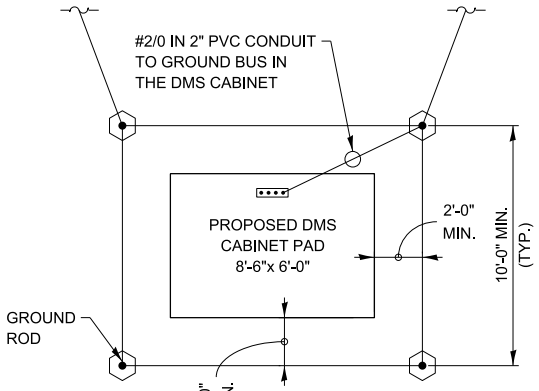
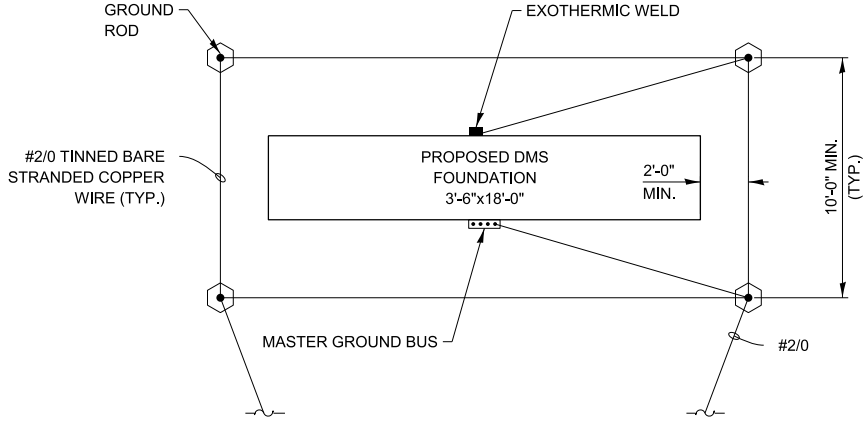
1. GROUNDING SYSTEM SHALL BE PLACED WITHIN ILLINOIS TOLLWAY RIGHT-OF-WAY.
2. GROUND MOUNTED CONTROL CABINET SHALL BE PLACED UPSTREAM OF THE OVERHEAD STRUCTURE AT THE LOCATION SHOWN ON THE PLAN VIEWS.
3. INSTALL MARKER TAPE DIRECTLY ABOVE GROUNDING ELECTRODE CONDUCTORS.
4. THE COST OF ALL MATERIALS, ALL 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)



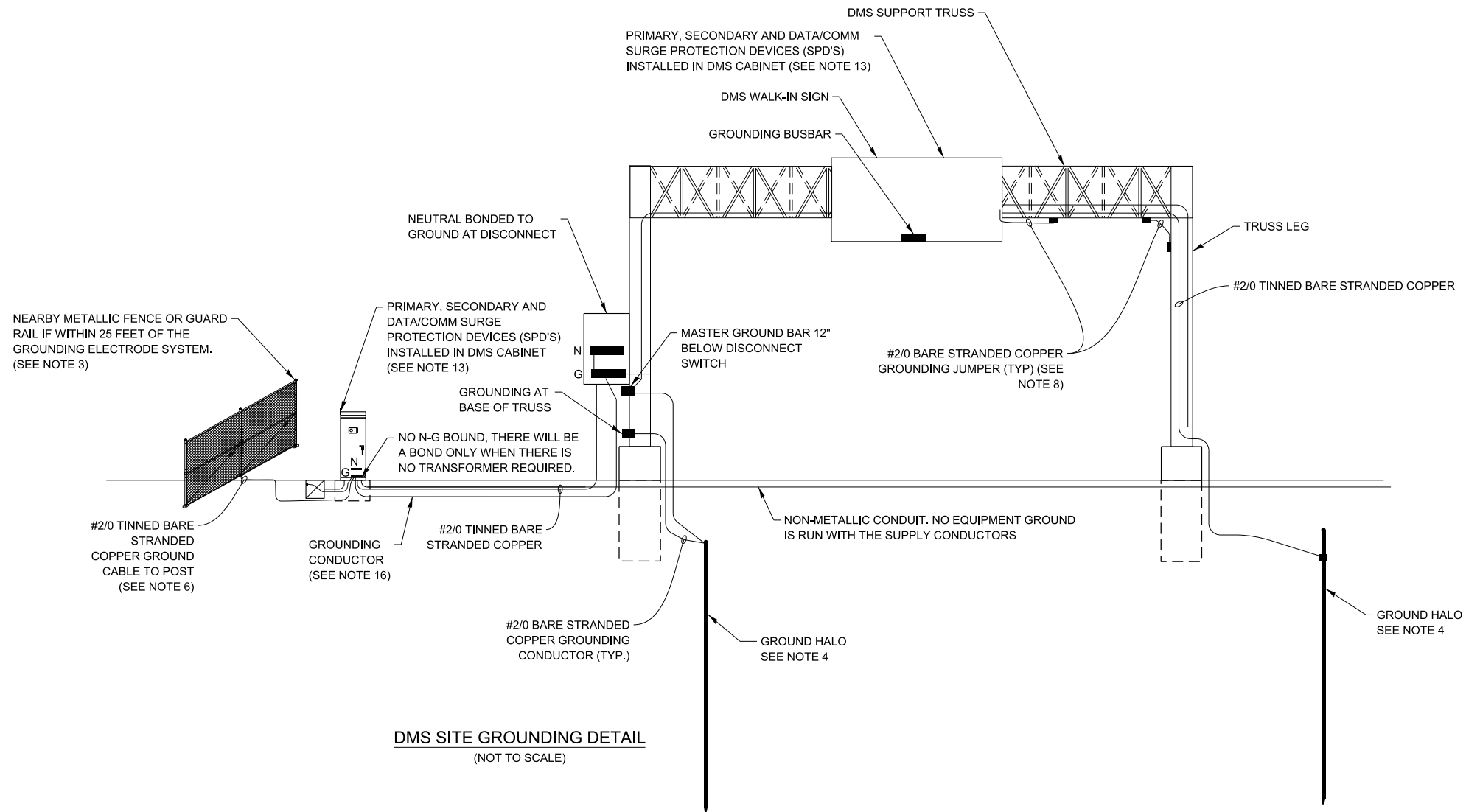
GROUNDING SCHEMATIC
(NOT TO SCALE)

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.



