## GENERAL NOTES:

1. Work this Index with Specification 649.

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. Materials:

   A. Pole: ASTM A1011 Grade 50, 55, 60 or 65 (less than 1/4") or ASTM A572 Grade 50, 60 or 65 (greater than or equal to 1/4") 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 plate washers. ASTM F2329 galvanization.
   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: ASTM A123
   K. Concrete: Class IV (Drilled Shaft) for all environment classifications.

4. Pole Faberication:

   A. Provide either a round or 16 sided pole with a constant taper of 0.14 inches per foot
   B. Pole shaft may be either One or Two sections (with telescopic field splice)
   C. Up to two longitudinal seam welds are permitted.
   D. Use only circumferential welds at base.
   E. Use a complete penetraton weld for longitudinal seam welds within 6" of circumferential welds. Use a complete penetraton weld on female section of telescopic field splices, splice length plus six inches. All other areas, size the partial penetration welds to at least 60% of the pole tube thickness.
   F. Perform all welding in accordance with the American Welding Society Structural Welding Code (Steel) ANSI/AWS D1.1 (current edition). For additional welding requirements see AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, Section 5.15, Welded Connections.
   G. Provide a 2"x4" (Max.) aluminum identification tag on the pole. Secured tag to pole with stainless steel screws. Locate the tag inside pole and visible from handhole. Include the following information:

      Financial Project ID,
      Pole Height
      Manufacturer's Name
      Yield Strength (Fy of Steel)
      Pole Base Wall Thickness

   H. Except for Anchor Bolts, all bolt hole diameters are equal to the bolt diameter plus 1/16", prior to galvanizing. Hole diameters for anchor bolts are not exceed the bolt diameter plus 1/2".

5. 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.

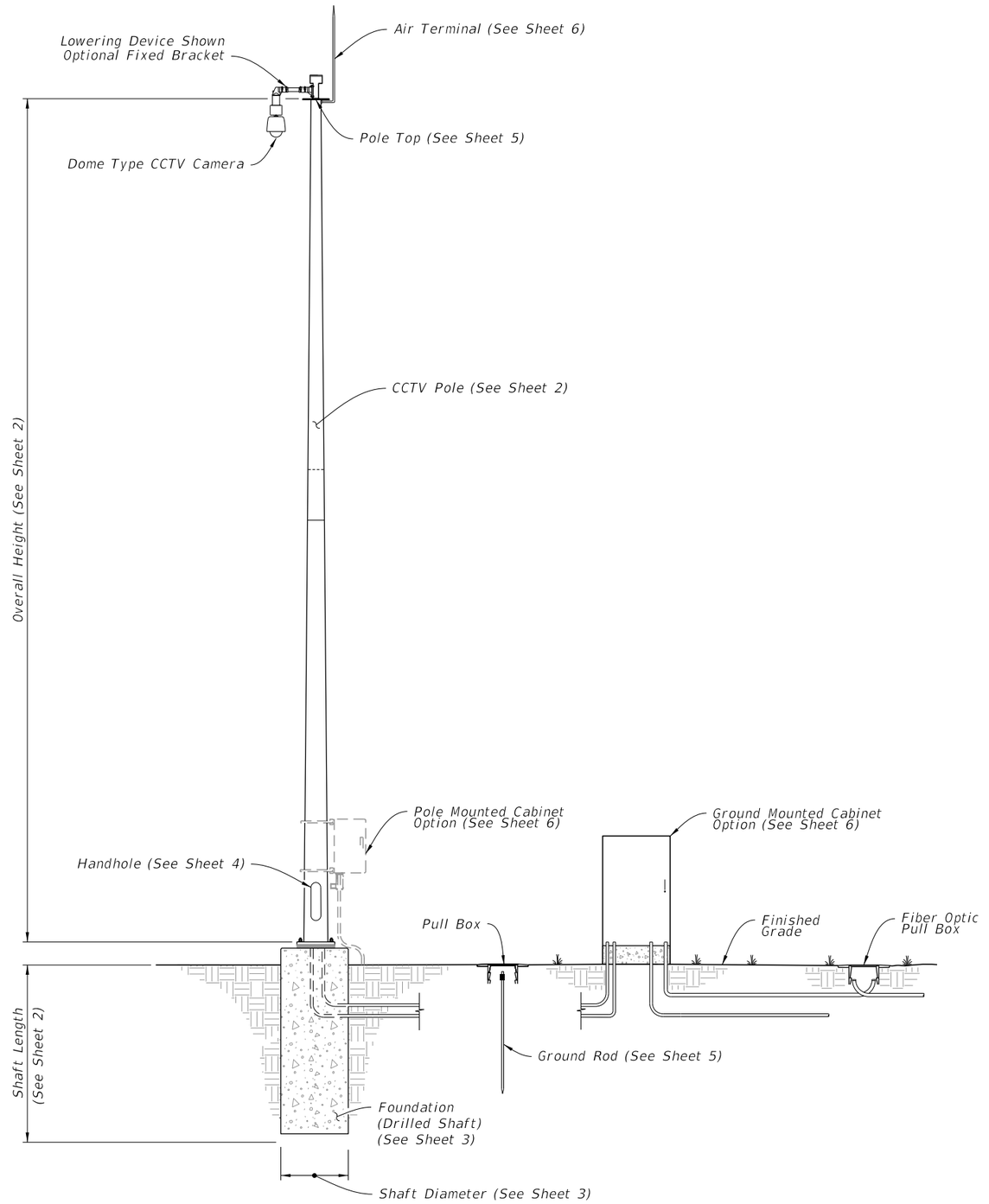
      a. Locate top and bottom cable guides within the pole aligned with each other.
      b. Position one cable guide 2" below the handhole.
      c. Position other cable guide 1" directly below the top of the tenon.
      d. Position Park Stands 2" below the top of the handhole.

