

Illinois Tollway Base Sheet Revisions

Section M	Base Sheet Drawings	
	Drawing	Modification Summary Effective: 03-01-2023
	Plaza Electrical (Business System)-Series 2500	
		NO CHANGES

New Sheet

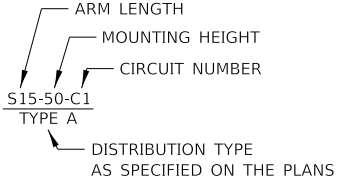
Retired Standard

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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
	GROUND ROD
	GROUNDING TRIAD
	EXPOSED GROUND CONDUCTOR
	UNDERGROUND GROUND CONDUCTOR
	4'X4' HEAVY DUTY HANDHOLE (POWER)
	4'X4' HEAVY DUTY HANDHOLE (COMMUNICATIONS)
	72"X48"X36" TORSION ASSIST HANDHOLE



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.
	LEGEND NUMBER FOR CABLE & CONDUIT. (SEE CABLE AND CONDUIT SCHEDULES).
	MOTOR. NUMBER 1 DENOTES HORSEPOWER.
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.
	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.
	SELF CONTAINED UTILITY METERING.
	STANDBY GENERATOR.
30A 2P	PANEL CIRCUIT BREAKER. 30A DENOTES 30 AMPERES. 2P DENOTES 2 POLES.
	ELECTRICALLY HELD LIGHTING CONTACTOR.
	MECHANICALLY HELD LIGHTING COIL.
	CONTROL RELAY COIL.
	TRANSIENT VOLTAGE SURGE SUPPRESSION WITH LIGHTNING PROTECTION

ABBREVIATIONS

ACM	AUTOMATIC COIN MACHINE
AET	ALL ELECTRONIC TOLL
AFB	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:

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

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.

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



LEGEND SYMBOL LIST
ABBREVIATIONS AND
EQUIPMENT SCHEDULES

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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)

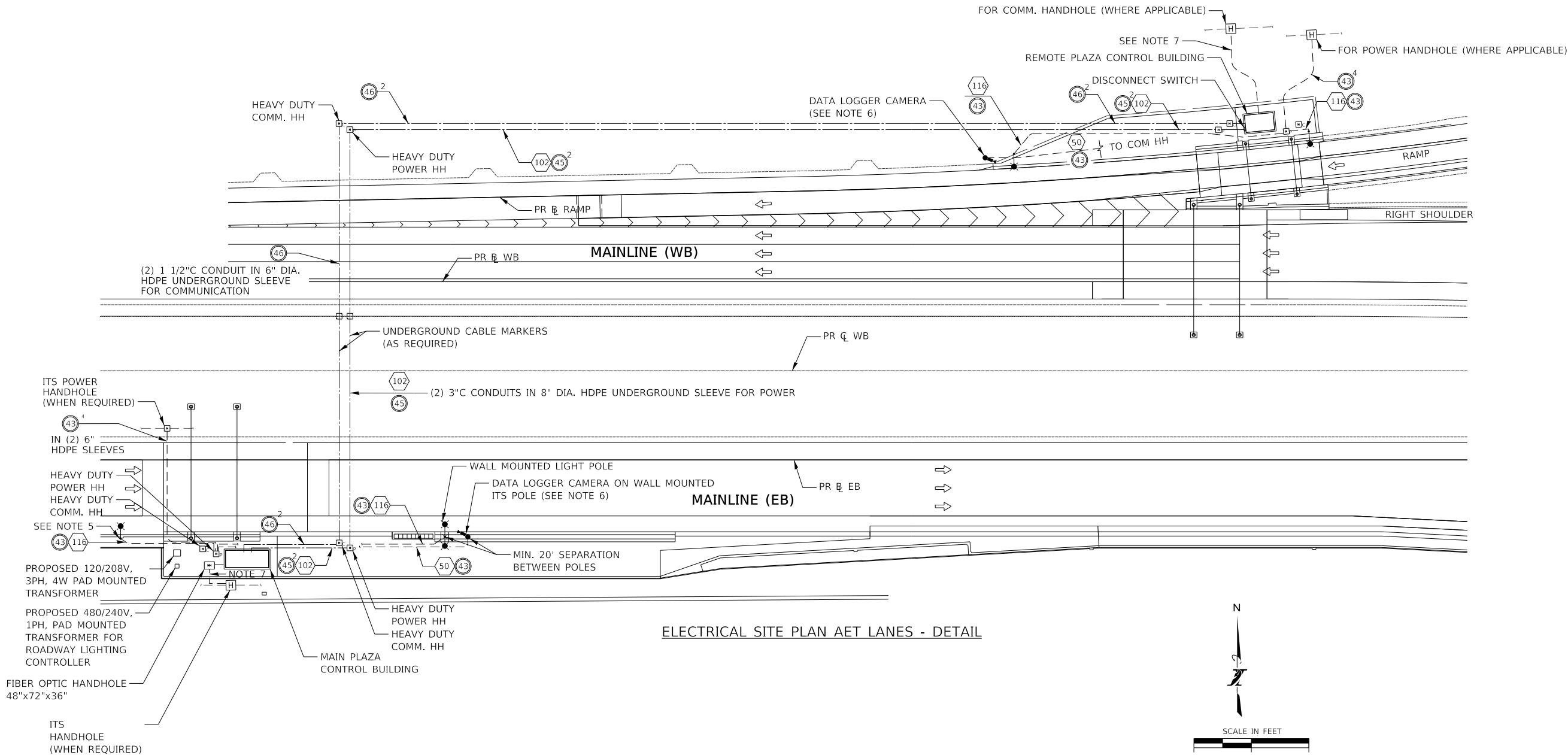
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VERSION: 2021-03	STANDARD: M-BUS-2502A	SHEET: 1 OF 1
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NOTES:

- SEE LEGEND SHEET FOR SYMBOL LEGEND.
- SEE CABLE/CONDUIT SCHEDULE SHEET FOR CABLE TAGS.
- ALL EMPTY CONDUITS UNDERGROUND OR ABOVE GRADE SHALL HAVE A PULL CORD.
- UNDERGROUND CABLE/CONDUIT MARKING TAPE IS TO BE INSTALLED OVER UNDERGROUND CONDUITS.
- 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.
- DATA LOGGER CAMERA SHALL BE INSTALLED ON STEEL ITS POLE. SEE CAMERA DETAILS.
- 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)

NOTE TO DESIGNER

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- 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.
- THE POWER FEEDER MUST BE SIZED BY THE DESIGNER TO PROVIDE A MAXIMUM 3% VOLTAGE DROP.
- 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.
- 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.
- MAIN AND REMOTE PLAZA BUILDING DOORS MUST FACE PAY ZONES.

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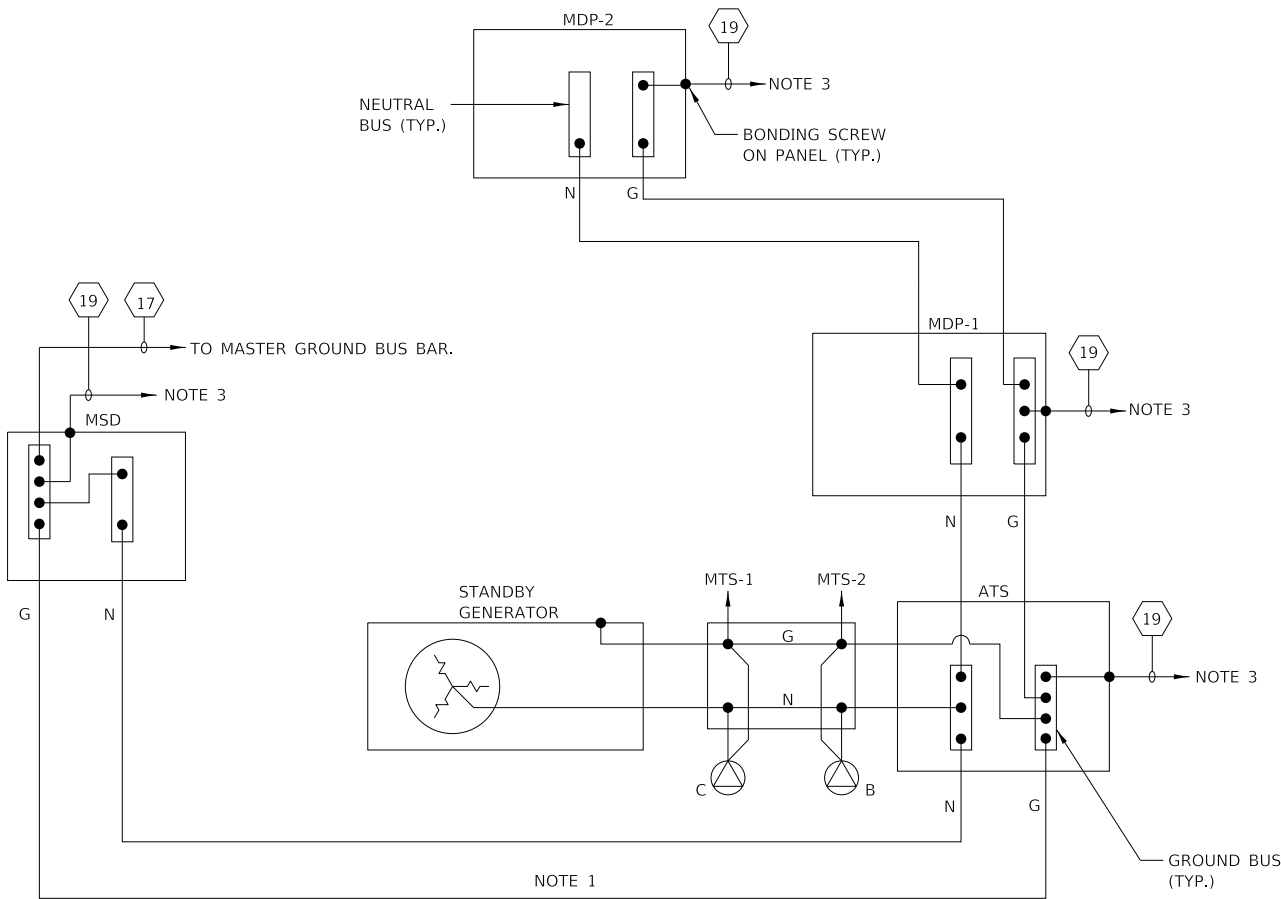


ELECTRICAL SITE PLAN
AET LANES - DETAIL

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CONTROL BUILDING EQUIPMENT

NOTES:

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

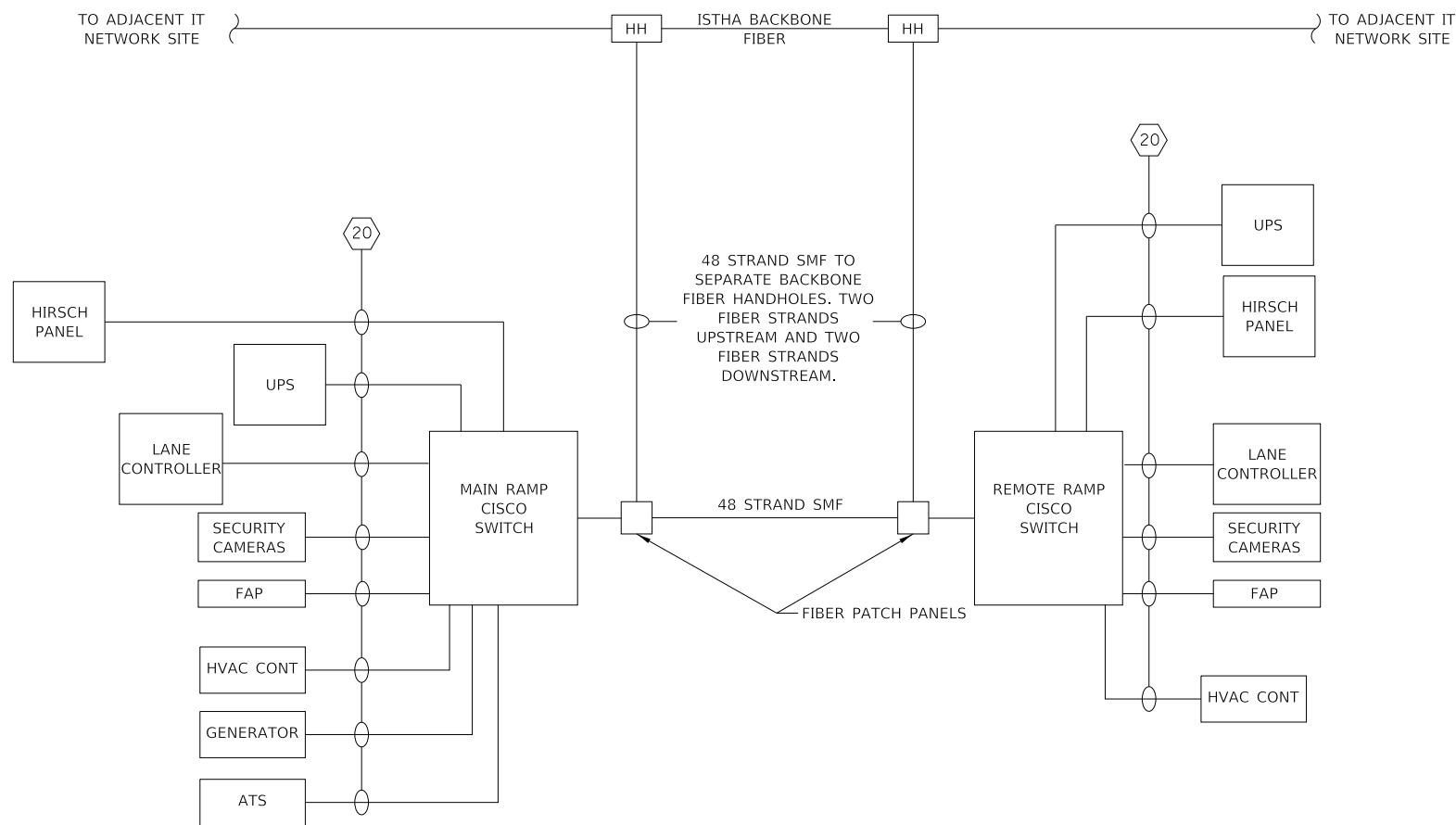
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GROUNDING SCHEMATIC

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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.

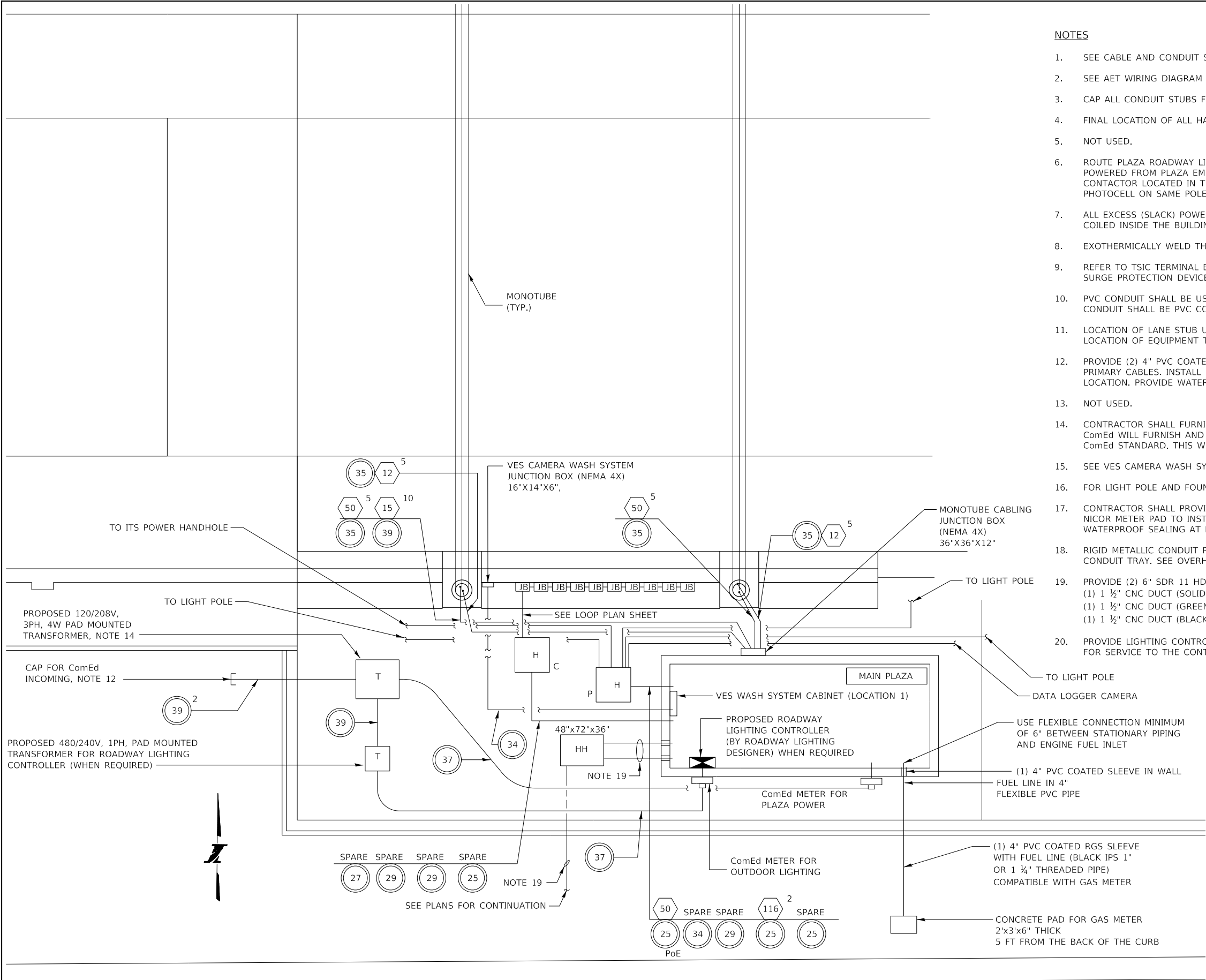
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FIBER INTERCONNECTIONS BETWEEN MAIN AND REMOTE PLAZAS

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NOTES

- SEE CABLE AND CONDUIT SCHEDULE SHEET FOR CABLE TAGS.
- SEE AET WIRING DIAGRAM SHEET FOR MONOTUBE WIRING.
- CAP ALL CONDUIT STUBS FOR FUTURE USE.
- FINAL LOCATION OF ALL HANDHOLES AND JUNCTION BOXES SHALL BE APPROVED BY THE ENGINEER.
- NOT USED.
- 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.
- ALL EXCESS (SLACK) POWER AND DATA CABLES MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLE WILL BE COILED INSIDE THE BUILDING.
- EXOTHERMICALLY WELD THE GROUND WIRE TO THE MONOTUBE'S BASE.
- REFER TO TSIC TERMINAL BLOCK LAYOUT SHEET. LOW VOLTAGE WIRE FROM VES AND SECURITY CAMERAS LAND ON SURGE PROTECTION DEVICES.
- 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.
- 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.
- 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.
- NOT USED.
- 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.
- SEE VES CAMERA WASH SYSTEM SHEETS FOR DETAILS.
- FOR LIGHT POLE AND FOUNDATION DETAILS, SEE ILLINOIS TOLLWAY STANDARD DRAWINGS H1 AND H2.
- 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.
- RIGID METALLIC CONDUIT PVC COATED FOR MONOTUBE POWER/DATA/ANTENNA CABLING SHALL RUN IN OVERHEAD CONDUIT TRAY. SEE OVERHEAD CONDUIT TRAY DETAILS.
- 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)
- 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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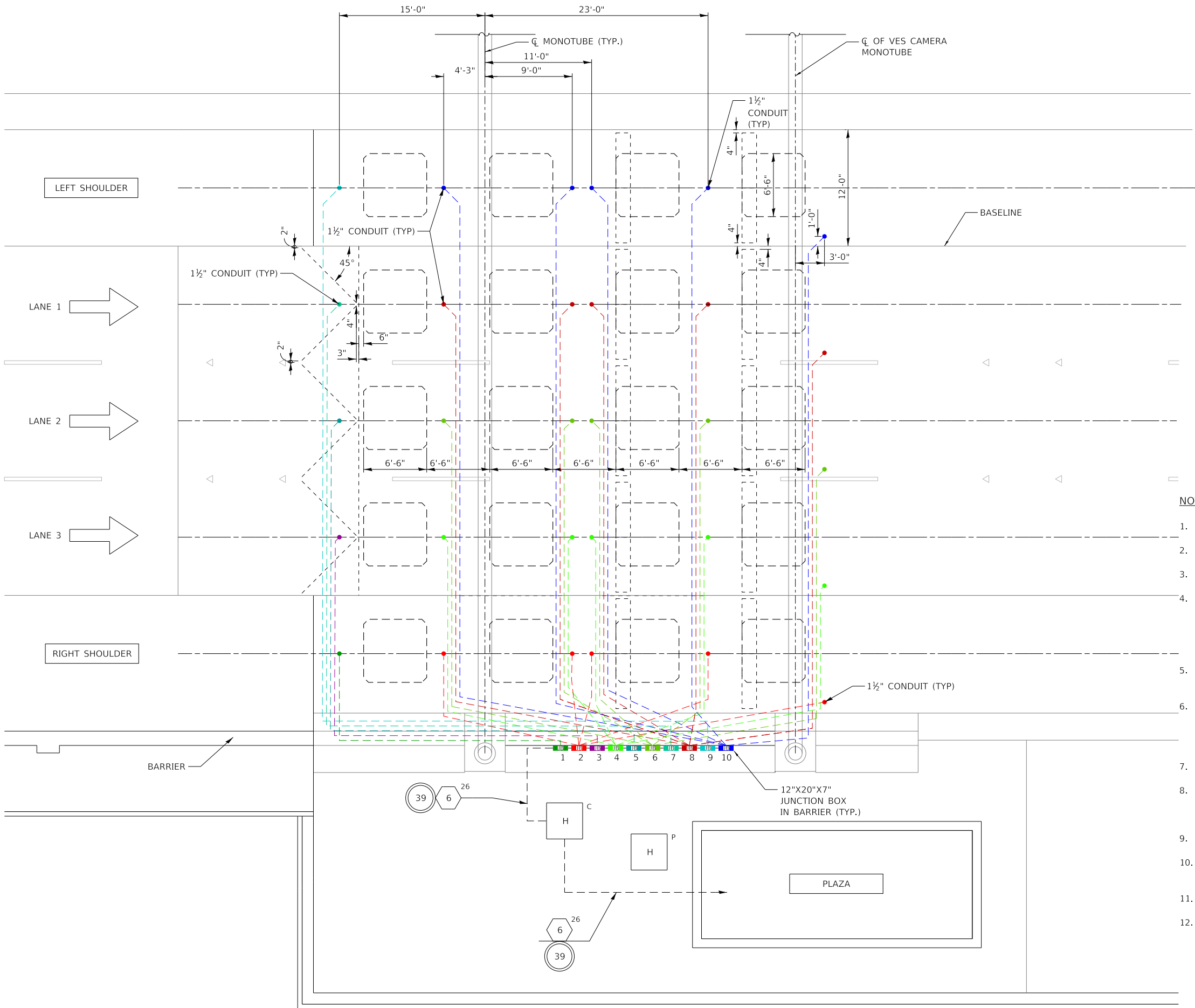
UNDERGROUND CONDUIT PLAN MAIN PLAZA



UNDERGROUND CONDUIT PLAN - MAIN PLAZA

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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

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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.



LOOP PLAN - AET 3-LANE LAYOUT

VERSION: 2021-03 STANDARD: M-BUS-2507A SHEET: 1 OF 1

CONFIRM THE CORRECT NUMBER OF DETECTOR
CABLES (DLCs) ROUTED TO THE BARRIER
BOXES, BASED ON THE LAYOUT SHOWN HERE.
SHOULDERS - (4) DLCs EACH SHOULDER FOR
MAIN LOOPS.
TRAVEL LANES - (6) DLCs EACH TRAVEL LANE:
(4) MAIN LOOPS + (1) PIEZO ANGLE LOOP +
1) SPARE

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

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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.



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'.

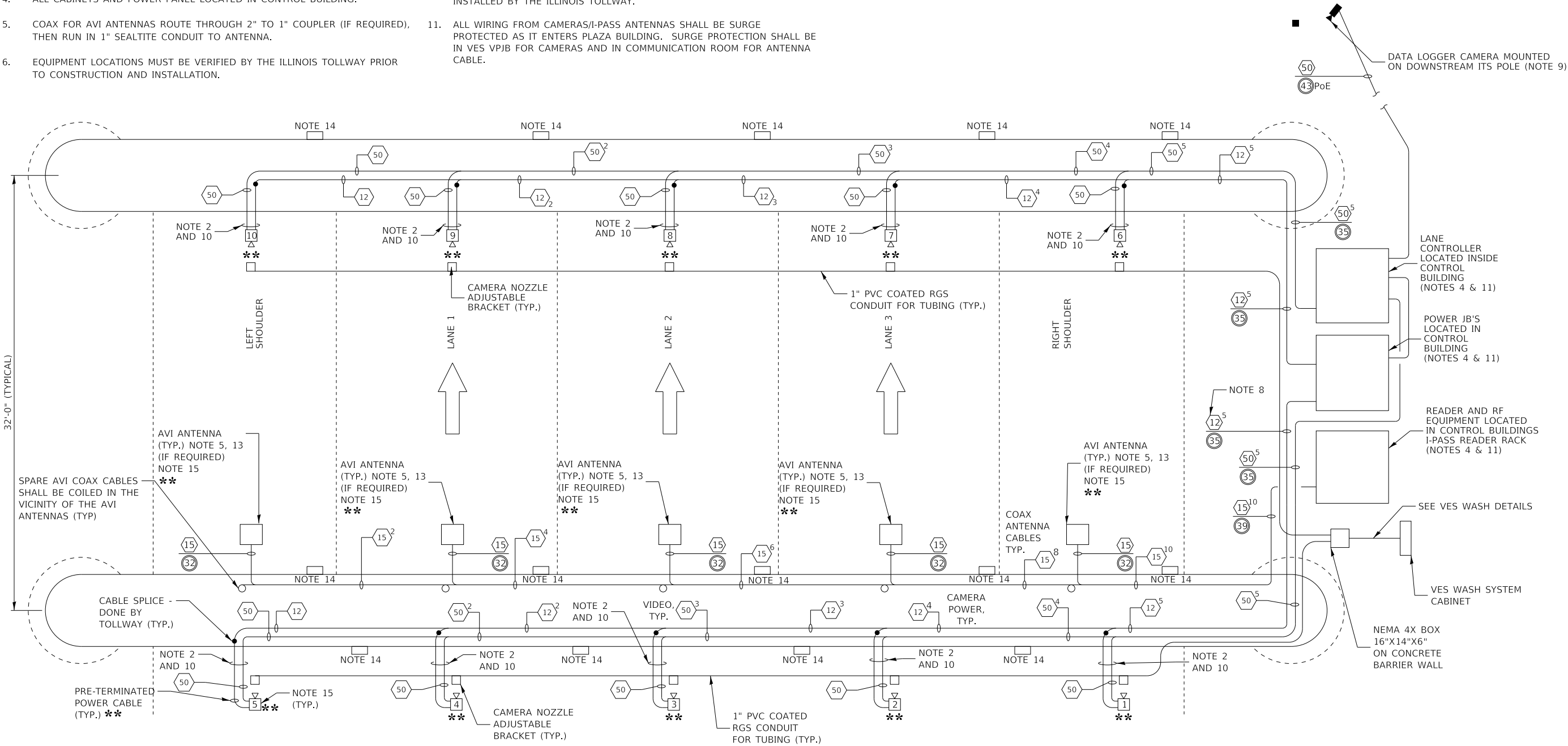
10. 1.5" SEALTITE AND FITTINGS ARE FURNISHED BY THE CONTRACTOR AND INSTALLED BY THE ILLINOIS TOLLWAY.

