**Tollway Standard Drawing Revisions**

**Section B**

**Drainage Structures, Curbs, Curbs & Gutter**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Modification Summary</th>
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<tbody>
<tr>
<td>All</td>
<td>Revised detail descriptions to match Tollway Coded Pay Items. Updated drawings to follow IDOT highway standard levels.</td>
</tr>
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</table>

**B1**

**Gutter and Curb Details**

- **Sheet 1** Revised Note 7. Revised #4 bar minimum lap from 2'-0" to 1'-1".
- **Sheet 2** Revised gutter plan detail to Gutter, Type G-3.

**B2**

**Type G-2 and G-3 Gutter Transitions**

- **Sheet 1** Revised Note 6. Revised #4 bar minimum lap from 2'-0" to 1'-1".
- **Sheet 2** Revised gutter transition at bridge departure to 27'-3".

**B3**

**Type G-2 and G-3 Gutter Transition at TBT Type T6**

- **Sheet 3** Added gutter transition to concrete barrier, single-face.

**B4**

**Ditches and Dikes**

Standard has been retired.

**B5**

**Concrete Flumes**

Curb detail has been removed.

**B6**

**Headwall Type III**

- **Sheet 1** Relocated call out for station, offset and invert elevation to end of wall.
- **Sheet 2 & 3** Added 54" and 60" diameter pipes.
- **Sheet 2 & 3** Added table for 1:3 slope.
- **Sheet 4** Added alternate precast concrete details.

**B7**

**Catch Basin Type B**

Moved Slope Drain with new drainage structure for outlet control to Base Sheet Drawing M-DRN-601.

**B8**

**Catch Basins Type G and Types G Frames & Grates**

- **Sheet 1** Deleted note 7. Added notes 12-14.
- **Sheet 2** Catch Basin Type G-4.
- **Sheet 3** Catch Basin Type G-5.

**B9**

**Sloped Headwalls Type I and Type II**

**B10**

**Sloped Headwalls Type III Details**

Deleted detail for pipe at ditch flow line.

6" dimension added to detail for pipe above ditch flow line.

**B11**

**Sloped Headwalls Type IV Details**

Relocated call out for station, offset and invert elevation to end of wall.

**B12**

**Trench Drain Detail**

Revised maximum rollover to correspond with RDC.

Revised maximum slope at trench drain to correspond with RDC.

**B13**

**Safety End Treatment For Single Culverts 0° Skew 1:4 Slope H < 4’**

**B14**

**Safety End Treatment For Single and Multiple Culverts 0° Skew 1:4 Slope H ≤ 5’**

**B15**

**Safety End Treatment For Single Culverts 15° Skew 1:4 Slope H ≤ 4’**

**B16**

**Safety End Treatment For Single Culverts 15° Skew 1:4 Slope H ≤ 5’**

**B17**

**Safety End Treatment For Single Culverts 30° Skew 1:4 Slope H < 4’**

**B18**

**Safety End Treatment For Single and Multiple Culverts 30° Skew 1:4 Slope H < 8’ and S= Varies**

- Added ( E ) to bars to designate epoxy coated.

**B19**

**Erosion Protection**

- Added note 8.

**B20**

**Headwall Type IV Concrete Box Culvert ≤ 64” Width**

- Added ( E ) to bars to designate epoxy coated.

**B22**

**Headwall Type IV Metal Pipe and Pipe Arch Culverts**

- Added ( E ) to bars to designate epoxy coated.

**B24**

**Pipe Underdrains**

Revised dimension for pipe outlet above ditch flow line to 6’.

**B25**

**Gutter Transition at TBT Type T1 (Special)**

**B26**

**Gutter Transition at TBT Type T1-A (Special)**

Defined limits for placement of aggregate shoulders material types.

**B30**

**Headwalls Type I and Type II**

- Added ( E ) to bars to designate epoxy coated.

- Added note 11.

- Relocated call out for station, offset and invert elevation to end of wall.
GUTTER TRANSITION AT ENTRANCE RAMP TERMINALS

GUTTER TRANSITION AT EXIT RAMP TERMINALS

GUTTER TRANSITION NOTES:
1. PROVIDE 3 IN. EXPANSION JOINT IN CLOSED JOINT AREA BETWEEN TRANSITION SECTIONS AND WINDWALL.

