



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

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INSTRUCTIONAL BULLETIN NO. 14-24

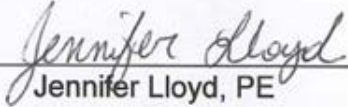
Regarding Revised Standard Drawings

Effective for the March 27, 2014 letting, the following Standard Drawings are revised and Section V of the Design Guidelines is revised for this update

PURPOSE: This Instructional Bulletin revises standard drawings S-GRT-2 and S-GRT-4.

DRAWING NUMBER	CURRENT REVISION DATE	DESCRIPTION
S-GRT-2	11-03-14	TYPE 38 GUARDRAIL TERMINAL
S-GRT-4	11-06-14	TYPE 13 GUARDRAIL TERMINAL (TRAILING END)

A copy of the revised standard drawings is attached.

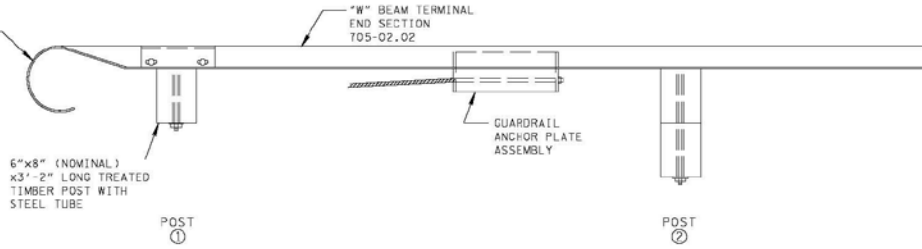

Jennifer Lloyd, PE
Civil Engineering Director
Roadway Design Division

JL:ARH:MWC
12/1/2014

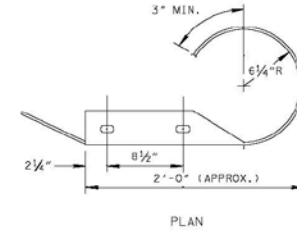
Attachments

DIRECTION OF TRAFFIC

ROUNDED "W" BEAM
END SECTION
SEE DETAIL



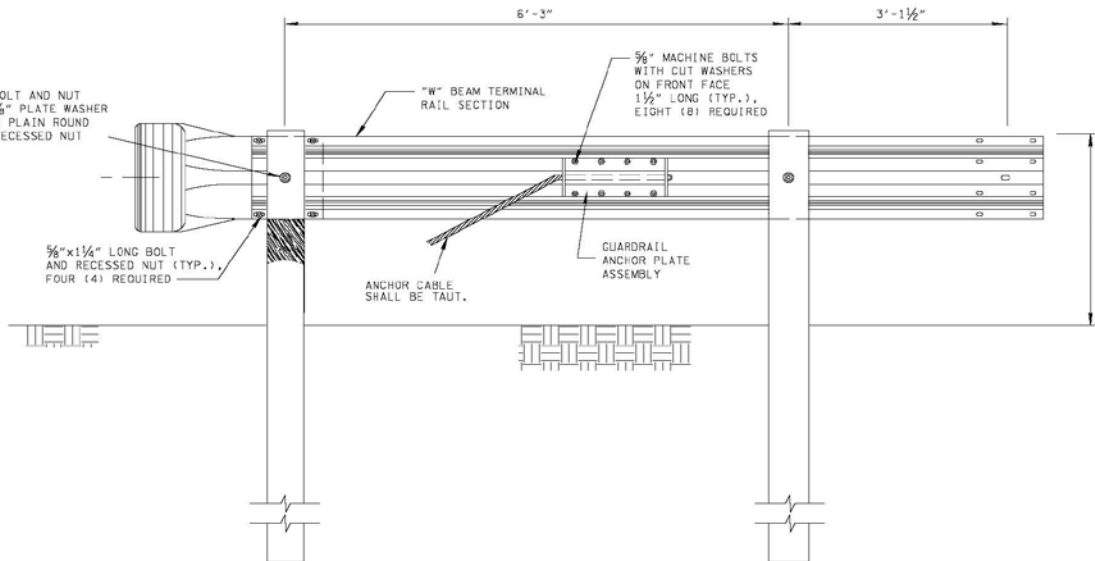
PLAN



PLAN

5/8"x10" LONG BOLT AND NUT
WITH 1 3/4"x3"x5/8" PLATE WASHER
UNDER HEAD AND PLAIN ROUND
WASHER UNDER RECESSED NUT

5/8"x1 1/4" LONG BOLT
AND RECESSED NUT (TYP.),
FOUR (4) REQUIRED



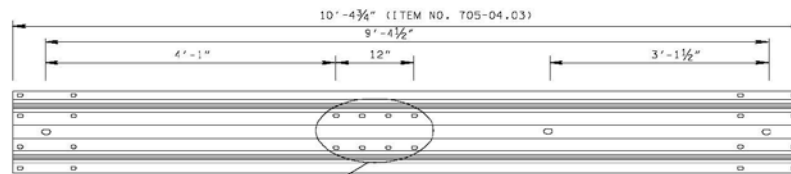
ELEVATION FROM BEHIND GUARDRAIL

SEE S-GRA-3 FOR ADDITIONAL DETAILS

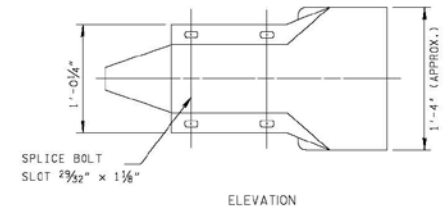
DO NOT USE WITHOUT ALSO REFERENCING S-GRA-3