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 A1212CHNFS5*) 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 - TO SCALE

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.
- INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR.



WIRING DIAGRAM - AET
3-LANE LAYOUT



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

- SEE CABLE/CONDUIT SCHEDULE AND NOTES SHEETS 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 A1212CHNF55 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.

- * INDICATES EQUIPMENT FURNISHED BY THE ILLINOIS TOLLWAY AND INSTALLED BY THE CONTRACTOR.
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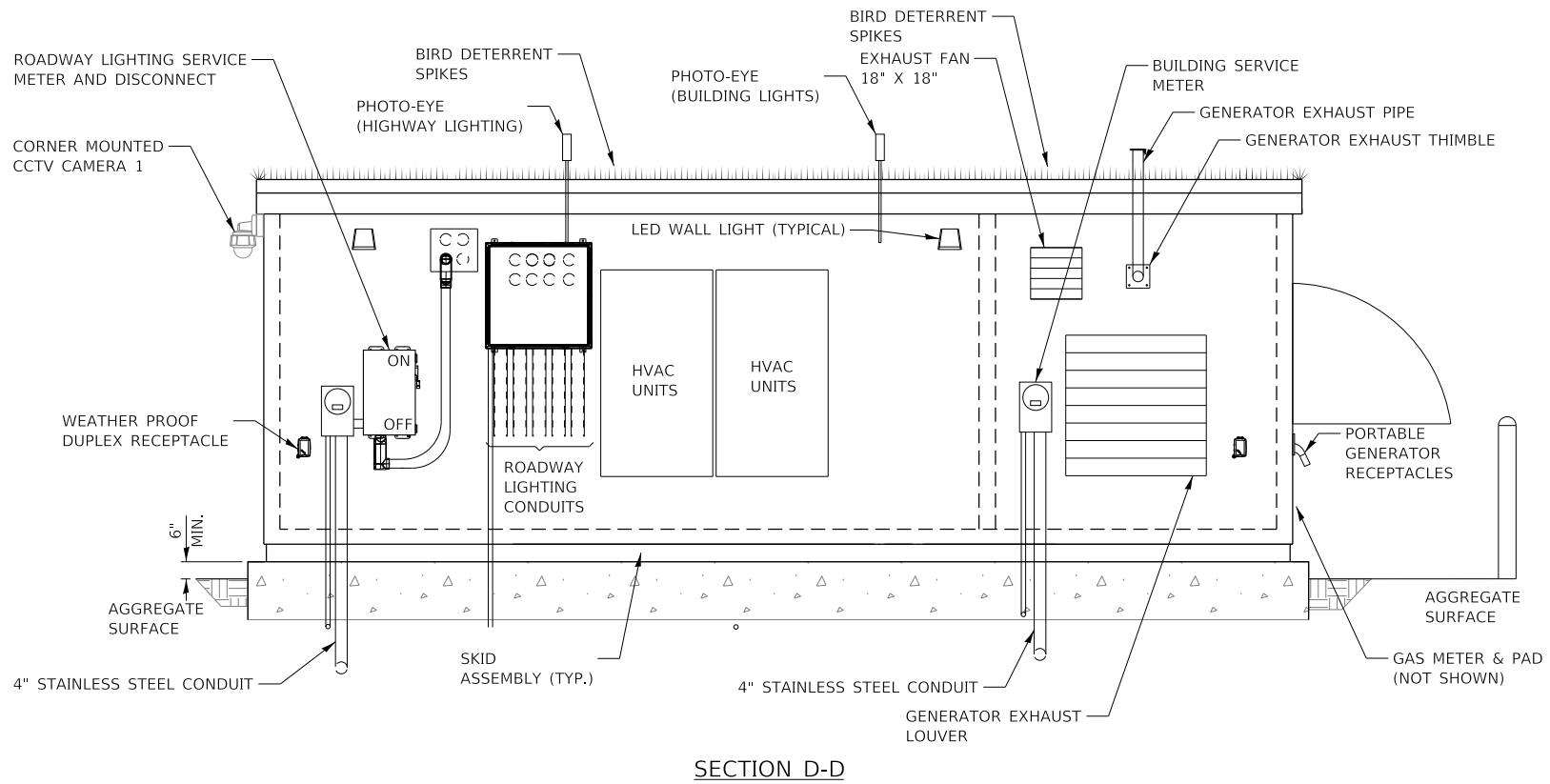
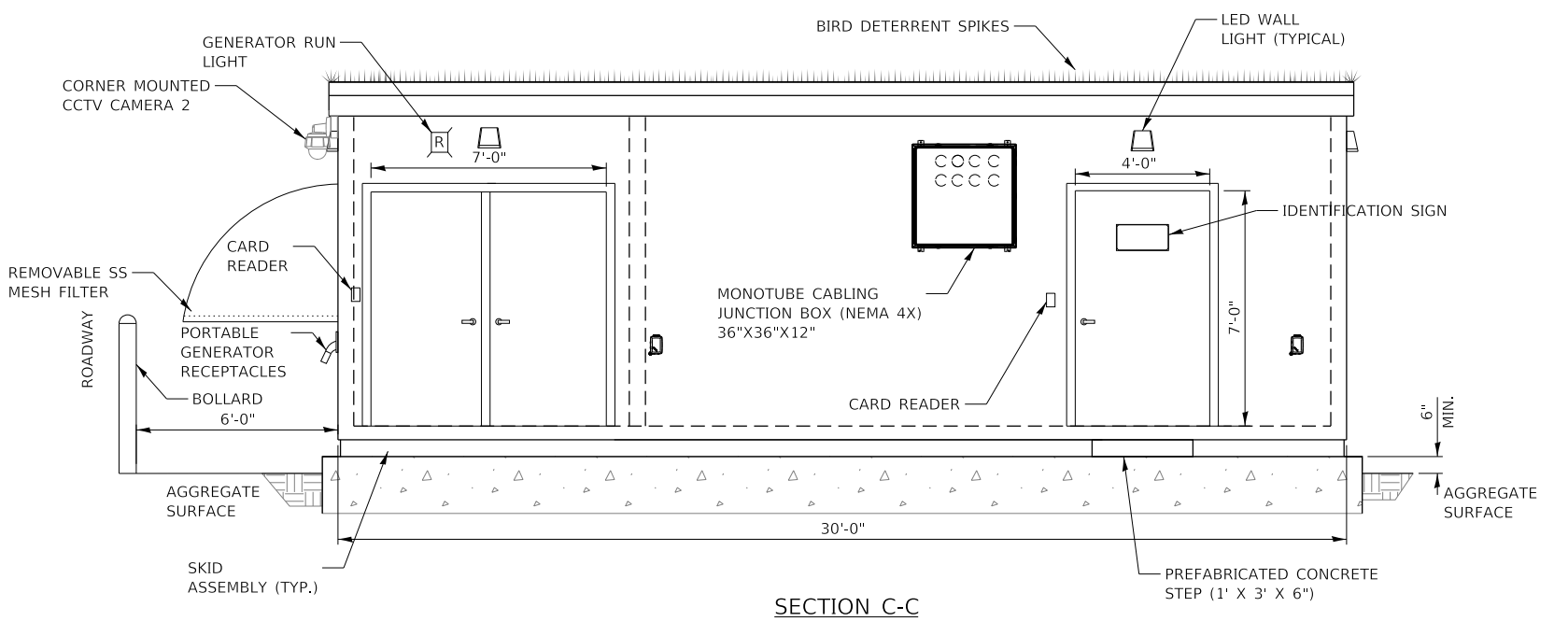
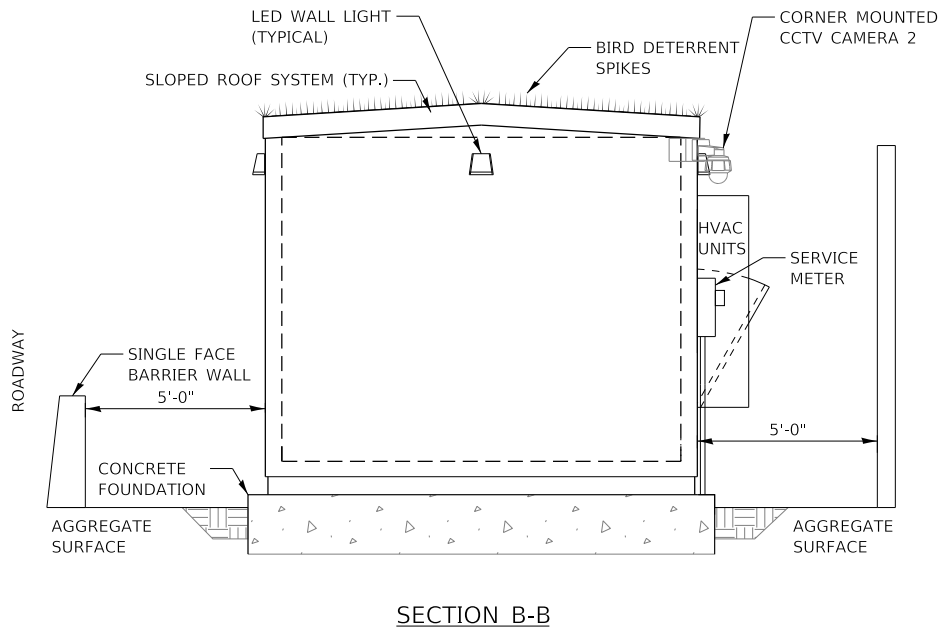
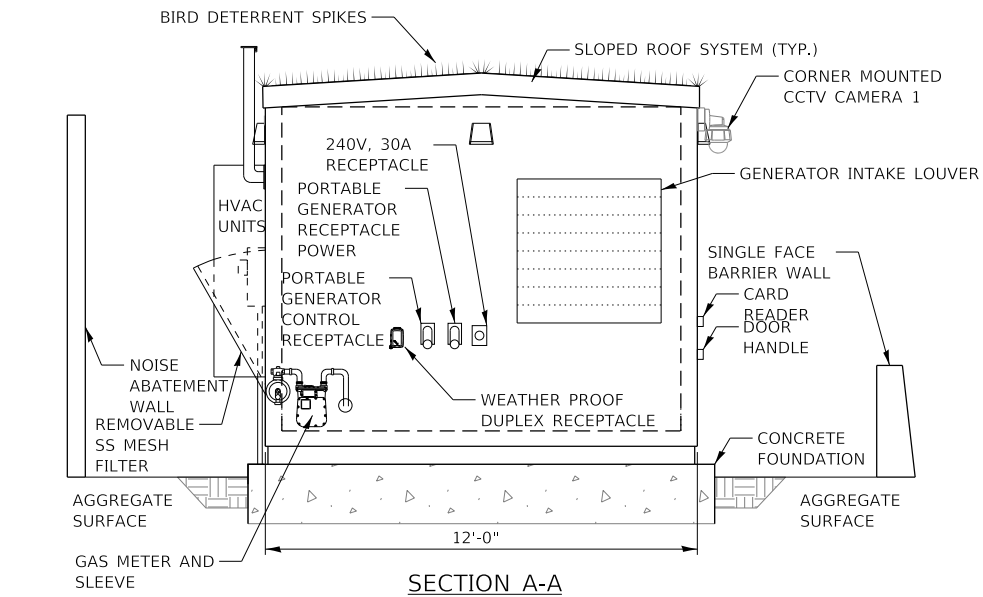
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**EXTERIOR ELEVATIONS -
MAIN PLAZA**

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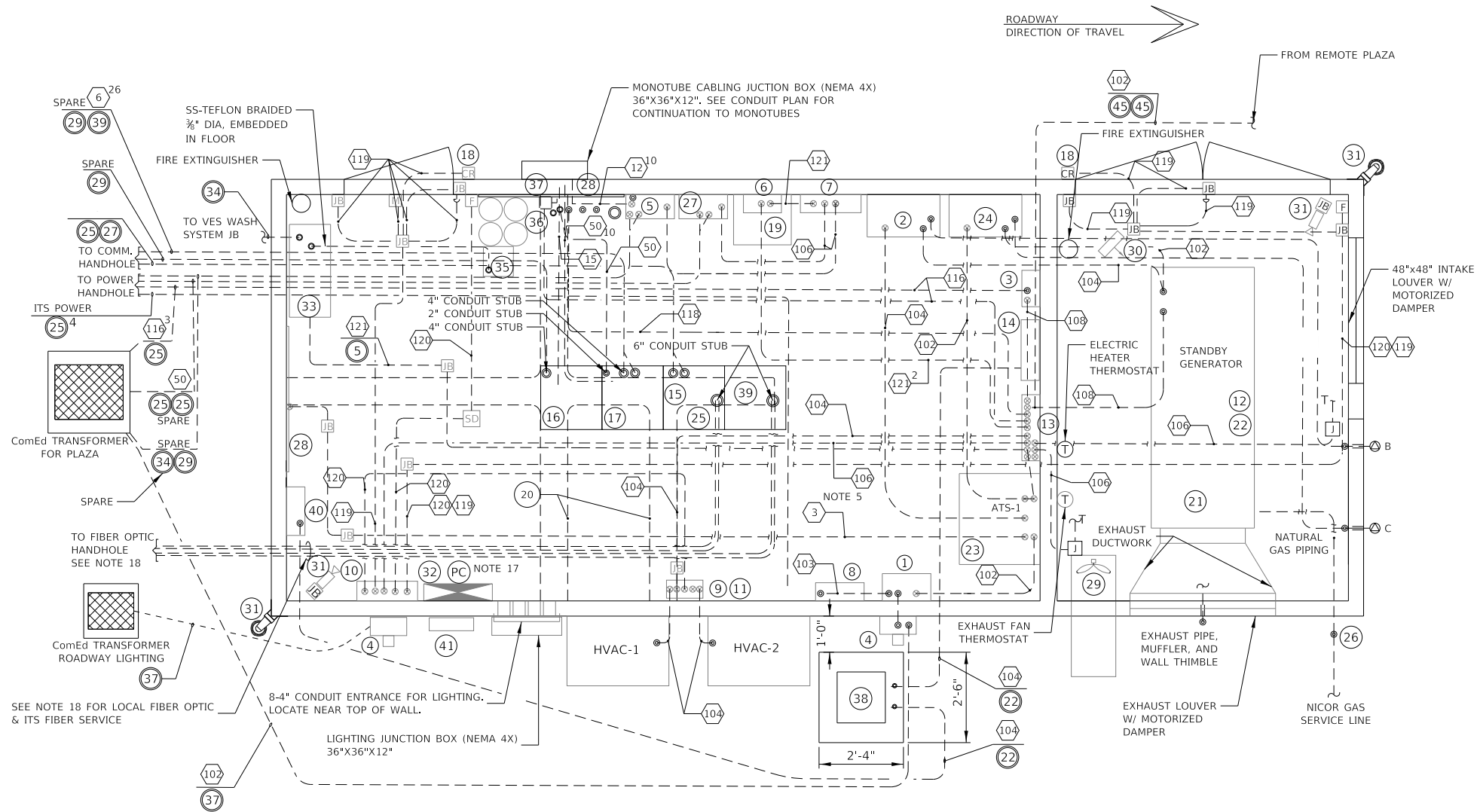
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NOTES:

- SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
- SEE SYSTEM POWER SINGLE LINE DIAGRAM SHEET FOR DETAILS.
- SEE WALL ELEVATION SHEET FOR DETAILS.
- DOOR ALARM SWITCH, SEE DETAIL ON CONTROL BUILDING MISCELLANEOUS DETAILS SHEET.
- PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR ATS ALARMS AND ROUTE TO TSIC BOARD. ALL CONTACT CLOSURES SHALL BE ROUTED TO TSIC.
- THE LIGHTNING PROTECTION SYSTEM DEVICE SHALL BE CONNECTED TO THE LOAD SIDE OF THE UTILITY METER.
- FOR ROADWAY LIGHTING, ROUTE TO 30A. CIRCUIT BREAKER.
- ALL EXCESS (SLACK) POWER AND DATA CABLES MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLES WILL BE COILED INSIDE THE CABINET.
- NOT USED.
- 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.
- THE CABLE LENGTH FROM THE ANTENNA TO THE I-PASS READER SHALL NOT EXCEED 150 FEET FOR MAIN PLAZA.
- PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR SMOKE DETECTOR ALARM CONTACT AND ROUTE TO CARD READER EQUIPMENT.
- 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):

- TERMINATE ALARM CABLES ON TERMINAL BLOCK ON TSIC BOARD.
- CONTRACTOR SHALL COORDINATE ALL WORK FOR UTILITY SERVICES WITH COMED AND NICOR.
- 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.
- MOUNT PHOTOCELL 6" ABOVE TOP OF BUILDING POINTING TOWARDS NORTHEAST.
- 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)
- LOCATION OF (4) RACKS BE IN THE MIDDLE OF THE ROOM.
- FOR SECURITY CAMERA, CONTRACTOR TO VERIFY CLEAR UNOBSTRUCTED LINE OF SIGHT TO THE ENTRANCE DOORS.
- INSTALL TRANSFORMER ON 6" CONCRETE PAD 1 FT AWAY FROM EXTERIOR WALL. ALL FEED TO THIS TRANSFORMER SHALL BE UNDERGROUND.



CONTROL BUILDING MAIN TOLL PLAZA EQUIPMENT LAYOUT

LEGEND:

- | | |
|--|---|
| 1. MAIN SERVICE DISCONNECT 200A/3P | 21. JACKET WATER HEATER |
| 2. MTS-2 FOR GENERATOR CONTROL | 22. BATTERY CHARGER |
| 3. LIGHTING CONTACTOR, TRANSFORMER, AND CIRCUIT BREAKER | 23. ATS |
| 4. ELECTRIC UTILITY METER | 24. MTS-1 FOR GENERATOR POWER |
| 5. VIDEO JB POWER #1 | 25. SMF DISTRIBUTION PANEL |
| 6. BYPASS SWITCH | 26. NICOR GAS SERVICE LINE |
| 7. UPS-1 PANEL. | 27. VIDEO JB POWER #2 |
| 8. LIGHTNING ARRESTER | 28. TSIC BOARD |
| 9. TEMPERATURE ALARM | 29. SIDEWALL EXHAUST FAN W/ MOTORIZED DAMPER |
| 10. CARD READER PANEL | 30. ELECTRIC CEILING MOUNTED HEATER |
| 11. HVAC CONTROL PANEL | 31. SECURITY CAMERA |
| 12. GENERATOR CONTROL PANEL | 32. ROADWAY LIGHTING CONTROLLER (BY ROADWAY LIGHTING DESIGNER) |
| 13. MAIN DISTRIBUTION PANEL MDP-1 | 33. VES WASH SYSTEM CABINET LOCATION 1 |
| 14. ITS I-1 PANEL | 34. ROLAIR AIR COMPRESSOR |
| 15. 19" RACK LOCAL BACKBONE FIBER | 35. HP-80 NITROGEN TANK-4 NOS. |
| 16. 19" RACK I-PASS READER | 36. DISCONNECT SWITCH 60A/1P, 250V FOR AIR COMPRESSOR |
| 17. 19" RACK LANE CONTROLLER RACK | 37. 5 KVA, 208V/480V OUTDOOR TYPE SINGLE PHASE TRANSFORMER, NEMA 4X |
| 18. CARD READER | 38. 19" RACK ITS FIBER |
| 19. UPS/LINE CONDITIONER. CONTRACTOR SHALL INSTALL THE 3KVA UPS ABOVE GROUND, ON A SHELVING SYSTEM AS DIRECTED BY THE ENGINEER | 39. ITS I-2 PANEL |
| 20. CABLE TRAY | 40. ROADWAY LIGHTING DISCONNECT SWITCH |

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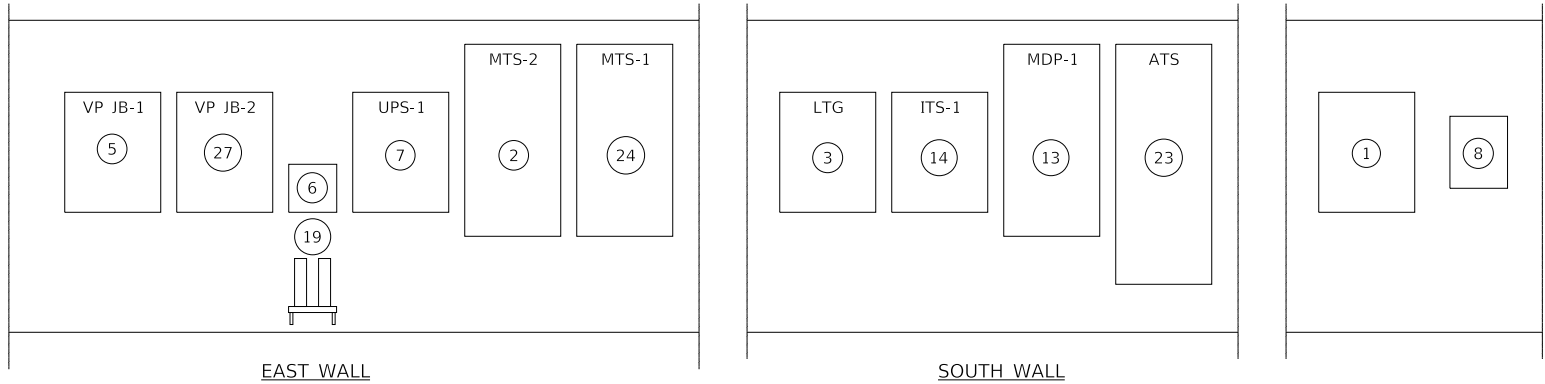
IF DISTANCE BETWEEN MAIN AND REMOTE PLAZA ANTENNAS IS LESS THAN 500 FT., PROVIDE CONDUIT AND SYNC CABLE TO CONNECT ANTENNA READERS IN THE MAIN AND REMOTE CONTROL BUILDINGS.



CONTROL BUILDING EQUIPMENT LAYOUT - MAIN PLAZA

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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

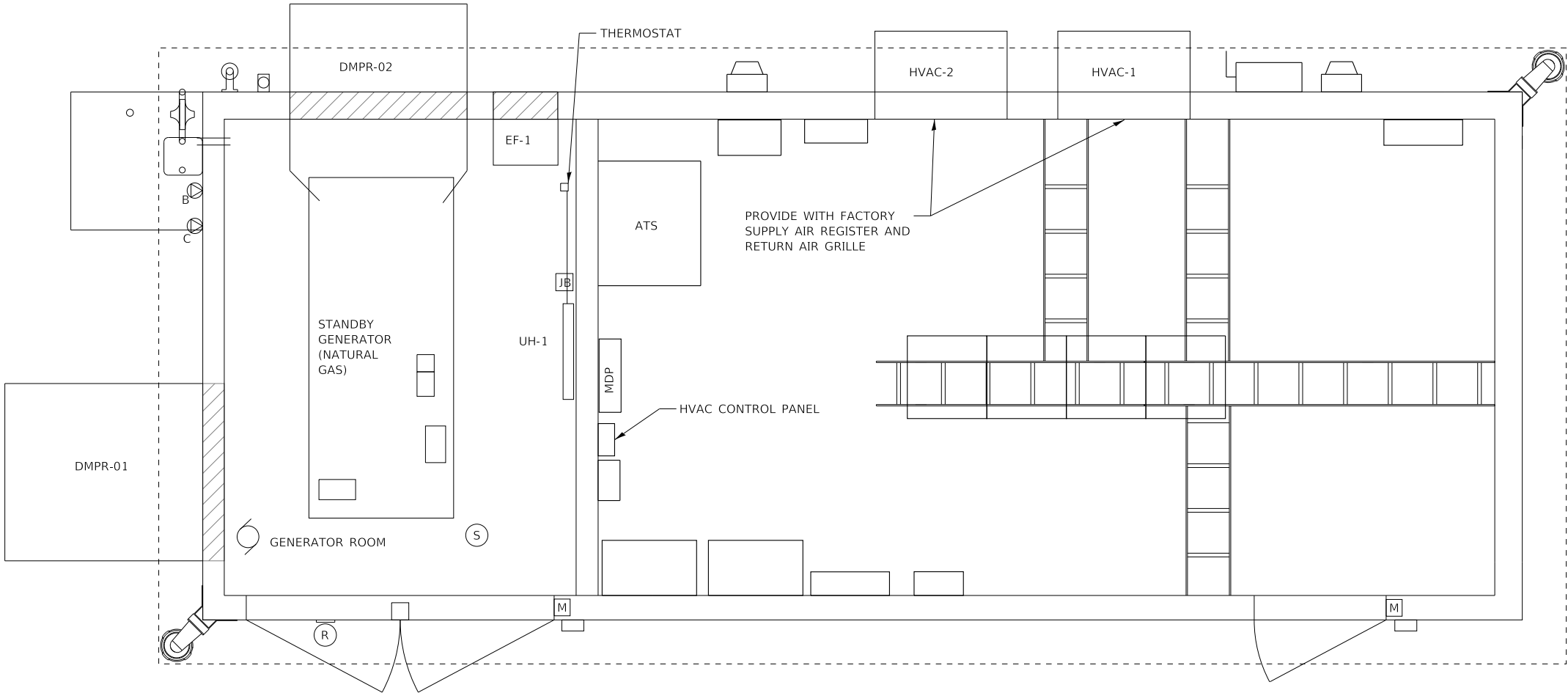
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INTERIOR ELEVATIONS -
CONTROL BUILDING

VERSION: 2021-03	STANDARD: M-BUS-2511	SHEET: 1 OF 1
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BUILDING MECHANICAL PLAN
NOT TO SCALE

NOTES:

- UNIT SHALL HAVE ARI CERTIFIED COILS, AIWCA RATED FANS, AND UL LISTED & LABELED ELECTRICAL COMPONENTS.
- PROVIDE HVAC UNITS WITH FACTORY SUPPLY AND RETURN GRILLES.
- HVAC PROVIDE LEAD/LAG THERMOSTAT CONTROLLER BARD MODEL #MC4001-AC WITH BASE ALARMS AND ETHERNET ACCESS.
- 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	R410A	45.5	34.0	75	62	90	11	17.1	70	0	5	240	1	60	BARD WL4S2-A05TPXXXJ	
HVAC-02	OUTSIDE	BUILDING	4	1500	-	0.15	R410A	45.5	34.0	75	62	90	11	17.1	70	0	5	240	1	60	BARD WA4S3-A05TPXXXJ	

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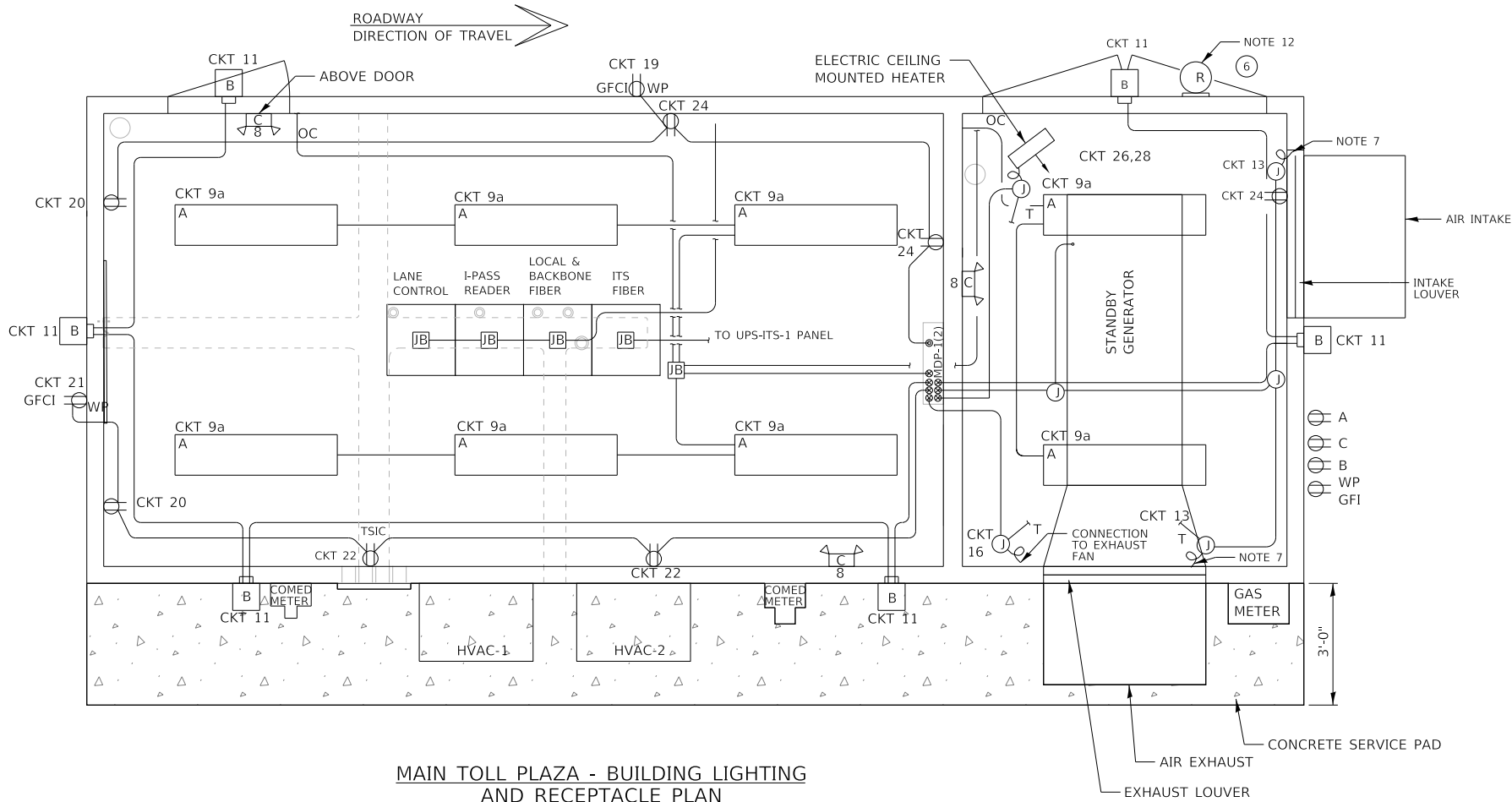
THE ESTIMATED EQUIPMENT BUILDING LOADS FOR EQUIPMENT IS 19,000 BTU/HR. THE DESIGNER SHALL SIZE THE HVAC SYSTEMS ACCORDINGLY.



