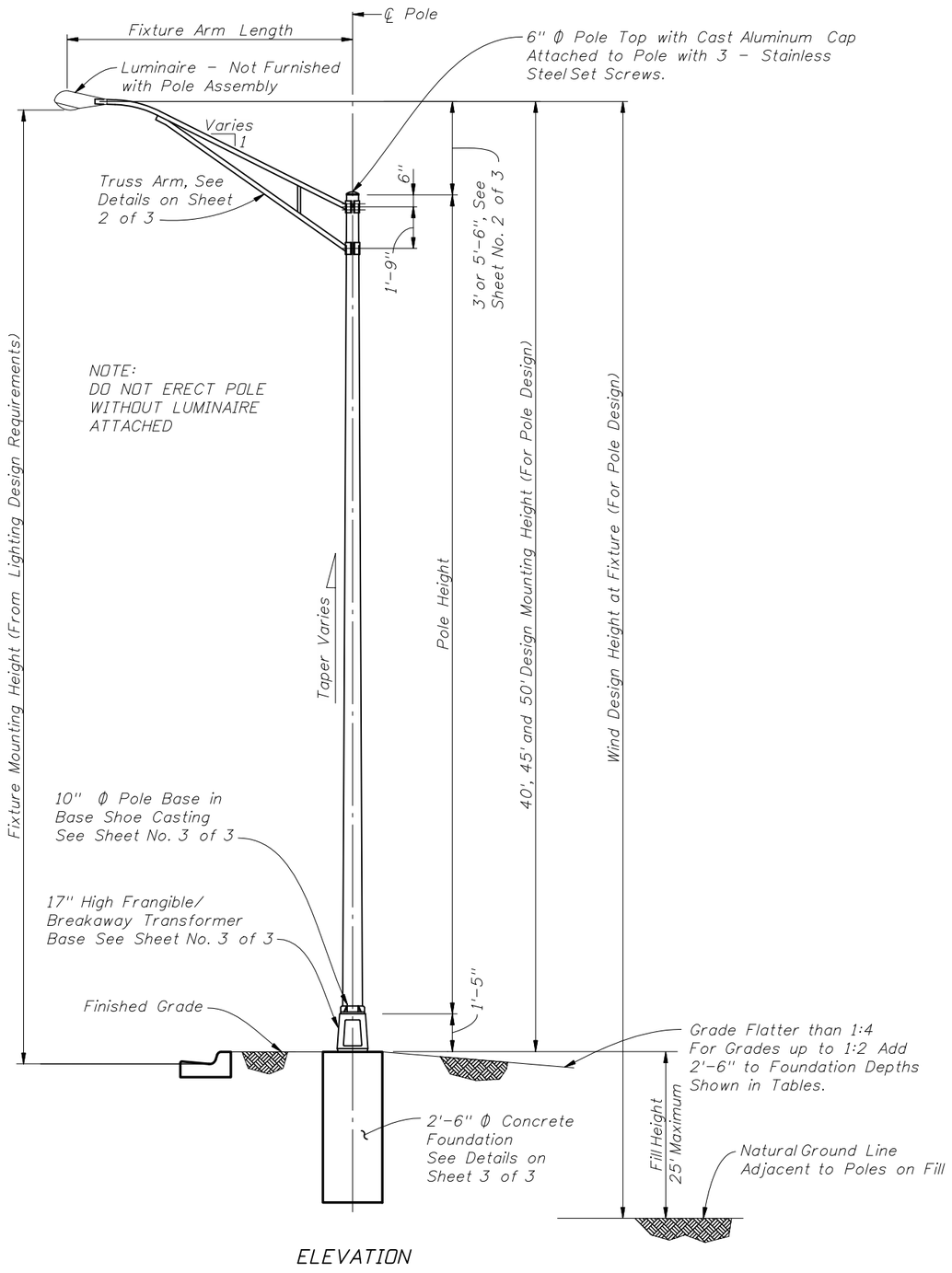


ELEVATION

ROADWAY ALUMINUM LIGHTING POLE NOTES

1) Designed in accordance with FDOT Structures Manual and the 2001 (4th) Edition AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and Interims.

2) All tables were developed assuming the following Luminaire properties: Effective Projected Area of 1.55 ft (includes wind drag coefficient) and 75 pounds (max.)

3) Perform all welding in accordance with the American Welding Society Structural Welding Code Aluminum) ANSI/AWS D1.2 (current edition).

4) See Standard Index No. 17500 for grounding and wiring details.

