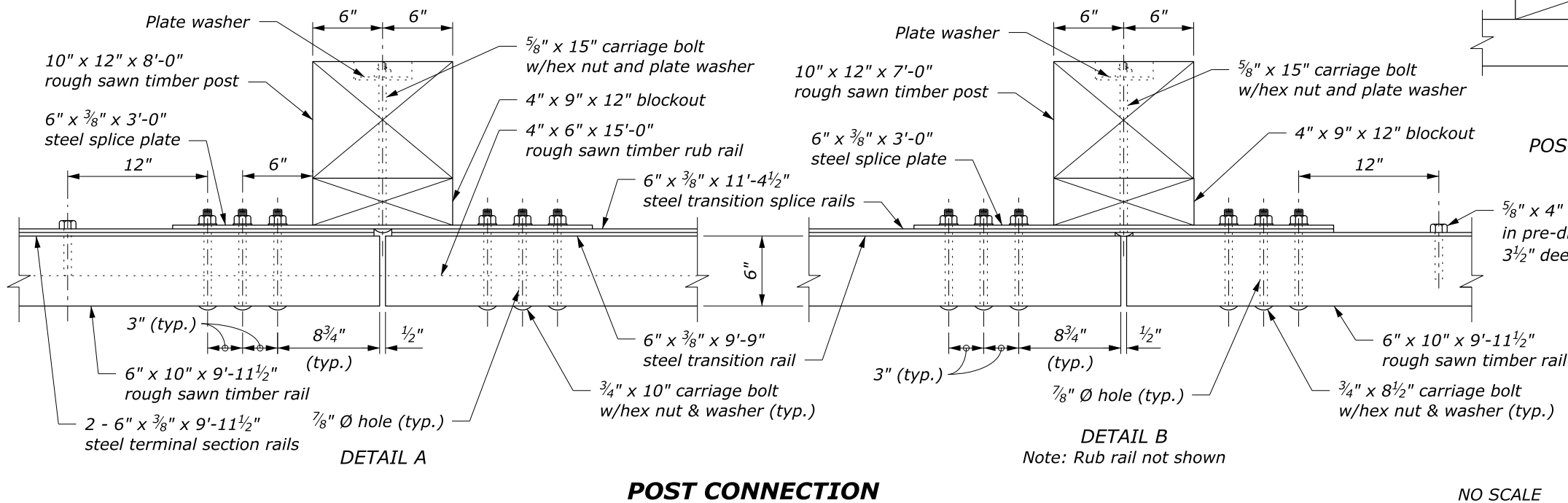
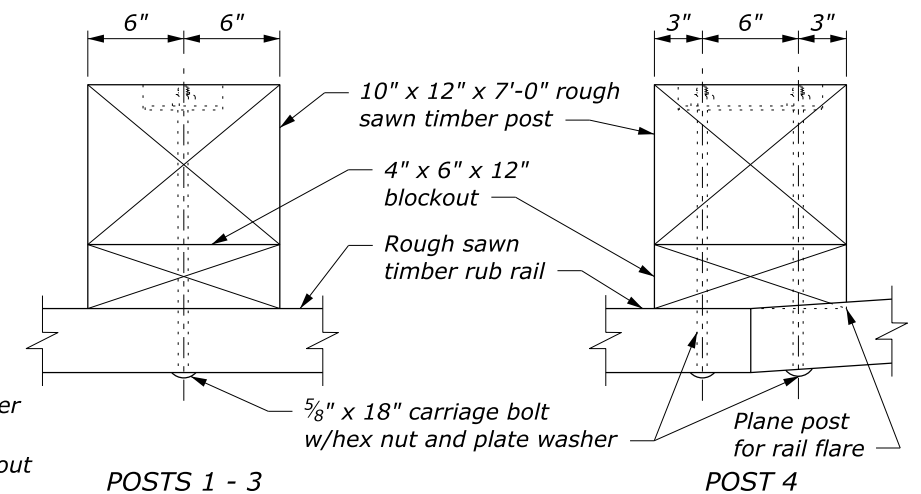
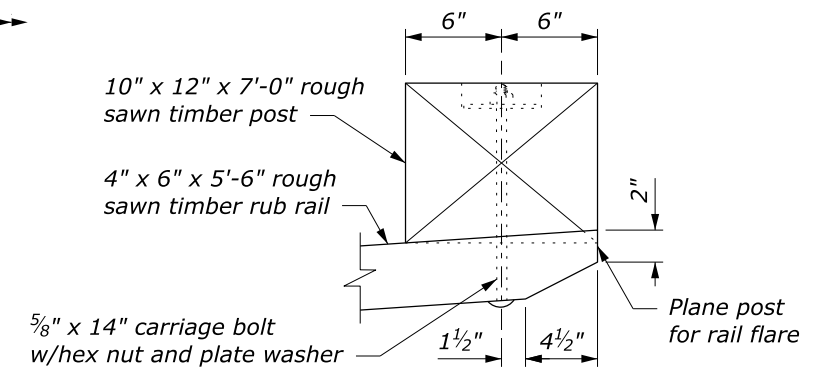
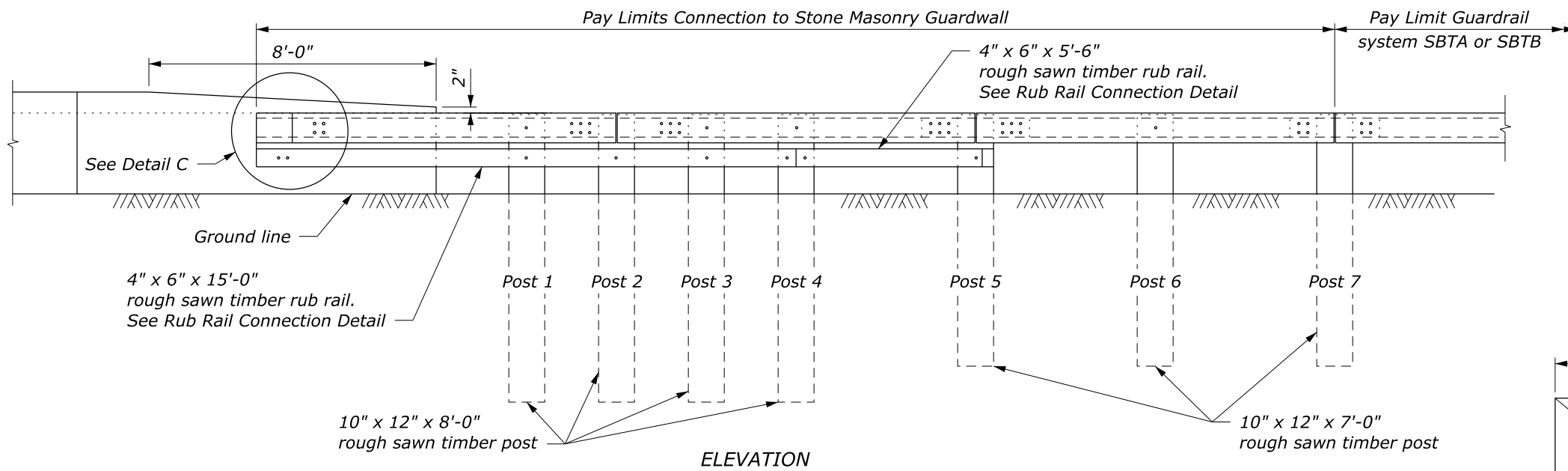


NOTE:

1. See the following sheets for Sections A-A through C-C, steel rail layouts, and other details.
2. Use weathering steel for all structural steel and fastener hardware.



