

ORIGINATION FORM

Proposed Revisions to a Standard Plans Index
(Please provide all information – Incomplete forms will be returned)

Contact Information:

Date: July 19, 2018
Originator: **Cheryl Hudson**
Phone: 414-5332
Email:

Standard Plans:

Index Number: **715-010**
Sheet Number (s): 1, 2, & 3
Index Title: High Mast Lighting

Summary of the changes:

Sheet 1: Changed Notes 2 & 4; Sheet 2 Deleted Column from Section 3 of Pole Design Table; Changed some Base Plate Thicknesses in Base Plate and bolts Design Table; editorial on ELEVATION view; Sheet 3: Section E-E Clarified Inside Bend Radius



Commentary / Background:

Added Information to Note 4 on sheet 1, clarified intent of Note 2.

Other Affected Offices / Documents: (Provide name of responsible personnel)

- | Yes | No | |
|--------------------------|-------------------------------------|-----------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Other Standard Plans – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | FDOT Design Manual – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Basis of Estimates Manual – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Standard Specifications – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Approved Product List – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Construction – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Maintenance – |

Origination Package Includes: (Email or hand deliver package to Derwood Sheppard)

- | Yes | N/A | |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Redline Mark-ups |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Proposed Standard Plan Instructions (SPI) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Revised SPI |
| <input type="checkbox"/> | <input type="checkbox"/> | Other Support Documents |

Implementation:

- Design Bulletin (Interim) DCE Memo Program Mgmt. Bulletin FY-Standard Plans (Next Release)

————— **Contact the Roadway Design Office for assistance in completing this form** —————

HIGHMAST LIGHTING NOTES:

1. Poles are designed to support the following:
 - A. One (1) cylindrical head assembly with a maximum effective projected area of 6 sf and 340 lbs (Max.)
 - B. Eight (8) cylindrical luminaires with a maximum effective projected area of 1.5 sf and 77 lbs each.
2. Shop Drawings: This Index is considered fully detailed, only submit shop drawings for minor modifications not detailed in the Plans.
3. High Mast Structure Materials:
 - A. Poles and Backing Rings:
 - a. Less than 3/16": ASTM A1011 Grade 50, 55, 60 or 65
 - b. Greater than or equal to 3/16": ASTM A572 Grade 50, 55, 60 or 65
 - c. ASTM A595 Grade A (55 ksi yield) or Grade B (60 ksi yield)
 - B. Steel Plates: ASTM A709 or ASTM A36
 - C. Pole Caps: ASTM A1011 Grade 50, 55, 60, or 65 or ASTM B209
 - D. Weld Metal: E70XX
 - E. Stainless Steel Screws: AISI 316
 - F. Anchor Bolts, Nuts and Washers:
 - a. Anchor Bolts: ASTM F1554 Grade 55
 - b. Nuts: ASTM A563 Grade A Heavy-Hex (5 per anchor bolt)
 - c. Plate Washer: ASTM A36 (2 per anchor bolt)
 - G. Nut Covers: ASTM B26 (319-F)
 - H. Concrete: Class IV (Drilled Shaft)
 - I. Reinforcing Steel: Specification Section 415
4. Fabrication:
 - A. Welding: Specification Section 460-6.4
 - B. Poles:
 - a. Round or 16-Sided (Min.)
 - b. Pole Taper: Diameter changing at 0.14 inches per foot.
 - c. Two longitudinal seam welds (Max.).
 - d. Longitudinal seam welds within 6" of pole to base must be complete penetration welds.
 - e. Longitudinal seam welds at telescopic field joints must be complete penetration welds for the splice length plus 6".
 - f. Circumferentially welded pole shaft, butt splices and laminated pole shafts are not permitted.
 - C. Holes for Anchor Bolts: Anchor Bolt diameter plus 1/2" (Max.), prior to galvanizing.
 - D. Hot Dip Galvanize after Fabrication.
 - E. Identification Tag: (Submit details for approval.)
 - a. 2"x 4" (Max.) aluminum identification tag.
 - b. Locate on the inside of the pole and visible from the handhole.
 - c. Secure to pole with 1/8" diameter stainless steel rivets or screws.
 - d. Include the following information on the ID Tag:
 1. Financial Project ID
 2. Pole Type
 3. Pole height
 4. Manufacturers' Name
 5. Fy of Steel
 6. Base Wall Thickness
5. Coating:
 - A. Galvanize Anchor Bolts, Nuts and Washers: ASTM F2329
 - B. Hot Dip Galvanize all other steel items: ASTM A123
6. Construction:
 - A. Foundation: Specification Section 455 Drilled Shaft, except that payment is included in the cost of the Structure.
 - B. After Installation: Place wire screen between top of foundation and bottom of baseplate in accordance with Specification Section 649-6.
7. Wind Speed by County:

130 MPH
Alachua, Baker, Bradford, Calhoun, Clay, Columbia, Dixie, Duval, Gadsden, Gilchrist, Hamilton, Jackson, Jefferson, Lafayette, Leon, Liberty, Nassau, Madison, Putnam, Suwannee, Taylor, Union and Wakulla Counties.

