MINNESOTA DEPARTMENT OF TRANSPORTATION

LYON COUNTY

CONSTRUCTION PLAN FOR: CONCRETE OVERLAY AND AGGREGATE SHOULDERS.

COUNTY STATE AID HIGHWAY NO. 10

BETWEEN: C.S.A.H. 17 AND U.S. 59

FROM: N.E. COR. SEC. 9 T113N–R42W

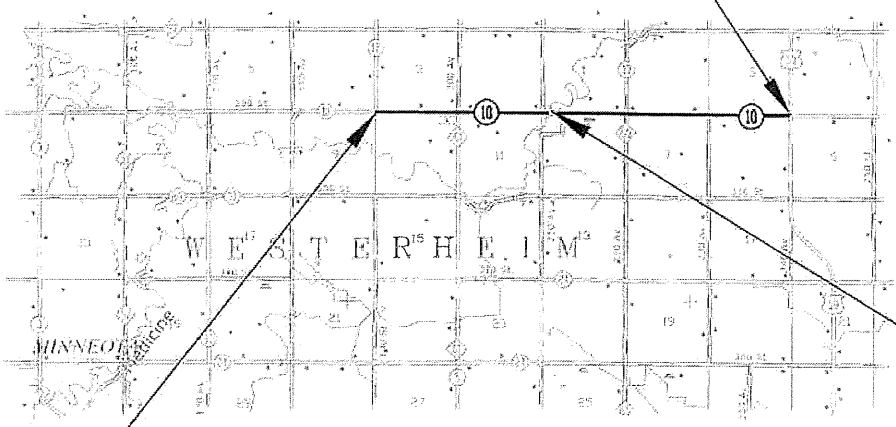
TO: N.E. COR. SEC. 8 T113N–R41W

STATE AID PROJECT NO. 042–610–042

GROSS LENGTH	26462.27	FEET	5.012 MILES
BRIDGE LENGTH	117.00	FEET	0.022 MILES
EXCEPTIONS LENGTH	117.00	FEET	0.022 MILES
NET LENGTH	26345.27	FEET	4.999 MILES

THIS PLAN CONTAINS 14 SHEETS

END S.A.P. 042–610–042
STA. 510+75.98



BRIDGE #42579
STA. 362+45.71 to
STA. 363+62.71

BEG. S.A.P. 042–610–042
STA. 246+13.71

FUNCTIONAL CLASSIFICATION:
RURAL MINOR COLLECTOR

DESIGN SPEED 55 MPH

ADT 270 (2017)

PROJ ADT 290 (2037)

NO. OF TRAFFIC LANES: 2

S.F. 130 %

R VALUE = 10

TON DESIGN 10

ESALS (35–YR RIGID) = 257,000

SHOULDER WIDTH 2.00'

STOPPING SITE DISTANCE BASED ON:
3.5' HEIGHT OF EYE
2.0' HEIGHT OF OBJECT

GRADED SAP 042–610–024 (1994)
SURFACED SAP 042–610–025 (1995)

GOVERNING SPECIFICATIONS
THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION".

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Signature: _____ Typed Name: Aaron VanMoer
Design Engineer

Date: 2/15/17 License No.: 50428

_____ Date: 2/15/17
Approved County Engineer

_____ Date: 2/21/17
District State Aid Engineer:
Reviewed for Compliance with State Aid Rules/Policy

_____ Date: 2/21/17
Approved for State Aid Funding – for State Aid Engineer

NOTE	ITEM NO.	ITEM	UNIT	RURAL	TOTAL ESTIMATED QUANTITY
	2011.601	CONSTRUCTION SURVEYING	LUMP SUM	1.00	1.00
	2021.501	MOBILIZATION	LUMP SUM	1.00	1.00
	2051.501	MAINT. & RESTORATION OF HAUL ROADS	LUMP SUM	1.00	1.00
	2104.513	SAWING BITUMINOUS PAVEMENT	LIN FT	120.00	120.00
	2221.501	SHOULDER BASE AGGREGATE CLASS 5 MOD	TON	5,300.00	5,300.00
2	2301.511	STRUCTURAL CONCRETE	CU YD	12,445.07	12,445.07
1,3	2301.504	PLACE CONCRETE PAVEMENT 5.0" (P)	SQ YD	75,354.74	75,354.74
1,3	2301.504	PLACE CONCRETE PAVEMENT 7.0" (P)	SQ YD	2,312.72	2,312.72
4	2301.538	1.0" DOWEL BAR	EACH	312.00	312.00
8	2406.553	BRIDGE APPROACH PANEL	SQ YD	160.00	160.00
5	2360.501	TYPE SP12.5 WEARING COURSE MIXTURE (3,B)	TON	710.00	710.00
	2540.602	MAIL BOX SUPPORT	EACH	13.00	13.00
6	2540.602	RELOCATE MAIL BOX	EACH	13.00	13.00
7	2563.601	TRAFFIC CONTROL	LUMP SUM	1.00	1.00
	2582.502	24" SOLID LINE EPOXY GR IN (WR)	LIN FT	14.00	14.00
	2582.502	4" SOLID LINE EPOXY GR IN (WR)	LIN FT	9,300.00	9,300.00
	2582.502	6" SOLID LINE EPOXY GR IN (WR)	LIN FT	52,000.00	52,000.00

CONSTRUCTION NOTES

(1) P = PLAN QUANTITY

(2) TOTAL QUANTITY INCLUDES 30° SAFETY EDGE.

(3) 30° SAFETY EDGE SHALL BE INCLUDED WITH THE TOTAL BID PRICE.

(4) EPOXY COATED

(5) SEE SHEET 6 FOR DETAILS.

(6) CONTRACTOR MUST COORDINATE TEMPORARY LOCATION WITH THE LOCAL POSTAL AUTHORITY. MAIL BOX SHALL BE INSTALLED AT PERMANENT LOCATIONS ONCE CONSTRUCTION IS COMPLETE.

(7) SEE SHEET 7 FOR DETAILS. ADDITIONAL DETOUR AND TRAFFIC CONTROL INCLUDED WITH PROJECT S.A.P. 042-610-040.

(8) SEE SHEET 8A-8G FOR DETAILS. PLACE IN ACCORDANCE WITH MnDOT 2406.

BASIS FOR ESTIMATED QUANTITIES

(2221)SHOULDER BASE AGGREGATE CL 5 MOD

SHOULDERING QUANTITIES BASED ON 1.89 TONS PER C.Y. COMPACTED VOLUME ASSUMED

TOTAL QUANTITY INCLUDES 475 TONS FOR ENTRANCES.

(2301)STRUCTURAL CONCRETE

5" CROSS-SECTIONAL AREA = 11.04 S.F.
7" CROSS-SECTIONAL AREA = 15.47 S.F.

(2301)CONCRETE PAVEMENT (5.0")

TOTAL WIDTH = 26'-7"

(2301)CONCRETE PAVEMENT (7.0")

TOTAL WIDTH = 26'-7"

(2360)BITUMINOUS WEAR COURSE MIXTURE

BITUMINOUS MATERIAL FOR MIXTURE (MAXIMUM DENSITY) 110LBS./SQ.YD./INCH OF DEPTH

(2360)TACK COAT

BITUMINOUS MATERIAL FOR TACK COAT .05 GALS. PER SQ.YD.

STANDARD PLATES AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

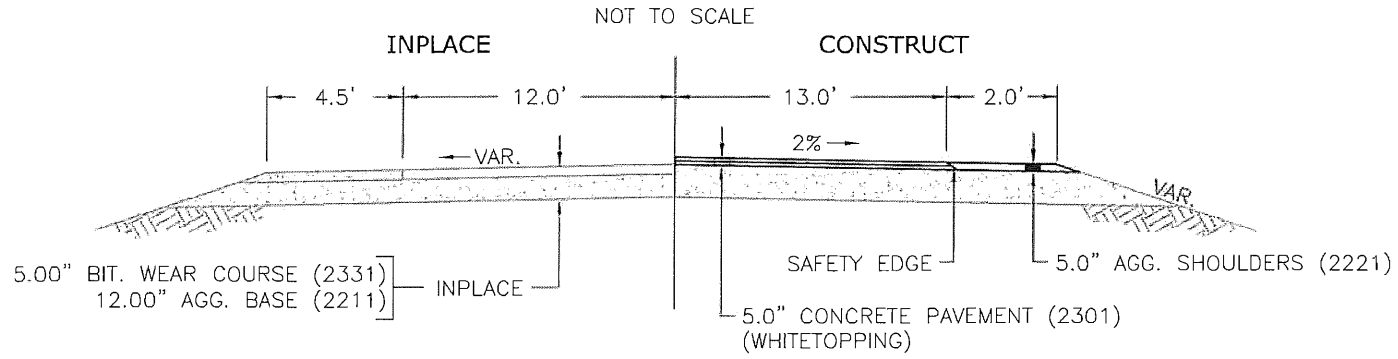
STANDARD PLATES

PLATE NO.	DESCRIPTION
8000 J	CHANNELIZERS
9000 E	APPROACHES AND ENTRANCES
1070 M	SUPPLEMENTAL PAVEMENT REINFORCEMENT
1103 K	TYPICAL DOWEL BAR ASSEMBLY
1150 R	CONSTRUCTION OF HEADER JOINTS

CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER

TYPICAL SECTION (5" WHITETOPPING)

STA. 246+13.71 to STA. 356+79.21 (11,065.50')
STA. 365+79.21 to STA. 510+25.98 (14,446.77')

