GENERAL NOTES:

1. For location where pole foundation is lower than roadway, mount CCTV cabinet on pole.

2. Install CCTV pole at location shown in Plans.

3. If included, install guardrail at location shown in Plans and in accordance with Design Standards Index 460.

See Note 2
Dome Type CCTV Camera

For Ground Mounted Cabinet (See Index 18101)

For Pole Mounted Cabinet (See Index 18108)

For Grounding (See Index 18102)

CCTV Cabinet

Concrete

STEEL POLE

CONCRETE POLE
**Grounding and Lightning Protection**

**Steel CCTV Pole**
- **Conduit for Grounding Conductors**
- **Conduit for Grounding Conductors**
- **Ground Rod A Primary Ground Rod Assembly (See Inset A)**
- **#3 AWG To Ground Rod A As Required**
- **Pull Box**
- **Exothermic Weld**
- **#3 Diameter By 20 Long Copper-Clad Steel Ground Rods Driven Into Undisturbed Earth**

**Concrete CCTV Pole**
- **Conduit for Grounding Conductors**
- **Conduit for Grounding Conductors**
- **Ground Rod A Primary Ground Rod Assembly (See Inset A)**
- **#3 AWG To Ground Rod A As Required**
- **Pull Box**
- **Exothermic Weld**
- **#3 Diameter By 20 Long Copper-Clad Steel Ground Rods Driven Into Undisturbed Earth**

**Requirements**
- 16" Or Greater.
- 12" Min. 30" Max.
- 12" Min. 30" Max.
- 2' Min. 8' Max.
- 2' Min. 8' Max.

**Wire Screen**
- 20 Diameter By 20 Long Copper-Clad Steel Ground Rods Driven Into Undisturbed Earth
- 20 Diameter By 20 Long Copper-Clad Steel Ground Rods Driven Into Undisturbed Earth

**Concrete**
- #2 AWG Tin-Plated Bare Solid Copper Wire To Camera Support Base As Required.
- Bond #6 AWG Tin-Plated Bare Solid Copper Wire To Camera Support Base As Required.

**Steel**
- #2 AWG Tin-Plated Bare Solid Copper Wire.
- Bond #6 AWG Tin-Plated Bare Solid Copper Wire To Camera Support Base As Required.
- Dome Type CCTV Camera

**Pole Mounted Cabinet**
- Dome Type CCTV Camera

**Exothermic Weld**
- Air Terminal And Ground Rod With Exothermic Welds.
- Air Terminal And Ground Rod With Exothermic Welds.

**For Concrete Poles That Do Not Have Embedded Ground Wire, Install #2 AWG Tin-Plated Bare Solid Copper Wire, Clamp To Concrete Pole @ 3' Intervals. Bond To Air Terminal And Ground Rod With Exothermic Welds.**

**Ground Rod B**
- #2 Wire May Be Routed Internally Or Externally According To Project Requirements
- #2 Wire May Be Routed Internally Or Externally According To Project Requirements

**UL-96A Listed**
- Air Terminal (Class II)
- Air Terminal (Class II)

**Exterior**
- ETP Alloy 110 Copper
- ETP Alloy 110 Copper

**Tin-Plated Solid Copper Wire.**
- #2 AWG Tin-Plated Bare Solid Copper Wire.
- #2 AWG Tin-Plated Bare Solid Copper Wire.

**Conduits Are Sealed To Prevent Water Intrusion.**
- Conduits Are Sealed To Prevent Water Intrusion.

**Provided To Protect Any External Ground Wire From Mechanical Damage.**
- Provided To Protect Any External Ground Wire From Mechanical Damage.