150 MPH
Bay, Citrus, De Soto, Flagler, Franklin, Glades, Gulf, Hardee, Hendry, Hernando, Highlands, Hillsborough, Holmes, Lake, Levy, Manatee, Marion, Okaloosa, Okeechobee, Orange, Osceola, Pasco, Pinellas, Polk, Santa Rosa, Seminole, St. Johns, Sumter, Volusia, Walton and Washington Counties.


170 MPH
Brevard, Broward, Charlotte, Collier, Escambia, Indian River, Lee, Martin, Miami-Dade, Monroe, Palm Beach, Sarasota and St. Lucie Counties.

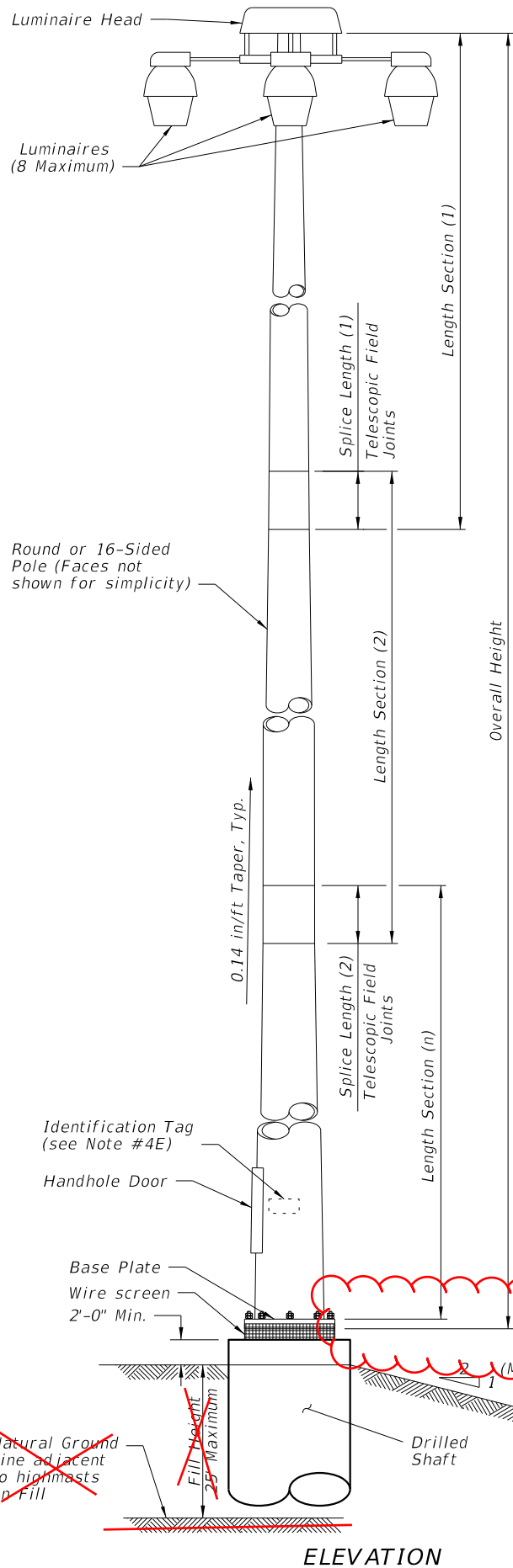
Changed Notes

11/01/018

STANDARD POLE DESIGN NOTES

10/16/2017 10:49:23 AM

LAST REVISION 11/01/17	REVISION 11/01/18	DESCRIPTION:	 FY 2018-19 STANDARD PLANS	HIGH MAST LIGHTING	INDEX 715-010	SHEET 1 of 6
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POLE DESIGN TABLE*

