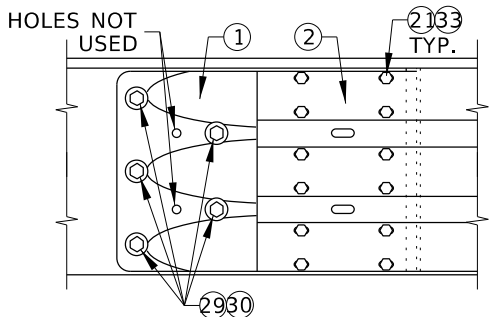
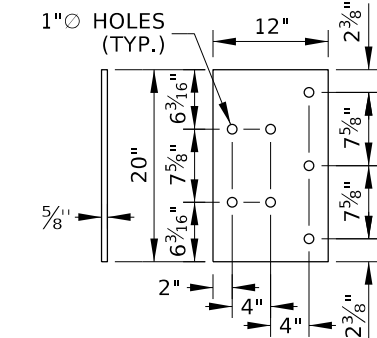
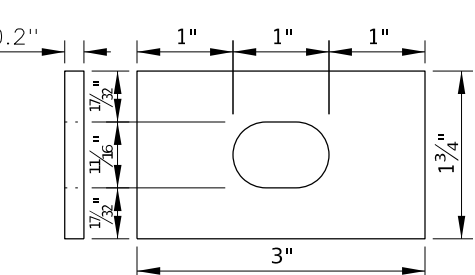




CONNECTOR BOLT DETAIL



THRIE-BEAM TRANSITION
CONNECTOR PLATE



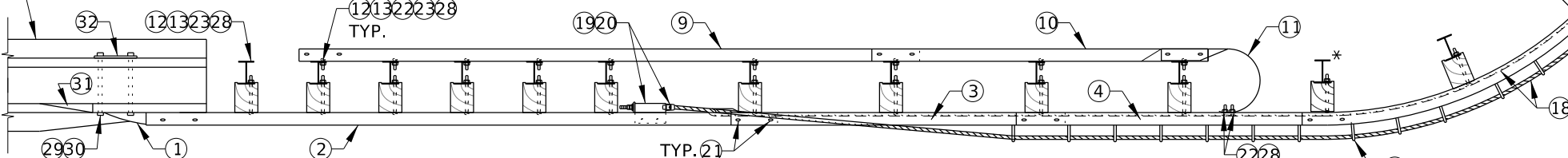
RECTANGULAR GUARDRAIL
PLATE WASHER

FWR03
SEE NOTE NO. 11

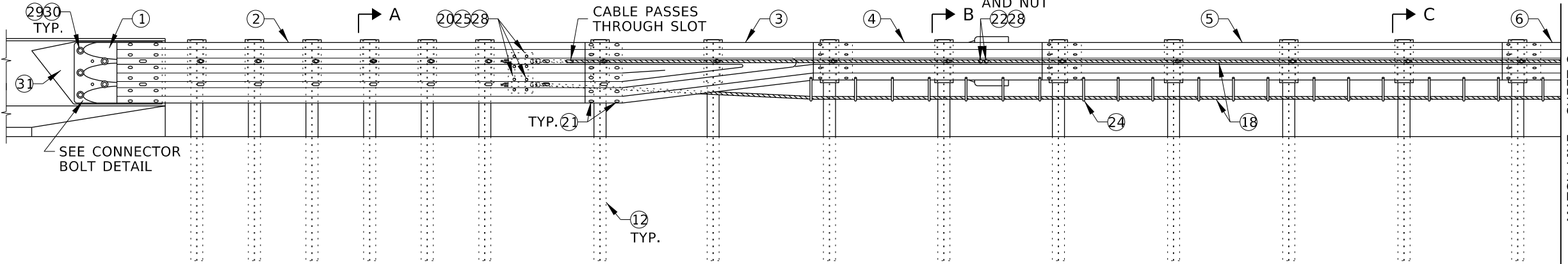
LEGEND:
* BOLT BLOCKOUT TO POST,
NOT TO GUARDRAIL

