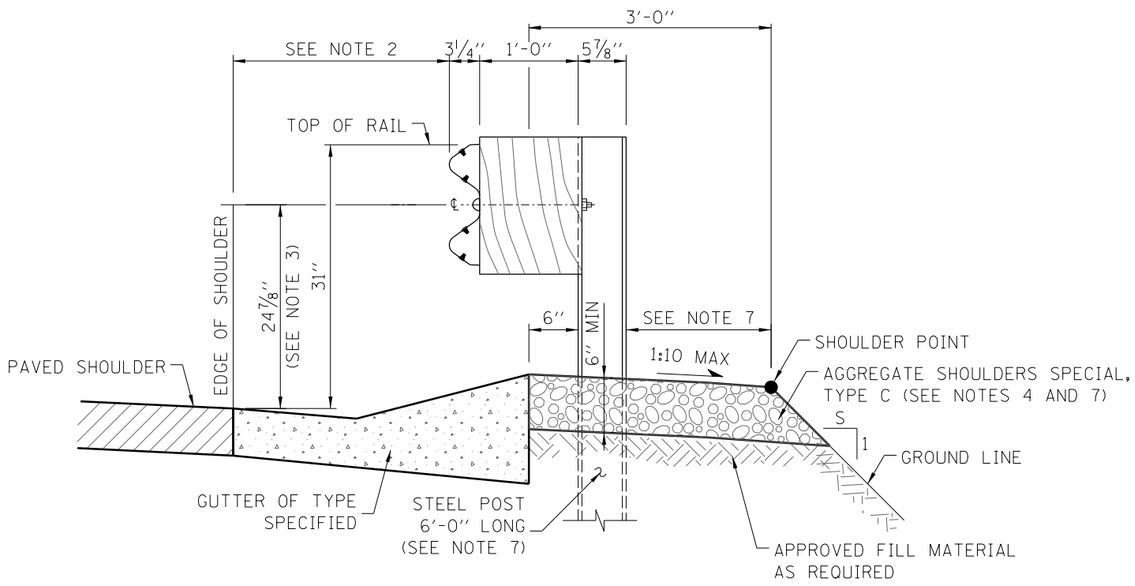
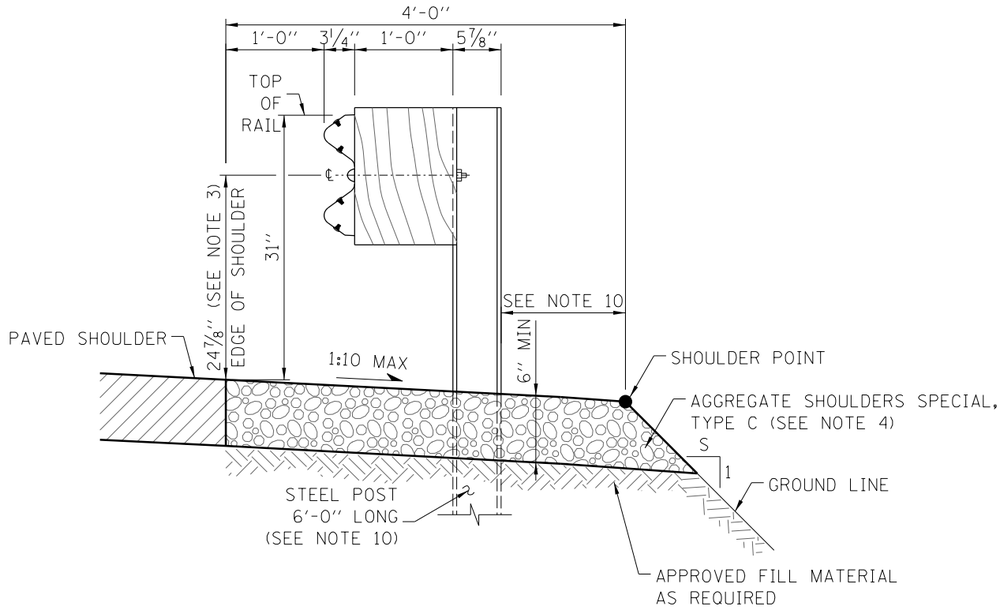
Tollway Standard Drawing Revisions

Section C	Guardrail / Median Barrier	
	Standard	**Modification Summary** **Effective : 03/11/15**
	All	Revised detail descriptions to match Tollway Coded Pay Items
		Updated drawings to follow IDOT highway standard levels
	C3	**Single Face Reinforced Concrete Barrier**
		Extended preformed joint filler through base slab; added 1/2" dimension to filler material
		Revised dimensioning to bending diagram for bar d1(E)
		Added dimensioning to bending diagram for bar d(E)
		Revised barrier base gutter rise from 2" to 1"
		Added reinforcement detail around drainage opening
	C4	**Concrete Shoulder Barrier Transition, Type F**
		Extended preformed joint filler through base slab; added 1/2" dimension to filler material
	C5	**Concrete Barrier Base and Concrete Barrier Double Face, 42" and Variable Height**
		Revised conduits in barrier base to reference plan sheet details; revised note 6
		Note 7. Changed differential dimension from 10" to 9"
	C6	**Shoulder Widening For TBT Type T1 (Special) Tangent**
		Defined limits for placement of aggregate shoulders material types
	C7	**TBT Type T2**
	Sheet 1	Added 4' dimension to Aggregate Shoulders Special, Type C
		Defined limits for placement of aggregate shoulders material types
	C9	**TBT Type T6**
	Sheet 4	Added Plan and Elevation for Concrete Barrier, Single Face with Gutter, Type G-3
	Sheet 5	Moved prior sheet 4 to sheet 5.
	C10	**TBT Type T6B**
		Added hyphen to description of "block-out" to match Traffic Barrier Guidelines
	C11	**TBT Type T10**
		Note 2. Revised description to match Tollway Coded Pay Items
	C12	**Shoulder Widening for TBT Type T1-A (Special)**
		Defined limits for placement of aggregate shoulders material types
	C13	**Concrete Median Barrier Transition, Type V-F at Bridge Piers**
		New median barrier transition detail for barrier width $\leq$ 4'
		New median barrier transition detail for barrier width > 4'
		Revised top barrier wall slope transition
		Note 2. Revised requirement for forming contraction joints
		Deleted note 3; renumbered remaining notes.
		Extended preformed joint filler through base slab
		Revised gutter slope in Sections B-B, C-C, E-E and F-F to 4%
		Added Table for variable dimensions in median barrier details
		Added concrete gutter, special adjacent to pier crash wall (per plan detail)
	C14	**Concrete Barrier Transition, Type V at Bridge Piers**
		Revised top barrier wall slope transition
		Note 3. Added requirement for forming contraction joints
		Extended preformed joint filler through base slab
		Added Table A for median barrier taper length

New Sheet Retired Standard



SECTION WITH GUTTER



SECTION WITHOUT GUTTER

GUARDRAIL INSTALLATION DETAILS

NOTES:

1. 1' OFFSET FROM EDGE OF PAVED SHOULDER TO FACE OF RAIL IS TYPICAL FOR ALL INSTALLATIONS EXCEPT AS OTHERWISE DETAILED IN THE PLAN DRAWINGS.
2. WHERE GUTTERS SUCH AS TYPE G-2 , 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 SHOULDER TO THE FACE OF THE GUARDRAIL SHALL BE AS SHOWN ON STANDARD B28.
3. THE 24 7/8" TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 1' IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER WHEN EDGE IS MORE THAN 1' IN FRONT OF RAIL TO CENTER OF RAIL.
4. AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL COMPLY WITH THE REQUIREMENTS OF THE TOLLWAY RECURRING SPECIAL PROVISION. WHERE GUTTER IS PROPOSED WITH GUARDRAIL, A 6" MINIMUM THICKNESS OF AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL BE PLACED BEHIND CURB. FOR GUARDRAIL WITHOUT CURB & GUTTER, AGGREGATE SHOULDER, OF THE SAME THICKNESS SHALL BE PLACED FROM THE EDGE OF PAVED SHOULDER SLOPING AWAY TO A 6" MIN. THICKNESS.
5. AGGREGATE SHOULDERS SPECIAL, TYPE C SHALL EXTEND A MINIMUM OF 1' BEHIND POST OR GUARDRAIL, WHICHEVER IS FURTHER, EXCEPT AS DETAILED ELSEWHERE IN THE PLANS.
6. PLASTIC BLOCK-OUTS SHALL NOT BE ALLOWED AS A SUBSTITUTE FOR WOOD BLOCK-OUTS ON NEW INSTALLATIONS.
7. WHEN $S \leq 3$ AND 3'-0" MIN. AGGREGATE SHOULDER CANNOT BE MET, THE POST LENGTH SHALL BE 9'-0" AND THE MIN. AGGREGATE SHOULDER SHALL BE 1'-0" MEASURED DISTANCE BEHIND 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 $S \leq 3$, THE POST LENGTH SHALL BE 9'-0" AND 4' 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.
13. GUARDRAIL POSTS SHALL NOT BE ATTACHED TO ANY STRUCTURE.

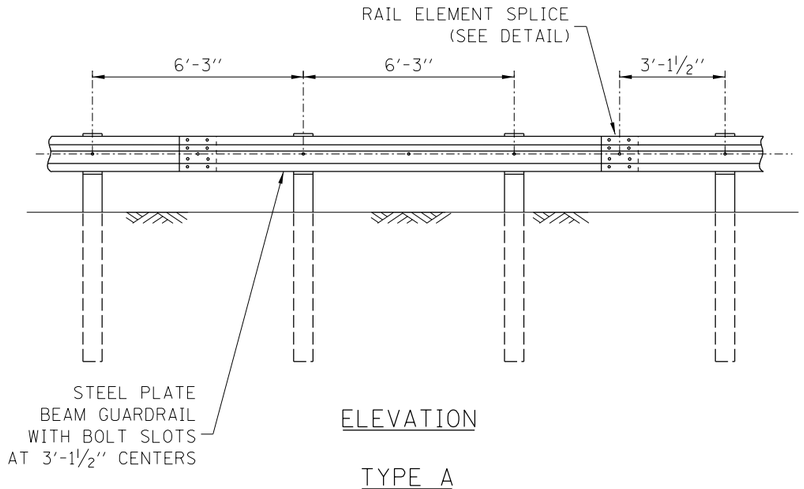
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 7-1-2009

Illinois Tollway

DATE	REVISIONS
02-07-12	ADDED TYPE C GUARDRAIL, MODIFIED LEAVE-OUT
	CAP MATERIAL AND REVISED NOTES
11-02-12	MODIFIED AGGREGATE SHOULDERS
03-31-14	REMOVED SECONDARY HOLE FROM POST AND
	UPDATED NOTES.

GALVANIZED STEEL PLATE BEAM GUARDRAIL

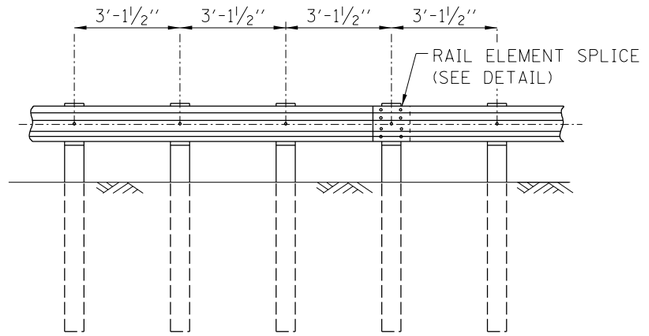
STANDARD C1-07



ELEVATION

TYPE A

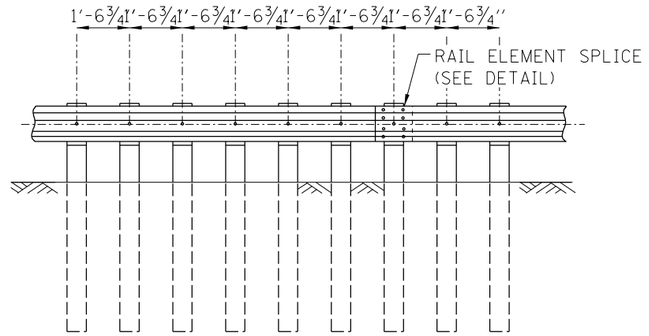
6'-3" TYPICAL POST SPACING



ELEVATION

TYPE B

3'-1½" ½ POST SPACING



ELEVATION

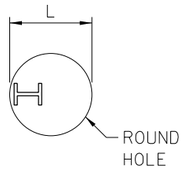
TYPE C

1'-6¾" ¼ POST SPACING

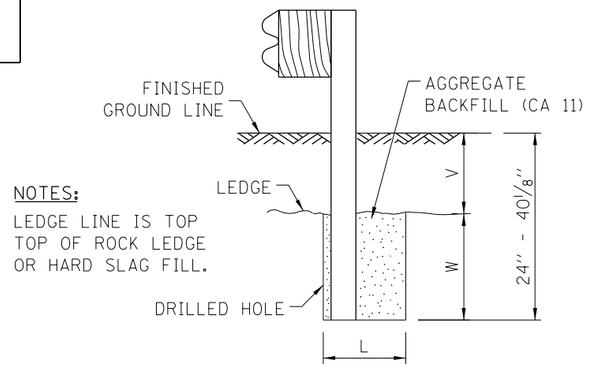
V	W	L	
		STEEL POST	WOOD POST
0 - 16⅛"	24"	21"	23"
> 16⅛" - 28⅛"	12"	8"	10"
> 28⅛" - 40⅛"	12" - 0 (*)	8"	10"

TABLE 1

* $\frac{V}{W}$ = 40⅛"



PLAN

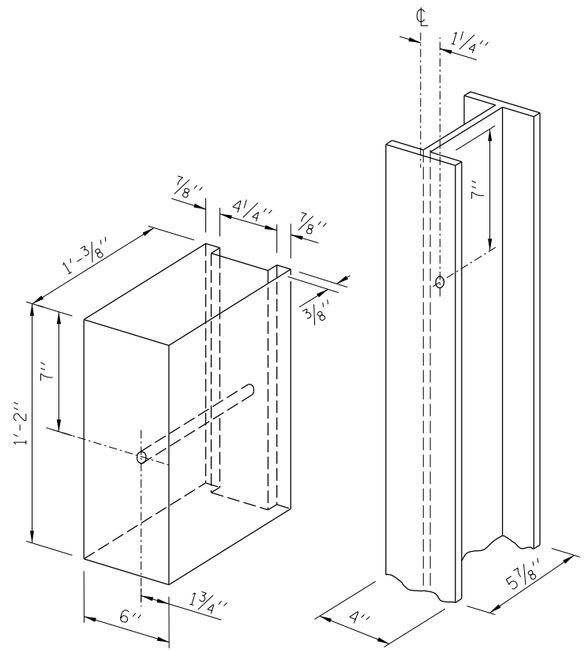


NOTES:

LEDGE LINE IS TOP
TOP OF ROCK LEDGE
OR HARD SLAG FILL.

ELEVATION

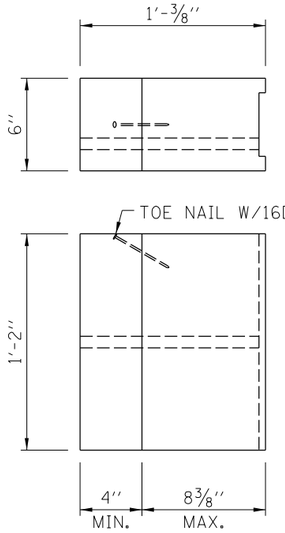
FOOTING FOR POST WHEN IMPERVIOUS
MATERIAL IS ENCOUNTERED



NOTES:

ALL HOLES 3/4" DIA.

WOOD BLOCK-OUT AND
STEEL POST DETAILS



TWO-PIECE WOOD
BLOCKOUT OPTION

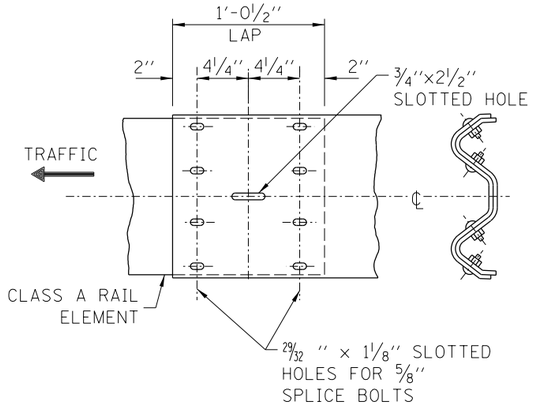
SHEET 2 OF 4

Illinois Tollway

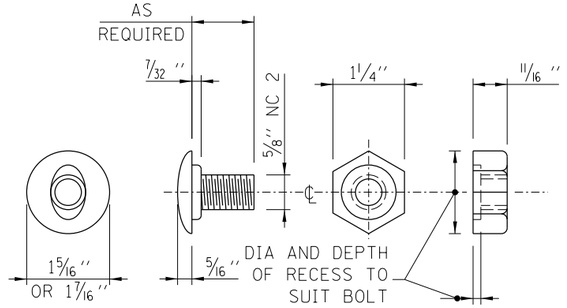
GALVANIZED STEEL PLATE
BEAM GUARDRAIL

STANDARD C1-07

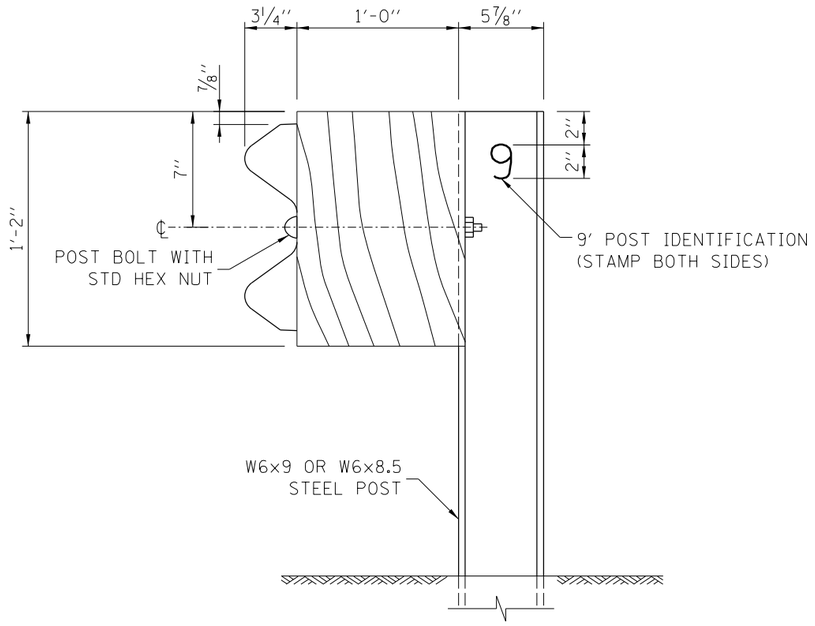
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 5-1-2009



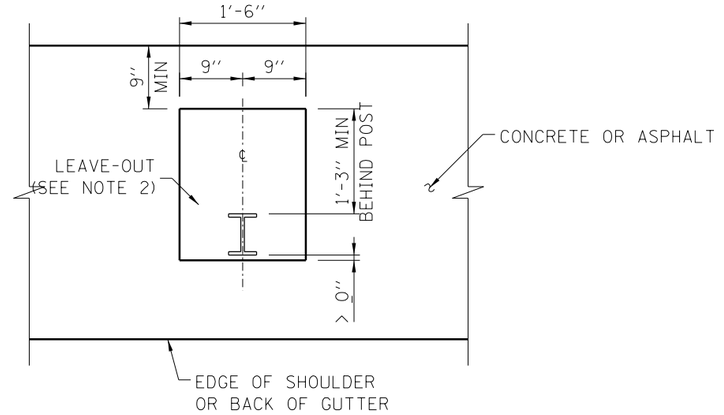
RAIL ELEMENT SPLICE



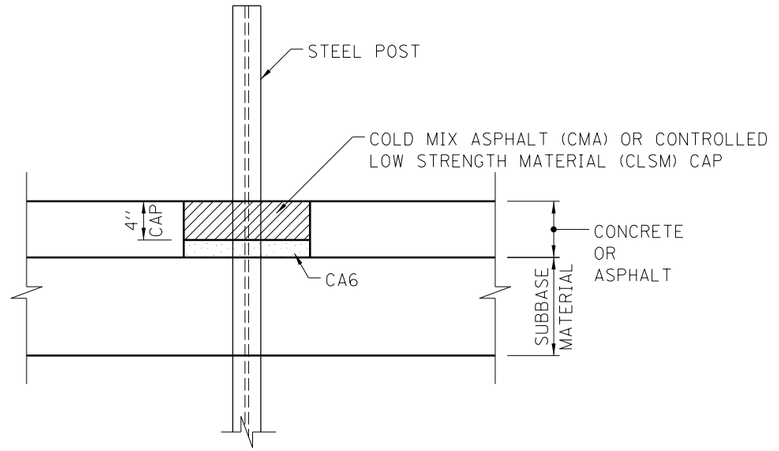
POST OR SPLICE BOLT & NUT



STEEL POST CONSTRUCTION



PLAN



ELEVATION

LEAVE-OUTS

NOTES:

1. CAP SHALL BE INSTALLED TO MATCH THE EXISTING CROSS SLOPE.

2. THE LEAVE-OUT SHALL BE DEFINED AS THE AREA AROUND THE POST THAT IS EITHER OMITTED FROM THE NEW CONSTRUCTION OR REMOVED FROM THE EXISTING CONCRETE OR ASPHALT.