Design Wind Speed	Pole Overall Height (ft)	SECTION 1 (TOP)				SECTION 2				SECTION 3			
		Length 1	Wall Thickness (in.)	Minimum Splice L (in.)	Base Dia. (in.)	Length 2	Wall Thickness (in.)	Minimum Splice L (in.)	Base Dia. (in.)	Length	Wall Thickness (in.)	Minimum Splice L (in.)	Base Dia. (in.)
130 mph	80	41'-0"	0.250	2'-0"	11	42'-0"	0.250	--	16	--	--	--	--
	100	23'-0"	0.179	2'-0"	10	41'-0"	0.250	2'-6"	15	43'-0"	0.250	--	20
	120	41'-0"	0.250	2'-0"	12	43'-0"	0.250	2'-9"	17	43'-0"	0.313	--	22
150 mph	80	41'-0"	0.250	2'-0"	11	42'-0"	0.313	--	16	--	--	--	--
	100	23'-0"	0.179	2'-0"	10	41'-0"	0.250	2'-6"	15	43'-0"	0.313	--	20
	120	41'-0"	0.250	2'-6"	16	43'-0"	0.250	3'-0"	21	44'-0"	0.375	--	26
170 mph	80	40'-0"	0.250	2'-3"	13	43'-0"	0.313	--	18	--	--	--	--
	100	23'-0"	0.250	2'-0"	11	42'-0"	0.313	2'-6"	16	44'-0"	0.375	--	21
	120	41'-0"	0.250	3'-0"	18	44'-0"	0.313	3'-6"	23	45'-0"	0.375	--	28

* Diameter Measured Flat to Flat

Deleted

BASE PLATE AND BOLTS DESIGN TABLE

Design Wind Speed	Pole Overall Height (ft)	Base Plate Diameter (in.)	Base Plate Thickness (in.)	Bolt Circle (in.)	No. Bolts	Bolt Diameter (in.)	Bolt Embedment (in.)
130 mph	80	30.0	3.0	23.0	8	1.75	38
	100	34.0	3.0	27.0	8	1.75	42
	120	38.0	3.0	30.0	8	2.00	48
150 mph	80	30.0	3.0	23.0	8	1.75	43
	100	36.0	3.0	28.0	8	2.00	47
	120	44.0	3.875	35.0	8	2.25	52
170 mph	80	32.0	3.0	25.0	8	1.75	47
	100	37.0	3.25	29.0	8	2.00	54
	120	46.0	3.875	37.0	10	2.25	58

Changed

SHAFT DESIGN TABLE

Design Wind Speed	Pole Overall Height (ft)	Shaft Diameter	Shaft Length	Longitudinal Reinforcement
130 mph	80	4'-0"	13'-0"	14- #11
	100	4'-6"	14'-0"	16- #11
	120	4'-6"	16'-0"	16- #11
150 mph	80	4'-0"	14'-0"	14- #11
	100	4'-6"	16'-0"	16- #11
	120	5'-0"	18'-0"	18- #11
170 mph	80	4'-6"	15'-0"	16- #11
	100	4'-6"	17'-0"	16- #11
	120	5'-0"	20'-0"	18- #11

NOTE:
Foundation are assumed to be in level ground. For Foundation with slopes 5H:1V and greater, increase the shaft depth in accordance with the additional shaft depth due to ground slope table. For slope or diameter values in between those shown in the table, use the higher value.

ADDITIONAL SHAFT DEPTH DUE TO GROUND SLOPE (ft)

Ground Slope	Drilled Shaft Diameter (ft)	
	4	5
5H:1V	3	4
4H:1V	4	5
3H:1V	5	6
2H:1V	7	9

