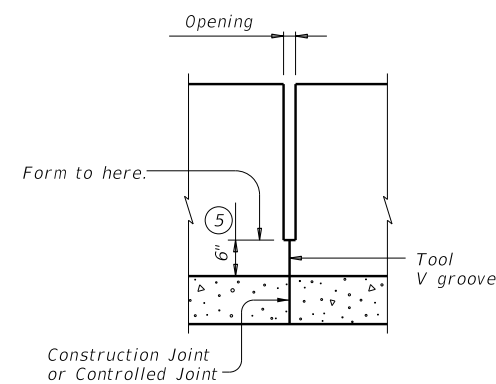
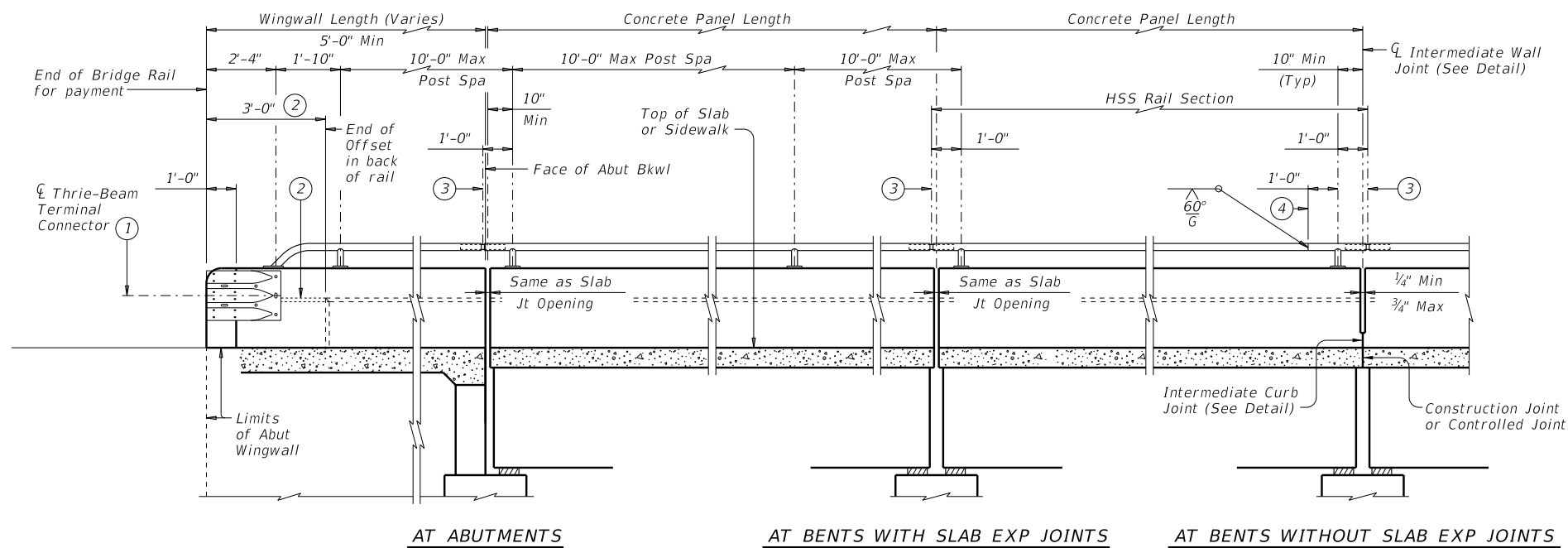


