



**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION: Traffic Engineering**

**Road & Bridge Standards Revision**

**August 15, 2017:**

**MP-2 Page: 1302.20, MP-3 Pages: 1302.24 & 1302.27**  
**AB-1 Page: 1302.50, LF-1 Page 1310.20, LP-1,2 Page: 1311.10**

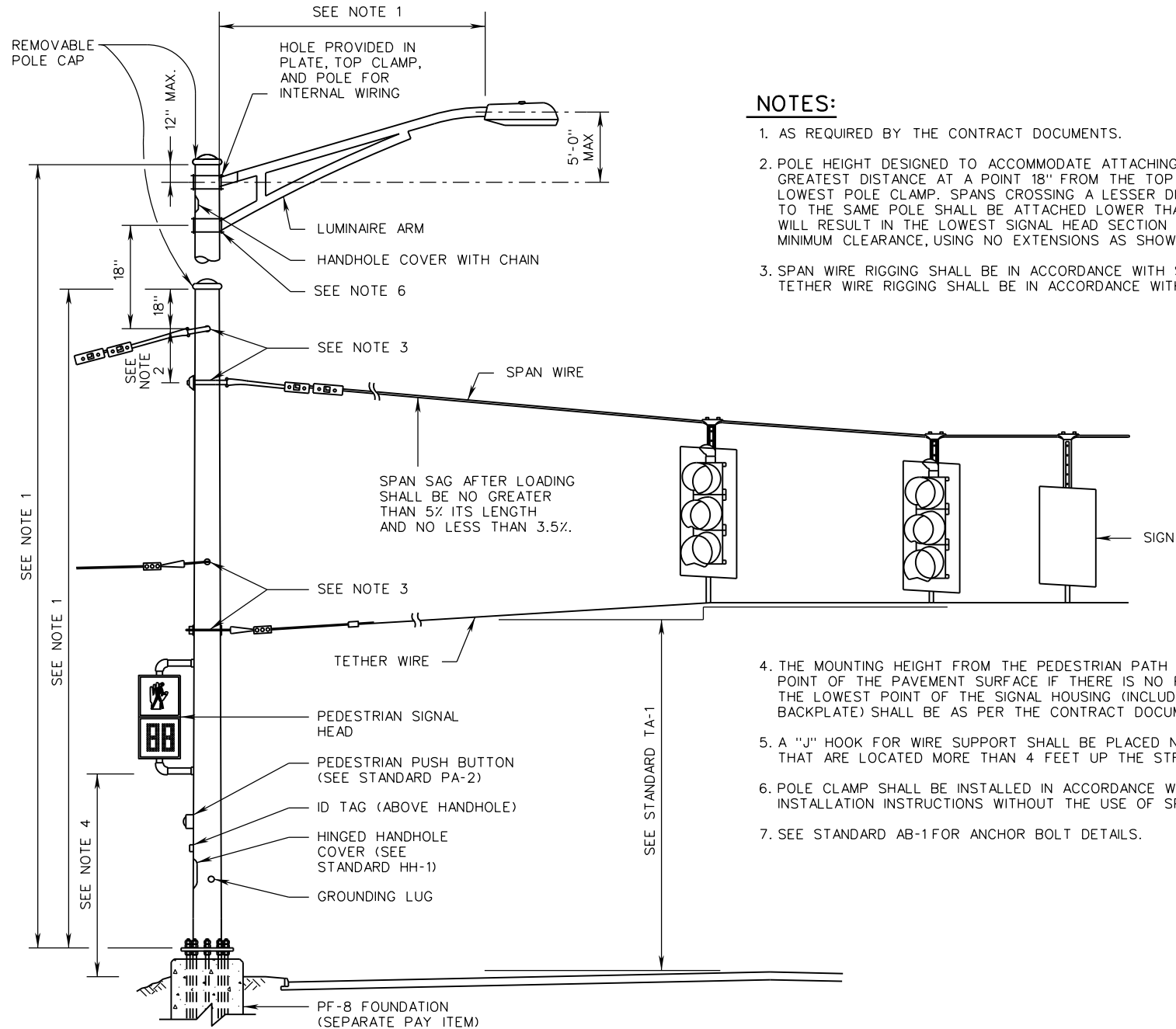
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**NOTES:**