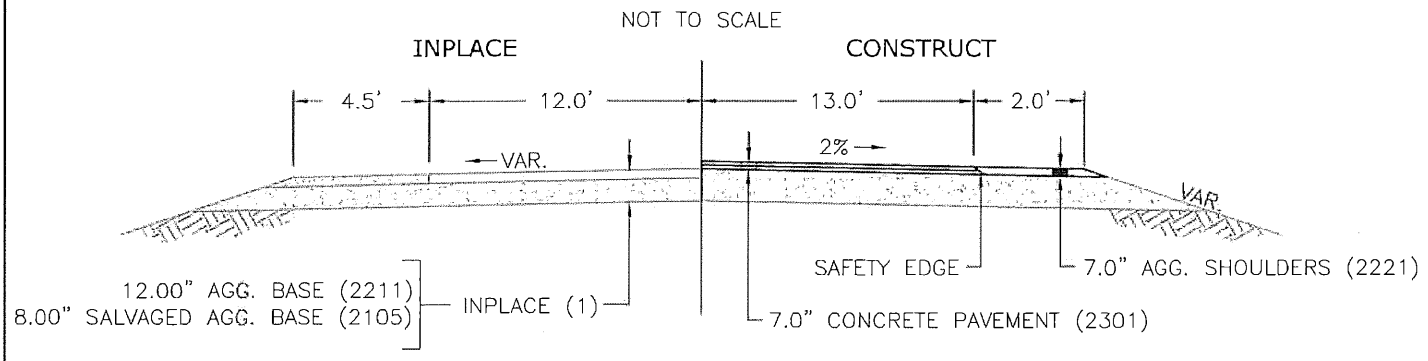


GRANULAR EQUIVALENT
10 TON
R VALUE: 10
ESAL'S 35–YR RIGID: 257,000

BRIDGE EXCEPTION: STA. 362+45.71 to STA. 363+62.71 (117.00')

TYPICAL SECTION (7" NEW PCC)

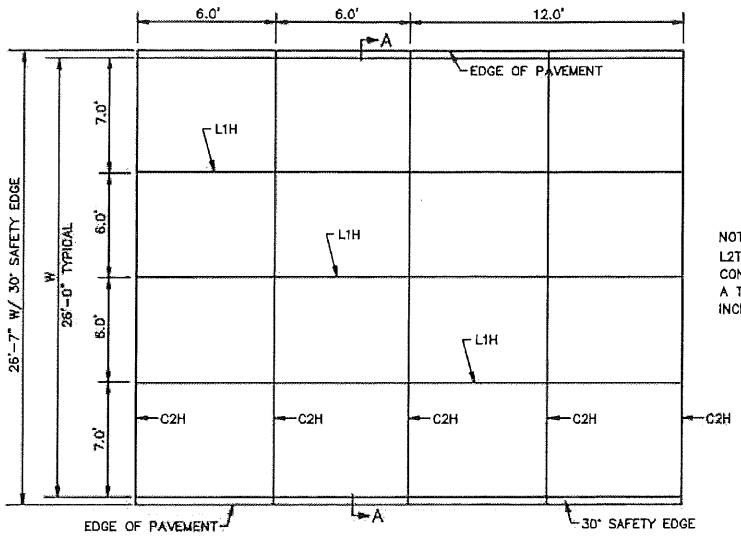
STA. 356+79.21 to STA. 362+45.71 (566.50')
STA. 363+62.71 to STA. 365+79.21 (216.50')



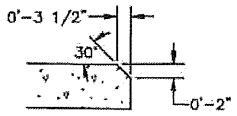
GRANULAR EQUIVALENT
10 TON
R VALUE: 10
ESAL'S 35–YR RIGID: 257,000

(1) GRADING TO BE COMPLETED WITH PROJECT S.A.P. 042–610–038.

CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER



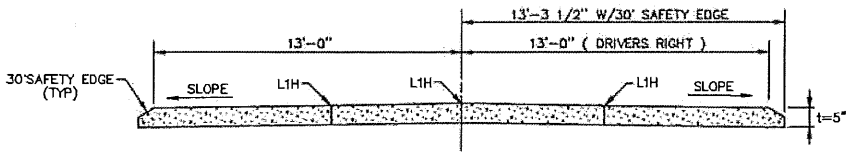
NOTE:
L2TH JOINT REQUIRED AT CENTERLINE IF THE CONTRACTOR CHOOSES TO PAVE ONE LANE AT A TIME. TIE BARS SHALL BE CONSIDERED INCIDENTAL TO CONCRETE PAVEMENT (5" OR 7").



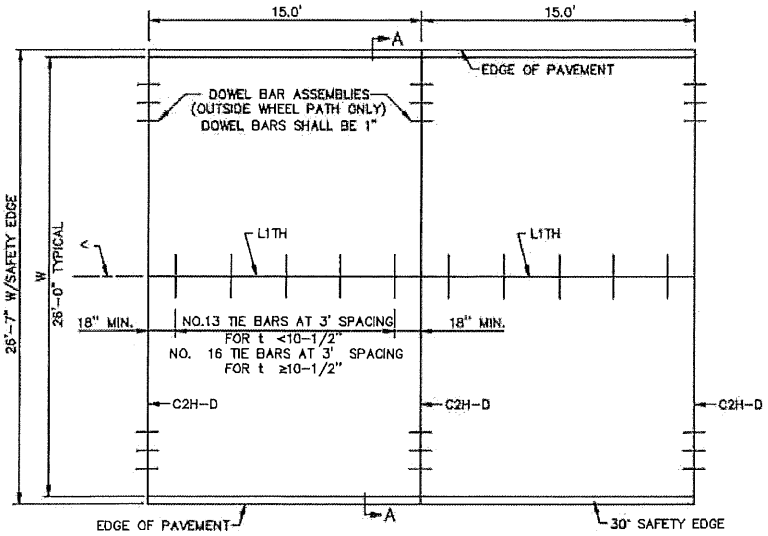
30° CONCRETE SAFETY EDGE

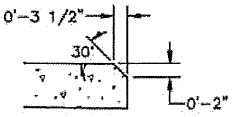
MAINLINE PAVEMENT – 5" WHITETOPPING
NOT TO SCALE

STA. 246+13.71 to STA. 256+79.21 (11,065.50')
STA. 356+79.21 to STA. 510+25.98 (14,446.77')



SECTION A–A
CONCRETE OVERLAY (5")
NOT TO SCALE
TYPICAL BOTH SIDES

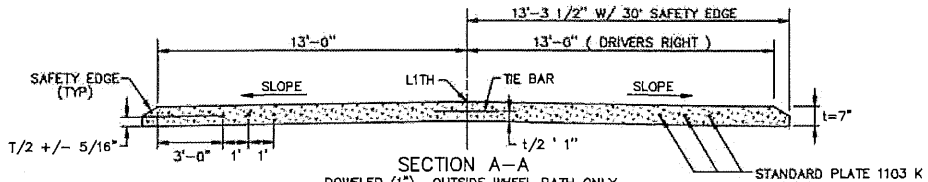




30° CONCRETE SAFETY EDGE

MAINLINE PAVEMENT – NEW 7" PCC
DOWELED – OUTSIDE WHEEL PATH ONLY
NOT TO SCALE

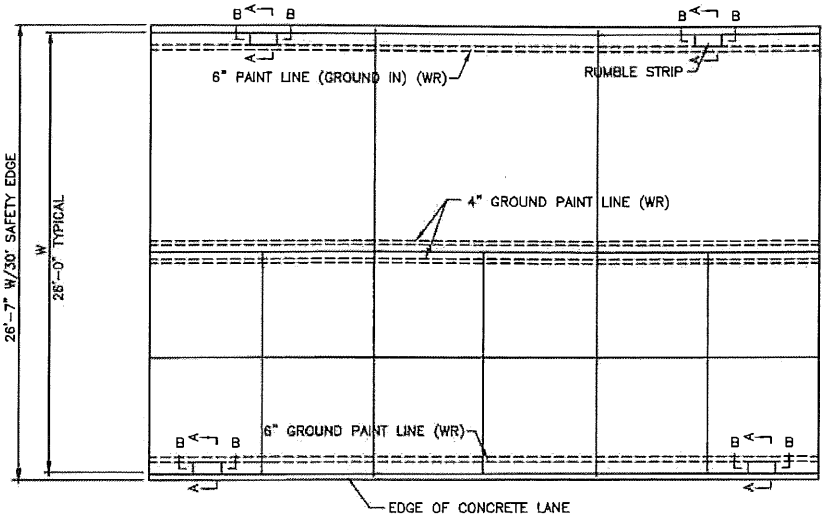
STA. 356+79.21 to STA. 262+45.71 (566.50')
STA. 363+62.71 to STA. 365+79.21 (216.50')



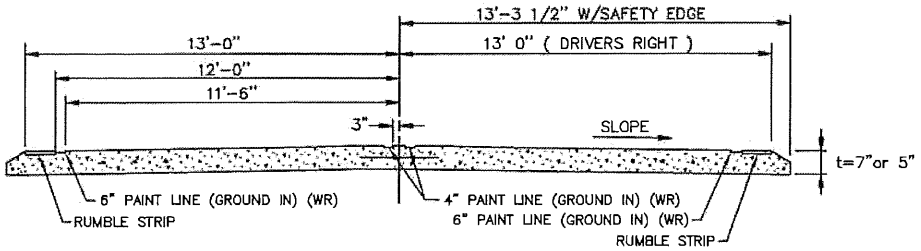
SECTION A–A
DOWELED (1")– OUTSIDE WHEEL PATH ONLY
NOT TO SCALE
TYPICAL BOTH SIDES

NOTES:
1. STANDARD PLAN 5-297.217 SHALL BE MODIFIED TO INCLUDE SAFETY EDGE AND STANDARD PLATE 1103 K SHALL BE MODIFIED TO 3 BARS ONLY (INSTALLED IN THE OUTSIDE WHEEL PATH).

