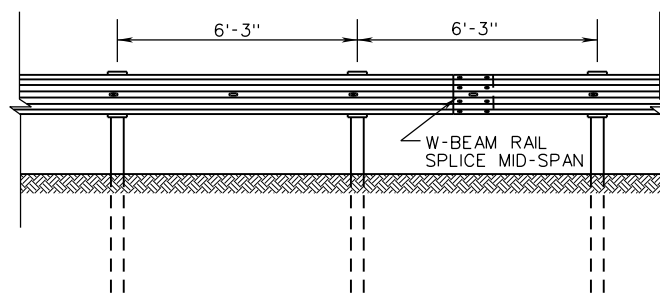


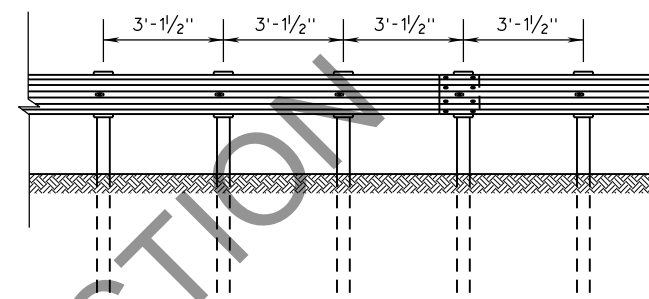
TRAFFIC DIRECTION FOR RAIL LAP AS SHOWN

(SEE NOTE 7)

**GR-MGS1**

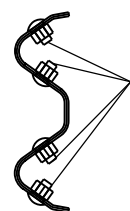
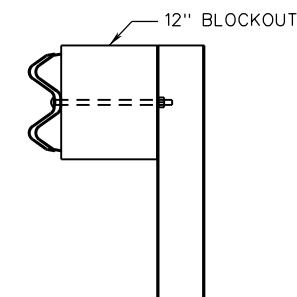
(6'-3" POST SPACING)

MIN. DISTANCE FROM FACE OF RAIL TO FIXED OBJECT = 60"

**GR-MGS1A**

(3'-1 1/2" POST SPACING)

MIN. DISTANCE FROM FACE OF RAIL TO FIXED OBJECT = 48"

"SPlice BOLT" WITH NUT
8 PER SPLICE**SPLICE DETAIL**RAIL SPLICE SHALL BE PLACED MID-SPAN
FOR STANDARD POST SPACING (6'-3")* OPTIONAL GR-MGS1A METHOD
USING NESTED RAIL WITH 6'-3"
POST SPACING.**NOTES:**

- GUARDRAIL LOCATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY AND CAN BE ADJUSTED DURING CONSTRUCTION IF AND AS DIRECTED BY THE ENGINEER.
- FOR DETAILS OF POST AND BLOCKOUTS SEE SHEET NO. 506.---
- FOR DETAILS OF RAIL ELEMENT, AND ASSOCIATED HARDWARE SEE SHEETS 501.01 AND 501.02.
- RAIL ELEMENTS WITH RADII LESS THAN OR EQUAL TO 150 FEET SHALL BE SHOP CURVED AND PAID FOR AS RADIAL GR-MGS1, OR 1A.
- ALL GR-MGS1 AND GR-MGS1A RAIL SHALL BE MAINTAINED AT A HEIGHT OF 30" MIN - 32" MAX AS MEASURED PER STANDARD GR-INS.
- ALL GUARDRAIL POSTS SHALL BE SET PLUMB. POST SHALL NOT BE SET WITH A VARIATION OF MORE THAN 1/8" PER FOOT FROM VERTICAL. W-BEAM, BLOCKOUTS, AND POSTS SHALL BE SET AND ALIGNED WITHOUT ALTERATION OR FORCE, AS PER SECTION 505 OF THE SPECIFICATIONS.
- ALL W-BEAM RAILS SHALL BE LAPPED IN THE DIRECTION OF VEHICULAR TRAVEL FOR THE FINISHED ROADWAY.
- THE OPTIONAL GR-MGS1A METHOD OF NESTING THE RAIL SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

