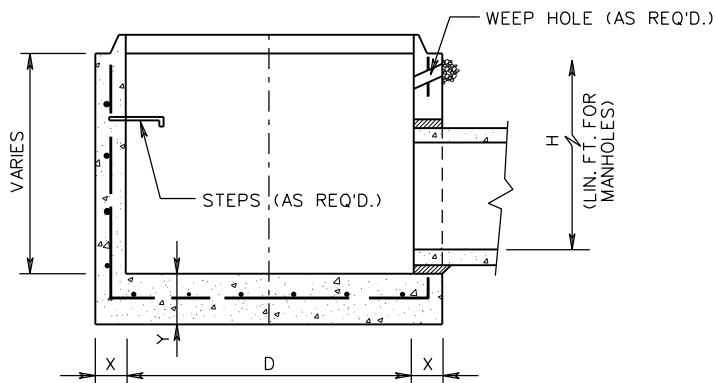
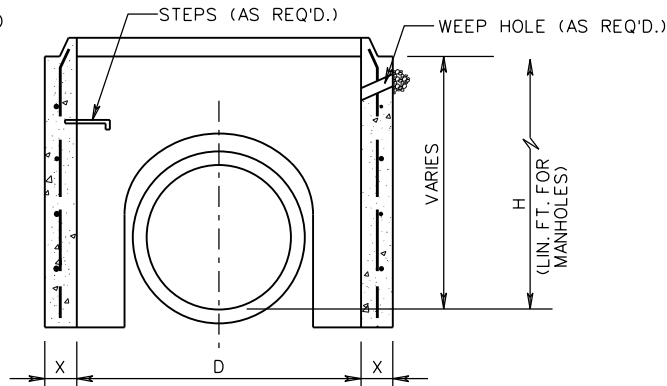


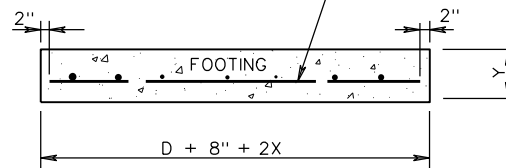
B-1, B-2



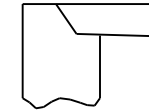
**B-1**  
MONOLITHIC



6" x 6" - W5.5 x W5.5 WELDED WIRE FABRIC OR EQUIVALENT AREA



**B-2**  
DOGHOUSE WITH FOOTING



ALTERNATE JOINT  
DETAIL

NOTES:

- SEE GENERAL NOTES FOR ADDITIONAL INFORMATION ON WEEP HOLES, STEP REQUIREMENTS, "H" (LIN. FT. FOR MANHOLES) DIMENSIONS, ETC.
- ALL BASE UNITS ARE TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF AASHTO M199.
- CONCRETE SHALL BE 4000 PSI.
- WHERE OPENINGS ARE REQUIRED FOR PIPE, THEY SHALL BE FORMED, DRILLED, OR NEATLY CUT AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH THE FABRICATOR WITH THE ANGLES BETWEEN CENTER LINES, THE INVERT ELEVATIONS, AND THE SIZE OF ALL PIPES TO ENTER THE MANHOLE. HOLES ARE TO BE A MINIMUM OF 4" TO A MAXIMUM OF 8" LARGER THAN THE OUTSIDE DIAMETER OF THE PROPOSED PIPE.
- DIMENSIONS SHOWN ARE MINIMUM. ACTUAL DIMENSIONS MAY VARY WITH MANUFACTURER.
- "D" IS NOMINAL DIAMETER.
- IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE.
- TONGUE AND GROOVE JOINT ARE TO BE OF FABRICATOR'S DESIGN MEETING VDOT APPROVAL. JOINTS ARE TO BE SEALED WITH MORTAR, O-RING GASKETS, OR BUTYL RUBBER.

DIMENSIONS

D	X MINIMUM	Y MINIMUM	SUGGESTED MAX. PIPE SIZE	ABSOLUTE MAXIMUM ☆
* 36"	4"	6"	18"	21"
48"	5"	6"	24"	27"
60"	5"	8"	36"	42"
72"	6"	8"	48"	54"
84"	7"	8"	60"	66"
96"	8"	8"	66"	72"
108"	9"	8"	78"	84"
120"	10"	8"	90"	96"
126"	10 1/2"	8"	96"	102"
144"	12"	8"	108"	120"

\* DEPTH "H" OF 36" DIAMETER BASE UNIT RESTRICTED TO 4'-0" MAXIMUM.

☆ ONE THROUGH PIPE ONLY. (ONE PIPE ENTERING AND ONE PIPE EXITING STRUCTURE)



ROAD AND BRIDGE STANDARDS

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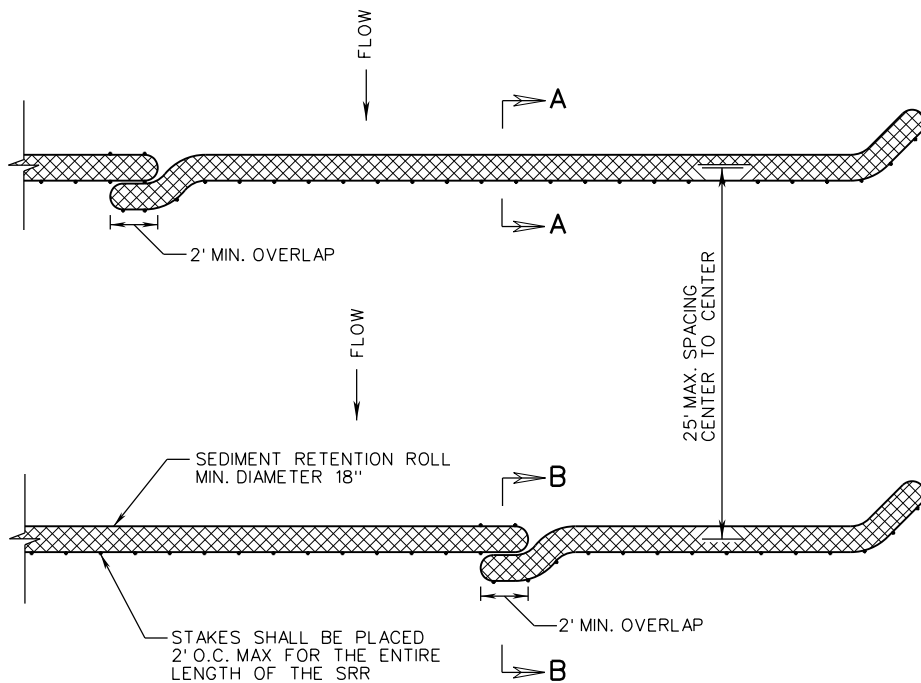
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STANDARD PRECAST BASE UNITS

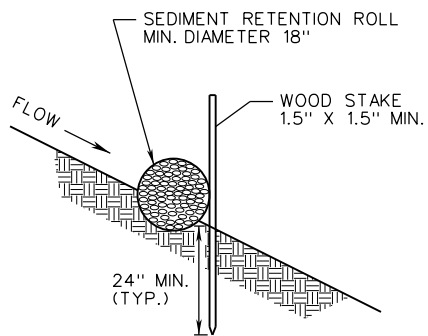
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REFERENCE

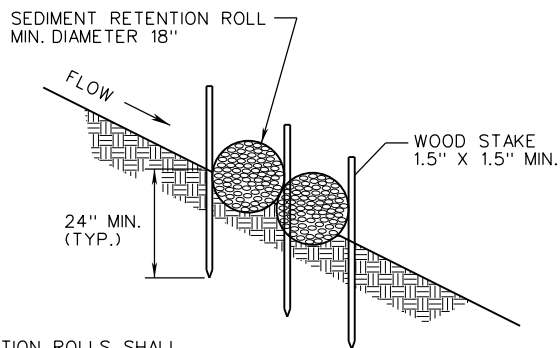
105  
302



PLAN



SECTION A-A



SECTION B-B

SEDIMENT RETENTION ROLLS SHALL BE EMBEDDED ONE THIRD THE SSR DIAMETER EXCEPT WHEN PLACED OVER STANDARD EC-2 OR EC-3.

**NOTES:**

1. THE STANDARD FOR SEDIMENT RETENTION ROLLS (SRR) SHALL INCLUDE COMPOST FILTER SOCKS AND SEDIMENT TUBES, UNLESS SPECIFICALLY NOTED.
2. SRR SHALL BE INSTALLED PARALLEL TO THE SLOPE ALONG THE GROUND CONTOUR. SRR SHALL NOT BE INSTALLED WITHIN 10' OF THE TOE OF THE SLOPE. SRR SHALL NOT BE USED IN STREAMS.
3. COMPOST FILTER SOCKS USED IN SLOPE APPLICATIONS MAY REMAIN IN PLACE TO BIODEGRADE. SEDIMENT TUBES SHALL BE REMOVED FROM THE SLOPES AFTER STABILIZATION IS COMPLETE. THIS MAY BE ACCOMPLISHED BY CUTTING THE TUBE OPEN AND SPREADING THE FILL MATERIAL ON THE SITE. ALL NON-BIODEGRADABLE MATERIAL AND STAKES SHALL BE REMOVED.
4. ONLY SRR PRODUCTS LISTED ON THE VDOT APPROVED PRODUCTS LIST MAY BE USED.
5. SEDIMENT RETENTION ROLLS (SRR) USED FOR SLOPE APPLICATIONS WILL BE PAID IN ACCORDANCE WITH SECTION 603 OF THE SPECIFICATIONS.
6. PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR INSTALLATION, MAINTENANCE AND REMOVAL.
7. SEDIMENT SHALL BE REMOVED FROM BEHIND THE SRR WHEN IT HAS ACCUMULATED TO ONE-HALF THE EXPOSED HEIGHT OF THE STRUCTURE AND PAID FOR AS SEDIMENT REMOVAL PER CUBIC YARD.
8. SRR SHALL BE INSTALLED WITH WOODEN STAKES (MIN. 1.5" X 1.5" ACTUAL). THE STAKE SHALL BE EMBEDDED A MINIMUM OF 2'.
9. IF MORE THAN ONE SRR IS PLACED IN A ROW IN A SLOPE APPLICATION, THE TUBES SHALL BE OVERLAPPED A MINIMUM OF 24" TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE JOINT.
10. SRR SHALL NOT BE USED ON PAVEMENT, ROCKY SOILS, OR AT ANY OTHER LOCATION WHERE THE STAKES CANNOT BE DRIVEN TO THE REQUIRED DEPTH.

SPECIFICATION REFERENCE

244  
303  
603

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

**SEDIMENT RETENTION ROLL  
SLOPE INTERRUPTER**

VIRGINIA DEPARTMENT OF TRANSPORTATION

**VDOT**

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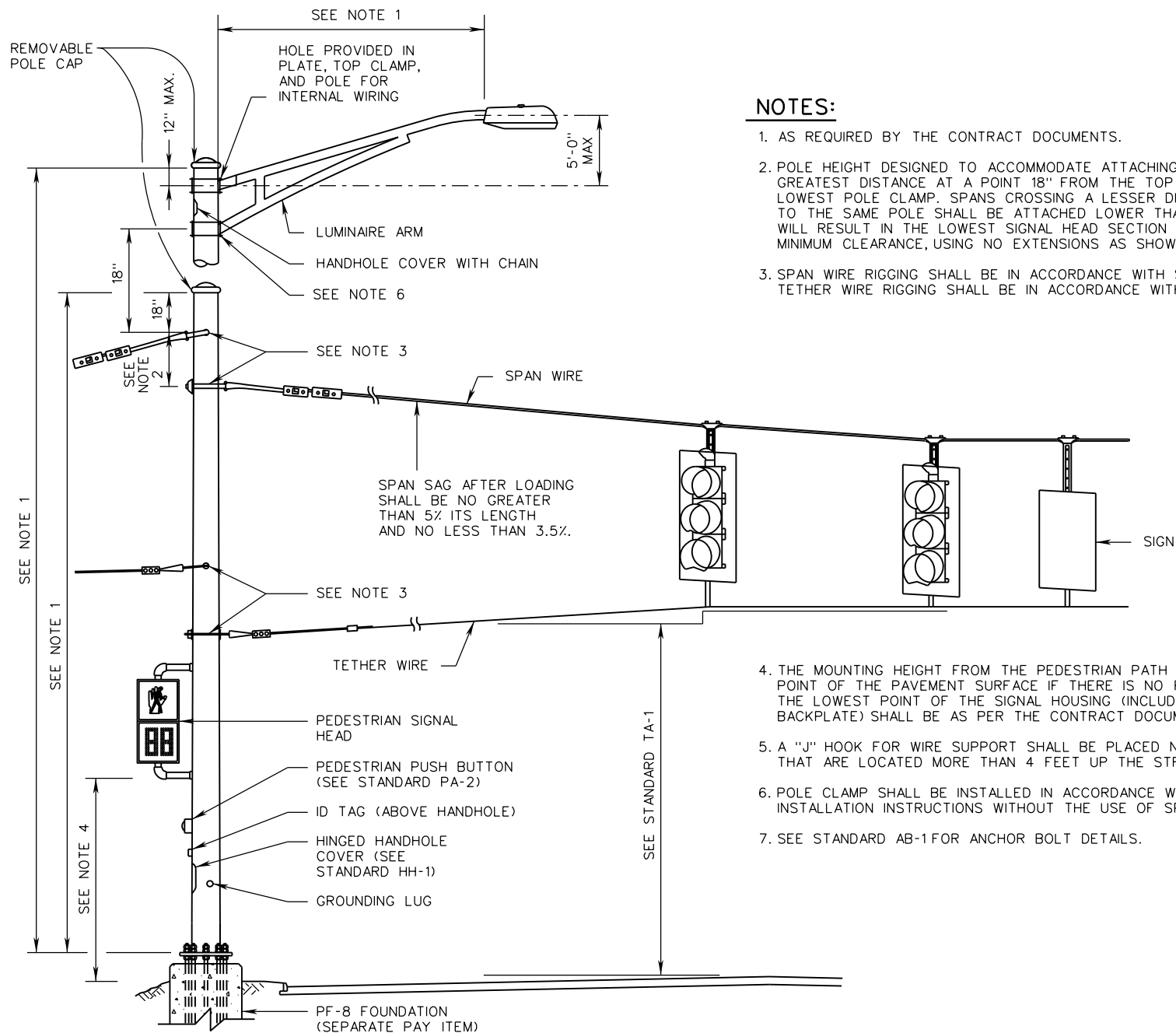
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**NOTES:**

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

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

VIRGINIA DEPARTMENT OF TRANSPORTATION

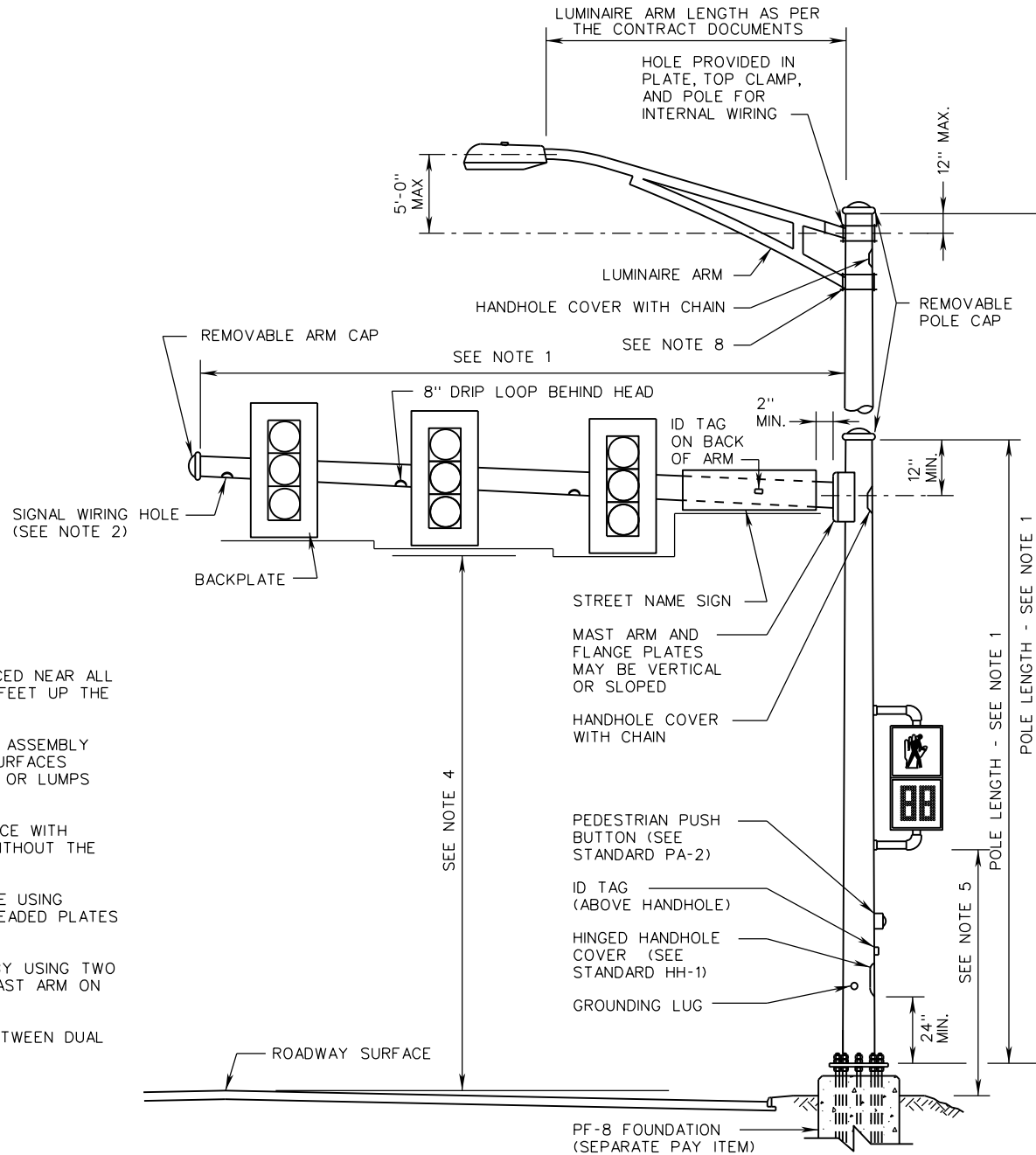


ROAD AND BRIDGE STANDARDS

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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.