6. Cabinet Installation:

   A. Splice fiber optic cables in cabinet to preterminater patch panel.
   B. Furnish and install TVSS protection on all cabling in cabinet.
   C. Furnish and install secondary TVSS protection on outlets for equipment in cabinet.
   D. Ensure that all electronic equipment power is protected and conditioned with TVSS devices.
   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.

7. 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 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 stands, etc.) with lowering device manufacturer.




STEEL CCTV POLE ASSEMBLY

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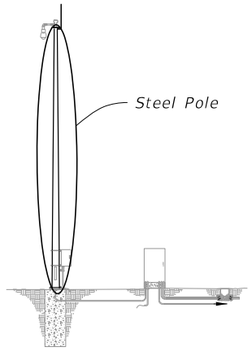



ASSEMBLY

| 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 |

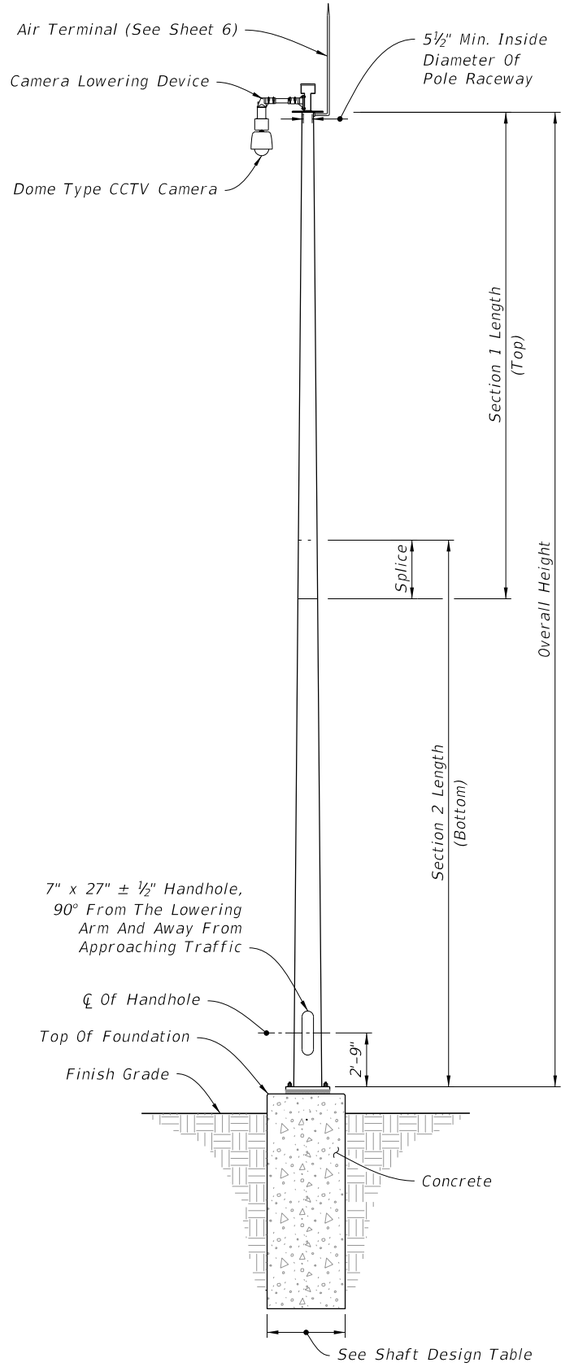
| ADDITIONAL BURIAL DEPTH DUE TO GROUND SLOPE | | |
|---|---|---|
| Ground Slope | 4'-0" Shaft Diameter | 5'-0" Shaft Diameter |
| 1:5 | 3'-0" | 4'-0" |
| 1:4 | 4'-0" | 5'-0" |
| 1:3 | 5'-0" | 6'-0" |
| 1:2 | 7'-0" | 9'-0" |

## FOUNDATION NOTES:

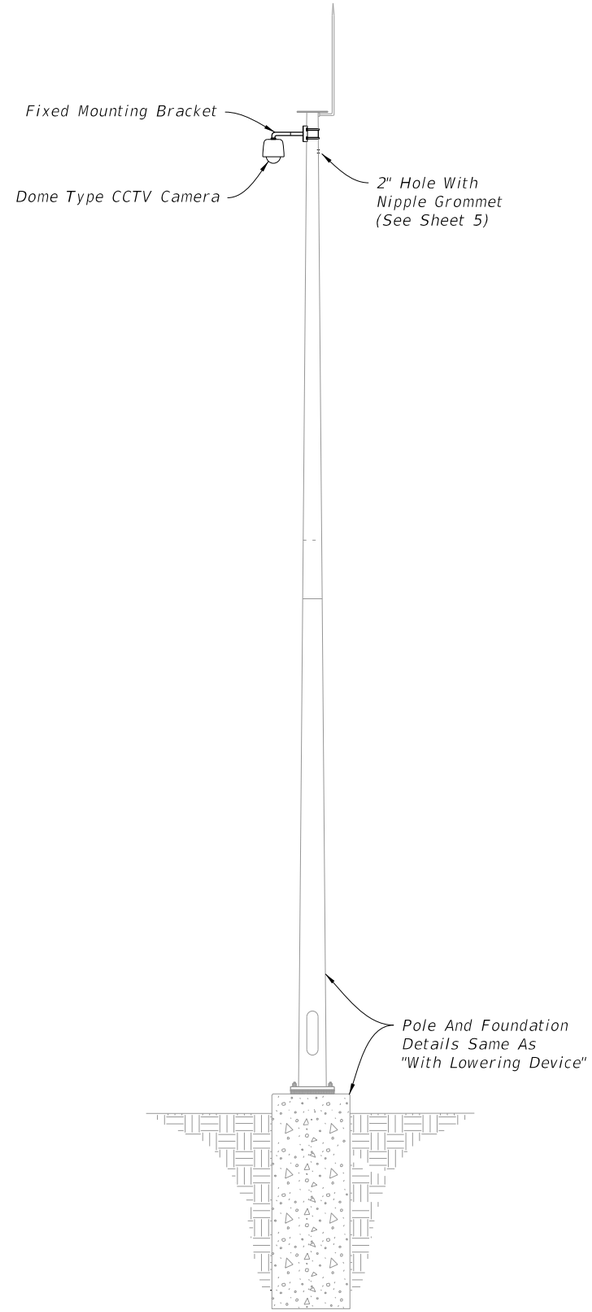
1. Shaft Length is based on 1'-0" height above the finished grade.
2. Shaft Design Table values are based on level ground (Flatter than 1:5). For foundation within slopes 1:5 and greater, increase the foundation depth in accordance with the Additonal Burial Depth Due To Ground Slope table. For values in-between those shown in the table, use the higher value.