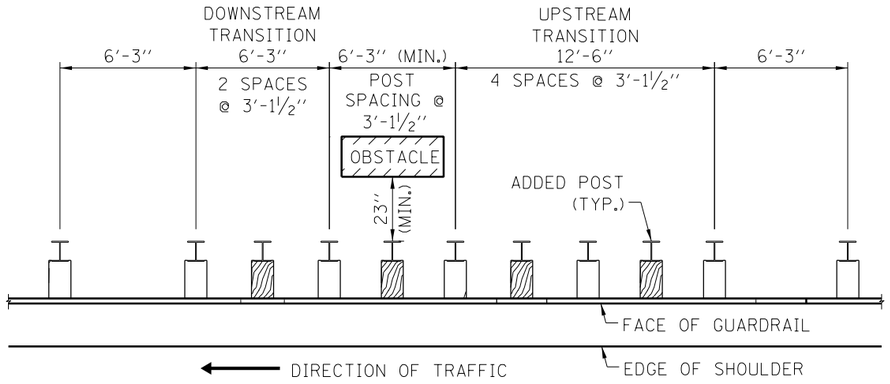
Paul Kovacs
APPROVED ..... DATE 5-1-2009
CHIEF ENGINEER

Illinois Tollway

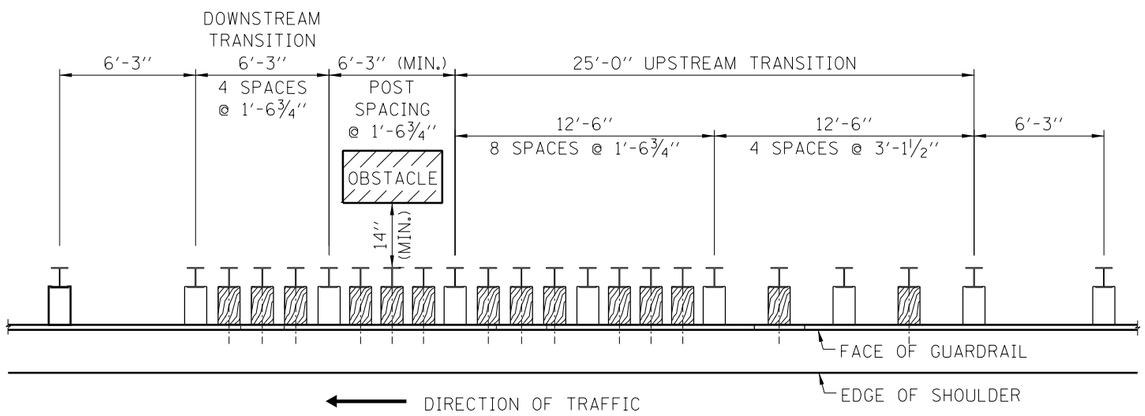
GALVANIZED STEEL PLATE BEAM GUARDRAIL

STANDARD C1-07

TABLE 2		
BARRIER CLEARANCE DISTANCE		
GUARDRAIL SYSTEM	POST SPACING	MINIMUM BARRIER CLEARANCE DISTANCE
TYPE A	6′-3″	28″
TYPE B 1/2 POST SPACING	3′-1 1/2″	23″
TYPE C 1/4 POST SPACING	1′-6 3/4″	14″



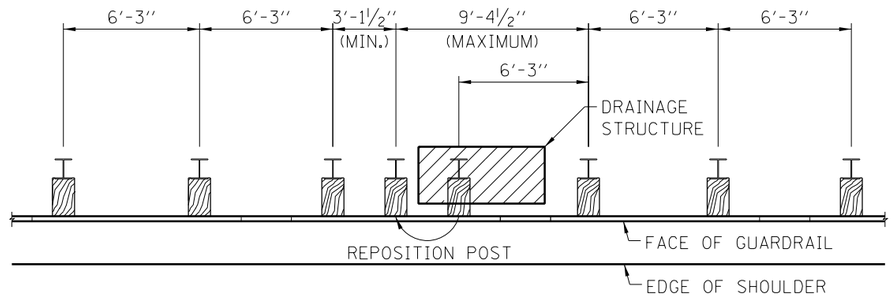
TRANSITION TO 1/2-POST SPACING



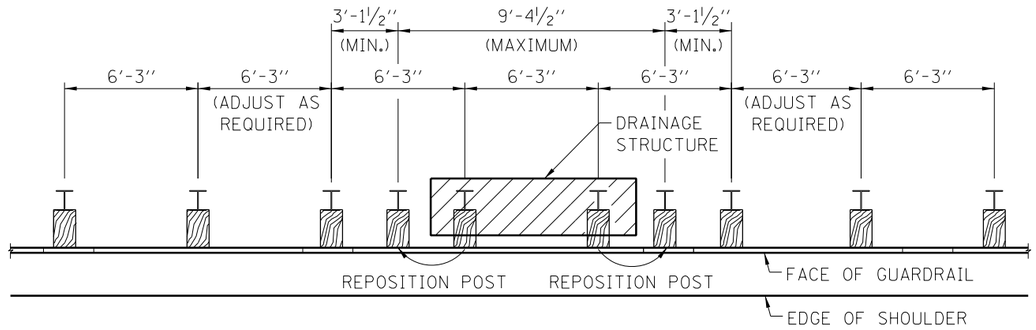
TRANSITION TO 1/4-POST SPACING

NOTES:

WHEN LENGTH OF OBSTACLES IS 1′-3″ OR LESS, THE DOWNSTREAM TRANSITION SHALL BE OMITTED.



TYPE A GUARDRAIL-DRAINAGE STRUCTURE CONFLICT
ONE POST



TYPE A GUARDRAIL - DRAINAGE STRUCTURE CONFLICT
TWO POSTS

NOTES:

1. GUARDRAIL POSTS SHALL NOT BE ELIMINATED; ALL POSTS MUST BE USED.
2. GUARDRAIL POSTS SHALL NOT BE SET BACK TO AVOID CONFLICTS WITH A DRAINAGE STRUCTURE.
3. NO MODIFICATIONS OF ANY KIND TO THE TRANSITION POST SPACING ARE ALLOWED.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 5-1-2009

Illinois Tollway

GALVANIZED STEEL PLATE BEAM GUARDRAIL

STANDARD C1-07

RESERVED

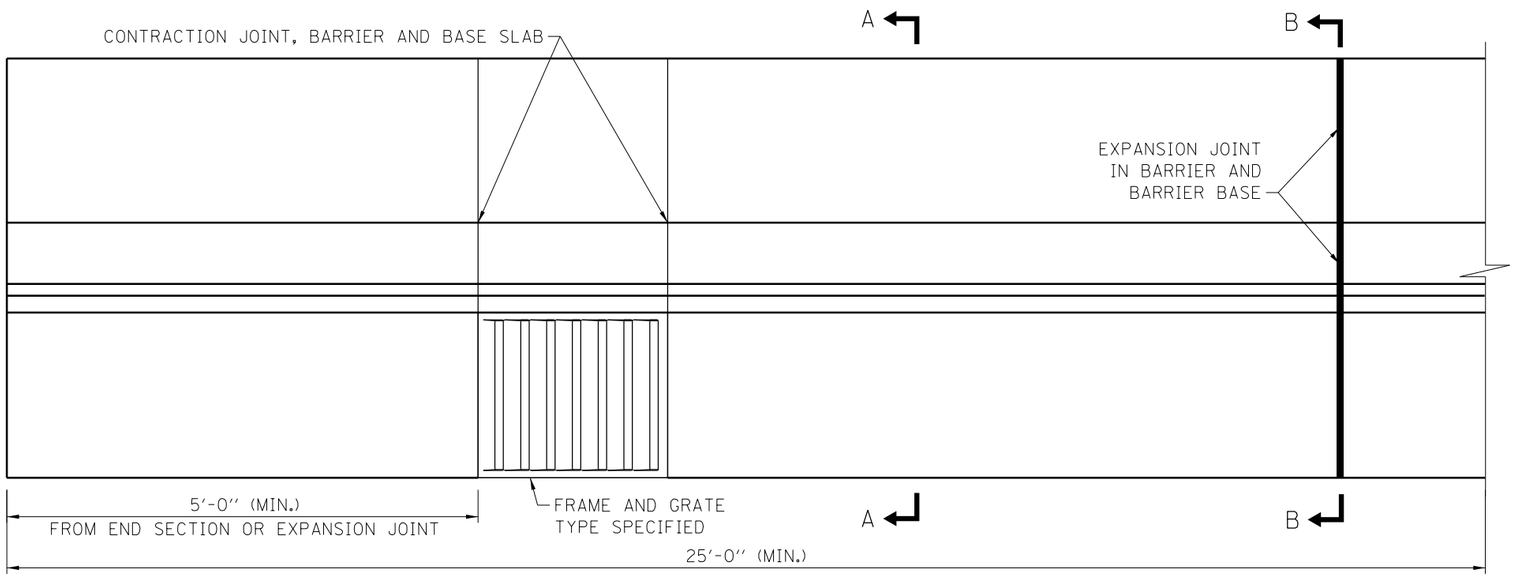
APPROVED . . . . . DATE . . . . . .
CHIEF ENGINEER

DATE	REVISIONS

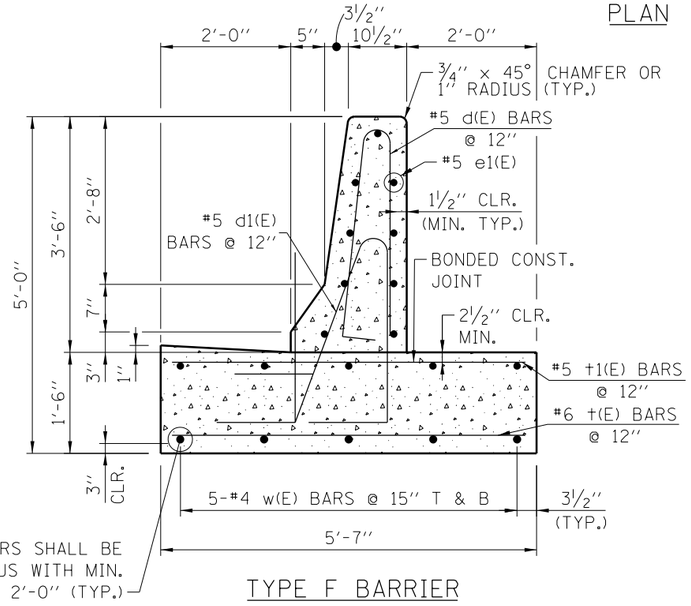
Illinois Tollway

RESERVED

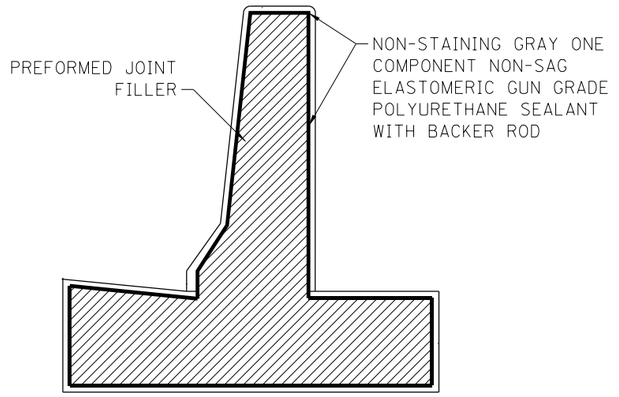
STANDARD C2-00



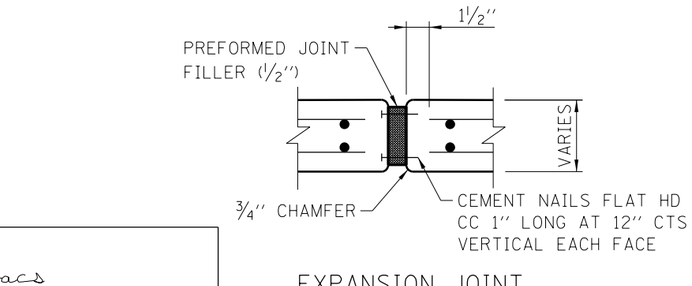
PLAN



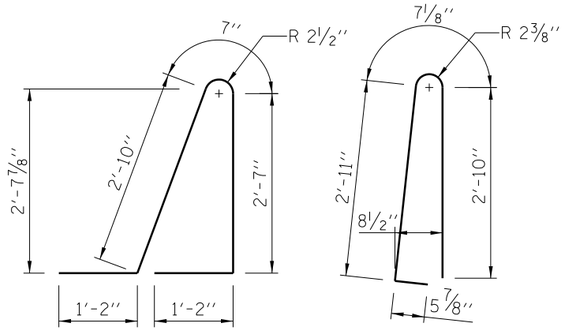
TYPE F BARRIER
SECTION A-A



TYPE F BARRIER
SECTION B-B

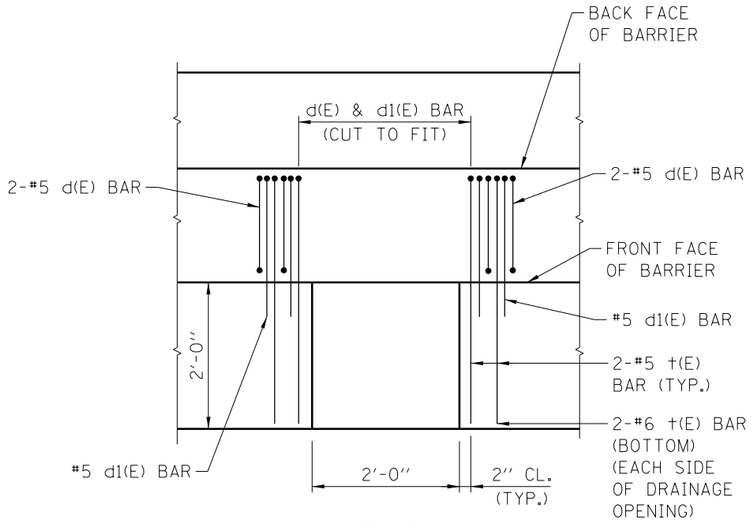


EXPANSION JOINT



BAR d1(E) BAR d(E)

BENDING DIAGRAMS



PLAN
REINFORCEMENT AROUND
DRAINAGE STRUCTURE

NOTES:

1. TOP SHOULDER EDGE OF BARRIER BASE GUTTER SHALL MATCH THE TOP OF SHOULDER ELEVATION.
2. 1'' DEEP CONTRACTION JOINTS SHALL BE CONSTRUCTED IN BOTH THE REINFORCED CONCRETE BARRIER WALL AND BASE. CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30 FEET.
3. THE FORMING OF CONTRACTION JOINTS SHALL BE DONE WITH AN APPROVED FINISHING TOOL OR BY SAWING AT THE DISCRETION OF THE ENGINEER SUBJECT TO THE SATISFACTORY CONTROL OF CRACKING.
4. REINFORCEMENT BARS DESIGNATED ''(E)'' SHALL BE EPOXY COATED.
5. REINFORCEMENT BARS BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE ''MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES '', ACI 315, LATEST EDITION.
6. REINFORCEMENT BARS BENDING DIMENSIONS ARE OUT TO OUT.
7. AT DRAINAGE STRUCTURES, CUT FOOTING BARS TO FIT. ADD AN ADDITIONAL SET OF d, d1, †, AND †1 BARS ON EACH SIDE OF THE DRAINAGE STRUCTURE.
8. EXPANSION JOINTS SHALL BE CONSTRUCTED IN BARRIER WALL AT MAXIMUM JOINT SPACING OF 90 FEET. SEE SECTION B-B FOR DETAILS.
9. MINIMUM LENGTH OF INSTALLATION SHALL BE 25 FEET.
10. MINIMUM EXPANSION JOINT SPACING SHALL BE 25'-0''

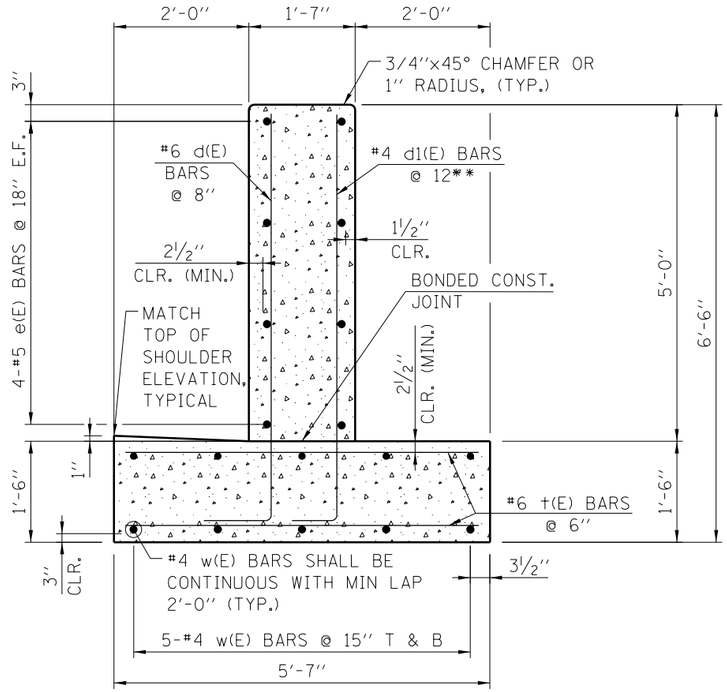
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