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**SIGNAL POLE DETAILS**

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

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SPECIFICATION REFERENCE

700



ROAD AND BRIDGE STANDARDS

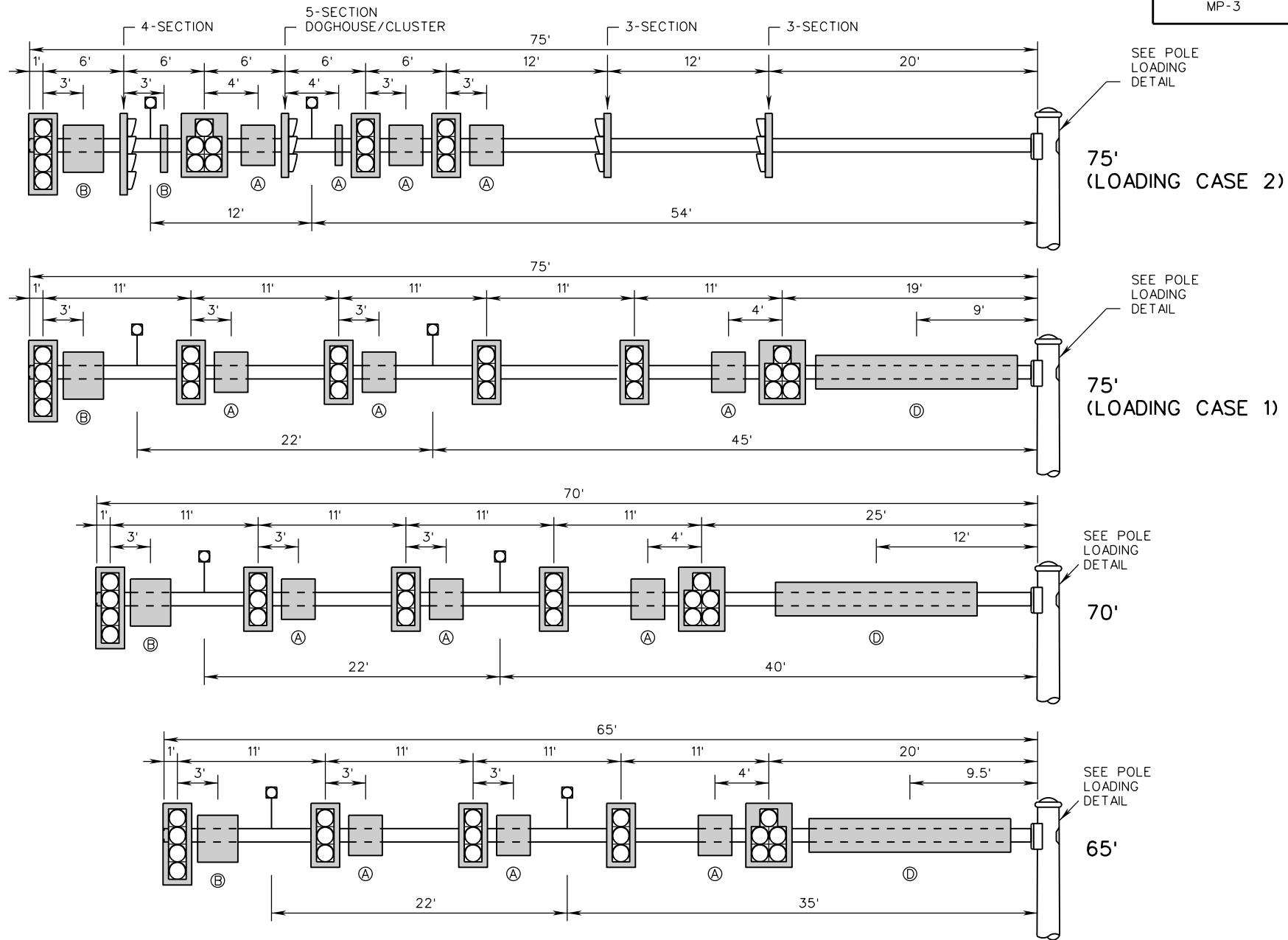
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**NOTES:**

SEE SHEET 2 FOR NOTES.

SPECIFICATION REFERENCE
700

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**SIGNAL POLE DETAILS**  
**MAST ARM SIGNAL POLE MAXIMUM LOADING STANDARDS**

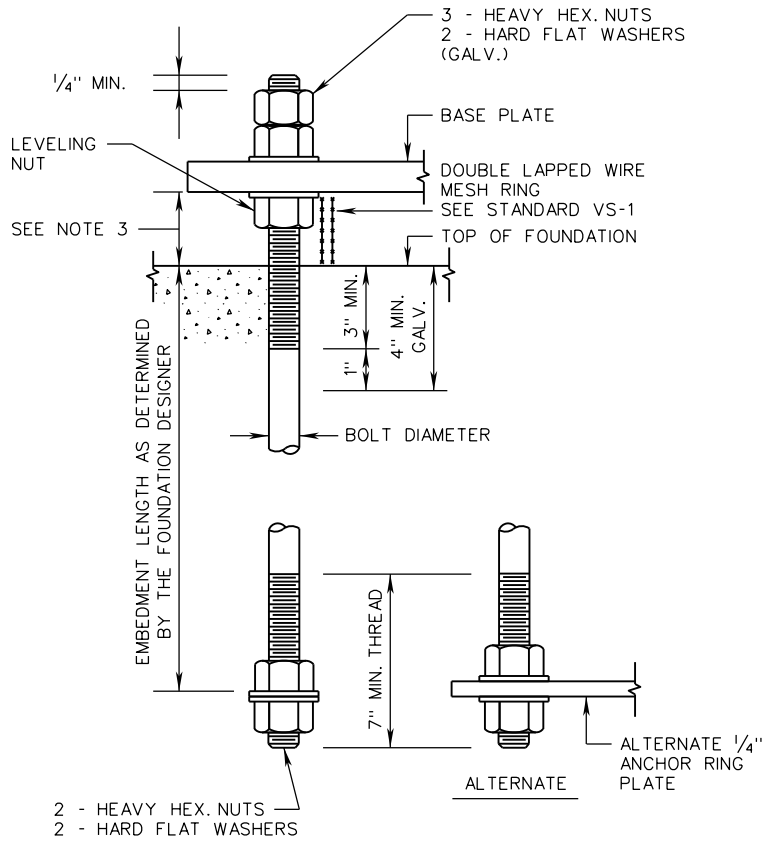
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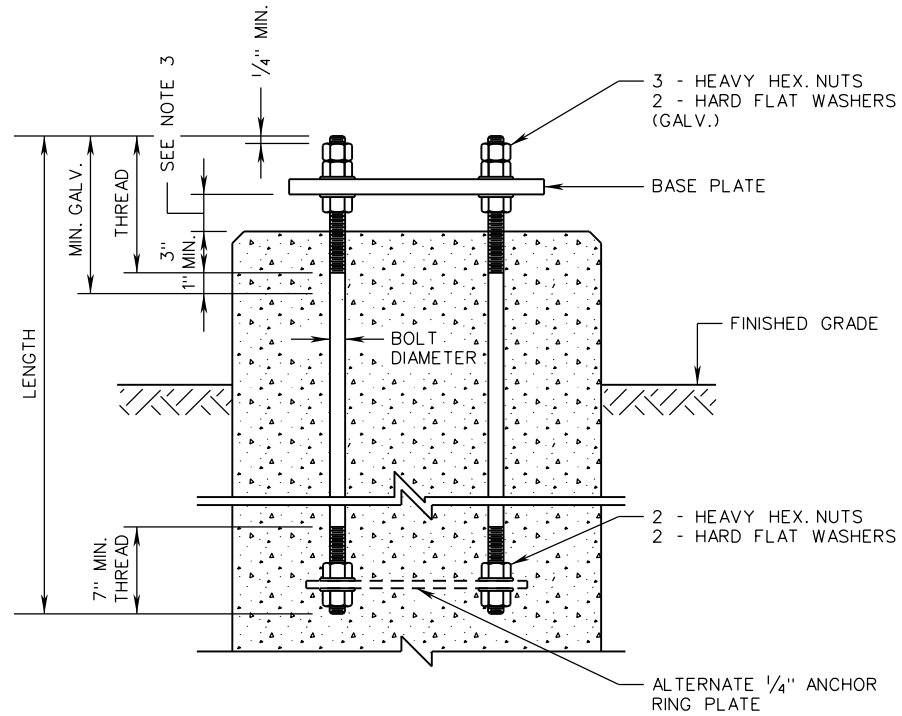
AB-1



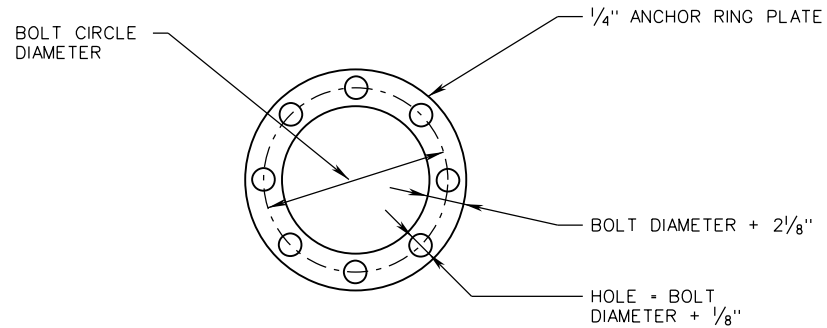
ANCHOR BOLT DETAIL

**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



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**ANCHOR BOLTS  
INSTALLATION DETAILS**

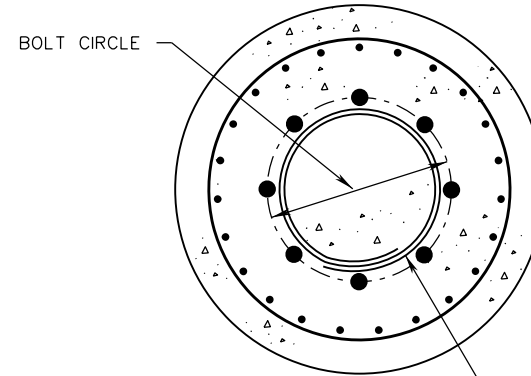
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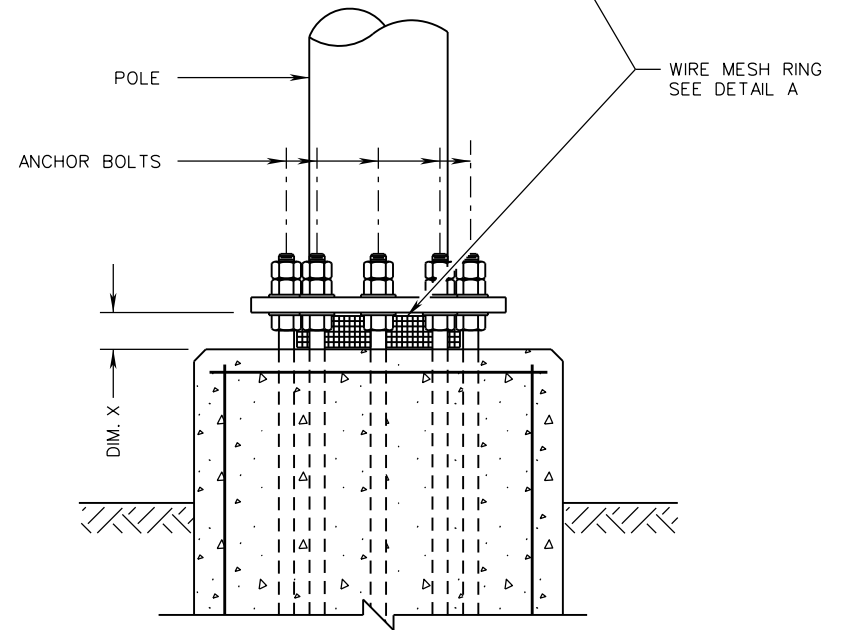
700

**NOTES:**

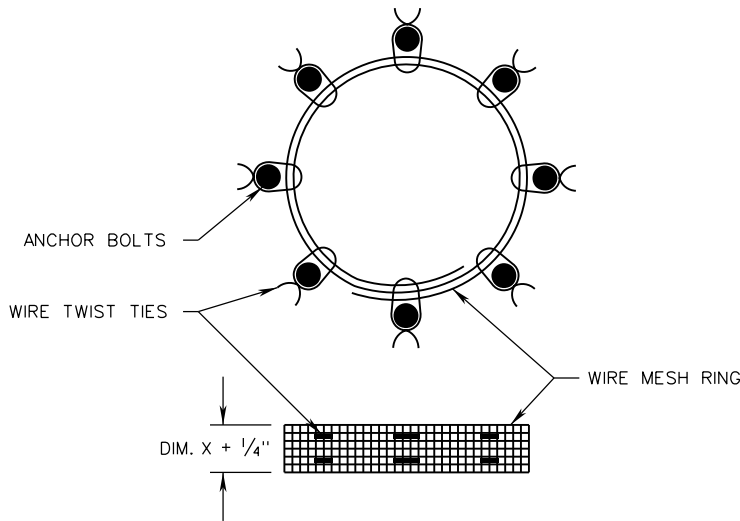
1. WIRE MESH RING SHALL BE 1/8" WOVEN HARDWARE CLOTH 27 GAGE (COMMERCIAL GRADE) HOT DIPPED GALVANIZED. DOUBLE LAP MESH AND SECURE WITH PLASTIC COATED WIRE TWIST TIES. LENGTH AND HEIGHT DETERMINED BY FIELD MEASUREMENTS.
2. WIRE MESH RING SHALL BE PLACED INSIDE THE BOLT CIRCLE BEFORE THE POLE IS ERECTED AND PLUMBED.
3. WIRE MESH RING SHALL BE COMPRESSED BETWEEN POLE BASE PLATE, CONCRETE FOUNDATION, AND BOLTS. ENSURE THE WIRE MESH RING WILL REMAIN IN PLACE AND ANY ACCESS THROUGH THE POLE BASE PLATE OPENING IS ELIMINATED.
4. WELDING OR DRILLING IS NOT PERMITTED ON BASE PLATE OF POLE.
5. CONDUITS NOT SHOWN FOR CLARITY.
6. THIS STANDARD DOES NOT APPLY TO STRUCTURES MOUNTED ATOP TRANSFORMER BASES.



