SCHEMATIC PLAN VIEW - NEAR LANE APPROACH

**DESIGN NOTES:**

1. The minimum length of advancement for both near lane and opposing lane approaches is 20'.

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.

**NOTES:**

- The minimum length of advancement is 20'.
- The Tapered End Transition should only be used when space is limited which precludes the use of a guardrail end treatment or crash cushion.

**LIMITS OF PAYMENT FOR VERTICAL FACE RETROFIT**

*Guardrail or Crash Cushion may also be shown in the Contract Plans, in lieu of the Tapered End Transition.*

**CROSS REFERENCES:**

For General Notes, Dowel Details, Expansion Dowel Details, Reinforcing Steel Notes and Reinforcing Steel Bending Diagram see Index No. 480.

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**SCHEMATIC PLAN VIEW - OPPOSING LANE APPROACH**

**LENGTH OF ADVANCEMENT - TAPERED END TRANSITION (40 MPH OR LESS)**

**DESIGN NOTES:**

- The Tapered End Transition should only be used when space is limited which precludes the use of a guardrail end treatment or crash cushion.

**NOTES:**

- The minimum length of advancement is 20'.
- The Tapered End Transition is not permitted for Design Speeds greater than 40 mph. See Index No. 400 for length of Advancement of guardrail or other project specific end treatments.

**LIMITS OF PAYMENT FOR VERTICAL FACE RETROFIT**

*Guardrail or Crash Cushion may also be shown in the Contract Plans, in lieu of the Tapered End Transition.*

**CROSS REFERENCES:**

For General Notes, Dowel Details, Expansion Dowel Details, Reinforcing Steel Notes and Reinforcing Steel Bending Diagram see Index No. 480.
Approach Slab Transition
(See Schemes 1 thru 7 for Details and Reinforcement)

Begin or end Approach Slab Transition
(see Schemes for Details)

Bridge and/or Approach Slab Transition

Bars 55

Bars 4G (Typ.)

Bars 5S (field bend & cut to maintain cover)

Bars 8'-0" (Traffic Railing and Curb Transition)

20'-0" (Traffic Railing to Curb Transition)

Bars 5F (Typ.)

Bars 4G (Typ.)

Bars 5E (Typ.) (Cut to maintain cover in Taper)

Bars 5S (field bend & cut to maintain cover)

Bars 5F @ 8" spacing

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

Bars 5S @ 8" spacing

Bars 5E @ 8" spacing (tie to Bars 5F)

Bars 5S (field bend & cut to maintain cover)

Bars 5F (Typ.)

Bars 5S @ 8" spacing (tied to Bars 4F)

Bars 5F @ 8" spacing

Bars 5S @ 8" spacing

Bars 5E @ 8" spacing (tied to Bars 5F)

Bars 5S (field bend & cut to maintain cover)

Bars 5F (Typ.)

Bars 5S (field bend & cut to maintain cover)

Bars 5F (Typ.)

Bars 5S (field bend & cut to maintain cover)

Bars 5F (Typ.)

Bars 5S (field bend & cut to maintain cover)

Bars 5F (Typ.)

Bars 5S (field bend & cut to maintain cover)
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.

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

SECTION X-X (TYPICAL CURB, TYPE VARIES, TYPE F SHOWN) (See Index No. 300 and Plans for Details)

SECTION C-C (GUARDRAIL END TRANSITION)

SECTION A-A TYPICAL SECTION (9" Curb shown, 6" Curb similar)

SECTION B-B TAPERED END TRANSITION (Bars SS not shown for clarity)

CROSS REFERENCES:
For location of Sections A-A, B-B and X-X see Sheet 2.
For location of Section C-C see Sheet 3.

