



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
DESIGN DIVISION
NASHVILLE, TENNESSEE 37243-0348

INSTRUCTIONAL BULLETIN NO. 10-15

Regarding New and Revised Standard Drawings

Effective immediately, new standard drawings S-SSMB-3, S-SSMB-4, and S-SSMB-6 to be used design and construction of Single Slope Concrete Barrier Wall.


<u>Drawing Number</u>	<u>Current Revision Date</u>	<u>Drawing Title</u>
S-SSMB-3	07-30-10	51" HALF SIZE SINGLE SLOPE CONCRETE BARRIER WALL
S-SSMB-4	07-30-10	FLARED SINGLE SLOPE CONCRETE MEDIAN BARRIER WALL
S-SSMB-6	NEW	GUARDRAIL ATTACHEMENT TO SINGLE SLOPE CONCRETE BARRIER WALL

Effective for the May 6, 2011 letting (March 2, 2011 turn-in date), the Roadway Standard Drawing, **RP-J-9** is revised to add 8" pavement thickness.

<u>Drawing Number</u>	<u>Current Revision Date</u>	<u>Drawing Title</u>
RP-J-9	09-24-10	CONTRACTION AND CONSTRUCTION JOINTS FOR CONCRETE PAVEMENT

These drawings shall be identified on the lower left side of the index sheet "**To be printed with plans**" until the drawings are formally distributed.

Copies of the new and revised standard drawings are attached.



Carolyn Stonecipher, Civil Engineering Director
Design Division

November 19, 2010
CS:ARH

REV. 3-22-82: UPDATED DETAIL FOR TRANSVERSE JOINTS.

REV. 1-4-83: CHANGED DEPTH REQUIREMENT ON ALTERNATE TO SAWING LONGITUDINAL CONTRACTION JOINT.

REV. 1-9-85: CHANGED DOWEL BAR TO ASTM A 36.

REV. 11-19-89: DELETED TOLERANCE IN NOTE 6.

REV. 5-25-88: ELIMINATED ALTERNATE AND REPLACED ELASTOMERIC WITH SILICONE.

REV. 2-14-90: REDREW SHEET; UPDATED "PLAIN SAWS GROOVE CONTRACTION JOINT" DETAILS ELIMINATED "INSERT AND SAWN GROOVE CONTRACTION JOINT" LENGTH TO 18", AND MODIFIED GENERAL NOTES.

REV. 2-14-91: ADDED DOWEL BAR SIZE TABLE. CHANGED FROM 1 1/4" TO VARIABLE DIAMETER.

REV. 10-26-91: MODIFIED INTEGRAL CONCRETE CURB DETAIL.

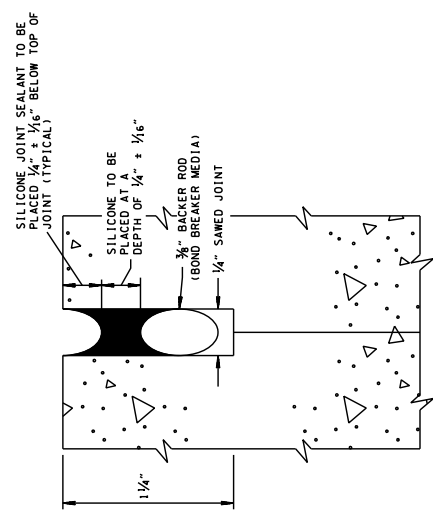
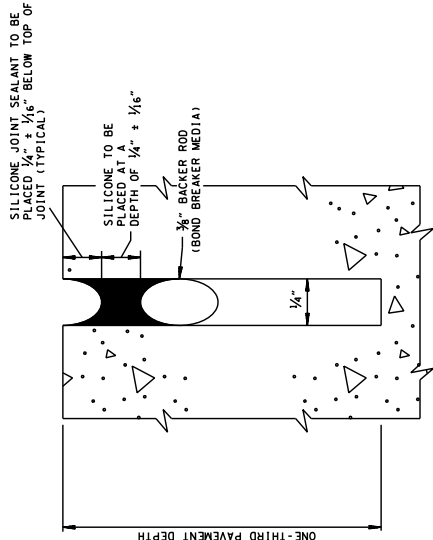
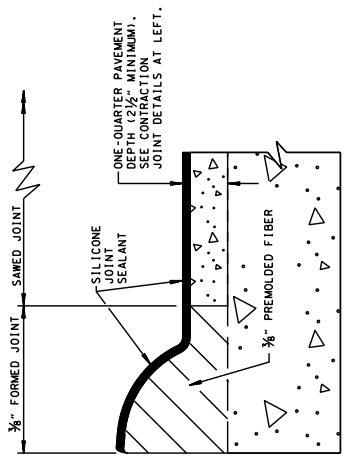
REV. 12-18-94: CHANGED DRAWING REFERENCE NUMBER IN CROSS-SECTION AND IN CROSS-REFERENCE BLOCK.

