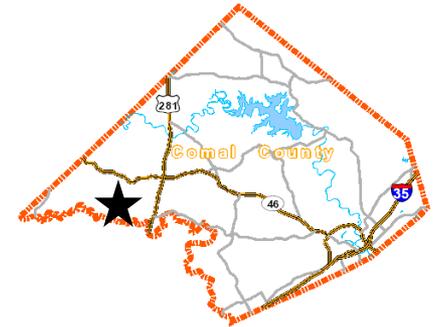


25' MBGF (see attached for location with respect to drainage culvert) with an SGT Type I on either end.
Total length: 125'

Location Map



25' MBGF (see attached for location with respect to drainage culvert) with an SGT Type I on either end.
Total length: 125'

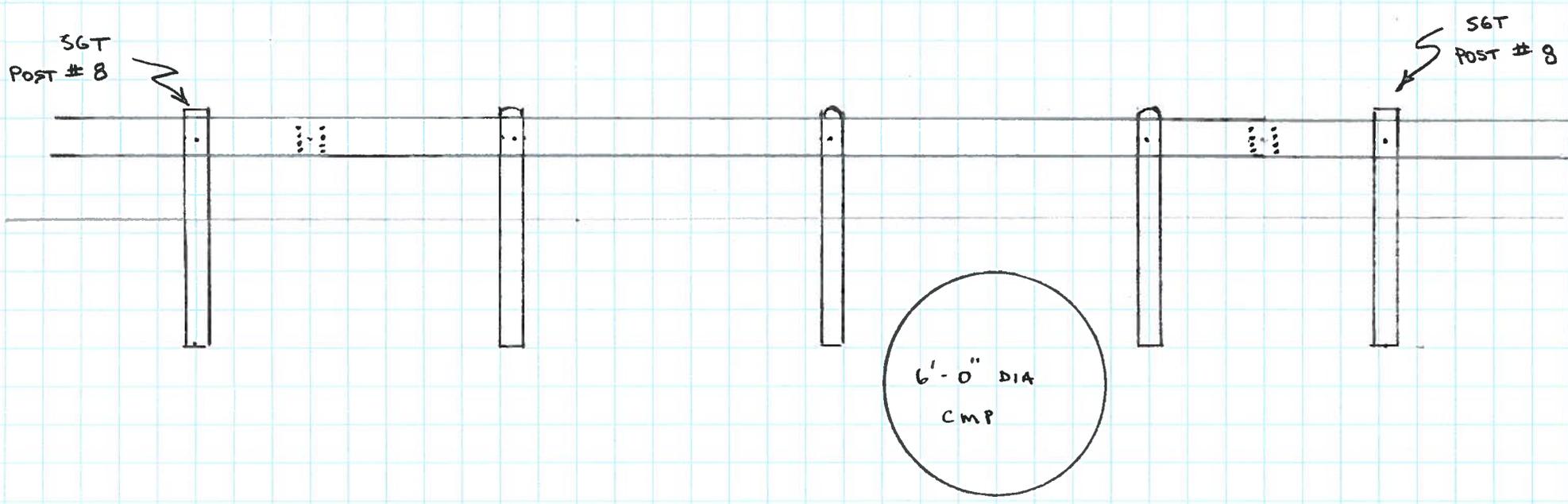
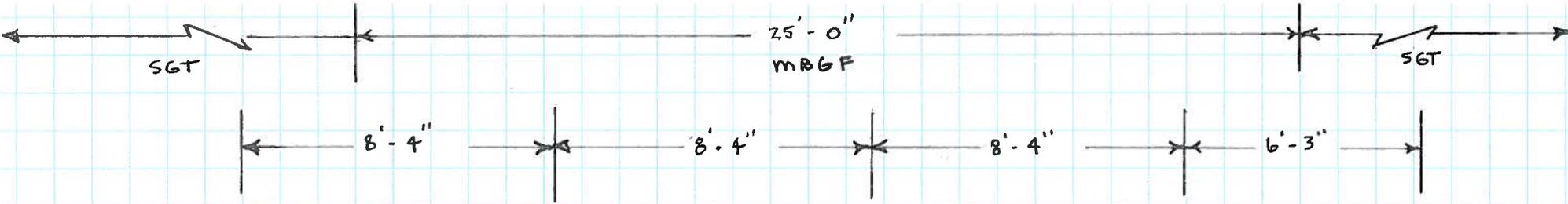
Contractor responsible for obtaining all necessary permits.

Contractor shall coordinate with Digtess and provide all necessary utility adjustments for any existing underground utilities accordingly.

Where existing pavement does not exist, Contractor shall install mow strip in accordance with TxDOT Standard GF(31)MS-11.

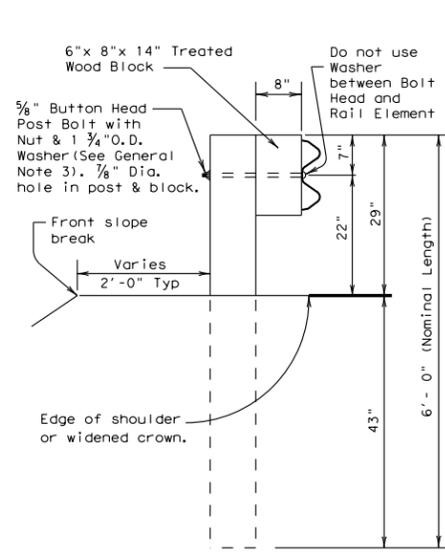
Contractor shall install MBGF in accordance with TxDOT Standard MBGF-11. Post spacing shall be done in accordance with provided detail.