1. AS REQUIRED BY THE CONTRACT DOCUMENTS.
2. POLE HEIGHT DESIGNED TO ACCOMMODATE ATTACHING SPAN ACROSS THE GREATEST DISTANCE AT A POINT 18" FROM THE TOP OF THE POLE OR THE LOWEST POLE CLAMP. SPANS CROSSING A LESSER DISTANCE AND ATTACHED TO THE SAME POLE SHALL BE ATTACHED LOWER THAN 18" AS DOING SO WILL RESULT IN THE LOWEST SIGNAL HEAD SECTION MAINTAINING THE MINIMUM CLEARANCE, USING NO EXTENSIONS AS SHOWN BY STANDARD SW-1.
3. SPAN WIRE RIGGING SHALL BE IN ACCORDANCE WITH STANDARD WD-1. TETHER WIRE RIGGING SHALL BE IN ACCORDANCE WITH STANDARD TA-1.

4. THE MOUNTING HEIGHT FROM THE PEDESTRIAN PATH (OR THE HIGHEST POINT OF THE PAVEMENT SURFACE IF THERE IS NO PEDESTRIAN PATH) TO THE LOWEST POINT OF THE SIGNAL HOUSING (INCLUDING BRACKETS AND BACKPLATE) SHALL BE AS PER THE CONTRACT DOCUMENTS.
5. A "J" HOOK FOR WIRE SUPPORT SHALL BE PLACED NEAR ALL HANDHOLES THAT ARE LOCATED MORE THAN 4 FEET UP THE STRUCTURE.
6. POLE CLAMP SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS WITHOUT THE USE OF SPACERS OR SHIMS.
7. SEE STANDARD AB-1 FOR ANCHOR BOLT DETAILS.

SPECIFICATION REFERENCE
700

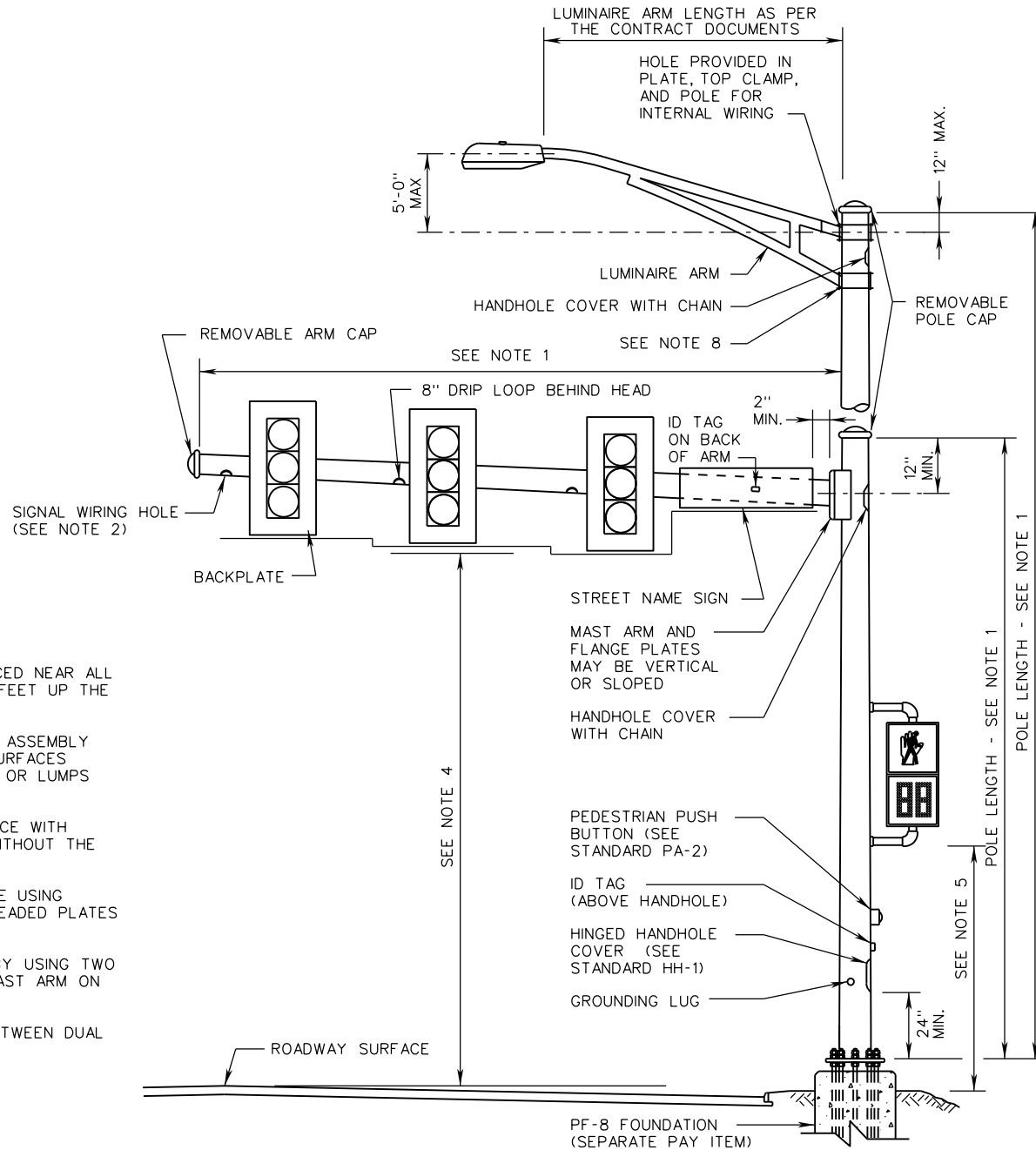
**STEEL STRAIN POLE DETAILS**  
**STRAIN AND COMBINATION LUMINAIRE STRAIN POLE**

