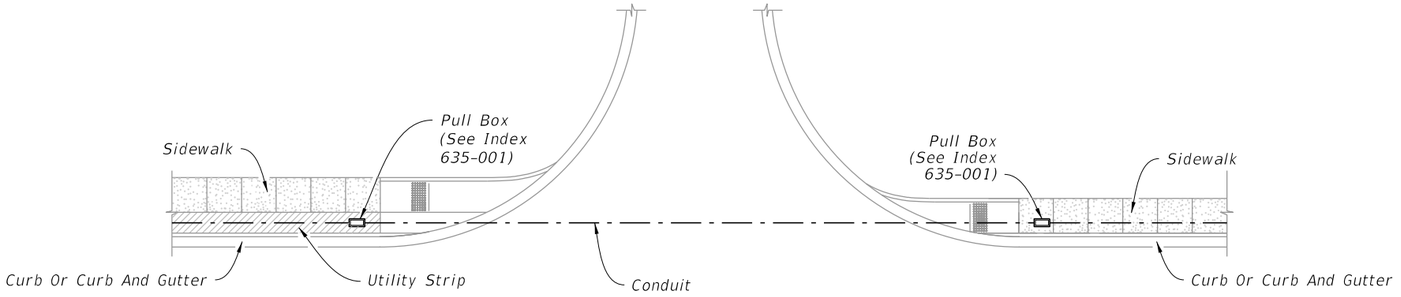
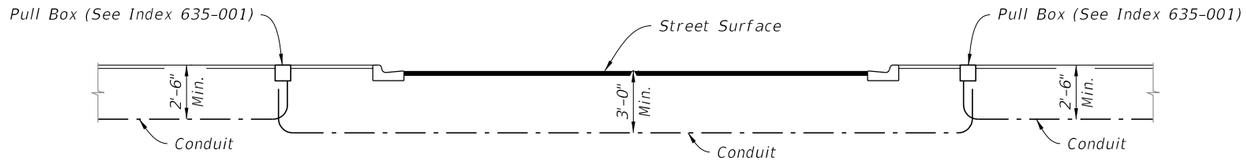
GENERAL NOTES:

1. Install conduit in accordance with Specification 630.
2. When sidewalk is damaged by conduit installation, replace entire sidewalk slab.
3. Trench not to be open more than 250' at a time when construction area is subject to vehicular or pedestrian traffic.
4. Sawcut asphalt at the edges of the trench to leave neat lines.
5. Provide route marker and route marker label in accordance with Specification 630.

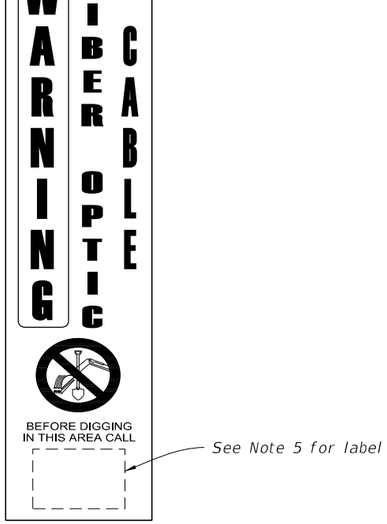


PLAN

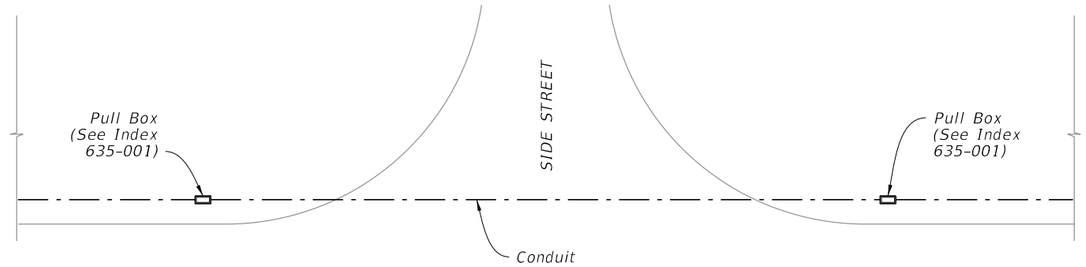


ELEVATION

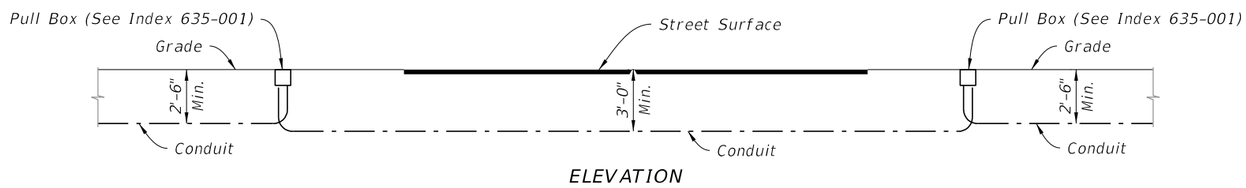
CURB AND GUTTER



ROUTE MARKER DETAIL



PLAN

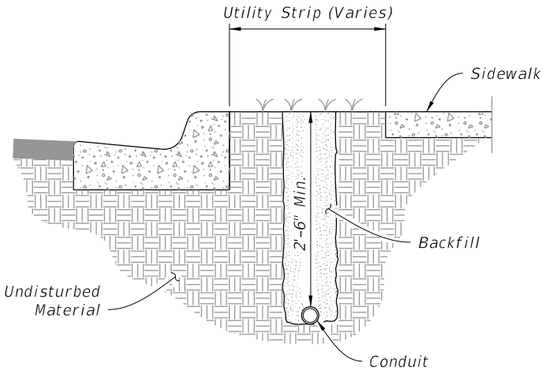


ELEVATION

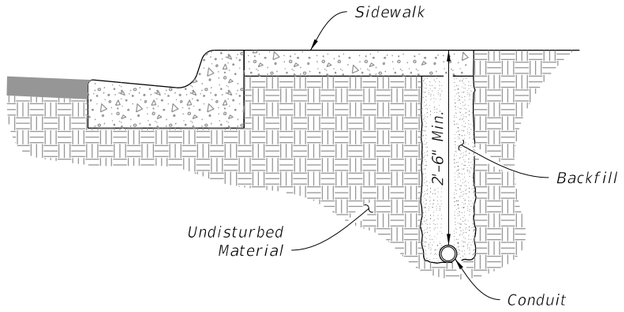
FLUSH SHOULDER

10/4/2023 2:34:38 PM

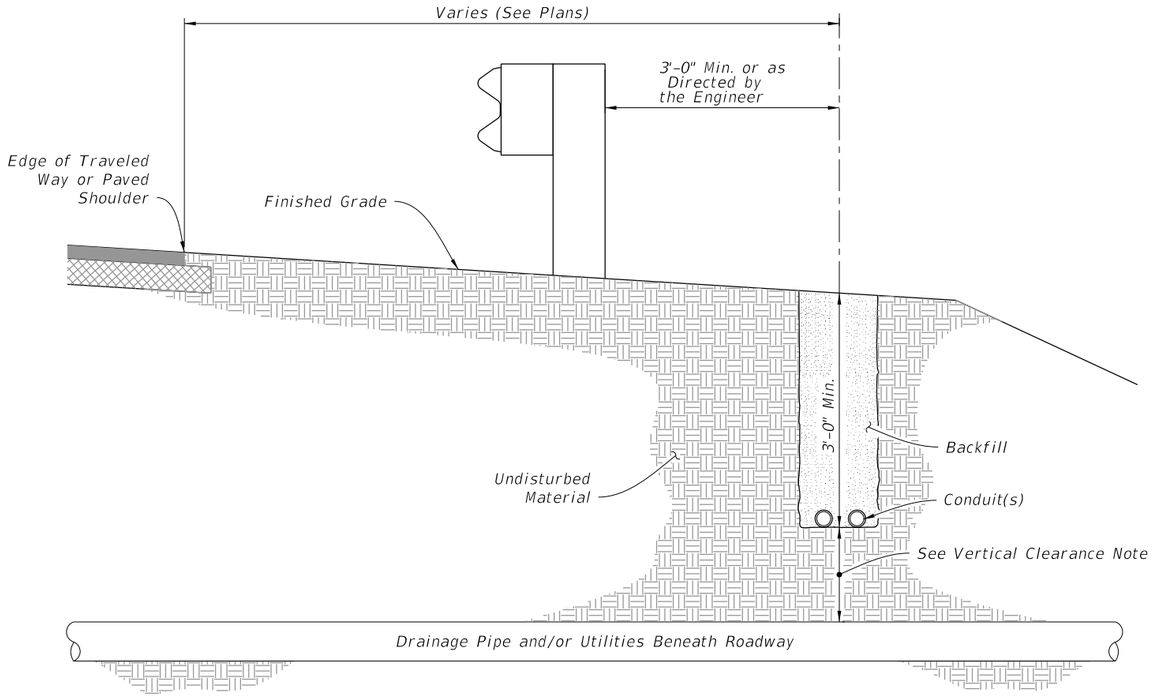
LAST REVISION	REVISION	DESCRIPTION:				
11/01/21			FY 2024-25 STANDARD PLANS	CONDUIT INSTALLATION DETAILS	INDEX 630-001	SHEET 1 of 4



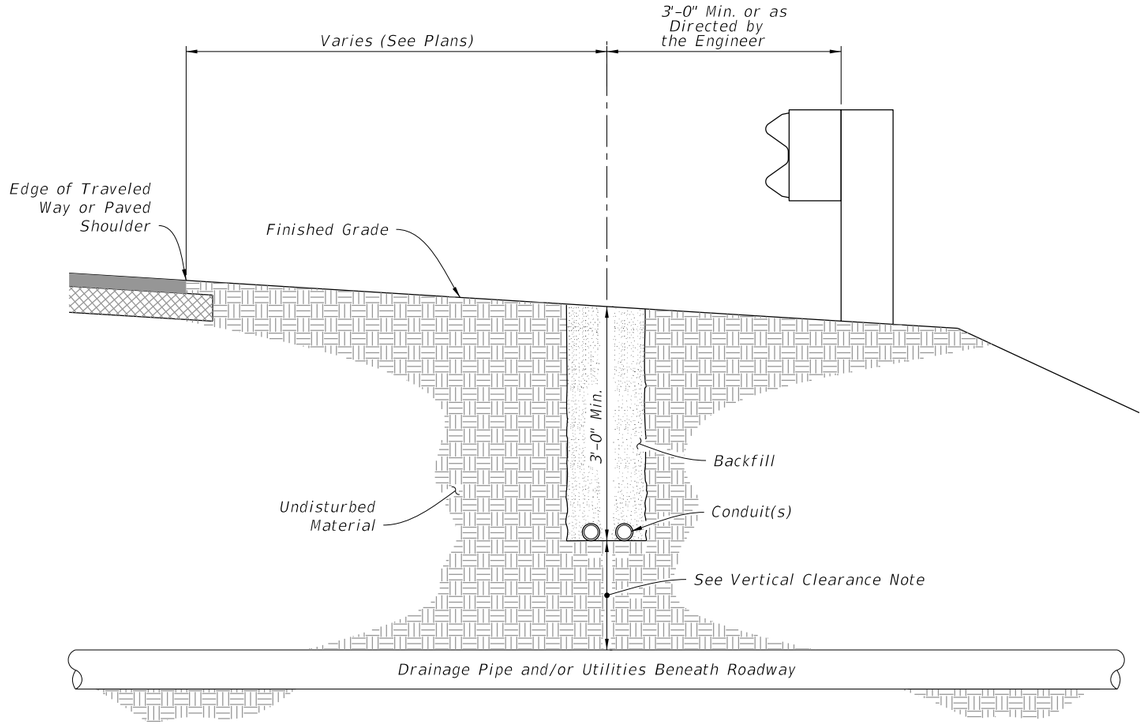
PLACEMENT WITHIN THE UTILITY STRIP



PLACEMENT UNDER SIDEWALK



PLACEMENT BEHIND GUARDRAIL



PLACEMENT IN FRONT OF GUARDRAIL

VERTICAL CLEARANCE NOTE:

Maintain 1'-0" minimum vertical clearance when crossing over pipe and or utilities. If minimum vertical clearance cannot be maintained, conduit is to be routed under pipe maintaining 1'-0" minimum vertical clearance.

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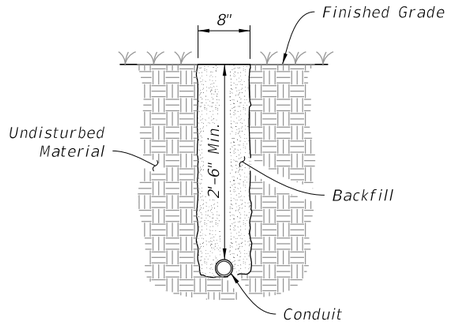
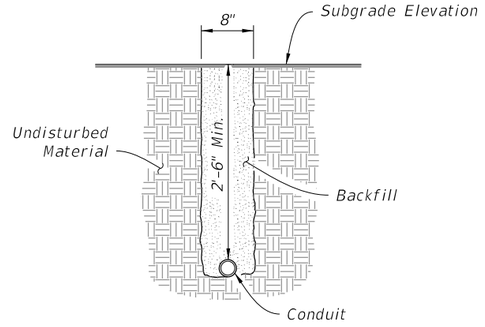
LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	CONDUIT INSTALLATION DETAILS	INDEX	SHEET
11/01/18					630-001	2 of 4



PLACEMENT NOT EXPOSED TO VEHICULAR TRAFFIC

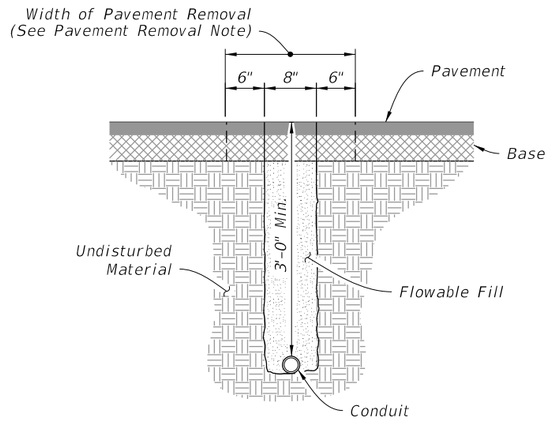


PLACEMENT UNDER NEW ROADWAY PRIOR TO INSTALLATION OF BASE AND PAVEMENT

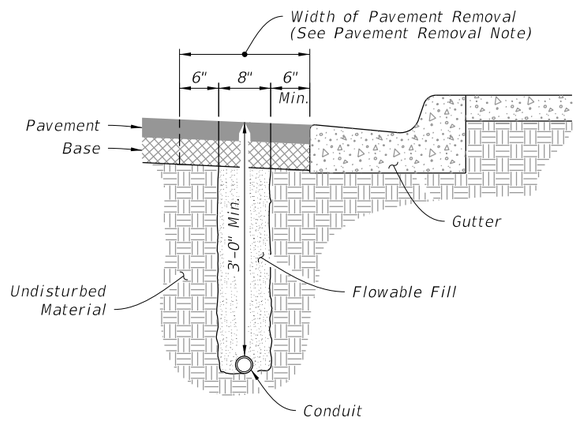
NOTES:

1. Pavement Removal: The removal and replacement of the additional pavement width (i.e., 6" Width either side of trench) will not be required when the trench can be constructed without disturbing the asphalt surface on either side.

2. Placement Under Existing Pavement: Place conduit prior to installation of base and pavement, unless otherwise shown in the Plans or approved by the Engineer.



PLACEMENT UNDER EXISTING PAVEMENT NOT ADJACENT TO GUTTER



PLACEMENT UNDER EXISTING PAVEMENT ADJACENT TO GUTTER

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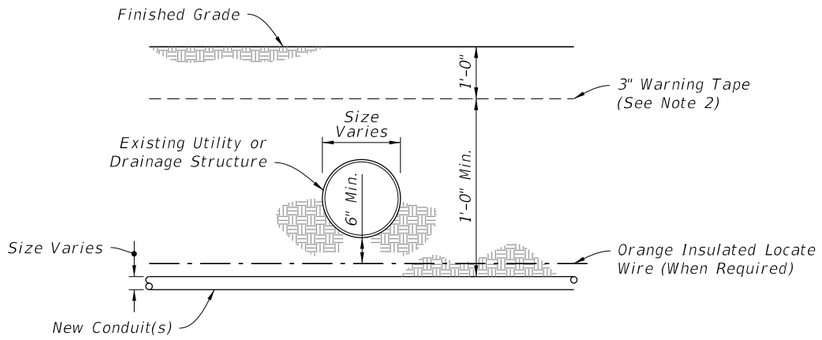
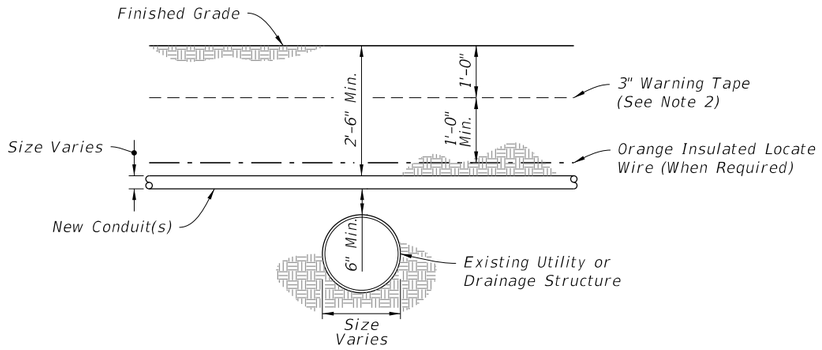
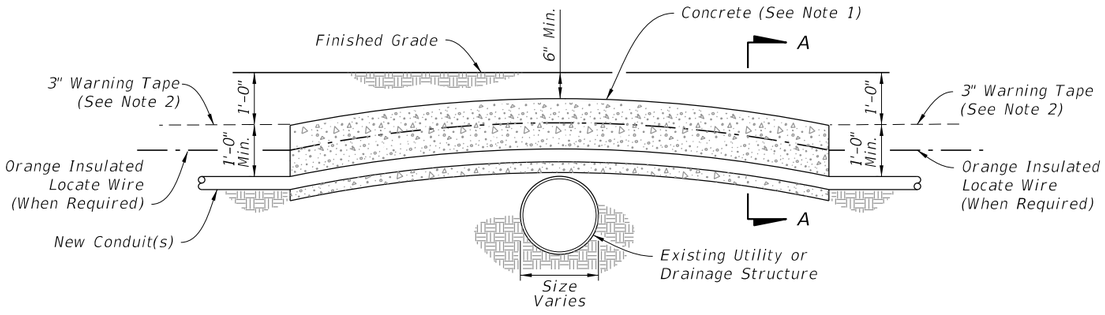
LAST REVISION	REVISION	DESCRIPTION:				
11/01/18			FY 2024-25 STANDARD PLANS	CONDUIT INSTALLATION DETAILS	INDEX 630-001	SHEET 3 of 4



BELOW EXISTING

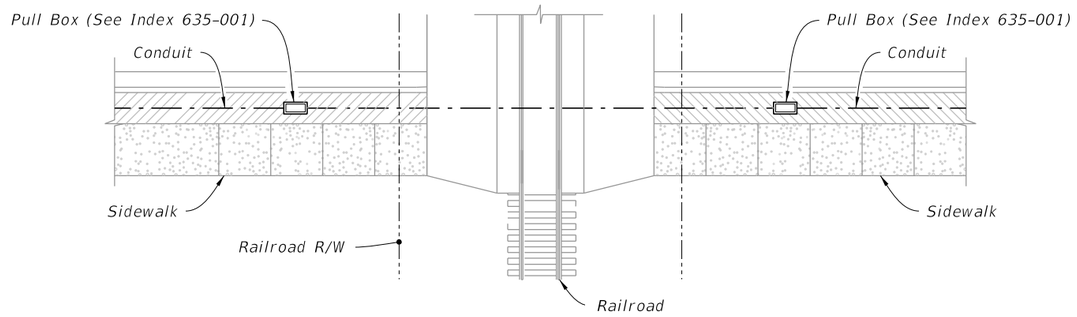


ABOVE EXISTING - DEPTH 2'-6" OR GREATER

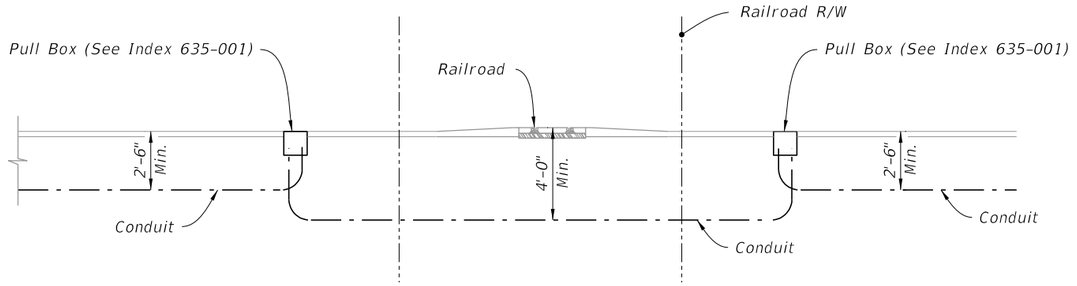


ABOVE EXISTING - DEPTH 2'-6" OR LESS

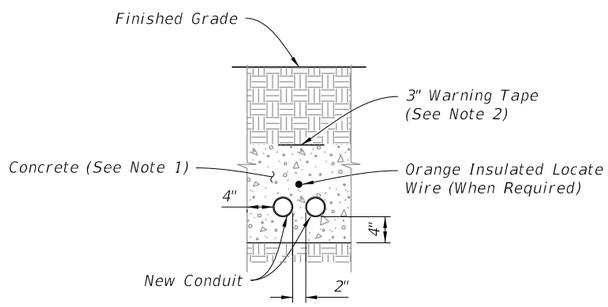
PLACEMENT ACROSS EXISTING DRAINAGE PIPES OR UTILITIES



PLAN



PLACEMENT UNDER RAILROAD



SECTION A-A

NOTES:

1. Where conduits are to be installed over existing underground structures (e.g., drainage pipes or utility lines) which are less than 2'-6" deep, encase the conduit in Class NS concrete for the entire length of conduit that is installed at a depth of less than 2'-6".

2. Place 3" Warning Tape when new conduit is installed at a depth of 1'-6" or greater, and the new conduit is not encased in concrete.

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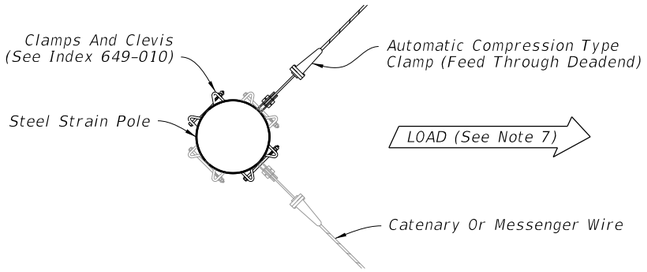
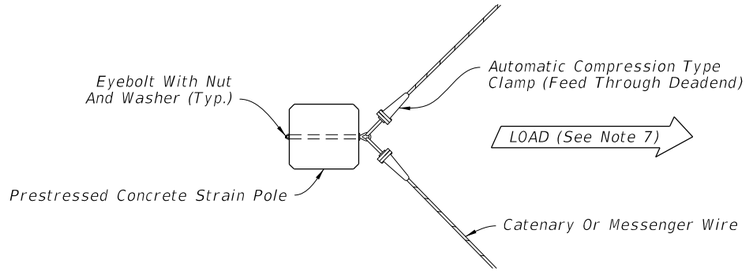
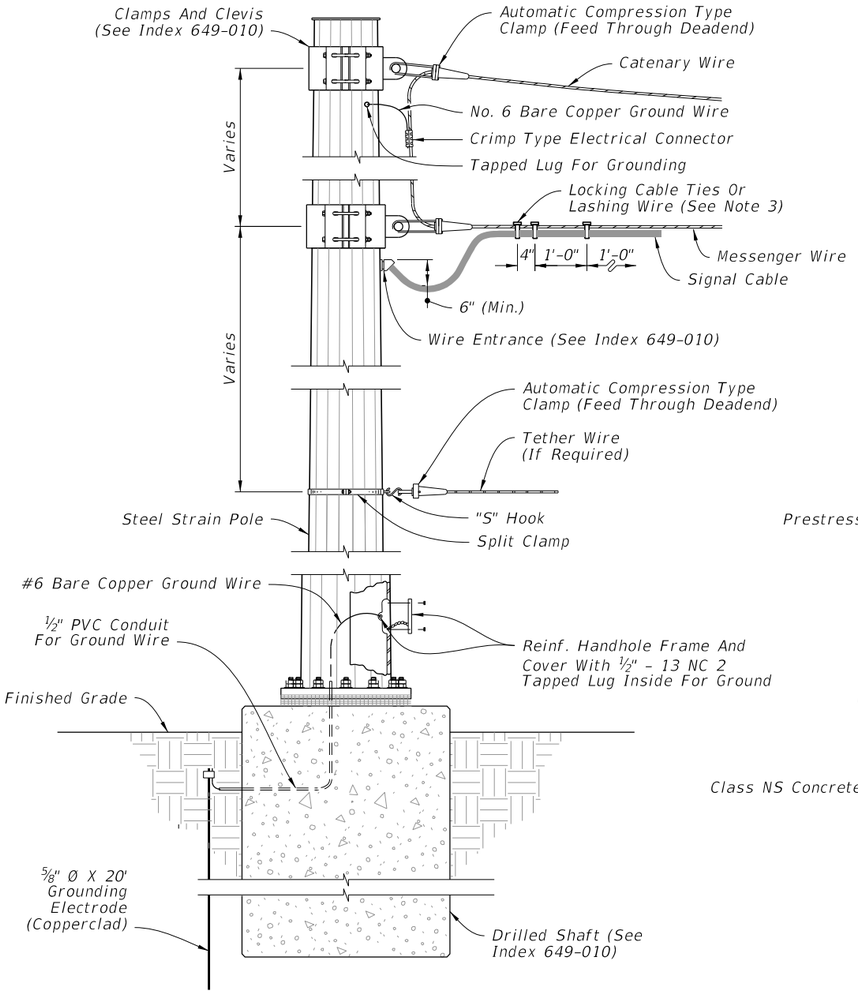
LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	CONDUIT INSTALLATION DETAILS	INDEX	SHEET
11/01/18					630-001	4 of 4



PLAN
(Two Span Connections Shown)

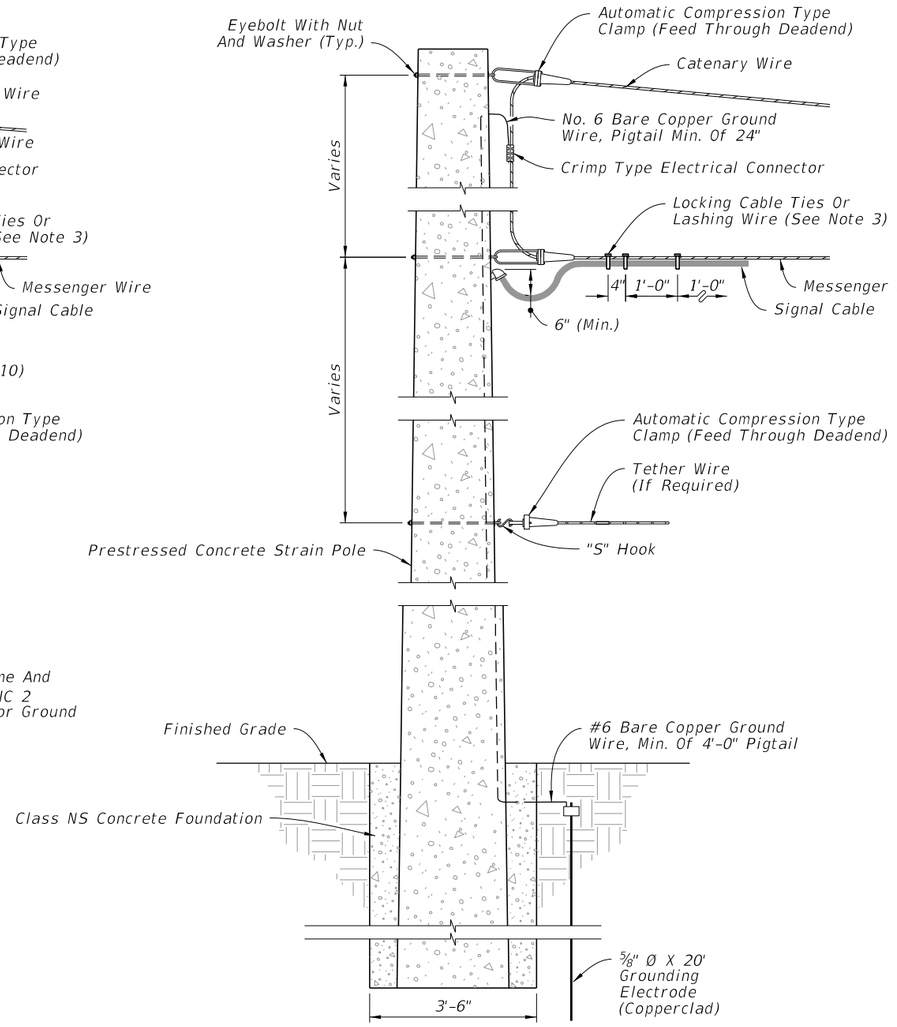


PLAN
(Two Span Connections Shown)



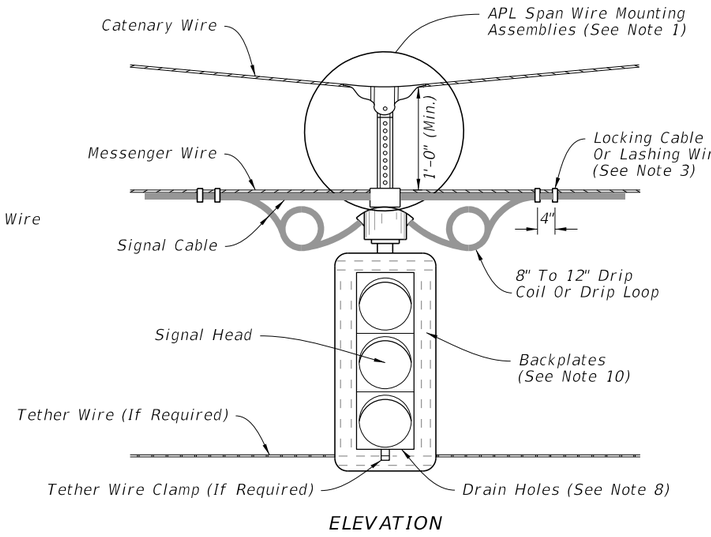
ELEVATION

STEEL STRAIN POLE



ELEVATION

PRESTRESSED CONCRETE STRAIN POLE



ELEVATION

SIGNAL ATTACHMENT

NOTES:

1. Use only span wire mounting assemblies listed on the APL. For specific details and requirements, see the vendor drawings on the APL.
2. With the approval of the resident engineer, the service head hole for joint use poles may be drilled by the utility company at an angle of 90° but not less than 45° to the face of the pole.
3. Lashing wire should normally be used for distances of 12' or greater.
4. Use only stainless steel hardware on all signal attachments.
5. Hole for eyebolt will require field reaming for 1" & 1¼" eyebolts.
6. Meet all grounding requirements of Specification 620.
7. The load face of pole is to be perpendicular to the resultant load.
8. Field Drill 2-¼" drain holes in the bottom of the installed signals.
9. Method of framing corner Strain Poles angles 10° to 120°.
10. Use only backplates listed on the APL. For specific details and requirements, see the vendor drawings on the APL.

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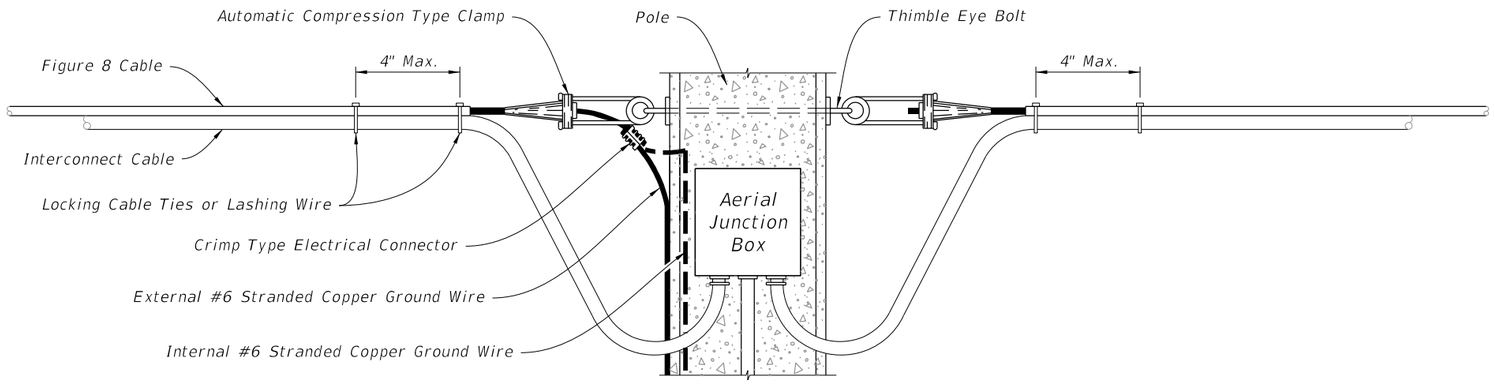
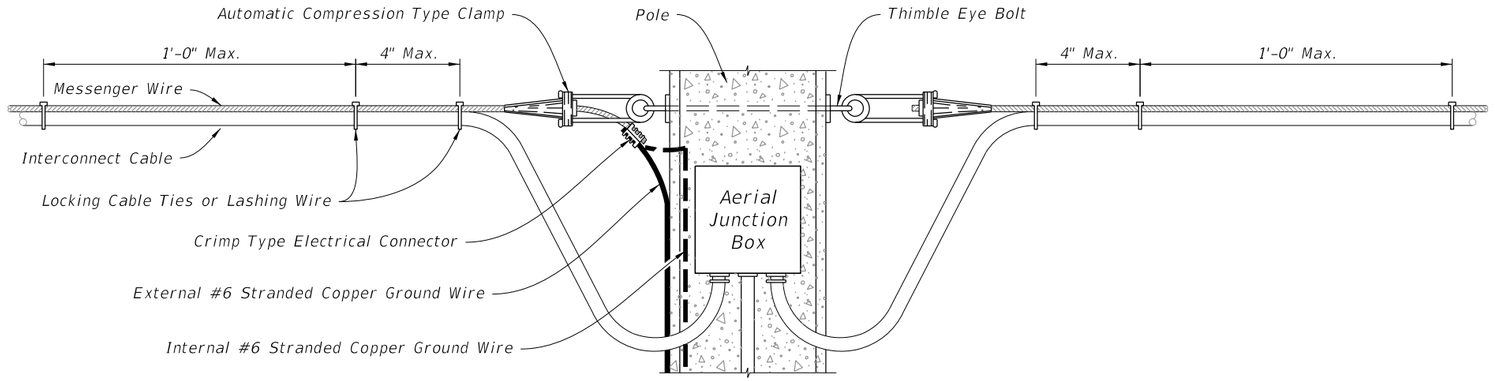
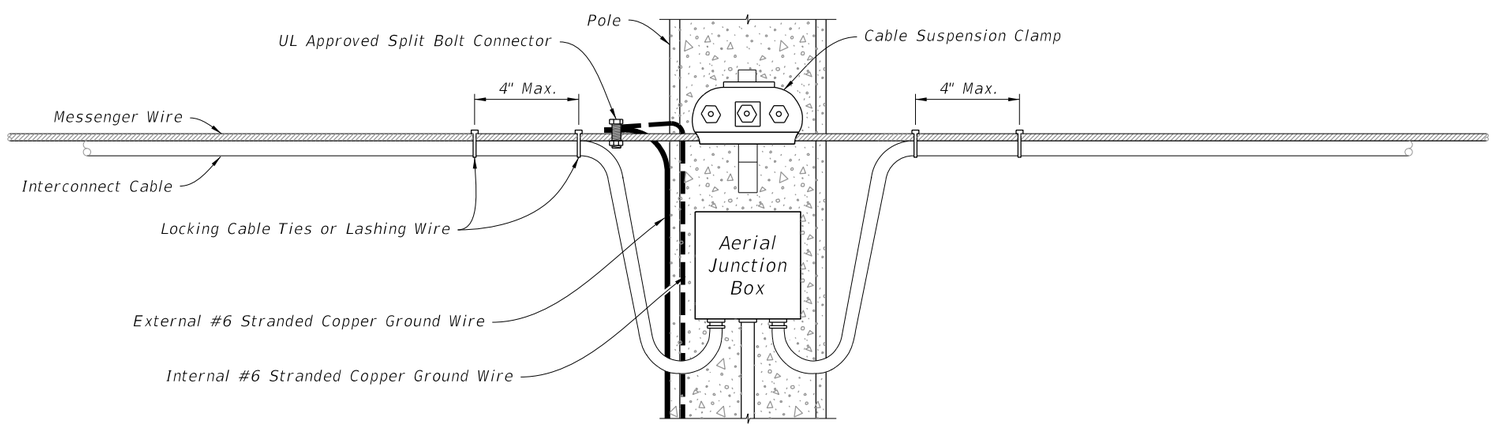
LAST REVISION	REVISION	DESCRIPTION:				
11/01/20			FDOT FY 2024-25 STANDARD PLANS	SIGNAL CABLE AND SPAN WIRE INSTALLATION DETAILS	INDEX 634-001	SHEET 1 of 1



CABLE DROP AND TERMINATION WITH FIGURE 8 CABLE



CABLE DROP AND TERMINATION WITH MESSENGER WIRE AND COMPRESSION CLAMP



CABLE DROP AND TERMINATION WITH MESSENGER WIRE AND SUSPENSION CLAMP

NOTES:

1. Meet all grounding requirements of Specification 620.
2. If accessible, ground the messenger wire of the interconnect cables to the copper ground wire of the pole or to the external wire extending down the pole.
3. When utilizing the external ground wire, install a piece of ½" conduit extending up 8' from the finish grade to protect the ground wire connecting the messenger wire to the ground rod.
4. Use either locking cable ties or lashing wire, placed no further than 12" apart. Except at the point of cable drop or terminations, place one (1) at the point where the cables separate from the messenger wire and place another at a maximum distance of 4" from that tie.
5. When installing Figure 8 interconnect cable, only use locking cable ties.
6. Lashing wire should normally be used for distances of 12' or greater.

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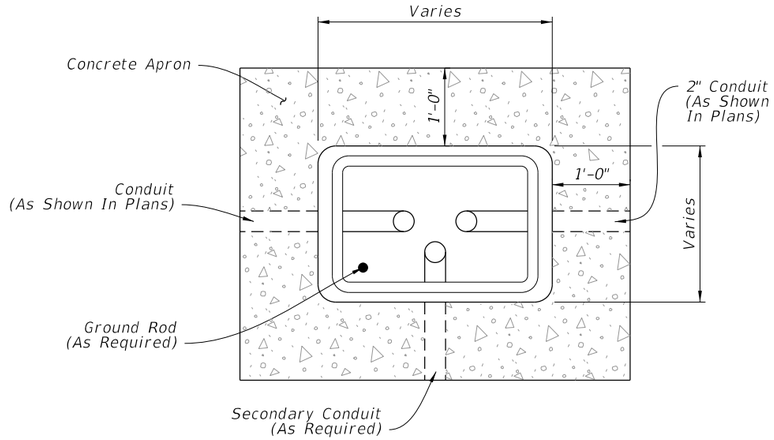
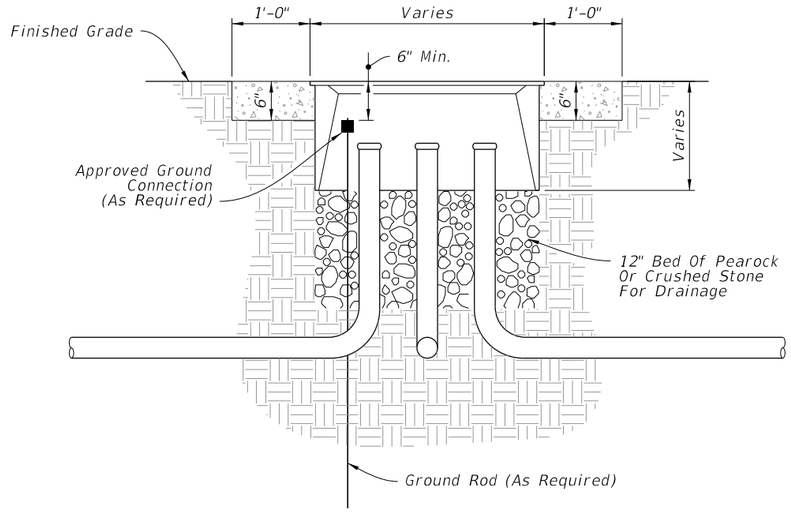
LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	AERIAL INTERCONNECT	INDEX	SHEET
11/01/18					634-002	1 of 1

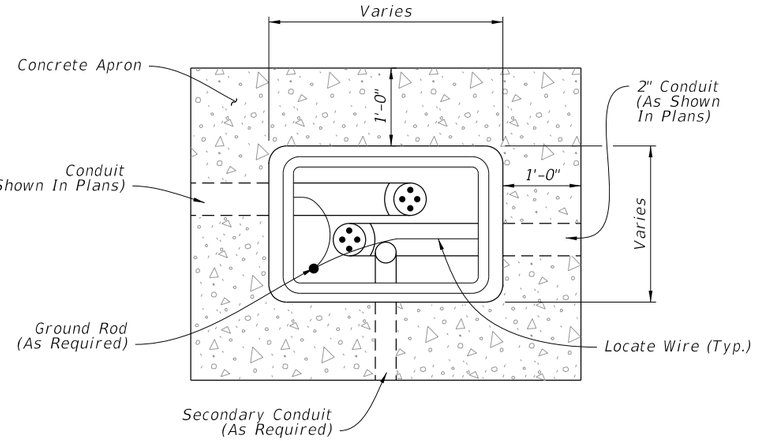


PLAN

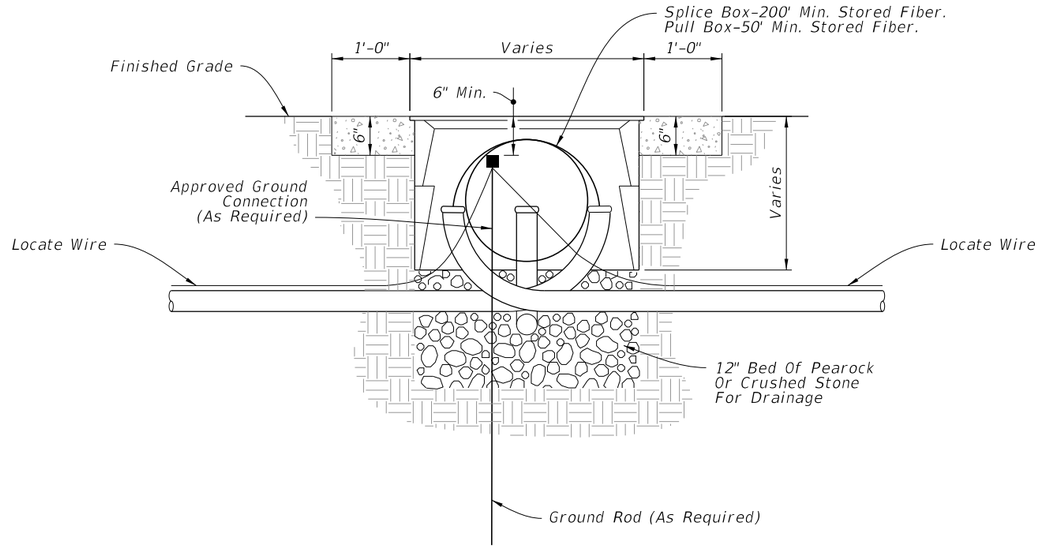


ELEVATION

PULL BOX



PLAN



ELEVATION

FIBER OPTIC BOX

NOTES:

1. Provide fiber optic splice boxes with cable hanger racks designed to support cables and splice enclosures.
2. Install a 1'-0" wide (Min.) concrete apron around all boxes using Class NS concrete. Slope the apron away from the box.
3. Where multiple pull boxes are placed side by side, maintain at least 8" between the pull boxes.
4. Rectangular boxes shown, others similar.

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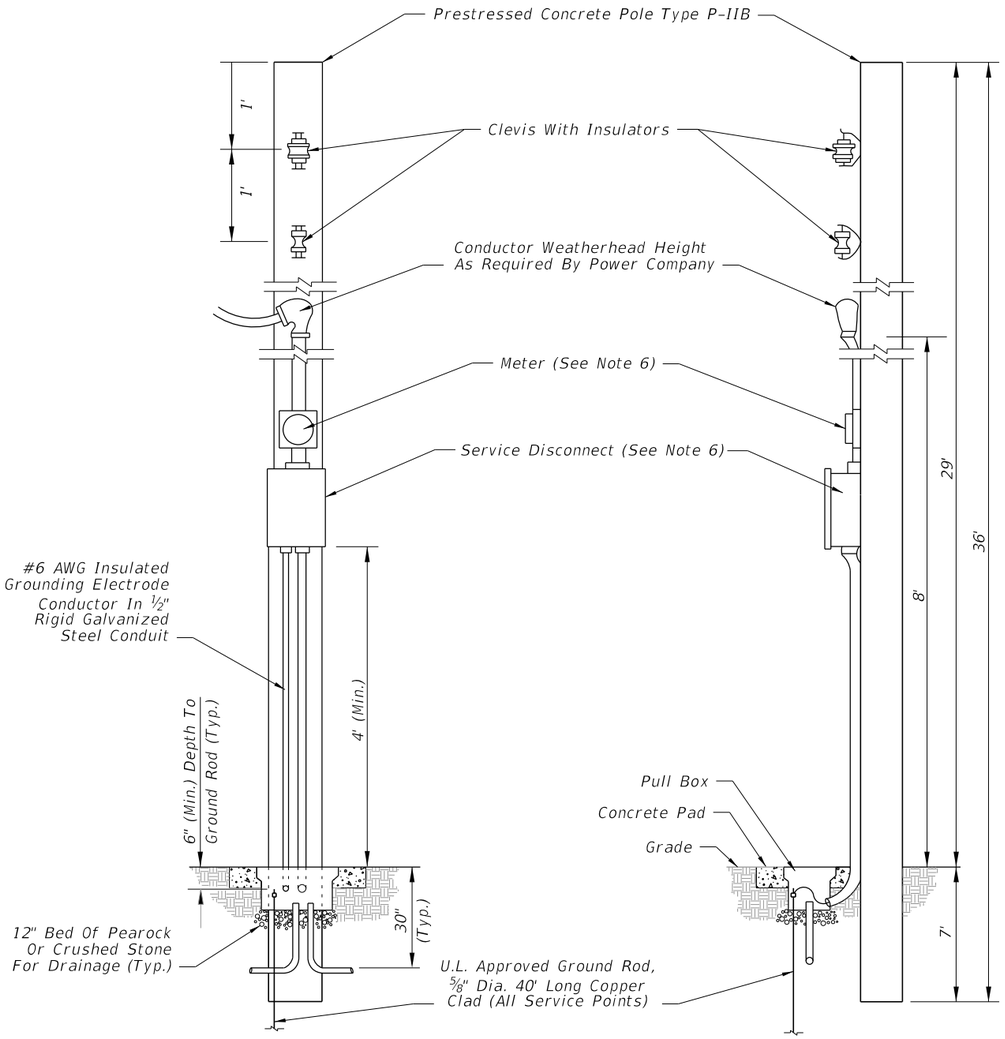
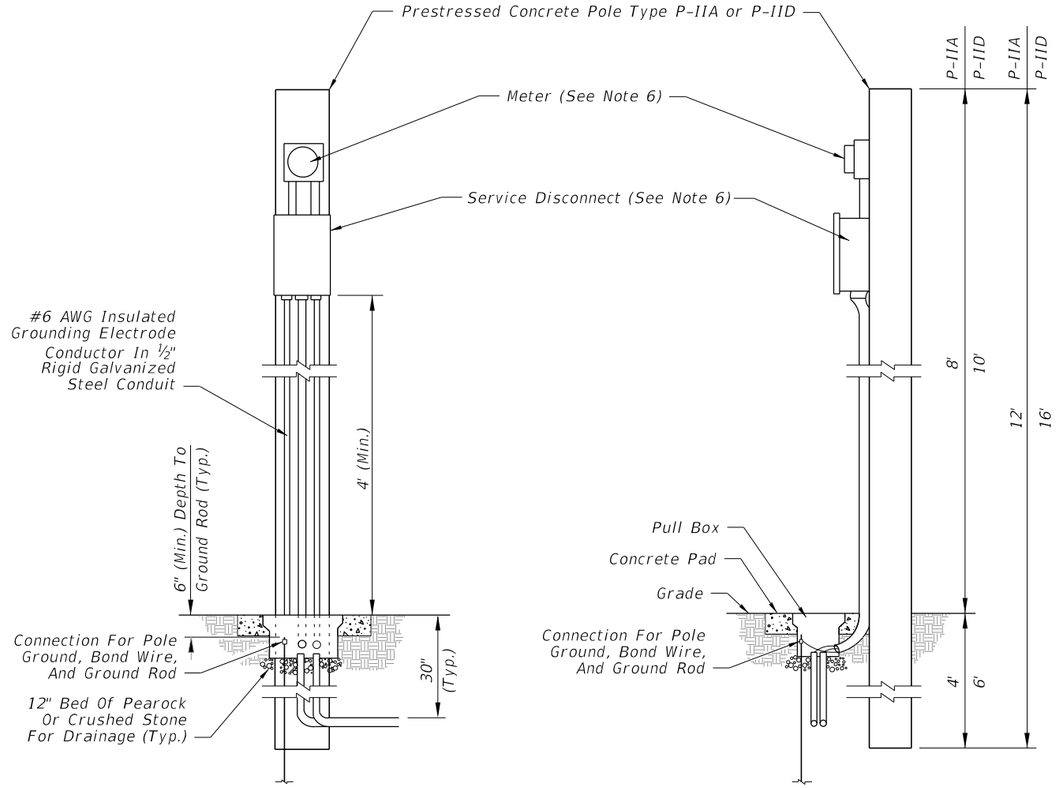
LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	PULL AND SPLICE BOXES	INDEX	SHEET
11/01/18					635-001	1 of 1

GENERAL NOTES:

1. It shall be the contractors responsibility to provide a complete service assembly as per the plans and service specifications.
2. The service installation shall meet the requirements of the national electric code and applicable local codes.
3. Shop drawings are not required for service equipment, unless noted in the plans.
4. A pull box is required at each service point; see Index 635-001.
5. For prestressed concrete pole details, see Index 641-010. Use the service pole type called for in the Plans.
6. Place the meter and service disconnect at the height shown in the Plans or as required by the power company. The service disconnect may be placed above the meter.



DETAIL A
AERIAL FEED



DETAIL B
UNDERGROUND FEED

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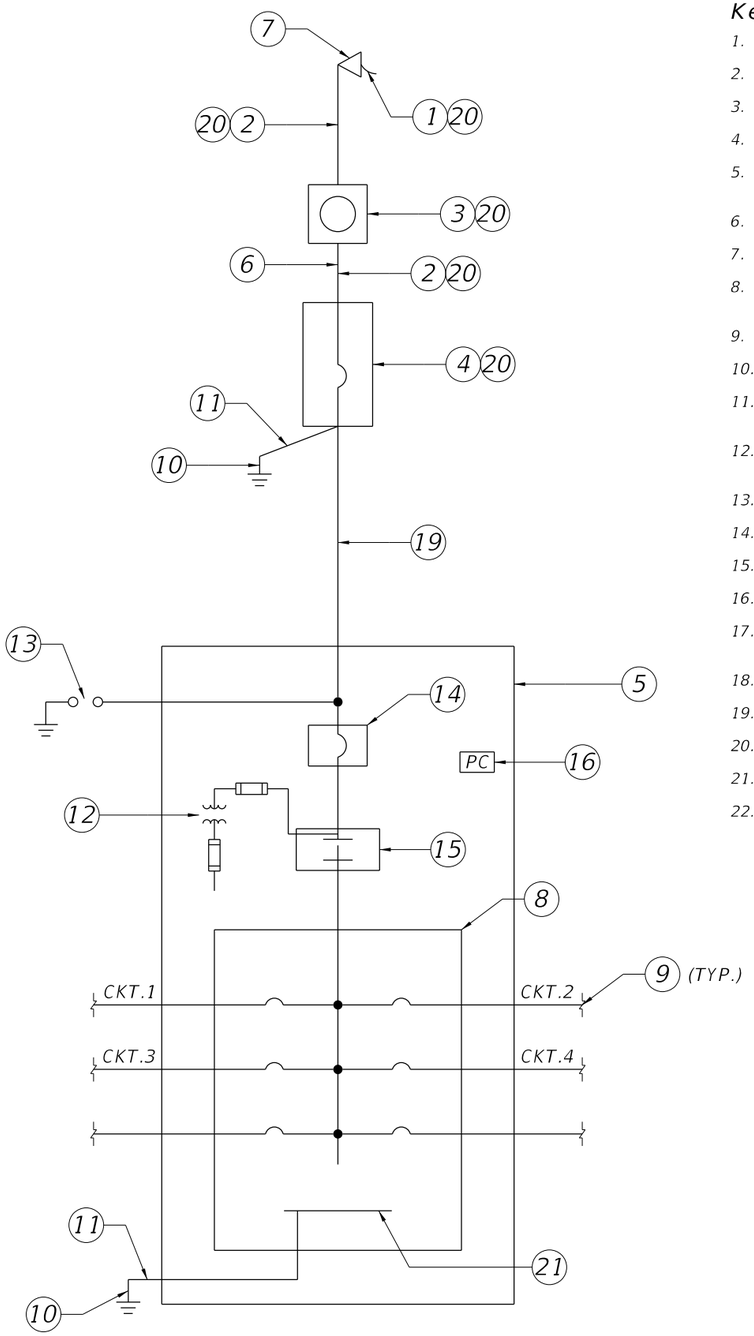
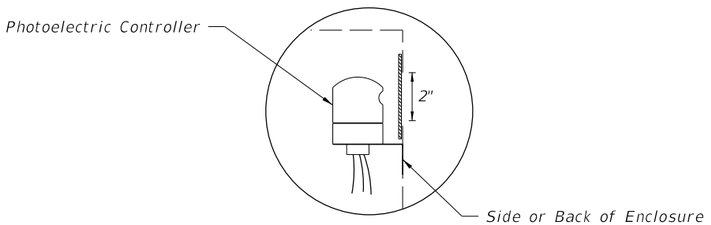
LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	SERVICE POINT DETAILS	INDEX	SHEET
11/01/23					639-001	1 of 2

Keyed Notes:

1. 240/480V, Single Phase 3 Wire Electric Distribution Overhead Service Drop.
2. Service Feeder in Rigid Galvanized Steel Conduit.
3. Meter Socket by Contractor
4. Service Main Disconnect.
5. Lighting Control Panel Enclosure (NEMA 4X SST). Dimensions as Necessary for Equipment Inside. Ground Mounted Cabinet per Index 639-002.
6. Concrete Riser Pole.
7. Weatherhead.
8. Electrical Panel. Number and Rating of Branch Circuit Breakers shall be as Indicated on Distribution Point Description on Lighting Plan Sheets.
9. Branch Circuit to Roadway Luminaires.
10. 5/8" Copper Clad Ground Rod, 40' Long.
11. #6 Insulated Copper Ground Wire. Bond the Service Neutral to Ground at Service Main Disconnect.
12. Fused Control Power Transformer 0.5 KVA, Single Phase, 480V Primary, 120V Secondary (Part of Lighting Contactor, Shown Outside for Clarity).
13. Lightning Arrester Mounted on Outside of Enclosure.
14. Lighting Control Panel Main Breaker.
15. 2 Pole Electrical Lighting Contactor.
16. 120V Photoelectric cell, 1800VA with 2000V Peak Surge Protection.
17. Hand-off Automatic Selector Switch (Part of Lighting Contactor, Shown Outside for Clarity).
18. Concrete Pad.
19. Underground Feeder Conduit.
20. Mount on Riser Pole.
21. Ground BUS.
22. NEMA 4X SST Ground Mounted Storage Cabinet with Two Shelves. Only Required for High Mast Lighting Systems.

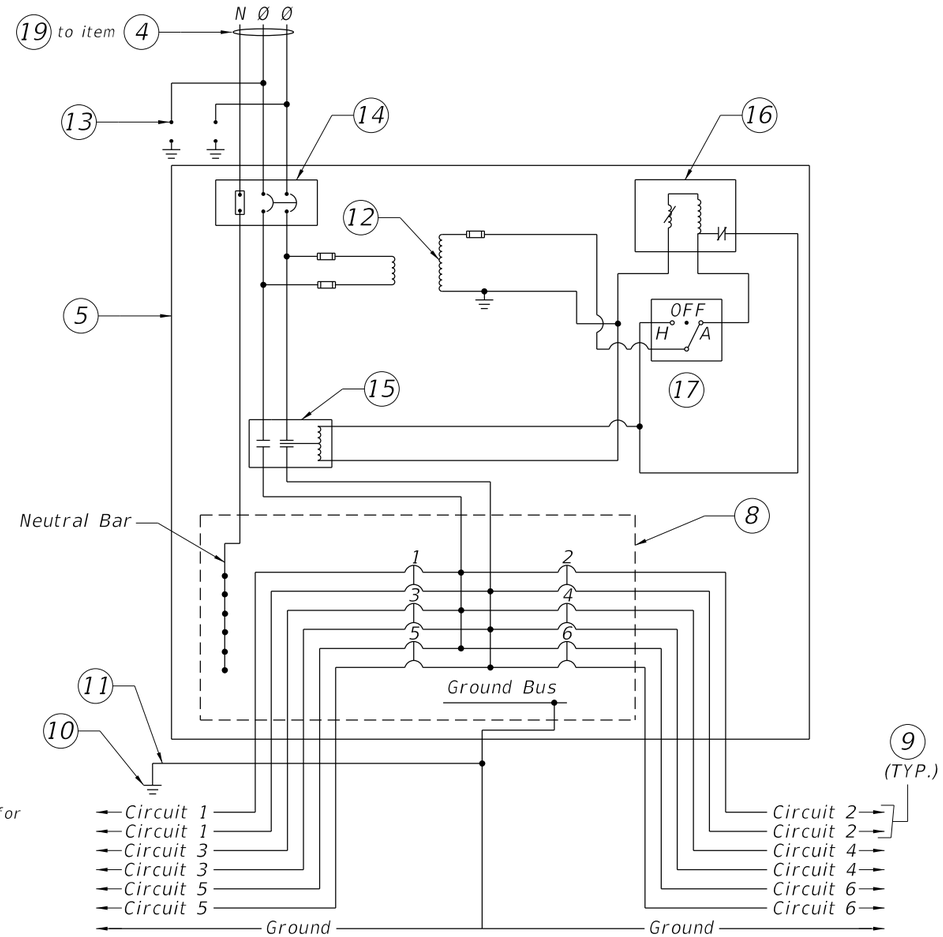


ONE LINE DIAGRAM DISTRIBUTION POINT

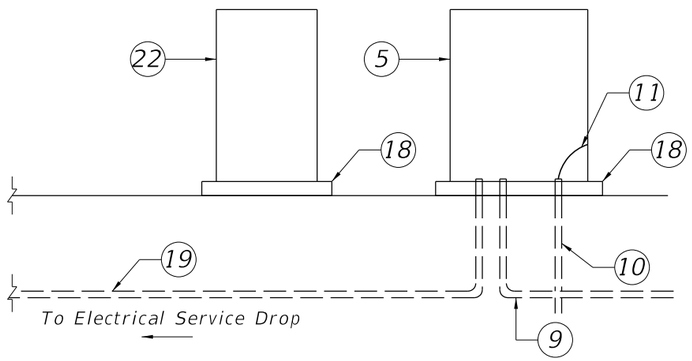


Cut a 2" hole in the side of the Lighting Control Panel enclosure for the operation and mounting of the Photo Electric controller. Use plexiglass and a clear silicone sealant to cover hole, install Photo Electric Controller.

