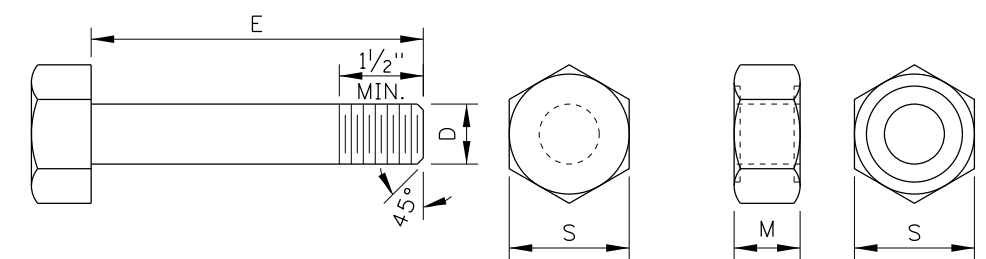
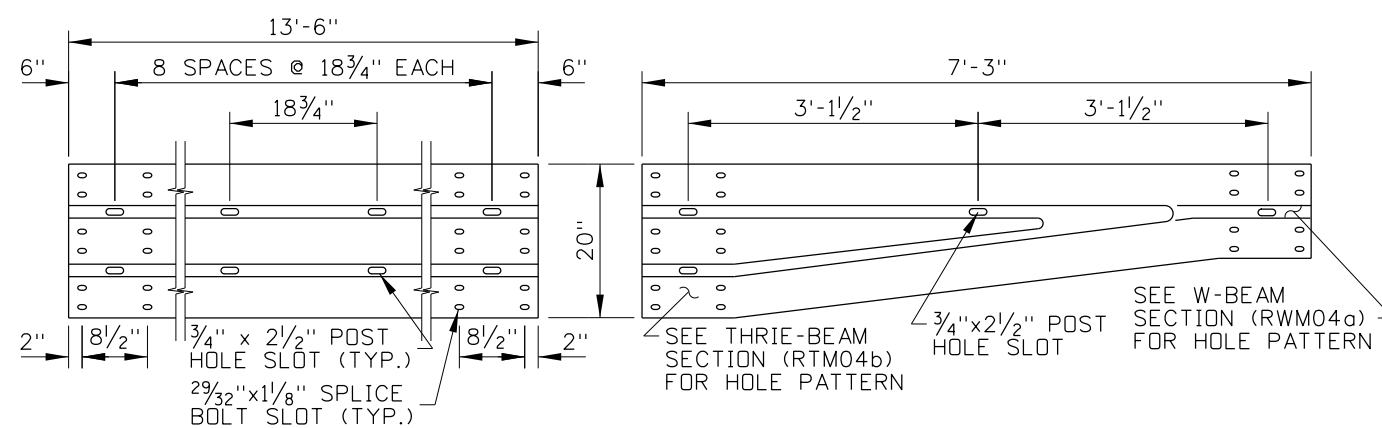
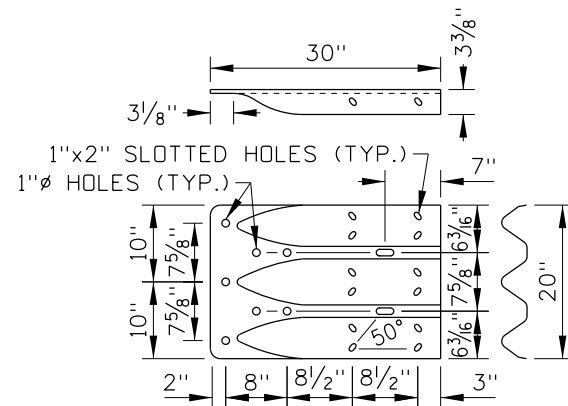


| DESIGNATOR | L | T |
|------------|--------|--------|
| FBB01 | 1 1/4" | 1 1/8" |
| FBB02 | 2" | 1 3/4" |
| FBB03 | 10" | 4" |
| FBB04 | 18" | 4" |

