**Illinois Tollway Standard Drawing Revisions**

**Section C  Guardrail / Median Barrier**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Modification Summary</th>
<th>Effective: 03-31-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C1</strong></td>
<td>Galvanized Steel Plate Beam Guardrail</td>
<td></td>
</tr>
<tr>
<td>Sheet 1</td>
<td>Revised notes. Deleted the previous Note 5, and replaced with the previous Note 13.</td>
<td></td>
</tr>
<tr>
<td>Sheet 2</td>
<td>Revised shoulder slope to percentage in details.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Revised &quot;Impervious Material&quot; to &quot;Rock Formation&quot; in footing for post detail to match AASHTO RDG.</td>
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<tr>
<td><strong>C4</strong></td>
<td>Concrete Shoulder Barrier Transition Type F</td>
<td></td>
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<tr>
<td></td>
<td>Added that face of barrier is flush to abutment, pier or crashwall in Section D-D.</td>
<td></td>
</tr>
<tr>
<td><strong>C6</strong></td>
<td>Shoulder Widening for Traffic Barrier Terminal, Type T1 (Special) Tangent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased shoulder width through terminal area behind terminal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Revised foreslope to 1:3 (Maximum) and 1:6 (Desirable) in Sections A-A and B-B.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Revised &quot;Extruder&quot; to &quot;Impact&quot; for terminal head.</td>
<td></td>
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<tr>
<td></td>
<td>Revised shoulder slope to percentage in Sections A-A and B-B.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clarified Shoulder widening configuration.</td>
<td></td>
</tr>
<tr>
<td><strong>C7</strong></td>
<td>Traffic Barrier Terminal, Type T2</td>
<td></td>
</tr>
<tr>
<td>Sheet 1 &amp; 2</td>
<td>Revised shoulder slope to percentage in Sections A-A (sheet 1) and B-B (sheet 2).</td>
<td></td>
</tr>
<tr>
<td>Sheet 2</td>
<td>Added note to toe nail wood block into post in Section B-B. Added 1:6 (Max.) foreslope.</td>
<td></td>
</tr>
<tr>
<td>Sheet 3</td>
<td>Added note for minimum two threads extending beyond nut face in Cable Assembly Detail.</td>
<td></td>
</tr>
<tr>
<td><strong>C9</strong></td>
<td>Traffic Barrier Terminal, Type T6</td>
<td></td>
</tr>
<tr>
<td>Sheet 1 &amp; 2</td>
<td>Revised shoulder slope to percentage in Sections A-A and B-B.</td>
<td></td>
</tr>
<tr>
<td>Sheet 1</td>
<td>Added note 12 that drainage structures are not allowed within terminal limits</td>
<td></td>
</tr>
<tr>
<td><strong>C10</strong></td>
<td>Traffic Barrier Terminal, Type T6B</td>
<td></td>
</tr>
<tr>
<td>Sheet 1</td>
<td>Revised shoulder slope to percentage in Section A-A.</td>
<td></td>
</tr>
<tr>
<td>Sheet 2</td>
<td>Added note to cut bolts flush and damage to detail for Wood Block-Out D</td>
<td></td>
</tr>
<tr>
<td><strong>C11</strong></td>
<td>Traffic Barrier Terminal, Type T10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Revised parapet/barrier shape in elevation views.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Added 3'-6&quot; (max.) length from parapet end to nearest drilled holes in tapered and curved wing details.</td>
<td></td>
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<tr>
<td></td>
<td>Revise flared wing angle to meet MASH deflection for first post.</td>
<td></td>
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<tr>
<td><strong>C12</strong></td>
<td>Shoulder Widening for Traffic Barrier Terminal, Type T1-A (Special)</td>
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<tr>
<td></td>
<td>Revised shoulder slope to percentage in Sections A-A and B-B.</td>
<td></td>
</tr>
<tr>
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<td>Revised foreslope to 1:3 (Maximum) and 1:6 (Desirable) in Sections A-A and B-B.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Added note 10 that drainage structures are not allowed within terminal limits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clarified Shoulder widening configuration.</td>
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</tbody>
</table>

**New Sheet Retired Standard**

Effective: 03-31-2017
GUARDRAIL INSTALLATION DETAILS

FILL SECTION WITH GUTTER

- PAVED SHOULDER
- GUTTER OF TYPE SPECIFIED
- STEEL POST 6'-0" LONG
- SEE NOTE 11
- TOP OF RAIL
- GROUND LINE
- APPROVED FILL MATERIAL AS REQUIRED
- AGGREGATE SHOULDERS SPECIAL, TYPE C
  (SEE NOTES 4 AND 7)

