Illinois Tollway Standard Drawing Revisions

### Section C  Guardrail / Median Barrier

<table>
<thead>
<tr>
<th>Standard</th>
<th>Modification Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Corrected slope reference in Notes 7 and 10.</td>
</tr>
<tr>
<td></td>
<td>Replaced Table 2 with Tables 2A and 2B. Revising the minimum clearance distance.</td>
</tr>
<tr>
<td>C12</td>
<td>Shoulder Widening for Traffic Barrier Terminal, Type T1-A (Special)</td>
</tr>
<tr>
<td></td>
<td>Correct the Gutter Type G-2 label.</td>
</tr>
</tbody>
</table>

**Effective: 03-1-2018**

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.


3. THE 245º TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 1'-0" IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF CUTTER, WHEN EDGE IS MORE THAN 1'-0" IN FRONT OF RAIL TO CENTER OF RAIL.

4. WHERE CUTTER IS PROPOSED WITH GUARDRAIL, A 6" MINIMUM THICKNESS OF AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL BE PLACED BEHIND CUTTER. FOR GUARDRAIL WITHOUT CUTTER, AGGREGATE SHOULDERS, 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 LESS 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" MIN. 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 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.

10. WHEN S IS LESS 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.
### Elevation

**Type A**
- 6'-3" Typical Post Spacing

**Type B**
- 3'-1½" ½ Post Spacing

**Type C**
- 1'-6½" ¼ Post Spacing

---

#### STEEL PLATE BEAM GUARDRAIL

**Galvanized Steel Plate Sheet**

#### TABLE 1

<table>
<thead>
<tr>
<th>Elevation</th>
<th>Steel Post Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>W</td>
</tr>
<tr>
<td>0 - 16½&quot;</td>
<td>24&quot;</td>
</tr>
<tr>
<td>&gt; 16½&quot; - 28½&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>&gt; 28½&quot; - 40½&quot;</td>
<td>12&quot; + 0</td>
</tr>
</tbody>
</table>

* V + W = 40"

Notes:
- All holes 3/4" DIA.
- Wood Block-out and Steel Post Details

---

**NOTES**

- All holes 3/4" DIA.
- Wood Block-out and Steel Post Details

---

**Finished Ground Line**

**Top of Rock Formation**

**Drilled Hole**

---

**PLAN**

**FINISHED GROUND LINE**

**AGGREGATE BACKFILL (CA 11)**

---

**ELEVATION**

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

---

**ILLINOIS TOLLED HIGHWAY**

**GALVANIZED STEEL PLATE BEAM GUARDRAIL**

**STANDARD CI-10**

---
BEAM GUARDRAIL
GALVANIZED STEEL PLATE

RAIL ELEMENT SPlice

POST OR SPLICE BOLT & NUT

STEEL POST CONSTRUCTION

PLAN

ELEVATION

LEAVE-OUTS

† THE AREA AROUND THE POST THAT IS EITHER OMMITED FROM THE NEW CONSTRUCTION OR REMOVED FROM THE EXISTING CONCRETE OR ASPHALT.
**TABLE 2A**

<table>
<thead>
<tr>
<th>GUARDRAIL SYSTEM</th>
<th>POST SPACING</th>
<th>MINIMUM DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE A</td>
<td>6'-3&quot;</td>
<td>39&quot;</td>
</tr>
<tr>
<td>TYPE B 1/2 Post Spacing</td>
<td>3'-11/2&quot;</td>
<td>34&quot;</td>
</tr>
<tr>
<td>TYPE C 1/2 Post Spacing</td>
<td>1'-6 1/4&quot;</td>
<td>26&quot;</td>
</tr>
</tbody>
</table>

**TABLE 2B**

<table>
<thead>
<tr>
<th>GUARDRAIL SYSTEM</th>
<th>POST SPACING</th>
<th>MINIMUM DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE A</td>
<td>6'-3&quot;</td>
<td>20&quot;</td>
</tr>
<tr>
<td>TYPE B 1/2 Post Spacing</td>
<td>3'-11/2&quot;</td>
<td>28&quot;</td>
</tr>
<tr>
<td>TYPE C 1/2 Post Spacing</td>
<td>1'-6 1/4&quot;</td>
<td>14&quot;</td>
</tr>
</tbody>
</table>

**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.
- THIS DETAIL ALSO APPLIES TO OTHER UNDERGROUND CONFLICTS.
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, VARIABLE HEIGHT, 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 A 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 PONKING.

