

WHITMAN COUNTY PUBLIC WORKS SMALL WORKS WORKSHEET

PROJECT NAME: **Guardrail, Non-Flared Terminals, Transitions and Posts.**

Whelan Road #5515 Bridge @ m.p. 3.33

DESCRIPTION: Furnish all guardrail components for newly constructed bridge @ m.p. 3.33. Install transitions, approach rails, terminals, and posts. Whitman County crews will begin construction of bridge @ 3.33 in early August and complete in late August or early September. Whitman County will install posts and Thrie Beam on bridge (Whitman County would like to pick up the Thrie Beam and posts when available). See Complete Detail Attachments.

All materials, equipment, labor and tax costs should be included in the quote. All contractors shall be bonded and must pay State Prevailing Wage Rate for labor except for fabrication. A contract bond will be required. (Please initial your acknowledgement of these requirements: (_____)).

All work must be completed by: **October 15th, 2018**

QUOTES MUST BE RETURNED BY: **August 15th, 2018 at 5:00 p.m.**

Contact: **Brandon Kruger – Ext. 5203**
Brandon.Kruger@co.whitman.wa.us

Whitman County Public Works: (509) 397-4622 FAX (509) 397-6210.

(Anticipated award date: August 20th, 2018.)

BASIS OF AWARD: \$ _____

Tax \$ _____

Total: \$ _____

Company Name: _____

Signature: _____

Printed Name: _____

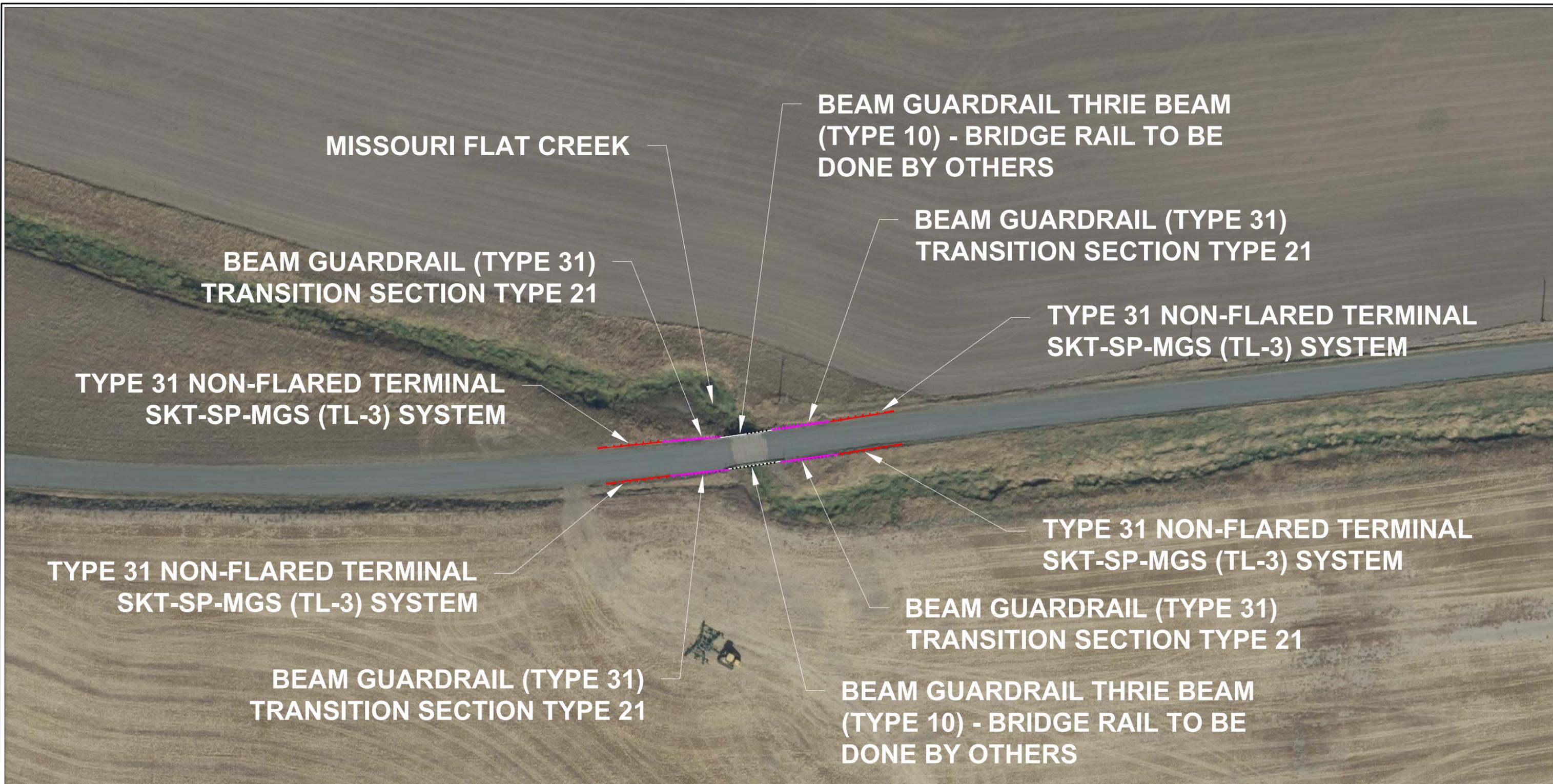
Mailing Address: _____

Phone: _____ FAX: _____

Email: _____

Whelan Bridge Quantity Estimates

Bid Item	Unit	Quantity	Notes
Furnish Thrie Beam Guardrail Element Standard Plan C-1a	L.F.	87.5	6 Typical Rail Elements & 2 Half Sections
Furnish W6x20x33" Galvanized Guardrail Post with Base Plate, Including Hardware	Each	14	Must include all hardware for attachment to the structure and attaching Thrie Beam Guardrail Elements
Furnish & Install Beam Guardrail Transition Section Type 21 Standard Plans C-25.20-06	Each	4	
Furnish & Install SKT-SP-MGS (TL-3) Beam Guardrail Non-Flared Terminals Standard Plan C-22.40-05	Each	4	



