GENERAL NOTES:

1. Work this index with Specifications 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. Install pole plumb.
4. Provide either round or 12-sided Poles.
5. See Index 635-001 for additional details for Pull Boxes.

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 A126 Cold Drawn
   E. Bolts: ASTM F1554, Grade 55
   F. Nuts: ASTM A563, Grade A Heavy Hex
   G. Washers: ASTM F2339
   H. Steel plates and Pole Cap: ASTM A35 or ASTM A709, Grade 50
   I. Galvanization Bolts, nuts and washers: ASTM F2239

   All other steel: ASTM A123

7. Pole 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 rebars to be spliced at the same cross section. Stagger lap splices as needed.
   D. Provide a 90° minimum inside corner.
   E. Provide hingeless and coupler cover plates made of non-corrosive materials. Attach cover plates to poles using lead anchors or threaded inserts embedded in the pole in conjunction with round headed chrome plated screws.
   F. 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

   G. Tie ground wires to the interior of reinforcing steel as necessary to prevent displacement during concrete operations.

   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 conduit 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 stalls, etc.) with lowering device manufacturer.
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 Rolls Option 2, Stress prestressed strand to 70% of Ultimate before transfer. For Round Pole Option 3, stress prestressed strand to 60% of Ultimate before transfer.
4. Pole Design Tables, Burial Depth is based on level ground (Flatler than 1:5). For poles within slopes 1:5 and greater, increase the burial depth in accordance with the Additioal Burial Depth Due To Ground Slope table. For values in-between those shown in the table, use the higher value.

<table>
<thead>
<tr>
<th>Ground Slope</th>
<th>1:6</th>
<th>1:5</th>
<th>1:4</th>
<th>1:3</th>
<th>1:2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Burial Depth (ft)</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

ADDITIONAL BURIAL DEPTH DUE TO GROUND SLOPE

12-SIDED 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>
</tr>
</thead>
<tbody>
<tr>
<td>63</td>
<td>0.18</td>
<td>Option 1</td>
<td>2.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>69</td>
<td>0.18</td>
<td>Option 2</td>
<td>2.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>75</td>
<td>0.18</td>
<td>Option 1</td>
<td>2.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>80</td>
<td>0.18</td>
<td>Option 2</td>
<td>2.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.6</td>
<td>0.6</td>
</tr>
</tbody>
</table>

DOME TYPE CCTV Camera

(See Note 1)

<table>
<thead>
<tr>
<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>0.18</td>
<td>Option 1</td>
<td>2.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>69</td>
<td>0.18</td>
<td>Option 2</td>
<td>2.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>75</td>
<td>0.18</td>
<td>Option 1</td>
<td>2.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>80</td>
<td>0.18</td>
<td>Option 2</td>
<td>2.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.6</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Pole Identification Markings

Handhole With Cover at 90° To Handhole Box

Pole And Foundation Details Same As "With Lowering Device"

2-2" Couplings With Cables At 90° To Handhole Box

2-2" Couplings Without Lowering Device

1" Lifting Hole

Pole And Foundation Details Same As "With Lowering Device"

1" Lifting Hole - (See Sheet 3)

AIR TERMINAL (See Sheet 5)

DOME TYPE CCTV Camera

(See Note 2)

2" Coupling With Cap At 90° To Handhole Box

(Camera Cable Entry Point)

STANDARD PLANS

CONCRETE CCTV POLE

INDEX

641-020

CONCRETE CCTV POLE

INDEX

641-020

SHEET

2 of 5
Finished Grade

Dome Type CCTV Camera

2' Min. - 8' Max.

Pole Plate

With Stainless Steel Band

Composite Camera Cable

Concrete Slab

(See DETAIL "B")

3'-0" Max.

Ground Mounted Cabinet

(Pole Mounted Cabinet Configuration Shown)

DETAIL "A"

"Sphere Of Influence: 120 Degree"

Primary Ground Rod A

Primary Ground Rod B

Primary Ground Rod D

CCTV Pole Foundation

CONCRETE CCTV POLE GROUNDING

POLE MOUNTED CABINET

CONCRETE CCTV POLE

SIDE VIEW

FRONT VIEW

DETAIL "C"

DETAIL "D"

DETAIL "B"

GROUND ROd ARRAY PLACEMENT

GROUND MOUNTED CABINET

Pole Mounted CCTV Cabinet

(See DETAIL "D")

1½" x 7' PVC Conduit To Power Service Assembly

Pull Box (See DETAIL "K")

1½" PVC Conduit For Grounding Conductors

Ground Mounted Cabinet

Concrete Slab

Fiber Optic Pull Box

Fiber Optic Communications Conduits (As Shown On Plans)

Conduit Entry Hole (See Sheet 3)

2" PVC Camera Cabling Conduit

1½" Ø x 20' Copper-Clad Steel Ground Rod (Typ.)

Foundation

(See Sheet 2)

To Power Service Assembly

To Ground Rod C As Required

To Ground Rod D As Required

12" Min.

7'-0" Max.

12" Min.

7'-0" Max.

Foundation

(See Sheet 2)

40'-0" (Typ.)

40'-0" (Typ.)

GROUND MOUNTED CABINET

POLE MOUNTED CABINET

"Modified Sphere Of Influence: 90 Degree"

Primary Ground Rod A

Primary Ground Rod B

Ground Rod C

Ground Rod D

CCTV Pole Foundation

TYPICAL MODIFIED

(20 Rods, 40' Spacing)

Final Grade

Grounding Conduit

#2 AWG Tin-Plated Bare Solid Copper Ground Wire To Ground Mounted Cabinet

Exothermic Weld (Typ.)

