GUARDRAIL TRANSITION ALIGNMENTS FOR BRIDGE THRIE-BEAM AND VERTICAL FACE TRAFFIC RAILING RETROFIT

GENERAL NOTES

1. This index provides thrie-beam transition and connection details for approach end guardrail on existing bridges, and anchorage details for trailing end traffic railing retrofits and safety shapes on existing bridges. Sheets 1 through 23 apply to bridges with retrofitted traffic railings. Sheet 23 shows the trailing end guardrail connections. Sheet 24 applies to bridges with safety shaped traffic railing.

2. The schemes identified by Arabic numerals in this index are complementary to the bridge traffic railing barrier retrofit schemes with like numeral identification in Index Nos. 470, 471 through 475, 480 through 483. The schemes in this index identified by Roman numerals are complementary to bridge safety shaped traffic railing barrier where determined to be in accordance with applications of criteria specified in the instructions for Design Standards (IDS-410 & IDS-480).

3. For guardrail applications and details of related hardware and accessories that are not provided on this index, refer to Index No. 400.

NOTES FOR GUARDRAIL TRANSITIONS CONNECTING TO TRAFFIC RAILING RETROFITS ON EXISTING BRIDGES

1. The transition detail shown on this sheet shows (a) the standard post spacings within the typical thrie-beam approach transitions connecting to existing bridges with retrofit traffic railings, and (b) depict the typical alignments of the approach transitions.

2. The curb and gutter flare shown on this sheet is typical of flares that are to be constructed when approach slab curbs extend to the beginning of the slab, and where other treatment to curb blunt ends are not in place.

3. The special steel post for roadway thrie-beam transitions detailed on this sheet is specific to all transition applications on this index that require one or more steel posts.

4. Anchor studs and nuts shall be hot-dip zinc coated in accordance with Specification Section 536 of the Specifications. Anchor bolts shall be full compensation for bolt hole construction, terminal connector, terminal connector plate and bolts, nuts and washers.

5. For installing thrie-beam terminal connector to traffic railing vertical face retrofits, see notes on Sheets 12 through 15 and the flag notation on Sheet 23.

6. Payment for connections to traffic railing vertical face retrofits are to be made under the contract unit price for Bridge Anchorage Assembly, EA., and shall be full compensation for bolt hole construction, terminal connector, terminal connector plate and bolts, nuts and washers.

DESIGN NOTES FOR GUARDRAIL TRANSITIONS CONNECTING TO TRAFFIC RAILING RETROFITS ON EXISTING BRIDGES

1. For selection of an appropriate transition scheme, see the Instructions for Design Standards (IDS-410 & IDS-480) for instructions to the Structures and Roadway engineers.
PARTIAL PLAN VIEWS OF GUARDRAIL APPROACH TRANSITIONS AND CONNECTIONS
FOR BRIDGE TRAFFIC RAILING (THRIE-BEAM RETROFIT)
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PICTORIAL VIEWS OF GUARDRAIL APPROACH TRANSITIONS AND CONNECTIONS FOR BRIDGE TRAFFIC RAILING (THRIE-BEAM RETROFIT)
Any detached or integral sidewalk removed
Remove portion of curb as required for post placement.
Integral approach slab wide curb.

Key post reference line

Any detached or integral sidewalk removed
Transition block in absence of curb
Transition block in absence of curb
Any detached or integral sidewalk removed

Transition block

Nested three-beam post bolts
Nested W-beam barrier

See INDEX NOs. 472, 473, 475 & 476 - Scheme 2
See INDEX NOs. 472, 473, 475 & 476 - Scheme 2
See INDEX NOs. 472, 473, 475 & 476 - Scheme 2

PICTORIAL VIEWS
OF GUARDRAIL APPROACH TRANSITIONS AND CONNECTIONS FOR BRIDGE TRAFFIC RAILING (THREE-BEAM RETROFIT)

PICTORIAL VIEWS OF GUARDRAIL APPROACH TRANSITIONS AND CONNECTIONS FOR ROADWAY GUARDRAIL TRANSITION (THREE-BEAM RETROFIT)

BRIDGE TRAFFIC RAILING (THREE-BEAM RETROFIT)
Traffic Railing (Thrie-Beam Retrofit)

Thrie-Beam or W-Beam Barrier

SEE INDEX NOS. 472, 473, 475 & 476 - SCHEMES 3 & 4

PICTORIAL VIEW

INTERMEDIATE POST MAY BE REQUIRED

See Index NOS. 472, 473, 475 or 476 For Alternate Spacing

Traffic Railing (Thrie-Beam Retrofit)

Roadway Guardrail Transition

SEE INDEX NOS. 472, 473, 475 & 476 - SCHEMES 5 & 6

PICTORIAL VIEWS

INTERMEDIATE POST MAY BE REQUIRED

Transition Block In Absence Of Curb

Nest W-Beam

Nest W-Beam

Nest W-Beam

On Bridge Structure Blocks Limited Post
Posts Located Flush with Back of Rail
For All Schemes or Index Nos. 473 & 476

Key Post Reference Line

On Bridge Structure Blocks Limited Post
Posts Located Flush with Back of Rail
For All Schemes or Index Nos. 473 & 476

Nest Thrie-Beam

Nest Thrie-Beam

Trans. Block Or W-Beam Barrier

Thrie-Beam Or W-Beam Barrier

TRANSITIONS AND CONNECTIONS FOR BRIDGE

TRAFFIC RAILING (THRIE-BEAM RETROFIT)
PICTORIAL VIEWS OF GUARDRAIL APPROACH TRANSITIONS AND CONNECTIONS FOR BRIDGE TRAFFIC RAILING (THRIE-BEAM RETROFIT)
SEE INDEX NO. 481 - SCHEME 1

