See Index 536-001 for component details, geometric layouts and associated notes not fully detailed herein.

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

THRIE-BEAM PANEL: Steel Thrie-Beam Elements shall meet the requirements for Class II 10 Gauge Guardrail of AASHTO M-180, Type II II zinc coated. The minimum panel length for Thrie-Beam Elements shall be 12'-0". Field drilled holes for Post connections shall be 1/2" by 29/32" slotted holes.

BOLTS, NUTS AND WASHERS: Bolts, nuts and round washers shall be in accordance with AASHTO M180. Plate Washers shall be in accordance with ASTM A325 or ASTM A709 Grade 36.

COATINGS: All Nuts, Bolts, Anchors, and Washers shall be hot-dip galvanized in accordance with the Specifications.

BRIDGES ON CURVED ALIGNMENTS: The details presented herein are shown for bridges on tangent alignments. Details for bridges on horizontally curved alignments are similar.

THRIE-BEAM EXPANSION SECTION: Thrie-Beam Expansion Sections shall be installed at locations shown in the Plans. Install nuts for splice bolts finger-tight at 29/32" slots in thrie-beam expansion sections. Nuts shall fully engage bolts with a minimum of one bolt thread extending beyond the nuts. Distance the first thread on the outside of the nut to prevent loosening. Tighten bolts in 3/16" slots at guardrail post(s) that lie between the slotted expansion splice and bridge deck joint so that the bolt heads are in full contact with thrie-beam elements, but not so tight as to impede movement due to expansion.

WOOD BLOCKS: All wood blocks, including required wedge shaped blocks shall be Pressure Treated lumber in accordance with Specifications Section 955. Bolt holes in blocks to be centered (±1/8").

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 Thrie-Beam Retrofit will obscure the bridge name, number and/or date, then replace the information that has been removed or obscured, with 3" tall black lettering on white nonreflective sheeting applied to the top of the adjacent guardrail. The sheeting and adhesive backing shall comply with Specification Section 994 and may comprise individual decals of letters and numbers.

PAYMENT: Payment will be made under Thrie-Beam Panel Retrofit which shall include all materials and labor required to fabricate and install the retrofit railing. Transition Blocks and Curbs, Bridge Name Plate and Barrier Delineators, where required, will not be paid for directly but shall be considered incidental work.

TRAFFIC RAILING RETROFIT NOTES

NOTE: All Thrie Beam Panels shall be lapped in the direction of adjacent traffic. At the Contractor's option, laps may be extended. Field drill holes in Trailin Thrie Beam Panel as required.

THRIE-BEAM PANEL SPLICE

MATCH TAPER OF EXISTING WINGWALL

PLAN VIEW

WEDGE SHAPED BLOCK DETAIL

TYPICAL SECTION THRU CLASS B
(10 GAUGE) THRIE-BEAM PANEL
(EXPANSION SECTION SIMILAR)

THRIE-BEAM EXPANSION SECTION

PLATE WASHER DETAIL

1/2" Hole (centered)

6/32" Post Bolt Expansion Slots

7/32" x 1 3/16" Splice Bolt Expansion Slots (Typ.)

7/32" x 15/32" Splice Bolt Expansion Slots (Typ.)

2" Post Bolt Expansion Slots

1"-6/32" 7 sp. @ 1'-6/32" - 10'-3/32" - Spacing 3/8" x 3/32"

THRIE-BEAM PANEL RETROFIT
(CONCRETE HANDRAIL)

IND EX 460-477

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FY 2020-21

STANDARD PLANS

DESCRIPTION:

LAST REVISION 07/01/19

INDEX SHEET

L (in) THREAD LENGTH (in) APPLICATION
1 1/2 Full Length Splice Bolt
14 4 Post Bolt
Wingwall mounted railing section (if present; length varies)

NOTES:
1. Dimensions and elevations for existing guardrails to be verified by the Contractor before beginning construction.
2. Provide Transition Block (as shown) or Curb if existing Approach Slab Curb does not extend to end of Approach Slab. Shape and height of the traffic face of Transition Block or Curb shall match existing bridge curb. See Sheet 4 for Transition Block details. Block may be omitted on trailing ends with no opposing traffic.
3. Do not bolt nested rails to the blocks and posts at posts (a), (c) & (e).