Primary Ground Rod

#2 AWG Tin-Plated Bare Solid Copper Ground Wire Continues To

The Base Of The

DMS Structure

#2 AWG Tin-Plated Bare Solid Copper Ground Wire To Ground

Rods B, C And D As Required (Connections May Be Combined)

#2 AWG

Ground Rod A

Ground Rod B

Ground Rod C

Ground Rod D

CONCRETE CCTV POLE

(As Shown In The Plans)

Optic Drop Cable

Composite Cable

LB 2" For Camera

One Pulling Elbow Type

1½" x 7' PVC Conduit Riser For Fiber Optic Drop Cable

(As Shown In The Plans)

Exothermic Weld (Typ.)

May Be Combined

Required (Connections

Rods B, C And D As Required)

Bare Solid Copper

#2 AWG Tin-Plated

#2 AWG

#2 AWG

Ground Rod A

Ground Rod C

Ground Rod B

Ground Rod D

CONCRETE CCTV POLE

Foundation

(See Sheet 2)

40'-0" (Typ.)

40'-0" (Typ.)

SIDE VIEW

GROUND MOUNTED CABINET

Pole Mounted CCTV Cabinet

(See DETAIL "D")

1½" x 7' PVC Conduit To Power Service Assembly

Pull Box (See DETAIL "K")

1½" PVC Conduit For Grounding Conductors

Ground Mounted Cabinet

Concrete Slab

Fiber Optic Pull Box

Fiber Optic Communications Conduits (As Shown On Plans)

Conduit Entry Hole (See Sheet 3)

2" PVC Camera Cabling Conduit

1½" Ø x 20' Copper-Clad Steel Ground Rod (Typ.)

Foundation

(See Sheet 2)

To Power Service Assembly

To Ground Rod A As Required

To Ground Rod B As Required

12" Min.

7'-0" Max.

12" Min.

7'-0" Max.

Foundation

(See Sheet 2)

40'-0" (Typ.)

40'-0" (Typ.)

GROUND MOUNTED CABINET

POLE MOUNTED CABINET

"Sphere Of Influence: 120 Degree"

Primary Ground Rod A

Primary Ground Rod B

Primary Ground Rod D

CCTV Pole Foundation

TYPICAL

(20 Rods, 40' Spacing)

"Modified Sphere Of Influence: 90 Degree"

Primary Ground Rod A

Primary Ground Rod B

Ground Rod C

Ground Rod D

CCTV Pole Foundation

TYPICAL MODIFIED

(20 Rods, 40' Spacing)

Final Grade

Grounding Conduit

#2 AWG Tin-Plated Bare Solid Copper Ground Wire To Ground Mounted Cabinet

Exothermic Weld (Typ.)

Primary Ground Rod

#2 AWG Tin-Plated Bare Solid Copper Ground Wire Continues To

The Base Of The

DMS Structure

#2 AWG Tin-Plated Bare Solid Copper Ground Wire To Ground

Rods B, C And D As Required (Connections May Be Combined)

#2 AWG

Ground Rod A

Ground Rod B

Ground Rod C

Ground Rod D

CONCRETE CCTV POLE

(As Shown In The Plans)

Optic Drop Cable

Composite Cable

LB 2" For Camera

One Pulling Elbow Type

1½" x 7' PVC Conduit Riser For Fiber Optic Drop Cable

(As Shown In The Plans)

Exothermic Weld (Typ.)

May Be Combined

Required (Connections

Rods B, C And D As Required)

Bare Solid Copper

#2 AWG Tin-Plated

#2 AWG

#2 AWG

Ground Rod A

Ground Rod C

Ground Rod B

Ground Rod D

CONCRETE CCTV POLE

Foundation

(See Sheet 2)

40'-0" (Typ.)

40'-0" (Typ.)

SIDE VIEW

GROUND MOUNTED CABINET

Pole Mounted CCTV Cabinet

(See DETAIL "D")

1½" x 7' PVC Conduit To Power Service Assembly

Pull Box (See DETAIL "K")

1½" PVC Conduit For Grounding Conductors

Ground Mounted Cabinet

Concrete Slab

Fiber Optic Pull Box

Fiber Optic Communications Conduits (As Shown On Plans)

Conduit Entry Hole (See Sheet 3)

2" PVC Camera Cabling Conduit

1½" Ø x 20' Copper-Clad Steel Ground Rod (Typ.)

Foundation

(See Sheet 2)

To Power Service Assembly

To Ground Rod A As Required

To Ground Rod B As Required

12" Min.

7'-0" Max.

12" Min.

7'-0" Max.

Foundation

(See Sheet 2)

40'-0" (Typ.)

40'-0" (Typ.)

GROUND MOUNTED CABINET

POLE MOUNTED CABINET

"Sphere Of Influence: 120 Degree"

Primary Ground Rod A

Primary Ground Rod B

Primary Ground Rod D

CCTV Pole Foundation

TYPICAL

(20 Rods, 40' Spacing)

"Modified Sphere Of Influence: 90 Degree"

Primary Ground Rod A

Primary Ground Rod B

Ground Rod C

Ground Rod D

CCTV Pole Foundation

TYPICAL MODIFIED

(20 Rods, 40' Spacing)