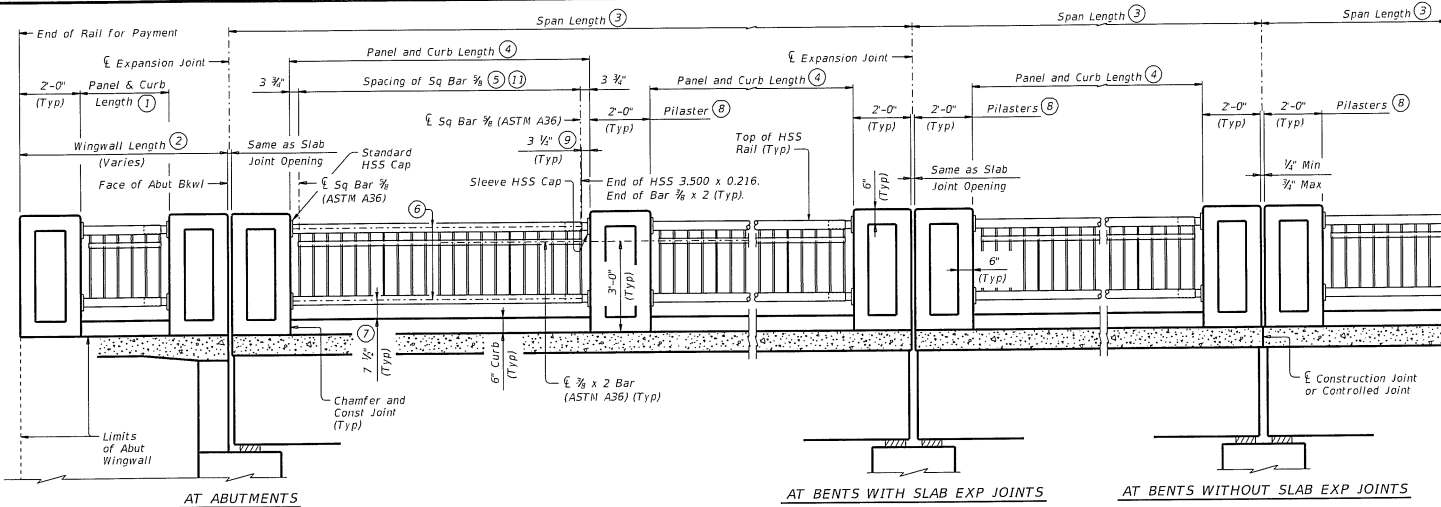
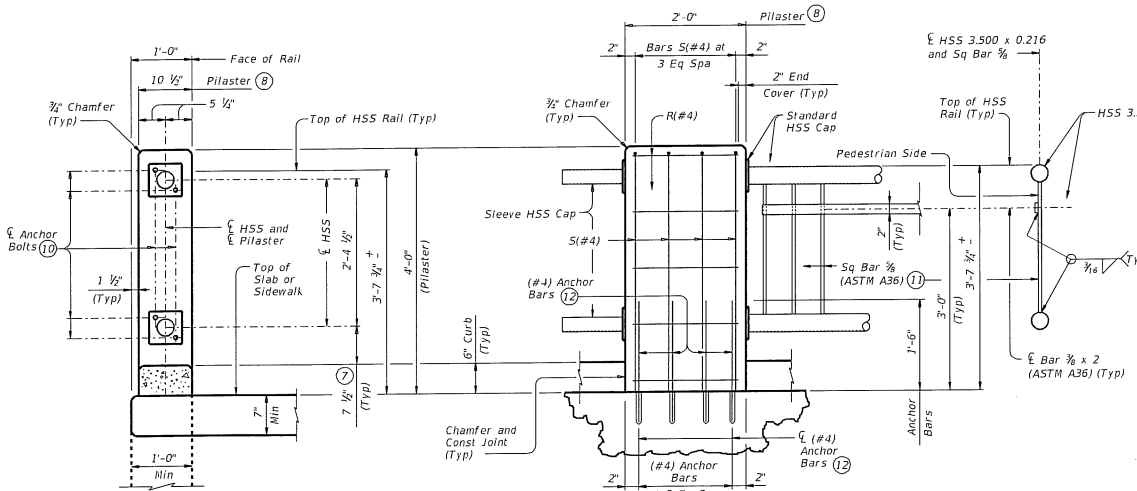


