**VALLEY GUTTER**

* When used on high side of roadways, the cross slope of the gutter shall match the cross slope of the adjacent pavement. The thickness of the lip shall be 6", unless otherwise shown on plans.

**SOCKET CURB**

- Rotate entire section so that gutter cross slope matches slope of adjacent circulating roadway pavement.

For use adjacent to concrete or flexible pavement. For details depicting usage adjacent to flexible pavement, see Sheet 2. Expansion joint, preformed joint filler and joint seal are required between curb & gutter and concrete pavement only, see Sheet 2.

**DROP CURB**

**SHOULDER GUTTER**

**TRAFFIC BEARING SECTION FOR USE IN ROUNDABOUT CENTRAL ISLAND CONSTRUCTION TYPE RA**

**CONCRETE CURB**

**CONCRETE CURB AND GUTTER**
Sawcuts should be avoided within valley gutter and within curb and gutter endings. Sawcuts should be avoided within valley gutter and within curb and gutter endings.

**CONTRACTION JOINT IN CURB AND GUTTER**

**CONTRACTION JOINT IN CURB**

**CONCRETE BUMPER GUARD**

**ASPHALTIC CONCRETE CURB**

**EXPANSION JOINT BETWEEN GUTTER AND CONCRETE PAVEMENT**

**CURB AND GUTTER ENDINGS**

**CURB AND GUTTER AND TYPE A CURB ADJACENT TO FLEXIBLE PAVEMENT**

**GENERAL NOTES**

1. For curb, gutter and curb & gutter provide 1/8" - 1/2 contraction joints at 10' centers (max.) Contraction joints adjacent to concrete pavement on tangents and flat curves are to match the pavement joints, with intermediate joints not to exceed 10' centers. Curb, gutter and curb & gutter expansion joints shall be located in accordance with Section 520 of the Standard Specifications.

2. Ends of Curbs Types B and D shall transition from full to zero heights in 3'.

**STANDARD SPECIFICATIONS**

- CURB & CURB AND GUTTER
  - FY 2017-18 DESIGN STANDARDS
  - REVISION NO. 300
  - SHEET NO. 2 of 2
**DESIGN NOTES**

1. Basis for turn lane configurations:
   - Informed Driver
   - Stop Condition (With or Without Stop Control)
   - Wet Pavement
   - Reaction preceding entry point
   - Minimum braking distance for urban conditions
   - 75 min for Lc
   - Comfortable deceleration rates for rural conditions

2. Total deceleration distances must not be reduced except where lesser values are imposed by un relocatable control points.

3. Right turn lane tapers and distances identical to left turn lanes under stop control conditions. Right turn lane tapers and distances are site specific under free flow or yield conditions.

4. These left turn configurations apply to continuous left turn lanes only where specifically called for in the plans.

5. For pavement markings see Index No. 17346.

**GENERAL NOTES**

1. The plan views shown are for turn lane taper shapes and dimensional purposes only; they do not prescribe the use of curb, curb and gutter, shoulders nor separators specifically to either rural or urban conditions.

2. For pavement markings see Index No. 17346.

**REMEDIUM CURB AND TRAFFIC SEPARATOR JUNCTURE DETAILS**

**MEDIAN CURB AND TRAFFIC SEPARATOR JUNCTURE DETAILS**

**FLUSH AND/OR CURBED SEPARATION**

**RAISED SEPARATION**

**DOUBLE LEFT TURNS**

**SINGLE LEFT TURNS**

**CONCRETE CURB OR CURB AND GUTTER**

**DESIGN STANDARDS**

FY 2017-18

**Delineator Post (Refer To Index No. 17346)**

**INDEX NO. 302**

**SHEET NO. 301**

**FY 2017-18 DESIGN STANDARDS**

**REVISION 07/01/03**

**Medan Curb And Traffic Separator Juncture Details**

**CONCRETE CURB OR CURB AND GUTTER**

**FLUSH AND/OR CURBED SEPARATION**

**RAISED SEPARATION**

**DOUBLE LEFT TURNS**

**SINGLE LEFT TURNS**

**CONCRETE CURB OR CURB AND GUTTER**

**FLUSH AND/OR CURBED SEPARATION**

**RAISED SEPARATION**

**SINGLE LEFT TURNS**

**CONCRETE CURB OR CURB AND GUTTER**

**FLUSH AND/OR CURBED SEPARATION**

**RAISED SEPARATION**

**SINGLE LEFT TURNS**

**CONCRETE CURB OR CURB AND GUTTER**

**FLUSH AND/OR CURBED SEPARATION**

**RAISED SEPARATION**

**SINGLE LEFT TURNS**

**CONCRETE CURB OR CURB AND GUTTER**

**FLUSH AND/OR CURBED SEPARATION**

**RAISED SEPARATION**

**SINGLE LEFT TURNS**
TRANVERSE SECTION

OPTION I

Z, Z Or 6'-0" R

LONGITUDINAL SECTION (NOSE)

OPTION II

1/4" Expansion Joint (Typ.)

(Preformed Filler & Joint Sealant)

LONGITUDINAL SECTION (NOSE)

TYPE I CONCRETE TRAFFIC SEPARATOR

1/4" For 4' Separator

1/4" For 6' Separator

1/4" For 8'-6" Separator

1 3/4" Expansion Joint (Typ.)

Z, Z Or 4'-3" R

9" 1 3/4" 1 3/4"

Z 4'-0" Or 8'-6"

Z, Z Or 4'-3" R

LONGITUDINAL SECTION (NOSE)

Z, Z Or 6'-0" R

TYPE II CONCRETE TRAFFIC SEPARATOR

1/4" For 4' Separator

1/4" For 6' Separator

1/4" For 8'-6" Separator

1 3/4" Expansion Joint (Typ.)