PLAN VIEW



VENTED VARMINT SCREEN



DETAIL A

SPECIFICATION REFERENCE

700

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**VENTED VARMINT SCREEN**

**DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

**VDOT**

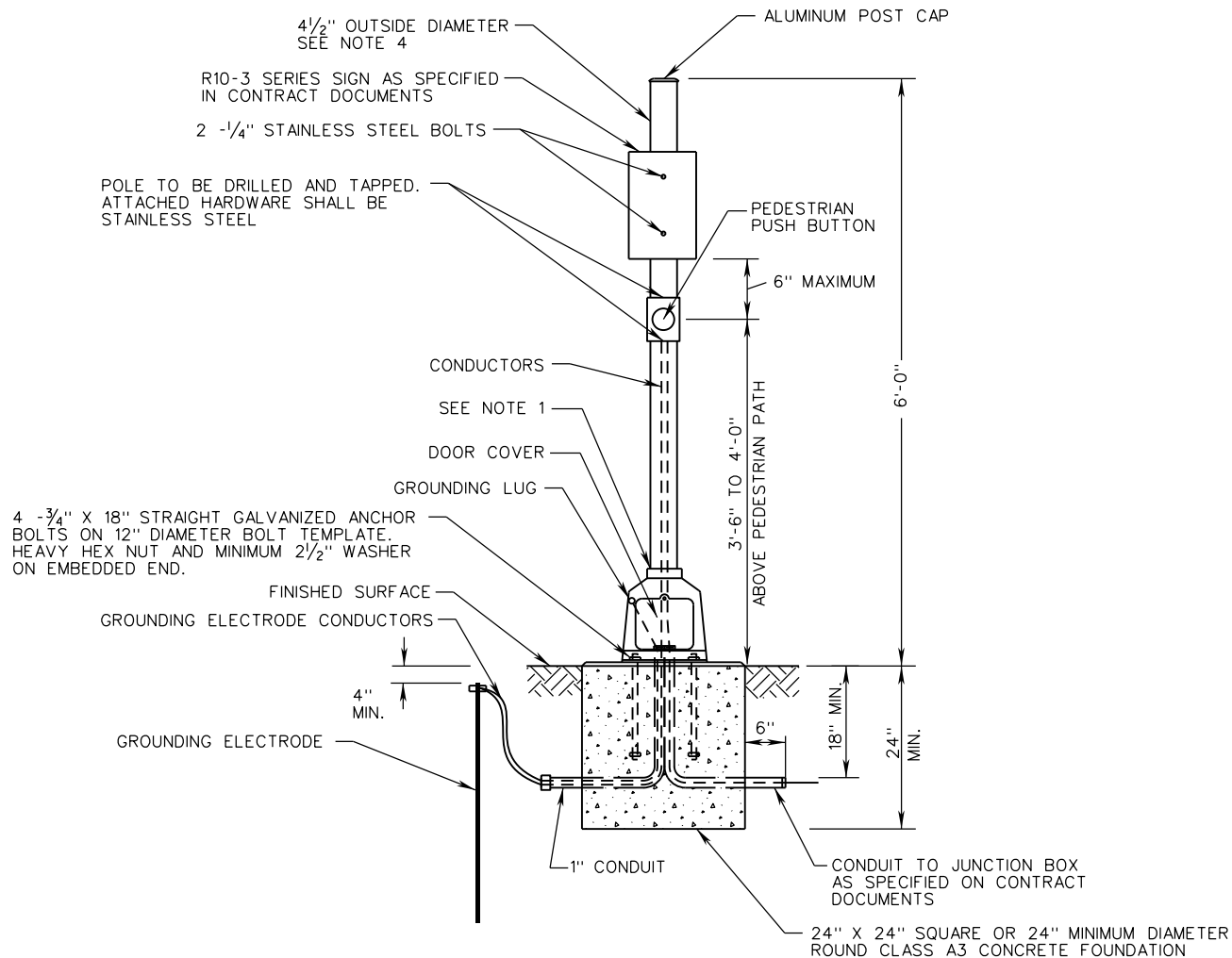
ROAD AND BRIDGE STANDARDS

REVISION DATE

08/17

SHEET 1 OF 1

1302.60



**PA-4 PEDESTAL POLE**

**NOTES:**

1. IF POLE SHAFT SCREWS INTO TRANSFORMER BASE INSTEAD OF BEING WELDED, A MINIMUM OF THREE SET SCREWS OR OTHER APPROVED METHOD SHALL BEUSED TO LOCK SHAFT IN POSITION.
2. PEDESTAL POLE SHALL HAVE A BREAKAWAY TRANSFORMER TYPE BASE. THE TRANSFORMER BASE AND NUT TIGHTENING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
3. SEE PEDESTAL POLE STANDARDS (PF-2) FOR INSTALLATION DETAILS.
4. STRUCTURAL TUBE MATERIAL SHALL BE ALUMINUM 6061-T6 WITH MINIMUM 0.337" WALL THICKNESS.

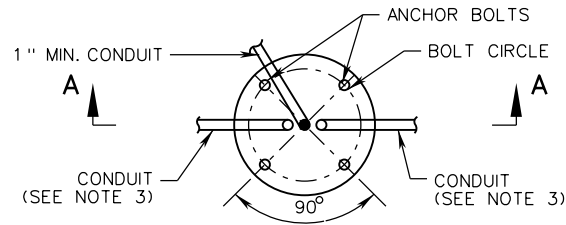
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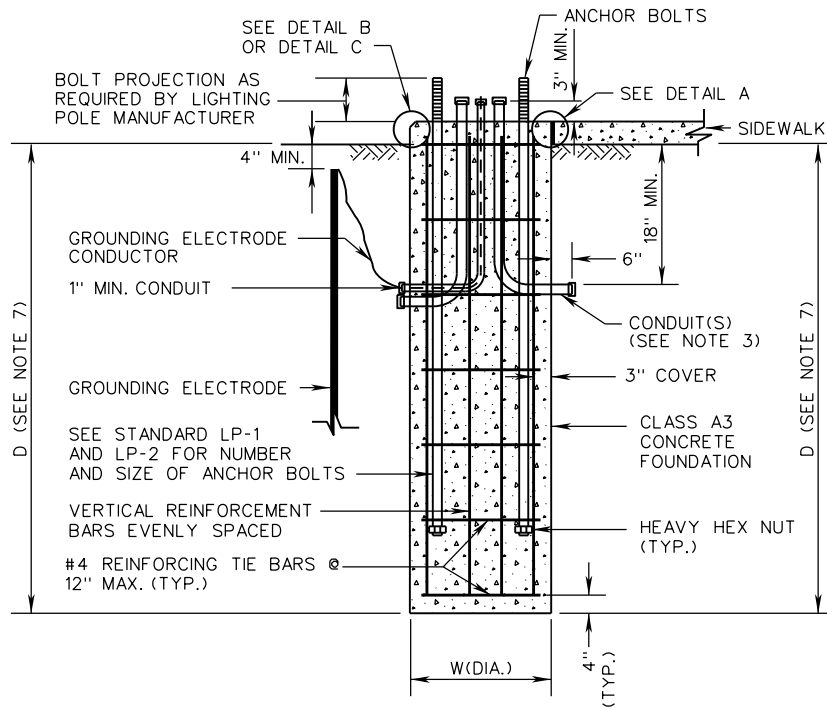
**PEDESTRIAN ACTUATION**  
**DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

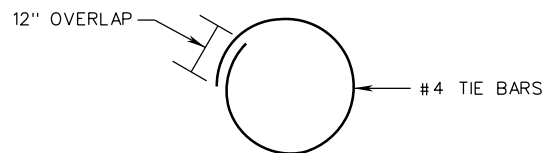
<b>VDOT</b> ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 2 OF 2
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PLAN VIEW



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

700

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**LIGHTING POLE FOUNDATION**

**INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

**VDOT**

ROAD AND BRIDGE STANDARDS

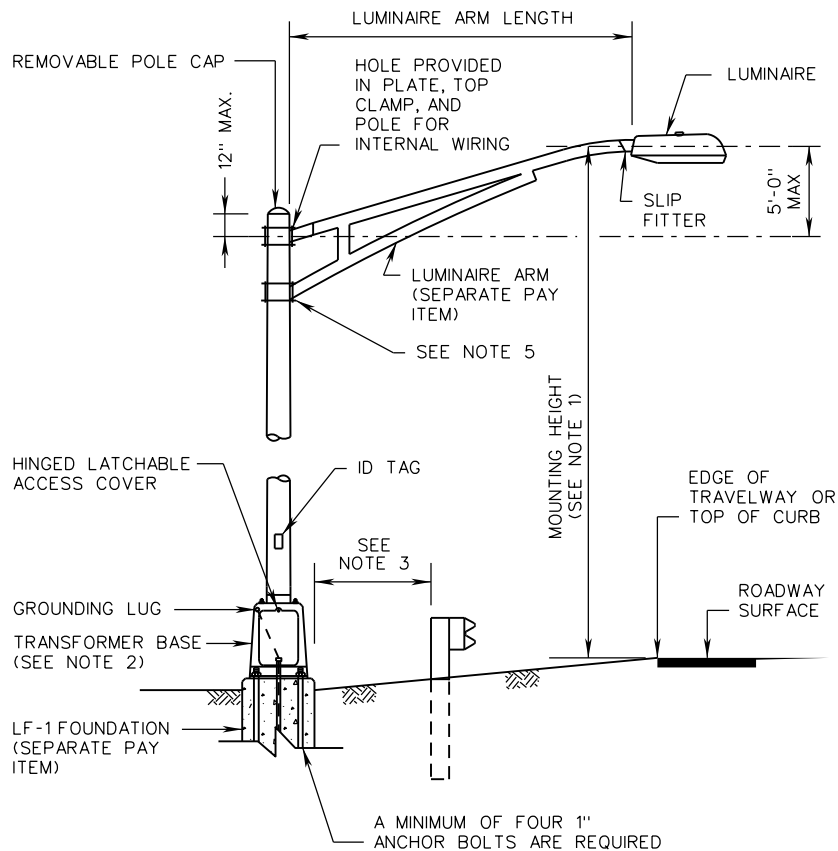
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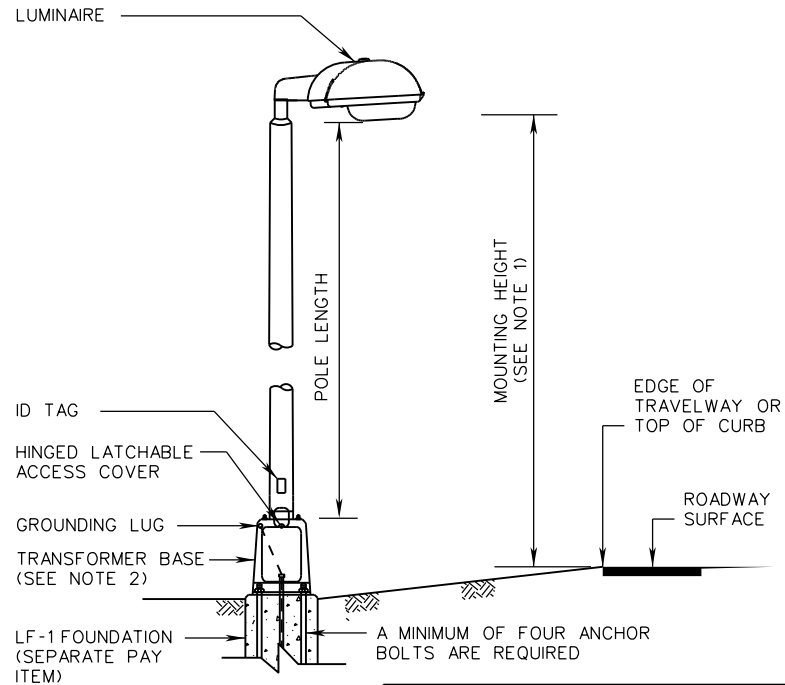
SHEET 1 OF 2

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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

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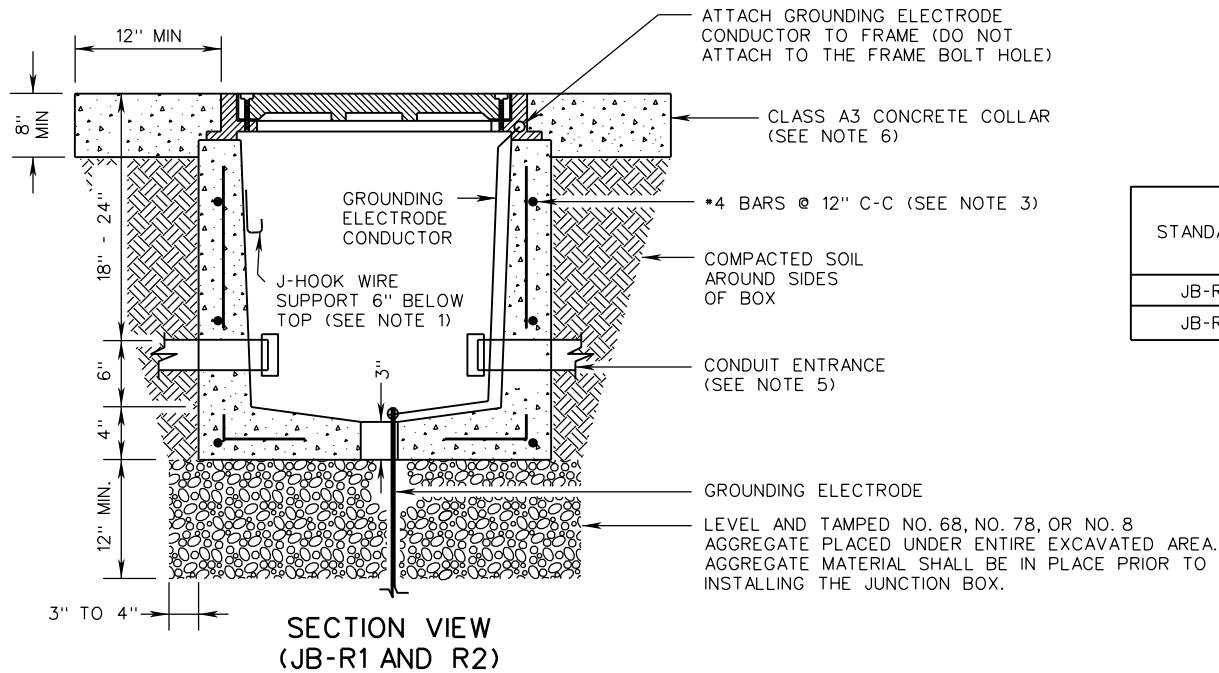
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**LIGHTING POLE  
INSTALLATION DETAILS**

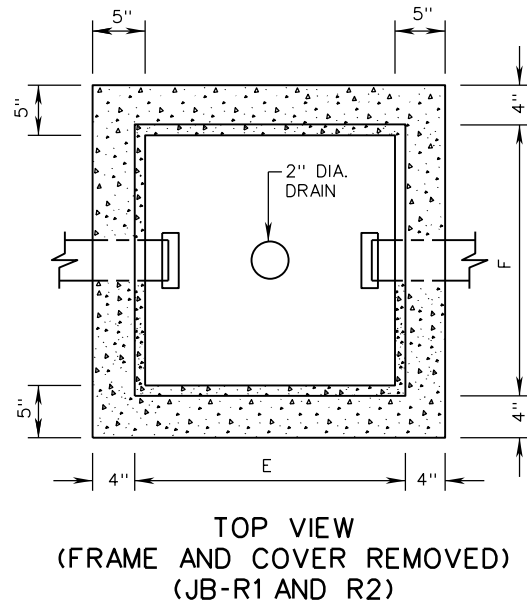
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION  
REFERENCE

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STANDARD	DIMENSIONS	
	E	F
JB-R1	20"	20"
JB-R2	27"	27"

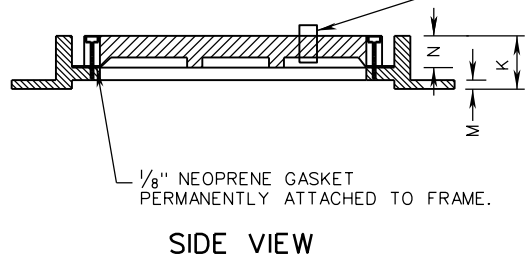
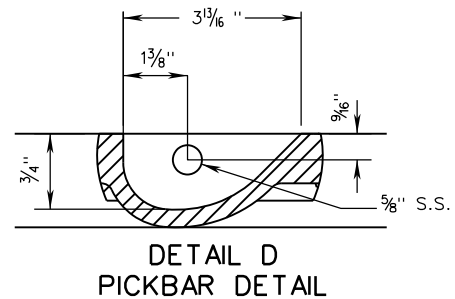
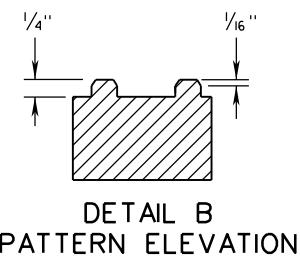
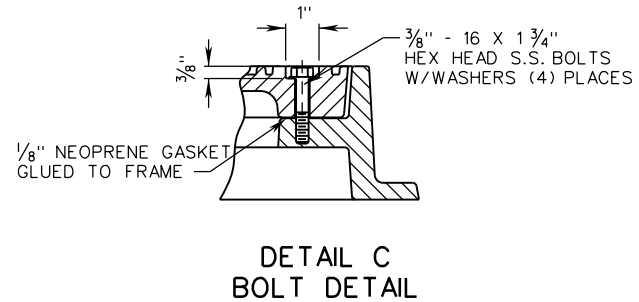
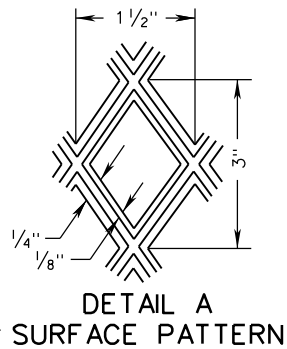
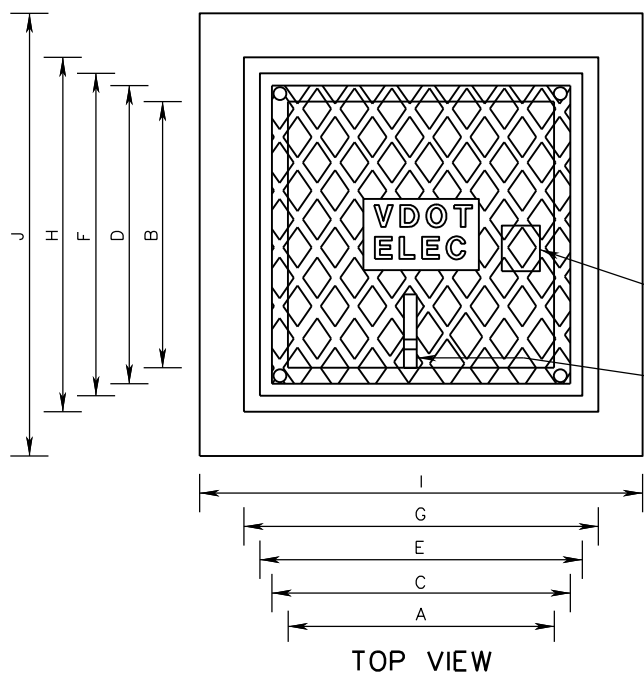


