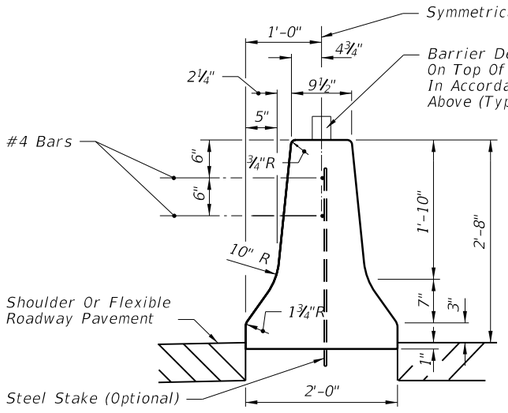
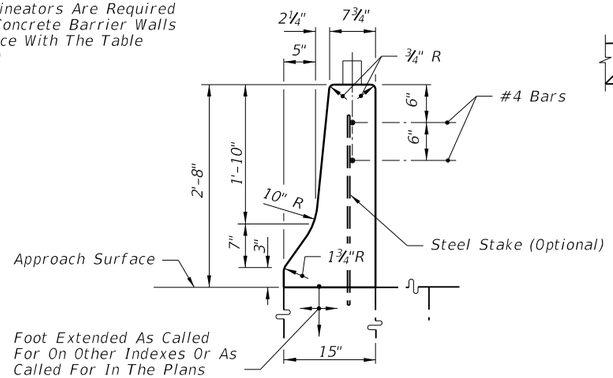
BARRIER DELINEATOR SPACING

Distance- Edge of Travel Lane to Barrier Wall (ft)	Spacing (Ft.)	REMARKS
< 4'	40'	1. Barrier delineators shall conform to Specification Section 993. 2. Barrier delineator color (white or yellow) shall conform to the color of the near lane edgeline.
4' to 8'	80'	
> than 8'	none required	



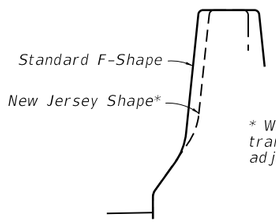
FULL WALL



HALF WALL

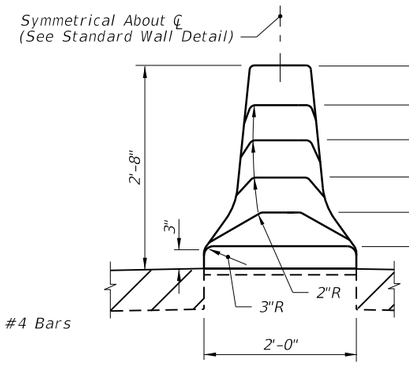
For concrete barrier wall details at piers, highway lighting and guardrail connections, see other sheets of this Index.
Standard barrier to be paid for under the contract unit price for Median Concrete Barrier Wall, LF.

STANDARD BARRIER WALL SECTIONS

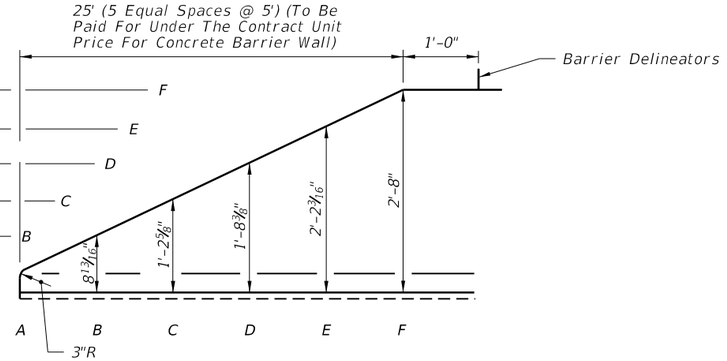


* Where standard F-Shape walls abut existing NJ Shape walls, face transitions of not less than 5' in length shall be constructed at the adjoining end of the F-Shape wall.

WALL FACE SAFETY SHAPES



END ELEVATION

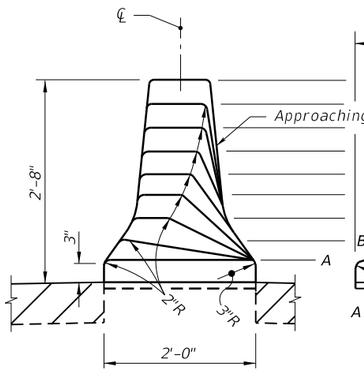


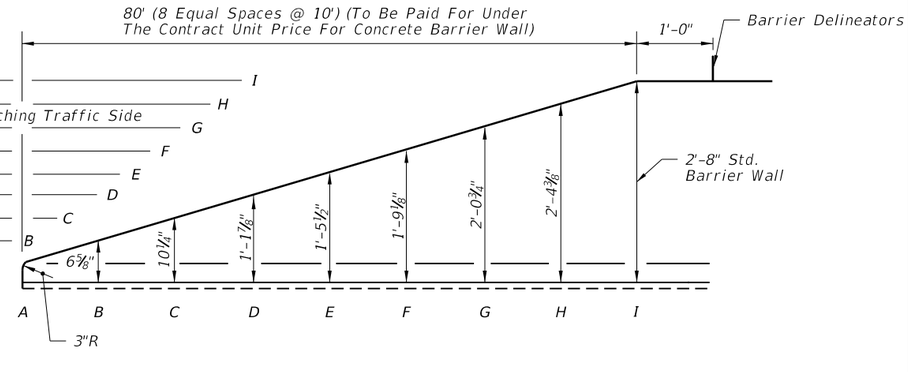
SIDE ELEVATION

TERMINAL SECTION: LOCATE NO CLOSER THAN CLEAR ZONE WIDTH FROM THE EDGE OF THE NEAR APPROACH TRAFFIC LANE.

CONCRETE BARRIER WALL TERMINAL

DETAIL II





END ELEVATION

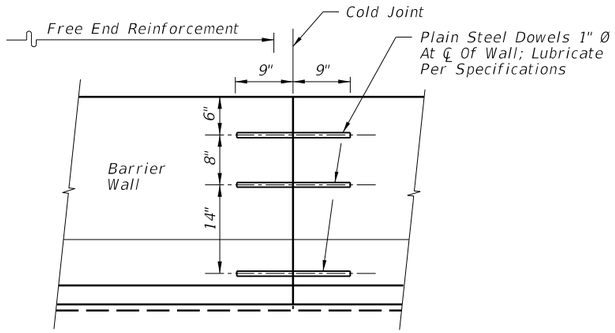
SIDE ELEVATION

DESIGN SPEED 45 MPH OR LESS
CONCRETE BARRIER WALL TERMINAL FOR NARROW MEDIAN

DETAIL III

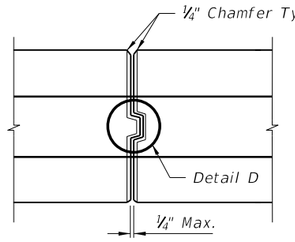
GENERAL NOTES

1. Class II concrete shall be used for all reinforced and plain (nonreinforced) concrete barrier walls; except, in moderately and extremely aggressive environments, Class IV concrete shall be used. All reinforcing steel with undesignated size shall be #4 bars. Exposed concrete surfaces shall have a Class 3 surface finish in accordance with Section 521 of the Standard Specifications, unless other finish called for in plans.
2. Concrete barrier wall terminal notes for design speeds ≥ 50 mph.
   a. Terminated outside clear zone of the approach traffic with 'DETAIL II' end treatment.
   b. Terminated within a shielded location.
   c. Terminal protection by the use of a crash cushion system.
   d. Terminated in conjunction with a suitably designed transition to another barrier.
3. Expansion joints in wall required only at bridge ends and/or at locations where wall is an integral part of existing or proposed concrete slab; wall joints are to match an existing or proposed expansion joint.
4. When the barrier is installed adjacent to the pavement the top 12" of the subgrade shall be compacted to at least 98% of the maximum density determined by FM 1-T 180, Method D.
5. For cast-in-place barrier wall segments constructed with the slip form method, score 3/8" deep crack control V-Grooves while the concrete is still plastic and mold them when walls are constructed with the stationary form method. All 3/8" deep V-Grooves shall be spaced at 20' intervals, the end of the side face grooves shall be in line with the ends of the top face groove and the long dimension of all grooves shall align at 90 degrees to the longitudinal axis of the wall. When wall segments are less than 40' in length, space the V-Groove equally between open joints. Dowel transverse construction joints for abutting segments less than 40' (See Detail B).
6. Precast construction is allowed as an alternate to cast-in-place construction.
   a. Wall segments <40' in length shall be joined by a transverse joint in accordance with Details C & D on Sheet 2. The minimum segment length is 20'.
   b. Bedding of the precast sections shall be facilitated by the use of sand-cement grout or equal method to assure uniform bearing.
   c. Reinforcement may be required for handling stresses.
7. On roadways designated for reverse laning all downstream, ends that are not shielded or outside the clear zone shall be marked by Type 3 Object Markers.
8. Cost of reinforcing steel and barrier delineators shall be included in the contract unit price for concrete barrier wall. See individual details for pay item information.
9. For barrier wall inlet details see Indexes Nos. 217, 218 and 219.
10. Concrete barrier wall with New Jersey Safety Shape may not be substituted for the Standard F Shape Barrier.



DOWELED TRANSVERSE CONSTRUCTION JOINT WHEN ABUTTING SEGMENT(S) LESS THAN 40' IN LENGTH

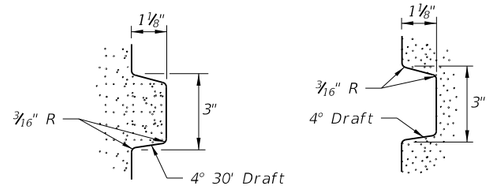
DETAIL B



TOP VIEW

PRECAST BARRIER TRANSVERSE JOINTS

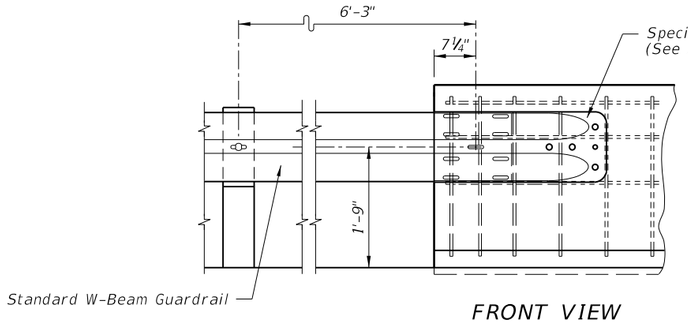
DETAIL C



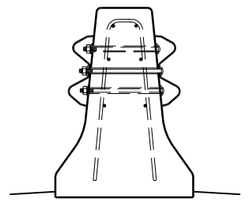
TOP VIEW

STRAIGHT TONGUE AND GROOVE

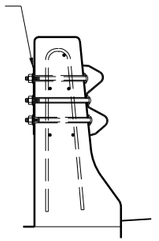
DETAIL D



FRONT VIEW



END VIEW

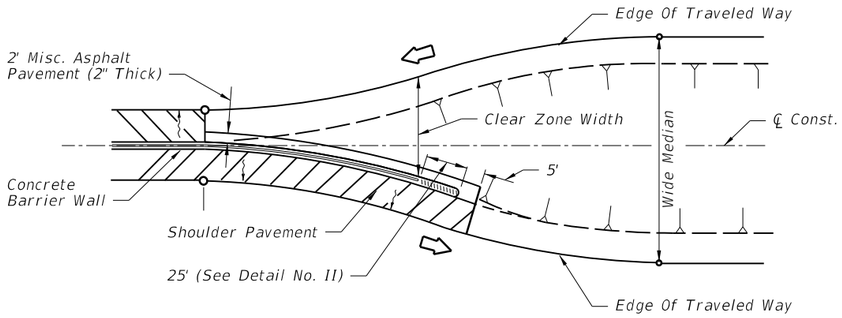


END VIEW

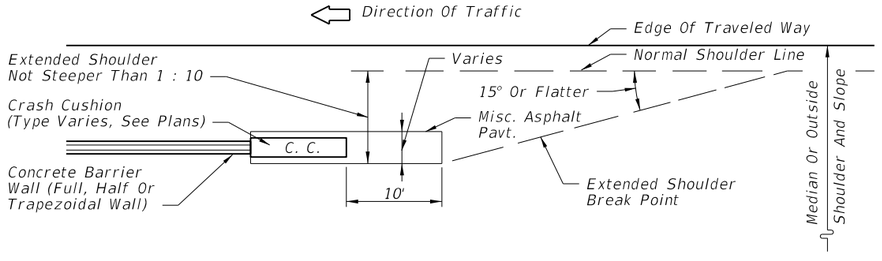
NOTES

1. End of wall flush mounted connections are not applicable to two-lane two-way facilities. See Sheets 20, 24, and 25 for trailing end connections on two-lane two-way facilities and for approach guardrail connections.

2. Trailing guardrail connections to double face safety shaped walls will be under one of the following traffic conditions and mounting methods:
   (a) One-way traffic trailing condition one side only - flush mount with flat steel back-up plate on back side.
   (b) One-way traffic trailing condition both sides - flush mount both sides.
   (c) For trailing condition one side and approach traffic condition opposite side - see "Median Barrier Wall" mounting, Sheet 25.



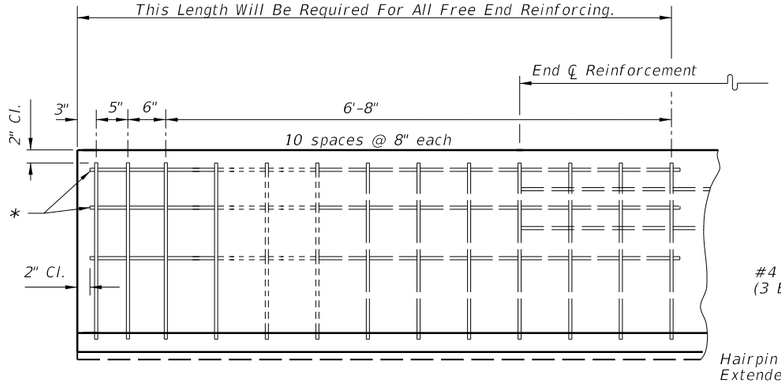
CONCRETE BARRIER WALL TRANSITION BETWEEN WIDE AND NARROW MEDIANS WHEN BARRIER WALL END LOCATED OUTSIDE APPROACH CLEAR ZONE OR HORIZONTAL CLEARANCE



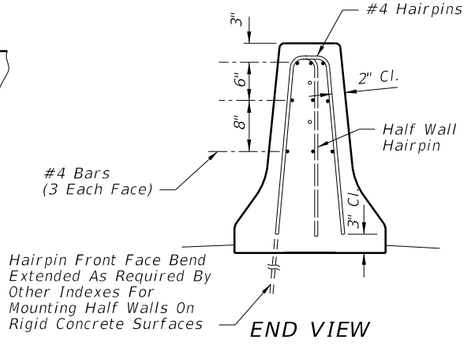
SHOULDER TREATMENT WHEN CRASH CUSHIONS SHIELDING CONCRETE BARRIER WALL END LOCATED INSIDE APPROACH CLEAR ZONE OR HORIZONTAL CLEARANCE

DETAIL A

W-BEAM GUARDRAIL CONNECTION TO CONCRETE BARRIER WALL TRAILING ENDS



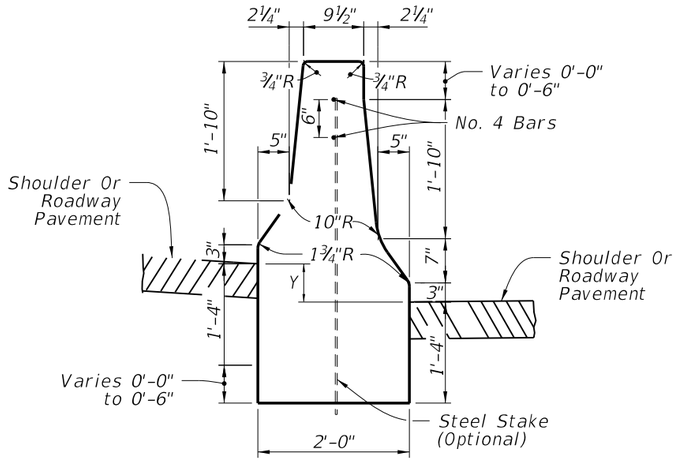
SIDE VIEW



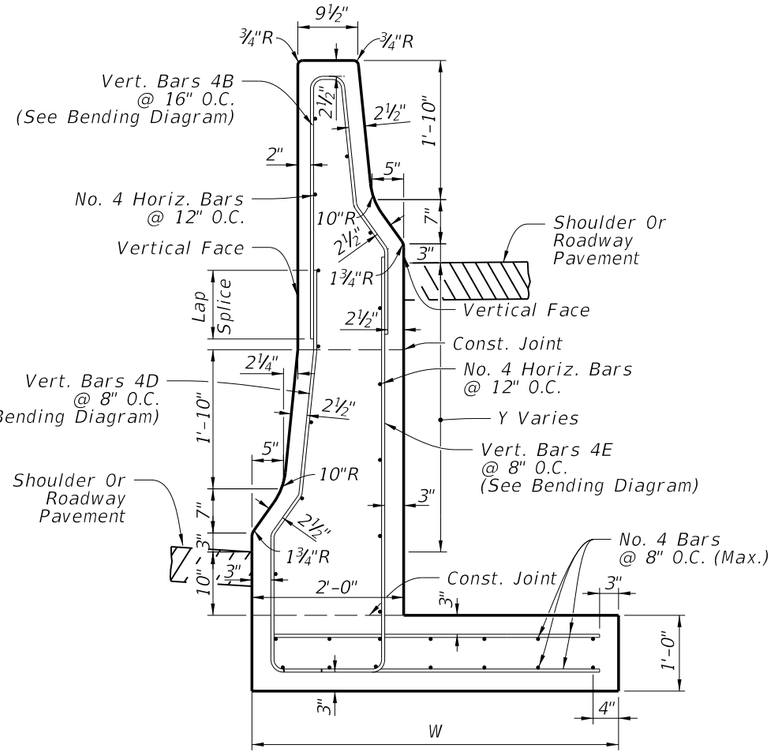
END VIEW

* Note: Free end reinforcement required for nonreinforced walls at the following locations: All exposed ends; abutting ends of true joints; ends with guardrail connections; ends with redirective crash cushion connections; and, ends connecting to bridge traffic rails or other rigid barrier walls.

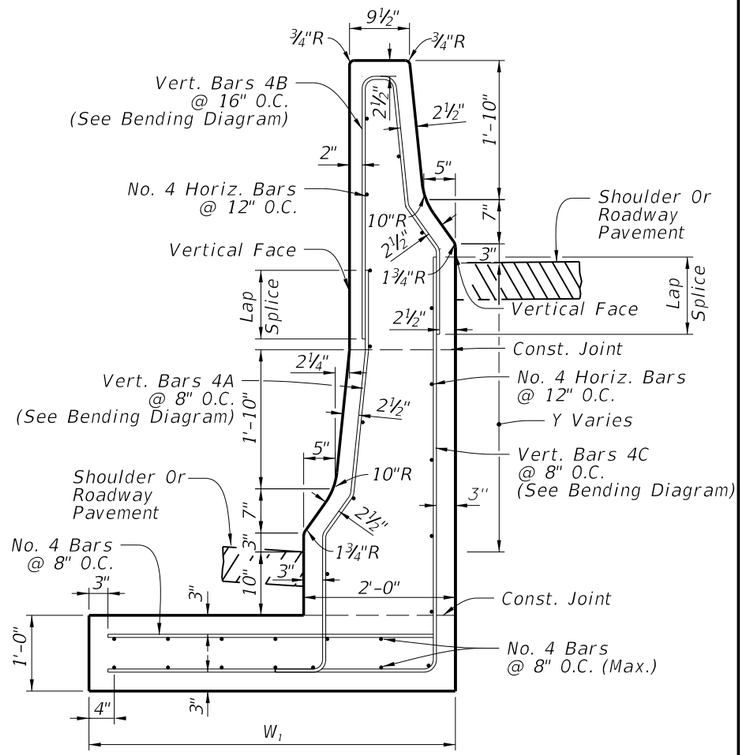
FREE END REINFORCEMENT



F-SHAPE MEDIAN BARRIER
WHEN Y IS LESS THAN OR EQUAL TO 6 INCHES

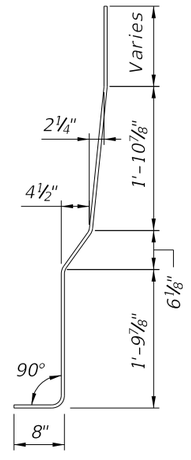


CANTILEVER WALL
SUPERELEVATED SECTION

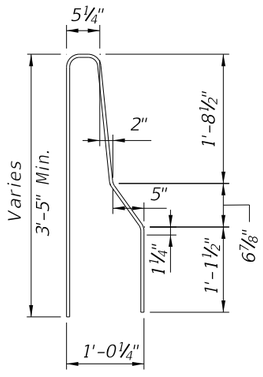


L-WALL
SUPERELEVATED SECTION

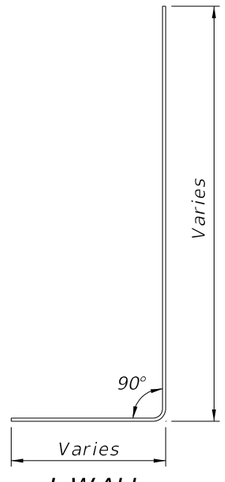
BENDING DIAGRAMS



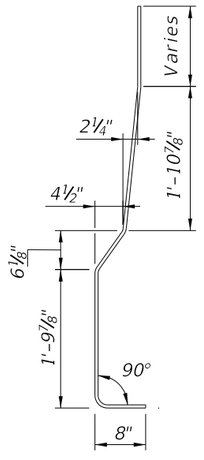
L-WALL
BAR 4A



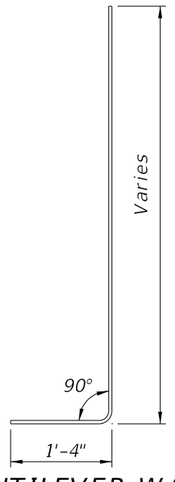
L-WALL & CANTILEVER WALL
BAR 4B



L-WALL
BAR 4C



CANTILEVER WALL
BAR 4D



CANTILEVER WALL
BAR 4E

Design Criteria:

This barrier wall has been structurally evaluated to be equivalent or greater in strength to other safety shapes which have been crash tested to NCHRP Report 350 TL-4 criteria.