DMS WALK-IN SITE GROUNDING PLAN



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.

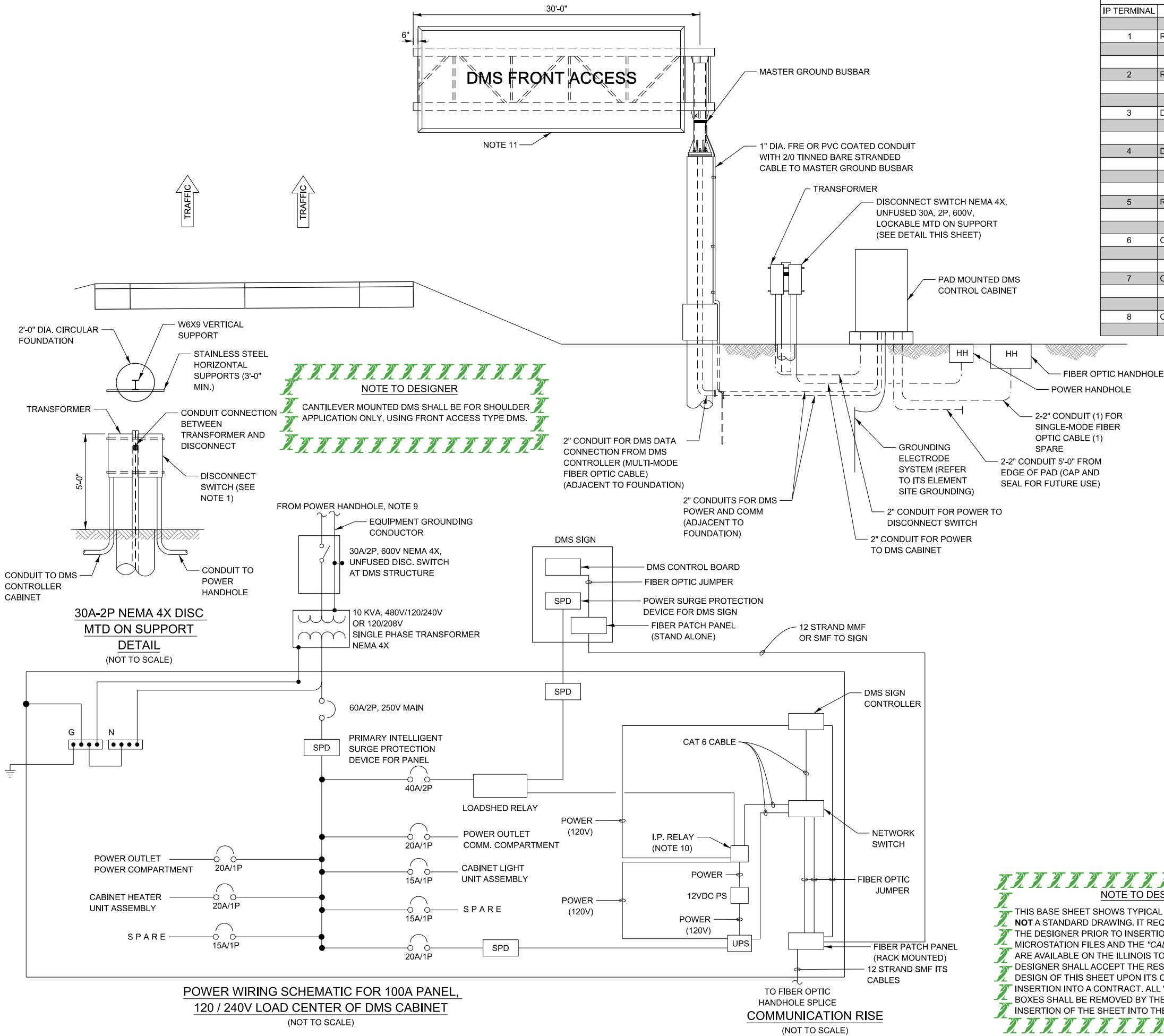
NOTE TO DESIGNER

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.



DMS WALK-IN TYPICAL SITE GROUNDING DETAIL

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:

- FURNISH AND INSTALL SERVICE DISCONNECT ON W6X9 SUPPORT.
- 10KVA, 480V/120/240V SINGLE PHASE TRANSFORMER.
- THIS IS A DIAGRAMMATIC SCHEMATIC. ALL BREAKERS, TRANSFORMER LOAD CENTER SHALL BE SIZED AND WIRED AS PER MANUFACTURER RECOMMENDATIONS.
- ENTIRE COMPLETED SYSTEM SHALL BE GROUNDING AND BONDED IN ACCORDANCE WITH MOTOROLA R56 MANUAL AND THE APPLICABLE ARTICLES OF SECTION 250 OF THE NATIONAL ELECTRICAL CODE.
- 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.
- MOUNT CLAMPS ON 5'-0" ON CENTER MOUNTING. HARDWARE SHALL BE USED AS PER CONDUIT MANUFACTURER RECOMMENDATION.
- CONTRACTOR SHALL SUPPLY AND INSTALL CABLE REDUCER LUGS WHERE SIZE OF CABLE ENTERING THE DISCONNECT IS MORE THAN RECOMMENDED SIZE DUE TO VOLTAGE DROP.
- ALL ELECTRICAL WORK FOR DMS FRONT ACCESS SHALL BE PAID UNDER PAY ITEM JT132622 - DMS ELECTRICAL WORK - FRONT ACCESS.
- THIS SCHEMATIC IS FOR GUIDANCE ONLY. CONTRACTOR SHALL WIRE THE DMS CABINET AS PER MANUFACTURER RECOMMENDATIONS AND INDUSTRY STANDARDS.
- THE COM (COMMON) CONTACT AND NC (NORMALLY CLOSED) CONTACT ON RELAY CONTACTS OF DIN RELAY SHALL FOLLOW THE TABLE ABOVE.
- REFER TO ILLINOIS TOLLWAY STANDARD DRAWING F4 FOR OVERHEAD SIGN STRUCTURE CANTILEVER TYPE STRUCTURE DETAILS.
- 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.
- FOR THE DISCONNECT SWITCH, HORIZONTAL SUPPORT SHALL BE SIZED TO ALLOW CONDUITS TO VERTICALLY DROP OUTSIDE OF THE FOUNDATION WITHOUT BENDS. 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.



