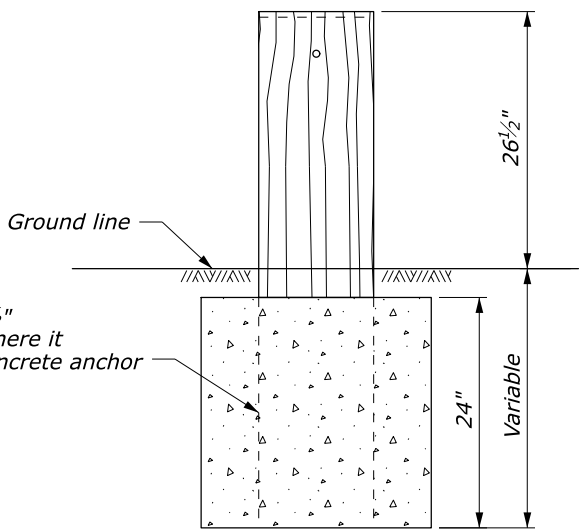
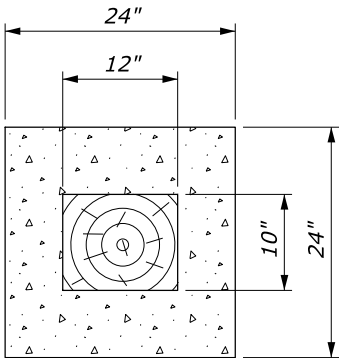
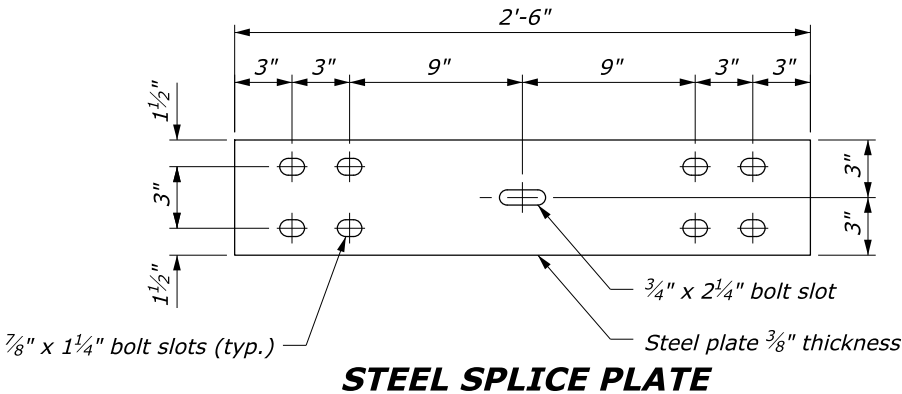
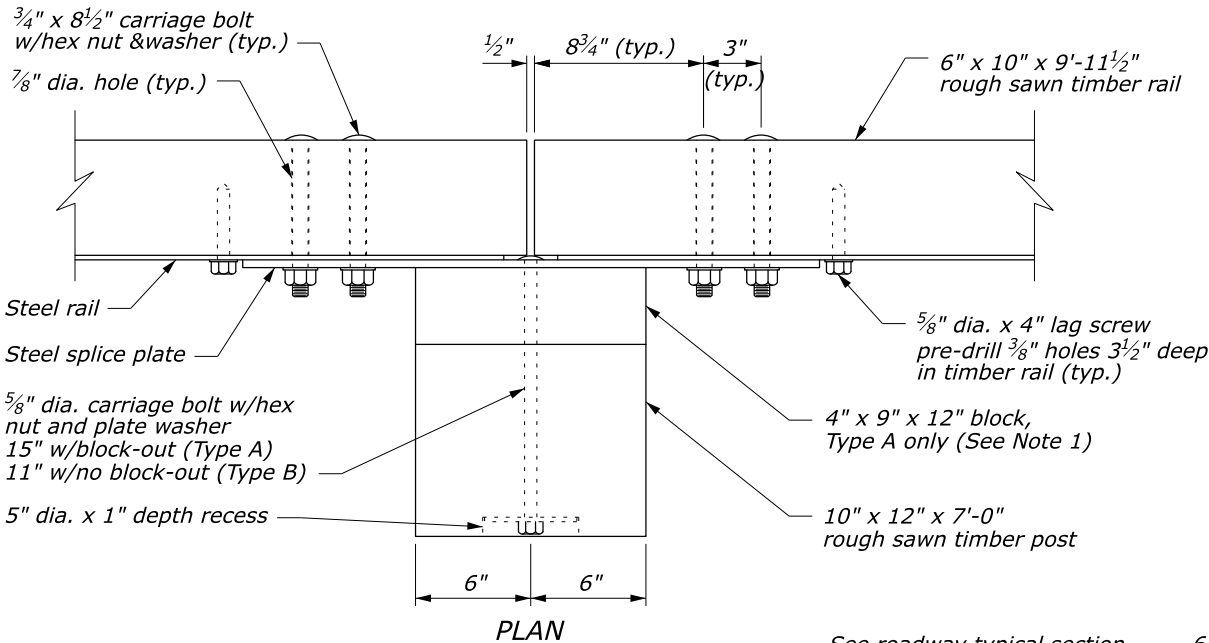
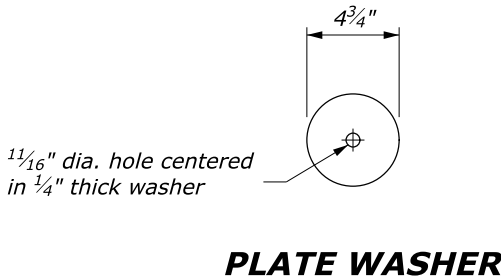
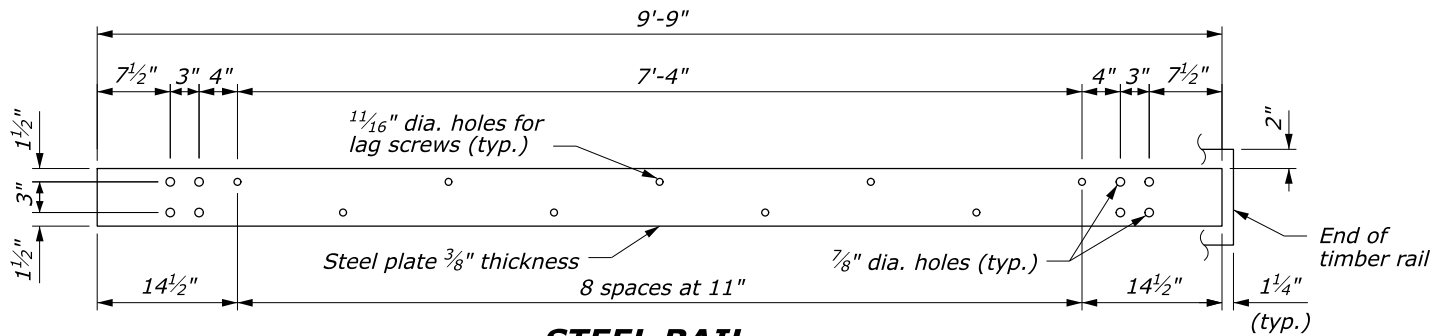


