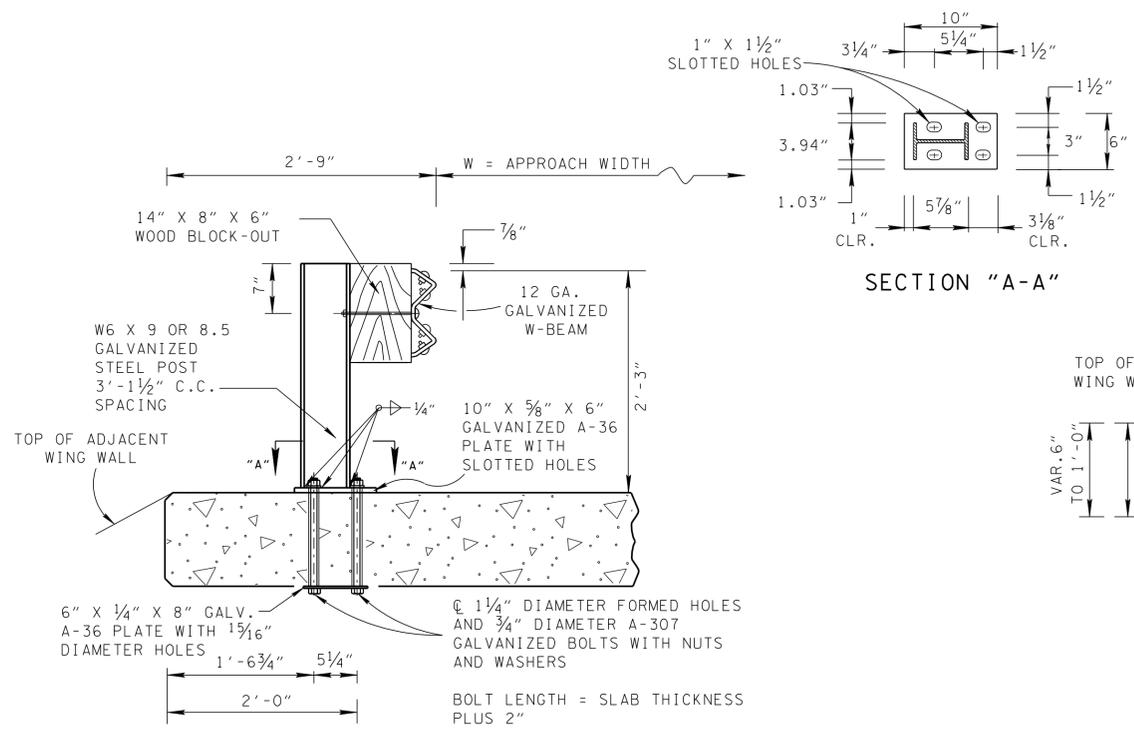
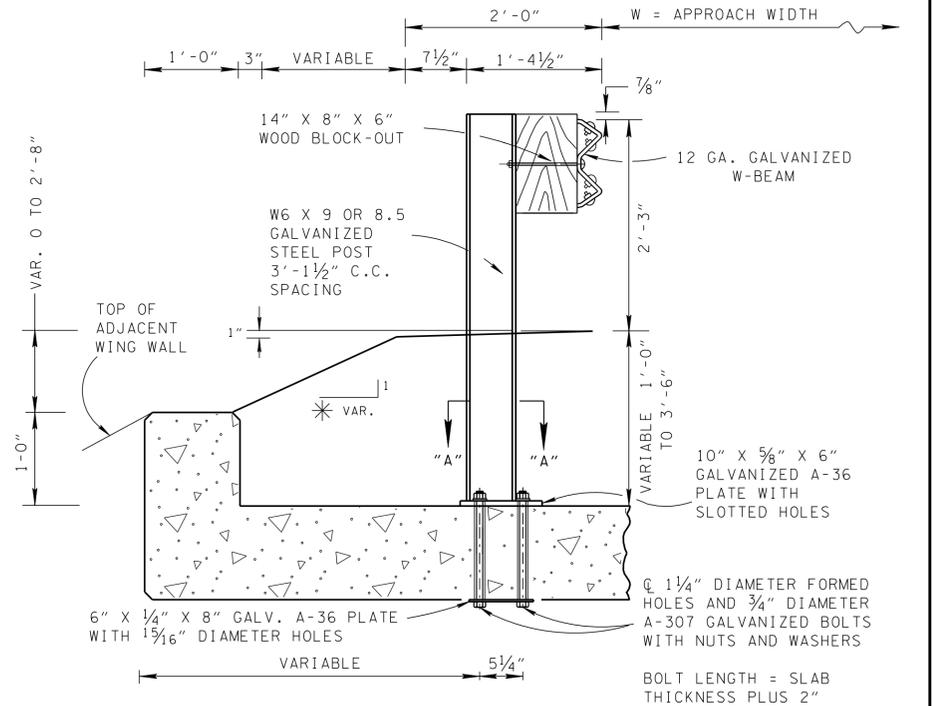
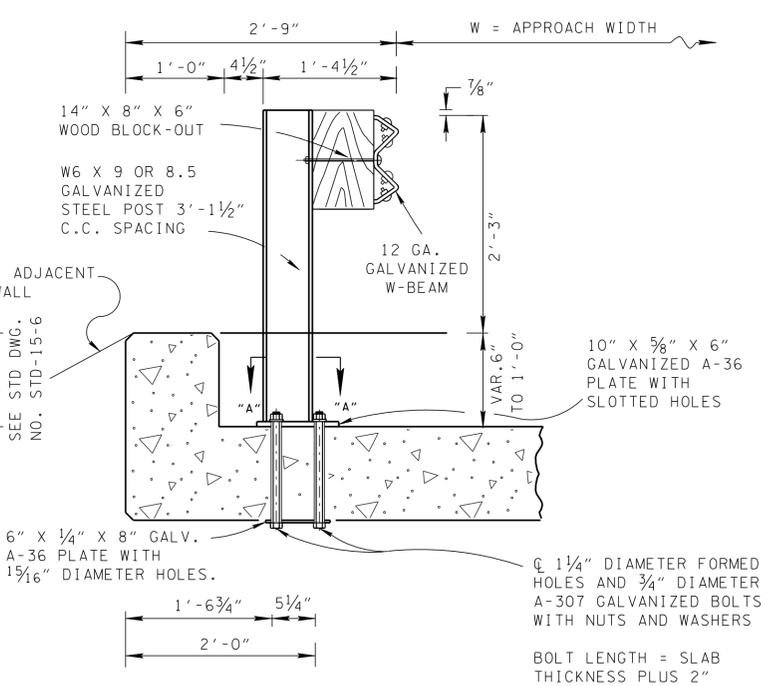