**NOTES:**

- J-HOOK WIRE SUPPORTS SHALL BE SECURELY ATTACHED TO THE JUNCTION BOX WITH A BOLT AND NUT WITH A NEOPRENE WASHER OR AN EXPANSION FITTING. ONE J-HOOK PER WALL SHALL BE INSTALLED FOR JB-R1 AND R2 BOXES. TWO J-HOOKS PER WALL (EQUALLY SPACED) SHALL BE INSTALLED FOR JB-R3 BOXES.
- CONDUIT ENTRANCES SHALL BE LOCATED AS SHOWN IN THE CONTRACT DOCUMENTS. CONDUITS SHALL EXTEND 2" MIN. TO 3" MAX. INTO THE INSIDE WALL OF THE JUNCTION BOX.
- ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH SECTION 223 OF THE SPECIFICATIONS, SHALL HAVE A MINIMUM 1 1/2" CONCRETE COVER. ANY REINFORCING STEEL IN CONFLICT WITH CONDUIT SHALL BE CUT A MINIMUM OF 1 1/2" FROM CONDUIT.
- THE JUNCTION BOX MAY BE PRECAST OR CAST IN PLACE CLASS A3 CONCRETE.
- A MINIMUM 2" DIAMETER CONDUIT ENTRANCE IS REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
- A CONCRETE COLLAR IS REQUIRED ONLY WHEN JUNCTION BOX IS INSTALLED IN EARTH AREAS.
- HIGH STRENGTH GROUT CONFORMING TO THE ROAD & BRIDGE SPECIFICATIONS SHALL BE USED TO SECURE THE FRAME TO THE JUNCTION BOX.
- ALL JUNCTION BOXES SHALL BE INSTALLED WITH A GROUNDING ELECTRODE.
- VOIDS RESULTING FROM ENTRANCE OF CONDUITS INTO JUNCTION BOX SHALL BE COMPLETELY FILLED WITH HYDRAULIC CEMENT GROUT CONFORMING TO THE ROAD & BRIDGE SPECIFICATIONS.
- WHEN INSTALLED, CONDUIT STUB-OUTS SHALL EXTEND A MINIMUM OF 6" PAST THE OUTSIDE OF THE JUNCTION BOX AND SHALL BE CAPPED OR PLUGGED.

SPECIFICATION REFERENCE  700	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE. <h2 style="margin: 0;">JUNCTION BOX</h2> <h3 style="margin: 0;">FOR TRAFFIC USE</h3> VIRGINIA DEPARTMENT OF TRANSPORTATION	ROAD AND BRIDGE STANDARDS REVISION DATE 08/17 SHEET 1 OF 2 1317.10
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JB-R1, R2



SIDE VIEW

STANDARD	DIMENSIONS												
	A	B	C	D	E	F	G	H	I	J	K	M	N
JB-R1	18"	18"	19"	19"	20"	20"	21"	21"	24"	24"	4"	5/8"	1"
JB-R2	24"	24"	26"	26"	27"	27"	28"	28"	33"	33"	4"	5/8"	1"

**NOTES:**

1. EACH COVER SECTION SHALL HAVE A NON-SKID SURFACE WITH LETTERS CAST IN THE DEPRESSION ON TOP. THE LETTERS "VDOT ELEC", "VDOT TRAFF", "VDOT COMM", "VDOT FIBER", OR "UTILITY" AS APPLICABLE ARE TO BE ONE (1) INCH WIDE AND RAISED 1/4" HIGH. COVERS USED FOR JUNCTION BOXES INSTALLED THAT WILL BE MAINTAINED BY LOCALITIES SHALL OMIT THE WORD "VDOT".
2. FOUR RECESSED 3/8" S.S. HEX HEAD BOLTS ARE REQUIRED FOR EACH COVER.
2. GRAY IRON CASTINGS SHALL BE AS PER SECTION 224 OF THE SPECIFICATIONS.



ROAD AND BRIDGE STANDARDS

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**JUNCTION BOX**

**FOR TRAFFIC USE**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

700

SHEET 2 OF 2

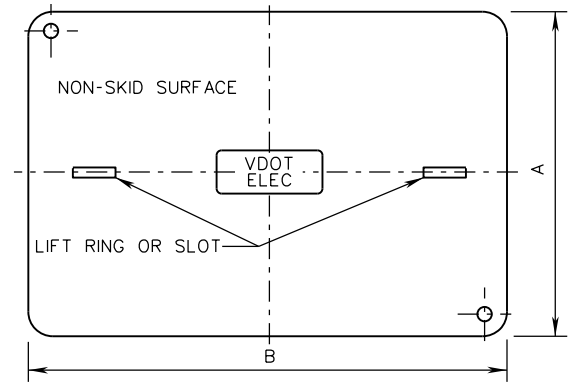
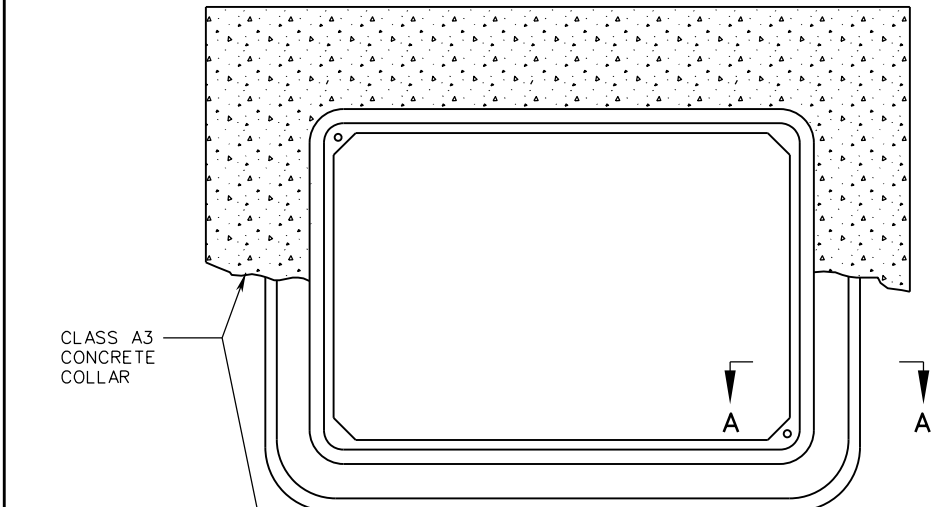
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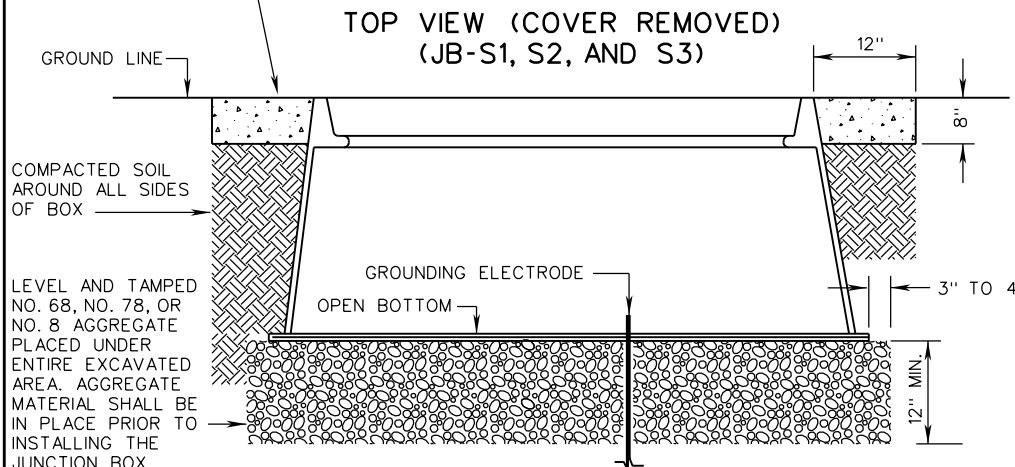
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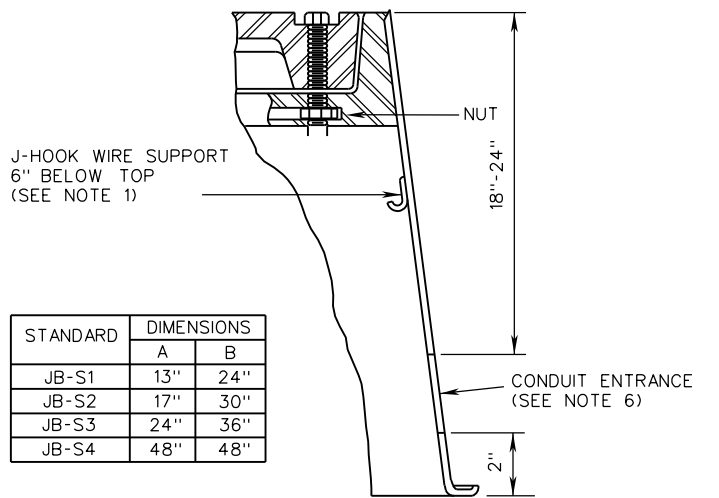
JB-S1, S2, S3, S4



COVER DETAIL (JB-S1, S2, AND S3)



SECTION VIEW (JB-S1, S2, AND S3)



SECTION A-A (JB-S1, S2, AND S3)

STANDARD	DIMENSIONS	
	A	B
JB-S1	13"	24"
JB-S2	17"	30"
JB-S3	24"	36"
JB-S4	48"	48"

**NOTES:**

- JUNCTION BOXES SHALL HAVE A STRAIGHT OR FLARED INSIDE WALL DESIGN. MATERIALS SHALL CONFORM TO SECTION 238 OF THE ROAD & BRIDGE SPECIFICATIONS.
- CONDUIT ENTRANCES SHALL BE LOCATED AS SHOWN IN THE CONTRACT DOCUMENTS. CONDUITS SHALL EXTEND 2" MIN. TO 3" MAX. INTO THE INSIDE WALL OF THE JUNCTION BOX.
- EACH COVER SECTION SHALL HAVE A NON-SKID SURFACE WITH LETTERS CAST IN THE DEPRESSION ON TOP OR OTHER PRE-APPROVED METHODS THAT DO NOT REQUIRE THE USE OF ADHESIVES. THE LETTERS "VDOT ELEC", "VDOT TRAF", "VDOT COMM", "VDOT FIBER", OR "UTILITY" AS APPLICABLE ARE TO BE 1" WIDE. COVERS USED FOR JUNCTION BOXES INSTALLED THAT WILL BE MAINTAINED BY LOCALITIES SHALL OMIT THE WORD "VDOT".
- ALL JUNCTION BOXES SHALL BE INSTALLED WITH A GROUNDING ELECTRODE.
- TWO RECESSED 3/8" S.S. HEX HEAD BOLTS ARE REQUIRED FOR EACH JB-S1, S2, AND S3 COVER. FOUR RECESSED 3/8" S.S. HEX HEAD BOLTS ARE REQUIRED FOR EACH JB-S4 COVER.
- A MINIMUM 2" DIAMETER CONDUIT ENTRANCE IS REQUIRED, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
- J-HOOK WIRE SUPPORTS SHALL BE SECURELY ATTACHED TO THE JUNCTION BOX WITH A BOLT AND NUT WITH A NEOPRENE WASHER OR AN EXPANSION FITTING. ONE J-HOOK PER WALL SHALL BE INSTALLED FOR JB-S1, S2, AND S3 BOXES. TWO J-HOOKS PER WALL SHALL BE INSTALLED FOR JB-S4 BOXES.
- VOIDS RESULTING FROM ENTRANCE OF CONDUITS INTO JUNCTION BOXES SHALL BE COMPLETELY FILLED WITH AN APPROVED MATERIAL.
- CONDUIT STUB-OUTS, WHEN INSTALLED, SHALL EXTEND A MINIMUM OF 6" PAST THE OUTSIDE OF THE JUNCTION BOX.

SPECIFICATION REFERENCE	700 238
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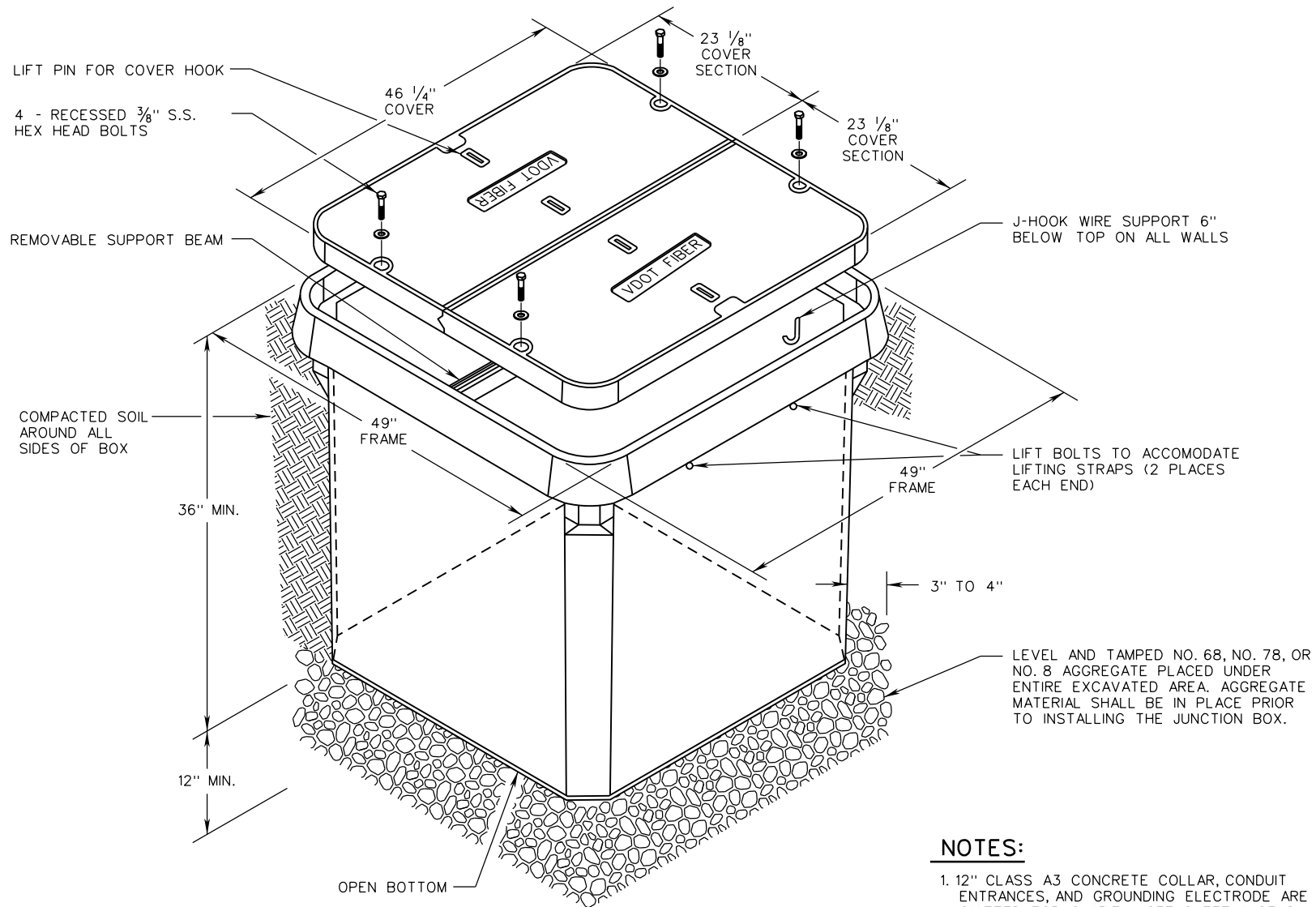
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**JUNCTION BOX**  
FOR NON-DELIBERATE TRAFFIC USE

VIRGINIA DEPARTMENT OF TRANSPORTATION

<b>VDOT</b> ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 1 OF 2
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JB-S1, S2, S3, S4



ISOMETRIC VIEW (JB-S4)

**NOTES:**

1. 12" CLASS A3 CONCRETE COLLAR, CONDUIT ENTRANCES, AND GROUNDING ELECTRODE ARE OMITTED FOR CLARITY. SEE SHEET 1 OF 2 FOR DETAILS.
2. SEE SHEET 1 OF 2 FOR NOTES.