RUB RAIL CONNECTION

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

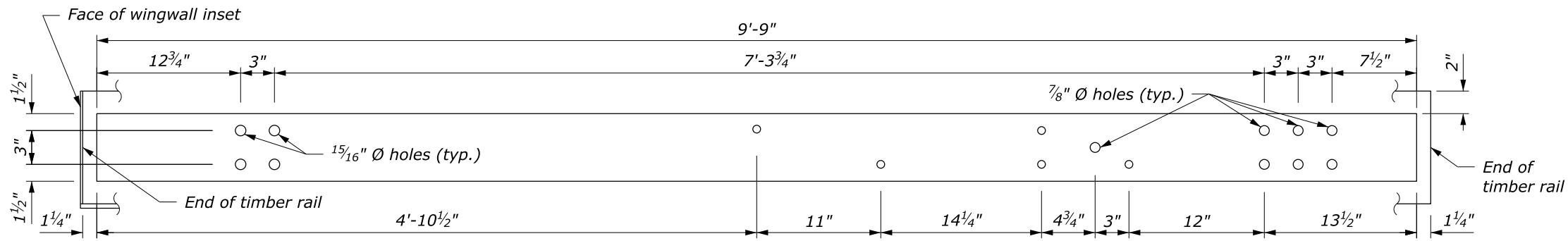
**STEEL-BACKED TIMBER GUARDRAIL
TL-2 CONNECTION TO STONE
MASONRY GUARDWALL**

Sheet 1 of 3

FLH STANDARD
617-64

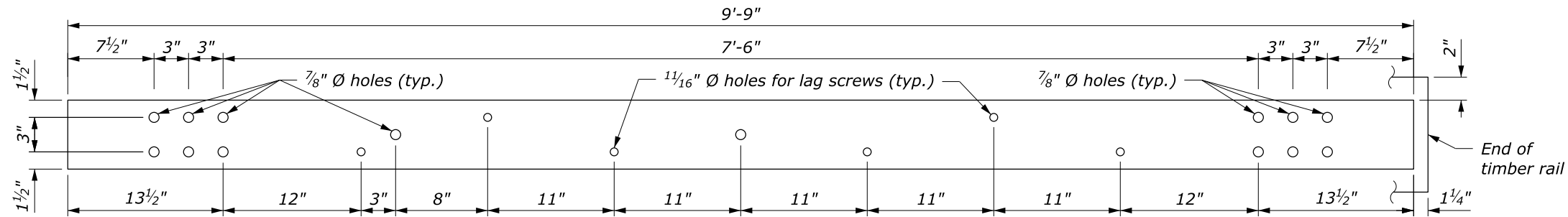
SPECIFICATION
FP-24, FP-14

APPROVED FOR USE
2/2024

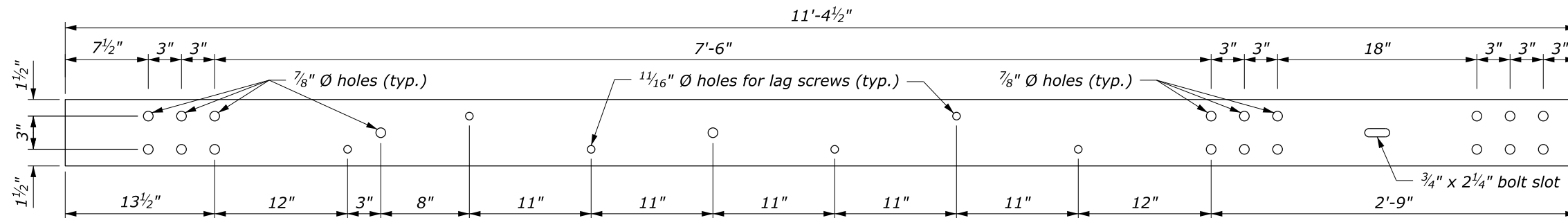


TERMINAL SECTION RAIL
6" x 3/8" x 9'-9"

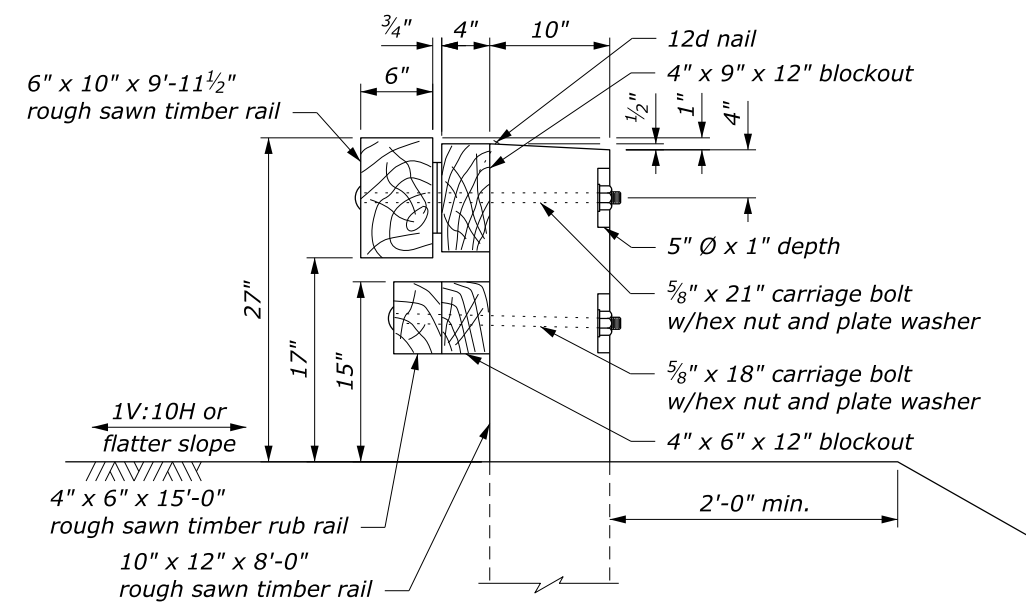
NOTE:
1. Pre-drill 3/4" holes in blockouts and posts.



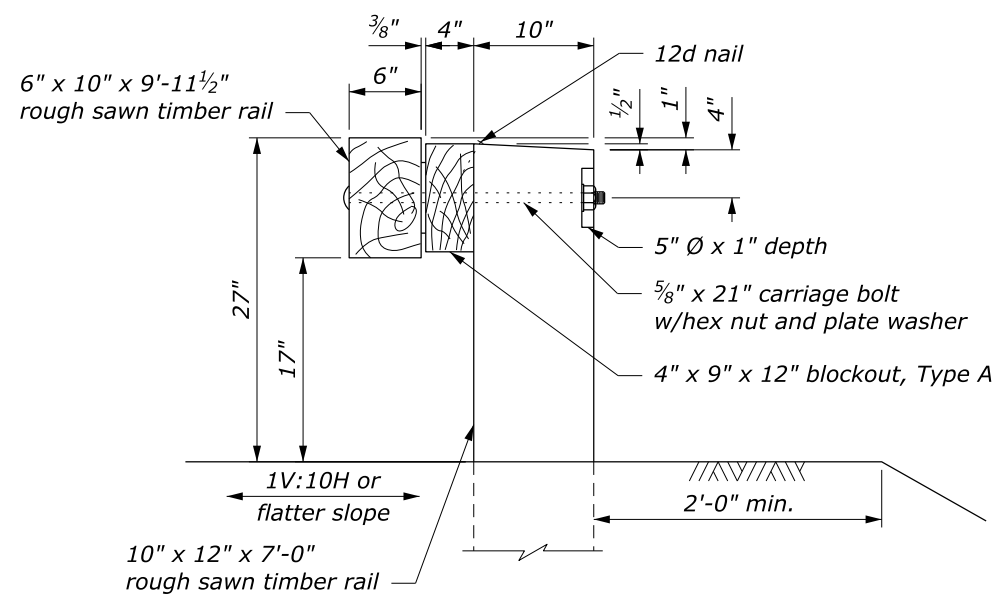
TRANSITION RAIL
6" x 3/8" x 9'-9"



TRANSITION SPLICE RAIL
6" x 3/8" x 11'-4 1/2"