Contractor shall install SGT in accordance with TxDOT Standard SGT(7)31-11 Type I.

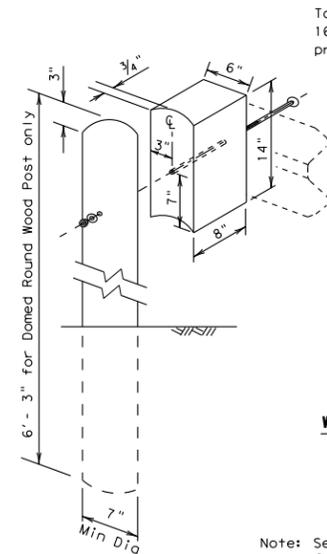


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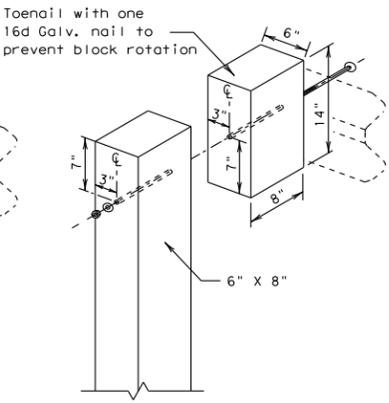
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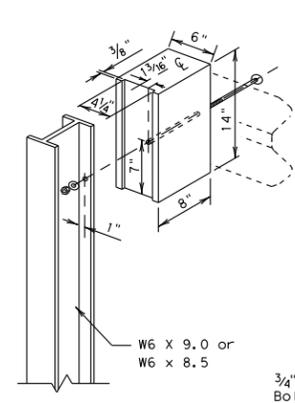
TYPICAL POST



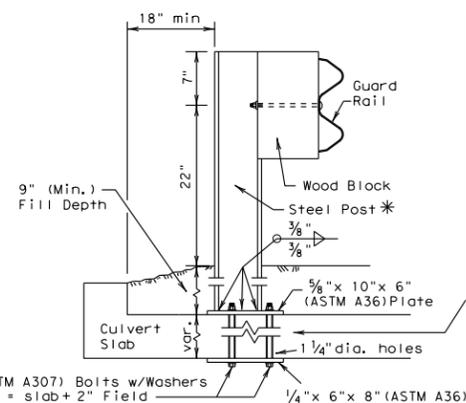
WOOD BLOCK TO ROUND WOOD POST



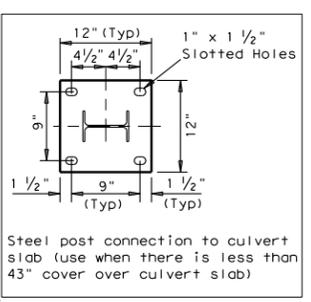
WOOD BLOCK TO RECTANGULAR WOOD POST



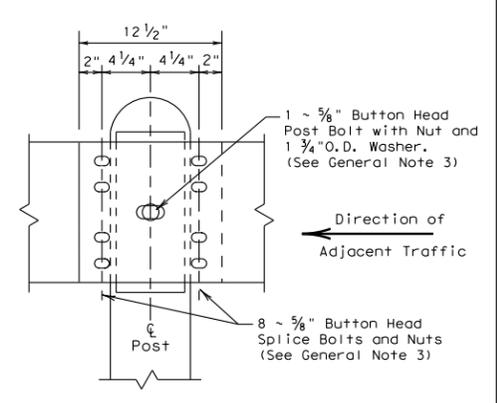
WOOD BLOCK TO STEEL POST



LOW FILL CULVERT POST FOR USE ON NON-BRIDGE CLASS CULVERTS ONLY



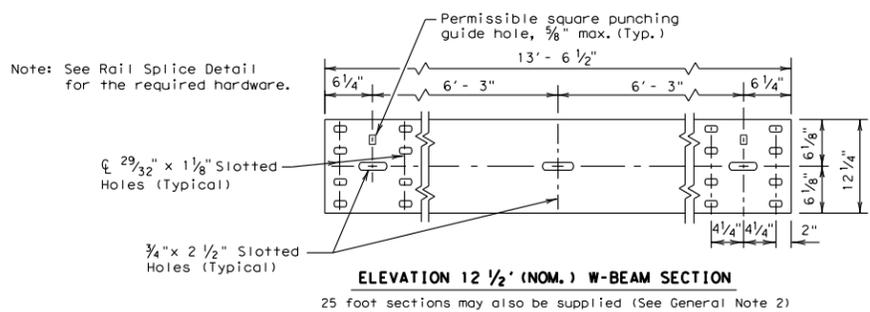
Steel post connection to culvert slab (use when there is less than 43" cover over culvert slab)