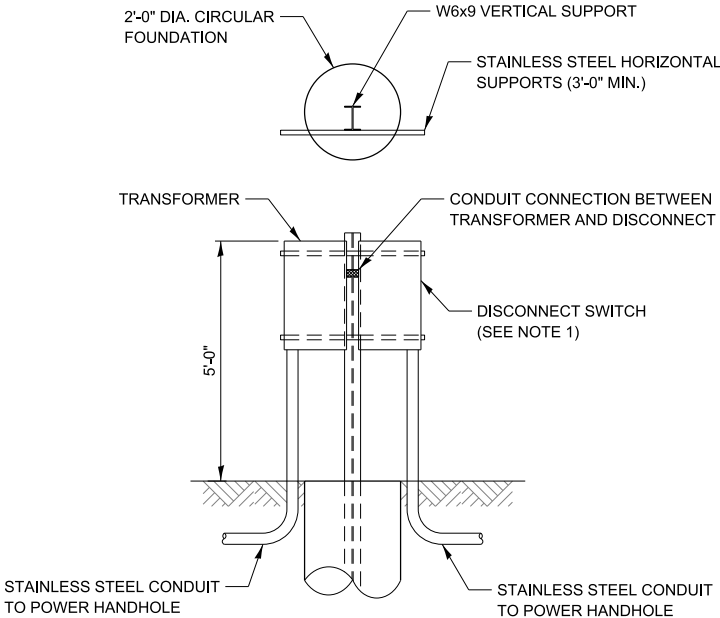
DMS FRONT ACCESS - CANTILEVER ELECTRICAL SCHEMATIC

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				
3	DMS LOAD SHEDDING RELAY	IP_RELAY	12VDC (+)	CB	CB1A
		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				

NOTES:

- FURNISH AND INSTALL SERVICE DISCONNECT ON W6X9 SUPPORT.
- 10KVA, 480V/120/240V SINGLE PHASE TRANSFORMER.
- THIS IS A DIAGRAMMATIC SCHEMATIC, ALL BREAKERS, TRANSFORMER LOAD CENTER SHALL BE SIZED AND WIRED AS PER MANUFACTURER RECOMMENDATIONS.
- ENTIRE COMPLETED SYSTEM SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF NFPA 70 (NATIONAL ELECTRIC CODE) SECTION 250.
- 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.
- MOUNT CLAMPS ON 5'-0" ON CENTER MOUNTING. HARDWARE SHALL BE USED AS PER CONDUIT MANUFACTURER RECOMMENDATION.
- CONTRACTOR SHALL SUPPLY AND INSTALL CABLE REDUCER LUGS WHERE SIZE OF CABLE ENTERING THE DISCONNECT IS MORE THAN RECOMMENDED SIZE DUE TO VOLTAGE DROP.
- ALL ELECTRICAL WORK FOR DMS TYPE 2 SHALL BE PAID UNDER PAY ITEM JT132622 - DMS ELECTRICAL WORK - TYPE 2.
- THIS SCHEMATIC IS FOR GUIDANCE ONLY. CONTRACTOR SHALL WIRE THE DMS CABINET AS PER MANUFACTURER RECOMMENDATIONS AND INDUSTRY STANDARDS.
- THE COM (COMMON) CONTACT AND NC (NORMALLY CLOSED) CONTACT ON RELAY CONTACTS OF DIN RELAY SHALL FOLLOW THE TABLE ABOVE.
- REFER TO ILLINOIS TOLLWAY STANDARD DRAWING F14 FOR OVERHEAD SIGN STRUCTURE BUTTERFLY TYPE STRUCTURE DETAILS.
- FOR THE DISCONNECT SWITCH, HORIZONTAL SUPPORT SHALL BE SIZED TO ALLOW CONDUITS TO VERTICALLY DROP OUTSIDE OF THE FOUNDATION WITHOUT BENDS.
- 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.