STATE	PROJECT	SHEET NUMBER
VA	NP-BLRI 1M20	S20

NPS PMIS No. 175115
NPS Drwg No. 601/165417

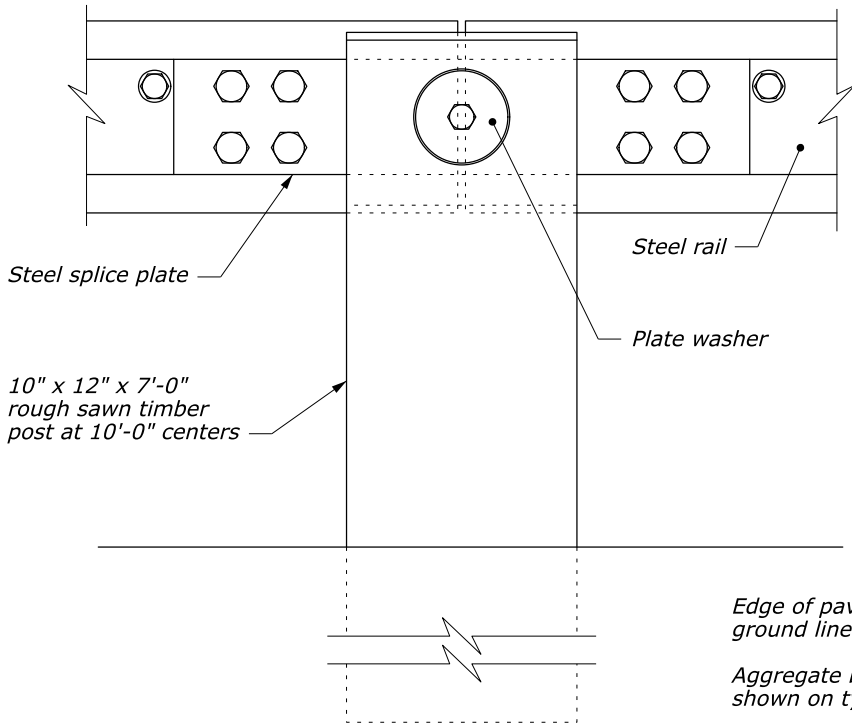
NOTES:

1. Use the Type A, blocked-out, system or the Type B, non-blocked-out, system as specified in the plans.
2. Use weathering steel for all structural steel and fastener hardware as specified.
3. Place a terminal section (See Details 617-61 and 617-62) on both approach and trailing ends of barrier installations.
4. Increase post depth to 8 feet where the 24-inch deflection distance cannot be obtained behind guardrail.

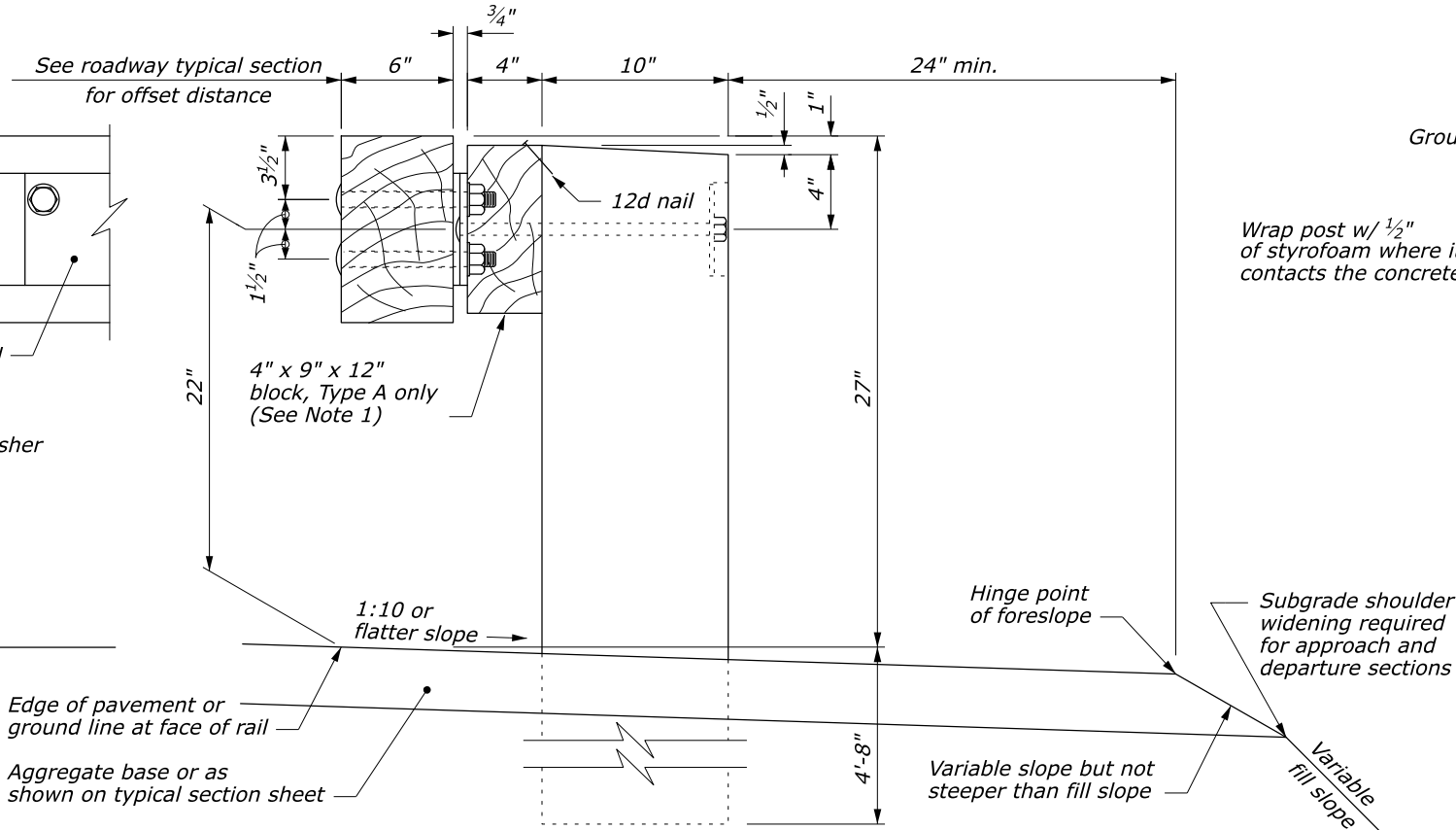


24" dia. round anchor is an acceptable alternative. Reduced size acceptable in solid rock.