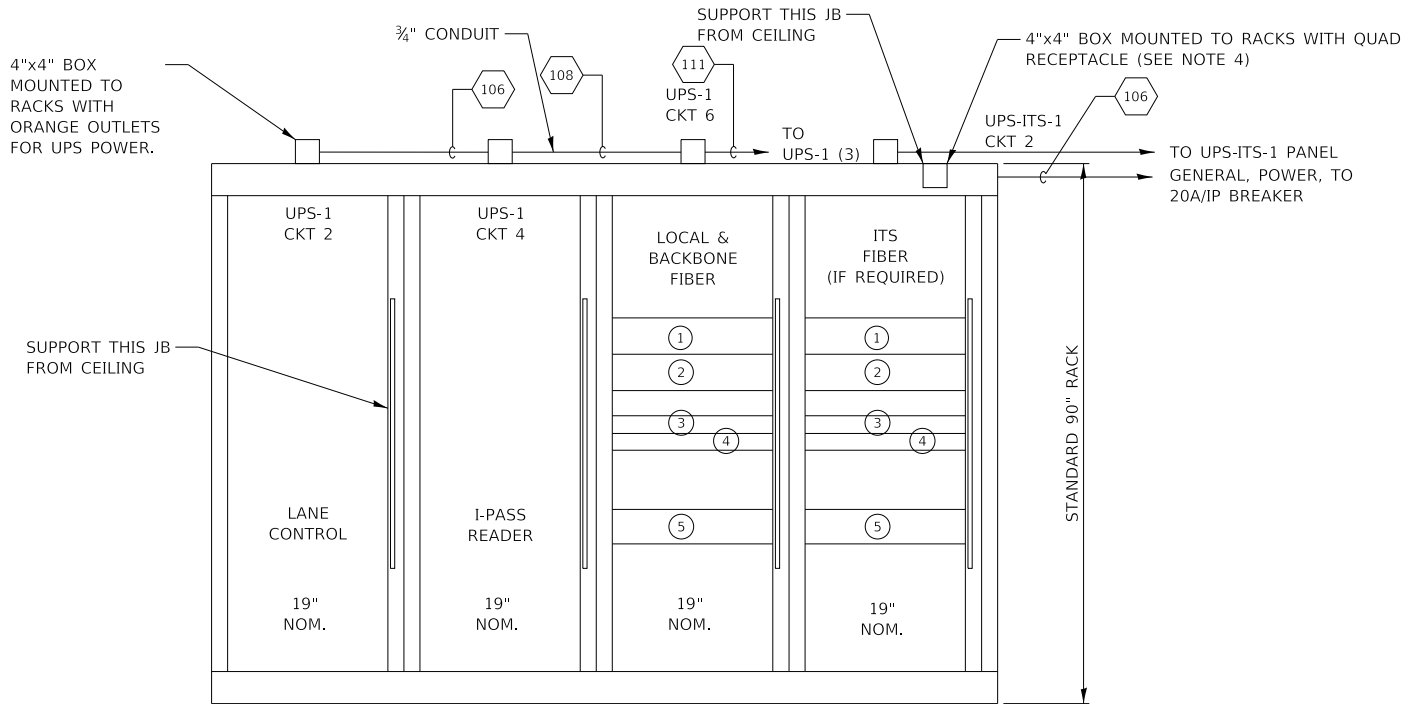
MECHANICAL PLAN - MAIN PLAZA

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MAIN TOLL PLAZA - BUILDING LIGHTING
AND RECEPTACLE PLAN
N.T.S.



COMMUNICATIONS AND EQUIPMENT RACK ELEVATION
N.T.S.

NOTES:

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

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.

LEGEND:

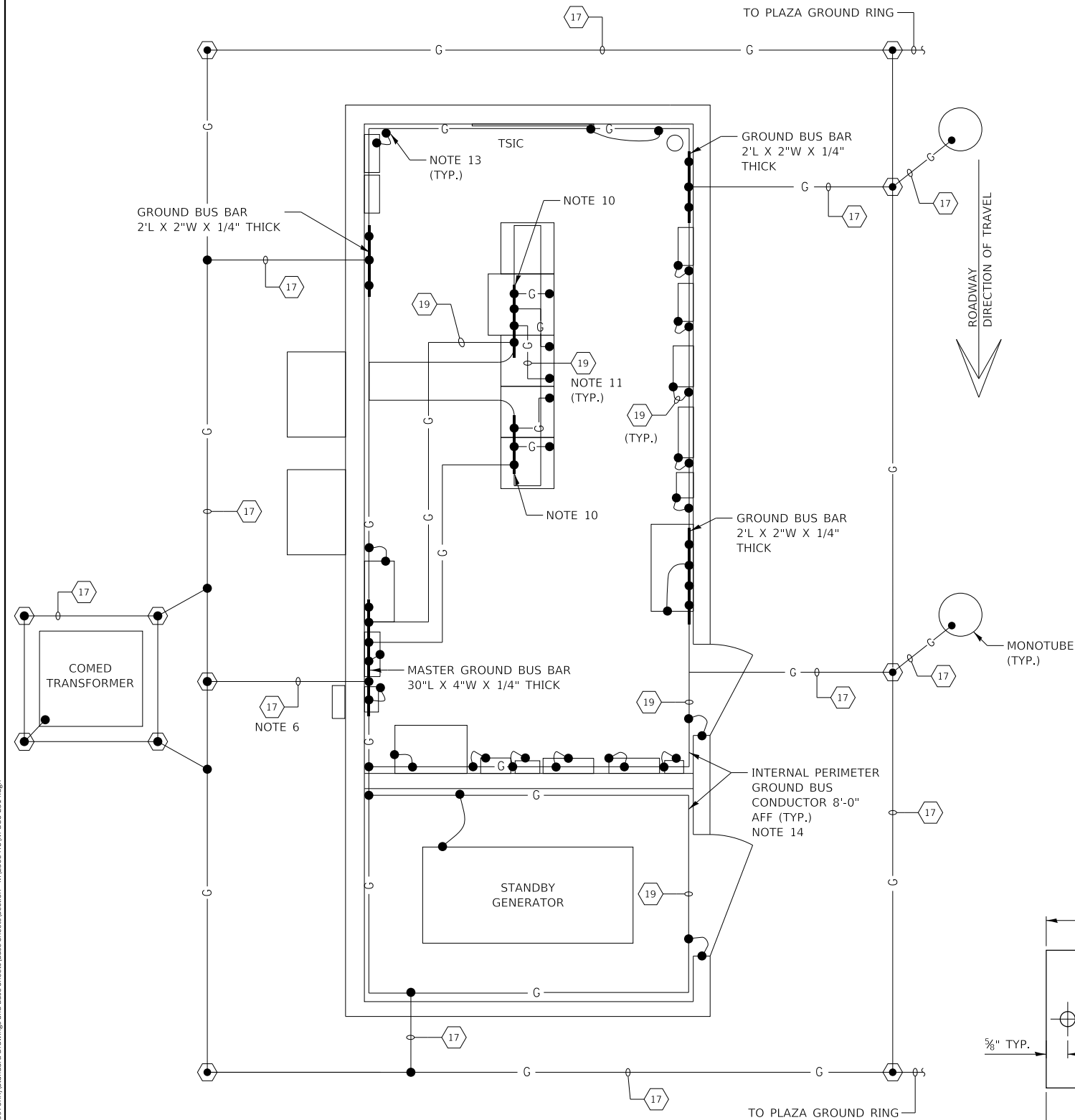
- FIBER-OPTIC CORNING RACK INTERCONNECT CENTER CCH-04U (4 RU)
- FIBER-OPTIC CORNING RACK INTERCONNECT CENTER CCH-04U (4 RU)
- FUTURE NETWORK SWITCHES - (1 RU) NOTE 11
- FUTURE NETWORK SWITCHES - (1 RU) NOTE 11
- COMMSCOPE MODULAR PATCH PANEL - (2 RU)
- GENERATOR RUNNING LIGHT



CONTROL BUILDING
LIGHTING AND
RECEPTACLE PLAN - MAIN
PLAZA

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

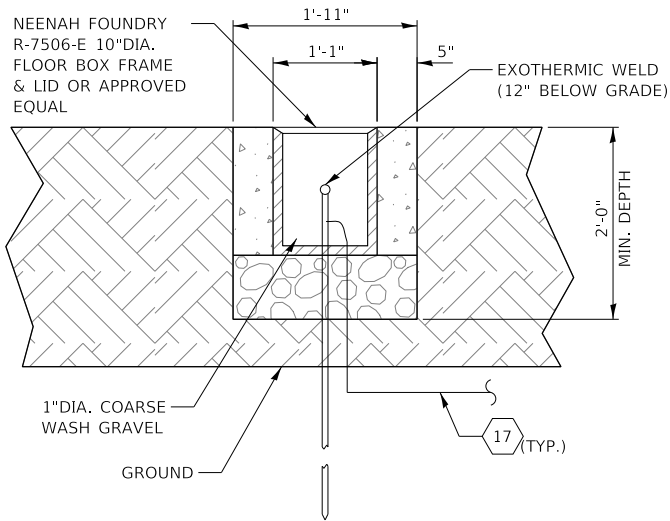
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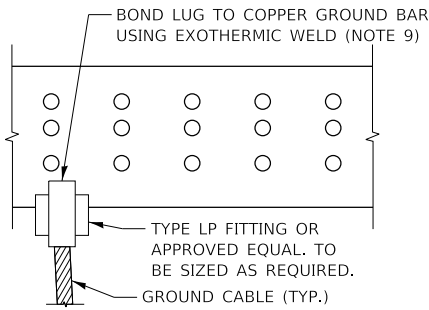
BUILDING ELECTRICAL GROUNDING LAYOUT
NOT TO SCALE

NOTE TO DESIGNER

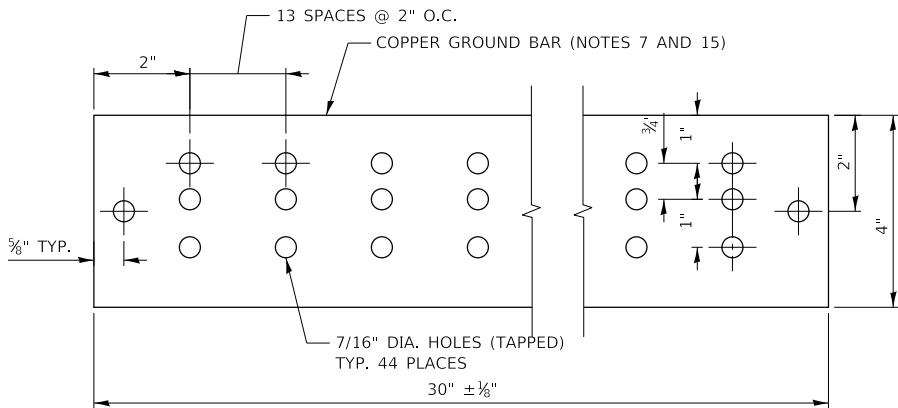
THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE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



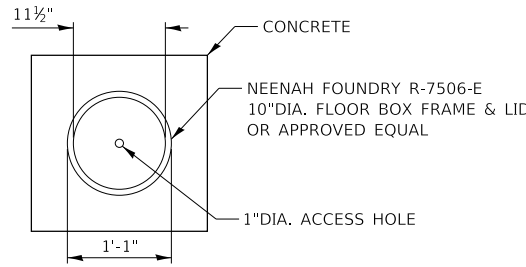
GROUND WELL ELEVATION DETAIL
(NOTE 3)



MASTER GROUND BUS BAR CONNECTION DETAIL
(NOT TO SCALE)



MASTER GROUND BUS BAR SUPPORT SPACING DETAIL



GROUND WELL PLAN DETAIL

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, COMMERCIALY 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 BUS BARS SHALL BE SOLID COPPER.
9. WELD PER MANUFACTURER SPECIFICATION (ERICO PRODUCTS OR BURNDY CORP.).
10. THE COPPER GROUND BUS BAR 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 BUS BARS MUST BE MOUNTED APPROXIMATELY 8 FEET ABOVE FINISHED FLOOR AND MOUNTED TO WALL USING A MOUNTING BRACKET WITH INSULATOR.

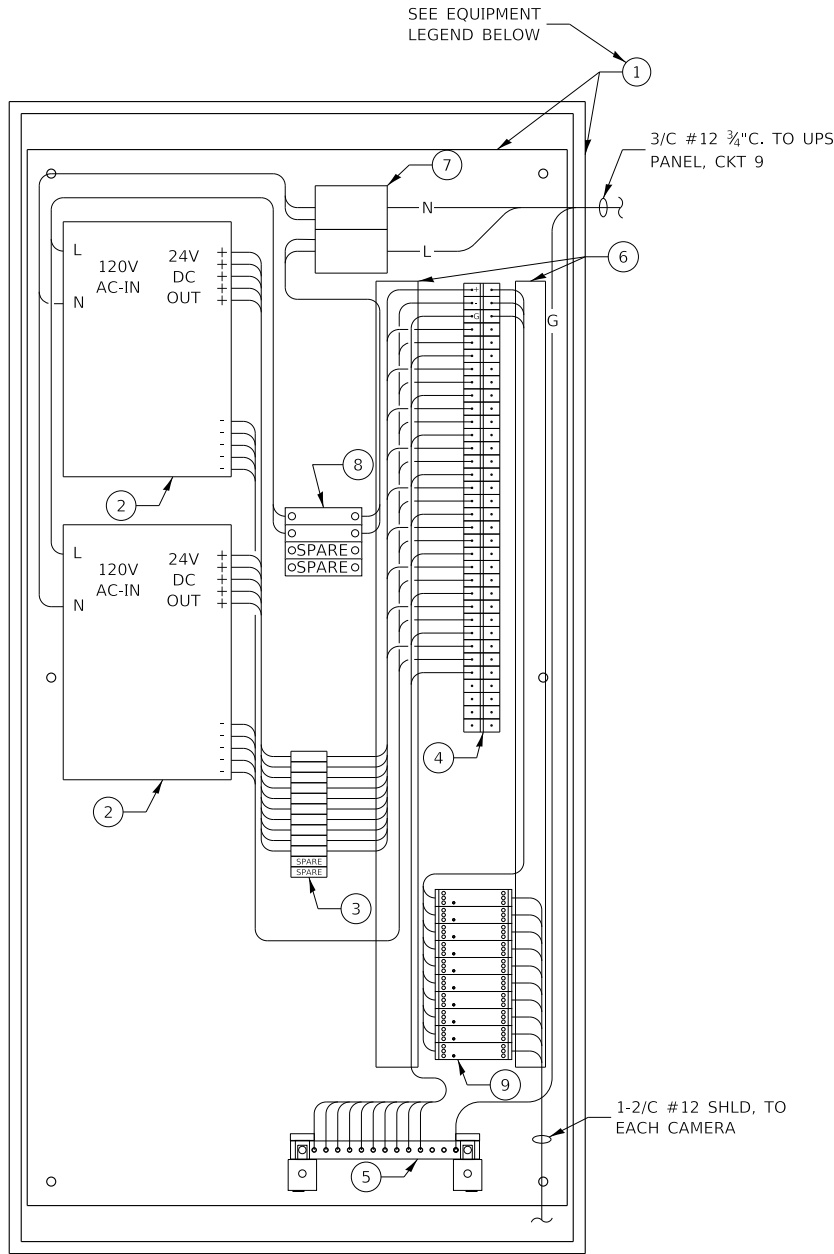


**CONTROL BUILDING
GROUNDING DETAILS -
MAIN PLAZA**

VERSION: 2021-03 STANDARD: M-BUS-2514 SHEET: 1 OF 1

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PANELBOARD										MDP-1		MAINS										250A. MCB	
VOLTAGE										120/208V		BUS RATING										300A.	
PHASE/WIRE										3/4		MOUNTING										SURFACE	
DESCRIPTION		CKT NO.	LOAD (WATTS)			AMPS/ POLES	CKT BKR		CKT BKR	AMPS/ POLES	LOAD (WATTS)			CKT NO.	DESCRIPTION								
			A	B	C						A	B	C										
PANEL MDP-2	1	11450				100/3				30/1	2400			2	UPS-1 (3 KVA)								
	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	LINE CONDITIONER							
AIR COMPRESSOR	31	3600			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)								
LINE CONDITIONER (LC-1)	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																				



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

EQUIPMENT LEGEND - VIDEO POWER JUNCTION BOX

ITEM	QUANTITY (SAMPLE)	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	2	POWER SUPPLY, 24VDC, TDK-LAMBDA NO. QM7FSDL 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.

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.

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 JUNCTION BOX DETAILS (M-ITS-2100 SERIES BASE SHEETS) FOR SECURITY CAMERAS AND DATA LOGGER CAMERA.

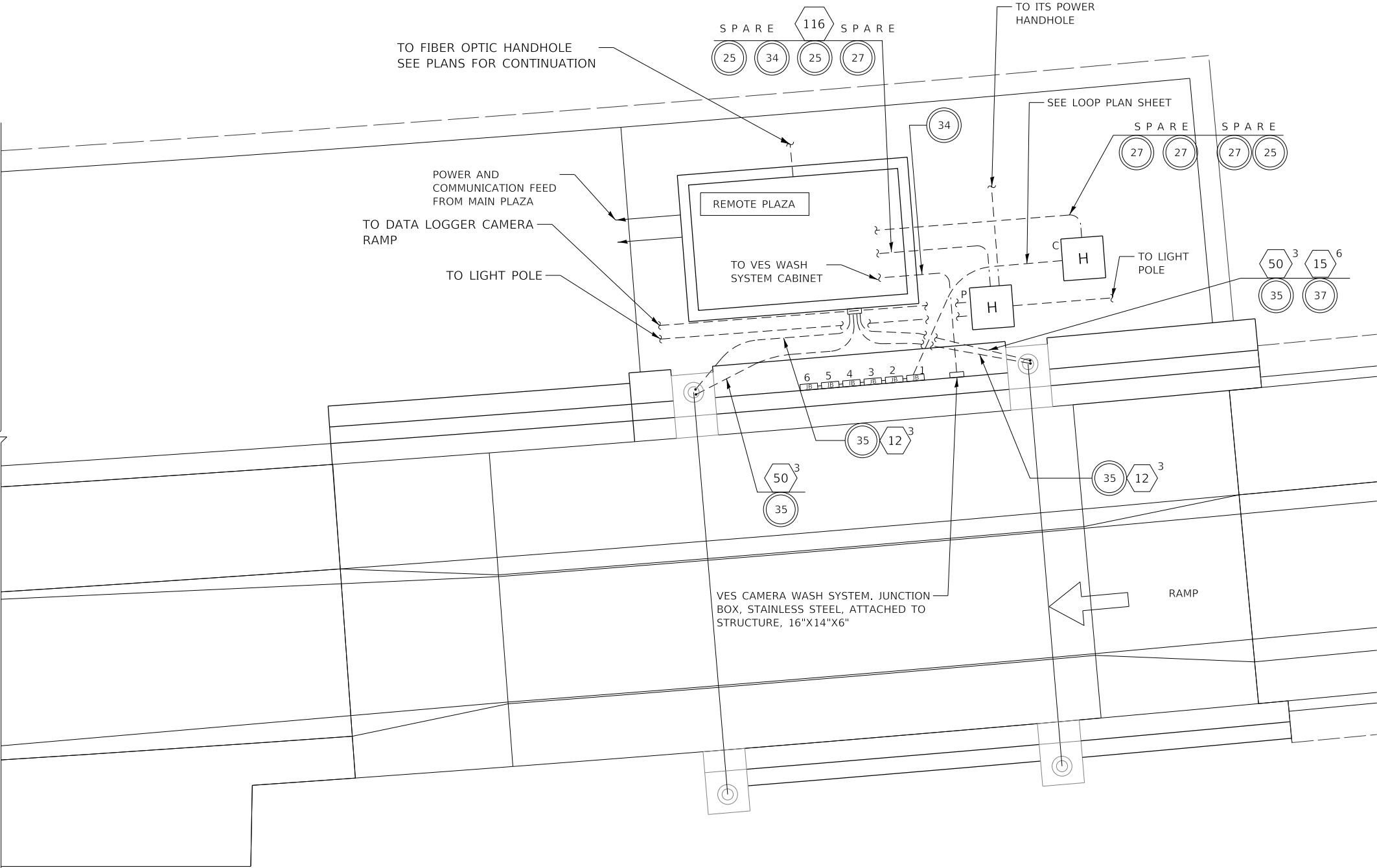


VIDEO POWER JUNCTION
BOX DETAIL - MAIN PLAZA

VERSION: 2021-03	STANDARD: M-BUS-2516	SHEET: 1 OF 1
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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

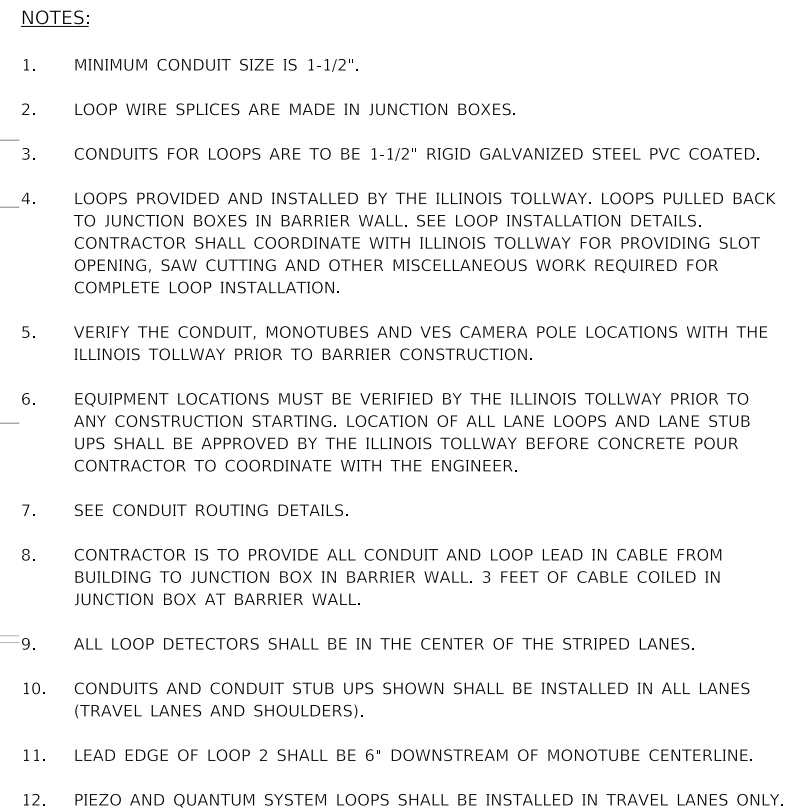
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UNDERGROUND CONDUIT
PLAN - REMOTE PLAZA

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



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

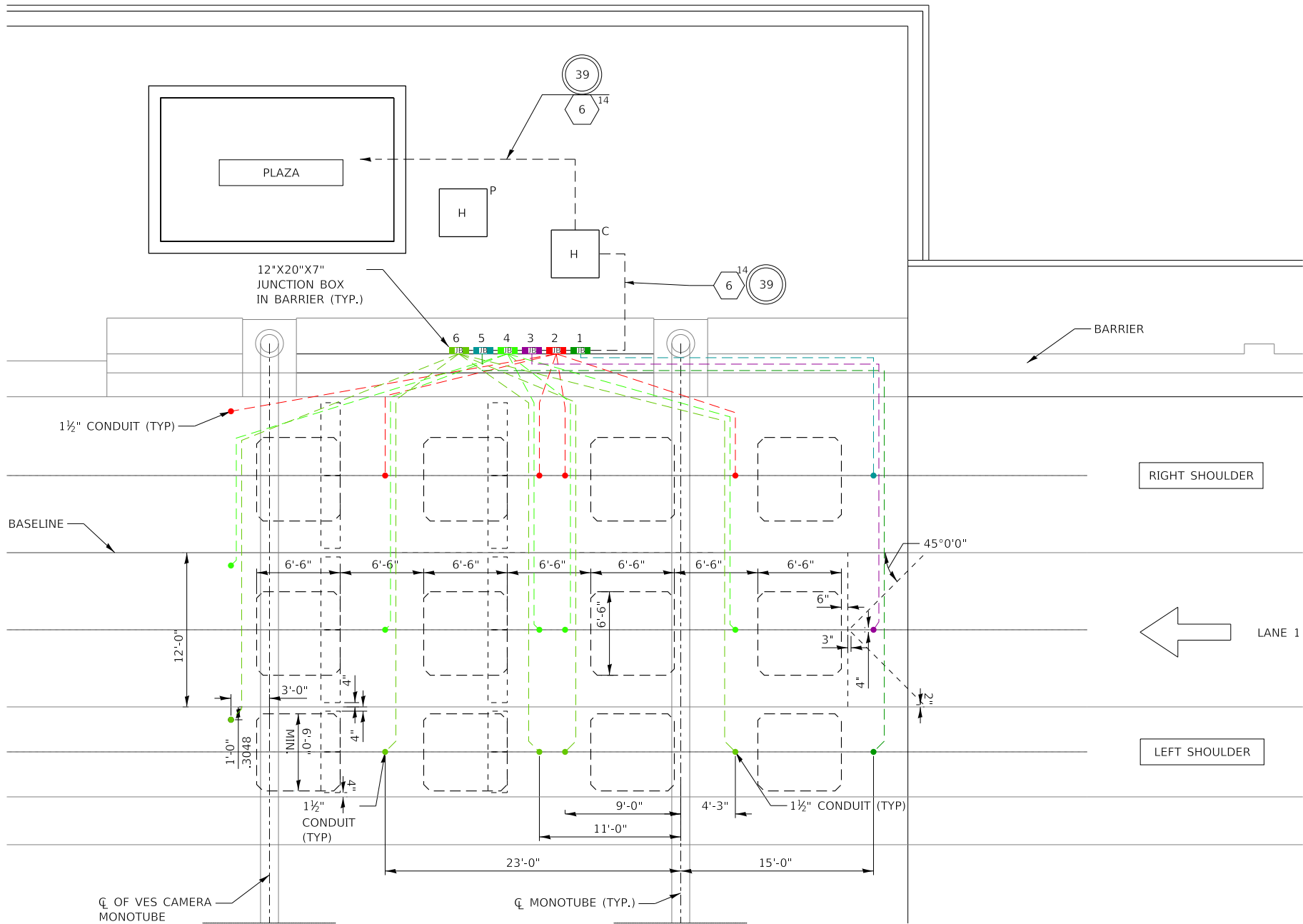
- A. SHOULDERS - (4) DLCs EACH SHOULDER FOR MAIN LOOPS.
- B. TRAVEL LANES - (6) DLCs EACH TRAVEL LANE:
 - (4) MAIN LOOPS + (1) PIEZO ANGLE LOOP + (1) SPARE



VERSION: 2021-03	STANDARD: M-BUS-2518A	SHEET: 1 OF 1
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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

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

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.