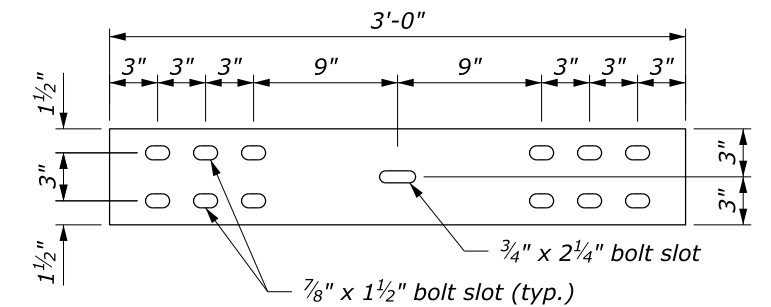


SECTION A-A



SECTION B-B

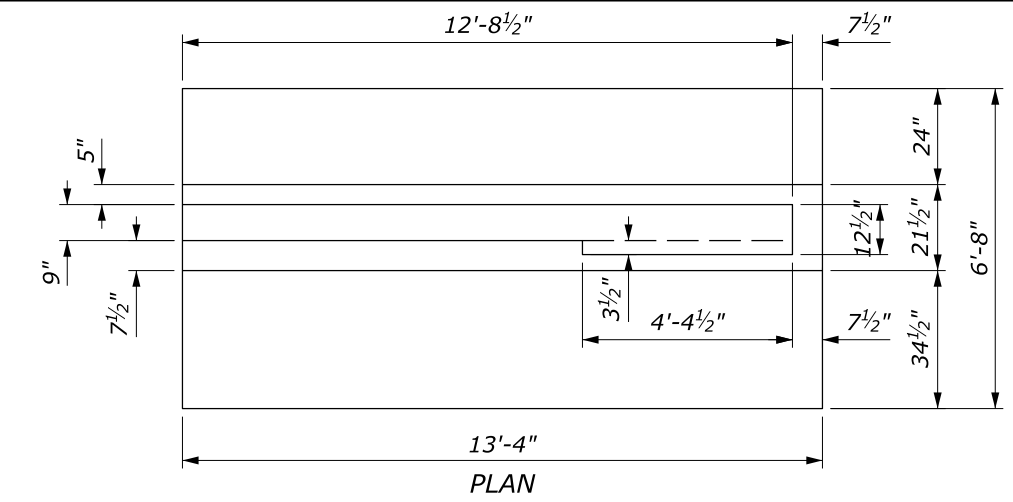
NO SCALE



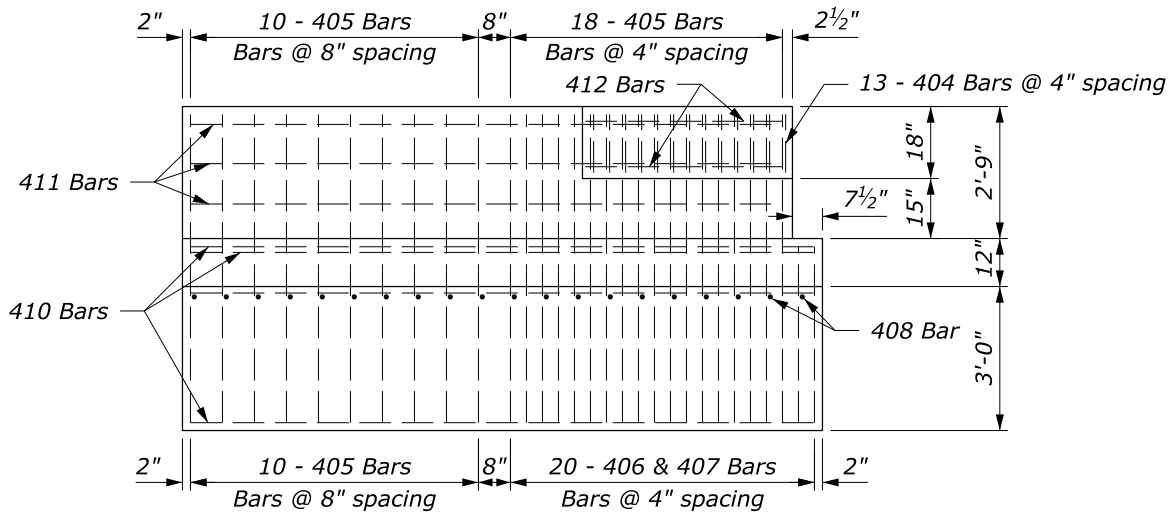
SPLICE PLATE
6" x 3/8" x 3'-0"

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY
**STEEL-BACKED TIMBER GUARDRAIL
TL-2 CONNECTION TO STONE
MASONRY GUARDWALL**
Sheet 2 of 3