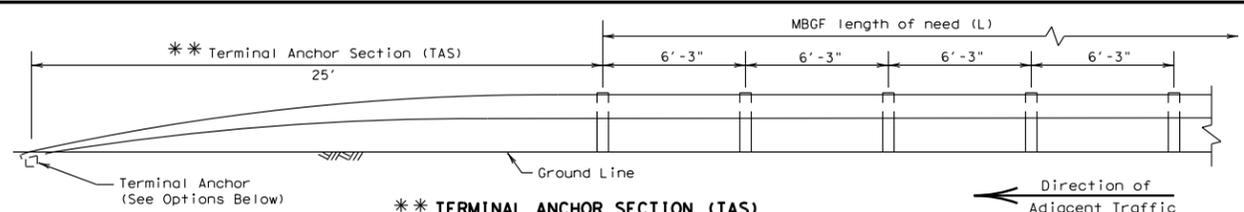
RAIL SPLICE DETAIL

GENERAL NOTES

- The type of post (round wood post, rectangular wood post, or steel post) will be shown elsewhere in the plans. The exact position of MBSF shall be shown elsewhere in the plans or as directed by the Engineer. Steel posts to be galvanized in accordance with Item 445, "Galvanizing."
- Rail element shall meet the requirements of Item 540, "Metal Beam Guard Fence" except as modified on the plans. The Contractor may furnish rail elements of 12 1/2 or 25 foot nominal lengths.
- Button head "post" bolts (ASTM A307) shall be of sufficient length to extend through the full thickness of the nut (ASTM A563) and Type A (1 3/4" O.D.) washer and not more than 1" beyond it. Button head "splice" bolts (ASTM A307) are 5/8" x 1 1/4" (or 2" long at triple rail splices) with a 5/8" double recessed nut (ASTM A563).
- Fittings (bolts, nuts, and washers) shall be galvanized in accordance with Item 445, "Galvanizing." Fittings shall be subsidiary to the bid item.
- Crown shall be widened to accommodate the Metal Beam Guard Fence.
- The lateral approach to the guard fence, shall have a slope rate of not more than 1V:10H.
- Unless otherwise shown in the plans, guard fence placed in the vicinity of curbs shall be positioned so that the face of curb is located directly below or behind the face of the block. Rail placed over curbs shall be installed so that the post bolt is located approximately 21 inches above the gutter pan or roadway surface.
- If solid rock is encountered within 0 to 18" of the finished grade, drill a 22" dia. hole, 24" into the rock, or drill two 12" dia. front to back overlapping holes, 24" into the rock. If solid rock is encountered below 18", drill a 12" dia. hole, 12" into the rock or to the standard embedment depth, whichever is less. Any excess post length, after meeting these depths, may be field cut to ensure proper guardrail mounting height. Backfill with a cohesionless material.
- Posts shall not be set in concrete, of any depth.
- Special fabrication will be required at installations having a curvature of less than 150 ft. radius.
- The terminal anchor section (TAS) post shall be set in Class A concrete (unless otherwise shown in the plans) in accordance with Item 421, "Hydraulic Cement Concrete." Concrete shall be subsidiary to the bid item requiring construction of the terminal anchor section (TAS). Terminal anchor post to be galvanized in accordance with Item 445, "Galvanizing."
- Unless otherwise shown in the plans, a composite material post and/or block that meets the requirements of DMS-7210, "Composite Material Posts and Blocks for Metal Beam Guard Fence" may be substituted for posts and/or blocks of similar dimensions. The Construction Division, TxDOT maintains a Material Producer List (MPL) for producers of materials conforming to DMS-7210. Only producers on the MPL can furnish composite material posts and/or blocks.

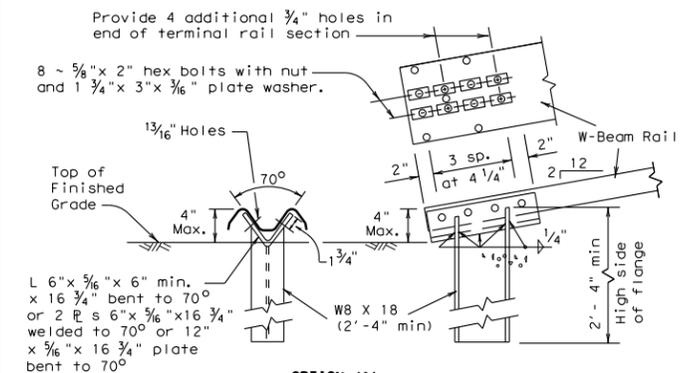


ELEVATION 12 1/2' (NOM.) W-BEAM SECTION



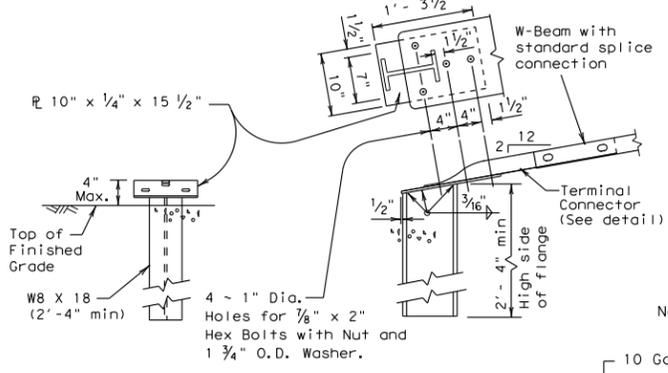
TERMINAL ANCHOR SECTION (TAS)

Terminal anchor sections are only for downstream use, when located outside the horizontal clearance area of opposing traffic.