SPECIFICATION
REFERENCE221
236
505**MIDWEST GUARDRAIL SYSTEM
(STANDARD AND REDUCED POST SPACING)**

VIRGINIA DEPARTMENT OF TRANSPORTATION

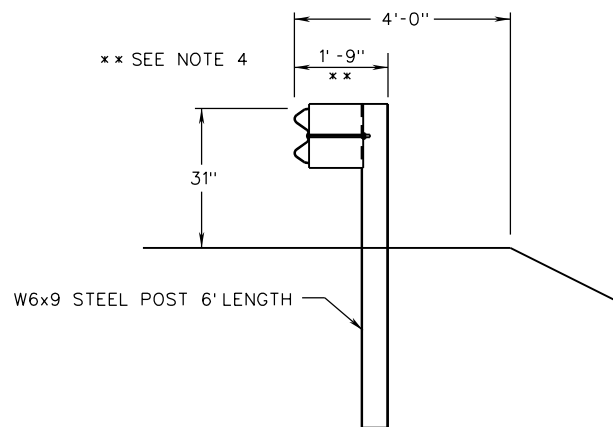
VDOT

ROAD AND BRIDGE STANDARDS

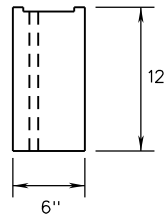
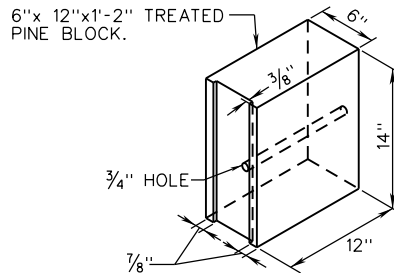
REVISION DATE

SHEET 1 OF 2

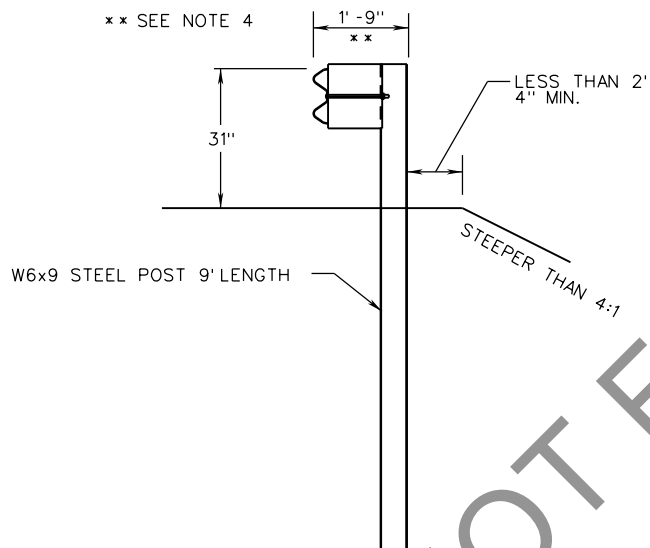
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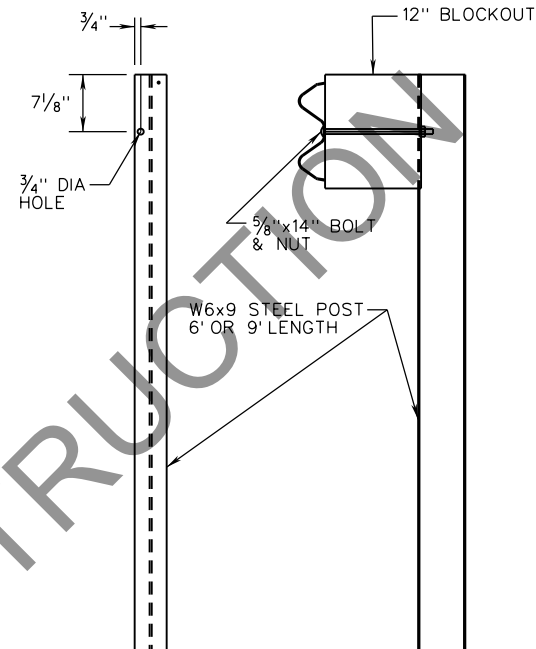
STANDARD INSTALLATION
6' STEEL POST



6" WIDE ROUTED
WOOD BLOCKOUT



GUARDRAIL INSTALLATION
SITES REQUIRING 9'
GUARDRAIL POSTS



STEEL POST

NOTES:

1. ALL BOLTS, NUTS, WASHERS, AND OTHER STEEL ITEMS ARE TO BE GALVANIZED.
2. BLOCKOUTS OTHER THAN SHOWN SHALL BE A VDOT APPROVED PRODUCT MEETING MASH TESTING CRITERIA. BLOCKOUTS SHALL BE FROM THE VDOT APPROVED PRODUCTS LIST. APPROVED BLOCKOUTS MAY BE INTERCHANGED ON ANY ONE PROJECT WITH THE RESTRICTION THAT THE SAME TYPE OF BLOCKOUT MUST BE USED IN ANY SINGLE RUN OF GUARDRAIL.
3. WOOD BLOCKOUTS SHALL BE TREATED WITH A WOOD PRESERVATIVE IN ACCORDANCE WITH THE SPECIFICATIONS.
4. DIMENSION MAY VARY PLUS OR MINUS 1/4" DUE TO MANUFACTURING TOLERANCES IN GUARDRAIL COMPONENTS.