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" MINIMUM CLEARANCE TO THE TOP OF CONDUIT AND 2" MINIMUM 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 SEGMENTS. TRANSITION GUTTER SLOPE OVER 30'-0". GUTTER SLOPE TRANSLATIONS ARE INCLUDED IN THE COST OF CONCRETE GUTTER TRANSITIONS. SEE ROADWAY TRANSITIONS ARE INCLUDED IN THE COST OF CONCRETE TRANSITION 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 A CONTRACTION JOINT, THE NEAREST CONTRACTION JOINT SHALL BE OMITTED.

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

8. ENSURE POSITIVE DRAINAGE AND AVOID PONKING.

9. CONTROLLED AND FIELD ADJUSTED IF NECESSARY TO ENSURE POSITIVE DRAINAGE AND AVOID PONKING.

10. PROPOSED AND EXISTING GUTTER, SHALL BE CAREFULLY CONTROLLED AND FIELD ADJUSTED IF NECESSARY TO ENSURE POSITIVE DRAINAGE AND AVOID PONKING.

11. 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 A CONTRACTION JOINT, THE NEAREST CONTRACTION JOINT SHALL BE OMITTED.

12. WHEN VARIABLE HEIGHT VERTICAL DIFFERENTIAL EXCEEDS 9", SEE STRUCTURAL PLANS FOR DETAILS.
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 B2B 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 SLOPE TAPER MEASURED FROM EDGE OF TRAVELED WAY.
   SUPER-ELEVATION ADJUSTED. 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.

REFINED NOTES:
STANDARD C6-09
SHOULDER WIDENING TRANSITION WITH GUTTER, TYPE G-3 OR TYPE G-2 FOR
TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT

TRAFFIC BARRIER TERMINAL PLACEMENT

CURVED ROADWAY

TABLE 1

<table>
<thead>
<tr>
<th>LATERAL OFFSET DIMENSION TO EDGE OF TERMINAL IMPACT HEAD</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; MIN.</td>
</tr>
<tr>
<td>GUTTER, TYPE G-2</td>
<td>1'-2¾&quot;</td>
<td>1'-2¾&quot; MIN.</td>
</tr>
<tr>
<td>GUTTER, TYPE G-3</td>
<td>2'-2¾&quot;</td>
<td>2'-2¾&quot; MIN.</td>
</tr>
</tbody>
</table>

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

NOTES

SEE SHEET 1 OF THIS SERIES FOR NOTES.

STANDARD C6-09
TRAFFIC BARRIER TERMINAL, TYPE T2-WITHOUT GUTTER

NOTES:
1. SEE ILLINOIS 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 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 ILLINOIS 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 ILLINOIS TOLLWAY STANDARD DRAWING C1.
TRAFFIC BARRIER TERMINAL, TYPE T2 (1 EACH)

BEAM GUARDRAIL TYPES

AGGREGATE SHOULDER TYPES

TRAFFIC BARRIER TERMINAL, TYPE T2-WITH GUTTER

BEAM GUARDRAIL TYPES

AGGREGATE SHOULDER TYPES

TRAFFIC BARRIER TERMINAL, TYPE T2-WITH GUTTER

NOTE:

SEE SHEET 1 OF THIS SERIES FOR NOTES.
NOTE:

CABLE STRUT
- Top of plate
- Symmetrical

ANCHOR PLATE T DETAILS
- Anchor plate T shall be used to attach cable assembly to guardrail when required on traffic barrier terminals.

CABLE ASSEMBLY
- 1" double nuts or locknuts and 3/8" washer (min. 2 threads extending beyond nut face)
- Galvanized cable
- Standard swage fitting and stud (stud threaded entire length)

NOTE:
- See sheet 1 of this series for notes.
48'-7½" PAY LIMITS OF TRAFFIC BARRIER TERMINAL, TYPE T6

POSTS 1-11 HAVE ZERO OFFSET FROM BACK OF GUTTER

SHOULDER POINT

A

THREE BEAM END SHOE

3¢" 6 SPACES AT 1'-6½"

7'-6" 11 SPACES AT 3'-1½"

ELEVATION

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 GUTTER 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 WAY 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.

7. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENTS. WHEN NECESSARY USE LEAVE-OUT DETAIL PER ILLINOIS TOLLWAY STANDARD DRAWING C1.

8. TERMINAL POSTS TO BE INSTALLED PERPENDICULAR TO BACK OF GUTTER.

9. THE TERMINAL 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.

10. TERMINAL BARRIER CLEARANCE DISTANCE SHALL CONFORM WITH TABLE 2 ON ILLINOIS TOLLWAY STANDARD DRAWING C1.

11. LEAVE-OUT DIMENSION BEHIND POSTS 1-6 SHALL BE A MINIMUM OF 4".

12. 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.

DESIGN AND ENGINEERING SERVICES

H. W. WALLACE

APPROVED

DATE: 7/1/2013
45°-7½° PAY LIMITS OF TRAFFIC BARRIER TERMINAL, TYPE T6 (6 EACH)

POSTS 1-6 HAVE VARYING OFFSETS FROM BACK OF GUTTER

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

AGGREGATE SHOULDERS SPECIAL, TYPE C

SHOULDER POINT

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

E D G E  O F  S H O U L D E R

NOTE:

PLAN

ELEVATION

SECTION B-B

WITH GUTTER, TYPE G-2

FOR PARAPET (SAFETY FACE)

WITH GUTTER, TYPE G-2

NOTE:

SEE SHEET 1 OF THIS SERIES FOR NOTES.

APPROVED

DATE

CHIEF ENGINEER

7-1-2009

Illinois Tollway

TRAFFIC BARRIER TERMINAL

TYPE T6

SHEET 3 OF 5

STANDARD C9-08
POSTS 12-17 HAVE 6" OFFSET FROM BACK OF GUTTER

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

POSTS 1-6 HAVE VARYING OFFSETS FROM BACK GUTTER

SINGLE SECTION OF W-BEAM A

ONE SET INSIDE THE OTHER

TAPER 20:1

SPECIAL C9-08 AGGREGATE SHOULDERS

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

6' SPACES AT 1'-6"

9'-4"

11 SPACES AT 3'-1"

34'-4"

GUTTER, TYPE G-3 (*)

9'-6

6'-0"

W6x9 OR W6x8.5 STEEL POSTS

DRILLED 1" HOLE FORMED OR BE ON TRAFFIC SIDE)

THRIE BEAM

SINGLE SECTION OF THRIE BEAM

SINGLE SECTION OF W-BEAM A

SEE ILLINOIS TOLLWAY STANDARD DRAWING C1

SHEET 5)

SEE DETAIL, BLOCK-OUT PARAPET WOOD

FOR CONCRETE BARRIER, SINGLE-FACE W/ GUTTER, TYPE G-3

PLAN

TRANSITION SECTION (SEE SHEET 5 IN THIS SERIES)

ELEVATION

NOTE:

CHIEF ENGINEER

DATE: 2-7-2012
NOTE:

SEE SHEET 1 OF THIS SERIES FOR NOTES.
1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.

2. THRIE BEAM RAIL SHALL BE BOLTED TO BLOCK-OUT AT ALL POSTS.

3. THE TRAFFIC BARIER 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 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. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENTS. WHEN NECESSARY USE LEAVE-OUT DETAIL PER ILLINOIS TOLLWAY STANDARD DRAWING C1. SHEET 3 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".
POSTS 1-11 WOOD BLOCK-OUT DETAIL

SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR POST 13-17 BLOCKOUTS

POST 12 WOOD BLOCK-OUT DETAIL

THREE BEAM END SHOE DETAIL

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
The Traffic Barrier Terminal, Type T10 is designed to connect Galvanized Steel Plate Beam Guardrail to the departing end of an existing bridge concrete wing wall or barrier.