Illinois Tollway

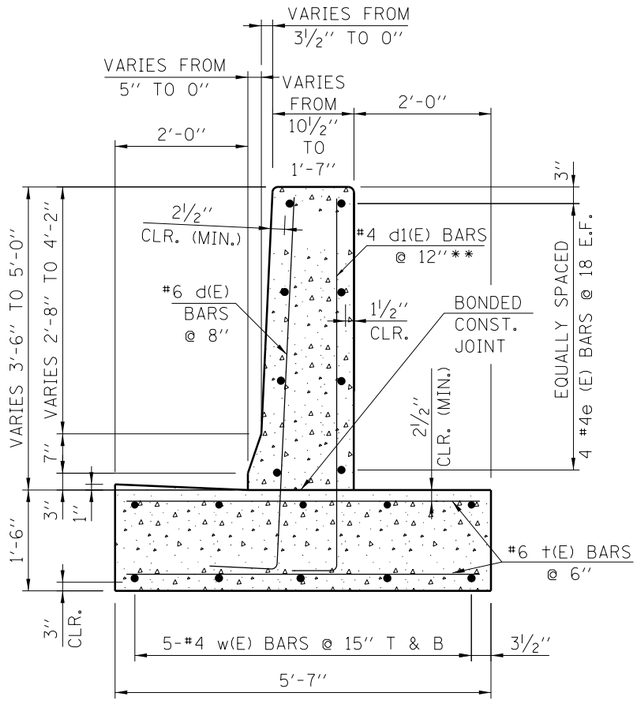
DATE	REVISIONS
11-01-12	GUTTER TRANS. TAPER DET.
	NEW JOINT DET., REV. NOTES
10-01-13	REVISED REINFORCEMENT
	BARS AND GUTTER WIDTH
03-31-14	REDESIGNED FOR TL-4 LOADING
3-11-2015	REVISED BENDING DIAGRAM

SINGLE FACE REINFORCED CONCRETE BARRIER

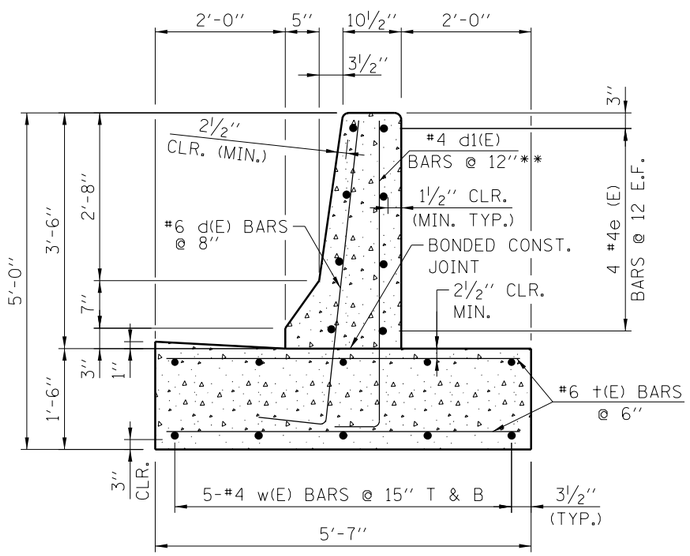
STANDARD C3-05



SECTION C-C

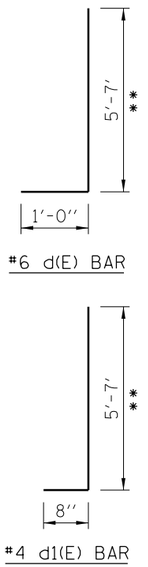


SECTION B-B

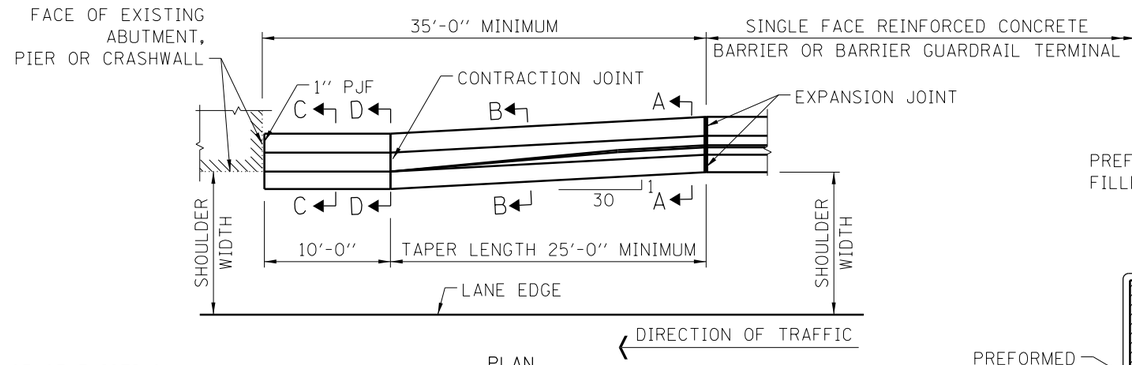


SECTION A-A

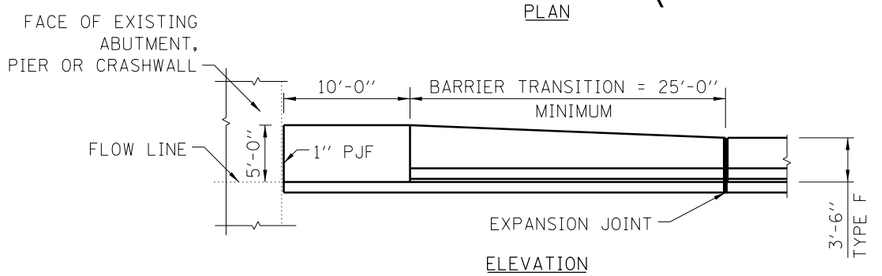
** CUT TO FIT IN FIELD
2" VERTICAL CLR.



BENDING DIAGRAMS

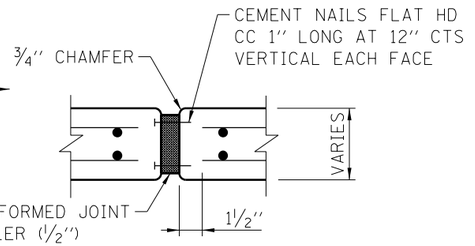


PLAN

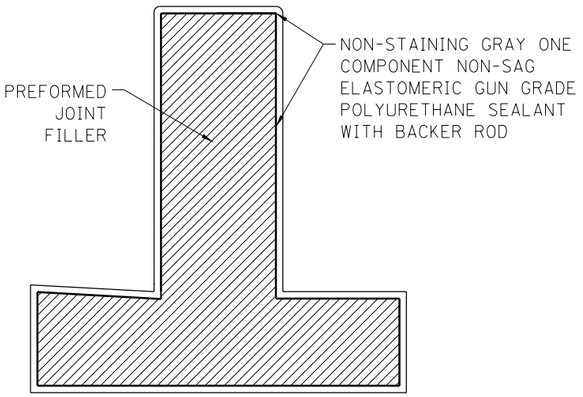


ELEVATION

CONCRETE SHOULDER BARRIER TRANSITION, TYPE F



EXPANSION JOINT



TYPE F BARRIER

SECTION B-B

NOTES:

1. TAPER LENGTH REQUIRED FOR THE WIDTH TRANSITION WILL BE 25'-0" MINIMUM. INCREASE TAPER RATE AS REQUIRED TO OBTAIN THE LENGTH OF 25'-0".
2. TOP SHOULDER EDGE OF BARRIER BASE GUTTER SHALL MATCH THE TOP OF SHOULDER ELEVATION.
3. 1" DEEP CONTRACTION JOINTS SHALL BE CONSTRUCTED IN BOTH THE REINFORCED CONCRETE BARRIER WALL AND BASE. CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0".
4. THE FORMING OF CONTRACTION JOINTS SHALL BE DONE WITH AN APPROVED FINISHING TOOL OR BY SAWING AT THE DISCRETION CRACKING.
5. REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
6. REINFORCEMENT BARS BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICES FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315, LATEST EDITION.
7. REINFORCEMENT BARS BENDING DIMENSIONS ARE OUT TO OUT.
8. TYPE F BARRIER SHALL BE USED WITH ALL NEW CONSTRUCTION, OR RECONSTRUCTION OF EXISTING BARRIERS.
9. E.F. DENOTES EACH FACE
10. MINIMUM EXPANSION JOINT SPACING SHALL BE 27'-0".

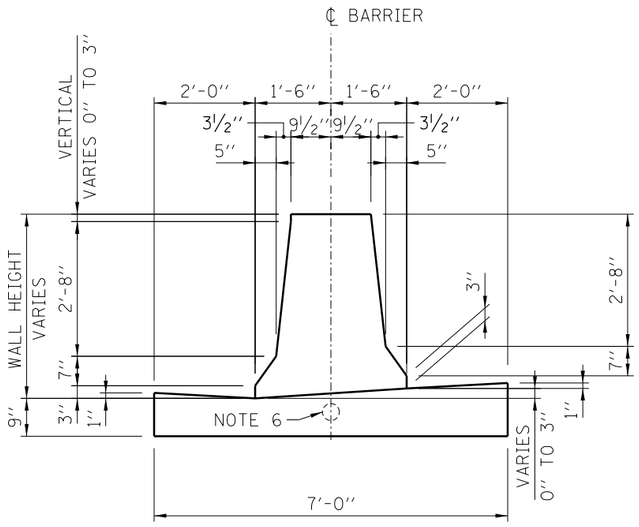
Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

DATE	REVISIONS
11-01-12	GUTTER TRANS. TAPER DET.
	NEW JOINT DET., REV. NOTES
10-01-13	REVISED REINFORCEMENT
	BARS AND GUTTER WIDTH
3-31-14	REDESIGNED FOR TL-4
	LOADING
3-11-2015	MODIFIED PREFORMED JOINT
	FILLER DETAIL

Illinois Tollway

CONCRETE SHOULDER BARRIER TRANSITION TYPE F

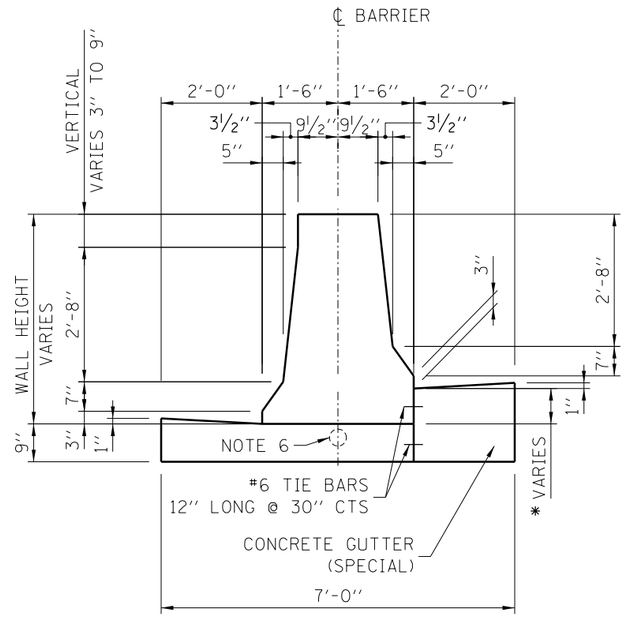
STANDARD C4-05



DETAIL A

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, VARIABLE HEIGHT, 7'-0''

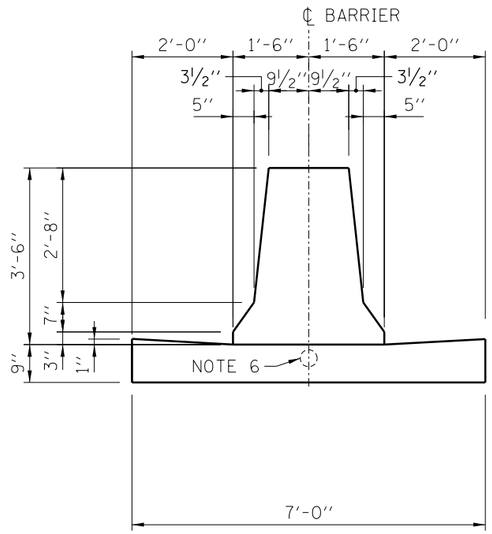
(BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 0'' TO 3'')



DETAIL B

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, 5'-0''

(BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 3'' TO 9'')
*WHEN 6'' OR GREATER ADD TOP TIE BAR.



CONCRETE BARRIER, DOUBLE FACE, 42''
CONCRETE BARRIER BASE, 7'-0''

NOTES:

1. 2'' DEEP CONTRACTION JOINTS SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL AND IN THE CONCRETE BARRIER BASE. CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'.

2. THE FORMING OF CONTRACTION JOINTS SHALL BE DONE WITH AN APPROVED FINISHING TOOL OR BY SAWING AT THE DISCRETION OF THE ENGINEER SUBJECT TO THE SATISFACTORY CONTROL OF CRACKING.

3. 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.

4. IN AREAS OF RELATIVELY FLAT LONGITUDINAL PROFILE GRADES, THE 3'' VERTICAL DIMENSION AT THE BOTTOM OF THE BARRIER CAN VARY FROM 2'' TO 3¼'' TO CREATE AN ACCEPTABLE LONGITUDINAL GRADE IN THE GUTTER.

5. TIE BARS ARE INCIDENTAL TO THE VARIOUS BARRIER & GUTTER ITEMS AND SHALL BE EPOXY COATED.

6. REFERENCE PLAN SHEET FOR TYPE, SIZE AND NUMBER OF CONDUITS. PROVIDE 1½'' (MIN.) CLEARANCE TO THE TOP OF CONDUIT AND 2'' (MIN.) CLEARANCE TO THE BOTTOM OF THE CONDUIT.

7. WHEN VARIABLE HEIGHT VERTICAL DIFFERENTIAL EXCEEDS 9'' SEE STRUCTURAL PLANS FOR DETAILS.

8. 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'. GUTTER SLOPE TRANSITIONS ARE INCLUDED IN THE COST OF CONCRETE BASE OR CONCRETE GUTTER (SPECIAL). SEE ROADWAY PLANS FOR LIMITS OF REVERSE PITCHED GUTTER AND TRANSITIONS.

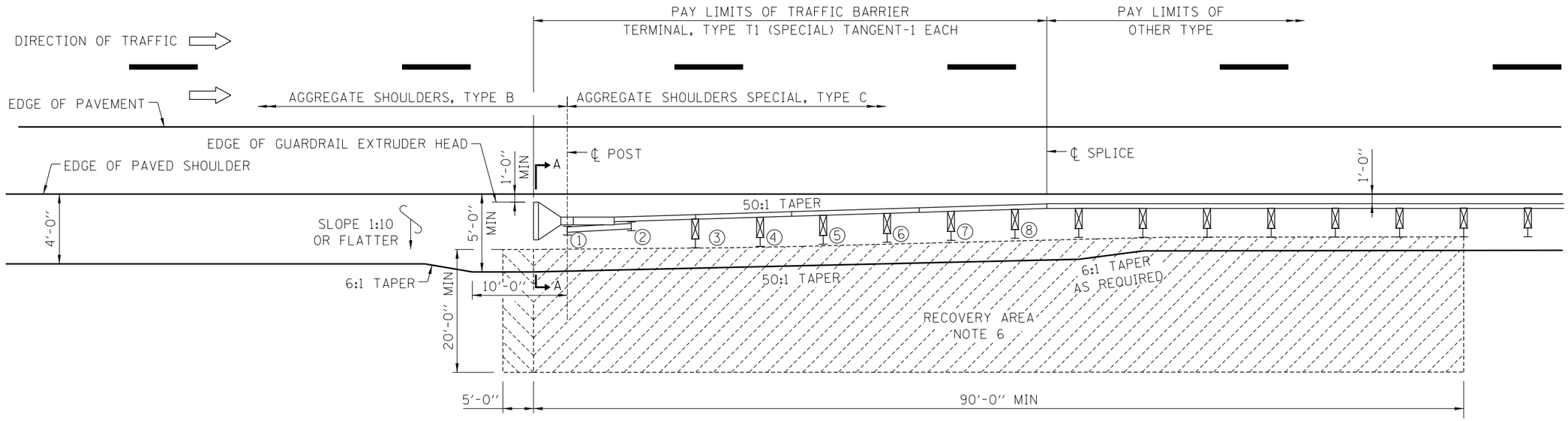
Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

DATE	REVISIONS
2-07-2012	ADDED CONDUITS TO
	BARRIER BASE
11-01-2012	ADDED GUTTER TRANSITION
	TAPER DETAIL AND NEW
	JOINT DETAIL
3-31-2014	MODIFIED BARRIER BASE
3-11-2015	REVISED NOTES

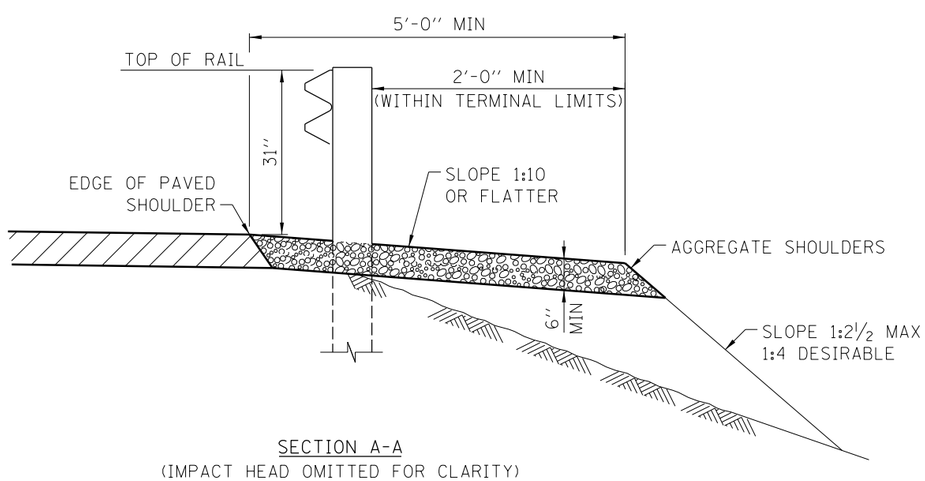
Illinois Tollway

CONCRETE BARRIER BASE, AND CONCRETE BARRIER, DOUBLE FACE, 42'' AND VARIABLE HEIGHT

STANDARD C5-04



SHOULDER WIDENING TRANSITION-WITHOUT GUTTER FOR
TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT



SECTION A-A
(IMPACT HEAD OMITTED FOR CLARITY)

NOTE FOR INSTALLATION ON TANGENT ROADWAY:

TRAFFIC BARRIER TERMINAL SHALL BE INSTALLED AT A 50:1 TAPER MEASURED FROM EDGE OF TRAVELED WAY.

NOTE FOR INSTALLATION ON CURVED ROADWAY:

THE EDGE OF THE TERMINAL EXTRUDER HEAD SHALL BE OFFSET A DISTANCE FROM A POINT ON THE BACK OF THE CURVED EDGE OF PAVED SHOULDER AS SHOWN IN TABLE 1.

GENERAL NOTES:

1. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
2. REFERENCE STANDARD B28 FOR GUTTER TRANSITION.
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 ROADSIDE OBSTACLE OF ANY TYPE-FIXED OR BREAKAWAY, EITHER TEMPORARY OR PERMANENT SHALL BE ALLOWED WITHIN THIS RECOVERY AREA.
6. 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 STANDARD 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.