CUT SECTION WITH GUTTER

- PAVED SHOULDER
- GUTTER OF TYPE SPECIFIED
- STEEL POST 6'-0" LONG
- SEE NOTE 11
- TOP OF RAIL
- GROUND LINE
- APPROVED FILL MATERIAL AS REQUIRED
- AGGREGATE SHOULDERS SPECIAL, TYPE C
  (SEE NOTE 4)

SECTION WITHOUT GUTTER

- STEEL POST 6'-0" LONG
- SEE NOTE 11
- TOP OF RAIL
- GROUND LINE
- APPROVED FILL MATERIAL AS REQUIRED
- AGGREGATE SHOULDERS SPECIAL, TYPE C
  (SEE NOTE 4)

NOTES:

1. 1'-0" OFFSET FROM EDGE OF PAVED SHOULDER TO FACE OF RAIL IS TYPICAL FOR ALL INSTALLATIONS WITHOUT GUTTER EXCEPT AS OTHERWISE DETAILLED IN THE PLAN DRAWINGS.

2. WHERE GUARDRAIL POSTS ARE LOCATED 6" BEHIND THE GUTTER, OR AS OTHERWISE DETAILLED IN THE PLANS, THE OFFSET FROM THE EDGE OF SHOULDER TO FACE OF GUARDRAIL SHALL BE AS SHOWN ON STANDARD B28.

3. THE 245° TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 1'-0" IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER. WHEN EDGE IS MORE THAN 1'-0" IN FRONT OF RAIL TO CENTER OF RAIL, THE 245° TYPICAL RAIL HEIGHT IS MEASURED FROM EDGE OF PAVED SHOULDER SLOPING AWAY TO A 6" MIN. THICKNESS.

4. WHERE GUARDRAIL IS PROPOSED WITH GUARDRAIL, A 6" MINIMUM THICKNESS OF AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL BE PLACED BEHIND GUARDRAIL. FOR GUARDRAIL WITHOUT GUTTER, AGGREGATE SHOULDER, TYPE C, OF THE SAME THICKNESS AS PAVED SHOULDER SHALL BE PLACED FROM THE EDGE OF PAVED SHOULDER SLOPING AWAY TO A 6" MIN. THICKNESS.

5. GUARDRAIL POSTS SHALL NOT BE ATTACHED TO ANY STRUCTURE.

6. PLASTIC BLOCK-OUTS SHALL NOT BE ALLOWED AS A SUBSTITUTE FOR WOOD BLOCK-OUTS ON NEW INSTALLATIONS.

7. WHEN S IS GREATER THAN OR EQUAL TO 3 AND 3'-0" AGGREGATE SHOULDER WIDTH CANNOT BE MET, THE POST LENGTH SHALL BE 9'-0" AND THE AGGREGATE SHOULDER WIDTH SHALL BE 3'-0" BEHIND THE POST TO THE SHOULDER POINT.

8. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENTS (V/H).

9. UNDER NO CIRCUMSTANCES SHALL AN EXISTING GUARDRAIL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE EXTENDED, ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.

10. WHEN S IS GREATER THAN OR EQUAL TO 3, THE POST LENGTH SHALL BE 9'-0" AND 4'-0" AGGREGATE SHOULDER WIDTH MAINTAINED.

11. THE GUARDRAIL SYSTEM HAS BEEN PERFORMANCE-TESTED FOR CRASHWORTHINESS UNDER PROCEDURES DEFINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350. NO MODIFICATION TO THIS STANDARD DRAWING SHALL BE PERMITTED.

12. GUARDRAIL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENT. WHEN NECESSARY USE LEAVE-OUT DETAIL ON SHEET 3 OF 4 OF THIS SERIES.
**BEAM GUARDRAIL**

**GALVANIZED STEEL PLATE**

**APPROVED**

**DATE**

**CHIEF ENGINEER**

5-1-2009

SHEET 2 OF 4

**TABLE 1**

<table>
<thead>
<tr>
<th>V</th>
<th>W</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 16/6&quot;</td>
<td>24&quot;</td>
<td>21&quot;</td>
</tr>
<tr>
<td>&gt; 16/6&quot; - 28/6&quot;</td>
<td>12&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>&gt; 28/6&quot; - 40/6&quot;</td>
<td>12&quot; + 0&quot;</td>
<td>8&quot;</td>
</tr>
</tbody>
</table>
* V + W = 40/6"

**ELEVATION**

**TYPE A**

6'-3" TYPICAL POST SPACING

**PLAN**

**FINISHED GROUND LINE**

**TOP OF ROCK FORMATION**

**AGGREGATE BACKFILL (CA 11)**

**DRILLED HOLE**

**ELEVATION**

**FOOTING FOR POST WHEN ROCK FORMATION IS ENCOUNTERED**

**STANDARD C1-09**

**GALVANIZED STEEL PLATE BEAM GUARDRAIL**

**WOOD BLOCK-OUT AND STEEL POST DETAILS**

**NOTES**

ALL HOLES 3/4" DIA.

