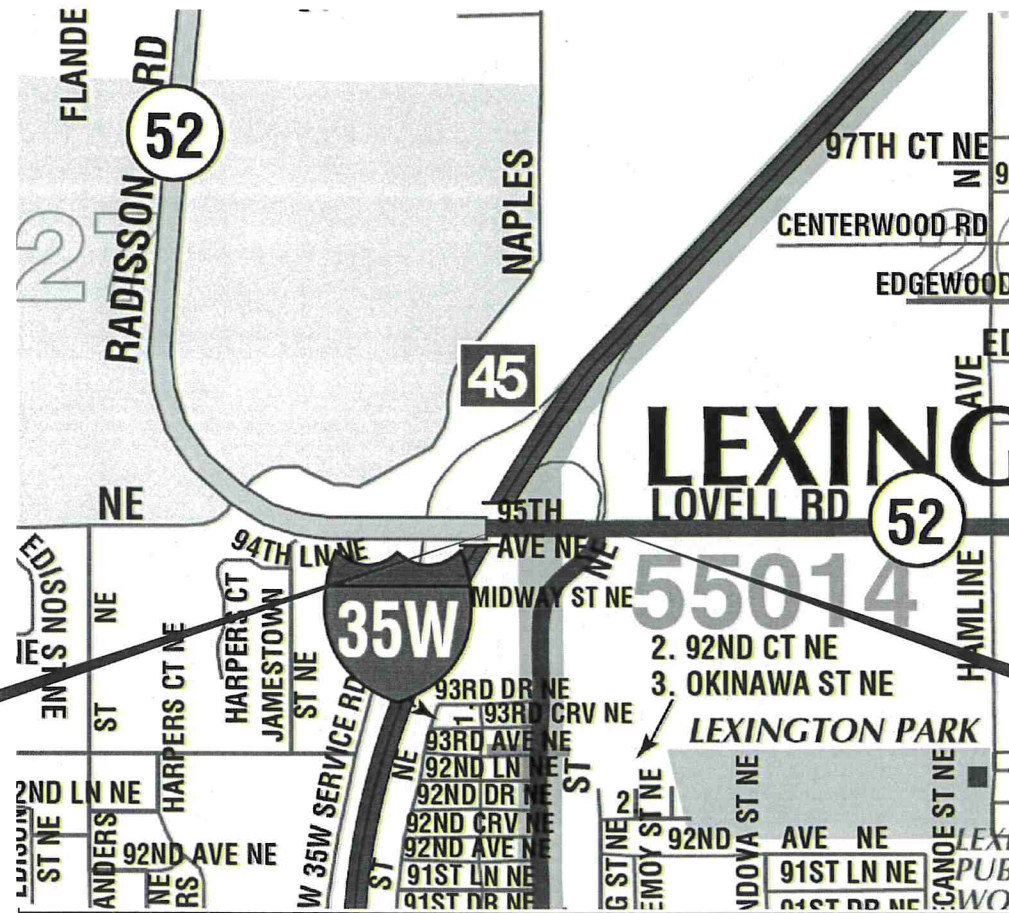


MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR _____ REMOVE BITUMINOUS, CONCRETE SURFACING, AND SEWER REPAIRS _____

LOCATED ON CSAH 52 BETWEEN 35W AND NAPLES

GROSS LENGTH	519.00 FEET	0.098 MILES	
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES	
NET LENGTH	519.00 FEET	0.098 MILES	



BEGIN SAP 002-652-011
CSAH 52, STA: 110+74.00

END SAP 002-652-011
CSAH 52, STA: 115+93.00

GOVERNING SPECIFICATIONS

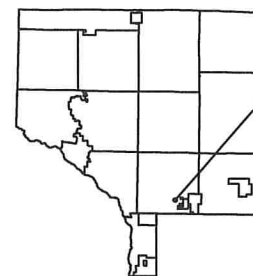
THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

THIS PLAN CONTAINS 18 SHEETS

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	TYPICAL SECTIONS
4-10	STANDARD PLANS
11	CONSTRUCTION PLAN
12-18	SIGNING AND STRIPING PLANS

PROJECT LOCATION



CITY OF BLAINE
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTION 26
TOWNSHIP 31 NORTH
RANGE 23 WEST

Julie Dresel For _____ DATE 5/2/2022

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

Julie Dresel For _____ DATE 5/2/2022

STATE AID ENGINEER:
APPROVED FOR STATE AID FUNDING

Approved *Daniel Schluender* 4.29.22
CITY OF BLAINE ENGINEER

Approved *[Signature]* 4-29-22
ANOKA COUNTY ENGINEER

DESIGN DESIGNATION (CSAH 52)

ESAL 20	591,358	FUNCTIONAL CLASSIFICATION	A-MINOR ARTERIAL
R VALUE	71	NO. OF TRAFFIC LANES	4
ADT (2022)	7151	NO. OF PARKING LANES	0
PROJ. ADT (2042)	7151	DESIGN SPEED	55 MPH
PROJ. HCADT (2042)	7151	STOPPING SIGHT DISTANCE BASED ON:	
SOIL FACTOR	N/A	HEIGHT OF EYE	3.5'
		HEIGHT OF OBJECT	2.0'
		DESIGN SPEED NOT ACHIEVED AT:	
		STA. _____ TO STA. _____	MPH _____
		TON DESIGN	

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: AARON P. ANDERSON
SIGNATURE: *[Signature]*
DATE: 03-11-2022 LICENSE NO. 58657

DRAWN BY DLD DATE 02/02/2022
DESIGN BY DLD DATE 02/02/2022
CHECKED BY CSO DATE 2/25/2022



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE AID PROJECT 002-652-011

TITLE SHEET

Sheet 1 of 18 Sheets

STATEMENT OF ESTIMATED QUANTITIES					
Notes	Item Number	Code	ITEM DESCRIPTION	Unit	TOTAL PROJECT QUANTITIES ESTIMATED
	2021.501	00010	MOBILIZATION	LUMP SUM	1
	2104.503	00205	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	61
	2104.504	00120	REMOVE BITUMINOUS PAVEMENT	SQ YD	1827
	2106.507	00010	EXCAVATION - COMMON (P)	CU YD	62
	2130.523	00010	WATER	M GALLON	14
7, 8	2301.504	00081	CONCRETE PAVEMENT 8" HIGH-EARLY	SQ YD	1827
	2301.602	00020	1.0" DOWEL BAR	EACH	575
	2301.602	00071	DRILL AND GROUT REINF BAR (EPOXY COATED)	EACH	415
	2360.509	20100	TYPE SP 12.5 BITUMINOUS MIXTURE FOR PATCHING	TON	10
1	2506.602	06040	GROUT CATCH BASIN OR MANHOLE	EACH	3
2, 3	2563.601	00010	TRAFFIC CONTROL	LUMP SUM	1
4	2563.613	01100	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20
5	2573.502	00110	STORM DRAIN INLET PROTECTION	EACH	3
6	2582.503	30104	4" SOLID LINE MULTI-COMPONENT	LIN FT	700
6	2582.503	30204	4" BROKEN LINE MULTI-COMPONENT	LIN FT	70


CONSTRUCTION NOTES	
1	ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS, STRUCTURES AND CASTINGS AS DIRECTED BY PLAN AND ENGINEER. SEE DRAINAGE TAB.
2	CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNAGE WHENEVER EXISTING SIGNAGE IS REMOVED. TEMPORARY SIGNAGE SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
3	ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO, AND BE INSTALLED IN ACCORDANCE WITH, THE MOST CURRENT REVISION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". "DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE, AND STOP HERE ON RED SIGNS SHALL BE INPLACE WHENEVER PERMANENT PAVEMENT MARKINGS ARE NOT PRESENT.
4	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
5	ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
6	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING. CANNOT BE INSTALLED SOONER THAN 48 HOURS.
7	SEE DETAIL NOTES PAGE 10
8	FOR EARLY USE OF THE PAVEMENT AS REQUIRED BY THE ENGINEER, CONTRACT A SECTION OF PAVEMENT OF EARLY STRENGTH CONCRETE IN ACCORDANCE WITH TABLE 2301.2-4 FOR ROADWAY PAVEMENT AS SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER. TAKE PRECAUTIONS TO SATISFACTORILY FINISH, CURE, AND PROTECT EARLY STRENGTH CONCRETE PAVEMENTS

STORM DRAINAGE TAB					
NUMBER	TYPE	ACTION	NEW CASTING TYPE	GROUT CATCH BASIN OR MANHOLE	NOTES
				EACH	
100	CB	GROUT/ CLEAN		1	Clean
101	CB	GROUT		1	
108	CB	GROUT		1	
TOTALS				3	

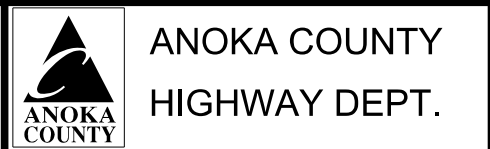
BASIS OF PLANNED QUANTITIES		
2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS
2575	SEED MIXTURE 25-121	61 LBS./ ACRE
2574	FERTILIZER TYPE 3	350 LBS./ ACRE
2575	HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS./ ACRE

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT	
MNDOT STANDARD PLATES	
1103L	TYPICAL DOWEL BAR ASSEMBLY (2 SHEETS)
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)

NO	DATE	BY	CKD	APPR	REVISION	04/29/2022	11:25:55 AM
NAME: P:\22-01-00\CSAH_52_(35 BRIDGE-RAMPS)\Base\Proposed\CP1.dgn							

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: AARON P. ANDERSON
 SIGNATURE: 
 DATE: 03-11-2022 LICENSE NO. 58657

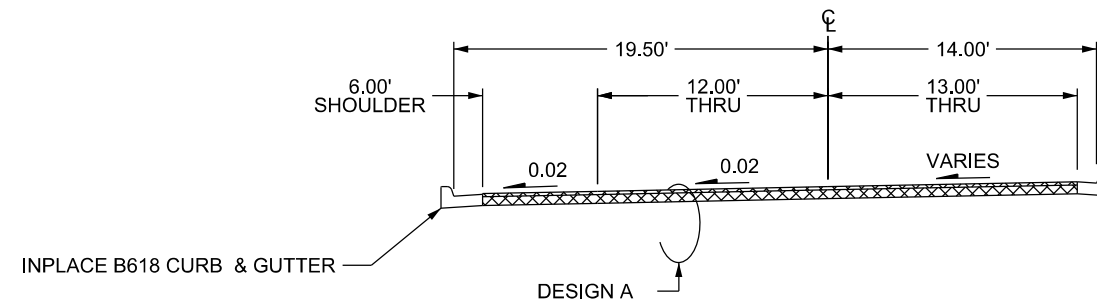
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 DESIGN BY: DLD DATE: 02/02/2022
 CHECKED BY: CSO DATE: 02/25/2022



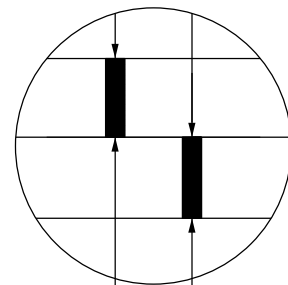
STATE AID PROJECT 002-652-011

CSAH 52 - 95TH AVE. EXISTING / PROPOSED SECTION

110+74.00 - 115+93.00



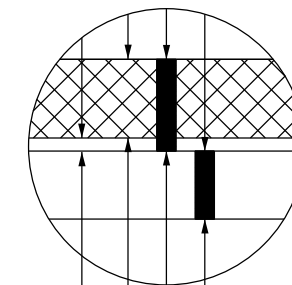
EXISTING SECTION



6" EXISTING BITUMINOUS PAVEMENT

6" EXISTING AGGREGATE BASE

DESIGN A REMOVE SECTION




2.0" COMMON EXCVATION

6.0" REMOVE BITUMINOUS PAVEMENT

8.0" CONCRETE (3HE52)

INPLACE AGGREGATE BASE

NO	DATE	BY	CKD	APPR	REVISION	
	04/14/2022					2:33:36 PM
NAME: P:\22-01-00\CSAH_52_(35 BRIDGE-RAMPS)\Base\Proposed\CP1.dgn						

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: AARON P. ANDERSON
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 DATE: 03-11-2022 LICENSE NO. 58657