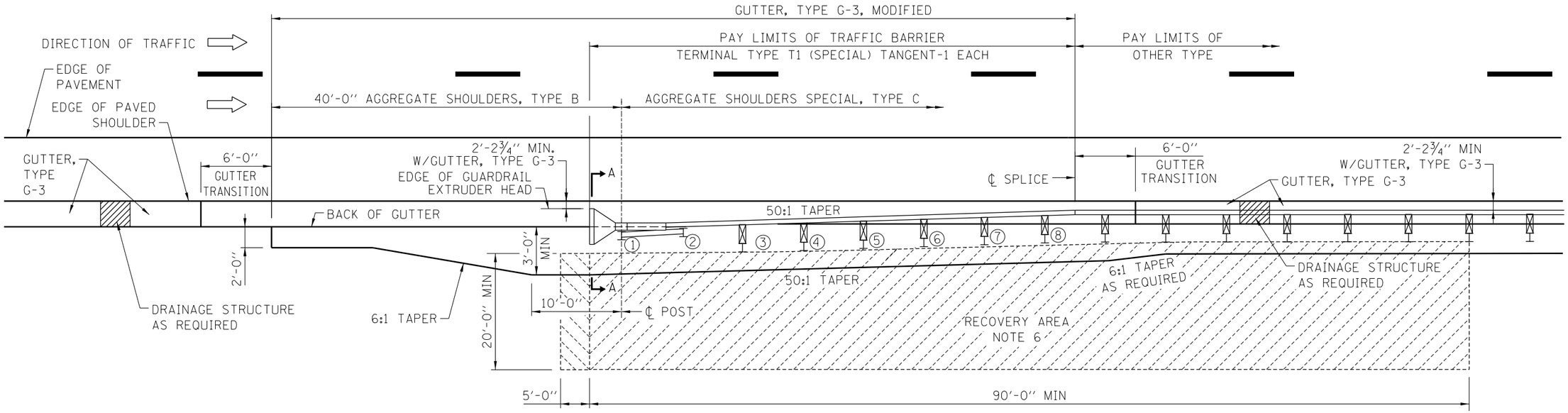
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

Illinois Tollway

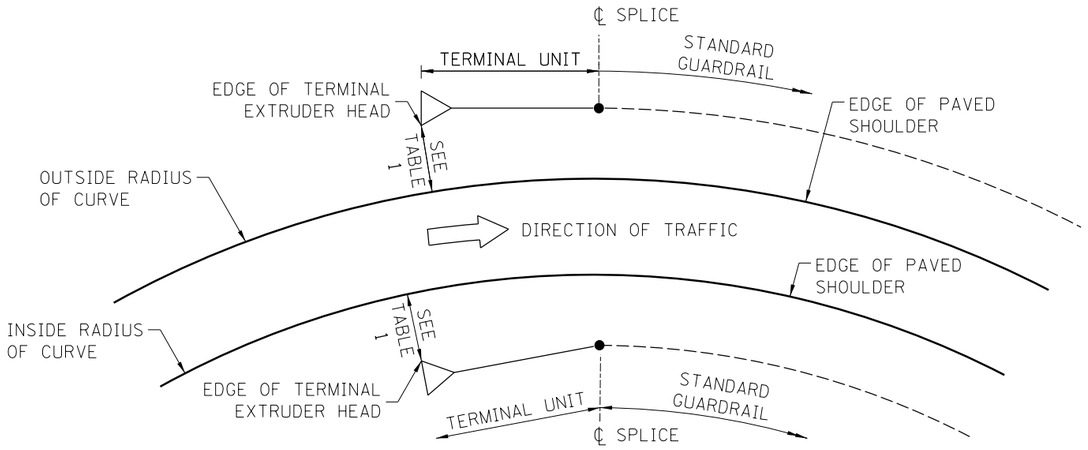
DATE	REVISIONS
03-01-13	TERMINAL CHANGED TO ALL
	STEEL POST SYSTEM, REVISED
	TERMINAL PAY LIMITS
03-31-14	REVISED RECOVERY AREA
	DIMENSION
3-11-2015	REVISED NOTES

SHOULDER WIDENING FOR
TRAFFIC BARRIER TERMINAL,
TYPE T1 (SPECIAL) TANGENT

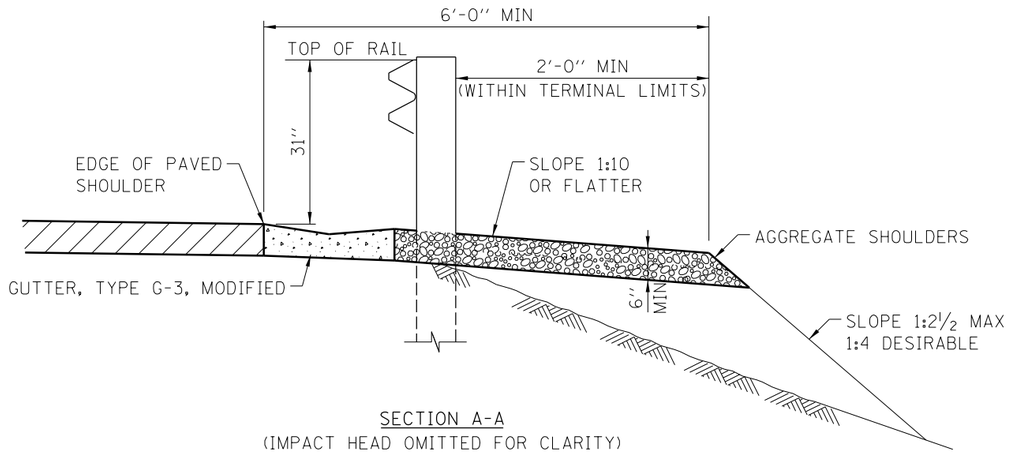
STANDARD C6-07



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



CURVED ROADWAY
TRAFFIC BARRIER TERMINAL PLACEMENT



SECTION A-A
(IMPACT HEAD OMITTED FOR CLARITY)

TABLE 1		
LATERAL OFFSET DIMENSION TO EDGE OF TERMINAL EXTRUDER HEAD		
	INSIDE RADIUS OF CURVE	OUTSIDE RADIUS OF CURVE
NO GUTTER	1'-0"	1'-0" MIN. *
GUTTER, TYPE G-2	1'-2¾"	1'-2¾" MIN. *
GUTTER, TYPE G-3	2'-2¾"	2'-2¾" MIN. *

(*) OFFSET DISTANCE WILL VARY BASED ON RADIUS OF HORIZONTAL CURVE AND THE TERMINAL BEING INSTALLED IN A STRAIGHT LINE.

NOTES:

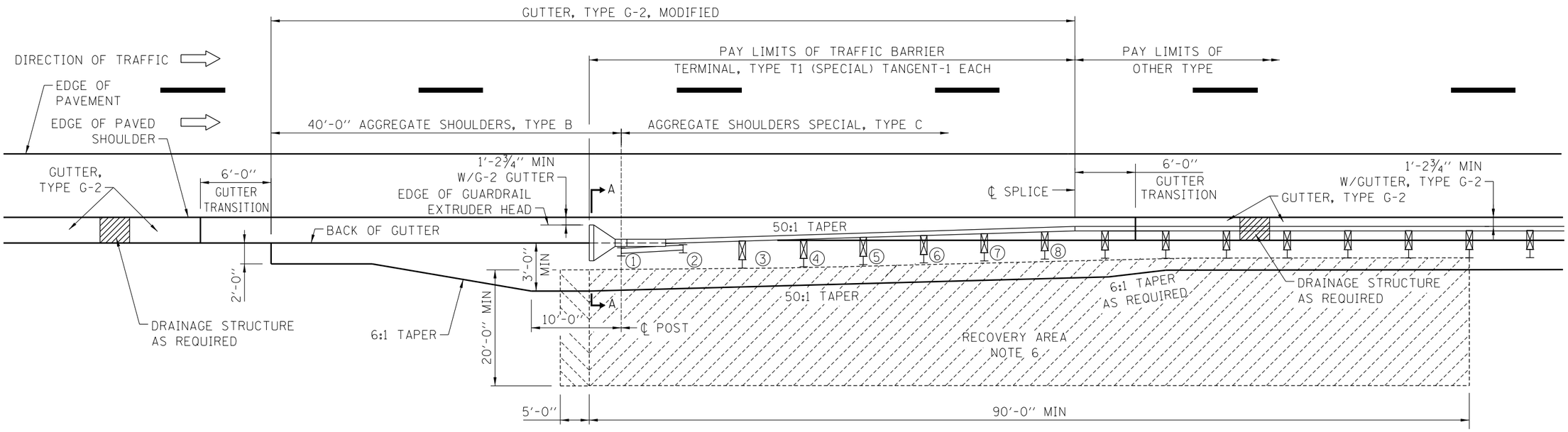
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

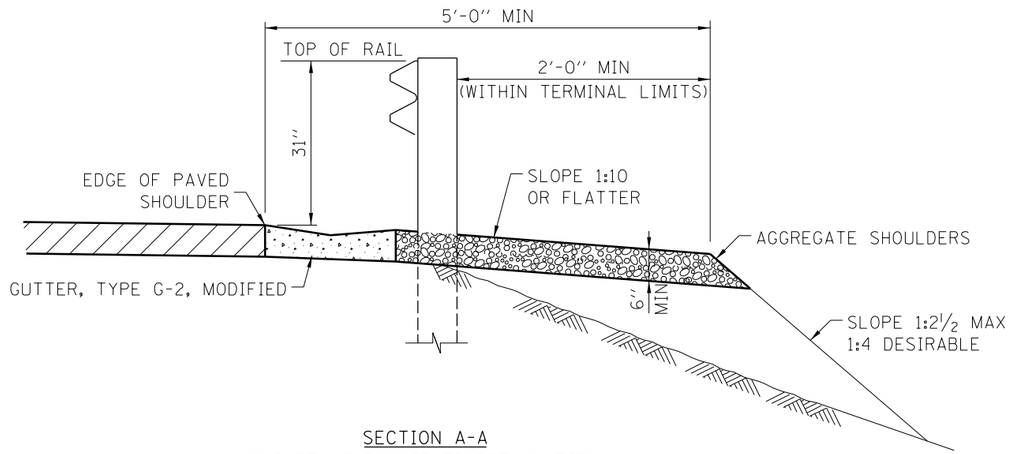
Illinois Tollway

SHOULDER WIDENING FOR
TRAFFIC BARRIER TERMINAL,
TYPE T1 (SPECIAL) TANGENT

STANDARD C6-07



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



SECTION A-A
(IMPACT HEAD OMITTED FOR CLARITY)

NOTES:

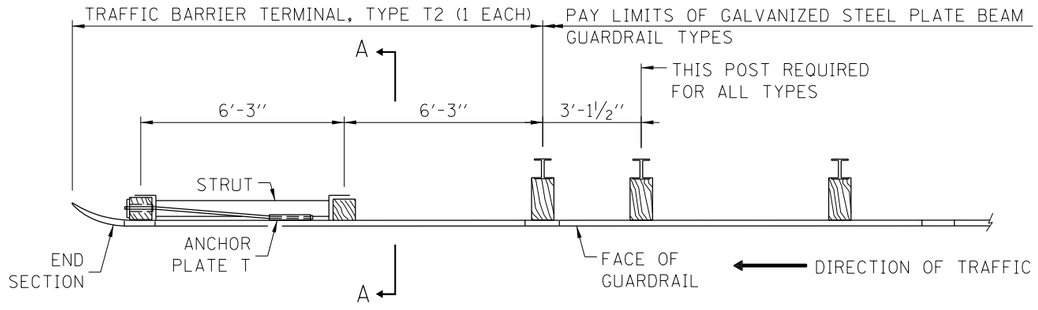
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

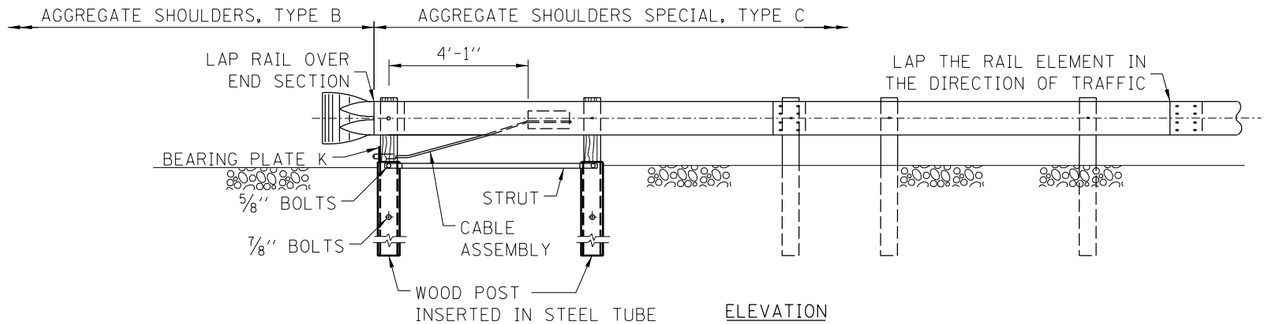
Illinois Tollway

SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT

STANDARD C6-07

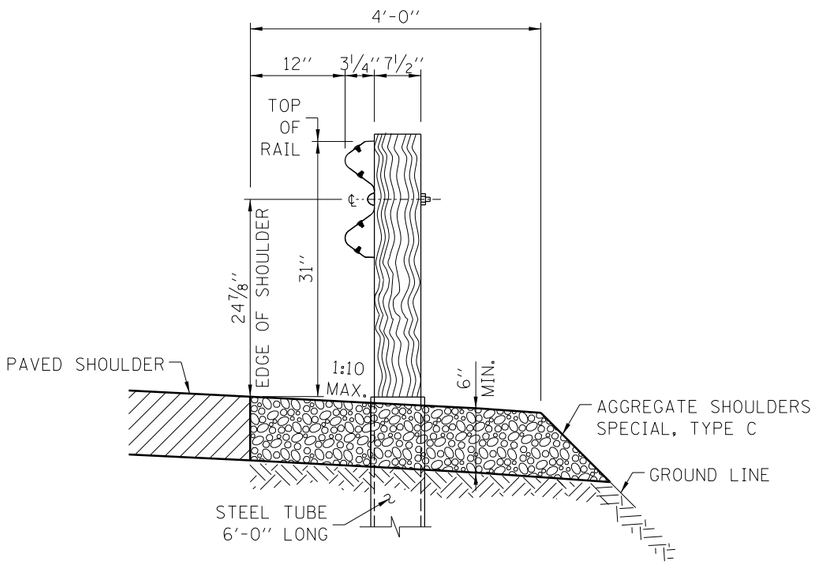


PLAN



ELEVATION

TRAFFIC BARRIER TERMINAL, TYPE T2-WITHOUT GUTTER



SECTION A-A

NOTES:

1. SEE STANDARD 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 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 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 STANDARD 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 SHOULDER TO THE FACE OF THE GUARDRAIL SHALL BE AS SHOWN ON STANDARD B28.

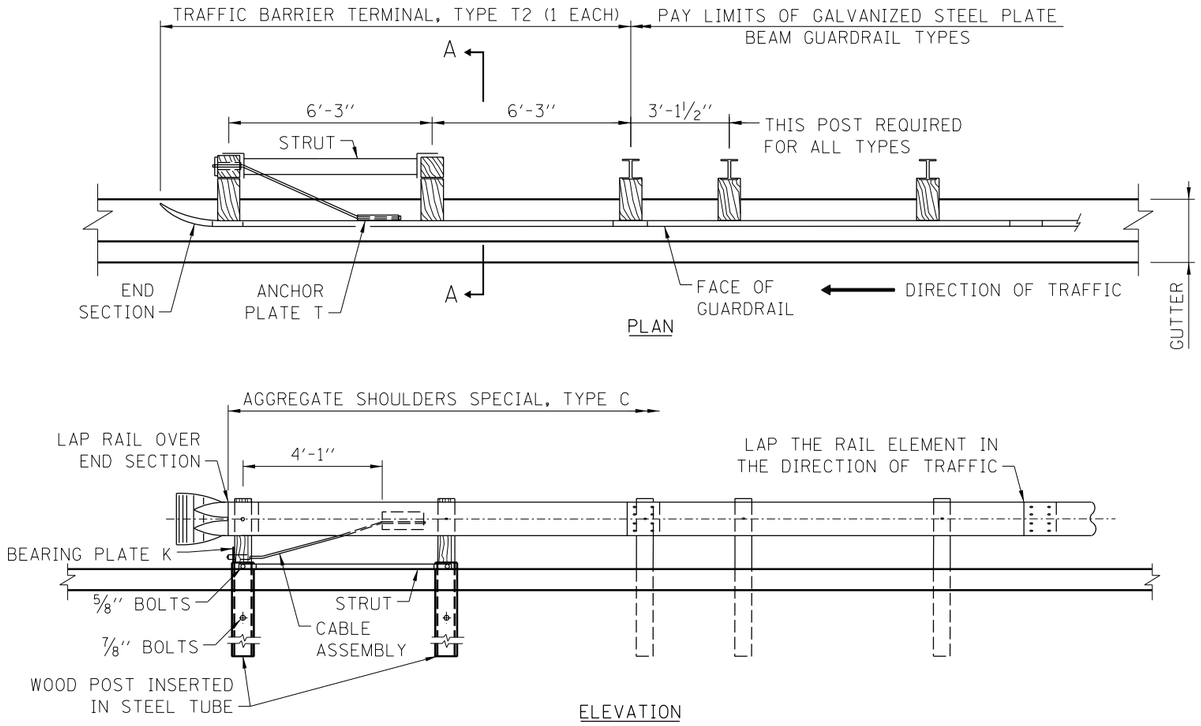
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

DATE	REVISIONS
2-07-2012	REVISED DIMENSIONS OF BEARING PLATE, POST, CABLE STRUT AND TUBE AND NOTES
11-01-2012	MODIFIED AGGREGATE SHOULDERS, REVISED WOOD POST DIMENSION
3-31-2014	REVISED NOTES
3-11-2015	REVISED NOTES

Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T2

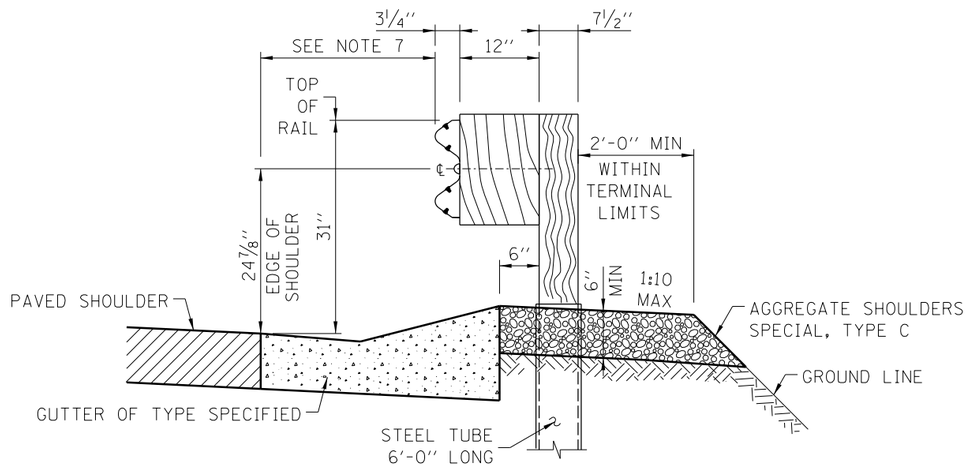
STANDARD C7-06



PLAN

ELEVATION

TRAFFIC BARRIER TERMINAL, TYPE T2-WITH GUTTER



SECTION A-A

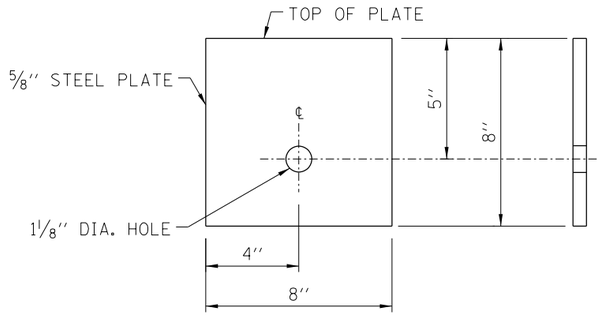
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

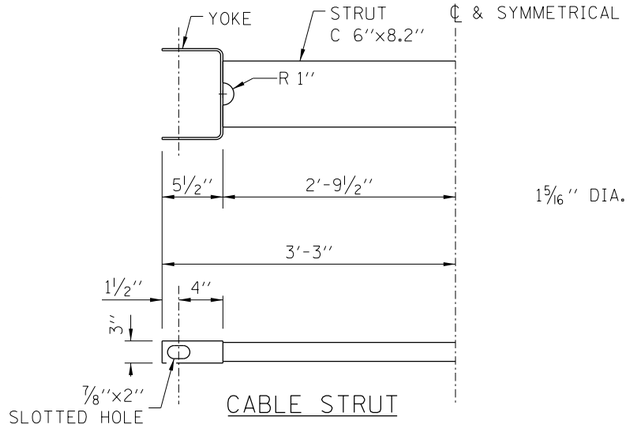
Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T2

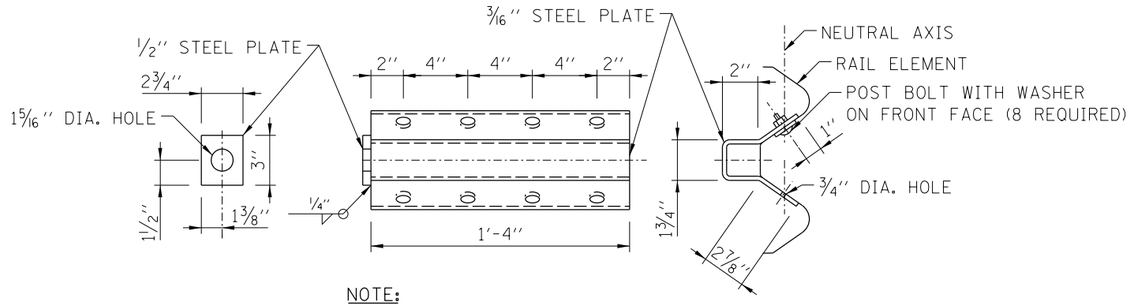
STANDARD C7-06



BEARING PLATE K

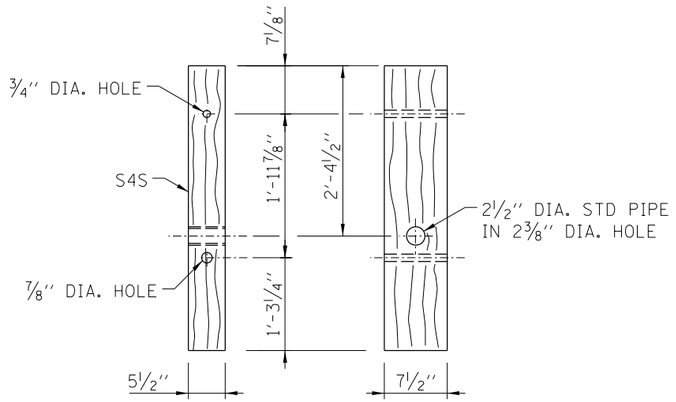


CABLE STRUT

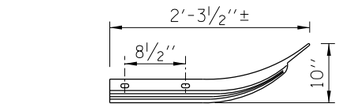


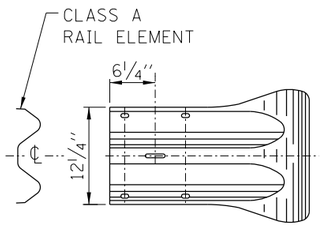
NOTE:
ANCHOR PLATE T SHALL BE USED TO ATTACH CABLE ASSEMBLY TO GUARDRAIL WHEN REQUIRED ON TRAFFIC BARRIER TERMINALS.