⑪⑫⑬⑭ GUARDRAIL BOLT AND RECESSED NUT
FBB01, FBB02, FBB03, FBB04



| DESIGNATOR | D | E | M | S |
|------------|------|--------|---------|----------|
| FBX16b | 5/8" | 1 1/2" | 1 1/16" | 1 1/16" |
| FBX22b | 7/8" | 7 1/2" | 1 5/16" | 1 27/64" |

⑮⑯ STRUCTURAL HEX BOLT AND NUT
FBX16b, FBX22b

① THRIE-BEAM TERMINAL CONNECTOR
RTE01b (10 GAUGE)

② 8-SPACE THRIE-BEAM GUARDRAIL
RTM08a DR b (12 or 10 GAUGE)

③ ASYMMETRICAL W-THRIE BEAM TRANSITION SECTION
RWT01b (10 GAUGE)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: AUGUST 24, 2018

| REVISIONS | | | | | | | |
|-----------|-------|-----|-----|-------|-----|-----|-------|
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IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO



ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

GUARDRAIL TRANSITION HIGH SPEED

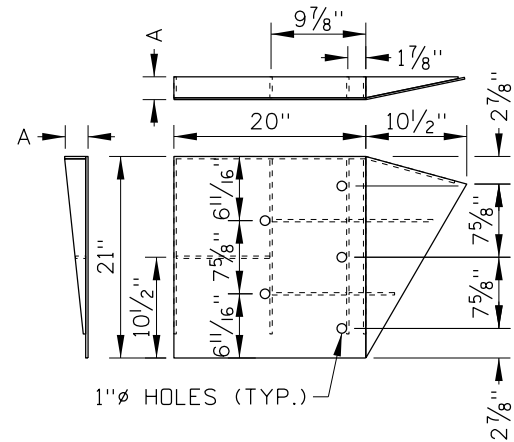
REQUIRES SHEETS 2 OF 3, 3 OF 3 & STD. DWG. 615-1

English

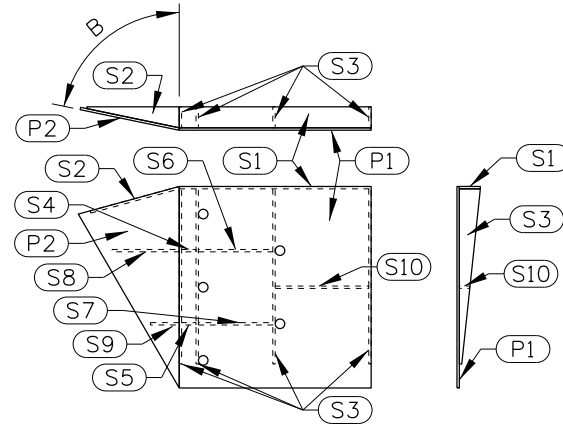
STANDARD DRAWING NO.

