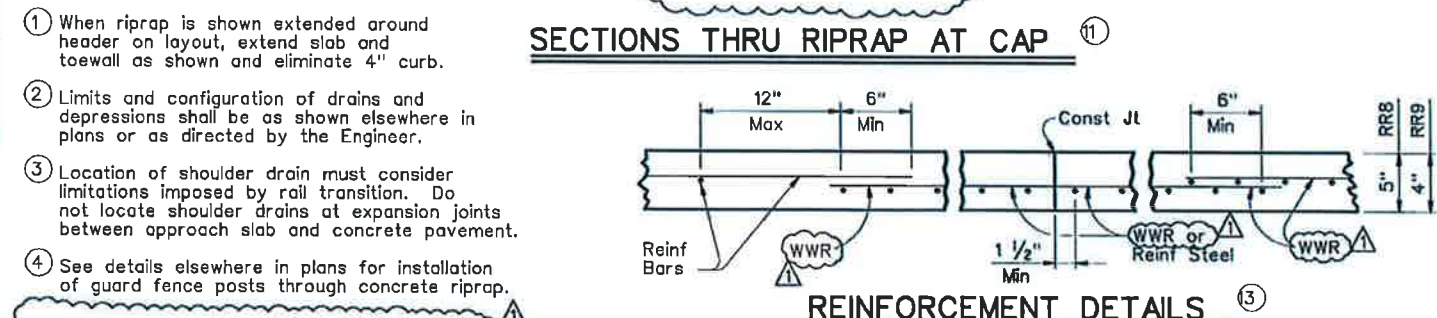
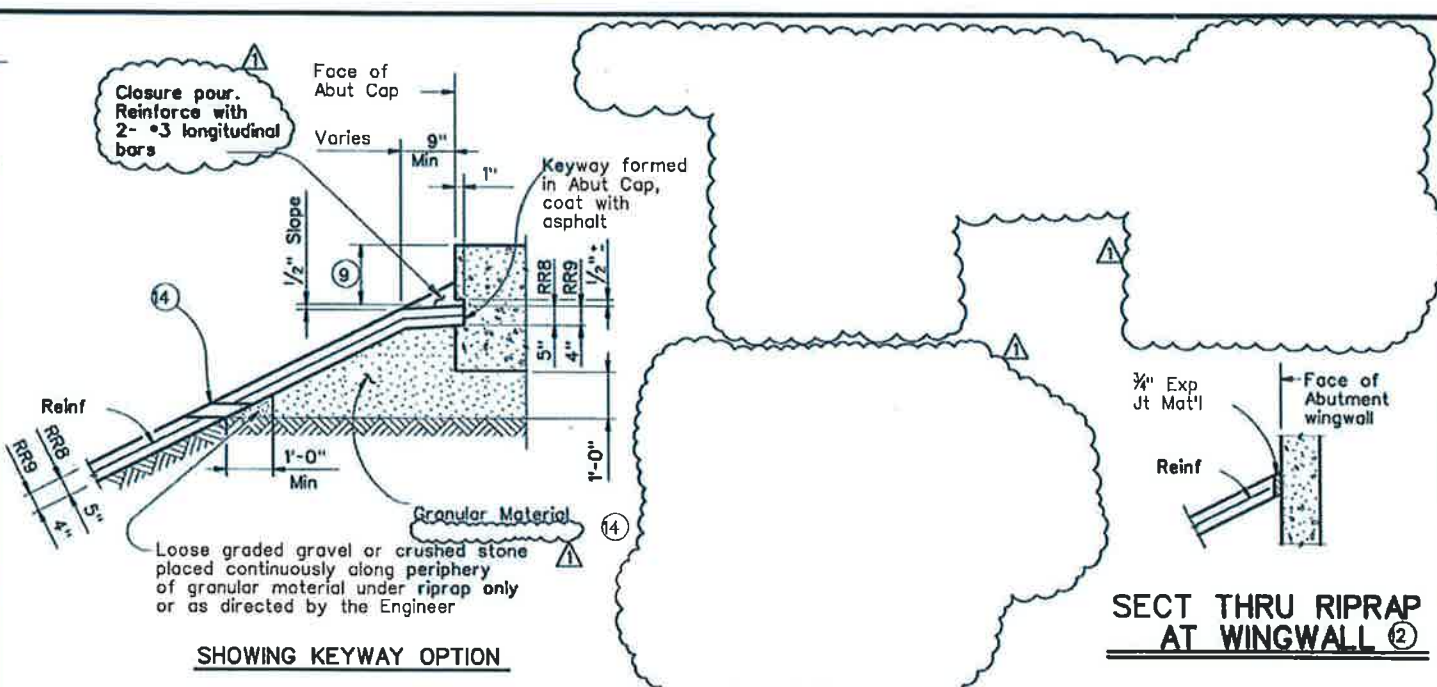
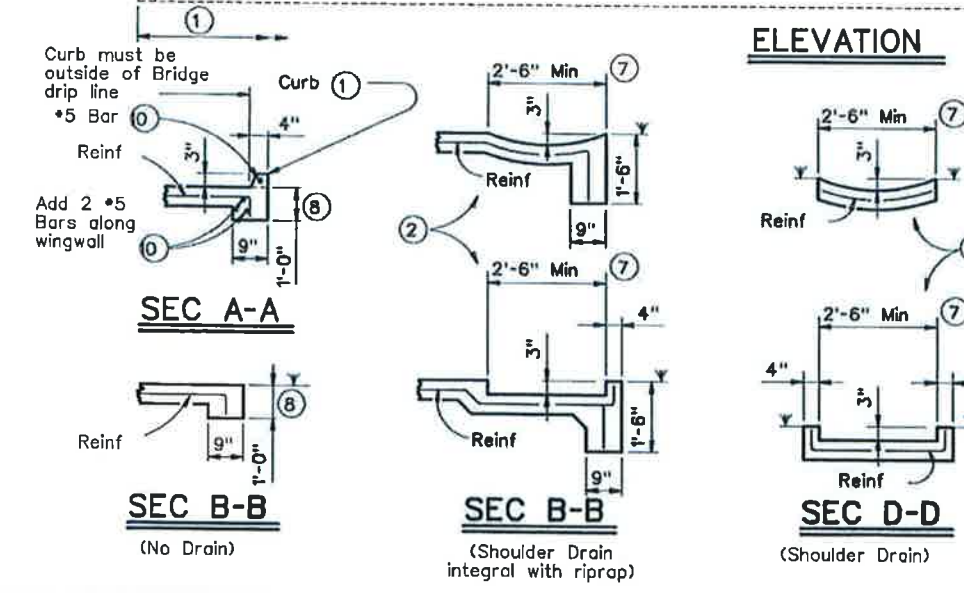