ROAD AND BRIDGE STANDARDS

SHEET 2 OF 2 REVISION DATE

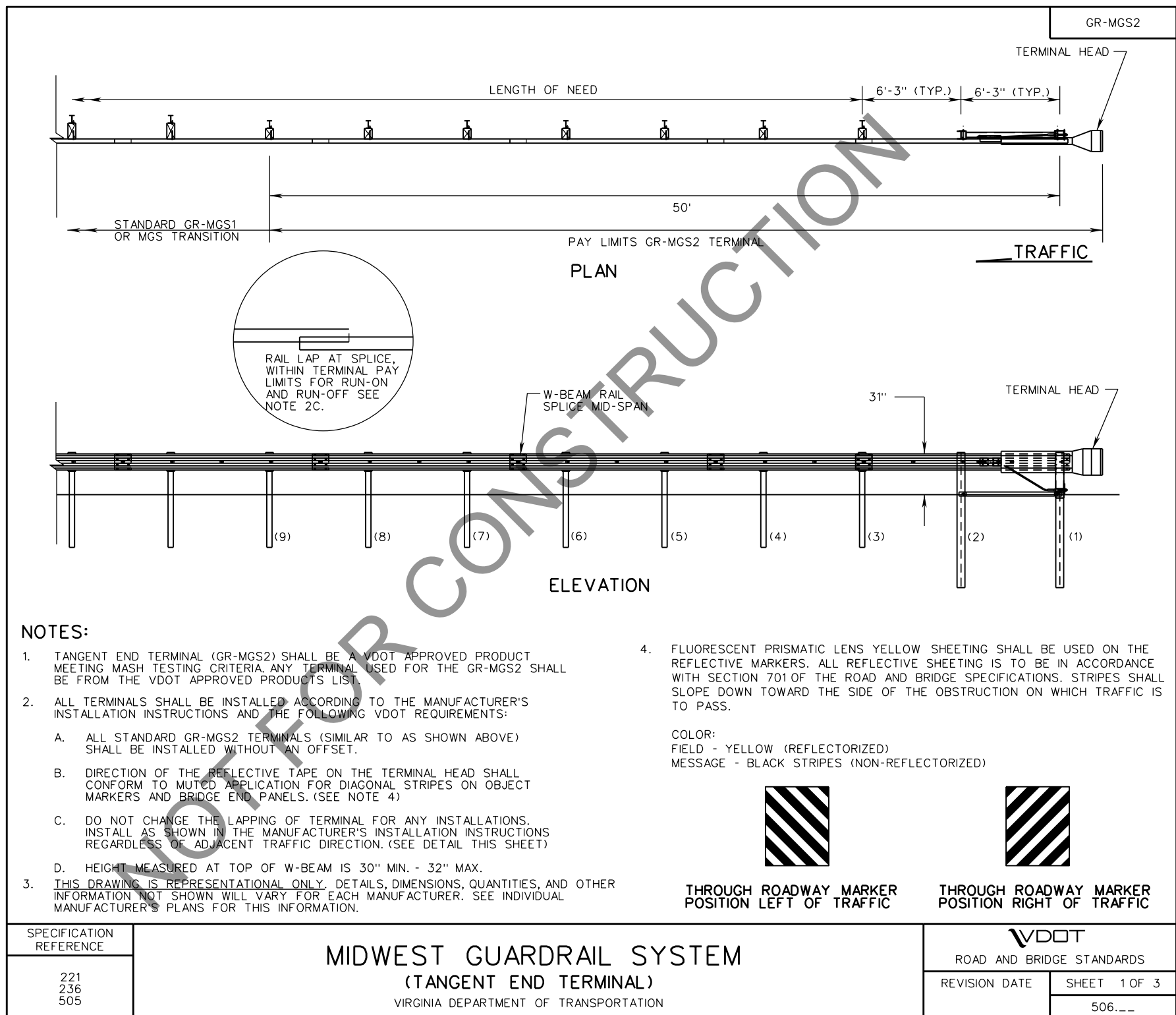
501.04

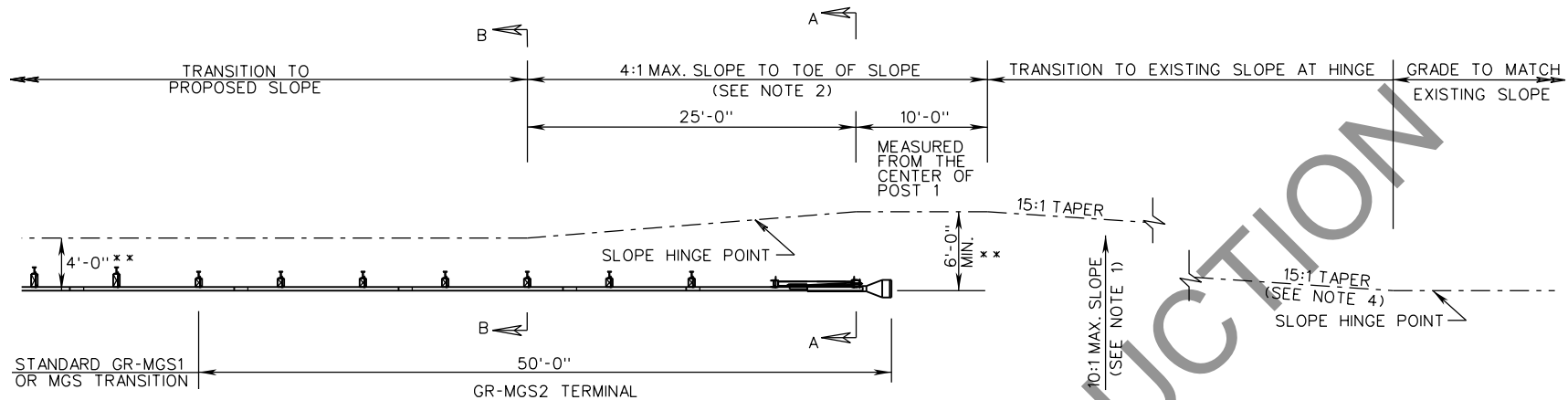
MIDWEST GUARDRAIL SYSTEM (STANDARD AND REDUCED POST SPACING)