Unless the plans stipulate a specific wall type, either the Cantilever wall or the "L" wall may be constructed at the Contractor's option.

Cost of the footing to be included in the contract unit price for Median Concrete Barrier Wall, LF.

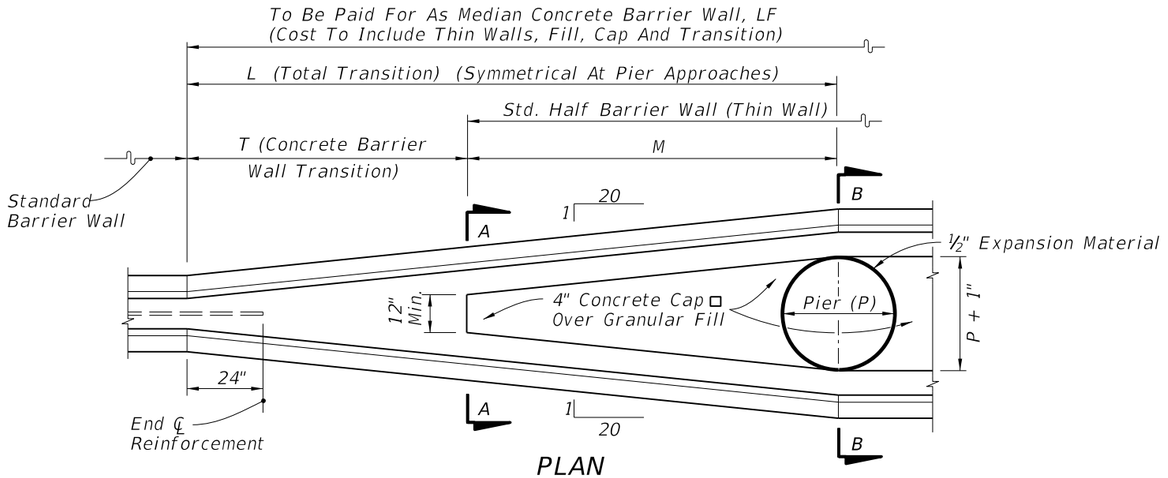
Cantilever Wall	Height Y	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"
	Width W	5'-0"	5'-3"	5'-6"	5'-9"	6'-0"	6'-3"	6'-6"
Min. Segment Wall Length		39'	35'	32'	29'	26'	24'	22'

"L" Wall	Height Y	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"
	Width W_1	5'-0"	5'-3"	5'-6"	5'-9"	6'-0"	6'-6"	7'-0"
Min. Segment Wall Length		46'	44'	42'	41'	39'	36'	33'

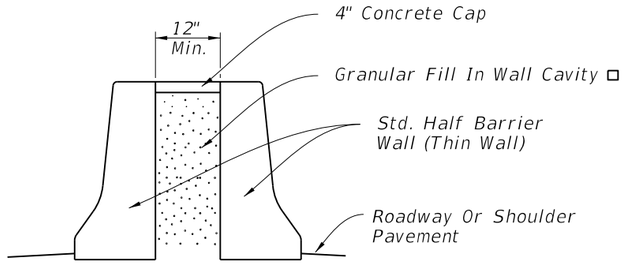
Note: All bar dimensions in the Bending Diagram are out to out. Lap splices are 1'-5" Minimum.

MEDIAN BARRIER WALL FOR SUPERELEVATED SECTIONS OR FOR VARIABLE ROADWAY PROFILE GRADES

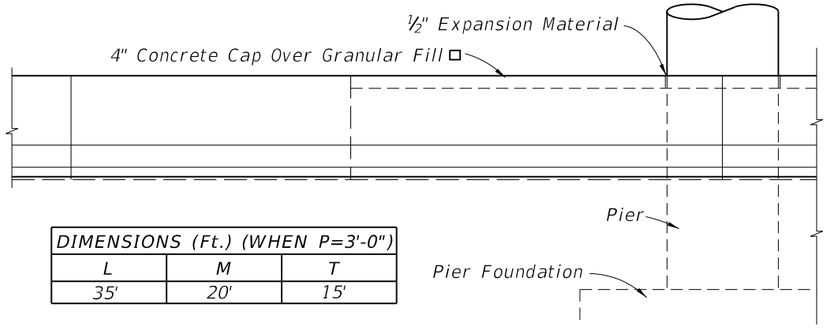
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/13			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	3 of 27



PLAN

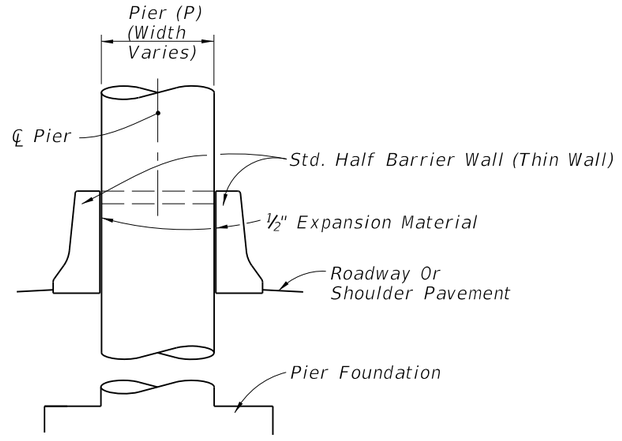


SECTION AA



DIMENSIONS (Ft.) (WHEN P=3'-0")		
L	M	T
35'	20'	15'

ELEVATION

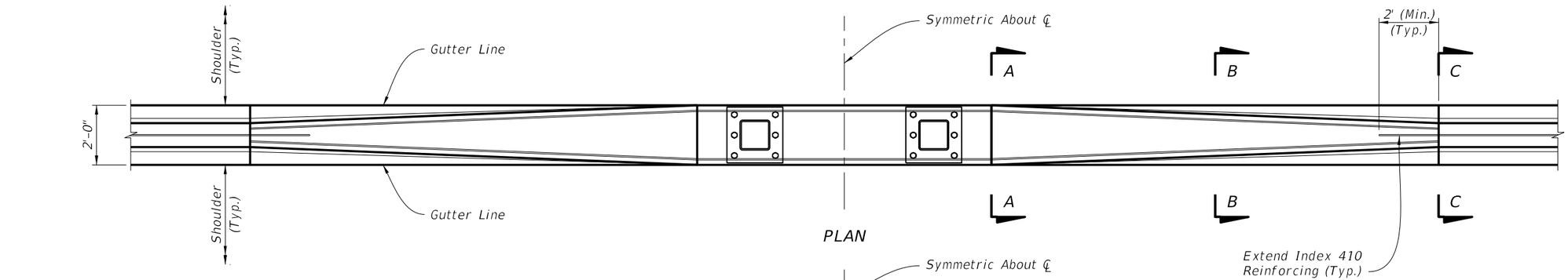


SECTION BB
BRIDGE PIERS

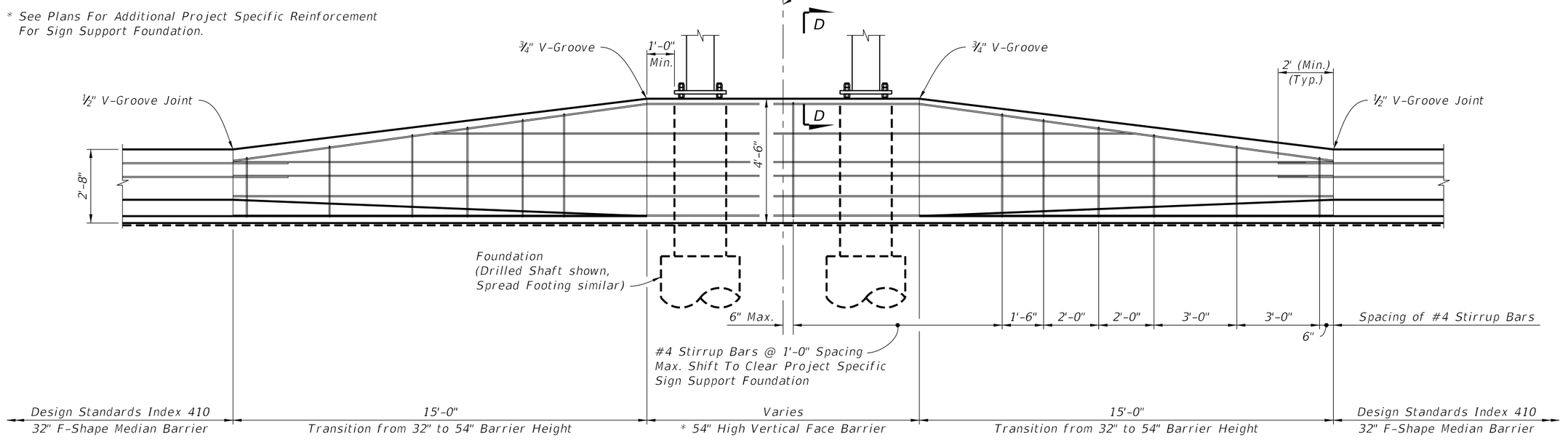
□ Fill To Be Free Of Deleterious And Cementitious Material

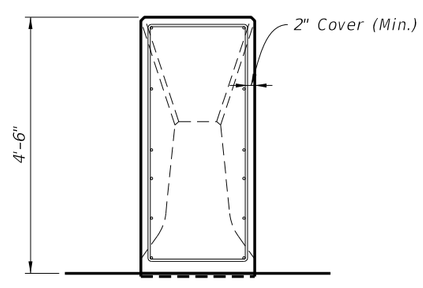
CONCRETE MEDIAN BARRIER WALL TRANSITIONS AT BRIDGE PIERS

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/07			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	4 of 27

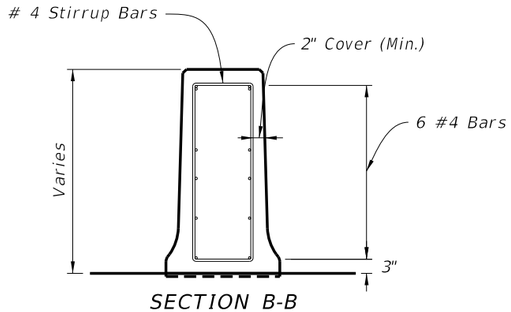


* See Plans For Additional Project Specific Reinforcement For Sign Support Foundation.

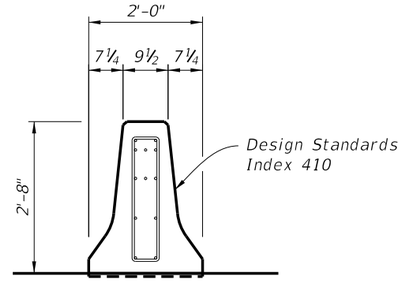




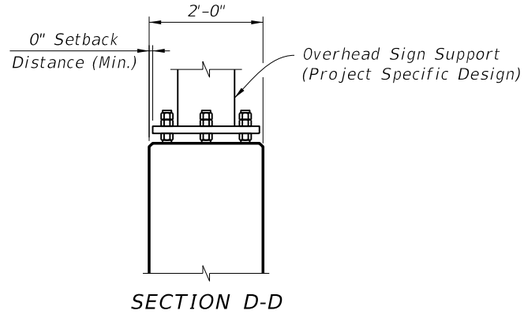
SECTION A-A



SECTION B-B



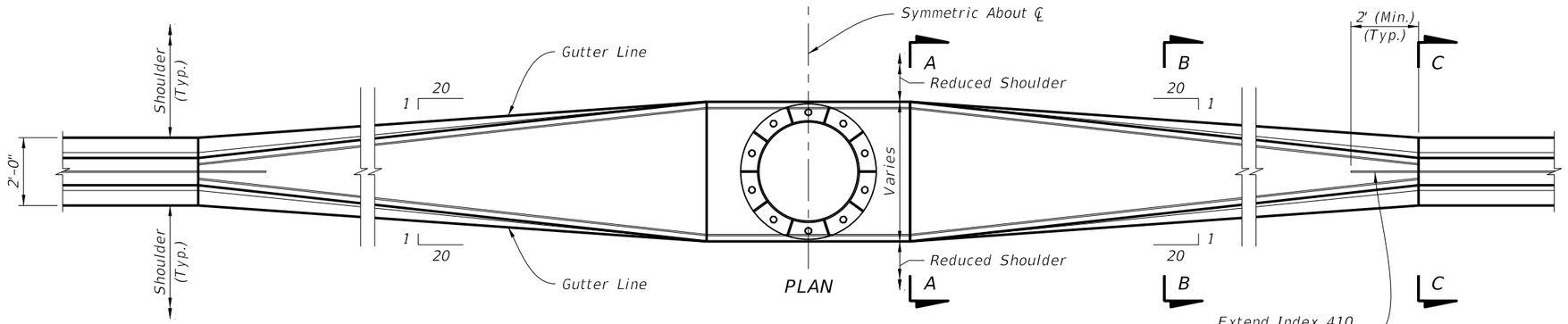
SECTION C-C



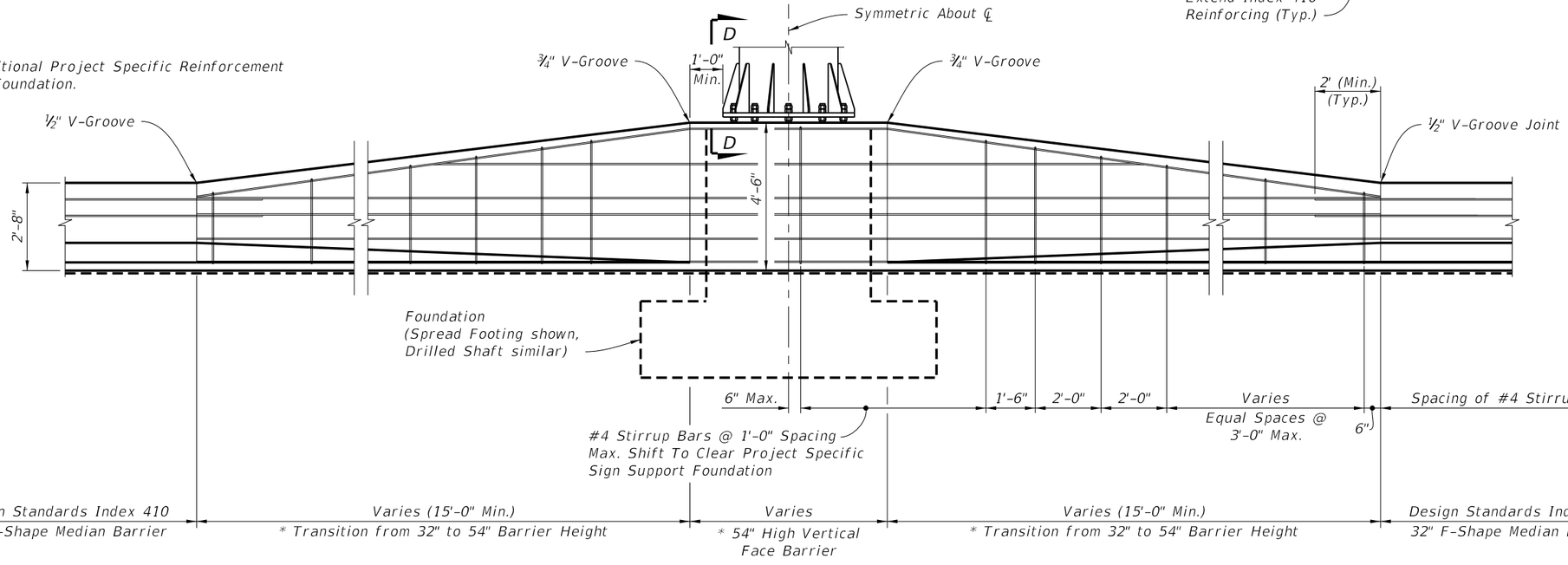
SECTION D-D

LARGE SIGN MEDIAN BARRIER MOUNTED SIGN SUPPORT TRANSITION (OPTION 1)

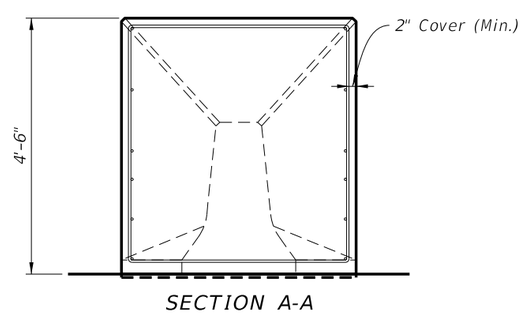
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/13			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	5 of 27



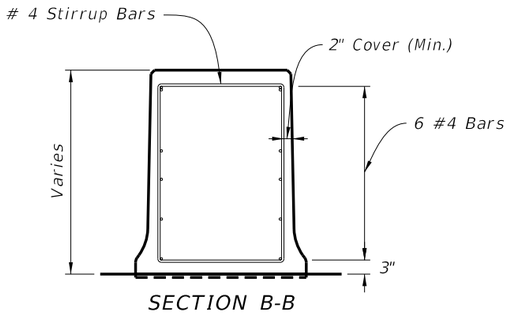
* See Plans For Additional Project Specific Reinforcement For Sign Support Foundation.



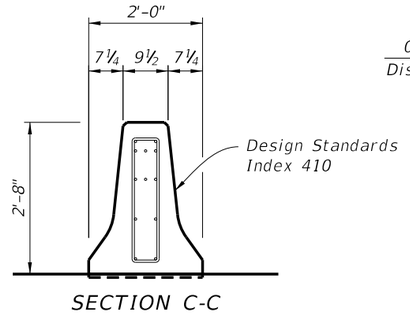
ELEVATION



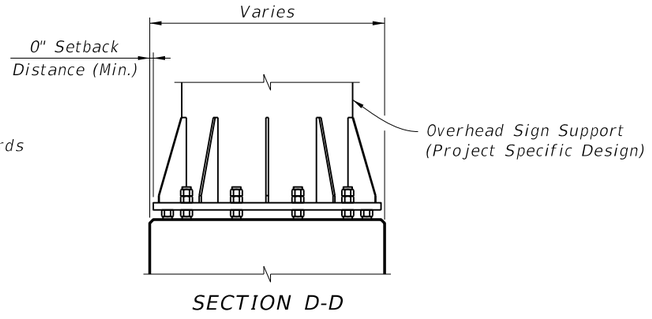
SECTION A-A



SECTION B-B



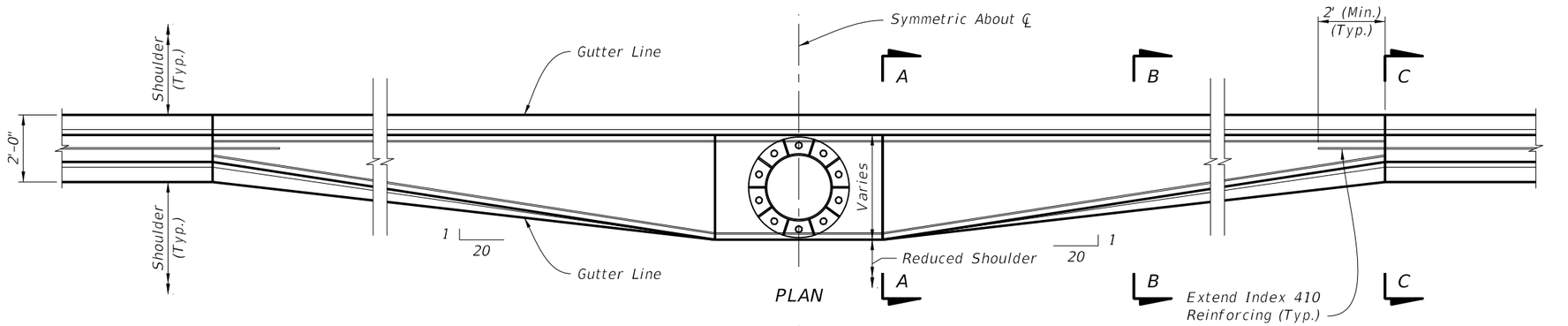
SECTION C-C



SECTION D-D

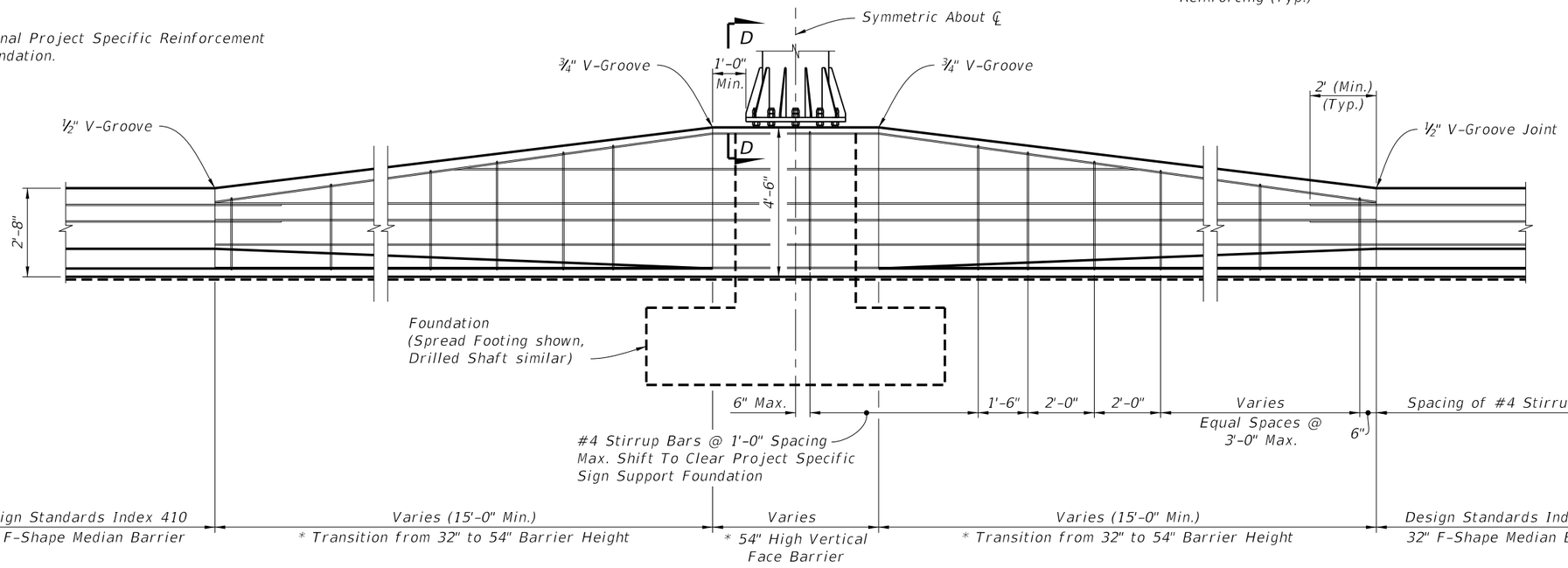
LARGE SIGN MEDIAN BARRIER MOUNTED SIGN SUPPORT TRANSITION (OPTION 2)

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/13			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	6 of 27

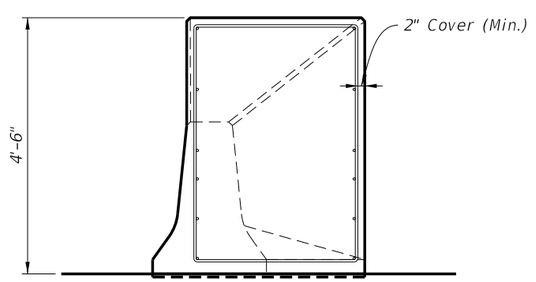


PLAN

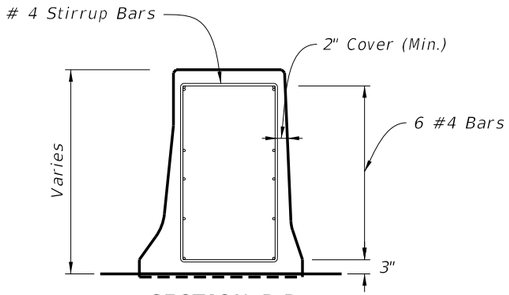
* See Plans For Additional Project Specific Reinforcement For Sign Support Foundation.