GUTTER TRANSITION NOTES:
2. SEE STANDARD B3 FOR GUTTER TRANSITIONS AT BRIDGE APPROACHES.

GUTTER TRANSITION NOTES:
3. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DEPTH TO UNITS OF HORIZONTAL DEPTH (V/H).

GUTTER TRANSITION NOTES:
4. REINFORCEMENT BARS SHALL BE ACCURATELY PLACED AND FIRMLY HELD AT THE POSITION USING EPOXY COATED CLIPS. SPAN SPACING SHALL NOT EXCEED 6 IN.

GUTTER TRANSITION NOTES:
5. GUTTER REINFORCEMENT BARS SHALL BE PLACED 3 IN. ABOVE BOTTOM OF GUTTER FOLLOWING SUBGRADE SLOPE.

GUTTER TRANSITION NOTES:
6. CONTINUOUS #4 BARS SHALL BE UPLAPPED A MINIMUM OF 3 IN.
GUTTER, TYPE C-3 TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6, TO CONCRETE PARAPET

G-3 SECTION A-A
AT CONCRETE PARAPET
(SEE NOTE 8)

G-3 SECTION B-B
9'-3" FROM PARAPET

G-3 SECTION C-C
15'-10½" FROM PARAPET

G-3 SECTION D-D
57'-0" FROM PARAPET

LEGEND
A. AGGREGATE SHOULDERS SPECIAL, TYPE C

GUTTER TRANSITION NOTES:
1. SLOPE TO MATCH ADJACENT SHOULDER SLOPE.
2. PROVIDE 1" EXPANSION JOINT WITH PREFORMED JOINT FILLER BETWEEN TRANSITION SECTION AND RINGWALL OR BARRIER WALL.
3. INSTALLATION ON CURVED RINGWALLS SIMILAR.
4. FOR DETAILS OF SEE TOLLWAY STANDARD C-9 TRAFFIC BARRIER TERMINAL, TYPE T6.
5. GUTTER TRANSITIONS SHALL BE CONSTRUCTED TO FIT THE STANDARD LOCATION OF THE TRAFFIC BARRIER TERMINAL, TYPE T6.
6. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (°F).
7. GUTTER SECTION SHOWN AT BARRIER WALL TO MATCH VERTICAL PROFILE OF TYPE C-3 SAFETY EDGE. MODIFY GUTTER FACE TO MATCH OTHER PARAPET PROFILES.
8. CONTINUOUS #6 BARS SHALL BE LAPPED A MINIMUM OF 7'-11".

Date: 11/5/2005
Revisions:

Illinois Tollway
Type C-3/C-3 Gutter
Transition at Traffic Barrier Terminal, Type T6
Standard B3-05
Sheet 1 of 3
CONCRETE FLUME DETAILS

NOTES:
1. Concrete flumes shall be constructed flush with the adjacent existing or proposed surfaces.
2. Class 1 concrete shall be used throughout.
3. Welded wire fabric shall be epoxy coated 60 mil. or 6 mil. per 1,000 sq. ft.
4. An epoxy coated tie下了2'-4' long at 3'-12' o.c. shall be provided at all construction joints.
5. Epoxy coated expanded metal fabric or equivalent material may be used in lieu of welded wire fabric subject to Engineer's approval.
6. The location of the anchor wall may be adjusted as directed by the Engineer.
7. The materials and construction of the concrete flume shall conform to the applicable portions of the standard specifications.
8. All slopes are expressed as units of vertical displacement to units of horizontal displacement.