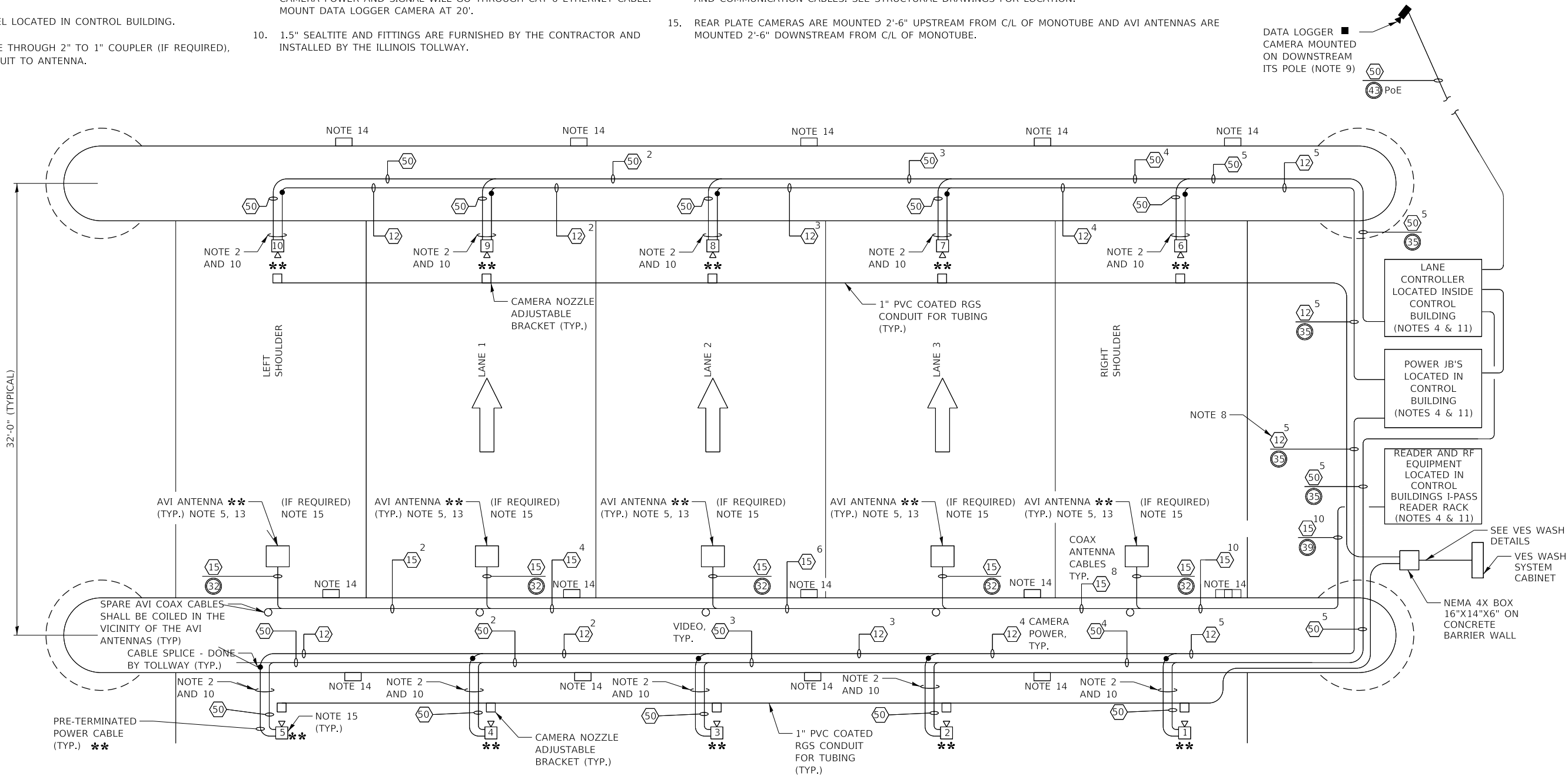


LOOP PLAN - AET 1-LANE LAYOUT

VERSION: 2021-03	STANDARD: M-BUS-2518B	SHEET: 1 OF 1
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NOTES:

- SEE CABLE/CONDUIT SCHEDULE AND NOTES SHEET FOR CABLE TAGS.
- 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.
- VES CAMERA NUMBERING SCHEME BEGIN AT RIGHT SHOULDER AND ARE ORDERED SEQUENTIALLY (1, 2, 3, ... ETC) TO LEFT SHOULDER.
- ALL CABINETS AND POWER PANEL LOCATED IN CONTROL BUILDING.
- COAX FOR AVI ANTENNAS ROUTE THROUGH 2" TO 1" COUPLER (IF REQUIRED), THEN RUN IN 1" SEALTITE CONDUIT TO ANTENNA.
- EQUIPMENT LOCATIONS MUST BE VERIFIED BY THE ILLINOIS TOLLWAY PRIOR TO CONSTRUCTION AND INSTALLATION.
- IF VES CAMERAS ARE MOUNTED 18' ABOVE THE ROADWAY, THEN THE CAMERAS SHALL BE PLACED 33' HORIZONTAL FROM THE TRIGGER.
- THIS CABLING IS USED TO POWER THE VES CAMERAS. THESE CABLES WILL RUN FROM A 24V DC POWER SUPPLY LOCATED IN THE VPJB.
- 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'.
- 1.5" SEALTITE AND FITTINGS ARE FURNISHED BY THE CONTRACTOR AND INSTALLED BY THE ILLINOIS TOLLWAY.
- 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.
- 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.
- NOT USED.
- CONTRACTOR SHALL FURNISH AND INSTALL JUNCTION BOX 12"X12"X6" TYPE NEMA 4X, (*HOFFMAN A1212CHNF55*) ON DOWNSTREAM SIDE OF THE ENTRANCE AND EXIT MONOTUBES FOR TERMINATION OF POWER AND COMMUNICATION CABLES. SEE STRUCTURAL DRAWINGS FOR LOCATION.
- 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.
- INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR.



WIRING DIAGRAM - AET
3-LANE LAYOUT

VERSION: 2021-03 STANDARD: M-BUS-2519A SHEET: 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.

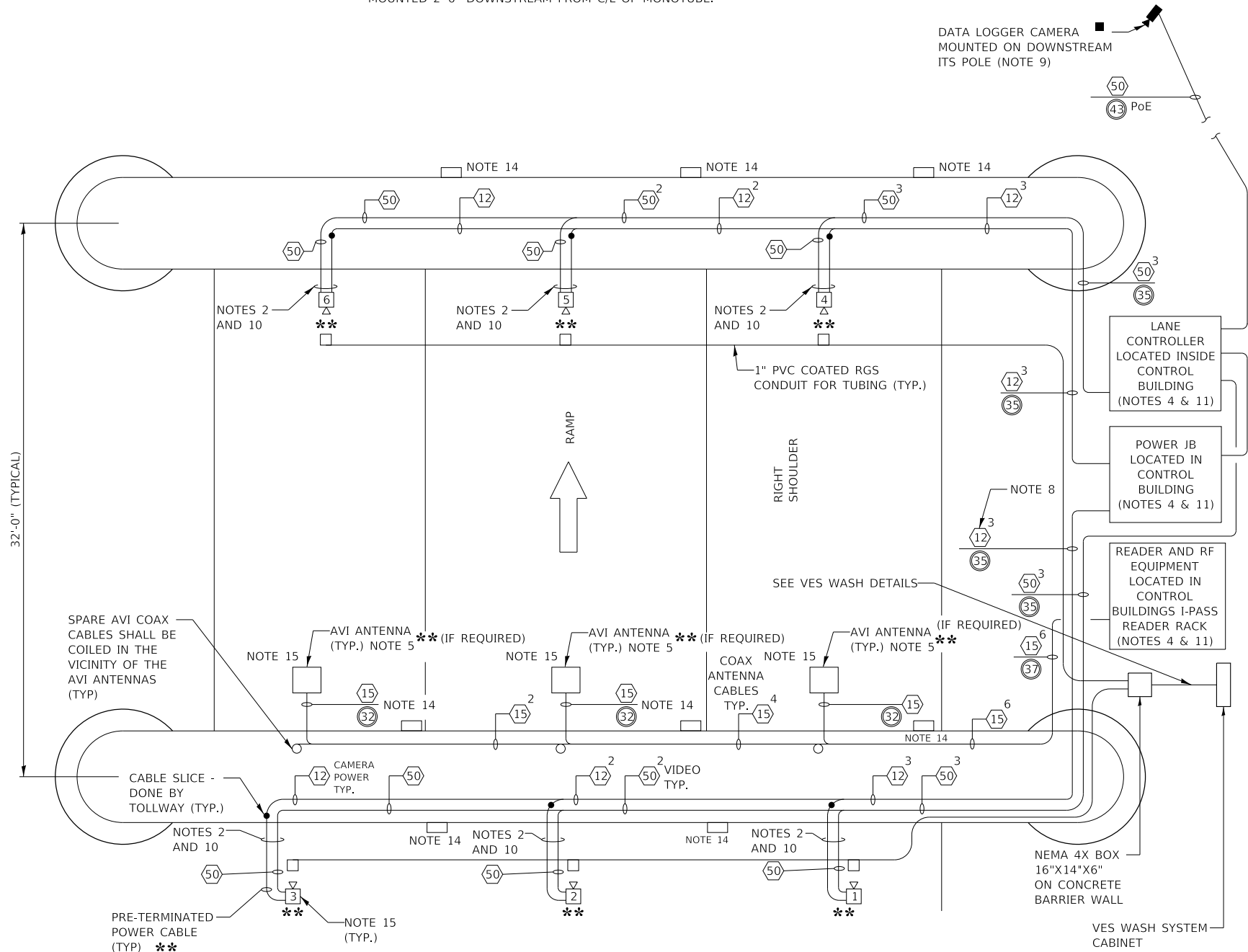
NOTE TO DESIGNER

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.

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.



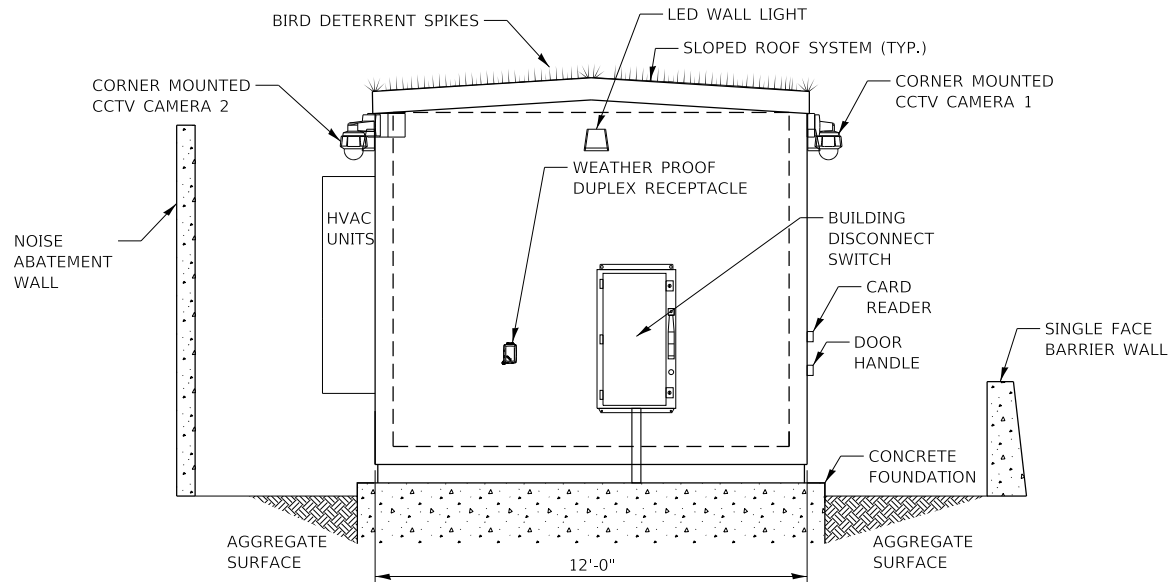
FRONT / REAR PLATE VES BLOCK WIRING DIAGRAM



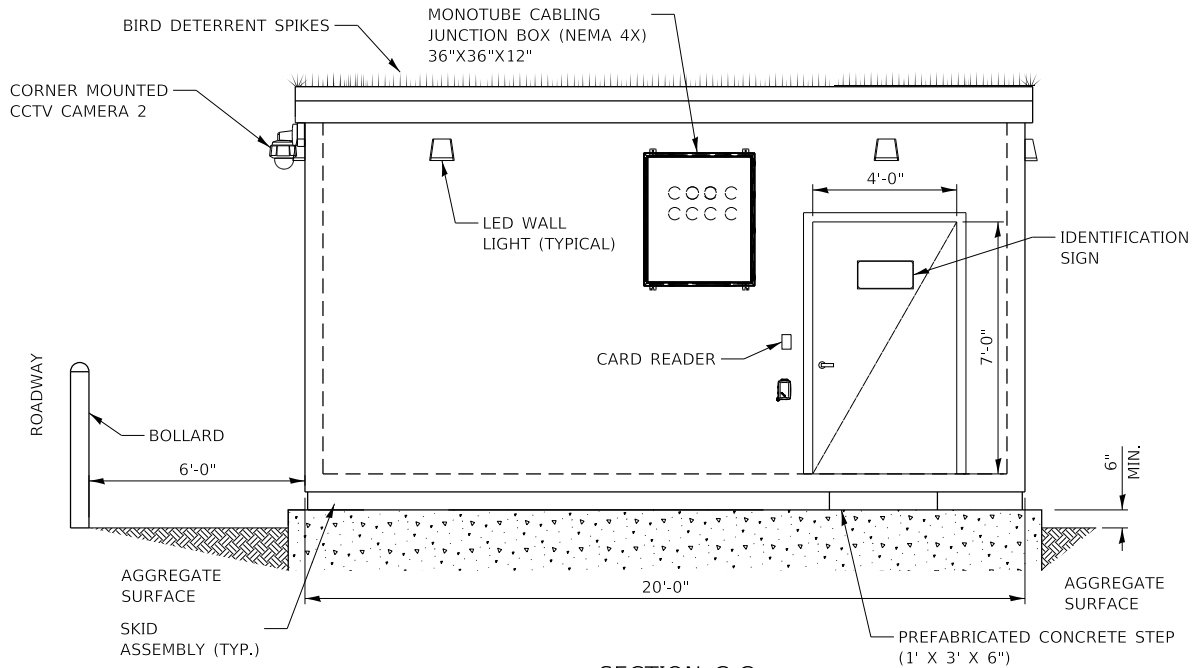
WIRING DIAGRAM - AET
1-LANE LAYOUT

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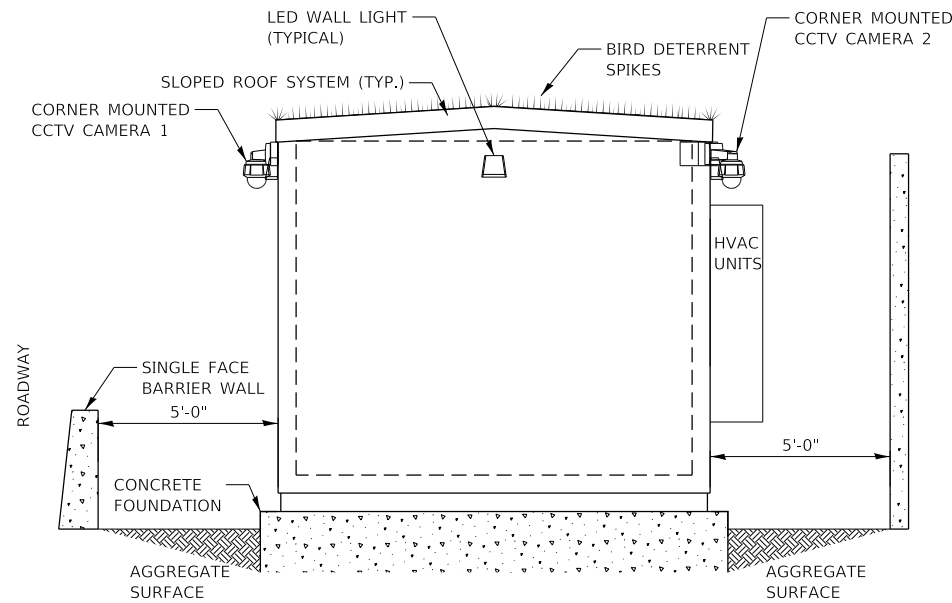
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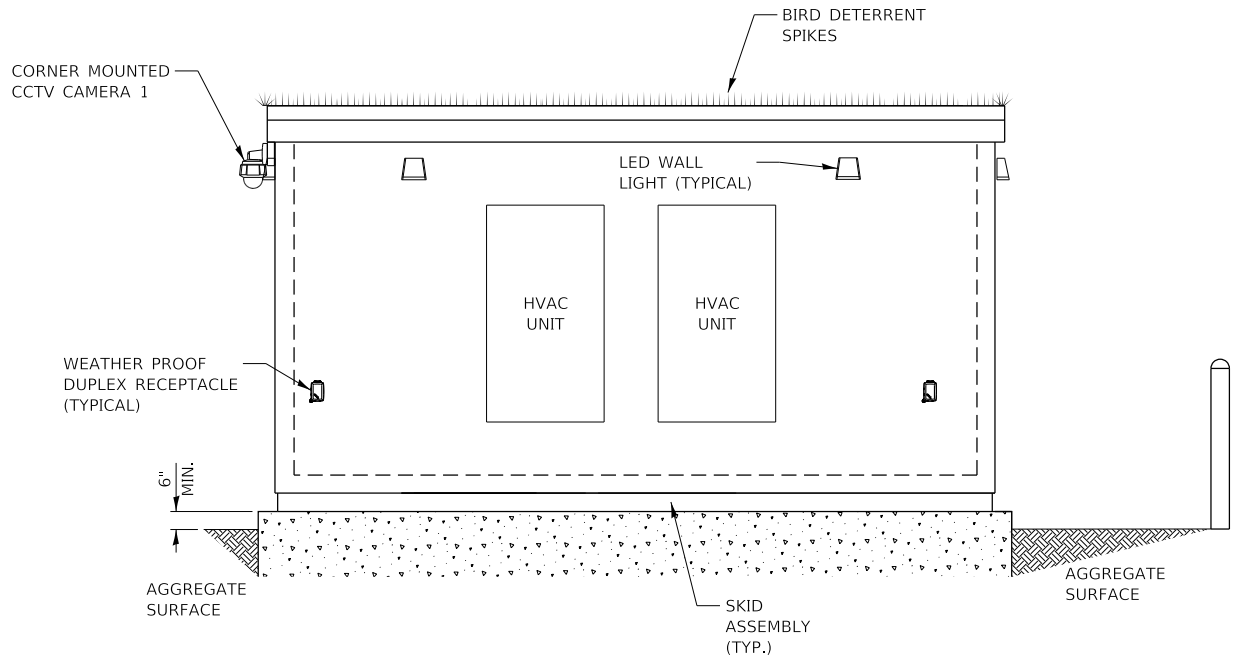
SECTION A-A
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M-BUS-2521



SECTION C-C
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SECTION B-B
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M-BUS-2521



SECTION D-D
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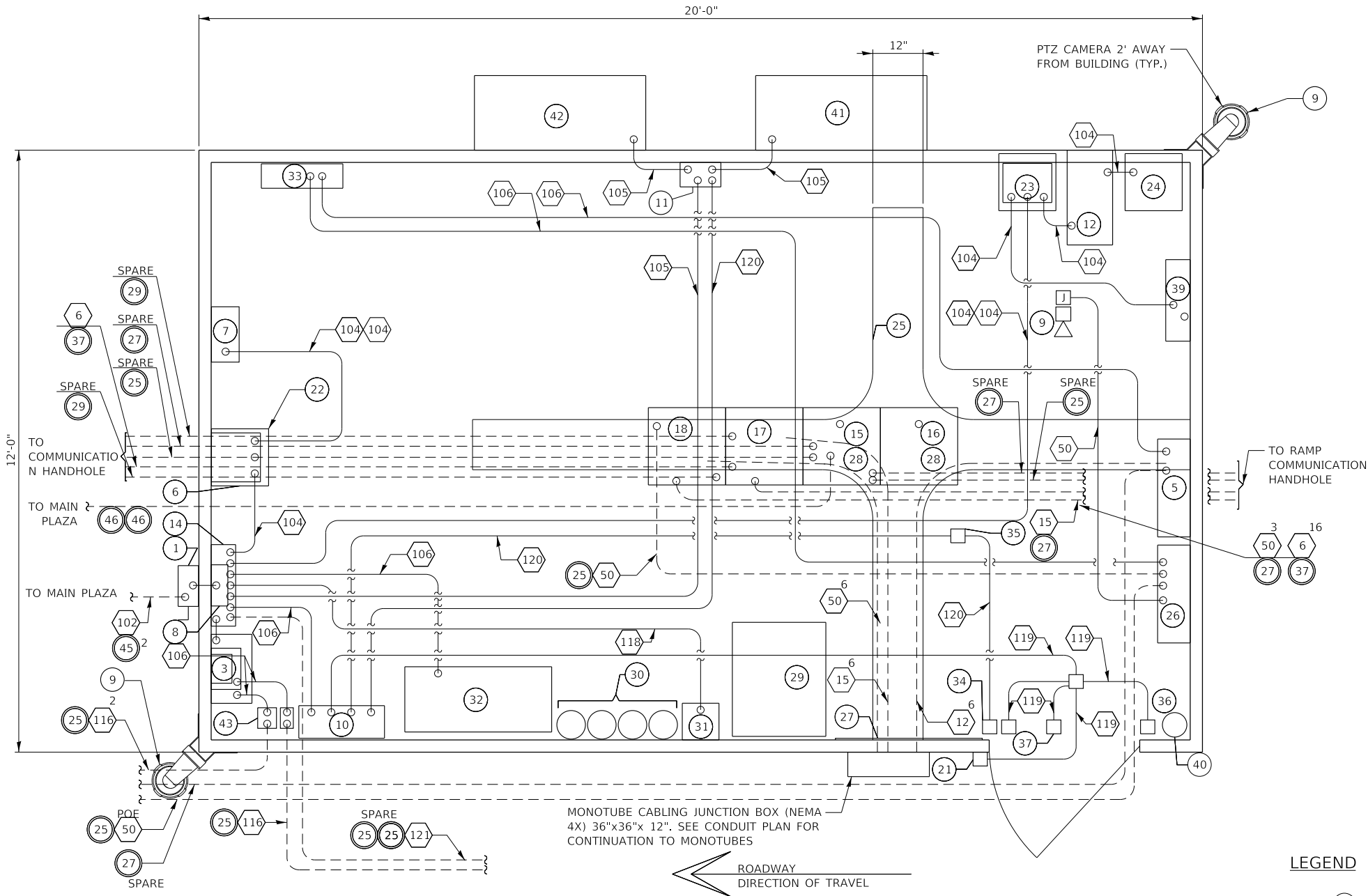


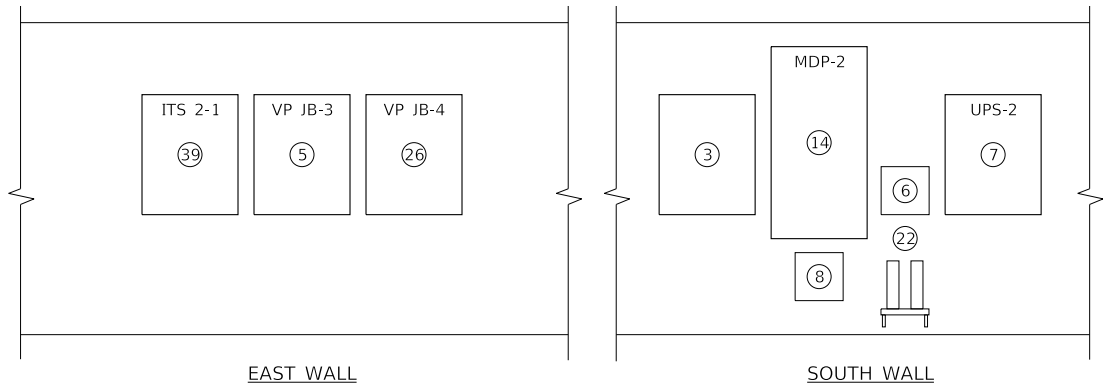
EXTERIOR ELEVATIONS -
REMOTE PLAZA

VERSION: 2021-03	STANDARD: M-BUS-2520	SHEET: 1 OF 1
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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 SHELIVING SYSTEM AS DIRECTED BY THE ENGINEER
26	VIDEO JB POWER #4
39	ITS 2-1 PANEL

NOTES:

- CONTRACTOR SHALL ROUTE ALL CONDUIT AS REQUIRED TO ALL PANELS, EQUIPMENT AND CONTROL DEVICES.
- 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.
- MINIMUM CLEARANCE BETWEEN CABINETS SHALL ALLOW THE DOORS TO OPEN 90 DEGREES MINIMUM.