PHOTOELECTRIC CONTROLLER DETAIL



TYPICAL DISTRIBUTION POINT SCHEMATIC DETAIL



RISER DIAGRAM - TYPICAL DISTRIBUTION POINT

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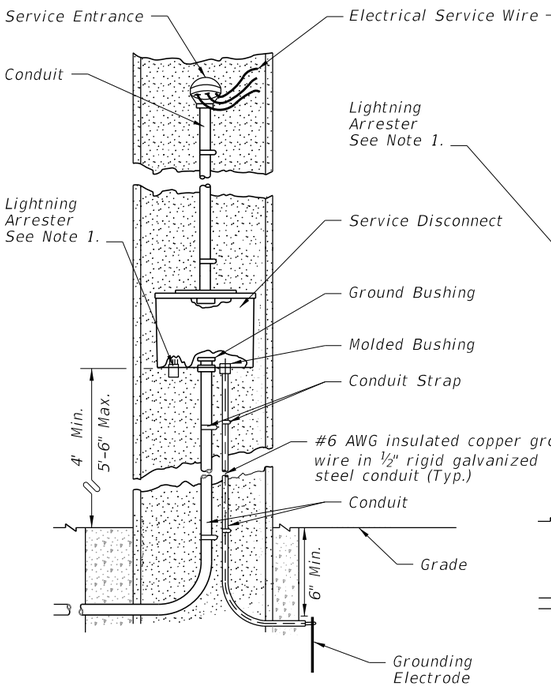
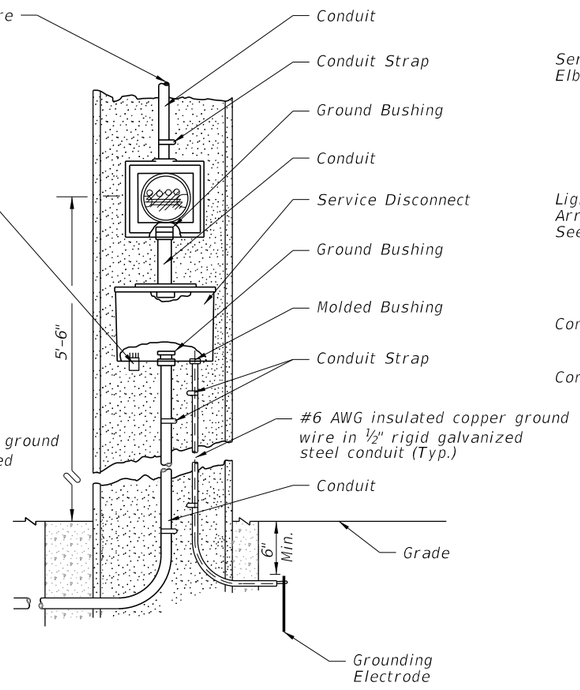
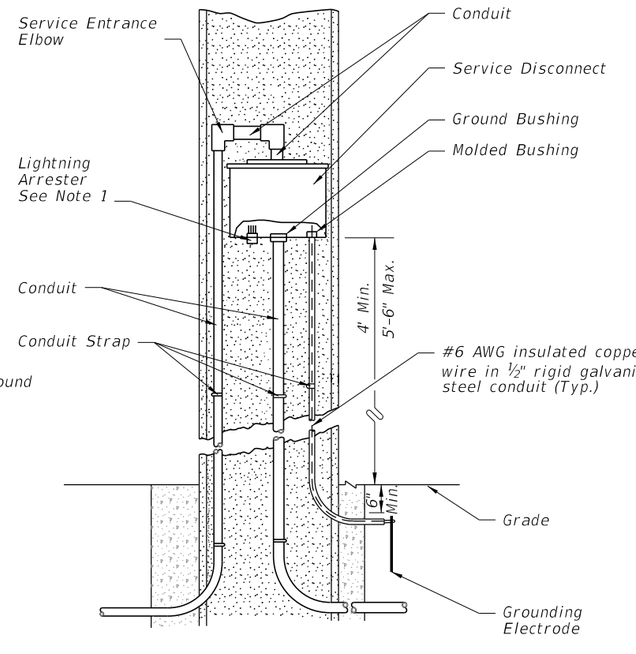
LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	SERVICE POINT DETAILS	INDEX	SHEET
11/01/19					639-001	2 of 2



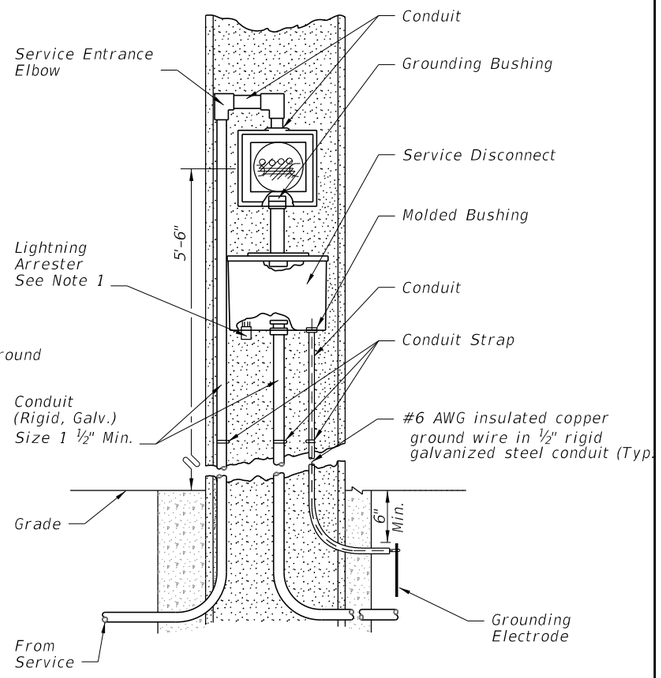
AERIAL FEED
(NO METER USED)
FIGURE A



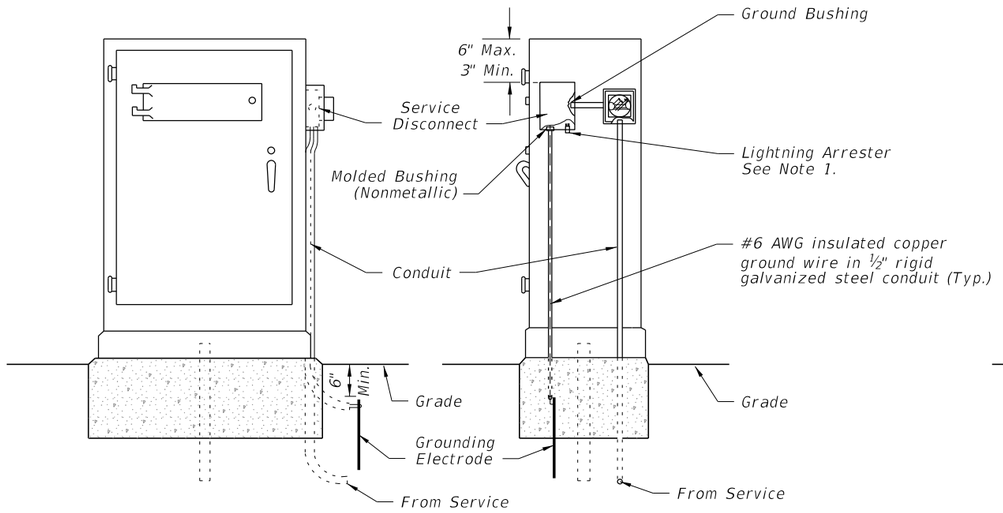
AERIAL FEED
(METER USED)
FIGURE B



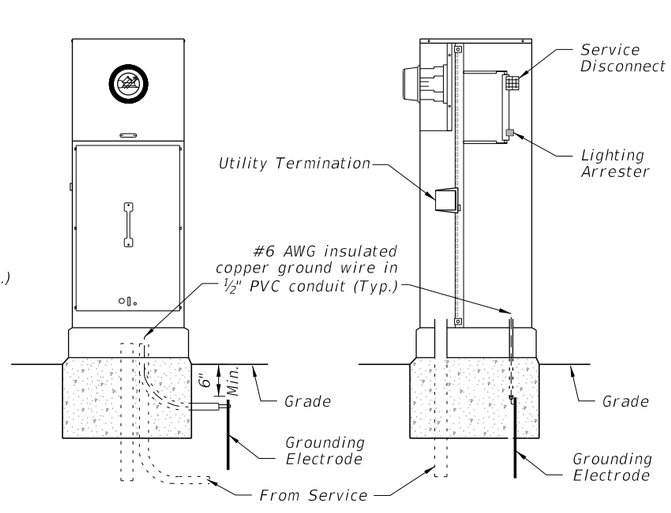
UNDERGROUND FEED
(NO METER USED)
FIGURE C



TYPE "B" UNDERGROUND FEED
(METER USED)
FIGURE D



UNDERGROUND CABINET MOUNTED
(METER USED)
FIGURE E



UNDERGROUND PEDESTAL
MOUNTED METER
FIGURE F

NOTES:

1. The lightning arrester can be located on the side or bottom of the service disconnect enclosure at the Contractor's Option.
2. Liquidtight flexible conduit is approved for use from the electrical disconnect to the cabinet when both are installed on the same pole.
3. Bond all elements together to form an Intersection Grounding Network in accordance with Specification 620. Run the bond wire in the conduit with the Electrical Service Wire or Signal Cable.
4. Meet all grounding requirements of Specification 620.
5. The Service Disconnect has a minimum of three hinges and is lockable using a padlock. Provide four keys to the maintaining agency. No screws are to be used to attach door.
6. The Service Disconnect meets NEMA 3R requirements or better.

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GENERAL NOTES:

1. Work these Index Sheets with the Strain Pole Schedule in the Plans. See Index 634-001 for corresponding signal cable and span wire installation details.

2. Shop Drawings:

   This Index is considered fully detailed and no shop drawing are necessary. Submit shop drawings only for minor modifications not detailed in the Plans.

3. Materials:

A. Concrete:	Class V with 4 ksi minimum strength at transfer or Class VI with 6.5 ksi minimum strength at transfer
B. Prestress Strands & Spiral Reinforcing:	Specification 641
C. Hand and coupler cover plates:	Non-corrosive material
D. Screws:	Round headed, chrome plated

4. Fabrication:

   A. Pole Total Taper shown is for pole width, strands, reinforcing and void (0.081 in/ft per face).
   B. Concrete Cover: 1" minimum.
   C. Spiral Reinforcing: Place as shown, and add one turn for splices and two turns at both the tip and butt ends of the pole.
   D. The design dimensions for Front Face (FF) and Back Face (BF) of the poles may vary transversely from the section shown by ± ¼" to assist with removal from forms. Balance addition and subtraction of the face widths to maintain section areas shown.
   E. Tie ground wires to the interior of reinforcing steel to prevent displacement during concreting operations.
   F. Cut the tip end of the prestressed strand either first or simultaneously with the butt end.
   G. Provide cover plates and screws for hand hole and couplers. Attach cover plates to the poles using lead anchors or embedded threaded inserts.
   H. Provide Aluminum Identification Tag on the pole with the following information:

      a. Financial Project ID.
      b. Pole Manufacturer
      c. Standard Pole Type Number
      d. Pole Length (L)

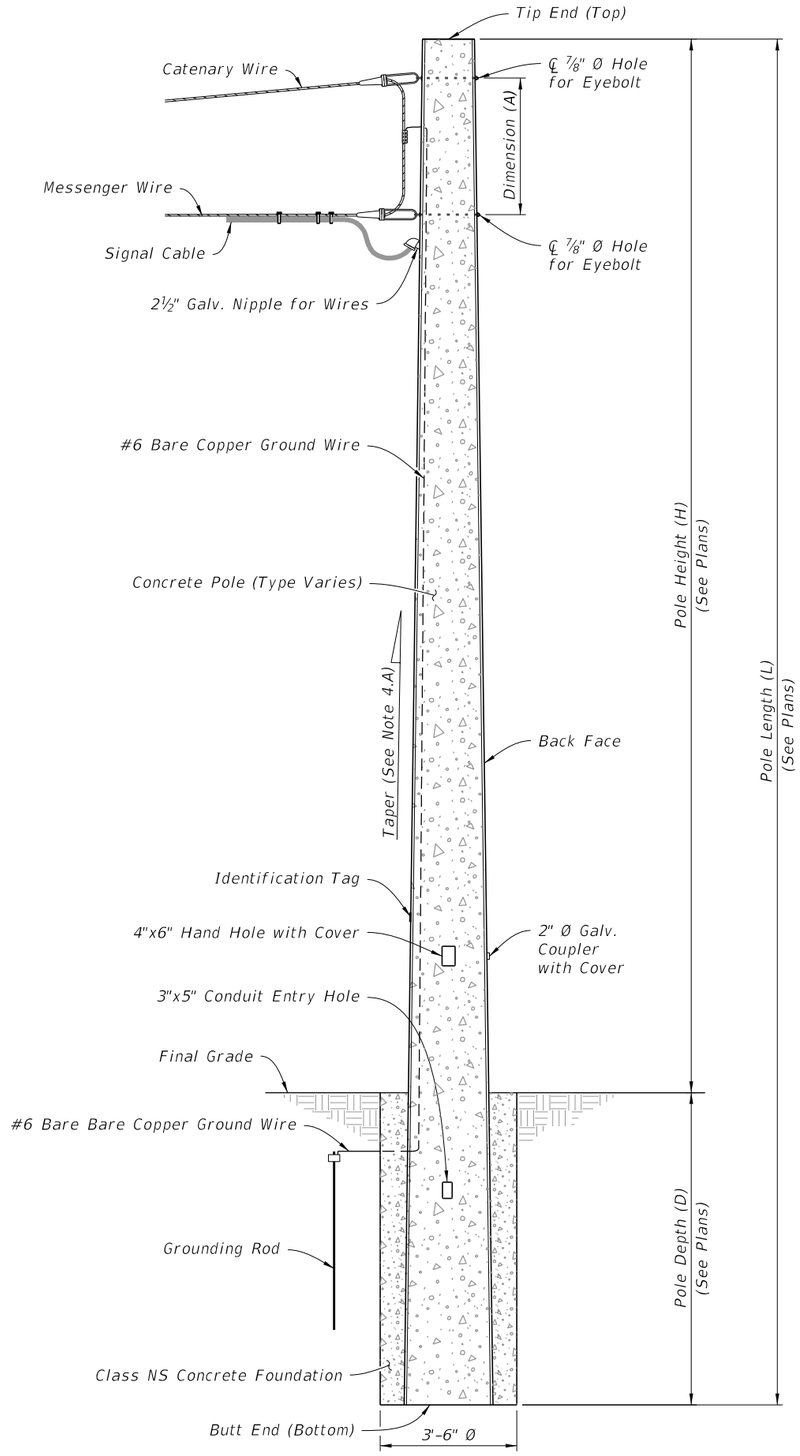
5. Support Points:
   Support Points shown may vary within a tolerance of ±3".

   Horizontal Pole Support Points shown are for strand release, storage, handling and transport of the horizontal pole. Keep Back Face oriented downward until final erection.

6. Two point attachment: Provide an eye bolt hole for the messenger wire.

7. Tether Wire: When required, field-drill the eyebolt hole prior to installation.

TABLE OF CONTENTS:



CONCRETE POLE ASSEMBLY
(Type P-VII Shown, Others Similar)

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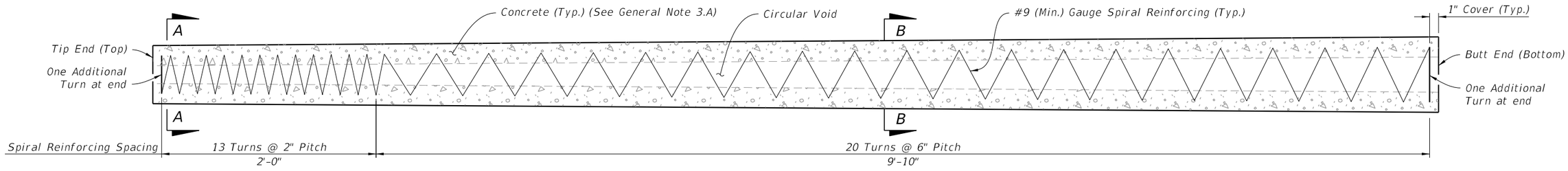
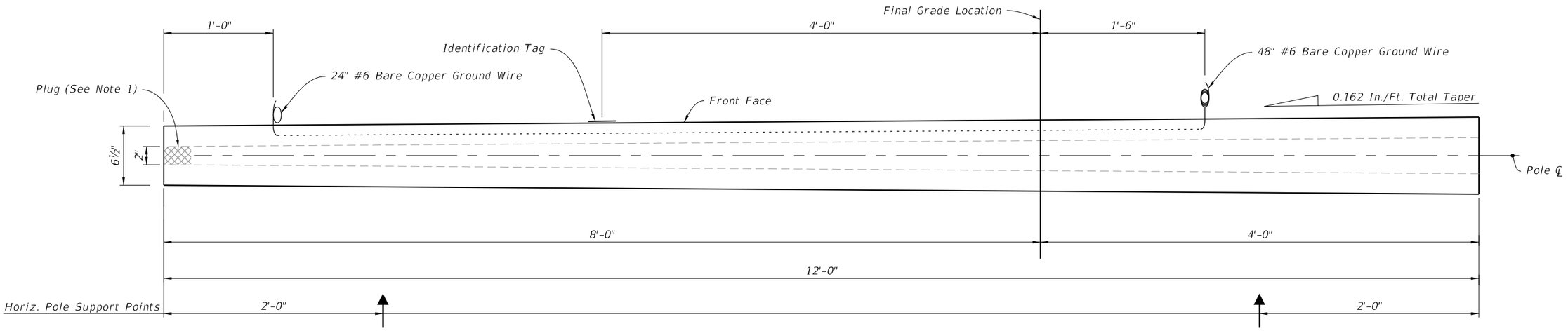


SPIRAL REINFORCING ELEVATION
(Strands and Fixtures Not Shown)



POLE ELEVATION
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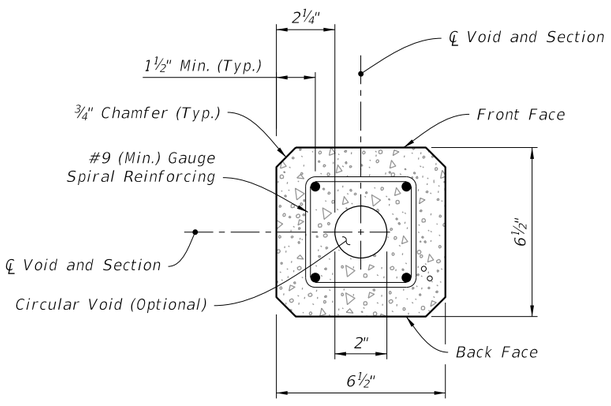
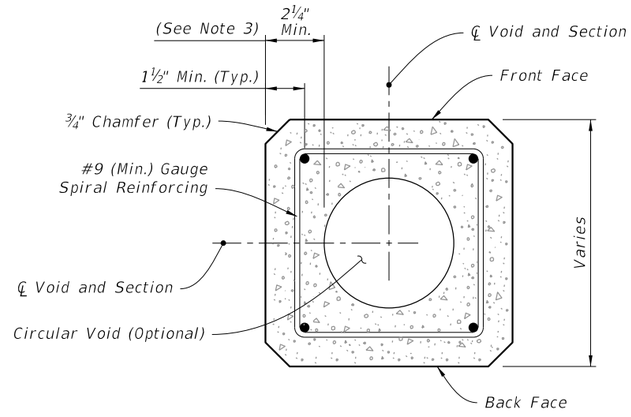


SECTION A-A - (Tip End)



SECTION B-B (Typical Square Section)

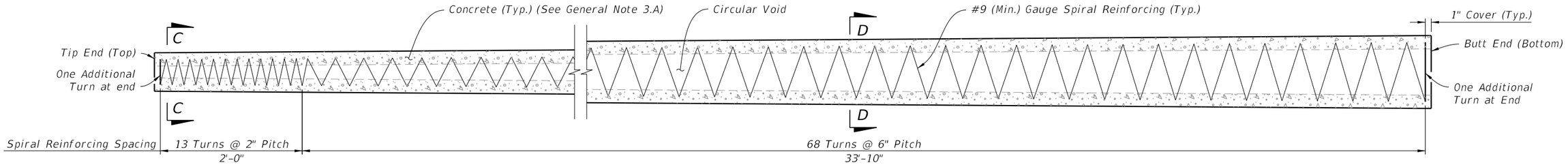
NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 4 feet from the Tip End.
3. Dimension may vary from 2¼" to 3½" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 2".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- Prestressed Strand:
  0.5 in. ~ 24 kips before transfer or
  0.375 in. ~ 14 kips before transfer (4 strands total)

SERVICE POLE - TYPE P-IIA (12 Ft.)



SPIRAL REINFORCING ELEVATION
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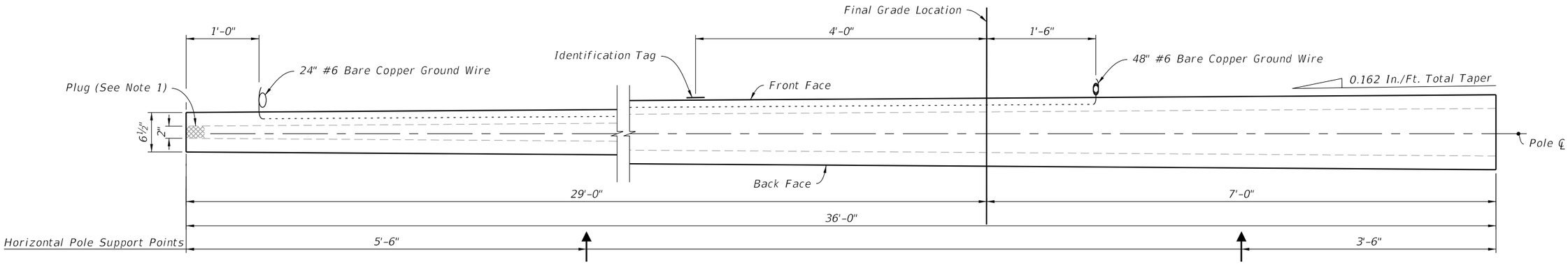

POLE ELEVATION
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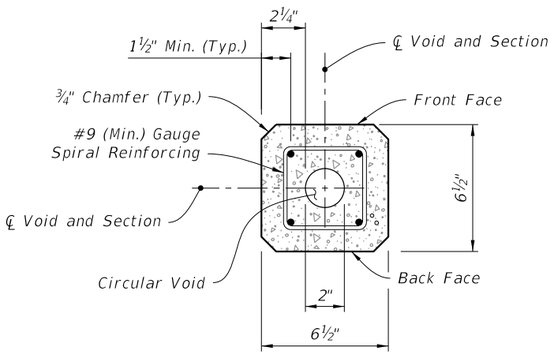
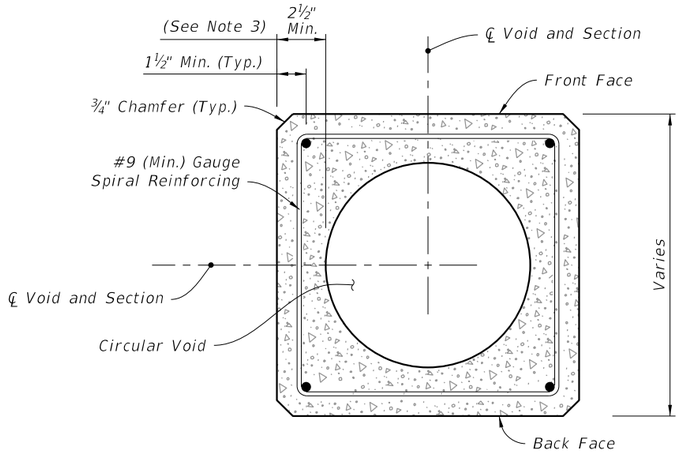


SECTION C-C (Tip End)



SECTION D-D (Typical Square Section)

NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 10 feet from the Tip End.
3. Dimension may vary from 2¼" to 3½" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 2".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- Prestressed Strand:
  0.5 in. ~ 24 kips before transfer or
  0.375 in. ~ 14 kips before transfer
  (4 strands total)

SERVICE POLE TYPE P-IIB (36 Ft.)

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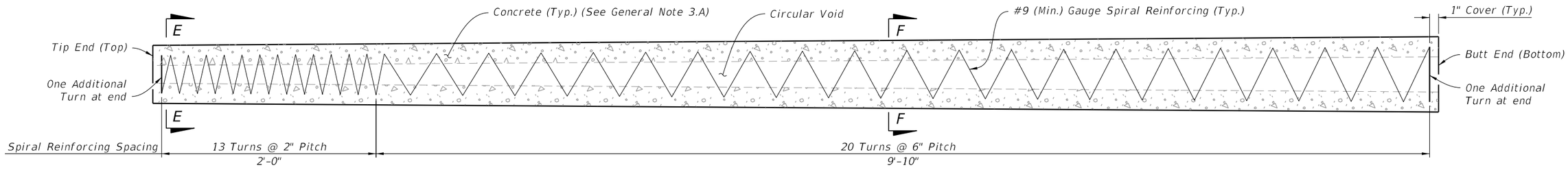

SPIRAL REINFORCING ELEVATION
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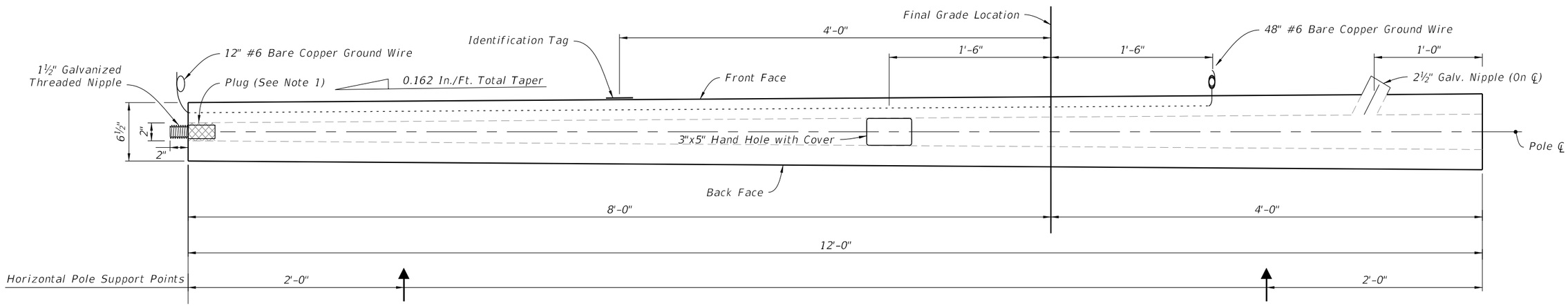

POLE ELEVATION
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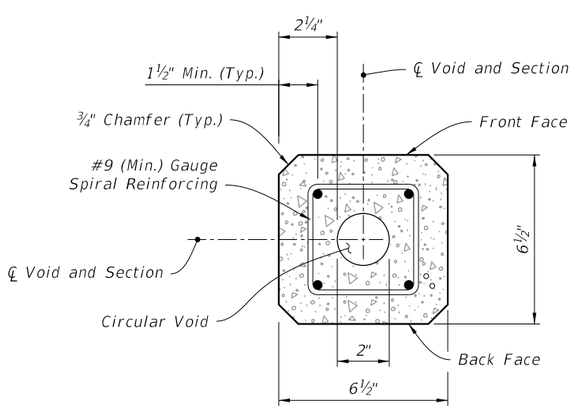
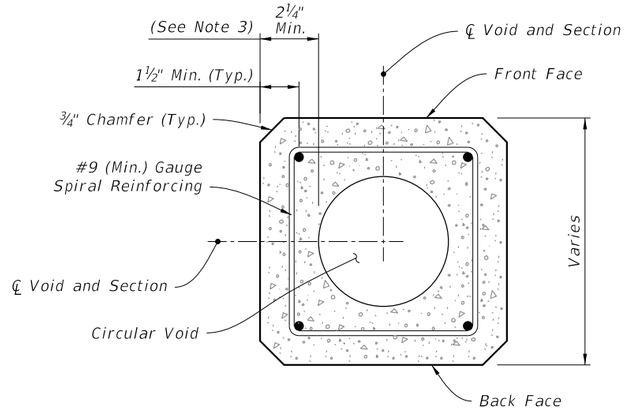


SECTION E-E (Tip End)



SECTION F-F (Typical Square Section)

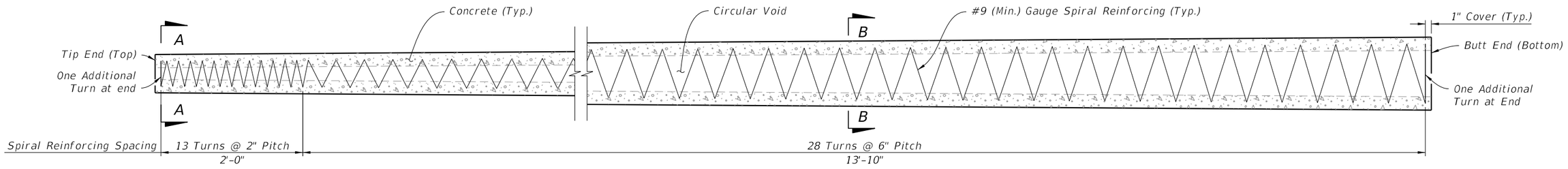
NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 4 feet from the Tip End.
3. Dimension may vary from 2¼" to 3½" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 2".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- Prestressed Strand:
  0.5 in. ~ 24 kips before transfer or
  0.375 in. ~ 14 kips before transfer
  (4 strands total)

PEDESTAL - TYPE P-IIC (12 Ft.)



SPIRAL REINFORCING ELEVATION
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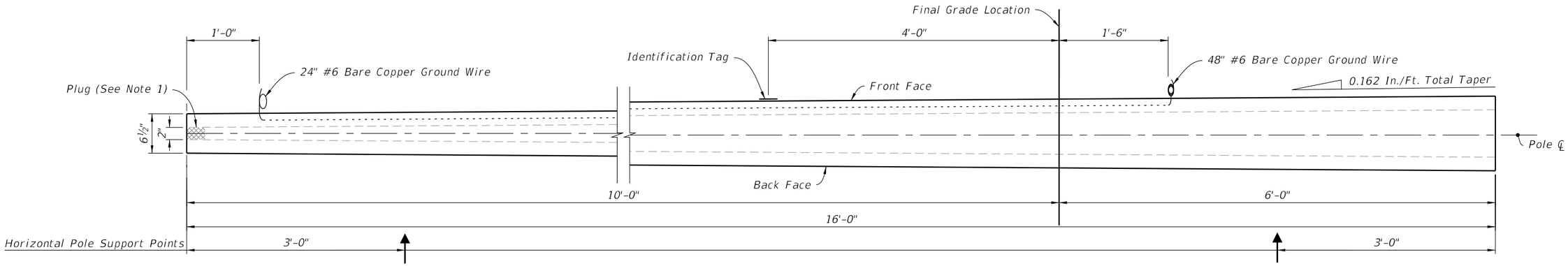

POLE ELEVATION
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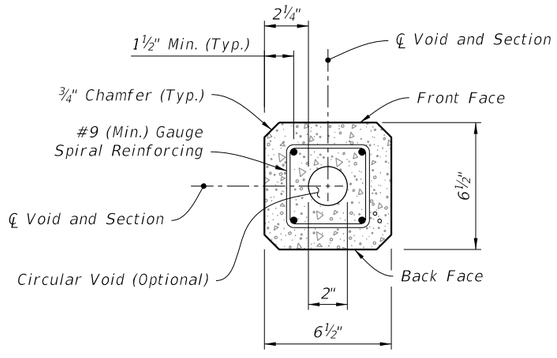
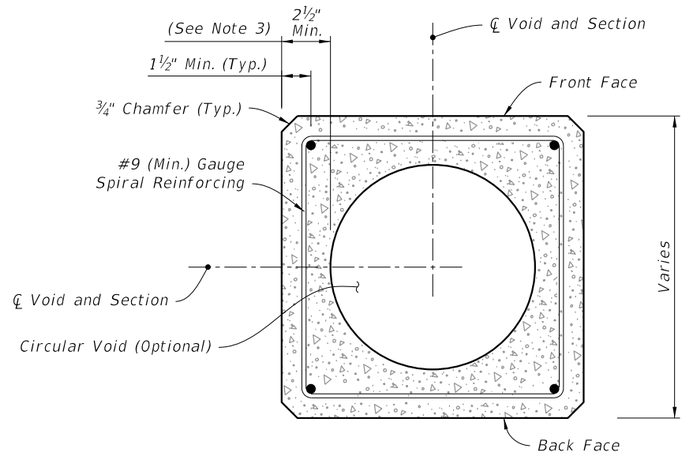


SECTION A-A (Tip End)



SECTION B-B (Typical Square Section)

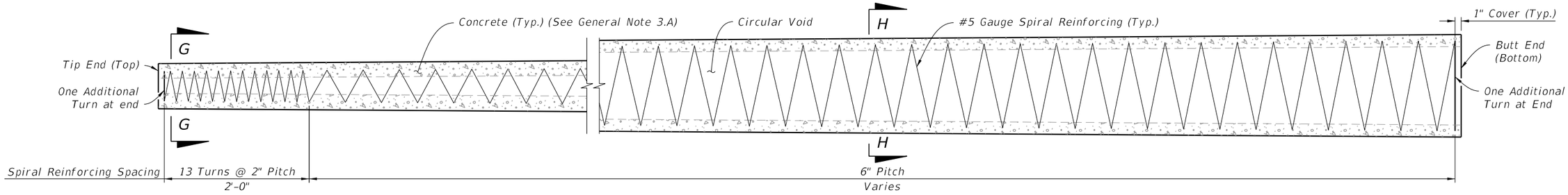
NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 5 feet from the Tip End.
3. Dimension may vary from 2¼" to 3½" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 2".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- Prestressed Strand:
  0.5 in. ~ 24 kips before transfer or
  0.375 in. ~ 14 kips before transfer
  (4 strands total)

SERVICE POLE TYPE P-IID (16 Ft.)



SPIRAL REINFORCING ELEVATION
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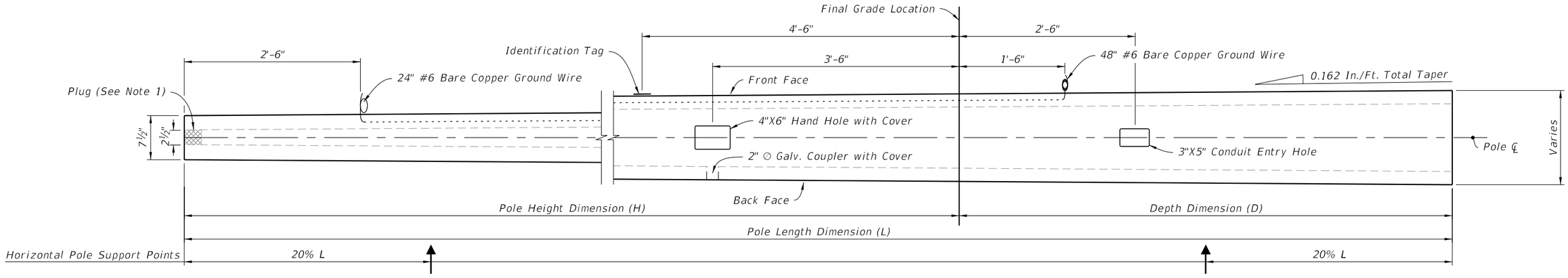

POLE ELEVATION
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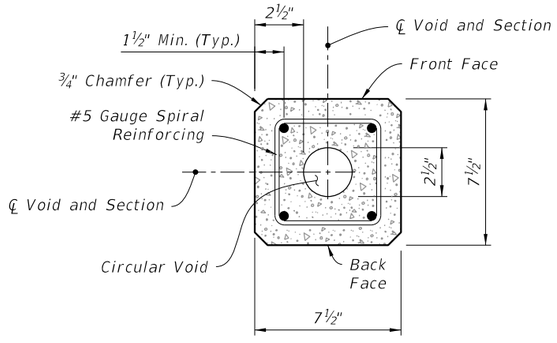
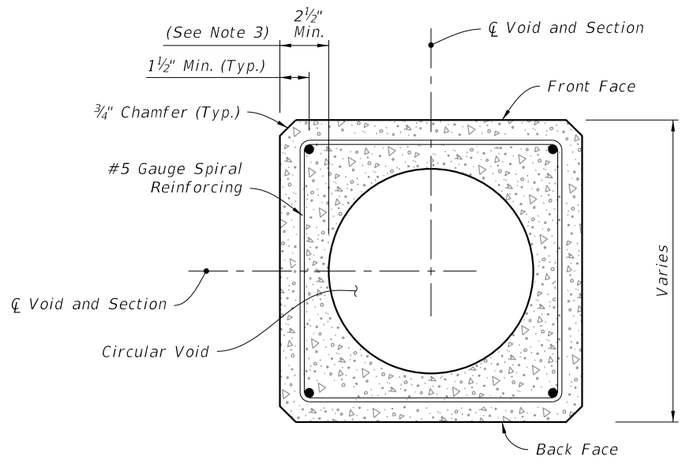


SECTION G-G (Tip End)



SECTION H-H (Typical Square Section)

NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 33% L from the Tip End.
3. Dimension may vary from 2½" to 3¾" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 2½".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- Prestressed Strand: 0.5 in. ~ 31 kips before transfer (4 strands total)

POLE TYPE P-III

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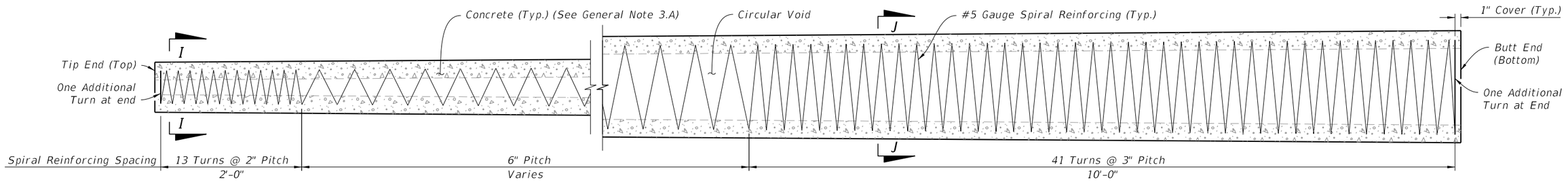

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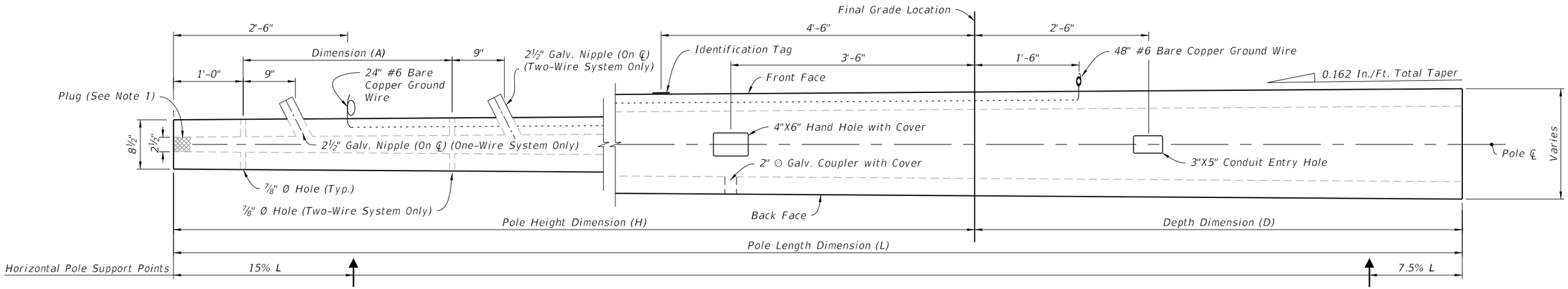
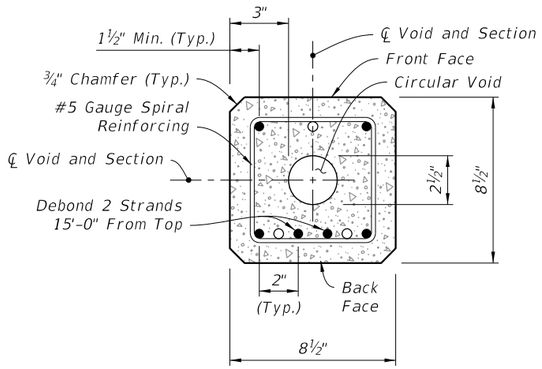
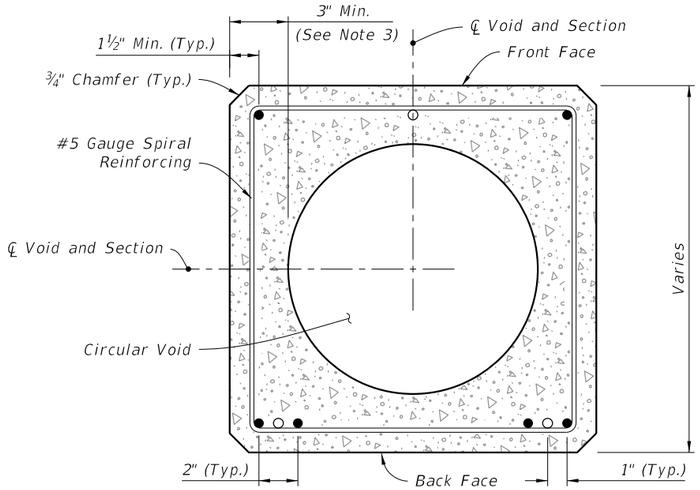


POLE ELEVATION
(Strands and Reinforcing Not Shown)





NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 20% L from the Tip End.
3. Dimension may vary from 3" to 4¼" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 2½".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- ● Prestressed Strand: 0.5 in. ~ 31 kips before transfer (6 strands total)
- ○ Dormant Strand: 0.5 in. (3 strands total) One 24" splice allowed per strand

SECTION I-I (Tip End)

SECTION J-J (Typical Square Section)

STRAIN POLE TYPE P-IV

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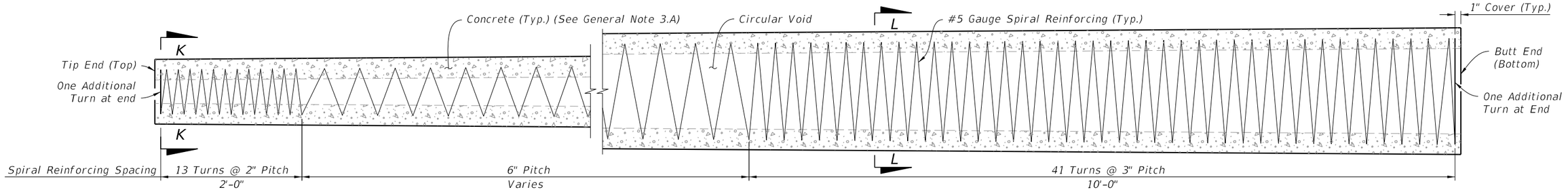

SPIRAL REINFORCING ELEVATION
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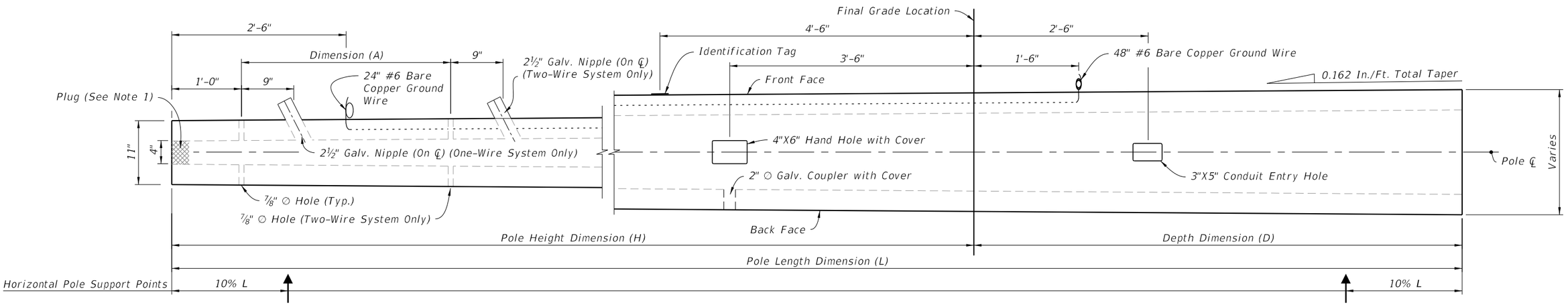

POLE ELEVATION
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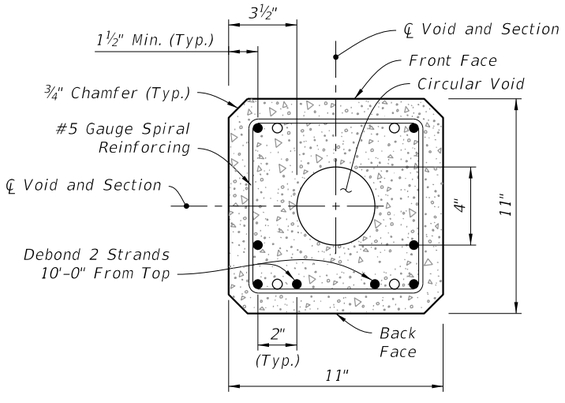

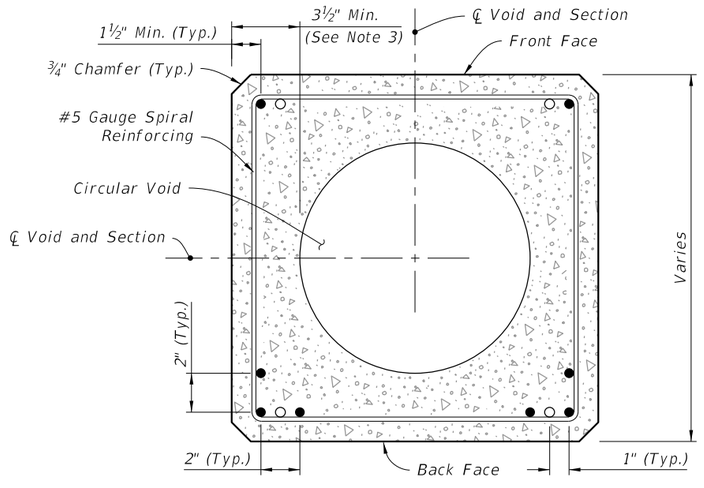

NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 12.5% L from the Tip End.
3. Dimension may vary from 3½" to 4¾" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 4".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- ● Prestressed Strand: 0.5 in. ~ 31 kips before transfer (8 strands total)
- ○ Dormant Strand: 0.5 in. (4 strands total) One 24" splice allowed per strand

SECTION K-K (Tip End)

SECTION L-L (Typical Square Section)

STRAIN POLE TYPE P-V

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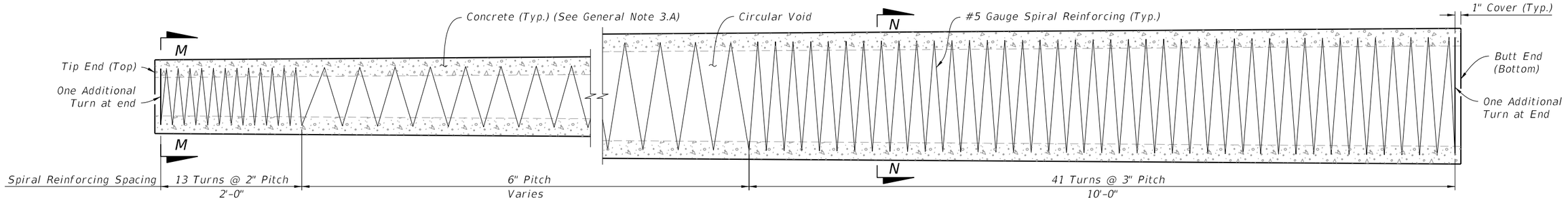

SPIRAL REINFORCING ELEVATION
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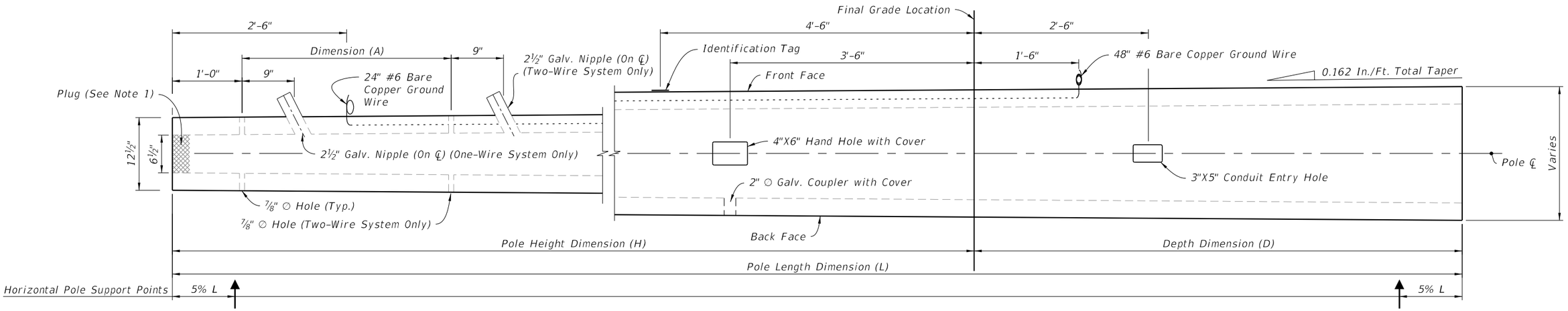
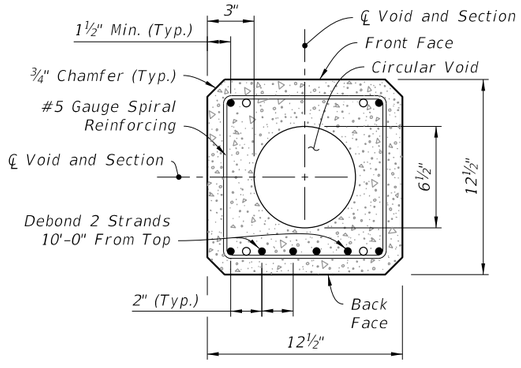
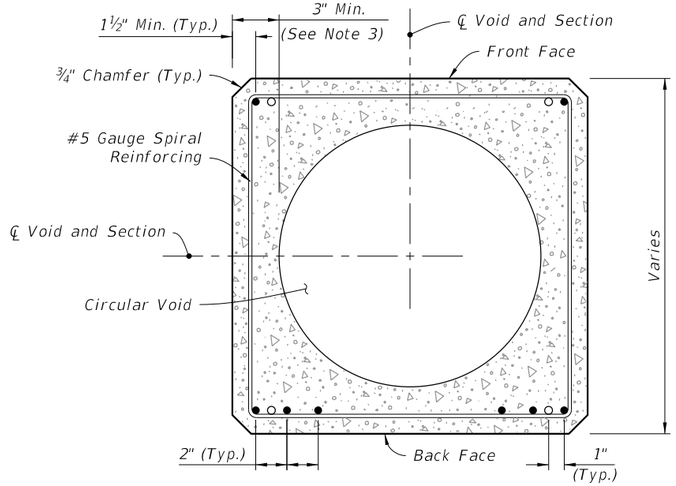


POLE ELEVATION
(Strands And Reinforcing Not Shown)



SECTION M-M (Tip End)



SECTION N-N (Typical Square Section)

NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 10% L from the Tip End.
3. Dimension may vary from 3" to 4¼" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 6½".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- ● Prestressed Strand: 0.5 in. ~ 31 kips before transfer (8 strands total)
- ○ Dormant Strand: 0.5 in. (4 strands total) One 24" splice allowed per strand

STRAIN POLE TYPE P-VI

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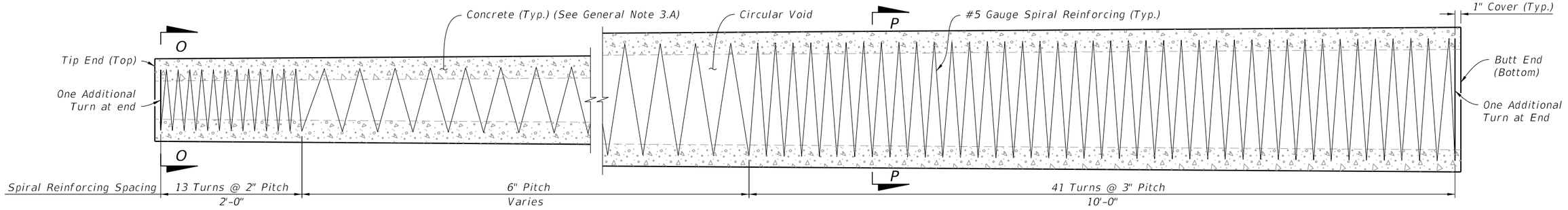
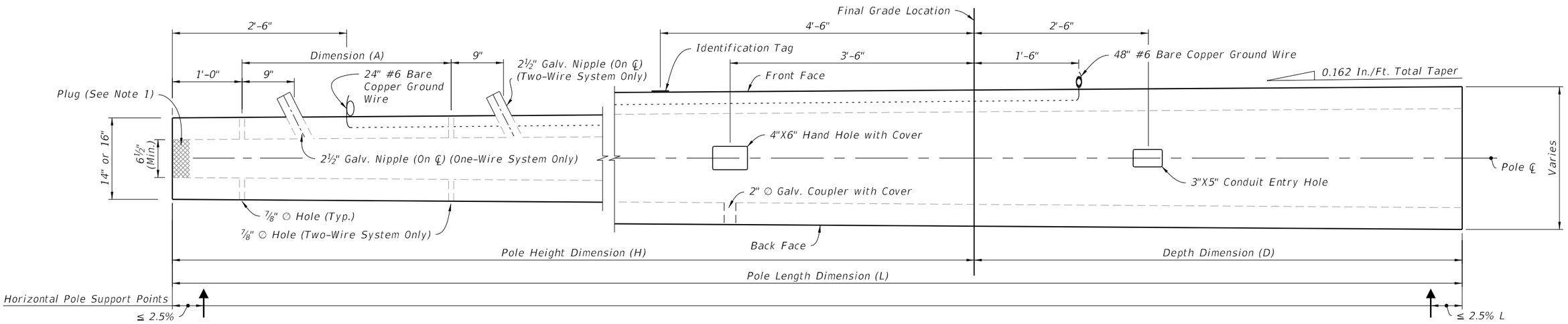
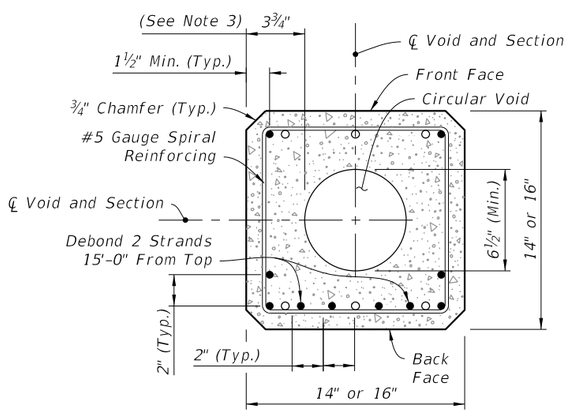


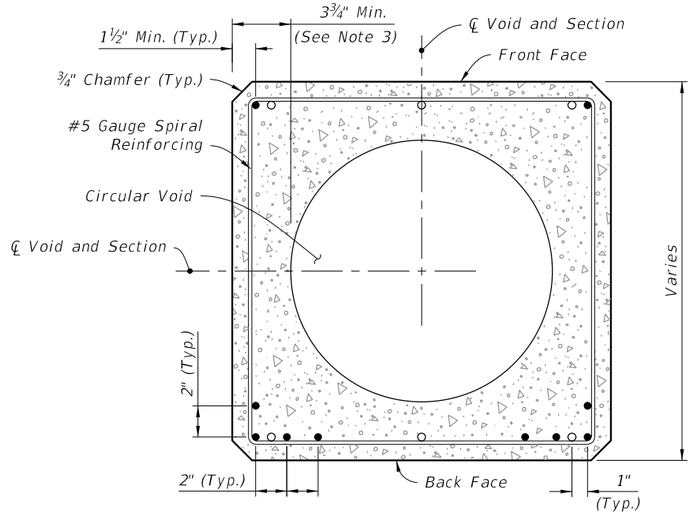
SPIRAL REINFORCING ELEVATION
(Strands, Holes, and Fixtures Not Shown)



POLE ELEVATION
(Strands And Reinforcing Not Shown)



SECTION O-O (Tip End)



SECTION P-P (Typical Square Section)

NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 10% L from the Tip End.
3. Dimension may vary from 3¾" to 5" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 6½".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- ● Prestressed Strand: 0.5 in. ~ 31 kips before transfer (10 strands total)
- ○ Dormant Strand: 0.5 in. (6 strands total) One 24" splice allowed per strand

STRAIN POLE TYPE P-VII

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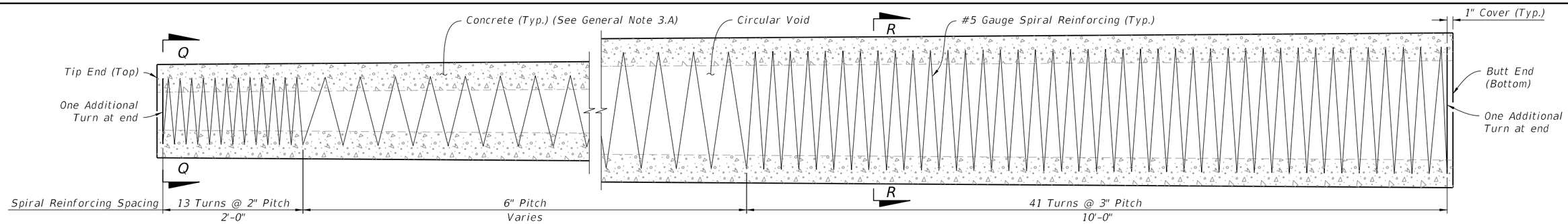
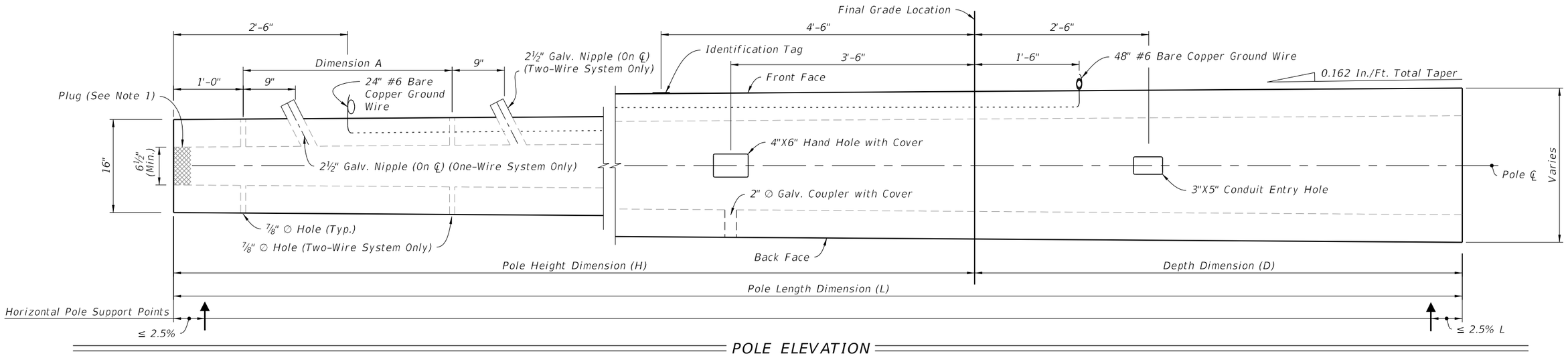
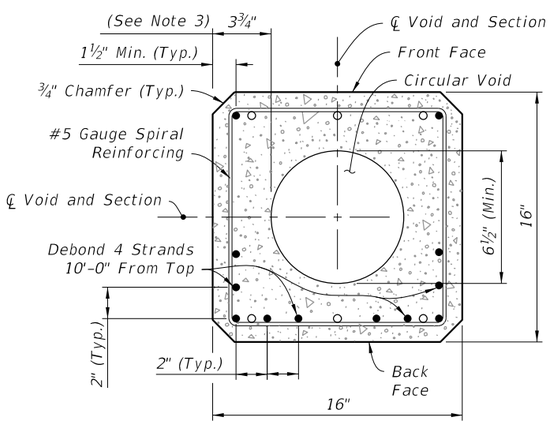
LAST REVISION	REVISION	DESCRIPTION:				
11/01/22			FY 2024-25 STANDARD PLANS	CONCRETE POLES	INDEX 641-010	SHEET 10 of 11



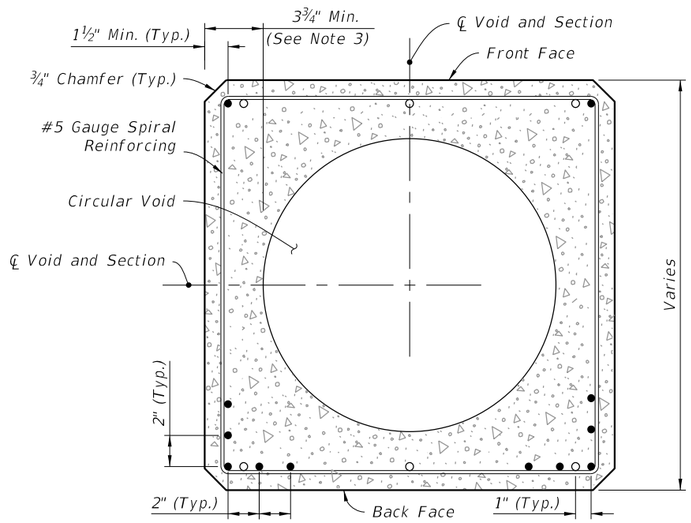
SPIRAL REINFORCING ELEVATION
(Strands, Holes, and Fixtures Not Shown)



POLE ELEVATION
(Strands And Reinforcing Not Shown)



SECTION Q-Q (Tip End)



SECTION R-R (Typical Square Section)

NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 10% L from the Tip End.
3. Dimension may vary from 3¾" to 5" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 6½".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- ● Prestressed Strand: 0.5 in. ~ 31 kips before transfer (12 strands total)
- ○ Dormant Strand: 0.5 in. (6 strands total) One 24" splice allowed per strand

STRAIN POLE TYPE P-VIII

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LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/22			FY 2024-25 STANDARD PLANS	CONCRETE POLES	641-010	11 of 11

GENERAL NOTES:

1. Work this Index with Specification 641.

2. This Index is considered fully detailed and no shop drawings are necessary. Submit Shop Drawings for minor modifications not detailed in the Plans.

3. Provide either round or 12-sided Poles.

4. See Index 635-001 for additional Pull Box details.

5. See Index 676-010 for cabinet installation details.

6. Materials:

   A. Pole: Use Class VI concrete with 6 ksi minimum strength at transfer.
   B. Prestressing Strands: ASTM A416, Grade 270 low relaxation.
   C. Reinforcing Steel: ASTM A615, Grade 60
   D. Spiral Reinforcing: ASTM A1064 Cold-Drawn
   E. Bolts: ASTM F1554, Grade 55
      Nuts: ASTM A563, Grade A Heavy Hex
      Washers: ASTM F436
   F. Steel plates and Pole Cap: ASTM A36 or ASTM A709, Grade 50
   G. Galvanization: Bolts, nuts and washers: ASTM F2329
      All other steel: ASTM A123

7. Fabrication:

   A. Cut the tip end of the prestressed strand first or simultaneously with the butt end.
   B. For spiral reinforcing, one turn is required for spiral splices and two turns are required at the top and bottom of poles.
   C. For Reinforcing Steel, lap splice to consist of a 3'-0" lap length at each splice. No more than two opposing rebar to be spliced at the same cross section. Stagger lap splices as needed.
   D. Provided a Class 3 surface finish in accordance with Specification 400.
   E. Provide a 1" minimum cover.
   F. Provide handhole and coupler cover plates made of non-corrosive materials. Attach cover plates to poles using lead anchors or threaded inserts embedded in the poles in conjunction with round headed chrome plated screws.
   G. Provide Identification Markings on the poles where indicated on the following sheets. Include the following information using inset numerals with 1" height or as approved in the Producers' Quality Control Program:

      Financial Project ID
      Pole Manufacturer
      Pole Length

   H. Tie ground wires to the interior of reinforcing steel as necessary to prevent displacement during concreting operations.
   I. Storage, Handling and Erection locations shown may vary within ± 3".