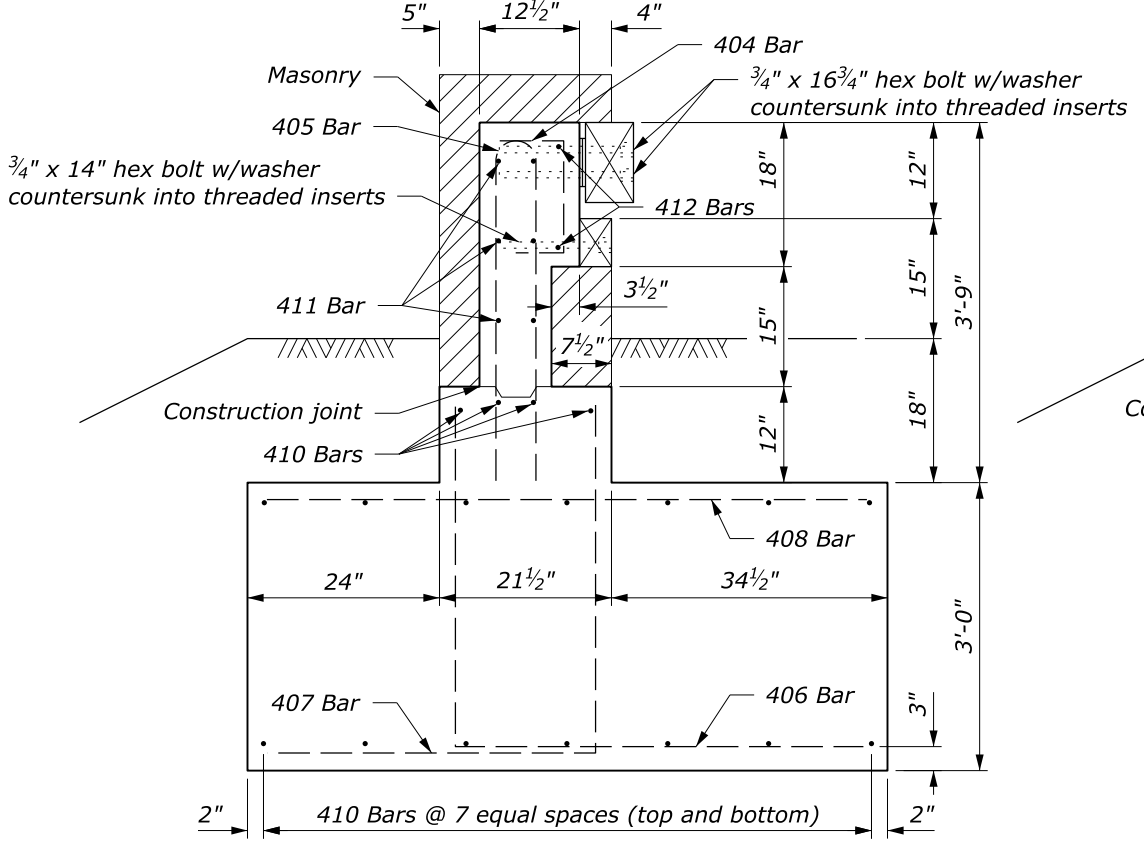
FLH STANDARD
617-64
SPECIFICATION
FP-24, FP-14
APPROVED FOR USE
2/2024



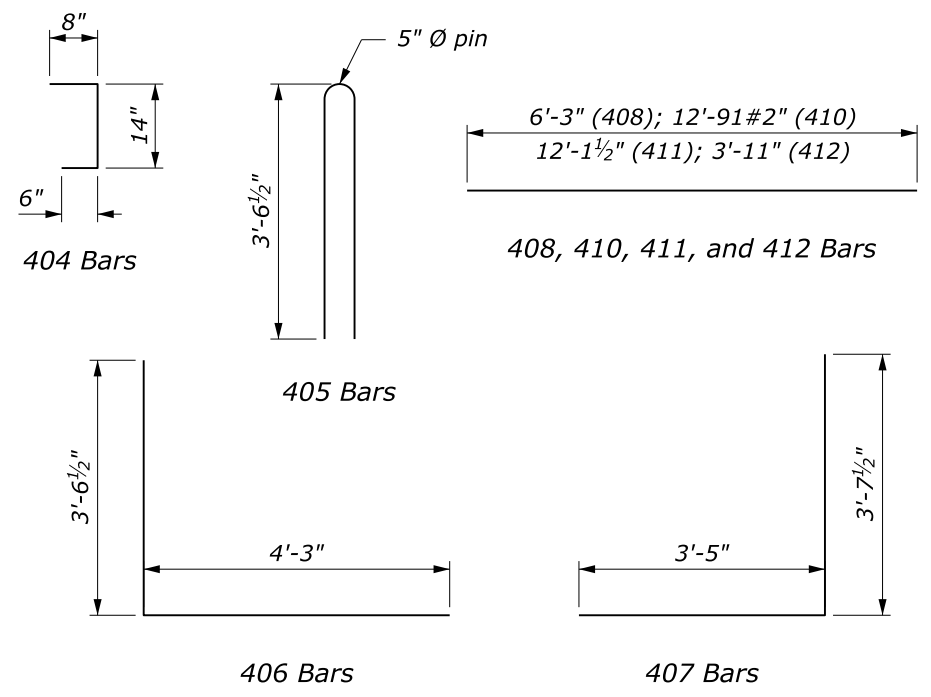
PLAN



ELEVATION

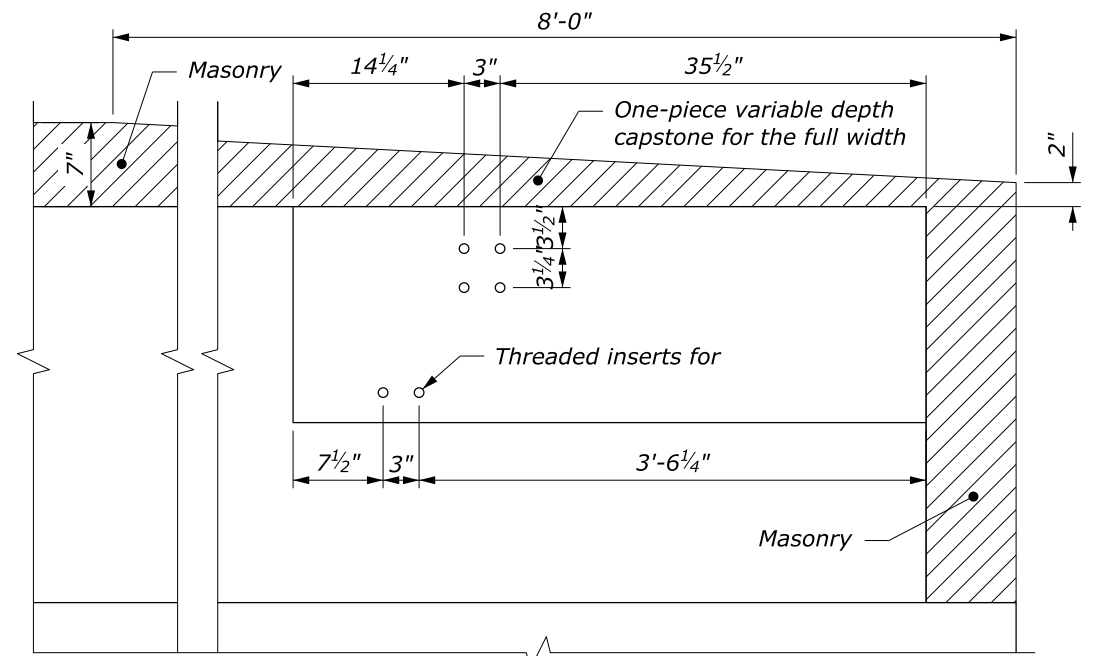


SECTION D-D
PARAPET END BLOCK

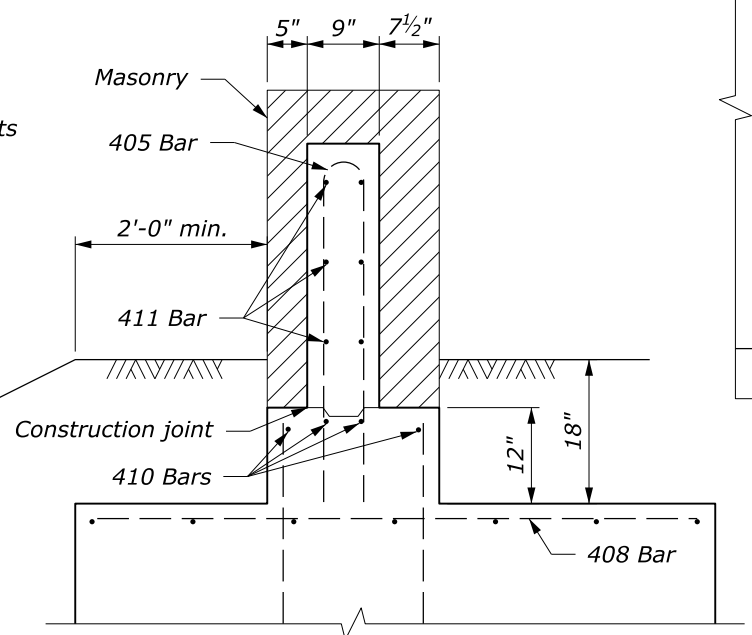


BAR DETAILS

- NOTE:**
1. Provide structural concrete Class A(AE), with a specified minimum 28-day compressive strength $F'_c=4350$ psi. Vibrate all concrete. Chamfer exposed edges $3/4$ " unless otherwise shown. Do not use calcium chloride additives in the concrete.
 2. Provide reinforcing steel Grade 420 (ASTM A615M-96a, Grade 420) deformed billet steel bars conforming to AASHTO M31M. The minimum concrete covering to the face of any bar is 2 inches unless otherwise shown. All bars are US Customary size #5.
 3. Construct footing against undisturbed material or backfill with well compacted granular material.