NOTE TO DESIGNER

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INTERIOR ELEVATIONS -
REMOTE PLAZA

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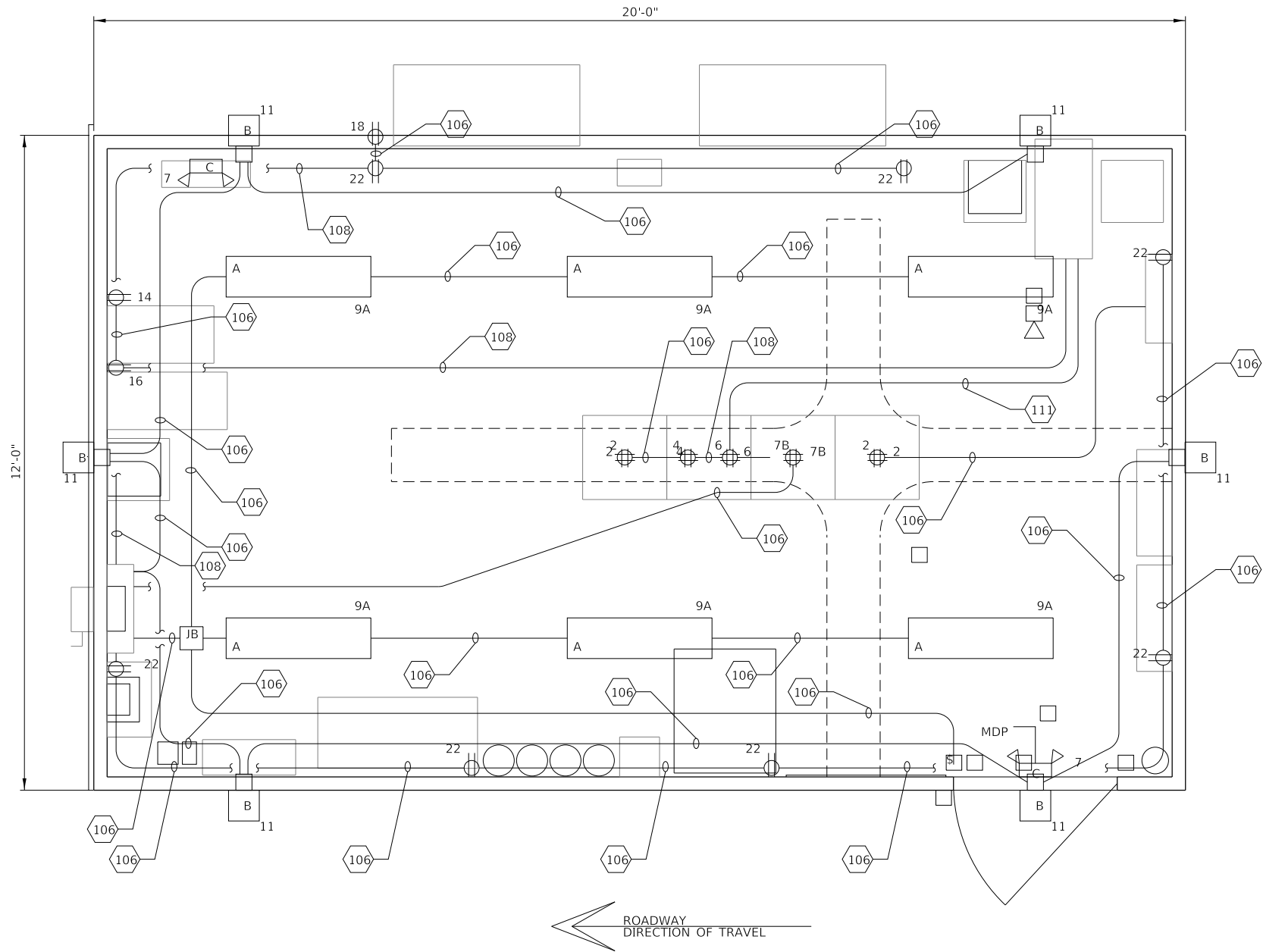
1. UNIT SHALL HAVE ARI CERTIFIED COILS, AIWCA RATED FANS, AND UL LISTED & LABELED ELECTRICAL COMPONENTS.
2. PROVIDE HVAC UNITS WITH FACTORY SUPPLY AND RETURN GRILLES.
3. HVAC PROVIDE LEAD/LAG THERMOSTAT CONTROLLER BARD MODEL #MC4001-AC WITH BASE ALARMS AND ETHERNET ACCESS.
4. ALL MANUFACTURERS AND PART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

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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	R410A	45.5	34.0	75	62	90	11	17.1	70	0	5	240	1	60	BARD WL4S2-A05TPXXXJ	
HVAC-02	OUTSIDE	BUILDING	4	1500	-	0.15	R410A	45.5	34.0	75	62	90	11	17.1	70	0	5	240	1	60	BARD WA4S3-A05TPXXXJ	

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REMOTE TOLL PLAZA - BUILDING LIGHTING
AND RECEPTACLE PLAN
N. T. S.

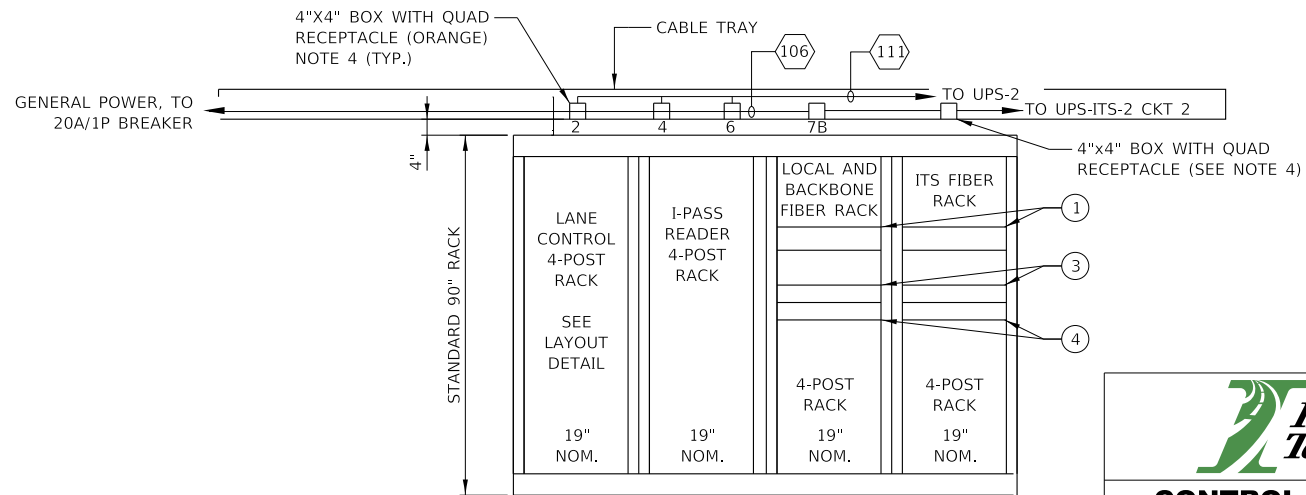
N.T.S.

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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)



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-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.















CONTROL BUILDING LIGHTING AND RECEPTACLE PLAN - REMOTE PLAZA

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PANELBOARD					MDP-2			MAINS					100A. MCB		
VOLTAGE					120/208V			BUS RATING					100A.		
PHASE/WIRE					3/4			MOUNTING					SURFACE		
DESCRIPTION	CKT NO.	LOAD (WATTS)			AMPS/ POLES	CKT BKR		CKT BKR	AMPS/ POLES	LOAD (WATTS)			CKT NO.	DESCRIPTION	
		A	B	C						A	B	C			
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	LINE CONDITIONER		
LINE CONDITIONER (LC-1)	25	2500			30/2				--			26			
	27		2500					20/1		--		28	SPARE		
SPARE	29			--	30/1			30/2			1250	30	UPS-ITS-2 (5 KVA)		
SPARE	31	--			20/1				1250			32			
ROADWAY LTG TRANSFORMER	33		960		20/2			20/1		--		34	SPARE		
ROADWAY LTG TRANSFORMER	35			960				40/1			3600	36	AIR COMPRESSOR		
"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													

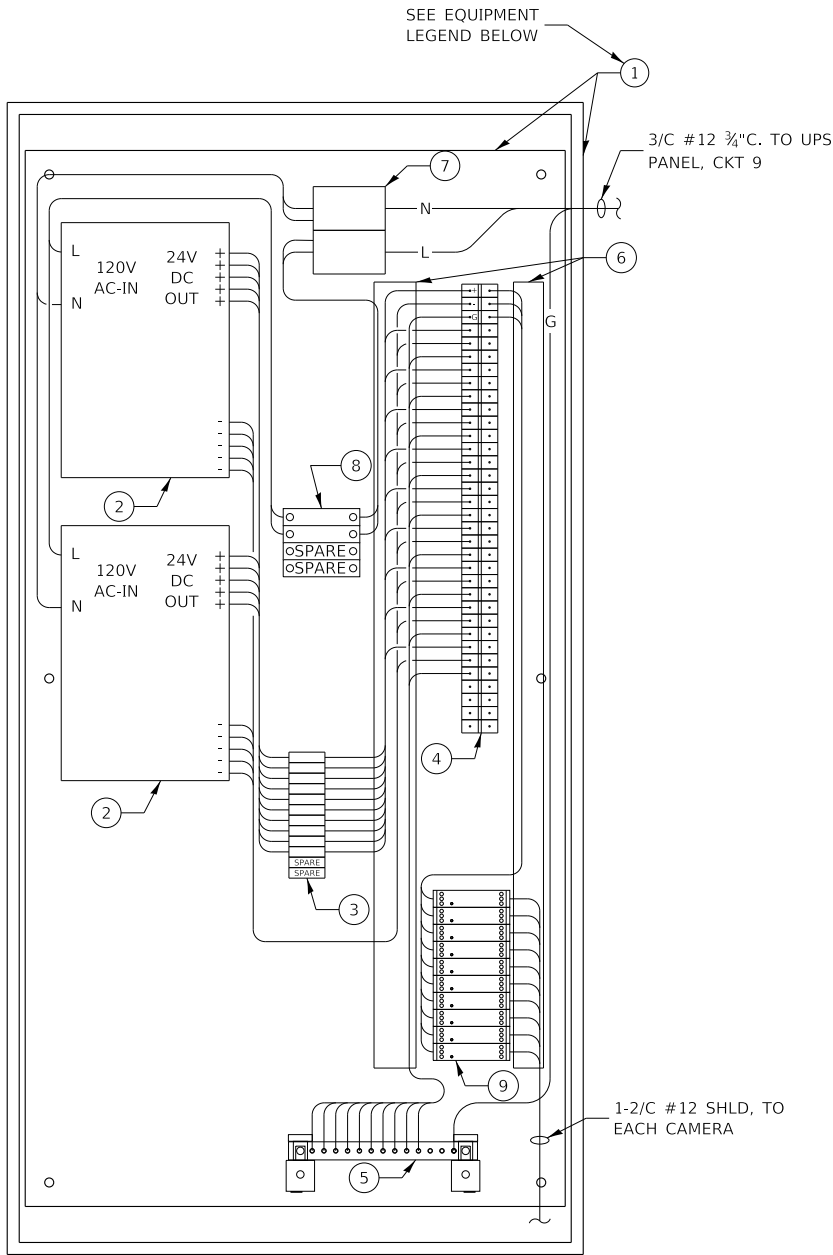
PANELBOARD <u>UPS-2</u>								MAINS <u>30A. 1P. MCB</u>			
VOLTAGE <u>120V.</u>								BUS RATING <u>30A.</u>			
PHASE/WIRE <u>1/2</u>								MOUNTING <u>SURFACE</u>			
DESCRIPTION	CKT NO.	LOAD (WATTS)	AMPS/ POLES	CKT BKR		CKT BKR	AMPS/ POLES	LOAD (WATTS)	CKT NO.	DESCRIPTION	
SPARE	1	--	20/1				20/1	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 <u>ITS 2</u>										MAINS <u>30A. 2P. MCB</u>									
VOLTAGE <u>120V / 208V</u>										BUS RATING <u>60A.</u>									
PHASE/WIRE <u>1/3</u>										MOUNTING <u>SURFACE</u>									
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																

NOTE TO DESIGNER

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

EQUIPMENT LEGEND -
VIDEO POWER JUNCTION BOX

ITEM	QUANTITY (SAMPLE)	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	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.

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.

NOTE TO DESIGNER

THE DESIGNER SHALL INCLUDE VIDEO POWER JUNCTION BOX DETAILS (M-ITS-2100 SERIES BASE SHEETS) FOR SECURITY CAMERAS AND DATA LOGGER CAMERA.

NOTE TO DESIGNER

THE DESIGNER SHALL ADJUST DETAIL AND QUANTITIES AS REQUIRED FOR NUMBER OF VES CAMERAS.

NOTE TO DESIGNER

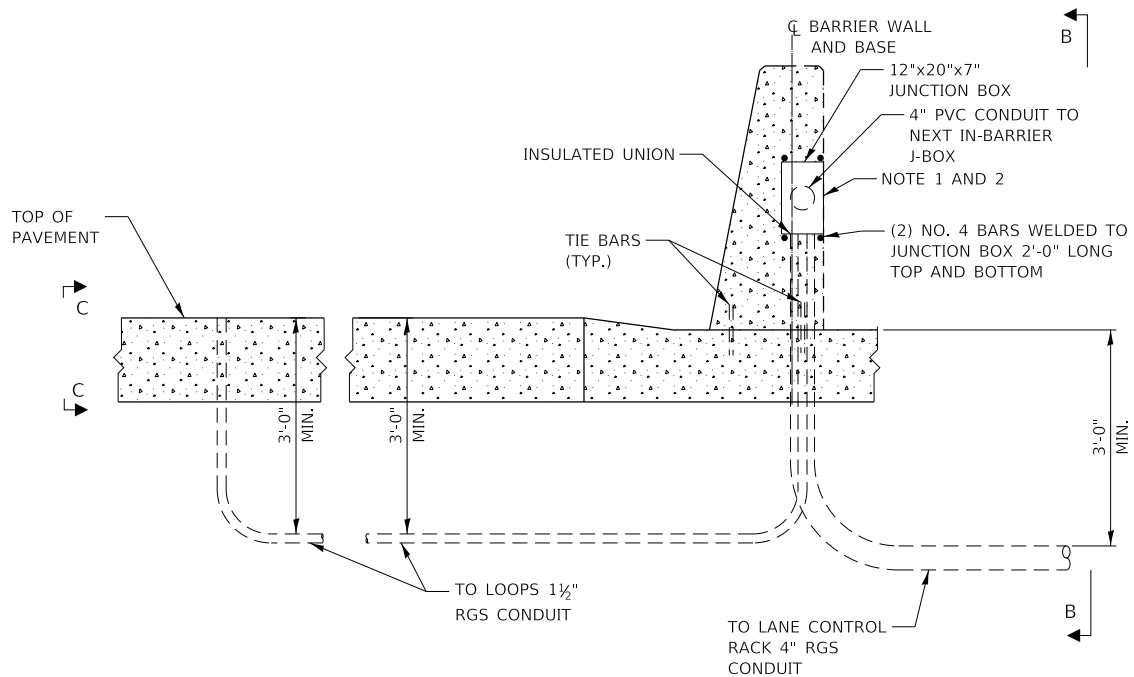
THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS **NOT** A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF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



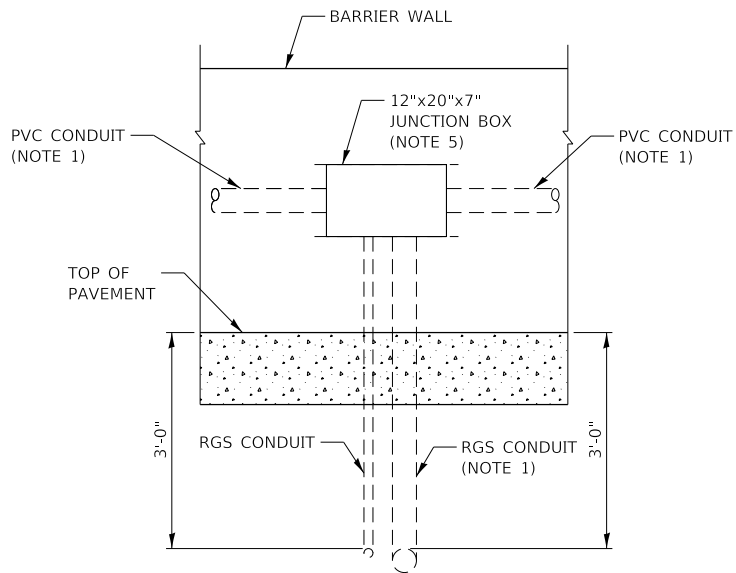
VIDEO POWER JUNCTION
BOX DETAIL - REMOTE
PLAZA

VERSION:	STANDARD:	SHEET:
2021-03	M-BUS-2527	1 OF 1

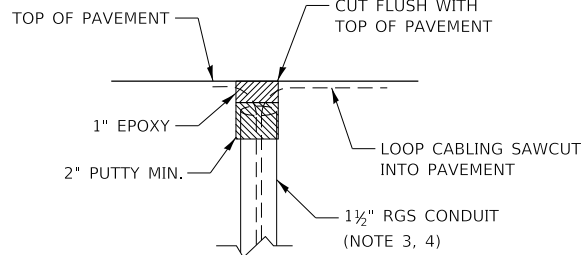
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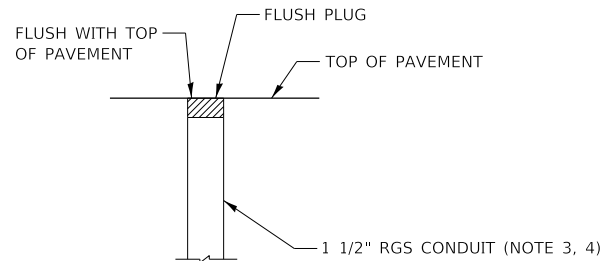
SECTION A-A
(LANE LOOP LAYOUT)
N.T.S.



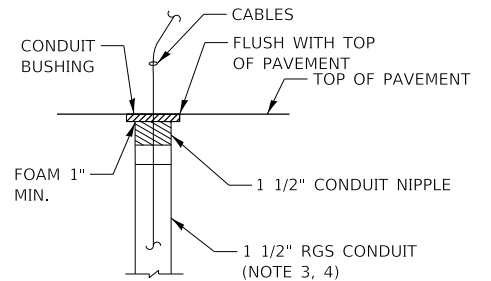
ELEVATION B-B
EMBEDDED JUNCTION BOX IN
BARRIER WALL ELEVATION
N.T.S.



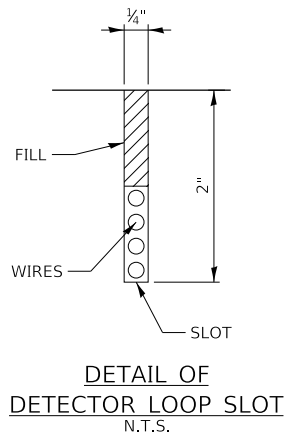
SECTION C-C
LOOP INSTALLATION DETAILS
N.T.S.



SECTION C-C
PRIOR TO ROAD OR
ISLAND CONSTRUCTION
N.T.S.



SECTION C-C
EQUIPMENT ENDS AFTER
CABLE INSTALLATION
N.T.S.



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 1 1/2" FOR QUANTUM AND PIEZO STRIPS, 1 1/2" 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

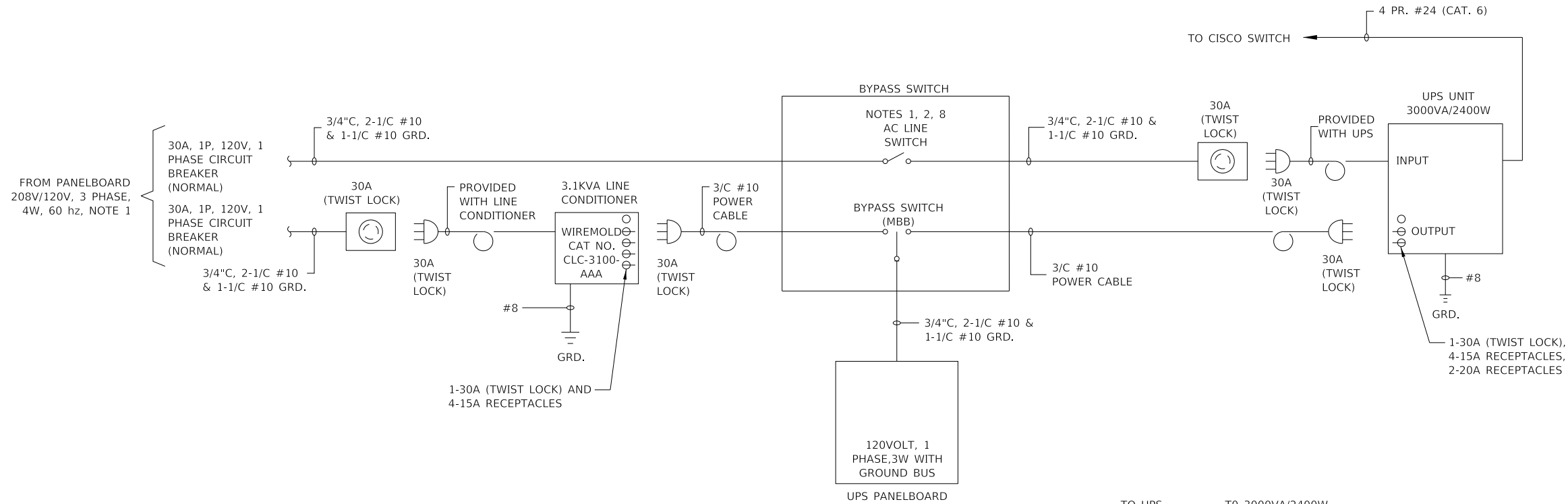
THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS **NOT** A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF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



**LOOP JUNCTION BOX
DETAIL**

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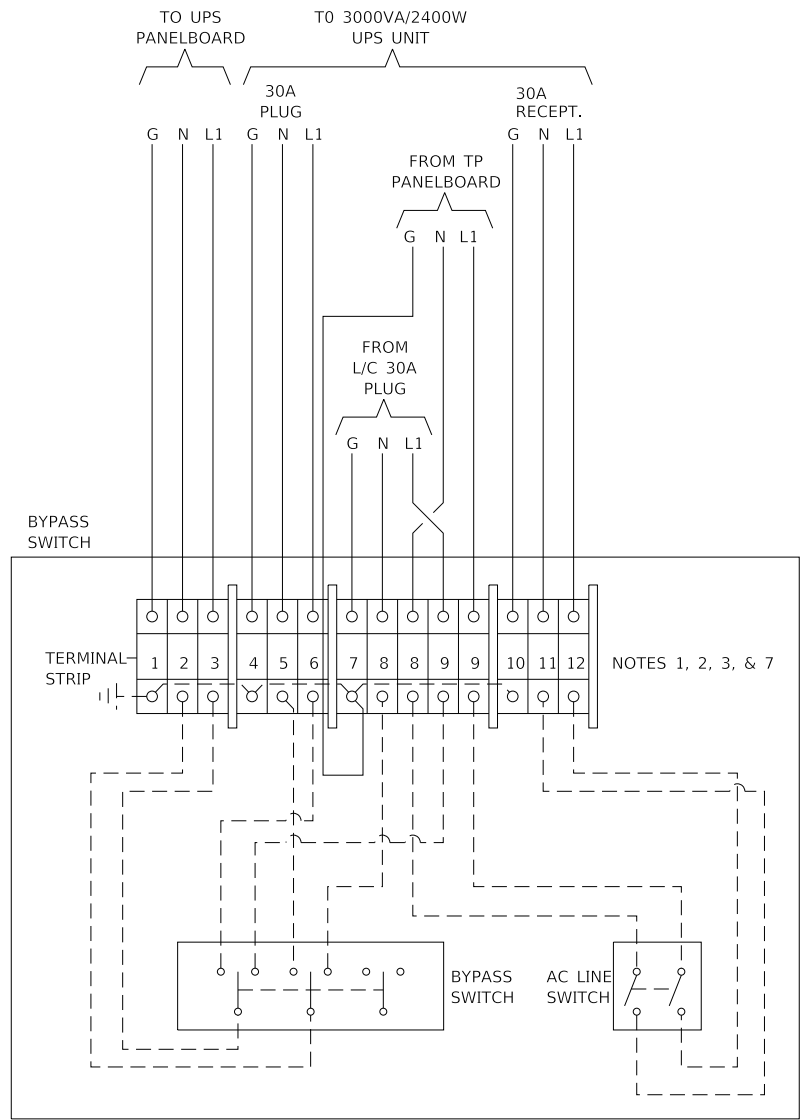


SAMPLE UPS SINGLE LINE DIAGRAM
3000VA SHOWN

NOTE TO DESIGNER

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

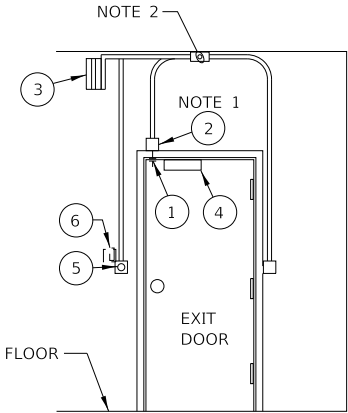


BYPASS SWITCH WIRING DIAGRAM



UPS SINGLE LINE AND
WIRING DIAGRAM

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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:

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

NOTE TO DESIGNER

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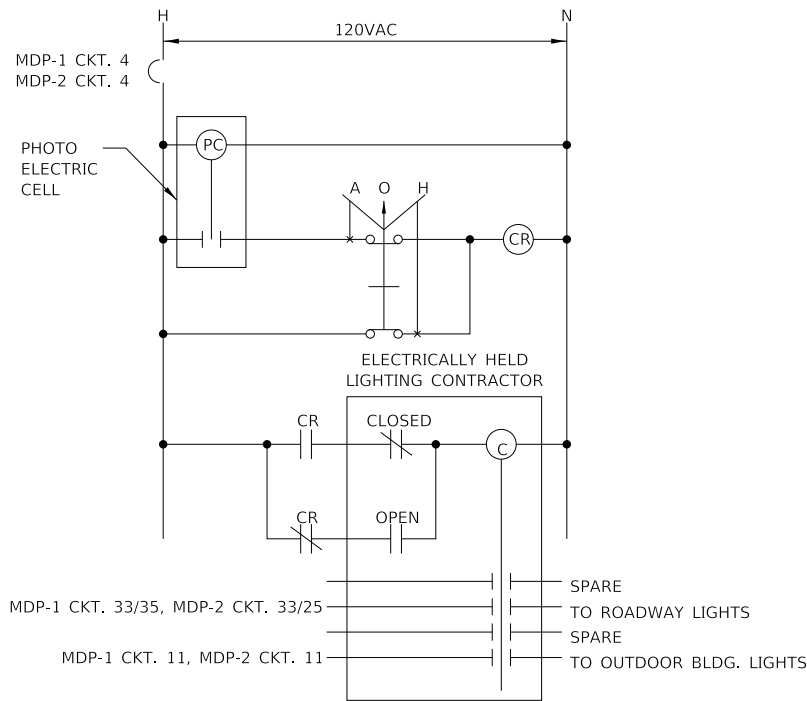
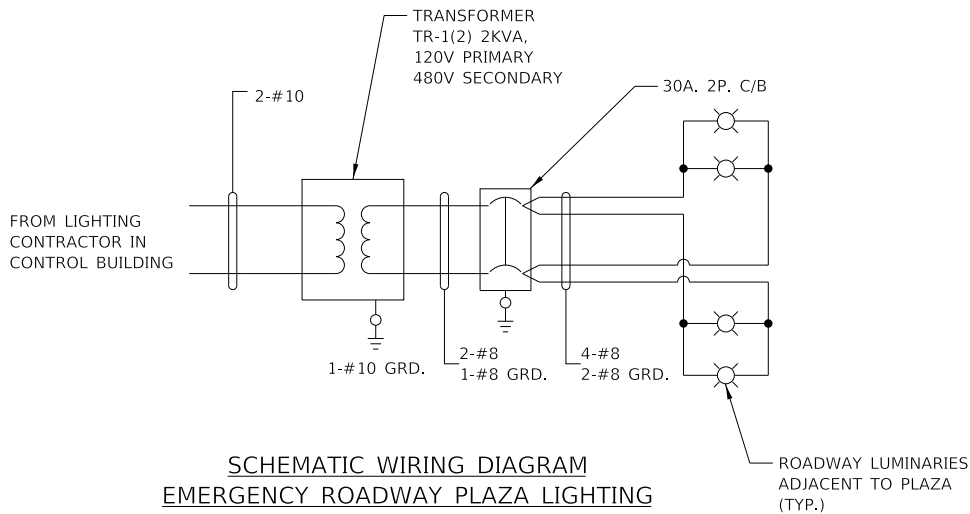
DOOR ALARMS DETAIL

VERSION: 2021-03	STANDARD: M-BUS-2530	SHEET: 1 OF 1
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PLOT NAME: M-BUS-2531

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- NOTES:
- SEE SYMBOLS AND ABBREVIATIONS SHEET FOR LEGEND.
 - SEE PLANS FOR CABLE AND CONDUIT ROUTING.