**TWO-PIECE WOOD BLOCK-OUT OPTION**

**SEE DETAIL - SHEET 3**

**RAIL ELEMENT SPLICE**
BEAM GUARDRAIL

GALVANIZED STEEL PLATE

APPROVED

DATE

CHIEF ENGINEER

5-1-2009

SHEET 3 OF 4

PLAN

ELEVATION

LEAVE-OUTS

† THE AREA AROUND THE POST THAT IS EITHER OMITTED FROM THE NEW CONSTRUCTION OR REMOVED FROM THE EXISTING CONCRETE OR ASPHALT.
**TABLE 2 - BARRIER CLEARANCE DISTANCE**

<table>
<thead>
<tr>
<th>GUARDRAIL SYSTEM</th>
<th>POST SPACING</th>
<th>CURRENT</th>
<th>CONSTRUCTION AFTER 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE A</td>
<td>6'-3&quot;</td>
<td>28&quot;</td>
<td>39&quot;</td>
</tr>
<tr>
<td>1/2 POST SPACING</td>
<td>3'-1 1/2&quot;</td>
<td>23&quot;</td>
<td>34&quot;</td>
</tr>
<tr>
<td>TYPE C</td>
<td>1'-6 1/2&quot;</td>
<td>14&quot;</td>
<td>26&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**
- No modifications of any kind to the transition post spacing are allowed.
- When length of obstacles is 1'-3" or less, the downstream transition shall be omitted.
- Post spacing transitions.

**NOTES:**
- Guardrail posts shall not be eliminated; all posts must be used. Posts adjacent to repositioned posts may need to be moved to keep 3'-1 1/2" minimum spacing.
- Guardrail posts shall not be set back to avoid conflicts with a drainage structure.
- Two posts are required.

**NOTES:**
- This detail also applies to other underground conflicts.

**TABLE 2 - BARRIER CLEARANCE DISTANCE**

<table>
<thead>
<tr>
<th>GUARDRAIL SYSTEM</th>
<th>POST SPACING</th>
<th>CURRENT</th>
<th>CONSTRUCTION AFTER 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE A</td>
<td>6'-3&quot;</td>
<td>28&quot;</td>
<td>39&quot;</td>
</tr>
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</tr>
<tr>
<td>TYPE C</td>
<td>1'-6 1/2&quot;</td>
<td>14&quot;</td>
<td>26&quot;</td>
</tr>
</tbody>
</table>
CONCRETE BARRIER, DOUBLE FACE, 42"
CONCRETE BARRIER BASE, 7'-0"

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, VARIABLE HEIGHT, 7'-0"
(BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 0" TO 3")

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, 5'-0"
(BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 3" TO 9")

NOTES:
1. 2" DEEP CONTRACTION JOINTS SHALL BE DONE BY SAWING AND SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL, CONCRETE BARRIER BASE, AND CONCRETE GUTTER (SPECIAL). CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0". THE MINIMUM DISTANCE BETWEEN CONTRACTION JOINTS IN THE MEDIAN BARRIER WALL SHALL BE 2'-0", WHEN A DRAINAGE STRUCTURE FALLS WITHIN 2'-0" FROM AN EXPANSION JOINT OR CONTRACTION JOINT, THE NEAREST CONTRACTION JOINT SHALL BE OMITTED.

2. GUTTER PROFILE IN THE VICINITY OF SAC VERTICAL CURVES, ALONG FLAT GRADES AND AT THE MEETING OF PROPOSED AND EXISTING GUTTER, SHALL BE CAREFULLY CONTROLLED AND FIELD ADJUSTED IF NECESSARY TO ENSURE POSITIVE DRAINAGE AND AVOID POONING.

3. IN AREAS OF RELATIVELY FLAT LONGITUDINAL PROFILE GRADES, THE 3" VERTICAL DIMENSION AT THE BOTTOM OF THE BARRIER CAN VARY FROM 2" TO 3/4" TO CREATE AN ACCEPTABLE LONGITUDINAL GRADE IN THE GUTTER.