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ELEVATION OF RAIL

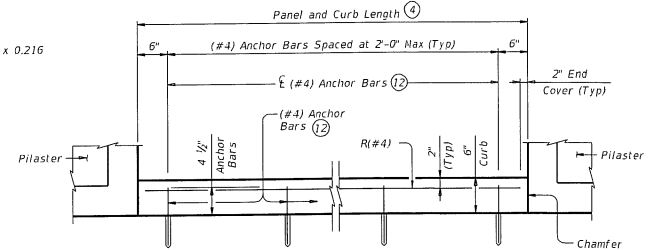
- 1 10'-0" Max Panel and Curb Length.
- 2 Wingwall will have pilasters at each end (Typ).
- 3 Span will have a pilaster at each end (Typ).
- 4 10'-0" Usual and Max Panel and Curb Length.
- 5 Space Sq Bar $\frac{1}{2}$ Equally at 5 $\frac{1}{2}$ " Max along center of HSS 3.500 x 0.216 (Typ).
- 6 $\frac{1}{2}$ " HSS 3.500 x 0.216 (Typ).
- 7 Parallel to top of curb (Typ).
- 8 Pilasters will be plumb on all sides (Typ).
- 9 Terminate HSS 3.500 x 0.216 as shown on one end only of each HSS Rail Panel. This allows for future repairs and/or replacement. Terminate Bar $\frac{1}{2}$ x 2 as shown on each end of HSS Rail Panel.
- 10 See "Material Notes" for anchor bolt information.
- 11 Sq Bar $\frac{1}{2}$ will be Plumb.
- 12 Embed (#4) adhesive anchor bars 5" Min. See "Material Notes" for adhesive anchor requirements.



END VIEW OF PILASTER
Showing placement of HSS Caps on Pilaster
(Sq Bar $\frac{1}{2}$ not shown for clarity.)

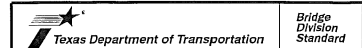
PILASTER ELEVATION

HSS RAIL SECTION



ELEVATION OF TYPICAL CURB REINFORCING

SHEET 1 OF 2



PEDESTRIAN RAIL

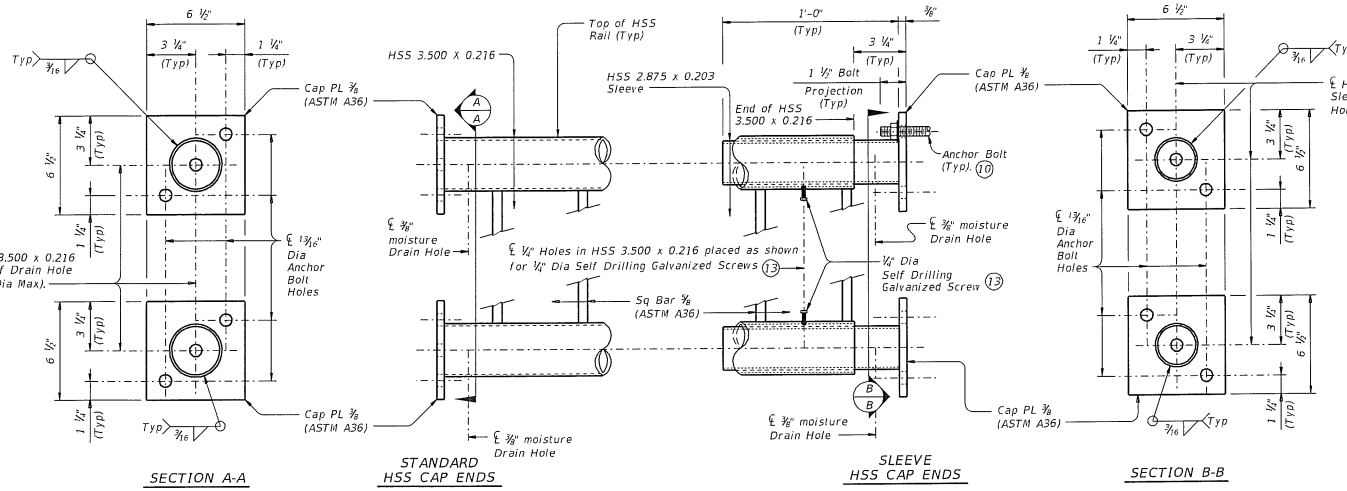
TYPE PR3

FILE	21M020-16.dgn	ON	TxDOT	BY	JTR	CL	JHM
TxDOT	March 2018	DATE	REV	NO			
	REVISIONS						
		DATE	BY	CHKD	APP'D		

DATE:
FILE:

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DATE: FILE:



HSS RAIL DETAILS

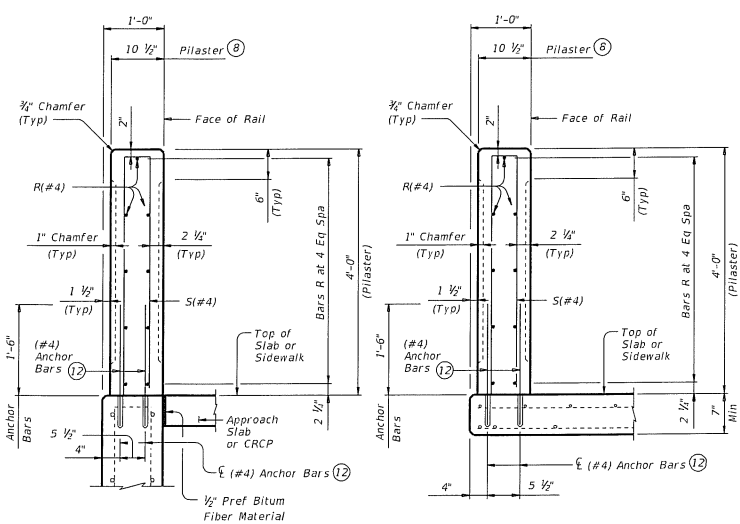
- ⑥ Pilasters will be plumb on all sides (Typ).
- ⑩ See "Material Notes" for anchor bolt information.
- ⑫ Embed (#4) adhesive anchor bars 5" Min. See "Material Notes" for adhesive anchor requirements.
- ⑬ Firmly tighten Self Drilling Screws after pipe rail has been attached to Pilasters.

CONSTRUCTION NOTES:
 Pilasters must be plumb on all sides.
 For curved railing applications, fabricate the rail to the curve if radius is less than 600 ft. Shop drawings are required when rail is fabricated to the curve.
 Round or Chamfer exposed edges of HSS rail and HSS caps to approximately 1/16" by grinding.
 Test adhesive anchors in accordance with Item 450.33, "Tests". Test 3 anchors per 100 anchors installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.
 Chamfer all exposed concrete corners.

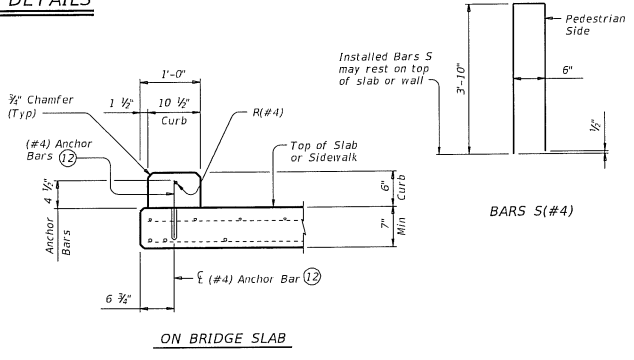
MATERIAL NOTES:
 Provide ASTM A500 Gr B, A1085 or A53 Gr B for all HSS.
 Galvanize all metal components of steel rail system. Apply additional coatings when shown elsewhere on the plans. When plans require paint over galvanizing, follow the requirements for painting galvanized steel in Item 445, "Galvanizing" and when field painting, Item 446, "Field Cleaning and Painting Steel". Sleeve members and anchor bolts must receive galvanization prior to installation and only field paint after installation unless directed otherwise by Engineer.
 Provide Grade 60 reinforcing steel.
 Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized. (#4) anchor bar used for the adhesive anchorage system must not be epoxy coated for the embedded portion.
 Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.
 Chamfer all exposed concrete corners.
 Anchor bolts must be 1/2" Dia ASTM A307 Grade A fully threaded rods with one hex head nut and one hardened steel washer (ASTM F436) each. Nuts must conform to ASTM A563 requirements. Embed threaded rods into pilasters with a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive anchor embedment depth is 3 1/2". Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".
 Embed (#4) anchor bars with a Type III, Class C, D, E, or F anchor adhesive. Anchor adhesive chosen must be able to achieve a tensile bond strength in tension, Nba, of 12 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

GENERAL NOTES:
 Designed according to AASHTO LRFD Specifications.
 Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.
 Do not use this railing on bridges with expansion joints providing more than 5" movement.
 Shop drawings are not required unless otherwise noted.
 For all rails, submit erection drawings for approval to ensure proper installation. Drawings must show pilaster spacing, sleeve HSS cap locations on pilasters, and panel lengths with identification showing where each panel goes on the layout.
 Average weight of railing: 158 plf total
 136 plf (Conc)
 22 plf (Steel).

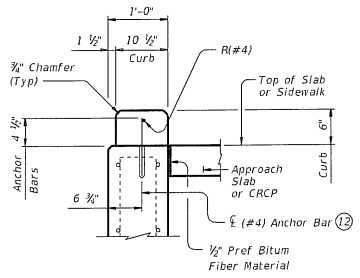
Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.



SECTIONS THRU PILASTER



ON BRIDGE SLAB



SECTIONS THRU CURB

		Bridge Division Standard	
<h2>PEDESTRIAN RAIL</h2>			
<h3>TYPE PR3</h3>			
FILE: r13rd030-182.gpw	EN: TxDOT	CR: TxDOT	DR: JTR
DATE: 03/2018	CONTRACT: 1309	SECTION: 10P	PROJECT: HSP-2014
REVISED:	DATE:	BY:	SHEET NO.