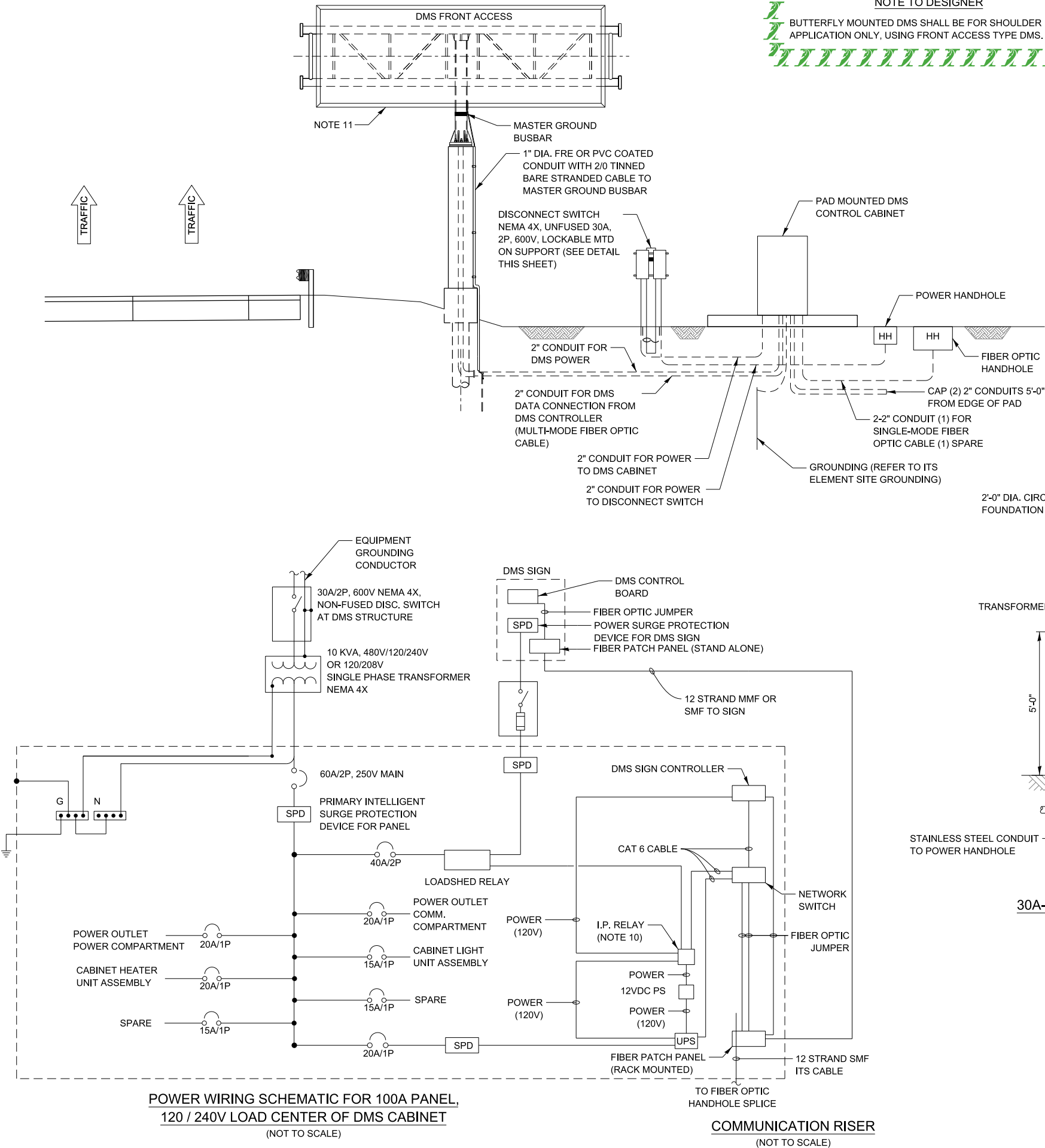


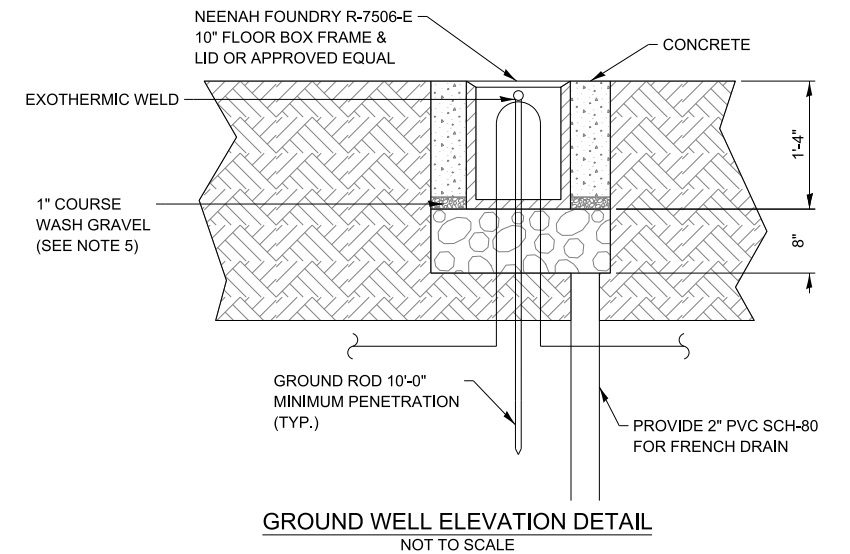
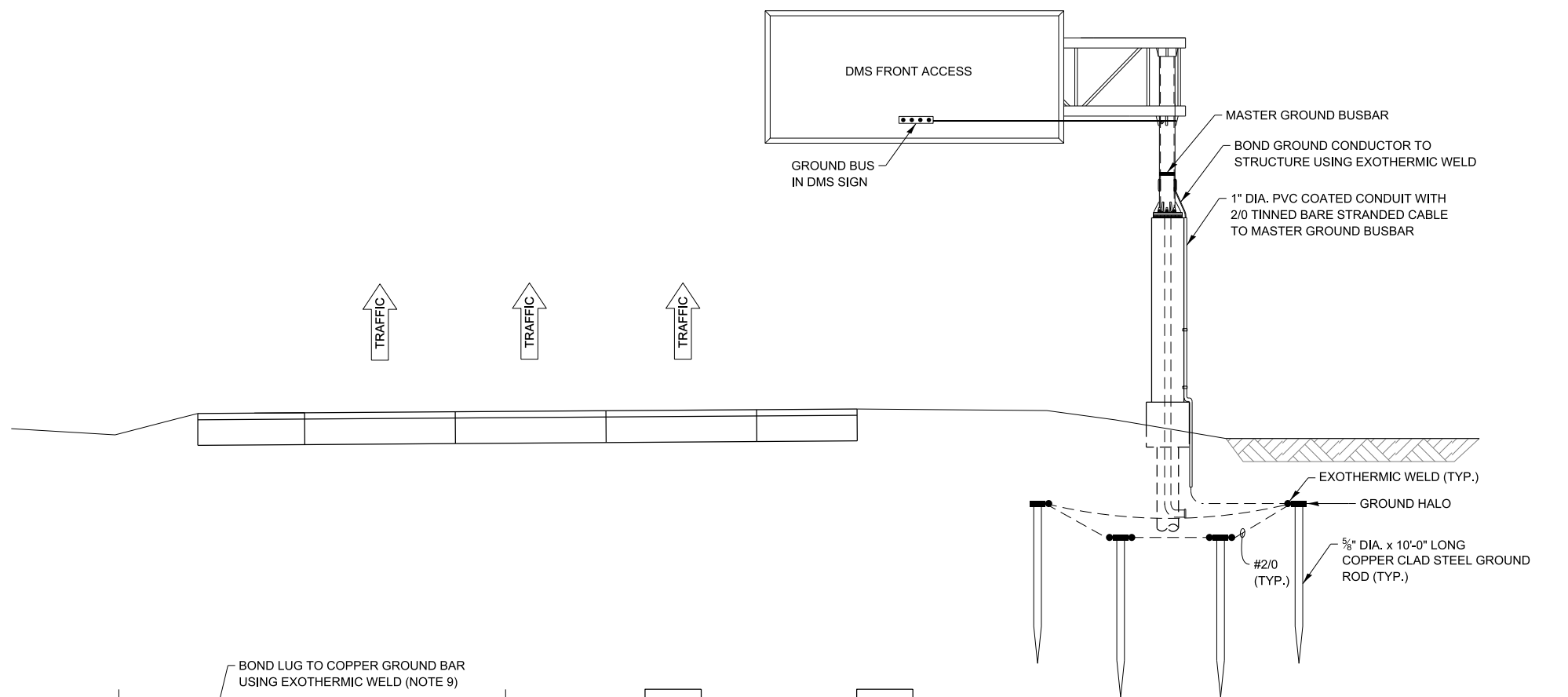
30A-2P NEMA 4X DISC MTD ON SUPPORT DETAIL

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.