NOTE TO DESIGNER

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MISCELLANEOUS
SCHEMATIC DIAGRAMS

NOTE TO DESIGNER

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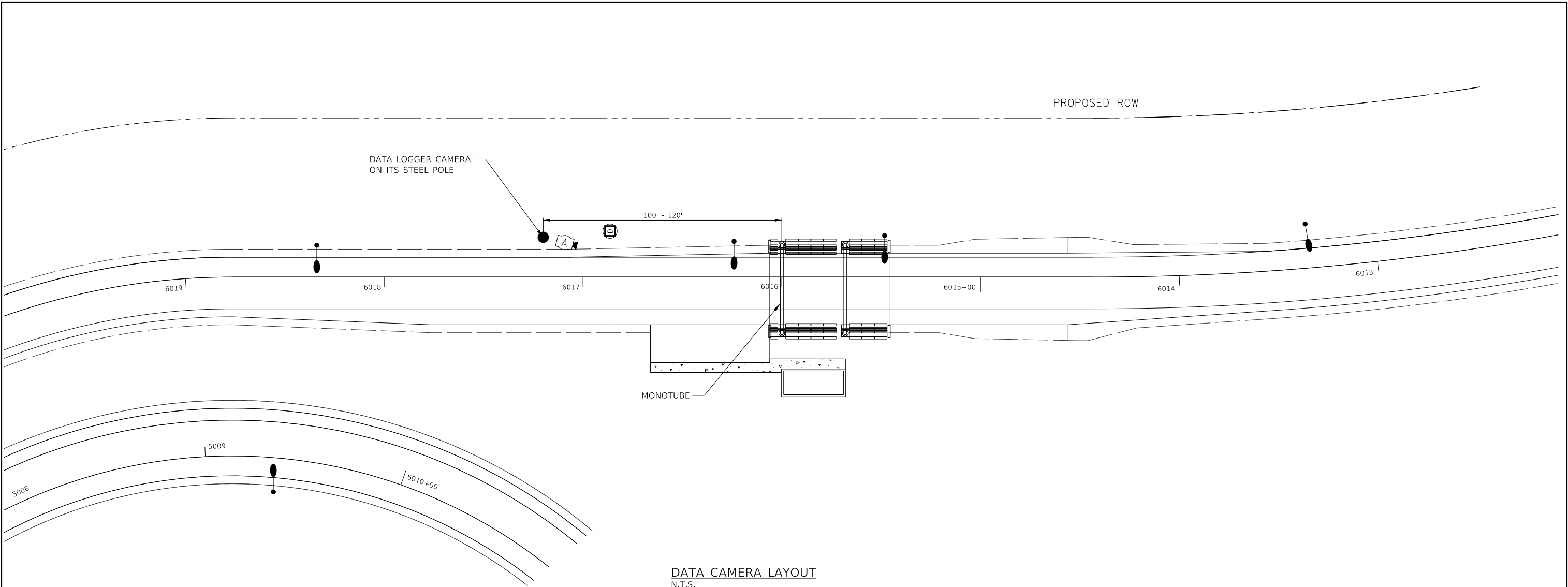
1. TERMINAL STRIP INTERCONNECT CENTER (TSIC) IS LOCATED IN THE CONTROL BUILDING. SEE BUILDING EQUIPMENT LAYOUT DRAWINGS, FOR LOCATION.
2. ROUTE #6 COPPER GROUND CABLE FROM GROUND BUS BAR TO INTERNAL PERIMETER GROUND BUS CONDUCTOR.
3. ALL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS 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.	

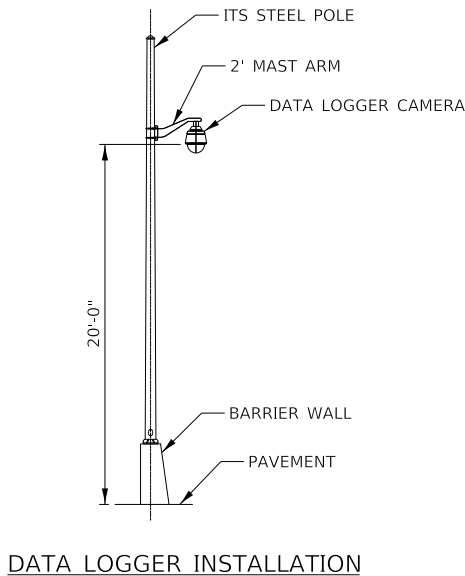
6 PAIR DATA/COMMUNICATIONS CABLE COLOR CODE CHART	
PAIR NO.	MFGR'S COLOR CODE CHART COLOR COMBINATION
CABLE-2	
1	BLACK PAIRED WITH RED
2	BLACK PAIRED WITH WHITE
3	BLACK PAIRED WITH GREEN
4	BLACK PAIRED WITH BLUE
5	BLACK PAIRED WITH YELLOW
6	BLACK PAIRED WITH BROWN
6 PR. #22 CABLE WITH INDIVIDUALLY SHIELDED 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.	

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DATA CAMERA LAYOUT
N.T.S.



DATA LOGGER INSTALLATION

NOTE TO DESIGNER

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NOTES:

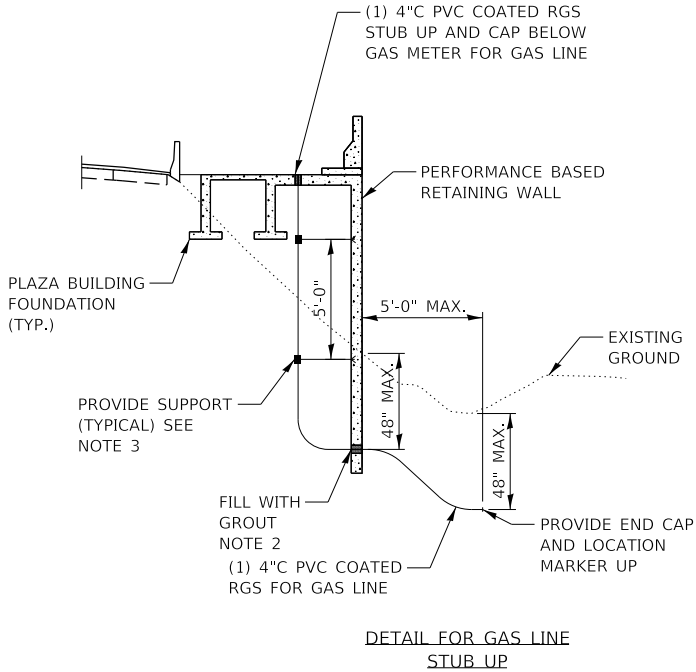
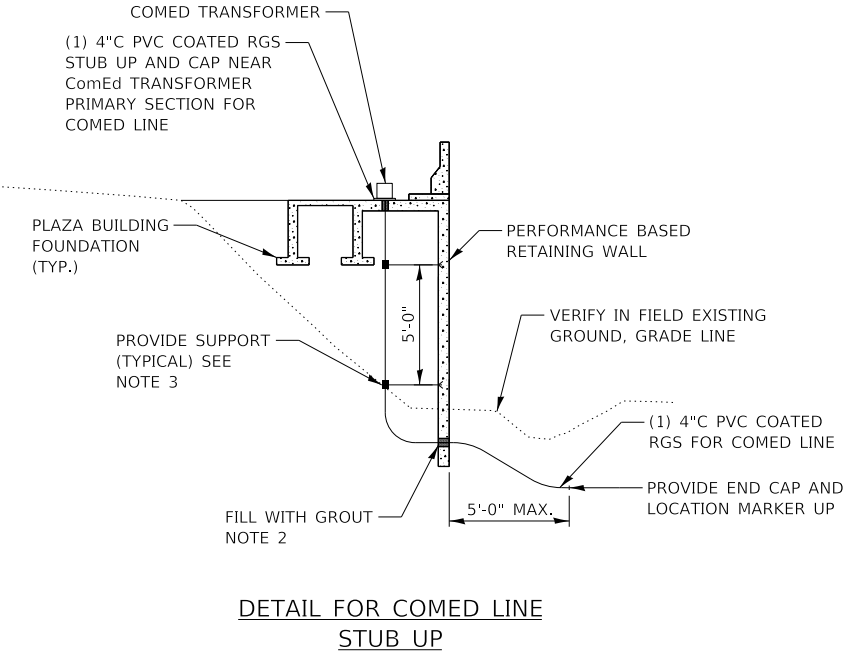
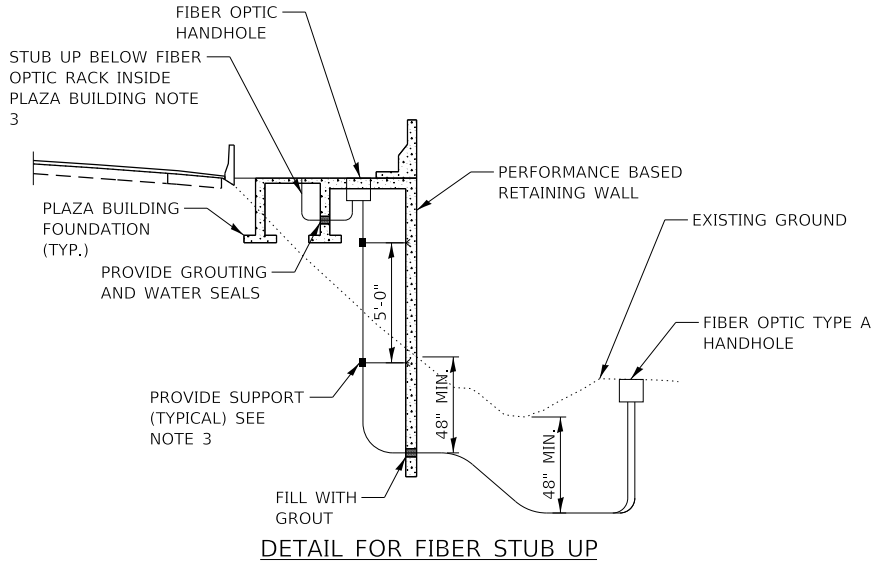
1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. INSTALL CABLES BETWEEN THE PLAZA AND CAMERA PER MANUFACTURER'S RECOMMENDATIONS.
3. THE CAMERA'S FINAL MOUNTING LOCATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
4. THE COST FOR THE WORK TO FURNISH AND INSTALL THE CAMERA, CABLES, 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.



DATA LOGGER CAMERA

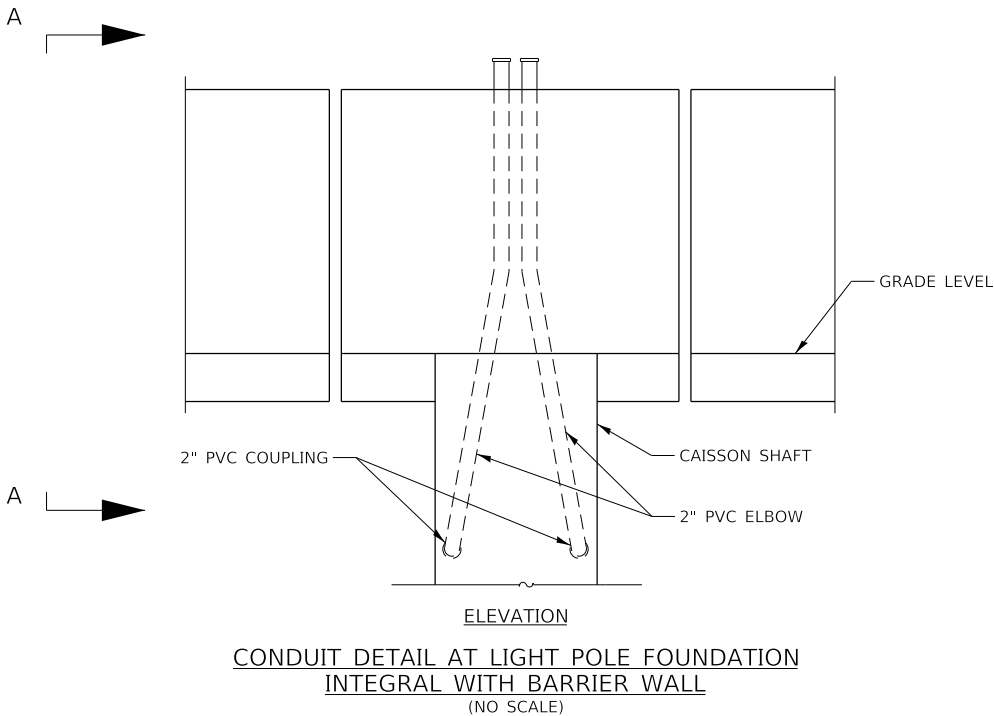
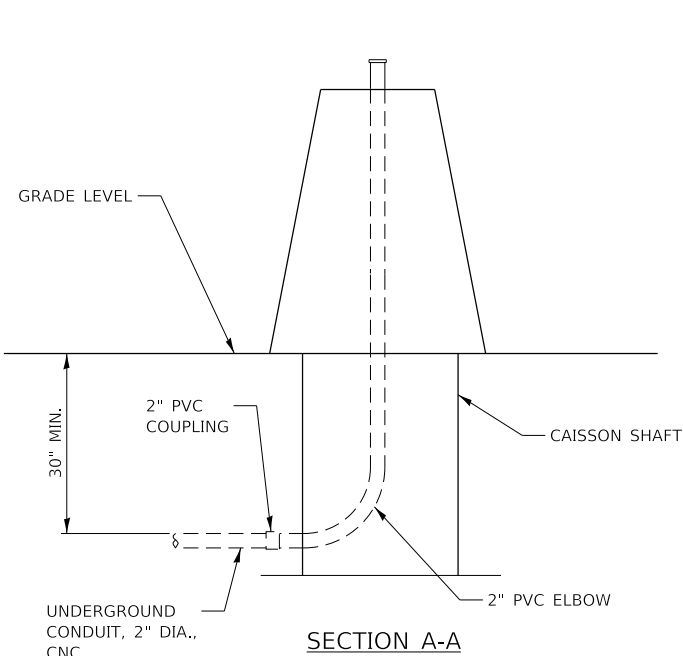
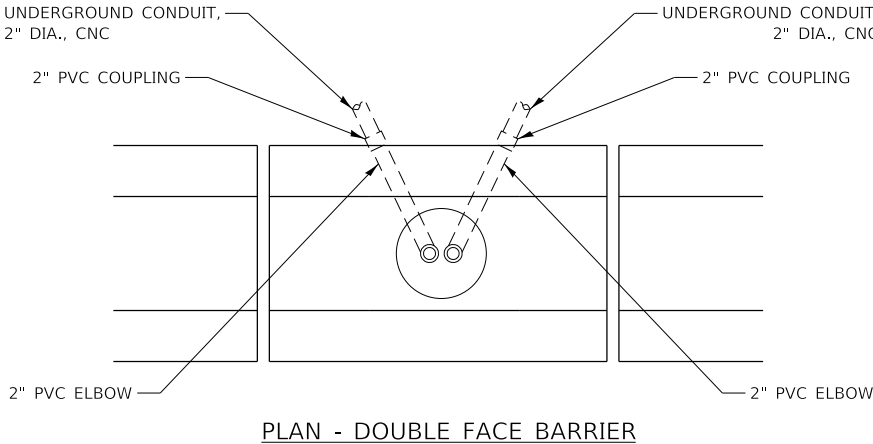
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NOTES:

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

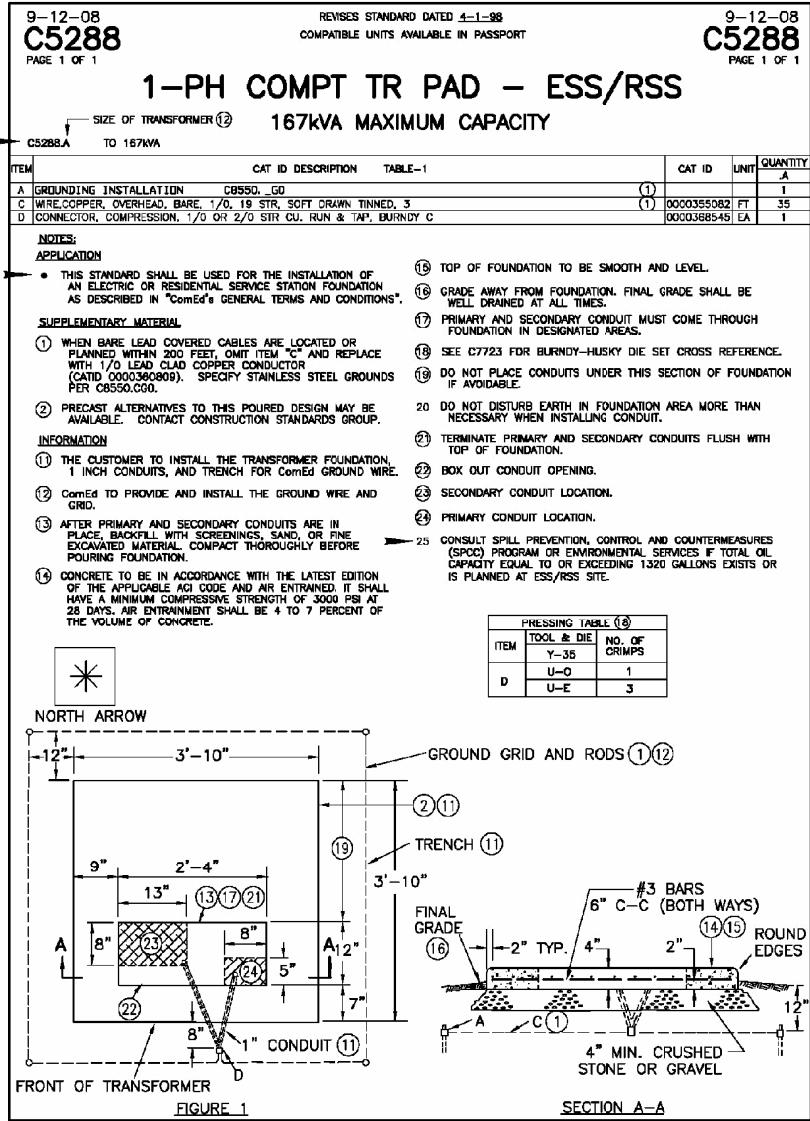
THIS BASE SHEET REFLECTS THE USE OF PERFORMANCE BASED RETAINING WALL. THE DESIGNER SHALL MODIFY THE BASE SHEETS ACCORDINGLY FOR DESIGNED RETAINING WALLS.



MISCELLANEOUS CROSS SECTION DETAILS

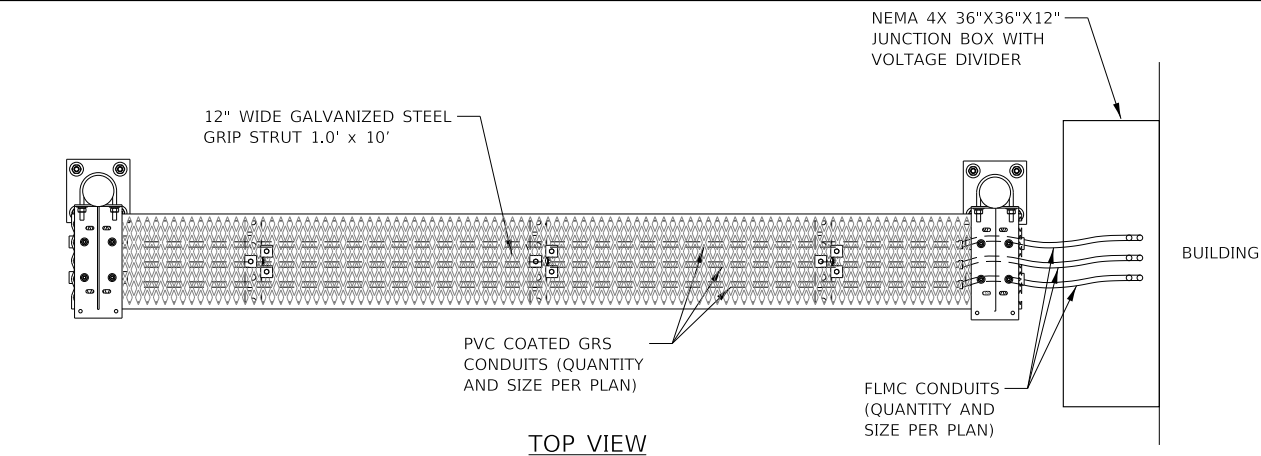
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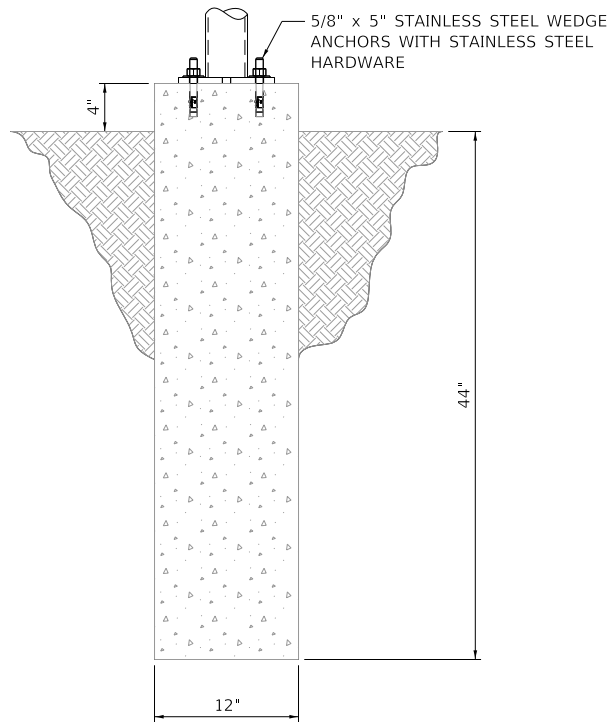
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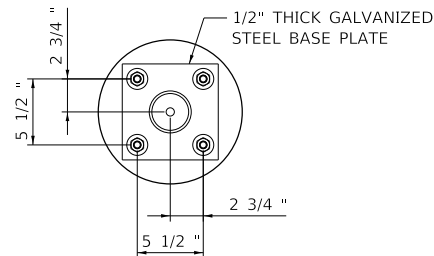


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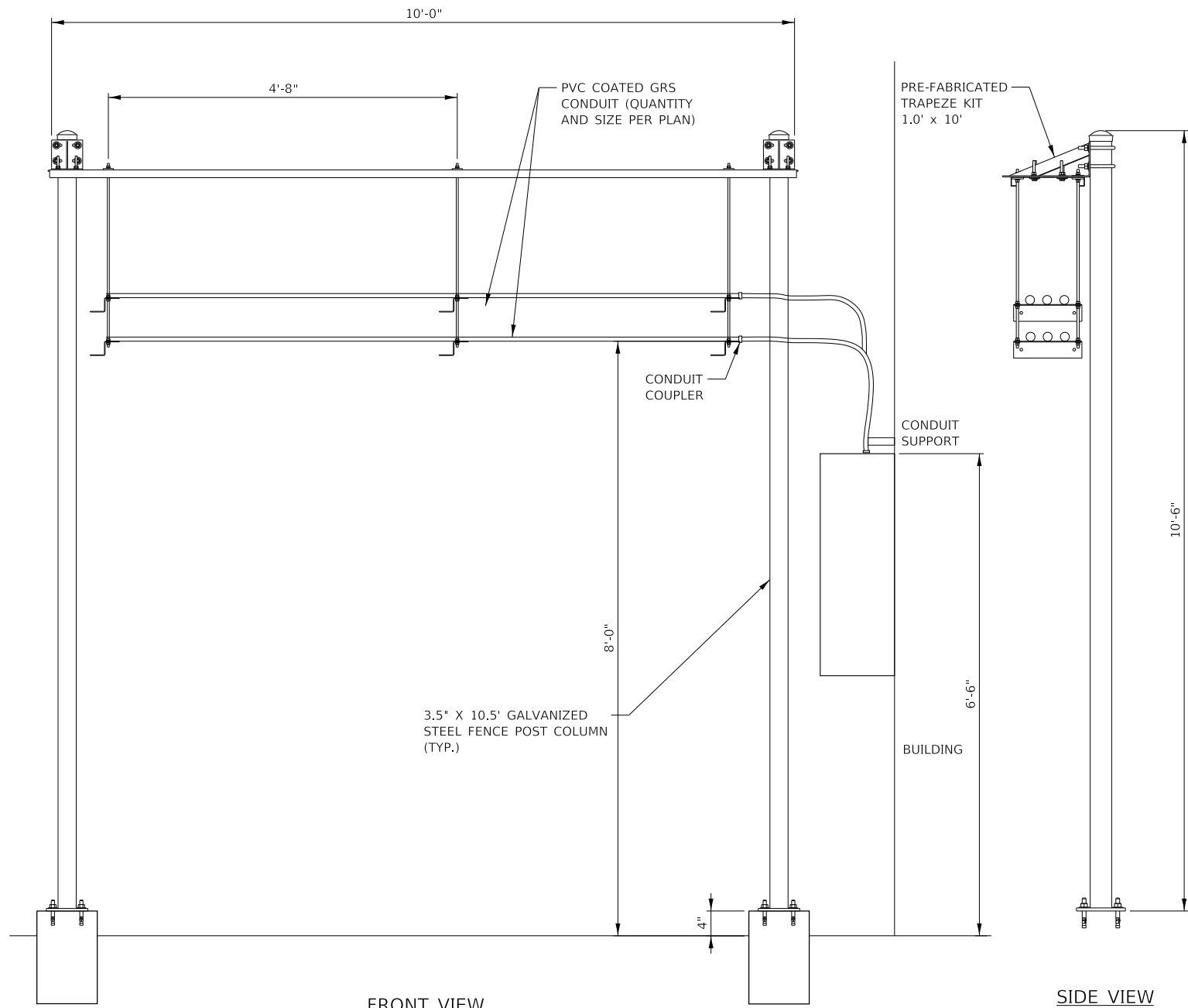
1. COST OF OVERHEAD CONDUIT TRAYS AND FOOTINGS ARE INCIDENTAL TO PLAZA ELECTRICAL WORK.
2. INSTALL CONDUIT TRAY AND FOOTINGS PER MANUFACTURERS RECOMMENDATIONS.
3. SECURE CONDUIT TO CABLE TRAY AND STRUCTURES AS REQUIRED BY CODE.



