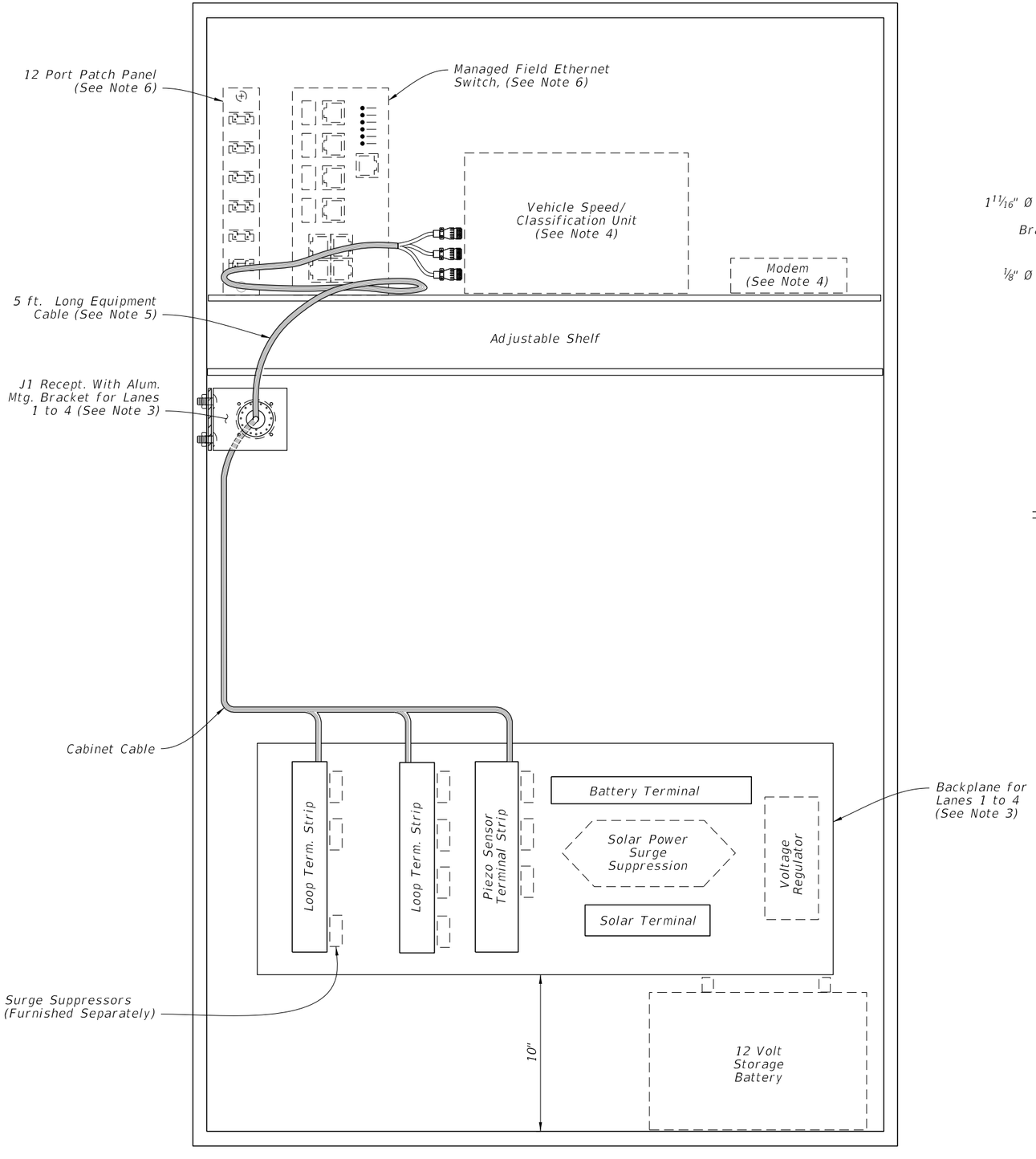
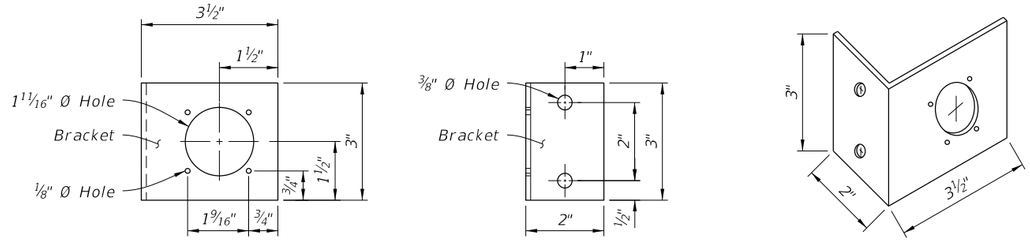




J1 MOUNTING BRACKET

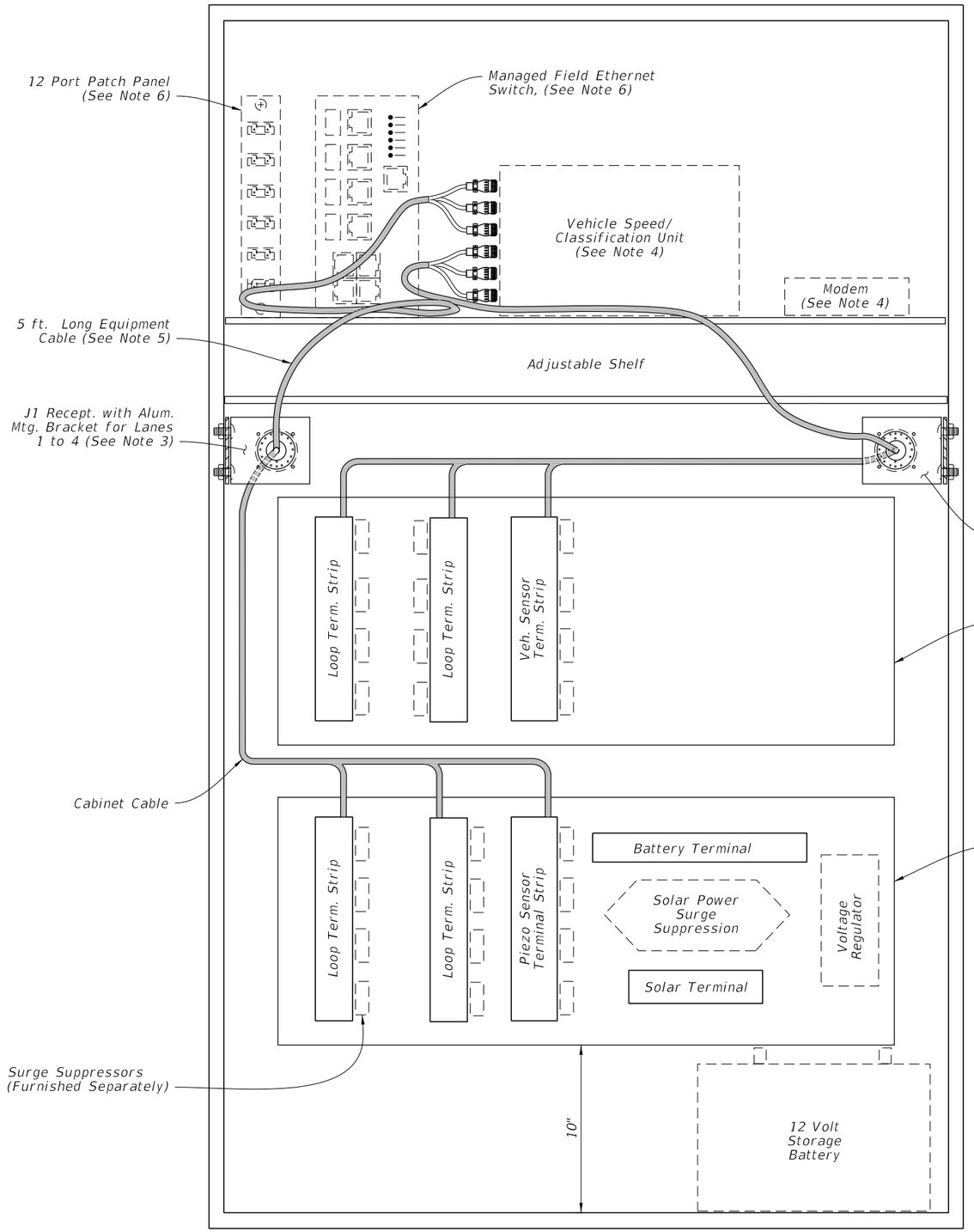
NOTE:

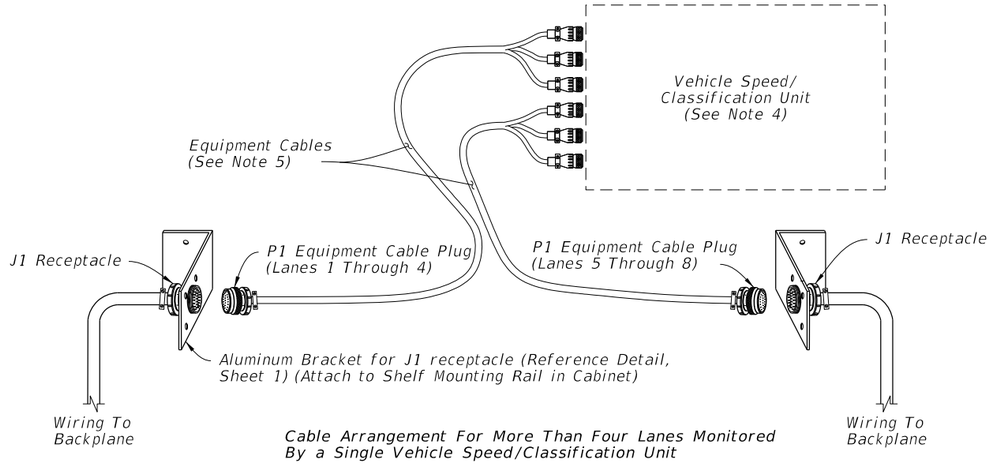
Fabricate bracket out of 3/32" – ⅛" inch thick aluminum. Dimensions may vary depending on the manufacturer of the J1 receptacle being furnished. The cabinet manufacturer will construct the mounting bracket to fit the receptacle.

NOTES:

1. *Traffic monitoring site cabinet includes:*
   - *A. One adjustable Shelf; (equipped as shown)*
   - *B. One backplane assembly; (equipped as shown)*
   - *C. One J1 receptacle with mounting bracket;*
   - *D. One J1 equipment cable 5 ft. long (Reference Sheet 4);*
   - *E. All Associated wiring and wiring harnesses.*
2. *Basic backplane assembly consists of:*
   - *A. Two inductive loop terminal strips;*
   - *B. One piezo sensor terminal strip;*
   - *C. One battery terminal strip;*
   - *D. One solar panel terminal strip.*
3. *The contractor is responsible for contacting the TMS Manager at the Transportation Data and Analytics Office for lane number information and verification.*
4. *Speed/Classification Unit and Modem furnished separately.*
5. *Cable ends must be fabricated to fit the vehicle speed/ classification unit. (Reference Sheet 4)*
6. *Provide a 12 fiber single mode cable, a 12 port patch panel, and a managed field ethernet switch separately.*

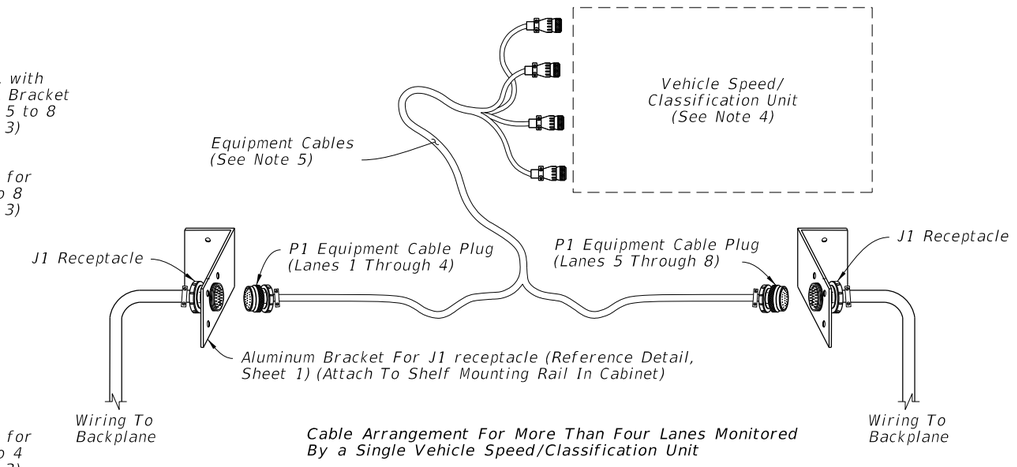
CABINET LAYOUT DETAILS (Four Lanes or Less)





Cable Arrangement For More Than Four Lanes Monitored By a Single Vehicle Speed/Classification Unit

OPTION A (Shown)



Cable Arrangement For More Than Four Lanes Monitored By a Single Vehicle Speed/Classification Unit