**Conduit For Grounding Conductors**
- Conduit For Grounding Conductors

**Concrete**
- Concrete
- Concrete

**Steel**
- Steel
- Steel

**Concrete**
- Concrete
- Concrete

**Steel**
- Steel
- Steel

**Concrete**
- Concrete
- Concrete

**Steel**
- Steel
- Steel

**Concrete**
- Concrete
- Concrete
Per NFPA 780-4.16.3
Minimum Contact Area
Surface Base Of 8 Square-Inch
Air Terminal (Class II)

1/2" ETP Alloy 110 Copper
Solid Copper Ground Wire.
Bond To Air Terminals

#2 AWG Tin-Plated Bare
Copper Ground Wire. Bond To Air Terminals

Guardrail
(if shown in Plans)
"Sphere Of Influence: 120 Degree"

GROUND ROD ARRAY PLACEMENT
(Typical)
20' RODS, 40' SPACING

"Modified Sphere Of Influence: 90 Degree"

GROUND ROD ARRAY PLACEMENT
(Typical Modified)
20' RODS, 40' SPACING

INSET "A"
GROUNDING AND LIGHTNING PROTECTION

GROUND ROD ARRAY PLACEMENT
(Communication Tower)
20' RODS, 40' SPACING

GROUND ROD ARRAY PROFILE
(Communication Tower)
GENERAL NOTES:

1. Cabinet layout is for pole or base mounted installations.
2. All dimensions and scale are approximate.
3. The minimum CCTV cabinet dimensions shall be 36"H X 24"W X 22"D.
4. Conduit entrances are in bottom of cabinet.
5. There shall be front and rear doors. Both doors shall have the hinged side next to the pole when pole mounted.
6. Cabinet layout represents preferred placement of typical devices. Project-specific designs may not include all components illustrated here.
GENERAL NOTES:

1. Contractor shall splice fiber optic cables in cabinet to preterminater patch panel.

2. Furnish and install TVSS protection on all video, data, and power cabling in cabinet.

3. Ensure that all electronic equipment power is protected and conditioned with TVSS devices.

4. Sizes and types of conduits and innerducts for network communications between the pullbox and cabinet are stated in the contract documents.

5. See Index 18163 for grounding requirements.

6. All network communications conduits and ducts shall be sealed with approved waterproof duct plugs and seals.
1. Contractor shall splice fiber optic cables in cabinet to preterminated patch panel.
2. Furnish and install TVSS protection on all cabling in cabinet.
3. Furnish and install secondary TVSS protection on outlets for equipment in cabinet.
4. Sizes and types of conduits and innerducts for network communications between the pull box and cabinet are stated in the contract documents.
5. Ensure that equipment cabinet is bonded to CCTV pole grounding system.
6. All network communications conduits and ducts shall be sealed with approved waterproof duct plugs and seals.
7. Pole mounted cabinets shall be mounted with hinges next to the pole.
GENERAL NOTES:

1. Lowering device to be shipped ready for pole attachment to include 100 ft. of composite power and signal cable pre-wired 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.


5. Camera to be mounted to camera junction box and stabilizing weight via 1/2" 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 1/2" diameter PVC conduit.

8. All communication and power cables must be neatly bundled and secured.


10. See Index 18115 for concrete pole details and Index 18111 for steel pole details.
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 18113 for concrete pole details and Index 18111 for steel pole details.

7. Galvanized pipe connections and conduit every grommet shall be sealed in accordance with Section 630 of the Standard Specifications.

Pole Plate With Stainless Steel Band (Or Method Approved By Engineer)

Bond #4 AWG Tin-Plated Bare Solid Copper Ground Wire To Camera Support Base By An Aluminum To Copper #2-#14 AWG Lug. Attached To Camera Base With A Stainless Steel Screw. Remove Paint Or Protective Coating Where Attaching Lug.

Bracket Design May Vary By CCTV Manufacturer

Strain Relief Fitting

Fixed Mounting Bracket Must Be Designed To Match Mounting Provisions For CCTV Camera

Camera Connector Harness Supplied To Match Camera

Cable In Place 2" Galvanized Nipple For Concrete Poles, Hole With Nipple Grommet For Steel Poles.

Variety (2 Max.)