DRAWN BY DLD DATE 02/02/2022
 DESIGN BY DLD DATE 02/02/2022
 CHECKED BY CSO DATE 2/25/2022



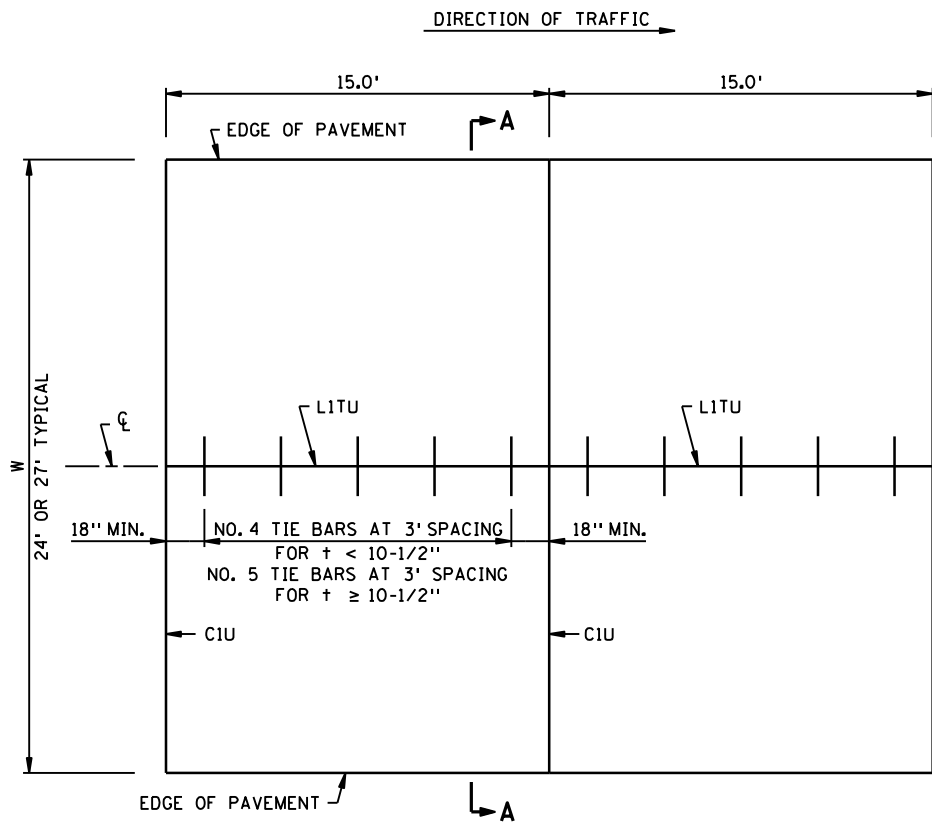
**ANOKA COUNTY
HIGHWAY DEPT.**

STATE AID PROJECT 002-652-011

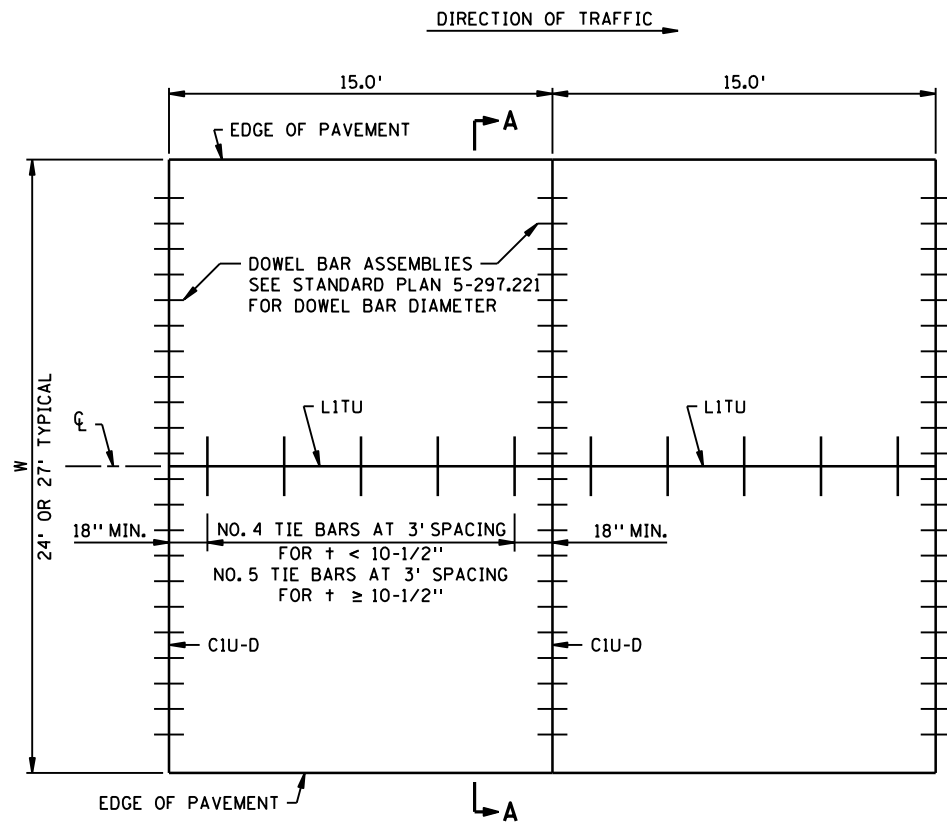
TYPICAL SECTIONS
 Sheet 3 of 18 Sheets

PLOTTED/REVISED: 04/14/2022

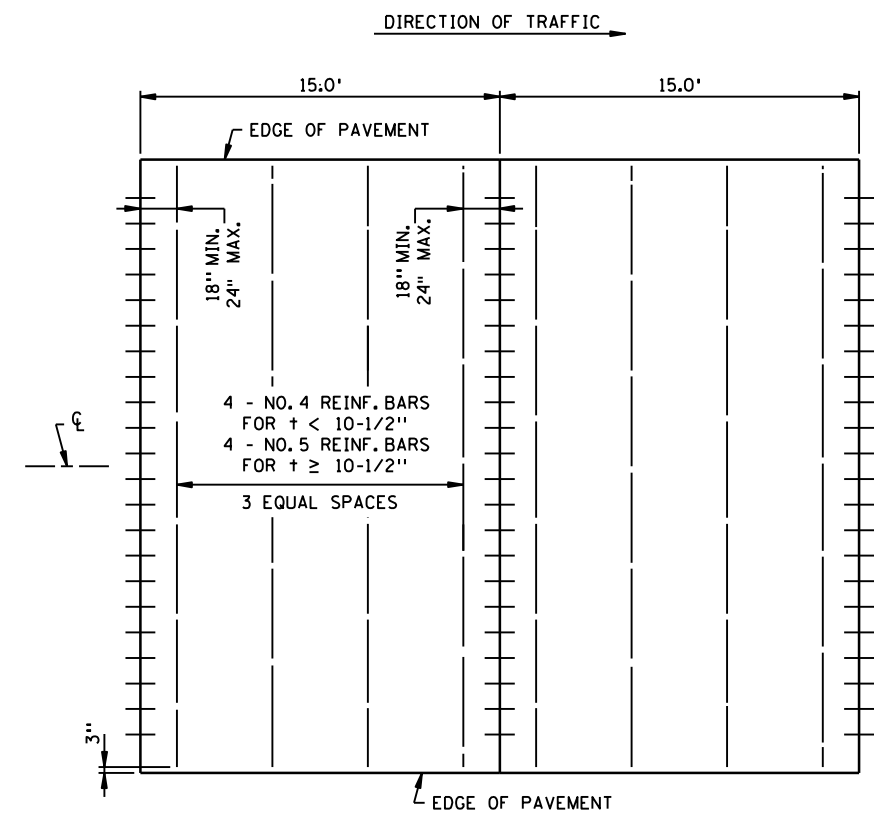
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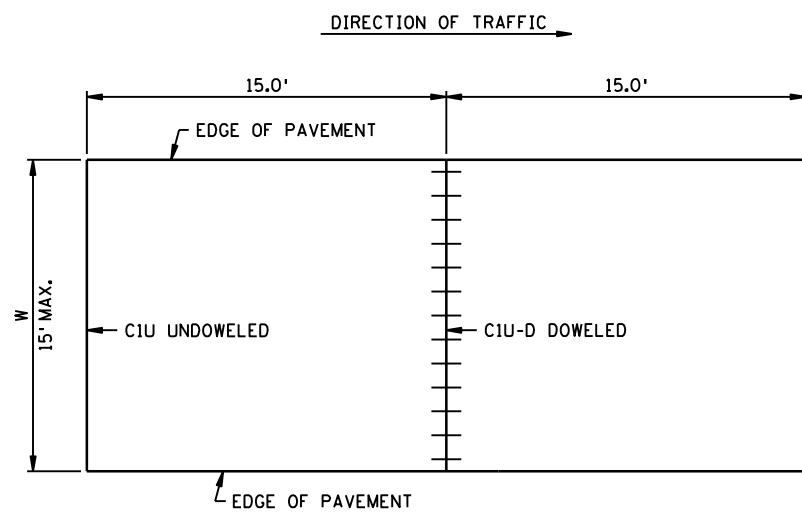
MAINLINE PAVEMENT
UNDOWELED



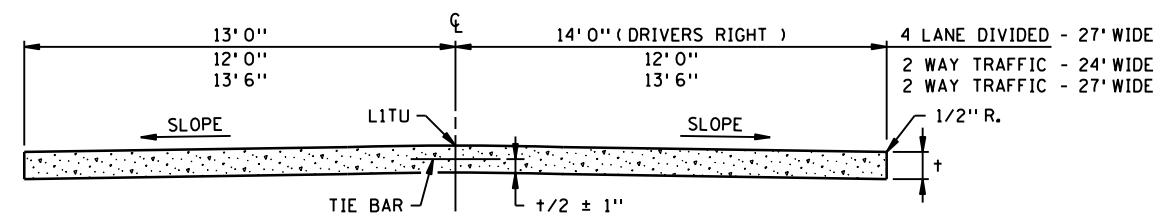
MAINLINE PAVEMENT
DOWELED



PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH
UNDOWELED OR DOWELED



SECTION A-A

GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, t .

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

PANEL REINFORCEMENT:
PLACE IN PANELS WHERE PAVEMENT WIDTH EXCEEDS 15.0' WITHOUT A LONGITUDINAL JOINT. PLACEMENT DEPTH SHALL BE PLANNED $t/2 \pm 1"$. IT IS PREFERRED TO ADD A LONGITUDINAL JOINT RATHER THAN PAVE GREATER THAN 15' IN WIDTH.

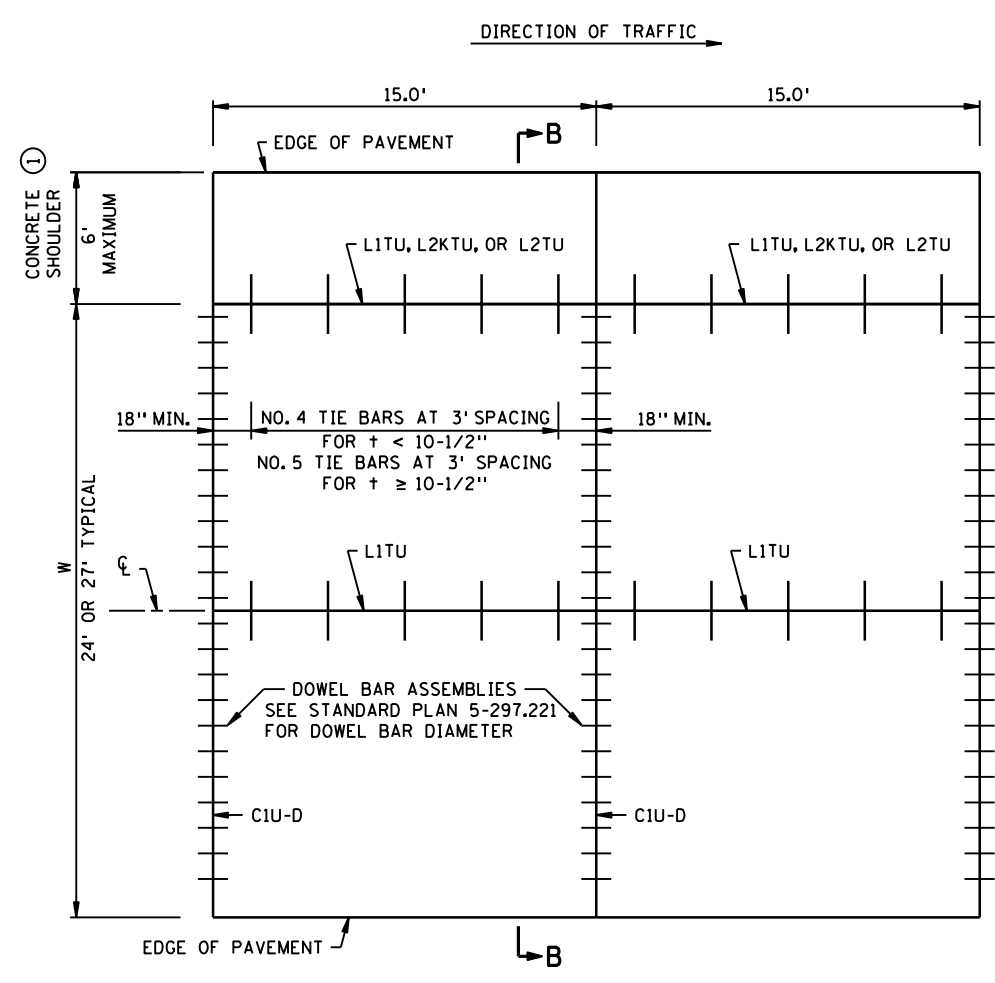
REVISION:
APPROVED: FEBRUARY 16, 2016
[Signature]
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

	STANDARD PLAN 5-297.217	1 OF 2
	APPROVED: 2-16-2016 REVISED: <i>[Signature]</i> STATE DESIGN ENGINEER	
STATE AID PROJ. NO. 002-652-011		SHEET NO. 4 OF 18 SHEETS

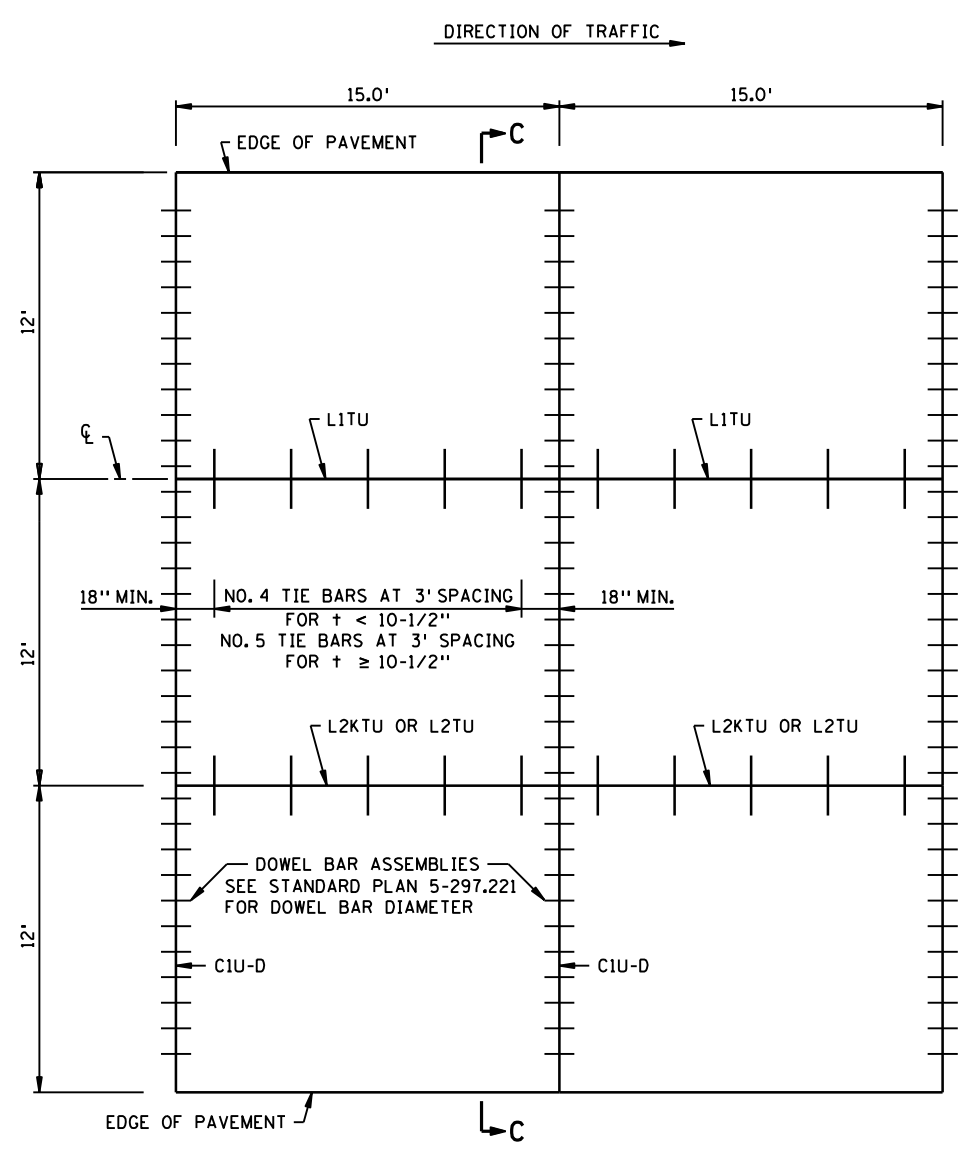
CONCRETE MAINLINE PAVEMENT
15.0 FT. PANEL LENGTH
RURAL