8. Pole Installation:

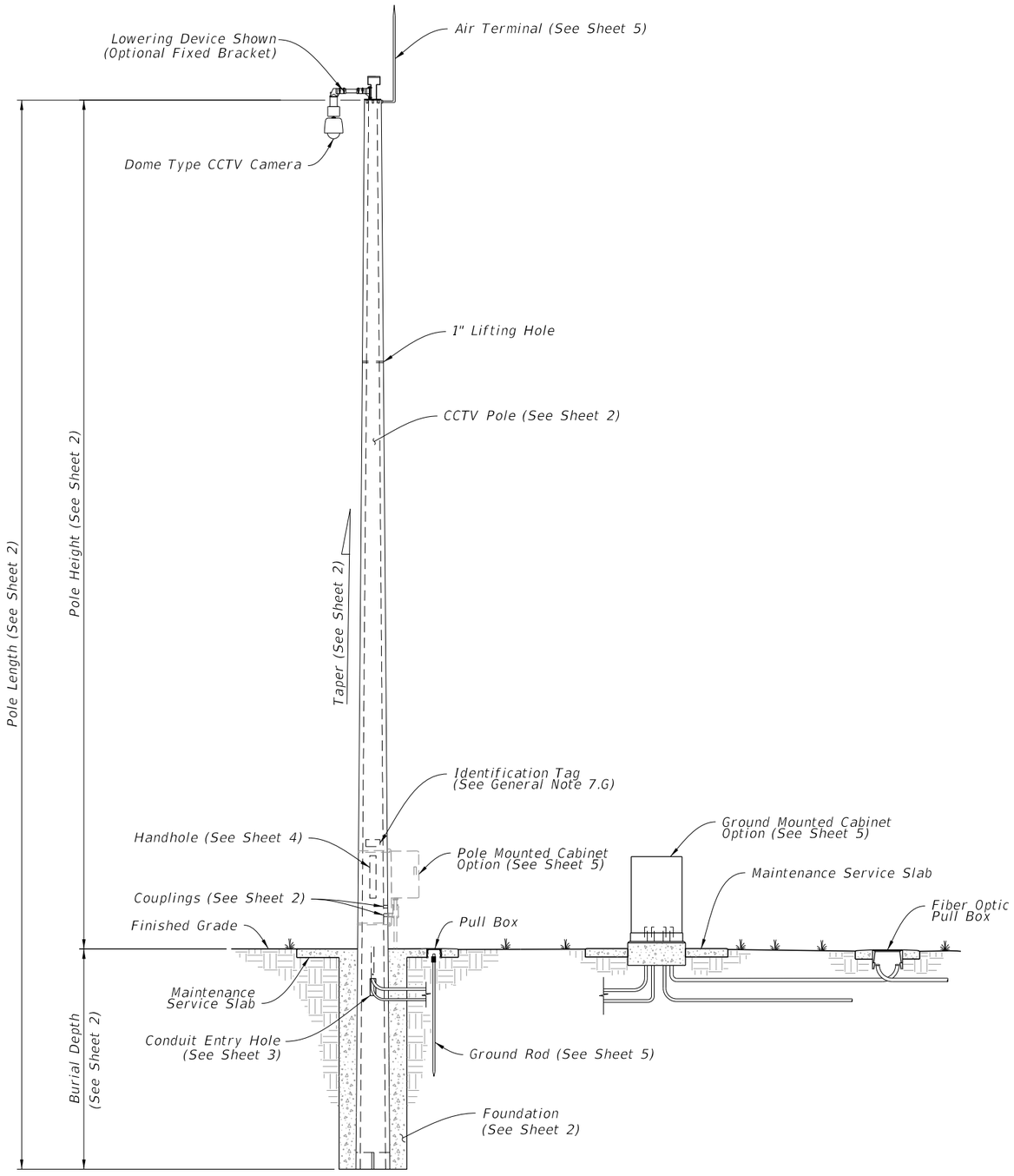
   A. Install the Pole plumb.
   B. Install Pole with the handhole located away from approaching traffic.

9. Cabinet Installation:

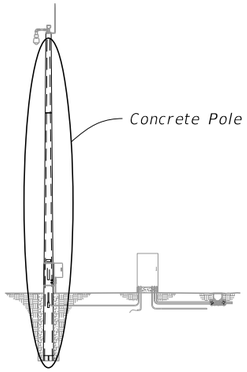
   A. Splice fiber optic cables in cabinet to preterminated patch panel.
   B. Furnish and install Surge Protection Devices (SPDs) on all cabling in cabinet.
   C. Furnish and install secondary SPDs protection on outlets for equipment in cabinet.
   D. Ensure that all electronic equipment power is protected and conditioned with SPDs.
   E. Ensure that equipment cabinet is bonded to CCTV pole grounding system.
   F. Install the pole mounted cabinet with the hinges next to the pole.
   G. Sizes and types of conduits and innerducts for network communications between the pullbox and cabinet are stated in the Contract Documents.

10. Lowering Device Installation:

   A. Place the lowering cable that moves within the pole in an interior conduit to prevent it from tangling or interfering with any electrical wire that is in the pole. Ensure that any electrical wire within the pole is routed securely and free from slack.
   B. Mount lowering arm perpendicular to the roadway or as shown in the plans. Position CCTV pole so that the camera can be safely lowered without requiring lane closures.
   C. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting plates, parking stand, etc.) with lowering device manufacturer.



CCTV POLE ASSEMBLY



ASSEMBLY

NOTES:

1. Diameter of 12-sided poles are measured flat to flat.
2. Total Taper applies to pole, strands and reinforcing.
3. For 12-Sided Pole and Round Roles Option 2, Stress prestressed strand to 70% of Ultimate before transfer. For Round Pole Option 1, stress prestressed strand to 60% of Ultimate before transfer.
4. Pole Design Tables, Burial Depth is based on level ground (flatter than 1:5). Increase the burial depth in accordance with the Additional Burial Depth Due To Ground Slope table for foundations with slopes 1:5 and steeper. Use the higher value for slope or diameter values that fall between those shown on the table.
5. Strand Pattern 1 may be used in lieu of Strand Pattern 2 where required by fabrication to facilitate Handhole construction.

ADDITIONAL BURIAL DEPTH DUE TO GROUND SLOPE

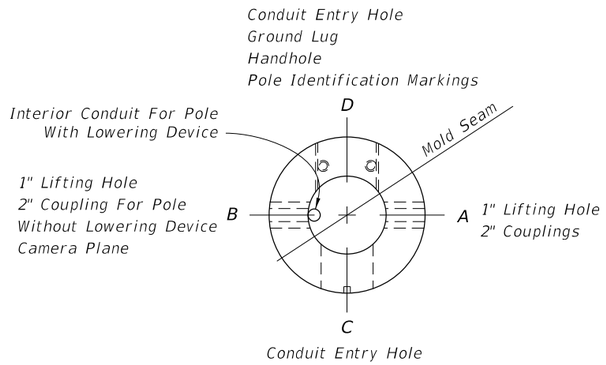
Ground Slope	Additional Burial Depth (feet)
1:5	3
1:4	4
1:3	5
1:2	7

12-SIDED POLE DESIGN TABLE (See Note 1, 5)

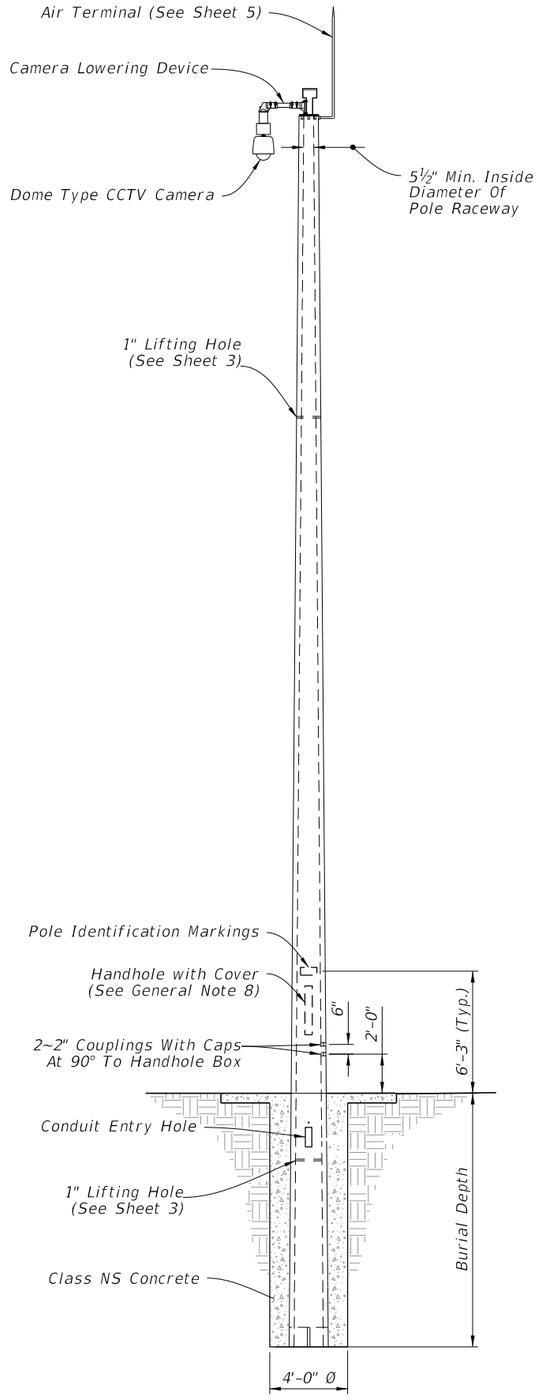
Pole Length (ft)	Pole Height (ft)	Burial Depth (ft)	Total Taper (in/ft) (See Note 2)	Void Taper (in/ft)	Min. Wall Thickness Tip (in)	Min. Wall Thickness Butt (in)	Tip Diameter (in)	Butt Diameter (in)	Strand Pattern	Strand Diameter
63	50	13	0.18	0.18	3	3	12	23.34	2	0.6"
69	55	14	0.18	0.18	3	3	12	24.42	2	0.6"
75	60	15	0.18	0.18	3	3	12	25.50	3	0.6"
80	65	15	0.18	0.18	3	3	12	26.40	3	0.6"
86	70	16	0.18	0.18	3	3	12	27.48	3	0.6"

ROUND POLE DESIGN TABLE

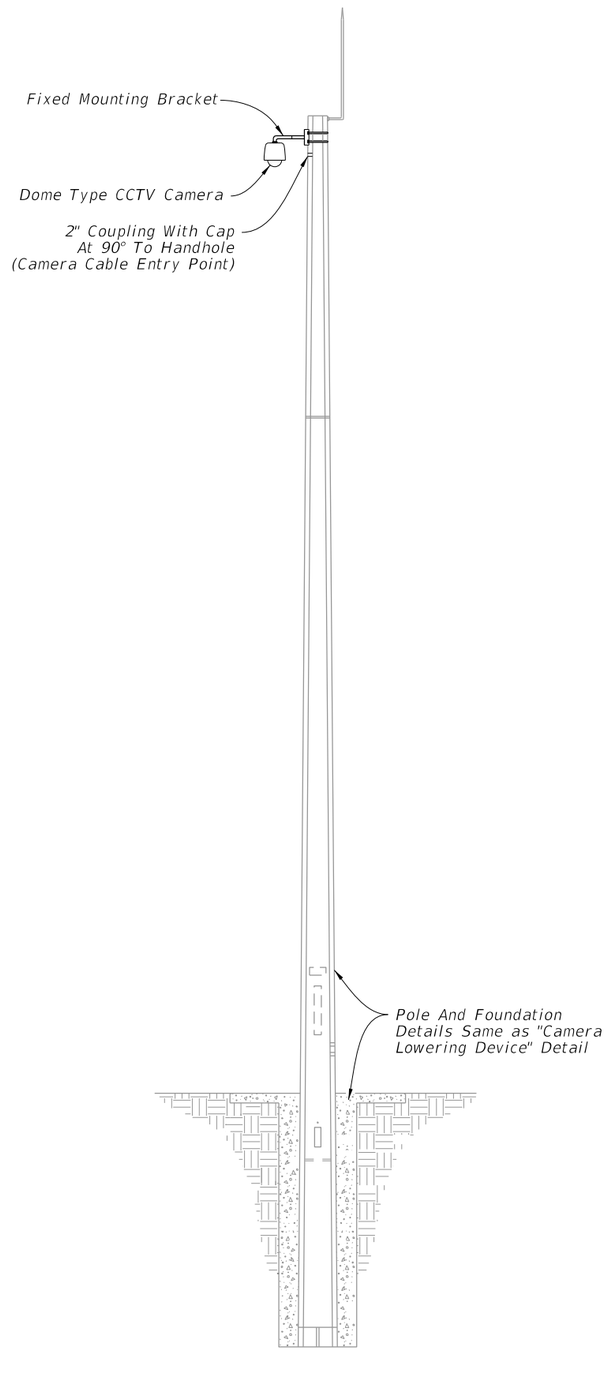
Pole Length (ft)	Pole Height (ft)	Burial Depth (ft)	Design Option	Total Taper (in/ft) (See Note 2)	Void Taper (in/ft)	Min. Wall Thickness Tip (in)	Min. Wall Thickness Butt (in)	Tip Diameter (in)	Butt Diameter (in)	Strand Pattern	Strand Diameter
63	50	13	Option 1	0.216	0.192	3	3.76	12.15	25.76	4	0.5"
			Option 2	0.180	0.172	3	3.50	12.00	23.34	5	0.5"
69	55	14	Option 1	0.216	0.192	3	3.83	12.15	27.05	4	0.5"
			Option 2	0.180	0.173	3	3.50	12.00	24.42	5	0.5"
75	60	15	Option 1	0.216	0.192	3	3.90	12.15	28.35	4	0.5"
			Option 2	0.180	0.173	3	3.50	12.00	25.50	5	0.5"
80	65	15	Option 1	0.216	0.192	3	3.96	12.15	29.43	4	0.5"
			Option 2	0.180	0.174	3	3.50	12.00	26.40	5	0.5"
86	70	16	Option 1	0.216	0.192	3	4.03	12.15	30.73	4	0.5"
			Option 2	0.180	0.174	3	3.50	13.00	28.48	5	0.5"



PLAN VIEW



CAMERA LOWERING DEVICE



FIXED MOUNTING BRACKET

ELEVATION

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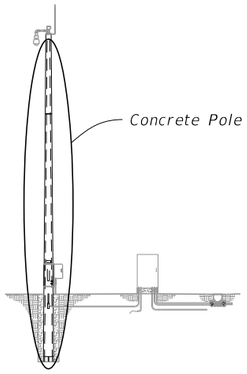
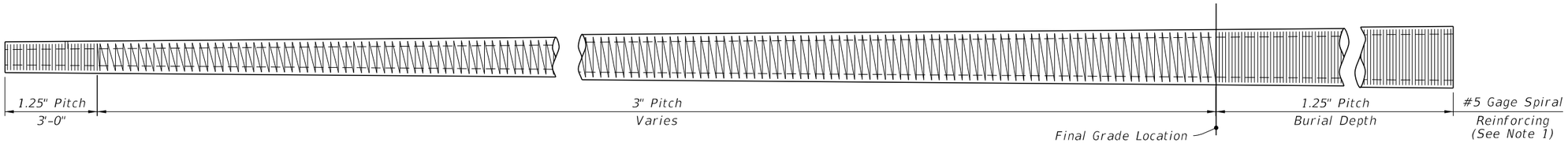
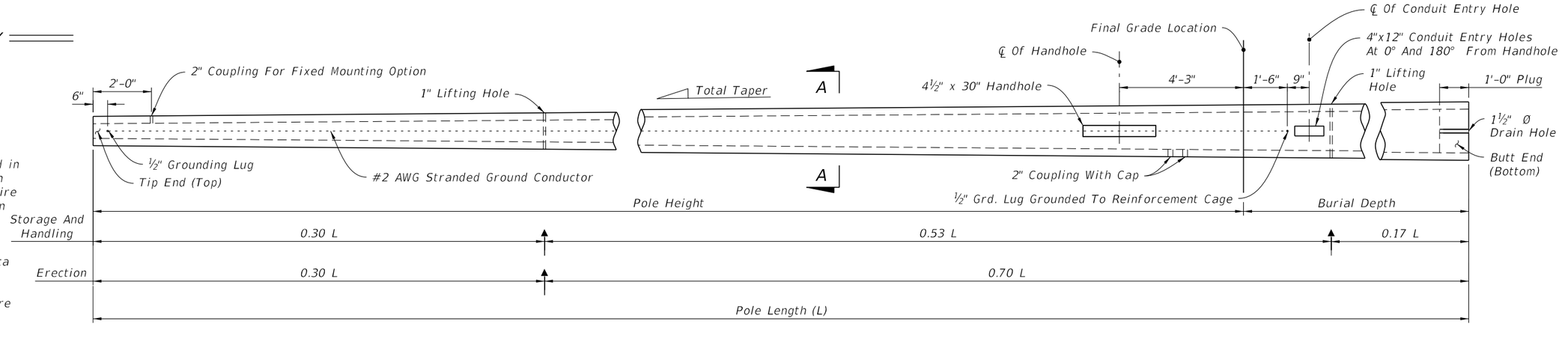


ASSEMBLY



SPIRAL REINFORCING ELEVATION
(Strands, Holes and Fixtures Not Shown)



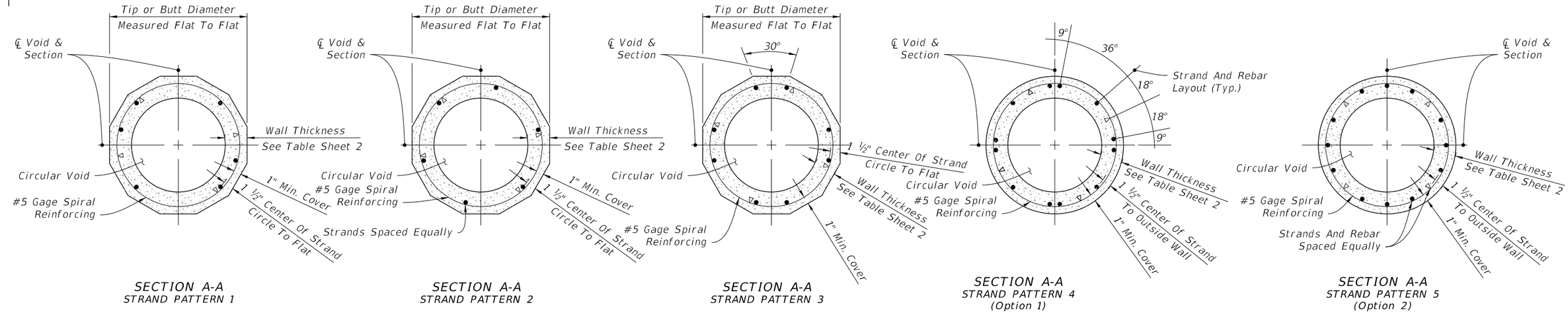
NOTES:

1. Spiral wire may be wrapped in two directions given that an equivalent area of spiral wire is provided to that shown in this Index and the cover requirements are met.
2. Work these details with Data Tables on Sheet 2.
3. Strands and rebar shown are continuous from Tip End to Butt End.

LEGEND:

- ● Prestressed Strand
- Δ (4) #5 Rebar (Shown) or (6) #4 Rebar
- ▲ Lift Points

POLE ELEVATION
(Strands And Reinforcing Not Shown)



SECTION A-A
STRAND PATTERN 1

SECTION A-A
STRAND PATTERN 2

SECTION A-A
STRAND PATTERN 3

SECTION A-A
STRAND PATTERN 4
(Option 1)

SECTION A-A
STRAND PATTERN 5
(Option 2)

12 - SIDED CONCRETE POLE

ROUND CONCRETE POLE

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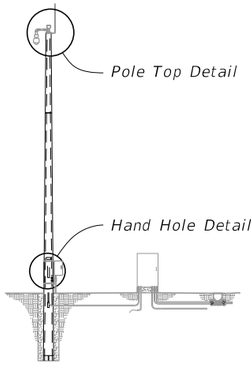
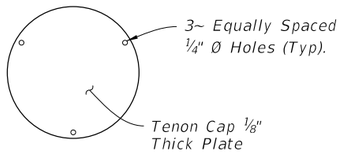


ASSEMBLY

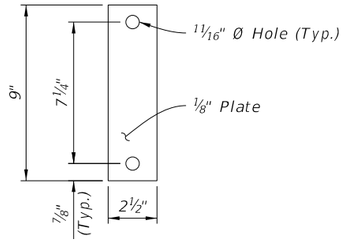
NOTES:

1. Install all handhole and opening covers prior to shipping.
2. Install ½" Ø x 5" long stud with hex nut in insert before shipment.
3. As an alternate, embed 4~½" Ø x 18" stainless steel threaded rods with a threaded nut. At top of rod, thread a coupling nut to attach plate w/ 4~½" x 1¾" stainless steel bolts.
4. Handhole frame may be Cast Aluminum 356.2.
5. Work these details with Data Tables on Sheet 2.



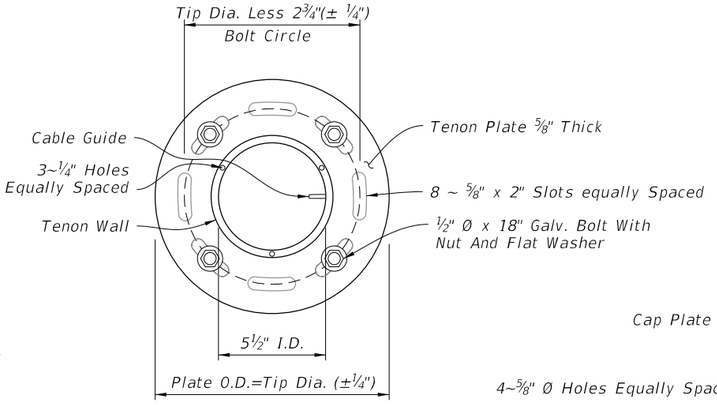
TENON CAP

PLAN VIEW

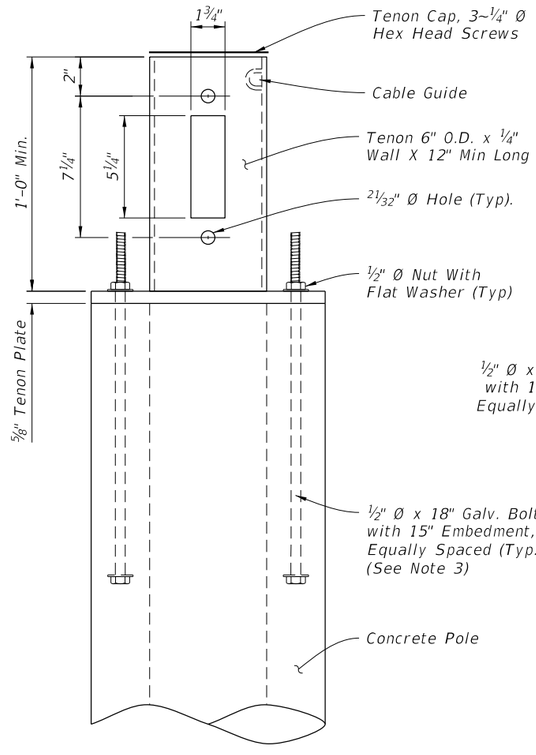


ELEVATION

TENON COVER

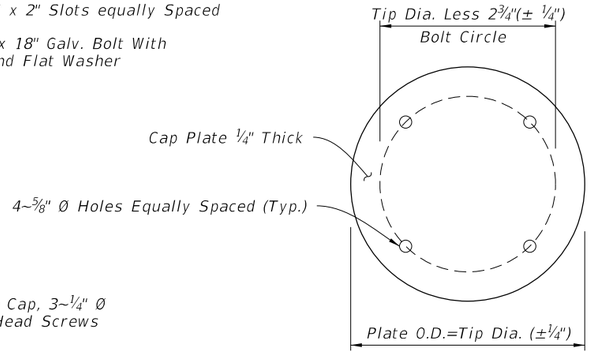


PLAN VIEW

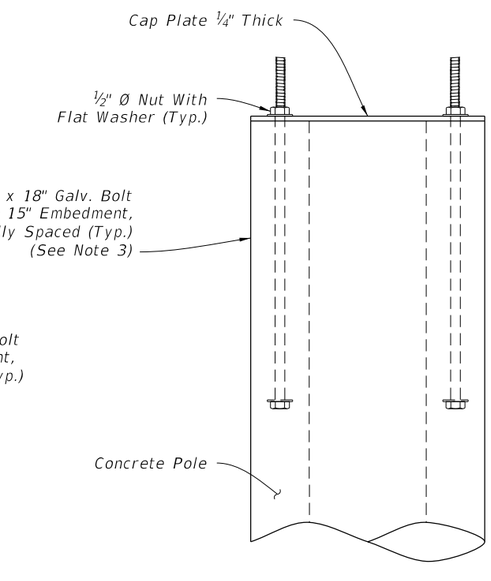


ELEVATION

LOWERING DEVICE TENON



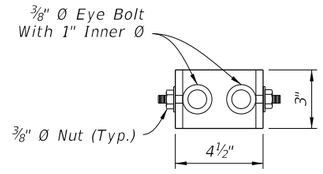
PLAN VIEW



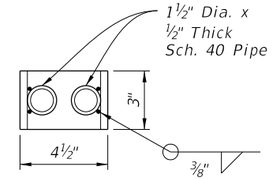
ELEVATION

CAP PLATE DETAIL
(Without Lowering Device)

POLE TOP DETAIL

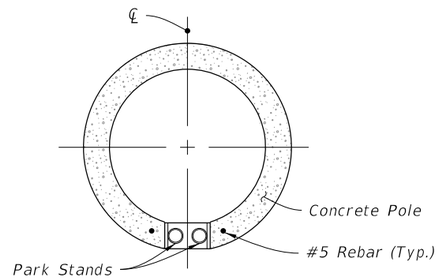


EYE BOLT OPTION

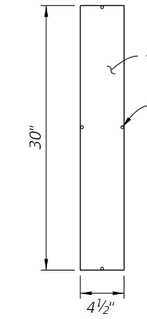


PIPE OPTION

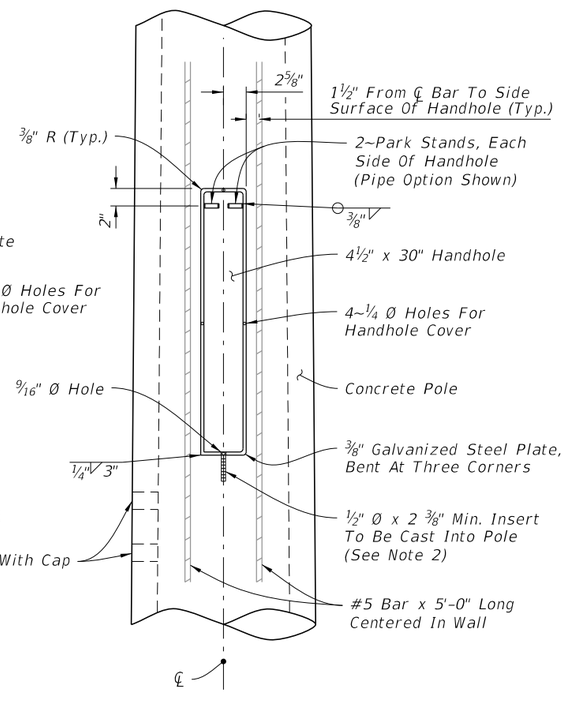
PARK STAND DETAIL



PLAN VIEW



HANDHOLE COVER



ELEVATION

HANDHOLE DETAIL

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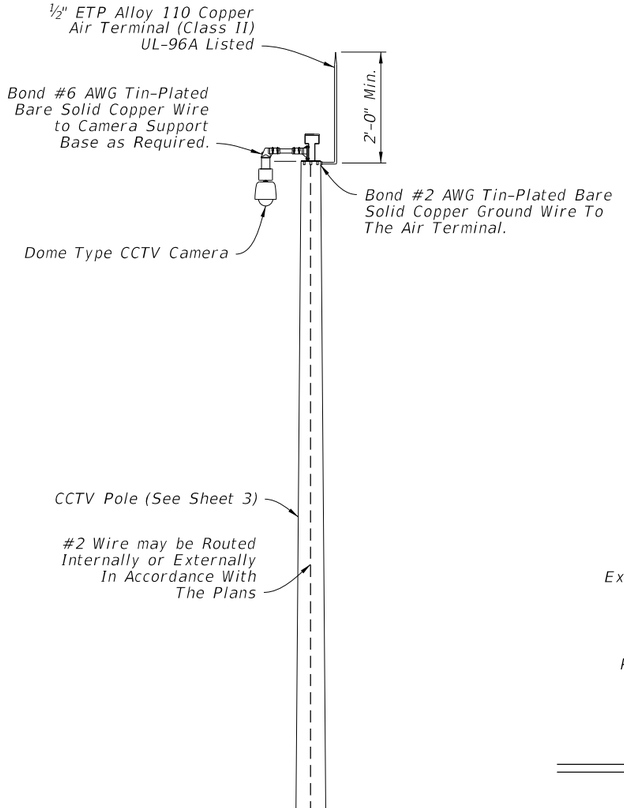
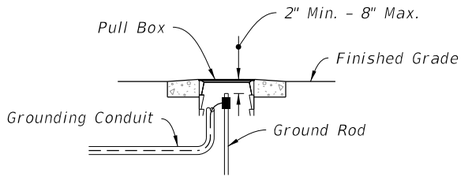
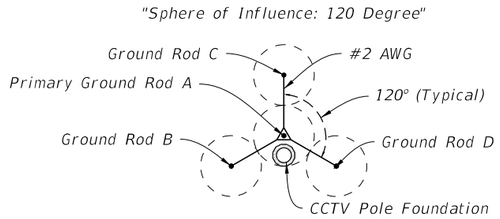
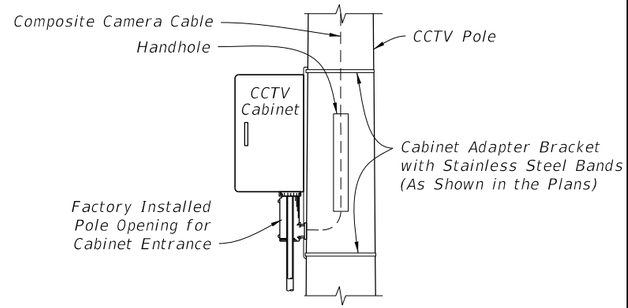




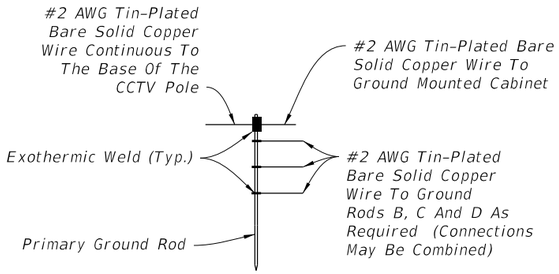
PULL BOX
DETAIL "A"



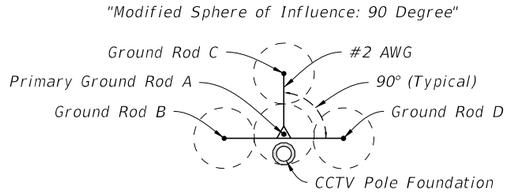
TYPICAL
(20' Rods, 40' Spacing)



SIDE VIEW

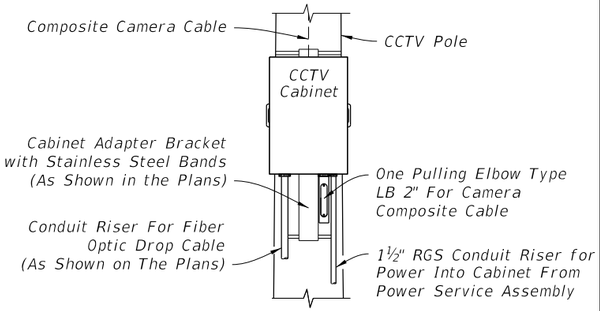


PRIMARY GROUND ROD ASSEMBLY
DETAIL "B"

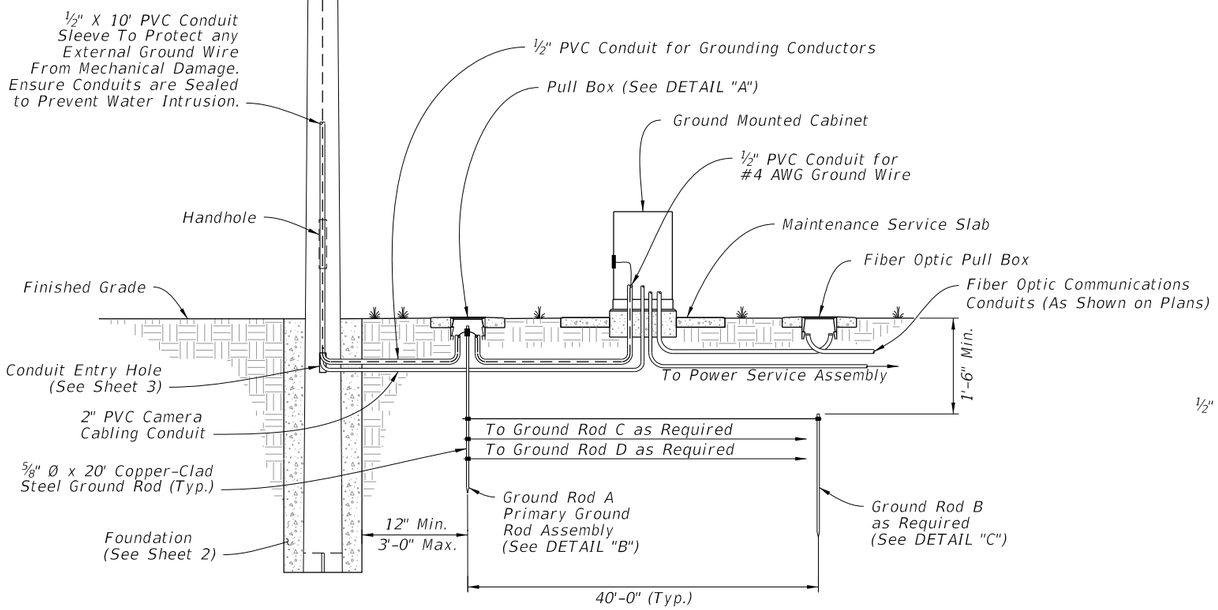


TYPICAL MODIFIED
(20' Rods, 40' Spacing)

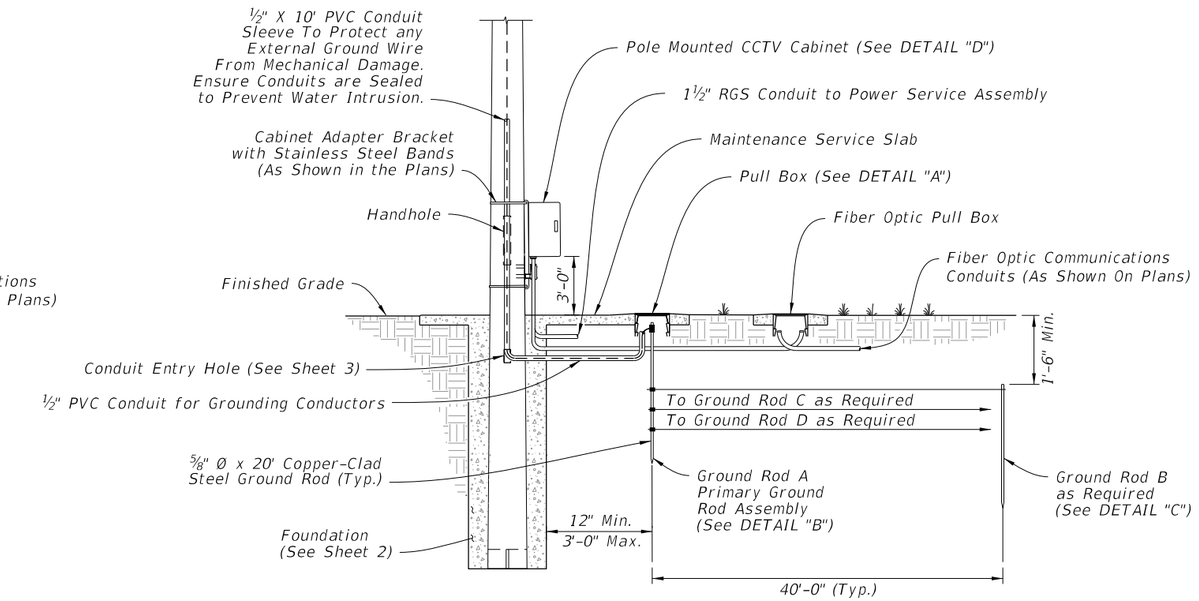
GROUND ROD ARRAY PLACEMENT
DETAIL "C"



FRONT VIEW
DETAIL "D"



GROUND MOUNTED CABINET



POLE MOUNTED CABINET

CONCRETE CCTV POLE GROUNDING

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LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/22			FY 2024-25 STANDARD PLANS	CONCRETE CCTV POLE	641-020	5 of 5

NOTES:

1. Work this Index with Specification 646.

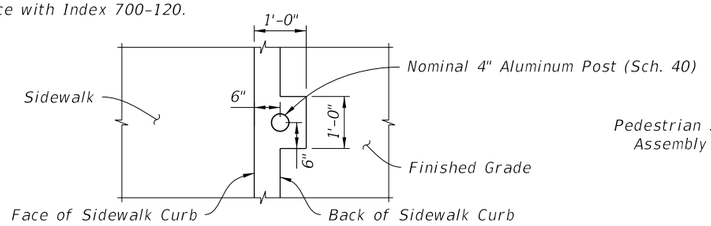
2. For Pedestrian Signals see Index 653-001.

3. For Pedestrian Detector Assembly (i.e., Pushbutton and Sign) details see Index 665-001.

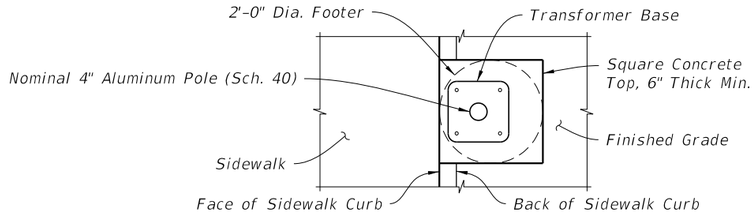
4. Footing may be Cast-In-Place (C-I-P) or Precast.

5. As an alternative to the direct buried "Post Mounted" Pedestrian Detector Assembly shown below, the post may be installed on a transformer base. Use a transformer base included on the APL approved as an alternative to a "Post Mounted" assembly,

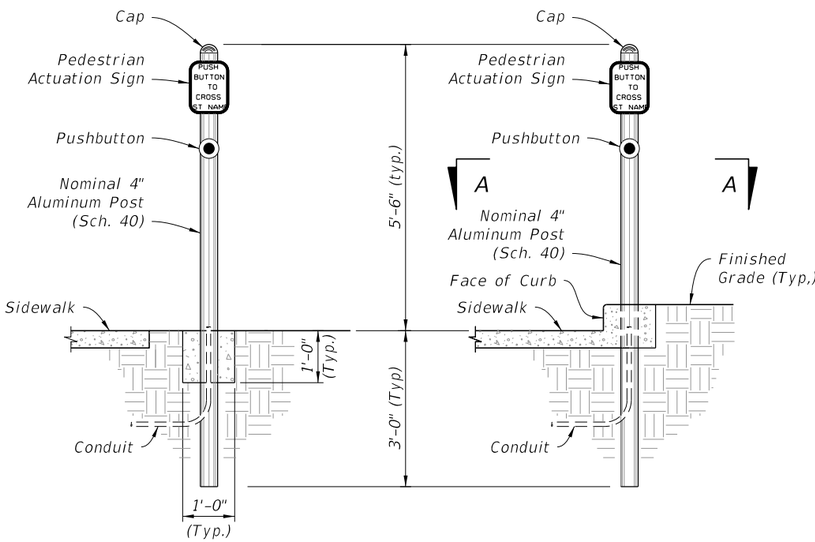
6. In lieu of footing design shown, a Spread Footing may be used in accordance with Index 700-120.



PLAN VIEW
SECTION A-A

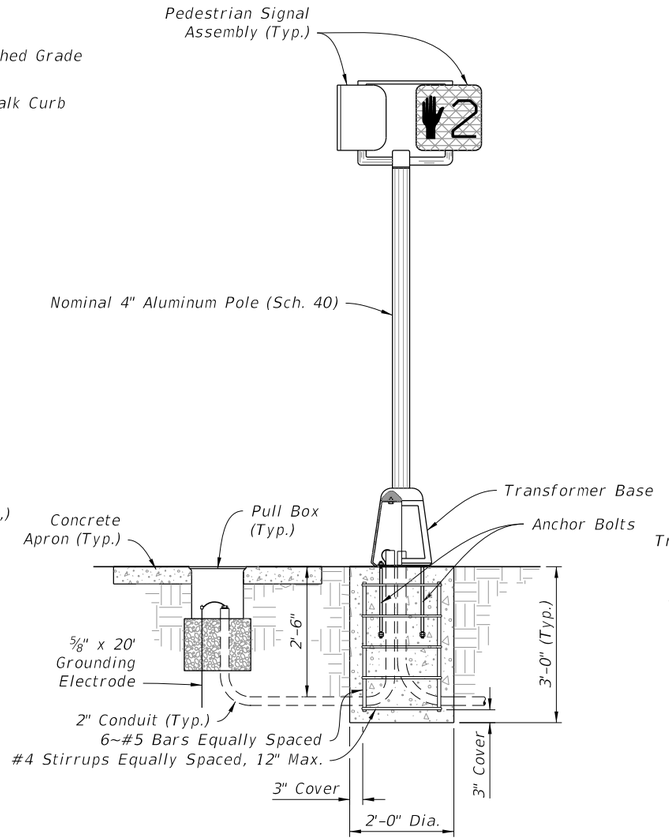


PLAN VIEW
SECTION B-B

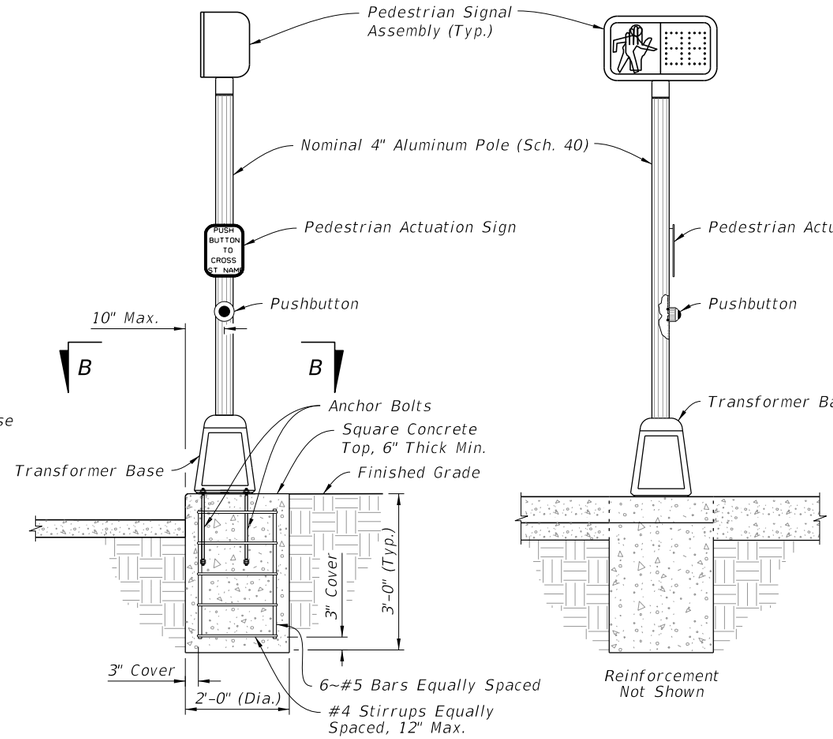


FRONT ELEVATION
ADJACENT TO SIDEWALK

FRONT ELEVATION
IN SIDEWALK CURB



FRONT ELEVATION
ADJACENT TO SIDEWALK



SIDE ELEVATION

FRONT ELEVATION

IN SIDEWALK CURB
(Conduit And Grounding Not Shown)

POST MOUNTED

PEDESTAL MOUNTED

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LAST REVISION	REVISION	DESCRIPTION:				
11/01/23			FDOT	FY 2024-25 STANDARD PLANS	ALUMINUM POST AND PEDESTAL MOUNTED PEDESTRIAN DETECTORS AND SIGNALS	INDEX 646-001 / SHEET 1 of 1

NOTES:

1. Work with Index 634-001 for grounding and span wire details. See the Plans for clamp spacing, cable sizes and forces, signals and sign mounting locations and details.

2. Shop Drawings:

   This Index is considered fully detailed, only submit shop drawings for minor modifications not detailed in the Plans.

3. Materials:

   A. Strain Pole and Backing Rings:
      a. Less than 3/16": ASTM A1011 Grade 50, 55, 60 or 65
      b. Greater than or equal to 3/16": ASTM A572 Grade 50, 55, 60 or 65
      c. ASTM A595 Grade A (55 ksi yield) or Grade B (60 ksi yield)
   B. Steel Plates: ASTM A36
   C. Weld Metal: E70XX
   D. Bolts, Nuts and Washers:
      a. High Strength Bolts: ASTM F3125, Grade A325, Type 1
      b. Nuts: ASTM A563 Grade DH Heavy-Hex
      c. Washers: ASTM F436 Type 1, one under turned element
   E. Anchor Bolts, Nuts and Washers:
      a. Anchor Bolts: ASTM F1554 Grade 55
      b. Nuts: ASTM A563 Grade A Heavy-Hex (5 per anchor bolt)
      c. Plate Washers: ASTM A36 (2 per bolt). Split-lock washers and self-locking nuts are not permitted
   F. Handhole Frame: ASTM A709 or ASTM A36, Grade 36
   G. Handhole Cover: ASTM A1011 Grade 50, 55, 60 or 65
   H. Aluminum Pole Caps and Nut Covers: ASTM B26 (319-F)
   I. Stainless Steel Screws: AISI Type 316
   J. Threaded Bars/Studs: ASTM A36 or ASTM A307
   K. Concrete: Class IV (Drilled Shaft) for all environmental classifications.
   L. Reinforcing Steel: Specification 415

4. Fabrication:

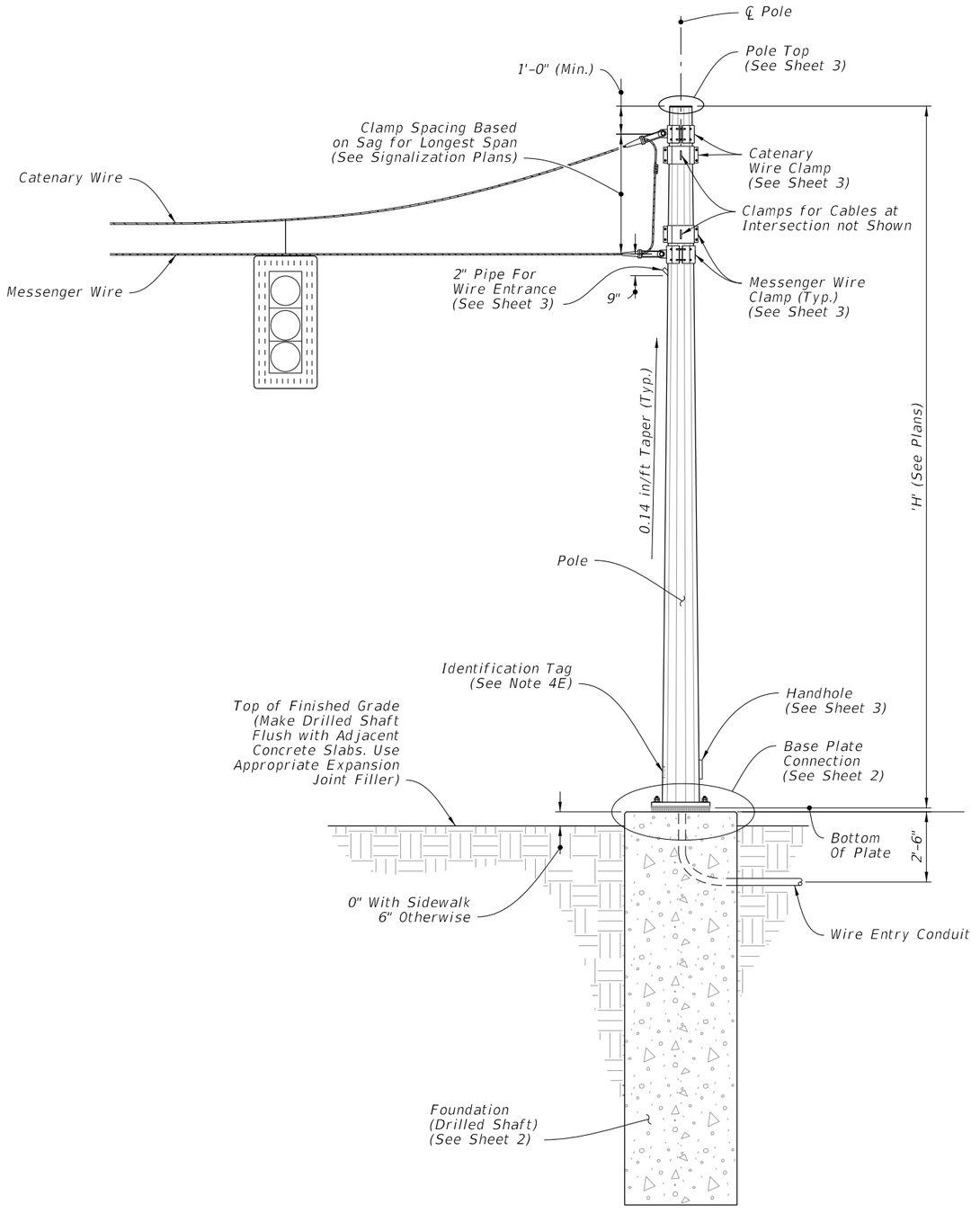
   A. Pole Taper: Change diameter at a rate of 0.14 inches per foot, round or 12-sided (Min.)
   B. Upright splices are not permitted. Transverse welds are only permitted at the base.
   C. Provide bolt hole diameters as follows:
      a. Bolts (except Anchor Bolts): Bolt diameter plus 1/16", prior to galvanizing.
      b. Anchor Bolts: Bolt diameter plus 1/2", maximum.
   D. Locate handhole 180° from 2" wire entrance pipe.
   E. Identification Tag: (Submit details for approval.)
      a. 2"x 4" (Max.) aluminum identification tag.
      b. Locate on the inside of the pole and visible from the handhole.
      c. Secure to pole with 1/8" diameter stainless steel rivets or screws.
      d. Include the following information on the ID Tag:
         1. Financial Project ID
         2. Pole Type
         3. Pole height
         4. Manufacturers' Name
         5. Fy of Steel
         6. Base Wall Thickness
   F. Provide a 'J' or 'C' hook at the top of the pole for signal wiring support (See Sheet 3).
   G. Perform all welding in accordance with Specification 460-6.4.
   H. Fabricate longitudinal seam welds in pole with 60 percent minimum penetration or fusion welds except, within 6" of the base plate connection use complete joint penetration welds.
   I. Hot Dip Galvanize after fabrication.

5. Coatings:

   A. All Nuts, Bolts, Washers and Threaded Bars/Studs: ASTM F2329
   B. All other steel items including plate washers: ASTM A123

6. Construction:

   A. Foundation: Specification 455, except that payment is included in the cost of the strain pole.
   B. After installation, place wire screen between top of foundation and bottom of base plate in accordance with Specification 649-8.



STRAIN POLE ASSEMBLY

ELEVATION AND NOTES

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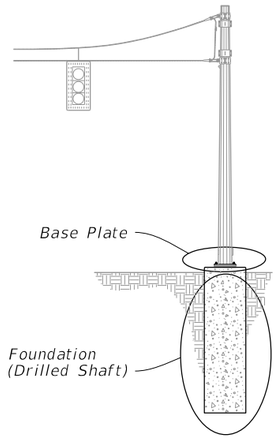
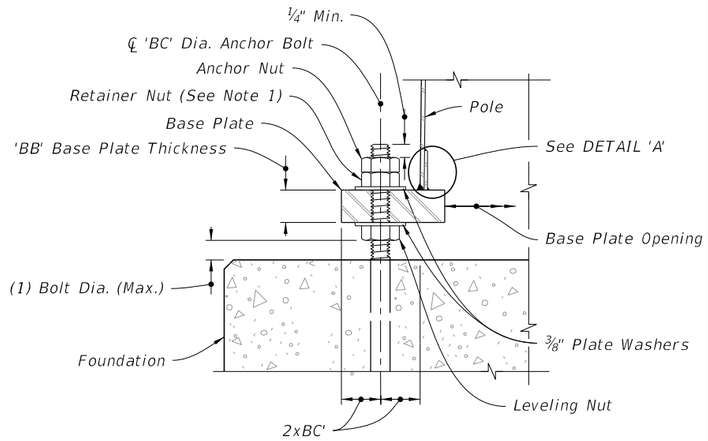
LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	STEEL STRAIN POLE	INDEX	SHEET
11/01/23					649-010	1 of 3



POLE ASSEMBLY

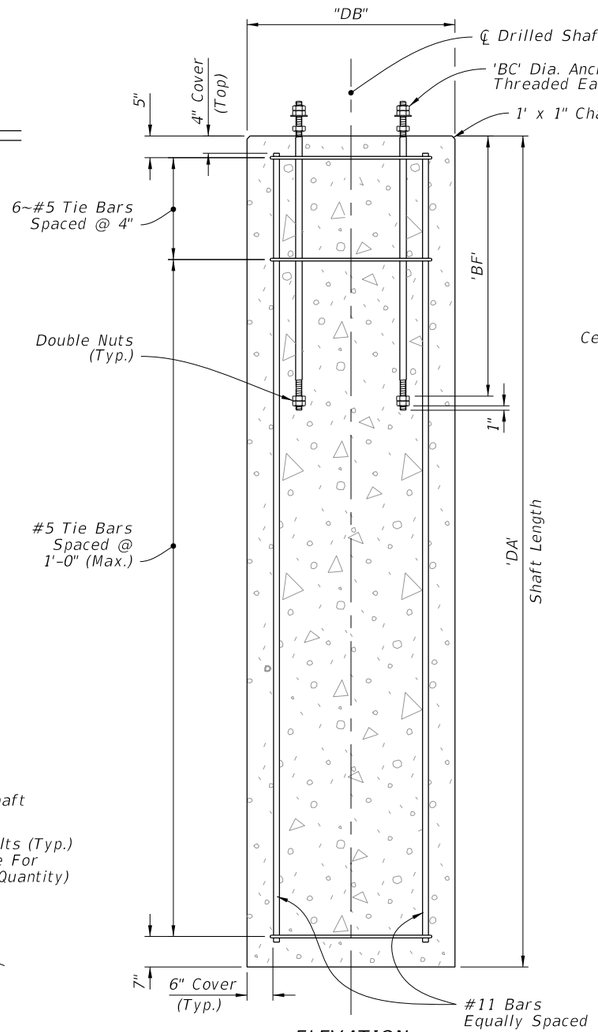
STEEL STRAIN POLE DATA TABLE										
POLE TYPE	POLE		BASE CONNECTION					SHAFT		
	J (in)	K (in)	No. of Bolts	BA (in)	BB (in)	BC (in)	BF (in)	DA (FT)	DB (FT)	No. of #11 Bars
PS-IV	0.250	14	8	25	2.50	1 3/8	60	14	4	14
PS-V	0.313	16	10	28	2.50	1 1/2	60	15	4	14
PS-VI	0.313	18	12	30	2.50	1 1/2	60	16	4	14
PS-VII	0.313	21	14	33	2.50	1 1/2	60	16	4.5	16
PS-VIII	0.313	23	16	35	2.50	1 1/2	60	17	4.5	16
PS-IX	0.313	25	12	39	3.00	1 3/4	60	17	5	18
PS-X	0.313	27	14	41	3.00	1 3/4	60	18	5	18



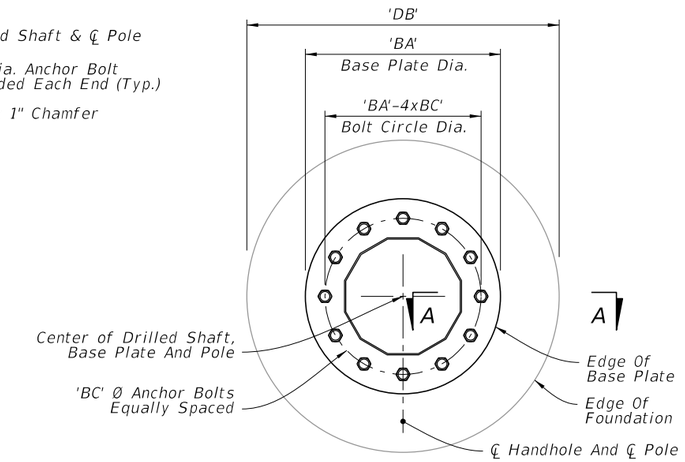
SECTION A-A

NOTE:

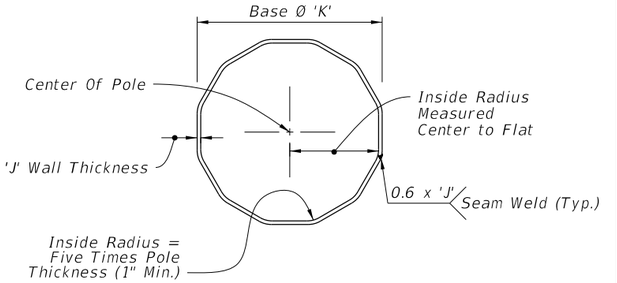
1. Retainer nut may be half-height. Provide Individual nut covers (not shown) for each bolt.



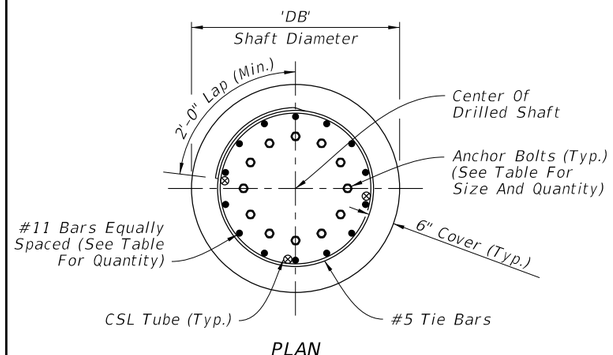
ELEVATION



PLAN



SECTION B-B



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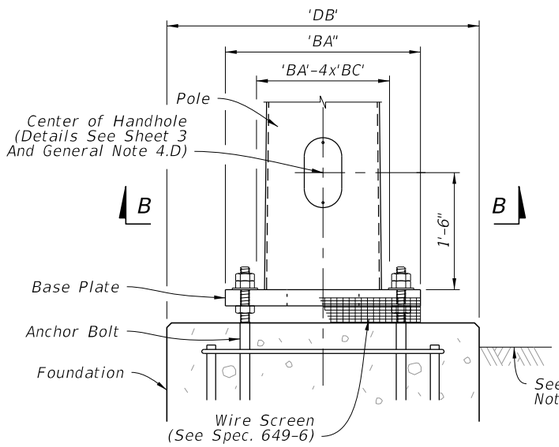

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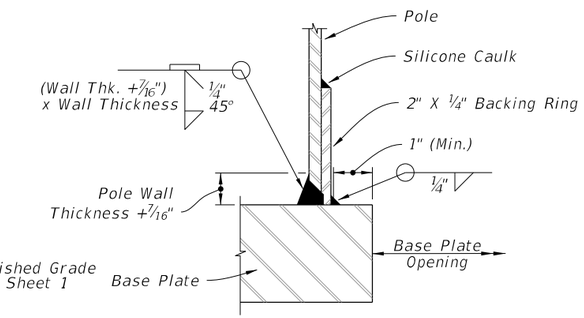

JOINT WELD DETAIL

FOUNDATION

BASE PLATE

DETAIL 'A'

FOUNDATION AND BASE DETAILS

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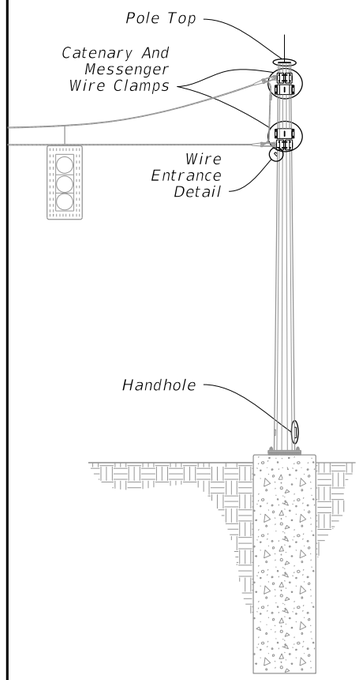
LAST REVISION	REVISION	DESCRIPTION:				
11/01/23			FY 2024-25 STANDARD PLANS	STEEL STRAIN POLE	INDEX 649-010	SHEET 2 of 3

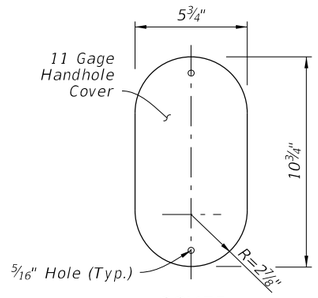


POLE ASSEMBLY

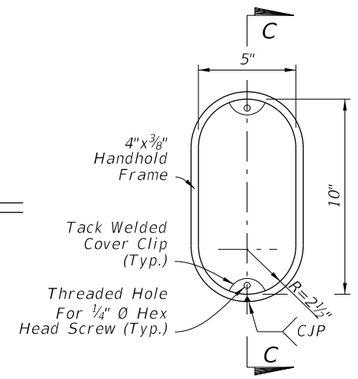
NOTES:

1. Clamps have been sized for Design Cable Loads shown in the Clamp Thickness Table, and a Maximum Pole Diameter at the Clamp location of 2'-1". Use one clamp per cable.
2. Install a properly sized Weather Head, fastened securely to the standard pipe for each pole location. At locations other than the wire entrance, the Weather Head face is to be left closed to outside atmosphere. Wire entrance installed per Index 634-001.
3. Any combination of Option 'a' or 'b' may be used provided both lifting and wiring is accommodated.