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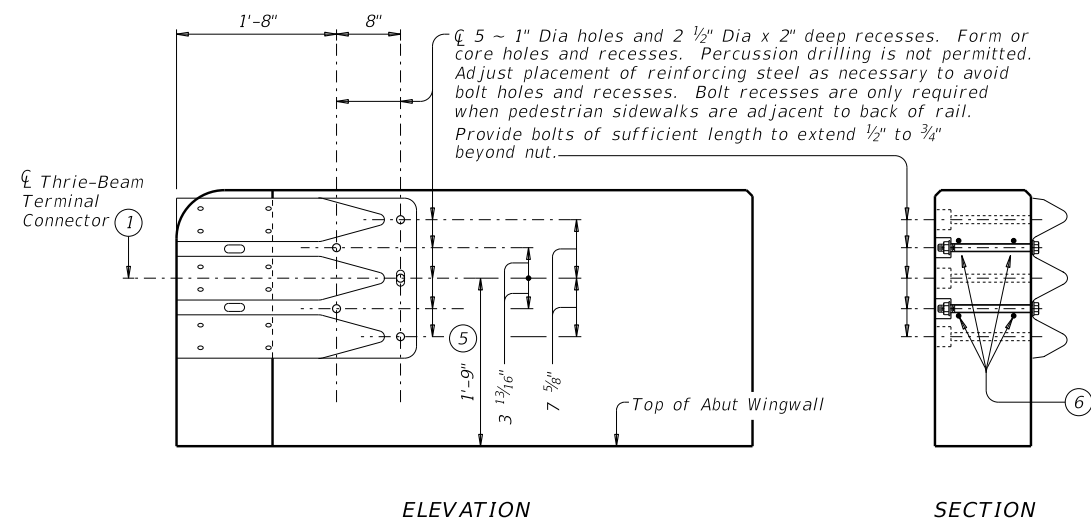


INTERMEDIATE
WALL JOINT DETAIL

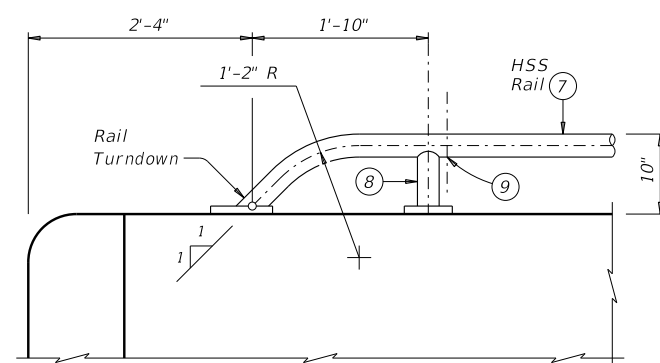
Provide at all interior bents without slab expansion joints.

- ① Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence." Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans.
- ② Back of rail offset may, with Engineer's approval, be continued to the end of the railing.
- ③ $\frac{1}{4}$ Expansion joint or splice joint as required.
- ④ One shop splice per HSS rail section is permitted with minimum 85 percent penetration. The weld may be square groove, or single V groove. Grind smooth.
- ⑤ Increase 2" for structures with overlay.
- ⑥ Place 4 additional Bars R(#4) 3'-8" in length inside Bars S(#4) and centered 2'-0" from end of rail when Terminal Connections are required. Field bend as needed.
- ⑦ HSS 2.875 x 0.203
- ⑧ HSS 2.375 x 0.154
- ⑨ $\frac{3}{8}$ " Dia Hole in bottom of HSS rail (Minimum 1 hole between posts ~ Typ)