CONCRETE ANCHOR FOR SHORT GUARDRAIL POST



POST CONNECTION



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
FEDERAL LANDS DETAIL	
STEEL-BACKED TIMBER GUARDRAIL TYPE A & TYPE B	
	DETAIL 617-60

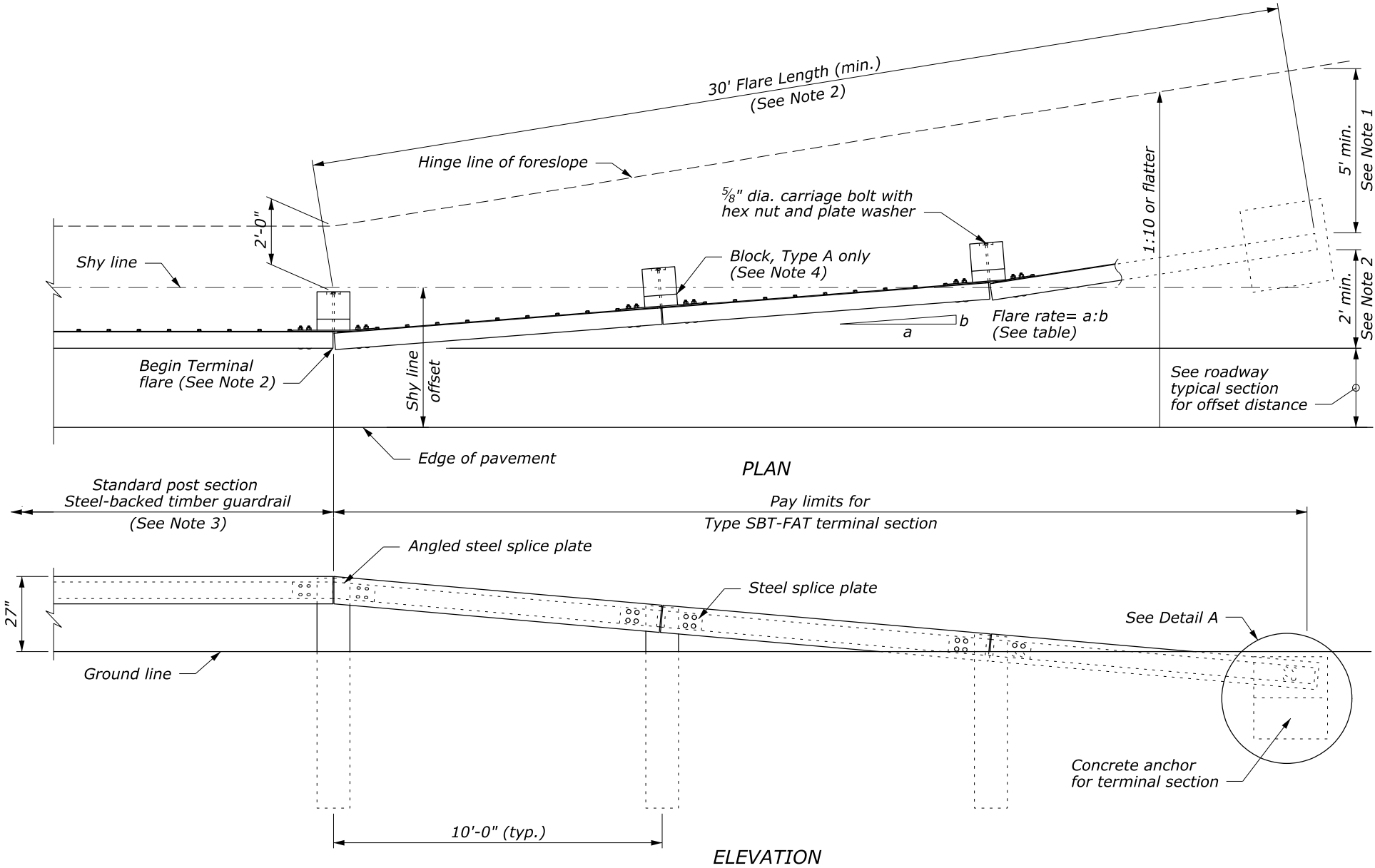
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10 September 2020 6:05 PM

STATE	PROJECT	SHEET NUMBER
VA	NP-BLR1 1M20	S21

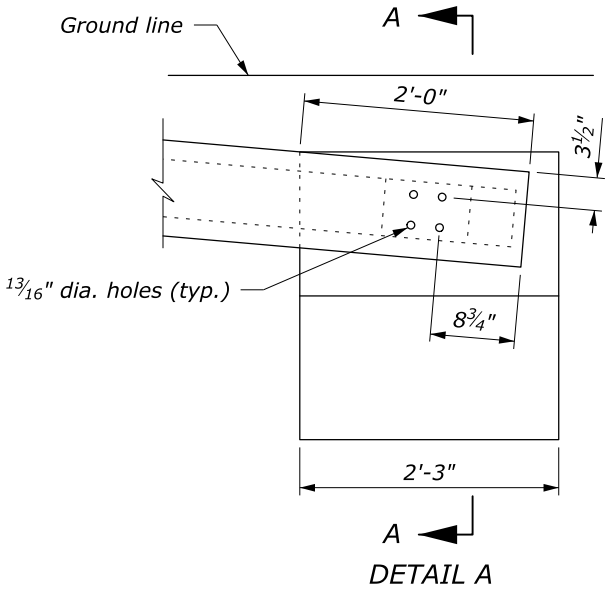
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NPS Drwg No. 601/165417

NOTES:

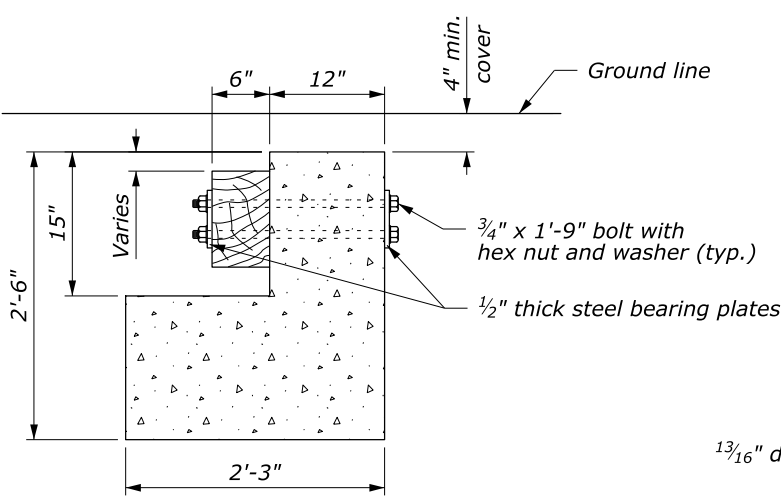
1. Extend the fill widening a minimum of 5 feet behind the guardrail, unless otherwise directed by the CO.
2. The guardrail flare shown in the plan view is the minimum length and rate required. As directed by the CO, flare the guardrail so that the terminal section is outside the clear zone. If the terminal section cannot be located outside the clear zone, it should be flared as far as practical from the road at the maximum rate indicated on the Guardrail Flare Rates table.
3. See Detail 617-60, Steel-Backed Timber Guardrail, Type SBTA and SBTB, for timber, structural steel, and hardware details.
4. On the Type A, blocked-out guardrail, include the blocks in terminal section, except on the concrete anchor. For the Type B, non-blocked-out guardrail, no blocks are included.