4. REFERENCE PLAN SHEET FOR TYPE, SIZE AND NUMBER OF CONDUITS, PROVIDE 1/2" MIN. CLEARANCE TO THE TOP OF CONDUIT AND 2" MIN. CLEARANCE TO THE BOTTOM OF THE CONDUIT.

5. WHEN VARIABLE HEIGHT VERTICAL DIFFERENTIAL EXCEEDS 9" SEE STRUCTURAL PLANS FOR DETAILS.

6. GUTTER SLOPE SHALL BE 4.17% SLOPED TOWARD THE MEDIAN UNLESS OTHERWISE NOTED. GUTTER SLOPE IS REVERSE PITCHED IN SUPERELEVATED SECTIONS, TRANSITION GUTTER SLOPE OVER 30'-0". GUTTER SLOPE TRANSITIONS ARE INCLUDED IN THE COST OF CONCRETE GUTTER (SPECIAL). CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF THE CONDUIT.

7. WHEN 6" OR GREATER ADD TOP TIE BAR.

8. WHEN 6" OR GREATER AND TOP TIE BAR.
SHOULDER WIDENING TRANSITION-WITHOUT GUTTER FOR TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT

GENERAL NOTES:

1. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

2. REFERENCE ILLINOIS TOLLWAY STANDARD DRAWING B28 FOR GUTTER TRANSITION, AND MINIMUM DISTANCE FROM EDGE OF PAVED SHOULDER TO FACE OF RAIL.

3. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANY WAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.

4. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS AND SPECIFICATIONS.

5. NO ABOVE-GROUND ROADSIDE OBSTACLE OF ANY TYPE—FIXED OR BREAKAWAY, EITHER TEMPORARY OR PERMANENT SHALL BE ALLOWED WITHIN THIS RECOVERY AREA.

6. ON TANGENT ROADWAY, TRAFFIC BARRIER TERMINAL SHALL BE INSTALLED AT A 50:1 TAPER MEASURED FROM EDGE OF TRAVELED WAY, ON CURVED ROADWAY, THE EDGE OF THE TERMINAL IMPACT HEAD SHALL BE OFFSET A DISTANCE FROM A POINT ON THE BACK OF THE CURVED EDGE OF PAVED SHOULDER AS SHOWN IN TABLE 1. NO CURVED W-BEAM SECTIONS ARE PERMITTED WITHIN THE TERMINAL PAY LIMITS. THE TERMINAL SHALL BE LAID OUT IN A STRAIGHT LINE.

7. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR HMA. When necessary use leave-out detail shown on Illinois Tollway Standard Drawing C1.

8. THE TERMINAL SYSTEM HAS BEEN PERFORMANCE-TESTED FOR CRASHWORTHINESS UNDER PROCEDURES DEFINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH REPORT (NCHRP) REPORT 350. NO MODIFICATION TO THIS STANDARD DRAWING SHALL BE PERMITTED.

9. WHEN GUTTER IS PRESENT, DRAINAGE STRUCTURES SHALL NOT BE INSTALLED WITHIN THE TERMINAL LIMITS, BUT SHALL BE INSTALLED UPSTREAM AND DOWNSTREAM OF THE TERMINAL, AS REQUIRED.
TRAFFIC BARRIER TERMINAL TYPE T1 (SPECIAL) TANGENT

SHOULDER WIDENING TRANSITION WITH GUTTER, TYPE G-3 OR TYPE G-2 FOR
TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT

TABLE 1
LATERNAL OFFSET DIMENSION TO EDGE OF TERMINAL IMPACT HEAD

<table>
<thead>
<tr>
<th></th>
<th>INSIDE RADIUS OF CURVE</th>
<th>OUTSIDE RADIUS OF CURVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO GUTTER</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
</tr>
<tr>
<td>GUTTER, TYPE G-2</td>
<td>1'-2&quot;&quot;</td>
<td>1'-2&quot;&quot;</td>
</tr>
<tr>
<td>GUTTER, TYPE G-3</td>
<td>2'-2&quot;&quot;</td>
<td>2'-2&quot;&quot;</td>
</tr>
</tbody>
</table>

* Offset distance will vary based on radius of horizontal curve and the terminal being installed in a straight line.