Z, Z Or 4'-3" R

9" 1 3/4" 1 3/4"

Z 4'-0" Or 8'-6"

Z, Z Or 4'-3" R

LONGITUDINAL SECTION (NOSE)

Z, Z Or 6'-0" R

TYPE IV CONCRETE TRAFFIC SEPARATOR

1/4" For 4' Separator

1/4" For 6' Separator

1/4" For 8'-6" Separator

1 3/4" Expansion Joint (Typ.)

Z, Z Or 4'-3" R

9" 1 3/4" 1 3/4"

Z 4'-0" Or 8'-6"

Z, Z Or 4'-3" R

LONGITUDINAL SECTION (NOSE)

Z, Z Or 6'-0" R

TYPE V CONCRETE TRAFFIC SEPARATOR

1/4" For 4' Separator

1/4" For 6' Separator

1/4" For 8'-6" Separator

1 3/4" Expansion Joint (Typ.)

Z, Z Or 4'-3" R

9" 1 3/4" 1 3/4"

Z 4'-0" Or 8'-6"

Z, Z Or 4'-3" R

LONGITUDINAL SECTION (NOSE)

Z, Z Or 6'-0" R

ROADWAY INSTALLATIONS

NOTES

1. Separators Type I and IV are to be used with flexible pavement. Separators Types II and V are to be used with rigid pavement.

2. Either Option I or Option II may be used for Types I and IV separators except when a specific option is called for in the plans.

3. For all separators provide 1/4"-1/2" contraction joints at 10' centers (max.). Contraction joints adjacent to concrete pavement on tangents and flat curves are to match the pavement joints, with intermediate joints not to exceed 10' centers.

4. Separators having widths of 4', 6' or 8'-6" shall be paid for under the contract unit price for Concrete Traffic Separator (Type ) ("Wide") LF. Separators having widths other than 4', 6' or 8'-6" shall be detailed in the plans as special separators and paid for under the contract unit price for Concrete Traffic Separator (Special) LF.
1. Traffic Separator transverse reinforcement adjacent to deck expansion joints shall be field adjusted to maintain clearance and spacing. Bars shall be field cut as shown, bars may be rotated to maintain clearance.

2. Traffic Separator ends at deck expansion joints shall follow the deck joint limits. Drainage joints and ½" V-Grooves shall be placed perpendicular or radial to the Q of the Traffic Separator. See Structures Plans, Superstructure and Approach Slab Sheets for details.


Notes:

REINFORCING STEEL OPTION A

REINFORCING STEEL OPTION B (NOT PERMITTED ON BRIDGE DECKS WITH PRESTRESSING STEEL)

DETAIL AT EXPANSION JOINTS

DETAIL AT Poured JOINT WITH BACKER ROD EXPANSION JOINTS

BRIDGE INSTALLATIONS - TYPE "E" CURB
TYPICAL SECTION THRU TRAFFIC SEPARATOR (Bridge Deck Shown, Approach Slab Similar)

LONGITUDINAL SECTION THRU TRAFFIC SEPARATOR AT NOSE (Bridge Deck Shown, Approach Slab Similar)

REINFORCING STEEL OPTION A

DETAIL AT Poured JOINT WITH BACKER ROD EXPANSION JOINTS

DETAIL AT EXPANSION JOINTS (Strip Seal Shown, Other Armored Joint Types Similar)

MIXED MIN. 6" R, 3'-0" R, or 4'-3" R

Field bend and cut rebar as required to maintain cover

For 4'-0" width: Bars 4A @ 3 equal spaces (continuous).
For 6'-0" width: Bars 4A @ 5 equal spaces (continuous).
For 8'-6" width: Bars 4A @ 7 equal spaces (continuous).

# Pitch: 4" for 4'-0" Separator
5" for 6'-0" Separator
8" for 8'-6" Separator

Note: Treatment of separators on straight bridges shown. For additional notes and treatment of separators on skewed bridges, see Sheet 2.
CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

ALTERNATE REINFORCING STEEL DETAILS (WELDED WIRE REINFORCEMENT)

OPTION A: Use Welded Wire Reinforcement 3 x 4 - W5.0 x W6.7 as required by plans in place of Bars 4A, 4B and 4E. Bend the Welded Wire Reinforcement to the dimensions of Bar 4B shown in the Bending Diagram for Reinforcing Steel Option A.

OPTION B: Use Welded Wire Reinforcement 3 x 4 - W5.0 x W6.7 as required by plans in place of Bars 4A and 4C shown in Reinforcing Steel Option B.

Note: Welded Wire Reinforcement to consist of smooth wire meeting the requirements of Specification Section 933.

REINFORCING STEEL OPTION A

REINFORCING STEEL OPTION B

REINFORCING STEEL NOTES:
1. All dimensions are out to out.
2. The W vertical dimension shown for Bars 4B and 4D are based on a slab 8” thick or greater without a wearing surface. If slab thickness is less than 8”, decrease this dimension by an amount equal to the difference in thickness. If a wearing surface is to be provided, increase this dimension by an amount equal to the wearing surface thickness.

ESTIMATED TRAFFIC SEPARATOR QUANTITIES

CONCRETE:

CONSTANT WIDTH OF SEPARATOR:

TYPE "E":
- 4'-0" Width = 0.096 CY per Ft. - 0.072 CY per Ft.
- 6'-0" Width = 0.089 CY per Ft. - 0.066 CY per Ft.
- 8'-6" Width = 0.132 CY per Ft. - 0.119 CY per Ft.

NOTE:
- TYPE "E":
  - 4'-0" Width = 0.090 CY - 0.066 CY
  - 6'-0" Width = 0.133 CY - 0.110 CY
  - 8'-6" Width = 0.133 CY - 0.110 CY

REINFORCING STEEL:

(AI all quantities are based on an 8” slab)

OPTION A:
- 4'-0" Width = 6.37 Lbs. per Ft.
- 6'-0" Width = 8.60 Lbs. per Ft.
- 8'-6" Width = 11.65 Lbs. per Ft.

OPTION B:
- 4'-0" Width = 7.27 Lbs. per Ft.
- 6'-0" Width = 7.60 Lbs. per Ft.
- 8'-6" Width = 9.45 Lbs. per Ft.