| 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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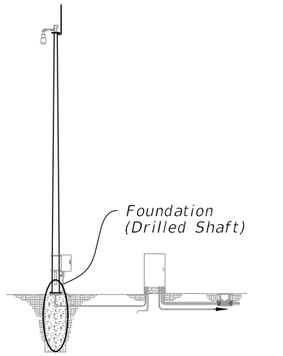
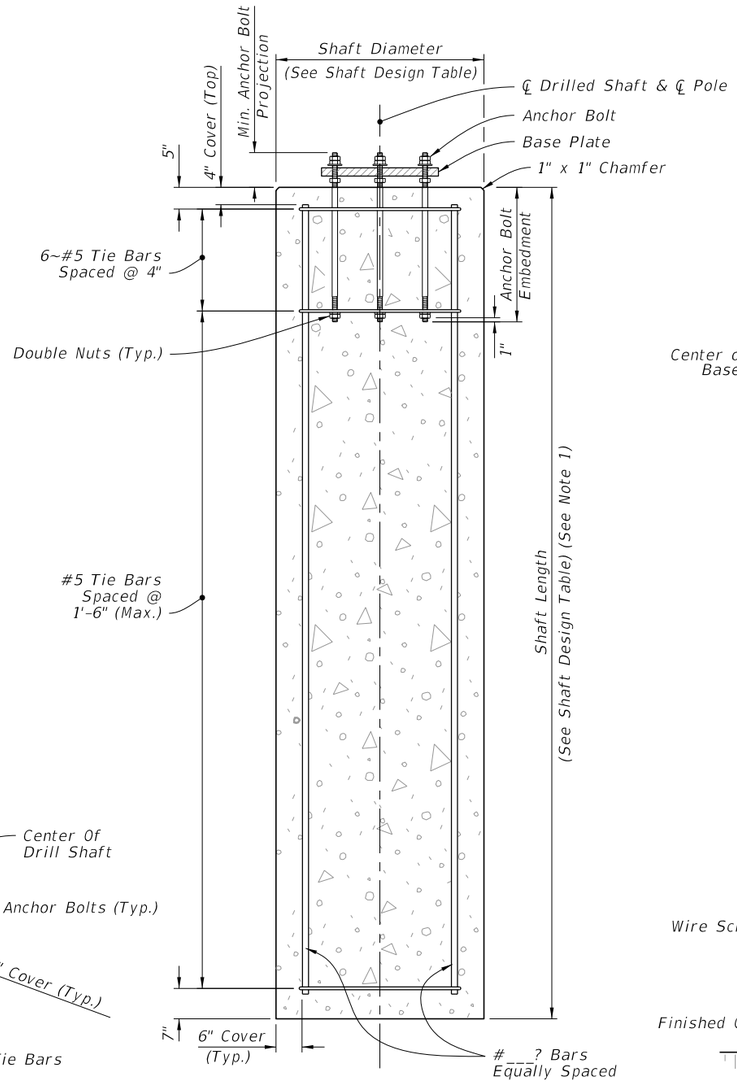



ASSEMBLY

**NOTES:**

1. Shaft Length is based on 1'-0" height above the finished grade.
2. Double nuts: Bottom nut may be half height 'Jam' Nut. Provide individual nut covers (Not Shown) for each bolt.
3. Conduit and CSL Tubes not shown for clarity.

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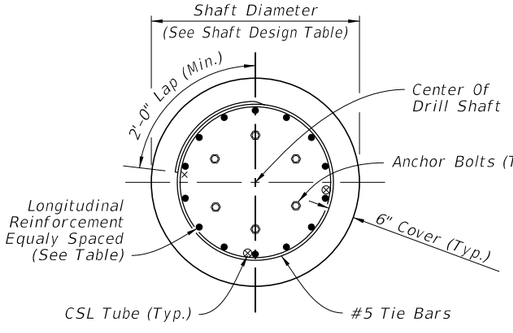
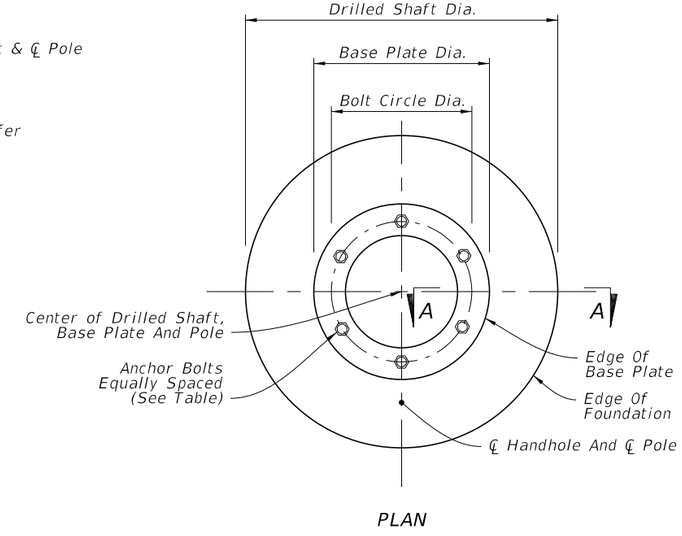