SEE SHEET 1 OF THIS SERIES FOR NOTES.
TRAFFIC BARRIER TERMINAL, TYPE T2-WITHOUT GUTTER

NOTES:
1. See Illinios Tollway Standard Drawing C1 for details of guardrail not shown.
2. The bearing plate K shall be held in position by two 8D nails driven into the post and bent over the top of the plate.
3. The traffic barrier terminal type T2 is typically utilized for the departing end section of a galvanized steel plate beam guardrail barrier system.
4. Under no circumstances shall an existing terminal that was designed using a previous standard be attached to or modified in any way from its original design. If any modification is required and a proper barrier warrant has been completed, the entire barrier installation shall be completely removed and replaced with a new system that conforms to the current standard.
5. Traffic barrier terminal shall be in accordance with the Illinios Tollway's details and specifications. No modifications shall be permitted.
6. Terminal posts shall not be installed in concrete or asphalt pavement. When necessary use leave-out detail per Illinios Tollway Standard Drawing C1.
7. Where gutter, type G-2 or Gutter, type G-3 are required in front of the guardrail, the posts shall be located 6" behind the gutter, or as otherwise detailed in the plans. The offset from the edge of shoulders to the face of the guardrail shall be as shown on Illinios Tollway Standard Drawing B28.

TRAFFIC BARRIER TERMINAL, TYPE T2-WITHOUT GUTTER
TRAFFIC BARRIER TERMINAL, TYPE T2 (1 EACH)

ELEVATION

TRAFFIC BARRIER TERMINAL, TYPE T2-WITH GUTTER

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
NOTE:
ON TRAFFIC BARRIER TERMINALS.
CABLE ASSEMBLY TO GUARDRAIL WHEN REQUIRED
ANCHOR PLATE T SHALL BE USED TO ATTACH
ON FRONT FACE (8 REQUIRED)
ON FRONT FACE.
NOTE:
STUD THREADED
LOCKNUTS AND ¼" WASHER
(40,000 LBS.) MIN. BREAKING STRENGTH
TIGHTEN TO TAUT TENSION
STANDARD SWAGE FITTING AND STUD (STUD THREADED ENTIRE LENGTH)
STANDARD C7-08
TRAFFIC BARRIER TERMINAL,
TYPE T2
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
NOTES:
1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THREE BEAM RAIL SHALL BE BOLTED TO BLOCK-OUT AT ALL POSTS.
3. THE TRAFFIC BARRIER TERMINAL, TYPE T6 IS TYPICALLY UTILIZED TO ATTACH GALVANIZED STEEL PLATE BEAM GUARDRAIL AT THE UPSTREAM END OF THE BRIDGES CONCRETE PARAPET, WHERE A ROADSIDE GUTTER IS TO BE INSTALLED.
4. SEE ILLINOIS TOLLWAY STANDARD DRAWING B3 FOR GUARDRAIL TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6.
5. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANY MANNER FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
6. TRAFFIC BARRIER TERMINAL, TYPE T6 SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS, NO MODIFICATIONS SHALL BE PERMITTED.
**Traffic Barrier Terminal, Type T6**

**Sheet 2 of 5**

**Approved Date:** 7-1-2009

**Chief Engineer:**

---

**Plan**

- **Single Section of THREE BEAM:** 43'-1½"
- **Single Section of THREE BEAM:** 3'-1¼" Pay Limits of
- **Other Type:**

**Section A-A:**

- **Aggregates Shoulders Special, Type C**
- **Transition Section** (See Illinois Tollway Standard Drawing C1)

**Elevation**

- **Concrete Structure**
- **Steel Posts W6x9 or W6x8.5**
- **Wedge or Wedx3/8**
- **Wedge or Wedx1/2**

**Notes:**

- See Sheet 1 of this series for notes and Section A-A.

---

*Gutter Lines Omitted for Clarity*

- Five (5) ¾" bolts shall be anchored into drilled holes using a chemical adhesive. Minimum embedment 10". Anchor bolts with standard washers. After tightening, cut the anchor bolts flush with the nuts, and damage the nuts to prevent them from loosening.

- **Bolts Flush with Nuts**

---

**End Shoe THREE BEAM**

**Building:**

- **Concrete Structure**
- **Steel Posts W6x9 or W6x8.5**

---

**Others:**

- **Wedge or Wedx3/8**
- **Wedge or Wedx1/2**

---

**Special, Type C**

**Aggregate Shoulders** (See Sheet 5 in this series)

**Concrete Structure (Vertical Face)**

**Transition Section**

- **Bolts Flush with Nuts, and Damage the Nuts to Prevent Them from Looseing.**

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**Chicagoland Tollway**

---

**Illinois Tollway**

---

**Traffic Barrier Terminal, Type T6**

**Standard C9-08**

---

**End Shoe THREE BEAM**

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**Notes:**

- See Sheet 1 of this series for notes and Section A-A.
45'-7½" PAY LIMITS OF TRAFFIC BARRIER TERMINAL, TYPE T6 (1 EACH)

