Pay limits of Guardrail Attached to Culvert

**Plan**

- Steel post
- Post standoff
- SQUARE WASHER A
- Steel backup plate
- Steel plate beam guardrail
- Steel post at culvert
- POST STANDOFF
- STEEL POST
- BACKUP PLATE

**Detail A**

- SQUARE WASHER A
- Steel backup plate
- Steel plate beam guardrail
- Steel post at culvert

**Detail B**

- Post standoff
- Steel socket
- Steel post
- Post standoff

**General Notes**

- See Standard 630001 for details of guardrail not shown.
- See Standard 630006 for details of non-blocked guardrail not shown.
- All threaded rods and bolts shall be installed with heavy hex nuts and standard washers unless noted otherwise.
- All dimensions are in inches (millimeters) unless otherwise shown.

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**WEAK POST GUARDRAIL ATTACHED TO CULVERT**

**DETAIL A**

- See DETAIL A for attachment to post.

**DETAIL B**

- See DETAIL B for welding of post standoffs

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**SECTION A-A**

**General Notes**

- See Standard 630001 for details of guardrail not shown.
- See Standard 630006 for details of non-blocked guardrail not shown.
- All threaded rods and bolts shall be installed with heavy hex nuts and standard washers unless noted otherwise.
- All dimensions are in inches (millimeters) unless otherwise shown.
CROSS SECTION

CASE I, (H+T-R) < 18 (457), TOP MOUNT

ELEVATION

TOP VIEW

SIDE VIEW

FRONT VIEW

SOCKET ASSEMBLY

FOR CASE I

Steel post

\( \frac{3}{4} \times 5 \)
(M16 x 127) hex bolt and nut

Socket assembly

Two \( \frac{3}{4} \times 2 \)
(M13 x 50) hex bolts and nuts

For R greater than 3 (76) provide BRACKET A. For R less than or equal to 3 (76) provide BRACKET B (BRACKET A shown)

Greater of \( \frac{3}{4} \) (140) or \( \frac{3}{4} \times 2 \) (R=64)

\( R \) varies between 0 to 6 (152)

Two \( \frac{3}{4} \times 7 \) (M19 x 178) threaded rods secured with chemical adhesive

One \( \frac{3}{4} \) (19) expansion bolt

Steel post

\( \frac{3}{4} \times 5 \)
(M16 x 127) hex bolt and nut

Two \( \frac{3}{4} \times 2 \)
(M13 x 50) hex bolts and nuts

For R greater than 3 (76) provide BRACKET A. For R less than or equal to 3 (76) provide BRACKET B (BRACKET A shown)

Greater of \( \frac{3}{4} \) (140) or \( \frac{3}{4} \times 2 \) (R=64)

\( R \) varies between 0 to 6 (152)

Two \( \frac{3}{4} \times 7 \) (M19 x 178) threaded rods secured with chemical adhesive

One \( \frac{3}{4} \) (19) expansion bolt

Steel post

\( \frac{3}{4} \times 5 \)
(M16 x 127) hex bolt and nut

Two \( \frac{3}{4} \times 2 \)
(M13 x 50) hex bolts and nuts

For R greater than 3 (76) provide BRACKET A. For R less than or equal to 3 (76) provide BRACKET B (BRACKET A shown)

Greater of \( \frac{3}{4} \) (140) or \( \frac{3}{4} \times 2 \) (R=64)

\( R \) varies between 0 to 6 (152)
**Steel post**

- 5/8 x 5 (M16 x 127) hex bolt and nut

**Socket assembly**

- Two 5/8 x 2 (M13 x 50) hex bolts
- Greater of 5/8 (140) or R+2\(\frac{1}{2}\) (R=64)

**Cross Section**

**CASE II, \(H+T-R\) < 18 (457), SIDE-MOUNT THROUGH-BOLT**

- Two \(\frac{3}{16}\) (19) threaded rods. Length shall be \(W+4\) (102).

**TOP VIEW**

**SIDE VIEW**

- For R greater than 3 (76) provide BRACKET A. For R less than or equal to 3 (76) provide BRACKET B. (BRACKET A shown)

**ELEVATION**

**CASE III, \(H+T-R\) < 18 (457), SIDE-MOUNT ANCHORED**

- One \(\frac{3}{16}\) (19) expansion bolt

**TOP VIEW**

**SIDE VIEW**

- For R greater than 3 (76) provide BRACKET A. For R less than or equal to 3 (76) provide BRACKET B. (BRACKET A shown)

**ELEVATION**

**Socket Assembly**

- For cases II & III

**FOR CASES II & III**

**Illinois Department of Transportation**

**January 1, 2020**

**Engineer of Policy and Procedures**

**Approved January 1, 2020**

**January 1, 2020**

**Engineer of Design and Environment**

**1-1-17**

**PASSED**

**Attached to Culvert**

**Weak Post Guardrail**

**Standard 630111-01**
Steel post

\( \frac{1}{2} \times 5 \) (M16 x 127) hex bolt and nut

Socket assembly

Two \( \frac{3}{16} \times 7 \) (M13 x 178) threaded rods secured with chemical adhesive

R\* varies between 0 to 6 (152)

CASE V, \((H+T-R) \geq 18 \text{ (457)}, \) SIDE-MOUNT, THROUGH-BOLT

CASE VI, \((H+T-R) \geq 18 \text{ (457)}, \) SIDE-MOUNT ANCHORED

Cross Section

Elevation

For cases V & VI

Front View

Side View

Socket Assembly

Gusset C

HSS 4 x 4 x \( \frac{1}{2} \)

Steel post

\( \frac{1}{2} \times 5 \) (M16 x 127) hex bolt and nut

Socket assembly

Two \( \frac{3}{16} \times 7 \) (M13 x 178) threaded rods secured with chemical adhesive

R\* varies between 0 to 6 (152)

**WEAK POST GUARDRAIL ATTACHED TO CULVERT**

**STANDARD 630111-01**