OPTION B

EQUIPMENT CABLE ASSEMBLY

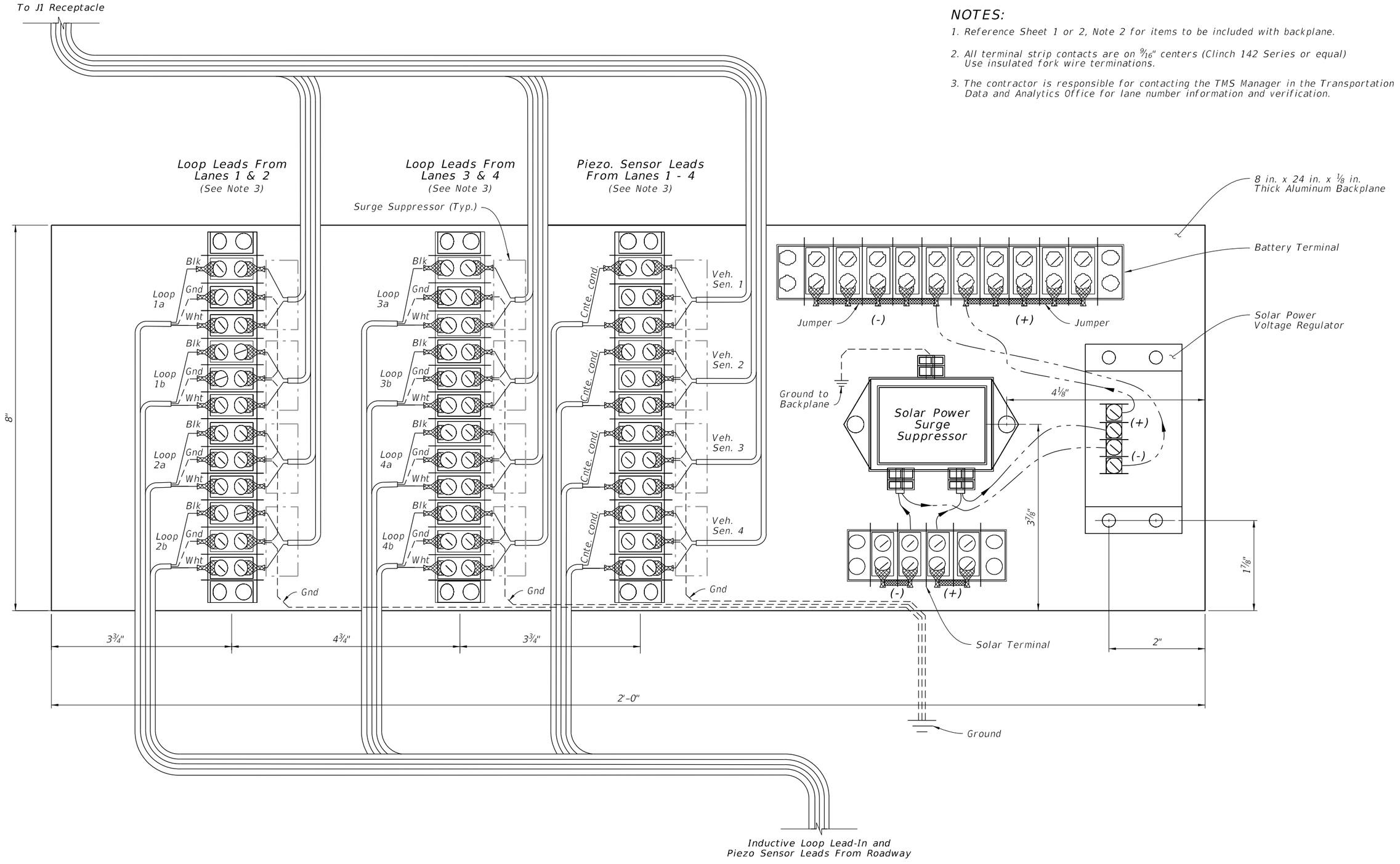
NOTES:

1. *Traffic monitoring site cabinet includes:*
   - *A. One adjustable Shelf; (equipped as shown)*
   - *B. Two backplane assembly; (equipped as shown)*
   - *C. Two J1 receptacle with mounting bracket;*
   - *D. One J1 equipment cable 5 ft. long (Reference Sheet 4);*
   - *E. All Associated wiring and wiring harnesses.*
2. *Basic backplane assembly consists of:*
   - *A. Two inductive loop terminal strips;*
   - *B. One piezo sensor terminal strip;*
   - *C. One battery terminal strip;*
   - *D. One solar panel terminal strip.*
3. *The contractor is responsible for contacting the TMS Manager in the Transportation Data and Analytics Office for lane number information and verification.*
4. *Speed/Classification Unit and Modem furnished separately.*
5. *Cable ends must be fabricated to fit the vehicle speed/ classification unit. (Reference Sheet 4 for Pinout Charts, receptacle and plug details.*
6. *Provide a 12 fiber single mode cable, a 12 port patch panel, and a managed field ethernet switch separately.*

CABINET LAYOUT DETAILS (Five to Eight Lanes)

NOTES:

1. Reference Sheet 1 or 2, Note 2 for items to be included with backplane.
2. All terminal strip contacts are on 9/16" centers (Clinch 142 Series or equal) Use insulated fork wire terminations.
3. The contractor is responsible for contacting the TMS Manager in the Transportation Data and Analytics Office for lane number information and verification.



CABINET BACKPLANE DETAIL

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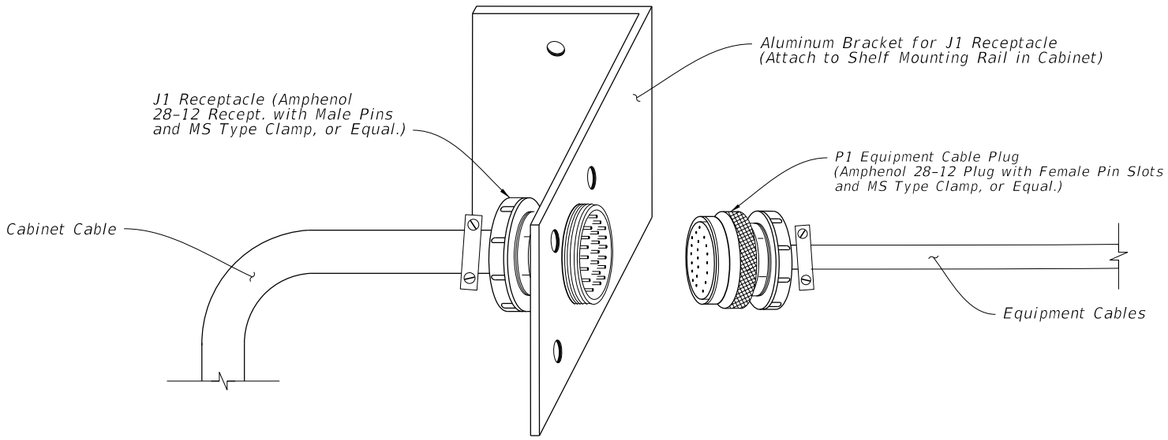
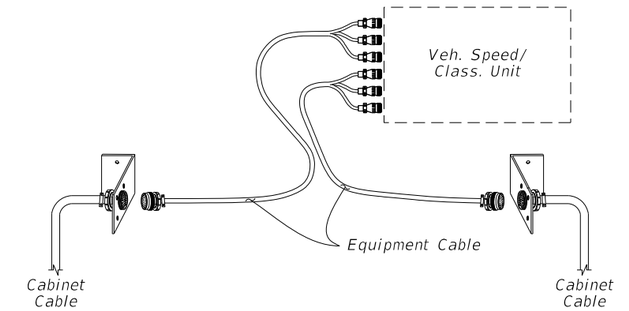
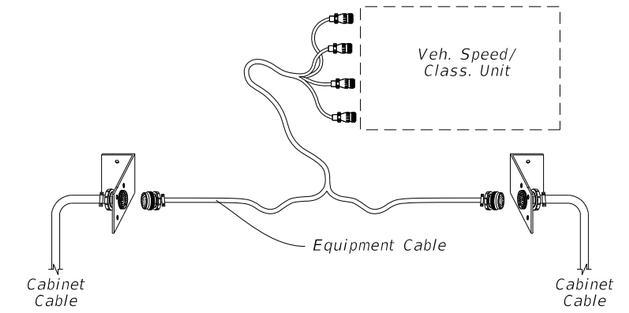