PLAN

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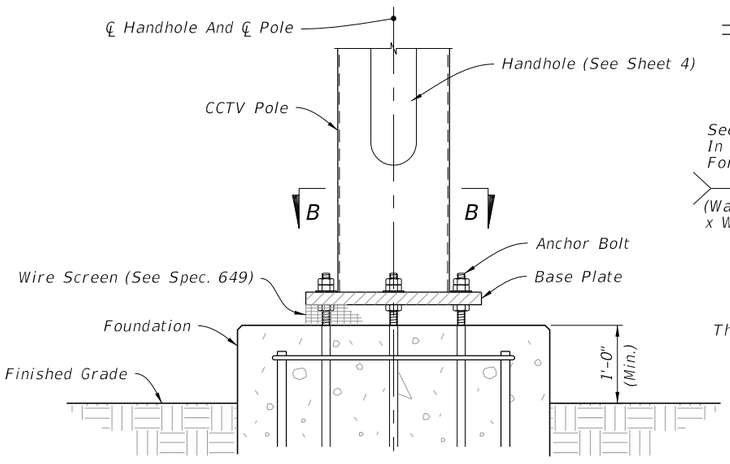


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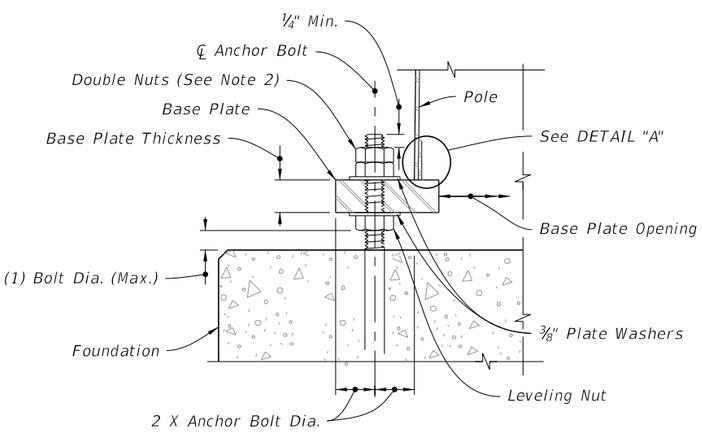
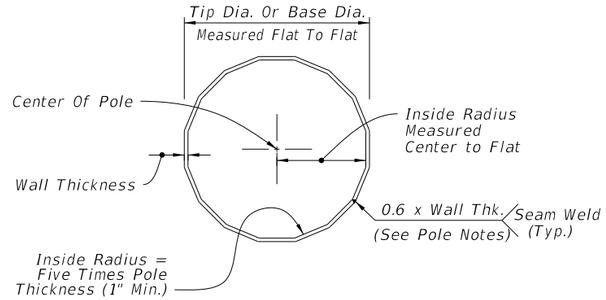
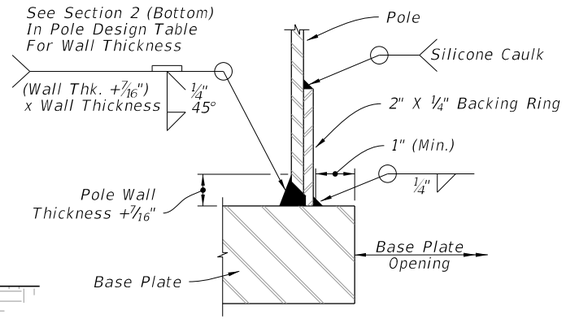



SECTION A-A




SECTION B-B




JOINT WELD DETAIL

FOUNDATION

BASE PLATE

DETAIL "A"

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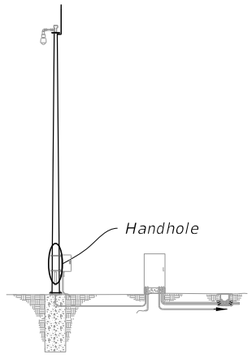


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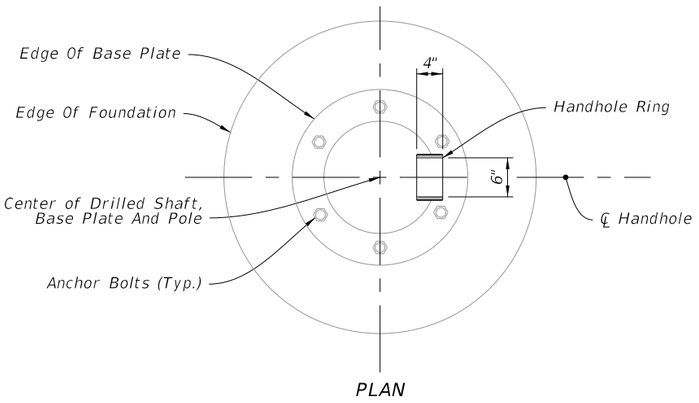