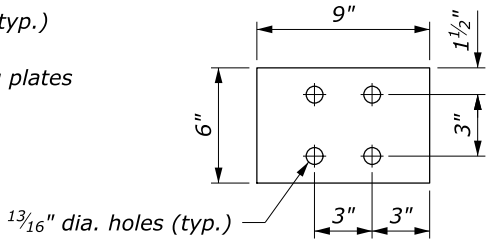
APPROACH & DEPARTURE FLARE WITH FLARED ANCHOR TERMINAL (FAT)



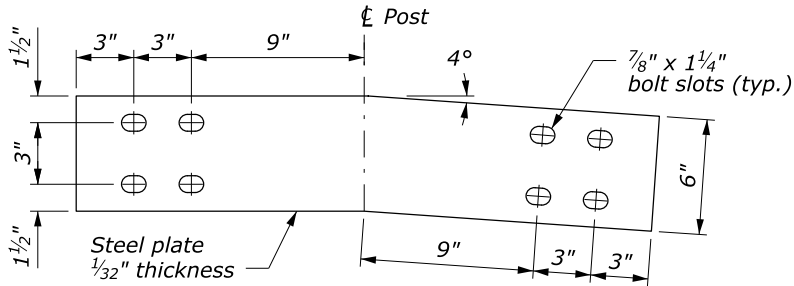
CONCRETE ANCHOR



SECTION A-A



STEEL BEARING PLATE



ANGLED STEEL SPLICE PLATE

GUARDRAIL FLARE RATE TABLE			
Design Speed (mph)	Shy line offset (ft)	Flare rate inside shy line (a:b)	Flare rate outside shy line (a:b)
60	8.0	26:1	14:1
50	6.5	21:1	11:1
40	5.0	16:1	8:1
30 and less	4.0	13:1	7:1

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
FEDERAL LANDS DETAIL STEEL-BACKED TIMBER GUARDRAIL TERMINAL SECTION TYPE SBT-FAT	
	DETAIL 617-61

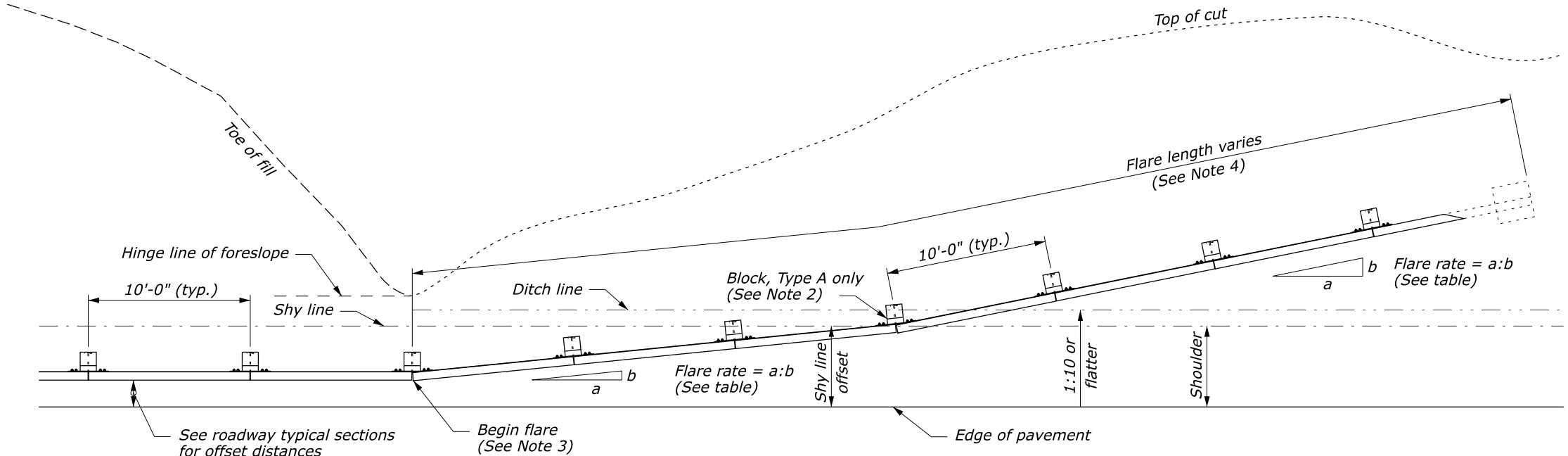
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STATE	PROJECT	SHEET NUMBER
VA	NP-BLRI 1M20	S22

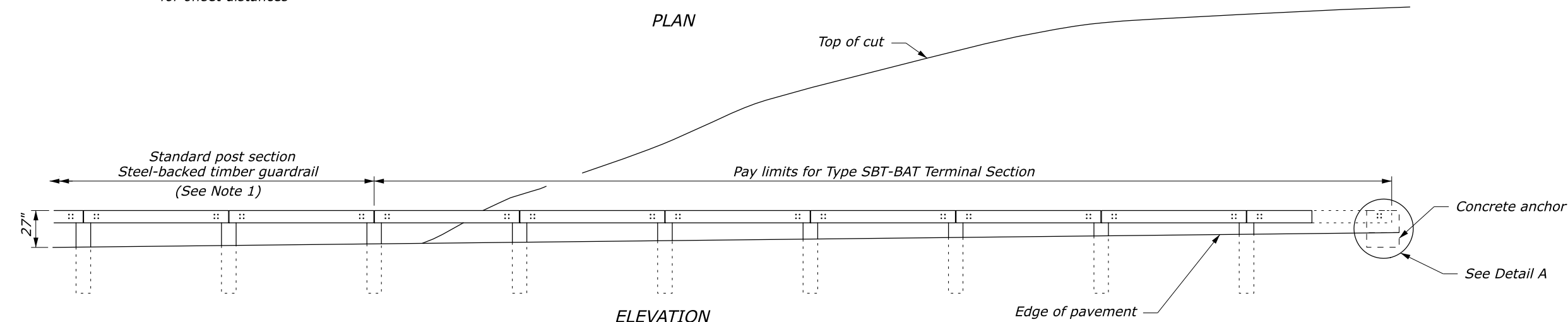
NPS PMIS No. 175115
NPS Drwg No. 601/165417

NOTES:

- See Detail 617-60, SBTB and SBTB for timber, structural steel, and hardware details.
- On the Type A, blocked-out guardrail, include the blocks in the terminal section, except on the concrete anchor. For the Type B, non-blocked-out guardrail, no blocks are included.
- Begin the cut flares at the nearest post to a transition point between fill and cut as directed by the CO.
- Extend the flare into the cut until a minimum 1-foot cover is obtained over the guardrail end.