CONCRETE:

Notes:
- Welded Wire Reinforcement to consist of smooth wire meeting the requirements of Specification Section 933.
- Rebar to be provided, increase this dimension by an amount equal to the wearing surface thickness.

Bridge Installations - Type "E" and "F" Curbs

Bridge Installations - Type "E" and "F" Curbs

Splice Detail

(Detail: Welded Wire Reinforcement to consist of smooth wire meeting the requirements of Specification Section 933)

Drainage Joint Detail

For 5" Opening or less

See Structures Plans, Superstructure Sheets for location(s) of drainage joints. Locations for drainage joints shall be limited to the constant width section of separator.

Dowel Notes:
1. Shift Dowel Notes to clear if existing reinforcement is encountered.
2. Provide and install an adhesive bonding material system in accordance with Sections 416 and 937 of the Specifications.

Bridges Installations - Type "E" and "F" Curbs

Dowel Detail

Dowel Bar 4D

Adhesive Bonding Material System

Hole diameter to meet adhesive bonding material system manufacturer's requirements

NOTE:
- CONCRETE: See General Notes in Structures Plans.
- REINFORCING STEEL: Reinforcing Steel shall be ASTM A615 Grade 60.
- PAYMENT: Separators having widths of 4'-0", 6'-0", and 8'-6" shall be paid under the contract unit price for Traffic Separator Concrete (Type II or V) (Type II Wide), LF. Separators having widths other than 4'-0", 6'-0", or 8'-6" shall be paid under the contract unit price for Traffic Separator Concrete (Special), S.Y.
- TRAFFIC SEPARATOR CONSTRUCTION: The Contractor may construct the separator by the use of stationary removable forms or by the use of slip forms without altering the separator dimensions shown. ½" V-GROOVES: For all separators provide ½" V-Grooves at 30'-0" centers (max) equally spaced between expansion joints, and/or drainage joints.
Profile grades should be established that will allow inlets to be located outside the return whenever practical. Inlets should be located to avoid conflict with pedestrian movement. Special care must be exercised to prevent conflict with public sidewalk curb ramps for the disabled. For information on public sidewalk curb ramps refer to Index No. 304.

Showing location of inlets at returns

Typical return profiles
GENERAL NOTES

1. Cross Slopes and Grades:
   A. Sidewalk, ramp, and landing slopes (i.e. 0.02, 0.05, and 1:12) shown in this index are maximums. Steeper slopes are not permitted unless otherwise detailed in the Plans.
   B. Landings must have slopes less than or equal to 0.02 in any direction.
   C. Install ramp slopes along a single linear plane (i.e. no warps or varying slope)

2. Grade Breaks:
   Grade breaks at the top and bottom of ramps must be parallel to each other and perpendicular to the direction of the ramp slope.

3. Existing Curb, Curb and Gutter and/or Sidewalk:
   A. Remove any existing curb or curb and gutter to the nearest joint beyond the curb transition or to the extent that no remaining section of curb or curb and gutter is less than 5 feet long. Remove any existing sidewalk to the nearest joint beyond the transition slope or to the extent that no remaining section of sidewalk is less than 5 feet long.
   B. Refer to Index 310 for Concrete Sidewalk details.

4. Curb Ramp Alpha-Identification:
   A. Sidewalk curb ramp alpha-identifications (e.g. CR-A) are provided for reference purposes in the Plans.
   B. Alpha-identifications CR-I and CR-J are intentionally omitted.

5. Detectable Warnings:
   A. Install detectable warnings in accordance with Specification Section 527.
   B. Place detectable warnings across the full width of the ramp or landing, to a depth of 2 feet measured perpendicular to the curb line and no greater than 5 feet from the back of the curb or edge of pavement.
   C. If detectable warnings are shown in the Plans on slopes greater than 5%, align the truncated domes with the centerline of the ramp; otherwise, the truncated domes are not required to be aligned.

6. Detectable Warnings - Acceptance Criteria:
   A. Color and texture shall be complete and uniform.
   B. 90% of individual truncated domes shall be in accordance with the Americans with Disabilities Act Standards for Transportation Facilities, Section 705.
   C. There shall be no more than 4 non-compliant domes in any one square foot.
   D. Non-compliant domes shall not be adjacent to other non-compliant domes.
   E. Surfaces shall not deviate more than 0.10" from a true plane.
DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS

SIDEWALK CURB RAMPS CR-A AND CR-B

CR-A

ISOMETRIC VIEW

PLAN VIEW

SECTION A-A

CR-B

ISOMETRIC VIEW

PLAN VIEW

SIDEWALK CURB RAMPS CR-A AND CR-B

DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS

INDEX NO.

SHEET NO.

304

2 of 8

FY 2017-18
DESIGN STANDARDS

LAST
REVISION
11/01/16
DESCRIPTION:

2'-0" Detectable Warnings

2'-0" Detectable Warnings

7'-0" (Std.)

7'-0" (Std.)

A

A

4'-0" (Min.)

4'-0" (Min.)

Utility Strip
(Grass or Pavilion)

Utility Strip
(Grass or Pavilion)

1:12

1:12

0.02

0.02

Ramp Varies
(Max.)

Ramp Varies
(Max.)

Pavement Relief
(See Section C-C)

Pavement Relief
(See Section C-C)

Ramp

Ramp

0.05

0.05

Sidewalk

Sidewalk

0.02

0.02

0.02

0.02

Gutter Line

Gutter Line

Rdwy. Pavt.

Rdwy. Pavt.

45°

45°

11'-0" (Shown)

11'-0" (Shown)

4'-0" (Min.)

4'-0" (Min.)

7'-0" (Std.)

7'-0" (Std.)

7'-0"

7'-0"
SECTION B-B

Sidewalk Curb (Where Necessary)

6'-0" (Min.)

Landing

Ramp

0.02

0.02

1:12

0.02

PLAN VIEW

CR-C

SECTION C-C

Sidewalk Curb (Where Necessary)

6'-0" (Min.)

