**FENCING NOTES**

**FENCE INSTALLATION:**
Install posts plumb (within a tolerance of ± 1/2") Use shim plates as required to achieve plumb. The required quantity and thickness of shim plates will be determined in the field. Install chain link fence in accordance with ASTM F567 as applicable.

**TRAFFIC RAILING DETAILS:**
See Superstructure Sheets for Traffic Railing Barrier details.

**CONCRETE PARAPET DETAILS:**
See Index 820 - Pedestrian/Bicycle Railing for Concrete Parapet details. Provide fencing in lieu of aluminum bullet railing as shown on Index 820.

**LIMITS OF FENCING:**
Limits of fencing are from begin of approach slab at Begin Bridge to end of approach slab at End Bridge, unless otherwise shown in the plans.

**PAYMENT:**
Payment will be made under Fencing, Type R. Payment includes posts, horizontal and expansion rails, brace rails and bands, rail ends, combination rail ends, boulevard clamps, chain link fabric, tension wire, ties, hog rings, tension bars and bands, post and loop caps, pipe clamps, base plates, anchor rods, bolts, nuts, washers, shim plates, spacers, neoprene pads, miscellaneous fence fittings and hardware and all incidental materials and labor required to complete installation of the fence.

**CROSS REFERENCE:**
For Table of Fence Components, Table of Post Attachment Components, View A-A and Detail "A" see Sheet 2.
For Pull Post Assembly Detail for Traffic Railing Barriers see Sheet 3.
For Pull Post Assembly Detail for Concrete Parapets and Detail "B" see Sheet 4.
**TABLE OF CHAIN LINK FENCE COMPONENTS**

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>ASTM DESIGNATION</th>
<th>COMPONENT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posts</td>
<td>F1083</td>
<td>Galvanized Steel Pipe - 3” NPS, Schedule 40 Regular Grade</td>
</tr>
<tr>
<td>Chain Link Fabric</td>
<td>A392</td>
<td>Zinc Coated Steel - 9 gauge (coated wire diameter), Class 2 Coating</td>
</tr>
<tr>
<td></td>
<td>A491</td>
<td>Aluminum Coated Steel - 9 gauge (coated wire diameter)</td>
</tr>
<tr>
<td></td>
<td>F668</td>
<td>Polyvinyl Chloride (PVC) Coated Steel - 9 gauge Class 2b</td>
</tr>
<tr>
<td>Tie Wires</td>
<td>F626</td>
<td>Zinc Coated Steel Wire - 9 gauge</td>
</tr>
<tr>
<td>Brace Bands</td>
<td>F626</td>
<td>12 Gauge (Min. thickness) x 3/8 (Min. width) Steel Bands (Bleveled or Heavy)</td>
</tr>
<tr>
<td>Tension Bars</td>
<td>F626</td>
<td>1/2 (Min. thickness) x 3/8 (Min. width) x 5-10” (Min. height) Steel Bars</td>
</tr>
<tr>
<td>Tension Bands</td>
<td>F626</td>
<td>14 Gauge (Min. thickness) x 3/8 (Min. width) Steel Bands</td>
</tr>
<tr>
<td>Miscellaneous Fence Components</td>
<td>F626</td>
<td>Zinc Coated Steel - (includes post or loop caps, horizontal and brace rail ends, combination rail ends, bolt优异 clamps and all other miscellaneous fittings &amp; hardware)</td>
</tr>
<tr>
<td>Horizontal Rails</td>
<td>F1083</td>
<td>Galvanized Steel Pipe - 3½” NPS, Schedule 40 Regular Grade</td>
</tr>
<tr>
<td>Expansion Rails</td>
<td>F1083</td>
<td>Galvanized Steel Pipe - 2” NPS, Schedule 40 Regular Grade</td>
</tr>
<tr>
<td>Bolts</td>
<td>A307</td>
<td>1/4 Ø x 4½” Hex Head Bolts for Expansion Rail Connections</td>
</tr>
<tr>
<td>Washers</td>
<td>F436</td>
<td>Flat Washers for Expansion Rail Connections</td>
</tr>
<tr>
<td>Tension Wire</td>
<td>AR24 &amp; AR17</td>
<td>Type II (Zinc Coated Steel Wire) - 7 gauge, Class 4 Coating</td>
</tr>
<tr>
<td>Hog Rings</td>
<td>F626</td>
<td>Zinc Coated Steel Wire - 12 gauge</td>
</tr>
<tr>
<td>Pipe Clamp</td>
<td></td>
<td>(see Detail on Sheet No. 3) (Typ)</td>
</tr>
</tbody>
</table>