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

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236
505



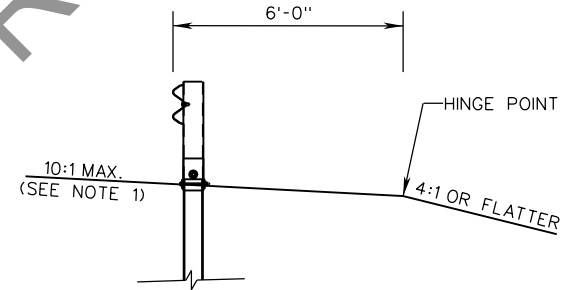


** MEASURED FROM THE FACE OF RAIL

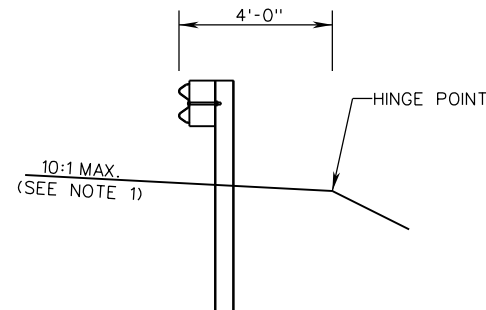
SITE PREPARATION REQUIREMENTS FOR GR-MGS2

NOTES:

1. THE CROSS SLOPE OF THE GRADE APPROACHING THE GUARDRAIL TERMINAL, AND ADJACENT TO FOR ITS FULL LENGTH, MUST BE A MAXIMUM OF 10:1. IF THE EXISTING GRADE IS FLAT OR IS A POSITIVE SLOPE DUE TO THE SUPERELEVATION OF THE ROADWAY PAVEMENT, THE MINIMUM OFFSET FROM THE FACE OF RAIL TO THE HINGE POINT, AS SHOWN, IS REQUIRED.
2. THE AREA IMMEDIATELY BEHIND AND BEYOND THE TERMINAL SHALL BE TRAVERSABLE AND FREE FROM FIXED OBJECTS. IF A CLEAR RUN OUT IS NOT ATTAINABLE THIS AREA SHALL AT LEAST BE SIMILAR IN CHARACTER TO THE UPSTREAM UNSHIELDED ROADSIDE AREAS.
3. FOR NEW CONSTRUCTION AND RECONSTRUCTION, THE 10:1 SLOPE GRADING SHALL EXTEND A MINIMUM OF 6'-0" MEASURED FROM THE FACE OF RAIL.
4. FOR PROPRIETARY GUARDRAIL TERMINALS, THE MANUFACTURER'S SITE PREPARATION REQUIREMENTS TAKE PRECEDENCE OVER THIS STANDARD IF ADDITIONAL GRADING IS REQUIRED.



