HIGH MAST LIGHTING NOTES:

1. High mast materials:
   a. Pole: ASTM A1011 Grade 50, 55, 60 or 65 (less than 1") or ASTM A572 Grade 50, 55, 60, or 65 (1" and over) or ASTM A578 Grade A (55 ksi yield) or Grade B (60 ksi yield).
   b. Steel Plates: ASTM A572 Grade 36 or ASTM A36
   c. Weld Metal: E70XX
   d. Anchor Bolts: ASTM F1554 Grade 5 with ASTM A563 Grade A heavy hex nuts and place washer.
   e. Handhole: ASTM A109 Grade 36 or ASTM A36 Frame with ASTM A36 cover.
   f. Caps: ASTM A1011 Grade 50, 55, 60 or 65 or ASTM A572
   g. Nut Covers: ASTM B26 (319-F)
   h. Stainless Steel Screws: AISI Type 316
   i. Reinforcing steel: ASTM A615, Grade 60

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

3. Foundation design based upon the following soil criteria:
   a. Friction Angle = 30 Degrees (30°)
   b. Unit Weight = 50 pcf (assumed saturated)

4. 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. Upper Springs, SPI Springs or CPI soundings may be used to confirm the assumed soil properties. Furthermore, borings in the area that were performed for relatively uniform soils, a single boring or sounding may cover several foundations. Foundation borings in the area that were performed for other purposes may be used to confirm the assumed soil properties.

5. Foundation design based upon the following soil criteria:
   a. Friction Angle = 30 Degrees (30°)
   b. Unit Weight = 50 pcf (assumed saturated)

DESIGN CRITERIA:

1. Designed in accordance with the FDOT Structures Manual.

2. Poles are designed to support the following:
   a. 11 cylindrical head assembly with a maximum effective projected area of 6 SF (Cd=2) and 340 lbs (Max).
   b. 8 (8) cylindrical luminaires with a maximum effective projected area of 3.0 SF (Cd=2) and 77 lbs each.
   c. 1 pole mount luminaire with a maximum effective projected area of 6 SF (Cd=1) and 340 lbs (Max).
   d. 1 pole mount luminaire with a maximum effective projected area of 6 SF (Cd=1) and 340 lbs (Max).

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

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

5. Poles are designed for 6 mil galvanization thickness.
### Pole Design Table

<table>
<thead>
<tr>
<th>Design Wind Speed</th>
<th>Pole Overall Height (ft)</th>
<th>SECTION 1 (TOP)</th>
<th>SECTION 2</th>
<th>SECTION 3</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SECTION 1</td>
<td>SECTION 2</td>
<td>SECTION 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Length</td>
<td>Wall Thickness (in.)</td>
<td>Minimum Splice L.</td>
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<tr>
<td>110 MPH</td>
<td>80</td>
<td>42'-0&quot;</td>
<td>0.250</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>24'-0&quot;</td>
<td>0.194</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>44'-0&quot;</td>
<td>0.250</td>
<td>2'-6&quot;</td>
</tr>
<tr>
<td>130 MPH</td>
<td>80</td>
<td>42'-0&quot;</td>
<td>0.250</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>24'-0&quot;</td>
<td>0.194</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>45'-0&quot;</td>
<td>0.250</td>
<td>2'-8&quot;</td>
</tr>
<tr>
<td>150 MPH</td>
<td>80</td>
<td>42'-0&quot;</td>
<td>0.250</td>
<td>2'-3&quot;</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>24'-0&quot;</td>
<td>0.194</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>46'-0&quot;</td>
<td>0.250</td>
<td>3'-0&quot;</td>
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*Diameter Measured Flat to Flat*

### Base Plate and Bolts Design Table

<table>
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<tr>
<th>Design Wind Speed</th>
<th>Pole Overall Height (ft)</th>
<th>Base Plate Diameter (in.)</th>
<th>Base Plate Thickness (in.)</th>
<th>Bolt Circle (in.)</th>
<th>Bolt Diameter (in.)</th>
<th>Bolt Embedment (in.)</th>
<th>No. Bolts</th>
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<td>23.0</td>
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<td>100</td>
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<td>3.0</td>
<td>26.5</td>
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<td>1.75</td>
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<tr>
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<td>120</td>
<td>36.0</td>
<td>3.0</td>
<td>29.0</td>
<td>8</td>
<td>1.75</td>
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<td>130 MPH</td>
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<td>3.0</td>
<td>23.0</td>
<td>8</td>
<td>1.75</td>
<td>50</td>
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<td>1.75</td>
<td>50</td>
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<td>29.0</td>
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<td>1.75</td>
<td>53</td>
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### Shaft Design Table

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<tr>
<th>Design Wind Speed</th>
<th>Pole Overall Height (ft)</th>
<th>Shaft Diameter (in.)</th>
<th>Shaft Length (in.)</th>
<th>Longitudinal Reinforcement</th>
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<td>100</td>
<td>4'-0&quot;</td>
<td>16'-0&quot;</td>
<td>16'-0&quot;</td>
</tr>
<tr>
<td>130 MPH</td>
<td>80</td>
<td>4'-0&quot;</td>
<td>14'-0&quot;</td>
<td>14'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>4'-0&quot;</td>
<td>16'-0&quot;</td>
<td>16'-0&quot;</td>
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<tr>
<td>150 MPH</td>
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<td>4'-0&quot;</td>
<td>15'-0&quot;</td>
<td>16'-0&quot;</td>
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<td>100</td>
<td>4'-0&quot;</td>
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<td>18'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>5'-0&quot;</td>
<td>17'-0&quot;</td>
<td>18'-0&quot;</td>
</tr>
</tbody>
</table>