REV. 6-27-96: CHANGED MAXIMUM ALLOWABLE MISALIGNMENT TOLERANCE FOR DOWEL BARS FROM 1/4" TO 1/2".

REV. 10-26-00: CHANGED GROOVE CONTRACTION JOINT. CHANGED WIDTH OF CONSTRUCTION GROOVE TO 1/2".

REV. 1-19-02: ADDED NEW REFERENCE TO ALL SUBSEQUENT SECTIONS. ALL SUBSEQUENT GENERAL NOTES.

REV. 9-24-10: ADDED 8" PAVEMENT THICKNESS.



CONSTRUCTION DETAILS THROUGH INTEGRAL CONCRETE CURB

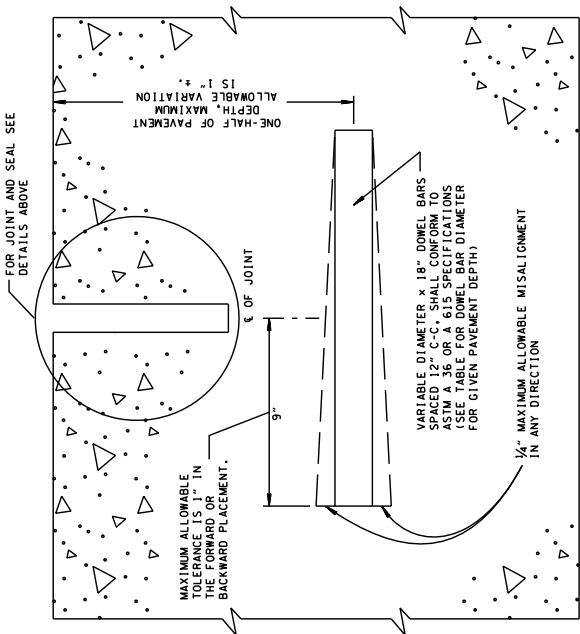
SEE STANDARD DRAWING RP-MC-1 FOR ADDITIONAL DETAILS AND NOTES NOT SHOWN ON THIS SHEET.