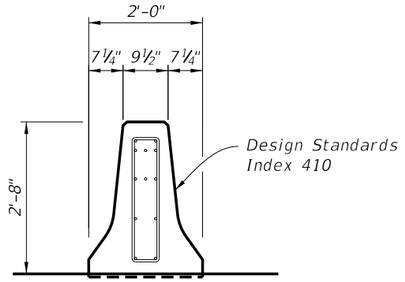
ELEVATION



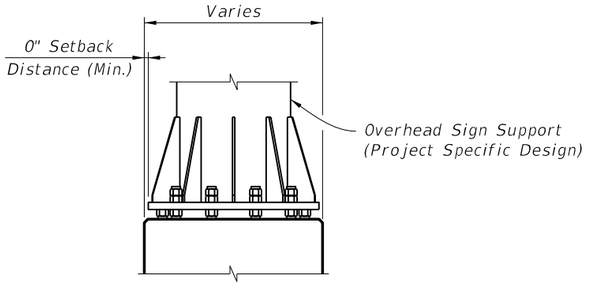
SECTION A-A



SECTION B-B



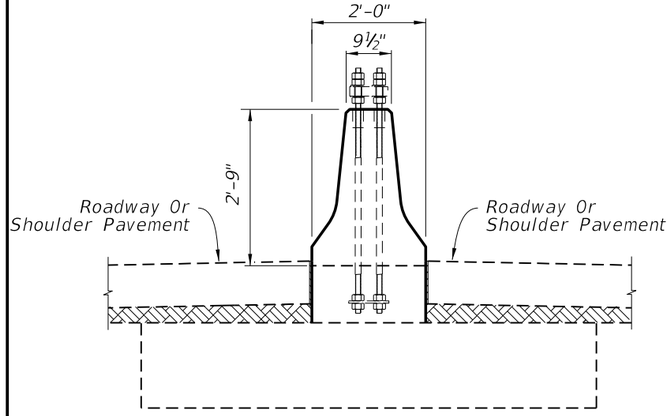
SECTION C-C



SECTION D-D

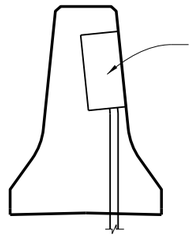
LARGE SIGN MEDIAN BARRIER MOUNTED SIGN SUPPORT TRANSITION (OPTION 3)

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/13			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	7 of 27



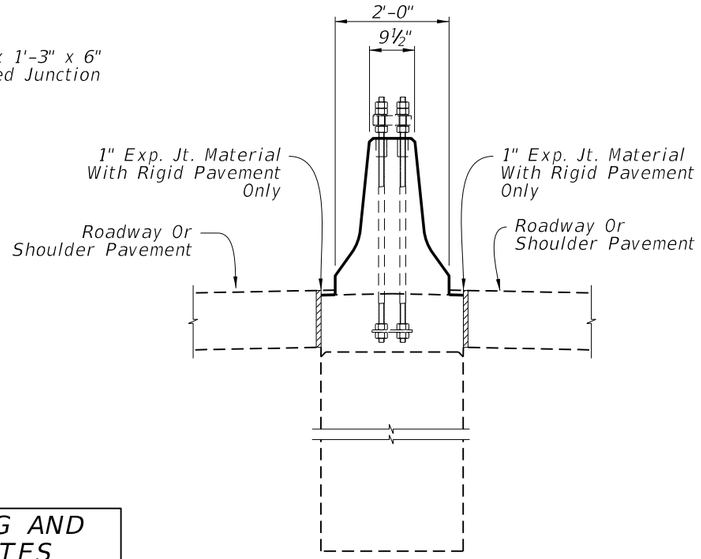
END VIEW

SPREAD FOOTING OPTION



TRANSVERSE SECTION

INSTALLATION

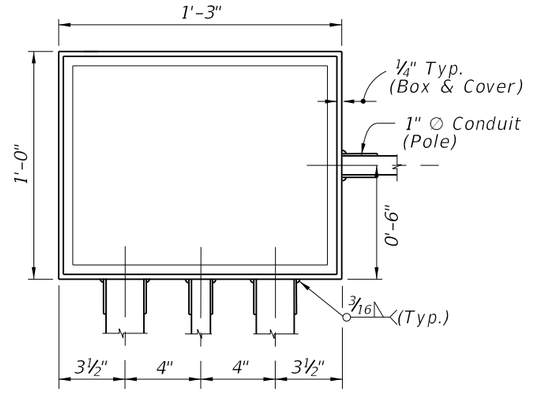


END VIEW

CYLINDRICAL OPTION

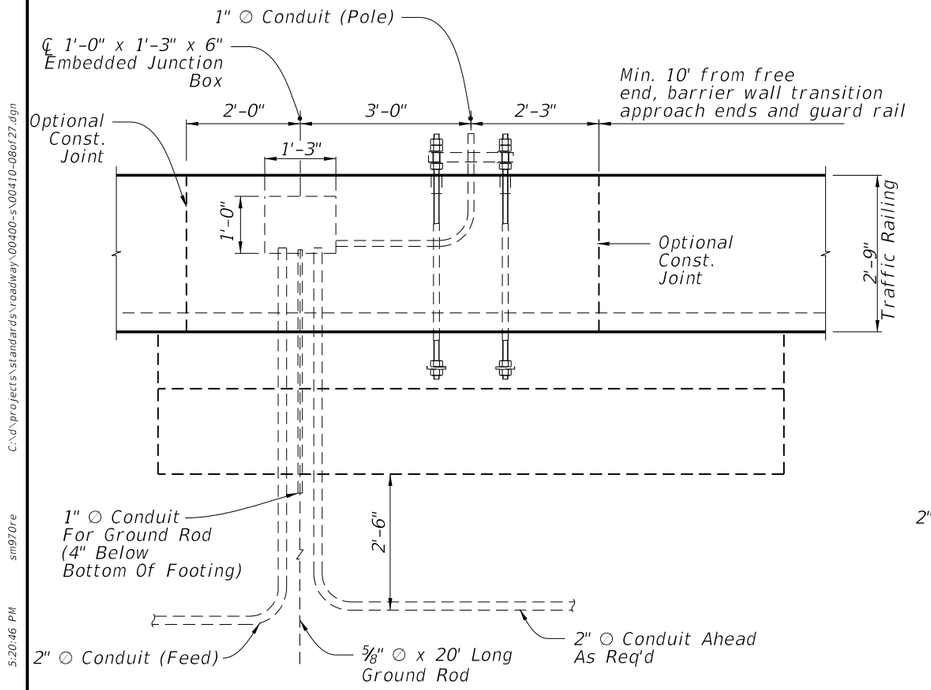
SPREAD FOOTING AND CYLINDRICAL NOTES

The Reinforcement Details And Dimensions For Both The Spread Footing And Cylindrical Foundations Can Be Found In Index 17515.



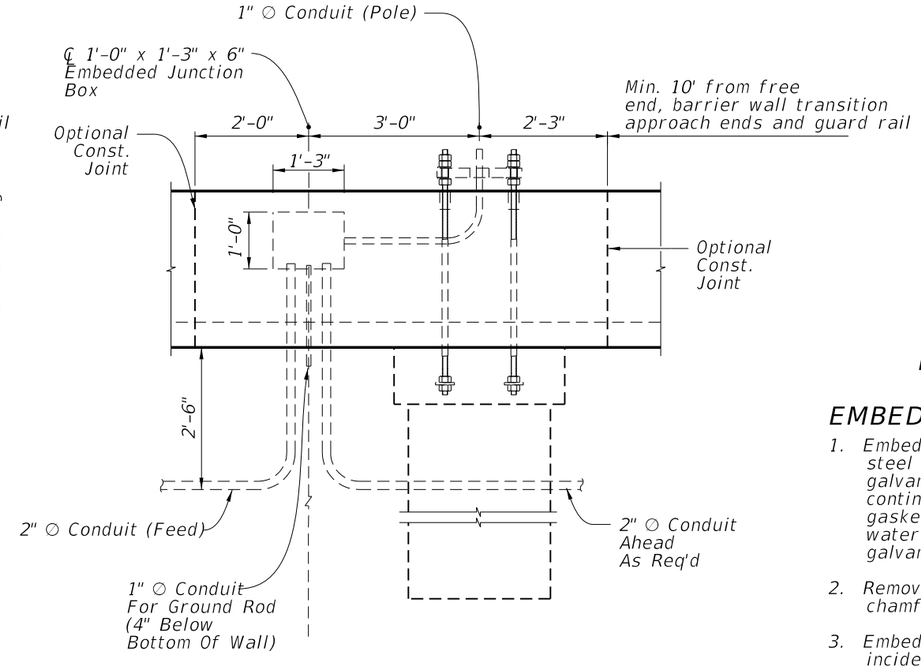
FRONT VIEW

EMBEDDED JUNCTION BOX



ELEVATION

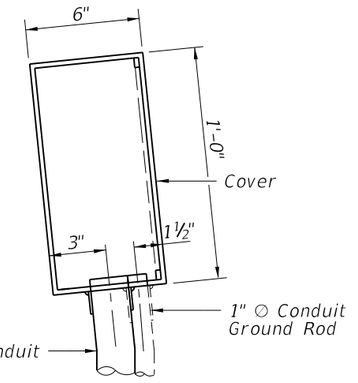
SPREAD FOOTING OPTION



ELEVATION

CYLINDRICAL OPTION

LIGHT POLE MOUNTING IN MEDIAN BARRIER WALL



SIDE VIEW

EMBEDDED JUNCTION BOX

EMBEDDED JUNCTION BOX NOTES

1. Embedded junction boxes are to be fabricated from steel conforming to ASTM A36 and be hot-dip galvanized after fabrication. All seams shall be continuously welded and ground smooth. A neoprene gasket shall be attached to the box to provide a watertight cover. The cover screws shall be fully galvanized.
2. Remove excess concrete while green and hand form chamfers.
3. Embedded junction box complete and conduit risers are incidental to the construction and cost of the barrier wall; there is to be no separate compensation for the box, risers or installation unless specifically called for in the plans.

EMBEDDED JUNCTION BOX - ELECTRICAL

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
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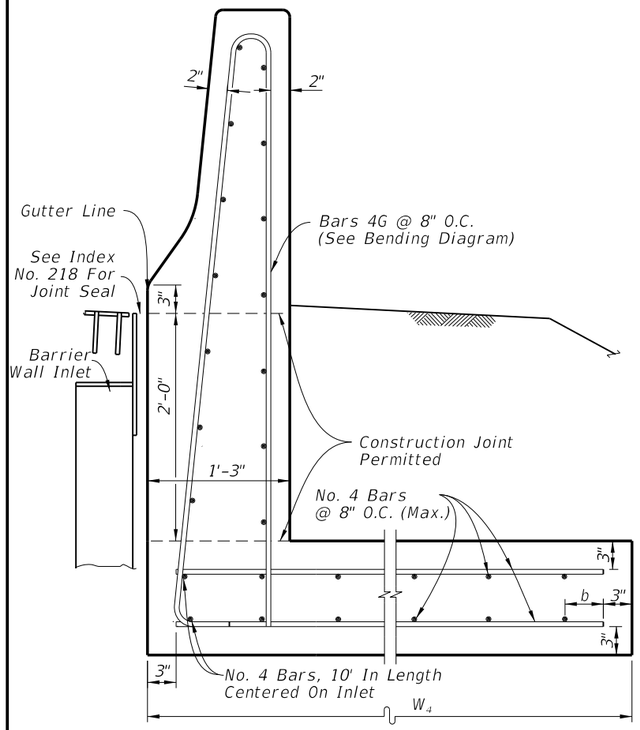
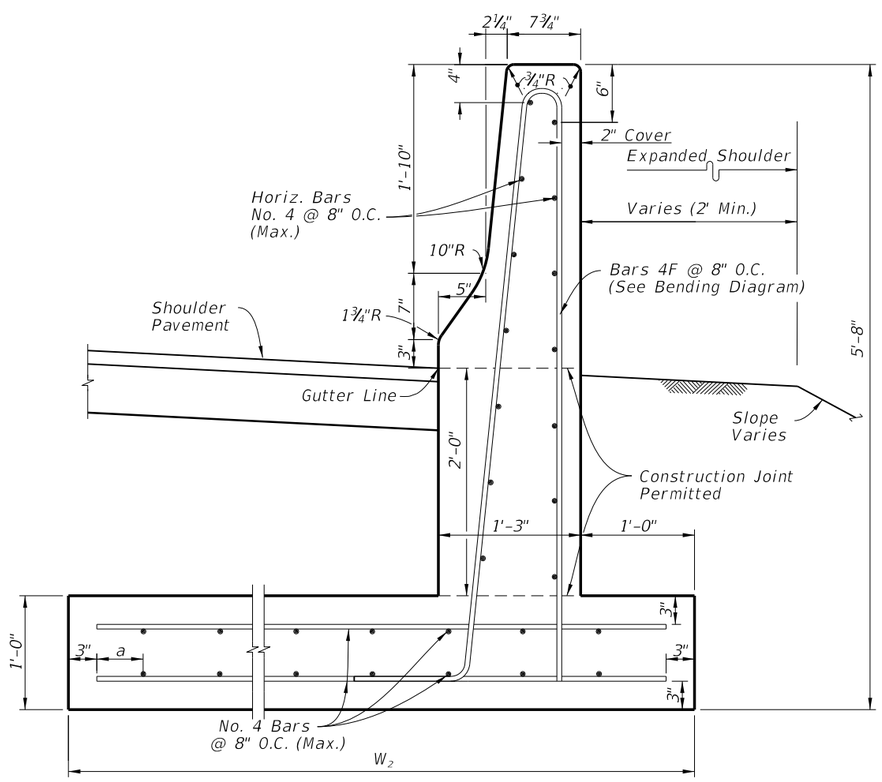
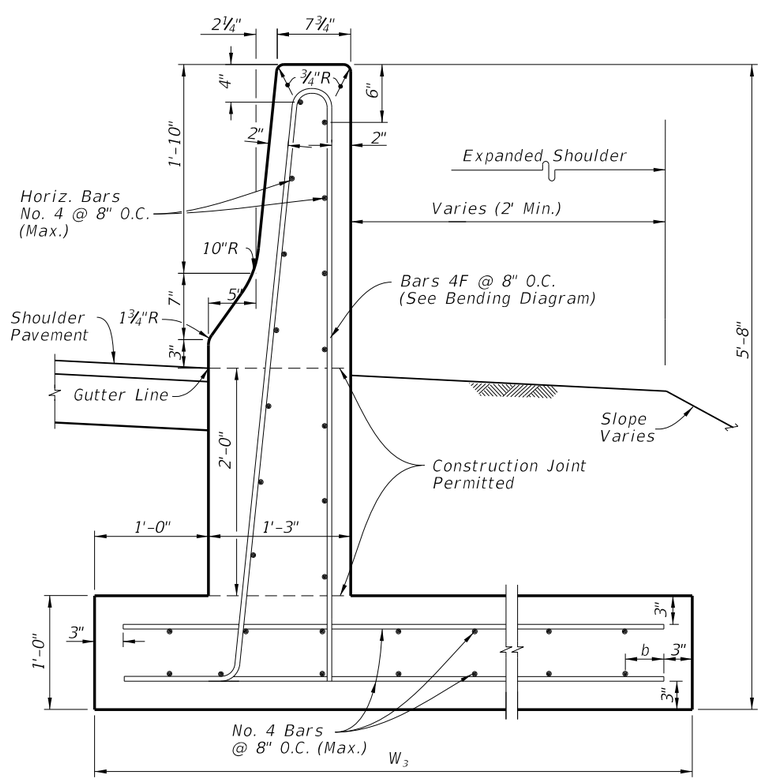


REINFORCING STEEL MODIFICATIONS
AT BARRIER WALL INLETS (INDEX NO. 218)



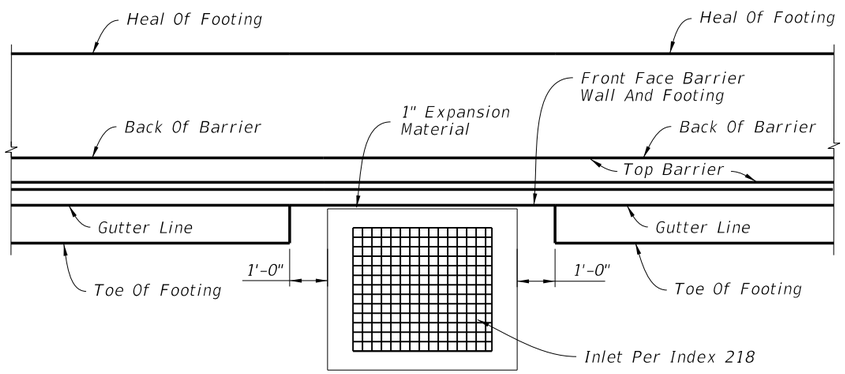
NOTE: All longitudinal reinforcement #4 bars.

CANTILEVER WALL



NOTE: All longitudinal reinforcement #4 bars.

L-WALL



BARRIER WALL FOOTING
TRANSITION AT INLETS
PLAN VIEW

GENERAL NOTES:

1. Reduce the vertical steel spacing to 4 inches O.C. a distance of 4 feet each side of all cold joints.
2. This barrier wall has been structurally evaluated to be equivalent or greater in strength to other safety shapes which have been crash tested to NCHRP Report 350 TL-4 criteria.
3. Wall to be paid for under the contract unit price for Shoulder Concrete Barrier Wall (Rigid-Shoulder), LF.

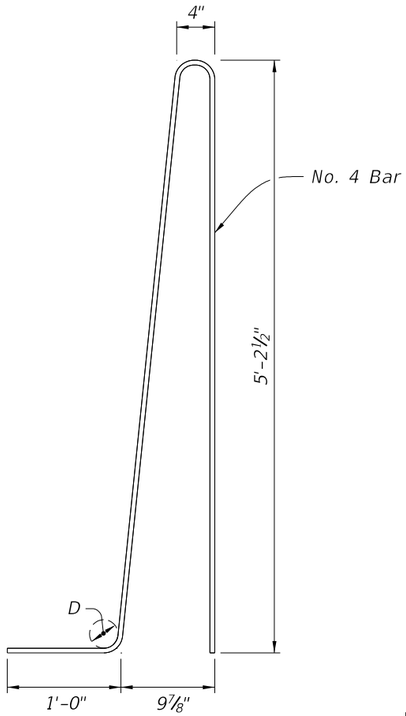
DIMENSIONS AND QUANTITIES

CANTILEVER WALL					L-WALL					
Length* Of Barrier Wall (LF)	W_2 (LF)	a	Class II Conc. CY Per LF	Rein. Steel Lbs. Per LF	Length* Of Barrier Wall	W_3 (LF)	W_4 (LF)	b	Class II Conc. CY Per LF	Rein. Steel Lbs. Per LF
≥ 65'	3'-3"	5"	0.30	31	≥ 60'	3'-6"	2'-6"	7"	0.31	32
57' to 64'	3'-9"	3"	0.32	33	50' to 59'	4'-0"	3'-0"	5"	0.33	34
50' to 56'	4'-3"	3"	0.33	35	40' to 49'	4'-9"	3'-9"	6"	0.35	37
41' to 49'	5'-0"	7"	0.36	38	35' to 39'	5'-3"	4'-3"	4"	0.37	39
36' to 40'	5'-6"	5"	0.38	40	30' to 34'	5'-9"	4'-9"	2"	0.39	42
28' to 35'	6'-6"	3"	0.42	44	25' to 29'	6'-6"	5'-6"	3"	0.42	44
25' to 27'	7'-0"	7"	0.44	46	20' to 24'	7'-6"	6'-6"	2"	0.45	49

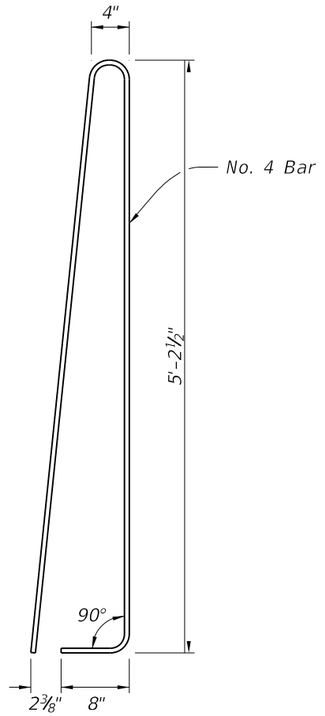
Quantities shown are for information only. For method of payment see payment note.
Barrier wall inlets (Index 218) shall be isolated from the barrier wall stem and footing by 1" expansion material.
* All walls may be made up of segments of 20' or more in length provided the segments are joined by a transverse joint in accordance with Detail B (Sheet 2). Segments shall have dimensions same as walls above.