DETAIL C

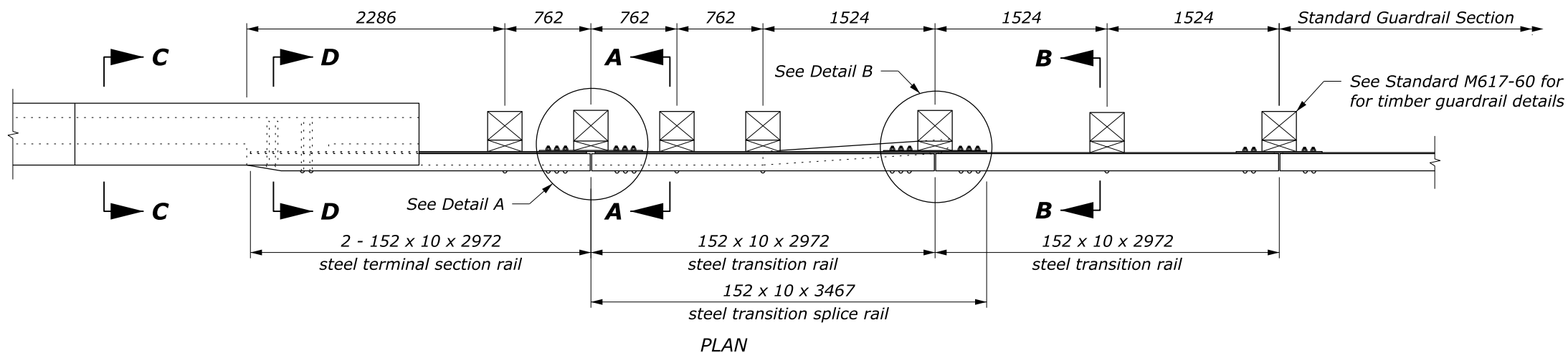


SECTION C-C

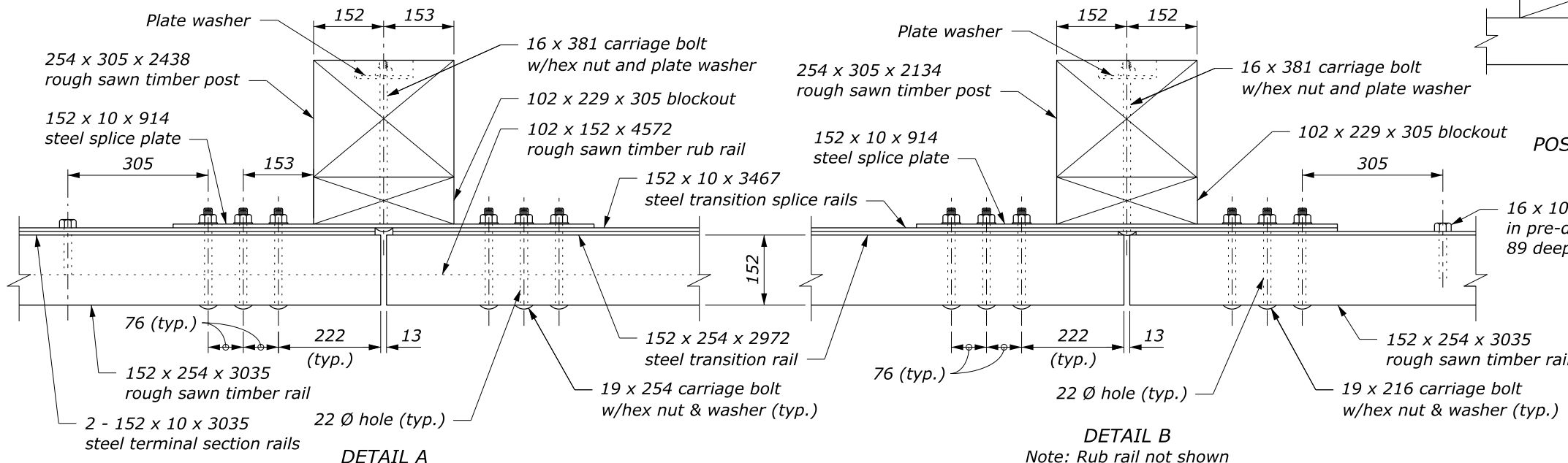
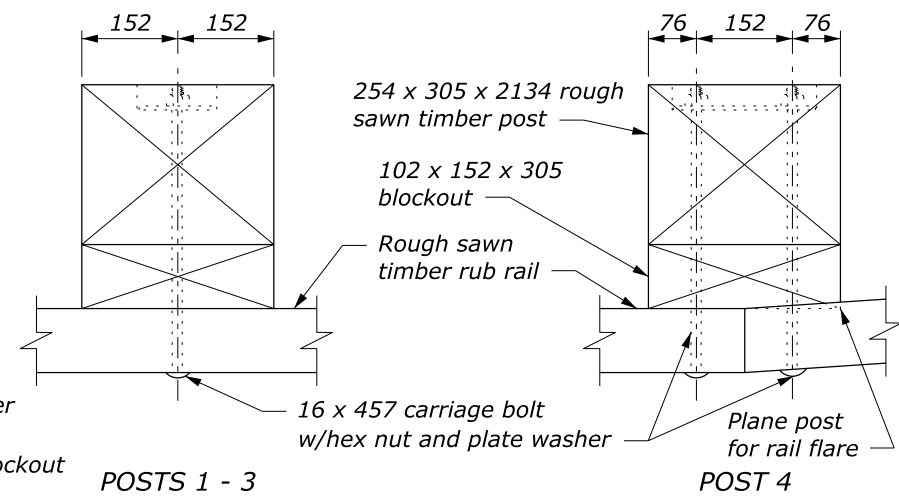
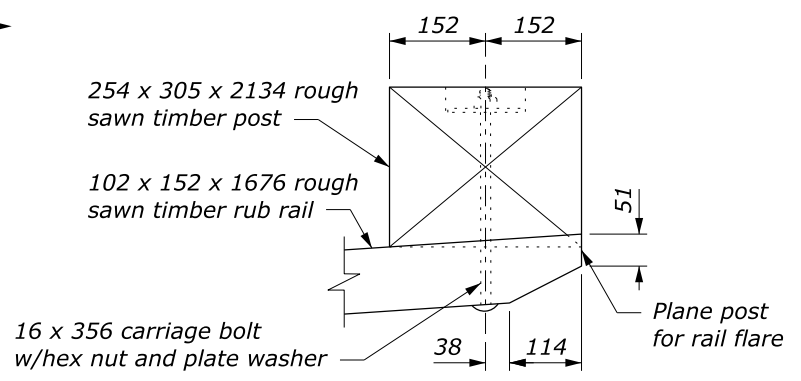
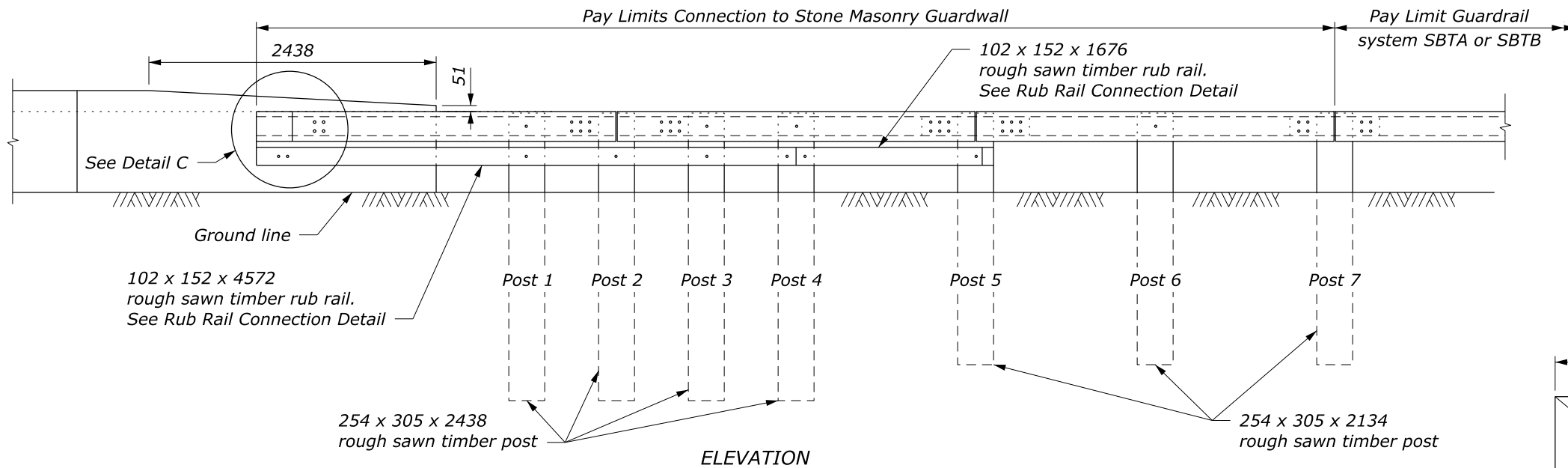
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	FLH STANDARD 617-64
STEEL-BACKED TIMBER GUARDRAIL TL-2 CONNECTION TO STONE MASONRY GUARDWALL	SPECIFICATION FP-24, FP-14
Sheet 3 of 3	APPROVED FOR USE 2/2024

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- NOTE:**
1. See the following sheets for Sections A-A through C-C, steel rail layouts, and other details.
 2. Use weathering steel for all structural steel and fastener hardware.
 3. Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are unavailable.