PLAIN SAWS GROOVE CONTRACTION JOINT

CONSTRUCTION JOINT

GENERAL NOTES

- A SEE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS FOR PAVEMENT JOINTS AND SEALANTS.
- B TRANSVERSE CONTRACTION AND CONSTRUCTION JOINTS WITH DOWELS SHALL BE REQUIRED. CONTRACTION JOINTS SHALL HAVE 15 FEET CONSTANT SPACING (SEE STANDARD DRAWING RP-J-1).
- C TRANSVERSE CONTRACTION AND/OR CONSTRUCTION JOINTS IN THE PORTLAND CEMENT CONCRETE SHOULDERS SHALL BE OF THE SAME TYPE, MATERIAL AND SPACING AS THE CORRESPONDING JOINTS IN THE PAVEMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE MATERIALS AND SPACING OF THE STANDARD SPECIFICATIONS. SEE STANDARD DRAWINGS RP-CS-1 AND RP-CS-2 FOR FURTHER DETAILS.
- D SEE STANDARD DRAWINGS RP-1-5 AND RP-J-11 FOR 3/4" EXPANSION JOINTS AT STREET AND ALLEY INTERSECTIONS.
- E SEE STANDARD DRAWINGS RP-J-1 FOR 1 3/4" EXPANSION JOINTS AT BRIDGE ENDS.
- F SEE STANDARD DRAWINGS RP-J-5 AND RP-J-7 FOR 1 1/4" EXPANSION JOINTS ON RAMPS.
- G SEE STANDARD DRAWING RP-J-15 FOR LONGITUDINAL CONSTRUCTION JOINTS WITH TIE BARS.
- H SEE STANDARD DRAWINGS RP-J-17, RP-J-18, AND RP-J-19 FOR DOWEL BAR AND DOWEL BAR ASSEMBLY DEVICE PLACEMENT DETAILS.
- I DOWELS MAY BE PRESET IN BASKETS OR VIBRATED INTO PLACE WITH TIE BARS. TIE BARS SHALL BE PRESET IN BASKETS. THE TOLERANCES SHOWN IN THIS SHEET ARE MET.
- J LONGITUDINAL CONTRACTION AND/OR CONSTRUCTION JOINTS WITH TIE BARS SHALL BE REQUIRED. TIE BARS SHALL BE 2'-6" LONG AND 1/2" DIAMETER ROUND DEFORMED STEEL BARS AND CONFORM TO ASTM A 615 - GRADE 40 SPECIFICATIONS.



DETAIL OF DOWEL BAR FOR ALL TRANSVERSE CONTRACTION JOINTS

PAVEMENT THICKNESS (INCHES)	BAR DIAMETER (INCHES)
8	1 1/4"
9	1 1/4"
10	1 1/4"
11	1 3/8"
12	1 1/2"
13	1 3/8"
14	1 3/4"

CROSS-REFERENCE DRAWINGS FOR THIS SHEET: RP-1-5, RP-J-1, RP-J-3, RP-J-5, RP-J-7, RP-J-11, RP-J-13, RP-J-15, RP-J-17, RP-J-18, RP-J-19 AND RP-MC-1.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION

CONSTRUCTION AND JOINTS FOR CONCRETE PAVEMENT

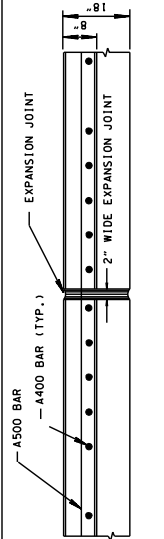
RP-J-9

NOTE: ALL A400, A500, AND A600 REINFORCING STEEL BARS TO BE EXPANDED MEETING ALL REQUIREMENTS OF ASTM D3963.

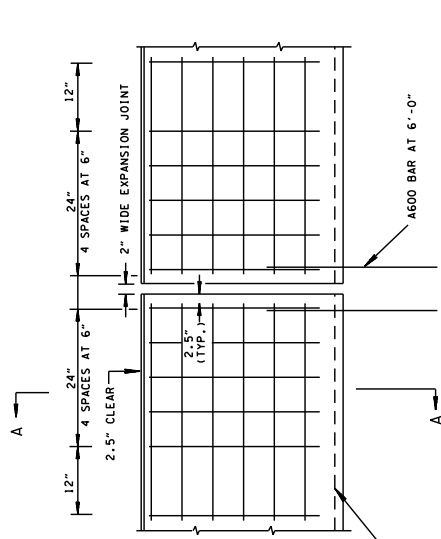
REINFORCING STEEL LEGEND	
47.5"	A400
VARIABLE	A500
48"	A600

