### Curved Guardrail Detail

**Figure 1**

#### Section A-A

- **Slope:** 15°
- **Centered in post:**
  - 3½" DIA hole
- **6" x 8" x 6'-0" CRT wood post (P-II-79; modified as shown and preservative treated after drilling)**

#### Section B-B

- **Secure block from rotation with: 10d galvanized nail**
- **(F-15-73)**

### Table: Area Behind Guardrail to be Maintained Free of Fixed Objects

<table>
<thead>
<tr>
<th>Radius</th>
<th>No. of CRT Posts</th>
<th>Required Area Free of Fixed Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'-6&quot;</td>
<td>5</td>
<td>L x 25' x 15'</td>
</tr>
<tr>
<td>17'-0&quot;</td>
<td>6</td>
<td>L x 30' x 15'</td>
</tr>
<tr>
<td>25'-0&quot;</td>
<td>8</td>
<td>L x 40' x 20'</td>
</tr>
<tr>
<td>35'-0&quot;</td>
<td>11</td>
<td>L x 50' x 20'</td>
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</tbody>
</table>

### Notes:
1. Designations provided in parentheses reference standard elements detailed in "A Guide to Standardized Highway Guardrail and Railing Hardware" (FHWA, AASHTO-ASC-ARTBA Joint Cooperative Committee).
2. No washers are used on the 3/4" button head bolts (F-3(18)-76) connecting the rail to the controlled releasing terminal (CRT) posts.
3. The rail is not bolted to the CRT post at the center of the nose as shown.
4. The curved guardrail section shall be shop bent.
5. The Special Anchor has not been tested as a crashworthy and effective treatment for approaching traffic on the intersecting roadway. Therefore, its use shall be limited to driveways or service roadways paralleling drainage facilities.
Begin Standard Wood or Steel Post Guardrail Section
or Guardrail Transition to Bridge Rail

Maintain area approximately 50 feet long by 20 feet wide free of fixed objects

35° Radius

6" x 8" x 1'-2" Wood block (P-II-79) Secure block from rotation with IOD galvanized nail

6" x 8" x 6'-0" CRT wood post (P-II-79; modified as shown and preservative treated after drilling)

Special Anchor (See Fig. 3A and 3B; also see note 4)

Slope = 15% or flatter

3½" Dia. hole - Centered in post

1½" Dia. hole

1½" x 1½" x 4'-0" Special Anchor (P-3118'-76) (F-13-73)

(F-3110'-76) (F-13-73)

(F-13-73)

(F-3118'-76)

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NOTES:
2. Attach V-groove to steel pipe with F-3(2.176) button head bolt with washer. No connection to post is required.
3. Bolts shall conform to the requirements of ASTM A 361 and nuts to the requirements of ASTM A 563, Grade A or better, and be galvanized in accordance with ASTM A 153.
4. Wire rope shall conform to the requirements of AASHTO M 30 and shall be 7x19, 6x36, 6x19, or 8x19. Wire rope, galvanized, right regular lay, manufactured of improved plow steel with a minimum breaking strength of 42,000 pounds.
5. All angles, channels, and plates shall conform to the requirements of ASTM A 36 and structural tubing to ASTM A 500. Welding shall meet the current requirements of the American Welding Society Structural Welding Code ANSI/AWS, D1. All structural steel shall be galvanized in accordance with ASTM A 123. No punching, drilling, cutting, or welding will be permitted after galvanizing.

Figure 3A
CURVED GUARDRAIL
SPECIAL ANCHOR DETAILS
NOTES:

1. The wood breakaway post shall be S4S
   lumber with a stress grade of 1200 psi
   and shall be grade marked or certified by
   a recognized association or agency which is
   certified by the Board of Review, American
   Lumber Standards Committee, to grade the
   species. It shall receive a preservative
   treatment in accordance with AASHTO
   designation M-133.

2. All angles, channels, and plates shall
   conform to the requirements of ASTM A 36
   and structural tubing to ASTM A 500.
   Welding shall meet the current requirements
   of the American Welding Society Structural
   Welding Code AWS/D1.1. All structural
   shall be galvanized in accordance with
   ASTM A 123. No punching, shearing, cutting,
   or welding will be permitted after galvanizing.

3. Post B is fabricated from Post A by adding
   the galvanized structural tube (See Figure 3A.
   Detail A) before galvanizing.

Figure 38
CURVED GUARDRAIL
SPECIAL ANCHOR
DETAILS
Main Highway - Maximum 50 MPH

- 2 spaces @ 3' 11 1/4" - 6' 3"

Begin Standard Guardrail Transition to Bridge Rail

NOTE:


2. No washers are used on the 7/16" button head bolt (F-318 as required) 7/16 connecting the rail to the Controlled Releasing Terminal (CRT) post.

3. The curved guardrail section shall be shop bent.

4. Use of Special Anchor has not been tested as a crashworthy treatment for approaching traffic on the intersecting roadway. Therefore, its use shall be limited to driveways or service roadways, pre-existing drainage facilities with low speeds and very low traffic volumes.

NOTES:

Area behind guardrail to be maintained free of fixed objects

- Special Anchor
- See Fig. 3A and 3B. Also see note 5

Special Anchor - See note 4 for Special Anchor

(Re-312 at 6' 3" - 12 6' 1/16')
(F-7310 71/2")
(F-13-73)
(F-11-79)

6" x 8" x 6' 0" CRT wood post (P-11-79; modified as shown and preservative treated after drilling)

SECTION A-A

SECTION B-B

Figure 4
YUMA COUNTY, AZ
CURVED GUARDRAIL DETAIL
(8"-6" radius)