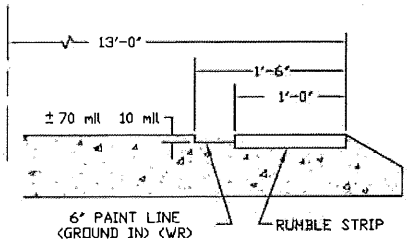
CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER



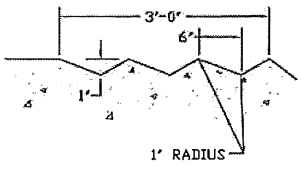
Plan View
Rumble Strip (Type 4) &
Ground-In Paint Line Detail
Scale: NONE



Section View of Two-Lane Roadway
Rumble Strip (Type 4) &
Ground-In Paint Line Detail
Scale: NONE



Section A-A
Scale: None



Section B-B

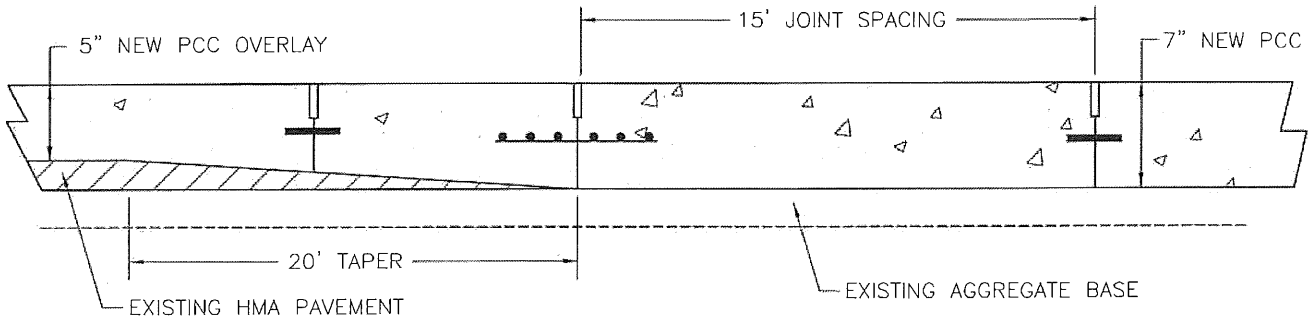
RUMBLE STRIP NOTES:
1. RUMBLE STRIP SHALL BE TYPE 4.
2. RUMBLE STRIP SHALL BE INCLUDED IN TOTAL BID PRICE OF CONCRETE PAVEMENT (5" OR 7").
3. RUMBLE STRIP SHALL BE OMITTED 200' ON EACH SIDE OF A RESIDENTIAL ENTRANCE.
4. RUMBLE STRIP SHALL BE OMITTED ON THE TURNING RADIUS OF ALL CROSSROADS.

GROUND PAINT LINE NOTES:
1. GROUND PAINT LINE TO THE DIMENSIONS SHOWN IN ACCORDANCE WITH SPECIFICATION 2582.502. THE GROOVE DEPTH SHALL BE 70 MIL± 10 MIL..

CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER

TYPICAL TRANSITION SECTION

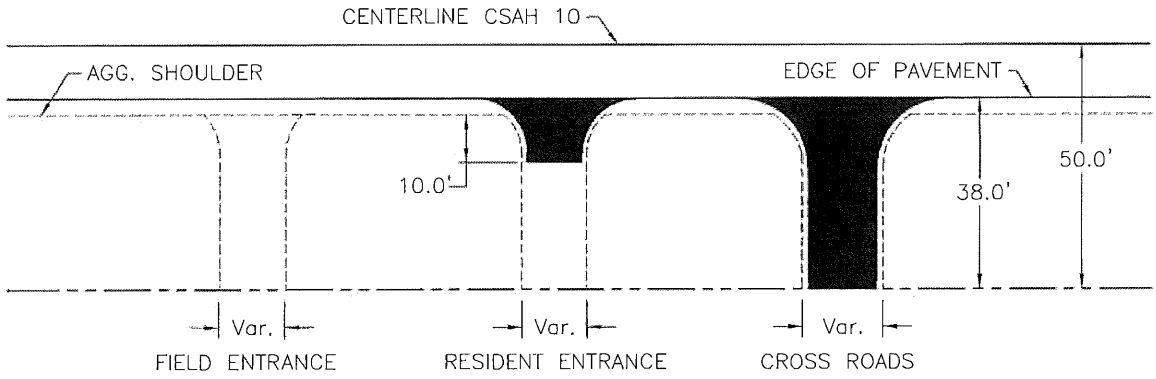
TRANSITION FROM WHITETOPPING TO NEW PPC
(7" CONCRETE PAVEMENT TO 5" CONCRETE WHITETOPPING)



CONSTRUCT TRANSITION ACCORDING TO FIGURE 510.7 IN THE MnDOT PAVEMENT DESIGN MANUAL DATED DECEMBER 3rd, 2015.

TYPICAL AUXILIARY APPROACH PAVING

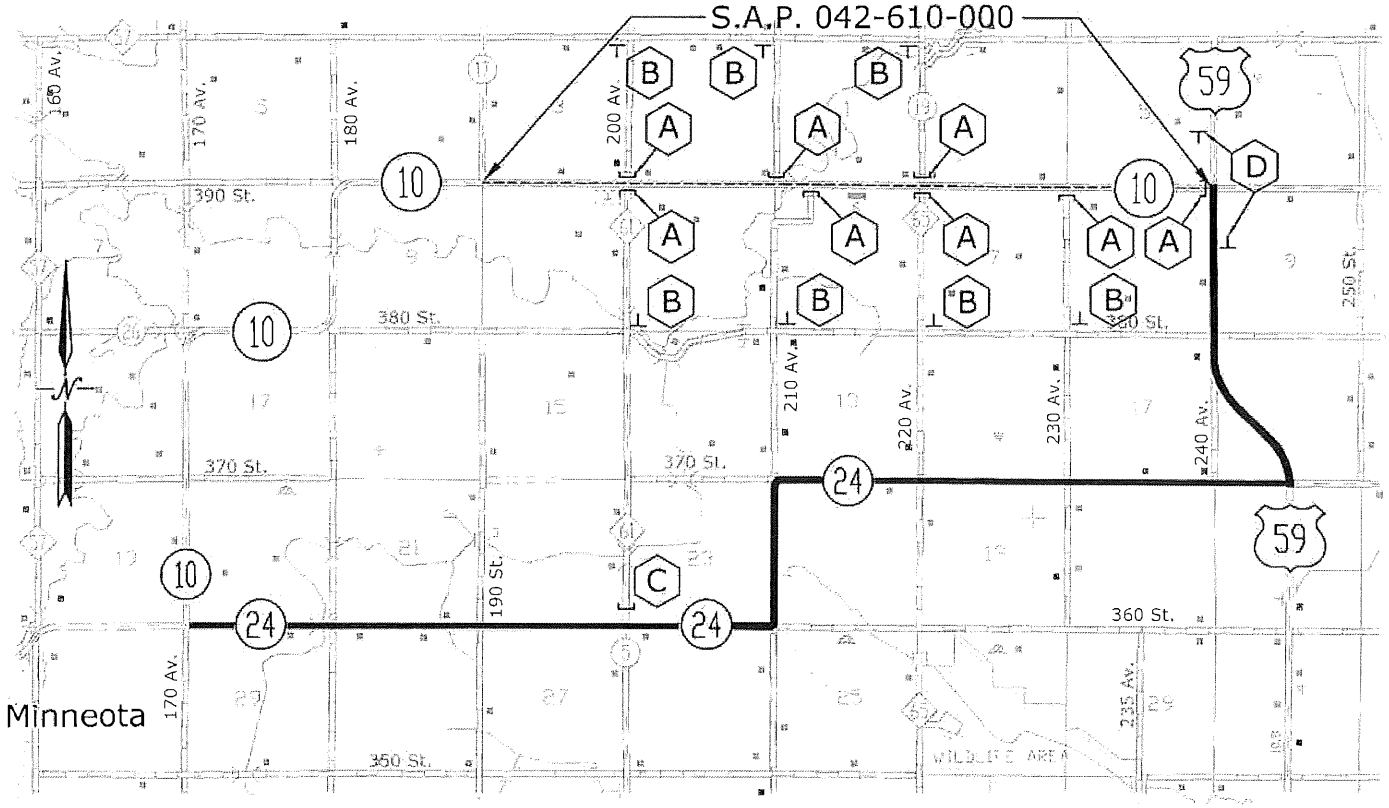
STANDARD PLATE 9000E SHALL APPLY. FIELD ADJUST AS DIRECTED BY THE ENGINEER.