VIRGINIA DEPARTMENT OF TRANSPORTATION

<b>VDOT</b>	
ROAD AND BRIDGE STANDARDS	
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**NOTES:**

1. AS REQUIRED BY THE SPECIFICATIONS.
2. SIGNAL WIRING HOLE SHALL BE LOCATED ON THE BOTTOM OF THE ARM DIRECTLY BEHIND THE HANGER ASSEMBLY WHEN STANDARD SM-3 HANGER ASSEMBLIES ARE REQUIRED. SIGNAL WIRING SHALL BE CONCEALED IN THE STANDARD SM-3 HANGER ASSEMBLIES.
3. THE ALIGNMENT OF THE LUMINAIRE ARM SHALL BE AS SHOWN IN THE CONTRACT DOCUMENTS.
4. AFTER THE LOADS ARE APPLIED, THE VERTICAL CLEARANCE FROM THE HIGHEST POINT OF THE PAVEMENT SURFACE SHALL BE:
  - A. 16' MINIMUM (15' MINIMUM FOR MAINTENANCE ACTIVITIES) TO THE LOWEST POINT OF THE SIGNAL HEAD ASSEMBLIES (INCLUDING BACKPLATES) AND SIGNS.
  - B. 25' MAXIMUM TO THE TOPS OF THE SIGNAL HOUSINGS.
5. THE MOUNTING HEIGHT FROM THE PEDESTRIAN PATH (OR THE HIGHEST POINT OF THE PAVEMENT SURFACE IF THERE IS NO PEDESTRIAN PATH) TO THE LOWEST POINT OF THE SIGNAL HOUSING (INCLUDING BRACKETS AND BACKPLATE) SHALL BE AS PER THE CONTRACT DOCUMENTS.
6. A "J" HOOK FOR WIRE SUPPORT SHALL BE PLACED NEAR ALL HANDHOLES THAT ARE LOCATED MORE THAN 4 FEET UP THE STRUCTURE.
7. MAST ARMS MAY BE SPLICED. IF SPLICED, FIELD ASSEMBLY SHALL ACHIEVE A SNUG TIGHT JOINT. MATING SURFACES SHALL BE SMOOTH AND FREE OF BURRS, DENTS, OR LUMPS OF ZINC.
8. POLE CLAMP SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS WITHOUT THE USE OF SPACERS OR SHIMS.
9. MAST ARMS SHALL BE CONNECTED TO THE POLE USING THRU-BOLTS. NEITHER WELDED STUDS NOR THREADED PLATES WILL BE ALLOWED.
10. DUAL MAST ARM CONNECTIONS MAY BE MADE BY USING TWO SINGLE ARM CONNECTIONS WITH THE LONGER MAST ARM ON THE BOTTOM.
11. SEE THE CONTRACT DOCUMENTS FOR ANGLE BETWEEN DUAL MAST ARMS.