612-11

SHEET 1 OF 3



LEFT-HAND VERSION

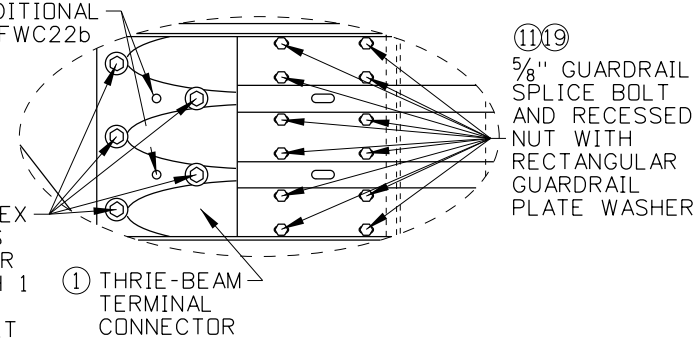


RIGHT-HAND VERSION

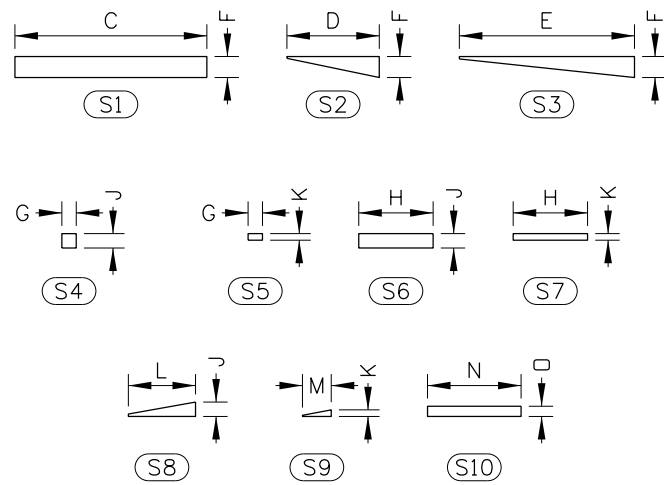
⑳ CONCRETE BARRIER TO THRIE-BEAM
TERMINAL CONNECTOR PLATE
FPB--, ASTM A36, SEE NOTE NO. 8

OPTIONAL ADDITIONAL
FBX22b AND FWC22b

⑯⑰
MIN. 5 FBX22b HEX
BOLTS AND NUTS
THROUGH BARRIER
AND FPB07 WITH 1
FWC22b WASHER
UNDER EACH BOLT
HEAD AND NUT.