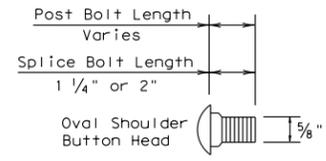
OPTION (1)

Note: This anchor post requires four additional 3/4" holes (shop or field) in the rail member with eight 5/8" hex bolts with nut and plate washer.



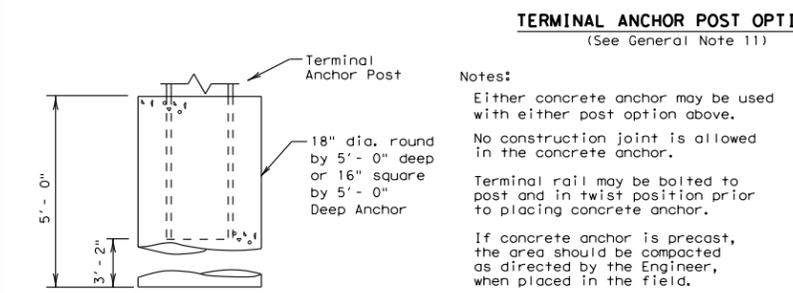
OPTION (2)

Note: This anchor post requires the use of the 10 ga. terminal connector with four 5/8" hex bolts with nut and washer.



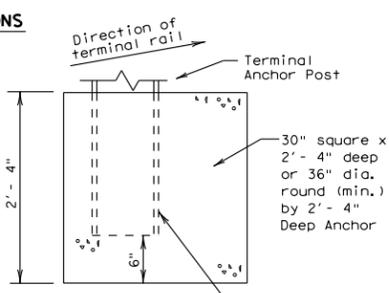
BUTTON HEAD BOLT Post and Splice Bolts (See General Note 3)

Note: Terminal Connector to be used with terminal anchor post options 2.

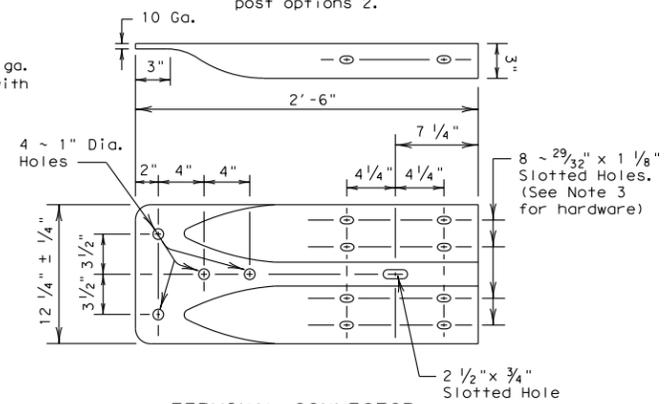


TERMINAL CONCRETE ANCHOR OPTIONS (See General Note 11)

Notes: Either concrete anchor may be used with either post option above. No construction joint is allowed in the concrete anchor. Terminal rail may be bolted to post and in twist position prior to placing concrete anchor. If concrete anchor is precast, the area should be compacted as directed by the Engineer, when placed in the field.



