**Traffic Railing (Vertical Face Retrofit)**

### Spread Footing Approach

**Design Notes:**

1. The Tapered End Transition should only be used when space is limited which precludes the use of a guardrail end treatment or crash cushion.
2. For Design Speeds greater than 40 mph, the Tapered End Transition is not permitted. See Index No. 400 for length of Advancement of guardrail or other project-specific end treatments.

<table>
<thead>
<tr>
<th>Design Speed (mph)</th>
<th>Length of Advancement, Ft. (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 40</td>
<td>= 16 (D-d)</td>
</tr>
</tbody>
</table>

**Notes:**

D = Distance in feet from near edge of near approach traffic lane to either:
- (a) the back of hazard, when the hazard is located inside the clear zone or horizontal clearance;
- (b) the clear zone or horizontal clearance outer limits, when hazard extends to, or goes beyond the clear zone or horizontal clearance limits.

For left side hazards on two-way undivided facilities, "D" is measured from the inside edge of the near approach traffic lane as shown above.

D = Distance in feet from near edge of near approach traffic lane to face of traffic railing (at offset control point). For left side hazards on two-way undivided facilities, "D" is measured from the inside edge of the nearest opposing traffic lane as shown above.

**Cross References:**
- For General Notes, Dowel Details, Expansion Dowel Details, Reinforcing Steel Notes and Reinforcing Steel Bending Diagram see Index No. 485.
GUARDRAIL END TRANSITION

PARTIAL PLAN VIEW
(With Curb Approach)

PARTIAL PLAN VIEW
(Without Curb Approach)

CROSS REFERENCES:
For Section A-A, C-C and X-X see Sheet 4.

NOTES:
1. On approach end provide a Roadway Guardrail Transition, Index No. 402 (Sheet 16 - Scheme 1) or other site specific treatment. See Roadway Plans for limiting station of Roadway Guardrail Transition or other site specific treatment.
2. Provide Railing & Curb Base Transitions (as shown) if curb does not extend beyond end of Spread Footing Approach, see Roadway Plans. Railing End Transition & Railing & Curb Base Transitions may be omitted on trailing ends with no opposing traffic.

See Schemes 1 thru 7 for Details and Reinforcement

Begin or End Bridge and Spread Footing Approach

Bars 5S

Bars 4G (Typ.)

Bars 5F (Typ.)

Bars 5E (Typ.)

Roadway Guardrail Transition (See Note 1)

Top of Curb

Toe of Curb

2'-8" Transition of Top Edge of Railing & Curb to match face of approach curb

Bars 5E @ 8" spacing

Bars 5F @ 8" spacing (Tied to Bars 4F)

3/4" Transition of top edge of Railing & Curb to match face of approach curb

Bars 5E @ 8" spacing (Tied to Bars 4F)

3/4"

Roadway Guardrail Transition (See Note 1)

Top of Curb

Toe of Curb

2'-8" Transition of top edge of Railing & Curb to match face of approach curb

Bars 5E @ 8" spacing

Bars 5F @ 8" spacing (Tied to Bars 4F)

3/4" Transition of top edge of Railing & Curb to match face of approach curb

Bars 5E @ 8" spacing (Tied to Bars 4F)

3/4
**Estimated Traffic Railing Retrofit**

**Spread Footing Approach Quantities**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete - Typical Section</td>
<td>CY/Fl.</td>
<td>9&quot; Curb</td>
</tr>
<tr>
<td>Reinforcing Steel - Typical Section</td>
<td>lb/Fl.</td>
<td>38</td>
</tr>
<tr>
<td>Concrete - 20'-0&quot; Tapered End Transition plus Footing</td>
<td>Cy</td>
<td>4.57 Total</td>
</tr>
<tr>
<td>Reinforcing Steel - 20'-0&quot; Tapered End Transition plus Footing</td>
<td>lb</td>
<td>76 Total</td>
</tr>
</tbody>
</table>

*NOTE: Quantities are based on a 9" curb, no curb cross slope.*

**Section X-X** (Typical Curb, Type Varies, Type F Shown)
(See Index No. 300 and Plans for Details)

**Section A-A**
*Typical Section*  
(9" Curb shown, 6" Curb similar)

**Section B-B**
(Tapered End Transition)  
(Bars 5S not shown for clarity)

**Section C-C**
(Guardrail End Transition)

NOTE: Quantities are based on a 9" curb, no curb cross slope.