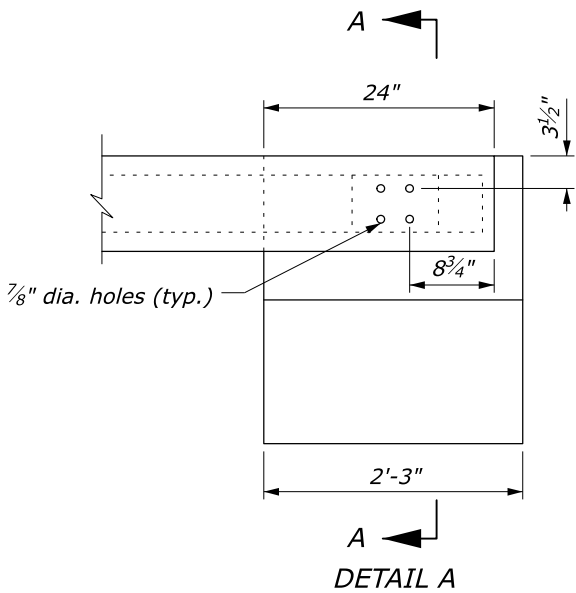
PLAN



ELEVATION

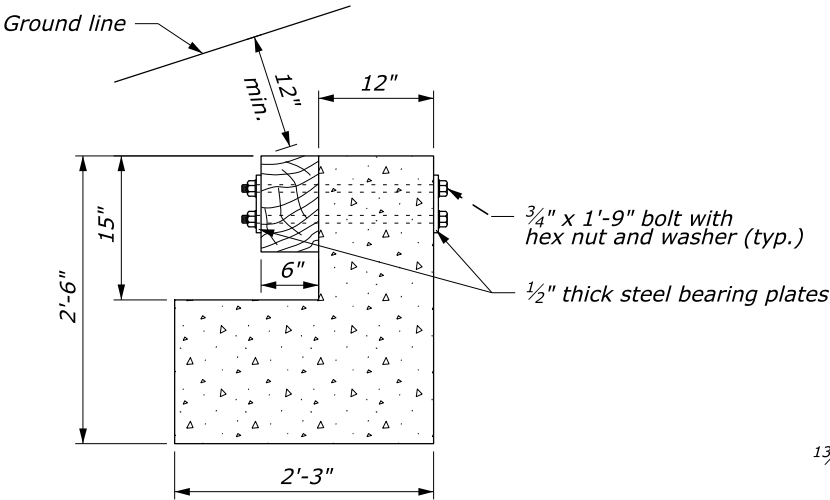
APPROACH & DEPARTURE FLARE WITH BACK SLOPE ANCHOR TERMINAL (BAT)

GUARDRAIL FLARE RATE TABLE			
Design Speed (mph)	Shy line offset (ft)	Flare rate inside shy line (a:b)	Flare rate outside shy line (a:b)
60	8.0	26:1	14:1
50	6.5	21:1	11:1
40	5.0	16:1	8:1
30 and less	3.5	13:1	7:1

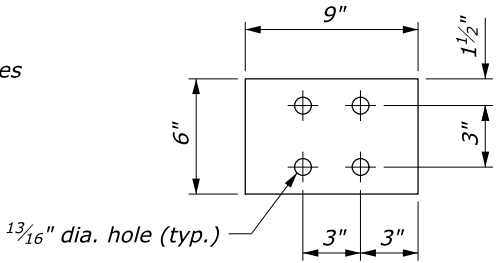


DETAIL A

CONCRETE ANCHOR



SECTION A-A



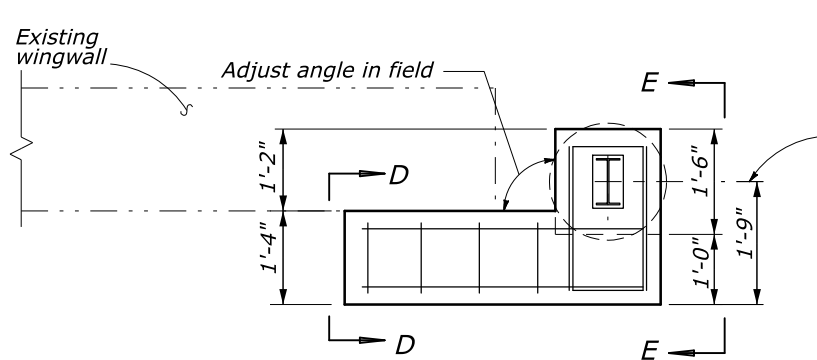
STEEL BEARING PLATE

NO SCALE

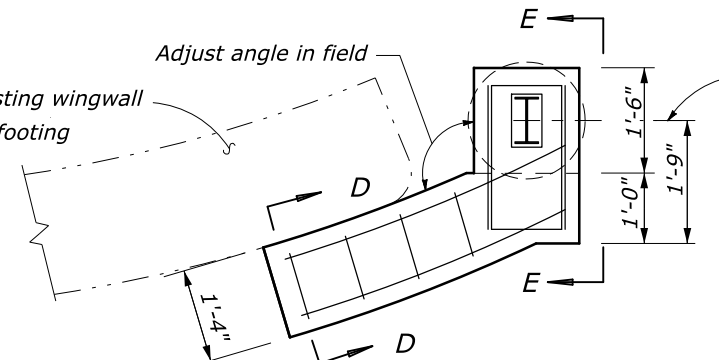
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
FEDERAL LANDS DETAIL STEEL-BACKED TIMBER GUARDRAIL TERMINAL SECTION TYPE SBT-BAT	
	DETAIL 617-62

STATE	PROJECT	SHEET NUMBER
VA	NP-BLRI 1M20	S24

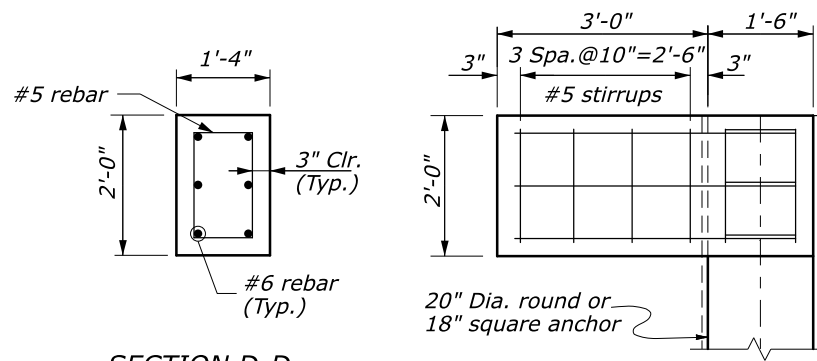
NPS PMIS No. 175115
NPS Drwg No. 601/165417