ROAD AND BRIDGE STANDARDS

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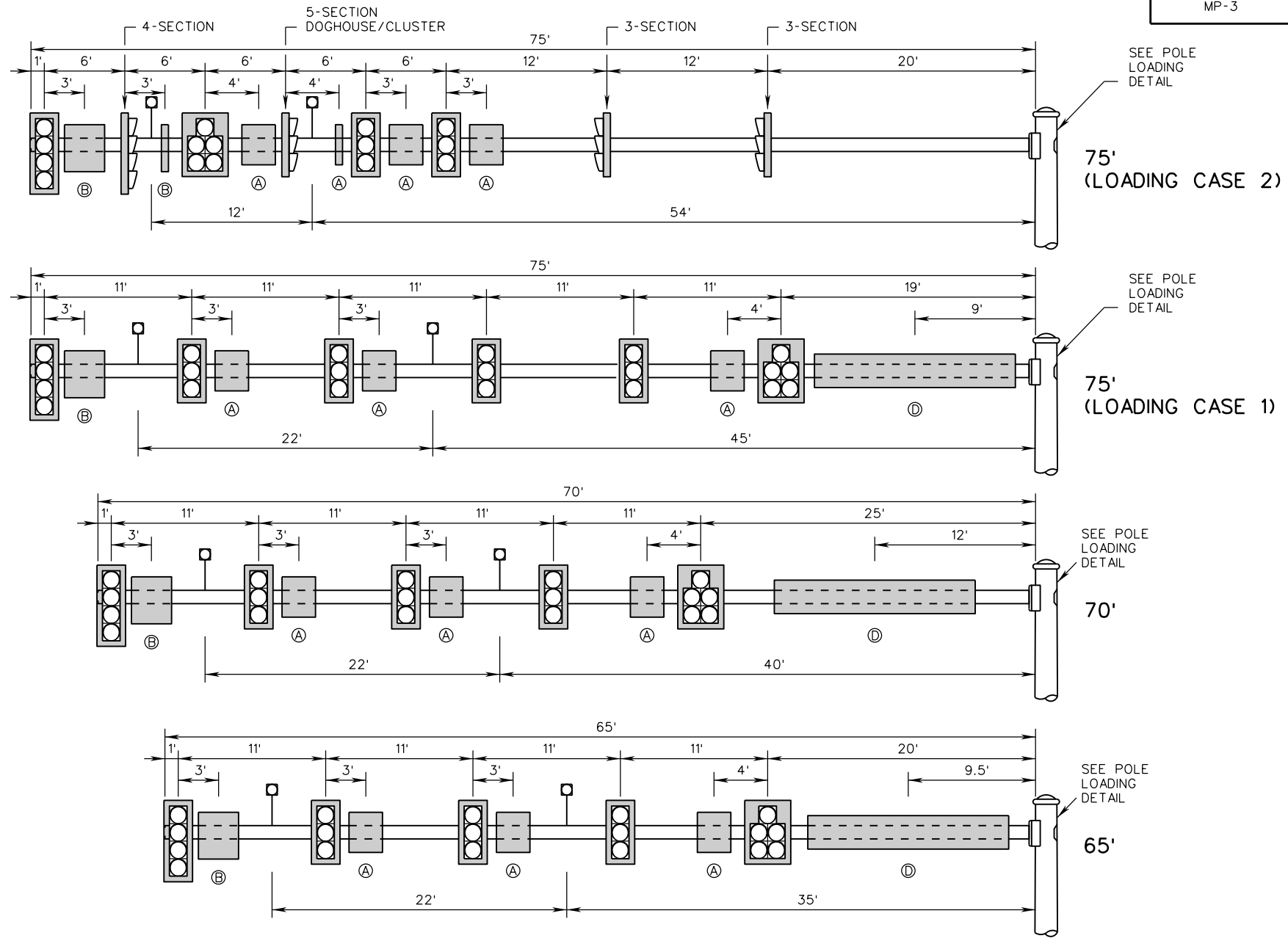
**SIGNAL POLE DETAILS**

**MAST ARM AND COMBINATION LUMINAIRE MAST ARM POLE**

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SPECIFICATION REFERENCE

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**NOTES:**  
SEE SHEET 2 FOR NOTES.

