**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 12-sided: ASTM A1011 Grade 50, 55, 60 or 65
     - b. Greater than or equal to 12-sided: ASTM A572 Grade 50, 55, 60 or 65
   - **B. Steel Plates:** ASTM A36
   - **C. Upright Splice:**
     - a. 16-sided (Max.)
   - **D. Bolts, Nuts and Washers:**
     - a. High Strength Bolts: ASTM F3125, Grade A325, Type 1
     - b. Nuts: ASTM A325 Grade AH 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 AH Heavy-Hex (5 per anchor bolt)
     - c. Plate Washers: ASTM F436 Type 1, one under turned element
   - **F. Handhole Cover:** ASTM A1011 Grade 50, 55, 60 or 65
   - **G. Handhole Frame:** ASTM A709 or ASTM A36, Grade 36

4. Fabrication:
   - **A. Pole Taper:** Change diameter at a rate of 0.14 inches per foot, round or 12-sided.
   - **B. Upright Splice:** Not permitted. Transverse welds are only permitted at the base.
   - **C. Bolt hole diameters as follows:**
     - a. Bolts (except Anchor Bolts): Bolt diameter plus \( \frac{1}{4} \)" plus tapping diameter, prior to galvanizing.
     - b. Anchor Bolts: Bolt diameter plus \( \frac{1}{2} \)" 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. Anchor Bolts: Bolt diameter plus \( \frac{1}{2} \)" maximum.
     - c. Bolts (except Anchor Bolts): Bolt diameter plus \( \frac{1}{4} \)" plus tapping diameter, prior to galvanizing.
     - d. Secure to pole with \( \frac{1}{2} \)" diameter stainless steel rivets or screws.
   - **F. Include the following information on the ID Tag:**
     - a. Financial Project ID
     - b. Pole Type
     - c. Pole Height
     - d. Manufacturer's Name
     - e. FY of Steel
     - f. Base Wall Thickness
   - **G. Reinforcing Steel:** Specification 415
   - **H. Concrete:** Class IV (Drilled Shaft) for all environmental classifications.
   - **I. Stainless Steel Screws:** AISI Type 316
   - **J. Aluminum Pole Caps and Nut Covers:** ASTM B26 (319-F)
   - **K. Threaded Bars/Studs:** ASTM A36 or ASTM A307

5. Coatings:
   - **A. Strain Pole and Backing Rings:**
   - **B. Steel Plates:** ASTM A36
   - **C. Weld Metal:** E70XX
   - **D. Steel Plates:** ASTM A36
   - **E. Anchor Bolts, Nuts and Washers:**
     - a. High Strength Bolts: ASTM F1554 Grade 55
     - b. Nuts: ASTM A563 Grade AH Heavy-Hex (5 per anchor bolt)
     - c. Plate Washers: ASTM F436 Type 1, one under turned element
   - **F. Bolts, Nuts and Washers:**
     - a. Anchor Bolts: ASTM F1554 Grade 55
     - b. Nuts: ASTM A563 Grade AH Heavy-Hex
     - c. Washers: ASTM F436 Type 1, one under turned element
   - **G. Handhole Cover:** ASTM A1011 Grade 50, 55, 60 or 65
   - **H. Handhole Frame:** ASTM A709 or ASTM A36, Grade 36
   - **I. Stainless Steel Screws:** AISI Type 316
   - **J. Aluminum Pole Caps and Nut Covers:** ASTM B26 (319-F)
   - **K. Threaded Bars/Studs:** ASTM A36 or ASTM A307

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 baseplate in accordance with Specification 649-6.
### STEEL STRAIN POLE DATA TABLE

<table>
<thead>
<tr>
<th>POLE TYPE</th>
<th>POLE</th>
<th>BASE CONNECTION</th>
<th>SHAFT</th>
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<tbody>
<tr>
<td>PS-V</td>
<td>0.313</td>
<td>16</td>
<td>35</td>
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<tr>
<td>PS-VI</td>
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<tr>
<td>PS-X</td>
<td>0.313</td>
<td>27</td>
<td>35</td>
</tr>
</tbody>
</table>

### NOTE:

1. Double Nuts: Bottom nut may be half-height jam nut. Provide individual nut covers (not shown) for each bolt.

### FOUNDATION AND BASE DETAILS

**SECTION A-A**

- **Center of Drilled Shaft & Pole**
- **BC Dia Anchor Bolt**: Threaded Each End (Typ.)
- **1" x 1" Chamfer**

**SECTION B-B**

- **Joint Weld Detail**:
  - **Base Plate Opening**
  - **Inside Radius = Five Times Pole Thickness (1" Min.)**
  - **Silicone Caulk**
  - **2" x 1/2 Backing Ring**

### FOUNDATION AND BASE PLATE

**BASE PLATE**

- **Base Plate Dia.**
- **Base Ø (Dia.)**
- **Base Plate Thickness**
- **Base Plate Washers**

**ELEVATION**

- **Center of Drilled Shaft**
- **Base Plate And Pole**
- **BC Dia Anchor Bolt**
- **Threaded Each End (Typ.)**
- **1" x 1" Chamfer**

**PLAN**

- **Foundation**
- **Base Plate**
- **Anchor Bolt**

**DETAIL 'A'**

- **Foundation And General Note 4.D**
- **Joint Weld**

**STEEL STRAIN POLE**

- **ELEVATION**
- **FOUNDATION**
- **POLE ASSEMBLY**

**DESCRIPTION:**

**REVISED:**

**INDEX:**

**SHEET:**

**FY 2019-20 STANDARD PLANS**

**REVISION**

**LAST REVISION:**

1/01/18
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'-7". 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 649-001.
3. Any combination of Option 'a' or 'b' may be used provided both lifting and wiring is accommodated.

CABLE LOADS SHEET: F 2019-20

<table>
<thead>
<tr>
<th>Width (in.)</th>
<th>Diameter (in.)</th>
<th>Thickness (in.)</th>
<th>Plate Thickness (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>1/2</td>
<td>2/3</td>
<td>3/4</td>
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<tr>
<td>8</td>
<td>9/32</td>
<td>5/8</td>
<td>7/8</td>
</tr>
</tbody>
</table>

Weather Head (See Note 2)

2 NPS, Sch. 80 Pipe 20' Long

ASTM A500 Grade B

Steel Clamp, ASTM A509 Grade 50 (See Table For Thickness)

1/2" x 2" Lifting Bar With 1/2" Hole And Matching Nut Tack Welded To Underside Of Bar

1/2" Overhang (Min.)

Pole Cap Plate

CAST ALUMINUM POLE CAP PLATE

WAY ALUMINUM POLE CAP PLATE

STAINLESS STEEL SCREWS (3 Typ.)

1/2" Thick (Min.)

C Hook For Wiring And Lifting, 1/2" Commercial Grade Hot Rolled Bar Welded To Inside Of Pole

POLE TOP

ATTACHMENT DETAILS