PLOTTED/REVISED: 04/14/2022

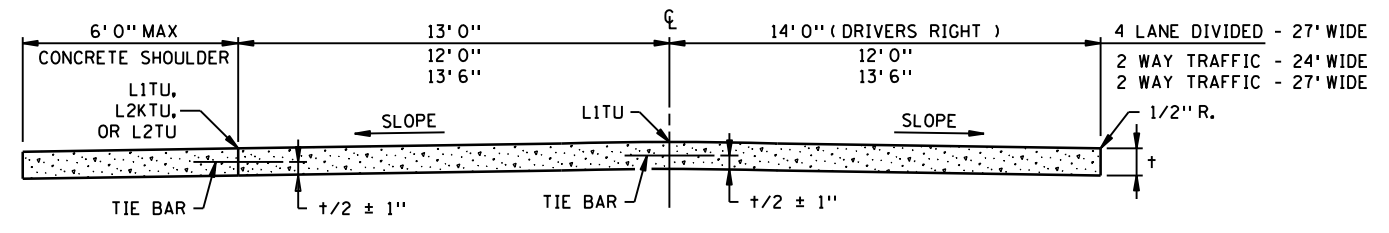
DISTRICT #: IPILOT NAME: \$\$\$@PLOT\$NAME\$\$\$
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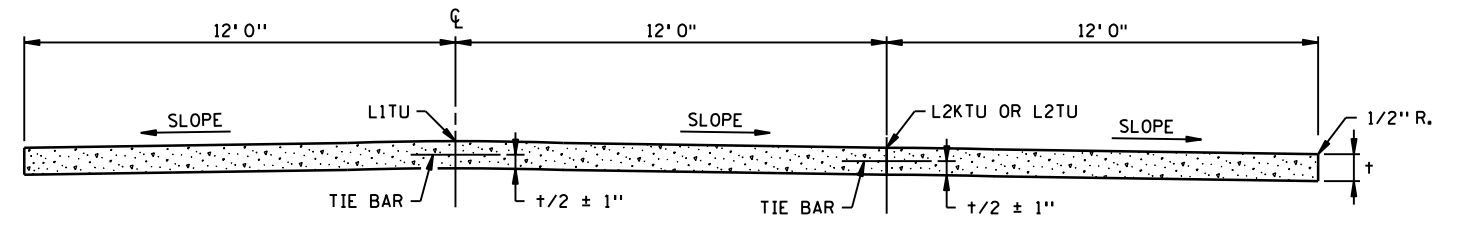
MAINLINE PAVEMENT WITH INSIDE CONCRETE SHOULDER
DOWELED



MAINLINE PAVEMENT URBAN
DOWELED



SECTION B-B



SECTION C-C

GENERAL NOTES:

- SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, t .
- DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.
- ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.
- FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

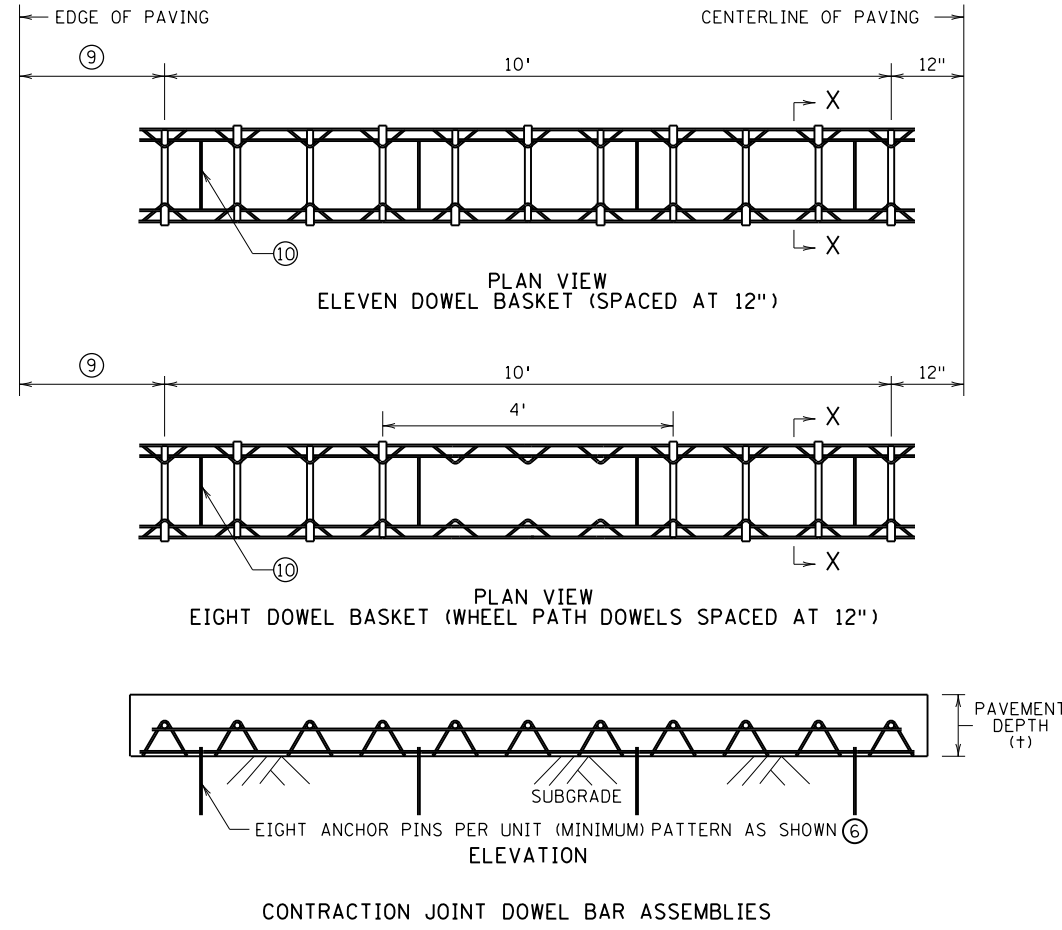
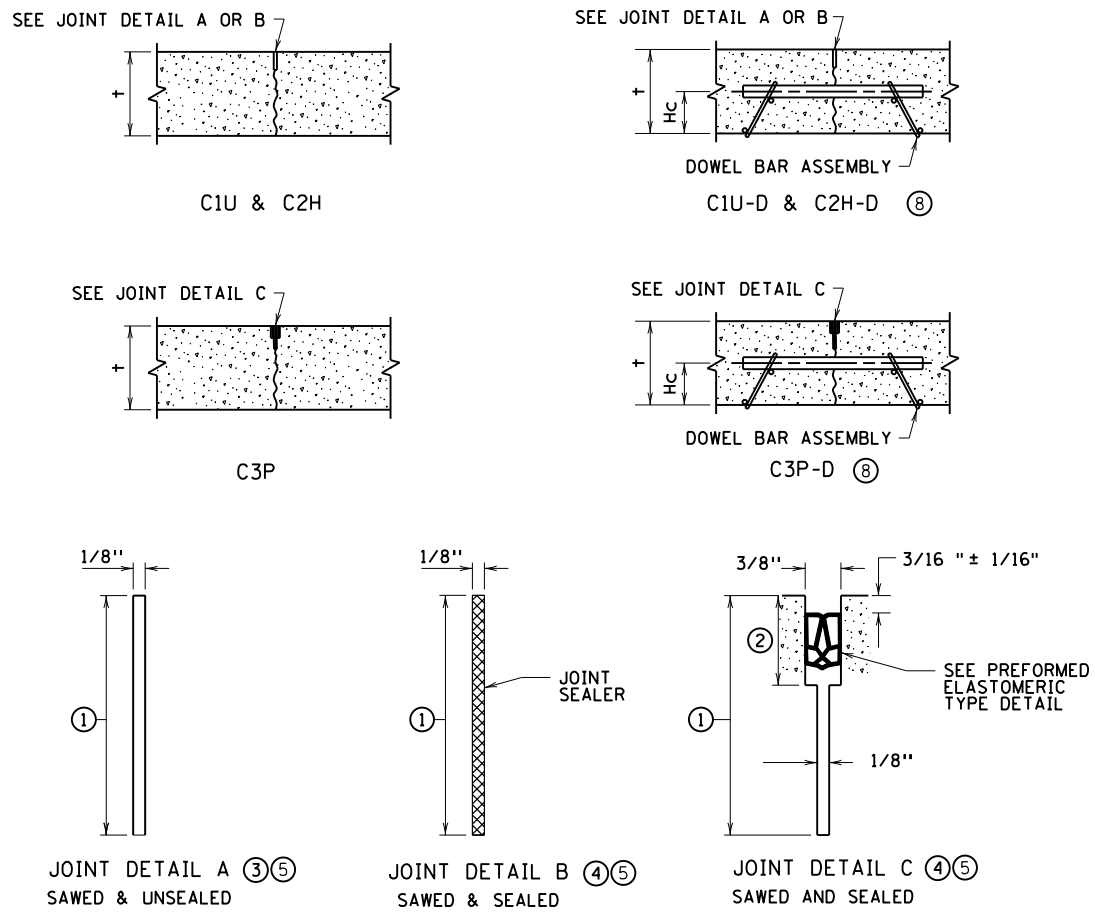
① CONTACT THE CONCRETE ENGINEER TO DISCUSS WHETHER TIE BARS AND SAWED JOINTS ARE NEEDED BASED ON CONCRETE SHOULDER WIDTH AND DEPTH.

REVISION:
APPROVED: FEBRUARY 16, 2016
<i>[Signature]</i>
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

	STANDARD PLAN 5-297.217	2 OF 2	CONCRETE MAINLINE PAVEMENT 15.0 FT. PANEL LENGTH URBAN OR CONCRETE SHOULDERS
		APPROVED: 2-16-2016 REVISED:	
DEPARTMENT OF TRANSPORTATION	STATE DESIGN ENGINEER	SHEET NO. 5 OF 18 SHEETS	

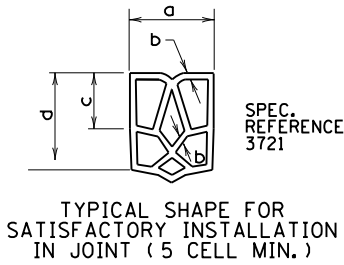
PLOTTED/REVISED: 04/14/2022

BRIDGE RAMPS\Bases\ProposedConcrete paving details.dgn



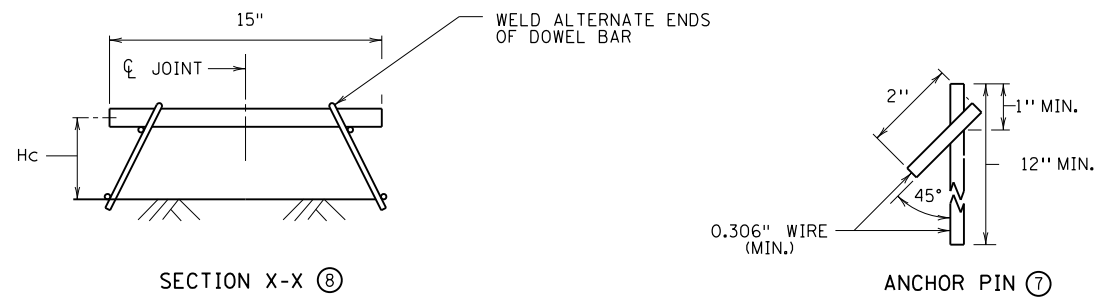
REQUIRED DIMENSIONS (2)

JOINT TYPE	TRANSVERSE NOMINAL SEALER SIZE
a	0.69" + 0.13" - 0.05"
b	0.08" ± 0.02"
c	0.25" MIN.
d	0.63" MIN.