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**JUNCTION BOX**  
FOR NON-DELIBERATE TRAFFIC USE

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

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238



ROAD AND BRIDGE STANDARDS

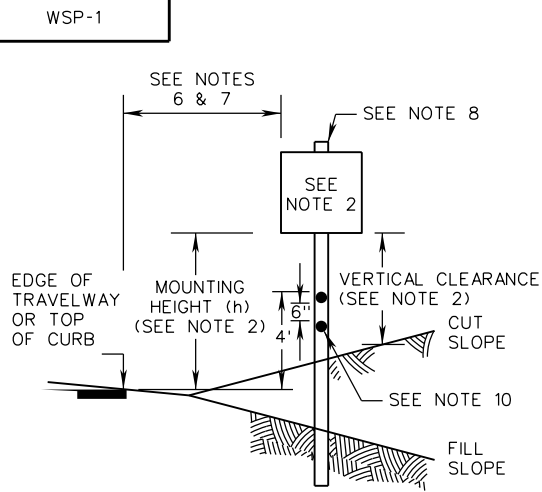
SHEET 2 OF 2

REVISION DATE

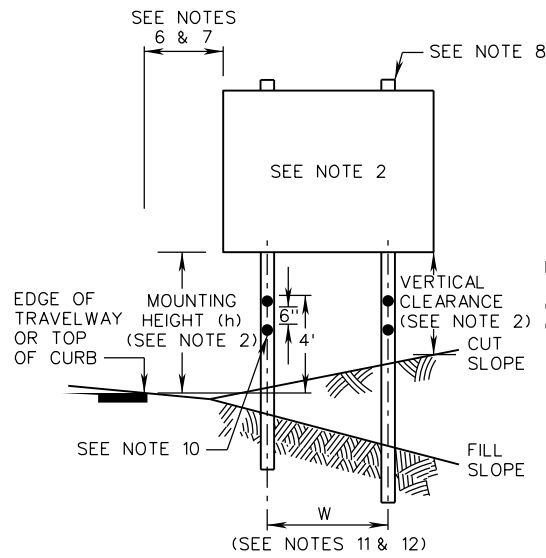
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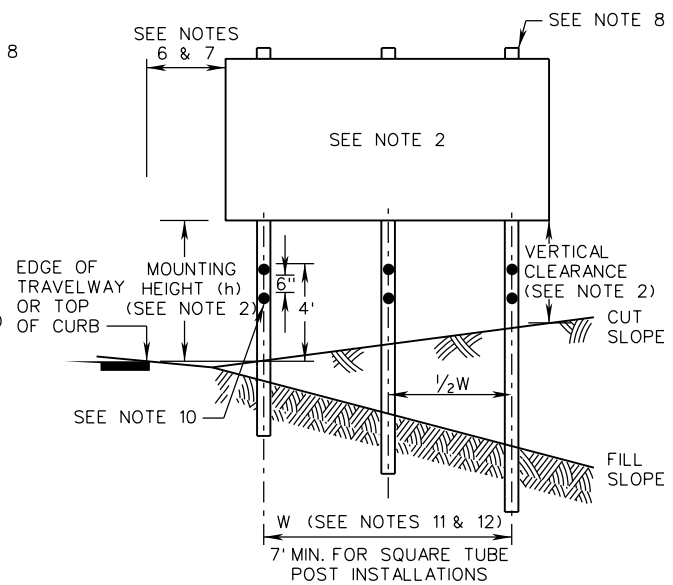
WSP-1



**SINGLE POST INSTALLATIONS**



**TWO POST INSTALLATIONS**



**THREE POST INSTALLATIONS**

**GENERAL NOTES:**

1. WSP STANDARDS SHALL ONLY BE USED FOR TEMPORARY SIGN INSTALLATIONS THAT WILL BE IN PLACE FOR A MAXIMUM OF 36 MONTHS.
2. FOR ALL SIGNS EXCEPT STREET NAME SIGNS:
  - A. MINIMUM MOUNTING HEIGHT (h) SHALL BE 7 FEET FOR TEMPORARY SIGNS AND 6 FEET FOR SECONDARY SIGNS (SEE NOTE 4).
  - B. MAXIMUM MOUNTING HEIGHT (h) FOR THE BOTTOM-MOST SIGN(S) SHALL BE 8 FEET, EXCEPT WHEN NECESSARY TO ACHIEVE MINIMUM VERTICAL CLEARANCE BENEATH SIGN AS PER NOTE 2C.
  - C. MINIMUM VERTICAL CLEARANCE (DISTANCE BETWEEN BOTTOM OF SIGN AND FINISHED GRADE BENEATH THE SIGN) SHALL BE 7 FEET FOR ANY PORTION OF THE SIGN WITHIN THE CLEAR ZONE. THIS MINIMUM VERTICAL CLEARANCE MAY BE REDUCED TO 5 FEET FOR EITHER OF THE FOLLOWING CONDITIONS:
    - WHEN SIGNS OR PORTIONS OF SIGNS ARE LOCATED MORE THAN 10 FEET UP A CUT SLOPE GREATER THAN 3:1, OR
    - WHEN THE SIGN IS LOCATED AT LEAST THE MINIMUM DISTANCE BEHIND CURB, BARRIER, OR GUARDRAIL AS PER NOTES 6 AND 7.
3. MOUNTING HEIGHT (h) FOR STREET NAME SIGNS SHALL BE BETWEEN 8'-6" AND 9'-0".
4. A SECONDARY SIGN IS CONSIDERED TO BE A SIGN MOUNTED BELOW ANOTHER SIGN, EXCEPT A ROUTE MARKING ASSEMBLY (CONSISTING OF A ROUTE MARKER WITH AN AUXILIARY PLATE) IS CONSIDERED TO BE A SINGLE SIGN. A SECONDARY SIGN SHALL NOT BE MOUNTED LOWER THAN 7 FEET ABOVE A PEDESTRIAN SIDEWALK OR PATHWAY IF IT WILL PROJECT MORE THAN 4" INTO THE PEDESTRIAN FACILITY.
5. FOR SIGNS LOCATED IN AREAS WHERE PEDESTRIAN MOVEMENTS ARE LIKELY TO OCCUR OR ON-STREET PARKING IS PERMITTED, THE HEIGHT (h) FROM THE LOWEST PORTION OF THE SIGN TO THE FINISHED SURFACE SHALL HAVE A CLEARANCE OF 7 FEET.
6. THE LATERAL CLEARANCE TO THE SIGN EDGE SHALL BE A MINIMUM OF 2 FEET FROM THE FACE OF CURB OR 4 FEET FROM FACE OF PERMANENT CONCRETE BARRIER, IF PRESENT. THE EDGE OF SIGN SHALL BE OUTSIDE THE DEFLECTION ZONE FOR TRAFFIC BARRIER SERVICE.

7. UNLESS OTHERWISE APPROVED BY THE ENGINEER, SIGNS PLACED BEHIND GUARDRAIL SHALL BE LOCATED SUCH THAT THE NEAR SIDE EDGE OF THE SIGN PANEL IS OUTSIDE OF THE GUARDRAIL DEFLECTION DISTANCE.
8. THE TOP OF THE SIGN POST MAY EXTEND NO MORE THAN 2 FEET ABOVE THE TOP OF THE SIGN.
9. THE SIGN POST SHALL BE PLUMB AT INSTALLATION AND SHALL NOT LEAN OR TWIST DURING USE. IN THE EVENT THE POST LEANS OR TWISTS OUT OF POSITION THE CONTRACTOR SHALL TAKE IMMEDIATE CORRECTIVE ACTION.
10. ED-3 TYPE 2 DELINEATORS SHALL BE PLACED ON ALL POSTS DURING ALL TIMES THAT THE SIGN IS COVERED. THE COLOR OF THE ED-3 DELINEATORS SHALL MATCH THE COLOR OF THE ADJACENT EDGE LINE MARKING.

**WOOD POST NOTES:**

11. MINIMUM SPACING (CENTER TO CENTER) BETWEEN TWO 4" x 4" WOOD POSTS SHALL BE 3 FEET. MINIMUM SPACING (CENTER TO CENTER) BETWEEN TWO WOOD POSTS OF ANY OTHER SIZE SHALL BE 8 FEET.

**SQUARE TUBE POST NOTES:**

12.  $W = (0.60) X$  (SIGN WIDTH)



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 7

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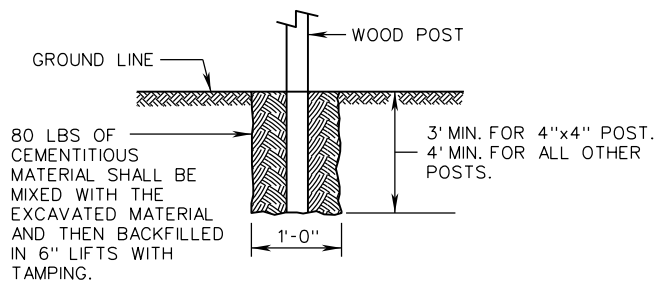
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**TEMPORARY SIGNS**  
 (FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)  
**WOOD POST AND SQUARE TUBE POST SIGN STRUCTURES**  
 VIRGINIA DEPARTMENT OF TRANSPORTATION

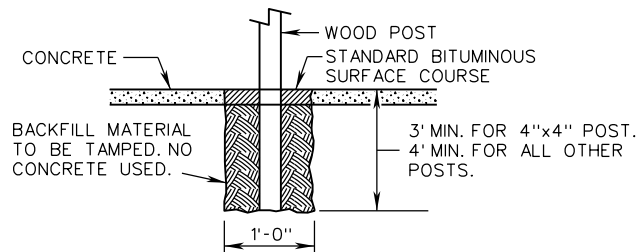
SPECIFICATION REFERENCE

512  
700

**INSTALLATION DETAILS**

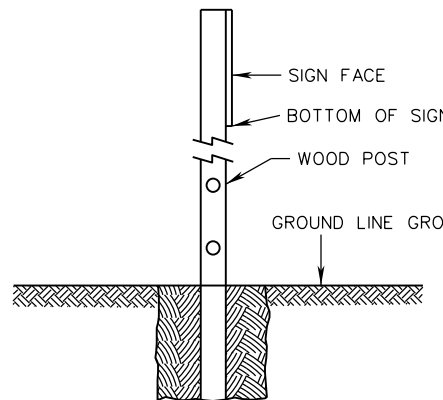


**SET IN EARTH**

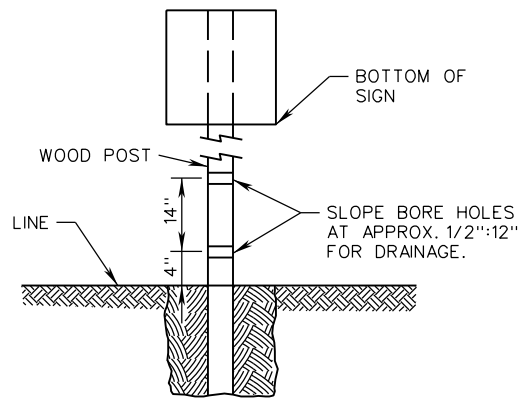


**SET IN CONCRETE**

**METHOD OF POST DRILLING**



**SIDE VIEW**

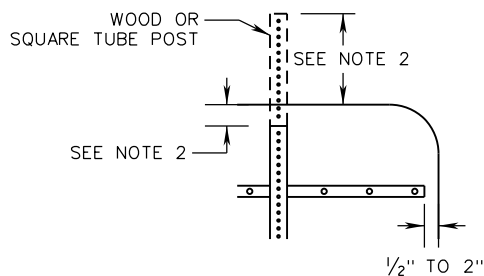


**FRONT VIEW**

**NOTES:**

1. 6" X 6" WOOD POST REQUIRES TWO 2" BORE HOLES.
2. 6" X 8" WOOD POST REQUIRES TWO 3" BORE HOLES.
3. POSTS LESS THAN 6" X 6" DO NOT REQUIRE BORE HOLES.

**BRACING AND POST TOLERANCE DETAIL**



**NOTES:**

1. SIGN WIDTHS GREATER THAN 48" SHALL REQUIRE SIGN BRACING CONFORMING TO STANDARD STP-1.
2. THE TOP OF POST SHALL BE NO MORE THAN 2" BELOW AND NO MORE THAN 2 FEET ABOVE THE TOP OF THE SIGN.

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SPECIFICATION REFERENCE

512  
700

**TEMPORARY SIGNS**  
(FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)  
**WOOD OR SQUARE TUBE STEEL POST SIGN STRUCTURES**  
VIRGINIA DEPARTMENT OF TRANSPORTATION

**VDOT**

ROAD AND BRIDGE STANDARDS

REVISION DATE  
08/17

SHEET 2 OF 7

1320.11

DESIGN TABLE FOR WOOD POST					
SIZE OF POST	CENTROID (FT)	MAXIMUM AREA (TOTAL OF SIGNS) (FT <sup>2</sup> )			COMMENTS
		SINGLE-POST	TWO-POST	THREE-POST	
4" X 4"	8	7	13	20	SEE NOTE 1
	9	6	12	18	
	10	5	11	16	
	11	5	10	15	
	12	4	9	13	
4" X 6" (SEE NOTE 2)	8	18	37	55	
	9	16	33	49	
	10	15	29	44	
	11	13	27	40	
5" X 5"	8	15	31	46	
	9	14	27	41	
	10	12	24	37	
	11	11	22	33	
6" X 6"	8	29	58	87	
	9	26	51	77	
	10	23	46	69	
	11	21	42	63	
	12	19	39	58	
6" X 8" (SEE NOTE 2)	13	18	36	53	
	8	52	103	155	
	9	46	92	138	
	10	41	83	124	
	11	38	75	113	
	12	34	69	103	
	13	32	64	95	
14	22	44	66		

**NOTES:**

1. FOR A SINGLE 4" X 4" POST THE MAXIMUM TOTAL SIGN CAN BE INCREASED TO 16 SQUARE FEET PROVIDED:

A. THE MAXIMUM VERTICAL CLEARANCE BETWEEN THE GROUND LEVEL AND BOTTOM OF THE SIGN DOES NOT EXCEED 7'-6" WHILE MAINTAINING A 7'-0" MINIMUM MOUNTING HEIGHT (h) BETWEEN BOTTOM OF SIGN AND TOP OF ROADWAY SURFACE AT THE EDGE OF TRAVEL LANE.

B. CONTRACTOR SUPPLIES DEPARTMENT WITH MATERIALS CERTIFICATION FOR WOOD POSTS TO ENSURE CONFORMANCE WITH SECTION 236 OF THE SPECIFICATIONS.

2. LARGER DIMENSION OF WOOD POST SHALL BE IN DIRECTION OF (PARALLEL TO) TRAFFIC.

3. CENTROID SHALL BE DETERMINED IN ACCORDANCE WITH STANDARD PCS-1.

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.



ROAD AND BRIDGE STANDARDS

**TEMPORARY SIGNS**  
 (FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)  
**WOOD POST SIGN STRUCTURES**  
 VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

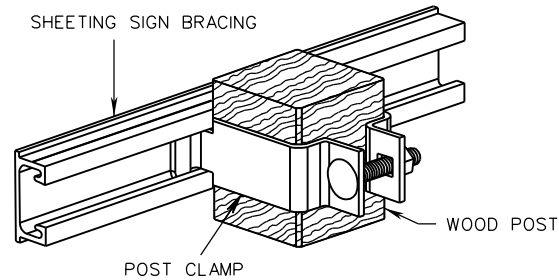
512  
700

SHEET 3 OF 7

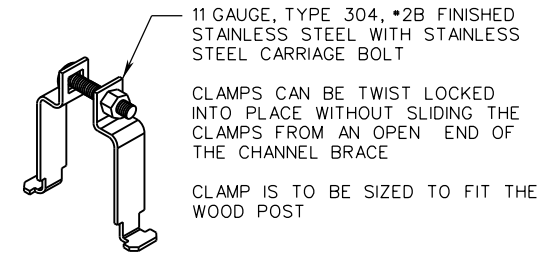
REVISION DATE

1320.12

08/17



**WOOD POST & BRACE  
(CONNECTING JUNCTION)**



**CLAMP DETAIL**

**NOTES:**

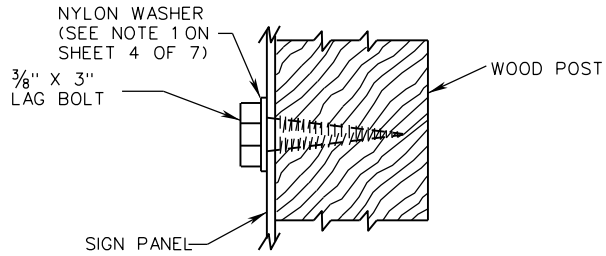
1. NYLON WASHER SHALL BE 1/16" THICK MINIMUM WITH AN OUTSIDE DIAMETER OF 1" AND AN INSIDE DIAMETER OF 7/16".
2. DRIVE RIVET SHALL BE 3/16" OR 3/8" ALUMINUM FLAT HEAD RIVET WITH STEEL PINS AND NYLON OR RUBBER WASHER.
3. SIGN PANEL ATTACHMENTS TO SQUARE TUBE POSTS SHALL BE AS PER STANDARD STP-1.
4. THE HEADS OF ALL DRIVE RIVETS AND BOLTS PROTRUDING FROM TEMPORARY SIGNS MAY BE UNCOATED. IF POWDER COATED, THE HEADS SHALL MATCH THE COLOR OF THE SIGN SHEETING.
5. BOLTS, NUTS, AND LOCK WASHERS SHALL BE GALVANIZED OR STAINLESS STEEL.
6. DRIVE RIVET SHALL NOT BE USED FOR SIGNS WITHOUT BRACING