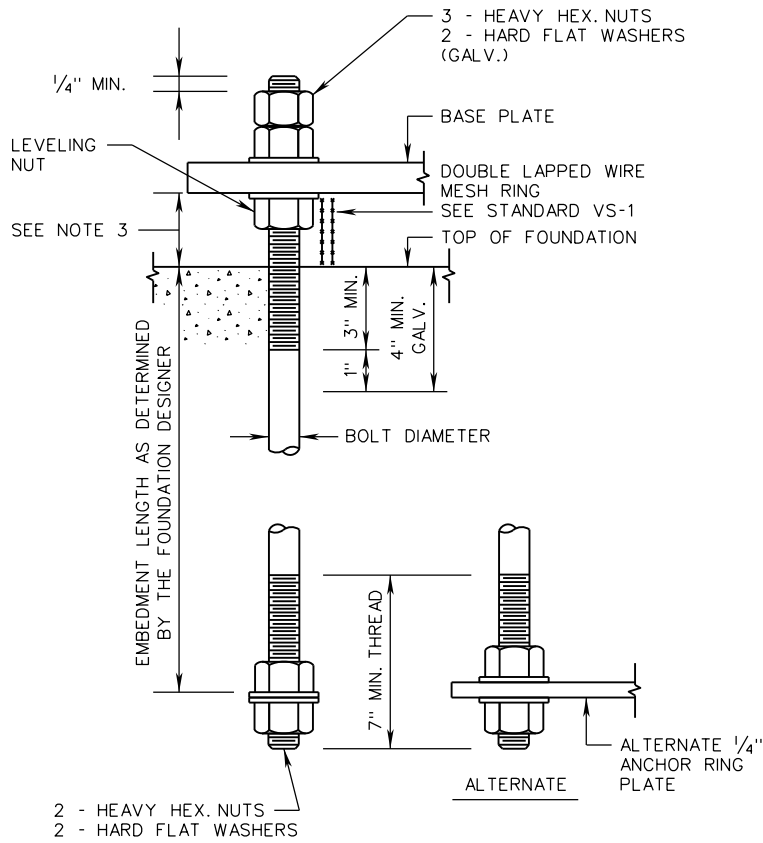
SPECIFICATION REFERENCE
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## SIGNAL POLE DETAILS

### MAST ARM SIGNAL POLE MAXIMUM LOADING STANDARDS

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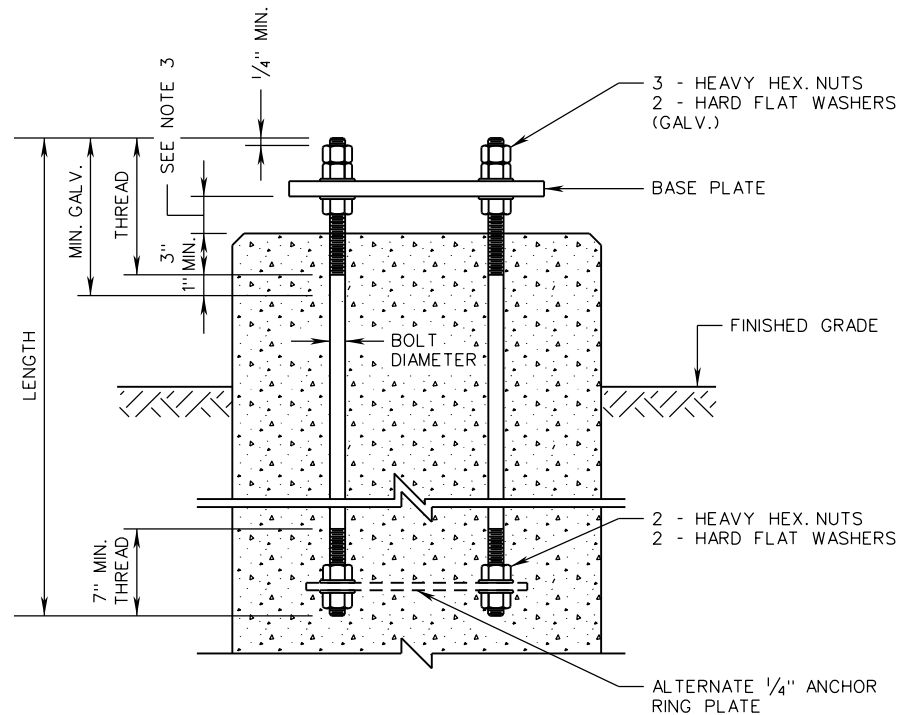
<b>VDOT</b>	
ROAD AND BRIDGE STANDARDS	
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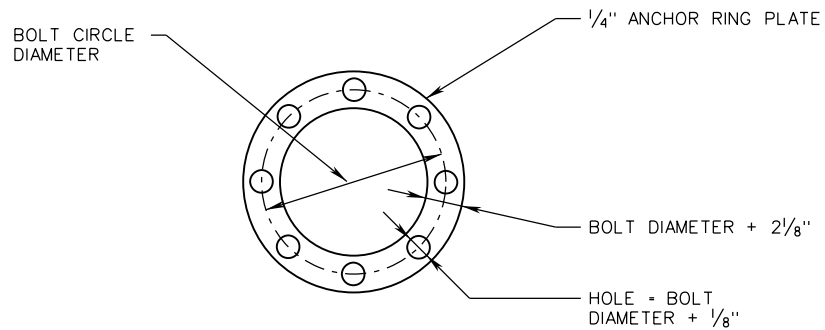
ANCHOR BOLT DETAIL