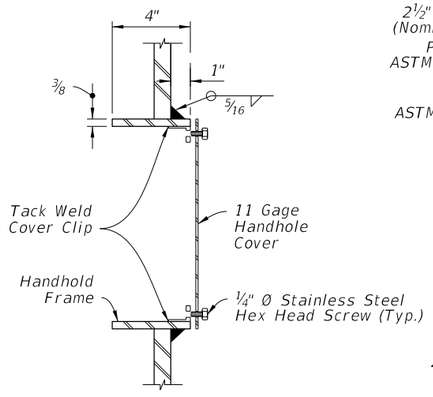
CLAMP THICKNESS TABLE		
Cable Diameter (in.)	Minimum Breaking Strength (kip)	Plate Thickness (in.)
1/2	25	1
7/16	18	7/8
3/8	11.5	3/4
1/4	3.15	3/8



COVER



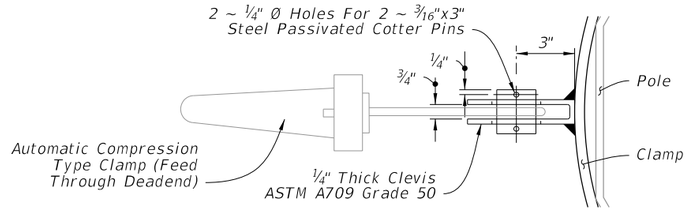
FRAME



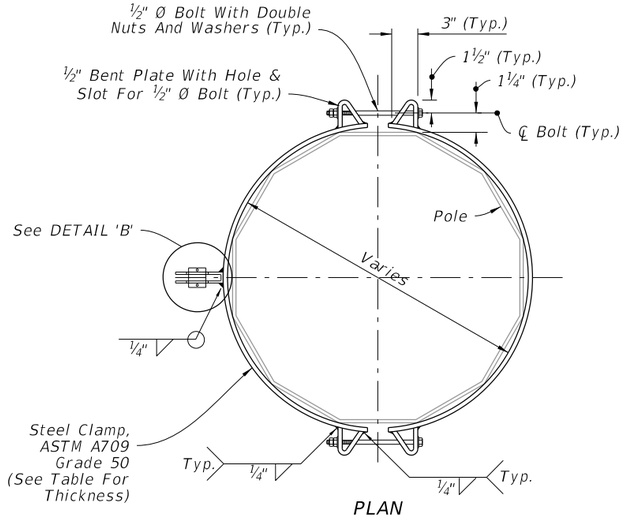
(Thru Handhole)

SECTION C-C

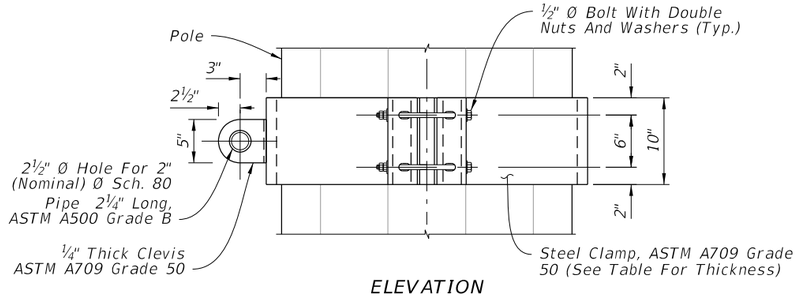
HANDHOLE



DETAIL "B"

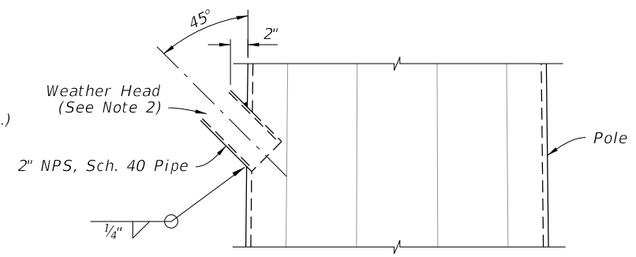


PLAN

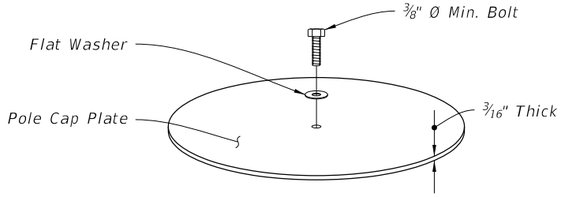


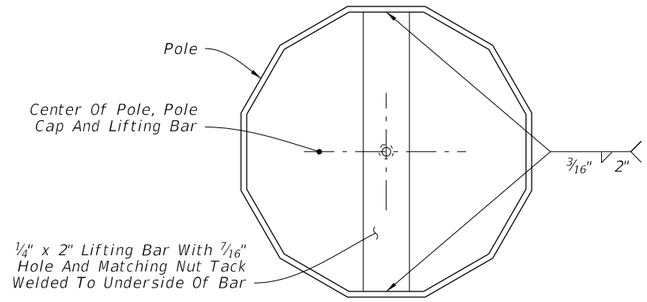
ELEVATION

CATENARY AND MESSENGER WIRE CLAMPS

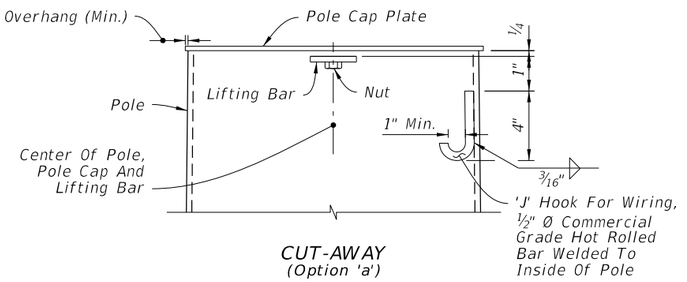


WIRE ENTRANCE DETAIL

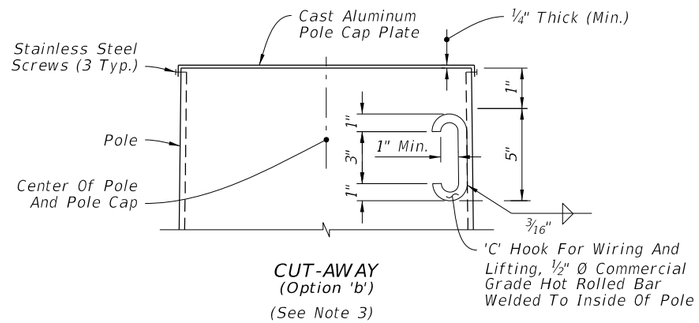




TOP VIEW



CUT-AWAY
(Option 'a')



CUT-AWAY
(Option 'b')
(See Note 3)

POLE TOP

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ATTACHMENT DETAILS

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2024-25 STANDARD PLANS	STEEL STRAIN POLE	INDEX	SHEET
11/01/23						649-010	3 of 3

GENERAL NOTES:

1. Work this Index with Specification 649.

2. This Index is considered fully detailed; only submit shop drawings for minor modifications not detailed in the Plans.

3. See Index 635-001 for additional Pull Box details.

4. See Index 676-010 for cabinet installation details.

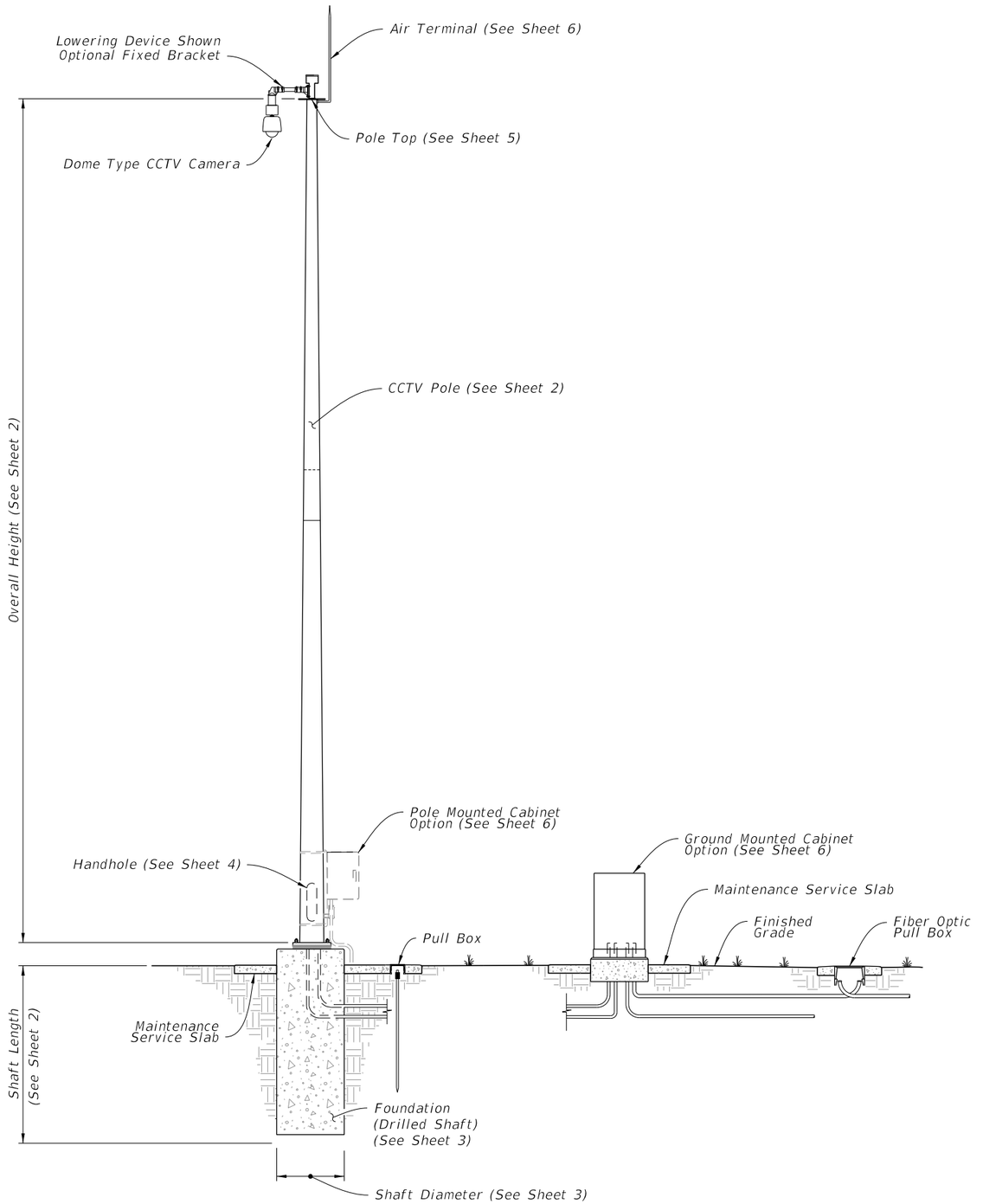
5. Materials:
   - A. Pole: ASTM A1011 Grade 50, 55, 60 or 65 (less than ¼") or ASTM A572 Grade 50, 60 or 65 (greater than or equal to ¼") or ASTM A595 Grade A (55 ksi yield) or Grade B (60 ksi yield).
   - B. Steel Plates and Pole Cap: ASTM A36 or ASTM A709 Grade 50.
   - C. Weld Metal: E70XX.
   - D. Bolts: ASTM F3125, Grade A325, Type 1.
     Nuts: ASTM A563.
     Washers: ASTM F-436.
   - E. Anchor Bolts: ASTM F1554 Grade 55 with ASTM A563 Grade A heavy-hex nuts and ASTM A36 plate washers.
   - F. Handhole Frame: ASTM A709 Grade 36 or ASTM A36.
   - G. Handhole Cover: ASTM A1011 Grade 50, 55, 60 or 65.
   - H. Stainless Steel Screws: AISI Type 316.
   - I. Reinforcing Steel: ASTM A615 Grade 60.
   - J. Galvanization: Bolts, nuts and washers: ASTM F2329 All other steel including plate washer: ASTM A123
   - K. Concrete: Class IV (Drilled Shaft) for all environment classifications.

6. Fabrication:
   - A. Welding:
     a. Specification 460-6.4 and
     b. AASHTO RFD Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals Section 14.4.4.
   - B. Poles:
     a. Round or 16-sided (Min.)
     b. Taper pole diameter at 0.14 inches per foot
     c. Fabricate Pole longitudinal seam welds (2 maximum) with 60 percent minimum penetration or fusion welds except as follows:
        1. Use a complete joint penetration weld within 6 inches of the circumferential tube-to-plate connection and
        2. Use complete joint penetration welds on the female end section of telescopic (i.e., slip type) field splices for a minimum length of one and one-half times the inside diameter of the female section plus 6 inches.
     d. Pole shaft may be either one or two sections (with telescopic field splice)
     e. Circumferentially welded pole shafts and laminated pole shafts are not permitted
   - C. Identification Tag: (Submit details for approval)
     a. 2"x 4" (Max.) aluminum tag
     b. Locate on the inside of the pole and visible from the handhole
     c. Secure with ⅛" diameter stainless steel rivets or screws.
     d. Include the following information on the ID Tag:
        1. Financial Project ID
        2. Pole Type
        3. Pole Height
        4. Manufacturers' Name
        5. Yield Strength (Fy of Steel)
        6. Base Wall Thickness
   - D. Except for Anchor Bolts, bolt hole diameters are bolt diameter plus 1/16" and anchor bolt holes are bolt diameter plus ½" (Max) prior to galvanizing.

7. Pole Installation:
   - A. Do not install additional wire access holes (not shown in this Index) with a diameter that exceeds 1½" in diameter.
   - B. Install Anchor Bolts in accordance with Specification 649-5.
   - C. Cable Supports: Electrical Cable Guides and Eyebolts.
     a. Locate top and bottom cable guides within the pole aligned with each other.
     b. Position one cable guide 2" below the handhole.
     c. Position other cable guide 1" directly below the top of the tenon.
     d. Position Park Stands 2" below the top of the handhole.
   - D. Install Pole with the handhole located away from approaching traffic.
   - E. Install the Pole plumb.

8. Cabinet Installation:
   - A. Splice fiber optic cables in cabinet to preterminated patch panel.
   - B. Furnish and install Surge Protection Devices (SPDs) on all cabling in cabinet.
   - C. Furnish and install secondary SPDs protection on outlets for equipment in cabinet.
   - D. Ensure that all electronic equipment power is protected and conditioned with SPDs.
   - E. Ensure that equipment cabinet is bonded to CCTV pole grounding system.
   - F. Install the pole mounted cabinet with the hinges next to the pole.
   - G. Sizes and types of conduits and inner ducts for network communications between the pull box and cabinet are stated in the Contract Documents.

9. Lowering Device Installation:
   - A. Place the lowering cable that moves within the pole in an interior conduit to prevent it from tangling or interfering with any electrical wire that is in the pole. Ensure that any electrical wire within the pole is routed securely and free from slack.
   - B. Mount lowering device perpendicular to the roadway or as shown in the plans. Position CC TV pole so that the camera can be safely lowered without requiring lane closures.
   - C. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting plates, parking stands, etc.) with lowering device manufacturer.



STEEL CCTV POLE ASSEMBLY

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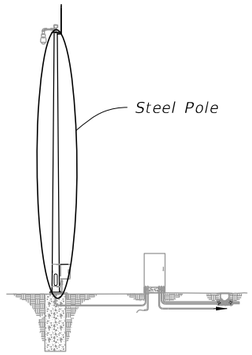
LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2024-25 STANDARD PLANS	STEEL CCTV POLE	INDEX	SHEET
11/01/23					649-020	1 of 6



ASSEMBLY

SHAFT DESIGN TABLE			
Pole Overall Height (ft)	Shaft Diameter	Shaft Length	Longitudinal Reinforcement
50	4'-0"	11'-0"	(14) #11
55	4'-0"	12'-0"	(14) #11
60	4'-6"	13'-0"	(16) #11
65	4'-6"	13'-0"	(16) #11
70	5'-0"	14'-0"	(18) #11

ADDITIONAL SHAFT DEPTH DUE TO GROUND SLOPE		
Ground Slope	4'-0" Shaft Diameter	5'-0" Shaft Diameter
1:5	3'-0"	4'-0"
1:4	4'-0"	5'-0"
1:3	5'-0"	6'-0"
1:2	7'-0"	9'-0"

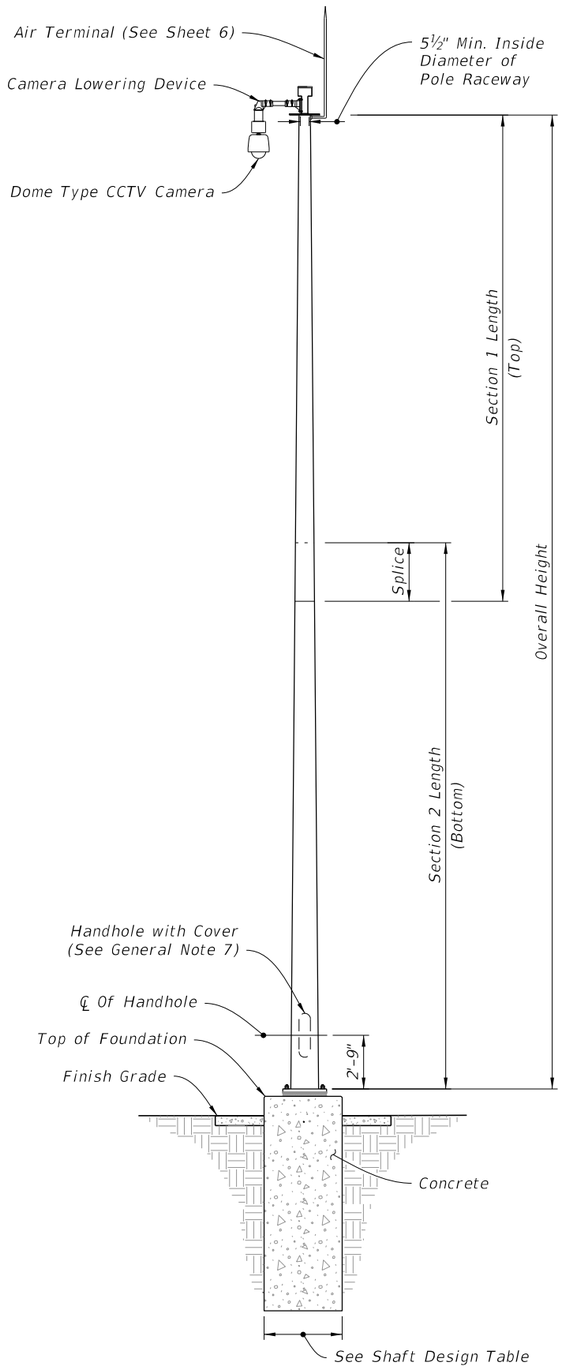
FOUNDATION NOTES:

1. Shaft Length is based on 1'-0" height above the finished grade.

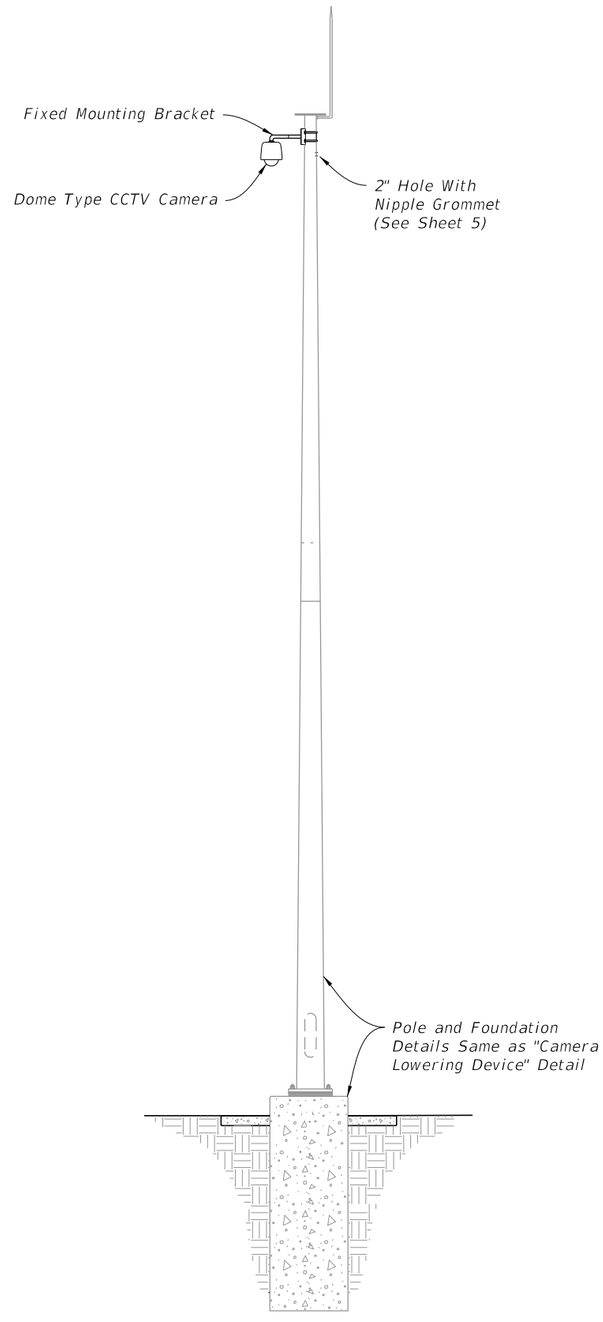
2. Shaft Design Table Shaft Length is based on level ground (flatter than 1:5). Increase the shaft depth in accordance with the Additional Shaft Depth Due To Ground Slope table for foundations with slopes 1:5 and steeper. Use the higher value for slope or diameter values that fall between those shown on the table.

BASE PLATE AND ANCHOR BOLT DESIGN TABLE							
Pole Overall Height (ft)	Base Plate Diameter (in.)	Base Plate Thickness (in.)	Anchor Bolt Circle (in.)	Number of Bolts	Anchor Bolt Diameter (in.)	Anchor Bolt Embedment (in.)	Minimum Anchor Bolt Projection (in.)
50	27	2.5	22	6	1.25	31	8.5
55	28	2.5	23	6	1.25	33	8.5
60	33	2.5	27	6	1.50	34	9.5
65	35	2.5	29	6	1.50	35	9.5
70	40	2.5	33	6	1.75	38	10.5

POLE DESIGN TABLE							
Pole Overall Height (ft)	Section 1 (Top)			Section 2 (Bottom)			Joint
	Length	Wall Thickness (in.)	Base Diameter (in.)	Length	Wall Thickness (in.)	Base Diameter (in.)	Minimum Splice Length (in.)
50	---	---	---	50'-0"	0.25	17	---
	25'-0"	0.25	14	28'-0"	0.25	17	27
55	30'-0"	0.25	15	28'-0"	0.3125	18	30
60	35'-0"	0.25	18	29'-0"	0.3125	21	33
65	33'-0"	0.25	19	36'-0"	0.3125	23	33
70	38'-0"	0.25	22	36'-0"	0.3125	26	39



CAMERA LOWERING DEVICE



FIXED MOUNTING BRACKET

ELEVATION

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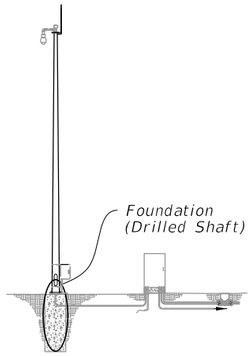
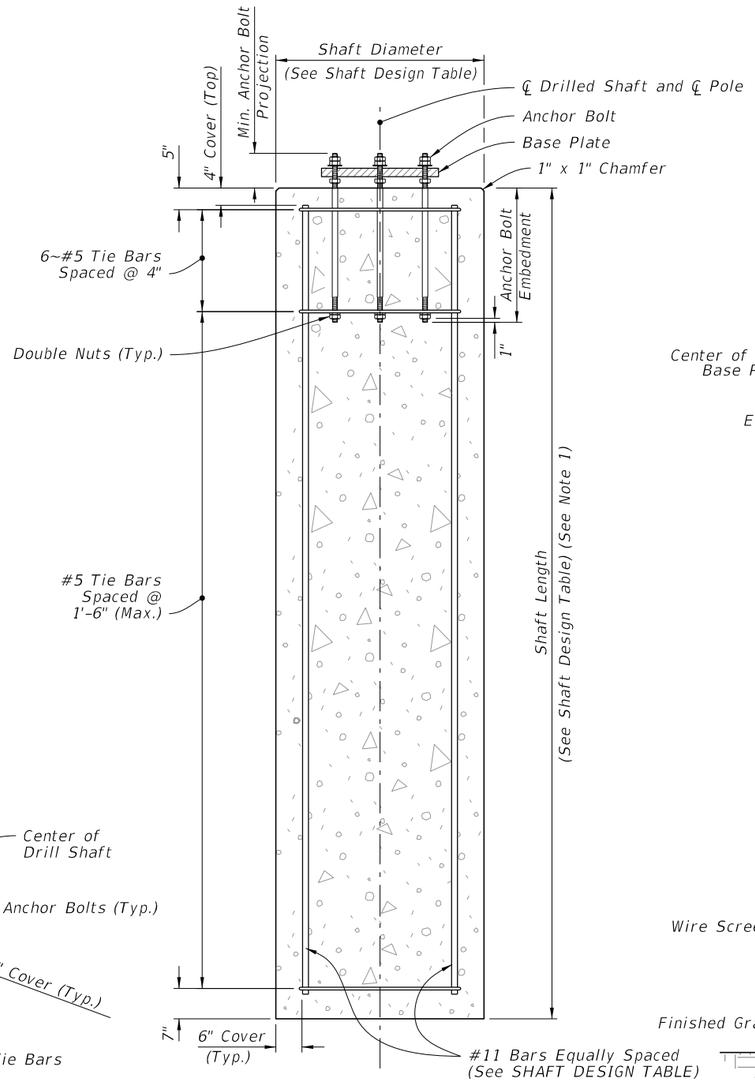
LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/22			FDOT FY 2024-25 STANDARD PLANS	STEEL CCTV POLE	649-020	2 of 6



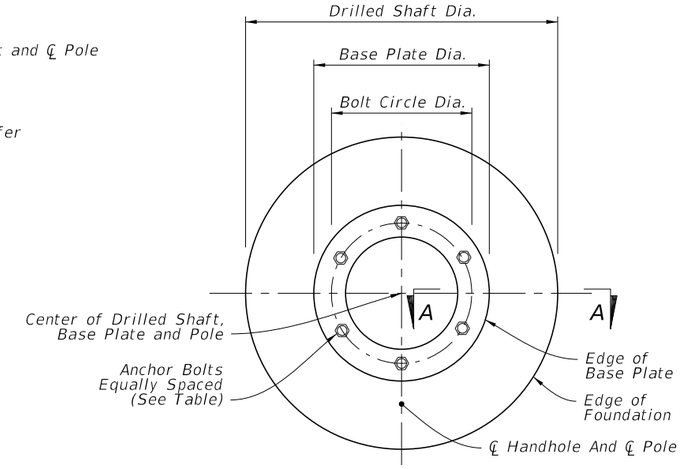
ASSEMBLY

NOTES:

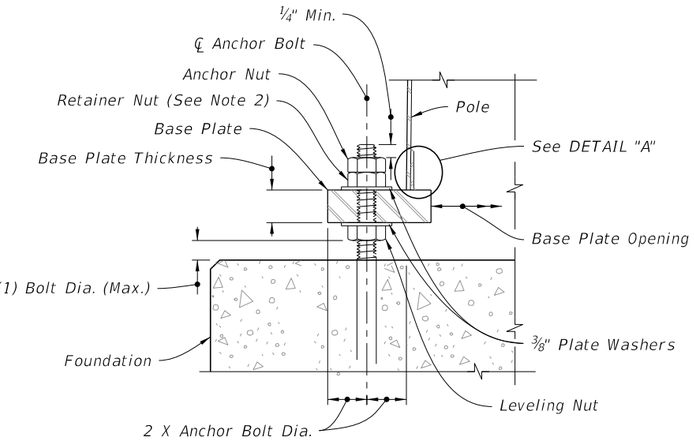
1. Shaft Length is based on 1'-0" height above the finished grade.
2. Retainer nut may be half-height. Provide individual nut covers (not shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.
4. Work these details with Data Table on Sheet 2.



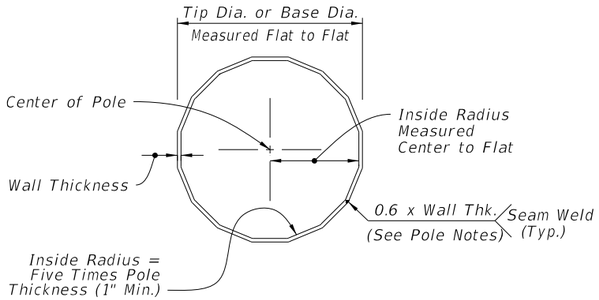
ELEVATION



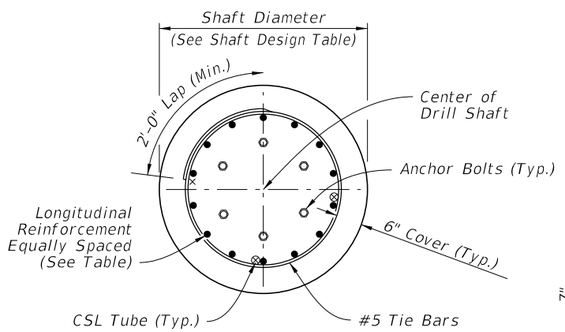
PLAN



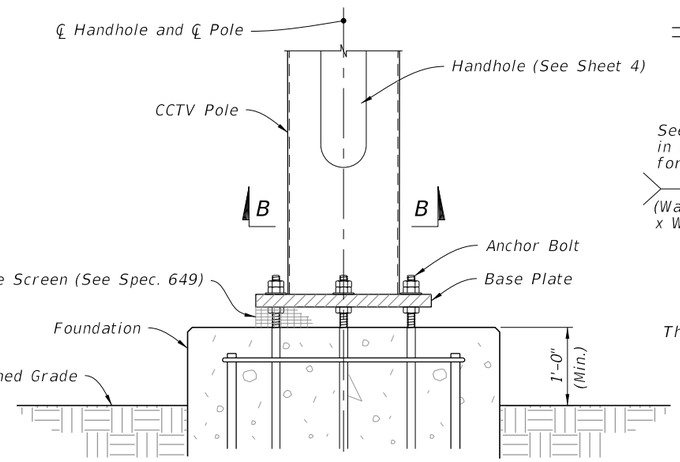
SECTION A-A



SECTION B-B



PLAN



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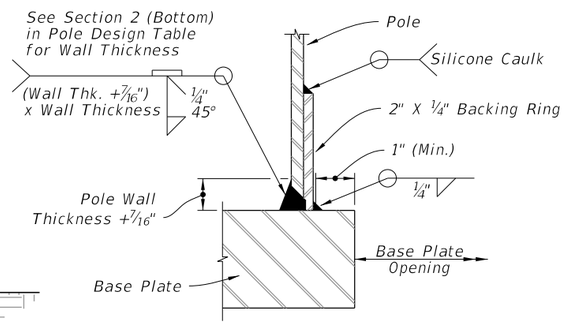

JOINT WELD DETAIL

FOUNDATION

BASE PLATE

DETAIL "A"

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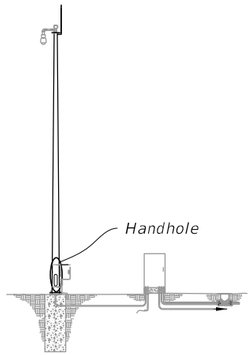
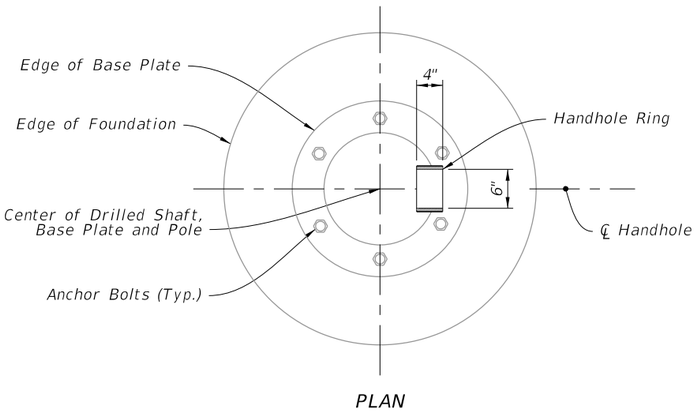
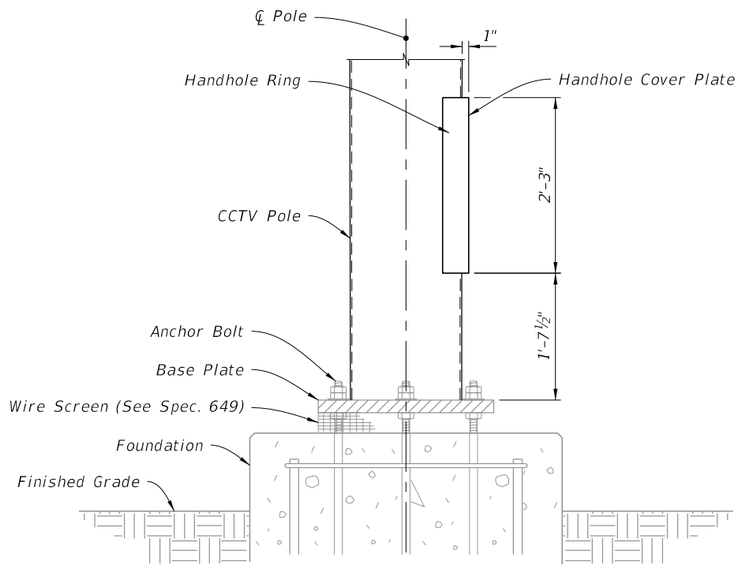
LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/23			FY 2024-25 STANDARD PLANS	STEEL CCTV POLE	649-020	3 of 6



ASSEMBLY

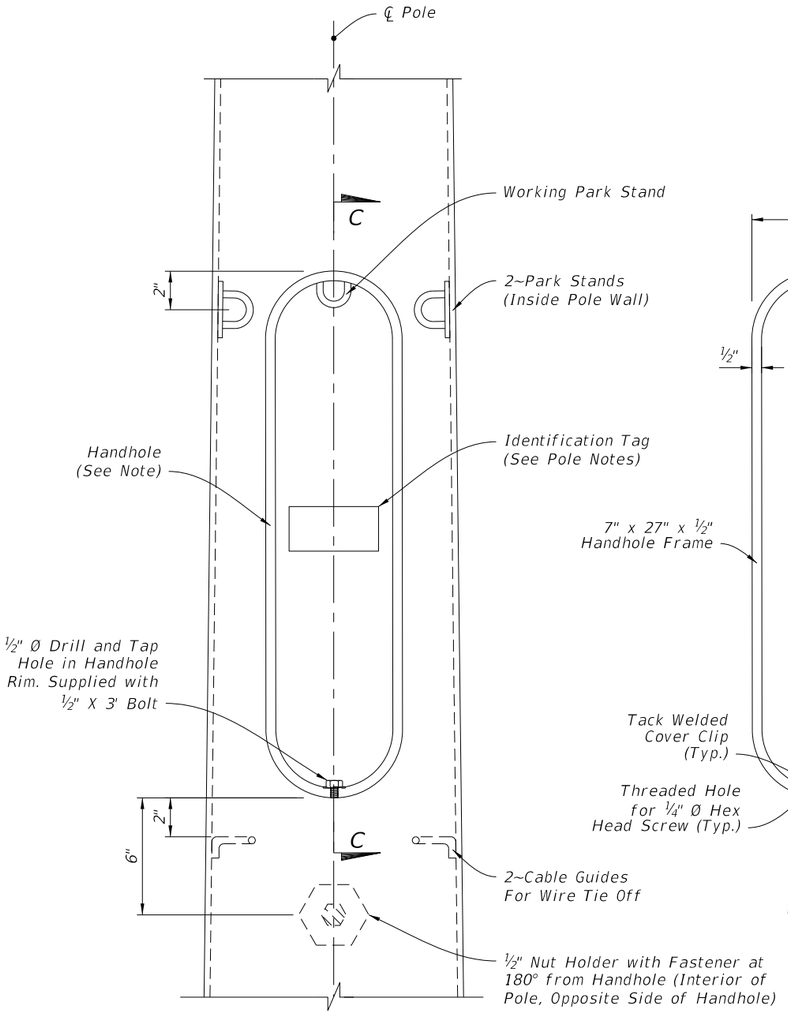


PLAN



ELEVATION

HANDHOLE LOCATION



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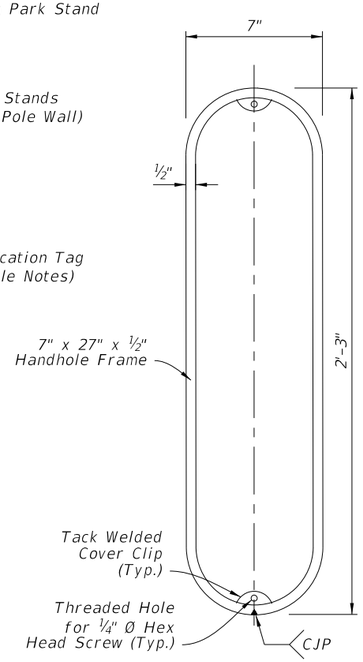

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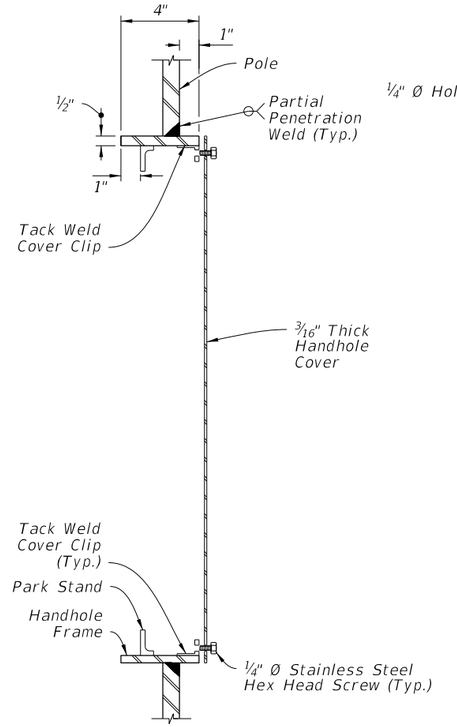


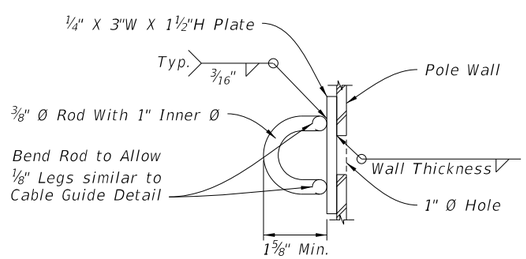
SECTION C-C

COVER PLATE

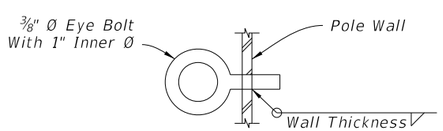
NOTE:

To secure the cover plate, install a steel chain from the cover to the pole or by mounting the cover with hinges and install a pad lock tab.

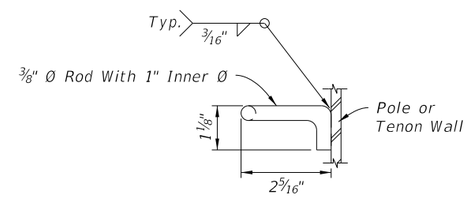
HANDHOLE DETAIL



Rod Option



Eye Bolt Option



PARK STAND DETAILS

CABLE GUIDE DETAIL

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LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	STEEL CCTV POLE	INDEX	SHEET
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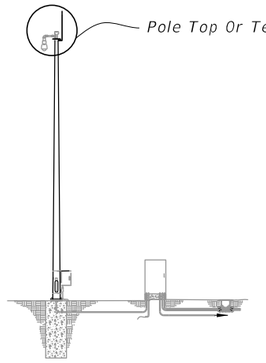
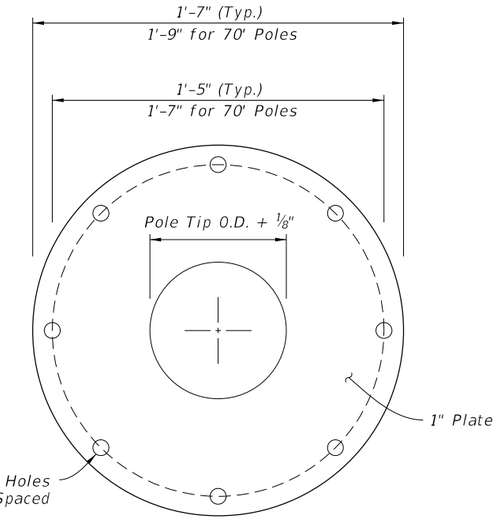
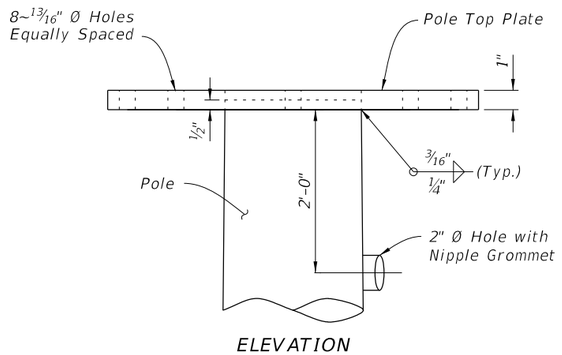


ASSEMBLY

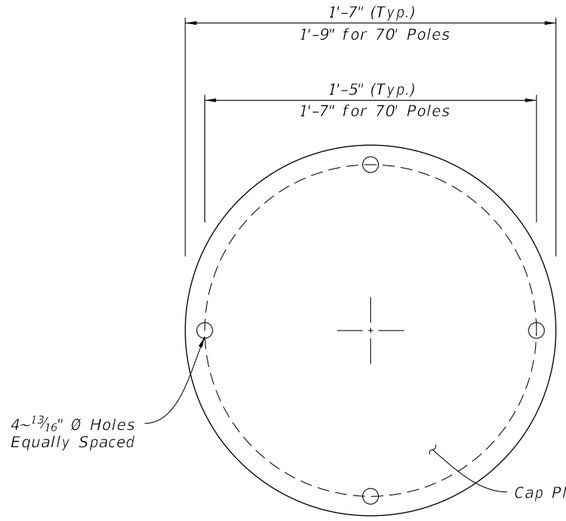


PLAN VIEW

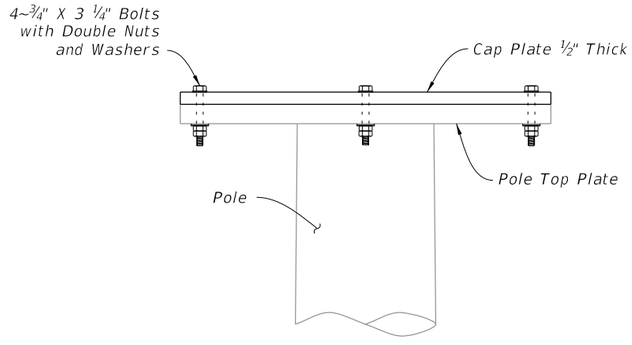


ELEVATION

POLE TOP PLATE



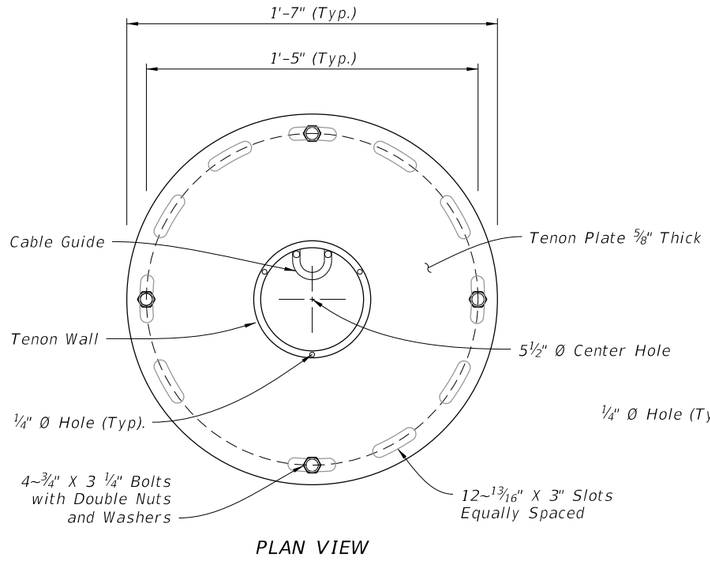
PLAN VIEW



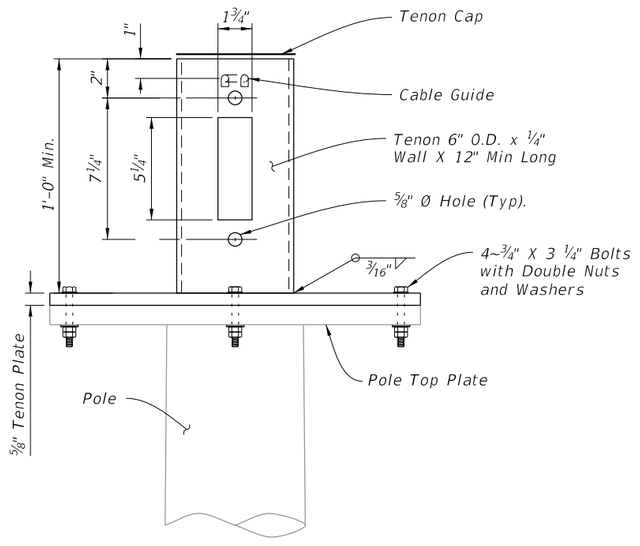
ELEVATION

CAP PLATE DETAIL

POLE TOP DETAIL



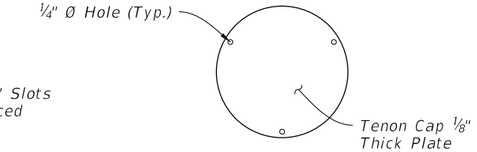
PLAN VIEW

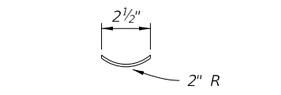


ELEVATION

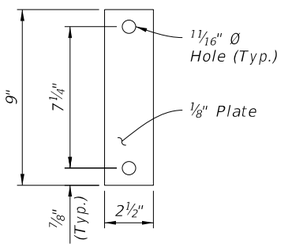
LOWERING DEVICE TENON

TENON CAP





PLAN VIEW



ELEVATION

TENON COVER

10/4/2023 2:39:09 PM

LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
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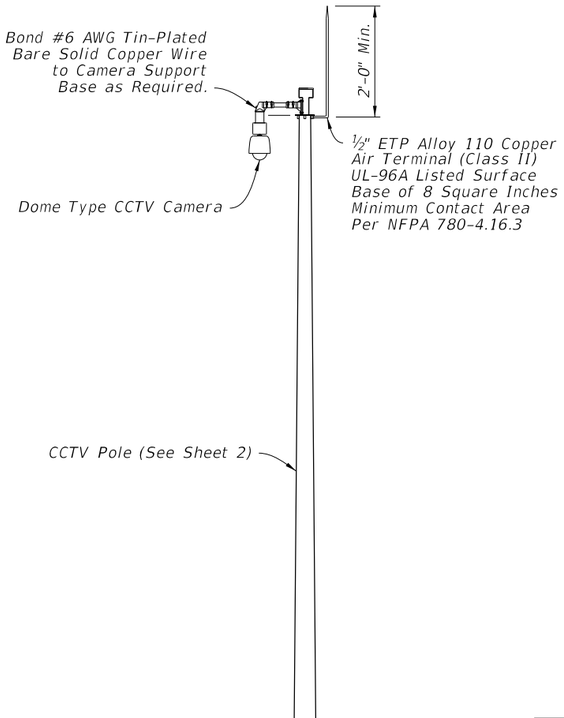
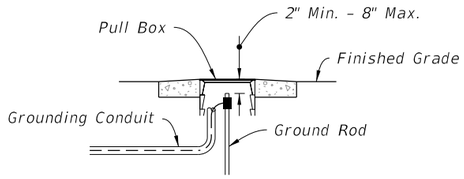
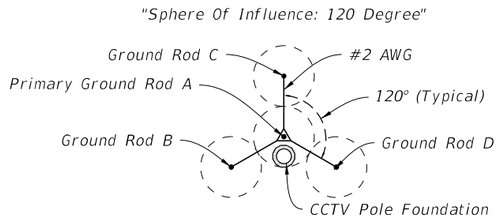
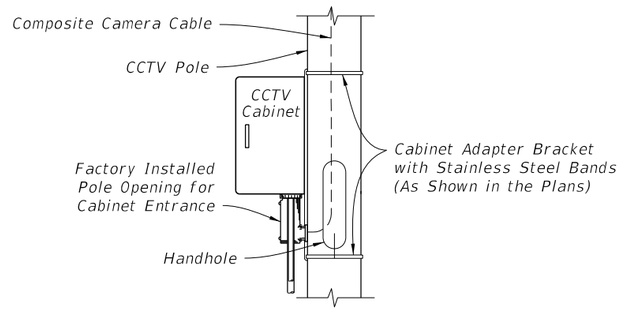




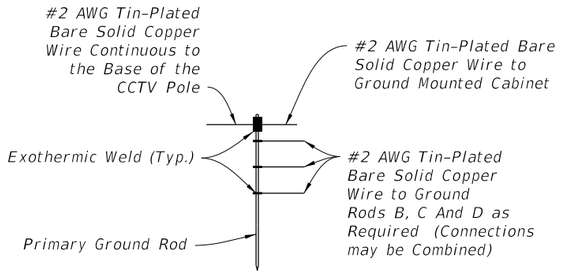
PULL BOX
DETAIL "B"



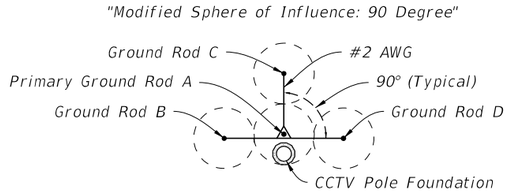
TYPICAL
(20' Rods, 40' Spacing)



SIDE VIEW

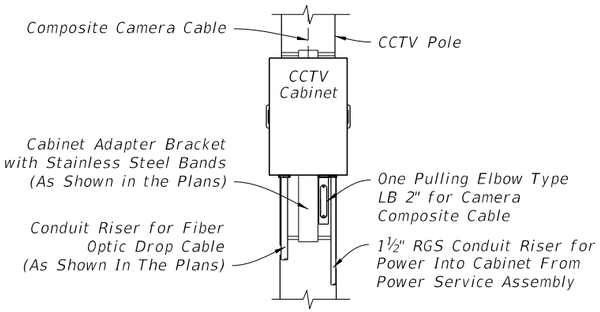


PRIMARY GROUND ROD ASSEMBLY
DETAIL "C"

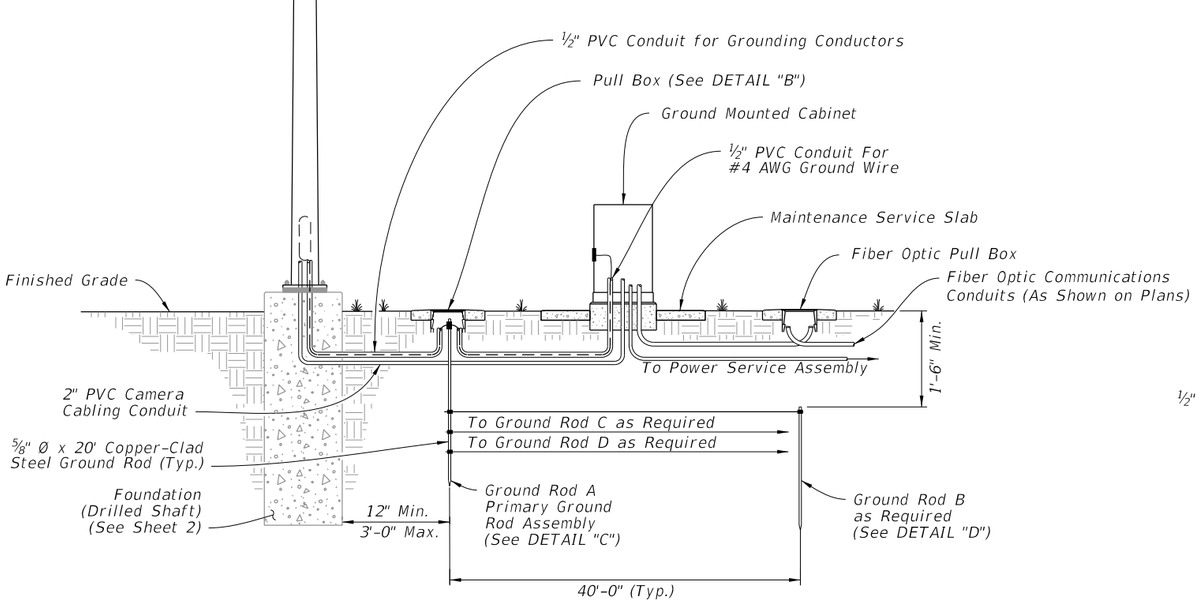


TYPICAL MODIFIED
(20' Rods, 40' Spacing)

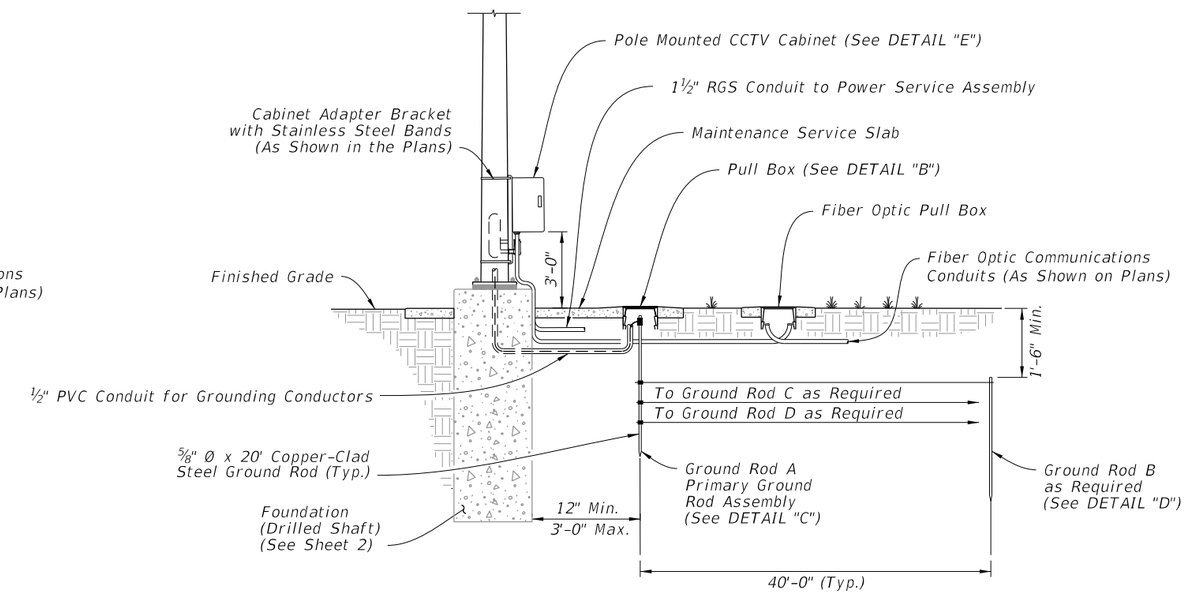
GROUND ROD ARRAY PLACEMENT
DETAIL "D"



FRONT VIEW
DETAIL "E"



GROUND MOUNTED CABINET



POLE MOUNTED CABINET

STEEL CCTV POLE GROUNDING

10/4/2023 2:39:17 PM

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ARM AND BASE PLATE

Arm ID Axx-ArmLength S-SingleArm D-DoubleArm H-HeavyDuty	Total Arm Length (ft)	Arm			Arm Extension			Base Plate		
		FA/SA (ft)	FC/SC (in)	FD/SD (in)	FE/SE (ft)	FG/SG (in)	FH/SH (in)	HT (in)	FJ/SJ (in)	FK/SK (in)
A30/S	30	30	11	0.25	--	--	--	22	25	3
A30/S/H			12							
A30/D			11					30	36	
A30/D/H			12							
A40/S	40	40	13	0.25	--	--	--	22	27	3
A40/S/H			14							
A40/D			13					30	36	
A40/D/H			14							
A50/S	50	32.5	12	0.25	20.5	14	0.313	22	29	3
A50/S/H			13			15				
A50/D			12			14		30	36	
A50/D/H			13			15				
A60/S	60	35.5	12	0.25	27.5	15	0.375	30	36	3
A60/S/H			13			16				
A60/D			12			15				
A60/D/H			13			16				
A70/S	70	38	13	0.25	35	17	0.375	30	36	3
A70/S/H			14			18				
A70/D			13			17				
A70/D/H			14			18				
A78/S	78	39	13	0.25	42	18	0.375	30	36	3
A78/S/H			15			20				
A78/D			13			18				
A78/D/H			15			20				

POLE, BASE PLATE AND ARM CONNECTION

Pole ID Px-PoleNo S-SingleArm D-DoubleArm L-Luminaire	Upright				Base Plate					Arm-Upright Connection							
	UA (ft)	UD (in)	UE (in)	UG (ft)	No. Bolts	BA (in)	BB (in)	BC (in)	BF (in)	HT (in)	FJ/SJ (in)	FL/SL (in)	FN/SN (in)	FO/SO (in)	FP/SP (in)	FR/SR (in)	FS/SS (in)	FT/ST (in)
P1/S	25	16	0.375	37.5	6	32	2.5	2	40	22	25	0.75	0.438	14	1.25	2	8.5	0.438
P1/S/L	39																	
P1/D	25									30	36			23		2.75	12.5	
P1/D/L	39			37.5														
P2/S	25	18	0.375	37.5	6	34	2.5	2	40	22	27	0.75	0.438	15	1.25	2	8.5	0.438
P2/S/L	39																	
P2/D	25									30	36			23		2.75	12.5	
P2/D/L	39			37.5														
P3/S	25	20	0.375	37.5	6	36	2.5	2	40	22	29	0.75	0.438	16	1.25	2	8.5	0.438
P3/S/L	39																	
P3/D	25									30	36			23		2.75	12.5	
P3/D/L	39			37.5														
P4/S	25	22	0.375	37.5	8	38	2.5	2	40	30	36	0.75	0.438	17	1.25	2.5	12.5	0.438
P4/S/L	39																	
P4/D	25													23				
P4/D/L	39			37.5														
P5/S	25	24	0.375	37.5	8	40	2.5	2	40	30	36	0.75	0.5	18	1.25	2.5	12.5	0.5
P5/S/L	39																	
P5/D	25													23				
P5/D/L	39			37.5														
P6/S	25	24	0.5	37.5	8	40	2.5	2	40	30	36	0.75	0.625	18	1.5	2.5	12	0.625
P6/S/L	39																	
P6/D	25													23				
P6/D/L	39			37.5														
P7/S	25	26	0.5	37.5	8	42	2.5	2	40	30	36	0.75	0.625	19	1.5	2.5	12	0.625
P7/S/L	39																	
P7/D	25													23				
P7/D/L	39			37.5														

DRILLED SHAFT

Drilled Shaft ID	DA (ft)	DB (ft)	RA	RB	RC	RD (in)	RE	RF (in)
DS/12/4.0	12	4.0	11	14	8	12	--	--
DS/12/4.5	12	4.5	11	16	8	12	--	--
DS/14/4.5	14	4.5	11	16	10	8	--	--
DS/14/5.0	14	5.0	11	18	10	8	--	--
DS/16/4.5	16	4.5	11	16	10	8	--	--
DS/16/5.0	16	5.0	11	18	10	8	--	--
DS/18/5.0	18	5.0	11	18	10	8	--	--
DS/20/5.0	20	5.0	11	18	10	6	10	9
DS/25/5.0	25	5.0	11	18	10	6	10	9

LUMINAIRE AND CONNECTION

LA (ft)	LB (ft)	LC (in)	LD (in)	LE	LF (ft)	LG (in)	LH (in)	LJ (in)	LK (in)	LL (deg)	UG (ft)
40	10	3	0.125	0.5	8	0.5	0.75	0.25	0.25	0	37.5

NOTE:

1. Work this Index with Index 649-031.

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LAST REVISION	REVISION	DESCRIPTION:				
11/01/22			FDOT FY 2024-25 STANDARD PLANS	STANDARD MAST ARM ASSEMBLIES	INDEX 649-030	SHEET 1 of 1

GENERAL NOTES:

1. Shop Drawings: This Index is considered fully detailed, only submit shop drawings for minor modifications not detailed in the Plans.