Dome Type Camera Assembly (TYP)

Camera Mouting With Fixed Bracket

SECTION AA

The Contractor Shall Coordinate Bracket Design And Flange Connection With CCTV Camera Manufacturer For Mounting The CCTV Camera Housing

Galvanized pipe connections and conduit every grommet shall be sealed in accordance with Section 630 of the Standard Specifications.
**FOUNDATION NOTES:**

1. Concrete Class IV (Drilled Shaft) with a minimum 4,000 psi compressive strength at 28 days for all environment classifications.
2. Reinforcing steel: ASTM A615 Grade 60.
3. Anchor bolts: ASTM F1554 Grade 55 with ASTM A563 Grade A heavy hex nuts and plate washers, ASTM F2329 galvanization.
4. Install anchor bolts in accordance with Section 649-5 of the Specifications.
5. Foundation applies to slopes 1:4 or flatter.
6. The foundation for the CCTV structure shall be constructed in accordance with Section 455 of the Specifications except that no payment for the foundation shall be made under Section 455.

**INSTALLATION NOTES:**

1. 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 guides 1" directly below the top of the tenon.
   d. Position Park Stands 2" below the top of the handhole.
2. Lowering Device Installation Notes:
   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 stands, etc.) with lowering device manufacturer.
3. Pole Installation Notes:
   a. Install pole plumb.
   b. The pole shall not be erected until the foundation concrete has achieved 70% of the minimum specified 28 day compressive strength.
4. Refer to Index No. 18108 for conduit and cabinet mounting details.

**POLE NOTES:**

1. The pole shall be round or 16 sided or more with a constant taper of 0.14 inches per foot.
2. Pole shaft may be either one or two sections (with telescopic field splice).
3. Use only circumferential welds at base.
4. Up to two longitudinal seam welds are permitted.
5. Longitudinal seam welds within 6" of circumferential welds shall be complete penetration welds. Longitudinal seam welds on female section of telescopic field splices shall be complete penetration welds for the splice length plus six inches. All other areas, size the partial penetration welds to at least 80% of the pole tube thickness.
7. Identification tag:
   a. Furnish each pole with a 2"x4" (max.) aluminum identification tag, secured to pole with stainless steel screws.
   b. Locate inside pole and visible from handhole.
   c. Furnish Financial Project ID, pole height, manufacturer’s name, yield strength (fy of steel) and pole base wall thickness.
8. Except for anchor bolts, all bolt hole diameters shall be equal to the bolt diameter plus 1/16", prior to galvanizing. Hole diameters for anchor bolts shall not exceed the bolt diameter plus 1/16".
9. This Design Standard is considered fully detailed and no shop drawings are necessary. Submit Shop Drawings for minor modifications not detailed in the plans.
10. Pole Material Specifications:
    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.
    e. Handhole frame: ASTM A709 Grade 36 or ASTM A36.
    f. Handhole cover: ASTM A1011 Grade 50, 55, 60 or 65.
    g. Stainless steel screws: AISI Type 316.
    h. Galvanization:
      - Bolt, nuts, and washers: ASTM F2329.
      - All other steel: ASTM A123.
11. Additional wire access holes not shown in this Design Standard shall not exceed 1/4" in diameter.
12. Verify CSL access tubes will not interfere with anchor bolt installation before excavating the shaft. When CSL access tube locations conflict with anchor bolt locations, move the CSL access tubes to at least two inches beyond the outer circumference of the reinforcing cage. Notify the Engineer before excavating the shaft if the CSL access tube locations cannot be moved out of conflict with anchor bolt locations.
Pole Top Plate

- Pole Top Plate
  - (12) ~ Ø 1.5" x 3" Slots
  - Ø 1.5" Plate
  - Ø 2" Plate

(section E-E)

Pole Details

- Steel CCTV Pole
  - FY 2017-18
  - Design Standards

Handhole Detail

- Handhole Plate
  - 1.5" Ø Plate
  - Ø 1.5" Rod with 1" Inner Ø

Park Stand Detail

- Park Stand
  - Ø 1.5" Rod with 1" Inner Ø

Cable Guide Detail

- Cable Guide
  - Ø 1.5" Plate
  - Ø 2" Plate

Note: Install all handhole and opening covers prior to shipping. For poles with lowering device, install pole cap plate when tenon assembly is not installed.
LOWERING DEVICE INSTALLATION NOTES:

1. Place the lowering cable that moves within the pole in an internal 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.

2. 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.