DOWEL BAR TABLE

PAVEMENT DEPTH (IN.)	DOWEL BAR DIAMETER (IN.)	HC HEIGHT TO CENTER (IN.)
7 - 7 1/2	1	3
8 - 10	1 1/4	4
≥ 10 1/2	1 1/2	5



PREFORMED ELASTOMERIC TYPE DETAIL (2)

CONTRACTION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
C1U	C1U-D	A	UNSEALED	1/8"
C2H	C2H-D	B	3725	1/8"
C3P	C3P-D	C	3721	3/8"

LEGEND
C = CONTRACTION JOINT
NO. = JOINT REFERENCE
U = UNSEALED
H = HOT POURED
P = PREFORMED
-D = DOWEL BARS

EXAMPLE
C2H-D

NOTES:

- SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY. FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE/RAMP PAVEMENT.
- SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.
- (1) JOINT DEPTH AND TOLERANCE: +1/3 ± 1/4".
- (2) JOINT DEPTH 1/4" MORE THAN THE PREFORMED SEALER WHEN COMPRESSED TO FIT THE JOINT DESIGN WIDTH. "a" DIMENSION APPLIES AT ANY POINT THROUGHOUT "c" DEPTH, SHARP CORNERS NOT PERMITTED. PROVIDE CORNERS WITH SUITABLE FILLET.
- (3) CLEAN JOINT FACES WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.
- (4) CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING, WHEN SEALING IS REQUIRED.
- (5) JOINT WIDTH TOLERANCE IS +1/16" TO -1/32".
- (6) EVENLY SPACE A MINIMUM OF (8) ANCHOR PINS (4 PER SIDE) PER DOWEL ASSEMBLY. PROVIDE QUALITY CONTROL PLAN FOR ANCHORING THE DOWEL BAR ASSEMBLIES TO THE ENGINEER FOR ACCEPTANCE PER SPEC. 2301.
- (7) ANCHOR PIN REQUIREMENTS FOR CONCRETE PAVEMENT ON GRADE CONSTRUCTION, FOR CONCRETE OVERLAYS, ANCHOR PIN REQUIREMENT AS APPROVED BY THE ENGINEER.
- (8) TOLERANCES:
- PLACE DOWEL BARS PARALLEL TO THE SUBSTRATE SURFACE ±1/8" IN 15".
- PLACE DOWEL BARS PARALLEL TO THE CENTERLINE OF THE PAVEMENT ±1/4" IN 15".
- SAW CONTRACTION JOINTS PERPENDICULAR TO THE CENTERLINE OF THE PAVEMENT AND CENTERED ON THE DOWEL BAR ±3".
- HEIGHT (hc) TO CENTER OF DOWEL BAR ± 1/2".
- (9) DISTANCE TO EDGE OF PAVEMENT FROM OUTSIDE DOWEL:
- 3' 0" FOR 14' 0" LANE.
- 2' 6" FOR 13' 6" LANE.
- 2' 0" FOR 13' 0" LANE.
- 1' 0" FOR 12' 0" LANE.
- (10) CONTRACTOR OPTION TO CUT AND BEND SPACER WIRES AFTER STAKING.

REVISION:

APPROVED: 08-13-2020

GLENN ENGBLOM
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.221 1 OF 4

APPROVED: 08-13-2020
REVISED:

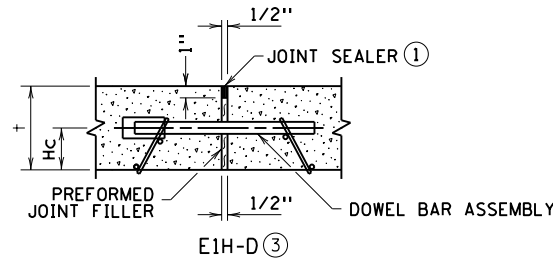
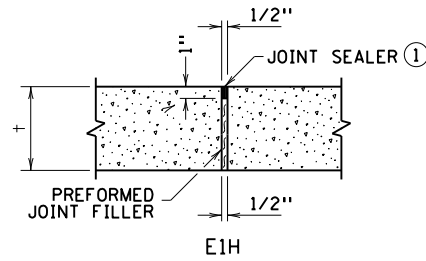
THOMAS STYRBECKI
STATE DESIGN ENGINEER

PAVEMENT JOINTS
CONTRACTION (DESIGN C)

STATE AID PROJ. NO. 002-652-011 SHEET NO. 6 OF 18 SHEETS

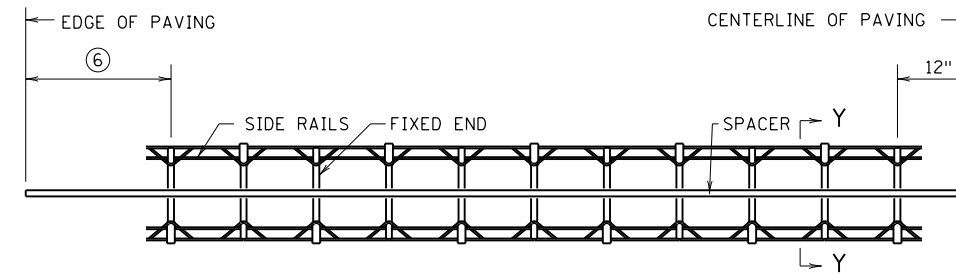
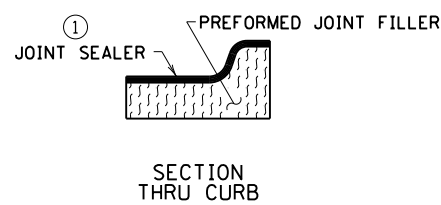
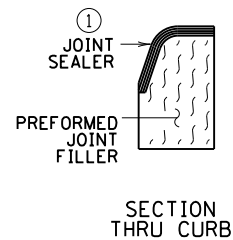
PLOTTED/REVISED: 04/14/2022

DISTRICT #: I/PLOT NAME: \$\$\$@PLOT\$NAME\$\$\$ PATH & FILENAME: F:\22-01-00CSAH_52_135 BRIDGE RAMPS\Bases\ProposedConcrete paving details.dgn

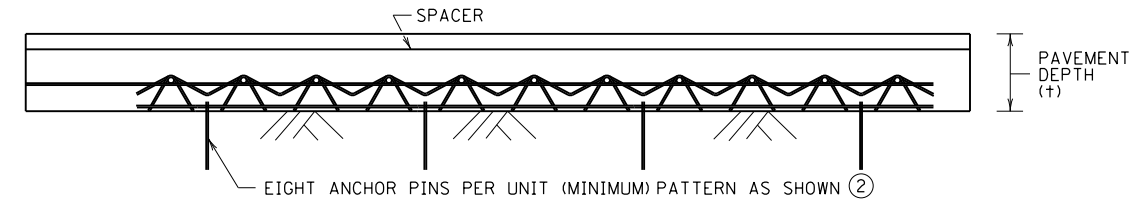


EXPANSION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE				
JOINT REFERENCE		PREFORMED JOINT FILLER SPEC.	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
E1H	E1H-D	3702	3725	1/2"

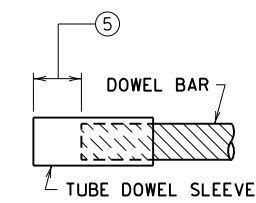
LEGEND	EXAMPLE
E = EXPANSION JOINT	E1H-D
NO. = JOINT REFERENCE	
H = HOT POURED	
-D = DOWEL BARS	



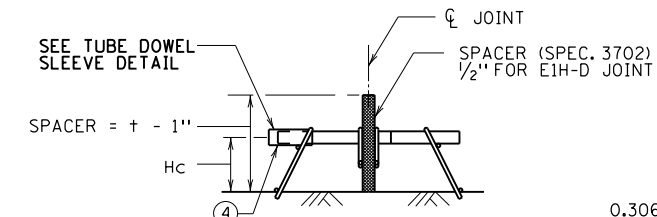
PLAN VIEW EXPANSION JOINT DOWEL ASSEMBLY



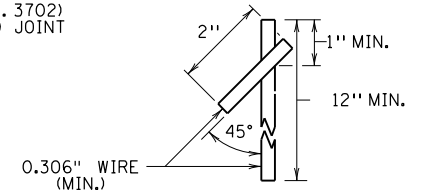
ELEVATION VIEW EXPANSION JOINT DOWEL BAR ASSEMBLY



TUBE DOWEL SLEEVE DETAIL



SECTION Y-Y



ANCHOR PIN

DOWEL BAR TABLE		
† PAVEMENT DEPTH (IN.)	DOWEL BAR DIAMETER (IN.)	HC HEIGHT TO CENTER (IN.)
7 - 7 1/2	1	3
8 - 10	1 1/4	4
≥ 10 1/2	1 1/2	5

NOTES:

- WHEN USING THE EXPANSION JOINT DOWEL ASSEMBLY, CONTACT THE CONCRETE OFFICE.
- SEE STANDARD PATE 1103 FOR DOWEL BAR ASSEMBLY.
- PROVIDE PREFORMED JOINT FILLER MATERIAL IN ACCORDANCE WITH SPEC. 3702.
- FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- ① JOINT SEALER SPEC. 3725. CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE.
- ② EVENLY SPACE A MINIMUM OF (8) ANCHOR PINS (4 PER SIDE) PER DOWEL ASSEMBLY. PROVIDE QUALITY CONTROL PLAN FOR ANCHORING THE DOWEL BAR ASSEMBLIES TO THE ENGINEER FOR ACCEPTANCE PER SPEC. 2301.
- ③ TOLERANCES:
 - PLACE DOWEL BARS PARALLEL TO THE SUBSTRATE SURFACE ± 1/8" IN 15".
 - PLACE DOWEL BARS PARALLEL TO THE CENTERLINE OF THE PAVEMENT ± 1/8" IN 15".
 - HEIGHT (HC) TO CENTER OF DOWEL BAR ± 1/2".
- ④ PLACE METAL INSTALLATION SHIELDS FOR EXPANSION JOINTS PARALLEL TO THE PAVEMENT SURFACE AND THE PAVEMENT CENTERLINE WITHIN A TOLERANCE OF 1/4" WITHIN THE LENGTH OF BAR.
- ⑤ SPACE FROM END OF DOWEL BAR TO END OF SLEEVE IS 1" MINIMUM.
- ⑥ DISTANCE TO EDGE OF PAVEMENT FROM OUTSIDE DOWEL:
 - 3' 0" FOR 14' 0" LANE.
 - 2' 6" FOR 13' 6" LANE.
 - 2' 0" FOR 13' 0" LANE.
 - 1' 0" FOR 12' 0" LANE.

REVISION:
 APPROVED: 08-13-2020

 GLENN ENGSTROM
 DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH



STANDARD PLAN 5-297.221 2 OF 4

 THOMAS STYRBICKI
 STATE DESIGN ENGINEER
 APPROVED: 08-13-2020
 REVISED:

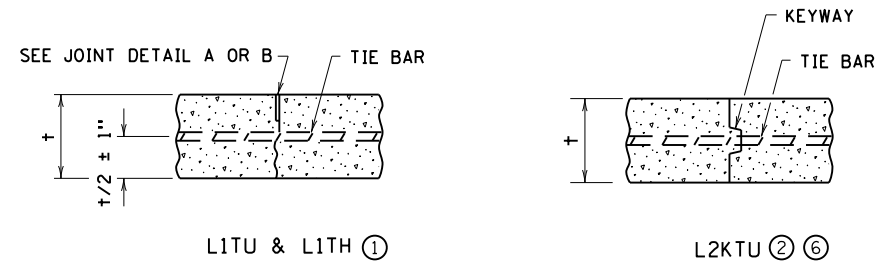
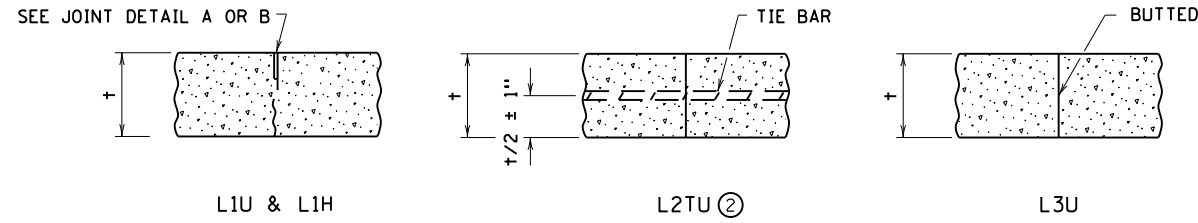
STATE AID PROJ. NO. 002-652-011

PAVEMENT JOINTS
EXPANSION (DESIGN E)

SHEET NO. 7 OF 18 SHEETS

PLOTTED/REVISED: 04/14/2022

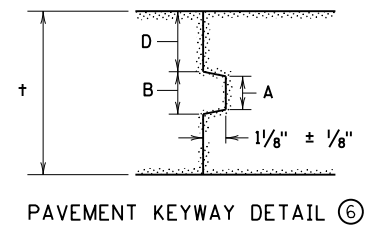
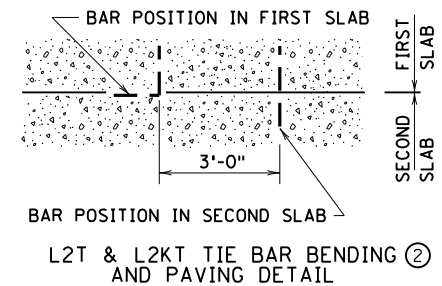
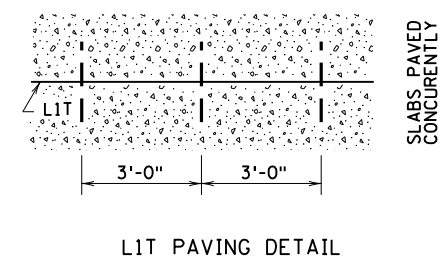
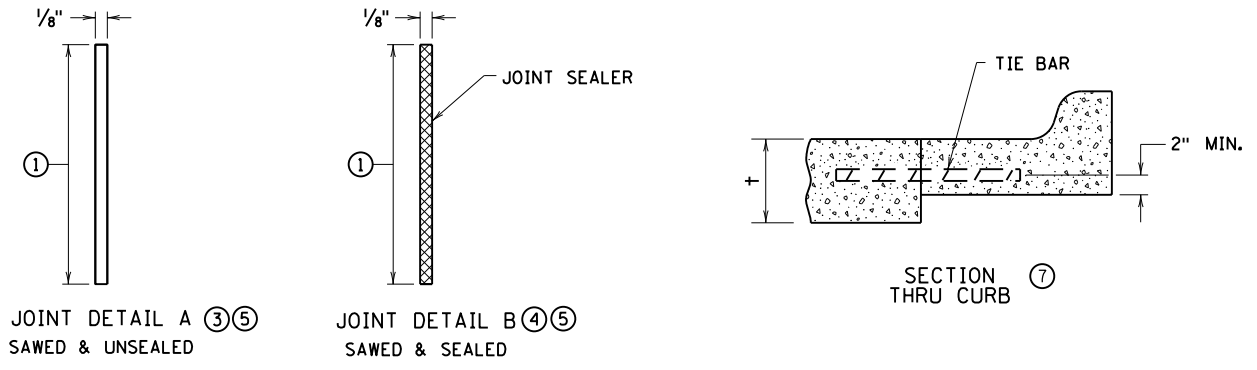
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LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE					
JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS			
L1U	L1TU		A	UNSEALED	1/8"
L1H	L1TH		B	3725	1/8"
	L2TU	L2KTU	NONE	UNSEALED	
L3U			NONE	UNSEALED	