Landing

Ramp

0.02

0.02

1:12

0.02

ISOMETRIC VIEW

SIDEWALK CURB OPTIONS

MONOLITHIC CAST CURB

SEPARATELY CAST CURB

CONSTRUCTION OF SIDEWALK CURB IN CUT SECTIONS

Note: Remove Elevated Pavement by Spading and Rolling, Smooth Milling or Grinding.

SIDEWALK CURB RAMPS CR-C AND SIDEWALK CURB
SIDEWALK CURB RAMPS CR-H, CR-K & CR-L

NOTE:
Crosswalk Width and Configuration Vary; Must Conform to Index 17344 and 17346.

15' Radius Curve Shown for CR-L.

See SIDEWALK CURB OPTIONS details.

* Note: For Additional Information on Sidewalk Curb Construction,
See SIDEWALK CURB OPTIONS details.

OPTION A

OPTION B

SECTION D-D

SECTION E-E
LANDINGS FOR CURB RAMPS WITHOUT SIDEWALKS
(See CR-F, CR-G & CR-K Respectively For Detectable Warning Details/Options)

OPTION A

OPTION B

DETECTABLE WARNING ON FLUSH SHOULDER SIDEWALKS
NOTES:

1. Cross Slope of the median crossing not to exceed 0.02.

2. Running Slopes:
   
   A. Slopes ≤ 0.05: For roadway cross sections were the Edge of Pavement elevation is the same for both directions of traffic, the median crossing running slopes (0.02 Typ.) should meet at the centerline of the median. For roadway cross sections with variable Edge of Pavement elevations, or to accommodate other construction in the median, the slopes may intersect off the centerline of the median.
   
   B. Slopes > 0.05: Provide a median refuge area (landing, 0.02 slope) for crossings with running slopes > 0.05. The refuge area must extend the full width of the crossing and have a minimum length of 5 feet.

3. On existing facilities, remove and reconstruct curb transition for raised sidewalk with ramp.

SECTION F-F

MEDIAN CROSSING

DEPRESSED SIDEWALK

MEDIAN CROSSINGS

RAISED SIDEWALK

2'-0" Detectable Warnings

Face Of Curb

Concrete Sidewalk

Median

5'-0" (Min.)

Transition Slope

Face Of Curb

Curb Transition

(See Note #2)

Face Of Curb

Transition Slope

Section F-F

MEDIAN CROSSING

DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS

DESIGN STANDARDS

FY 2017-18

INDEX NO. 304

SHEET NO. 7 of 8

REV 01/01/16
NOTES:
1. Where crosswalk markings are used, ramps must fall within the crosswalk limits. A clear space of 48" minimum is required at the bottom of the ramp within a marked crosswalk. If crosswalk markings are not present, a clear space of 48" minimum is required at the bottom of the ramp outside of active travel lanes.
2. Crosswalk widths and configurations vary; must conform to Index 17344 and 17346.
3. Flangeway Gap may be up to 3" for Freight-only Railways.

RAILROAD CROSSING AND CURB RAMPS AT CURVED RETURNS

PLACEMENT OF SIDEWALK CURB RAMPS AT CURBED RETURNS (TYP.)

Rail Car Width

Flangeway Gap
(2½" Max.)
(See Note #3)

Of Nearest Rail

2'-0" Detectable Warnings

4'-0" Min. Full Height Curb

Back Of Sidewalk Alignment Variations

2'-0" Detectable Warnings

Crosswalk

1:12

4'-0" Min. Full Height Curb

RADIAL SIDEWALK RAMPS

LINEAR SIDEWALK RAMPS

2'-0" Detectable Warnings

Crosswalk

Utility Strip

1:12

Railroad Crossing

Detectable Warnings and Sidewalk Curb Ramps
NOTES:

1. For joint seal dimensions see Sheet 2.
2. For slabs poured simultaneously, tie bars may be inserted in the plastic concrete by means approved by the Engineer.
3. For Longitudinal Joints:
   A. Tie bars are deformed #4 or #5 reinforcing steel bars meeting the requirements of Specifications, Section 931.
   B. Provide a standard load transfer tied joint with #4 bars 25" in length at 24" spacing or #5 bars 30" in length at 30" spacing.
4. Transverse joints are to be spaced at a maximum of 15'. Dowels are required at all transverse joints unless otherwise noted in the plans.
5. Expansion joints to be placed on approaches to bridges, at street intersections and other locations indicated in the plans.
6. Punch clean holes in preformed joint filler greater than bar diameter.
7. Coat and lubricate plain steel dowel bars in accordance with Specifications, Section 350.
8. Sheet metal bottom strips in accordance with Specifications, Section 931.

DOWELS (LENGTH 18")

Pavement Thickness

<table>
<thead>
<tr>
<th>Thickness</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;-8&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td>9&quot;-12&quot;</td>
<td>3/8&quot;</td>
</tr>
<tr>
<td>≥13&quot;</td>
<td>1/2&quot;</td>
</tr>
</tbody>
</table>

Dowel Bar Layout

MATERIAL:

Metal

Plain Steel Dowel Bars

Plastic

Plain Steel Dowel Bars

Filler (See Note #6)

Preformed Joint Filler (See Note #6)

Expansion Joint (See Note #6)

CONTRACTION JOINT (Vibro Case Method)

CONTRACTION JOINT (Sawed Method)

BUTT CONSTRUCTION JOINT

(Used At Discontinuance Of Work)
CONCRETE-CONCRETE JOINTS

**FOR NEW PROJECTS**

**PREFORMED ELASTOMERIC COMPRESSION SEAL**

**FOR REHABILITATION PROJECTS**

**TAPE BOND BREAKER**

**CONCRETE-ASPHALT SHOULDER JOINTS**

**JOINT SEAL DIMENSIONS**

<table>
<thead>
<tr>
<th>JOINT WIDTH</th>
<th>SEALANT BEAD THICKNESS</th>
<th>BACKER ROD DIA.</th>
<th>MINIMUM JOINT DEPTH</th>
<th>BACKER ROD PLACEMENT DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
</tr>
<tr>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Unless otherwise indicated on the plans the joint width for new construction will be 1/4" for construction joints, 1/2" for all other joints.