**TABLE OF POST ATTACHMENT COMPONENTS**

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>ASTM DESIGNATION</th>
<th>COMPONENT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe Clamps</td>
<td>A36 or A709 Grade 36</td>
<td>5/8 Steel Ø</td>
</tr>
<tr>
<td>Base Plates</td>
<td>A36 or A709 Grade 36</td>
<td>5/8 Steel Ø</td>
</tr>
<tr>
<td>Shim Plates</td>
<td>A36 or A709 Grade 36</td>
<td>Plate thicknesses as required. Holes in shim plates will be 5/8 Ø</td>
</tr>
<tr>
<td>Spacers</td>
<td></td>
<td>1½ Ø for all materials</td>
</tr>
<tr>
<td>Adhesive Anchor Rods</td>
<td>F1554 Grade 36</td>
<td>Fully threaded Headless Anchor Rods - 5/8 Ø x 6” (no spacer) or 5/8 Ø x 7½” (with spacer)</td>
</tr>
<tr>
<td>C-1-P Anchor Rods</td>
<td>F1554 Grade 36</td>
<td>Hex Head Anchor Rods - 5/8 Ø x 6” (no spacer) or 5/8 Ø x 7½” (with spacer)</td>
</tr>
<tr>
<td>Adhesive Anchor Rods</td>
<td>F1554 Grade 36</td>
<td>Fully threaded Headless Anchor Rods - 5/8 Ø x 14½”</td>
</tr>
<tr>
<td>C-1-P Anchor Rods</td>
<td>F1554 Grade 36</td>
<td>Hex Head Anchor Rods - 5/8 Ø x 14½”</td>
</tr>
<tr>
<td>Bolts</td>
<td>A307</td>
<td>5/8 Ø x 4½” Hex Head Bolts for Pipe Clamp Connections to Posts</td>
</tr>
<tr>
<td>Nuts</td>
<td>A563</td>
<td>Hex Nuts for Pipe Clamp and Base Plate Connections</td>
</tr>
<tr>
<td>Washers</td>
<td>F436</td>
<td>Flat Washers for Pipe Clamp and Base Plate Connections</td>
</tr>
<tr>
<td>Neoprene Pads</td>
<td></td>
<td>In accordance with Specification Section 932 for Ancillary Structures</td>
</tr>
</tbody>
</table>

**POST ATTACHMENT NOTES**

ANCHOR RODS, NUTS AND WASHERS:
After the nuts have been tightened, distort the Anchor Rod threads to prevent removal of the nuts. Coat distorted threads and exposed trimmed ends of anchors with a galvanizing compound in accordance with Specification Section 562.

COATINGS:

ADHESIVE-BONDED ANCHORS AND DOWELS:
Adhesive Bonding Material Systems for Anchors and Dowels will comply with Specification Section 937 and be installed in accordance with Specification Section 416. Cutting of reinforcing steel is permitted for drilled hole installation.

WELDING:
All welding will be in accordance with the American Welding Society Structural Welding Code (Steel) ANSI/AWS D1.1 (current edition). Weld metal will be E60XX or E70XX. Nondestructive testing of welds is not required.

CROSS REFERENCE:
For location of View A-A and Detail "A" see Sheet 1.
DESCRIPTION:

REVISIO N

SHEET

INDEX

1. For treatment at bridge ends, see Sheet 1.
2. The 3'-0" dimension shown is for expansion joint openings 9" or less. If the expansion joint opening exceeds 9", increase this dimension by the difference between the expansion joint opening and 9".

3. Tie tension wire to post with 9-gage zinc coated tie wire (triple wrap required at both ends of tie wire) (Typ.)

NOTES:

Traffic Railing (Type varies, 32" F-Shape shown)

Pipe Clamp Connection (Typ.)

Pipe Clamp Detail

 Spacer Detail

(Required only at expansion joint locations where total movement exceeds 6"

Pipe Clamp Connection Detail (Connection without spacer shown, Connection with spacer similar)
Bulge Chain Link Fabric to allow for joint movement (See Note 2)

3'-0" + Expansion Joint Opening

Expansion Rails

Pull Post Assembly (required at maximum intervals of 500'-0"

EXPANSION ASSEMBLY DETAIL

(Required only at expansion joint locations where total movement exceeds 6")

EXPANSION RAIL DETAIL

VARIES (See Note 3)

1/8" Bolt with Hex Nut and Washer (See Note 4)

NOTES:
1. For treatment at bridge ends, see Sheet 1.
2. The 3'-0" dimension shown is for expansion joint openings 9" or less. If the expansion joint opening exceeds 9", increase this dimension by the difference between the expansion joint opening and 9".
3. This Dimension is the expansion joint opening plus ½". Expansion rails are required at expansion joint locations where the total movement exceeds 1", but is less than or equal to 6". Expansion rails are part of expansion assemblies when the total movement exceeds 6". Install expansion rails midway between the fence posts spanning the expansion joint.
4. Install nuts for expansion rails finger-tight. Nuts will 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.

DETAIL "B"

BASE PLATE DETAIL

Varies

CROSS REFERENCE:
For location of Detail "B" see Sheet 1.

BRIDGE FENCING (VERTICAL)

FY 2017-18
DESIGN STANDARDS

INDEX NO.
810

SHEET NO.
4 of 4

REVISED
07/01/05

DESCRIPTION:

LAST
REVISION
07/01/05

REVISED

810

NOTES
1. For treatment at bridge ends, see Sheet 1.
2. The 3'-0" dimension shown is for expansion joint openings 9" or less. If the expansion joint opening exceeds 9", increase this dimension by the difference between the expansion joint opening and 9".
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