SECTION A-A



SECTION B-B



ROAD AND BRIDGE STANDARDS

SHEET 2 OF 3

REVISION DATE

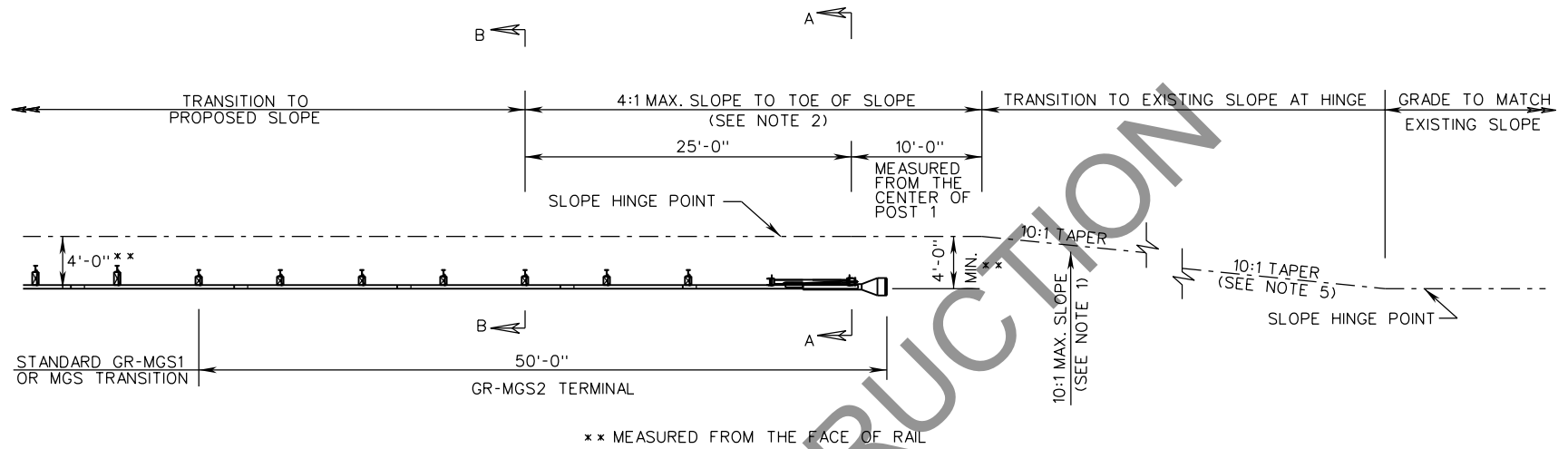
506.--

MIDWEST GUARDRAIL SYSTEM (TANGENT END TERMINAL)

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

221
236
505

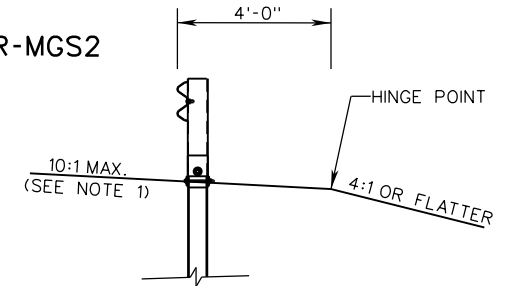


LIMITED USE SITE PREPARATION REQUIREMENTS FOR GR-MGS2

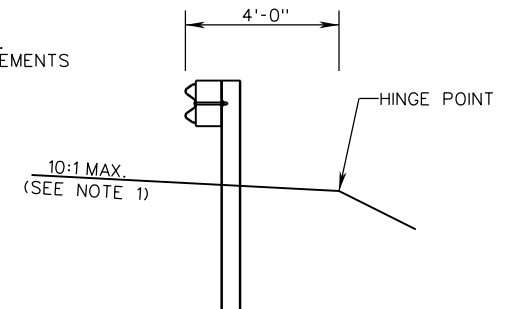
NOT FOR USE ON INTERSTATES, FREEWAYS, OR NEW CONSTRUCTION.

NOTES:

1. THE CROSS SLOPE OF THE GRADE APPROACHING THE GUARDRAIL TERMINAL, AND ADJACENT TO FOR ITS FULL LENGTH, MUST BE A MAXIMUM OF 10:1. IF THE EXISTING GRADE IS FLAT OR IS A POSITIVE SLOPE DUE TO THE SUPERELEVATION OF THE ROADWAY PAVEMENT, THE MINIMUM OFFSET FROM THE FACE OF RAIL TO THE HINGE POINT, AS SHOWN, IS REQUIRED.
2. THE AREA IMMEDIATELY BEHIND AND BEYOND THE TERMINAL SHOULD BE TRAVERSABLE AND FREE FROM FIXED OBJECTS. IF A CLEAR RUN OUT IS NOT ATTAINABLE THIS AREA SHOULD AT LEAST BE SIMILAR IN CHARACTER TO THE UPSTREAM UNSHIELDED ROADSIDE AREAS.
3. NOT FOR USE ON INTERSTATES, FREEWAYS, OR NEW CONSTRUCTION. MAY BE USED ON LOWER CLASSIFICATION ROADWAYS WHEN UPGRADING EXISTING TERMINALS WITH SITE LIMITATIONS (WHEN APPROVED BY THE ENGINEER). OR WHEN SPECIFIED IN THE PLANS FOR 3R WORK THAT CANNOT CONFORM TO THE SITE PREPARATION REQUIREMENTS ON PAGE 506.---
4. FOR LIMITED APPLICATIONS AS DESCRIBED IN NOTE 3, THE GRADING SHOULD BE AS CLOSE AS POSSIBLE TO THE SITE PREPARATION REQUIREMENTS ON PAGE 506.---. THE SLOPE SHALL EXTEND A MINIMUM OF 4'-0" FROM THE FACE OF RAIL AND GRADING SHALL CONFORM TO THE DETAILS ABOVE. USE 21B AGGREGATE, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER.