BITUMINOUS PAVEMENT SUMMARY		
ENTRANCE TYPE	#	EST. TONS
FIELD ENTRANCE	24	0
RESIDENT ENTRANCE	11	275
CROSS ROADS	9	360
CEMETERY	1	75
		710

CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER

TRAFFIC CONTROL PLAN

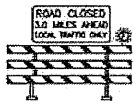


A

R11-4 (FRONT)
3-TYPE 3 BARRICADE

SIGN ASSEMBLY IS FOR A COMPLETE ROAD CLOSURE.
A MINIMUM OF 3 BARRICADES AND SAFETY FENCE IS REQUIRED.
ALL POSTS AND HARDWARE TO INSTALL SAFETY FENCE SHALL BE INCLUDED WITH SIGN ASSEMBLY.

C



B

W20-3

D

W20-1

NOTES:

1. TRAFFIC CONTROL SHALL MEET THE REQUIREMENTS OF THE CURRENT EDITION OF THE MnMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

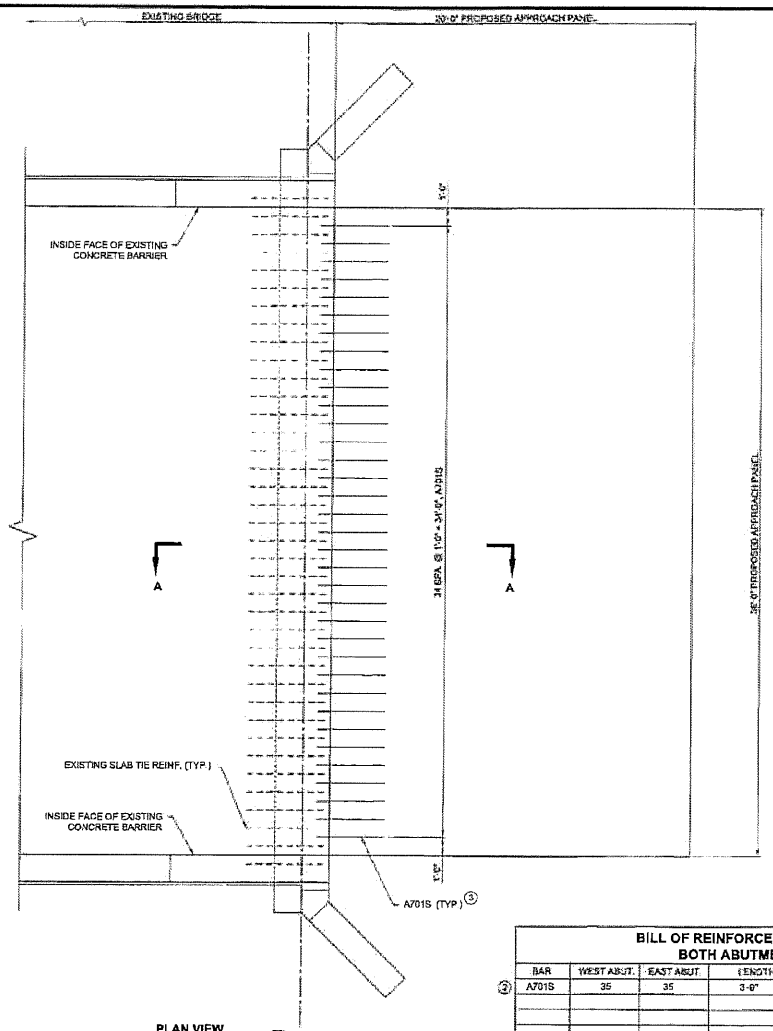
2. ALL NECESSARY TRAFFIC CONTROL DEVICES ON THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR THE IMMEDIATE REPAIR OR REPLACEMENT OF ALL TRAFFIC CONTROL DEVICES THAT BECOME DAMAGED, MOVED, OR DESTROYED.

3. ALL INPLACE REGULATORY AND WARNING SIGNS TO REMAIN INPLACE THROUGHOUT CONSTRUCTION.

4. THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE ALL TRAFFIC CONTROL DEVICES REQUIRED TO PROVIDE SAFE MOVEMENT OF LOCAL VEHICULAR TRAFFIC THROUGHOUT THE PROJECT. THE ENGINEER WILL HAVE THE RIGHT TO MODIFY THE REQUIREMENTS OF TRAFFIC CONTROL AS DEEMED NECESSARY DUE TO FIELD CONDITIONS. THE ROAD SHALL REMAIN OPEN TO LOCAL TRAFFIC AT ALL TIMES.

3. IF THE CONTRACTOR CHOOSES TO INSTALL ADDITIONAL TRAFFIC CONTROL MEASURES IT SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

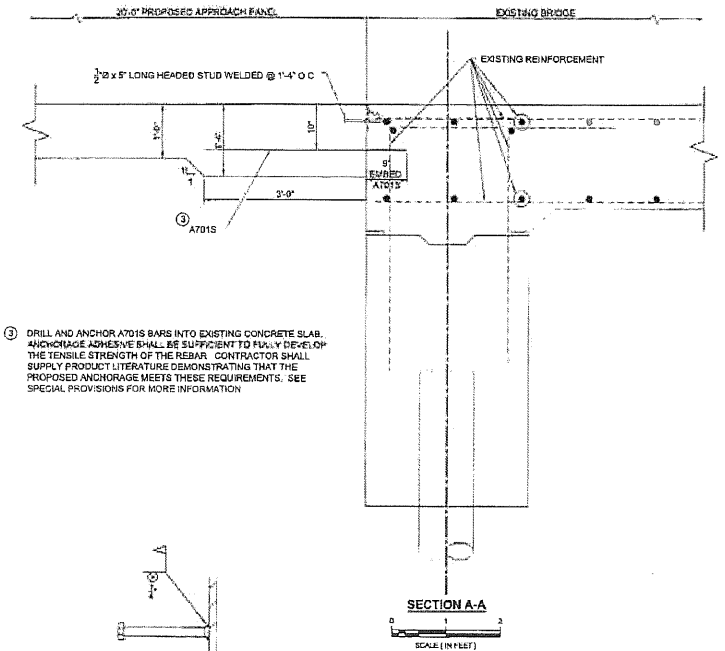
CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER



PLAN VIEW

SCALE (IN FEET)

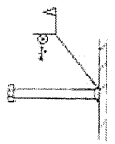
EAST ABUTMENT SHOWN, WEST ABUTMENT SIMILAR



③ DRILL AND ANCHOR A701S BARS INTO EXISTING CONCRETE SLAB. ANCHORAGE ADHESIVE SHALL BE SUFFICIENT TO FULLY DEVELOP THE TENSILE STRENGTH OF THE REBAR. CONTRACTOR SHALL SUPPLY PRODUCT LITERATURE DEMONSTRATING THAT THE PROPOSED ANCHORAGE MEETS THESE REQUIREMENTS. SEE SPECIAL PROVISIONS FOR MORE INFORMATION

SECTION A-A

SCALE (IN FEET)



WELDED STUD DETAIL

NOTES:

WELDED STUD STRUCTURAL STEEL MATERIAL SHALL BE PER MNDOT 3306. WELDED STUDS SHALL BE FIELD GALVANIZED AFTER WELDING. SEE SPECIAL PROVISIONS

SUMMARY OF QUANTITIES FOR BOTH ABUTMENTS ①

REINFORCEMENT BARS (STAINLESS-60KSI)	940	POUND
DRILL & GROUT DOWEL BAR (SPECIAL)	70	EACH
WELDED STUD	34	EACH
BRIDGE APPROACH PANELS	190	SQ YD
EXPANSION JOINTS, DESIGN EBH	52	LIN FT

① ALL MATERIAL AND LABOR SHOWN ON THIS SHEET SHALL BE INCLUDED IN PRICE BID FOR ITEM NO. 2406 503, "BRIDGE APPROACH PANELS", SQ. YD.

BILL OF REINFORCEMENT FOR BOTH ABUTMENTS

	BAR	WEST ABUT.	EAST ABUT.	LENGTH	SHAPE	LOCATION
②	A701S	35	35	3'-0"	STRAIGHT	SLAB DOWEL

② A701S BARS TO BE STAINLESS STEEL, SEE SPECIAL PROVISIONS.

CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION.