Changed Dimension

ELEVATION

10/16/2017 10:49:24 AM

LAST REVISION	DESCRIPTION:
11/01/17	11/01/18

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 - A. Poles and Backing Rings:
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 - b. Greater than or equal to 3/16": ASTM A572 Grade 50, 55, 60 or 65
 - c. ASTM A595 Grade A (55 ksi yield) or Grade B (60 ksi yield)
 - B. Steel Plates: ASTM A709 or ASTM A36
 - C. Pole Caps: ASTM A1011 Grade 50, 55, 60, or 65 or ASTM B209
 - D. Weld Metal: E70XX
 - E. Stainless Steel Screws: AISI 316
 - F. Anchor Bolts, Nuts and Washers:
 - a. Anchor Bolts: ASTM F1554 Grade 55
 - b. Nuts: ASTM A563 Grade A Heavy-Hex (5 per anchor bolt)
 - c. Plate Washer: ASTM A36 (2 per anchor bolt)
 - G. Nut Covers: ASTM B26 (319-F)
 - H. Concrete: Class IV (Drilled Shaft)
 - I. Reinforcing Steel: Specification 415
4. Fabrication:
 - A. Welding:
 - a. Specification Section 460-6.4 and
 - b. AASHTO LRFD Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals Section 14.4.4
 - B. Poles:
 - a. Round or 16-sided (Min.)
 - b. Taper pole diameter at 0.14 inches per foot
 - c. Pole shaft may be up to three sections (using telescopic field splices)
 - d. Circumferentially welded pole shafts and laminated pole shafts are not permitted
 - e. Fabricate Pole longitudinal seam welds (2 maximum) with 60 percent minimum penetration or fusion welds except as follows:
 - i. Use a full-penetration groove weld within 6 inches of the circumferential tube-to-plate connection and
 - ii. Use full-penetration groove welds on the female end section of telescopic (i.e., slip type) field splices for a minimum length of 42 inches.
 - C. Identification Tag: (Submit details for approval)
 - a. 2" x 4" (Max.) aluminum tag
 - b. Locate on the inside of the pole and visible from the handhole
 - c. Secure with 1/8" diameter stainless steel rivets or screws.
 - d. Include the following information on the ID Tag:
 1. Financial Project ID
 2. Pole Type
 3. Pole Height
 4. Manufacturers' Name
 5. Yield Strength (Fy of Steel)
 6. Base Wall Thickness
 - D. Except for Anchor Bolts, bolt hole diameters are bolt diameter plus 1/16" and anchor bolts holes are bolt diameter plus 1/8" (Max) prior to galvanizing.
 - E. Hot Dip Galvanize after fabrication
5. Coating:
 - A. Galvanize Anchor Bolts, Nuts and Washers: ASTM F2329
 - B. Hot Dip Galvanize all other steel items including plate washers: ASTM A123
6. Construction:
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130 MPH
Alachua, Baker, Bradford, Calhoun, Clay, Columbia, Dixie, Duval, Gadsden, Gilchrist, Hamilton, Jackson, Jefferson, Lafayette, Leon, Liberty, Nassau, Madison, Putnam, Suwannee, Taylor, Union and Wakulla Counties.

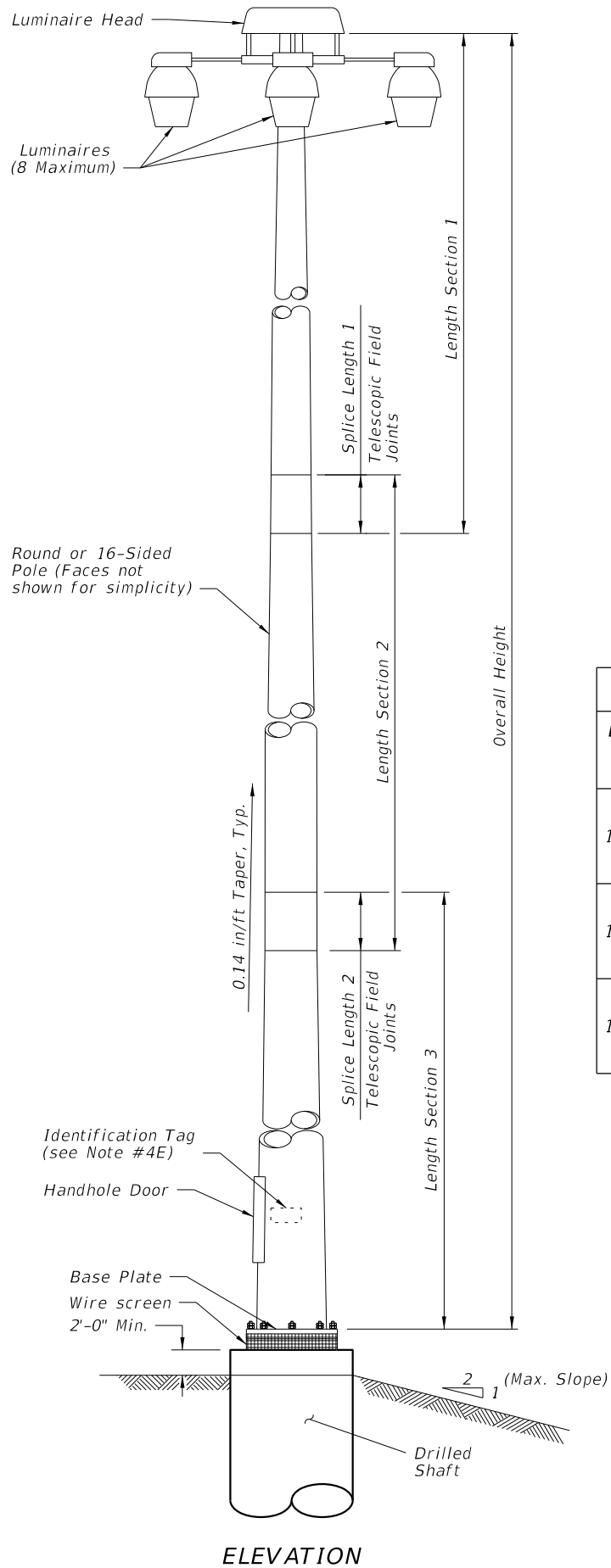
150 MPH
Bay, Citrus, De Soto, Flagler, Franklin, Glades, Gulf, Hardee, Hendry, Hernando, Highlands, Hillsborough, Holmes, Lake, Levy, Manatee, Marion, Okaloosa, Okeechobee, Orange, Osceola, Pasco, Pinellas, Polk, Santa Rosa, Seminole, St. Johns, Sumter, Volusia, Walton and Washington Counties.