**NOTES:**

1. PROVIDE 5 NUTS AND 4 WASHERS PER ANCHOR BOLT. SEE SPECIFICATIONS FOR NUT INSTALLATION PROCEDURE.
2. CONDUITS AND REINFORCING STEEL NOT SHOWN FOR CLARITY.
3. DISTANCE BETWEEN BOTTOM OF BASE PLATE AND TOP OF FOUNDATION SHALL BE NO GREATER THAN THE DIAMETER OF ANCHOR BOLT PLUS ONE INCH.
4. THIS STANDARD DOES NOT APPLY TO STRUCTURES MOUNTED ATOP TRANSFORMER BASES.



ANCHORAGE DETAIL



ALTERNATE ANCHOR RING PLATE DETAIL



ROAD AND BRIDGE STANDARDS

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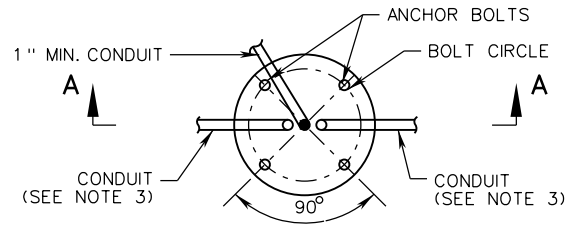
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**ANCHOR BOLTS  
INSTALLATION DETAILS**

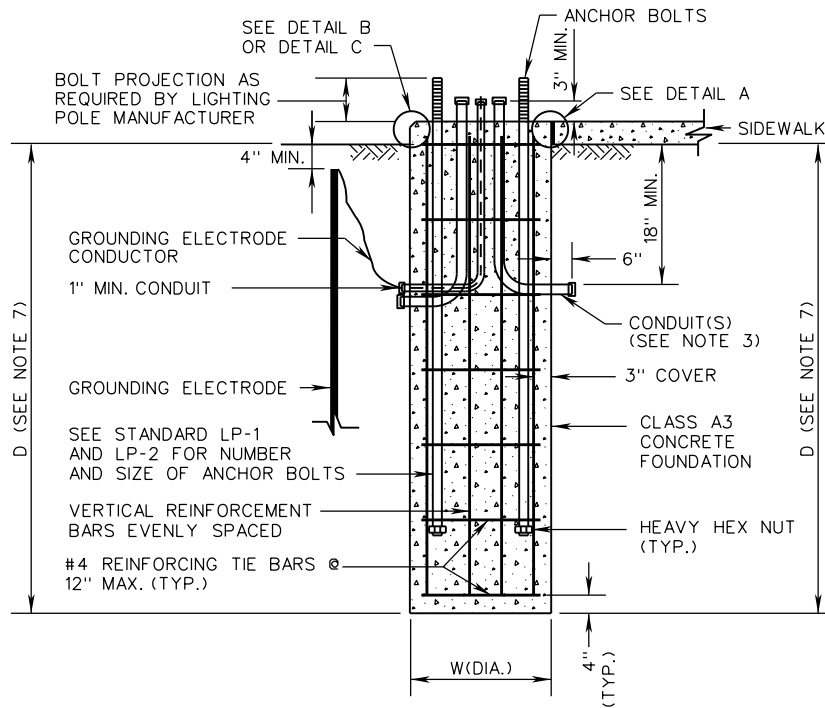
VIRGINIA DEPARTMENT OF TRANSPORTATION

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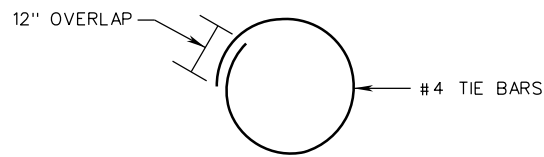
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PLAN VIEW