3. Coordinate all lowering device hardware requirements (including Tenon, Tenon mounting plates, parking stand, etc.) with lowering device manufacturer.

POLE NOTES:

1. Pole Material Specifications:
   a. Pole: Use Class VI Concrete with 6 ksi minimum strength at transfer.
   c. Reinforcing Steel: ASTM A615 Grade 60.
   d. Spiral Reinforcing: ASTM A1064 Cold-Drawn.
   e. Bolts: ASTM F2154. Grade 55
   f. Washers: ASTM F2329
   g. Galvanization: Steel plates and pole cap: ASTM A36 or ASTM A709 Grade 50.
   h. Washers: ASTM F436.
2. Steel plates and pole cap: ASTM A36 or ASTM A709 Grade 50.
3. Pole shall be round or 12-sided.
4. Cut the tip end of the prestressed strand first or simultaneously with the butt end.
5. For reinforcing steel, one turn is required for spiral splices and two turns are required at the top and bottom of poles.
6. Provided a 1" minimum cover.
7. Install pole plumb.
8. Tie ground wires to the interior of reinforcing steel as necessary to prevent displacement during concreting operations.
9. This Design Standard is considered fully detailed and no shop drawings are necessary. Submit Shop Drawings for minor modifications not detailed in the plans.
10. Storage, Handling and Erection locations shown may vary within ± 3".
11. Precision in the dimensions of the pole is not required due to the nature of the manufacturing process. Final procurement will be as detailed in the plans.

GENERAL NOTES

12. Design Standard is considered fully detailed and no shop drawings are necessary. Submit Shop Drawings for minor modifications not detailed in the plans.
13. Storage, Handling and Erection locations shown may vary within ± 3".
**POLE CONFIGURATION**

**TOP VIEW**

1. **Conduit Entry Hole**
2. **Handhole With Cover**
3. **Handhole With Cover**
4. **Coordinate Mounting Method**
5. **Air Terminal (See Index 18102)**
6. **Concrete Camera Pole**
7. **Pole Identification Markings**
8. **Pole Tenon**
9. **Pole Identification Markings**
10. **Buried Conduit**
11. **Pole w/ Lowering Device**
12. **Strand**
13. **Strand Diameter**

**POLE DESIGN TABLE**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>63</td>
<td>50</td>
<td>13</td>
<td>0.18</td>
<td>0.18</td>
<td>3</td>
<td>3</td>
<td>12</td>
<td>23.34</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>69</td>
<td>55</td>
<td>14</td>
<td>0.18</td>
<td>0.18</td>
<td>3</td>
<td>3</td>
<td>12</td>
<td>24.42</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>75</td>
<td>60</td>
<td>15</td>
<td>0.18</td>
<td>0.18</td>
<td>3</td>
<td>3</td>
<td>12</td>
<td>25.5</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>80</td>
<td>65</td>
<td>15</td>
<td>0.18</td>
<td>0.18</td>
<td>3</td>
<td>3</td>
<td>12</td>
<td>26.4</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>86</td>
<td>70</td>
<td>16</td>
<td>0.18</td>
<td>0.18</td>
<td>3</td>
<td>3</td>
<td>12</td>
<td>27.48</td>
<td>2</td>
<td>0.6</td>
</tr>
</tbody>
</table>
* Spiral wire may be wrapped in two directions given that an equivalent area of spiral wire is provided to that shown in this standard and the cover requirements are met.

## Spiral Reinforcing Elevation
(Strands, Holes, and Fixtures Not Shown)

- **Pole Height**: 0.30 L, 0.53 L, 0.70 L
- **Burial Depth**: 0.30 L, 0.53 L, 0.70 L

## Pole Elevation
(Strands and Reinforcing Not Shown)

### STRAND LEGEND
- α - Prestressed Strand
- δ - (4) #4 Rebar (Shown) or (6) #5 Rebar

### Section A-A

- **Strand Pattern 1** (12-Sided)
- **Strand Pattern 2** (12-Sided)
- **Strand Pattern 3** (Round - Option 1)
- **Strand Pattern 4** (Round - Option 2)

