TRAFFIC RAILING NOTES

This railing has been structurally evaluated to be equivalent or greater in strength to other safety shape railings which have been crash tested to NCHRP Report 350 TL-4 Criteria.

CONCRETE AND REINFORCING STEEL: See Structures Plans, General Notes.

MARKERS: Elevation Markers shall be placed on top of the Traffic Railing at the end ends. They shall be placed at each end of the bridge. On bridges 100 ft. or less and no 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.

GUARDRAILS: For guardrail connection details, see Index No. 420.

PEDESTRIAN/BICYCLE RAILING AND SPECIAL HEIGHT BICYCLE RAILING DETAILS: See Index No. 822 for Post, Handrail, and Expansion Joint fabrication and installation details and notes.

V-GROOVES: Construct 1/2" V-Grooves plumb. Space V-Grooves equally between 1/4" Open Joints and/or Deck Joints and at V-Groove locations on Retaining Wall flanges.

REFLECTIVE RAILING MARKERS: Reflective Markers shall meet Specification Section 993. Install markers on top of the Traffic Railing 2" from the face on the traffic side of the space shown in the table above. Reflector color white or yellow shall match the color of the rear edge. The cost of the reflective markers shall be included in the Contract Unit Price for the Traffic Railing.

RAILINGS ON RETAINING WALLS: If the Traffic Railing is to be provided on a retaining wall, the railing section will be the same as shown on Sheet 2. All other details such as the guardrail transition attachment, the maximum spacing of the 1/4" open joints and 1/2" V-Groove shall apply.

NAME, DATE, AND BRIDGE NUMBER: The name and Bridge Number shall be placed on the Traffic Railing so as to be seen on the driving side when approaching the bridge. The date shall be placed on the driver's left side when approaching the bridge. The name shall be shown in the General Notes of the Structures Plans. The date shall be the year in which the construction of the bridge was completed. For a bridge where the existing structure is removed, use both the existing date and the year of the existing structure. Black plastic letters and figures 3" in height may be used, as approved by the Engineer, in lieu of the letters and figures formed by 1/2" V-Grooves. V-Grooves shall be formed by preformed letters and figures.

OPEN JOINTS: See Structures Plans, Superstructure, Approach Slope Sheets and Retaining Walls for actual dimensions and joint orientation. Open Joint details at Deck Expansion Joint locations shall match the dimensions of the Deck Joint. For treatment of railings on skewed bridges see Index No. 420. Deck Joint at End or Bridle Shown. Deck Joint at End or Bridle Shown. Deck Joint at End or Bridle Shown. Deck Joint at End or Bridle Shown.

CROSS REFERENCE:
For Section 3-14 and View 0-0, see Sheet 2.
SECTION A-A
TYPICAL SECTION THRU TRAFFIC RAILING
SECTION THRU BRIDGE DECK SHOWN

NOTES:
- 6' End Taper and Guardrail: A Concrete Barrier Wall is used beyond the Approach Slab. See Structures Plans, Plan and Elevation Sheet, Roadway Plans.
- 6' Rail End Taper is omitted. Extend Typical Section to 9' at end of Approach Slab. Begin placing Railing Bars ST and SX on Approach Slab at the rail end and proceed toward Begin or End Bridge to ensure placement of guardrail bolt holes. If required, adjustments to the bar spacing for bars ST and SX shall be made immediately adjacent to Begin or End Bridge. Shifts and rotate bars ST and SX on Approach Slab in end taper section as required to maintain cover.

RAILING END DETAIL

INSTRUCTIONS TO DESIGNER:
- For Bridge Decks up to a maximum thickness of 9", the two bars SS placed in the bridge deck may substitute for the longitudinal deck steel within the limits of bars ST, provided that the total area of longitudinal steel 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 SS, ST, and SX as shown are included in the Estimated Traffic Railing Quantities. Do not include bars SS, ST, and SX in the reinforcing bar lists and estimated quantities for supporting bridge decks, approach slabs or retaining walls.

VIEW B-B
APPROACH SLAB END VIEW
OF TRAFFIC RAILING

CROSS REFERENCE
For location of Section A-A and View B-B see Sheet 1.

NOTE: For Post "B", Post "C" and Railing Details, see Index No. 822.
CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

<table>
<thead>
<tr>
<th>BILL OF REINFORCING STEEL</th>
<th>ROADWAY CROSS-SLOPE</th>
<th>0°</th>
<th>90°</th>
<th>90°</th>
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<tbody>
<tr>
<td>MARK</td>
<td>SIZE</td>
<td>LENGTH</td>
<td>0% to 2%</td>
<td>2% to 6%</td>
</tr>
<tr>
<td>5 T</td>
<td>5</td>
<td>As Req.</td>
<td>97°</td>
<td>87°</td>
</tr>
<tr>
<td>7 X</td>
<td>5</td>
<td>9&quot; - 0&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 X</td>
<td>5</td>
<td>5&quot; - 10&quot;</td>
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<td></td>
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</tbody>
</table>

DETAIL "A" - SECTION AT INTERMEDIATE OPEN JOINT

NOTE: At Intermediate Open Joints, the lower 3" portion of the open joint shall be plugged by filling it with mortar in accordance with Section 400 of the Specifications.

REINFORCING STEEL NOTES:
1. All dimensions in the bending diagrams are cut to cut.
2. The 5° - 39° vertical dimensions shown for Bars 5T and 5X are based on a bridge deck with a 6" thick x 6" wide raised sidewalk at low side of deck, 2% deck cross slope and a counter 2% raised sidewalk cross slope. If the raised sidewalk thickness, width or cross slopes vary from the above amounts, adjust these vertical dimensions accordingly to achieve a 6" minimum embedment into the bridge deck.
3. The reinforcement for the railing on a Retaining Wall shall be the same as detailed with 0° = 90°.
4. All reinforcing steel at the open joints shall have a 2" minimum cover.
5. Bars SS may be continuous or spliced at the construction joints. Bar splices for Bars SS shall be a minimum of 2"-2".
6. The Contractor may utilize Welded Wire Reinforcement when approved by the Engineer. Welded Wire Reinforcement shall conform to ASTM A697.

SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES

ESTIMATED TRAFFIC RAILING QUANTITIES

<table>
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<tr>
<th>ITEM</th>
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<th>QUANTITY</th>
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<tbody>
<tr>
<td>Concrete</td>
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<tr>
<td>Reinforcing Steel</td>
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<td>25.90</td>
</tr>
</tbody>
</table>

(The above quantities are based on a 6" thick x 6" wide raised sidewalk at low side of deck, 2% deck cross slope and counter 2% sidewalk cross slope.)