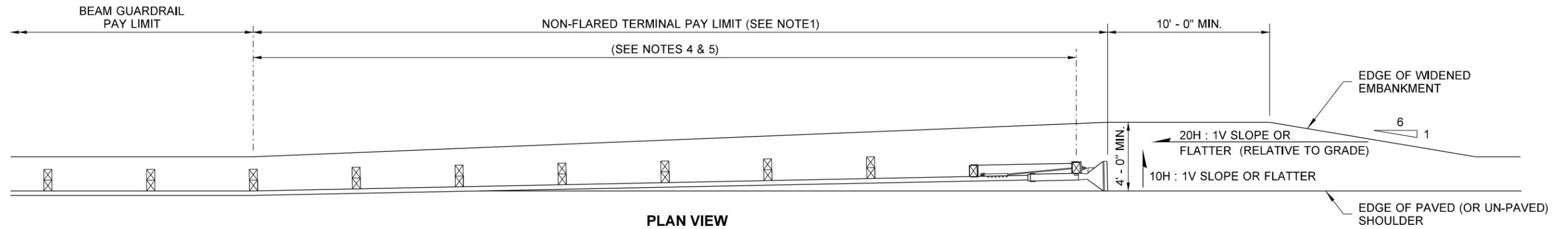
DESCRIPTION OF WORK

THIS LOCATION CONSISTS OF FOUR SEPARATE RUNS ATTACHED TO THE CORNERS OF WHELAN BRIDGE NO. 5515-03.33

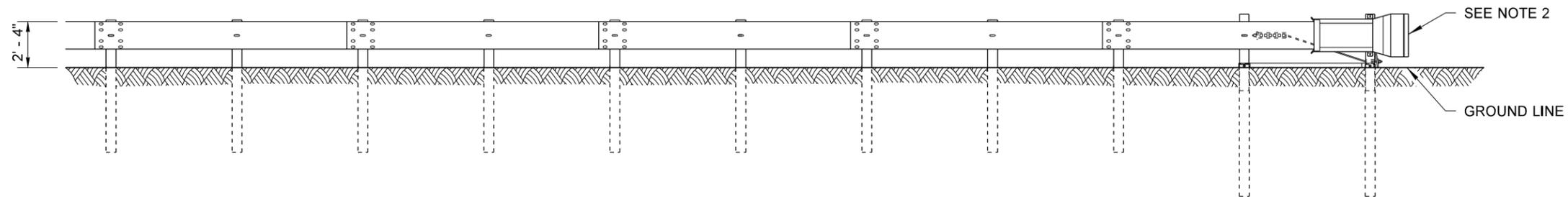
ALL FOUR CORNERS WILL BE CONNECTED TO BEAM GUARDRAIL THRIE BEAM TYPE 10 TO A BEAM GUARDRAIL TYPE 31 TRANSITION SECTION TYPE 21 AND CORNERS WILL TERMINATE WITH A TYPE 31 SKT-SP-MGS NON-FLARED TERMINAL.

NOTES

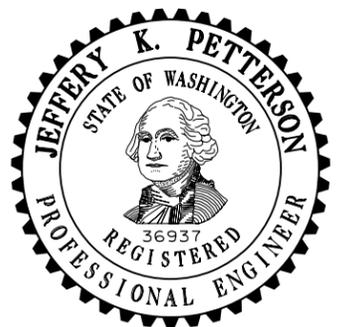
1. An SKT-350 as manufactured by Road Systems, Inc. shall be installed according to manufacturer's recommendations. When a TL2 terminal is specified in the Contract an SKT-TL2 as manufactured by Road Systems, Inc. shall be installed according to the manufacturer's recommendations.
2. A reflectorized object marker shall be installed according to manufacturer's recommendations.
3. When snow load post washers and snow load rail washers are required by the Contract, the snow load rail washers must not be installed within the terminal limits.
4. Terminal shall be installed at a taper, ensuring that end piece is entirely off the shoulder.
5. Length for SKT-350 is 50' (ft). Length for SKT-TL2 is 25' (ft).



PLAN VIEW



ELEVATION VIEW

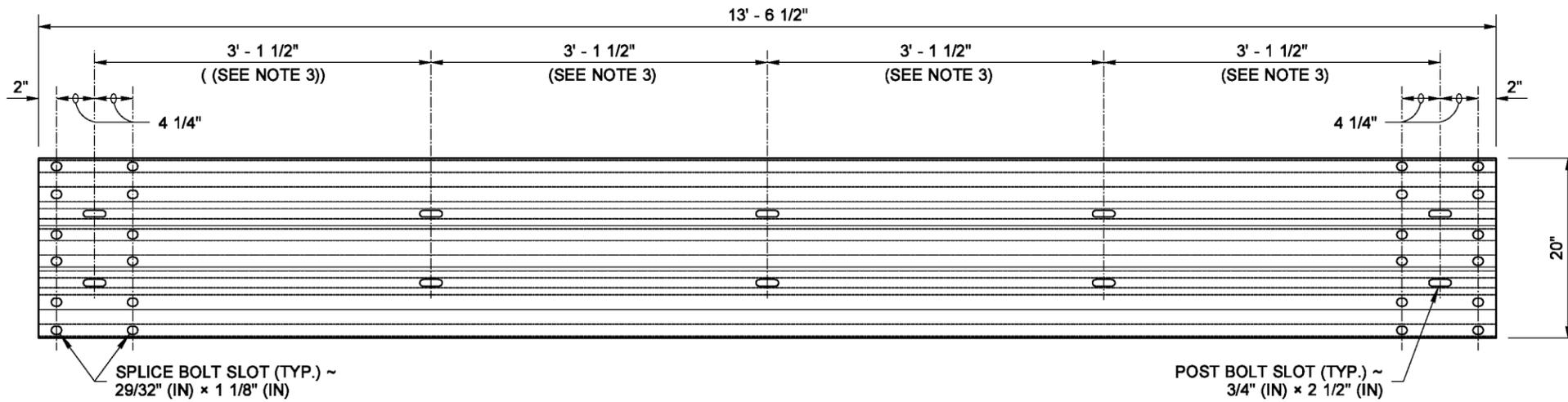


**BEAM GUARDRAIL
NON-FLARED TERMINAL
STANDARD PLAN C-4e**

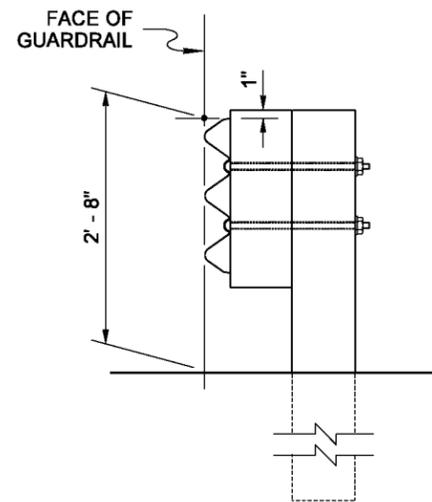
SHEET 1 OF 1 SHEET

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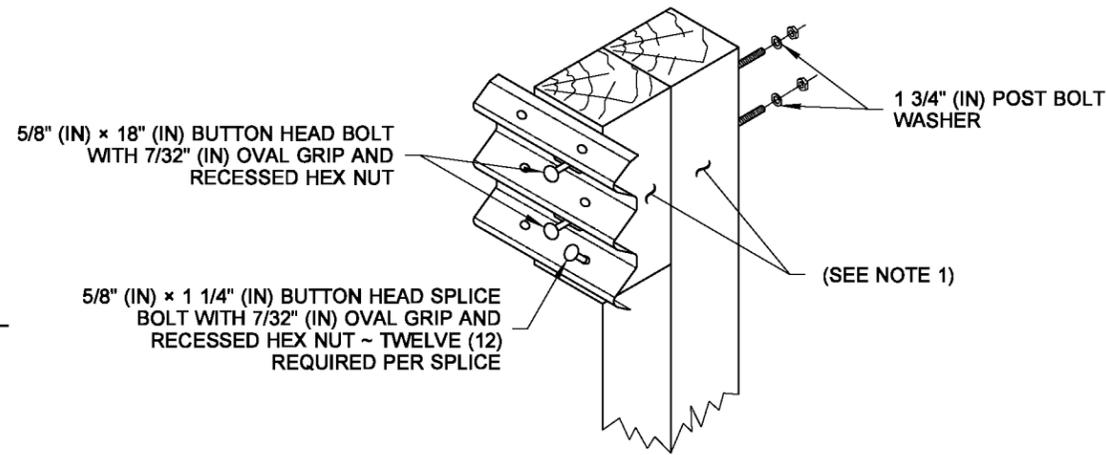
DRAWN BY: FERN LIDDELL