GENERAL NOTES

- (A) THIS ANCHORAGE MAY ONLY BE USED ON THE TRAILING END OF A BARRIER WHICH IS NOT EXPOSED TO DIRECT VEHICULAR IMPACT OR OUTSIDE THE CLEAR ZONE (ONLY DIVIDED HIGHWAYS OR ROADS WITH ONE WAY TRAFFIC) USE S-PL-1 TO DETERMINE LENGTH OF NEED.
- (B) GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE 1 UNLESS OTHERWISE DESIGNATED.
- (C) ALL WOOD POSTS AND BLOCKOUTS SHALL BE TREATED TIMBER IN ACCORDANCE WITH TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
- (D) MUST BE INSTALLED WITH SOIL PLATE ANCHOR (S-GRA-3)
- (E) WHEN SOIL PLATE ANCHOR IS USED SEE NOTE (H) ON S-GRA-3.
- (F) PAY ITEM NO. 705-04.03 GUARDRAIL TERMINAL (TYPE13)



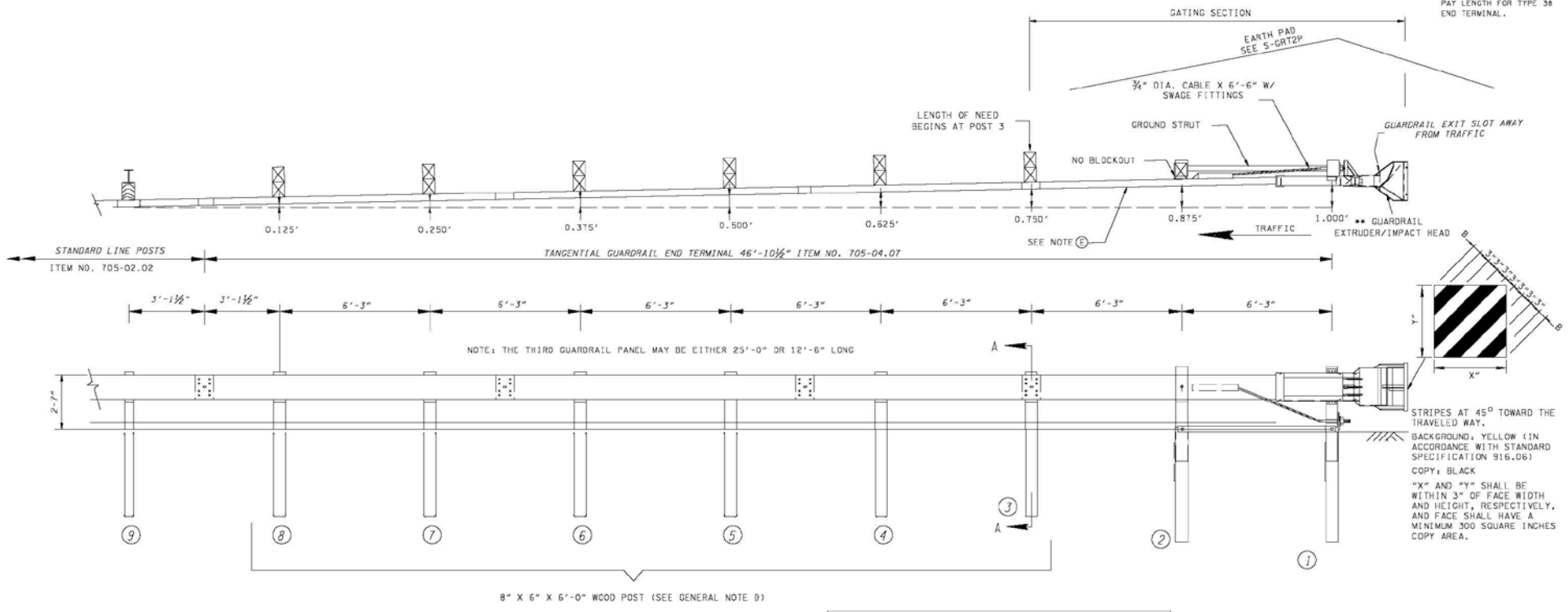
3 SPACES AT 4"
TERMINAL RAIL ELEMENT DETAILS



ELEVATION

ROUNDED END ELEMENT
(TO BE PERFORMED BY THE MANUFACTURER)

REV. 11-3-14; MODIFIED
PAY LENGTH FOR TYPE 38
END TERMINAL.