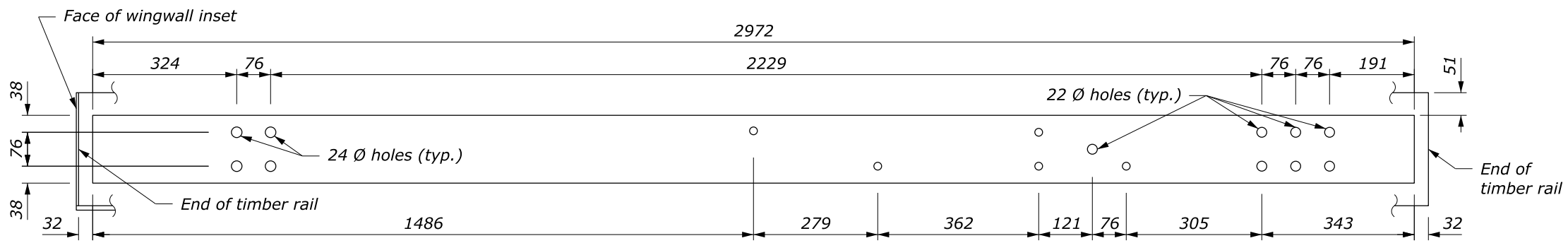
RUB RAIL CONNECTION

This drawing contains **Metric** units of measure. Dimensions without units are millimeters.

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	FLH STANDARD M617-64
STEEL-BACKED TIMBER GUARDRAIL TL-2 CONNECTION TO STONE MASONRY GUARDWALL	SPECIFICATION FP-24, FP-14
Sheet 1 of 3	APPROVED FOR USE 2/2024

NO SCALE

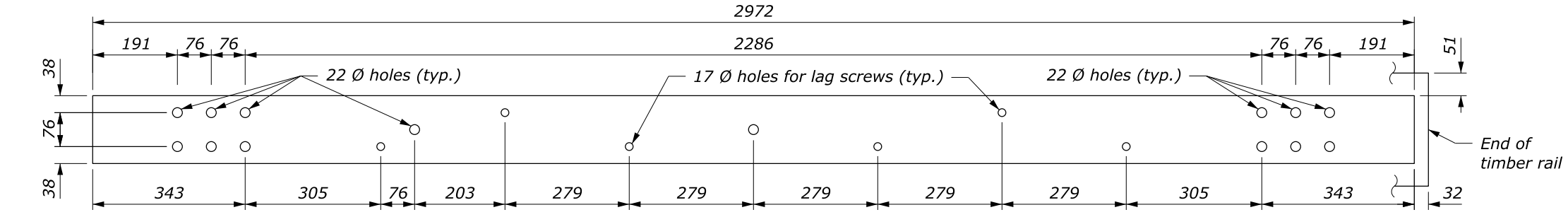
c:\pwwork\0419223\Std617-64.dgn [Std M617-64a] 24 June 2024 8:43 AM



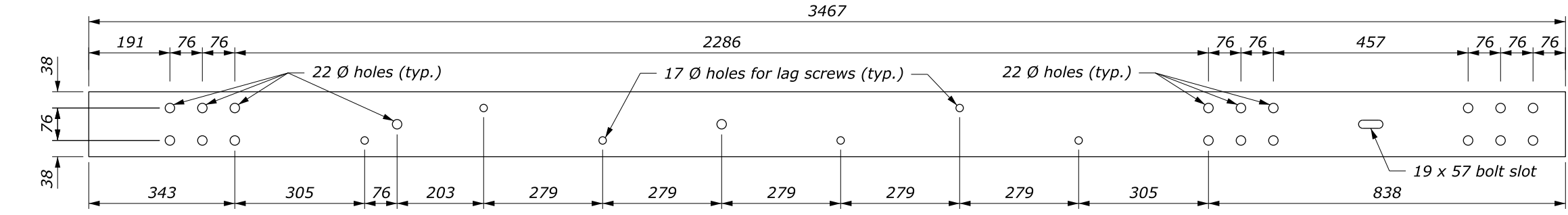
TERMINAL SECTION RAIL
152 x 10 x 2972

NOTE:

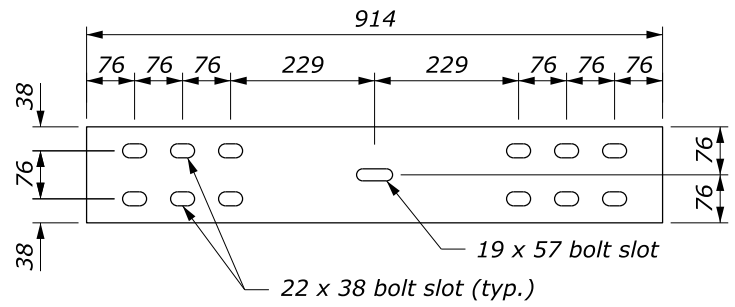
1. Predrill 19 mm holes in blockouts and posts.
2. Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are unavailable.



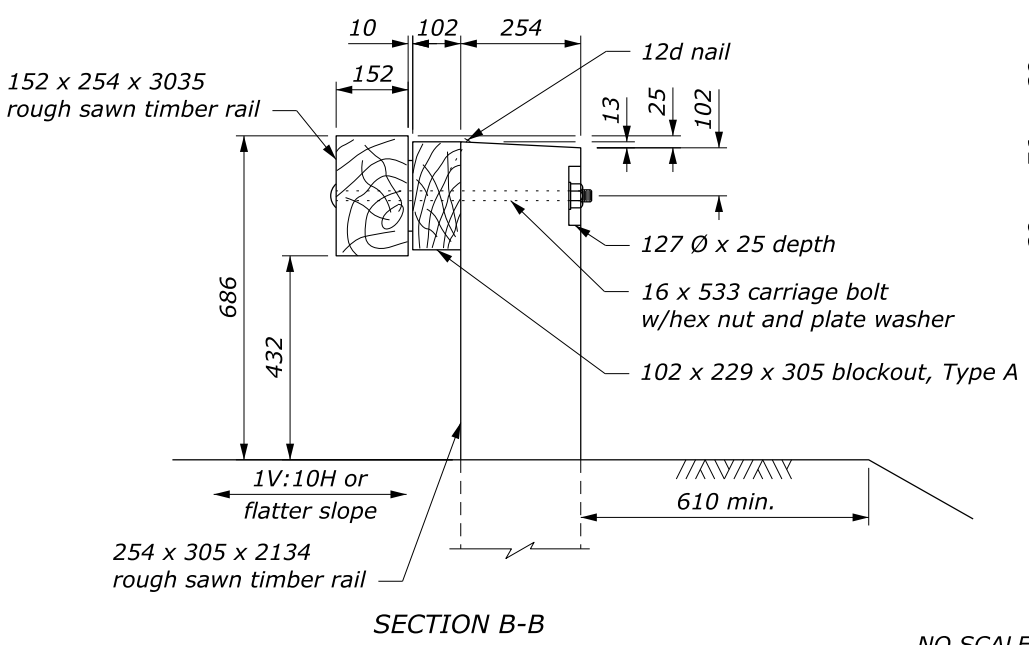
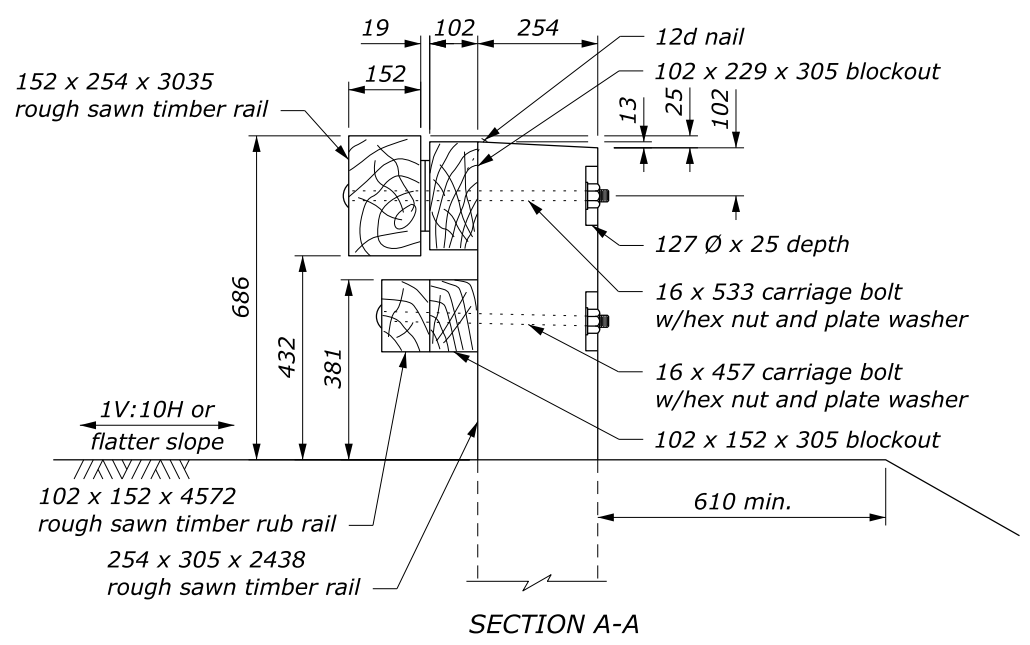
TRANSITION RAIL
152 x 10 x 2972



