TRAFFIC RAILING NOTES

This Traffic Railing Retrofit has been structurally evaluated to be equivalent or greater in strength to a design which has been successfully crash tested in accordance with NCHRP Report 350 TL-4 criteria.

CONCRETE: Concrete for Transition Blocks and Curbs shall be Class II (Bridge Deck).

REINFORCED STEEL: Reinforcing steel shall be ASTM A416, Grade 60.

THREE-BEAM GUARDRAIL: Steel Three-Beam Elements shall meet the requirements for Class II (10 Gauge) Guardrail per AASHTO M-180, Type II (Zinc coated). The minimum panel length for Three-Beam Elements shall be 6'-6". Field drilled holes for Post connections shall be 3/4" by 2 1/2" slotted holes.

GUARDRAIL, BOLTS: Guardrail bolts and washers shall be in accordance with AASHTO M80.

GUARDRAIL POSTS AND BASE PLATES: Posts and Base Plates shall be in accordance with ASTM A36 or ASTM A572 Grade 50.

ANCHOR BOLTS, NUTS AND WASHERS: Anchor Bolted Anchors and Anchor Bolts shall be full threaded rods in accordance with ASTM F1554 Grade 205 or ASTM A491 Grade 87. At the Contractor's option, Anchor Bolts for through bolting may be in accordance with ASTM 419. All nuts shall be single self-locking hex nuts, and in accordance with ASTM A491 or ASTM A325. Nut washers shall be in accordance with ASTM F1536 and Plate Washers for long slotted holes only shall be in accordance with ASTM A491 or ASTM A572 Grade 50. After the nuts have been snug tightened, the anchor bolt threads shall be distorted to prevent removal of the nuts. Distorted threads and the exposed trimmed ends of anchors shall be coated with a galvanizing compound in accordance with the Specifications.

COATINGS: All nuts, bolts, anchor bolts, washers, guardrail posts, anchor plates and base plate shall be hot-dip galvanized in accordance with the Specifications. Guardrail Post Assemblies shall be hot-dip galvanized after fabrication.

ADHESIVE-BONDED ANCHORS AND GOWNS: Adhesive Bonding Material Systems for Anchors and Gownings shall comply with Specification Section 937 and be installed in accordance with Specification Section 416.

BRIDGES ON CURVED alignments: The details presented in these Standards are shown for bridges on tangent alignments. Details for bridges on horizontally curved alignments are similar.

POST SPACING: Posts shall be located along the length of the bridge at typical 6'-3" or 3'-2 1/2" spaces. Utilize the Modified Post Spacing of Intermediate Deck Joints Details as required to clear deck joints. Establish post spacing along the bridge and roadway Guardrail Transition beginning with the Key Post. The variable post spacings located near begin and end bridge may be utilized to optimize the typical post spacing. Variable lengths of guardrail overlap are also permitted to optimize the typical post spacing. Symmetry of post spacing is not necessary.

THREE-BEAM EXPANSION SECTION: Three-Beam Expansion Sections shall be installed at locations shown in the Plans. Install nuts for splice bolts finger-tight at 22 1/2" slots in three beam expansion sections. Nuts shall fully engage bolts with a minimum of one bolt thread extending beyond the nuts. Distort the first thread on the outside of the nut to prevent loosening. Tighten guardrail bolts in 3/4" slots at guardrail post/ail that lie between the slotted expansion splice and bridge deck joint so that the bolt heads are in full contact with three-beam elements, but not so tight as to impede movement due to expansion.

ELEVATION MARKERS: Elevation Markers shall be placed on the top surface of the end bents as directed by the Engineer when portions of the existing traffic railing carrying existing elevation markers are removed. Markers are to be furnished by the Florida Department of Transportation and installed by the Contractor.

REFLECTIVE RAILING MARKERS: Reflective Railing Markers shall conform to Section 99.3 of the Specifications. Reflective Markers in the upper groove of the Three Beam Guardrail spacers shown in the table below. Reflector color (white or yellow) shall conform to the color at the rear edge.

PEDESTRIAN SAFETY PIPE RAILS: Pedestrian Safety Pipe Rails required when called for in the Plans. See Index No. 400 for details.

BRIDGE NAME PLATE: If a portion of the existing Traffic Railing is to be removed that carries the bridge name, number and or date, or if the installation of the Traffic Rail (Three-Beam Retrofit) obscure the bridge name, number and or date, then a Bridge Name Plate shall be furnished and installed on an adjacent separate ground mounted post as directed by the Engineer. The Bridge Name Plate shall include the information on the existing Traffic Railing that has been removed or obscured, e.g., Bridge Number, Bridge Name or Date. The Bridge Name Plate shall be approximately 1/4" thick aluminum plate in accordance with Specification Section 710. The Bridge Name Plate shall be white background, with 3" tall block letters, 1/2" black border and sized appropriately to contain the information required.

PAYMENT: Payment will be made under Motor Traffic Railing (Three-Beam Retrofit) which shall include all materials and labor required to fabricate and install the barrier and topped guardrail where necessary to maintain post spacing. The Pedestrian Safety Pipe Rail, Transition Blocks and Curbs, Bridge Name Plate, Reflective Railing Markers and Installation of Elevation Markers, where required, will be paid for directly but shall be considered as incidental work.

REFLECTIVE RAILING MARKER SPACING

<table>
<thead>
<tr>
<th>Distance to Edge of Travel lane to Face of Railings</th>
<th>Spacing (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 4'</td>
<td>4/10</td>
</tr>
<tr>
<td>4' to 8'</td>
<td>20</td>
</tr>
<tr>
<td>&gt; than 8'</td>
<td>None Required</td>
</tr>
</tbody>
</table>

TRAFFIC-RAILING (THREE-BEAM RETROFIT) GENERAL NOTES & DETAILS

2005 FDOT Design Standards

Index No. 470
PARTIAL ELEVATION OF INSIDE FACE OF RAILING
MODIFIED POST SPACING AT INTERMEDIATE DECK JOINTS DETAIL FOR INDEX NOS. 471, 475 & 476

PARTIAL PLAN
INTERMEDIATE JOINT SKEW DETAIL

THREE-BEAM EXPANSION SECTION
TRAFFIC RAILING - (THREE-BEAM RETROFIT)
GENERAL NOTES & DETAILS

3/4" Primer Paint

2-1/2" x 2" (Nominal) Timber
Offset block (2 7/8" x 3 3/4" x 2 1/8"
Dressed Dimensions)

Pore corner of offset block as required to
clear anchor bolt

DIMENSIONS:"

1-1/2" x 1 3/16" Long Button Head Bolt and
Recessed Nuts (2 Required) (Typ.)

1-1/2" Ø Holes for 1-1/2" Anchor Bolts

1/2" x 3/4" Slots (2 Per Post) with
2-1/2" Ø x 2-3/4" Long Button Head Bolts
and Recessed Nuts (2 Required) (Typ.)

1/2" x 3/4" Holes for 1/2" Anchor Bolts

Note: All Timber Panels shall be slotted in the direction
of adjacent traffic. At the Contractor's option, laps may
be extended. Post holes in Timber Beam
Guardrail Panels as required.

Note: The Anchor Plate and Plate Washer are applicable only
to 1/4" anchor bolts that are to be torqued for
Index Nos. 471, 476.

Glossary:

0.135" Galvanized Sheet Thickness

0.010" (±0.005")

1/2" x 1/2" Deep Recess (Both Sides)

2" x 2" x 1-1/2"

1-1/2" x 1 3/16" Long Button Head Bolt

1/2" Modified Heavy Hex Nut (Recessed Nut)