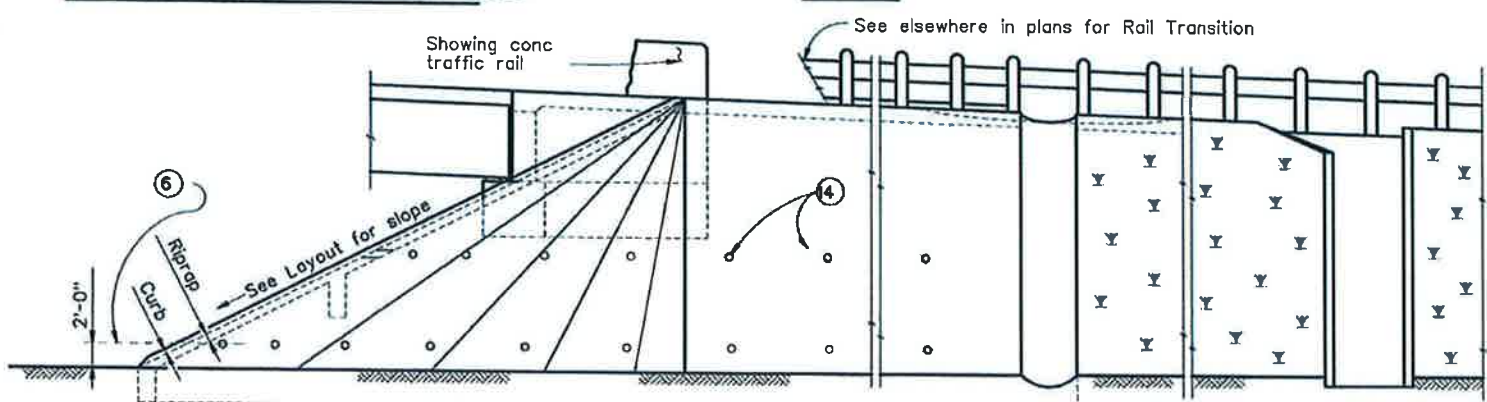
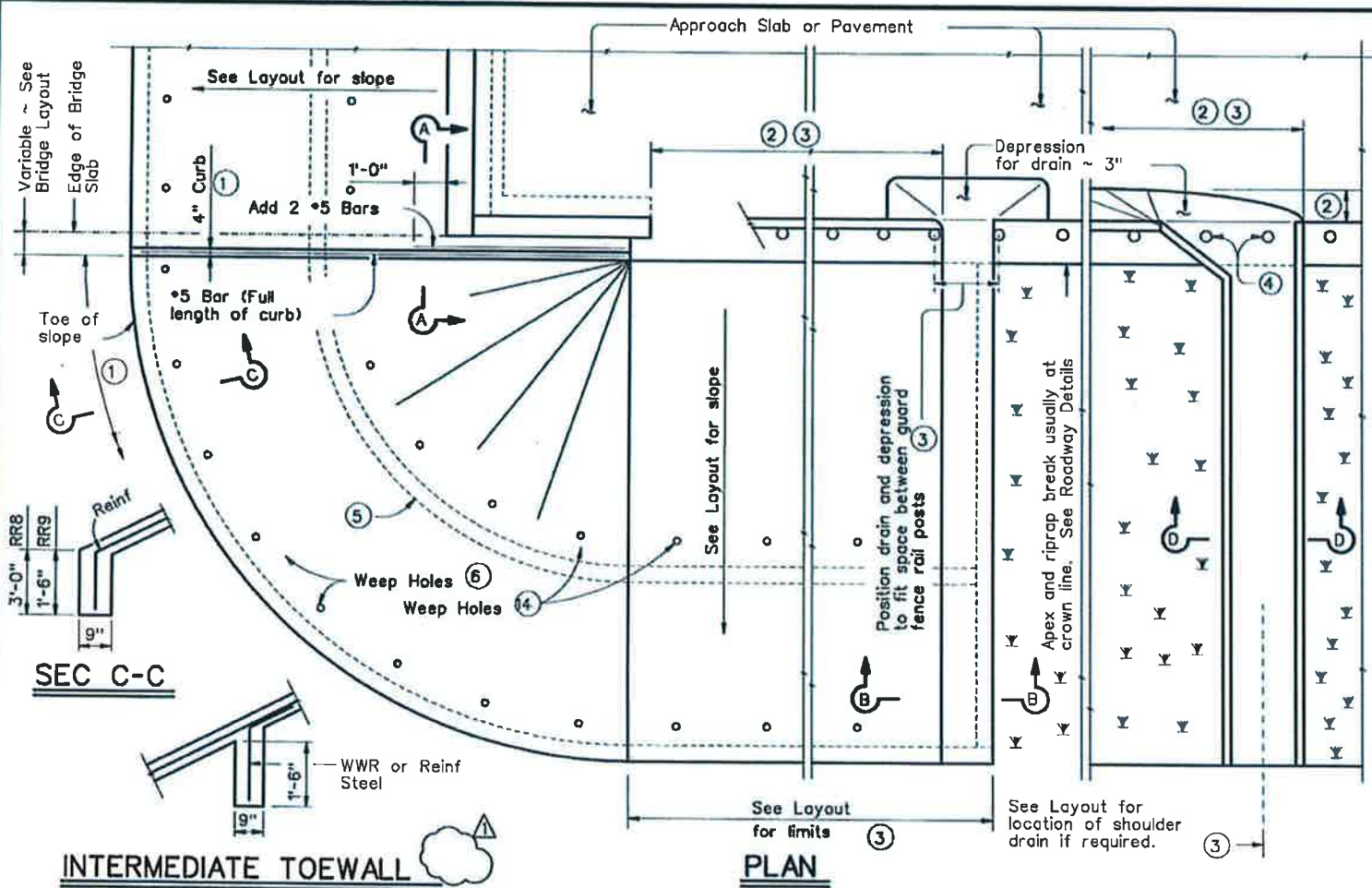