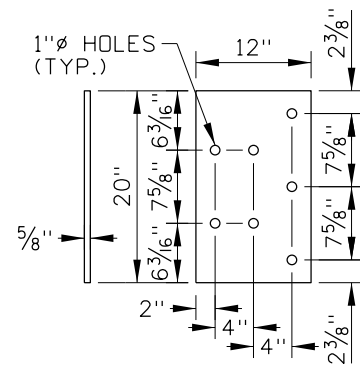


CONNECTOR BOLT DETAIL

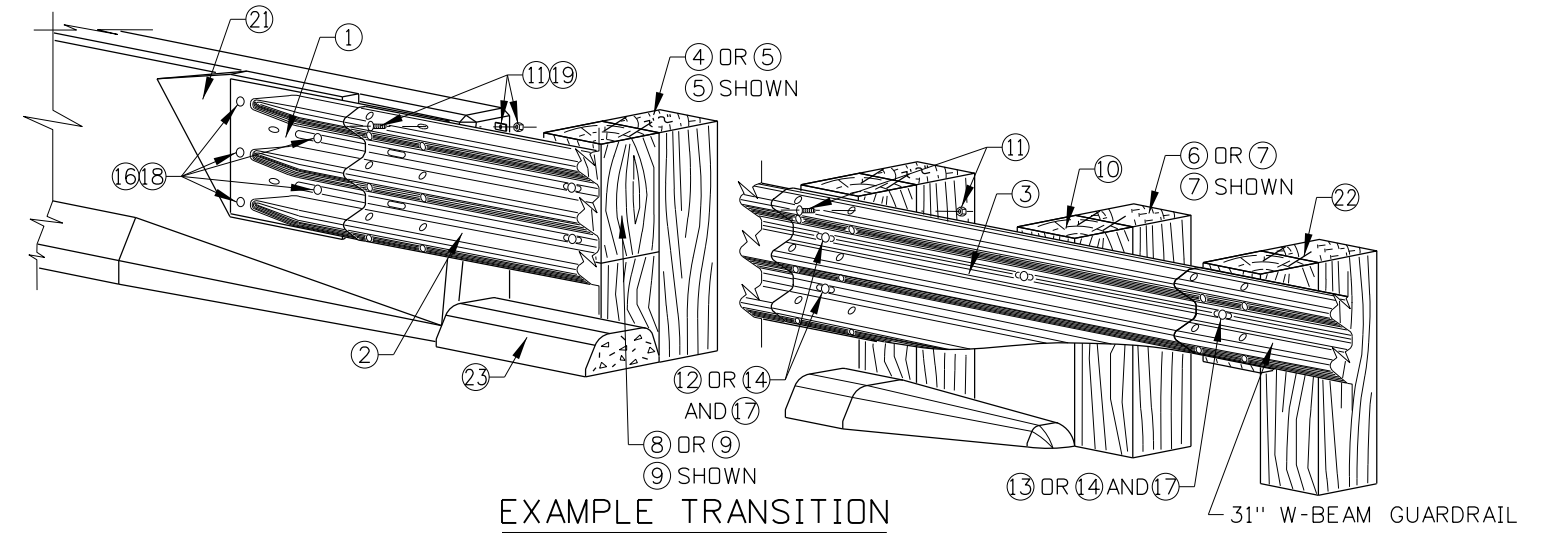


CONNECTOR PLATE STIFFENER DETAIL
SEE NOTE NO. 8

| STIFFENER DIMENSION TABLE | | |
|---------------------------|---------------------|-----------------------|
| DIM. | NEW JERSEY 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" |



⑳ THRIE-BEAM TERMINAL
CONNECTOR PLATE
FPB07



EXAMPLE TRANSITION

| HIGH SPEED GUARDRAIL TRANSITION HARDWARE COMPONENTS TABLE | | | | |
|---|---|------|------------------------|-------------|
| ITEM NO. | COMPONENT DESCRIPTION | QTY. | WIDE-FLANGE POST | TIMBER POST |
| ① | THRIE-BEAM TERMINAL CONNECTOR | 1 | RTE01b | RTE01b |
| ② | 8-SPACE NESTED THRIE-BEAM GUARDRAIL | 2 | RTM08a OR b | RTM08a OR b |
| ③ | ASYMMETRICAL W-THRIE BEAM TRANSITION SECTION | 1 | RWT01b | RWT01b |
| ④ | 81" WIDE-FLANGE GUARDRAIL POST | 7 | PWE-- | - |
| ⑤ | 86" TIMBER GUARDRAIL POST | 7 | - | PDE-- |
| ⑥ | 72" WIDE-FLANGE GUARDRAIL POST | 2 | PWE01 | - |
| ⑦ | 72" TIMBER GUARDRAIL POST | 2 | - | PDE02 |
| ⑧ | THRIE-BEAM WIDE-FLANGE STEEL TUBE BLOCKOUT | 7 | PWB-- | - |
| ⑨ | MODIFIED THRIE-BEAM TIMBER BLOCKOUT | 7 | - | PDB-- |
| ⑩ | W-BEAM BLOCKOUT | 2 | PDB01b OR POLYETHYLENE | PDB01a |
| ⑪ | 5/8" X 1 1/4" GUARDRAIL SPLICE BOLT AND RECESSED NUT | 32 | FBB01 | FBB01 |
| ⑫ | 5/8" X 2" GUARDRAIL BOLT AND RECESSED NUT | 14 | FBB02 | - |
| ⑬ | 5/8" X 10" GUARDRAIL BOLT AND RECESSED NUT | 2 | FBB03 | - |
| ⑭ | 5/8" X 18" GUARDRAIL BOLT AND RECESSED NUT | 16 | - | FBB04 |
| ⑮ | 5/8" X 1 1/2" STRUCTURAL HEX BOLT & NUT | 14 | FBX16b | - |
| ⑯ | 7/8" X 7 1/2" STRUCTURAL HEX BOLT & NUT | 5 | FBX22b | FBX22b |
| ⑰ | 5/8" PLAIN ROUND WASHER | 16 | FWC16a | FWC16a |
| ⑱ | 7/8" HARDENED ROUND WASHER | 10 | FWC22b | FWC22b |
| ⑲ | RECTANGULAR GUARDRAIL PLATE WASHER | 12 | FWR03 | FWR03 |
| ⑳ | THRIE-BEAM TERMINAL CONNECTOR PLATE | 1 | FPB07 | FPB07 |
| ㉑ | CONCRETE BARRIER TO THRIE-BEAM TERMINAL CONNECTOR PLATE | 1 | FPB-- | FPB-- |
| ㉒ | 16D GALVANIZED NAIL | 14 | - | N/A |
| ㉓ | CURB | 1 | N/A | N/A |