MATCH LINE - SHEET 3

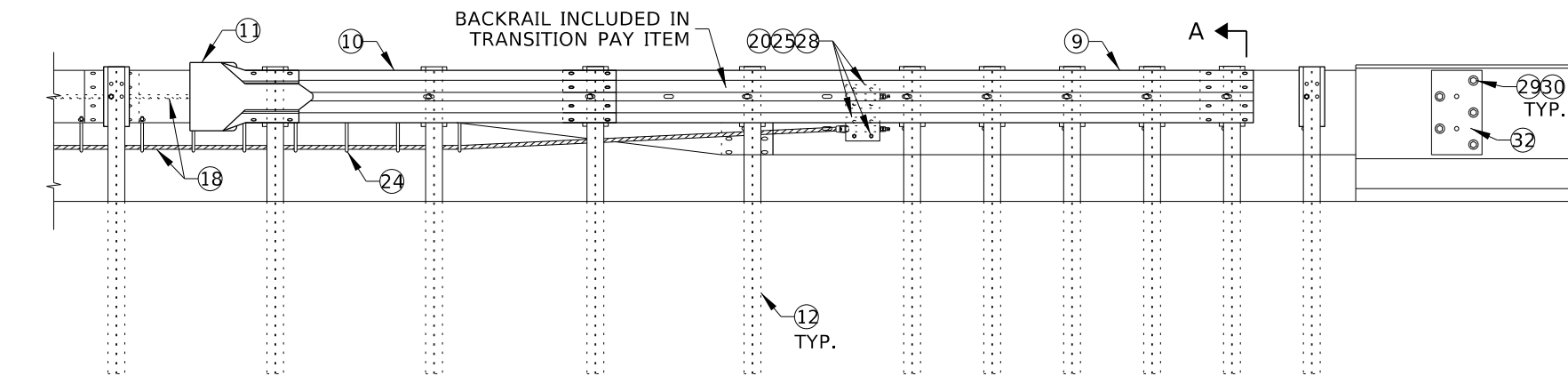
BRIDGE RAIL, PARAPET, OR
CONCRETE BARRIER. SEE
NOTE NOS. 4 AND 9



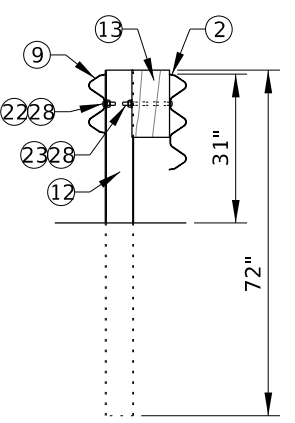
PLAN VIEW



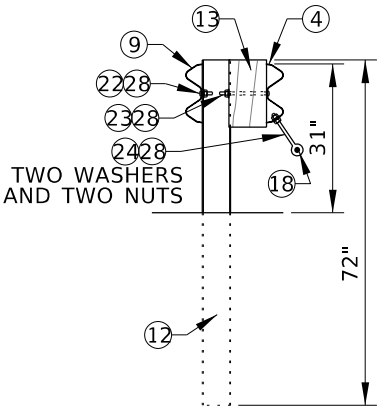
ELEVATION - FRONT VIEW



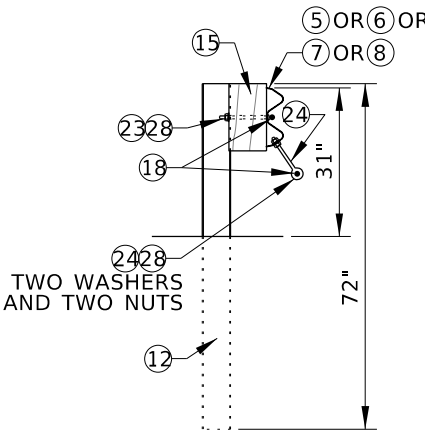
ELEVATION - BACK VIEW



SECTION A-A



SECTION B-B



SECTION C-C

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HIGHWAY DESIGN ENGINEER

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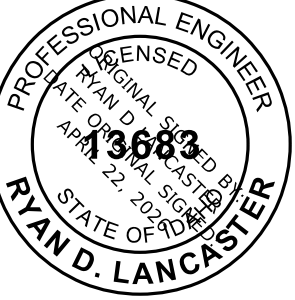
**SHORT RADIUS W-BEAM
GUARDRAIL SYSTEM**