REINFORCED CONCRETE BARRIER WALL (SHOULDER)

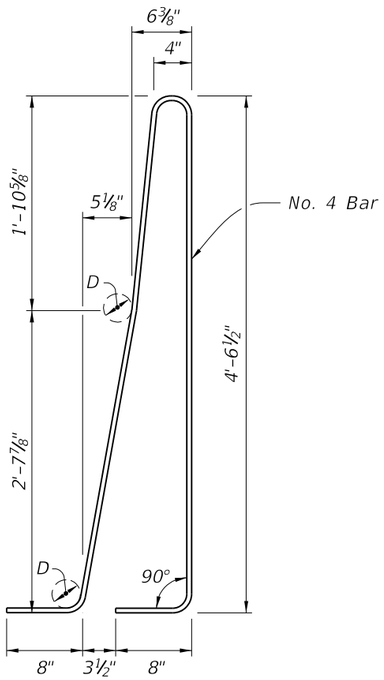
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/13			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	9 of 27



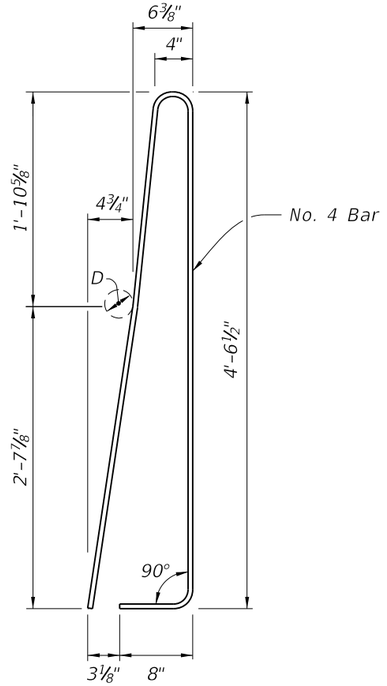
BAR 4F



BAR 4G



BAR 4H

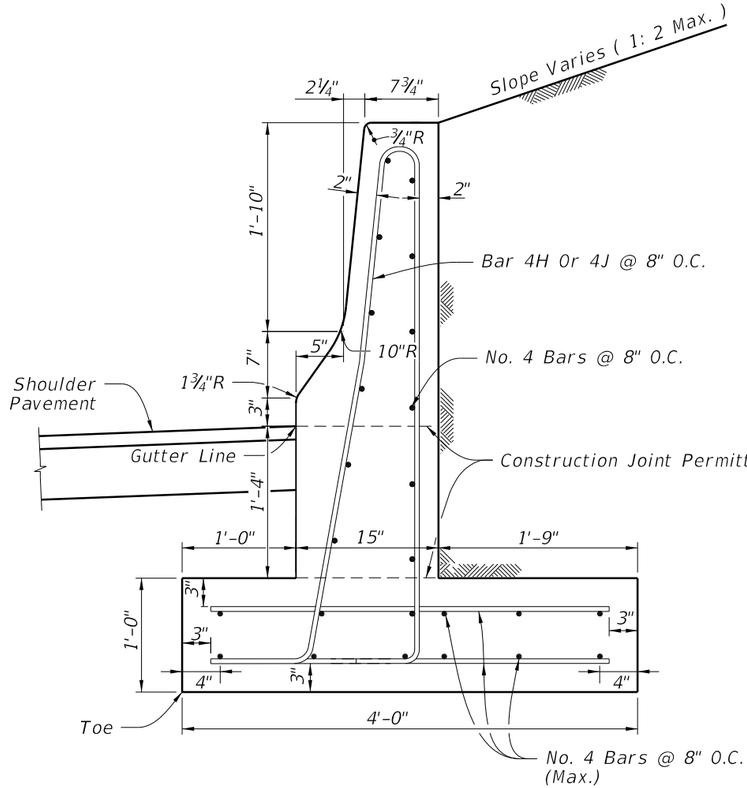


BAR 4J

For Use In Areas Where Obstructions
Require Localized Omission Of Toe

BENDING DIAGRAMS

Note: D = 3"



Note: All longitudinal reinforcement No. 4 bars.
Minimum segment length for this wall is 20 feet.
Wall to be paid for under the contract unit price
for Shoulder Concrete Barrier Wall (Rigid-Retaining), LF.

QUANTITIES: Class II Concrete 0.29 CY/LF
Reinforcing Steel (Bar 4H) 28.6 LBS/LF
Reinforcing Steel (Bar 4J) 26.8 LBS/LF

REINFORCED CONCRETE BARRIER WALL (RETAINING)

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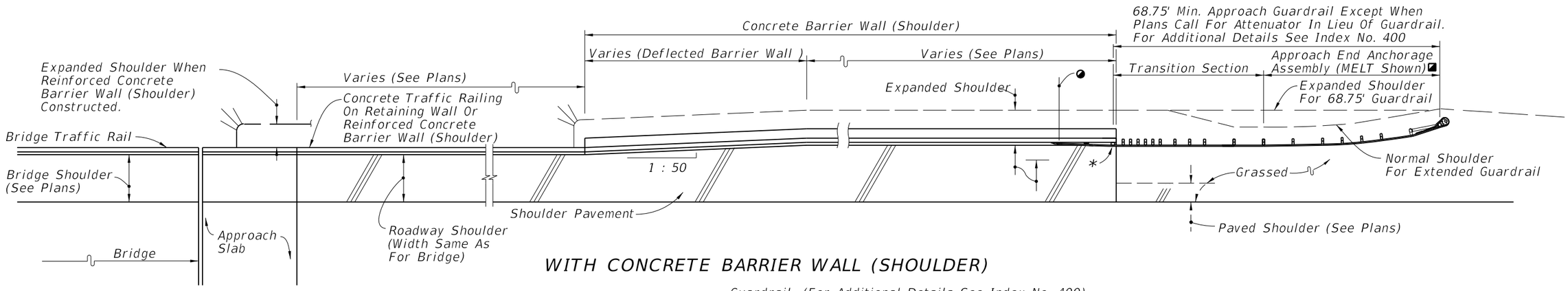
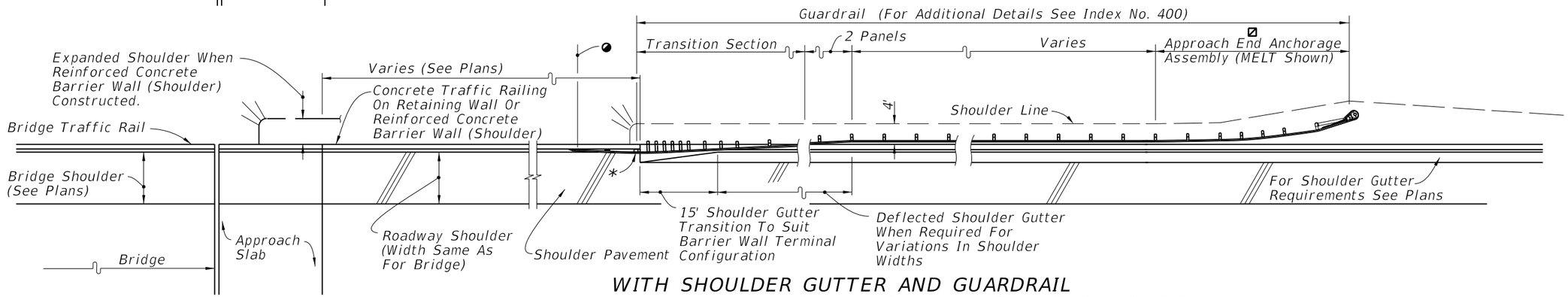
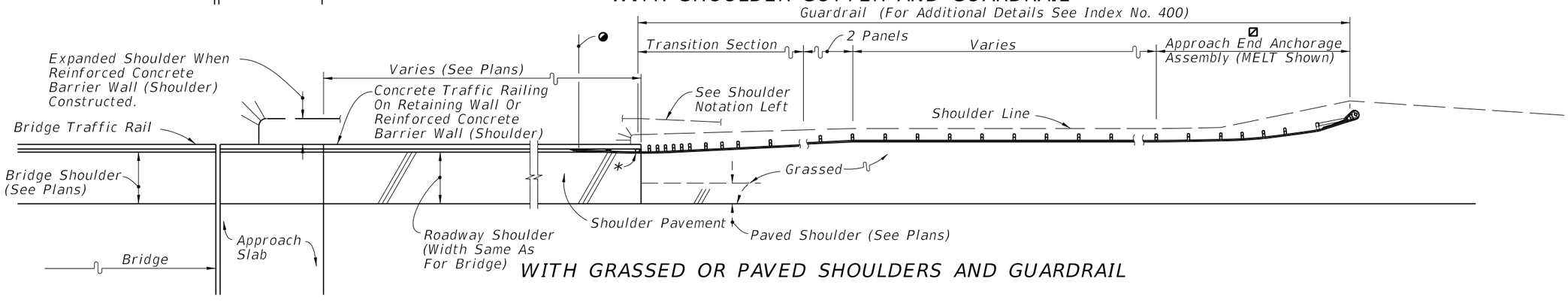
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/13			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	10 of 27



WITH CONCRETE BARRIER WALL (SHOULDER)



WITH SHOULDER GUTTER AND GUARDRAIL



WITH GRASSED OR PAVED SHOULDERS AND GUARDRAIL

◪ To be deleted on trailing ends except for 2-lane 2-way facilities. The tangent guardrail shall be anchored by End Anchorage Type II, Index No. 400.

◪ To be deleted on trailing ends except for 2-lane 2-way facilities.

◕ End measurement for guardrail payment when guardrail connected to shoulder barrier walls. See Index No. 400, Detail J for end measurement when guardrail connected to concrete traffic rails constructed with approach slab or on retaining walls.

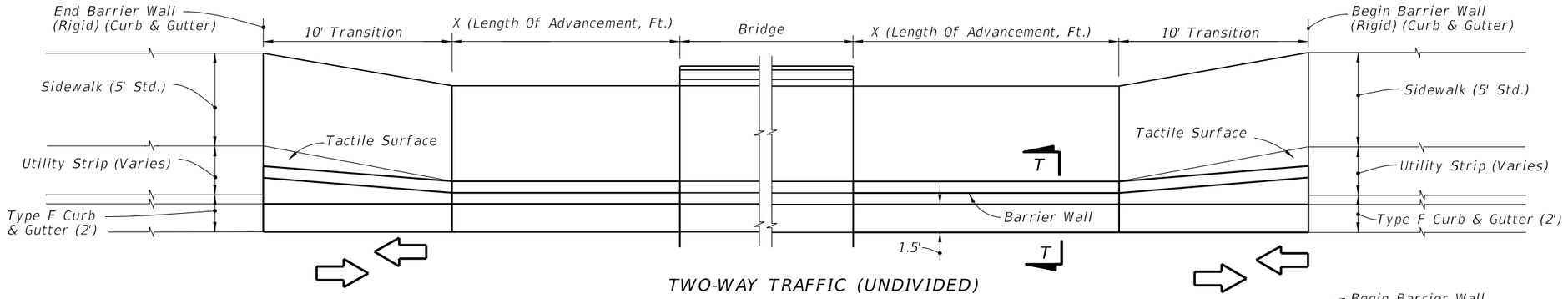
△ Views show approach roadside barriers when length of need exceeds the length of either retaining walls with concrete traffic railings* or Reinforced Concrete Barrier Wall (Shoulder) on shoulders. When either of these rigid barriers alone satisfies the approach length of need, the wall ends shall be shielded by crash cushions, or, by guardrail the same as for bridge traffic rails, as detailed in Index No. 400. See other flagged notes for trailing end treatments. Miscellaneous asphalt paving under guardrail not shown.

* Guardrail connection to concrete traffic railings on retaining walls shall be in accordance with the Structures Design Office Standard Drawings and the plans. Approach guardrail connections to shoulder concrete barrier walls shall be in accordance with the details shown on Sheets 2, 24 and 25 of this Index and Index No. 400, Detail J.

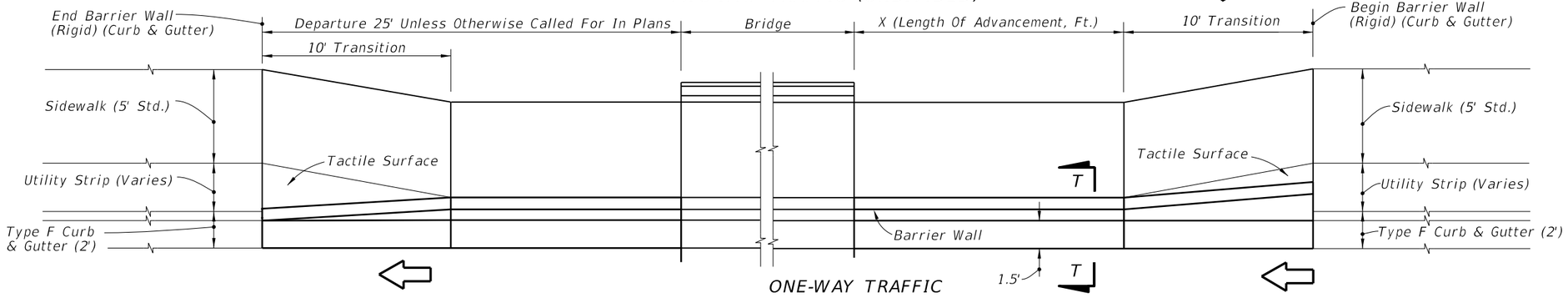
EITHER REINFORCED CONCRETE BARRIER WALL (SHOULDER) OR RETAINING WALL WITH CONCRETE TRAFFIC RAILING △

CONCRETE BARRIER WALLS ON APPROACHES TO BRIDGES

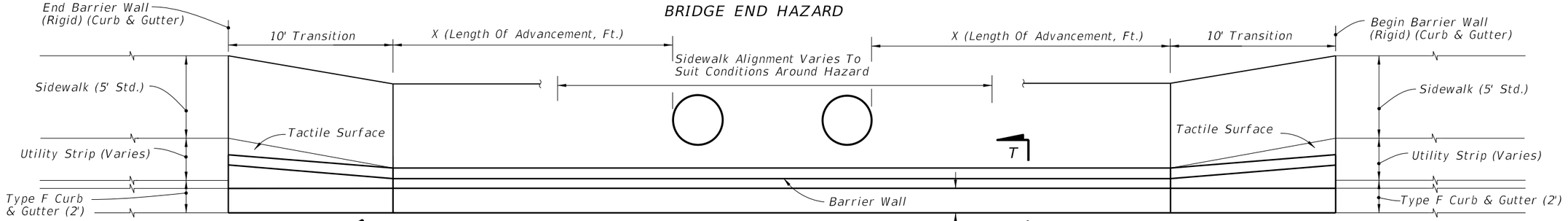
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/00			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	11 of 27



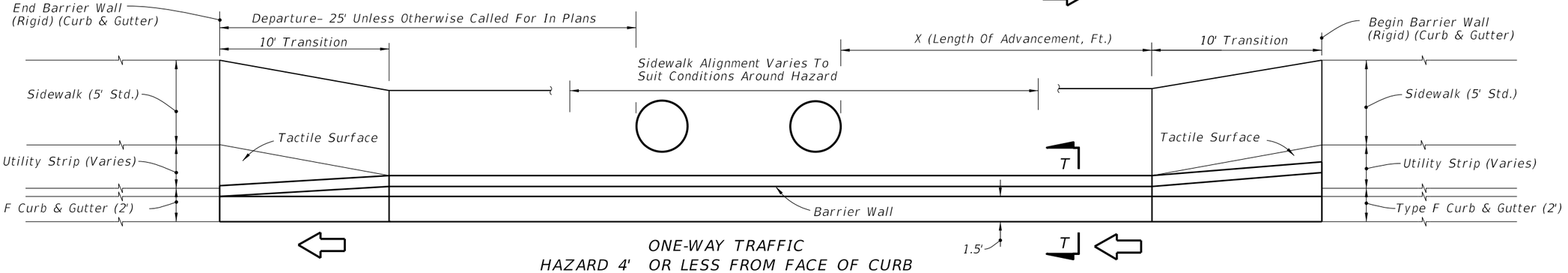
TWO-WAY TRAFFIC (UNDIVIDED)



ONE-WAY TRAFFIC
BRIDGE END HAZARD



TWO-WAY TRAFFIC (UNDIVIDED)



ONE-WAY TRAFFIC
HAZARD 4' OR LESS FROM FACE OF CURB

NOTE:

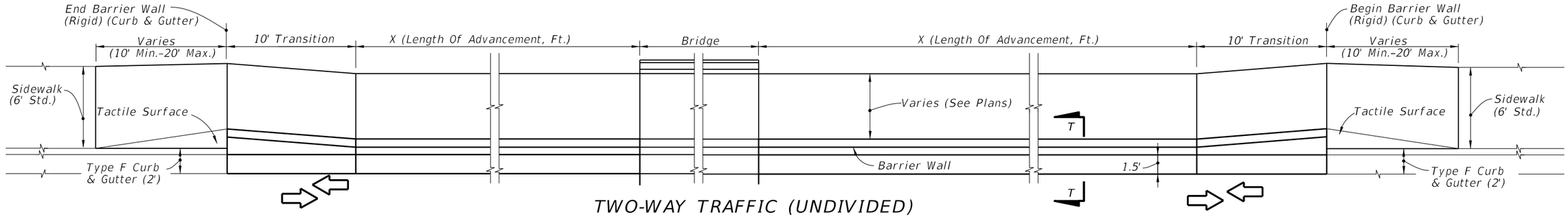
X=Length of advancement in feet for near and opposing approach lanes. See Sheet 14.

For locations without utility strips see Sheet 11.
For transition and sidewalk details see Sheets 12 & 13 and for sectional details see Sheet 14.

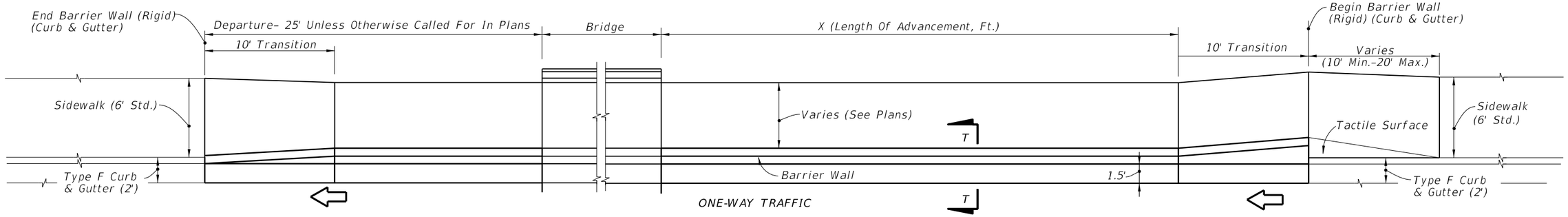
The 1.5' offsets to toe of barrier wall cannot be reduced to accommodate hazards; however, hazards located in the stem of the wall may be accommodated by the details on Sheets 22 & 23.

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) ● CURB AND GUTTER WITH UTILITY STRIP AND WITH ADJACENT BICYCLE LANE

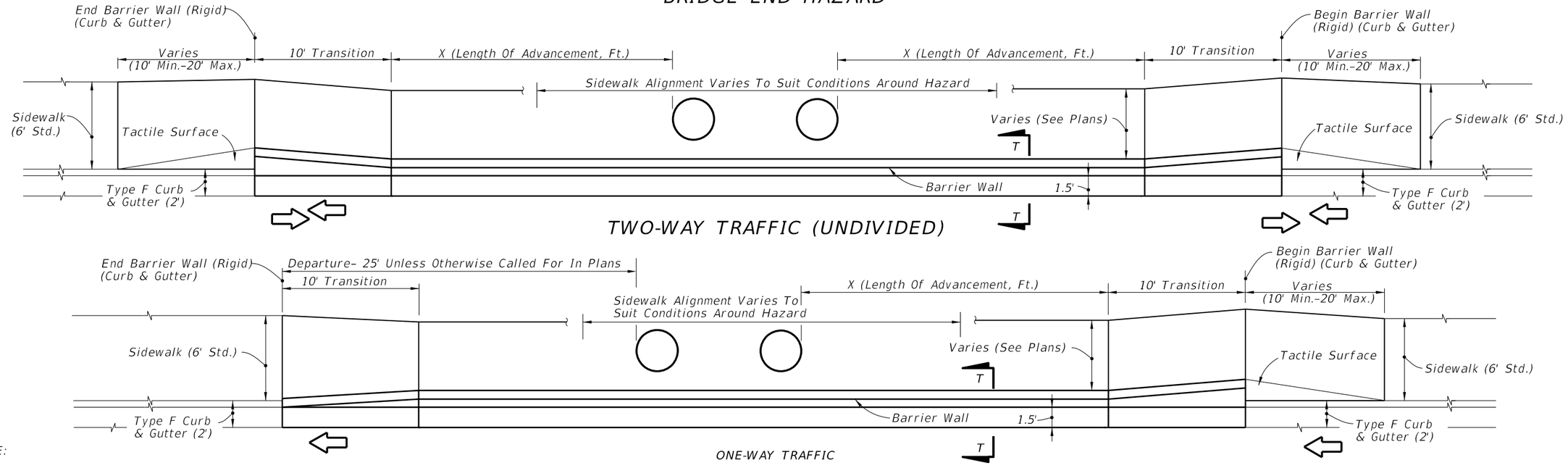
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/07			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	12 of 27



TWO-WAY TRAFFIC (UNDIVIDED)



BRIDGE END HAZARD



HAZARD 4' OR LESS FROM FACE OF CURB

NOTE:

X=Length of advancement in feet for near and opposing approach lanes. See Sheet 14.