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

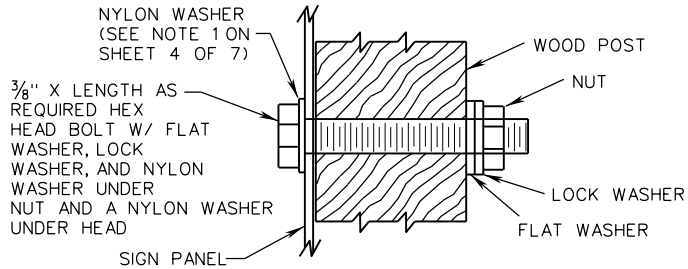
SPECIFICATION REFERENCE	<p><b>TEMPORARY SIGNS</b> (FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES) <b>WOOD POST SIGN STRUCTURES - ATTACHMENT DETAILS</b> VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	ROAD AND BRIDGE STANDARDS
512 700		REVISION DATE      SHEET 4 OF 7 08/17                      1320.13

WSP-1

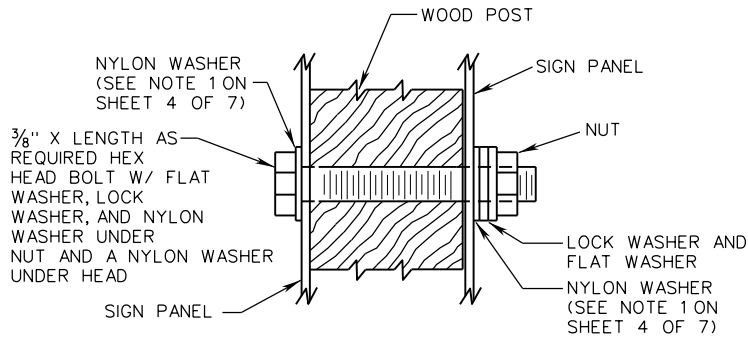
**WOOD POSTS NOT REQUIRING BRACING**



**SINGLE SIGN PANEL DETAIL**

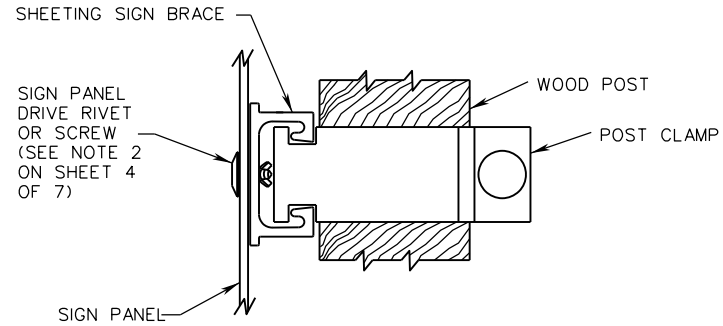


**SINGLE SIGN PANEL ALTERNATE METHOD DETAIL**

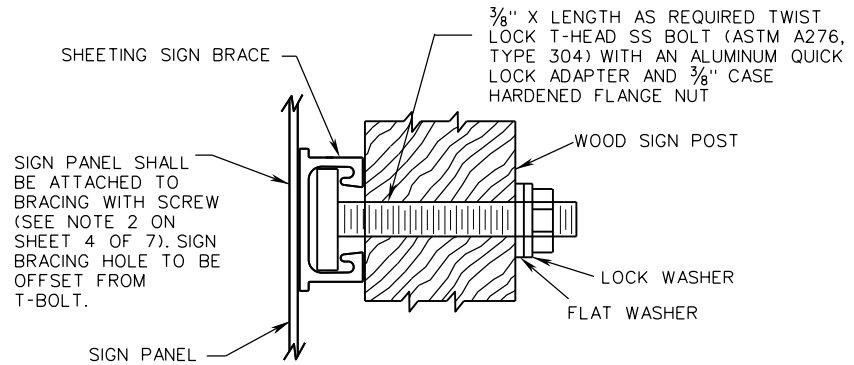


**BACK-TO-BACK SIGN PANEL DETAIL**

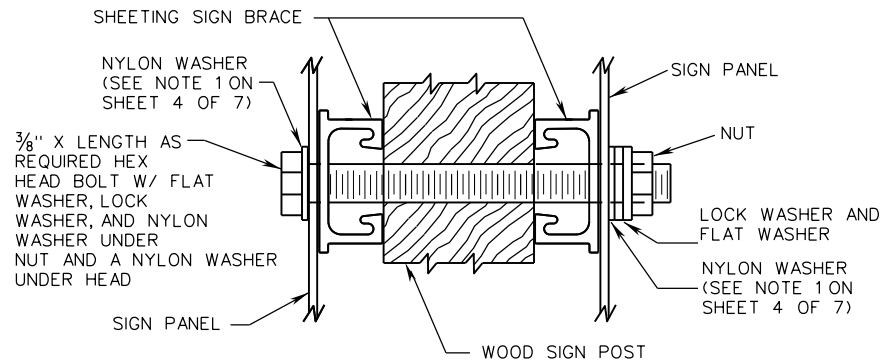
**WOOD POSTS REQUIRING BRACING**



**SIGN PANEL ATTACHMENT DETAIL**



**SINGLE SIGN PANEL ALTERNATE METHOD DETAIL**



**BACK-TO-BACK SIGN PANEL DETAIL**

**NOTES:**

1. SEE SHEET 4 OF 7 FOR NOTES.

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

**TEMPORARY SIGNS**  
(FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)  
**WOOD POST SIGN STRUCTURES - ATTACHMENT DETAILS**  
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION  
REFERENCE

512  
700



ROAD AND BRIDGE STANDARDS

SHEET 5 OF 7

REVISION DATE

1320.14

08/17

DESIGN TABLE FOR SQUARE TUBE POST					
SIZE OF POST	CENTROID (FT)	MAXIMUM AREA (TOTAL OF SIGNS) (FT <sup>2</sup> )			COMMENTS
		SINGLE-POST	TWO-POST	THREE-POST	
2 INCH 14 GA.	8	10.7	21.4		TYPE A, TYPE D, OR TYPE F FOUNDATION (SEE NOTE 4)
	9	9.5	19.0		
	10	8.5	17.0		
	11	7.7	15.4		
	12	7.1	14.2		
	13	6.5	13.0		
	14	6.1	12.2		
2½ INCH 12 GA.	8	21.5			TYPE A OR TYPE E FOUNDATION (SEE NOTE 4)
	9	19.1			
	10	17.2			
	11	15.6			
	12	14.3			
	13	13.2			
	14	12.3			
2½ INCH 10 GA.	8	24.8	49.6	74.4	TYPE B OR TYPE C FOUNDATION (SEE NOTE 4)
	9	22.0	44.0	66.0	
	10	19.8	39.6	59.4	
	11	18.0	36.0	54.0	
	12	16.5	33.0	49.5	
	13	15.2	30.4	45.6	
	14	14.1	28.2	42.3	
2½ INCH 10 GA. WITH 2⅜ INCH 10 GA. INNER POST (SEE NOTE 1)	8	43.4	86.8	130.2	TYPE B OR TYPE C FOUNDATION (SEE NOTE 4)
	9	38.6	77.2	115.8	
	10	34.7	69.4	104.1	
	11	31.6	63.2	94.8	
	12	28.9	57.8	86.7	
	13	26.7	53.4	80.1	
	14	24.8	49.6	74.4	

**NOTES:**

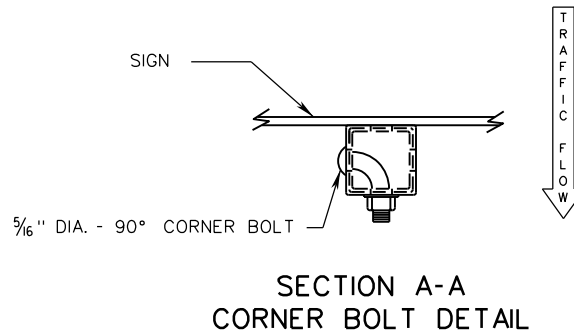
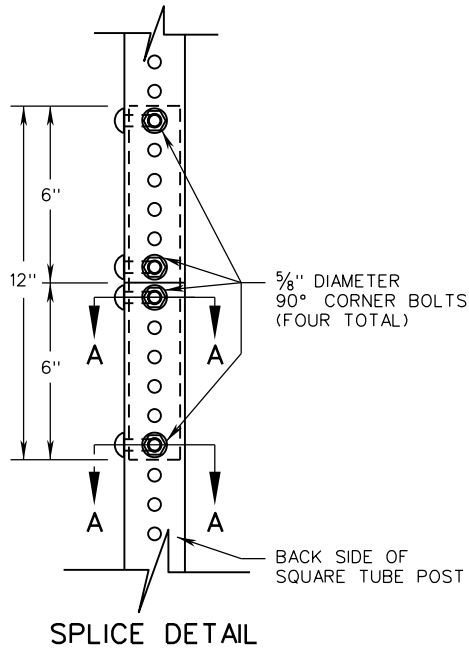
1. THE INNER POST SHALL BE 6 FEET IN LENGTH.
2. CENTROID SHALL BE DETERMINED IN ACCORDANCE WITH PCS-1.
3. MINIMUM COLD FORMED YIELD STRENGTH SHALL BE:  
14 GA. AND 12 GA. = 60 KSI  
10 GA. = 55 KSI
4. TYPE A, B, C, D, E, AND F FOUNDATIONS SHALL BE IN ACCORDANCE WITH STANDARD STP-1.

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

SPECIFICATION REFERENCE	512 700	<p><b>TEMPORARY SIGNS</b> (FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES) <b>SQUARE TUBE POST SIGN STRUCTURES</b> VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	 ROAD AND BRIDGE STANDARDS	
			REVISION DATE 08/17	SHEET 6 OF 7 1320.15



WSP-1



POST SIZE	SPLICE POST SIZE
2 INCH, 14 GAUGE	1 3/4 INCH, 14 GAUGE
2 1/2 INCH, 12 GAUGE	2 1/4 INCH, 12 GAUGE
2 1/2 INCH, 10 GAUGE	2 3/16 INCH, 10 GAUGE

NOTES:

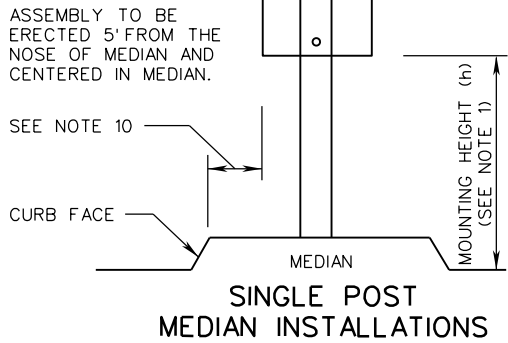
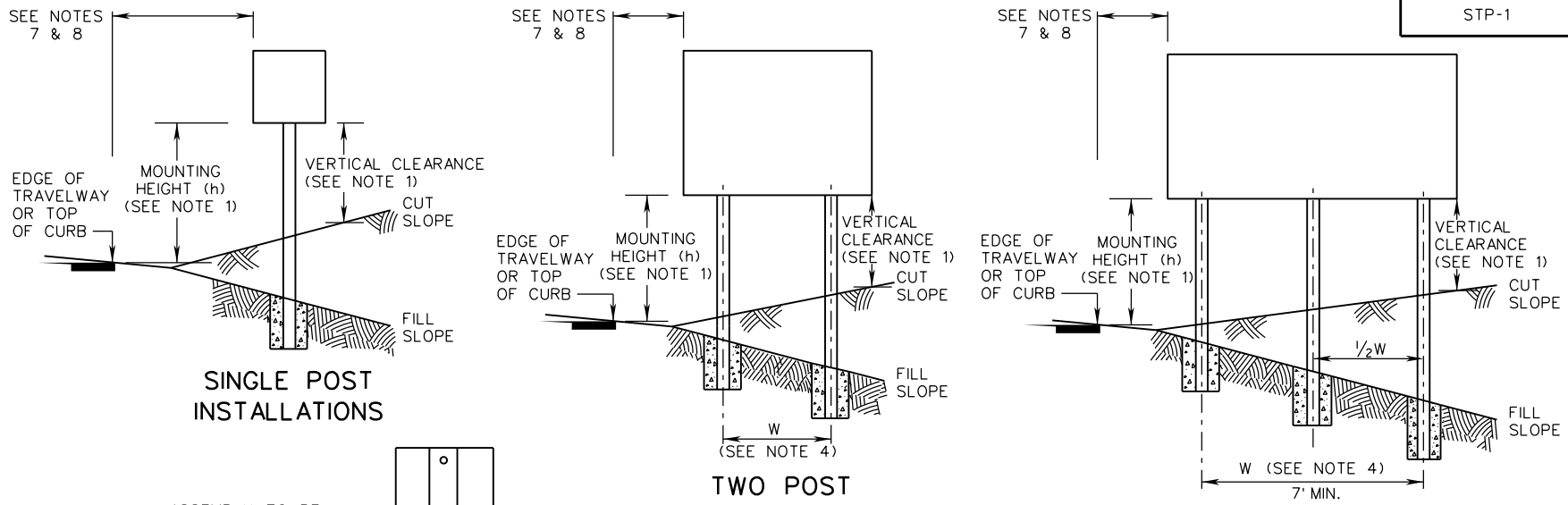
1. ONLY ONE SPLICE PER POST WILL BE ALLOWED.
2. SPLICES SHALL BE A MINIMUM OF 24" ABOVE GROUND LINE.
3. SPLICES SHALL ONLY BE PERMITTED FOR TEMPORARY INSTALLATIONS.
4. CORNER BOLTS SHALL BE INSTALLED SO THE BOLT HEADS ARE ON ONE SIDE OF THE SIGN POST. THE NUT SHALL BE ON THE BACK OF THE POST. SEE SPLICE DETAIL.

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

<b>VDOT</b>	
ROAD AND BRIDGE STANDARDS	
SHEET 7 OF 7	REVISION DATE
1320.16	NEW 08/17

**TEMPORARY SIGNS**  
(FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)  
**SQUARE TUBE POST SIGN STRUCTURES**  
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
512 700



MINIMUM MOUNTING HEIGHT (h) (SEE NOTE 1)			
SIGN TYPES	FREEWAYS, EXPRESSWAYS, AND FULL CONTROL ACCESS HIGHWAYS	OTHER HIGHWAYS	
		RURAL AREAS	NON-RURAL AREAS
DIRECTIONAL SIGNS	7'	5'	7'
ROUTE MARKERS, WARNING AND REGULATORY SIGNS	7'	5'	7'
SECONDARY SIGNS (SEE NOTE 3)	5'	4'	7'

**NOTES:**

- FOR ALL SIGNS EXCEPT STREET NAME SIGNS:
  - MINIMUM MOUNTING HEIGHT (h) SHALL BE IN ACCORDANCE WITH THE "MINIMUM MOUNTING HEIGHT" TABLE ON THIS SHEET. MOUNTING HEIGHT IS MEASURED FROM THE ROADWAY ELEVATION AT THE EDGE OF THE TRAVEL WAY TO THE BOTTOM OF THE SIGN PANEL.
  - MAXIMUM MOUNTING HEIGHT (h) FOR THE BOTTOM-MOST SIGN PANEL(S) SHALL BE 8 FEET, EXCEPT WHEN NECESSARY TO ACHIEVE MINIMUM VERTICAL CLEARANCE BENEATH SIGN PANEL AS PER NOTE 1C.
  - MINIMUM VERTICAL CLEARANCE (DISTANCE BETWEEN BOTTOM OF SIGN PANEL AND FINISHED GRADE BENEATH THE PANEL) SHALL BE 7 FEET FOR ANY PORTION OF THE SIGN WITHIN THE CLEAR ZONE. THIS MINIMUM VERTICAL CLEARANCE MAY BE REDUCED TO 5 FEET FOR EITHER OF THE FOLLOWING CONDITIONS:
    - WHEN SIGNS OR PORTIONS OF SIGNS ARE LOCATED MORE THAN 10 FEET UP A CUT SLOPE GREATER THAN 3:1, OR
    - WHEN THE SIGN IS LOCATED AT LEAST THE MINIMUM DISTANCE BEHIND CURB, BARRIER, OR GUARDRAIL AS PER NOTES 7 AND 8.
- MOUNTING HEIGHT (h) FOR STREET NAME SIGNS SHALL BE BETWEEN 8'-6" AND 9'-0".
- A SECONDARY SIGN IS CONSIDERED TO BE A SIGN MOUNTED BELOW ANOTHER SIGN, EXCEPT A ROUTE MARKER WITH AN AUXILIARY PLATE IS CONSIDERED TO BE A SINGLE SIGN. A SECONDARY SIGN SHALL NOT BE MOUNTED LOWER THAN 7 FEET ABOVE A PEDESTRIAN SIDEWALK OR PATHWAY IF IT WILL PROJECT INTO THE PEDESTRIAN FACILITY.
- $W = (0.60) \times (\text{SIGN PANEL WIDTH})$
- SQUARE TUBE SIGN POSTS REQUIRING A BREAKAWAY SUPPORT SYSTEM SHALL BE AN FHWA APPROVED BREAKAWAY SUPPORT SYSTEM CONFORMING TO AASHTO'S STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS.
- FOR SIGNS LOCATED IN AREAS WHERE PEDESTRIAN MOVEMENTS ARE LIKELY TO OCCUR OR ON-STREET PARKING IS PERMITTED, THE HEIGHT FROM THE LOWEST PORTION OF THE SIGN PANEL TO THE FINISHED SURFACE SHALL HAVE A MINIMUM CLEARANCE OF 7 FEET.
- THE LATERAL CLEARANCE TO THE SIGN PANEL SHALL BE A MINIMUM OF 2 FEET FROM THE FACE OF CURB OR 4 FEET FROM FACE OF BARRIER, IF PRESENT.
- UNLESS OTHERWISE APPROVED BY THE ENGINEER, SIGNS PLACED BEHIND GUARDRAIL SHALL BE LOCATED SUCH THAT THE NEAR SIDE EDGE OF THE SIGN PANEL IS OUTSIDE OF THE GUARDRAIL DEFLECTION DISTANCE.
- FOR SIGNS AT INTERCHANGE EXIT RAMP, REFER TO STANDARD ISD-1.
- 2" MINIMUM FOR MEDIANS OVER 10' IN WIDTH. 12" MINIMUM FOR MEDIANS 10' OR LESS IN WIDTH UNLESS SHOWN OTHERWISE IN THE CONTRACT DOCUMENTS.