REVISED 01/01/14

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**ELEVATION VIEW A-A (At Double Posts)**

(View at Intermediate Double Posts shown; View at Expansion Joints similar)

- Open Joint (Varies)
- Wingwall mounted railing section
- Existing Curb
- Existing Bridge Deck

**ELEVATION VIEW A-A (At Single Post)**

- Varies
- 2'-6' End Post
- 7'5"
- Existing End Post
- Wedge Shaped Wood Block** (when required)

**Wood Block (Typ.)

4" x 10" x 10"**

Notes:
1. Post Bolts shall be 3/8" x 14" long set in 7/8" core drilled holes, see Sheet No. 1.
2. Shift Post Bolt holes minimally inward toward center of posts if existing reinforcement is encountered during drilling of holes. If reinforcement is still encountered, notify the Engineer before proceeding with drilling.
3. Post Bolt spacing not to exceed 8'-0" (± 1').

**ELEVATION VIEW A-A (At End Post)**

- 5/8" x 10" x 10" Wood Block (Typ.)
- 3/8" x 10" x 10" Wood Block (Typ.)
- Thrie-Beam Panel
- Existing Curb
- Existing Bridge Deck

**TYPICAL SECTION THRU RAILING POST ON BRIDGE DECK**

- PLAN OF END POST
- Thrie-Beam Panel Front Face of
- Existing Reinforcement
- Existing Concrete Traffic Railing
- Existing Concrete Traffic Railing
- Existing Bridge Deck

**NOTES:**
1. Post Bolts shall be 3/8" x 14" long set in 7/8" core drilled holes, see Sheet No. 1.
2. Shift Post Bolt holes minimally inward toward center of posts if existing reinforcement is encountered during drilling of holes. If reinforcement is still encountered, notify the Engineer before proceeding with drilling.
3. Post Bolt spacing not to exceed 8'-0" (± 1').

**FOR END POSTS WITH AN EXISTING WEDGE SHAPED WOOD BLOCK, REMOVE EXISTING WOOD BLOCK AND REPLACE WITH A NEW WEDGE SHAPED WOOD BLOCK (SEE SHEET 1 FOR NOTES AND DETAILS).**
New Guardrail Posts, positioned as required to clear Transition Block (Typ.)

#3 Stirrups (Field Bend) (Typ.)

Edge of Existing Approach Slab (Location varies)

Gutter Line

Existing Approach Slab or Bridge Deck

PLAN VIEW OF TRANSITION BLOCK
(GUARDRAIL NOT SHOWN FOR CLARITY)

Top of Existing Curb

Top of Existing Approach Slab or Bridge Deck

#4 Adhesive-Bonded Dowels (6 Required)

Transition Block

Match existing curb height and slope at traffic face

#3 Stirrups (Field Bend) (Typ.)

1'-0" Anchor Rods 3'-0" long driven into ground prior to casting concrete

ELEVATION OF TRANSITION BLOCK
(GUARDRAIL AND POSTS NOT SHOWN FOR CLARITY)

#4 Adhesive-Bonded Dowels (6 Required)

Transition Block

Top of Existing Curb

Top of Existing Approach Slab or Bridge Deck

1'-0"

10"

Match existing curb height and slope at traffic face

10"ø Anchor Rods 3'-0" long driven into ground prior to casting concrete

ESTIMATED QUANTITIES PER TRANSITION BLOCK

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
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<tbody>
<tr>
<td>Concrete Class II (Bridge Deck)</td>
<td>CY</td>
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<tr>
<td>Reinforcing Steel</td>
<td>LB</td>
<td>61</td>
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<tr>
<td>Guardrail (Reset)</td>
<td>LF</td>
<td>12.5</td>
</tr>
</tbody>
</table>

NOTES:

ANCHOR RODS: Steel Anchor Rods shall be ASTM A36, ASTM A709 Grade 36 or ASTM A615 Grade 60 hot-dip galvanized in accordance with Specification Section 962.

ADHESIVE-BONDED DOWELS: Adhesive Bonding Material Systems for Dowels shall comply with Specification Section 937 (Type HV) and be installed in accordance with Specification Section 416.

Adhesive Bonded Dowels are shown installed in an existing curb or sidewalk integrally reinforced with Approach Slab, Wingwall or Bridge Deck. For installations in existing detached curbs or sidewalks, install dowels in available sound concrete.

Shift bars (as needed) to install six dowels into existing bridge or approach slab mounted curb.