AT BENTS WITH SLAB EXP JOINTS
ROADWAY ELEVATION OF RAIL

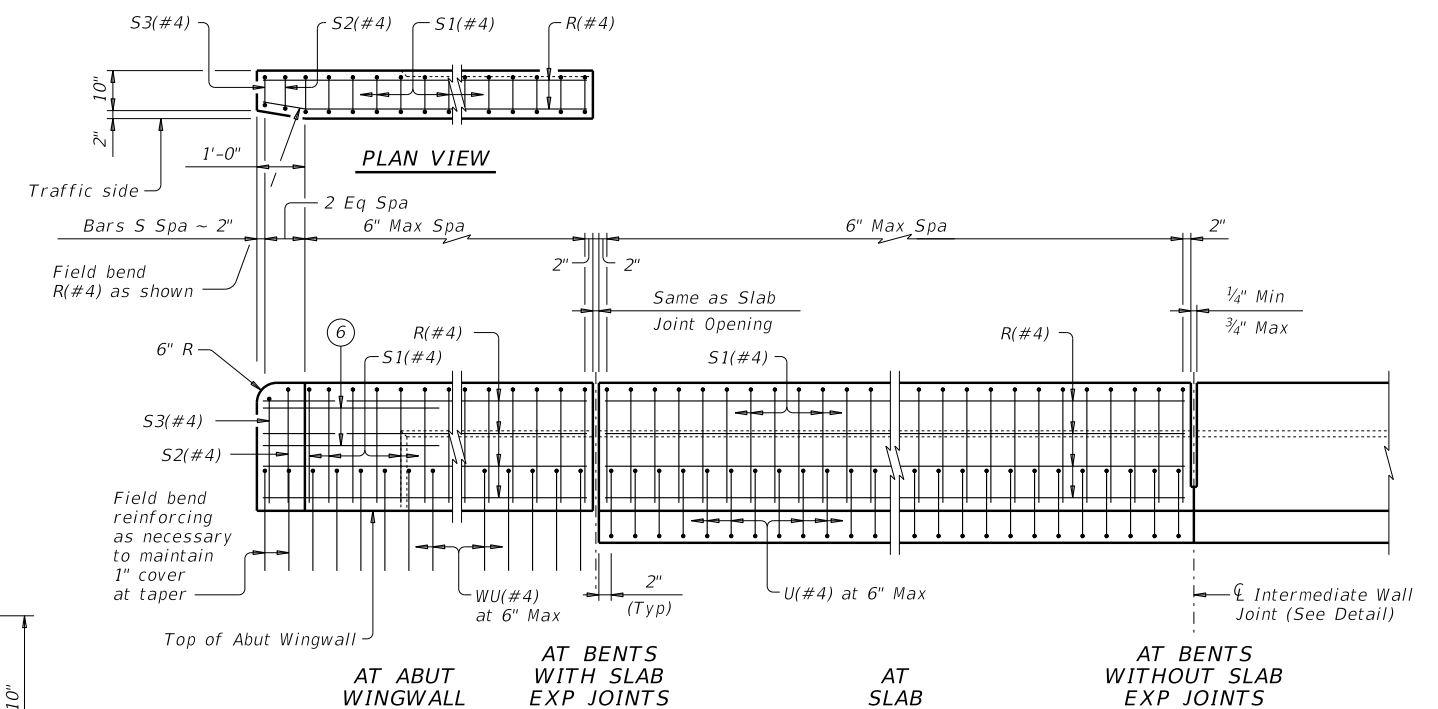


TERMINAL CONNECTION DETAILS



Note that at least two anchor points (as shown) are required for the Bridge Rail on the Abutment Wingwall. Longer Wingwalls may require more than two Rail anchorages.

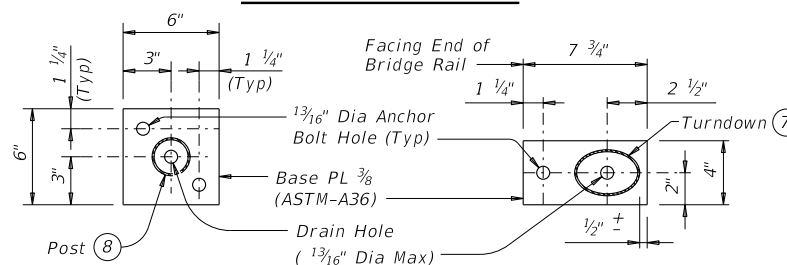
HSS RAIL TERMINAL DETAIL



ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT

(Showing without raised sidewalk)