POSTS 1-6 HAVE VARYING OFFSETS FROM BACK OF GUTTER TAPER @ 53º

POSTS 7-11 HAVE 2" OFFSET FROM BACK OF GUTTER

AGGREGATE SHOULDERS SPECIAL, TYPE C

SHOULDER POINT

POSTS 12-17 HAVE 6" OFFSET FROM BACK OF GUTTER

3'-3½"

OTHER TYPE

GUTTER LINES OMITTED FOR CLARITY

NOTE: THIS POST REQUIRED FOR ALL TYPES

PAY LIMITS OF TRAFFIC BARRIER TERMINAL, TYPE T6 (1 EACH)

SEE ILLINOIS TOLLWAY STANDARD DRAWING C1

TWO SECTIONS OF THRIE BEAM
ONE SET INSIDE THE OTHER

DIRECTION OF TRAFFIC

6 SPACES AT 1'-6½"
9'-4½"
11 SPACES AT 3'-1½"
34'-4½"

PARAPET

STEEL POSTS W6x9 OR W6x8.5

ends shoe

STEEL POSTS W6x9 OR W6x8.5

TOP OF RAIL

CHIEF ENGINEER

7-1-2009

APPROVED

TRAFFIC BARRIER TERMINAL

SHEET 3 OF 5

6" " MIN

SINGLE SECTION OF THRIE BEAM POSTS 12-17 HAVE 6" OFFSET FROM BACK OF GUTTER

3'-3½"

PLAN

TRANSITION SECTION (SEE SHEET 5 IN THIS SERIES)

SECTION B-B
WITH GUTTER, TYPE G-2

FOR PARAPET (SAFETY FACE)
WITH GUTTER, TYPE G-2

SEE SHEET 1 OF THIS SERIES FOR NOTES.
POSTS 12-17 HAVE 6" OFFSET FROM BACK OF GUTTER

POSTS 7-11 HAVE 2" OFFSET FROM BACK OF GUTTER

6 SPACES AT 1'-6"
9'-4"
11 SPACES AT 3'-1"
34'-4"

PAY LIMITS OF
45'-7" PAY LIMITS OF TRAFFIC BARIER TERMINAL, TYPE T6 (1 EACH)

POSTS 1-6 HAVE VARYING OFFSETS FROM BACK GUTTER

ONE SET INSIDE THE OTHER
THREE BEAM

SINGLE SECTION OF THREE BEAM

TAPER 20:1

GUTTER FLOW LINE
DIRECTION OF TRAFFIC

TRANSITION SECTION (SEE SHEET 5 IN THIS SERIES)

FOR CONCRETE BARRIER, SINGLE-FACE W/ GUTTER, TYPE G-3
NOTE:
PARAPET WOOD BLOCK-OUT DETAIL (SEE ILLINOIS TOLLWAY STANDARD DRAWING C9-08 FOR POST 1-11 BLOCKOUT)
PARAPET STEEL BEARING PLATE DETAIL
POST 12 WOOD BLOCK-OUT DETAIL
SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR POST 13-17 BLOCKOUTS
TRANSITION SECTION
(SEE SHEET 1 OF THIS SERIES FOR NOTES.)

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TRANSITION SECTION
(SEE SHEET 1 OF THIS SERIES FOR NOTES.)
**Notes:**

1. See Illinois Tollway Standard Drawing C1 for details of guardrail not shown.

2. The traffic barrier rail shall be bolted to block-out at all posts.

3. The traffic barrier terminal, Type T6B is typically utilized to attach galvanized steel plate beam guardrail at the upstream end of the bridge concrete parapet, where a roadside gutter is not to be installed.

4. Under no circumstances shall existing terminal, that was designed using a previous standard, be attached to or modified in anyway from its original design. If any modification is required and a proper barrier warrant has been completed, the entire installation shall be completely removed and replaced with a new system that conforms to the current standard.

5. Traffic barrier terminal shall be in accordance with the Illinois Tollway’s details and specifications. No modifications shall be permitted.

6. Terminal posts shall not be installed in concrete or asphalt pavements, when necessary use leaf-out detail per Illinois Tollway standard drawing C1, Sheet 2 of 4.