WIDSETH SMITH NOLTING
Engineering | Architecture | Surveying | Environmental

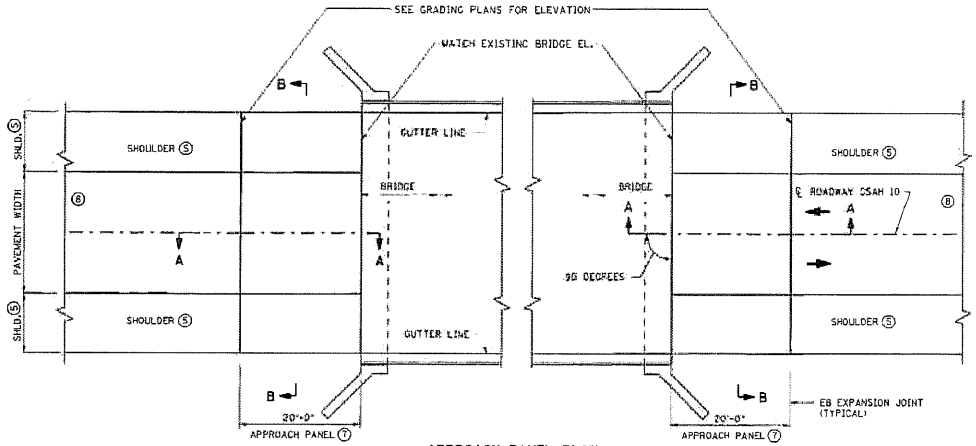
BR. 42579 APPROACH PANELS

APPROVED

DES. BY A.J.M	CHK. BY J.J.E.	BRIDGE NO.	
CHK. BY K.A.R.	CHK. BY D.A.K.	42579	

CERTIFIED BY: _____ LICENSE NO. 21179 DATE: 2-21-2017

JOB NUMBER: 460A1019 | S.A.P. 042-610-042 | SHEET NO. 8A OF 8 SHEETS



APPROACH PANEL PLAN

SQUARE TO 10° SKEW, BARRIER ON APPROACH PANEL

NOTES:

~~(6) SEE STANDARD PLAN 5-297.227 FOR DRAINAGE DETAILS AND ADDITIONAL REQUIREMENTS.~~

~~(9) 24" CURB DESIGN SHOWN. SEE STANDARD PLATES FOR CURB DETAILS.~~

~~(10) EB QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.~~

~~(11) TO ACCOMMODATE GUARDRAIL CONNECTION AND CRASH TEST REQUIREMENTS THE CONCRETE BARRIER MUST EXTEND 7'-0" MINIMUM ONTO THE APPROACH PANEL. FOR PARALLEL WINGWALLS THE BARRIER MUST EXTEND 7'-0" MINIMUM ON TO THE APPROACH PANEL OR TO THE END OF THE WINGWALL, WHICH EVER IS LONGER. REFER TO BRIDGE PLAN FOR BARRIER REINFORCEMENT AND PAYUNIT.~~

(12) SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.

~~(C) WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1' (TYP.).~~

(7) APPROACH PANEL LENGTHS ARE MEASURED ALONG CENTERLINE. PANEL SIZE AND REQUIREMENTS FOR TRANSVERSE AND LONGITUDINAL JOINTS ARE SHOWN ON STANDARD PLANS 5-297.228 AND 5-297.229. MAXIMUM PANEL LENGTH OF 20'-0" FOR UP TO 40°SKEWS, 15'-0" FOR SKEWS OVER 40°

(8) FOR CONCRETE PAVEMENT, SEE STANDARD PLAN 5-297.227 FOR LUG REQUIREMENTS.

GENERAL NOTES:

SECTION A-A IS SHOWN ON STANDARD PLAN 5-297.227.
SECTIONS B-B AND ~~C-C~~ ARE SHOWN ON STANDARD PLAN 5-297.225 AND SHOW THE STATION AND ELEVATION AT END LOCATIONS ON THE APPROACH PANEL.

A CONCRETE SILL IS REQUIRED BENEATH EXPANSION JOINT TYPE EB. EXTEND THE EXPANSION JOINT AND THE SILL ALONG THE FULL WIDTH OF THE TRAFFIC LANES, SHOULDERS AND CURB. ENSURE THAT SILL DOES NOT INTERFERE WITH GUARDRAIL POST PLACEMENT. CONCRETE SILL AND CURBING, IF REQUIRED, ARE INCLUDED IN THE APPROACH PANEL PAY ITEM.

~~AT THE END OF THE CONCRETE BARRIER, TRANSITION FACE OF 4-INCH CURB INTO PROFILE OF CONCRETE BARRIER. SEE CURB TRANSITION DETAILS ON STANDARD PLAN 5-297.227 IF 24-INCH MEDIAN ROADWAY CURB AT THE END OF THE APPROACH PANEL, APPROACH PANEL SLOPE FROM 4 INCH TO 0 INCH IN THE FIRST 3'-4" SECTION USE 0% OR FLATTER SLOPES.~~

GENERAL DRAINAGE DETAILS ARE SHOWN ON BRIDGE APPROACH PANEL DRAINAGE DETAILS, STANDARD PLAN 5-297.231. ADDITIONAL CATCH BASIN DETAILS ARE SHOWN ON DRAINAGE PLAN SHEETS.

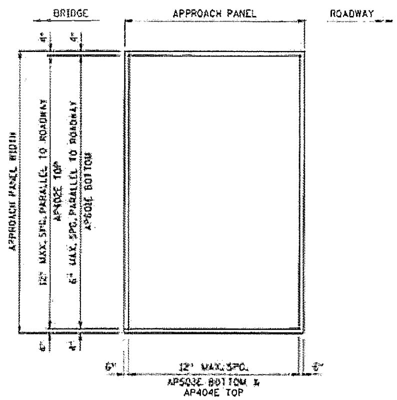
REFER TO SPEC. 2406 FOR ADDITIONAL INFORMATION.

MODIFICATIONS: REVISED BRIDGE AND APPROACH PANEL TO ACCOMADATE THIS PROJECT. DELETED AND CROSSED OUT DETAILS THAT DO NOT APPLY TO THIS PROJECT.

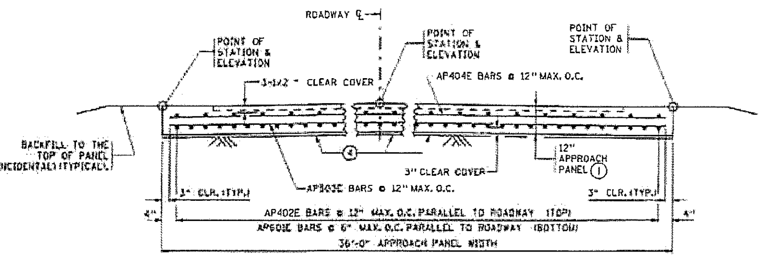
MODIFIED

BRIDGE NO. 42579

REVISION DATE 8-22-2016	STANDARD PLAN SHEET NO. 5-297.224 (1 OF 2)	TITLE: BRIDGE APPROACH PANEL LAYOUT (TYPE F CONCRETE BARRIER ON APPROACH PANEL)	
CERTIFIED BY [signature] LICENSED PROFESSIONAL ENGINEER	DATE 2-21-17	STANDARD APPROVED: FEBRUARY 16, 2016	
PRINTED NAME: KENT A. ROHR	LIC. NO. 21179	STATE AID PROJ. NO. 042-610-042	SHEET NO. 8B OF 8 SHEETS



APPROACH PANEL REINFORCEMENT
SQUARE TO 10° SKEWS



TRANSVERSE SECTION B-B
FROM STANDARD PLAN 5-297.224

CONCRETE BARRIERS ARE SHOWN, BUT MAY NOT BE PRESENT.
REFER TO BRIDGE PLANS FOR END OF BARRIER LOCATIONS.

MODIFICATIONS: REVISED BRIDGE AND APPROACH PANEL TO ACCOMADATE THIS PROJECT. DELETED AND CROSSED OUT DETAILS THAT DO NOT APPLY TO THIS PROJECT.

ESTIMATED REINFORCEMENT QUANTITY FOR BRIDGE APPROACH PANELS

TYPE	LOCATION	ESTIMATED WEIGHT
PANEL (SQ. TO 10°)	BRIDGE TO END OF APPROACH PANEL	48.5 LB./SQ. YD.
~~PANEL SEGMENT (I) (OVER 10°)~~	~~BRIDGE TO CONTRACTION JOINT~~	~~48.5 LB./SQ. YD.~~
~~PANEL SEGMENT (II) (OVER 10°)~~	~~CONTRACTION JOINT TO END OF APPROACH PANEL~~	~~35.0 LB./SQ. YD~~
~~CURB~~	~~20 FT. CURB TRANSITION~~	~~15.0 LB./EACH~~
SILL	SILL (IF REQUIRED)	14.0 LB./LIN FT.

NOTES:

TRANSVERSE BARS IN BOTH PANEL SEGMENTS ARE PERPENDICULAR TO ROADWAY CENTERLINE EXCEPT AP407E ARE PARALLEL TO SKEW IN SEGMENT (I) AND AP415E ARE PARALLEL TO SKEW IN SEGMENT (II).

LONGITUDINAL BARS IN BOTH PANEL SEGMENTS ARE PARALLEL TO ROADWAY CENTERLINE.

BILL OF REINFORCEMENT FOR BRIDGE APPROACH PANELS

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS INCLUDING CURB TRANSITIONS AND ALL DETAILS NECESSARY TO CONSTRUCT THE PANEL. SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR	NO.	LENGTH	SHAPE	LOCATION
AP602E				BOTTOM LONGITUDINAL
AP402E				TOP LONGITUDINAL
AP503E				BOTTOM TRANSVERSE
AP404E				TOP TRANSVERSE
AP505E	_ SER. OF _	_ TO _		BOTTOM TRANSVERSE
AP406E	_ SER. OF _	_ TO _		TOP TRANSVERSE
~~AP407E~~				~~TOP & BOTTOM EDGE~~
~~AP508E~~		~~3'-0~~		~~TOP CORNER - FAN~~
~~AP509E~~				~~BOTTOM TRANSVERSE~~
~~AP410E~~				~~TOP TRANSVERSE~~
AP511E	_ SER. OF _	_ TO _		BOTTOM TRANSVERSE
AP412E	_ SER. OF _	_ TO _		TOP TRANSVERSE
AP613E	_ SER. OF _	_ TO _		BOTTOM LONGITUDINAL
AP414E	_ SER. OF _	_ TO _		TOP LONGITUDINAL
~~AP415E~~				~~TOP & BOTTOM EDGE~~
~~AP616E~~		~~5'-0~~		~~C&R-D JOINT~~

GENERAL NOTES:

USE EPOXY COATED GRADE 60 REINFORCEMENT PER SPEC. 3301 IN APPROACH PANEL, CONCRETE SILL, AND ~~CURB TRANSITION.~~ EPOXY COAT BARS MARKED WITH THE SUFFIX "E" IN ACCORDANCE WITH SPEC. 3301.

