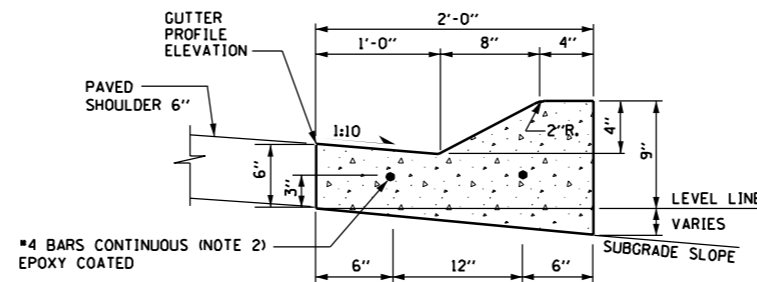
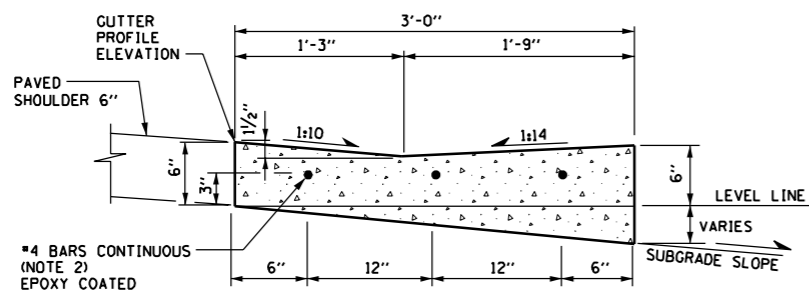


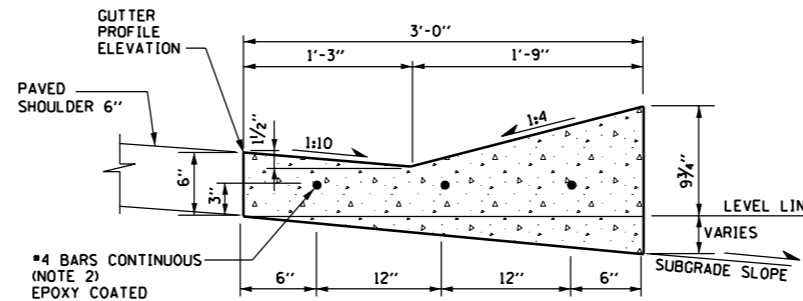
**TYPE "C" CURB**



**TYPE G-2 GUTTER**



**TYPE G-3, MODIFIED GUTTER**

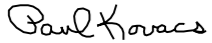


**TYPE G-3 GUTTER**

**NOTES:**

1. CURBS OR CURB AND GUTTERS CONSTRUCTED ADJACENT TO PROPOSED P.C.C. PAVEMENTS OR P.C.C. SHOULDERS SHALL HAVE #4 TIE BARS AS DETAILED. CURB AND GUTTERS CONSTRUCTED ADJACENT TO AN EXISTING P.C.C. PAVEMENT OR P.C.C. BASE COURSE SHALL HAVE #4 TIE BARS, DRILLED AND GROUTED INTO THE EXISTING CONCRETE WITH AN APPROVED EPOXY GROUT. CURB AND GUTTERS CONSTRUCTED ADJACENT TO EXISTING P.C.C. SHOULDERS SHALL BE PROVIDED WITH TIE BARS IF SPECIFIED AND DETAILED IN THE PLANS.
2. WHEN CURBS OR CURB AND GUTTERS ARE CONSTRUCTED ADJACENT TO EXISTING OR PROPOSED P.C.C. PAVEMENT, P.C.C. BASE COURSE OR P.C.C. SHOULDERS CONTRACTION JOINTS AND EXPANSION JOINTS SHALL BE CONSTRUCTED IN THE CURBS OR CURB AND GUTTERS IN PROLONGATION WITH THE JOINTS IN ADJACENT PAVEMENT OR SHOULDER. EXPANSION JOINTS SHALL BE AS SPECIFIED AND DETAILED IN THE PLANS. REINFORCING BARS SHALL BE DISCONTINUED AT EXPANSION JOINTS.
3. CONSTRUCTION JOINT SHALL BE PROVIDED WITH #4 DEFORMED STEEL TIE BARS 2'-6" LONG. THE BARS SHALL BE PLACED ON 9"+ CENTERS (MINIMUM 2 PER JOINT).
4. FOR CURB TRANSITIONS, THE CURB PORTION OF LEADING ENDS OF CURB OR CURB AND GUTTERS IN THE DIRECTION OF TRAFFIC SHALL BEGIN FLUSH WITH ADJACENT PAVEMENT OR SHOULDER SURFACE AND TRANSITION TO FULL HEIGHT AT THE RATE OF ONE INCH VERTICAL TO ONE FOOT HORIZONTAL. CURB HEIGHT AND SHAPE TRANSITIONS FROM ONE ABUTTING TYPE TO ANOTHER SHALL BE 3 FT. MIN. IN LENGTH.
5. FOR G-2 AND G-3 TRANSITION DETAILS SEE STANDARD B2 (TYPE G-2 AND G-3 GUTTER TRANSITIONS).
6. G-3 GUTTER SHALL NOT BE CONSTRUCTED ALONG UNSHIELDED FILL SLOPES STEEPER THAN 1:6.
7. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT.