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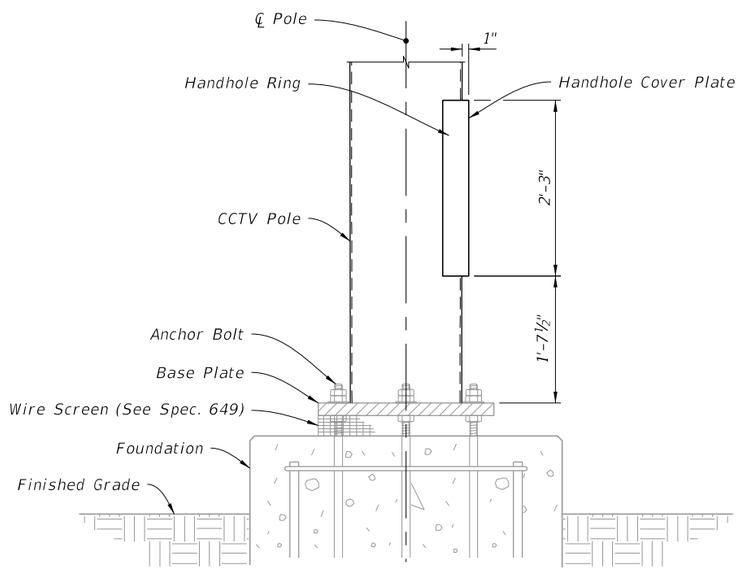
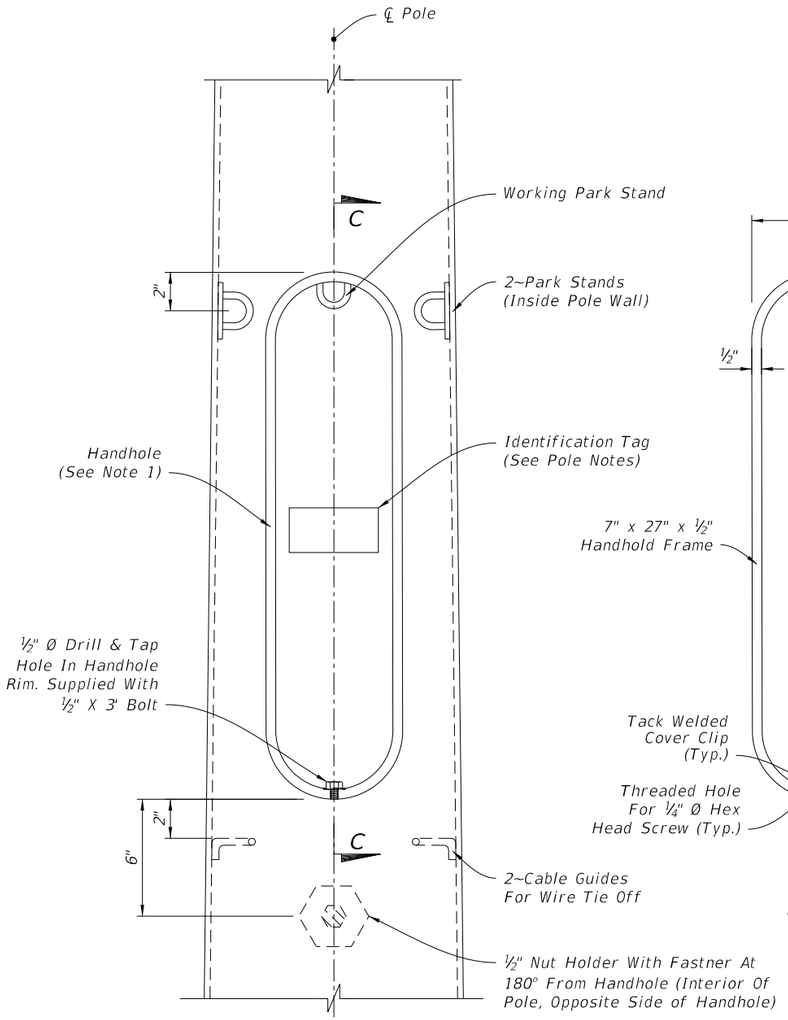



ELEVATION

HANDHOLE LOCATION

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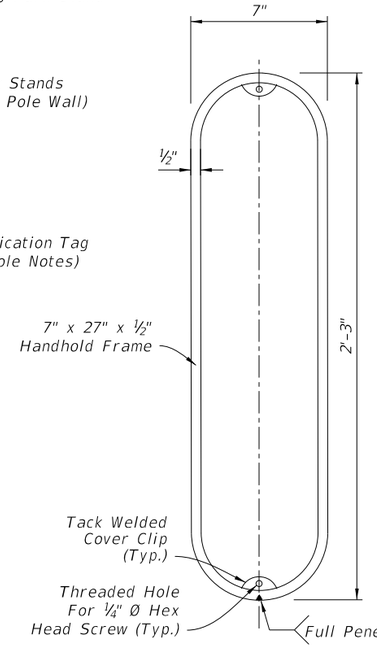
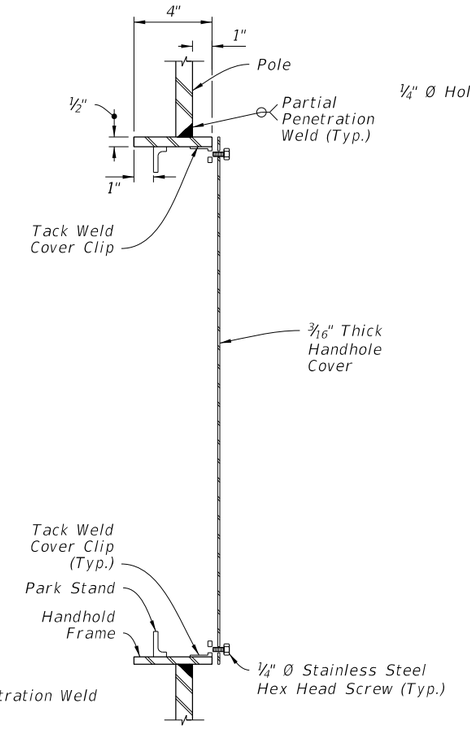



FRAME



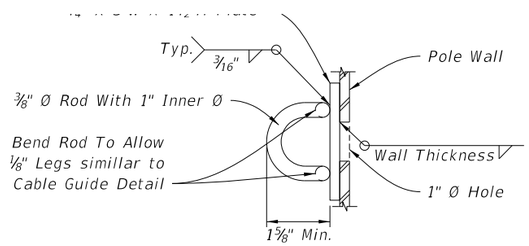

SECTION C-C


COVER PLATE

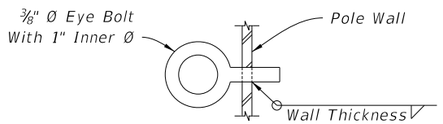
NOTE:

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.