PLAN

SECTION A-A
ADJACENT TO GUTTER

SECTION B-B

NOTE:

d 0.8 ft. 18" 18" 18" 18"

CONCRETE FLUME

DATE: 7/1/2006

ILLINOIS TOLLWAY

STANDARD BS-02
<table>
<thead>
<tr>
<th>Dimensions and Quantities in One Headwall (Type III)</th>
<th>Reinforcement Bars Schedule for One Headwall (Type III)</th>
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<tr>
<td>Width (W)</td>
<td>Length (L)</td>
<td>Depth (D)</td>
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**Type 1**

**Type 2**
CATCH BASIN TYPE B

NOTES:
1. FOR MATERIALS AND CONSTRUCTION REQUIREMENTS OF THE CATCH BASIN, REFER TO THE STANDARD SPECIFICATIONS.
2. FRAME AND GRATE FOR CATCH BASIN TYPE B SHALL BE NEENAN FOUNDRY COMPANY TYPE B-425BC. EASY JOINTS IRON WORKS V2060-1 OR APPROVED EQUAL.
3. REINFORCEMENT BARS DESIGNATED "E" SHALL BE EPOXY COATED.
**REINFORCED CONCRETE LTD.**

**CATCH BASIN, TYPE G-3, MODIFIED**

**NOTES:**

1. PRECAST CONCRETE LIDS WILL BE ACCEPTED PROVIDED THEY MEET ALL THE REQUIREMENTS AS SHOWN ON THIS DRAWING. BARS EXTENDING 3' NOT COVERED BY PRECAST LID, SUBGRADE STRENGTH SHOWN ON DRAWING. REINFORCEMENT AND OTHER REQUIRED DETAILING WILL BE PROVIDED BY THE ENGINEER PRIOR TO CASTING.

2. CATCH BASIN, TYPE G-3 WILL BE USED ALONG RAMPS WHERE GROOVES TYPE G-2 IS PROVIDED.

3. CATCH BASIN, TYPE G-3 WILL BE USED ALONG RAMPS WHERE GROOVES TYPE G-3 IS PROVIDED.

4. CATCH BASIN, TYPE G-3 MODIFIED SHALL BE PROVIDED AND THE LOW SIDE OF SUPER-ELEVATED PAVEMENT.

5. CATCH BASIN, TYPE G-3 MODIFIED SHALL BE PROVIDED WITH A REINFORCED CONCRETE SLAB TOP AS DETAINED ON THIS DRAWING.

6. TYPE G-3 FRAME AND GRATE SHALL BE ROLL TYPE CURB 35006-80, EAST JORDAN IRON WORKS TYPE OR APPROVED EQUAL.

7. TYPE G-3 FRAME AND GRATE SHALL BE ROLL TYPE CURB 35007-80, EAST JORDAN IRON WORKS TYPE OR APPROVED EQUAL.

8. TYPE G-3 MODIFIED FRAME AND GRATE SHALL BE ROLL TYPE CURB 35006-80, EAST JORDAN IRON WORKS TYPE OR APPROVED EQUAL.

9. TYPE G-3 MODIFIED FRAME AND GRATE SHALL BE ROLL TYPE CURB 35007-80, EAST JORDAN IRON WORKS TYPE OR APPROVED EQUAL.

10. CATCH BASIN, TYPE G-3 MODIFIED FRAME AND GRATE SHALL BE ROLL TYPE CURB 35006-82, EAST JORDAN IRON WORKS TYPE OR APPROVED EQUAL.

11. CATCH BASIN, TYPE G-3 MODIFIED FRAME AND GRATE SHALL BE ROLL TYPE CURB 35007-82, EAST JORDAN IRON WORKS TYPE OR APPROVED EQUAL.

12. LID, E, EDGE OF PAVEMENT, SHALL BE PROVIDED.

13. ALL CONCRETE SHALL BE CLASS SI CONCRETE.
NOTES:

1. See Sheet 1 of this series for additional notes.
2. Catch basin type G-4 shall be used in tangent sections and on the low side of super-elevated pavement.
3. Catch basin type G-4 shall be provided with a reinforced concrete slab top as detailed on this drawing.
4. Catch basin type G-4 shall be used when gutter type G-3 is provided.
5. Mortar or sealer shall be used when a precast reinforced concrete lid is used.
6. Edge of shoulders, frame and grate pin elevation and offsets measured at this point.
7. 36'-2" max. overall pipe for type G-4 catch basin.
8. All concrete shall be Class C3 concrete.
9. Distance from 1 outfall pipe to 2 roadway to be verified by engineer.