7. Terminal barrier clearance distance shall conform with Table 2 on Illinois Tollway standard drawing C1.

8. Leave-out dimension behind posts 1-6, shall be a minimum of 4".
TRAFFIC BARRIER TERMINAL, TYPE T10

NOTES:
1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THE 24½" TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 2'-0" IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER AND EDGE IS MORE THAN 1'-0" IN FRONT OF RAIL TO CENTER OF RAIL.
3. THE TRAFFIC BARRIER TERMINAL, TYPE T10 IS TYPICALLY UTILIZED TO CONNECT GALVANIZED STEEL PLATE BEAM GUARDRAIL TO THE DEPARTING END OF AN EXISTING BRIDGE CONCRETE WING WALL OR PARAPET.
4. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANY WAY, FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
5. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.
6. WHEN END SHOE IS ATTACHED TO A BRIDGE PARAPET WHICH HAS AN EXPANSION JOINT, THE BOLTS SHALL BE PROVIDED WITH A LOCKNUT OR DOUBLE NUT AND SHALL BE TIGHTENED ONLY TO A POINT THAT WILL ALLOW GUARDRAIL MOVEMENT.
7. THE ANCHOR CONE SHALL BE SET FLUSH WITH THE SURFACE OF THE CONCRETE.
8. EXTERNALLY THREADED STUDS PROTRUING FROM THE SURFACE OF THE CONCRETE SHALL NOT BE PERMITTED.
9. WHEN WING WALL THICKNESS IS GREATER THAN 18" OR NOT ACCESSIBLE TO THE BACK SIDE, 4½" BOLTS SHALL BE ANCHORED INTO DRILLED HOLES, USING A CHEMICAL ADHESIVE. MINIMUM EMBEDMENT SHALL BE 10". ANCHOR BOLTS WITH STANDARD WASHER SHALL BE USED. AFTER TIGHTENING, CUT THE ANCHOR BOLTS FLUSH WITH THE NUTS AND DAMAGE THE NUTS TO PREVENT THEM FROM LOOSENING.
GENERAL NOTES:

1. All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

2. The traffic barrier terminal, Type T1-A (Special) is the upstream end section of a galvanized steel plate beam guardrail barrier system for ramp installation with design speed limit of 40 mph or less, NCHRP 350, Test Level TL-2.

3. Reference Illinois Tollway Standard Drawing B29 for gutter transition at traffic barrier terminal, Type T1-A (Special), and minimum distance from edge of paved shoulder to face of rail.

4. Under no circumstances shall an existing terminal that was designed using a previous standard, be attached to or modified in anyway from its original design. If any modification is required and a proper barrier warrant has been completed, the entire barrier installation shall be completely removed and replaced with a new system that conforms to the current standard.

5. Traffic barrier terminal shall be in accordance with the manufacturer’s details and specifications.

6. No above-ground roadside obstacle of any type-fixed or breakaway, either temporary or permanent shall be allowed within this recovery area.

7. On tangent roadway, traffic barrier terminal shall be installed at a 1:6 taper measured from edge of traveled way.

8. On curved roadway, the edge of the terminal impact head shall be offset a distance from a point on the back of the curved edge of paved shoulder as shown in Table 1. No curved in-beam sections are permitted within the terminal pay limits. The traffic barrier terminal, Type T1-A Special shall be laid out in a straight line.


10. The terminal system has been performance-tested for crashworthiness under procedures defined in the National Cooperative Highway Research Report (NCHRP) Report 350. No modification to this standard drawing shall be permitted.

11. When gutter is present, drainage structures shall not be installed within the terminal limits, but shall be installed upstream and downstream of the terminal as required.
SHOULDER WIDENING TRANSITION-WITH GUTTER, TYPE G-2
FOR TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)

CURVED ROADWAY
TRAFFIC BARRIER TERMINAL PLACEMENT

SEE TABLE 1

NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

TABLE 1

<table>
<thead>
<tr>
<th>OFFSET DISTANCE TO EDGE OF TERMINAL IMPACT HEAD</th>
<th>INSIDE RADIUS OF CURVE</th>
<th>OUTSIDE RADIUS OF CURVE</th>
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<tr>
<td>NO GUTTER</td>
<td>1'-2 1/4&quot;</td>
<td>1'-2 1/4&quot; MIN.*</td>
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<tr>
<td>GUTTER, TYPE G-2, MODIFIED</td>
<td>1'-2 1/4&quot;</td>
<td>1'-2 1/4&quot; MIN.*</td>
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(1) OFFSET DISTANCE WILL VARY BASED ON RADIUS OF HORIZONTAL CURVE AND THE TERMINAL BEING INSTALLED IN A STRAIGHT LINE.
**NOTES**

1. 2" DEEP CONTRACTION JOINTS SHALL BE DONE BY SAWING AND SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL, CONCRETE BARRIER BASE, AND CONCRETE GUTTER (SPECIAL). CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0". THE MINIMUM DISTANCE BETWEEN CONTRACTION JOINTS IN THE MEDIAN BARRIER WALL SHALL BE 2'-0", WHEN A DRAINAGE STRUCTURE FALLS WITHIN 2'-0" FROM AN EXPANSION JOINT (OR CONTRACTION JOINT), THE NEAREST CONTRACTION JOINT SHALL BE OMITTED.