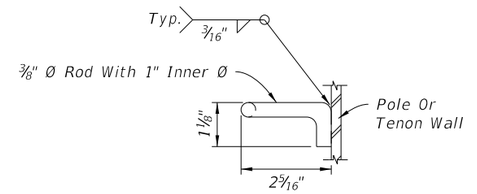
HANDHOLE DETAIL




Rod Option




Eye Bolt Option




PARK STAND DETAILS

CABLE GUIDE DETAIL

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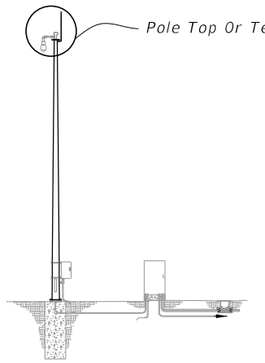


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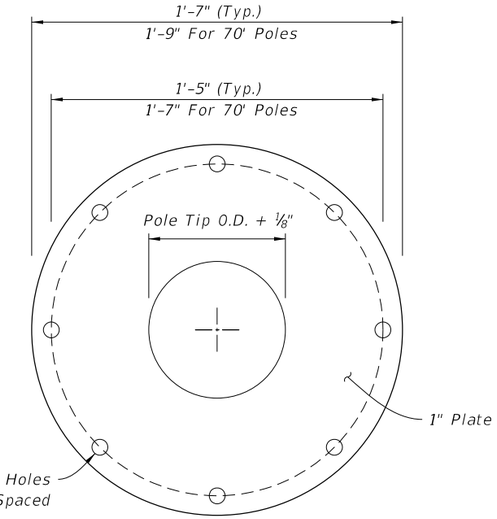
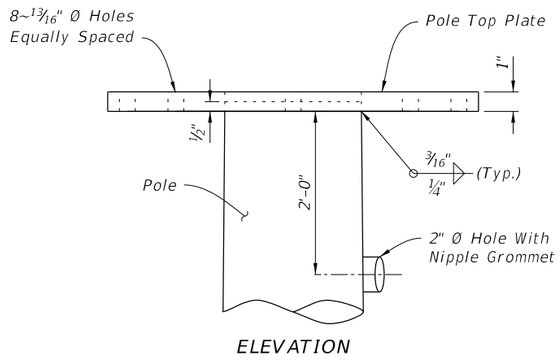
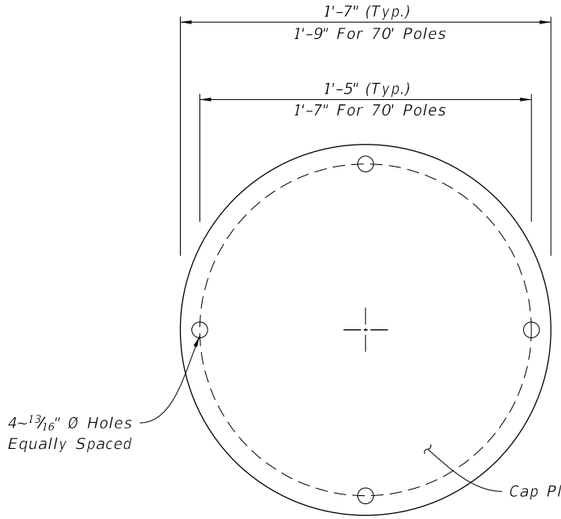