SEE INDEX NO. 481 - SCHEME 2

SEE INDEX NO. 481 - SCHEME 3

PARTIAL PLAN VIEWS OF TRAFFIC RAILING (VERTICAL FACE RETROFIT)

Note:
*21" x 12" x 1/8" Thrie-Beam Terminal Connector Plate (Back-Up Plate), And 1/2" x 12" Long 1/8" Hex Bolts And Nuts (5 Req'd.) With 2 1/4" OD Plain Round Washers Under Heads And Nuts
**DESCRIPTION:**

Guardrail Transitions and Connections for Existing Bridges

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**SHEET NO.**

13 of 24

**FY 2016-17**

**DESIGN STANDARDS**

Note:

*21" x 12" x 16" Thrie-Beam Terminal Connector Plate (Back-Up Plate); And ½" x 12" Long NS Hex Bolts And Nuts (5 Req'd.) with 2½" OD Plain Round Washers Under Heads And Nuts

PARTIAL PLAN VIEWS OF TRAFFIC RAILING (VERTICAL FACE RETROFIT) (INDEX 482 SHOWN, INDEX 405 SIMILAR)
PARTIAL PLAN VIEWS OF TRAFFIC RAILING (VERTICAL FACE RETROFIT)
(INDEX 482 SHOWN, INDEX 405 SIMILAR)
PARTIAL PLAN VIEWS OF TRAFFIC RAILING (VERTICAL FACE RETROFIT)
GUARDRAIL TRANSITIONS AND CONNECTIONS FOR EXISTING BRIDGES

PICTORIAL VIEWS OF GUARDRAIL APPROACH TRANSITIONS AND CONNECTIONS FOR BRIDGE TRAFFIC RAILING (VERTICAL FACE RETROFIT)
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(INDEX 482 SHOWN, INDEX 405 SIMILAR)
PICTORIAL VIEWS OF GUARDRAIL APPROACH TRANSITIONS AND CONNECTIONS FOR BRIDGE TRAFFIC RAILING (VERTICAL FACE RETROFIT)
NOTES FOR TRAILING END TRAFFIC RAILING VERTICAL FACE RETROFITS

1. Where guardrail extensions are required beyond the trailing end of bridges with traffic railing vertical face retrofits, guardrail connections to the bridge railing will be by special end shoe for W-beam guardrail extensions and by THRIE-BEAM TERMINAL CONNECTOR for thrie-beam guardrail extensions.

2. Install W-beam special end shoes and thrie-beam terminal connectors with back-up plates, and 9/8 x 12 in. hex bolts and nuts (12" long) with 2 1/2" OD plain round washers under heads and nuts (4 required for special end shoes and 5 required for thrie-beam terminal connectors). Back-up plates for special end shoes are 12" x 12" x 1/8", and for terminal connector 2 1/2" x 12" x 1/8".

3. Payment for connecting trailing end special end shoes and thrie-beam terminal connectors to traffic railing vertical face retrofits will be made under the contract unit price for guardrail bridge anchorage assembly, FA.

THRIE-BEAM RETROFIT NOTES

1. See indexes for bridge three-beam traffic railing retrofits.

2. Trailing end guardrail to be paid for under contract unit price for the parent roadway guardrail; end measure includes length of end anchorage assembly; additional payment made for end anchorage assembly. No additional payment for connecting roadway three-beam to bridge three-beam retrofit.

GUIDE RELEASE DATED 7/5/14

TRAILED END GUARDRAIL AND ANCHORAGE WHEN OTHER HAZARDS PRESENT

TRAILED END GUARDRAIL AND ANCHORAGE FOR BRIDGE TRAFFIC RAILING (THRIE-BEAM RETROFITS)
GUARDRAIL TRANSITIONS AND CONNECTIONS FOR EXISTING FLAT SLAB, PRESTRESSED BEAM AND GIRDER BRIDGES WITH SAFETY SHAPE TRAFFIC RAILING EXTENDING LESS THAN FULL APPROACH SLAB LENGTH

NOTES FOR GUARDRAIL TRANSITIONS TO SAFETY SHAPE TRAFFIC RAILINGS ON EXISTING BRIDGES

1. When the existing wing post is to be replaced with a bridge traffic railing in accordance with the Instructions For Design Standards (IDS-402), the three-beam guardrail connection shall be in accordance with Details J of Index No. 400.

2. When the guardrail attachment overlies the Bridge Number, Bridge Name or Date on the traffic railing, provide an aluminum sign panel with the obscured information. Attach the sign panel to the face of the traffic railing adjacent to the Three-Beam Terminal Connector with 1/4" x 1" long concrete screws or expansion anchors at each corner, as approved by the Engineer. The sign panel shall be a minimum 6" x 6" thick and meet the requirements of Specification Section 700 with a white background and 3" tall black letters sized appropriately to contain the information required. The cost of the sign panel shall be included in the cost of the Guardrail Anchorages Assembly.

3. When retrofitting three-beam guardrail to existing wing posts or existing bridge safety shape traffic railing, attachment construction to be paid for under the contract unit price for Guardrail Bridge Anchorages Assembly, EA., and shall be full compensation for boil hole construction, terminal connector, terminal connector plate(s) and bolts, nuts and washers.