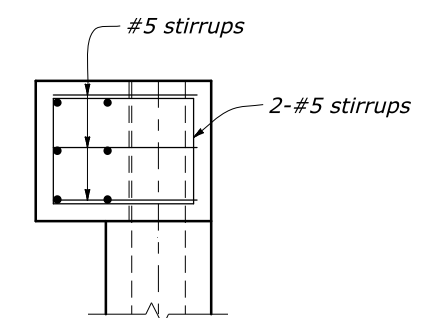
PLAN FOR NON-FLARED WINGWALL



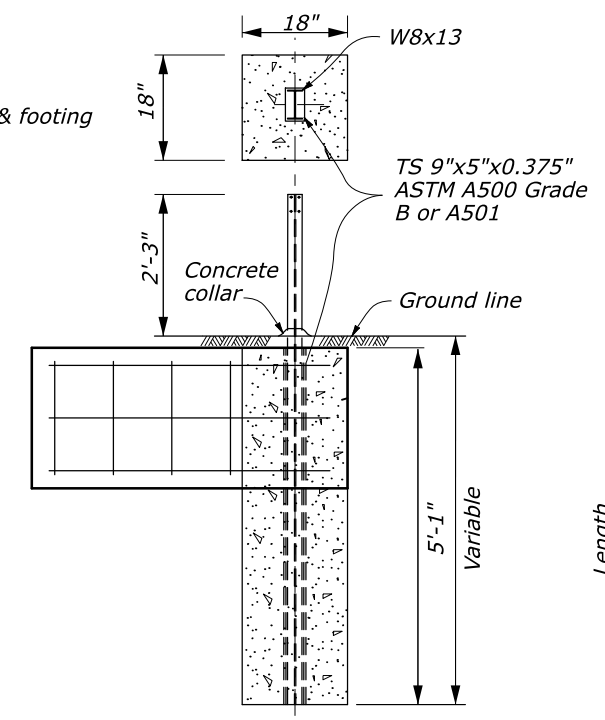
PLAN FOR FLARED WINGWALL



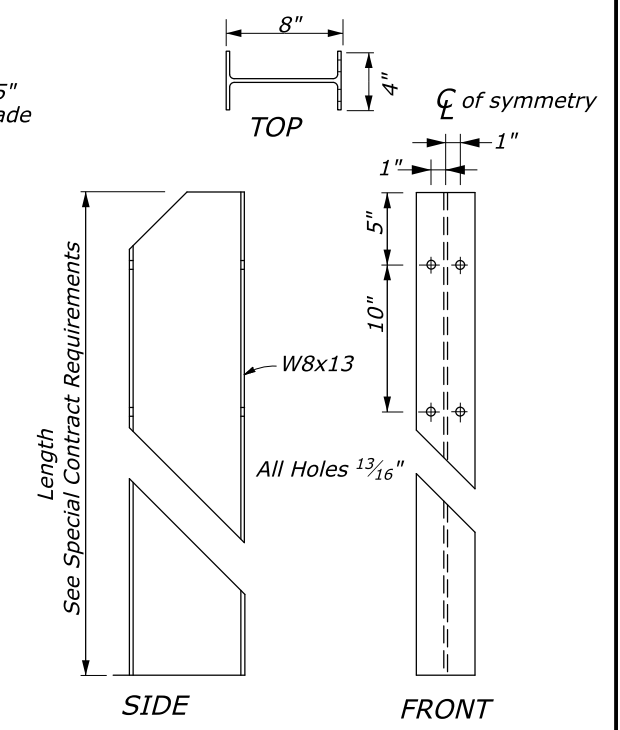
SECTION D-D
(Wingwall Not Shown)



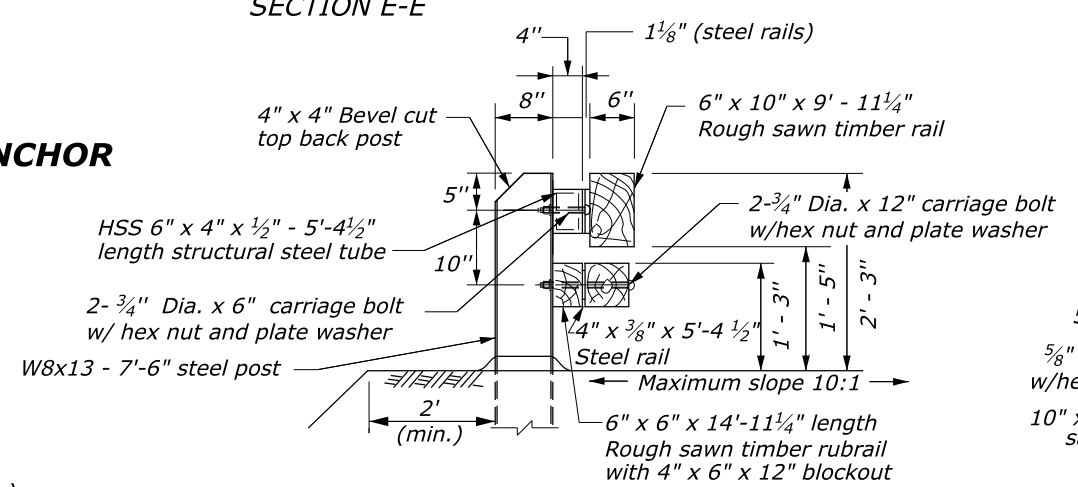
SECTION E-E



Use 20" diameter round anchor or 18" square anchor. Reduced sized acceptable in solid rock.

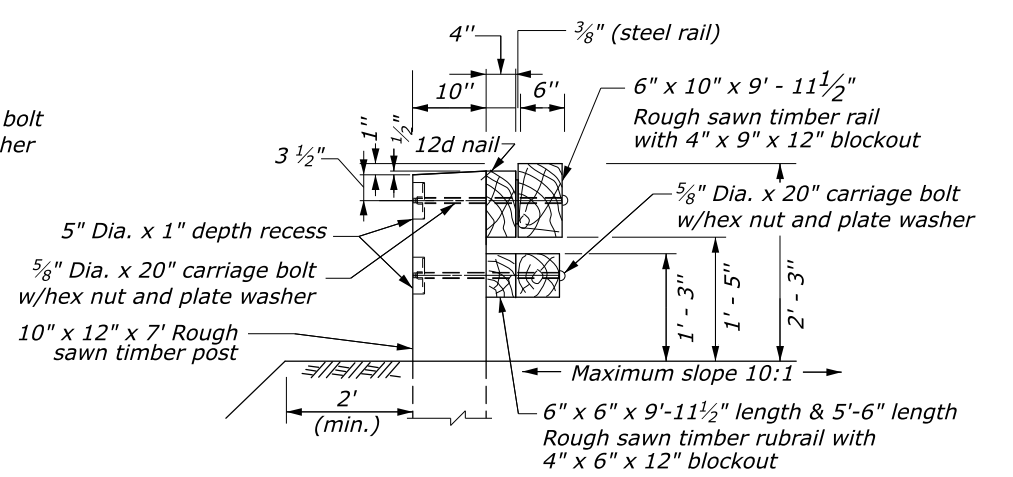


CONNECTION TO CONCRETE ANCHOR
(Post Not Shown)