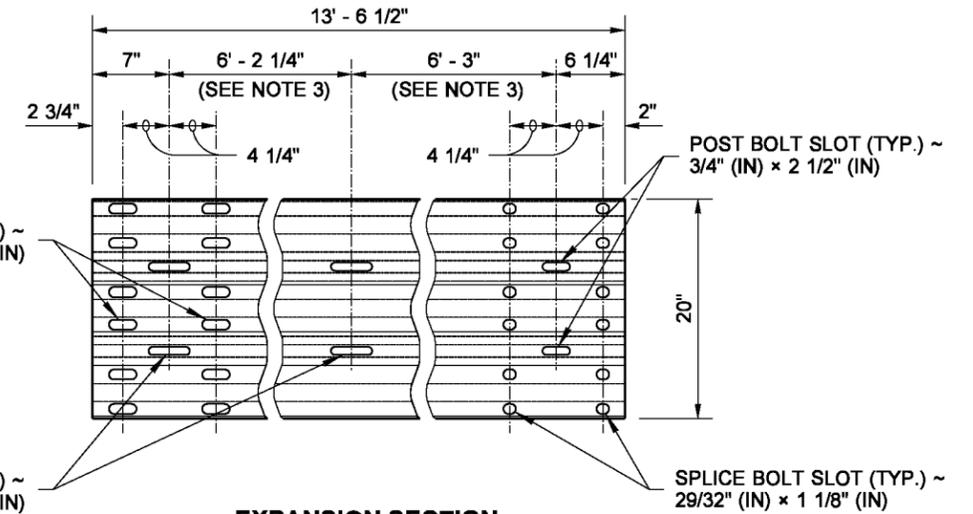
TYPICAL RAIL ELEMENT



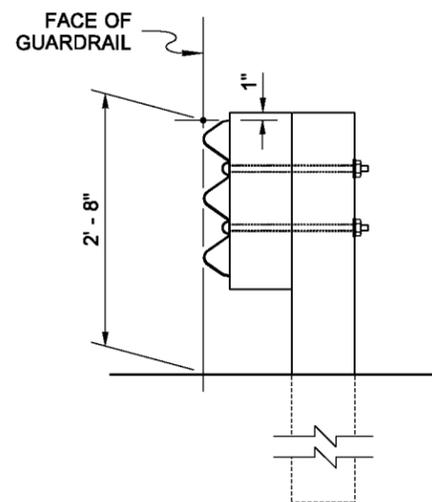
RAIL ASSEMBLY



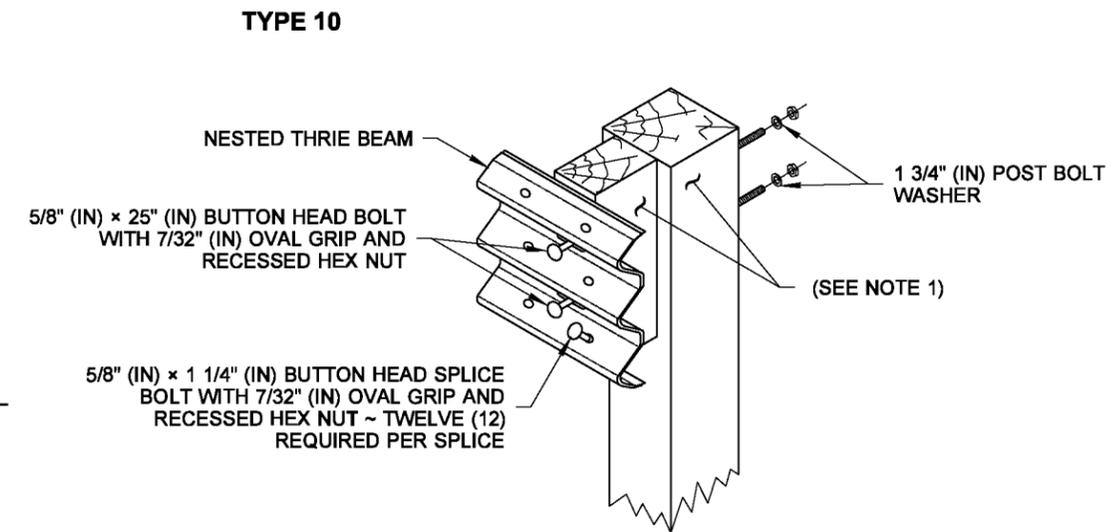
WOOD POST ASSEMBLY



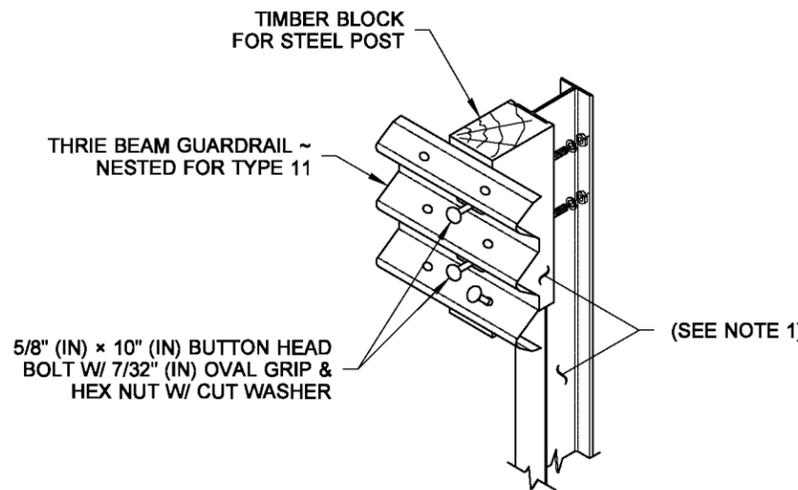
EXPANSION SECTION



RAIL ASSEMBLY



WOOD POST ASSEMBLY



STEEL POST ASSEMBLY

TYPE 11

TYPES 10 AND 11

NOTES

1. Type 10 post shall be 6 x 8 timber, OR either W6 x 9, or W6 x 8.5 steel. Type 11 post shall be 10 x 10 timber or W6 x 15. For additional details see **Standard Plan C-1b**.
2. Type 10 guardrail post spacing shall be 6' - 3" on center. Type 11 shall be a maximum of 3' - 1 1/2" on center.
3. Spacing may vary depending on application. See **Standard Specification Section 9-16.3(1)** for rail element requirements.