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LEVELS DISPLAYED
 PATH:
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63



- When riprap is shown extended around header on layout, extend slab and toewall as shown and eliminate 4" curb.
- Limits and configuration of drains and depressions shall be as shown elsewhere in plans or as directed by the Engineer.
- Location of shoulder drain must consider limitations imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.
- See details elsewhere in plans for installation of guard fence posts through concrete riprap.
- Provide lower level of 2" Dia weep holes at 10' c-c backed by 1 CF packet of gravel and galvanized hardware cloth at all locations unless directed by the Engineer to eliminate.
- Wider or other drain configurations shall be used if shown elsewhere in plans or if directed by the Engineer.
- Wall extension may be reduced or modified if approved by the Engineer. Wall extension shall be increased to 1'-6" whenever the optional intermediate toewall is called for in the plans.
- Top of cap to top of riprap dimension varies as directed by the Engineer. Should be 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.
- #5 bars shown are required even when synthetic fiber reinforcing option is selected.
- The sealing option of the joint between the face of cap and riprap shall be as designated by the Engineer or as shown elsewhere on plans.
- Flashing (shown in Cap Option A) may be used at wingwall in addition to Exp Jt Mat'l if shown on plans or directed by the Engineer.
- Reinforcing bars shall be #3 at 18" Spa c-c. Lap splices shall be a minimum of 6 inches, measured from the ends of reinforcing bars.
- Provide upper level of 2" Dia weep holes at 10' c-c backed by galvanized hardware cloth.