Place face of post approx. on center of anchor



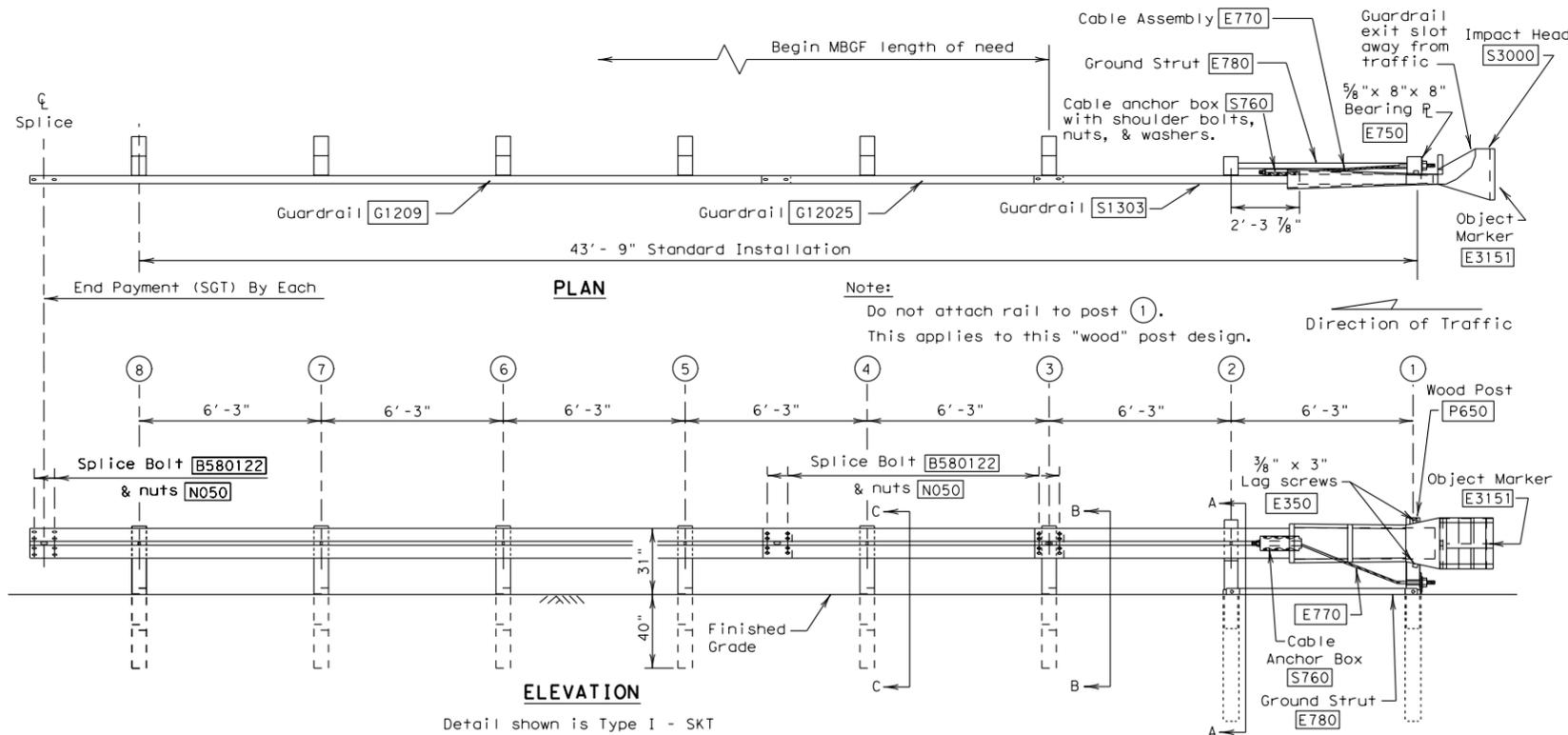
TERMINAL CONNECTOR

For connection hardware to concrete rails, see the MBSF transition standards.

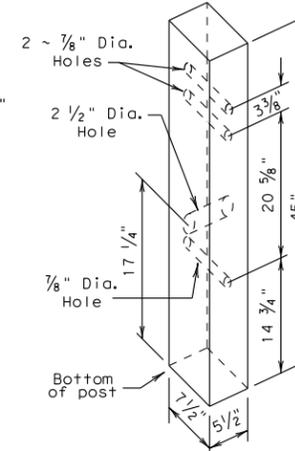
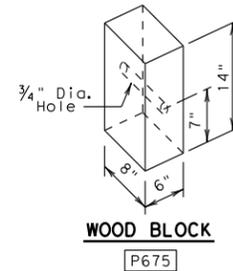
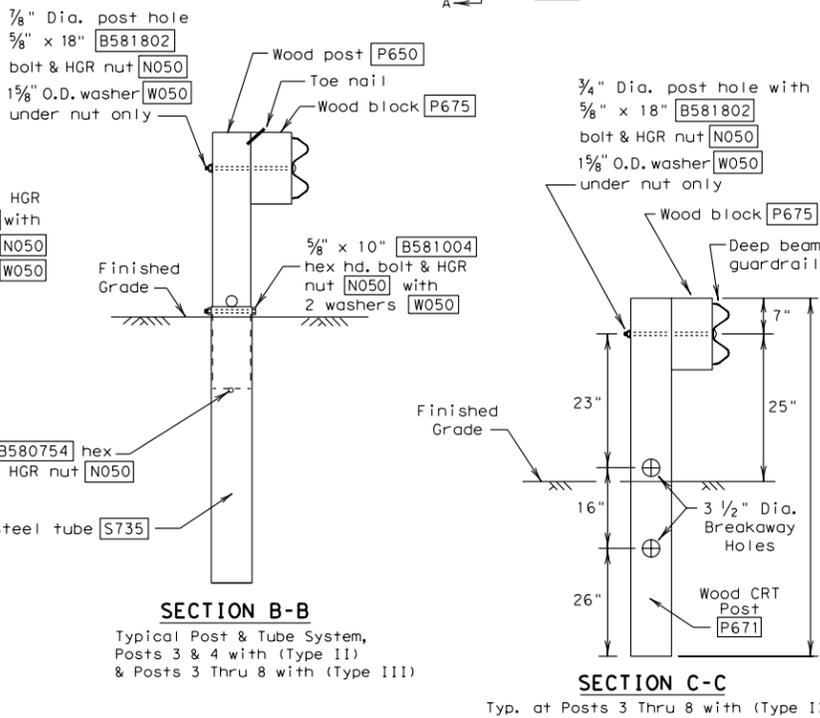
		Design Division Standard	
<h1>METAL BEAM GUARD FENCE</h1> <h2>MBGF - 11</h2>			
FILE: mbgf11.dgn	DN: TxDOT	CK: AM	DW: BD
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12-2011	REVISIONS		HIGHWAY
	DIST	COUNTY	SHEET NO.

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DATE: FILE:



Detail shown is Type I - SKT



All measurements should be taken from bottom of posts.