ANCHOR PLATE T DETAILS

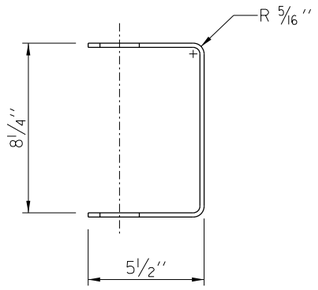


WOOD POST

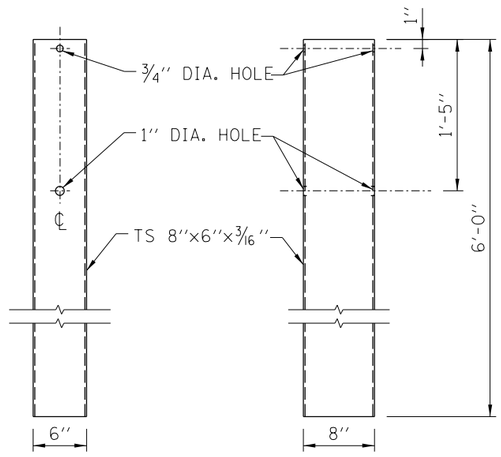




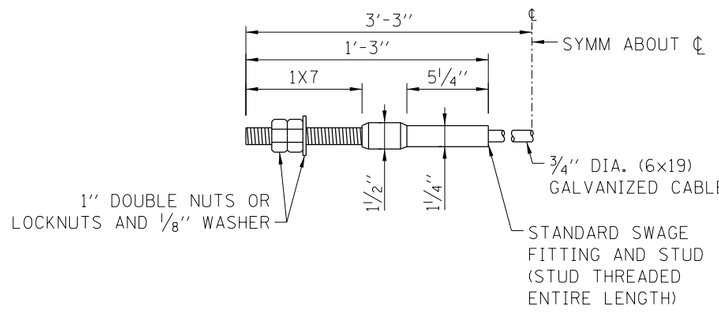
END SECTION



YOKE
3/16'' THICK STEEL



STEEL TUBE



CABLE ASSEMBLY
(40,000 LBS.) MIN. BREAKING STRENGTH)
TIGHTEN TO TAUT TENSION

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED . . . . . CHIEF ENGINEER
DATE 7-1-2009

Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T2

STANDARD C7-06

RESERVED

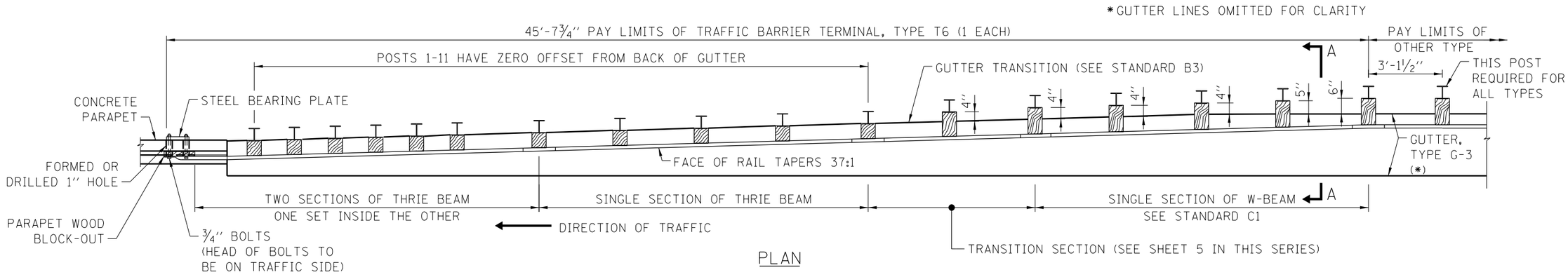
APPROVED . . . . . DATE . . . . . .
CHIEF ENGINEER

DATE	REVISIONS

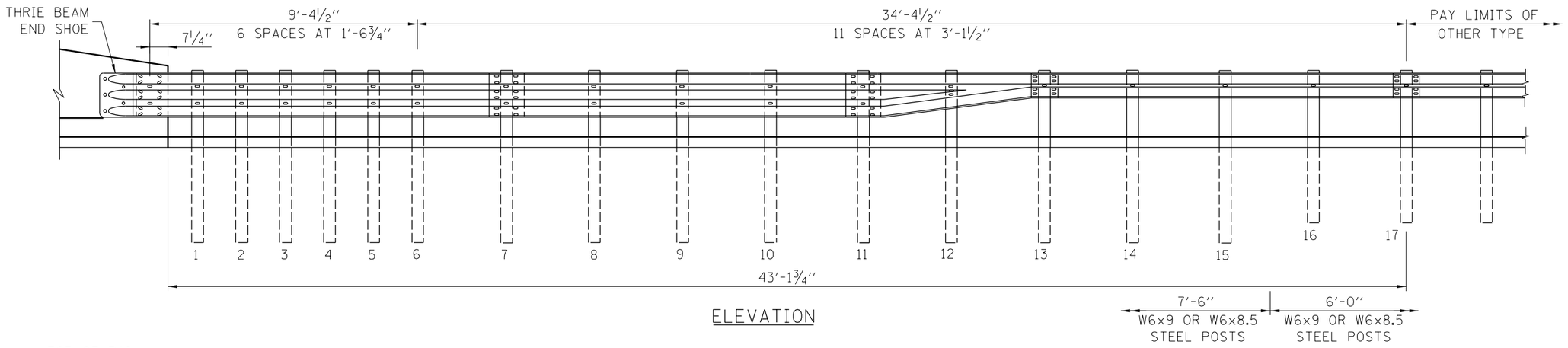
Illinois Tollway

RESERVED

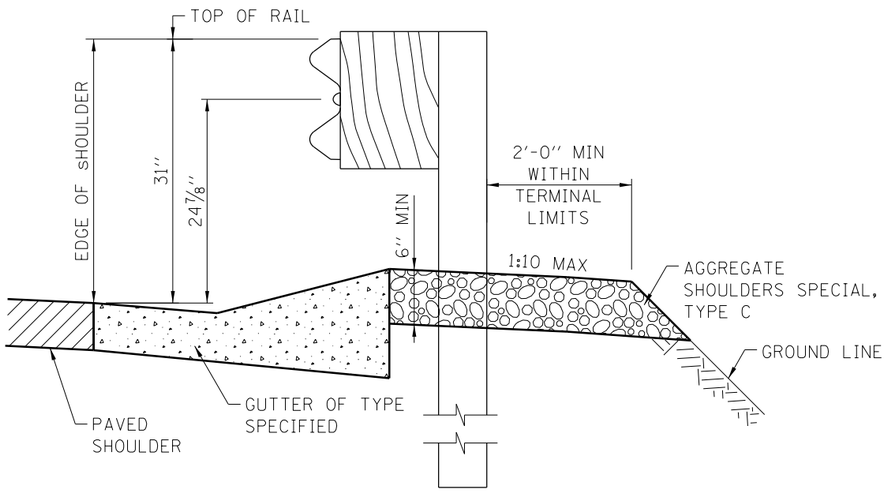
STANDARD C8-00



PLAN



ELEVATION



WITH GUTTER, TYPE G-3

SECTION A-A

NOTES:

1. SEE STANDARD C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THRIE BEAM RAIL SHALL BE BOLTED TO BLOCK-OUT AT ALL POSTS.
3. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
4. 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.
5. SEE STANDARD B3 FOR GUTTER TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6.
6. 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 WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT COMFORMS TO THE CURRENT STANDARD.
7. TRAFFIC BARRIER TERMINAL, TYPE T6 SHALL BE IN ACCORDANCE WITH THE TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.
8. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENTS. WHEN NECESSARY USE LEAVE-OUT DETAIL PER STANDARD C1.
9. TERMINAL POSTS TO BE INSTALLED PERPENDICULAR TO BACK OF GUTTER.
10. 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.
11. TERMINAL BARRIER CLEARANCE DISTANCE SHALL CONFORM WITH TABLE 2 ON STANDARD C1.
12. LEAVE-OUT DIMENSION BEHIND POSTS 1-6, SHALL BE A MINIMUM OF 4''.

FOR PARAPET (SAFETY FACE) WITH GUTTER, TYPE G-3

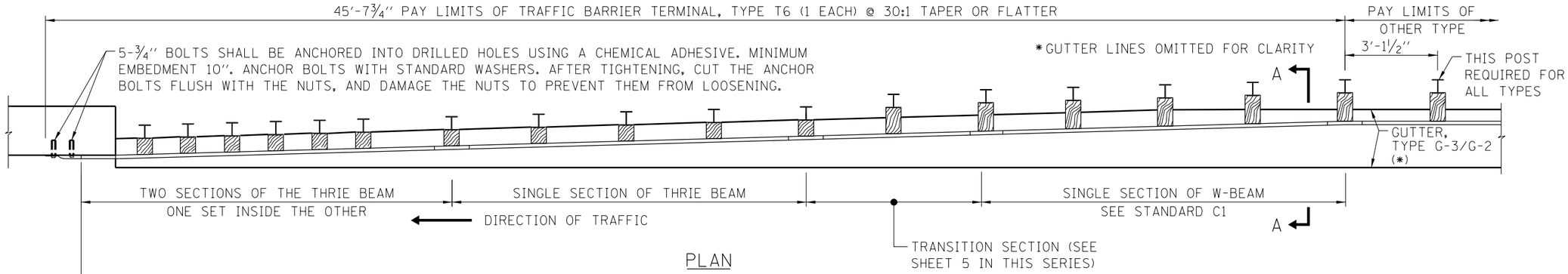
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

Illinois Tollway

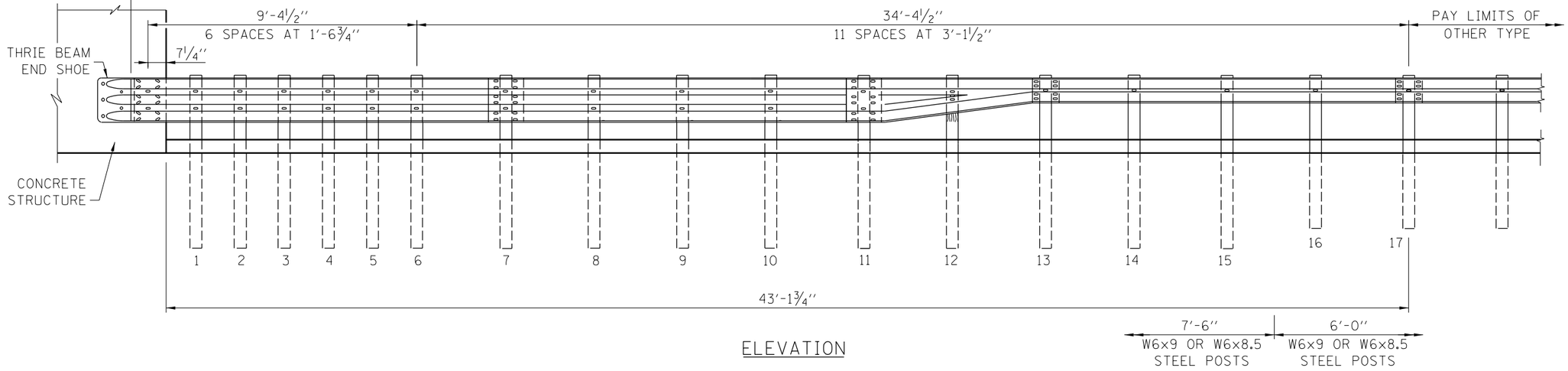
DATE	REVISIONS
2-07-2012	REVISED BOLT NOTES, ANCHORAGE
	ADHESIVE AND REVISED NOTES.
11-01-2012	MODIFIED AGGREGATE SHOULDERS,
	REVISED NOTES.
3-31-2014	REVISED NOTES.
3-11-2015	REVISED NOTES AND ADDED DETAIL.

TRAFFIC BARRIER TERMINAL, TYPE T6

STANDARD C9-06



PLAN



ELEVATION

FOR OTHER CONCRETE STRUCTURE (VERTICAL FACE) WITH GUTTER

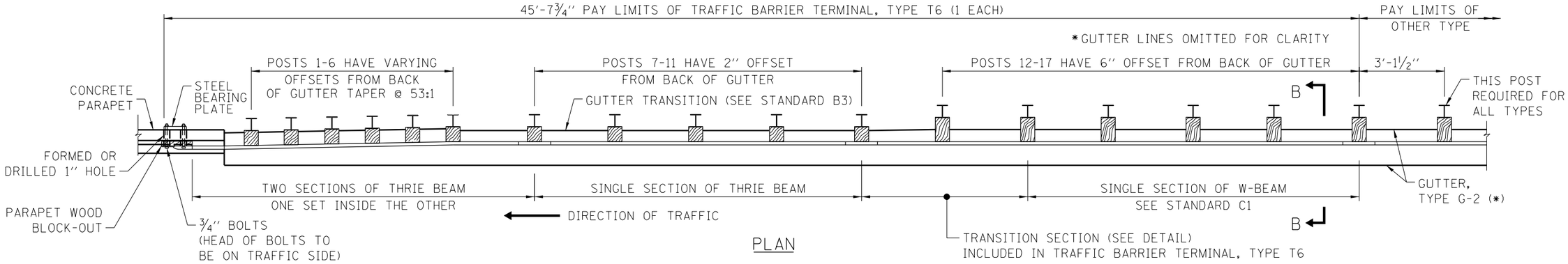
Paul Kovacs
APPROVED . . . . . CHIEF ENGINEER
DATE 7-1-2009

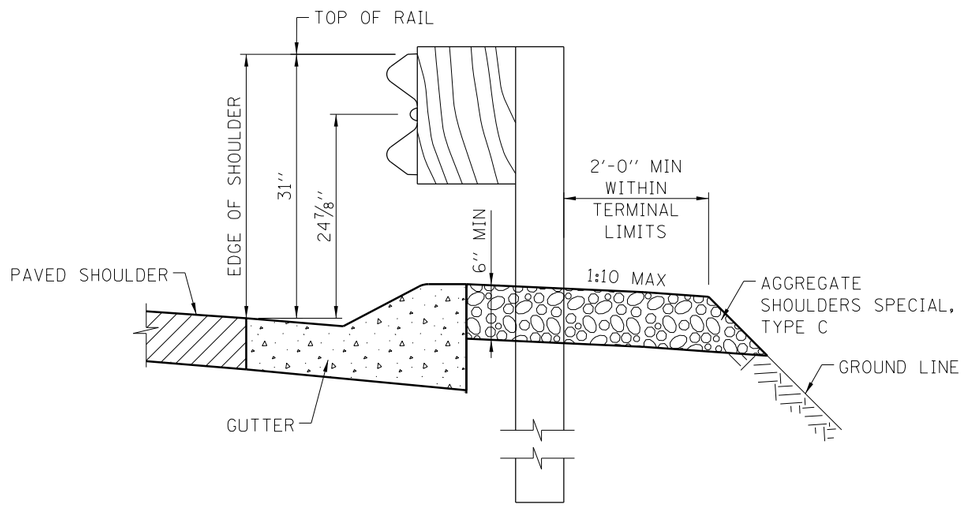
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T6

STANDARD C9-06





SECTION B-B
WITH GUTTER, TYPE G-2

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

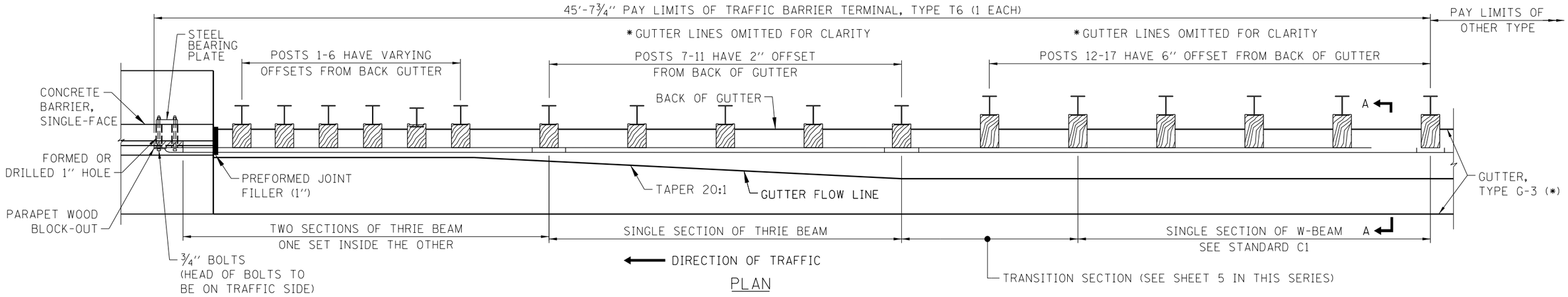
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED . . . . . CHIEF ENGINEER
DATE 7-1-2009

Illinois Tollway

TRAFFIC BARRIER TERMINAL TYPE T6

STANDARD C9-06



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

NOTE:

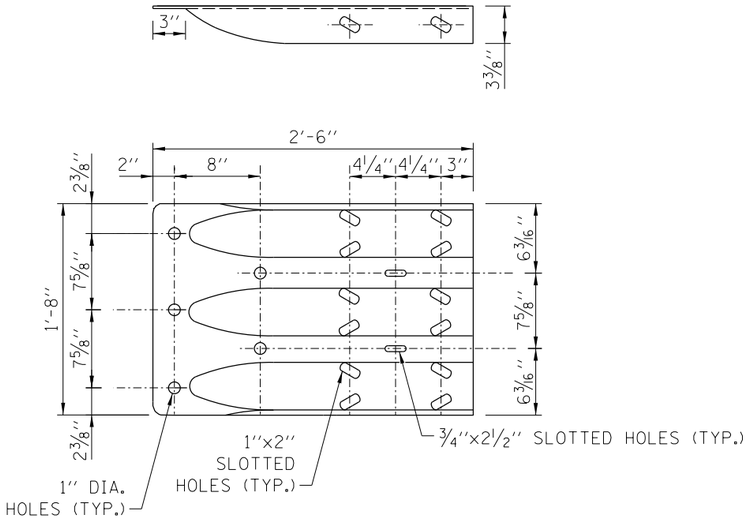
SEE SHEET 1 OF THIS SERIES FOR GUTTER TRANSITION NOTES AND SECTION A-A.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 2-7-2012

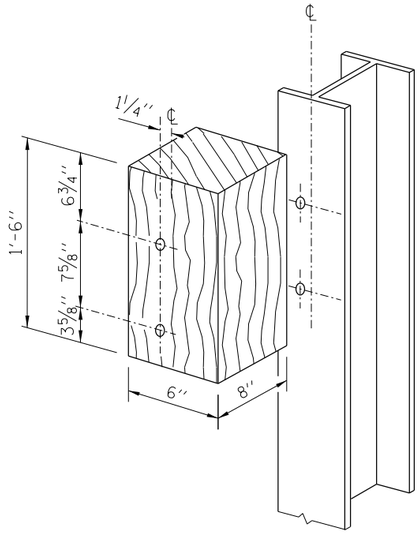
Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T6

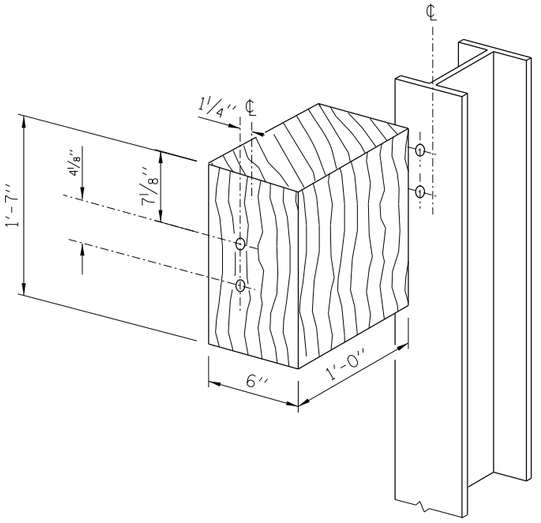
STANDARD C9-06



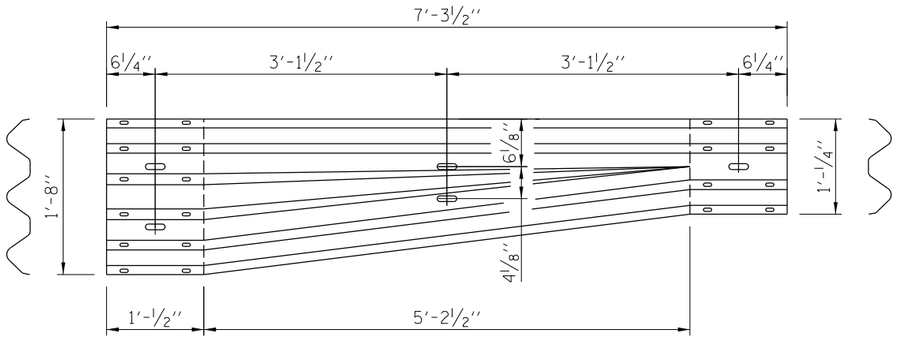
THRIE BEAM END SHOE DETAIL



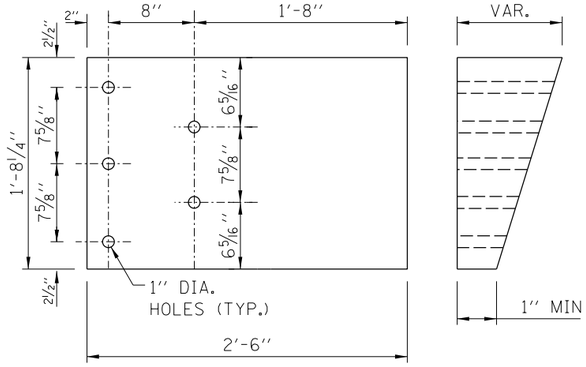
POSTS 1-11 WOOD BLOCK-OUT DETAIL



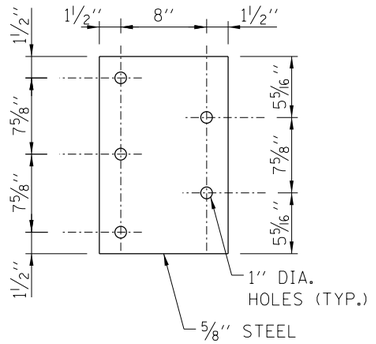
POST 12 WOOD BLOCK-OUT DETAIL
(SEE STANDARD C1 FOR POST 13-17 BLOCKOUTS.)



TRANSITION SECTION
(10 GUAGE RAIL ELEMENT)



PARAPET WOOD BLOCK-OUT DETAIL



PARAPET STEEL BEARING PLATE DETAIL
(5 EACH INDIVIDUAL 5''x5''x5/8'' STEEL PLATES WITH CENTERED 1'' HOLES MAY BE SUBSTITUTED FOR THE PLATE SHOWN.)

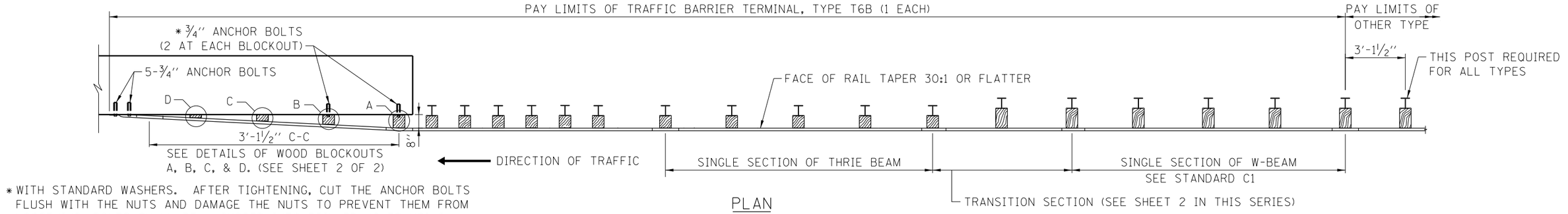
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED . . . . . DATE 7-1-2009
CHIEF ENGINEER

Illinois Tollway

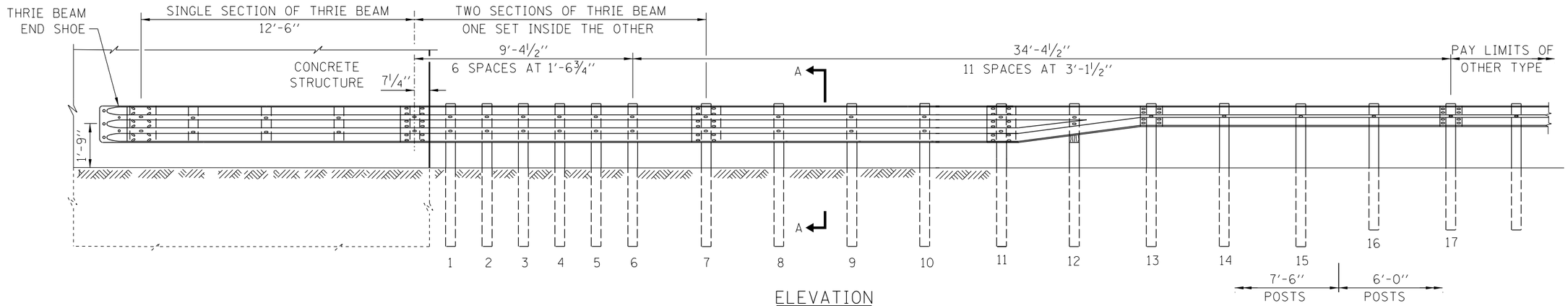
TRAFFIC BARRIER TERMINAL, TYPE T6

STANDARD C9-06

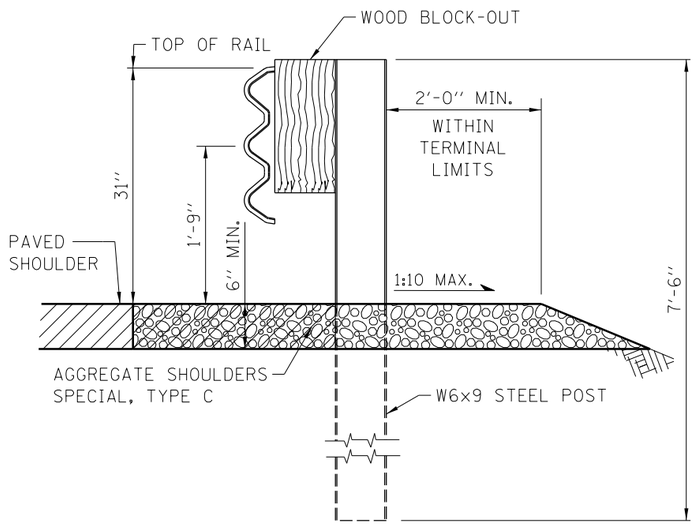


PLAN

* WITH STANDARD WASHERS. AFTER TIGHTENING, CUT THE ANCHOR BOLTS FLUSH WITH THE NUTS AND DAMAGE THE NUTS TO PREVENT THEM FROM LOOSENING. BOLTS SHALL BE ANCHORED INTO DRILLED HOLES USING A CHEMICAL ADHESIVE RESIN SYSTEM. MINIMUM EMBEDMENT 10''.



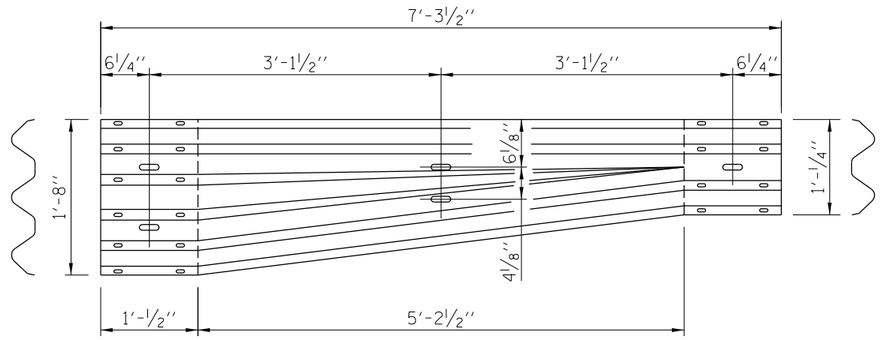
ELEVATION



SECTION A-A

NOTES:

1. SEE STANDARD C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THRIE BEAM RAIL SHALL BE BOLTED TO BLOCK-OUT AT ALL POSTS.
3. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
4. 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.
5. 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.
6. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE 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 STANDARD C1, SHEET 4 OF 4.
8. TERMINAL BARRIER CLEARANCE DISTANCE SHALL CONFORM WITH TABLE 2 ON STANDARD C1.
9. LEAVE-OUT DIMENSION BEHIND POSTS 1-6, SHALL BE A MINIMUM OF 4''.



TRANSITION SECTION
(10 GUAGE RAIL ELEMENT)

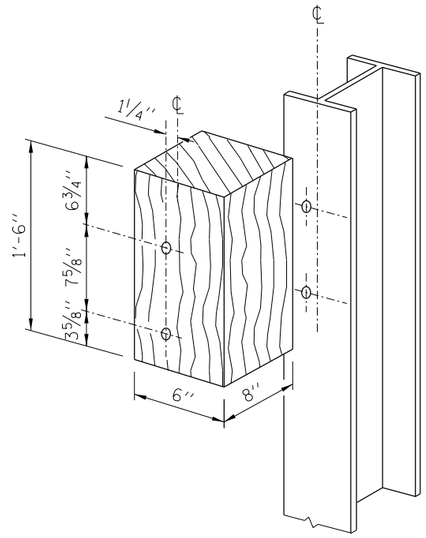
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

Illinois Tollway

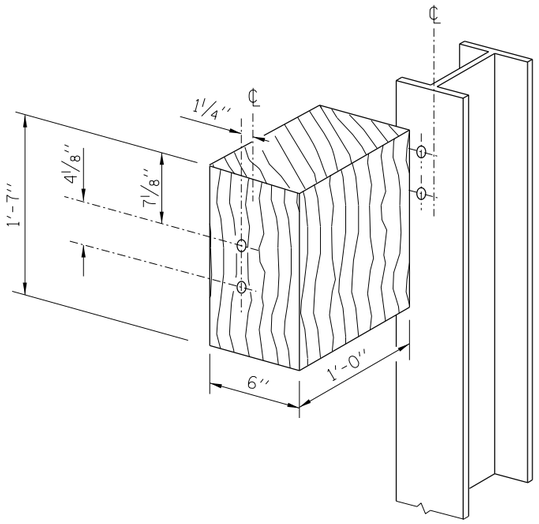
DATE	REVISIONS
2-07-2012	REVISED WOOD BLOCK-OUT DIMENSION
	ADHESIVE AND REVISED NOTES
11-01-2012	MODIFIED AGGREGATE SHOULDERS,
	REVISED NOTES
3-31-2014	REVISED WOOD BLOCKS AND NOTES
3-11-2015	REVISED NOTES

TRAFFIC BARRIER TERMINAL, TYPE T6B

STANDARD C10-06

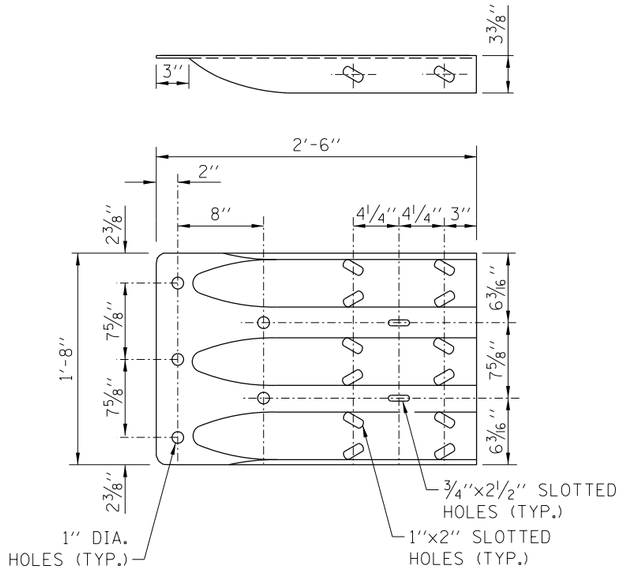


POSTS 1-11 WOOD BLOCK-OUT DETAIL

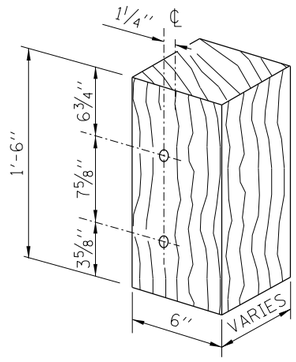


POST 12 WOOD BLOCK-OUT DETAIL

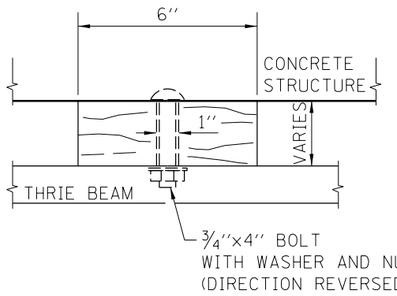
(SEE STANDARD C1 FOR POST 13-17 BLOCKOUTS)



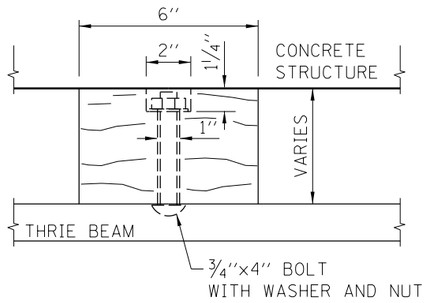
THRIE BEAM END SHOE DETAIL



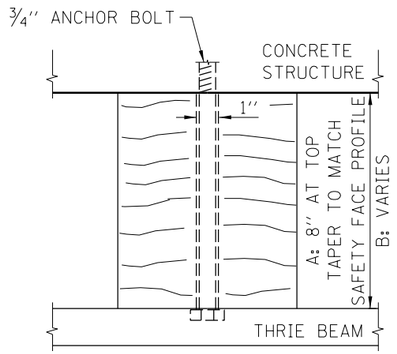
MODIFIED THICKNESS DETAIL
WOOD BLOCK-OUTS A, B, C, & D



WOOD BLOCK-OUT D



WOOD BLOCK-OUT C



WOOD BLOCK-OUT A & B

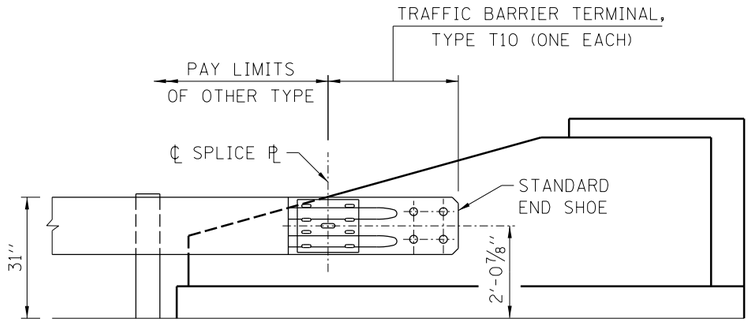
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED ..... CHIEF ENGINEER
DATE 7-1-2009