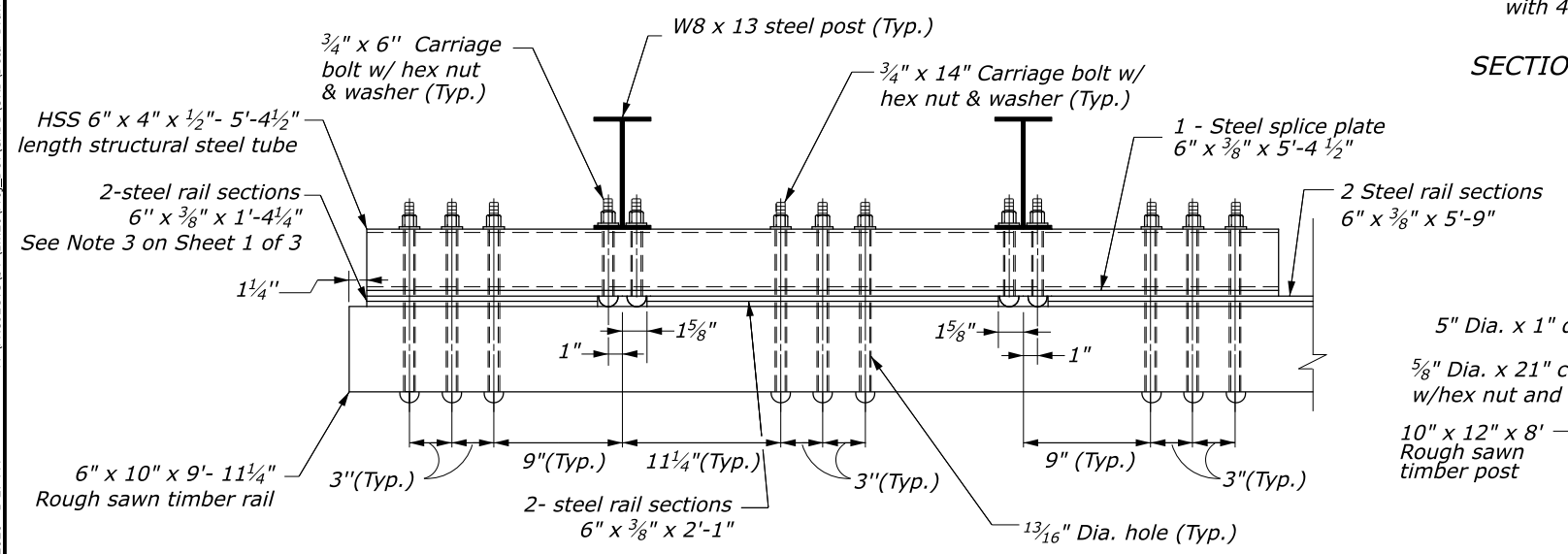


SECTION A-A

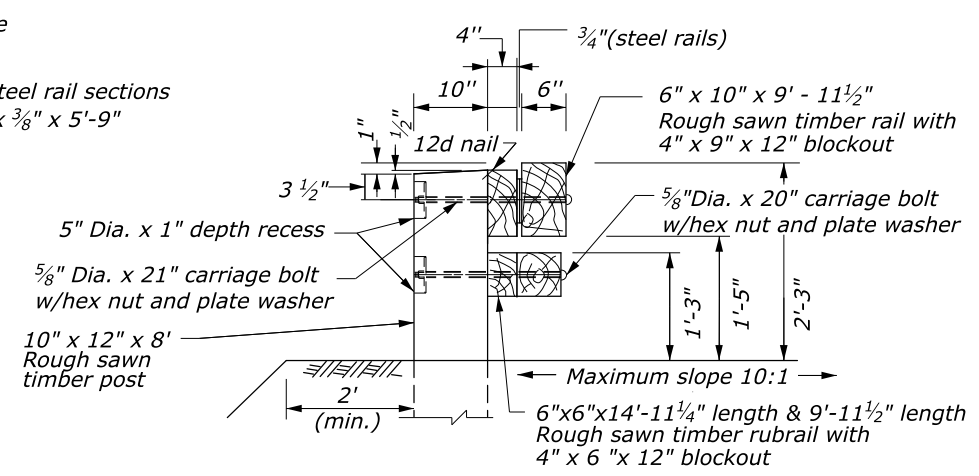
CONCRETE ANCHOR FOR GUARDRAIL POST



SECTION C-C



DETAIL A
POST CONNECTION PLAN



SECTION B-B

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

FEDERAL LANDS DETAIL
**STEEL-BACKED TIMBER GUARDRAIL
TEST LEVEL 2 TRANSITION TO
STRAIGHT OR CURVED-END STRUCTURE**
Sheet 2 of 3

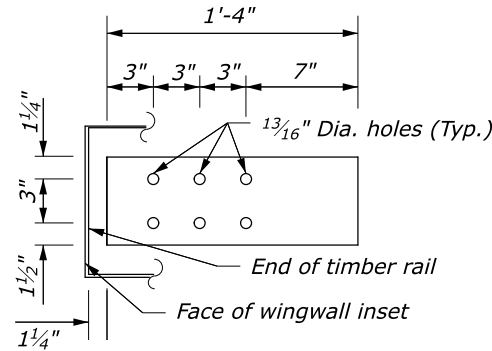
DETAIL APPROVED FOR USE
APPROVED: MAY 2011
REVISED: MAY 2020

DETAIL
E617-67

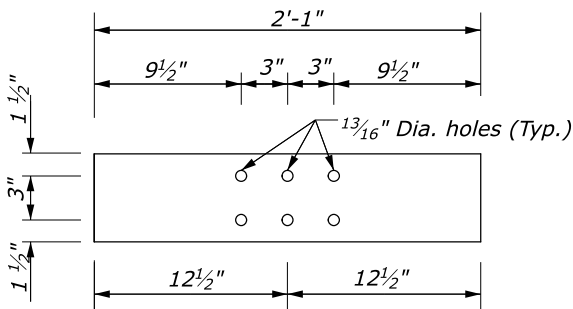
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11 September 2020 1:27 PM

STATE	PROJECT	SHEET NUMBER
VA	NP-BLRI 1M20	S25

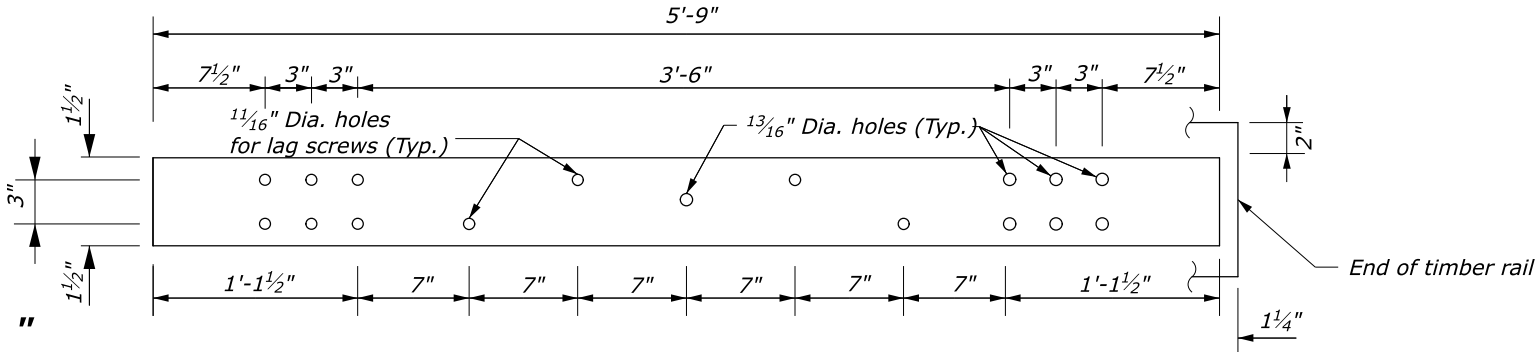
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NPS Drwg No. 601/165417