SECTION A-A



SECTION B-B

SPECIFICATION
REFERENCE

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236
505

MIDWEST GUARDRAIL SYSTEM (TANGENT END TERMINAL)

VIRGINIA DEPARTMENT OF TRANSPORTATION

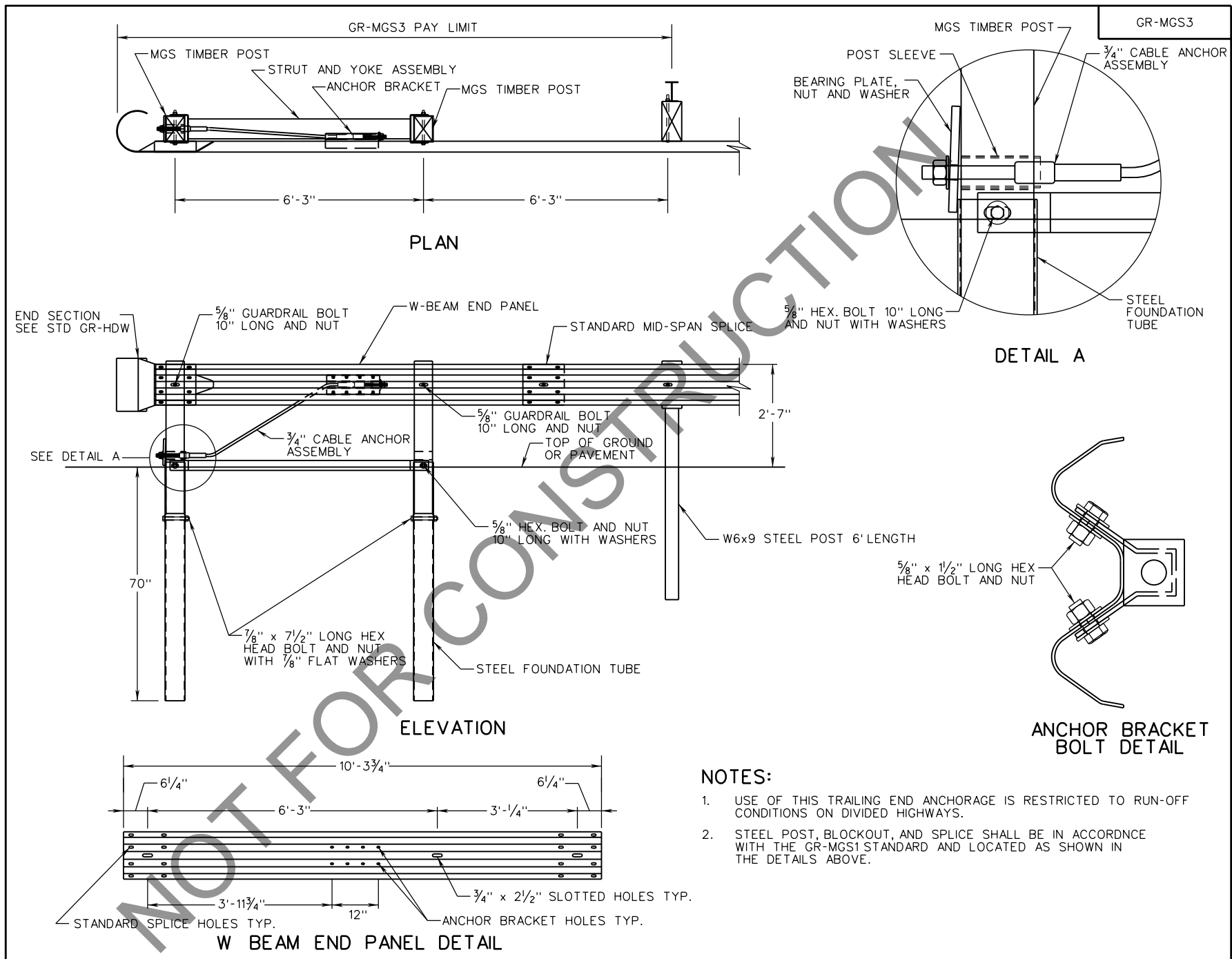
VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

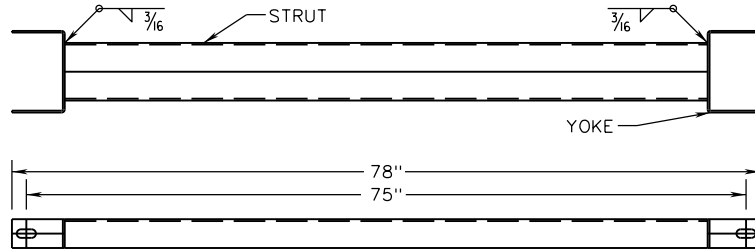
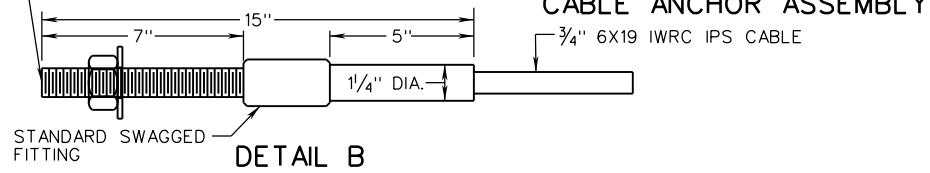
SHEET 3 OF 3