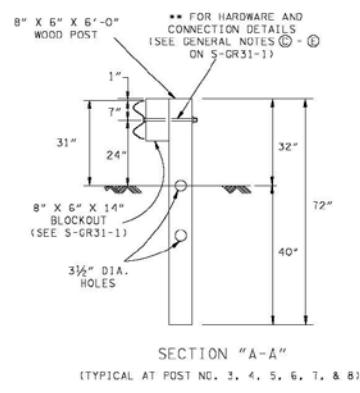


STRIPE AT 45° TOWARD THE TRAVELED WAY.
BACKGROUND: YELLOW (IN ACCORDANCE WITH STANDARD SPECIFICATION 916.06)
COPY: BLACK
"X" AND "Y" SHALL BE WITHIN 3" OF FACE WIDTH AND HEIGHT, RESPECTIVELY, AND FACE SHALL HAVE A MINIMUM 300 SQUARE INCHES COPY AREA.

NOTE TO DESIGNER
DO NOT USE WITHOUT REFERENCING S-GRT-2P

50:1 TAPER OVER 50' LENGTH OF SYSTEM

POST NO.	DECIMAL	
	X	Y
9	0.000	0.000
8	0.125	0.250
7	0.250	0.500
6	0.375	0.750
5	0.500	1.000
4	0.625	1.250
3	0.750	1.500
2	0.875	1.750
1	1.000	2.000



SPECIAL INSTALLATION NOTES

ANY NCHRP 350 OR WASH COMPLIANT TL-3 TANGENTIAL END TERMINAL ON THE TDOT QUALIFIED PRODUCTS LIST MAY BE INSTALLED. MANUFACTURER'S SHOP DRAWINGS SHALL BE REQUIRED BEFORE ANY TANGENTIAL END TERMINAL INSTALLATIONS CAN BEGIN. THE CONTRACTOR SHALL HAVE ONE COMPLETE SET OF SHOP DRAWINGS ON SITE DURING INSTALLATION OR REPAIR OF ANY TANGENTIAL GUARDRAIL TERMINAL ANCHOR. THE CONTRACTOR SHALL ALSO PROVIDE THE CONSTRUCTION OR MAINTENANCE SUPERVISOR WITH ONE COMPLETE SET OF SHOP DRAWINGS INCLUDING TDOT DPL EVALUATION NUMBER.

FOR THE TYPE 38 GUARDRAIL TERMINAL TO FUNCTION AS IT WAS CRASH TESTED UNDER NCHRP-350 TEST LEVEL 3 THE EARTH PAD MUST BE CONSTRUCTED PER STANDARD DRAWING NO. S-GRT-3P OR S-GRT-3R.

DIFFERENT TANGENTIAL TERMINAL SYSTEMS OR PARTS SHALL NOT BE COMBINED ON A RUN OF GUARDRAIL.

POST MATERIAL SIZE, GUARDRAIL SPLICING LOCATION, TAPER RATE, OFFSET GUARDRAIL HEIGHT, EXTRUDER HEAD DIMENSION, AND ALL OTHER MISCELLANEOUS HARDWARE MAY BE DIFFERENT. INSTALLATION SHALL FOLLOW THE MANUFACTURER'S SHOP DRAWINGS.

GENERAL NOTES

(A) SYSTEM IS APPROVED FOR USE ON NATIONAL HIGHWAY SYSTEM ROADS.

(B) FOR ADDITIONAL DETAILS OF TERMINAL SYSTEM, REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

(C) THE TANGENTIAL ENERGY ABSORBING TERMINAL (INCLUDING ANCHOR) IS TO BE INSTALLED UNDER THE PRICE BID FOR ITEM NO. 705-04.07 PER EACH.

(D) METAL POSTS ARE AN ACCEPTABLE ALTERNATE TO WOOD POSTS WHEN THE SYSTEM IS ON APPROVED PRODUCTS LIST, NCHRP 350 COMPLIANT AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SHOP DRAWINGS.

(E) TERMINAL SYSTEM MUST BE CONSTRUCTED SO THAT THE FULL LENGTH OF THE TERMINAL SYSTEM GUARD RAILING IS IN STRAIGHT ALIGNMENT. THE GUARD RAIL EXTRUDER/IMPACT HEAD SHALL NOT ENCRDACH UPON THE ADJACENT PAVED SHOULDER OR LANE.

(F) FIRST 12'-6" FROM END IS GATING, DO NOT USE THIS SECTION IN LENGTH OF NEED.

(G) IF LENGTH OF NEED FOR GUARDRAIL NEEDS TO BE EXTENDED BEYOND THE THIRD POST EXTEND RUN OF GUARDRAIL.

(H) ALL HOLES IN WOOD POSTS ARE TO BE DRILLED BEFORE PRESERVATIVE TREATMENT.

(I) ALL CUTTING, DRILLING, AND WELDING OF STEEL COMPONENTS SHALL BE DONE BEFORE GALVANIZING.

(J) THE FINISHED CABLE ASSEMBLY WILL NOT BE ACCEPTABLE UNLESS IT IS IN TENSION WITH NO SAG.