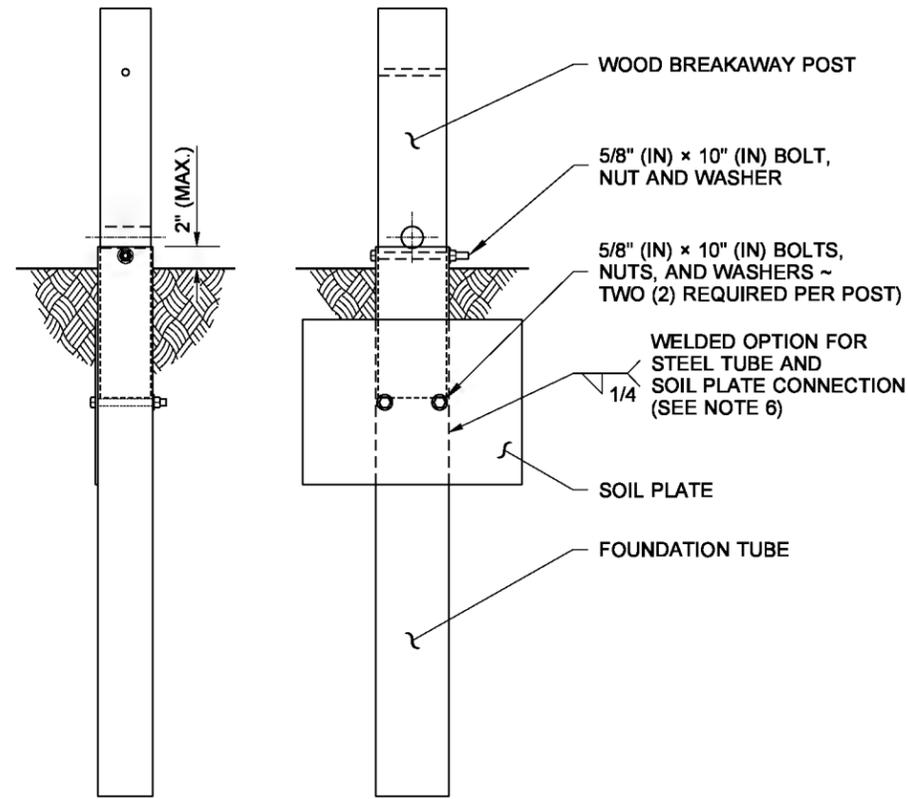


**BEAM GUARDRAIL
(THRIE BEAM)
STANDARD PLAN C-1a**

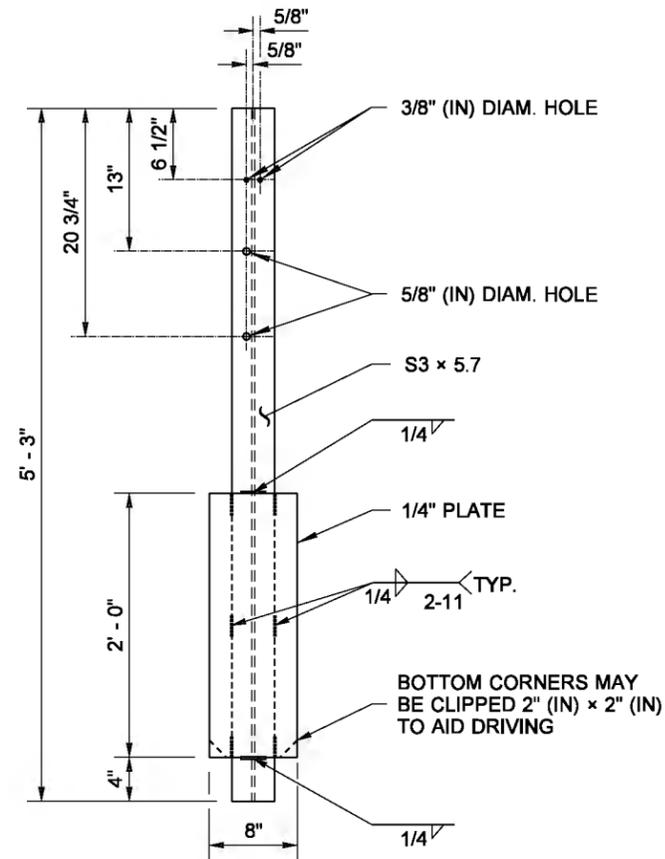
SHEET 1 OF 1 SHEET

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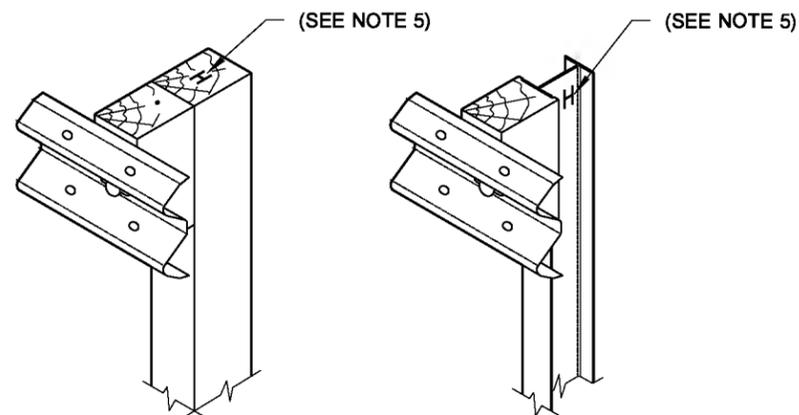
STATE DESIGN ENGINEER
Washington State Department of Transportation



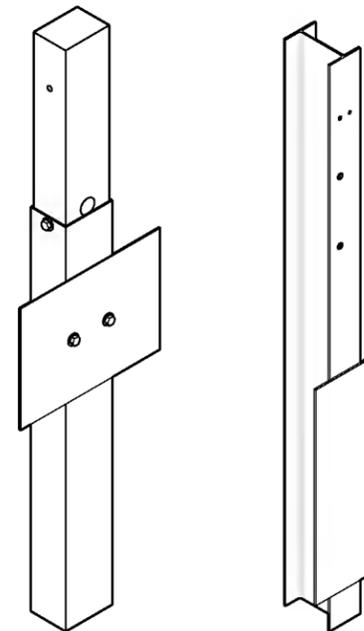
FRONT VIEW
SIDE VIEW
ANCHOR POST ASSEMBLY



G-2 POST



TIMBER POST
STEEL POST
PARTIAL ASSEMBLY DETAIL



ANCHOR POST
G-2 POST
ISOMETRIC

NOTES

1. Wood posts for all guardrail placement plans shall be 6 x 8 except where noted otherwise.
2. Lower hole is for Rub Rail of Type 2 and Type 3 Beam Guardrail.
3. W6x8.5 or W6x9 steel posts and timber blocks are alternates for 6x8 timber posts and blocks. W6x15 steel posts and timber blocks are alternates for 10x10 timber posts and blocks.
4. Holes shall be located on approaching traffic side of web.
5. When "Beam Guardrail Type - __ Ft. Long Post" is specified in the Contract, the post length shall be stamped with numbers, 1 1/2 (in) min. high and 3/4 (in) wide at the location where the letter "H" is shown in the ASSEMBLY DETAIL. For wood post applications, the letter shall be stamped to a minimum depth of 1/4 (in). For steel post applications, the letter shall be legible after the post is galvanized. After post installation, it shall be the Contractor's responsibility to ensure the stamped numbers remain visible.
6. Soil plate may be welded to foundation tube. If so, holes in soil plate and foundation tube may be omitted.

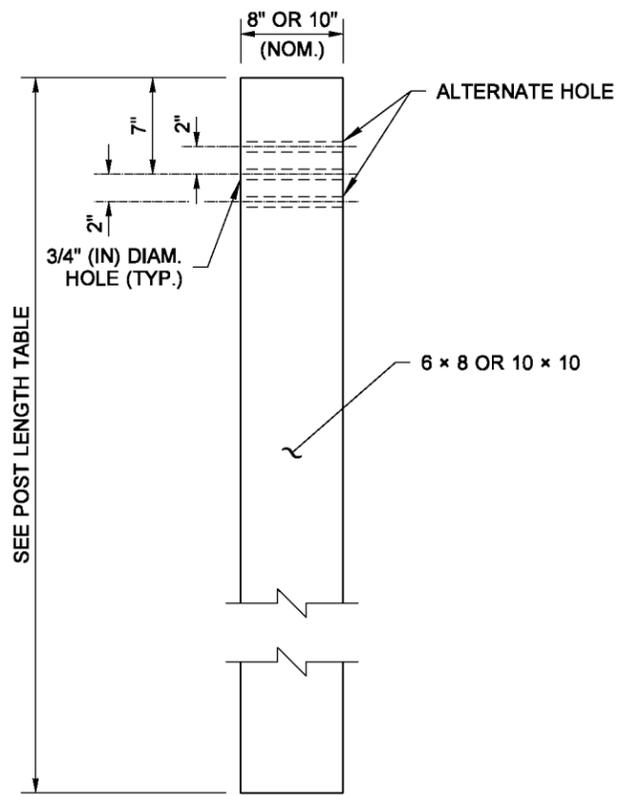


**BEAM GUARDRAIL
POSTS AND BLOCKS
STANDARD PLAN C-1b**

SHEET 1 OF 2 SHEETS

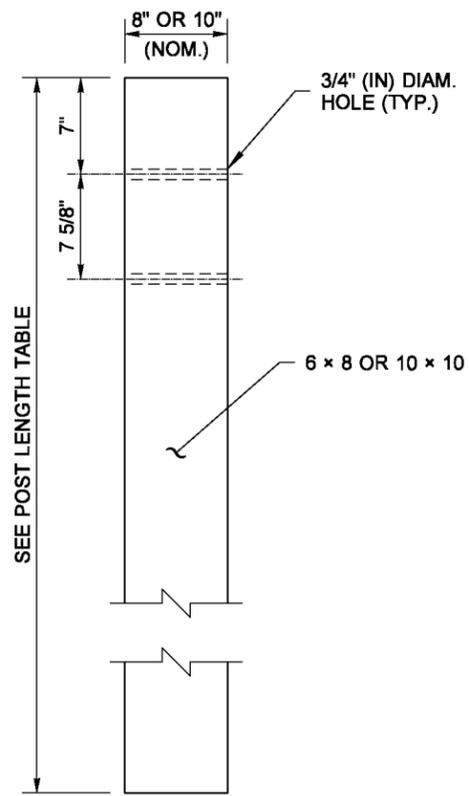
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DRAWN BY: FERN LIDDELL