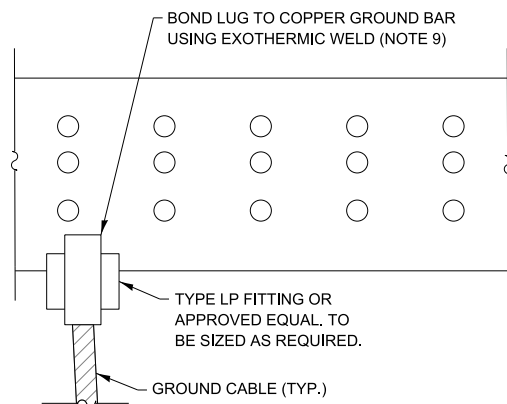
DMS FRONT ACCESS-BUTTERFLY ELECTRICAL SCHEMATIC



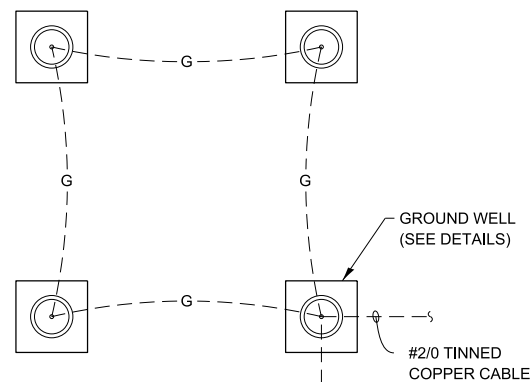


NOTES:

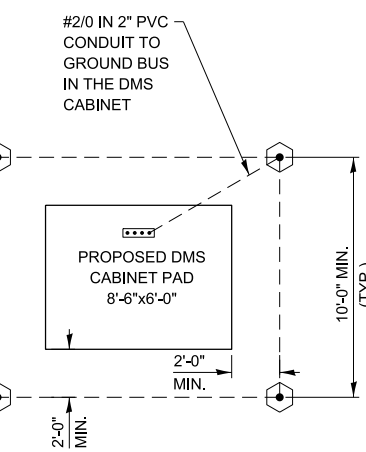
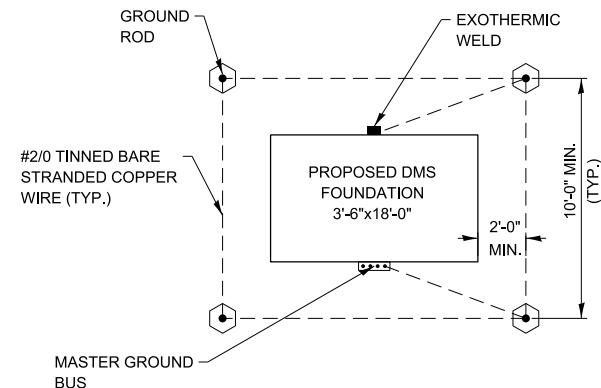
1. GROUNDING SYSTEM SHALL BE PLACED WITHIN ILLINOIS TOLLWAY RIGHT-OF-WAY.
2. GROUND MOUNTED CONTROL CABINET SHALL BE PLACED UP STREAM OF THE STRUCTURE AT THE LOCATION SHOWN ON THE PLAN VIEW.
3. INSTALL MARKER TAPE DIRECTLY ABOVE GROUNDING ELECTRODES AND CONDUCTORS.
4. THE COST OF ALL MATERIALS, ALL GROUND 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.