PLAN VIEW

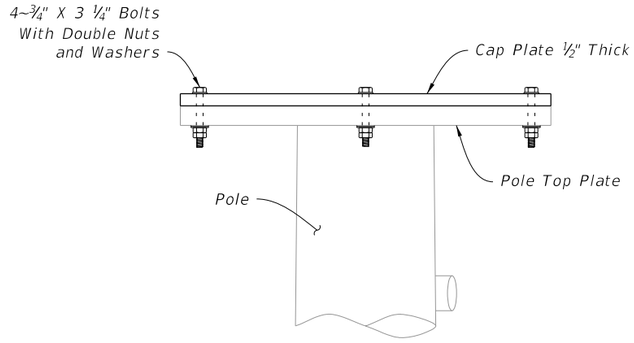



ELEVATION

## POLE TOP PLATE

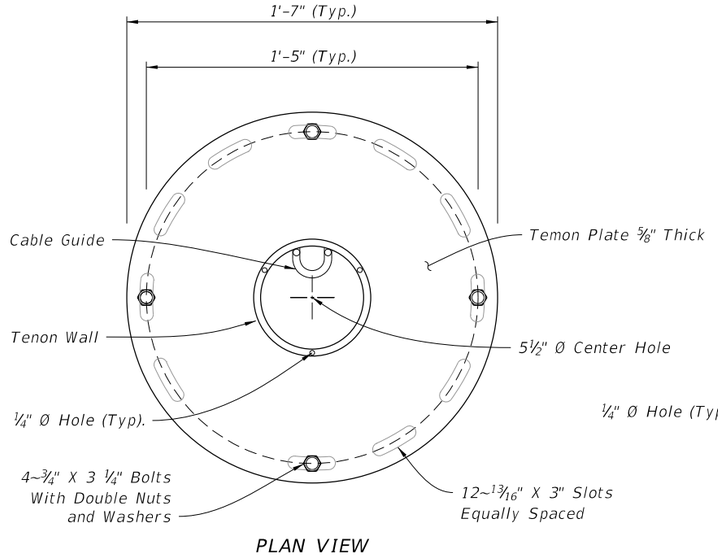



PLAN VIEW

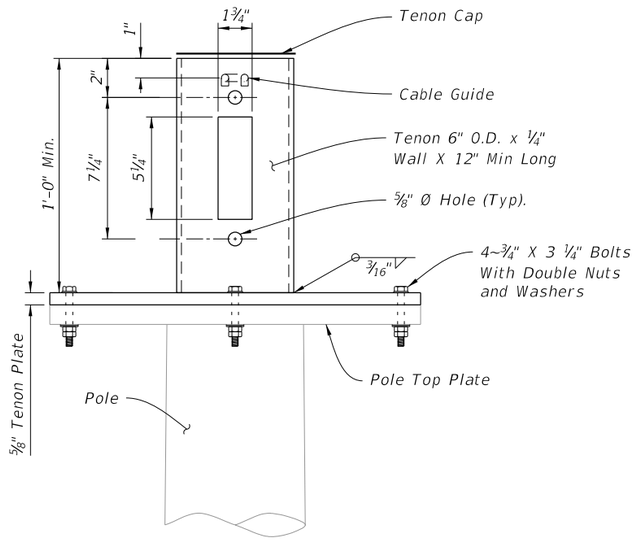



ELEVATION
CAP PLATE DETAIL

## POLE TOP DETAIL

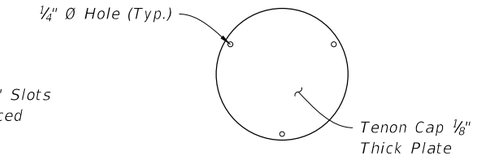



PLAN VIEW

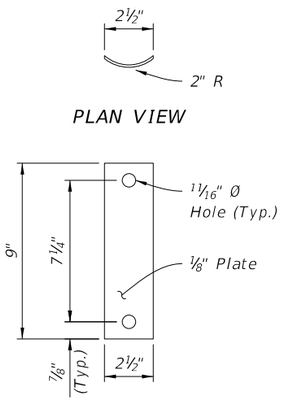



ELEVATION
LOWERING DEVICE TENON

## POLE TOP DETAIL




## TENON CAP




## TENON COVER

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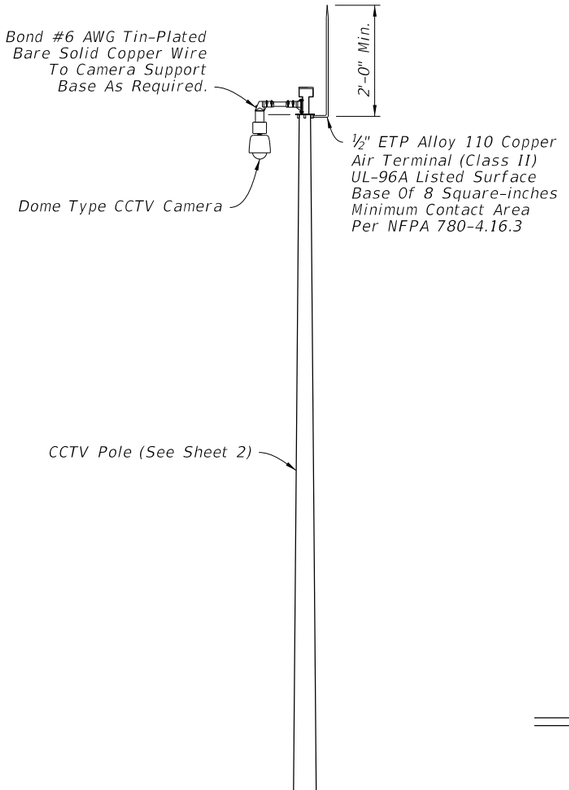
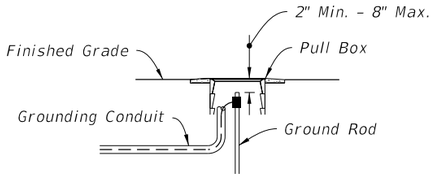
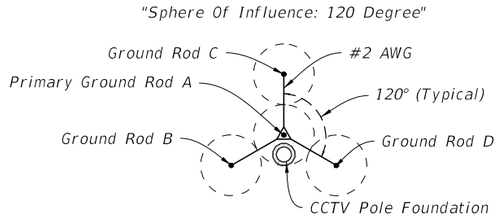


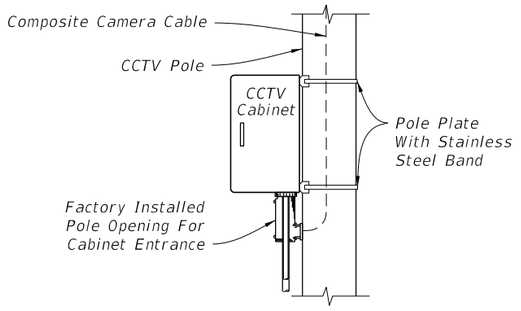




(Pole Mounted Cabinet Configuration Shown)

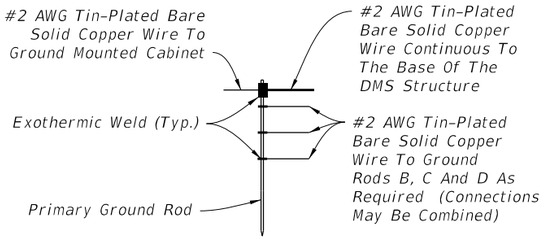
DETAIL "B"




TYPICAL
(20' Rods, 40' Spacing)