UNIVERSAL WOOD POST (P650)

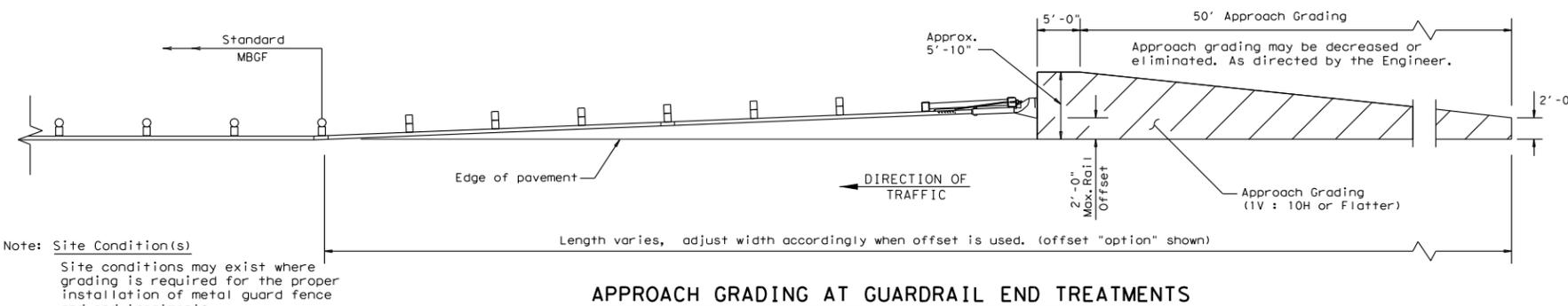
POST & TUBE OPTIONS	
Type I	post ① thru ②
Type II	post ① thru ④
Type III	post ① thru ⑧

GENERAL NOTES

- For additional information contact: Interstate Steel Inc. (432) 263-3735
- The Type of SGT unit will be specified elsewhere in the plans. The numbers in the circles indicate post position. The Type of SGT unit chosen is a maintenance consideration and does not affect the systems performance.

Post & Tube Options		Post Only	
Type I Posts	① thru ②	Posts ③ thru ⑧	
Type II Posts	① thru ④	Posts ⑤ thru ⑧	
Type III Posts	① thru ⑧	None	
- SGT's placed within the "minimum" 150 ft. radius, shall be installed straight. Standard rail elements may be installed within the radius, without special fabrication.
- All bolts, nuts cable assemblies, cable anchors, steel tubes & bearing plates shall be galvanized.
- A flare rate of 25:1 may be used over the first 50 ft. of the system to prevent the terminal head from encroaching the shoulder. The flare may be decreased or eliminated for specific installations, if directed by the Engineer.
- The steel tubes shall not protrude more than 4 inches above ground. Site grading may be necessary to meet this requirement.
- The steel tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the steel tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent tube settlement.
- If solid rock is encountered. See the Manufacturer's installation manual for the proper installation guidance.
- The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening the nuts.
- The wood blocks shall be "toe nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks. The bearing plate on the front post shall also be "toe nailed" to prevent rotation.
- For curb installations, the soil tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will then require field drilling new holes to accommodate the rail to post connection bolt to maintain the proper height of the rail above the gutter pan. The excess post length above the rail will be removed if directed by the Engineer.
- An object marker shall be installed on the front of the impact head as detailed on D&OM(VIA).

Item #	POST & TUBE OPTIONS			DESCRIPTION
	Type I	Type II	Type III	
S1303	1	1	1	Guardrail (12 Ga.) 12' - 6" SKT
G12025	1	1	1	Guardrail (12 Ga.) 9' - 4 1/2"
G1209	1	1	1	Guardrail (12 Ga.) 25' - 0"
S730	2	2	2	Steel Tube - 6" x 8" x 72" x 1/8" min. or 3/16"
S735	0	2	6	Steel Tube - 6" x 8" x 54" x 1/8" min. or 3/16"
P650	2	4	8	Wood Posts - 5 1/2" x 7 1/2" x 45"
P671	6	4	0	Wood CRT Posts - 6" x 8" x 72"
P675	6	6	6	Wood Block - 6" x 8" x 14"
E740	1	1	1	Pipe Sleeve - 2" Std. Pipe x 5 1/2"
E750	1	1	1	Bearing Plate - 5/8" x 8" x 8"
S760	1	1	1	Cable Anchor Box
E770	1	1	1	Cable Assembly
E780	1	1	1	Ground Strut
S3000	1	1	1	Impact Head
HARDWARE				
B580754	2	4	8	5/8" x 7 1/2" Hex Hd. Bolt
B581004	2	4	8	5/8" x 10" Hex Hd. Bolt (Top of Tubes)
W050	11	15	23	5/8" Washers
B581002	1	1	1	5/8" x 10" HGR Post Bolt (Post 2)
B580122	16	16	16	3/8" x 1 1/4" HGR Splice Bolt
B581802	6	6	6	5/8" x 18" HGR Post Bolt (Posts ③ thru ⑧)
N050	35	39	47	3/8" HGR Nut (24-Spl, Varies-Posts, 2-Strut)
E350	2	2	2	3/8" x 3" Lag Screw
N100	2	2	2	1" Hex Nut (Anchor Cable)
W100	2	2	2	1" Washer (Anchor Cable)
SB12A	8	8	8	Cable Anchor Box Shoulder Bolts
N012A	8	8	8	1/2" Structural Nut
W012A	8	8	8	1/2" Structural Washer
E3151	1	1	1	Object Marker - (18" x 18")