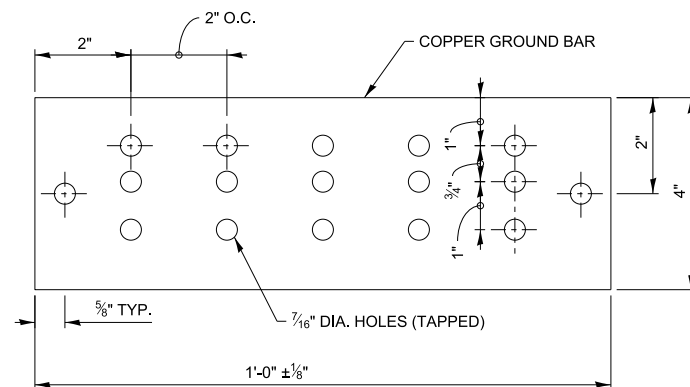
MASTER GROUND BUSBAR CONNECTION DETAIL
NOT TO SCALE



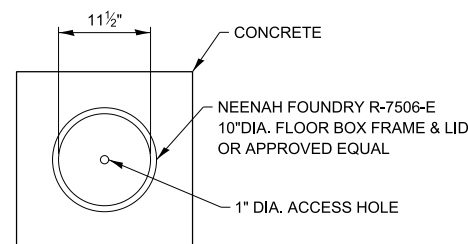
GROUND HALO DETAIL
NOT TO SCALE



GROUNDING SCHEMATIC
NOT TO SCALE



MASTER GROUND BUSBAR SUPPORT SPACING DETAIL
NOT TO SCALE



GROUND WELL PLAN DETAIL
NOT TO SCALE

NOTE TO DESIGNER

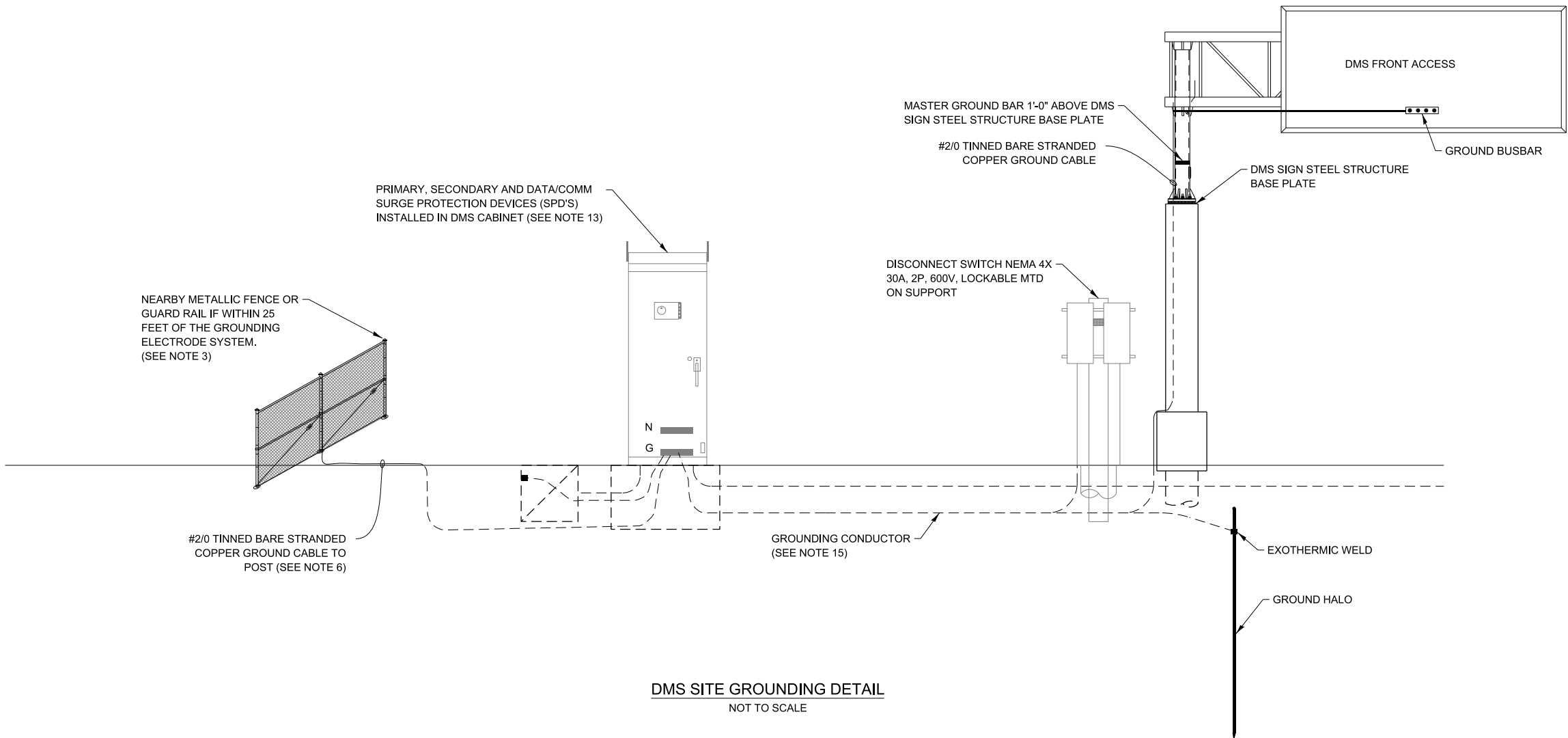
THIS TYPICAL DMS FRONT ACCESS GROUNDING PLAN IS APPLICABLE TO BOTH DMS FRONT ACCESS CANTILEVER AND BUTTERFLY SIGNS. DMS FRONT ACCESS CANTILEVER SIGN IS SHOWN ON THIS DRAWING FOR CLARITY. DESIGNER SHALL MODIFY AND COMPLETE THIS DRAWING FOR DMS FRONT ACCESS BUTTERFLY SIGN.

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.



DMS FRONT ACCESS SITE GROUNDING PLAN



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 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.

NOTE TO DESIGNER

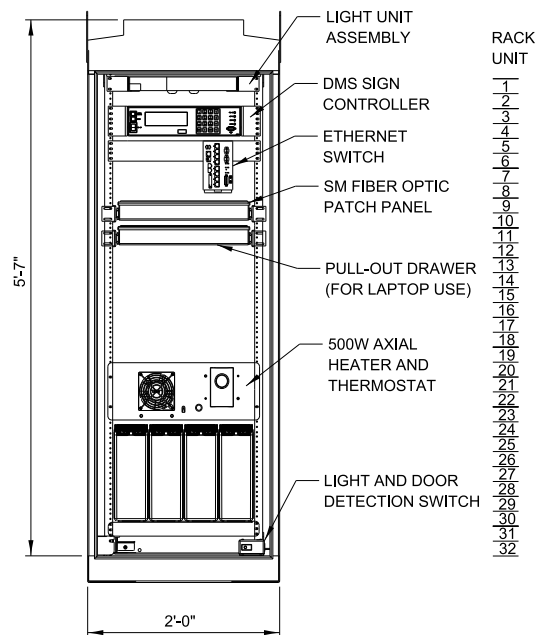
THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS **NOT** A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF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

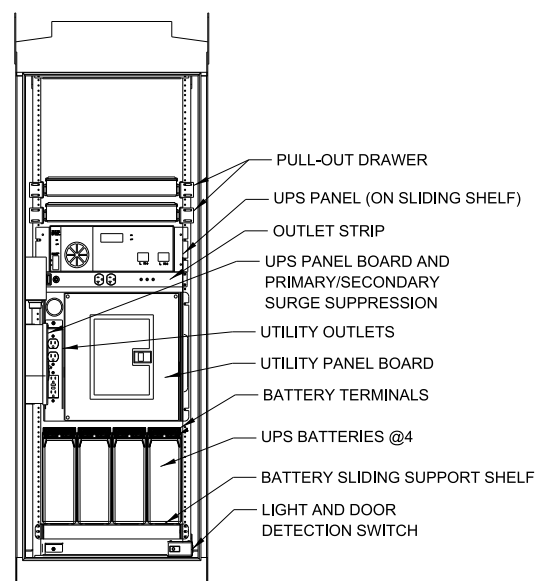
THIS TYPICAL DMS FRONT ACCESS GROUNDING PLAN IS APPLICABLE TO BOTH DMS FRONT ACCESS CANTILEVER AND BUTTERFLY SIGNS. DMS FRONT ACCESS CANTILEVER SIGN IS SHOWN ON THIS DRAWING. FOR CLARITY, DESIGNER SHALL MODIFY AND COMPLETE THIS DRAWING FOR DMS FRONT ACCESS BUTTERFLY SIGN.



