12.1 Bridgerail - General

Bridgerail is a critical safety item on all bridges. To provide the degree of safety required, it must be installed securely in accordance with the plans and specifications. Bridgerail is the most prominent part of a bridge. The installation must be accurately done to produce true alignment and elevation.

12.2 Materials

Bridgerail materials, including anchor bolt assemblies and grout for anchor bolt bases, shall be supplied by the Contractor.

12.3 Installation

Bridgerail installation includes casting in the anchor bolt assemblies, erecting/aligning of the rail and grouting under the baseplates. Unless otherwise specified, the posts are to be installed vertically.

- Bridgerail anchor bolts must be set very accurately as later adjustment to their height or location is virtually impossible. They must be securely held in position to prevent displacement by concrete placing operations. The inspector must check the layout of the anchors for correct location, and should sight along the line of anchors to be satisfied that the overall alignment is acceptable.

- The bridgerail must be erected and aligned true to the required lines. The Bridge Inspector must check the alignment and the profile to ensure that the rail does not follow any unevenness in the superstructure. Expansion joints in the bridgerail must be installed as detailed on the drawings.

- Grouting under baseplates shall be carried out with an approved flowable grout, ensuring full contact of the anchor bolt baseplates. The grout shall be wet cured with burlap for a period of 72 hours.

12.4 Checklist

12.4.1 Bridge Inspector’s Responsibilities

- Review applicable Specifications, Special Provisions, and study drawings.

- Ensure shop drawings, including erection scheme are approved.

- Check anchor bolts for:
  - Location and elevation
  - Overall alignment
  - Adequate attachment to forms
  - Type

- Check bridgerail installation for:
  - Secure attachment
  - Smooth and pleasing alignment both horizontally and vertically.
  - Location and gap of expansion joints.

- Check that grout is mixed in required proportions.

- Check grouting below base plates and ensure wet cured for 72 hours.

- Check rail thoroughly to ensure any damage to galvanized surface is repaired by metalizing.

- Initiate payment when work completed.

SECTION 12

BRIDGERAIL

12-1 Old standard double tube bridgerail (1969-2000)

12-4 Curb projecting in front of bridgerail

12-2 Old standard double tube bridgerail (1969-2000)

12-5 Re-aligning guardrail to shield bridgerail and curb end

12-3 Old standard approach guardrail transition (1969-2000)

12-6 Re-aligning guardrail to shield projecting curb

SECTION 12

BRIDGERAIL

12-7 Old W-beam bridgerail with discontinuous approach guardrail

12-10 New standard bridgerail/Thriebeam connection

12-8 New Thriebeam transition to approach guardrail

12-11 New Thriebeam bridgerail and approach transition

12-9 New standard double tube bridgerail – curb face lines up with bridgerail

12-12 Note smooth bridgerail face for re-direction of accident vehicle

SECTION 12

BRIDGERAIL

12.13 Typical deck curb formwork with bridgerail post anchor bolt assemblies installed

12-16 Approach Thriebeam to W-beam transition

12-14 Typical completed bridgerail post grout pad

12-17 Realign approach thriebeam to shield bridgerail and curb end

12-15 Bridgerail is the most prominent part of the bridge and its installation must result in alignment and elevation true to the required lines

12-18 Thriebeam transition steel post spacing detail