GENERAL NOTES

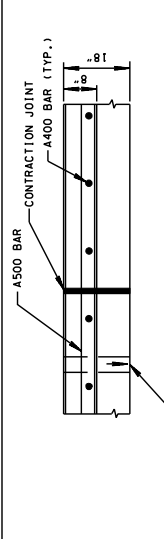
- (A) HALF SIZE SINGLE SLOPE CONCRETE BARRIER WALL IS TO BE USED IN CONJUNCTION WITH NOISE BARRIER OR RETAINING WALL INSIDE THE CLEAR ZONE AS SHOWN ON THIS DRAWING.
- (B) CONCRETE BARRIER WALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 711 AND/OR CURRENT SPECIAL PROVISIONS.
- (C) CONCRETE, $F_c = 3,000$ POUNDS PER SQUARE INCH AT 28 DAYS REINFORCING STEEL, ASTM A615, $F_y = 60,000$ POUNDS PER SQUARE INCH ALL REINFORCING IS TO BE INSTALLED AS DETAILED ON THIS DRAWING.
- (D) THE CONCRETE BARRIER WALL SHALL BE GIVEN AN APPLIED TEXTURE FINISH. THE COLOR OF THE FINISH SHALL BE WHITE. FEDERAL SPECIFICATION NO. 37886. THE BID PRICE FOR CONCRETE MEDIAN BARRIER.
- (E) THE TWO (2) INCH OPEN EXPANSION JOINTS SHALL BE PLACED IN THE PROPOSED SINGLE SLOPE BARRIER WALL AT A MAXIMUM SPACING NOT TO EXCEED 300 FEET. IF FIXED OBJECTS SUCH AS BRIDGE PIERS, BRIDGE ENDS, OVERHEAD SIGN SUPPORTS, OR OTHER STRUCTURES ARE ENCOUNTERED, THE SPACING BETWEEN THE EXPANSION JOINTS IS TO BE REDUCED IN ORDER TO ALLOW AN EQUAL DISTANCE BETWEEN JOINTS THAT IS LESS THAN 300 FEET. ALL ADDITIONAL STEEL REQUIRED AT EXPANSION JOINTS TO BE PLACED AT THE JOINT LOCATION INCLUDING THE SAWING OF MATERIAL AND LABOR FOR THE JOINT CASTING AND JOINT FINISHING. EXPANSION JOINTS SHALL BE INCLUDED IN THE BID PRICE FOR CONCRETE MEDIAN BARRIER.
- (F) THE CONTRACTION JOINTS ARE TO BE SPACED AT 20 TO 25 FOOT INTERVALS WHEN ATTACHED TO CONCRETE PAVEMENT. THE CONTRACTION JOINTS WILL RESPOND TO THE JOINTS IN THE CONCRETE PAVEMENT. THE COST OF MATERIAL AND LABOR FOR THE JOINT INSTALLATION SHALL BE INCLUDED IN THE BID PRICE FOR CONCRETE MEDIAN BARRIER.
- (G) CONTRACTION JOINTS ARE USED. THE JOINTS MUST BE SAWED WITHIN FOUR (4) HOURS AFTER THE CONCRETE IS PLACED.
- (H) THE COST OF FURNISHING AND INSTALLING BARRIER WALL DELINEATORS, INCLUDING DELINEATOR POSTS, SHALL BE INCLUDED IN THE BID PRICE FOR CONCRETE BARRIER WALL. SEE STANDARD DRAWING S-MB-1 FOR LOCATION. BARRIER WALL DELINEATOR WILL NOT BE REQUIRED IN AREAS WHERE ROADWAY IS LIGHTED.
- (I) CHAMFER ALONG TOP EDGES $\frac{3}{4}$ ".
- (J) FOR CONCRETE PAVEMENT: ANY METHOD DEvised BY THE CONTRACTOR AND APPROVED BY THE ENGINEER THAT WILL ALLOW THE BARRIER WALL TO BE INSTALLED ON THE PAVEMENT SHALL BE USED. THE AGREEMENT AND POSITIONED 0.5" AS DIMENSIONED WHEN TIED TO THE TRANSVERSE REINFORCING STEEL WILL BE SATISFACTORY.
- (K) 3" DIA. WEEP HOLES AT 10' ON CENTER TO CENTER MAXIMUM ARE TO BE PLACED AT DIMENSIONS SHOWN FOR PROPER DRAINAGE WITH 4" SLOPE. WEEP HOLES SHOULD ALIGN WITH THE RETAINING WALL WEEP HOLES IF EXIST. WEEP HOLES SHOULD BE PLACED AT 10' ON CENTER TO CENTER MAXIMUM ARE TO BE PLACED FOR OTHER ITEMS OF CONSTRUCTION.
- (L) FIBER EXPANSION JOINT FILLER MATERIAL TO BE 0.5" OR 1.0" PREMOULDED FIBER IN ACCORDANCE WITH SECTION 905 OF STANDARD SPECIFICATIONS.
- (M) PAVEMENT WILL BE MADE UNDER ITEM NO. 711-05.72 SINGLE SLOPE HALF CONCRETE BARRIER WALL PER LINEAR FOOT.
- (N) MIN. SAFETY PERFORMANCE OF 52 1/2" SINGLE SLOPE WALL IS ACCEPTABLE ACCORDING TO THE TL-3 EVALUATION CRITERIA SPECIFIED IN NCHRP REPORT 350.