170 MPH
Brevard, Broward, Charlotte, Collier, Escambia, Indian River, Lee, Martin, Miami-Dade, Monroe, Palm Beach, Sarasota and St. Lucie Counties.

8/14/2018 6:17:37 AM

STANDARD POLE DESIGN NOTES

LAST REVISION 11/01/18	REVISION	DESCRIPTION:	 FY 2019-20 STANDARD PLANS	HIGH MAST LIGHTING	INDEX 715-010	SHEET 1 of 6
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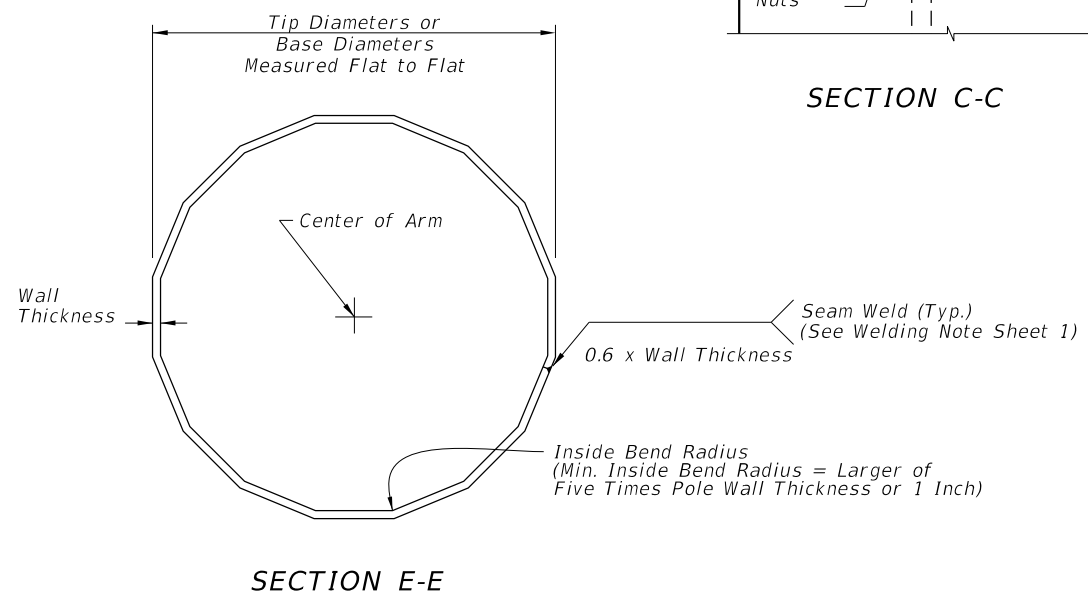