2. Prior to Fabrication: Verify the installed foundation elevation will result in the required signal elevation and adjust the Pole height as needed.

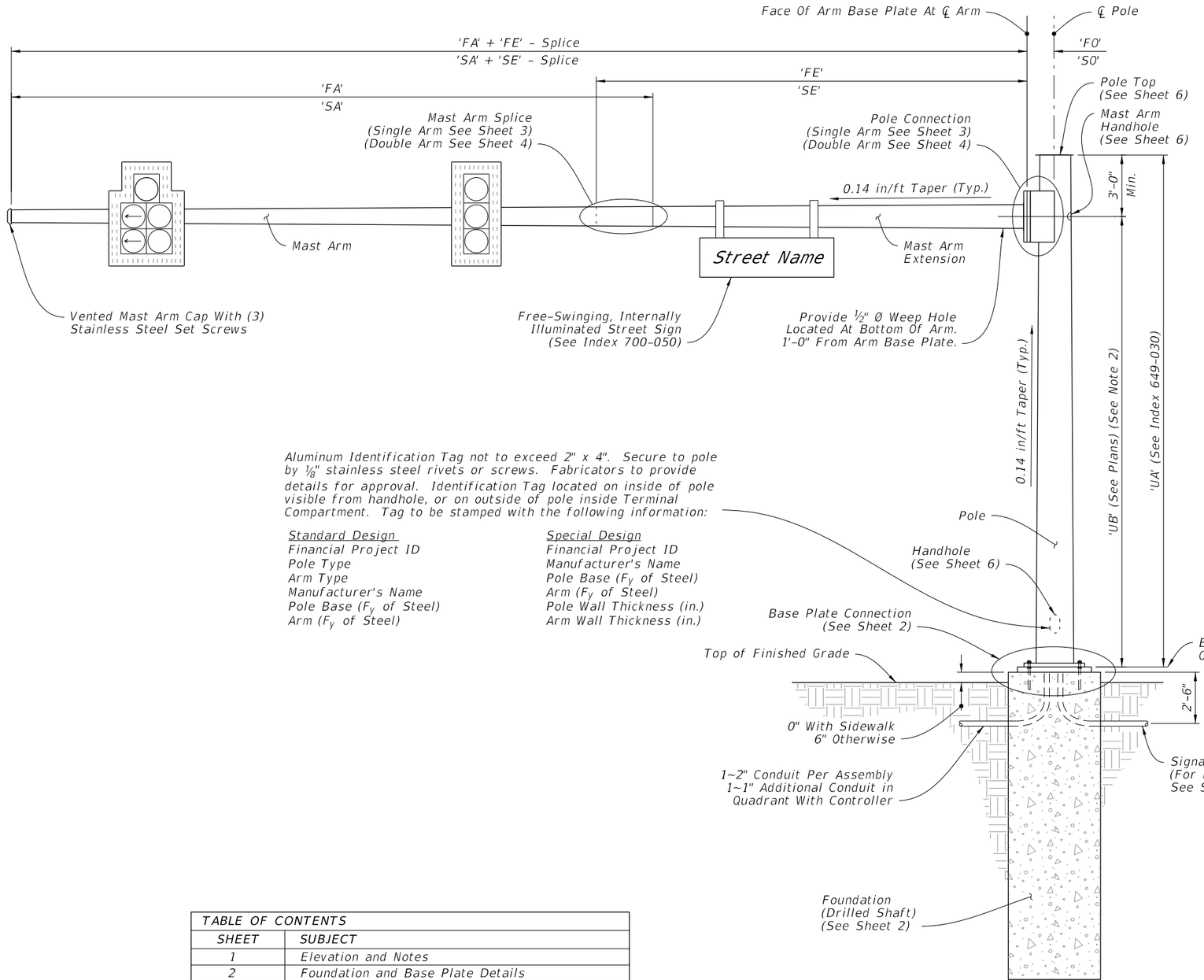
3. Details for Signal and Sign locations, Signal Head attachment, Sign attachment, Pedestrian Head attachment, and Foundation Conduit are not shown for simplicity.

4. Materials:
   - A. Poles, Mast Arms and Backing Rings:
     - a. Less than 3/16": ASTM A1011 Grade 50, 55, 60 or 65
     - b. Greater than or equal to 3/16": ASTM A572 Grade 50, 55, 60 or 65
     - c. ASTM A595 Grade A (55 ksi yield) or Grade B (60 ksi yield)
   - B. Steel Plates: ASTM A36
   - C. Weld Metal: E70XX
   - D. Bolts, Nuts and Washers:
     - a. High Strength Hex Head Bolts: ASTM F3125, Grade A325, Type 1
     - b. Nuts: ASTM A563 DH Heavy-Hex
     - c. Washers: ASTM F436 Type 1, one under turned element
   - E. Anchor Bolts, Nuts and Washers:
     - a. Anchor Bolts: ASTM F1554 Grade 55
     - b. Nuts: ASTM A563 Grade A Heavy-Hex (5 per anchor bolt)
     - c. Plate Washers: ASTM A36 (2 per bolt)
   - F. Threaded Bars/Studs: ASTM A36 or ASTM A307
   - G. Handhole Frame: ASTM A709 or ASTM A36, Grade 36
   - H. Handhole Cover: ASTM A1011 Grade 50, 55, 60 or 65
   - I. Pole Caps and Nut Covers: Fabricate from cast aluminum or galvanized carbon steel.
   - J. Stainless Steel Screws: AISI Type 316
   - K. Concrete: Class IV (Drilled Shaft) for all environmental classifications.
   - L. Reinforcing Steel: Specification 415

5. Fabrication:
   - A. Welding:
     - a. Specification 460-6.4 and
     - b. AASHTO LRFD Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals Section 14.4.4
   - B. Poles and Mast Arms:
     - a. Round or 12-sided (Min.)
     - b. Taper pole diameter at 0.14 inches per foot
     - c. Upright poles must be a single section. For arms and upright poles, circumferential welds and laminated sections are not permitted.
     - d. Arms may be either one or two sections. See Sheet 4 for telescopic splice detail
     - e. Fabricate longitudinal seam welds with 60 percent minimum penetration or fusion welds except:
       1. Use a complete joint penetration weld within 6 inches of the circumferential tube-to-plate connection.
       2. Use complete joint penetration welds on the female end section of telescopic (i.e., slip type) field splices for a minimum length of one and one-half times the inside diameter of the female section plus 6 inches.
     - f. Locate longitudinal seams weld along the:
       1. Lower quadrant of the arms.
       2. Same side of the pole as the arm connections
     - g. Face handhole perpendicular from arm on single arm poles, perpendicular from the first arm of double arms poles facing away from traffic or see special instructions on the Mast Arm Tabulation Sheet.
     - h. Provide a 'J' or 'C' hook at the top of the pole for signal wiring support (See Sheet 6)
     - i. First and Second arm camber angle = 2°
     - j. Bolt holes diameters as follows:
       1. Bolts (except Anchor bolts): Bolt diameter plus 1/16" prior to galvanizing.
       2. Anchor Bolts: Bolt diameter plus 1/2" (Max.).

6. Coatings:
   - A. All Nuts, Bolts, Washers and Threaded Bars/Studs: ASTM F2329
   - B. All other steel items including plate washers ASTM A123

7. Construction:
   - A. Foundation: Specification 455 Drilled Shaft, except that payment is included in the cost of the Mast Arm.
   - B. Install Pole vertically.
   - C. Place structural grout pad with drain between top of foundation and bottom of baseplate in accordance with Specification 649-7.
   - D. Attach Sign Panels and Signals centered on the elevation of the Mast Arm.
   - E. Wire Access holes are 1½" or less in diameter.



Single Arm Shown, Double Arm Similar
(Luminaire Arm Not Shown)

MAST ARM ASSEMBLY

Aluminum Identification Tag not to exceed 2" x 4". Secure to pole by 1/8" stainless steel rivets or screws. Fabricators to provide details for approval. Identification Tag located on inside of pole visible from handhole, or on outside of pole inside Terminal Compartment. Tag to be stamped with the following information:

Standard Design	Special Design
Financial Project ID	Financial Project ID
Pole Type	Manufacturer's Name
Arm Type	Pole Base (F_y of Steel)
Manufacturer's Name	Arm (F_y of Steel)
Pole Base (F_y of Steel)	Pole Wall Thickness (in.)
Arm (F_y of Steel)	Arm Wall Thickness (in.)

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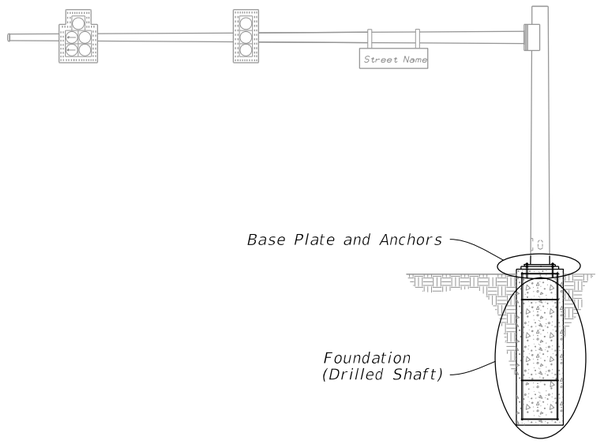
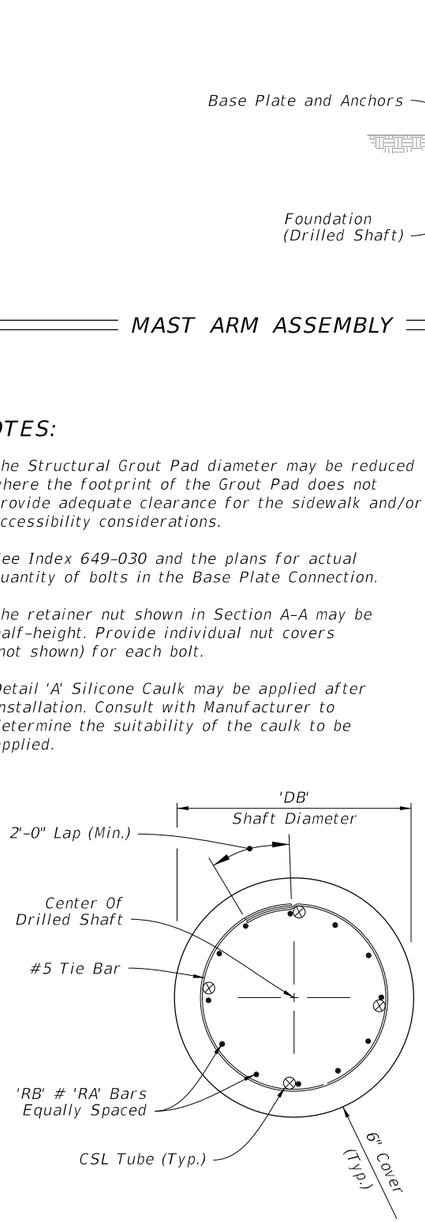
ELEVATION AND NOTES



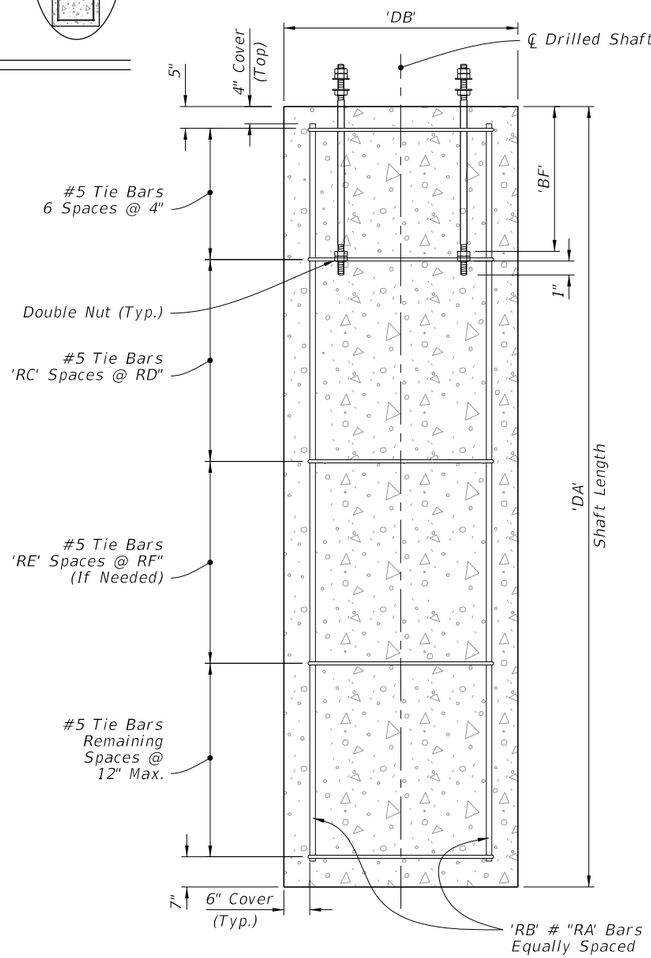
MAST ARM ASSEMBLY

NOTES:

1. The Structural Grout Pad diameter may be reduced where the footprint of the Grout Pad does not provide adequate clearance for the sidewalk and/or accessibility considerations.
2. See Index 649-030 and the plans for actual quantity of bolts in the Base Plate Connection.
3. The retainer nut shown in Section A-A may be half-height. Provide individual nut covers (not shown) for each bolt.
4. Detail 'A' Silicone Caulk may be applied after installation. Consult with Manufacturer to determine the suitability of the caulk to be applied.

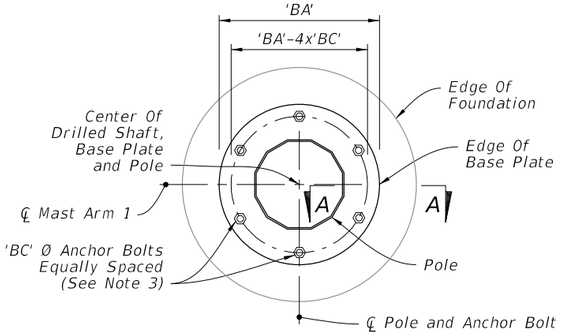


PLAN

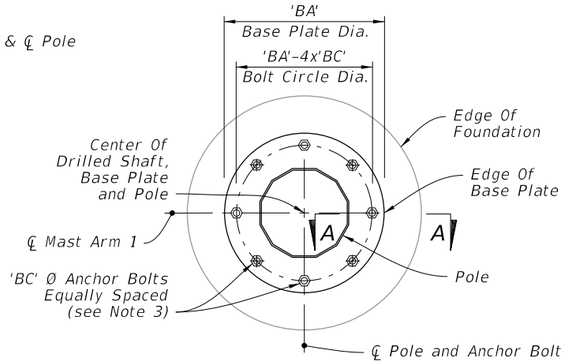


ELEVATION

FOUNDATION

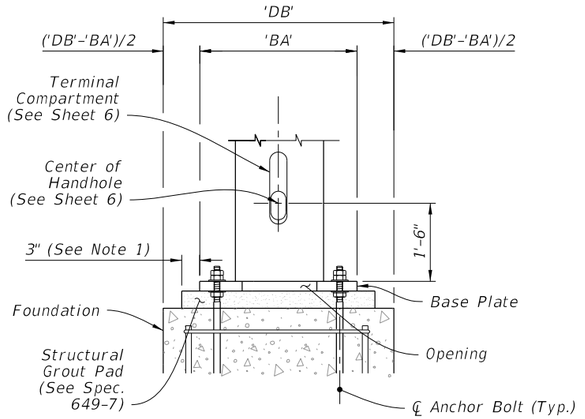


(6 Anchor Bolts)



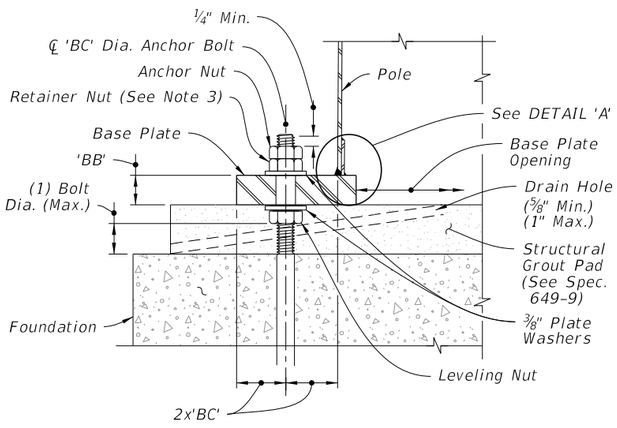
(8 Anchor Bolts)

PLAN

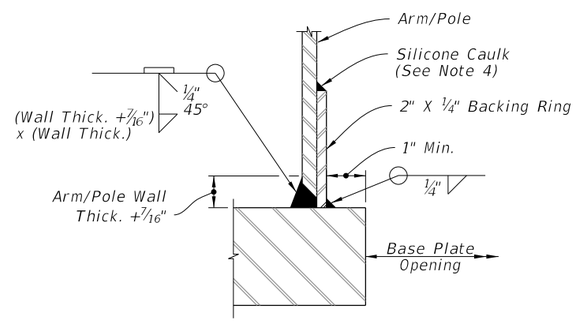


ELEVATION
(Back Face Shown)

BASE PLATE CONNECTION



SECTION A-A



JOINT WELD DETAIL

DETAIL 'A'

FOUNDATION AND BASE PLATE DETAILS

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11/01/23			FY 2024-25 STANDARD PLANS	MAST ARM ASSEMBLIES	INDEX 649-031	SHEET 2 of 6

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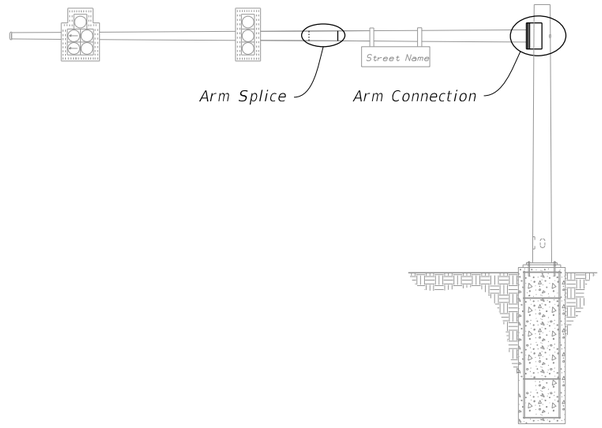
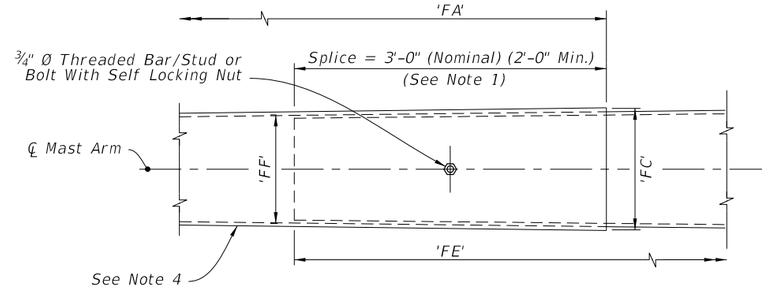


MAST ARM ASSEMBLY



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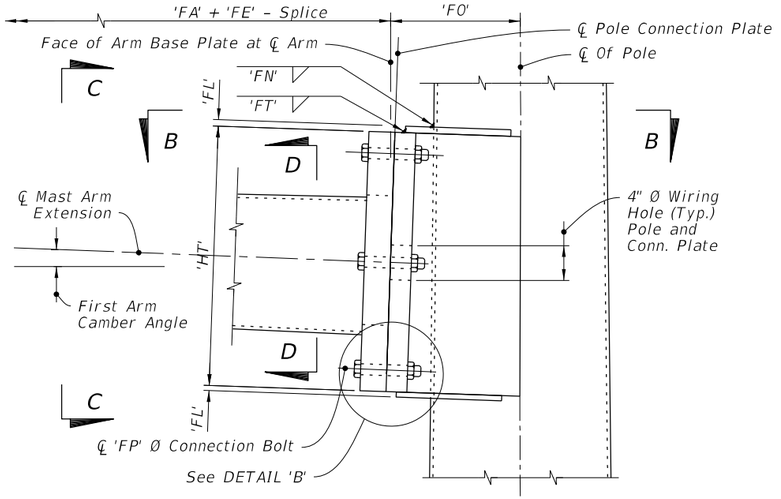

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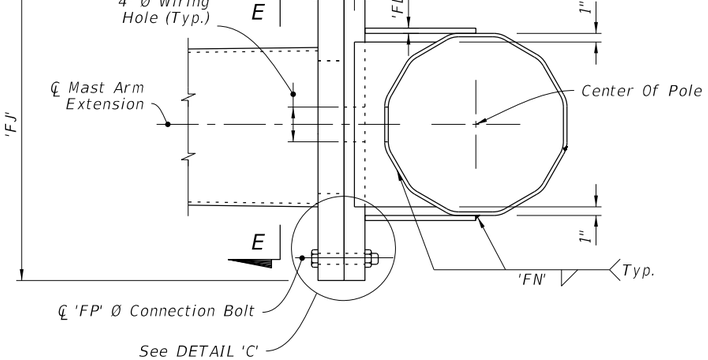

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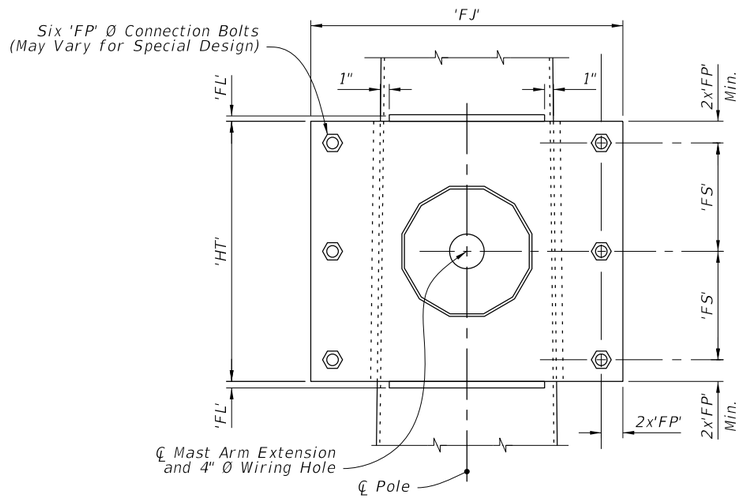

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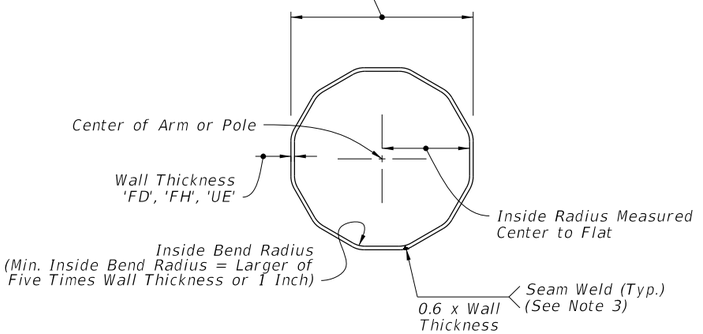

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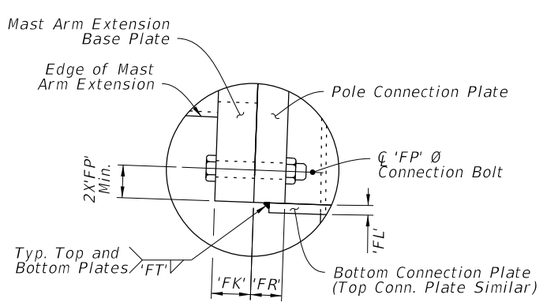

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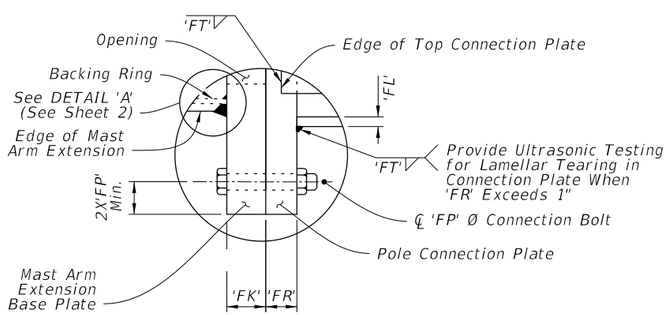

DETAIL 'C'

NOTES:

1. Install the 'Slip Joint' splice with a tight fit and no change in the Mast Arm taper due to the splice.
2. Details shown on this sheet are for 12 sided pole sections. However, sections with more than 12 sides and round sections are permitted provided outside diameter and wall thickness are not reduced.
3. Match mark the Arm and Connection Plates to ensure proper assembly and the seam weld is in the proper location (seam located at the bottom side of the Arm).
4. On the outer mast arm section, the manufacturer may increase both the tip diameter and the base diameter of the female section of the splice by up to ⅛" to meet the required 2'-0" minimum lap splice.

SINGLE ARM CONNECTIONS & SPLICE DETAILS

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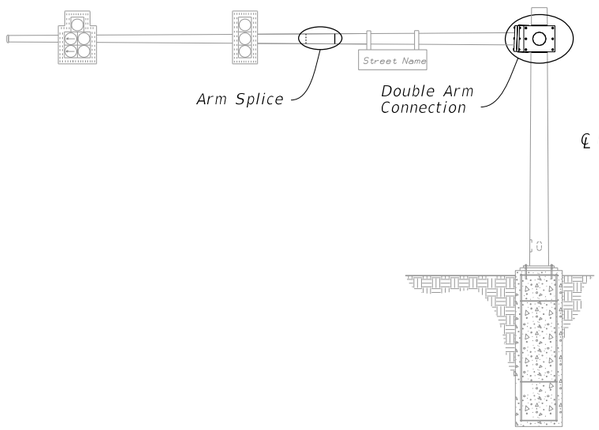
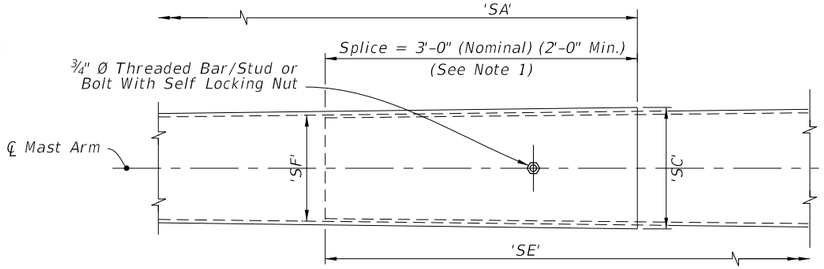
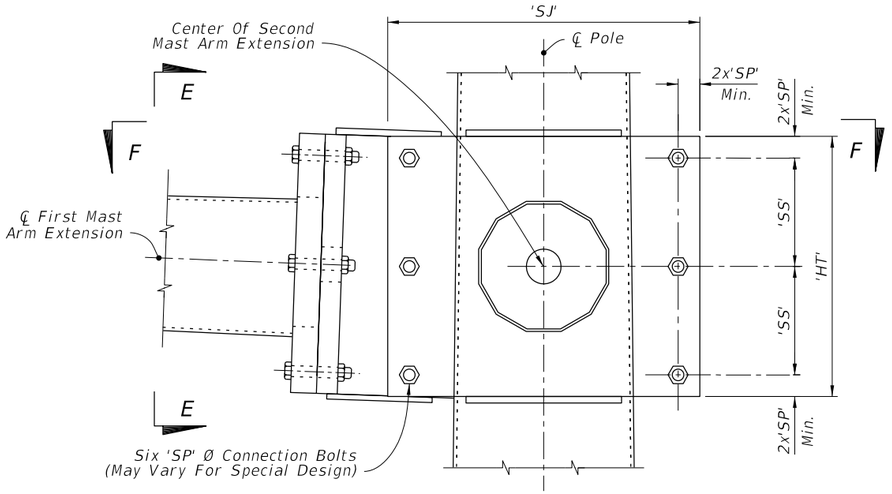


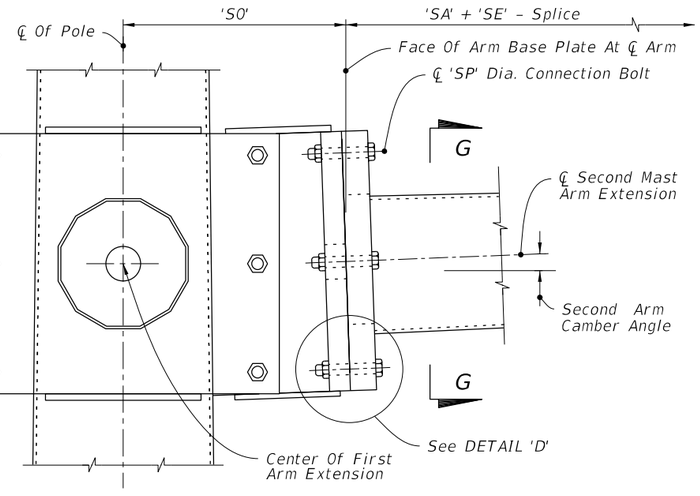
MAST ARM ASSEMBLY



ARM SPLICE



DOUBLE ARM CONNECTION



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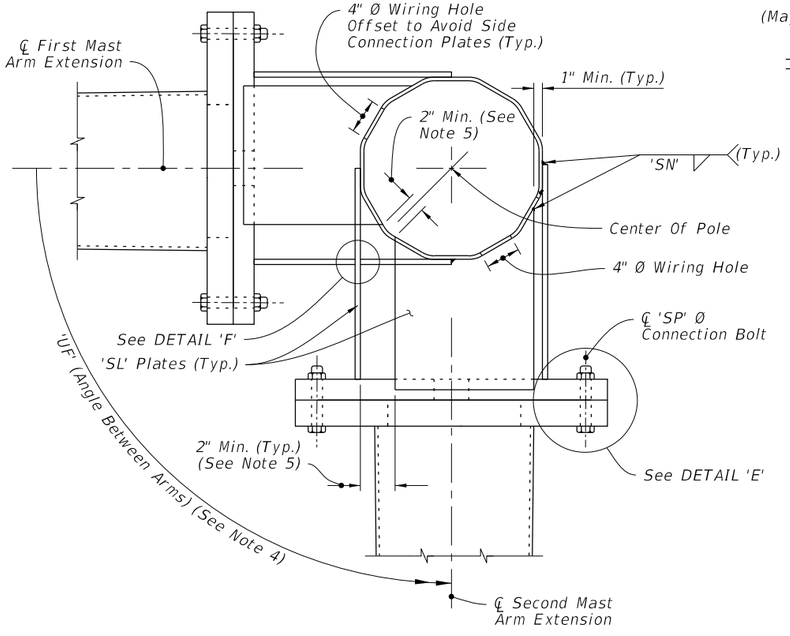

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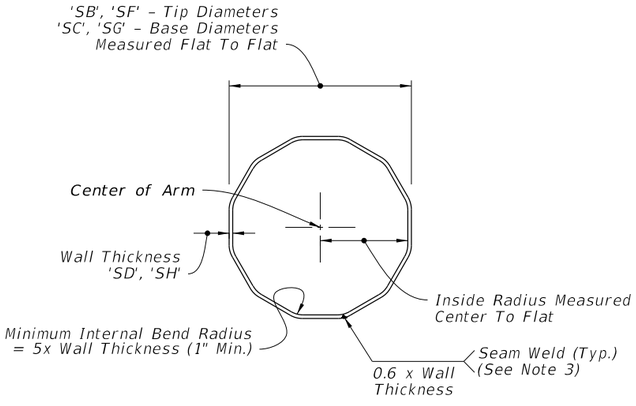

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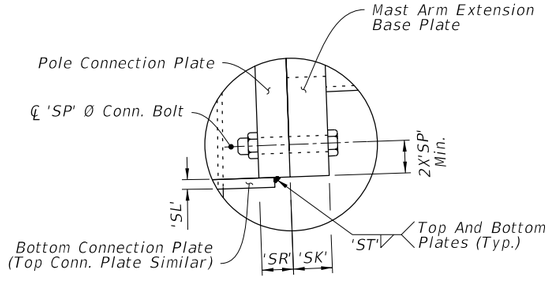

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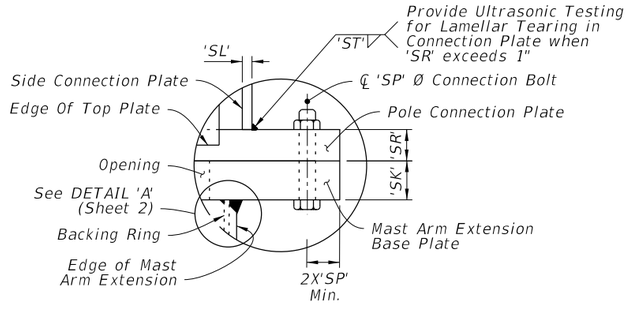

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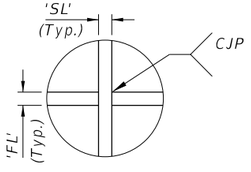

DETAIL 'F'

NOTES:

1. Install the 'Slip Joint' splice with a tight fit and no change in the Mast Arm taper due to the splice.
2. Details shown on this sheet are for 12 sided pole sections. However, sections with more than 12 sides and round sections are permitted provided outside diameter and wall thickness are not reduced.
3. Match mark the Arm and Connection Plates to ensure proper assembly and the seam weld is in the proper location (seam located at the bottom side of the Arm).
4. 'UF' measured counter clockwise from ℄ First Mast Arm Extension.
5. Adjust width of top and bottom Connection Plates to maintain minimum clearance shown.

DOUBLE ARM CONNECTIONS & SPLICE DETAILS

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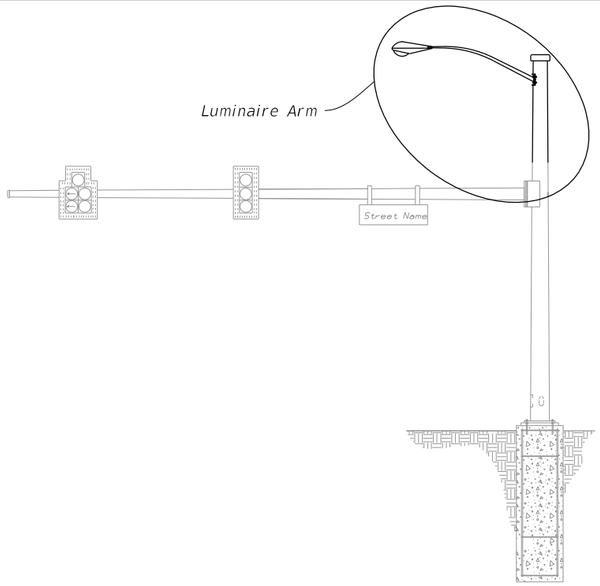
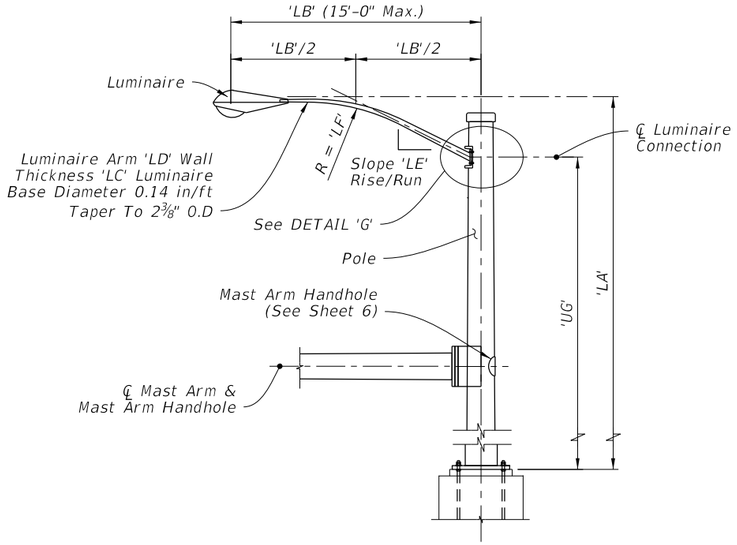
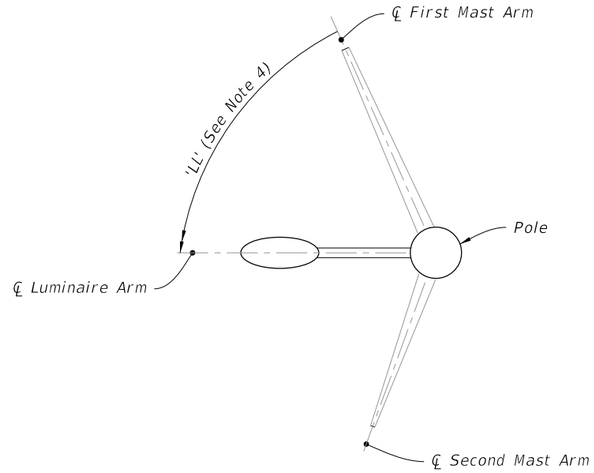


MAST ARM ASSEMBLY



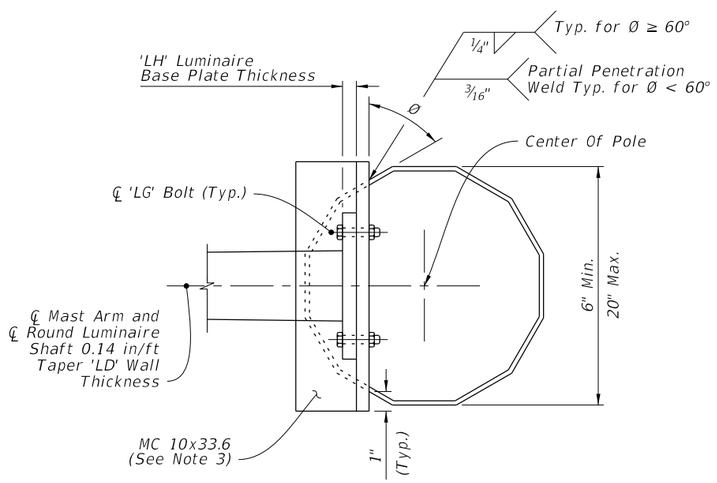
LUMINAIRE ELEVATION



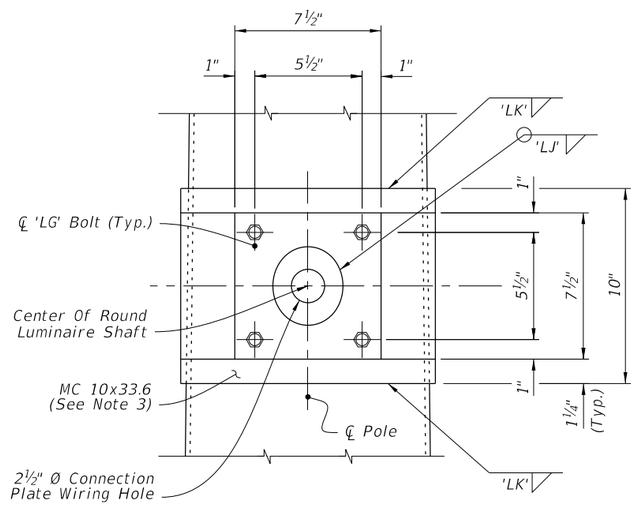
LUMINAIRE ORIENTATION

NOTES:

1. Galvanized steel luminaire type and luminaire length may be found in the Lighting Plans.
2. Align Luminaire Arm with Single Mast Arm or First Arm of Double Mast Arm unless indicated otherwise in the plans.
3. The fabricator may substitute a ½" thick bent plate with the same flange width, height, and length as the MC 10x33.6 Channel section.
4. 'LL' measure counter clockwise from First Mast Arm.



SECTION H-H



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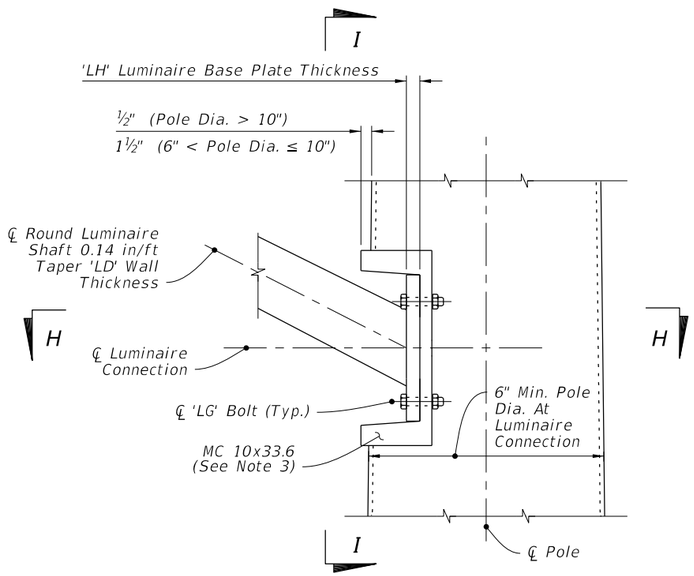

LUMINAIRE CONNECTION ELEVATION

DETAIL 'G'

LUMINAIRE ARM AND CONNECTION DETAILS

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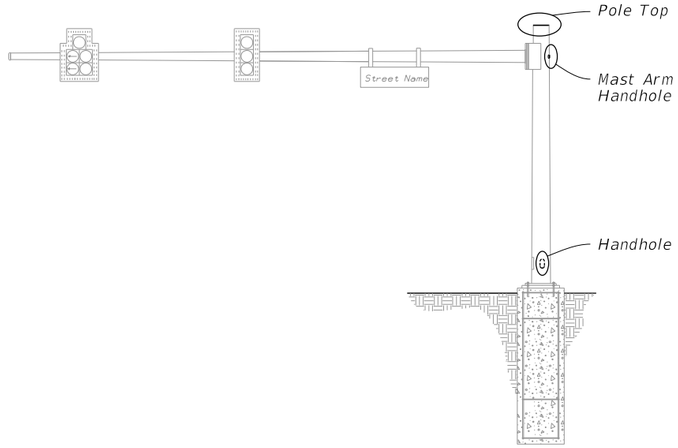
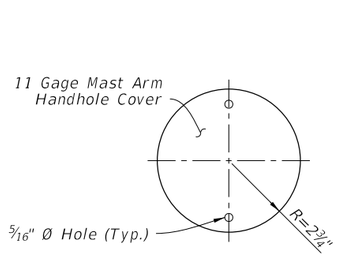


MAST ARM ASSEMBLY

NOTES:

1. Handhole covers may be omitted when Terminal Compartment is provided.
2. See Mast Arm Tabulation sheet to see if Terminal Compartment is required and for locations.
3. Terminal Compartment Frame Height 2'-0" minimum to 2'-6" maximum. Align bottom of Terminal Compartment a minimum of 1" below the bottom of the Handhole Frame.
4. Any combination of Option 'a' or 'b' may be used, provided both lifting and wiring is accommodated. Cap may be flat plate or domed cap with set screws.
5. An alternate terminal compartment frame detail is allowed where the compartment frame is of constant depth and cuts into the pole at the frame top and bottom but lays flush with the pole on the frame sides. The frame is then welded to the pole using fillet welds all around the outside.



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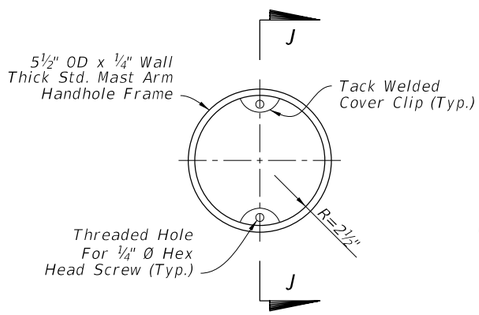

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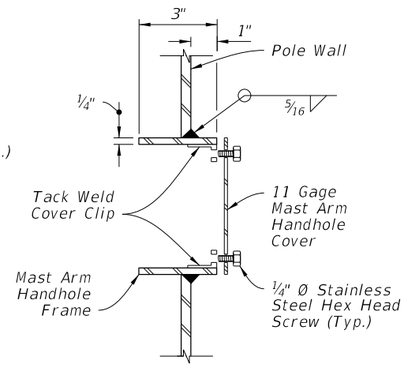
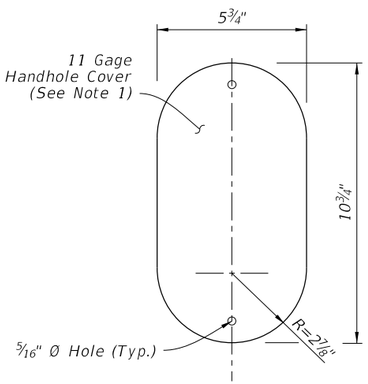


SECTION J-J

MAST ARM HANDHOLE



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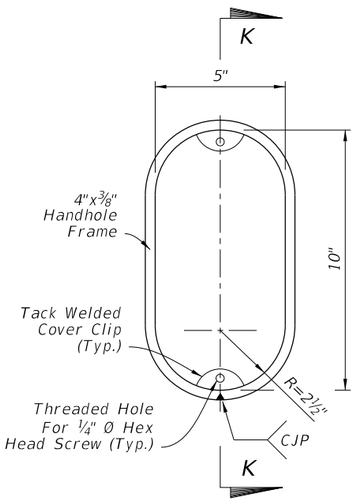

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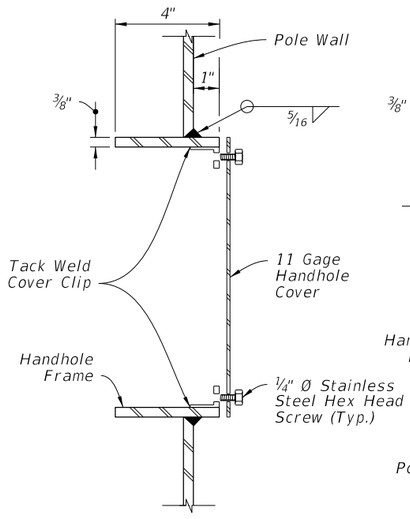
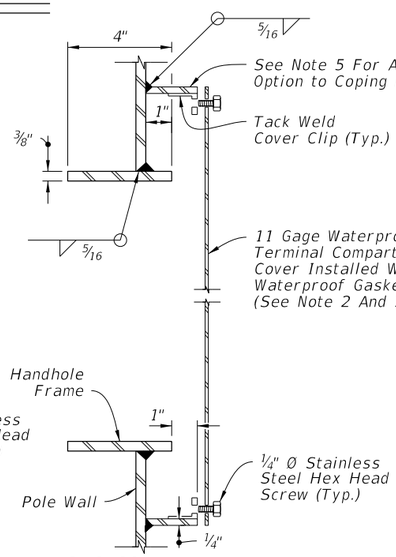
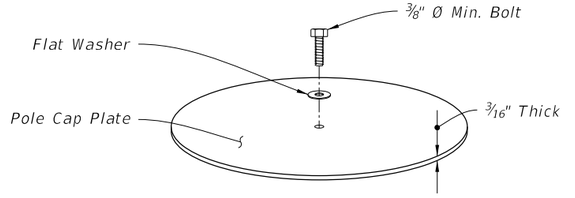


SECTION K-K
(Thru Handhole)

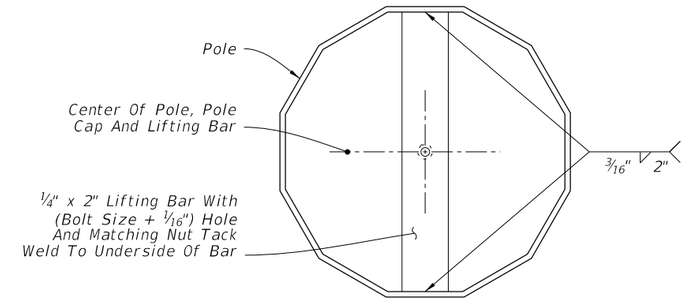


SECTION K-K
(Terminal Compartment)

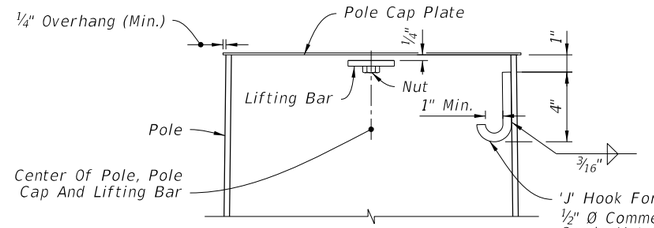
HANDHOLE



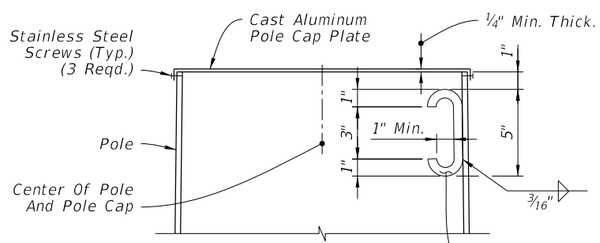
ISO VIEW
(Option 'a')



TOP VIEW
(Option 'a')



CUT-AWAY
(Option 'a')



CUT-AWAY
(Option 'b')

POLE TOP

HANDHOLE AND POLE TOP DETAILS

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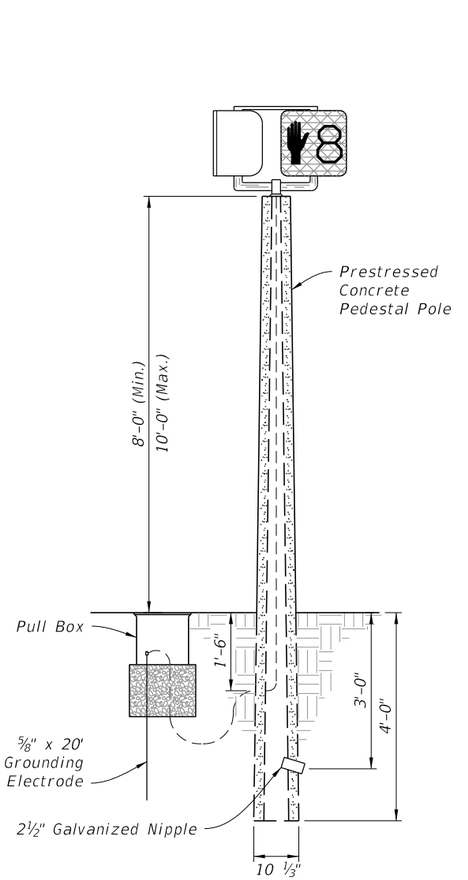
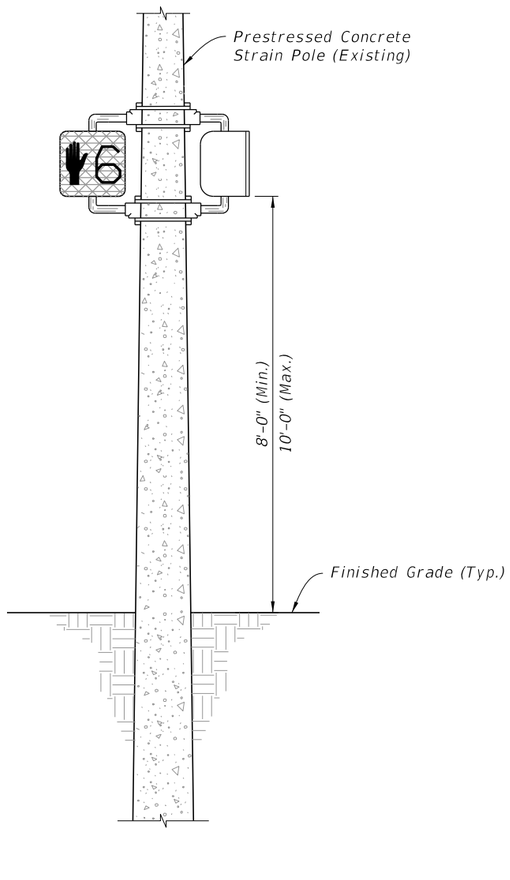
LAST REVISION	REVISION	DESCRIPTION:				
11/01/23			FDOT FY 2024-25 STANDARD PLANS	MAST ARM ASSEMBLIES	INDEX 649-031	SHEET 6 of 6

NOTES:

1. As an option, pedestrian signals may be installed on concrete poles and pedestals using lead anchors (two bolts same size per hub) in lieu of the stainless steel bands.
2. Repair drilled or punched holes in galvanized steel poles or pedestals in accordance with Specification 562. Install grommets or bushings in each hole.
3. Meet grounding requirements of Specification 620.
4. See APL for Department-approved Pedestrian Signal Assemblies and hardware.
5. For Prestressed Concrete Poles see Index 641-010.
6. For Steel Strain Poles see Index 649-010.
7. For Pedestal Mounted Signal posts and foundations see Index 646-001

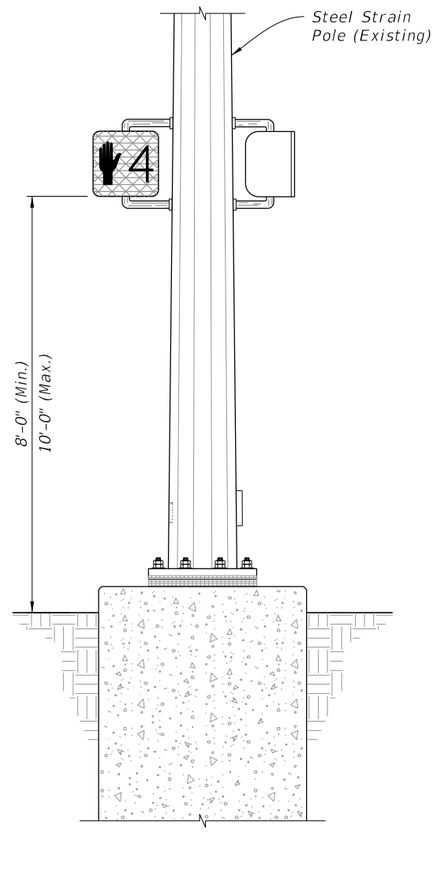


NEW CONSTRUCTION

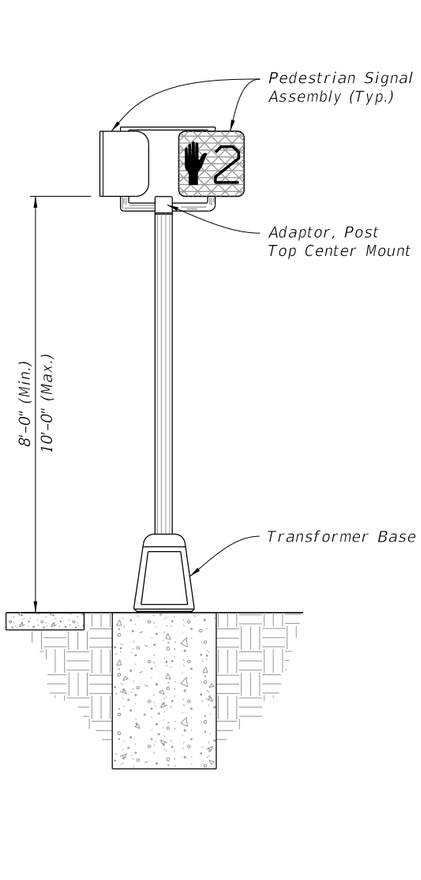


EXISTING CONSTRUCTION

CONCRETE POLE MOUNTED SIGNAL



STRAIN POLE MOUNTED SIGNAL



PEDESTAL MOUNTED SIGNAL

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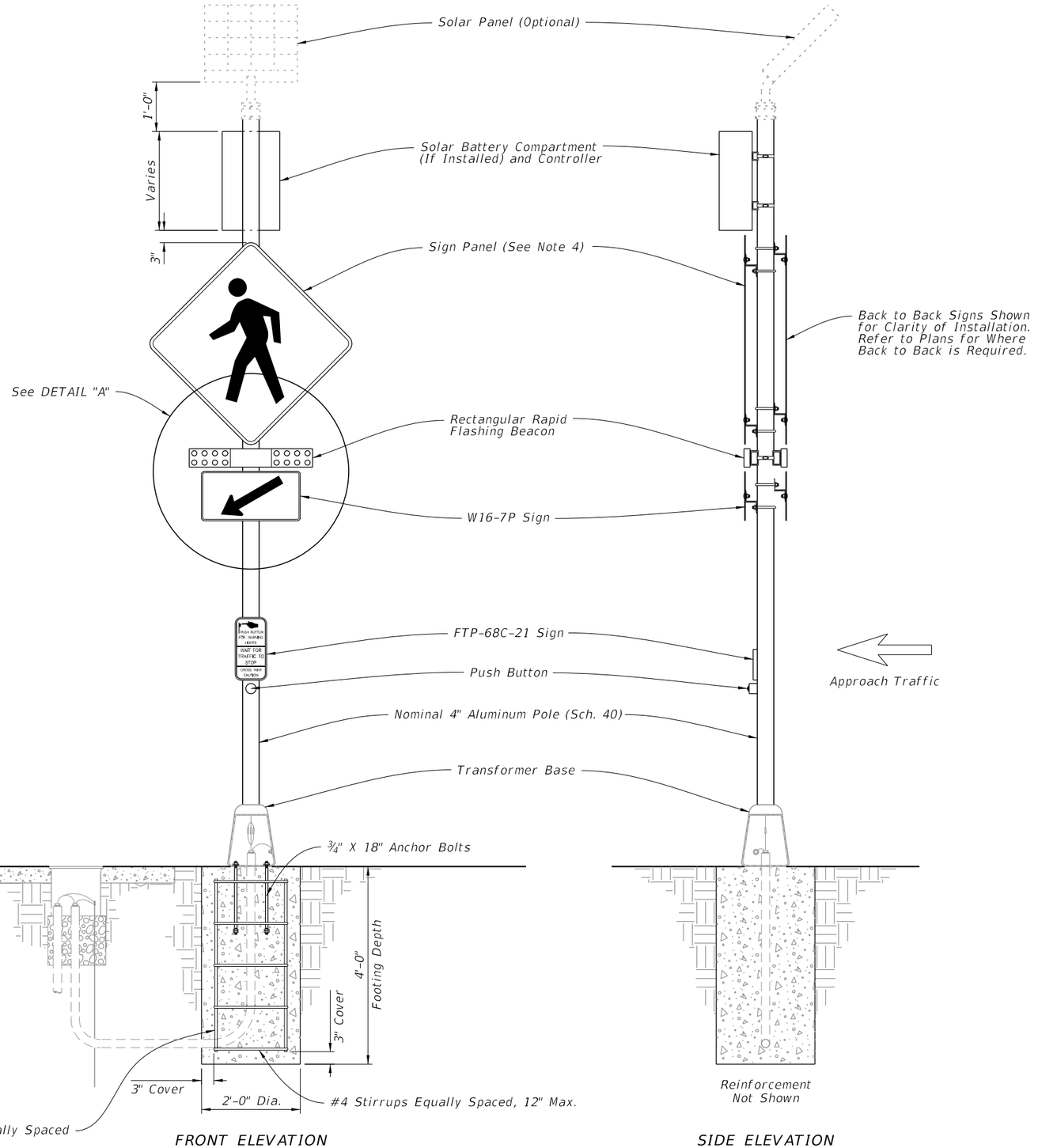
LAST REVISION	REVISION	DESCRIPTION:				
11/01/20			FDOT FY 2024-25 STANDARD PLANS	PEDESTRIAN CONTROL SIGNAL INSTALLATION DETAILS	INDEX 653-001	SHEET 1 of 1



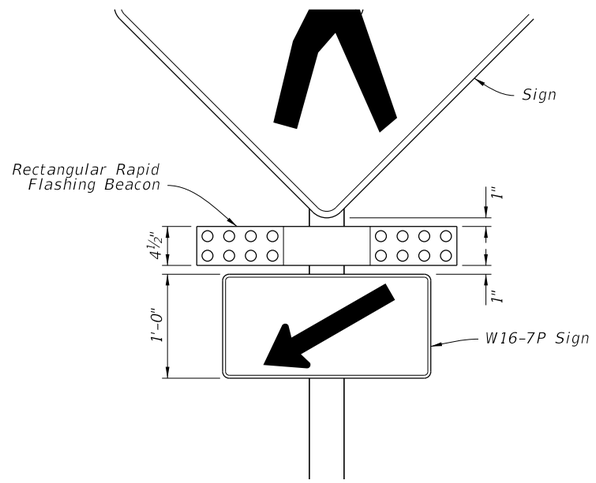
FRONT ELEVATION

SIDE ELEVATION

ADJACENT TO SIDEWALK

NOTES:

1. A transformer base is required for both conventionally-powered and solar-powered applications. Install pull box, conduit, wiring, and grounding in accordance with Index 700-120 based on the powering configuration called for in the Plans.
2. Install the RRFB in pairs, one on either side of approach traffic.
3. Install controller on the backside of post from approach traffic.
4. W11-2 sign panel shown, others similar. Use 30" X 30" sign panels for two-lane roadways and 36" X 36" sign panels on multilane roadways.
5. Install push button and FTP-68C-21 sign in accordance with Index 665-001.
6. Engage all threads on the transformer base and post unless the aluminum post is fully seated into base.
7. Meet the requirements of Specification 646.
8. Install a concrete slab around all pull boxes. The minimum slab dimension is 4'-0" by 4'-0". In urban areas where space is limited slab dimensions may be adjusted as shown in the Plans.
9. For assemblies connected to conventional power, provide single pole non-fused watertight breakaway electrical connectors in the frangible transformer base.
10. When wire entry holes are drilled in the sign column, use a bushing or rubber grommet to protect conductors.
11. For solar-powered applications, orient solar panel to face South for optimal exposure to sunlight.
12. In lieu of footing design shown, a Spread Footing may be used in accordance with Index 700-120.