FOR VARIABLE ROADWAY WIDTHS, VARY THE LAP LENGTH OF THE REINFORCEMENT.

MINIMUM REINFORCEMENT LAP LENGTHS ARE AS FOLLOWS: NO. 4 BAR = 1'-11", NO. 5 BAR = 2'-5", NO. 6 BAR = 2'-10".

ALL LAP SPLICES SHALL BE STAGGERED SUCH THAT NO MORE THAN 50% OF REBAR IS SPLICED AT THE SAME LOCATION.

(1) APPROACH SLAB THICKNESS IS 12" (12" MONOLITHIC OR 10" SLAB + 2" WEARING COURSE). CHECK BRIDGE PLANS FOR CONCRETE WEARING COURSE, WHICH IS INCLUDED IN BRIDGE PLAN QUANTITIES.

~~(2) SPACING ONLY FOR B4 INTEGRANT CURB. SEE CURB DETAIL FOR SPACING FOR USING B424 CURB AND GUTTER.~~

~~(3) EXTEND AND/OR CUT REINFORCING AS NECESSARY TO ACCOMMODATE CURB TRANSITION IF PRESENT. REINFORCEMENT MUST EXTEND INTO CURB AS SHOWN IN TRANSVERSE SECTIONS B-B AND C-C.~~

(4) IF THE APPROACH PANEL IS TIED TO THE BRIDGE ABUTMENT WITH REINFORCEMENT BARS, PLACE 12 MIL POLYETHYLENE SHEETING (OR 2 LAYERS OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM.

~~(5) SEE STANDARD PLAN 5-297.224 FOR CURB TRANSITION LOCATION.~~

~~(6) SEAL WITH SELF LEVELING SILICONE PER SPEC. 3722.~~

MODIFIED

BRIDGE NO. 42579

REVISION DATE 8-22-2016

STANDARD PLAN SHEET NO. 5-297.225 (1 OF 2)

STANDARD APPROVED: DECEMBER 20, 2011

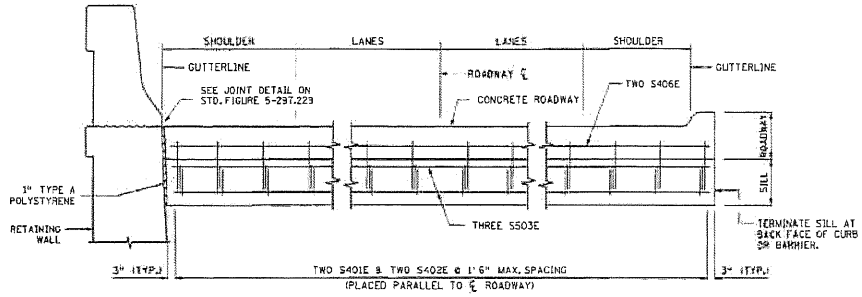
TITLE:

BRIDGE APPROACH PANEL
REINFORCEMENT DETAILS
(TYPE F CONCRETE BARRIER ON APPROACH PANEL)

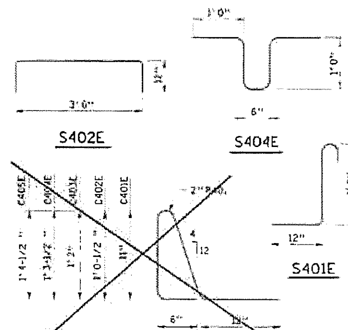
CERTIFIED BY [signature] LICENSED PROFESSIONAL ENGINEER 2-21-17 DATE

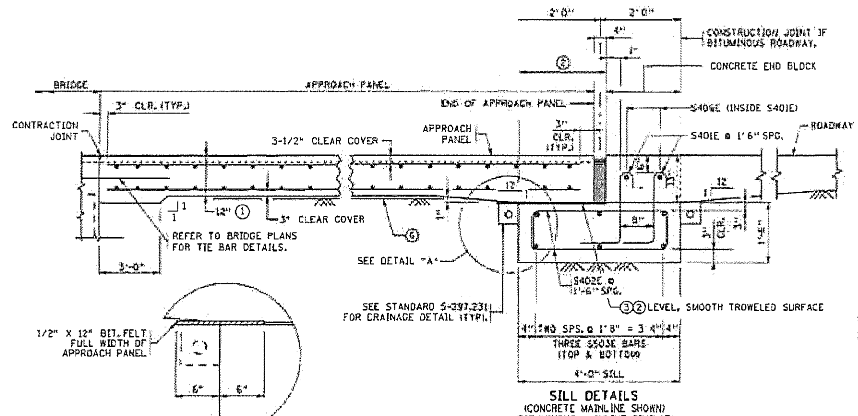
PRINTED NAME: KENT A. ROHR LIC. NO. 21179

STATE AID PROJ. NO. 042-610-042 SHEET NO. 8C OF 8 SHEETS



SILL ELEVATION
(REINFORCEMENT IN PAVEMENT NOT SHOWN)

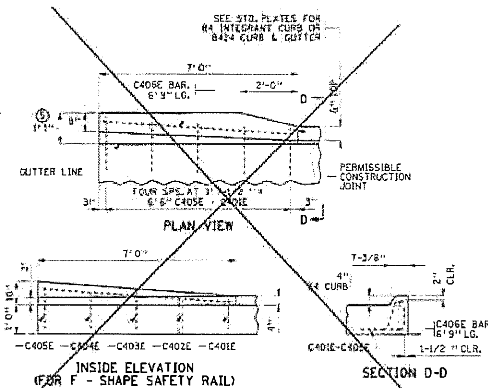




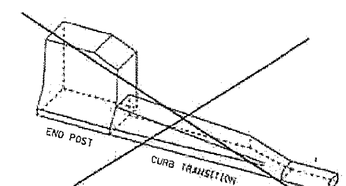
DETAIL "A"

LONGITUDINAL SECTION A-A
FROM SHEET 5-297.222 & SHEET 5-297.224

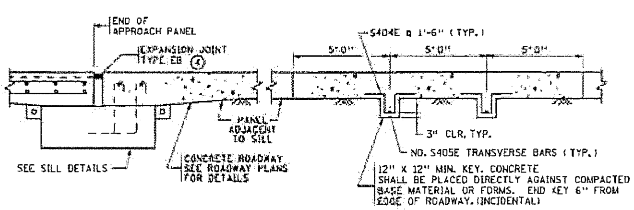
SILL DETAILS
(CONCRETE MAINLINE SHOWN)
(BITUMINOUS MAINLINE SIMILAR)



CURB TRANSITION DETAILS
F-SHAPE SAFETY BARRIER TO B4 CURB WITH W-BEAM GUARDRAIL BARRIER

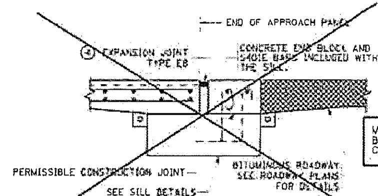


ISOMETRIC VIEW



SILL & CONCRETE MAINLINE

END OF APPROACH PANEL



SILL & BITUMINOUS MAINLINE

BILL OF REINFORCEMENT FOR CONCRETE SILL

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR	NO.	LENGTH	SHAPE	LOCATION
S401E		3'2"		SILL VERTICAL
S402E		5'6"		SILL TIE
* S503E		-		SILL HORIZONTAL
S404E		4'6"		KEY TIE
* S405E		-		KEY HORIZONTAL
* S406E		-		END BLOCK HORIZONTAL

* MINIMUM REINFORCEMENT LAP LENGTHS ARE AS FOLLOWS: NO. 4 BAR = 1'-11", NO. 5 BAR = 2'-5".

BILL OF REINFORCEMENT FOR CURB TRANSITION

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR	NO.	LENGTH	SHAPE	LOCATION
C401E		3'6"		CURB VERTICAL
C402E		3'9"		CURB VERTICAL
C403E		4'0"		CURB VERTICAL
C404E		4'3"		CURB VERTICAL
C405E		4'5"		CURB VERTICAL
C406E		6'9"		CURB LONGITUDINAL

NOTES:

USE EPOXY COATED GRADE 60 REINFORCEMENT PER SPEC 3301.

ENSURE THAT SILL DOES NOT INTERFERE WITH GUARDRAIL POST PLACEMENT.

① APPROACH SLAB THICKNESS IS 12" (12" MONOLITHIC OR 10" SLAB + 2" WEARING COURSE). CHECK BRIDGE PLANS FOR CONCRETE WEARING COURSE, WHICH IS INCLUDED IN BRIDGE PLAN QUANTITIES.

② PLACE PLASTIC SHEETING PER SPEC. 3756 AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL. (SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM).

③ REQUIRED CONSTRUCTION JOINT.

④ SEE STANDARD PLANS 5-297.222 & 5-297.224 FOR TYPE OF EXPANSION JOINT. DETAILS OF EXPANSION JOINT TYPE E8H ARE SHOWN ON STANDARD PLAN 5-297.229.