J1 RECEPTACLE PINOUT	
26 Recessed Male Pins	
A	Loop 1a (5a) white
B	Loop 1a (5a) black
C	Loop 1b (5b) red
D	Loop 1b (5b) black
E	Loop 2a (6a) green
F	Loop 2a (6a) blue
G	Loop 2b (6b) orange
H	Loop 2b (6b) tan
J	Loop 3a (7a) white
K	Loop 3a (7a) green
L	Loop 3b (7b) red
M	Loop 3b (7b) black
N	Gnd
P	Loop 4a (8a) w/white
R	Loop 4a (8a) w/black
S	Loop 4b (8b) w/red
T	Loop 4b (8b) w/green
U	Piezo 1 (5) (+) w/blue
V	Piezo 1 (5) sh w/orange
W	Piezo 2 (6) (+) w/green
X	Piezo 2 (6) sh w/red
Y	Piezo 3 (7) (+) w/black
Z	Piezo 3 (7) sh w/red/blk
a	Piezo 4 (8) (+) red/ green
b	Piezo 4 (8) sh red/white
d	Gnd green

J1 EQUIPMENT CABLE PLUG		
26 Female Pin Slots		
A	Loop 1a (5a)	Connect To Electronics Unit
B	Loop 1a (5a)	
C	Loop 1b (5b)	
D	Loop 1b (5b)	
E	Loop 2a (6a)	
F	Loop 2a (6a)	
G	Loop 2b (6b)	
H	Loop 2b (6b)	
N	Gnd	
J	Loop 3a (7a)	Connect To Electronics Unit
K	Loop 3b (7b)	
L	Loop 3b (7b)	
M	Loop 3b (7b)	
P	Loop 4a (8a)	
R	Loop 4a (8a)	
S	Loop 4b (8b)	
T	Loop 4b (8b)	
d	Gnd	
U	Piezo 1 (5) (+)	Connect To Electronics Unit
V	Piezo 1 sh	
W	Piezo 2 (6) (+)	
X	Piezo 2 sh	
Y	Piezo 3 (7) (+)	
Z	Piezo 3 sh	
a	Piezo 4 (8) (+)	
b	Piezo 4 sh	



OPTION A



OPTION B

NOTES:

1. The contractor is responsible for contacting the TMS Manager in the Transportation Data and Analytics Office for lane number information and verification.
2. The equipment cable can accommodate up to four lanes of inductive loop and piezo sensor inputs. (Reference Sheet 1 for cabinet layout)
3. For more than four lanes and up to eight lanes of inputs, the following options are available:
   A. Second Vehicle Speed/Class. Unit and separate equipment cable connecting to a second J1 receptacle; or
   B. Single Vehicle Speed/Class. Unit capable of up to eight lanes of inputs and a single equipment cable with split ends to fit two J1 receptacles. (Reference Sheet 2 detail)
4. Numbers in parenthesis in the pinout chart identify lane numbers when a second backplane for lanes 5 through 8 is required.
5. Cable Ends must be fabricated to fit the vehicle Speed/Classification Unit.

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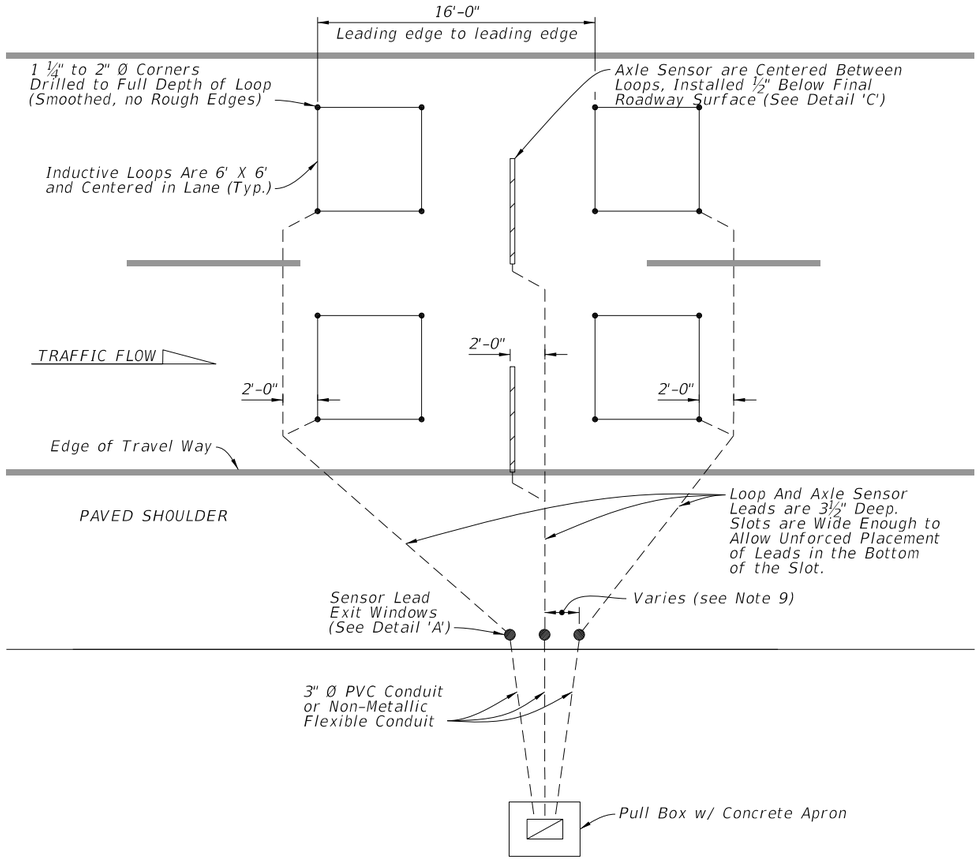
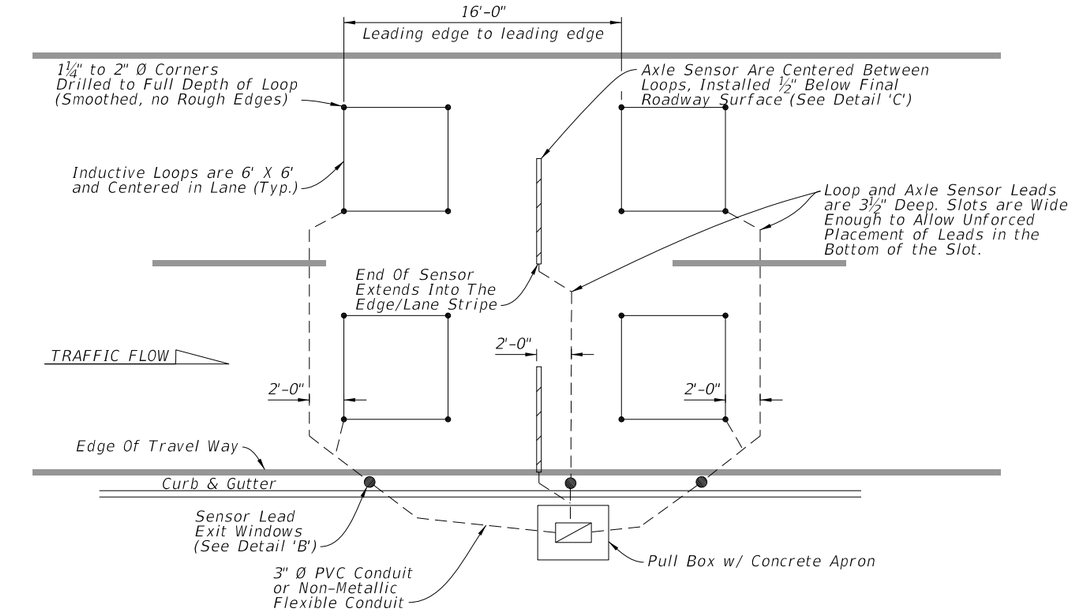
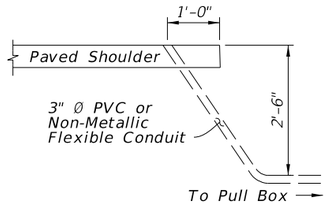