For locations with utility strips see Sheet 10. For transition and sidewalk see Sheets 12 & 13, for sectional details see Sheet 14.

The 1.5' offsets to toe of barrier wall cannot be reduced to accommodate hazards; however, hazards located in the stem of the wall may be accommodated by the detail on Sheets 22 & 23.

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER)

CURB AND GUTTER WITHOUT UTILITY STRIP AND WITH ADJACENT BICYCLE LANE

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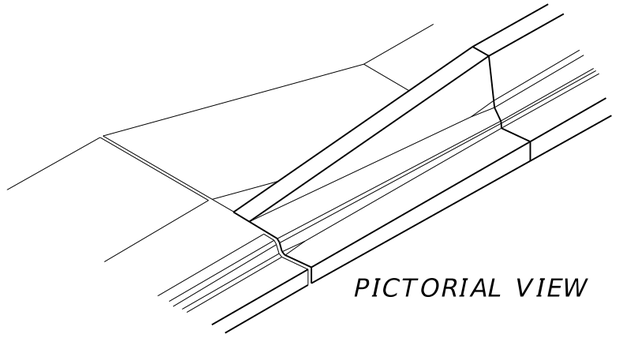
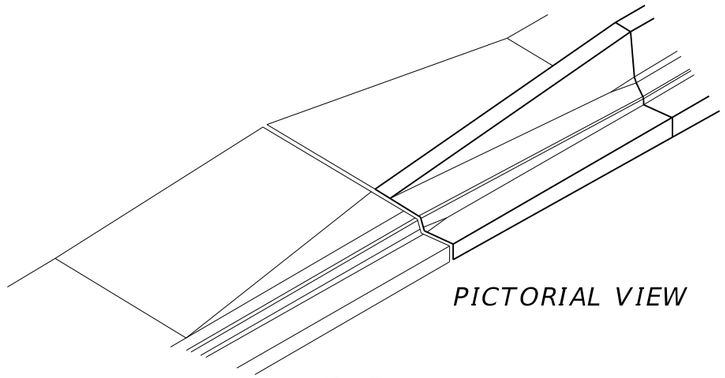
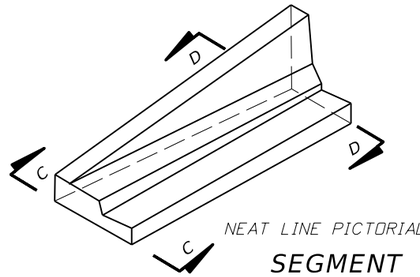
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/07			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	13 of 27



PICTORIAL VIEW

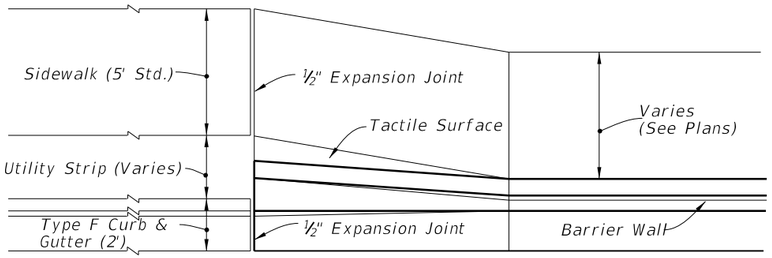


PICTORIAL VIEW

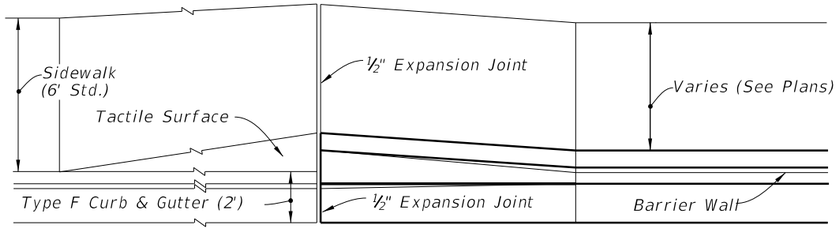


NEAT LINE PICTORIAL VIEW

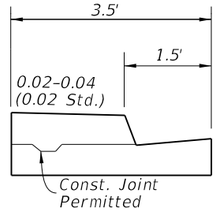
SEGMENT



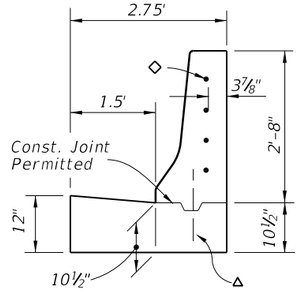
PLAN
WITH UTILITY STRIP



PLAN
WITH UTILITY STRIP

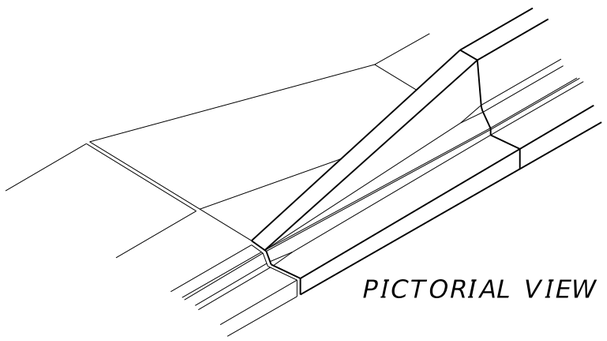


SECTION CC

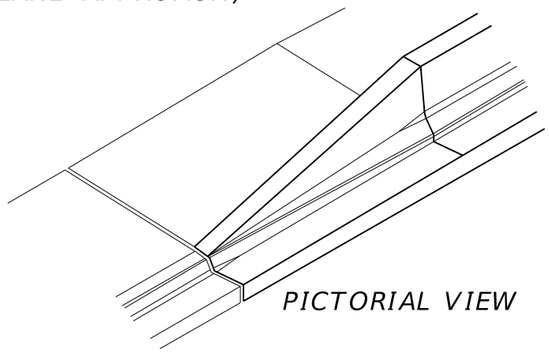


SECTION DD

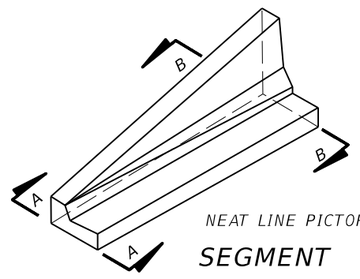
TWO-WAY TRAFFIC (OPPOSING LANE APPROACH)



PICTORIAL VIEW

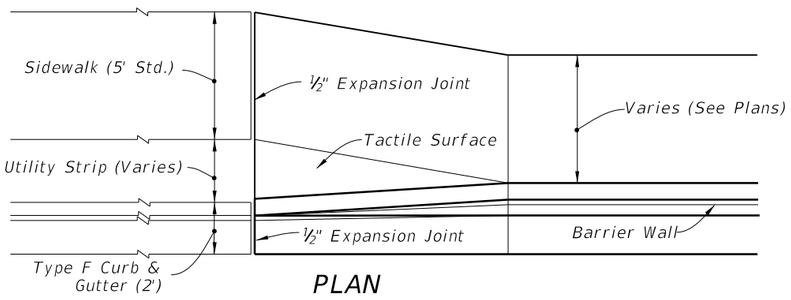


PICTORIAL VIEW

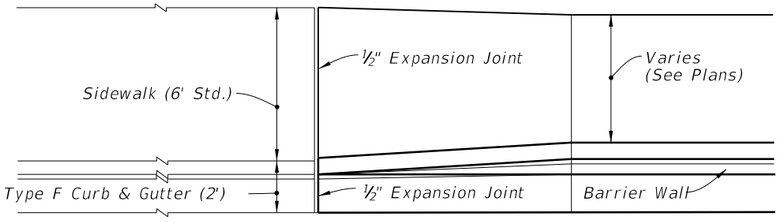


NEAT LINE PICTORIAL VIEW

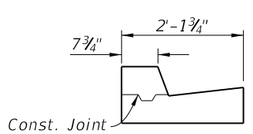
SEGMENT



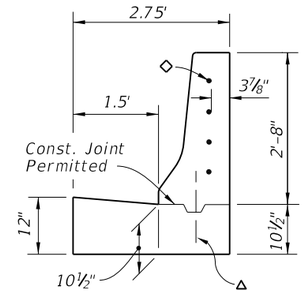
PLAN
WITH UTILITY STRIP



PLAN
WITH UTILITY STRIP



SECTION AA



SECTION BB

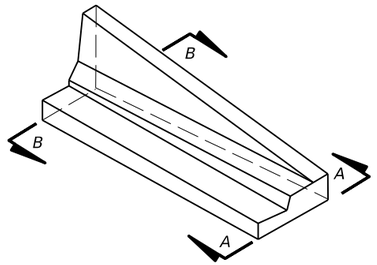
ONE-WAY TRAFFIC (TRAILING END)

◇ See Notes Sheet 13

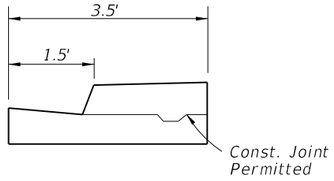
△ See Notes Sheet 13

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) • TRANSITION SEGMENTS • WITH ADJACENT BICYCLE LANE

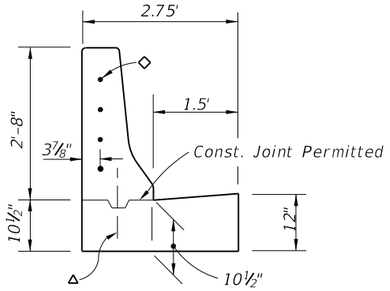
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/07			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	14 of 27



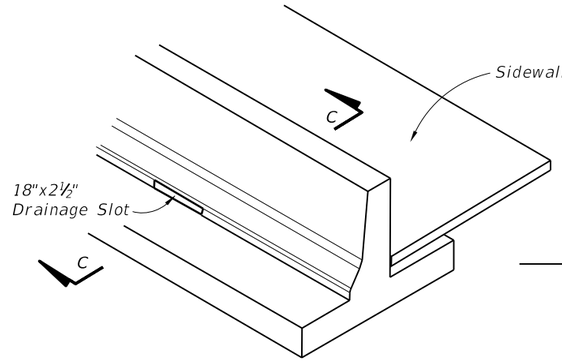
WITH OR WITHOUT UTILITY STRIP
NEAT LINE PICTORIAL VIEW



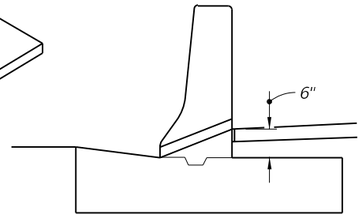
SECTION AA



SECTION BB



NEAT LINE PICTORIAL VIEW



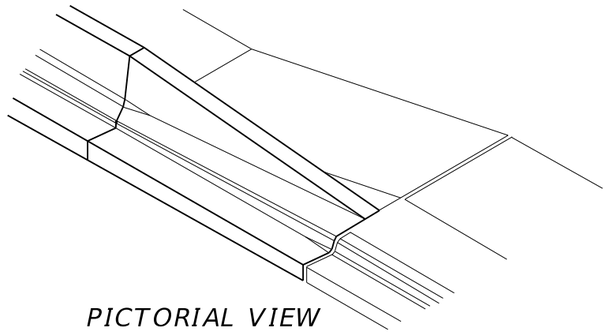
SECTION CC

NOTE: Drainage slots shall be located at all low points along the sidewalk, and, unless otherwise shown in the plans, slots shall be spaced at intervals not exceeding 50' in fill sections and 20' in cut sections. Slots shall be located such that only one bar is cut away or deleted in front and back lines of vertical reinforcement.

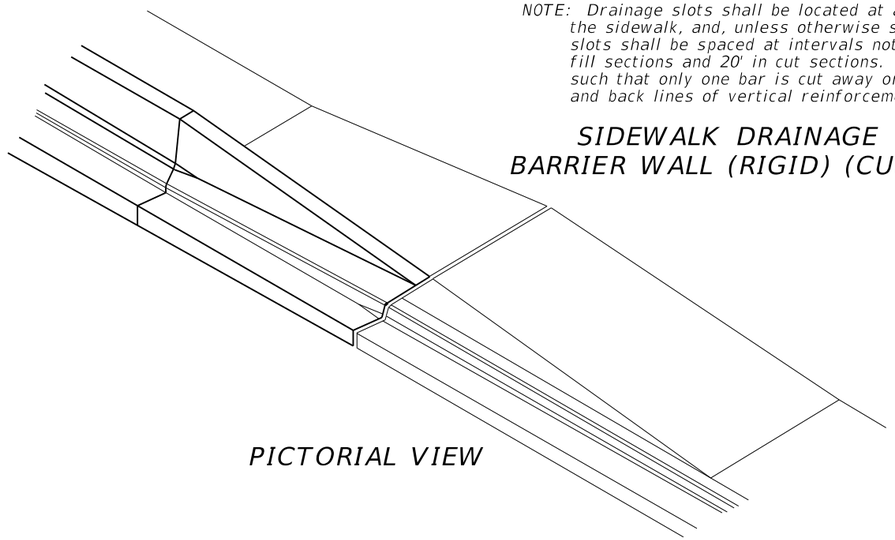
SIDEWALK DRAINAGE SLOT FOR
BARRIER WALL (RIGID) (CURB & GUTTER)

◇ Transition Segments Shall Be Doweled Into The End Of The Barrier Wall In The Following Manner:
Four 1" diameter holes 6" deep on 6" centers shall be drilled in the end of the barrier and #6 bars 15" long set in an Adhesive Bonded Material System. The ends of the dowels extending into the transition segment shall be wrapped with one layer of 15 lb. Type I asphalt-saturated roofing felt with the ends crimped.

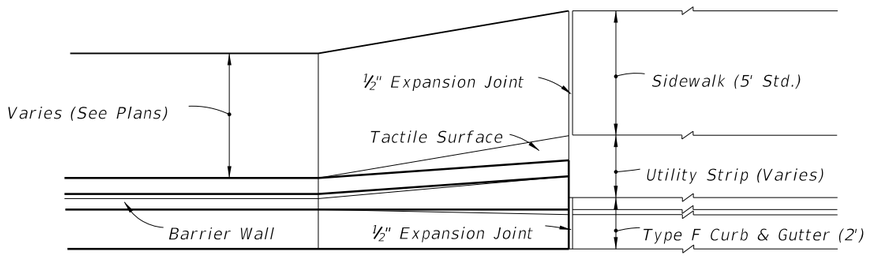
△ When Construction Joints Are Utilized For Transition Segment Construction The Stem Shall Be Doweled To The Footing In The Following Manner:
Five #5 bars 15" long shall be embedded 7" into the footing. The dowels shall be spaced 15" on centers with the first dowel located 12" from the barrier wall. Dowels may be placed within or adjacent to the keyway.



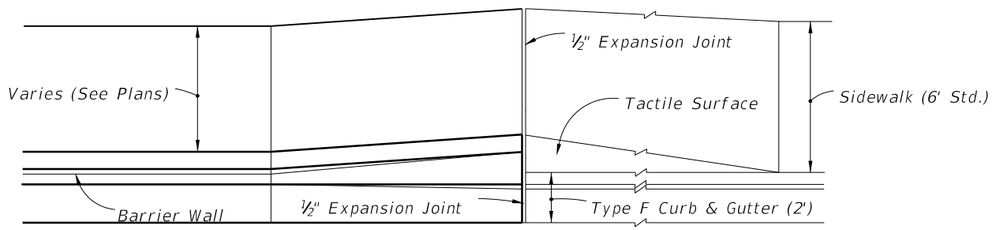
PICTORIAL VIEW



PICTORIAL VIEW



PLAN
WITH UTILITY STRIP



PLAN
WITHOUT UTILITY STRIP

RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE HAND
ONE-WAY AND TWO-WAY TRAFFIC (NEAR LANE APPROACH)

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) • TRANSITION SEGMENT • WITH ADJACENT BICYCLE LANE

LAST REVISION	REVISION	DESCRIPTION:				
07/01/00			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	INDEX NO. 410	SHEET NO. 15 of 27

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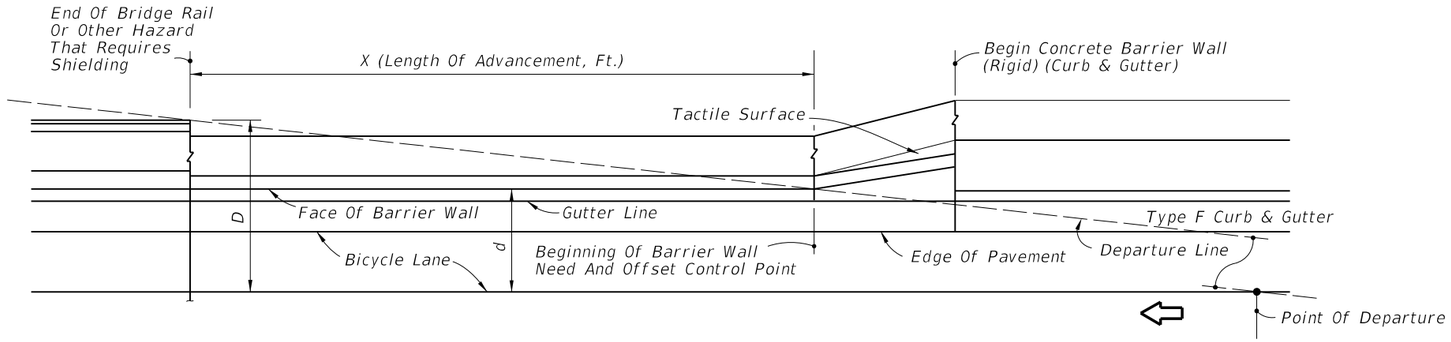
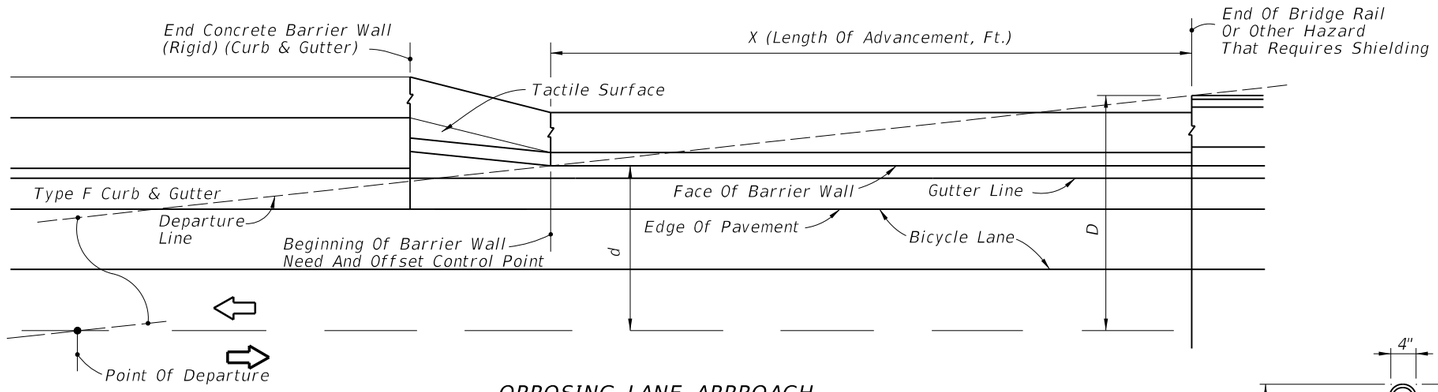


RIGHT SIDE APPROACH SHOWN - LEFT SIDE OPPOSITE HAND

NEAR LANE APPROACH



OPPOSING LANE APPROACH

WITH OR WITHOUT UTILITY STRIP - UTILITY STRIP SHOWN
- SEE SHEET 10 & 11 FOR APPLICATIONS

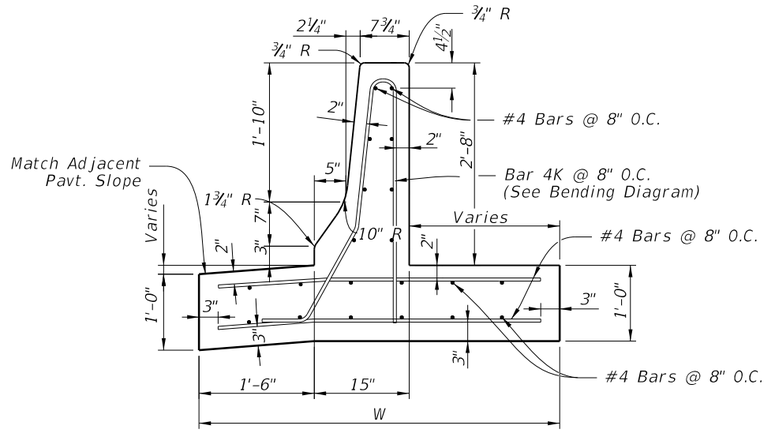
Design Speed mph	Length Of Advancement, Ft. (X)
≤ 45	= 16 (D–d)
Note: The minimum length of advancement for both near and opposing lane approaches is 40'.	

Equation Variables:

D = Distance in feet from near edge of the near approach traffic lane to back of hazard or clear zone width whichever is lesser. For left side hazards and clear zones on two-way undivided facilities D is measured from the inside edge of the near approach traffic lane.

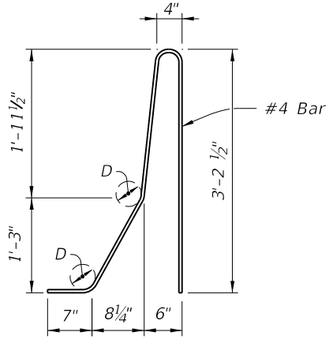
d = Distance in feet from near edge of the near approach traffic lane to the face of barrier (at offset control point). For left side hazards on two-way undivided facilities d is measured from the inside edge of the nearest opposing traffic lane.