**Note:** Strands and Rebar shown are continuous from Tip End to Butt End.
NOTES:
1. Install DMS Foundation at location shown in Plans.
2. Extend Catwalk from DMS to outer edge of paved shoulder but not less than four feet in length.
3. If included, Install guardrail at location shown in Plans and in accordance with Design Standards Index 400. See Note 2

TYPICAL PLAN VIEW
DMS CANTILEVER SIGN STRUCTURE

TYPICAL PLAN VIEW
DMS SPAN SIGN STRUCTURE

TYPICAL ELEVATION VIEW
CANTILEVER SIGN STRUCTURE

TYPICAL ELEVATION VIEW
SPAN SIGN STRUCTURE

GENERAL LAYOUT

Index 400.
Plans and in accordance with Design Standards 3. If included, Install guardrail at location show in shoulder but not less than four feet in length.

1. Install DMS Foundation at location shown in Plans.
2. Extend Catwalk from DMS to outer edge of paved shoulder but not less than four feet in length.
3. If included, Install guardrail at location shown in Plans and in accordance with Design Standards Index 400. See Note 2

Per NFPA 780-4.16.3
Minimum Contact Area Surface Base Of 8 Square-Inch Air Terminal (Class II) ETP Alloy 110 Copper (DMS) Message Sign Dynamic Walk-In

See Note 3

See Note 1

19'-6" Min. Clearance

19'-6" Min. Clearance

19'-6" Min. Clearance

19'-6" Min. Clearance

19'-6" Min. Clearance

19'-6" Min. Clearance

19'-6" Min. Clearance
NOTES:

1. Conductors for grounding shall be connected to steel framework that has been cleaned to base metal by use of bonding plates having contact area of not less than 8 square inches or by welding or brazing. Drilling and tapping the steel structure to accept a threaded connector is also an acceptable method.

2. If steel framework is to be drilled and tapped to accept threaded connector, the threaded connector shall be galvanized and have at least 5 threads fully engaged and secured with a jam nut to the connector, the threaded connector shall be galvanized and have at least 5 threads fully engaged and secured with a jam nut to the steel framework.

3. Bends in the conduit shall not be less than the minimum bending radius for the cable contained in the conduit.

4. Catwalk and handrail design and installation shall comply with AISC, AASHTO, and OSHA requirements as applicable.

5. All data, fiber optic and power cables for the DMS shall be completely enclosed within the sign structure or in conduit.

6. Permanently stamp/mark foundation to conduit locations.

7. Transition conduit in foundation to underground conduit with appropriate reducer outside the limits of the foundation.
NOTES:
1. DMS Cabinet may be pole or ground mounted depending on project requirements.
2. See sheet 4 for additional conduits for grounding. The number and placement of conduits are approximate.
3. Field adjust pole-mounted DMS cabinet height to achieve best access for maintenance personnel given site conditions as directed by the Engineer. Avoid conflicts with stiffeners, handhole and maintenance of anchor bolts.

TYPICAL DMS CONDUIT DETAIL
CANTILEVER/SPAN SIGN STRUCTURE

- Fiber Optic Communications Conduit (2" PVC) (As Shown On Plans)
- Spare Conduit (2" PVC)
- Grounding Conduit (2" PVC)
- Transition Conduit Outside Foundation
- Power Conduit (2" PVC) To Power Service Assembly
- 2" PVC Grounding Conduit

Fiber Optic Pull Box Or Fiber Optic Splice Box (See Index 17700)

- Handhole Cover
- Handhole Frame
- 11 Gauge Handhole Cover
- 3/4" Hole, Typ.
- A
- 4" x 8" Handhole Frame Made Continuous With A Full Penetration Weld
- Handhole Frame
- Full Penetration Weld
- 1/4 Dia. Stainless Steel Hex Head Screws, Typ.
- Tack Welded Cover Clip, Typ.

SECTION A-A

THRU HANDHOLE

HANDHOLE FRAME

HANDHOLE COVER

NOTES:
- See sheet 4 for additional conduits for grounding. The number and placement of conduits are approximate.
- Field adjust pole-mounted DMS cabinet height to achieve best access for maintenance personnel given site conditions as directed by the Engineer. Avoid conflicts with stiffeners, handhole and maintenance of anchor bolts.