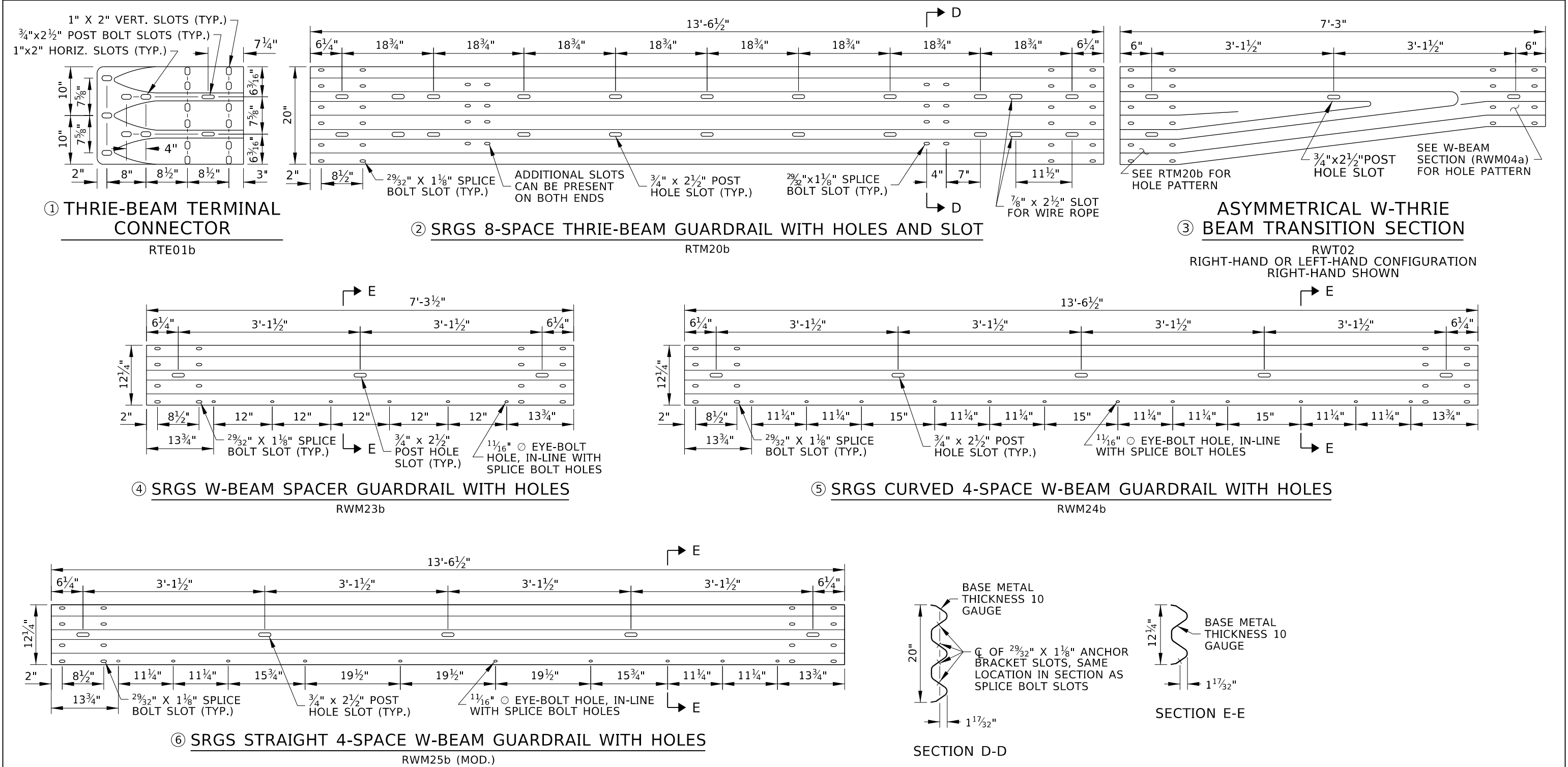
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PROFESSIONAL ENGINEER
LICENSED
RYAN D. LANCASTER
APR 22, 2024
STATE OF IDAHO

13683

NOTES

1. THE SHORT RADIUS W-BEAM GUARDRAIL SYSTEM (SRGS) SHOWN IS A MASH TEST LEVEL 3 BARRIER SYSTEM. THE SYSTEM IS FOR SHIELDING HIGHWAY OR ROAD USERS FROM ROADSIDE AREAS WHERE A MAIN ROAD AND A SIDE ROAD INTERSECT IN CLOSE PROXIMITY TO A BRIDGE OR LOCATION THE LENGTH OF NEED CANNOT BE PROVIDED UPSTREAM OF THE HAZARD.
2. PROVIDE BARRIER HARDWARE AS SHOWN AND AS SPECIFIED IN THE PUBLICATION "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE." WHERE THE GUIDE AND PLANS CONFLICT, PROVIDE HARDWARE COMPONENTS AS SHOWN ON THE PLANS.
3. USE 10 GAUGE W-BEAM AND THRIE-BEAM UNLESS OTHERWISE NOTED. DRILL OR PUNCH HOLES AND SLOTS BEFORE GALVANIZING UNLESS OTHERWISE NOTED.
4. THE SRGS SYSTEM CONSISTS OF FOUR SECTIONS (AND UP TO FOUR PAY ITEMS).
- A. SRGS THRIE-BEAM TRANSITION: USE THE SRGS THRIE-BEAM TRANSTION WITH W-BEAM BACKRAIL (INCLUDED IN TRANSITION PAY ITEM) AS SHOWN. DO NOT SHORTEN THE TRANSITION. CURB IS NOT REQUIRED BENEATH THE THRIE-BEAM TRANSITION, BUT CAN BE ADDED (SEE THE GUARDRAIL TRANSITION, HIGH SPEED STANDARD DRAWING). THE FOLLOWING APPLY WHEN CONNECTING THE SRGS TO VARYING RIGID BARRIER CONNECTIONS:

I. BRIDGE RAIL OR PARAPET: SEE BRIDGE PLANS.

II. CAST-IN-PLACE CONCRETE BARRIER: USE THE CONCRETE BARRIER TO THRIE-BEAM TRANSITION CONNECTOR PLATE.

III. PRECAST CONCRETE BARRIER:

a. USE THE CONCRETE BARRIER TO THRIE-BEAM TRANSITION CONNECTOR PLATE.

b. CHAMFER THE FIRST 43½" OF THE BARRIER THAT EXTENDS BEYOND THE FACE OF THE CURB BENEATH THE TRANSITION (SEE THE PRECAST CONCRETE BARRIER STD. DWG.).

c. USE ANCHOR PINS TO PIN DOWN THE FIRST THREE BARRIER SECTIONS.

B. SRGS W-BEAM CURVED SECTION: USE 8', 16', OR 24' RADII. DO NOT USE OTHER RADII. SHOP BEND CURVED W-BEAM. WHERE INDICATED, BOLT BLOCKOUT TO POST, BUT DO NOT BOLT THROUGH W-BEAM (RWM24b). DO NOT INSTALL CURB IN THE CURVED SECTION.

C. SRGS W-BEAM SIDE ROAD TANGENT SECTION: DO NOT SHORTEN OR MODIFY THE SIDE ROAD TANGENT SECTION. DO NOT INSTALL CURB IN THE SIDE ROAD TANGENT SECTION.

D. SRGS W-BEAM TRAILING-END CONSISTING OF A GUARDRAIL ANCHOR, A GUARDRAIL TERMINAL, OR CONTINUATION OF 31" W-BEAM GUARDRAIL ON THE SIDE ROAD.

I. ANCHOR: USE THE ANCHOR SYSTEM TO END THE SRGS WHEN THE ANCHOR IS OUTSIDE OF THE CLEAR ZONE FOR APPROACHING TRAFFIC ON THE MINOR ROAD. USE RWM27b.

II. GUARDRAIL TERMINAL: USE A CRASHWORTHY GUARDRAIL TERMINAL TO END THE SRGS WHEN APPROACHING TRAFFIC ON THE MINOR ROAD IS WITHIN THE CLEAR ZONE FOR THE MINOR ROAD. USE 10'-4¾" RWM27b.

III. 31" W-BEAM GUARDRAIL: EXTEND THE 31" W-BEAM GUARDRAIL WHEN GUARDRAIL CONTINUES ON THE MINOR ROAD. USE 13'-6½" RWM27b.
5. THE WIRE ROPES BEGIN IN THE SRGS THRIE-BEAM TRANSITION SECTION AND END IN THE TRAILING END SECTION. THE WIRE ROPES ARE PAID UNDER THE SHORT RADIUS W-BEAM GUARDRAIL PAY ITEM.
6. TENSION THE FINISHED CABLE ASSEMBLIES UNTIL THE SLACK IS REMOVED.
7. KEEP THE AREA BEHIND THE SRGS FREE OF RIGID OBJECTS. IN HIGH-SPEED (TL-3 SPEED) IMPACTS WITH THE SRGS, VEHICLES (MASH TL-3 SPECIFICATIONS) CAN ENTER INTO AN AREA MEASURED 15' FROM THE HIGHWAY OR MAIN ROAD AND 30' FROM THE SIDE ROAD.
8. OVERLAP SPLICES SO THE EXPOSED W-BEAM EDGE IS DOWNSTREAM OF THE ADJACENT TRAFFIC ON THE HIGHWAY OR MAIN ROAD.
9. IF THERE IS NO RIGID BARRIER ON THE HIGHWAY OR MAIN ROAD, THE SRGS SHOULD BE INSTALLED SYMMETRICALLY WITHOUT THE SRGS THRIE-BEAM TRANSITION. THE SECTION ALONG THE HIGHWAY OR MAIN ROAD SHOULD BE THE MIRROR IMAGE OF THE SIDE ROAD INSTALLATION.
10. THE FOLLOWING APPLY TO THE CONCRETE BARRIER TO THRIE-BEAM TERMINAL CONNECTOR PLATE:
- A. USE ASTM A36 STEEL. USE 3⁄16" THICK STEEL FOR PLATES P1 AND P2. USE ¼" THICK STEEL FOR STIFFENERS S1 THROUGH S10.