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
AUGUST 24, 2018

| REVISIONS | | | | | | | |
|-----------|-------|-----|-----|-------|-----|-----|-------|
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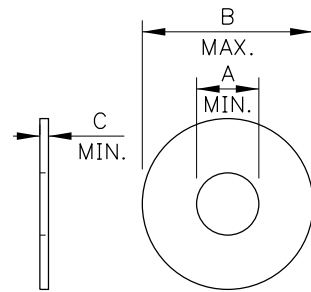
**IDAHO
TRANSPORTATION
DEPARTMENT**

BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
**GUARDRAIL TRANSITION
HIGH SPEED**
REQUIRES SHEETS 1 OF 3, 3 OF 3
& STD. DWG. 615-1

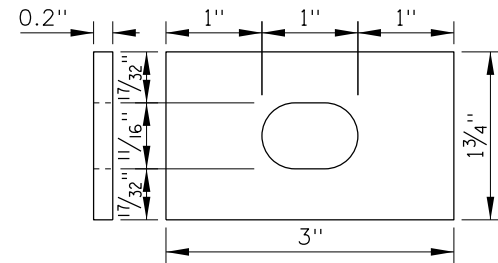
English
STANDARD DRAWING NO.
612-11
SHEET 2 OF 3



| WASHER DIMENSION TABLE | | | |
|------------------------|--------|--------|--------|
| DESIGNATOR | A | B | C |
| FWC16a | 0.649" | 1.780" | 0.090" |
| FWC22b | 0.938" | 1.780" | 0.136" |