TRANSVERSE SECTION



POST BASE PLATE PLAN

RAIL TURNDOWN
BASE PLATE PLAN

HSS RAIL DETAILS

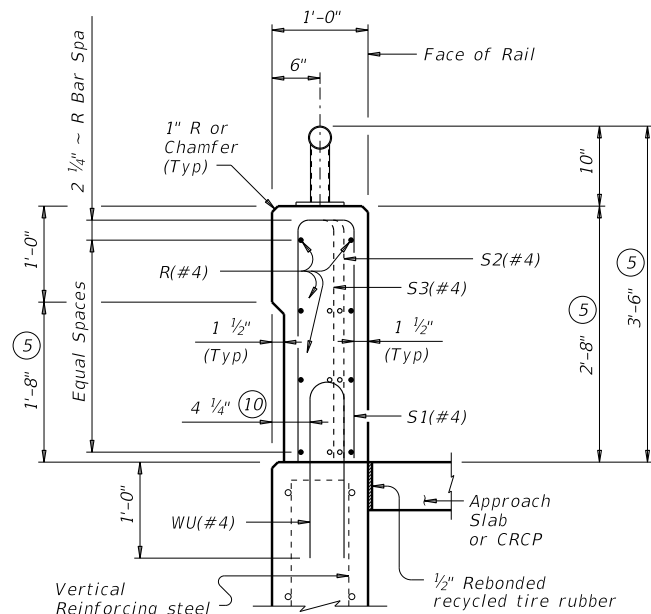
COMBINATION RAIL

TYPE C221

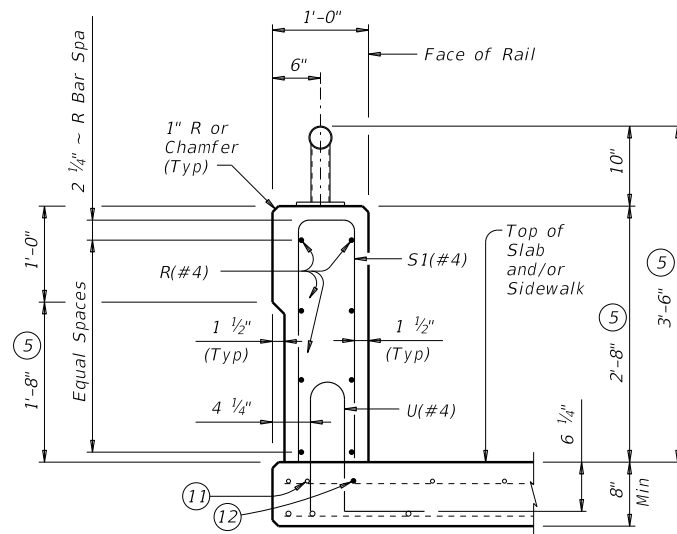
FILE: RL-C221-19.dgn		DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
 TxDOT September 2019 REVISIONS	CONT	SECT	JOB		HIGHWAY
	DIST		COUNTY		SHEET NO.

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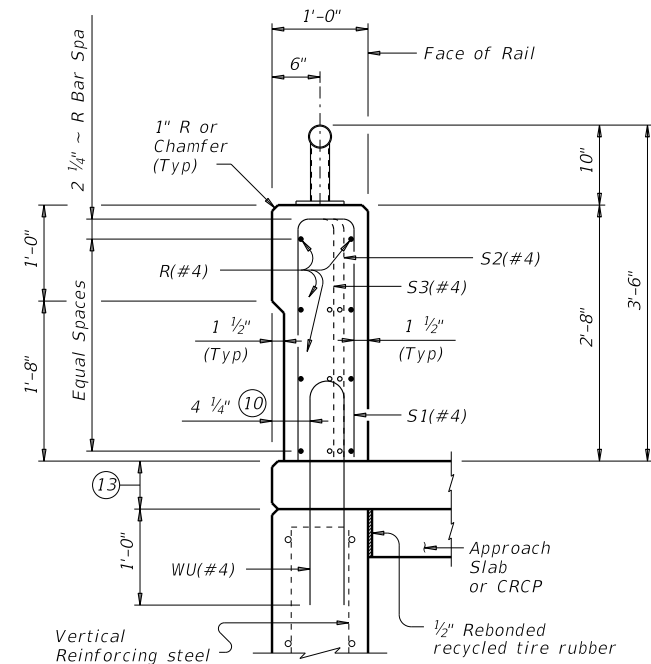