SPECIFICATION REFERENCE
700

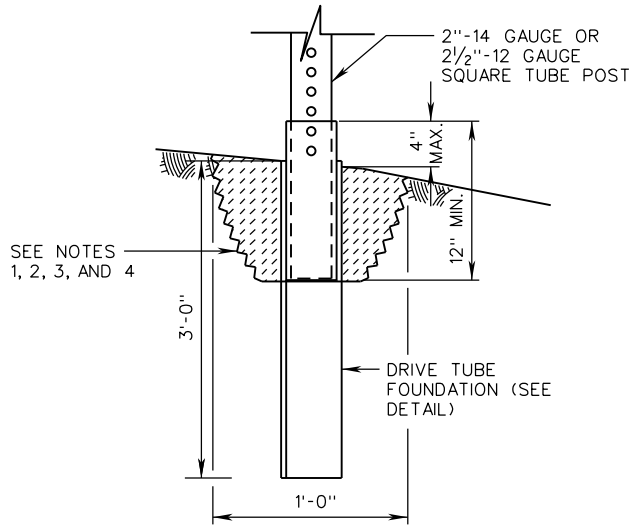
A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

## SQUARE TUBE SIGN POST

VIRGINIA DEPARTMENT OF TRANSPORTATION

<b>VDOT</b>	
ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 1 OF 12
08/17	1321.10

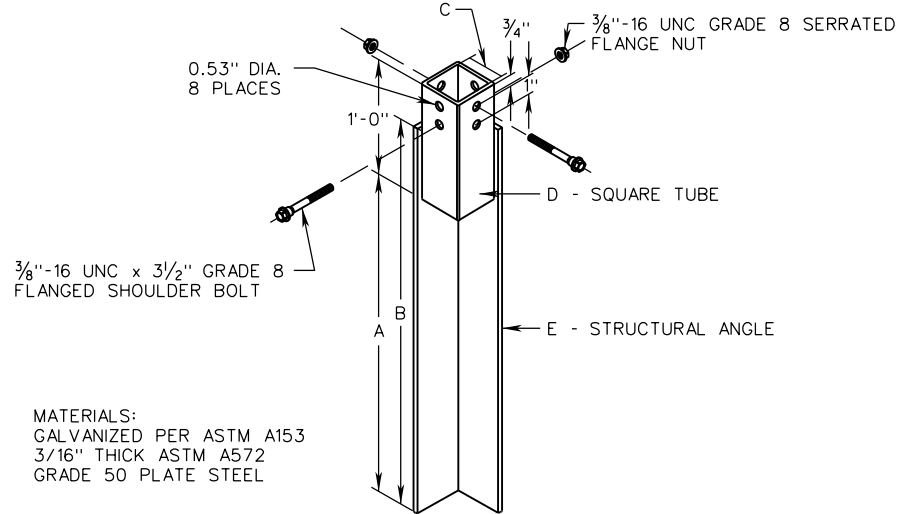
STP-1



FOUNDATION TYPE D AND E

**NOTES:**

1. EXCAVATE TO A DEPTH OF NO LESS THAN 8" AND NO GREATER THAN 12" PRIOR TO INSTALLATION OF DRIVE TUBE FOUNDATION.
2. THE EXCAVATED AREA SHALL BE BACKFILLED WITH A CEMENTITIOUS MATERIAL AND SHALL BE TAPPED WITH EACH 6" LIFT.
3. THE SQUARE TUBE POST SHALL BE INSERTED INTO THE SLEEVE OF THE DRIVE TUBE FOUNDATION A MINIMUM OF 12".
4. DRIVE CAP SHALL BE UTILIZED FOR INSTALLATION OF DRIVE TUBE FOUNDATION. WHEN USING A POWER DRIVER, A SHANK SHALL ALSO BE REQUIRED.



MATERIALS:  
GALVANIZED PER ASTM A153  
3/16" THICK ASTM A572  
GRADE 50 PLATE STEEL

DRIVE TUBE FOUNDATION DETAIL

**DRIVE TUBE FOUNDATION TABLE**

FOUNDATION TYPE	SIZE OF POST	DRIVE TUBE FOUNDATION DIMENSION	
TYPE D	2 INCH 14 GA.	A	27"
		B	36"
		C	2 1/8"
		D	2 1/2" X 2 1/2" X 3/16" ASTM A500 GRADE B
		E	2 1/2" X 2 1/2" X 3/16" ASTM A36
TYPE E	2 1/2 INCH 12 GA.	A	27"
		B	36"
		C	2 5/8"
		D	3" X 3" X 3/16" ASTM A500 GRADE B
		E	3" X 3" X 3/16" ASTM A36



ROAD AND BRIDGE STANDARDS

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

**SQUARE TUBE SIGN POST  
FOUNDATION TYPE D AND E DETAILS**

SPECIFICATION  
REFERENCE

SHEET 8 OF 12

REVISION DATE

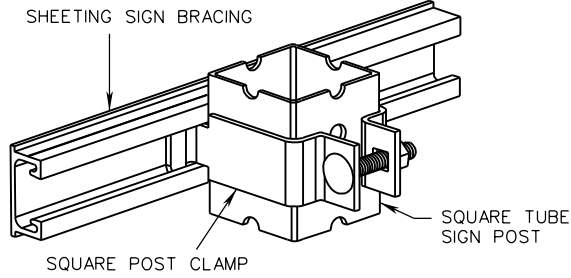
1321.17

08/17

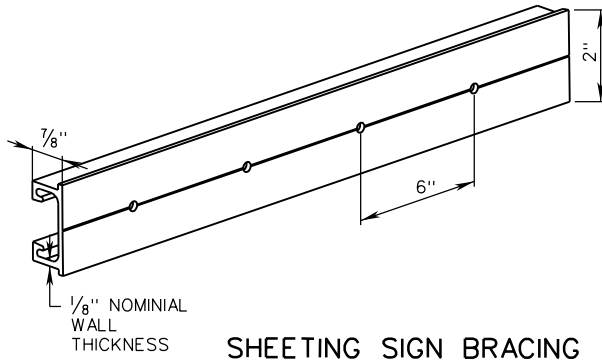
VIRGINIA DEPARTMENT OF TRANSPORTATION

700

STP-1



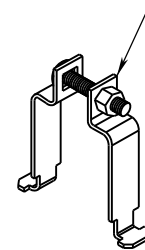
**SQUARE POST CLAMP & BRACE  
(CONNECTING JUNCTION)**



ALUMINUM SIGN BRACING 2"  
MOUNTING SURFACE x 7/8" DEPTH  
x 1/8" NOMINAL WALL THICKNESS

6061-T6 ALUMINUM ALLOY,  
PUNCHED WITH 3/16" DIAMETER  
HOLES ON 6" CENTERS FOR  
ATTACHMENT OF SIGN SUBSTRATE  
USING SIGN PANEL 3/16" DRIVE  
RIVETS, OR 3/8" DIAMETER HOLES  
ON 12" CENTERS WHEN USING 3/8"  
DRIVE RIVETS.

**SHEETING SIGN BRACING**



11 GAUGE, TYPE 304, #2B FINISHED  
STAINLESS STEEL WITH STAINLESS  
STEEL CARRIAGE BOLT

CLAMPS CAN BE TWIST LOCKED  
INTO PLACE WITHOUT SLIDING THE  
CLAMPS FROM AN OPEN END OF  
THE CHANNEL BRACE

CLAMP IS TO BE SIZED TO FIT THE  
SQUARE TUBE POST, 2" OR 2 1/2"

**SQUARE POST CLAMP DETAIL**

**NOTES:**

1. SEE SHEET 12 OF 12 FOR SIGN PANEL ATTACHMENT DETAILS.

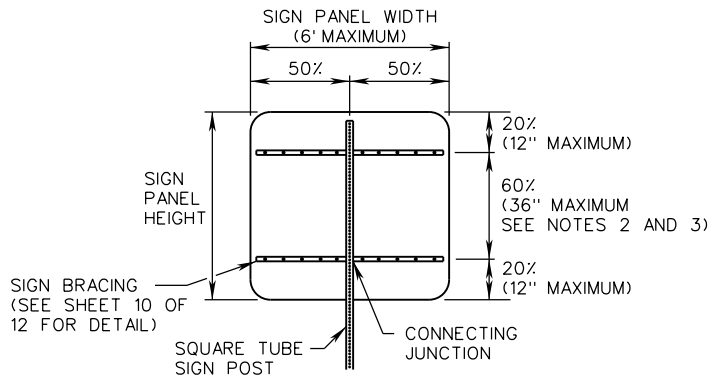
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<b>VDOT</b> ROAD AND BRIDGE STANDARDS	
SHEET 10 OF 12	REVISION DATE 08/17
1321.19	

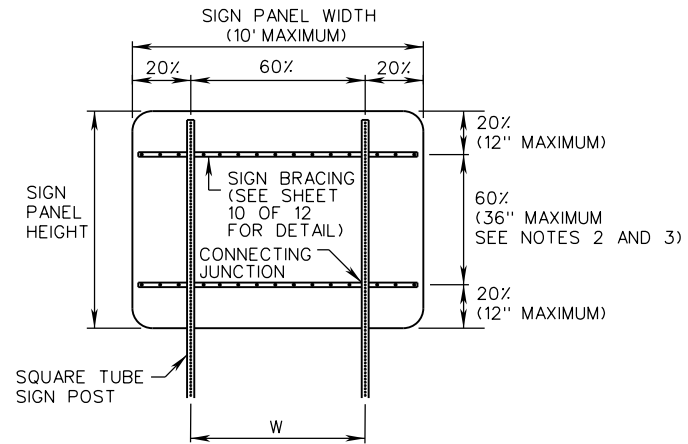
**SQUARE TUBE SIGN POST  
SIGN BRACING DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

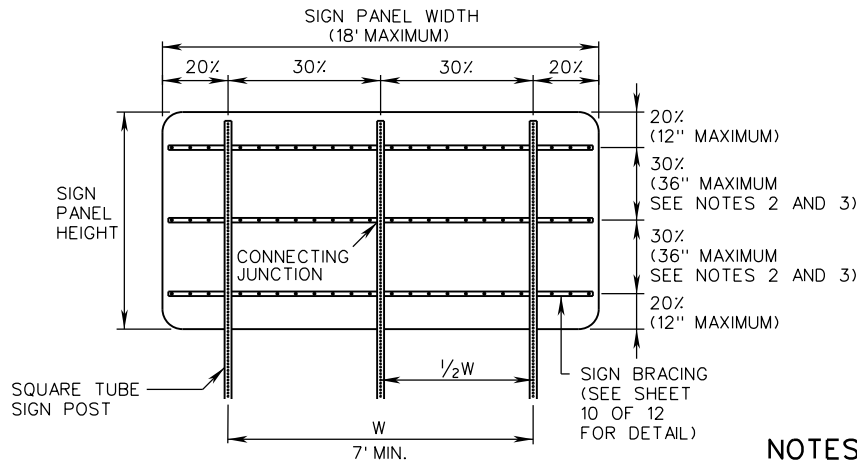
SPECIFICATION REFERENCE
700



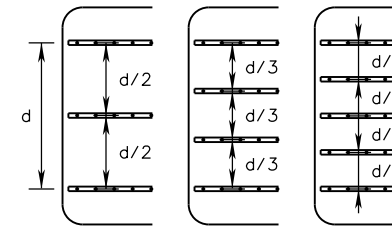
**SINGLE POST - BRACING DIAGRAM  
TYPICAL - TWO BRACE**



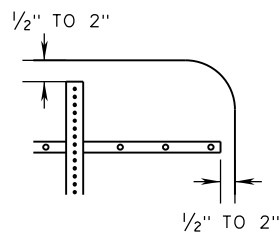
**TWO POST - BRACING DIAGRAM  
TYPICAL - TWO BRACE**



**THREE POST - BRACING DIAGRAM  
TYPICAL - THREE BRACE**



**DETAIL A - SPACING OF MULTIPLE BRACING**



**DETAIL B - INSTALLATION TOLERANCES**

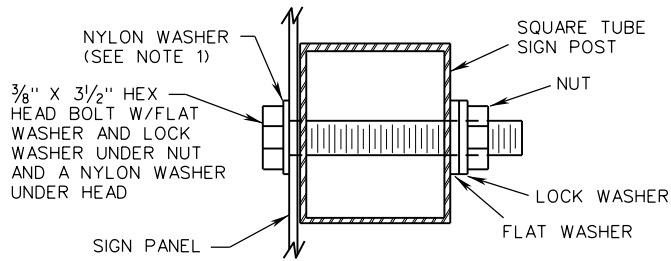
**NOTES:**

1. SIGN PANEL WIDTHS 36" OR GREATER SHALL REQUIRE SIGN BRACING.
2. VERTICAL SPACING OF SIGN BRACING SHALL NOT EXCEED 12" FROM THE TOP OR BOTTOM EDGE OF SIGN PANEL TO FIRST BRACE AND 36" BETWEEN BRACES. IF THE SPACING BETWEEN BRACES EXCEEDS 36" THEN ADDITIONAL SIGN BRACING SHALL BE ADDED. ALL SIGN BRACING SHALL BE EQUALLY SPACED BETWEEN THE TOP AND BOTTOM BRACE. SEE DETAIL A.
3. MAXIMUM SIGN PANEL AREA PER POST TO BRACE JUNCTION SHALL BE 10 SQ. FT. ADDITIONAL SIGN BRACING SHALL BE INSTALLED IF 10 SQ. FT PER POST TO BRACE JUNCTION IS EXCEEDED.
4. ONE SPLICE PER BRACE WILL BE PERMITTED. BRACE SPLICE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. BRACING SHALL NOT BE SPLICED WITHIN 6" OF A BRACE TO POST JUNCTION. SPLICES SHALL NOT BE IN VERTICAL ALIGNMENT BUT SHALL BE OFFSET NO LESS THAN 12" FROM EACH OTHER.
5. TOP OF SIGN PANEL SHALL BE MOUNTED 1/2" TO 2" WITH THE TOP OF THE POST AND 1/2" TO 2" WITH THE SIDE OF THE SIGN BRACING. SEE DETAIL B.
6. SIGN PANEL WIDTHS SHALL NOT EXCEED MAXIMUM SPECIFIED.