TRANSITION SPLICE RAIL
152 x 10 x 3467



SPLICE PLATE
152 x 10 x 914

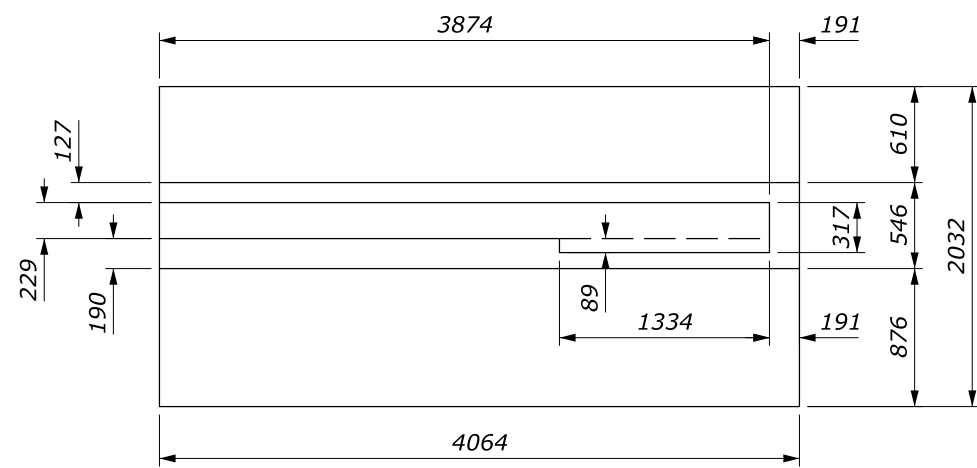


This drawing contains **Metric** units of measure. Dimensions without units are millimeters.

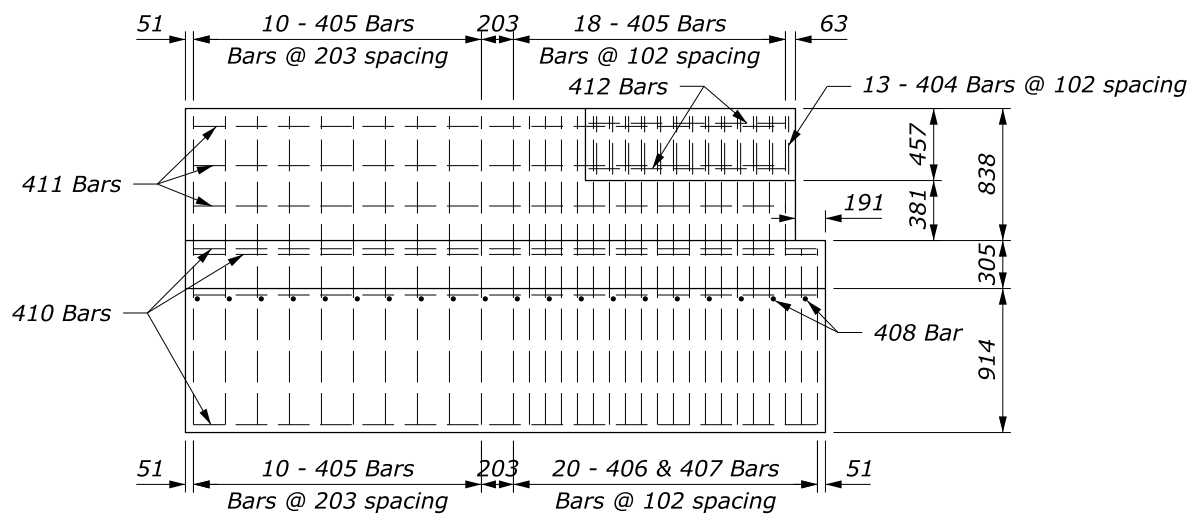
U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	FLH STANDARD M617-64
STEEL-BACKED TIMBER GUARDRAIL TL-2 CONNECTION TO STONE MASONRY GUARDWALL	SPECIFICATION FP-24, FP-14
Sheet 2 of 3	APPROVED FOR USE 2/2024