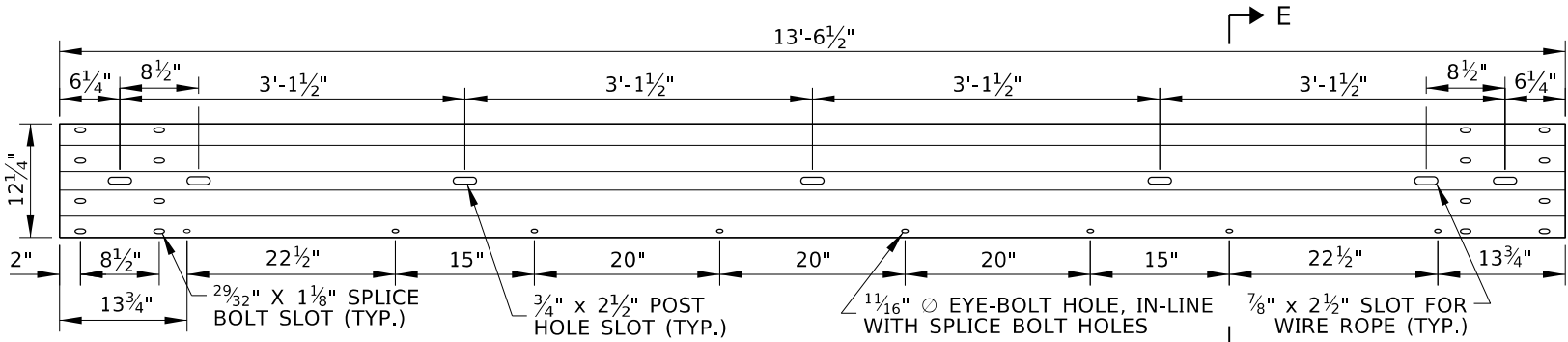
B. WELD COMPONENTS WITH E60 ROD.

C. WELD STIFFENERS LOCATED ON THE OUTSIDE EDGES OF THE COVER PLATES WITH 3⁄16" CONTINUOUS BACK WELD ON EXTERNAL SIDES AND 3⁄16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

D. WELD STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATES WITH 3⁄16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

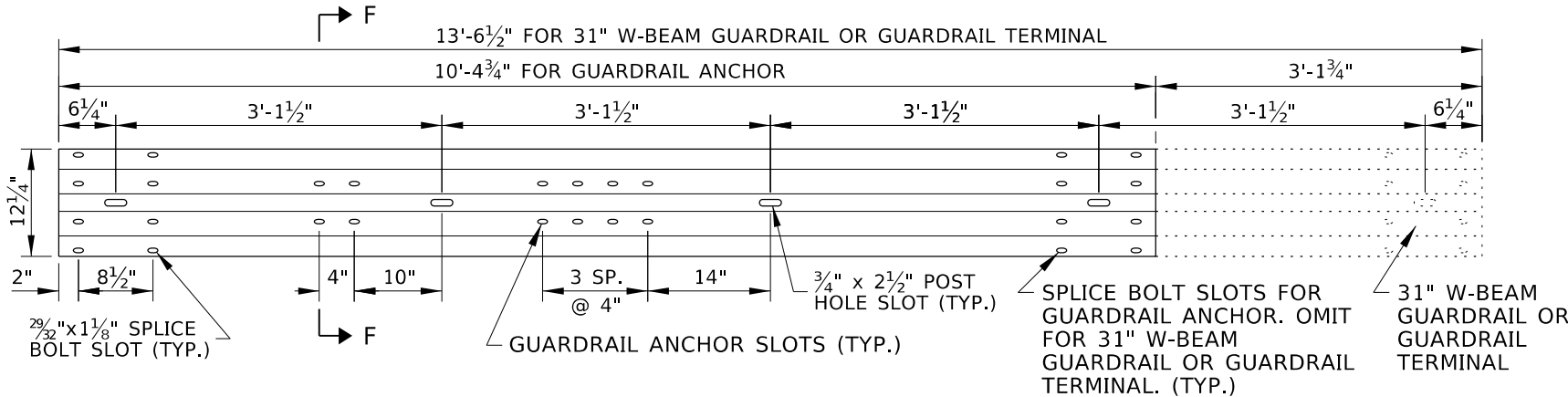
E. WELD RECTANGULAR AND TRIANGULAR COVER PLATES TOGETHER WITH A 3⁄16" CONTINUOUS BACK WELD ON BOTH SIDES.

F. GALVANIZE CONNECTOR PLATES AFTER PUNCHING AND ASSEMBLY.
11. INSTALL RECTANGULAR GUARDRAIL PLATE WASHERS UNDER GUARDRAIL NUTS AT THE SPLICE BETWEEN THE THRIE-BEAM GUARDRAIL AND THRIE-BEAM TERMINAL CONNECTOR.
12. DELINEATE THE SRGS WITH TYPE 9 DELINEATORS. SEE THE DELINEATOR STANDARD DRAWING FOR DELINEATOR SPACING.
13. DRAWING NOT TO SCALE.