DETAIL "A"

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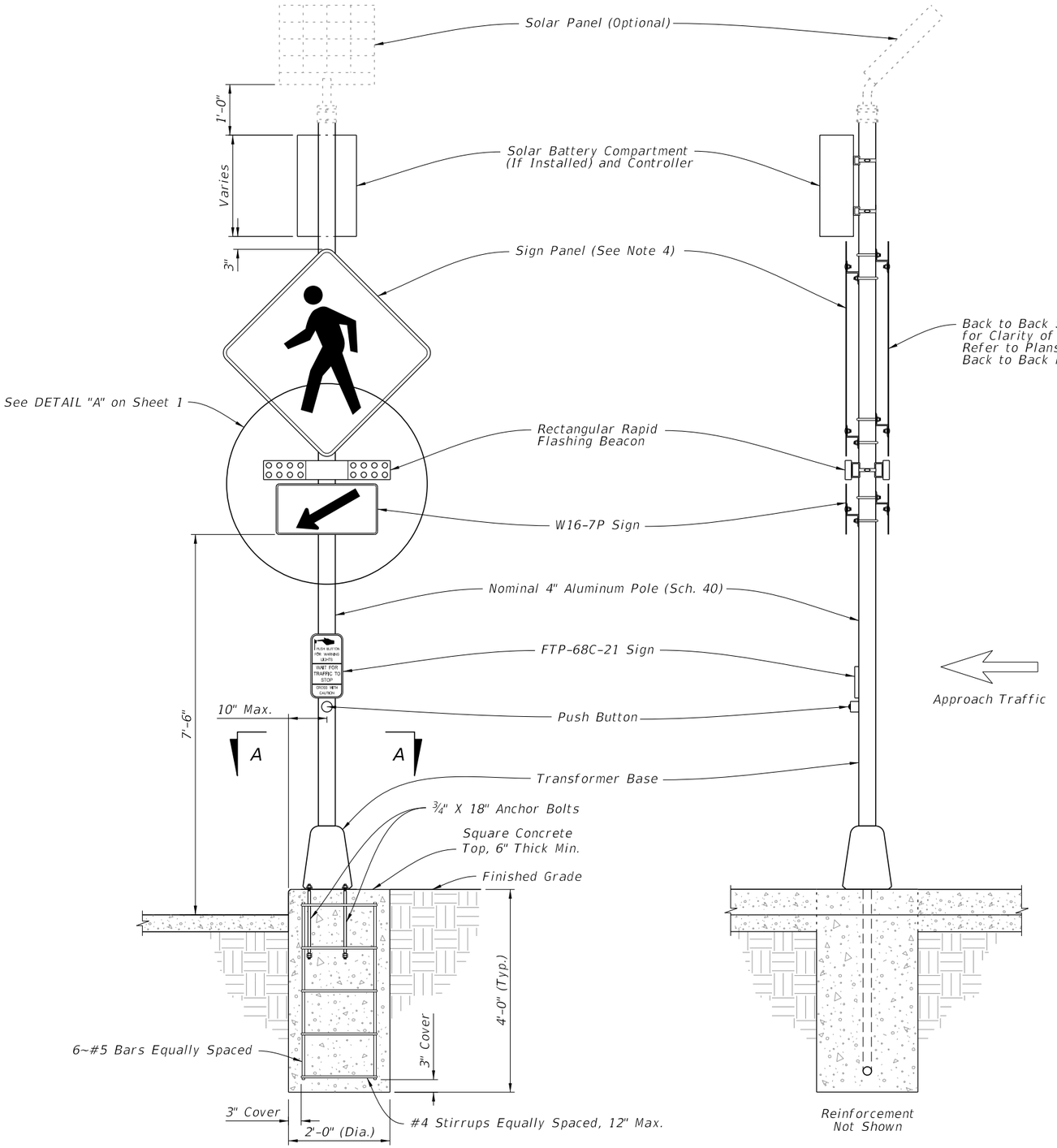
LAST REVISION	REVISION	DESCRIPTION:
11/01/23		

FDOT FY 2024-25 STANDARD PLANS

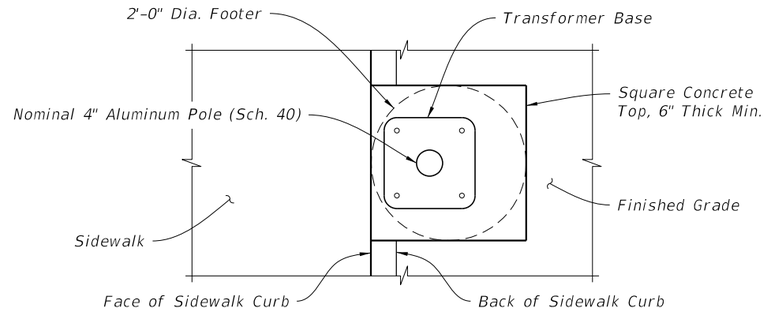
RECTANGULAR RAPID FLASHING BEACON ASSEMBLY

INDEX 654-001



SIDE ELEVATION

FRONT ELEVATION



PLAN VIEW

IN SIDEWALK CURB

SECTION A-A

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LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	RECTANGULAR RAPID FLASHING BEACON ASSEMBLY	INDEX	SHEET
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NOTES:

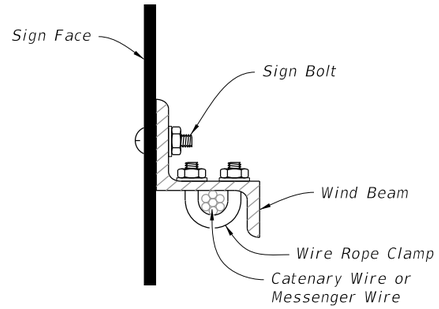
1. Materials:
   A. Sign panels, wind beams and associated hardware: See Index 700-020
   B. Sign adjustable hangers, wire rope clamps and associated hardware: See APL
   C. Wire and additional hardware requirements: See Specification 634

2. Type B and C Attachments:
   A. Extend wind beams to within 6" of the sign edge.
   B. Number of sign hangers required based on sign width:
      a. Sign width < 4'-0": One
      b. 4'-0" ≤ sign width ≤ 8'-0" : Two
   C. Number of wind beams required based on sign depth:
      a. Sign depth < 3'-6": One
      b. 3'-6" ≤ Sign depth ≤ 7'-0": Two

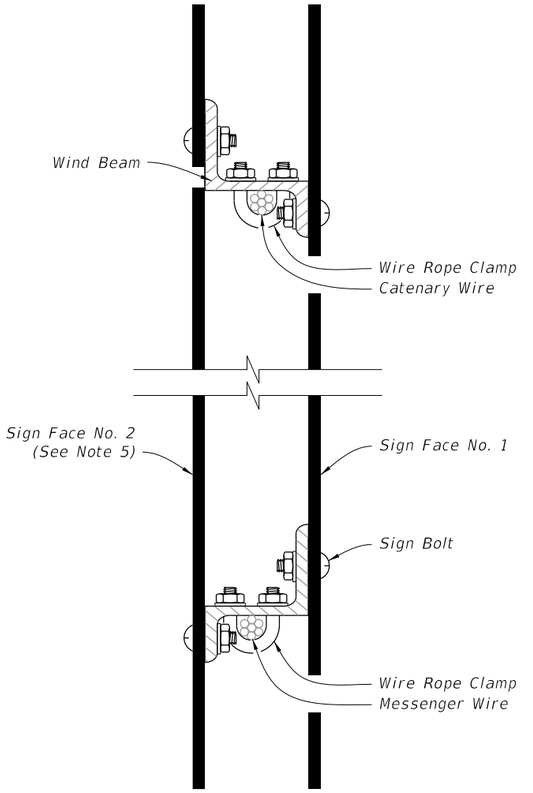
3. Type D Attachments:
   Maximum sign width = 3'-0"

4. Align the bottom edges of signs to approximately the same elevation.

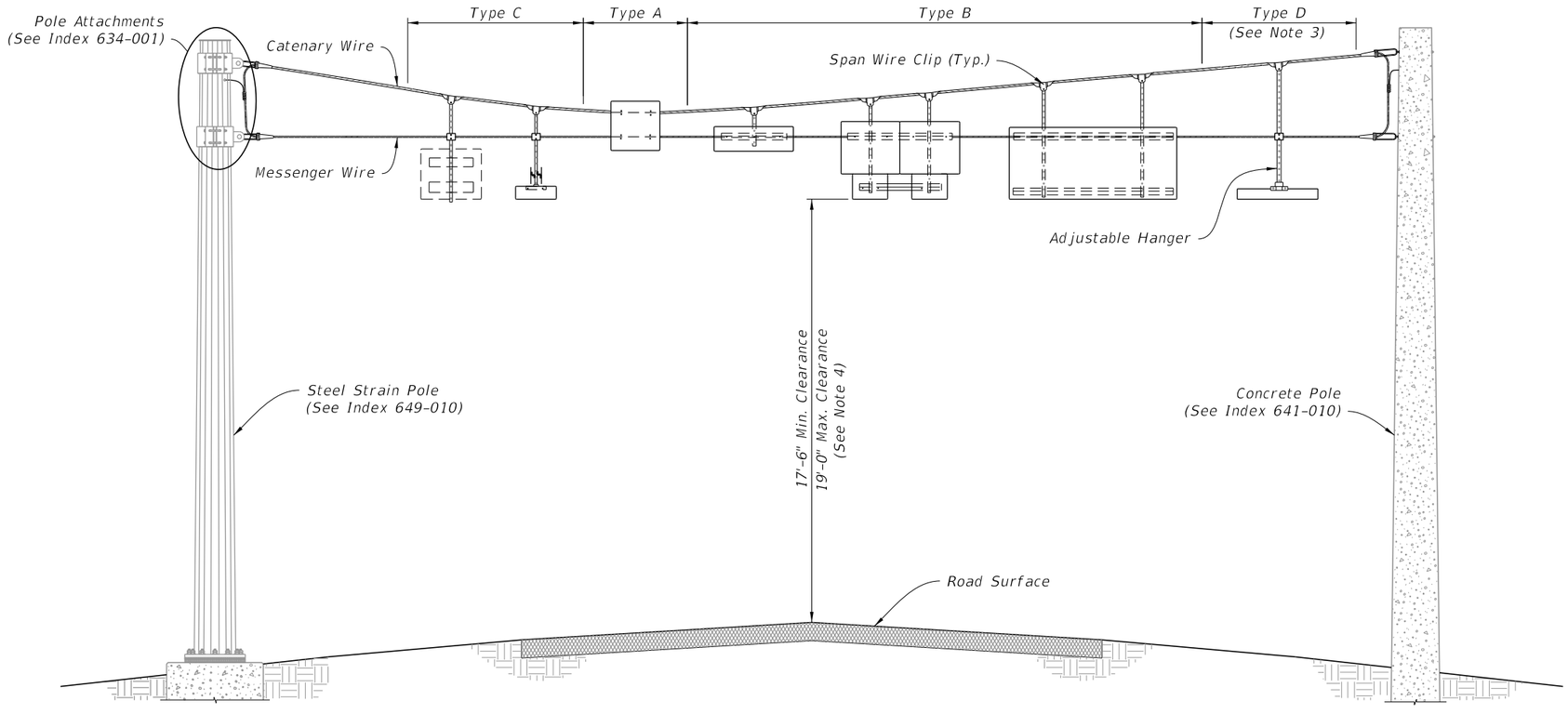
5. Use a minimum of 2 bolts with a minimum spacing of 2" for overlapped connection of the adjustable hangers.



SIGN MOUNTING DETAIL



OPPOSING SIGN MOUNTING DETAIL



TYPICAL INSTALLATIONS FOR SIGN PANEL(S) MOUNTED ON SPAN WIRE

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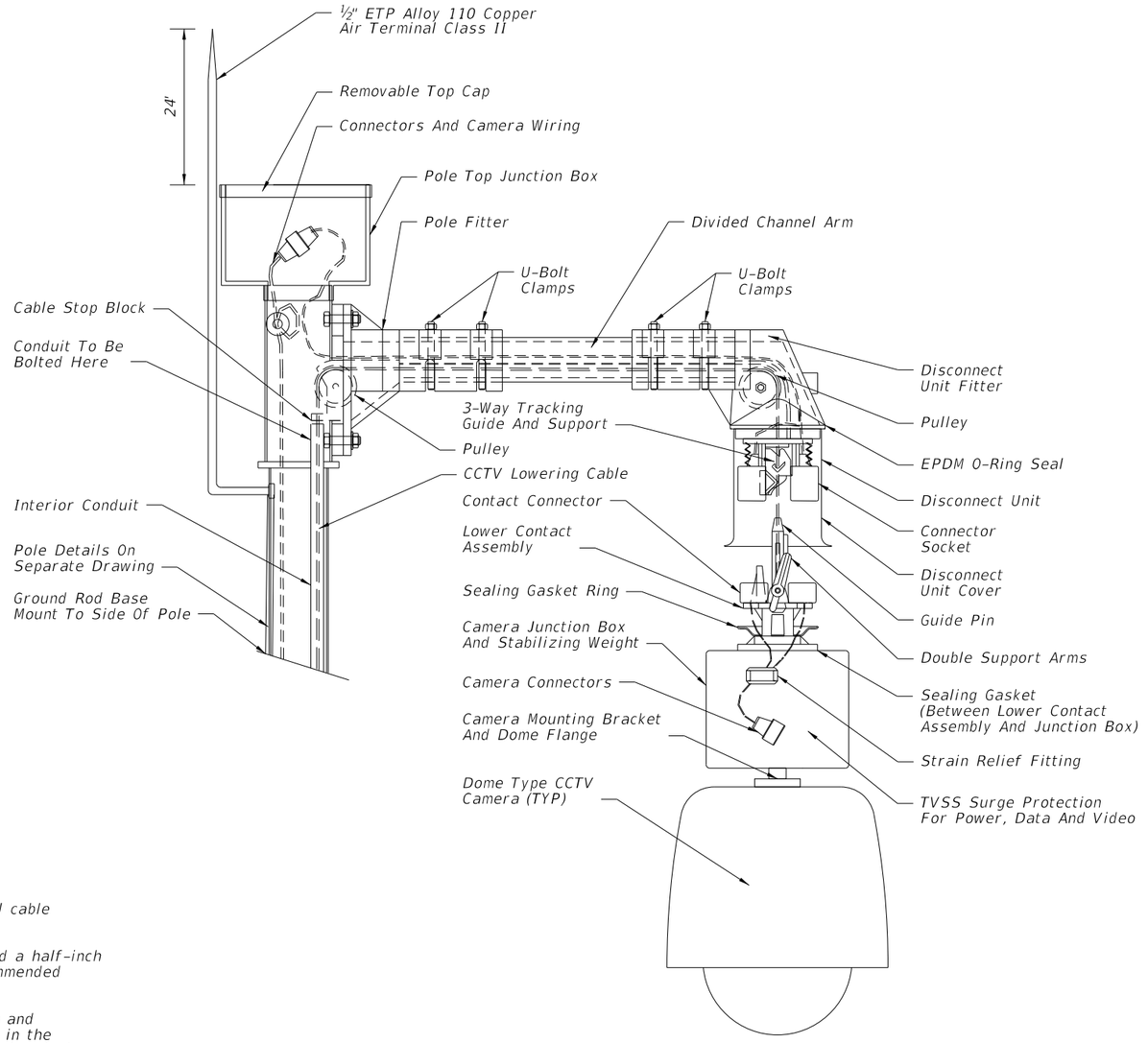
LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2024-25 STANDARD PLANS	SPAN WIRE MOUNTED SIGN DETAILS	INDEX	SHEET
11/01/21					659-010	1 of 1

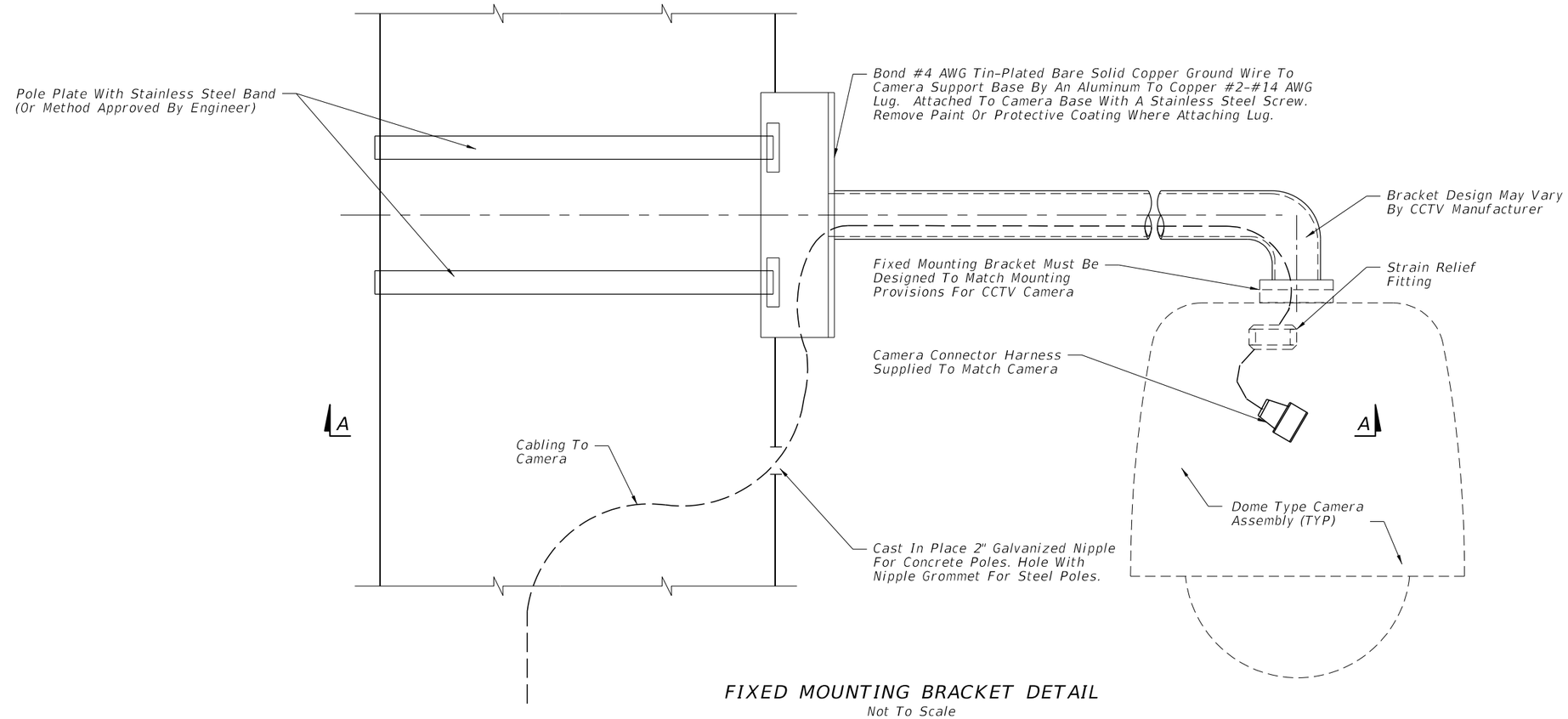


CAMERA LOWERING DEVICE DETAIL

GENERAL NOTES:

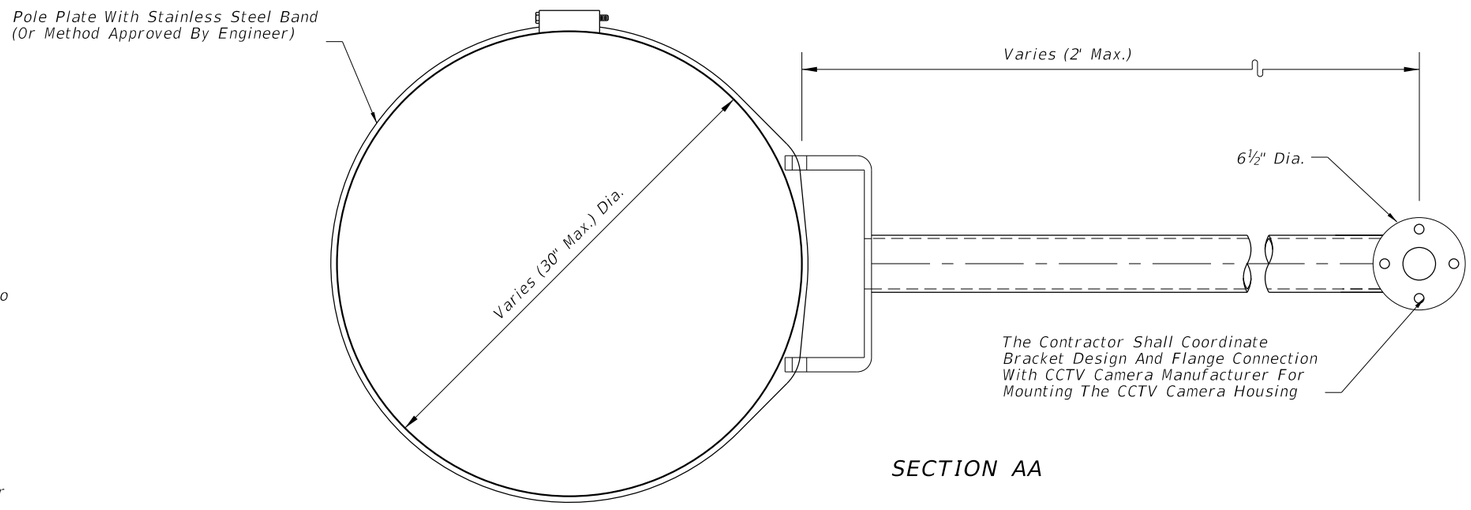
1. Lowering device to be shipped ready for pole attachment to include 100 ft. of composite power and signal cable prewired to lowering device at the factory.
2. The lowering device manufacturer shall supply both a portable lowering tool with a manual hand crank and a half-inch chuck variable-speed reversible industrial-duty electric drill that matches the winch's manufacturer-recommended revolutions per minute. One lowering tool per every 10 lowering devices is required.
3. The lowering device manufacturer shall provide an on-site installation inspection and operator instruction and certification. This ensures the product is assembled correctly and that all necessary persons are trained in the proper, safe operation of the system. Before erecting the first pole the contractor must contact the lowering device supplier and schedule a manufacturer's representative to be on-site.
4. Design camera mounting arm and connection to tenon according to FDOT Structures Manual (current edition).
5. Camera to be mounted to camera junction box and stabilizing weight via 1½" Standard NPT Pipe Thread.
6. Use air terminal extension when the pole top junction box is wider than top of pole.
7. The stainless steel device lowering cable shall be installed inside the pole within a 1 ¼" diameter PVC conduit.
8. All communication and power cables must be neatly bundled and secured.
9. Use a Camera Lowering Device listed on the Approved Product List (APL).
10. See Index 641-020 for concrete pole details and Index 649-020 for steel pole details.

CAMERA MOUNTING WITH LOWERING DEVICE



FIXED MOUNTING BRACKET DETAIL

Not To Scale



SECTION AA

GENERAL NOTES:

1. Verify the pole type, the dimensions of the pole at the point of installation of the camera mount, and angle with respect to the roadway before manufacturing camera mount assembly.
2. Design camera mounting arm and connection to the pole according to FDOT Structures Manual (current edition).
3. No field welding shall be permitted.
4. Mounting bracket arm shall be level after installation.
5. The contractor shall submit shop drawings for the proposed fixed mounting arm, signed and sealed by a Professional Engineer registered in the State of Florida, to the Engineer for review and approval.
6. See Index 641-020 for concrete pole details and Index 649-020 for steel pole details.
7. Galvanized pipe connections and conduit entry points shall be sealed in accordance with Specification 630.

CAMERA MOUNTING WITH FIXED BRACKET

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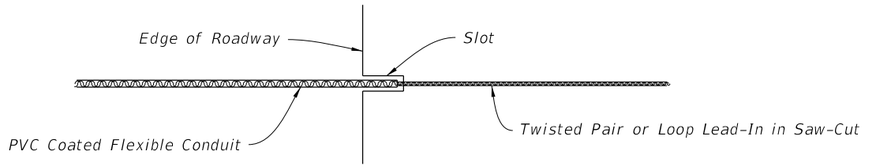
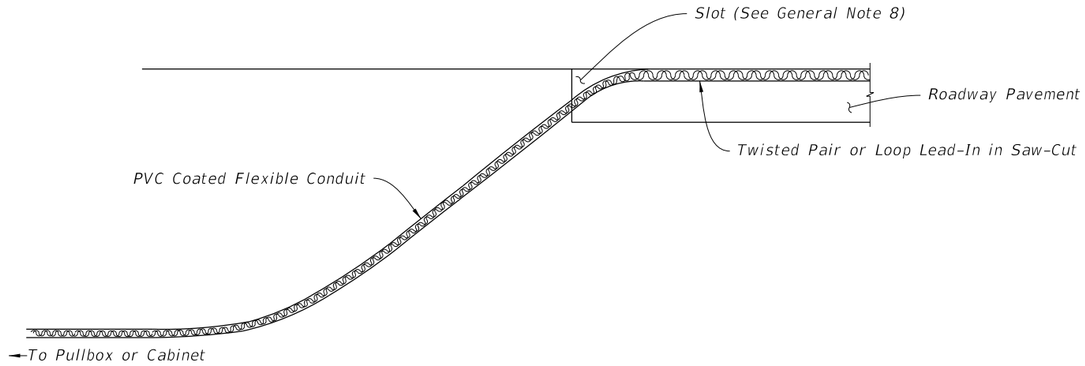
GENERAL NOTES:

1. If the loop lead-in is 75' or less from the edge of the loop detector to controller cabinet, continue the twisted pair to the cabinet. If the loop lead-in is greater than 75' continue the twisted pair an Intermediate Pullbox, splice to shielded lead-in wire and continue to the controller cabinet.
2. Provide sufficient saw-cut width to allow unforced placement of loop wires or lead-in cables into the saw-cut. Except across expansion joints, saw-cut to a standard depth of 3", but no more than 4" below the top of the final surface.
3. On resurfacing or new roadway construction projects, install the loop wires and lead-in cables in the asphalt structural course prior to the placement of the asphalt friction course. Place the loop wires and lead-in cables in a saw cut in the structural course.
4. Use nonmetallic hold down material to secure loop wires and lead-ins to the bottom of saw-cuts. Place the hold down material approximately 12" intervals around loops and 24" intervals on lead-ins.
5. The minimum distance between the twisted pairs of loop lead-in wire is 6" from the loop to 12" from the pavement edge or curb.
6. Splice Connections in pull boxes with UL listed, watertight, insulated enclosures. Place one enclosure over the end of each conductor and place a third enclosure over the exposed end of the shielded cable. As an alternate, a larger diameter enclosure that will accommodate both the splices of the conductors and the exposed end of the shielded cable may be used.
7. Do not disturb more than a 6" x 6" area of asphalt. Restore asphalt as directed by the Engineer.
8. Alternative installations may be approved by the State Traffic Operations Engineer.



PLAN

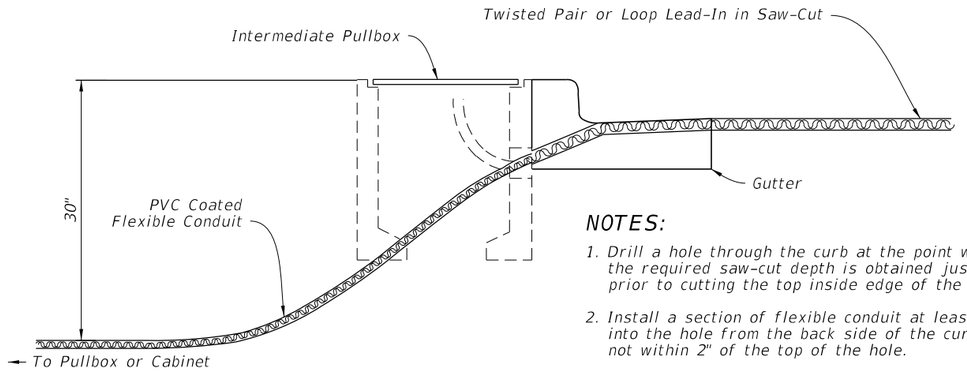


ELEVATION

NOTES:

1. Cut a slot in the edge of the roadway of sufficient size and depth to snugly place the end of the flexible conduit.
2. Install the conduit at least 6" into the roadway pavement and approximately 2" below the top of the roadway surface.
3. The departure angle of the conduit from the roadway is between 30° to 45°.

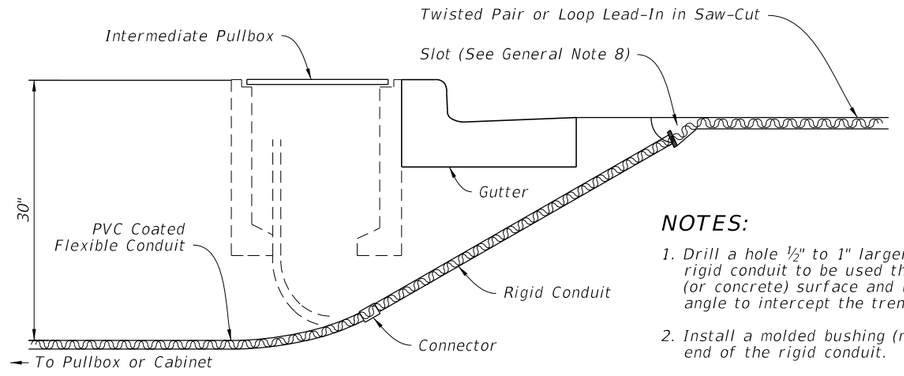
INSTALLATION WITHOUT CURB & GUTTER



NOTES:

1. Drill a hole through the curb at the point which the required saw-cut depth is obtained just prior to cutting the top inside edge of the curb.
2. Install a section of flexible conduit at least 6" into the hole from the back side of the curb but not within 2" of the top of the hole.
3. Insure the conduit fits snug within the drilled hole.
4. Fill the top of the hole with loop sealant to the level of the curb surface.
5. Use a nonmetallic material to prevent excessive loop sealant from entering the flexible conduit.

ALTERNATIVE 1



NOTES:

1. Drill a hole ½" to 1" larger in diameter than the rigid conduit to be used through the roadway asphalt (or concrete) surface and base at an appropriate angle to intercept the trench or pull box hole.
2. Install a molded bushing (nonmetallic) on the roadway end of the rigid conduit.
3. Place the top of the rigid conduit approximately 2" below the roadway surface.
4. Fill the hole with loop sealant to the level of the roadway surface.
5. Use a nonmetallic material to prevent excessive loop sealant from entering the rigid conduit.

ALTERNATIVE 2

INSTALLATION WITH CURB & GUTTER

TWISTED PAIR AND LOOP LEAD-IN INSTALLATION

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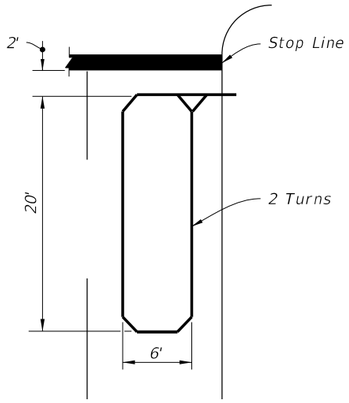
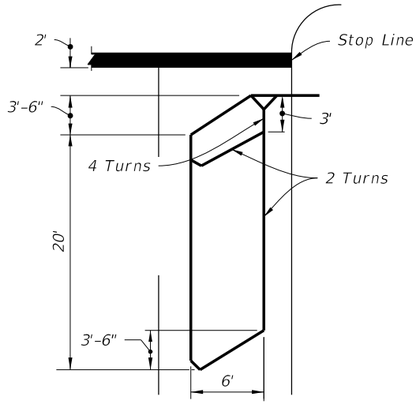
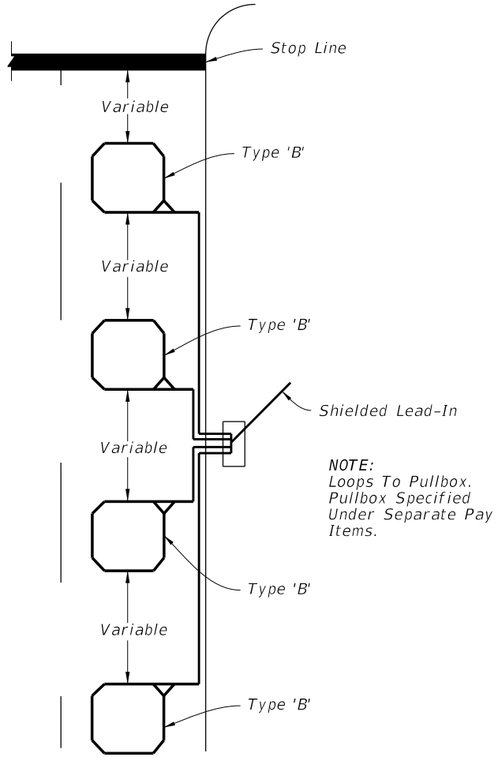
11/01/18			FDOT FY 2024-25 STANDARD PLANS	VEHICLE LOOP INSTALLATION DETAILS	INDEX 660-001	SHEET 1 of 2



TYPE A

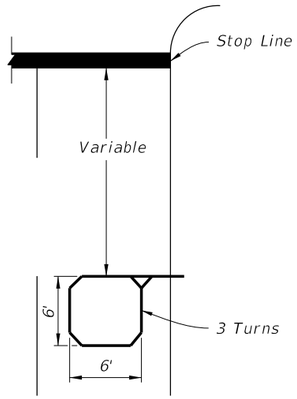


TYPE D

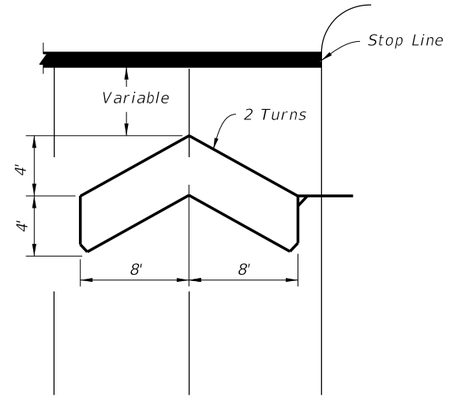


NOTE:
Loops To Pullbox.
Pullbox Specified
Under Separate Pay
Items.

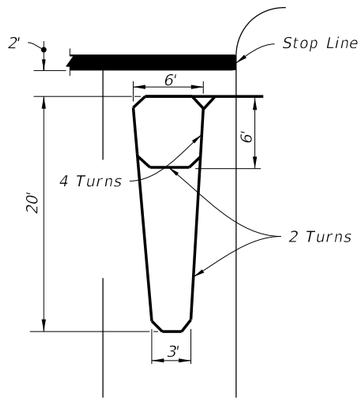
TYPE G



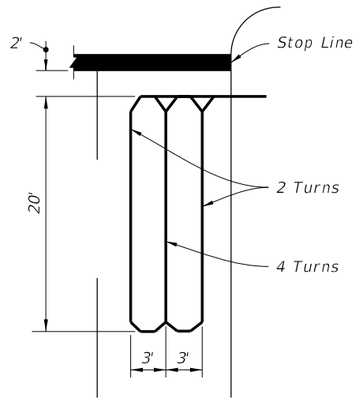
TYPE B



TYPE E



TYPE C



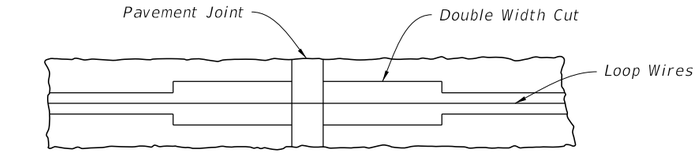
TYPE F

NOTE:
Loop conductors must follow saw-cut
to bottom forming slack section at joint.

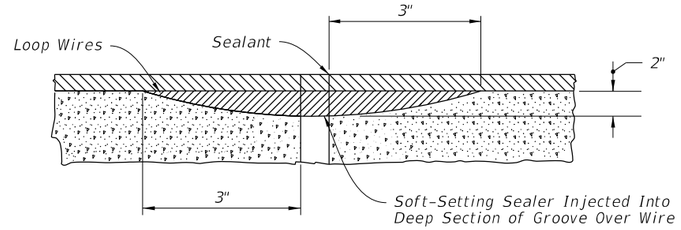
LOOP TYPES

NOTES:

1. The number of "Turns" indicated at the specified point on the loop refers to the number of passes of loop wires which are placed in the saw-cut forming the complete loop.
2. Loop types or details not drawn to scale.
3. Loop Types are centered in a single lane except Type E which is centered on two lanes.
4. The number of individual loops in the Type G loop may vary up to a maximum of four (4).
5. Lead-in may be connected to either end of loop.
6. When shown in the Plans, the leading edge of loop Types A, C, D, & F may extend past the stop line a maximum of 10' and the length of these loops may be extended to a maximum of 60'.
7. Do not install loop lead-in wires in the same pull box with signal power cable.

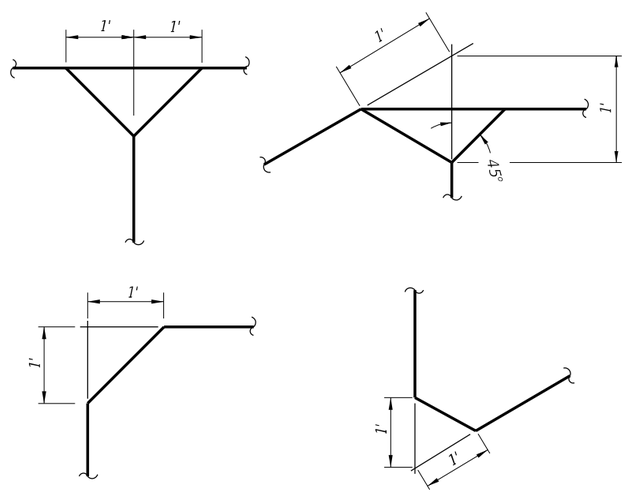


PLAN



VERTICAL SECTION

CONCRETE PAVEMENT EXPANSION JOINTS



LOOP CORNER AND LEAD-IN DETAILS

LOOP TYPES, EXPANSION JOINTS, AND DETAILS

LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/18			FY 2024-25 STANDARD PLANS	VEHICLE LOOP INSTALLATION DETAILS	660-001	2 of 2

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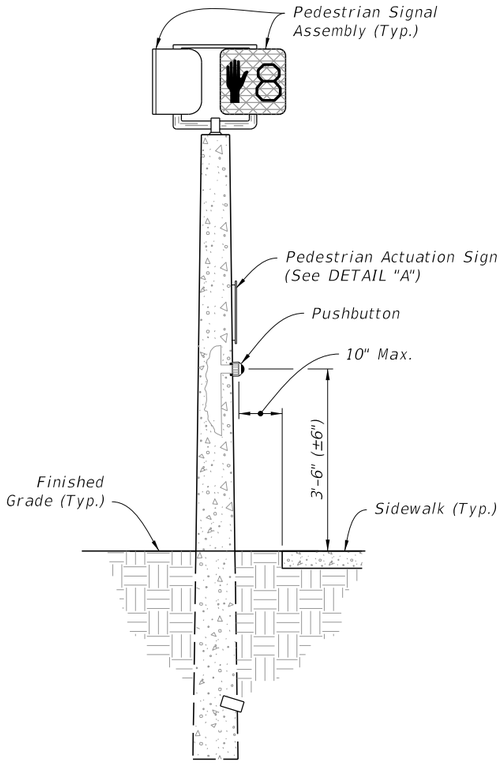
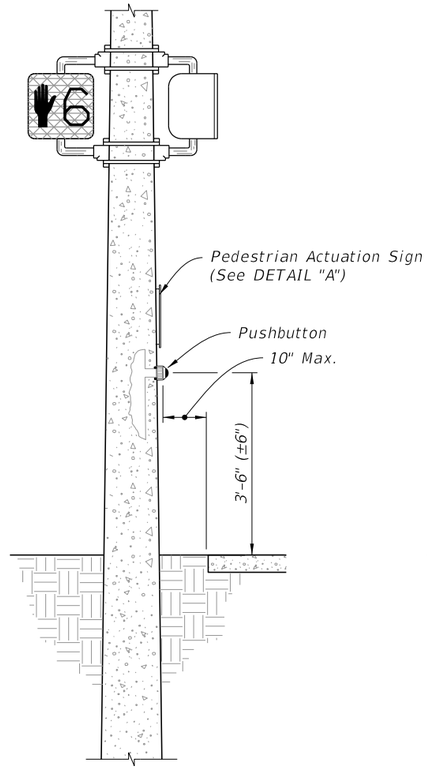
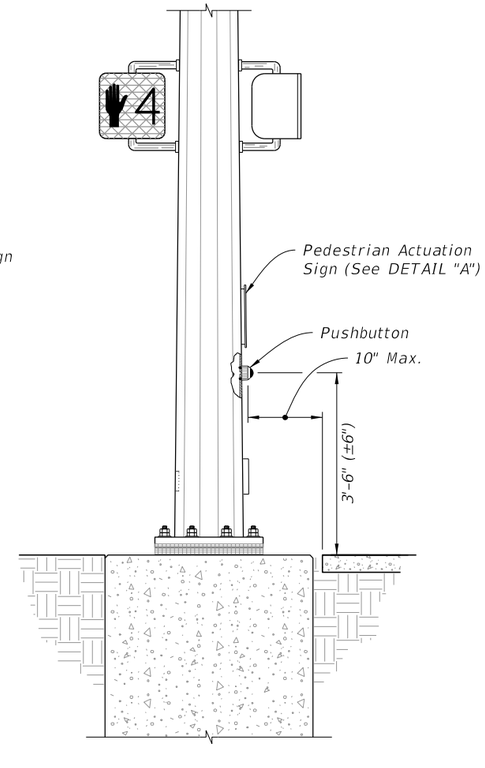


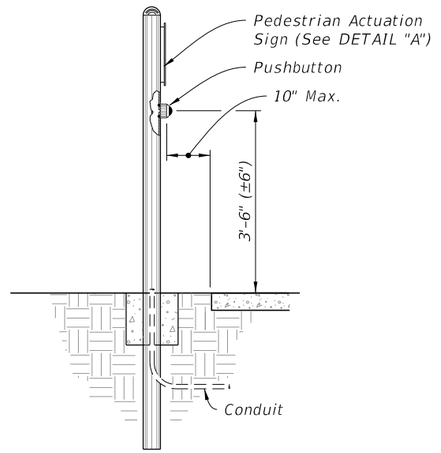
PRESTRESSED CONCRETE PEDESTAL POLE



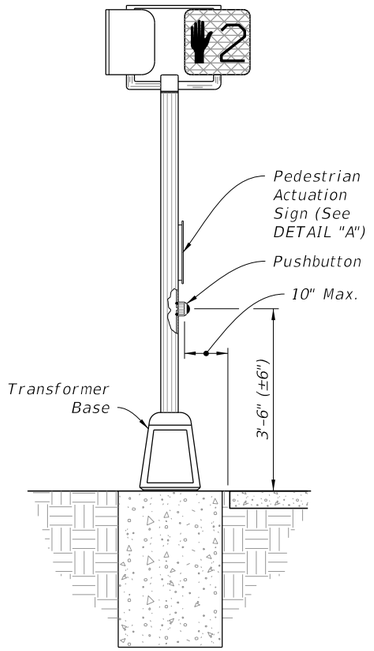
PRESTRESSED CONCRETE STRAIN POLE



STEEL STRAIN POLE

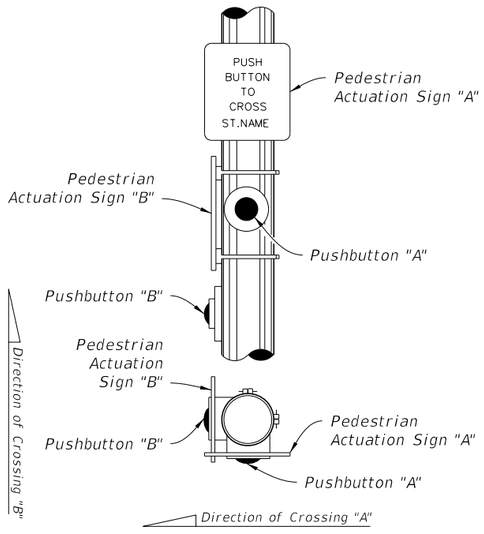


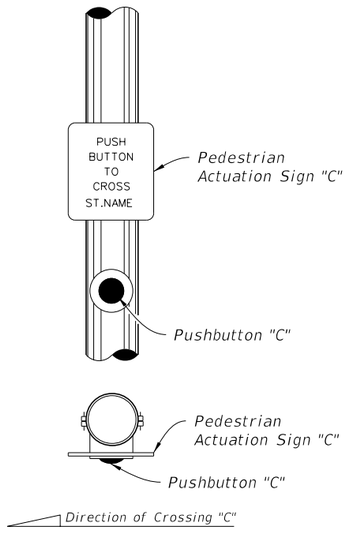
ALUMINUM POLE



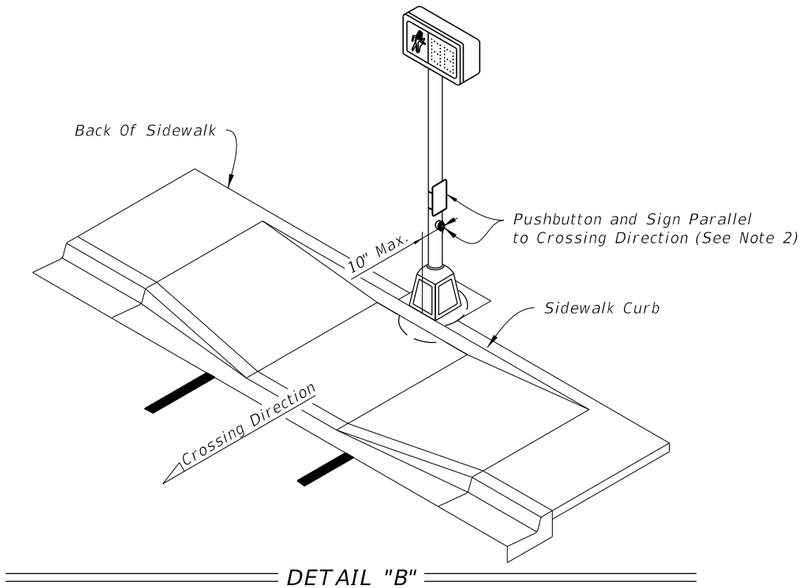
PEDESTAL

PUSHBUTTON PEDESTRIAN DETECTORS





DETAIL "A"



DETAIL "B"

NOTES:

1. Mount Signs above the detectors. See Index 700-102 for sign details.
2. Install Pushbuttons and Pedestrian Actuation Signs with faces parallel to the crossing direction, see DETAIL "B".
3. Mount pushbuttons and Signs in accordance with Specification 665.
4. Pushbutton mounting height shown is taken at the center of the actuation switch.
5. for pedestrian control signal see index 653-001.
6. For Aluminum Pole and Pedestal supports see Index 646-001.

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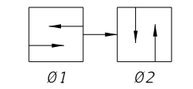
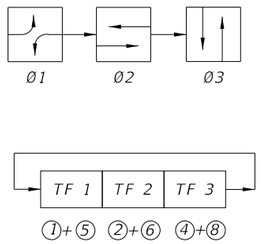
11/01/20			FDOT	FY 2024-25 STANDARD PLANS	PEDESTRIAN DETECTOR ASSEMBLY INSTALLATION DETAILS	INDEX 665-001 / SHEET 1 of 1



SOP 1



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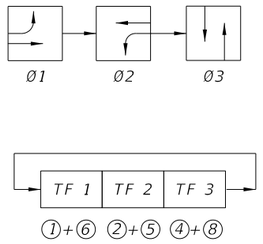

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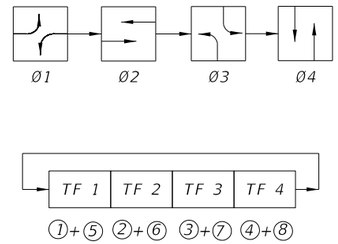
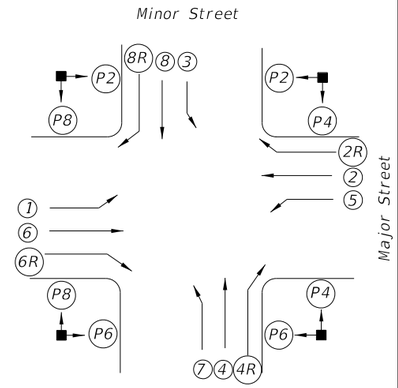
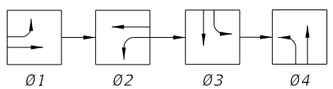


SOP 4

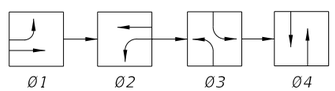


SIGNALIZED INTERSECTION

Vehicle movements & signal head number assignments are not directionally oriented but shall maintain their relative orientation about the intersection (I.E., movements 7 and 4 are always to the right of movements 1 and 6 etc.).



SOP 5



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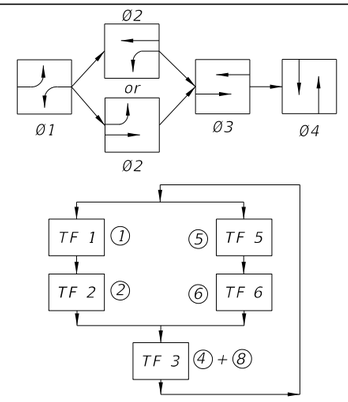
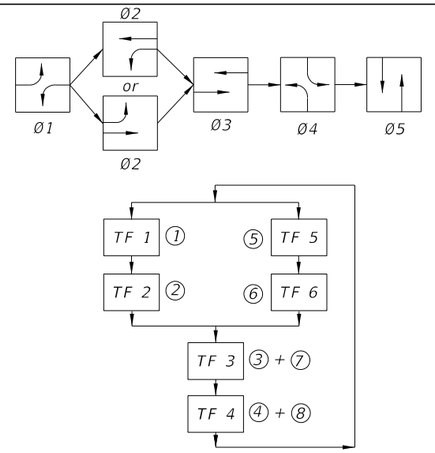


SOP 7



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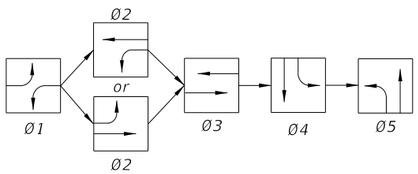

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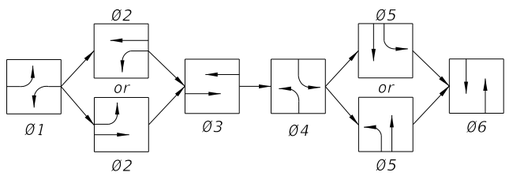

SOP 10

SIGNAL CLEARANCE TABLE

(Blank Indicates No Clearance Required)

SIGNAL INDICATIONS: From \ To	R	⟲R	G		⟲G	⟲Y	WALK	DONT WALK
R			Y		⟲G	Y		
⟲R			Y		⟲G	Y		
G					⟲G			
⟲G								
⟲Y								
WALK								
DONT WALK							Flash DONT WALK	

LEGEND

- (X) Vehicle Movement Number
- (PX) Pedestrian Movement Number
- TF X Timing Function Number
- ØX Phase Number
- ⟲G Green Arrow (Left or Right)
- ⟲R Red Arrow
- ⟲Y Yellow Arrow

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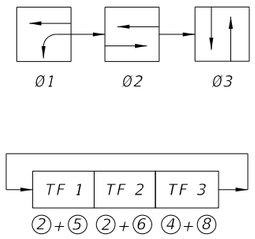
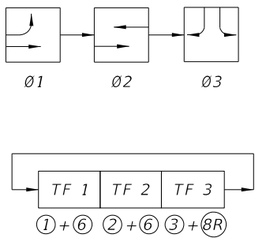


SOP 11



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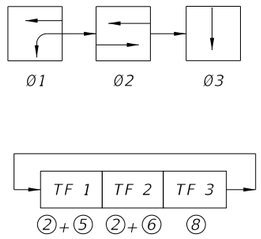
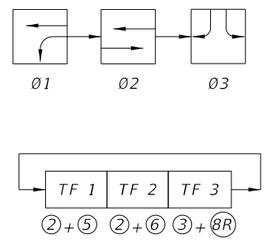
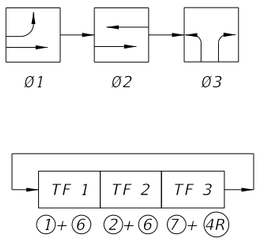


SOP 13
(ONE- WAY STREET INTERSECTION)



SOP 14
(DIAMOND INTERCHANGE OPERATION)



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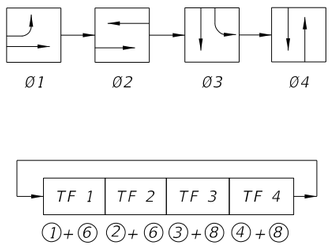
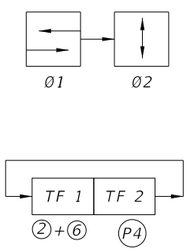
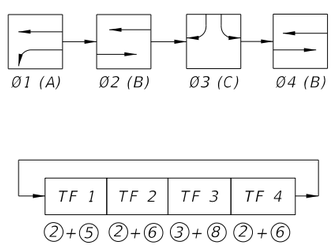
(DIAMOND INTERCHANGE OPERATION)



SOP 16

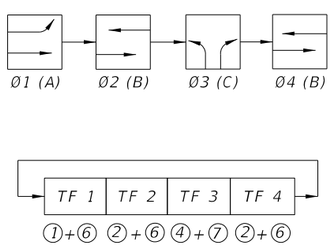


SOP 17
(MIDBLOCK)



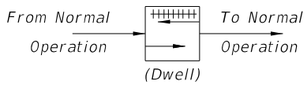
NOTE:
Only Ø2 Or Ø4 Used, Not Both To Obtain ABC, Or ACB Operation.

SOP 18
(DIAMOND INTERCHANGE OPERATIONS)

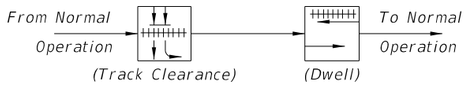


NOTE:
Only Ø2 Or Ø4 Used, Not Both To Obtain ABC, Or ACB Operation.

SOP 19
(DIAMOND INTERCHANGE OPERATIONS)



POP 1



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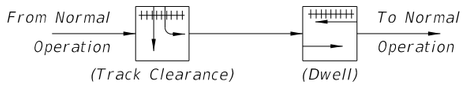

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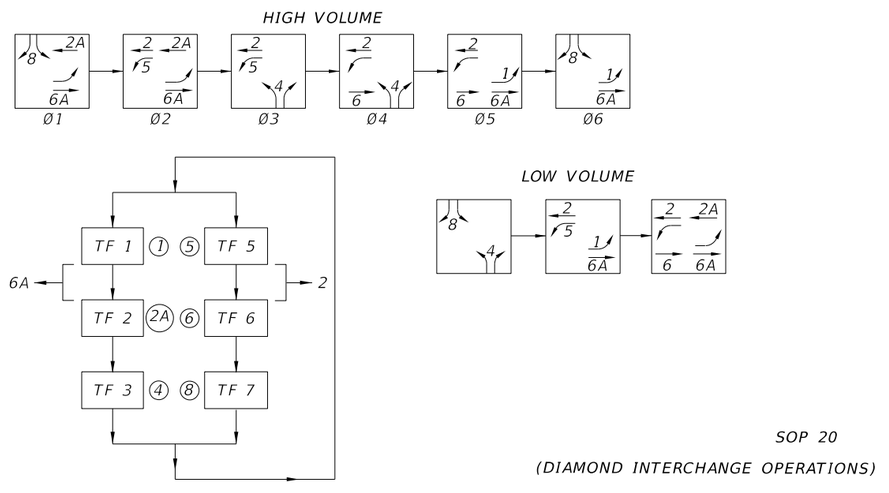

SOP 20
(DIAMOND INTERCHANGE OPERATIONS)

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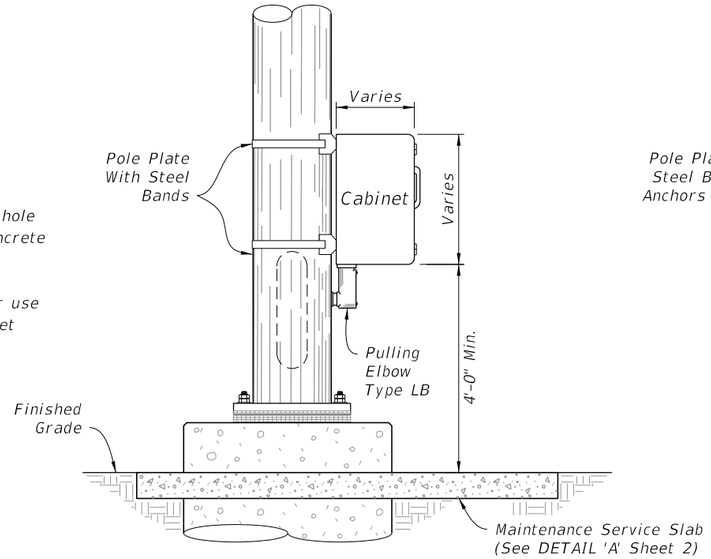
NOTES:

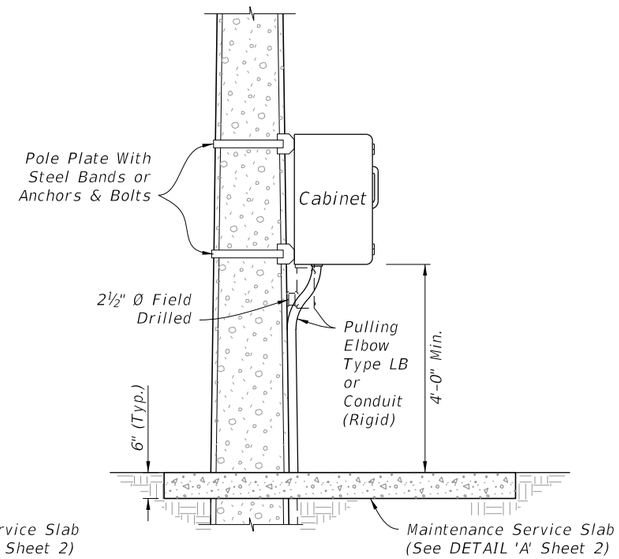
1. If cabinet mounting requires relocation of hole in concrete pole, fill existing hole with concrete or cover with a noncorrosive cover plate.

2. Liquidtight flexible conduit is approved for use from the electrical disconnect to the cabinet when both are installed on the same pole.



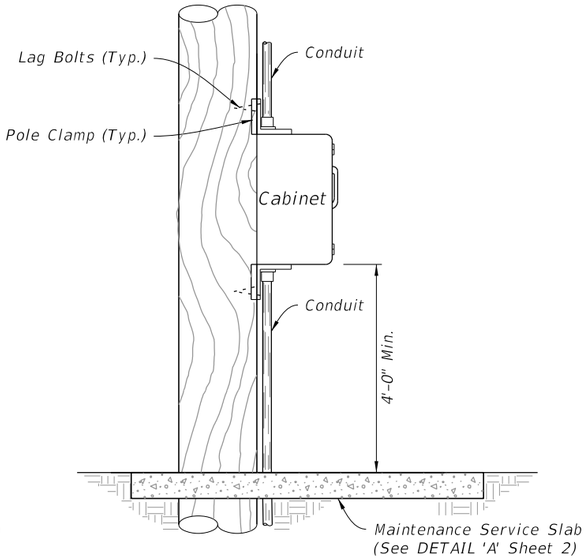
SIDE ELEVATION

METAL POLE



SIDE ELEVATION

CONCRETE POLE



SIDE ELEVATION

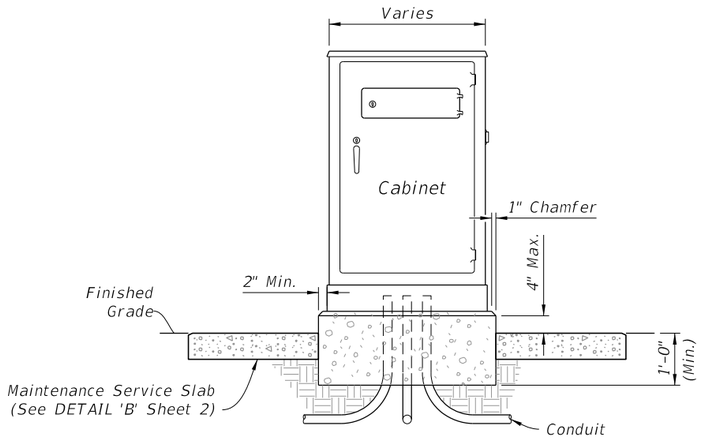
WOOD POLE

POLE MOUNTED CONTROLLER CABINET

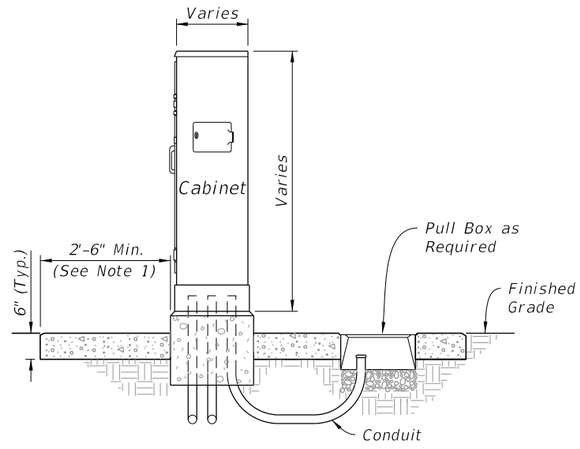
NOTES:

1. Maintenance Service Slab: Use Class NS concrete and slope ¼" to 1" for drainage. Not required in sidewalk, pavement areas, or where R/W is restricted.

2. The number, size and orientation of conduit sweep will vary according to site condition or locations. Provide two spare 2" PVC conduits in all bases. Place the exits of the spare conduits in the direction of the center rear of the cabinet base and into a pull box. If obstructions prevent the spare conduit from exiting to the rear, or the rear of the cabinet is located on the R/W line, locate as directed by the Engineer. Cap all spare conduit sweeps with a weatherproof fitting.