Illinois Tollway
CATCH BASINS: TYPE G AND
TYPE G MODIFIED, FRAMES AND GRATES
STANDARD BB-05
TYPICAL REINFORCEMENT AROUND STORM SEWER PIPE

REINFORCED CONCRETE LID
TYPE G-3 FRAME AND GRATE

REINFORCED CONCRETE LID
TYPE 20A FRAME AND GRATE

CATCH BASIN TYPE G-5

NOTES:

1. SEE SHEET 1 OF THIS SERIES FOR ADDITIONAL NOTES.
2. CATCH BASIN TYPE G-5 SHALL BE USED IN GROUPS SECTIONS AND ON THE LOW SIDE OF SUPERELEVATED PAVEMENT.
3. CATCH BASIN TYPE G-5 SHALL BE PROVIDED WITH A REINFORCED CONCRETE SLAB TOP AS DETAILED ON THIS DRAWING.
4. CATCH BASIN TYPE G-5 SHALL BE USED WHEN OTHER TYPE G-3 IS PROVIDED.
5. MATERIAL ON SEWER SHALL BE USED WHEN A PRECAST REINFORCED CONCRETE LID IS USED.
6. EDGE OF SLUICED FRAME AND GRATE FOR ELEVATION AND OFFSET MEASURED AT THIS POINT.
7. BOTH MAN, OUTWALL PIPE FOR TYPE G-5 CATCH BASIN.
8. ALL CONCRETE SHALL BE CLASS 35 CONCRETE.
9. DISTANCE FROM G OUTWALL PIPE TO 8 ROADWAY TO BE DETEMED BY ENGINEER.
NOTES:
1. THE SLOPED HEADWALL TYPE IV SHALL BE CONSTRUCTED FLUSH WITH PROPOSED SLOPE.
2. THE SLOPED HEADWALL DETAILS SHOWN ON THIS DRAWING ARE FOR USE ONLY WITH PIPE USING AN INSIDE DIAMETER OF 20" OR LESS.
3. CLASS 30 CONCRETE SHALL BE USED THROUGHOUT.
4. HELD WIRE FABRIC SHALL BE EPOXY COATED STEEL WIRE FABRIC EXCEPT AS NOTED.
5. QUANTITIES FOR CONCRETE HEADWALLS CLASSES II AND HELD WIRE FABRIC SHOWN IN THE SCHEDULE OF QUANTITIES ARE BASED ON THE FOLLOWING:
   A. DIMENSION THEOPE PIPE ID OR ARCH SPAN.
   B. SLOPED HEADWALL TYPE IV LENGTH IS 20'-0" minus.
   C. BACKFILL AND FIRING WALL SPACES ARE THE SAME ADJUSTMENT TO QUANTITIES FOR HEADWALLS WITH CONDITIONS OR BACKFILL/FIRING WALL COMBINATIONS OTHER THAN ABOVE SHALL BE INDICATES ON THE PLANS.
   D. THE QUANTITIES ARE SHOWN FOR INFORMATION ONLY.
6. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DEVIATION FROM TOP OF HORIZONTAL DEVIATION.

QUANTITIES FOR SLOPED HEADWALLS TYPE IV

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<th>T</th>
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DATE: (DD/MM/YYYY)
REVISIONS:

SLOPED HEADWALLS
TYPE IV DETAILS

STANDARD B11-04
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<th>D (mm)</th>
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### Notes for Table of Dimensions
1. The number of X and Y bars shall be determined per ENL.
2. The length of X and Y bars shall be determined per ENL.
3. The reinforcement bars shall be protected by a protective coating of ENL or ENL.
4. The number of X and Y bars shall be determined per ENL.
5. The number of X and Y bars shall be determined per ENL.

### Diagrams
- [Diagram of ENL Bars]
- [Diagram of PE Bars]
- [Diagram of STE Bars]
- [Diagram of Tie Bars]

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Approved: [Signature]
Date: [Date]
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<th>TUBE LENGTHS FOR ONE END COIL</th>
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**TABLE OF RECOMMENDED LENGTHS FOR ONE END**

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**NOTES**

Reinforcement bars designating foundations are not cut off.