LEGEND		EXAMPLE
L	= LONGITUDINAL JOINT	L2KTU
NO.	= JOINT REFERENCE	
1	= PAVED CONSTRUCTION JOINT	
2	= TIED CONSTRUCTION JOINT	
3	= BUTTED CONSTRUCTION JOINT	
K	= KEYWAY	
T	= TIE BARS	
U	= UNSEALED	
H	= HOT POURED	

TIE BAR TABLE			
PAVEMENT THICKNESS	TIE BAR SIZE	LENGTH	SPACING
< 10-1/2"	NO. 4	30"	3'
≥ 10-1/2"	NO. 5	36"	3'
ALL THICKNESS WHEN TYING TO CURB AND GUTTER	NO. 4	30"	3'



FIXED FORM KEYWAY TABLE ⑥			
± PAVEMENT THICKNESS	D (TOLERANCE ± 1/4")	A	B
< 7"	2-1/2"	1"	2"
7" TO 7-1/2"	3"	2"	2-1/2"
8" TO 10"	4"	2"	2-1/2"
≥ 10-1/2"	5"	2"	2-1/2"

SLIPFORM KEYWAY TABLE ⑥	
± PAVEMENT THICKNESS	D (TOLERANCE ± 1/4")
< 10"	NO KEYWAY
≥ 10"	5"

- NOTES:
- PROVIDE EPOXY COATED TIE BARS COMPLYING WITH SPEC. 3301.
 - FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 - SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.
 - SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.
 - LONGITUDINAL JOINTS SAWED WIDER THAN 1/8". CONTACT THE CONCRETE UNIT FOR SEALING RECOMMENDATIONS.
 - ① JOINT DEPTH AND TOLERANCE: $t/3 \pm 1/4"$.
 - ② BEND TIE BARS 90 DEGREES WHEN INSERTED IN THE L2 JOINTS, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.
 - ③ CLEAN JOINT FACES WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.
 - ④ CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING, WHEN SEALING IS REQUIRED.
 - ⑤ JOINT WIDTH TOLERANCE IS $+1/16"$ TO $-1/32"$.
 - ⑥ CONTRACTOR'S OPTION TO USE KEYWAY WHEN:
 - PLACING FIXED FORM CONSTRUCTION.
 - PLACING SLIPFORM CONSTRUCTION WHEN $t \ge 10"$.
 - USE OF KEYWAY FOR ANY OTHER APPLICATION REQUIRES APPROVAL BY THE ENGINEER. OTHER KEYWAY SHAPES MAY BE USED WITH THE APPROVAL OF THE CONCRETE ENGINEER.
 - ⑦ WHEN CURB AND GUTTER IS NOT CONSTRUCTED AT THE SAME DEPTH AS ADJACENT CONCRETE, PLACE TIE BAR MINIMUM OF 2" ABOVE THE CURB AND GUTTER GRADE.

REVISION:
 APPROVED: 08-13-2020

 GLENN ENGSTROM
 DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

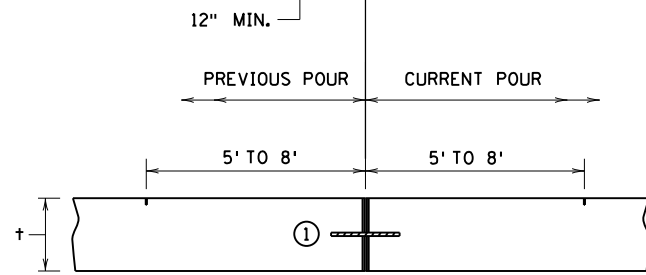
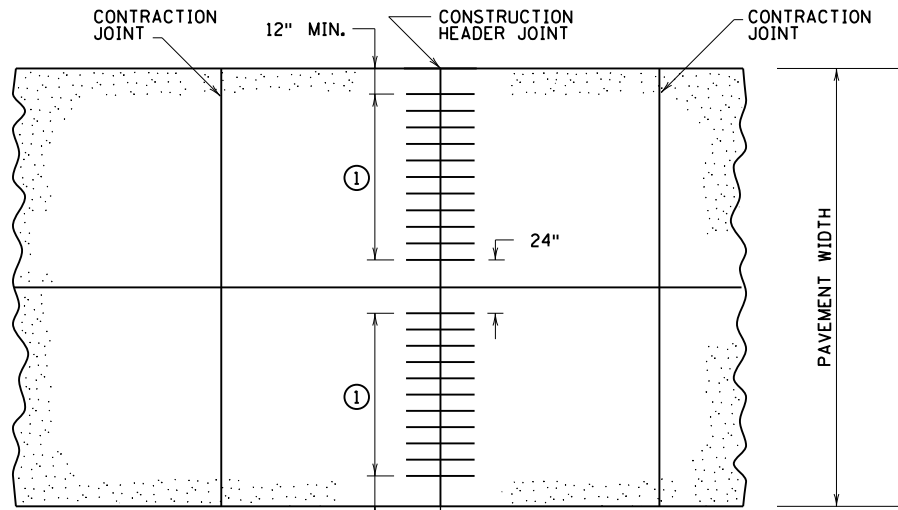
STANDARD PLAN 5-297.221 3 OF 4
 APPROVED: 08-13-2020
 REVISED:

 THOMAS STYRBICKI
 STATE DESIGN ENGINEER

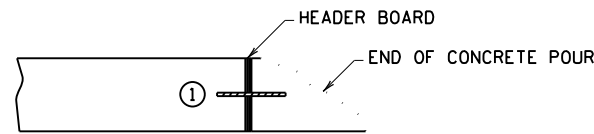
PAVEMENT JOINTS
 LONGITUDINAL (DESIGN L)
 STATE AID PROJ. NO. 002-652-011
 SHEET NO. 8 OF 18 SHEETS

PLOTTED/REVISED: 04/14/2022

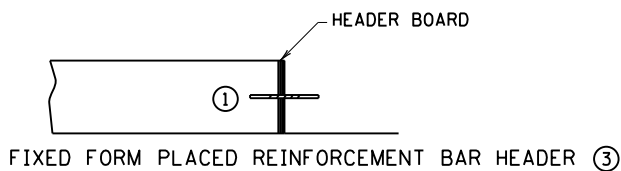
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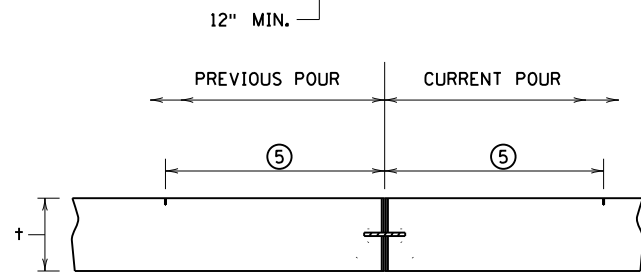
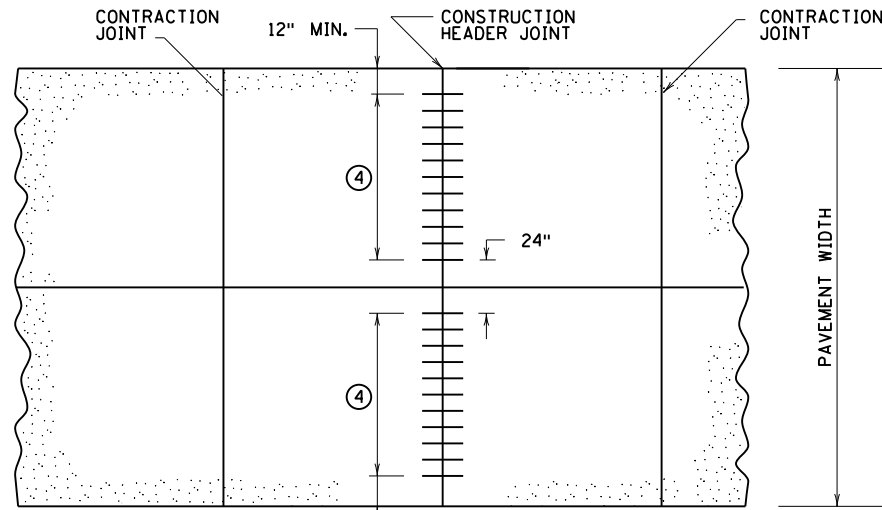
REINFORCEMENT BAR CONSTRUCTION HEADER



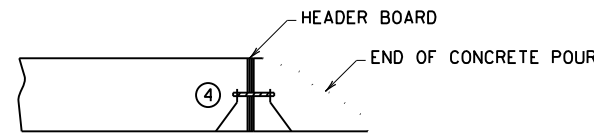
SLIPFORM PLACED REINFORCEMENT BAR HEADER (2)



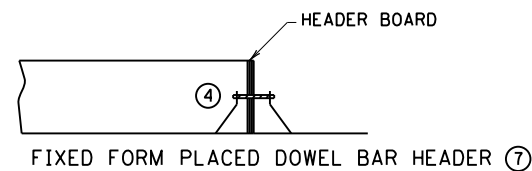
FIXED FORM PLACED REINFORCEMENT BAR HEADER (3)



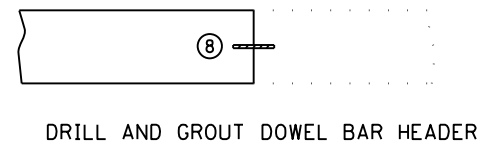
DOWEL BAR CONSTRUCTION HEADER



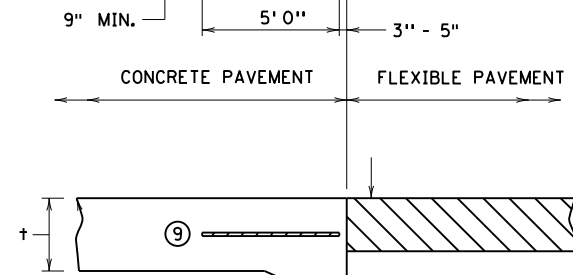
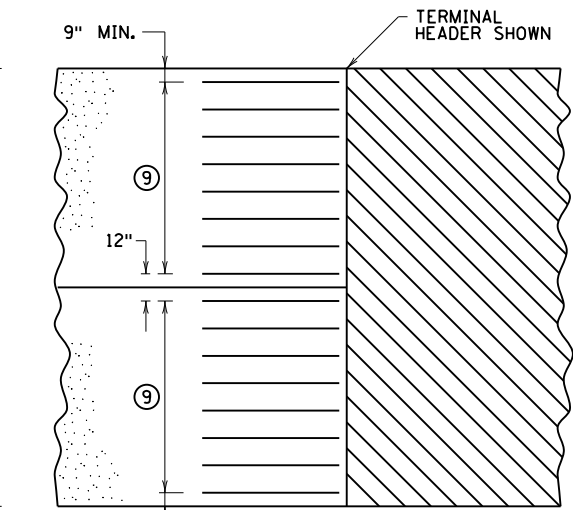
SLIPFORM PLACED DOWEL BAR HEADER (6)



FIXED FORM PLACED DOWEL BAR HEADER (7)



DRILL AND GROUT DOWEL BAR HEADER



PERMANENT HEADER (10)

NOTES:

- (1) PROVIDE EPOXY COATED REINFORCEMENT BARS IN ACCORDANCE WITH SPEC. 3301.
 - WHEN $t < 10\frac{1}{2}$ " , NO. 4 BARS 30" LONG, SPREAD 12" ON CENTER AT DEPTH OF $t/2 \pm 1$ "
 - WHEN $t \geq 10\frac{1}{2}$ " , NO. 5 BARS 36" LONG, SPREAD 12" ON CENTER AT DEPTH OF $t/2 \pm 1$ "
- (2) PAVE PAST THE HEADER LOCATION. REMOVE END OF CONCRETE POUR. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION AND SLOTTED OR DRILLED FOR REINFORCEMENT BARS, INSERT THE REINFORCEMENT BARS AND FINISH THE CONCRETE BEHIND THE BOARD.
- (3) SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION AND SLOTTED OR DRILLED FOR REINFORCEMENT BARS, PLACE THE CONCRETE BEHIND THE BOARD AND INSERT THE REINFORCEMENT BARS. CONSOLIDATE AND FINISH THE CONCRETE BEHIND THE HEADER BOARD.
- (4) PROVIDE DOWEL BARS IN ACCORDANCE WITH SPEC. 3302 AND THE CONTRACT.
- (5) DISTANCE EQUAL TO OR LESS THAN THE DESIGNED CONTRACTION JOINT SPACING IN ACCORDANCE WITH THE CONTRACT.
- (6) PLACE DOWEL BAR BASKET AT DESIRED HEADER LOCATION. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION ABOVE AND BELOW THE DOWELS. PAVE PAST THE HEADER LOCATION AND FINISH CONCRETE BEHIND THE HEADER BOARD. THOROUGHLY REMOVE ALL CONCRETE FROM THE EXPOSED DOWELS.
- (7) PLACE DOWEL BAR BASKET AT DESIRED HEADER LOCATION. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION ABOVE AND BELOW THE DOWELS. PLACE, CONSOLIDATE AND FINISH THE CONCRETE BEHIND THE HEADER BOARD.
- (8) DRILL AND GROUT 18" LONG DOWEL BARS, SPACED 12" ON CENTER AT A DEPTH OF $t/2 \pm 1$ " WITH A MNDOT APPROVED EPOXY OR NON-SHRINK GROUT IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- (9) PROVIDE NO. 7 REINFORCEMENT BARS, 5' LONG, SPACED 18" ON CENTER AT DEPTH OF $t/2 \pm 1$ ".
- (10) USE THE TERMINAL HEADER WHEN LONG SECTIONS OF CONCRETE ABUT BITUMINOUS. DO NOT USE A TERMINAL HEADER ON SHORT CONCRETE SECTIONS (LESS THAN 200 FEET) ABUTTING BITUMINOUS (E.G. SIDE STREETS, ETC.). CONTACT THE CONCRETE UNIT WHEN FUTURE CONCRETE IS BEING CONSTRUCTED ADJACENT TO AN EXISTING TERMINAL HEADER.