LENGTH OF ADVANCEMENT

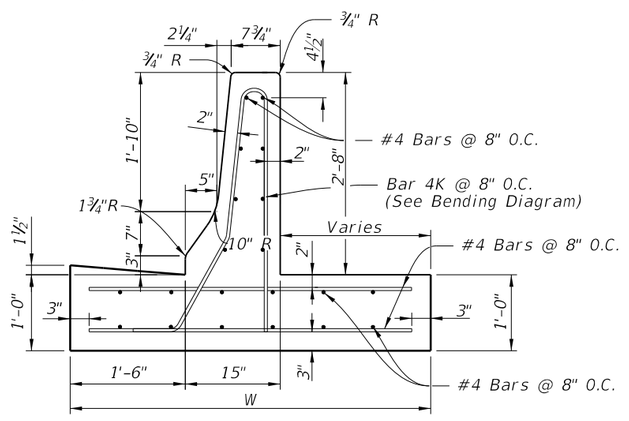


FOR HIGH SIDE
SECTION TT

QUANTITIES			
Length* Of Barrier Wall (LF)	W LF	Class II Conc. CY Per LF	Rein. Steel Lbs Per LF
>73'	4'-9"	0.26	29
56' to 73'	5'-6"	0.29	32
48' to 55'	6'-0"	0.31	34
41' to 47'	6'-6"	0.33	37
36' to 41'	7'-0"	0.35	39
29' to 35'	8'-0"	0.38	42



BAR 4K
BENDING DIAGRAM
Note: D=3"



FOR LOW SIDE
SECTION TT

Note: All longitudinal reinforcement No. 4 bars. Shorter segments due to construction or expansion joint shall be doweled in the manner described for 'Transition Segments' on Sheet 13.

Transverse expansion joints are to be constructed at the juncture of wall transitions and curb and gutter, and at intervals so that spacing will not exceed 100'.

For barrier wall inlet details see Index No. 219. Inlet extends into bicycle lane 12". Wall to be paid for under the contract unit price for Shoulder Concrete Barrier Wall (Rigid-Curb & Gutter), LF.

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) WITH ADJACENT BICYCLE LANE

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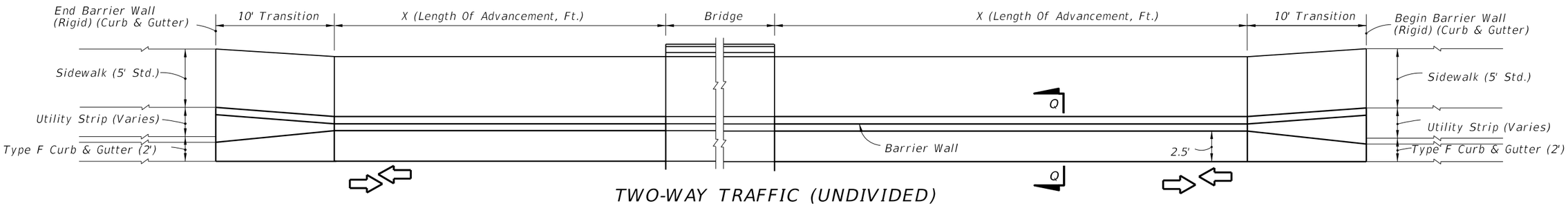
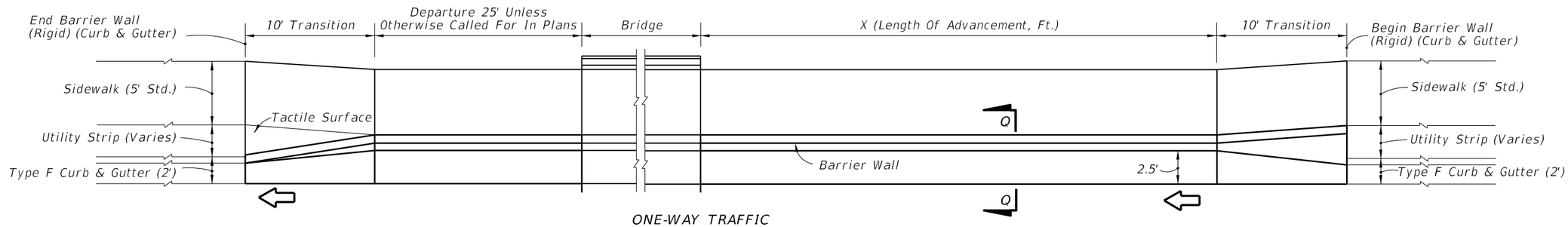
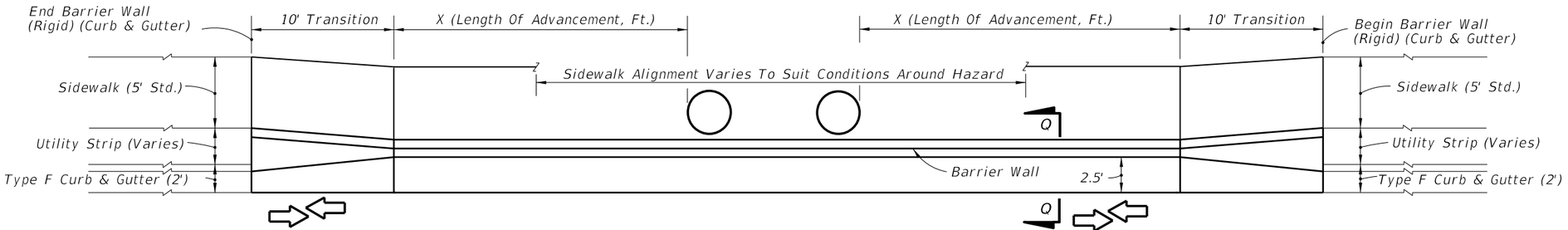


TWO-WAY TRAFFIC (UNDIVIDED)

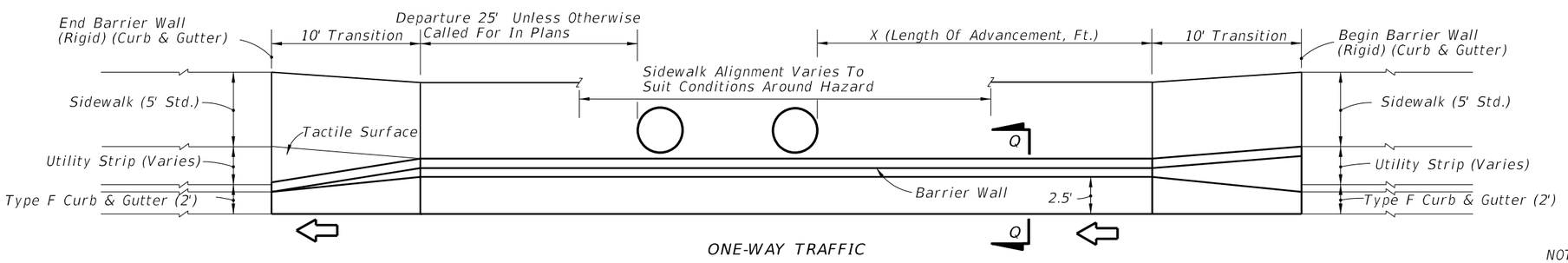


ONE-WAY TRAFFIC

BRIDGE END HAZARD



TWO-WAY TRAFFIC (UNDIVIDED)



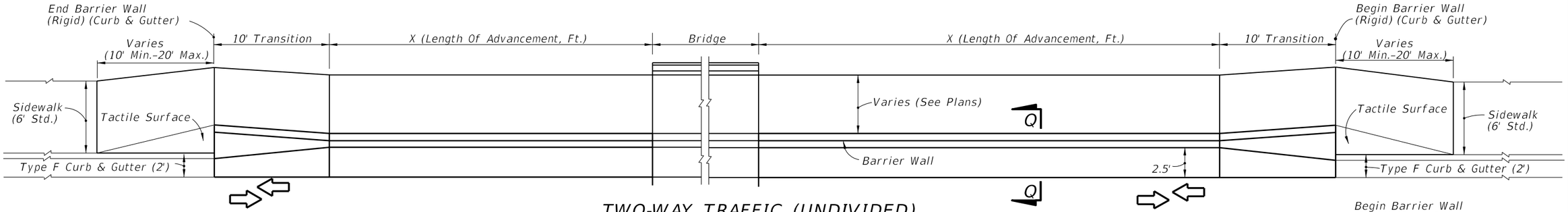
ONE-WAY TRAFFIC

HAZARD 4' OR LESS FROM FACE OF CURB

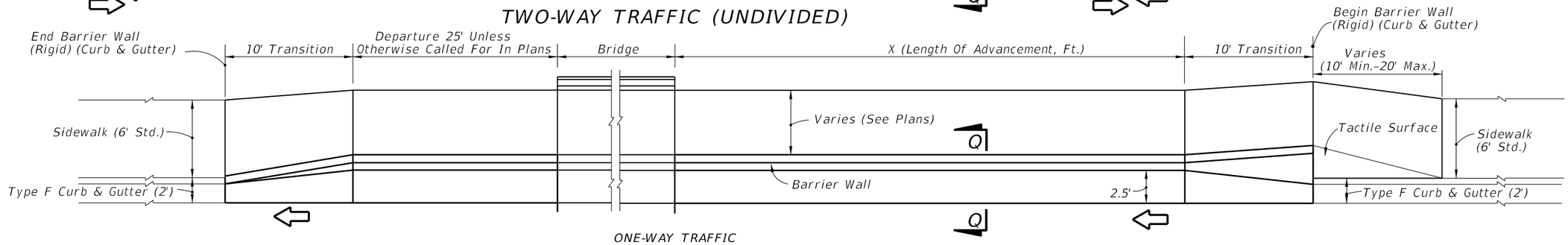
NOTE:
X=Length of advancement in feet for near and opposing approach lanes. See Sheet 19.
For locations without utility strips see Sheet 16.
For transition and sidewalk see Sheets 17 & 18 and for sectional details see Sheet 19.
The 2.5' offsets to toe of barrier wall cannot be reduced to accommodate hazards; however, hazards located in the stem of the wall may be accommodated by the details on Sheets 22 & 23.

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER)
CURB AND GUTTER WITH UTILITY STRIP AND WITHOUT ADJACENT BICYCLE LANE

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/00			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	17 of 27

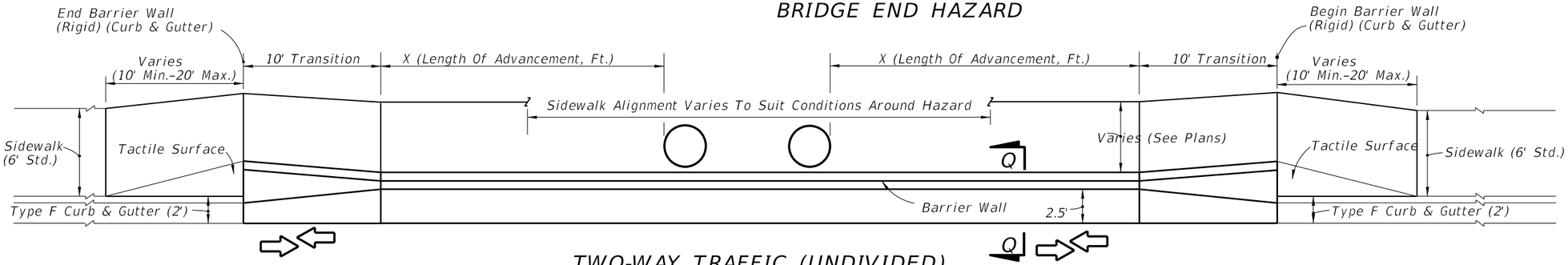


TWO-WAY TRAFFIC (UNDIVIDED)

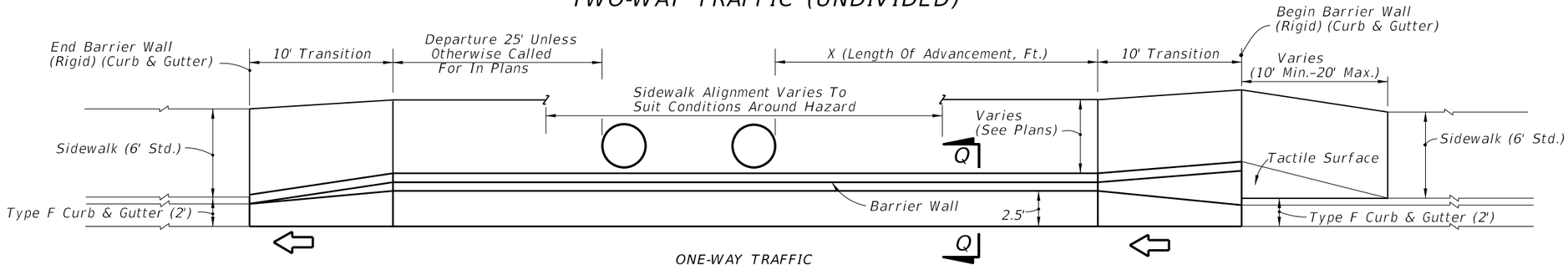


ONE-WAY TRAFFIC

BRIDGE END HAZARD



TWO-WAY TRAFFIC (UNDIVIDED)



ONE-WAY TRAFFIC

HAZARD 4' OR LESS FROM FACE OF CURB

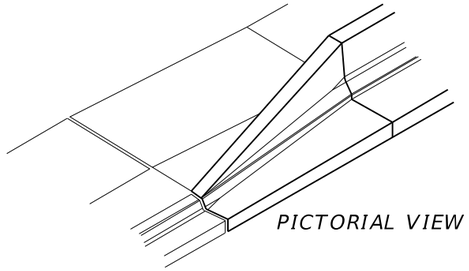
CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER)
CURB AND GUTTER WITHOUT UTILITY STRIP AND WITHOUT ADJACENT BICYCLE LANE

NOTE:
X=Length of advancement in feet for near and opposing approach lanes. See Sheet 19.

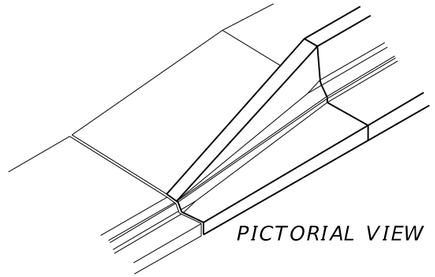
For locations with utility strips see Sheet 15. For transition and sidewalk see Sheets 17 & 18 and for sectional details see Sheet 19.

The 2.5' offsets to toe of barrier wall cannot be reduced to accommodate hazards; however, hazards located in the stem of the wall may be accommodated by the detail on Sheets 22 & 23.

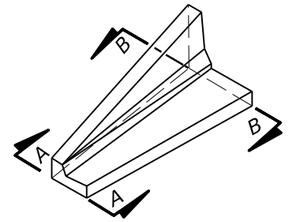
◇ See Sheet 19
△ See Sheet 19



PICTORIAL VIEW

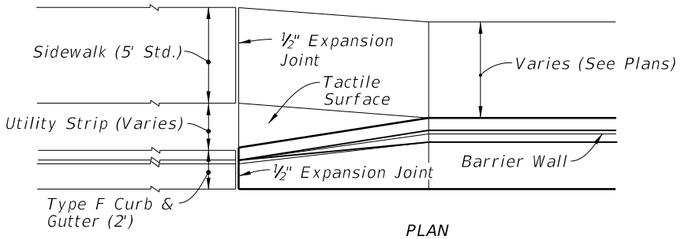


PICTORIAL VIEW



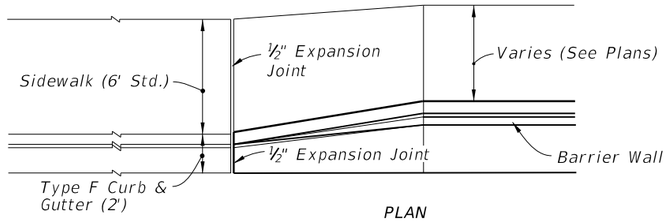
NEAT LINE PICTORIAL VIEW

SEGMENT



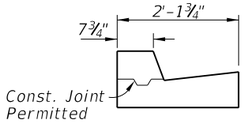
PLAN

WITH UTILITY STRIP

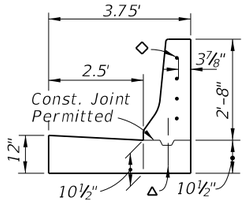


PLAN

WITHOUT UTILITY STRIP

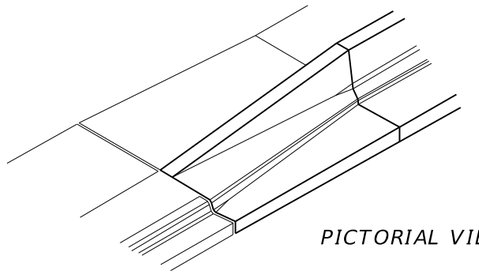


SECTION AA

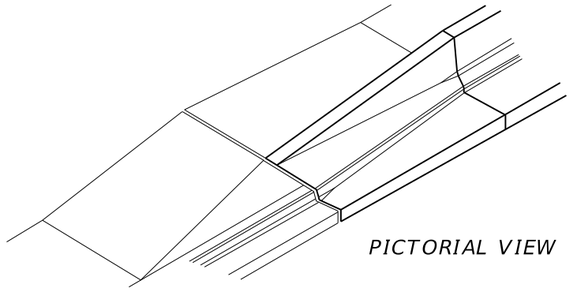


SECTION BB

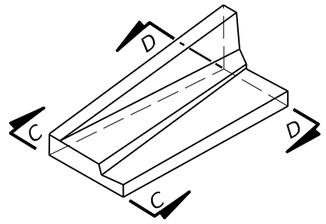
ONE-WAY TRAFFIC (TRAILING END)



PICTORIAL VIEW

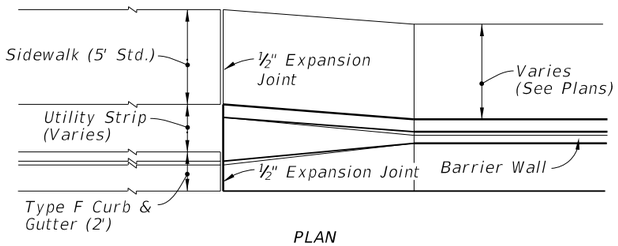


PICTORIAL VIEW



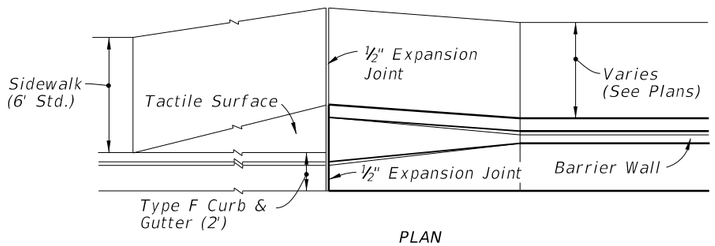
NEAT LINE PICTORIAL VIEW

SEGMENT



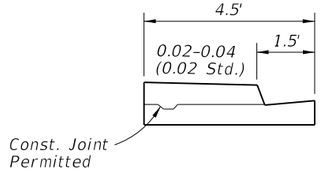
PLAN

WITH UTILITY STRIP

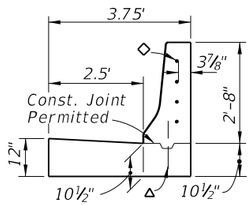


PLAN

WITH UTILITY STRIP



SECTION CC

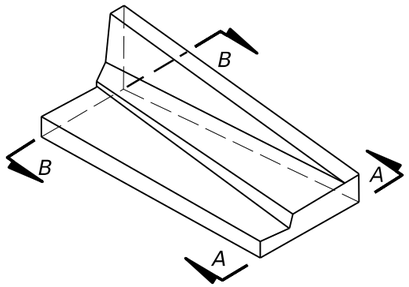


SECTION DD

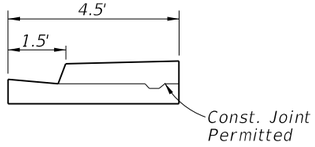
TWO-WAY TRAFFIC (OPPOSING LANE APPROACH)

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) • TRANSITION SEGMENTS • WITHOUT ADJACENT BICYCLE LANE

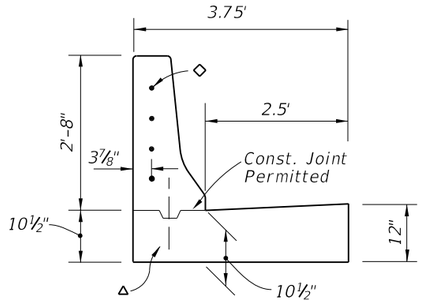
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/07			FDOT 2014 DESIGN STANDARDS	CONCRETE BARRIER WALL	410	19 of 27



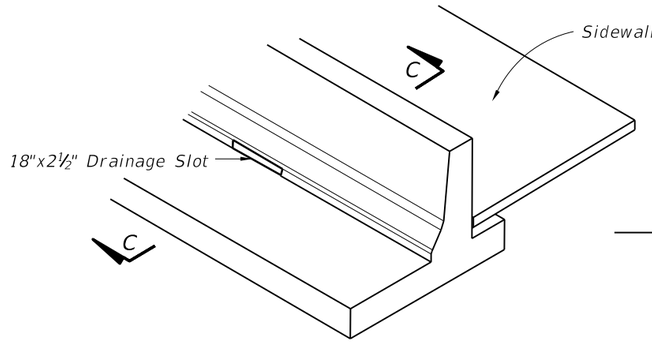
WITH OR WITHOUT UTILITY STRIP
NEAT LINE PICTORIAL VIEW



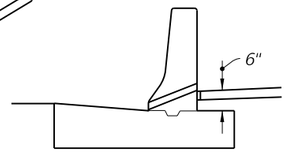
SECTION AA



SECTION BB



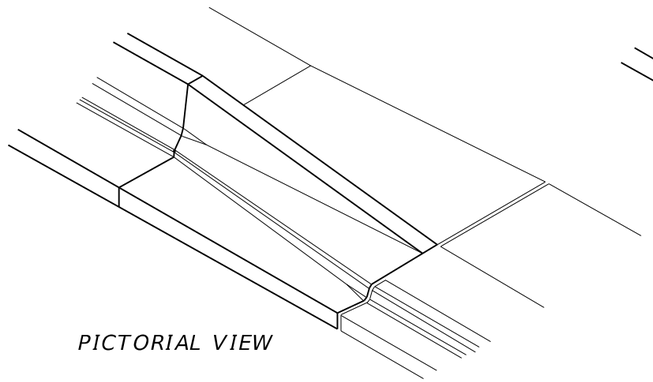
NEAT LINE PICTORIAL VIEW



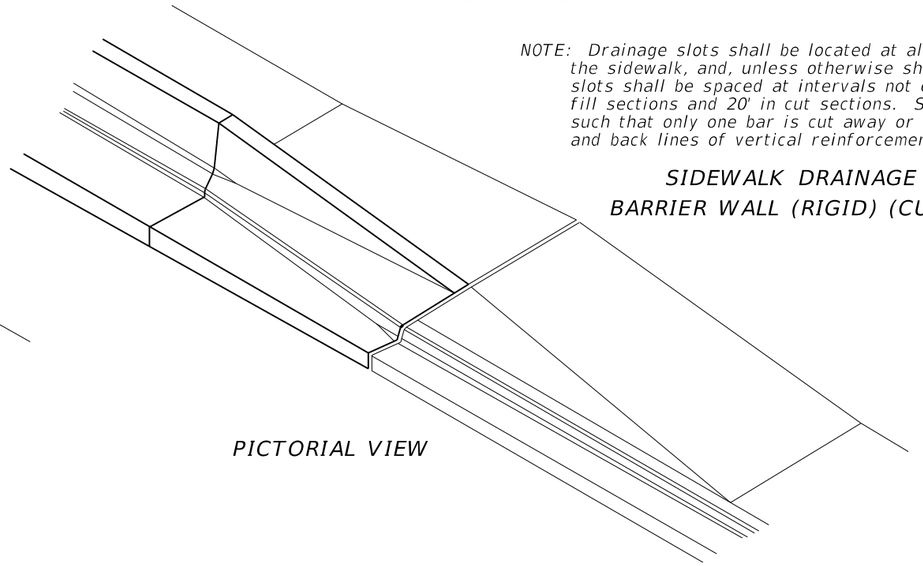
SECTION CC

◇ *Transition Segments Shall Be Doweled Into The End Of The Barrier Wall In The Following Manner:*
Four 1" diameter holes 6" deep on 6" centers shall be drilled in the end of the barrier and #6 bars 15" long set in an Adhesive Bonded Material System. The ends of the dowels extending into the transition segment shall be wrapped with one layer of 15 lb. Type I asphalt-saturated roofing felt with the ends crimped.

