

CONDUITS MAY BE PLACED IN DECK OR HOLES MAY BE FIELD DRILLED, NOT TO INTERFERE WITH REINFORCEMENT

SECTION A-A

Note: Either through bolt or epoxy anchor with minimum 8" [203] embedment and minimum 1,300 psi [9.0 MPa] bond strength.

## REDUCED SPACING, W-BEAM GUARDRAIL ON CONCRETE BOX CULVERT



**SGR25**

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### INTENDED USE

Reduced Spacing, W-Beam Guardrail on Concrete Box Culvert (SGR25) should be used in locations where a maximum dynamic deflection of 16 3/8" [416] or less is acceptable and where a working width of 35 3/8" [899] is provided. W-Beam Guardrail on Concrete Box Culvert should be anchored and terminated using a suitable guardrail end treatment. W-Beam Guardrail on Concrete Box Culvert can be used with wide-flange steel posts as shown. Guardrail sections measuring 300" [7620] long can be used in lieu of the 150" [3810] long sections. This system is TL-3 NCHRP 350 acceptable.

### COMPONENTS

Unit Length = 150" [3810]

DESIGNATOR	COMPONENT	SYSTEM	NUMBER
FBB01	Guardrail Splice Bolts and Nuts	a-b	8
FBB03	Guardrail Post Bolts and Nuts	a-b	4
PDB09	Timber Blockout	a-b	4
RWM04a	W-beam Rail	a-b	1
----	Wide-flange Guardrail Post	a-b	4
----	16D Nail, Galvanized	a-b	4
----	Base Plate	a-b	4
----	Washer Plate	a	4
FBX24a	Hex Bolt and Nut	a	16
FRS24a	Straight Anchor Stud and Nuts	b	16

### ACCEPTANCE

FHWA acceptance was not pursued.

### REFERENCES

Polivka, K.A., Faller, R.K., Sicking, D.L., Rohde, J.R., Reid, J.D., and Holloway, J.C., NCHRP 350 Development and Testing of a Guardrail Connection to Low-Fill Culverts, Final Report to the Midwest State's Regional Pooled Fund Program, Transportation Research Report No. TRP-03-114-02, Project No. SPR-3(017)-Year 10, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, November 1, 2002.

Polivka, K.A., Faller, R.K., Reid, J.D., Rohde, J.R., and Sicking, D.L., *Guardrail Connection for Low-Fill Culverts*, Paper No. 03-4421, Transportation Research Record No. 1851, Transportation Research Board, National Research Council Washington, Washington, D.C., January 2003. pp. 105-116.

Price, C.W., Rosenbaugh, S.K., Faller, R.K., Sicking, D.L., Reid, J.D., and Bielenberg, R.W., Post Weld and Epoxy Anchorage Variations for W-Beam Guardrail Attached to Low-Fill Culverts, Final Report to the Midwest States' Regional Pooled Fund Program, Transportation Research Report No. TRP-03-278-13, Midwest Roadside Safety Facility, University of Nebraska-Lincoln, August 12, 2013.