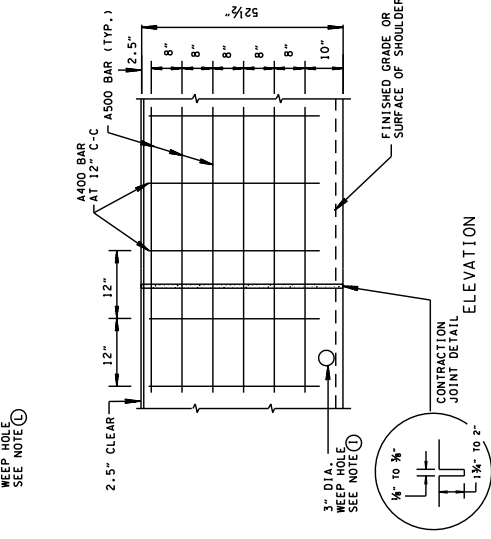
PLAN



ELEVATION



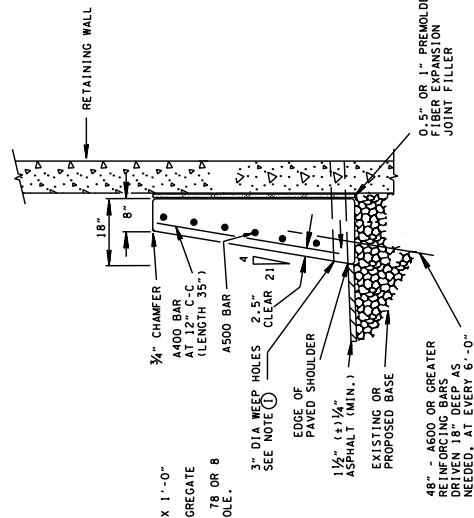
PLAN



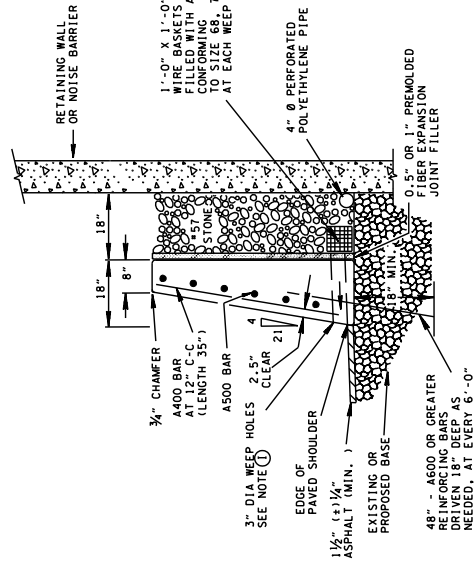
ELEVATION

DETAILS OF REINFORCING AT WALL ENDS OR EXPANSION JOINT FOR CONCRETE BARRIER

DETAILS OF REINFORCING AT CONTRACTION JOINT FOR CONCRETE BARRIER



REINFORCING STEEL AT SECTION A-A (AT RETAINING WALL)

