End of bridge rail

Required transition curb

Depression of drain

Edge of shoulder drain reinforced concrete.

Slope

End of bridge rail

Required transition curb

Depression of drain

Edge of shoulder drain reinforced concrete.

Slope

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Depression of drain

Edge of shoulder drain reinforced concrete.
The use of this standard is governed by the "Texas Engineering Practice Act." No warranty of any of this standard to other formats or for incorrect results or damages resulting from its use.

Sections shown without integrated riprap.

Sections shown with integrated riprap.

1. Use wider or other drain configurations if shown elsewhere in plans or if directed by the Engineer. Location of shoulder drain may consider limitation imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.

2. Fill leave-outs with no more than a 2-sack grout mixture (1 part cement, 5 parts water, and 5 parts sand) placed with a 20-gallon auger. Grout must completely fill voids. Leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (20" Min leave-out).

3. Form depression into concrete, asphalt pavement, or approach slab.

4. Provide WWR or reinforcing steel that extends 1'-1" minimum into adjacent WWR or reinforcing steel is continuous through riprap construction joints. 

5. See elsewhere in plans or as directed by the Engineer. 

6. Use wider or other drain configurations if shown elsewhere in plans or if directed by the Engineer. Location of shoulder drain may consider limitation imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.

7. Provide reinforcing bar at 12" opening (c-c) or welded wire reinforcement (WWR) as 6x6-02-W-12(2) or 8x8x36. Combinations of WWR and reinforcing bars may be used if both are permitted. Use the species of a minimum 6" diameter, measured from the transverse wire of WWR, and the ends of reinforcing bars, unless shown otherwise.

8. See elsewhere in plans or as directed by the Engineer. 

9. WWR or reinforcing steel is continuous through riprap construction joints. Provide WWR or reinforcing steel that extends 1'-1" minimum into adjacent riprap on each side of construction joint even if synthetic fiber is utilized.

GENERAL NOTES:

1. Provide Class "F" concrete with a minimum compressive strength of 2,000 psi unless otherwise shown.

2. Provide Grade 60 reinforcing steel.

3. Provide deformed WWR, deformed WWR or any suitable combination of both types for riprap reinforcing, unless specified elsewhere in the plans.

4. Optionally synthetic fibers may be used if approved by the Engineer. Provide synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) in lieu of steel reinforcing in riprap concrete.

5. See Metal Beam Guard Fence (Mow Strip) standard for details and notes not shown.

6. Payment for shoulder drain will be as per Item 420, "Cl B Conc (Flume)." All details shown herein are subsidiary to shoulder drain. See Layout for limits of shoulder drain. 

7. Min is to be used on arrow crossings. WWR is to be used on other embankments.

SD-EBR

SHOULDER DRAIN AT END OF BRIDGE RAIL