### Notes:
2. The 24\(\frac{3}{4}\)" 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.
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 barrier.
4. Under no circumstances shall an existing terminal that was designed using a previous standard, be attached to or modified anytime 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 protruding from the surface of the concrete shall not be permitted.
9. When wing wall thickness is greater than 18" or not accessible to the backside, 4-\(\frac{3}{8}\)" 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 nits, and damage the nits 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 C29 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 25:1 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.
9. Terminal posts shall not be installed in concrete or HMA. When necessary use leaf-out detail shown on Illinois Tollway Standard Drawing C1.
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 NOTE 7)

NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

**TABLE 1**

<table>
<thead>
<tr>
<th>LATERAL OFFSET DIMENSION TO EDGE OF TERMINAL IMPACT HEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO GUTTER</td>
</tr>
<tr>
<td>1'-0&quot;</td>
</tr>
<tr>
<td>GUTTER, TYPE G-2</td>
</tr>
<tr>
<td>1'-2¼&quot; MIN.</td>
</tr>
<tr>
<td>1'-2¾&quot; MIN.</td>
</tr>
</tbody>
</table>

(※) 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. **MAGNITUDE CONTRACT JOINT SPACING SHALL BE 20'-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**

<table>
<thead>
<tr>
<th>#</th>
<th>L</th>
<th>W</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>3'-0&quot;</td>
<td>31'-3&quot;</td>
<td>10'-0&quot;</td>
<td>7'-0&quot;</td>
</tr>
<tr>
<td>3'-6&quot;</td>
<td>31'-3&quot;</td>
<td>10'-0&quot;</td>
<td>7'-0&quot;</td>
</tr>
<tr>
<td>4'-0&quot;</td>
<td>36'-3&quot;</td>
<td>15'-0&quot;</td>
<td>8'-6&quot;</td>
</tr>
<tr>
<td>4'-6&quot;</td>
<td>36'-3&quot;</td>
<td>15'-0&quot;</td>
<td>8'-6&quot;</td>
</tr>
<tr>
<td>5'-0&quot;</td>
<td>52'-3&quot;</td>
<td>15'-0&quot;</td>
<td>9'-0&quot;</td>
</tr>
<tr>
<td>5'-6&quot;</td>
<td>58'-9&quot;</td>
<td>22'-6&quot;</td>
<td>9'-0&quot;</td>
</tr>
<tr>
<td>6'-0&quot;</td>
<td>66'-3&quot;</td>
<td>30'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
</tbody>
</table>
NOTES:

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

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>
</tr>
</thead>
<tbody>
<tr>
<td>Wc&lt;35&quot;</td>
<td>20'-0&quot;</td>
</tr>
<tr>
<td>35&quot;&lt;Wc&lt;43&quot;</td>
<td>30'-0&quot;</td>
</tr>
<tr>
<td>43&quot;&lt;Wc&lt;51&quot;</td>
<td>40'-0&quot;</td>
</tr>
<tr>
<td>51&quot;&lt;Wc&lt;59&quot;</td>
<td>50'-0&quot;</td>
</tr>
<tr>
<td>59&quot;&lt;Wc&lt;67&quot;</td>
<td>60'-0&quot;</td>
</tr>
<tr>
<td>Wc=59&quot;</td>
<td>70'-0&quot;</td>
</tr>
</tbody>
</table>

Wc = Pier Crash Wall Width

---

10" & 10" BASE

5'-0" BASE

---

Notes:

1. Paved Shoulder

2. Aggregate Shoulder

3. Edge of Pavement

---

PLAN

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D

ELEVATION

ILLINOIS TOLLWAY

ATTENUATOR/CONCRETE PAD

CONCRETE BARRIER TRANSITION, TYPE V

10'-0" COLUMN

1'-0" P.I.F.

CONCRETE MEDIAN BARRIER WALL SHALL BE 2'-0".

BETWEEN CONTRACTION JOINTS IN THE SHOULDER, THE MEDIAN BARRIER WALL SHALL BE 30'-0". THE MINIMUM DISTANCE BETWEEN CONTRACTION JOINTS IN THE MEDIAN BARRIER WALL SHALL BE 2'-0".

MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0".

CONTRACT JOINTS WHICH ARE TO BE DETAILED OR SPECIFIED FROM MANUFACTURER DETAILED OR SPECIFIED FROM MANUFACTURER ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

ENERGY ATTENUATOR AND PAD SHALL BE IN ACCORDANCE WITH THE MANUFACTURER’S DETAILS AND SPECIFICATIONS.

---

DATE: 3-11-2015

APPROVED: CHIEF ENGINEER

---

ILLINOIS TOLLWAY

CONCRETE MEDIAN BARRIER TRANSITION, TYPE V

STANDARD C14-02