⑤ [illegible]

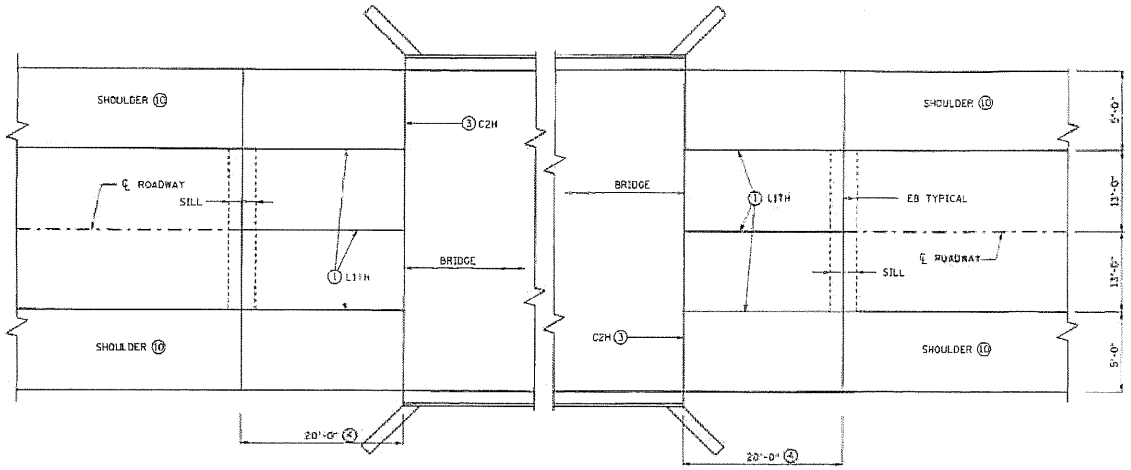
⑥ IF THE APPROACH PANEL IS TIED TO THE BRIDGE ABUTMENT WITH REINFORCEMENT BARS, PLACE 12 MIL POLYETHYLENE SHEETING (OR 2 LAYERS OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM.

MODIFICATIONS: REVISED APPROACH PANEL CONNECTION AT BRIDGE TO ACCOMADATE THIS PROJECT. DELETED AND CROSSED OUT DETAILS THAT DO NOT APPLY TO THIS PROJECT.

MODIFIED

BRIDGE NO. 42579

REVISION DATE 8-22-2016	STANDARD PLAN SHEET NO. 5-297.227 (1 OF 2)	TITLE: BRIDGE APPROACH PANEL MISCELLANEOUS DETAILS (TYPE F CONCRETE BARRIER)	
CERTIFIED BY [signature] LICENSED PROFESSIONAL ENGINEER 2-21-17 DATE	STANDARD APPROVED: DECEMBER 20, 2011		
PRINTED NAME: KENT A. ROHR LIC. NO. 21179	STATE AID PROJ. NO. 042-610-042		SHEET NO. 8D OF 8 SHEETS



APPROACH PANELS - SQUARE TO 10° SKEWS (5)

APPROACH PANEL JOINT LAYOUT NOTES:

(1) L1TH LONGITUDINAL JOINT. SEE STANDARD PLAN 5-297.229 FOR REINFORCEMENT LAP LENGTH REQUIREMENTS FOR STAGED CONSTRUCTION.

~~(2) SERVISSIBLE CONSTRUCTION JOINT. USE JOINT TYPE C2H-F WITH AP16E BARS AT 12-INCH SPACING AT MID DEPTH OF THE SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP16E BARS ARE 3'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 3'-0" AND 2'-0" DIMENSIONS AS SHOWN ON THE PLAN. TWO L1TH-D JOINT AND AP16E BARS ARE REQUIRED ON ALL PANELS WITH A SKEW OVER 10 DEGREES.~~

(3) C2H CONTRACTION JOINT.

(4) MAXIMUM PANEL LENGTH MEASURED ALONG CENTERLINE OF 20'-0" FOR UP TO 40°SKEWS, 15'-0" FOR SKEWS OVER 40°.

(5) ALL JOINTS SHALL BE SAWCUT. SAWCUTS SHALL BE MADE WHILE THE CONCRETE IS STILL GREEN. WHEN A CONCRETE WEARING COURSE IS SPECIFIED, THE JOINTS SHALL BE SAWN THROUGH BOTH THE WEARING COURSE AND THE UNDERLYING APPROACH SLAB IN A SINGLE OPERATION.

~~(6) EB JOINT REQUIRED IN CURB ADJACENT TO EB JOINT. EB QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF LUND TO BACK OF LUND.~~

~~(7) 10' 6" MINIMUM.~~

~~(8) SEE STANDARD PLANS 5-297.229 OR 5-297.231 FOR JOINT DETAIL FOR CONCRETE BARRIER ON WINGWALL.~~

~~(9) WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1 PANEL.~~

(10) SEE GRADING PLAN FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.

MODIFICATIONS: REVISED BRIDGE AND APPROACH PANEL TO ACCOMADATE THIS PROJECT. DELETED AND CROSSED OUT DETAILS THAT DO NOT APPLY TO THIS PROJECT.

MODIFIED

BRIDGE NO. 42579

REVISION DATE 8-22-2016

CERTIFIED BY _____ 2-21-17
LICENSED PROFESSIONAL ENGINEER — DATE

PRINTED NAME: KENT A. ROHR LIC. NO. 21179

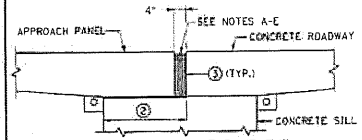
STANDARD PLAN SHEET NO. 5-297.228 (1 OF 2)

STANDARD APPROVED: MARCH 23, 2011

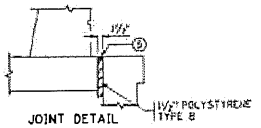
TITLE: BRIDGE APPROACH PANEL JOINT LAYOUT (TYPE F CONCRETE BARRIER)

STATE AID PROJ. NO. 042-610-042 SHEET NO. 8E OF 8 SHEETS

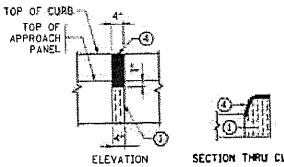
EXPANSION JOINTS



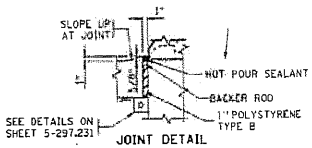
E8H JOINT DETAIL AT PAVEMENT



JOINT DETAIL
(CONCRETE BARRIER ON APPROACH PANEL)



E8H JOINT AT CURB



JOINT DETAIL
(CONCRETE BARRIER ON WINGWALL)

EXPANSION JOINT NOTES:

① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

② PLACE PLASTIC SHEETING SPEC. 3756 AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL. SEE SILL DETAILS ON STANDARD PLAN 5-297.227.

③ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING PRIOR TO SEALING THE JOINT.

④ HOT POUR JOINT SEALER SPEC. 3725. TOP OF SEALER FLUSH TO 1/8 INCH BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E8H JOINTS FLUSH WITH SURFACE (+ 1/8 INCH OR - 1/8 INCH).

⑤ SEAL WITH SELF-LEVELING SILICONE PER MNDOT 3722.

E8H PRESSURE RELIEF JOINT MATERIAL INSTALLATION INSTRUCTIONS:

SEE MNDOT APPROVED/QUALIFIED PRODUCTS LIST.

FURNISH AND INSTALL JOINT MATERIAL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE FOLLOWING:

(A) EXPANSION JOINT FILLER MATERIALS USED FOR A 4 INCH PRESSURE RELIEF JOINT CONSISTS OF A PREFORMED FOAM PRODUCT HAVING MINIMUM DIMENSIONS OF 4.5 INCHES IN WIDTH (MAY BE LAMINATED) AND 8 INCHES IN DEPTH, AND A MINIMUM LENGTH OF 10 FEET. WHEN THE CONCRETE DEPTH IS GREATER THAN THE DEPTH OF THE PRESSURE RELIEF MATERIAL, FILL THE VOID BELOW THE MATERIAL WITH POLYSTYRENE. FURNISH AND INSTALL THE JOINT MATERIAL UNDER COMPRESSION WITH A LUBRICANT ADHESIVE APPLIED TO THE CONCRETE CONTACT SURFACES.

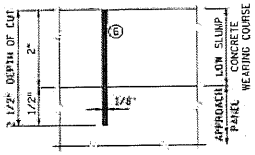
(B) SAW OR FORM THE JOINTS 4 INCHES WIDE BY THE FULL-DEPTH OF THE PANEL. INSPECT TO ASSURE THAT THE INSIDE WALLS OF THE JOINT HAVE BEEN SANDBLASTED, ARE DRY, SMOOTH AND FREE OF DEBRIS AND LOOSE PARTICLES. APPLY TAPE TO THE TOP 1 INCH OF THE INSIDE WALLS TO PREVENT THE LUBRICANT ADHESIVE FROM CONTAMINATING THE CONCRETE BONDING SURFACES OF THE SUBSEQUENTLY PLACED HOT POUR JOINT SEALER.

(C) PAINT THE INSIDE WALLS OF THE JOINT WITH LUBRICANT ADHESIVE AT THE RATE OF 1 GALLON PER 50 LINEAL FEET OF JOINT.

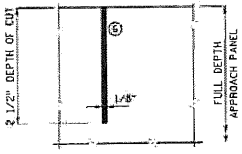
(D) PINCH THE BOTTOM OF THE MATERIAL TOGETHER AND PUSH IT DOWN INTO THE JOINT. WALK THE MATERIAL DOWN INTO THE JOINT; USE A SLEDGEHAMMER AND A 2 X 4 IF NECESSARY. APPLY LUBRICANT ADHESIVE TO THE ENDS OF THE PREFORMED FOAM MATERIAL WHEN BUTTING TWO PIECES TOGETHER.