### Pole Design Tables

**FDOT 2014**

**High MAST Lighting**

**Index No.**

**Sheet No.**

**Description:**

- FDOT Design Standards
- High Mast Lighting

**Note:**
- Natural Ground Line adjacent to highmasts on fill
- Round or 16-sided pole (faces not shown for clarity)
- Handhole Door
- Identification Tag (see Note 9)
- Wire screen 2'-0" wide
- Luminaires (6 Maximum)
- Luminaires Head

**Figure Description:**

- Elevation
- Section (1)
- Section (2)
- Section (3)
- Pole Design Tables

**Last Revision:** 07/01/13

**Revision:**

- Last Revision: 07/01/13
- Description: FDOT 2014 Design Standards
- Index No.: 17502
- Sheet No.: 2 of 6
1. At all pull boxes and pole bases, ends of conduit shall be sealed in accordance with Section 630 of the Standard Specifications for Road and Bridge Construction.
2. Slabs to be placed around all Poles and Pull Boxes.
3. For Pull Boxes between Poles refer to Index 17500.

NOTES:

Minimum of 3' x 30' approved ground rods.

Bonding Ground

Schedule 40 PVC conduit with 4/0 Cu bare ground wire.

Wire Screen see Spec. 649-6

Pigtail Cord w/Female Receptacle

Male Inlet

Attach Copper Lugs (Two-Hole, Straight Tongue, Twin-Barrel) to which support plate is accommodated to #4/0 and #4-6 conductors for grounding.

Circuit Breaker Panel Box with Surge Arrester mounted to top of Circuit Breaker Panel Box for easy access. Service entrance fittings shall be used on all conductors entering Circuit Breaker Panel Box.

#6 Bonding Ground

12" bed of pearock or crushed stone for drainage

U.L. approved ground rod ½" diameter 20' long copper clad with approved ground connection

Schedule 40 PVC conduit, Circuit conductors and conduit size as shown in plans (Typical).
The contractor's attention is directed to those plan sheets detailing the mounting of luminaires at the pole top. Particular attention is directed to alignment of luminaire light distributions. Special attention must be exercised in the physical alignment of luminaires. The direction of luminaires, shown on the photometric layout is physically produced at each lighting standard in the field. A marking shall be placed on the external face of the refractor to allow visual inspection of alignment. The marking shall correspond to the 0° axis of the refractor.

Luminaire support ring
Luminaires
2" slip fitter
Power Cable Terminator
600 Volt rated Pole Cable. Size of conductors to be determined by luminaire load.

Luminaire support ring
2" Slip-fitter Assembly (equally spaced around ring)
Covered receptacle to power luminaires when in the lowered position with Male Inlet.

High mast pole
Winch cable
600 Volt rated Circuit Breaker Cable. Size of conductors to be determined by luminaire load.

Circuit Breaker Cable with Female Plug
Winch
Lock nuts
Base plate

Hand hole
A surge protector shall be located in the pole with the circuit breaker. The surge protector shall be mounted at the front near hand hole for easy access.

SCHEMATIC OF REMOTE AUXILIARY POWER UNIT
LOWERING DETAILS

FDOT 2014 DESIGN STANDARDS
HIGH MAST LIGHTING

INDEX NO. 17502
SHEET NO. 5 of 6
NOTES:

1. Use compacted select material in accordance with index 505.
2. Concrete shall be Class 65 with a minimum strength at 28 days of f'c=2.5 ksi.
3. Outside edge of slab shall be cast against formwork.
4. The pull box shown is 13" x 24"; others approved under Section 635 of the Standard Specifications may be used.
5. Slabs to be placed around all Poles and Pull Boxes. In urban areas or where space is limited slab dimensions may be adjusted as shown in the plans.
6. Concrete for slabs around poles and pull boxes shall be included in the price of pole or pull box.
7. The expansion joint shall consist of 1/2" of closed-cell polyethylene foam expansion material. The top 1/2" of expansion material shall be removed after pouring the slab and sealed with a QPL approved Type A sealant meeting the requirements of Section 851.

Concrete shall be Class NS with a minimum strength at 28 days of f'c=2.5 ksi.

Outside edge of slab shall be cast against formwork.

Use compacted select material in accordance with Index 505.

Plant location

Concrete for slabs around poles and pull boxes shall be included in the price of pole or pull box.

The pull box shown is 13" x 24"; others approved under Section 635 of the Standard Specifications may be used.

Slabs to be placed around all Poles and Pull Boxes. In urban areas or where space is limited slab dimensions may be adjusted as shown in the plans.

The expansion joint shall consist of 1/2" of closed-cell polyethylene foam expansion material. The top 1/2" of expansion material shall be removed after pouring the slab and sealed with a QPL approved Type A sealant meeting the requirements of Section 851.

Concrete shall be Class NS with a minimum strength at 28 days of f'c=2.5 ksi.