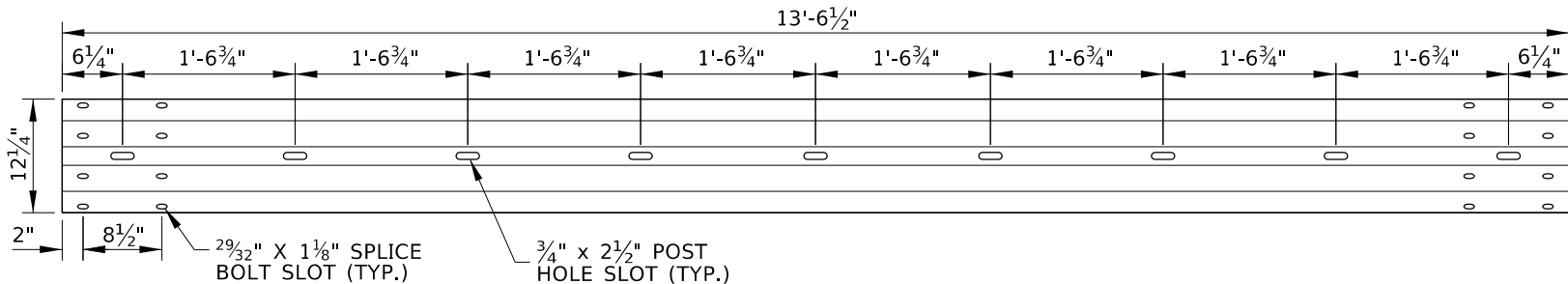
⑦ SRGS STRAIGHT 4-SPACE W-BEAM GUARDRAIL WITH HOLES AND SLOT

RWM26b



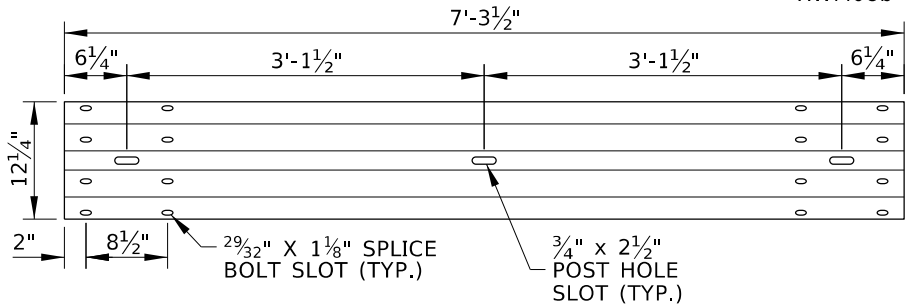
⑧ SRGS 4-SPACE W-BEAM GUARDRAIL WITH HOLES

RWM27b



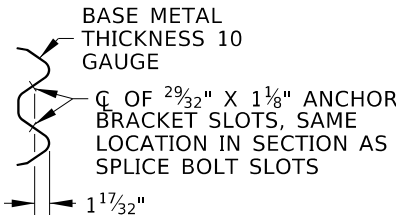
⑨ 8-SPACE W-BEAM GUARDRAIL

RWM08b



⑩ W-BEAM SPACER GUARDRAIL

RWM01b (MOD.)



SECTION F-F

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SHORT RADIUS W-BEAM
GUARDRAIL SYSTEM

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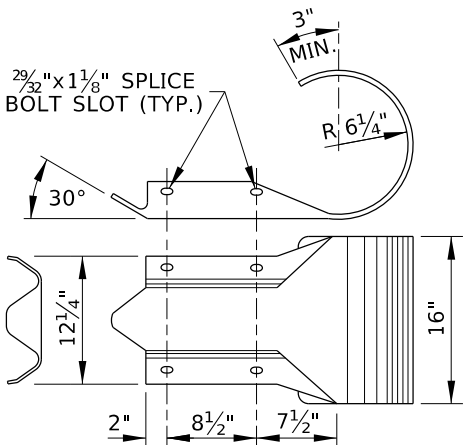
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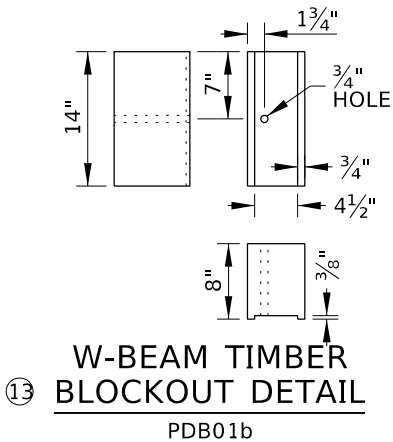
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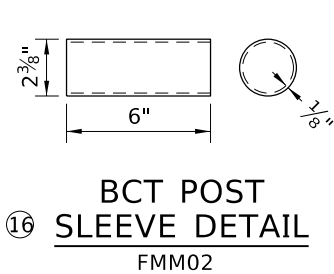