2. GUTTER PROFILE IN THE VICINITY OF SAG VERTICAL CURVES, ALONG FLAT GRADES AND AT THE MEETING OF PROPOSED AND EXISTING GUTTER, SHALL BE CAREFULLY CONTROLLED AND FIELD ADJUSTED IF NECESSARY TO ENSURE POSITIVE DRAINAGE AND AVOID PONDING.

3. NON-STAINING GRAY ONE COMPONENT NON-SAG ELASTOMERIC GUN GRADE POLYURETHANE SEALANT MEETING THE REQUIREMENTS OF ASTM C-920, TYPE S, GRADE NS. CLASS 25. USE 7 WITH A BACKER ROD.

### TABLE OF VARIABLES

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**PLAN 1**

**CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-F**

AT BRIDGE PIERS (FOR W ≤4'-0")

**PLAN 2**

**CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-F**

AT BRIDGE PIERS (FOR W >4'-0")

---

**APPENDIX**

**CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-F**

AT BRIDGE PIERS

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**DATE**

**REVISIONS**

**APPROVED DATE**

**CHIEF ENGINEER**

**2-7-2012**

**STANDARD C13-04**

---

**PLAN 1**

**CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-F**

AT BRIDGE PIERS (FOR W ≤4'-0")

---

**PLAN 2**

**CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-F**

AT BRIDGE PIERS (FOR W >4'-0")

---

**NOTES**

1. 2" DEEP CONTRACTION JOINTS SHALL BE DONE BY SAWING AND SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL, CONCRETE BARRIER BASE, AND CONCRETE GUTTER (SPECIAL). CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0". THE MINIMUM DISTANCE BETWEEN CONTRACTION JOINTS IN THE MEDIAN BARRIER WALL SHALL BE 2'-0", WHEN A DRAINAGE STRUCTURE FALLS WITHIN 2'-0" FROM AN EXPANSION JOINT (OR CONTRACTION JOINT), THE NEAREST CONTRACTION JOINT SHALL BE OMITTED.

2. GUTTER PROFILE IN THE VICINITY OF SAG VERTICAL CURVES, ALONG FLAT GRADES AND AT THE MEETING OF PROPOSED AND EXISTING GUTTER, SHALL BE CAREFULLY CONTROLLED AND FIELD ADJUSTED IF NECESSARY TO ENSURE POSITIVE DRAINAGE AND AVOID PONDING.

3. NON-STAINING GRAY ONE COMPONENT NON-SAG ELASTOMERIC GUN GRADE POLYURETHANE SEALANT MEETING THE REQUIREMENTS OF ASTM C-920, TYPE S, GRADE NS. CLASS 25. USE 7 WITH A BACKER ROD.
NOTES:

SEE SHEET 1 OF THIS SERIES FOR NOTES.
**Concrete Median Barrier Transition, Type V**

**Concrete Pad**

- **Top of Slope**
  - **Pitch Bottom**
  - **Edge of Pavement**
  - **Drainage Structure**
  - **As Required**

**Plan**

- **Concrete Barrier Transition, Type V**
  - **Taper Length (L) Min.**
  - **10'-0"**
  - **1:10**
  - **Top of Slope**
  - **Bottom of Slope**
  - **CONCRETE PAD**
  - **ENERGY ATTENUATOR**

**Notes**

1. **Slope Ratios** are expressed as units of vertical displacement to units of horizontal displacement (V:H).
2. **Energy Attenuator and Pad** shall be in accordance with the manufacturer's details and specifications.
3. **2" Deep Contraction Joints** shall be done by sawing and shall be constructed in the concrete barrier wall and concrete barrier base. Maximum contraction joint spacing shall be 30'-0". The minimum distance between contraction joints in the median barrier wall shall be 2'-0".

**Table A**

<table>
<thead>
<tr>
<th>Wc</th>
<th>L (Min.)</th>
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<tbody>
<tr>
<td>Wc</td>
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<tr>
<td>Wc</td>
<td>30'-0&quot;</td>
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<tr>
<td>Wc</td>
<td>50'-0&quot;</td>
</tr>
<tr>
<td>Wc</td>
<td>60'-0&quot;</td>
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</table>

*Wc = Pier Crash Wall Width*