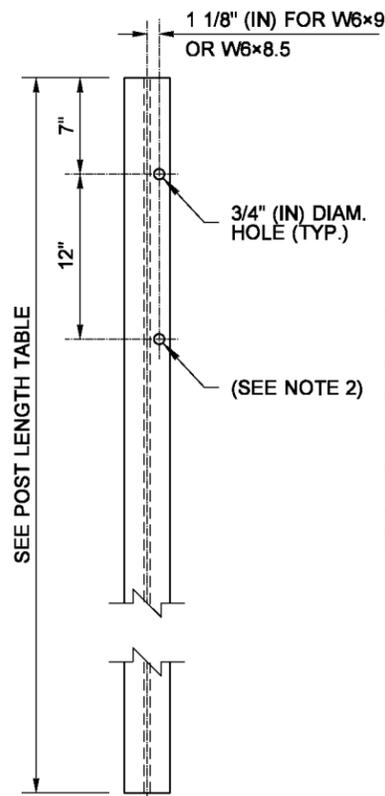


W-BEAM

WOOD POST

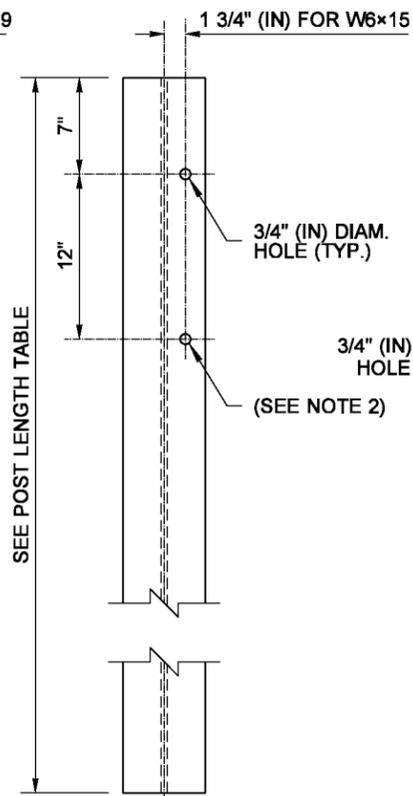


THRIE BEAM

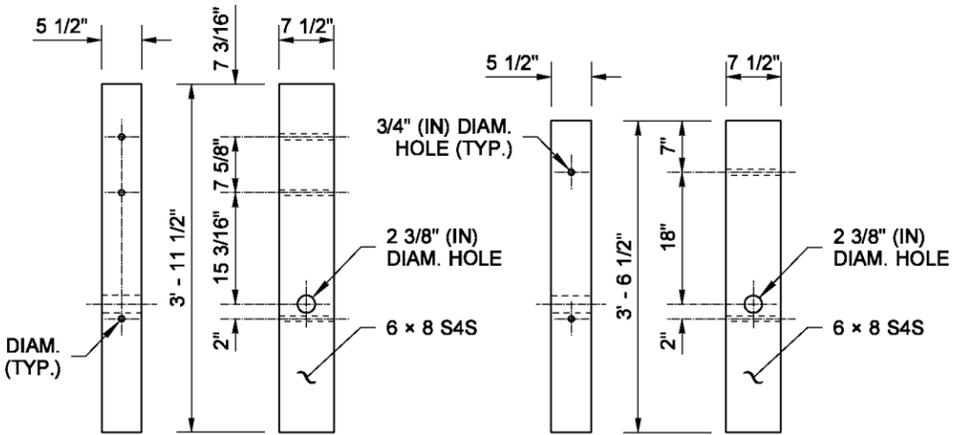


W-BEAM

STEEL POST
(SEE NOTES 3 AND 4)