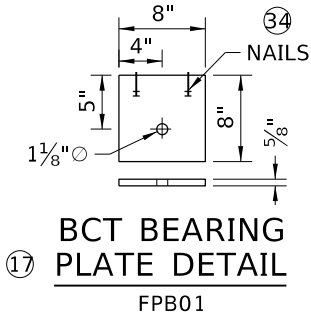
① **W-BEAM END SECTION DETAIL**
RWE03a



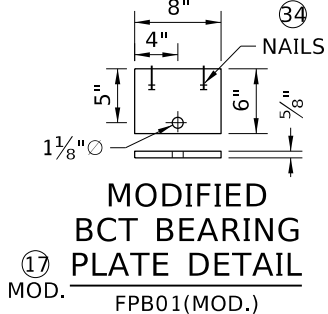
⑬ **W-BEAM TIMBER BLOCKOUT DETAIL**
PDB01b



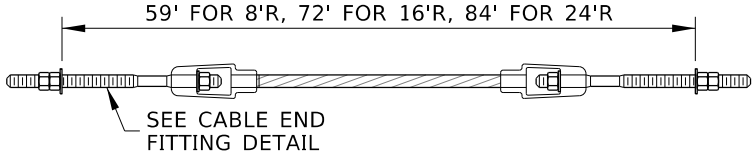
⑯ **BCT POST SLEEVE DETAIL**
FMM02



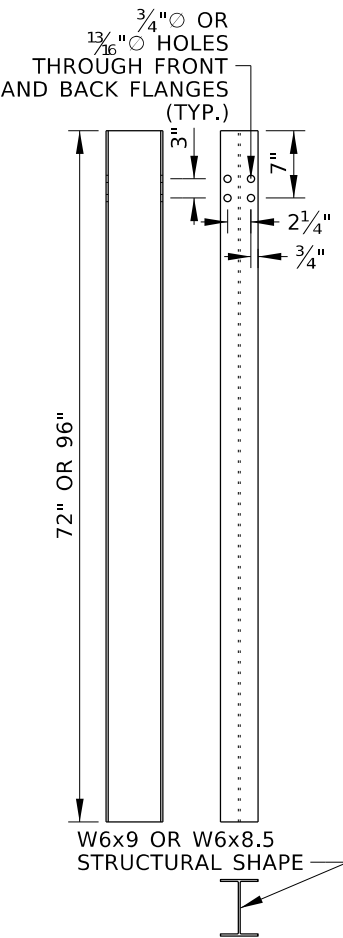
⑰ **BCT BEARING PLATE DETAIL**
FPB01



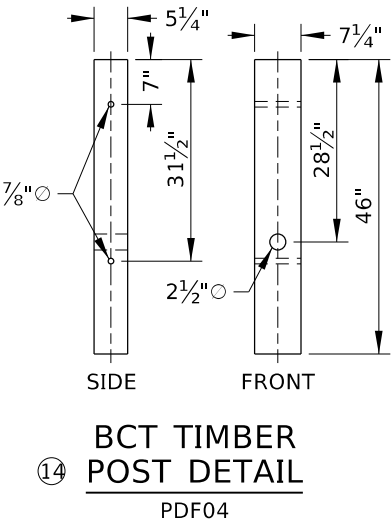
⑰ MOD. **BCT BEARING PLATE DETAIL**
FPB01(MOD.)



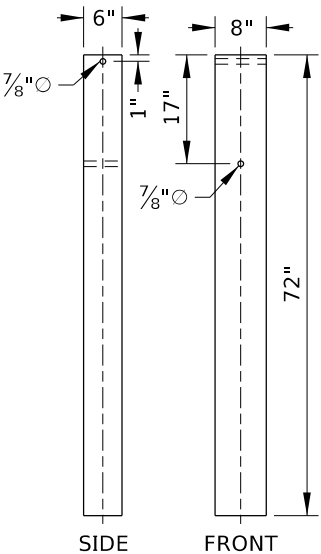
⑱ **WIRE ROPE DETAIL**
RCM01



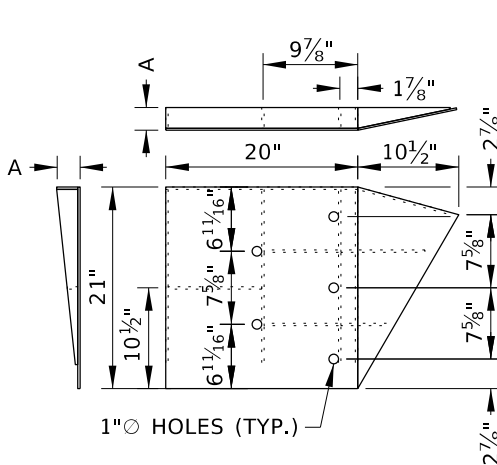
⑫ **72" WIDE-FLANGE GUARDRAIL POSTS**
PWE01