SECTION A-A



PLAN VIEW OF TIE BAR

TYPE	W	D	VERTICAL BARS
A	2'-6"	8'	8 - # 8

**NOTES:**

1. CONDUIT ELBOWS SHALL HAVE A 90° BEND. THE BEND RADIUS SHALL BE IN ACCORDANCE WITH THE N.E.C.
2. THE BOLT TEMPLATE SHALL BE FURNISHED BY THE LIGHTING POLE MANUFACTURER. POLE SHALL BE CENTERED ON FOUNDATION.
3. THE NUMBER, ORIENTATION AND SIZE OF CONDUITS ENTERING AND EXITING FOUNDATIONS SHALL BE AS SHOWN IN THE CONTRACT DOCUMENTS. EACH FOUNDATION SHALL BE PERMANENTLY MARKED TO INDICATE ALL SIDES FROM WHICH CONDUITS PASS. THIS MARK SHALL BE MADE WITH A TROWEL WHEN FINISHING THE CONCRETE AND SHALL BE 1/4" DEEP AND 4" TO 6" LONG. LOCATIONS OF EMPTY CONDUITS SHALL HAVE AN ADDITIONAL 2" LONG MARK MADE PERPENDICULAR TO AND CENTERED ON THIS MARKING.
4. NO MORTAR, GROUT, OR CONCRETE SHALL BE PLACED BETWEEN BOTTOM OF BASE PLATE AND TOP OF FOUNDATION.
5. ANCHOR BOLTS SHALL BE STRAIGHT. THREADED REINFORCING STEEL IS NOT ALLOWED. 1/4" ANCHOR RING PLATE MAY BE USED TO KEEP ANCHOR BOLTS PLUMB DURING INSTALLATION.
6. FOUNDATIONS SHALL NOT BE INSTALLED IN THE CENTER OF A DRAINAGE DITCH. IF APPROVED BY THE ENGINEER, FOUNDATIONS MAY BE INSTALLED IN THE SLOPE OF A DRAINAGE DITCH AT AN APPROVED HEIGHT ABOVE GRADE. THE FOUNDATION SHALL NOT BE PLACED IN THE FRONT SLOPE UNLESS THE ENGINEER DETERMINES THAT BACK SLOPE PLACEMENT IS NOT FEASIBLE.
7. D IS THE MINIMUM DISTANCE FROM THE BOTTOM OF THE POLE FOUNDATION TO THE BOTTOM OF THE SIDEWALK OR THE POINT OF LOWEST GRADED ELEVATION ADJACENT TO THE FOUNDATION.
8. IF POOR SOIL CONDITIONS OR HIGH WATER TABLE IS ENCOUNTERED DURING EXCAVATION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH FOUNDATION INSTALLATION.

SPECIFICATION REFERENCE

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**LIGHTING POLE FOUNDATION  
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION



ROAD AND BRIDGE STANDARDS

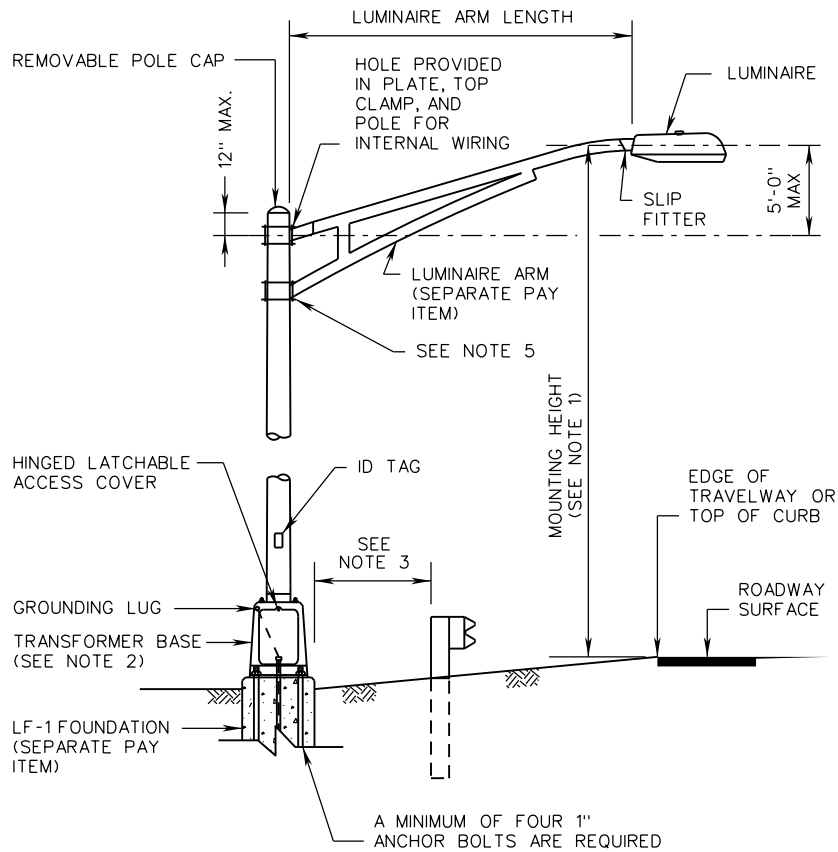
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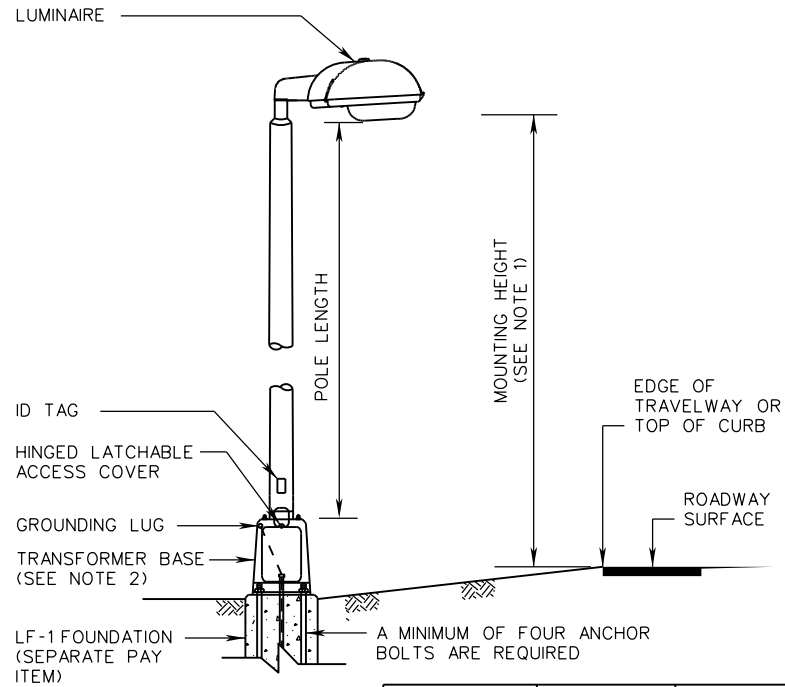
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LP-1, 2



LP-1



LP-2

LP-2 POLE LENGTH (FEET)	BOLT CIRCLE DIAMETER	ANCHOR BOLT DIAMETER
A (5-17)	12"	1"
B (18-22)	12"	1"
C (23-27)	12"	1"
D (28-32)	12"	1"
E (33-37)	15"	1"
F (38-42)	15"	1"
G (43-47)	15"	1"
H (48-52)	16"	1"
I (53-55)	16"	1 1/4"

**NOTES:**

1. THE MOUNTING HEIGHT SHOWN IN THE CONTRACT DOCUMENTS SHALL BE ADHERED TO WITHIN A TOLERANCE OF 12" AND IN NO CASE LESS THAN THE MOUNTING HEIGHT SHOWN.
2. TIGHTEN TRANSFORMER BASE NUTS WITH A WRENCH USING TURN-OF-THE-NUT METHOD UNLESS SPECIFIED OTHERWISE IN MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. LP-1 AND LP-2 LIGHTING POLES SHALL BE LOCATED SUCH THAT THE NEAR SIDE EDGE OF THE FOUNDATION IS OUTSIDE OF THE GUARDRAIL DEFLECTION DISTANCE.
4. ALL LP-1 AND LP-2 POLES SHALL BE INSTALLED ON BREAKAWAY OR NON-BREAKAWAY TRANSFORMER BASES, AS SPECIFIED ON THE PLANS. IF LEVELING NUTS ARE USED FOR INSTALLATION, A VARMIT SCREEN SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD VS-1.
5. POLE CLAMP SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS WITHOUT THE USE OF SPACERS OR SHIMS.



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

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**LIGHTING POLE  
INSTALLATION DETAILS**

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REFERENCE

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