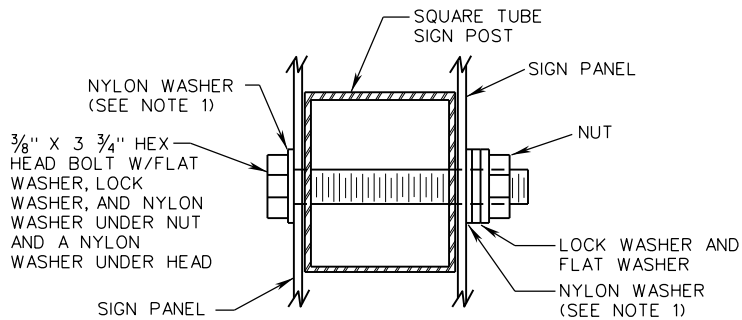
SPECIFICATION REFERENCE	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.		VDOT ROAD AND BRIDGE STANDARDS
	<b>SQUARE TUBE SIGN POST</b>		
700	<b>SIGN BRACING DETAILS</b>		REVISION DATE
	VIRGINIA DEPARTMENT OF TRANSPORTATION		SHEET 11 OF 12
			08/17
			1321.20

STP-1

**SIGN POSTS NOT REQUIRING BRACING**



**SINGLE SIGN PANEL DETAIL**

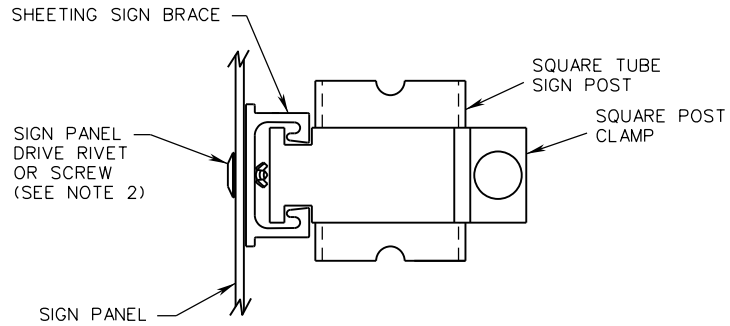


**BACK-TO-BACK SIGN PANEL DETAIL**

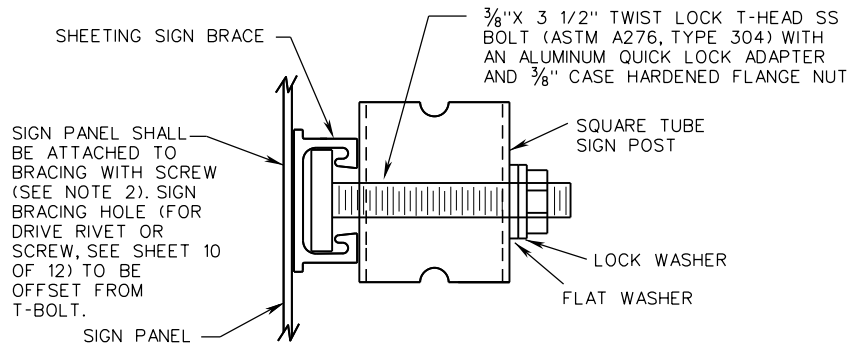
**NOTES:**

1. NYLON WASHER SHALL BE 1/16" THICK MINIMUM WITH AN OUTSIDE DIAMETER OF 1" AND AN INSIDE DIAMETER OF 7/16".
2. DRIVE RIVET SHALL BE 3/16" OR 3/8" ALUMINUM FLAT HEAD RIVET WITH STEEL PINS AND NYLON OR RUBBER WASHER.
3. THE HEADS OF ALL DRIVE RIVETS AND HEX HEAD BOLTS SHALL BE POWDER COATED TO MATCH THE COLOR OF THE SIGN SHEETING.
4. DRIVE RIVET SHALL NOT BE USED FOR SIGNS WITHOUT BRACING.

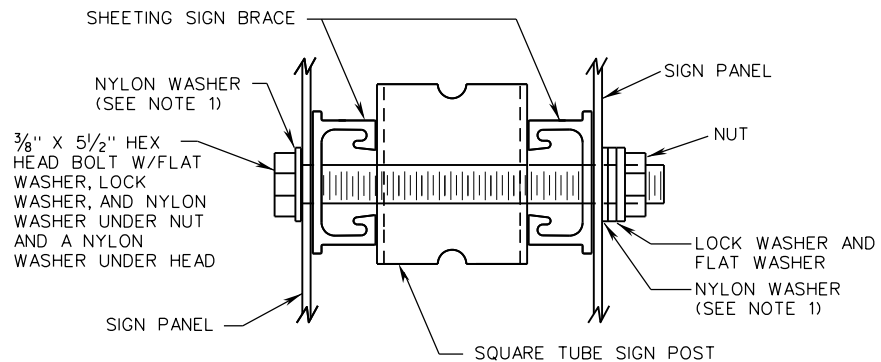
**SIGN POSTS REQUIRING BRACING**



**SINGLE SIGN PANEL DETAIL**



**SINGLE SIGN PANEL ALTERNATE METHOD DETAIL**



**BACK-TO-BACK SIGN PANEL DETAIL**

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

**SQUARE TUBE SIGN POST  
SIGN PANEL ATTACHMENT DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

700

**VDOT**

ROAD AND BRIDGE STANDARDS

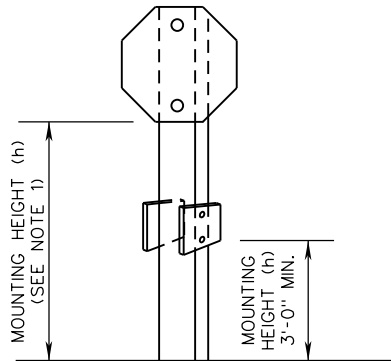
SHEET 12 OF 12

REVISION DATE

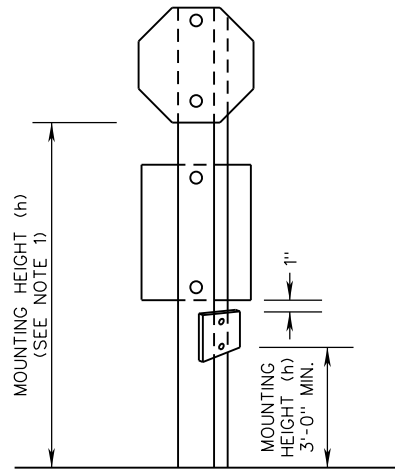
1321.21

08/17

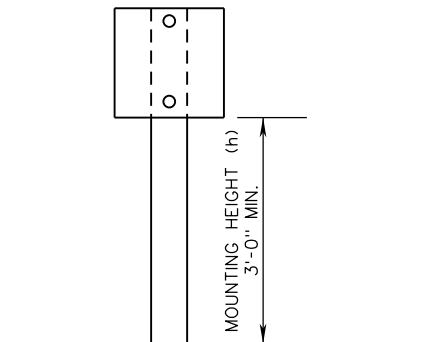
ISD-1



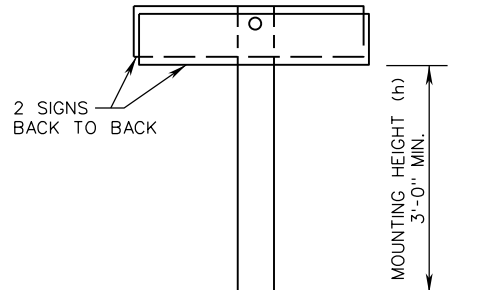
ONE WAY SIGNS  
ON EXIT RAMP  
WITH STOP SIGN



STOP OR YIELD SIGNS AND  
DO NOT ENTER SIGN  
(AT EXIT RAMP ONLY)



WRONG WAY SIGNS/  
DO NOT ENTER SIGNS  
(AT EXIT RAMP ONLY)



ONE WAY SIGNS  
ON EXIT RAMP

**NOTES:**

1. MOUNTING HEIGHT (h) SHALL BE IN ACCORDANCE WITH STP-1 SHEET 1 OF 12 EXCEPT AS NOTED ON THIS SHEET.
2. MOUNTING HEIGHTS (h) ARE MEASURED FROM BOTTOM OF SIGN PANEL TO ROADWAY ELEVATION AT EDGE OF TRAVELWAY OR TOP OF CURB.

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

<b>VDOT</b>	
ROAD AND BRIDGE STANDARDS	
SHEET 1 OF 1	REVISION DATE
1329.10	NEW 08/17

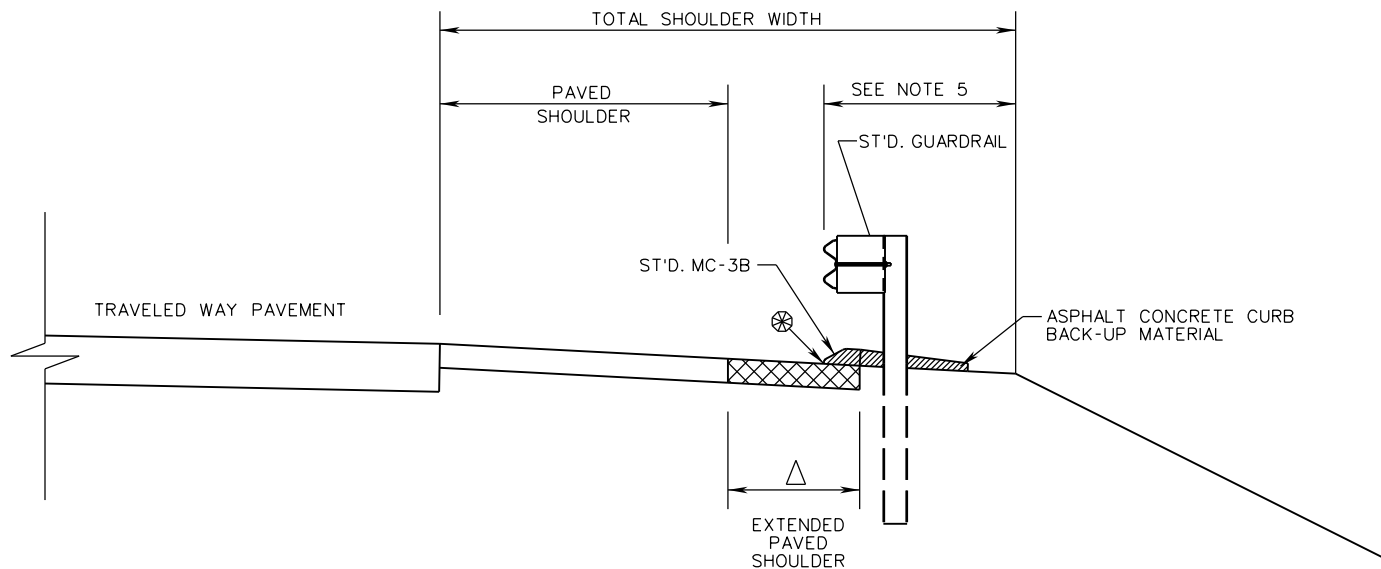
**INTERCHANGE EXIT RAMP SIGNING DETAILS**  
**MOUNTING HEIGHTS OF SIGN INSTALLATIONS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
700

NOTES

1. STANDARD MC-3B REQUIRES THE PAVED SHOULDER TO EXTEND TO THE BACK OF CURB.
2. PAVED SHOULDER WIDTHS TO BE IN ACCORDANCE WITH THE PLANS, VDOT POLICY, OR AS DIRECTED BY THE ENGINEER.
3. THE PAVED SHOULDER AND THE EXTENDED PAVED SHOULDER SHALL BE PLACED SIMULTANEOUSLY.
4. FACE OF GUARDRAIL SHALL BE ALIGNED WITH FACE OF THE CURB.
5. DISTANCE FROM THE FACE OF RAIL TO THE HINGE POINT IN ACCORDANCE WITH THE GUARDRAIL STANDARD USED.
6. MC-3B CURB NOT PERMITTED WITHIN THE LIMITS OF ANY GUARDRAIL TERMINAL.



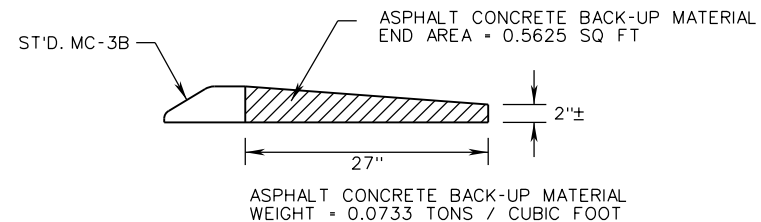
⊗ LIMIT OF SURFACE TREATMENT IF SHOULDER IS TO RECEIVE A PRIME & SEAL. THE PRIME AND SEAL IS TO BE APPLIED TO THE SHOULDER AFTER THE CURB HAS BEEN INSTALLED.

△ TO BE CONSTRUCTED WITH THE SAME MATERIAL AND TO THE SAME DEPTH AS THE PAVED SHOULDER.

STANDARD GUARDRAIL & MC-3B ASPHALT CURB INSTALLATION

TO CALCULATE THE ASPHALT BACKUP MATERIAL

1. MULTIPLY THE LENGTH OF MC-3B BY THE END AREA WHICH RESULTS IN CUBIC FEET.
2. MULTIPLY CUBIC FEET BY 0.0733 TONS / CUBIC FOOT WHICH RESULTS IN TONS OF ASPHALT CONCRETE BACKUP MATERIAL.



SPECIFICATION REFERENCE

105  
502

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

ASPHALT CONCRETE CURB  
(ASPHALT BACKUP MATERIAL INSTALLATION)

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

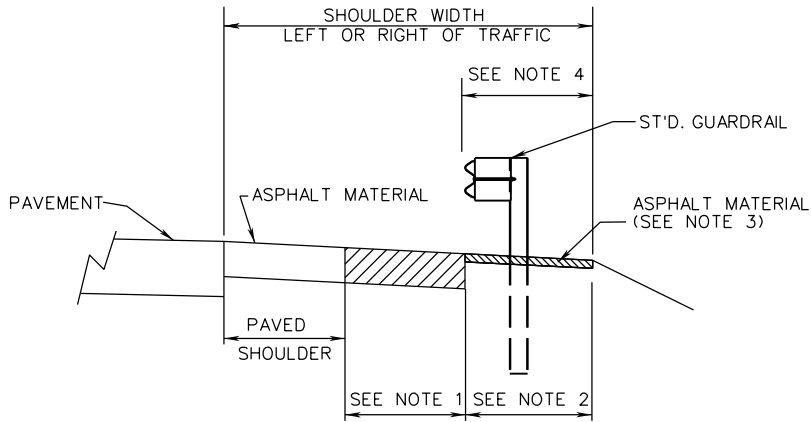
08/17

SHEET 2 OF 2

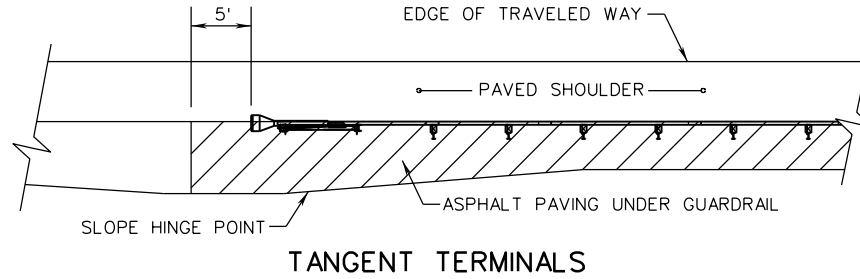
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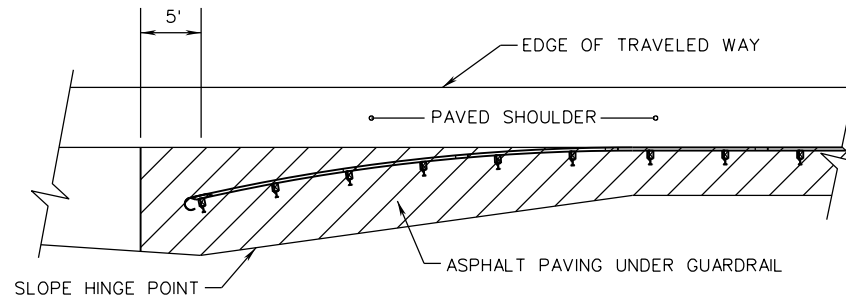
MC-4



**ASPHALT PAVING UNDER GUARDRAIL**  
(FOR USE WHERE ASPHALT CURB IS NOT REQUIRED)



**TANGENT TERMINALS**

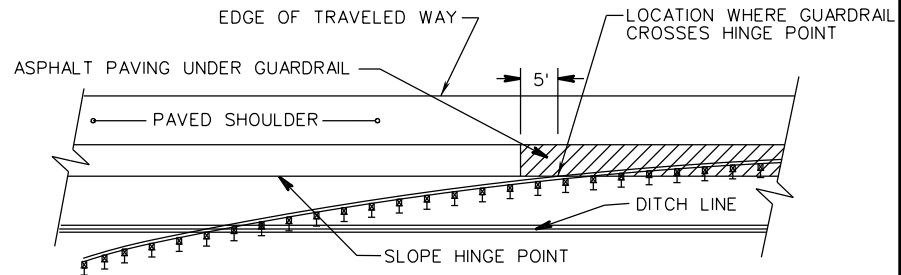


**FLARED TERMINALS**

**NOTES:**

1. CONSTRUCTED WITH THE SAME MATERIAL AND TO THE SAME DEPTH AS THE ROADWAY PAVED SHOULDER.
2. CONSTRUCTED WITH THE SAME ASPHALT MATERIALS AS THE PAVED SHOULDER FROM THE FACE OF RAIL TO THE SHOULDER HINGE POINT AT FOLLOWING DEPTHS:  
ALLOWABLE DEPTHS OF ASPHALT MATERIAL  

SM-9.5A OR SM-12.5D	1.5"
OR	
IM-19.0A OR IM-19.0D	2"
3. MAXIMUM ALLOWABLE DEPTH FOR PAVING UNDER GUARDRAIL IS 2 INCHES.
4. DISTANCE FROM THE FACE OF RAIL TO THE HINGE POINT IN ACCORDANCE WITH THE GUARDRAIL STANDARD USED.
5. SEE GUARDRAIL OR GUARDRAIL TERMINAL STANDARD FOR INSTALLATION AND SITE PREPARATION REQUIREMENTS.



**BURIED IN BACKSLOPE TERMINAL**

METHODS FOR BEGINNING & ENDING ASPHALT PAVING UNDER GUARDRAIL AND GUARDRAIL TERMINALS.



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

REVISION DATE

201.08

08/17

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**ASPHALT PAVING UNDER GUARDRAIL**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

105  
502