This railing has been structurally evaluated to be equivalent or greater in strength to other safety type railings which have been crash tested to NCHRP Report 350 TL-5 Criteria.

CONCRETE AND REINFORCING STEEL: See Structures Plans, General Notes. MARKINGS: Elevation Markers shall be placed on top of the Traffic Railing at the end bents. On bridges longer than 100 ft, one marker shall be placed at each end of the bridge, and on bridges 100 ft or less, one marker shall be placed at one end of the bridge only. Markers are to be furnished by the Florida Department of Transportation and installed by the Contractor. The cost of installing the markers shall be included in the Contract Unit Price for the Traffic Railing.

SUPERELEVATED BRIDGES: At the option of the Contractor, the Traffic Railing on super-elevated bridges may be constructed perpendicular to the roadway surface. If an adjoining railing is constructed parallel to the roadway surface, the traffic railing shall be perpendicular to the roadway surface. The minimum distance of 20'-0". The cost of all modifications shall be the Contractor’s expense.

GUARDRAIL: For Guardrail connection details, see Index No. 400.

RIGID RETAINING WALLS: If this Traffic Railing is to be provided on retaining wall, the railing section will be the same as shown on Sheet 2. Other details such as the guardrail transition attachment, the maximum spacing of the 90" open joints and 90° V-grooves shall apply.

For details on traffic railings, see Section 4-2A, End View 9-10 and Detail 425.

TRAFFIC RAILING NOTES:

1. Construct 90° V-Grooves plum, Space V-Grooves equally between 90° Open Joints and/or Deck Joints and at V-Grooves locations on Retaining Wall (ties).

2. SUPERELEVATED BRIDGES: The name and Bridge Number shall be placed on the Traffic Railing so as to be seen on the driver’s right side when approaching the bridge. The name shall be placed on the driver’s left side when approaching the bridge. For widening the existing railing is removed. Use the existing date and the year of the widening. Black plastic letters and 3" in height may be used as approved by the Engineer in lieu of the letters and figures formed by 90° V-Grooves, V-Grooves shall be formed by casted letters and figures.

3. JUMPS: See General Notes, Superintendent, Approach Slab and Retaining Wall Details. For actual dimensions and joint orientation, Open Railing of Deck Expansion Joint locations and match the dimensions of the Deck Joint.

4. For treatment of Railings on skewed bridges see Index No. 406. Deck Joint at Begin or End Bridge shown. Deck Joint at Pier or Intermediate Beam Similar.

Provide 90° Intermediate Open Joints shall be provided as:

Substructure supports where superstructure slab is continuous.
Midspan where span length exceeds 90 ft.
Intermediate locations equally spaced between midspan and substructure supports when span length exceeds 100 ft.
4 at ends of approach slabs when adjacent to retaining walls and at expansion joints on retaining wall junction slabs.

PLAN

(REINFORCING STEEL NOT SHOWN FOR CLARITY)

(Traffic Railing on Bridge Deck and Approach Slab shown, Railing on Retaining Wall similar)

ELEVATION OF INSIDE FACE OF RAILING

(REINFORCING STEEL NOT SHOWN FOR CLARITY)

(Traffic Railing on Bridge Deck and Approach Slab shown, Railing on Retaining Wall similar)

TRAFFIC RAILING NOTES:

1. Construct 90° V-Grooves plum. Space V-Grooves equally between 90° Open Joints and/or Deck Joints and at V-Grooves locations on Retaining Wall (ties).

2. SUPERELEVATED BRIDGES: The name and Bridge Number shall be placed on the Traffic Railing so as to be seen on the driver’s right side when approaching the bridge. The name shall be placed on the driver’s left side when approaching the bridge. For widening the existing railing is removed. Use the existing date and the year of the widening. Black plastic letters and figures shall be formed by casted letters and figures.

3. JUMPS: See General Notes, Superintendent, Approach Slab and Retaining Wall Details. For actual dimensions and joint orientation, Open Railing of Deck Expansion Joint locations and match the dimensions of the Deck Joint.