Note: Site Condition(s)

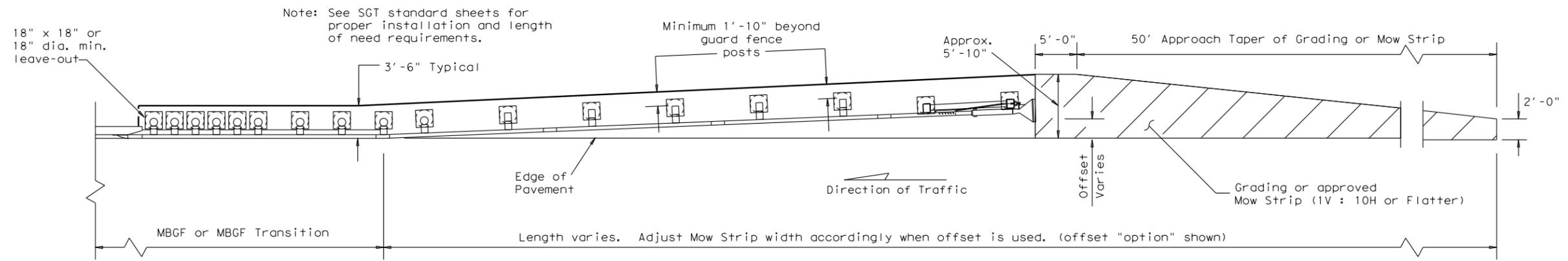
Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.

APPROACH GRADING AT GUARDRAIL END TREATMENTS

Design Division Standard
SINGLE GUARDRAIL TERMINAL (SKT-31) (WOOD POST)
SGT (8) 31-14

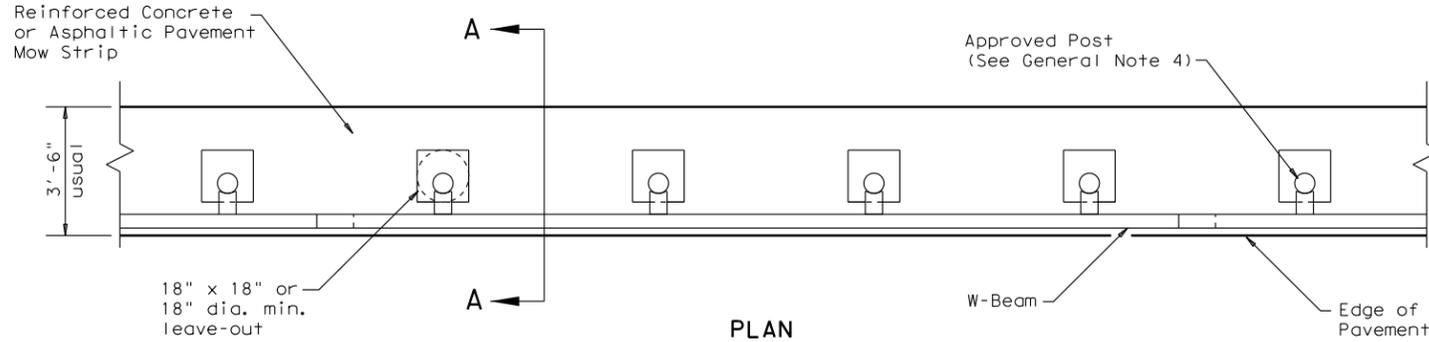
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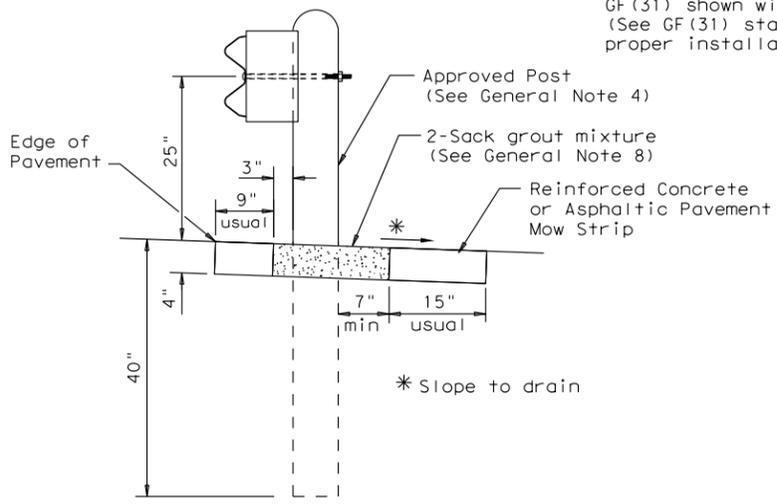
GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS

Note: Site Condition(s)
 Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.
 Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.