FRONT ELEVATION



SIDE ELEVATION

NEW CONTROLLER CABINET

GROUND MOUNTED CONTROLLER CABINET

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NOTES:

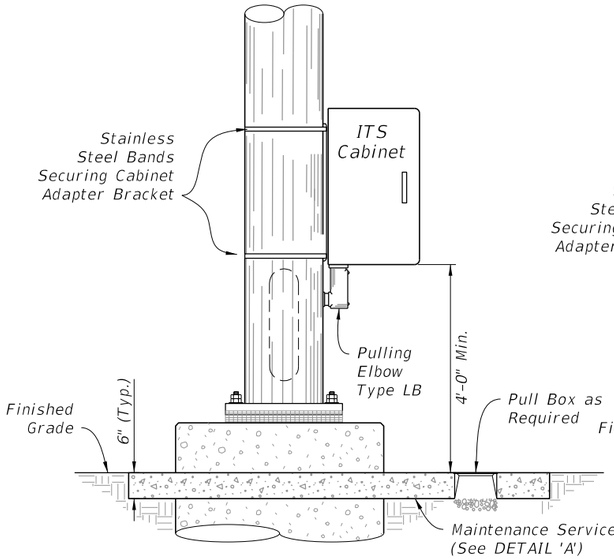
1. Maintenance Service Slab: Use Class NS concrete and slope ¼" to 1" for drainage. Not required in sidewalk, pavement areas, or where R/W is restricted.

2. If cabinet mounting requires relocation of hole in concrete pole, fill existing hole with concrete or cover with a noncorrosive cover plate.

3. Liquidtight flexible conduit is approved for use from the electrical disconnect to the cabinet when both are installed on the same pole.

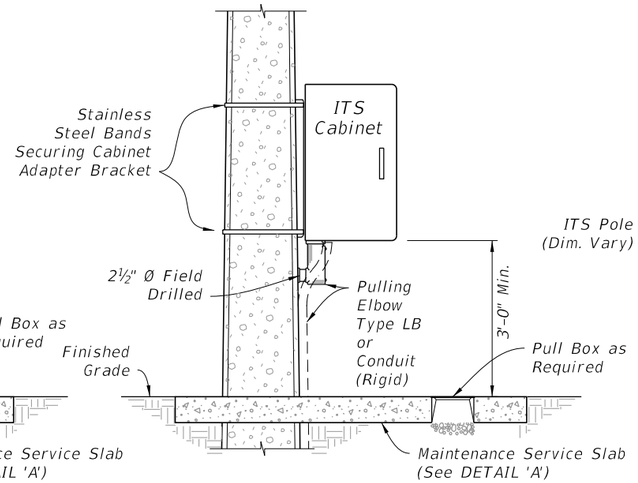
4. Where a pull box is to be placed within the maintenance service slab, the slab width must be extended to provide for the required pull box concrete apron as detailed in Index 635-001.

5. Coordinate placement of maintenance service slab with proposed final grade. Grade and compact side slopes around the maintenance service slab to provide a stable and level working area and tie into the proposed embankment.



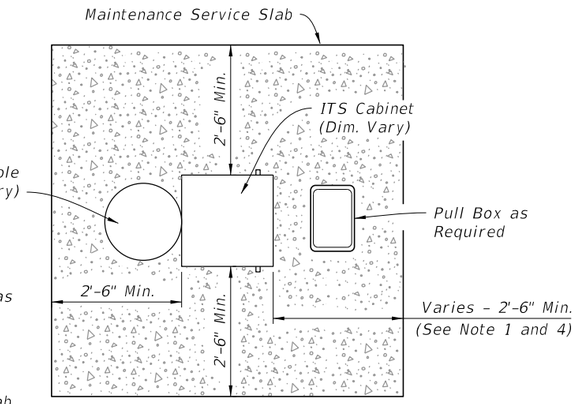
SIDE ELEVATION

METAL POLE



SIDE ELEVATION

CONCRETE POLE



PLAN VIEW

DETAIL 'A'

POLE MOUNTED INTELLIGENT TRANSPORTATION SYSTEMS (ITS) CABINET

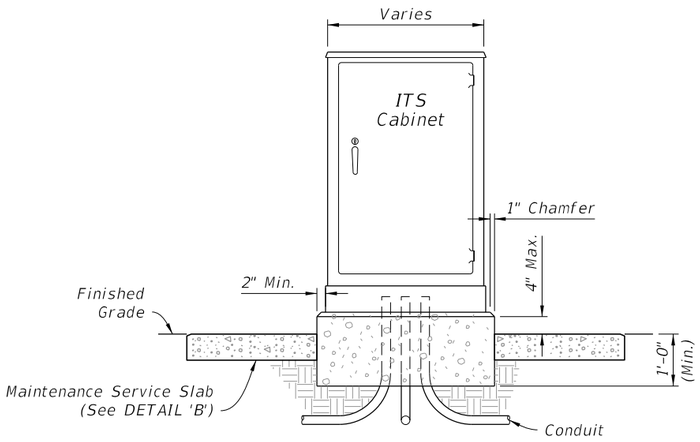
NOTES:

1. Maintenance Service Slab: Use Class NS concrete and slope ¼" to 1" for drainage. Not required in sidewalk, pavement areas, or where R/W is restricted.

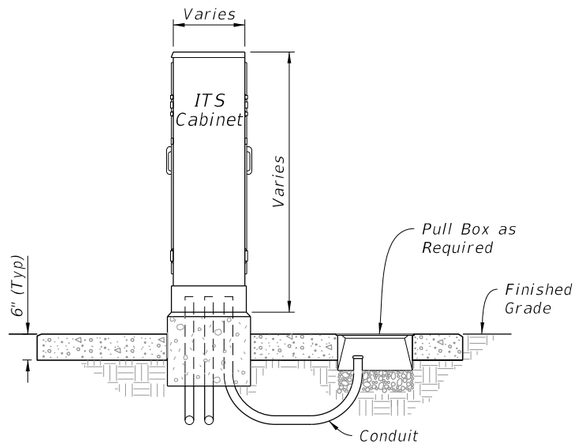
2. The number, size and orientation of conduit sweep will vary according to site condition or locations. Provide two spare 2" PVC conduits in all bases. Place the exits of the spare conduits in the direction of the center rear of the cabinet base and into a pull box. If obstructions prevent the spare conduit from exiting to the rear, or the rear of the cabinet is located on the R/W line, locate as directed by the Engineer. Cap all spare conduit sweeps with a weatherproof fitting.

3. When a pull box is to be placed within the maintenance service slab, the slab width must be extended to provide for the required pull box apron as detailed in Index 635-001.

4. Coordinate placement of maintenance service slab with proposed final grade. Grade and compact side slopes around the maintenance service slab to provide a stable and level working area and tie into the proposed embankment.

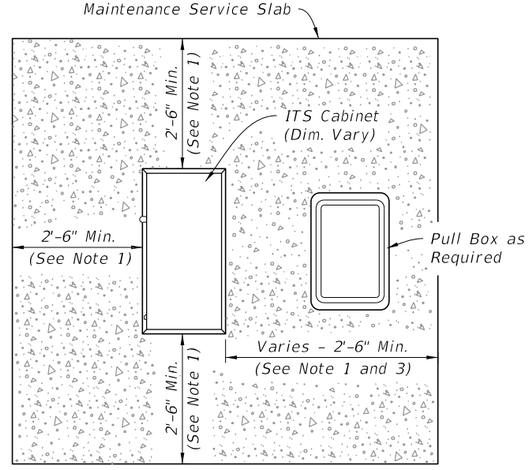


FRONT ELEVATION



SIDE ELEVATION

NEW ITS CABINET



PLAN VIEW

DETAIL 'B'

GROUND MOUNTED INTELLIGENT TRANSPORTATION SYSTEMS (ITS) CABINET

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LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
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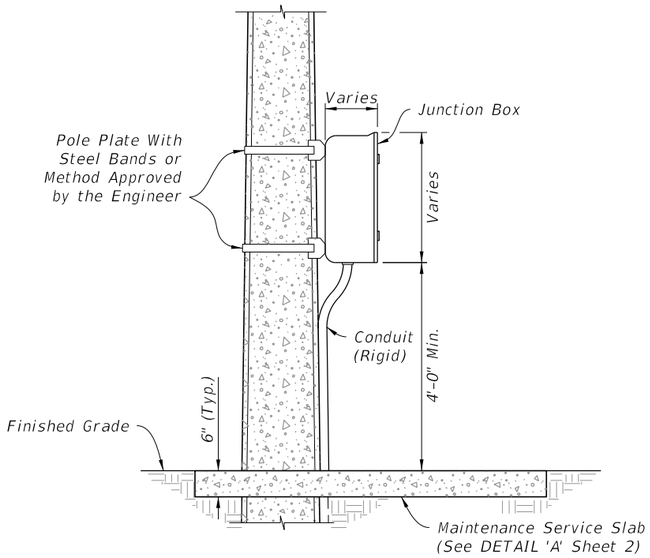
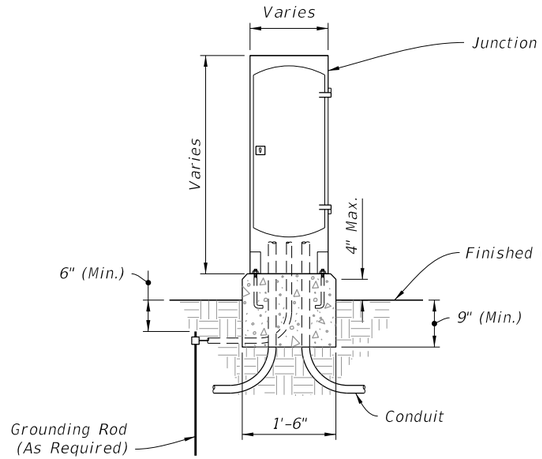
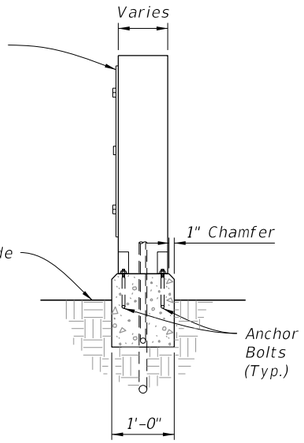


SIDE ELEVATION

POLE MOUNTED



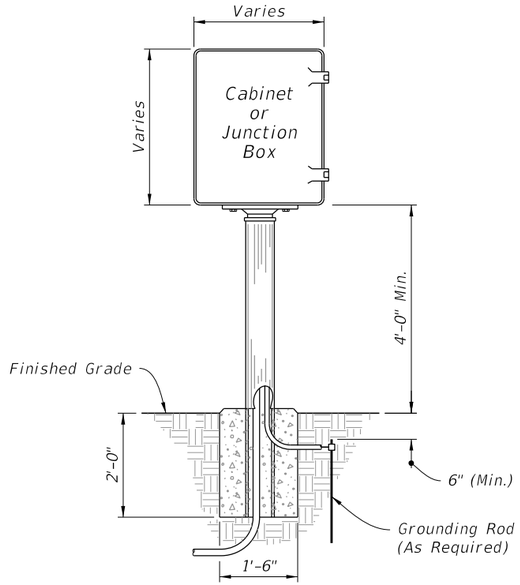
FRONT ELEVATION



SIDE ELEVATION

GROUND MOUNTED

INTERCONNECT JUNCTION BOX



FRONT ELEVATION

PEDESTAL MOUNTED CABINET

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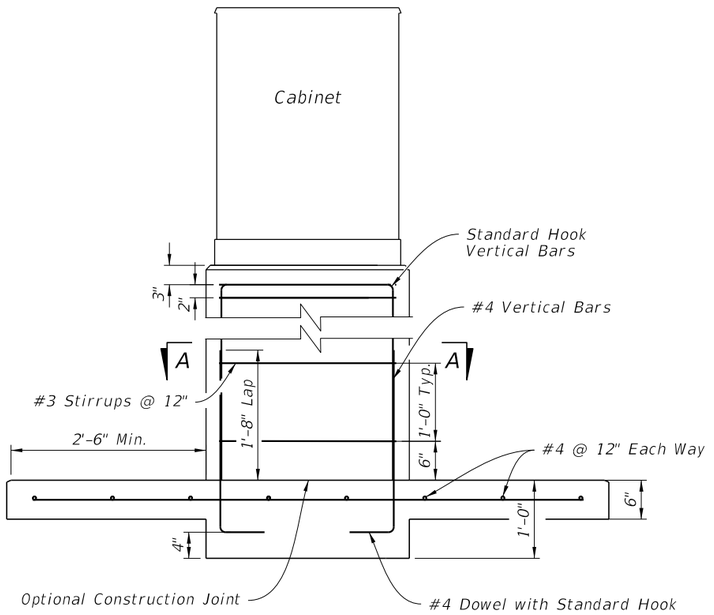
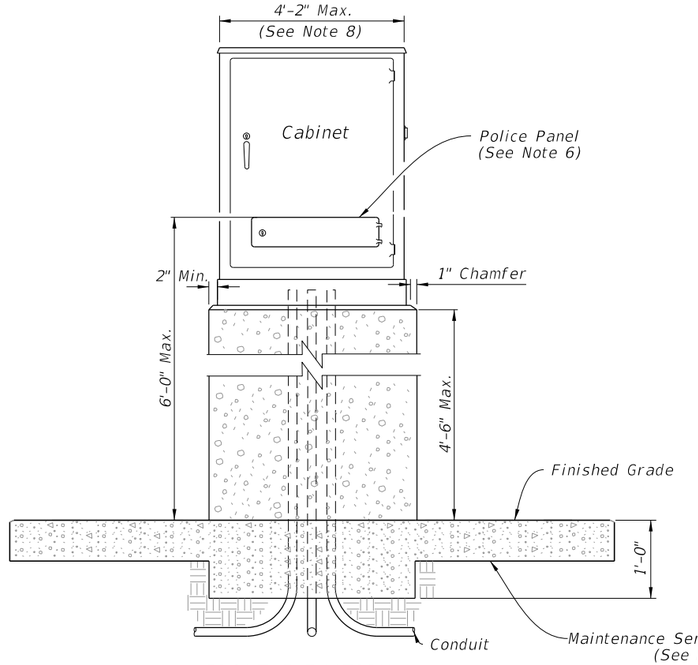
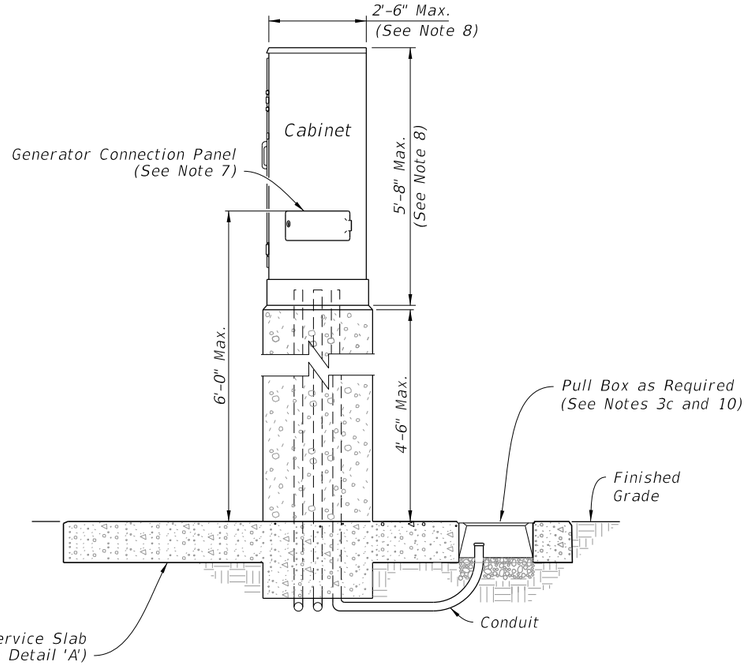
LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/23			FDOT FY 2024-25 STANDARD PLANS	CABINET INSTALLATION DETAILS	676-010	3 of 4



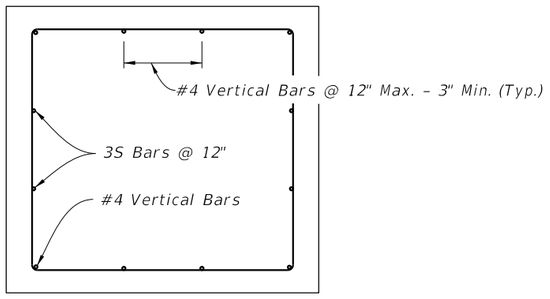
FRONT ELEVATION



FRONT ELEVATION



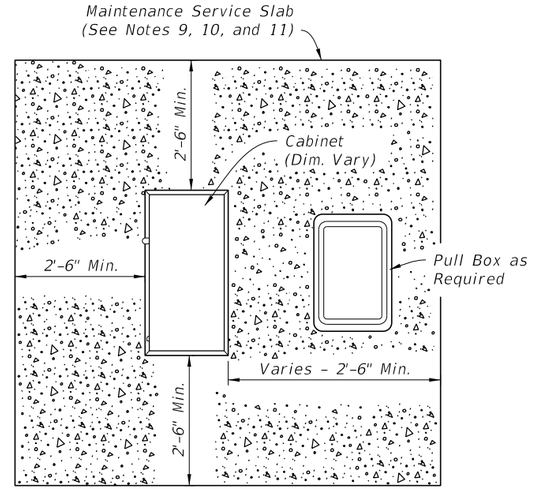
SIDE ELEVATION



SECTION A-A

NOTES

1. Install cabinet riser as called for in the Plans. Concrete riser shown, for other options, see Specification 676.
2. Concrete:
   a. Concrete will be in accordance with Specification 346.
   b. Concrete will be Class IV.
3. Reinforcing:
   a. Reinforcing will be in accordance with Specification 415.
   b. All reinforcing steel will have a 2" minimum cover unless noted otherwise.
   c. Adjust reinforcing to facilitate Pull Box. Add equal number of bars to to either side for each bar interrupted by Pull Box.
4. Generator connection cables will be extended by the same length as the riser's height.
5. Controller cabinet depicted. ITS cabinet similar.
6. Locate Police Panel at bottom of cabinet assembly.
7. Locate generator connection panel at bottom of cabinet assembly.
8. Riser dimensions shown are based on maximum cabinet dimensions per the APL.
9. Slope maintenance slab ¼" to 1" for drainage. Not required in sidewalk, pavement areas, or where R/W is restricted.
10. When a pull box is to be placed within the maintenance service slab, the slab width must be extended to provide for the required pull box apron as detailed in Index 635-001.
11. Coordinate placement of maintenance service slab with proposed final grade. Grade and compact side slopes around the maintenance service slab to provide a stable and level working area and tie into the proposed embankment.
12. The number, size and orientation of conduit sweep will vary according to site condition or location. Provide two spare 2" PVC conduits in all bases. Place the exits of the two spare conduits in the direction of the center rear of the cabinet base and into a pull box. If obstructions prevent the spare conduit from existing to the rear, or the rear of the cabinet is located on the R/W line, locate as directed by the Engineer. Cap all spare conduit sweeps with a weatherproof fitting.



PLAN VIEW

DETAIL 'A'

GROUND MOUNTED CONTROLLER CABINET RISER

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LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	CABINET INSTALLATION DETAILS	INDEX	SHEET
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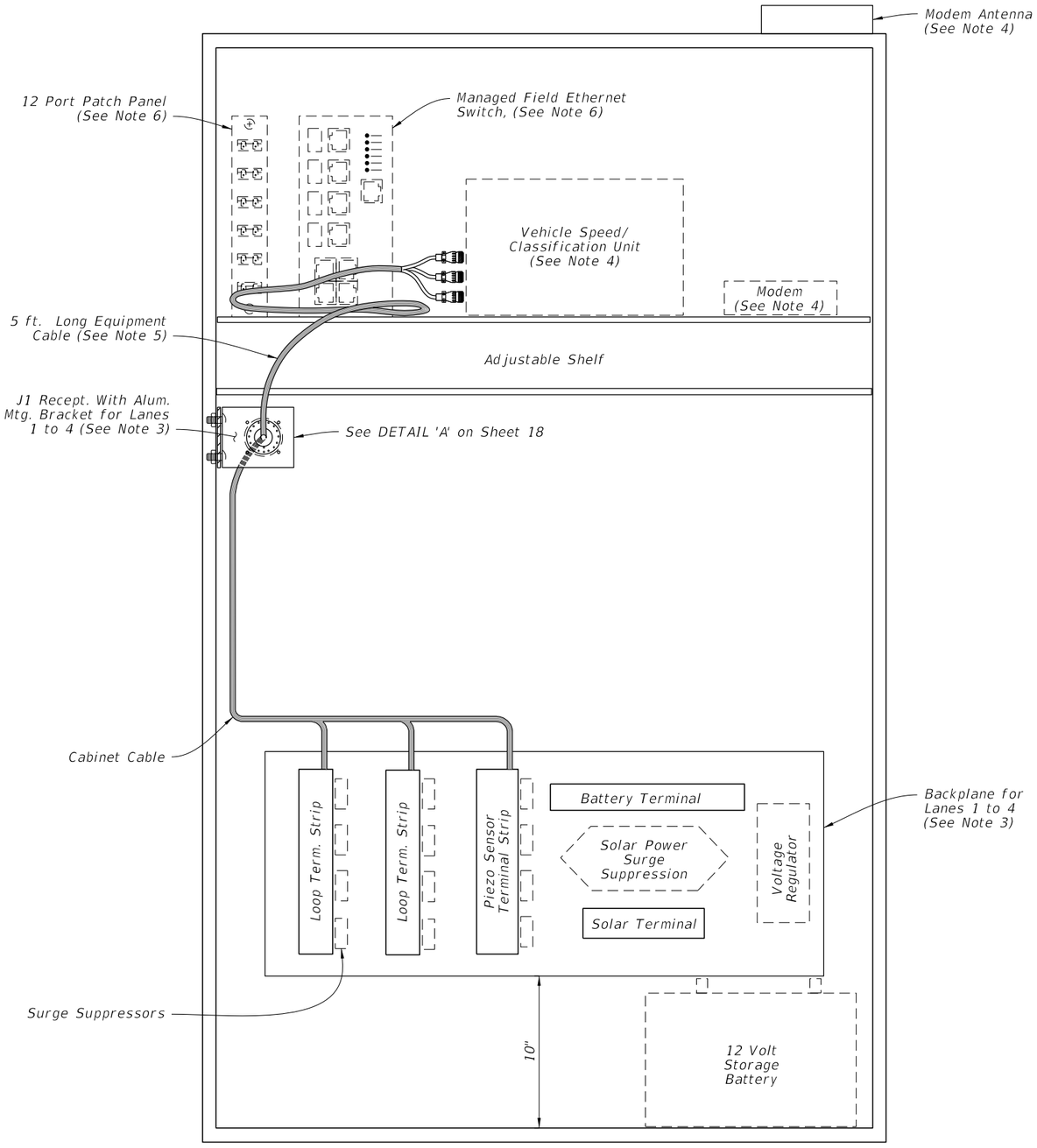

TABLE OF CONTENTS:

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 P1 equipment cable 5 ft. long (See 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. Provide and install a Speed/Classification Unit, Modem, and Antenna.

5. Cable ends must be fabricated to fit the vehicle speed/classification unit. See Sheet 4 for Pinout Charts, receptacle and plug details.

6. Provide and install a 12-fiber single mode cable, a 12-port patch panel, and a managed field ethernet switch.

CABINET LAYOUT DETAILS
(Four Lanes or Less)

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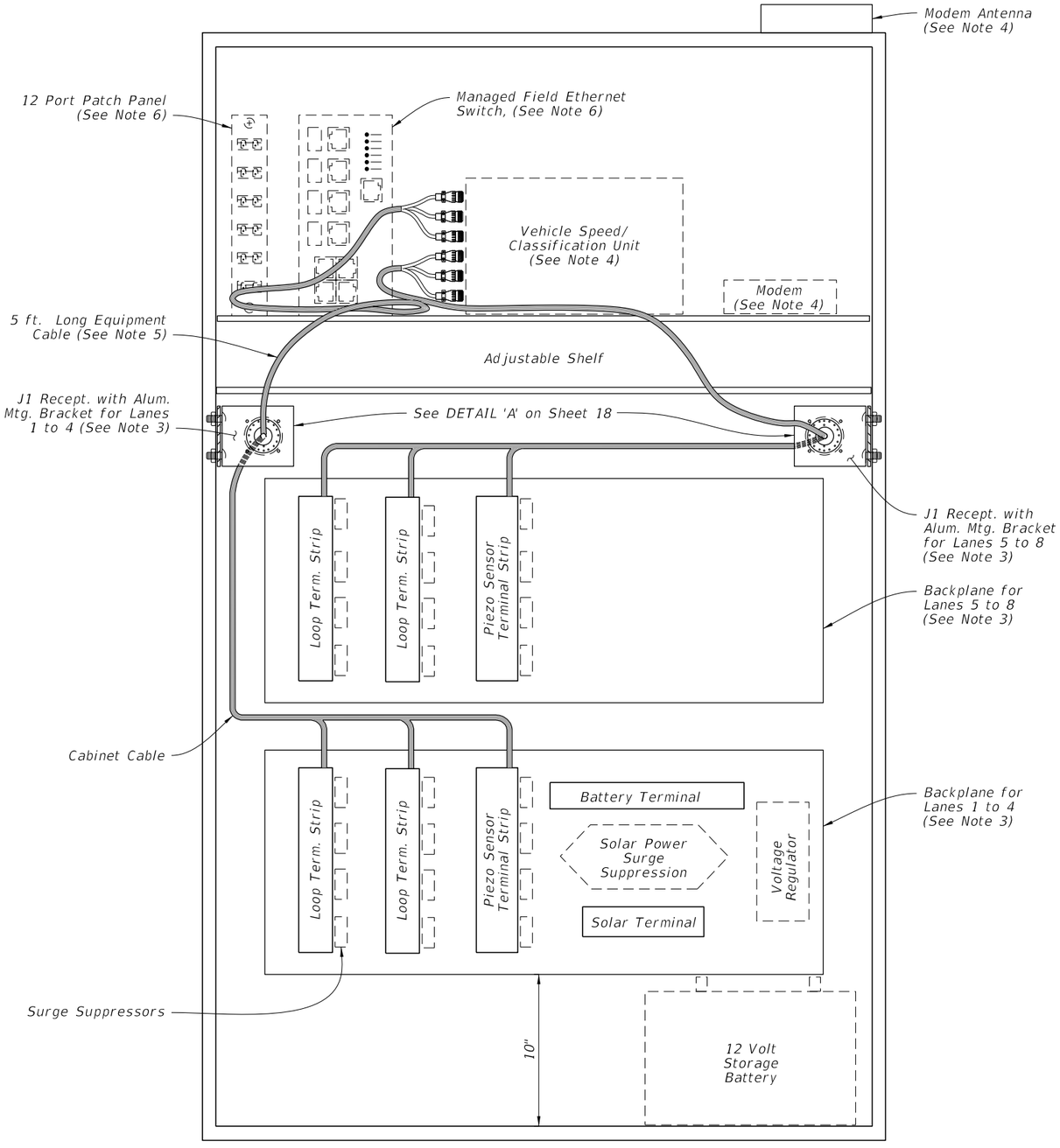
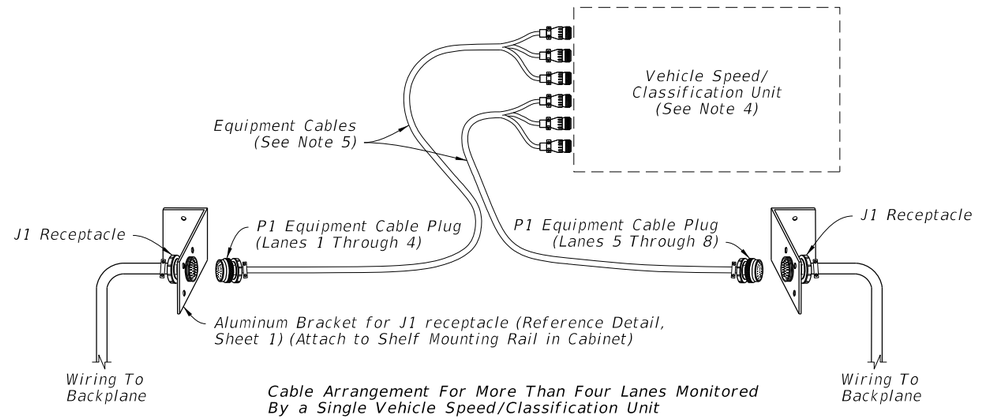
CONTINUOUS COUNT STATION TRAFFIC MONITORING SITE - TTMS/CCS

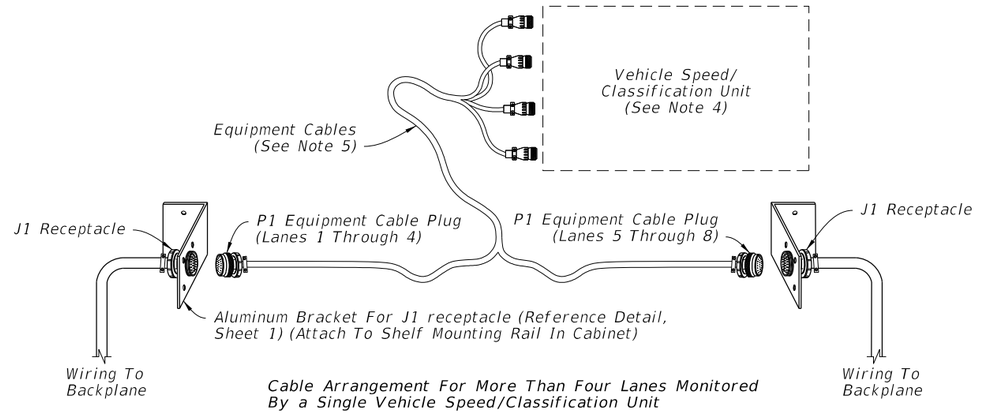
LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/23			FY 2024-25 STANDARD PLANS	TRAFFIC MONITORING SITE	695-001	1 of 20





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:

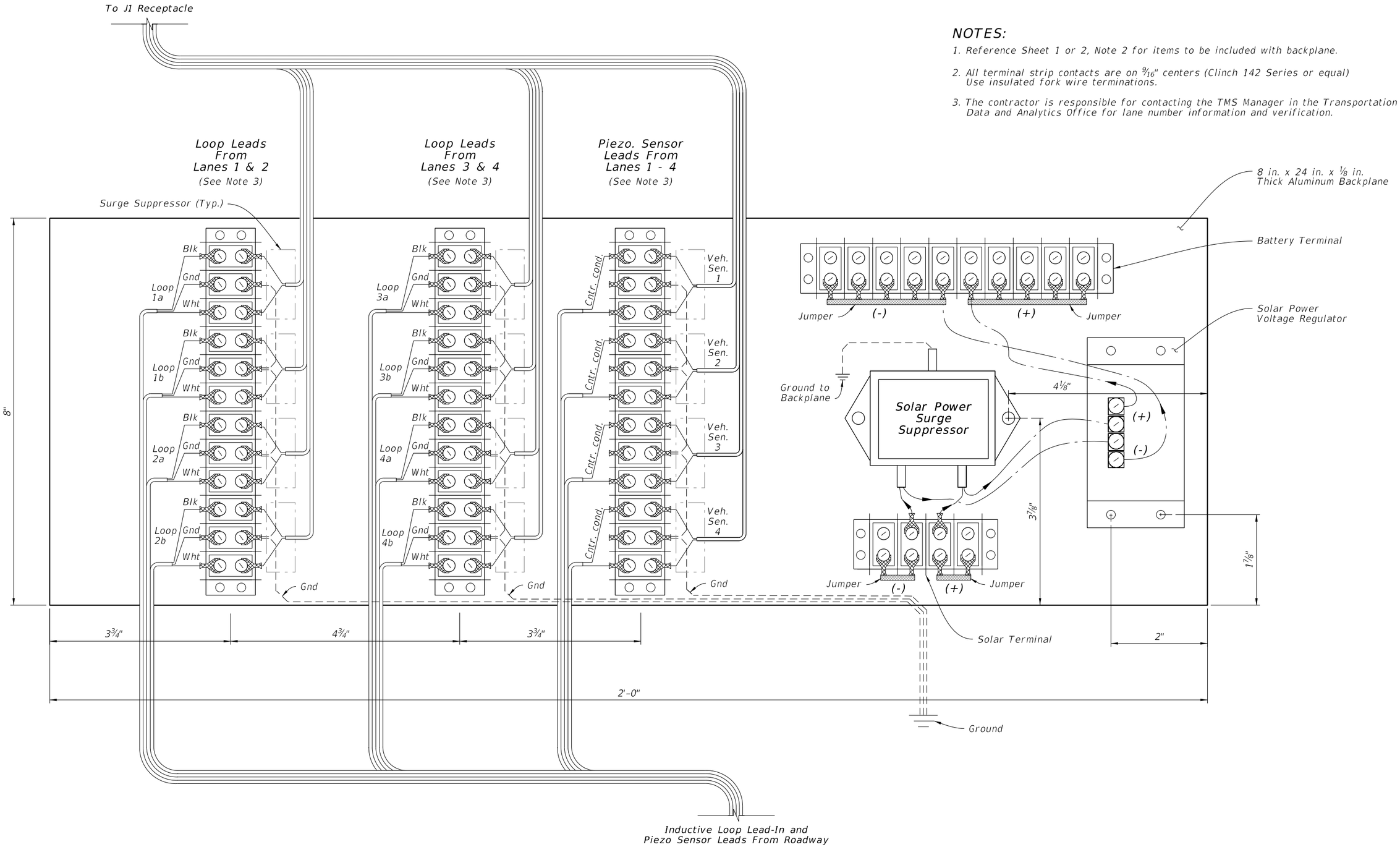
1. Traffic monitoring site cabinet includes:
   - A. One adjustable shelf; (equipped as shown)
   - B. Two backplane assembly; (equipped as shown)
   - C. Two J1 receptacle with mounting bracket;
   - D. One P1 equipment cable 5 ft. long (See Sheet 4);
   - E. All associated wiring and wiring harnesses.
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. Provide and install Speed/Classification Unit, Modem, and Antenna.
5. Cable ends must be fabricated to fit the vehicle speed/classification unit. See Sheet 4 for Pinout Charts, receptacle and plug details.
6. Provide and install a 12-fiber single mode cable, a 12-port patch panel, and a managed field ethernet switch.

CABINET LAYOUT DETAILS
(Five to Eight Lanes)

2:37:43 PM
10/3/2023

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

CONTINUOUS COUNT STATION TRAFFIC MONITORING SITE - TTMS/CCS

LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/23			FY 2024-25 STANDARD PLANS	TRAFFIC MONITORING SITE	695-001	3 of 20

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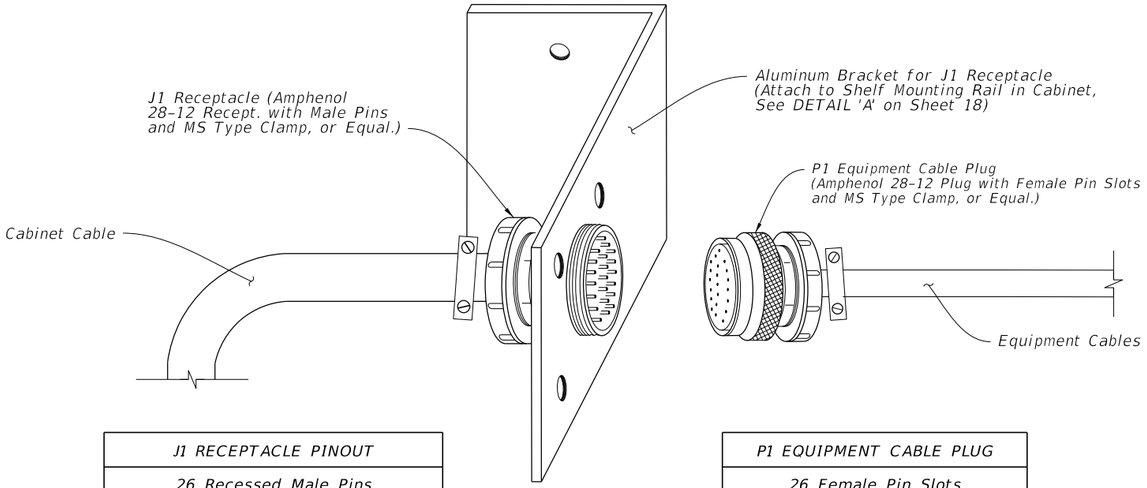
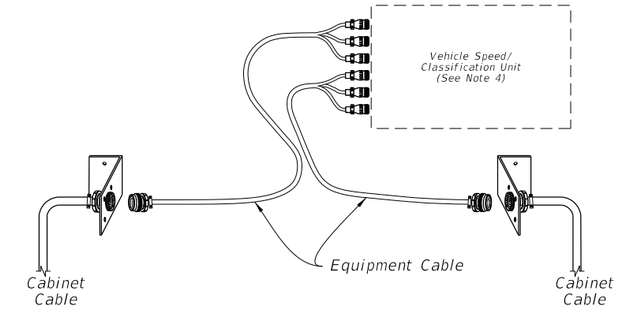


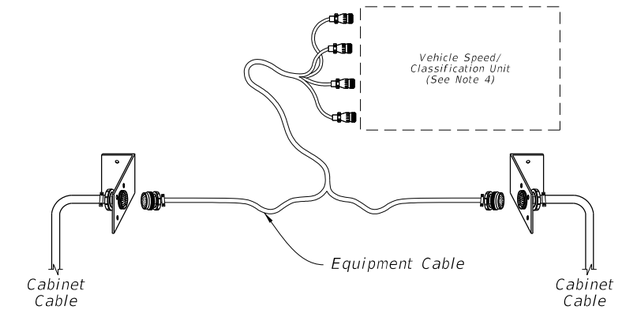
J1 RECEPTACLE PINOUT	
26 Recessed Male Pins	
A	Loop 1a (5a) white
B	Loop 1a (5a) black
C	Loop 1b (5b) red
D	Loop 1b (5b) black
E	Loop 2a (6a) green
F	Loop 2a (6a) blue
G	Loop 2b (6b) orange
H	Loop 2b (6b) tan
J	Loop 3a (7a) white
K	Loop 3a (7a) green
L	Loop 3b (7b) red
M	Loop 3b (7b) black
N	Gnd
P	Loop 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

P1 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	

PINOUT, RECEPTACLE, AND PLUG DETAILS



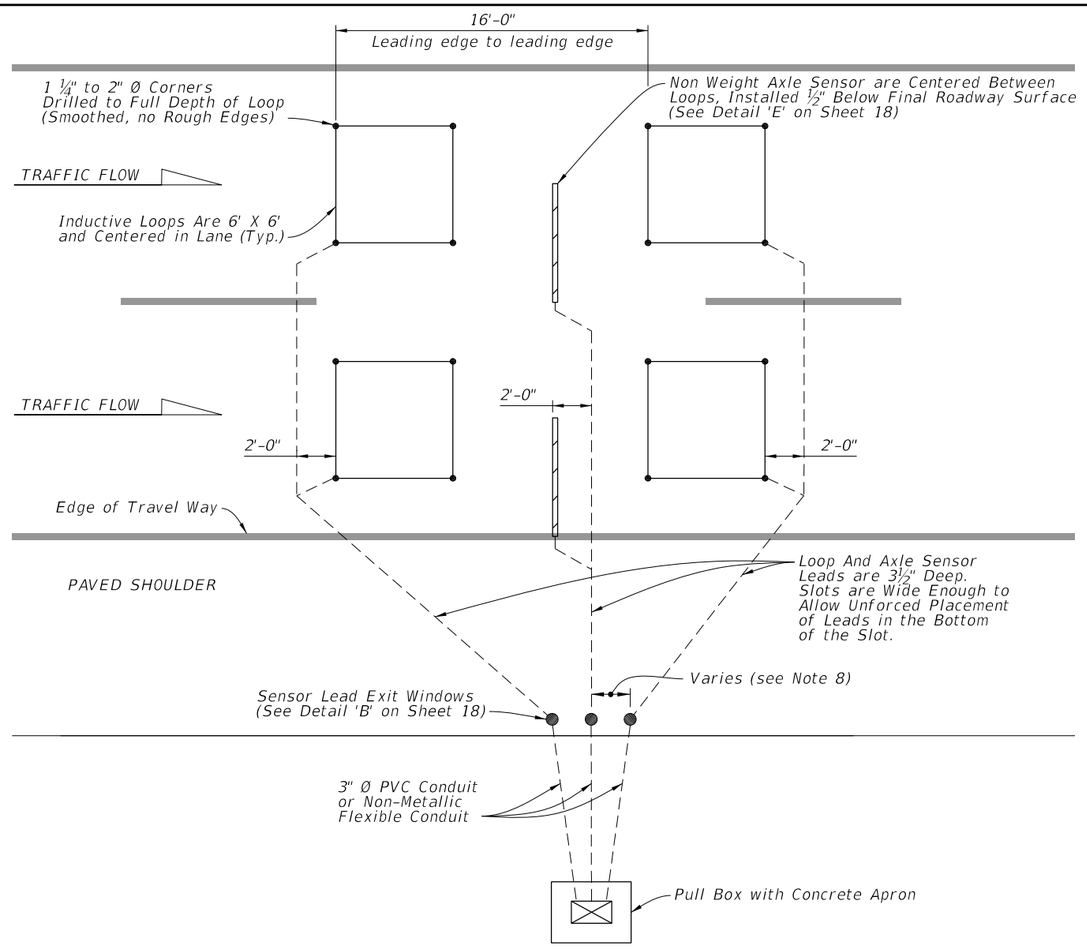
OPTION A



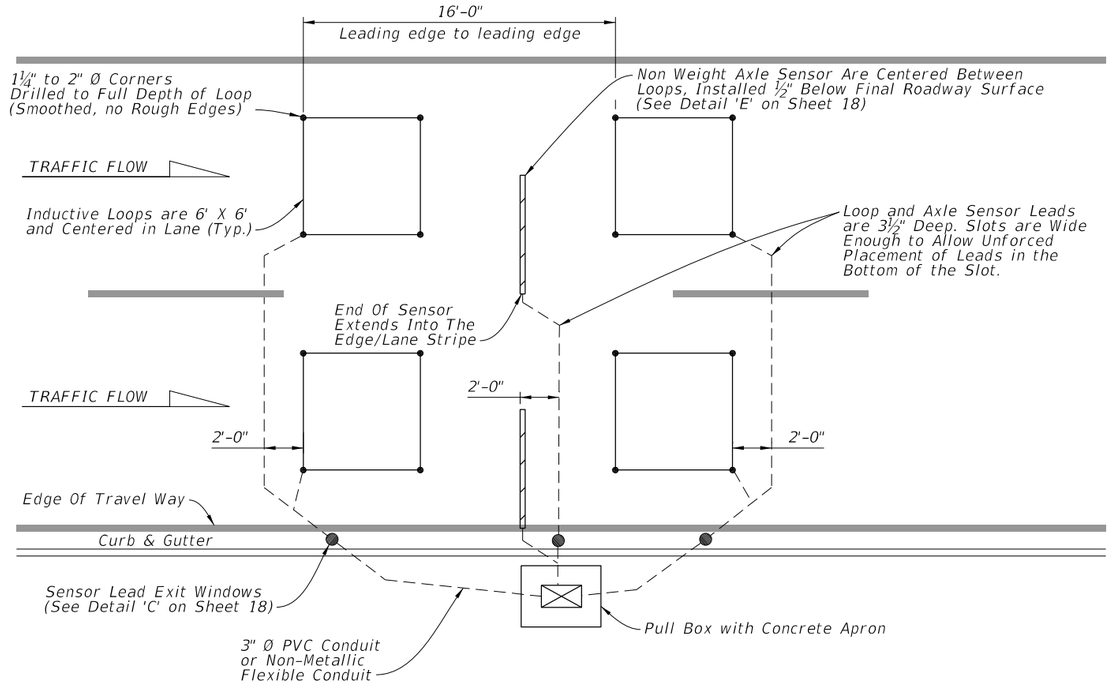
OPTION B

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. (See 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/Classification Unit and separate equipment cable connecting to a second J1 receptacle; or
   B. Single Vehicle Speed/Classification Unit capable of up to eight lanes of inputs and a single equipment cable with split ends to fit two J1 receptacles. (See 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.



ROADWAYS WITH PAVED SHOULDERS

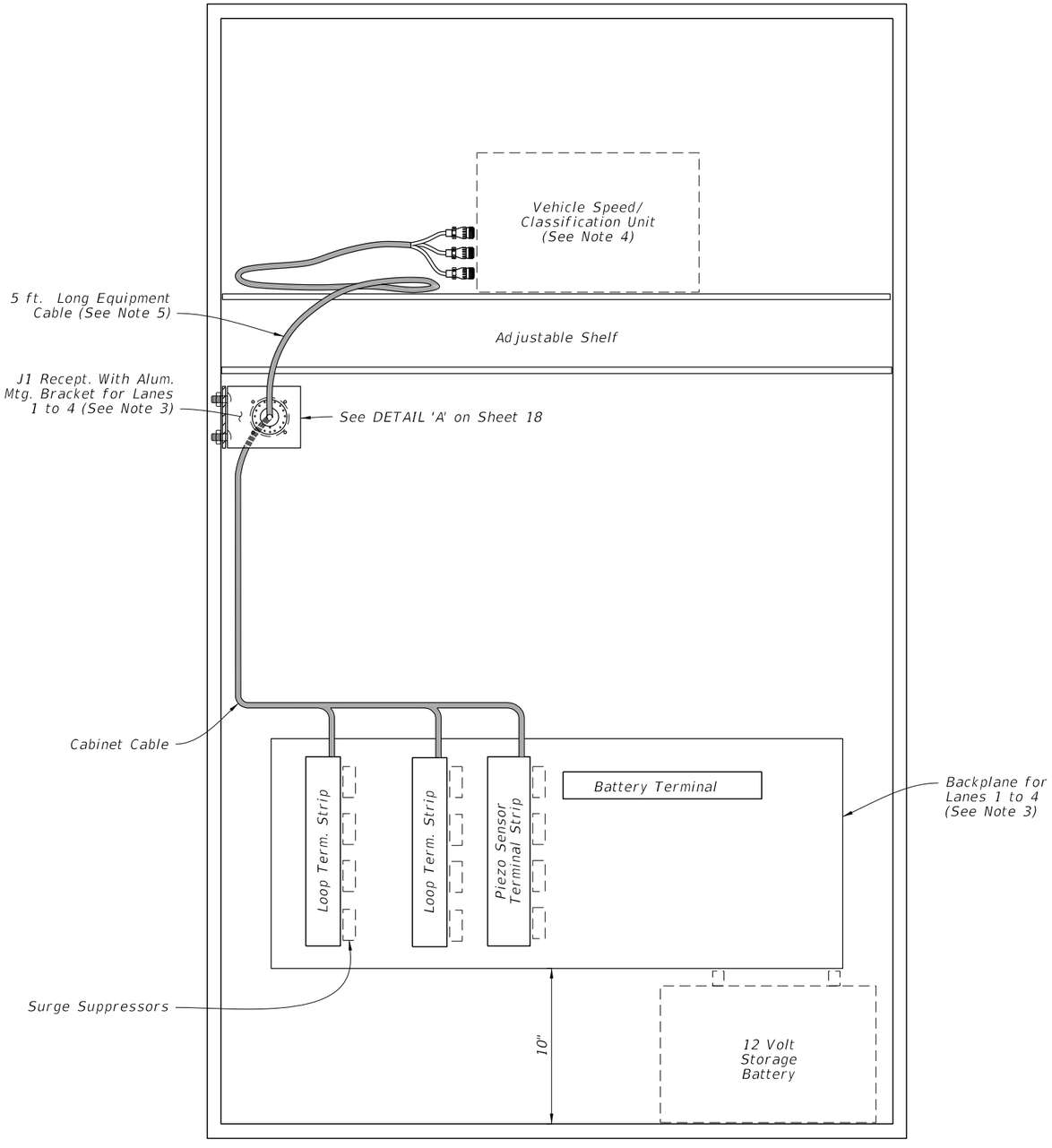


CURB & GUTTER ROADWAYS

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 twist per foot. Extend the twisted pair loop wire directly to the cabinet. No splicing of the loop leads will be permitted.
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 concrete apron details.
6. 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 ½" 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.
7. 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.
8. Install Exit Windows at least 2' apart.

LANE LAYOUT FOR TTMS/CCS INDUCTIVE LOOP AND AXLE SENSORS
(Typical for up to 4 Lanes of Sensor Leads Pulled to one Side of the Roadway)



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 P1 equipment cable 5 ft. long (See 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.

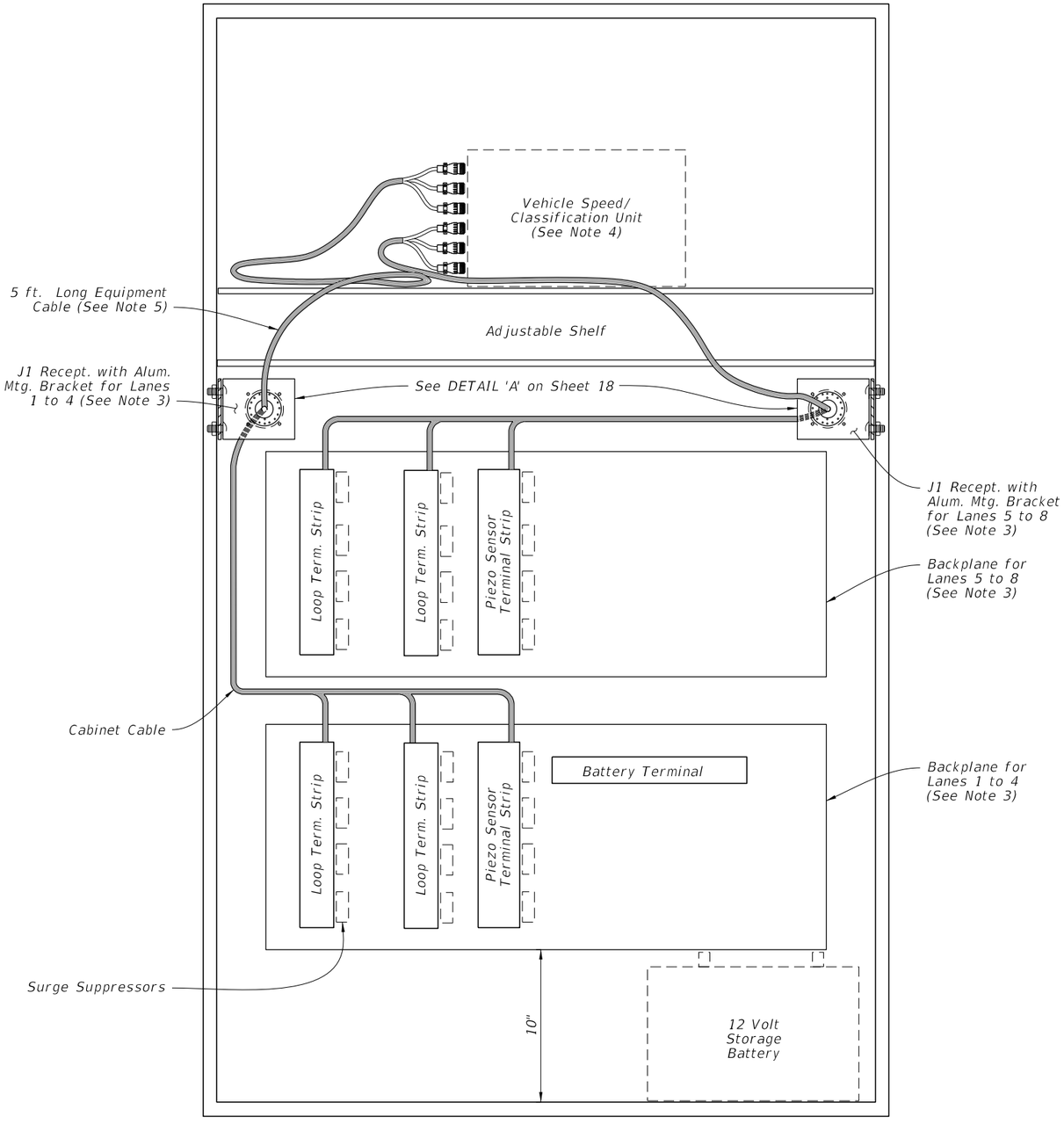
3. The contractor is responsible for contacting the District Data Collection Coordinator for lane numbering.

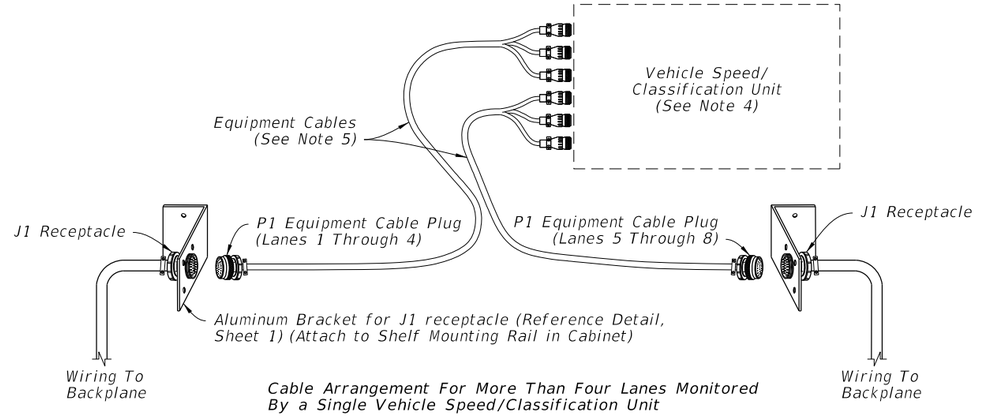
4. Proved and install a Speed/Classification Unit.

5. Cable ends must be fabricated to fit the vehicle speed/ classification unit. See Sheet 4 for Pinout Charts, receptacle and plug details.

CABINET LAYOUT DETAILS
(Four Lanes or Less)

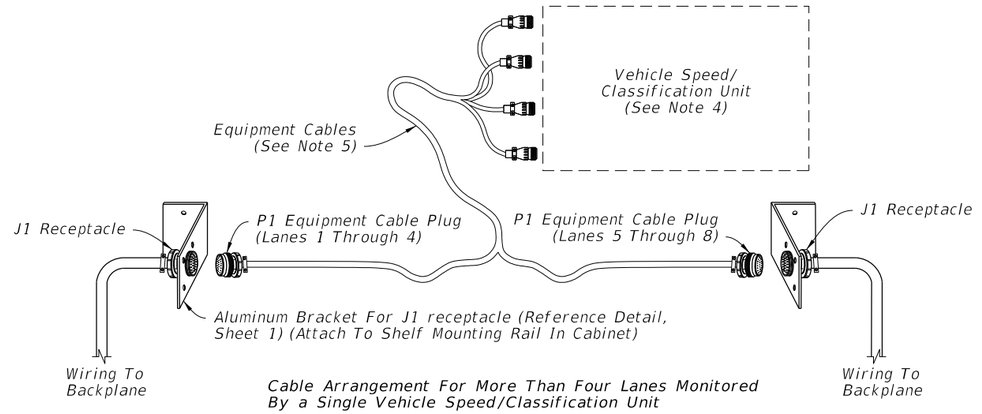
SHORT TERM TRAFFIC MONITORING SITE - PTMS





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

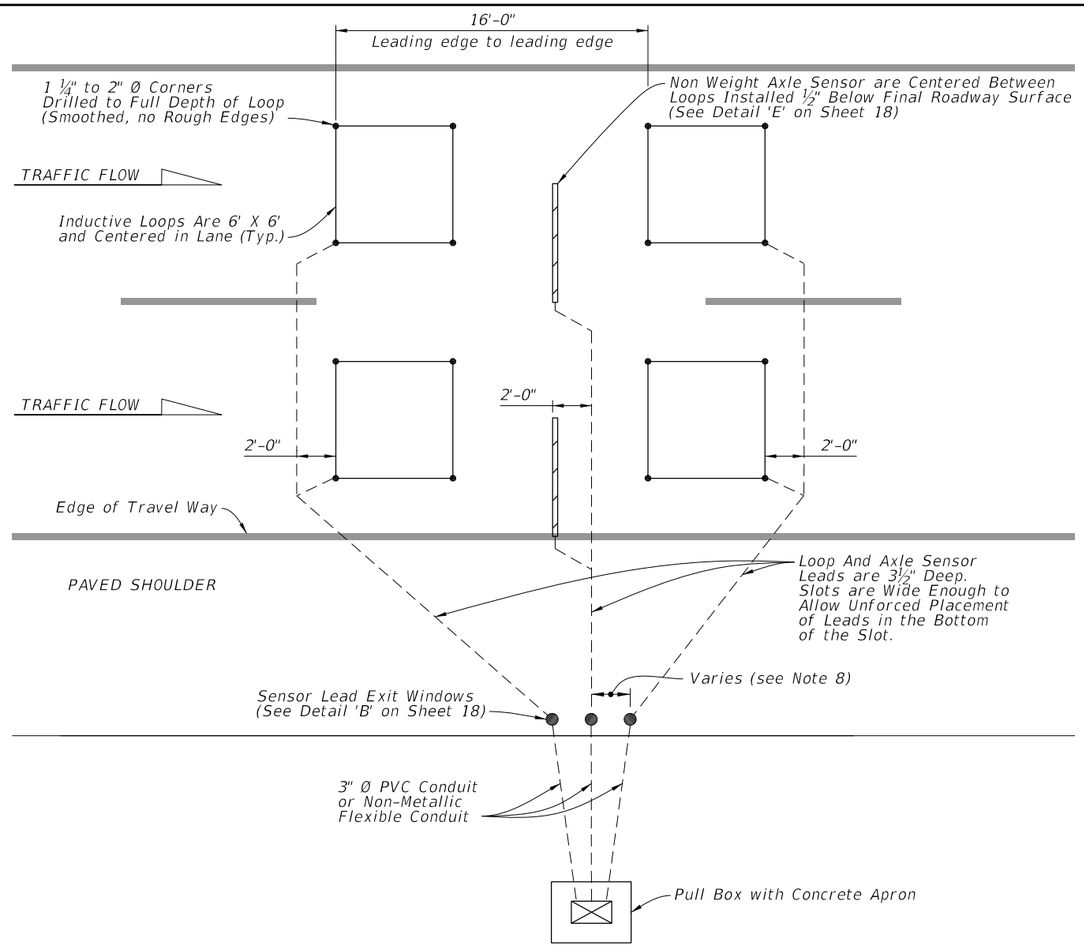
OPTION B

EQUIPMENT CABLE ASSEMBLY

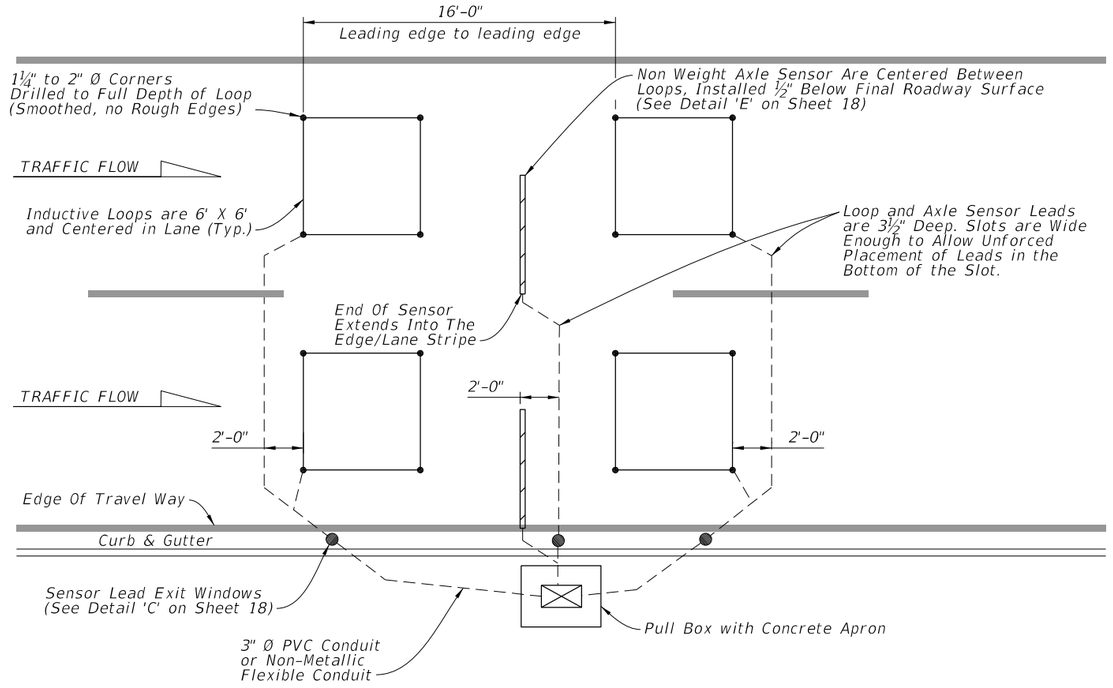
NOTES:

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 P1 equipment cable 5 ft. long (See 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.
3. The contractor is responsible for contacting the TMS Manager in the Transportation Data and Analytics Office for lane number information and verification.
4. Provide and install Speed/Classification Unit.
5. Cable ends must be fabricated to fit the vehicle speed/classification unit. See Sheet 4 for Pinout Charts, receptacle and plug details.