NO SCALE

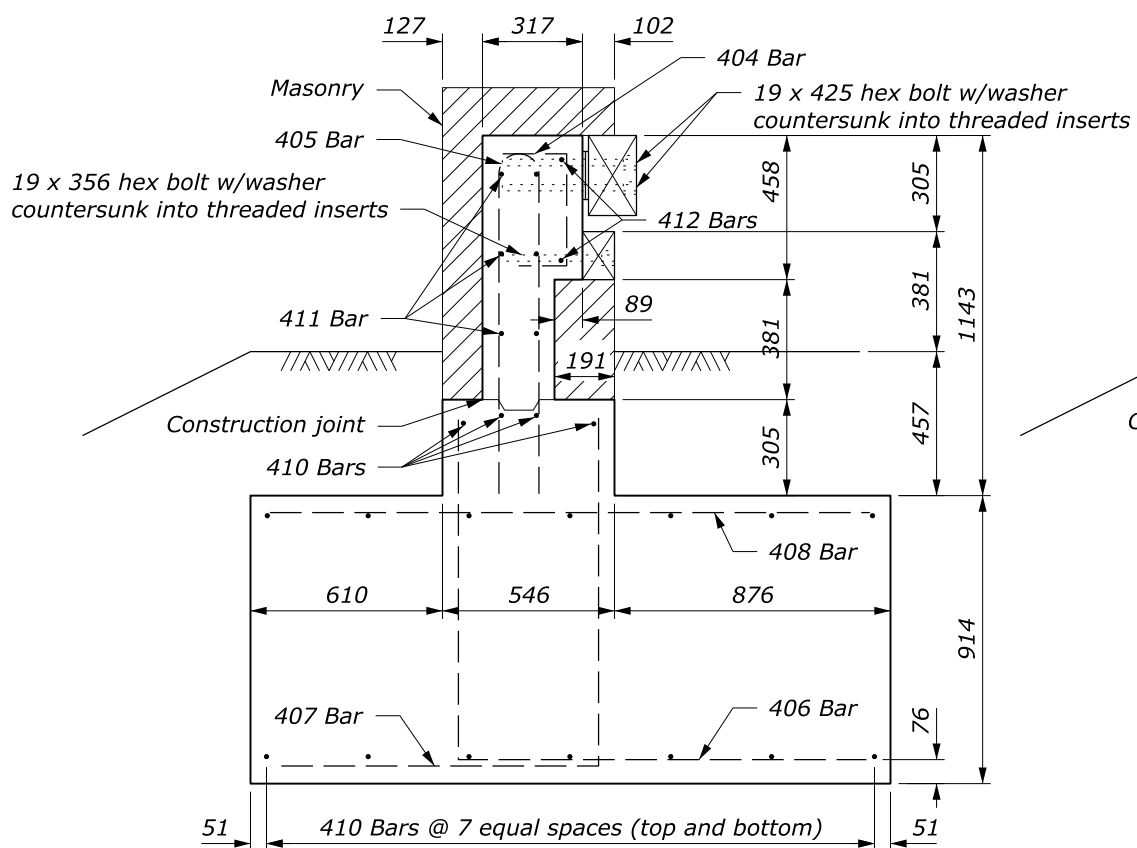
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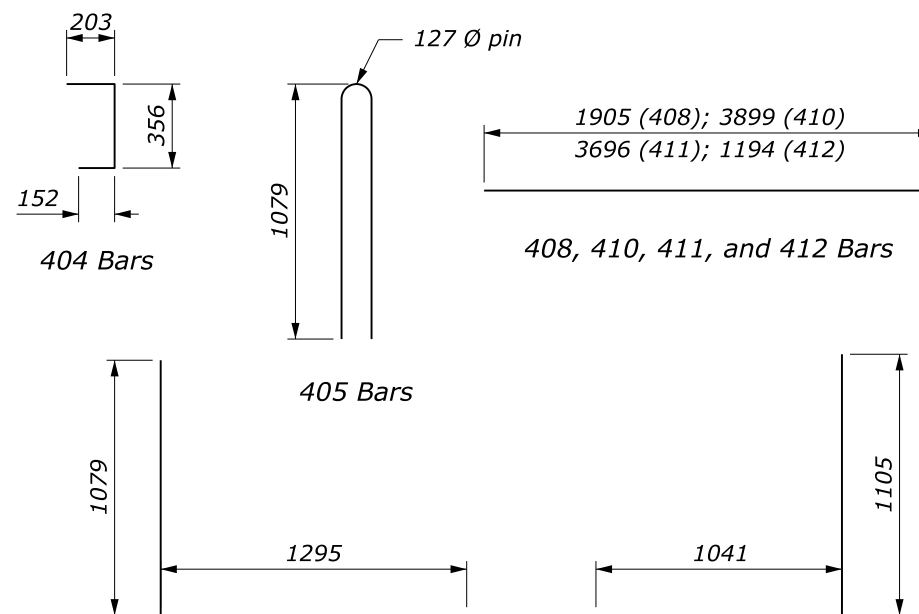
PLAN



ELEVATION



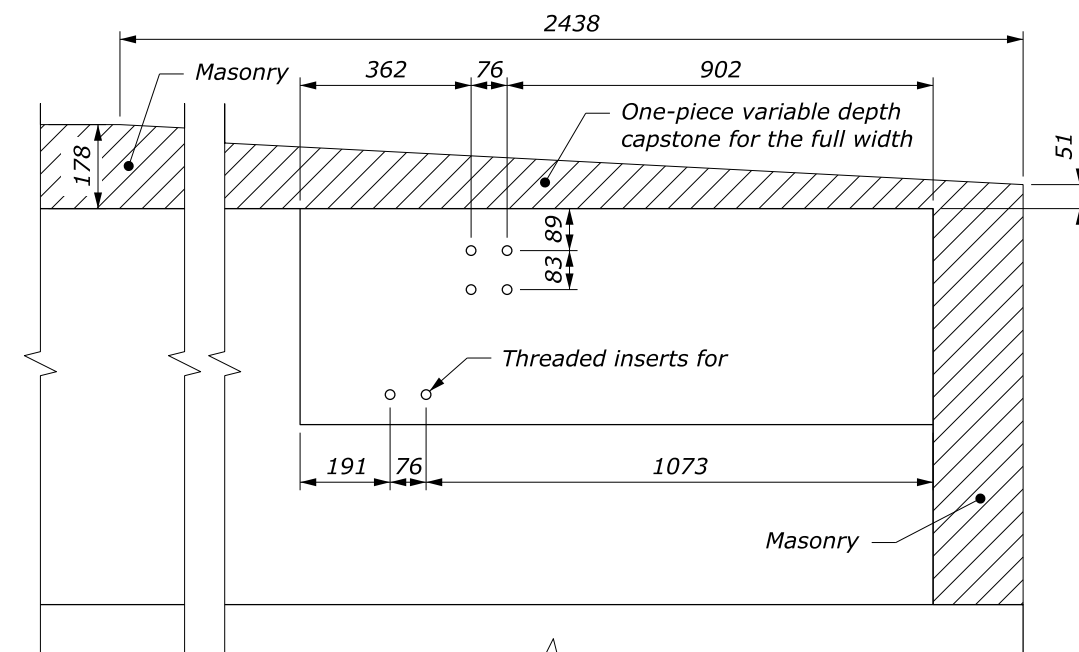
SECTION D-D
PARAPET END BLOCK



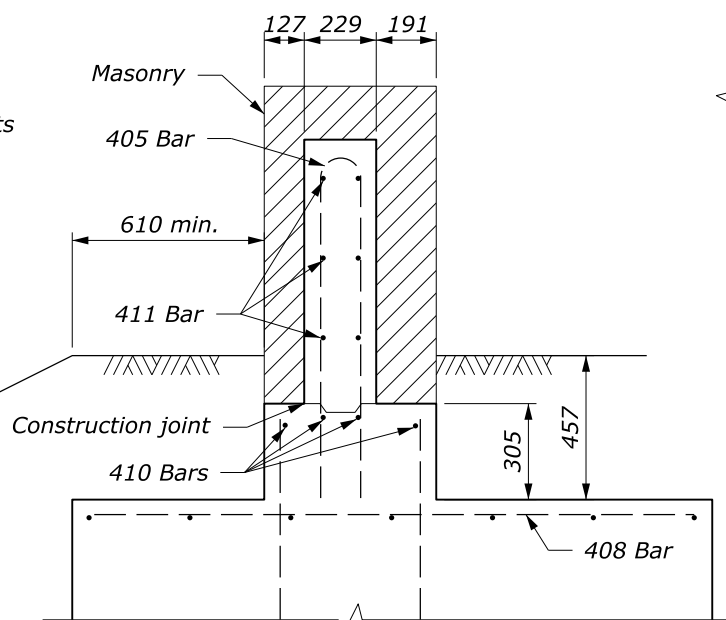
BAR DETAILS

NOTE:

1. Provide structural concrete Class A(AE), with a specified minimum 28-day compressive strength $F'_c=30$ MPa. Vibrate all concrete. Chamfer exposed edges 19 mm unless otherwise shown. Do not use calcium chloride additives in the concrete.
2. Provide reinforcing steel Grade 420 (ASTM A615M-96a, Grade 420) deformed billet steel bars conforming to AASHTO M31M. The minimum concrete covering to the face of any bar is 51 mm unless otherwise shown. All bars are Metric size #16.
3. Construct footing against undisturbed material or backfill with well compacted granular material.



DETAIL C



SECTION C-C

This drawing contains **Metric** units of measure. Dimensions without units are millimeters.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	FLH STANDARD M617-64
STEEL-BACKED TIMBER GUARDRAIL TL-2 CONNECTION TO STONE MASONRY GUARDWALL	SPECIFICATION FP-24, FP-14
Sheet 3 of 3	APPROVED FOR USE 2/2024