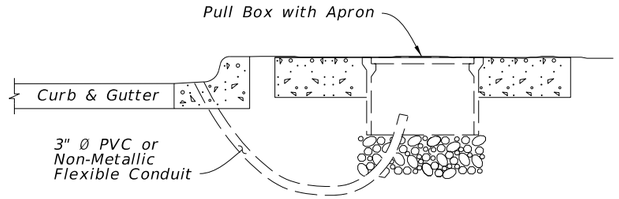
ROADWAYS WITH PAVED SHOULDERS



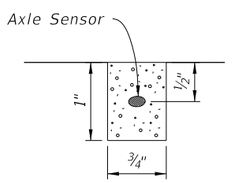
CURB & GUTTER ROADWAYS



EXIT WINDOW
DETAIL 'A'



EXIT WINDOW
DETAIL 'B'



END VIEW
(Axle Sensor Slot)
DETAIL 'C'

NOTES:

1. Install axle sensors and loops associated with axle sensors after placement of the friction course.
2. Cut a 3½" deep slot for the Inductive loops. Loop slots will be cut wide enough to allow unforced placement of the wire into the bottom of the slot. Four turns of #14 AWG, place the IMSA 51-7 copper wire in the slot. Place short pieces of backer rod (2" to 3" in length) every 18" to 24" to hold the loop wire in the bottom of the slot.
3. Twist loop leads at the rate of 8 to 16 twists per foot. Loops that are within 150' of the cabinet, extend the twisted pair loop wire directly to the cabinet. For distances over 150', #14 IMSA 50-2 shielded lead-in cable must be spliced to the loop wire twisted pair at the first pull box to which the loop wire is pulled.
4. Marking will consist of two rounds of contrasting colored tape, one color for the lane number and the second color for the lead loop location in the lane. The first band closest to the cabinet will represent the lane number, one round of tape will be for lane 1 and two rounds will be lane 2, etc. The lead loop in lane one would have one round of tape and a second round of a contrasting colored tape for the lead loop in the lane. The trailing loop would not have a second contrasting colored band of tape.
5. See Index 635-001 for pull box and apron details.
6. All splices will be performed using splice kits designed for direct burial. Splice kits will include screw on wire connectors and a housing with sufficient sealant to fully encapsulate the spliced connections. Taped splices are not permitted.
7. Use a chalk line or string and paint to layout the position of the sensor and lead-in cable slots. Ensure saw cuts do not deviate more than 0.5 inches from the chalk line. Use a single blade or ganged blade saw wide enough to cut the axle sensor slot at full width in a single pass. Cutting two slots and chipping out roadway material between them is not allowed.
8. All sensor slots and any cuts in the roadway will be thoroughly blown out to ensure there is no dust or debris prior to installation of sensors or leads.
9. Install Exit Windows at least 2' apart.

TYPICAL FOR UP TO 4 LANES OF SENSOR LEADS PULLED TO ONE SIDE OF THE ROADWAY

LANE LAYOUT FOR TMS INDUCTIVE LOOP AND AXLE SENSOR

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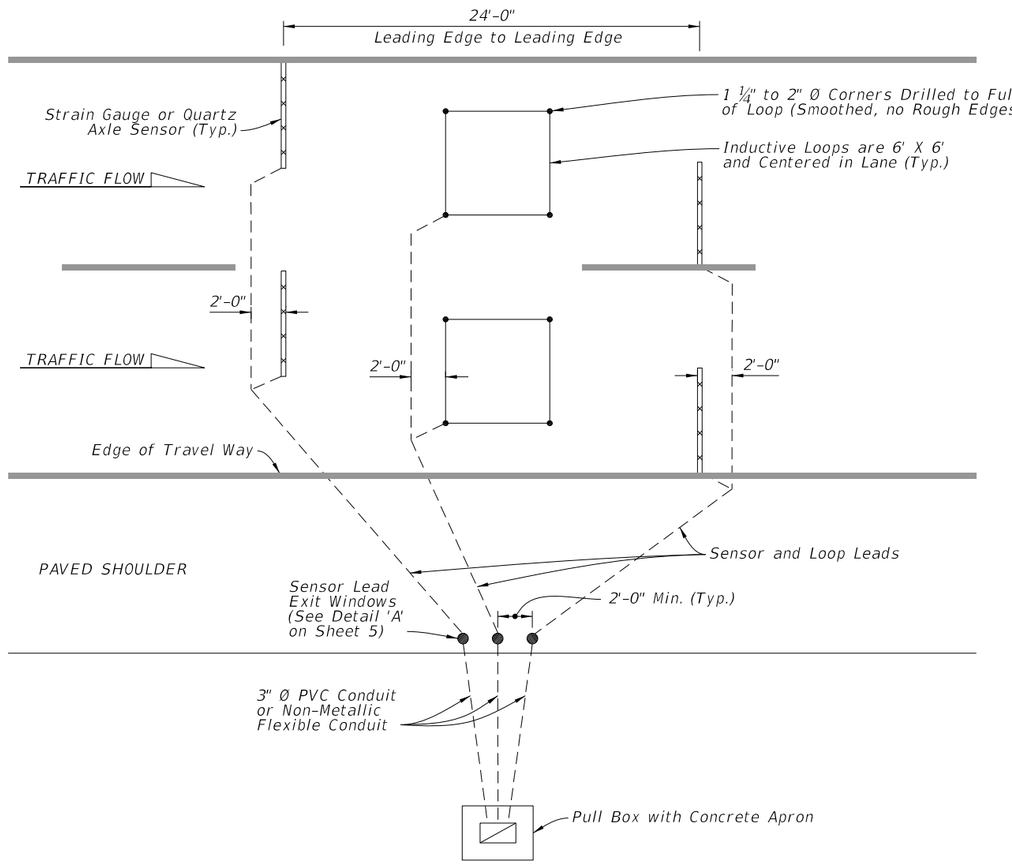
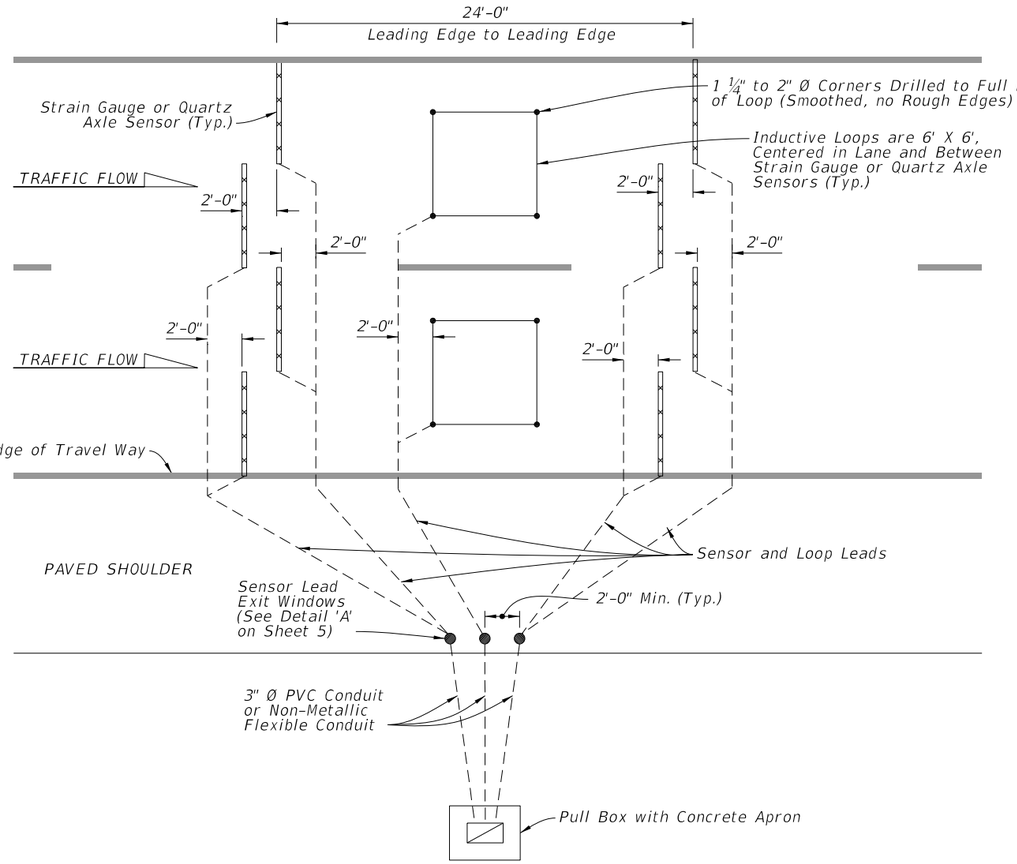