ON ABUTMENT WINGWALLS
OR CIP RETAINING WALLS

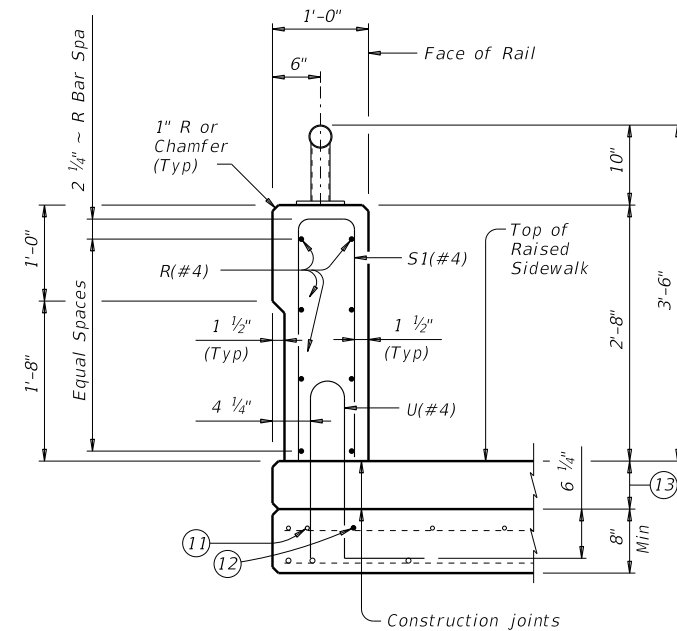


ON BRIDGE SLAB

SECTIONS THRU RAIL WITHOUT RAISED SIDEWALK

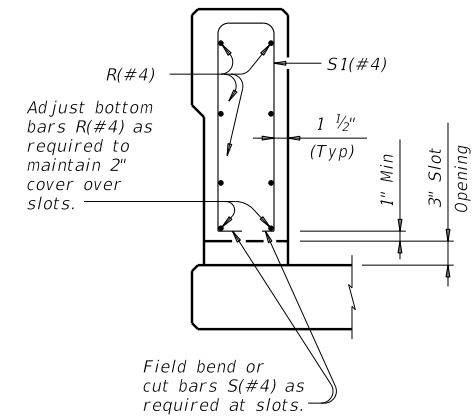


ON ABUTMENT WINGWALLS
OR CIP RETAINING WALLS

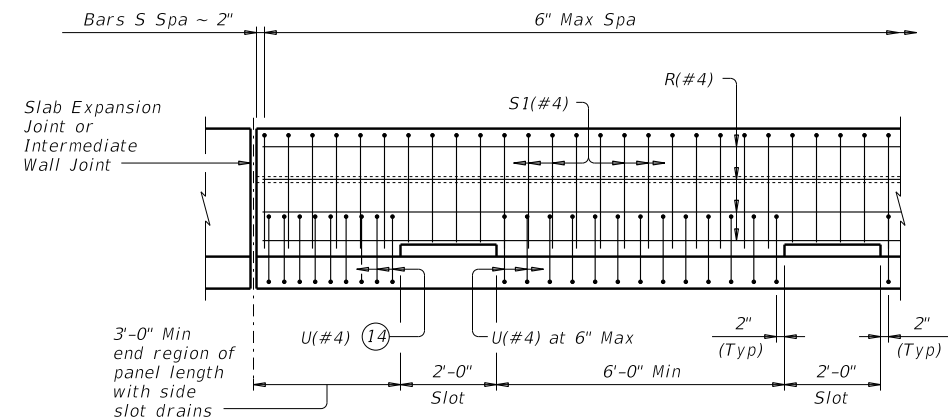


ON BRIDGE SLAB

SECTIONS THRU RAIL WITH RAISED SIDEWALK



SECTION THRU
OPTIONAL SIDE SLOT DRAIN



OPTIONAL SIDE SLOT DRAIN DETAIL

Note: Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.

- ⑤ Increase 2" for structures with overlay.
- ⑩ 5 1/4" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.
- ⑪ As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars must be furnished at the Contractors expense.
- ⑫ Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.
- ⑬ Raised Sidewalk
- ⑭ Space U(#4) bars at 4" Max when end region of panel length is less than 6'-0" to side slot drain. Space U(#4) bars at 6" Max when end region of panel length is 6'-0" and greater to side slot drain.

SHEET 2 OF 3

 Texas Department of Transportation				Bridge Division Standard	
COMBINATION RAIL					
TYPE C221					
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REVISIONS					
		DIST	COUNTY		SHEET NO.