SIDE VIEW

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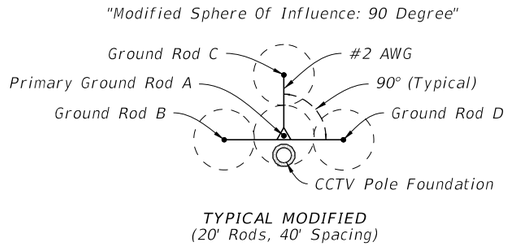
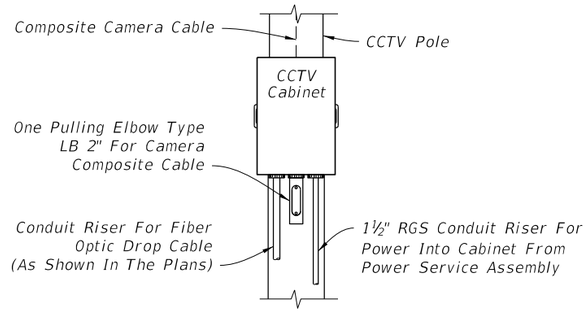



TYPICAL MODIFIED
(20' Rods, 40' Spacing)

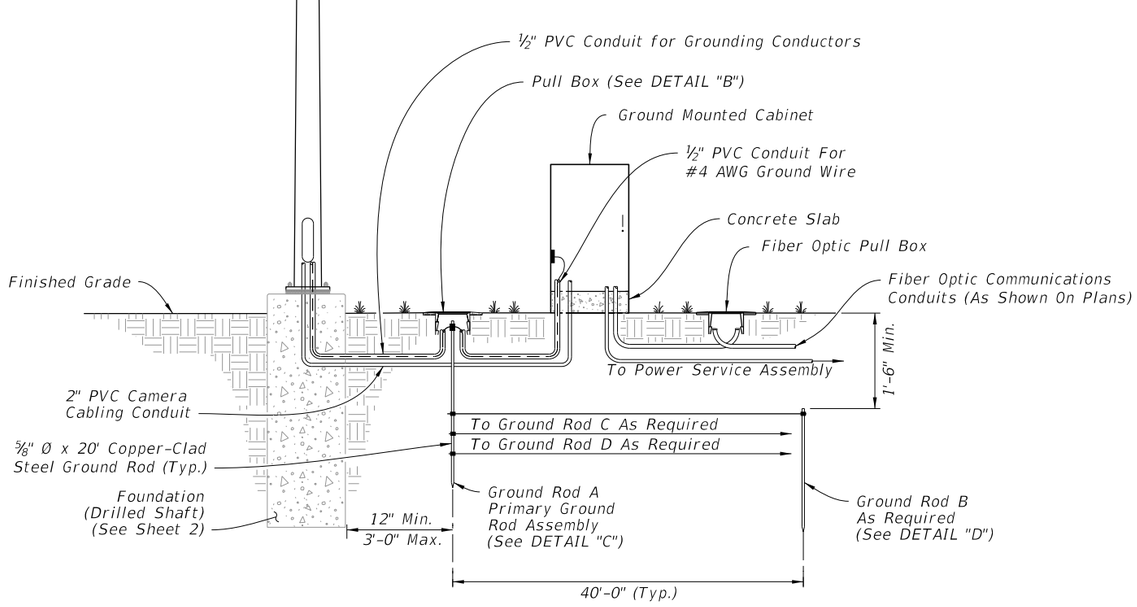
GROUND ROD ARRAY PLACEMENT

DETAIL "D"

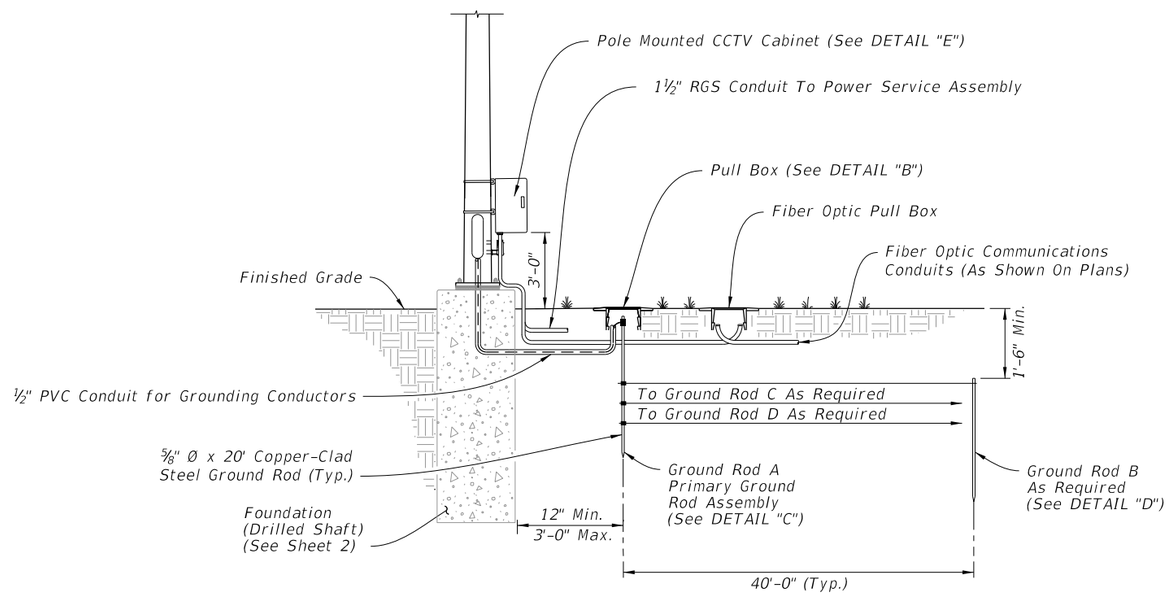



FRONT VIEW

DETAIL "E"




GROUND MOUNTED CABINET




POLE MOUNTED CABINET

STEEL CCTV POLE GROUNDING

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