TYPE I CONFIGURATION-A
(Vehicle Classification System)



TYPE I CONFIGURATION-B
(Vehicle Classification System)

NOTE:

Configuration-A and Configuration-B are based on the vehicle Speed/classification unit. Contact the TMS Manager in the Transportation Data and Analytics Office for the correct configuration.

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LANE CONFIGURATION FOR TMS INDUCTIVE LOOP AND STRAIN GAUGE/QUARTZ AXLE SENSOR

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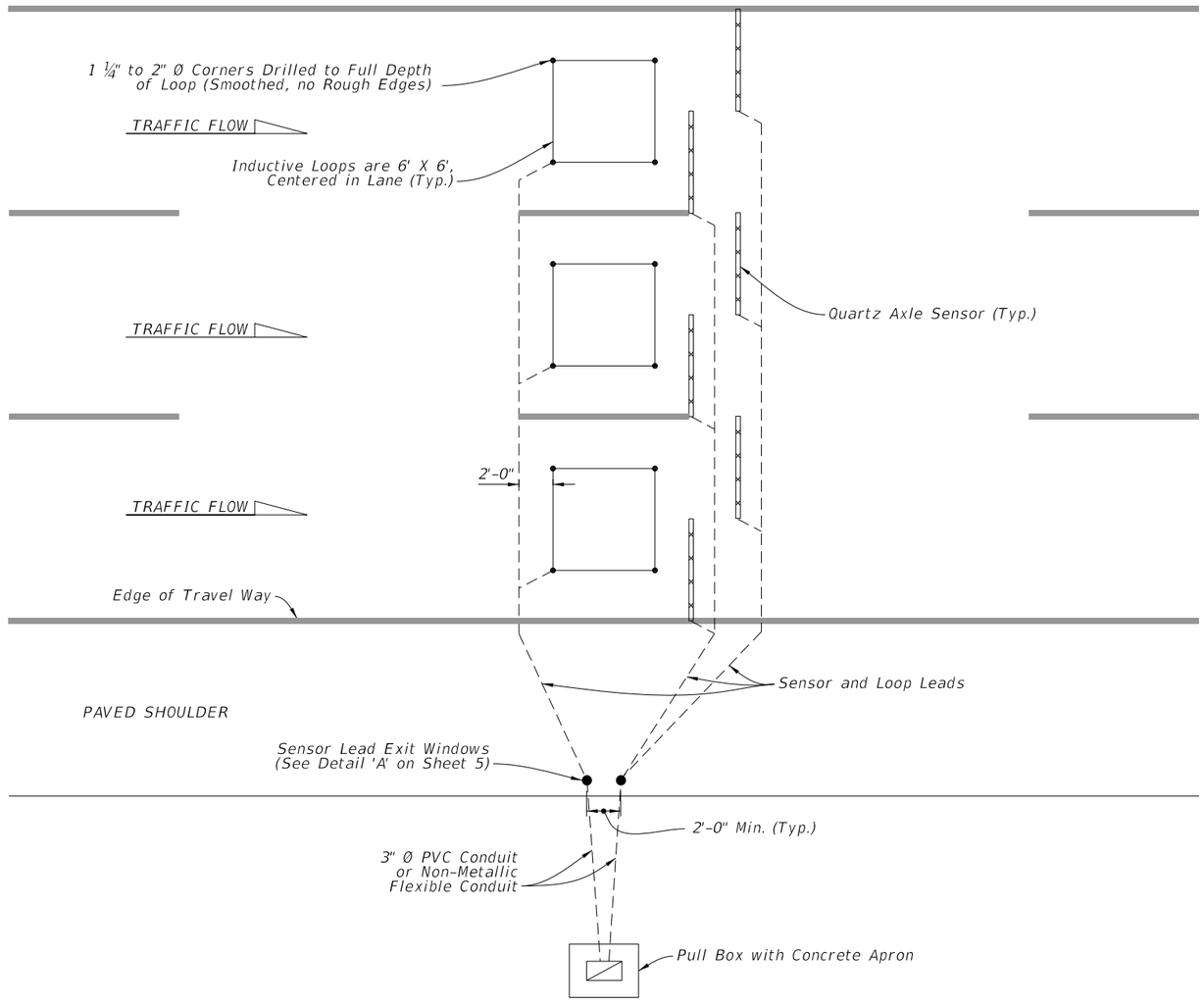

TYPE III CONFIGURATION

(Commercial Vehicle Weight Enforcement System)

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LANE CONFIGURATION FOR MAINLINE INDUCTIVE LOOP AND QUARTZ AXLE SENSOR