REVISION:
 APPROVED: 08-13-2020

 GLENN ENGSTROM
 DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH



STANDARD PLAN 5-297.221

4 OF 4

THOMAS STYRBICKI
 STATE DESIGN ENGINEER

APPROVED: 08-13-2020
 REVISED:

STATE AID PROJ. NO. 002-652-011

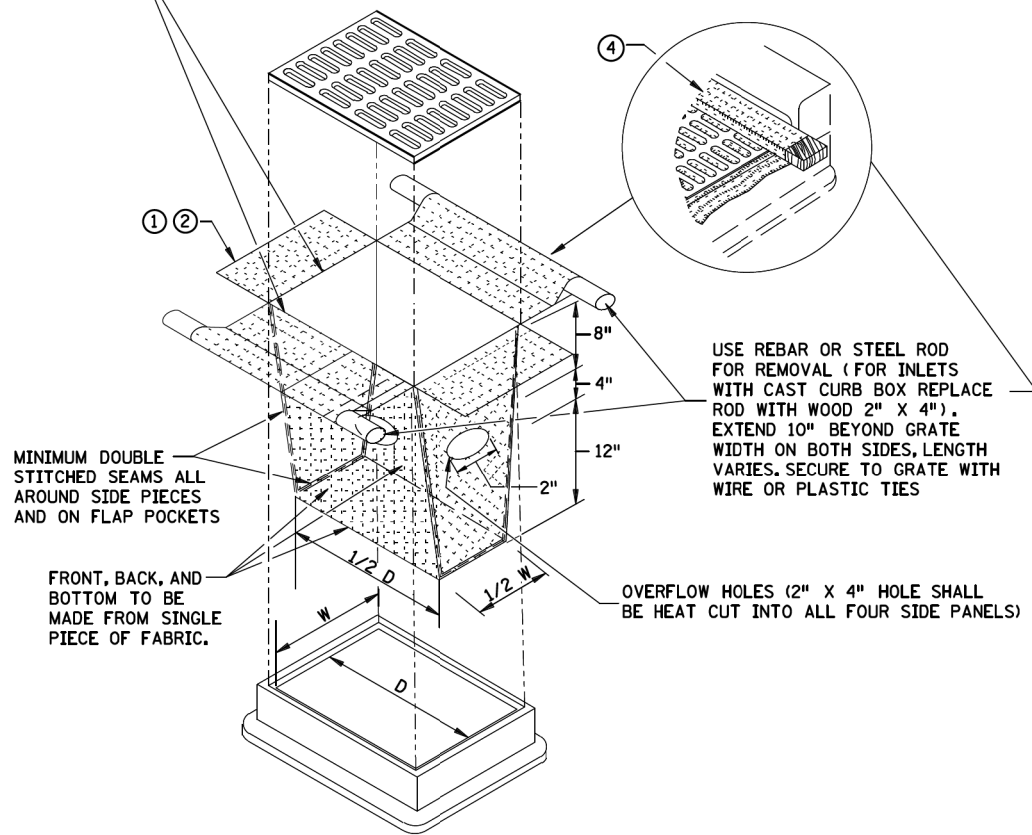
PAVEMENT JOINTS
 CONSTRUCTION AND TERMINAL HEADERS

SHEET NO. 9 OF 18 SHEETS

PLOTTED/REVISED: 4-APR-2018

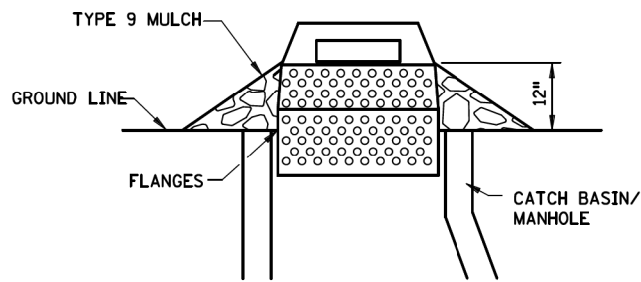
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INLET SPECIFICATIONS AS PER THE PLAN
 DIMENSION LENGTH AND WIDTH TO MATCH
 FLAP POCKET



FILTER BAG INSERT ③

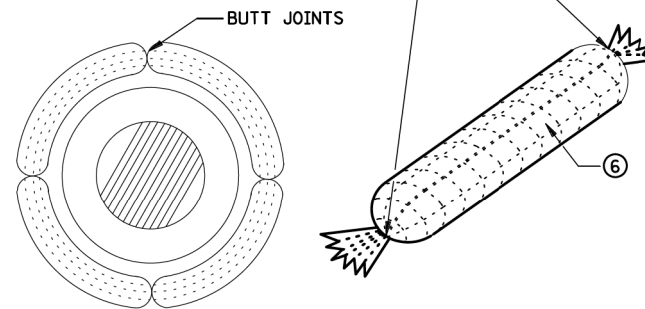
(CAN BE INSTALLED IN ANY INLET TYPE
 WITH OR WITHOUT A CURB BOX)



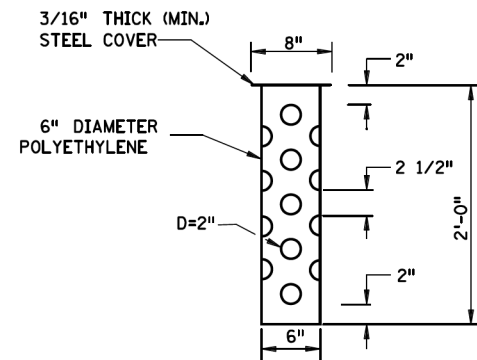
SEDIMENT CONTROL INLET HAT

NOTE:
 THE SEDIMENT CONTROL BARRIER SHALL BE A METAL
 OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE
 THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW
 FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING,
 FLANGES AND A LID/COVER.

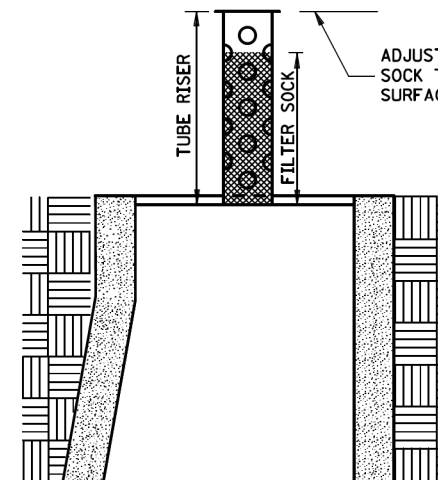
ENDS SECURELY CLOSED TO
 PREVENT LOSS OF OPEN GRADED
 AGGREGATE FILL. SECURED WITH
 50 PSI. ZIP TIE.



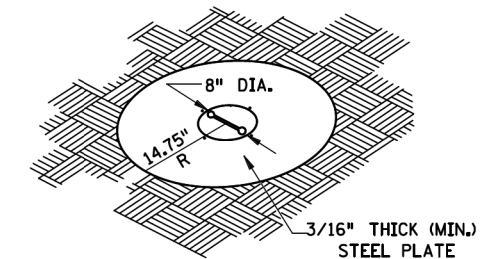
ROCK LOG/COMPOST LOG



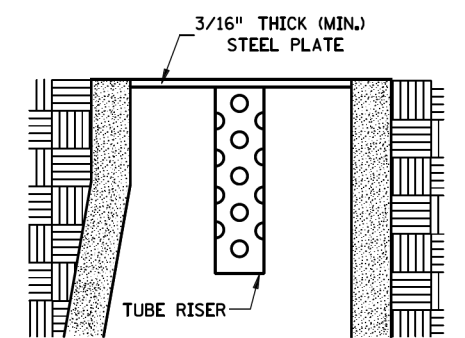
TUBE RISER



**SECTION
 (UP POSITION)**

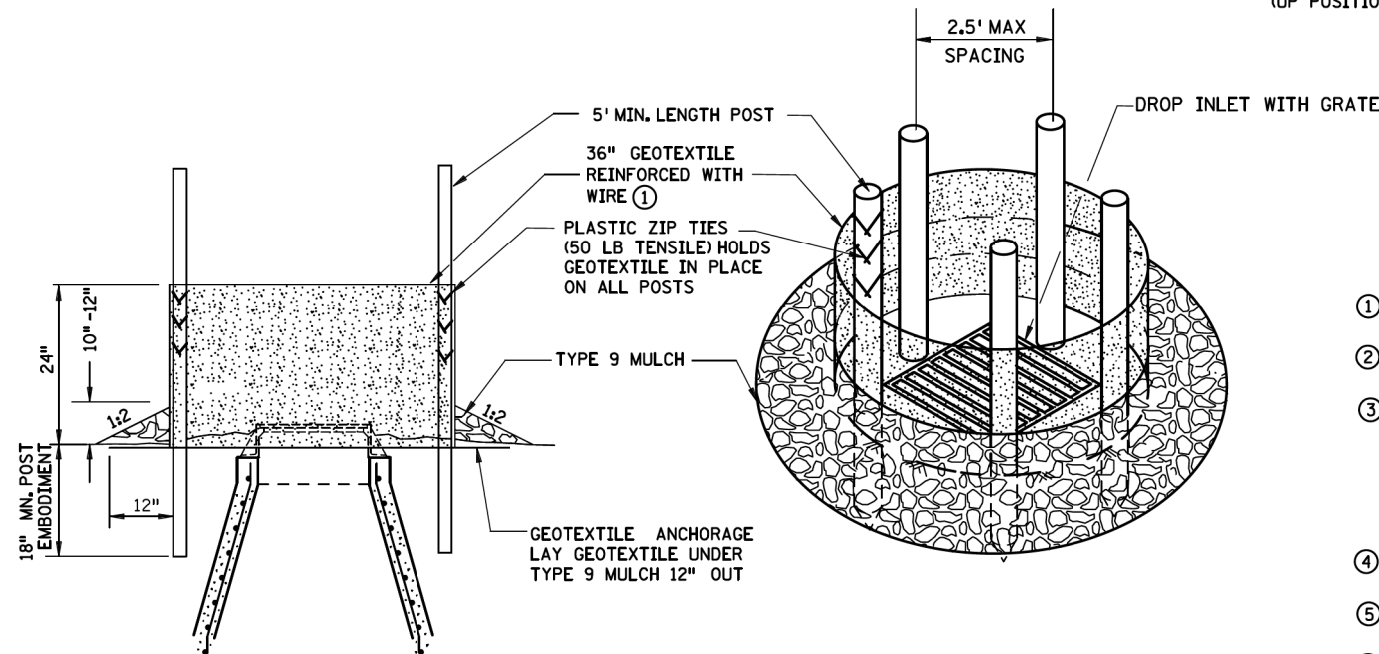


PERSPECTIVE VIEW



**SECTION
 (DOWN POSITION)**

POP-UP HEAD



SILT FENCE RING AND ROCK FILTER BERM
 USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

NOTES:

SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY
 THAT WOULD IMPEDE TRAFFIC FLOW.

- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ **INSTALLATION NOTES:**
 DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

REVISION:
APPROVED: 2-28-2017  CHIEF ENVIRONMENTAL OFFICER



STANDARD PLAN 5-297.405

4 OF 8

APPROVED: 2-28-2017
 REVISED:

 STATE DESIGN ENGINEER

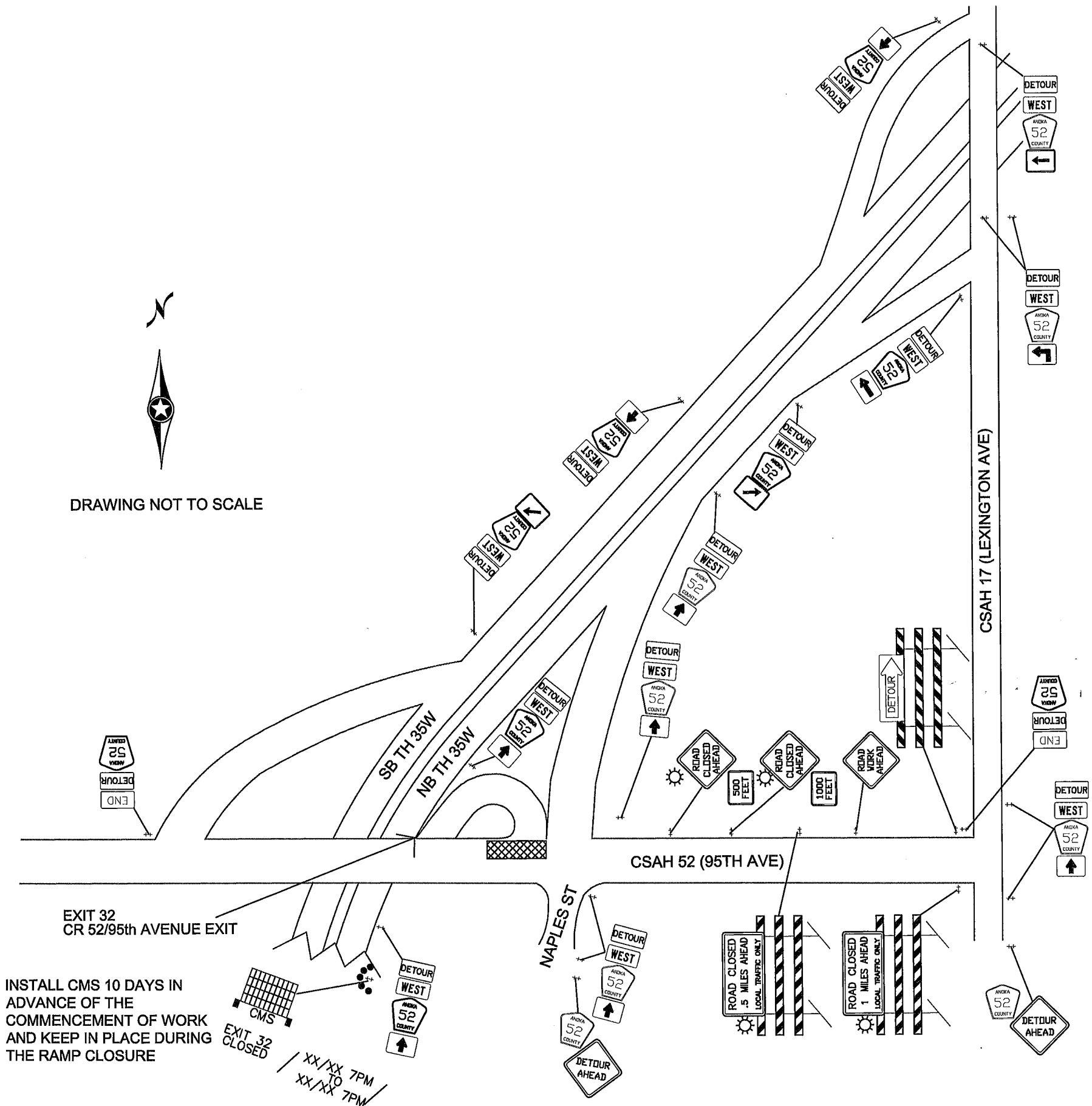
STATE AID PROJ. NO. 002-652-011

**TEMPORARY SEDIMENT CONTROL
 STORM DRAIN INLET PROTECTION**

SHEET NO. 10 OF 18 SHEETS



DRAWING NOT TO SCALE



INSTALL CMS 10 DAYS IN ADVANCE OF THE COMMENCEMENT OF WORK AND KEEP IN PLACE DURING THE RAMP CLOSURE

EXIT 32 CLOSED
XX/XX TO XX/XX 7PM

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH_52_(35 Bridge-Ramps)\Base\Traffic\Detour.dwg

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

PRINT NAME: SEAN R. THIEL DATE: 4/28/22
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 04/25/22
 DESIGN BY: DATE: _____
 CHECKED BY: SRT DATE: XX/XX/22



ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-652-011

DETOUR SIGNING
SHEET 12 OF 18 SHEETS

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W20-1	48" x 48"		1
M1-6M	24" x 24"		2
W20-2	48" x 48"		2
W20-3	48" x 48"		2
W20-100p	30" x 24"		1
W20-100p	30" x 24"		1
M4-10R	48" x 18"		1
R11-3A	60" x 30"		1
R11-3A	60" x 30"		1
TYPE III FLASHER	8 FEET		2

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
M4-8	24" x 12"		18
M3-4	24" x 12"		16
M4-6	24" x 12"		2
M1-6M	24" x 24"		18
M5-1	21" x 15"		2
M6-1	21" x 15"		2
M6-2	21" x 15"		2
M6-3	21" x 15"		10
REFLECTORIZED REBOUNDABLE DRUM			AS NEEDED (ESTIMATED 5)
CMS sign to be placed a minimum of ten days prior to actual commencement of road work. Signs to be removed when road work begins.			1 AT 10 DAYS EA

CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

	E	X	I	T	3	2	
	C	L	O	S	E	D	

X	X	/	X	X	7	P	M
			T	O			
X	X	/	X	X	7	P	M

CMS SIGN TO BE PLACED A MINIMUM OF TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS.