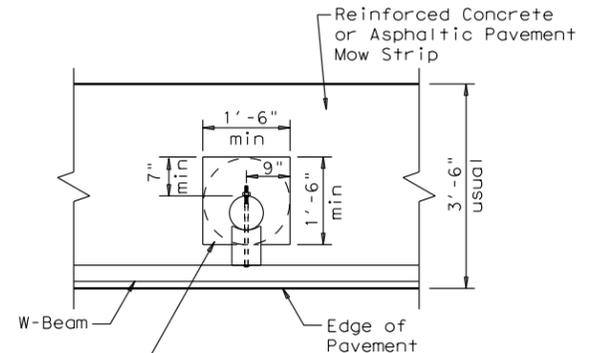
PLAN

GF(31) shown with Mow Strip
 (See GF(31) standard sheet for proper installation)



SECTION A-A

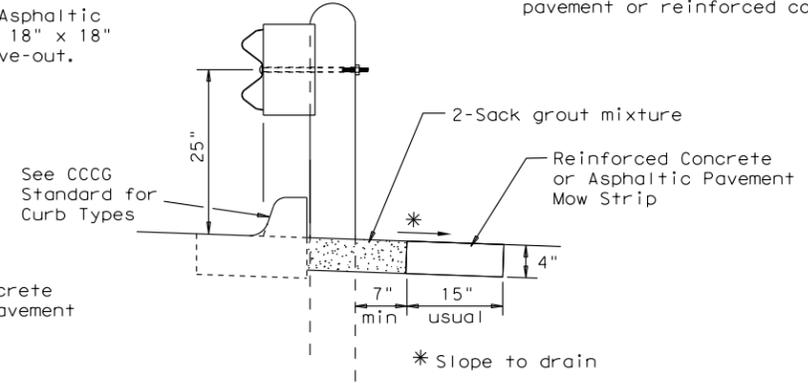
Typical



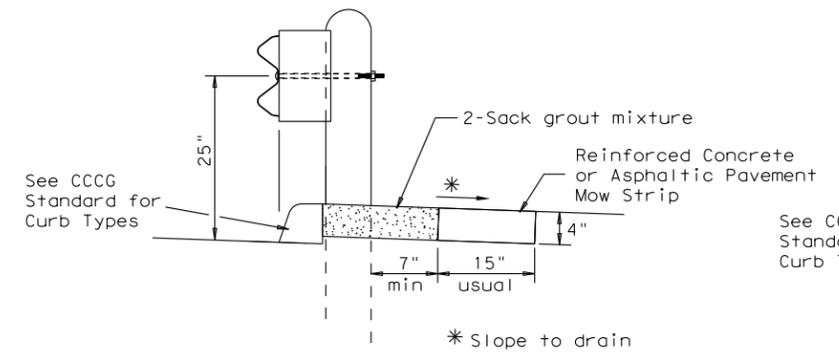
MOW STRIP DETAIL

Reinforced Concrete or Asphaltic Pavement Mow Strip with 18\"/>

Fill leave-out with 2-Sack grout mixture (See General Note 8)

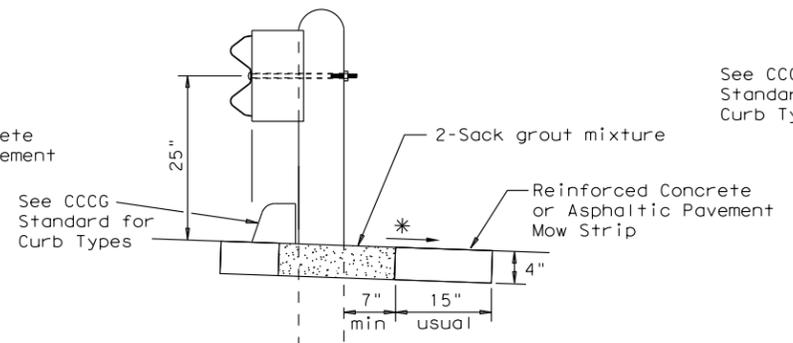


CURB OPTION (3)



CURB OPTION (1)

This option will increase the post embedment through out the system.



CURB OPTION (2)

Curb shown on top of mow strip

- GENERAL NOTES**
1. This mow strip design is for use with metal beam guard fence, guard fence transitions, and guard fence end treatments (See SGT standards for proper SGT installation).
 2. Mow strips shall be asphaltic pavement or reinforced concrete (wire mesh or synthetic fiber), as shown on the plans and will be paid for under the pertinent bid item. Asphaltic pavement shall meet the requirements of the item, and be placed in accordance with the pertinent bid item as shown in the plans. Reinforced concrete shall be placed in accordance with Item 432, "Riprap." The use of the synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Material Producer List (MPL), maintained by TxDOT, Construction Division.
 3. The leave-out behind the post shall be a minimum of 7".
 4. The type of approved post will be as shown in the plans. See the applicable standard sheets for additional details and information.
 5. Other curb placement options may be used. Curbs are not considered part of the mow strip and will be paid for under other pertinent bid item.
 6. Thickness of the mow strip will be 4".
 7. The limits of payment for asphaltic pavement or reinforced concrete will include leave-outs for the posts.
 8. The leave-outs shall be filled with no more than a 2-sack grout mixture and placed in accordance with Section 421.2.F, "Mortar and Grout." Payment for furnishing and placing the grout mixture will be subsidiary to the pay item of asphaltic pavement or reinforced concrete.



**METAL BEAM GUARD FENCE
 (MOW STRIP)
 GF (31) MS-11**

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