CONCRETE BASE PLATE FOOTING



BASE PLATE LAYOUT



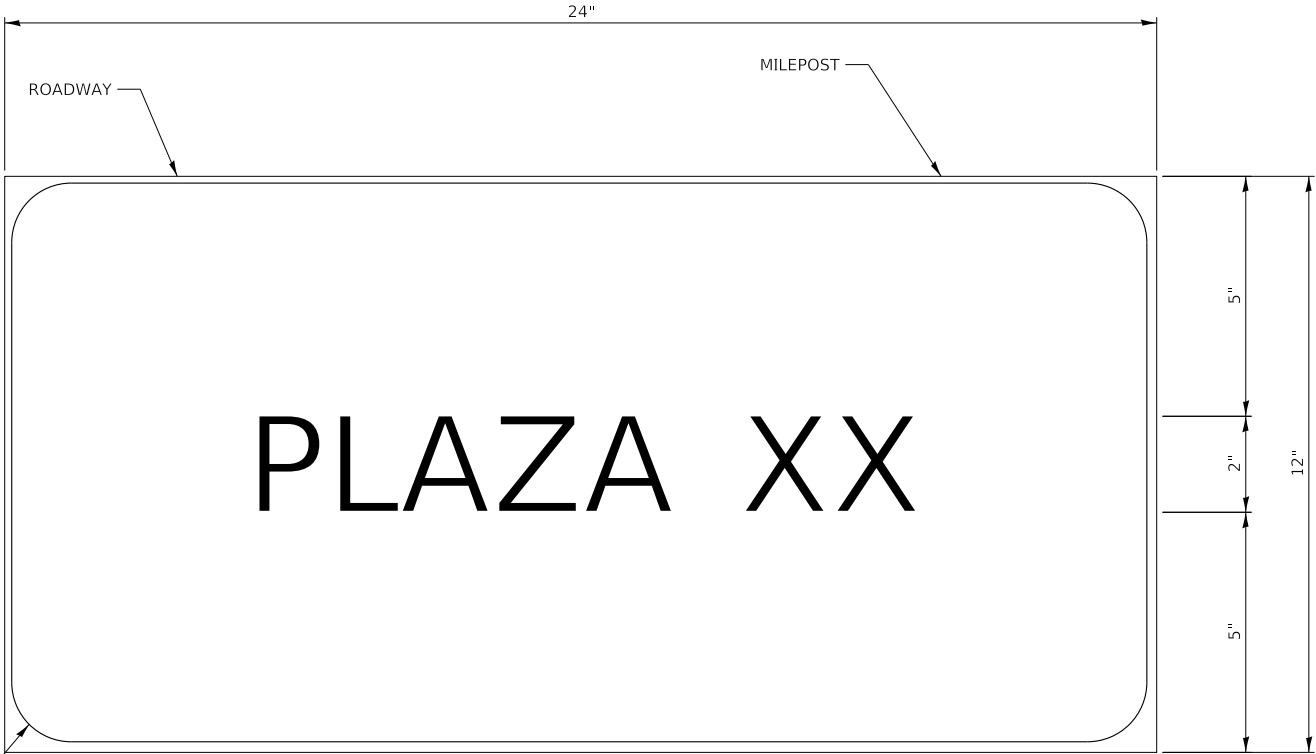
OVERHEAD CONDUIT TRAY

VERSION:	STANDARD:	SHEET:
2021-03	M-BUS-2536	1 OF 1

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1.5" RADIUS,
0.5" BORDER,
BLACK ON WHITE



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.



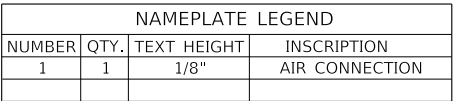
TOLL PLAZA
IDENTIFICATION SIGN

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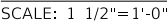
SCALE: 1 1/2"=1'-0"

4. ALL CONDUITS, FITTINGS AND ENTRY POINTS INTO EACH OF THE ENCLOSURES SHALL BE PROPERLY SEALED WITH DUCT SEAL TO PREVENT MOISTURE ENTRY.
5. 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, *HOFFMAN CAT. NO. W5603616SS*, & PAD LOCKING HANDLE KIT, *HOFFMAN CAT. NO. WS9HPL*. FOR OUTSIDE INSTALLATION OF SIDE MOUNTED CONTROL PANEL JUNCTION BOX, USE NEMA 4X ENCLOSURE - 12"H x 12"W x 6"D, *HOFFMAN CAT. NO. A1212CHNFS*



CONNECTION DETAIL
NOT TO SCALE

(1) SEE NOTE 5.



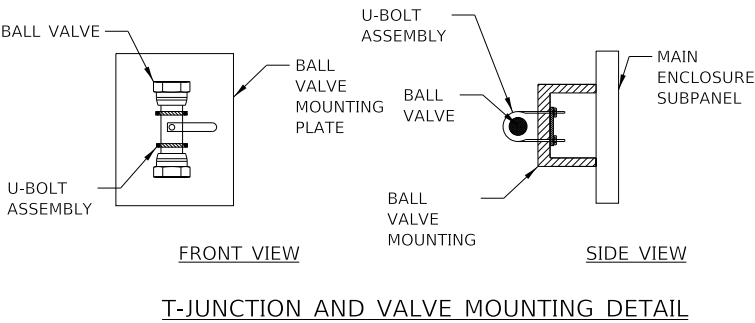
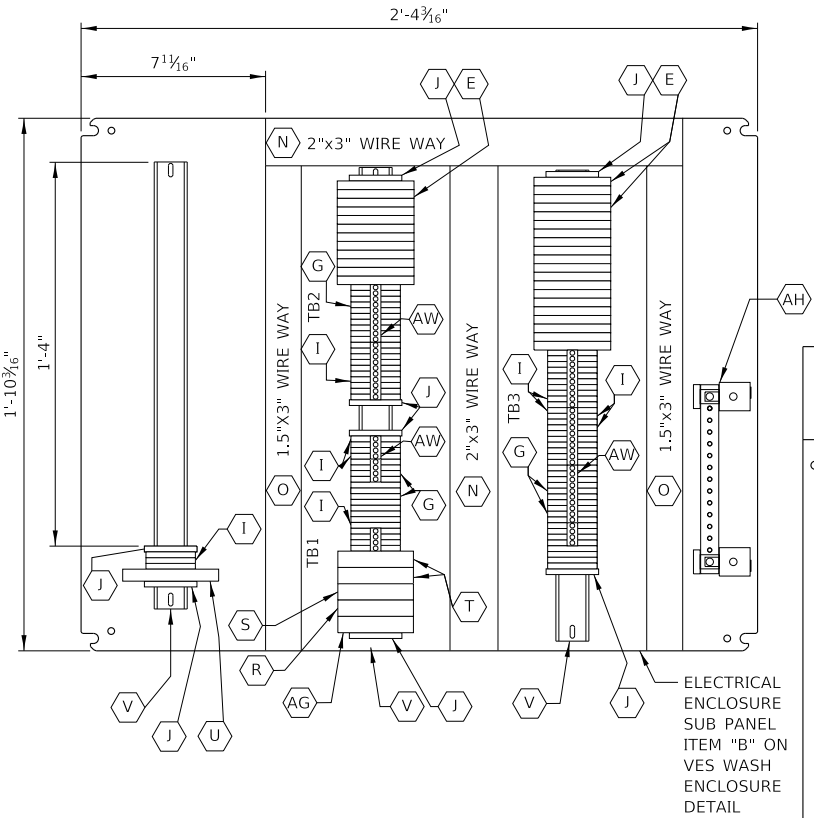
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VERSION: 2021-03	STANDARD: M-BUS-2538	SHEET: 1 OF 1
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BILL OF MATERIAL COMPONENTS (OR APPROVED EQUAL)			
MARK NO.	QTY.	SPARE	DESCRIPTION
E	25		FUSED TERMINAL BLOCK (USES COOPER BUSSMAN AGC-2 2A FUSES) ALLEN BRADLEY CATALOG No. 1492-H4
F	AS REQ'D		FUSED TERMINAL BLOCK END BARRIER ALLEN BRADLEY CATALOG No. 1492-N37
G	35		STANDARD FEED-THRU TERMINAL BLOCK ALLEN BRADLEY CATALOG No. 1492-J4
H	AS REQ'D		STANDARD FEED-THRU TERMINAL BLOCK END BARRIER ALLEN BRADLEY CATALOG No. 1492-EBJ3
I	35		STANDARD FEED-THRU TERMINAL BLOCK - GREEN (GND) ALLEN BRADLEY CATALOG No. 1492-J4-G
J	12		DIN RAIL END ANCHORS ALLEN BRADLEY CATALOG No. 1492-EAJ35
N	AS REQ'D		2" X 3" WIREWAY WITH COVER PANDUIT CATALOG No. F2X3LG6 & C2LG6
O	AS REQ'D		1.5" X 3" WIREWAY WITH COVER PANDUIT CATALOG No. F1.5X3LG6 & C1.5LG6
P	AS REQ'D		2" X 4" WIREWAY WITH COVER PANDUIT CATALOG No. F2X4LG6 & C2LG6
R	1		3 AMP CIRCUIT BREAKER ALLEN BRADLEY CATALOG No. 1492-SP1B030
S	1		5 AMP CIRCUIT BREAKER ALLEN BRADLEY CATALOG No. 1492-SP1B050
T	2		10 AMP CIRCUIT BREAKER ALLEN BRADLEY CATALOG No. 1492-SP1B100
U	1		25 AMP MAIN CIRCUIT BREAKER ALLEN BRADLEY CATALOG No. 1492-MCAA125
V	AS REQ'D		AB DIN RAIL CATALOG NO. 199-DR1 OR APPROVED EQUAL
W	1		10 STATION MANIFOLD INCLUDING VALVES VERSA CATALOG No. EZM-2140-10-0-HC-A120
Y	2		SUBPLATE - SINGLE STATION VERSA CATALOG No. EM-21-120-1
Z	2		2-WAY N.C. VALVE ASSEMBLY VERSA CATALOG No. E7SM-2011-140-A120
AA	1		1/4" BLACK NYLON TUBING (NOTE 5) ALPHA N11-041-100
AB	1		100ft 3/8" NATURAL NYLON TUBING ALPHA N11-062-100
AG	1		20 AMP CIRCUIT BREAKER ALLEN BRADLEY CATALOG No. 1492-SP1B200
AH	1		GROUNDING BAR HOFFMAN CATALOG No. PGS2K
AI	1		10 GAL WASHER FLUID CANISTER SIMGO CATALOG No. 22-29764
AK	5		WALL MOUNT CYLINDER BRACKET GLOBAL INDUSTRIAL CATALOG No. G100
AL	3		1/4" BALL VALVE WESTERN ENTERPRISES CATALOG No. WMV-5-11
AM	1		NITROGEN TANK REGULATOR WESTERN ENTERPRISES CATALOG No. REB-7-5AC
AN	1		T-JUNCTION FITTING (10 PACK) SMC FITTINGS CATALOG No. KQ2T11-00
AO	1		45 DEG MALE ELBOW FITTING (10 PACK) SMC FITTINGS CATALOG No. KQ2K07-34S
AP	1	2	EXTERNAL QUICK DISCONNECT BULKHEAD FITTING (10 PACK) SMC FITTINGS CATALOG No. KQ2E11-36
AO	1	4	MALE CONNECTOR FITTING (10 PACK) SMC FITTINGS CATALOG No. KQ2H11-35S
AR	1	4	FEMALE CONNECTOR FITTING (10 PACK) SMC FITTINGS CATALOG No. KQ2F11-35
AS	1		REGULATOR FOR FLUID CANISTER INLET CA TECHNOLOGIES CATALOG No. 52-7
AT	0	4	PNEUMATIC PIPE PLUGS VERSA CATALOG No. P-1022-02A
AU	AS REQ'D		U-BOLT ASSEMBLY GRAINGER CATALOG No. 5YY10
AV	AS REQ'D		T-CLIP CONNECTORS (NOT SHOWN) GRAINGER CATALOG No. 6ZF06



MARK NO.	QTY.	SPARE	DESCRIPTION
AW	10		CENTER JUMPERS ALLEN BRADLEY CATALOG No. 1492-CJ16-10 & 1492-CJ16-4
AX	1	4	1/4" FNPT SS LIQUID CONNECTOR FITTING HANSEN BEVERAGE CATALOG No. 2-HL16
AY	1	4	1/4" MNPT SS AIR CONNECTOR FITTING HANSEN BEVERAGE CATALOG No. 2-HL15
AZ	1		ROLAIR FC250090L, 2 HP, 120V SINGLE PHASE AIR COMPRESSOR (DIRECT DRIVE)
BA	1	4	SMC FITTINGS, CATALOG NO. KSH11-36S
ZZ	4		NI-80 AIRGAS NITROGEN TANK

MAIN ENCLOSURE AND SUBPANEL LAYOUT

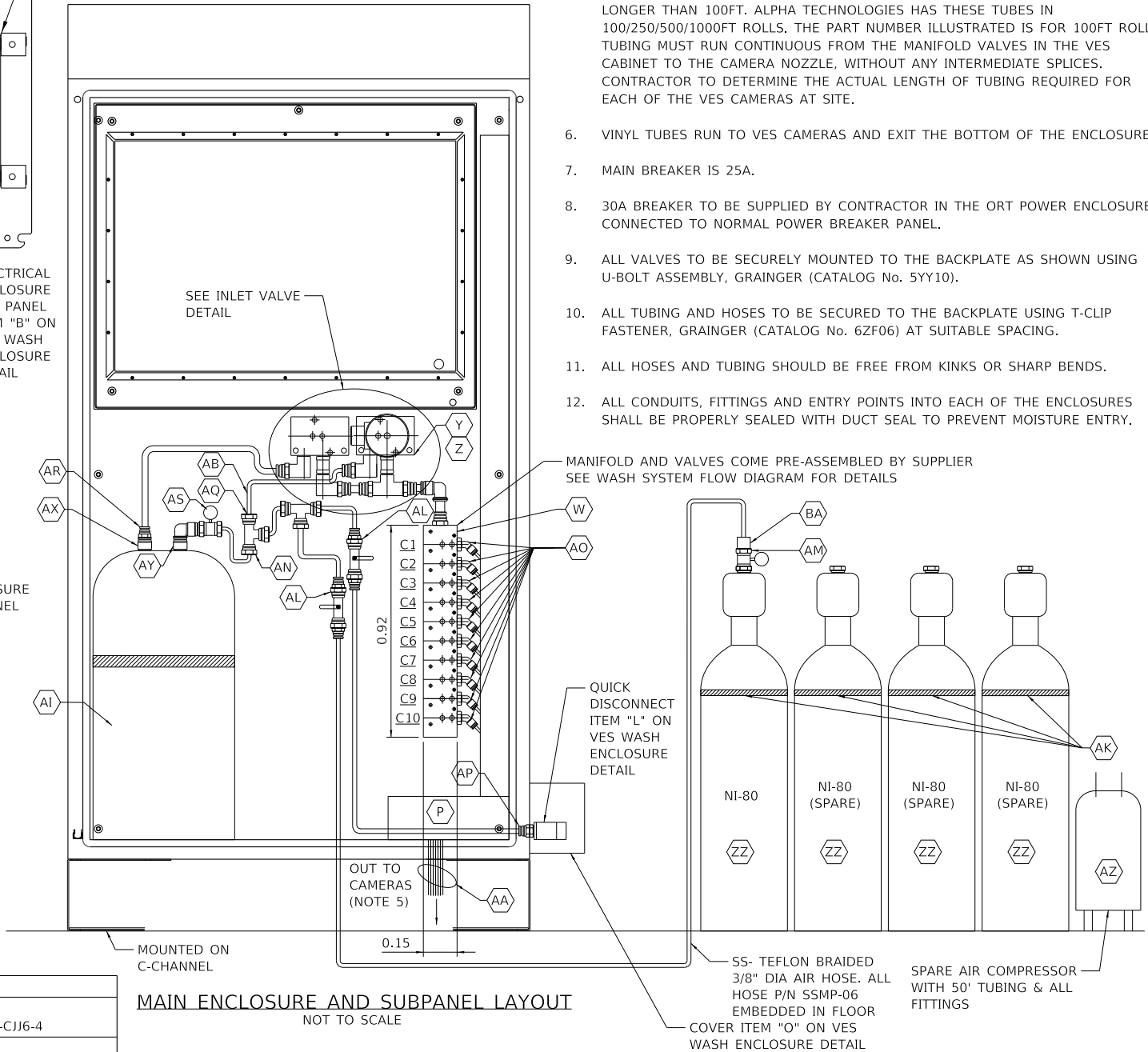
NOT TO SCALE

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NOTES:

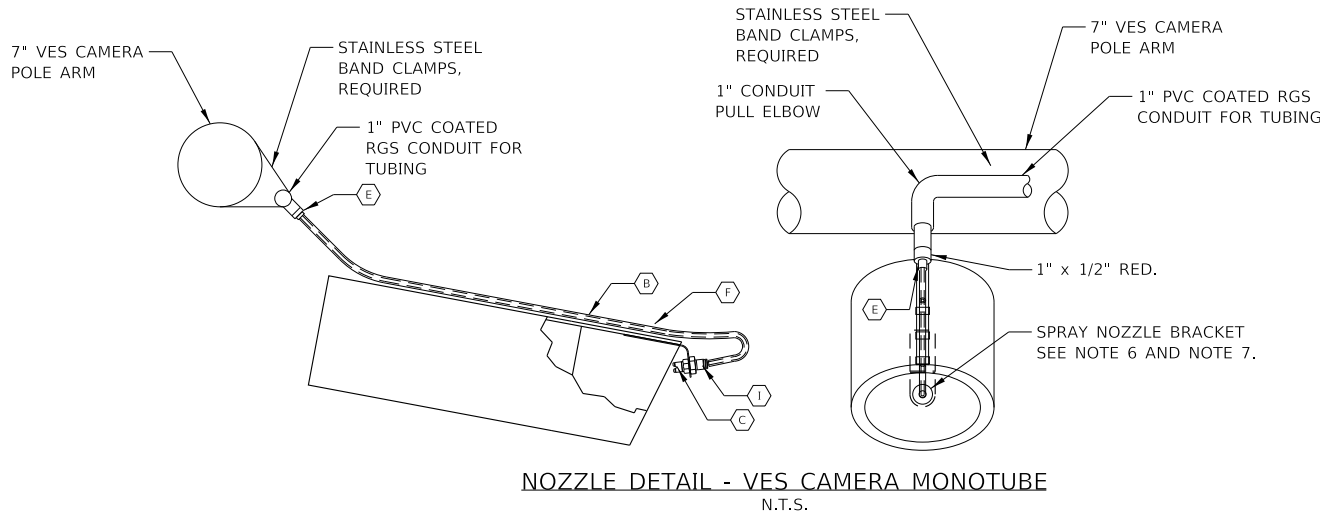
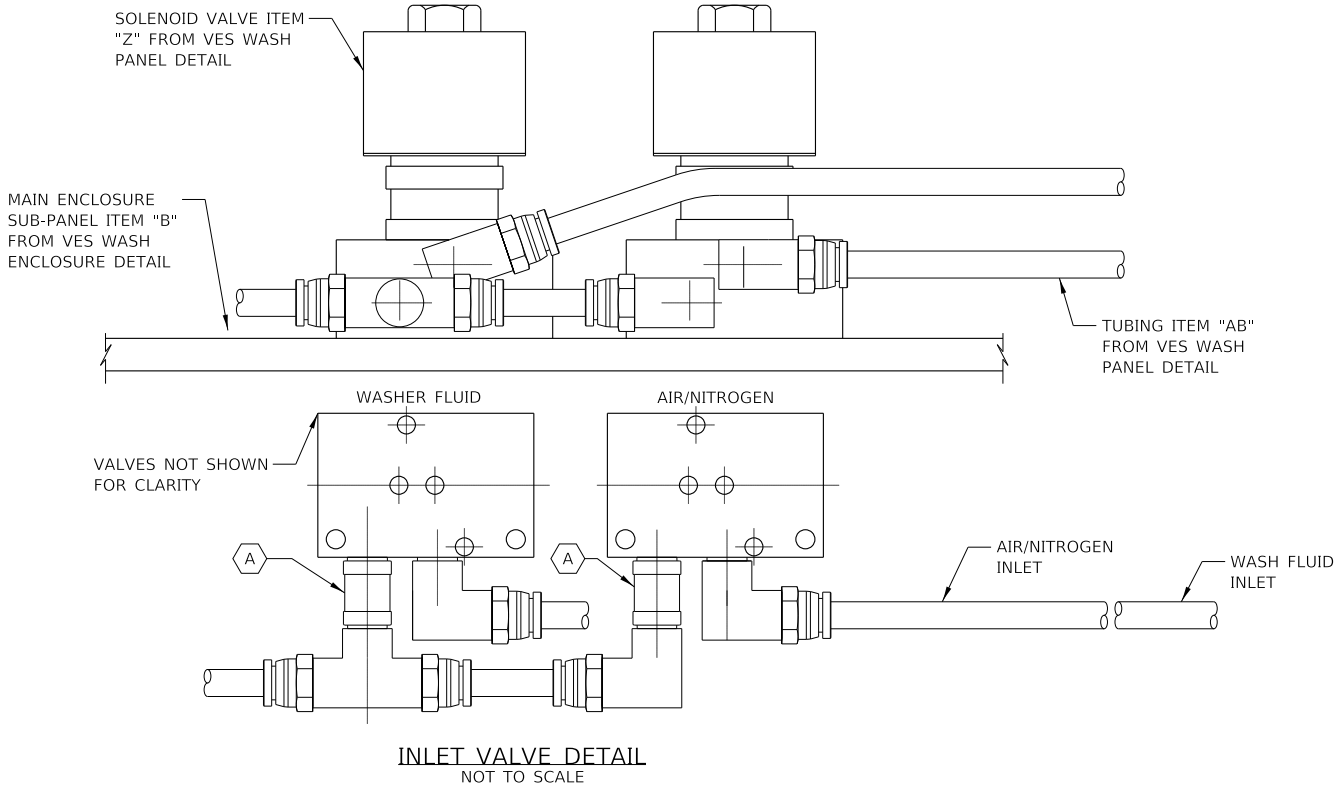
- PNEUMATIC FITTINGS TO BE BRASS IN CONSTRUCTION AND MEET SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) SPECIFICATIONS.
- QUANTITIES ILLUSTRATED ARE FOR A 3-LANE EB AND WB MAIN LINES THAT HAS TEN (10) VES CAMERAS EACH INSTALLED (5 REAR AND 5 FRONT VES).
- PROVIDE BALL VALVE BETWEEN T-CONNECTOR AND NITROGEN TANK FOR REMOVAL OF TANK FROM THE ENCLOSURE.
- CONTRACTOR SHALL PROVIDE SPLASH WIND SHIELD WASHER FLUID WITH ALCOHOL. GLYCOL SHALL NOT BE USED.
- DEPENDING ON ENCLOSURE LOCATION, THE NYLON TUBING MAY HAVE TO BE LONGER THAN 100FT. ALPHA TECHNOLOGIES HAS THESE TUBES IN 100/250/500/1000FT ROLLS. THE PART NUMBER ILLUSTRATED IS FOR 100FT ROLLS. 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 TUBING REQUIRED FOR EACH OF THE VES CAMERAS AT SITE.
- VINYL TUBES RUN TO VES CAMERAS AND EXIT THE BOTTOM OF THE ENCLOSURE.
- MAIN BREAKER IS 25A.
- 30A BREAKER TO BE SUPPLIED BY CONTRACTOR IN THE ORT POWER ENCLOSURE CONNECTED TO NORMAL POWER BREAKER PANEL.
- ALL VALVES TO BE SECURELY MOUNTED TO THE BACKPLATE AS SHOWN USING U-BOLT ASSEMBLY, GRAINGER (CATALOG No. 5YY10).
- ALL TUBING AND HOSES TO BE SECURED TO THE BACKPLATE USING T-CLIP FASTENER, GRAINGER (CATALOG No. 6ZF06) AT SUITABLE SPACING.
- ALL HOSES AND TUBING SHOULD BE FREE FROM KINKS OR SHARP BENDS.
- ALL CONDUITS, FITTINGS AND ENTRY POINTS INTO EACH OF THE ENCLOSURES SHALL BE PROPERLY SEALED WITH DUCT SEAL TO PREVENT MOISTURE ENTRY.



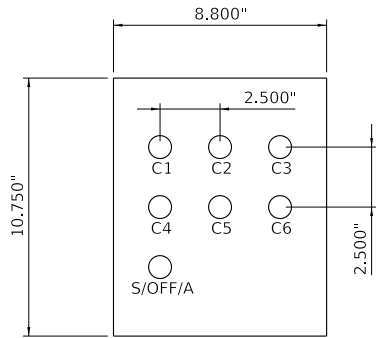
VES WASH SYSTEM PANEL DETAIL

VERSION:	STANDARD:	SHEET:
2021-03	M-BUS-2539	1 OF 1

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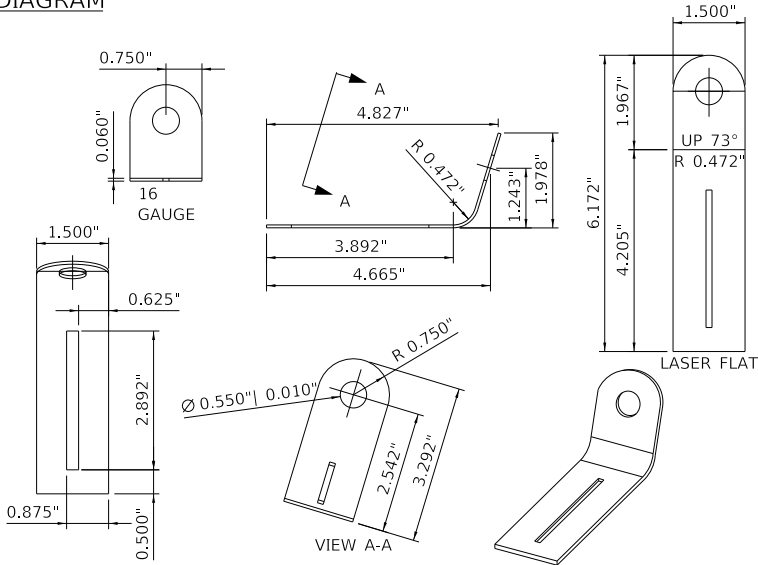
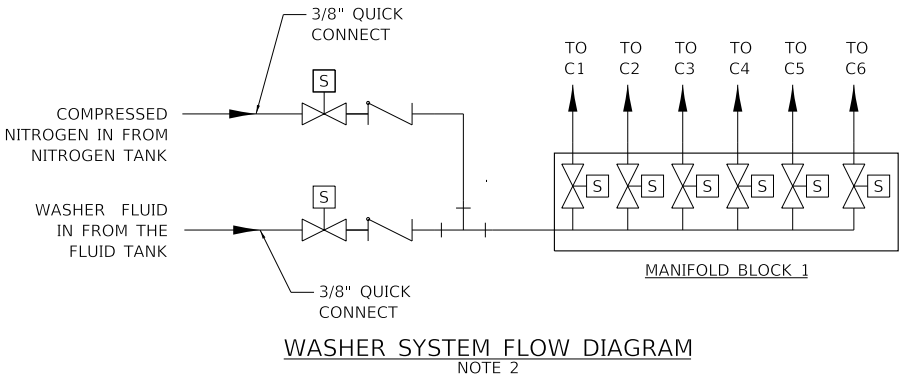
- NOTES:
- QUANTITIES ILLUSTRATED ARE FOR A 1-LANE RAMP PLAZA THAT HAS SIX (6) VES CAMERAS (3 REAR AND 3 FRONT VES).
 - A 1-LANE RAMP PLAZA CONFIGURATION IS ILLUSTRATED. THE MANIFOLD-VALVE SYSTEM SHOWN ILLUSTRATES TEN (10) PORTS, ONE EACH FOR THE SIX (6) VES CAMERAS INSTALLED (3 REAR VES AND 3 FRONT VES) AND FOUR (4) SPARE PORTS PLUGGED FOR FUTURE USE.
 - A 3-LANE MAINLINE PLAZA WILL HAVE TEN (10) CAMERAS (5 REAR AND 5 FRONT VES). THE MANIFOLD-VALVE SYSTEM FOR A 3-LANE RAMP PLAZA WILL HAVE TEN (10) PORTS, ONE EACH FOR THE TEN (10) VES CAMERAS INSTALLED AND NO SPARE PORTS PLUGGED FOR FUTURE USE.
 - THE SWITCHES ARE NOT SHOWN ON THIS DRAWING. THE QUANTITY ILLUSTRATED ARE FOR A 2-LANE RAMP PLAZA. THESE SWITCHES ARE MOUNTED ON THE BACKPLATE OF THE HOFFMAN SWITCH ENCLOSURE.
 - THIS SWITCH IS NOT SHOWN ON THIS DRAWING. THIS SINGLE SWITCH WILL CONTROL THE LIQUID AND AIR INLET VALVES. THIS SWITCH IS MOUNTED ON THE BACKPLATE OF THE HOFFMAN SWITCH ENCLOSURE.
 - CAMERA NOZZLE BRACKET SHALL BE FABRICATED USING 12 GA. STAINLESS STEEL. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR APPROVAL.
 - 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.