5) Foundation Materials:
   a. Reinforcing Steel: ASTM A615 Grade 60.
   b. Concrete: Class II, 3,400 psi (f'c) minimum Compressive Strength at 28-days for all environmental classifications.
   c. Anchor Bolts: ASTM F1554 Grade 55 with ASTM A563 Grade DH nuts and ASTM F436 Type 1 washers (all galvanized in accordance with ASTM F2329-05.)

6) Light Pole Specifications:
   a. Poles: ASTM B221, Alloy 6063-T6.
   b. Arm Tube Extrusions: ASTM B221 - Alloy 6063-T6.
   c. Finish: For pole and arms; 50 grit satin rubbed finish.
   d. Pole Connection Extrusions, Bars and Plates: ASTM B221 - Alloy 6063-T6.
   e. Shoe Base Casting: ASTM B26 - Alloy 356-T6 or ASTM B108 - Alloy 356-T6.
   f. Aluminum Caps and Covers: ASTM B-26(319-F).
   g. Frangible/Breakaway Transformer Base Casting: ASTM B26 - Alloy 356-T6 or ASTM B108 - Alloy 356-T6.
   h. Weld Metal: ER4043.
   i. Shoe Base Connection Bolts: ASTM A325 Type 1 with ASTM A563 Grade DH nuts and ASTM F436 Type 1 washers (all galvanized in accordance with ASTM F2329-05).
   j. Stainless Steel Fasteners and Hardware: AISI Grade 304.
   k. Aluminum alloy 6063: T4 condition and heat treated in accordance with ASTM B597 to T6.

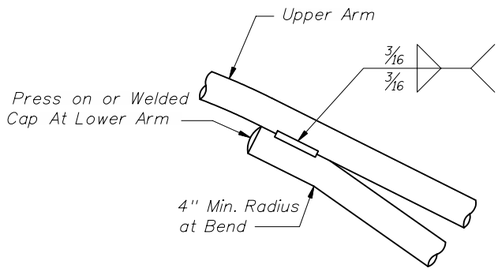
7) Pole Notes:
   a. Tapered as required to provide a top outside diameter (O.D.) of 6" with a base O.D. of 10". Portions of the shaft near the base shoe and at the arm connections may be held constant at 10" and 6" respectively to simplify fabrication.
   b. Transverse welds are allowed only at the base.
   c. Poles constructed out of two or more sections with overlapping splices are not permitted.
   d. Equip poles with a damping device if the pole location is within 5 miles of the coastline.

8) Furnish each pole with a 2"x4" (max) aluminum identification tag. Submit details for approval. Secure to Transformer Base with 0.125" stainless steel rivets or screws. Locate Identification Tag on the inside of base and visible from the door opening. Include the following information: Financial Project ID, Pole Design Designation (ie. Pole Pay Item number), Manufacturer's Name & Certification number, Pay Item number.

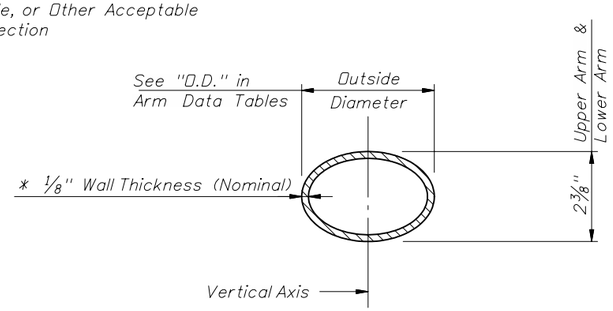
9) Manufacturers seeking approval of a Standard Roadway Aluminum Lighting Pole assembly for inclusion on the Qualified Products List must submit a QPL Product Evaluation Application along with design documentation and drawings showing the product meets all specified requirements of this Index.
   a. For Clamp and Frangible Transformer Base Design, provide design calculation and/or test results indicating that the components are capable of providing the required capacity. Certify that the frangible Transformer Base conforms to the current FHWA required AASHTO Frangibility Requirements, tested under NCHRP Report 350 Guideline.
   b. Include damping device information, details and performance data with the QPL application.
   c. For Alternate foundations: Include design calculations and drawings showing that the product meets the requirements of this index, FDOT Structures Manual and Specification 715.

NOTE:
STANDARD ROADWAY ALUMINUM LIGHTING NOT TO BE USED ON BRIDGES OR WALLS.