NOTE: Quantities are based on a 9" curb, no curb cross slope.
**SCHEME 1 – MODIFICATION FOR INDEX NO. 481, 482 AND 483 - SCHEME 1**

**RAILING END TREATMENT FOR PERPENDICULAR OR ANGLED WALLS WITH NARROW CURBS (SHOWN), WIDE CURBS AND INTERMEDIATE CURBS (SIMILAR)**

**CROSS REFERENCE:**
- For Section A-A see Sheet 4.
- For Expansion Dowel Assemblies and placement of Dowel Bars 6D Details see Index 480.

**PARTIAL ELEVATION OF INSIDE FACE OF RAILING**

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

**SECTION D-D**

Varies (3" Max, 1" Min, match bridge offset constant for Retrofit to begin transition)

BAR 4G (Typ.)

Asphalt Overlay when present

BAR 4C (Typ.)

Construction Joint

Permitted

BAR 5S (Typ.)

4"

3" Cover

BAR 5F @ 8" sp. @ 1'-4" ± = 2'-8"

3" Cover

BAR 5E @ 8" spacing Max. (Typ.) tied to BAR 5F

Curb & portion of Approach Slab (when present, shown Shaded) to be removed

BAR 5S (Typ.)

3" Cover (Typ. ends) (Min.)

2" Cover

Bar 5E @ 8" spacing Max. (Typ.) tied to Bar 5F

Field Cut Bars 5E to maintain 2" cover

Top of Curb

3 1/2" Preformed Joint Filler...

Bars 5F (Typ.)

Final Riding Surface

Edge of Existing Approach Slab (Location Varies)

Existing Approach Slab

**PARTIAL PLAN**

**SECTION E-E (NARROW CURB SHOWN, WIDE AND INTERMEDIATE CURBS SIMILAR)**

TRAFFIC RAILING - (VERTICAL FACE RETROFIT)

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

**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.

**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.

**DESCRIPTION:**
TRAFFIC RAILING - (VERTICAL FACE RETROFIT) SPREAD FOOTING APPROACH

**INDEX NO.**
484

**SHEET NO.**
6 of 10
PARTIAL PLAN OF RAILING

EXPANSION DOWEL SLEEVE ASSEMBLY

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

SCHEME 3 - MODIFICATION FOR INDEX NO. 481 SCHEME 3
RAILING END TREATMENT FOR FLARED WING WALLS WITH NARROW CURBS

PARTIAL ELEVATION OF INSIDE FACE OF RAILING
(Expansion Dowel Assemblies and Bars 4C not shown for clarity)
**SCHEME 4 ~ MODIFICATION FOR INDEX NO. 482 SCHEME 2**

RAILING END TREATMENT FOR PARALLEL CURBS AND WING WALLS WITH WIDE CURBS

**SCHEME 5 ~ MODIFICATION FOR INDEX NO. 482 SCHEME 3 AND 4**

RAILING END TREATMENT FOR PARALLEL CURBS AND FLARED WING WALLS WITH WIDE CURBS

**CROSS REFERENCES:**
For Section A-A see Sheet 4.
For Section D-D see Sheet 5.
For Section G-G see Sheet 7.
For Expansion Dowel Assemblies Details 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

Provide 3/4" Preformed Joint Filler on top of existing curb (shown hatched).

Bars 4C (Typ.)

Expansion Dowel Sleeve Assembly

Bars 5E @ 8" spacing Max. (Typ.) Clip bars as req'd to maintain Cover

Typical Section

Approach Slab Transition

Bars 5F @ 8" spacing Max. (Typ.) Clip bars as req'd to maintain Cover

Bars 4G (Typ.)

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

Front Face of Backwall, Begin or End Bridge & Watch Rail (See Index No. 483, Sheet 1)

Final Riding Surface

Asphalt Overlay when present

Existing Curb

Existing Approach Slab

Existing End Bent Wing Wall

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

SECTION H-H

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 483

TRAFFIC RAILING - (VERTICAL FACE RETROFIT) SPREAD FOOTING APPROACH

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SHEET NO. 9 of 10

DESIGN STANDARDS
FY 2017-18

DESCRIPTION:

07/01/09

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