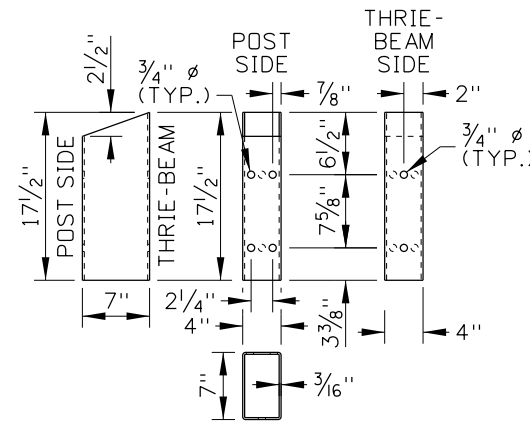
①⑧ ROUND WASHERS

FWC16a, FWC22b



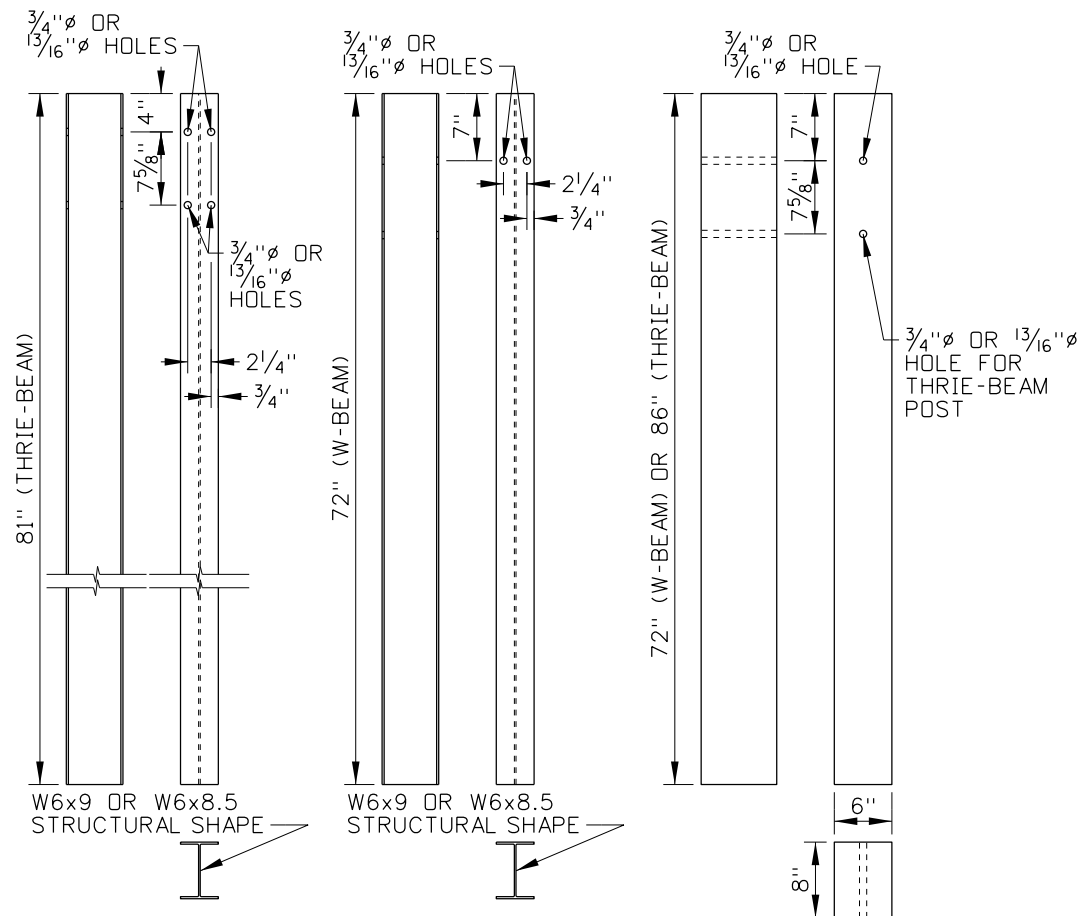
①⑨ RECTANGULAR GUARDRAIL PLATE WASHER

FWR03
SEE NOTE NO. 12



⑧ THRIE-BEAM WIDE-FLANGE STEEL TUBE BLOCKOUT

ASTM A500 GRADE B

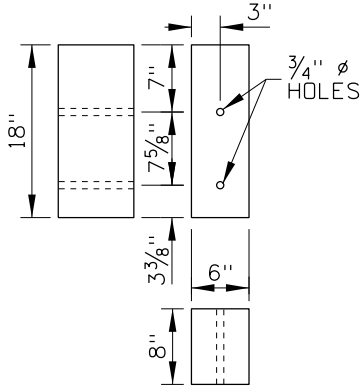


④ WIDE-FLANGE PWE--

⑥ WIDE-FLANGE PWE01

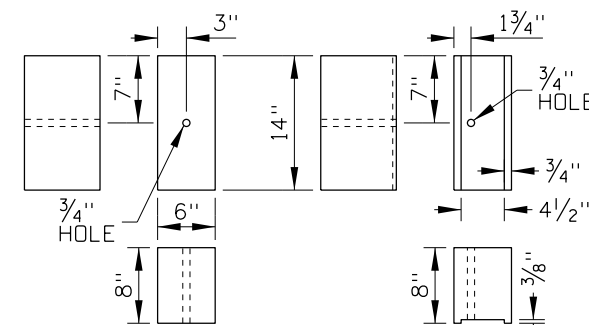
⑤⑦ TIMBER PDE02, PDE--

GUARDRAIL POSTS



⑨ MODIFIED THRIE-BEAM TIMBER BLOCKOUT

PDB--



PDB01a

PDB01b

⑩ W-BEAM TIMBER BLOCKOUTS

NOTES

1. THE GUARDRAIL TRANSITION SHOWN IS A TEST LEVEL 3 TRANSITION. USE THE TRANSITION ON HIGHWAYS WHERE THE POSTED SPEED LIMIT IS 45 MPH OR HIGHER AND WHERE A SEMI-RIGID GUARDRAIL, SUCH AS 31" W-BEAM GUARDRAIL, JOINS A RIGID BARRIER, SUCH AS A BRIDGE RAIL, BRIDGE PARAPET, OR CONCRETE BARRIER.
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. WIDE-FLANGE OR TIMBER POSTS MAY BE USED UNLESS OTHERWISE INDICATED. USE THE SAME POST MATERIAL AS IN THE ADJOINING 31" W-BEAM GUARDRAIL.
4. IF WIDE-FLANGE POSTS ARE USED, USE STEEL TUBE BLOCKOUTS IN THE THRIE-BEAM SECTION AND TIMBER OR POLYETHYLENE BLOCKOUTS IN THE ASYMMETRICAL W-THRIE BEAM TRANSITION SECTION. IF TIMBER POSTS ARE USED, USE MODIFIED THRIE-BEAM TIMBER BLOCKOUTS IN THE THRIE-BEAM SECTION AND TIMBER BLOCKOUTS IN THE ASYMMETRICAL W-THRIE BEAM TRANSITION SECTION.
5. NAIL TIMBER BLOCKOUTS TO TIMBER POSTS TO RESTRICT BLOCK ROTATION.
6. WHEN WIDE-FLANGE POSTS ARE USED AND WHEN PRACTICAL, INSTALL THE BOLTS (FBB02) ON THE UPSTREAM SIDE OF THE POST IN RELATION TO THE ADJACENT TRAFFIC.