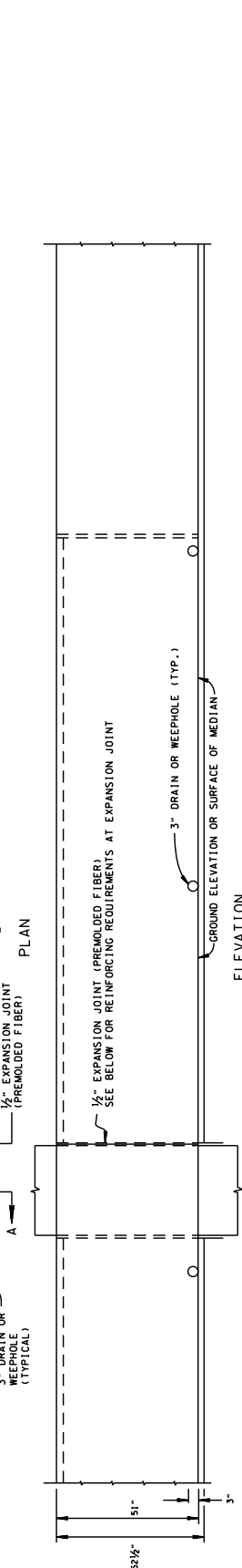
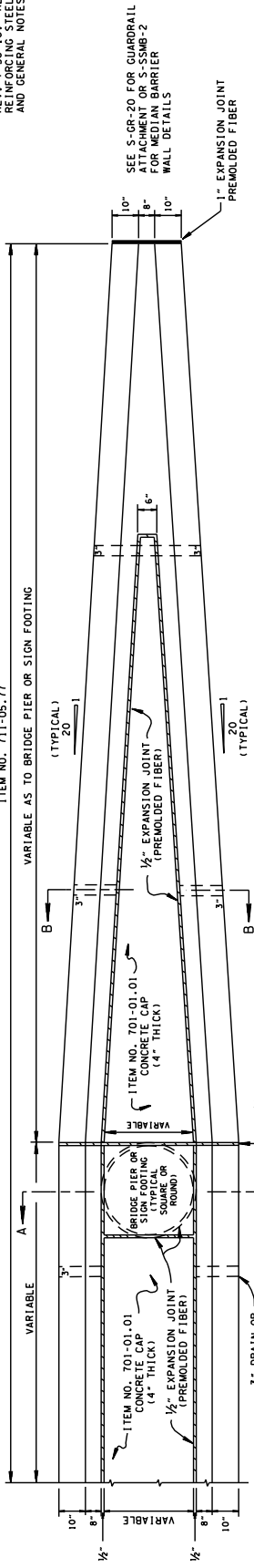


REINFORCING STEEL AT SECTION A-A (ALTERNATE OFFSET PLACEMENT)

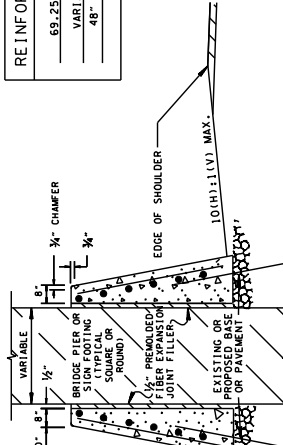
REV. 7-30-10; REVISED REINFORCING STEEL DETAILS AND GENERAL NOTES.

ITEM NO. 711-05.77

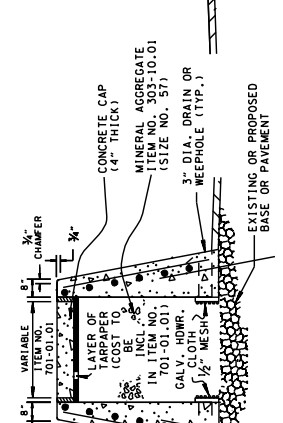
VARIABLE AS TO BRIDGE PIER OR SIGN FOOTING



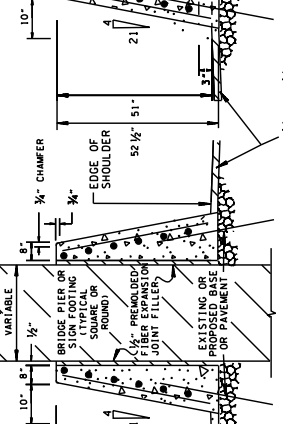
REINFORCING STEEL LEGEND	
68.25"	A400
VARIABLE	A500
48"	A600