(E) FURNISH AND INSTALL THE FOAM RELIEF JOINT MATERIAL TO A DEPTH OF APPROXIMATELY 7/8 INCH BELOW THE FINISHED CONCRETE SURFACE, AFTER INSTALLATION. REMOVE THE TAPE AND FILL THE VOID ON TOP OF THE FOAM MATERIAL WITH APPROXIMATELY 1/2 INCH OF HOT POUR JOINT SEALER (MNDOT 3723 OR 3725) TO A LEVEL OF 3/8 INCH +/- 1/4 INCH BELOW THE FINISHED CONCRETE SURFACE. THE HOT POUR JOINT SEALER SHOULD ONLY SLIGHTLY MELT INTO THE FOAM JOINT MATERIAL (TO PREVENT EXCESSIVE MELTING OF THE JOINT MATERIAL, PLACE THE HOT POUR SEALER AT THE LOWER END OF THE TEMPERATURE SPECIFICATION). CHECK FOR CORRECT TEMPERATURE BY PLACING HOT POUR SEALER ON A SAMPLE OF WASTE FOAM MATERIAL.

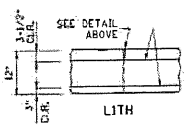
JOINT DETAILS



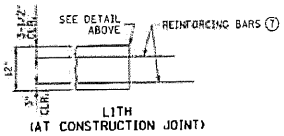
C2H & L1TH WITH CONCRETE WEARING COURSE ⑥
(SAWED & SEALED PER SPEC. 3725)



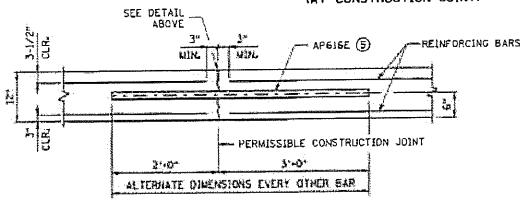
C2H & L1TH WITHOUT CONCRETE WEARING COURSE ⑥
(SAWED & SEALED PER SPEC. 3725)



L1TH



L1TH
(AT CONSTRUCTION JOINT)



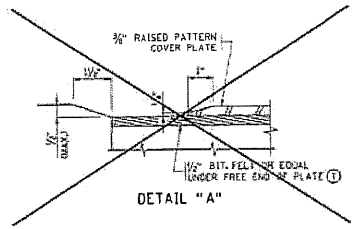
SECTION AT C2H-D JOINT ⑤

JOINT NOTES:

⑤ PERMISSIBLE CONSTRUCTION JOINT. AP616E BARS AT 12-INCH SPACING AT MID DEPTH OF SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP616E BARS ARE 5'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 2'-0" AND 3'-0" DIMENSION AS SHOWN ON THE PLAN.

⑥ CLEAN AND DRY FULLY CURED JOINT FACES BY SANDBLASTING PRIOR TO SEALING THE JOINT.

⑦ WHEN CONSTRUCTING A L1TH JOINT UNDER STAGED CONSTRUCTION, EXTEND NO. 4 BARS 1'-8" AND NO. 5 BARS 2'-1" PAST THE EDGE OF THE FIRST CONCRETE POUR. CONSTRUCT L1TH JOINT ACCORDING TO DETAIL SHOWN AFTER ADJACENT POUR IS COMPLETE.



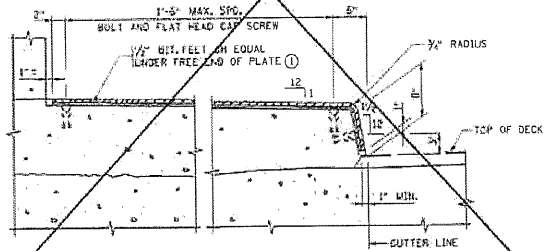
DETAIL "A"

SIDEWALK COVER PLATE

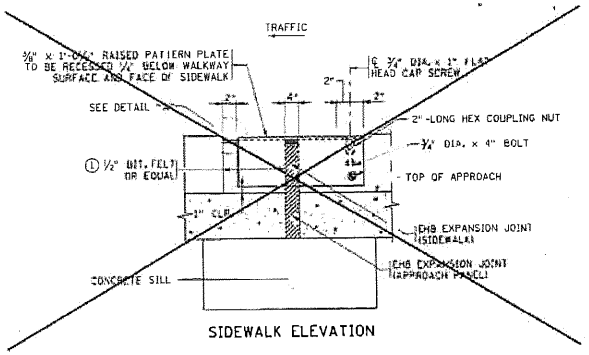
GENERAL NOTES:

GALVANIZE STRUCTURAL STEEL AFTER FABRICATION PER MN/DOT SPEC. 3394
GALVANIZE FASTENERS PER MN/DOT SPEC. 3392.
STRUCTURAL STEEL SHALL COMPLY WITH MN/DOT SPEC. 3306 OR MN/DOT SPEC. 3309.
SHOP DRAWING SUBMITTALS REQUIRED PER MN/DOT SPEC. 3471.
CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE.
FURNISHING AND INSTALLING SIDEWALK COVER PLATE IS INCIDENTAL.

① USE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.



SECTION THROUGH SIDEWALK

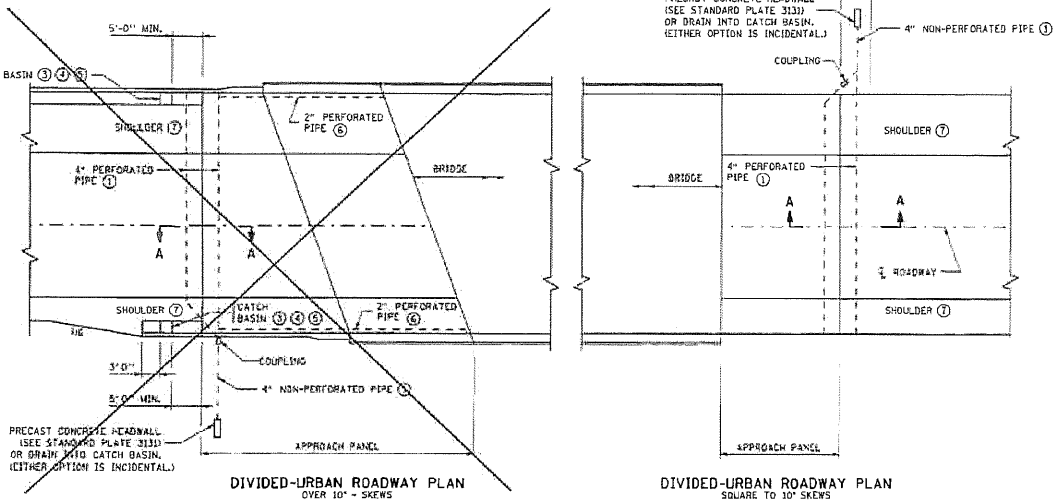


SIDEWALK ELEVATION

WSN 046OA1006

BRIDGE NO. 42579

STANDARD PLAN SHEET NO. 5-297.229	TITLE: BRIDGE APPROACH PANEL JOINT DETAILS
STANDARD APPROVED: DECEMBER 20, 2011	
REVISION DATE 3-22-2013	STATE AID PROJ. NO. 042-610-042 SHEET NO. 8F OF 8 SHEETS



DIVIDED-URBAN ROADWAY PLAN
OVER 10° - SKEWS

DIVIDED-URBAN ROADWAY PLAN
SQUARE TO 10° SKEWS

NOTES:

(1) 4-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.

(2) BACKFILL WITH FINE AGGREGATE (MNDOT 3149) MODIFIED TO 0-3% PASSING A NO. 200 SIEVE (INCIDENTAL).

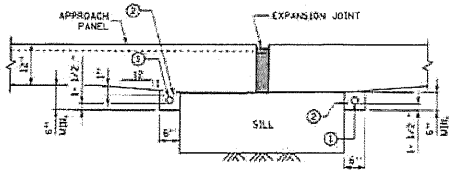
~~(3) SEE HEADWALL PLATE FOR ADDITIONAL CATCH BASIN DETAILS.~~

~~(4) LOCATE BETWEEN GUARDRAIL POST OR AS DETERMINED BY THE DESIGNER.~~

~~(5) REFER TO THE DRAINAGE PLAN TO DETERMINE WHETHER A FLUME OR A CATCH BASIN REQUIRED.~~

~~(6) 2-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.~~

(7) SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.



SECTION A-A
DRAINAGE AT EXPANSION JOINT DETAIL

MODIFICATIONS: REVISED BRIDGE AND APPROACH PANEL TO ACCOMADATE THIS PROJECT. DELETED AND CROSSED OUT DETAILS THAT DO NOT APPLY TO THIS PROJECT.

MODIFIED

BRIDGE NO. 42579

CERTIFIED BY [signature] LICENSED PROFESSIONAL ENGINEER 2-24-17 DATE	STANDARD PLAN SHEET NO. 5-297.231	TITLE: BRIDGE APPROACH PANEL DRAINAGE DETAILS
PRINTED NAME: KENT A. ROHR LIC. NO. 21179	STANDARD APPROVED: MARCH 23, 2011	
STATE AID PROJ. NO. 042-610-042		SHEET NO. 8G OF 8 SHEETS