For rehabilitation projects the joint width will be shown on the plans or established by the Engineer based on field conditions.
ALTERNATE KEYWAY AND HOOK BOLT

STEEL HOOK BOLT ASSEMBLY

CONTRACTION ASSEMBLY

JOINT ARRANGEMENT

EXPANSION ASSEMBLY

Notes:
1. Longitudinal joints will not be required for single lane pavement 14' or less in width. For entrance and exit ramp joint details, see Sheet 4.
2. Arrangement of longitudinal joints are to be as directed by the Engineer.
3. All manholes, meter boxes and other projections into the pavement shall be boxed-in with 1/2" preformed expansion joint material.

Note: After the concrete has set to the extent that the Keyway will retain its shape, the hex bolt and plastic insert shall be removed. The remaining portion of the hook bolt assembly shall be installed immediately prior to placing of concrete in the adjacent lane.

Anchor bolts shall be Grade C in accordance with ASTM A 307. Threaded sleeves shall develop the full strength of the bolt and meet the material and thread requirements of ASTM A 563.
CONCRETE PAVEMENT JOINTS

**DESCRIPTION:**

**REVISION**

**INDEX NO.**

**SHEET NO.**

**FY 2017-18**

**DESIGN STANDARDS**

**JOINT LAYOUT AT ENTRANCE AND EXIT RAMP TERMINALS**

* 13' with tied Concrete Shoulders or 14' with Asphalt Shoulders.

**LONGITUDINAL JOINT**

**CONTRACTION JOINT (Typ.)**

**PCC Core Pavt.**

**Mainline Pavt.**

**Ramp Part.**

**Transition From * to 12' Wide Over 3 Slabs**

**ENTRANCE TAPER WITH AUXILIARY LANE**

**EXIT TAPER WITH AUXILIARY LANE**

**2-THRU LANES WITH SINGLE LANE ENTRANCE RAMP**

**ENTRANCE TAPER WITH AUXILIARY LANE**

**2-THRU LANES WITH SINGLE LANE EXIT RAMP**

**EXIT TAPER WITH AUXILIARY LANE**

**3-THRU LANES WITH AUXILIARY LANE AND 2-LANE EXIT RAMP**
Expansion Joints Shall Be Constructed Parallel To The Existing Transverse Pavement Joints On Rehabilitation Projects, And Parallel To The Standard Transverse Pavement Joints Shown In The Plans For New Construction.

REINFORCING STEEL

<table>
<thead>
<tr>
<th>Mark</th>
<th>Size</th>
<th>Dia.</th>
<th>No. Req.</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>5/8</td>
<td>3</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>D</td>
<td>3/4</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

* Finish surface smooth. Cure with heavy coating of wax base white pigmented curing compound. Apply second application immediately prior to placing pavement.

OPTIONAL SEALS

- Tool To 3/8" Radius Or Grind 1/4" Chamfer
- Polychloroprene Compression Seal Installed As Per Manufacturer's Specifications.

Note: All contacting surfaces between the compression seal and concrete shall be thoroughly coated with a lubricant-adhesive.

JOINT DIMENSIONS

- Compression SEAL DETAIL

DETAIL SHOWING SHEET METAL STRIP

WITH RIGID SHOULDER PAVEMENT

WITH GRASSED SHOULDER OR FLEXIBLE SHOULDER PAVEMENT

Note: Immediately prior to placing the seal, the joint shall be thoroughly cleaned of all foreign material. Immediately after the seal is placed, sheet metal strip shall be bent up against the pavement edge.

The sheet metal strip shall be a minimum 16 gage steel, 12" wide and shall be galvanized in accordance with ASTM A-526, Coating designation G90.
NOTES:

Pavement Removal and Replacement

1. Pavement shall be mechanically sawed.
2. The replacement asphalt shall match the existing structural and friction courses for type and thickness in accordance with current FDOT asphalt mix specifications.
3. The new base materials shall be either of the same type and composition as the materials removed or of equal or greater structural adequacy (See Index No. 514).

Backfill Option

1. Compact and Stabilized Fill
   A. Backfill material shall be placed in accordance with Section 125 of the Standard Specifications.
   B. In Stage #1, construct compacted fill beneath the haunches of the pipe, using mechanical tamps suitable for this purpose. This compaction applies to the material placed beneath the haunches of the pipe and above any bedding.
   C. In Stage #2, construct compacted fill along the sides of the pipe and up to the bottom of the base, with the upper 12" receiving Type B Stabilization. In lieu of Type B Stabilization, the Contractor may construct using Optional Base Group 3.

2. Flowable Fill
   A. If compaction cannot be achieved through normal mechanical methods then flowable fill may be used.
   B. Flowable fill is to be placed in accordance with Section 121 of the Specifications, as approved by the Engineer.
   C. Do not allow the utility being installed to float. If a method is provided to prevent flotation from occurring, Stages #1 and #2 can be combined, if approved by the Engineer.
   D. In Stage #1, place flowable fill midway up on both sides of the utility. Allow to harden before placing Stage #2.
   E. In Stage #2, place flowable fill to the bottom of the existing base course.

Flexible Pavement Cut

1. The details provided in this standard index apply to cases in which jack and bore or directional boring methods are not required by the Engineer.
2. Flowable fill shall not be placed directly over loose or high plastic or muck material (see Index 505) which will cause settlement due to fill weight. Where highly compressible material exists, the amount, shape and depth of flowable fill must be engineered to prevent pavement settlement.
3. These details do not apply to utility cuts longitudinal to the centerline of the roadway which may require the additional use of geotextiles, special bedding and backfill, or other special requirements.
4. Method of construction must be approved by the Engineer.
5. Some pipe may require special granular backfill up to 6" above top of pipe. Geotextiles may be required to encapsulate the special granular material.