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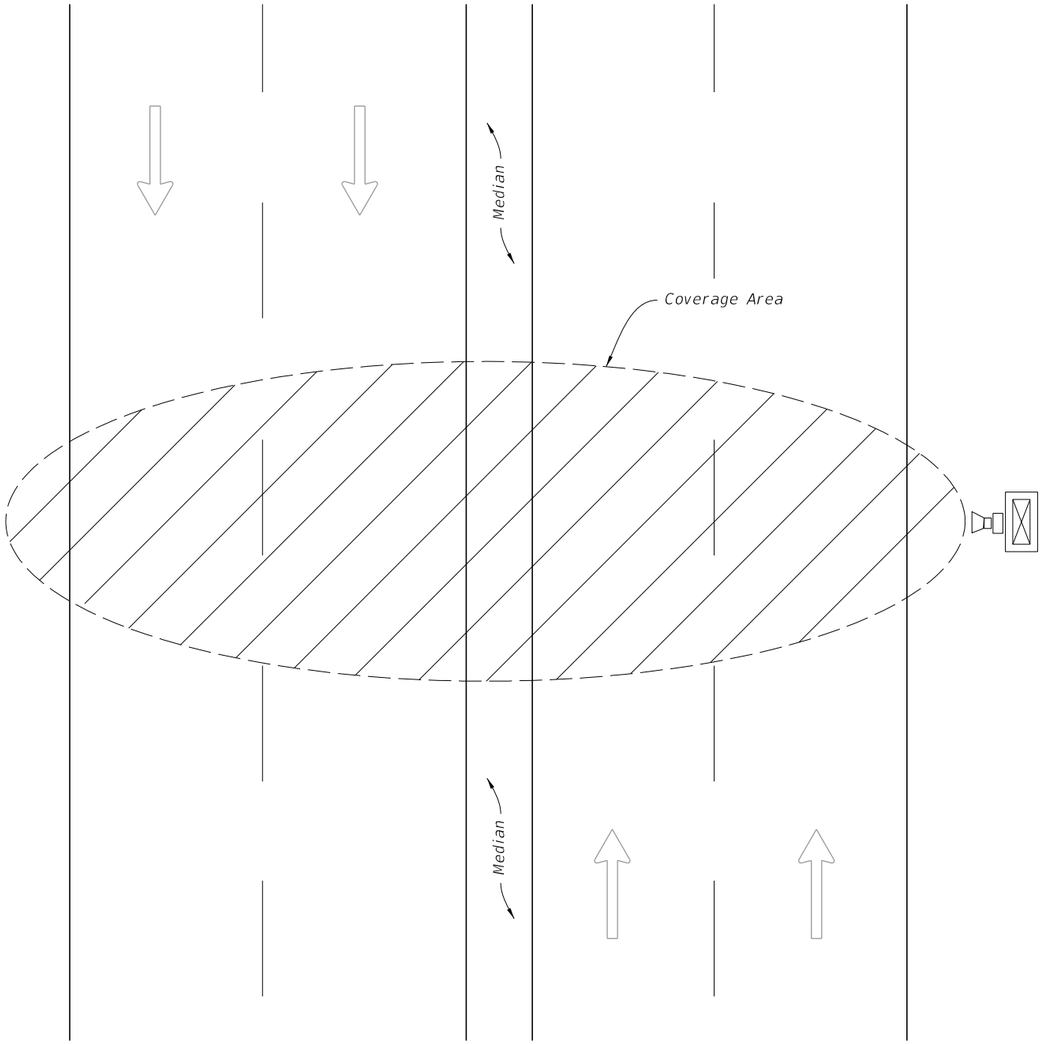
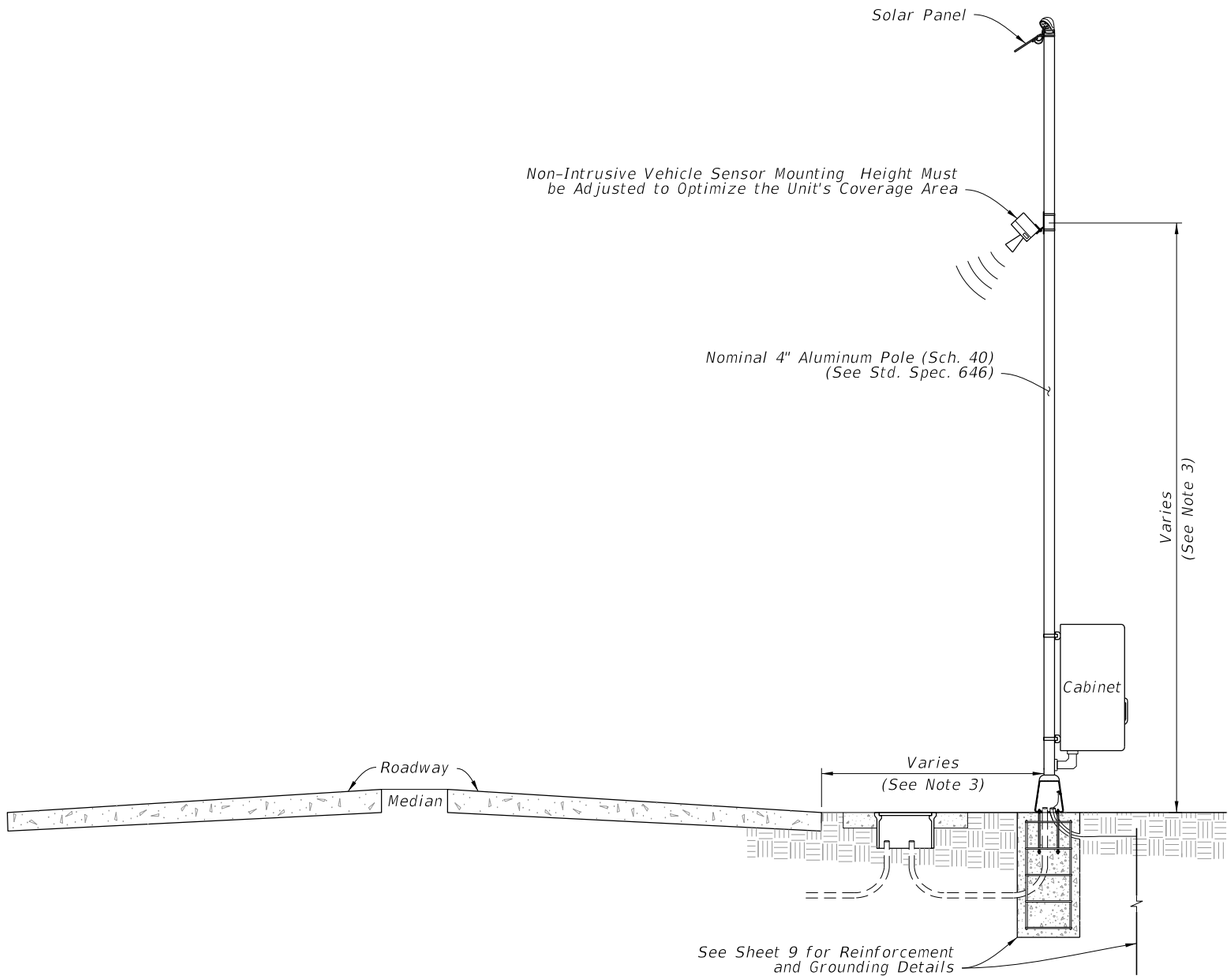


PLAN



ELEVATION

NOTES:

1. The unit must be capable of detecting up to eight lanes of traffic (in either or both directions) when mounted perpendicular to the roadway.
2. Coverage area of the unit is affected by the roadway geometry: distance from the travel lanes, median type and width, barrier walls, etc.
3. Mounting height of the unit and offset from the roadway must be determined on a site-by-site basis, in accordance with the manufacturer's recommended guidelines. Offset of pole must be greater than or equal to minimum clear zone requirements.