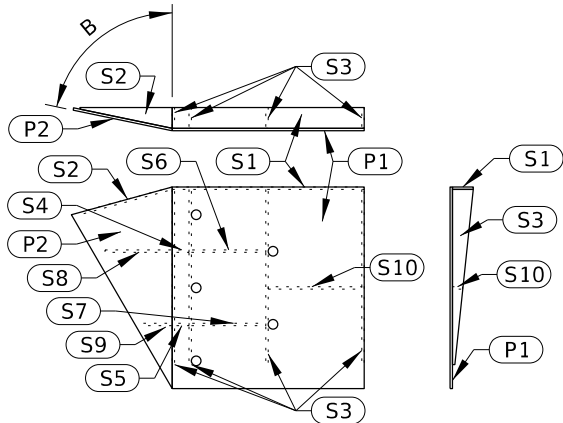
⑭ **BCT TIMBER POST DETAIL**
PDF04



⑮ **FOUNDATION TUBE DETAIL**
PTE06

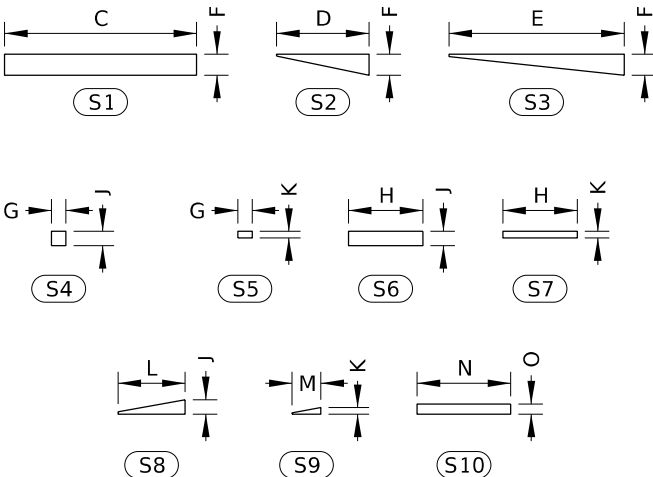


LEFT-HAND VERSION



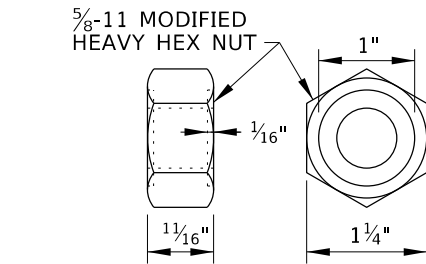
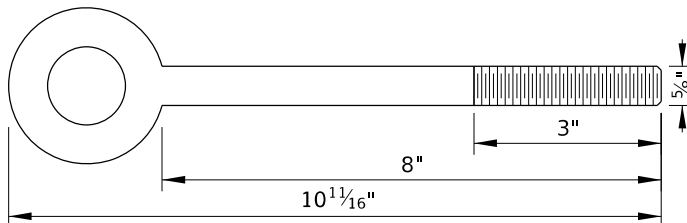
RIGHT-HAND VERSION

③① **CONCRETE BARRIER TO THRIE-BEAM TRANSITION CONNECTOR PLATE**
FPB--, ASTM A36, SEE NOTE NO. 10



CONNECTOR PLATE STIFFENER DETAIL
SEE NOTE NO. 10

STIFFENER DIMENSION TABLE		
DIM.	F-SHAPE / NJ SHAPE	SINGLE SLOPE SHAPE
A	2 3/8"	4"
B	78°	69°
C	20"	20"
D	9 5/8"	9 5/8"
E	18 1/4"	18 1/4"
F	2 3/16"	3 13/16"
G	1 1/2"	1 1/2"
H	7 3/4"	7 3/4"
J	1 1/2"	2 7/16"
K	1 1/16"	1 1/8"
L	7"	7"
M	3"	3"
N	9 3/4"	9 3/4"
O	1 1/16"	1 13/16"



②④ **EYE-BOLT AND RECESSED NUT**
FBE01a
USE WITH TWO (2) RECESSED NUTS AND TWO (2) PLAIN ROUND WASHERS (FWC16a)

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