DMS FRONT ACCESS SITE
WIRING DETAIL



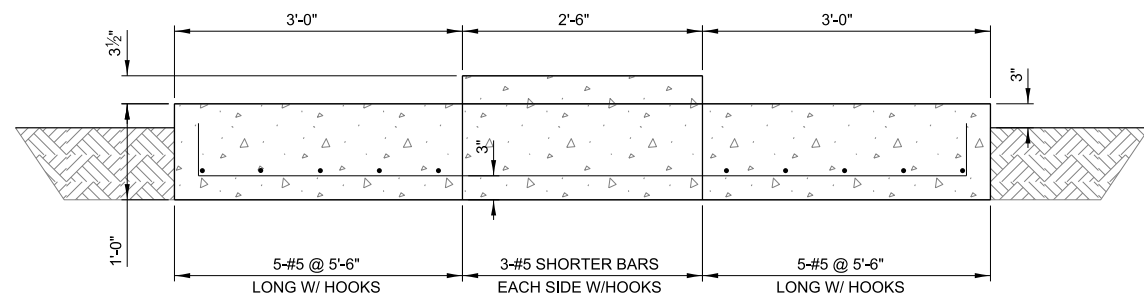
SECTION B-B FRONT VIEW
(NO DOOR SHOWN)



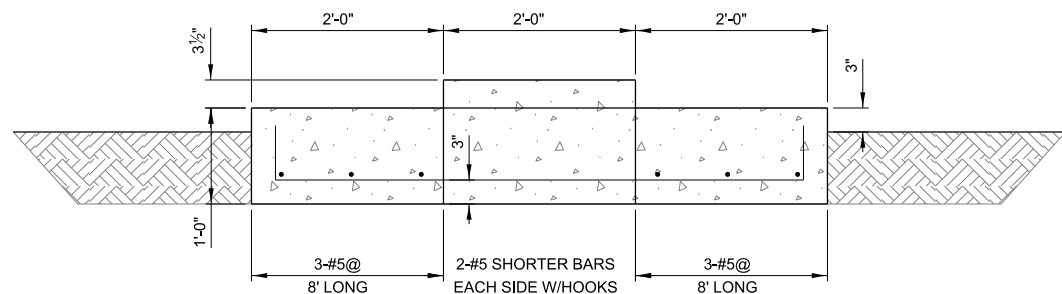
SECTION A-A REAR VIEW
(NO DOOR SHOWN)

NOTE:
SPICE 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

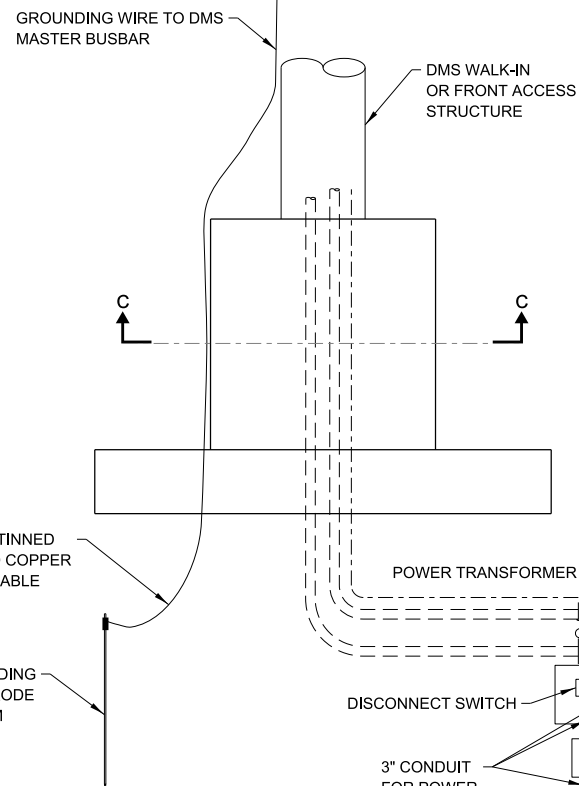
DMS CONTROLLER FOUNDATION DETAILS

DMS CABINET FOUNDATION NOTES:

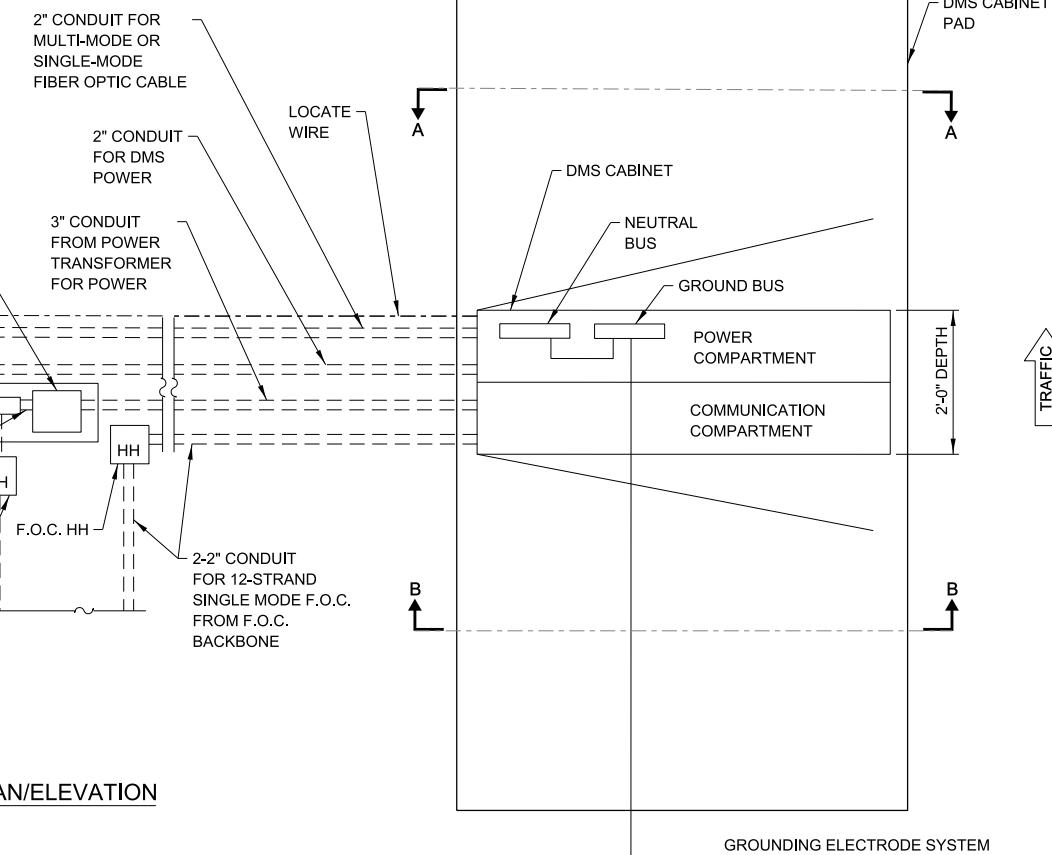
- COORDINATE SIZE OF OPENING WITH DMS CONTROLLER CABINET BOTTOM CONDUIT CUT-OUTS
- CONCRETE = 4,000 PSI (MIN.)
- REBAR EPOXY COATED FY=60,000 PSI (MIN.)
- PROVIDE SHOP DRAWINGS PRIOR TO CONSTRUCTION
- INCLUDE CONDUITS