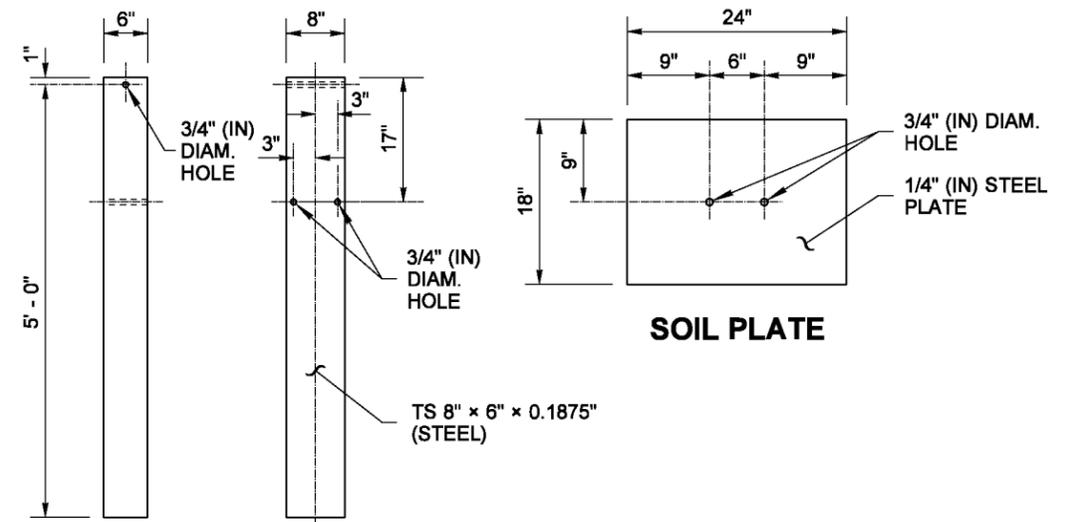


THRIE BEAM



**THRIE BEAM
WOOD BREAKAWAY POST**

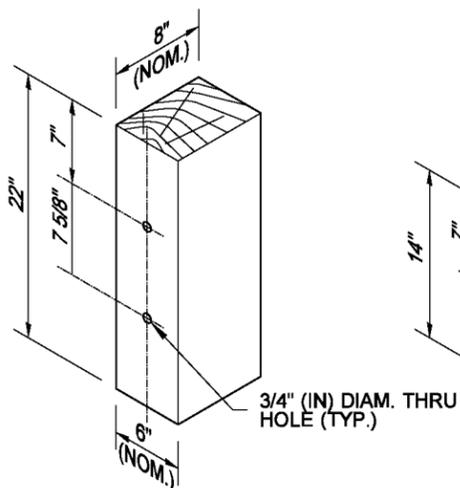
W-BEAM



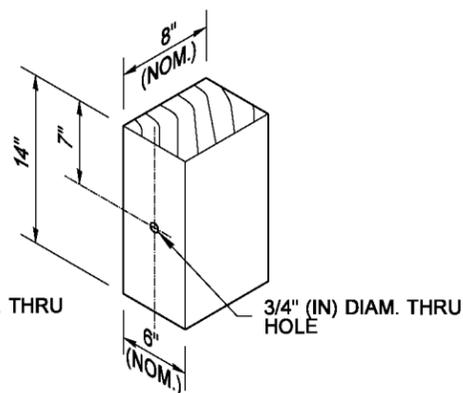
FOUNDATION TUBE

SOIL PLATE

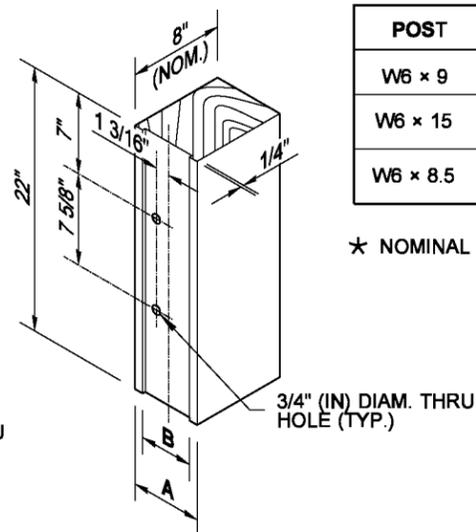
POST LENGTH TABLE	
GUARDRAIL TYPE	LENGTH
1 through 4 & 31	6' - 0"
10 or 11	6' - 6"



**THRIE BEAM WOOD BLOCK
FOR WOOD POST**



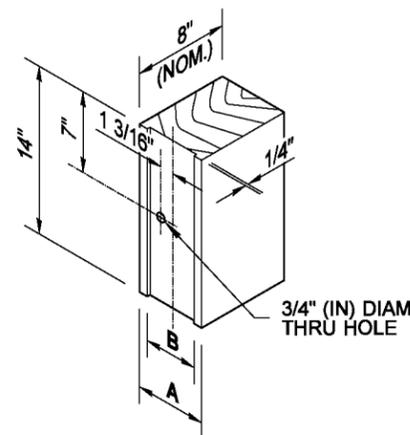
**W-BEAM WOOD BLOCK
FOR WOOD POST**



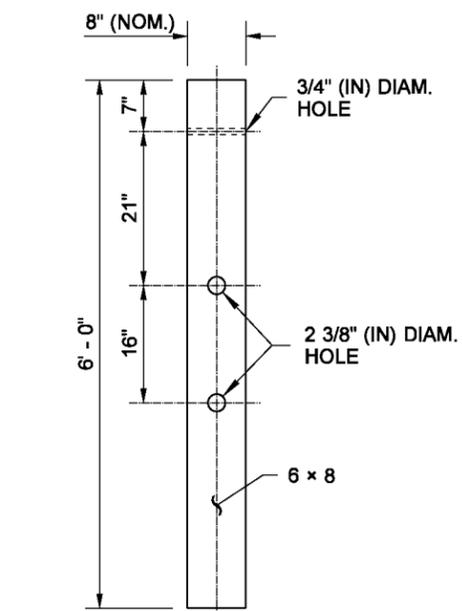
**THRIE BEAM WOOD BLOCK
FOR STEEL POST**

POST	A	B
W6 x 9	6"*	4 1/4"
W6 x 15	8"*	6 1/4"
W6 x 8.5	8"*	6 1/4"

* NOMINAL (NOM.)



**W-BEAM WOOD BLOCK
FOR STEEL POST**



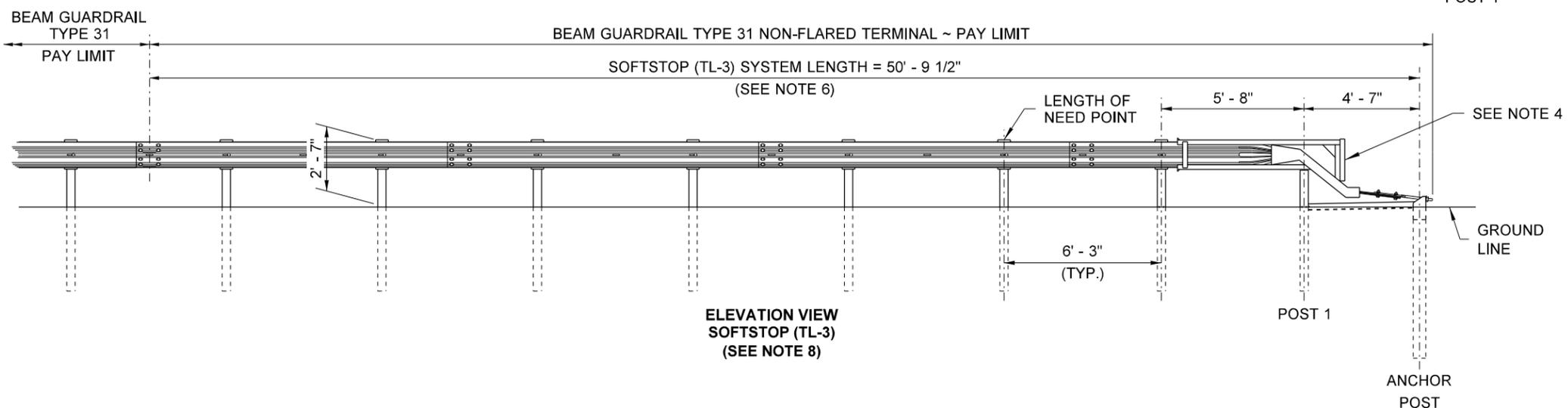
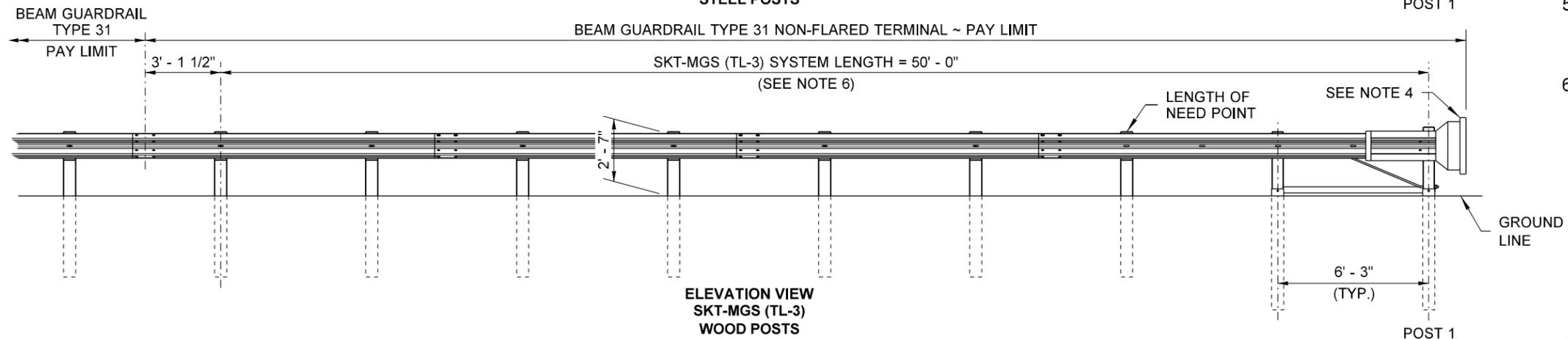
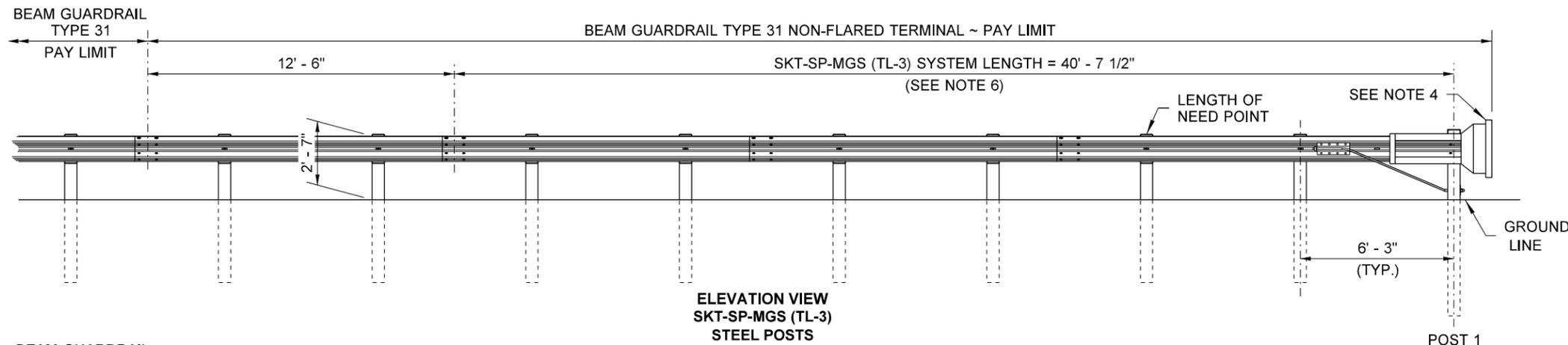
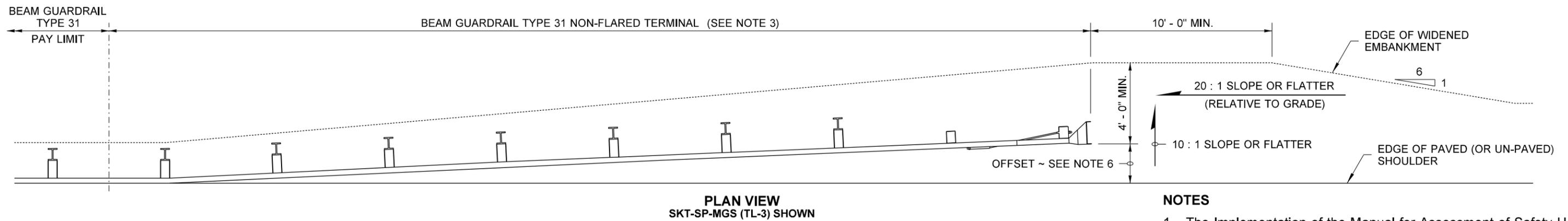
**CONTROLLED RELEASING
TERMINAL (CRT) POST**