- REV. 9-5-97: MODIFIED INSIDE ELEVATION OF GUARDRAIL DETAIL.
- REV. 7-29-98: CHANGED STEEL BLOCK-OUTS TO WOOD BLOCK-OUTS IN ALL DETAILS AND NOTES.
- REV. 5-27-99: RELOCATED 1/4" DIAMETER FORMED HOLES OUTWARDLY 1 1/2".
- REV. 10-26-00: ELIMINATED DETAILS FOR PRECAST, PRESTRESSED CONCRETE DECK PANELS FOR HEIGHT OF FILLS OVER 1'-6". CHANGED DESIGN NOTE ②.
- REV. 5-27-01: CHANGED ITEM NO. 705-06.01 TO 705-01.04.
- REV. 4-15-02: CHANGED SHEET NAME. ELIMINATED DETAILS FOR PRECAST, PRESTRESSED CONCRETE DECK PANELS FOR HEIGHTS LESS THAN 1'-6". CHANGED TYPE OF CUB TO COMPLY WITH NEW STANDARD DRAWINGS STD-15-6 AND STD-15-7.
- REV. 11-21-07: REVISED GUARDRAIL POST SPACING.
- REV. 3-13-08: REVISED FILLED WELD SIZE BETWEEN POST/BASE PLATE.
- REV. 3-10-10: ADDED ALTERNATE GUARDRAIL AND BASE PLATE ATTACHMENT DETAILS AND REVISED NOTE ②. ADDED DESIGN NOTE ⑥.



INSERT ASSEMBLY IS FOR CONNECTION OF POSTS OVER WALLS ONLY AND NOT A SUBSTITUTE FOR PLATE ASSEMBLY ELSEWHERE.