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.



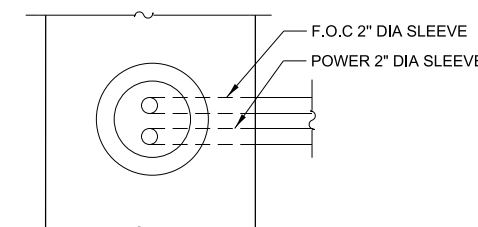
NOTE FOR DESIGNER:
INSTALL A LOCATE WIRE BETWEEN THE DMS CABINET AND THE DMS SIGN GANTRY AND INSTALL A LOCATE POST NEXT TO THE DMS CABINET AND CONNECT THE LOCATE WIRE IN THE LOCATE POST.



PLAN/ELEVATION

DMS CABINET NOTES:

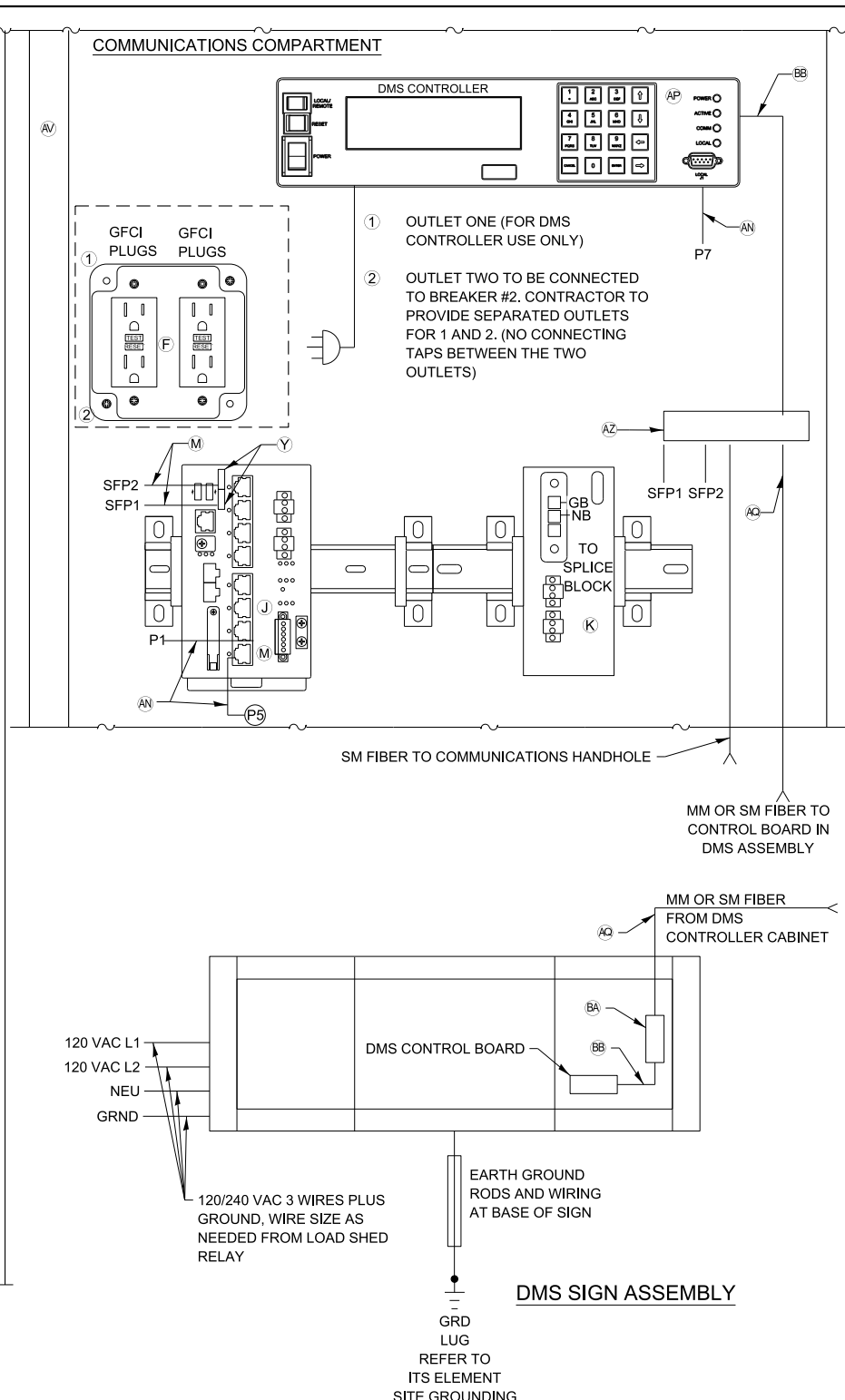
- PAD MOUNT CONFIGURATION
- 0.125" ALUMINUM 5052-H34 CONSTRUCTION WITH CONTINUOUSLY WELDED EXTERNAL SEAMS
- THREE POINT LATCH WITH SST HANDLE
- DOUBLE FLANGED DOOR SEAL WITH 1/2" X 2" CLOSED CELL NEOPRENE GASKET WITH CORBIN #2 LOCK ON EACH DOOR.
- FULL LENGTH EIA GAGE FOR 19" EQUIPMENT
- ADJUSTABLE PULL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



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



DMS CABINET LAYOUT DETAIL



- | 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)

MAIN

1

2

3

4

5

6

7

8

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