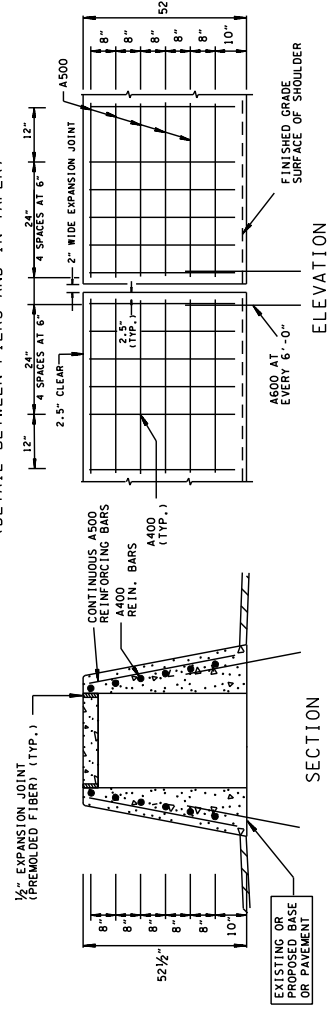
WIDE MEDIAN DETAIL



SECTION B-B
(DETAIL BETWEEN PIERS AND IN TAPER)



SECTION A-A
(DETAIL AT PIERS)



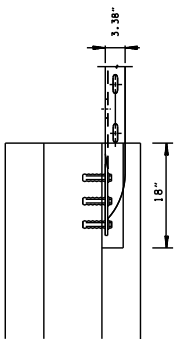
SECTION

ELEVATION

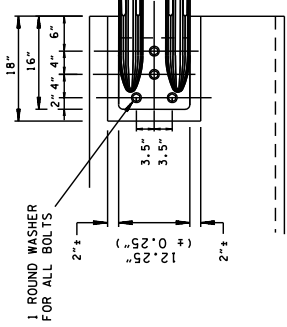
DETAILS OF REINFORCING AT EXPANSION JOINT

GENERAL NOTES

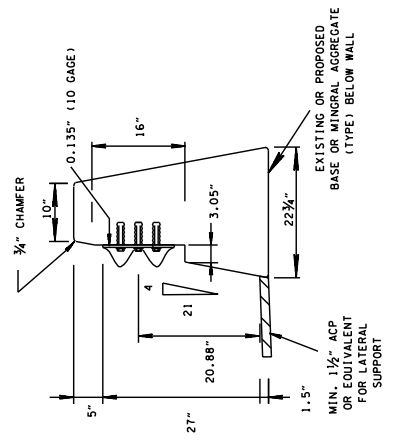
- ① CONCRETE MEDIAN BARRIER SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 711 AND/OR CURRENT SPECIAL PROVISIONS.
- ② SEE STANDARD DRAWING NO. S-SSMB-3 FOR ADDITIONAL DETAILS AND GENERAL NOTES REGARDING CONCRETE AND STEEL SPECIFICATIONS, CONTRACTION AND EXPANSION JOINTS, TEXTURE FINISH, DELINEATORS, AND WEEP HOLES.
- ③ SEE STANDARD DRAWING S-MB-1 FOR DETAILS AND REQUIREMENTS FOR MEDIAN BARRIER DELINEATOR. MEDIAN BARRIER DELINEATORS WILL NOT BE REQUIRED IN AREAS WHERE ROADWAY IS LIGHTED.
- ④ ALONG TOP EDGES OF CONCRETE MEDIAN BARRIER THE CONTRACTOR MAY USE 3/4" RADIUS IN LIEU OF 3/4" CHAMFER SHOWN ON THIS DRAWING.
- ⑤ MAXIMUM SLOPE IN FRONT OF SINGLE SLOPE MEDIAN BARRIER WALL SHALL BE 10(H):1(V) PAVERS WILL BE MADE UNDER ITEM NO. 711-05.77, FLARED SINGLE SLOPE CONCRETE MEDIAN BARRIER WALL PER LINEAR FOOT.