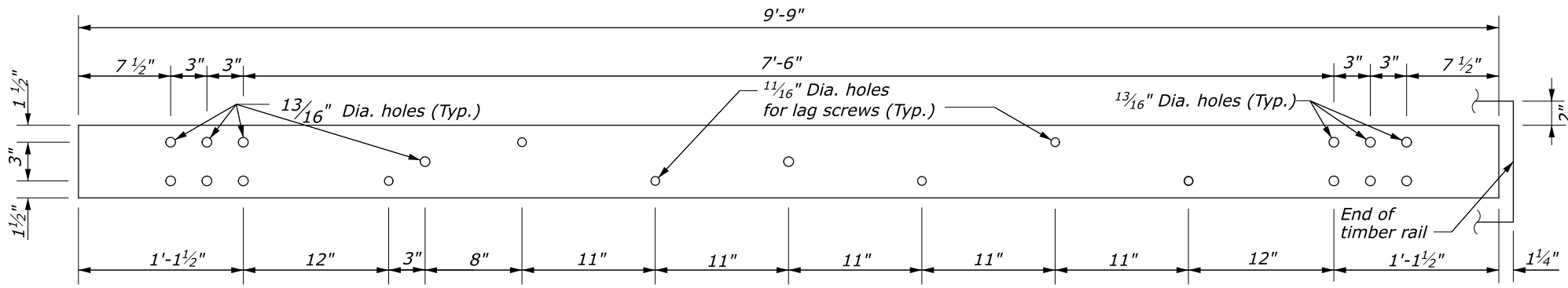
TERMINAL SECTION 6" x $\frac{3}{8}$ " x 1'-4"



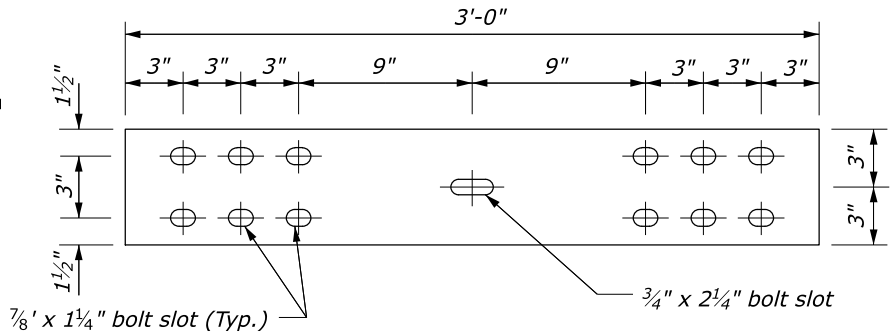
TERMINAL SECTION 6" x $\frac{3}{8}$ " x 2'-1 "



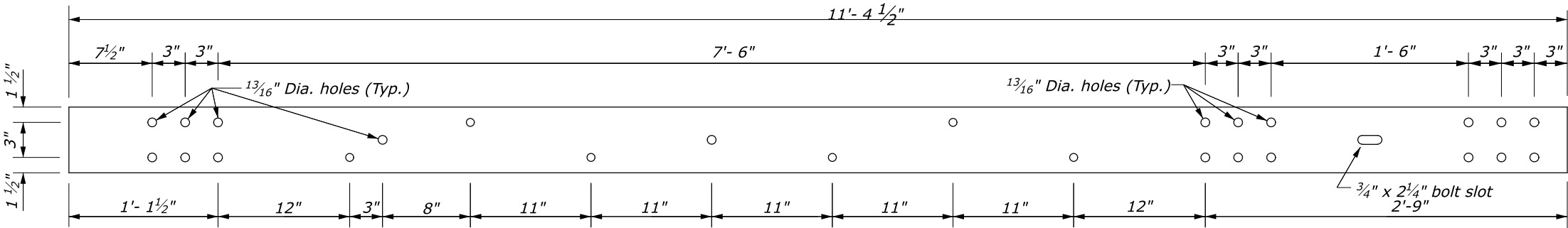
TERMINAL SECTION 6" x $\frac{3}{8}$ " x 5'-9"



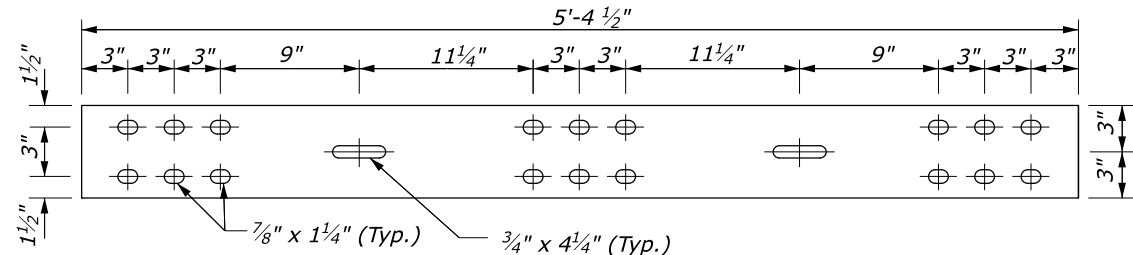
TRANSITION SECTION 6" x $\frac{3}{8}$ " x 9'-9"



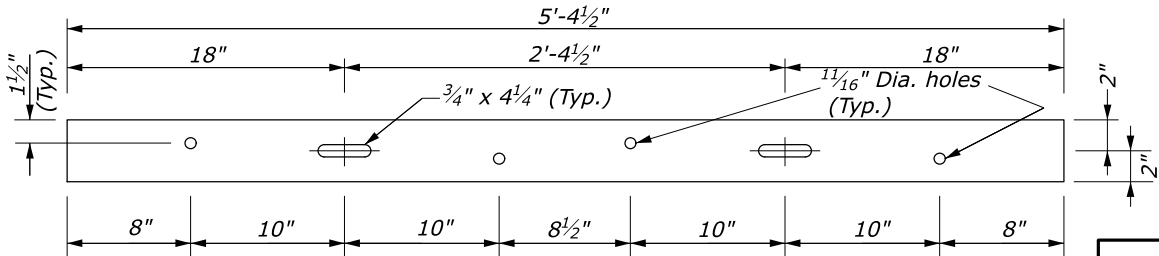
STEEL SPLICE PLATE 6" x $\frac{3}{8}$ " x 3'-0"



TRANSITION SECTION 6" x $\frac{3}{8}$ " x 11'-4 1/2"



STEEL SPLICE PLATE 6" x $\frac{3}{8}$ " x 5'-4 1/2"



TERMINAL SECTION (RUBRAIL) 4" x $\frac{3}{8}$ " x 5'-4 1/2"

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
FEDERAL LANDS DETAIL STEEL-BACKED TIMBER GUARDRAIL TEST LEVEL 2 TRANSITION TO STRAIGHT OR CURVED-END STRUCTURE Sheet 3 of 3	
DETAIL APPROVED FOR USE APPROVED: MAY 2011 REVISED: MAY 2020	DETAIL E617-67