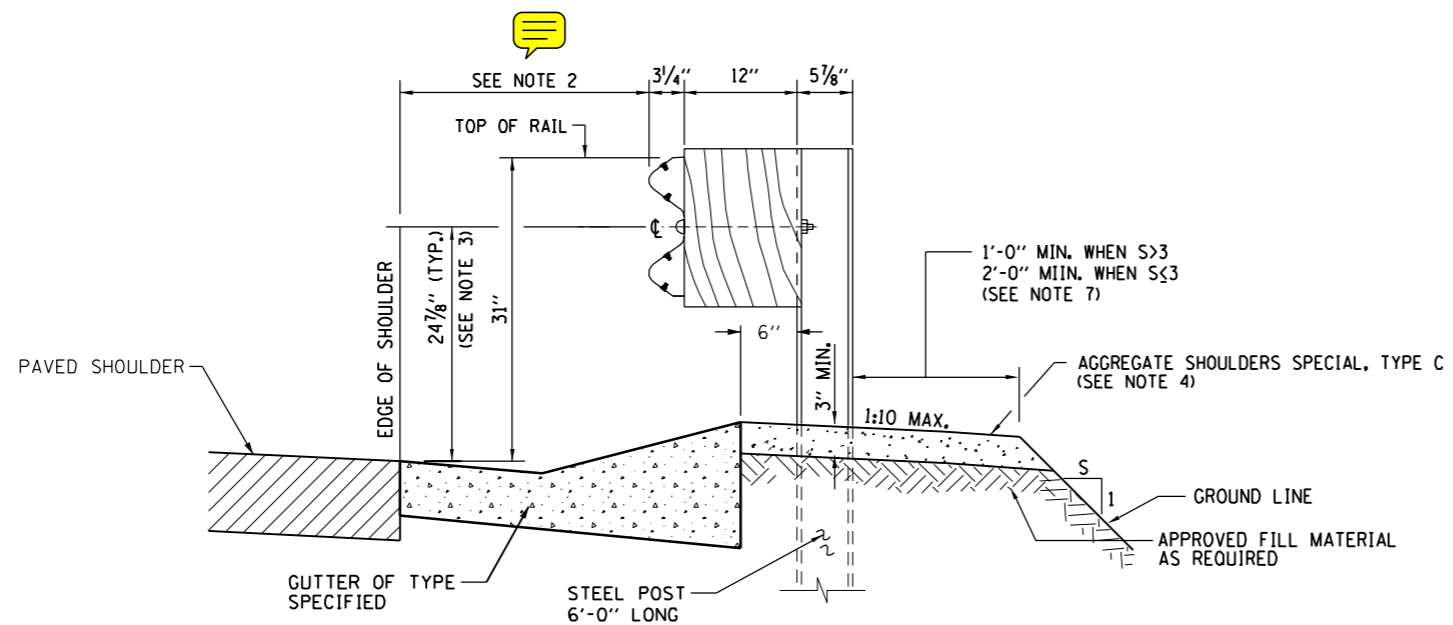
  
 APPROVED ..... CHIEF ENGINEER      DATE 6-1-2009 ...