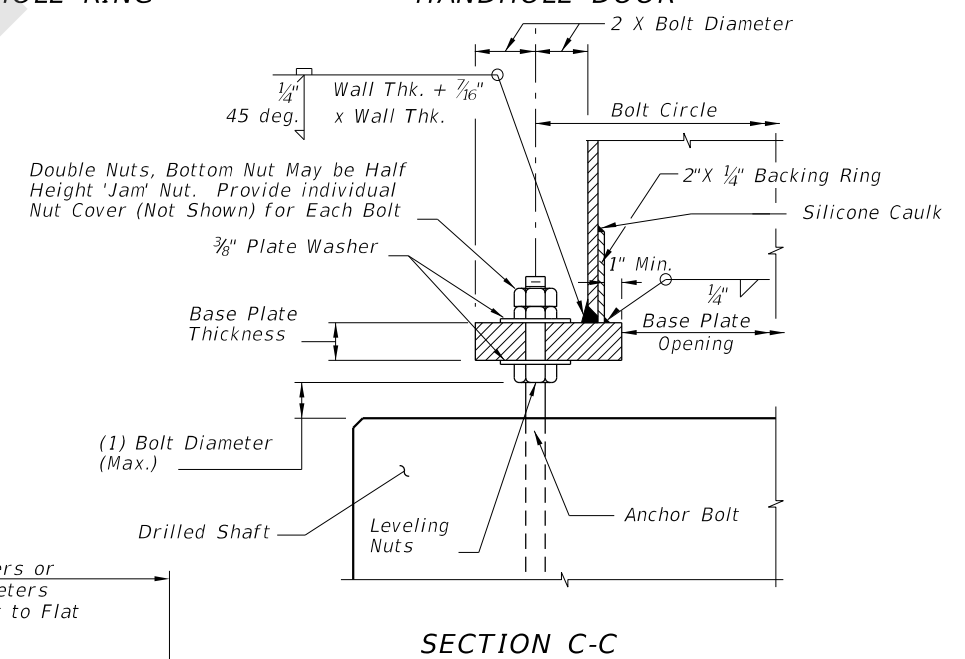
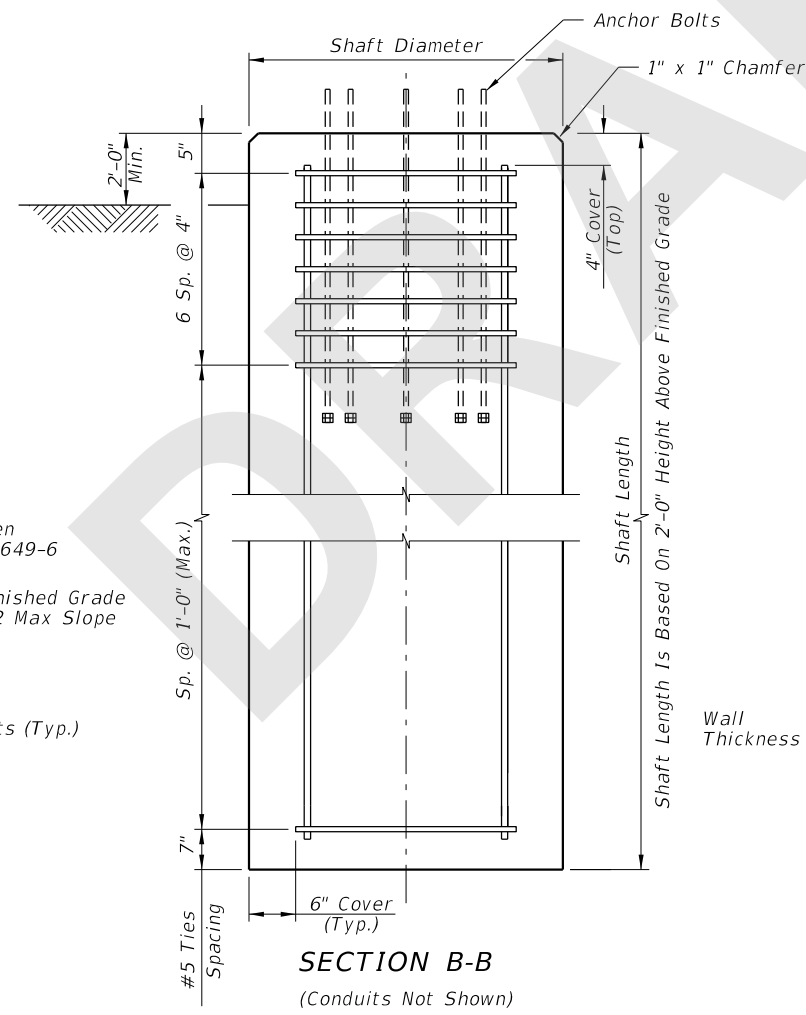
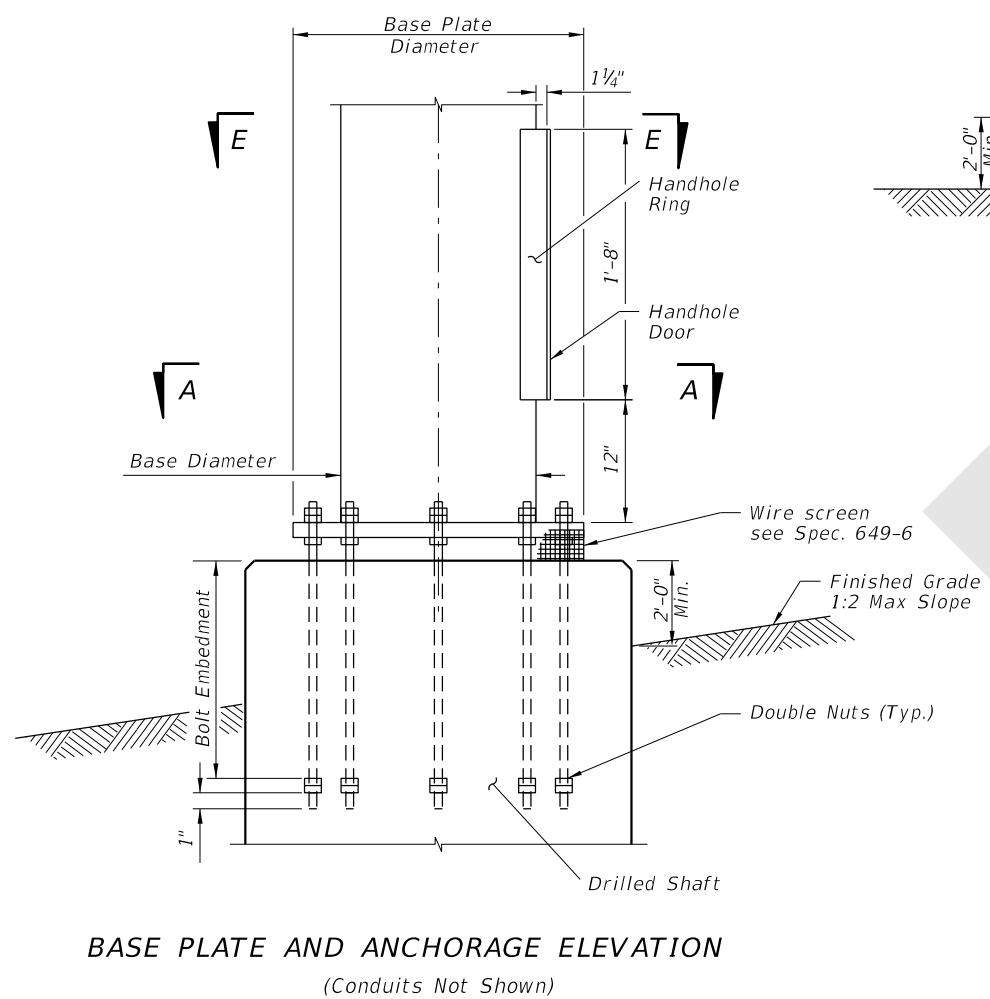
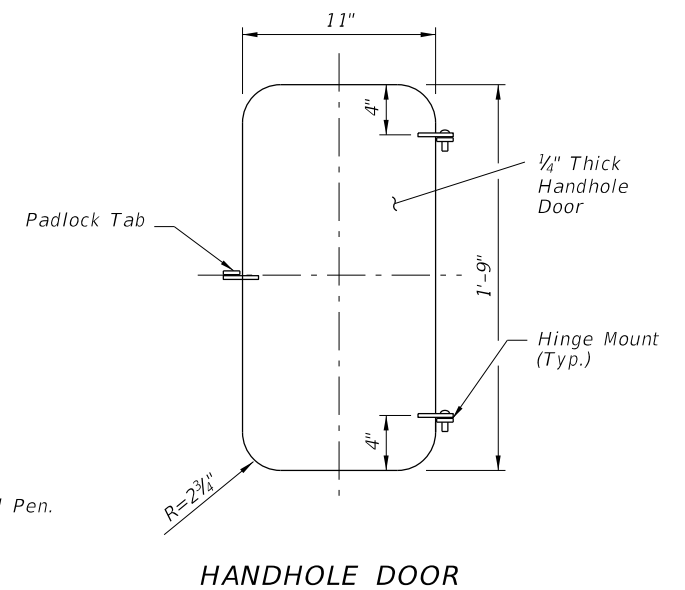
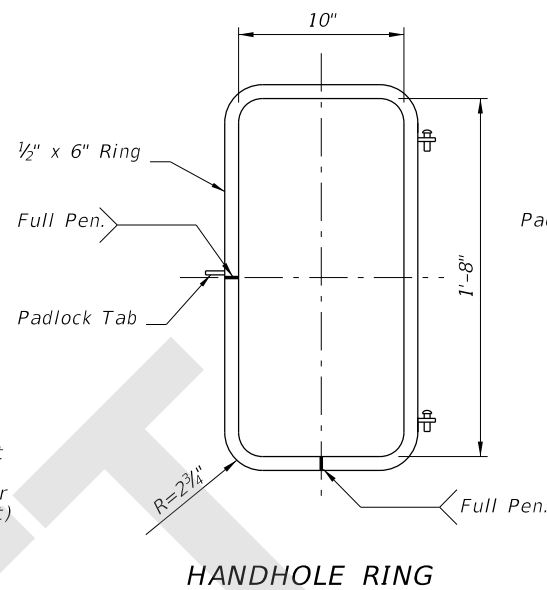
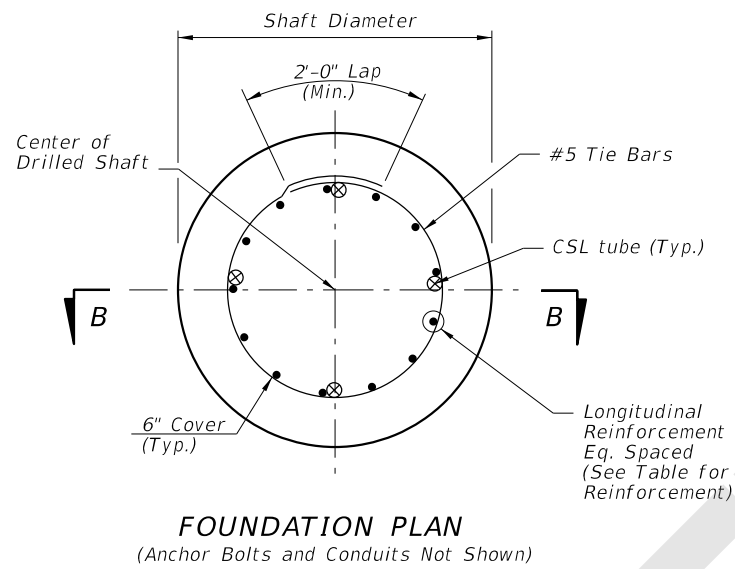
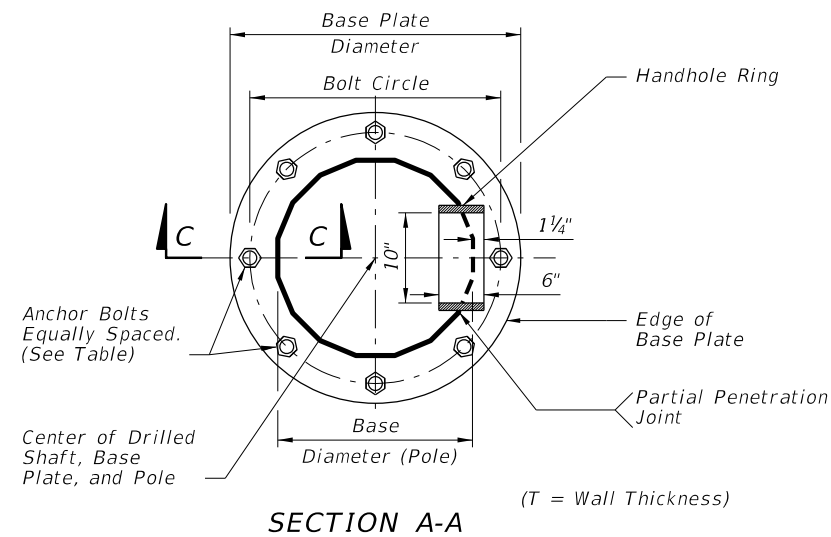
BASE PLATE AND BOLTS DESIGN TABLE							
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150 mph	80	4'-0"	14'-0"	14- #11
	100	4'-6"	16'-0"	16- #11
	120	5'-0"	18'-0"	18- #11
170 mph	80	4'-6"	15'-0"	16- #11
	100	4'-6"	17'-0"	16- #11
	120	5'-0"	20'-0"	18- #11

NOTE: Foundations are assumed to be in level ground. For Foundation with slopes 5H:1V and greater, increase the shaft depth in accordance with the additional shaft depth due to ground slope table. For slope or diameter values in between those shown in the table, use the higher value.

ADDITIONAL SHAFT DEPTH DUE TO GROUND SLOPE (ft)		
Ground Slope	Drilled Shaft Diameter (ft)	
	4	5
5H:1V	3	4
4H:1V	4	5
3H:1V	5	6
2H:1V	7	9

8/14/2018 6:17:37 AM



8/14/2018 6:17:40 AM

LAST REVISION 11/01/18	DESCRIPTION:
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FDOT
FY 2019-20
STANDARD PLANS

HIGH MAST LIGHTING

INDEX 715-010	SHEET 3 of 6
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POLE FOUNDATION