Rigid Pavement Cut

1. High early strength cement concrete (3000 psi) meeting the requirements of Standard Specification 346 shall be used for rigid pavement replacement.
2. Pavement shall be mechanically sawed and restored to conform with existing pavement joints within 12 hours.

Backfill Option

1. Granular Backfill
   A. Any edgdrain system that is removed shall be replaced with the same type materials. Any edgdrain system that is damaged shall be repaired with methods approved by the Engineer.
   B. Fill material shall be placed in accordance with the Standard Specifications. Fill material shall be special select soil in accordance with Index 505.
   C. In Stage #1, construct compacted fill beneath the haunches of the pipe, using mechanical tamps suitable for this purpose. This compaction applies to the material placed beneath the haunches of the pipe and above any bedding.
   D. In Stage #2, construct fill along the sides of the pipe and up to the bottom of replacement.

2. Flowable Fill
   A. If mechanical compaction cannot be achieved through normal mechanical methods then flowable fill may be used.
   B. Flowable fill is to be placed in accordance with Section 121 of the Specifications, as approved by the Engineer.
   C. Do not allow the utility being installed to float. If a method is provided to prevent flotation from occurring, Stages #1 and #2 can be combined, if approved by the Engineer.
   D. In Stage #1, place flowable fill midway up on both sides of the utility. Allow to harden before placing Stage #2.
   E. In Stage #2, place flowable fill to the bottom of the stone layer.

Trench Cuts and Restorations Across Roadways

Miscellaneous Utility Details

Index No.
307
Sheet No.
1 of 3

FYE 2017-18 Design Standards

Last Revision
01/01/16

Description:

Notes:

- Excavatable flowable fill is to be used when the flowable fill option is selected.
- Flowable fill use is allowed only when properly engineered for pavement crossings, whether straight or diagonal, and shall not be installed for significant depths or lengths. The maximum length shall be fifty (50) feet and a maximum depth of six (6) feet unless supported by an engineering document prepared by a registered professional engineer that specializes in soils engineering. The engineering document shall address the evaluation of local groundwater flow interruption and settlement potential.
- Flowable fill use is to be placed in accordance with Section 121 of the Specifications, as approved by the Engineer.
- Flowable fill shall not be placed directly over loose or high plastic or muck material (see Index 505) which will cause settlement due to fill weight. Where highly compressible material exists, the amount, shape and depth of flowable fill must be engineered to prevent pavement settlement.
- These details do not apply to utility cuts longitudinal to the centerline of the roadway which may require the additional use of geotextiles, special bedding and backfill, or other special requirements.
- Method of construction must be approved by the Engineer.
- Some pipe may require special granular backfill up to 6" above top of pipe. Geotextiles may be required to encapsulate the special granular material.

- Where asphalt concrete overlays exist over full slab concrete pavement, the replacement pavement shall have an overlay constructed over the replacement slab. The overlay shall match the existing asphalt pavement thickness. The replacement friction course shall match the existing friction course, except structural course may be used in lieu of dense graded friction course.
- All shoulder pavement, curb, curb and gutter, and their substructure disturbed by utility trench cut construction shall be restored in kind.
- The use of flowable fill to reduce the time traffic is taken off a facility is acceptable but must have prior approval by the Engineer. Flowable fill use is allowed only when properly engineered for pavement crossings, whether straight or diagonal, and shall not be installed for significant depths or lengths. The maximum length shall be fifty (50) feet and a maximum depth of six (6) feet unless supported by an engineering document prepared by a registered professional engineer that specializes in soils engineering. The engineering document shall address the evaluation of local groundwater flow interruption and settlement potential.
- Excavatable flowable fill is to be used when the flowable fill option is selected.
NOTES:
1. These details are for construction field expedience to resolve utility conflicts that cannot be remedied by relocation. For conflicts determined during design, use the construction shop drawings for structure details.
2. Concrete used in conflict structures shall be as specified in ASTM C475. 4000 psi may be used in lieu of Class I concrete.
3. Maximum opening for pipe shall be the pipe OD plus 6". Mortar used to seal the pipe into the opening will be of such mix that shrinkage will not cause leakage into or out of the structure.
4. If the conflict structure is round or there are multiple inlet or outlet pipes, then the wall section should be reviewed for strength.
5. If during construction or the plans design process it is determined that a potable water supply line must pass through a storm drain structure, it must be in compliance with Chapter 62-555.314 (3) F.A.C. and shown on the design or construction plans and submitted to the Florida Department of Environmental Protection (FDEP) Administrator For Drinking Water in the respective FDEP District for review and comment. This index and rule citation provide accepted methods for addressing conflicts when and where they cannot be reasonably avoided. To be submitted along with the plans shall be a justification describing inordinate cost and the impracticality of avoidance. If identified, properly justified, and accomplished in accordance with this index, approval is granted. Upon request, the Utility Agency Owner (UAO) must provide support data on the cost of relocation or adjustment to the FDOT for submittal to the FDEP. See the following web site for District FDEP Drinking Water Contacts: www.dep.state.fl.us/water/drinkingwater/index.htm and click on "Organizations" on the menu to the right.

DESIGNER'S NOTES:
"Sumped" conflict manholes shall not be used unless the system is hydraulically designed to account for the headloss generated if the sump is completely blocked.