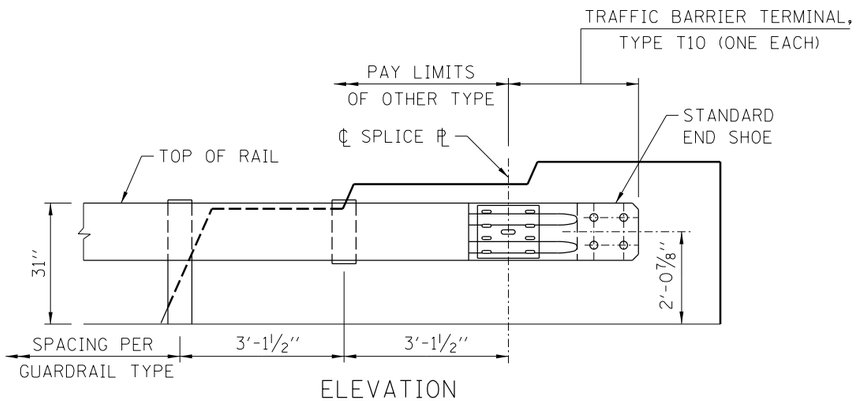
Illinois Tollway

TRAFFIC BARRIER TERMINAL, TYPE T6B

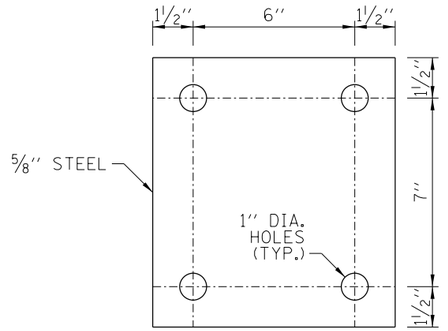
STANDARD C10-06



ELEVATION

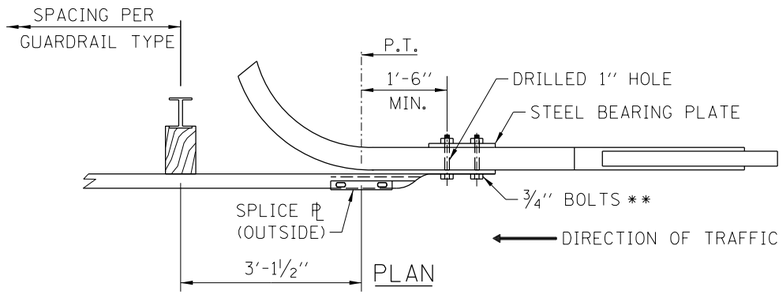


ELEVATION

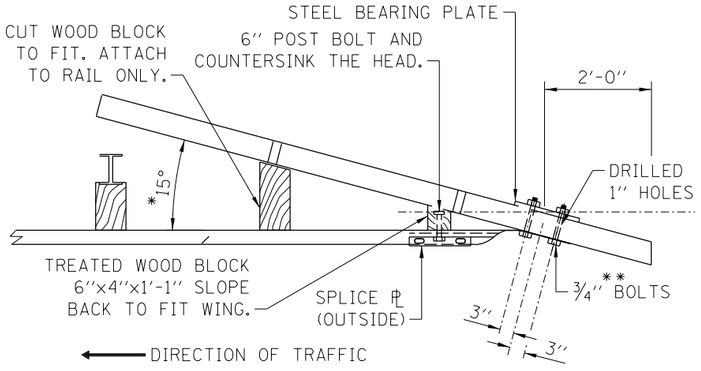


PARAPET STEEL BEARING
PLATE DETAIL

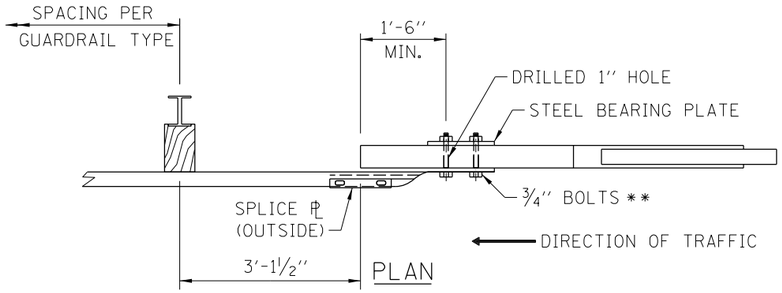
(4 EACH INDIVIDUAL 5''x5''x5/8'' STEEL PLATES WITH CENTERED HOLES MAY BE SUBSTITUTED FOR THE PLATE SHOWN)



CURVED WING



PLAN
FLARED WING

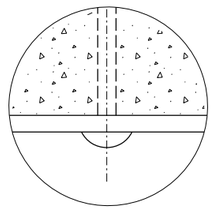


TANGENT WING

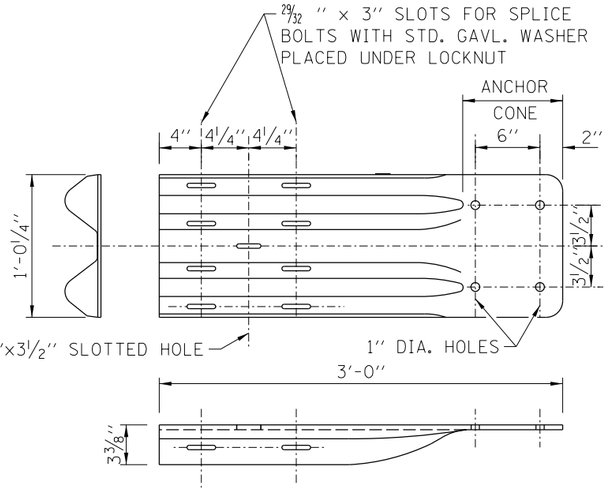
GENERAL NOTE:

* OR TO BE DETERMINED IN THE FIELD.

** HEAD OF BOLT TO BE ON TRAFFIC SIDE. SEE DETAIL ''A''



DETAIL ''A''



END SHOE

NOTES:

1. SEE STANDARD C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THE 24 7/8'' TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 1' IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER WHEN EDGE IS MORE THAN 1' 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 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 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 WILL NOT BE PERMITTED.
9. WHEN WING WALL THICKNESS IS GREATER THAN 18'' OR NOT ACCESSIBLE TO THE BACK SIDE, 4-3/4'' 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.

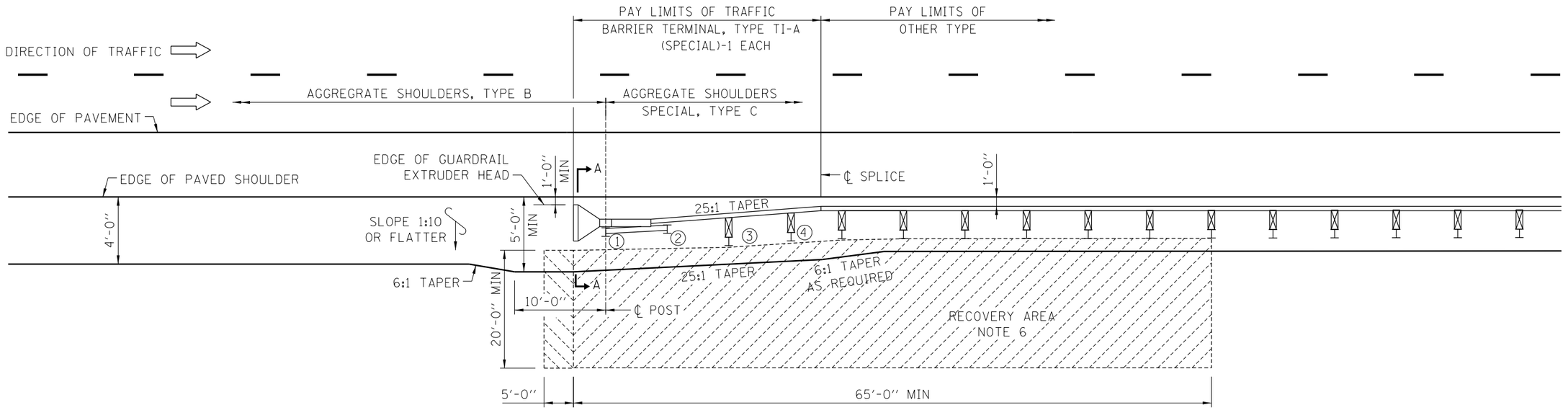
Paul Kovacs
APPROVED ..... DATE 7-1-2009
CHIEF ENGINEER

DATE	REVISIONS
3-01-2010	REVISED NOTES, ADDED END SHOE AND
	PARAPET BEARING PLATE DETAIL.
1-01-2011	REVISED END SHOE HEIGHT ATTACHMENT
2-07-2012	REVISED BOLT NOTE, ADDED DETAIL ''A''
	AND REVISED NOTES.
3-31-2014	REVISED NOTES.
3-11-2015	REVISED NOTES.

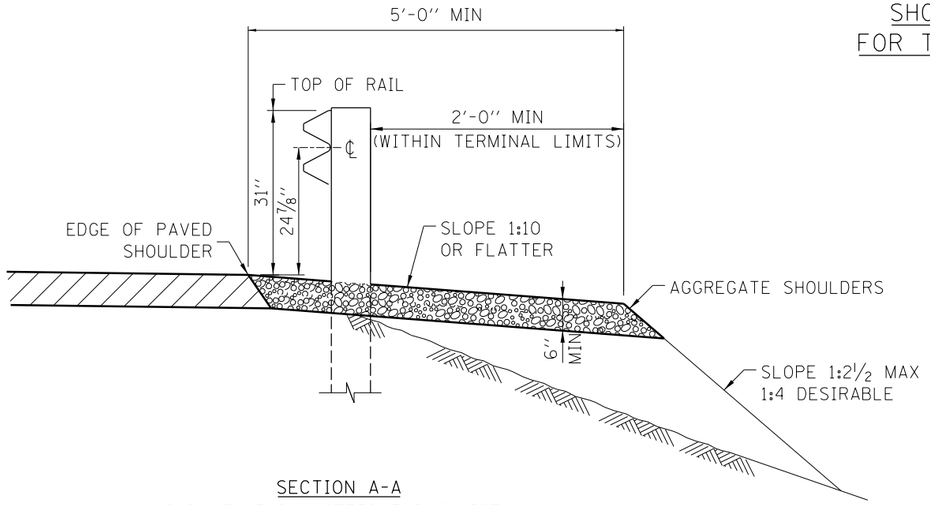
Illinois Tollway

TRAFFIC BARRIER
TERMINAL, TYPE T10

STANDARD C11-05



SHOULDER WIDENING TRANSITION-WITHOUT GUTTER
FOR TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)



SECTION A-A
(IMPACT HEAD OMITTED FOR CLARITY)

NOTE FOR INSTALLATION ON TANGENT ROADWAY:
TRAFFIC BARRIER TERMINAL SHALL BE INSTALLED AT A 25:1 TAPER MEASURED FROM EDGE OF TRAVELED WAY.

NOTE FOR INSTALLATION ON CURVED ROADWAY:
THE EDGE OF THE TERMINAL EXTRUDER HEAD SHALL BE OFFSET A DISTANCE FROM A POINT ON THE BACK OF THE CURVED EDGE OF PAVED SHOULDER AS SHOWN IN TABLE 1.

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 STANDARD B29 FOR GUTTER TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL).
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 ROADSIDE OBSTRUCTION OF ANY TYPE-FIXED OR BREAKAWAY, EITHER TEMPORARY OR PERMANENT SHALL BE ALLOWED WITHIN THIS RECOVERY AREA.
7. NO CURVED W-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.
8. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR HMA. WHEN NECESSARY USE LEAVE-OUT DETAIL SHOWN ON STANDARD C1.
9. THE TERMINAL SYSTEM HAS BEEN PERFORMANCE-TESTED FOR CRASHWORTHINESS UNDER PROCEDURCES DEFINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH REPORT (NCHRP) REPORT 350. NO MODIFICATION TO THIS STANDARD DRAWING SHALL BE PERMITTED.

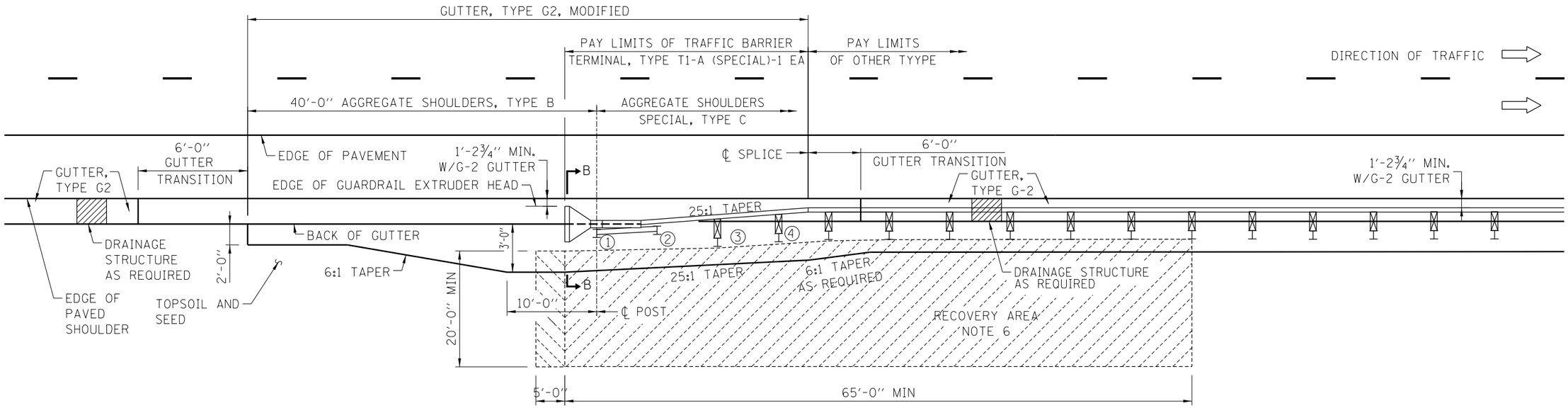
Paul Kovacs
APPROVED ..... DATE 1-1-2011
CHIEF ENGINEER

Illinois Tollway

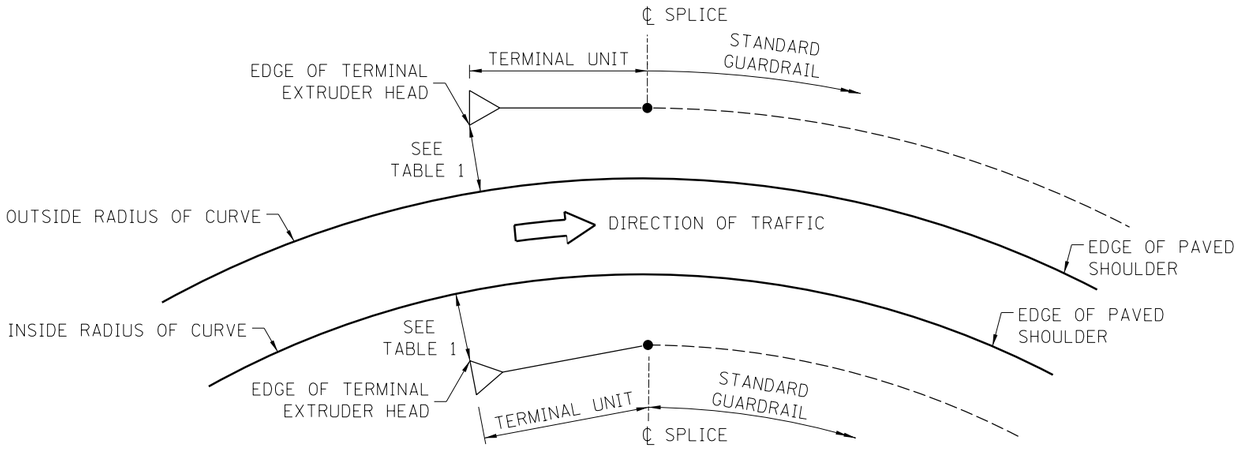
DATE	REVISIONS
2-07-2012	REVISED SLOPE NOTE.
11-01-2012	MODIFIED AGGREGATE SHOULDE
3-01-2013	TERMINAL CHANGED TO ALL STEEL POST, REVISED TERMINAL PAY LIMITS
3-31-2014	REVISED RECOVERY AREA DIMENSION.
3-11-2015	REVISED NOTES

SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)

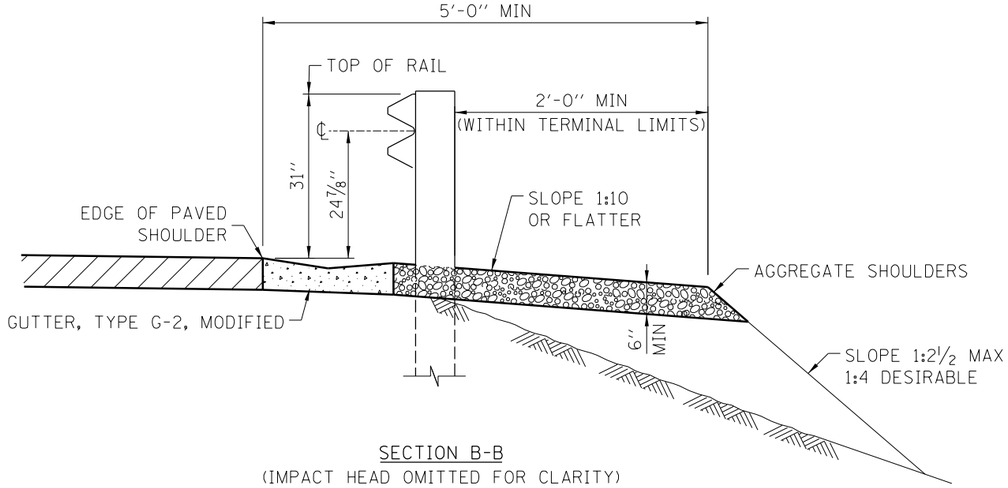
STANDARD C12-05



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



CURVED ROADWAY
TRAFFIC BARRIER TERMINAL PLACEMENT



SECTION B-B
(IMPACT HEAD OMITTED FOR CLARITY)

TABLE 1		
LATERAL OFFSET DIMENSION TO EDGE OF TERMINAL EXTRUDER HEAD		
	INSIDE RADIUS OF CURVE	OUTSIDE RADIUS OF CURVE
NO GUTTER	1'-0"	1'-0" MIN. *
GUTTER, TYPE G-2	1'-2¾"	1'-2¾" MIN. *
GUTTER, TYPE G-3	2'-2¾"	2'-2¾" MIN. *

(*) OFFSET DISTANCE WILL VARY BASED ON RADIUS OF HORIZONTAL CURVE AND THE TERMINAL BEING INSTALLED IN A STRAIGHT LINE.

NOTES:

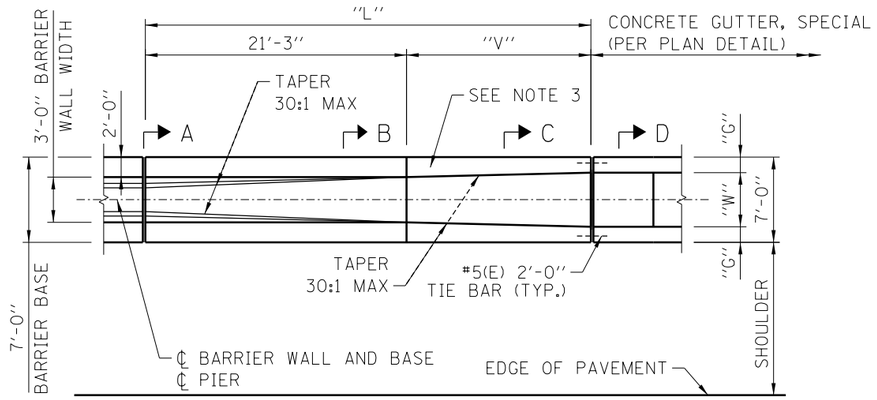
SEE SHEET 1 OF THIS SERIES FOR NOTES.