NOTES:

1. ALL BARRICADES SHALL BE PROPERLY WEIGHTED WITH SANDBAGS.
2. ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
3. ALL BARRICADES MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. INCLUDING THE FIELD MANUAL, DATED JANUARY 2018.
4. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE F MANUAL, DATED JANUARY 2018.
5. ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AS DETERMINED BY THE ENGINEER.
6. REFER TO TEMPORARY SIGNING PLAN FOR WORK ZONE TRAFFIC CONTROL PLAN.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\22-01-00\CSAH_52_(35 Bridge-Ramps)\BaselTraffic\Detour.dwg

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

PRINT NAME: SEAN R. THIEL DATE: 4/28/22

SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 04/25/22

DESIGN BY: DATE:

CHECKED BY: SRT DATE: 03/17/22

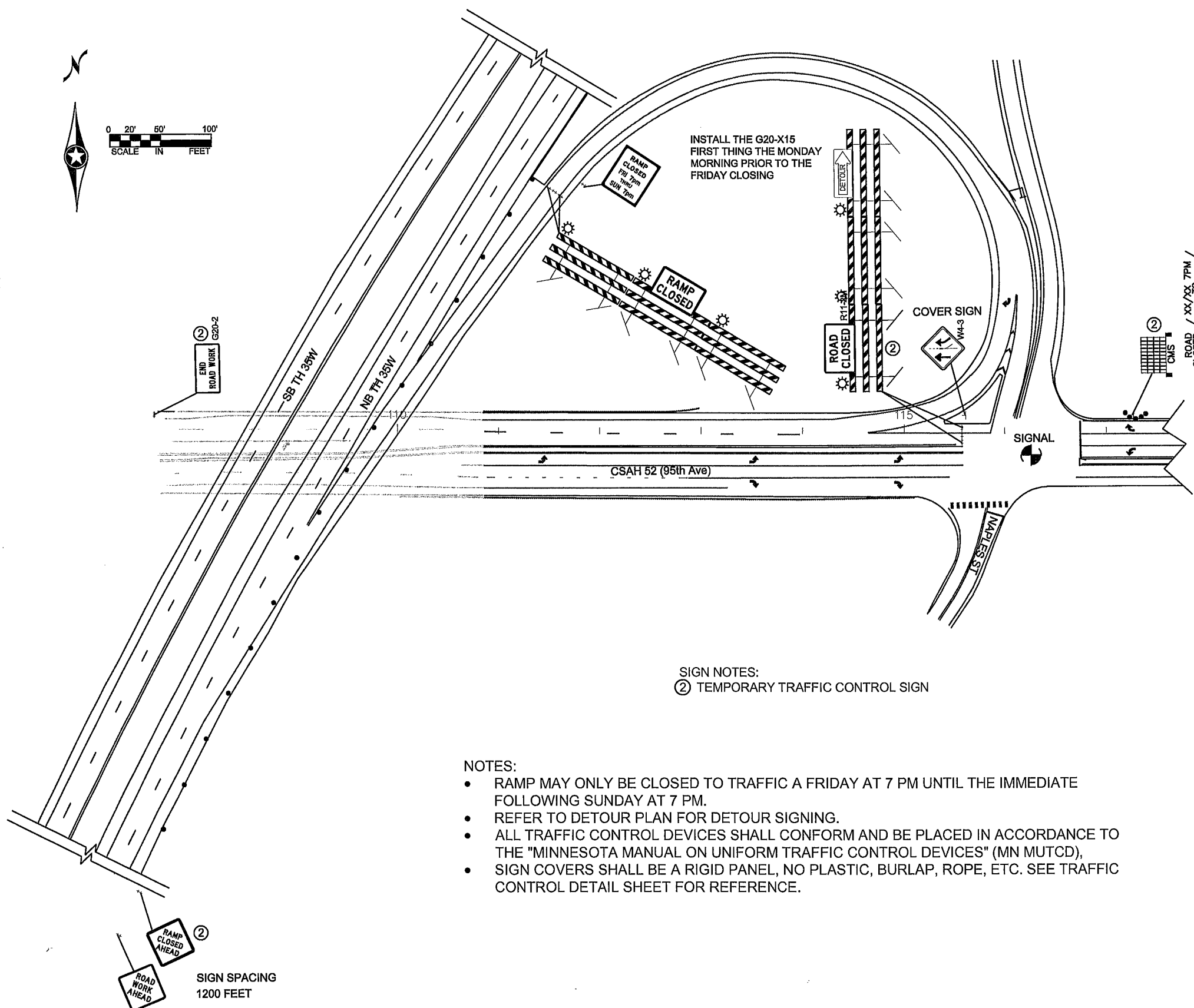
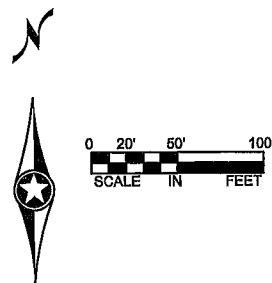


ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-652-011

DETOUR SIGNING
QUANTITIES

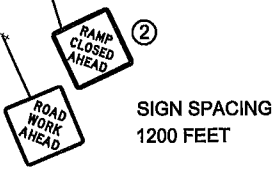
SHEET 13 OF 18 SHEETS



INSTALL CMS 10 DAYS IN ADVANCE OF THE COMMENCEMENT OF ROAD CLOSURE

SIGN NOTES:
 ② TEMPORARY TRAFFIC CONTROL SIGN

- NOTES:
- RAMP MAY ONLY BE CLOSED TO TRAFFIC A FRIDAY AT 7 PM UNTIL THE IMMEDIATE FOLLOWING SUNDAY AT 7 PM.
 - REFER TO DETOUR PLAN FOR DETOUR SIGNING.
 - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD),
 - SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC. SEE TRAFFIC CONTROL DETAIL SHEET FOR REFERENCE.



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_52_(35 Bridge-Ramps)\Base\Traffic\Closed Temp Sign Perm Stripe.dwg					

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

PRINT NAME: SEAN R. THIEL DATE: 4/28/22
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129





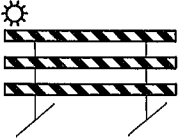
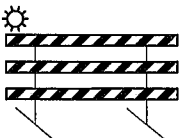
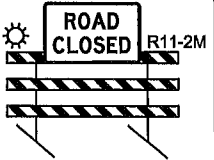
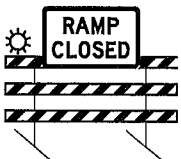
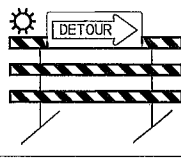


DRAWN BY: TMV DATE: 04/27/22
 DESIGN BY: _____ DATE: _____
 CHECKED BY: SRT DATE: 04/28/22



ANOKA COUNTY
 HIGHWAY DEPT.

SAP 002-652-011

TEMPORARY SIGNING
 SHEET 14 OF 18 SHEETS

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W20-1	48" x 48"		1
W20-5	48" x 48"		1
G20-X15	36" x 42"		1
G20-2a	36" x 42"		1
TYPE III FLASHER	8 FOOT		2
TYPE III FLASHER	8 FOOT		1
R11-2 TYPE III FLASHER	48" x 30" 8 FOOT		1
R11-2a TYPE III FLASHER	48" x 30" 8 FOOT		1
M4-10 TYPE III FLASHER	48" x 18" 8 FOOT		1
REFLECTORIZED REBOUNDBLE DRUM			AS NEEDED (ESTIMATED 21)
CMS sign to be placed a minimum of ten days prior to actual commencement of road work. Signs to be removed when road work begins.			1 AT 10 DAYS EA

CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

		R	O	A	D		
		C	L	O	S	E	D
		B	E	G	I	N	S

		D	A	T	E	7	P	M
				T	O			
		D	A	T	E	7	P	M

CMS SIGN TO BE PLACED A MINIMUM OF TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD CLOSURE. SIGNS TO BE REMOVED WHEN ROAD IS CLOSED

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH_52_(35 Bridge-Ramps)\Base\Traffic\Closed Temp Sign Perm Stripe.dwg

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

PRINT NAME: SEAN R. THIEL DATE: 4/28/22

SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 04/27/22

DESIGN BY: DATE:

CHECKED BY: SRT DATE: 04/28/22

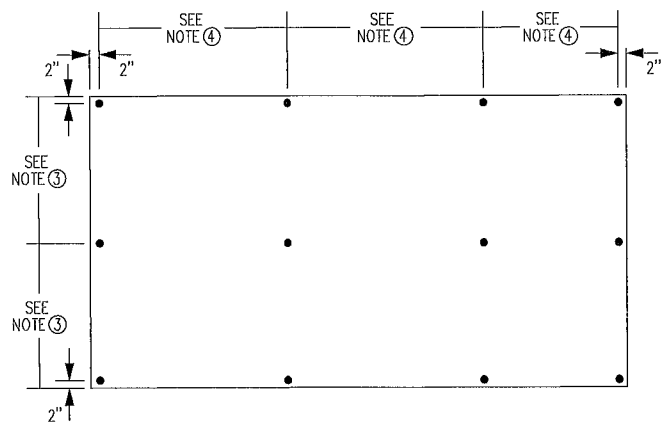
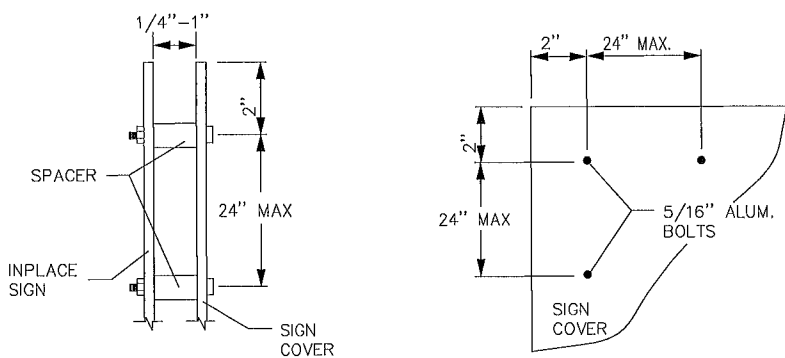
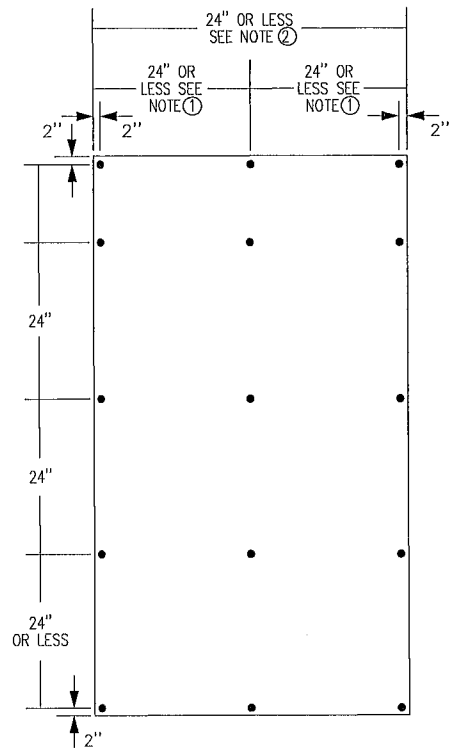


ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-652-011

TEMPORARY SIGNING
QUANTITIES

SHEET 15 OF 18 SHEETS



OVERLAY ASSEMBLY STEPS FOR COVERING COMPLETE OR PORTION OF EXTRUDED SIGN PANEL:

- 1) DRILL 1/4" HOLES ON THE SHEET ALUMINUM OVERLAYS IN ACCORDANCE WITH THE HOLE SPACING ON THE DIAGRAM. OUTSIDE HOLES SHALL NOT BE SPACED MORE THAN 24" APART.
- 2) ATTACH PLASTIC SPACER(S) (1/4" MIN THICKNESS, 3/8" I.D. AND 7/8" O.D.) WITH DOUBLE FACED TAPE, CENTERED BEHIND EACH DRILLED HOLE.
- 3) POSITION THE FIRST OVERLAY PANEL'S BOTTOM EDGE FLUSH WITH THE BOTTOM OF THE INPLACE EXTRUDED SIGN PANEL AND THE OVERLAY PANEL'S LOWER LEFT EDGE FLUSH WITH THE LOWER LEFT EDGE OF THE BOTTOM INPLACE EXTRUDED PANEL SECTION.
- 4) DRILL ALL OF THE OUTSIDE HOLES THROUGH THE INPLACE EXTRUDED SIGN PANEL AND ATTACH THE OVERLAY PANEL WITH SHEET METAL SCREWS.
- 5) DRILL THE INNER HOLES THROUGH THE INPLACE EXTRUDED SIGN PANEL AND ATTACH WITH SHEET METAL SCREWS AS SPECIFIED IN STEP 4 ABOVE.
- 6) ABUT THE NEXT OVERLAY PANEL TO THE FIRST ATTACHED OVERLAY PANEL AND PERFORM THE SAME WORK AS SPECIFIED IN STEPS 4 AND 5 ABOVE.
- 7) PLACE EACH ADDITIONAL OVERLAY PANEL AS SPECIFIED IN STEP 6 ABOVE.