CABINET LAYOUT DETAILS
(Five to Eight Lanes)



ROADWAYS WITH PAVED SHOULDERS



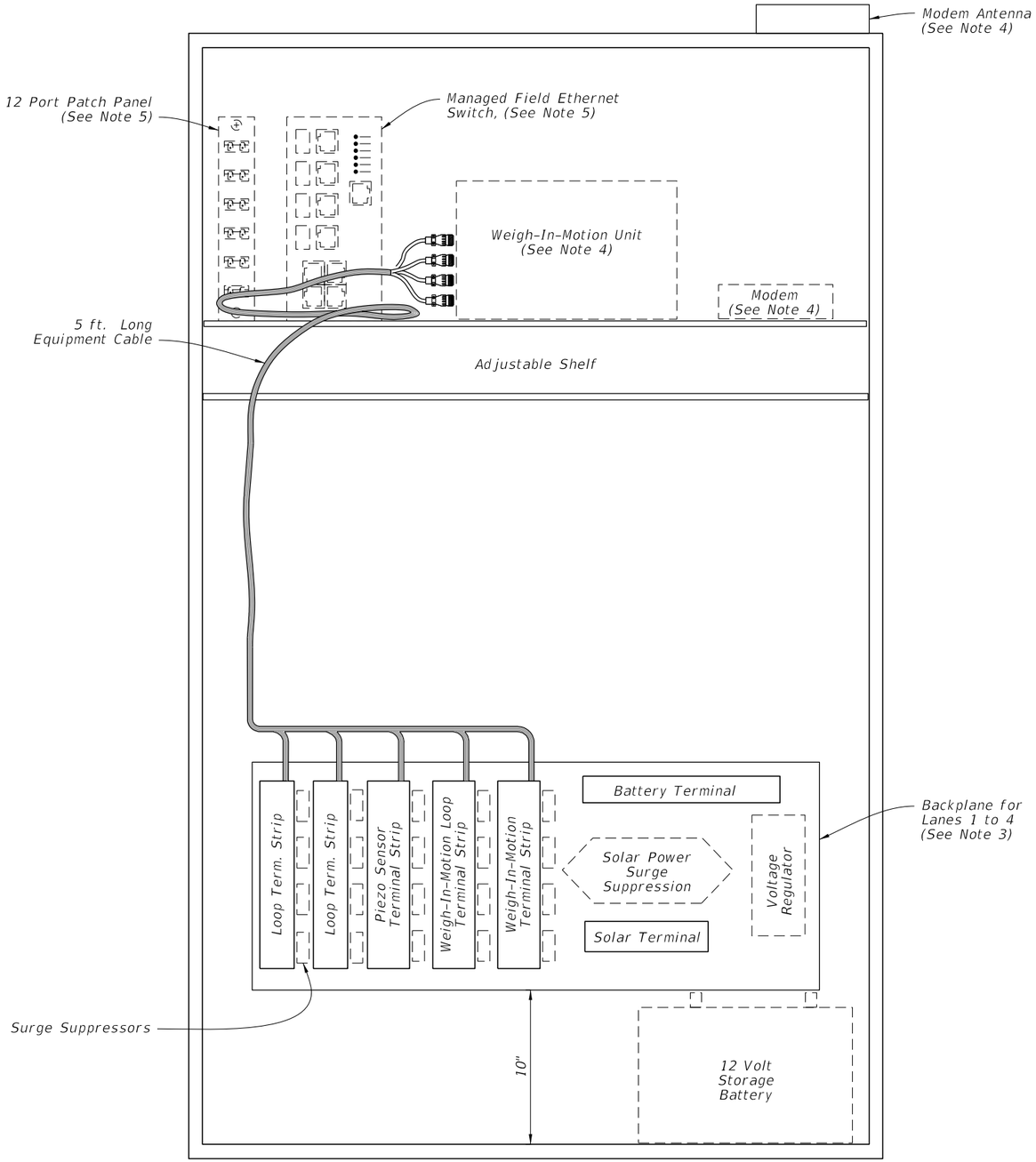
CURB & GUTTER ROADWAYS

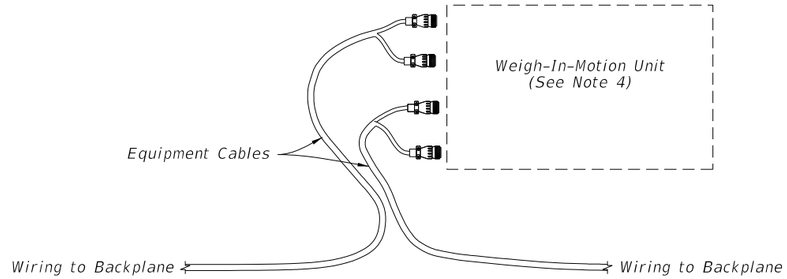
NOTES:

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. Place four turns of #14 AWG 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. Extend the twisted pair loop wire directly to the cabinet. No splicing of the loop leads will be permitted.
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 concrete apron details.
6. 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 ½" 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.
7. 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.
8. Install Exit Windows at least 2' apart.

LANE LAYOUT FOR PTMS INDUCTIVE LOOP AND AXLE SENSORS

(Typical for up to 4 Lanes of Sensor Leads Pulled to one Side of the Roadway)





EQUIPMENT CABLE ASSEMBLY

NOTES:

1. Traffic monitoring site cabinet includes:
   A. One adjustable shelf; (equipped as shown)
   B. One backplane assembly; (equipped as shown)
   C. 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. Two weigh-in-motion terminal strips;
   D. One battery terminal strip;
   E. 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. Provide and install a Weigh-In-Motion Unit, Modem, and Antenna.

5. Provide and install a 12-fiber single mode cable, a 12-port patch panel, and a managed field ethernet switch.

CABINET LAYOUT DETAILS

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WEIGH-IN-MOTION MONITORING SITE

To Weigh-In-Motion Unit

Loop Leads From Lanes 1 & 2 (See Note 3)

Loop Leads From Lanes 3 & 4 (See Note 3)

Piezo. Sensor Leads From Lanes 1 - 4 (See Note 3)

Weigh-In-Motion Loop Leads Sensor Leads From Lanes 1 - 4 (See Note 3)

Weigh-In-Motion Sensor Leads From Lanes 1 - 4 (See Note 3)

Surge Suppressor (Typ.)

8"

Loop 1a, Loop 1b, Loop 2a, Loop 2b, Loop 3a, Loop 3b, Loop 4a, Loop 4b: Blk, Gnd, Wht

Cntr. cond.

Veh. Sen. 1, Veh. Sen. 2, Veh. Sen. 3, Veh. Sen. 4

WIM Loop 1, WIM Loop 2, WIM Loop 3, WIM Loop 4: Blk, Gnd, Wht

WIM Sen. 1, WIM Sen. 2, WIM Sen. 3, WIM Sen. 4

Gnd

1¾" 3¼" 3¼" 3¼" 3¼" 3¼"

2'-0"

Inductive Loop, Piezo Sensor, and Weigh-In-Motion (WIM) Leads From Roadway

NOTES:

1. Reference Sheet 9, 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.

8 in. x 24 in. x ⅛ in. Thick Aluminum Backplane

Battery Terminal

Solar Power Voltage Regulator

Jumper (-) (+) Jumper

Ground to Backplane

Solar Power Surge Suppressor

4⅛"

3⅞"

1⅞"

(+)

(-)

Jumper (-) (+) Jumper

Solar Terminal

2"

Ground

CABINET BACKPLANE DETAILS

WEIGH-IN-MOTION MONITORING SITE

10/3/2023 2:38:37 PM

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2024-25 STANDARD PLANS	TRAFFIC MONITORING SITE	INDEX	SHEET
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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. Place four turns of #14 AWG 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. Extend the twisted pair loop wire directly to the cabinet. No splicing of the loop leads will be permitted.

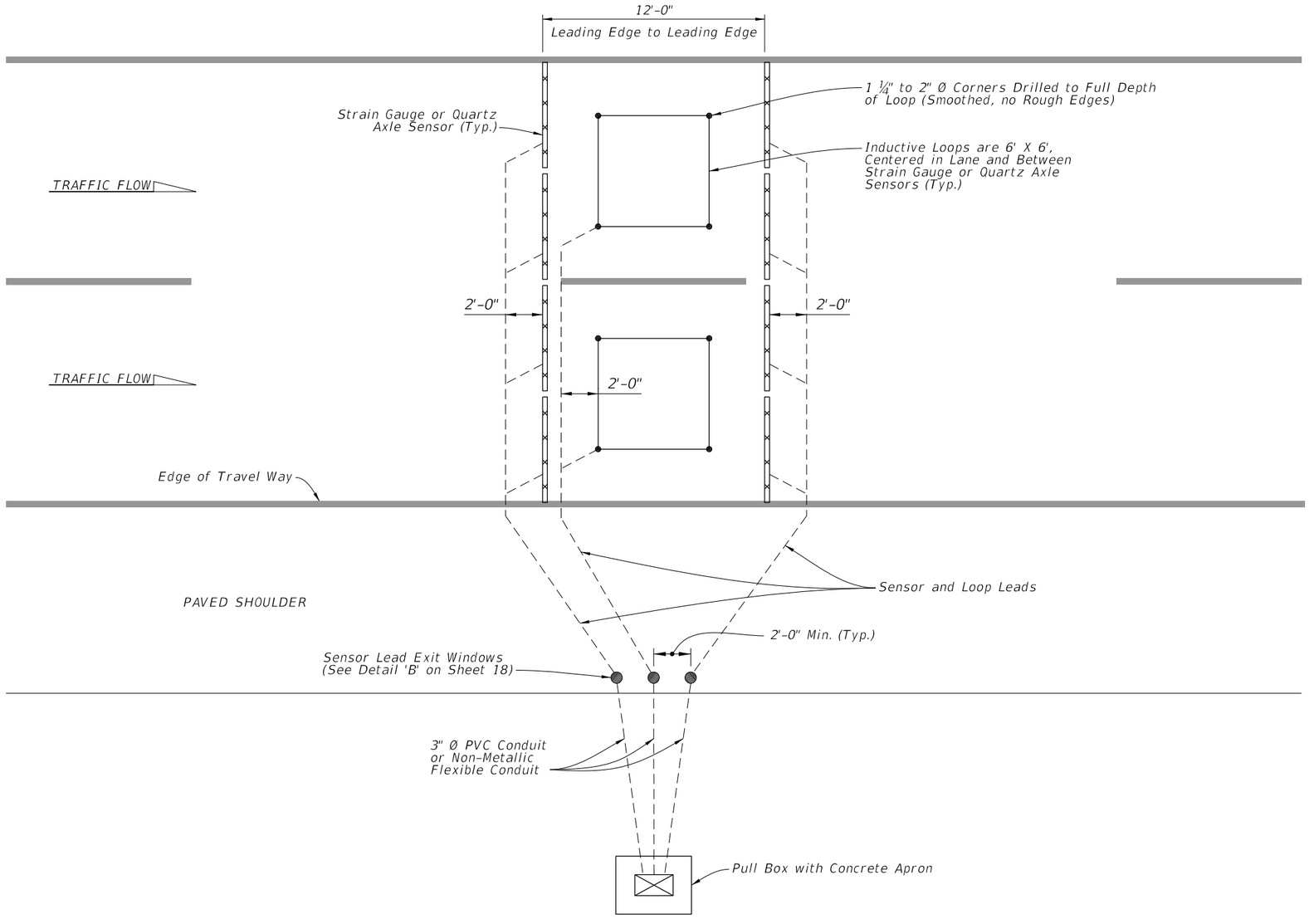
4. Marking will consist of two rounds of contrasting colored tape, one color for the lane number and the second color for the lead loop location in the lane. The first band closest to the cabinet will represent the lane number, one round of tape will be for lane 1 and two rounds will be lane 2, etc. 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 concrete apron details.

6. 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 ½" from the chalk line. Install the sensor according to manufacturer's recommendations.

7. 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.

8. Install Exit Windows at least 2' apart.



LANE LAYOUT FOR TTMS/CCS INDUCTIVE LOOP AND WEIGH-IN-MOTION SENSORS

WEIGH-IN-MOTION MONITORING SITE

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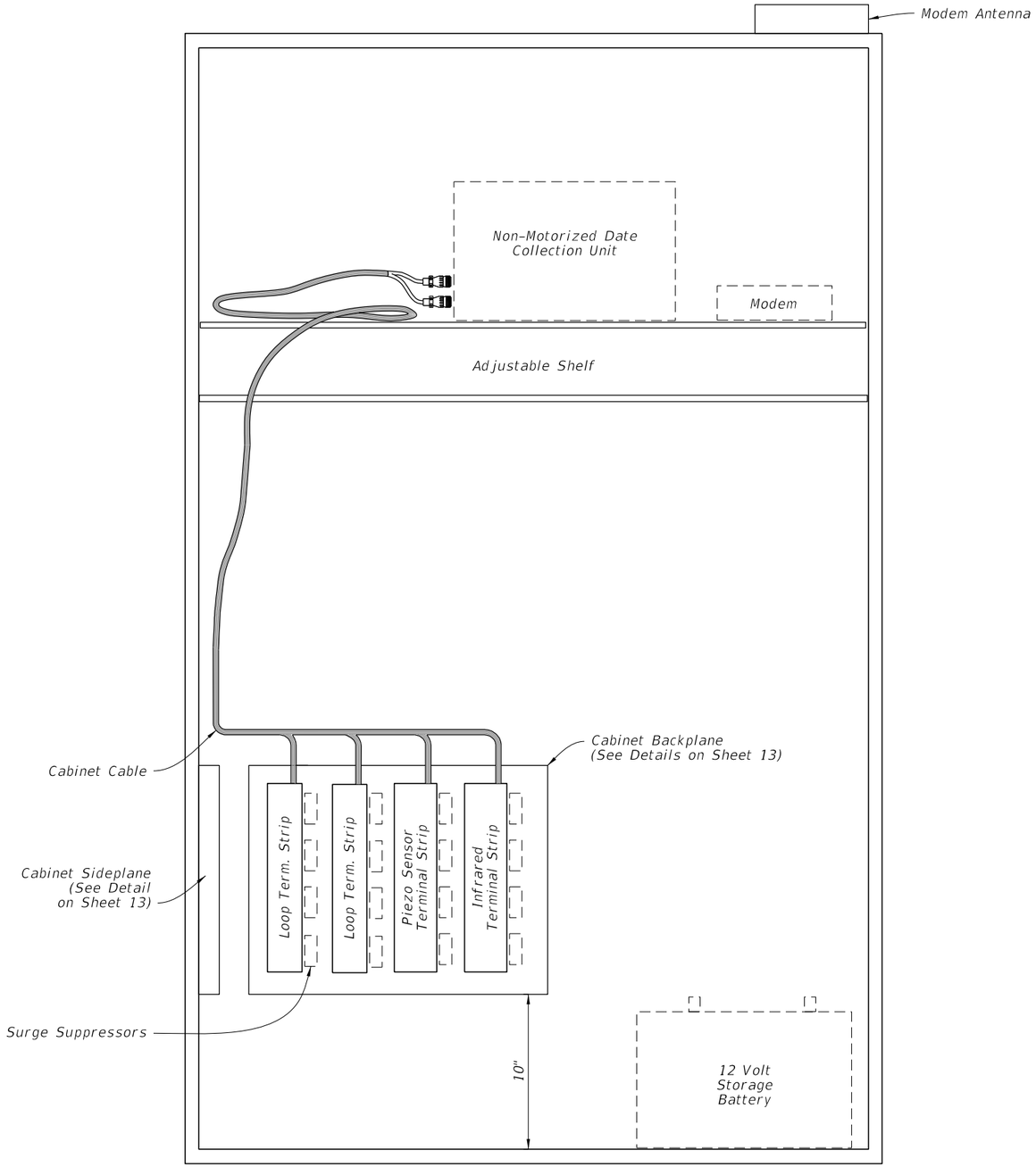

NOTES:

1. Traffic monitoring site cabinet includes:
   A. One adjustable shelf; (equipped as shown)
   B. One backplane assembly; (equipped as shown)
   C. One sideplane assembly; (equipped as shown);
   D. Infrared sensor and piezo sensor cables.

2. Basic backplane assembly consists of:
   A. Two inductive loop terminal strips;
   B. One piezo sensor terminal strip:
   C. One infrared sensor terminal strip;.

3. Basic sideplane assembly consists of:
   A. One battery terminal strip;
   B. One solar panel terminal strip.

CABINET LAYOUT DETAILS

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NON-MOTORIZED MONITORING SITE

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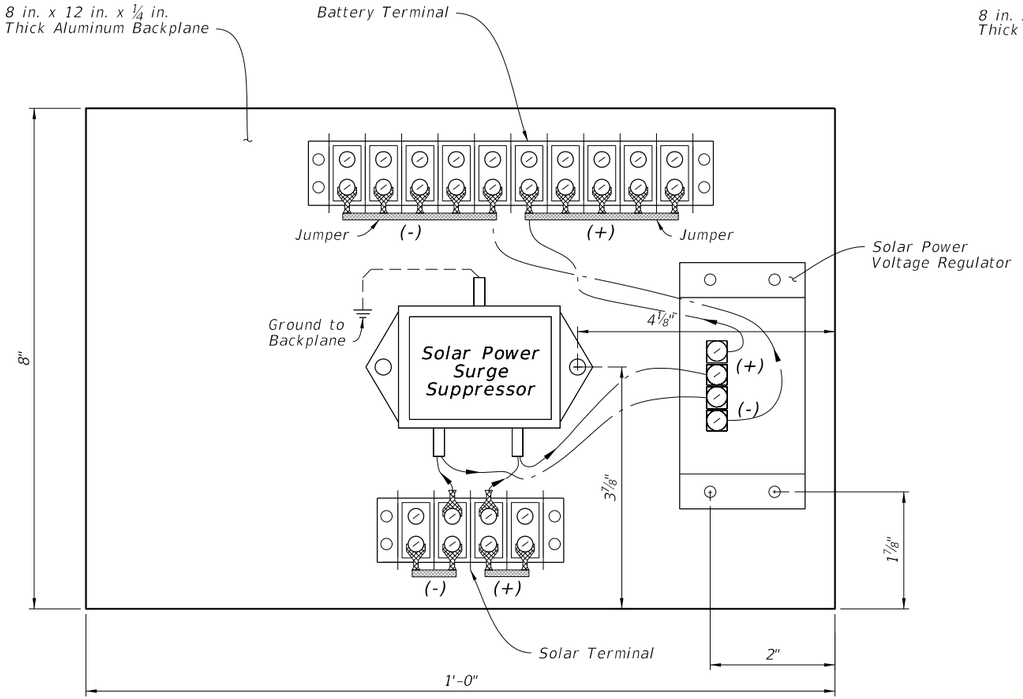
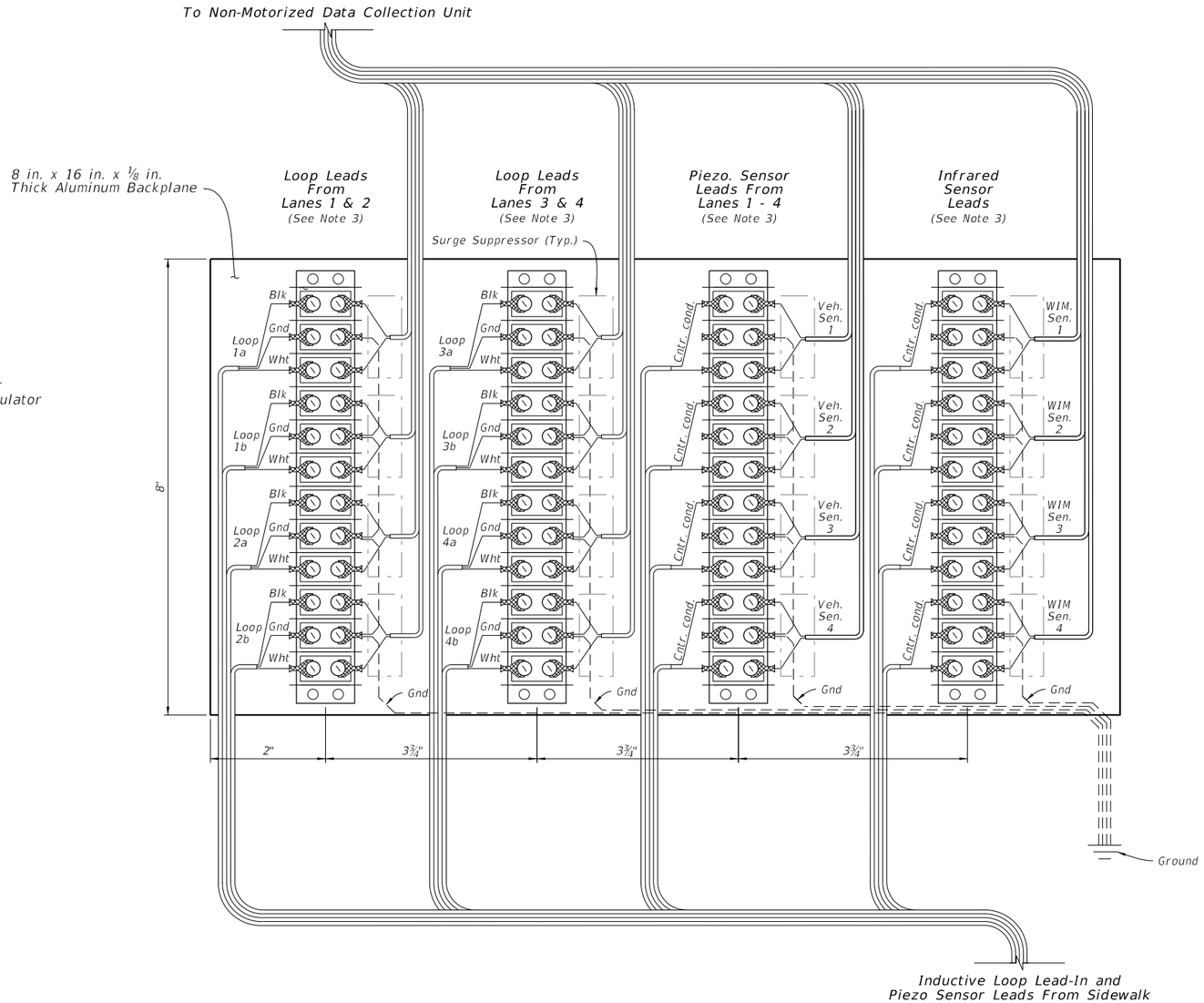
NOTES:

1. Reference Sheet 12, 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 SIDEPLANE DETAILS



CABINET BACKPLANE DETAILS

NON-MOTORIZED MONITORING SITE

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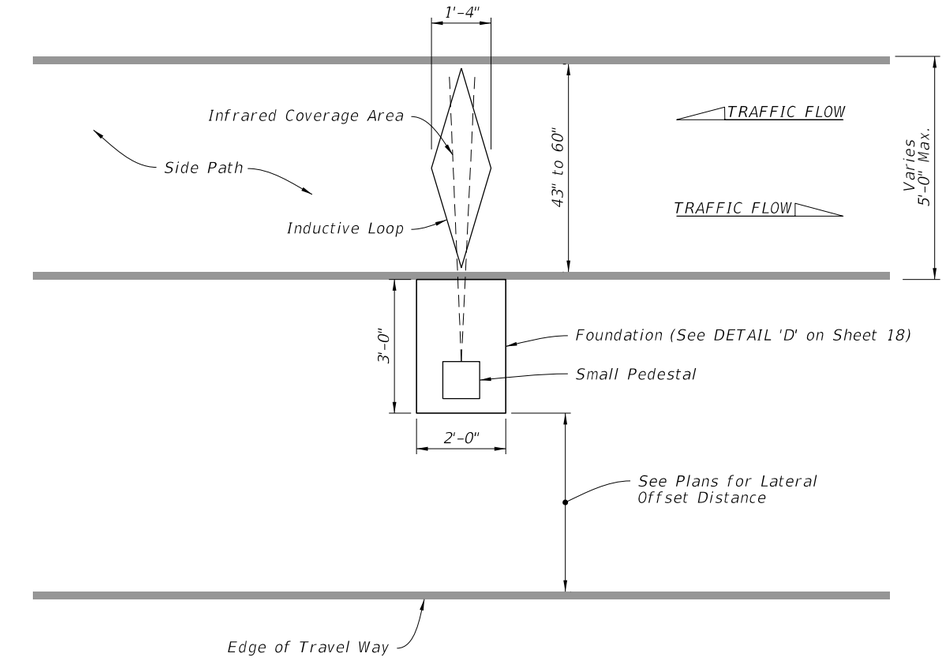
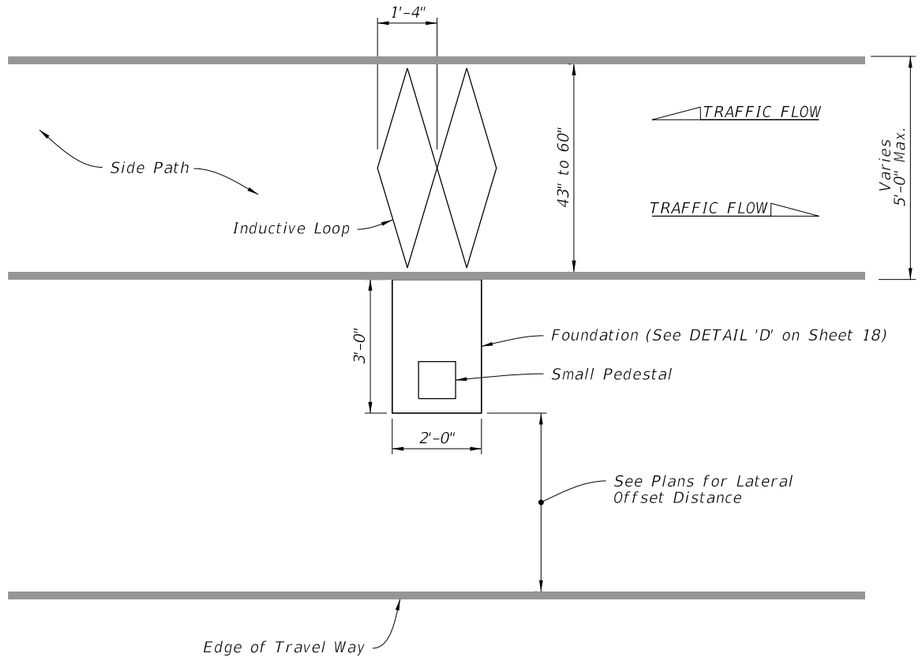


SINGLE LOOP ASSEMBLY

(Directional Recognition With Infrared)



DUAL LOOP ASSEMBLY

(Directional Recognition Without Infrared)

NON-MOTORIZED MONITORING SITE NOTES:

1. 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 at full width in a single pass. Cutting two slots and chipping out roadway material between them is not allowed.
2. Cut a ¼" to ½" wide slot.
3. All sensor slots and any cuts in the pathway will be thoroughly blown out to ensure there is no dust or debris prior to installation of the loops and leads.
4. Place eight turns of loop wire in each slot.
5. Twist loop leads at the rate of 10 twists per foot.
6. Extend the twisted pair loop wire directly to the termination point with no splices.
7. For the side-by-side configuration, install the farthest loop lead through the near side loop slot.
8. At the termination point, for north-south pathways, mark the north piezometer and inductive loop sensor lead(s) with one tape. For east-west pathways, mark the east piezometer and inductive loop sensor lead(s) with one tape. Mark the south and west sensor lead(s) with two tapes.
9. Do not point infrared sensors towards a path where motor vehicles pass, a metallic or reflective surface, surfaces exposed to sunlight or vegetation that are likely to move.
10. Avoid placing infrared sensors near heat sources, steep surfaces, high voltage power cables, and telecommunications equipment.
11. If crossing pavement joints see DETAIL "F" on Sheet 18.

NARROW SIDE PATH CONFIGURATIONS

NON-MOTORIZED MONITORING SITE

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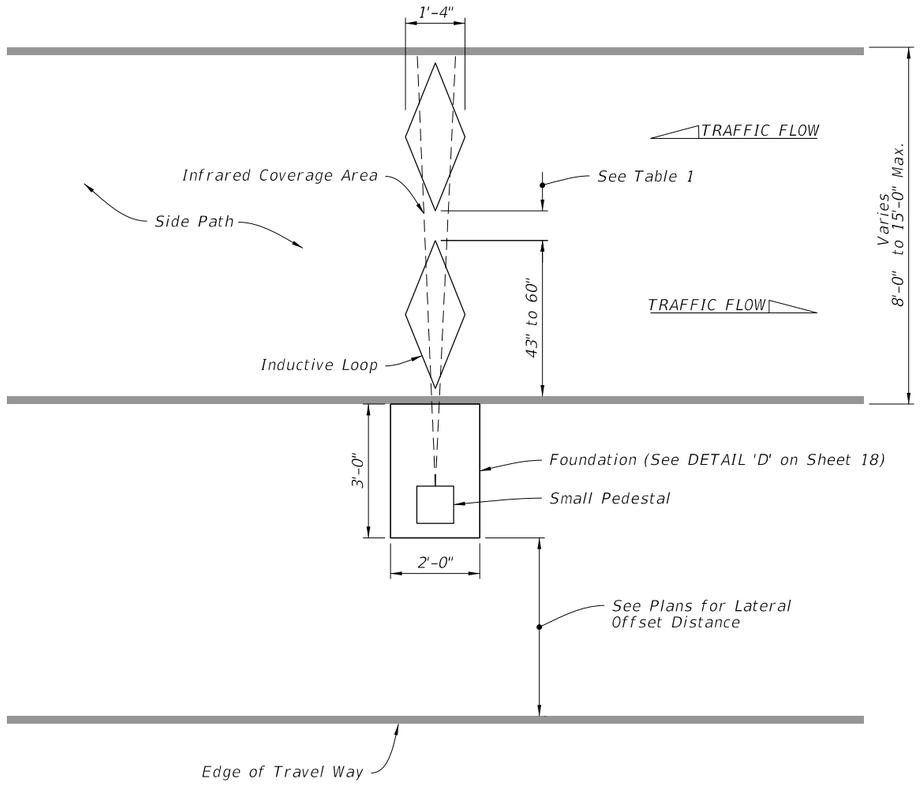
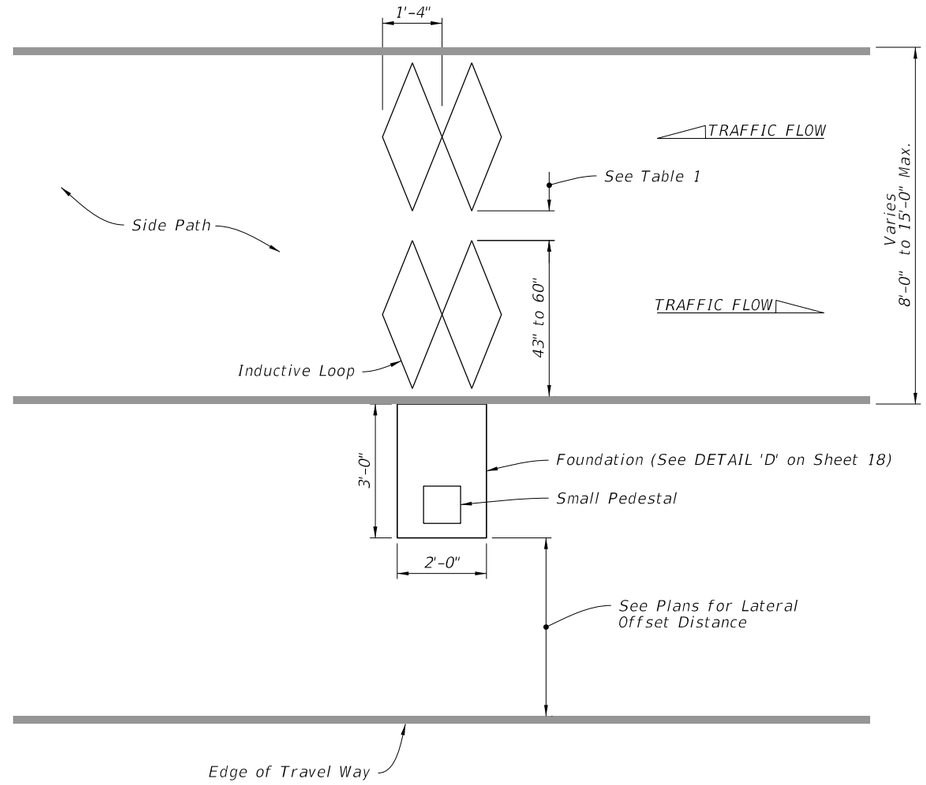


DUAL LOOP ASSEMBLY

(Directional Recognition With Infrared)



QUAD LOOP ASSEMBLY

(Directional Recognition Without Infrared)

TABLE 1	
Loop Length	Distance
Greater than 59"	Contact Manufacturer to evaluate the feasibility
59"	3.00"
55"	4.00"
51"	4.75"
47"	5.50"
43"	6.25"
Less than 43"	Contact Manufacturer to evaluate the feasibility

LARGE SHARED USE PATH CONFIGURATIONS

NON-MOTORIZED MONITORING SITE

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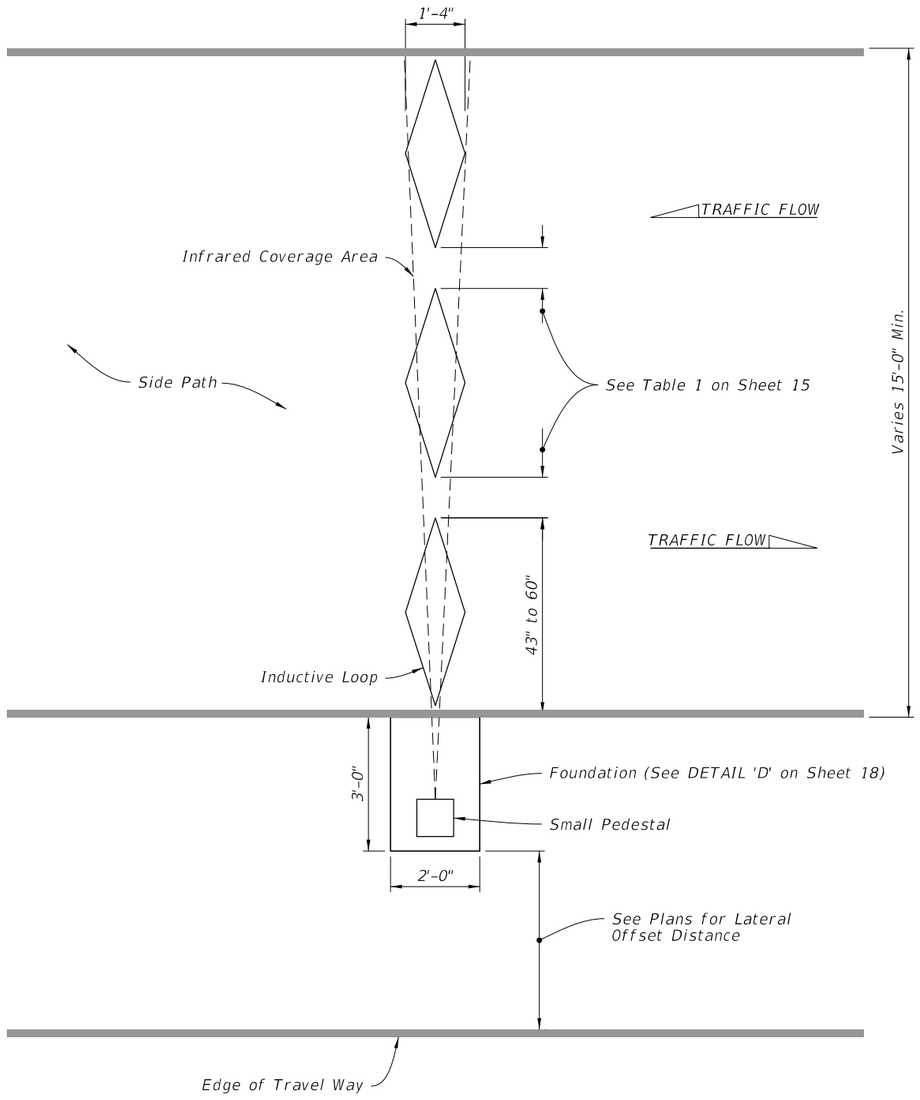
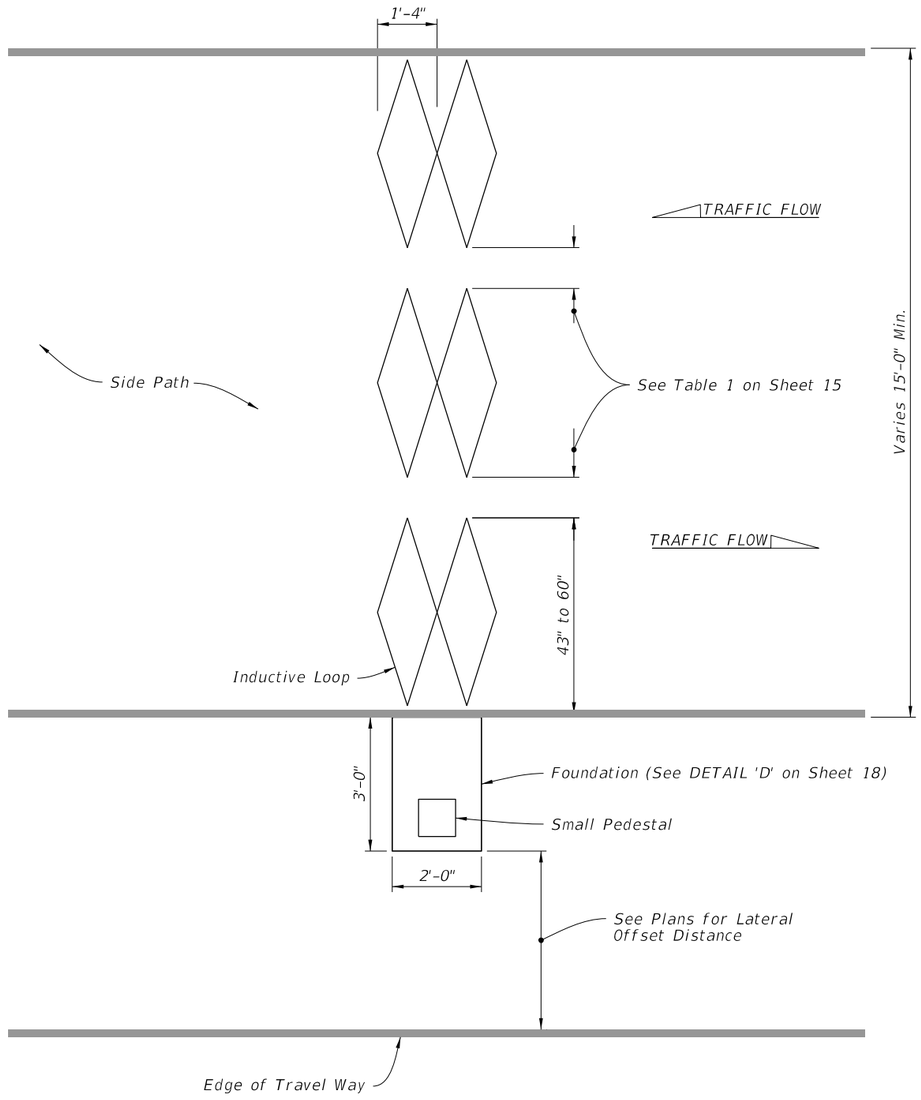


TRIPLE LOOP ASSEMBLY

(Directional Recognition With Infrared)

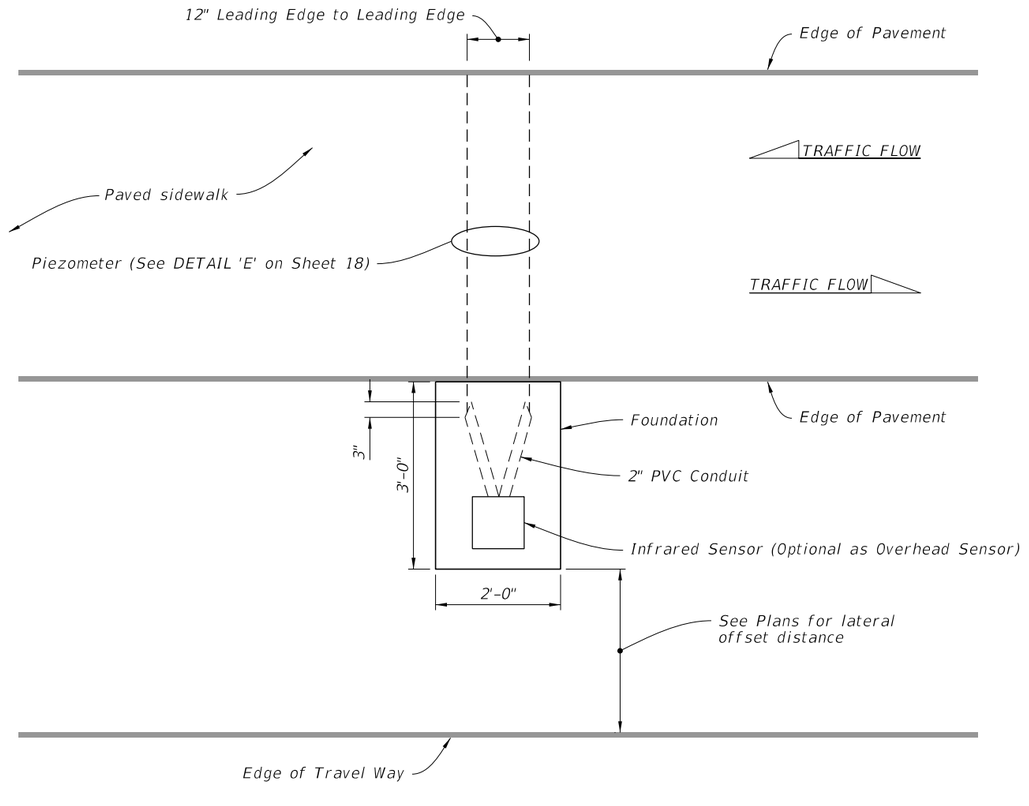


SEXTUPLE LOOP ASSEMBLY

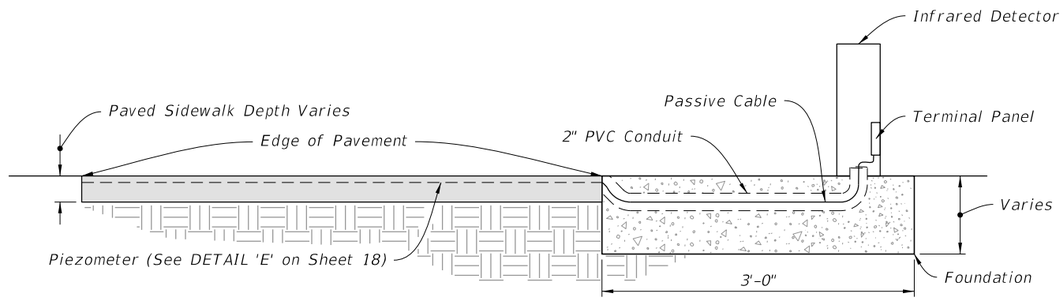
(Directional Recognition Without Infrared)

EXTRA LARGE SHARED USE PATH CONFIGURATIONS

NON-MOTORIZED MONITORING SITE



PLAN VIEW



ELEVATION

PAVED SIDEWALK CONFIGURATION

NON-MOTORIZED MONITORING SITE

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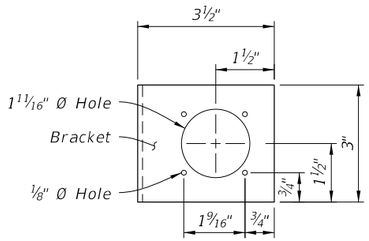
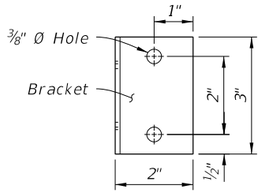
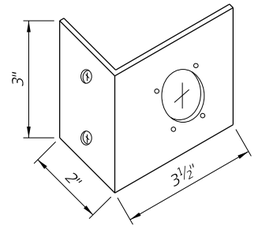


FRONT VIEW



SIDE VIEW



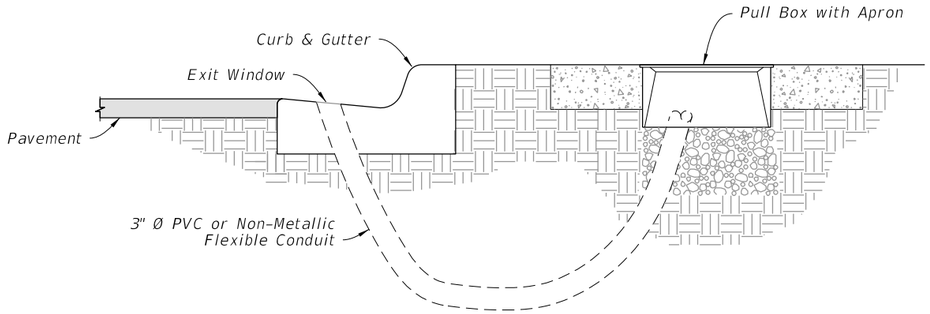
ISOMETRIC VIEW

NOTE:

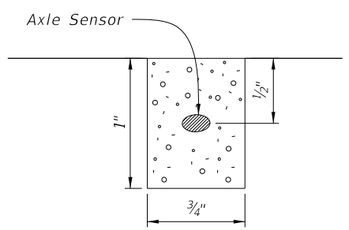
Fabricate bracket out of 3/32" – ⅛" inch thick aluminum. Dimensions may vary depending on the manufacturer of the J1 receptacle being furnished. The cabinet manufacturer will construct the mounting bracket to fit the receptacle.

J1 MOUNTING BRACKET

DETAIL 'A"

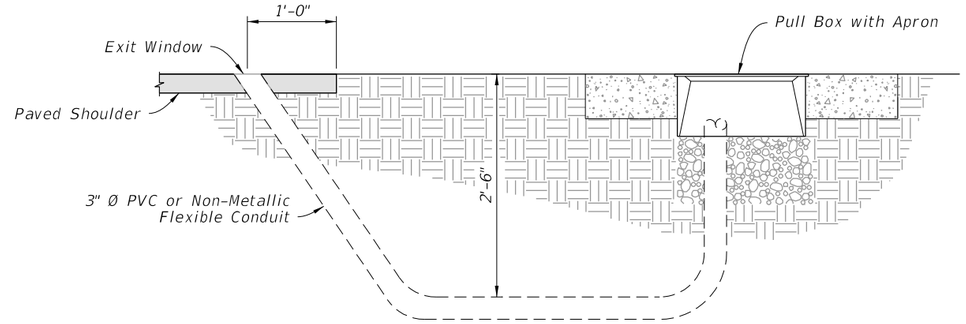


DETAIL 'C'

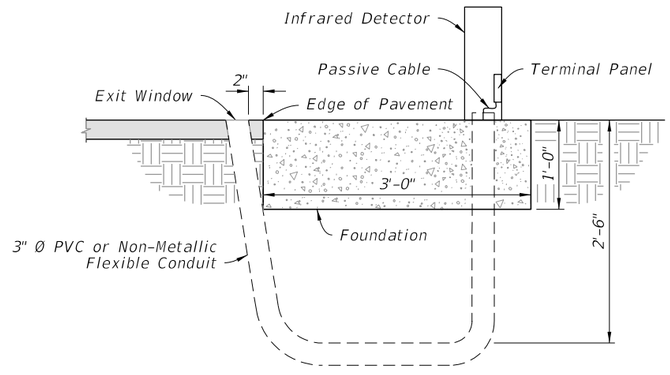


END VIEW
(Axle Sensor Slot)

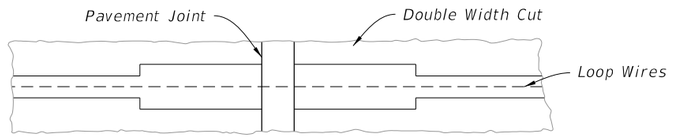
DETAIL 'E'



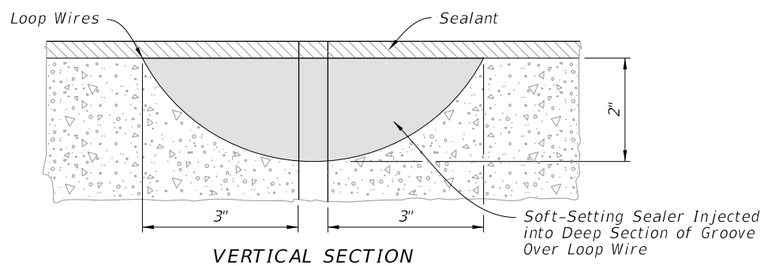
DETAIL 'B'



DETAIL 'D'



PLAN VIEW



VERTICAL SECTION

DETAIL 'F'

DETAILS 'A' THRU 'F'

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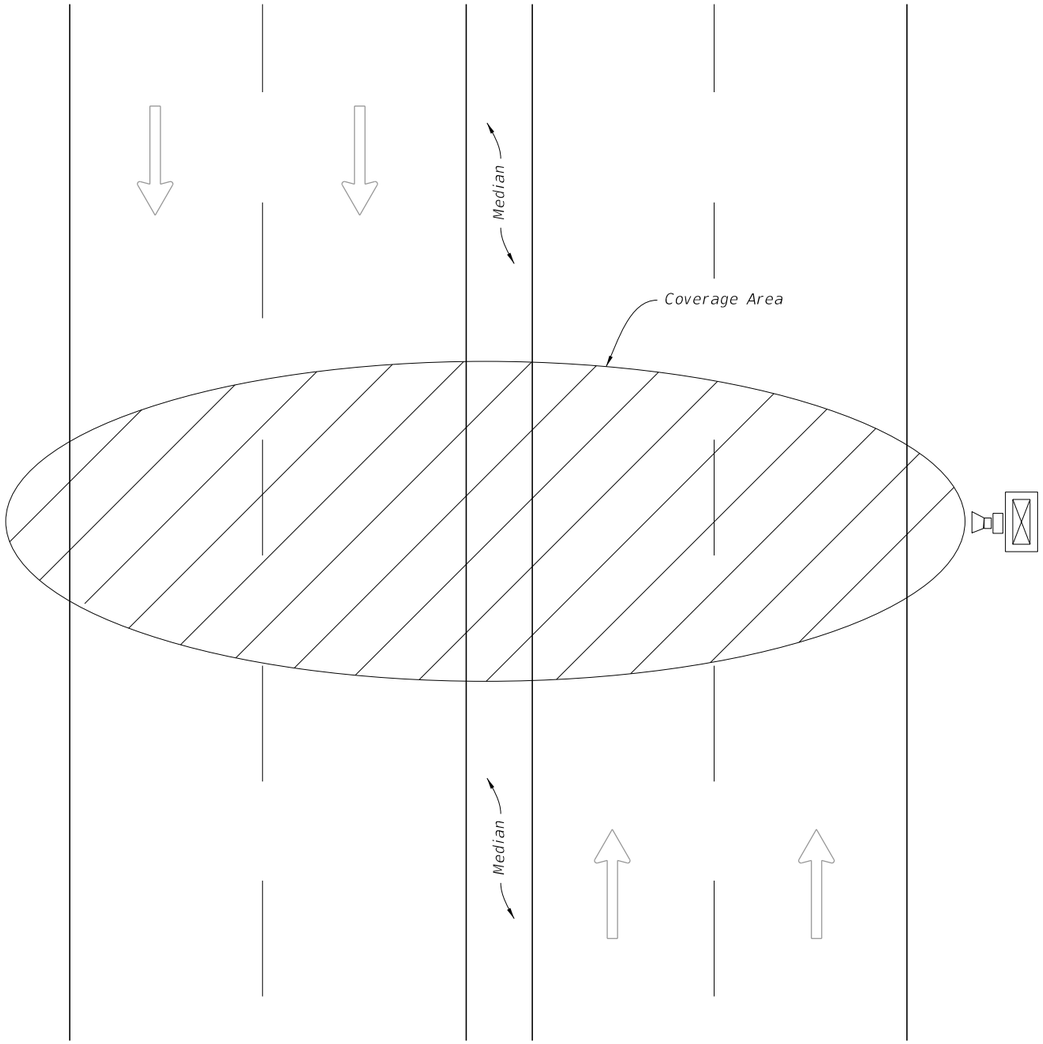
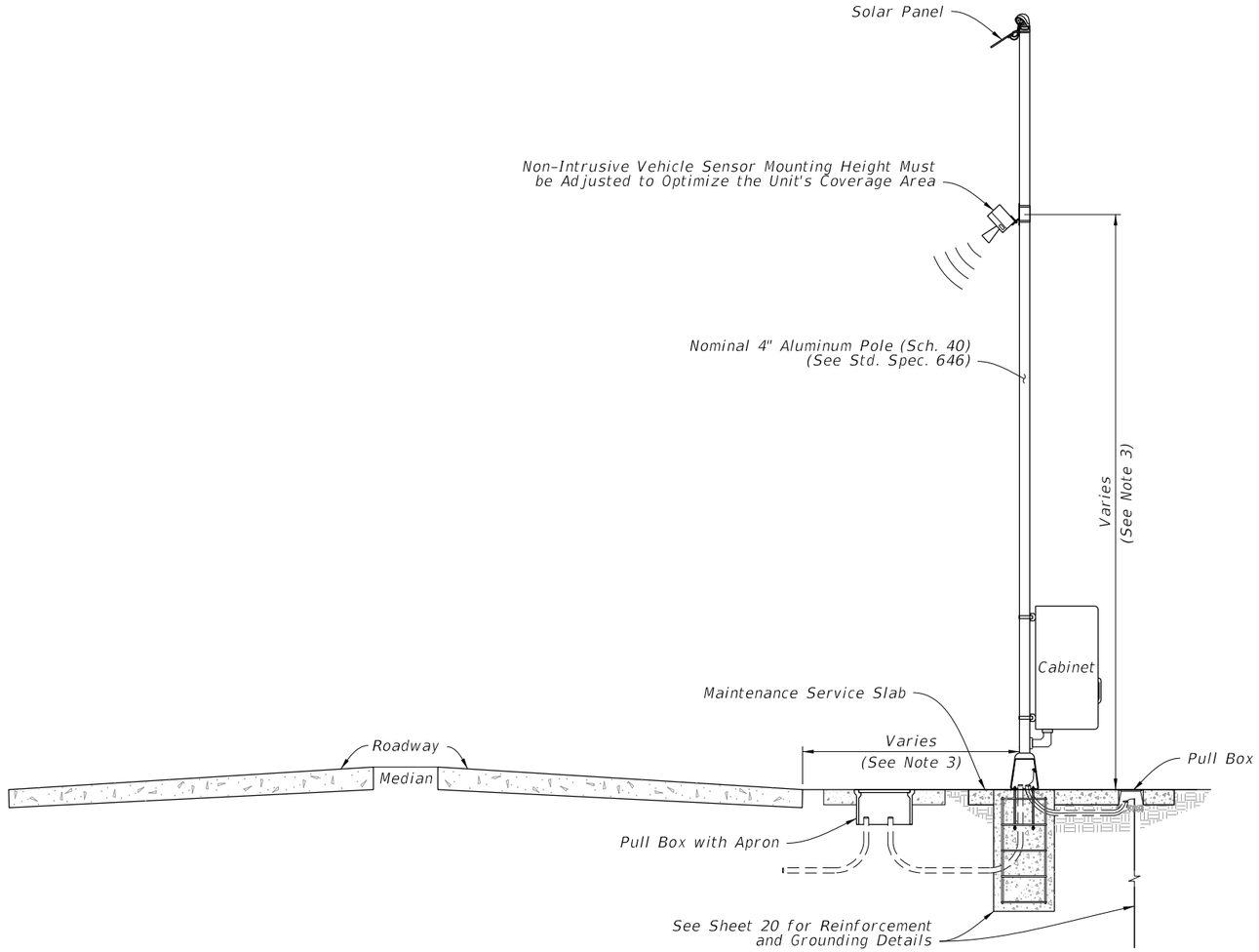


PLAN



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.
4. Cabinet, ground rod pull box, and maintenance service slab installed per Index 676-010, except cabinet center will be 4 feet above grade.

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NON-INTRUSIVE VEHICLE SENSOR

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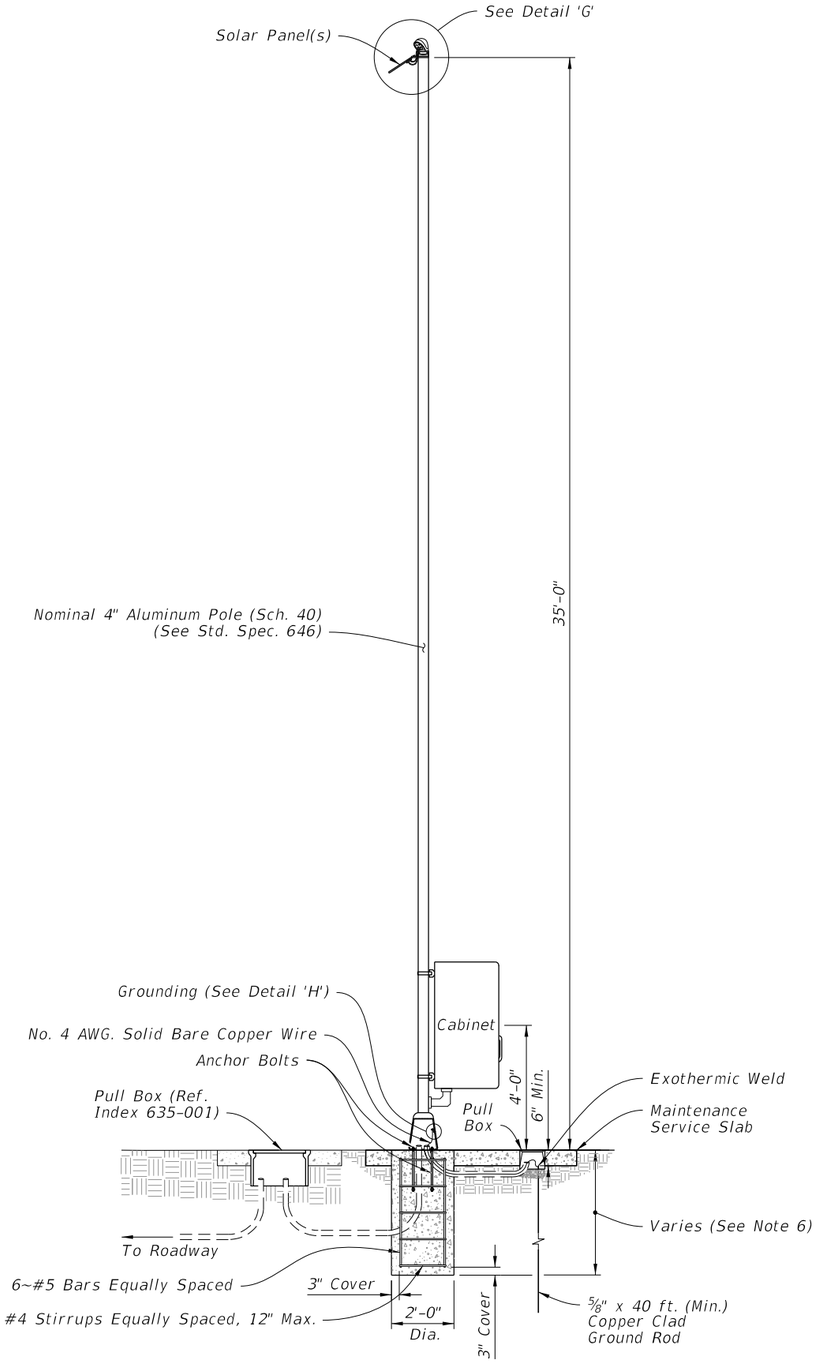


ELEVATION

SOLAR POWER POLE
WITH POLE MOUNTED CABINET
(Continuous Count Site - TTMS/CCS)

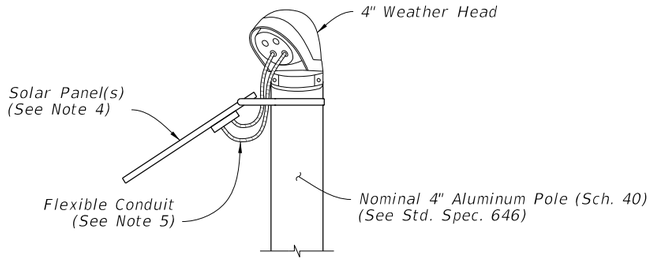
NOTES:

1. Cabinet, ground rod pull box, and maintenance service slab 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:

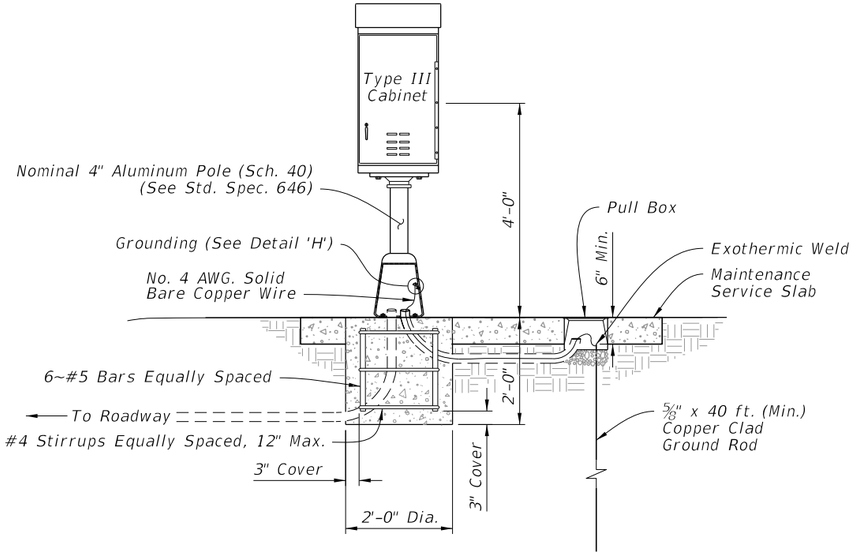
   a. 4' poles: depth of 2'-0"

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

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

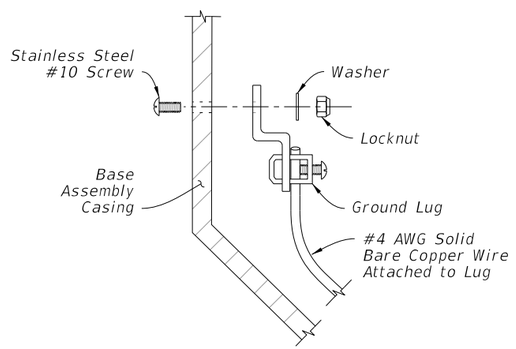


DETAIL 'G'



ELEVATION

PEDESTAL MOUNTED CABINET
(Short Term Traffic Monitoring Sites - PTMS)



DETAIL 'H'

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SOLAR POWER POLE WITH POLE MOUNTED CABINET AND PEDESTAL MOUNTED CABINET DETAILS

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