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NON-INTRUSIVE VEHICLE SENSOR

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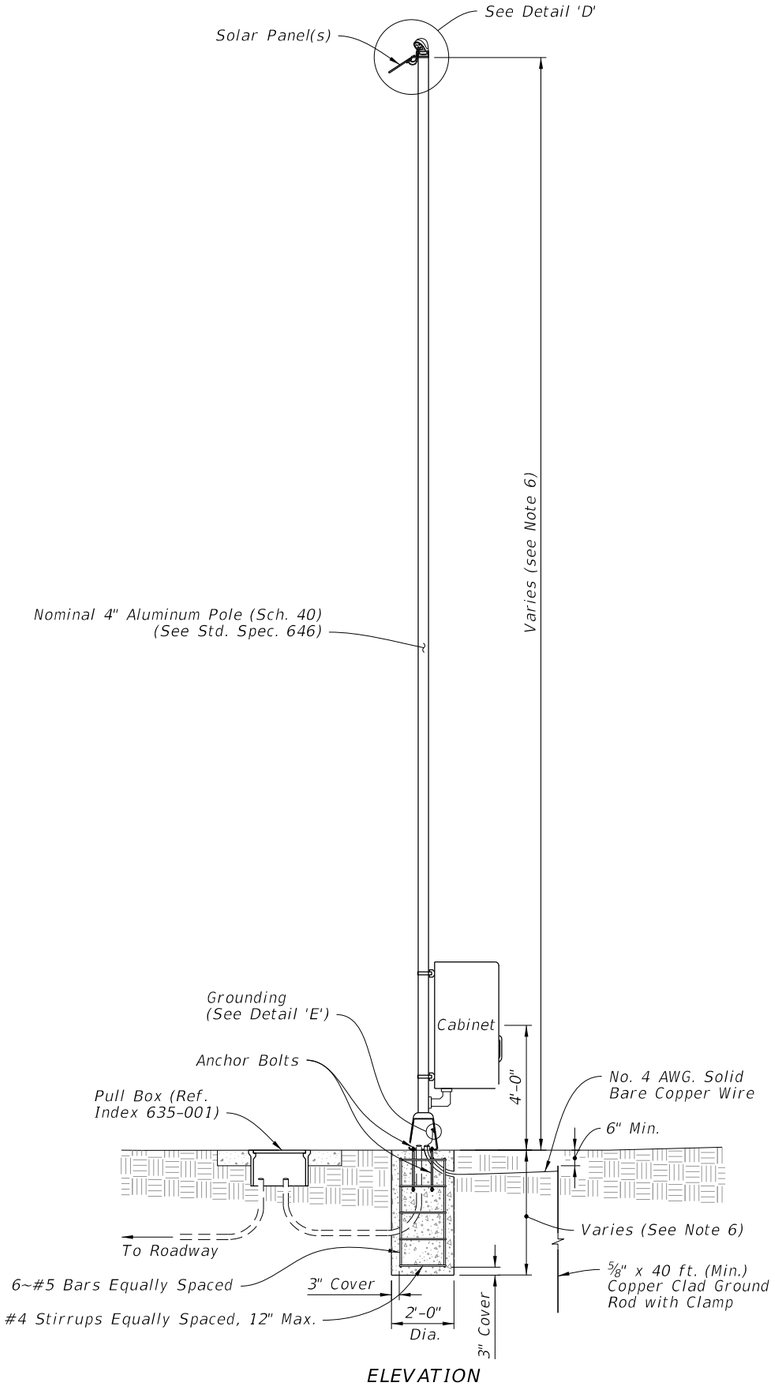


ELEVATION

SOLAR POWER POLE
WITH POLE MOUNTED CABINET
(Telemeter Sites)

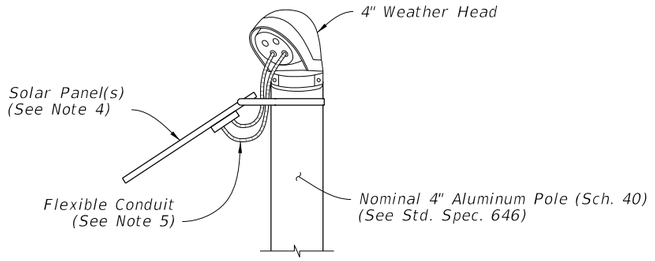
NOTES:

1. Cabinet installed per Index 676-010 except cabinet center will be 4 feet above grade.
2. Meet the requirements of Specification 646.
3. Use #10 AWG stranded copper wire for Solar Panel Array installations, Red insulation is THHN or THWN for positive 12 volts wiring, Black insulation is THHN or THWN for negative, 12 volts wiring, Green insulation is THHN or THWN for ground bonding of the solar panel frame to the pole and earth.
4. Solar panel should be installed facing due south with angle of tilt equal to the sum of the following equation. The Latitude of the panel's location, multiplied by 0.76, plus 3.1 degrees. Equation expressed as (LAT)X(0.76)+(3.1°)
5. Encase all wiring from the weather head to the solar panel in outdoor flexible conduit.
6. Concrete Base Dimensions:

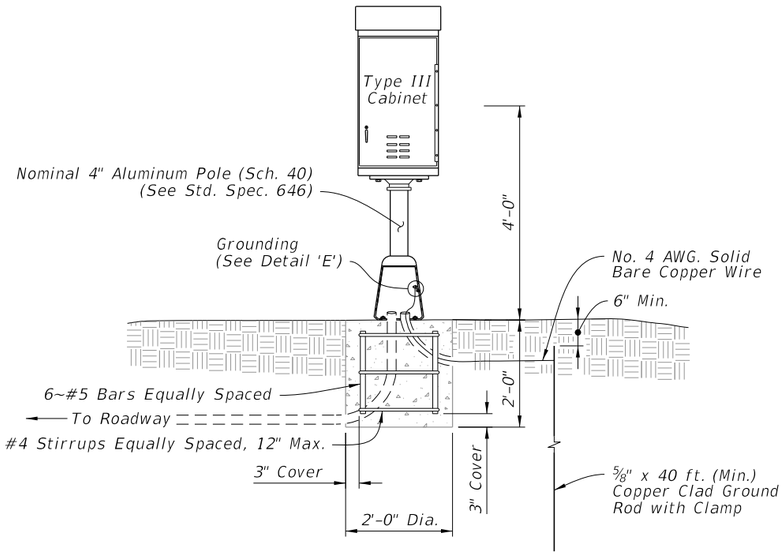
   a. 4' poles: depth of 2'-0"

   b. 12' or 15' poles: depth of 3'-0"

   c. 20' or 30' poles: depth of 4'-0"

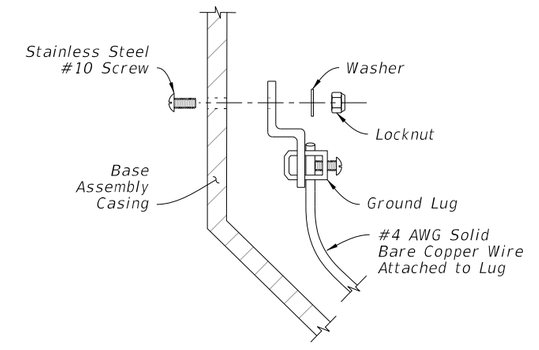


DETAIL 'D'



ELEVATION

PEDESTAL MOUNTED CABINET
(Portable Traffic Monitoring Sites)



DETAIL 'E'

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