GENERAL NOTES:
 Concrete shall be Class "B" with a minimum compressive strength of 2,000 psi unless noted elsewhere in plans.
 All reinforcing steel shall be Grade 60.
 Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
 Construction joints or grooved joints extending the full slant slope height shall be at intervals of approximately 20 feet unless otherwise directed by the Engineer.
 Hardware cloth, loose graded stone behind weep holes, flashing, or other sealing material shall not be paid for directly but shall be subsidiary to the bid item "Riprap".
 Unless specified elsewhere in the plans to be only reinforcing bars, the riprap reinforcing may be composed of reinforcing bars, Welded Wire Reinforcement (WWR), or any suitable combination of both types.
 See Layout for limits of riprap.
 RR8 is to be used on stream crossings.
 RR9 is to be used on other embankments.

FOR CONTRACTOR'S INFORMATION ONLY:
 5" of RR8 = 0.015 CY/SF
 4" of RR9 = 0.012 CY/SF
 #3 Reinf at 18" c-c = 0.501 Lbs/SF
 6X6-W2.9XW2.9 = 0.394 Lbs/SF

REMOVED NON-APPLICABLE INFORMATION

NDM NATHAN D. MAIER
 CONSULTING ENGINEERS, INC.
 FIRM REGISTRATION NO.: F-356

Texas Department of Transportation
 Bridge Division
CONCRETE RIPRAP AND SHOULDER DRAINS EMBANKMENTS AT BRIDGE ENDS (TYPES RR8 & RR9)

CRR (MOD)

FILE: crs1del.dgn DW: TxDOT CK: TxDOT DW: TxDOT CK: TxDOT
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