DETAIL FOR CONCRETE DECK USED AS A RIDING SURFACE SHOWING OUTLET END

DETAIL FOR CONCRETE DECK WITH 6" TO 1'-0" OF ROADWAY FILL COVER

DETAIL FOR CONCRETE DECK WITH 1'-0" TO 3'-6" OF ROADWAY FILL COVER

- ### GENERAL NOTES
- (A) THE EXACT POSITION OF GUARDRAIL SHALL BE AS SHOWN ELSEWHERE ON THE PLANS OR AS DIRECTED BY THE ENGINEER. GUARDRAIL SHALL BE TRANSITIONED TO A SMOOTH CONNECTION WITH OTHER GUARDRAIL OR STRUCTURE RAILING AS SHOWN ELSEWHERE ON PLANS.
 - (B) AT THE OPTION OF THE CONTRACTOR THE RAIL ELEMENTS FOR THE GUARDRAIL MAY BE FURNISHED IN EITHER 12 1/2' OR 25 FOOT NOMINAL LENGTHS WITH POST BOLT SLOTS FOR CONNECTION TO POSTS.
 - (C) BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.
 - (D) GUARDRAIL THAT IS INSTALLED ON CURVE WITH A RADIUS OF 150 FEET OR LESS SHALL BE SHOP BENT.
 - (E) STEEL POST SHALL BE BLOCKED OUT. A 8" X 6" WOOD BLOCK-OUT SHALL BE USED WITH EACH STEEL POST. SEE STANDARD DRAWING S-GR-13 FOR SPECIFICATIONS AND DETAILS.
 - (F) WELDED STEEL POSTS SHALL MEET THE REQUIREMENTS OF ASTM A-769. THE FLANGE WIDTH AND THICKNESS, WEB THICKNESS, AND DEPTH OF WELDED POSTS SHALL EQUAL OR EXCEED THE DIMENSIONS OF A STANDARD ROLLED W6 X 8.5 OR W6 X 9.0 STEEL POST.
 - (G) STEEL POSTS SHALL MEET THE REQUIREMENTS OF ASTM A-36. BOLT HOLES SHALL BE APPROXIMATELY CENTERED BETWEEN WEB AND EDGE OF FLANGE OF SPACERS AND POSTS.
 - (H) FOR DIMENSIONS AND DETAILS NOT SHOWN SEE STANDARD DRAWING NOS. STD-15-6, STD-15-7, AND THE S-GR-SERIES.

- ### DESIGN NOTES
- ① GUARDRAIL POST SPACING SHALL BE REDUCED TO 3'-1 1/2" AT CONCRETE DECK ATTACHMENTS.
 - ② WHEN DEPTH OF FILL AT FACE OF GUARDRAIL EXCEEDS 3'-6" DELETE THE USE OF BOLTED BASE PLATES AND DRIVE POSTS.
 - ③ THE USE OF PRECAST, PRESTRESSED CONCRETE DECK PANELS IN BOX AND SLAB TYPE CULVERTS IS PROHIBITED.
 - ④ THIS RAIL SYSTEM HAS BEEN TESTED BY MIDWEST ROADSIDE SAFETY FACILITY IN ACCORDANCE WITH THE CRITERIA SET FORTH IN NCHRP REPORT NUMBER 350 TL-3, REFERENCE REPORT STR-3(017), NOVEMBER 1986.
 - ⑤ 6'-3" POST SPACING MAY BE USED AT LOCATIONS OUTSIDE THE NATIONAL HIGHWAY SYSTEM OR WHERE MAINTENANCE/REPAIR ACTIVITIES TO BE PERFORMED. THIS RAIL SYSTEM HAS BEEN TESTED PER NCHRP REPORT NUMBER 230, REFERENCE REPORT FHWA/TX-86/64-405-2F, NOVEMBER 1986.
 - ⑥ ANY REINFORCING STEEL THAT INTERFERES WITH THE 1 1/4" DIAMETER FORMED HOLES SHALL BE MOVED HORIZONTALLY TO PROVIDE A 1" MINIMUM CLEARANCE TO THE HOLE.
 - ⑦ GUARDRAIL POST ATTACHMENT USING BASE PLATE AND ANCHOR BOLTS HAS BEEN TESTED PER NCHRP 350-TL3 BY TEXAS TRANSPORTATION INSTITUTE. REPORT NUMBER 405160-12, JANUARY 29, 2009.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

GUARDRAIL ATTACHMENT TO CONCRETE DECKS OF BOX AND SLAB CULVERTS AND BRIDGES