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**PIECE ARCH AND ELLIPICAL PIPE CULVERTS**

The design of the structural parts and the structural elements of concrete in the reservoir shall be added to the structural design.
### Table of Dimensions


### Table of Requirements for One End

#### Cross Section - One Pipe from Each Section

| W | L | H | W1 | L1 | H1 | W2 | L2 | H2 | W3 | L3 | H3 | W4 | L4 | H4 | W5 | L5 | H5 | W6 | L6 | H6 | W7 | L7 | H7 | W8 | L8 | H8 | W9 | L9 | H9 | W10 | L10 | H10 | W11 | L11 | H11 |

#### Cross Section - One Pipe from Each Section

| W | L | H | W1 | L1 | H1 | W2 | L2 | H2 | W3 | L3 | H3 | W4 | L4 | H4 | W5 | L5 | H5 | W6 | L6 | H6 | W7 | L7 | H7 | W8 | L8 | H8 | W9 | L9 | H9 | W10 | L10 | H10 | W11 | L11 | H11 |

### Table of Requirements for One End

#### Cross Section - One Pipe from Each Section

| W | L | H | W1 | L1 | H1 | W2 | L2 | H2 | W3 | L3 | H3 | W4 | L4 | H4 | W5 | L5 | H5 | W6 | L6 | H6 | W7 | L7 | H7 | W8 | L8 | H8 | W9 | L9 | H9 | W10 | L10 | H10 | W11 | L11 | H11 |

### Notes for Tables:

1. The number of #1 bars shall not exceed 8 for each 10' of increase in dimension W.
2. The number of #2 bars shall not exceed 10 for each 10' of increase in dimension L.
3. The number of #3 bars shall not exceed 15 for each 10' of increase in dimension H.

### Diagrams:

- **Kiel BARS**
- **Kiel and Kiel BARS**
- **Kiel Dowels**
- **Kiel and Kiel Dowels**
- **Ziel BARS**
- **Kiel and Ziel BARS**

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**Notes:**

- 2 bars for 30' wall, 3 bars for 40' wall.
- The length of the bar shall be determined as per the previous note.
### Table of Dimensions

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<th>Dim 3</th>
<th>Dim 4</th>
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<th>Dim 6</th>
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### Table of Reinforcement Bars for One End

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<th>Depth</th>
<th>Area</th>
<th>Stress</th>
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<th>3 Bars</th>
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<th>5 Bars</th>
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</table>

### Note
- Reinforcement bars' design dimensions are out to out, in inches.
- Tolerances for electrical pipe shall be ± 1/8 inch for all other pipe, ± 1/4 inch for steel pipe, ± 3/8 inch for all HDPE pipe, and ± 1/2 inch for all chlorinated polyvinyl chloride (CPVC) pipe.
- If the depth of the reinforcing steel is more than the specified, the additional amount of concrete in the foundation shall be added to the quantities shown.

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**Example Diagrams**

- **Pipe Bends and Elliptical Pipe Culverts**
- **Pipe Bends**
- **Field Cutting Diagram**
- **Pipe and under Bar**
- **Heli-Dowels**

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**Sheet 2 of 2**

**Safety End Treatment**
- For single culverts with a slope of 1:4
- **Standard B7-04**
NOTES:
1. THE PREFERRED METHOD FOR ACHIEVING EROSION PROTECTION AT END SECTIONS SHALL BE THROUGH THE USE OF PRODUCTS THAT PROMOTE REFORESTATION WITHIN THE AREA OF CONCERN.
2. THICKNESS "T" WILL BE DETERMINED BY THE MANUFACTURER'S RECOMMENDATION FOR THE PRODUCT USED.
3. EROSION PROTECTION PLACEMENT SHALL BE INSTALLED FLUSH WITH ADJACENT GRADE.
4. FOR USE WITH STANDARDS BID TO B18.
5. STONE RIPRAP SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND DRAINAGE DESIGN MANUAL.

PLAN-O" SKEW, H = 4'
PLAN-O" SKEW, H = 8'
PLAN-SKEW, H = 4'
PLAN-SKEW, H = 8'
SECTION A-A
SECTION AT HEADWALL
SECTION B-B
NOTES:

1. ALL FRAMES AND GRATES SHALL CONFORM TO THE REQUIREMENTS OF ART. 100.44.4 FOR GRAY IRON CASTINGS AND TO ART. 100.45.5 FOR DUCTILE IRON CASTINGS.