**BEAM GUARDRAIL
POSTS AND BLOCKS
STANDARD PLAN C-1b**

SHEET 2 OF 2 SHEETS

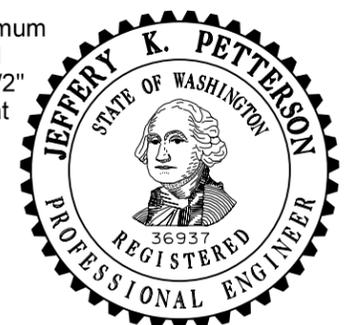
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NOTES

1. The Implementation of the Manual for Assessment of Safety Hardware (MASH) criteria may result in the acceptance of guardrail terminal systems currently not shown on this plan, or the elimination of guardrail terminals that are on this plan. Non-Flared terminals shall be selected from the WSDOT Qualified Products List (QPL) or approved through the WSDOT Request for Approval of Materials (RAM) process.
2. This terminal is FHWA eligible at Test Level Three (TL-3) and may be used for all posted speeds.
3. An SKT-MGS (TL-3) or an SKT-SP-MGS (TL-3) as manufactured by Road Systems, Inc. or SOFTSTOP (TL-3) as manufactured by Trinity Highway Products, LLC shall be installed according to manufacturer's recommendations.
4. A reflectorized object marker shall be installed according to manufacturer's recommendations.
5. When snow load post washers and snow load rail washers are required by the Contract, the snow load rail washers shall not be installed within the terminal limits.
6. Terminal shall be installed at a widening, ensuring the end piece is entirely off the shoulder. While this terminal does not require an offset at the end, a flare is recommended. For the SKT-MGS (TL-3) and the SKT-SP-MGS (TL-3), a maximum flare of 25 :1 or flatter over the length of the terminal is allowed with a maximum offset of 24" (in) over 50' (ft).

For the SOFTSTOP (TL-3) a maximum flare of 25.4 : 1 or flatter is allowed over the system length of 50' - 9 1/2" with a maximum offset of 24" (in) at the anchor post.



7. For terminal details, see WSDOT approved manufacturer's drawings.

8. The SOFTSTOP terminal is supplied with steel posts only. It can be used with guardrail runs composed of steel or wood guardrail posts.

**BEAM GUARDRAIL TYPE 31
NON-FLARED TERMINAL
(ALL POSTED SPEEDS)
STANDARD PLAN C-22.40-05**

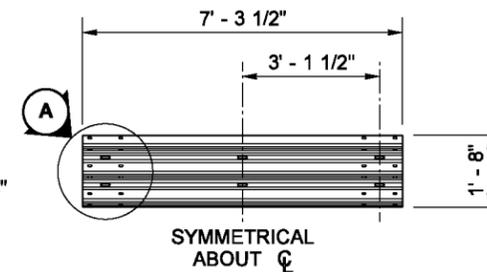
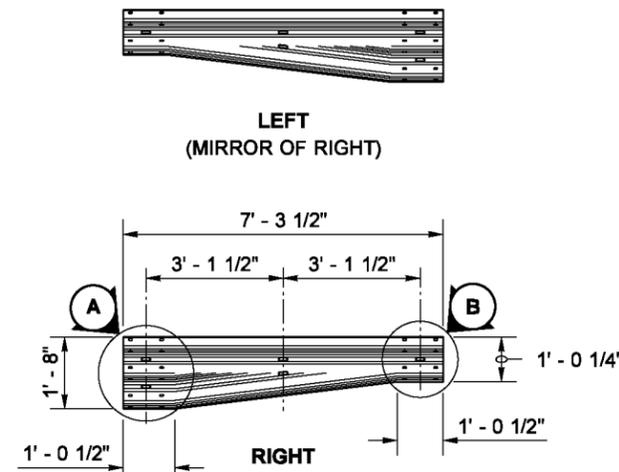
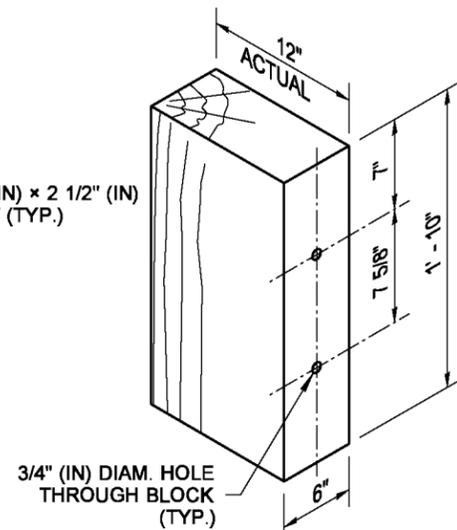
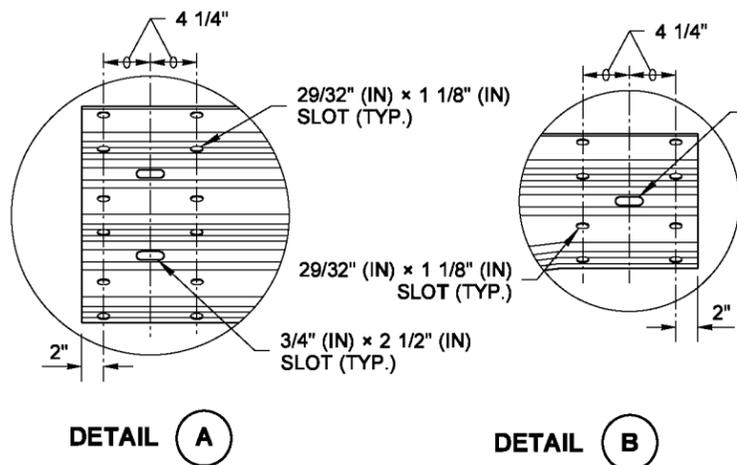
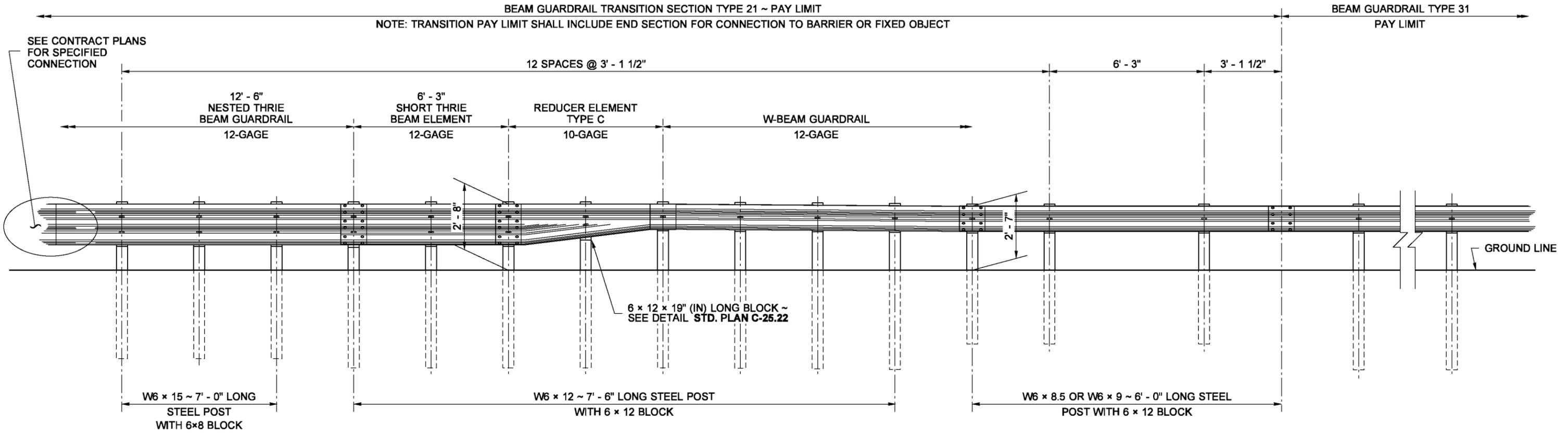
SHEET 1 OF 1 SHEET