TYPICAL DMS CONDUIT DETAIL
CANTILEVER/SPAN SIGN STRUCTURE

- Fiber Optic Communications Conduit (2" PVC) (As Shown On Plans)
- Spare Conduit (2" PVC)
- Grounding Conduit (2" PVC)
- Transition Conduit Outside Foundation
- Power Conduit (2" PVC) To Power Service Assembly
- 2" PVC Grounding Conduit

Fiber Optic Pull Box Or Fiber Optic Splice Box (See Index 17700)

- Handhole Cover
- Handhole Frame
- 11 Gauge Handhole Cover
- 3/4" Hole, Typ.
- A
- 4" x 8" Handhole Frame Made Continuous With A Full Penetration Weld
- Handhole Frame
- Full Penetration Weld
- 1/4 Dia. Stainless Steel Hex Head Screws, Typ.
- Tack Welded Cover Clip, Typ.

SECTION A-A

THRU HANDHOLE

HANDHOLE FRAME

HANDHOLE COVER

NOTES:
- See sheet 4 for additional conduits for grounding. The number and placement of conduits are approximate.
- Field adjust pole-mounted DMS cabinet height to achieve best access for maintenance personnel given site conditions as directed by the Engineer. Avoid conflicts with stiffeners, handhole and maintenance of anchor bolts.
**Ground Rod Placement Detail (Typical)**

- **#2 AWG Tin-Plated Bare Solid Copper Wire**
  - To Pole Mounted Cabinet
  - To Ground Rods A, C, and D as required

- **Exothermic Weld**
  - Ground Rod With...
  - Ground Wire. Bond Bare Solid Copper #2 AWG Tin-Plated Ground Wire to DMS Cabinet
  - Cabinet To Ground Rod Ground Wire From DMS Handhole Mounted Cabinet or Ground Wire to Pole
  - Bare Solid Copper #2 AWG Tin-Plated

- **Inset 'A'**

**Typical Ground Rod Detail**

- **Finished Grade**
  - 12' Min.
  - 12' Max.

- **Power Conduit (2" PVC) To Power Service Assembly**

- **Fiber Optic Communications Conduit (2" PVC) (As Shown On Plans)**

- **Spare Conduit (2" PVC)**

- **Grounding Conduit (2" PVC)**

- **Ground Rods A, B, C, and D**
  - As Required

- **Primary Ground Rod Assembly (See Inset 'A')**

- **Exothermic Weld**

- **40' Min.**

- **12" Diameter By 20 Long Copper-Clad Steel Ground Rods Driven Into Undisturbed Earth**

- **#2 AWG To Ground Rod C As Required**

- **#3 AWG To Ground Rod D As Required**

- **40' Max.**

**Dynamic Message Sign Walk-In**

- **As Shown On Plans**

- **Clear Zone Requirements**

- **Sphere of Influence**
  - 20' Radius Each

- **Sign Structure Foundation**

- **Pole Mounted Cabinet**

- **Mounted Cabinet**

- **Grounding Conduit (2" PVC)**

- **Spare Conduit (2" PVC)**

- **Power Conduit (2" PVC) To Power Service Assembly**

- **Fiber Optic Communication Conduit (2" PVC) (As Shown On Plans)**

- **Ground Conduit (2" PVC)**

- **Grounder Grounding Conduit (2" PVC)**

- **3.5" Diameter By 20 Long Copper-Clad Steel Ground Rods Driven Into Undisturbed Earth**

