DESIGN CRITERIA:

1) Designed in accordance with the FDOT Structures Manual.

2) Poles are designed to support the following:
   a. (1) cylindrical head assembly with a maximum effective projected area of 6 sq ft (Cd=1) and 340 lbs (Max).
   b. (8) cylindrical luminaires with a maximum effective projected area of 3.0 sq ft (Cd=0.5) and 77 lbs. each.

3) Foundation design based upon the following soil criteria:
   Classification = Cohesionless (Fine Sand)
   Friction Angle = 30 Degrees (30°)
   Unit Weight = 50 pcf (assumed saturated)

   Only in cases where the Designer considers the soil types at the specific site location to be of lesser strength properties should an analysis be required. SPT borings or CPT soundings may be utilized as needed to verify the assumed soil properties, and at relatively uniform sites, a single boring or sounding may cover several foundations. Furthermore, borings in the area that were performed for other purposes may be used to confirm the assumed soil properties.

4) Foundation applies only to slopes of 1:4 or flatter. Provide a minimum 24" shaft projection on the high side.

5) Poles are designed for 6 mil galvanization thickness.

STANDARD POLE DESIGN NOTES

1) High Mast materials:
   a. Tube: ASTM A1011 Grade 50, 55, 60 or 65 (less than \( \frac{1}{4} \)"") or ASTM A673 Grade 50, 55, 60, or 65 (\( \geq \frac{1}{4} \)" and over) or ASTM A572 Grade A (50 ksi yield) or Grade B (60 ksi yield).
   b. Steel Plates: ASTM A325 Grade 36 or ASTM A36.
   c. Weld Metal: E70XX.
   d. Anchor Bolts: ASTM F1554 Grade 50, Grade 60 or Grade 70, Grade A heavy hex and plate washer.
   e. Handhole: ASTM A325 Grade 36 or ASTM A36 Frame with ASTM A36 cover.
   f. Caps: ASTM A1011 Grade 50, 55, 60 or 65 or ASTM A36.
   h. Stanchion Stud Screws: ASTM Type 316.

2) Reflected steel: ASTM A516, Grade 60.

3) Concrete: Class IV (Tilted Shaft) with a minimum 4,000 psi compressive strength at 28 days for all environmental classifications.


5) Galvanization:
   b. Other Items (Including Poles): ASTM A139.

6) Hole diameters for anchor bolts not greater than the bolt diameter plus \( \frac{1}{2} \)".

7) Poles: Tapered with the diameter changing at a rate of 0.16 inch per foot with a minimum 16-sided pole shaft and only one longitudinal seam weld. Circumferentially welded pole shaft butt welds and circumferential panel welds are not permitted. Longitudinal seam welds within 6 inches of pole to more must be complete penetration welds. Longitudinal seam welds at tangential line joints must be complete penetration welds. For the splice length plus 6 inches. Fillet welds must welds with the long weld leg along the shaft. Terminate the long weld leg along the shaft at approximately a 90 degree angle.

8) One hundred percent of full-penetration groove welds and a random 50 percent of partial-penetration groove welds shall be inspected.  Full-penetration groove weld inspection shall be performed by non-destructive methods of radiography or ultrasonics.

9) Furnish each pole with a 2" X 4" (Max.) aluminum identification tag.  Include the following information:
   - Financial Project ID
   - Pole Mounting Height
   - Manufacturer's Name, F of Steel and Base Wall Thickness.

10) Shop drawings are only required for additions, deletions, or modifications to this Design Standard.

11) Verify CSL access tubes will not interfere with anchor bolt installation before excavating the shaft. When CSL access tube location conflicts with anchor bolt location, move the CSL access tube location a few inches away from the anchor bolt. When CSL access tubes interfere with anchor bolt location, move the CSL access tube location a few inches away from the anchor bolt. NOTIFY THE ENGINEER before excavating the shaft if the CSL access tube locations cannot be moved out of conflict with anchor bolt locations.
**POLE DESIGN TABLE**

<table>
<thead>
<tr>
<th>DESIGN WIND SPEED</th>
<th>POLE OVERALL HEIGHT</th>
<th>SECTION 1</th>
<th>SECTION 2</th>
<th>SECTION 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LENGTH (ft)</td>
<td>MIN. SPICE L (in)</td>
<td>TIP DIAM. (in)</td>
<td>BOLT CIRC. (in)</td>
</tr>
<tr>
<td>110 mph</td>
<td>80 ft</td>
<td>2'-0&quot;</td>
<td>0.250</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td>120 mph</td>
<td>80 ft</td>
<td>2'-0&quot;</td>
<td>0.250</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td>130 mph</td>
<td>80 ft</td>
<td>2'-0&quot;</td>
<td>0.250</td>
<td>2'-0&quot;</td>
</tr>
</tbody>
</table>

**BASE PLATE AND BOLTS DESIGN TABLE**

<table>
<thead>
<tr>
<th>DESIGN WIND SPEED</th>
<th>POLE DESIGN TABLE</th>
<th>SHAFT DESIGN TABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diameter (in.)</td>
<td>Diameter (in.)</td>
</tr>
<tr>
<td>110 mph</td>
<td>80 ft</td>
<td>100 ft</td>
</tr>
<tr>
<td>120 mph</td>
<td>80 ft</td>
<td>100 ft</td>
</tr>
<tr>
<td>130 mph</td>
<td>80 ft</td>
<td>100 ft</td>
</tr>
</tbody>
</table>

**SHAFT DESIGN TABLE**

<table>
<thead>
<tr>
<th>DESIGN WIND SPEED</th>
<th>POLE DESIGN TABLE</th>
<th>SHAFT DESIGN TABLE</th>
<th>LONGITUDINAL REINFORCEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>110 mph</td>
<td>80 ft</td>
<td>100 ft</td>
<td>16-811</td>
</tr>
<tr>
<td>120 mph</td>
<td>80 ft</td>
<td>100 ft</td>
<td>16-811</td>
</tr>
<tr>
<td>130 mph</td>
<td>80 ft</td>
<td>100 ft</td>
<td>16-811</td>
</tr>
</tbody>
</table>

* Diameter Measured Flat to Flat

(see Note 11)