△ *When Construction Joints Are Utilized For Transition Segment Construction The Stem Shall Be Doweled To The Footing In The Following Manner:*
Five #5 bars 15" long shall be embedded 7" into the footing. The dowels shall be spaced 15" on centers with the first dowel located 12" from the barrier wall. Dowels may be placed within or adjacent to the keyway.



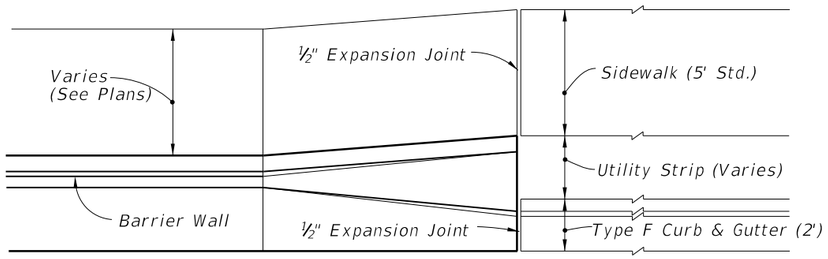
PICTORIAL VIEW



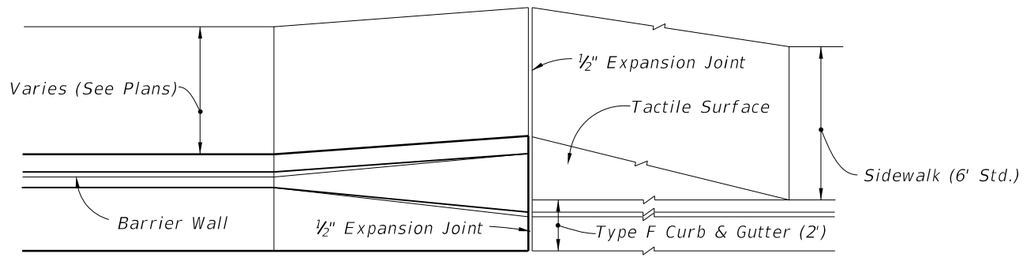
PICTORIAL VIEW

NOTE: Drainage slots shall be located at all low points along the sidewalk, and, unless otherwise shown in the plans, slots shall be spaced at intervals not exceeding 50' in fill sections and 20' in cut sections. Slots shall be located such that only one bar is cut away or deleted in front and back lines of vertical reinforcement.

SIDEWALK DRAINAGE SLOT FOR
BARRIER WALL (RIGID) (CURB & GUTTER)



PLAN
WITH UTILITY STRIP



PLAN
WITHOUT UTILITY STRIP

RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE HAND

ONE-WAY AND TWO-WAY TRAFFIC (NEAR LANE APPROACH)
CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) ● TRANSITION SEGMENT ● WITHOUT ADJACENT BICYCLE LANE

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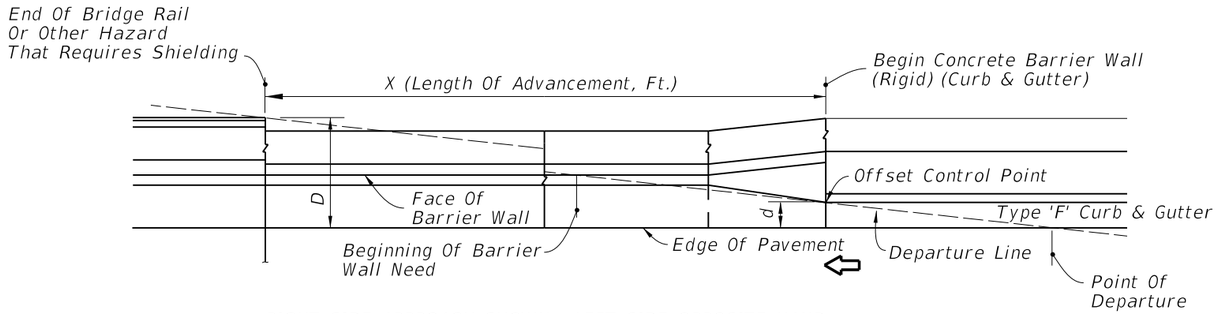
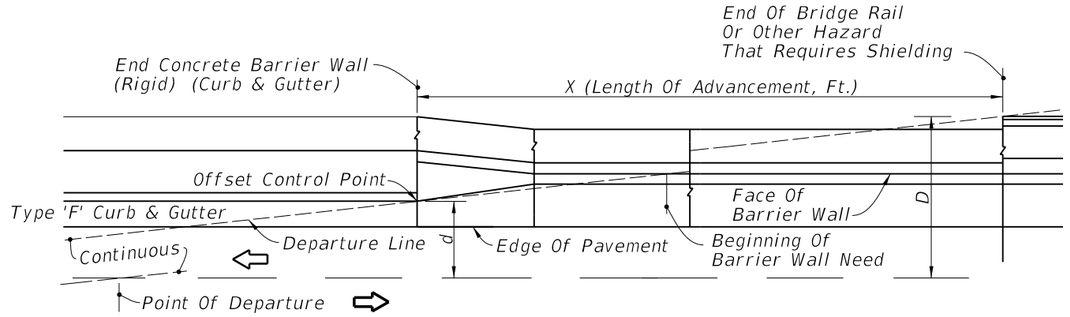


RIGHT SIDE APPROACH SHOWN - LEFT SIDE OPPOSITE HAND

NEAR LANE APPROACH



OPPOSING LANE APPROACH

WITH OR WITHOUT UTILITY STRIP - UTILITY STRIP SHOWN
SEE SHEET 15 & 16 FOR APPLICATIONS

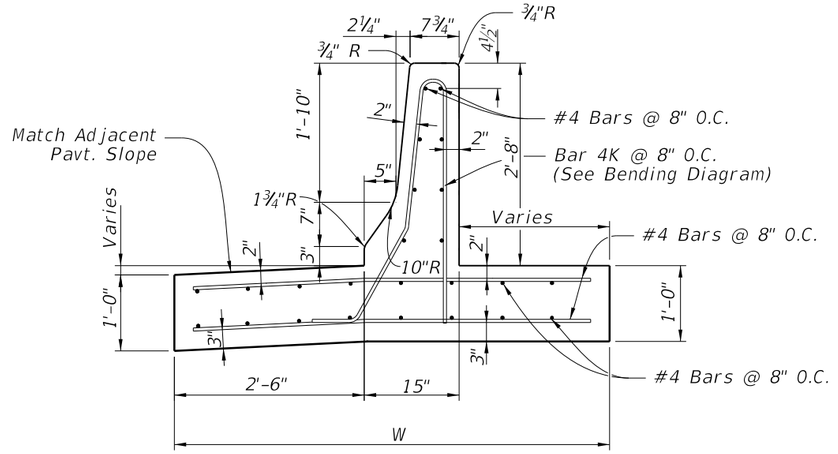
Design Speed mph	Length Of Advancement, Ft.(X)
≤ 45	16 (D-d)
Note: The minimum length of advancement for both near and opposing lane approaches is 40'.	

Equation Variables:

D= Distance in feet from near edge of the near approach traffic lane to back of hazard or clear zone width whichever is lesser. For left side hazards and clear zones on two-way undivided facilities D is measured from the inside edge of the near approach traffic lane.

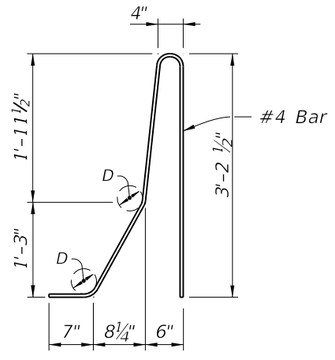
d= Distance in feet from near edge of the near approach traffic lane to the face of curb (at offset control point). For left side hazards on two-way undivided facilities d is measured from the inside edge of the nearest opposing traffic lane.

LENGTH OF ADVANCEMENT



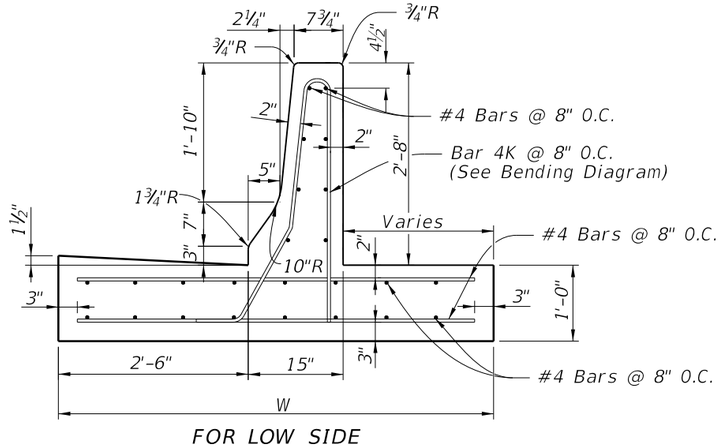
FOR HIGH SIDE
SECTION QQ

QUANTITIES			
Length* Of Barrier Wall (LF)	W LF	Class II Conc. CY Per LF	Rein. Steel Lbs Per LF
>73'	4'-9"	0.26	29
56' to 73'	5'-6"	0.29	32
48' to 55'	6'-0"	0.31	34
41' to 47'	6'-6"	0.33	37
36' to 41'	7'-0"	0.35	39
29' to 35'	8'-0"	0.38	42



BAR 4K
BENDING DIAGRAM

Note: D=3"



FOR LOW SIDE
SECTION QQ

Note: All longitudinal reinforcement #4 bars. Shorter segments due to construction or expansion joint shall be doweled in the manner described for 'Transition Segments' on Sheet 18.

Transverse expansion joints are to be constructed at the juncture of wall transitions and curb and gutter, and at intervals so that spacing will not exceed 100'.

For barrier wall inlet details see Index No. 219. Wall to be paid for under the contract unit price for Shoulder Concrete Barrier Wall (Rigid-Curb & Gutter), LF.

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) • WITHOUT ADJACENT BICYCLE LANE

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LAST REVISION	REVISION	DESCRIPTION:				
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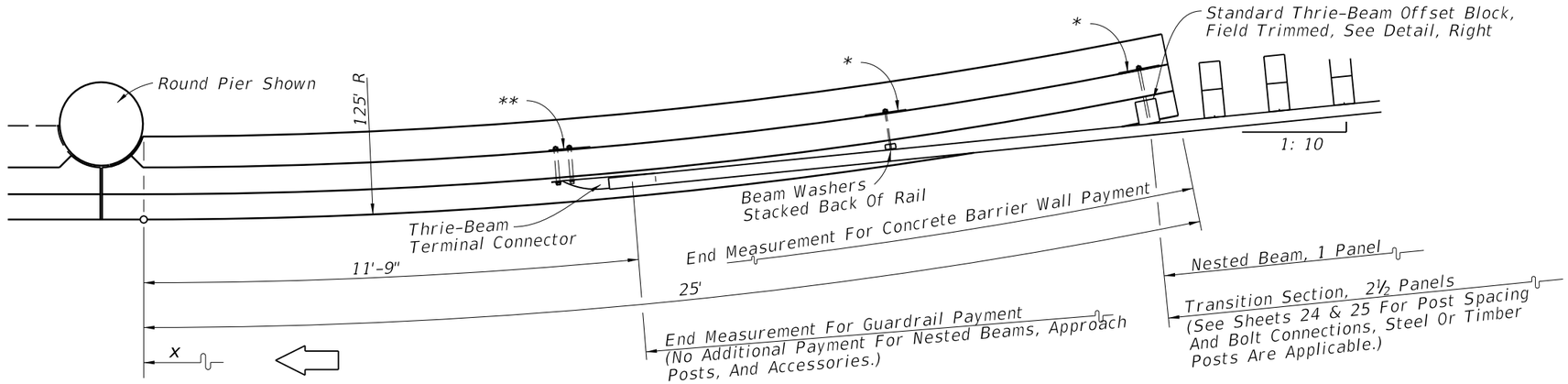
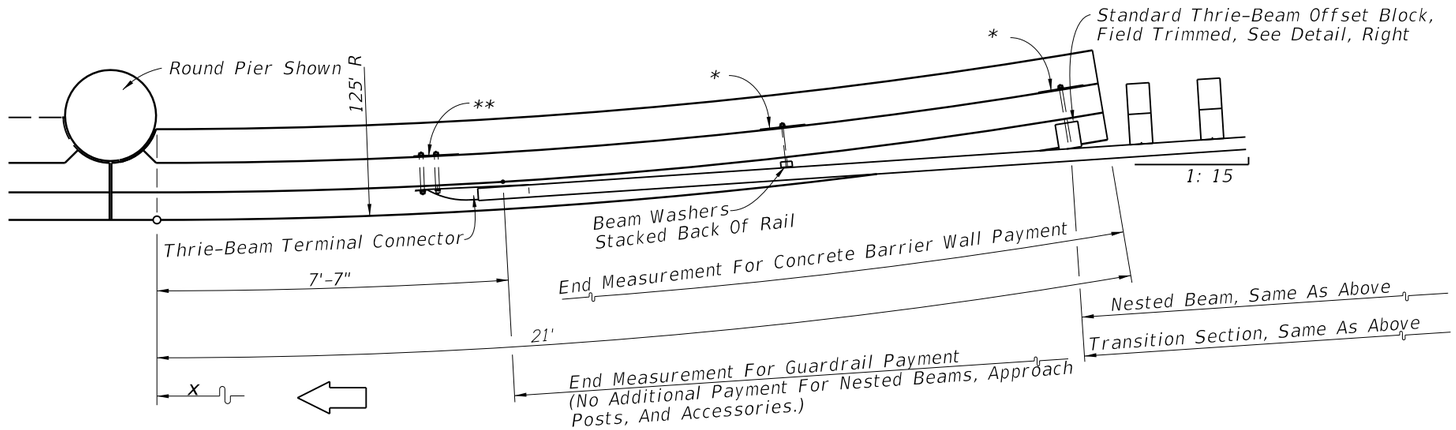


PLAN FOR DESIGN SPEED ≤ 45 MPH

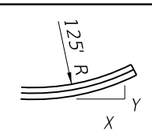
NOTE:
For details at Rigid Hazard see Sheet 21.



PLAN FOR DESIGN SPEED ≥ 50 MPH

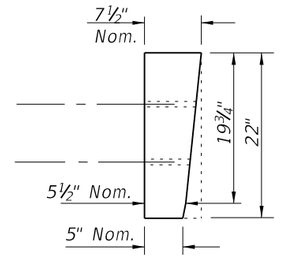
Note: For continuous barrier between independent bents or single pier columns see Sheets 21-23.

ARC LENGTH (FT)	DISTANCE "x" (FT)	OFFSETS "y" (FT)
4	4.00	0.06
8	7.99	0.26
12	11.98	0.58
16	15.96	1.02
20	19.91	1.60
21	20.91	1.76
24	23.85	2.30
25	24.83	2.49



Note:
Wall may be constructed in chords having lengths ≤ 4 feet.

SHOULDER BARRIER WALL AT ABOVE GROUND RIGID HAZARDS
WHEN GUARDRAIL OFFSET FROM HAZARD LESS THAN 3'



FOR USE WITH EITHER
1: 10 OR 1: 15
GUARDRAIL TRANSITIONS

STANDARD THRIE-BEAM
OFFSET BLOCK
(FIELD TRIMMED)

NOTES

1. This wall is intended for use where the wall has bearing against the hazard; when the length between bent supports or pier columns exceeds 13', the affected segments shall be constructed in accordance with the detail for 'Reinforced Concrete Barrier Wall (Shoulder)', 'Section TT' or 'Section QQ', this index. In cases where the barrier wall and slope pavement or other structure would occupy the same location, the wall and structure are to be modified as detailed in the plans.

2. The barrier wall radial segments are intended for use on approach and trailing ends of both one-way and two-way facilities. The guardrail connections shown on this sheet apply to one-way approaches and to the approaching and trailing ends of two-lane two-way facilities. On trailing ends of two-way multilane and one-way facilities the end connection on Sheet 1 may be used. For walls with normal offsets from hazards and their guardrail connections, see Sheet 24 & 25.

3. Refer to Index No. 400 for additional guardrail information.

4. Wall to be paid for under the contract unit price for Shoulder Concrete Barrier Wall (Rigid-Shoulder), LF.

* 12"x12"x¼" galvanized steel back-up plate with ⅝" post bolts (either 14" or 18" long) and nuts with ⅝" plain round washers under nuts.

** Attach thrie-beam terminal connector to shoulder barrier wall with a 21"x12"x⅝" thrie beam terminal connector plate and 5-⅞"x12" long HS hex bolts and nuts with ⅞" plain round washers under heads and nuts.

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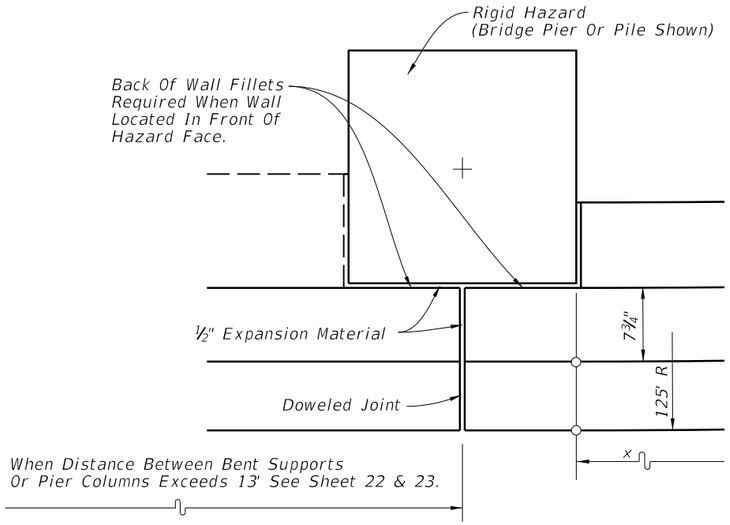
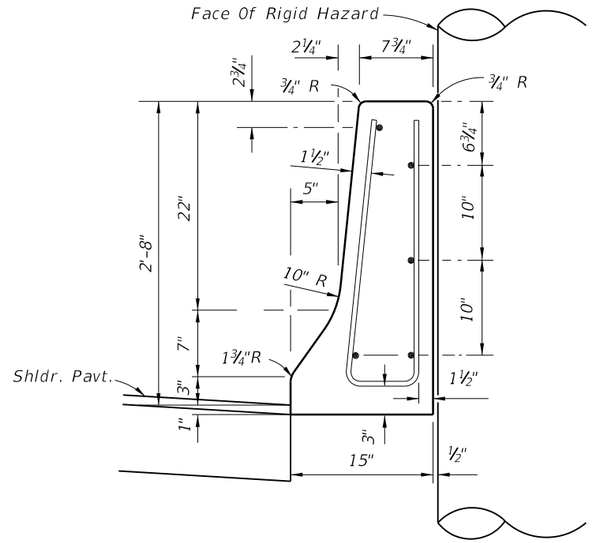
CONCRETE BARRIER WALL