Paul Kovacs
APPROVED ..... DATE 1-1-2011
CHIEF ENGINEER

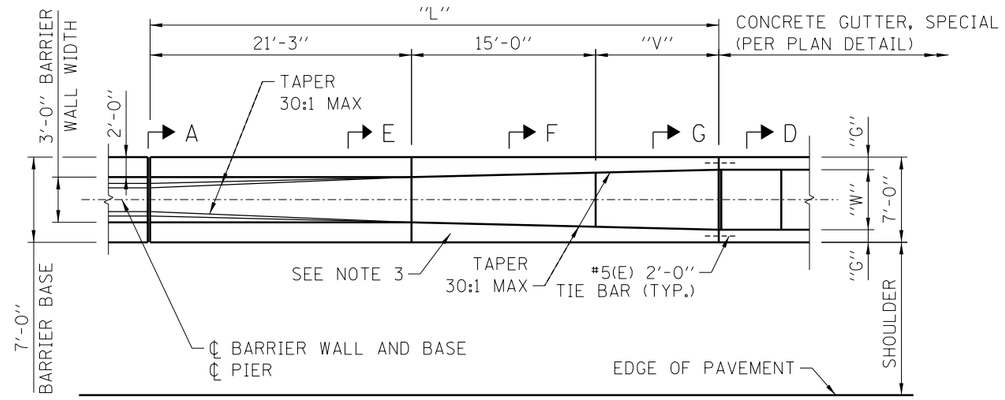
Illinois Tollway

SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)

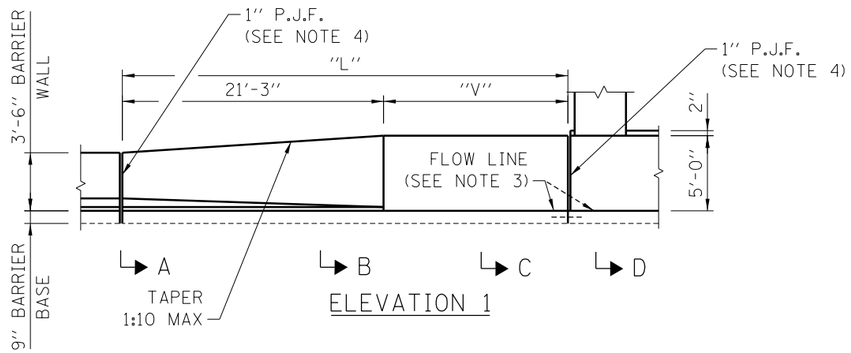
STANDARD C12-05



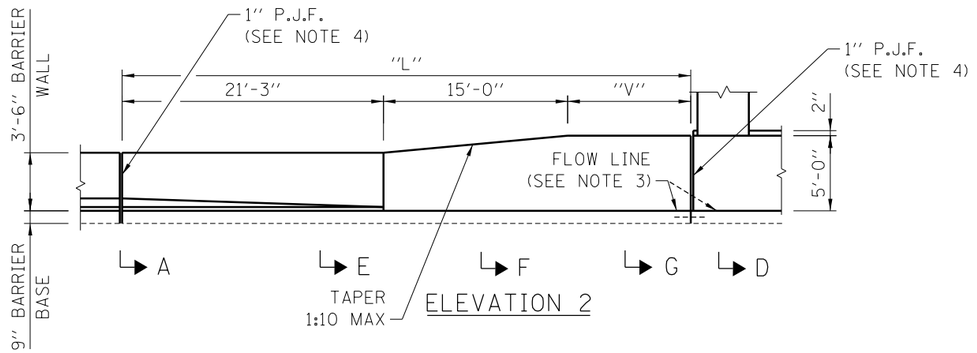
PLAN 1



PLAN 2



ELEVATION 1



ELEVATION 2

CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-F AT BRIDGE PIERS (FOR "W" ≤ 4'-0")

CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-F AT BRIDGE PIERS (FOR "W" > 4'-0")

	TABLE OF VARIABLES			
	"W"	"L"	"V"	"G"
PLAN 1	3'-0"	31'-3"	10'-0"	2'-0"
	3'-6"	31'-3"	10'-0"	1'-9"
	4'-0"	36'-3"	15'-0"	1'-6"
PLAN 2	4'-6"	46'-3"	10'-0"	1'-3"
	5'-0"	51'-3"	15'-0"	1'-0"
	5'-6"	58'-9"	22'-6"	9"
	6'-0"	66'-3"	30'-0"	6"

NOTES:

1. 2" DEEP CONTRACTION JOINTS SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL AND IN THE CONCRETE BARRIER BASE. CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM JOINT SPACING SHALL BE 30'.
2. THE FORMING OF CONTRACTION JOINTS SHALL BE DONE BY SAWING.
3. 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.
4. PROVIDE NON-STAINING GRAY ONE COMPONENT NON-SAG ELASTOMETRIC GUN GRADE POLYURETHANE SEALANT WITH BACKER ROD.

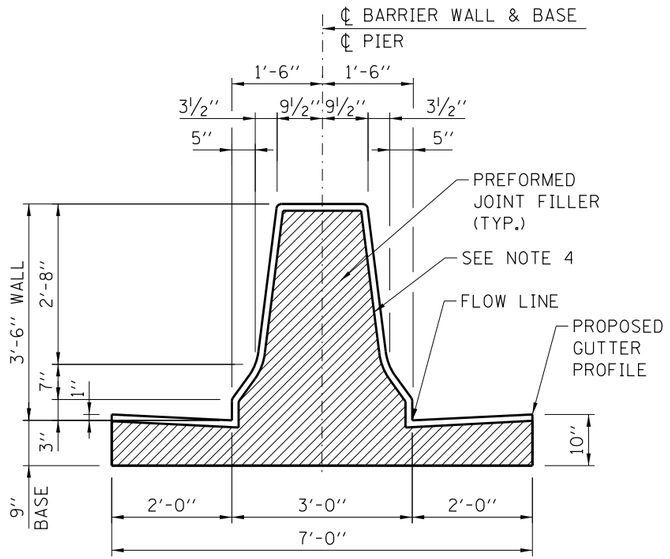
Paul Kovacs
APPROVED ..... DATE 2-7-2012
CHIEF ENGINEER

Illinois Tollway

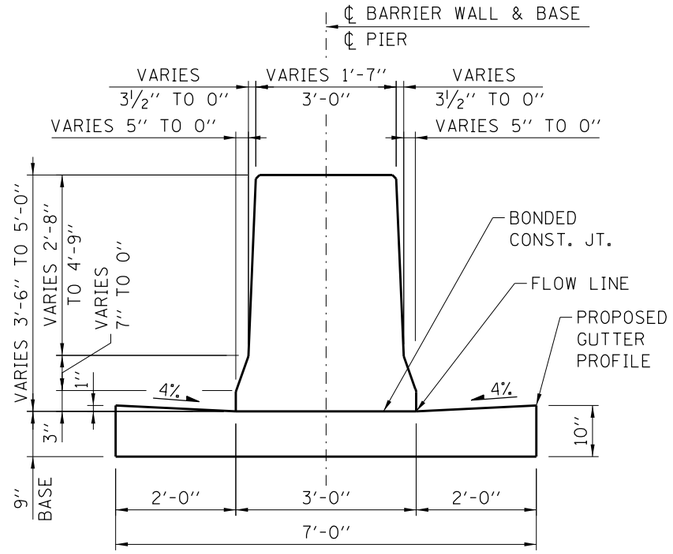
DATE	REVISIONS
11-01-2012	MODIFIED MEDIAN BARRIER TRANSITION.
3-31-2014	MODIFIED BARRIER BASE.
3-11-2015	MODIFIED MEDIAN BARRIER TRANSITION.

CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-F AT BRIDGE PIERS

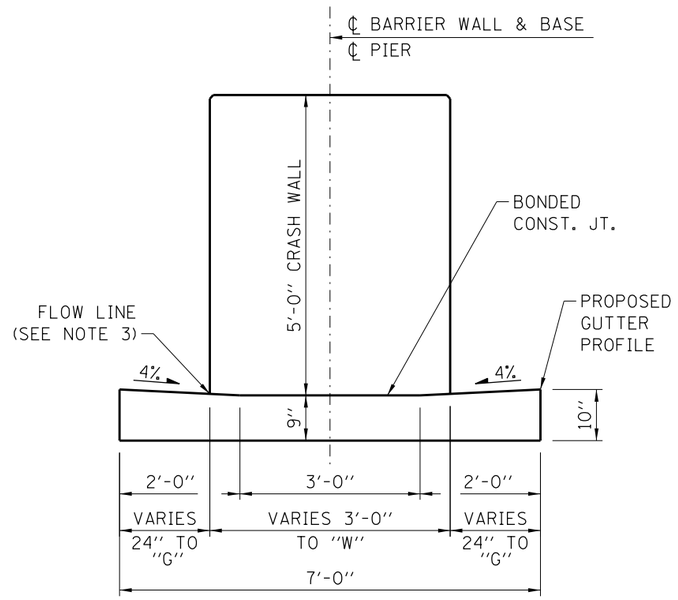
STANDARD C13-03



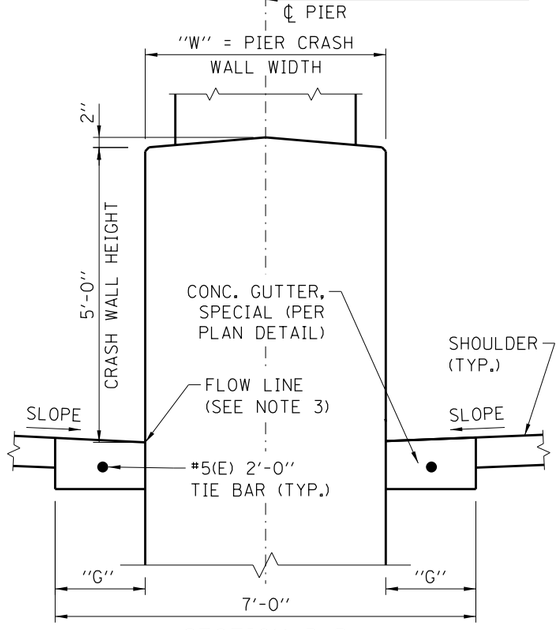
SECTION A-A



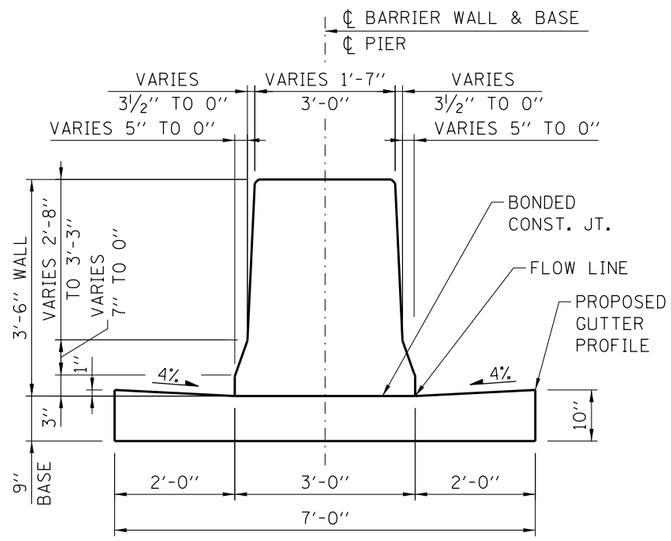
SECTION B-B



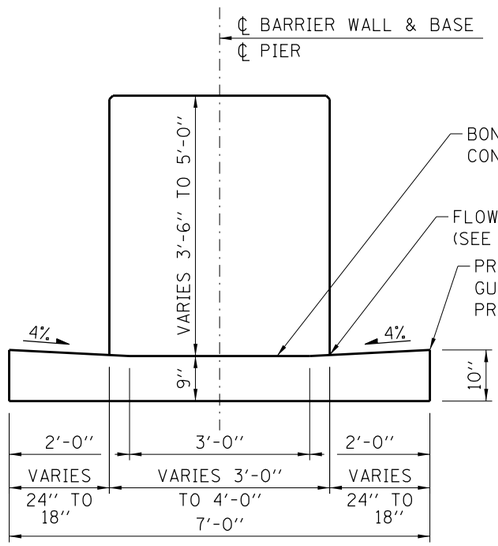
SECTION C-C



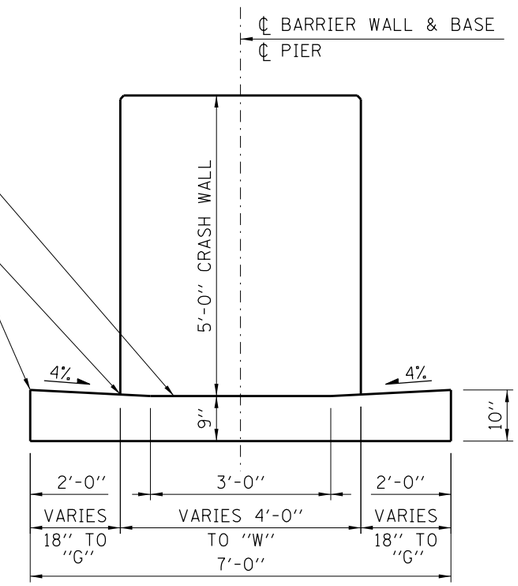
SECTION D-D



SECTION E-E



SECTION F-F



SECTION G-G

APPROVED Paul Kovacs CHIEF ENGINEER DATE 2-7-2012

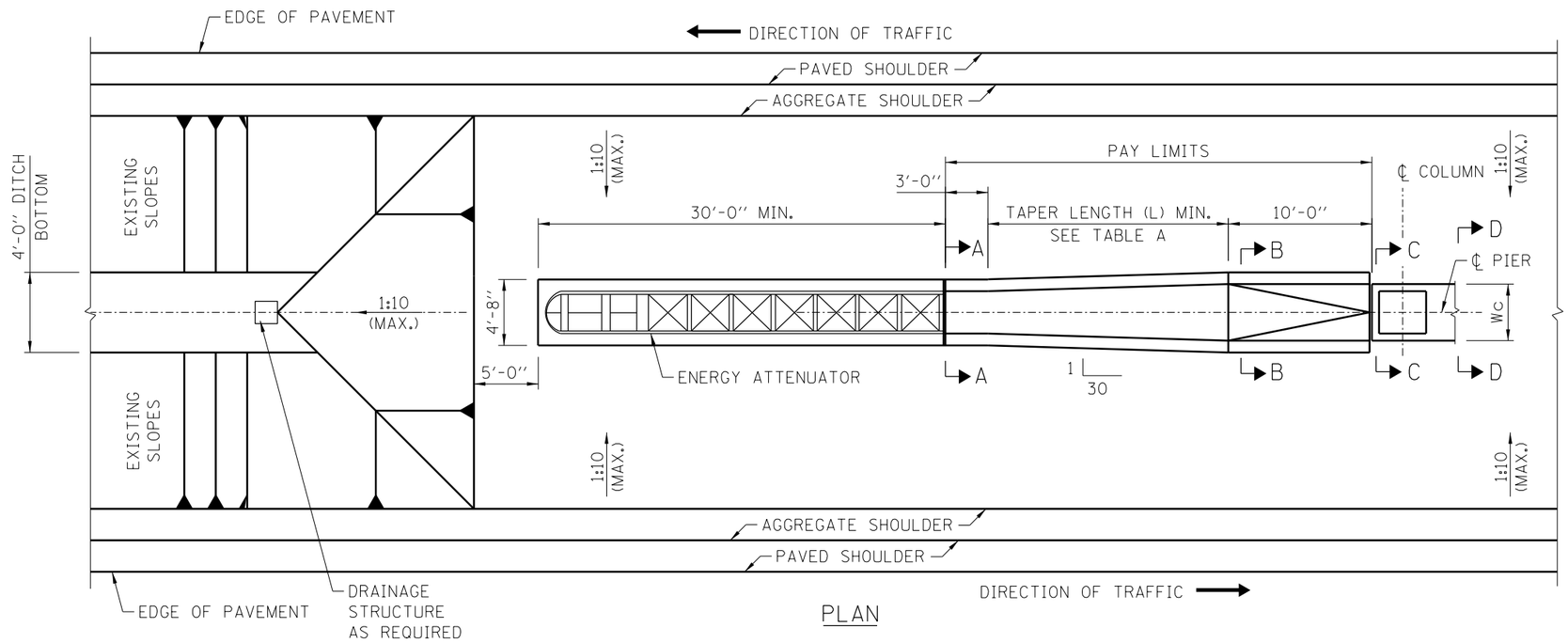
NOTES:

SEE SHEET 1 OF THIS SERIES FOR NOTES.

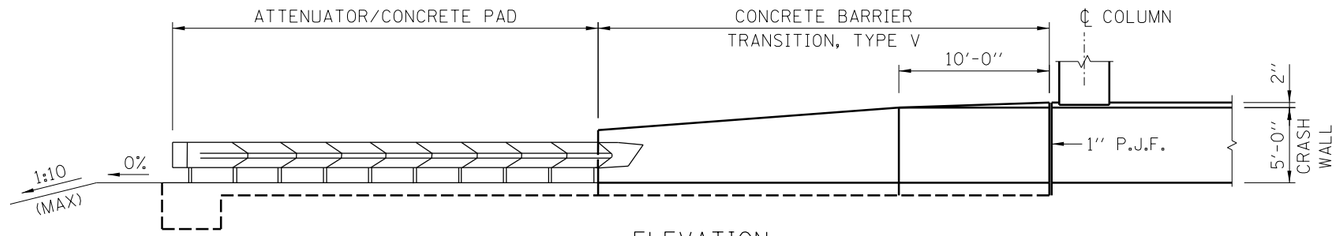
Illinois Tollway

CONCRETE MEDIAN BARRIER TRANSITION, TYPE V-F AT BRIDGE PIERS

STANDARD C13-03

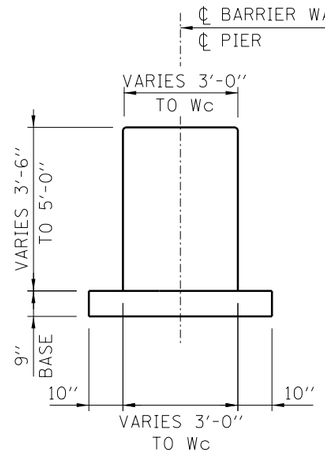


PLAN

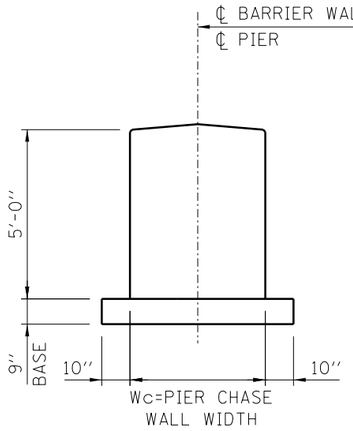


ELEVATION

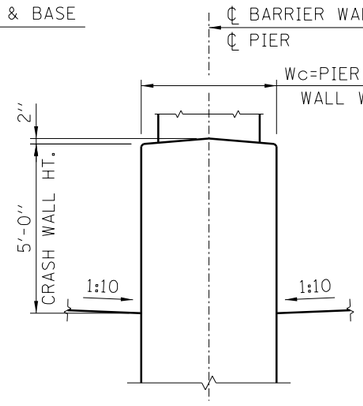
TABLE A	
Wc	L (MIN.)
Wc<35''	20'-0''
35''<Wc<43''	30'-0''
43''<Wc<51''	40'-0''
51''<Wc<59''	50'-0''
59''<Wc<67''	60'-0''
67''<Wc<72''	70'-0''



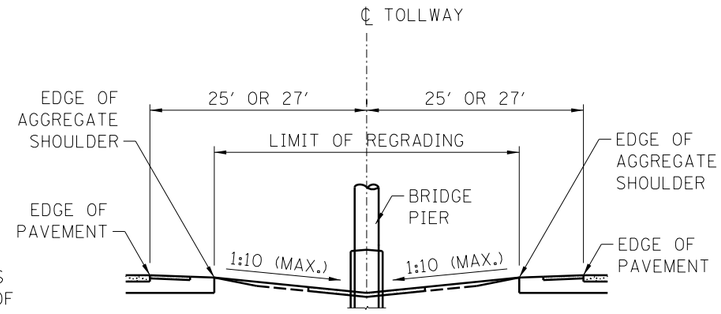
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

NOTES:

1. SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
2. ENERGY ATTENTUATOR AND PAD SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS AND SPECIFICATIONS.
3. THE FORMING OF CONTRACTION JOINTS SHALL BE DONE WITH AN APPROVED FINISHING TOOL OR BY SAWING AT THE DISCRETION OF THE ENGINEER SUBJECT TO THE SATISFACTORY CONTROL OF CRACKING.

Paul Kovacs
APPROVED ..... DATE 3-31-2014
CHIEF ENGINEER

Illinois Tollway

DATE	REVISIONS
3-11-2015	REVISED NOTES

CONCRETE MEDIAN BARRIER TRANSITION, TYPE V AT BRIDGE PIERS

STANDARD C14-01