7. CONSTRUCT CURB TYPE 5 BENEATH THE THRIE-BEAM AND ASYMMETRICAL W-THRIE BEAM TRANSITION SECTIONS AS SHOWN.
8. THE FOLLOWING APPLY TO THE CONCRETE BARRIER TO THRIE-BEAM TERMINAL CONNECTOR PLATE:
 - A. USE ASTM A36 STEEL.
 - B. USE 3/16" THICK STEEL FOR FLAT PLATES P1 AND P2. USE 1/4" THICK STEEL FOR STIFFENERS S1 THROUGH S10.
 - C. WELD COMPONENTS WITH E60 ROD.
 - D. 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.
 - E. WELD STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATES WITH 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
 - F. WELD RECTANGULAR AND TRIANGULAR COVER PLATES TOGETHER WITH A 3/16" CONTINUOUS BACK WELD ON BOTH SIDES.
 - G. GALVANIZE CONNECTOR PLATES AFTER PUNCHING AND ASSEMBLY.
9. GALVANIZE THE THRIE-BEAM TERMINAL CONNECTOR PLATE.
10. OVERLAP SPLICES SO THAT THE EXPOSED W-BEAM EDGE IS DOWNSTREAM OF THE ADJACENT TRAFFIC.
11. PROVIDE A MINIMUM OF 12'-6" OF 31" W-BEAM GUARDRAIL BETWEEN THE GUARDRAIL TRANSITION AND A GUARDRAIL TERMINAL OR ANCHOR.
12. INSTALL RECTANGULAR GUARDRAIL PLATE WASHERS UNDER GUARDRAIL NUTS AT THE SPLICE BETWEEN THE THRIE-BEAM GUARDRAIL AND THRIE-BEAM TERMINAL CONNECTOR.
13. DELINEATE THE TRANSITION. SEE THE DELINEATOR STANDARD DRAWING.
14. DRAWING NOT TO SCALE.

| REVISIONS | | | | | | | |
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STANDARD DRAWING
GUARDRAIL TRANSITION HIGH SPEED
REQUIRES SHEETS 1 OF 3, 2 OF 3 & STD. DWG. 615-1

English
STANDARD DRAWING NO. 612-11
SHEET 3 OF 3

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DATE ORIGINAL SIGNED: AUGUST 24, 2018