NOTES FOR COVERING COMPLETE OR PORTION OF EXTRUDED SIGN PANEL:

- ① THE CENTER SHEET METAL SCREWS SHALL BE SPACED AT 1/2 OF THE PANELS WIDTH.
- ② IF THE SHEET ALUMINUM PANEL IS GREATER THAN 48" WIDE, THE SHEET METAL SCREWS SPACING SHALL BE NO GREATER THAN 24". IF THE SHEET ALUMINUM PANEL IS LESS THAN 24" WIDE, THERE SHALL BE NO INNER HOLES.
- ③ VERTICAL SPACING FOR THE MOUNTING HOLES IS 50% OF THE PANEL HEIGHT. IF THE PANEL IS LESS THAN 24" HIGH, THERE SHALL BE NO INNER HOLES.
- ④ HORIZONTAL SPACING FOR MOUNTING HOLES SHALL NOT BE LESS THAN 15" NOR MORE THAN 24".

GENERAL NOTES:

SIGN PANEL OVERLAYS SHALL BE MADE OF A RIGID MATERIAL (SHEET ALUMINUM, PLYWOOD, CORRUGATED PLASTIC, OR OTHER MATERIAL AS APPROVED BY THE ENGINEER), THE INSTALLATION SHALL ALLOW ADEQUATE AIR FLOW BETWEEN THE OVERLAY PANEL AND THE INPLACE SIGN PANEL BY PROVIDING A MINIMUM SPACING OF 1/4" (1" MAXIMUM).

IF SHEET METAL SCREWS ARE USED WITH CORRUGATED PLASTIC, FENDER WASHERS SHALL BE PLACED BETWEEN SCREWS AND PANEL OVERLAY.

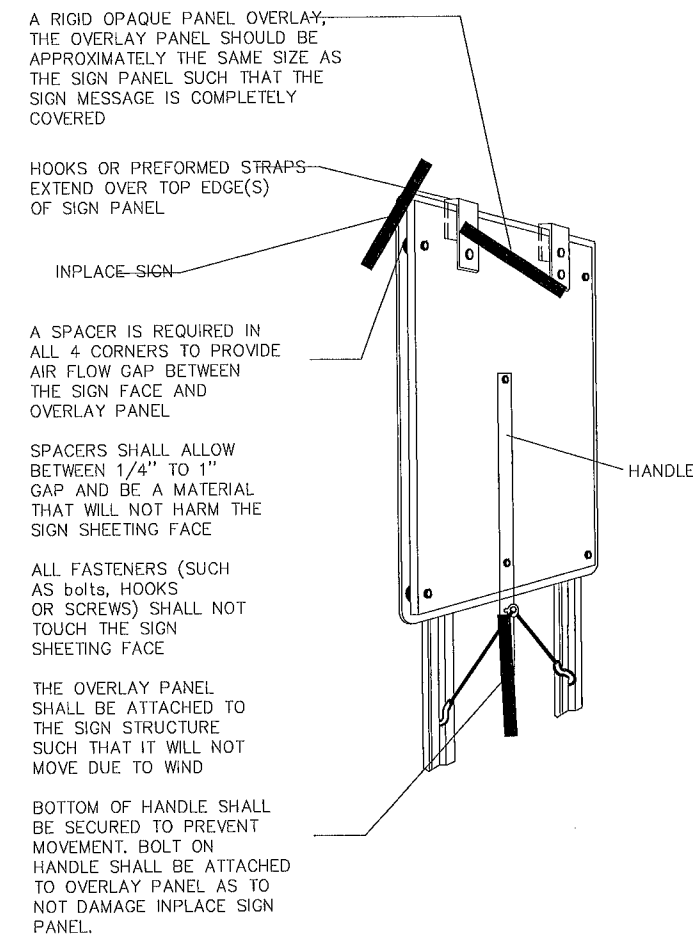
SPACERS SHALL BE A MATERIAL THAT WILL NOT HARM THE SIGN SHEETING FACE (SUCH AS PLASTIC OR RUBBER).

ALL COVERING MATERIAL, MOUNTING HARDWARE AND FASTENERS SHALL BE REMOVED WHEN PANEL OVERLAY IS REMOVED.

SIGN PANEL OVERLAYS USED TO COVER ALL OR PART OF A SIGN SHALL BE THE SAME COLOR AS THE BACKGROUND COLOR OF THE SIGN TO BE COVERED AND SHALL COVER ALL OF THE SIGN OR MESSAGE TO BE COVERED UNLESS SHOWN OTHERWISE IN THE PLAN.

TAPE SHALL NOT BE APPLIED TO THE SIGN SHEETING SURFACE. PRE-MASK OR APPLICATION TAPE SHALL BE REMOVED PRIOR TO EXPOSURE TO SUNLIGHT.

OVERLAY ASSEMBLY COVERING TYPE C OR D SIGN PANEL:



1/26/18

TYPICAL TEMPORARY SIGN COVERING DETAILS

STATE PROJ. NO. _____ SHEET NO. OF _____ SHEETS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH_52_(35 Bridge-Ramps)\Base\Traffic\Temp Sign.dwg

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

PRINT NAME: SEAN R. THIEL DATE: 4/14/22

SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 01/28/22

DESIGN BY: _____ DATE: _____

CHECKED BY: SRT DATE: 03/17/22



**ANOKA COUNTY
HIGHWAY DEPT.**

SAP 002-652-011

TRAFFIC CONTROL
DETAIL SHEET
SIGN COVER

SHEET 16 OF 18 SHEETS

**PERMANENT PAVEMENT MARKING PLAN
NOTES AND GUIDELINES**

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. ANOKA COUNTY HIGHWAY DEPARTMENT WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO ONE-HALF FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

MULTI COMPONENT (MULTI COMP):

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENT AND/OR LAITANCE ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS. SANDBLAST CLEANING SHALL BE USED FOR ALL MULTI COMP PAVEMENT MARKINGS.

THE MULTI COMP MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI COMP LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

A MULTI COMP LINE SHALL BE APPLIED WITH A MINIMUM THICKNESS OF 20 MILS (WET) AND 4" WIDE. GLASS BEADS SHALL BE APPLIED AT A MINIMUM RATE OF 25LBS POUNDS PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES FAHRENHEIT OR GREATER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

PREFORMED THERMOPLASTIC:

THE PREFORMED THERMOPLASTIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ON CLEAN AND DRY SURFACES. SEE SPECIAL PROVISIONS FOR PREFORMED THERMOPLASTIC MARKING SPECIFICATIONS.

PAINT:

AT THE TIME OF APPLYING THE MARKING MATERIAL, THE APPLICATION AREA SHALL BE FREE OF CONTAMINATION. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE PRIOR TO THE LINE APPLICATION IN A MANNER AND TO THE EXTENT REQUIRED BY THE ENGINEER.

GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

EXCEPT WHEN USED AS A TEMPORARY MARKING, PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR TEMPERATURE IS 50 DEGREES FARHENHEIT OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILD OR DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

PAVEMENT MARKING TABULATION		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - MULTI COMP	LIN FT	700
1 4" BROKEN LINE WHITE - MULTI COMP	LIN FT	70

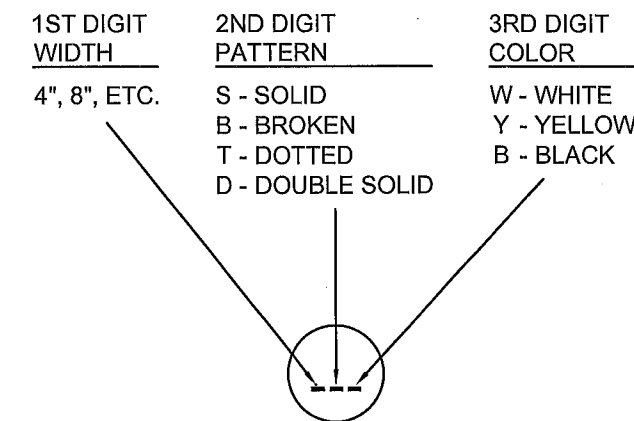
1 10' STRIPE, 40' GAP
* PAVEMENT MARKING SPECIAL

SYMBOLS & MATERIALS LEGEND

- █ CROSSWALK BLOCK WHITE - POLY PREFORM
- ↩ PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM

STRIPING KEY

- CIRCLE - MULTI COMP
- △ TRIANGLE - PAINT
- SQUARE - POLY PREFORM THERMOPLASTIC
- ⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



EXAMPLE: (4SW) = SOLID LINE WHITE - MULTI COMP

- — BROKEN LINE - 50' CYCLE (10' LINE, 40' GAP)
- - - - DOTTED LINE - 15' CYCLE (3' LINE, 12' GAP) UNLESS SHOWN OTHERWISE IN THE PLAN

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH_52_(35 Bridge-Ramps)\Base\Traffic\Perm Pvmr Mrkg Guide Notes 2021.dwg

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

PRINT NAME: SEAN R. THIEL DATE: 4/14/22
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 01/22/22
DESIGN BY: DATE: _____
CHECKED BY: SRT DATE: 03/17/22

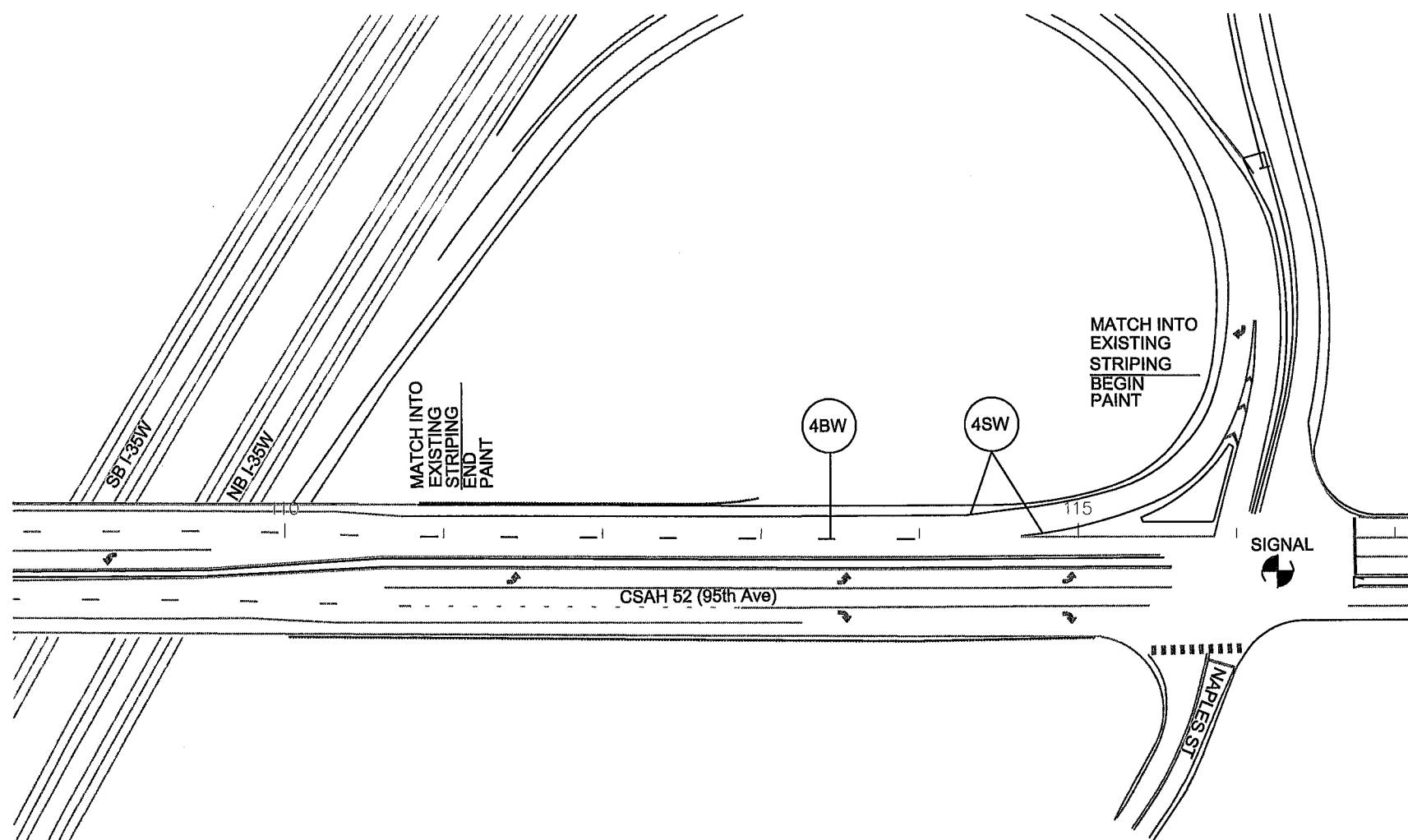


**ANOKA COUNTY
HIGHWAY DEPT.**

SAP 002-652-011

PERMANENT PAVEMENT
MARKING PLAN DETAILS

SHEET 17 OF 18 SHEETS



STRIPING KEY

○ CIRCLE - MULTI COMP

NOTES:

- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH_52_(35 Bridge-Ramps)\Base\Traffic\Perm Stripe.dwg

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

PRINT NAME: SEAN R. THIEL DATE: 4/14/22
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 10/22/21
 DESIGN BY: _____ DATE: _____
 CHECKED BY: SRT DATE: 03/17/22



**ANOKA COUNTY
HIGHWAY DEPT.**

SAP 002-652-011

PERMANENT STRIPING

SHEET 18 OF 18 SHEETS