*Match Cross Slope of high side and low side at begin or end bridge or approach slab.*

**Match curb height of adjacent bridge and approach slab. Adjust height in Transition area to match adjoining roadway curb."
SCHEME 2 - MODIFICATION FOR INDEX NO. 481 - SCHEME 2
RAILING END TREATMENT FOR PARALLEL WING WALLS WITH NARROW CURBS

NOTES:
1. Remove existing concrete along saw cut joints. Existing reinforcing steel may be cut at joint or extended into new concrete. Exposed existing reinforcing not encased in new concrete shall be removed 1" below existing concrete surface and grouted over.

PARTIAL PLAN

PARTIAL ELEVATION OF INSIDE FACE OF RAILING
(Expansion Dowel Assemblies and Bars 4C not shown for clarity)

SECTION F-F
SECTION THRU EXISTING CURB AND APPROACH SLAB TO BE REMOVED
(Free Standing Curb Similar)

CROSS REFERENCES:
For Section A-A see Sheet 4.
For Section D-D see Sheet 5.
For Expansion Dowel Assembly and placement of Dowel Bars 6D Details see Index 480.

TRAFFIC RAILING - (VERTICAL FACE RETROFIT) SPREAD FOOTING APPROACH

INDEX
NO.
484

SHEET
NO.
6 of 10
**SCHEME 3 – MODIFICATION FOR INDEX NO. 481 SCHEME 3**

**RAILING END TREATMENT FOR FLARED WING WALLS WITH NARROW CURBS**
PARTIAL PLAN OF RAILING

(Scheme 4 ~ Modification for Index No. 482 Scheme 2
Railings End Treatment for Parallel Curbs and Wing Walls with Wide Curbs)

CROSS REFERENCES:
For Section A-A see Sheet 4
For Section G-G see Sheet 7
For Expansion Dowel Assemblies see Index 480.

TRAFFIC RAILING - (VERTICAL FACE RETROFIT)
SPREAD FOOTING APPROACH
**SCHEME 6 – MODIFICATION FOR INDEX NO. 483 SCHEME 2**

**RAILING END TREATMENT FOR PARALLEL CURBS AND WING WALLS WITH INTERMEDIATE CURBS**

**PARTIAL ELEVATION OF INSIDE FACE OF RAILING**
(Expansion Dowel Assemblies and Bars 4C not shown for clarity)

**SECTION H-H**

**Note:**
**•** Match curb height at adjoining existing end bent wing.

**Cross References:**
For Section A-A see Sheet 4.
For Section D-D see Sheet 5.
For Expansion Dowel Assembly and placement of Dowel Bars 6D details see Index 480.

**Description:**
Traffic Railing - (Vertical Face Retrofit) Spread Footing Approach
**SCHEME 7 - MODIFICATION FOR INDEX NO. 483 SCHEME 3**

**RAILING END TREATMENT FOR PARALLEL CURBS AND FLARED WING WALLS WITH INTERMEDIATE CURBS**

**(Expansion Dowel Assemblies and Bars 4C not shown for clarity)**

**CROSS REFERENCES:**
- For Section A-A see Sheet 3.
- For Section D-D see Sheet 4.
- For Section A-A see Sheet 4.
- For Section H-H see Sheet 9.

**PARTIAL ELEVATION OF INSIDE FACE OF RAILING**

*Note:*

- Match curb height at adjoining existing end bent wing.

**PARTIAL PLAN OF RAILING**

*Note:*

- Lines of 30# Bond Breaker, 2 layers of 30#
- Smooth Roofing Paper along joint

**SECTION 1-1**

- Exitting End Bent Wing

**TRAFFIC RAILING - (VERTICAL FACE RETROFIT)**

**SPREAD FOOTING APPROACH**

**FDOT 2014 DESIGN STANDARDS**

**INDEX NO. 484**

**SHEET NO. 10 of 10**