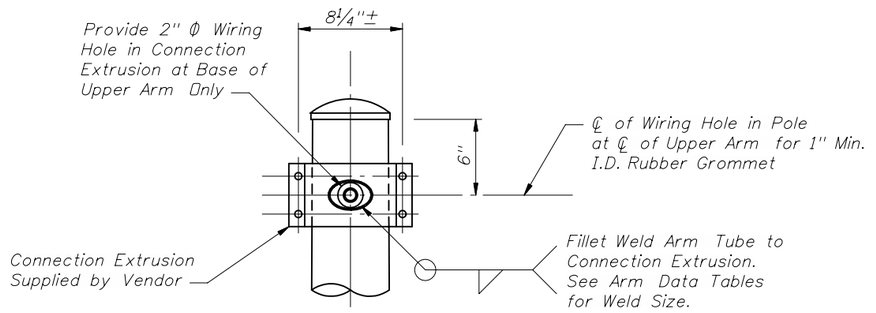
ELEVATION AND NOTES



ARM CONNECTION DETAIL

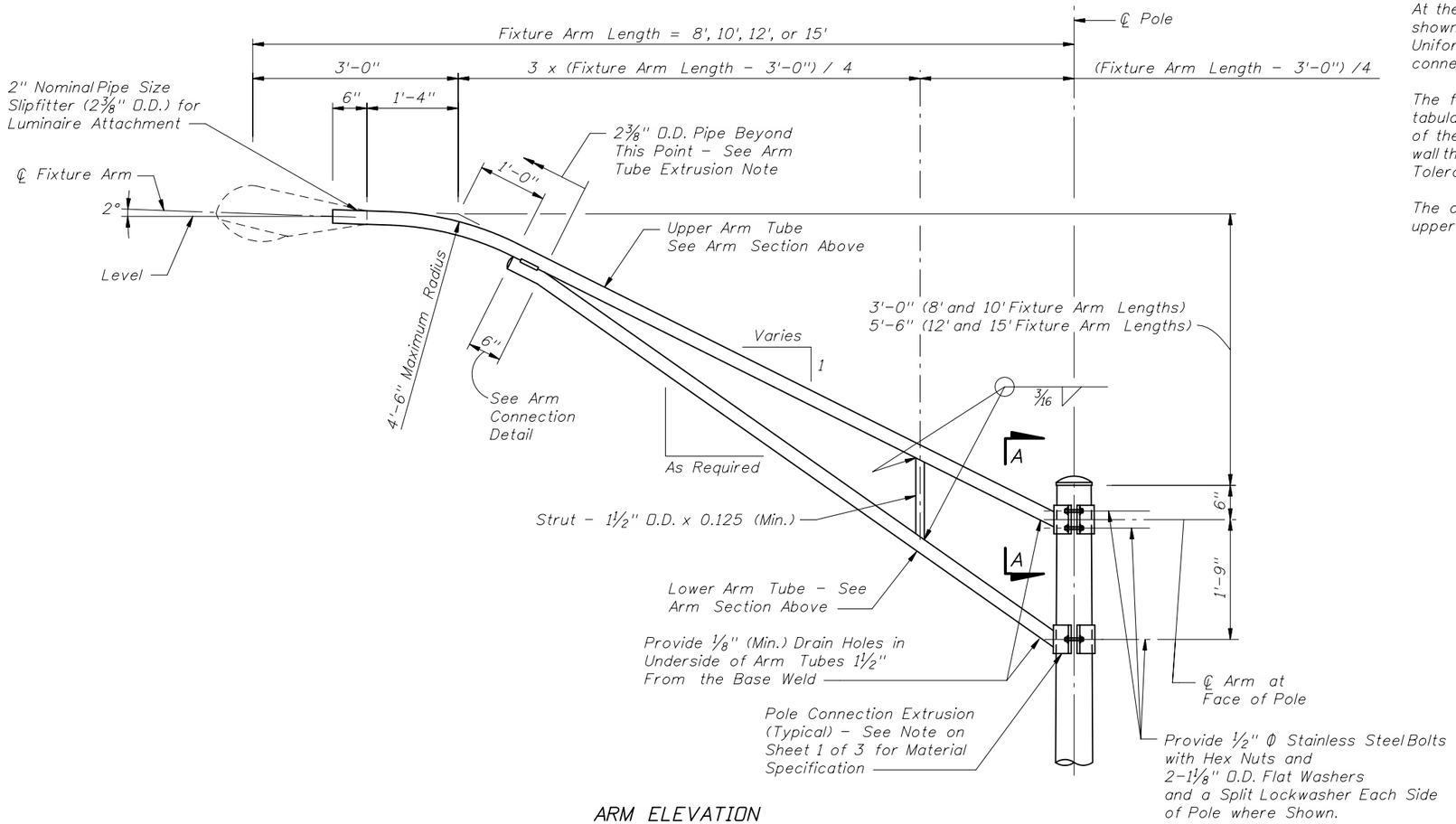


ARM SECTION



SECTION A-A

(Connection At Lower Arm Similar)



ARM ELEVATION

ARM TUBE EXTRUSIONS NOTES:

At the pole connections, provide arm tube extrusions with dimensions as shown in the ARM SECTION and as tabulated in the ARM DATA Tables. Uniformly transition elliptical section to a cylindrical section at the arm connection.