DATE	REVISIONS
6-1-2009	REVISED NOTES

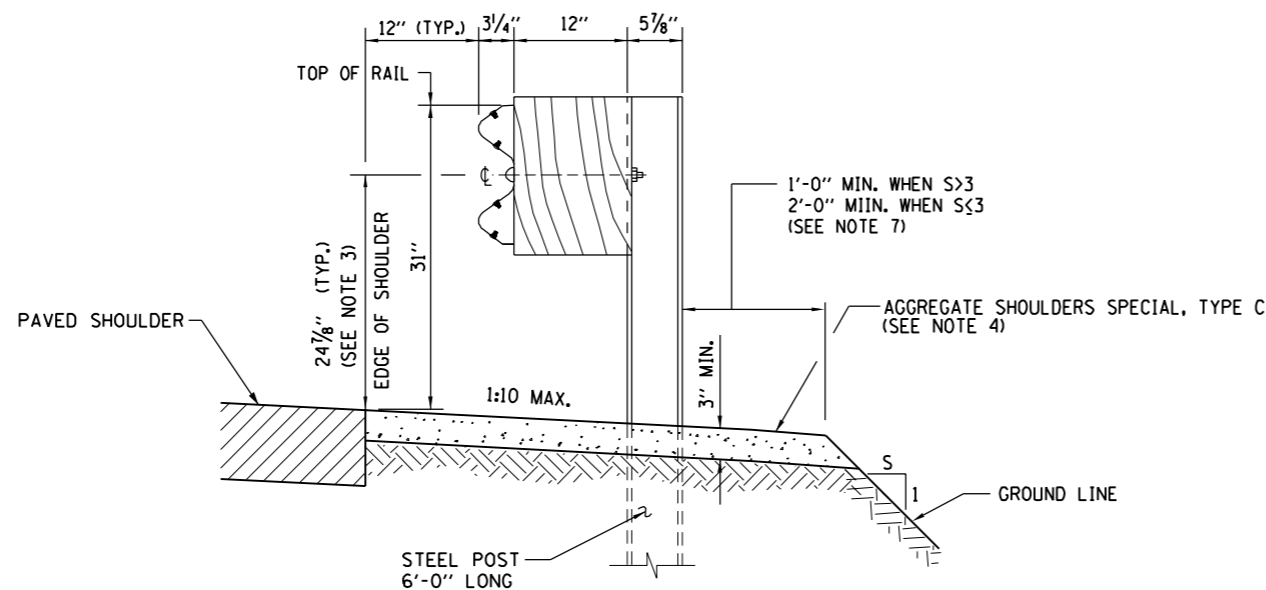


CURB, CURB AND GUTTER AND GUTTER DETAILS

STANDARD B1-01



SECTION WITH GUTTER



SECTION WITHOUT GUTTER

NOTES:

- 1' OFFSET FROM EDGE OF PAVED SHOULDER TO FACE OF RAIL IS TYPICAL FOR ALL INSTALLATIONS EXCEPT AS OTHERWISE DETAILED IN THE PLAN DRAWINGS.
- WHERE GUTTERS SUCH AS TYPE G-2 , G-3 ARE REQUIRED IN FRONT OF THE GUARDRAIL, THE POSTS SHALL BE LOCATED 6" BEHIND THE GUTTER, OR AS OTHERWISE DETAILED IN THE PLANS. THE OFFSET FROM THE EDGE OF SHOULDER TO THE FACE OF THE GUARDRAIL SHALL BE AS SHOWN ON STANDARD B2.
- THE 24 7/8" TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 1' IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER WHEN EDGE IS MORE THAN 1' IN FRONT OF RAIL TO CENTER OF RAIL.
- AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL COMPLY WITH THE REQUIREMENTS OF THE TOLLWAY RECURRING SPECIAL PROVISION. WHERE GUTTER IS PROPOSED WITH GUARDRAIL, A 3" MINIMUM THICKNESS OF AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL BE PLACED BEHIND CURB. FOR GUARDRAIL WITHOUT CURB & GUTTER, AGGREGATE SHOULDER, OF THE SAME THICKNESS SHALL BE PLACED FROM THE EDGE OF PAVED SHOULDER SLOPING AWAY TO A 3" MIN. THICKNESS.
- AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL EXTEND A MINIMUM OF 1' BEHIND POST OR GUARDRAIL, WHICHEVER IS FURTHER, EXCEPT AS DETAILED ELSEWHERE IN THE PLANS.
- PLASTIC BLOCK-OUTS SHALL NOT BE ALLOWED AS A SUBSTITUTE FOR WOOD BLOCK-OUTS ON NEW INSTALLATIONS.
- WHEN  $S \leq 3$  AND 2'-0" MIN. CANNOT BE MET, THE POST EMBEDMENT SHALL BE 6'-4 1/8".
- ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENTS (V:H).
- UNDER NO CIRCUMSTANCES SHALL AN EXISTING GUARDRAIL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE EXTENDED, ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.

GUARDRAIL INSTALLATION DETAILS



APPROVED *Paul Kovacs* CHIEF ENGINEER DATE 7-1-2009

REVISIONS	
7-1-2009	REVISED DIMENSIONS, NOTES AND ADDED DETAILS

GALVANIZED STEEL PLATE BEAM GUARDRAIL

STANDARD C1-02