UTILITY CONFLICT CONDITION I
(Nonpressure Or Nonfluid Carrier Installations)

1. These details are for construction field expedience to resolve utility conflicts that cannot be remedied by relocation. For conflicts determined during design, use the construction shop drawings for structure details.
2. Concrete used in conflict structures shall be as specified in ASTM C475. 4000 psi may be used in lieu of Class I concrete.
3. Maximum opening for pipe shall be the pipe OD plus 6". Mortar used to seal the pipe into the opening will be of such mix that shrinkage will not cause leakage into or out of the structure.
4. If the conflict structure is round or there are multiple inlet or outlet pipes, then the wall section should be reviewed for strength.
5. If during construction or the plans design process it is determined that a potable water supply line must pass through a storm drain structure, it must be in compliance with Chapter 62-555.314 (3) F.A.C. and shown on the design or construction plans and submitted to the Florida Department of Environmental Protection (FDEP) Administrator For Drinking Water in the respective FDEP District for review and comment. This index and rule citation provide accepted methods for addressing conflicts when and where they cannot be reasonably avoided. To be submitted along with the plans shall be a justification describing inordinate cost and the impracticality of avoidance. If identified, properly justified, and accomplished in accordance with this index, approval is granted. Upon request, the Utility Agency Owner (UAO) must provide support data on the cost of relocation or adjustment to the FDOT for submittal to the FDEP. See the following web site for District FDEP Drinking Water Contacts: www.dep.state.fl.us/water/drinkingwater/index.htm and click on "Organizations" on the menu to the right.

UTILITY CONFLICT CONDITION II
(Pressure Or Fluid Carrier Installations)

1. These details are for construction field expedience to resolve utility conflicts that cannot be remedied by relocation. For conflicts determined during design, use the construction shop drawings for structure details.
2. Concrete used in conflict structures shall be as specified in ASTM C475. 4000 psi may be used in lieu of Class I concrete.
3. Maximum opening for pipe shall be the pipe OD plus 6". Mortar used to seal the pipe into the opening will be of such mix that shrinkage will not cause leakage into or out of the structure.
4. If the conflict structure is round or there are multiple inlet or outlet pipes, then the wall section should be reviewed for strength.
5. If during construction or the plans design process it is determined that a potable water supply line must pass through a storm drain structure, it must be in compliance with Chapter 62-555.314 (3) F.A.C. and shown on the design or construction plans and submitted to the Florida Department of Environmental Protection (FDEP) Administrator For Drinking Water in the respective FDEP District for review and comment. This index and rule citation provide accepted methods for addressing conflicts when and where they cannot be reasonably avoided. To be submitted along with the plans shall be a justification describing inordinate cost and the impracticality of avoidance. If identified, properly justified, and accomplished in accordance with this index, approval is granted. Upon request, the Utility Agency Owner (UAO) must provide support data on the cost of relocation or adjustment to the FDOT for submittal to the FDEP. See the following web site for District FDEP Drinking Water Contacts: www.dep.state.fl.us/water/drinkingwater/index.htm and click on "Organizations" on the menu to the right.
PARTIAL CUTS FOR RING AND COVER ADJUSTMENTS

NOTES

1. Cut-Lines must be straight and cleanly sawed.

2. Longitudinal Cut-Lines are the same for both rigid and flexible pavement.
   For Transverse Cut-Lines in rigid pavement, extend the Cut-Line to the nearest existing joint.

3. See Sheet 1 for replacement pavement.

NONTRENCH PAVEMENT CUTS FOR UNDERGROUND UTILITY STRUCTURES IN PAVEMENT
1. For Repair and Replacement Criteria see Sheet 2.

2. Full depth repairs consist of removing and replacing at least a portion of the existing slab to the bottom of the concrete.

3. Repair boundaries shall be sawn full-depth with diamond saw blades. On hot days, it may not be possible to make this cut without first making a wide, pressure relief cut within the repair boundaries. A carbide-tipped wheel saw may be used for this purpose, but the wheel saw must not intrude on the adjacent lane, unless the lane is slated for repair. The wheel saw cuts produce a ragged edge that promotes excessive spalling along joints. Hence, if wheel saw cuts are made, diamond saw cuts must be made 18 in. outside the wheel saw cuts. To prevent damage to the base, the wheel saw must not be allowed to penetrate more than 0.5 in. into the base.

4. No additional base or subgrade material shall be added and all loose base or subgrade material shall be removed prior to placement of the new concrete slab. The concrete slab shall be placed to the full depth of the material removed. No additional compensation will be allowed for additional concrete required to bring proposed concrete slab up to finished grade.

5. Removal of the damaged concrete pavement shall be by lifting. Any good concrete pavement which is damaged during removal of damaged areas shall be removed and replaced by the contractor at his expense.

6. If the roadway contract includes grinding, then the slab replacement shall be performed first.

7. During slab replacement operations, fill any saw cut overrun into adjacent slabs with epoxy.

8. Install tie bars at longitudinal joints when two full adjacent or multiple replaced slabs.
### Slab Repair and Replacement Criteria