The fabricator may substitute elliptical cross sections other than those tabulated, provided the section properties about the vertical axis and the area of the section equal or exceed that of the required section, and provided the wall thickness is a minimum of 1/8" nominal and within the Aluminum Association Tolerances.

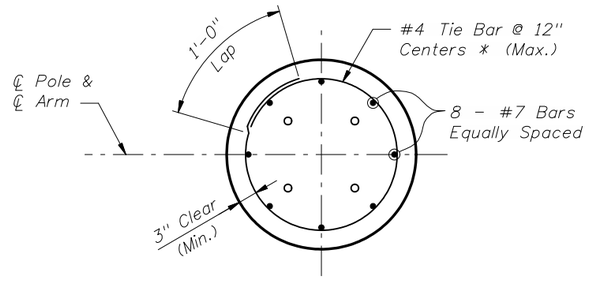
The outside diameter about the minor axis should be held at 2 3/8" at the upper and lower arms.

ARM TABLE

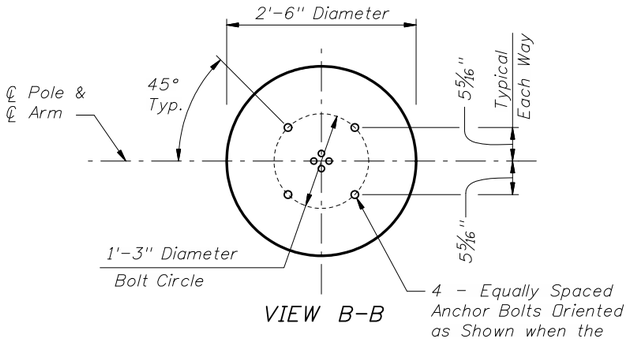
WIND SPEED (MPH)	ARM LENGTH (FT)	UPPER ARM		LOWER ARM	
		O.D. (IN)	WELD (IN)	O.D. (IN)	WELD (IN)
110	8	2.38	0.188	2.38	0.188
110	10 & 12	3.63	0.188	3.63	0.188
110	15	4.63	0.188	4.63	0.188
130	8 & 10	3.63	0.188	3.63	0.188
130	12	4.63	0.188	4.63	0.188
130	15	4.63	0.250	4.63	0.250
150	8	3.63	0.188	3.63	0.188
150	10	3.63	0.250	3.63	0.250
150	12	4.63	0.250	4.63	0.250
150	15	4.63	0.313	4.63	0.313

* *Increase Member Wall Thickness as Necessary to Meet Minimum Requirements of the Welding Code for the Connection Weld Sizes Shown in the Arm and Pole Tables.*

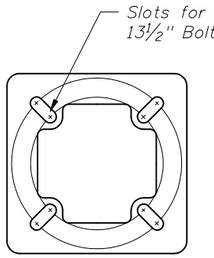
ARM DETAILS



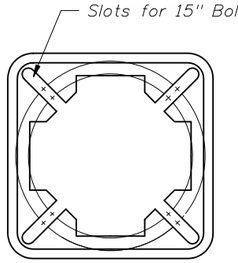
SECTION C-C



VIEW B-B



TOP VIEW
TRANSFORMER BASE



BOTTOM VIEW
TRANSFORMER BASE

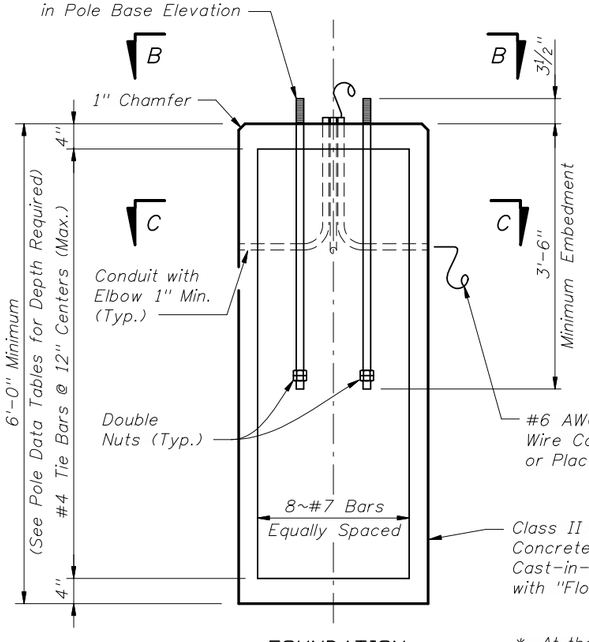
FOUNDATION NOTES:
The foundations for Standard Roadway Aluminum Lighting Poles are pre-designed and are based upon the following conservative soil criteria which covers the great majority of soil types found in Florida:

Classification = Cohesionless (Fine Sand)
Friction Angle = 30 Degrees (30°)
Unit Weight = 50 lbs./cu. ft. (assumed saturated)

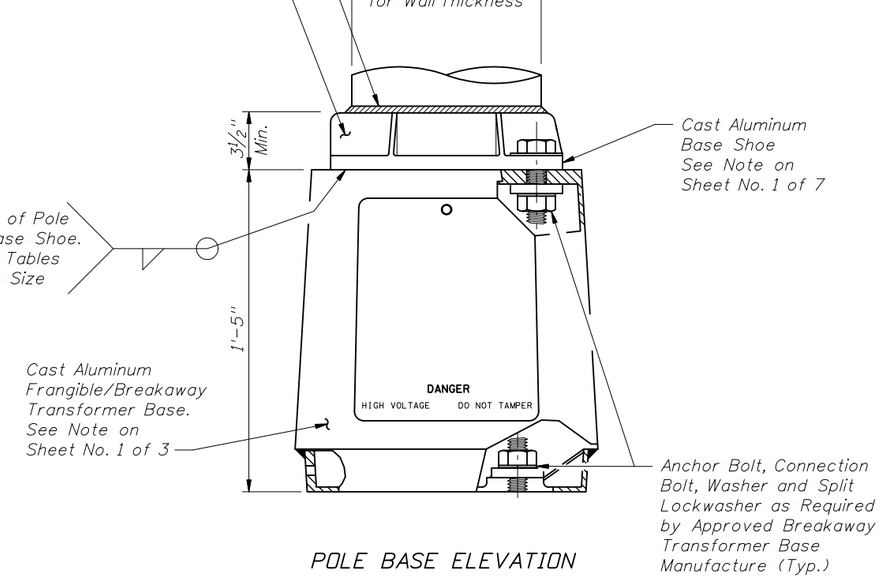
Only in cases where the Designer considers the soil types at the specific site location to be of lesser strength properties should an analysis be required. Auger borings, SPT borings or CPT soundings may be utilized as needed to verify the assumed soil properties, and at relatively uniform sites, a single 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.

POLE TABLE					
WIND SPEED (MPH)	ARM LENGTH (FT)	DESIGN MOUNTING HEIGHT (FT)	POLE WALL (IN)	UPPER WELD (IN)	LOWER WELD (IN)
110	8, 10, 12 & 15	40 & 45	0.156	0.156	0.156
110	8, 10, 12 & 15	50	0.188	0.188	0.188
130	8, 10 & 12	40	0.156	0.156	0.156
130	15	40	0.188	0.188	0.188
130	8, 10, & 12	45	0.188	0.188	0.188
130	15	45	0.250	0.250	0.250
130	8, 10, 12 & 15	50	0.250	0.250	0.250
150	8, 10, & 12	40	0.188	0.188	0.188
150	15	40	0.250	0.250	0.250
150	8, 10, 12 & 15	45	0.250	0.250	0.250
150	8, 10, 12 & 15	50	0.313	0.313	0.313

NOTE:
Pole wall thicknesses shown in the POLE TABLE are nominals and shall be within the Aluminum Association Tolerances. Thicker walls are permitted and tapered walls may be used provided the minimum Aluminum Association thicknesses are not violated.



FOUNDATION



POLE BASE ELEVATION

FOUNDATION TABLE		
WIND SPEED (MPH)	DESIGN MOUNTING HEIGHT (FT)	TOTAL DEPTH (FT) *
110	40	7
110	45 & 50	8
130	40 & 45	8
130	50	9
150	40 & 45	9
150	50	10

* Depths shown in table are for grades flatter than 1:4, for grades up to 1:2 add 2'-6" to foundation depths shown in table.

* At the Option of the Contractor, D10 Spiral Wire @ 6" Pitch, Three Flat Turns Top and One Flat Turn Bottom may be Utilized in Lieu of Specified.

BASE DETAILS

2008 FDOT Design Standards

STANDARD ROADWAY ALUMINUM LIGHTING

Last Revision 01/01/07 | Sheet No. 3 of 3

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