2. FRAME AND GRATE TO BE NEEHAN FOUNDRY COMPANY, NEEHAN NO. R5E-144-1, EAST JORDAN IRON WORKS T525 OR APPROVED EQUAL.

3. GRATE SHALL NOT BE BOLTED TO FRAME.
NOTE:

1. ALL FRAMES AND GRATES SHALL CONFORM TO THE REQUIREMENTS OF ART. 105.144 FOR GRAY IRON CASTINGS AND TO ART. 105.125 FOR DUCTILE IRON CASTINGS.

2. FRAME AND GRATE TO BE NEENAH FOUNDRY COMPANY, NEENAH NO. R-1057-AF EAST JORDAN IRON WORKS 7540 OR APPROVED EQUAL.

3. GRATE SHALL NOT BE BOLTED TO FRAME.

4. CURB BOX SHALL BE BOLTED TO FRAME WITH 3/4" GALVANIZED NUTS, BOLT AND NUT WITH GALVANIZED WASHERS.

5. CURB BOXES SHALL ONLY BE USED AT SAG LOCATIONS.
 sectional 8" x 1" safety bar (shown in top view only)

frames bolted together w:
3 5/8" x 3 galv. hex. bolts
bolt and nut w/ galv. washers

SECTION A-A
CAST FRAME

SECTION B-B
NOTES:
1. ALL FRAMES AND GRATES SHALL CONFORM TO THE REQUIREMENTS OF ART. 1026.4 FOR GRAY IRON CASTINGS AND TO ART. 1006.5 FOR DUCTILE IRON CASTINGS.
2. FRAME AND GRATE TO BE NEENAH FOUNDRY COMPANY, NEENAH NO. R-3024-W, EAST JORDAN IRON WORKS 7536 OR APPROVED EQUAL.
3. GRATE SHALL NOT BE BOLTED TO FRAME.
DIRECTION OF TRAFFIC

GUTTER, TYPE G-3, MODIFIED 1ST-D-72

EDGE OF PAVEMENT

GUTTER TRANSITION

6'-0"

EDGE OF PAVEMENT

EDGE OF PAVEMENT

6'-0"

GUTTER TRANSITION

6'-0"

GUTTER, TYPE G-3

6'-0"

GUTTER TRANSITION

DRAINAGE STRUCTURE AS REQUIRED

PLAN

- BACK OF GUTTER

18'-0"

6" TAPER

500 TAPER

12'-0"

6" TAPER

DRAINAGE STRUCTURE AS REQUIRED

40'-0" AGGREGATE SHOULDERS, TYPE B

AGGREGATE SHOULDERS SPECIAL, TYPE C

SECTION A-A

FACE OF RAIL

VARIABLE

2'-3\% MIN.

Paved Shoulder

- Aggregate Shoulders Special, Type C

Gutter, Type G-3, Modified

Ground Line

SECTION B-B

FACE OF RAIL

2'-3\%

Paved Shoulder

- Aggregate Shoulders Special, Type C

Gutter, Type G-3

Ground Line

NOTES:

Gutter transitions will be paid for per foot as gutter, Type G-3.

Illinois Tollway

STANDARD B28-03

Sheet 1 of 3
PLAN

SECTION A-A

GUTTER, TYPE G-2 TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL)

SECTION B-B

NOTES:
GUTTER TRANSITIONS WILL BE PAID FOR PER FOOT AS GUTTER, TYPE G-2.
GUTTER TRANSITION AT TRAFFIC BARRIER TERMINAL
TYPE TI (SPECIAL)

SECTION A-A

SECTION B-B
ASPHALT SHOULDER TRANSITION

SECTION C-C
GUTTER, TYPE G-3, MODIFIED TRANSITION

SECTION D-D

SECTION E-E

NOTES:
GUTTER TRANSITIONS WILL BE PAID FOR PER FOOT AS GUTTER, TYPE G-3.

ILLINOIS TOLLEWAY
APPROVED: 8/28/2000

SHEET 3 OF 3

STANDARD G28-03
GUTTER TRANSITION WILL BE PAID FOR PER FOOT AS GUTTER, TYPE G-2.