TOP VIEW

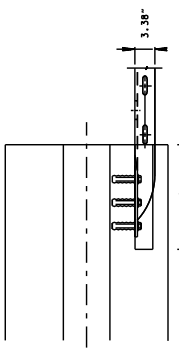


FRONT VIEW

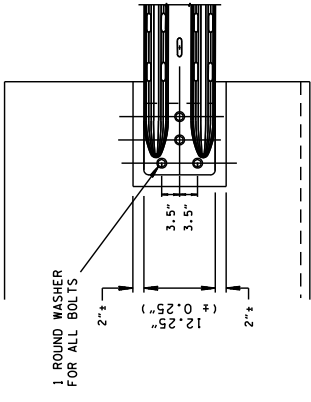
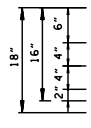


SIDE VIEW

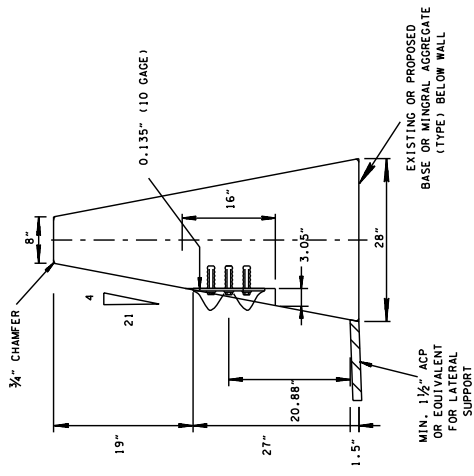
GUARDRAIL CONNECTION TO 32" SINGLE SLOPE CONCRETE BARRIER WALL



TOP VIEW



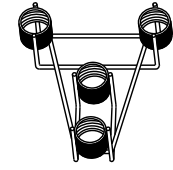
FRONT VIEW



SIDE VIEW

GUARDRAIL CONNECTION TO 51" SINGLE SLOPE CONCRETE BARRIER WALL

- GENERAL NOTES**
- REQUIREMENTS FOR ANCHOR INSERT BOLTS SHALL BE 7/8" HEX HEAD INSTALLED IN 1/2" MASONRY ANCHOR. THE INSERTS ARE TO BE THREADED A MINIMUM OF 1 3/4" INCHES. THE CONTRACTOR SHALL FURNISH ANCHOR PULL-OUT DATA FROM AN ANCHORING LABORATORY APPROVED BY THE STATE OF TENNESSEE. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. THE ULTIMATE LOAD FOR 7/8" ANCHOR SHALL BE 19,000 POUNDS. BOLTS SHALL CONFORM TO ASTM A307.
 - THE MASONRY ANCHORS SHALL BE SUB-SET IN THE CONCRETE AT A DEPTH OF BETWEEN 3/4" TO 1" AND TORQUED WITH THE END TERMINAL IN THE PLACE TO AN EQUIVALENT DIRECT PULL-OUT LOAD OF 12,000 POUNDS. SLIPPAGE SHALL NOT EXCEED 1/4".
 - THE CONTRACTOR WILL PERFORM ON-SITE TESTING OF EACH BOLT IN THE PRESENCE OF DOT PERSONNEL TO INSURE THESE REQUIREMENTS. ANY INSTALLATION NOT MEETING
 - BOLTS AND WASHERS TO BE GALVANIZED CONFORMING TO REQUIREMENTS OF ASTM A153.
 - SEE S-SSMB-1, AND S-SSMB-2 FOR ADDITIONAL DETAILS.
 - PAYMENT WILL BE MADE UNDER ITEM NO. 711-05.70 SINGLE SLOPE CONCRETE MEDIAN BARRIER WALL PER LINEAR FOOT.



ANCHOR BLOCK INSERT ASSEMBLY

CAST IN PLACE THREADED STEEL INSERT WITH
7/8" DIA. X 2" HEX HEAD GALVANIZED BOLTS (ASTM A307)
HOT DIP ZINC COATING ASTM A153