<table>
<thead>
<tr>
<th>Distress Pattern</th>
<th>Severity/Description</th>
<th>Repair Method</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cracking</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitudinal</td>
<td>Light</td>
<td>None</td>
<td>Figure 10.2</td>
</tr>
<tr>
<td></td>
<td>- &lt;1/8&quot; no faulting, spalling &lt;1/2&quot; wide</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>Clean and Seal</td>
<td>Figure 10.2</td>
</tr>
<tr>
<td></td>
<td>- 1/8&quot; width &lt;1/2&quot;, spalling &lt;1/2&quot; wide</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Replace</td>
<td>Figure 10.3</td>
</tr>
<tr>
<td></td>
<td>- width &gt;1/2&quot;, spalling &gt;1/2&quot; faulting &gt;1/2&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transverse</td>
<td>Light</td>
<td>None</td>
<td>Figure 10.2</td>
</tr>
<tr>
<td></td>
<td>- &lt;1/8&quot; no faulting, spalling &lt;1/2&quot; wide</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>Clean and Seal</td>
<td>Figure 10.2</td>
</tr>
<tr>
<td></td>
<td>- 1/8&quot; width &lt;1/2&quot;, spalling &lt;1/2&quot; wide</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Replace</td>
<td>Figure 10.3</td>
</tr>
<tr>
<td></td>
<td>- width &gt;1/2&quot;, spalling &gt;1/2&quot; faulting &gt;1/2&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corner Breaks</td>
<td>A corner of the slab is separated by a crack that intersects the adjacent longitudinal and transverse joint, describing an approximate 45° angle with the direction of traffic.</td>
<td>Full Depth</td>
<td>Figure 10.4 and 10.5</td>
</tr>
<tr>
<td>Intersecting Random Cracks (Shattered Slab)</td>
<td>Cracking patterns that divide the slab into three or more segments.</td>
<td>Full Depth</td>
<td>Figure 10.4 and 10.5</td>
</tr>
<tr>
<td><strong>Joint Deficiencies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spall Nonwheel Path</td>
<td>Light</td>
<td>None</td>
<td>Figure 10.4 and 10.5</td>
</tr>
<tr>
<td></td>
<td>- spall width &lt;1/16&quot;, &lt; 1/2 slab depth, &lt;12&quot; in length</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>None</td>
<td>Figure 10.4 and 10.5</td>
</tr>
<tr>
<td></td>
<td>- 1/16&quot; &lt;spall &lt;1/8&quot;, &lt; 1/2 slab depth, &lt;1/2&quot; in length</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Full Depth</td>
<td>Figure 10.4 and 10.5</td>
</tr>
<tr>
<td></td>
<td>- spall width &gt;1/2&quot; or length &gt;12&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spall Wheel Path</td>
<td>Light</td>
<td>None</td>
<td>Figure 10.4 and 10.5</td>
</tr>
<tr>
<td></td>
<td>- spall width &lt;1/16&quot;, &lt; than 1/2 slab depth, &lt;1/2&quot; in length</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>Full Depth</td>
<td>Figure 10.4 and 10.5</td>
</tr>
<tr>
<td></td>
<td>- 1/16&quot; &lt;spall &lt;1/8&quot;, &lt; 1/2 slab depth, &lt;1/2&quot; in length</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Full Depth</td>
<td>Figure 10.4 and 10.5</td>
</tr>
<tr>
<td></td>
<td>- spall width &gt;1/2&quot; or length &gt;12&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Surface Deterioration</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pop Outs Nonwheel Path</td>
<td>Light</td>
<td>Keep under observation</td>
<td>Figure 10.4</td>
</tr>
<tr>
<td></td>
<td>Not deemed to be a traffic hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Full Depth</td>
<td>Figure 10.4</td>
</tr>
<tr>
<td></td>
<td>Spalling deemed a traffic hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pop Outs Wheel Path</td>
<td>Light</td>
<td>Full Depth</td>
<td>Figure 10.4</td>
</tr>
<tr>
<td></td>
<td>Deemed to be a traffic hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Full Depth</td>
<td>Figure 10.4</td>
</tr>
<tr>
<td></td>
<td>Spalling deemed a traffic hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Miscellaneous Distress</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faulting</td>
<td>Light</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Faulting &lt;1/32&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>Grind</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- faulting &lt;1/16&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Grind</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- faulting &gt;1/16&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane To Shoulder Drop Off</td>
<td>Light</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Spall &gt; than 0&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>Build Up</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- drop-off &lt;3&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Build Up</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- drop-off &gt;3&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Bleeding Or Pumping</td>
<td>Seeping or ejection of water through joints or cracks.</td>
<td>Install appropriate drainage, edge drain, permeable subbase, reseal joints, etc.</td>
<td>N/A</td>
</tr>
<tr>
<td>Blowups</td>
<td>Upward movement at transverse joints or cracks often accompanied by shattering of the concrete.</td>
<td>Full Depth</td>
<td>Figure 10.3 and 10.4</td>
</tr>
</tbody>
</table>
GENERAL NOTES:
1. Construct sidewalks in accordance with Specification Section 522.
2. Include detectable warnings on sidewalk curb ramps in accordance with Index 304.
3. For TURNOUTS see Index 515.
4. Bond breaker material can be any impermeable coated or sheet membrane or preformed material having a thickness of not less than 6 mils nor more than 1/32 in.
5. Construct sidewalks with Edge Beam through the limits of any surface mounted Pedestrian/Bicycle Railing or Pipe Guiderail shown in the plans. (See RAILING DETAIL)
6. When roadways or driveways are newly constructed, reconstructed or altered, construct the cross slopes for crosswalks and discontinuous sidewalks as follows:
   A. Cross Slope = 0.02 for roadways or driveway controlled by "STOP" Sign or "YIELD" sign.
   B. Cross Slope = 0.05 for roadways or driveways controlled by traffic signal.

LEGEND:
A- 1/8" Expansion Joints (Preformed Joint Filler)
B- 1/8" Dummy Joints, Tooled
C- 1/8" Formed Open Joints
D- 1/8" Saw Cut Joints, 1/8 Deep (within 96 hours) 5" Centers
E- 1/8" Saw Cut Joints, 1/8 Deep (within 12 hours) Max. 30 Centers
F- 1/8" Expansion Joint When Run Of Sidewalk Exceeds 30'. Intermediate locations when called for in the plans or at locations as directed by the Engineer.
G- Cold Joint With Bond Breaker, Tooled

SAWED JOINTS

LONGITUDINAL SECTION

SIDEWALK JOINTS

PLAN

SIDEWALK WITH UTILITY STRIP

PLAN

SIDEWALK WITHOUT UTILITY STRIP

SECTION A-A

SECTION B-B

RAILING DETAIL
**CONCRETE SIDEWALK ON FLUSH SHOULDER ROADWAYS**

**LONGITUDINAL SECTION**

**LEGEND:**

A - 1/2" Expansion Joints (Preformed Joint Filler)
B - 1/8" Dummy Joints, Tooled
C - 1/8" Formed Open Joints
D - 1/16" Saw Cut Joints, 1/8" Deep (within 96 hours) Max. 3' Centers
E - 1/16" Saw Cut Joints, 1/16" Deep (within 12 hours) Max. 30' Centers
F - 1/4" Expansion Joint When Run Of Sidewalk Exceeds 120'. Intermediate locations when called for in the plans or at locations as directed by the Engineer.

**SIDEWALK JOINTS**

**PLAN**

**CONCRETE SIDEWALK**