- **36' Min.**

- **8' MAX.**

- **40' Min.**

- **40' Max.**

- **2' Min.**

- **Exothermic Weld**

- **Ground Wire From DMS Cabinet To Ground Rod**

- **Ground Wire To DMS Cabinet**

- **Ground Wire To Ground Rod**

- **Ground Wire From DMS Cabinet To Ground Rod**

- **Handhole**

- **Pole Mounted Cabinet**

- **Mounted Cabinet**

- **Mounted or Ground Wire to Pole**

- **Bare Solid Copper #2 AWG Tin-Plated**

- **Hermetic Weld**

- **Ground Rod With**

- **To Air Terminal And Ground Wire. Bond Bare Solid Copper #2 AWG Tin-Plated**

- **Ground Wire to DMS Cabinet**

- **Cabinet To Ground Rod**

- **Ground Wire From DMS Handhole Mounted Cabinet or Ground Wire to Pole**

- **Bare Solid Copper #2 AWG Tin-Plated**

- **Sphere Of Influence**
  - 20' Radius Each

- **Shoulder Travel Lane**

- **Travel Lane**

- **Shower Travel Lane**

- **Requirements**

- **2017-18 Design Standards**

- **FDOT**

- **FY 2017-18**

- **Dynamic Message Sign Walk-In**

- **Index No. 18300**

- **Sheet No. 4 of 9**
HANGER LOCATION DETAIL

(Cantilever Sign Structure Shown, Span Sign Structure Similar)

NOTES


2. DMS and Hanger Design Wind Speed: 350 miles per hour. Maximum DMS weight for design: 4500 lb.


4. Shop drawings including the DMS connection are required and fabrication shall not begin until these shop drawings are approved.

5. Locate the sign horizontal on the structure as shown in the plans. Vertically center the sign enclosure with the centerline of the truss.

6. Before erection, after both the delivery of the DMS and the steel truss, the contractor shall keep the exact locations for field drilling the bolt holes in the vertical hangers and horizontal mounting member attached to the sign enclosure. Field locate bolt holes to allow vertical hanger placement as shown on the plans with no conflicts with gusset or splice plates.

7. All steel items shall be galvanized as follows:
   - All nuts, bolts and washers ASTM F2329
   - All other steel items ASTM A123

8. All bolt holes shall be equal to the bolt diameter plus ¼", prior to galvanizing.

9. Cost of the installation of the DMS on truss including the vertical hanger, associated members, and hardware shall be incidental to the cost of the sign structure.

10. Threaded couplings shall be located on sign side of column above the sign truss.
DMS Sign Enclosure

6061-T6 Structural Aluminum Zee 4x38g x 3.58
Horizontal Member Attached To The Internal Framework And Included With The DMS Sign

ASTM A709, Gr.36 Steel, W6x9
Hanger @ 9 (Max) Spacing

2-½ Ø U-Bolts ASTM F2329,
Grade A499 or A193 B7,
Galvanized With double 
Nuts and Washers

Truss Chord

2 - ½ Ø ASTM F3125, Grade 
A325, Type 1 U-Bolts Galvanized 
With Double Nuts and Washers

Framework And Included With The DMS Sign
Horizontal Member Attached To The Internal

Field Drill Holes And
Provide 2 - ½ Ø ASTM 
F3125, Grade A325, Type 1

Nuts and Washers

Galvanized With double 
Nuts and Washers

Aluminum Zee

See Truss Data Sheet
NOTES:

1. Provide single ethernet connection from the managed field ethernet switch to either the sign controller interface in cabinet or sign controller in sign enclosure.
2. Locate cabinet as shown in plans.
3. Serial data link is for communications directly to the DMS controller.
4. Cabinet must include at least one breaker to control all cabinet power.
5. AC service entrance may be located in cabinet or sign housing.
6. UPS equipment installation may vary; diagram indicates functional requirements that uninterrupted power must be available in cabinet and sign housing.
LEFT SIDE VIEW

FRONT VIEW

POLE MOUNTED CABINET

RIGHT SIDE VIEW

NOTES:

1. Cabinet layout is for pole or ground mounted installations.
2. All dimensions and equipment locations are approximate.
3. Conduit entrances are at bottom of cabinet.
4. Minimum number of duplex outlets is three. (2) SPD protected and (1) GFI protected.
5. Either an access controller or local access panel shall be provided to provide full access to DMS for control, programming and troubleshooting.
6. Load center shall be sized for connected equipment and convenience outlets with at least one main disconnect and three circuit breakers.
7. Batteries and UPS may be located in sign housing or cabinet.
8. Power Distribution Assembly component layout, orientation and location may vary.

CABINET LAYOUT 1