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NOTES

1. This guardrail transition is for connection to a vertical concrete shape, a single slope, or a safety-shape barrier. The toe of the single slope and the safety-shape barrier shall be tapered or the barrier blocked out so that the toe of the barrier does not project past the face of the approach guardrail.
2. See **Standard Plan C-24.10** for details regarding connection to bridge rail or traffic barrier.
3. For details of typical components, see **Standard Plans C-1b** and **C-20.10**.



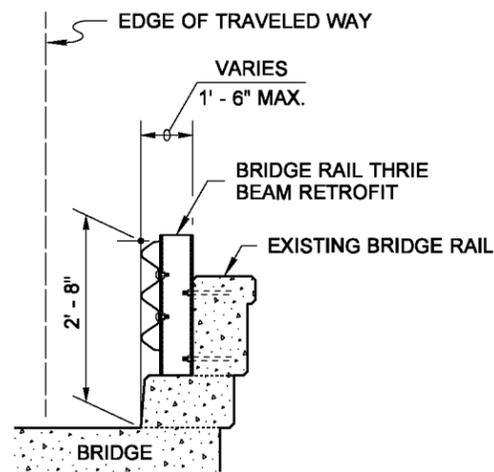
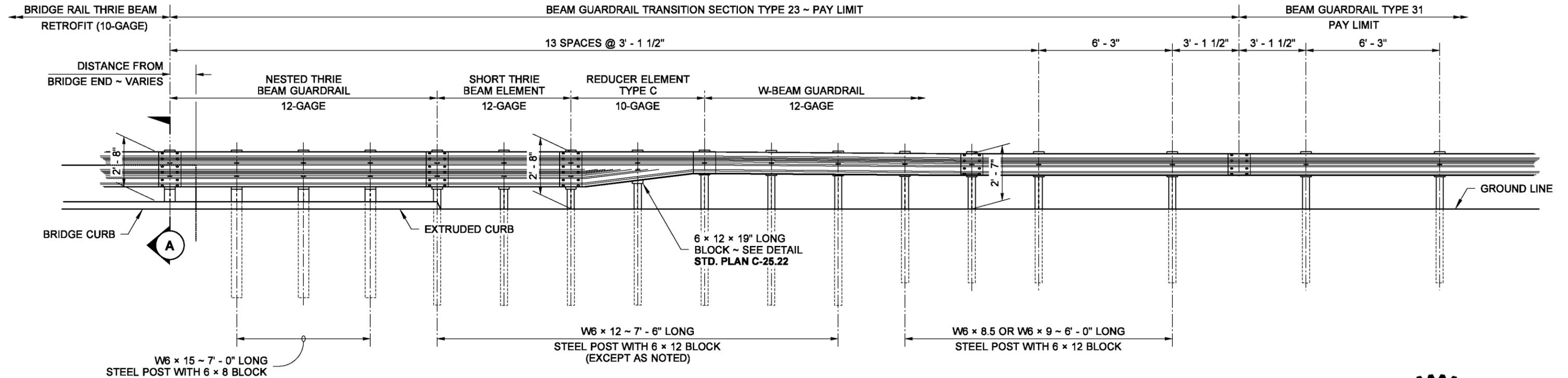
**BEAM GUARDRAIL (TYPE 31)
TRANSITION SECTION
TYPE 21
STANDARD PLAN C-25.20-06**

SHEET 1 OF 1 SHEET

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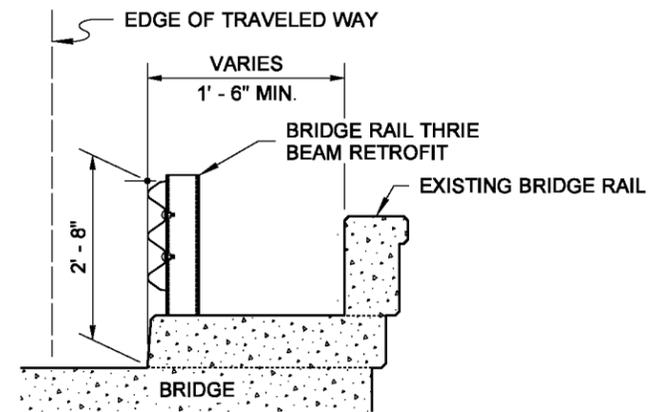
NOTES

1. See **Standard Plan C-1b, C-20.10, and C-25.20** for rail elements and thrie beam block details.
2. When a transition is required on the trailing end of the bridge, use a mirror image of this plan.
3. For additional alternatives not shown, see Contract Plans.



SECTION A
ALTERNATIVE 1

TYPE 23
APPROACH END (SHOWN - SEE NOTE 2)
THRIE BEAM INSTALLED AT FACE OF CURB



SECTION A
ALTERNATIVE 2



**BEAM GUARDRAIL (TYPE 31)
TRANSITION SECTION
TYPE 23
STANDARD PLAN C-25.26-03**

SHEET 1 OF 1 SHEET

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