### CONTACT INFORMATION

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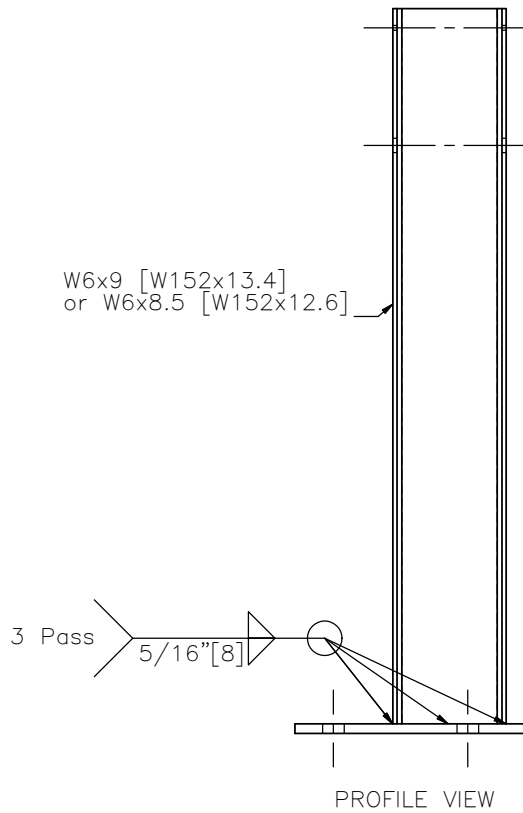
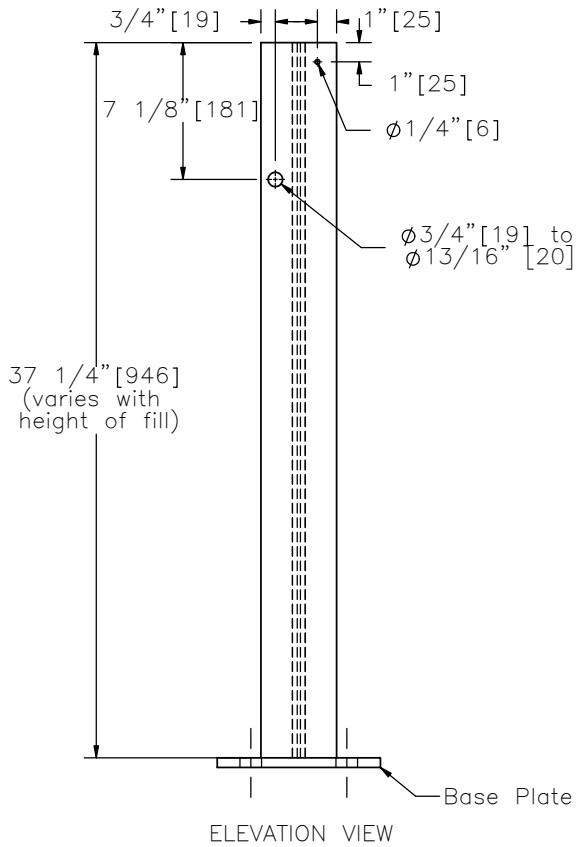
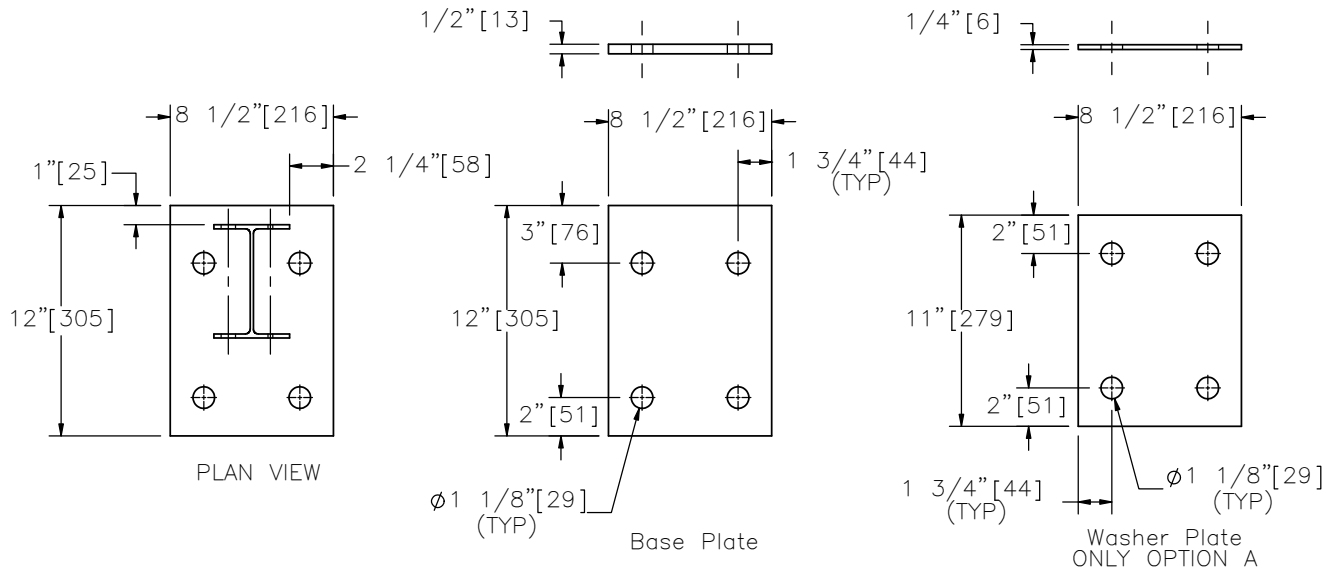
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### SPECIFICATIONS

The culvert-mounted guardrail post shall be manufactured using AASHTO M270M (ASTM A709M) Grade 250 steel or ASTM A992 unless corrosion resistant steel is required in which case the post shall be manufactured from AASHTO M270M (ASTM A709M) Grade 50W steel. The dimensions of the cross-section shall conform to a W6x9 [W152x13.4] section as defined in AASHTO M160M (ASTM A6M). W6x8.5 [W150x12.6] wide-flange posts are an acceptable alternative that is considered equivalent to the W6x9 [W152x13.4].

After the section is cut and all holes are drilled or punched, the component should be zinc-coated according to AASHTO M111 (ASTM A123) unless corrosion resistant steel is used. When corrosion resistant steel is used the portion of the post to be embedded in soil shall be zinc-coated according to AASHTO M111 (ASTM A123) and the portion above the soil shall not be zinc-coated, painted, or otherwise treated.

DESIGNATOR	AREA in. <sup>2</sup> [10 <sup>3</sup> mm <sup>2</sup> ]	I <sub>x</sub> in. <sup>4</sup> [10 <sup>6</sup> mm <sup>4</sup> ]	I <sub>y</sub> in. <sup>4</sup> [10 <sup>6</sup> mm <sup>4</sup> ]	S <sub>x</sub> in. <sup>3</sup> [10 <sup>3</sup> mm <sup>3</sup> ]	S <sub>y</sub> in. <sup>3</sup> [10 <sup>3</sup> mm <sup>3</sup> ]
Wide-flange guardrail post	2.68 [1.7]	16.4 [6.83]	2.20 [0.92]	5.56 [91.1]	1.11 [18.2]

Dimensions tolerances not shown or implied are intended to be those consistent with the proper functioning of the part, including its appearance and accepted manufacturing practices.

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