506.---

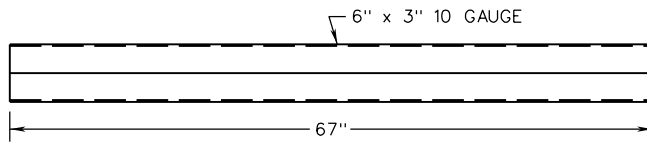


SPECIFICATION REFERENCE	MIDWEST GUARDRAIL SYSTEM (TRAILING END ANCHORAGE) VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS	
221 236 505		REVISION DATE	SHEET 1 OF 2
		506. --	

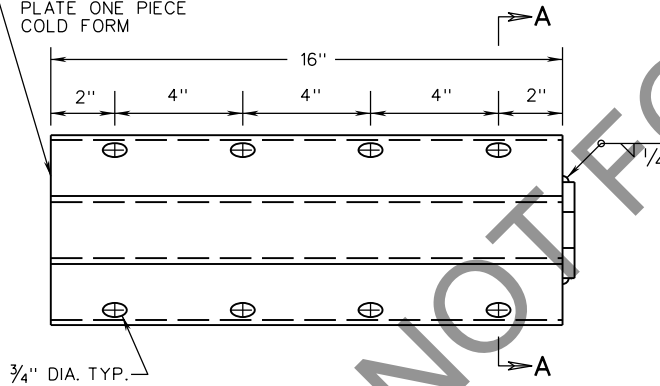
GR-MGS3

SEE DETAIL B
1" - 8UNC STUD THREADED
ENTIRE LENGTH

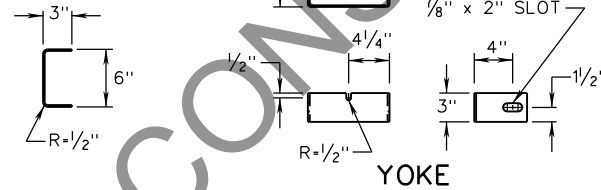
STRUT AND YOKE ASSEMBLY



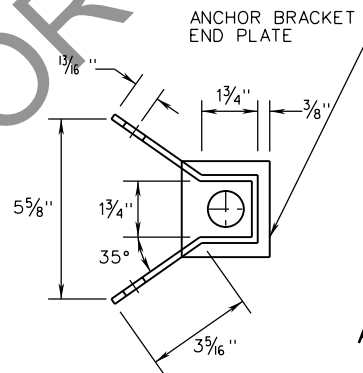
STRUT

3/16" STEEL ANCHOR
PLATE ONE PIECE
COLD FORM

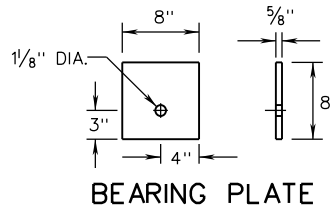
ANCHOR BRACKET DETAILS



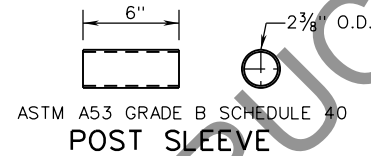
YOKE



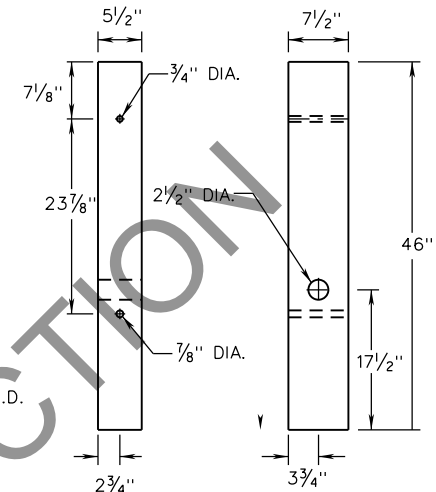