4. For treatment of Railings on skewed bridges see Index No. 406. Deck Joint at Begin or End Bridge shown. Deck Joint at Pier or Intermediate Beam Similar.

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Midspan where span length exceeds 90 ft.
Intermediate locations equally spaced between midspan and substructure supports when span length exceeds 100 ft.
4 at ends of approach slabs when adjacent to retaining walls and at expansion joints on retaining wall junction slabs.
Plan - Railing End Transition
(Showing Bars 5V, 851, 552 and 872)

**Detail “A”**

- Where railings of adjacent bridges are to be built back to back, the outside vertical planes of the railing and deck may coincide along a plane centered 1-1/2" from each gurder line. A bond breaker will be required. See Structures Plans, Superstructure Sheets for Details.

**Elevation - Railing End Transition**

(Guardrail and back leg of Stirrups not shown for clarity)

**SECTION A-A**

TYPICAL SECTION THRU TRAFFIC RAILING
(SECTION THRU BRIDGE DECK SHOWN, SECTION THRU APPROACH SLAB SIMILAR)

**VIEW B-B**

(Section thru Approach Slab shown, Section thru Retaining Walls similar)

**INSTRUCTION TO DESIGNER:**

- For bridge decks up to a maximum thickness of 11", the two bars 552 placed in the Bridge Deck only substitute for the longitudinal deck located within the limits of Bars 5V, provided that the total area of longitudinal deck beneath the railing, as required by calculation, is not reduced. Show these bars on the Structures Plans, Superstructure Sheets with the deck steel.

- All Bars SP, 55 and 5V as shown are included in the Estimated Traffic Railing Quantities. Do not include Bars SP, 55 and 5V in the reinforcing bar lists and estimated quantities for supporting bridge decks, approach slabs or retaining walls.
### CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

#### BILL OF REINFORCING STEEL

<table>
<thead>
<tr>
<th>MARK</th>
<th>SIZE</th>
<th>LENGTH</th>
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<tbody>
<tr>
<td>V</td>
<td>5</td>
<td>6'-0&quot;</td>
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<tr>
<td>51</td>
<td>8</td>
<td>As Req'd.</td>
</tr>
<tr>
<td>52</td>
<td>5</td>
<td>As Req'd.</td>
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</tbody>
</table>

#### ROADWAY LOW GUTTER & HIGH GUTTER CROSS-SLOPE

- 0% to 2%: 90°, 90°, 90°, 90°
- 2% to 5%: 93°, 87°, 87°, 93°
- 5% to 10%: 96°, 84°, 84°, 96°

*4% and 8% shall be 90°. If contractor elects to place railing perpendicular to the deck.*

#### LENGTH AS REQUIRED

#### BARS 851 & 552

**Transition Bars 871 & 872**

(2 of each required per Railing End Transition)

#### STIRRUP BAR 5P

**Transition Stirrup Bars 5P**

To Be Field Cut (10 of each required per Railing End Transition)

#### STIRRUP BAR 5V

**End Stirrup Bar 5V**

To Be Field Cut (1 of each required per Railing End Transition)

#### REINFORCING STEEL NOTES:
1. All bar dimensions in the bending diagrams are cut to size.
2. The reinforcement for the railing on a retaining wall shall be the same as detailed above for a 10% deck with 4% = 90° = 90°.
3. Air-reinforcing steel at the open joints shall have a 2" minimum cover.
4. Bars 851 may be continuous or spliced at the construction joints. Lap splices for Bars 851 and 552 shall be a minimum of 4'-0" and 2'-0", respectively.
5. The Contractor may use Welded Wire Reinforcement when approved by the Engineer. Welded Wire Reinforcement shall conform to ASTM A497.

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#### ESTIMATED TRAFFIC RAILING QUANTITIES

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<tr>
<th>ITEM</th>
<th>UNIT</th>
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<tr>
<td>Concrete</td>
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<tr>
<td>Reinforcing Steel</td>
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**Note:**
The estimated railing quantities are based on a 2% deck cross slope railing on low side of deck.