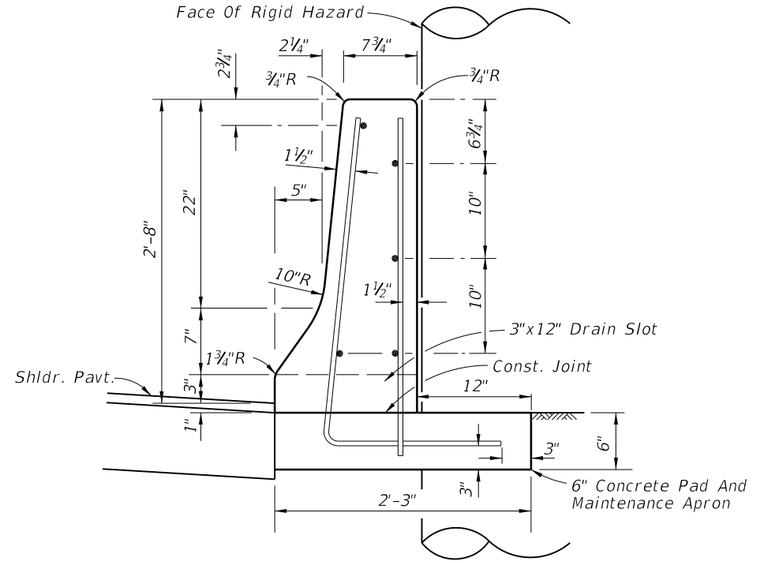


BARRIER WALL AT SQUARE OR RECTANGULAR SHAPED HAZARD

PARTIAL PLAN

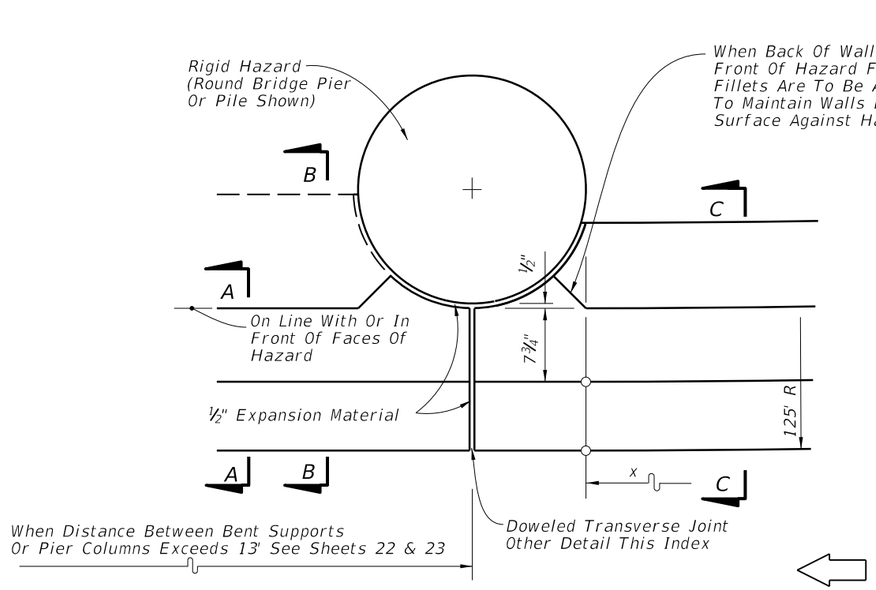


SECTION AA



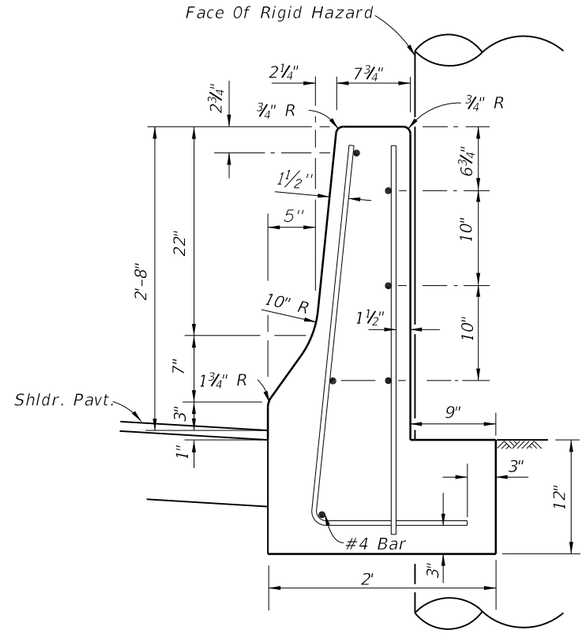
TO BE CONST. IN LIEU OF SECTION AA WHEN THRU DRAINAGE REQUIRED

SECTION BB



BARRIER WALL AT ROUND HAZARD

PARTIAL PLAN



SECTION CC

NOTE:
All vertical reinforcement #4 bars at 12" centers.
All horizontal reinforcement #5 bars.

SHOULDER BARRIER WALL AT ABOVE GROUND RIGID HAZARDS WHEN GUARDRAIL OFFSET FROM HAZARD LESS THAN 3'

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
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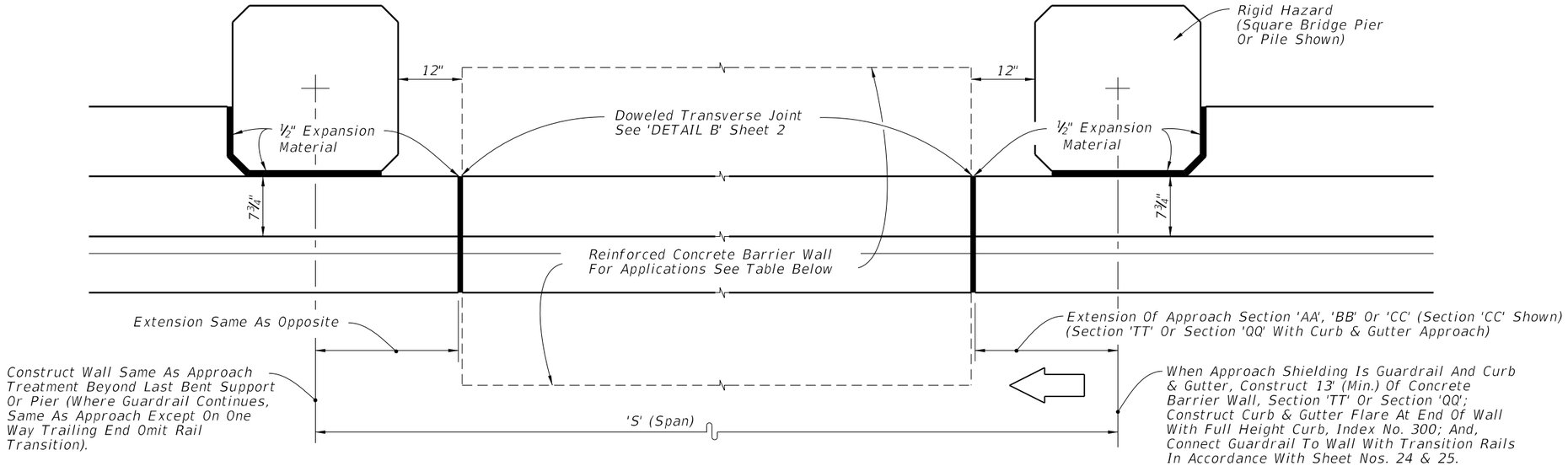
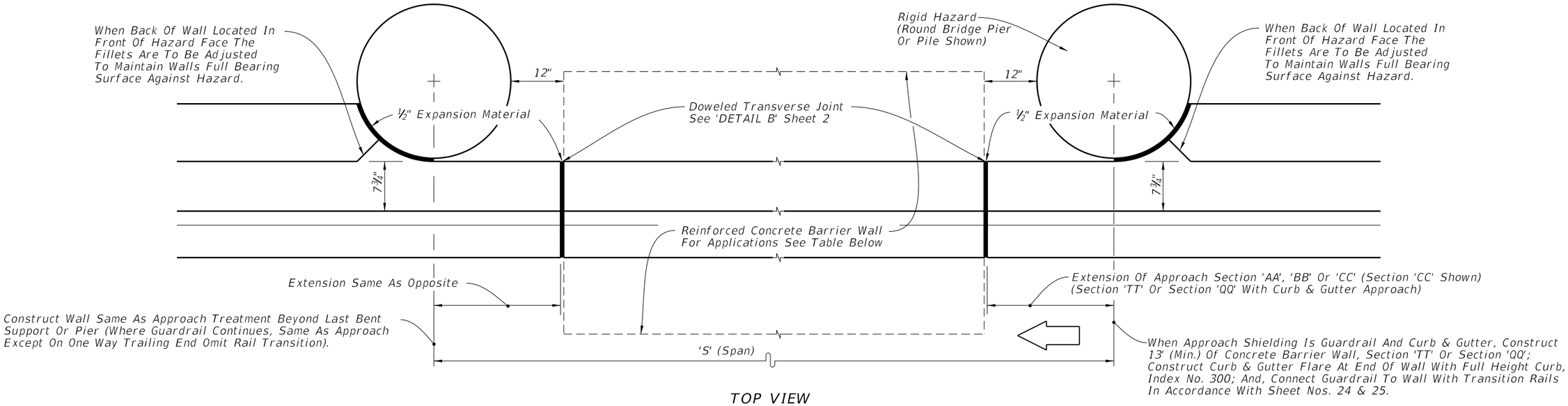


TOP VIEW

BARRIER WALL AT SQUARE PIER



TOP VIEW

BARRIER WALL AT ROUND PIER

CONCRETE BARRIER WALL WHEN SPAN BETWEEN BENT SUPPORTS OR PIER COLUMNS EXCEEDS 13'

'S' Feet	REINFORCED CONCRETE BARRIER WALL APPLICATIONS
> 13'	'Reinforced Concrete Barrier Wall (Shoulder)' With Flush Shoulders; Or, Section 'TT' Or Section 'QQ' With Curb & Gutter
Barrier wall footings that conflict with bent or pier foundations shall be modified as described in the plans.	

CONCRETE BARRIER WALL WHEN GUARDRAIL OFFSET FROM BENT OR PIER LESS THAN 3 FEET OR WHERE WALL STEM ABUTS SUPPORTS OR PIER COLUMN

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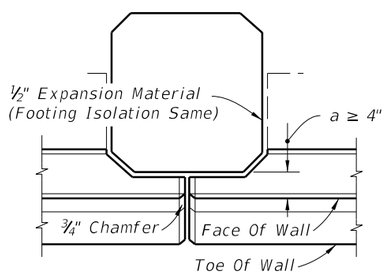
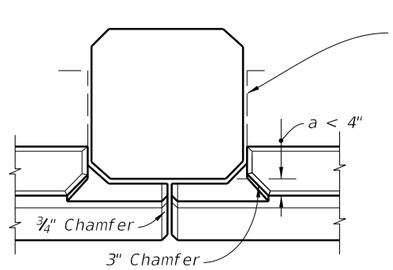
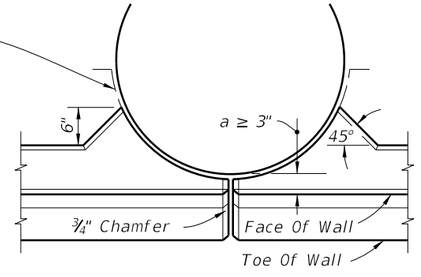
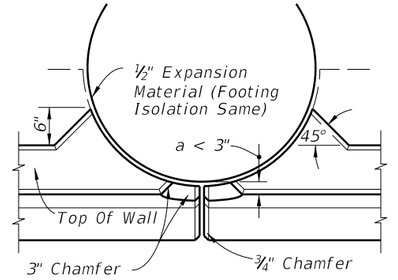






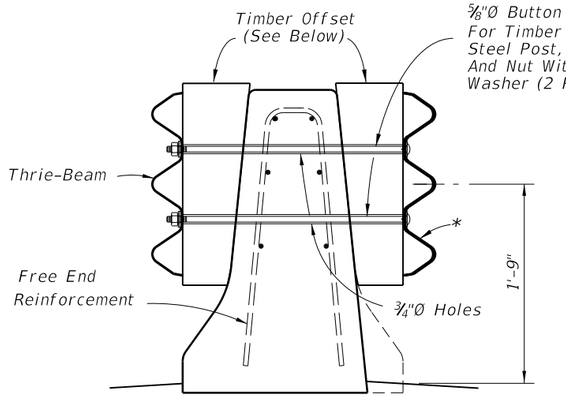


TOP VIEWS

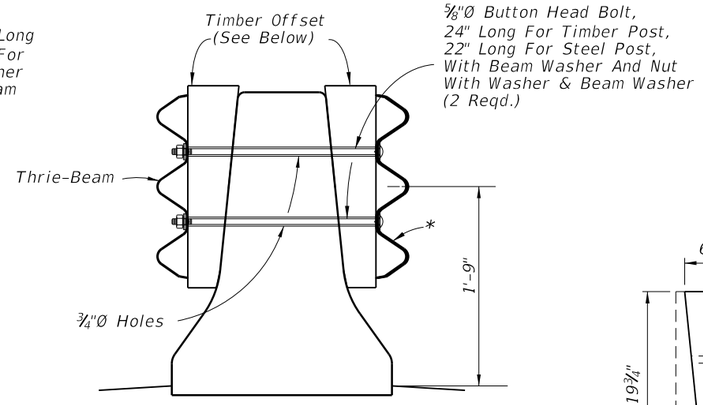
'a' Varies (Circular Or Octagonal Hazard Not More Than 2" In Front Of Face Of Wall).
Applicable To Sections 'AA' And 'BB' With Spans Of ≤ 13', And To Section 'CC', Sheet No. 21.
Applicable To Other Rigid Walls Of This Index For Spans > 13' Unless Otherwise Shown In The Plans.

HAZARD PENETRATING STEM OF RIGID CONCRETE BARRIER WALLS

The details on sheets 22 & 23 are treatments to the F-shape concrete barrier walls depicted on Sheet Nos. 9 through 19, where site conditions impose reduced clearances between above ground hazards and the walls. Bridge bent supports and piers are shown. These treatments are not applicable to hazards that cannot provide lateral support for the walls. See the plans for limits of wall sections applied and other associated wall treatments.

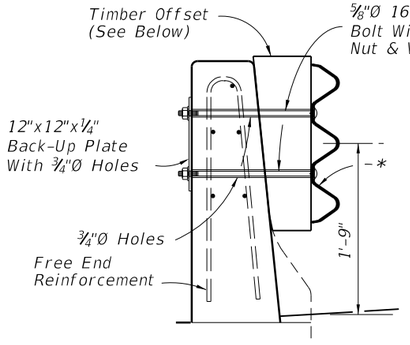


SECTION AA



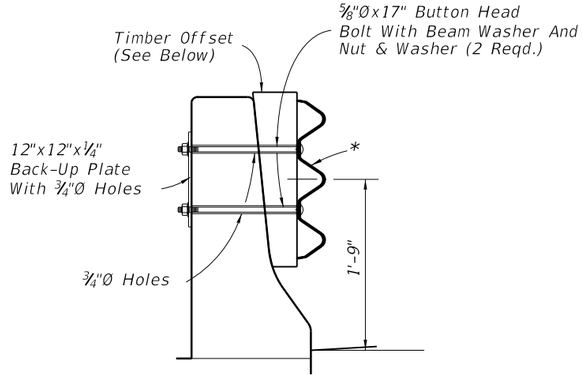
SECTION BB

NOTE: See Sheet 25 For Locations Of Sections.

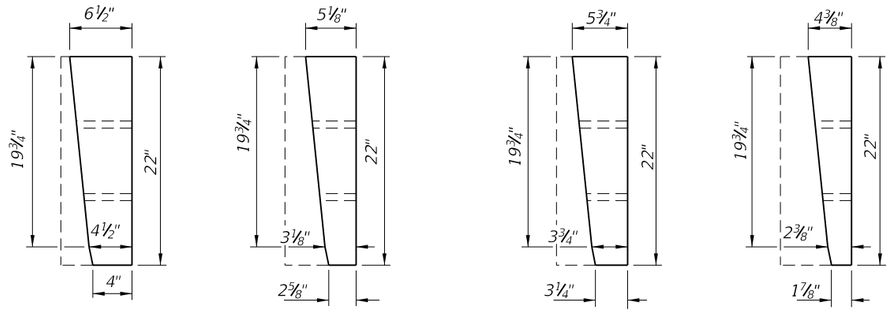


* Single Thrie-Beam On Trailing Ends Of Barrier Wall; Nested Thrie-Beams On Approaches To Barrier Wall.

SECTION CC



SECTION DD

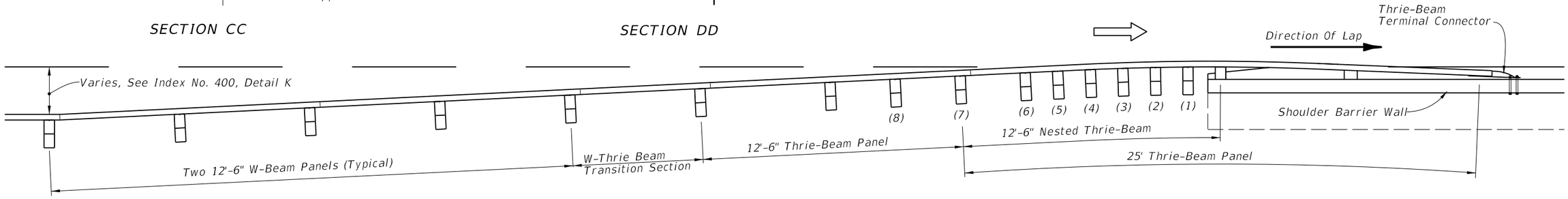


AA & CC — BB & DD — AA — BB

FOR DOUBLE FACED GUARDRAIL USING TIMBER POSTS AND FOR SINGLE FACED GUARDRAIL USING EITHER TIMBER OR STEEL POSTS

FOR DOUBLE FACED GUARDRAIL USING STEEL POSTS

STANDARD TIMBER OR PLASTIC OFFSET BLOCKS • FIELD TRIMMED FOR USE AT SECTIONS AA, BB, CC & DD

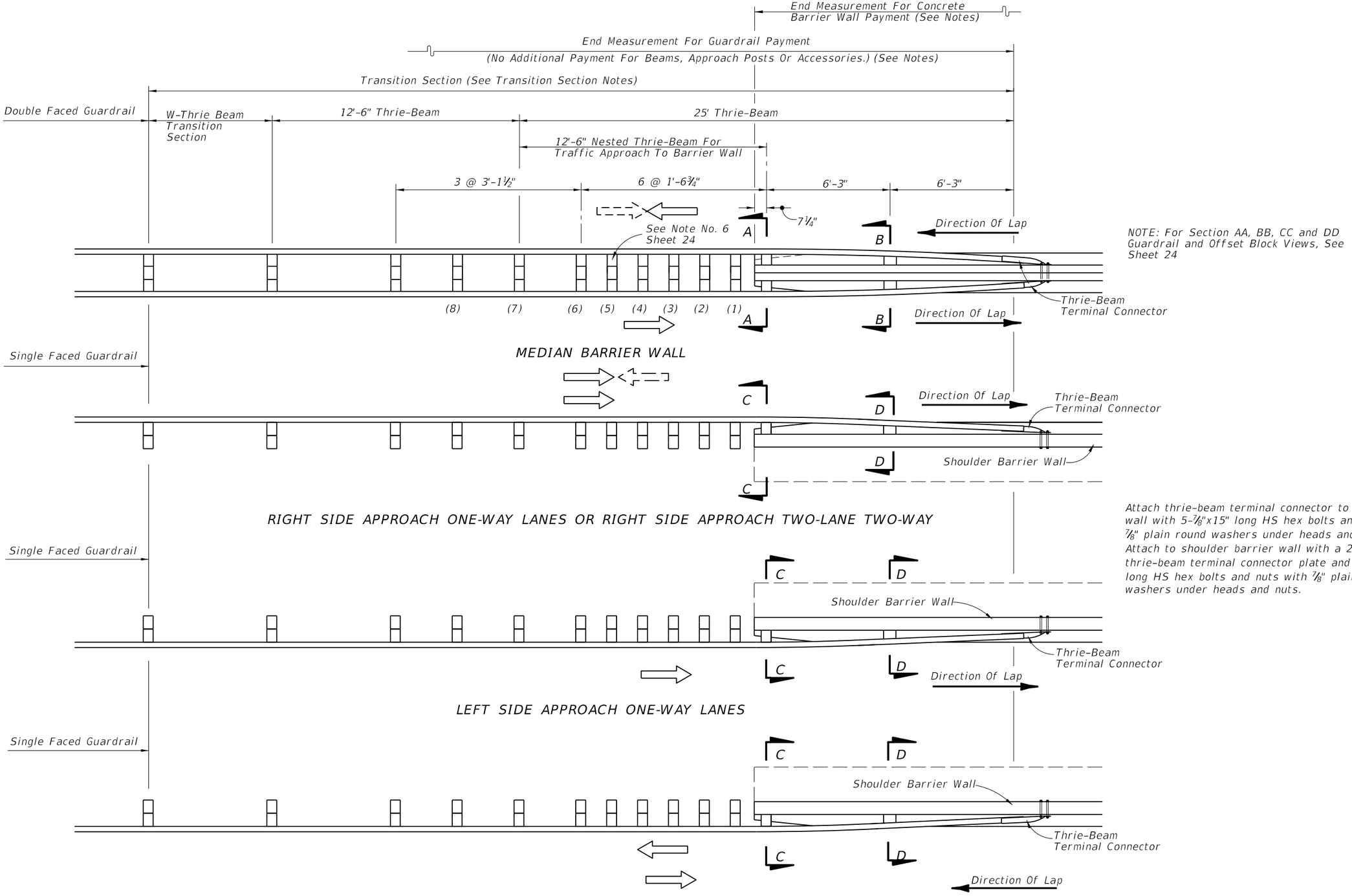


STANDARD GUARDRAIL APPROACH TO SHOULDER BARRIER

TRANSITION SECTION NOTES

1. The longitudinal dimensions and payment limits shown for median concrete barrier wall also apply to shoulder concrete barrier walls.
2. W-beam elements do not apply to these transition schemes. For barrier wall trailing end guardrail connections for one-way lanes, see Sheet 2.
3. Where reaming is necessary to fit nested beams the reamed surfaces shall be metalized in accordance with Section 562 of the Standard Specifications.
4. Either steel or timber guardrail post may be used, timber posts shown.
5. The nested beams shall not be bolted to blocks and posts at posts numbers (1), (3) and (5).
6. On the trailing side of MEDIAN BARRIER WALL, offset blocks may be omitted at posts numbers (1), (2), (3), (5), (6) and (8). (See Sheet 25)
7. For additional guardrail information refer to Index No. 400.

GUARDRAIL CONNECTION TO CONCRETE BARRIER WALL APPROACH ENDS



NOTE: For Section AA, BB, CC and DD Guardrail and Offset Block Views, See Sheet 24

Attach thrie-beam terminal connector to median barrier wall with 5-⅞"x15" long HS hex bolts and nuts with ⅞" plain round washers under heads and nuts. Attach to shoulder barrier wall with a 21"x12"x⅝" thrie-beam terminal connector plate and 5-⅞"x12" long HS hex bolts and nuts with ⅞" plain round washers under heads and nuts.

GUARDRAIL CONNECTION TO CONCRETE BARRIER WALL APPROACH ENDS

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