SECTION A-A



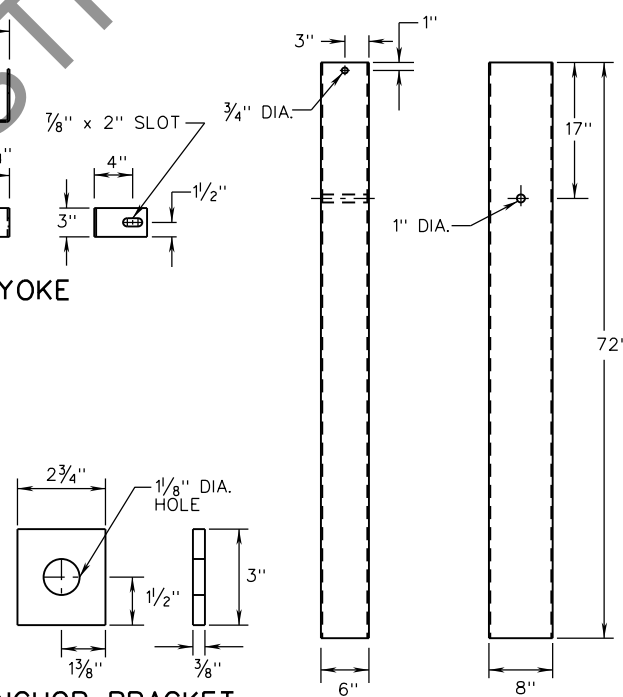
BEARING PLATE



POST SLEEVE

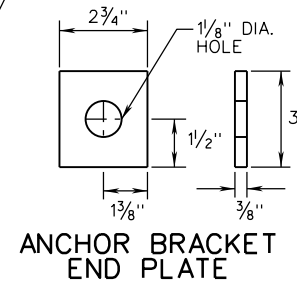


MGS TIMBER POST



STEEL FOUNDATION TUBE

3/16" WALL THICKNESS

ANCHOR BRACKET
END PLATE

VDOT

ROAD AND BRIDGE STANDARDS

SHEET 2 OF 2

REVISION DATE

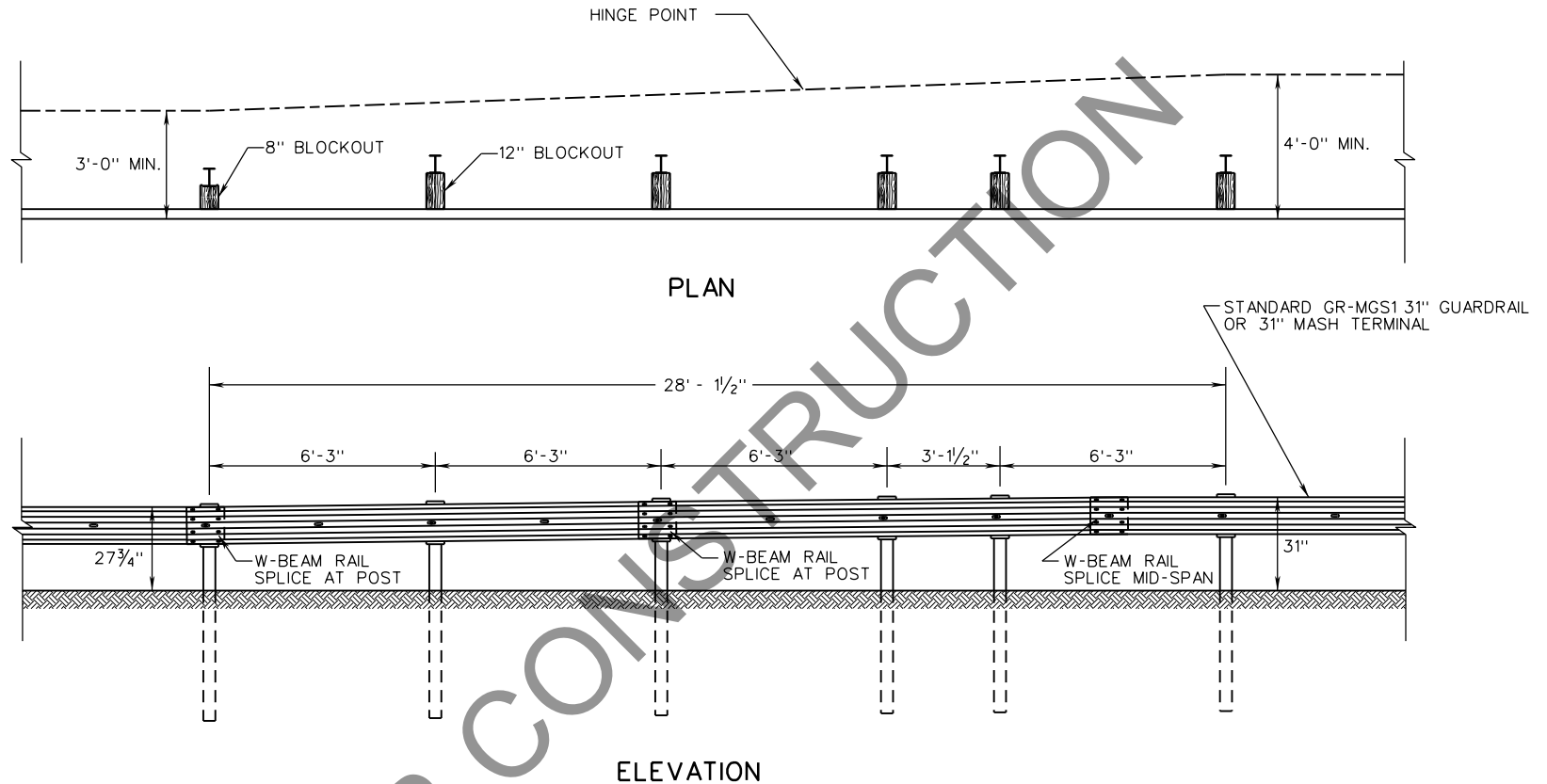
506.---

MIDWEST GUARDRAIL SYSTEM

(TRAILING END ANCHORAGE)

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE505
221

SPECIFICATION
REFERENCE221
236
505

MIDWEST GUARDRAIL SYSTEM
 (TRANSITION FROM MGS 31" HEIGHT TO GR-2 27 $\frac{3}{4}$ " HEIGHT)
 VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 1 OF 1

506.---