SWITCH NAMEPLATE LEGEND			
NUMBER	QTY.	TEXT HEIGHT	INSCRIPTION
1	1	1/8"	S / OFF / A
2-6	6	1/8"	C1, C2, ..., C6 (NOTE 5)

BILL OF MATERIAL COMPONENTS (OR APPROVED EQUAL)			
MARK NO.	QTY.	SPARE	DESCRIPTION
A	2	1	1/4" NPT CHECK VALVE McMASTER-CARR CATALOG No. 7775K62
B	AS REQ'D		SILICONE HOSE SLEEVE (50' SPOOL) McMASTER-CARR CATALOG No. 7453K49
C	6	*	SPRAY NOZZLE GRAINGER CATALOG No. 1MDH2
E	6		MINIATURE CORROSION RESISTANT STRAIN RELIEF HUBBELL CATALOG No. SHC1021CR
F	2		ADJUSTABLE MOUNTING STRAP McMASTER-CARR CATALOG No. 7572K12 (50 PER PACK)
G	5	2	30.5 MM, ON / OFF SWITCH (NOTE 4) SQUARE D PART NUMBER SKS11BH13
H	1	1	30.5 MM, ON / OFF / ON SWITCH (NOTE 5) SQUARE D PART NUMBER SKS43BH13
I	1	*	NOZZLE BULKHEAD FITTING (10 PACK) SMC FITTING CATALOG No. KQ2E07-35

* MATCH CONTRACT QUANTITY



NOTE TO DESIGNER

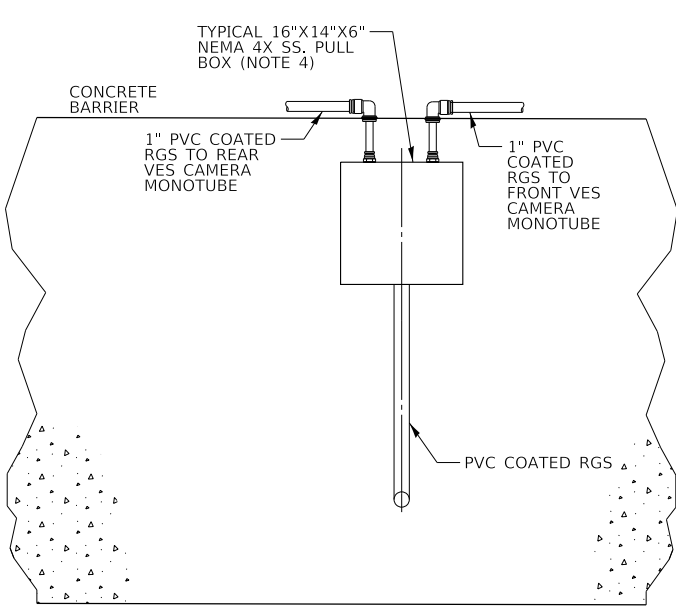
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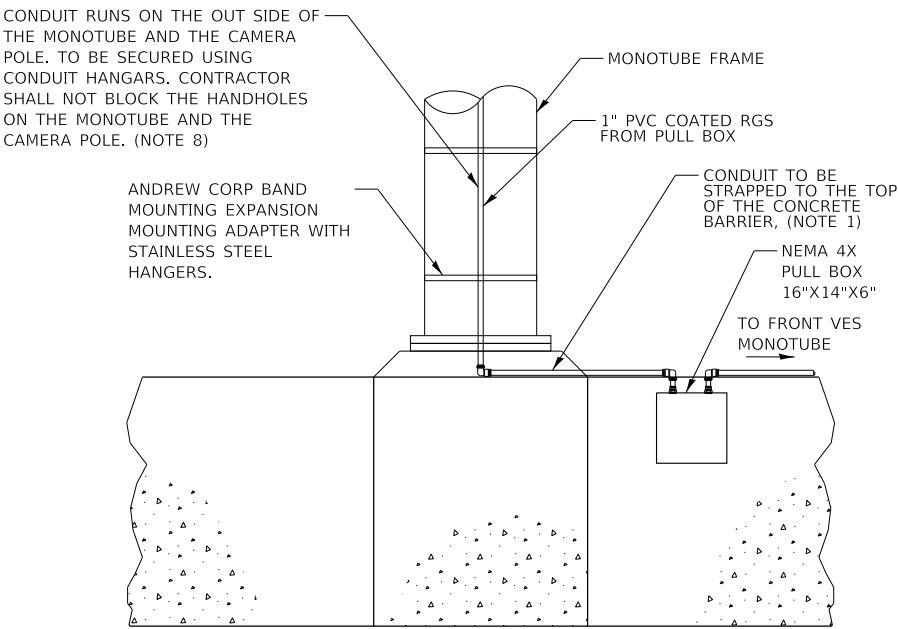
VES WASH SYSTEM FLOW DIAGRAM AND MECHANICAL DETAIL

VERSION:	STANDARD:	SHEET:
2021-03	M-BUS-2540	1 OF 1

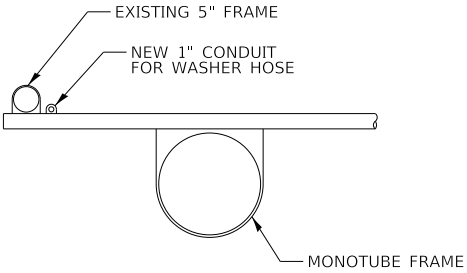
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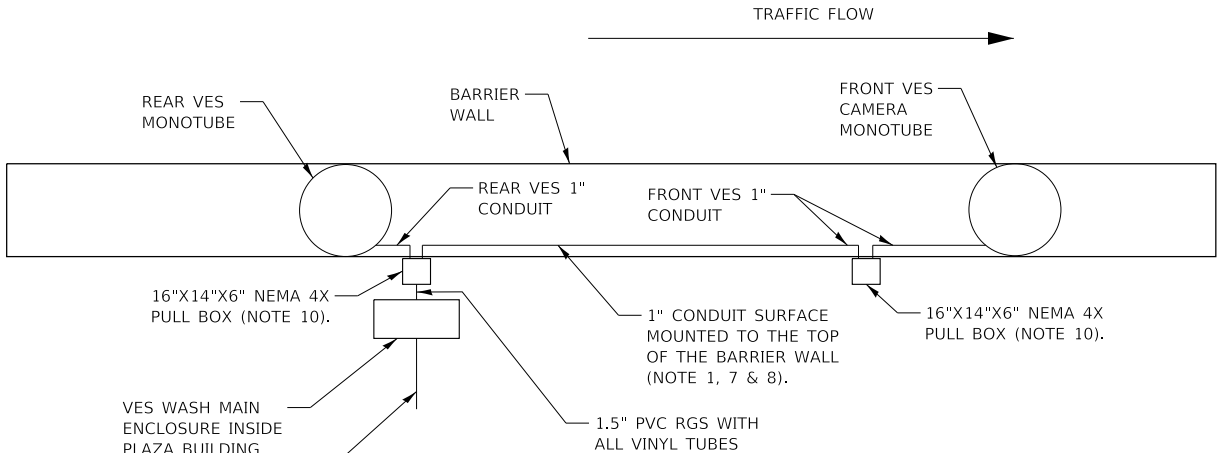
PARTIAL SECTION A-A
N.T.S.



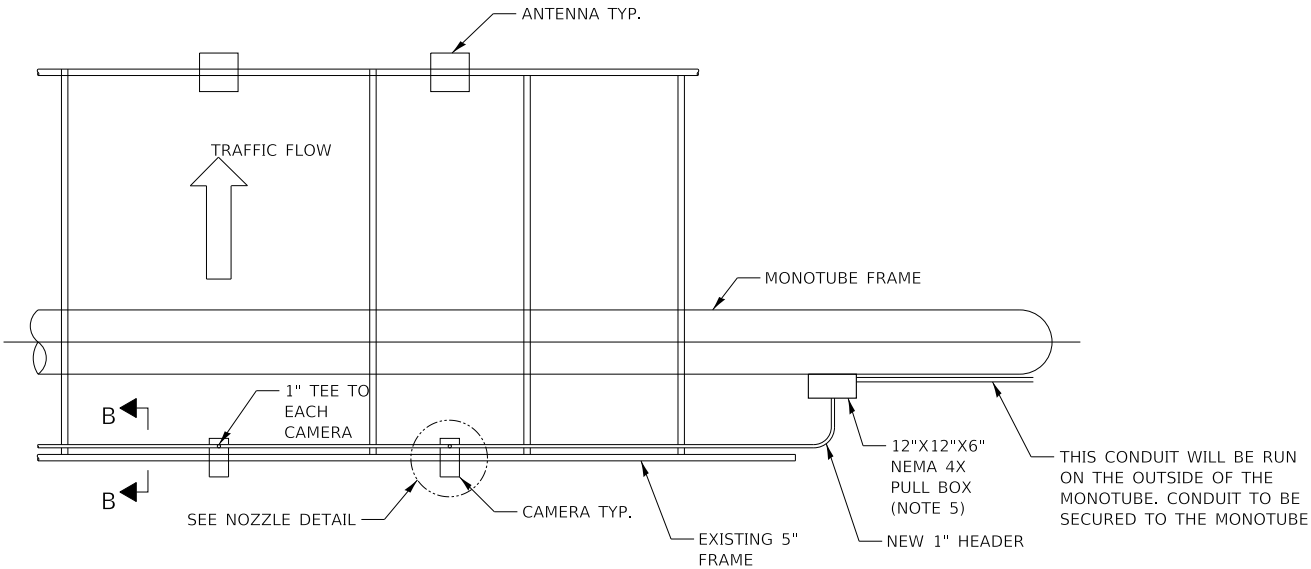
COLLECTION STRUCTURE CONDUIT DETAIL



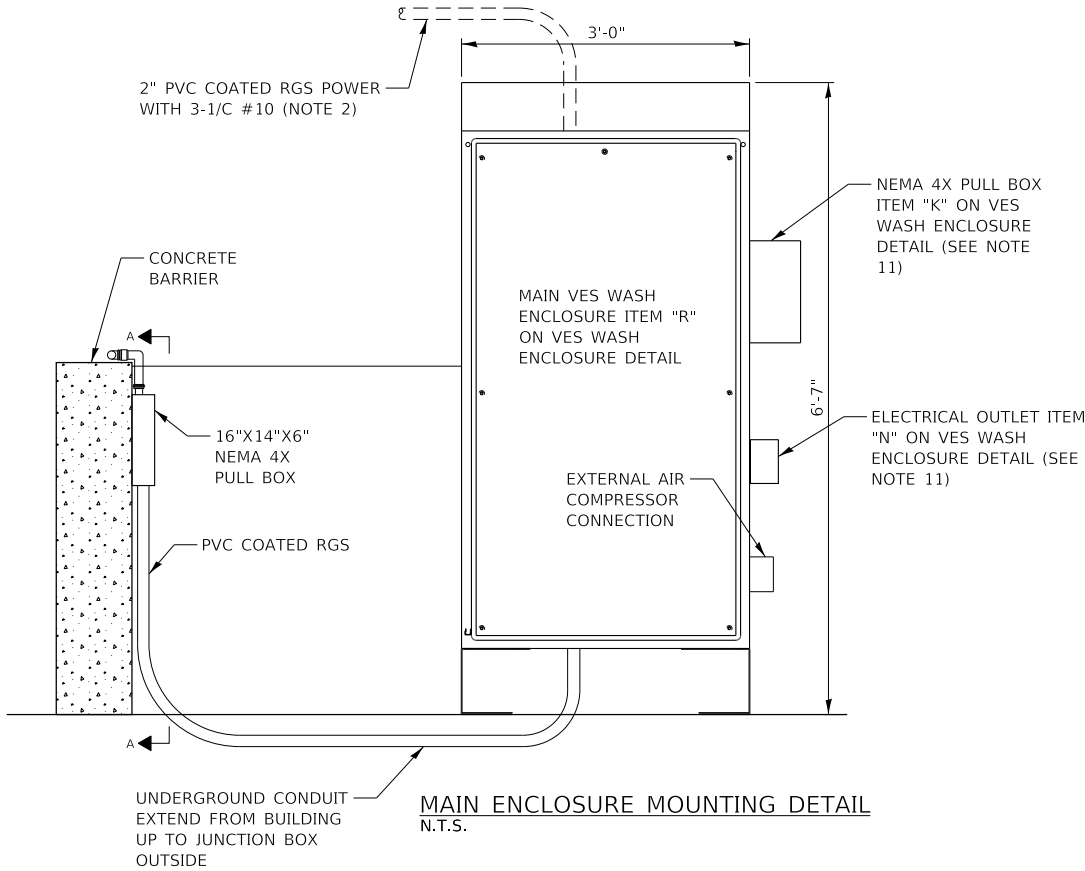
SECTION B-B
N.T.S.



TYPICAL PLAN VIEW
N.T.S.



OVERHEAD TOLL LAYOUT



MAIN ENCLOSURE MOUNTING DETAIL
N.T.S.

NOTE TO DESIGNER

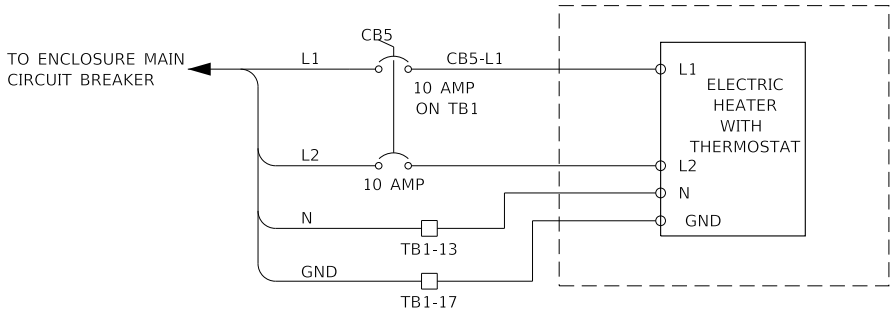
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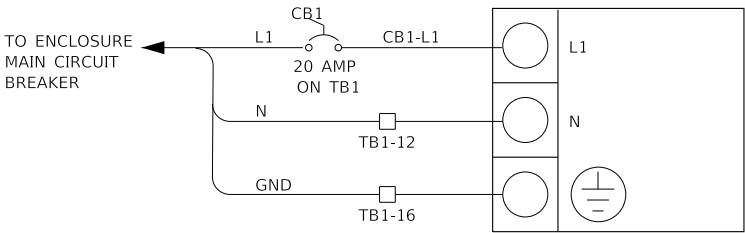
- ALL CONDUIT ROUTING AND EQUIPMENT PLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ROUTING AND PLACEMENT DEPICTED IS SUGGESTED ONLY. ACTUAL ENCLOSURE LOCATION WILL VARY BASED ON SITE CONDITIONS. THE CONTRACTOR SHALL COORDINATE EQUIPMENT LOCATION AND CONDUIT ROUTING WITH CONSTRUCTION ENGINEER AND ILLINOIS TOLLWAY ENGINEER.
- 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.
- UNLESS OTHERWISE NOTED ALL CONDUIT IS PVC COATED RGS.
- 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.
- 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.
- NOT USED.
- CONDUITS FOR SPRAY TUBING SHALL BE SEALED ON BOTH ENDS TO PREVENT WATER FROM PENETRATING.
- CONTRACTOR SHALL PROVIDE STRAIN RELIEF FOR WASHER TUBING IN POLES/MONOTUBES.
- 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.
- 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.
- NEMA 4X ENCLOSURE (ITEM "K" ON VES WASH ENCLOSURE DETAIL), EXTERNAL AIR COMPRESSOR CONNECTION AND ELECTRICAL DUAL OUTLET (ITEM "N" ON VES WASH ENCLOSURE DETAIL) SHALL BE MOUNTED ON THE SIDE OF THE MAIN ENCLOSURE, AWAY FROM ANY OBSTRUCTION.
- 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.
- CONTRACTOR MUST VERIFY THAT THERE SHALL BE SUFFICIENT ROOM FOR CABINET DOOR TO OPEN.



VES WASH SYSTEM
SUGGESTED CONDUIT
ROUTING

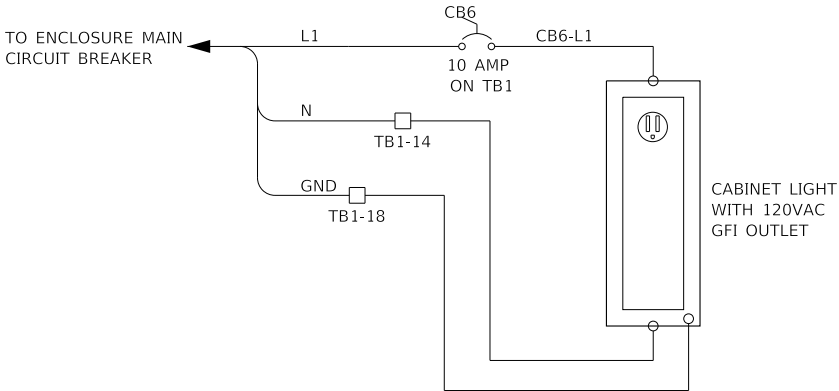


ELECTRIC HEATER WITH THERMOSTAT (IF REQUIRED)
NOTE 4



DUAL OUTLET BOX GFCI POWER
(120VAC) TO BE MOUNTED
OUTSIDE ENCLOSURE

ELECTRICAL DUAL OUTLET GFCI 20A



CABINET LIGHTING AND GFI OUTLET

NOTES:

- ALL CABLING ON THIS DRAWING IS #12 AWG
- MAIN BREAKER IS 25A. ILLUSTRATED ON VES WASH PANEL DETAIL ITEM U . LOCATED ON TOP DIN RAIL.
- 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.
- ELECTRIC HEATER IS INSTALLED IN OUTSIDE CABINETS ONLY.

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VES WASH SYSTEM
MISCELLANEOUS POWER
WIRING DIAGRAM

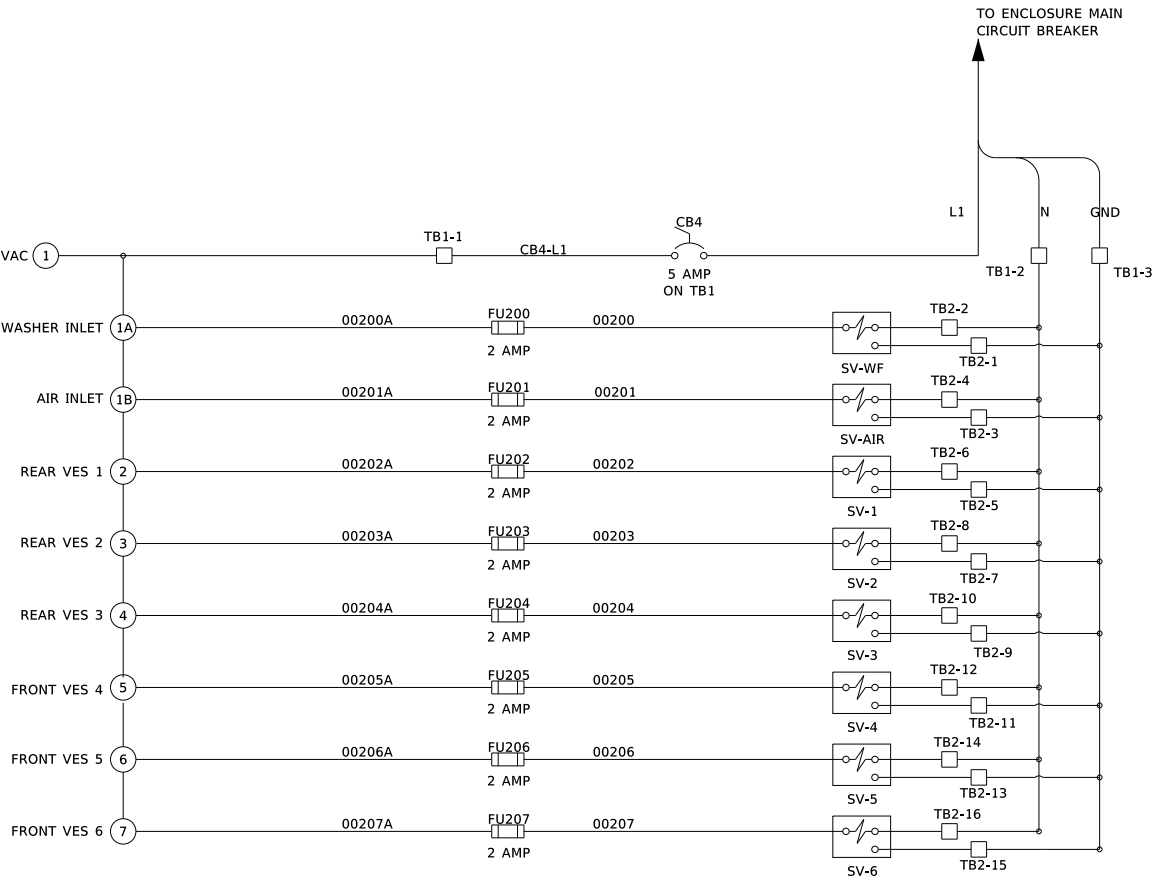
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TO EXTERNAL SWITCH ENCLOSURE
PRESSURIZED WASHER & PRESSURIZED AIR
ON / OFF / ON
3-WAY SWITCH



SWITCH CONFIGURATION

NOTES:

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



VES WASH SYSTEM
CONTROL SWITCH
SCHEMATIC

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, 2021 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, 2021.
3. ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED JANUARY 1, 2016.

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

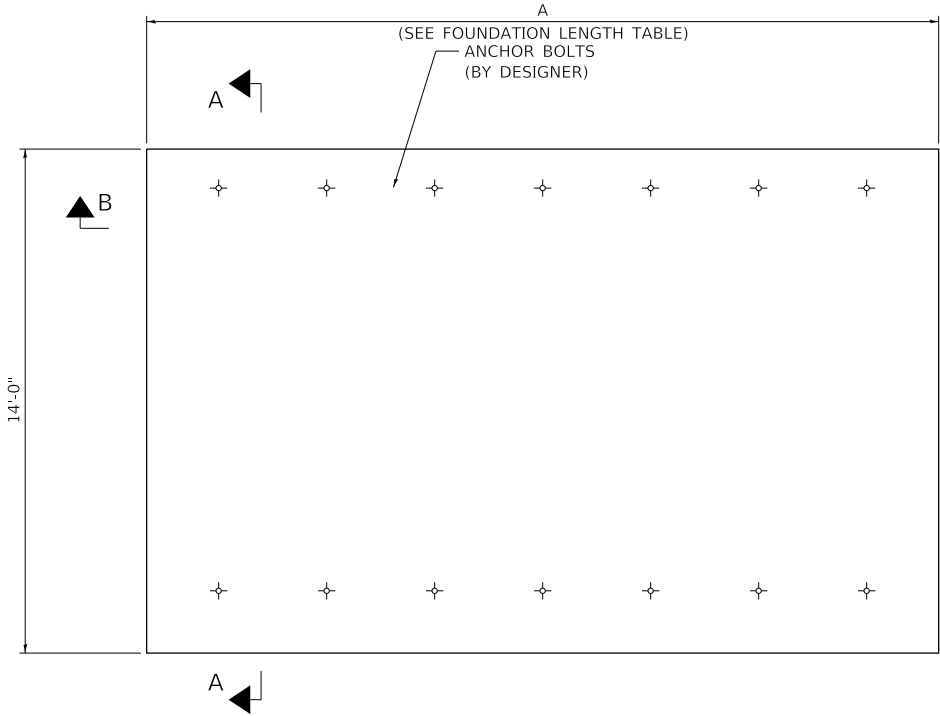
DESIGN STRESSES FOR REINFORCED CONCRETE:

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:

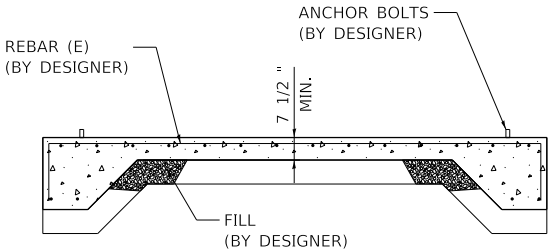
1. ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL ISSUED MARCH, 2021.
2. INTERNATIONAL BUILDING CODE, 2018.
3. ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES, 2016.
4. ACI 318-19 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2019.
5. ILLINOIS DEPARTMENT OF TRANSPORTATION BRIDGE MANUAL, JANUARY 2012.
6. ILLINOIS TOLLWAY GEOTECHNICAL ENGINEER MANUAL DATED MARCH 2021.



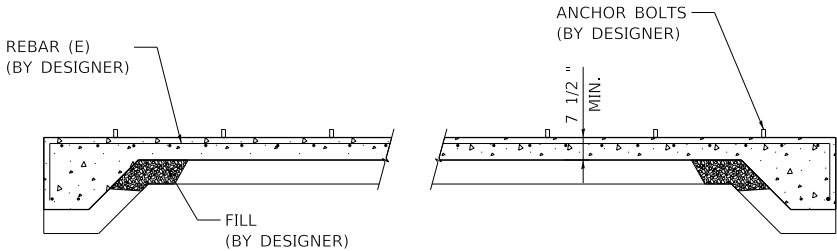
PLAN VIEW

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

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.



PLAZA CONTROL
BUILDING CONCRETE
FOUNDATION